Baseball Clubhouse Facility

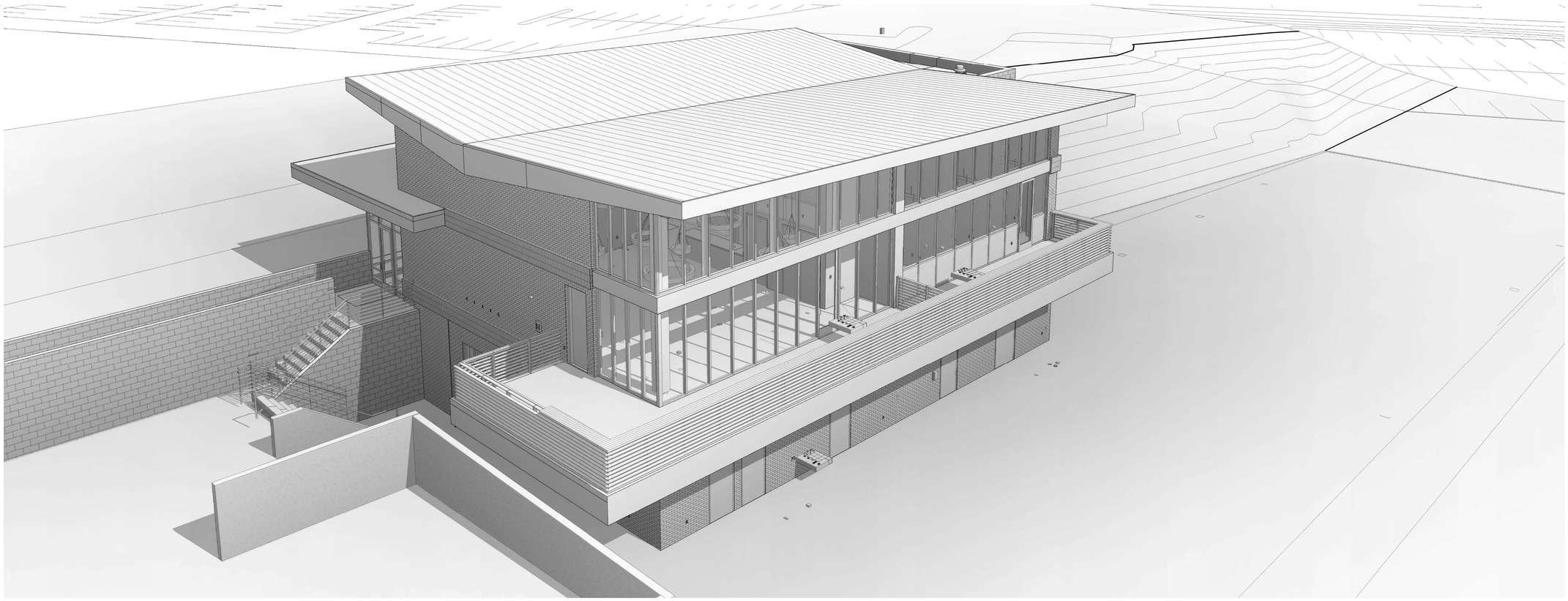
CALIFORNIA POLYTECHNIC STATE UNIVERSITY

SAN LUIS OBISPO, CA

CONSTRUCTION DOCUMENTS

05.14.2018

DLR GROUP PROJECT NUMBER: 75-16217-00
CSFM #18-40-03-001-295



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VICINITY MAP

SCOPE OF WORK

2 STORY, 10,679 SF. CONSTRUCTION TYPE IIB BASEBALL CLUB HOUSE AT THE CALIFORNIA POLYTECHNIC STATE UNIVERSITY.

MIXED TYPE 'A-3', 'B' AND 'F-1' OCCUPANCIES WITH MULTI USE SPACES, OFFICES AND TEAM LOCKER ROOMS AND SHOWERS. EXISTING STRUCTURE TO BE DEMO'D IN PLACE.

DEFERRED SUBMITTALS

- FIRE PROTECTION
- FIRE SPRINKLER
- ELEVATOR
- WINDOW WALL SYSTEMS
- FIRE ALARM SYSTEM
- FURNITURE (N.I.C.)

FM02

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

COVER SHEET
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

0.00
75-16217-00
05.01.18
Revisions
BV01 1 10.06.17 BUBDAU/BSTAS COMMENTS
BV02 11.15.17 BUBDAU/BSTAS COMMENTS RESPONSE 1

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SHEET INDEX
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

0.01

75-16217-00
05.01.18

Revisions	
FM01	1.08.18 FIRE MARSHALL BACKCHECK 1
FM02	3.14.18 FIRE MARSHALL BACKCHECK 2

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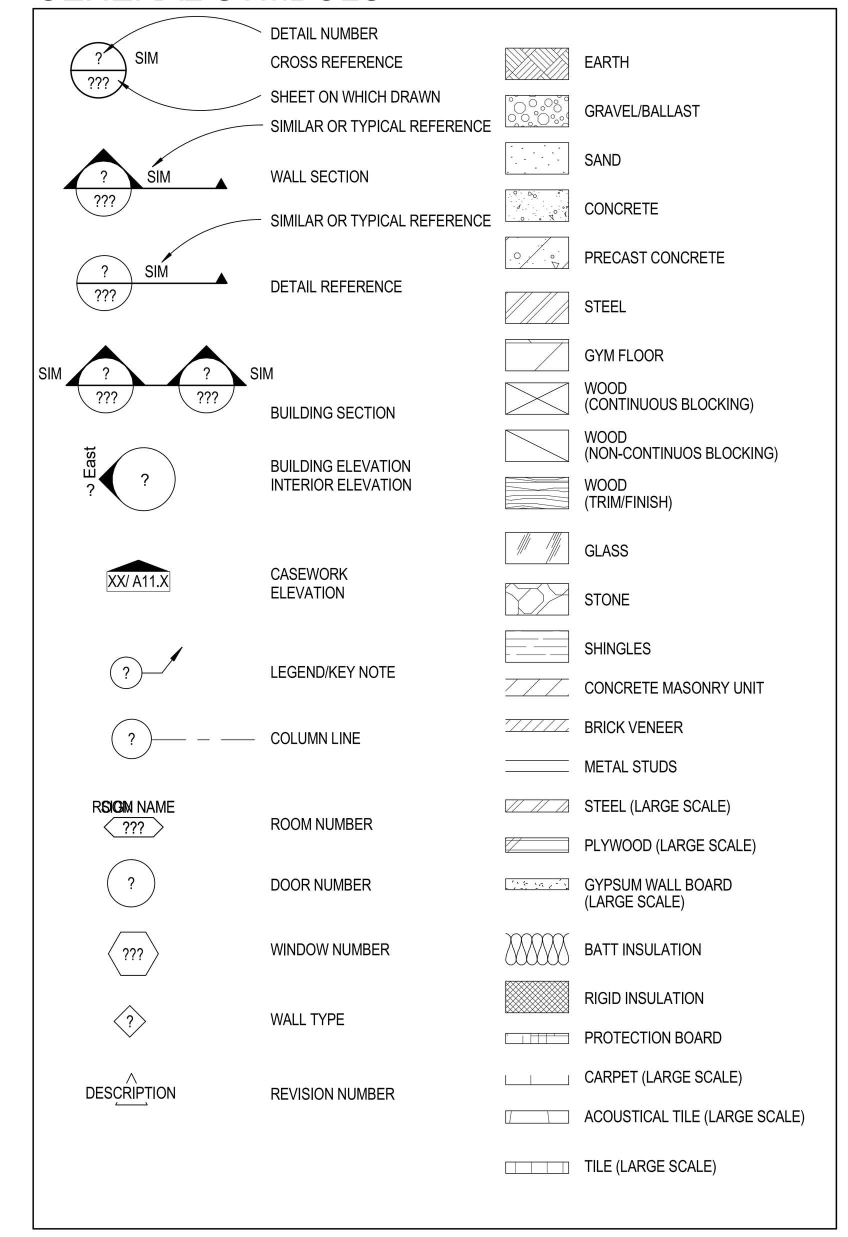
ABBREVIATIONS

A/C	AIR CONDITIONING(ER)
A AMP	AMPERE
A	COMPRESSED AIR
AAP	AREA ALARM PANEL
AAV	AUTOMATIC AIR VENT
AB	ANCHOR BOLT
ABS	ACRYLONITRILE-BUTADIENE-STYRENE
AC	ACOUSTICAL CEILING
AC	ALTERNATING CURRENT
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
ACM	ALUMINUM COMPOSITE MATERIAL
ACST	ACOUSTIC
AD	ACCESS DOOR
AD	AREA DRAIN
ADDN	ADDITION OR ADDITIONAL
ADJ	ADJUSTABLE
ADJT	ADJACENT
ADMIN	ADMINISTRATION
AF	AIR FILTER
AFF	ABOVE FINISH FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AI	AREA INLET
ALT	ALTERNATE
ALUM	ALUMINUM
AMB	AMBIENT
ANCH	ANCHOR
AP	ACCESS PANEL
APC	ACOUSTICAL PANEL CEILING
APPROX	APPROXIMATE
AR	ACID RESISTING
ARCH	ARCHITECTURAL
ASB	ASBESTOS
ASPH	ASPHALT
AUTO	AUTOMATIC
AV	ACID VENT
AV	AIR VENT
AV	AVERAGE
AW	ACID WASTE
AWG	AMERICAN WIRE GAUGE
AWP	ACOUSTICAL WALL PANEL
B to B	BACK TO BACK
BBO	BOILER BLOW OFF
BC	BALANCING COCK
BCMU	BURNISHED CONCRETE MASONRY UNIT
BD	BOARD
BD	BACK DRAFT DAMPER
BET	BETWEEN
BFP	BACKFLOW PREVENTOR
BFR	BELOW FLOOR
BF	BOILER FEED
BFV	BUTTERFLY VALVE
BHP	BREAK HORSE POWER
BKR	BREAKER
BL	BUILDING LINE
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BLKHD	BULKHEAD
BM	BEAM
BM	BENCH MARK
BOD	BOTTOM OF DUCT
BOF	BOTTOM OF FOOTING
BOTT	BOTTOM
BRDG	BRIDGING
BRG	BEARING
BRKT	BRACKET
BSMT	BASEMENT
BT	BATH TUB
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BUR	BUILT UP ROOFING
BV	BALL VALVE
C	CONDENSER WATER
C	CONDUIT
CA	COMBUSTION AIR
CAB	CABINET
CANT	CANTILEVER
CAP	CAPACITY
CAS	CASING
CBD	CHALKBOARD
CD	CONDENSATE DRAIN
CCTV	CLOSED CIRCUIT TELEVISION
CE	COVER ELEVATION
CEM	CEMENT
CENT	CENTRIFUGAL
CER	CERAMIC
CF	CUBIC FEET
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CG	CORNER GUARD
CH	CHANNEL
CI	CAST IRON
CI	CURB INLET
CIP	CAST IN PLACE
CIP	CAST IRON PIPE
CIRC	CIRCULATING
CJ	CONTROL JOINT
CJA	CONTROL JOINT ABOVE
CKT	CIRCUIT
CKT BK	CIRCUIT BREAKER
CL	CENTERLINE
CL	CIRCUIT LINE
CLG	CEILING
CLOS	CLOSET
CLR	CLEAR
CM	CEILING MOUNTED
CMP	CORRUGATED METAL PIPE
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
CO	CONDUIT ONLY
CO2	CARBON DIOXIDE
COL	COLUMN
COM	COMMON
COMB	COMBINATION
COMM	COMMUNICATIONS
COMP	COMPOSITE
COMP	COMPRESSOR UNIT
COMPR	COMPRESSIBLE
CONC	CONCRETE
CONF	CONFERENCE
CONFIG	CONFIGURATION
CONN	CONNECT
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR OR CONTRACT
CONV	CONVECTOR
CORR	CORRIDOR
CP	CONDENSER PUMP
CP	COVER PLATE
CPS	CYCLES PER SECOND
CPT	CARPET
CR	CONDENSER WATER RETURN
CR	CORROSION RESISTANT
CS	COUNTERSINK
CS	COMBINATION SEWER
CS	CONDENSER WATER SUPPLY
CSK	COUNTERSUNK
CSMU	CALCIUM SILICATE MASONRY UNIT
CSP	COMBINATION STANDPIPE
CSTJ	CONSTRUCTION JOINT
CSWK	CASEWORK
CT	COOLING TOWER
CT	CERAMIC TILE
CT	CURRENT TRANSFORMER
CTR	CENTER
CU	COPPER
CU	CONDENSING UNIT
CU	CUBIC
CU	COMBINATION UNIT
CUH	CABINET UNIT HEATER
CW	COLD WATER
CV	CONDOM VENDOR
CWR	CHILLED WATER RETURN
CWS	CHILLED WATER SUPPLY
CY	CUBIC YARD
CYL	CYLINDER
D	DRAIN
D	DEPTH
D	DATA
DB	DRY BULB
DB	DECIBEL
DBA	DEFORMED BAR ANCHOR
DBL	DOUBLE
DC	DIRECT CURRENT
DC	DUST COLLECTOR
DCJ	DUMMY CONTROL JOINT
d	PENNY (AS NAIL 10D)
DDC	DIRECT DIGITAL CONTROL
DE	DEIONIZED WATER
DEG	DEGREE
DEPR	DEPRESS(ION)(ED)
DEPT	DEPARTMENT
DET	DETENTION
DF	DRINKING FOUNTAIN
DFR	DIESEL FUEL RETURN
DFS	DIESEL FUEL SUPPLY
DFV	DIESEL FUEL VENT
DG	DOOR GRILLE
DH	DUCT HEATER
DI	DISTILLED WATER
DI	DUCTILE IRON
DIA	DIAMETER
DIAG	DIAGONAL
DIFF	DIFFUSER
DIM	DIMENSION
DISC SW	DISCONNECT SWITCH
DISC	DISCONNECT
DISCH	DISCHARGE
DISTR	DISTRIBUTION
DL	DEAD LOAD
DM	DAMPER MOTOR
DMPR	DAMPER
DN	DOWN
DN	DOWNSPOUT NOZZLE
DO OR "	DITTO
DPFG	DAMPROOFING
DPS	DIFFERENTIAL PRESSURE SWITCH
DR	DOOR
DR	DRAIN
DS	DOWNSPOUT
DS	DISTILLED WATER
DSP	DRY STANDPIPE
DTL	DETAIL
DTR	DUCT THRU ROOF
DW	DISHWASHER
DWG	DRAWING
DWL	DOWEL
DWR	DRAWER
DXS	DOUBLE EXTRA STRONG
E	EAST
EA	EACH
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EB	EXPANSION BOLT
EC	ELECTRICAL CONTRACTOR
EDH	ELECTRIC DUCT HEATER
EE	EACH END
EER	ENERGY EFFICIENCY RATIO
EEW	EMERGENCY EYEWASH
EEWS	EMERGENCY EYEWASH/SHOWER
EF	EACH FACE
EF	EXHAUST FAN
EFF	EFFICIENCY
EH	ELECTRICAL HEATER
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELAS	ELASTOMERIC
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EMER	EMERGENCY
EMD	ESTIMATED MAXIMUM DEMAND
EMT	ELECTRICAL METALLIC TUBING
EMV	EMERGENCY MIXING VALVE
ENCL	ENCLOSURE
ENTR	ENTRANCE
EOMD	END OF MAIN DRIP
EP	ELECTRO-PNEUMATIC
EP	EXPLOSION PROOF
EPO	EMERGENCY POWER OFF
ERF	EPOXY RESIN FLOORING
EQ	EQUAL
EQUIP	EQUIPMENT
ER	EXHAUST REGISTER
ES	EMERGENCY SHOWER
ES	EXTRA STRONG
ESP	EXTERNAL STATIC PRESSURE
EST	ESTIMATE
ET	EXPANSION TANK
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
EWT	ENTERING WATER TEMPERATURE
EXC	EXCAVATE
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXP	EXPOSED
EXPL	EXPLOSION
EXT	EXTERIOR
F	FAHRENHEIT
F	FIRELINE
F	FURNACE
FA	FIRE ALARM
FA	FRESH AIR
FAB	FABRICATED
FB	FACE BRICK
FC	FOOT CANDLE
FCMU	FLUTED CONCRETE MASONRY UNIT
FCO	FLOOR CLEAN OUT
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FD	FLOOR DRAIN
FDC	FIRE DEPARTMENT CONNECTION
FDN	FOUNDATION
FDR	FEEDER
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FFE	FINISH FLOOR ELEVATION
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FIG	FIGURE
FIN	FINISH
FIX	FIXTURE
FL	FLOOR
FLASH	FLASHING
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FLG	FLOORING
FLM	FULL LENGTH MIRROR
FM	FACTORY MUTUAL
FM	FIRE MAIN
FME	FLOW MEASURING EQUIPMENT
FO	FACE OF
FO	FINISH OPENING
FOC	FACE OF CONCRETE
FOF	FACE OF FINISH
FOF	FUEL OIL FILL
FOM	FACE OF MASONRY
FOR	FUEL OIL RETURN
FOS	FACE OF STUD
FOS	FUEL OIL SUPPLY
FOV	FUEL OIL VENT
FOW	FACE OF WALL
FP	FIREPROOFING
FPD	FIRE PUMP DISCHARGE
FPM	FEET PER MINUTE
FR	FIRE RESISTIVE
FR	FRAME
FRP	FIBERGLASS REINFORCED PANEL
FS	FLOOR SINK
FS	FLOW SWITCH
FSD	FIRE/SMOKE DAMPER
FSS	FOLDING SHOWER SEAT
FT	FEET (FOOT)
FT	FIN TUBE
FT	FLOW TRANSMITTER
FTG	FOOTING
FUT	FUTURE
FVC	FIRE VALVE CABINET
FWC	FABRIC WALL COVERING
G	GRILLE
G	NATURAL GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GCO	GRADE CLEAN OUT
GCMU	GLAZED CONCRETE MASONRY UNIT
GD	GARBAGE DISPOSAL
GEN	GENERAL
GEN	GENERATOR
GFA	GROSS FLOOR AREA
GFI	GROUND FAULT INTERRUPTER
GFRC	GLASS FIBER REINFORCED CONCRETE
GHR	GLYCOL-WATER HEATING RETURN
GHS	GLYCOL-WATER HEATING SUPPLY
GI	GALVANIZED IRON
GL	GLUE LAMINATED
GL	GLASS
GMU	GLASS MASONRY UNIT
GND	GROUND
GOVT	GOVERNMENT
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GR	GUARD RAIL
GR	GRADE
GR	GRILLE
GRC	GLAVANIZED RIGID CONDUIT
GRC	GLASS REINFORCED CONCRETE
GRGP	GLASS REINFORCED GYPSUM PLASTER
GRS	GALVANIZED RIGID STEEL
GS	GASOLINE
GV	GATE VALVE
GW	GREASE WASTE
GWB	GYPSUM WALL BOARD
GYP	GYPSUM
H	HEIGHT
H 1E	HOOK ONE END
HB	HOSE BIB
HC	HANDICAP
HC	HOLLOW CORE
HCB	HANDICAP BENCH
HCR	HOT / CHILLED WATER RETURN
HCS	HOT / CHILLED WATER SUPPLY
HD	HAND DRYER OR HAIR DRYER
HDBD	HARDBOARD
HDR	HEADER
HDWD	HARDWOOD
HDWR	HARDWARE
HEV	HOSE END VALVE
HID	HIGH INTENSITY DISCHARGE
HM	HOLLOW METAL
HOA	HAND OFF AUTOMATIC
HORIZ	HORIZONTAL
HP	HEAT PUMP
HP	HIGH PRESSURE
HP	HORSEPOWER
HPR	HIGH PRESSURE STEAM RETURN
HPS	HIGH PRESSURE SODIUM
HPS	HIGH PRESSURE STEAM SUPPLY
HR	HANDRAIL
HR	HOUR
HS	HEADSTUD
HSS	HOLLOW STRUCTURAL SECTION
HSTR	HIGH STRENGTH
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HTWR	HIGH TEMP HOT WATER RETURN
HTWS	HIGH TEMP HOT WATER SUPPLY
HUM	HUMIDIFIER
HV	HEATING VENTILATING UNIT
HVAC	HEATING VENTILATING AND AIR CONDITIONING
HW	DOMESTIC HOT WATER
HWC	DOMESTIC HOT WATER RECIRCULATING
HWR	LOW TEMP HOT WATER RETURN
HWS	LOW TEMP HOT WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ
IAQ	INDOOR AIR QUALITY
IAW	IN ACCORDANCE WITH
IBC	INTERNATIONAL BUILDING CODE
IC	INTERCOM
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IES	ILLUMINATING ENGINEERING SOCIETY
IF	INSIDE FACE
IG	ISOLATED GROUND
IH	INTAKE HOOD
IJ	ISOLATION JOINT
IJS	IN JOIST SPACE
IMC	INTERMEDIATE METAL CONDUIT
IN	INCH
INC	INCLUDE (ING)
INSUL	INSULATION
INT	INTERIOR
IP	IRON PIPE
IW	INDIRECT WASTE
JAN	JANITOR
JB	JUNCTION BOX
JCT	JUNCTION
JST	JOIST
JFB	JOINT FILLER BOARD
JT	JOINT
KCJ	KEYED CONSTRUCTION JOINT
KCP	KEENE'S CEMENT PLASTER
KD	KNOCKDOWN
KH	KITCHEN HOOD
KHE	KITCHEN HOOD EXHAUST FAN
KHS	KITCHEN HOOD SUPPLY FAN
KIT	KITCHEN
KO	KNOCKOUT
KS	KITCHEN SINK
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KW	KILOWATT
KWH	KILOWATT HOUR
L	ANGLE
L	LAVATORY
LA	LABORATORY COMPRESSED AIR
LAB	LABORATORY
LAM	LAMINATE(D)
LAT	LEAVING AIR TEMPERATURE
LAV	LAVATORY
LB	POUND
LBR	LUMBER
LBS	POUNDS
LDG	LOADING
LF	LINEAR FOOT (FEET)
LG	LENGTH (LONG)
LIN	LINEAR
LINO	LINOLEUM
LKR	LOCKER
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LONG	LONGITUDINAL
LOX	LIQUID OXYGEN
LPG	LIQUEFIED PETROLEUM GAS
LPR	LOW PRESSURE STEAM RETURN
LPS	LOW PRESSURE STEAM SUPPLY
LR	LIVING ROOM
LS	LAWN SPRINKLER
LSC	LIFE SAFETY CODE
LT	LIGHT
LTD	LINED TRANSFER DUCT
LTG	LIGHTING
LV	LOUVER
LV	LABORATORY VACUUM
LW	LONG WAY
LWT	LEAVING WATER TEMPERATURE
M	THOUSAND
MA	MIXED AIR
MA	MEDICAL COMPRESSED AIR
MAC	MACHINE
MAG	MAGNETIC
MAINT	MAINTENANCE
MAN	MANUAL
MAS	MASONRY
MATL	MATERIAL
MAU	MAKEUP AIR UNIT
MAV	MANUAL AIR VENT
MAX	MAXIMUM
MB	MACHINE BOLT
MB	MOP BASIN
MBD	MARKER BOARD
MBH	THOUSAND BTU PER HOUR
MBTUH	THOUSAND BTU PER HOUR
MC	MECHANICAL CONTRACTOR
MC	MEDICINE CABINET
MCA	MINIMUM CIRCUIT AMPS
MCB	MAIN CIRCUIT BREAKERJ
MCM	THOUSAND CIRCULAR MILLS
MD	MANUAL VOLUME DAMPER
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MEMB	MEMBRANE
MET	METAL
MEZZ	MEZZANINE
MFR	MANUFACTURER
MFRG	MANUFACTURING
MG	MOTOR GENERATOR
MH	MANHOLE
MH	METAL HALIDE
MH	MOP HOLDER
MIN	MINIMUM
MISC	MISCELLANEOUS
ML	MOTORIZED LOUVER
MLDG	MOLDING
MLO	MAIN LUGS ONLY
MLWK	MILLWORK
MO	MASONRY OPENING
MPG	MEDIUM PRESSURE GAS
MPR	MEDIUM PRESSURE STEAM RETURN
MPS	MEDIUM PRESSURE STEAM SUPPLY
MR	MIRROR
MR/S	MIRROR WITH SHELF
MS	MAGNETIC STARTER
MTD	MOUNTED
MTG	MOUNTING
MTL	METAL
MTWR	MEDIUM TEMP HOT WATER RETURN
MTWS	MEDIUM TEMP HOT WATER SUPPLY
MUL	MULLION
MV	MERCURY VAPOR
MV	MEDICAL VACUUM
MW	MARKER WALL
N	NITROGEN
N	NORTH
N2O	NITROUS OXIDE
N/A	NOT APPLICABLE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NC	NURSE CALL
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSN.
NEUT	NEUTRAL
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NO	NUMBER
NO	NITROUS OXIDE
NOM	NOMINAL
NS	NEUTRAL SENSOR
NTS	NOT TO SCALE
O&M	OPERATION AND MAINTENANCE
O to O	OUT TO OUT
OA	OVERALL
OA	OUTSIDE AIR
OBSC	OBSCURE
OC	ON CENTER
OD	OUTSIDE DIAMETER
OD	OVERFLOW DRAIN
OF	OUTSIDE FACE
OVFL	OVERFLOW
OFC	OWNER FURNISHED CONTRACTOR INSTALLED
OFF	OFFICE
OFOI	OWNER FURNISHED OWNER INSTALLED
OHP	OVERHEAD POWER
OHT	OVERHEAD TELEPHONE
OPG	OPENING
OPP	OPPOSITE
OSD	OVERFLOW STORM DRAIN
OS&Y	OUTSIDE SCREW AND YOKE
OTCS	OPEN TO CEILING SPACE
OVHD	OVERHEAD
OX	OXYGEN
P	PAINT
P	POLE
P/T	PRESSURE/TEMPERATURE TEST PORT
P	PUMP
PA	PUBLIC ADDRESS
PAN B	PANIC BOLT
PAR	PARALLEL
PB	PARTICLE BOARD
PB	PULL BOX
PB	PUSH BUTTON
PBS	PUSH BUTTON STATION
PC	PRECAST
PC	PUMPED CONDENSATE
PCD	PAPER CUP DISPENSER
PCF	POUNDS PER CUBIC FOOT
PCT	PORCELAIN CERAMIC TILE
PD	PRESSURE DROP
PD	PUMP DISCHARGE
PDI	PLUMBING & DRAINAGE INSTITUTE
PENT	PENTHOUSE
PERF	PERFORATED
PERP	PERPENDICULAR
PF	POWER FACTOR
PG	PRESSURE GAGE
PH	PHASE
PI	POINT OF INTERSECTION
PI	PRESSURE INDICATOR
PIC	PORTABLE INSTRUMENT CONNECTION
PIV	POST INDICATOR VALVE
PL	PLACE(S)
PL	PLATE
PLAM;PL	PLASTIC LAMINATE
PLAS	PLASTER
PLBG	PLUMBING
PLYWD	PLYWOOD
PNEU	PNEUMATIC
PNL	PANEL
POC	POINT OF CONNECTION
PORC	PORCELAIN
PPM	PARTS PER MILLION
PR	PAIR
PREFAB	PREFABRICATED
PROJ	PROJECTION
PRV	PRESSURE REDUCING VALVE
PS	PIPE SUPPORT
PS	PROJECTION SCREEN
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSV	PRESSURE SAFETY VALVE
PT	PLASTER TRAP
PT	POINT
PT	POTENTIAL TRANSFORMER
PTD	PAPER TOWEL DISPENSER
PTD/R	COMBINATION TOWEL DISPENSER/RECEPTACLE
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
PWL	SOUND POWER LEVEL
PWR	POWER
QT	QUARRY TILE
QTR RND	QUARTER ROUND
R	RISER
RA	RETURN AIR
RAD	RADIATOR
RAD or R	RADIUS
RB	RUBBER BASE
RC	REMOVE CONTROL
RCP	REFLECTED CEILING PLAN
RCP	REINFORCED CONCRETE PIPE
RCU	RECIPROCATING CHILLER JOINT
RD	ROOF DRAIN
RD	REFRIGERANT DISCHARGE
RECP	RECEPTACLE
REF	REFERENCE
REFL	REFLECTED
REFR	REFRIGERANT
REFR	REFRIGERATOR
REG	REGISTER
REINF	REINFORCEMENT
REM	REMOVABLE
REQ(D)	REQUIRE(D)
RESIL	RESILIENT
RET	RETAINING (WALL)
REV	REVISIONS
RF	RETURN FAN
RF	RUBBER FLOOR
RFM	RECESSED FLOOR MAT
RH	RELATIVE HUMIDITY
RH	RELIEF HOOD
RHC	REHEAT COIL
RH	ROBE HOOK
RHG	REFRIGERANT HOT GAS
RI&C	ROUGH IN AND CONNECT
RIJS	RISE IN JOIST SPACE
RL	REFRIGERANT LIQUID
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
RPM	REVOLUTIONS PER MINUTE
RPZ	REDUCED PRESSURE BACKFLOW PREVENTER
RS	REFRIGERANT SUCTION
RWL	RAIN WATER LEADERS SENSOR
S	SINK
S	SANITARY SEWER
S	SOAP DISH
S	SOUTH
S	SPRINKLER LINE
SA	SHOCK ABSORBER
SA	SUPPLY AIR
SAN	SANITARY WASTE
SC	SECURITY
SC	SOLID CORE
SC	SHOWER CURTAIN
SC	SPECIAL COATING
SCD	SEAT COVER DISPENSER
SCH	SHOWER CURTAIN HOOKS
SCHED	SCHEDULE
SCR	SHOWER CURTAIN ROD
SCT	STRUCTURAL CLAY TILE
SCUT	SCUTTLE
SCW	SOFT COLD WATER
SD	SOAP DISPENSER
SD	SMOKE DAMPER
SD	SMOKE DETECTOR
SD	STORM DRAIN
SE	STEAM EXHAUST VENT
SEC	SECONDARY
SECT	SECTION
SECY	SECRETARY
SENS	SENSIBLE
SF	SQUARE FOOT
SF	SUPPLY FAN
SFCMU	SPLIT-FACED CONCRETE MASONRY UNIT
SFU	STRUCTURAL FACING UNIT
SGL	SINGLE
SH	SHOWER
SHEATH	SHEATHING
SHM	SECURITY HOLLOW METAL
SHT	SHEET
SHWSOFT	HOT WATER
SIM	SIMILAR
SL	SHORT LEG
SLNT	SEALANT
SM	SHEET METAL
SM	SPRINKLER MAIN
SND	SANITARY NAPKIN DISPOSAL
SNV	SANITARY NAPKIN VENDOR
SP	STATIC PRESSURE (H2O)
SP	STAND PIPE
SP	STATIC PRESSURE
SPEC	SPECIFICATIONS
SPK	SPRINKLER
SPL	SOUND PRESSURE LEVEL
SPL	SPECIAL
SPL BLK	SPLASH BLOCK
SQ	SQUARE
SS	STAINLESS STEEL
SSA	STORM SHELTER AREA
SS	SERVICE SINK
SS	SOLID SURFACE
ST	STAIR
ST	STORM SEWER
STAG'D	STAGGERED
STC	SOUND TRANSMISSION CLASS
T	TEMPERED
T	THERMOSTAT
T & B	TOP & BOTTOM
T& G	TONGUE & GROOVE
T	TREAD
TA	TRANSFER AIR
TAB	TEST AND BALANCE
TAN	TANGENT
TB	TERMINAL BOX
TB	TOWEL BAR
TBD	TACK BOARD
TC	TEMPERATURE CONTROL
TC	TIME CLOCK
TD	TRANSFER DUCT
TD	TRENCH DRAIN
TDH	TOTAL DYNAMIC HEAD
TEL	TELEPHONE
TEMP	TEMPERED - TEMPORARY
TEMP	TEMPERATURE
TERR	TERRAZZO
TEXT	TEXTURED
TGL	TOGGLE
TH	THRESHOLD
TH	TOWEL HOOK
THK	THICK(NESS)
TMR	TILT MIRROR UNIT
TMV	THERMOSTATIC MIXING VALVE
TOB	TOP OF BEAM
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOIL	TOILET
TOP	TOP OF PAVING
TOS	TOP OF STEEL
TOW	TOP OF WALL
TPV	TRAP PRIMER
TR	TRIP
TRANS	TRANSVERSE
TRD	TREAD
TS	TEMPERATURE SENSOR
TSP	TOTAL STATIC PRESSURE
TT	TEMPERATURE TRANSMITTER
TT	TERRAZZO TILE
TTD	TOILET TISSUE DISPENSER
TV	TELEVISION
TW	TACK WALL
TYP	TYPICAL
U	URINAL
UC	UNIT COOLER
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRICAL
UGT	UNDERGROUND TELEPHONE
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UNEX	UNEXCAVATED
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
URD	UNDERGROUND RESIDENTIAL DISTRIBUTION
US	UTILITY SHELF
UTIL	UTILITY
UV	UNIT VENTILATOR
V	VENT
V	VOLT
V	VACUUM
VA	VALVE
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VB	VAPOR BARRIER
VB	VINYL BASE
VBF	VENT BELOW FLOOR
VCB	VENTED COVE BASE
VCP	VITRIFIED CLAY PIPE
VCT	VINYL COMPOSITION TILE
VD	VOLUME DAMPER - MANUAL
VEL	VELOCITY
VENT	VENTILATION
VENT	VENTILATOR
VERT	VERTICAL
VEST	VESTIBULE
VF	VINYL FLOOR
VFD	VARIABLE FREQUENCY DRIVE
VM	VOLTMETER
VOL	VOLUME
VP	VENEER PLASTER
VP	VACUUM PUMP
VSMC	VARIABLE SPEED MOTOR CONTROLLER
VT	VINYL TILE
VTR	VENT THROUGH ROOF
VWC	VINYL WALLCOVERING
W	WATER SERVICE
W	WIDE; WIDTH
W	WASTE (PLUG)
W	WATT
W	WEST
W	WIDE FLANGE
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WALL COVERING
WC	WATER COLUMN
WC	WATER CLOSET
WCC	WATER COOLED CONDENSER
WCL	WATER CLOSET/LAVATORY COMBINATION
WCO	WALL CLEAN OUT
WD	WOOD
WDW	WINDOW
WF	WASH FOUNTAIN
WH	WALL HYDRANT
WFMD	WATER FLOW MEASURING DEVICE
WH	WATER HEATER
WHM	WATT HOUR METER
WI	WROUGHT IRON
WLR	WATER LOOP RETURN
WLS	WATER LOOP SUPPLY
WMG	WATER MOTOR GONG
WNSCT	WAINSCOT
WP	WEATHERPROOF
WPB	WHIRLPOOL BATH
WPF	WATERPROOF
WPFG	WATERPROOFING
WR	WATER RESISTANT
WR	WASTE RECEPTACLE
WSP	WET STAND PIPE
WT	WEIGHT
WW	WARM WHITE
WWF	WELDED WIRE FABRIC
XFMR	TRANSFORMER
XMTR	TRANSMITTER
YD	YARD
YH	YARD HYDRANT
Z	IMPEDANCE
ZCV	ZONE CONTROL VALVE
ZVB	ZONE VALVE BOX
&	AND
@	AT
i.e.	THAT IS
#	NUMBER

THE FOLLOWING ABBREVIATIONS ARE USED WITH GLAZING:

CG	CLEAR FLOAT GLASS
CIG	CLEAR INSULATING GLASS
CTG	CLEAR TEMPERED FLOAT GLASS
CTIG	CLEAR TEMPERED INSULATING GLASS
LG	LAMINATED GLASS
PG	PATTERN GLASS
PIG	PATTERN INSULATING GLASS
SG	SPANDREL GLASS
TG	TINTED FLOAT GLASS
TIG	TINTED INSULATING GLASS
TTG	TINTED TEMPERED FLOAT GLASS
TTIG	TINTED TEMPERED INSULATING GLASS
WG	POLISHED WIRE GLASS

GENERAL SYMBOLS



GENERAL NOTES

1. GENERAL NOTES APPLY TO ALL DRAWINGS
2. ALL DIMENSIONS ARE ACTUAL AND ARE TO FACE OF METAL STUDS, FACE OF MASONRY OR CENTERLINE OF COLUMN, UNLESS NOTED OTHERWISE.
3. GENERAL CONTRACTOR SHALL FURNISH AND INSTALL CONTINUOUS BLOCKING IN STUD PARTITIONS FOR ANCHORAGE OF WALL ATTACHED ITEMS, INCLUDING BUT NOT LIMITED TO, THE FOLLOWING: GRAB BARS, VANITY UNITS, TOILET ACCESSORIES, WALL CABINETS, AND WALL MOUNTED FIXTURES, MARKER BOARDS, TACK BOARDS
4. GENERAL CONTRACTOR SHALL COORDINATE ALL MECHANICAL CHASE SIZES WITH MECHANICAL SUBCONTRACTOR.
5. WALL OPENINGS FOR FIRE DAMPERS SHALL BE FRAMED PER THE FIRE DAMPER MANUFACTURER'S RECOMMENDATIONS.
6. GENERAL CONTRACTOR SHALL COORDINATE SIZES AND LOCATIONS OF 4" HIGH CONCRETE HOUSEKEEPING PADS WITH THE MECHANICAL AND ELECTRICAL EQUIPMENT SUPPLIERS.
7. LOCATE CONTROL JOINTS (CJ) AND CONTROL JOINTS ABOVE (CJA) WHERE SHOWN ON THE DRAWINGS. SEE DETAILS STRUCTURAL DRAWINGS AS APPLICABLE. ISOLATE GYPSUM BOARD SURFACES WITH CONTROL JOINTS WHERE:
   A) CEILING ABUTS A STRUCTURAL ELEMENT, DISSIMILAR WALL OR PARTITION OR OTHER VERTICAL PENETRATION.
   B) CONSTRUCTION CHANGES WITHIN PLANES OF THE CEILING.
   C) CEILING RUN EXCEEDS 30 LINEAL FEET.
   D) CONTROL JOINTS OCCUR IN STRUCTURAL ELEMENTS OF THE BUILDING.
   E) PARTITION OR FURRING RUN EXCEEDING 30 L.F.
8. ELECTRICAL PLANS INDICATE THE GENERAL DESIGN AND ARRANGEMENT OF PIPES, CONDUIT, WIRING, EQUIPMENT, SYSTEMS, ETC. INFORMATION SHOWN IS DIAGRAMMATIC IN CHARACTER AND DOES NOT NECESSARILY INDICATE EVERY REQUIRED OFFSET, FITTING AND EXISTING CONDITION. LOCATION OF THESE ITEMS MAY BE ADJUSTED CONDITIONAL UPON THE SATISFACTORY COMPLIANCE WITH ALL OTHER REQUIREMENTS (SEE NOTES 14 AND 19).
9. SEE PLANS FOR FIRE EXTINGUISHER (FE) AND FIRE EXTINGUISHER CABINET (FEC) LOCATIONS.
10. SEE SHEETS CP1.01 & CP1.02 FOR LOCATIONS OF FIRE RATED WALLS WHERE APPLICABLE.
11. ALL WALL PENETRATIONS AT RATED WALL LOCATIONS REQUIRED FOR PIPES, CONDUIT, DUCTING ETC. SHALL BE SEALED TO STOP PASSAGE OF FIRE AND / OR SMOKE WITH FIRE SAFING AND APPROVED FIRESTOPPING SEALANT PER DETAILS ON SHEET SERIES CP4.XX
12. THE GENERAL CONTRACTOR SHALL COORDINATE CUT-OUTS FOR CASEWORK, MILLWORK, OR OTHER EQUIPMENT AS REQUIRED.
14. ALL ASPECTS OF THE WORK AND ITEMS NOT SPECIFICALLY MENTIONED, BUT WHICH ARE NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED, AND INDICATED IN THE CONTRACTORS BID.
15. NO ASBESTOS OR PCB CONTAINING MATERIALS SHALL BE USED ON THIS PROJECT.
16. THE GENERAL CONTRACTOR AND ALL SUBCONTRACTORS ARE RESPONSIBLE FOR PROPER REMOVAL AND DISPOSAL OF ALL DEBRIS GENERATED BY CONSTRUCTION OF THIS PROJECT. THE REMOVAL AND DISPOSAL OF ALL CONSTRUCTION DEBRIS SHALL BE IN FULL COMPLIANCE WITH ALL FEDERAL, STATE AND LOCAL REGULATIONS. THE PREMISES SHALL BE KEPT CLEAN AND FREE FROM ALL WASTE MATERIALS.
17. GENERAL CONTRACTOR SHALL PROTECT NEW CONSTRUCTION FROM DAMAGE BY ALL TRADES. ALL SUCH DAMAGE CAUSED BY THE CONTRACTOR DURING THE COURSE OF THIS WORK SHALL BE REPAIRED OR REPLACED AT THE CONTRACTORS EXPENSE.
18. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFICATION OF ALL DIMENSIONS AND FIELD CONDITIONS PRIOR TO ORDERING OR INSTALLING MATERIALS OR EQUIPMENT.
19. ALL PIPING AND CONDUITS SHALL BE CONCEALED WITHIN WALLS, UNDERGROUND, ABOVE CEILINGS OR IN ARCHITECT APPROVED UTILITY SPACES IN ALL CASES UNLESS SPECIFICALLY NOTED OTHERWISE ON THE DRAWINGS. EXPOSED ITEMS MUST BE LOCATED IN AREAS APPROVED BY THE ARCHITECT. EXPOSED ITEMS SHALL BE INSTALLED AND FINISHED TO PROVIDE MINIMAL VISUAL IMPACT. ALL EXPOSED ITEMS ARE TO BE PAINTED TO MATCH THE ADJACENT SURFACES UNLESS SCHEDULED FOR AN ACCENT COLOR.
20. FLOOR SPOT ELEVATIONS ARE SHOWN THUS: 0'-0"
21. ARCHITECTURAL FINISH FLOOR ELEVATIONS 0'-0" EQUALS ACTUAL SITE REFERENCE OF FINISH FLOOR:
22. PLAN SYMBOL INDICATES WALL TYPE - SEE SHEET SERIES CP2.XX FOR DESCRIPTION OF WALL TYPES
23. SCRIBE GYPSUM BOARD OF WALLS AND PARTITIONS TO IRREGULARITIES OF STRUCTURE AND ROOF DECK ABOVE.
24. PROVISIONS SHALL BE MADE AT FULL HEIGHT NON-BEARING WALLS FOR 2- INCH VERTICAL MOVEMENT OF THE BUILDING STRUCTURE WITHOUT TRANSFER OF COMPRESSIVE LOADS TO WALL. FILL IRREGULARITIES BETWEEN TOP OF WALL AND DECK ABOVE WITH FIRE SAFING INSULATION OR FIRE STOPPING MATERIALS AS REQUIRED TO MEET FIRE RATING OF RESPECTIVE WALLS. FILL AT SMOKE PARTITIONS WITH MATERIALS CAPABLE OF RESISTING THE PASSAGE OF SMOKE. SEE DETAILS ON CODE RATING DETAIL SHEETS.

SYMBOLS AND ABBREVIATIONS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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05.01.18
Revisions

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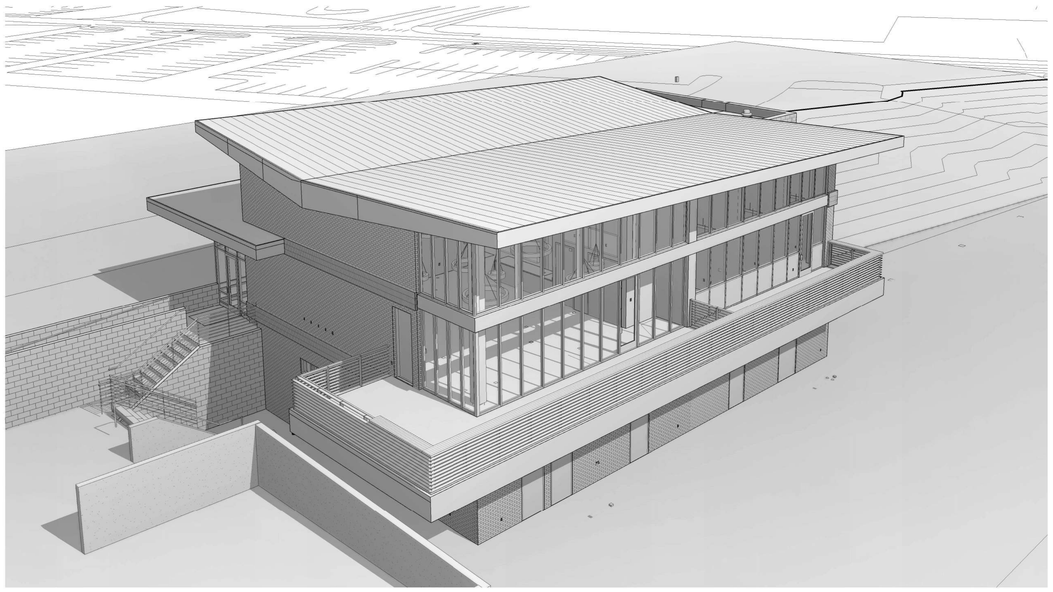
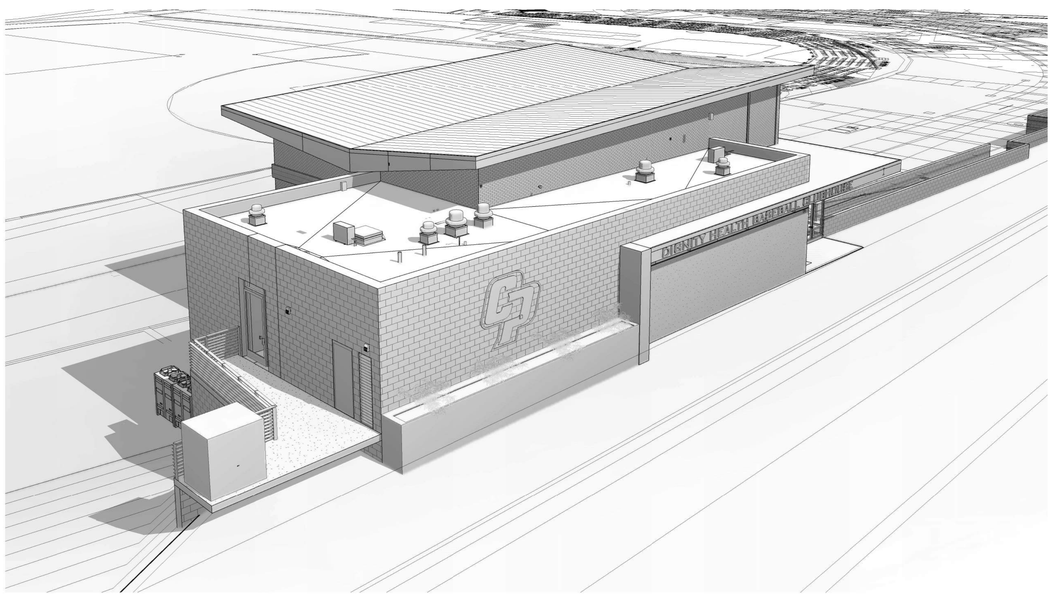


21 / 0.03 SOUTHWEST VIEW
NO SCALE

24 / 0.03 NORTHWEST VIEW
NO SCALE



51 / 0.03 NORTHEAST VIEW
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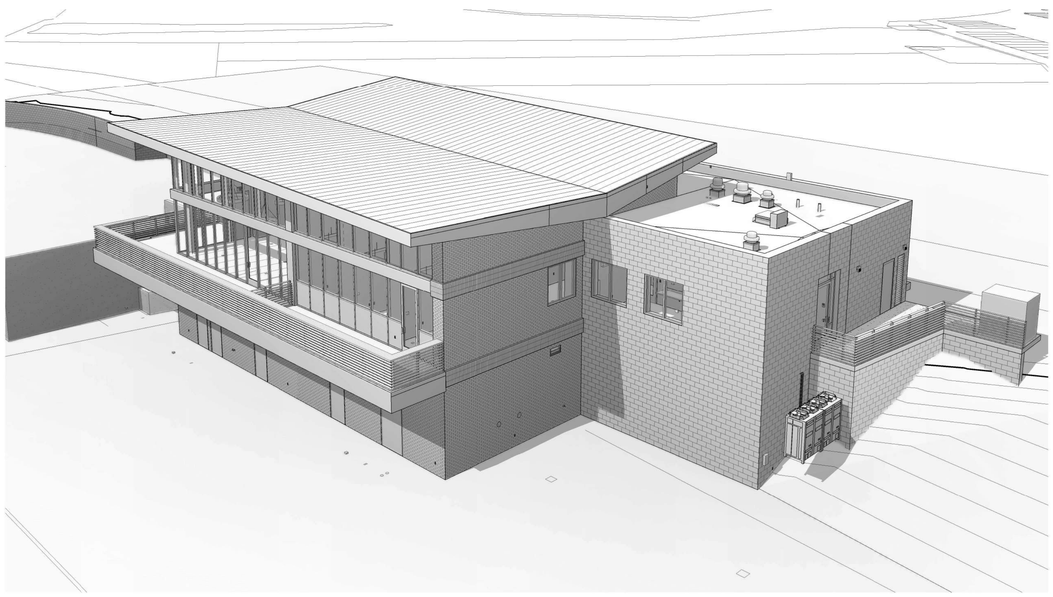

54 / 0.03 SOUTHEAST VIEW
NO SCALE

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California Polytechnic State University San Luis Obispo

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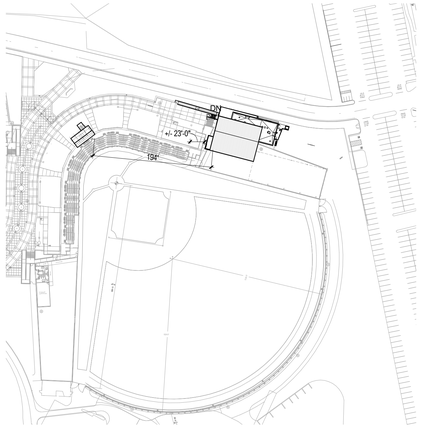
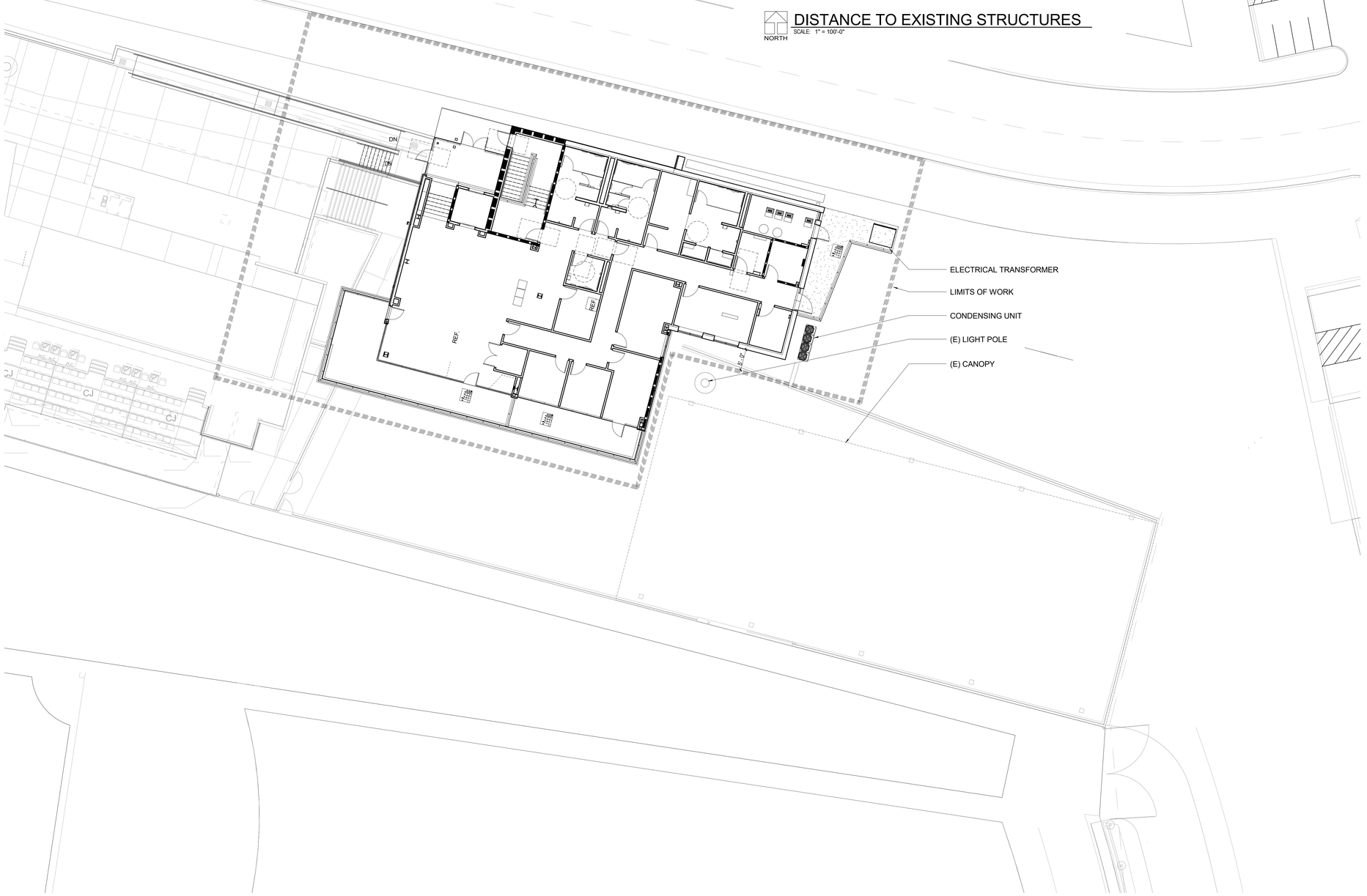


DISTANCE TO EXISTING STRUCTURES

SCALE: 1" = 100'-0"

NORTH



SITE CODE PLAN

SCALE: 3/32" = 1'-0"

NORTH

SFM COMPLETE BUILDING ANALYSIS

01.	OCCUPANCY CLASSIFICATION AND USE	A-3, B AND F-1
02.	BUILDING CONSTRUCTION TYPE	TYPE IIB
03.	NUMBER OF STORIES	2
04.	ACTUAL BUILDING HEIGHT	37 FT.
05.	BUILDING AREA IN SQUARE FEET	10,679
06.	AREA OF PROJECT (T.I.)	N/A
07.	SEPARATED OR NON-SEPARATED USE	NON-SEPARATED USE
08.	ALLOWABLE AREA PER (CBC)	85,500 SF PER FLOOR
09.	AREA INCREASE	N/A
10.	HEIGHT INCREASE	N/A
11.	FIRE SPRINKLERS	YES
12.	FIRE ALARM	AUTOMATIC
13.	OTHER FIRE PROTECTION SYSTEM	NO
14.	SMOKE CONRTOL SYSTEM	NO
15.	OCC. LOAD FOR ENTIRE BUILDING AND EA. FLR.	REF. PLANS
16.	YEAR BUILDING WAS CONSTRUCTED	N/A
17.	HIGH FIRE HAZARD SEVERITY ZONE	NO
18.	SEISMIC JOINTS	NO
19.	EMERGENCY RESPONDER RADIO COVERAGE	NO
20.	VOICE EVACUATION SYSTEM	NO

APPLICABLE CODES

PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS, TITLE 19 C.C.R.
2016 BUILDING STANDARDS ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.
2016 CALIFORNIA BUILDING CODE, VOL. 1 & 2 (CBC), PART 2, TITLE 24 C.C.R. (2015 INTERNATIONAL BUILDING CODE, AS AMENDED BY CALIFORNIA)
2016 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
(2015 NATIONAL ELECTRICAL CODE, AS AMENDED BY CALIFORNIA)
2016 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.
(2015 UNIFORM MECHANICAL CODE, AS AMENDED BY CALIFORNIA)
2016 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
(2015 UNIFORM PLUMBING CODE, AS AMENDED BY CALIFORNIA)
2016 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 C.C.R.
2016 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 C.C.R.
(2015 INTERNATIONAL FIRE CODE, AS AMENDED BY CALIFORNIA)
2016 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 C.C.R.
(PARTIAL LIST, SEE CBC CHAPTER 35 & CFC CHAPTER 80)

NFPA 13	SPRINKLER SYSTEMS (CA AMENDED), 2016 EDITION
NFPA 14	STANDPIPE & HOSE (CA AMENDED), 2013 EDITION
NFPA 17	DRY CHEMICAL SYSTEMS, 2009 EDITION
NFPA 17a	WET CHEMICAL SYSTEMS, 2009 EDITION
NFPA 20	PUMPS FOR FIRE PROTECTION, 2016 EDITION
NFPA 24	FIRE SERVICE MAINS AND THE APPURTENANCES, 2016 EDITION
NFPA 25CA	STANDARD FOR THE INSPECTION, TESTING AND MAINTENANCE OF WATER BASED FIRE PROTECTION SYSTEMS(CALIFORNIA AMENDED), 2013 EDITION
NFPA 72	NATIONAL FIRE ALARM CODE (CALIFORNIA AMENDED), 2016 EDITION
NFPA 101	LIFE SAFETY CODE, 2015 EDITION
NFPA 253	CRITICAL RADIANT FLUX OF FLOOR COVERING SYSTEMS, 2015 EDITION
NFPA 2001	CLEAN AGENT FIRE EXTINGUISHING SYSTEMS, 2015 EDITION

REFERENCE CODE SECTION FOR NFPA STANDARDS- CBC (SFM) CHAPTER 35 AND CFC (SFM) CHAPTER 80

CODE ANALYSIS

BUILDING DATA SUMMARY:

OCCUPANCY TYPE:	A-3, B AND F-1 (NON-SEPARATED OCCUP; LAUNDRY ROOM SPRINKLERED INCIDENTAL F-1 SPACE)
CONSTRUCTION TYPE:	IIB -SM (WITHOUT HEIGHT INCREASE)
SPRINKLERED:	YES
FIRE ALARM:	YES

ALLOWABLE HEIGHT AND AREA:

	A-3 OCCUPANCY
# OF STORIES (TABLE 504.4):	3
MAX. BLDG. HEIGHT (TABLE 504.3):	75'
MAX. BLDG. AREA (TABLE 506.2):	28,500 S.F. (PER STORY)
ALLOWABLE AREA: (CBC 506.1)	85,500 S.F. (PER STORY)

ALLOWABLE AREA (CBC 506.1):
A-3 OCCUPANCY
Aa = At + (At x If) + (At x Is)
Aa = 28,500 + (28,500 x 0) + (28,500 x 2)
Aa = 28,500 + 0 + 57,000
Aa = 85,500 S.F. (PER STORY)

ACTUAL HEIGHT AND AREA: (NONSEPPARATED OCCUPANCIES PER CBC 508.3)

# OF STORIES:		2
BLDG. HEIGHT:		37'
BLDG. AREA:		
LEVEL 1:	TOTAL =	4,864 S.F.
LEVEL 2:	TOTAL =	5,815 S.F.
		10,679 S.F.

FIRE - RESISTIVE CONSTRUCTION: TYPE IIB

FIRE RESISTANCE RATING REQUIREMENTS FOR BUILDING ELEMENTS (HOURS) CBC TABLE 601:

PRIMARY STRUCTURAL FRAME:	0 HR
BEARING WALLS - EXTERIOR:	0 HR
BEARING WALLS - INTERIOR:	0 HR
NONBEARING WALLS & PARTITIONS - EXTERIOR (TABLE 602):	0 HR (WHERE X>10); 1 HR WHERE X<10)
NONBEARING WALLS & PARTITIONS - INTERIOR:	0 HR
FLOOR CONSTRUCTION & ASSOCIATED SECONDARY MEMBERS:	0 HR
ROOF CONSTRUCTION & ASSOCIATED SECONDARY MEMBERS:	0 HR (Footnote c)

Footnote c: IN ALL OCCUPANCIES, HEAVY TIMBER SHALL BE ALLOWED WHERE A 1-HOUR OR LESS FIRE-RESISTANCE RATING IS REQUIRED.

CLASS C ROOF COVERING REQUIRED (CBC TABLE 1505.1)

FIRE RESISTIVE REQUIREMENTS:

SHAFT ENCLOSURE FIRE-RESISTANCE (CBC-713.4): 1 HR
ELEVATOR ENCLOSURE FIRE RESISTANCE (CBC-713.4): 1HR
ELEVATOR OPENING FIRE RESISTANCE (CBC 3006.2):
HOISTWAY OPENING PROTECTION IS NOT REQUIRED SINCE ELEVATOR ONLY CONNECTS TWO STORIES
ELEVATOR LOBBY FIRE RESISTANCE (CBC 3006.3):
ELEVATOR LOBBY IS NOT REQUIRED SINCE OPENING PROTECTION IS NOT REQUIRED

EXITS

LEVEL	OCCUPANT LOAD (OL)	NUMBER OF EXITS REQUIRED	NUMBER OF EXITS PROVIDED
LEVEL 01	103	2	2
LEVEL 02	119 (BALCONY OL = 46)	2	2

REQUIRED NUMBER OF EXITS / ACCESS TO EXIT PER CBC 2016 TABLE 1006.3.1
REQUIRED WIDTH OF EXIT = OCCUPANT LOAD x 0.2" PER CBC 2016 1005.3.2,
MIN DOOR WIDTH 32" MIN. PER CBC 2016 11B-404.2.3
REQUIRED WIDTH OF STAIR = OCCPANT LOAD x 0.3" PER CBC 2016 1005.3.1
SEE SHEET CP1.02 OCCUPANCY LOAD TABLE FOR EXIT WIDTHS.
ACCESSIBLE MEANS OF EGRESS PER CBC 1009 - SEE SHEET CP1.02

PLUMBING CALCULATIONS

LEVEL 1

SPACE	SQ. FT.	OCC. TYPE	OL FACTOR	TOTAL
LOCKER ROOMS	1,597	B	200	8.0
MUD ROOM	339	B	200	1.7
PLAYER LOUNGE	734	A-2	30	24.5
TAPING	202	B	200	1.0
EQUIPMENT ROOMS	422	S	5000	0.1
TOTAL				**35.3**

MENS	**17.7 = 18**
WOMENS	**17.7 = 18**

LEVEL 2

SPACE	SQ. FT.	OCC. TYPE	OL FACTOR	TOTAL
MULTI-PURPOSE	1,290	A-2	30	43.0
STORAGE	209	S	5000	0.1
BALCONY	685	A-2	30	22.8
OFFICES	567	B	200	2.8
VIDEO ROOM	216	A-2	30	7.2
LOCKER ROOM	157	B	200	0.8
IT / ELEC / MECH	301	S	5000	0.1
TOTAL				**76.8**

MENS	**38.4 = 39**
WOMENS	**38.4 = 39**

NOTE: SQUARE FOOTAGES ABOVE ARE NET AREA. ACCESSORY AREAS WERE EXCLUDED (I.E. HALLWAYS, ISLEWAYS, RESTROOMS, STAIR ENCLOSURES, ETC.)

PLUMBING FIXTURE COUNT

PER CPC TABLE 422.1 & TABLE A

OCCUPANTS MEN (M) WOMEN (W)	FLOOR LEVEL & OCCUPANCY	WATER CLOSET REQ'D		URINAL REQ'D	LAVATORIES REQ'D		DRINKING FOUNTAINS REQ'D	OTHER
		MEN	WOMEN		MEN	WOMEN		
M=18 W=18	LEVEL 1, B	1	2	1	1	1	1	SERVICE SINK : 1
M=39 W=39	LEVEL 2, B/A-2	1	2	1	1	1	1	SERVICE SINK : 1
TOTAL REQUIRED		2	4	2	2	2	2	SERVICE SINK : 2
GENDER NEUTRAL PROVIDED		2	2	-	-	-	--	
TOTAL PROVIDED		8	7	3	11	7	2	SERVICE SINK : 2

* UNISEX / GENDER NEUTRAL WATER CLOSET IN LIEU OF MEN OR WOMEN
** EQUIVALENT PROVIDED AS A UNISEX / GENDER NEUTRAL WATER CLOSET

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07-31-19
STATE OF CALIFORNIA

CODE PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

CP1.01

75-16217-00
05.01.18
Revisions
8/1/01 TBD BASELINE/STATUS
COMMENTS BACKCHECK 2
FIRE MARSHALL
BACKCHECK 1
FMD1 4.06.18

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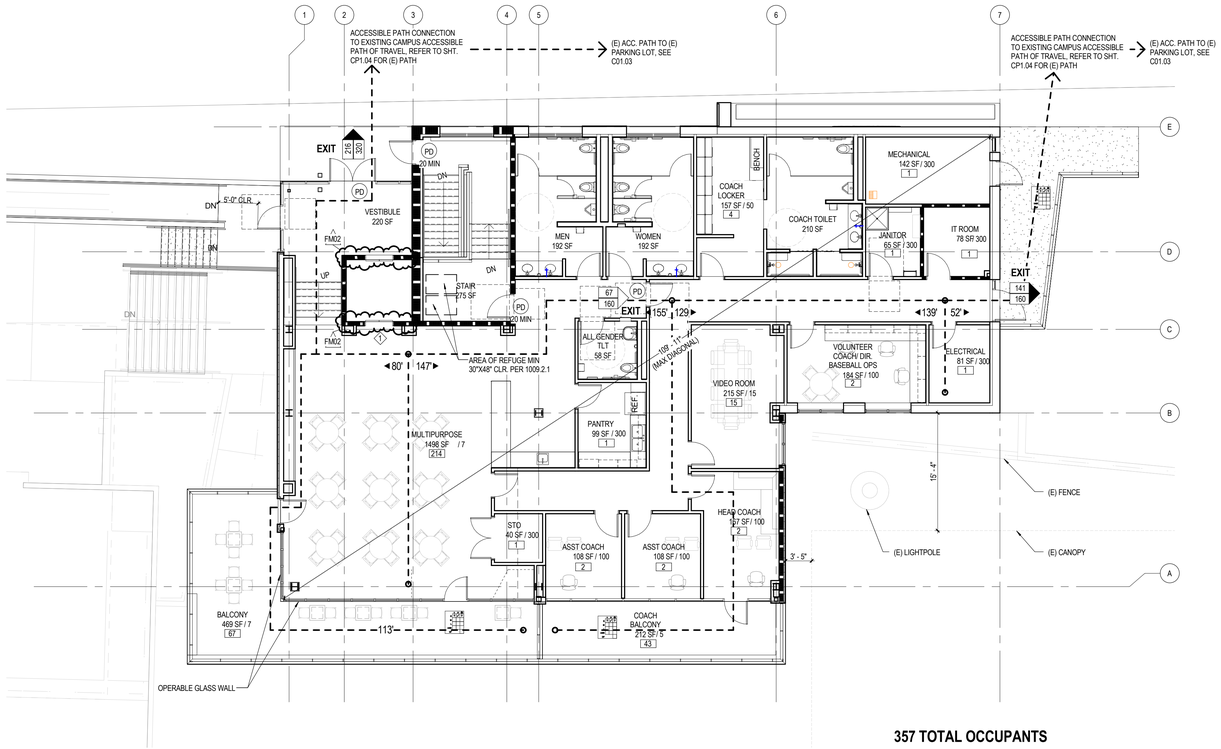
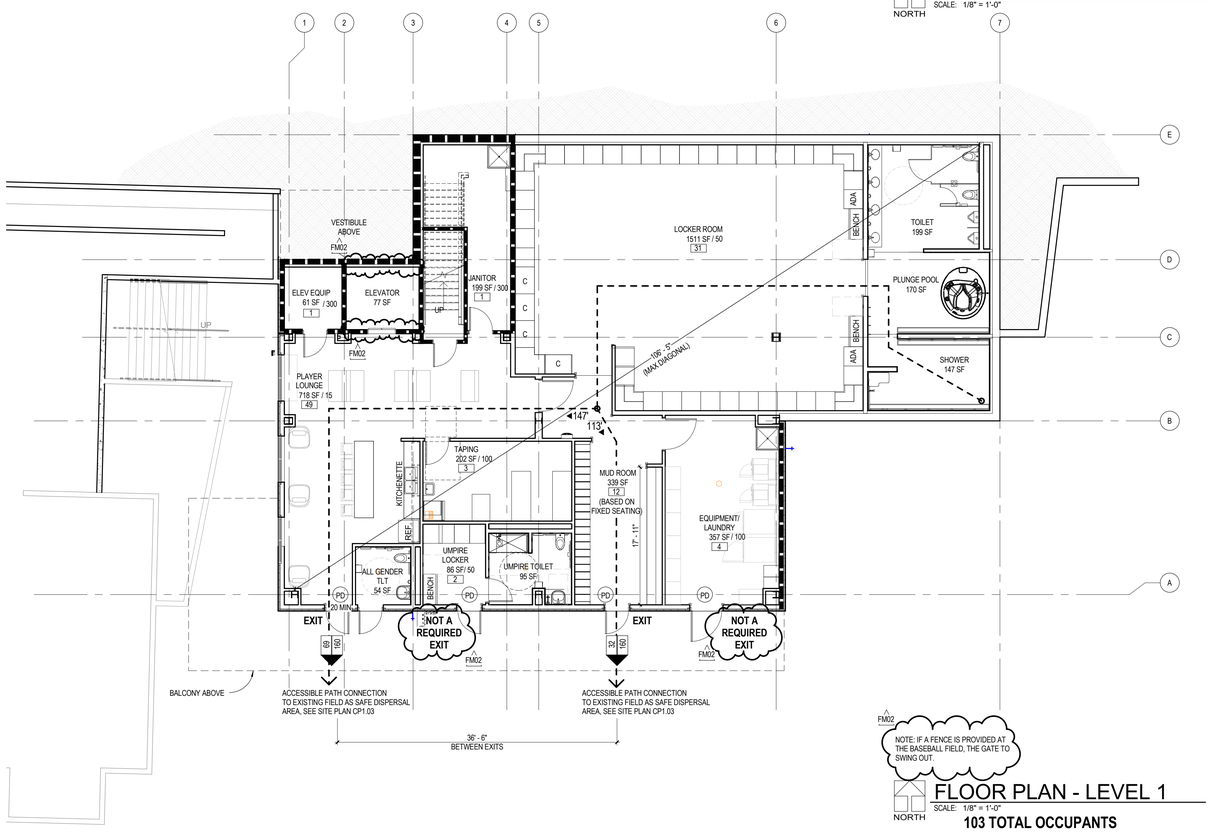


FLOOR PLAN - LEVEL 2

SCALE: 1/8" = 1'-0"



FLOOR PLAN - LEVEL 1

SCALE: 1/8" = 1'-0"

MEANS OF EGRESS

ACCESSIBLE MEANS OF EGRESS:
ACCESSIBLE MEANS REQUIRED AND PROVIDED PER CBC 1009.3. AREA OF REFUGE NOT REQUIRED PER 1009.3 EXCEPTION 5

EXIT ACCESS: COMMON PATH OF EGRESS TRAVEL DISTANCE (CBC TABLE 1006.2.1)
A: WITH SPRINKLER SYSTEM 75'

EXIT AND EXIT ACCESS DOORWAYS (CBC TABLE 1006.2.1):
TWO EXITS OR EXIT ACCESS DOORWAYS FROM ANY SPACE SHALL BE PROVIDED WHERE THE OCCUPANT LOAD EXCEEDS THE VALUES PER CBC TABLE 1006.2.1.

TABLE 1006.2.1 SPACES WITH ONE EXIT OR EXIT ACCESS DOORWAY

OCCUPANCY	MAXIMUM OCCUPANT LOAD
A	49

EXIT ACCESS TRAVEL DISTANCE (CBC TABLE 1017.2):

OCCUPANCY	WITH SPRINKLER SYSTEM
A	250'

CORRIDORS (CBC TABLE 1020.1):

OCCUPANCY	SERVED BY CORRIDOR WITH SPRINKLER SYSTEM
A	GREATER THAN 30 = 0 HR

DEAD ENDS (CBC 1020.4):
A 20' MAX

ASSEMBLY MAIN EXIT (CBC 1029.2):
OCC LOAD >300: MAIN EXIT SHALL ACCOMMODATE NOT LESS THAN 1/2 THE LOAD.

OCCUPANCY LOAD TABLE - LEVEL 2

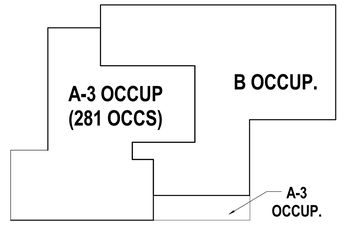
GROSS FLOOR AREA: 5,815 SF (INCLUDING BALCONY)

NET FLOOR AREA:
A-3 OCCUPANCY: 2,119 SF
B OCCUPANCY: 1,306 SF

NO. OF OCCUPANTS:
A-3 OCCUPANCY: 324
B OCCUPANCY: 31

REQUIRED EXIT WIDTH: 68.6"
345 OL * 0.2

EXIT WIDTH PROVIDED: 96"



357 TOTAL OCCUPANTS

OCCUPANCY KEY PLAN - LEVEL 2

SCALE: 1" = 20'-0"

OCCUPANCY LOAD TABLE - LEVEL 1

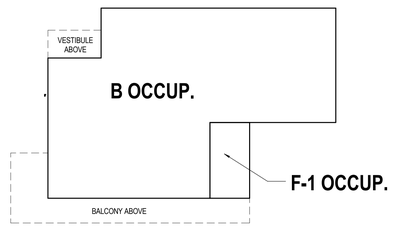
GROSS FLOOR AREA: 4,864 SF

NET FLOOR AREA:
A-3 OCCUPANCY: 0
B OCCUPANCY: 3,136 SF
F-1 OCCUPANCY 357 SF

NO. OF OCCUPANTS:
A-3 OCCUPANCY: 0
B OCCUPANCY: 99
F-1 OCCUPANCY: 4

REQUIRED EXIT WIDTH: 21"
103 OL * 0.2

EXIT WIDTH PROVIDED: 140"



OCCUPANCY KEY PLAN - LEVEL 1

SCALE: 1" = 20'-0"

SYMBOL LEGEND

- OCCUPANCY LOAD
- ACCESSORY USE AREA (OCCUPANCY LOAD IS NOT INCLUDED IN LOADS BEYOND THIS ROOM)
- 0 / 0 - COMBINED OCCUPANT LOAD AT A GIVEN DOOR OR STAIR / TOTAL EXIT CAPACITY OF DOOR OR STAIR (THE CAPACITY OF DOORS ARE DETERMINED AS FOLLOWS: CLEAR OPENING WIDTH IN INCHES DIVIDED BY 0.2 PER CBC 1005.3.2 THE CAPACITY OF STAIRS ARE DETERMINED AS FOLLOWS: CLEAR OPENING WIDTH IN INCHES DIVIDED BY 0.3 PER CBC 1005.3.1)
- 0 / 0 - COMBINED OCCUPANT LOAD AT A GIVEN EXIT DOOR. (SUM OF THESE EQUALS TOTAL OCCUPANT LOAD) / TOTAL EXIT CAPACITY OF DOOR (THE CAPACITY OF DOORS ARE DETERMINED AS FOLLOWS: CLEAR OPENING WIDTH IN INCHES DIVIDED BY 0.2 PER CBC 1005.3.2)
- PD - PANIC DEVICE
- XX MIN - DOOR FIRE RATING
- SMOKE CONTAINMENT CURTAIN @ ELEVATOR SHAFT

FLOOR AREA ALLOWANCE PER OCCUPANT (CBC, TABLE 1004.1.2)

FUNCTION OF SPACE	OCCUPANCY LOAD FACTOR
ACCESSORY STORAGE AREAS, MECHANICAL EQUIPMENT RM	300 GROSS
ASSEMBLY WITHOUT FIXED SEATS	
UNCONCENTRATED (TABLES AND CHAIRS)	15 NET
BUSINESS AREAS	100 GROSS
INDUSTRIAL	100 GROSS

WALL SEPARATION LEGEND

WALL HOURLY FIRE RATING		WALL FIRE RATING TYPE	
0 = 0 HOUR		C = CORRIDOR	
1 = 1 HOUR		EW = EXTERIOR WALL	
		FB = FIRE BARRIER	
		FP = FIRE PARTITION	
		FSB = FIRE/SMOKE BARRIER	
		FW = FIRE WALL	
		HX = HORIZONTAL EXIT	
		SB = SMOKE BARRIER	
		VS = VERTICAL SHAFT	
		VX = VERTICAL EXIT	
		XP = EXIT PASSAGEWAY	

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LIFE SAFETY, OCCUPANCY & EGRESS PLANS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

CP1.02

75-16217-00
05.01.18

Revisions
PSD 7.17.18 DSA MACKCHECK 1
PMD 5.14.18 FIRE MARSHALL BACKCHECK 2

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IMMEDIATE PARKING LOT COUNT:
369 STALLS

ACCESSIBLE PATH OF TRAVEL

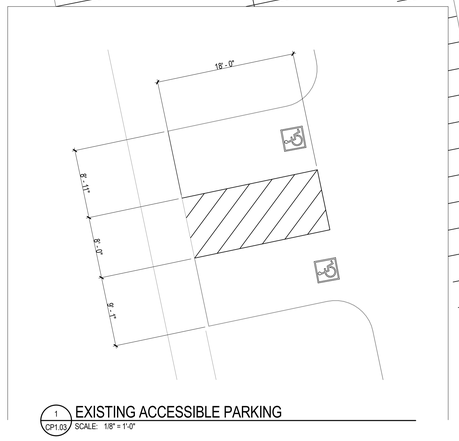
ELECTRICAL TRANSFORMER
LIMITS OF WORK
CONDENSING UNIT
(E) LIGHT POLE
(E) CANOPY

1 CP1.03

STOP

R254'-8"

1 CP1.03 EXISTING ACCESSIBLE PARKING
SCALE: 1/8" = 1'-0"



NORTH
SITE PLAN
SCALE: 1" = 20'-0"

LEGEND NOTES

LEGEND NOTES ARE COMMON TO ALL
SOME NOTES MAY NOT APPLY TO THIS SHEET

ACCESSIBLE PATH OF TRAVEL

PATH OF TRAVEL GENERAL NOTE:
PATH OF TRAVEL (POT) AS INDICATED IS A BARRIER FREE ACCESS ROUTE WITHOUT ANY ABRUPT VERTICAL CHANGES EXCEEDING 1/2" BEVELED AT 1:2 MAXIMUM SLOPE. EXCEPT THAT LEVEL CHANGES DO NOT EXCEED 1/4" VERTICAL AND IS AT LEAST 48" WIDE. SURFACE IS SLIP RESISTANT, STABLE, FIRM, AND SMOOTH. CROSS-SLOPE DOES NOT EXCEED 2% AND SLOPE IN THE DIRECTION OF TRAVELIS LESS THAN 5% UNLESS OTHERWISE INDICATED. PATH OF TRAVEL (POT) SHALL MAINTAIN FREE OF OVERHANGING OBSTRUCTIONS TO 80" MINIMUM AND PROTRUDING OBJECTS GREATER THAN 4" PROJECTION FROM WALL AND ABOVE 27" AND LESS THAN 80". ARCHITECT AND CONTRACTOR TO VERIFY THAT ALL BARRIERS IN THE PATH OF TRAVEL HAVE BEEN REMOVED OR WILL BE REMOVED UNDER THIS PROJECT, AND PATH OF TRAVEL COMPLIES WITH CBC.

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REN. 07.31.19
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ACCESSIBILITY SITE PLAN, PATH OF TRAVEL
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

CP1.03
75-16217-00
05.01.18
Revisions
BRR1 10.09.17 BUSBAR/UTILITIES
COMMENTS
BMA1 4.27.18 CGA BACKCHECK 1

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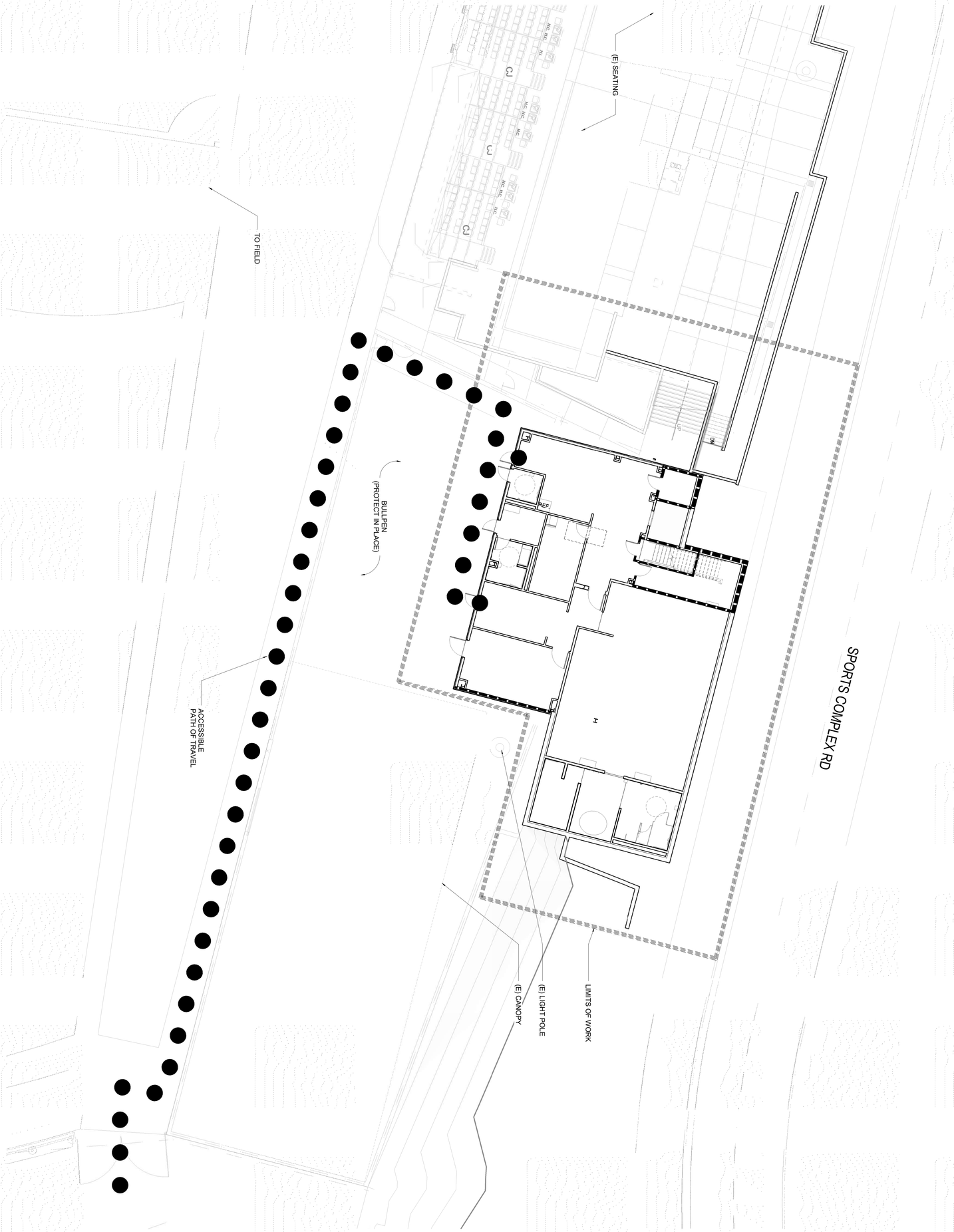

SITE PLAN - LEVEL 1

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CP1.03.1
75-16217-00
05.01.18
Revisions
FM01 4.06.18 FIRE MARSHALL BACKCHECK 1
DSA01 4.27.18 DSA BACKCHECK 1

SITE PLAN - LEVEL 1
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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RENEWAL 08/31/2019
STATE OF CALIFORNIA
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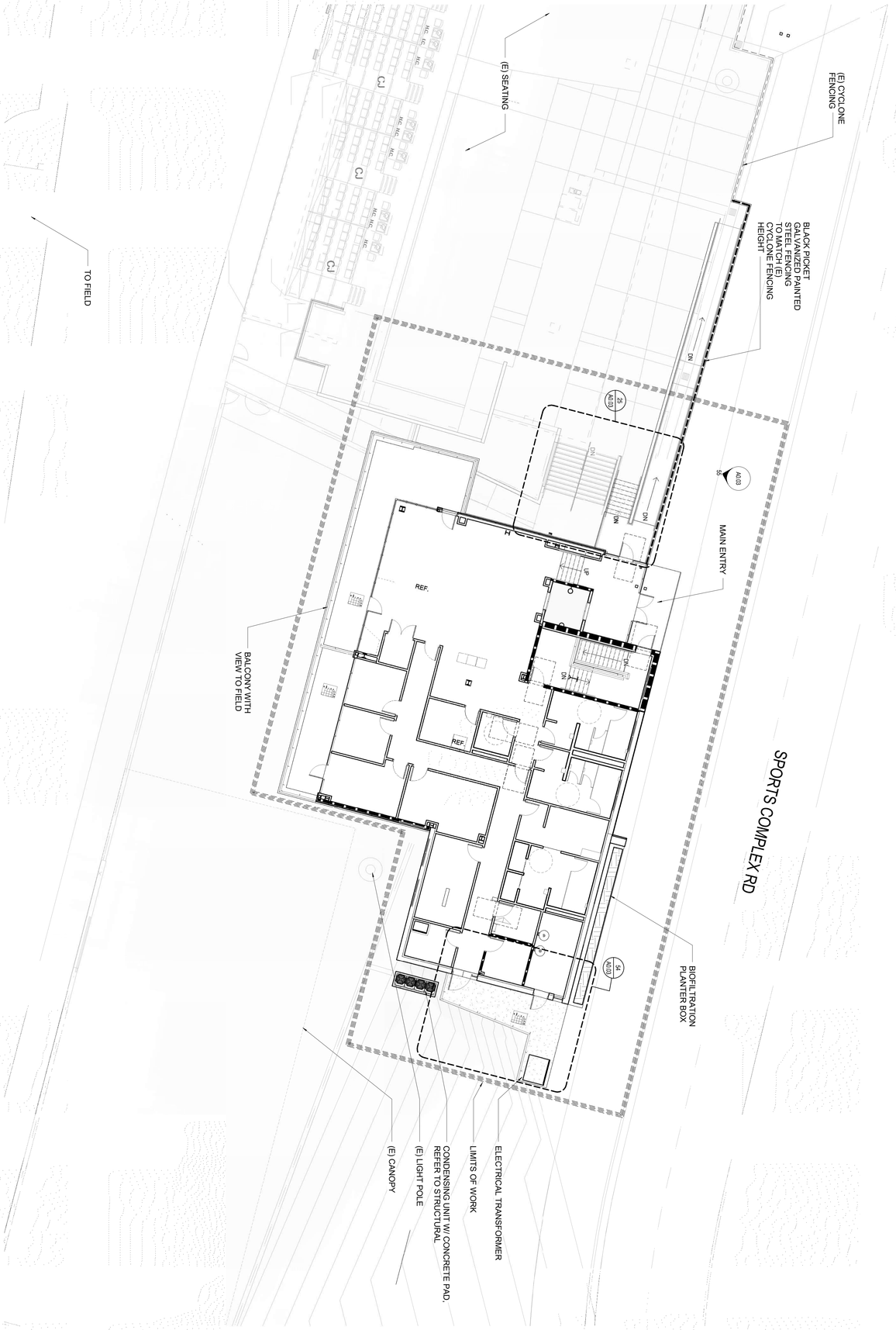

NORTH

SITE PLAN - LEVEL 2
SCALE 1" = 10'-0"

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CP1.03.2
75-16217-00
05.01.18
Revisions

ADD-3	2.16.18	ADDENDUM 3
FM01	4.06.18	FIRE MARSHALL BACKCHECK 1
DSA01	4.27.18	DSA BACKCHECK 1

SITE PLAN - LEVEL 2

BASEBALL CLUBHOUSE FACILITY

California Polytechnic State University San Luis Obispo

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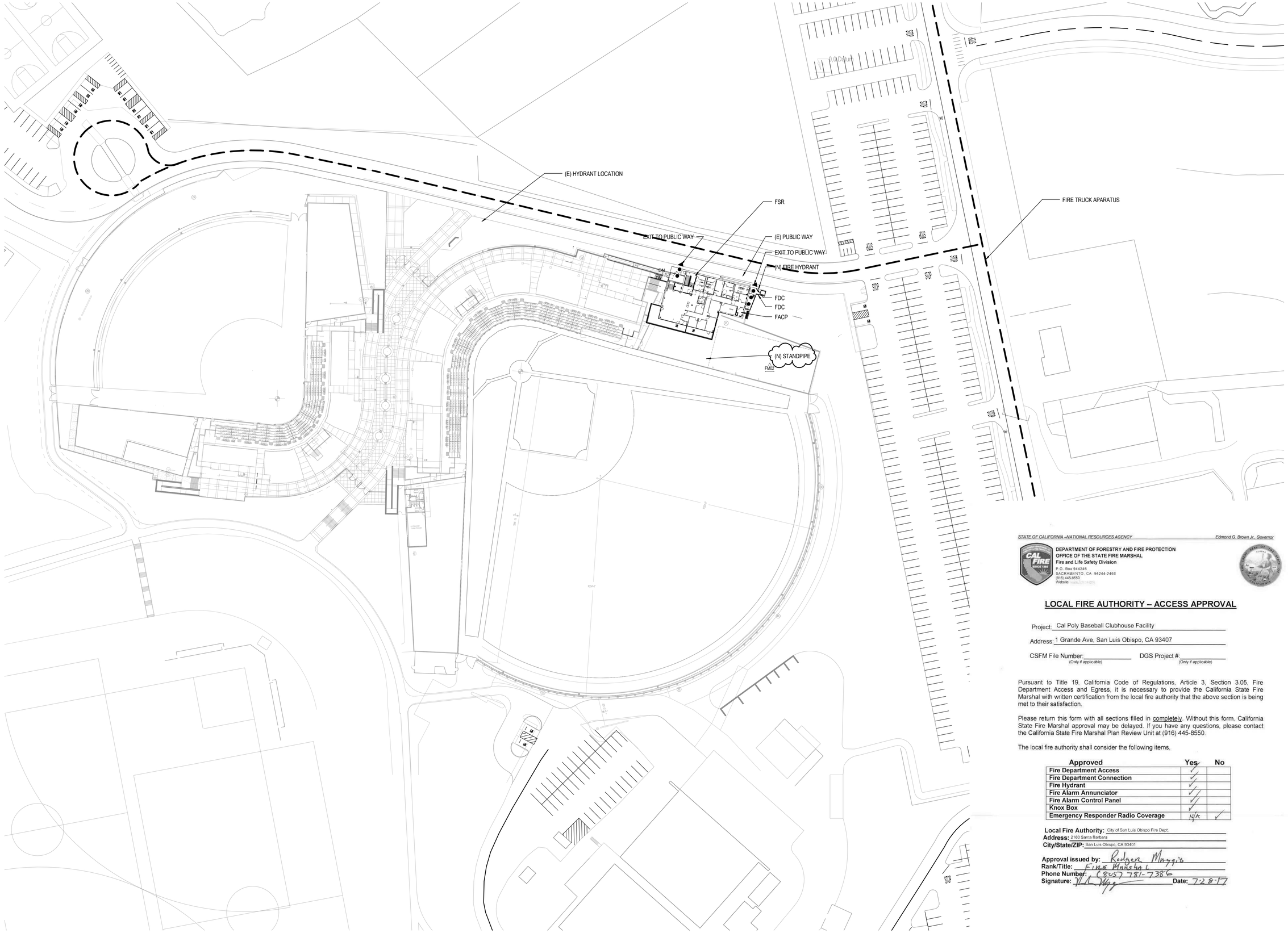
No. C29998
REGISTERED
STATE OF CALIFORNIA



FIRE ACCESS SITE PLAN
SCALE: 1" = 40'-0"
NORTH

STATE OF CALIFORNIA –NATIONAL RESOURCES AGENCY — Edmond G. Brown Jr., Governor

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
Fire and Life Safety Division
P.O. Box 944246
SACRAMENTO, CA 94244-2460
(916) 445-8550
Website

LOCAL FIRE AUTHORITY – ACCESS APPROVAL

Project: Cal Poly Baseball Clubhouse Facility

Address: 1 Grande Ave, San Luis Obispo, CA 93407

CSFM File Number: _____ (Only if applicable) DGS Project #: _____ (Only if applicable)

Pursuant to Title 19, California Code of Regulations, Article 3, Section 3.05, Fire Department Access and Egress, it is necessary to provide the California State Fire Marshal with written certification from the local fire authority that the above section is being met to their satisfaction.

Please return this form with all sections filled in completely. Without this form, California State Fire Marshal approval may be delayed. If you have any questions, please contact the California State Fire Marshal Plan Review Unit at (916) 445-8550.

The local fire authority shall consider the following items.

Approved	Yes	No
Fire Department Access	✓	
Fire Department Connection	✓	
Fire Hydrant	✓	
Fire Alarm Annunciator	✓	
Fire Alarm Control Panel	✓	
Knox Box	✓	
Emergency Responder Radio Coverage	N/A	✓

Local Fire Authority: City of San Luis Obispo Fire Dept.
Address: 2160 Santa Barbara
City/State/ZIP: San Luis Obispo, CA 93401

Approval issued by: Rodger Maggio
Rank/Title: Fire Marshal
Phone Number: (805) 781-7386
Signature: _____ **Date:** 7-28-17

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

FIRE ACCESS SITE PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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75-16217-00
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Revisions
FM01 6.08.18 FIRE MARSHAL BACKCHECK 1
FM02 5.14.18 FIRE MARSHAL BACKCHECK

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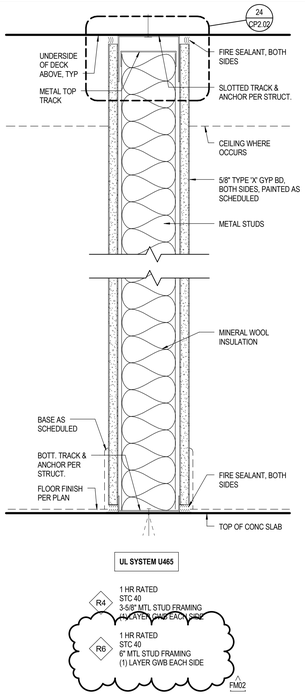
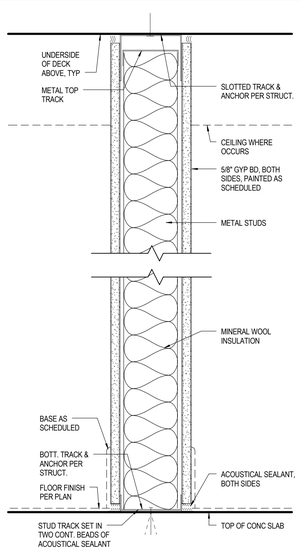
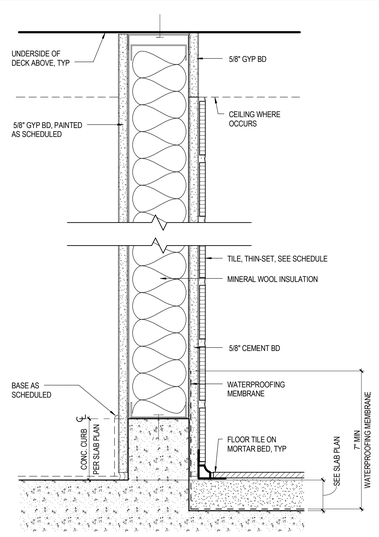
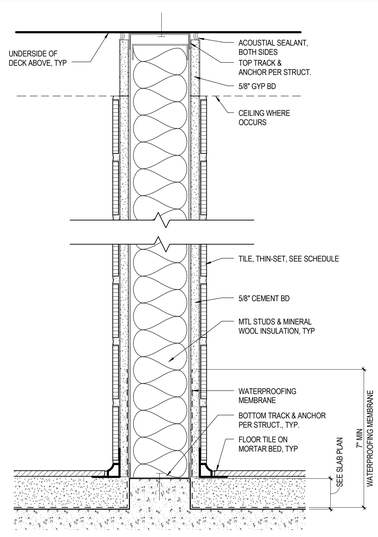


21 CP2.01 ACOUSTICAL (1-HR RATED)
SCALE: 3" = 1'-0"



23 CP2.01 ACOUSTICAL (NON-RATED)
SCALE: 3" = 1'-0"



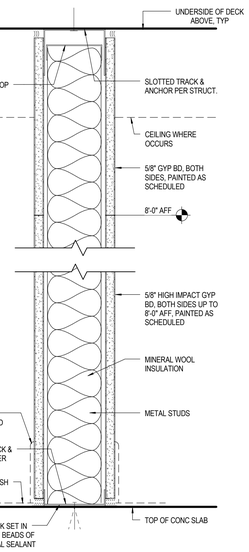


24 CP2.01 TILE WALL (NON-RATED)
SCALE: 3" = 1'-0"

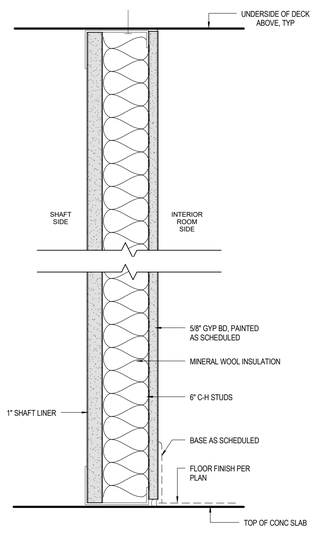
GENERAL NOTES

1. FIRE RATED WALLS PER CODE PLAN SHEETS - CP1.01 & CP1.02
2. FIRE RATED AND SOUND WALLS TO USE TYPE "X" GYPSUM WALLBOARD IN LIEU OF GYPSUM WALLBOARD
3. PROVIDE PLYWOOD AT COMM ROOM PER TELECOM DRAWINGS

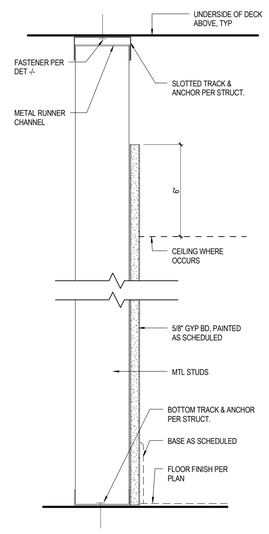
NOTE:
FOR NON-FIRE RATED CONDITIONS, SUCH AS ACOUSTICAL OR SMOKE PARTITIONS; SEAL ANNULAR SPACE WITH HILTI CP506. SEALANT PER ASTM G21 STANDARD FOR MOLD/MILDEW RESISTANCE TO FUNGAL GROWTH IN CONFORMANCE WITH ASTM E 90, ASTM C 919, ISO 11600.6.



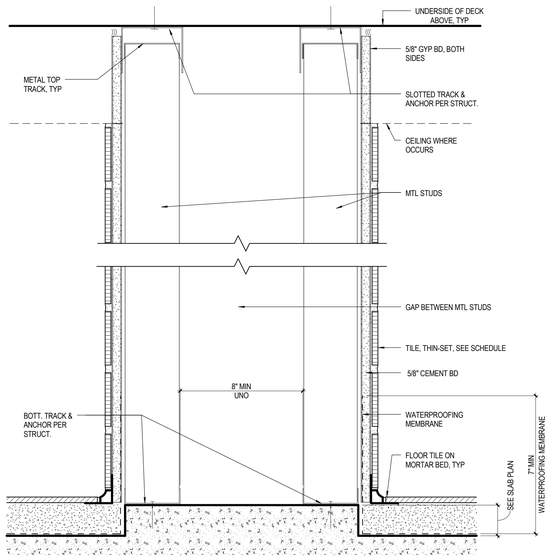
51 CP2.01 HIGH IMPACT (NON-RATED)
SCALE: 3" = 1'-0"



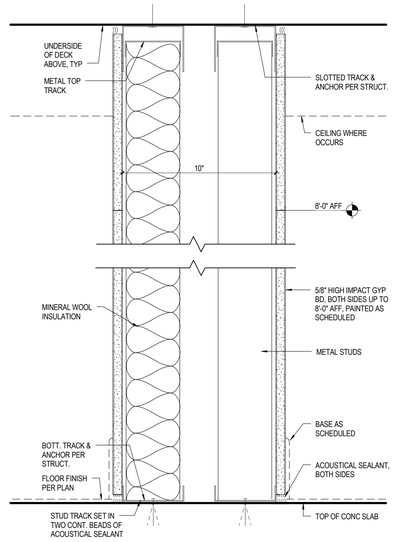
52 CP2.01 SHAFT
SCALE: 3" = 1'-0"



53 CP2.01 FURRED WALL
SCALE: 3" = 1'-0"



54 CP2.01 PLUMBING WALL
SCALE: 3" = 1'-0"



55 CP2.01 ACOUSTICAL DOUBLE WALL (NON-RATED)
SCALE: 3" = 1'-0"

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INTERIOR WALL TYPES
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

CP2.01
75-16217-00
05.01.18
Revisions
FM01 4.6.18 FIRE MARSHALL BACKCHECK
FM02 5.14.18 FIRE MARSHALL BACKCHECK

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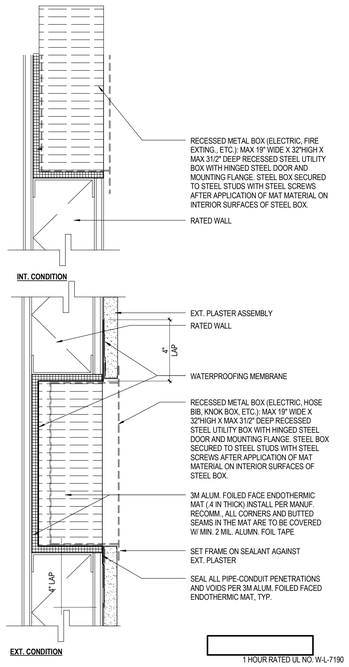
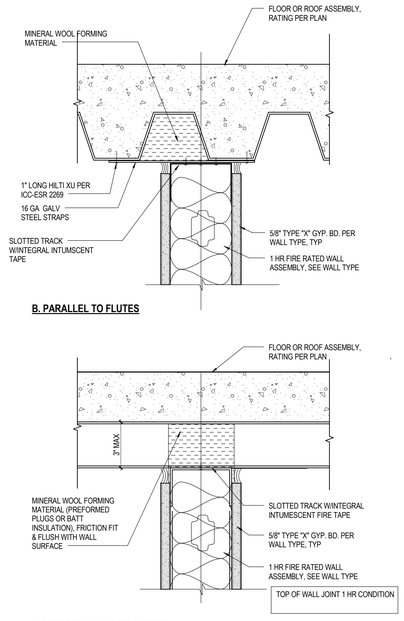
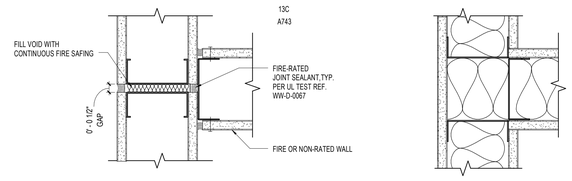


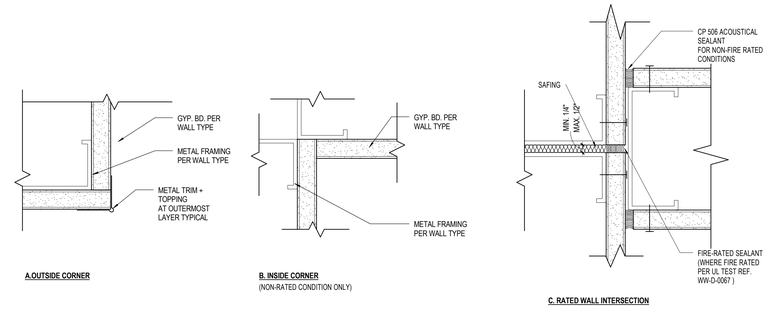
23 CP2.02 METAL BOX @ WALL
SCALE: 3" = 1'-0"



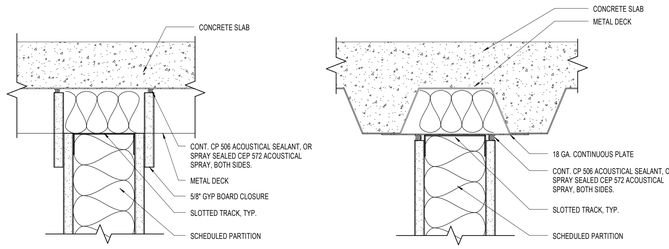
24 CP2.02 1 HR HEAD OF WALL ASSEMBLY
SCALE: 3" = 1'-0"



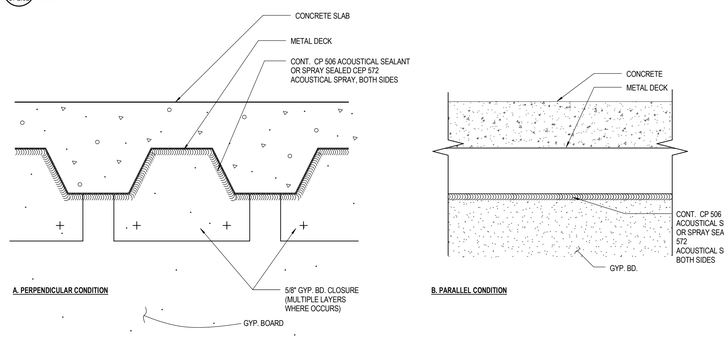
15 CP2.02 ACOUSTICAL PARTITION CONDITIONS
SCALE: 3" = 1'-0"



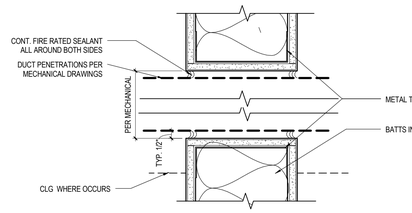
25 CP2.02 ACOUSTICAL PARTITION CONDITIONS
SCALE: 6" = 1'-0"



35 CP2.02 ACOUSTICAL PARTITION @ FLUTED DECK-PERP
SCALE: 3" = 1'-0"



45 CP2.02 ACOUSTICAL PARTITION @ FLUTED DECK
SCALE: 3" = 1'-0"



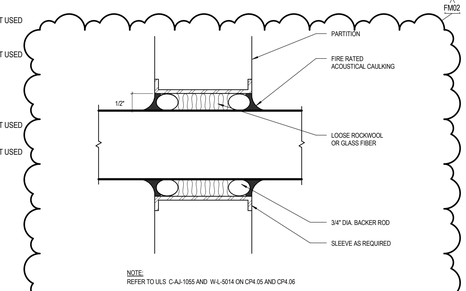
PENETRATIONS OF ACOUSTICAL PARTITIONS BY DUCTWORK SHALL BE ACOUSTICALLY SEALED AS SHOWN. ANY GAP LARGER THAN 1/2" SHALL BE COVERED WITH GYPSUM BOARD, LAPPED A MINIMUM OF 2" AND SCREWED BEFORE USING ACOUSTICAL SEALANT.

55 CP2.02 DUCT PENETRATION AT ACOUSTICAL PARTITION
SCALE: 3" = 1'-0"

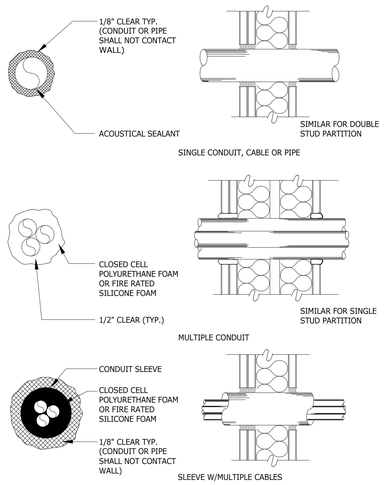
SCHEDULES OF UL-2079 (DYNAMIC) JOINT FIRESTOP SYSTEMS			
\G1033; \G1033; *JOINT TYPE*	\G1033; \G1033; *ASSEMBLY RATING*	UL-CLASSIFIED SYSTEM: JOINT WIDTH LESS THAN OR EQUAL TO 2"	UL-CLASSIFIED SYSTEM: JOINT WIDTH GREATER THAN 2", LESS THAN OR EQUAL TO 6" 4
~~CONCRETE FLOOR TO FLOOR~~	~~1~~	~~FF-D-1012; FF-D-1013*~~	~~FF-D-1012; FF-D-1013~~
~~EDGE OF CONCRETE FLOOR SLAB TO WALL~~	~~1~~	~~FWD-1011; FWD-1012; FWD-1013; FW-D-1021~~	~~FWD-1011; FWD-1012; FWD-1013; FW-D-1021~~
~~CONCRETE OR BLOCK WALL TO FLAT CONCRETE SLAB FLOOR (TOP-OF-WALL)~~	~~1~~	~~HW-D-0037*, HWD 0238~~	~~HW-D-1008; HW-D-1009~~
CONCRETE OR BLOCK WALL TO CONCRETE OVER FLUTED METAL DECK (TOP-OF-WALL)	1	HW-D-0080, HW-D-0081, HW-D-0098	HW-D-1037
~~GYPSUM WALL TO FLAT CONCRETE SLAB FLOOR (TOP-OF-WALL)~~	~~1~~	~~HW-D-0002; HW-D-0003; HW-D-0097; HWD-0100~~	~~N/A**~~
~~GYPSUM SHAFT WALL TO FLAT CONCRETE SLAB (TOP-OF-WALL)~~	~~2~~	~~HW-D-0313~~	~~N/A**~~
GYPSUM WALL TO CONCRETE OVER FLUTED METAL DECK (TOP-OF-WALL)	1	HW-D-0042*, HW-D-0049*, HW-D-0087*, HW-D-0089*, HW-D-0045, HW-D-0046*, HW-D-0076*, HW-D-0077*	N/A**
~~CONCRETE WALL TO WALL~~	~~1~~	~~WW-D-0017; WW-D-0032~~	~~WW-D-1011; WW-D-1012~~
~~GYPSUM WALL TO CONCRETE WALL~~	~~1~~	~~WW-D-0040~~	~~N/A**~~
* SEE NOTE 3			
** CONTACT HILTI FOR CURRENT UL-CLASSIFIED SYSTEM OR ENGINEER JUDGMENT DRAWING: 800-879-8000			
NOTES:			
1. CLASSIFIED SYSTEMS FOR 2" - 6" WIDE JOINTS MAY BE USED FOR JOINTS 2" WIDE AND LESS.			
2. CONFIRM THAT MOVEMENT CAPABILITIES OF THE SELECTED UL SYSTEM MEETS OR EXCEEDS THE SPECIFIED MOVEMENT RANGE OF THE PARTICULAR JOINT.			
3. SYSTEMS MARKED WITH ASTERIK (*) ARE SUITABLE FOR TOP-OF-WALL JOINTS WHERE THE FLUTED METAL DECK HAS SPRAY-ON MONOKOTE MK-6/HY FIREPROOFING.			
4. VERIFY ALLOWABLE JOINT WIDTH ON SPECIFIC UL SYSTEM DRAWING.			
			\G1033;\G1033; *01.18.07*

REFER TO SHEET SERIES CP4.XX FOR UL AND OTHER LITERATURE/DETAILS

51 CP2.02 JOINT FIRESTOP SCHEDULE
SCALE: 12" = 1'-0"



53 CP2.02 RATED THROUGH PENETRATION DETAIL
SCALE: 12" = 1'-0"



PENETRATIONS OF ACOUSTICAL PARTITIONS BY, CONDUIT, CABLE, PIPES ETC. SHALL BE ACOUSTICALLY SEALED AS SHOWN. ANY GAP LARGER THAN 1/2" SHALL BE COVERED WITH GYPSUM BOARD, LAPPED A MINIMUM OF 2" AND SCREWED BEFORE USING ACOUSTICAL SEALANT. CABLE TRAYS SHOULD NOT PENETRATE SLAB-TO-SLAB PARTITIONS. A CONDUIT SLEEVE SHOULD BE USED AT SUCH PENETRATIONS AND SEALED AS SHOWN ON THIS DETAIL.

FLEXIBLE DUCT, PIPE, CONDUIT, ETC. CONNECTIONS SHOULD BE INCORPORATED BETWEEN ROOMS WHERE RESILIENTLY ISOLATED FLOORS, WALLS OR CEILING LIDS OCCUR.

FOR NON-FIRE RATED CONDITIONS, SUCH AS ACOUSTICAL OR SMOKE PARTITIONS; SEAL ANNULAR SPACE WITH HILTI CP506. SEALANT PER ASTM G21 STANDARD FOR MOLD/MILDEW RESISTANCE TO FUNGAL GROWTH IN CONFORMANCE WITH ASTM E 90, ASTM C 919, ISO 11600.6. SEALANT SHALL NOT CAUSE STRUCTURAL CORROSION WHEN IN CONTACT WITH BARE COPPER PIPE PENETRANTS.

54 CP2.02 PARTITION PENETRATION - ACOUSTICAL
SCALE: 3" = 1'-0"

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WALL & PARTITION DETAILS
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California Polytechnic State University San Luis Obispo

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05.01.18
Revisions
FM01 4.06.18 FIRE MARSHALL BACKCHECK 1
FM02 5.14.18 FIRE MARSHALL BACKCHECK 2

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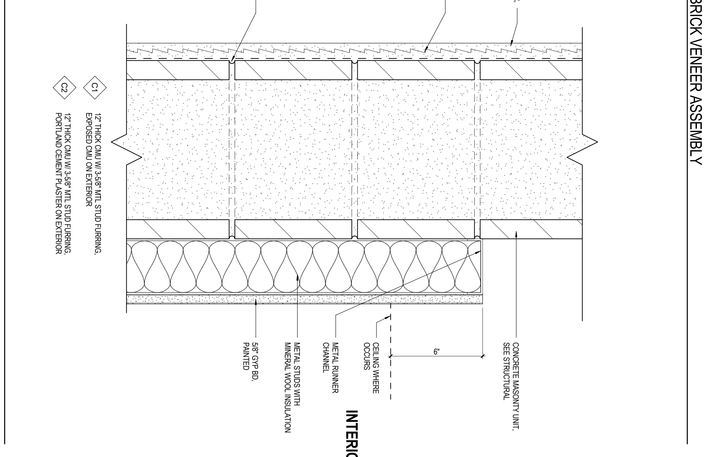
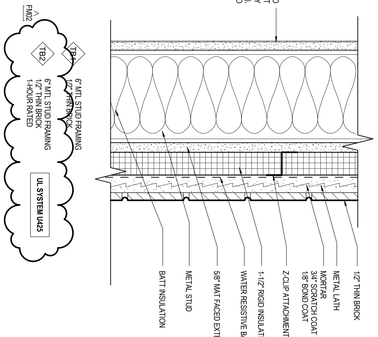


33 / CP2.03 — TB-THIN BRICK VENEER ASSEMBLY

SCALE: 3" = 1'-0"



C1 — 12" THICK CMU W/ 3-5/8" MTL STUD FURRING. EXPOSED CMU ON EXTERIOR

C2 — 12" THICK CMU W/ 3-5/8" MTL STUD FURRING. PORTLAND CEMENT PLASTER ON EXTERIOR

10 / CP2.03 — C-CMU

SCALE: 3" = 1'-0"

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Revisions

FM02 5.14.18 FIRE MARSHALL BADCHECK 2

EXTERIOR WALL TYPES

BASEBALL CLUBHOUSE FACILITY

California Polytechnic State University San Luis Obispo

LICENSED ARCHITECT
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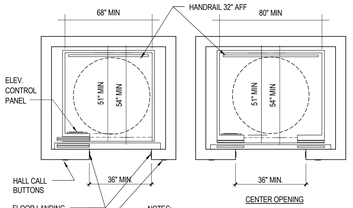
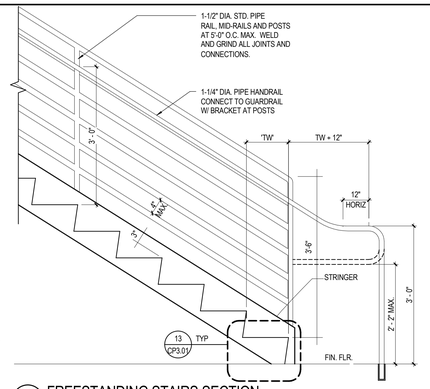


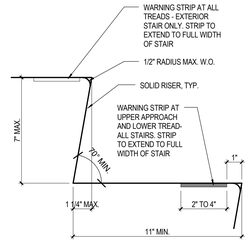
NOTES:
1. INSTALL EMERGENCY TELEPHONE HANDSET 48" FROM FLOOR - MAX. WITH 29" MIN CORD.
2. INSTALL MINIMUM ONE HANDRAIL AT REAR 32" AFF AND 1 1/2" MIN CLEAR FROM WALL. HANDRAIL TO BE SMOOTH WITH NO SHARP EDGES.
3. ELEVATOR TO BE SELF-LEVELING TO WITHIN 1/2" OF FLOOR LANDING.
4. MIN LIGHT LEVEL INSIDE CAB = 5 fc
NOTE: WHERE GURNEY ACCESS IS REQUIRED, SEE ELEVATOR CODE 3002.4 FOR SIZE REQ'TS.

11 CP3.01 ELEVATOR CAB
SCALE: 1/4" = 1'-0"

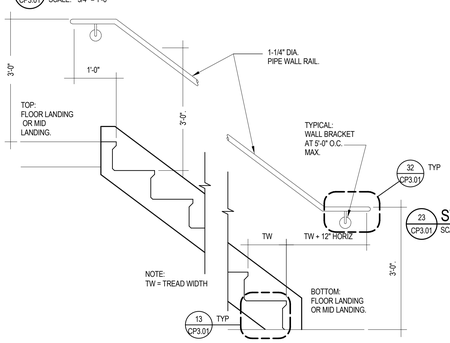


12 CP3.01 FREESTANDING STAIRS SECTION
SCALE: 3/4" = 1'-0"

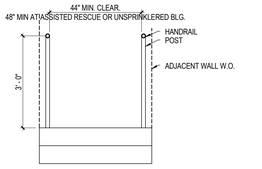
NOTE:
WARNING STRIP TO BE CLEARLY CONTRASTING MATERIAL THAT IS AT LEAST AS SLIP RESISTANT AS THE REST OF THE TREADS. GROOVES NOT PERMITTED .



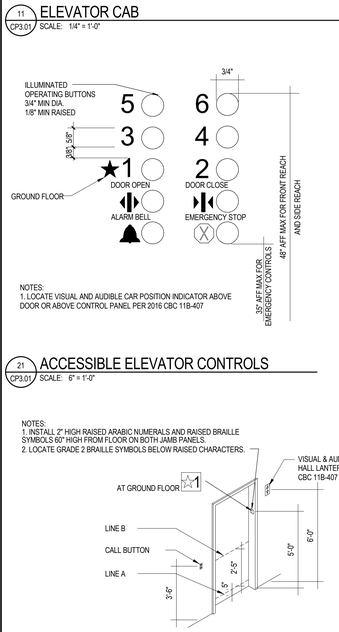
13 CP3.01 STAIR TREAD
SCALE: 3" = 1'-0"



23 CP3.01 STAIR SECTION
SCALE: 1/2" = 1'-0"

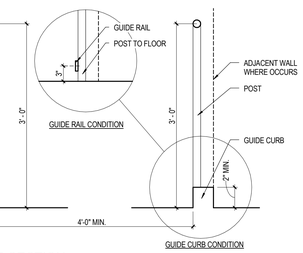


22 CP3.01 STAIR SECTION AT WALL
SCALE: 3/4" = 1'-0"

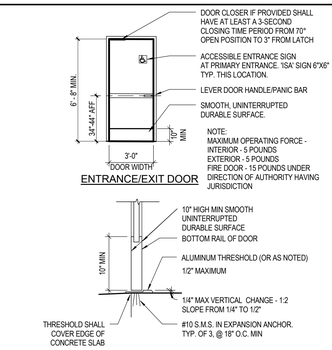


NOTES:
1. LOCATE VISUAL AND AUDIBLE CAR POSITION INDICATOR ABOVE DOOR OR ABOVE CONTROL PANEL PER 2016 CBC 11B-407

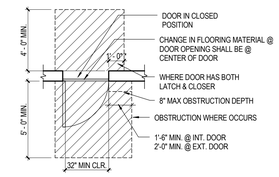
21 CP3.01 ACCESSIBLE ELEVATOR CONTROLS
SCALE: 6" = 1'-0"



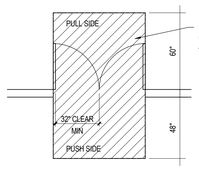
33 CP3.01 RAMP SECTION
SCALE: 1" = 1'-0"

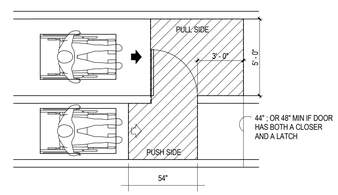


14 CP3.01 ACCESSIBLE DOORS
SCALE: 1/4" = 1'-0"

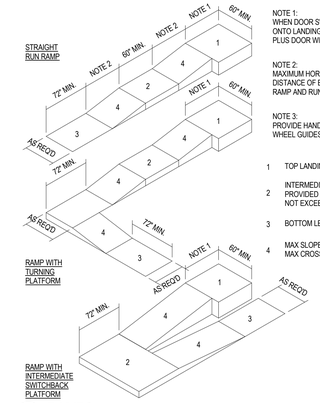


TYP. FRONT-APPROACH DOOR CLEARANCE





34 CP3.01 DOOR CLEARANCES
SCALE: 1/4" = 1'-0"



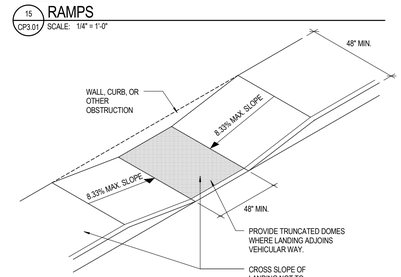
NOTE 1:
WHEN DOOR SWINGS ONTO LANDING-42" MIN. PLUS DOOR WIDTH

NOTE 2:
MAXIMUM HORIZONTAL DISTANCE OF EACH RAMP AND RUN VARY

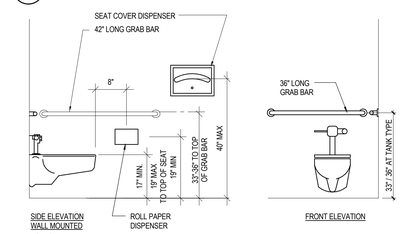
NOTE 3:
PROVIDE HANDRAIL AND WHEEL GUIDES AS REQ'D

1 TOP LANDING
2 INTERMEDIATE LANDING PROVIDED AT INTERVALS NOT EXCEEDING 30"
3 BOTTOM LEVEL LANDING
4 MAX SLOPE 1:12 MAX CROSS SLOPE 2%

15 CP3.01 RAMPS
SCALE: 1/4" = 1'-0"



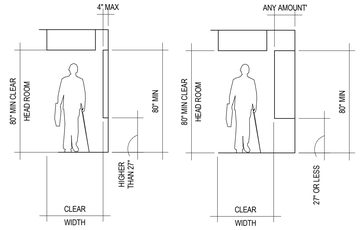
25 CP3.01 CURB RAMP
SCALE: 1/4" = 1'-0"



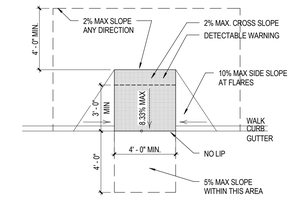
NOTES:
1. REFER TO FLOOR PLANS FOR ADDITIONAL DIMENSIONS AND INFORMATION.
2. FLUSH VALVE MUST BE MOUNTED ON THE WIDE SIDE OF THE TOILET COMPARTMENT.
3. MAXIMUM PRESSURE TO OPERATE TOILET VALVE TO BE FIVE LBS.
4. GRAB BARS TO HAVE 250 POUNDS CAPACITY.
5. MAINTAIN 1 1/2" CLEAR BELOW GRAB BAR.

35 CP3.01 TOILET CLEARANCE
SCALE: 1/2" = 1'-0"

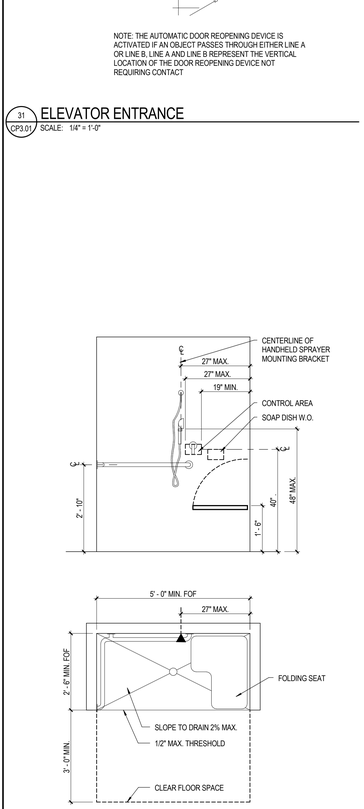
NOTE:
PROTRUDING OBJECTS MAY NOT REDUCE THE REQUIRED CLEAR WIDTH OF AN ACCESSIBLE ROUTE OR MANUVERING SPACE



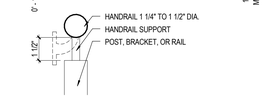
16 CP3.01 Accessible Route Clearances
SCALE: 1/4" = 1'-0"



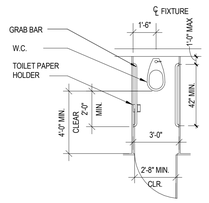
26 CP3.01 CURB RAMP
SCALE: 1/4" = 1'-0"



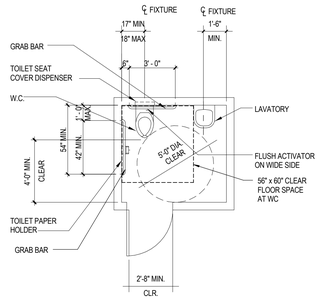
51 CP3.01 ACCESSIBLE SHOWER
SCALE: 1/2" = 1'-0"



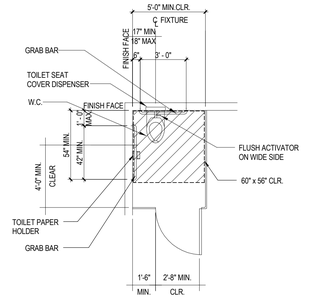
32 CP3.01 HANDRAIL REQUIREMENTS
SCALE: 3" = 1'-0"



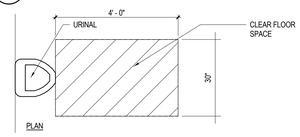
42 CP3.01 FRONT TRANSFER TOILET STALL
SCALE: 1/4" = 1'-0"



43 CP3.01 SINGLE OCCUPANCY TOILET
SCALE: 1/4" = 1'-0"

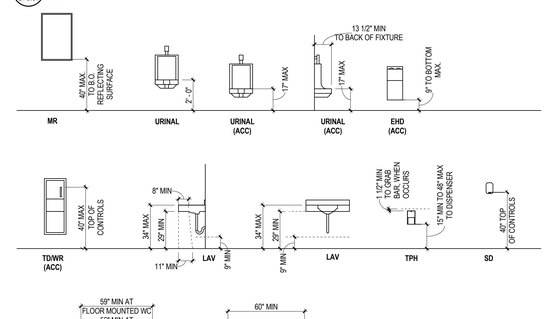


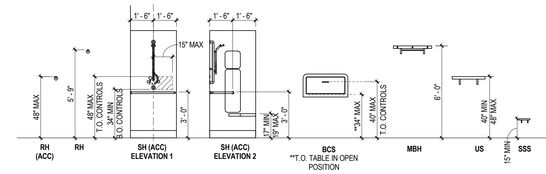
44 CP3.01 MULTIPLE TOILET STALL
SCALE: 1/4" = 1'-0"



NOTES:
1. MAXIMUM PRESSURE TO OPERATE FLUSH VALVE IS 5 POUNDS.
2. WALLS WITHIN 24" OF FRONT AND SIDES OF URINAL ARE SMOOTH AND NON-ABSORBANT TO 48" MIN IN HEIGHT AND NOT ADVERSELY AFFECTED BY MOISTURE.

54 CP3.01 URINAL CLEARANCES
SCALE: 1/2" = 1'-0"





55 CP3.01 ADULT MOUNTING HEIGHTS
SCALE: 1/4" = 1'-0"

C:\Revit\75-16217-00_AR_Central_2015_kathwal@dlrgroup.com.rvt
5/15/2018 2:57:25 PM

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

ACCESSIBLE DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

CP3.01
75-16217-00
05.01.18

Revisions		
8/01	Set 1	TYPE DESCRIPTION HERE
8/01	10.08.17	BUREAU DEPTAS COMMENTS
05/01	4.27.18	CCA/ARCHDEX 1

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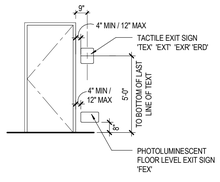
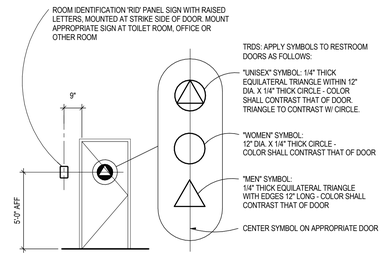


20 CP3.02 TACTILE & FLOOR LEVEL EXIT SIGNS
SCALE: 1/4" = 1'-0"



15 CP3.02 ROOM OR TOILET ROOM SIGNAGE 'RID' & 'TRDS'
SCALE: 1/4" = 1'-0"

1 CHARACTER TYPE: TACTILE CHARACTERS ON SIGNS SHALL BE RAISED 1/32" (0.8 mm) MINIMUM. ALL CHARACTERS SHALL BE SANS SERIF UPPERCASE CHARACTERS ACCOMPANIED BY CONTRACTED GRADE 2 BRAILLE. (SEE NOTE 5)

2 CHARACTER SIZE: RAISED CHARACTERS SHALL BE MINIMUM OF 5/8" INCH (15.9 mm) AND MAXIMUM OF 2" (51mm) IN HEIGHT. VISUAL CHARACTERS SHALL COMPLY WITH CBC TABLE 11B-703.5.5; WHERE CBC TABLE 11B-703.5.5 REQUIRES CHARACTER HEIGHTS IN EXCESS OF 2", SEPARATE RAISED AND VISUAL CHARACTERS SHALL BE PROVIDED.

3 FINISH AND CONTRAST (VISUAL CHARACTERS): CHARACTERS AND THEIR BACKGROUND SHALL HAVE A NON-GLARE FINISH. CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND (LIGHT-ON-DARK OR DARK-ON-LIGHT).

4 TYPE STYLE: SEE DETAIL 2/- FOR TYPE STYLE TEMPLATE AND TESTING PROCEDURES.
- PROPORTIONS: THE WIDTH OF THE UPPERCASE LETTER "O" FOR VISUAL AND TACTILE CHARACTERS ON SIGNS SHALL BE 60% MINIMUM TO 110% MAXIMUM THE HEIGHT OF THE UPPERCASE LETTER "I".
- STROKE THICKNESS: THE STROKE THICKNESS OF THE UPPERCASE LETTER "I" SHALL BE 15% MAXIMUM THE HEIGHT OF THE CHARACTER.
- CHARACTER SPACING (EXCLUDING WORD SPACES): RAISED CHARACTERS SHALL BE SPACED 1/8" MINIMUM TO 4 TIMES THE RAISED CHARACTER STROKE WIDTH MAXIMUM. VISUAL CHARACTERS SHALL BE SPACED 10% MINIMUM TO 35% MAXIMUM OF CHARACTER HEIGHT.

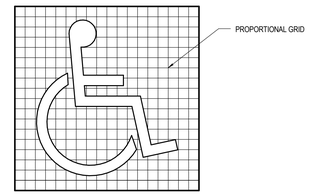
5 BRAILLE: CONTRACTED GRADE 2 BRAILLE SHALL BE USED WHEREVER BRAILLE IS REQUIRED IN OTHER PORTIONS OF THESE STANDARDS. SEE DETAIL 1/-

6 ATTACH SIGN USING AT LEAST (2) TWO FLATHEAD COUNTERSUNK SCREWS TO SOLID BACKING & ADHESIVE TO BACK. SEE DETAIL 3/- FOR TYPICAL MOUNTING HEIGHTS.

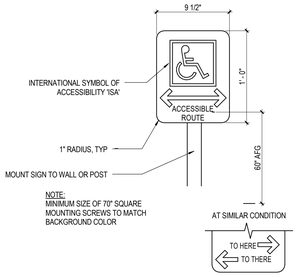
7 PLATE OF 1/8" THICK PHOTO SENSITIZED ACRYLIC ETCHED TO FORM A SINGLE PLAQUE. SIGNS WILL BE TWO-COLOR DESIGN WITH LIGHT BACKGROUND & DARK CHARACTERS TO MATCH CAMPUS SIGNAGE COLORS. (SUBMIT COLORS WITH LRV DATA TO ARCHITECT FOR APPROVAL; ASSUME GRAY COLOR BACKGROUND ≥90% LRV WITH BLUE COLOR CHARACTERS ≤20% LRV FOR BIDDING PURPOSES.)

NOTE: ALL LOCATION OF SIGNAGE WITHIN ROOM AND/OR ON WALL SHALL BE REVIEWED BY OWNER BEFORE INSTALLATION.

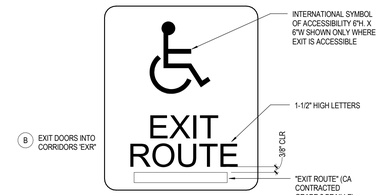
5 CP3.02 SIGNAGE KEYNOTE
SCALE: 3" = 1'-0"

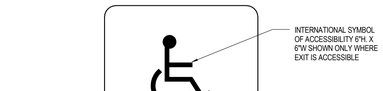


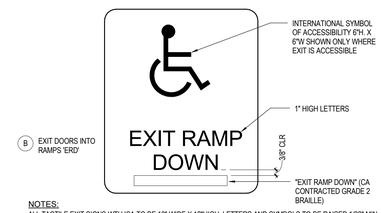
2016 CBC EXCERPT: SECTION 11B-703.7.2.1 INTERNATIONAL SYMBOL OF ACCESSIBILITY. THE SYMBOL SHALL CONSIST OF A WHITE FIGURE ON A BLUE BACKGROUND. THE BLUE SHALL BE COLOR NO. 15090 IN FEDERAL STANDARD 595B. EXCEPTION: THE APPROPRIATE ENFORCEMENT AGENCY MAY APPROVE OTHER COLORS TO COMPLEMENT DECOR OR UNIQUE DESIGN. THE SYMBOL CONTRAST SHALL BE LIGHT ON DARK OR DARK ON LIGHT.



24 CP3.02 ACCESSIBLE SITE DIRECTIONAL SIGNAGE 'ASD'
SCALE: 1 1/2" = 1'-0"

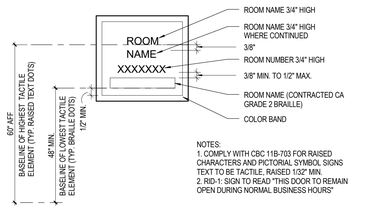






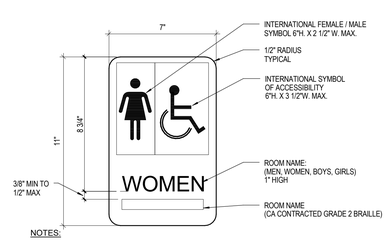
NOTES:
ALL TACTILE EXIT SIGNS WITH ISA TO BE 10" WIDE X 12"HIGH. LETTERS AND SYMBOLS TO BE RAISED 1/32" MIN.

17 CP3.02 TACTILE EXIT SIGNS 'EXT' 'EXR' 'TEX' 'ERD'
SCALE: 3" = 1'-0"



NOTES:
1. COMPLY WITH CBC 11B-703 FOR RAISED CHARACTERS AND PICTORIAL SYMBOL SIGNS
TEXT TO BE TACTILE, RAISED 1/32" MIN
2. RID-1: SIGN TO READ "THIS DOOR TO REMAIN OPEN DURING NORMAL BUSINESS HOURS"

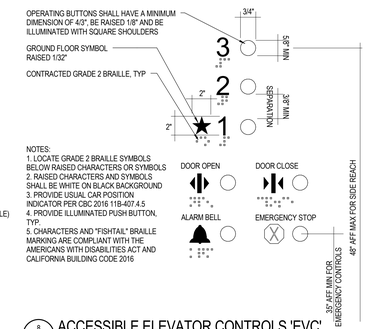
14 CP3.02 ROOM IDENTIFICATION SIGNAGE 'RID'
SCALE: 3" = 1'-0"



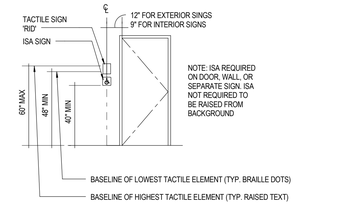
NOTES:
INSTALL SIGNAGE ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR. CENTER OF SIGN SHALL BE 14" MAX. FROM DOOR SWING. WHERE THERE IS NO WALL SPACE LATCH SIDE OF THE DOOR, INCLUDING DOUBLE LEAF DOORS, SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL AND APPROVED IN ADVANCE BY THE ARCHITECT. MOUNTING HEIGHT SHALL BE 60" FROM THE FLOOR TO THE CENTERLINE OF THE SIGN.

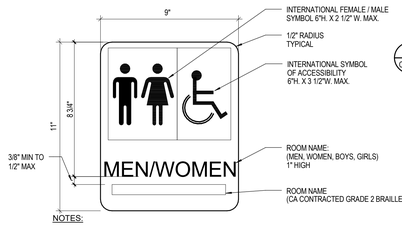
SIGNAGE MUST MEET A.D.A. & TITLE 24 REQUIREMENTS.

9 CP3.02 STAIR SIGNAGE 'SLS' 'TSF'
SCALE: 1 1/2" = 1'-0"



4 CP3.02 INTERNATIONAL ACCESSIBILITY SIGNAGE
SCALE: 1" = 1'-0"

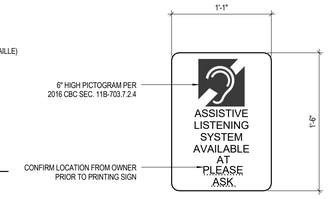




NOTES:
INSTALL SIGNAGE ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR. CENTER OF SIGN SHALL BE 14" MAX. FROM DOOR SWING. WHERE THERE IS NO WALL SPACE LATCH SIDE OF THE DOOR, INCLUDING DOUBLE LEAF DOORS, SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL AND APPROVED IN ADVANCE BY THE ARCHITECT. MOUNTING HEIGHT SHALL BE 60" FROM THE FLOOR TO THE CENTERLINE OF THE SIGN.

SIGNAGE MUST MEET A.D.A. & TITLE 24 REQUIREMENTS.

23 CP3.02 ACCESSIBLE DIRECTIONAL SIGNAGE 'ADS'
SCALE: 1 1/2" = 1'-0"

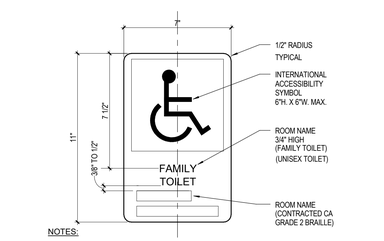


NOTE:
THIS SIGN IS ASSISTING THE HEARING IMPAIRED NOT THE BLIND - BRAILLE NOT REQUIRED

22 CP3.02 ASSISTIVE LISTENING SYSTEM 'ALS'
SCALE: 1 1/2" = 1'-0"

NOTES:
THE BOTTOM OF SIGN SHALL BE 8" MAX ABOVE FLOOR LEVEL WITH THE CLOSEST EDGE OF THE SIGN A MAXIMUM OF 4" FROM THE DOOR FRAME ON THE LATCH SIDE.

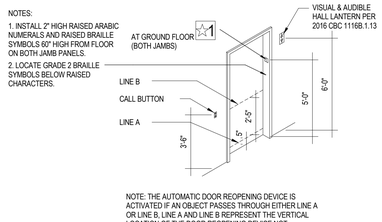
16 CP3.02 FLOOR-LEVEL EXIT SIGN 'FEX'
SCALE: 3" = 1'-0"



NOTES:
INSTALL SIGNAGE ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR. CENTER OF SIGN SHALL BE 14" MAX. FROM DOOR SWING. WHERE THERE IS NO WALL SPACE LATCH SIDE OF THE DOOR, INCLUDING DOUBLE LEAF DOORS, SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL AND APPROVED IN ADVANCE BY THE ARCHITECT. MOUNTING HEIGHT SHALL BE 60" FROM THE FLOOR TO THE CENTERLINE OF THE SIGN.

SIGNAGE MUST MEET A.D.A. & 2016 CBC TITLE 24 REQUIREMENTS.

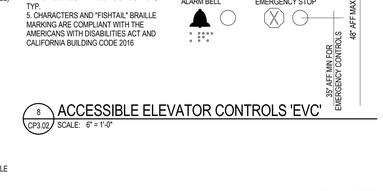
11 CP3.02 FAMILY/ UNISEX TOILET SIGN 'TRS'
SCALE: 3" = 1'-0"



NOTES:
INSTALL SIGNAGE ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR. CENTER OF SIGN SHALL BE 14" MAX. FROM DOOR SWING. WHERE THERE IS NO WALL SPACE LATCH SIDE OF THE DOOR, INCLUDING DOUBLE LEAF DOORS, SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL AND APPROVED IN ADVANCE BY THE ARCHITECT. MOUNTING HEIGHT SHALL BE 60" FROM THE FLOOR TO THE CENTERLINE OF THE SIGN.

SIGNAGE MUST MEET A.D.A. & 2016 CBC TITLE 24 REQUIREMENTS.

13 CP3.02 TOILET ROOM SIGNAGE 'TRS'
SCALE: 3" = 1'-0"



NOTE: THE AUTOMATIC DOOR REOPENING DEVICE IS ACTIVATED IF AN OBJECT PASSES THROUGH EITHER LINE A OR LINE B. LINE A AND LINE B REPRESENT THE VERTICAL LOCATION OF THE DOOR REOPENING DEVICE NOT REQUIRING CONTACT

8 CP3.02 ACCESSIBLE ELEVATOR CONTROLS 'EVC'
SCALE: 6" = 1'-0"

3 CP3.02 SIGNAGE MOUNTING LOCATION
SCALE: 3" = 1'-0"

TYPE STYLE TESTING PROCEDURE:

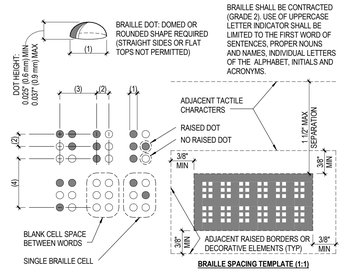
1. SELECT A TYPE STYLE TO TEST.
2. PRINT THE UPPERCASE LETTERS "I" AND "O" AT SAME SIZE WITH HEIGHT OF "I" EQUAL TO 1 INCH.
3. TEST #1: PLACE THE TEMPLATE'S 11:10 AND 3:5 APERTURES OVER THE "O". IF THE "O" IS NOT WIDER THAN 1.1 INCH, NOR NARROWER THAN 0.6 INCH, THEN THE TYPE STYLE'S CHARACTER PROPORTIONS ARE ACCEPTABLE.
4. TEST #3: PLACE THE TEMPLATE'S 3:20 AND 1:10 APERTURES OVER THE "I". IF THE "I" IS NOT WIDER THAN 0.15 INCH, NOR NARROWER THAN 0.1 INCH, THEN THE TYPE STYLE'S STROKE WIDTHS ARE ACCEPTABLE.
5. IF BOTH TESTS ARE PASSED, THEN THE TYPE STYLE IS COMPLIANT WITH THE CHARACTER PROPORTION AND STROKE WIDTH REQUIREMENTS OF THE CODE.

TEMPLATE FOR CHECKING CHARACTER PROPORTIONS AND STROKE THICKNESS:

CHARACTER WIDTH (USE UPPERCASE "O")

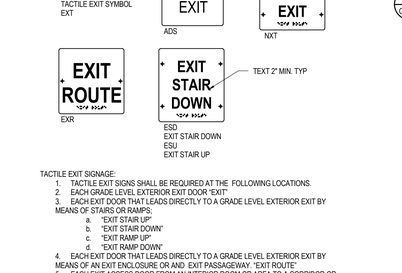
STROKE WIDTH (USE UPPERCASE "I")

2 CP3.02 CHARACTER PROPORTIONS
SCALE: 6" = 1'-0"



KEY MEASUREMENT ..... ALLOWABLE DIMENSIONS
(1) DOT BASE DIAMETER ..... 0.059" (1.5 mm) MIN TO 0.063" (1.6 mm) MAX
(2) DISTANCE BETWEEN TWO DOTS IN SAME CELL ..... 0.100" (2.5 mm) ABSOLUTE
(3) DISTANCE BETWEEN CORRESPONDING DOTS IN ADJACENT CELLS ..... 0.300" (7.6 mm) ABSOLUTE
(4) DISTANCE BETWEEN CORRESPONDING DOTS FROM ONE CELL DIRECTLY BELOW .. .. 0.395" (10 mm) MIN TO 0.400" (10.2 mm) MAX

1 CP3.02 BRAILLE PROPORTIONS AND TEMPLATE
SCALE: 12" = 1'-0"



6 CP3.02 ACCESSIBLE BUILDING ENTRANCE 'ABS'
SCALE: 1 1/2" = 1'-0"

NOTES:
INSTALL SIGNAGE ON THE WALL ADJACENT TO THE LATCH SIDE OF THE DOOR. CENTER OF SIGN SHALL BE 14" MAX. FROM DOOR SWING. WHERE THERE IS NO WALL SPACE LATCH SIDE OF THE DOOR, INCLUDING DOUBLE LEAF DOORS, SIGNS SHALL BE PLACED ON THE NEAREST ADJACENT WALL AND APPROVED IN ADVANCE BY THE ARCHITECT. MOUNTING HEIGHT SHALL BE 60" FROM THE FLOOR TO THE CENTERLINE OF THE SIGN.

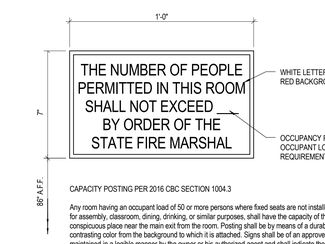
SIGNAGE MUST MEET A.D.A. & TITLE 24 REQUIREMENTS.

25 CP3.02 TACTILE SIGNAGE AT EXITS NOT WHEELCHAIR ACCESSIBLE
SCALE: 1 1/2" = 1'-0"

TACTILE EXIT SIGNAGE:
1. TACTILE EXIT SIGNS SHALL BE REQUIRED AT THE FOLLOWING LOCATIONS.
2. EACH GRADE LEVEL EXTERIOR EXIT DOOR "EXIT"
3. EACH EXIT DOOR THAT LEADS DIRECTLY TO A GRADE LEVEL EXTERIOR EXIT BY MEANS OF STAIRS OR RAMPS:
   a. "EXIT STAIR UP"
   b. "EXIT STAIR DOWN"
   c. "EXIT RAMP UP"
   d. "EXIT RAMP DOWN"
4. EACH EXIT DOOR THAT LEADS DIRECTLY TO A GRADE LEVEL EXTERIOR EXIT BY MEANS OF AN EXIT ENCLOSURE OR AND EXIT PASSAGEWAY. "EXIT ROUTE"
5. EACH EXIT ACCESS DOOR FROM AN INTERIOR ROOM OR AREA TO A CORRIDOR OR HALLWAY THAT IS REQUIRED TO HAVE VISUAL EXIT SIGNS. "EXIT ROUTE".
6. EACH EXIT ACCESS DOOR THROUGH A HORIZONTAL EXIT. "TO EXIT".

SIGNAGE SHALL COMPLY WITH CBC 2016 SECTION 1013.4 AND 11B-703.1, 11B-703.2, 11B-703.3 AND 11B-703.5

21 CP3.02 MAX OCCUPANCY SIGN 'OLS'
SCALE: 3" = 1'-0"



CAPACITY POSTING PER 2016 CBC SECTION 1004.3

Any room having an occupant load of 50 or more persons where fixed seats are not installed, and which is used for assembly, classroom, dining, drinking, or similar purposes, shall have the capacity of the room posted in a conspicuous place near the main exit from the room. Posting shall be by means of a durable sign having a contrasting color from the background to which it is attached. Signs shall be of an approved type and shall be maintained in a legible manner by the owner or his authorized agent and shall indicate the number of occupants permitted for each room use. No person shall deface or remove such signs except as authorized by the enforcing agency."

NOTE: SIGN REQUIRED AT ANY SPACE OVER 49 OCCUPANTS
SEE CODE PLAN SHEETS FOR SPACES REQUIRING SIGNAGE

26 CP3.02 MAX OCCUPANCY SIGN 'OLS'
SCALE: 3" = 1'-0"

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JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

SIGNAGE DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

CP3.02

75-16217-00
05.01.18

Revisions			
8/02	11.02.17	BUDGUVSTATS	
FMD1	4.06.18	COMMENTS/BACKCHECK 1 FIRE MARSHALL BACKCHECK	

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BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263

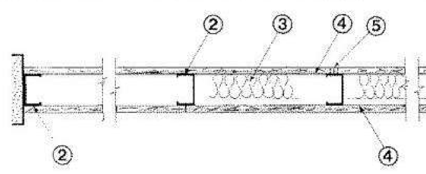
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

Design No. U465

July 14, 2016

Nonbearing Wall Rating — 1 HR.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Floor and Ceiling Runners** — (Not Shown) — Channel shaped runners, 3-5/8 in. deep (min), 1-1/4 in. legs, formed from min No. 25 MSG galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

1A. **Framing Members*** — **Floor and Ceiling Runners** — (Not Shown) — As an alternate to Item 1 - Channel shaped, min 3-5/8 in. deep, attached to floor and ceiling with fasteners 24 in. OC. max.

ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME Framing System

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME Framing System

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME Framing System

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME Framing System

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME Framing System

UNITED METAL PRODUCTS INC — Type SUPREME Framing System

1B. **Framing Members*** — **Floor and Ceiling Runners** — Not Shown — In lieu of Item 1 — For use with Item 2B, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™ Track

CRACO MFG INC — SmartTrack20™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track

1C. **Floor and Ceiling Runners** — (Not Shown) — For use with Item 2C — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1D. **Framing Members*** — **Floor and Ceiling Runners** — Not Shown — In lieu of Items 1 through 1C — For use with Item 2D and 4G only, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

CLARKDIETRICH BUILDING SYSTEMS — CD ProTRAK

DMFCWBS L L C — ProTRAK

MBA METAL FRAMING — ProTRAK

RAM SALES L L C — Ram ProTRAK

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProTRAK

1E. **Framing Members*** — **Floor and Ceiling Runners** — Not Shown — In lieu of Items 1 through 1D — For use with Item 2E and 4I only, proprietary channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

TELLING INDUSTRIES L L C — TRUE-TRACK™

1F. **Framing Members*** — **Floor and Ceiling Runners** — Not Shown — In lieu of Items 1 through 1E — For use with Item 2, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide fabricated from min 25 MSG steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

KIRII (HONG KONG) LTD — Type KIRII

1G. **Framing Members*** — **Floor and Ceiling Runners** — Not Shown — In lieu of Items 1 through 1F — For use with Item 2, channel shaped runners, 1-1/4 in. deep by min 3-5/8 in. wide, attached to floor and ceiling with fasteners spaced 24 in. OC max.

STUDCO BUILDING SYSTEMS — CROCSTUD Track

1H. **Floor and Ceiling Runners** — (Not Shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.02 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™ Track VT100

1I. **Framing Members*** — **Floor and Ceiling Runners** — Not Shown — In lieu of Item 1 — For use with Item 2H, proprietary channel shaped runners, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

TELLING INDUSTRIES L L C — Viper20™ Track

1J. **Framing Members*** — **Floor and Ceiling Runners** — (Not Shown) — As an alternate to Item 1 - For use with Item 2L. Channel shaped, attached to floor and ceiling with fasteners 24 in. OC. max.

BAILEY METAL PRODUCTS LTD — Type PLATINUM PLUS

2. **Steel Studs** — Channel shaped, 3-5/8 in. deep (min), formed from min No. 25 MSG galv steel spaced 24 in. OC max. Studs to be cut 3/4 in. less than assembly height.

2A. **Framing Members*** — **Steel Studs** — As an alternate to Item 2 — Channel shaped studs, min 3-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

ALLSTEEL & GYPSUM PRODUCTS INC — Type SUPREME Framing System

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — Type SUPREME Framing System

QUAIL RUN BUILDING MATERIALS INC — Type SUPREME Framing System

SCAFCO STEEL STUD MANUFACTURING CO — Type SUPREME Framing System

STEEL CONSTRUCTION SYSTEMS INC — Type SUPREME Framing System

UNITED METAL PRODUCTS INC — Type SUPREME Framing System

2B. **Framing Members*** — **Steel Studs** — Not Shown — In lieu of Item 2 — For use with Item 1B, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/4 in. less in length than assembly height.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Viper20™

CRACO MFG INC — SmartStud20™

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Viper20™

2C. **Steel Studs** — (As an alternate to Item 2, For use with Item 4E) — Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

2D. **Framing Members*** — **Steel Studs** — As an alternate to Items 2 through 2C— For use with Item 1D and 4G only, channel shaped studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.

CLARKDIETRICH BUILDING SYSTEMS — CD ProSTUD

DMFCWBS L L C — ProSTUD

MBA METAL FRAMING — ProSTUD

RAM SALES L L C — Ram ProSTUD

STEEL STRUCTURAL PRODUCTS L L C — Tri-S ProSTUD

2E. **Framing Members*** — **Steel Studs** — As an alternate to Items 2 through 2D — For use with Item 1E and 4I only, channel shaped studs, min 3-5/8 in. wide fabricated from min 0.018 in. thick galv steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.

TELLING INDUSTRIES L L C — TRUE-STUD™

2F. **Framing Members*** — **Steel Studs** — As an alternate to Items 2 through 2E — For use with Item 1F, channel shaped studs, min 3-5/8 in. wide fabricated from min 25 MSG steel, spaced a max of 24 in. OC. Studs to be cut 1/2 in. less than assembly height.

KIRII (HONG KONG) LTD — Type KIRII

2G. **Framing Members*** — **Steel Studs** — Not Shown — In lieu of Item 2 through 2F — For use with Item 1G. Proprietary channel shaped studs, minimum 3-5/8 in. wide, Studs to be cut 1/2 in. less than the assembly height.

STUDCO BUILDING SYSTEMS — CROCSTUD

2H. **Framing Members*** — **Steel Studs** — Not Shown — In lieu of Item 2 — For use with Item 1I, proprietary channel shaped steel studs, 1-1/4 in. wide by min 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel. Studs cut 3/4 in. less in length than assembly height.

TELLING INDUSTRIES L L C — Viper20™

2I. **Framing Members*** — **Steel Studs** — In lieu of Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, 3-5/8 in. deep (min), spaced 24 in. OC max. Studs to be cut 3/4 in. less than assembly height.

EB MéTAL INC — EB Stud

2J. **Framing Members*** — **Steel Studs** — In lieu of Item 2 — For use with Item 1, channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, 3-5/8 in. deep (min), spaced 24 in. OC max. Studs to be cut 3/4 in. less than assembly height.

OLMAR SUPPLY INC — PRIMESTUD

2K. **Framing Members*** — **Steel Studs** — As an alternate to Item 2 — For use with Item 1B (3-5/8 in. wide track), channel shaped studs, fabricated from min 25 MSG corrosion-protected steel, 1-1/4 in. wide by 3-5/8 in. deep, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

MARINO/WARE, DIV OF WARE INDUSTRIES INC — StudRite™

2L. **Framing Members*** — **Steel Studs** — As an alternate to Item 2 — For use with Item 1J, channel shaped, min 3-5/8 in. wide, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

BAILEY METAL PRODUCTS LTD — Type PLATINUM PLUS

3. **Batts and Blankets*** — (Optional) — Mineral wool or glass fiber batts partially or completely filling stud cavity.

See **Batts and Blankets** (BZJZ) category for names of Classified companies.

3A. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 3) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product.

U S GREENFIBER L L C — INS735& INS745 for use with wet or dry application. INS765LD and INS770LD are to be used for dry application only

3B. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 3) and Item 3A — Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.

NU-WOOL CO INC — Cellulose Insulation

3C. **Fiber, Sprayed*** — As an alternate to Batts and Blankets (Item 3) — Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.

INTERNATIONAL CELLULOSE CORP — Celbar-RL

3D. **Batts and Blankets*** — For use with Item 8. Nom 3 in. thick, minimum 3.4 pcf mineral wool batts, friction fit between the studs and floor and ceiling runners.

See **Batts and Blankets** (BZJZ) category for names of manufacturers.

3E. **Batts and Blankets*** — For use with Item 4P. Placed in stud cavities, any min. 3-1/2 in. thick glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance.

See **Batts and Blankets** (BKNV or BZJZ) Categories for names of Classified companies.

4. **Gypsum Board*** — 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly. When attached to Items 6 (resilient channels) or 6A, 6B or 6C (furring channels), gypsum board is screw attached to furring channels with 1 in. long, Type S steel screws spaced 12 in. OC.

ACADIA DRYWALL SUPPLIES LTD — Type X, 5/8 Type X, Type Blueglass Exterior Sheathing

AMERICAN GYPSUM CO — Types AG-C, AGX-1, M-Glass

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO — Type DBX-1

CGC INC — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, USGX, WRC or WRX (Joint tape and compound, Item 5, optional for use with Type USGX)

CERTAINTEED GYPSUM INC — Types 1, EGRG, GlasRoc, Type X, Type X-1, Type C, SilentFX, 5/8" Easi-Lite Type X

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Types LGFC2A, LGFC6A, LGFC-C/A, LGFC-WD, LGLLX

GEORGIA-PACIFIC GYPSUM L L C — Types 5, 6, 9, C, DAP, DD, DA, DAPC, DGG, DS, GPFS6, LS, Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, TG-C, GreenGlass Type X, Type X ComfortGuard Sound Deadening Gypsum Board, Type LWX, Veneer Plaster Base-Type LWX, Water Rated-Type LWX, Sheathing Type-LWX, Soffit-Type LWX, Type DGLW, Water Rated-Type DGLW,

Sheathing Type- DGLW, Soffit-Type DGLW, Type LW2X, Veneer Plaster Base - Type LW2X, Water Rated - Type LW2X, Sheathing - Type LW2X, Soffit - Type LW2X, Type DGL2W, Water Rated - Type DGL2W, Sheathing - Type DGL2W

NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSMR-C, FSW-C, FSW-G, FSW, FSW-3, FSW-5, FSW-6, FSW-8, FSL

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types PG-C, PG-9, PG-11, PGS-WRS

PANEL REY S A — Types GREX, PRC, PRC2, PRX, RHX, MDX, ETX

SAINT-GOBAIN GYPROC MIDDLE EAST FZE — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop M2TECH, Gyproc FireStop ACTIV'Air, Gyproc FireStop MR ACTIV'Air, Gyproc FireStop M2TECH ACTIV'Air, Gyproc DuraLine, Gyproc DuraLine MR, Gyproc DuraLine M2TECH, Gyproc DuraLine ACTIV'Air, Gyproc DuraLine MR ACTIV'Air, Gyproc DuraLine M2TECH ACTIV'Air

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD — Type EX-1

THAI GYPSUM PRODUCTS PCL — Type X, Type C

UNITED STATES GYPSUM CO — Type AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC, WRX, USGX (Joint tape and compound, Item 5, optional for use with Type USGX)

USG BORAL ZAWAWI DRYWALL L L C SFZ — Types C, SCX

USG MEXICO S A DE C V — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, USGX, WRC or WRX (Joint tape and compound, Item 5, optional for use with Type USGX)

4A. **Gypsum Board*** — (As alternate to Item 4) — Nom 5/8 in. thick gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Panels attached to steel studs and floor runner with 1 in. long Type S steel screws spaced 8 in. OC when applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. When used in widths other than 48 in., gypsum panels to be installed horizontally.

CERTAINTEED GYPSUM INC — Type X, Type X-1, Type C, Type EGRG/ GlasRoc.

CGC INC — Types AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, USGX, WRC or WRX (Joint tape and compound, Item 5, optional for use with Type USGX)

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Types LGFC2A, LGFC6A, LGFC-C/A, LGFC-WD

GEORGIA-PACIFIC GYPSUM L L C — Types DAP, DAPC, DGG, DS

SAINT-GOBAIN GYPROC MIDDLE EAST FZE — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop M2TECH, Gyproc FireStop ACTIV'Air, Gyproc FireStop MR ACTIV'Air, Gyproc FireStop M2TECH ACTIV'Air, Gyproc DuraLine, Gyproc DuraLine MR, Gyproc DuraLine M2TECH, Gyproc DuraLine ACTIV'Air, Gyproc DuraLine MR ACTIV'Air, Gyproc DuraLine M2TECH ACTIV'Air

THAI GYPSUM PRODUCTS PCL — Type X, Type C

UNITED STATES GYPSUM CO — Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRC, WRX, USGX (Joint tape and compound, Item 5, optional for use with Type USGX)

USG BORAL ZAWAWI DRYWALL L L C SFZ — Types C, SCX

USG MEXICO S A DE C V — Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, USGX, WRC or WRX (Joint tape and compound, Item 5, optional for use with Type USGX)

4B. **Gypsum Board*** — (As an alternate to Items 4 or 4A) — Nom 3/4 in. thick, 4 ft wide, installed as described in Item 4A with screw length increased to 1-1/4 in.

CGC INC — Types AR, IP-AR

UNITED STATES GYPSUM CO — Types AR, IP-AR

USG MEXICO S A DE C V — Types AR, IP-AR

4C. **Gypsum Board*** — As an alternate to Items 4, 4A, and 4B — Nom. 5/8 in. thick gypsum panels, with square edges, applied horizontally. Gypsum panels fastened to framing with 1 in. long bugle head steel screws spaced a max 8 in. OC, with last 2 screws 3/4 in. and 4 in. from each edge of board. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs on interior walls need not be staggered or backed by steel framing.

GEORGIA-PACIFIC GYPSUM L L C — Type DGG, GreenGlass Type X

4D. **Gypsum Board*** — As an alternate to Items 4, 4A, 4B, and 4C — Nom. 5/8 in. thick gypsum panels applied vertically or horizontally. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Gypsum panels fastened to framing with 1 in. long Type S steel screws 8 in. OC along vertical edges and 12 in. OC in the field when panels are applied vertically. When gypsum panels applied horizontally, fasten to framing with 1 in. long Type S steel screws spaced 8 in. OC along vertical edges and in the field. Screws spaced a max 12 in. along the top and bottom edges of the wall for both vertical and horizontal applications.

NATIONAL GYPSUM CO — Types eXP-C, FSK, FSK-C, FSK-G, FSL, FSW-C, FSW-G, FSW, FSW-3, FSW-5, FSW-6, FSW-8, FSMR-C

4E. **Gypsum Board*** — (As an alternate to Items 4 through 4D) — Installed as described in Item 4. 5/8 in. thick, 4 ft. wide, paper surfaced, applied vertically only and fastened to the studs and plates with 1 in. long, Type S steel screws spaced, 8 in. OC. Not to be used with item 6.

NATIONAL GYPSUM CO — SoundBreak XP Type X Gypsum Board

4F. **Gypsum Board*** — (Not Shown) — (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C) - Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

RAY-BAR ENGINEERING CORP — Type RB-LBG

4G. **Gypsum Board*** — (As an alternate to Items 4 through 4F) — For use with Items 1D and 2D only, 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly.

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC6A, LGFC-C/A

NATIONAL GYPSUM CO — Types FSW

UNITED STATES GYPSUM CO — Type SCX

USG BORAL ZAWAWI DRYWALL L L C SFZ — Type SCX

4H. **Gypsum Board*** — (As an alternate to Items 4 through 4G) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES

4I. **Gypsum Board*** — (As an alternate to Items 4 through 4F) — For use with Items 1E and 2E only, 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly.

UNITED STATES GYPSUM CO — Type SCX

USG BORAL ZAWAWI DRYWALL L L C SFZ — Type SCX

4J. **Gypsum Board*** — (Not Shown) — (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C) - Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 9A) or Lead Discs (see Item 10A).

MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum

4K. **Gypsum Board*** — (As an alternate to Item 4 and 4A, not for use with Items 1D, 1E, 2D and 2E) — Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 4 and 4A.

CGC INC — Type ULX

UNITED STATES GYPSUM CO — Type ULX

USG MEXICO S A DE C V — Type ULX

4L. **Gypsum Board*** — (Not Shown) — (As an alternate to Item 4 when used as the base layer on one or both sides of wall. For direct attachment only to steel studs Item 2C). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

4M. **Gypsum Board*** — (For use with Item 8) — 5/8 in. thick, 4 ft wide, applied vertically over Mineral and Fiber Board (Item 8) with vertical joints located anywhere over stud cavities. Secured to mineral and fiber boards with 1-1/2 in. Type G Screws spaced 8 in. OC along edges of each vertical joint and 12 in. OC in intermediate field of the Mineral and Fiber Board (Item 8). Secured to outermost studs and floor and ceiling runners with 2 in. long Type S screws spaced 8 in. OC. Gypsum Board joints covered with paper tape and joint compound. Screw heads covered with joint compound.

AMERICAN GYPSUM CO — Type AG-C

CERTAINTEED GYPSUM INC — Type FRPC, Type C

CGC INC — Types C, IP-X2, IPC-AR

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC-C/A

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, TG-C

NATIONAL GYPSUM CO — Types eXP-C, FSK-C, FSW-C

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type PG-C

PANEL REY S A — Types PRC, PRC2

SAINT-GOBAIN GYPROC MIDDLE EAST FZE — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop M2TECH, Gyproc FireStop ACTIV'Air, Gyproc FireStop MR ACTIV'Air, Gyproc FireStop M2TECH ACTIV'Air, Gyproc DuraLine, Gyproc DuraLine MR, Gyproc DuraLine M2TECH, Gyproc DuraLine ACTIV'Air, Gyproc DuraLine MR ACTIV'Air, Gyproc DuraLine M2TECH ACTIV'Air

THAI GYPSUM PRODUCTS PCL — Type C

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR

USG BORAL ZAWAWI DRYWALL L L C SFZ — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

4N. **Wall and Partition Facings and Accessories*** — (As an alternate to Item 4) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527

4O. **Gypsum Board*** — As an alternate to Items 4, 4A, 4B, and 4C — Two layers Nom. 5/16 in. thick gypsum panels applied vertically or horizontally. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered or backed by steel framing. Horizontal joints on the same side need not be staggered. When applied horizontally, both layers of gypsum board fastened to each side of framing with 1 in. long Type S steel screws spaced 8 in. OC and staggered 4 in. OC between layers. When applied vertically, both layers of gypsum board fastened to each side of framing with 1 in. long Type S steel screws spaced 8 in. OC along vertical edges and 12 in. OC in the field, staggered 4 in. OC between layers. Screws spaced a max 12 in. along the top and bottom edges of the wall.

NATIONAL GYPSUM CO — Type FSW

4P. **Gypsum Board*** — As an alternate to Item 4. For use with Item 3E, **Batts and Blankets*** — 5/8 in. thick, 4 ft wide, attached to steel studs and floor and ceiling track with 1 in. long, Type S steel screws spaced 8 in. OC. along edges of board and 12 in. OC in the field of the board. Joints oriented vertically and staggered on opposite sides of the assembly. When attached to item 6 (resilient channels) or 6A, 6B or 6C (furring channels), gypsum board is screw attached to furring channels with 1 in. long, Type S steel screws spaced 12 in. OC.

UNITED STATES GYPSUM CO — Types ULIX

5. **Joint Tape and Compound** — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, 2 in. wide, embedded in first layer of compound over all joints. As an alternate, nominal 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of Classified veneer baseboard. Joints reinforced. Paper tape and joint compound may be omitted when gypsum boards are supplied with square edges.

6. **Resilient Channel** — (Optional — Not Shown) — 25 MSG galv steel resilient channels spaced vertically max 24 in. OC, flange portion attached to each intersecting stud with 1/2 in. long type S-12 pan head steel screws. May not be used with Item 4F or 4J.

6A. **Steel Framing Members*** — (Not Shown) — As an alternate to Item 6, furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel, 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels are overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel.

b. **Framing Members*** — Used to attach furring channels (Item a) to studs (Item 2). Clips spaced 48 in. OC., and secured to studs with 1-5/8 in. wafer or hex head Type S steel screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clip for use with 2-9/16 in. wide furring channels. RSIC-1 (2.75) clip for use with 2-23/32 in. wide furring channels.

PAC INTERNATIONAL L L C — Types RSIC-1, RSIC-1 (2.75)

6B. **Framing Members*** — (Not Shown) — (Optional on one or both sides) — As an alternate to Item 6, furring channel and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 4.

b. **Steel Framing Members*** — Used to attach furring channels (Item 6Ba) to studs (Item 2). Clips spaced max. 48 in. OC. GENIECLIPS secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.

PLITEQ INC — Type Genie Clip

6C. **Steel Framing Members*** — (Optional, Not Shown) — Furring channels and Steel Framing Members as described below:

a. **Furring Channels** — Formed of No. 25 MSG galv steel. Spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Ends of adjoining channels overlapped 6 in. and secured together with four self-tapping No. 8x1/2 Self Drilling screws (2 per side 1 in. and 4 in. from overlap edge). Gypsum board attached to furring channels as described in Item 4. Side joint furring channels shall be attached to studs with RESILMOUNT Sound Isolation Clips - Type A237R located approximately 2 in. from each end of length of channel. Both Gypsum Boards at side joints fastened into channel with screws spaced 8 in. OC, approximately 1/2 in. from joint edge.

b. **Steel Framing Members*** — Used to attach furring channels (Item 6Ca) to studs. Clips spaced 24 in. OC., and secured to studs with No. 10 x 2-1/2 in. coarse drywall screw through the center hole. Furring channels are friction fitted into clips.

STUDCO BUILDING SYSTEMS — RESILMOUNT Sound Isolation Clips - Type A237R

7. **Wall and Partition Facings and Accessories*** — (Optional, Not Shown) — Nominal 1/2 in. thick, 4 ft wide panels, for optional use as an additional layer on one or both sides of the assembly. Panels attached in accordance with manufacturer's recommendations. When the QR-500 or QR-510 panel is installed between the steel framing and the UL Classified gypsum board, the required UL Classified gypsum board layer(s) is/are to be installed as indicated as to fastener type and spacing, except that the required fastener length shall be increased by a minimum of 1/2 in. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock QR-500 and QR-510

8. **Mineral and Fiber Board*** — (Optional, Not Shown) — For optional use as an additional layer on one side of wall. Nom 1/2 in. thick, 4 ft wide with long dimension parallel and centered over studs. Attached to studs and floor and ceiling runners with 1-5/8 in. long Type S steel screws, spaced 12 in. OC and 24 in. OC along all intermediate framing. The required UL Classified gypsum board layer (Item 4M) is to be installed over the Mineral and Fiber Boards. Batts and Blankets, Item 3D, and Adhesive, Item 11, are required.

HOMASOTE CO — Homasote Type 440-32

9. **Lead Batten Strips** — (Not Shown, For Use With Item 4E) — Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum board (Item 4E) and optional at remaining stud locations. Required behind vertical joints.

9A. **Lead Batten Strips** — (Not Shown, for use with Item 4J) — Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4J) and optional at remaining stud locations.

10. **Lead Discs or Tabs** — (Not Shown, For Use With Item 4E) — Used in lieu of or in addition to the lead batten strips (Item 8) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 4E) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

10A. **Lead Discs** — (Not Shown, for use with Item 4J) — Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".

11. **Adhesive** — Not Shown — (For use with Item 8) — Construction grade adhesive applied in vertical, serpentine, nominal 3/8 in. wide beads down the length of both vertical edges of Mineral and Fiber Board (Item 8).

12. **Wall and Partition Facings and Accessories*** — (Optional, Not Shown) — For use with Items 1 to 1I, Items 2 to 2J, Item 3, Items 4 to 4I, Item 5 and Item 6. For maximum fire rating of 1 hour. On one side of the wall, over the first layer of Gypsum Board (Item 4 to Item 4I), install RefleXor membrane with the gold side facing outwards. Membrane installed with T50 staples spaced 12 inches on center in both directions as per manufacturer's instructions, seams in membrane to be overlapped by 2 inches. When RefleXor membrane is used an additional layer of Gypsum Board that is identical to the one used in the first layer and as specified in Item 4 to Item 4I shall be installed over the membrane. The additional layer of Gypsum Board to be installed through the membrane to the stud as specified in Item 4 to Item 4I except the fastener length shall be increased by a minimum of 5/8 inch. Install Batts and Blankets in the stud cavity as per Item 3. On the other side of the wall, prior to the installation of the Gypsum Board, install Resilient Channels as per Item 6. Over the Resilient Channels install 3/4 inch thick SONOpan panel secured to the Resilient Channels with drywall screws and washers spaced at 16 in. OC on the perimeter of the panel and 8 in. OC in the field of the panel. Over the SONOpan panel install the same Gypsum Board as specified in Item 4 to Item 4I with the fastener length increased by minimum 3/4 inch. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

MSL — RefleXor membrane, SONOpan panel

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2016-07-14

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07-31-19
STATE OF CALIFORNIA

UL LITERATURE
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

CP4.01
75-16217-00
01.25.18
Revisions
BV01 10.06.17 BUREAU VERITAS COMMENTS

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BXUV - Fire Resistance Ratings - ANSI/UL 263

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

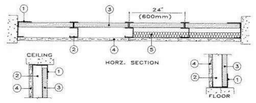
Design No. U469

July 05, 2016

Assembly Rating — 1 HR

Nonbearing Wall

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Floor and Ceiling Runners —** 2" - shaped, 2-1/2 in. wide with unequal legs of 1 in. and 2 in., fabricated from 24 MSG galv steel (min 20 MSG steel required when Item 4A, 4B, or 4C is used). Runners attached to structural supports with steel fasteners located not greater than 2 in. from ends and not greater than 24 in. OC.

2. **Steel Studs —** "C- till" shaped studs, 2-1/2 in. wide by 1-1/2 in. deep, fabricated from min 25 MSG galv steel (min 20 MSG steel required when Item 4A, 4B, or 4C is used), spaced 24 in. or 600 mm OC (max 16 in. OC when Item 4A, 4B, or 4C is used). Vertically restrained walls require studs to be cut 3/8 in. less than floor to ceiling height.

3. **Gypsum Board* —** 1 in. thick gypsum wallboard liner panels, supplied in nominal 24 in. or 600 mm widths. Vertical edges inserted in "H" shaped section of "C-till" studs. Face edge of end panels attached to long leg of "T" runners with 1-5/8 in. long Type S head steel screws spaced not greater than 12 in. OC.

CGC INC — Type SLX.

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFCSL.

GEORGIA-PACIFIC GYPSUM L L C — Types TP-6, DGUSL, and TRSL

UNITED STATES GYPSUM CO — Type SLX

USG BORAL ZAWAWI DRYWALL L L C SFZ — Type SLX

USG MEXICO S A DE C V — Type SLX.

4. **Gypsum Board* —** 5/8 in. thick, 4 ft or 1200 mm wide, applied vertically and attached to studs with 1 in. long Type S steel screws spaced 12 in. OC along the edges and in the field of the boards.

ACADIA DRYWALL SUPPLIES LTD — 5/8 Type X, Type Blueglass Exterior Sheathing

AMERICAN GYPSUM CO — Types AGX-1, M-Glass, AG-C.

CERTAINTEED GYPSUM INC — Type C.

CGC INC — Types C, IP-X1, IP-X2, IPC-AR, SCX, ULX, or WRC.

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Types LGFC-C, LGFC-C/A, LGFC6A

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, Type X, Veneer Plaster Base - Type X, Water Rated - Type X, Sheathing - Type X, Soffit - Type X, Type TG-C, Type LWX, Veneer Plaster Base-Type LWX, Water Rated-Type LWX, Sheathing Type-LWX, Soffit-Type LWX, Type DGLW, Water Rated-Type DGLW, Sheathing Type- DGLW, Soffit-Type DGLW, Type LWZX, Veneer Plaster Base - Type LWZX, Water Rated - Type LWZX, Sheathing - Type LWZX, Soffit - Type LWZX, Type DGLZW, Water Rated - Type DGLZW, Sheathing - Type DGLZW, Type DGG, Type DAF, Type DS.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Types C, PG-11, PG-C, PGS-WRS.

SAINT-GOBAIN GYPROC MIDDLE EAST FZE — Type Gyproc FireStop, Gyproc FireStop MR, Gyproc FireStop M2TECH, Gyproc FireStop ACTIVAir, Gyproc FireStop MR ACTIVAir, Gyproc FireStop M2TECH ACTIVAir, Gyproc DuraLine, Gyproc DuraLine MR, Gyproc DuraLine M2TECH, Gyproc DuraLine ACTIVAir, Gyproc DuraLine MR ACTIVAir, Gyproc DuraLine M2TECH ACTIVAir

THAI GYPSUM PRODUCTS PCL — Type C.

UNITED STATES GYPSUM CO — Types C, FRX-G, IP-X1, IP-X2, IPC-AR, SCX, ULX or WRC.

USG BORAL ZAWAWI DRYWALL L L C SFZ — Types C, SCX

USG MEXICO S A DE C V — Types C, IP-X1, IP-X2, IPC-AR, SCX, ULX, or WRC.

4A. **Gypsum Board* —** Not Shown - As an Alternate to Item 4. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips (Item 6) required behind vertical joints

RAY-BAR ENGINEERING CORP — Type RB-LBG

4B. **Gypsum Board* —** Not Shown - As an Alternate to Item 4. Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints. To be used with Lead Batten Strips (see Item 6B) or Lead Discs (see Item 6C).

MAYCO INDUSTRIES INC — Type X-Ray Shielded Gypsum

4C. **Gypsum Board* —** (Not Shown - As an Alternate to Item 4.). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

RADIATION PROTECTION PRODUCTS INC — Type RPP - Lead Lined Drywall

4D. **Gypsum Board* —** For use with Item 5D, **Batts and Blankets*** and minimum stud depth increased to 4 in. - 5/8 in. thick, 4 ft or 1200 mm wide, applied vertically and attached to studs with 1 in. long Type S steel screws spaced 12 in. OC along the edges and in the field of the boards.

UNITED STATES GYPSUM CO — Type ULIX

5. **Batts and Blankets* —** (Optional) — Mineral wool batts partially or completely filling stud cavity.

ROXUL INC — Type AFB

THERMAFIBER INC — Type SAFB

5A. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 5) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft³. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft³, in accordance with the application instructions supplied with the product.

U S GREENFIBER L L C — INS735& INS745 for use with wet or dry application. INS765LD and INS770LD are to be used for dry application only.

5B. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 5) and Item 5A - Spray applied cellulose insulation material. The fiber is applied with water to interior surfaces in accordance with the application instructions supplied with the product. Applied to completely fill the enclosed cavity. Minimum dry density of 4.3 pounds per cubic ft.

NU-WOOL CO INC — Cellulose Insulation

5C. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 5) - Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft³.

INTERNATIONAL CELLULOSE CORP — Cellsar-RL

5D. **Batts and Blankets* —** For use with Item 4D. Placed in stud cavities, any min. 3-1/2 in. thick glass fiber insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See **Batts and Blankets (BKNY or BZJZ) Categories** for names of Classified companies.

6. **Lead Batten Strips —** For Use with Item 4A - (Not Shown) — Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 4A) and optional at remaining stud locations. Strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

6A. **Lead Discs or Tabs —** (Not Shown) - Used in lieu of or in addition to the lead batten strips (Item 6) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 5) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

6B. **Lead Batten Strips —** (Not Shown, for use with Item 4B) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.5% meeting the Federal specification QQ-L-201f, Grades "B, C or D".

6C. **Lead Discs —** (Not Shown, for use with Item 4B) Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.5% meeting the Federal Specification QQ-L-201f, Grades "B, C or D".

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2016-07-05

ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0099
XHBN.HW-D-0099
Joint Systems

Page Bottom

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

XHBN - Joint Systems

XHBN7 - Joint Systems Certified for Canada

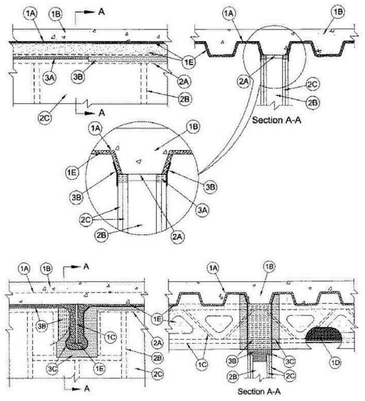
See General Information for Joint Systems

See General Information for Joint Systems Certified for Canada

System No. HW-D-0099

November 23, 2015

ANSI/UL2079	CAN/ULC S115
Assembly Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
Nominal Joint Widths - 3/4 and 1-1/2 In. (See Item 3)	FT Ratings — 1 and 2 Hr (See Item 1)
Class II Movement Capabilities — 50% and 100% Compression or Extension (See Item 3)	FH Ratings — 1 and 2 Hr (See Item 1)
L Rating At Ambient — Less Than 1 CFM/sq ft	FTH Ratings — 1 and 2 Hr (See Item 1)
L Rating At 400 F — Less Than 1 CFM/sq ft	Nominal Joint Widths - 3/4 and 1-1/2 In. (See Item 3).
	Class II Movement Capabilities — 50% and 100% Compression or Extension (See Item 3)
	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — Less Than 1 CFM/sq ft



1. **Floor Assembly —** The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700, D800, or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Floor Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Structural Steel Support —** (Optional) — Steel beam or open-web steel joist, as specified in the individual D700, D800 or D900 Series Floor-Ceiling Design, used to support steel floor units. Structural steel support oriented perpendicular to wall assembly.

D. **Steel Lath —** Where open-web steel joists pass through the fire rated wall, 3/8 in. (10 mm) diamond mesh expanded steel lath having a nom weight of 1.7 to 3.4 lb per sq yd (0.9 to 1.8 kg/m²) shall be secured to one side of each joist with steel tie wire and the lath shall be fully covered with spray applied fire resistive material with no min thickness requirement.

E. **Spray-Applied Fire Resistive Material* —** After installation of the ceiling runner (Item 2A) or deflection track (Item 3A, if used), steel floor units and structural steel supports to be sprayed with the thickness of material specified in the individual D700, D800, or D900 Series Design. Material is to be excluded from the flanges of the ceiling runner or deflection track. For D900 Series Designs structural steel supports, steel furring and steel lath only to be sprayed in accordance with the specifications in the individual D900 Series Design.

ISOLATEK INTERNATIONAL — Type 300 or Type II

SOUTHWEST FIREPROOFING PRODUCTS CO — Type S, Type SGP

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY, MK-6/HYES, MK-65 and RG.

2. **Wall Assembly —** The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). When deflection channel (Item 3A) is used, flange height of ceiling runner is to be equal to or greater than flange height of deflection channel and the ceiling runner is to nest within the deflection channel with a 1/2 in. (13 mm) to 3/4 in. (19 mm) gap maintained between the top of the ceiling runner and the top of the deflection channel. When deflection channel is not used, flange height of ceiling runner shall be min 1/4 in. (6 mm) greater than max extended joint width. Ceiling runner is secured to steel floor units prior to the application of the sprayed-applied fire resistive material with steel masonry anchors or welds spaced max 24 in. (610 mm) OC. Ceiling runner or deflection channel to be centered beneath and parallel with valley of steel floor unit. A clearance of 1 in. (25 mm) shall be maintained between the end of the ceiling runner or deflection channel and the spray applied fire resistive material on the structural steel support members.

A1. **Light Gauge Framing* — Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 2A, ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, prior to the application of the sprayed-applied fire resistive material and secured with steel masonry anchors spaced max 24 in. (610 mm) OC. When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

METAL-LITE INC — The System

QUAIL RUN BUILDING MATERIALS INC — Slotted Deflection Track

SCAFCO STEEL STUD MANUFACTURING CO

STEELER INC — Steeler Slotted Ceiling Runner

TELLING INDUSTRIES L L C — True-Action Deflection Track

THE STEEL NETWORK INC — VertiTrack VT, series,250VT, 362VT, 400VT, 600VT and 800VT

A2. **Light Gauge Framing* - Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A2, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, prior to the application of the sprayed-applied fire resistive material and secured with steel masonry anchors spaced max 24 in. OC. When notched ceiling runner is used, deflection channel (Item 3A) shall not be used.

OLMAR SUPPLY INC — Type SCR

A3. **Light Gauge Framing* - Slotted Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A3, slotted ceiling runner to consist of galv steel channel with 3-1/4 in. (83 mm) high slotted flanges sized to accommodate steel studs (Item 2B). Ceiling runner installed perpendicular to direction of fluted steel floor or roof deck and secured to valleys with steel fasteners spaced max 24 in. (610 mm) OC. When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLPTRK325

B. **Studs —** Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 1/2 in. to 1-1/4 in. (19 to 32 mm) less in length than assembly height with bottom nesting in and secured to floor runner. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 (13 mm) long wafer head steel screws at midheight of slot on each side of wall. When deflection channel (Item 3A) is used, steel studs attached to ceiling runner (Item 2A) with sheet metal screws located 1/2 in. (13 mm) below the bottom of the deflection channel. When deflection channel is not used, studs to nest in ceiling runner without attachment. A framed opening shall be constructed around each structural steel support member. A min clearance of 1 in. (25 mm) to a maximum clearance of 3 in. (76 mm) shall be maintained between the framing and the spray applied fire resistive material on the two sides of the structural support member. The clearance between the framing and the spray applied fire resistive material on the bottom of the structural steel support member shall be max 1 in. (25 mm).

B1. **Light Gauge Framing* —Slotted Studs —** Slotted steel stud to be used in conjunction with **Light Gauge Framing* —Floor and Ceiling Runners** (Item 2A1). Slotted steel studs to be min 3-1/2 in. (89 mm) wide. Slotted steel studs cut 1/2 in. to 1-1/4 in. (13 to 32 mm) less in length than assembly height with bottom nesting in and secured to both ceiling and floor runners. Ceiling runner secured to preformed slot within steel stud by means of No. 10 by 3/4 in. (19 mm) long low profile head steel screw. Floor runner attached to bottom of steel stud by means of No. 8 by 1/2 in. (13 mm) long pan head steel screw. Slotted steel stud spacing not to exceed 24 in. (610 mm) OC.

STEELER INC — Steeler Slotted Stud

C. **Gypsum Board* —** Gypsum board sheets installed to a min total 5/8 in. (16 mm) or 1-1/4 in. (32 mm) thickness on each side of wall for 1 and 2 hr fire rated assemblies, respectively. Wall to be constructed in the individual U400 or V400 Series Design in the UL Fire Resistance Directory, except that a max 1 in. (25 mm) gap shall be maintained between the top of the gypsum board and the bottom plane of the steel floor units and between the top edge of the gypsum board and the spray applied fire resistive material on the structural steel support member. The screws attaching the gypsum board to the studs along the top of the wall shall be located 1 in. (25 mm) below the bottom of the ceiling runner. No gypsum board attachment screws shall be driven into the ceiling runner or into the optional deflection channel.

The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.

3. **Joint System — Max separation between bottom plane of steel floor unit and top of gypsum board (at time of installation of joint system) is 3/4 or 1-1/2 in. (19 or 38 mm). Max separation between spray applied fire resistive material on bottom of structural support member and framed opening in top of wall is 3/4 or 1 in. (19 or 25 mm). The joint system is designed to accommodate a max 50 or 100 percent compression or extension from its installed width as measured between bottom plane of steel floor unit and top of gypsum board. When Item 3B1 is used in lieu of the strips of mineral wool described in Item 3B and Items 1C, 1D, and 1E are omitted, the maximum joint width is 3/4 in. (19 mm) and the movement capabilities are 100% compression or extension.** The joint system shall consist of forming and fill materials, with or without a deflection channel (Item 3A), as follows:

A. **Deflection Channel —** (Optional, Not Shown) — Max 2 in. (51 mm) deep min 24 gauge galv steel channel sized to accommodate ceiling runner (Item 2A). Deflection channel installed parallel to direction of fluted steel deck, centered beneath valley, prior to the application of the sprayed-applied fire resistive material and secured with steel masonry anchors or welds spaced max 24 in. (610 mm) OC. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1/2 in. to 3/4 in. (13 to 19 mm) gap between the top of the ceiling runner and the top of the deflection channel. A clearance of 1 in. (25 mm) shall be maintained between the end of the deflection channel and the spray applied fire resistive material on the structural steel support members. The ceiling runner nests inside the deflection channel without attachment.

B. **Forming Material* —** Nom 4 pcf (64 kg/m³) mineral wool batt insulation cut to a length approx 1 in. (25 mm) longer than overall thickness of wall and inserted edge-first into the spaces between the spray applied fire resistive material on the structural steel member and the framed notch at the top of the wall. The thickness of forming material shall be sufficient to attain a min compression of 20 percent between the sides of the framed notch and the protected structural steel member and a min compression of 33 percent between the bottom of the framed notch and the bottom of the protected structural steel member. The mineral wool batt insulation is to be additionally compressed in the length direction such that it is flush with the gypsum board surface on both sides of the wall. Additional sections of mineral wool batt insulation are compressed 50 percent in thickness and are installed cut edge first to completely fill the gap above the top of the gypsum board. The forming material shall be installed flush with both surfaces of wall.

INDUSTRIAL INSULATION GROUP L L C — MinWool-1200 Safing

ROCK WOOL MANUFACTURING CO — Delta Board

ROCKWOOL MALAYSIA SDN BHD — SAFE

ROXUL INC — SAFE

THERMAFIBER INC — Type SAF

B1. **Forming Material* —** (Not Shown) - As an option to the strips of mineral wool specified under Item 3B, nom 3/16 in. (4.8 mm) thick by 4 in. (102 mm) high joint forming material profile installed on both sides of the wall assembly. Profile installed by first marking a line across the top of the wall 3 in. (76 mm) below the bottom plane of the steel floor or roof deck valleys. Joint profile material positioned with its top edge against both the underside of the spray-applied fire-resistive material with its bottom edge on the line scribed on the wall assembly. Bottom of the joint profile attached to gypsum board with nom 1/2 in. (13 mm) long steel staples spaced not greater than 8 in. (203 mm) OC. Adjoining lengths of profile to overlap approx 3/4 in. (19 mm) at shiplapped ends.

SPECIFIED TECHNOLOGIES INC — SpecSeal Speed Flex Joint Profile

C. **Fill, Void or Cavity Material* — Sealant —** Min 1/8 in. (3.2 mm) wet thickness or 1/16 in. (1.6 mm) dry thickness of fill material spray applied over the forming material on each side of the wall. Fill material to overlap a min of 1/2 in. (13 mm) onto the gypsum board and a min 2 in. (51 mm) onto the spray applied material on the steel floor unit and on the structural steel support member on both sides of wall. Overlap onto the steel floor units may be decreased to 1/2 in. (13 mm) when spray applied material is omitted.

SPECIFIED TECHNOLOGIES INC — SpecSeal AS200 Elastomeric Spray

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2015-11-23

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ROXUL INC — SAFE

THERMAFIBER INC — Type SAF

B1. **Forming Material* —** (Not Shown) - As an option to the strips of mineral wool specified under Item 3B, nom 3/16 in. (4.8 mm) thick by 4 in. (102 mm) high joint forming material profile installed on both sides of the wall assembly. Profile installed by first marking a line across the top of the wall 3 in. (76 mm) below the bottom plane of the steel floor or roof deck valleys. Joint profile material positioned with its top edge against both the underside of the spray-applied fire-resistive material with its bottom edge on the line scribed on the wall assembly. Bottom of the joint profile attached to gypsum board with nom 1/2 in. (13 mm) long steel staples spaced not greater than 8 in. (203 mm) OC. Adjoining lengths of profile to overlap approx 3/4 in. (19 mm) at shiplapped ends.

SPECIFIED TECHNOLOGIES INC — SpecSeal Speed Flex Joint Profile

C. **Fill, Void or Cavity Material* — Sealant —** Min 1/8 in. (3.2 mm) wet thickness or 1/16 in. (1.6 mm) dry thickness of fill material spray applied over the forming material on each side of the wall. Fill material to overlap a min of 1/2 in. (13 mm) onto the gypsum board and a min 2 in. (51 mm) onto the spray applied material on the steel floor unit and on the structural steel support member on both sides of wall. Overlap onto the steel floor units may be decreased to 1/2 in. (13 mm) when spray applied material is omitted.

SPECIFIED TECHNOLOGIES INC — SpecSeal AS200 Elastomeric Spray

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

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JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

UL LITERATURE
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0184
XHBN.HW-D-0184
Joint Systems

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Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

XHBN - Joint Systems

XHBN7 - Joint Systems Certified for Canada

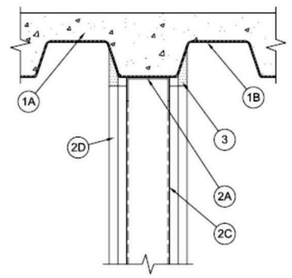
See General Information for Joint Systems

See General Information for Joint Systems Certified for Canada

System No. HW-D-0184

December 23, 2013

ANSI/UL2079	CAN/ULC S115
Assembly Ratings — 1 and 2 Hr (See Item 2)	F Ratings — 1 and 2 Hr (See Item 2)
Nominal Joint Width - 3/4 In.	FT Ratings — 1 and 2 Hr (See Item 2)
Class II Movement Capabilities — 17% Compression or Extension	FH Ratings — 1 and 2 Hr (See Item 2)
L Rating At Ambient — Less Than 1 CFM/lin ft	FTH Ratings — 1 and 2 Hr (See Item 2)
L Rating At 400 F — Less Than 1 CFM/lin ft	Nominal Joint Width - 3/4 In.
	Class II Movement Capabilities — 17% Compression or Extension
	L Rating At Ambient — Less Than 1 CFM/lin ft
	L Rating At 400 F — Less Than 1 CFM/lin ft



1. **Floor Assembly —** The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. (76 mm) deep galv steel fluted units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Spray-Applied Fire Resistive Materials (Optional) —** (Not Shown) — Prior to or after the installation of the ceiling runner and prior to the installation of the Fill, Void or Cavity Materials (Items 2A and 3), the steel floor units may be sprayed with a min 5/16 in. (8 mm) thickness to a max 11/16 in. (17 mm) thickness of fire resistive material.

GCP APPLIED TECHNOLOGIES INC Type MK-6/HY

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

1B. **Roof Assembly —** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Spray—Applied Fire Resistive Materials* —** (Not Shown)—Prior to or after the installation of the steel ceiling runners, and prior to the installation of the Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

2. **Wall Assembly —** The 1 or 2 hr fire rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of min No. 25 gauge galv steel channels sized to accommodate steel studs (Item 2C). Flange height of ceiling runner shall be min 1/4 in. (6 mm) greater than max extended joint width. Ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, and secured

with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

A1. **Light Gauge Framing* - Slotted Ceiling Runner —** As an alternate to the ceiling runner in (Item 2A), slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2C). Ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, and secured with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

SCAFCO STEEL STUD MANUFACTURING CO

TELLING INDUSTRIES L L C — True-Action Deflection Track

THE STEEL NETWORK INC — VertiTrack VT, series,250VT, 362VT, 400VT, 600VT and 800VT

A2. **Light Gauge Framing* - Vertical Deflection Ceiling Runner —** As an alternate to the ceiling runners in Items 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened with runner. Slotted clip provided with step bushings for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2C). Vertical deflection ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, and secured with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

THE STEEL NETWORK INC — VertiTrack VTD250, -362, -400, -600, -800

A3. **Light Gauge Framing*- Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A2, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2C). Notched ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, secured with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

OLMAR SUPPLY INC — Type SCR

B. **Steel Attachment Clips —** (Optional - Not Shown) - When spray applied fireproofing is used ceiling runner may be secured to deck with Z-shaped clips formed from min. 1 in. (25 mm) long strips of min 20 ga galv steel. Length of clips should not exceed the width (thickness) of the wall. Clips to be sized to extend through the thickness of the spray-applied fire-resistive material on the bottom of the steel deck with 1-1/2 or 2 in. (38 or 51 mm) long upper and lower legs. Legs of clips fastened to valleys of steel deck (prior to application of spray-applied fire-resistive materials) and top of ceiling runner with steel fasteners or welds. Clips spaced max 24 in. (610 mm) OC.

C. **Studs —** Steel studs to be min 3-5/8 in. (92 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. When vertical deflection ceiling runner (Item 2A2) is used, steel studs secured to slotted vertical deflection clips, through bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. (610 mm) OC.

D. **Gypsum Board* —** For 1 hr assembly, one layer of 5/8 in. (16 mm) thick gypsum board is required in the individual Wall and Partition Design. For 2 hr assembly, two layers of 5/8 in. (16 mm) thick gypsum board is required in the individual Wall and Partition Design. For both hourly ratings, a nominal 3/4 in. (19 mm) gap shall be maintained between the top of the gypsum board and the bottom surface of the steel deck and the top row of screws shall be installed into the studs 3 in. (76 mm) below the valleys of the steel floor units.

The hourly fire rating of the joint system is equal to the hourly rating of the wall.

3. **Fill, Void or Cavity Material* — Sealant - Max separation between bottom of floor or roof and top of wall is 3/4 in. (19 mm). The joint system is designed to accommodate a max 17 percent compression or extension**

from its installed width. Min 5/8 in. (16 mm) thickness of fill material installed on each side of the wall between the top of the gypsum board and the bottom of the steel deck, flush with each surface of wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 601S Elastomeric Firestop Sealant or CP 606 Flexible Firestop Sealant or CPS-S SIL GG Sealant. L Ratings apply when CP 606 or CPS-S SIL GG Sealant is used.

4. **Forming Material —** (Optional, Not Shown) - Mineral wool insulation, fiberglass batt insulation or polyurethane/polyethylene foam backer rod. Forming material to be recessed from both surfaces of the 2 hr fire rated wall to accommodate the required thickness of fill material.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

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ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0259
XHBN.HW-D-0259
Joint Systems

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- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

XHBN - Joint Systems

XHBN7 - Joint Systems Certified for Canada

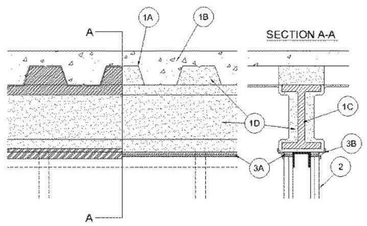
See General Information for Joint Systems

See General Information for Joint Systems Certified for Canada

System No. HW-D-0259

December 16, 2015

ANSI/UL2079	CAN/ULC S115
Assembly Ratings — 1 and 2 Hr (See Items 1 and 2)	F Ratings — 1 and 2 Hr (See Items 1 and 2)
Nominal Joint Width - 1-1/2 In.	FT Ratings — 1 and 2 Hr (See Items 1 and 2)
Class II Movement Capabilities — 50% Compression or Extension	FH Ratings — 1 and 2 Hr (See Items 1 and 2)
L Rating At Ambient — Less Than 1 CFM/lin ft	FTH Ratings — 1 and 2 Hr (See Items 1 and 2)
L Rating At 400 F — Less Than 1 CFM/lin ft	Nominal Joint Width - 1-1/2 In.
	Class II Movement Capabilities — 50% Compression or Extension
	L Rating At Ambient — Less Than 1 CFM/lin ft
	L Rating At 400 F — Less Than 1 CFM/lin ft



1. **Floor Assembly —** The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Structural Steel Support —** Steel beam, as specified in the individual D700 or D900 Series Floor-Ceiling Design, used to support steel floor units. Structural steel support centered over and parallel with wall assembly.

D. **Spray-Applied Fire Resistive Material* —** Steel floor units and structural steel beam to be sprayed with the thickness of material specified in the individual D700 Series Design or the structural steel supports to be sprayed in accordance with the specifications in the individual D900 Series Design. The flutes of the steel floor units are to be filled with material across the entire top flange of the steel beam. Additional material shall be applied to the web of the steel beam on each side of the wall. **For a 1 hr Assembly Rating, the total thickness of material applied to each side of the steel beam web shall be min 13/16 in. (21 mm). For a 2 hr Assembly Rating, the total thickness of material applied to each side of the steel beam web shall be min 1-3/8 in. (35 mm).**

GCP APPLIED TECHNOLOGIES INC — Types MK-6-HY or MK-10HB

D1. **Spray-Applied Fire Resistive Material* —** Steel floor units and structural steel support to be sprayed with the min thickness of material specified in the individual D700 or D900 Series Design. The flutes of the steel floor units are to be filled with material across the entire top flange of the steel beam. **Additional material shall be applied to the web of the steel beam on each side of the wall. For a 1 hr Assembly Rating, the total thickness of material applied to each side of the steel beam web shall be min 11/16 in. (18 mm). For a 2 hr Assembly Rating, the total thickness of material applied to each side of the steel beam web shall be min 1-1/2 in. (38 mm).**

ISOLATEK INTERNATIONAL — Type 300

2. **Wall Assembly* —** The 1 or 2 h fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of min No. 25 gauge galv steel channels sized to accommodate steel studs (Item 2B). Flange height of ceiling runner shall be min 1/4 in. (6 mm) greater than max extended joint width. Ceiling runner centered beneath and parallel with steel beam (Item 1C). Ceiling runner secured to steel beam through spray-applied fire resistive material with steel fasteners spaced max 24 in. (610 mm) OC.

A1. **Light Gauge Framing* —** Slotted Ceiling Runner As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to

accommodate steel studs (Item 2B). Slotted ceiling runner centered beneath and parallel with steel beam (Item 1C). Slotted ceiling runner secured to steel beam with steel fasteners, steel fasteners or welds spaced max 24 in. (610 mm) OC.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK, SLPTRK325

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

SCAFCO STEEL STUD MANUFACTURING CO

TELLING INDUSTRIES L L C — True-Action Deflection Track

THE STEEL NETWORK INC — VertiTrack VT series, 250VT, 362VT, 400VT, 600VT and 800VT

A2. **Light Gauge Framing* —** Vertical Deflection Ceiling Runner As an alternate to the ceiling runners in Item 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips, provided with step bushings, for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2B). Vertical deflection ceiling runner centered beneath and parallel with steel beam (Item 1C). Vertical Deflection ceiling runner secured to steel beam with steel fasteners, steel fasteners or welds spaced max 24 in. (610 mm) OC.

THE STEEL NETWORK INC — VertiTrack VTD362, VTD400, VTD600 and VTD800.

A3. **Light Gauge Framing*- Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A2, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC.

OLMAR SUPPLY INC — Type SCR

A4. **Light Gauge Framing* — Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 2A through 2A3, ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Flange height of slotted ceiling runner shall be 1-1/4 in. (83 mm) with 2 in. (51 mm) deep slots. Slotted ceiling runner centered beneath and parallel with steel beam (Item 1C). Slotted ceiling runner secured to steel beam with steel fasteners or welds spaced max 24 in. (610 mm) OC.

SCAFCO STEEL STUD MANUFACTURING CO — Slotted Track-Type SDLT

B. **Studs —** Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 3/4 in. to 1-1/4 in. (19 to 32 mm) less in length than assembly height with bottom nesting in, resting on and fastened to the floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. When vertical deflection runner (Item 2A2) is used, studs secured to vertical clip through slip bushing, supplied, with No.8 by 1/2 in. (13 mm) steel screws at mid-height of slot of each slot. Stud spacing not to exceed 24 in. (610 mm) OC. When slotted ceiling runner (Item 2A4) is used, steel studs cut in lengths 3/4 to 1-3/4 in. (19 to 44 mm) less than floor to ceiling height and secured to slotted ceiling runner with No. 8 by 1/2 (13 mm) long wafer head steel screws at +/- 3/16 in. (5 mm) of the mid-height of slot on each side of wall.

C. **Gypsum Board* —** 5/8 in. (16 mm) thick, 4 ft (1.22 m) wide with square or tapered edges. The gypsum board type, number of layers an sheet orientation shall be as specified in the individual U400 or V400 Series Design in the Fire Resistance Directory, except that a max 1-1/2 in. (38 mm) gap shall be maintained between top edge of the gypsum board and the spray applied fire resistive material on the structural steel support. The top row of screws shall be installed into the studs 1-1/2 in. (38 mm) below the bottom of the ceiling runner.

D. **Steel Attachment Clips —** (Optional - Not Shown) - As an alternate to steel fasteners, ceiling runner secured to steel beam with Z-shaped clips formed from min 1 in. (25 mm) long strips of min 20 ga galv steel. Length of clips should not exceed the width (thickness) of the wall. Clips to be sized to extend through the thickness of the spray-applied fire-resistive material on the bottom flange of the steel beam with 1-1/2 or 2 in. (38 or 51 mm) long upper and lower legs. Legs of

clips fastened to bottom of beam (prior to application of spray-applied fire-resistive materials) and top of ceiling runner with steel fasteners or welds. Clips spaced max 16 in. (406 mm) OC.

The hourly ratings of the joint system are dependent on the hourly rating of the wall.

3. **Joint System — Max separation between bottom of spray-applied fire resistive material on beam and top of gypsum board at time of installation is 1-1/2 in. (38 mm). The joint system is designed to accommodate a max 50 percent compression or extension from its installed width.** The joint system consists of a forming material and a fill material between the top of the gypsum board and the bottom of the spray-applied fire resistive material on the beam, as follows:

A. **Forming Material* —** Nominal 4 pcf (64 kg/m³) mineral wool forming material cut into strips to fill the gap between top of the gypsum board and bottom of beam. Width of the strips shall be equal to the total thickness of the gypsum board. The strips of mineral wool shall be compressed 50 percent in thickness and firmly packed into the gap between the top of gypsum board and bottom of beam.

ROCK WOOL MANUFACTURING CO — Delta Board

ROXUL INC — SAFE

THERMAFIBER INC — Type SAF

A1. **Forming Material* - Strips —** (Optional) - Nom 5/8 in. (16 mm) and 1-1/4 in. (32 mm) wide by 2 in. (51 mm) high precut mineral wool strips for 1 and 2 hr rated assemblies respectively. The strips are compressed 50 percent and firmly packed, cut edge first, into the gap between the top of the gypsum board and bottom of the steel floor units on both sides of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 767 Speed Strips

B. **Fill, Void or Cavity Material* —** Min 1/16 in. (1.6 mm) dry thickness (min 1/8 in. or 3.2 mm wet thickness) of fill material sprayed or troweled on each side of wall to completely cover mineral wool forming material and to overlap 1/2 in. (13 mm) onto gypsum board and 2 in. (51 mm) onto spray-applied fire resistive material on the structural steel support.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP672 Firestop Spray or CFS-SP WB Firestop Joint Spray

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2015-12-16

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ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0388
XHBN.HW-D-0388
Joint Systems

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- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
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XHBN - Joint Systems

XHBN7 - Joint Systems Certified for Canada

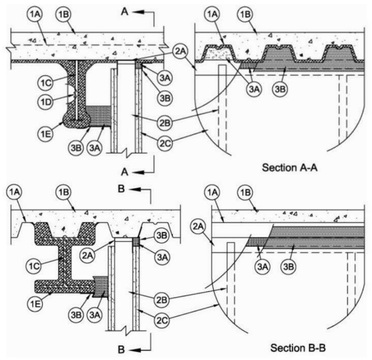
See General Information for Joint Systems

See General Information for Joint Systems Certified for Canada

System No. HW-D-0388

December 16, 2015

ANSI/UL2079	CAN/ULC S115
Assembly Ratings — 1 and 2 Hr (See Item 2)	F Ratings — 1 and 2 Hr (See Item 2)
Nominal Joint Width - 1-1/2 In.	FT Ratings — 1 and 2 Hr (See Item 2)
Class II Movement Capabilities — 50% Compression or Extension	FH Ratings — 1 and 2 Hr (See Item 2)
L Rating At Ambient — Less Than 1 CFM/lin ft	FTH Ratings — 1 and 2 Hr (See Item 2)
L Rating At 400 F — Less Than 1 CFM/lin ft	Nominal Joint Width - 1-1/2 In.
	Class II Movement Capabilities — 50% Compression or Extension
	L Rating At Ambient — Less Than 1 CFM/lin ft
	L Rating At 400 F — Less Than 1 CFM/lin ft



1. **Floor Assembly —** The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory. The hourly fire rating of the floor assembly shall be equal to or greater than the hourly fire rating of the wall assembly. The floor assembly shall include the following construction features:

A. **Steel Floor and Floor Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Structural Steel Support —** Steel beam or open-web steel joist, as specified in the individual D700 or D900 Series Floor-Ceiling Design, used to support steel floor units. Structural steel support oriented parallel to and 1 to 6 in. (25 to 152 mm) from wall assembly.

D. **Steel Lath —** When structural steel support (Item 1C) consists of open-web steel joists, 3/8 in. (10 mm) diamond mesh expanded steel lath having a nom weight of 1.7 lb 3.4 lb per sq yd (0.9 to 1.8 kg/m^2) shall be installed to completely cover one side of each joint which is located within 6 in. (152 mm) of wall assembly. The lath shall be secured with steel tie wire and shall be fully covered with spray applied fire resistive material.

E. **Spray-Applied Fire Resistive Material* —** After installation of the ceiling runner (Item 2A), steel floor units and structural steel supports to be sprayed with the thickness of material specified in the individual D700 Series Design or the structural steel supports to be sprayed in accordance with the specifications in the individual D900 Series Design. The flutes of the steel floor units above the structural steel supports and above the ceiling runner (Item 2A) shall be filled with spray-applied fire resistive material. As an alternate, the spray-applied fire resistive material in the flutes above the ceiling runner may be applied to follow the contour of the steel floor units. Excess material shall be removed from the flanges of the ceiling runner beyond the required thickness of spray-applied fire resistive material on the steel floor units.

ISOLATEK INTERNATIONAL — Type 300

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY, MK-6/HY ES, MK-6s, RG

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly (Item 1), a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 or P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly fire rating of the roof assembly shall be equal to or greater than the hourly fire rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Mineral and Fiber Board* — Min 3/4 in. (19 mm) thick boards applied in one or more layers directly over steel roof deck or over gypsum board sheathing laid atop steel roof deck.

C. **Roof Covering* —** Hot-mopped or cold-application materials compatible with mineral and fiber board insulation.

D. **Structural Steel Support —** Steel beam or open-web steel joist, as specified in the individual P700 or P800 or P900 Series Roof-Ceiling Design, used to support steel deck. Structural steel support oriented parallel to and 1 in. to 6 in. (25 to 152 mm) from wall assembly.

E. **Steel Lath —** When structural steel support (Item 1D) consists of open-web steel joists, 3/8 in. (10 mm) diamond mesh expanded steel lath having a nom weight of 1.7 to 3.4 lb per sq yd (0.9 to 1.8 kg/m^2) shall be installed to completely cover one side of each joint which is located within 6 in. (152 mm) of wall assembly. The lath shall be secured with steel tie wire and shall be fully covered with spray applied fire resistive material.

F. **Spray-Applied Fire Resistive Material* —** After installation of the ceiling runner (Item 2A), steel roof deck (P700 Series Roof-Ceiling design) and structural steel supports to be sprayed with a thickness of spray applied fire resistive material as specified in the individual Roof-Ceiling design. In addition, the flutes of the steel deck above the structural steel supports and above the ceiling runner (Item 2A) shall be filled with spray-applied fire resistive material. As an alternate, the spray-applied fire resistive material in the flutes above the ceiling runner may be applied to follow the contour of the steel roof deck. Excess material shall be removed from the flanges of the ceiling runner beyond the required thickness of spray-applied fire resistive material on the steel roof deck.

ISOLATEK INTERNATIONAL — Type 300

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY, MK-6/HY ES, MK-6s, RG

2. **Wall Assembly —** The 1 or 2 hr fire-rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). Flange height of ceiling runner to be 3/4 in. (19 mm) greater than max extended joint width. Ceiling runner is secured to steel floor units (Item 1A) with steel fasteners or welds spaced max 24 in. (610 mm) OC. Ceiling runner to be installed parallel with structural steel support and located such that a max clearance of 4 in. (102 mm) is present between the finished wall and the spray-applied fire resistive material at the lowest elevation of the structural steel support.

A1. **Light Gauge Framing* — Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 2A, ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Ceiling runner secured to valleys with steel fasteners spaced max 24 in. (610 mm) OC.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK, SLPTRK325

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

THE STEEL NETWORK INC — VertiTrack VT series, 250VT, 362VT, 400VT, 600VT and 800VT

A2. **Light Gauge Framing* — Clipped Ceiling Runner —** As an alternate to the ceiling runner in Items 2A and 2A1, clipped runner to consist of galv steel channel with clips preformed in track flanges which positively engage the inside flange of the steel studs (Item 2B). Track sized to accommodate steel studs (Item 2B). Track flanges to be min 2-1/2 in. (64 mm). Clipped ceiling runner secured with steel fasteners spaced max 24 in. (610 mm) OC.

TOTAL STEEL SOLUTIONS L L C — Snap Trak

A3. **Light Gauge Framing*- Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A2, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner secured to valleys with steel masonry anchors spaced max 24 in. (610 mm) OC.

OLMAR SUPPLY INC — Type SCR

A4. **Light Gauge Framing* — Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 2A, ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Flange height of slotted ceiling runner shall be 3-1/4 in. (83 mm) with 2 in. (51 mm) deep slots. Ceiling runner secured to valleys with steel fasteners or welds spaced max 24 in. (610 mm) OC.

SCAFCO STEEL STUD MANUFACTURING CO — Slotted Track-Type SDLT

B. **Studs —** Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 3/4 in. to 1 in. (19 to 25 mm) less in length than assembly height with bottom nesting in and secured to floor runner. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 (13 mm) long wafer head steel screws at mid-height of slot on each side of wall. When slotted ceiling runner (Item 2A4) is used, steel studs cut in lengths 3/4 to 1-3/4 in. (19 to 44 mm) less than floor to ceiling height and secured to slotted ceiling runner with No. 8 by 1/2 (13 mm) long wafer head steel screws at +/- 3/16 in. (5 mm) of the mid-height of slot on each side of wall.

C. **Gypsum Board* —** Gypsum board sheets installed to a min total 5/8 in. (16 mm) or 1-1/4 in. (32 mm) thickness on each side of wall for 1 and 2 hr fire rated assemblies, respectively. Wall to be constructed as specified in the individual U400, V400 or W400 Series Design in the UL Fire Resistance Directory except that a max 1 in. (25 mm) gap shall be maintained between the top of the gypsum board and the bottom plane of the spray applied fire resistive material on the steel deck when D700 series assembly is used or between the top of gypsum board and the steel floor units when D900 series assembly is used, on both sides of the wall assembly. The screws attaching the gypsum board to the studs along the top of the wall shall be located 1 to 1-1/2 in. (25 to 38 mm) below the bottom of the ceiling runner. No gypsum board attachment screws shall be driven into the ceiling runner. Where the top of the wall assembly is inaccessible above the lowest elevation of the structural steel support, the gypsum board attachment screws may be omitted.

The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.

3. **Joint System — Max separation between bottom of the spray applied fire resistive material on the steel floor units and top of gypsum board (at time of installation of joint system) is 1-1/2 in. (38 mm) when D700 series assembly is used. Max separation between bottom of the steel floor units and top of gypsum board (at time of installation of joint system) is 1-1/2 in. (38 mm) when D900 series assembly is used. Max separation between spray applied fire resistive material on structural support member and surface of wall is 4 in. (102 mm).** The joint system is designed to accommodate a max 50 percent compression or extension from its installed width as measured between the bottom plane of the steel floor units or spray-applied fire resistive material on the steel floor units and the top of the gypsum board. The joint system shall consist of forming and fill materials, as follows:

A. **Forming Material* —** Nom 4 pcf (64 kg/m^3) density mineral wool batt insulation. Sections of mineral wool batt cut to a width of 4 in. (102 mm) and stacked to attain a thickness which is 50 percent greater than the width of the linear gap between the spray applied fire resistive material on the structural steel member and the surface of the wall assembly. Stacked sections of mineral wool compressed 33 percent in thickness and installed cut edge first into linear gap until the bottom edge is flush with the bottom surface of the spray applied fire resistive material on the structural steel member. When the spray-applied fire resistive material in the flutes above the wall follows the contour of the steel deck, sections of mineral wool batt cut to the shape of the fluted deck and installed in the flutes of the steel floor or roof deck between the top of the ceiling runner and the spray-applied fire resistive material. The mineral wool batt insulation is to be installed flush with the gypsum board surface on the side of the wall opposite the structural steel support. Additional sections of mineral wool batt insulation are compressed 50 percent in thickness and are installed cut edge first to completely fill the gap above the top of the gypsum board.

INDUSTRIAL INSULATION GROUP L L C — MinWool-1200 Safing

JOHNS MANVILLE — Safing

ROCK WOOL MANUFACTURING CO — Delta Board

ROCKWOOL MALAYSIA SDN BHD — SAFE

ROXUL INC — SAFE

THERMAFIBER INC — Type SAF

A1. **Forming Material* — Plugs —** (Optional, Not Shown) - Preformed mineral wool plugs, formed to the shape of the fluted deck, friction fit to completely fill the flutes. The plugs shall be flush with both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of the wall and bottom of steel deck.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP777 Speed Plugs

B. **Fill, Void or Cavity Material* — Sealant —** Min 1/8 in. (3.2 mm) wet thickness or 1/16 in. (1.6 mm) dry thickness of fill material spray or brush applied over the forming material on each side of the wall. Fill material to overlap a min of 1/2 in. (13 mm) onto the gypsum board and a min 2 in. (51 mm) onto the steel floor units or spray-applied fire resistive material on the steel floor units and on the structural steel support member.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-SP WB Firestop Joint Spray

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2015-12-16

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ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0456
XHBN.HW-D-0456
Joint Systems

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XHBN - Joint Systems

XHBN7 - Joint Systems Certified for Canada

See General Information for Joint Systems

See General Information for Joint Systems Certified for Canada

System No. HW-D-0456

November 23, 2015

ANSI/UL2079	CAN/ULC S115
Assembly Ratings — 1 and 2 Hr (See Items 1 and 4C)	F Ratings — 1 and 2 Hr (See Items 1 and 4C)
Nominal Joint Width - 3/4 or 1-1/2 In. (See Item 5).	FT Ratings — 1 and 2 Hr (See Items 1 and 4C)
Class II Movement Capabilities — 50% or 100% Compression or Extension (See Item 5)	FH Ratings — 1 and 2 Hr (See Items 1 and 4C)
L Rating At Ambient — Less Than 1 CFM/sq ft	FTH Ratings — 1 and 2 Hr (See Items 1 and 4C)
L Rating At 400 F — Less Than 1 CFM/sq ft	Nominal Joint Width - 3/4 or 1-1/2 In. (See Item 5).
	Class II Movement Capabilities — 50% or 100% Compression or Extension (See Item 5)
	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — Less Than 1 CFM/sq ft

1. **Floor Assembly —** The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D900 Series Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly (Item 1), a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly fire rating of the roof assembly shall be equal to or greater than the hourly fire rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the steel roof deck.

C. **Roof Covering* —** Hot mopped or cold-application materials compatible with insulating concrete.

2. **Steel Straps —** Min 2 in. (51 mm) wide 16 MSG (0.0599 in. or 1.5 mm thick) galv steel straps cut to a length to span the flute and to overlap min 1-1/2 in. (38 mm) on the adjacent valleys of fluted floor units. Straps spaced max 24 in. (610 mm) OC and fastened to floor assembly with min 1/4 in. (6 mm) diam by 1-1/2 in. (38 mm) long steel concrete anchors or min 0.145 in. (3.7 mm) diam by 1-1/4 in. (32 mm) long powder actuated fasteners.

3. **Forming Material* —** Mineral wool batt insulation, nom 4 pcf (64 kg/m^3), cut to the shape of the fluted floor units, friction fit to completely fill the flutes above the steel straps. Adjacent lengths of batts to be tightly butted with butted seams spaced min 24 in. (610 mm) apart along the length of the plugs.

INDUSTRIAL INSULATION GROUP L L C — MinWool-1200 Safing

JOHNS MANVILLE — Safing

ROCK WOOL MANUFACTURING CO — Delta Board

ROCKWOOL MALAYSIA SDN BHD — Safe

ROXUL INC — Safe

THERMAFIBER INC — Type SAF

A. **Forming Material* —** As an option to Item 3, preformed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the steel straps. Adjacent lengths of batts to be tightly butted with butted seams spaced min 24 in. (610 mm) apart along the length of the plugs.

THERMAFIBER INC — TopStop mineral wool deck plugs Type SAF batts

4. **Wall Assembly —** The 1 or 2 h fire rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400, V400 or W400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs. Ceiling runner to be provided with min 1-1/4 in. (32 mm) to max 3 in. (76 mm) flanges. Flange height of ceiling runner shall be min 1/4 in. (6 mm) greater than max extended joint width. Ceiling runner installed parallel to direction of fluted steel floor units, directly beneath steel straps, and secured to straps with two No. 8 self-drilling, self-tapping steel screws per strap.

A1. **Light Gauge Framing* — Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 4A, slotted ceiling runner consisting of galv steel channel with slotted flanges sized to accommodate steel studs (Item 4B). Ceiling runner installed parallel to direction of fluted steel floor units, directly beneath steel straps, and secured to straps with two No. 8 self-drilling, self-tapping steel screws per strap.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK, SLPTRK325

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

METAL-LITE INC — The System

STEELER INC — Steeler Slotted Ceiling Runner

THE STEEL NETWORK INC — VertiTrack VT, series,250VT, 362VT, 400VT, 600VT and 800VT

B. **Studs —** Steel studs to be min 2-1/2 in. (64 mm) wide. Studs cut 1/2 in. to 1-1/4 in. (13 to 32 mm) less in length than assembly height with bottom nesting in and resting on the floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 4A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in. (610 mm) OC.

B1. **Light Gauge Framing* —Slotted Studs —** Slotted steel stud to be used in conjunction with **Light Gauge Framing* —Floor and Ceiling Runners** (Item 4A1). Slotted steel studs to be min 2-1/2 in. (64mm) wide. Slotted steel studs cut 1/2 in. to 1-1/2 in. (13 to 38 mm) less in length than assembly height with bottom nesting in and secured to both ceiling and floor runners. Ceiling runner secured to preformed slot within steel stud by means of No. 10 by 3/4 in. (19 mm) long low profile head steel screw. Floor runner attached to bottom of steel stud by means of No. 8 by 1/2 in. (13 mm) long pan head steel screw. Slotted steel stud spacing not to exceed 24 in. (610 mm) OC.

STEELER INC — Steeler Slotted Stud

C. **Gypsum Board* —** Gypsum board sheets installed to a min total 5/8 in. (16 mm) or 1-1/4 in. (31 mm) thickness on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual U400 or V400 Series Design in the UL Fire Resistance Directory, except that a max 1-1/2 in. (38 mm) gap shall be maintained between the top of the gypsum board and the underside of the steel floor or roof deck. The screws attaching the gypsum board to the studs along the top of the wall shall be located 1 in. (25 mm) below the bottom of the ceiling runner. No gypsum board attachment screws shall be driven into the ceiling runner.

5. **Joint System —** Max separation between bottom of floor and top of gypsum board is 3/4 or1-1/2 in. (19 or 38 mm). The joint system is designed to accommodate a max 50 or 100 percent compression or extension from its installed width. **When Item 5A1 is used in lieu of the strips of mineral wool described in Item 5A, the maximum joint width is 3/4 in. (19 mm) and the movement capabilities are 100% compression or extension.** The joint system consists of a forming material and a fill material between the top of the gypsum board and the bottom of the floor, as follows:

A. **Forming Material* —** Min 4 pcf (64 kg/m^3) density mineral wool batt insulation cut into strips to fill the gap between the top of gypsum board and bottom of the floor units. The width of the strips shall be equal to the total thickness of the gypsum board. The strips of mineral wool are compressed 50 percent in thickness and firmly packed into the gap between the top of the gypsum board and bottom of the mineral wool batt sections or steel floor units.

INDUSTRIAL INSULATION GROUP L L C — MinWool-1200 Safing

JOHNS MANVILLE — Safing

ROCK WOOL MANUFACTURING CO — Delta Board

ROCKWOOL MALAYSIA SDN BHD — Safe

ROXUL INC — Safe

THERMAFIBER INC — Type SAF

A2. **Forming Material* —** (Not Shown) - As an option to Item 5A, nom 3/16 in. (4.8 mm) thick by 4 in. (102 mm) high joint forming material profile installed on both sides of the wall assembly. Profile installed by first marking a line across the top of the wall 3 in. (76 mm) below the bottom plane of the steel floor or roof deck valleys. Joint profile material positioned with its top edge against the underside of the floor and with its bottom edge on the line scribed on the wall assembly. Bottom of the joint profile attached to gypsum board with nom 1/2 in. (13 mm) long steel staples spaced not greater than 8 in. (203 mm) OC. Adjoining lengths of profile to overlap approx 3/4 in. (19 mm) at shiplapped ends.

SPECIFIED TECHNOLOGIES INC — SpecSeal Speed Flex Joint Profile

B. **Fill, Void or Cavity Material* - Sealant —** Min 1/8 in. (3.2 mm) wet thickness (min 1/16 in. or 1.6 mm dry thickness) applied to cover forming material (Item 3A) with a min 1/2 in. (13 mm) overlap onto the gypsum board, steel strapping and steel deck on both sides of wall.

SPECIFIED TECHNOLOGIES INC — SpecSeal AS200 Elastomeric Spray

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ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0634
XHBN.HW-D-0634
Joint Systems

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Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

XHBN - Joint Systems

XHBN7 - Joint Systems Certified for Canada

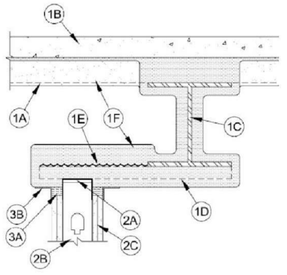
See General Information for Joint Systems

See General Information for Joint Systems Certified for Canada

System No. HW-D-0634

December 15, 2015

ANSI/UL2079	CAN/ULC S115
Assembly Rating — 1 and 2 Hr (See Items 1 and 2)	F Rating — 1 and 2 Hr (See Items 1 and 2)
Nominal Joint Width - 1-1/2 In.	FT Rating — 1 and 2 Hr (See Items 1 and 2)
Class II or III Movement Capabilities — 50% Compression or Extension	FH Rating — 1 and 2 Hr (See Items 1 and 2)
L Rating At Ambient — Less Than 1 CFM/sq ft	FTH Rating — 1 and 2 Hr (See Items 1 and 2)
L Rating At 400 F — Less Than 1 CFM/sq ft	Nominal Joint Width - 1-1/2 In.
	Class II or III Movement Capabilities — 50% Compression or Extension
	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — Less Than 1 CFM/sq ft



1. **Floor Assembly —** The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 Series Floor-Ceiling Design in the UL Fire Resistance Directory and as noted below. The hourly fire rating of the floor assembly shall be equal to or greater than the hourly fire rating of the wall assembly. The floor assembly shall include the following construction features:

A. **Steel Floor and Floor Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Structural Steel Support —** Steel beam, as specified in the individual D700 Series Floor-Ceiling Design, used to support steel floor units. Structural steel support oriented parallel to and max 12 in. (305 mm) from wall assembly.

D. **Steel Furring —** Z-shaped bars or channels, located to span from steel beam to min 1 in. (25 mm) beyond face of wall and spaced max 24 in. (610 mm) on center. Z-shaped bars are nom 1-1/2 to 2 in. (38 to 51 mm) deep and formed from min 16 gauge painted or galvanized steel. Channels are nom 1-1/2 in. (38 mm) or 2 in. (51 mm) deep and formed from min 16 gauge painted or galvanized steel. Each bar or channel welded or fastened with steel fasteners to steel beam and welded, bolted or screwed to ceiling runner of wall. Each bar or channel shall be fully covered with spray applied fire resistive material to the minimum thickness of material required on the flanges of the steel beam.

E. **Steel Lath —** Nom 3/8 in. (10 mm) diamond mesh expanded steel rib lath having a nom weight of 3.4 lb/yd^2 (1.8 kg/m^2) shall be installed over and attached to the steel furring bars or channels (Item 1D) to completely cover the exposed area from the flange tip of the steel beam to the end of the bar/channel framing extending beyond the wall surface. The lath shall be secured with steel fasteners or tie wire and shall be fully covered with spray applied fire resistive material (see Item 1F).

F. **Spray-Applied Fire Resistive Material* —** After installation of ceiling runner, steel floor units and structural steel beam to be sprayed with the thickness of material specified in the individual D700 Series Design. The flutes of the steel floor units above the structural steel beam shall be filled with spray-applied fire resistive material across the entire top flange of the steel beam. Each bar or channel furring member (Item 1D) shall be fully covered with spray applied fire resistive material to the minimum thickness of material required on the flanges of the steel beam. The thickness of material applied to the expanded steel lath shall be sufficient to completely fill the spaces between the bar/channel furring above the wall. Additional spray-applied fire resistive material shall be applied to the web of the steel beam on each side of the wall. **For a 1 hr Assembly Rating, the thickness of material applied to each side of the steel beam web shall be 13/16 in. (21 mm). For a 2 hr Assembly Rating, the thickness of material applied to each side of the steel beam web shall be 1-3/8 in. (35 mm). In addition, the thickness of material applied to the expanded steel lath shall cover the top surface of the lath with a minimum 1-5/8 in. (41 mm) of material for the 1 hr Assembly Rating and 2-5/8 in. (67 mm) of material for the 2 hr Assembly Rating.**

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY, MK-6/HY ES, MK-6s, RG

F1. **Spray-Applied Fire Resistive Material* —** After installation of ceiling runner, steel floor units and structural steel support to be sprayed with the min thickness of material specified in the individual D700 Series Design. The flutes of the steel floor units above the structural steel beam shall be filled with spray-applied fire resistive material across the entire top flange of the steel beam. Each bar or channel furring member (Item 1D) shall be fully covered with spray applied fire resistive material to the minimum thickness of material required on the flanges of the steel beam. The thickness of material applied to the expanded steel lath shall be sufficient to completely fill the spaces between the bar/channel furring above the wall. **Additional material shall be applied to the web of the steel beam on each side of the wall. For a 1 hr Assembly Rating, the thickness of material applied to each side of the steel beam web shall be 11/16 in. (18 mm). For a 2 hr Assembly Rating, the thickness of material applied to each side of the steel beam web shall be 1-1/2 in. (38 mm). In addition, the thickness of material applied to the expanded steel lath shall cover the top surface of the lath with a minimum 1-5/8 in. (41 mm) of material for the 1 hr Assembly Rating and 2-5/8 in. (67 mm) of material for the 2 hr Assembly Rating.**

ISOLATEK INTERNATIONAL — Type 300

2. **Wall Assembly —** The 1 or 2 hr fire rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). Flange height of ceiling runner shall be min 1/4 in. greater than max extended joint width. Ceiling runner is secured to steel furring (Item 1D) with steel fasteners or welds spaced max 24 in. (610 mm) OC. Ceiling runner to be installed parallel with structural steel support and located such that a max clearance of 12 in. (305 mm) is present between the finished wall and the flange of the steel beam (Item 1C).

A1. **Light Gauge Framing* — Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 2A, ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Flange height of slotted ceiling runner shall be 3-1/4 in. (83 mm) with 2 in. (51 mm) deep slots. Slotted ceiling runner is secured to steel furring (Item 1D) with steel fasteners or welds spaced max 24 in. (610 mm) OC. Slotted ceiling runner to be installed parallel with structural steel support and located such that a max clearance of 12 in. (305 mm) is present between the finished wall and the flange of the steel beam (Item 1C).

SCAFCO STEEL STUD MANUFACTURING CO — Slotted Track-Type SDLT

A2. **Light Gauge Framing* — Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with 3-1/4 in. (83 mm) high slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner is secured to steel furring (Item 1D) with steel fasteners or welds spaced max 24 in. (610 mm) OC. Slotted ceiling runner to be installed parallel with structural steel support and located such that a max clearance of 12 in. (305 mm) is present between the finished wall and the flange of the steel beam (Item 1C).

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLPTRK32S

B. **Studs —** Steel studs to be min 3-1/2 in. (89 mm) wide. Studs cut 1/2 in. to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and secured to floor runner. Studs to nest in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs cut in lengths 3/4 to 1-3/4 in. (19 to 44 mm) less than floor to ceiling height and secured to slotted ceiling runner with No. 8 by 1/2 (13 mm) long wafer head steel screws at +/- 3/16 in. (5 mm) of the mid-height of slot on each side of wall

C. **Gypsum Board* —** Gypsum board sheets installed to a min total 5/8 in. (16 mm) or 1-1/4 in. (32 mm) thickness on each side of wall for 1 and 2 hr fire rated assemblies, respectively. Wall to be constructed as specified in the individual U400 or V400 Series Design in the UL Fire Resistance Directory except that a max 1-1/2 in. (38 mm) gap shall be maintained between the top of the gypsum board and the bottom plane of the spray applied fire resistive material on the steel furring (Item 1D) on both sides of the wall assembly.

The hourly fire rating of the joint system is equal to the hourly fire rating of the wall.

3. **Joint System —** Max separation between bottom plane of spray-applied fire resistive material on the steel attachment clip (Item 1D) and the top of the gypsum board is 1-1/2 in. (38 mm). The joint system is designed to accommodate a max 50 percent compression or extension from its installed width. The joint system shall consist of forming and fill materials, as follows:

A. **Forming Material* —** Nom 4 pcf (64 kg/m^3) density mineral wool batt insulation. Sections of mineral wool batt cut to a thickness equal to the overall thickness of gypsum board and compressed a min of 50 percent into the gap between the top of the gypsum board and the

bottom plane of the spray applied fire resistive material on the steel furring (Item 1D) on both sides of the wall assembly.

ROCK WOOL MANUFACTURING CO — Delta Board

ROXUL INC — SAF Mineral Wool

THERMAFIBER INC — Type SAF

A1. **Forming Material* - Strips —** As an alternate to Item 3A, the strips are stacked to a height twice larger than the distance between the top of the gypsum board and the bottom of the steel floor unit. Strips compressed 50 percent and installed within ceiling runner above top of liner panel flush with the inside surface of the panel. Strips compressed and installed on finished side of the wall between the top of the gypsum board and the bottom of the steel floor units, flush with the surface of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 767 Speed Strips

B. **Fill, Void or Cavity Material* - Sealant —** Min 1/16 in. (1.6 mm) dry thickness (1/8 in. or 3.2 mm wet thickness) fill material sprayed or troweled on each side of wall to completely cover mineral wool forming material and to overlap min 1/2 in. (13 mm) onto wall and min 2 in. (51 mm) onto spray-applied fire resistive material.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP672 Firestop Spray or CFS-SP WB Firestop Joint Spray

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ONLINE CERTIFICATIONS DIRECTORY

System No. CW-S-2031
XHDG.CW-S-2031
Perimeter-fire-containment Systems

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- Authorities Having Jurisdiction should be consulted before construction.
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XHDG - Perimeter-fire-containment Systems

See General Information for Perimeter-fire-containment Systems

System No. CW-S-2031

June 23, 2016

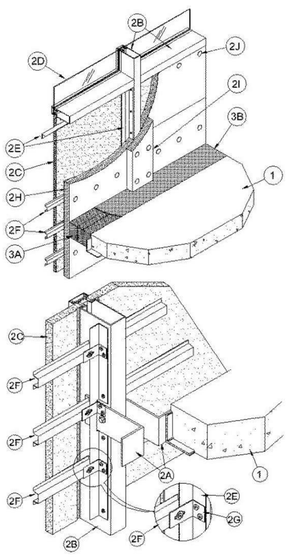
F Rating — 2 Hr

T Rating — 1/4 Hr

Integrity Rating — 2 Hr

Insulation Rating — 1/4 Hr

Linear Opening Width — 8 In. Max



1. **Floor Assembly —** Min 4-1/2 in. thick reinforced lightweight or normal weight (100-150 pcf) structural concrete. Perimeter of floor assembly to be provided with min 4 by 4 by 1/4 in. thick cast-in-place structural steel angle for weld-attachment of mullion mounting clips (Item 2A).

2. **Curtain Wall Assembly —** The curtain wall assembly shall incorporate the following construction features:

A. **Mullion Mounting Clips —** Min 4 in. long angles with one nom 4 in. leg for attachment to edge of floor assembly and with one leg approx 4 in. longer than distance to nearest face of mullion. Clips welded to steel angle at edge of floor assembly (Item 1) on each side of vertical mullion (Item 2B) at each floor level. Top edge of each mounting angle to be recessed min 3/4 in. below top surface of floor.

B. **Framing —** The rectangular tubing mullions (vertical members) and transoms (horizontal members) shall be min 2-1/2in. wide by 5 in. deep and shall be formed from min 0.100 in. thick aluminum. Mullions spaced max 60 in. OC and secured to mullion mounting clips (Item 2A) at each floor level with two 1/2 in. diam by 4 in. long hex head steel bolts in conjunction with steel nuts and washers. Interior face of mullions to be max 8 in. from edge of floor assembly. Transoms forming top and bottom edges of spandrel panels (Item 2C) to be spaced min 72 in. OC. Transom forming sill of vision panel (Item 2D) to be located such that its bottom surface is at height of 33 in. above the top surface of the floor (Item 1).

C. **Spandrel Panels —** Nom 1-3/16 in. thick polished granite spandrel panels with 1 in. thick gauged edges. Each panel secured in position with aluminum pressure plates in conjunction with gaskets and steel screws.

D. **Vision Panels —** Nom 1/4 in. thick transparent heat-strengthened glass. Each panel secured in position with aluminum pressure plates in conjunction with glazing gaskets and steel screws.

E. **Spandrel Panel Perimeter Angles —** Nom 1-1/2 by 1-1/2 in. No. 20 gauge galvanized steel angles installed around entire perimeter of each spandrel panel. Angles recessed from interior face of framing as necessary to accommodate thickness of curtain wall insulation (Item 2H). Angles notched as necessary to be continuous over mullion mounting clips (Item 2A). Angles screw-attached to mullions and transom along sides and top of each spandrel panel with No. 10 by 1/2 in. long self-drilling, self-tapping steel screws spaced max 12 in. OC. Angle along bottom of each spandrel panel to be screw-attached to leg of angle on mullion at each end without any direct attachment to transom.

F. **Stiff Back Channel —** Nom 2-1/2 in. wide by 7/8 in. deep hat-shaped channel formed of 22 gauge galv steel to be installed to stiffen curtain wall insulation between mullions above, below and at elevation of safing joint. One stiff back channel to be located with its centerline approx 6 in. below floor and one stiff back channel to be located with its centerline approx 6 in. above floor. A third stiff back channel is to be located near the midheight of the safing joint. A clearance of 1/4 to 1/2 in. shall be maintained between the ends of the stiff back channels and the mullions. Stiff back channel secured to mullion at each end with channel attachment clip (Item 2G) in conjunction with a No. 8 by 1/2 in. long self-drilling, self-tapping wafer head steel screw or a 3/16 in. diam steel bolt with nut and washer.

G. **Channel Attachment Clips —** Nom 1-1/2 by 2-1/2 by 1-1/2 in. long angle formed of 16 gauge galv steel. The 2-1/2 in. leg is provided with a 1/4 in. wide by 1-1/2 in. long slot along its centerline for attachment of the stiff back channel. Clips secured to mullion mounting clips (Item 2A) and mullions, through perimeter angles, with two No. 10 by 1/2 in. long self-drilling, self-tapping steel screws. Channel clips installed with 2-1/2 in. leg recessed from interior face of mullion to accommodate thickness of curtain wall insulation (Item 2H).

H. **Curtain Wall Insulation* —** Min 2 in. thick mineral wool board insulation, unfaced or faced on one side with aluminum foil/scrim vapor retarder, supplied in min 36 in. wide boards. Insulation boards to be installed with no vertical seams. A full-width board shall be centered at the midheight of floor and tightly fitted between vertical mullions, flush with interior surface of framing. The centered board shall be secured to the stiff back channels (Item 2F) located approx 6 in. above and below the floor with cup head weld pins (Item 2J) spaced max 10 in. OC along each channel. The remainder of the spandrel panel framing above and below the centered full-width board shall be filled in with additional lengths of board cut to fit tightly between mullions and with the horizontal seams between boards sections tightly butted. The boards shall be secured to the spandrel panel perimeter angles with cup head weld pins at each corner of each board and spaced max 10 in. OC. When faced boards are used, butted seams to be covered with min 4 in. wide aluminum foil tape.

ROCKWOOL MALAYSIA SDN BHD — CurtainRock 80

ROXUL INC — CurtainRock 80

I. **Framing Covers — Curtain Wall Insulation* —** Min 8 in. wide strips cut from the same min 2 in. thick mineral wool batt insulation used for the curtain wall insulation (Item 2H). Framing covers to be centered over mullions and secured to the spandrel panel perimeter angles (Item 2E) with cup head weld pins (Item 2J) spaced max 12 in. OC. Where more than one spandrel panel occurs between vertically separated vision panels, the horizontal transom between spandrel panels shall also be covered with an 8 in. wide framing cover in the same manner as on the vertical mullions. Framing covers on mullions to abut the mineral wool batt safing material (Item 3A) above and below floor.

ROCKWOOL MALAYSIA SDN BHD — CurtainRock 80

ROXUL INC — CurtainRock 80

J. **Weld Pin —** No. 12 gauge galv steel weld pin with nom 1-3/16 in. diam galv steel cup head. Cup head weld pins provided in two lengths. One length to be equal to thickness of curtain wall insulation (Item 2H) and second length to be equal to thickness of curtain wall insulation plus thickness of framing cover (Item 2I). Cup head weld pins inserted through curtain wall insulation and mullion covers and welded to spandrel panel perimeter angles at max OC spacings referenced in Items 2H and 2I.

3. **Perimeter Fire Containment System —** The perimeter fire containment system shall incorporated the following construction features:

A. **Forming Material* —** Nom 4 in. thick mineral wool batt safing material to be installed in continuous pieces between mullion clips. Safing material to be cut to a min 4-1/2 in. width and stacked to a thickness which is at least 25 percent greater than the width of the linear gap between the curtain wall and the edge of the concrete floor slab. The safing material is compressed and inserted cut-edge-first into the linear gap such that its top surface is recessed from the top surface of the floor assembly to accommodate required thickness of fill material and such that it is friction-fit between mullion mounting angles. Additional pieces of safing material to be friction-fit into space between mullion mounting clips at each mullion location with top edges of mullion clips covered with a min 1/4 in. thickness of compressed safing material. Safing material recessed from top surface of concrete floor to accommodate the required thickness of fill material.

ROCKWOOL MALAYSIA SDN BHD — SAFE

ROXUL INC — SAFE

B. **Fill, Void or Cavity Material* —** Min 1/4 in. thickness of fill material applied over top of forming material.

B1. **Fill, Void or Cavity Material* —** As an alternate to Item 3B, min 1/8 in. thickness of fill material applied over top of forming material flush with the top surface of the concrete floor and lapping onto the concrete spandrel panel or tilt-up panel.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-S SIL SL Sealant

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3. **Firestop System —** The F and T Ratings of the system are dependent upon the type of assembly being penetrated, thickness of assembly, pipe diam, annular space, forming material thickness and fill material thickness as shown in the table below:

Floor or Wall	Min Floor or Wall Thkns In.	Max Pipe Diam In.	Ann Space In.	Min Forming Mtl Thkns In.	Min Fill Mtl Thkns In.	F Rating Hr	T Rating Hr
F	4-1/2	6	3/4	4	1/2	1	0
W	5	6	3/4	4	1/2	1	0
F	4-1/2	4	3/4	3-1/2	1	2	1/2
W	5-1/2	4	3/4	3-1/2	1	2	1/2
F	4-1/2	6	3/4	1-1/4	2-3/8	3	0
W	6	6	3/4	1-1/4	2-3/8	3	0

A. **Packing Material —** Mineral wool batt insulation having a min density of 4.0 pcf firmly packed into opening as a permanent form at the min thickness specified above. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

B. **Fill, Void or Cavity Material* — Caulk —** Min thickness of fill material applied within the annulus, flush with top surface of floor and with both surfaces of the wall.

PROMAT GMBH — Intumex® MW

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2015-05-05

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ONLINE CERTIFICATIONS DIRECTORY

System No. C-AJ-1055
XHEZ.C-AJ-1055
Through-penetration Firestop Systems

Page Bottom

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

XHEZ - Through-penetration Firestop Systems

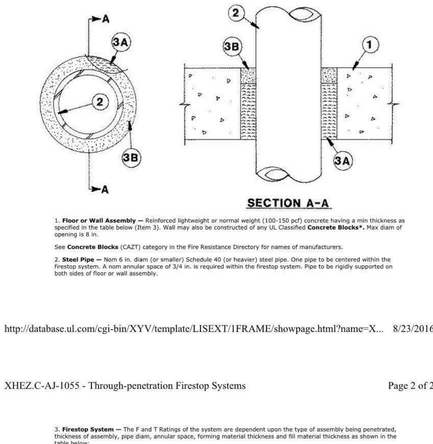
See General Information for Through-penetration Firestop Systems

System No. C-AJ-1055

May 05, 2015

F Ratings — 1, 2, and 3 Hr (See Item 3)

T Ratings — 0 and 1/2 Hr (See Item 3)



SECTION A-A

1. **Floor or Wall Assembly —** Reinforced lightweight or normal weight (100-150 pcf) concrete having a min thickness as specified in the table below (Item 3). Wall may also be constructed of any UL Classified **Concrete Blocks***. Max diam of opening is 8 in.

See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. **Steel Pipe —** Nom 6 in. diam (or smaller) Schedule 40 (or heavier) steel pipe. One pipe to be centered within the firestop system. A nom annular space of 3/4 in. is required within the firestop system. Pipe to be rigidly supported on both sides of floor or wall assembly.

3. **Firestop System —** The F and T Ratings of the system are dependent upon the type of assembly being penetrated, thickness of assembly, pipe diam, annular space, forming material thickness and fill material thickness as shown in the table below:

Floor or Wall	Min Floor or Wall Thkns In.	Max Pipe Diam In.	Ann Space In.	Min Forming Mtl Thkns In.	Min Fill Mtl Thkns In.	F Rating Hr	T Rating Hr
F	4-1/2	6	3/4	4	1/2	1	0
W	5	6	3/4	4	1/2	1	0
F	4-1/2	4	3/4	3-1/2	1	2	1/2
W	5-1/2	4	3/4	3-1/2	1	2	1/2
F	4-1/2	6	3/4	1-1/4	2-3/8	3	0
W	6	6	3/4	1-1/4	2-3/8	3	0

A. **Packing Material —** Mineral wool batt insulation having a min density of 4.0 pcf firmly packed into opening as a permanent form at the min thickness specified above. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.

B. **Fill, Void or Cavity Material* — Caulk —** Min thickness of fill material applied within the annulus, flush with top surface of floor and with both surfaces of the wall.

PROMAT GMBH — Intumex® MW

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Last Updated on 2015-05-05

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LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

UL LITERATURE
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

CP4.05
75-1621700
01.25.18
Revisions
BY/DATE/COMMENTS
BRH 10/8/17 BUIDL/USERS

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ONLINE CERTIFICATIONS DIRECTORY

System No. W-L-5014
XHEZ.W-L-5014
Through-penetration Firestop Systems

Page Bottom

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- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

XHEZ - Through-penetration Firestop Systems

XHEZ7 - Through-penetration Firestop Systems Certified for Canada

See General Information for Through-penetration Firestop Systems

See General Information for Through-penetration Firestop Systems Certified for Canada

System No. W-L-5014

August 23, 2011

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Rating — 1 Hr	FT Rating — 1 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Ratings — 1 and 2 Hr (See Item 1)
L Rating At 400 F — Less Than 1 CFM/sq ft	FTH Rating — 1 Hr
	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — Less Than 1 CFM/sq ft

Section A-A

1. **Wall Assembly —** The 1 or 2 hr fire-rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Studs —** Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced max 16 in. (406 mm) OC. Steel studs to be min 3-5/8 in. (92 mm) wide and spaced max 24 in. (610 mm) OC.

B. **Gypsum Board* —** 5/8 in. (16 mm) thick, 4 ft (1.2 m) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 18 in. (457 mm).

The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

1A. **Metallic Sleeve —** (Optional, Not Shown) - Cylindrical sleeve fabricated from min 0.016 in. (0.41 mm) to max 0.105 in. (2.7 mm) thick sheet steel. Length of steel sleeve to be equal to the thickness of wall. Longitudinal seam of sleeve welded or overlapped min 1 in. (25 mm). The ends of the steel sleeve shall be flush or recessed max 1/4 in. (6 mm) from wall surfaces.

2. **Through Penetrants —** One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes or tubing may be used:

A. **Steel Pipe —** Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. **Iron Pipe —** Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.

C. **Copper Tubing —** Nom 4 in. (102 mm) diam (or smaller) Type M (or heavier) copper tube.

D. **Copper Pipe —** Nom 4 in. (102 mm) diam (or smaller) Regular (or heavier) copper pipe.

3. **Pipe Coverings* —** One of the following types of pipe coverings shall be used:

A. **Pipe and Equipment Covering Materials* —** Max 2 in. (51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m^3) glass fiber units jacketed on the outside with an all service jacket. Longitudinal joints sealed with metal fasteners or factory-applied self-sealing lap tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. The annular space between insulated penetrating item and the edge of the through opening shall be min 0 in. (point contact) to max 1-1/4 in. (32 mm).

See **Pipe and Equipment Covering-Materials*** — (BRGU) category in the Building Materials Directory for names of manufacturers. Any pipe covering material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

B. **Pipe Covering Materials* —** Max 2 in. (51 mm) thick unfaced mineral fiber pipe insulation sized to the outside diam of pipe or tube. Pipe insulation secured with min 18 SWG steel wire spaced max 12 in. (305 mm) OC. The annular space between insulated penetrating item and the edge of the through opening shall be min 0 in. (point contact) to max 1-1/4 in. (32 mm).

INDUSTRIAL INSULATION GROUP L L C — High Temperature Pipe Insulation 1200, High Temperature Pipe Insulation BWT or High Temperature Pipe Insulation Thermaloc.

C. **Sheathing Material* —** Used in conjunction with Item 3B. Foil-scrim-kraft or all service jacket material shall be wrapped around the outer circumference of the pipe insulation (Item 3B) with the kraft side exposed. Longitudinal joints and transverse joints sealed with metal fasteners or butt tape.

See **Sheathing Materials** (BVDV) category in the Building Materials Directory for names of manufacturers. Any sheathing material meeting the above specifications and bearing the UL Classification Marking with a Flame Spread Index of 25 or less and a Smoke Developed Index of 50 or less may be used.

4. **Fill, Void or Cavity Material* — Sealant —** Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall. At point contact location between insulated through penetrant and gypsum board, a min 3/8 in. (10 mm) bead of fill material shall be applied to the insulated through penetrant/gypsum board interface on both sides of the wall.

SPECIFIED TECHNOLOGIES INC — SpecSeal Series SSS Sealant or SpecSeal LCI Sealant

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Last Updated on 2011-08-23

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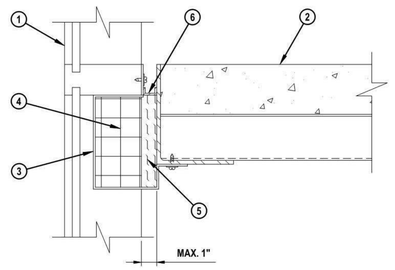
ADD-3

JH

ENGINEERING JUDGMENT FIRESTOP DETAIL

PROJECT : CAL POLY VISTA GRANDE
CONTRACTOR : DLR GROUP
F-RATING = 1-HR. (SEE NOTE NO. 2 BELOW)

CROSS-SECTIONAL VIEW



Hilti Firestop Systems	HILTI, Inc. Plano, Texas USA (800) 879-8000	Sheet 1 of 2	Drawing No. 235936b
	Designed by CFPS	Scale 1/4" = 1"	
		Date July 06, 2016	

Saving Lives through Innovation and Education

JH

ENGINEERING JUDGMENT FIRESTOP DETAIL

PROJECT : CAL POLY VISTA GRANDE
CONTRACTOR : DLR GROUP
F-RATING = 1-HR. (SEE NOTE NO. 2 BELOW)

1. SPANDREL GLASS AND ALUMINUM MULLION CURTAIN WALL ASSEMBLY (NON FIRE-RATED).
2. CONCRETE FLOOR OVER METAL DECKING ASSEMBLY (MINIMUM 3-1/4" THICK) (1-HR. FIRE-RATING).
3. GALVANIZED SHEET METAL PAN: ATTACH 18 GA GALVANIZED STEEL SECTION TO THE ALUMINUM FRAMING WITH NO. 10 SELF-DRILLING SHEET METAL SCREWS AT 12" OC AND TO THE BOTTOM OF FLOOR ASSEMBLY WITH APPROPRIATE HILTI ANCHORS, ALSO 12" OC. THE GALVANIZED STEEL PAN SHALL BE FORMED SUCH THAT IT HAS A MIN. 1" LIP FOR WHICH TO SECURE THE PAN TO THE ALUMINUM FRAMING, CAN CONTAIN MIN. 3" THICK MIN. 6" TALL CURTAIN WALL INSULATION AND A BOTTOM LEG LONG ENOUGH TO OVERLAP THE CONCRETE FLOOR ASSEMBLY MIN. 1" TO SECURE THE PAN TO THE FLOOR ASSEMBLY. INSTALL 18 GA GALVANIZED STEEL PLATES MIN. 4-1/2" IN WIDTH, CENTERED AT THE ALUMINUM MULLIONS SUCH THAT THERE IS CONTINUOUS COVERAGE BELOW THE JOINT. INSTALL HILTI CFS-S SIL GG FIRESTOP SILICONE ALONG THE EDGES OF THE METAL PAN THAT ARE IN CONTACT WITH THE ALUMINUM MEMBERS OF THE CURTAIN WALL ASSEMBLY.
4. CURTAIN WALL INSULATION: FILL THE CAVITY OF THE METAL PAN WITH NOMINAL 3" THICK, MIN 6" TALL, 8 PCF DENSITY, MINERAL WOOL BATT INSULATION. TIGHTLY FIT, COMPRESS AT LEAST 1/8" IN ALL DIRECTIONS.
5. MINIMUM 4" THICKNESS MINERAL WOOL SAFING (MIN. 4 PCF DENSITY) COMPRESSED 25% AND RECESSED 2" FROM TOP SURFACE OF FLOOR ASSEMBLY.
6. MINIMUM 1/8" (WET) THICKNESS HILTI CFS-SP WB FIRESTOP JOINT SPRAY, MINIMUM 2mm (WET) THICKNESS HILTI CFS-SP SIL FIRESTOP SILICONE JOINT SPRAY OR MINIMUM 1/4" DEPTH HILTI CFS-S SIL SL FIRESTOP SILICONE SEALANT TO COMPLETELY COVER MINERAL WOOL, OVERLAPPING MINIMUM 1/2" ONTO CONCRETE FLOOR AND CURTAIN WALL.

NOTES : 1. MAXIMUM WIDTH OF JOINT = 1".
2. FIRE-RATING OF ASSEMBLY IS DEPENDENT UPON THE PERFORMANCE OF CURTAIN WALL ASSEMBLY UNDER FIRE CONDITIONS.

THIS ENGINEERING JUDGMENT REPRESENTS A FIRESTOP SYSTEM THAT WOULD BE EXPECTED TO PASS THE STATED RATINGS IF TESTED.
(REFERENCE : INTERTEK SYSTEM NO. HI/BPF 120-10 & CEJ 526 P)

Hilti Firestop Systems	HILTI, Inc. Plano, Texas USA (800) 879-8000	Sheet 2 of 2	Drawing No. 235936b
	Designed by CFPS	Scale -	
		Date July 06, 2016	

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LICENSED ARCHITECT JON P. ANDERSON No. C29998 REN. 07.31.19 STATE OF CALIFORNIA

UL LITERATURE
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

CP4.06

75-16217-00
01.25.18
Revisions
8901 10.09.17 BUSD/LEED/TAS COMMENTS
ADD-3 2.16.18 ADDENDUM 3

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STATE OF CALIFORNIA—NATURAL RESOURCES AGENCY — Edmund G. Brown Jr., Governor

DEPARTMENT OF FORESTRY AND FIRE PROTECTION
OFFICE OF THE STATE FIRE MARSHAL
FIRE AND LIFE SAFETY- NORTH DIVISION
1131 S Street
SACRAMENTO, CA 95811
T: (916) 445-8550 F: (916) 324-3784
Website: www.osfm.fire.ca.gov

PLAN REVIEW APPLICATION

(Must be submitted with all plans, specifications, deferred approvals, and back checks)
Please Type

Application Date: 11/8/17

State Department: California Polytechnic State University

Building / Project Name: Baggett Baseball Clubhouse

Agency's Project #: MJ0066 **Bill To:** SRF ☐ ARF ☐ Agency ☐ County ☐
(For DGS and BSCC Projects- *please check one of the boxes above*)

Project Address: 1 Grand Ave.

City: San Luis Obispo **Zip Code:** 93407 **County:** SLO

Scope of Project: New 10,679 S.F, two story clubhouse. – AMMR

Estimated Contract Cost: 4,200,000

Submitting Firm/Agency: DLR Group

Address: 1050 20th Street, Ste. 250

City: Sacramento **Zip Code:** 95811 **County:** Sac.

Contact Person: Jesse Navarro

Telephone Number: (916) 307-5535 **Email:** jnavarro@dlrgroup.com

State Agency Representative (Required)

Name: Austin Creel

Email: aacreel@calpoly.edu

Phone: (805) 756-7252

----------SFM USE ONLY----------

SFM File #: 18-40-03-0001

Control ID #: 17-3-2719-AM

Date Received: RECEIVED NOV 22 2017

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FM01

REQUEST OF ALTERNATE MEANS OF PROTECTION
Vista Grande Dining Facility
Page 2

Conclusion: The proposed dry standpipe on the south side of the building will provide access to a reliable water source supply allowing a fire fighter to fight fire on the entire south side of the building. We believe the standpipe system meets the intent of the Code by essentially extending the fire apparatus "access" to within +/- 30 feet of the building.

Prepared by: Jesse Navarro, Architect.
DLR Group

J Navarro — 11.7.17
Name — Date

Ernie Paez, Chief — 1/10/2018
Fire & Life Safety Division – South
CAL FIRE – Office of the State Fire Marshall — Date

Stephen Guarino, Chief — 11/10/2018
Fire & Life Safety Division – North
CAL FIRE – Office of the State Fire Marshall — Date

DLR Group
Architecture Engineering Planning Interiors
1050 20th Street, Suite 250
Sacramento, CA 95811

REQUEST FOR ALTERNATE MEANS OF PROTECTION

Baseball Clubhouse Facility
California Polytechnic State University – San Luis Obispo
1 Grand Ave., San Luis Obispo, CA 93407
CSFM#: 18-40-03-0001-295

Date: November 6, 2017

Code Section: 2016 CBC 503

Code Requirement: Section 503.1.1 requires fire apparatus access roads to be provided for every facility, building, or portion of a building. The fire apparatus access road shall extend to within 150 feet of all portions of the facility and all portions of the exterior walls of the first story of the building as measured by an approved route around the exterior of the building or facility.

Code Intent: The intent of the Code is to ensure that a fire apparatus has access to the building, and that a reliable water supply is available to fight fire.

Request: An existing fire apparatus access road cannot be extended on this project due to its location on the site. We propose installing a dry standpipe system, with fire hose connection outlets, on the south side of the building to mitigate the 150-foot hose pull requirement. We will also install a fire department connection (FDC) adjacent to an existing fire hydrant located on Sports Complex Rd.

Justification: **Two** sides of the building provide fire apparatus access within 150 feet of the structure except the entire south side and portions of the east and west side of the structure. There are portions of the building where the requirements of the above section cannot be met because of topographic grades, fencing, and landscape. By providing a dry standpipe on the south side of the building we are able to ensure fire fighters are able to lay a hose line to reach any portion of the exterior walls of the building.

Sacramento and locations worldwide

DLR Group — **Transmittal**

PROJECT:	Cal Poly - New Baseball Clubhouse Facility 75-16217-00	DATE:	11/8/2017
SUBJECT:	RequEst for Alt. Means of Protection - Agency Project #MJ0066	TRANSMITTAL ID:	00066
PURPOSE:	For Planning	VIA:	Hand

FROM

NAME	COMPANY	EMAIL	PHONE
Jesse Navarro	DLR Group	jnavarro@dlrgroup.com	916-307-5535xx75-5535

TO

NAME	COMPANY	EMAIL	PHONE
Fire Marshall			

REMARKS: Attached for your consideration for an Alternate Means of Protection for Agency Project #MJ0066, Cal Poly Baseball Clubhouse, are:

- A Plan Review Application
- A Request for Alternate Means of Protection
- Cover Sheet and all applicable Architectural sheets related to the request

Thank you.

LEGEND NOTES

LEGEND NOTES ARE COMMON TO ALL
SOME NOTES MAY NOT APPLY TO THIS SHEET

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

ALTERNATE MEANS OF PROTECTION FORM (AMMR)
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

NEW SHEET

CP4.07

75-16217-00
01.25.18
Revision
8/03 TBD BUREAU VERITAS COMMENTS/BACKCHECK 2
FM01 4.06.18 FIRE MARSHALL BACKCHECK 1

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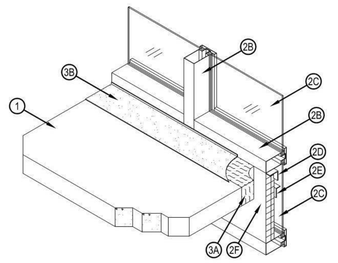
CEJ 526 P

System No. CEJ 526 P (HI/BP 60-01)

PERIMETER FIRE BARRIER SYSTEM - ASTM E 2307

	CP 672 SPEED SPRAY	CP 672 FAST CURE	CFS-SP WB
F-RATING	1-HR.	1-HR.	1-HR.
T-RATING	54-MIN.	1/2-HR.	54-MIN.

Rated for ± 5% vertical shear movement
ASTM E 1399-97
Movement Type - Combined IV
Cycling Rate - 30 cpm
Cycles - 500



CEJ 526 P

System No. CEJ 526 P (HI/BP 60-01)

PERIMETER FIRE BARRIER SYSTEM - ASTM E 2307

	CP 672 SPEED SPRAY	CP 672 FAST CURE	CFS-SP WB
F-RATING	1-HR.	1-HR.	1-HR.
T-RATING	54-MIN.	1/2-HR.	54-MIN.

Rated for ± 5% vertical shear movement
ASTM E 1399-97
Movement Type - Combined IV
Cycling Rate - 30 cpm
Cycles - 500

3. PERIMETER JOINT PROTECTION: The perimeter joint (linear opening) shall not exceed an 6-in. nom. joint width (joint width at installation) and the perimeter joint treatment shall incorporate the following construction features:
   A. Packing Material: Use only mineral wool bearing an Intertek certified product label and meeting the following minimum requirements. A min. 4 in. thick, 4 pcf density, mineral wool batt insulation installed with the fibers running parallel to the slab edge and curtain wall. After the Perimeter Fire Barrier Reinforcement angle (2F) is installed, the packing material shall be compressed 33% in the nominal joint width. Compress the batt insulation into the perimeter joint. Ensure the top surface of the batt insulation is flush with the top surface of the concrete floor slab. Splices (butt joints) in the lengths of mineral wool batt insulation are to be tightly compressed together with min. compression of 0.25-in. per piece.
   B. CERTIFIED MANUFACTURER: Hilti, Inc.
   CERTIFIED PRODUCT: Joint Spray or Sealant
   MODEL: CP 672 Speed Spray or CP 672 Fast Cure or CFS-SP WB Firestop Joint Spray
   Fill, Void or Cavity Material: Apply over the Packing Material (3A) as discussed below. Apply a minimum wet spray film thickness of 1/8 in. and overlap the packing material a minimum 1/2 in. onto the adjacent curtain wall assembly (Item 2) and concrete floor assembly (Item 1). When the spraying process is stopped and the applied liquid cures to an elastomeric film before application process is restarted, overlap the edge of the cured material at least 1/8 inch with the spray. Reference Product Section of the Intertek (OPL) Directory for more details about the Listed product. C. Support Clips: (not shown) An optional but recommended item for installations subject to vertical shear movement. Standard Z-shaped clips are 20 GA galvanized steel with the following dimensions: 1 in. wide by 3 in. high with a 2 in. upper leg and 3 in. lower leg.

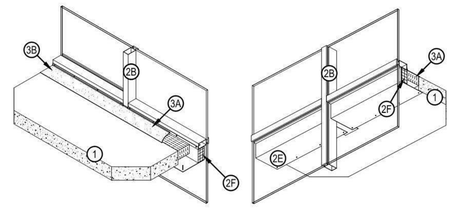
HI/BPF 120-10

Design No. HI/BPF 120-10

PERIMETER FIRE BARRIERS
Firestop Joint Spray CFS-SP WB
ASTM E 2307
Table 1.

	Firestop Joint Spray CFS-SP WB	Silicone Joint Spray CFS-SP SIL
F-Rating	2 Hour	2 Hour
T-Rating	45 Minute	45 Minute
Application Thickness	1/8 in. wet film (1/16 in. dry)	2 mm (0.08 in.) wet film

Static Joint
L-Rating <1.0 SCFM/LF at Ambient Conditions



CEJ 526 P

System No. CEJ 526 P (HI/BP 60-01)

PERIMETER FIRE BARRIER SYSTEM - ASTM E 2307

	CP 672 SPEED SPRAY	CP 672 FAST CURE	CFS-SP WB
F-RATING	1-HR.	1-HR.	1-HR.
T-RATING	54-MIN.	1/2-HR.	54-MIN.

Rated for ± 5% vertical shear movement
ASTM E 1399-97
Movement Type - Combined IV
Cycling Rate - 30 cpm
Cycles - 500

1. CONCRETE FLOOR ASSEMBLY: Two-hour rated concrete floor assembly made from either lightweight or normal weight concrete with a density of 100-150 pcf, with a min. thickness of 4 in. at the joint face. Overall slab thickness may vary to accommodate various blockout depths (longitudinal recesses) formed in the concrete, to house the architectural cover plate. The blockout width may also vary without restriction.
2. CURTAIN WALL ASSEMBLY: The curtain wall assembly shall incorporate the following construction features:
   A. Mounting Attachment: (Not shown) Attachment of the min. 1/4 in. plate steel curtain wall framing to the structural framing shall be according to the curtain wall manufacturer's instructions to allow vertical shear movement only. The mounting attachments to the floor slab shall be connected to the joint face of the floor slab, in accordance with the curtain wall manufacturer's instructions. Attachments are to be secured to each mullion in the perimeter joint protection region at a max. spacing of 60 in. o.c.
   B. Aluminum Framing: Rectangular aluminum tubing mullions and transoms, sized according to the curtain wall system manufacturer's guidelines. Min. overall dimensions of the extruded framing sections are 0.100 in. thick aluminum with a min. 3-3/4 in. depth and a min. of 2-1/2 in. width. Mullion and Transom covers are added to the external side of the framing, giving the framing system a total depth of min. 5-5/16 in. Mullions are to be spaced a min. 60 in. o.c. and transoms are to be spaced a min. 12-1/2 in. o.c. For the spandrel region, the lower transom must be placed a min. of 5-1/2 in. below the concrete floor (as measured from the underside of the floor to the top side of the transom) and the upper transom (as measured from the top surface of the floor to the underside of the transom) may be located flush with the top surface of the floor, or higher, while maintaining the minimum 10 in. spandrel height.
   C. Glass Panels: Glass panels shall be sized and attached to curtain wall framing according to the curtain wall system manufacturer's guidelines. Use a min. 1/4 in. thick, clear heat-strengthened (HS) glass or tempered glass with a max. width and height less than the aluminum framing o.c. spacing, which allows the glass to be secured between the notched shoulder of the aluminum framing and pressure bar. Panels are secured with a thermal break (rubber extrusion), pressure bar (aluminum extrusion), min. 1/4-20 x 5/8 in. long screws, and a snap face (aluminum extrusion).
   D. Spandrel Angles: Min. 20 GA 2 in. x 2 in. galvanized steel angle mounted to the underside of the top spandrel transom extending the full length of the transom between each vertical framing member. Position so that the curtain wall insulation (2F), when placed flush against the back surface of the angle, is flush with the internal surface of the vertical framing members. Secure the angle to the transom with min. 1 in. No. 10 self –tapping sheet metal screws spaced a max. 8 in. o.c.
   E. Reinforcing Angle: Min. 20 GA 1 in. x 2 in. galvanized steel angle mounted horizontally in the spandrel area to reinforce the curtain wall insulation. The 2 in. leg is placed flush against the exterior surface of the curtain wall insulation and the 1 in. dimension is positioned at the top of the 2 in. leg, perpendicular to and away from the insulation as illustrated. Place a min. of one angle in each spandrel cavity between vertical framing members. The top of the angle should be located flush with the bottom surface of the floor. On both ends of each angle, cut the 1 in. leg of the angle 2 in. from the end and fold down to form a slot that is slid onto the flange of the z-clip (not shown)
   F. Curtain Wall Insulation: Use only mineral wool bearing an Intertek certified product label and meeting the following minimum requirements. A nom. 2 in. thick, 8 pcf density mineral wool batt insulation, faced on one side with aluminum foil scrim (vapor retarder) which faces the room interior, is installed to fill all cavities of the spandrel region between the framing. The batt is to be fitted tightly to the framing, and is secured to the framing with screws and 1-1/2 in. diameter steel clinch shields (not shown) spaced 11 in. o.c. and attached to the horizontal perimeter spandrel angles (2D). All meeting edges of insulation are sealed with nom. 4-in. wide pressure sensitive aluminum foil faced tape centered over the junction so that approx. 2 in. of tape covers each edge of the adjacent insulation. Place a horizontal seam at the centerline of the perimeter joint protection and reinforce with angle (2E). Strips of 2 in. thick x 8 in. wide, 8 pcf mineral wool batt insulation faced on one side with aluminum foil scrim were installed as mullion covers (not shown). The covers were centered along vertical framing members and secured to the members with impaling pins and clips.

HI/BPF 120-10

Design No. HI/BPF 120-10

1. CONCRETE FLOOR ASSEMBLY: 2 hour rated concrete floor assembly made from either lightweight or normal weight concrete with a density of 100 to 150 pcf, having a min. thickness of 6 in. at the joint face. When a longitudinal recess (blockout) is required to contain an architectural joint system, increase concrete floor assembly thickness to maintain a min. thickness of 6 in. and accommodate depth of blockout formed in the concrete: blockout width unrestricted.
2. CURTAIN WALL ASSEMBLY: The curtain wall assembly shall incorporate the following construction features:
   A. Mounting Attachment (Not shown): Attach aluminum framing (Item 2B) to the structural framing according to the curtain wall manufacturer's instructions. Connect the mounting attachments to the joint face of the concrete floor assembly (Item 1) according to the curtain wall manufacturer's instructions.
   B. Aluminum Framing: Use hollow rectangular aluminum extruded tubing with min. overall dimensions of 0.100 in. thick, 4 in. high and 2-1/2 in. wide. Locate mullions (vertical aluminum framing) min. 60 in. oc. Locate the transom (horizontal aluminum framing) such that the bottom surface of the transom is at the same height as the top surface of the floor assembly.
   C. Glass Panels: Sized and installed into aluminum framing (Item 2B) in accordance with the curtain wall manufacturer's instructions. Use min. 1/4 in. thick, clear, heat strengthened (HS) or tempered glass with a max. width and height less than the aluminum framing (Item 2B) oc spacing. OC spacing shall allow glass to be secured to the aluminum framing (Item 2B) between the notched shoulders. Secure glass panels with a thermal break (rubber extrusion), pressure bar (aluminum extrusion), min. 1/4-20 by 5/8 in. long screws, and a snap face (aluminum extrusion).
   D. Aluminum Anchor Brackets (Not shown): Use min. 1/2 in. thick aluminum anchor brackets to serve as part of the mounting attachment (Item 2A) rigidly secured to the aluminum framing (Item 2B) and the concrete floor assembly (Item 1).
   E. Galvanized Sheet Metal Pan: Attach 18 GA galvanized steel section to the aluminum framing with No. 10 self-drilling sheet metal screws at 12 in. oc and to the concrete slab with Hilti Kwik HUS-EZ 1/4 in. x 1 7/8 in. steel concrete anchors, also 12 in. oc. The galvanized steel pan shall be formed such that it has a min. 1 in. lip for which to secure the pan to the aluminum framing, can contain min. 3 in. thick min. 6 in. tall curtain wall insulation (Item 2F), and a bottom leg long enough to overlap the concrete floor assembly min. 1 in. to secure the pan to the floor assembly (Item 1). Install 18 GA galvanized steel plates min. 4-1/2 in. in width, centered at the aluminum mullions such that there is continuous coverage below the joint. Install Hilti CFS-S SIL GG Firestop Silicone along the edges of the metal pan that are in contact with the aluminum members of the curtain wall assembly.
   F. Curtain Wall Insulation: Fill the cavity of the metal pan (Item 2E) with nominal 3 in. thick, min 6 in. tall, 8 pcf density, mineral wool batt insulation. Tightly fit, compress at least 1/8 in. in all directions. Use only Intertek certified products meeting the above min. requirements.
3. PERIMETER JOINT PROTECTION: Do not exceed a 4 in. nominal joint width (joint width at installation). Incorporate the following construction features for the perimeter joint protection (also known as perimeter fire barrier system):
   A. Packing Material: Use only mineral wool bearing an Intertek certified product label and meeting the following min. requirements. Insert min. 12 in. long, min. 2 in. tall, 4-pcf density, mineral wool batt insulation packing material compressed into the joint to 25% into bottom of pan centered at each mullion. Use min. 4 in. tall, 4-pcf density, mineral wool batt insulation and cut packing material width to achieve 25% compression when installed in the nominal joint width and use no more than two adjacent strips. Install insulation with the fibers running parallel to the edge of concrete floor assembly (Item 1) and curtain wall assembly (Item 2A). Tightly compress together splices (butt joints) in the lengths of packing material by using min. 1/4 in. compression per piece of packing material. Use only Intertek certified products meeting the above min. requirements. Locate the top surface of the packing material flush with the top surface of the concrete floor assembly (Item 1).
   B. CERTIFIED MANUFACTURER: Hilti Corporation
   CERTIFIED PRODUCT: Firestop Joint Spray CFS-SP WB or Silicone Joint Spray CFS-SP SIL
   Fill, Void, or Cavity Material: Apply over the packing material (Item 3A) as discussed below.
   Apply at the thickness specified in Table 1 and overlap the material 1/2 in. onto the adjacent curtain wall assembly and concrete floor slab assembly. When the spraying process is stopped and the applied liquid cures to an elastomeric film before application is restarted, overlap the edge of the cured material at least 1/8 in. with the spray. Reference Product Section of the Intertek Directory for more details on the Listed product.

LEGEND NOTES

LEGEND NOTES ARE COMMON TO ALL SOME NOTES MAY NOT APPLY TO THIS SHEET

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

MISC. LITERATURE
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

CP4.08

1 FM01 NEW SHEET

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Revisions
FM01 1.08.18 FREUMARSHALL BACHECK 1

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ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0042
XHBN.HW-D-0042
Joint Systems

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Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

XHBN - Joint Systems

XHBN7 - Joint Systems Certified for Canada

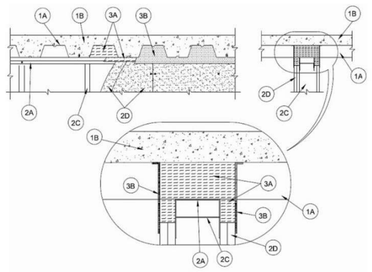
See General Information for Joint Systems

See General Information for Joint Systems Certified for Canada

System No. HW-D-0042

September 01, 2016

ANSI/UL2079	CAN/ULC S115
Assembly Ratings — 1 and 2 Hr (See Items 2 and 3A)	F Ratings — 1 and 2 Hr (See Items 2 and 3A)
Nominal Joint Width — 1 In.	FT Ratings — 1 and 2 Hr (See Items 2 and 3A)
Class II Movement Capabilities — 50% Compression or Extension	FH Ratings — 1 and 2 Hr (See Items 2 and 3A)
L Rating At Ambient — Less Than 1 CFM/Lin Ft	FTH Ratings — 1 and 2 Hr (See Items 2 and 3A)
L Rating At 400°F — Less Than 1 CFM/Lin Ft	Nominal Joint Width — 1 In.
	Class II Movement Capabilities — 50% Compression or Extension
	L Rating At Ambient — Less Than 1 CFM/Lin Ft
	L Rating At 400°F — Less Than 1 CFM/Lin Ft



1. **Floor Assembly —** The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor And Form Units* —** Max 3 in. (76 mm) deep galv steel fluted units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Spray-Applied Fire Resistive Materials* —** (Optional, Not Shown) — Prior to or after the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B, respectively) the steel floor units may be sprayed with a min 5/16 in. (8 mm) to max 1-3/4 in. (45 mm) thickness of fire resistive material.

GCP APPLIED TECHNOLOGIES INC — Types MK-6-HY or MK-10HB

ISOLATEK INTERNATIONAL — Type 300

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

1B. **Roof Assembly —** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Spray Applied Fire Resistive Materials* —** (Not Shown) — Prior to or after the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

GCP APPLIED TECHNOLOGIES INC — Types MK-6-HY or MK-10HB

ISOLATEK INTERNATIONAL — Type 300

2. **Wall Assembly —** The 1 or 2 hr fire rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor And Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2C). Flange height of ceiling runner shall be min 1/4 in. (6 mm) greater than max extended joint width. Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC, before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

A1. **Light Gauge Framing* — Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2C). Slotted ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners or welds spaced max 24 in. (610 mm) OC before optional spray-applied fire resistive material is used. Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC, before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

CONSOLIDATED FABRICATORS CORP, BUILDING PRODUCTS DIV — SDT250, SDT300

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

METAL-LITE INC — The System

OLMAR SUPPLY INC — STT250, STT300

R & P SUPPLY — SCT250, SCT300

RAM SALES L L C — RAM Slotted Track

SCAFCO STEEL STUD MANUFACTURING CO

TELLING INDUSTRIES L L C — True-Action Deflection Track

A2. **Light Gauge Framing* — Vertical Deflection Ceiling Runner —** When the nom joint width is less than or equal to 3/4 in. (19 mm), vertical deflection ceiling runner may be used as an alternate to the ceiling runners in Items 2A and 2A1. Vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips provided with stop bushings for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2C). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC. before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

THE STEEL NETWORK INC — VertiTrack VTD250, VTD362, VTD400, VTD600 and VTD800

A3. **Light Gauge Framing* — Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2C). Notched ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry

anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC. before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

OLMAR SUPPLY INC — Type SCR

B. **Steel Attachment Clips —** (Optional — Not Shown) — When spray applied fireproofing is used ceiling runner may be secured to deck with 2-shaped clips formed from min 1 in. (25 mm) long strips of min 20 ga galv steel. Length of clips should not exceed the width (thickness) of the wall. Clips to be used to extend through the thickness of the spray-applied fire-resistive material on the upper flange of the steel deck with 1-1/2 or 2 in. (38 or 51 mm) long upper and lower legs. Legs of clips fastened to sides of steel deck (prior to application of spray-applied fire-resistive materials) and top of ceiling runner with steel masonry anchors, steel fasteners or welds. Clips spaced max 24 in. (610 mm) OC.

C. **Studs —** Steel studs to be min 2-1/2 in. (64 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. When vertical deflection ceiling runner (Item 2A2) is used, steel studs secured to slotted vertical deflection clips, through the bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. (610 mm) OC.

D. **Gypsum Board* —** Gypsum board installed to a min total thickness of 5/8 in. and 1-1/4 in. (16 and 32 mm) on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a max 1 in. (25 mm) gap shall be maintained between the top of the gypsum board and the bottom of the steel deck units and the top row of screws shall be installed into the studs 1-1/2 to 2 in. (38 to 51 mm) below the bottom of the ceiling runner. **The hourly rating of the joint system is dependent on the hourly rating of the wall.**

3. **Joint System — Max separation between bottom of floor or roof and top of wall at time of installation of joint system is 1 in. (13 mm).** The joint system is designed to accommodate a max 50 percent compression or extension from its installed width. The joint system consists of forming material and a fill material, as follows:

A. **Forming Material* —** Nom 4 pcf (64 kg/m3) density mineral wool batt insulation cut with a length approx equal to the overall thickness of the wall. Multiple pieces stacked on top of each other, as needed, and then compressed 25 percent in thickness and inserted into the flutes of the steel deck above the top of the ceiling runner. The mineral wool batt insulation is to project beyond each side of the ceiling runner, flush with wall surfaces. Alternately, nom 4 pcf (64 kg/m3) forming material cut to shape of flute and nom 1 in. (25 mm) longer than thickness of wall, mineral wool compressed from ends and firmly packed into each flute to attain a min compression rate of 14.3 percent in the length (wall thickness) direction to be flush with both wall surfaces. Additional 5/8 in. and 1-1/4 in. (16 and 32 mm) wide strips for 1 and 2 hr rated assemblies, respectively, of nom 4 pcf (64 kg/m^3) mineral wool batt insulation are to be cut to fill the gap between the top of the gypsum board and bottom of the steel deck. The strips of mineral wool are compressed 50 percent and tightly packed, cut edge first, into the gap between the top of the gypsum board and bottom of the steel deck on both sides of the wall.

INDUSTRIAL INSULATION GROUP L L C — MinWool-1200 Safing

ROCK WOOL MANUFACTURING CO — Delta- Board

ROCKWOOL — SAFE

THERMAFIBER INC — Type SAF

A1. **Forming Material* — Plugs —** (Optional, Not Shown) — Preformed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling channel. The plugs shall project beyond each side of the ceiling runner, flush with wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of gypsum board and bottom of steel floor units.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP777 Speed Plugs

A2. **Forming Material* — Strips —** (Optional) — Nom 5/8 in. and 1-1/4 in. (16 and 32 mm) wide by 2 in. (51 mm) high precut mineral wool strips for 1 and 2 hr rated assemblies respectively. The strips are compressed 50 percent and firmly packed, cut edge first, into the gap between the top of the gypsum board and bottom of the steel floor units on both sides of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 767 Speed Strips

B. **Fill, Void or Cavity Material* —** Min 1/16 in. (1.6 mm) dry thickness (1/8 in. or 3.2 mm wet thickness) of fill material sprayed or troweled on each side of the wall to completely cover mineral

wool forming material and to overlap a min of 1/2 in. (13 mm) onto gypsum board and steel deck on both sides of wall. When **Spray-Applied Fire Resistive Material*** is applied to the **Steel Floor and Form Units***, the fill material is to overlap the gypsum board a min of 1/2 in. (13 mm) and the Spray-Applied Fire Resistive Material a min of 2 in. (51 mm) on both sides of wall. When spray-applied fire resistive materials are used, the firestop joint spray shall overlap the wall a min 1/2 in. (13 mm) and overlap the spray-applied fire resistive material a min of 2 in. (51 mm) on both sides of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CPS-SP WB Firestop Joint Spray

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2016-09-01

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- Authorities Having Jurisdiction should be consulted before construction.
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- Only products which bear UL's Mark are considered Certified.

XHBN - Joint Systems

See General Information for Joint Systems

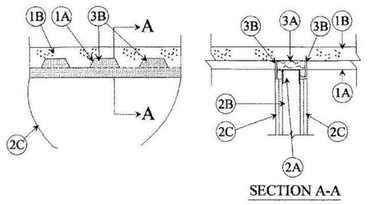
System No. HW-D-0045

September 01, 2016

Assembly Rating — 1 and 2 Hr (See Item 2)

Nominal Joint Width — 3/4 In.

Class II Movement Capabilities — 33% Compression or Extension



SECTION A-A

1. **Floor Assembly —** The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

2. **Wall Assembly —** The 1 or 2 hr fire-rated gypsum board /stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). Flange height of ceiling runner shall be min 1/4 in. (6 mm) greater than max extended joint width. . Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners or by welds spaced max 24 in. (610 mm) OC.

A1. **Light Gauge Framing* — Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners or welds spaced max 24 in. (610 mm) OC.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

METAL-LITE INC — The System

RAM SALES L L C — RAM Slotted Track

SCAFCO STEEL STUD MANUFACTURING CO

TELLING INDUSTRIES L L C — True-Action Deflection Track

A2. **Light Gauge Framing* — Vertical Deflection Ceiling Runner —** As an alternate to the ceiling runners in Item 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips provided with stop bushings for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners or welds spaced max 24 in. (610 mm) OC.

THE STEEL NETWORK INC — VertiTrack VTD250, VTD362, VTD400, VTD600 and VTD800

A3. **Light Gauge Framing* — Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners or welds spaced max 24 in. (610 mm) OC.

OLMAR SUPPLY INC — Type SCR

B. **Studs —** Steel studs to be min 2-1/2 in. (64 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. When vertical deflection ceiling runner (Item 2A2) is used, steel studs secured to slotted vertical deflection clips, through the bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. (610 mm) OC.

C. **Gypsum Board* —** For 1 hr assembly, one layer of 5/8 in. (16 mm) thick gypsum board is required in the individual Wall and Partition Design. For 2 hr assembly, two layers of 5/8 in. (16 mm) thick gypsum board is required in the individual Wall and Partition Design. For both hourly

ratings, a nominal 3/4 in. (19 mm) gap shall be maintained between the top of the gypsum board and the bottom surface of the steel floor units and the top row of screws shall be installed into the studs 3 in. (76 mm) below the valleys of the steel floor units.

The hourly rating of the joint system is dependent on the hourly fire rating of the wall.

3. **Joint System — Max separation between bottom of floor or roof and top of wall is 3/4 in. (19 mm). The joint system is designed to accommodate a max 33 percent compression or extension from its installed width.** The joint system consists of a packing material and a fill material between the top of the gypsum board and the bottom of the floor or roof, as follows:

A. **Forming Material* —** Nom 4 pcf (64 kg/m^3) mineral wool batt insulation, cut to the shape of the fluted deck, approx 20 percent larger than the area of the flutes and compressed into the flutes of the steel deck flutes above the ceiling runner. The mineral wool insulation is to project beyond each side of the ceiling runner, recessed 1/2 in. (13 mm) from both wall surfaces . For 2 hr assembly, an additional 1-1/2 in. (38 mm) thick by 3/4 in. (19 mm) wide sections of mineral wool batt insulation compressed 50 percent and installed cut edge first to fill the 3/4 in. (19 mm) gap between the top of gypsum board and bottom of the steel deck. The forming material shall be recessed 1/2 in. (13 mm) from each side of the wall.

ROCK WOOL MANUFACTURING CO — Delta Board

ROCKWOOL — SAFE

THERMAFIBER INC — Type SAF

A1. **Forming Material* — Plugs —** (Optional, Not Shown) — Preformed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling channel. The plugs shall project beyond each side of the ceiling runner and shall be recessed 1/2 in. (13 mm) from both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of gypsum board and bottom of steel deck.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP777 Speed Plugs

B. **Fill, Void or Cavity Material* — Sealant —** Min 1/2 in. (13 mm) thickness of fill material installed on each side of the wall in the flutes of the steel deck and between the top of the gypsum board and the bottom of the steel deck, flush with each surface of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP606 Flexible Firestop Sealant

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2016-09-01

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ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0046
XHBN.HW-D-0046
Joint Systems

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- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

XHBN - Joint Systems

XHBN7 - Joint Systems Certified for Canada

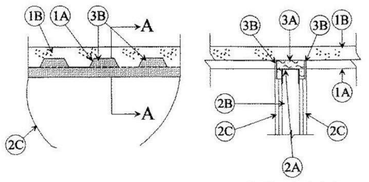
See General Information for Joint Systems

See General Information for Joint Systems Certified for Canada

System No. HW-D-0046

September 01, 2016

ANSI/UL2079	CAN/ULC S115
Assembly Rating — 1 and 2 Hr (See Item 2)	F Rating — 1 and 2 Hr (See Item 2)
Nominal Joint Width — 3/4 In.	FT Rating — 1 and 2 Hr (See Item 2)
Class II Movement Capabilities — 33% Compression or Extension	FH Rating — 1 and 2 Hr (See Item 2)
	FTH Rating — 1 and 2 Hr (See Item 2)
	Nominal Joint Width — 3/4 In.
	Class II Movement Capabilities — 33% Compression or Extension



SECTION A-A

1. **Floor Assembly —** The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Spray-Applied Fire Resistive Materials —** (Optional, Not Shown) — Prior to or after the installation of the ceiling runner, Forming Material and Fill, Void or Cavity Materials (Items 2A, 3A, 3B , respectively), the steel floor units may be sprayed with a min 5/16 in. (8 mm) to a max 11/16 in. (18 mm) thickness of fire resistive material.

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

1B. **Roof Assembly —** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Spray Applied Fire Resistive Materials* —** (Not Shown) — Prior to or after the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

2. **Wall Assembly —** The 1 or 2 hr fire-rated gypsum board /stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). Flange height of ceiling runner shall be min 1/4 in. (6 mm) greater than max extended joint width. Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners, steel masonry anchors or by welds spaced max 24 in. (610 mm) OC. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

A1. **Light Gauge Framing* — Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds

spaced max 24 in. (610 mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

CLARKDIETRICH BUILDING SYSTEMS — CW MAXTRAK Types SLT and SLT-H

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

METAL-LITE INC — The System

RAM SALES L L C — RAM Slotted Track

SCAFCO STEEL STUD MANUFACTURING CO

TELLING INDUSTRIES L L C — True-Action Deflection Track

A2. **Light Gauge Framing* — Vertical Deflection Ceiling Runner —** As an alternate to the ceiling runners in Items 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips provided with step bushings for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

THE STEEL NETWORK INC — VertiTrack VTD250, VTD362, VTD400, VTD600 and VTD800

A3. **Light Gauge Framing* — Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

OLMAR SUPPLY INC — Type SCR

B. **Studs —** Steel studs to be min 2-1/2 in. (64 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in. (610 mm) OC. When vertical deflection ceiling runner (Item 2A2) is used steel studs secured to slotted vertical deflection clips, through the bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. (610 mm) OC.

C. **Gypsum Board* —** For 1 hr assembly, one layer of 5/8 in. (16 mm) thick gypsum board is required in the Individual Wall and Partition Design. For 2 hr assembly, two layers of 5/8 in. (16 mm) thick gypsum board is required in the Individual Wall and Partition Design. For both hourly ratings, a nominal 3/4 in. (19 mm) gap shall be maintained between the top of the gypsum board and the bottom surface of the steel floor units and the top row of screws shall be installed into the studs 2 in. (76 mm) below the valleys of the steel deck. **The hourly rating of the joint system is dependent on the hourly rating of the wall.**

3. **Joint System — Max separation between bottom of floor or roof and top of wall is 3/4 in. (19 mm). The joint system is designed to accommodate a max 33 percent compression or extension from its installed width.** The joint system consists of a packing material and a fill material between the top of the gypsum board and the bottom of the floor, as follows:

A. **Forming Material* —** Nom 4 pcf (64 kg/m^3) mineral wool batt cut to the shape of the fluted deck, approx 20 percent larger than the area of the flutes and compressed into the flutes of the steel deck flutes above the ceiling runner. The mineral wool insulation is to project beyond each side of ceiling runner, recessed 1/4 in. (6 mm) from both wall surfaces. For 2 hr assembly, additional 1-1/2 in. (38 mm) thick by 1 in. (25 mm) wide sections of mineral wool batt insulation compressed 50 percent and installed cut edge first to fill the 3/4 in. (19 mm) gap between the top

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Joint Systems

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- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

XHBN - Joint Systems

See General Information for Joint Systems

System No. HW-D-0049

September 01, 2016

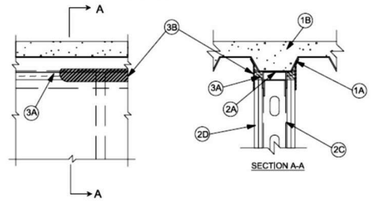
Assembly Ratings — 1 and 2 Hr (See Items 2 and 3B)

Nominal Joint Width — 1 In.

Class II Movement Capabilities — 50% Compression Or Extension

L Rating At Ambient — Less Than 1 CFM/Lin Ft

L Rating At 400°F — Less Than 1 CFM/Lin Ft



SECTION A-A

1. **Floor Assembly —** The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Series Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor And Form Units* —** Max 3 in. (76 mm) deep galv steel fluted units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Spray-Applied Fire Resistive Materials* —** (Optional) — (Not Shown) — Prior to or after the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B) the steel floor units may be sprayed with a min 5/16 in. (8 mm) to max 1-3/4 in. (44 mm) thickness of fire resistive material.

GCP APPLIED TECHNOLOGIES INC — Type MK-6-HY

ISOLATEK INTERNATIONAL — Type 300

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

1B. **Roof Assembly —** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Spray-Applied Fire Resistive Materials* —** (Not Shown) — Prior to or after the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

GCP APPLIED TECHNOLOGIES INC — Type MK-6-HY

ISOLATEK INTERNATIONAL — Type 300

2. **Wall Assembly —** The 2 hr fire rated gypsum board /steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor And Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of min 25 ga galv steel channels sized to accommodate steel studs (Item 2C). Flange height of ceiling runner shall be min 1/4 in. (6 mm) greater than max extended joint width. Ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, and secured with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

A1. **Light Gauge Framing* — Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2C). Slotted ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, and secured with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC. before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

METAL-LITE INC — The System

RAM SALES L L C — RAM Slotted Track

SCAFCO STEEL STUD MANUFACTURING CO

STEELER INC — Steeler Slotted Ceiling Runner

TELLING INDUSTRIES L L C — True-Action Deflection Track

A2. **Light Gauge Framing* — Vertical Deflection Ceiling Runner —** As an alternate to the ceiling runners in Items 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips, provided with step bushings, for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2C). Vertical deflection ceiling runner installed parallel to direction of fluted steel deck, centered beneath deck, and secured with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC. before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

THE STEEL NETWORK INC — VertiTrack VTD250, VTD362, VTD400, VTD600 and VTD800

A3. **Light Gauge Framing — Floor and Ceiling Runners —** As an alternate to the ceiling and floor runners in Item 2A, 2A1, 2A2 and 2A3, floor and ceiling runners to consist of galv steel channel sized to accommodate the **Light Gauge Framing* Slotted Stud** (Item 2C1) or **Light Gauge Framing* Slider C-Clip System** (Item 2C2). Floor and ceiling runners to be provided with min 1-1/4 in. (32 mm) and 3 in. (76 mm) flanges, respectively. Ceiling runner installed parallel to direction of fluted steel deck, centered beneath deck, and secured with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC. before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

STEELER INC — Floor and Ceiling Runners

A4. **Light Gauge Framing* — Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A4, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2C). Notched ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, and secured with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC. before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

OLMAR SUPPLY INC — Type SCR

B. **Steel Attachment Clips —** (Optional — Not Shown) — When spray applied fireproofing is used ceiling runner may be secured to deck with Z-shaped clips formed from min 1 in. (25 mm) long strips of min 20 ga galv steel. Length of clips should not exceed the width (thickness) of the wall. Clips to be sized to extend through the thickness of the spray-applied fire-resistive material on the bottom of the steel deck with 1-1/2 or 2 in. (38 or 51 mm) long upper and lower legs. Legs of clips fastened perpendicular to valleys of steel deck (prior to application of spray-applied fire-resistive materials) and top of ceiling runner with steel fasteners or welds. Clips spaced max 24 in. (610 mm) OC.

C. **Studs —** Steel studs to be min 2-1/2 in. (64 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in. (610 mm) OC. When vertical deflection ceiling runner (Item 2A2) is used, steel studs secured to slotted vertical deflection clips, through the bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. (610 mm) OC..

C1. **Light Gauge Framing* — Slotted Studs —** Slotted steel stud to be used in conjunction with **Light Gauge Framing* — Floor and Ceiling Runners** (Item 2A4). Slotted steel studs to be min 2-1/2 in. (64 mm) wide. Slotted steel studs cut 1 in. less in length than assembly height with bottom nesting in and secured to both ceiling and floor runners. Ceiling runner secured to preformed slot within steel stud by means of No. 10 by 3/4 in. (19 mm) long low profile head steel screw. Floor runner attached to bottom of steel stud by means of No. 8 by 1/2 in. (13 mm) long pan head steel screw. Slotted steel stud spacing not to exceed 24 in. (610 mm) OC..

STEELER INC — Slotted Stud

C2. **Light Gauge Framing* — Slider C-Clip System —** As an alternate to the **Light Gauge Framing* — Slotted Steel Studs** (Item 2C1), a Slider C-Clip System consisting of a C shaped steel clip with a slotted opening and a steel stud to be used in conjunction with **Light Gauge Framing — Floor and Ceiling Runners** (Item 2A4). Steel clips and studs to be min 2-1/2 in. (64 mm) wide. Steel clip inserted into inside flange of steel stud without attachment. Total length of steel stud cut 1 in. (25 mm) less than assembly height with bottom of steel stud nesting in and secured to floor runner. Floor runner attached to bottom of steel stud by means of No. 8 by 1/2

in. (13 mm) long pan head steel screw. Ceiling runner secured to steel C-Clip by means of No. 10 by 3/4 in. (19 mm) long pan head steel screw located 3/8 in. (10 mm) below top of ceiling runner. Top row of gypsum board screws shall be centered within the preformed slot of the C-Clip. Steel stud and steel clips spacing not to exceed 24 in. (610 mm) OC.

STEELER INC — Slider C Clip System

D. **Gypsum Board* —** Gypsum board installed to a min total thickness of 5/8 in. (16 mm) and 1-1/4 in. (32 mm) on each side of wall for 1 and 2 Hr rated assemblies respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 1 in. (25 mm) gap shall be maintained between the top of the gypsum board and the bottom of the steel floor units and the top row of screws shall be installed into the studs 1-1/2 (38 mm) to 2 in. (51 mm) below the bottom of the ceiling runner. The hourly rating of the joint system is equal to the hourly fire rating of the wall.

3. **Joint System — Max separation between bottom of floor and top of wall at time of installation of joint system is 1 in. (25 mm). The joint system is designed to accommodate a max 50 percent compression or extension from its installed width.** The joint system consists of forming material and a fill material, as follows:

A. **Forming Material* —** Nom 5/8 in. (16 mm) and 1-1/4 in. (32 mm) wide strips of min 4 pcf (64 kg/m^3) mineral wool batt insulation for 1 and 2 hr rated assemblies respectively, cut to thickness, compressed 50 percent in thickness and firmly packed into the gap between the top of the gypsum board and bottom of the steel floor units on both sides of the wall.

INDUSTRIAL INSULATION GROUP L L C — MinWool-1200 Safing

ROCK WOOL MANUFACTURING CO — Delta- Board

ROCKWOOL — SAFE

THERMAFIBER INC — Type SAF

A1. **Forming Material* — Strips —** (Optional) — Nom 5/8 in. (16 mm) and 1-1/4 in. (32 mm) wide precut mineral wool strips for 1 and 2 hr rated assemblies respectively. The strips are compressed 50 percent in thickness and firmly packed into the gap between the top of the gypsum board and bottom of the steel floor units on both sides of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 767 Speed Strips

B. **Fill, Void or Cavity Material* —** Min 1/16 in. (1.6 mm) dry thickness (min 1/8 in. or 3.2 mm wet thickness) of fill material sprayed or troweled on each side of the wall to completely cover mineral wool forming material and to overlap a min of 1/2 in. (13 mm) onto gypsum board and steel deck on both sides of wall. When spray-applied fire resistive material is applied to the steel floor and form units, the fill material is to overlap the gypsum board a min of 1/2 in. (13 mm) and the spray-applied fire resistive material a min of 2 in. (51 mm) on both sides of wall. When spray-applied fire resistive materials are used, the joint spray shall overlap the wall a min 1/2 in. (13 mm) and overlap the spray-applied fire resistive material a min of 2 in. (51 mm) on both sides of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-SP WB Firestop Joint Spray

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No. C29998
REN. 07.31.18
STATE OF CALIFORNIA

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ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0076
XHBN.HW-D-0076
Joint Systems

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XHBN - Joint Systems

XHBN7 - Joint Systems Certified for Canada

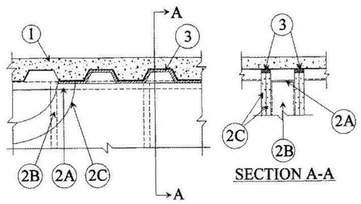
See General Information for Joint Systems

See General Information for Joint Systems Certified for Canada

System No. HW-D-0076

September 01, 2016

ANSI/UL2079	CAN/ULC S115
Assembly Ratings — 1 and 2 Hr (See Items 2 and 3)	F Ratings — 1 and 2 Hr (See Items 2 and 3)
Nominal Joint Width - 3/4 In.	FT Ratings — 1 and 2 Hr (See Items 2 and 3)
Class II Movement Capabilities — 17% Compression or Extension	FH Ratings — 1 and 2 Hr (See Items 2 and 3)
	FTH Ratings — 1 and 2 Hr (See Items 2 and 3)
	Nominal Joint Width - 3/4 In.
	Class II Movement Capabilities — 17% Compression or Extension



1. **Floor Assembly —** The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Series Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Spray-Applied Fire Resistive Materials —** (Optional, Not Shown) — Prior to or after the installation of the ceiling runner and Fill, Void or Cavity Materials (Item 3), the steel floor units may be sprayed with a min 5/16 in. (8 mm) thickness to a max 11/16 in. (17 mm) of fire resistive material.

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

1B. **Roof Assembly —** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Spray—Applied Fire Resistive Materials* —** (Not Shown)—Prior to or after the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

2. **Wall Assembly —** The 1 or 2 hr fire-rated gypsum board /steel stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners —** Steel Floor and Ceiling Runners — Floor and ceiling runners of wall assembly shall consist of min No. 25 gauge galv steel channels sized to accommodate steel studs (Item 2B). Flange height of ceiling runner shall be min 1/4 in. (6 mm) greater than max extended joint widthCeiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced 24 in. (610mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

A1. **Light Gauge Framing*-Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced 24 in. (610mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

METAL-LITE INC — The System

RAM SALES L L C — RAM Slotted Track

SCAFCO STEEL STUD MANUFACTURING CO

TELLING INDUSTRIES L L C — True-Action Deflection Track

A2. **Light Gauge Framing*-Vertical Deflection Ceiling Runner —** As an alternate to the ceiling runners in Items 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips, provided with step bushings, for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced 24 in. (610mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

THE STEEL NETWORK INC — VertiTrack VTD250, VTD362, VTD400, VTD600 and VTD800

A3. **Light Gauge Framing* - Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced 24 in. (610mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

OLMAR SUPPLY INC — Type SCR

B. **Studs —** Steel studs to be min 2-1/2 in. (64 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in. (610 mm) OC. When vertical deflection ceiling runner (Item 2A2) is used, steel studs secured to slotted vertical deflection clips, through the bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. (610 mm) OC.

C. **Gypsum Board* —** Gypsum board installed to a min total thickness 5/8 or 1-1/4 in. (16 or 32 mm) on each side of wall for 1 or 2 hr fire rated walls, respectively. Wall to be constructed as specified in the individual U400 or V400 Series Design in the UL Fire Resistance Directory, except that the gypsum board is cut to fit the contour of the steel floor units with a max 3/4 in. (19 mm) gap. The screws attaching the gypsum board to the studs at the top of the first layer shall be located 4 in. (102 mm) from the steel floor unit valleys. The screws attaching the second layer to the steel studs shall be installed into the studs 3-1/2 in. (89 mm) below the valleys of the steel floor units. **The hourly fire rating of the joint system is dependent on the hourly ratings of the wall.**

3. **Fill, Void or Cavity Material* — Sealant — Max separation between bottom of floor and top of wall is 3/4 in. (19 mm) The joint system is designed to accommodate a max 17 percent compression or extension from its installed width.** Min 1-1/4 in. (32 mm) thickness of fill material flush with the surface of the gypsum board for 2 hr fire

rated systems or 5/8 in. (16 mm) thickness plus a 1/4 in. (6 mm) crown of fill material for 1 hr fire rated systems installed on each side of the wall between the top of the gypsum board and the bottom of the steel floor units.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP601S Elastomeric Firestop Sealant or CFS-S SIL GG Sealant

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ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0077
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Joint Systems

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XHBN - Joint Systems

See General Information for Joint Systems

System No. HW-D-0077

September 01, 2016

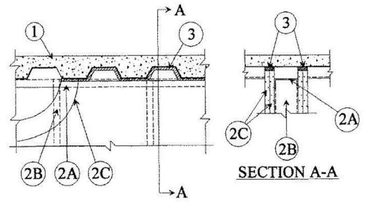
Assembly Rating — 1 or 2 Hr (See Items 2 and 3)

Nominal Joint Width — 3/4 In.

L Rating At Ambient — Less Than 1 CFM/Lin Ft

L Rating At 400°F — Less Than 1 CFM/Lin Ft

Class II Movement Capabilities — 17% Compression or Extension



1. **Floor Assembly —** The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Series Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Spray-Applied Fire Resistive Materials —** (Optional, Not Shown) — Prior to or after the installation of the ceiling runner and Fill, Void or Cavity Materials (Item 3), the steel floor units may be sprayed with a min 5/16 in. (8 mm) thickness to a max 11/16 in. (17 mm) thickness of fire resistive material.

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

1B. **Roof Assembly —** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Spray—Applied Fire Resistive Materials* —** (Not Shown)—Prior to or after the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY

2. **Wall Assembly —** The 1 or 2 hr fire-rated gypsum board /steel stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of min No. 25 gauge galv steel channels sized to accommodate steel studs (Item 2B).Flange height of ceiling runner shall be min 1/4 in. (6 mm) greater than max extended joint width Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced 24 in. (610mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

A1. **Light Gauge Framing*-Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced 24 in. (610mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

METAL-LITE INC — The System

RAM SALES L L C — RAM Slotted Track

SCAFCO STEEL STUD MANUFACTURING CO

TELLING INDUSTRIES L L C — True-Action Deflection Track

A2. **Light Gauge Framing*-Vertical Deflection Ceiling Runner —** As an alternate to the ceiling runners in Items 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips, provided with step bushings, for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced 24 in. (610mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

THE STEEL NETWORK INC — VertiTrack VTD250, VTD362, VTD400, VTD600 and VTD800

A3. **Light Gauge Framing* - Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel masonry anchors, steel fasteners or welds spaced 24 in. (610mm) OC before or after optional spray-applied fire resistive material is used. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.

OLMAR SUPPLY INC — Type SCR

B. **Studs —** Steel studs to be min 2-1/2 in. (64 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. Stud spacing not to exceed 24 in. (610 mm) OC. When vertical deflection ceiling runner (Item 2A2) is used, steel studs secured to slotted vertical deflection clips, through the bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. (610 mm) OC.

C. **Gypsum Board* —** Gypsum board installed to a min total thickness of 5/8 or 1-1/4 in. (16 or 32 mm) on each side of wall, for 1 or 2 hr fire resistance rated walls, respectively. Wall to be constructed as specified in the individual U400 or V400 Series Design in the UL Fire Resistance Directory, except that the gypsum board is cut to fit the contour of the steel floor units with a max 3/4 in. (19 mm) gap. The screws attaching the gypsum board to the studs at the top of the first layer shall be located 4 in. (102 mm) from the steel floor unit valleys. The screws attaching the second layer to the steel studs shall be installed into the studs 3-1/2 in. (89 mm) below the valleys of the steel floor units. The hourly fire rating of the joint system is dependent on the hourly rating of the wall.

3. **Fill, Void or Cavity Material* — Sealant — Max separation between bottom of floor and top of wall is 3/4 in. (19 mm). The joint system is designed to accommodate a max 17 percent compression or extension from its installed width.** Min 1-1/4 in. (32 mm) thickness of fill material flush with the surface of the gypsum board for 2 hr fire rated systems or 5/8 in. (16 mm) thickness of fill material for 1 hr fire rated systems installed on each side of the wall between the top of the gypsum board and the bottom of the steel floor or roof deck or the spray-applied fire resistive material on the steel deck.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP606 Flexible Firestop Sealant

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California Polytechnic State University San Luis Obispo

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Joint Systems

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XHBN - Joint Systems

XHBN7 - Joint Systems Certified for Canada

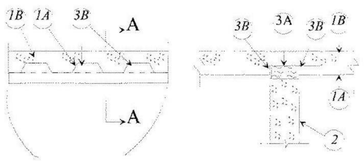
See General Information for Joint Systems

See General Information for Joint Systems Certified for Canada

System No. HW-D-0080

December 27, 2013

ANSI/UL2079	CAN/ULC S115
Assembly Rating —2 Hr	F Rating — 2 Hr
Nominal Joint Width - 3/4 In.	FT Rating — 2 Hr
Class II Movement Capabilities — 33% Compression or Extension	FH Rating — 2 Hr
	FTH Rating — 2 Hr
	Nominal Joint Width - 3/4 In.
	Class II Movement Capabilities — 33% Compression or Extension



SECTION A-A

1. **Floor Assembly —** The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.

C. **Spray-Applied Fire Resistive Materials —** (Optional, Not Shown) — Prior to the installation of the Forming Material and Fill, Void or Cavity Materials (Items 3A, 3B, respectively), the steel floor units may be sprayed with a min 5/16 in. thickness to a max 11/16 in. thickness of fire resistive material.

GCP APPLIED TECHNOLOGIES INC — Type MK-6/HY

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the floor units.

1B. **Roof Assembly —** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. deep galv steel fluted roof deck.

B. **Spray-Applied Fire Resistive Materials* —** (Not Shown)—Prior to the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

2. **Wall Assembly —** Min 5 in. thick steel reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of a UL Classified **Concrete Blocks***.

See **Concrete Block** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

3. **Joint System — Max separation between bottom of or roof floor and top of wall is 3/4 in. The joint system is designed to accommodate a max 33 percent compression or extension from its installed width.** The joint system consists of a packing material and a fill material between the top of the wall and the bottom of the floor or roof, as follows:

A. **Forming Material —** Min 4-1/2 in. thickness of 4 pcf density mineral wool batt insulation was cut to the shape of the fluted deck, approximately 20 percent larger than the area of the flutes and compressed into the flutes of the steel deck above the wall assembly. The forming material shall be recessed 1/4 in. from each side of the wall. Additional pieces of forming material, compressed min 50 percent, in thickness and installed edge first into joint opening between bottom of steel deck and top of wall, parallel with joint direction. Compressed batt sections

recessed 1/4 in. from both wall surfaces. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. apart along the length of the joint.

A1. **Forming Material*—Plugs —** (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the steel deck units, friction fit to completely fill the flutes. The plugs shall be recessed 1/4 in. from both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of the wall and bottom of steel deck.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP777 Speed Plugs

B. **Fill, Void or Cavity Material* - Sealant —** Min 1/4 in. thickness of fill material installed on each side of the wall in the flutes of the steel deck and between the top of the wall and the bottom of the steel deck, flush with each surface of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP6015 Elastomeric Firestop Sealant or CFS-S SIL GG Sealant

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ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0081
XHBN.HW-D-0081
Joint Systems

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XHBN - Joint Systems

See General Information for Joint Systems

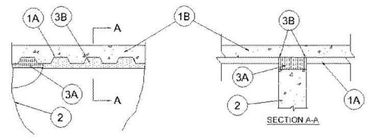
System No. HW-D-0081

October 30, 2003

Assembly Rating — 2 Hr

Nominal Joint Width — 3/4 In.

Class II Movement Capabilites — 33% Compression or Extension



CONFIGURATION A

CONFIGURATION B

1. **Floor Assembly —** The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. thick reinforced concrete, as measured from the top plane of the floor units.

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. thick poured insulating concrete, as measured from the top plane of the floor units.

2. **Wall Assembly —** Min 5 in. thick steel reinforced lightweight or normal weight (100-150 pcf) concrete. Wall may also be constructed of an UL Classified **Concrete Blocks***.

See **Concrete Block** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

3. **Joint System — Max separation between bottom of floor or roof and top of wall is 3/4 in. The joint system is designed to accommodate a max 33 percent compression or extension from its installed width.** The joint system consists of a packing material and a fill material between the top of the wall and the bottom of the floor or roof, as follows:

Configuration A

A. **Forming Material —** Min 4 in. thickness of 4 pcf density mineral wool batt insulation was cut to the shape of the fluted deck, approximately 20 percent larger than the area of the flutes and compressed into the flutes of the steel deck above the wall assembly. The forming material shall be recessed 1/2 in. from each side of the wall. Additional pieces of forming material, compressed min 50 percent in thickness and installed edge first into joint opening between bottom of steel deck and top of wall, parallel with joint direction. Compressed batt sections recessed 1/2 in. from both wall surfaces. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. apart along the length of the joint.

A1. **Forming Material*—Plugs —** (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted deck, friction fit to completely fill the flutes. The plugs shall be recessed 1/2 in. from both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of the wall and bottom of steel deck.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP777 Speed Plugs

B. **Fill, Void or Cavity Material* - Sealant —** Min 1/2 in. thickness of fill material installed on each side of the wall in the flutes of the steel deck and between the top of the wall and the bottom of the steel deck, flush with each surface of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP606 Flexible Firestop Sealant

Configuration B

A. **Forming Material —** Min 4 in. thickness of 4 pcf density mineral wool batt insulation compressed min 50 percent in thickness and installed edge first into joint opening between bottom of steel deck and top of wall, parallel with joint direction. Compressed batt sections recessed 1/2 in. from both wall surfaces. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. apart along the length of the joint.

B. **Fill, Void or Cavity Material* - Sealant —** Min 1/2 in. thickness of fill material installed on each side of the wall between the top of the wall and the bottom of the steel deck, flush with each surface of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP606 Flexible Firestop Sealant

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ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0087
XHBN.HW-D-0087
Joint Systems

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XHBN - Joint Systems

See General Information for Joint Systems

System No. HW-D-0087

September 01, 2016

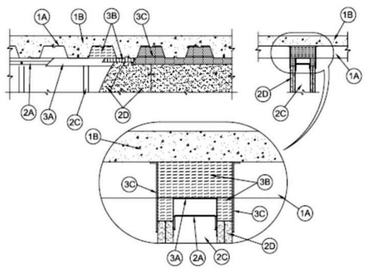
Assembly Rating — 1 And 2 Hr (See Items 2 And 3B)

Nominal Joint Width — 2 In.

L Rating At Ambient — Less Than 1 CFM/Lin Ft

L Rating At 400°F — Less Than 1 CFM/Lin Ft

Class II And III Movement Capabilities — 20% Compression Or Extension



1. **Floor Assembly —** The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual D700 or D900 Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Spray—Applied Fire Resistive Materials* —** Prior to or after the installation of the deflection channel, Forming Material and Fill, Void or Cavity Material (Items 3A, 3B, 3C) the steel floor units may be sprayed with a min 5/16 in. (8 mm) to max 1-3/4 in. (44 mm) thickness of fire resistive material.

GCP APPLIED TECHNOLOGIES INC — Type MK-6-HY

ISOLATEK INTERNATIONAL — Type 300

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

1B. **Roof Assembly —** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Spray—Applied Fire Resistive Materials* —** (Not Shown)—Prior to or after the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

GCP APPLIED TECHNOLOGIES INC — Type MK-6-HY

ISOLATEK INTERNATIONAL — Type 300

2. **Wall Assembly —** The 1 or 2 hr fire rated gypsum board/steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2C). Ceiling runner to be provided with 1 in. (25 mm) flanges. Ceiling runner installed within the U-shaped deflection channel (Item 3A) with a 1-1/2 in. (38 mm) gap maintained between the top of ceiling runner and top of deflection plate.

A1. **Light Gauge Framing*-Slotted Ceiling Runner —** (For use in applications where the nominal joint width does not exceed 1-1/2 in. or 38 mm) - As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2C). Slotted ceiling runner installed perpendicular to direction of fluted steel deck before or after fireproofing and secured to valleys with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material.When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied material is used on the steel deck, slotted ceiling runner secured through spray-applied material to each valley of the steel deck with min 3/16 in. (5 mm) diam steel fasteners,steel masonry anchors spaced max 24 in. (610 mm) OC.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

METAL-LITE INC — The System

RAM SALES L L C — RAM Slotted Track

SCAFCO STEEL STUD MANUFACTURING CO

TELLING INDUSTRIES L L C — True-Action Deflection Track

A2. **Light Gauge Framing* — Vertical Deflection Ceiling Runner —** (For use in applications where the nominal joint width does not exceed 1 in. or 25 mm) - As an alternate to the ceiling runners in Items 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips provided with step bushings for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2C). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel deck and secured before or after spray-applied materials to valleys with steel masonry anchors,steel fasteners or welds spaced max 24 in. (610 mm) OC. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material. When vertical deflection ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied material is used on the steel deck, vertical deflection ceiling runner secured through spray-applied material to each valley of the steel deck with min 3/16 in. (5 mm) diam steel fasteners or steel masonry anchors spaced max 24 in. (610 mm) OC.

THE STEEL NETWORK INC — VertiTrack VTD250, VTD362, VTD400, VTD600 and VTD800

A3. **Light Gauge Framing* — Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2C). Notched ceiling runner installed perpendicular to direction of fluted steel deck and secured before or after spray-applied materials to valleys with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material. When notched ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied material is used on the steel deck, notched ceiling runner secured through spray-applied material to each valley of steel deck with min 3/16 in. (5 mm) diam steel fasteners spaced max 24 in. (610 mm) OC.

OLMAR SUPPLY INC — Type SCR

B. **Steel Attachment Clips —** (Optional — Not Shown) — When spray applied fireproofing is used ceiling runner may be secured to deck with Z-shaped clips formed from min. 1 in. (25 mm) long strips of min 20 ga galv steel. Length of clips should not exceed the width (thickness) of the wall. Clips to be sized to extend through the thickness of the spray-applied fire-resistive material on the bottom of the steel deck with 1-1/2 or 2 in. (38 or 51 mm) long upper and lower legs. Legs of clips fastened to valleys of steel deck (prior to application of spray-applied fire-resistive materials) and top of ceiling runner with steel fasteners or welds. Clips spaced max 24 in. (610 mm) OC.

C. **Studs —** Steel studs to be min 2-1/2 in. (64 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. When vertical deflection ceiling runner (Item 2A2) is used, steel studs secured to slotted vertical deflection clips, through the bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. (610 mm) OC.

D. **Gypsum Board* —** Gypsum board installed to a min total thickness of 5/8 in. (16 mm) or 1-1/4 in. (32 mm) on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 2 in. (51 mm) gap shall be maintained between the top of the gypsum board and the bottom of the steel deck and the top row of screws shall be installed into the studs 1 to 1-1/2 in. (25 to 38 mm) below the bottom of the deflection track. **The hourly rating of the joint system is dependent on the hourly rating of the wall.**

3. **Joint System — Max separation between bottom of floor and top of wall at time of installation of joint system is 2 in. (51 mm). The joint system is designed to accommodate a max 20 or 12.5 percent (see Item 1C) compression or extension from its installed width.** The joint system consists of a deflection channel, forming material and a fill material as follows:

A. **Deflection Channel —** A nom 3-5/8 in. (92 mm) wide by 3 in. (76 mm) deep min No. 22 gauge steel U-shaped channel. Deflection channel installed perpendicular to direction of fluted steel deck and secured to valleys with masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC before or after optional spray-applied fire resistive material is used. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1-1/2 in. (38 mm) gap between the top of the ceiling runner and the top of the deflection channel. The ceiling runner is not fastened to the deflection channel.

B. **Forming Material* —** Nom 4 pcf (64 kg/m^3) density mineral wool batt insulation cut to a length approx equal to the overall thickness of the wall and multiple pieces stacked on top of each other, as needed, and then compressed 25 percent in thickness and inserted into the flutes of the steel deck above the top of the ceiling runner. The mineral wool batt insulation is to project beyond each side of the ceiling runner, flush with wall surfaces. Alternately, nom 4 pcf (64 kg/m3) forming material cut to shape of flute and nom 1 in. (25 mm) longer than thickness of wall; mineral wool compressed from ends and firmly packed into each flute to attain a min compression rate of 14.3 percent in the length (wall thickness) direction to be flush with both wall surfaces. Additional 5/8 in. (16 mm) and 1-1/4 in. (32 mm) wide strips for 1 and 2 hr rated assemblies, respectively, of nom 4 pcf (64 kg/m^3) mineral wool batt insulation are to be cut to fill the gap between the top of the gypsum board and bottom of the steel deck. The strips of mineral wool are compressed 50 percent and tightly packed, cut edge first, into the gap between the top of the gypsum board and bottom of the steel deck on both sides of the wall.

ROCK WOOL MANUFACTURING CO — Delta Board

ROCKWOOL — SAFE

THERMAFIBER INC — Type SAF

INDUSTRIAL INSULATION GROUP L L C — MinWool-1200 Safing

B1. **Forming Material* —Plugs (For use with 3-1/2 in. or 89 mm deep studs or larger) —** (Optional-Not Shown) - Preformed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling runner. The plugs shall project beyond each side of the ceiling runner, flush with wall surfaces. Additional forming material, described in Item 3B, to be used in conjunction with the plugs to fill the gap between the top of gypsum board and the bottom of plug .

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP777 Speed Plugs

B2. **Forming Material* - Strips —** (Optional) - Nom 5/8 in. (16 mm) and 1-1/4 in. (32 mm) wide by 4 in. (102 mm) thick precut mineral wool strips for 1 and 2 hr rated assemblies, respectively. The strips are compressed 50 percent in thickness and firmly packed into the gap between the top of the gypsum board and bottom of the steel floor units on both sides of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 767 Speed Strips

C. **Fill, Void or Cavity Material* —** Min 1/16 in. (1.6 mm) dry thickness (min 1/8 in. or 3.2 mm wet thickness) of fill material sprayed or troweled on each side of the wall to completely cover mineral wool forming material and to overlap a min of 1/2 in. (13 mm) onto gypsum board and steel deck on both sides of wall. When spray-applied fire resistive material is applied to the steel deck, the fill material is to overlap the gypsum board a min of 1/2 in. (13 mm) and the spray-applied fire resistive materials are used, the firestop joint spray shall overlap the wall a min 1/2 in. (13 mm) and overlap the spray-applied fire resistive material a min of 2 in. (51 mm) on both sides of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-SP WB Firestop Joint Spray

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Joint Systems

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XHBN - Joint Systems

See General Information for Joint Systems

System No. HW-D-0089

September 01, 2016

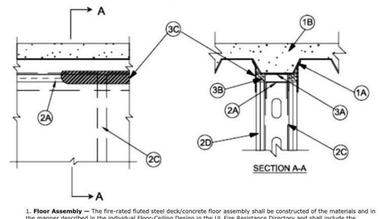
Assembly Ratings — 1 and 2 Hr (See Items 2 and 3)

Nominal Joint Width 2 In.

L Rating At Ambient — Less Than 1 CFM/Lin Ft

L Rating At 400°F — Less Than 1 CFM/Lin Ft

Class II and III Movement Capabilities—20% Compression or Extension



1. **Floor Assembly —** The fire-rated fluted steel deck/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor And Form Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Spray-Applied Fire Resistive Materials* —** (Optional, Not Shown)—Prior to or after the installation of the deflection channel, Forming Material and Fill, Void or Cavity Material (Items 3A, 3B, 3C) the steel floor units may be sprayed with a min 5/16 in. to max 1-3/4 in. thickness of fire resistive material.

GCP APPLIED TECHNOLOGIES INC — Type MK-6-HY

ISOLATEK INTERNATIONAL — Type 300

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

1B. **Roof Assembly —** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Spray—Applied Fire Resistive Materials* —** (Not Shown)—Prior to or after the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

GCP APPLIED TECHNOLOGIES INC — Type MK-6-HY

ISOLATEK INTERNATIONAL — Type 300

2. **Wall Assembly —** The 1 or 2 hr fire rated gypsum board /steel stud wall assembly shall be constructed of the materials and in the manner described in the individual U400 or V400 Series Wall or Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A **Steel Floor And Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2C). Ceiling runner to be provided with 1 in. (25 mm) flanges. Ceiling runner installed within the U-shaped deflection channel (Item 3A) with a 1-1/2 in. (38 mm) gap maintained between the top of ceiling runner and top of deflection plate.

A1. **Light Gauge Framing*-Slotted Ceiling Runner —** (For use in applications where the nom joint width does not exceed 1-1/2 in. or 38 mm) - As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2C). Slotted ceiling runner installed parallel to direction of fluted steel deck,s centered beneath valley, and secured with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC before or after optional spray-applied material. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material. When slotted ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied fire resistive material is used on the steel deck, slotted ceiling runner secured through spray-applied material to valley of the steel deck with min 3/16 in. (5 mm) diam steel masonry anchors, steel fasteners spaced max 24 in. (610 mm) OC.

BRADY CONSTRUCTION INNOVATIONS INC, DBA SLIPTRACK SYSTEMS — SLP-TRK

CALIFORNIA EXPANDED METAL PRODUCTS CO — CST

CLARKDIETRICH BUILDING SYSTEMS — Type SLT, SLT-H

MARINO/WARE, DIV OF WARE INDUSTRIES INC — Type SLT

METAL-LITE INC — The System

RAM SALES L L C — RAM Slotted Track

SCAFCO STEEL STUD MANUFACTURING CO

TELLING INDUSTRIES L L C — True-Action Deflection Track

A2. **Light Gauge Framing* — Vertical Deflection Ceiling Runner —** (For use in applications where the nom joint width does not exceed 1 in. or 25 mm) - As an alternate to the ceiling runners in Items 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips provided with step bushings for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2C). Vertical deflection ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, and secured with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC before or after spray-applied materials. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material. When vertical deflection ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied fire resistive material is used on the steel deck, vertical deflection ceiling runner secured through spray-applied material to valley of the steel deck with min 3/16 in. (5 mm) diam steel masonry anchors or steel fasteners spaced max 24 in. (610 mm) OC.

THE STEEL NETWORK INC — VertiTrack VTD250, VTD362, VTD400, VTD600 and VTD800

A3. **Light Gauge Framing* — Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2C). Notched ceiling runner installed parallel to direction of fluted steel deck, centered beneath valley, and secured with steel masonry anchors, steel fasteners or welds spaced max 24 in. (610 mm) OC before or after spray-applied materials. The use of welds to secure the ceiling runner may only be used prior to the installation of the optional spray-applied material. When notched ceiling runner is used, deflection channel (Item 3A) shall not be used. When optional spray-applied fire resistive material is used on the steel deck, notched ceiling runner secured through spray-applied material to valley of deck with min 3/16 in. (5 mm) diam steel fasteners spaced max 24 in. (610 mm) OC.

OLMAR SUPPLY INC — Type SCR

B. **Steel Attachment Clips —** (Optional - Not Shown) - When spray applied fireproofing is used ceiling runner may be secured to deck with Z-shaped clips formed from min. 1 in. (25 mm) long strips of min 20 ga galv steel. Length of clips should not exceed the width (thickness) of the wall. Clips to be sized to extend through the thickness of the spray-applied fire-resistive material on the bottom of the steel deck with 1-1/2 or 2 in. (38 or 51 mm) long upper and lower legs. Legs of clips fastened to valleys of steel deck (prior to application of spray-applied fire-resistive materials) and top of ceiling runner with steel fasteners or welds. Clips spaced max 24 in. (610 mm) OC.

C. **Studs —** Steel studs to be min 2-1/2 in. (64 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. When vertical deflection ceiling runner (Item 2A2) is used, steel studs secured to slotted vertical deflection clips, through the bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. (610 mm) OC.

D. **Gypsum Board* —** Gypsum board installed to a min total thickness of 5/8 in. (16 mm) or 1-1/4 in. (32 mm) on each side of wall for 1 and 2 hr rated assemblies, respectively. Wall to be constructed as specified in the individual Wall and Partition Design in the UL Fire Resistance Directory, except that a nom 2 in. (51 mm) gap shall be maintained between the top of the gypsum board and the bottom of the steel deck and the top row of screws shall be installed into the studs 1 to 1-1/2 in. (25 to 38 mm) below the bottom of the ceiling runner or deflection channel.

3. **Joint System — Max separation between bottom of floor or roof and top of wall at time of installation of joint system is 2 In. (51 mm). The joint system is designed to accommodate a max 20 or 12.5 percent (see Item 1C) compression or extension from its installed width.** The joint system consists of a deflection channel, forming material and a fill material, as follows:

A. **Deflection Channel —** A nom 3-5/8 in. (92 mm) wide by 3 in. (76 mm) deep min No. 22 gauge steel U-shaped channel. Deflection channel installed parallel to direction of fluted steel deck, centered beneath valley, and secured to valley of steel deck with steel fasteners or by welds spaced max 24 in. (610 mm) OC. before or after optional spray-applied fire resistive material is used. The ceiling runner (Item 2A) is installed within the deflection channel to maintain a 1-1/2 in. (38 mm) gap between the top of the ceiling runner and the top of the deflection channel. The ceiling runner is not fastened to the deflection channel.

B. **Forming Material* —** Nom 5/8 in. (16 mm) and 1-1/4 in. (32 mm) thick strips of min 4 pcf mineral wool batt insulation, for 1 and 2 hr rated assemblies respectively, cut to wide, compressed 33 percent in width and firmly packed into the gap between the top of the gypsum board and bottom of the steel deck, flush with both surfaces of the wall.

ROCK WOOL MANUFACTURING CO — Delta Board

ROCKWOOL — SAFE

THERMAFIBER INC — Type SAF

INDUSTRIAL INSULATION GROUP L L C — MinWool-1200 Safing

B1. **Forming Material* - Strips —** (Optional) - Nom 5/8 in.(16 mm) and 1-1/4 in. (32 mm) wide by 4 in. (102 mm) thick precut mineral wool strips for 1 and 2 hr rated assemblies respectively. The strips are cut to thickness, compressed 50 percent in thickness and firmly packed into the gap between the top of the gypsum board and bottom of the steel floor units, flush with on both sides of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 767 Speed Strips

C. **Fill, Void or Cavity Material* —** Min 1/16 in. (1.6 mm) dry thickness (min 1/8 in. or 3.2 mm wet thickness) of fill material sprayed or troweled on each side of the wall to completely cover mineral wool forming material and to overlap a min of 1/2 in. (13 mm) onto gypsum board and steel deck on both sides of wall. When spray-applied fire resistive material is applied to the steel deck, the fill material is to overlap the gypsum board a min of 1/2 in. (13 mm) and the spray-applied fire resistive materials are used, the firestop joint spray shall overlap the wall a min 1/2 in. (13 mm) and overlap the spray-applied fire resistive material a min of 2 in. (51 mm) on both sides of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CFS-SP WB Firestop Joint Spray

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ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0098
XHBN.HW-D-0098
Joint Systems

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- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
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XHBN - Joint Systems

See General Information for Joint Systems

System No. HW-D-0098

June 04, 2010

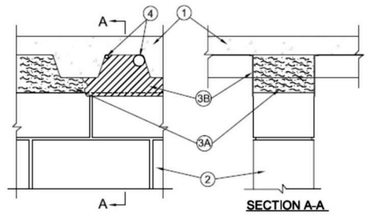
Assembly Rating — 1 and 2 Hr (See Item 4)

Nominal Joint Width - 1 in.

L Rating At Ambient — Less Than 1 CFM/Lin Ft (See Item 4)

L Rating At 400°F — Less Than 1 CFM/Lin Ft (See Item 4)

Class II and III Movement Capabilities - 12.5% Compression or Extension



1. **Floor Assembly —** The fire rated fluted steel unit/concrete floor assembly shall be constructed of the materials and in a manner described in the individual D700 or D900 Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete as measured from top plane of the floor units.

C. **Spray-Applied Fire Resistive Materials* —** (Optional)--(Not Shown)--Prior to the installation of the forming material and fill, void or cavity material (Items 3A, 3B) the steel floor units may be sprayed with a min 5/16 in. (8 mm) to max 1-3/4 in. (44 mm) thickness of fire resistive material.

GCP APPLIED TECHNOLOGIES INC — Type MK-6-HY

ISOLATEK INTERNATIONAL — Type 300

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

1B. **Roof Assembly —** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Spray--Applied Fire Resistive Materials* —** (Not Shown)--Prior to the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

2. **Wall Assembly —** Min 6 in. (152 mm) thick steel-reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) structural concrete. Wall may also be constructed of any UL Classified **Concrete Blocks*.**

See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

3. **Joint System — Max separation between bottom of floor or roof and top of wall at time of installation of joint system is 1 in (25 mm) . The joint system is designed to accommodate a max 12.5 percent compression or extension from its installed width.** The joint system shall consist of the following:

A. **Forming Material —** Nom 4 pcf (64 kg/m^3) mineral wool batt insulation compressed and firmly packed to completely fill the flutes and the gap between the top of the wall and bottom of the floor or roof as a permanent form. Batt insulation cut to the shape of the fluted steel deck, approx 33 percent larger than the flutes. Pieces compressed and installed vertically into the flutes above the top of the wall. Additional pieces of batt insulation, min 8 in. (203 mm) wide, shall be compressed into joint opening between bottom of fluted steel deck and top of wall, parallel with joint direction, such that batt sections are compressed min 33 percent in thickness. Compressed batt sections are flush with both surfaces of wall. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. (1.22 m) apart along the length of the joint.

ROCK WOOL MANUFACTURING CO — Delta Board

A1. **Forming Material*--Plugs —** (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling runner. The plugs shall be flush with both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of the wall and the bottom of the steel floor units.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP777 Speed Plugs

B. **Fill, Void or Cavity Material* —** Min 1/8 in. (3.2 mm) wet thickness (min 1/16 in. or 1.6mm dry thickness) of fill material sprayed or troweled on each side of the wall to completely cover mineral wool forming material and to overlap a min of 1/2 in. (13 mm) onto wall and steel deck on both sides of wall. When spray-applied fire resistive material* is applied to the steel deck, the fill material is to overlap the wall a min of 1/2 in. (14 mm) and to overlap the spray-applied fire resistive material a min of 2 in. (51 mm) on both sides of wall. When through-penetrants (Item 4) are installed within flute, the fill material shall overlap a min 1/2 in. (13 mm) onto the periphery of each penetrant, on both sides of wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP672 Firestop Spray or CFS-SP WB Firestop Joint Spray

4. **Through-Penetrants —** Max of two penetrants may be installed parallel with and within the flutes of the steel floor or roof deck. The annular space between penetrants and steel deck or spray-applied fire resistive material on steel deck shall be min 0 in. (point contact) and the annular space between penetrants within the flute shall be min 2 in. (51 mm). Penetrants to be rigidly supported on both sides of the floor or wall assembly. The following types and sizes of penetrants may be used:

A. **Polyvinyl Chloride (PVC) Pipe —** Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) piping systems.

B. **Rigid Nonmetallic Conduit + —** Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA 70).

C. **Steel Conduit or Tubing —** Nom 1/2 in. (13 mm) diam rigid steel conduit or steel electrical metallic tubing (EMT) installed in accordance with the National Electrical Code (NFPA No. 70).

When Through-Penetrant(s) installed in flute of steel deck, the hourly rating of the joint system is 1 hr.

When Through-Penetrant(s) installed in flute of steel deck, L Ratings do not apply.

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ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-1037
XHBN.HW-D-1037
Joint Systems

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XHBN - Joint Systems

See General Information for Joint Systems

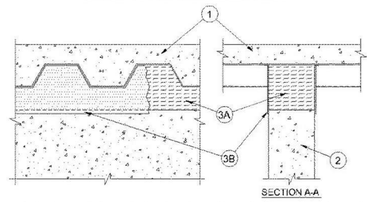
System No. HW-D-1037

June 07, 2010

Assembly Rating - 2 Hr

Nominal Joint Width - 3-1/2 In.

Class II Movement Capabilities - 14% Compression and Extension



1. **Floor Assembly —** The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

C. **Spray-Applied Fire Resistive Materials* — (Optional)--(Not Shown)—**Prior to the installation of the forming material and fill, void or cavity material (Items 3A, 3B) the steel floor units may be sprayed with a min 5/16 in. (8 mm) to max 1-3/4 in. (44 mm) thickness of fire resistive material.

GCP APPLIED TECHNOLOGIES INC — Type MK-6-HY

1A. **Roof Assembly (Not Shown) —** As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

1B. **Roof Assembly —** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Spray-Applied Fire Resistive Materials* —** (Not Shown) - Prior to the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

2. **Wall Assembly —** Min 8 in. (203 mm) thick steel reinforced lightweight or normal weight (100-150 pcf) (1600 -2400 kg/m^3) structural concrete. Wall may also be constructed of any UL Classified **Concrete Blocks*.**

See **Concrete Blocks** (CAZT) category in the Fire Resistance Directory for names of manufacturers.

3. **Joint System — Max separation between bottom of floor units and top of concrete wall at time of installation is 3-1/2 in. (89 mm). The joint system is designed to accommodate a max 14 percent compression or extension from its installed width.** The joint system shall consists of the following:

A. **Forming Material* —** Nom 4 in. (102 mm) thick pieces of nom 4 pcf (64 kg/m^3) forming material sized to attain a min compression rate of 50 percent in the thickness direction firmly packed to completely fill the flutes. Additional pieces of batt insulation, min 8 in. (203 mm) wide, shall be compressed 50 percent in thickness and installed edge first into joint opening between bottom of fluted floor or roof units and top of concrete wall.

THERMAFIBER INC — Type SAF

A1. **Forming Material*--Plugs —** Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling runner. The plugs shall be flush with both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of the wall and the bottom of the steel floor units.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP777 Speed Plugs

A2. **Forming Material —** As an alternate to Item 3A, min 6 pcf (96 kg/m^3) ceramic blanket insulation installed in joint as a permanent form. Nominal 4 in (102 mm) thick pieces of nominal 6 pcf (96 kg/m^3) forming material sized to attain a min compression rate of 50 percent in the thickness direction firmly packed to completely fill the flutes. Additional pieces of batt insulation, min 8 in. (203 mm) wide, shall be compressed 50 percent in thickness and installed edge first into joint opening between bottom of fluted floor or roof units and top of concrete wall.

B. **Fill, Void or Cavity Material* - Sealant —** A 1/8 in. (3.2 mm) wet thickness of fill material sprayed of troweled on each side of wall to completely cover mineral wool forming material and to overlap a min 1/2 in. (13 mm) onto steel floor units and concrete wall. When spray-applied fire resistive material* is applied to the steel deck, the fill material is to overlap the wall a min 1/2 in. and the spray-applied fire resistive material a min of 2 in. (51 mm) on both sides of the wall.

HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP672 Firestop Spray or CFS-SP WB Firestop Joint Spray

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REPORT HOLDER:

HILTI, INC.

7250 DALLAS PARKWAY, SUITE 1000
PLANO, TEXAS 75024

EVALUATION SUBJECT:

HILTI LOW VELOCITY X-U AND X-U 15 UNIVERSAL FASTENERS AND X-P CONCRETE FASTENERS

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FIGURE 1—HILTI X-U FASTENER

FIGURE 2—X-U 15 FASTENER

FIGURE 3—X-P FASTENER

FIGURE 4—HILTI FASTENER LOCATION IN 3-INCH-DEEP COMPOSITE FLOOR DECK PANEL, NORMAL DECK PANEL PROFILE ORIENTATION

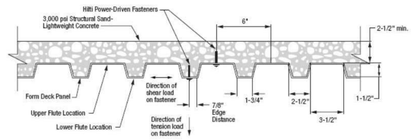

FIGURE 5—HILTI FASTENER LOCATION IN 1½-INCH-DEEP COMPOSITE FLOOR DECK PANEL, NORMAL DECK PANEL PROFILE ORIENTATION

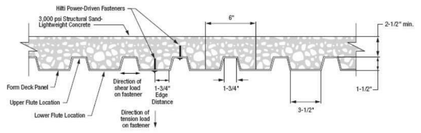

FIGURE 6—HILTI FASTENER LOCATION IN 1½-INCH-DEEP COMPOSITE FLOOR DECK PANEL, INVERTED DECK PANEL PROFILE ORIENTATION

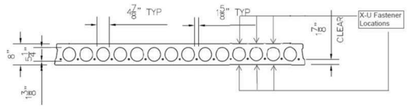

FIGURE 7—HILTI X-U FASTENER LOCATION IN HOLLOW-CORE CONCRETE SLABS

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Fire-resistance Ratings - ANSI/UL 263

Page Bottom

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer or noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. U425

April 27, 2018

(For Exterior Walls, Ratings Applicable

For Exposure To Fire On Interior Face Only,

(See Items 4 and 5)

Bearing Wall Rating — 3/4 Hr., 1, 1-1/2 or 2 Hr.

(See Items 2 and 4)

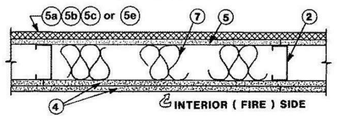
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

INTERIOR WALL

HORIZONTAL SECTION

EXTERIOR WALL



HORIZONTAL SECTION

1. **Steel Floor and Ceiling Tracks —** (Not Shown) — Top and bottom tracks of wall assemblies shall consist of steel members, min No. 20 MSG (0.0329 in., min bare metal thickness) steel or min No. 20 MSG (0.036 in. thick) galv steel or No. 20 MSG (0.033 in. thick) primed steel, that provide a sound structural connection between steel studs, and to adjacent assemblies such as a floor, ceiling, and/or other walls. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. O.C.

2. **Steel Studs —** Min 3-1/2 in. wide, No. 20 MSG (0.0329 in., min bare metal thickness) corrosion protected cold formed steel studs designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

2A. **Framing Members* — Steel Studs —** In lieu of Item 2 — Min 3-1/2 in. wide, No. 20 MSG (0.0329 in., min bare metal thickness) corrosion protected cold formed steel studs designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

EB METAL INC — NITROSTUD

2B. **Framing Members* — Steel Studs —** In lieu of Item 2 — Min 3-5/8 in. wide, No. 20 MSG (0.036 in. min. thickness) corrosion protected cold formed steel studs designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the

structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

BAILEY METAL PRODUCTS LTD

3. **Lateral Support Members —** (Not Shown) — Where required for lateral support of studs, support may be provided by means of steel straps, channels or other similar means as specified in the design of a particular steel stud wall system.

4. **Gypsum Board* — Any 1/2 in. thick UL Classified Gypsum Board that is eligible for use in Design No. X515. Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** Gypsum board bearing the UL Classification Marking as to Fire Resistance. Applied vertically with joints between layers staggered. Outer layer of 3 layer construction may be applied horizontally unless specified below. The thickness and number of layers and percent of design load for the 45 min, 1 hr, 1-1/2 hr and 2 hr ratings are as follows:

Interior Walls

Rating	Wallboard Protection Both Sides of Wall - No. of Layers & Thkns of Board In. Each Layers	% of Design Load
45 min	*1 layer, 1/2 in. thick	100
1 hr	*1 layer, 5/8 in. thick	100
1-1/2 hr	*2 layers, 1/2 in. thick	100
2 hr	*2 layers, 5/8 in. thick or	80
	*3 layers, 1/2 in. thick	100
	*2 layers, 3/4 in. thick	100

* Ratings applicable to assemblies serving as exterior walls where Classified fire resistive gypsum sheathing type wallboard is substituted on the exterior face.

Exterior Walls

Rating	Wallboard Protection on Interior Side of Wall - No. of Layers & Thkns of Board In. Each Layers	% of Design Load
45 min	1 layer, 5/8 in. thick	100
1 hr	2 layers, 1/2 in. thick	100
1-1/2 hr	2 layers, 5/8 in. thick	100
2 hr	3 layers, 1/2 in. thick	100
	2 layers, 3/4 in. thick	100

ACADIA DRYWALL SUPPLIES LTD (View Classification) — CKNX.R25370

AMERICAN GYPSUM CO (View Classification) — CKNX.R14196

BEIJING NEW BUILDING MATERIALS PUBLIC LTD CO (View Classification) — CKNX.R19374

CERTAINTEED GYPSUM INC (View Classification) — CKNX.R3660

CGC INC (View Classification) — CKNX.R19751

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C (View Classification) — CKNX.R18482

GEORGIA-PACIFIC GYPSUM L L C (View Classification) — CKNX.R2717

LOADMASTER SYSTEMS INC (View Classification) — CKNX.R11809

NATIONAL GYPSUM CO (View Classification) — CKNX.R3501

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM (View Classification) — CKNX.R7094

PANEL REY S A (View Classification) — CKNX.R21796

SIAM GYPSUM INDUSTRY (SARABURI) CO LTD (View Classification) — CKNX.R19262

THAI GYPSUM PRODUCTS PCL (View Classification) — CKNX.R27517

UNITED STATES GYPSUM CO (View Classification) — CKNX.R1319

USG BORAL DRYWALL SFZ LLC (View Classification) — CKNX.R38438

USG MEXICO S A DE C V (View Classification) — CKNX.R16089

4A. **Gypsum Board —** Nom. 3/4 in. gypsum board applied vertically with joints between layers staggered. The thickness and number of layers and percent of design load for the 2 hr ratings are shown in the table above.

CGC INC — Types AR, IP-AR, IP-X3, or ULTRACODE

UNITED STATES GYPSUM CO — Types AR, IP-AR, IP-X3, or ULTRACODE

USG BORAL DRYWALL SFZ LLC — Type ULTRACODE

USG MEXICO S A DE C V — Types AR, IP-AR, IP-X3, or ULTRACODE

4B. **Gypsum Board* —** (As an alternate to Items 4 and 4A) — Nom. 5/8 in. thick gypsum panels, with square edges, applied horizontally. Gypsum panels fastened to framing with 1 in. long bugle head steel screws spaced a max 8 in. OC, with last 2 screws 3/4 in. and 4 in. from each edge of board. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs on interior walls need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers on interior walls (multilayer systems) staggered a min of 12 in.

GEORGIA-PACIFIC GYPSUM L L C — GreenGlass Type X, Type DGG

NATIONAL GYPSUM CO — Type FSW-6.

4C. **Gypsum Board* —** (As an alternate to Items 4 through 4B) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically only and secured as described in Item 6.

GEORGIA-PACIFIC GYPSUM L L C — Type X ComfortGuard Sound Deadening Gypsum Board.

NATIONAL GYPSUM CO — SoundBreak XP Type X Gypsum Board

4D. **Wall and Partition Facings and Accessories* —** (As an alternate to Items 4 through 4C) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock ES.

4E. **Wall and Partition Facings and Accessories* —** (As an alternate to Items 4 through 4D) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

PABCO BUILDING PRODUCTS L L C, DBA PABCO GYPSUM — Type QuietRock 527.

4F. **Gypsum Board* —** (As an alternate to 5/8 in. Type FSW in Item 4) — Nom. 5/16 in. thick gypsum panels applied vertically. Two layers of 5/16 in. for every single layer of 5/8 in. gypsum board described in Item 4. Horizontal joints on the same side need not be staggered. Inner layer of each double 5/16 in. layer attached with fasteners, as described in Item 4, spaced 24 in. OC. Outer layer of each double 5/16 in. layer attached per Item 4.

NATIONAL GYPSUM CO — Type FSW.

5. **Gypsum Sheathing —** For exterior walls, 1/2 or 5/8 in. thick Classified or unclassified exterior gypsum sheathing applied vertically and attached to studs and runner tracks with 1 in. long Type S-12 bugle head screws spaced 12 in. OC. along studs and tracks. One of the following exterior facings are to be applied over the gypsum sheathing.

a. **Siding, Brick, or Stucco —** Aluminum siding, steel siding, brick veneer, or stucco attached to studs over gypsum sheathing and meeting the requirements of local code agencies. When a min 3-3/4 in. thick brick veneer facing is used, the Exterior Wall Rating is applicable with exposure on either face. Brick veneer wall attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick. When a min 3-3/4 in. thick brick veneer facing is used, Foamed Plastic (Item 10) may be used.

b. **Cementitious Backer Units* —** 1/2 or 5/8 in. thick, square edge boards, attached to steel studs over gypsum sheathing with 1-5/8 in. long, Type S-12, corrosion resistant, wafer head steel screws, spaced 8 in. OC. Studs spaced a max of 16 in. OC. Joints covered with glass fiber mesh tape.

UNITED STATES GYPSUM CO — Type DCB

c. **Fiber-Cement Siding —** Fiber-cement exterior sidings including smooth and patterned panel or lap siding.

d. **Molded Plastic* —** Solid vinyl siding mechanically secured to framing members in accordance with manufacturer's recommended installation details.

ALSIDE, DIV OF ASSOCIATED MATERIALS INC

e. **Wood Structural Panel or Lap Siding —** APA Rated Siding, Exterior, plywood, OSB or composite panels with veneer faces and structural wood core, per PS 1 or APA Standard PRP-108, including textured, rough sawn, medium density overlay, brushed, grooved and lap siding.

f. **Building Units* —** (Not Shown) — 3 in. thick 18 x 24 in. cellular glass blocks, applied to the gypsum sheathing (Item 5) with PC 88 adhesive or fastened with F anchors spaced a maximum 24 in. OC. F anchors fastened to framing members with 1-1/4 in. long #6 drywall screws.

PITTSBURGH CORNING CORP — Type FoamGlas

6. **Fasteners —** (Not Shown) — Screws used to attach wallboard to studs: self-tapping bugle head sheet steel type, spaced 12 in. O.C. For first layer Type S-12 by 1 in. long for 1/2 and 5/8 in. thick wallboards and 1-1/4 in. long for 3/4 in. thick wallboard. Second layer Type S-12 by 1-5/8 in. long for 1/2 and 5/8 in. thick wallboards and 2-1/4 in. long for 3/4 in. thick wallboard. Third layer Type S-12 by 1-7/8 in. long.

7. **Batts and Blankets* —** Placed in stud cavities of all exterior walls. May or may not be used in interior walls. Any glass fiber or mineral wool batt material bearing the UL Classification Marking as to Fire Resistance, of a thickness to completely fill stud cavity.

See **Batts and Blankets*** (BZJZ) Category for names of Classified companies.

7A. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 7) — (100% Borate Formulation) — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product with a nominal dry density of 2.7 lb/ft^3. Alternate Application Method: The fiber is applied without water or adhesive at a nominal dry density of 3.5 lb/ft^3, in accordance with the application instructions supplied with the product.

U S GREENFIBER L L C — INS7358 INS745 for use with wet or dry application. INS765LD and INS770LD are to be used for dry application only.

7B. **Fiber, Sprayed* —** As an alternate to Item 7 and 7A — Spray applied cellulose material. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. Nominal dry density of 4.58 lb/ft^3.

NU-WOOL CO INC — Cellulose Insulation

7C. **Fiber, Sprayed* —** As an alternate to Batts and Blankets (Item 7) — Spray applied cellulose fiber. The fiber is applied with water to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. The minimum dry density shall be 4.30 lbs/ft^3.

INTERNATIONAL CELLULOSE CORP — Celbar-RL

7D. **Fiber, Sprayed* —** (Optional) — As an alternate to Batts and Blankets (Item 7) — Spray applied mineral wool insulation. The fiber is applied with adhesive, at a minimum density of 4.0 pcf, to completely fill the enclosed cavity in accordance with the application instructions supplied with the product. See *Fiber, Sprayed* (CCAZ).

AMERICAN ROCKWOOL MANUFACTURING, LLC — Type Rockwool Premium Plus

8. **Joint Tape and Compound —** (Not Shown) — Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layer. Perforated paper tape, 2 in. wide, embedded in first layer of compound over all joints of outer layer.

9. **Furring Channels —** (Optional, Not Shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws.

10. **Foamed Plastic* —** Not Shown -For use with brick veneer as outlined in Item 5A - Maximum 2 in. thick rigid polystyrene insulation attached to studs with fasteners of sufficient length to penetrate the foam and 3/16 in. into the stud. A minimum 1 in. air space is to be maintained between the outer surface of the foamed plastic and the inner surface of the brick veneer.

ATLAS EPS, DIV OF ATLAS ROOFING CORP — Type ThermalStar

OWENS CORNING SCIENCE AND TECHNOLOGY, LLC

10A. **Foamed Plastic* —** (Optional, Not shown) — Mortar drop protection - Foamed plastic with mortar control device attached, continuous, by drainage holes at bottom of air space behind brick veneer.

OWENS CORNING SCIENCE AND TECHNOLOGY, LLC — WeepGuard

10B. **Foamed Plastic* —** Polyisocyanurate foamed plastic insulation boards, any thickness, Classified in accordance with BRYX and / or CCVW. May be used with any exterior facing shown under items 5a, 5c, 5d and 5e.

ATLAS ROOFING CORP — "EnergyShield Pro Wall Insulation", "EnergyShield Pro 2 Wall Insulation", EnergyShield CGF Pro and EnergyShield Ply Pro

CARLISLE COATINGS & WATERPROOFING INC — Type R2+ SHEATHE

FIRESTONE BUILDING PRODUCTS CO L L C — "Enverge™ CI Foil Exterior Wall Insulation" and "Enverge™ CI Glass Exterior Wall Insulation"

HUNTER PANELS — Type Xci-Class A, Xci 286, "Xci CG", "Xci Foil"

RMAX OPERATING L L C — Types TSX-8500, TSX-8510, Thermasheath-XP, ECOMAXci", "Thermasheath-3" and "Duralsheath-3

THE DOW CHEMICAL CO — Type Thermax Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax XARMOR ci Exterior Insulation, Thermax IH Insulation, Thermax Plus Liner Panel, Thermax Heavy Duty Plus (HDP), and TUFF-R™ ci Insulation

10C. **Building Unit* —** Polyisocyanurate foamed plastic composite insulation boards, any thickness, Classified in accordance with BZXX. May be used with any exterior facing shown under items 5a, 5c, 5d and 5e.

HUNTER PANELS — Type "Xci NB" and "Xci Ply"

RMAX OPERATING L L C — Types Thermasheath-5I, ECOBASEci, and ThermaBase-CI attached to studs with Type S screws long enough to penetrate the studs a minimum of three threads.

10D. **Foamed Plastic* —** (As an alternate to Item 10 - Not Shown) — Expanded polystyrene insulation installed to a maximum nominal density of 2.0 lb/ft^3.

BASF CORP STYRENIC FOAMS DIV — — Type Neopor "F" Series

11. **Cementitious Backer Units* —** (Optional, Item Not Shown - For Use On Face Of 1 Hr Or 2 Hr Systems With All Standard Items Required) - 7/16 in., 1/2 in., 5/8 in., 3/4 in. or 1 in. thick, min. 32 in. wide - Applied vertically or horizontally with vertical joints centered over studs. Fastened to studs and runners with cement board screws of adequate length to penetrate stud by a minimum of 3/8 in. for steel framing members spaced a max of 8 in. OC. When 4 ft. wide boards are used, horizontal joints need not be backed by framing. 2-Hr System - Applied vertically with vertical joints

centered over studs. Face layer fastened over gypsum board to studs and runners with cement board screws of adequate length to penetrate stud by a minimum of 3/8 in. for steel framing members, and a minimum of 3/4 in. for wood framing members spaced a max of 8 in. OC.

NATIONAL GYPSUM CO — Type DuraBacker, PermaBase, DuraBacker Plus, or PermaBase Plus

12. **Wall and Partition Facings and Accessories* —** (Optional, Not Shown) — For use with Item 1, Items 2 and 2A, Item 3, Item 4 to 4B, Item 6, Item 7, Item 8 and Item 9. For maximum fire rating of 1 hour. On one side of the wall, over the first layer of Gypsum Board (Item 4 to 4B), Install RefleXor membrane with the gold side facing outwards. Membrane installed with TSO staples spaced 12 inches on center in both directions as per manufacturer's instructions, seams in membrane to be overlapped by 2 inches. When RefleXor membrane is used an additional layer of Gypsum Board that is identical to the one used in the first layer and as specified in Item 4 to 4B shall be installed over the membrane. The additional layer of Gypsum Board to be installed through the membrane to the stud as specified in Item 4 to 4B except the fastener length shall be increased by a minimum of 5/8 inch. Install Batts and Blankets in the stud cavity as per Item 7. On the other side of the wall prior to the installation of the Gypsum Board install Resilient Channels , 25 MSG galv steel, spaced vertically 24 in. OC, flange portion screw attached to one side of studs with 1-1/4 in. long diamond shaped point, double lead Phillips head steel screws. Over the Resilient Channels install 3/4 inch thick SONOpan panel secured to the Resilient Channels with drywall screws and washers spaced at 16 in. OC on the perimeter of the panel and 8 in. OC in the field of the panel. Over the SONOpan panel install the same Gypsum Board as specified in Item 4 to 4B with the fastener length increased by minimum 3/4 inch. Not evaluated or intended as a substitute for the required layer(s) of UL Classified Gypsum Board.

MSL — RefleXor membrane, SONOpan panel.

13. **Wall and Partition Facings and Accessories* —** (Optional, Not Shown) - **When the Wall Assembly is used as an External Wall, on the External side of the wall one of the following Wall and Partition and Facing Accessories may be used, refer to items (A) to (C) below.**

A. **Non Insulated System with Metal Channels —** Install moisture barrier over the Gypsum Board Item 4 and Install Acry Metal Channels vertically at a horizontal spacing not greater than 24 inches OC over the moisture barrier. Acry Metal Channels attached through the moisture barrier and the Gypsum Board to the Steel Studs Item 2 using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Install Acrytec Panels on Acry Metal Channels using 1-1/4" long corrosion coated stainless steel screws spaced at a max spacing of 24 inches OC, along with manufacturer's approved adhesive (3M 540 or Tremco Vulcum 116). Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels shall be Tremco illmod 600 pre compressed polyurethane foam sealant.

B. **Insulated System with Metal Channels —** Install moisture barrier over the Gypsum Board Item 4. Install galvanized Z girt channels specified by the manufacturer over the moisture barrier and the Gypsum Board Item 4. Z girt channels to be installed horizontally at a max. spacing of 24" OC. Z girt channels attached through the Gypsum Board and the moisture barrier to the Steel Studs Item 2, with screws provided by the manufacturer at a max spacing of 24 inches OC. Install mineral wool insulation between the Z girts. Maximum thickness of mineral wool insulation not to exceed 6 in. As per manufacturer's instructions install Acry Metal Channels vertically over the Z girts at a max. horizontal spacing of 24 in. OC. Acrytec Panels on Acry Metal Channels using 1-1/4" long corrosion coated stainless steel screws at a max spacing of 24 in. OC along with manufacturers approved adhesive (3M 540 or Tremco Vulcum 116). Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

C. **Non Insulated Wood Strapping System —** Install moisture barrier over the Gypsum Board Item 4 and Install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC., over the moisture barrier. 1" x 3" wood strapping attached through the moisture barrier and the Gypsum Board to the Steel Studs Item 2, using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Acrytec Panels to be installed on the 1" x 3" wood strapping using manufacturers approved stainless steel fasteners spaced at maximum 24 inches OC along with Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

D. **Insulated Wood Strapping System —** Install moisture barrier over the Gypsum Board Item 4. Install Extruded Polystyrene Insulation over moisture barrier, max thickness of insulation not to exceed 4 inches. Install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC. Wood strapping attached through the Insulation, the Gypsum Board and moisture barrier to the Steel Studs Item 2 using fasteners specified by the manufacturer and fasteners spaced max. 24 in. OC. Acrytec Panels to be installed over the wood strapping using manufacturers approved stainless steel fasteners at a max spacing of 24 in. OC and Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

ACRYTEC PANEL INDUSTRIES — Nominal 5/8 inch thick Acrytec Panel.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

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Architecture Engineering Planning Interiors

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Design No. G556
BXUV.G556
Fire-resistance Ratings - ANSI/UL 263

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Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. G556

April 11, 2018

Unrestrained Assembly Rating — 1, 1-1/2 and 2 Hr (See Item 1)

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

1. **Flooring System —**

1 or 1-1/2 Hr Rating

1A. Structural Cement-Fiber Units* — Nom 3/4 in. thick, with long edges tongue and grooved. Long dimension of panels to be perpendicular to joists with end joints staggered a min of 2 ft and centered over the joists. Panels secured to steel joists with 1-5/8 in. long No. 8 self-drilling, self-countersinking steel screws spaced a max of 12 in. OC in the field with a screw located 1 in. and 2 in. from each edge, and 8 in. OC on the perimeter with a screw located 2 in. from each edge, located 1/2 in. from the side edges of the panel.

Unrestrained Assembly Rating is 1 hour when Item 2A or 2B is used, Unrestrained Assembly Rating is 1-1/2 hour when Item 2 is used.

UNITED STATES GYPSUM CO — Types STRUCTO-CRETE, USGSP

2 Hr Rating

System A

1A. **Structural Cement-Fiber Units* —** Nom 3/4 in. thick, with long edges tongue and grooved. Long dimension of panels to be perpendicular to joists with end joints staggered a min of 2 ft and centered over the joists. Panels secured to steel joists with 1-5/8 in. long No. 8 self-drilling, self-countersinking steel screws spaced a max of 12 in. OC in the field with a screw located 1 in. and 2 in. from each edge, and 8 in. OC on the perimeter with a screw located 2 in. from each edge, located 1/2 in. from the side edges of the panel.

UNITED STATES GYPSUM CO — Types STRUCTO-CRETE, USGSP

1B. **Gypsum Board* (Not Shown) —** Min 1/2 in. thick, 4 ft by 4 ft gypsum board underlayment, Classified as to Surface Burning Characteristics. Bonded and attached to Structural Cement Fiber Unites (Item 1A) with a mortar applied with a 1/4 in. by 1/4 in. notched trowel, and 1-1/4 in. long coarse thread screws spaced max 8 in. OC. Joints between Structural Cement Fiber Units and of Gypsum Board staggered a min of 6 in.

UNITED STATES GYPSUM CO — Type FRX-G

System B

1A. **Structural Cement-Fiber Units* —** Nom 3/4 in. thick, with long edges tongue and grooved. Long dimension of panels to be perpendicular to joists with end joints staggered a min of 2 ft and centered over the joists. Panels secured to steel joists with 1-5/8 in. long No. 8 self-drilling, self-countersinking steel screws spaced a max of 12 in. OC in the field with a screw located 1 in. and 2 in. from each edge, and 8 in. OC on the perimeter with a screw located 2 in. from each edge, located 1/2 in. from the side edges of the panel.

UNITED STATES GYPSUM CO — Types STRUCTO-CRETE, USGSP

1B. **Floor Topping Mixture* —** Min 3/4 in. thickness of floor topping mixture having a minimum compressive strength of 1800 psi. Refer to manufacturer's instructions accompanying the material for specific mix design.

UNITED STATES GYPSUM CO — Types LRK, HSLRK, CSD

USG MEXICO S A DE C V — Types LRK, HSLRK, CSD

Floor Mat Materials* — (Optional) - Floor mat material loose laid over the subfloor. Refer to manufacturer's instructions regarding the minimum thickness of floor topping over each floor mat material.

UNITED STATES GYPSUM CO — Types SAM, LEVELROCK® Brand Sound Reduction Board, LEVELROCK® Brand Floor Underlayment SRM-25

Alternate Floor Mat Materials* — (Optional) - Floor mat material nom 3/8 in. thick loose laid over the subfloor. Floor topping thickness a min 3/4 in. over the floor mat.

GRASSWORX L L C — Type SC50

2. **Steel Joists —** Channel-shaped, min 10 in. deep with min 1-5/8 in. wide flanges and 1/2 in. long stiffening flanges. Fabricated from min No. 16 MSG galv steel. Min yield strength of 50,000 psi. Joists spaced max 24 in. OC. Supplied with appropriate rim tracks of same size and gauge.

2A. **Steel Joists —** (Not Shown) -As an alternate to Item 2 - For maximum clear spans not exceeded 8 ft, Channel-shaped, min 6 in. deep with min 1-9/16 in. wide flanges and 3/8 in. long stiffening flanges. Fabricated from min No. 18 MSG galv steel. Min yield strength of 33,000 psi. Joists spaced max 24 in. OC. Supplied with appropriate rim tracks of same size and gauge.

2B. **Steel Joists —** (Not Shown) -As an alternate to Item 2 - Channel-shaped, min 8 in. deep with min 1-9/16 in. wide flanges and 3/8 in. long stiffening flanges. Fabricated from min No. 16 MSG galv steel. Min yield strength of 33,000 psi. Joists spaced max 24 in. OC. Supplied with appropriate rim tracks of same size and gauge.

2C. **Steel Joists —** As an alternate to item 2 only - The joists are channel-shaped, 10 in. min depth. Joists are fabricated from min No. 16 MSG galv steel. Joists spaced max 24 in. OC. Joists attached to rim joist with three #10 3/4 in. long self-drilling screws at the rim track clip to the outside of the web joist, and a #10 1/2 in. long screw through the top and bottom flange of the joists to the top and bottom flange of the rim track. At rim joist splices bearing on supports, rim joists are connected using an overlapping section of a 12 in. long splice plate (a joist piece), with six 3/4 in. long self-drilling #10 screws to each rim piece, For use with item 3C.

CALIFORNIA EXPANDED METAL PRODUCTS CO — Type SSCI floor joists, SSRT rim joists

2D. **Clip Angles —** No. 16 MSG, 9-3/4 in. long steel angles with 2 in. legs. Secured to track and joist with eight No.10, 3/4 in. long, self-drilling, hex head screws, located 1 in. from each end of clip angle, with the other two screws on each leg evenly spaced. Only one clip angle per joist end.

2E. **Clip Angles —** (Not Shown) - As an alternate to Item 2C, for use with 6 or 8 in. deep joists (Item 2A or 2B). No. 16 MSG, 5-1/2 in. long steel angles with 1-1/2 in. legs for 6 in. deep joists and No. 18 MSG, 7-1/4 in. long steel angles with 1-1/2 in. legs for 8 in. deep joists. Secured to track and joist with six No.10, 3/4 in. long, self-drilling, hex head screws, located 1 in. from each end of the clip angle and at the centerline. Only one clip angle per joist end.

2F. **Structural Steel Members* —** (Not Shown) - As an alternate to Item 2, 2a, 2b and 2c - Pre-fabricated light gauge steel truss system consisting of cold-formed, galv steel chord and web sections. Trusses fabricated in various sizes, depths and from various steel thickness spaced a maximum of 24 in. OC.

AEGIS METAL FRAMING, DIV OF MITEK — Ultra-Span, Pre-fabricated Light Gauge Steel Truss System

HEXAPORT INTERNATIONAL LTD — Strong-Span, Pre-fabricated Light Gauge Steel Truss System

TRUSSTEEL, DIV OF ITW BUILDING COMPONENTS INC — TrusSteel

2G. **Structural Steel Members* —** (Not Shown) - As an alternate to Item 2, 2a, 2b,2c and 2f - Pre-fabricated steel truss system consisting of cold-formed, galvanized steel chord and web sections. Truss top and bottom chords min. 4 in. high by 1-11/16 in. wide by 18 ga. Truss webs min. 1-1/2 in. by 1-1/2 in. by 20 ga. square tube bent and triangulated as shown. Chords and web connected by fillet welds. Overall truss depth min. 12 in. Trusses spaced a max of 24 in. OC. Truss ends glued over and secured to Bearing Seats (Item 2G1) with two min. #10 by 3/4 in. long screws on each side of Bearing Seats. Allowable loading must be calculated so as to stress the steel trusses to a maximum of 98% of the stress calculated in accordance with the allowable stress design approach outlined in the manufacturer's load tables.

EISEN PANEL SYSTEMS L L C — Type Gateway Panel pre-fabricated steel truss system.

2G1. **Bearing Seats* —** (Not Shown) — Galvanized steel tube, min. 1 in. by 2-1/2 in. by 13 ga., oriented vertically and welded to min. 4 in. by 4 in. by 10 ga., galvanized steel plate. Bearing seats spaced 24 in. OC and attached to bearing supports by welding or screw attaching the steel plate to the bearing supports.

EISEN PANEL SYSTEMS L L C — Type Gateway Panel bearing seat.

2G2. **Bracing —** (Not Shown) - For use with Item 2G — Galvanized channel-shaped steel sections, min. 1-1/2 in. wide with 1/4 in. flanges, min. 16 ga. Bracing attached to underside of trusses with min. #10 by 3/4 in. long screws through truss bottom chord. Bracing installed in truss cavities by scoring, bending and flattening the ends to form a tab for attachment to truss top and bottom chords. Two pieces of bracing crossed and tabs secured to truss chords with min. #10 by 3/4 in. long screws. Location and spacing of underside and crossed bracing to be specified on truss engineering.

2H. **Steel Trusses —** As an alternate to Items 2, 2A, 2B, 2C, 2F and 2G - Cold-formed galvanized steel truss chord and web sections manufactured from steel conforming to ASTM A653 Grade 33 or higher yield strength. Steel thickness of truss chord and web sections as required by design to meet governing code requirements. Truss members connected together with No. 10-16 (min size) self-drilling screws or equivalent. Truss chord and web members to be designed in accordance with the American Iron and Steel Institute's Specification for the Design of Cold-Formed Steel Structural Members, 1996 Edition. Trusses spaced a max of 24 in. OC. Where the truss intersects with the interior face of the exterior walls, the min truss depth shall be 12 in.

2I. **Steel Joists —** As an alternate to Items 2, 2A, 2B, 2C, 2F, 2G and 2H, minimum 12K1, spaced a max 24 in. OC.

3. **Joist Bridging —** (Not Shown) - For use with Item 2 and 2B - Installed immediately after joists are erected and before construction loads are applied. The bridging consisting of joist sections cut to length and placed between outer supports, adjacent to openings and at mid span with 8 ft OC max spacing. Bridging channels are screw-attached at each end to joist web using angle clips. V-bracing of 1-1/2 in. by 22-ga galvanized steel is screw-attached to bottom joist flange between bridging channels.

3A. **Joist Bridging —** (Not Shown) - For use with Item 2A - Installed immediately after joists are erected and before construction loads are applied. The bridging consisting of rim track sections cut to length, with two 4 in. long folded back flanges, and placed between outer supports, adjacent to openings and at mid span with 10 ft OC max spacing. Bridging channels are screw-attached to each of the four top and bottom joist flanges with two No. 8 by 1/2 in. long wafer head steel screws.

3B. **Joist Bridging —** (Not Shown) - For use with Item 2A and 2B - 1-1/2 in. wide strips formed from 20 MSG - The structural bridging is installed perpendicular to and on the bottom surface of the joists at mid-span with one #10 x 3/4 in. long hex head steel screw at each interface.

3C. **Joist Bridging —** Not shown — For use with item 2C. Installed immediately after joists are erected and before construction loads are applied. The structural bridging, Type CEMCO Sure Bridging, consisting of No. 18 MSG galv steel, 2-1/2 in. wide by 25-1/2 in. long with 1-5/16 in. long legs structural bridging staggered between the steel joists and attached to the bottom joist flange with two #10 1/2 in. long self-drilling screws at each end tab of bridging. Solid bridging consisting of cut to length joist sections placed between outer joists and at center joist with 8 ft OC max spacing. Solid bridging is seated in the structural bridging and is screw-attached at joist web using Type CEMCO Sure-Support Clips (1-1/2 in. by 1-1/2 in. by 7 in. long, 16 MSG, min 50 ksi support clip) with three #10 3/4 in. long self-drilling screws per leg

on one side and the other side with Type CEMCO Sure-Support Clips (4 in. by 1-1/2 in. by 7 in. long, 16 MSG, min 50 ksi support clip) with three #10 3/4 in. long self-drilling screws per leg.

3D. **Bridging —** (Not Shown)—For use with Item 2F - Location of lateral bracing for truss chord and web sections to be specified on truss engineering.

4. **Batts and Blankets* —** 3-5/8 in. thick glass fiber batt insulation draped over the resilient channels (Item 5) or suspension system grid (Item 5A). Any glass fiber batt insulation bearing the UL Classification Marking for Surface Burning Characteristics having a flame spread index of 25 or less and a smoke developed index of 50 or less may be used. See **Batts and Blankets** (BKNV) category in the Building Materials Directory for names of manufacturers.

5. **Resilient Channels —** Formed of No. 25 MSG galv steel, 1/2 in. deep, spaced max 12 in. OC, perpendicular to joists. Channel splices located beneath joists and overlapped 4 in. Channels secured to each joist with one 1/2 in. long Type S-12 low profile steel screw. Two channels, spaced 6 in. OC, oriented opposite each gypsum board end joint as shown on the illustration above. Additional channels shall extend min 6 in. beyond each side edge of board.

5A. **Steel Framing Members* —** (Optional, Not Shown) — When it is desired to drop the ceiling below the bottom plane of the structural steel members (Item 2), a suspension system may be used in lieu of the resilient channels. Main runners, cross tees, cross channels and wall angle as listed below:

a. **Main Runners —** Nom 10 or 12 ft long , 15/16 in. or 1-1/2 in. wide face, spaced 4 ft. OC. Main runners suspended by min 12 SWG galv steel hanger wires spaced 24 in. OC a min of 4 in. below bottom flange of joists, twist tied to #10 - 3/4 in. long screws installed in the web, 1/2 in. from the bottom flange of the steel joists. Hanger wires to be located adjacent to main runner/cross tee intersections.

b. **Cross Tees —** Nom 4 ft long, 1-1/2 in wide face, installed perpendicular to the main runners, spaced 16 in. OC. Additional cross tees or cross channels used at 8 in. from each side of butted gypsum panel end joints. The cross tees or cross channels may be riveted or screw attached to the wall angle or channel to facilitate the ceiling installation.

c. **Cross Channels —** Nom 4 ft or 12 ft long, installed perpendicular to main runners, spaced 16 in. OC.

d. **Wall Angle or Channel —** Painted or galv steel angle with 1 in. legs or channel with 1 in. legs, 1-9/16 in. deep attached to walls at perimeter of ceiling with fasteners 16 in. OC. To support steel framing member ends and for screw-attachment of the gypsum panel.

CGC INC — Type DGL or RX

USG INTERIORS LLC — Type DGL or RX.

5B. **Steel Framing Members* —** (Optional, Not Shown) — As an alternate to Item 5 — Furring channels and Steel Framing Members as described below:

a. **Furring channels —** Formed of No. 25 MSG galv steel, 2-3/8 in. wide by 7/8 in. deep, spaced 12 in. OC, perpendicular to joists. Channel secured to joists as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap. Additional channels shall be positioned so that the distance from the end of the board to the center of the first channel is 3 in. and from the board end to the center of the next channel is 12 in.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to joists (Item 2). Clips spaced 48 in. OC and secured to the bottom chord of joists with min 1-5/8 in. long No. 8 self-drilling, self-tapping, bugle, flat or hex head screw through the center grommet. Furring channels are friction fitted into clips. Additional clips required to hold furring channel that supports the gypsum board butt joints.

PLITEQ INC — Type Genie Clip

5C. **Alternate Steel Framing Members* —** (Optional, Not Shown) — As an alternate to Items 5 to 5B, furring channels and Steel Framing Members as described below.

a. **Furring channels —** Formed of No. 25 MSG galv steel. 2-9/16 in. or 2-23/32 in. wide by 7/8 in. deep, spaced 12 in. OC, perpendicular to joists. Channels secured to joists as described in Item b. Ends of adjoining channels overlapped 6 in. and tied together with double strand of No. 18 SWG galv steel wire near each end of overlap.

b. **Steel Framing Members* —** Used to attach furring channels (Item a) to the steel joists (Item 2). Clips spaced a max of 48 in. OC, RSIC-1 and RSIC-1 (2,75) clips secured to alternating joists with No. 8 x 2-1/2 in. coarse drywall screw through the center grommet. Furring channels are friction fitted into clips. RSIC-1 clips for use with 2-9/16 in. wide furring channels, RSIC-1 (2,75) clips for use with 2-23/32 in. wide furring channels. Adjoining channels are overlapped as described in Item a. As an alternate, ends of adjoining channels may be overlapped 6 in. and secured together with two self-tapping No. 6 framing screws, min. 7/16 in. long at the midpoint of the overlap, with one screw on each flange of the channel. Additional clips required to hold furring channel that supports the wallboard butt joints, as described in Item 6.

PAC INTERNATIONAL L L C — Types RSIC-1 or RSIC-1 (2,75)

6. **Gypsum Board* —** One layer of nom 5/8 in. thick by 48 in. wide gypsum panels installed with long dimension perpendicular to resilient channels, furring channels or cross tees of suspension system. Gypsum panels secured to resilient/furring channels or drywall suspension system with 1 in. long Type S bugle-head screws spaced 8 in. OC, with screws located 4 in. from and on each side of the gypsum panel midspan, and 1-1/2 in. from side edges of the board. End joints secured to both resilient/furring channels as shown in end joint detail. When **Steel Framing Members** (Item 5B or 5C) are used, the butt joints in the gypsum board shall be supported by two furring channels. The two furring channels shall be spaced approximately 2-1/2 in. OC, and be attached to underside of the joist with one RSIC-1, RSIC-1 (2,75) or Genie clip at each end of the channel.

CGC INC — Types C, IP-X2, IPC-AR

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR, ULIX

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

6A. **Gypsum Board* —** For use when Steel Framing Members* (Item 5A) are used - One layer of 5/8 in. thick, 4 ft wide, installed with long dimension perpendicular to cross tees with side edges centered over main runners and joints centered over cross tees or channels. Fastened to cross tees or channels with 1 in. long Type S screws bugle-head screws spaced 8 in. OC with the screws located 4 in. from the midspan of the cross tee or channel, and 1-1/2 in. from side edges of gypsum panel. Fastened to main runners with 1 in. long Type S bugle-head screws spaced midway between cross tees or channels. End joints of gypsum panels shall be staggered not less than 4 ft OC with adjacent gypsum panels end joints.

CGC INC — Types C, IP-X2, IPC-AR

UNITED STATES GYPSUM CO — Types C, IP-X2, IPC-AR, ULIX

USG BORAL DRYWALL SFZ LLC — Type C

USG MEXICO S A DE C V — Types C, IP-X2, IPC-AR

7. **Finishing System - (Not Shown) —** Vinyl, dry or premixed joint compound, applied in two coats to joints and screw-heads. Nom 2 in. wide paper tape embedded in first layer of compound over all joints. As an alternate, nom 3/32 in. thick veneer plaster may be applied to the entire surface of gypsum panels.

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**

Last Updated on 2018-04-11

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JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

UL LITERATURE
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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Revisions
FMDI 3.14.18 FIRE MARSHALL BACKCHECK 2

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DLR Group
Architecture Engineering Planning Interiors

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CALIFORNIA POLYTECHNIC STATE UNIVERSITY
BASEBALL CLUBHOUSE FACILITY
SAN LUIS OBISPO, CA

RICK ENGINEERING COMPANY SPECIAL NOTES:

1. CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOBSITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY.
2.
3. NEITHER THE OWNER, NOR THE ENGINEER OF WORK WILL ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL DESIGN, CONSTRUCT, AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE, AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.
4. THE CONTRACTOR SHALL FOLLOW THE GUIDELINES AND REGULATIONS AS SET FORTH BY OSHA.
5. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL UTILITIES ARE BUILT IN ACCORDANCE WITH THESE PLANS. IF THERE ARE ANY QUESTIONS REGARDING THESE PLANS OR FIELD STAKES, THE CONTRACTOR SHALL REQUEST AN INTERPRETATION BEFORE DOING ANY WORK.
6. THE CONTRACTOR SHALL TAKE THE NECESSARY STEPS TO PROTECT THE PROJECT AND ADJACENT PROPERTY FROM ANY EROSION AND SILTATION THAT RESULT FROM HIS OPERATIONS BY APPROPRIATE MEANS (SAND BAGS, HAY BALES, TEMPORARY DESILTING BASINS, DIKES, SHORING, ETC.) UNTIL SUCH TIME THAT THE PROJECT IS COMPLETED AND ACCEPTED FOR MAINTENANCE BY OWNER. THE CONTRACTOR IS RESPONSIBLE TO ADHERE TO THE PROJECT SWPPP AT ALL TIMES.
7. LOCATION AND ELEVATION OF IMPROVEMENTS TO BE MET BY WORK TO BE DONE SHALL BE CONFIRMED BY FIELD MEASUREMENTS PRIOR TO CONSTRUCTION OF NEW WORK.
8. WHERE TRENCHES ARE WITHIN EASEMENTS OR WITHIN 10' OF ANY BUILDING, A SOILS REPORT SHALL BE SUBMITTED TO THE ENGINEER OF WORK BY A QUALIFIED SOILS ENGINEER OR SPECIAL INSPECTOR WHICH INDICATES THAT TRENCH BACKFILL WAS COMPACTED UNDER THE OBSERVATION OF THE SOILS ENGINEER/SPECIAL INSPECTOR AND IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
9. ALL FRAMES, COVERS, VALVE BOXES AND MANHOLES SHALL BE ADJUSTED TO FINISHED GRADE UPON COMPLETION OF PAVING OR RELATED CONSTRUCTION.

EXISTING UTILITY NOTES:

1. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES SHOWN ON THESE PLANS WERE OBTAINED FROM THE CAMPUS FACILITY DEPARTMENT ELECTRONIC UTILITY ATLAS. THE CONTRACTOR IS RESPONSIBLE FOR FIELD LOCATING ALL UNDERGROUND FACILITIES PRIOR TO CONSTRUCTION AND TO NOTIFY THE ENGINEER OF WORK OF ANY CHANGES IN FIELD CONDITIONS.
2. THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN HEREON AND ANY OTHER NOT OF RECORD OR NOT SHOWN ON THESE PLANS. ALL DAMAGES CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE APPROPRIATE SPECIFICATIONS AND AT THE EXPENSE OF THE CONTRACTOR.
3. U.S.A./811 DIG ALERT WILL ONLY MARK PUBLIC UTILITIES. MOST UTILITIES ON CAMPUS ARE PRIVATELY OWNED BY THE UNIVERSITY. FACILITIES STAFF WILL BE AVAILABLE TO ASSIST THE CONTRACTOR IN LOCATING UNDERGROUND UTILITIES.

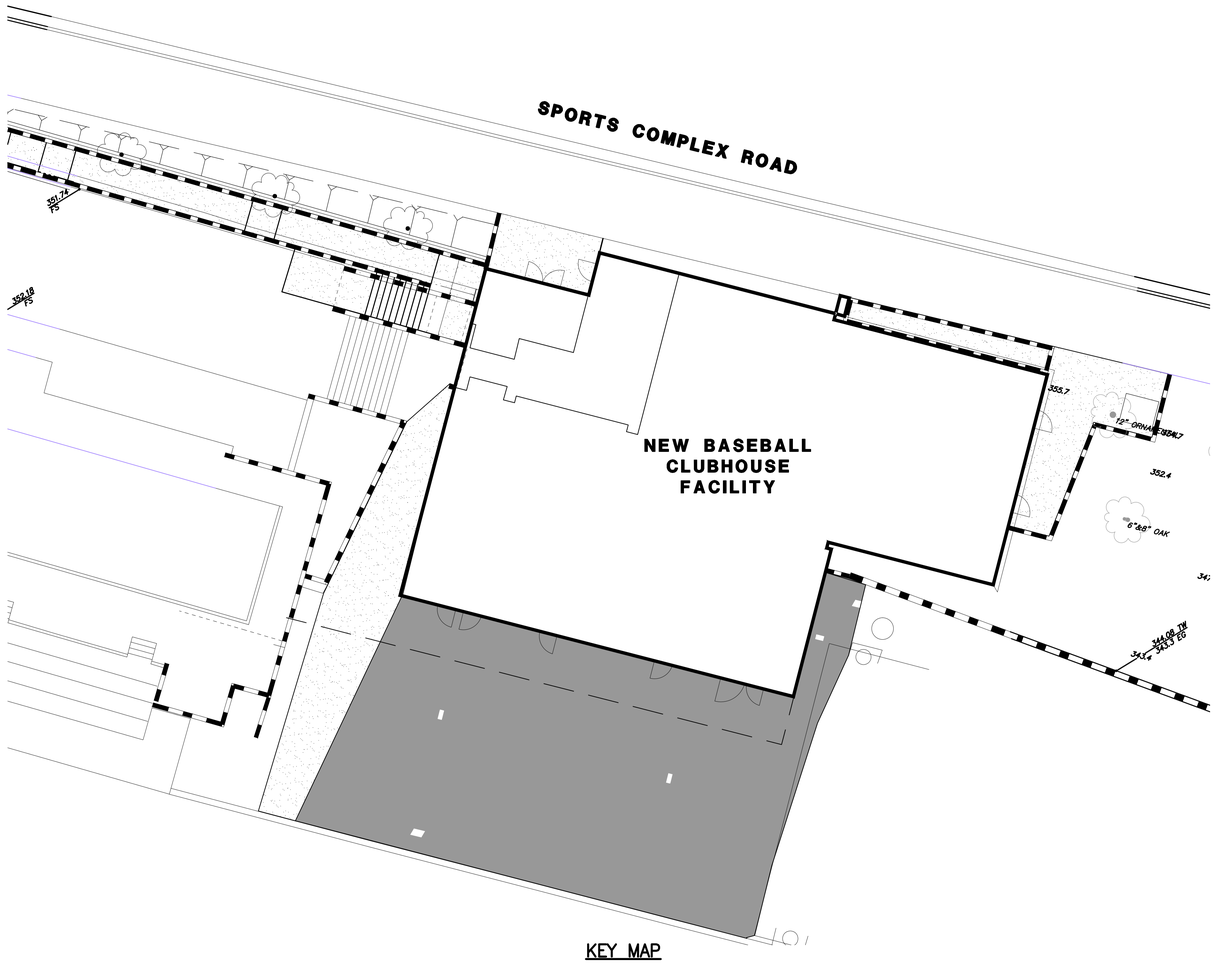
BENCH MARK:

ELEVATIONS ARE REFERENCED TO THE CITY OF SAN LUIS OBISPO BENCHMARK SYSTEM (NAVD 88).

THIS SURVEY IS TIED TO BENCHMARK #214. A LEAD AND TACK LOCATED AT THE SOUTHWEST CURB RETURN AT LONGVIEW AND HATHAWAY, HAVING PUBLISHED ELEVATION OF 346.02.

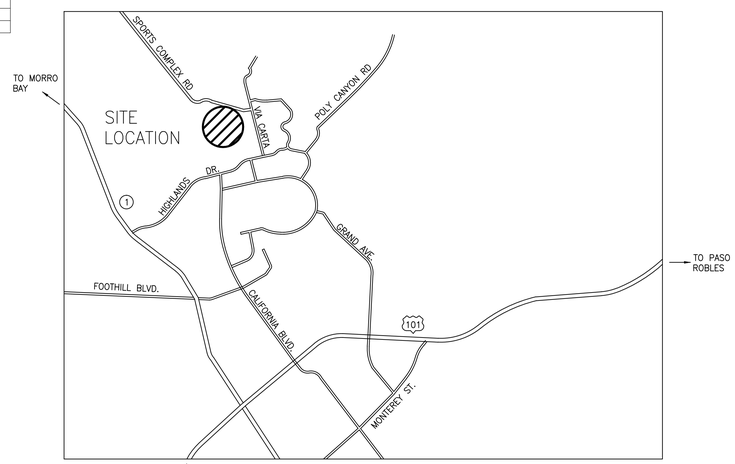
BASIS OF BEARINGS:

THE BASIS OF BEARINGS FOR THIS SURVEY ARE ASSUMED COORDINATES DERIVED FROM TOPOGRAPHIC SURVEY FOR STUDENT HOUSING SOUTH (R2-G1) PARKING LOT, CAL POLY SAN LUIS OBISPO, COMPLETED BY NORTH COAST ENGINEERING INC. ON 3-21-2015. THIS SURVEY HELD THE CONTROL POINTS 111, 113 AND 114 PER SAID SURVEY.



KEY MAP
SCALE N.T.S

INDEX OF SHEETS	
SHEET NO.	DESCRIPTION
C0.01	CIVIL TITLE
C1.01	TOPOGRAPHIC SURVEY
C2.01	DEMOLITION PLAN
C3.01	IMPROVEMENT PLAN
C3.02	IMPROVEMENT PLAN
C4.01	UTILITY PLAN
C5.01	STORMWATER MANAGEMENT PLAN
C6.01	DETAIL SHEET
C6.02	DETAIL SHEET
C7.01	EROSION CONTROL PLAN



VICINITY MAP
SCALE N.T.S

LEGEND

	EXISTING	PROPOSED
TRACT BOUNDARY		
PROPERTY LINE		
RIGHT-OF-WAY		
CENTERLINE		
CURB		
CURB & GUTTER		
FENCE-GENERAL USE		
FENCE-CHAINLINK		
FENCE-MISC		
FENCE-WOOD		
DAYLIGHT LINE		
EASEMENT		
FLOWLINE		
RETAINING WALL		
SLOPE	TOP OF SLOPE	TOP OF SLOPE
CONTOURS		
WATER LINE	W	W
FIRE SERVICE	FS	FS
SANITARY SEWER LINE	S	S
FORCE MAIN	FM	FM
STORM DRAIN LINE	SD	SD
GAS LINE	G	G
ELECTRIC LINE	E	E
OVERHEAD WIRES	OHE	OHE
FIBER OPTICS	FO	FO
TELEPHONE	T	T
TELEPHONE OVERHEAD	OHT	OHT
JOINT TRENCH	JT	JT
TYPICAL LATERALS	XX	XX
WATER METER	WM	WM
GAS METER	GM	GM
ELECTRIC METER	EM	EM
ELECTRIC BOX	EB	EB
PULL BOX	PB	PB
CABLE RISER BOX	CR	CR
TELEPHONE RISER BOX	TR	TR
ELECTRIC VAULT		
PAC BELL BOX		
SIGNAL CONTROL BOX		
EXISTING MANHOLE		
SANITARY SEWER MANHOLE	S	S
STORM DRAIN MANHOLE	D	D
TELEPHONE MANHOLE	T	T
SANITARY SEWER CLEANOUT	CO	CO
IRRIGATION CONTROL VALVE	ICV	ICV
GAS VALVE	GV	GV
BLOWOFF VALVE	BO	BO
FIRE HYDRANT		
WATER VALVE		
FIRE DEPARTMENT CONNECTION		
DOUBLE DETECTOR CHECK VALVE		
BACK WATER VALVE		
STREET LIGHT		
TRANSFORMER		
POWER POLE		
BENCHMARK		
FOUND MONUMENT		
FOUND MONUMENT (MAP)		
FOUND WELL MONUMENT		
SET CONTROL MONUMENT		
SET MONUMENT		
SET MONUMENT (MAP)		
SET WELL MONUMENT		
STORM DRAIN INLET		
AIR RELEASE VALVE	ARV	
ASPHALT CONCRETE	AC	
BEGIN CURB RETURN	BCR	
BEGIN CURVE	BC	
BLOWOFF VALVE	BO	
BEGIN VERTICAL CURVE	BVC	
CABLE RISER BOX	CR	
CENTERLINE	CL	
CLEANOUT	CO	
ELECTRIC BOX	EB	
END CURB RETURN	ECR	
END CURVE	EC	
END VERTICAL CURVE	EVC	
FINISHED GRADE	FG	
FINISHED SURFACE	FS	
FINISH FLOOR	FF	
FIRE DEPARTMENT CONNECTION	FDC	
FLOW LINE	FL	
GAS METER	GM	
GAS VALVE	GV	
GRADE BREAK	GB	
HIGH POINT	HP	
INVERT	INV	
IRRIGATION CONTROL VALVE	ICV	
MAILBOX	MB	
OUTSIDE GRADE	OG	
POINT OF CONNECTION	POC	
POINT OF REVERSE CURVE	PRC	
POINT OF REVERSE VERTICAL CURVE	PRVC	
PROPERTY LINE	PL	
PUBLIC UTILITY EASEMENT	PUE	
PULL BOX	PB	
RIGHT-OF-WAY	ROW	
TELEPHONE RISER BOX	TR	
TOP OF CURB	TC	
TOP OF FOOTING	TF	
TOP OF GRATE	TG	
TOP OF WALL	TW	
WATER METER	WM	
AC PAVING		
CONCRETE		

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CIVIL TITLE
Baseball Clubhouse Facility
California Polytechnic State University San Luis Obispo

C0.01
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08/23/2017
Revisions
1 9/29/17 — BV01

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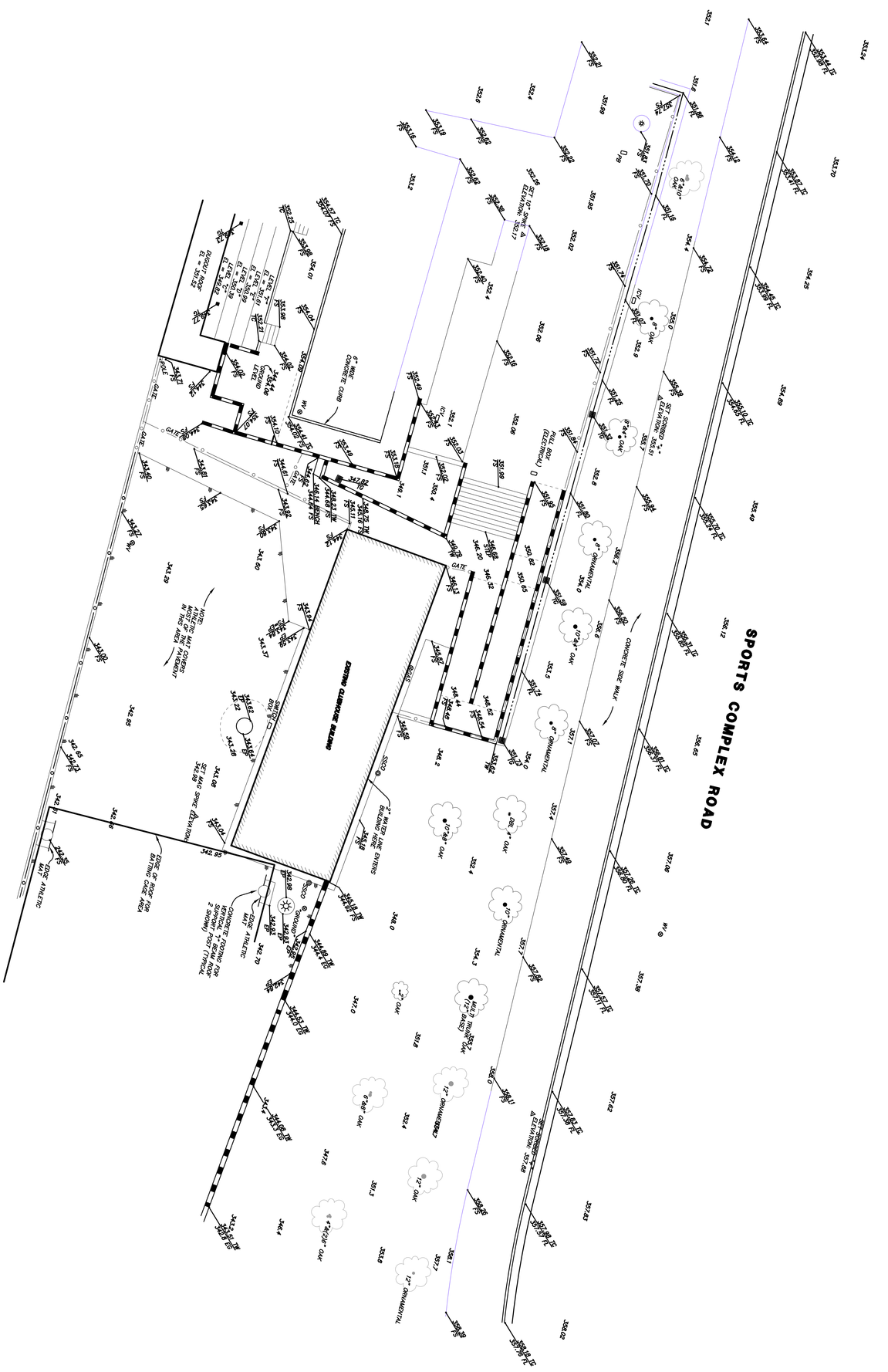

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DEMOLITION LEGEND

- LIMITS OF DEMOLITION AREA. CLEARING AND GRUBBING OF LANDSCAPED AREAS, BUILDINGS, STRUCTURES, FENCING/RAILING, CURB, GUTTER, SIDEWALK, CONCRETE PAVING AND EXISTING UTILITIES TO BE REMOVED, UNLESS OTHERWISE NOTED. UTILITY APPURTENANCES ARE TO BE SALVAGED AND RETURNED TO OWNER.
- EXISTING ABANDONED UTILITY LINE
- REMOVE EXISTING UTILITY LINE (WITHIN LIMITS OF DEMOLITION)
- EXISTING TREE TO BE PROTECTED IN PLACE. REFER TO TREE PROTECTION NOTES ON SHEET 1
- EXISTING TREE TO BE REMOVED

GENERAL DEMOLITION NOTES

1. ALL CLEARING, GRUBBING, SITE PREPARATION, OVER–EXCAVATION, EARTHWORK, ENGINEERED FILL, AND MATERIAL TESTING SHALL BE IN COMPLIANCE WITH THE GEOTECHNICAL ENGINEERING REPORT AND SPECIFICATIONS.
2. ALL EXISTING IMPROVEMENTS OUTSIDE THE LIMIT OF DEMOLITION SHALL BE PROTECTED IN PLACE UNLESS OTHERWISE NOTED.
3. PROPOSED SUBSTITUTIONS OF UTILITY ABANDONMENT, IN LIEU OF REMOVALS, SHALL BE VERIFIED BY CONTRACTOR THAT THEY ARE OUTSIDE OF THE NEW BUILDING ZONE OF INFLUENCE PRIOR TO ACCEPTANCE.
4. EXISTING UNDERGROUND UTILITY INFORMATION SHOWN ARE FROM CAL POLY ELECTRONIC (CAD) UTILITY FILES. CONTRACTOR TO CONTACT CAL POLY FACILITIES STAFF AND/OR DIG ALERT PRIOR TO CONSTRUCTION TO VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR THE METHOD OF REMOVAL FOR THE BUILDING, RETAINING WALLS AND ASSOCIATED FOOTINGS.
6. CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS AND FOLLOW ALL APPLICABLE STATE AND FEDERAL REGULATIONS FOR INVESTIGATION, REMOVAL AND DISPOSAL OF ASBESTOS CONCRETE PIPE.
7. REMOVAL OR PRESERVATION OF TREES SHALL BE COMPLETED IN CONFORMANCE TO THE TREE PROTECTION NOTES ON SHEET 1.
8. CONTRACTOR TO FIELD LOCATE EXISTING IRRIGATION LINES, VALVES, METERS AND COORDINATE WITH OWNER TO KEEP EXISTING LANDSCAPE TO REMAIN IRRIGATED DURING CONSTRUCTION.
9. REMOVAL OF UTILITIES INCLUDE ALL PIPE MATERIAL, FITTINGS, APPURTENANCES, NON–NATIVE TRENCH MATERIAL.

DEMOLITION KEY NOTES

1. REMOVE FENCE
2. REMOVE STORM DRAIN CATCH BASIN/CLEANOUT
3. REMOVE SANITARY SEWER PUMP/VAULT– SEWER LATERAL TO REMAIN IN PLACE @ DOWNSTREAM END OF PUMP
4. EXISTING CONCRETE GUTTER TO REMAIN–PROTECT IN PLACE
5. CUT AND PLUG/CAP EXISTING UTILITY.
6. REMOVE SEWER CLEANOUT
7. REMOVE EXISTING GAS METER
8. EXISTING ELECTRICAL PEDESTAL/LINE TO REMAIN– PROTECT IN PLACE.
9. EXISTING WATER LINE TO REMAIN– PROTECT IN PLACE
10. EXISTING STORM DRAIN TO REMAIN – PROTECT LINE IN PLACE
11. EXISTING STORM DRAIN INLET TO REMAIN – PROTECT IN PLACE
12. REMOVE RETAINING WALL
13. EXISTING WALL TO REMAIN.
14. CUT AND CAP TO ABANDON EXISTING UTILITY LINE
15. EXISTING SEWER LATERAL TO REMAIN
16. EXISTING VAULT/MANHOLE/VALVE TO REMAIN–PROTECT IN PLACE
17. REMOVE IRRIGATION VALVE

THESE SHEETS ARE NOT APPROVED FOR THE INSTALLATION OF ANY UNDERGROUND OR OVERHEAD FIRE PROTECTION SYSTEM PIPING. A SEPARATE SUBMITTAL FOR REVIEW AND APPROVAL IS REQUIRED BY THE INSTALLING C–16 LICENSED FIRE PROTECTION CONTRACTOR PRIOR TO ANY INSTALLATION OF ANY FIRE PROTECTION COMPONENTS

GRAPHIC SCALE: 1"=10'

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DEMOLITION PLAN
Baseball Clubhouse Facility
California Polytechnic State University San Luis Obispo

C2.01
75-1521700
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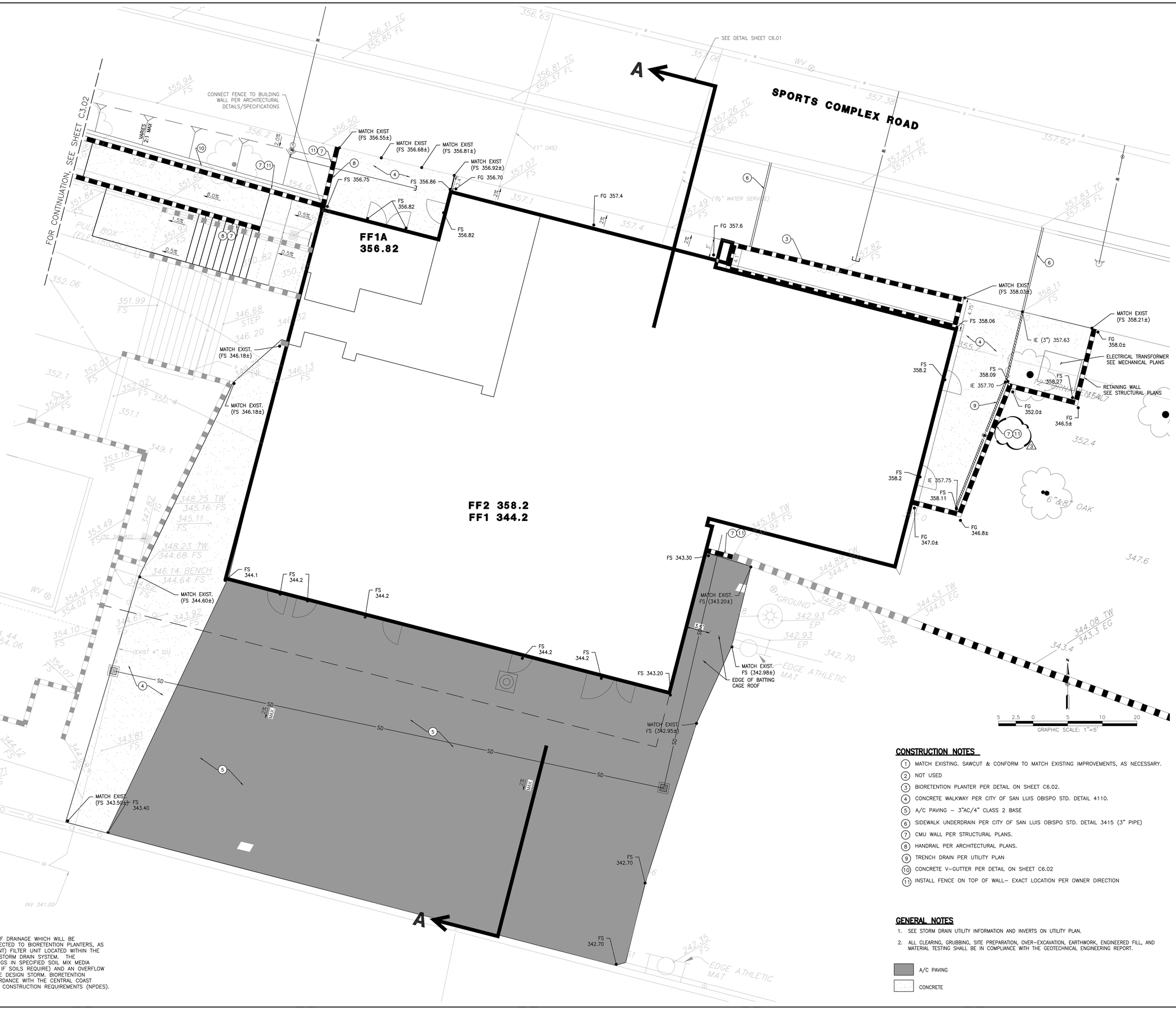

METHOD OF SITE DRAINAGE

THE MAJORITY OF THE SITE WILL CONSIST OF ROOF DRAINAGE WHICH WILL BE DOWNSPOUTED TO COBBLE SPLASH PADS AND DIRECTED TO BIORETENTION PLANTERS, AS FEASIBLE OR PIPED TO A CONTECH (OR EQUIVALENT) FILTER UNIT LOCATED WITHIN THE BULLPEN AREA, THEN DIRECTED TO THE EXISTING STORM DRAIN SYSTEM. THE BIORETENTION PLANTERS WILL CONSIST OF PLANTINGS IN SPECIFIED SOIL MIX MEDIA PLACED OVER A LAYER OF ROCK (WITH SUBDRAIN IF SOILS REQUIRE) AND AN OVERFLOW DRAIN TO CONVEY RUNOFF IN EXCEEDANCE OF THE DESIGN STORM. BIORETENTION PLANTERS WILL BE SIZED AND SPECIFIED IN ACCORDANCE WITH THE CENTRAL COAST REGIONAL WATER QUALITY CONTROL BOARD'S POST CONSTRUCTION REQUIREMENTS (NPDES).

CONSTRUCTION NOTES

1. MATCH EXISTING. SAWCUT & CONFORM TO MATCH EXISTING IMPROVEMENTS, AS NECESSARY.
2. NOT USED
3. BIORETENTION PLANTER PER DETAIL ON SHEET C6.02.
4. CONCRETE WALKWAY PER CITY OF SAN LUIS OBISPO STD. DETAIL 4110.
5. A/C PAVING – 3"AC/4" CLASS 2 BASE
6. SIDEWALK UNDERDRAIN PER CITY OF SAN LUIS OBISPO STD. DETAIL 3415 (3" PIPE)
7. CMU WALL PER STRUCTURAL PLANS.
8. HANDRAIL PER ARCHITECTURAL PLANS.
9. TRENCH DRAIN PER UTILITY PLAN
10. CONCRETE V–GUTTER PER DETAIL ON SHEET C6.02
11. INSTALL FENCE ON TOP OF WALL– EXACT LOCATION PER OWNER DIRECTION

GENERAL NOTES

1. SEE STORM DRAIN UTILITY INFORMATION AND INVERTS ON UTILITY PLAN.
2. ALL CLEARING, GRUBBING, SITE PREPARATION, OVER–EXCAVATION, EARTHWORK, ENGINEERED FILL, AND MATERIAL TESTING SHALL BE IN COMPLIANCE WITH THE GEOTECHNICAL ENGINEERING REPORT.

A/C PAVING

CONCRETE

REGISTERED PROFESSIONAL ENGINEER — KELLY L. DRISKE — No. 70998 — STATE OF CALIFORNIA — CIVIL

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IMPROVEMENT PLAN
Baseball Clubhouse Facility
California Polytechnic State University San Luis Obispo

C3.01

75-16217-00
08/23/2017
Revisions
3 ADDENDUM 3. 2-16-18

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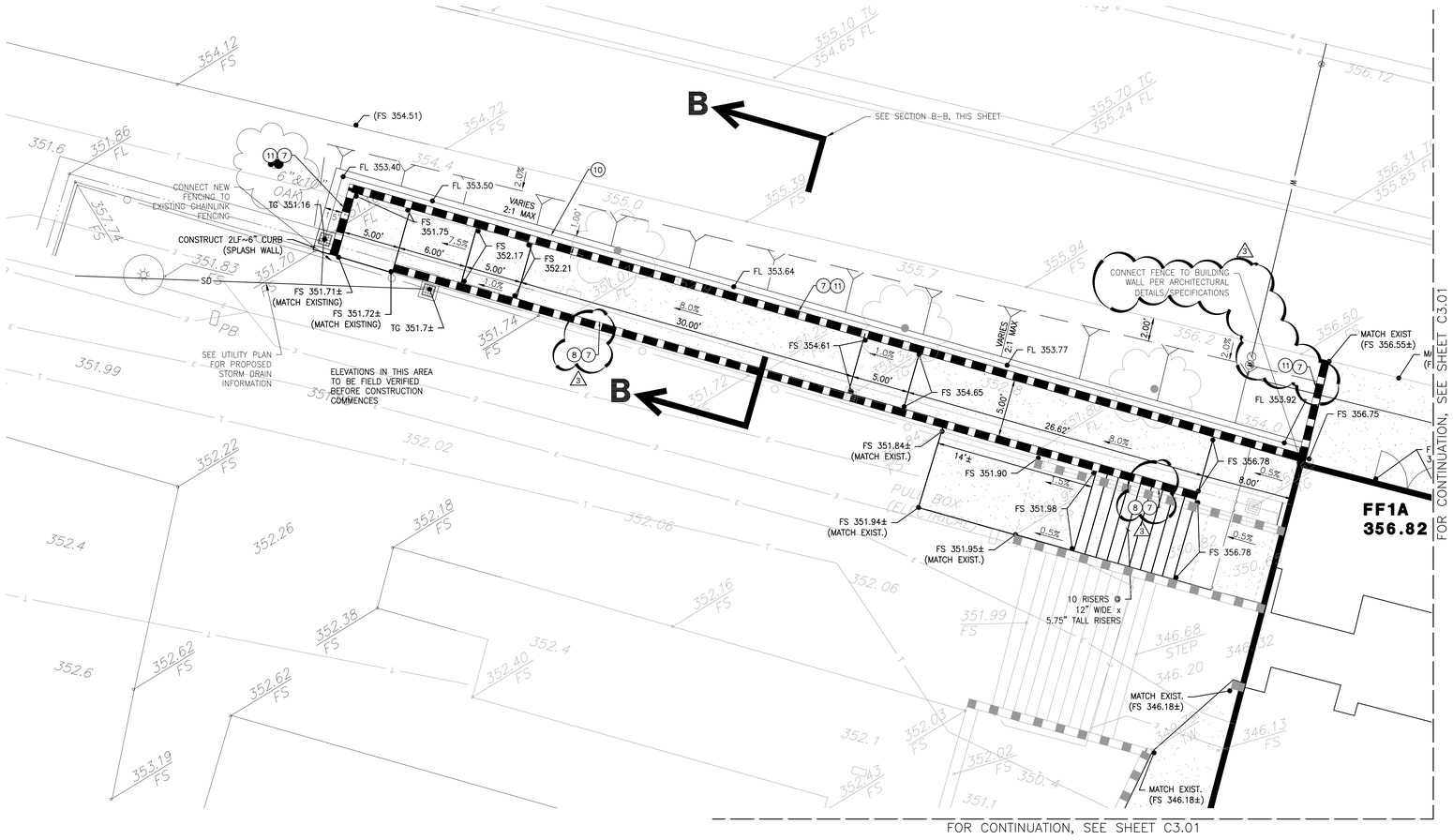
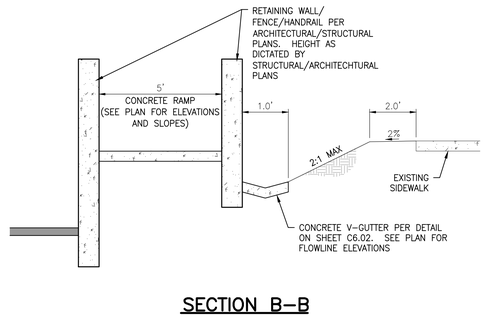
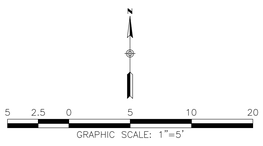




SECTION B–B

NTS



CONSTRUCTION NOTES

1. MATCH EXISTING. SAWCUT & CONFORM TO MATCH EXISTING IMPROVEMENTS, AS NECESSARY.
2. NOT USED
3. BIORETENTION PLANTER PER DETAIL ON SHEET C6.02.
4. CONCRETE WALKWAY PER CITY OF SAN LUIS OBISPO STD. DETAIL 4110.
5. A/C PAVING – 3"AC/4" CLASS 2 BASE
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7. CMU WALL PER STRUCTURAL PLANS.
8. HANDRAIL PER ARCHITECTURAL PLANS.
9. TRENCH DRAIN PER UTILITY PLAN
10. CONCRETE V–GUTTER PER DETAIL ON SHEET C6.02
11. INSTALL FENCE ON TOP OF WALL – EXACT LOCATION PER OWNER DIRECTION

GENERAL NOTES

1. SEE STORM DRAIN UTILITY INFORMATION AND INVERTS ON UTILITY PLAN.
2. ALL CLEARING, GRUBBING, SITE PREPARATION, OVER–EXCAVATION, EARTHWORK, ENGINEERED FILL, AND MATERIAL TESTING SHALL BE IN COMPLIANCE WITH THE GEOTECHNICAL ENGINEERING REPORT.

A/C PAVING

CONCRETE

METHOD OF SITE DRAINAGE

THE MAJORITY OF THE SITE WILL CONSIST OF ROOF DRAINAGE WHICH WILL BE DOWNSPOUTED TO COBBLE SPLASH PADS AND DIRECTED TO BIORETENTION PLANTERS, AS FEASIBLE OR PIPED TO A CONTECH (OR EQUIVALENT) FILTER UNIT LOCATED WITHIN THE BULLPEN AREA, THEN DIRECTED TO THE EXISTING STORM DRAIN SYSTEM. THE BIORETENTION PLANTERS WILL CONSIST OF PLANTINGS IN SPECIFIED SOIL MIX MEDIA PLACED OVER A LAYER OF ROCK (WITH SUBDRAIN IF SOILS REQUIRE) AND AN OVERFLOW DRAIN TO CONVEY RUNOFF IN EXCEEDANCE OF THE DESIGN STORM. BIORETENTION PLANTERS WILL BE SIZED AND SPECIFIED IN ACCORDANCE WITH THE CENTRAL COAST REGIONAL WATER QUALITY CONTROL BOARD'S POST CONSTRUCTION REQUIREMENTS (NPDES).

REGISTERED PROFESSIONAL ENGINEER
KELLY L. DRISE
No. 70998
CIVIL
STATE OF CALIFORNIA

95% CONSTRUCTION DOCUMENTS

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IMPROVEMENT PLAN
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California Polytechnic State University San Luis Obispo

C3.02

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Revisions
ADDENDUM 3, 2-16-18

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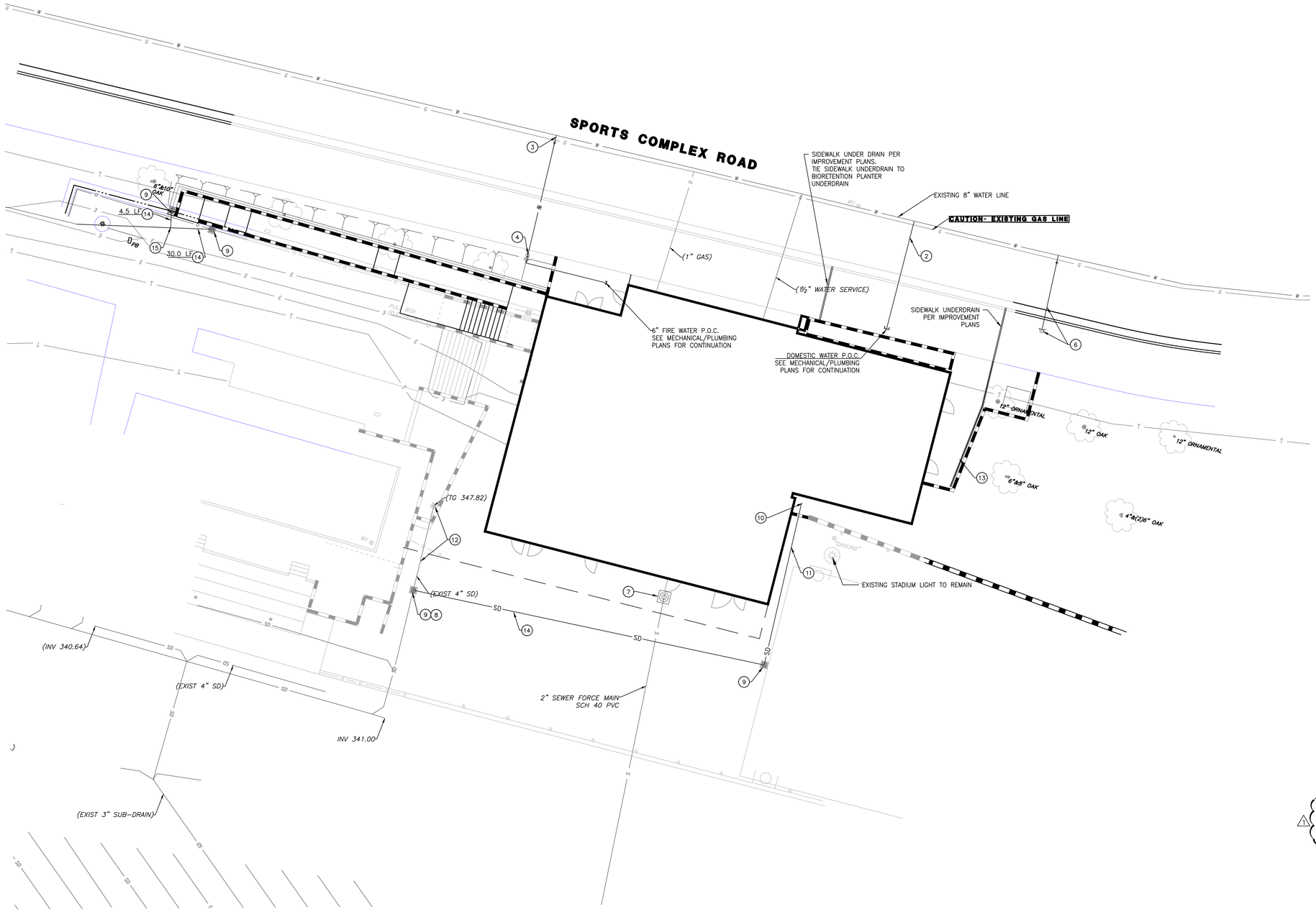
GENERAL UTILITY NOTES:

1. MAINTAIN 1.0' MINIMUM VERTICAL SEPARATION BETWEEN UTILITY PIPES PER CITY OF SAN LUIS OBISPO STANDARD PLAN 6110.
2. PROPOSED COVER SHALL BE 3.0' MINIMUM OVERALL ALL WATER MAINS AND LATERALS
3. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL VERIFY ALL INVERTS OF EXISTING UTILITIES AT POINTS OF CONNECTION AND PROPOSED UTILITY CROSSINGS BY OBSERVATION OR POTHOLING METHODS. NOTIFY THE ENGINEER OF ANY CONFLICTS OR DISCREPANCIES IN THESE PLANS AND ACTUAL FIELD INFORMATION SO ADJUSTMENTS CAN BE MADE.



UTILITY CONSTRUCTION NOTES

1. CONNECT TO EXISTING 8" PVC WATER MAIN.
2. INSTALL 2" WATER SERVICE, METER AND METER BOX PER CITY OF SAN LUIS OBISPO STANDARD DRAWING NO. 6210.
3. INSTALL 6" FIRE SERVICE PER CITY OF SAN LUIS OBISPO STD. 6340.
4. INSTALL 6" DOUBLE CHECK BACKFLOW PREVENTER WITH FDC PER CITY OF SAN LUIS OBISPO STD. 6420.
5. INSTALL POST INDICATOR VALVE (PIV) PER CITY OF SLO FIRE DEPARTMENT REQUIREMENTS.
6. INSTALL 6" PVC (C900) FIRE HYDRANT SERVICE LINE W/ 6" VALVE PER CITY OF SAN LUIS OBISPO STD. DETAIL NOS. 6310 AND 6340.
7. INSTALL TWO WEIL GRINDER PUMPS (MODEL 2436– 1–1/2", 90 GPM CAPACITY, OR APPROVED EQUAL). PROVIDE WITH MODEL 8234 FLOAT SWITCHES, MODEL 2613 REMOVAL SYSTEM, MODEL 8165 DUPLEX ALTERNATING PUMP CONTROL PANEL. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. CONNECT EXISTING 2" SANITARY SEWER FORCE MAIN TO PUMP.
8. CONNECT EXISTING STORM DRAIN PIPE TO CATCH BASIN/JUNCTION BOX.
9. INSTALL 12" X 12" CATCH BASIN WITH GRATE – BROOKS PRODUCT 1212CB OR APPROVED EQUAL. INSTALL TRAFFIC–RATED GRATES IN TRAFFIC AREAS.
10. INSTALL DOWNSPOUT FILTER PER FLOGARD MODEL FG–DS4, OR APPROVED EQUAL AND CONNECT TO 4" STORM DRAIN OUTLET.
11. 4" PVC STORM DRAIN
12. EXISTING STORM DRAIN AND/OR STORM DRAIN STRUCTURE– PROTECT IN PLACE.
13. 30 LF TRENCH DRAIN PER ACCO DRAIN MODEL KS100 W/ TYPE 494Q LONGITUDINAL BLACK PLASTIC GRATE. CONNECT TO SIDEWALK UNDERDRAIN PIPE – SEE IMPROVEMENT PLAN..
14. 8" PVC STORM DRAIN
15. 8" PVC STORM DRAIN TEE

GRAPHIC SCALE: 1"=10'

THESE SHEETS ARE NOT APPROVED FOR THE INSTALLATION OF ANY UNDERGROUND OR OVERHEAD FIRE PROTECTION SYSTEM PIPING. A SEPARATE SUBMITTAL FOR REVIEW AND APPROVAL IS REQUIRED BY THE INSTALLING C–16 LICENSED FIRE PROTECTION CONTRACTOR PRIOR TO ANY INSTALLATION OF ANY FIRE PROTECTION COMPONENTS

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UTILITY PLAN
Baseball Clubhouse Facility
California Polytechnic State University San Luis Obispo

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1/26/18–ADDENDUM #01

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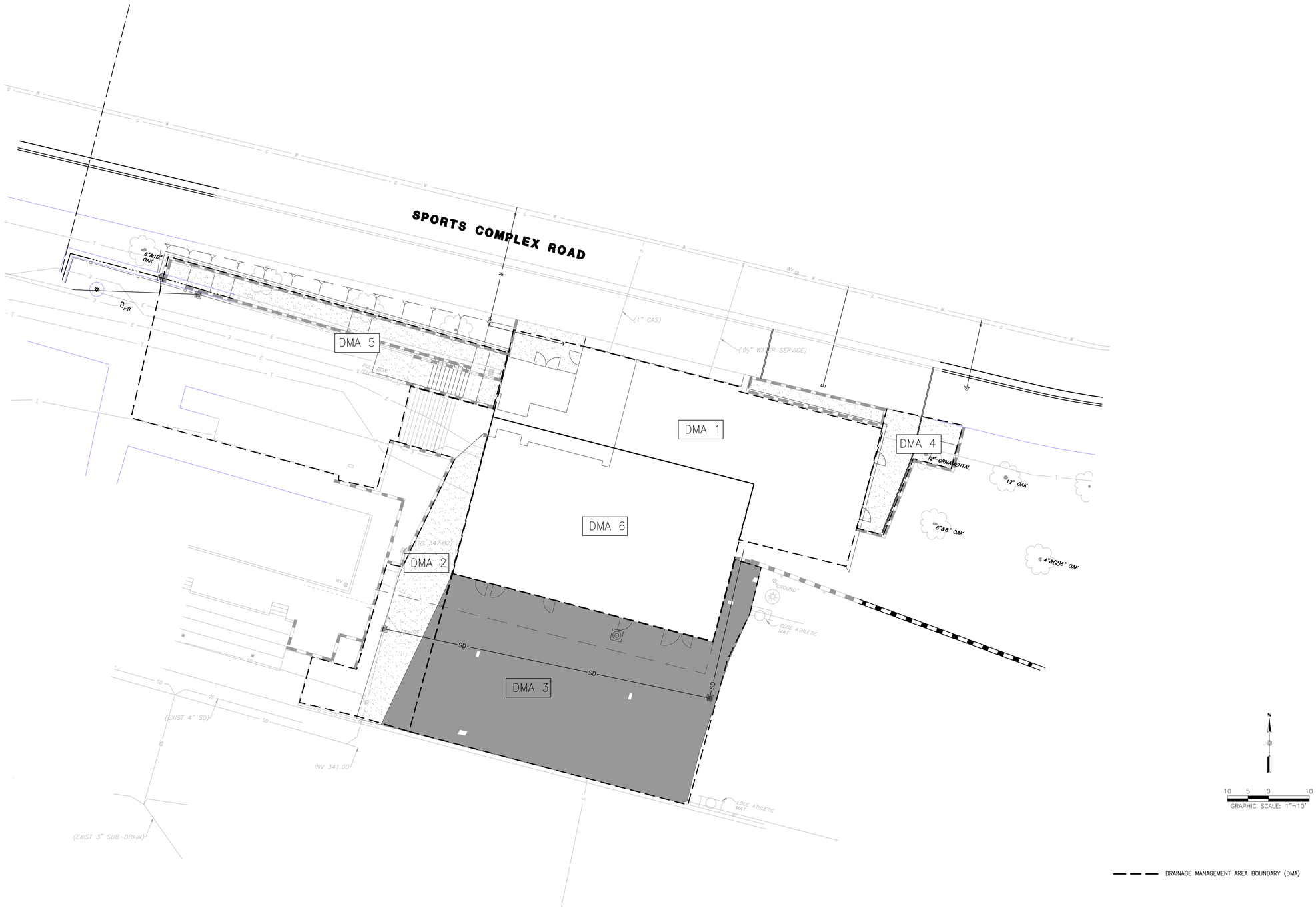

Percent Imperviousness Per DMA							
Basin No.	Drainage Management Area	Total Area (ac)	Roof Area (ac)	Paved/Concrete Area (ac)	Landscaped Area (ac)	Total Impervious Area (ac)	% Imp
1	DMA 1	0.055	0.055	0.000	0.0000	0.055	100%
2	DMA 2	0.030	0.000	0.030	0.0000	0.000	0%
3	DMA 3	0.068	0.000	0.068	0.0000	0.068	100%
4	DMA 4	0.008	0.000	0.008	0.0000	0.008	100%
5	DMA 5	0.067	0.000	0.067	0.0000	0.067	100%
6	DMA 6	0.060	0.060	0.000	0.0000	0.060	100%

DMA	Treatment Device	85th Precip1 (in)	95th Precip1 (in)	Retention Tributary Area (ac) 2	% Impervious	Runoff Coefficient3 "C"	Required Water Quality Volume (ft3) (PCR2)4	Required Retention Volume (ft3) (PCR 3)	Biretention Bottom Footprint (ft2)	Side Slopes (Z:1) (H:V)	Bioretention Soil Media Depth (ft)	Gravel Depth (ft)	Water Quality Ponding Depth (ft)	Surface Area at Ponding Depth (ft2)	Provided Volume at WQ Ponding Depth (ft3)	Retention Ponding Depth (in)	Surface Area at Retention Depth (ft2)	Provided Volume at Retention Ponding Depth (ft3)
1	Biofiltration Planter	1.25	2.05	0.06	95%	0.81	203	332	102	0	2	1	0.5	102	51	0.5	102	102
2	Inlet insert			0.03	95%	0.81	111	181	266	0	1.5	1	0.5	361	383	1.1	460	782
3	Inlet insert			0.17	95%	0.81	638	1,047	310	2	1.5	1	0.5	310	419	1.7	465	1,077
4	Inlet insert			0.11	95%	0.81	398	652	205	2	1.5	1	0.5	205	277	1.5	320	670
5	Inlet insert			0.11	95%	0.81	398	653	465	0	1.5	1	0.5	465	628	0.2	525	727
6	Roof Drain Filter			0.15	95%	0.81	556	912										

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STORMWATER MANAGEMENT PLAN
Baseball Clubhouse Facility
California Polytechnic State University San Luis Obispo

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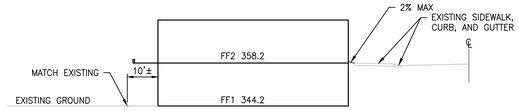
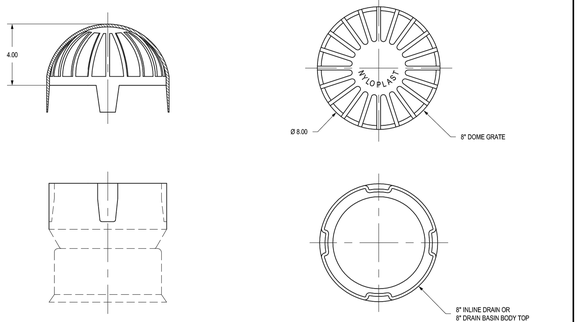


CROSS SECTION A–A

NTS

0899CGD

APPROX. DRAIN AREA = 30.00 SQ IN
APPROX. WEIGHT = 4.54 LBS



DIMENSIONS ARE FOR REFERENCE ONLY
ACTUAL DIMENSIONS MAY VARY
DIMENSIONS ARE IN INCHES
QUALITY: MATERIALS SHALL CONFORM TO ASTM A536 GRADE 70-50-05
PAINT: CASTINGS ARE FURNISHED WITH A BLACK PAINT
LOCKING DEVICE AVAILABLE UPON REQUEST SEE DRAWING NO. 7001-110-228

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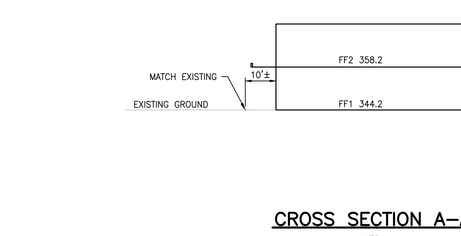
DRAWN BY	EBC	MATERIAL	DUCTILE IRON
DATE	3-3-06		
REVISED BY	EBC	PROJECT NO./NAME	
DATE	3-13-10	TITLE	8 IN DOME GRATE ASSEMBLY
DWG SIZE	A	SCALE 1:4	SHEET 1 OF 1
DWG NO.	7001-110-107	REV	B

Nyloplast
3130 VERONA AVE
BUFORD, GA 30518
PHN (770) 932-2443
FAX (770) 932-2490
www.nyloplast-us.com

REVISIONS	BY	APP	DATE
Add recycled water cover	*SR*	*BL*	*3-06*
Drafting edits	*JDL*	*MH*	*2-13*
Fabric type	*JDL*	*MH*	*9-12*
STANDARD CURRENT AS OF:	February 2014		

WATER VALVE & WELL

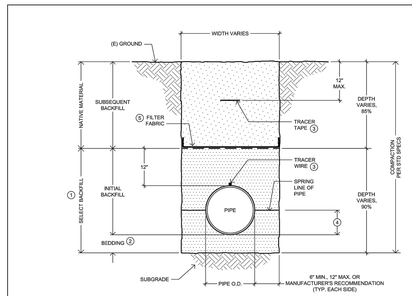
6340



SECTION A-A

INSTALLATION NOTES:

1. 12" diameter, peel and stick paving fabric with rubberized asphalt composite membrane. Fabric shall have a strip tensile strength of 600 lbs/ft and puncture resistance of 200 lbs. Fabric shall be Mirafi Miratak or approved equal.



DETAIL

NOTES:

1. See City Standard Specifications, Section 26-1 & 77-1, for backfill material and bedding requirements.
2. Bedding shall be 4" thick except as otherwise noted in the Standard Specifications.
3. All waterlines, non-metallic sewer lines, and sewer force mains shall be installed with tracer tape and a magnetic tracer wire as shown above. Tracer wire shall be 14-gauge insulated solid copper with white or other approved light color insulator. Tracer wire shall be secured to the center of the top of the pipe with tape at 6 foot intervals. Adjacent to each manhole and lift station, a G-5 utility well shall be installed per Engineering Standard 6040 for access to tracer wire. Tracer wire shall be continuous and shall be tested for continuity. Wire to services, fire lines, etc. shall be joined to wire on main. Tracer wire joints shall be soldered and wrapped with electrical tape.
4. When flexible pipe (PVC, HDPE, etc.) is used, pipe shall be backfilled to the spring line, compacted and backfill tested prior to completing initial backfill.
5. Filter fabric shall be required when initial backfill is float rock. Filter fabric shall be placed between initial and subsequent backfill and wrapped up trench sides 6". Filter fabric shall conform to the requirements in Section 88 and shall be permeable and non-woven. Filter fabric shall be Mirafi 140 NC or equal.

GENERAL NOTES:

A. During backfill operations, the the trench shall be backfilled and compacted and tested to the spring line of any utilities crossing the trench before proceeding with further backfill.
B. Float rock may be substituted for initial backfill when ground water is present as approved by the Engineer.
C. Concrete plug maybe required by the Engineer where groundwater is anticipated. Location and frequency shall be determined by the Engineer.

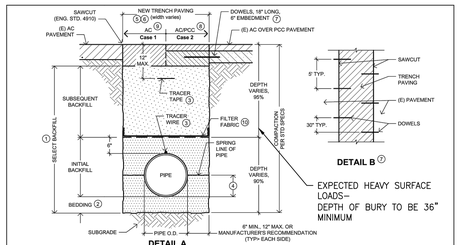
THIS STANDARD APPLIES ONLY TO AREAS THAT ARE NON-TRAFFIC, NOT IN STREETS OR PARKING LOTS.

REVISIONS	BY	APP	DATE
Revise Note 3	*MH*	*BL*	*6-12*
Revise Note 1	*MH*	*SR*	*1-14*
Revise Note 3	*MH*	*BL*	*10-09*
STANDARD CURRENT AS OF:	February 2014		

TRENCH DETAIL #3
UNPAVED NON-TRAFFIC AREAS

6030

NOTE: FIRE PROTECTION TRENCH DETAIL SHALL CONFORM TO CSFM FIRE PROTECTION WATER UNDERGROUND INSTALLATION GUIDELINES (INCLUDING MARKING TAPE, FIRE ALARM CONDUIT FOR VALVE SUPERVISION, TRACING WIRE AND BACKFILL DETAIL FOR COMPRESSION AND ROADWAY SURFACES.



DETAIL A

DETAIL B 7

EXPECTED HEAVY SURFACE LOADS– DEPTH OF BURY TO BE 36" MINIMUM

INSTALLATION NOTES:

1. See City Standard Specifications, Section 26-1 & 77-1, for backfill material and bedding requirements.
2. Bedding shall be 4" thick except as otherwise noted in the Standard Specifications.
3. All waterlines, non-metallic sewer lines, and sewer force mains shall be installed with tracer tape and a magnetic tracer wire as shown above. Tracer wire shall be 14-gauge insulated solid copper with white or other approved light color insulator. Tracer wire shall be secured to the center of the top of the pipe with tape at 6 foot intervals. Adjacent to each manhole and lift station, a G-5 utility well shall be installed per Engineering Standard 6040 for access to tracer wire. Tracer wire shall be continuous and shall be tested for continuity. Wire to services, fire lines, etc. shall be joined to wire on main. Tracer wire joints shall be soldered and wrapped with electrical tape.
4. When flexible pipe (PVC, HDPE, etc.) is used, pipe shall be backfilled to the spring line, compacted and backfill tested prior to completing initial backfill.
5. The streets of San Luis Obispo are generally paved with either AC, PCC, or a combination of the two. Unless clearly indicated on the plans, it is the contractor's responsibility to determine the nature of the paving material. (Case 1 - AC only, Case 2 - AC over PCC)
6. Replacement pavement shall be "in kind." Concrete streets which contain a reinforcement fabric or grid shall be "tee cut" with the width of the AC cut extending one foot beyond each side of the trench. A new layer of pavement reinforcing fabric shall be installed above the new PCC and beneath the new AC.
7. All concrete street sections require ½" smooth steel dowels per Detail B above.
8. New PCC shall not be brought above existing PCC, shall be Class 2, and shall be 8" thick.
9. When only AC is used, new AC shall be 6" thick on local streets, and 10" thick on collector or arterial streets.
10. Filter fabric shall be required when initial backfill is float rock. Filter fabric shall be placed between initial and subsequent backfill and wrapped up trench sides 6". Filter fabric shall conform to the requirements in Section 88 and shall be permeable and non-woven. Filter fabric shall be Mirafi 140 NC or equal.

GENERAL NOTES:

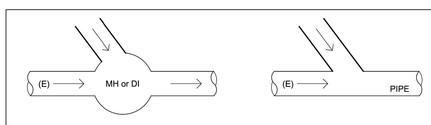
A. Backfill testing is required and results are subject to approval by the City Engineer.
B. No longitudinal joints or seams are allowed in bike lanes. If a longitudinal joint may result due to the contractor's work, or this requirement, the contractor shall remove a minimum of 2" of asphalt from the pavement across the entire bike lane using a method approved by the City and resurface the bike lane to the satisfaction of the City.
C. During backfill operations, the the trench shall be backfilled and compacted and tested to the spring line of any utilities crossing the trench before proceeding with further backfill.
D. Float rock may be substituted for initial backfill when ground water is present as approved by the Engineer.
E. Concrete plug maybe required by the Engineer where groundwater is anticipated. Location and frequency shall be determined by the Engineer.

REVISIONS	BY	APP	DATE
Revise Note 3, drafting edits	*MH*	*BL*	*6-12*
Revise Note 1 & 8	*SR*	*BL*	*1-14*
Revise Note 6	*MH*	*BL*	*11-08*
STANDARD CURRENT AS OF:	February 2014		

TRENCH DETAIL #1
PAVED OR UNPAVED STREETS

6020

NOTE: FIRE PROTECTION TRENCH DETAIL SHALL CONFORM TO CSFM FIRE PROTECTION WATER UNDERGROUND INSTALLATION GUIDELINES (INCLUDING MARKING TAPE, FIRE ALARM CONDUIT FOR VALVE SUPERVISION, TRACING WIRE AND BACKFILL DETAIL FOR COMPRESSION AND ROADWAY SURFACES.



CASE A:

A1. Chip a hole between 1" and 2" larger than the pipe OD. Salvage the reinforcing from the manhole / catch basin. Steel shall be bent outward from the manhole.

A2. Concrete the pipe in place using a Class 3, ¾" concrete mix, incorporating reinforcing steel. Concrete shall completely fill the void between the pipe and the manhole and form a collar around the pipe behind the manhole of sufficient length and thickness to cover the reinforcing steel with 2" of concrete. Concrete shall be flush with interior of existing facility. Any voids that appear in the seal between the manhole and the pipe after setting shall be patched with a non-shrink grout.

A3. Pipe shall be flush cut with the manhole inside wall.

A4. Whenever possible, the new pipe should enter the manhole at an angle, pointing the flow downstream.

A5. The manhole shall be replaced and enlarged when the penetration from the new line will result in an inadequate section of the manhole remaining between the new penetration and existing penetrations to properly support the structure.

CASE B:

B1. Where a catch basin or manhole exist within 30' of the proposed connection, or the new pipe is less than 12" in size and serves a private property, the connection may be made without the installation of a manhole at the junction point. In either case, the new pipe must be at least one size smaller than the existing pipe. In all other cases a manhole shall be installed.

B2. Connection to an existing HDPE line shall be made using a manufactured wye connection cut into the existing line with connection of the wye to the line made in accordance with the manufacturer's recommendation.

B3. Connection to an existing RCP line shall be made in the manner described above for connection to an existing manhole. New penetrations must be made a minimum of 3 feet from any existing penetrations.

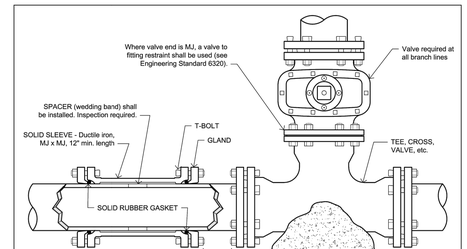
B4. Connection to an existing CMP line shall be done by replacing the portion of the CMP at the junction point with a City approved pipe material and completing the connection as specified above and constructing a collar to connect the new section to the existing CMP.

In all cases connections shall not be made to the City's storm drain system until calculations have been received and approved by the City showing the existing system is capable of handling the additional water for the required design storm per the City's Waterway Management Plan and Drainage Design Manual, and for private systems, that an encroachment permit has been obtained.

REVISIONS	BY	APP	DATE
Note revision B1 & Last	*SR*	*BL*	*1-14*
Drafting edits	*JDL*	*MH*	*10-12*
Class 3 Concrete	*JDL*	*MH*	*2-13*
STANDARD CURRENT AS OF:	February 2014		

STORM DRAIN CONNECTIONS

3540



SECTION A-A

INSTALLATION NOTES:

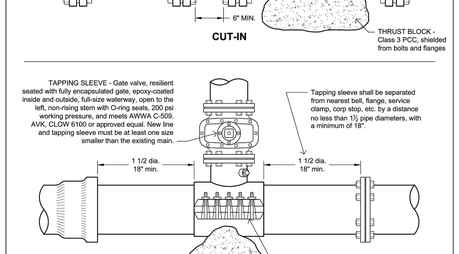
1. 12" diameter, peel and stick paving fabric with rubberized asphalt composite membrane. Fabric shall have a strip tensile strength of 600 lbs/ft and puncture resistance of 200 lbs. Fabric shall be Mirafi Miratak or approved equal.

REVISIONS	BY	APP	DATE
Add recycled water cover	*SR*	*BL*	*3-06*
Drafting edits	*JDL*	*MH*	*2-13*
Fabric type	*JDL*	*MH*	*9-12*
STANDARD CURRENT AS OF:	February 2014		

WATER VALVE & WELL

6340

CUT-IN

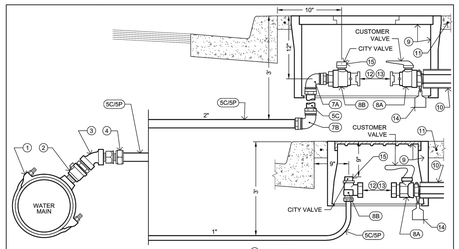


HOT TAP

REVISIONS	BY	APP	DATE
Rev. Tapping Sleeve Romac Note	*SR*	*BL*	*1-14*
Change Cast iron to Ductile iron	*JDL*	*MH*	*2-14*
Drafting edits	*JDL*	*MH*	*2-13*
STANDARD CURRENT AS OF:	February 2014		

WATERLINE TIE-IN

6330



GENERAL NOTES:

A. If service line is lead, galvanized steel or polybutylene, the entire service shall be replaced from the main.
B. Households shall be notified at least one hour prior to water shut-off to make a connection.
C. A 14 gauge (min.) insulated copper tracer wire shall be soldered and taped to locator wire on main line, looped around corp stop and run up to the meter box. The wire shall be taped to the service line at 7' intervals and 3' of wire shall be coiled in the meter box. Tracer wire color shall be light.
D. All mains shall use a service saddle. CI and DI mains may be direct tap only with the written permission of the City Utilities Department.
E. New/Replacement 1" water service shall be copper or iron pipe size (IPS). New/Replacement 2" water service shall be copper or copper tubing size (CTS) polyethylene.
F. All new services or service replacements shall be 1" or 2". Any ¾" or 1½" services shall be upsized. Where a dead end 1" or 2") and an adaptor installed at the meter.
G. If service replacement is across the leg at the main, the new connection shall be made 12" from the old connection. The old corp stop shall be closed and a threaded brass plug or cap installed.
H. Any boxes which do not meet the current standards listed below shall be upgraded to those standards.
I. Contractor shall ensure tubing is "bottomed out" in all Super Grip (SG) fittings while tightening.
J. When recycled water is used on any parcel, a backflow preventer shall be installed on the potable water service line.
K. When replacing an existing service line, the customer valve is not required to be replaced.
L. Open trench water service replacements shall be installed perpendicular to the existing water main, when as measured along the main, the existing water service is offset 5' or more from perpendicular.

INSTALLATION NOTES:

1. Service saddle, double strap, CC threads: Installed per manufacturer's recommendations.
   AC, CI and DIP main: Ford F202B Series
   PVC Main: Ford F202BS Series
2. Corporation Stop, ball type, CC=IPS:
   1" - Ford FB400-4-NL
   2" - Ford FB400-7-NL
3. 45° Bend, brass, FPxFP
4. Adaptor with sleeve:
   1" for CTS tubing - Ford C84-44-Q-NL and 52 Insert
   1" for IPS tubing - Ford C84-44-Q-NL and 5272 Insert
   2" - Ford C84-77-Q-NL and 55 Insert
5. SC/SP
6. Service Tubing:
   SC - Copper, type K, soft
   SP - Polyethylene, 200 psi, AWWA C901 Centennial, Driscopipe or approved equal.
   Service tubing for recycled water shall be purple or have a purple stripe or be imprinted in purple polyethylene sleeve conforming to AWWA A21.5 and shall be clearly labeled as non-potable.
7. Coupling 2": Ford C44-77-Q-NL, compression x compression, tube size.
8. 7A - 2" 90° bend, brass 2" MIP x Comp 90, Ford L84-77-Q-NL, tube size
   7B - 90° bend, 2" Comp x Comp 90, Ford L44-77-Q-NL, tube size
9. Meter Box Valves:
   9A (Customer side):
   ¾" service - Ford B13-332-H734-NL
   1" service - Ford B13-444-H734-NL
   1½" service - Ford B13-666-H7875-NL
   2" service - Ford B13-777-H7875-NL
   9B (City side):
   1" service - Compression meter stop:CTS tubing - Ford KV43-444W-Q-NL; IPS tubing - Ford KV43-444W-NL and C86-44-Q-NL adaptor
   2" service - 2" Curb stop, ball valve: Ford BF13-777W-NL, inlet FIP x outlet Mueller Flange
10. Meter box and lid:
    ¾", 1" and 1" water meter use Brooks 37 T Series for traffic areas, Armorcast #AR2024B5 for non-traffic areas, and CDH-B12 for Mission Style areas. 1", 1½" and 2" meters use Brooks 36 T Series for traffic areas, Armorcast #A6001420T2EB) with drop-in mast lid (A6000481T-EB), 20K traffic rating, and Christy B36 for Mission Area. IN MISSION STYLE SIDEWALK AREA as defined by City Council Resolution 4183, Concrete boxes shall be per Engineering Standard #1010A, WHEN USED FOR RECYCLED WATER, all lids shall be integrally cast with the words "Recycled Water" or "Reclaimed Water".
11. Install PVC sleeve to 12" behind back of sidewalk, 5/8", 3/4", or 1" water meter use 2" sleeve, 1½" or 2" water meter use 3" sleeve.
12. #4 rebar all around the meter box
13. Meter adaptor (as needed): 1" City valve to 3/4" Customer valve use Jones J-128H or Ford A24. 2" City valve to 3/4" Customer valve use Ford A67.
14. When meter box is to be installed in landscaped area, a 4" thick concrete apron shall be placed for a minimum of 12" around the box.
15. Install Recycled Water warning tags per Engineering Standard 6810 when used for recycled water.
16. Water services serving corner lots or services serving units behind other units shall be designated to an address and/or unit by attaching a 1 ½" brass tag with ½" minimum letters/numbers to the curb stop with a non-ferrous wire.

APPROVED EQUAL ACCEPTED FOR ALL FITTINGS

REVISIONS	BY	APP	DATE
Modify parts manufacturer	*JDL*	*MH*	*3-13*
New Note 17; Revised Note 8	*SR*	*BL*	*6-12*
Drafting edits; Renumber Notes	*JDL*	*MH*	*11-12*
STANDARD CURRENT AS OF:	February 2014		

WATER SERVICES
NEW & REPLACEMENTS

6210

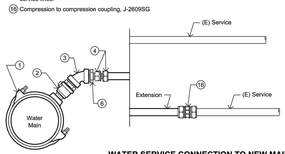
GENERAL NOTES:

A. If service line is lead, galvanized steel, or polybutylene, the entire service shall be replaced from the main to the meter per Engineering Standard 6210.
B. Any meter boxes which do not meet current standards per Engineering Standard 6210 shall be upgraded to those standards.
C. Households shall be notified at least one hour prior to water being shut off to make a connection.
D. A 14 gauge insulated copper tracer wire shall be tied to the corp stop and taped to the service line at 7' intervals. The wire shall be soldered to the existing tracer wire or existing copper service.

INSTALLATION NOTES:

1 through 4 - See Engineering Standard 6210.
6 Add bell reducer and close nipple for existing ¾" and 1½" service lines.
10 Compression to compression coupling, J-2609SG

Type 1 - New main is closer to curb than existing main.
Type 2 - New main is further from curb than existing main.
(PE = Polyethylene)



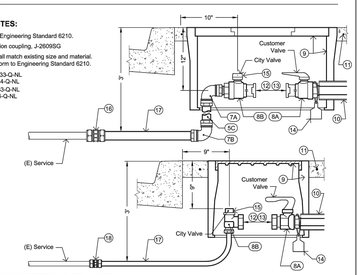
Type	(E) Service	Main
1	PE	Any
1	Copper	Non-metal

Type	Extension	(E)Service	Main
2	Copper/PE	PE	Any
2	Copper/PE	Copper	Non-metal
2	PE	Copper	Any

WATER SERVICE CONNECTION TO NEW MAIN

INSTALLATION NOTES:

5 and 7 through 15 - See Engineering Standard 6210.
16 Compression to compression coupling, J-2609SG
17 Extensions on services shall match existing size and material. service material shall conform to Engineering Standard 6210.
18 ¾" CTS tubing: Ford C44-33-Q-NL
1" CTS tubing: Ford C44-44-Q-NL
¾" IPS tubing: Ford C66-33-Q-NL
1" IPS tubing: Ford C66-44-Q-NL



WATER SERVICE METER BOX RELOCATION

REVISIONS	BY	APP	DATE
Renumber Notes	*SR*	*BL*	*3-06*
Renumber Notes; Drafting edits	*JDL*	*MH*	*12-12*
Revised part numbers	*JDL*	*MH*	*3-13*
STANDARD CURRENT AS OF:	February 2014		

WATER SERVICE
CONNECTIONS

6220

THESE SHEETS ARE NOT APPROVED FOR THE INSTALLATION OF ANY UNDERGROUND OR OVERHEAD FIRE PROTECTION SYSTEM PIPING. A SEPARATE SUBMITTAL FOR REVIEW AND APPROVAL IS REQUIRED BY THE INSTALLING C–16 LICENSED FIRE PROTECTION CONTRACTOR PRIOR TO ANY INSTALLATION OF ANY FIRE PROTECTION COMPONENTS

REGISTERED PROFESSIONAL ENGINEER
KELLY L. DRISKE
No. 70998
EXP. 12/31/18
STATE OF CALIFORNIA
CIVIL

95% CONSTRUCTION DOCUMENTS

SCALE:	NTS
DATE:	8/23/2017
DRAWN BY:	KCS
CHECKED BY:	KLD
JOB NO:	17745

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Bakersfield · Denver · Temecula
rickengineering.com

DETAIL SHEET
Baseball Clubhouse Facility
California Polytechnic State University San Luis Obispo

C6.01
1 OF 2SHEETS
08/23/2017
Revisions

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Architecture Engineering Planning Interiors

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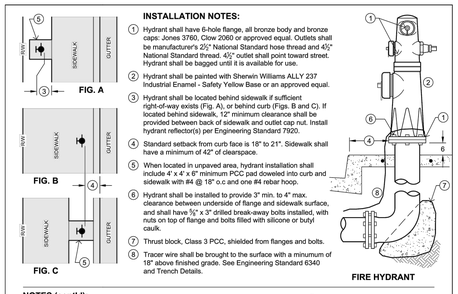


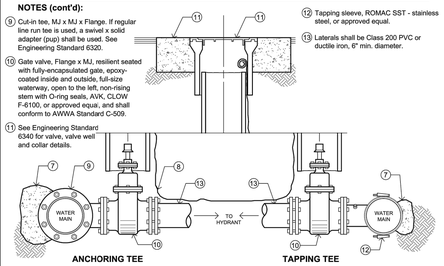
INSTALLATION NOTES:

1. Hydrant shall have 6-hole flange, all bronze body and bronze caps: Jones 3760, Clow 2060 or approved equal. Outlets shall be manufacturer's 2½" National Standard hose thread and 4½" National Standard thread. 4½" outlet shall point toward street. Hydrant shall be bagged until it is available for use.
2. Hydrant shall be painted with Sherwin Williams ALLY 237 Industrial Enamel - Safety Yellow Base or an approved equal.
3. Hydrant shall be located behind sidewalk if sufficient right-of-way exists (Fig. A), or behind curb (Figs. B and C). If located behind sidewalk, 12" minimum clearance shall be provided between back of sidewalk and outlet cap nut. Install hydrant reflector(s) per Engineering Standard 7920.
4. Standard setback from curb face is 18" to 21". Sidewalk shall have a minimum of 42" of clearspace.
5. When located in unpaved area, hydrant installation shall include 4' x 4' x 6" minimum PCC pad dowelled into curb and sidewalk with #4 @ 18" o.c and one #4 rebar hoop.
6. Hydrant shall be installed to provide 3" min. to 4" max. clearance between underside of flange and sidewalk surface, and shall have ⅝" x 3" drilled break-away bolts installed, with nuts on top of flange and bolts filled with silicone or butyl caulk.
7. Thrust block, Class 3 PCC, shielded from flanges and bolts.
8. Tracer wire shall be brought to the surface with a minumum of 18" above finished grade. See Engineering Standard 6340 and Trench Details.

FIRE HYDRANT

NOTES (cont'd):

9. Cut-in tee, MJ x MJ x Flange. If regular line run tee is used, a swivel x solid adapter (pup) shall be used. See Engineering Standard 6320.
10. Gate valve, Flange x MJ, resilient seated with fully-encapsulated gate, epoxy-coated inside and outside, full-size waterway, open to the left, non-rising stem with O-ring seals, AVK, CLOW F-6100, or approved equal, and shall conform to AWWA Standard C-509.
11. See Engineering Standard 6340 for valve, valve well and collar details.
12. Tapping sleeve, ROMAC SST - stainless steel, or approved equal.
13. Laterals shall be Class 200 PVC or ductile iron, 6" min. diameter.

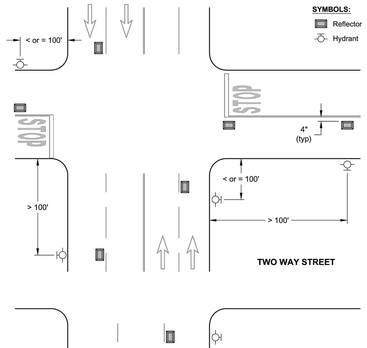


ANCHORING TEE TAPPING TEE

REVISIONS	BY	APP	DATE
Drafting edits	*JDL*	*MH*	*2-13*
Revised Notes 2 & 5	*DVB*	*BL*	*10-06*
Revised Note 8	*MH*	*BL*	*11-09*
STANDARD CURRENT AS OF:	February 2014		

FIRE HYDRANT ASSEMBLY

6310



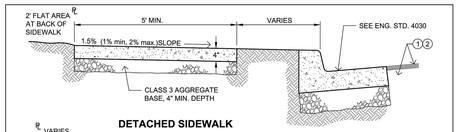
GENERAL NOTES:

A. Reflectors shall be 2-way blue reflective markers and shall conform to the standards set forth for reflective markers by the State of California Department of Transportation.
B. Reflectors shall be set on the hydrant side of the adjacent traffic stripe. Where no stripes exist, reflector should be placed in the center of the pavement.
C. When hydrants are within 100' of an intersection, a marker shall be placed on the cross street as well.
D. Reflectors shall be set behind the pedestrian crossing area at an intersection.
E. Reflectors shall be cemented to the pavement in accordance with the requirements of Section 85, "PAVEMENT MARKERS" of the State of California Department of Transportation Standard Specifications.

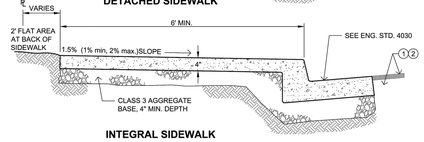
REVISIONS	BY	APP	DATE
Drafting edits	*JDL*	*MH*	*5-13*
Reflector locations	*MH*	*JDW*	*10-04*
Revise Note C	*MH*	*JDW*	*10-04*
STANDARD CURRENT AS OF:	February 2014		

HYDRANT REFLECTOR

7920



DETACHED SIDEWALK



INTEGRAL SIDEWALK

GENERAL NOTES:

Integral sidewalk, sidewalk with monolithic pour is the City standard. Detached sidewalk shall not be used without approval of City Engineer.

A. CONCRETE: Class 3.
B. FINISH: PCC sidewalk shall be given a broom finish.
C. SEAL and CURE: Apply curing compound in compliance with section 73-1.03F of the Standard Specifications.
D. DOWELS: ½" smooth bar dowels, 18" long at 24" O.C. at expansion joints and cold joints, to be greased or sleeved at one end.
E. EXPANSION JOINTS: ½" expansion material shall be placed at driveways, BCRs, and at 100' intervals.
F. WEAKENED PLANE JOINTS: Plastic pulltop quickjoint strips, or approved equal, shall be at 20' O.C. and 1½" deep.
G. SCORE MARKS: Sidewalks shall be scored at least ¼" deep, perpendicular to the curb face at 5' intervals. Sidewalks with a width of 8' or more shall have one score mark parallel to the curb face evenly spaced in the concrete surface.
H. AT COLD JOINTS BETWEEN SIDEWALK AND CURB: #3 x 6" dowels shall be drilled in back of curb at 24" O.C.
I. REBAR: When a utility box is located within the sidewalk area, the concrete surrounding the box shall be reinforced with continuous #4 rebar.
J. JOINTS: Expansion joints and weakened plane joints shall extend through sidewalk into curb and gutter.

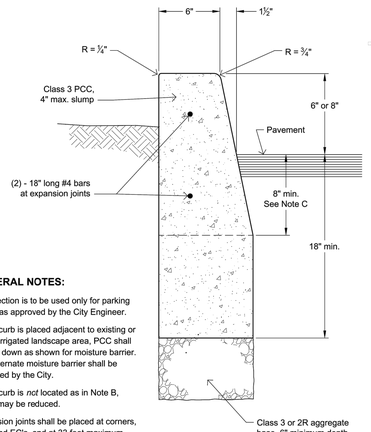
INSTALLATION NOTES:

1. PAVEMENT REMOVAL and REPAIR: Sawcut, remove and replace AC paving 18" minimum from gutter, 6" thick (local) or 10" minimum thick (collector and arterial). If pavement is PCC, sawcut existing PCC paving at gutter lip do not dowel. If existing PCC pavement has an AC cap, sawcut and remove AC cap 18" minimum (except as required in Note 2) from gutter lip and 3' up and downstream and replace AC to provide a smooth, uniform surface to match existing surfaces. New gutter lip to be at finished A.C. elevation.
2. BIKE LANES: No longitudinal joints or seams are allowed in bike lanes. If a longitudinal joint results due to the contractor's work or the above requirements in Note 1, the contractor shall remove a minimum of 2" of asphalt from the pavement across the entire bike lane using a method approved be the City and resurface the bike lane to the satisfaction of the City.

REVISIONS	BY	APP	DATE
Added Note 12	*MH*	*BL*	*11-09*
Metric conversion; Drafting edits	*JDL*	*MH*	*10-12*
Revised Notes A, C & 1	*SR*	*BL*	*1-14*
STANDARD CURRENT AS OF:	February 2014		

SIDEWALK
INTEGRAL & DETACHED

4110



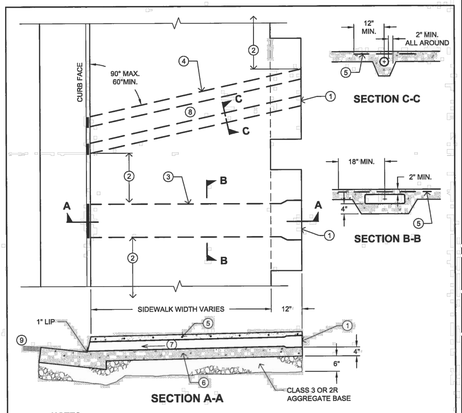
GENERAL NOTES:

A. This section is to be used only for parking lots or as approved by the City Engineer.
B. When curb is placed adjacent to existing or future irrigated landscape area, PCC shall extend down as shown for moisture barrier. Any alternate moisture barrier shall be approved by the City.
C. When curb is *not* located as in Note B, depth may be reduced.
D. Expansion joints shall be placed at corners, BC's and EC's, and at 33 feet maximum spacing.
E. See Engineering Standard 4110 for notes regarding required pavement removal and repair.

REVISIONS	BY	APP	DATE
Allow Class 2R Base	*DVB*	*BL*	*11-08*
Revise rebar specs	*JDL*	*WAP*	*11-98*
Drafting edits	*JDL*	*MH*	*10-12*
STANDARD CURRENT AS OF:	February 2014		

CURB

4020



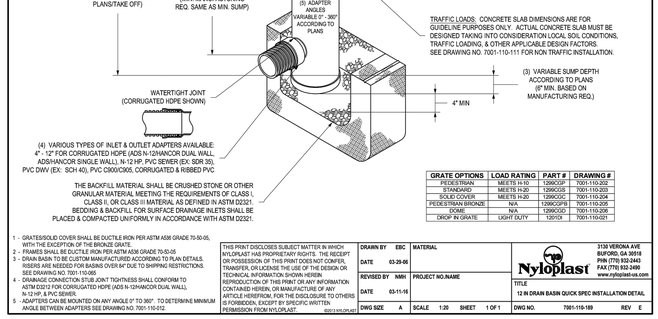
NOTES:

1. Inlet shall be paved swale, rectangular conduit or pipe(s). Maximum inlet diameter/height shall be curb height minus 2". Inlet conduits larger than 4" diameter/height must be reduced with a manifold or junction box. A junction box shall have access/cleanout. Inlet shall be approved by the City Engineer.
2. Underdrain shall not be installed in driveway wings or curb return.
3. Rectangular cast iron pipe: Alhambra A-470, South Bay Foundry A9000 or approved equal.
4. Cast iron pipe: 3" max. diameter (6" curb) or 4" max. diameter (8" curb).
5. #4 Rebar @ 12" O.C.
6. Concrete shall be Class 3.
7. Channel slope shall be no less than 2% and shall be parallel with sidewalk surface.
8. Multiple drains shall have 3" minimum to 6" maximum clearance with maximum of 3 drains per 10' of sidewalk. Drains shall not extend beyond curb face into gutter.
9. See Engineering Standard 4110 for notes regarding required pavement removal and repair.

REVISIONS	BY	APP	DATE
Revised Note 2	*MH*	*BL*	*11-09*
Revised Note 3	*MH*	*BL*	*12-09*
Misc. drafting edits	*JDL*	*MH*	*10-12*
STANDARD CURRENT AS OF:	January 2016		

SIDEWALK UNDERDRAIN
WITH PIPES

3415



GRATE OPTIONS	LOAD RATING	PART #	DRAWING #
PEDESTRIAN	MEETS H-10	1296CGP	7001-110-202
STANDARD	MEETS H-20	1296CGS	7001-110-203
SOLID COVER	MEETS H-20	1296CGC	7001-110-204
PEDESTRIAN BRONZE	N/A	1296CGPB	7001-110-205
DOME	N/A	1296CGD	7001-110-206
DROP IN GRATE	LIGHT DUTY	1201DI	7001-110-021

1 - GRATES/SOLID COVER SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05, WITH THE EXCEPTION OF THE BRONZE GRATE.
2 - FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3 - DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS. RISERS ARE NEEDED FOR BASINS OVER 84" DUE TO SHIPPING RESTRICTIONS. SEE DRAWING NO. 7001-110-060
4 - DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS N-12/HANCOR DUAL WALL), N-12 HP, & PVC SEWER.
5 - ADAPTERS CAN BE MOUNTED ON ANY ANGLE 0° TO 360°. TO DETERMINE MINIMUM ANGLE BETWEEN ADAPTERS SEE DRAWING NO. 7001-110-012.

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DRAWN BY	EBC
DATE	03-29-06
REVISED BY	NMH
DATE	03-11-16
DWG SIZE	A
MATERIAL	
PROJECT NO./NAME	
SCALE	1:20
SHEET	1 OF 1

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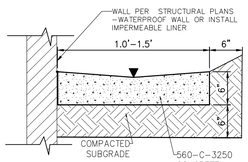
FAX (770) 932-2490
www.nyloplast-us.com

TITLE: 12 IN DRAIN BASIN QUICK SPEC INSTALLATION DETAIL

DWG NO. 7001-110-189 REV E

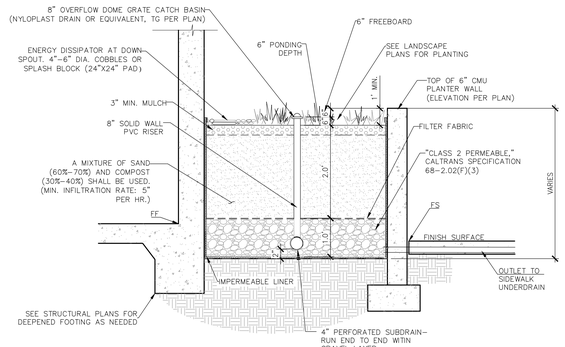
8201124SLDPLAN1



▼ = FL SHOWN ON PLAN

V–GUTTER DETAIL

NOT TO SCALE



NOTES:

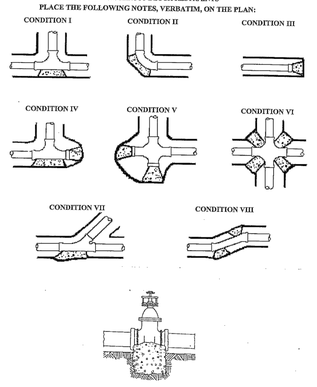
1. SEE ARCHITECTURAL PLANS FOR ALL FINISHES, ALL FOUNDATION EDGE DETAILS, WATERPROOFING, MATERIALS AND PLASTER WEEP SCREED DETAILS.
2. SEE STRUCTURAL PLANS FOR ALL SLAB, FOUNDATION, FRAMING, SHEATHING AND ANCHOR BOLT DETAILS.

BIORETENTION PLANTER DETAIL

NOT TO SCALE

Office of the State Fire Marshal

NOTES FOR THRUST BLOCK RESTRAINTS
PLACE THE FOLLOWING NOTES, VERBATIM, ON THE PLAN:



(11/2014)

Office of the State Fire Marshal
Underground Piping

Page 1of 2

UNDERGROUND PIPING FOR PRIVATE FIRE SERVICE MAINS, HYDRANTS, FIRE SPRINKLERS AND FIRE STANDPIPES

1. Prior to installation, all plans and specifications shall be approved by the Office of the State Fire Marshal.
2. Inspections are required: 1) prior to pouring thrust blocks, 2) of thrust blocks and joints 3) hydrostatic testing, and 4) for flush. Schedule all inspections 72 hours in advance. Call the local Deputy State Fire Marshal for inspection scheduling.
3. Installation, inspection, and testing shall conform to 2016 NFPA 13 and 2016 NFPA 24.
4. Geotechnical engineering report to compliment thrust block design must be listed on plans.
5. Private fire hydrants shall be approved type and have not less than a 6 inch diameter connection with the mains. All outlets shall be provided with National Standard Threads (NST).
6. A valve shall be installed in the hydrant connections; all valves shall be installed within 20 feet of the hydrant.
7. Fire hydrants shall be located not less than 40 feet from the buildings to be protected. A keyed gate valve shall be provided for each hydrant in an accessible location. Valves shall not be located in parking stalls.
8. Hydrants shall be protected if subject to mechanical damage. The means of protection shall be arranged in a manner that does not interfere with connection to or operation of hydrants.
9. Piping shall be listed for fire protection service or shall comply with the standards in 2016 NFPA 24 table 10.1.1
10. All buried fittings shall be of an approved type with joints and pressure class ratings compatible with the pipe used.
11. All bolts used for underground connections shall be stainless steel. All corrosion protection shall be in place.
12. All bolted joint accessories shall be cleaned and thoroughly coated with asphalt or other corrosion-retarding material after installation.
13. The depth of cover over water pipes shall be determined by the maximum depth of frost penetration in the locality where the pipe is laid; top of the pipe shall be buried not less than 1ft. below the frost line for the facility.
14. In those locations where frost is not a factor, the depth of cover shall not be less than 2 ½ ft. to prevent mechanical damage. When surface loads are expected, a minimum of 3 ft. cover shall be provided.
15. All tees, plugs, caps bends, reducers, valves and hydrant branches shall be restrained gainst movement in accordance with 2016 NFPA 24 §10.8.2 or §10.8.3
16. Thrust blocks, or other approved method of thrust restraint, shall be provided wherever pipe changes direction.
17. The trench shall be excavated for thrust blocks and inspected *prior* to pour. Thrust blocks shall be placed between undisturbed earth and the fitting to be restrained and shall be ca[able of resisting the calculated thrust force.
18. Thrust blocks shall be placed so that the joints are accessible for repair.
19. A hydrostatic test (200 psi for two hours or 50 psi over maximum static pressure, whichever is greater) shall be witnessed by a Deputy State Fire Marshal. The trench shall be back-filled between the joints to prevent movement of the pipe.
20. The system shall be thoroughly flushed before connection is made to overhead piping. Flow shall be through a minimum of a 4" hose or pipe unless otherwise approved by the Deputy State Fire Marshal. A Deputy State Fire Marshal shall witness the flush.
21. Control valves shall be supervised by one of the 4 acceptable methods listed in 2016 NFPA 24 §6.7.2

THESE SHEETS ARE NOT APPROVED FOR THE INSTALLATION OF ANY UNDERGROUND OR OVERHEAD FIRE PROTECTION SYSTEM PIPING. A SEPARATE SUBMITTAL FOR REVIEW AND APPROVAL IS REQUIRED BY THE INSTALLING C–16 LICENSED FIRE PROTECTION CONTRACTOR PRIOR TO ANY INSTALLATION OF ANY FIRE PROTECTION COMPONENTS

12/7/2017 - I:\17745 cal poly baseball field house\Archi\sheets\17745-c-sht002.dwg

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SAN LUIS OBISPO, CA 93401
805.544.0707
San Diego · Sacramento · Denver · Los Angeles
rickengineering.com

95% CONSTRUCTION DOCUMENTS

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DATE:	8/23/2017
DRAWN BY:	KCS
CHECKED BY:	KLD
JOB NO:	17745

DETAIL SHEET
Baseball Clubhouse Facility
California Polytechnic State University San Luis Obispo

C6.02
17" x 22" (ARCH D)
08/23/2017
Revisions

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GENERAL EROSION CONTROL NOTES

1. BMP'S SHALL NOT BE LIMITED TO THOSE SHOWN HEREON. ALTERNATE, MORE EFFECTIVE EROSION CONTROL MAY BE REQUIRED IF RECOMMENDED BY EITHER THE GEOTECHNICAL ENGINEER, THE PROJECT CIVIL ENGINEER, OR THE QUALIFIED SWPPP DEVELOPER.
2. SEE SWPPP DOCUMENT FOR BMP'S, DETAILS, AND EROSION AND SEDIMENTATION CONTROL NOTES.
3. ALL ACCESS ROADS SHALL BE INSPECTED DAILY (AS NECESSARY) AND PRIOR TO EACH QUALIFYING RAIN EVENT. SEDIMENT OR OTHER CONSTRUCTION ACTIVITY RELATED MATERIALS THAT ARE DEPOSITED ON THE ROADS SHALL BE REMOVED BY VACUUMING OR SWEEPING.

BMP AND SWPPP GENERAL NOTES

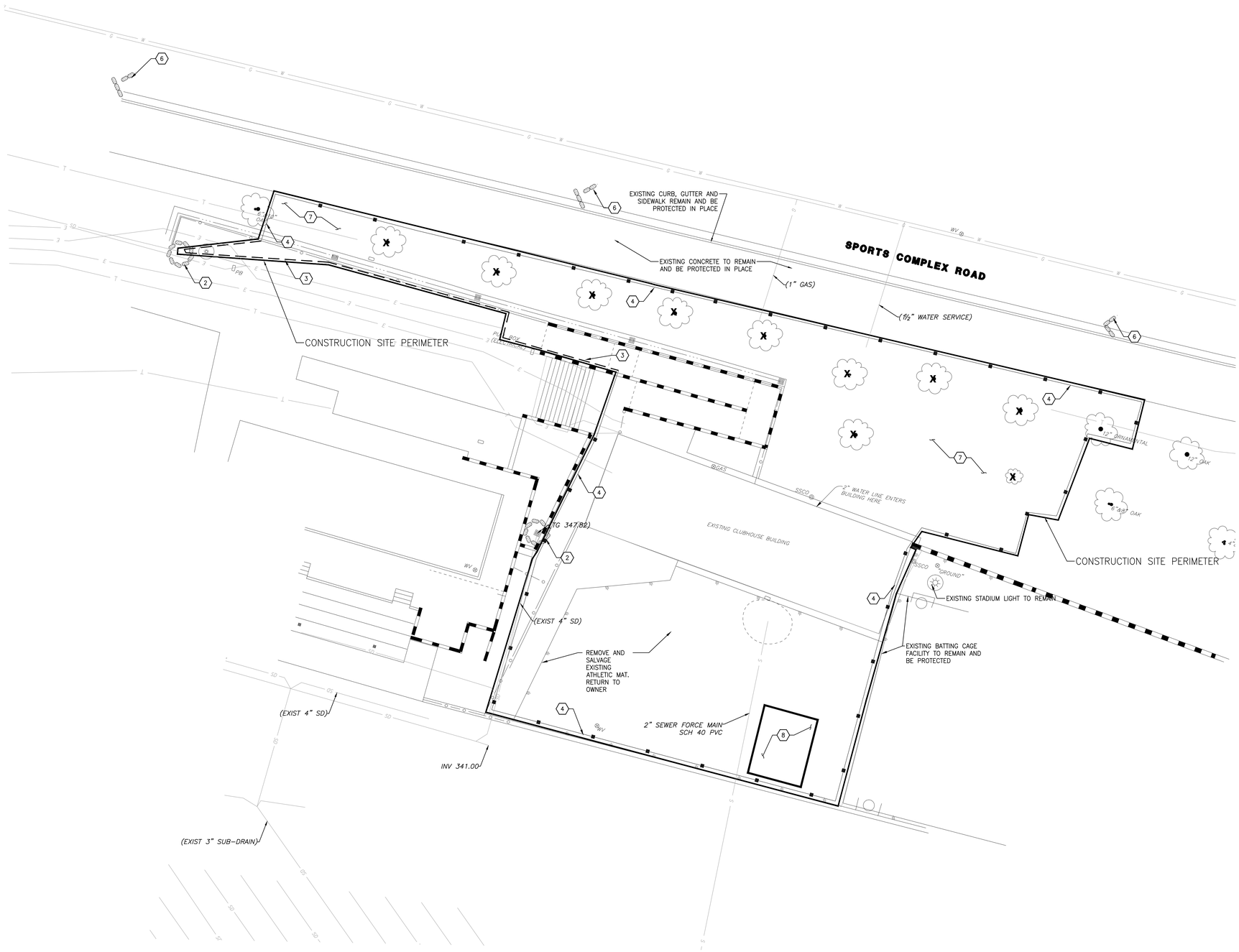
1. CONTRACTOR SHALL PROVIDE SOIL STABILIZATION AND SEDIMENT CONTROL PRACTICES DURING CONSTRUCTION.
2. SCHEDULE CONSTRUCTION WORK TO AVOID EXCESS EXPOSURE DURING RAIN EVENTS PER CASQA BMP HANDBOOK DETAIL EC-1.
3. CONSTRUCTION ENTRANCE TO BE PLACED AS NECESSARY BY CONTRACTOR.
4. ALL STORM DRAIN INLETS SHALL BE PROTECTED PRIOR TO GRADING OPERATIONS AND DURING CONSTRUCTION.
5. FIBER ROLLS SHALL BE PLACED DOWN SLOPE OF DISTURBED AREAS AS NECESSARY.
6. FIBER ROLLS ON SLOPES SHALL BE INSTALLED PER RISK LEVEL 2 MAXIMUM SHEET FLOW LENGTHS.
7. ROCK CHECK BAGS SHALL BE PLACED IN DRAINAGE SWALES OR GUTTERS AS NECESSARY TO ALTER RUNOFF.
8. CONCRETE, PAINT, MORTAR, GROUT, ETC. MUST HAVE A DESIGNATED CLEAN UP AREA.
9. DUST CONTROL SHALL CONSIST OF APPLYING WATER TO ALLEVIATE OR PREVENT DUST NUISANCE.
10. HYDROSEEDING SHALL BE APPLIED TO SLOPES FOR STABILIZATION.
11. STREET SWEEPING AT LOCATIONS WHERE TRUCKS AND EQUIPMENT CROSS FROM SOIL DISTURBED AREAS TO PAVEMENT.
12. CONTRACTOR'S MATERIAL AND EQUIPMENT STORAGE AREA LOCATION TO BE IN AN APPROVED STAGING AREA.
13. SITE INSPECTIONS INCLUDE "REAPs" AND A MINIMUM OF WEEKLY AND PRE/POST RAIN DURING WET WEATHER.

EROSION CONTROL KEY NOTES

1. INSTALL 1 STABILIZED CONSTRUCTION ENTRANCE PER CASQA BMP HANDBOOK DETAIL TC-1 PER OWNER/CONTRACTOR DIRECTION. EXACT LOCATION TBD.
2. INSTALL STORM DRAIN INLET PROTECTION PER CASQA BMP HANDBOOK DETAIL SE-10
3. INSTALL FIBER ROLL PER CASQA BMP HANDBOOK DETAIL SE-5
4. INSTALL SILT FENCE PER CASQA BMP HANDBOOK DETAIL SE-1
5. INSTALL TEMPORARY FENCING PER APPROVED DEMOLITION PLAN
6. INSTALL GRAVEL BAG CHECK DAM PER CASQA BMP HANDBOOK DETAIL SE-4
7. SLOPE TO BE SEEDED AND PROTECTED WITH BONDED FIBER MATRIX, OR IRRIGATED AND HYDROSEEDED IF SLOPE IS TO REMAIN INACTIVE LONGER THAN 14 DAYS PER CASQA BMP HANDBOOK DETAIL EC-4 OR EC-7, OR PERMANENTLY LANDSCAPED PER LANDSCAPE PLANS
8. CONSTRUCTION STAGING AREA TO BE USED FOR MATERIAL STORAGE/STOCKPILES, VEHICLE STORAGE & MAINTENANCE, WASTE STORAGE, AND CONCRETE WASHOUT PER CASQA BMP HANDBOOK DETAIL NS-8, WM-3, WM-5, WM-6, WM-8, AND WM-10

EROSION CONTROL LEGEND

- CONSTRUCTION LIMIT/ TEMPORARY FENCING
- FIBER ROLL
- SILT FENCE
- GRAVEL BAG CHECK DAM
- STORM DRAIN INLET PROTECTION
- BONDED FIBER MATRIX/ TACKIFIER
- STABILIZED CONSTRUCTION ENTRANCE
- CONSTRUCTION STAGING AREA



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GRAPHIC SCALE: 1"=10'

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DRAWN BY: KCS
CHECKED BY: KLD
JOB NO: 17745

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EROSION CONTROL PLAN
Baseball Clubhouse Facility
California Polytechnic State University San Luis Obispo

C7.01
75-15217-00
08/23/2017
Revisions

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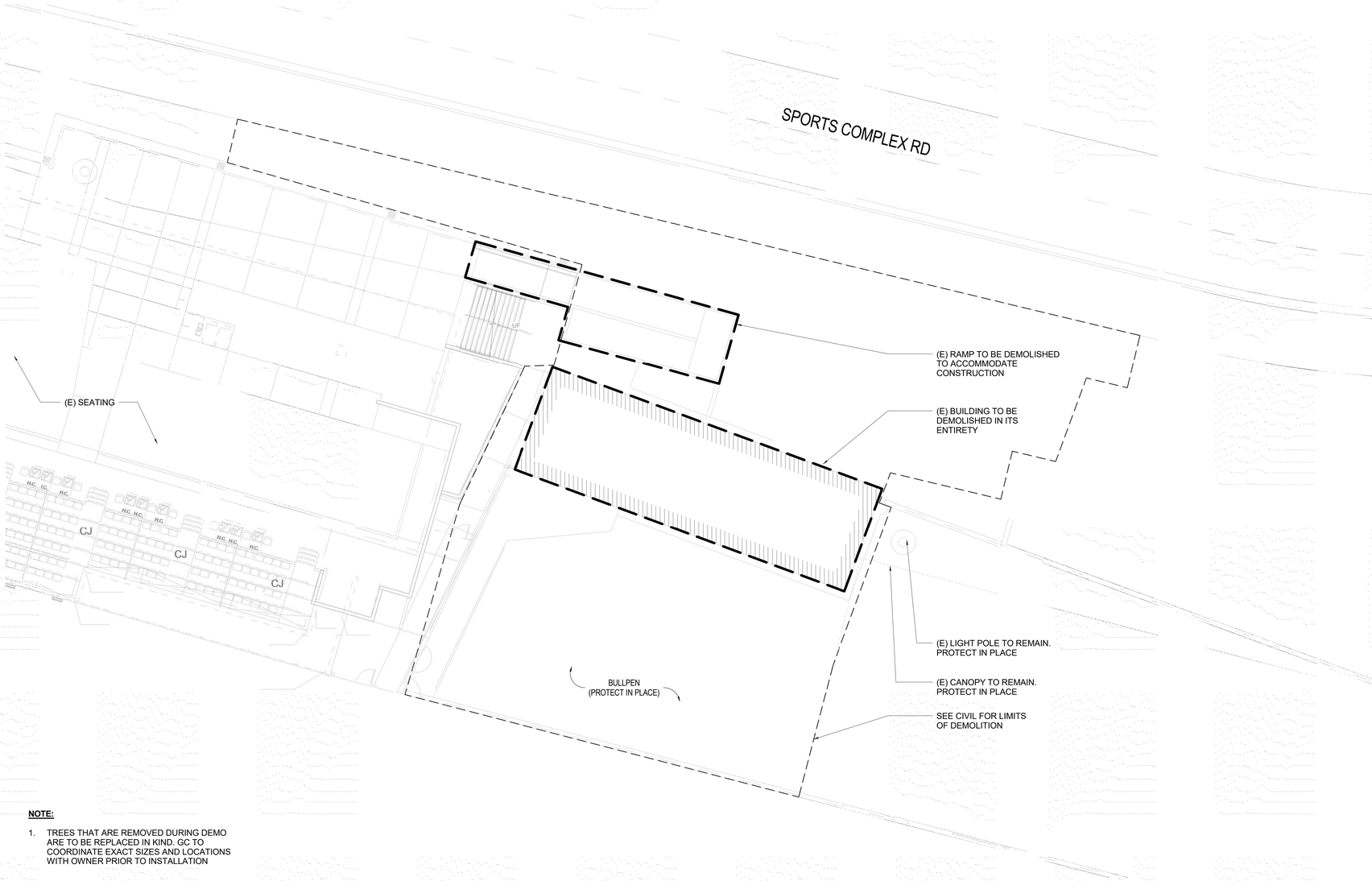

NOTE:

1. TREES THAT ARE REMOVED DURING DEMO ARE TO BE REPLACED IN KIND. GC TO COORDINATE EXACT SIZES AND LOCATIONS WITH OWNER PRIOR TO INSTALLATION

NORTH

DEMOLITION PLAN

SCALE: 1" = 10'-0"

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

DEMOLITION PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

D1.01
75-16217-00
05.01.18
Revisions

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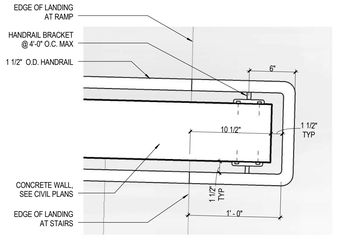
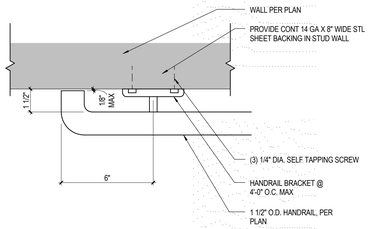
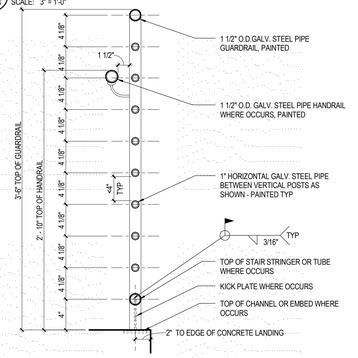


13 A0.03 HANDRAIL EXTENSION
SCALE: 1 1/2" = 1'-0"



14 A0.03 HANDRAIL ATTACHMENT AT WALL - PLAN
SCALE: 3" = 1'-0"



24 A0.03 GUARDRAIL AND HANDRAIL @ STADIUM ENTRY STAIRS
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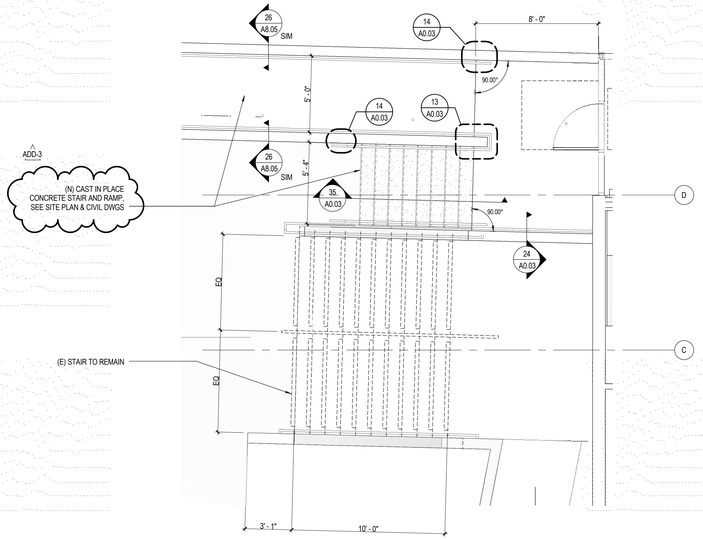

26 A0.03 (E) STAIR, (N) STAIR & RAMP
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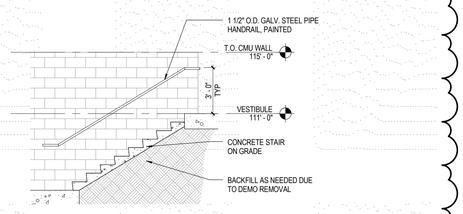
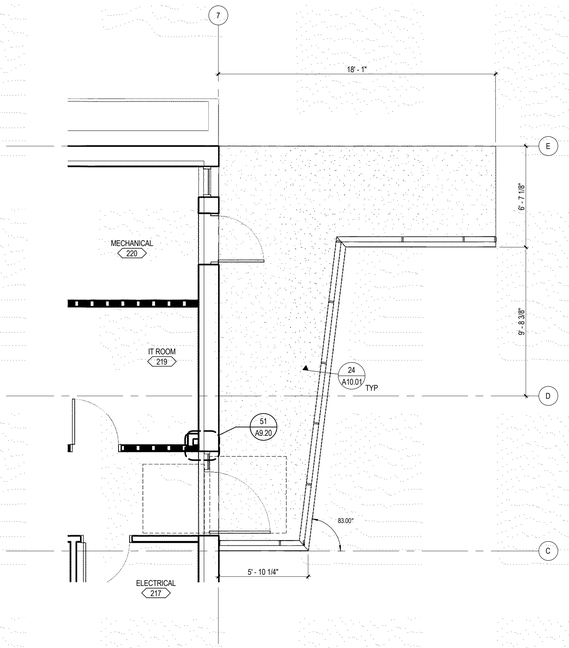


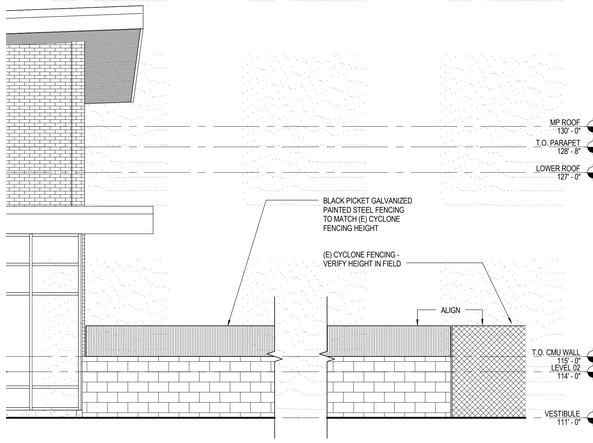
35 A0.03 (N) STAIR SECTION
SCALE: 1/4" = 1'-0"

ADD-3



54 A0.03 SIDE ENTRY / MECH. ACCESS
SCALE: 1/4" = 1'-0"

ADD-3



55 A0.03 SITE FENCING ELEVATION
SCALE: 1/4" = 1'-0"

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

EXTERIOR STAIRS & DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

A0.03
75-16217-00
01.25.18
Revisions
BP01 10.06.17 BUSELI/USER745
COMMENTS
ADD-3 2.16.18 ADDENDUM 3

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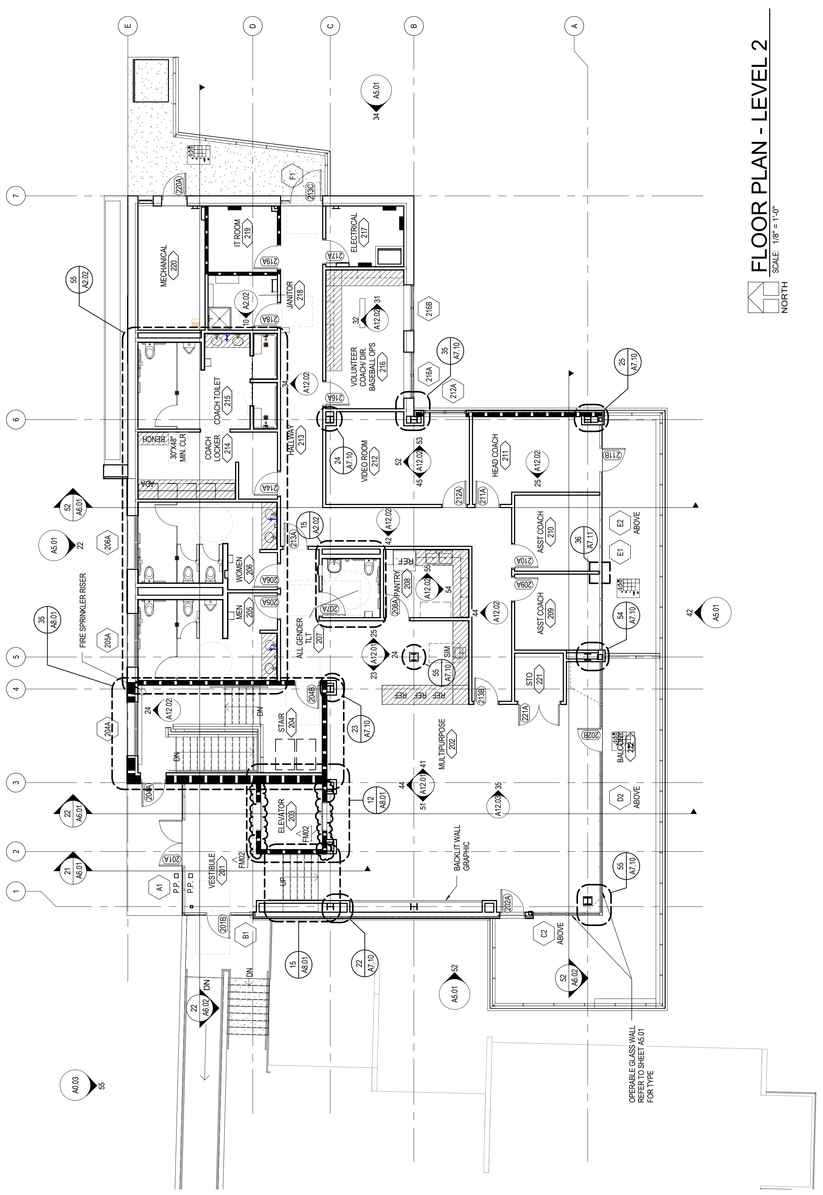
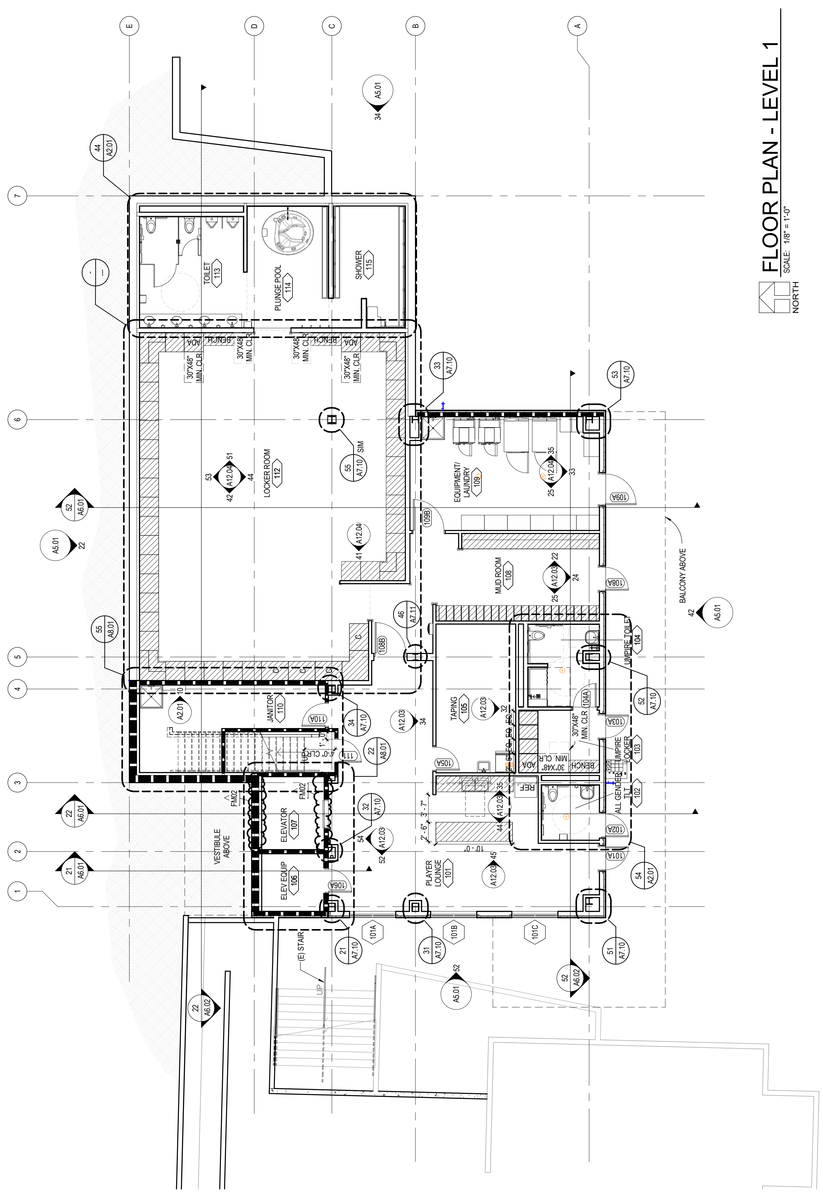


FLOOR PLAN - LEVEL 2
SCALE: 1/8" = 1'-0"



FLOOR PLAN - LEVEL 1
SCALE: 1/8" = 1'-0"

LEGEND

D P P: ELECTRONIC DOOR ASSIST PUSH PADDLE, SEE 8/A9.10

WALL TYPE, SEE SHEET CP2.01

DOOR TYPE, SEE SHEET A9.01

WINDOW TYPE, SEE SHEET A9.01

CASEWORK - SEE INTERIOR ELEVATIONS AND DETAILS FOR ADDITIONAL INFORMATION

WALL LEGEND

WALL HOURLY FIRE RATING
0 = 0 HOUR
1 = 1 HOUR

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A1.01

75-16217-00
05.01.18
DSA01 4.27.18 DSA BACKCHECK 1
FM02 5.14.18 FIRE MARSHALL BACKCHECK 2
Revisions

FLOOR PLANS - LEVELS 1 & 2

BASEBALL CLUBHOUSE FACILITY

California Polytechnic State University San Luis Obispo

LICENSED ARCHITECT
JOY F. ANDERSON
No. C26998
REGISTERED
STATE OF CALIFORNIA

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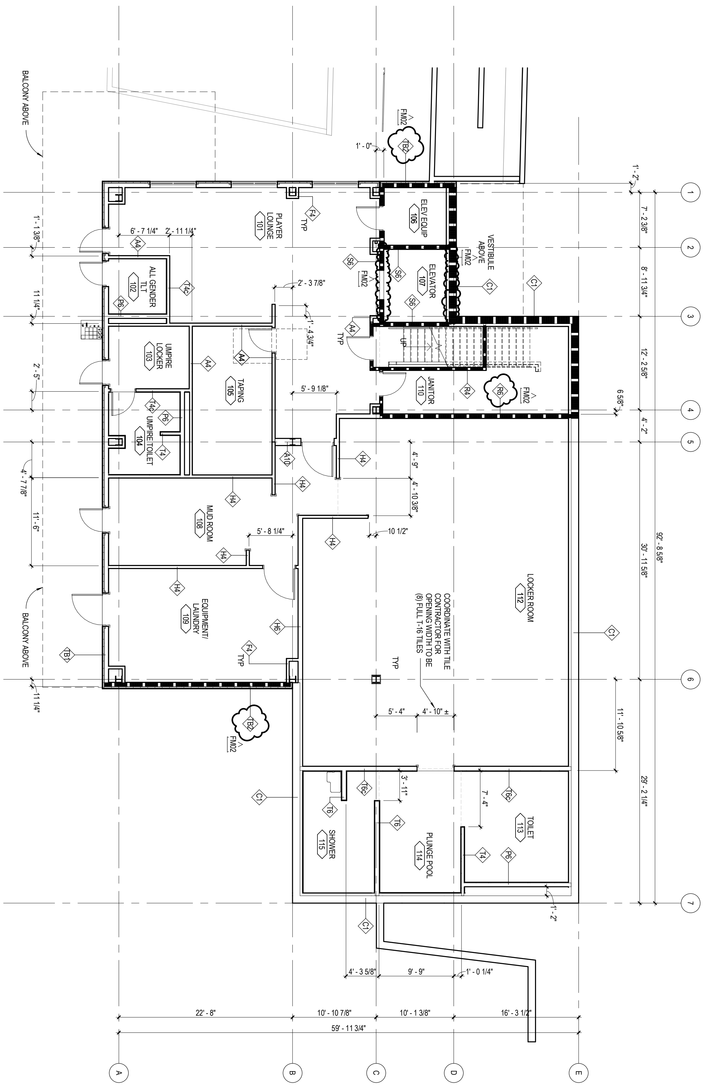
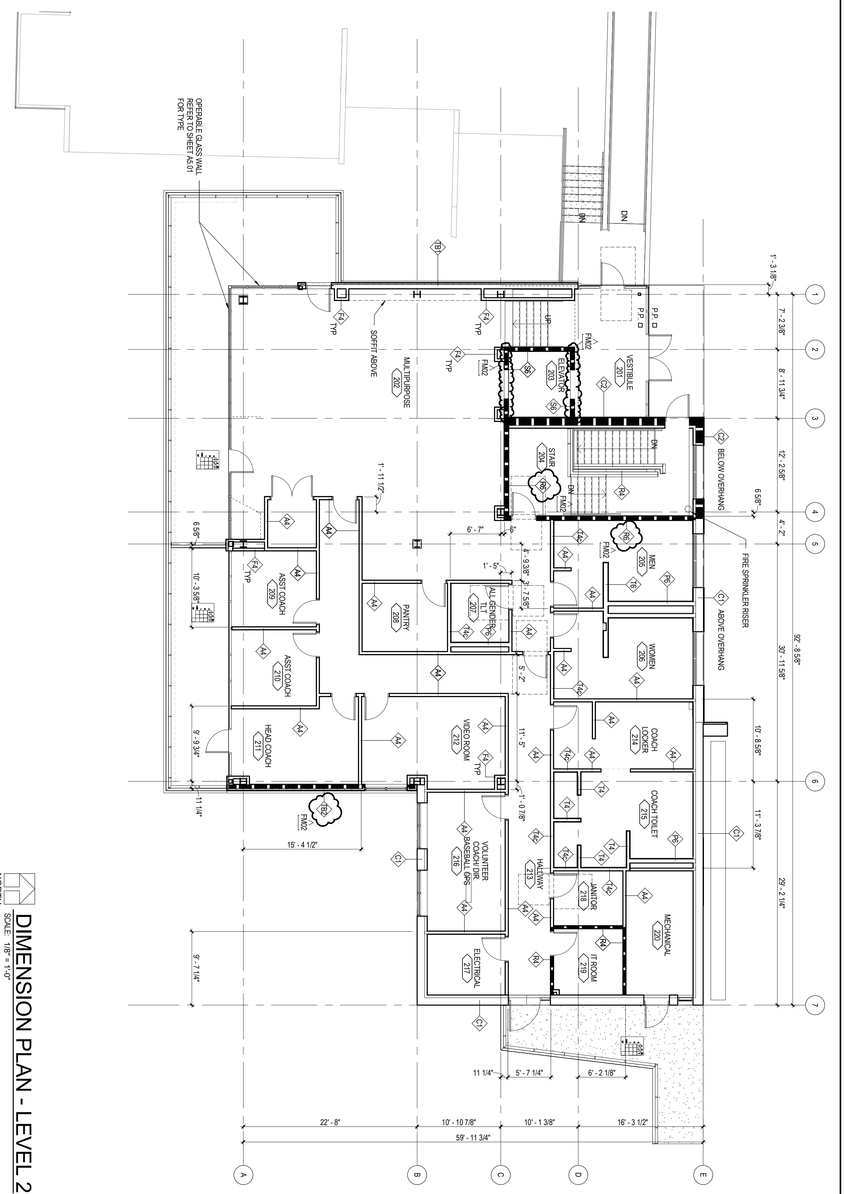


DIMENSION PLAN - LEVEL 1
NORTH
SCALE: 1/8" = 1'-0"



DIMENSION PLAN - LEVEL 2
NORTH
SCALE: 1/8" = 1'-0"

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05.01.18
Revisions
DSA01 4.27.18 DSA BACKCHECK 1
FM02 5.14.18 FIRE MARSHALL BACKCHECK 2

DIMENSION AND WALL TYPE PLANS – LEVELS 1 & 2
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

LICENSED ARCHITECT
JON F. ANDERSON
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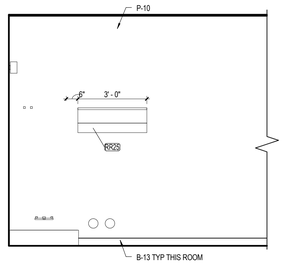
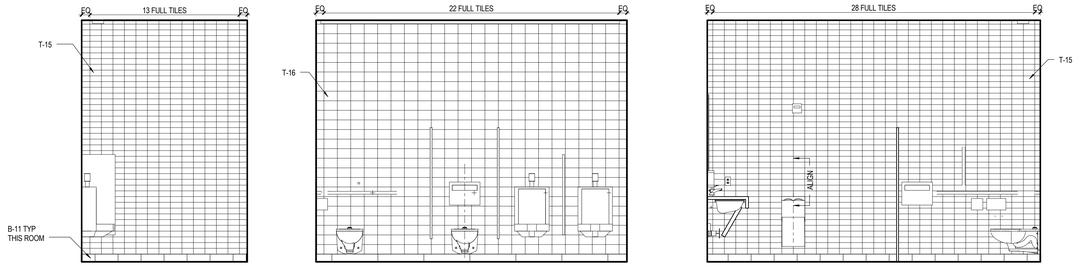
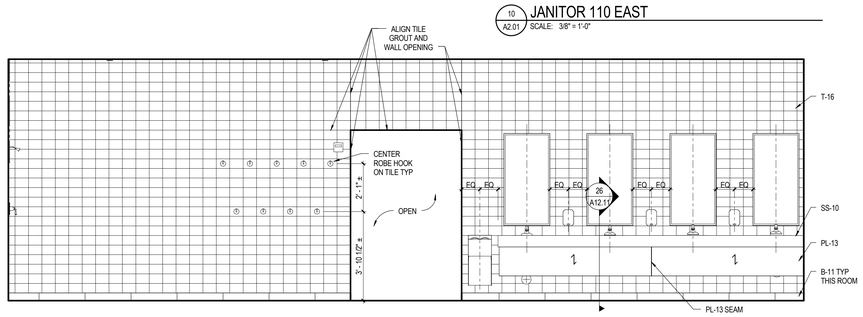
STATE OF CALIFORNIA

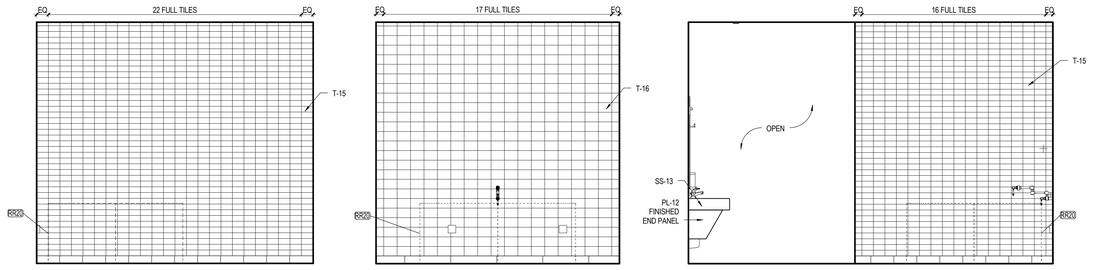




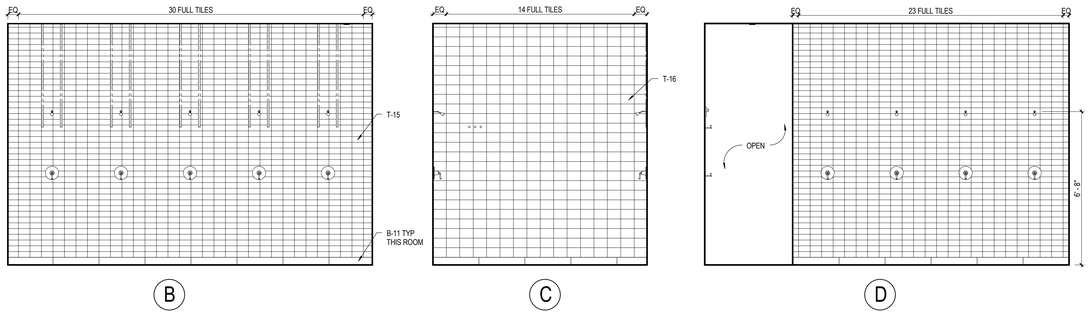
10 A2.01 JANITOR 110 EAST
SCALE: 3/8" = 1'-0"



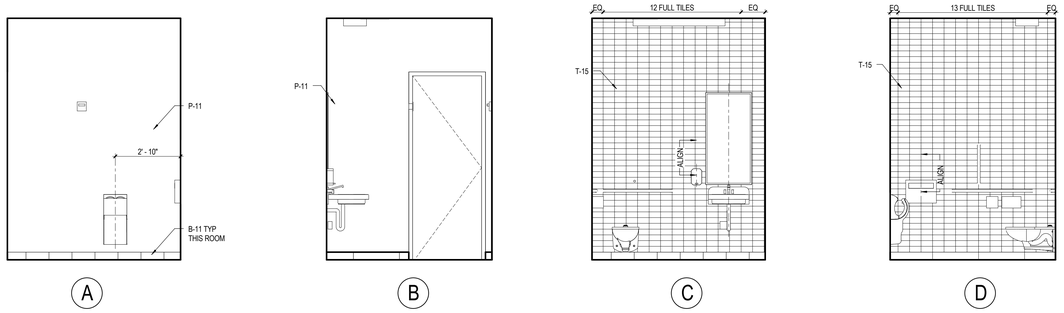
11 A2.01 LOCKER ROOM TOILET - LEVEL 1 - RM 113
SCALE: 3/8" = 1'-0"



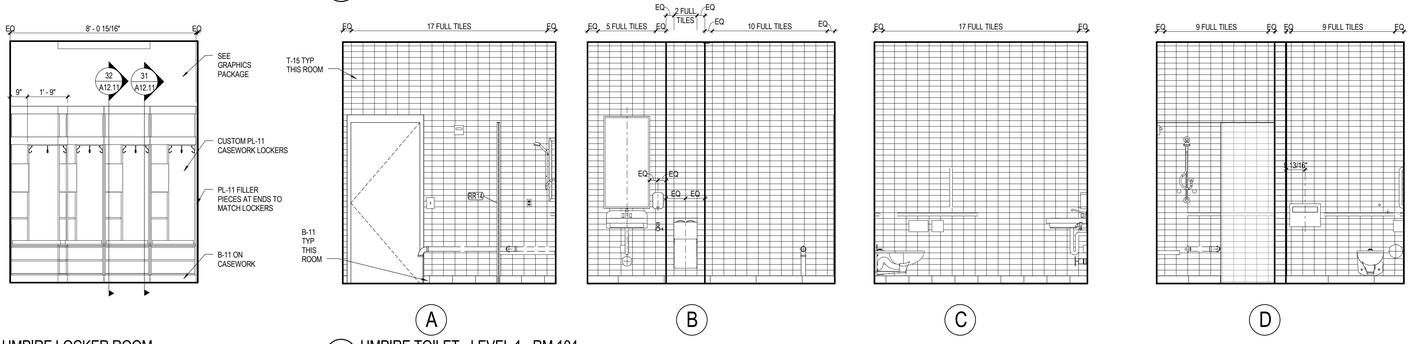
21 A2.01 LOCKER ROOM PLUNGE POOL - LEVEL 1 - RM 114
SCALE: 3/8" = 1'-0"



31 A2.01 LOCKER ROOM SHOWER - LEVEL 1 - RM 115
SCALE: 3/8" = 1'-0"

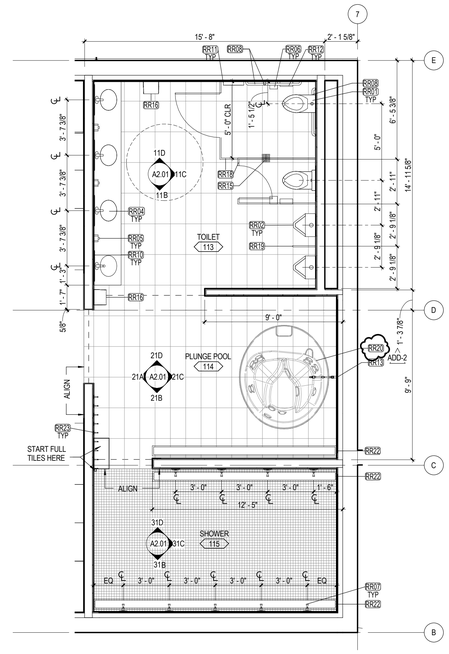


41 A2.01 ALL GENDER TOILET - LEVEL 1 - RM 102
SCALE: 3/8" = 1'-0"

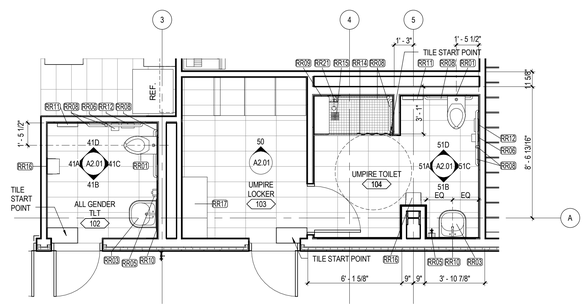


50 A2.01 UMPIRE LOCKER ROOM
SCALE: 3/8" = 1'-0"

51 A2.01 UMPIRE TOILET - LEVEL 1 - RM 104
SCALE: 3/8" = 1'-0"



44 A2.01 LOCKER ROOM TOILET - LEVEL 1
SCALE: 1/4" = 1'-0"



54 A2.01 ALL GENDER RESTROOM, UMPIRE LOCKER ROOM AND RESTROOM - LEVEL 1
SCALE: 1/4" = 1'-0"

GENERAL NOTES

A. REFERENCE CP3.01 FOR MOUNTING HEIGHTS AND ACCESSIBILITY NOTES.
B. GROUT LINES TO ALIGN FROM FLOOR TILE TO WALL TILE BASE
C. START FULL WALL TILE ABOVE B-11 TYP.
D. SEE A13.01 AND A13.02 FOR INTERIOR FINISH SPECIFICATIONS
E. REFERENCE 44/A12.10 FOR TILE OUTSIDE CORNER DETAILS

TOILET ACCESORIES SCHEDULE

CODE	DESCRIPTION
RR01	WALL-HUNG TOILET W/SEAT
RR02	WALL-HUNG URINAL
RR03	WALL MOUNTED LAVATORY
RR04	UNDERMOUNT SINK W/ DECK-MOUNTED FAUCET REF 26/A12.11
RR05	LIQUID SOAP DISPENSER
RR06	OFCI SURFACE MOUNTED TOILET PAPER BOX
RR07	SHOWER HEAD AND CONTROL VALVE
RR08	GRAB BAR
RR09	ACCESSIBLE FOLDING SHOWER SEAT
RR10	2'-0"W X 4'-0"H MIRROR
RR11	TOILET SEAT COVER DISPENSER
RR12	OFCI SURFACE MOUNTED SANITARY NAPKIN DISPOSAL
RR13	WALL-MOUNTED TELESCOPING FAUCET
RR14	SHOWER CURTAIN ROD AND SHOWER CURTAIN
RR15	FLOOR DRAIN
RR16	WALL MOUNTED ELECTRICAL HAND DRYER
RR17	ACCESSIBLE BENCH
RR18	FLOOR MOUNTED HDPE PARTITION, LAMINATING TECHNOLOGIES / COLOR: FOREST GREEN PE-20
RR19	WALL-HUNG URINAL PARTITION, MATCH RR18
RR20	OFCI PLUNGE POOL BOD: COLDTUB - POLAR POOL PT
RR21	ACCESSIBLE SHOWER HEAD & HAND SPRAYER
RR22	TRENCH DRAIN
RR23	ROBE HOOK
RR24	NAPKIN/TAMPON VENDOR
RR25	SHELF WITH MOP / BROOM HOLDER

ADD-2

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

ENLARGED RESTROOM PLANS AND ELEVATIONS - LEVEL 1
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

A2.01
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01.25.18
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ADD-2 2.02.18 ADDENDUM 2

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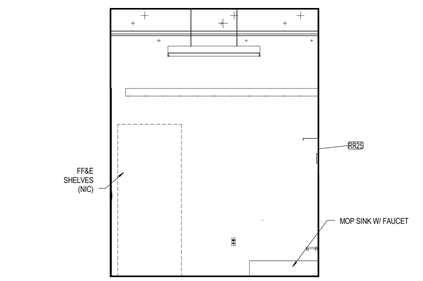

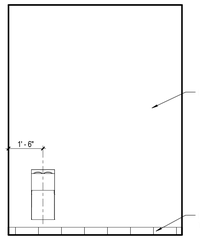

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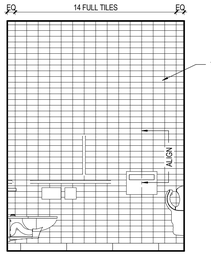

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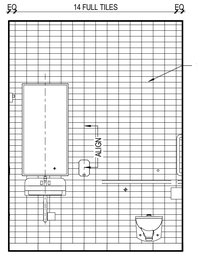

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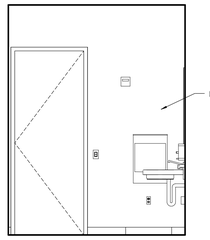

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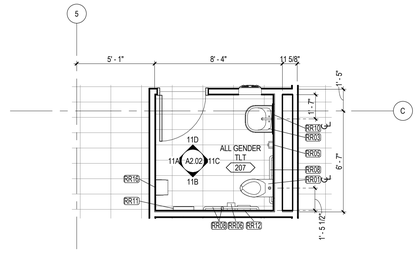
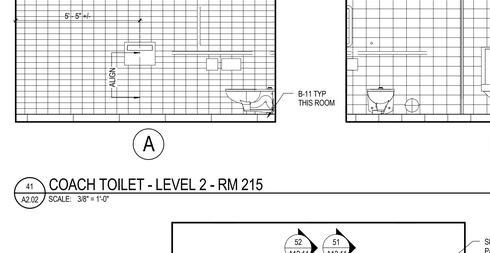
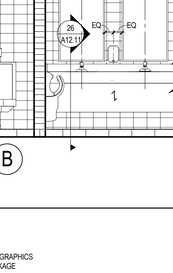


10 A2.02 JANITOR 218 WEST
SCALE: 3/8" = 1'-0"



A

11 A2.02 ALL GENDER TOILET - LEVEL 2 - RM 207
SCALE: 3/8" = 1'-0"



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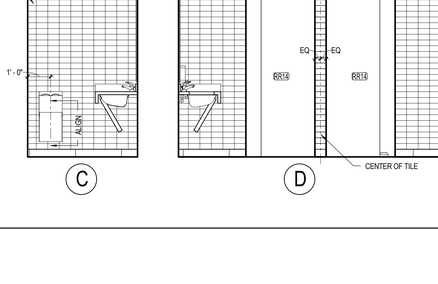

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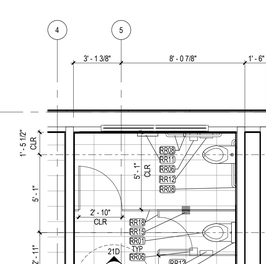
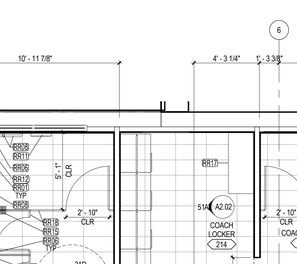


D

15 A2.02 ALL GENDER TOILET - LEVEL 2
SCALE: 1/4" = 1'-0"



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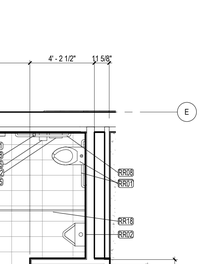

F

21 A2.02 MEN'S RESTROOM - LEVEL 2 - RM 205
SCALE: 3/8" = 1'-0"

A

B

C

D

E

F

31 A2.02 WOMEN'S RESTROOM - LEVEL 2 - RM 206
SCALE: 3/8" = 1'-0"

A

B

C

D

41 A2.02 COACH TOILET - LEVEL 2 - RM 215
SCALE: 3/8" = 1'-0"

51 A2.02 COACH LOCKER - LEVEL 2 - RM 214
SCALE: 3/8" = 1'-0"

53 A2.02 COACH TOILET SHOWER - LEVEL 2 - RM 215
SCALE: 3/8" = 1'-0"

55 A2.02 MEN/WOMEN RESTROOMS AND COACH RESTROOMS / LOCKER ROOM - LEVEL 2
SCALE: 1/4" = 1'-0"

GENERAL NOTES

A. REFERENCE CP3.01 FOR MOUNTING HEIGHTS AND ACCESSIBILITY NOTES.
B. GROUT LINES TO ALIGN FROM FLOOR TILE TO WALL TILE BASE
C. START FULL WALL TILE ABOVE B-11 TYP.
D. SEE A13.01 AND A13.02 FOR INTERIOR FINISH SPECIFICATIONS
E. REFERENCE 44/A12.10 FOR TILE OUTSIDE CORNER DETAILS

TOILET ACCESORIES SCHEDULE

CODE	DESCRIPTION
RR01	WALL-HUNG TOILET W/SEAT
RR02	WALL-HUNG URINAL
RR03	WALL MOUNTED LAVATORY
RR04	UNDERMOUNT SINK W/ DECK-MOUNTED FAUCET REF 26/A12.11
RR05	LIQUID SOAP DISPENSER
RR06	OFCI SURFACE MOUNTED TOILET PAPER BOX
RR07	SHOWER HEAD AND CONTROL VALVE
RR08	GRAB BAR
RR09	ACCESSIBLE FOLDING SHOWER SEAT
RR10	2'-0"W X 4'-0"H MIRROR
RR11	TOILET SEAT COVER DISPENSER
RR12	OFCI SURFACE MOUNTED SANITARY NAPKIN DISPOSAL
RR13	WALL-MOUNTED TELESCOPING FAUCET
RR14	SHOWER CURTAIN ROD AND SHOWER CURTAIN
RR15	FLOOR DRAIN
RR16	WALL MOUNTED ELECTRICAL HAND DRYER
RR17	ACCESSIBLE BENCH
RR18	FLOOR MOUNTED HDPE PARTITION, LAMINATING TECHNOLOGIES, COLOR: FOREST GREEN PE-20
RR19	WALL-HUNG URINAL PARTITION, MATCH RR18
RR20	OFCI PLUNGE POOL BOD: COLDTUB - POLAR POOL PT
RR21	ACCESSIBLE SHOWER HEAD & HAND SPRAYER
RR22	TRENCH DRAIN
RR23	ROBE HOOK
RR24	NAPKIN/TAMPON VENDOR
RR25	SHELF WITH MOP / BROOM HOLDER

FM01

WALL LEGEND

WALL HOURLY FIRE RATING		
0	=	0 HOUR
1	=	1 HOUR

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

ENLARGED RESTROOM PLANS AND ELEVATIONS - LEVEL 2
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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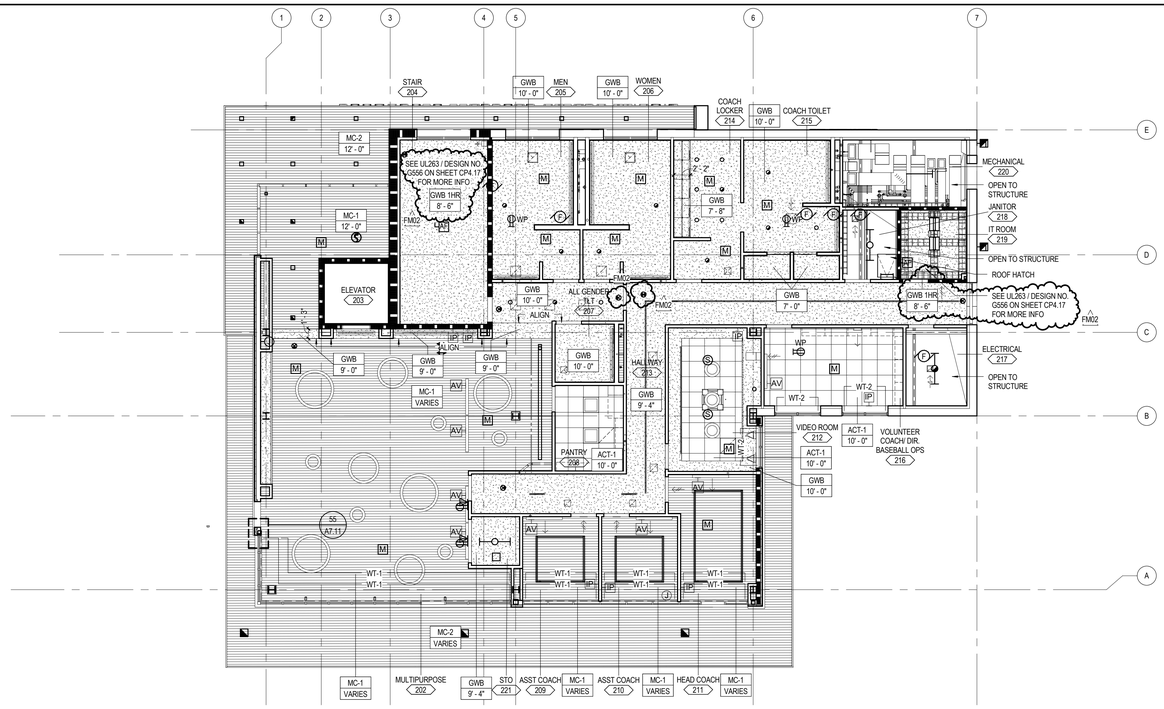
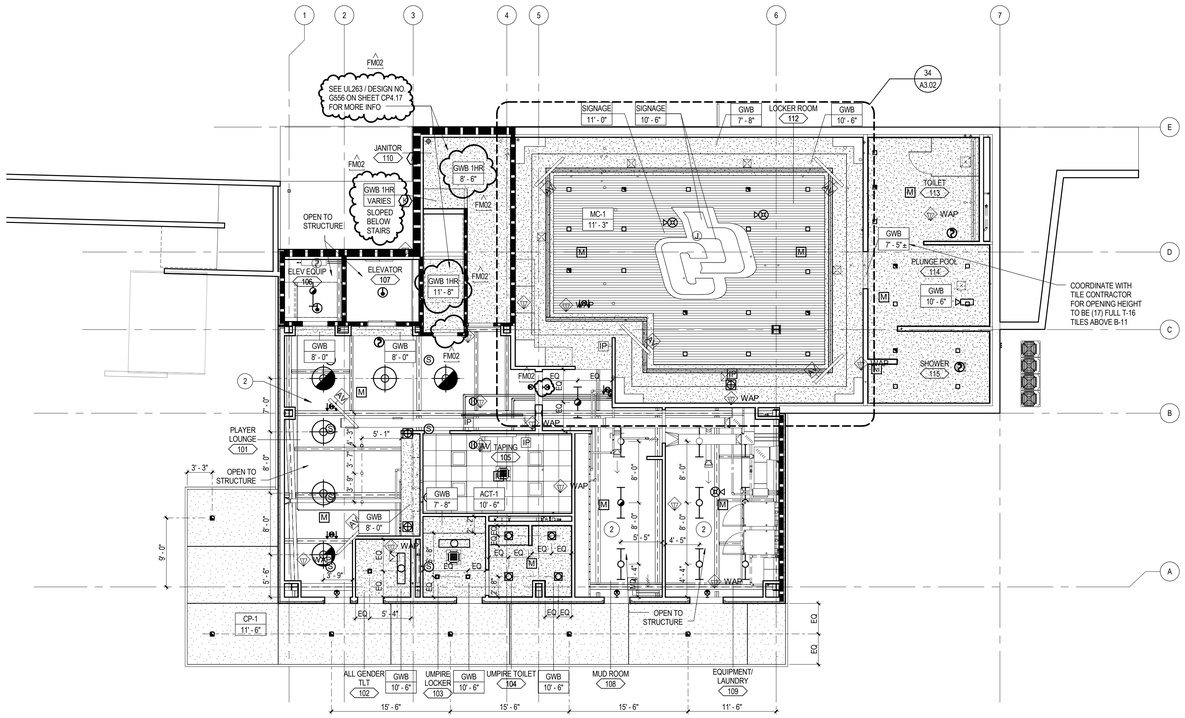


NORTH

REFLECTED CEILING PLAN - LEVEL 2

SCALE: 1/8" = 1'-0"



NORTH

REFLECTED CEILING PLAN - LEVEL 1

SCALE: 1/8" = 1'-0"

REFLECTED CEILING PLAN NOTES:

A. REFLECTED CEILING PLAN GENERAL NOTES APPLY TO ALL REFLECTED CEILING PLAN SHEETS.
B. ALL CEILING GRIDS/PANELS SHALL BE CENTERED IN EACH ROOM UNLESS NOTED OTHERWISE.
C. CEILING HEIGHTS ARE AS NOTED ON THE REFLECTED CEILING PLAN UNLESS NOTED OTHERWISE.
D. ALL ELECTRICAL FIXTURES, SPEAKERS, SMOKE AND THERMAL DETECTORS, MECHANICAL GRILLES, SPRINKLER HEADS, ETC., SHALL BE CENTERED BETWEEN CEILING GRIDS UNLESS NOTED OTHERWISE. SPRINKLER HEADS SHALL BE WITHIN A 3" RADIUS CENTERED BETWEEN CEILING GRIDS.
E. IN ACOUSTICAL CEILING PANELS WITH SCORE IN THE CENTER, CENTER DEVICES REFERENCED IN NOTED, IN ONE HALF OF THE TILE. DO NOT LOCATE ON THE SCORE. FOR APC WITH MULTIPLE SCORED PATTERNS, COORDINATE LOCATION WITH ARCHITECT.
F. PROVIDE SUSPENSION SYSTEM AROUND ELECTRICAL FIXTURES, MECHANICAL GRILLES, DIFFUSERS, ETC. AT ACOUSTICAL PANEL CEILINGS.
G. ALL DIMENSIONS ON REFLECTED CEILING PLANS ARE ACTUAL AND ARE TO THE FOLLOWING UNLESS NOTED OTHERWISE:
   1. FACE OF FINISHED WALL
   2. FACE OF FINISHED BULKHEADS
   3. CENTERLINE OF COLUMNS
   4. CENTERLINE OF TEES.
H. IN AREAS WITH EXPOSED STRUCTURE CEILINGS, COORDINATE EXACT LOCATIONS OF MECHANICAL GRILLES, DIFFUSERS, DUCTWORK, AND ELECTRICAL FIXTURES WITH EACH RESPECTIVE SUBCONTRACTOR.
I. ALL WALLS EXTEND TO UNDERSIDE OF DECK EXCEPT THOSE SHOWN SHADED IN WHICH GYPSUM BOARD OR MASONRY EXTENDS MIN. 4" ABOVE FINISHED CEILING. ALL METAL STUDS EXTEND TO UNDERSIDE OF STRUCTURE.
J. ALL GYPSUM WALLBOARD BULKHEADS SHALL BE PAINTED P-10 UNLESS OTHERWISE NOTED.
K. EXCEPT WHERE RIGID BRACES ARE USED TO LIMIT LATERAL DEFLECTIONS, SPRINKLERS SHALL HAVE A 2 INCH OVERSIZE RING, SLEEVE, OR ADAPTER THROUGH THE CEILING TILE TO ALLOW FOR FREE MOVEMENT OF AT LEAST 1 INCH IN ALL HORIZONTAL DIRECTIONS. ALTERNATIVELY, A SWING JOINT THAT CAN ACCOMMODATE 1 INCH OF CEILING MOVEMENT IN ALL HORIZONTAL DIRECTIONS IS PERMITTED TO BE PROVIDED AT THE TOP OF THE SPRINKLER HEAD EXTENSION PER ASCE 7-10

CEILING FINISH LEGEND

MC-1
MATERIAL: LINEAR METAL CEILING
MFR: ARMSTRONG
PRODUCT: METALWORKS LINEAR
COLOR: EFFECTS CHERRY
SIZE: NOMINAL 4" WIDE 5492FXCH
PERFORATION: M2 MICROPERFORATED WITH BLACK ACOUSTICAL FLEECE
REMARKS: INTERIOR SYSTEM. USE ARMSTRONG DRYWALL GRID SYSTEM
CONTACT: KYLE FOCHT, ARMSTRONG (213) 760-9688

MC-2
MATERIAL: LINEAR METAL CEILING
MFR: ARMSTRONG
PRODUCT: METALWORKS LINEAR EXTERIOR
COLOR: EFFECTS CHERRY
SIZE: NOMINAL 4" WIDE 5490FXCH2
PERFORATION: M1 UNPERFORATED
REMARKS: EXTERIOR SYSTEM. USE ARMSTRONG DRYWALL GRID SYSTEM
CONTACT: SEE MC-1

MATERIAL: PAINTED GWB CEILING
MANUFACTURER: DUNN EDWARDS
COLOR: DE6218 ANTIQUE PAPER
FINISH: FLAT UNO; SEMI-GLOSS IN RESTROOMS AND SHOWERS

ACT-1
MATERIAL: ACOUSTIC CEILING TILE
MFR: ARMSTRONG "OPTIMA" #3251
EDGE: SQUARE TEGULAR
GRID: SILHOUETTE XL 1/8" REVEAL
SIZE: 2' X 2'
COLOR: WHITE
REMARKS: CEILING GRID MAIN BEAMS TO RUN PARALLEL TO LINEAR LIGHT FIXTURES
CONTACT: SEE MC-1

WT-1
WT-1
WINDOW TREATMENT
MOTORIZED ROLLER SHADE (TWO ROWS - AT CEILING AND ABOVE OPERABLE GLASS WALL)
NOTES: SHADES TO BE RECESSED WITHIN INTERIOR METAL CEILING SYSTEM, STEPPED TO FOLLOW ROOF ANGLE

WT-2
WT-2
WINDOW TREATMENT
MANUAL ROLLER SHADE

KEY NOTES

1 PAINT EXPOSED STRUCTURE DUNN EDWARDS DE6213 FINE GRAIN

2 PAINT EXPOSED STRUCTURE DUNN EDWARDS DE6381 SILVER BULLET

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

REFLECTED CEILING PLANS - LEVELS 1 & 2
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

A3.01
75-16217-00
05.01.18
Revisions
FM01 5.08.18 FIRE MARSHALL BACKCHECK 1
FM02 5.14.18 FIRE MARSHALL BACKCHECK 2

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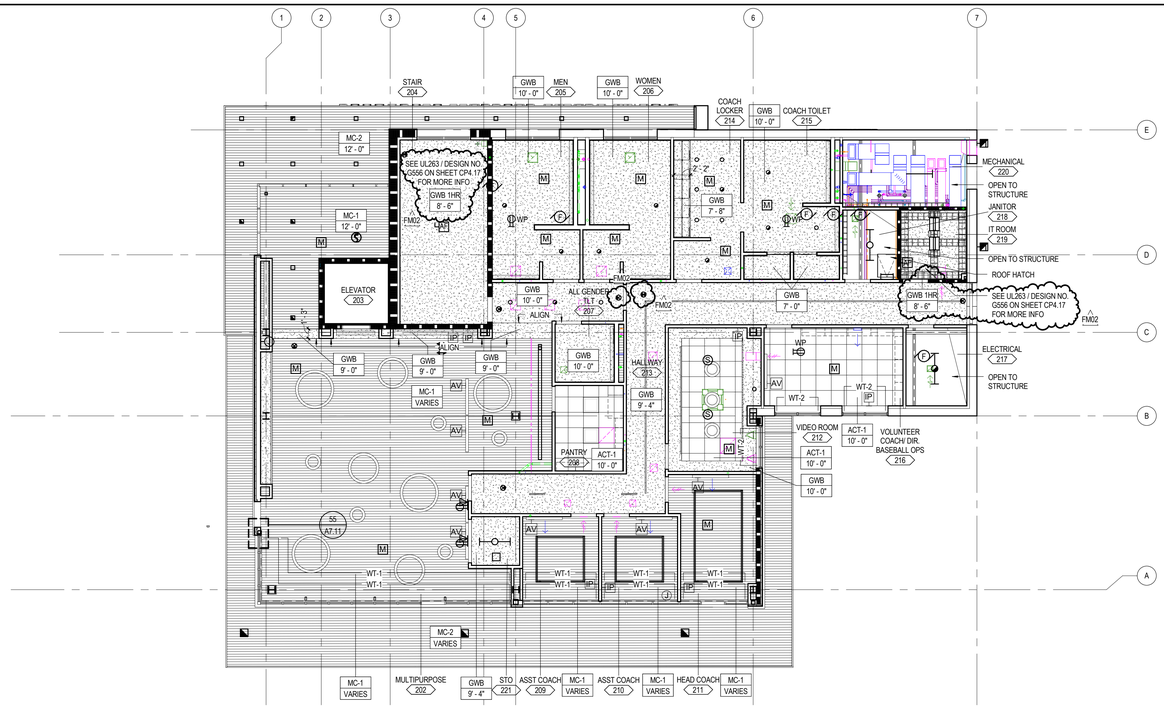
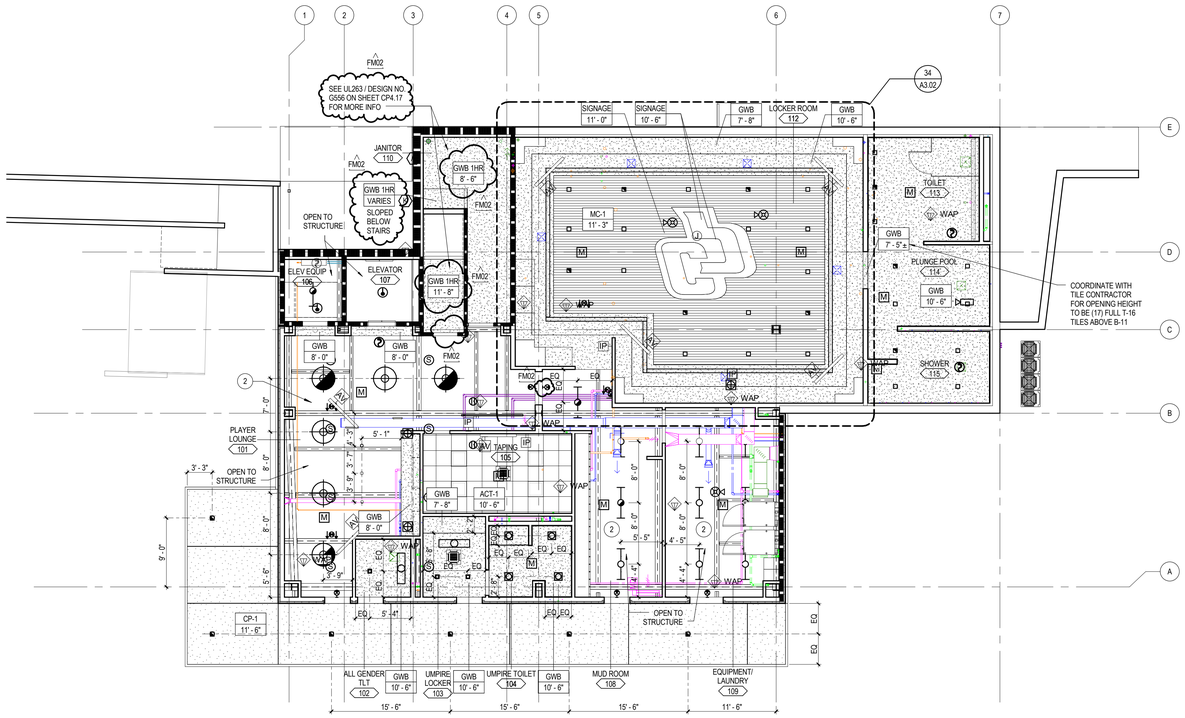


NORTH

REFLECTED CEILING PLAN - LEVEL 2

SCALE: 1/8" = 1'-0"



NORTH

REFLECTED CEILING PLAN - LEVEL 1

SCALE: 1/8" = 1'-0"

REFLECTED CEILING PLAN NOTES:

A. REFLECTED CEILING PLAN GENERAL NOTES APPLY TO ALL REFLECTED CEILING PLAN SHEETS.
B. ALL CEILING GRIDS/PANELS SHALL BE CENTERED IN EACH ROOM UNLESS NOTED OTHERWISE.
C. CEILING HEIGHTS ARE AS NOTED ON THE REFLECTED CEILING PLAN UNLESS NOTED OTHERWISE.
D. ALL ELECTRICAL FIXTURES, SPEAKERS, SMOKE AND THERMAL DETECTORS, MECHANICAL GRILLES, SPRINKLER HEADS, ETC., SHALL BE CENTERED BETWEEN CEILING GRIDS UNLESS NOTED OTHERWISE. SPRINKLER HEADS SHALL BE WITHIN A 3" RADIUS CENTERED BETWEEN CEILING GRIDS.
E. IN ACOUSTICAL CEILING PANELS WITH SCORE IN THE CENTER, CENTER DEVICES REFERENCED IN NOTED, IN ONE HALF OF THE TILE. DO NOT LOCATE ON THE SCORE. FOR APC WITH MULTIPLE SCORED PATTERNS, COORDINATE LOCATION WITH ARCHITECT.
F. PROVIDE SUSPENSION SYSTEM AROUND ELECTRICAL FIXTURES, MECHANICAL GRILLES, DIFFUSERS, ETC. AT ACOUSTICAL PANEL CEILINGS.
G. ALL DIMENSIONS ON REFLECTED CEILING PLANS ARE ACTUAL AND ARE TO THE FOLLOWING UNLESS NOTED OTHERWISE:
   1. FACE OF FINISHED WALL
   2. FACE OF FINISHED BULKHEADS
   3. CENTERLINE OF COLUMNS
   4. CENTERLINE OF TEES.
H. IN AREAS WITH EXPOSED STRUCTURE CEILINGS, COORDINATE EXACT LOCATIONS OF MECHANICAL GRILLES, DIFFUSERS, DUCTWORK, AND ELECTRICAL FIXTURES WITH EACH RESPECTIVE SUBCONTRACTOR.
I. ALL WALLS EXTEND TO UNDERSIDE OF DECK EXCEPT THOSE SHOWN SHADED IN WHICH GYPSUM BOARD OR MASONRY EXTENDS MIN. 4" ABOVE FINISHED CEILING. ALL METAL STUDS EXTEND TO UNDERSIDE OF STRUCTURE.
J. ALL GYPSUM WALLBOARD BULKHEADS SHALL BE PAINTED P-10 UNLESS OTHERWISE NOTED.
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MFR: ARMSTRONG
PRODUCT: METALWORKS LINEAR EXTERIOR
COLOR: EFFECTS CHERRY
SIZE: NOMINAL 4" WIDE 5490FXCH2
PERFORATION: M1 UNPERFORATED
REMARKS: EXTERIOR SYSTEM. USE ARMSTRONG DRYWALL GRID SYSTEM
CONTACT: SEE MC-1

MATERIAL: PAINTED GWB CEILING
MANUFACTURER: DUNN EDWARDS
COLOR: DE6218 ANTIQUE PAPER
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WT-1
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NOTES: SHADES TO BE RECESSED WITHIN INTERIOR METAL CEILING SYSTEM, STEPPED TO FOLLOW ROOF ANGLE

WT-2
WT-2
WINDOW TREATMENT
MANUAL ROLLER SHADE

KEY NOTES

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2 PAINT EXPOSED STRUCTURE DUNN EDWARDS DE6381 SILVER BULLET

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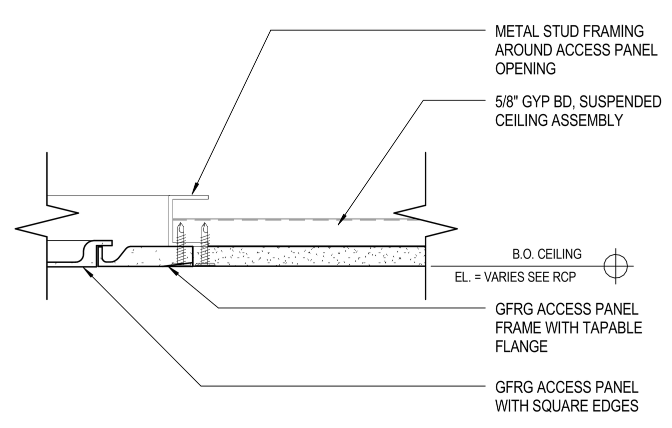
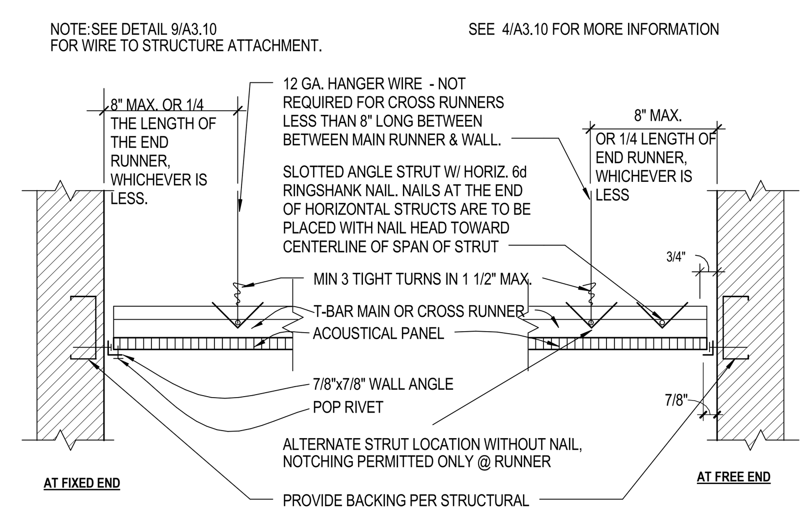
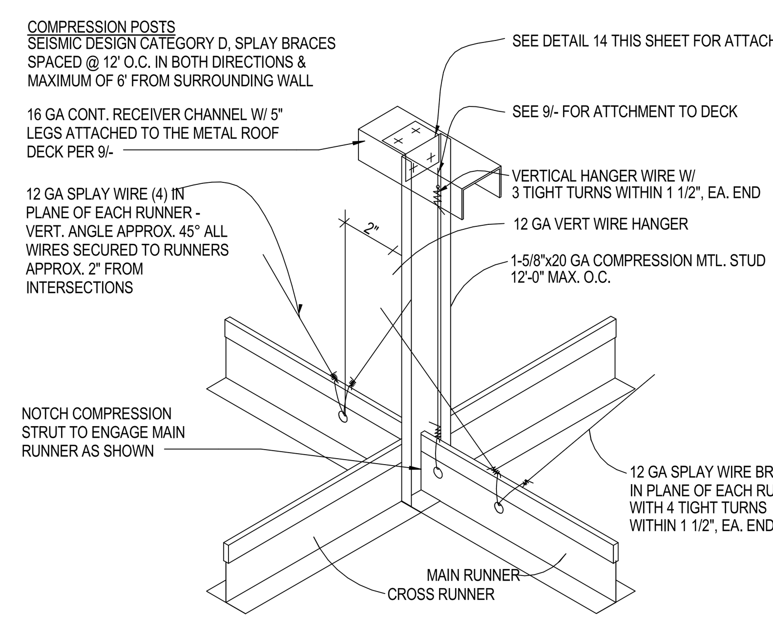


20 A3.10 **GFRG CEILING ACCESS PANEL**
SCALE: 3" = 1'-0"



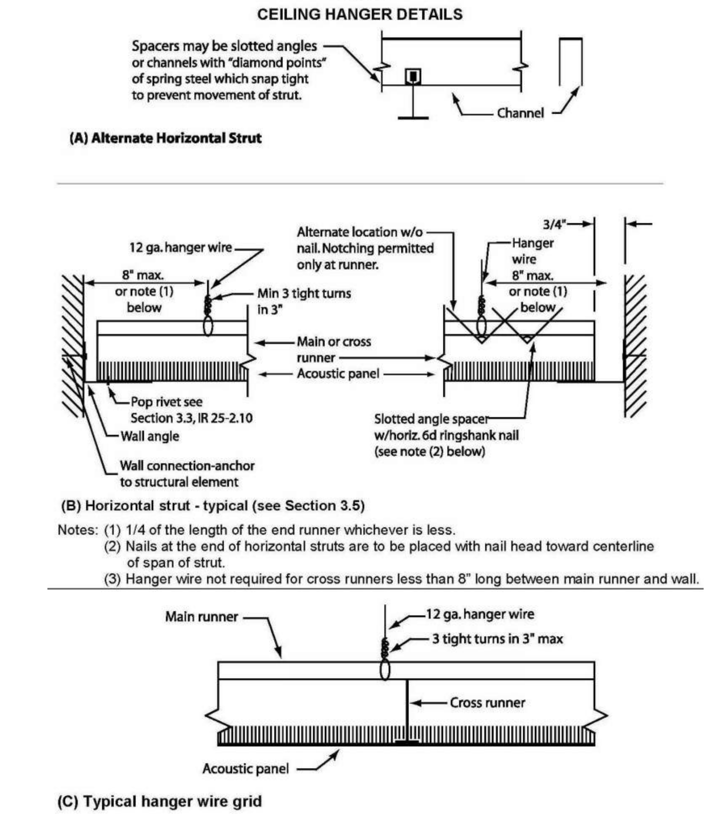
16 A3.10 **SUSPENDED APC AT PERIMETER WALL**
SCALE: 1 1/2" = 1'-0"



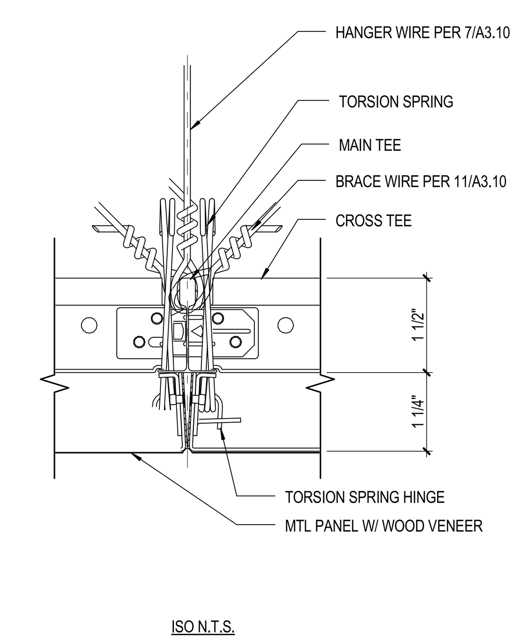
12 A3.10 **COMPRESSION STRUT DETAIL**
SCALE: 3" = 1'-0"

NOTES:
1. ALL HANGER WIRES TO HAVE A MINIMUM OF 3 TURNS IN 1 1/2" OF RUN.
2. ALL SPLAY WIRES TO HAVE A MINIMUM OF 4 TURNS IN 1 1/2" OF RUN.
3. CEILNG GRID MEMBERS MAY BE ATTCHED TO NOT MORE THAN TWO ADJACENT WALLS.
4. CEILING GRID MEMBERS SHALL BE AT LEAST 1/2" FREE OF OTHER WALLS.

Figure 2
CEILING HANGER DETAILS

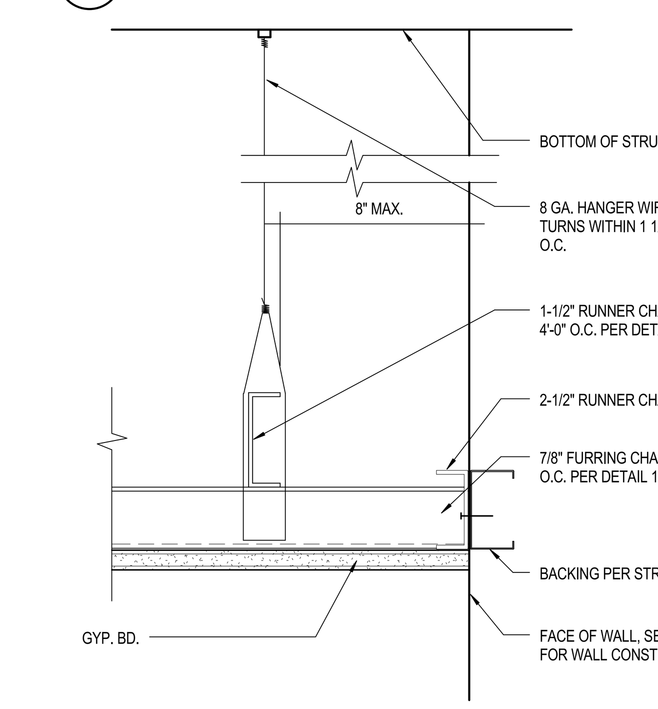


4 A3.10 **SUSP. ACT PERIM. WIRE LOC. DSA FIG 2**
SCALE: 1 1/2" = 1'-0"

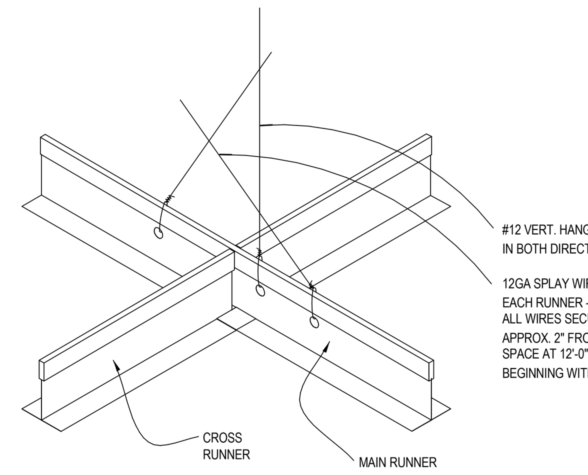


ISO N.T.S.

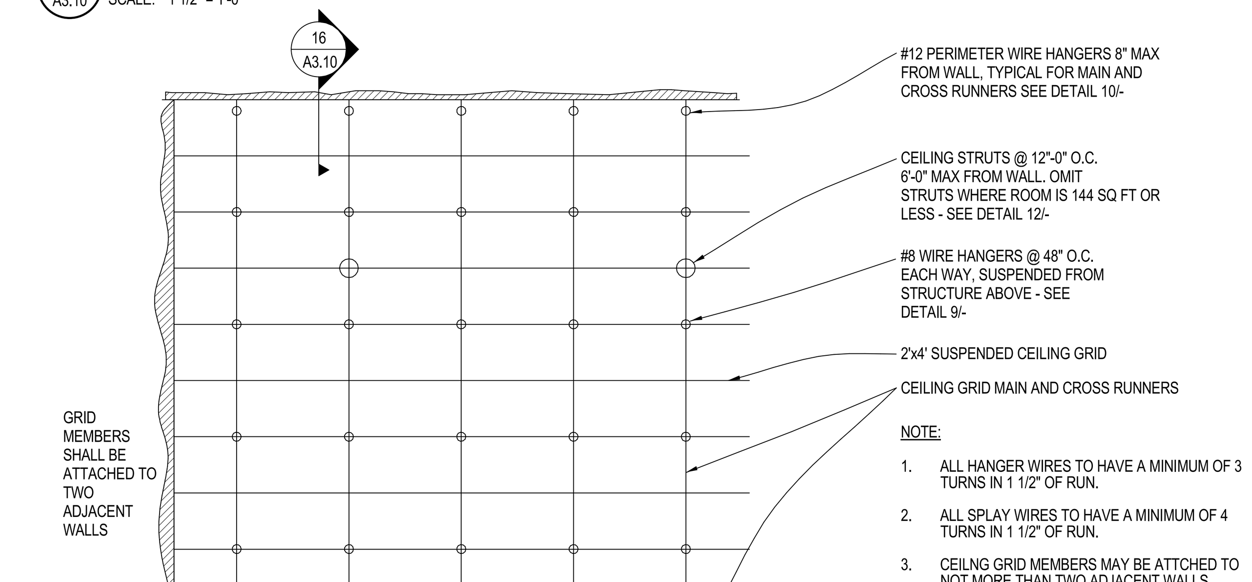
19 A3.10 **MTL PANEL GRID ATTACHMENT**
SCALE: 6" = 1'-0"



15 A3.10 **SUSPENDED GWB CEILING AT PERIMETER WALL**
SCALE: 3" = 1'-0"

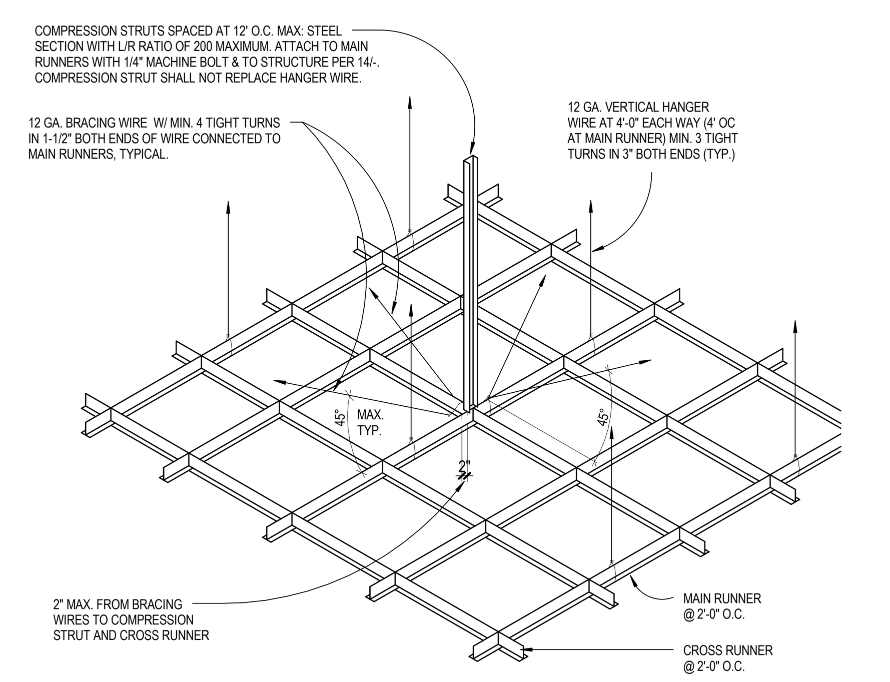


11 A3.10 **LOCATION OF BRACING WIRES**
SCALE: 3" = 1'-0"

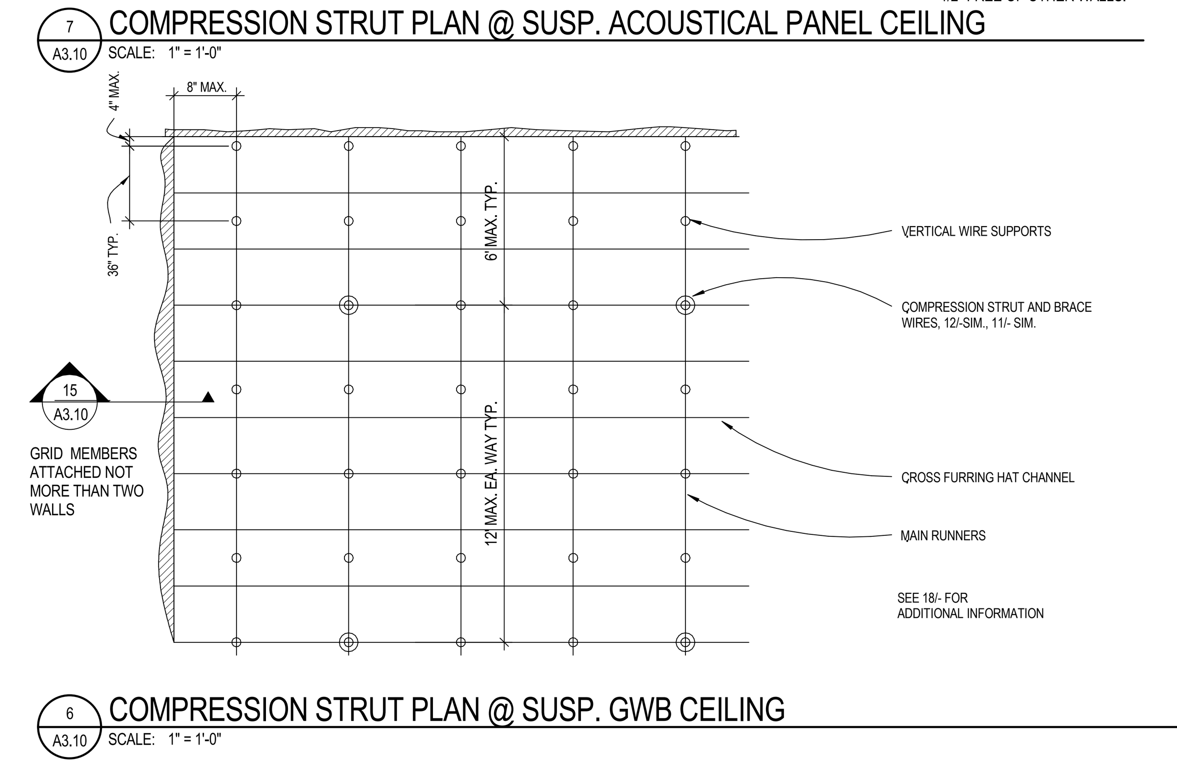


NOTE:
1. ALL HANGER WIRES TO HAVE A MINIMUM OF 3 TURNS IN 1 1/2" OF RUN.
2. ALL SPLAY WIRES TO HAVE A MINIMUM OF 4 TURNS IN 1 1/2" OF RUN.
3. CEILNG GRID MEMBERS MAY BE ATTCHED TO NOT MORE THAN TWO ADJACENT WALLS.
4. CEILING GRID MEMBERS SHALL BE AT LEAST 1/2" FREE OF OTHER WALLS.

7 A3.10 **COMPRESSION STRUT PLAN @ SUSP. ACOUSTICAL PANEL CEILING**
SCALE: 1" = 1'-0"

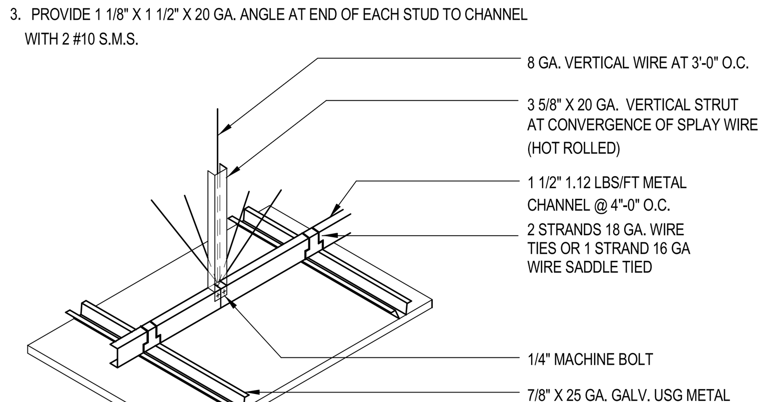


10 A3.10 **RUNNER LAYOUT ISOMETRIC (FIG 1)**
SCALE: 1/4" = 1'-0"

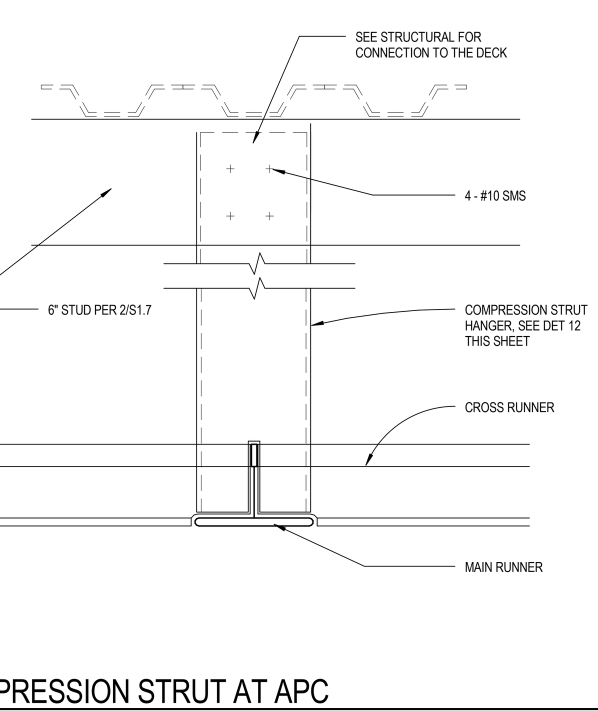


6 A3.10 **COMPRESSION STRUT PLAN @ SUSP. GWB CEILING**
SCALE: 1" = 1'-0"

NOTES:
1. REFER TO CEILING NOTES. (IR 25-3)
2. VERTICAL SUPPORT SHALL BE PROVIDED AS REQUIRED IN 2016 CBC CHAPTER 25 SECTION 2508, WITH THE ADDED REQUIREMENT THAT DISCONTINUOUS ENDS OF CROSS-RUNNERS AND MAIN RUNNERS SHALL BE VERTICALLY SUPPORTED @ 8" MAX. FROM SUCH DISCONTINUITIES WHICH OCCUR WHERE CEILING IS DISRUPTED BY A WALL.
3. PROVIDE 1 1/8" X 1 1/2" X 20 GA. ANGLE AT END OF EACH STUD TO CHANNEL WITH 2 #10 S.M.S.

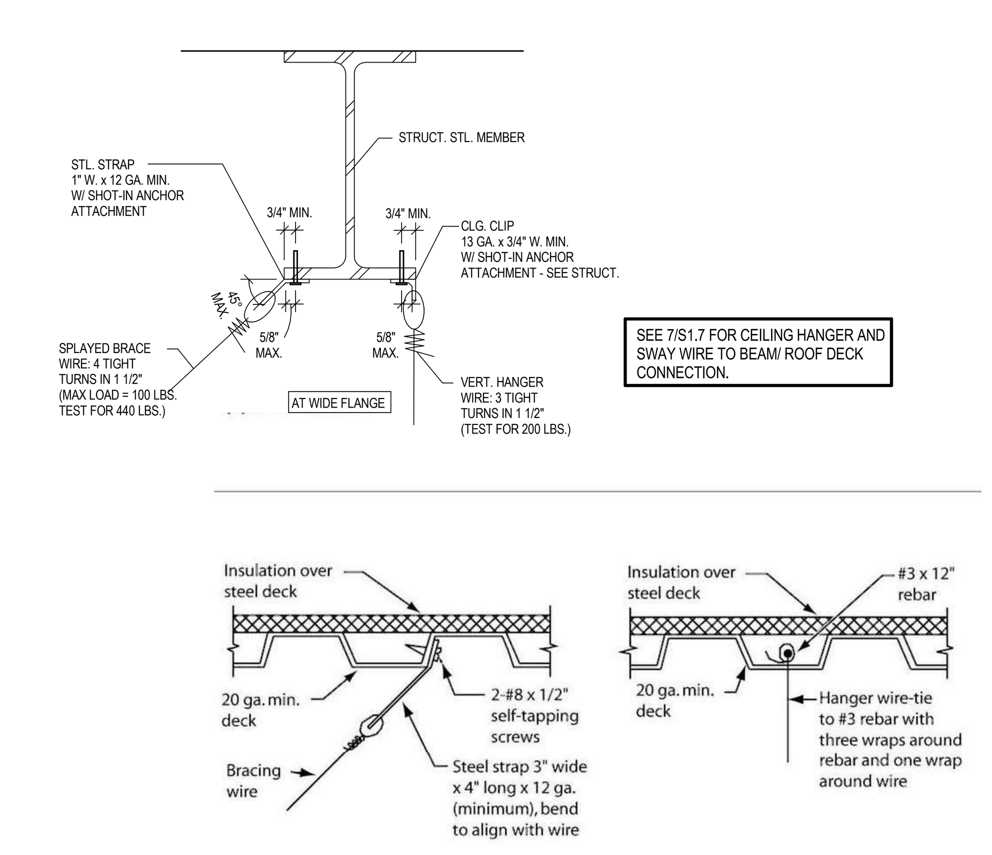


18 A3.10 **SUSPENDED GYP CLG**
SCALE: 3" = 1'-0"



14 A3.10 **COMPRESSION STRUT AT APC**
SCALE: 3" = 1'-0"

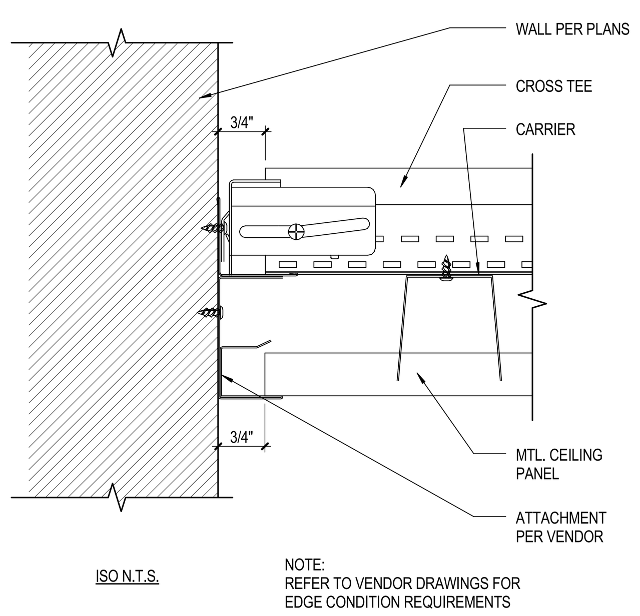
Figure 5
ACCEPTABLE DETAILS - WIRE CONNECTIONS TO STEEL FRAMING



Note: If self-tapping screws are used with concrete fill, set screws before placing concrete

SEE STRUCTURAL DRAWING 7/S1.7 FOR ADDITIONAL INFORMATION

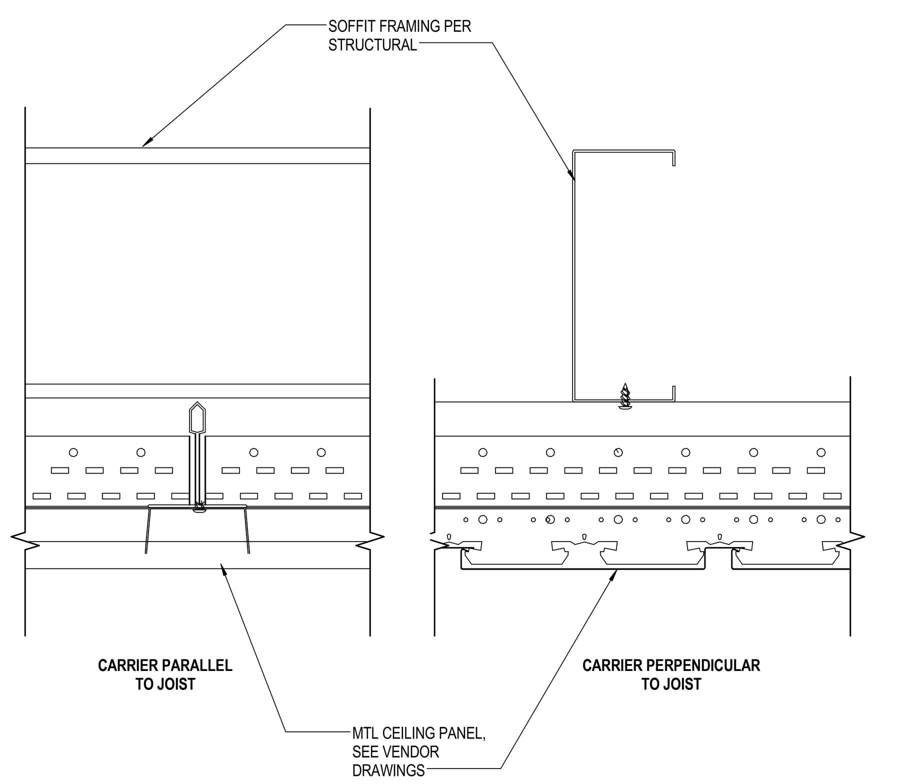
9 A3.10 **BRACING / HANGER WIRE ATTACHMENT**
SCALE: 1" = 1'-0"



ISO N.T.S.

NOTE:
REFER TO VENDOR DRAWINGS FOR EDGE CONDITION REQUIREMENTS

2 A3.10 **SUSPENDED MTL PANELS AT PERIMETER WALL**
SCALE: 6" = 1'-0"



3 A3.10 **MTL PANEL ATTACHMENT @ EXTERIOR SOFFIT**
SCALE: 6" = 1'-0"

METAL SUSPENSION SYSTEMS FOR LAY-IN PANEL CEILINGS - DSA IR 25-2.13 (02-10-16)

- PURPOSE: THE PURPOSE OF THIS INTERPRETATION OF REGULATIONS (IR) IS TO PROVIDE GUIDELINES FOR THE INSTALLATION OF METAL SUSPENSION SYSTEMS FOR LAY-IN CEILINGS ON PROJECTS APPROVED UNDER THE 2016 CALIFORNIA BUILDING CODE (CBC). FOR PROJECTS SUBMITTED TO DSA FOR REVIEW .

1. GENERAL REQUIREMENTS: CBC SECTION 1616A1.20 (1615.10.16*) REQUIRES THE DESIGN AND INSTALLATION TO BE IN COMPLIANCE WITH 2016 CBC SECTION 808 ASTM C635, C636, AND E580, SECTION 5, WITH MODIFICATIONS. NOTE: AMENDMENTS IN CBC SECTION 1616A.1.20 (16161.10.16*) REPLACE AND APPEND ASCE 7, SECTION 13.5.6. THE REQUIREMENTS IN THIS IR APPLY TO CEILING SYSTEMS WHOSE TOTAL WEIGHT, INCLUDING CEILING MOUNTED AIR TERMINALS, SERVICES AND LIGHT FIXTURES, DOES NOT EXCEED FOUR (4) PSF. HEAVY SYSTEMS, AND THOSE SUPPORTING LATERAL LOADS FROM PARTITIONS, WILL REQUIRE SPECIAL DESIGN DETAILS.

2. SUSPENSION SYSTEM COMPONENTS: SHALL COMPLY WITH ASTM C635 AND E580 SECTION 5.1.
2.1 THE CEILING GRID SYSTEM MUST BE RATED HEAVY DUTY AS DEFINED BY ASTM C635.
2.2 SUSPENSION WIRES SHALL BE #12 GAGE (0.106" DIAMETER), SOFT ANNEALED, AND GALVANIZED STEEL WIRES WITH CLASS 1 COATING. 2.3 MAIN RUNNERS, CROSS RUNNERS, SPLICES, EXPANSION DEVICES, INTERSECTION CONNECTORS SHALL BE DESIGNED TO CARRY A MEAN ULTIMATE TEST LOAD OF NOT LESS THAN 180 LBS. IN COMPRESSION AND TENSION PER ASTM E580 SECTION 5.1.2.

3. SUSPENSION SYSTEM INSTALLATION: SHALL COMPLY WITH ASTM C636 AND E580 SECTION 5.2.
3.1 #12 GAGE HANGER WIRES MAY BE USED FOR UP TO AND INCLUDING 4 FT. BY 4 FT. GRID SPACING AND SHALL BE ATTACHED TO MAIN RUNNERS.
3.2 PROVIDE #12 GAGE HANGER WIRES AT THE ENDS OF ALL MAIN AND CROSS RUNNERS WITHIN EIGHT (8) INCHES OF THE SUPPORT OR WITHIN ONE-FOURTH (1/4) OF THE LENGTH OF THE END TEE, WHICHEVER IS LEAST, FOR THE PERIMETER OF THE CEILING AREA. SEE FIGURE 2. PERIMETER WIRES ARE NOT REQUIRED WHEN THE LENGTH OF THE END TEE IS EIGHT (8) INCHES OR LESS.
3.3 CEILING GRID MEMBERS SHALL BE ATTACHED TO TWO (2) ADJACENT WALLS PER ASTM E580 SECTION 5.2.3. CEILING GRID MEMBERS SHALL BE AT LEAST 3/4 INCH CLEAR OF OTHER WALLS. IF WALLS RUN DIAGONALLY TO CEILING GRID SYSTEM RUNNERS, ONE END OF MAIN AND CROSS RUNNERS SHOULD BE FREE, AND A MINIMUM OF 3/4 INCH CLEAR OF WALL.
3.4 THE WIDTH OF THE PERIMETER SUPPORTING CLOSURE ANGLE SHALL BE NOT LESS THAN 2 INCHES. GRID SYSTEMS WITH SPECIALTY ANGLES AND SUPPORT CLIPS MAY BE ACCEPTABLE IN ACCORDANCE WITH SECTION 11 BELOW.
3.5 AT THE PERIMETER OF THE CEILING AREA WHERE MAIN OR CROSS RUNNERS ARE NOT CONNECTED TO THE ADJACENT WALL, PROVIDE INTERCONNECTION BETWEEN THE RUNNERS AT THE FREE END TO PREVENT LATERAL SPREADING. A METAL STRUT OR A #16 GAGE WIRE WITH A POSITIVE MECHANICAL CONNECTION TO THE RUNNER MAY BE USED. WHERE THE PERPENDICULAR DISTANCE FROM THE WALL TO THE FIRST PARALLEL RUNNER IS 8 INCHES OR LESS, THIS INTERLOCK IS NOT REQUIRED.

4. EXPANSION JOINTS, SEISMIC SEPERATIONS, AND PENETRATIONS:
4.1 EXPANSION JOINTS SHALL BE PROVIDED IN THE CEILING AT INTERSECTIONS OF CORRIDORS AND AT JUNCTIONS OF CORRIDORS WITH LOBBIES OR OTHER SIMILAR AREAS. SEE FIGURE 7 DETAIL A.
4.2 FOR CEILING AREAS EXCEEDING 2500 SQUARE FEET, A SEISMIC SEPARATION JOINT SHALL BE PROVIDED IN ACCORDANCE WITH FIGURE 7 DETAIL A TO DIVIDE THE CEILING INTO AREAS NOT EXCEEDING 2500 SQUARE FEET. ALTERNATIVELY, COMPLY WITH ASTM E580-08 SECTION 5.2.9.
4.3 PENETRATIONS THROUGH THE CEILING FOR SPRINKLER HEADS AND OTHER SIMILAR DEVICES THAT ARE NOT INTEGRALLY TIED TO THE CEILING SYSTEM IN THE LATERAL DIRECTION SHALL HAVE A TWO (2) INCH OVERSIZED RING, SLEEVE OR ADAPTER THROUGH THE CEILING TILE TO ALLOW FREE MOVEMENT OF ONE (1) INCH IN ALL HORIZONTAL DIRECTIONS. ALTERNATIVELY, PER ASTM E580 SECTION 5.2.8.8, A FLEXIBLE SPRINKLER HOSE FITTING THAT CAN ACCOMMODATE 1 INCH OF CEILING MOVEMENT SHALL BE PERMITTED TO BE USED IN LIEU OF THE OVERSIZED RING, SLEEVE OR ADAPTER.

5. LATERAL FORCE BRACING: LATERAL FORCE BRACING IS REQUIRED PER THIS SECTION FOR ALL CEILING AREAS. THE SPACING OF THE BRACING ASSEMBLIES MUST BE SHOWN ON THE CONSTRUCTION DOCUMENTS. EXCEPTION: LATERAL FORCE BRACING MAY BE OMITTED FOR SUSPENDED ACOUSTICAL CEILING SYSTEMS WITH A CEILING AREA OF 144 SQUARE FEET OR LESS, AND FIRE RATED SUSPENDED ACOUSTICAL CEILING SYSTEMS WITH A CEILING AREA OF 96 SQUARE FEET OR LESS, WHEN PERIMETER SUPPORT IN ACCORDANCE WITH SECTION 3.4 OF THIS IR OR WITH ASTM E580 SECTIONS 5.2.2 AND 5.2.3 ARE PROVIDED AND PERIMETER WALLS ARE DESIGNED TO CARRY THE CEILING LATERAL FORCES.
5.1 PROVIDE LATERAL-FORCE BRACING ASSEMBLIES CONSISTING OF A COMPRESSION STRUT AND FOUR (4) #12 GAGE SPLAYED BRACING WIRES ORIENTED 90 DEGREES FROM EACH OTHER (SEE FIGURE 1).
5.2 LATERAL-FORCE BRACING ASSEMBLIES SHALL BE SPACED AT A MAXIMUM OF 12 FEET BY 12 FEET ON CENTERS FOR SCHOOL BUILDINGS AND 8 FEET BY 12 FEET ON CENTERS FOR ESSENTIAL SERVICES BUILDINGS, WITH THE FIRST ASSEMBLY WITHIN HALF THE MAXIMUM SPACING FROM EACH WALL AND AT THE EDGES OF ANY CHANGE IN ELEVATION OF THE CEILING. THE LAST ASSEMBLY MUST BE WITHIN MAXIMUM DISTANCE FROM EACH WALL.
5.3 THE SLOPE OF BRACING WIRES SHALL NOT EXCEED 45 DEGREES FROM THE PLANE OF THE CEILING AND WIRES SHALL BE TAUT. SPLICES IN WIRES ARE NOT PERMITTED WITHOUT SPECIAL DSA APPROVAL.
5.4 COMPRESSION STRUTS SHALL BE ADEQUATE TO RESIST THE VERTICAL COMPONENT INDUCED BY THE BRACING WIRES, AND SHALL NOT BE MORE THAN 1 (HORIZONTAL) IN 6 (VERTICAL) OUT OF PLUMB.

6. ATTACHMENT OF HANGER AND BRACING WIRES:
6.1 FASTEN #12 HANGER WIRES WITH NOT LESS THAN THREE (3) TIGHT TURNS IN 3 INCHES. HANGER WIRE LOOPS SHALL BE TIGHTLY WRAPPED AND SHARPLY BENT TO PREVENT ANY VERTICAL MOVEMENT OR ROTATION OF THE MEMBER WITHIN THE LOOPS (SEE ASTM E580, SECTION 5.2.7.2).
6.2 FASTEN #10 OR #12 BRACING WIRES WITH FOUR (4) TIGHT TURNS. MAKE ALL TIGHT TURNS WITHIN A DISTANCE OF 1-1/2 INCHES.
6.3 HANGER OR BRACING WIRE ANCHORED TO THE STRUCTURE SHOULD BE INSTALLED IN SUCH A MANNER THAT THE DIRECTION OF THE ANCHOR ALIGNS AS CLOSELY AS POSSIBLE WITH THE DIRECTION OF THE WIRE.
6.4 SEPARATE ALL CEILING HANGER AND BRACING WIRES AT LEAST SIX (6) INCHES FROM ALL UNBRACED DUCTS, PIPES, CONDUIT, ETC.
6.5 HANGER WIRES SHALL NOT ATTACH TO OR BEND AROUND INTERFERING MATERIAL OR EQUIPMENT. PROVIDE TRAPEZE OR OTHER SUPPLEMENTARY SUPPORT MEMBERS AT OBSTRUCTIONS TO TYPICAL HANGER SPACING. SEE FIGURE 3A, DETAIL F. PROVIDE ADDITIONAL HANGERS, STRUTS OR BRACES AS REQUIRED AT ALL CEILING BREAKS, SOFFITS, OR DISCONTINUOUS AREAS.
6.6 HANGER WIRES THAT ARE MORE THAN 1 (HORIZONTAL) IN 6 (VERTICAL) OUT OF PLUMB SHALL HAVE COUNTER-SLOPING WIRES. PERIMETER HANGER WIRES AT MAIN RUNNERS THAT ARE POSITIVELY ATTACHED TO THE PERIMETER CLOSURE ANGLE, COUNTER-SLOPING IS OPTIONAL.
NOTE : SEE ASTM C-636 FIGURE 1 FOR COUNTER-SLOPING METHODS.
6.7 WHEN CONNECTION DETAILS DIFFER FROM THOSE IN THE ATTACHED FIGURES, ATTACHMENT OF BRACING WIRES TO THE STRUCTURE ABOVE AND TO THE MAIN RUNNERS SHALL BE ADEQUATE FOR THE LOAD IMPOSED. THE WEIGHT (W) SHALL BE TAKEN AS NOT LESS THAN 4 PSF FOR CALCULATING SEISMIC FORCES (FP). P
6.8 WHEN DRILLED-IN CONCRETE ANCHORS OR SHOT-IN ANCHORS ARE USED IN REINFORCED CONCRETE FOR HANGER WIRES, 1 OUT OF 10 WIRE/ANCHOR ASSEMBLIES MUST BE FIELD TESTED FOR 200 LBS. IN TENSION. WHEN DRILLED-IN CONCRETE ANCHORS ARE USED FOR BRACING WIRES, 1 OUT OF 2 WIRE/ANCHOR ASSEMBLIES MUST BE FIELD TESTED FOR 440 LBS. IN TENSION IN THE DIRECTION OF THE WIRE. SHOT-IN ANCHORS IN CONCRETE ARE NOT PERMITTED FOR BRACING WIRES.
NOTE: DRILLED-IN OR SHOT-IN ANCHORS REQUIRE SPECIAL DSA APPROVAL PRIOR TO USE IN PRESTRESSED CONCRETE.

7. CEILING FIXTURES, TERMINALS, AND DEVICES: ALL FIXTURES, TERMINALS, AND OTHER DEVICES SHALL BE MOUNTED IN A MANNER THAT WILL NOT COMPROMISE CEILING PERFORMANCE IN ACCORDANCE WITH SECTION 13.5.6.2.2(5) OF ASCE 7-10 AS AMENDED BY 2016 CBC SECTION 1616A.1.20 (1616.10.16*) AND ASTM E580 SECTIONS 5.3 AND 5.4.
7.1 CEILING PANELS SHALL NOT SUPPORT ANY LIGHT FIXTURES, AIR TERMINALS OR DEVICES. 7.2 ATTACH ALL LIGHT FIXTURES, CEILING MOUNTED AIR TERMINALS AND ALL OTHER DEVICES TO THE CEILING GRID RUNNERS TO RESIST A HORIZONTAL FORCE EQUAL TO THE WEIGHT OF THE FIXTURES. SCREWS OR APPROVED FASTENERS ARE REQUIRED. MINIMUM OF TWO ATTACHMENTS ARE REQUIRED AT EACH LIGHT FIXTURE PER ASTM E580 SECTION 5.3.1.
7.3 RECESSED OR DROP-IN LIGHT FIXTURES, GRILLES, MECHANICAL TERMINALS, AND FLEXIBLE SPRINKLER HOSE FITTINGS OR OTHER SERVICES BE SUPPORTED DIRECTLY ON RUNNERS CLASSIFIED AS ASTM HEAVY DUTY, BUT THEY MUST ALSO HAVE A MINIMUM OF TWO (2) #12 GAGE SLACK SAFETY WIRES ATTACHED TO THE FIXTURE AT DIAGONAL CORNERS AND ANCHORED TO THE STRUCTURE ABOVE.
7.4 ALL FLUSH OR RECESSED LIGHT FIXTURES, MECHANICAL TERMINALS, AND FLEXIBLE SPRINKLER HOSE FITTINGS OR OTHER SERVICES WEIGHING 56 LBS. OR MORE MUST BE INDEPENDENTLY SUPPORTED BY NOT LESS THAN FOUR (4) TAUT #12 GAGE WIRES ATTACHED TO THE HOUSING AND TO THE STRUCTURE ABOVE. THE FOUR (4) TAUT #12 GAGE WIRES, INCLUDING THEIR ATTACHMENT TO THE STRUCTURE ABOVE, MUST BE CAPABLE OF SUPPORTING FOUR (4) TIMES THE WEIGHT OF THE UNIT
7.5 ALL 4 FT. X 4 FT. LIGHT FIXTURES MUST HAVE SLACK SAFETY WIRES AT EACH CORNER.
7.6 SURFACE-MOUNTED FIXTURES SHALL BE ATTACHED TO THE MAIN RUNNER WITH AT LEAST TWO POSITIVE CLAMPING DEVICES MADE OF MATERIAL WITH A MINIMUM #14 GAGE. ROTATIONAL SPRING CATCHES DO NOT COMPLY. A #12 GAGE SUSPENSION WIRE SHALL BE ATTACHED TO EACH CLAMPING DEVICE TO THE STRUCTURE ABOVE. PROVIDE ADDITIONAL SUPPORTS WHEN LIGHT FIXTURES ARE 8 FT. OR LONGER. MAXIMUM SPACING BETWEEN SUPPORTS SHALL NOT EXCEED 8 FEET.
7.7 SUPPORT PENDANT-MOUNTED LIGHT FIXTURES DIRECTLY FROM THE STRUCTURE ABOVE WITH HANGER WIRES OR CABLES PASSING THROUGH EACH PENDANT HANGER AND CAPABLE OF SUPPORTING TWO (2) TIMES THE WEIGHT OF THE FIXTURE. A BRACING ASSEMBLY, PER FIGURE 1, IS REQUIRED WHERE THE PENDANT HANGER PENETRATES THE CEILING. SPECIAL DETAILS ARE REQUIRED TO ATTACH THE PENDANT HANGER TO THE BRACING ASSEMBLY TO TRANSMIT HORIZONTAL FORCE. IF THE PENDANT MOUNTED LIGHT FIXTURE IS DIRECTLY AND INDEPENDENTLY BRACED BELOW THE CEILING, I.E. AIRCRAFT CABLES TO WALLS, THEN BRACE ASSEMBLY IS NOT REQUIRED ABOVE THE CEILING. SEE IR 16-9 FOR ADDITIONAL REQUIREMENT FOR PENDENT MOUNTED FIXTURES.
7.8 ALL LIGHT-WEIGHT MISCELLANEOUS DEVICES, SUCH AS STROBE LIGHTS, SPEAKERS, ETC., SHALL BE ATTACHED TO THE CEILING GRID PER SECTION 7.1 OF THIS IR. IN ADDITION, DEVICES WEIGHING MORE THAN 10 LBS SHALL HAVE A #12 SLACK SAFETY WIRE ANCHORED TO THE STRUCTURE ABOVE. DEVICES WEIGHING MORE THAN 20 LBS SHALL BE SUPPORTED FROM THE STRUCTURE ABOVE PER SECTION 7.3 OF THIS IR.

8. ADDITIONAL REQUIREMENTS:
8.1 FIRE RATED CEILINGS: PROVIDE A DETAIL AND DESIGN NUMBER FOR RATED CEILING ASSEMBLIES FROM AN AUTHORIZED TESTING AGENCY. THE COMPONENTS AND INSTALLATION DETAILS MUST CONFORM IN EVERY RESPECT WITH THE LISTED DETAIL AND NUMBER. DETAILS SHALL CLEARLY DEPICT ALL COMPONENTS, INCLUDING INSULATION MATERIALS, FRAMING AND ATTACHMENT OF THE DESIGN SO THAT THE ASSEMBLY CAN BE CONSTRUCTED AND INSPECTED ACCORDINGLY. POP RIVETS, SCREWS, OR OTHER ATTACHMENTS ARE NOT ACCEPTABLE UNLESS SPECIFICALLY DETAILED ON THE DRAWINGS AND APPROVED BY U.L. AND STATE FIRE MARSHAL. (SFM) RECOGNIZED LABORATORIES.
8.2 METAL AND OTHER PANELS: METAL PANELS AND PANELS WEIGHING MORE THAN 1/2 PSF, OTHER THAN MINERAL FIBER ACOUSTICAL TILE, ARE TO BE POSITIVELY ATTACHED TO THE CEILING SUSPENSION RUNNERS.
8.3 ESSENTIAL SERVICES BUILDINGS: EXITWAYS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 13.5.6.2.2(1) OF ASCE 7-10 AS AMENDED BY 2016 CBC SECTION 1616A.1.20 (1616.10.16*). A MAIN OR CROSS RUNNER SHALL BE INSTALLED ON ALL SIDES OF EACH PIECE OF TILE, BOARD OR PANEL AND EACH LIGHT FIXTURE OR GRILL (SEE FIGURE 7 DETAIL B). SPLICES OR INTERSECTION OF SUCH RUNNERS SHALL BE ATTACHED WITH THROUGH CONNECTORS SUCH AS POP RIVETS, SCREWS, PINS, PLATES WITH END TABS OR OTHER APPROVED CONNECTORS.
8.4 SUSPENDED ACOUSTICAL CEILINGS BELOW GYPSUM BOARD CEILINGS: WHERE GYPSUM BOARD OR OTHER CEILING FINISHES ARE ATTACHED TO THE FRAMING, SPECIFIC DETAILS WILL BE REQUIRED FOR THE VERTICAL HANGER WIRE AND LATERAL BRACING WIRE SUPPORT CONNECTIONS TO THE FRAMING.

9. DSA ACCEPTANCE REPORT: DSA NO LONGER ISSUES ACCEPTANCE REPORTS FOR PRODUCTS. CEILING GRID SYSTEMS OR COMPONENTS, WITH VALID EVALUATION REPORTS ISSUED BY QUALIFIED EVALUATION AGENCIES IN ACCORDANCE WITH DSA IR A-5, ARE ACCEPTED BY DSA, PROVIDED THE SYSTEM OR COMPONENT MEETS THE REQUIREMENTS OF CBC SECTION 1616A.1.20 (SECTION 1616.10.16 FOR CC), ASTM C635, C636 AND E580. WHERE QUALIFIED EVALUATION REPORT IS UTILIZED, THE INSTALLATION SHALL COMPLY WITH ALL THE REQUIREMENTS SPECIFIED IN THE EVALUATION REPORT, I.E. CONNECTIONS, MEMBER SIZES, PERIMETER DETAILS, SPECIAL CLIPS TO WALL ANGLES, ETC.

10. CONSTRUCTION DOCUMENTS: DRAWINGS AND SPECIFICATIONS SHALL CLEARLY IDENTIFY ALL SYSTEMS AND SHALL DEFINE OR SHOW ALL SUPPORTING DETAILS, LIGHTING FIXTURE ATTACHMENT, LATERAL FORCE BRACING, PARTITION BRACING, SEISMIC SEPARATIONS, ETC. WHERE DIFFERENCES OCCUR BETWEEN PROVISIONS OF THIS IR AND THE 2016 CBC, THE PROVISIONS OF THE 2013 CBC SHALL APPLY. A LIST OF ACCEPTABLE GRID SYSTEMS MUST BE SHOWN ON THE DRAWINGS. THE GRID SYSTEMS SPECIFIED SHALL HAVE VALID EVALUATION REPORTS IN ACCORDANCE WITH IR A-5. THE FOLLOWING INFORMATION SHALL BE INCLUDED ON THE DRAWINGS FOR EACH ACCEPTABLE GRID SYSTEM SPECIFIED:

CLASSIFICATION OF CEILING GRID IS HEAVY DUTY
MANUFACTURER'S CATALOG NUMBER- MAIN RUNNER (1) (2).
MANUFACTURER'S CATALOG NUMBER- CROSS RUNNER (2).
MANUFACTURER'S CATALOG NUMBER OF DETAIL FOR RUNNER SPLICE (2).

NOTES: (1) RUNNERS MUST BE RATED AS HEAVY DUTY.
(2) SHOW MANUFACTURER, DUTY CLASSIFICATION AND CATALOG NUMBERS.

LICENSED ARCHITECT JON P. ANDERSON No. C29998 REN. 07-31-19 STATE OF CALIFORNIA

CEILING DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

A3.10
75-16217-00
05.01.18
Revisions
ADD-1 Date 1 TYPE DESCRIPTION HERE
BV01 10.06.17 BUREAU VERITAS COMMENTS

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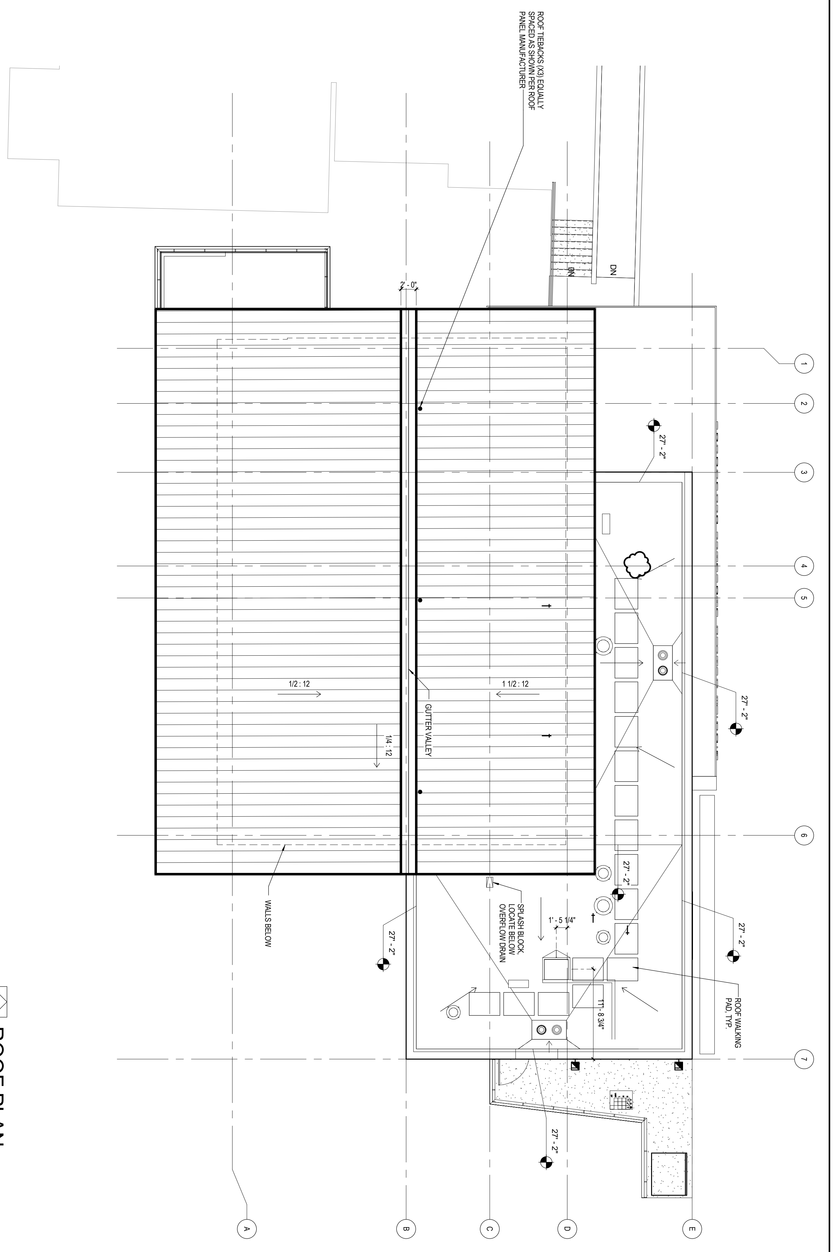

NORTH

ROOF PLAN
SCALE: 1/8" = 1'-0"

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A4.01
75-16217-00
05.01.18
Revisions
ADD-1 1.26.18 ADDENDUM 1
FM02 5.14.18 FIRE MARSHALL BACKCHECK 2

ROOF PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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JON P. ANDERSON
No. C28999
REGISTERED
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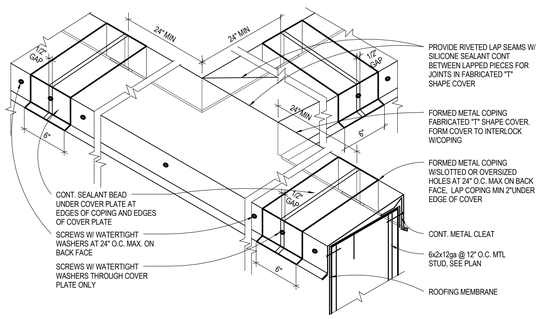

11 A4.10 ROOF COPING "T" INTERSECTION TYP.
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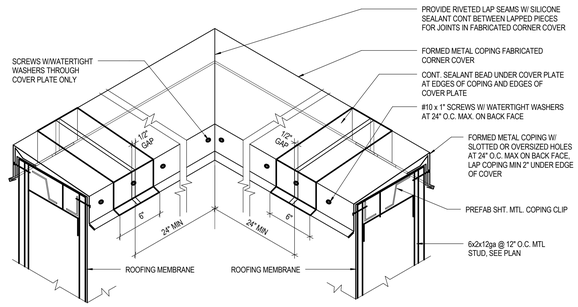

12 A4.10 TYP. COPING CORNER DETAIL
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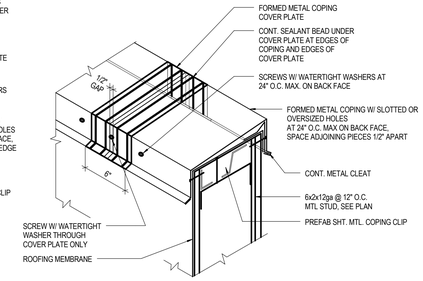

14 A4.10 COPING DETAIL
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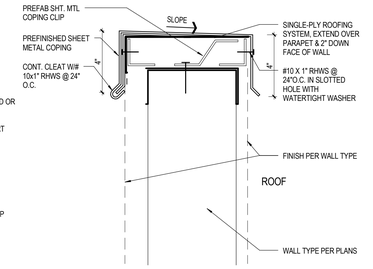
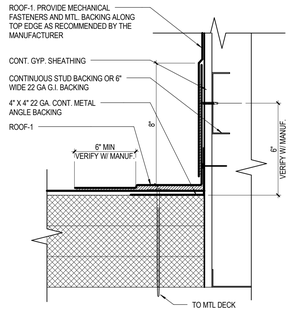


NOTE:
REF. DTLS 12, 16, 20/-0

15 A4.10 ROOF COPING, TYP
SCALE: 3" = 1'-0"



16 A4.10 BASE FLASHING
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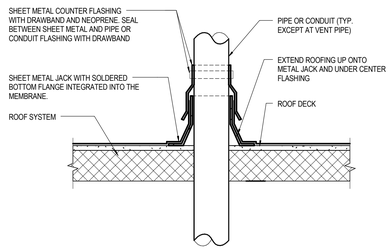

21 A4.10 ROOF PENETRATION
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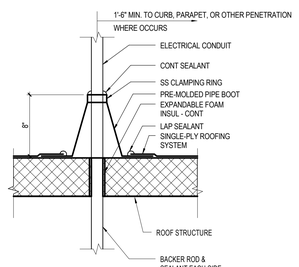
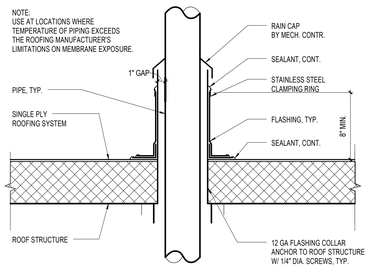
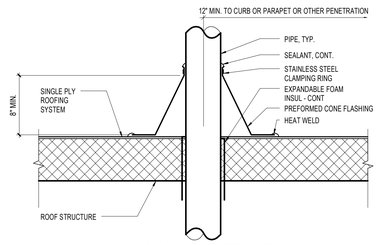
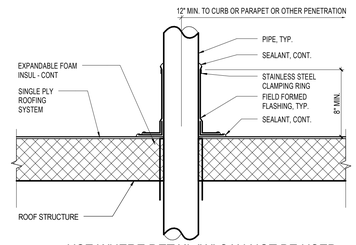


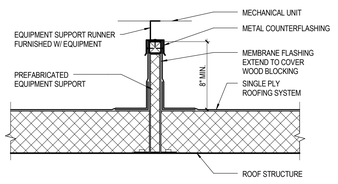




A TYP. PIPE PENETRATION



B USE WHERE DETAIL "A" CAN NOT BE USED

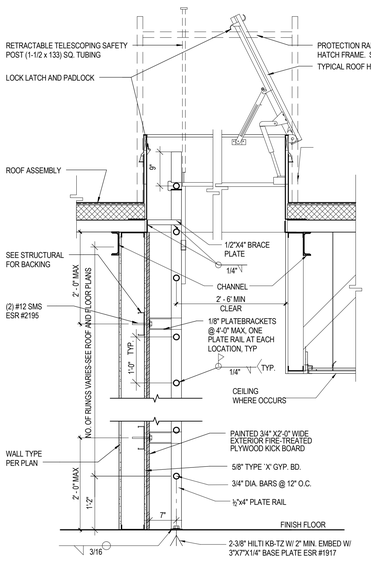


31 A4.10 TYP. ROOF EQUIPMENT SUPPORT
SCALE: 1 1/2" = 1'-0"

22 A4.10 TYP. CONDUIT PENETRATION
SCALE: 1 1/2" = 1'-0"

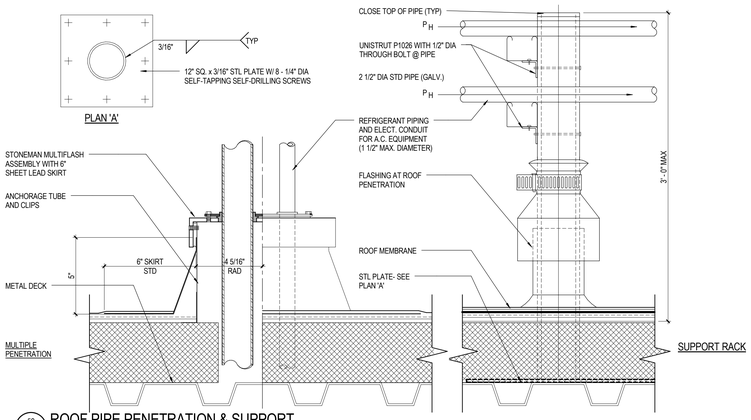
24 A4.10 TYP. FLUE PIPE PENETRATION
SCALE: 1 1/2" = 1'-0"

25 A4.10 TYPICAL PIPE PENETRATION DETAILS AT ROOF STRUCTURE
SCALE: 1 1/2" = 1'-0"

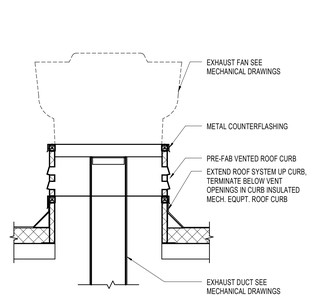


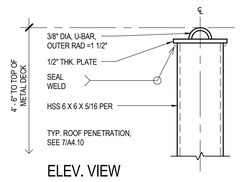
NOTE:
1. ROOF ACCESS GUARD TO COMPLY WITH CBC 1013.6
2. ALL STEEL TO BE GALVANIZED AND PAINTED.

51 A4.10 ROOF HATCH & ACCESS LADDER
SCALE: 3/4" = 1'-0"



52 A4.10 ROOF PIPE PENETRATION & SUPPORT
SCALE: 3" = 1'-0"

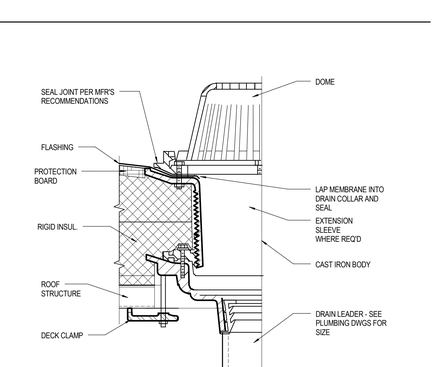




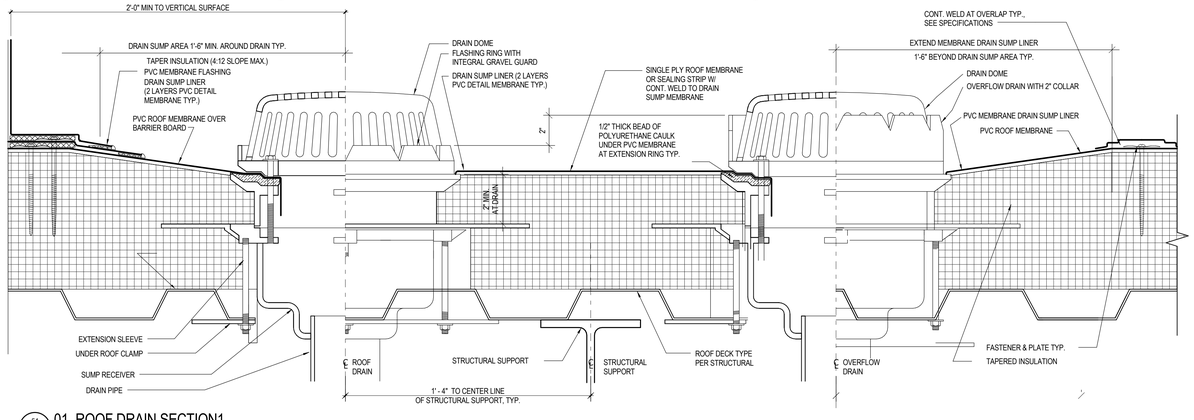
ELEV. VIEW

44 A4.10 TIEBACK ROOF ANCHOR
SCALE: 1 1/2" = 1'-0"

45 A4.10 ROOF EXHAUST FAN CURB/SHAFT
SCALE: 3/4" = 1'-0"



46 A4.10 ROOF DRAIN, ENLARGED
SCALE: 3" = 1'-0"



54 A4.10 01_ROOF DRAIN SECTION1
SCALE: 3" = 1'-0"

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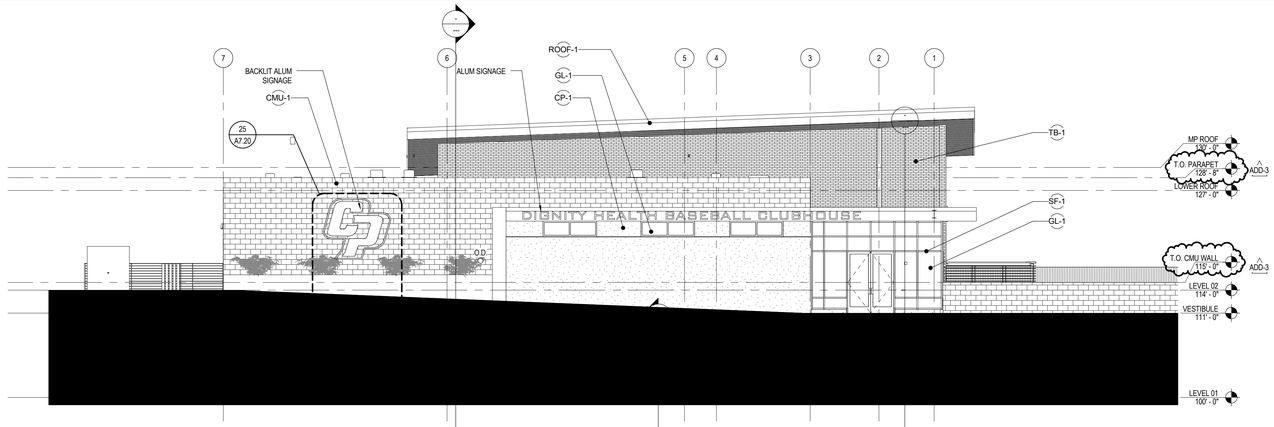
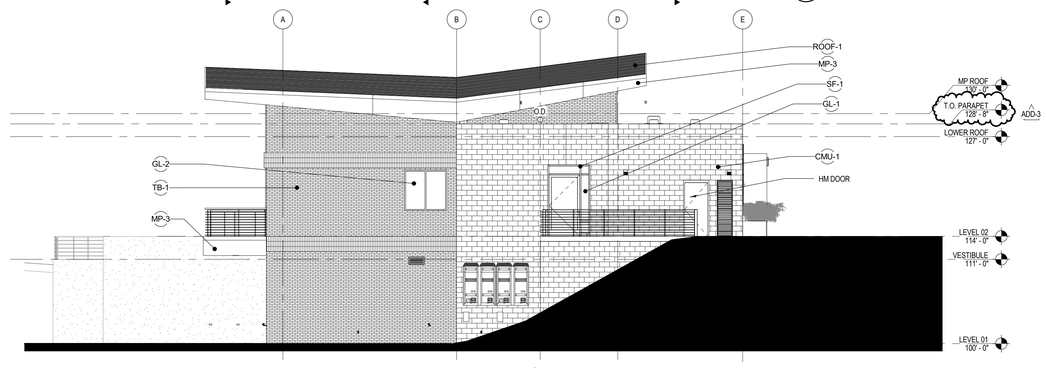
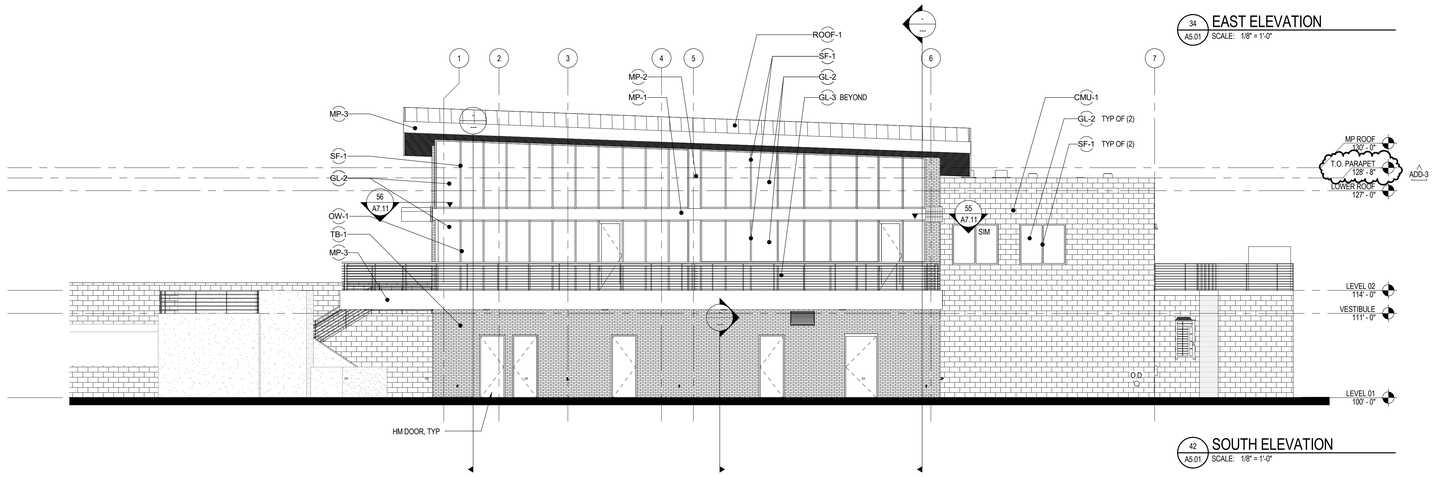


22 A5.01 NORTH ELEVATION
SCALE: 1/8" = 1'-0"



34 A5.01 EAST ELEVATION
SCALE: 1/8" = 1'-0"



42 A5.01 SOUTH ELEVATION
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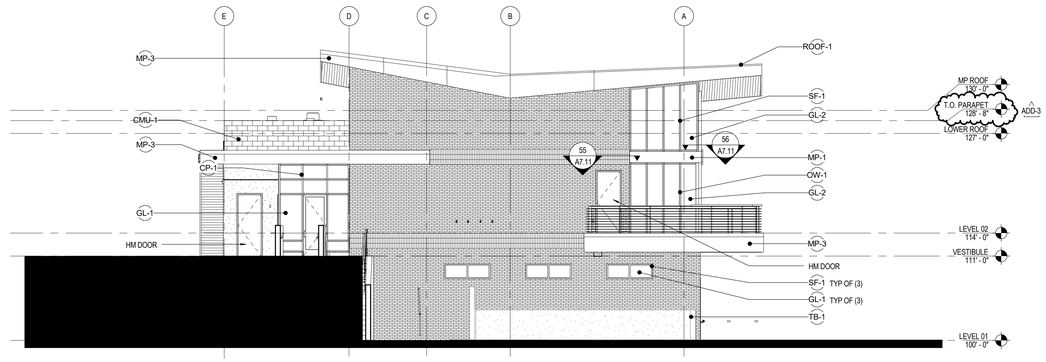

52 A5.01 WEST ELEVATION
SCALE: 1/8" = 1'-0"

EXTERIOR FINISH SCHEDULE

SF-1 STOREFRONT SYSTEM

BOD MANUFACTURER: KAWNEER
PRODUCT: TRIFAB VERSAGLAZE 451T
COLOR: PERMANODIC ANODIZED - BLACK NO. 29

OW-1 OPERABLE GLASS WALL SYSTEM

BOD MANUFACTURER: NANAWALL
PRODUCT: HSW60
COLOR: SIGNAL BLACK RAL-9004

GL-1 INSULATED GLAZING AT EXTERIOR STOREFRONT

BOD MANUFACTURER: PPG IDEASCAPES
PRODUCT: SOLARBAN 60
COLOR: CLEAR
LOCATION: ALL NORTH EXTERIOR ELEVATIONS, SEE A5.01 FOR SELECTED EAST AND WEST EXTERIOR ELEVATIONS

GL-2 INSULATED GLAZING AT EXTERIOR STOREFRONT

BOD MANUFACTURER: PPG IDEASCAPES
PRODUCT: SOLARBAN 70
COLOR: CLEAR
LOCATION: ALL SOUTH EXTERIOR ELEVATIONS, SEE A5.01 FOR SELECTED EAST AND WEST EXTERIOR ELEVATIONS

GL-3 SPANDREL GLASS

BOD MANUFACTURER: ICD HIGH-PERFORMANCE COATINGS
PRODUCT: OPACI-COAT-300 SPANDREL GLASS COATING
COLOR: #3-0770 WARM GRAY
COMMENT: USE WITH STARPHIRE ULTRA-CLEAR GLASS BY PPG, REFERENCE WINDOW SCHEDULE FOR LOCATION

CP-1 PORTLAND CEMENT PLASTER

BOD MANUFACTURER: DRYVIT
PRODUCT: CCP 2
COLOR: 448 BAVARIAN WOOD
COMMENT: INTEGRAL COLOR, 7/8", 3 COAT, SMOOTH TROWELED EXTERIOR CEMENT PLASTER WITH 1/2" ALUMINUM REVEALS

CMU-1 CONCRETE MASONRY UNIT BLOCK

BOD MANUFACTURER: BASALITE
PRODUCT: PRECISION SMOOTH CMU
COLOR: LIGHTWEIGHT BLOCK - COLOR #A705R-PREMIUM
MORTAR COLOR: BASALITE TYPE "S" 390
COMMENT: 12" W. REFERENCE STRUCTURAL
HORIZONTAL MORTAR JOINT FINISH PATTERN: RAKED
VERTICAL MORTAR JOINT FINISH PATTERN: CONCAVE

CMU-2 CONCRETE MASONRY UNIT BLOCK

BOD MANUFACTURER: BASALITE
PRODUCT PRECISION SMOOTH CMU
COLOR: LIGHTWEIGHT BLOCK - COLOR #A705R-PREMIUM
MORTAR COLOR: BASALITE TYPE "S" 390
COMMENT: 8" W

MP-1 METAL PANEL

BOD MANUFACTURER: ALCOA ARCHITECTURAL PRODUCTS
PRODUCT: REYNOBOND
PAINT SYSTEM: COLORWELD 500
COLOR: ANODIC SATIN

MP-2 METAL PANEL

BOD MANUFACTURER: ALCOA ARCHITECTURAL PRODUCTS
PRODUCT: REYNOBOND
PAINT SYSTEM: COLORWELD 500
COLOR: ???

MP-3 INSULATED METAL PANEL

BOD MANUFACTURER: KINGSPAN
PRODUCT: DESIGNWALL 2000
COLOR: EVERGREEN
COMMENT: 2" THICKNESS

TB-1 THIN BRICK VENEER

BOD MANUFACTURER: H.C. MUDDOX
PRODUCT: COMMERCIAL THIN BRICK - MINI MOD
COLOR: 65% OLD TOWN RED / 35% MOUNTAIN ROSE

ROOF-1

BOD MANUFACTURER: KINGSPAN
PRODUCT: KINGZIP STANDING SEAM INSULATED METAL ROOFING PANEL SYSTEM
COLOR: EVERGREEN
COMMENT: 3" THICKNESS

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

EXTERIOR ELEVATIONS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

A5.01
75-16217-00
01.25.18
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ADD-3 2.16.18 ADDENDUM 3

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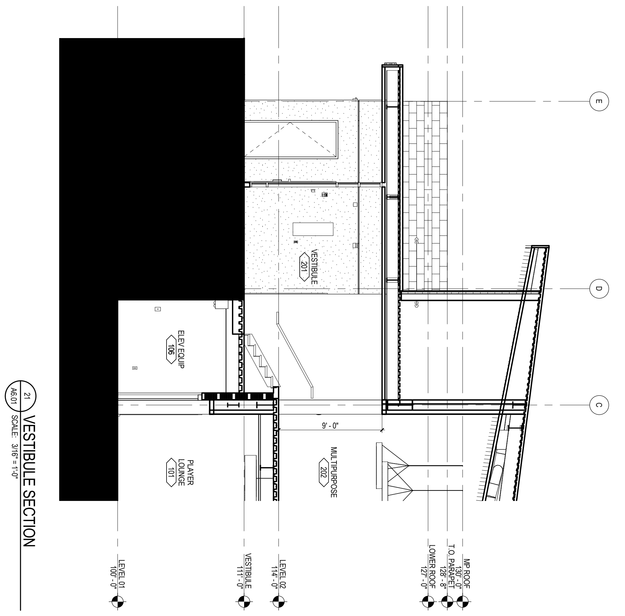
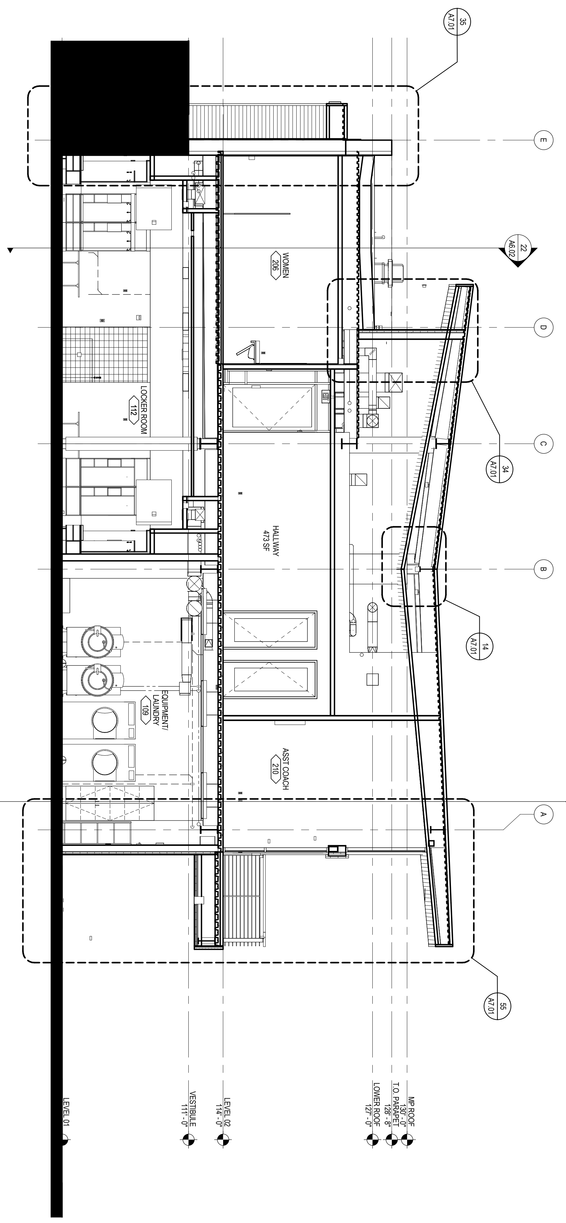
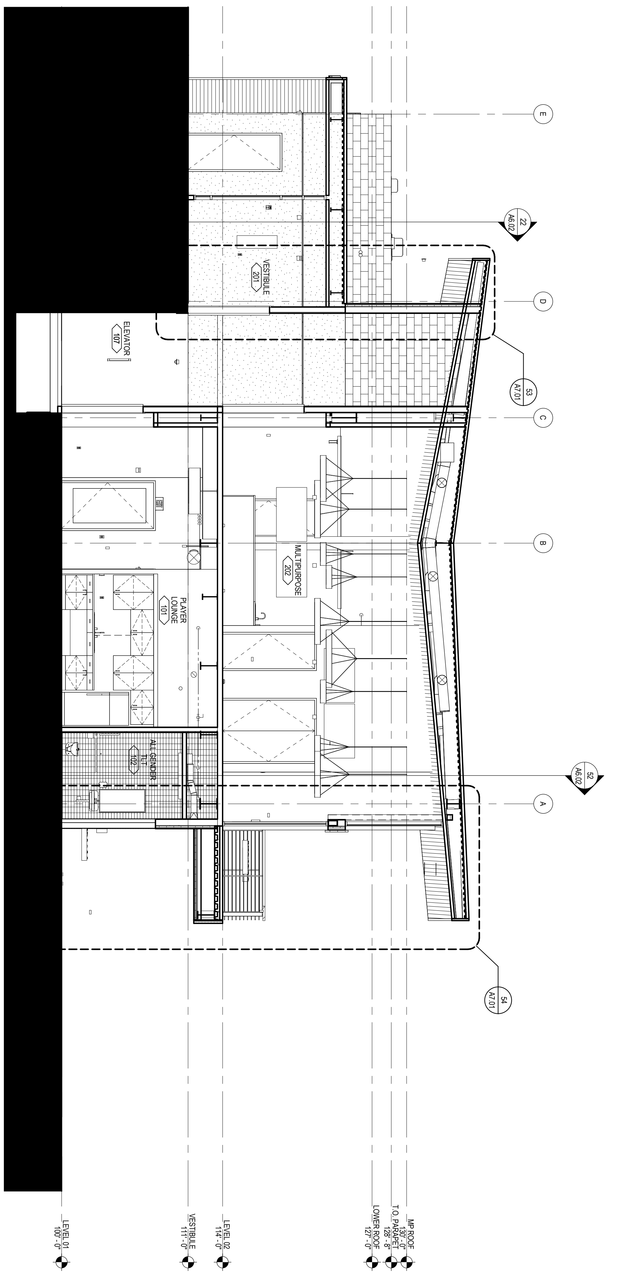


21 A6.01 VESTIBULE SECTION
SCALE: 3/8" = 1'-0"



23 A6.01 SECTION 2
SCALE: 3/16" = 1'-0"



22 A6.01 SECTION 1
SCALE: 3/16" = 1'-0"

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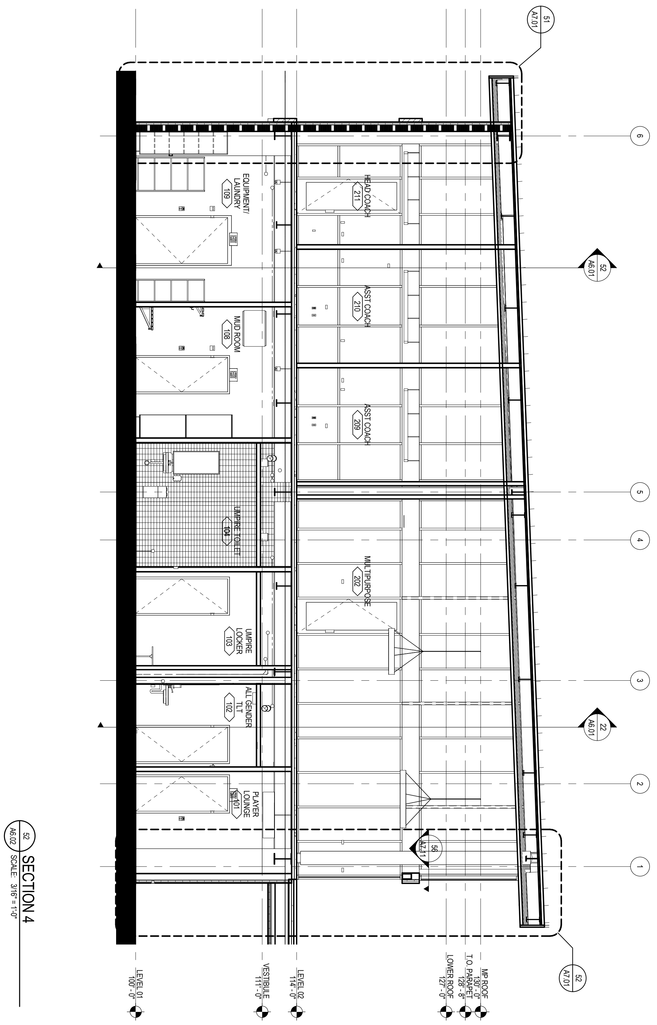
DSA01 4.27.18 DSA BACKCHECK 1

BUILDING SECTIONS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

LICENSED ARCHITECT
TOM P. ANDERSON
No. C26998
REN. 08-31-19
STATE OF CALIFORNIA



45 A6.02 SECTION 4
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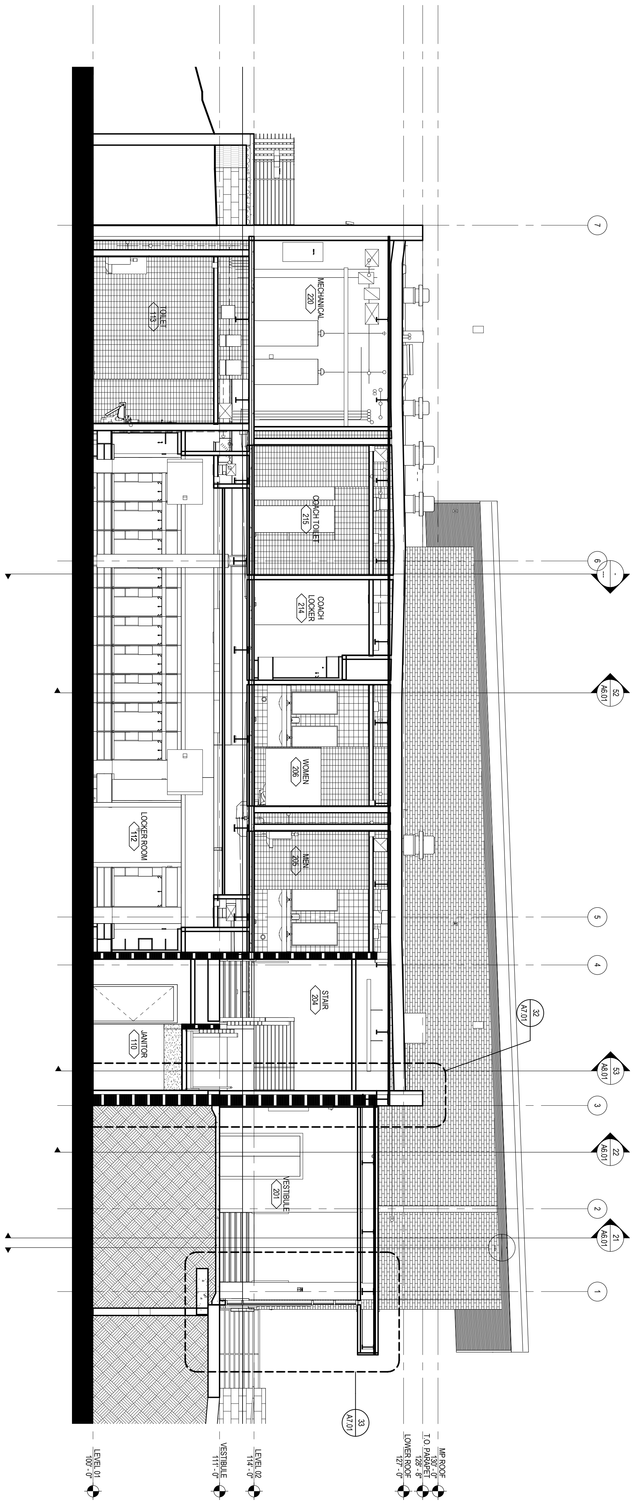

22 A6.02 SECTION 3
SCALE: 3/16" = 1'-0"

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DSA01 4.27.18 DSA BACKCHECK 1

BUILDING SECTIONS
BASEBALL CLUBHOUSE FACILITY
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No. C29998
EXP. 08-31-19
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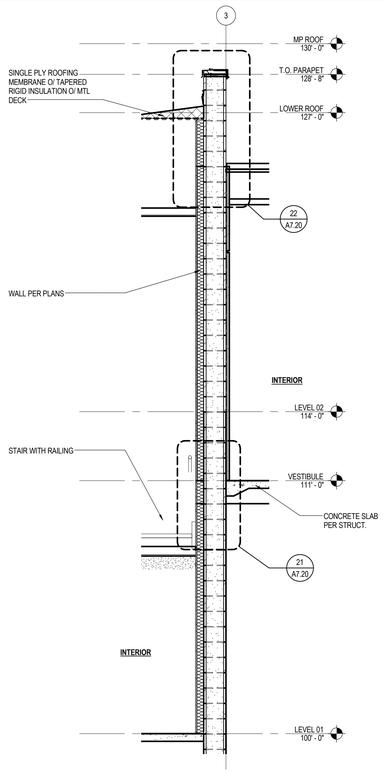
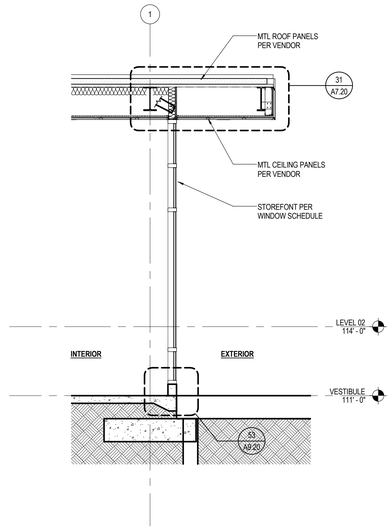
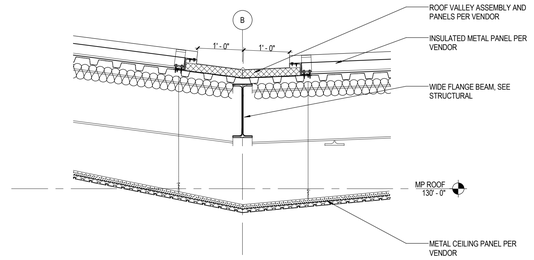


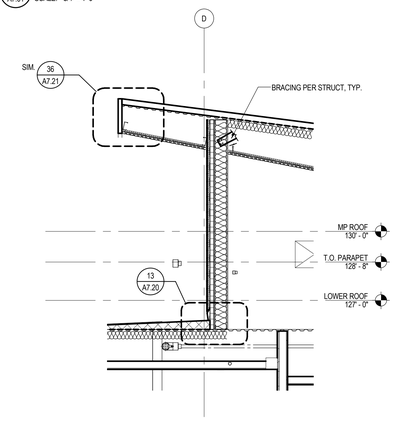
32 A7.01 EXTERIOR WALL SECTION @ STAIR
SCALE: 3/8" = 1'-0"



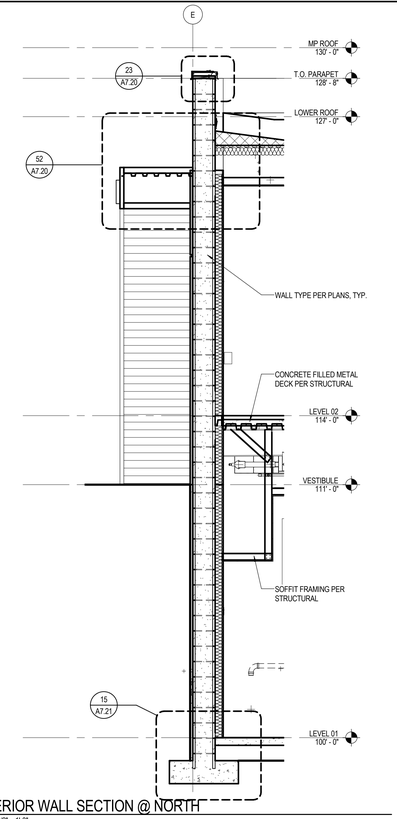
33 A7.01 EXTERIOR WALL SECTION @ VESTIBULE
SCALE: 3/8" = 1'-0"



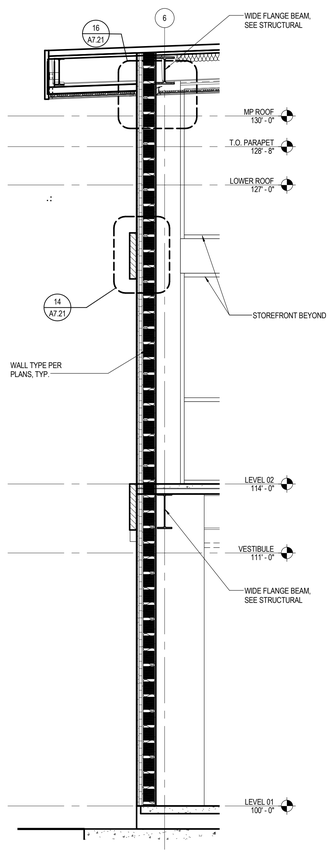
14 A7.01 ROOF SECTION @ VALLEY
SCALE: 3/4" = 1'-0"



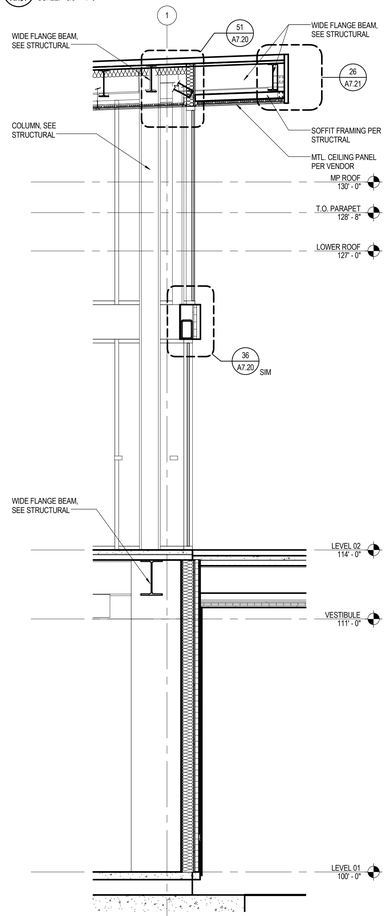
34 A7.01 EXTERIOR SECTION @ NORTH ROOF OVERHANG
SCALE: 3/8" = 1'-0"



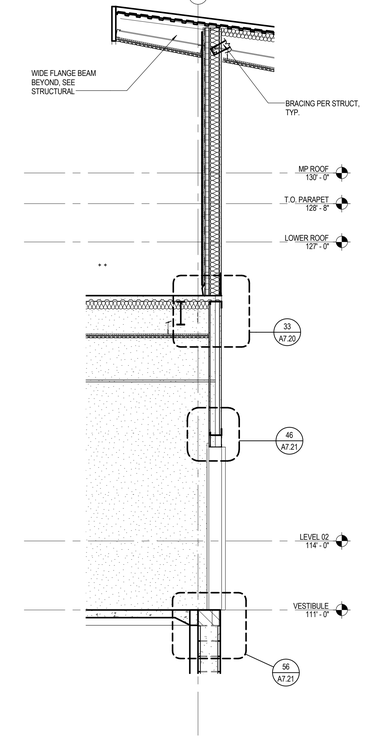
35 A7.01 EXTERIOR WALL SECTION @ NORTH
SCALE: 3/8" = 1'-0"



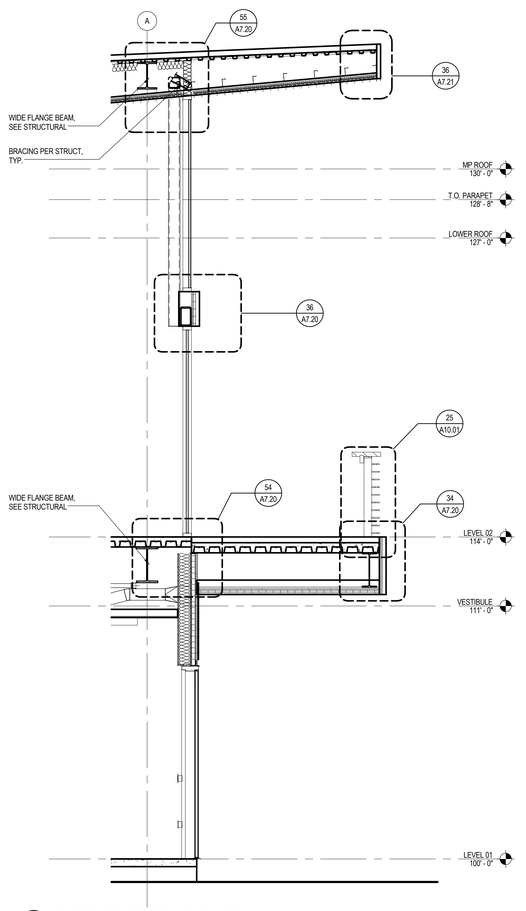
51 A7.01 EXTERIOR WALL SECTION @ EAST
SCALE: 3/8" = 1'-0"



52 A7.01 EXTERIOR WALL SECTION @ WEST
SCALE: 3/8" = 1'-0"



53 A7.01 EXTERIOR WALL SECTION @ ELEVATOR SHAFT
SCALE: 3/8" = 1'-0"



54 A7.01 EXTERIOR SECTION @ SOUTH
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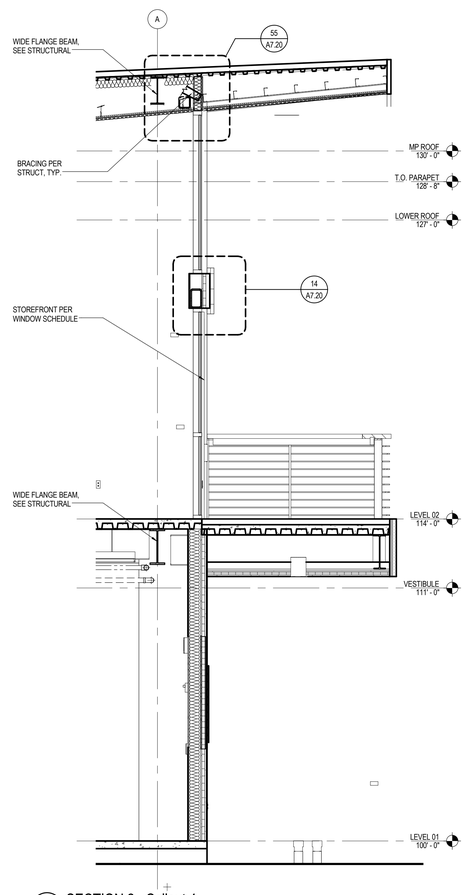

55 A7.01 SECTION 2 - Callout 4
SCALE: 3/8" = 1'-0"

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

WALL SECTIONS

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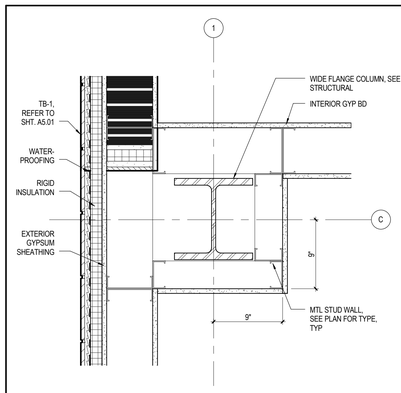
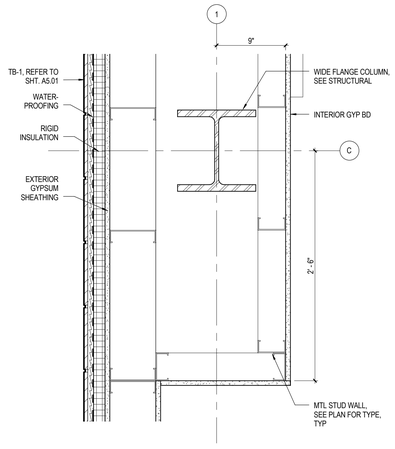
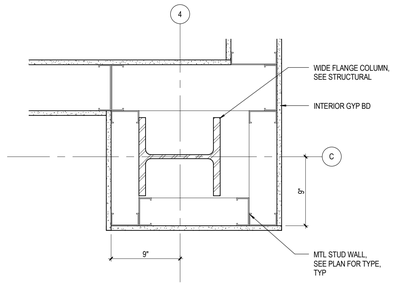


21 A7.10 COLUMN FURRING - LEVEL 1 - C1
SCALE: 1 1/2" = 1'-0"



22 A7.10 COLUMN FURRING - LEVEL 2 - C1
SCALE: 1 1/2" = 1'-0"



23 A7.10 COLUMN FURRING - LEVEL 2 - C4
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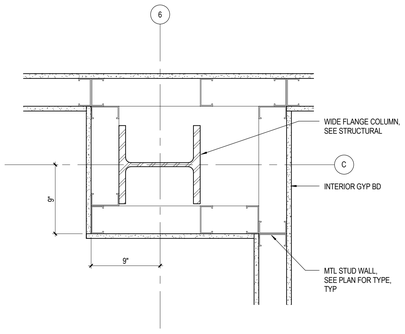

24 A7.10 COLUMN FURRING - LEVEL 2 - C6
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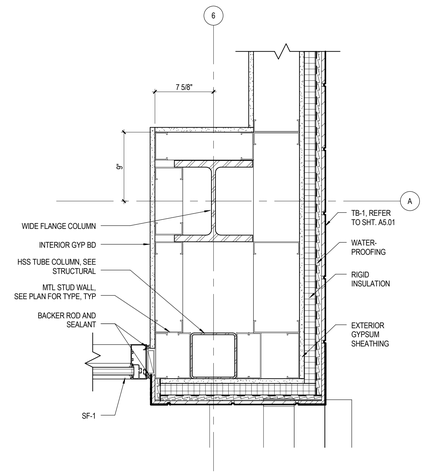
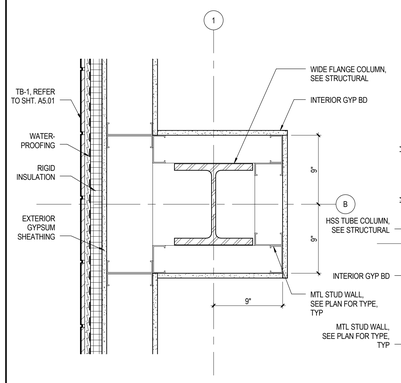


25 A7.10 COLUMN FURRING - LEVEL 2 - A6
SCALE: 1 1/2" = 1'-0"



31 A7.10 COLUMN FURRING - LEVEL 1 - B1
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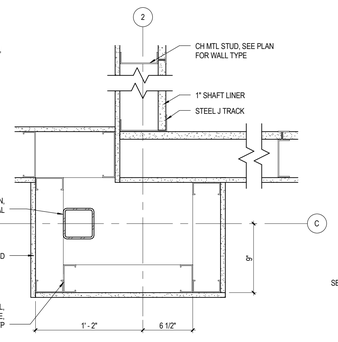
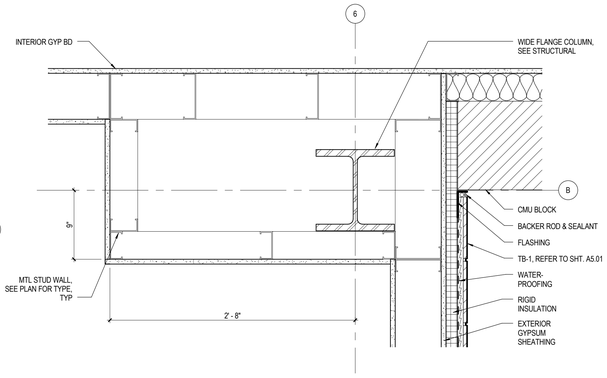
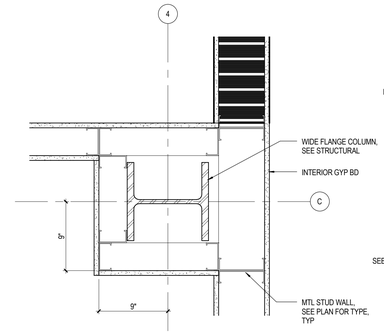


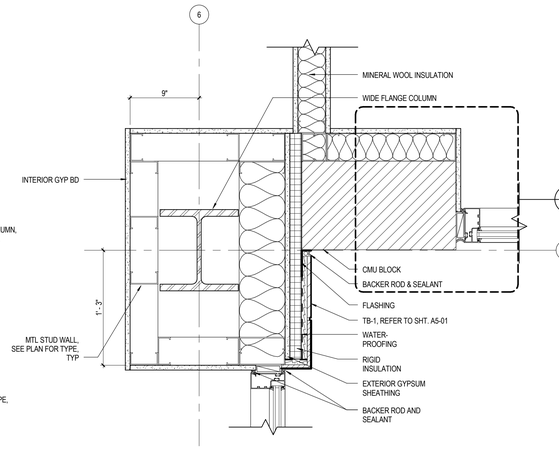
32 A7.10 COLUMN FURRING - LEVEL 1 - C2
SCALE: 1 1/2" = 1'-0"



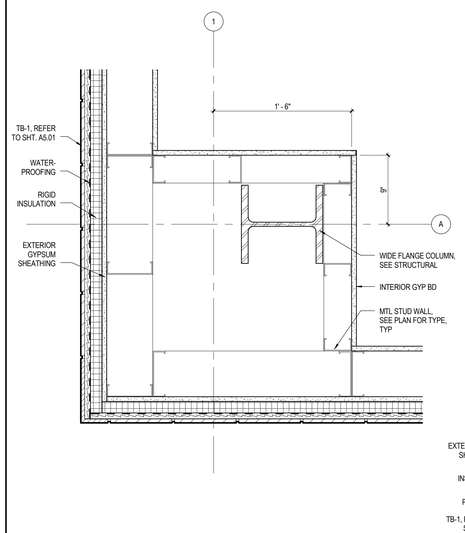
33 A7.10 COLUMN FURRING - LEVEL 1 - B6
SCALE: 1 1/2" = 1'-0"



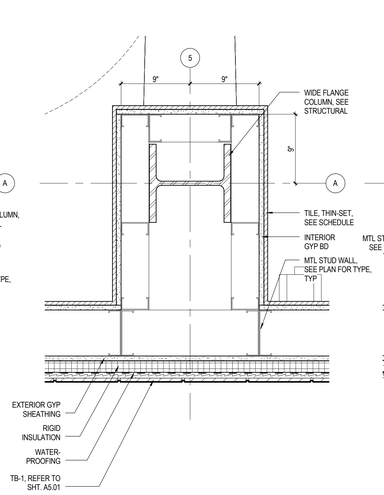
34 A7.10 COLUMN FURRING - LEVEL 1 - C4
SCALE: 1 1/2" = 1'-0"



35 A7.10 COLUMN FURRING - LEVEL 2 - B6
SCALE: 1 1/2" = 1'-0"



51 A7.10 COLUMN FURRING - LEVEL 1 - A1
SCALE: 1 1/2" = 1'-0"



52 A7.10 COLUMN FURRING - LEVEL 1 - A5
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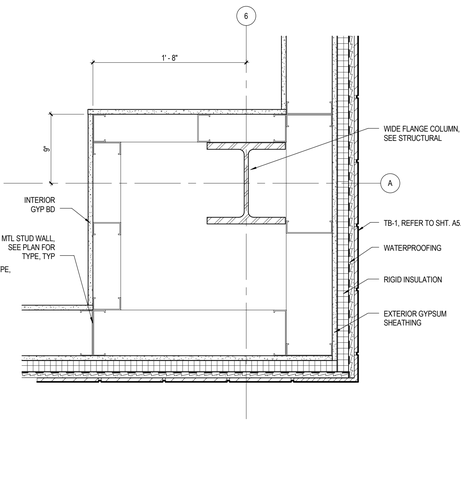
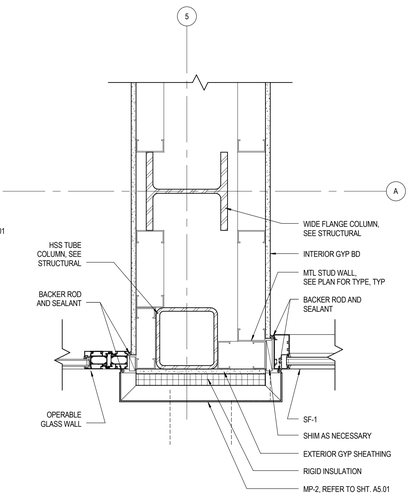
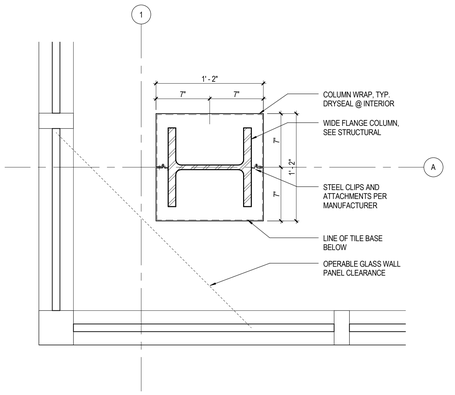


53 A7.10 COLUMN FURRING - LEVEL 1 - A6
SCALE: 1 1/2" = 1'-0"



54 A7.10 COLUMN FURRING - LEVEL 2 - A5
SCALE: 1 1/2" = 1'-0"



55 A7.10 COLUMN FURRING - LEVEL 2 - A1 (LEVEL 2 - B5, LEVEL 1 - C6, SIM)
SCALE: 1 1/2" = 1'-0"

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

WALL PLAN DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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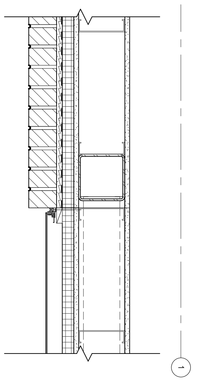
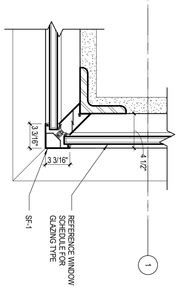
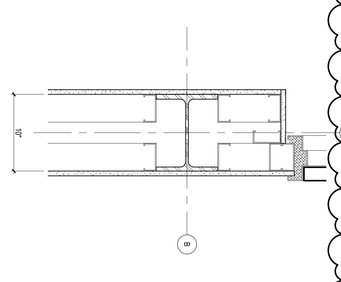


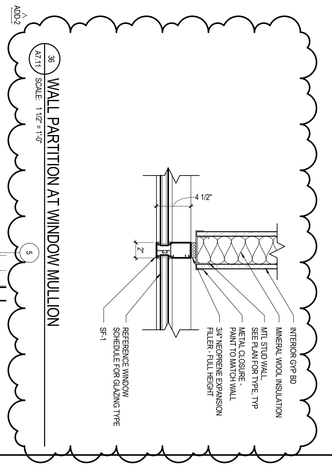
5S A11 SCALE 1 1/2" = 1'-0"
HSS COLUMN @ CLERESTORY STOREFRONT



5S A11 SCALE 1 1/2" = 1'-0"
OUTSIDE CORNER MULLION @ CLERESTORY STOREFRONT



4B A11 SCALE 1 1/2" = 1'-0"
COLUMN FURRING - LEVEL 1 - B5



3B A11 SCALE 1 1/2" = 1'-0"
WALL PARTITION AT WINDOW MULLION
ADD-2

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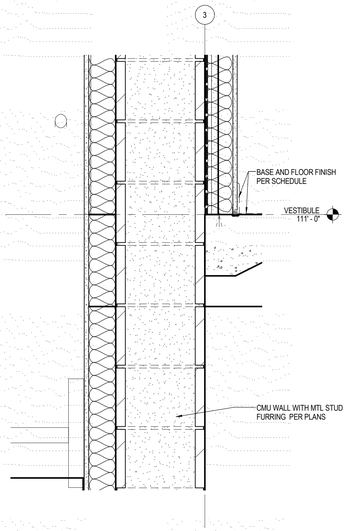
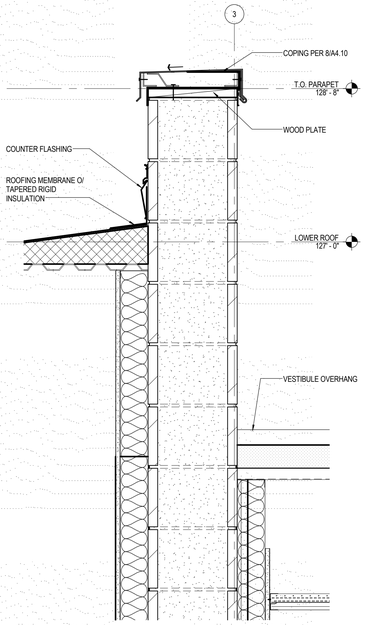
WALL PLAN DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

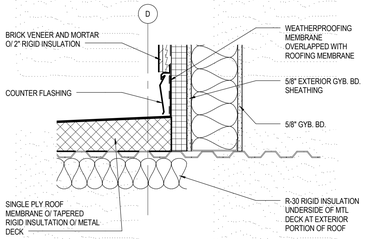
LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
STATE OF CALIFORNIA



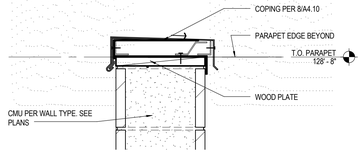
21 A7.20 EXTERIOR DETAIL @ VESTIBULE
SCALE: 1 1/2" = 1'-0"



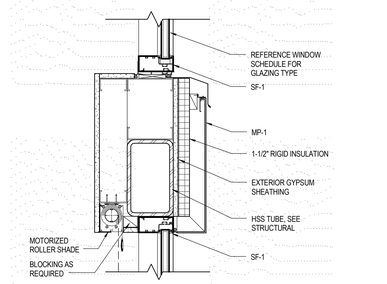
22 A7.20 PARAPET DETAIL @ GRIDLINE '3'
SCALE: 1 1/2" = 1'-0"



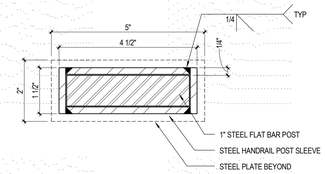
13 A7.20 ENLARGED ROOF DETAIL
SCALE: 1 1/2" = 1'-0"



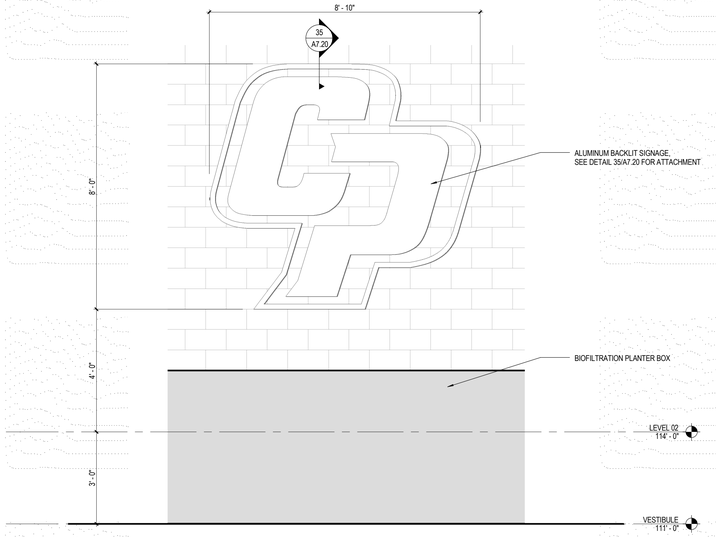
23 A7.20 PARAPET DETAIL @ GRIDLINE 'E'
SCALE: 1 1/2" = 1'-0"



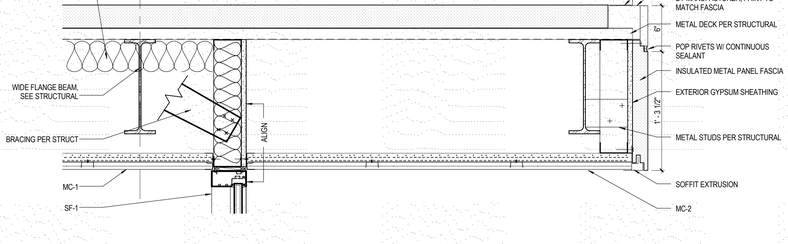
14 A7.20 METAL PANEL @ STOREFRONT
SCALE: 1 1/2" = 1'-0"



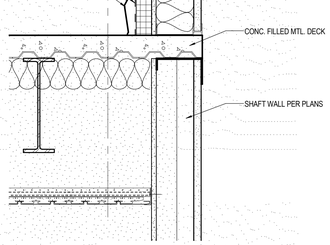
24 A7.20 HANDRAIL POST SLEEVE PLAN
SCALE: 6" = 1'-0"



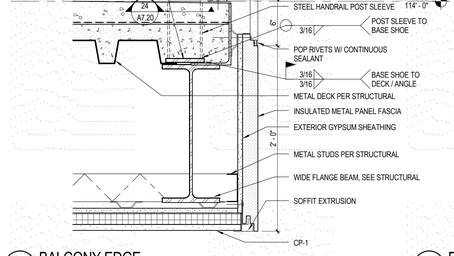
26 A7.20 NORTH ELEVATION - ENLARGED LOGO
SCALE: 1/2" = 1'-0"



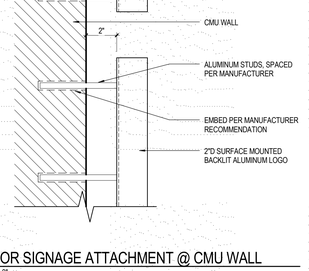
31 A7.20 ROOF OVERHANG @ VESTIBULE
SCALE: 1 1/2" = 1'-0"



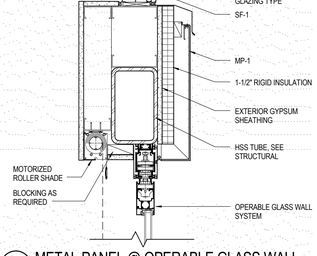
33 A7.20 VESTIBULE ROOF @ ELEVATOR SHAFT
SCALE: 1 1/2" = 1'-0"



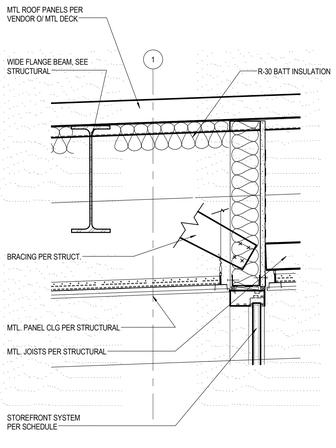
34 A7.20 BALCONY EDGE
SCALE: 1 1/2" = 1'-0"



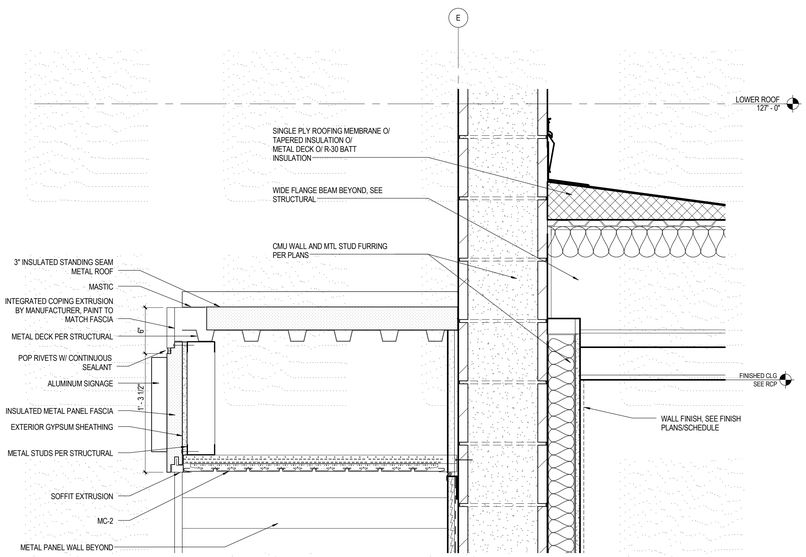
35 A7.20 EXTERIOR SIGNAGE ATTACHMENT @ CMU WALL
SCALE: 3" = 1'-0"



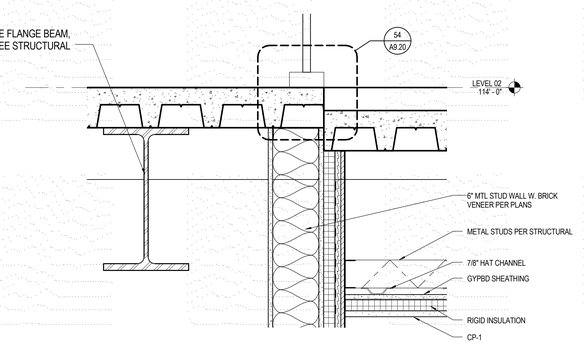
36 A7.20 METAL PANEL @ OPERABLE GLASS WALL
SCALE: 1 1/2" = 1'-0"



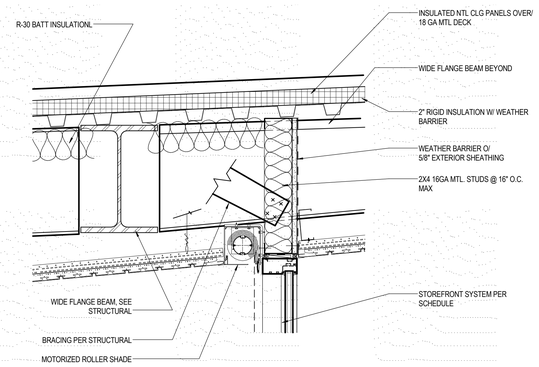
51 A7.20 SF-1 @ WESTERN OVERHANG
SCALE: 1 1/2" = 1'-0"



52 A7.20 ROOF @ GRIDLINE 'E'
SCALE: 1 1/2" = 1'-0"



54 A7.20 OPERABLE GLASS WALL @ SOUTH BALCONY
SCALE: 1 1/2" = 1'-0"



55 A7.20 SF-1 @ SOUTHERN OVERHANG
SCALE: 1 1/2" = 1'-0"

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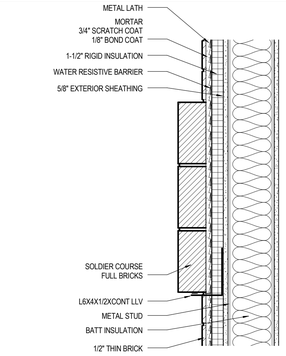
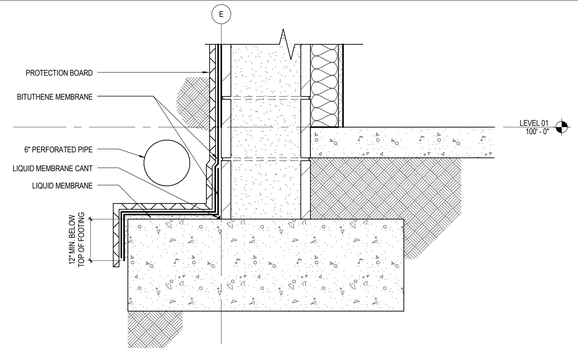
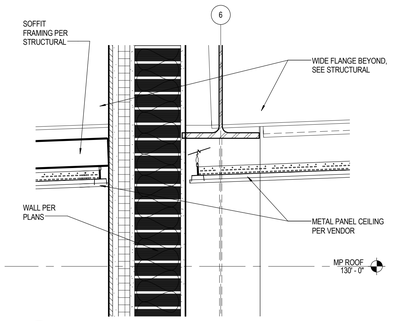


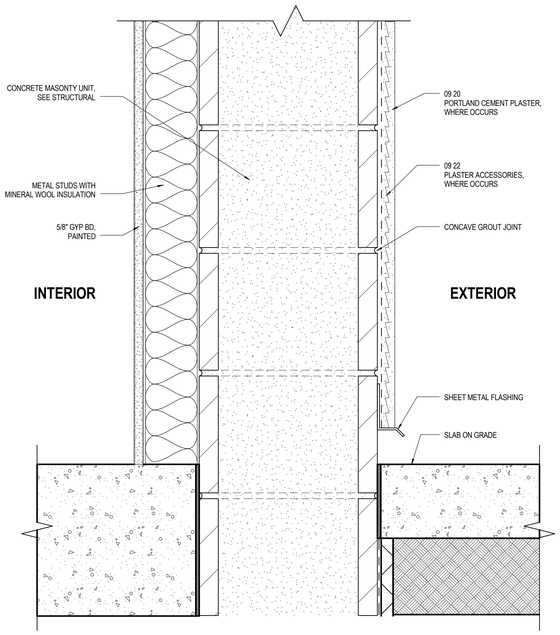
14 A7.21 SOLDIER COURSE BRICK BUMP OUT
SCALE: 1 1/2" = 1'-0"



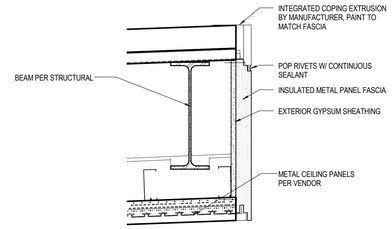
15 A7.21 WATERPROOFING AT BASE OF GRADE WALL
SCALE: 1 1/2" = 1'-0"



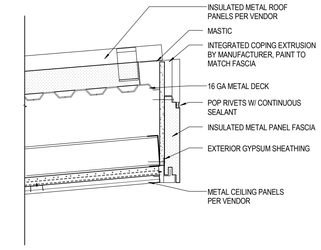
16 A7.21 WALL @ EAST OVERHANG
SCALE: 1 1/2" = 1'-0"



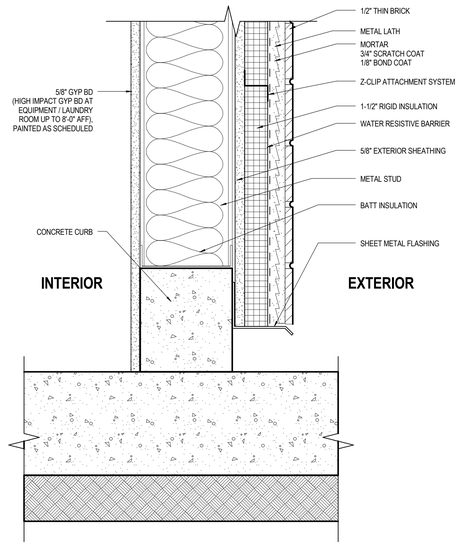
35 A7.21 CMU WALL @ CONCRETE CURB
SCALE: 3" = 1'-0"



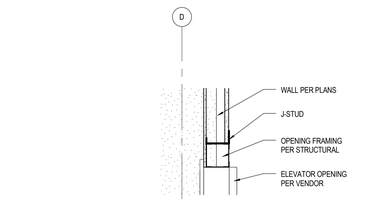
26 A7.21 OVERHANG EDGE @ WEST FACADE
SCALE: 1 1/2" = 1'-0"



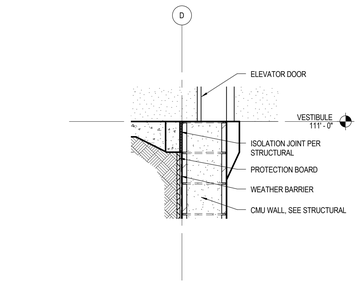
36 A7.21 OVERHANG EDGE @ SOUTH FACADE
SCALE: 1 1/2" = 1'-0"



55 A7.21 STUD WALL @ CONCRETE CURB
SCALE: 3" = 1'-0"



46 A7.21 HEAD @ ELEVATOR OPENING
SCALE: 3/4" = 1'-0"



56 A7.21 SECTION @ VESTIBULE ELEVATOR DOOR
SCALE: 3/4" = 1'-0"

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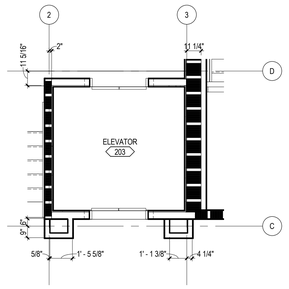
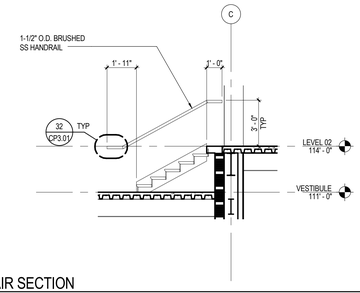
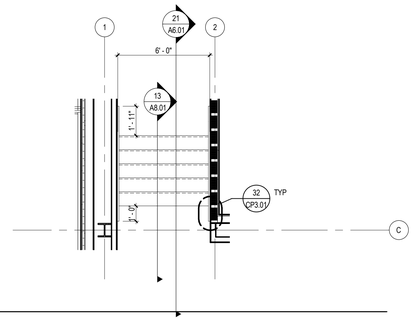


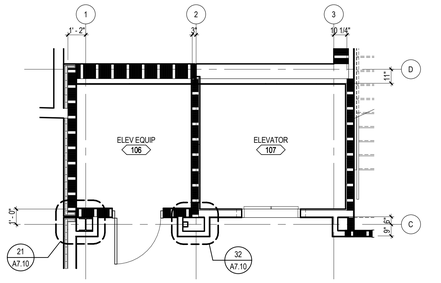
12 A8.01 ELEV 203 - LEVEL 2
SCALE: 1/4" = 1'-0"



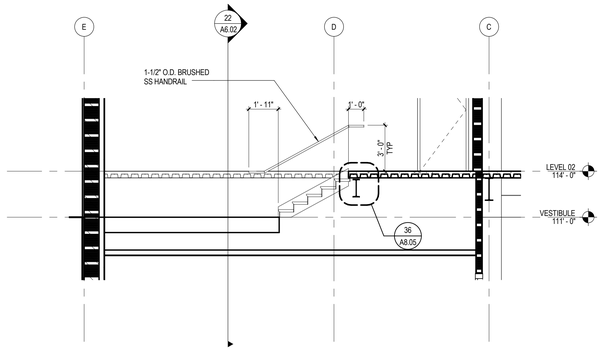
13 A8.01 VESTIBULE STAIR SECTION
SCALE: 1/4" = 1'-0"



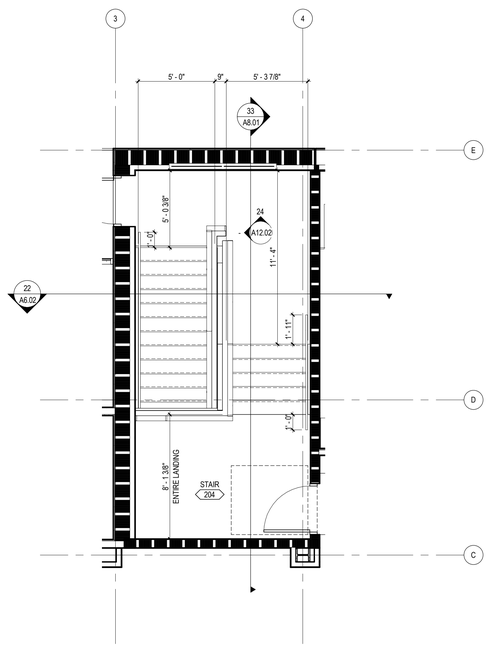
15 A8.01 VESTIBULE STAIR
SCALE: 1/4" = 1'-0"



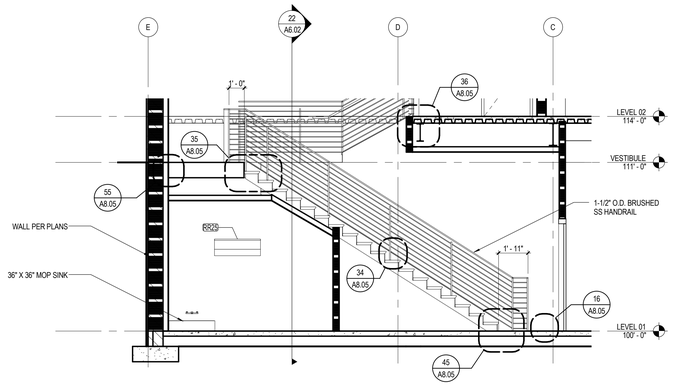
22 A8.01 ELEV 107 - LEVEL 1
SCALE: 1/4" = 1'-0"



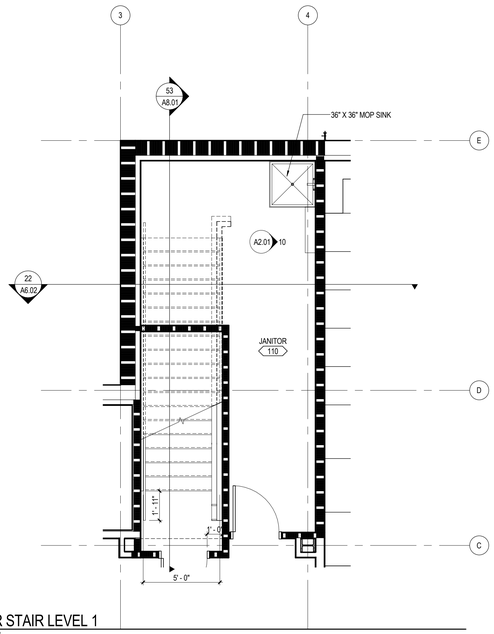
33 A8.01 INTERIOR STAIR LEVEL 2 SECTION
SCALE: 1/4" = 1'-0"



35 A8.01 INTERIOR STAIR LEVEL 2
SCALE: 1/4" = 1'-0"



53 A8.01 INTERIOR STAIR LEVEL 1 SECTION
SCALE: 1/4" = 1'-0"



55 A8.01 INTERIOR STAIR LEVEL 1
SCALE: 1/4" = 1'-0"

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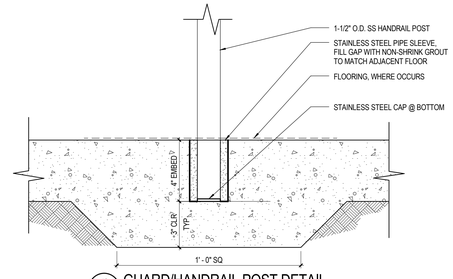
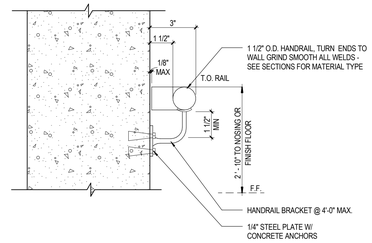
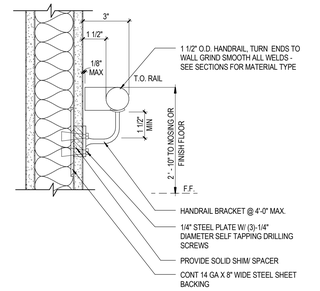


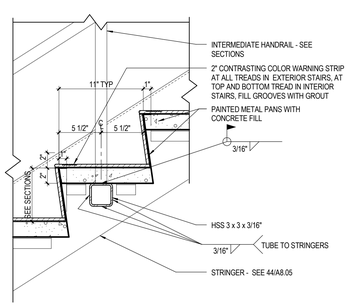
16 A8.05 GUARD/HANDRAIL POST DETAIL
SCALE: 3" = 1'-0"

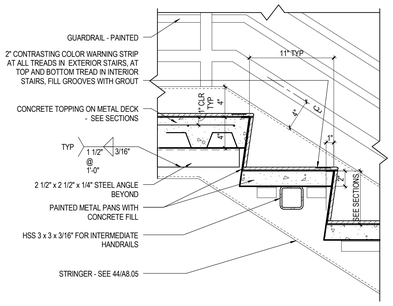


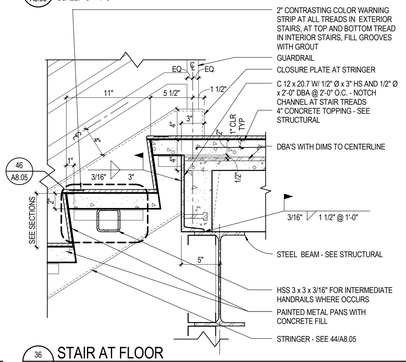


25 A8.05 HANDRAIL TO CONCRETE WALL DETAIL
SCALE: 3" = 1'-0"

26 A8.05 HANDRAIL TO STUD WALL DETAIL
SCALE: 3" = 1'-0"



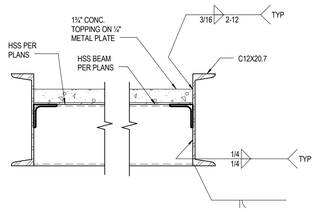




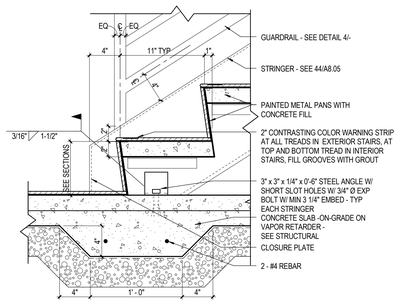
34 A8.05 INTERMEDIATE HANDRAIL
SCALE: 1 1/2" = 1'-0"

35 A8.05 STAIR AT LANDING
SCALE: 1 1/2" = 1'-0"

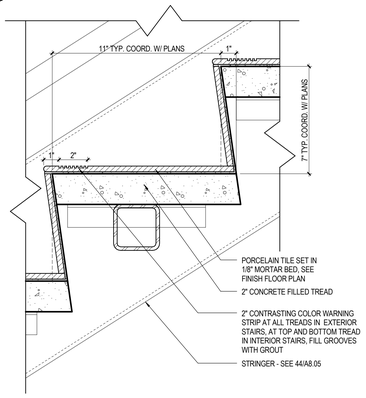
36 A8.05 STAIR AT FLOOR
SCALE: 1 1/2" = 1'-0"



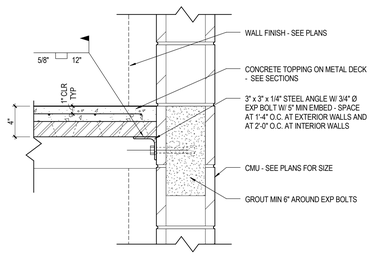
44 A8.05 STAIR STRINGER SECTION
SCALE: 1 1/2" = 1'-0"



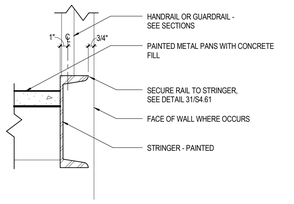
45 A8.05 STAIR AT SLAB ON GRADE
SCALE: 1 1/2" = 1'-0"



46 A8.05 TYPICAL TREAD AND RISER DETAIL
SCALE: 3" = 1'-0"



55 A8.05 LANDING AT WALL
SCALE: 1 1/2" = 1'-0"



56 A8.05 STRINGER AT WALL
SCALE: 1 1/2" = 1'-0"

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PA01 4.6.18 PRE MARSHALL BACKCHECK
DSA01 4.27.18 DSA SUBMITTAL 1

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WINDOW SCHEDULE

NUMBER	TYPE	MATERIAL	DEPTH	FIRE RATING	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	COMMENTS
101A	33	ALUM	4 1/2"		16/A9.20	26/A9.20	36/A9.20	
101B	33	ALUM	4 1/2"		16/A9.20	26/A9.20	36/A9.20	
101C	33	ALUM	4 1/2"		16/A9.20	26/A9.20	36/A9.20	
204A	38	ALUM	4 1/2"	45 MIN.	14/A9.20	24/A9.20	34/A9.20	
205A	38	ALUM	4 1/2"		14/A9.20	24/A9.20	34/A9.20	
206A	38	ALUM	4 1/2"		14/A9.20	24/A9.20	34/A9.20	
212A	41	ALUM	4 1/2"	45 MIN	16/A9.20	26/A9.20	36/A9.20	
216A	39	ALUM	4 1/2"		13/A9.20	23/A9.20	33/A9.20	
216B	39	ALUM	4 1/2"		13/A9.20	23/A9.20	33/A9.20	

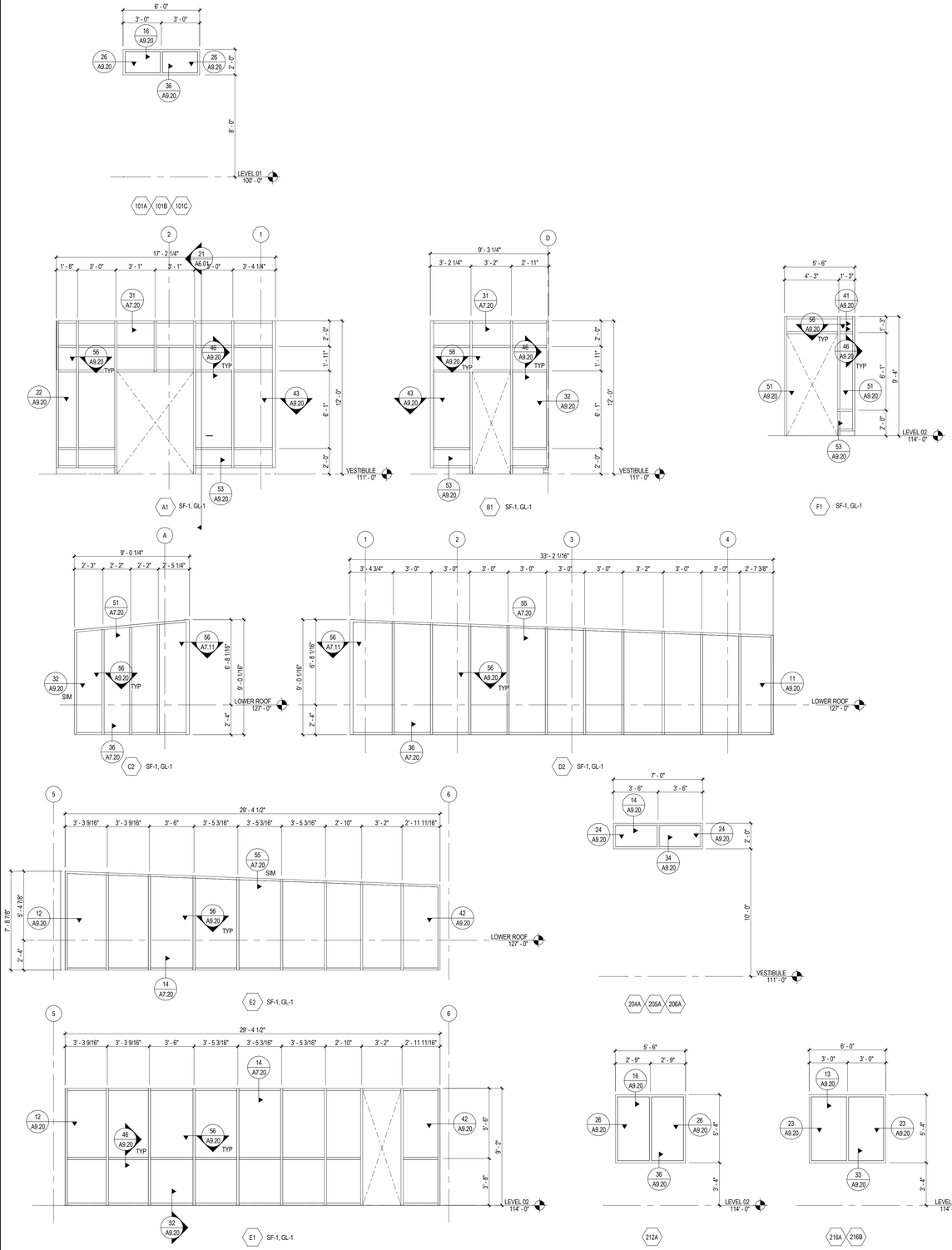
NOTES:
FOR HIGH IMPACT RESISTANCE GLAZING, DEDUCT ALTERNATE TO USE LAMINATED INBOARD TILE

A) 1/4" CLEAR SB70XL LOW E TEMPERED; 3/8" AIR SPACE; CLEAR HEAT-STRENGTHENED LAMINATED

B) 1/4" CLEAR SB60 LOW E TEMPERED; 3/8" AIR SPACE; CLEAR HEAT-STRENGTHENED LAMINATED

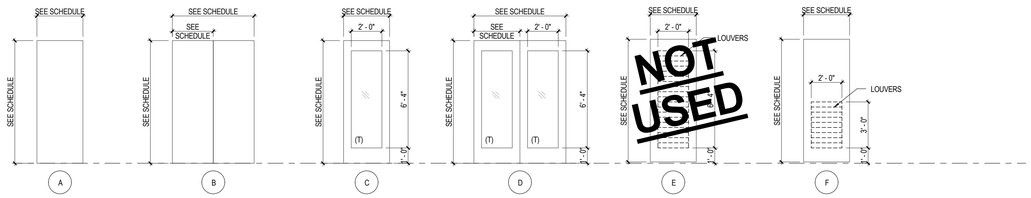
REFER TO SPEC 08 800 GLAZING

STOREFRONT & WINDOW FRAME ELEVATIONS

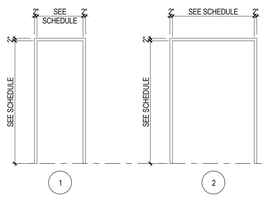


DOOR TYPES

NOTE:
(T) = TEMPERED



DOOR FRAME TYPES



DOOR AND FRAME SCHEDULE

NUMBER	ROOM NO.	ROOM NAME	DOOR PANEL NO. OF PANELS	DOOR PANEL WIDTH	DOOR PANEL HEIGHT	DOOR PANEL THICKNESS	DOOR PANEL MATERIAL	DOOR PANEL TYPE	DOOR PANEL FINISH	FRAME MATERIAL	FRAME TYPE	FRAME FINISH	FIRE RATING	PANIC HARDWARE	HARDWARE SET	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	COMMENTS
101A	101	PLAYER LOUNGE	1	3' - 0"	8' - 0"	1 3/4"	HM	A		HM	1		20 MIN	Yes	4.0	34/A9.10	44/A9.10	55/A9.10	
102A	102	ALL GENDER TLT	1	3' - 0"	8' - 0"	1 3/4"	HM	A		HM	1				8.0	34/A9.10	44/A9.10	55/A9.10	
103A	103	UMPIRE LOCKER	1	3' - 0"	8' - 0"	1 3/4"	HM	A		HM	1			Yes	3.0	34/A9.10	44/A9.10	55/A9.10	
104A	104	UMPIRE TOILET	1	3' - 0"	7' - 0"	1 3/4"	WD	A		ALUM	1				21.0	16/A9.10	16/A9.10		
105A	105	TAPING	1	3' - 0"	8' - 0"	1 3/4"	WD	C		ALUM	1				19.0	16/A9.10	16/A9.10		
106A	106	ELEV EQUIP	1	3' - 0"	7' - 0"	1 3/4"	WD	A		ALUM	1		20 MIN	No	13.0	16/A9.10	16/A9.10		
108A	108	MUD ROOM	1	3' - 0"	8' - 0"	1 3/4"	HM	F		HM	1			Yes	3.0	34/A9.10	44/A9.10	55/A9.10	
108B	108	MUD ROOM	1	4' - 0"	8' - 0"	1 3/4"	WD	C		ALUM	1				22.0	16/A9.10	16/A9.10		
109A	109	EQUIPMENT/ LAUNDRY	1	4' - 0"	8' - 0"	1 3/4"	HM	A		HM	1			Yes	5.0	34/A9.10	44/A9.10	55/A9.10	
109B	109	EQUIPMENT/ LAUNDRY	1	4' - 0"	8' - 0"	1 3/4"	WD	A		ALUM	1				23.0	16/A9.10	16/A9.10		20 MIN. SMOKE DOOR
110A	110	JANITOR	1	3' - 0"	7' - 0"	1 3/4"	WD	A		ALUM	1				14.0	16/A9.10	16/A9.10		
111	101	PLAYER LOUNGE	1	3' - 0"	7' - 0"	1 3/4"	WD	A		ALUM	1		20 MIN	Yes	14.0	16/A9.10	16/A9.10		
201A	201	VESTIBULE	2	3' - 0"	8' - 0"	1 3/4"	GLASS (1)	D		ALUM	**			Yes	1.0	44/A9.20	45/A9.20	55/A9.20	
201B	201	VESTIBULE	1	3' - 0"	8' - 0"	1 3/4"	GLASS (1)	C		ALUM	**				2.0	44/A9.20	45/A9.20	55/A9.20	
202A	202	MULTIPURPOSE	1	3' - 0"	8' - 0"	1 3/4"	HM	A		HM	1				9.0	34/A9.10	44/A9.10	55/A9.10	
202B	202	MULTIPURPOSE	1	3' - 0"	7' - 0"	1 3/4"	GLASS (1)	C		ALUM									NOTE 1
204A	204	STAIR	1	3' - 0"	8' - 0"	1 3/4"	HM	A		HM	1		20 MIN	Yes	4.0	35/A9.10	45/A9.10	55/A9.10	
204B	204	STAIR	1	3' - 0"	8' - 0"	1 3/4"	WD	A		ALUM	1		20 MIN	Yes	11.0	16/A9.10	16/A9.10		
205A	205	MEN	1	3' - 0"	8' - 0"	1 3/4"	WD	A		ALUM	1				18.0	16/A9.10	16/A9.10		
206A	206	WOMEN	1	3' - 0"	8' - 0"	1 3/4"	WD	A		ALUM	1				18.0	16/A9.10	16/A9.10		
207A	207	ALL GENDER TLT	1	3' - 0"	8' - 0"	1 3/4"	WD	A		ALUM	1				21.0	16/A9.10	16/A9.10		
208A	208	PANTRY	1	3' - 0"	8' - 0"	1 3/4"	WD	A		ALUM	1				16.0	16/A9.10	16/A9.10		
209A	209	ASST COACH	1	3' - 0"	8' - 0"	1 3/4"	WD	C		ALUM	1				15.0	16/A9.10	16/A9.10		
210A	210	ASST COACH	1	3' - 0"	8' - 0"	1 3/4"	WD	C		ALUM	1				15.0	16/A9.10	16/A9.10		
211A	211	HEAD COACH	1	3' - 0"	8' - 0"	1 3/4"	WD	C		ALUM	1				15.0	16/A9.10	16/A9.10		
211B	211	HEAD COACH	1	3' - 0"	9' - 0"	1 3/4"	GLASS (1)	C		ALUM	**				7.0	44/A9.20	45/A9.20	55/A9.20	
212A	212	VIDEO ROOM	1	3' - 0"	8' - 0"	1 3/4"	WD	C		ALUM	1				20.0	16/A9.10	16/A9.10		
213A	213	HALLWAY	1	3' - 0"	8' - 0"	1 3/4"	WD	A		ALUM	1			Yes	10.0	16/A9.10	16/A9.10		
213B	213	HALLWAY	1	3' - 0"	8' - 0"	1 3/4"	WD	A		ALUM	1				17.0	16/A9.10	16/A9.10		
213C	213	HALLWAY	1	4' - 0"	8' - 0"	1 3/4"	GLASS (1)	C		ALUM	**			Yes	2.0	44/A9.20	45/A9.20	55/A9.20	
214A	214	COACH LOCKER	1	3' - 0"	8' - 0"	1 3/4"	WD	A		ALUM	1				14.0	16/A9.10	16/A9.10		
216A	216	VOLUNTEER COACH/ DIR. BASEBALL OPS	1	3' - 0"	8' - 0"	1 3/4"	WD	C		ALUM	1				15.0	16/A9.10	16/A9.10		
217A	217	ELECTRICAL	1	3' - 0"	8' - 0"	1 3/4"	WD	A		ALUM	1				14.0	16/A9.10	16/A9.10		
218A	218	JANITOR	1	3' - 0"	8' - 0"	1 3/4"	WD	A		ALUM	1				14.0	16/A9.10	16/A9.10		
219A	219	IT ROOM	1	3' - 0"	8' - 0"	1 3/4"	WD	A		ALUM	1		45 MIN		14.0	16/A9.10	16/A9.10		
220A	220	MECHANICAL	1	3' - 0"	7' - 0"	1 3/4"	HM	A		HM	1				6.0	33/A9.10	43/9.10	55/A9.10	
221A	221	STO	2	2' - 8"	8' - 0"	1 3/4"	WD	B		ALUM	2				12.0	16/A9.10	16/A9.10		

NOTES:
** SEE STOREFRONT & WINDOW FRAME ELEVATIONS, A9.01
1. INTEGRATED DOOR INTO OPERABLE WALL SYSTEM.
BASIS OF DESIGN: NANAWALL SYSTEM, INC. HSW60

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

DOOR AND WINDOW SCHEDULES
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

A9.01
75-16217-00
05.01.18
Revisions
ADD1 7.16.18 ADDENDUM 2
ADD3 2.16.18 ADDENDUM 3
FM01 4.06.18 PRE-MARSHALL SUBMITTAL

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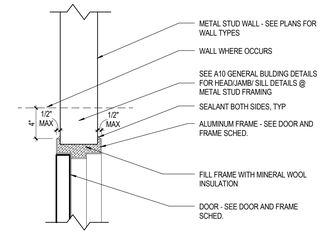
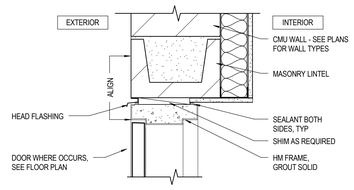
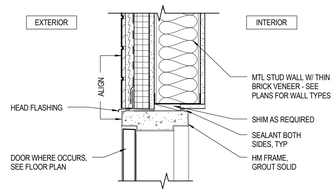


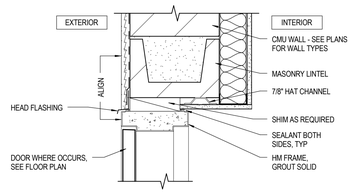
16 A9.10 INTERIOR DOOR - HEAD / JAMB
SCALE: 1 1/2" = 1'-0"



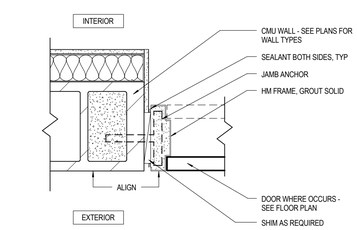
33 A9.10 EXTERIOR HM DOOR @ CMU - HEAD
SCALE: 1 1/2" = 1'-0"



34 A9.10 EXTERIOR HM DOOR @ THIN BRICK - HEAD
SCALE: 1 1/2" = 1'-0"



35 A9.10 EXTERIOR HM DOOR @ CMU W/ PLASTER - HEAD
SCALE: 1 1/2" = 1'-0"



43 A9.10 EXTERIOR HM DOOR @ CMU - JAMB
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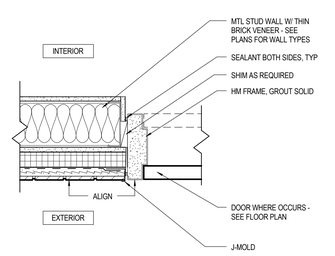
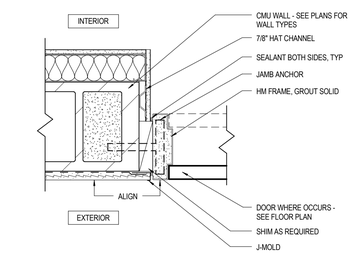


44 A9.10 EXTERIOR HM DOOR @ THIN BRICK - JAMB
SCALE: 1 1/2" = 1'-0"



45 A9.10 EXTERIOR HM DOOR @ CMU W/ PLASTER - JAMB
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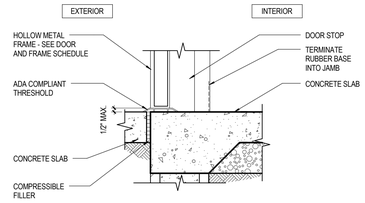

55 A9.10 EXTERIOR HM DOOR - THRESHOLD
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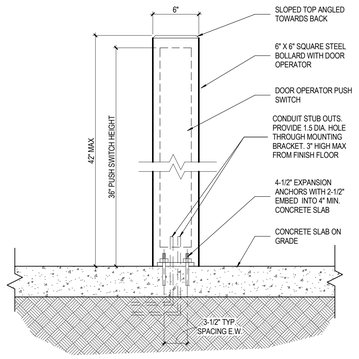

56 A9.10 DOOR OPERATOR BOLLARD
SCALE: 1 1/2" = 1'-0"

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

DOOR DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

A9.10
75-16217-00
05.01.18
Revisions
8/9/1 10.05.17 BUSD/LU/ESTAS COMMENTS

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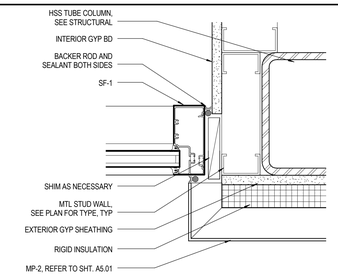

11 A9.20 SF-1 JAMB @ METAL PANEL WEST
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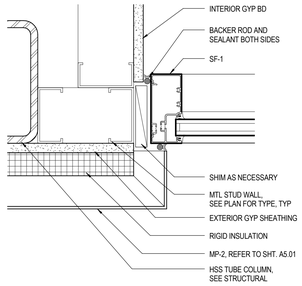
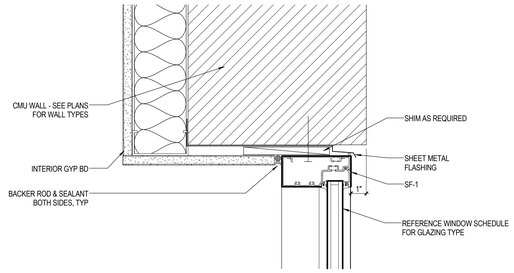
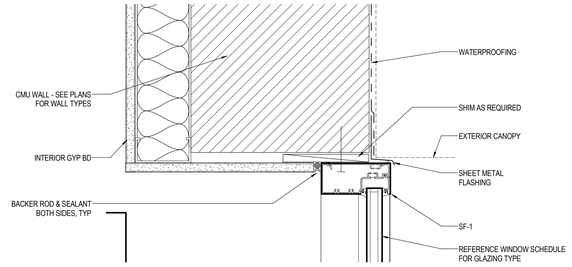


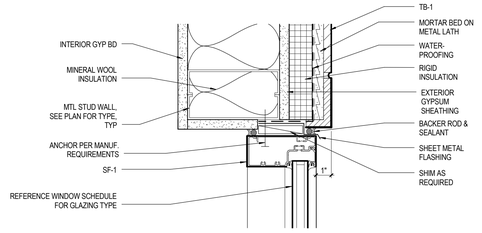
12 A9.20 SF-1 JAMB @ METAL PANEL EAST
SCALE: 3" = 1'-0"



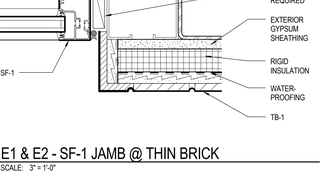
13 A9.20 SF-1 HEAD @ CMU
SCALE: 3" = 1'-0"



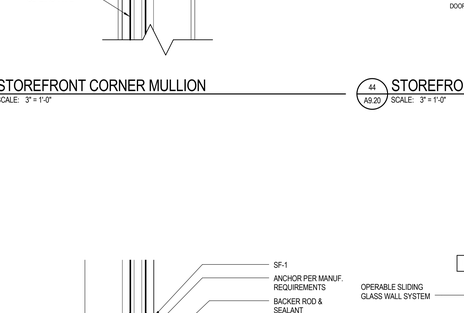
14 A9.20 SF-1 HEAD @ CMU W/ PLASTER
SCALE: 3" = 1'-0"



16 A9.20 SF-1 HEAD @ THIN BRICK
SCALE: 3" = 1'-0"



22 A9.20 SF-1 JAMB @ VESTIBULE EAST
SCALE: 3" = 1'-0"



23 A9.20 SF-1 JAMB @ CMU
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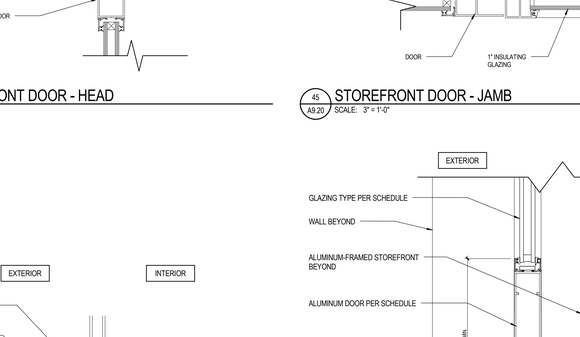

24 A9.20 SF-1 JAMB @ CMU W/ PLASTER
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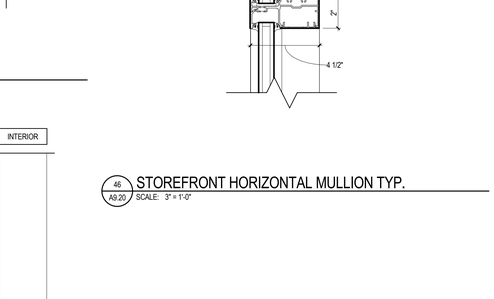


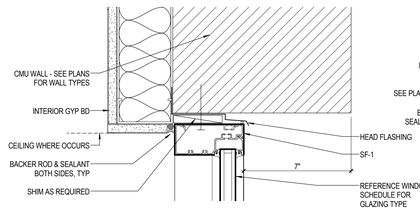
26 A9.20 SF-1 JAMB @ THIN BRICK
SCALE: 3" = 1'-0"

32 A9.20 SF-1 JAMB @ VESTIBULE WEST
SCALE: 3" = 1'-0"

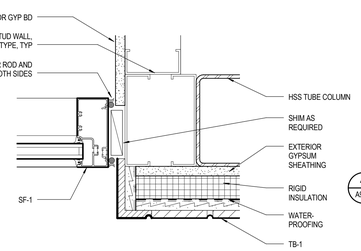
33 A9.20 SF-1 SILL @ CMU
SCALE: 3" = 1'-0"

34 A9.20 SF-1 SILL @ CMU W/ PLASTER
SCALE: 3" = 1'-0"

36 A9.20 SF-1 SILL @ THIN BRICK
SCALE: 3" = 1'-0"



41 A9.20 SF-1 HEAD @ CMU 2
SCALE: 3" = 1'-0"



42 A9.20 E1 & E2 - SF-1 JAMB @ THIN BRICK
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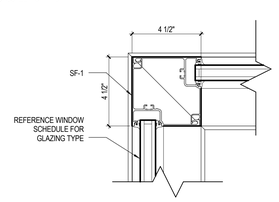
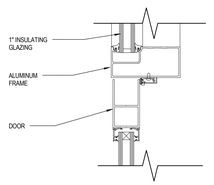
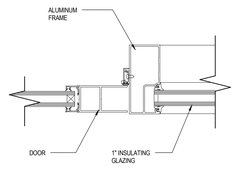


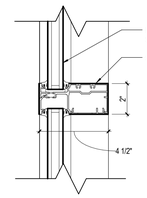
43 A9.20 STOREFRONT CORNER MULLION
SCALE: 3" = 1'-0"

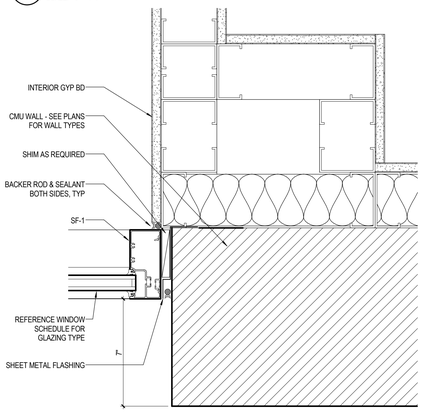


44 A9.20 STOREFRONT DOOR - HEAD
SCALE: 3" = 1'-0"

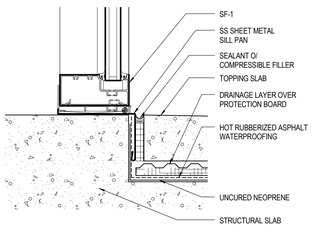


45 A9.20 STOREFRONT DOOR - JAMB
SCALE: 3" = 1'-0"

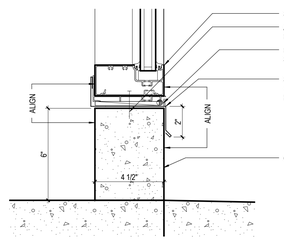




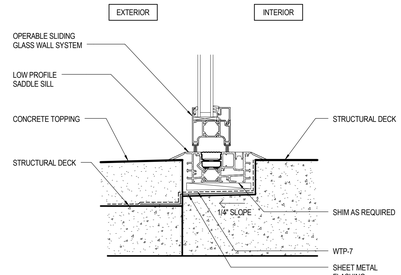
51 A9.20 SF-1 JAMB @ CMU 2
SCALE: 3" = 1'-0"



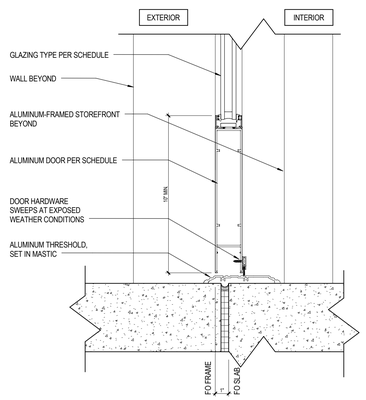
52 A9.20 SF-1 SILL @ COACH'S OFFICES
SCALE: 3" = 1'-0"



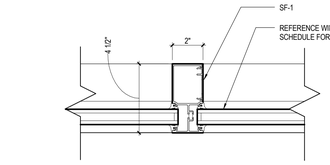
53 A9.20 SF-1 SILL @ CURB
SCALE: 3" = 1'-0"



54 A9.20 OPERABLE SLIDING GLASS WALL - THRESHOLD
SCALE: 3" = 1'-0"



55 A9.20 STOREFRONT DOOR - THRESHOLD
SCALE: 3" = 1'-0"



56 A9.20 STOREFRONT VERTICAL MULLION TYP.
SCALE: 3" = 1'-0"

46 A9.20 STOREFRONT HORIZONTAL MULLION TYP.
SCALE: 3" = 1'-0"

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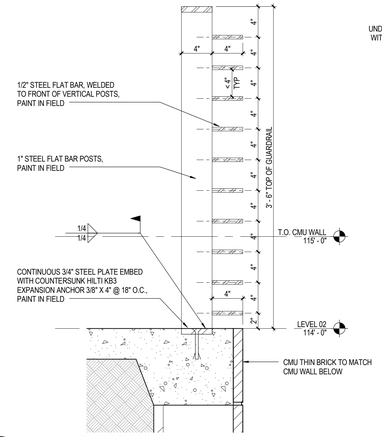
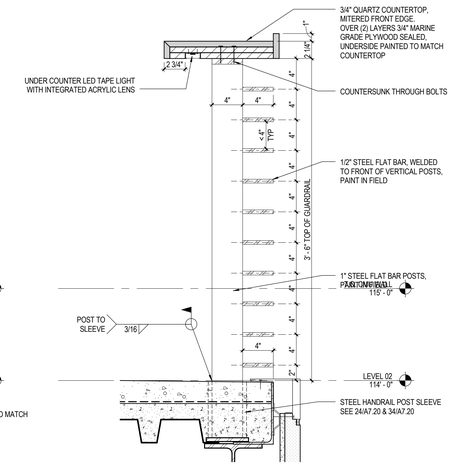
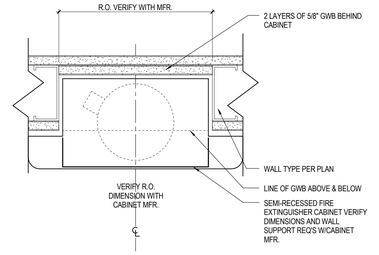


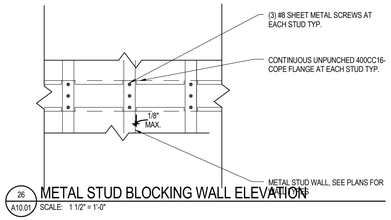
24 A10.01 GUARDRAIL AT EAST ENTRY
SCALE: 1 1/2" = 1'-0"



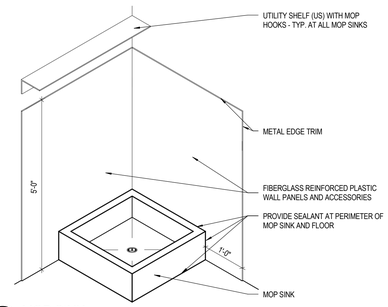
25 A10.01 BARTOP GUARDRAIL AT BALCONY
SCALE: 1 1/2" = 1'-0"



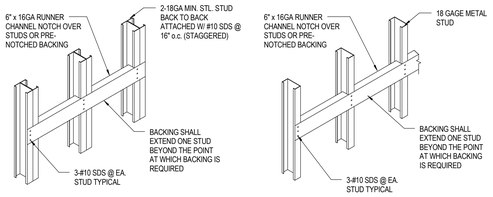
16 A10.01 SEMI-RECESSED FEC DETAIL
SCALE: 3" = 1'-0"



26 A10.01 METAL STUD BLOCKING WALL ELEVATION
SCALE: 1 1/2" = 1'-0"

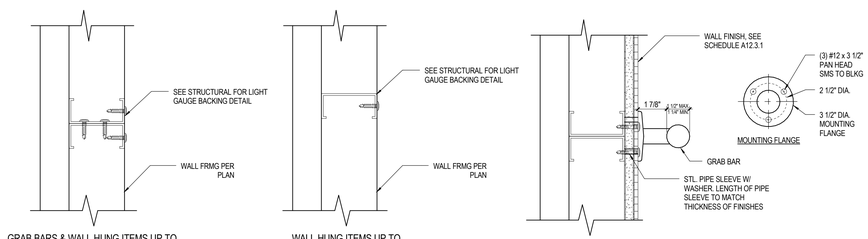


34 A10.01 MOP SINK
SCALE: 3/4" = 1'-0"



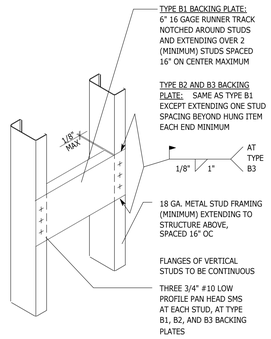
NOTES:
1) WHEN SUPPORT EQUIPMENT IS GREATER THAN 3'-0" IN DEPTH, ADD 6" RUNNER CHANNELS @ 3'-0" o/c.
2) SDS: PAN HEAD SELF-DRILLING SCREWS BY HILTI (ESR#2196)

43 A10.01 LIGHT GAUGE BACKING DETAIL
SCALE: 3/4" = 1'-0"

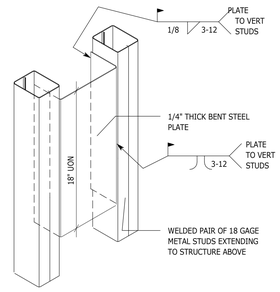


53 A10.01 TYP. WALL BACKING AND GRAB BAR MOUNTING - METAL STUD
SCALE: 3" = 1'-0"

A NOT USED



B BACKING PLATE TYPES B1, B2 AND B3



C BACKING PLATE TYPE C

D NOT USED

56 A10.01 TYPICAL BACKING DETAILS
SCALE: 1'2" = 1'-0"

GENERAL BACKING PLATE NOTES

1. PROVIDE BACKING PLATES AS INDICATED ON THE DRAWINGS OR, WHERE NOT INDICATED, ACCORDING TO THE FOLLOWING SCHEDULE:

   TYPE D BACKING PLATE:
   - NOT USED

   TYPE B1 BACKING PLATE:
   - AT SMALL ITEMS (SUCH AS TOILET ACCESSORIES, MIRRORS, CLOTHES HOOKS, DOOR STOPS ETC) WHICH WEIGH OR SUPPORT WEIGHTS OF LESS THAN 50 POUNDS

   TYPE B2 BACKING PLATE:
   - AT ALL UPPER WALL-HUNG CABINETS
   - AT ALL BASE CABINETS
   - AT ALL FULL HEIGHT CABINETS
   - AT ALL WALL-MOUNTED HANDRAILS, GUARDRAILS, GRAB BARS, BUMPER RAILS, CRASH RAILS
   - AT WALL-MOUNTED ADJUSTABLE SHELVING & KITCHEN SHELVING

   TYPE B3 BACKING PLATE:
   - AT WALL-MOUNTED ITEMS AS INDICATED ON ANCHORAGE DETAILS
   - AT WALL-MOUNTED TOILET PARTITIONS

   TYPE C BACKING PLATE:
   - AT WALL-MOUNTED EQUIPMENT AS INDICATED ON THE DRAWINGS

   TYPE D BACKING PLATE:
   - NOT USED

2. COORDINATE LOCATION, LENGTH, HEIGHT, AND NUMBER OF BACKING PLATES REQUIRED WITH ITEM TO BE MOUNTED.

3. FOR METHOD OF ATTACHMENT OF ITEM TO BE MOUNTED, REFER TO THE APPLICABLE DETAIL OR, IF NOT DETAILED, THE INSTRUCTIONS PROVIDED BY THE MANUFACTURER.

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GENERAL BUILDING DETAILS
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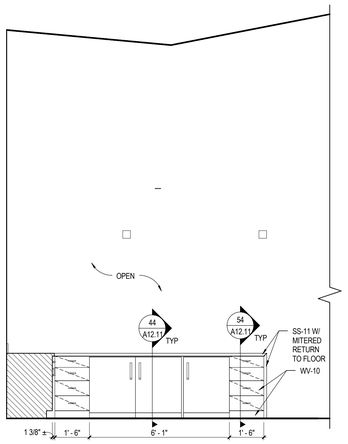
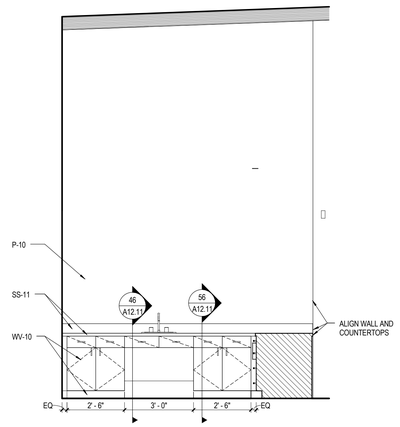
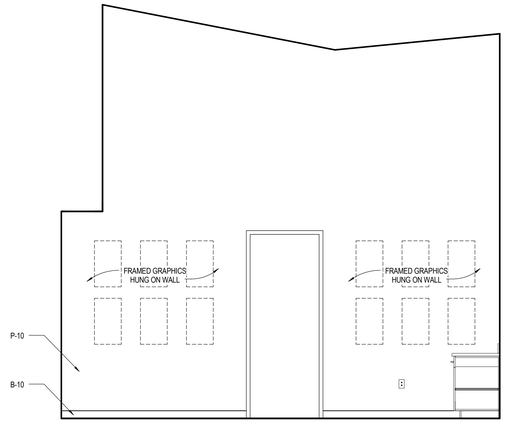


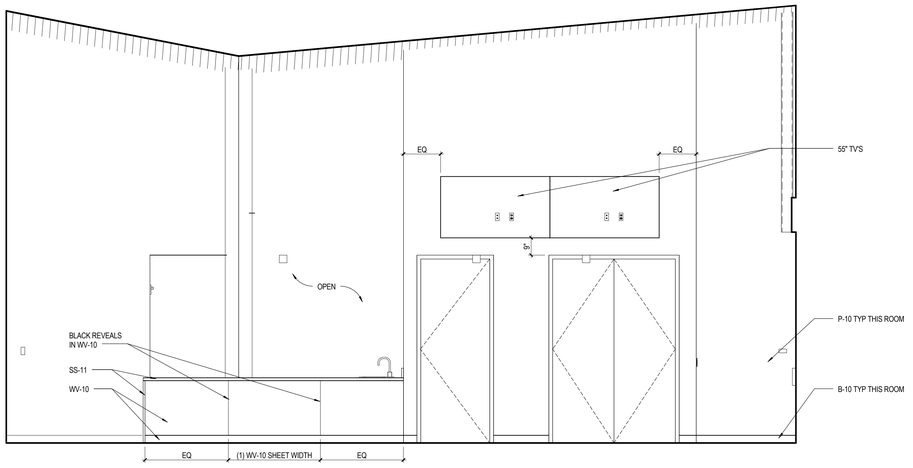
23 A12.01 MULTIPURPOSE BAR AREA WEST
SCALE: 3/8" = 1'-0"



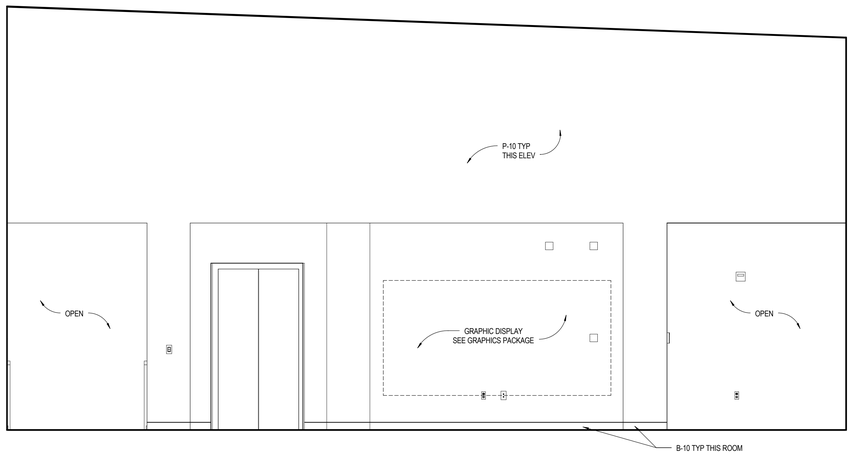
24 A12.01 MULTIPURPOSE BAR AREA SOUTH
SCALE: 3/8" = 1'-0"



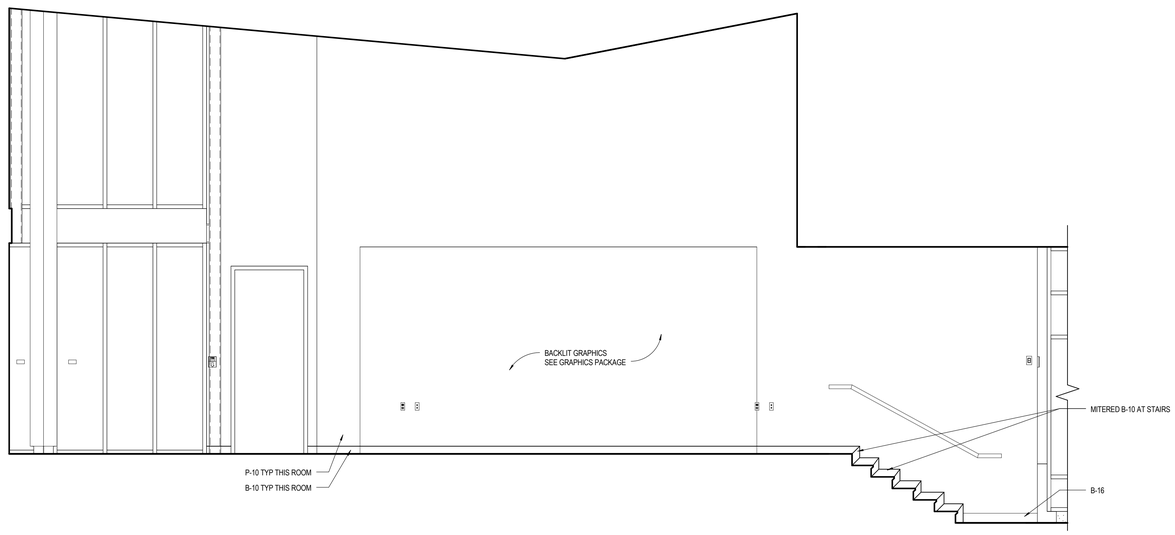
25 A12.01 MULTIPURPOSE BAR AREA EAST
SCALE: 3/8" = 1'-0"



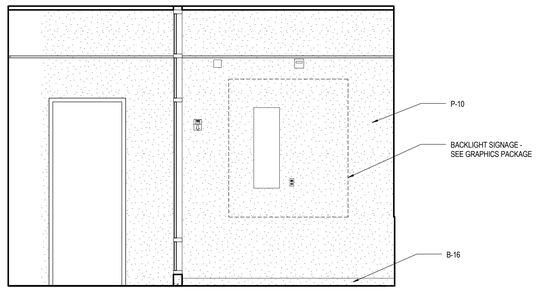
41 A12.01 MULTIPURPOSE EAST
SCALE: 3/8" = 1'-0"



44 A12.01 MULTIPURPOSE NORTH
SCALE: 3/8" = 1'-0"



51 A12.01 MULTIPURPOSE WEST
SCALE: 3/8" = 1'-0"



54 A12.01 VESTIBULE EAST
SCALE: 3/8" = 1'-0"

GENERAL NOTES

A. CEILING HEIGHTS, AS NOTED ON THE REFLECTED CEILING, PLANS ARE MEASURED FROM THE FINISH FLOOR OF THE ROOM.
B. SEE REFLECTED CEILING PLANS FOR CEILING TYPES AND HEIGHT.
C. GROUT LINES TO ALIGN FROM FLOOR TILE TO WALL TILE BASE
D. SEE A13.01 AND A13.02 FOR INTERIOR FINISH SPECIFICATIONS
E. ALL GWB WALLS TO BE P-10 UNO

KEYNOTES

1 SCHLUTER SCHIENE ALUMINUM TRANSITION STRIP - AE SATIN ANODIZED ALUMINUM FINISH

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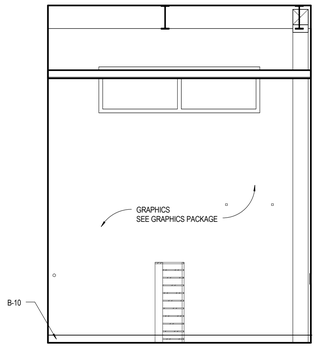
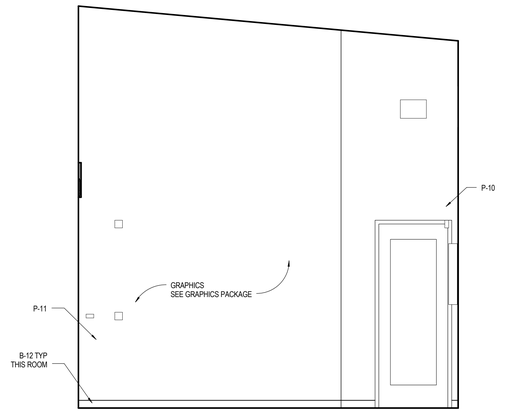
GENERAL NOTES

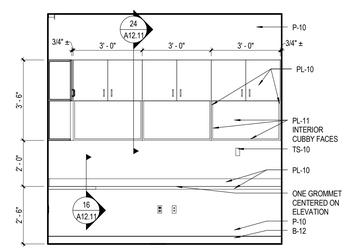
A. CEILING HEIGHTS, AS NOTED ON THE REFLECTED CEILING, PLANS ARE MEASURED FROM THE FINISH FLOOR OF THE ROOM.
B. SEE REFLECTED CEILING PLANS FOR CEILING TYPES AND HEIGHT.
C. GROUT LINES TO ALIGN FROM FLOOR TILE TO WALL TILE BASE
D. SEE A13.01 AND A13.02 FOR INTERIOR FINISH SPECIFICATIONS
E. ALL GWB WALLS TO BE P-10 UNO



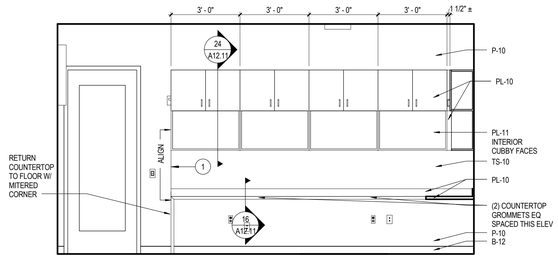
24 A12.02 STAIR NORTH ELEVATION
SCALE: 3/8" = 1'-0"



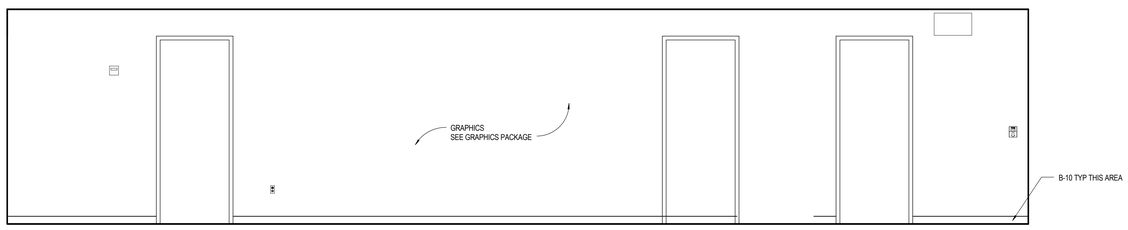
25 A12.02 HEAD COACH WEST
SCALE: 3/8" = 1'-0"



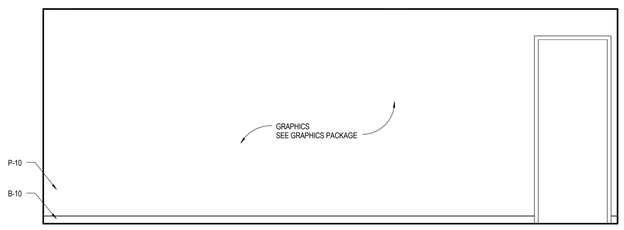
31 A12.02 VOLUNTEER EAST
SCALE: 3/8" = 1'-0"



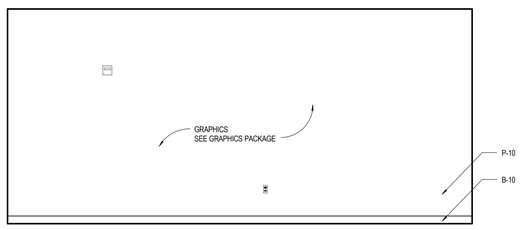
32 A12.02 VOLUNTEER OFFICE NORTH
SCALE: 3/8" = 1'-0"



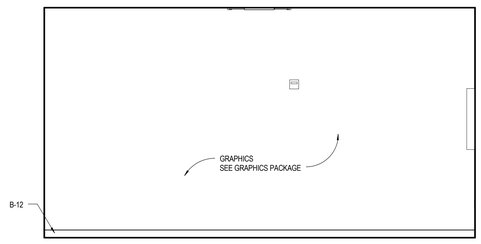
34 A12.02 HALLWAY NORTH ELEVATION - A
SCALE: 3/8" = 1'-0"



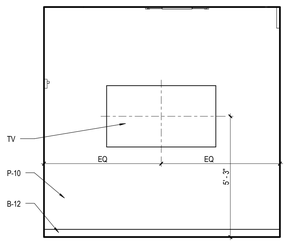
42 A12.02 HALLWAY WEST
SCALE: 3/8" = 1'-0"



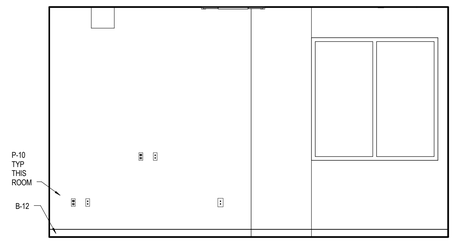
44 A12.02 HALLWAY NORTH ELEVATION - B
SCALE: 3/8" = 1'-0"



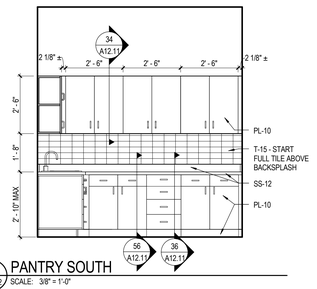
45 A12.02 VIDEO ROOM WEST
SCALE: 3/8" = 1'-0"



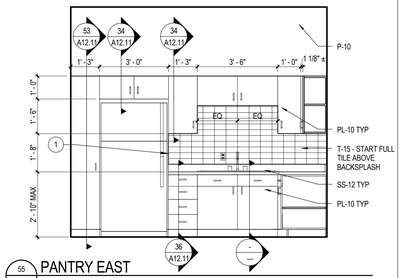
52 A12.02 VIDEO ROOM NORTH
SCALE: 3/8" = 1'-0"



53 A12.02 VIDEO ROOM EAST
SCALE: 3/8" = 1'-0"



54 A12.02 PANTRY SOUTH
SCALE: 3/8" = 1'-0"



55 A12.02 PANTRY EAST
SCALE: 3/8" = 1'-0"

KEYNOTES

1 SCHLUTER SCHENE ALUMINUM TRANSITION STRIP - AE SATIN ANODIZED ALUMINUM FINISH

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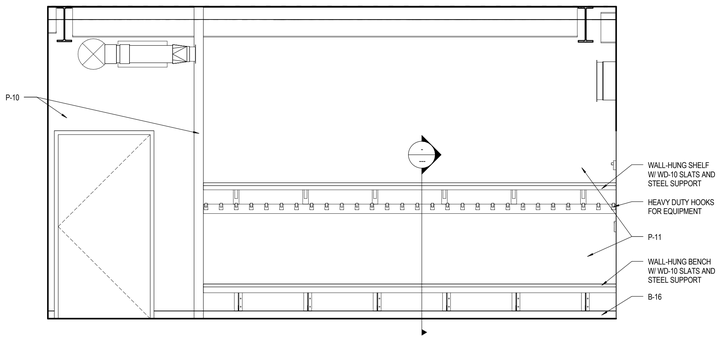
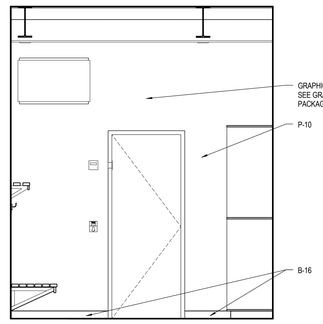
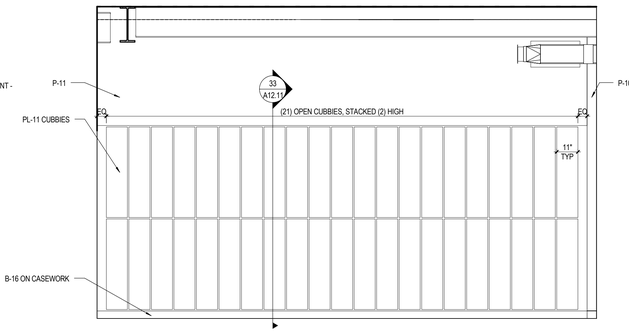


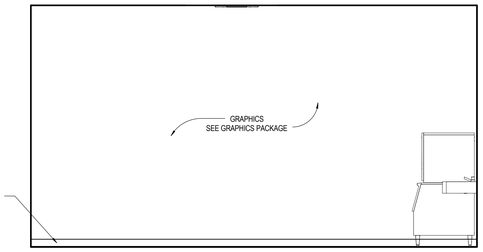
22 A12.03 MUD ROOM EAST
SCALE: 3/8" = 1'-0"



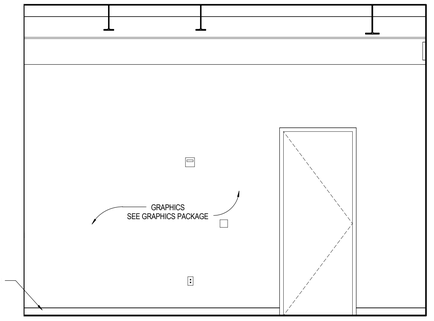
24 A12.03 MUD ROOM SOUTH
SCALE: 3/8" = 1'-0"



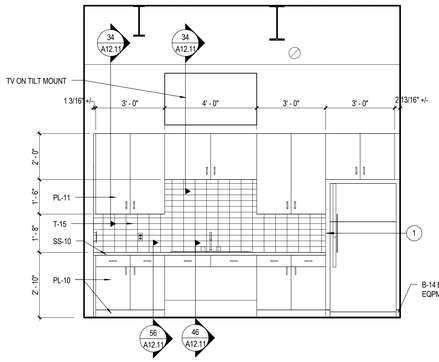
25 A12.03 MUD ROOM WEST
SCALE: 3/8" = 1'-0"



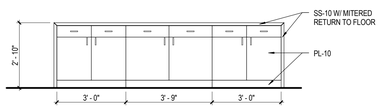
32 A12.03 TAPING ROOM ELEVATION
SCALE: 3/8" = 1'-0"



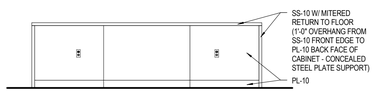
34 A12.03 PLAYER LOUNGE SOUTH 3
SCALE: 3/8" = 1'-0"



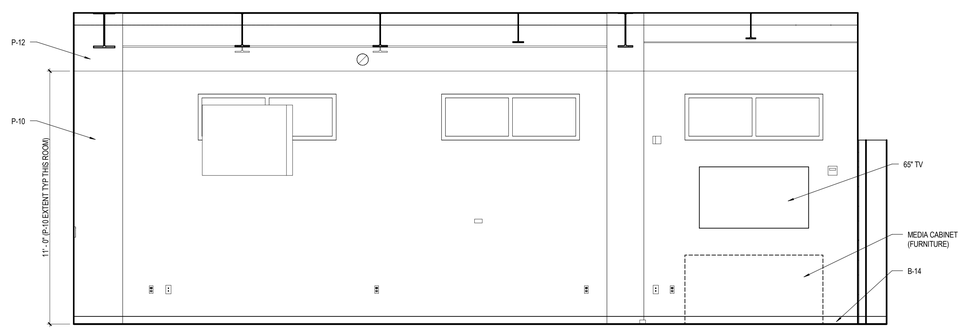
35 A12.03 PLAYER LOUNGE EAST 2
SCALE: 3/8" = 1'-0"



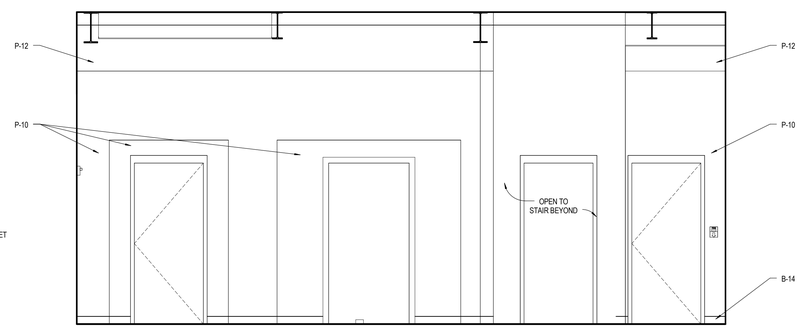
44 A12.03 PLAYER LOUNGE ISLAND
SCALE: 3/8" = 1'-0"



45 A12.03 PLAYER LOUNGE EAST 1
SCALE: 3/8" = 1'-0"



52 A12.03 PLAYER LOUNGE WEST
SCALE: 3/8" = 1'-0"



54 A12.03 PLAYER LOUNGE NORTH
SCALE: 3/8" = 1'-0"

GENERAL NOTES

A. CEILING HEIGHTS, AS NOTED ON THE REFLECTED CEILING, PLANS ARE MEASURED FROM THE FINISH FLOOR OF THE ROOM.
B. SEE REFLECTED CEILING PLANS FOR CEILING TYPES AND HEIGHT.
C. GROUT LINES TO ALIGN FROM FLOOR TILE TO WALL TILE BASE
D. SEE A13.01 AND A13.02 FOR INTERIOR FINISH SPECIFICATIONS
E. ALL GWB WALLS TO BE P-10 UNO

KEYNOTES

1 SCHLUTER SCHIENE ALUMINUM TRANSITION STRIP - AE SATIN ANODIZED ALUMINUM FINISH

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
EXP. REN. 07.31.19
STATE OF CALIFORNIA

INTERIOR ELEVATIONS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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05.01.18
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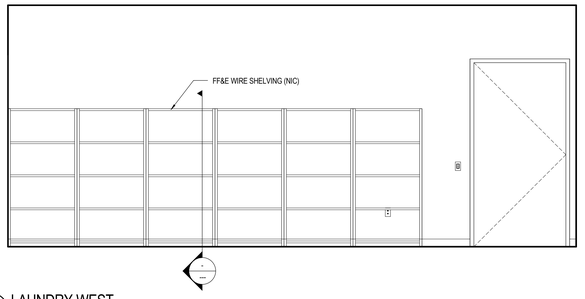
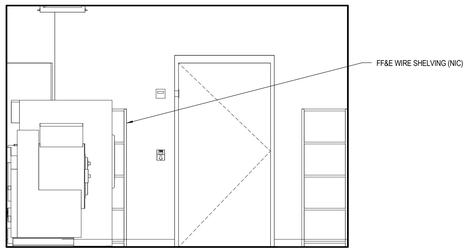
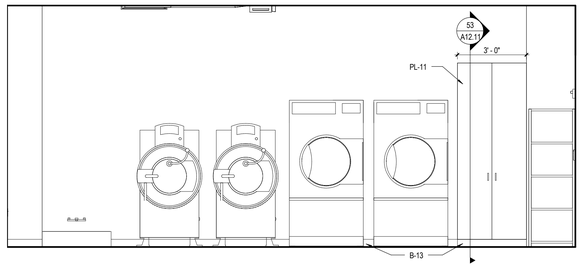


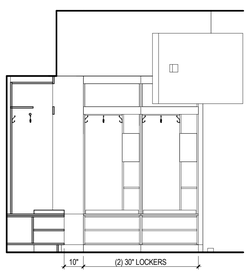
25 A12.04 LAUNDRY WEST
SCALE: 3/8" = 1'-0"



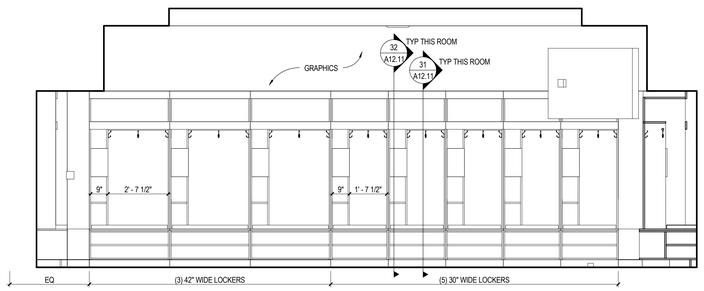
33 A12.04 LAUNDRY SOUTH
SCALE: 3/8" = 1'-0"



35 A12.04 LAUNDRY EAST
SCALE: 3/8" = 1'-0"



41 A12.04 LOCKER ROOM WEST 2
SCALE: 3/8" = 1'-0"



42 A12.04 LOCKER ROOM WEST
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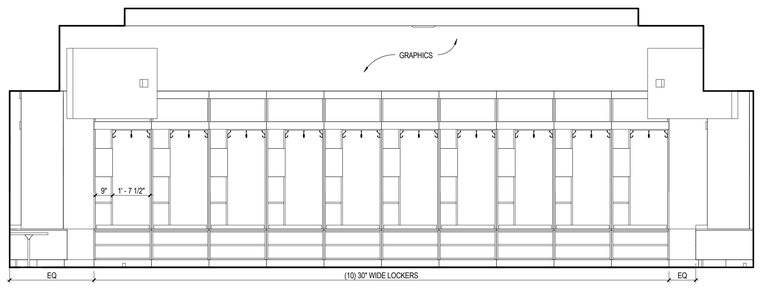

44 A12.04 LOCKER ROOM SOUTH
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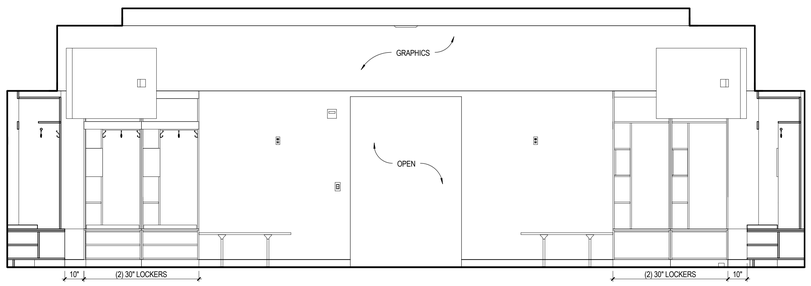
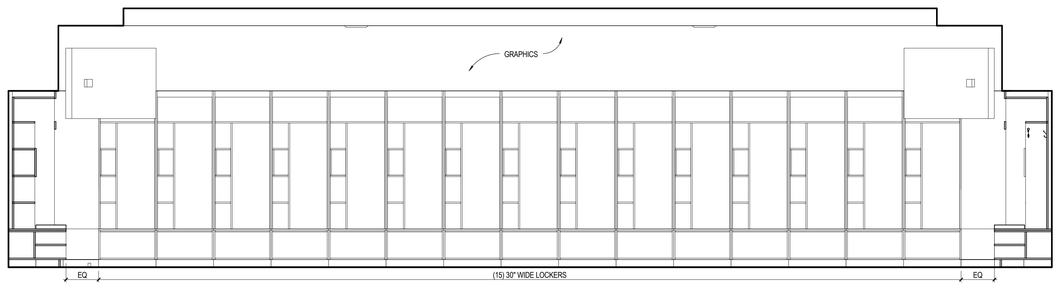


51 A12.04 LOCKER ROOM EAST
SCALE: 3/8" = 1'-0"



53 A12.04 LOCKER ROOM NORTH
SCALE: 3/8" = 1'-0"

GENERAL NOTES

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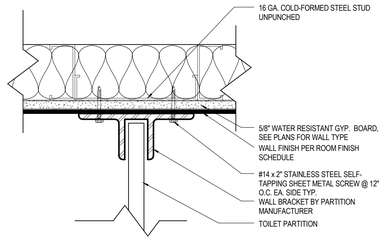
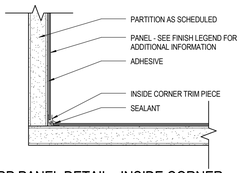
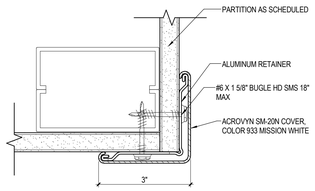


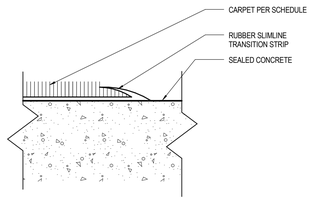
15 A12.10 TOILET PARTITION WALL CONNECTION
SCALE: 3" = 1'-0"



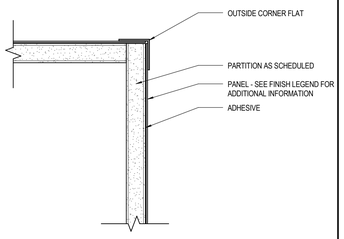
16 A12.10 FRL/FRP PANEL DETAIL - INSIDE CORNER
SCALE: 6" = 1'-0"



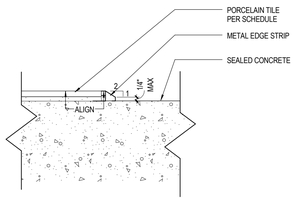
24 A12.10 CORNER GUARD
SCALE: 6" = 1'-0"



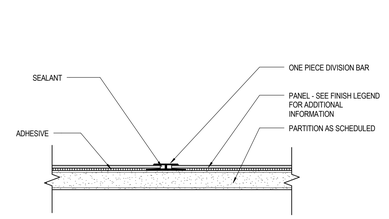
25 A12.10 TRANSITION - CARPET TO CONCRETE (INT.)
SCALE: 3" = 1'-0"



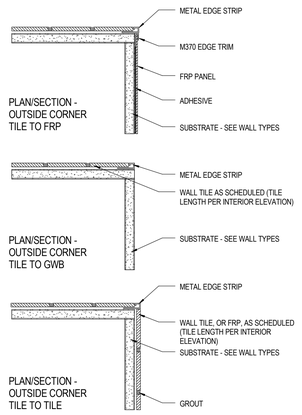
26 A12.10 FRL/FRP PANEL DETAIL - OUTSIDE CORNER
SCALE: 6" = 1'-0"



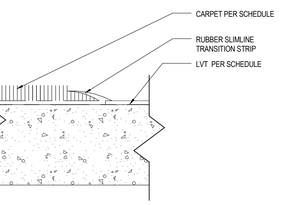
35 A12.10 TRANSITION - TILE TO CONCRETE (INT.)
SCALE: 3" = 1'-0"



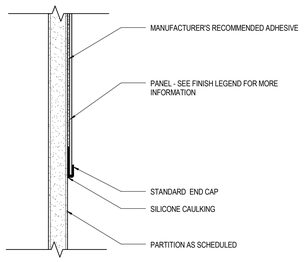
36 A12.10 FRL/FRP PANEL DETAIL - VERTICAL JOINT DETAIL
SCALE: 6" = 1'-0"



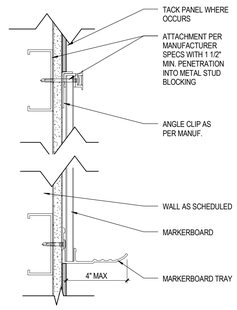
44 A12.10 WALL TILE - EDGE PROTECTION DETAILS
SCALE: 3" = 1'-0"



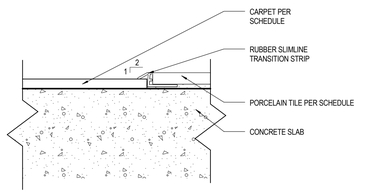
45 A12.10 CARPET TO LVT FLOOR TRANSITION
SCALE: 3" = 1'-0"



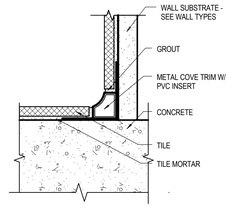
46 A12.10 FRL/FRP PANEL VERTICAL END CAP
SCALE: 6" = 1'-0"



54 A12.10 MARKERBOARD ATTACHMENT
SCALE: 3" = 1'-0"



55 A12.10 TRANSITION- CARPET TO TILE
SCALE: 3" = 1'-0"



SECTION DETAIL @ TILE FLOOR/ TILE WALL W/ COVE BASE

56 A12.10 CERAMIC TILE - COVED WALL BASE
SCALE: 6" = 1'-0"

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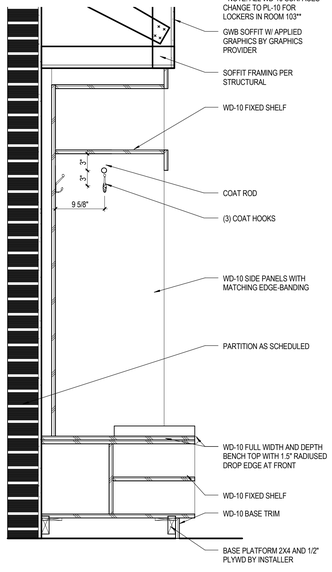
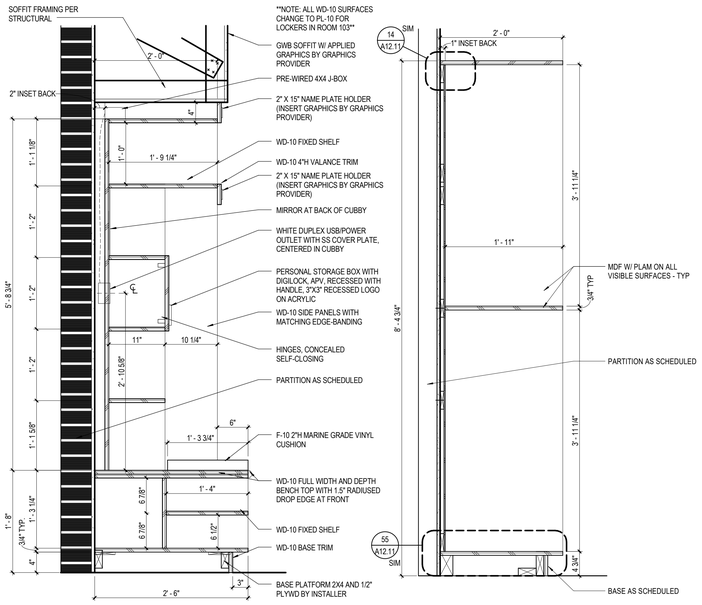
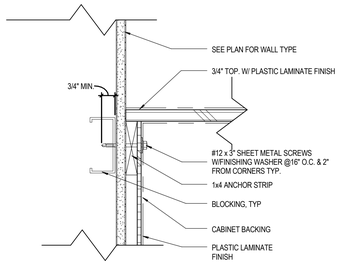


31 A12.11 CASEWORK LOCKER @ HANGING STORAGE
SCALE: 1" = 1'-0"

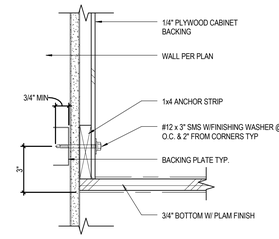


32 A12.11 CASEWORK LOCKER @ SHELVES
SCALE: 1" = 1'-0"

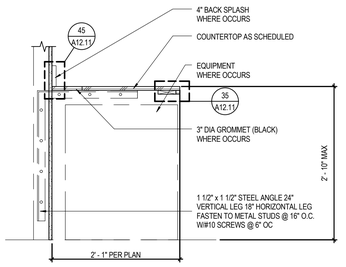
33 A12.11 MUD ROOM CUBBIES
SCALE: 1" = 1'-0"



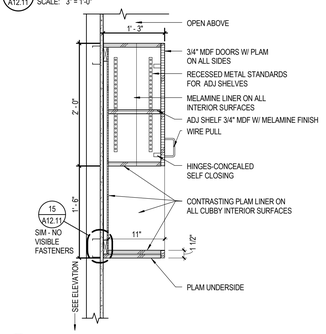
14 A12.11 UPPER CABINET ANCHOR. @ TOP
SCALE: 3" = 1'-0"



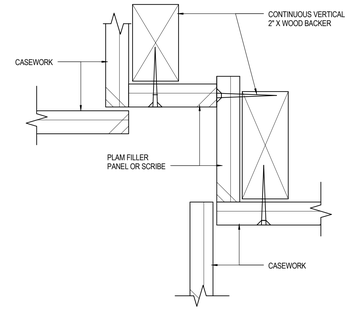
15 A12.11 UPPER CABINET ANCHOR. @ BOTTOM
SCALE: 3" = 1'-0"



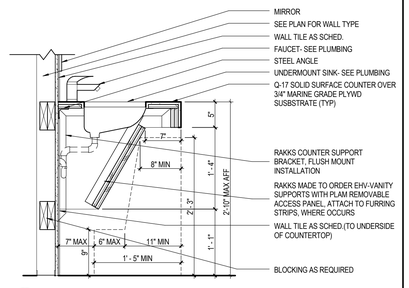
16 A12.11 COUNTERTOP W/ CONCEALED STEEL SUPPORTS
SCALE: 1" = 1'-0"



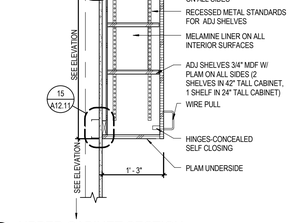
24 A12.11 UPPER CABINET W/ OPEN SHELF SECTION
SCALE: 1" = 1'-0"



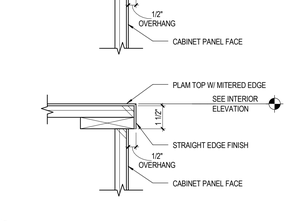
25 A12.11 TYP. CABINET CORNER FILLER - PLAN
SCALE: 6" = 1'-0"



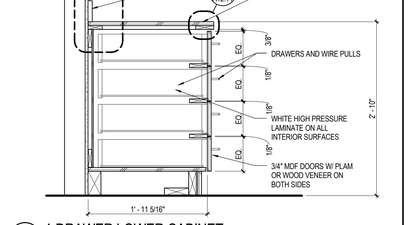
26 A12.11 COUNTER LAV DETAIL - SOLID SURFACE
SCALE: 1" = 1'-0"



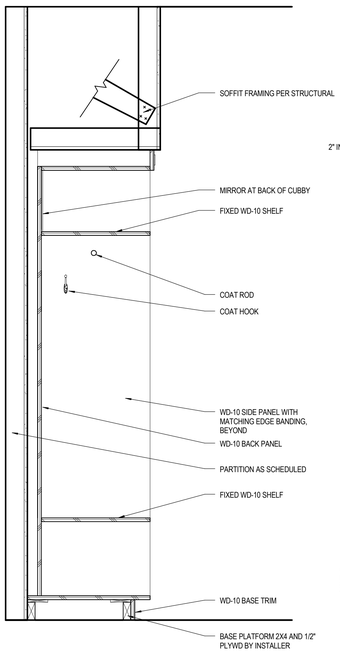
34 A12.11 UPPER CABINET SECTION
SCALE: 1" = 1'-0"



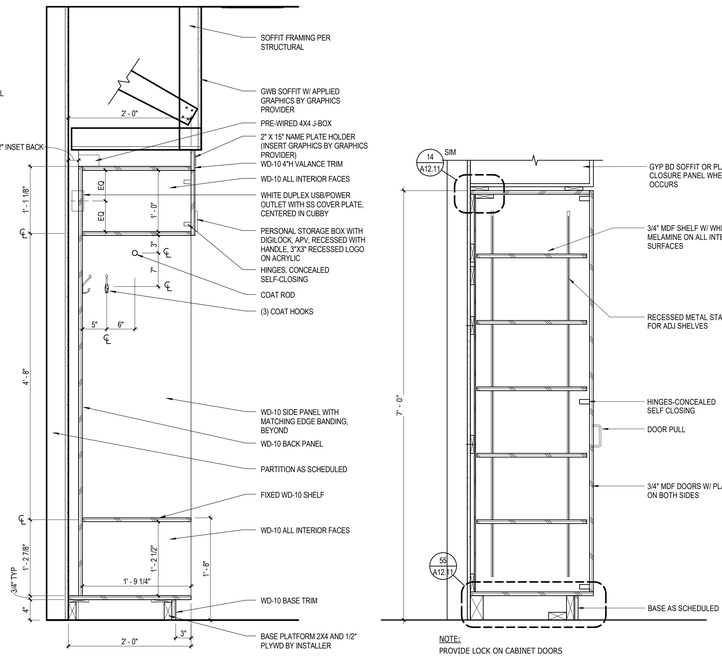
35 A12.11 COUNTER EDGE DETAIL
SCALE: 3" = 1'-0"



36 A12.11 4-DRAWER LOWER CABINET
SCALE: 1" = 1'-0"



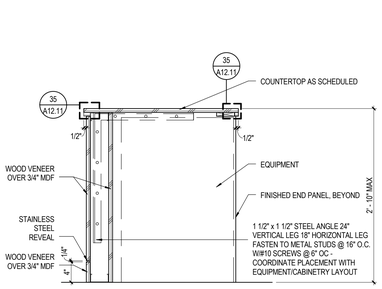
51 A12.11 COACH LOCKER @ OPEN CUBBY
SCALE: 1" = 1'-0"



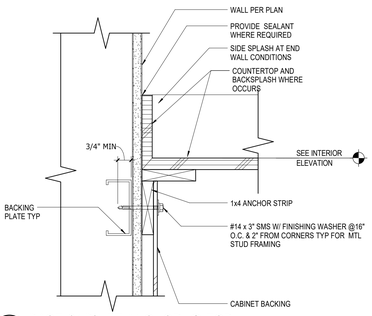
52 A12.11 COACH LOCKER @ CLOSED STORAGE
SCALE: 1" = 1'-0"

NOTE:
PROVIDE LOCK ON CABINET DOORS

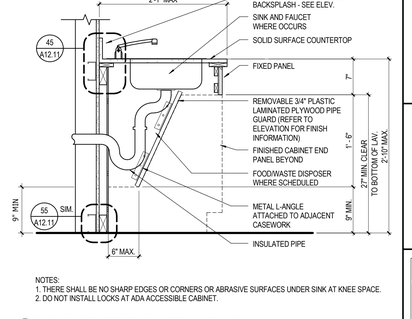
53 A12.11 FULL HEIGHT CABINET - STORAGE
SCALE: 1" = 1'-0"



44 A12.11 COUNTERTOP W/ CONCEALED STEEL SUPPORTS
SCALE: 1" = 1'-0"

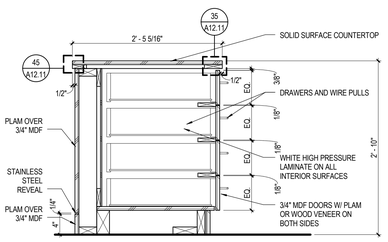


45 A12.11 BASE CABINET ANCHOR. @ TOP
SCALE: 3" = 1'-0"

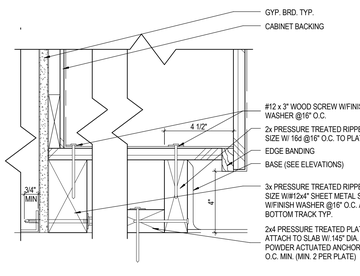


NOTES:
1. THERE SHALL BE NO SHARP EDGES OR CORNERS OR ABRASIVE SURFACES UNDER SINK AT KNEE SPACE.
2. DO NOT INSTALL LOCKS AT ADA ACCESSIBLE CABINET.

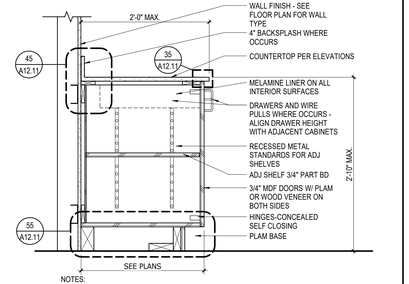
46 A12.11 TYP. LOWER CABINET W/ SINK
SCALE: 1" = 1'-0"



54 A12.11 4-DRAWER LOWER CABINET @ PENINSULA
SCALE: 1" = 1'-0"



55 A12.11 BASE CABINET ANCHOR. @ BOTTOM
SCALE: 3" = 1'-0"



NOTES:
1. ALL DOORS/DRAWERS SHALL BE PROVIDED WITH LOCKS.

56 A12.11 LOWER CABINET
SCALE: 1" = 1'-0"

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

CASEWORK DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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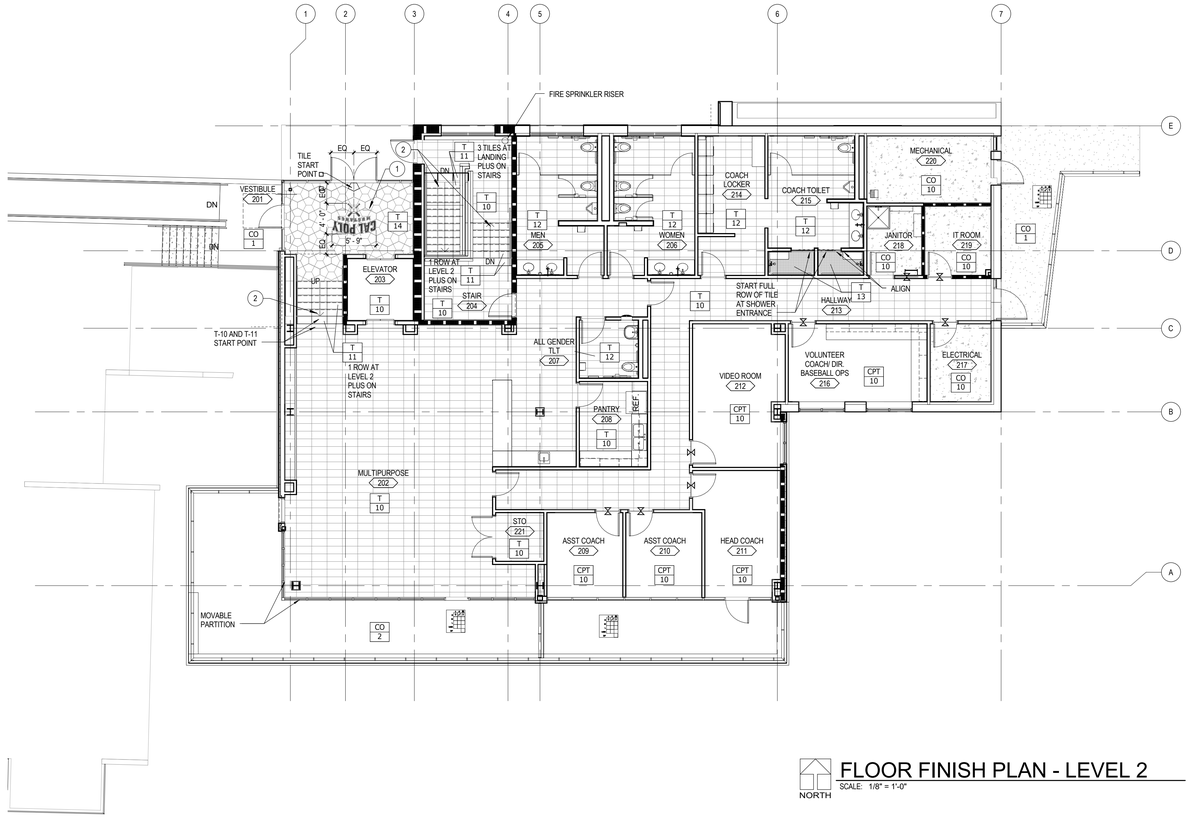

GENERAL NOTES

A. INTERIOR PLAN GENERAL NOTES APPLY TO ALL INTERIOR FINISH PLAN SHEETS.
B. NOT ALL FLOOR AND WALL FINISHES ARE NOTED ON THE INTERIOR FINISH PLANS. SEE INTERIOR ELEVATIONS FOR ADDITIONAL DETAILS.
C. FLOOR PATTERN DIMENSIONS AND LOCATIONS ARE APPROXIMATE. MINOR ADJUSTMENTS MAY BE MADE FOR LAYOUT AND TO MINIMIZE WASTE AS LONG AS THE DESIGN INTENT IN MAINTAINED.
D. ALIGN T-10 GROUT LINES AND T-12 GROUT LINES AT TRANSITIONS BETWEEN THESE TWO PRODUCTS
E. REFERENCE AS 01 FOR EXTERIOR FINISHES.
F. EXPOSED CONCRETE FLOOR SLABS NOT SCHEDULED TO RECEIVE A FINISH SHALL RECEIVE A CURING AND SEALING COMPOUND UNLESS OTHERWISE NOTED.
G. WHERE FLOOR FINISH CHANGES FROM ONE ROOM TO ANOTHER, SET JOINT OF THE MATERIALS AT THE CENTER OF THE COMMUNICATING DOOR.

FINISH LEGEND

FLOORS

AC 1 — MATERIAL: A/C PAVING
3" AC / 4" CLASS 2 BASE

CO 1 — MATERIAL: CONCRETE WALKWAY
PER CITY OF SAN LUIS OBISPO STD.

CO 2 — MATERIAL: EXPOSED CAST-IN-PLACE CONCRETE
MANF: SCOFIELD
PRODUCT: CHROMIX ADMIXTURES
COLOR: WESTWOOD BROWN C-27

CO 10 — MATERIAL: SEALED CONCRETE
W/ MEDIUM BROOM FINISH

CPT 10 — MATERIAL: CARPET TILE
MANF: SHAW
PRODUCT: PLAIN WEAVE TILE 5T098
COLOR: HEDDLE 99156
SIZE: 24" X 24"
INSTALLATION: BRICK
RATING: CLASS 1
REMARKS: LEVEL 2
CONTACT: SARAH GLASS, SHAW 310-486-5378

CPT 11 — MATERIAL: CARPET TILE
MANF: SHAW
PRODUCT: FOLDED TILE
COLOR: ENVY GRIT 60531
SIZE: 18" X 36"
INSTALLATION: HERRINGBONE IN ATHLETE LOUNGE, ASHLAR IN LOCKER ROOM
RATING: CLASS 1
REMARKS: LEVEL 1
CONTACT: SEE CPT-10

CPT 12 — MATERIAL: WALK-OFF CARPET TILE
MANF: TANDUS
PRODUCT: GEO TILE 00979
COLOR: CHARCOAL 00154
SIZE: 18" x 18"
INSTALLATION: MONOLITHIC
RATING: CLASS 2
REMARKS:
CONTACT: ANGELA LUMAYE, TANDUS 310-736-8011

CPT 13 — MATERIAL: CARPET TILE
MANF: SHAW
PRODUCT: TRU COLORS TILE
COLORS: ENVY 68375 AND BLACK 68505
SIZE: 24"x24", LASER CUT TO CLIENT'S MUSTANG ICON
INSTALLATION: 1/4 TURN
RATING: CLASS 1
REMARKS: LOCKER ROOM
CONTACT: SEE CPT-10

CPT 14 — MATERIAL: CARPET TILE
MANF: SHAW
PRODUCT: EXPAND TILE 5T059
COLOR: GRIT 59530
SIZE: 18"X36"
INSTALLATION: ASHLAR
RATING: CLASS 1
REMARKS: LOCKER ROOM
CONTACT: SEE CPT-10

LVT 10 — MATERIAL: LUXURY VINYL TILE
MANF: SHAW
PRODUCT: UNCOMMON GROUND
COLOR: ADIRONDACK 02720
SIZE: 6"x36"
RATING: CLASS 3
INSTALLATION: 33% OFFSET
CONTACT: SEE CPT-10

R 10 — MATERIAL: RUBBER TILE
MANF: NORA
PRODUCT: NORAMENT SATURA
COLOR: CETUS 5125
SIZE: 39.5" X 39.5"
RATING: CLASS 1
INSTALLATION: MONOLITHIC
CONTACT: TONY RUSEN, NORA, 424-326-2689

T 10 — MATERIAL: PORCELAIN TILE
MANF: CAESAR CERAMICHE
PRODUCT: TALE VERSO
COLOR: NAVONA
SIZE: 12" X 24"
INSTALLATION: STACKING BOND
GROUT: 1/8" CUSTOM BUILDING PRODUCTS #183 CHATEAU
CONTACT: THOMAS BRUCE, SPEC CERAMICS 818-400-5373

T 11 — MATERIAL: PORCELAIN TILE STAIR TREAD
MANF/PRODUCT/COLOR: MATCH T-10
SIZE: 12" x 24" STAIR TREAD
INSTALLATION: STACKING BOND ALIGNED W/ ADJACENT T-10
GROUT: MATCH T-10
REMARKS: FILL GROOVES AT NOSING W/ GROUT: CUSTOM BUILDING PRODUCTS #541 WALNUT
CONTACT: SEE T-10

T 12 — MATERIAL: PORCELAIN TILE
MANF: CAESAR CERAMICHE
PRODUCT: TRACE
COLOR: BRONZE
SIZE: 12" X 24"
INSTALLATION: STACKING BOND
GROUT: 1/8" CUSTOM BUILDING PRODUCTS #540 TRUFFLE
REMARKS:
CONTACT: SEE T-10

T 13 — MATERIAL: PORCELAIN TILE
MANF/PRODUCT/COLOR: MATCH T-12
SIZE: 1.5" X 1.5" MOSAIC
GROUT: MATCH T-12
REMARKS: SHOWERS THROUGHOUT
CONTACT: SEE T-10

T 14 — MATERIAL: TILE
MANF: ANN SACKS
PRODUCT: OGASSIAN CONCRETE
COLOR: LIGHT GREY
SIZE: PENTA FLOOR 16-7/8" x 12-5/8" x 3/4"
INSTALLATION: SEE PLAN
GROUT: 1/8" CUSTOM BUILDING PRODUCTS #540 TRUFFLE
REMARKS: SEAL BEFORE AND AFTER INSTALLATION
CONTACT: ADAM HAIKARA, ANN SACKS, 310-273-0700

FLOOR TRANSITIONS

FLOOR TRANSITION

CARPET - TILE: CARPET - RESILIENT: CARPET - CONCRETE: JOHNSONITE SLT - IRONSTONE 178
TILE - CONCRETE: JOHNSONITE CRS REDUCER - BURNT UMBER 63
CARPET - CARPET: NONE
TILE - TILE: GROUT LINE

KEYNOTES

1. FULL-COLOR SCHOOL LOGO PAINTED ONTO CONCRETE FLOOR TILE WITH ACRYLIC PAINT. SEAL WITH CLEAR EPOXY COATING COMPATIBLE WITH FLOORING MATERIAL. CAL POLY TO PROVIDE ARTWORK FOR STENCIL.
2. CENTER ONE FULL TILE ON STAIR TREAD WIDTH. ALIGN ADJACENT FLOOR TILE.
3. CONTINUOUS DOUBLE BEVEL STONE THRESHOLD. COLOR TO MATCH FLOOR TILE. MAX BEVEL SLOPE OF 1:2.

LICENSED ARCHITECT
JON P. ANDERSON
No. C29998
REN. 07.31.19
STATE OF CALIFORNIA

FLOOR FINISH PLANS - LEVELS 1 & 2
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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SD 7.3 6.18
PM1 7.18.18
DSA1 8.27.18
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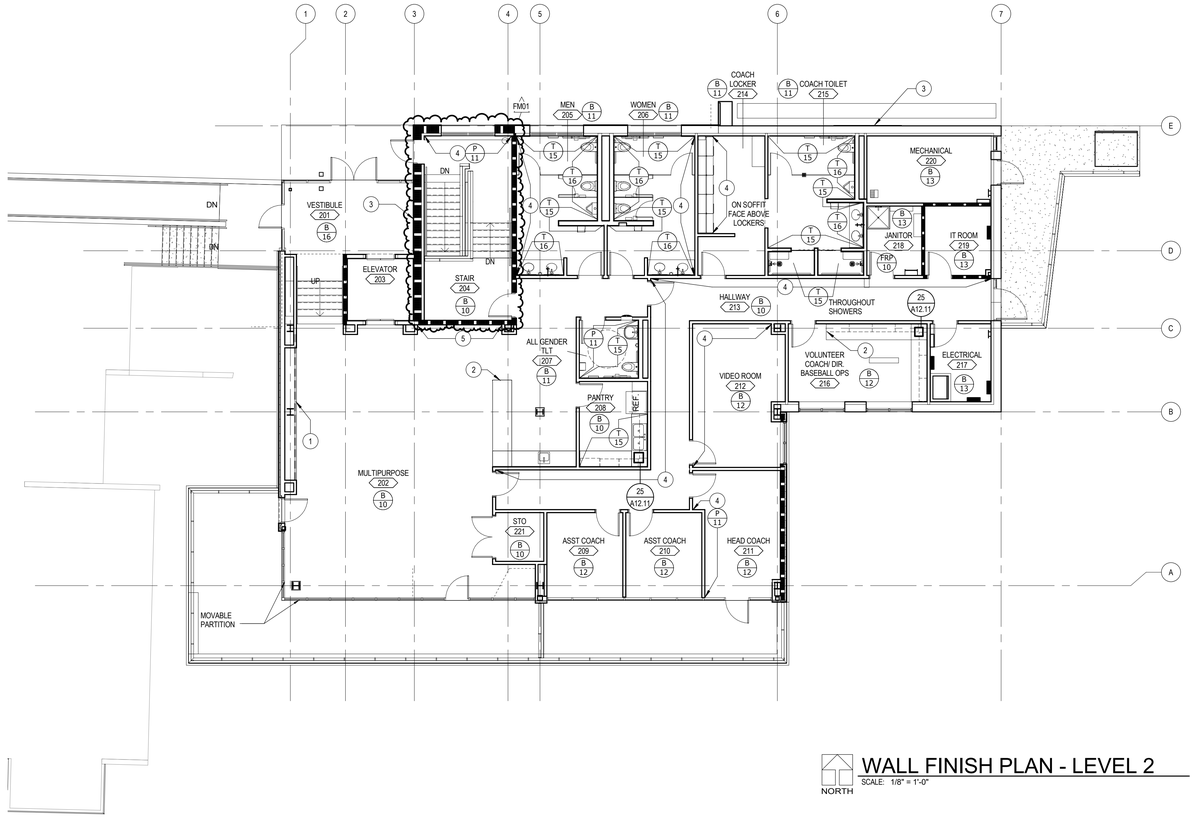
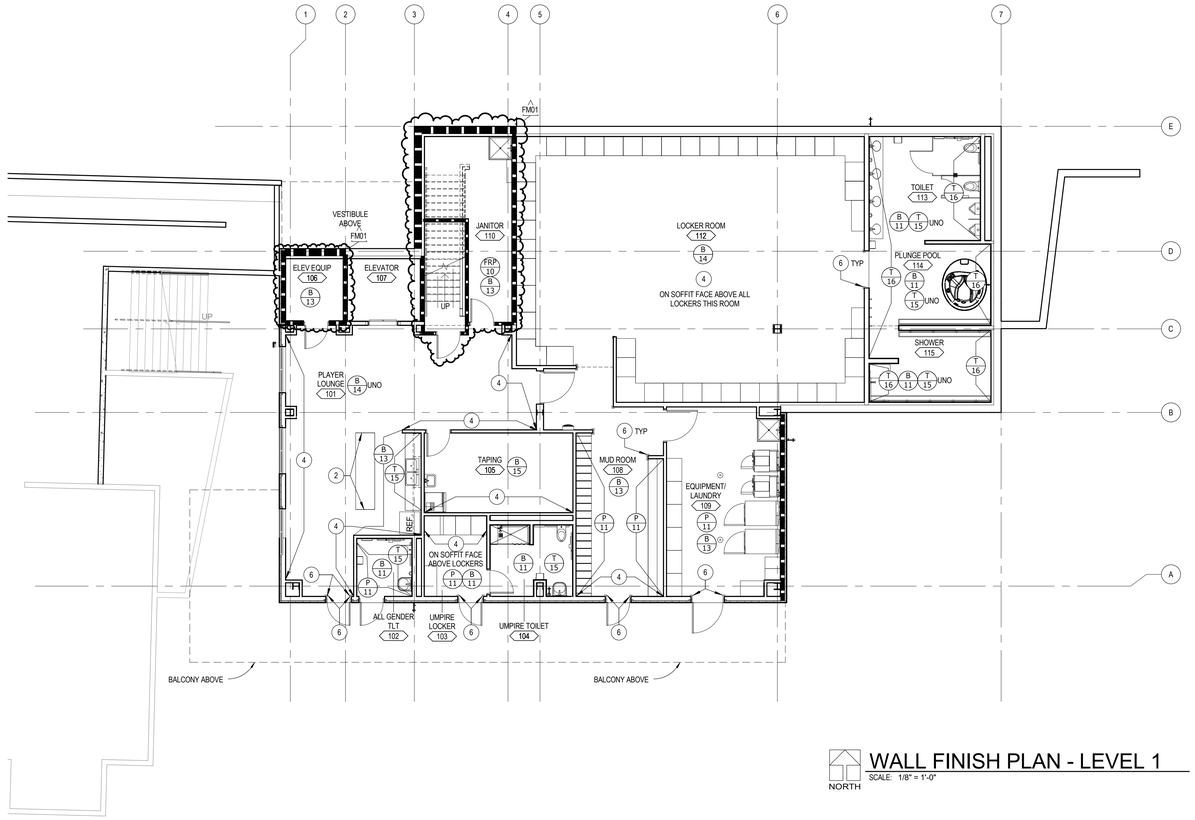


WALL FINISH PLAN - LEVEL 2

SCALE: 1/8" = 1'-0"

NORTH



WALL FINISH PLAN - LEVEL 1

SCALE: 1/8" = 1'-0"

NORTH

GENERAL NOTES

A. NOT ALL FLOOR AND WALL FINISHES ARE NOTED ON THE INTERIOR FINISH PLANS. REFERENCE INTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION.
B. REFERENCE A12.10 FOR INTERIOR FINISH DETAILS.
C. REFERENCE A12.11 FOR CASEWORK DETAILS.
D. REFERENCE TOILET ACCESSORIES SCHEDULE ON A2.01 AND A2.02 FOR RESTROOM PARTITION FINISH.
E. ALL WALLS TO BE P-10 UNO.
F. REFERENCE A5.01 FOR EXTERIOR FINISHES.
G. SEE SPECIFICATIONS FOR PAINTING OF ITEMS NOT NOTED ON FINISH PLANS.

FINISH LEGEND

WALLS

P-10
MATERIAL: PAINT
MANF: DUNN EDWARDS
COLOR: DE6218 ANTIQUE PAPER
REMARKS: ALL GWB WALLS UNO

P-11
MATERIAL: PAINT
MANF: DUNN EDWARDS
COLOR: DE6167 ANTIQUE HONEY

P-12
MATERIAL: PAINT
MANF: DUNN EDWARDS
COLOR: DE6381 SILVER BULLET

T-15
MATERIAL: TILE
MANF: ROCA
PRODUCT: COLOR COLLECTION
SIZE: 3"x6"
COLOR: SNOW WHITE BRIGHT U072
INSTALLATION: STACKING BOND
GROUT: 1/8" CUSTOM BUILDING PRODUCTS #545 BLEACHED WOOD
CONTACT: TOM BRUCE, SPEC CERAMICS 818-400-5373

T-16
MATERIAL: TILE
MANF: IMOLA CERAMICA
PRODUCT: CENTO PER CENTO
SIZE: 5"x7"
COLOR: CENTO Y
INSTALLATION: STACKING BOND
GROUT: 1/8" CUSTOM BUILDING PRODUCTS #45 SUMMER WHEAT
REMARKS: RESTROOM FIXTURE WALLS
CONTACT: SEE T-15

FRP-10
MATERIAL: FIBERGLASS REINFORCED PLASTIC PANELS
MANUFACTURER: MARLITE
PRODUCT: STANDARD FRP
PATTERN: P100 WHITE PEBBLED
SIZE: 4'-0" x 9'-0" W/ MATCHING PVC MOLDINGS
FM01 REMARKS: FULL HEIGHT STAINLESS STEEL CORNER GUARDS AT ALL FRP OUTSIDE CORNERS
~~(SEE CASS-2)~~
CONTACT: SUSAN THOMPSON, MARLITE (562) 926-7208

CASEWORK

P-10
MATERIAL: VINYL FABRIC
MANF: ULTRAFABRICS
PRODUCT-COLOR: COVE - EMERALD 5934423
REMARKS: CASEWORK/LOCKER BENCH FABRIC ~~(MUST MEET CLASS A, NFPA 260 FLAME SPREAD)~~ FM01
~~(SEE CASS-2)~~

PL-10
MATERIAL: PLASTIC LAMINATE
MANF: PIONITE
PRODUCT-FINISH: THUNDERSTORM HI-BRITE HP369-H
REMARKS: PANTRY CABINETS; ATHLETE LOUNGE LOWER CABINETS, SHARED OFFICE UPPER CABINETS
CONTACT: SHAR LUNDBERG, PANOLAM 310-490-1221

PL-11
MATERIAL: PLASTIC LAMINATE
MANF: FORMICA
PRODUCT/FINISH: HUNTER GREEN MATTE 967-58
CONTACT: ELI LAPSLEY, FORMICA, 310-384-1013

PL-12
MATERIAL: PLASTIC LAMINATE
MANF: FORMICA
COLOR/FINISH: DOVER WHITE MATTE 7197-58
REMARKS: SHARED OFFICE WORKSURFACE
CONTACT: SEE PL-11

PL-13
MATERIAL: PLASTIC LAMINATE
MANF: FORMICA
COLOR/FINISH: NEUTRAL WHITE SCULPTED 918-SP
REMARKS: RESTROOM VANITIES - VERTICAL PATTERN DIRECTION
CONTACT: SEE PL-11

SS-10
MATERIAL: SOLID SURFACE COUNTERTOP
MANF: STARON
PRODUCT: DELPHI VD111
REMARKS: ATHLETE LOUNGE AND RESTROOMS
FM01 ~~(SEE CASS-2)~~
CONTACT: JOE CHON, LOTTE ADVANCED MATERIALS, 714-654-9640

SS-11
MATERIAL: QUARTZ SOLID SURFACE COUNTERTOP
MANF: SILESTONE
PRODUCT: DREIS NEBULA CODE
FINISH: POLISHED
REMARKS: MULTIPURPOSE ROOM
CONTACT: AMANDA VANNI, COSENTINO, 714-315-1351

Changed to Calypso

SS-12
MATERIAL: SOLID SURFACE COUNTERTOP
MANF: STARON
PRODUCT: SANDED CHESTNUT SC457
REMARKS: PANTRY COUNTEROPS
CONTACT: SEE SS-10

TS-10
MATERIAL: TACKABLE SURFACE
MANF: FORBO
PRODUCT: BULLETIN BOARD
COLOR: OYSTER SHELL 2206
REMARKS: SHARED OFFICE
CONTACT: TRACY KOH, FORBO 818-679-9536

WD-10
MATERIAL: WOOD
SPECIES-CUT: MAPLE - PLAIN SLICE
COLOR: STAIN TO MATCH ARCH SAMPLE
FINISH: G3 GLOSS LEVEL - EGGSHELL
REMARKS: CASEWORK LOCKERS

WV-10
MATERIAL: WOOD VENEER
MANF: VENEER-ART BY LAMINART
PRODUCT: TG AMERICAN ELM 991
FINISH: TRU-GRAIN
REMARKS: MULTIPURPOSE ROOM CASEWORK
CONTACT: LETITIA FOX, LAMINART, 310-463-6823

WALL BASE

B-10
MATERIAL: PORCELAIN TILE BASE
MANF/PRODUCT/COLOR: MATCH T-10
SIZE: 4"H BULLNOSE
GROUT: SEE T-10
REMARKS: T-10 AREAS
CONTACT: SEE T-10

B-11
MATERIAL: PORCELAIN TILE BASE
MANF/PRODUCT/COLOR: MATCH T-12
SIZE: CUT T-12 TO 4" TALL
BOTTOM TRIM: SCHLUTER DILEX AHK ALUMINUM COVE TRIM, AE SATIN ANODIZED FINISH
TOP TRIM: SCHLUTER SCHIENE, AE SATIN ANODIZED ALUMINUM FINISH
GROUT: SEE T-12
REMARKS: T-12 AREAS. ONLY USE TOP TRIM WHEN NO WALL TILE ABOVE
CONTACT: SEE T-10

B-12
MATERIAL: RUBBER BASE
MANF: JOHNSONITE
PRODUCT-COLOR: 4" STRAIGHT - TOAST 283
REMARKS: CPT-10 AREAS
CONTACT: ELLEN WREN, JOHNSONITE 213-842-0158

B-13
MATERIAL: RUBBER BASE
MANF: JOHNSONITE
PRODUCT-COLOR: 4" COVE - BURNT UMBER 63
REMARKS: CO-10 AND R-10 AREAS
CONTACT: SEE B-12

B-14
MATERIAL: RUBBER BASE
MANF: JOHNSONITE
PRODUCT-COLOR: 4" STRAIGHT BURNT UMBER 63
REMARKS: CPT-11 AREAS

B-15
MATERIAL: RUBBER BASE
MANF: JOHNSONITE
PRODUCT-COLOR: 4" COVE - GANACHE 284
REMARKS: LVT-10 AREAS

B-16
MATERIAL: RUBBER BASE
MANF: JOHNSONITE
PRODUCT-COLOR: 4" COVE - SNOW WHITE 01
REMARKS: T-14 AREA - GWB WALLS ONLY

KEY NOTES

1. BACKLIT GRAPHICS - SEE GRAPHICS PACKAGE FOR DETAILS.
2. RETURN COUNTERTOP TO FLOOR
3. BACK-LIT SIGNAGE - SEE GRAPHICS PACKAGE FOR DETAILS.
4. GRAPHIC WALLCOVERING - SEE GRAPHICS PACKAGE FOR DETAILS. LEVEL 5 WALL FINISH REQUIRED.
5. GRAPHIC DISPLAY - SEE GRAPHICS PACKAGE FOR DETAILS.
6. 8'-0" CORNER GUARD - SEE 24/A12.10

LICENSED ARCHITECT JON P. ANDERSON No. C29998 REN. 07.31.19 STATE OF CALIFORNIA

WALL FINISH PLAN - LEVELS 1 & 2
BASEBALL CLUBHOUSE FACILITY
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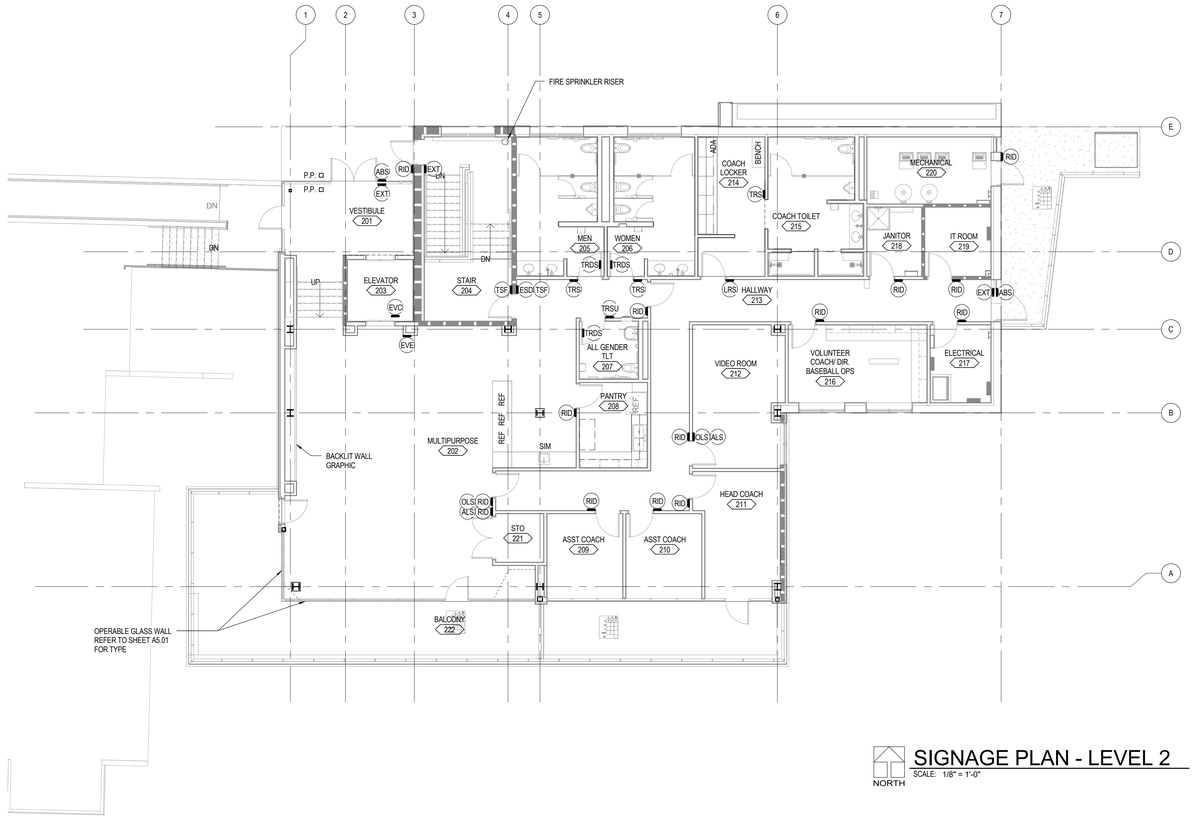
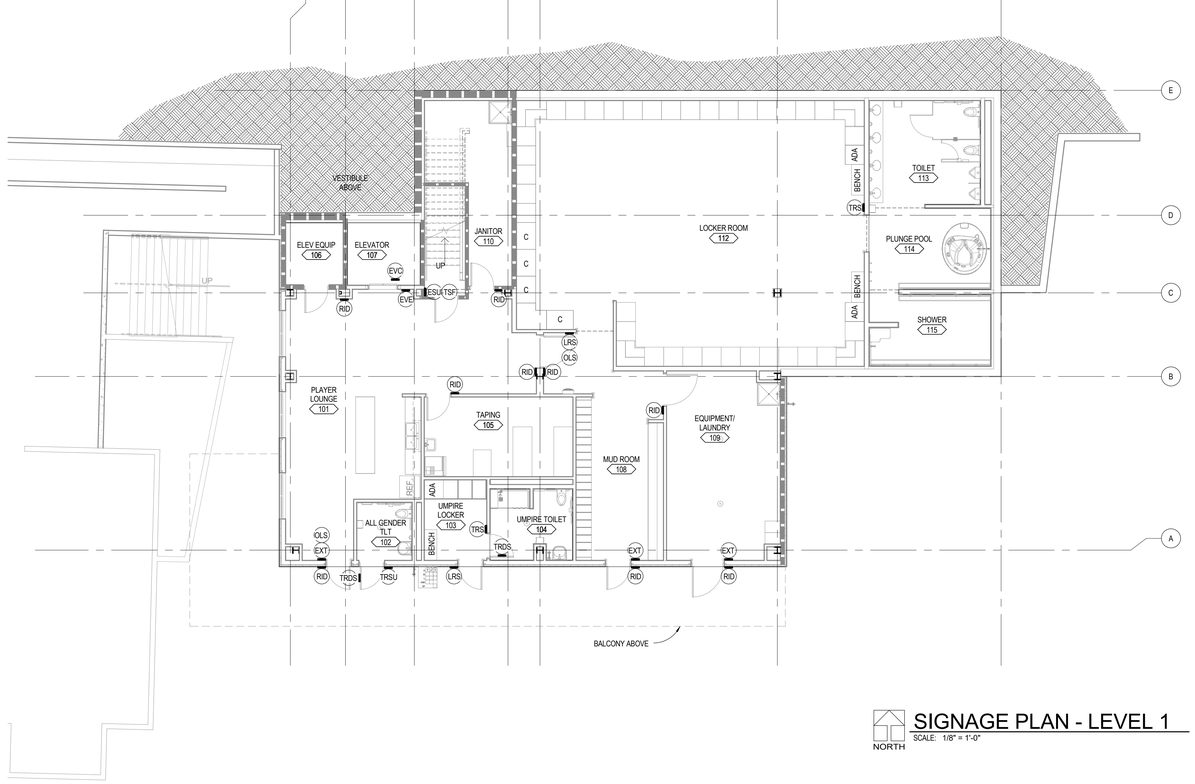


SIGNAGE PLAN - LEVEL 2

SCALE: 1/8" = 1'-0"

NORTH



SIGNAGE PLAN - LEVEL 1

SCALE: 1/8" = 1'-0"

NORTH

GENERAL NOTES

1. REFER TO CP3.02 FOR SIGNAGE DETAILS.

2. PROVIDE BACKING TO SIGNAGE AS REQUIRED

3. REFER TO CFC 605.3.1 FOR ELECTRICAL ROOM REQUIREMENTS AND SIGNAGE

4. ALL FINISH MATERIAL SHALL COMPLY WITH THE REQUIREMENTS OF CBC CHAPTER 8

5. ANY ROOM HAVING AN OCCUPANT LOAD OF 50 OR MORE PERSONS WHERE FIXED SEATS ARE NOT INSTALLED, AND WHICH IS USED FOR ASSEMBLY, SHALL HAVE THE CAPACITY OF THE ROOM POSTED IN A CONSPICUOUS PLACE NEAR THE MAIN EXIT PER TITLE 19, SECTION 3.30.

6. WHEN MULTIPLE SIGNS ARE PLACED, TACTILE SIGN SHALL BE PLACED ADJACENT TO DOOR.

KEY NOTES

- (RID) ROOM IDENTIFICATION SIGN — SEE DETAIL 14/CP3.02
- (TRS) TOILET ROOM SIGNAGE — SEE DETAIL 13/CP3.02
- (TRSU) TOILET ROOM SIGNAGE UNISEX — SEE DETAIL 27/CP3.02
- (TRDS) TOILET ROOM DOOR SYMBOL — SEE DETAIL 15/CP3.02
- (LRS) LOCKER ROOM SIGNAGE — SEE DETAIL 12/CP3.02
- (ADS) ACCESSIBLE DIRECTIONAL SIGNAGE — SEE DETAIL 23/CP3.02
- (EXT) TACTILE EXIT SIGN 'EXT' — SEE DETAIL 26/CP3.02
- (EXR) TACTILE EXIT SIGN 'EXR' — SEE DETAIL 26/CP3.02
- (ESD) EXIT STAIR DOWN — SEE DETAIL 26/CP3.02
- (ESU) EXIT STAIR UP — SEE DETAIL 26/CP3.02
- (TSF) TACTILE STAIR FLOOR SIGNAGE — SEE DETAIL 9/CP3.02
- (ALS) ASSISTIVE LISTENING SYSTEM — SEE DETAIL 22/CP3.02
- (OLS) MAX OCCUPANCY SIGN — SEE DETAIL 21/CP3.02
- (EVE) ELEVATOR ENTRANCE — SEE DETAIL 7/CP3.02
- (EVC) ACCESSIBLE ELEVATOR CONTROLS — SEE DETAIL 8/CP3.02
- (ABS) ACCESSIBLE BUILDING ENTRANCE — SEE DETAIL 6/CP3.02

LICENSED ARCHITECT
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SIGNAGE PLANS - LEVELS 1 & 2
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STRUCTURAL GENERAL NOTES

GENERAL NOTES

CODE:
CALIFORNIA BUILDING CODE, 2016 EDITION W/ CSU SEISMIC REQUIREMENTS (2016)

GENERAL NOTES:
1. THE DRAWINGS REPRESENT THE FINISHED STRUCTURE, NOT THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION INCLUDING, BUT NOT LIMITED TO, BRACING, SHORING FOR CONSTRUCTION LOADS AND EQUIPMENT, ETC. THE UNIVERSITY REPRESENTATIVE IS NOT RESPONSIBLE FOR THE CONTRACTOR'S MEANS AND METHODS, SEQUENCES OF CONSTRUCTION, OR THE SAFETY PROGRAM. OBSERVATION VISITS TO THE SITE BY THE UNIVERSITY REPRESENTATIVE WILL NOT INVOLVE REVIEW OF THESE ITEMS.
2. CONTRACTOR IS TO ESTABLISH AND VERIFY OPENINGS AND INSERTS FOR ITEMS TO BE INSTALLED BY OTHER TRADES PRIOR TO SUBMITTAL OF SHOP DRAWINGS AND CONSTRUCTION.
3. CONSTRUCTION MATERIAL AND EQUIPMENT PLACED ON FRAMED CONSTRUCTIONS SHALL BE SUCH THAT THE LOAD DOES NOT EXCEED THE DESIGN LIVE LOAD OF THE CONSTRUCTION. PROVIDE SHORING OF CONSTRUCTIONS WHERE NECESSARY FOR LOADS.
4. DETAILS THAT ARE NOTED AS "TYP." ON DETAIL TITLES ARE TO BE APPLIED TO THE PROJECT CONSTRUCTION AS GENERAL CONSTRUCTION METHODS UNLESS NOTED OTHERWISE. THESE DETAILS ARE NOT CUT AT ALL LOCATIONS THEY OCCUR AND MAY NOT BE CUT AT ALL. WHERE NO SPECIFIC DETAILS ARE SHOWN CONSTRUCTION SHALL CONFORM TO SIMILAR CONDITIONS ELSEWHERE ON THE PROJECT.
5. DO NOT SCALE DRAWINGS.
6. THESE NOTES SHALL SUPPLEMENT THE PROJECT SPECIFICATIONS, WHICH SHALL BE REFERRED TO FOR ADDITIONAL REQUIREMENTS.
7. WHERE DISCREPANCIES OCCUR BETWEEN GENERAL NOTES, PLANS, DETAILS, AND SPECIFICATIONS, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN, UNLESS VERIFIED OTHERWISE BY THE UNIVERSITY REPRESENTATIVE.
8. THESE DOCUMENTS SHALL NOT BE CONSTRUED AS STAND-ALONE DOCUMENTS. CONTRACTOR SHALL COORDINATE WITH ALL OTHER CONSULTANTS WORK.
9. CONSTRUCTION DOCUMENTS SHALL NOT BE REPRODUCED FOR USE OF SHOP DRAWINGS SUBMITTALS OR ANY OTHER PROJECT WITHOUT WRITTEN CONSENT BY DLR GROUP.
10. IF THE UNIVERSITY REPRESENTATIVE'S SEAL AND SIGNATURE IS NOT AFFIXED TO THESE DRAWINGS, THESE DRAWINGS ARE INTENDED FOR PRELIMINARY PURPOSES ONLY AND SHALL NOT BE USED FOR CONSTRUCTION.

DESIGN DEAD LOADS:
SELF-WEIGHTS OF STRUCTURAL MEMBERS
ROOFING & INSULATION: 5 PSF
CEILING SERVICES: 10 PSF
SELF-WEIGHTS OF PERMANENT EQUIPMENT

DESIGN LIVE LOADS:
ROOF: 20 PSF
FLOOR: 40 PSF (SECOND FLOOR CORRIDORS SERVING OFICES)
50 PSF, 2,000 LB CONCENTRATED LOAD (OFFICES)
100 PSF (CORRIDORS)
100 PSF (EXTERIOR BALCONIES/WALKWAYS)
100 PSF (MEETING ROOMS & LOCKER ROOMS)
100 PSF (DINING ROOMS & RESTAURANTS)
100 PSF (EQUIPMENT & LAUNDRY)
100 PSF, 300 LB CONCENTARTED LOAD (STAIRS & EXIT WAYS)
125 PSF (STORAGE)
125 PSF (MECHANICAL, ELECTRICAL, SECURITY ROOMS)

WIND LOADS:
ULTIMATE WIND SPEED:V = 110 MPH
RISK CATEGORY II
EXPOSURE "C"
INTERNAL PRESSURE COEFFICIENT: CPi = ±0.18

SEISMIC LOADS:
SEISMIC DESIGN IS IN ACCORDANCE WITH CBC 2016 AND CSU SEISMIC REQUIREMENTS (2016).

SITE LATITUDE = 35.307
SITE LONGITUDE = -120.665

CBC SEISMIC PARAMETERS (USGS MAPS):
S1 = 0.429g SS = 1.126g
SM1 = 0.588g SMS = 1.126g
SD1 = 0.392g SDS = 0.751g

CSU SEISMIC PARAMETERS:
SBSE-1-1S = 0.28g SBSE-1-0.2S = 0.74g (CSU SEISMIC REQUIREMENTS, ATTACHMENT B, TABLE 1)
SBSE-1,1 = 0.43g SBSE-1,S = 0.82g (CSU SEISMIC REQUIREMENTS, ATTACHMENT B, NOTE 3)

GOVERNING DESIGN VALUES:
SD1 = 0.43g SDS = 0.82g

SITE CLASS:	C
SEISMIC DESIGN CATEGORY:	D
RISK CATEGORY PER TABLE 1604.5:	II
SEISMIC IMPORTANCE FACTOR:	Ie = 1.00
SEISMIC FORCE-RESISTING SYSTEM:	DUAL SYSTEM WITH SPECIAL MOMENT FRAMES CAPLE OF RESISTING AT LEAST 25% OF PRESCRIBED SEISMIC FORCES: SPECIAL REINFORCED MASONRY SHEAR WALLS
RESPONSE MODIFICATION COEFFICIENT:	R = 5.5
SYSTEM OVERSTRENGTH FACTOR:	Ω_o = 3.0
DEFLECTION AMPLIFICATION FACTOR:	Cd = 5.0
REDUNDANCY FACTOR:	ρ = 1.0
ANALYSIS PROCEDURE:	EQUIVALENT LATERAL FORCE (ELF) PER ASCE 7-10, 12.8
SEISMIC RESPONSE COEFFICIENT:	Cs = 0.149
SEISMIC WEIGHT:	W = 945 KIP
SEISMIC BASE SHEAR:	V = 141 KIP

FOUNDATIONS:
1. FOUNDATION DESIGN IS BASED ON GEOTECHNICAL INVESTIGATION INVESTIGATION REPORT TITLED "GEOTECHNICAL ENGINEERING REPORT CAL POLY SPORTS COMPLEX CLUBHOUSE AND BLEACHER REPLACEMENT PROJECT BAGGETT STADIUM, CALIFORNIA POLYTECHNIC STATE UNIVERSITY, SAN LUIS OBISPO, CA" BY EARTH SYSTEM PACIFIC, DATED MARCH 25, 2016. BASED ON THE GEOTECHNICAL REPORT, THE FOLLOWING HAS BEEN ASSUMED:
   - CONTINUOUS WALL FOOTINGS
     ALLOWABLE SOIL BEARING PRESSURE = 3,500 PSF FOR DEAD LOAD AND 4,500 PSF FOR DEAD PLUS LIVE LOAD
     12" MINIMUM WIDTH
     12" MINIMUM BEARING DEPTH INTO SOUND BEDROCK
   - ISOLATED SPREAD FOOTINGS
     ALLOWABLE SOIL BEARING PRESSURE = 3,500 PSF FOR DEAD LOAD AND 4,500 PSF FOR DEAD PLUS LIVE LOAD
     24" MINIMUM WIDTH
     18" MINIMUM BEARING DEPTH
   - RETAINING WALL FOOTINGS
     ALLOWABLE SOIL BEARING PRESSURE = 1,800 PSF
     ALLOWABLE SOIL BEARING PRESSURE IN SITU BEDROCK = 4,500 PSF
     12" MINIMUM WIDTH
     12" MINIMUM BEARING DEPTH
     DISCOUNT UPPER 6 INCHES FOR PASSIVE RESISTANCE
   - EQUIVALENT ACTIVE (UNRESTRAINED) FLUID PRESSURE = 35 PCF (UNIFORM DISTRIBUTION)
   - EQUIVALENT AT-REST (RESTRAINED) FLUID PRESSURE = 55 PCF
   - EQUIVALENT PASSIVE FLUID PRESSURE = 300 PCF
   - EQUIVALENT SEISMIC LATERAL EARTH PRESSURE = 20 PCF (INVERTED TRIANGLE)
   - COEFFICIENT OF FRICTION = 0.35
3. WALLS ARE NOT DESIGNED TO WITHSTAND TEMPORARY CONSTRUCTION LOADS, INCLUDING WIND AND SEISMIC. CONTRACTOR'S ENGINEER IS RESPONSIBLE FOR DESIGN OF TEMPORARY SHORING.
4. BACKFILLING AGAINST FOUNDATION WALLS WHERE GRADE IS PRESENT ON BOTH SIDES SHALL BE PERFORMED SUCH THAT THE DIFFERENCE IN SOIL HEIGHT ON EACH SIDE DOES NOT EXCEED 2 FEET.
5. CONTRACTOR SHALL PROVIDE FOR PROPER DEWATERING OF ALL EXCAVATIONS.
6. NEW FOOTINGS LOCATED IMMEDIATELY ADJACENT TO EXISTING FOOTINGS SHALL BE FOUNDED AT THE SAME ELEVATIONS AS THE EXISTING FOUNDATIONS UNLESS OTHERWISE NOTED. UNDER NO CIRCUMSTANCE SHALL THE EXISTING FOOTINGS BE UNDERMINED BY NEW CONSTRUCTION.

COMPOSITE BEAM SHEAR CONNECTOR STUDS:
1. ALL SHEAR STUDS SHALL BE 3/4" DIAMETER x 4" LONG (AFTER WELDING) CONFORMING TO AWS D1.1D, UNO.
   F_u = 65 KSI Q_n = 17.2 KIP
2. NUMBER OF SHEAR STUDS ARE INDICATED ON PLAN THUSLY [#]. WHERE THE NUMBER OF STUDS FOR A BEAM IS INDICATED ON THE PLAN BY ONE NUMBER, STUDS SHALL BE PLACED SYMMETRICALLY WITH RESPECT TO THE BEAM CENTER LINE WITH 1/2 OF THE STUDS ON EACH HALF OF THE BEAM. WHERE NUMBER OF STUDS IS INDICATED BY MORE THAN ONE NUMBER, PLACE THE NUMBER OF STUDS INDICATED BY EACH NUMBER UNIFORMLY IN THAT PORTION OF THE BEAM. WHERE NO STUD INDICATION IS GIVEN ON PLAN, PROVIDE STUDS AT 3'-0" OC MAXIMUM AALL FRAMING BEAMS WHERE CONCRETE TOPPED METAL DECK OCCURS.
3. STUD PLACEMENT WHEN DECK VALLEYS ARE PERPENDICULAR TO BEAM:
   a. PLACE ONE STUD IN DECK VALLEYS, UNIFORMLY ALONG THE BEAM OR PORTION OF BEAM INDICATED, CENTERED OVER THE BEAM WEB. IF THE REQUIRED NUMBER OF STUDS IS LESS THAN THE NUMBER OF DECK VALLEYS, ADD STUDS AS REQUIRED TO PROVIDE A MAXIMUM STUD SPACING OF 3'-0". IF THE REQUIRED NUMBER OF STUDS EXCEEDS THE NUMBER OF DECK VALLEYS, SEE FOLLOWING NOTE.
   b. WHEN THE REQUIRED NUMBER OF STUDS EXCEEDS THE NUMBER OF DECK VALLEYS, ADD A SECOND STUD IN DECK VALLEYS UNIFORMLY ALONG THE BEAM OR PORTION OF BEAM INDICATED UNTIL THE REQUIRED NUMBER OF STUDS IS REACHED. WHEN TWO STUDS ARE REQUIRED IN A DECK VALLEY, PLACE THE STUDS 1 1/2" EACH SIDE OF THE BEAM WEB CENTERLINE.
4. STUD PLACEMENT WHEN DECK VALLEYS ARE PARALLEL TO BEAM:
   a. PLACE STUDS UNIFORMLY ALONG THE BEAM OR PORTION OF BEAM INDICATED. CENTER THE STUDS OVER THE WEB AND PROVIDE A MAXIMUM SPACING OF 3'-0" AND A MINIMUM SPACING OF 4 1/2". IF THE REQUIRED NUMBER OF STUDS EXCEEDS THE NUMBER OF STUDS PLACED AT A SPACING OF 4 1/2", SEE FOLLOWING NOTE.
   b. WHEN THE REQUIRED NUMBER OF STUDS EXCEEDS WHAT CAN BE PLACED AT 4 1/2", PLACE A SECOND ROW OF STUDS AT 4 1/2", STARTING AT THE POINT NEAREST THE END OF THE BEAM, UNTIL THE REQUIRED NUMBER OF STUDS IS REACHED. WHEN TWO STUDS ARE REQUIRED, PLACE STUDS 1 1/2" EACH SIDE OF THE BEAM WEB CENTERLINE.
5. FOR MOMENT FRAME BEAMS, PROVIDE STUDS AT 12" OC MAX BETWEEN PROTECTED ZONES.

STRUCTURAL STEEL:
1. FABRICATOR SHALL BE AN "APPROVED FABRICATOR" IN ACCORDANCE WITH CBC SECTION 1704.2.5.1, REGISTERED AND APPROVED BY THE LOCAL BUILDING DEPARTMENT. IN LIEU OF THE PREVIOUS, FABRICATOR SHALL INCLUDE IN THEIR BID THE SERVICES OF THE OWNER'S SPECIAL INSPECTION AND TESTING AGENCY TO PROVIDE INSPECTION/TESTING SERVICES FOR IN-SHOP WORK TO MEET THE REQUIREMENTS OF CBC SECTION 1704. FINAL COSTS OF THESE SERVICES WILL BE AS REQUIRED BY THE OWNER'S SPECIAL INSPECTION AND TESTING AGENCY, WHO MAY OR MAY NOT BE HIRED AT THE TIME OF BIDDING THE PROJECT. COSTS WILL BE WITHHELD FROM THE CONTRACTOR TO PAY FOR THESE SERVICES. ANY STEEL FABRICATOR NOT MEETING THE REQUIREMENTS OF THE CONTRACT DOCUMENTS OR SPECIFICATIONS WILL BE REJECTED.
2. ALL COMPLETE JOINT PENETRATION WELDS SHALL BE ULTRASONIC TESTED BY THE INSPECTION AGENCY.
3. STRUCTURAL STEEL SHALL MEET ASTM A36 UNLESS NOTED OTHERWISE. STRUCTURAL STEEL WIDE FLANGE SHAPES SHALL MEET ASTM A992 (GRADE 50).
4. STEEL TUBE SHALL MEET ASTM A500, GRADE B.
5. STEEL PIPE SHALL MEET ASTM A53, TYPE E OR S.
6. BOLTS AT STEEL TO STEEL CONNECTIONS SHALL BE 3/4-INCH DIAMETER, ASTM A325-N, AND TIGHTENED TO THE SNUG TIGHT CONDITION AS DEFINED BY AISC UNLESS OTHERWISE NOTED. WHERE CONNECTIONS ARE NOTED TO BE ASTM A 325-SC, BOLTS SHALL BE TIGHTENED TO THE MINIMUM PRETENSION FOR FULLY TIGHTENED BOLTS BY ONE OF THE AISC APPROVED METHODS.
7. ANCHOR BOLTS IN CONCRETE OR MASONRY SHALL BE 3/4-INCH DIAMETER ASTM F1554 GRADE 55, WELDABLE, UNLESS NOTED OTHERWISE.
8. FIELD BOLTING INSTALLATION SHALL BE INSPECTED IN ACCORD WITH THE BUILDING CODE AND THE AISC MANUAL.
9. ALL WELDING SHALL CONFORM TO THE PROVISIONS OF THE AMERICAN WELDING SOCIETY CODE AWS D1.1. ELECTRODES SHALL MATCH BASE METALS AS SPECIFIED IN THE CBC. ALL WELDING OF ASTM A706 REINFORCING STEEL TO STRUCTURAL STEEL SHALL BE IN ACCORD WITH AWS D1.4 USING E70 ELECTRODES.
10. THE TESTING LABORATORY SHALL VISUALLY INSPECT ALL FIELD WELDING. ALL COMPLETE PENETRATION WELDS SHALL BE TESTED AND CERTIFIED BY AN INDEPENDENT TESTING LABORATORY.
11. ALL BOLTS (HIGH STRENGTH, ANCHOR BOLTS, EXPANSION BOLTS, ADHESIVE ANCHORS, ETC.) SHALL BE INSTALLED WITH STEEL WASHERS.
12. ALL WELDS SHOWN ON THE DRAWINGS SHALL BE SHOP WELDS UNLESS NOTED OTHERWISE. CONTRACTOR MAY SUBSTITUTE FIELD WELDS FOR SHOP WELDS AT HIS DISCRETION. SHOP DRAWINGS SHALL CLEARLY NOTE SHOP AND FIELD WELDS.
13. CONTRACTOR IS RESPONSIBLE FOR THE STABILITY OF THE BUILDING SYSTEM AT ALL TIMES DURING THE ERECTION PROCESS. CONTRACTOR SHALL CONSIDER EFFECTS FROM WIND, SEISMIC, AND OTHER LOADING DURING CONSTRUCTION.
14. ALL EXTERIOR STEEL AND BOLTS SHALL BE GALVANIZED.
15. ALL PRIMARY FRAME STEEL MEMBERS ARE TO BE RATED PER CP SERIES CODE PLAN SHEETS. STEEL FRAMING SHALL RECEIVE SPRAY-ON FIREPROOFING AT REQUIRED LOCATIONS. TUBE STEEL SHALL RECEIVE INTUMESCENT PAINT AT REQUIRED LOCATIONS.

STEEL DECK:
1. STEEL DECK AND ACCESSORIES SHALL BE FROM STEEL CONFORMING TO ASTM A1008 OR ASTM A653. ALL METAL DECKING SHALL BE IN ACCORDANCE WITH THE STEEL DECK INSTITUTE SPECIFICATIONS AND RECOMMENDATIONS. ALL METAL DECKING SHALL BE IN ACCORDANCE WITH IR 22-1.13.
2. ROOF DECK SHALL BE 1½" PLB-36, 18 GAGE MINIMUM AS FABRICATED BY VERCO ICC-1735P, AND SHALL HAVE A MINIMUM YIELD STRENGTH, FY = 33 KSI
3. COMPOSITE DECK SHALL BE 2" PLW2 FORMLOCK 20 GAGE MINIMUM AS FABRICATED BY VERCO ICC-1735P, AND SHALL HAVE A MIMIMUM YIELD STRENGTH, FY = 33 KSI
4. ALL STEEL DECK SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A653 WITH MINIMUM COATING OF G60, UNLESS OTHERWISE NOTED.
5. ROOF DECK SIDE LAPS SHALL BE CONNECTED USING VERCO SIDELAP CONNECTION 2 (VSC2) @ 12" OC. ROOF DECK SHALL RECEIVE A 5-WELD PATTERN AT SUPPORTS, AND AT 18" OC ALONG CONTINUOUS PARALLEL SUPPORTS. WELDS SHALL BE 5/8" PUDDLE WELDS
6. DECK WELDING SHALL COMPLY WITH THE BUILDING CODE AND AWS D1.1 USING E70XX ELECTRODES.
7. COMPOSITE DECK SHALL BE ATTACHED TO SUPPORTING STRUCTURAL MEMBERS BY 5/8" PUDDLE WELDS PLACED AT EACH DECK RIB OR 12 INCHES ON CENTER MAX, DEPENDING ON THE DECK ORIENTATION RELATIVE TO THE SUPPORTING MEMBERS. THIS WELD CAN BE OMITTED IN RIBS THAT HAVE SHEAR STUD CONNECTORS. SIDE LAPS BETWEEN ADJACENT UNITS ARE TO BE BUTTON PUNCHED
8. PROVIDE 2 INCHES MINIMUM BEARING AT DECK SUPPORTS.
9. COMPOSITE DECK SHALL BE CONTINUOUS OVER 3 SPANS UNLESS OTHERWISE NOTED. WHERE LESS THAN 3 SPANS IS AVAILABLE, PROVIDE, FOR THE ACTUAL SPAN CONDITION, DECK GAGE CAPABLE OF SUPPORTING PUBLISHED DEAD AND LIVE LOAD CAPACITIES AND CONSTRUCTION SPANS NOTED FOR 3 SPAN CONDITION.
10. COMPOSITE DECK DESIGN IS INTENDED TO BE UNSHORED UNLESS OTHERWISE NOTED. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CHECK ALL DECKING CONDITIONS TO DETERMINE IF THE DECKING HAS SUFFICIENT STRENGTH AND STIFFNESS FOR CONSTRUCTION LOADING. CONTRACTOR SHOULD CONSIDER USING SHORING WHERE FLOOR FLATNESS AND LEVELNESS NUMBERS ARE REQUIRED. FLOOR FLATNESS AND LEVELNESS NUMBERS CAN BE MEASURED IN THE SHORED CONDITION WHEN SHORES ARE USED. WHEN SHORING IS USED, CONTRACTOR SHALL PROVIDE ALL ENGINEERING DESIGN OF SHORING AND SUBMIT FOR REVIEW.
11. CONCRETE REQUIRED FOR COMPOSITE ACTION SHALL MEET 28-DAY COMPRESSIVE STRENGTH PRIOR TO SUPPORTING TOPPING SLABS AND/OR MASONRY WALLS OR OTHER HEAVY LOADS.
12. LOADS EXCEEDING 140 LBS SHALL NOT BE PERMITTED TO BE HUNG FROM METAL DECKING. HANGERS FOR DUCTWORK, PIPING, ELECTRICAL CONDUITS, ETC SHALL BE HUNG DIRECTLY FROM STRUCTURAL STEEL OR ANCHORS EMBEDDED IN CONCRETE. SUBMIT HANGING LOAD LAYOUT FOR REVIEW.
13. CONCRETE TOPPING SLABS AND THICKNESSES SHOWN ON PLANS AND DETAILS ARE NOMINAL THICKNESSES. ACTUAL THICKNESSES WILL VARY DUE TO BEAM CAMBERS AND DECK/ BEAM DEFLECTIONS. PROVIDE THICKNESSES AS REQUIRED TO ACHIEVE A LEVEL FLOOR WITH A MINIMUM ACTUAL THICKNESS NOT LESS THAN THE THICKNESS CALLED OUT ON PLANS.
14. METAL DECK ATTACHMENTS SHALL BE INSPECTED BY TESTING LABORATORY.

POST-INSTALLED ANCHORS:
1. ALL POST INSTALLED ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND ICC EVALUATION REPORTS CORRRESPONDING TO THAT ANCHOR.
2. CONCRETE:
   EXPANSION ANCHORS: SIMPSON STRONG-TIE STRONG-BOLT WEDGE ANCHORS (ICC ESR-1771)
   HILTI KWIK BOLT TZ CONCRETE ANCHORS (ICC ESR-1917)
   ADHESIVE ANCHORS: SIMPSON STRONG-TIE SET-XP ADHESIVE ANCHORS (ICC ESR-2508)
   HILTI HIT-HY 200 SAFE SET SYSTEM ADHESIVE ANCHORS (ICC ESR-3187)
   SCREW ANCHORS: SIMPSON STRONG-TIE TITEN HD ANCHORS (ICC ESR-2713)
   HILTI KWIK HUS-EZ SCREW ANCHORS (ICC ESR-3027)
3. MASONRY:
   EXPANSION ANCHORS: SIMPSON STRONG-TIE WEDGE-ALL ANCHORS (ICC ESR-1396)
   HILTI KWIK BOLT 3 MASONRY ANCHORS (ICC ESR-1385)
   ADHESIVE ANCHORS: SIMPSON STRONG-TIE SET ADHESIVE ANCHORS (ICC ESR-1772)
   HILTI HY-70 FAST CURE ADHESIVE ANCHORS (ICC ESR-3342)
   SCREW ANCHORS: SIMPSON STRONG-TIE TITEN HD ANCHORS (ICC ESR-1056)
   HILTI HUS-H CONCRETE MASONRY SCREW ANCHORS (ICC ESR-2369)
4. EMBEDMENT OF POST-INSTALLED ANCHORS SHALL BE PER "TYP ANCHOR, EXPANSION, & ADHESIVE BOLT SCHEDULE" ON THE DRAWINGS OR EMBEDMENT AS RECOMMENDED BY MANUFACTURER WHERE NO EMBEDMENT IS SHOWN.
5. POST-INSTALLED ANCHORS ARE NOT TO BE INSTALLED UNTIL CONCRETE OR GROUT HAS REACHED ITS DESIGN STRENGTH.
6. POST-INSTALLED ANCHORS SHALL BE TESTED ACCORDING TO THE TEST FREQUENCIES SPECIFIED IN CBC 1910A.5.3 AND PROCEDURES SPECIFIED IN 1910A.5.2.
7. TEST LOADS OR TORQUES SHALL BE IN ACCORDANCE WITH CBC 1910A.5. REQUIRED TEST LOADS SHALL BE DETERMINED BY ONE OF THE FOLLOWING:
   - TWICE THE MAXIMUM ALLOWABLE TENSION LOAD OR ONE AND A QUARTER (1 1/4) TIMES THE MAXIMUM DESIGN STRENGTH OF ANCHORS AS PROVIDED IN AN APPROVED TEST REPORT USING CRITERIA ADOPED IN CBC OR DETERMINED IN ACCORDANCE WITH APPENDIX D OF ACI 318, NOT TO EXCEED 80 PERCENT OF THE NOMINAL YIELD STRENGTH OF THE ANCHOR.
   - THE MANUFACTURER'S RECOMMENDED INSTALLATION TORQUE BASED ON APPROVED TEST REPORT USING CRITERIA ADOPTED IN CBC.
8. ACCEPTANCE CRITERIA FOR POST-INSTALLED ANCHORS SHALL BE IN ACCORDANCE WITH CBC 1910.A.5.5. ACCEPTANCE CRITERIA SHALL BE BASED ON AN APPROVED TEST REPORT USING CRITERIA ADOPTED IN CBC OR MANUFACTURER'S WRITTEN INSTRUCTION, ACCEPTABLE TO THE ENFORCEMENT AGENCY. FIELD TEST SHALL SATISFY THE FOLLOWING MINIMUM REQUIREMENTS:
   - HYDRAULIC RAM METHOD: ANCHORS TESTED WITH A HYDRAULIC JACK OR SPRING LOADED DEVICES SHALL MAINTAIN THE TEST LOAD FOR A MINIMUM OF 15 SECONDS AND SHALL EXHIBIT NO DISCERNIBLE MOVEMENT DURING THE TENSION TEST. FOR ADHESIVE ANCHORS, WHERE OTHER THAN BOND IS BEING TESTED, THE DEVICE SHALL NOT RESTRICT THE CONCRETE SHEAR CONE TYPE FAILURE MECHANISM FROM OCCURRING.
   - TORQUE WRENCH METHOD: ANCHORS TESTED WITH A CALIBRATED TORQUE WRENCH MUST ATTAIN THE SPECIFIED TORQUE WITHIN 1/2 TURN OF THE NUT. FOR WEDGE OR SLEEVE TYPE, 1/4 TURN OF THE NUT FOR A 3/8 INCH SLEEVE ANCHOR ONLY. FOR THREADED TYPE, 1/4 TURN OF THE SCREW AFTER INITIAL SEATING OF THE SCREW HEAD.

FIRE RATINGS:
1. FOR FIRE-RATING REQUIREMENTS AND METHODS, SEE ARCHITECTURAL DRAWINGS.

EQUIPMENT ANCHORAGE:
1. ALL EQUIPMENT SHALL BE PROVIDED AS FOLLOWS PER ASCE 7-10, 13.1.4.6.C:
   a. ALL EQUIPMENT SHALL BE SEIMICALLY RESTRAINED WITH THE EXCEPTION OF THE FOLLOWING:
      (1) ALL EQUIPMENT WEIGHING 400 LBS OR LESS WITH A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR LEVEL
      (2) EQUIPMENT WEIGHING 20 LBS OR LESS
      (3) DISTRIBUTED SYSTEMS WEIGHING 5 LBS PER FOOT OR LESS
   b. FLEXIBLE CONNECTIONS SHALL BE PROVIDED BETWEEN THE COMNPONENT AND ASSOCIATED DUCTWORK, PIPING AND CONDUIT.

CONCRETE REINFORCEMENT:
1. REINFORCING STEEL SHALL BE ASTM A615, GRADE 60. REINFORCING STEEL TO BE WELDED SHALL BE ASTM A706, GRADE 60.
2. CONCRETE COVER REQUIREMENTS FOR CAST-IN-PLACE, NON-PRESTRESSED CONCRETE UNLESS OTHERWISE NOTED ON DETAILS:
   a. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
   b. FORMED CONCRETE EXPOSED TO EARTH OR WEATHER:
      #6 BARS AND LARGER: 2"
      #5 BARS AND SMALLER: 1 1/2"
   c. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH EARTH:
      SLABS, WALLS, AND JOISTS:
      #14 AND #18 BARS: 1 1/2"
      #11 BARS AND SMALLER: 1"
   d. BEAMS, COLUMNS:
      PRIMARY REINFORCEMENT : 2"
      TIES, STIRRUPS, SPIRALS: 1 1/2"
3. REINFORCING BAR SPLICES SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF ACI 318-14 AND THE REINFORCING SPLICE LENGTH TABLE SHOWN ON THE DRAWINGS. PROVIDE CLASS 'B' LAP SPLICE, UNO.
4. ALL REINFORCING SHALL BE PROPERLY CHAIRED BY THE CONTRACTOR.
5. LAP ALL WELDED WIRE REINFORCING AT LEAST ONE FULL WIRE SPACING PLUS 2 INCHES.
6. MECHANICAL COUPLERS SHALL BE TYPE 2 COUPLERS CAPABLE OF SUSTAINING 125% Fy.

CAST-IN-PLACE CONCRETE:
1. PROPORTION EACH INDIVIDUAL CONCRETE MIX TO HAVE THE FOLLOWING PROPERTIES:

CLASS	LOCATION	28 DAY F'c	W/C RATIO	MAX SLUMP	MAX AGG
D	CONCRETE OVER STEEL DECK	4,000 PSI	0.48	4"	3/4"
F	SLABS-ON-GRADE	4,000 PSI	0.48	4"	1"
H	FOUNDATIONS AND FOUNDATION WALLS	4,000 PSI	0.55	4"	1"
I	ALL OTHER	4,000 PSI	0.48	4"	3/4"

2. CONCRETE CONTAINING SUPERPLASTICIZING ADMIXTURE SHALL HAVE A SLUMP NOT EXCEEDING 3" PRIOR TO ADDING ADMIXTURE AND NOT EXCEEDING 8" AT PLACEMENT
3. THE ADDITION OF WATER TO A CONCRETE BATCH WITH INSUFFICIENT SLUMP SHALL NOT BE PERMITTED UNLESS AUTHORIZED BY STRUCTURAL ENGINEER ON RECORD.
4. SUBSTITUTION OF FLYASH FOR PORTLAND CEMENT IN SLABS ON GRADE AND STRUCTURAL SLABS SHALL NOT BE PERMITTED.
5. ALL CONCRETE SHALL BE PROPORTIONED FOR A MAXIMUM ALLOWABLE UNIT SHRINKAGE OF 0.04% MEASURED AT 28 DAYS AFTER CURING IN LIME WATER AS DETERMINED BY ASTM C157 USING AIR STORAGE. PROVIDE TEST RESULTS WITH MIXTURE DESIGN.

CONCRETE TOPPING SLABS:
1. TOPPING THICKNESS SHOWN ON PLAN IS NOMINAL. ACTUAL THICKNESS WILL VARY DUE TO CAMBER AND/OR STRUCTURE DEFLECTIONS. PROVIDE THICKNESS AS REQUIRED TO ACHIEVE A LEVEL FLOOR WITH A MINIMUM ACTUAL THICKNES EQUAL TO THE THICKNESS CALLED OUT ON PLAN.
2. UNLESS OTHERWISE NOTED ON PLAN OR DETAIL, PROVIDE (1)-#4 IN TOPPING SLAB EACH SIDE OF OPENINGS EXCEEDING 12 INCHES IN SIZE. EXTEND REINFORCING 1'-6" PAST CORNER OF OPENING.
3. ALL TOPPING SLABS SHALL BE REINFORCED WITH 6X6 W2.0XW2.0 WELDED WIRE REINFORCEMENT, UNLESS OTHERWISE NOTED. WELDED WIRE FABRIC IN THE TOPPING SHALL BE FLAT SHEETS CENTERED IN THE TOPPING THICKNESS AND CHAIRED TO MAINTAIN ITS CORRECT LOCATION. LAP ONE FULL MESH AT SPLICES AND WIRE TOGETHER.

CONTINUOUS FOOTINGS:
1. CONTINUOUS FOOTING REINFORCING SHALL CONTINUE THROUGH ISOLATED SPREAD FOOTINGS WHERE THEY OCCUR.
2. PROVIDE CLASS 'B' LAP SPLICES FOR ALL TOP AND BOTTOM BARS WHERE LAP SPLICES ARE REQUIRED.
3. TOP FOOTING REINFORCING SHALL TERMINATE AT TEE AND CORNER INTERSECTIONS WITH A STANDARD 90 DEGREE HOOK. ALL REINFORCING AT INTERSECTIONS SHALL EXTEND TO THE FAR FACE OF THE INTERSECTING FOOTING.
4. CONSTRUCTION JOINT LOCATIONS SHALL NOT OCCUR WITHIN EXTENTS OF ISOLATED SPREAD FOOTINGS
5. CONTINUOUS FOOTINGS SHALL NOT HAVE CONSTRUCTION JOINTS IN A HORIZONTAL PLANE.
6. SIDES OF FOOTINGS SHALL BE FORMED. IF EXCAVATIONS ARE MADE NEATLY AND FOOTING WIDTHS ARE INCREASED A MINIMUM OF TWO INCHES, SIDES MAY BE CAST AGAINST THE EARTH CUT. THE ADDITIONAL WIDTH IS NECESSARY TO PROVIDE THE PROPER REINFORCING COVER FOR THIS CONSTRUCTION METHOD.

CONCRETE MASONRY UNITS (CMU):
1. THE MINIMUM 28-DAY COMPRESSIVE STRENGTH OF THE CONCRETE MASONRY UNITS SHALL BE 1,900 PSI ON THE NET AREA, PROVIDING A STRUCTURAL DESIGN COMPRESSIVE STRENGTH OF 1,500 PSI PER THE CALIFORNIA BUILDING CODE, TABLE 2105.2.2.1.2.
2 MORTAR SHALL BE TYPE S IN ACCORD WITH ASTM C 270 AND ARTICLES 2.1 AND 2.6A OF ACI 530.1. USING CEMENT LIME OR MORTAR CEMENT MIXES (MASONRY CEMENT IS NOT ACCEPTABLE).
3. MINIMUM 28-DAY COMPRESSIVE STRENGTH OF GROUT SHALL BE THE GREATER OF 2,000 PSI OR THE COMPRESSIVE STRENGTH OF THE MASONRY UNITS. AIR ENTRAINMENT AND OTHER ADDITIVES ARE NOT ACCEPTABLE IN GROUT MIX. GROUT SHALL HAVE A SLUMP OF 8 TO 11 INCHES.
4. MASONRY REINFORCING STEEL SHALL BE ASTM A615, GRADE 60. REINFORCING STEEL TO BE WELDED SHALL BE ASTM A706, GRADE 60.
5. SPLICE LENGTHS FOR MASONRY REINFORCEMENT SHALL BE AS INDICATED IN THE DRAWINGS, BUT NOT LESS THAN 48 TIMES THE REINFORCING BAR DIAMETER TYPICAL BASED ON ALLOWABLE STRESS = 0.8Fs, UNLESS NOTED OTHERWISE.
6. REINFORCING SHALL BE HELD IN PLACE PRIOR TO GROUTING WITH AT LEAST TWO WIRE POSITIONERS PER GROUT POUR AND AT REINFORCING SPLICES.
7. MINIMUM CMU WALL REINFORCING SHALL BE AS INDICATED ON THE PLANS AND DETAILS.
8. PROVIDE VERTICAL REINFORCING AT JAMB OPENINGS, ENDS AND CORNERS OF ALL WALLS AND EACH SIDE OF CONTROL JOINTS.
9. VERTICAL REINFORCING REQUIRED BY THESE NOTES OR SHOWN ON THE FOUNDATION PLANS SHALL EXTEND FROM FOUNDATION TO TOP OF WALL UNLESS NOTED OTHERWISE.
10. ELECTRICAL PANELS, CONDUITS, PIPES, FIRE EXTINGUISHER CABINETS, ETC., ARE TO BE LOCATED SO AS NOT TO INTERFERE WITH REINFORCED, GROUTED CELLS. PIPES AND CONDUITS PASSING HORIZONTALLY THROUGH WALLS SHALL BE SLEEVED. MINIMUM SPACING OF SLEEVES SHALL BE THREE DIAMETERS.
11. ALL MASONRY SHALL BE GROUTED SOLID UNLESS NOTED OTHERWISE.
12. GROUT SHALL BE MECHANICALLY CONSOLIDATED IN A MANNER TO FILL THE GROUT SPACE AND RECONSOLIDATED IN ACCORD WITH THE CALIFORNIA BUILDING CODE.
13. PROVIDE GROUT AND MASONRY UNIT TESTING PRIOR TO AND DURING CONSTRUCTION IN ACCORD WITH THE CALIFORNIA BUILDING CODE.
14. TESTING LABORATORY, IN ACCORD WITH CBC REQUIREMENTS, SHALL INSPECT REINFORCEMENT PLACEMENT, GROUT SPACES AND GROUTING OPERATION. MORTAR FIN PROJECTION INTO THE GROUT SPACE SHALL NOT EXCEED 1/2 INCH.
15. SPACE CONTROL JOINTS IN MASONRY WALLS SUCH THAT NO STRAIGHT RUN OF WALL EXCEEDS 24'-0". FINAL LOCATIONS OF CONTROL JOINTS SHALL BE APPROVED BY ARCHITECT.
16. ALL CMU WALL OPENINGS REQUIRE LINTELS AS DEFINED IN THE DRAWINGS.
17. REFER TO TYPICAL DETAILS FOR MASONRY DETAILS AND REQUIREMENTS NOT SHOWN IN SECTIONS OR PLANS.
18. ALL RETAINING WALLS SHOULD BE DRAINED WITH PERFORATED PIPE ENCASED IN A FREE-DRAINING GRAVEL BLANKET. THE PIPE SHOULD BE PLACED PERFORATIONS DOWNWARD, AND SHOULD DISCHARGE IN A NONEROSIVE MANNER AWAY FROM FOUNDATIONS AND OTHER IMPROVEMENTS. THE GRAVEL BLANKET SHOULD HAVE A WIDTH OF APPROXIMATELY 1 FOOT AND SHOULD EXTEND UPWARD TO APPROXIMATELY 1 FOOT FROM THE TOP OF THE WALL BACKFILL. THE UPPER FOOT SHOULD BE BACKFILLED WITH NATIVE SOIL, EXCEPT IN AREAS WHERE SLABS, PAVEMENT, OR FLATWORK WILL ABUT THE TOP OF THE WALL. IN SUCH CASES, THE GRAVEL SHOULD EXTEND TO THE NONEXPANSIVE MATERIAL, AGGREGATE BASE, OR OTHER MATERIAL, AS APPROPRIATE. TO REDUCE INFILTRATION OF THE SOIL INTO THE GRAVEL, A PERMEABLE SYNTHETIC FABRIC, AS DEFINED ABOVE, SHOULD BE PLACED BETWEEN THE TWO. MANUFACTURED SYNTHETIC DRAINS, SUCH AS MIRADRAIN OR ENKADRAIN ARE ACCEPTABLE ALTERNATIVES TO THE USE OF GRAVEL, PROVIDED THAT THEY ARE INSTALLED IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE MANUFACTURER.

COLD-FORMED STEEL FRAMING:
1. FABRICATE AND ERECT COLD-FORMED STEEL STRUCTURAL MEMBERS PER THE REQUIREMENTS OF THE LATEST EDITION OF THE SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS BY THE AMERICAN IRON AND STEEL INSTITUTE.
2. PROVIDE SHOP DRAWINGS AND CALCULATIONS SIGNED AND SEALED BY THE ENGINEER, LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED, RESPONSIBLE FOR THE WORK.
3. PROVIDE COLD-FORMED METAL FRAMING MEMBERS WITH SECTION PROPERTIES AS MANUFACTURED BY MEMBERS OF THE STEEL STUD MANUFACTURER'S ASSOCIATION (SSMA) COMPLYING WITH ICC REPORT 3064P AND THE CALIFORNIA BUILDING CODE.
4. WELDERS EXPERIENCED IN WELDING LIGHT GAGE STEEL SHALL PERFORM ALL WELDING.
5. PROVIDE BRIDGING AT 5'-0" OC MAX AT NON-BEARING WALLS.

DEMOLITION:
1. DEMOLITION OF EXISTING STRUCTURE TO BE REMOVED SHALL BE PERFORMED BY THE CONTRACTOR USING MEANS NECESSARY TO PREVENT DAMAGE TO THE EXISTING STRUCTURE TO REMAIN. DAMAGE TO THE EXISTING STRUCTURE TO REMAIN SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE USING METHODS REVIEWED BY THE STRUCTURAL ENGINEER. IF EXISTING CONDITIONS DIFFER FROM THOSE SHOWN IN THE CONTRACT DOCUMENTS CONTACT THE ARCHITECT PRIOR TO PROCEEDING WITH WORK.

STRUCTURAL OBSERVATIONS:
1. IN ACCORD WITH CBC SECTION 1704.5 STRUCTURAL OBSERVATION SHALL BE PERFORMED BY ENGINEER OF RECORD FOR SPECIAL MOMENT RESISTING FRAMES AND MASONARY SHEAR WALLS.
   A LETTER SHALL BE SUBMITTED TO BUILDING OFFICIAL STATING SITE VISITS HAVE BEEN MADE AND ANY DEFICIENCIES HAVE BEEN NOTED.

SUBMITTALS GENERAL
1. THE CONTRACTOR SHALL DEVELOP AND SUBMIT A SUBMITTAL SCHEDULE CLEARLY INDICATING THE NUMBER OF STEEL SHOP DRAWINGS, CONCRETE REINFORCING DRAWINGS, AND OTHER SHOP DRAWINGS TO BE SUBMITTED EACH WEEK OVER THE DURATION OF THE PROJECT.
2. THE SUBMITTAL SCHEDULE PROVIDED BY THE CONTRACTOR IS NECESSARY TO PROVIDE REASONABLE TIME TO STAFF APPROPRIATELY FOR THE SCHEDULED SUBMITTALS. THE SUBMITTAL ENGINEER'S REVIEW SCHEDULE IS SUBJECT STRICTLY TO THE SUBMITTAL SCHEDULE PROVIDED BY THE CONTRACTOR.
3. REVIEW OF SHOP DRAWINGS DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMANCE WITH THE INTENT OF THE DRAWINGS. REVIEW DOES NOT IMPLY OR STATE THAT THE FABRICATOR HAS CORRECTLY INTERPRETTED THE CONSTRUCTION DOCUMENTS.
4. CONTRACTOR SHALL SUBMIT CALCULATIONS WITH THE SHOP DRAWING SUBMITTALS, SIGNED AND SEALED BY THE ENGINEER, LICENSED IN THE STATE WHICH THE PROJECT IS LOCATED, RESPONSIBLE FOR THEIR PREPARATION WHEN REQUIRED IN THE SPECIFICATIONS (SEE ALSO 'DEFERRED SUBMITTALS').
5. COPIES OF THE CONTRACT DOCUMENTS SHALL NOT BE SUBMITTED AS SHOP DRAWINGS. CONTRACT DRAWINGS SHOW ONLY GENERAL DESIGN INTENT. FINAL SHOP DRAWING SECTIONS SHALL PROVIDE SIZES, LAYOUT, EXACT DIMENSIONS, ELEVATIONS, GRADES OF MATERIALS, ETC., SPECIFIC TO EACH LOCATION.

DEFERRED SUBMITTALS:
1. THE FOLLOWING ITEMS ARE DEFERRED SUBMITTAL ITEMS:
   - EQUIPMENT BASES, EQUIPMENT CURBS, EQUIPMENT SUPPORTS INCL. DUCT SUPPORTS - SEE DISCIPLINE SPECIFIC DRAWINGS FOR REQUIREMENTS
2. DEFERRED SUBMITTAL CALCULATIONS AND/OR SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY THE ENGINEER RESPONSIBLE FOR THEIR PREPARATION AND SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW WITH THE SHOP DRAWING SUBMITTAL. ONCE REVIEWED, CONTRACTOR SHALL FORWARD TO THE BUILDING DEPARTMENT FOR APPROVAL. FABRICATION AND/OR INSTALLATION OF DEFERRED SUBMITTAL ITEMS SHALL NOT OCCUR UNTIL APPROVAL OF THE BUILDING DEPARTMENT IS RECEIVED.
3. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

ABBREVIATIONS:

#	-REINFORCING BAR SIZE, SHEET METAL SCREW SIZE
Ø	-DIAMETER
(E)	-EXISTING
(N)	-NEW
@	-AT (SPACING)
&	-AND
2L	-DOUBLE ANGLE
ADDL	-ADDITIONAL
ADDN	-ADDITION
AHU	-AIR HANDLING UNIT
ANCH	-ANCHOR
APPROX	-APPROXIMATE
AR	-ANCHOR ROD
ARCH	-ARCHITECT, ARCHITECTURAL
BLDG	-BUILDING
BM(S)	-BEAM(S)
BO	-BOTTOM OF
BOS	-BOTTOM OF STEEL
BOT	-BOTTOM, BOTTOM REINFORCING BARS
BPL	-BASE PLATE
BRDG	-BRIDGING
BRG	-BEARING
BTWN	-BETWEEN
C	-STANDARD CHANNEL
CA	-COLUMN ABOVE
CANT	-CANTILEVER
CB	-COLUMN BELOW
CIP	-CAST-IN-PLACE CONCRETE
CJ	-CONSTRUCTION JOINT / CONTROL JOINT
CJP	-COMPLETE JOINT PENETRATION WELD
CL	-CENTERLINE
CLR	-CLEAR
CMU	-CONCRETE MASONRY UNITS
COL	-COLUMN
CONC	-CONCRETE
CONN(S)	-CONNECTION(S), CONNECT
CONST	-CONSTRUCTION
CONT	-CONTINUE, CONTINUOUS
CPL	-COVER PLATE
db	-REINFORCING BAR DIAMETER
DBA	-DEFORMED BAR ANCHOR
DBL	-DOUBLE
DCW	-DEMAND CRITICAL WELD
DEG	-DEGREE
DET	-DETAIL
DIA	-DIAMETER
DIFF	-DIFFERENCE, DIFFERENTIAL
DIM	-DIMENSION
DL	-DEAD LOAD
DN	-DOWN
DP	-DEEP
DWA	-DEFORMED WIRE ANCHOR
DWG(S)	-DRAWING(S)
DWL(S)	-DOWEL(S)
EA	-EACH
EBF	-ECCENTRICALLY BRACED FRAME
ECC	-ECCENTRIC, ECCENTRICITY
EE	-EXTENDED END
EF	-EACH FACE
EJ	-EXPANSION JOINT
EL	-ELEVATION
ELEC	-ELECTRICAL
ELEV	-ELEVATOR
EMBED	-EMBEDMENT, EMBEDDED
ENGR	-ENGINEER
EOD	-EDGE OF DECK
EOR	-ENGINEER OF RECORD
EOS	-EDGE OF SLAB
EQ	-EQUAL
EQUIP	-EQUIPMENT
EQUIV	-EQUIVALENT
EW	-EACH WAY
EXIST	-EXISTING
EXP	-EXPANSION
EXT	-EXTERIOR
FA	-FACE
FAB	-FABRICATE
F'c	-28 DAY CONCRETE COMPRESSIVE STRENGTH
FD	-FLOOR DRAIN
FDN	-FOUNDATION
FIN	-FINISH
FLG	-FLANGE
FL, FLR	-FLOOR
FS	-FAR SIDE
FTG	-FOOTING
Fy	-YIELD STRESS
GA	-GAGE, GAUGE
GALV	-GALVANIZED
GB	-GRADE BEAM
GEN	-GENERAL
GL	-GRID LINE
GR	-GRADE
GRAV	-GRAVITY
H	-HEIGHT
HC	-HOLLOW CORE
HGR	-HANGER
HORIZ	-HORIZONTAL
HSA	-HEADED STUD ANCHOR
HSS	-HOLLOW STRUCTURAL STEEL SECTION
HWS	-HEADED WELDED STUD
ID	-INSIDE DIAMETER
IF	-INSIDE FACE
IJ	-ISOLATION JOINT
INT	-INTERIOR
JT	-JOINT
KIP, k	-KIPS
KSF	-KIPS PER SQUARE FOOT
L	-LENGTH, STEEL ANGLE
LB(S)	-POUND(S)
Ld	-DEVELOPMENT LENGTH
Ldh	-HOOKED REINFORCING BAR DEVELOPMENT LENGTH
LL	-LIVE LOAD
LLBB	-LONG LEG BACK TO BACK
LLH	-LONG LEG HORIZONTAL
LLV	-LONG LEG VERTICAL
LSL	-LONG SLOTTED HOLE IN STEEL CONSTRUCTION
Ls	-LAP SPLICE
LWC	-LIGHT WEIGHT CONCRETE
MAS	-MASONRY
MAX	-MAXIMUM
MC	-MISCELLANEOUS CHANNEL
MECH	-MECHANICAL
MEP	-MECHANICAL, ELECTRICAL & PLUMBING
MEZZ	-MEZZANINE
MF	-MOMENT FRAME
MIN	-MINIMUM
MISC	-MISCELLANEOUS
MJ	-MOVEMENT JOINT
MFR	-MANUFACTURER
MNFR	-MANUFACTURER
NIC	-NOT IN CONTRACT
NO	-NUMBER
NOM	-NOMINAL
NS	-NEAR SIDE
NTS	-NOT TO SCALE
NWC	-NORMAL WEIGHT CONCRETE
OC	-ON CENTER
OD	-OUTSIDE DIAMETER
OH	-OPPOSITE HANDED
OPNG(S)	-OPENING(S)
OPP	-OPPOSITE
OPP HD	-OPPOSITE HAND
PAF	-POWDER ACTUATED FASTENER
PC	-PRECAST CONCRETE, PILE CAP
PCF	-POUNDS PER CUBIC FOOT
PEMB	-PRE-ENGINEERED METAL BUILDING
PH	-PLASTIC HINGE
PJP	-PARTIAL JOINT PENETRATION WELD
PL	-PLATE
PLF	-POUNDS PER LINEAR FOOT
PRELIM	-PRELIMINARY
PROJ	-PROJECT, PROJECTION
PSF	-POUNDS PER SQUARE FOOT
PSI	-POUNDS PER SQUARE INCH
PT	-POST-TENSION (ED) (ING)
QTY	-QUANTITY
RAD, R	-RADIUS
RC	-REINFORCED CONCRETE
REF	-REFERENCE
REINF	-REINFORCE, REINFORCEMENT
REQD	-REQUIRED
REV	-REVISION
RTU	-ROOF TOP UNIT
S	-AMERICAN STANDARD SHAPE
SAD	-SEE ARCHITECTURAL DRAWINGS
SC	-SLIP CRITICAL
SCHED	-SCHEDULE
SDL	-SUPERIMPOSED DEAD LOAD
SDS	-SELF-DRILLING SCREWS
SECT	-SECTION
SHT	-SHEET
SIM	-SIMILAR
SJ	-SEISMIC JOINT
SLBB	-SHORT LEG BACK TO BACK
SLV	-SHORT LEG VERTICAL
SMF	-SPECIAL MOMENT FRAME
SOG	-SLAB ON GRADE
SPA	-SPACE, SPACING
SPEC(S)	-SPECIFICATION(S)
SQ	-SQUARE
SS	-STAINLESS STEEL
SSL	-SHORT SLOTTED HOLE
STD	-STANDARD
STL	-STEEL
STIFF	-STIFFENER
STIR	-STIRRUP
STRUCT	-STRUCTURE
SYM	-SYMMETRIC, SYMMETRICAL
t	-THICKNESS
T&B	-TOP AND BOTTOM
TAP	-TAPERED
TEMP	-TEMPORARY
THK	-THICK
THRD	-THREADED
TO	-TOP OF
TOB	-TOP OF BEAM
TOC	-TOP OF CONCRETE
TOF	-TOP OF FOOTING
TOM	-TOP OF MASONRY
TOP	-TOP REINFORCING BARS
TOS	-TOP OF STEEL
TOW	-TOP OF WALL
tw	-WEB THICKNESS
TYP	-TYPICAL
UNO	-UNLESS NOTED OTHERWISE
UT	-ULTRA-SONIC TEST
VERT	-VERTICAL
VIF	-VERIFY IN FIELD
W	-WIDE FLANGE, WIDE, WIDTH
W/	-WITH
W/O	-WITHOUT
WP	-WORK POINT
WPS	-WELDING PROCEDURE SPECIFICATION
WT	-WEIGHT, STRUCTURAL STEEL TEE SECTION
WWF	-WELDED WIRE FABRIC
WWR	-WELDED WIRE REINFORCEMENT
X-STR	-EXTRA STRONG
XX-STR	-DOUBLE EXTRA STRONG

95%
CONSTRUCTION
DOCUMENTS

STRUCTURAL NOTES
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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08/24/2017
Revisions
BV01 10/06/17

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SPECIAL INSPECTIONS STRUCTURAL NOTES

SPECIAL STRUCTURAL INSPECTIONS:

1. IN ACCORD WITH CBC, SECTION 1704, AS NOTED BELOW. TESTING AND INSPECTION SHALL BE BY AN INDEPENDENT TESTING/INSPECTION FIRM UNDER THE SUPERVISION OF A LICENSED ENGINEER EMPLOYED BY THAT FIRM. THIS ENGINEER SHALL BE DEEMED THE DESIGNATED ENGINEER OF RECORD FOR SPECIAL INSPECTIONS PERFORMED BY HIS FIRM OR HIS CONSULTANTS. THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF CALIFORNIA STATE UNIVERSITY, SAN LUIS OBISPO, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION.

2. THE DESIGNATED ENGINEER OF RECORD FOR SPECIAL INSPECTIONS SHALL BE RESPONSIBLE FOR DEFINING THE ACTIVITIES OF THE INSPECTORS, FOR CERTIFYING THE QUALIFICATIONS OF THE INSPECTORS WITH CALIFORNIA STATE UNIVERSITY, SAN LUIS OBISPO, AND TO ATTEND THE PRE-CONSTRUCTION MEETING TO DEFINE THEIR SCOPE OF SERVICES AND THE TESTING OR TEST PROCEDURES THAT ARE REQUIRED AS OUTLINED IN THE INTERNATIONAL BUILDING CODE.

3. SPECIAL INSPECTION IS TO BE PROVIDED IN ADDITION TO THE INSPECTIONS CONDUCTED BY THE LOCAL DEPARTMENT OF BUILDING SAFETY AND SHALL NOT BE CONSTRUED TO RELIEVE THE OWNER OR HIS AUTHORIZED AGENT FROM REQUESTING THE PERIODIC AND CALLED INSPECTIONS REQUIRED BY CBC SECTION 110.

4. CONCRETE: PER CBC SECTION 1705.3 AND TABLE 1705.3 WITH EXCEPTIONS. THE FOLLOWING ITEMS REQUIRE SPECIAL INSPECTION: ALL CONCRETE, EXCEPT; SLAB-ON-GRADES, SIDE WALKS, AND DRIVEWAYS.

5. STEEL CONSTRUCTION: SPECIAL INSPECTIONS FOR STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE QUALITY ASSURANCE INSPECTION REQUIREMENTS OF AISC 360. SPECIAL INSPECTION FOR SEISMIC RESISTANCE SHALL BE IN ACCORDANCE WITH AISC 341 AND HALL COMPLY WITH CBC SECTION 1705.11. PROVIDE INSPECTION PER CBC SECTION 1704.2.5 FOR STRUCTURAL LOADING-BEARING MEMBERS AND ASSEMBLIES FABRICATED ON THE PREMISES OF A FABRICATOR'S SHOP. THESE INSPECTIONS SHALL BE AT CONTRACTOR'S EXPENSE IF THE FABRICATOR IS NOT AN APPROVED FABRICATOR PER CBC SECTION 1704.2.5.2.

6. WELDING: WELDING INSPECTION SHALL BE IN COMPLIANCE WITH AWS D1.1. THE BASIS FOR WELDING INSPECTOR QUALIFICATIONS SHALL BE AWS D1.1. PROVIDE SPECIAL INSPECTION IN ACCORDANCE WITH AISC TABLE N5.4-1 THROUGH TABLE N5.4-3.

7. STEEL DETAILING: THE SPECIAL INSPECTOR SHALL PERFORM AN INSPECTION OF THE STEEL FRAME TO VERIFY COMPLIANCE WITH THE DETAILS SHOWN ON THE APPROVED CONSTRUCTION DOCUMENTS, SUCH AS BRACING, STIFFENING, MEMBER LOCATIONS AND PROPER APPLICATION OF JOINT DETAILS AT EACH CONNECTION.

8. HIGH STRENGTH BOLTING: INSTALLATION OF HIGH STRENGTH BOLTS SHALL BE PERIODICALLY INSPECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. HIGH STRENGTH BOLTING. PROVIDE SPECIAL INSPECTION IN ACCORDANCE WITH AISC TABLE N5.6-1 THROUGH TABLE N5.6-3.

9. INSPECTION OF STEEL ELEMENTS OF COMPOSITE CONSTRUCTION PRIOR TO CONCRETE PLACEMENT SHALL BE PER AISC TABLE N6-1.

10. STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL SHALL BE PER CBC SECTION 1705.2.1.

11. GRADING, EXCAVATION AND FILLING: PER CBC SECTION 1705.6 AND TABLE 1705.6. SEE CIVIL DRAWINGS AND SPECIFICATION DIVISION 2.

12. SPRAY-APPLIED FIREPROOFING: PER CBC SECTION 1705.14. SEE ARCHITECTURAL DRAWINGS FOR ALL FIREPROOFING METHODS AND REQUIREMENTS.

13. MASTIC AND INTUMESCENT FIRE RESISTING COATINGS: SPECIAL INSPECTIONS PER CBC SECTION 1705.4. SEE ARCHITECTURAL DRAWINGS FOR ALL FIREPROOFING METHODS AND REQUIREMENTS.

14. EXTERIOR INSULATION AND FINISH SYSTEM (EIFS): SPECIAL INSPECTION SHALL BE REQUIRED FOR ALL EIFS APPLICATIONS. SEE ARCHITECTURAL DRAWINGS FOR ALL EIFS METHODS AND INSPECTION REQUIREMENTS.

15. EXPANSION BOLT, SCREW ANCHOR AND ADHESIVE ANCHOR: INSTALLATION TO VERIFY INSTALLATION IN ACCORD WITH ICBO REPORTS NOTED PREVIOUSLY OR APPROVED EQUAL.

16. HEADED CONCRETE SHEAR CONNECTORS: INSPECTED AND TESTED PER AMERICAN WELDING SOCIETY CODE AWS D1.1.

17. STRUCTURAL MASONRY: PER CBC SECTION 1705.4 AND TMS 402-11/ACI 530-11/ASCE 5-11, TABLE 1.18.2 "LEVEL B QUALITY ASSURANCE".

18. GRADING, EXCAVATION AND FILLING: PER SECTION 1704.6. SEE CIVIL DRAWINGS AND SPECIFICATION DIVISION 2.

19. NONBEARING EXTERIOR STUD WALLS AND EXTERIOR VENEER: PER SECTION 1705.11.5 WITH EXCEPTIONS.

20. EXPANSION BOLT, SCREW ANCHOR AND ADHESIVE ANCHOR: INSTALLATION TO VERIFY INSTALLATION IN ACCORD WITH ICC REPORTS NOTED PREVIOUSLY OR APPROVED EQUAL.

21. THE INSPECTOR SHALL OBSERVE THE WORK ASSIGNED TO VERIFY CONFORMANCE TO THE APPROVED DESIGN DRAWINGS AND SPECIFICATIONS.

22. THE INSPECTOR SHALL FURNISH DAILY INSPECTION REPORTS ON THE WORK TO CALIFORNIA STATEU NIVERSITY, SAN LUIS OBISPO AND TO THE UNIVERSITY REPRESENTATIVE. ALL DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION, AND, I F UNCORRECTED, TO THE UNIVERSITY REPRESENTATIVE AND CALIFORNIA STATE UNIVERSITY, SAN LUIS OBISPO.

23. THE TESTING/INSPECTION FIRM'S ENGINEER SHALL COMPLETE, SIGN AND SEAL A FINAL REPORT CERTIFYING THAT TO THE BEST OF HIS KNOWLEDGE, THE WORK IS IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.

QUALITY ASSURANCE:

1. QUALITY ASSURANCE FOR SEISMIC RESISTANCE PLAN SHALL BE PROVIDED IN ACCORDANCE WITH CBC SECTION 1705.11. A QUALITY ASSURANCE PLAN FOR SEISMIC RESISTANCE IS REQUIRED FOR STRUCTURES IN SEISMIC DESIGN CATEGORY C, D, E, OR F. SEE SECTION 1705.1 FOR SCOPE OF STRUCTURES AND STRUCTURE'S SYSTEMS REQUIRING A QUALITY ASSURANCE PLAN.

a. THE DESIGNATED SEISMIC SYSTEM AND SEISMIC-FORCE-RESISTING SYSTEM THAT IS SUBJECT TO QUALITY ASSURANCE ARE THE METAL DECK AND CONCRETE-FILLED METAL DECK DIAPHRAGMS, CHORD REINFORCEMENT, STEEL DRAG/COLLECTOR ELEMENTS AND MOMENT FRAMES. ALSO SOME NON-STRUCTURAL SYSTEMS, MECHANICAL, ELECTRICAL AND ARCHITECTURAL SYSTEMS MAY REQUIRE A QUALITY ASSURANCE PLAN IF THE COMPONENT IMPORTANCE FACTOR IS GRATER THAN ONE.

b. THE SPECIAL INSPECTIONS REQUIRED ARE INDICATED UNDER SPECIAL INSPECTIONS ABOVE AND THE ADDITIONAL REQUIREMENTS OF CBC SECTION 1705.11. MATERIAL TESTING REQUIRED IS INDICATED UNDER THE SPECIFICATION FOR EACH MATERIAL.

c. DISTRIBUTION OF TESTING AND SPECIAL INSPECTION REPORTS SHALL BE WITHIN TWENTY-FOUR (24) HOURS AFTER EACH SPECIAL INSPECTION. SUBMIT TWO (2) COPIES OF INSPECTION REPORTS TO THE CONTRACTOR, UNIVERSITY REPRESENTATIVE, AND CALIFORNIA STATE UNIVERSITY, SAN LUIS OBISPO.

d. THE FOLLOWING STRUCTURAL OBSERVATIONS SHALL BE PERFORMED AT THE FOLLOWING FREQUENCY, AND REPORTS SHALL BE ISSUED WITHIN 24 HOURS OF THE STRUCTURAL OBSERVATION:
   FOOTINGS: PRIOR TO FIRST CONCRETE POUR & PRIOR TO FINAL CONCRETE POUR
   CONCRETE DIAPHRAGM REINFORCEMENT: PRIOR TO FIRST CONCRETE POUR
   STEEL DECK: AT COMPLETION OF DECK INSTALLATION
   CMU SHEAR WALLS: PRIOR TO FIRST GROUT POUR AND PRIOR TO FINAL GROUT POUR
   FINAL OBSERVATION & REPORT: END OF CONSTRUCTION

2. QUALITY ASSURANCE FOR WIND REQUIREMENTS PLAN SHALL BE PROVIDED IN ACCORDANCE WITH CBC SECTION 1705.10.

a. THE MAIN WIND-FORCE-RESISTING SYSTEM THAT IS SUBJECT TO QUALITY ASSURANCE ARE THE METAL DECK AND CONCRETE-FILLED METAL DECK DIAPHRAGMS, CHORD REINFORCEMENT, DRAG/COLLECTOR ELEMENTS AND MOMENT FRAMES.

b. THE SPECIAL INSPECTIONS REQUIRED ARE INDICATED UNDER SPECIAL INSPECTIONS ABOVE AND THE ADDITIONAL REQUIREMENTS OF CBC SECTION 1705.10. MATERIAL TESTING REQUIRED IS INDICATED UNDER THE SPECIFICATION FOR EACH MATERIAL.

c. DISTRIBUTION OF TESTING AND SPECIAL INSPECTION REPORTS SHALL BE WITHIN TWENTY-FOUR (24) HOURS AFTER EACH SPECIAL INSPECTION. SUBMIT TWO (2) COPIES OF INSPECTION REPORTS TO THE CONTRACTOR, UNIVERSITY REPRESENTATIVE, AND CALIFORNIA STATE UNIVERSITY, SAN LUIS OBISPO.

d. THE FOLLOWING STRUCTURAL OBSERVATIONS SHALL BE PERFORMED: (SEE FOLLOWING TABLES)

e. STRUCTURAL OBSERVATION SHALL BE PERFORMED AT THE FOLLOWING FREQUENCY, AND REPORTS SHALL BE ISSUED WITHIN 24 HOURS OF THE STRUCTURAL OBSERVATION: (SEE FOLLOWING TABLES)

3. CONTRACTOR RESPONSIBILITY: EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN-FORCE-RESISTING SYSTEM, OR A WIND-RESISTING COMPONENT LISTED IN THE QUALITY ASSURANCE PLAN SHALL SUBMIT A WRITTEN CONTRACTOR'S STATEMENT OF RESPONSIBILITY TO CALIFORNIA STATE UNIVERSITY, SAN LUIS OBISPO AND TO THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENTS. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL INCLUDE THE FOLLOWING:

a. ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE QUALITY ASSURANCE PLAN.

b. ACKNOWLEDGE THAT CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY CALIFORNIA STATE UNIVERSITY, SAN LUIS OBISPO.

c. PROCEDURE'S FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING, AND THE DISTRIBUTION OF THE REPORTS.

d. IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXERCISING SUCH CONTROL AND THEIR POSITION IN THE ORGANIZATION.

4. SEE SPECIFICATIONS FOR SPECIAL REQUIREMENTS RELATED TO WELDING MATERIALS FOR SEISMIC LOAD RESISTING SYSTEM.

STRUCTURAL TESTING FOR SEISMIC LOAD RESISTING SYSTEM:

1. IN ACCORDANCE WITH 2013 CBC, SECTION 1705.13, PROVIDE TESTING AND VERIFICATION OF MATERIALS AS DESCRIBED BELOW:
   a. STRUCTURAL STEEL: THE TESTING CONTAINED IN THE QUALITY ASSURANCE PLAN SHALL BE AS REQUIRED PER AISC 341 AND THE ADDITIONAL REQUIREMENTS OF CBC SECTION 1705.13.1.
   b. CONCRETE: PROVIDE MATERIAL CERTIFICATIONS FOR ALL MATERIAL USED IN CONSTRUCTION OF CONCRETE ASSEMBLIES AND VERIFICATION OF f'c PRIOR TO CONSTRUCTION IN CONFORMANCE WITH ACI 318, SECTION 5.6.

TABLE 1705.3
REQUIRED SPECIAL INSPECTION AND TESTS OF CONCRETE CONSTRUCTION

TYPE	CONTINUOUS INSPECTION	PERIODIC INSPECTION	REFERENCED STANDARD	IBC REFERENCE
1. Inspect reinforcement, including prestressingtendons, and verify placement.	—	X	318 Ch. 20, 25.2, 25.3, 26.5.1-26.5.3	1908.4
2. Reinforcing bar welding: a. Verify weldability of reinforcing bars other than ASTM A706, b. Inspect single-pass fillet welds, maximum 5/16", and c. Inspect all other welds.	— — X	X X	AWS D1.4 ACI 318: 26.5.4.3	—
3. Inspect anchors cast in concrete.	—	X	ACI 318: 17.8.2	—
4. Inspect anchors post-installed in hardened concrete members. a.Adhesive anchors installed in horizontally or upwardly inclined orientations to resist sustained tension loads. b.Mechanical anchors and adhesive anchors not defined in 4.a.	X	 X	ACI 318: 17.8.2.4 ACI 318: 17.8.2	—
5. Verify use of required design mix.	—	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2, 1908.2, 1908.3 & 6
6. Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete.	X	—	ASTM C172 ASTM C31 ACI 318: 26.4.5, 26.12	1908.10
7. Inspect concrete and shotcrete placemen for proper application techniques.	X	—	ACI 318: 26.4.5	1908.6, 1908.7, 1908.8
8. Verify maintenance of specified curing temperature and techniques.	—	X	ACI 318: 26.4.7-26.4.9	1908.9
9. Inspect prestressed concrete for: a.Application of prestressing forces; b.Grouting of bonded prestressing tendons.	X X	— —	ACI 318: 26.9.2.1 ACI 318: 26.9.2.3	—
10. Inspect erection of precast concrete members.	—	X	ACI 318: Ch. 26.8	—
11.Verify in-situ concrete strength, prior to stressing of tendons in post-tensioned concrete and prior to removal of shores and forms from beams and structural slabs.	—	X	ACI 318: 26.10.2	—
12.Inspect formwork for shape, location and dimensions of the concrete member being formed.	—	X	ACI 318: 26.10.1(b)	—

For SI: 1 inch = 25.4 mm.
a. Where applicable, see also Section 1705.12, Special inspecions for seismic resistance.
b. Specific requirements for special inspection shall be included in the research report for the anchor issued by an approved source in accordance with 17.8.2 in ACI 318, or other qualification procedures. Where specific equirements are not provided, special inspection requirements shall be specified by the registered design professional and shall be approved by the building official prior to the commencement of the work.

TABLE 1705.6
REQUIRED VERIFICATION AND INSPECTION OF SOILS

VERIFICATION AND INSPECTION TASK	CONTINUOUS DURING TASK LISTED	PERIODICALLY DURING TASK LISTED
1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.	-	X
2. Verify excavations are extended to proper depth and have reached proper material.	-	X
3. Perform classification and testing of compacted fill materials	-	X
4. Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill	X	-
5. Prior to placement of compacted fill, observe subgrade and verify that site has been prepared properly.	-	X

TABLE N5.4-1
Inspection Tasks Prior to Welding

Inspection Tasks Prior to Welding	QC	QA
Welding procedure specifications (WPSs) available	P	P
Manufacturer certifications for welding consumables available	P	P
Material identification (type/grade)	O	O
Welder identification system 1	O	O
Fit-up of groove welds (including joint geometry) · Joint preparation · Dimensions (alignment, root opening, root face, bevel) · Cleanliness (condition of steel surfaces) · Tacking (tack weld quality and location) · Backing type and fit (if applicable)	O	O
Configuration and finish of access holes	O	O
Fit-up of fillet welds · Dimensions (alignment, gaps at root) · Cleanliness (condition of steel surfaces) · Tacking (tack weld quality and location)	O	O
Check welding equipment	O	-

1 The fabricator or erector, as applicable, shall maintain a system by which a welder who has welded a joint or member can be identified. Stamps, if used, shall be the low-stress type.

O- Observe these items on a random basis. Operations need not be delayed pending these inspections.
P- Perform these tasks for each welded joint or member.

TABLE N5.4-2
Inspection Tasks During Welding

Inspection Tasks During Welding	QC	QA
Use of qualified welders	O	O
Control and handling of welding consumables · Packaging · Exposure control	O	O
No welding over cracked tack welds	O	O
Environmental conditions · Wind speed within limits · Precipitation and temperature	O	O
WPS followed · Settings on welding equipment · Travel speed · Selected welding materials · Shielding gas type/flow rate · Preheat applied · Interpass temperature maintained (min./max.) · Proper position (F, V, H, OH)	O	O
Welding techniques · Interpass and final cleaning · Each pass within profile limitations · Each pass meets quality requirements	O	O

O- Observe these items on a random basis. Operations need not be delayed pending these inspections.
P- Perform these tasks for each welded joint or member.

TABLE N5.4-3
Inspection Tasks After Welding

Inspection Tasks After Welding	QC	QA
Welds cleaned	O	O
Size, length and location of welds	P	P
Welds meet visual acceptance criteria · Crack prohibition · Weld/base-metal fusion		
· Crater cross section · Weld profiles · Weld size · Undercut · Porosity	P	P
Arc strikes	P	P
k-area 1	P	P
Backing removed and weld tabs removed (if required)	P	P
Repair activities	P	P
Document acceptance or rejection of welded joint or member	P	P

1 When welding of doubler plates, continuity plates or stiffeners has been performed in the k-area, visually inspect the web k-area for cracks within 3 in. (75 mm) of the weld.

O- Observe these items on a random basis. Operations need not be delayed pending these inspections.
P- Perform these tasks for each welded joint or member.

TABLE N5.6-1
Inspection Tasks Prior to Bolting

Inspection Tasks Prior to Bolting	QC	QA
Manufacturer's certifications available for fastener materials	O	P
Fasteners marked in accordance with ASTM requirements	O	O
Proper fasteners selected for the joint detail (grade, type, bolt length if threads are to be excluded from shear plane)	O	O
Proper bolting procedure selected for joint detail	O	O
Connecting elements, including the appropriate faying surface condition and hole preparation, if specified, meet applicable requirements	O	O
Pre-installation verification testing by installation personnel observed and documented for fastener assemblies and methods used	P	O
Proper storage provided for bolts, nuts, washers and other fastener components	O	O

O- Observe these items on a random basis. Operations need not be delayed pending these inspections.
P- Perform these tasks for each welded joint or member.

TABLE N5.6-2
Inspection Tasks During Bolting

Inspection Tasks During Bolting	QC	QA
Fastener assemblies, of suitable condition, placed in all holes and washers (if required) are positioned as required	O	O
Joint brought to the snug-tight condition prior to the pretensioning operation	O	O
Fastener component not turned by the wrench prevented from rotating	O	O
Fasteners are pretensioned in accordance with the RCSC Specification, progressing systematically from the most rigid point toward the free edges	O	O

O- Observe these items on a random basis. Operations need not be delayed pending these inspections.
P- Perform these tasks for each welded joint or member.

TABLE N5.6-3
Inspection Tasks After Bolting

Inspection Tasks After Bolting	QC	QA
Document acceptance or rejection of bolted connections	P	P

O- Observe these items on a random basis. Operations need not be delayed pending these inspections.
P- Perform these tasks for each welded joint or member.

TABLE N6.1
Inspection of Steel Elements of Composite Construction Prior to Concrete Placement

Inspection of Steel Elements of Composite Construction Prior to Concrete Placement	QC	QA
Placement and installation of steel deck	P	P
Placement and installation of steel headed stud anchors	P	P
Document acceptance or rejection of steel elements	P	P

O- Observe these items on a random basis. Operations need not be delayed pending these inspections.
P- Perform these tasks for each welded joint or member.

TABLE 1705.2.2
REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL

VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD
1. Material verification of cold-formed steel deck: a. Identification markings to conform to ASTM standards specific in the approved construction documents.	-	X	Applicable ASTM material standards
b. Manufacturer's certified test reports.	-	X	
2. Inspection of welding: a. Cold-formed steel deck:	-	X	
1) Floor and roof deck welds.	-	X	AWS D1.3
b. Reinforcing steel: 1) Verification of weldability of reinforcing steel other than ASTM A 706.	-	X	
2) Reinforcing steel resisting flexural and axial forces in intermediate and special moment frames, and boundary elements of special structural walls of concrete and shear reinforcement.	-	X	AWS D1.4 ACI 318 Section 3.5.2
3) Shear reinforcement	X	-	
4) Other reinforcing steel.	-	X	

For S1: I inch = 25.4 mm.
a. Where applicable, see also Section 1705.11, Special inspections for seismic resistance.

MASONRY: TMS 402-11/ACI530.1/ASCE 5:
Table 1.19.2 - Level B Quality Assurance

MINIMUM TESTS				
Verification of Slump flow and Visual Stability Index (VSI) as delivered to the project site in accordance with Specification Article 1.5 B.1.b.3 for self-consolidating grout				
Verification of *f'm* and *f'AAC* in accordance with Specification Article 1.4 B prior to construction, except where specifically exempted by this Code				
MINIMUM INSPECTION				
Inspection Task	**Frequency (a)**		**Reference for Criteria**	
	Continuous	Periodic	TMS 402/ ACT 530/ ASCE 5	TMS 602/ ACI 530.1/ ASCE 6
1. Verify compliance with the approved submittals		X		Art. 1.5
2. As masonry construction begins, verify that the following are in compliance:				
a. Proportions of site-prepared mortar		X		Art. 2.1, 2.6 A
b. Construction of mortar joints		X		Art. 3.3 B
c. Grade and size of prestressing tendons and anchorages		X		Art. 2.4 B, 2.4 H
d. Location of reinforcement, connectors, and prestressing tendons and anchorages		X		Art. 3.4, 3.6 A
e. Prestressing technique		X		Art. 3.6 B
f. Properties of thin-bed mortar for AAC masonry	X(b)	X(c)		Art. 2.1 C
3. Prior to grouting, verify that the following are in compliance:				
a. Grout space		X		Art. 3.2 D, 3.2 F
b. Grade, type, and size of reinforcement and anchor bolts, and prestressing tendons and anchorages		X	Sec. 1.16	Art. 2.4, 3.4
c. Placement of reinforcement, connectors, and prestressing tendons and anchorages		X	Sec. 1.16	Art. 3.2 E, 3.4, 3.6 A
d. Proportions of site-prepared grout and		X		Art. 2.6 B,
prestressing grout for bonded tendons				2.4 G 1.b
e. Construction of mortar joints		X		Art. 3.3 B
4. Verify during construction:				
a. Size and location of structural elements		X		Art. 3.3 F
b. Type, size, and location of anchors, including other details of anchorage of masonry to structural members, frames, or other construction		X	Sec. 1.16.4.3, 1.17.1	
c. Welding of reinforcement	X		Sec. 2.1.7.7.2, 3.3.3.4 (c), 8.3.3.4 (b)	
d. Preparation, construction, and protection of masonry during cold weather (temperature below 40°F (4.4°C)) or hot weather (temperature above 90°F (32.2°C))		X		Art. 1.8 C, 1.8 D
e. Application and measurement of prestressing force	X			Art. 3.6 B
f. Placement of grout and prestressing grout for bonded tendons is in compliance	X			Art. 3.5, 3.6 C
g. Placement of AAC masonry units and construction of thin-bed mortar joints	X(b)	X(c)		Art. 3.3 B.8
5. Observe preparation of grout specimens, mortar specimens, and/or prisms		X		Art. 1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4

(a) Frequency refers to the frequency of inspection, which may be continuous during the task listed or periodically during the listed task, as defined in the table.
(b) Required for the first 5000 square feet (465 square meters) of AAC masonry.
(c) Required after the first 5000 square feet (465 square meters) of AAC masonry.

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STRUCTURAL NOTES AND SPECIAL INSPECTIONS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

S0.2
75-16217-00
08/24/2017
Revisions
BWH 10/09/17

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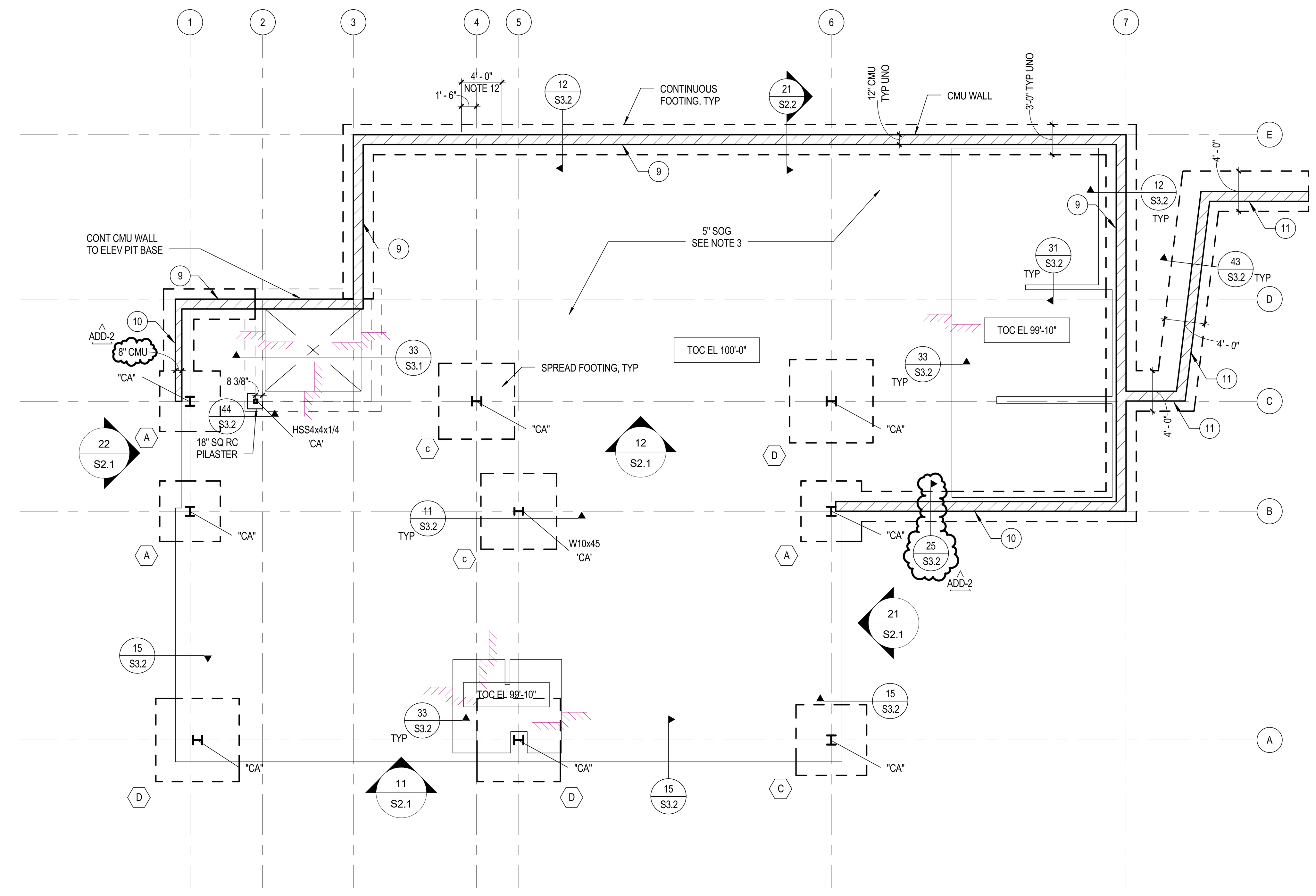
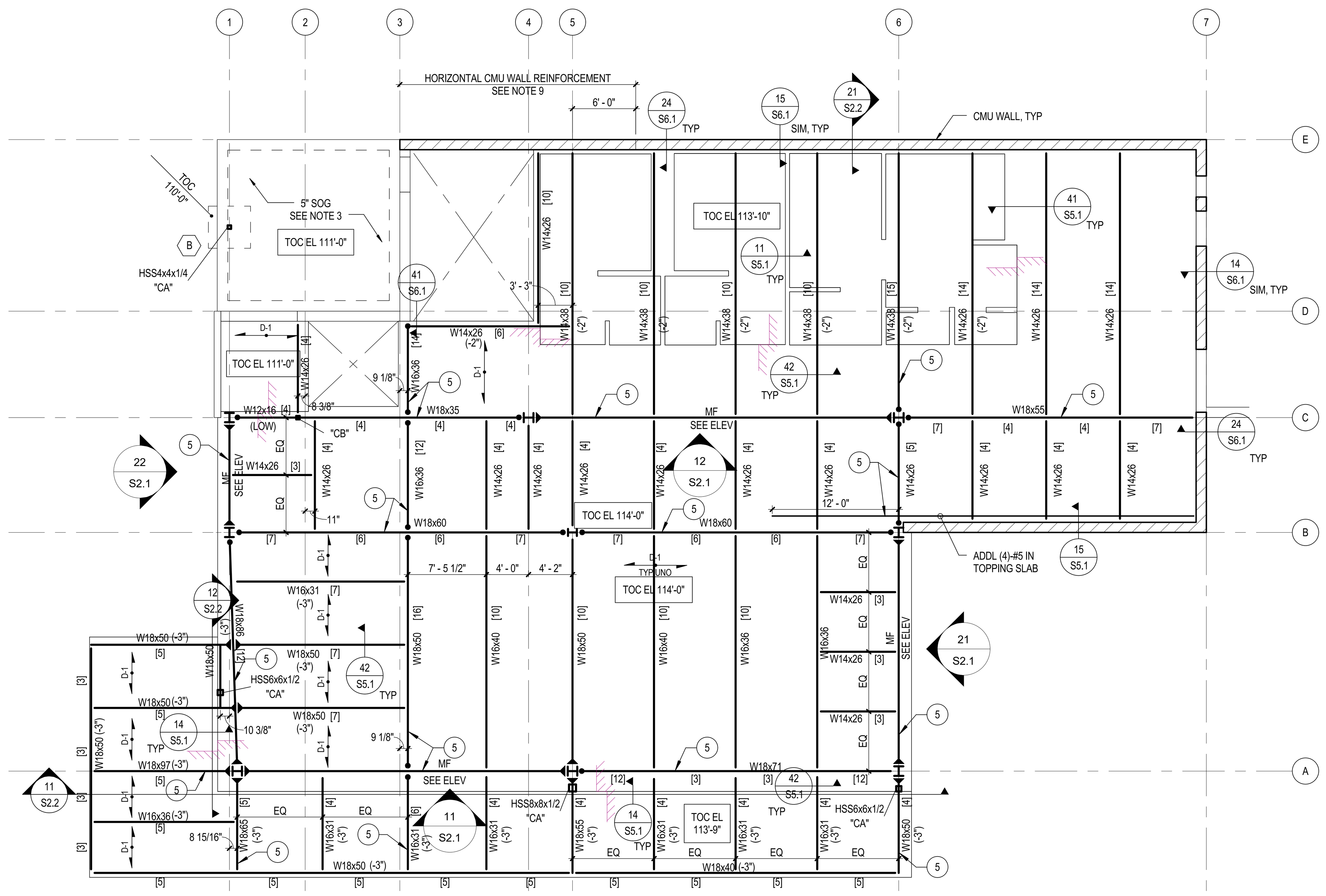


1 S1.1 FOUNDATION PLAN
SCALE: 1/8" = 1'-0"



2 S1.1 LEVEL 2 FRAMING PLAN
SCALE: 1/8" = 1'-0"

LEGEND NOTES

LEGEND NOTES ARE COMMON TO ALL FOUNDATION PLANS.
SOME NOTES MAY NOT APPLY TO THIS SHEET

FOUNDATION NOTES

1. SEE ARCHITECTURAL FOR FF ELEVATIONS.
2. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONAL AND LAYOUT INFORMATION NOT SHOWN, INCLUDING CURBS.
3. SLAB-ON-GRADE SHALL BE REINFORCED WITH #4 @ 12" OC EW UNO.
4. PROVIDE CONTROL JOINTS IN SOG SPACED @ 15'-0" OC MAX. FINAL LOCATIONS OF CONTROL JOINTS SUBJECT TOARCHITECT'S APPROVAL.
5. TOF ELEVATION FOR FOOTINGS SHALL BE 98'-8" UNO.
6. WALL FOOTINGS ARE 1'-0" THICK W/ (3)-#4 T&B CONTINUOUS W/#4 @ 16" OC TRANSVERSE BARS, TYP UNO.
7. LEVEL 2 DIAPHRAGM SHALL BE INSTALLED WITH CONCRETE REACHING 28-DAY STRENGTH PRIOR TO BACKFILLING AT RETAINING WALLS.
8. SEE GEOTECH REPORT FOR VAPOR BARRIER REQUIREMENTS.
9. CMU WALL REINFORCING PER 12/S3.2.
10. CMU WALL REINFORCING PER 12/S6.1.
11. CMU WALL REINFORCING PER 43/S3.2.
12. PROVIDE #7 @ 4" OC VERTICAL REINFORCEMENT AT INNER FACE CONTINUOUS TO TOP OF WALL OVER EXTENT INDICATED.

SPREAD FOOTING SCHEDULE

MARK	SIZE	REINFORCEMENT
A	6'-0" SQ x 2'-0" D	#6 @ 12" OC EW, T&B
B	3'-0" SQ x 1'-0" D	#4 @ 6" OC EW, T&B
C	7'-6" SQ x 2'-0" D	#7 @ 12" OC EW, T&B
D	8'-3" SQ x 2'-0" D	#7 @ 12" OC EW, T&B

FLOOR FRAMING NOTES

1. SEE ARCHITECTURAL FOR FF ELEVATIONS.
2. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONAL AND LAYOUT INFORMATION NOT SHOWN.
3. BEAMS IN BAY EQUALLY SPACED BETWEEN ADJACENT GRIDLINES UNO.
4. PROVIDE STUDS AT 3'-0" OC MAXIMUM AT ALL FRAMING BEAMS WHERE CONCRETE TOPPED METAL DECK OCCURS.
5. SFRS MEMBER. FRAMING MEMBERS WHICH ARE PART OF THE SFRS REQUIRE SPECIAL TESTING AND INSPECTION REQUIREMENTS PER S0.2.
6. TYPICAL STEEL FRAMING TOS = 113' - 6 1/4" UNO.
7. LEVEL 2 DIAPHRAGM SHALL BE INSTALLED WITHCONCRETE REACHING 28-DAY STRENGTH PRIOR TO BACKFILLING AT RETAINING WALLS.
9. PROVIDE #5 @ 8" OC EF HORIZONTAL REINFORCEMENT 4'-0" ABOVE AND BELOW LEVEL 2 OVER EXTENT INDICATED.

SYMBOLS AND NOTATIONS

Symbol	Meaning
EL X'-X"	INDICATES TOP OF DECK ELEVATION.
	INDICATES CHANGE IN SLAB ELEVATION.
	INDICATES WELDED MOMENT CONNECTION.
	INDICATES DRAG STRUT CONNECTION.
'CA'	INDICATES COLUMN ABOVE.
'CB'	INDICATES COLUMN BELOW.
[X]	INDICATES MIN NUMBER OF STUDS.
<X">	INDICATES BEAM CAMBER IN INCHES (UPWARD). FOR SIMPLY SUPPORTED BEAMS, CAMBER INDICATED APPLIES AT MIDSPAN. FOR CANTILEVER BEAMS, CAMBER INDICATED APPLIES AT FREE END OF CANTILEVER SPAN.
(-X'-X")	INDICATES BEAM TOP OF STEEL OFFSET FROM TYPICAL TOS ELEVATION WHERE NOTED.
D-1	INDICATES 2-1/2" LW CONC TOPPING OVER 2" VERCO PLW2 20 GA METAL DECK W/ 6x6 W2.0xW2.0 WWR SPAN DIRECTION.
D-2	INDICATES 1-1/2" VERCO PLB-36 18 GA METAL ROOF DECK SPAN DIRECTION.
#	SEE NOTE # ON FLOOR FRAMING NOTES.

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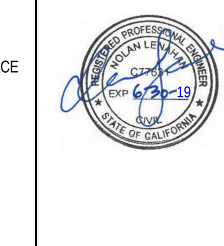

FOUNDATION & SECOND FLOOR FRAMING PLAN
BASEBALL CLUBHOUSE FACILITY
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S1.1
75-16217-00
08/24/2017
Revisions
BV01 10/06/17
BV02 11/14/17
ADD-2 2/9/18

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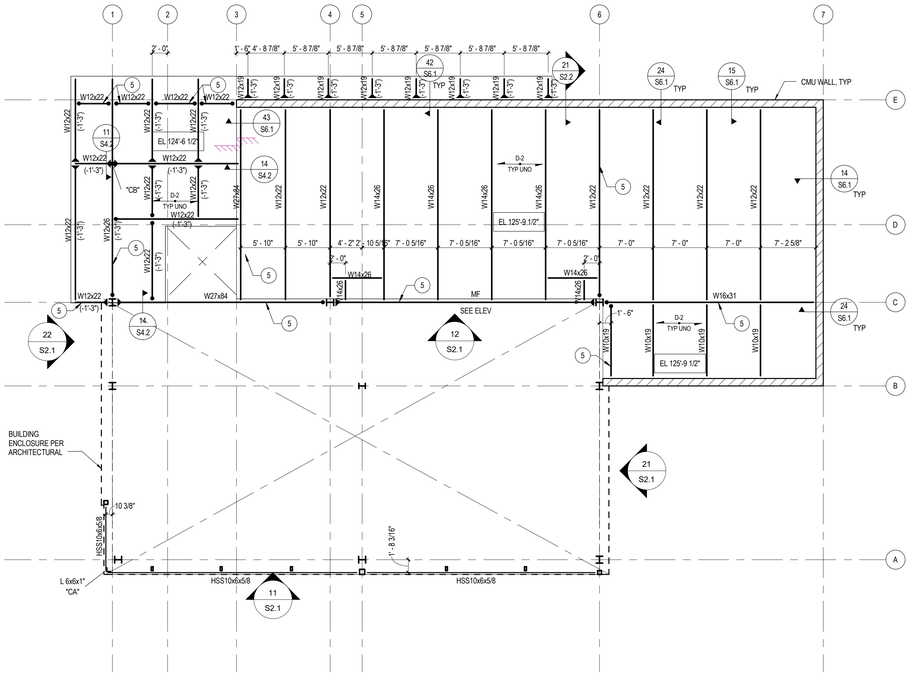
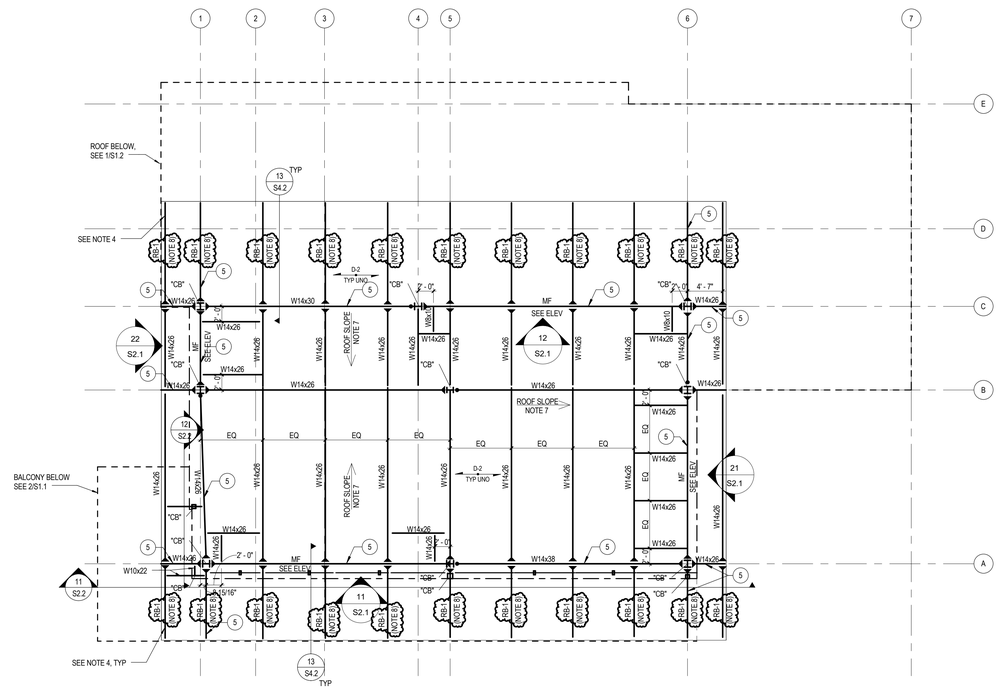


1 S1.2 ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"



2 S1.2 HIGH ROOF FRAMING PLAN
SCALE: 1/8" = 1'-0"
ADD-2

LEGEND NOTES

LEGEND NOTES ARE COMMON TO ALL FRAMING PLANS.
SOME NOTES MAY NOT APPLY TO THIS SHEET.

ROOF FRAMING NOTES

1. SEE ARCHITECTURAL FOR FINISH ELEVATIONS.
2. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONAL AND LAYOUT INFORMATION NOT SHOWN.
3. BEAMS IN BAY EQUALLY SPACED BETWEEN ADJACENT GRIDLINES UNO.
4. TAPERED BEAM, SEE 13/S4.2.
5. SFRS MEMBER. FRAMING MEMBERS WHICH ARE PART OF THE SFRS REQUIRE SPECIAL TESTING AND INSPECTION REQUIREMENTS PER S0.2.
6. ROOF TYPICAL STEEL FRAMING TOS = 125' - 8" UNO.
7. HIGH ROOF TOP OF STEEL FRAMING TOS IS -1 1/2" BELOW TOP OF ROOF DECK. SEE ARCHITECTURAL FOR ROOF DECK ELEVATIONS AND SLOPES.

RB-1 SEE 13/S4.2 FOR RB-1 INFORMATION. ADD-2

SYMBOLS AND NOTATIONS

EL X'-X"	INDICATES TOP OF DECK ELEVATION.
	INDICATES CHANGE IN SLAB ELEVATION.
	INDICATES WELDED MOMENT CONNECTION.
	INDICATES DRAG STRUT CONNECTION.
'CA'	INDICATES COLUMN ABOVE.
'CB'	INDICATES COLUMN BELOW.
[X]	INDICATES MIN NUMBER OF STUDS.
<X">	INDICATES BEAM CAMBER IN INCHES (UPWARD). FOR SIMPLY SUPPORTED BEAMS, CAMBER INDICATED APPLIES AT MIDSPAN. FOR CANTILEVER BEAMS, CAMBER INDICATED APPLIES AT FREE END OF CANTILEVER SPAN.
(-X"-X")	INDICATES BEAM TOP OF STEEL OFFSET FROM TYPICAL TOS ELEVATION WHERE NOTED.
D-1	INDICATES 2-1/2" LW CONC TOPPING OVER 2" VERCO PLW2.20 GA METAL DECK W/ 6X6 W2.0XW2.0 WWR SPAN DIRECTION.
D-2	INDICATES 1-1/2" VERCO PLB-36 18 GA METAL ROOF DECK SPAN DIRECTION.
#	SEE NOTE # ON ROOF FRAMING NOTES.

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ROOF FRAMING PLAN
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08/24/2017
Revisions
No 1 10/6/17
ADD 2 2/9/18

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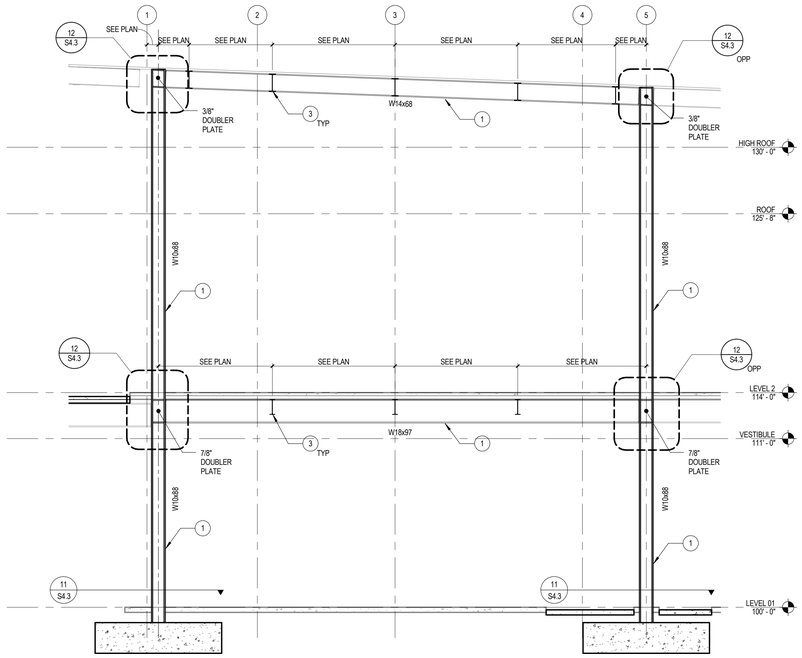
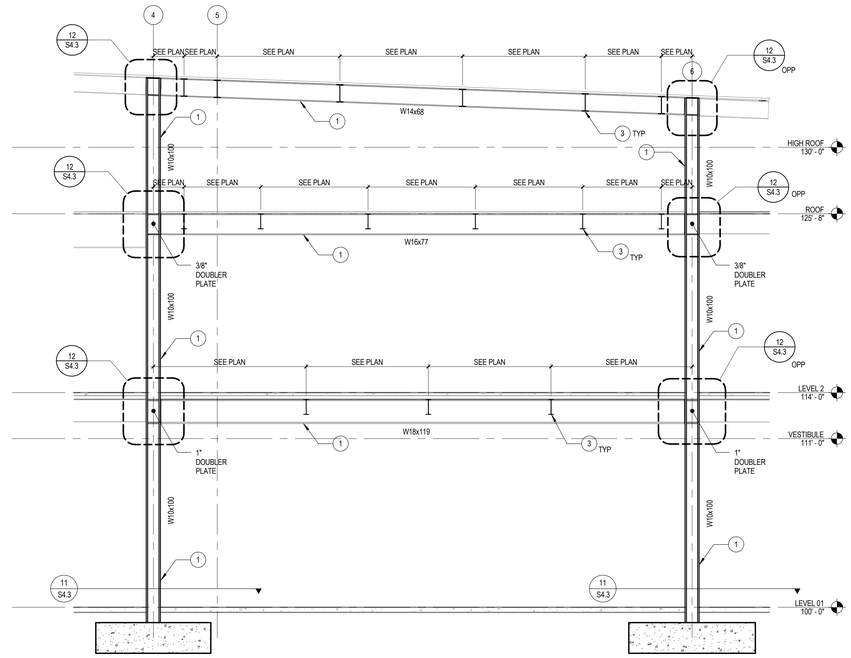
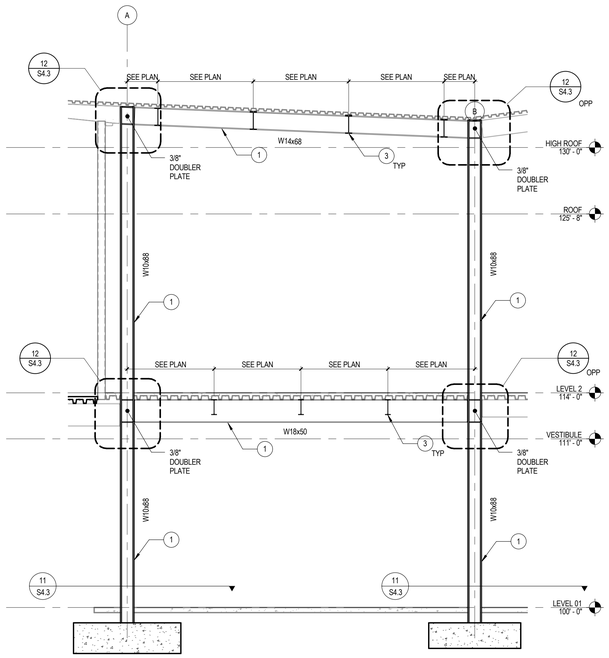


11/S2.1 MOMENT FRAME 1 ELEVATION
SCALE: 1/4" = 1'-0"



12/S2.1 MOMENT FRAME 2 ELEVATION
SCALE: 1/4" = 1'-0"



21/S2.1 MOMENT FRAME 3 ELEVATION
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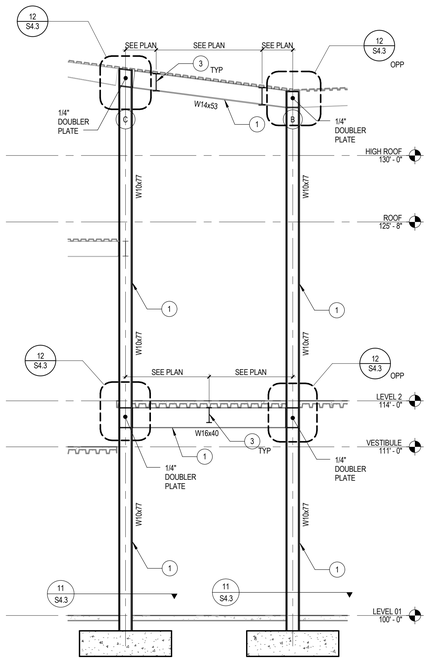

22/S2.1 MOMENT FRAME 4 ELEVATION
SCALE: 1/4" = 1'-0"

LEGEND NOTES

1. SFRS MEMBER. FRAMING MEMBERS WHICH ARE PART OF THE SFRS REQUIRE SPECIAL TESTING AND INSPECTION REQUIREMENTS PER S0.2.
2. WHERE CONCRETE TOPPED METAL DECK OCCURS AT MF BEAMS, PROVIDE STUDS AT 12" OC MAX BETWEEN PROTECTED ZONES. SEE S0.1 FOR STUD INFORMATION.
3. MF BRACING ELEMENT PER PLAN. PROVIDE FULL-DEPTH STIFFENERS AT CONNECTIONS TO MF BEAMS PER 14/S4.1.

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MF ELEVATIONS
BASEBALL CLUBHOUSE FACILITY
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S2.1
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08/24/2017
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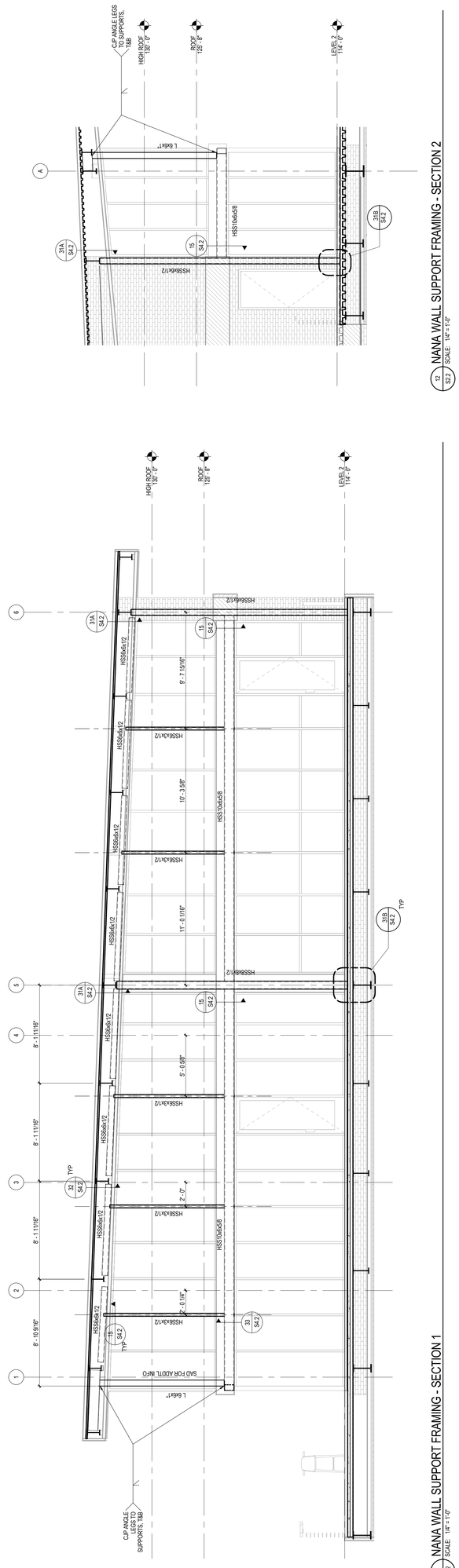
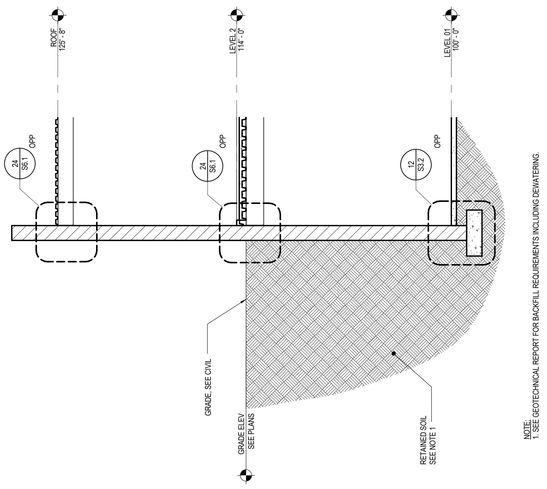


11 S2.2 NANA WALL SUPPORT FRAMING - SECTION 2
SCALE: 1/4" = 1'-0"

12 S2.2 NANA WALL SUPPORT FRAMING - SECTION 1
SCALE: 1/4" = 1'-0"



NOTE
1. SEE GEOTECHNICAL REPORT FOR BACKFILL REQUIREMENTS INCLUDING DEWATERING.

21 S2.2 CMU WALL SECTION
SCALE: 1/4" = 1'-0"

95%
CONSTRUCTION
DOCUMENTS

California Polytechnic State University San Luis Obispo

BASEBALL CLUBHOUSE FACILITY

SECTIONS

S2.2

75-1627-00
08/24/2017
Revisions

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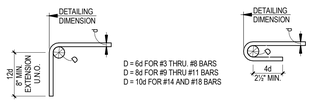
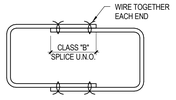
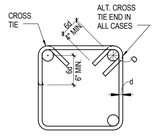
STANDARD HOOK DETAILS



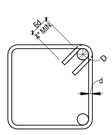
TIE LAP DETAIL



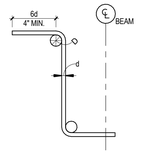
SPANDREL & BEAM SUPPLEMENTARY TIE



COLUMN & SPANDREL TIE

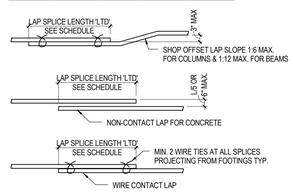


BEAM & JOIST STIRRUP



CLASS "B" LAP SPLICE SCHEDULE (Ls) (INCHES)				
BAR SIZES	CONDITION 1		CONDITION 2	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	24	19	36	28
#4	32	25	48	37
#5	40	31	60	46
#6	48	37	72	55
#7	69	53	106	82
#8	79	61	122	94
#9	89	68	137	106
#10	100	77	154	119
#11	111	85	171	132

NOTES:
1. ALL VALUES ARE FOR CONCRETE WITH F'c = 4000 psi.
2. REFERENCE CODE ACI 318-14.
3. Ld SHALL NOT BE LESS THAN 12 INCHES.
4. db INDICATES DIAMETER OF BAR.
5. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST IN THE MEMBER BELOW THE REINFORCEMENT.
6. DEFINITIONS OF "CONDITION 1" AND "CONDITION 2" SHALL BE AS FOLLOWS:
   CONDITION 1: WHEN EITHER ONE OF THE FOLLOWING SET IS SATISFIED:
   SET A: CLEAR BAR SPACING GREATER THAN OR EQUAL TO db.
   CLEAR BAR COVER GREATER THAN OR EQUAL TO db.
   TIES OR STIRRUPS THROUGHOUT Ld NOT LESS THAN THE CODE MINIMUM.
   SET B: CLEAR BAR SPACING GREATER THAN OR EQUAL TO 2db.
   CLEAR BAR COVER GREATER THAN OR EQUAL TO db.
   CONDITION 2: USED WHERE CONDITION 1 IS NOT SATISFIED.
7. THE ABOVE BAR DEVELOPMENT LENGTHS APPLY TO NORMAL WEIGHT CONCRETE. DIVIDE BY 0.75 FOR LIGHTWEIGHT CONCRETE.
8. THE ABOVE BAR DEVELOPMENT LENGTHS ARE FOR UNCOATED REINFORCEMENT. FOR EPOXY COATED BARS, MODIFY THE LISTED VALUES PER FOLLOWING:
   - CLEAR BAR COVER LESS THAN 3db OR CLEAR BAR SPACING LESS THAN 6db, MULTIPLY Ld VALUES OF "OTHER BARS" BY 1.5 AND Ld VALUES OF "TOP BARS" BY 1.31
   - ALL OTHER CONDITIONS, MULTIPLY Ld BY 1.2
9. USE CLASS "B" SPLICES U.N.O. CLASS "A" LAP SPLICES ARE PERMITTED WHEN THE AREA OF REINFORCEMENT PROVIDED IS AT LEAST TWICE THAT REQUIRED BY ANALYSIS OVER THE ENTIRE LENGTH OF THE SPLICE AND ONE HALF OR LESS OF THE TOTAL REINFORCEMENT IS SPLICED WITHIN THE REQUIRED LAP SPLICE. USE CLASS "A" WHERE SPECIFICALLY NOTED ON DRAWINGS.
10. FOR CLASS "A" SPLICES, USE SAME VALUES AS PER Ld.
11. WHEN SPLICING DIFFERENT SIZE BARS, SPLICE LENGTH SHALL BE THE LARGER OF THE Ld OF LARGER BAR OR LAP SPLICE LENGTH OF SMALLER BAR.
12. AT CONCRETE WALLS, SPLICES IN HORIZONTAL REINFORCEMENTS SHALL BE STAGGERED, MINIMUM 24 INCHES APART AT ALTERNATING BARS.
13. AT CONCRETE WALLS WITH TWO CURTAINS OF REINFORCEMENTS, SPLICES IN THE CURTAINS SHALL NOT OCCUR IN THE SAME LOCATION. STAGGER LAP SPLICES MINIMUM 24 INCHES APART.
14. ALL WALL AND COLUMN TO FOOTING DOWELS SHALL HAVE CLASS "B" LAP SPLICES.
15. LAP SPLICES SHALL NOT BE USED FOR BARS LARGER THAN #11.
16. LAP SPLICES OF BARS IN A BUNDLE SHALL BE BASED ON THE LAP SPLICE LENGTH REQUIRED FOR INDIVIDUAL BARS WITHIN A BUNDLE. INCREASE 20 PERCENT FOR THREE-BAR BUNDLE, AND 33 PERCENT FOR FOUR-BAR BUNDLE. INDIVIDUAL BAR SPLICES WITHIN A BUNDLE SHALL NOT OVERLAP. ENTIRE BUNDLES SHALL NOT BE LAP SPLICED.
17. THE ABOVE LAP SPLICE LENGTHS ARE FOR REBARS F_y=60 KSI. FOR OTHER REBAR GRADES, MULTIPLY THE SPECIFIED DEVELOPMENT LENGTHS BY F_y/60 KSI.
18. THE ABOVE LAP SPLICE LENGTHS ARE CALCULATED USING THE 28-DAY CONCRETE COMPRESSIVE STRENGTH BASED ON CYLINDER SPECIMEN.



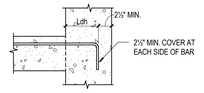
BAR DEVELOPMENT LENGTH (Ld) SCHEDULE (INCHES)				
BAR SIZES	CONDITION 1		CONDITION 2	
	TOP BARS	OTHER BARS	TOP BARS	OTHER BARS
#3	19	15	28	22
#4	25	19	37	29
#5	31	24	46	36
#6	37	29	55	43
#7	53	41	82	63
#8	61	47	94	72
#9	68	53	106	81
#10	77	59	119	91
#11	85	66	132	101
#14	102	79	158	122
#18	136	105	211	162

NOTES:
1. ALL VALUES ARE FOR CONCRETE WITH F'c' = 4000 psi.
2. REFERENCE CODE ACI 318-14.
3. Ld SHALL NOT BE LESS THAN 12 INCHES.
4. db INDICATES DIAMETER OF BAR.
5. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12 INCHES OF CONCRETE CAST IN THE MEMBER BELOW THE REINFORCEMENT.
6. DEFINITIONS OF "CONDITION 1" AND "CONDITION 2" SHALL BE AS FOLLOWS:
   CONDITION 1: WHEN EITHER ONE OF THE FOLLOWING SET IS SATISFIED:
   SET A: CLEAR BAR SPACING GREATER THAN OR EQUAL TO db.
   CLEAR BAR COVER GREATER THAN OR EQUAL TO db.
   TIES OR STIRRUPS THROUGHOUT Ld NOT LESS THAN THE CODE MINIMUM.
   SET B: CLEAR BAR SPACING GREATER THAN OR EQUAL TO 2db.
   CLEAR BAR COVER GREATER THAN OR EQUAL TO db.
   CONDITION 2: USED WHERE CONDITION 1 IS NOT SATISFIED.
7. THE ABOVE BAR DEVELOPMENT LENGTHS APPLY TO NORMAL WEIGHT CONCRETE. DIVIDE BY 0.75 FOR LIGHTWEIGHT CONCRETE.
8. THE ABOVE BAR DEVELOPMENT LENGTHS ARE FOR UNCOATED REINFORCEMENT. FOR EPOXY COATED BARS, MODIFY THE LISTED VALUES PER FOLLOWING:
   - CLEAR BAR COVER LESS THAN 3db OR CLEAR BAR SPACING LESS THAN 6db, MULTIPLY Ld VALUES OF "OTHER BARS" BY 1.5 AND Ld VALUES OF "TOP BARS" BY 1.31
   - ALL OTHER CONDITIONS, MULTIPLY Ld BY 1.2
9. THE ABOVE BAR DEVELOPMENT LENGTHS ARE FOR REBARS F_y=60 KSI. FOR OTHER REBAR GRADES, MULTIPLY THE SPECIFIED DEVELOPMENT LENGTHS BY F_y/60 KSI.
10. THE ABOVE BAR DEVELOPMENT LENGTHS ARE CALCULATED USING THE 28-DAY CONCRETE COMPRESSIVE STRENGTH BASED ON CYLINDER SPECIMEN.

11 S3.1 TYP BAR BENDING DETAIL

SCALE: 1 1/2" = 1'-0"

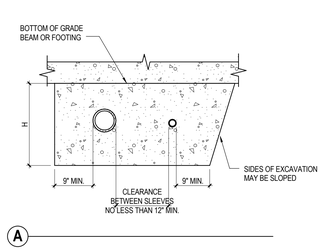
HOOKED BAR DEVELOPMENT LENGTH (Ldh) SCHEDULE (INCHES)		
BAR SIZES	ALL ELEMENTS U.N.O.	CONC. WALLS AND DIAPHRAGMS
#3	6	6
#4	7	8
#5	9	10
#6	10	11
#7	12	13
#8	14	15
#9	15	17
#10	17	19
#11	19	21



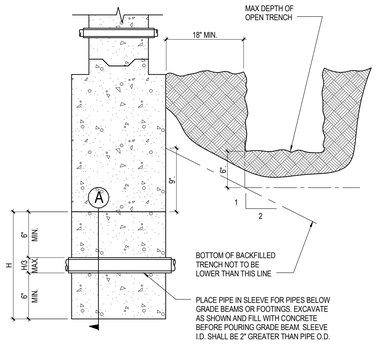
NOTES:
1. ALL VALUES ARE FOR CONCRETE WITH Fc' = 4000 psi.
2. REFERENCE CODE ACI 318-14.
3. db INDICATES DIAMETER OF BAR.
4. Ldh SHALL NOT BE LESS THAN THE GREATER OF 8db AND 6 INCHES.
5. THE ABOVE BAR DEVELOPMENT LENGTHS APPLY TO NORMAL WEIGHT CONCRETE. DIVIDE BY 0.75 FOR LIGHTWEIGHT CONCRETE.
6. THE ABOVE BAR DEVELOPMENT LENGTHS ARE FOR UNCOATED REINFORCEMENT. FOR EPOXY COATED BARS, MULTIPLY THE SPECIFIED DEVELOPMENT LENGTHS BY 1.2.
7. HOOKS SHALL NOT BE CONSIDERED EFFECTIVE IN DEVELOPING BARS IN COMPRESSION.
8. THE ABOVE HOOKED BAR DEVELOPMENT LENGTHS ARE FOR REBARS F_y= 60 KSI. FOR OTHER REBAR GRADES, MULTIPLY THE SPECIFIED DEVELOPMENT LENGTHS BY F_y/60 KSI.
9. THE ABOVE HOOKED BAR DEVELOPMENT LENGTHS ARE CALCULATED USING THE 28-DAY CONCRETE COMPRESSIVE STRENGTH BASED ON CYLINDER SPECIMEN.

12 S3.1 TYP REINFORCING LAP SPLICE DETAIL AND SCHEDULE

SCALE: 3/4" = 1'-0"

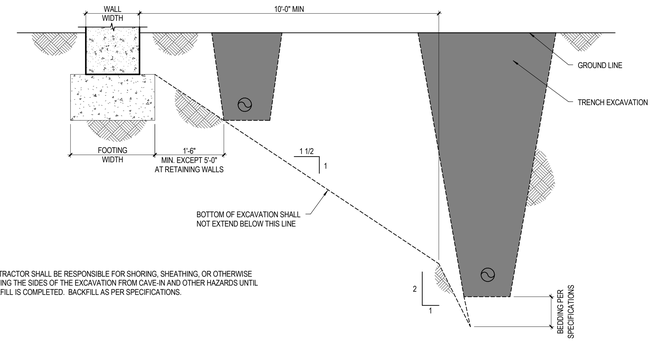


NOTE:
PROVIDE SLEEVES FOR ALL PIPES PASSING THROUGH GRADE BEAM, CONT. FOOTINGS OR WALLS. PASS THROUGH MIDDLE THIRD OF DEPTH OF GRADE BEAM OR FOOTING. DO NOT PASS PIPES THROUGH ISOLATED FOOTINGS OR PILECAPS. STEP AROUND OR BELOW AS REQUIRED.



13 S3.1 TYP BAR DEVELOPMENT LENGTH (Ld) SCHEDULE

SCALE: 3/4" = 1'-0"



NOTE:
THE CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING, SHEATHING, OR OTHERWISE MAINTAINING THE SIDES OF THE EXCAVATION FROM CAVE-IN AND OTHER HAZARDS UNTIL ALL BACKFILL IS COMPLETED. BACKFILL AS PER SPECIFICATIONS.

21 S3.1 TYP HOOKED BAR DEVELOPMENT LENGTH (Ldh) SCHEDULE

SCALE: 3/4" = 1'-0"

22 S3.1 TYPICAL PIPE LOCATION BELOW GRADE BEAM AND FOOTINGS

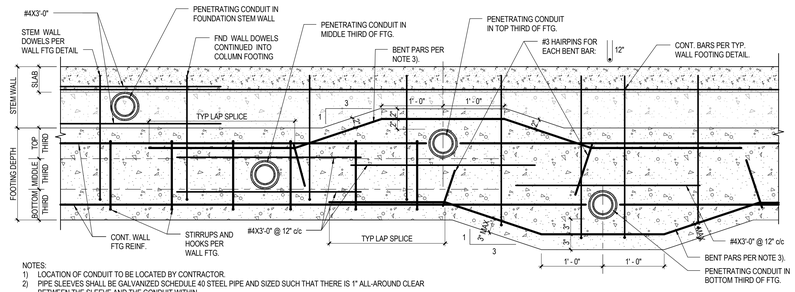
SCALE: 1 1/2" = 1'-0"

23 S3.1 TYP INSTALLATION OF PIPES

SCALE: 3/4" = 1'-0"

31 S3.1 TYP PENETRATIONS THROUGH FOOTINGS

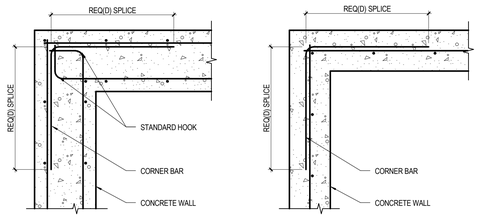
SCALE: 1" = 1'-0"



NOTES:
1) LOCATION OF CONDUIT TO BE LOCATED BY CONTRACTOR.
2) PIPE SLEEVES SHALL BE GALVANIZED SCHEDULE 40 STEEL PIPE AND SIZED SUCH THAT THERE IS 1" ALL-AROUND CLEAR BETWEEN THE SLEEVE AND THE CONDUIT WITHIN.
3) BENT BARS TO MATCH MAX SIZE AND NUMBER OF DETAILED BARS ON EITHER SIDE OF PIPE.
4) MAXIMUM PIP SLEEVE SIZE IS 10" INSIDE DIAMETER.
5) WHERE PIPES INTERFERE WITH TIES OR TRANSVERSE REINFORCING, MAINTAIN THE NUMBER OF TIES OR TRANSVERSE REINFORCING AND SLIDE THIS REINFORCING TO THE NEAREST SIDE OF THE SLEEVE PLUS 2". MAINTAIN MAXIMUM SPACING.
6) MINIMUM SPACING OF PIPE SLEEVES IS 24" OC ALONG LENGTH OF FOOTING.
7) PIPE SLEEVE TO EXTEND 6" BEYOND EDGES OF FOOTING.

32 S3.1 TYP RC WALL CORNER REINFORCING DETAIL

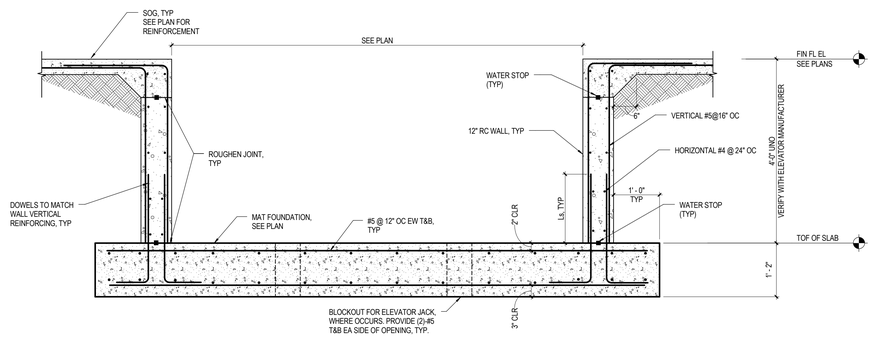
SCALE: 1" = 1'-0"



NOTE:
CORNER BARS TO BE SAME SIZE AND SPACING AS THE HORIZONTAL BARS.

33 S3.1 ELEVATOR PIT DETAIL

SCALE: 3/4" = 1'-0"



95% CONSTRUCTION DOCUMENTS

FOUNDATION AND SLAB-ON-GRADE TYP DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

S3.1
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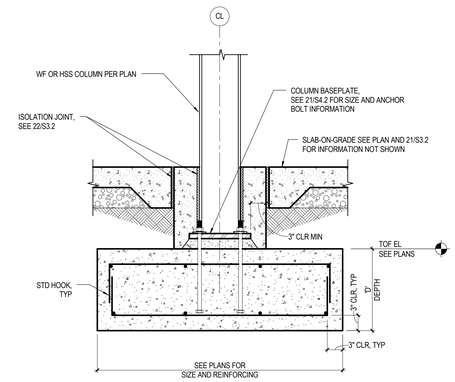
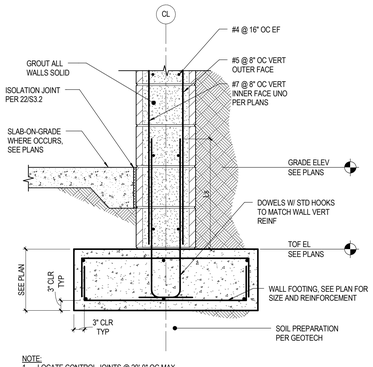
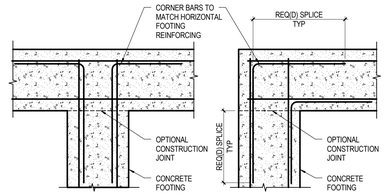


11 S3.2 TYP SPREAD FOOTING DETAIL
SCALE: 1" = 1'-0"

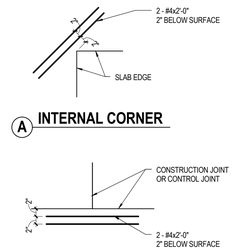


NOTE:
1. LOCATE CONTROL JOINTS @ 20'-0" OC MAX.
2. SEE GEOTECHNICAL REPORT FOR BACKFILL REQUIREMENTS.

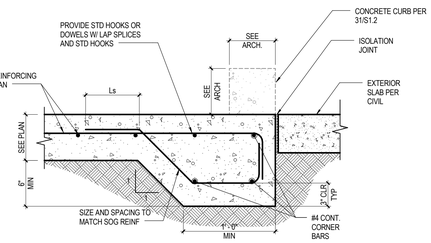
12 S3.2 CMU WALL FOOTING (RETAINING)
SCALE: 1" = 1'-0"
ADD-2



13 S3.2 TYP FOOTING REINFORCING DETAIL
SCALE: 3/4" = 1'-0"

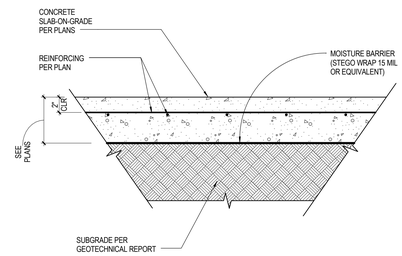


14 S3.2 TYP SLAB-ON-GRADE
SCALE: 3/4" = 1'-0"

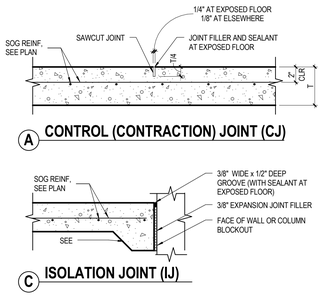


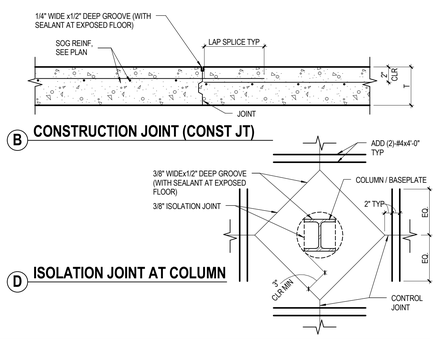
NOTE:
1. SEE TYPICAL SLAB ON GRADE DETAIL 21/S1.2 FOR INFORMATION NOT SHOWN.

15 S3.2 TYP EDGE OF SLAB-ON-GRADE
SCALE: 1 1/2" = 1'-0"

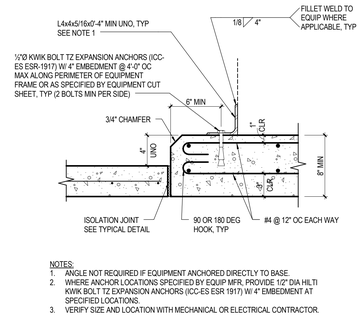


21 S3.2 TYP SLAB-ON-GRADE DETAIL
SCALE: 1 1/2" = 1'-0"



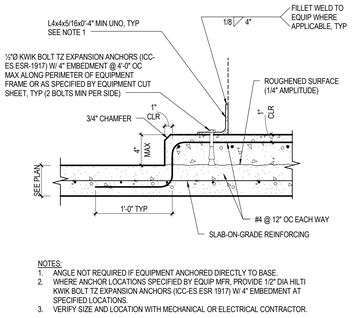


22 S3.2 TYP SLAB-ON-GRADE JOINTS
SCALE: 1 1/2" = 1'-0"



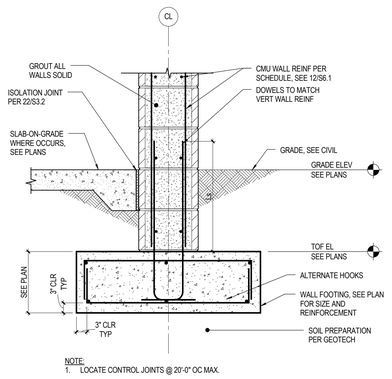
NOTES:
1. ANGLE NOT REQUIRED IF EQUIPMENT ANCHORED DIRECTLY TO BASE.
2. WHERE ANCHOR LOCATIONS SPECIFIED BY EQUIP MFR, PROVIDE 1/2" DIA HILTI KWIK BOLT TZ EXPANSION ANCHORS (ICC-ES ESR 1917) W/ 4" EMBEDMENT AT SPECIFIED LOCATIONS.
3. VERIFY SIZE AND LOCATION WITH MECHANICAL OR ELECTRICAL CONTRACTOR.

23 S3.2 TYP ISOLATED EQUIPMENT PAD DETAIL
SCALE: 1 1/2" = 1'-0"



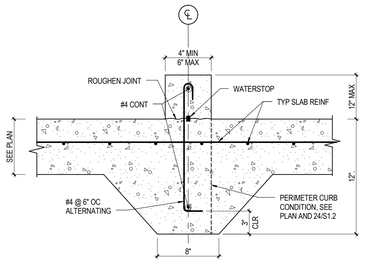
NOTES:
1. ANGLE NOT REQUIRED IF EQUIPMENT ANCHORED DIRECTLY TO BASE.
2. WHERE ANCHOR LOCATIONS SPECIFIED BY EQUIP MFR, PROVIDE 1/2" DIA HILTI KWIK BOLT TZ EXPANSION ANCHORS (ICC-ES ESR 1917) W/ 4" EMBEDMENT AT SPECIFIED LOCATIONS.
3. VERIFY SIZE AND LOCATION WITH MECHANICAL OR ELECTRICAL CONTRACTOR.

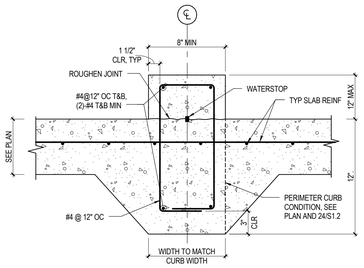
24 S3.2 TYP INTEGRAL EQUIPMENT PAD DETAIL
SCALE: 1 1/2" = 1'-0"



NOTE:
1. LOCATE CONTROL JOINTS @ 20'-0" OC MAX.

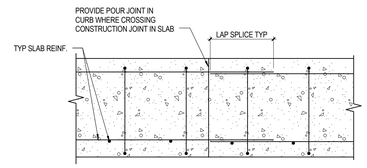
25 S3.2 12" CMU WALL FOOTING (AT GRADE)
SCALE: 1" = 1'-0"
ADD-2





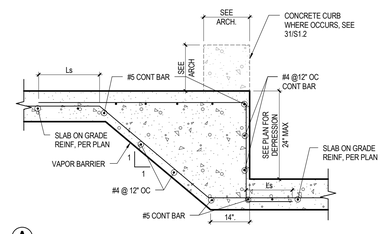
NOTES:
1. SEE TYPICAL SLAB ON GRADE DETAIL 21/S1.2 FOR INFORMATION NOT SHOWN.
2. SEE ARCHITECTURAL DRAWINGS FOR CURB LOCATIONS AND SIZES.

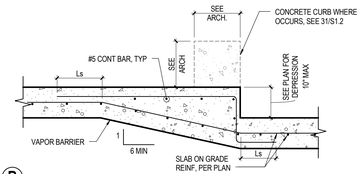
31 S3.2 TYP CONCRETE CURB ON GRADE
SCALE: 1 1/2" = 1'-0"



NOTES:
1. FOR CURB SEE TYPICAL CONCRETE CURB DETAIL 31/S1.2.
2. SEE TYPICAL SLAB ON GRADE DETAIL 21/S1.2 FOR INFORMATION NOT SHOWN.

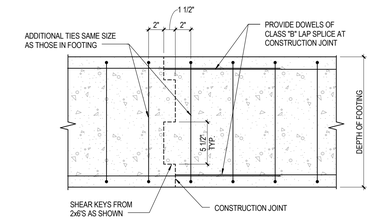
32 S3.2 TYP CONSTRUCTION JOINT AT CURB
SCALE: 1 1/2" = 1'-0"





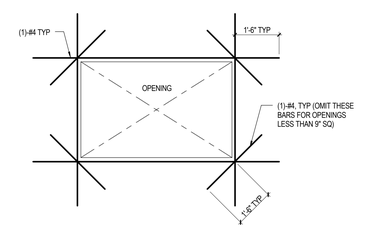
NOTE:
1. SEE ARCHITECTURAL PLANS FOR LOCATION OF RECESSED SLABS AND CURBS.
2. SEE TYPICAL SLAB ON GRADE DETAIL 21/S1.2 FOR INFORMATION NOT SHOWN.

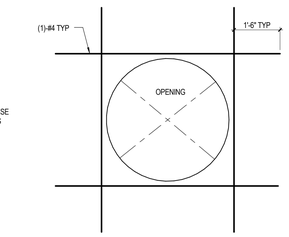
33 S3.2 TYP FLOOR SLAB RECESS
SCALE: 1 1/2" = 1'-0"



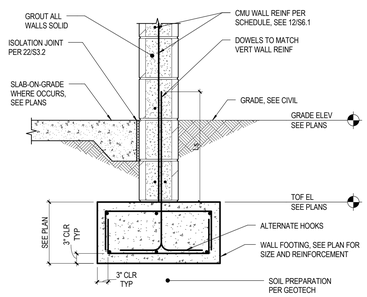
NOTES:
1. JOINT LOCATION SHALL BE SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW.
2. NUMBER OF 2x6's USED FOR SHEAR KEY VARIES BASED ON HEIGHT OF FOOTING.

34 S3.2 TYP FOOTING CONSTRUCTION JOINT
SCALE: 1 1/2" = 1'-0"



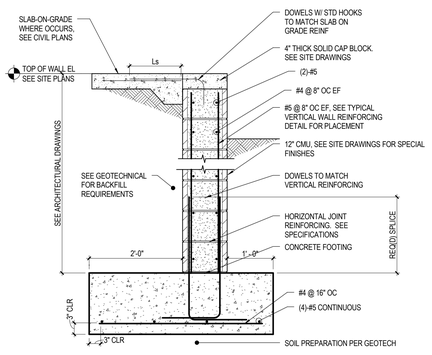


41 S3.2 TYP SLAB REINF AT OPENING IN SLAB ON GRADE
SCALE: 1 1/2" = 1'-0"



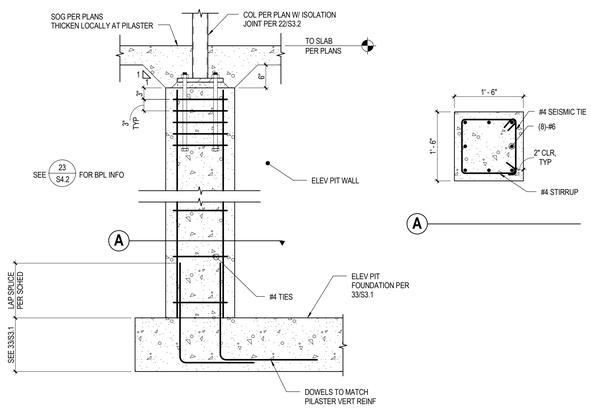
NOTE:
1. LOCATE CONTROL JOINTS @ 20'-0" OC MAX.

42 S3.2 12" CMU WALL FOOTING (AT GRADE)
SCALE: 1" = 1'-0"
ADD-2



NOTE:
LOCATE CONTROL JOINTS @ 20'-0" OC MAX.

43 S3.2 TYP SITE RETAINING WALL
SCALE: 3/4" = 1'-0"



44 S3.2 CONCRETE PILASTER
SCALE: 3/4" = 1'-0"

95% CONSTRUCTION DOCUMENTS

FOUNDATION AND SLAB-ON-GRADE TYP DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

S3.2
75-16217-00
08/24/2017
Revisions 09/07/17
BVD 11/14/17
ADD-2 2/8/18

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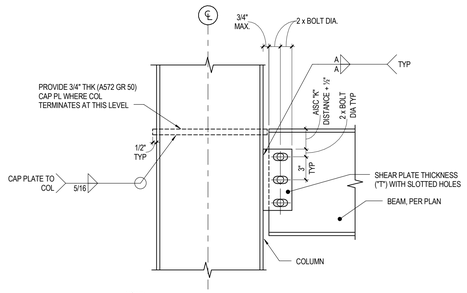
BEAM CONNECTION SCHEDULE			
NOMINAL MEMBER DEPTH	SHEAR PL. THICKNESS ("T")	FASTENERS A325-X NON-SLIP CRITICAL	WELD SIZE ("A")
8" THRU 10"	3/8"	(2)-7/8" Ø	5/16"
12" THRU 14"	3/8"	(3)-7/8" Ø	5/16"
16" THRU 18"	1/2"	(4)-7/8" Ø	5/16"
27"	3/4"	(7)-7/8" Ø	3/8"

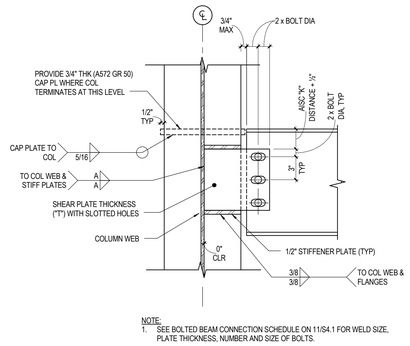
NOTES:
1. PROVIDE SHORT SLOTTED HOLES AS PER AISC, TYP. U.N.O.
2. FILLET WELDS INDICATED FOR SHEAR PLATE WELDING SHALL BE REPLACED WITH FULL PENETRATION GROOVE WELDS WHERE SKEWED BEAM CONNECTIONS WITH ANGLES SMALLER THAN 60° (BETWEEN BEAM AND GIRDER) OCCUR, TYP. U.N.O.
3. SEE 21/S4.1 FOR BOLTS TO MOMENT CONNECTIONS.
4. STEEL CONTRACTOR SHALL DESIGN CONNECTION PER SPECIFICATION. THE ABOVE SCHEDULE IS A MINIMUM REQUIREMENT.

11 S4.1 BOLTED BEAM CONNECTION SCHEDULE (NON-MOMENT)
SCALE: 3/4" = 1'-0"



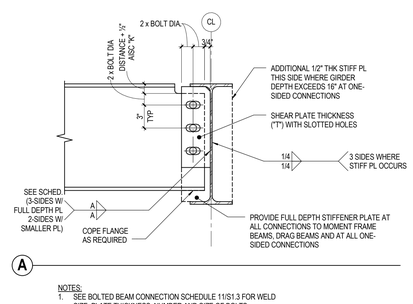
NOTE:
1. SEE BOLTED BEAM CONNECTION SCHEDULE ON 11/S4.1 FOR WELD SIZE, PLATE THICKNESS, NUMBER AND SIZE OF BOLTS.

12 S4.1 TYP BOLTED BEAM TO COL FLANGE
SCALE: 1 1/2" = 1'-0"



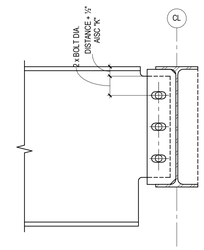
NOTE:
1. SEE BOLTED BEAM CONNECTION SCHEDULE ON 11/S4.1 FOR WELD SIZE, PLATE THICKNESS, NUMBER AND SIZE OF BOLTS.

13 S4.1 TYP BOLTED BEAM TO COL WEB
SCALE: 1 1/2" = 1'-0"



A

NOTES:
1. SEE BOLTED BEAM CONNECTION SCHEDULE 11/S1.3 FOR WELD SIZE, PLATE THICKNESS, NUMBER AND SIZE OF BOLTS.



SEE DETAIL "A" FOR INFO. NOT SHOWN

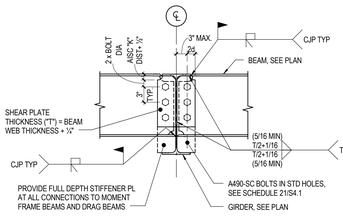
B DEEP BEAM CONDITION

14 S4.1 TYP BOLTED BEAM TO BEAM CONNECTION
SCALE: 1 1/2" = 1'-0"

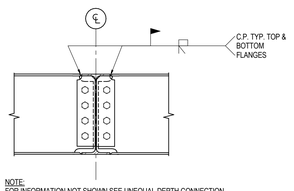
BEAM CONNECTION SCHEDULE	
NOMINAL MEMBER DEPTH	FASTENERS A325-X A490 SLIP CRITICAL
LESS THAN 8"	(2)-7/8" Ø
8" THRU 10"	(2)-7/8" Ø
12" THRU 14"	(3)-7/8" Ø
16" THRU 18"	(4)-7/8" Ø

NOTES:
1. PROVIDE SHORT SLOTTED HOLES AS PER AISC, TYP. U.N.O.
2. SEE 11/S1.3 FOR BOLTS TO NON-MOMENT CONNECTIONS.
3. STEEL CONTRACTOR SHALL DESIGN CONNECTION PER SPECIFICATION. THE ABOVE SCHEDULE IS A MINIMUM REQUIREMENT.

21 S4.1 BOLTED BEAM CONNECTION SCHEDULE (MOMENT)
SCALE: 3/4" = 1'-0"



UNEQUAL DEPTH

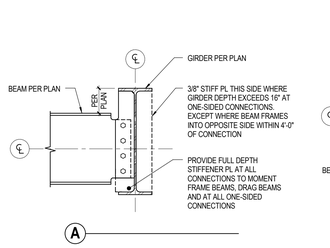


NOTE:
FOR INFORMATION NOT SHOWN SEE UNEQUAL DEPTH CONNECTION.

EQUAL DEPTH

NOTES:
1. SEE BOLTED BEAM CONNECTION SCHEDULE (MOMENT) 21/S4.1 FOR SIZE AND NUMBER OF BOLTS.
2. ——◂ THIS SYMBOL INDICATES MOMENT CONNECTION, SEE PLAN FOR LOCATION.
3. APPLY DETAIL 33/S4.1 WHERE BEAM FLANGE THICKNESSES DIFFER.

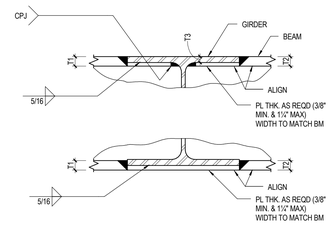
22 S4.1 TYP WELDED MOMENT CONNECTION BEAM TO COLUMN FLANGE
SCALE: 1" = 1'-0"



A B

NOTES:
1. SEE BOLTED BEAM CONNECTION SCHEDULE 11/S4.1 FOR PLATE THICKNESS, WELD SIZE, NUMBER AND SIZE OF BOLTS.
2. FOR INFORMATION NOT SHOWN SEE TYPICAL BOLTED CONNECTION DETAILS.

23 S4.1 TYP WELDED MOMENT CONNECTION BEAM TO COLUMN WEB
SCALE: 1" = 1'-0"

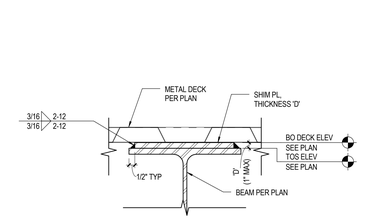


NOTE:
USE DETAIL IF T1 OR T2 IS GREATER THAN T3, OR IF BEAM IS SHALLOWER/DEEPER THAN GIRDER SO THAT BOTTOM FLANGES DO NOT ALIGN.

31 S4.1 TYP MOMENT CONNECTION BEAM TO BEAM
SCALE: 1" = 1'-0"

32 S4.1 TYP BOLTED BEAM CONNECTION W/ TOP FLANGE AT DIFFERENT ELEVATION
SCALE: 1" = 1'-0"

33 S4.1 FLANGE ALIGNMENT PLATES
SCALE: 1 1/2" = 1'-0"



NOTES:
1. AS REQUIRED FOR COMPOSITE OR UNTOPPED METAL DECK CONDITIONS.
2. SEE TYPICAL STEEL AND DECK DETAILS FOR INFORMATION NOT SHOWN.
3. SEE 12/S1.5 FOR CONDITIONS WHERE 'D' > 1".

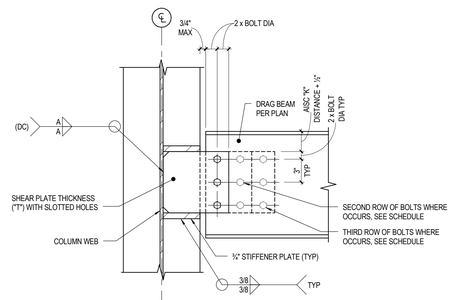
34 S4.1 BEAM SHIM PLATES
SCALE: 1 1/2" = 1'-0"

DRAG STRUT CONNECTION SCHEDULE				
MEMBER	SHEAR PL. THICKNESS ("T") A572 GR. 50	FASTENERS A325-SC PER ROW	NO. OF ROWS	WELD SIZE ("A")
W12x	3/8"	(3)-7/8" Ø	1	1/4"
W14x	1/2"	(3)-1" Ø	1	5/16"
W16x	1/2"	(4)-1" Ø	1	5/16"
W18x	1/2"	(4)-1" Ø	2	5/16"

NOTES:
1. FILLET WELDS INDICATED FOR SHEAR PLATE WELDING SHALL BE REPLACED WITH FULL PENETRATION GROOVE WELDS WHERE SKEWED BEAM CONNECTIONS WITH ANGLES SMALLER THAN 60° (BETWEEN BEAM AND GIRDER) OCCUR, TYP UNO.
2. THE HIGH STRENGTH BOLTS SHOWN IN THE ABOVE SCHEDULE ARE SLIP CRITICAL.
3. SEE DETAIL 42/S4.1, 43/S4.1, AND 44/S4.1 FOR DETAILS.
4. ALL WELDS OF DRAG STRUT CONNECTIONS REQUIRE CHARPY V-NOTCH TOUGHNESS MEETING 20FT-LBS AT 70 DEGREES.

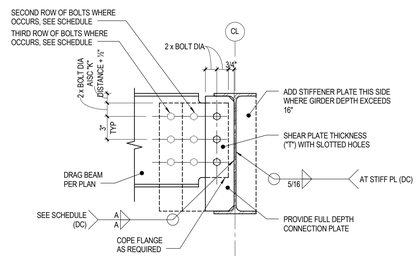
41 S4.1 TYP DRAG STRUT CONNECTION SCHEDULE
SCALE: 3/4" = 1'-0"

42 S4.1 TYP BEAM TO COLUMN WEB DRAG STRUT CONNECTION
SCALE: 1 1/2" = 1'-0"



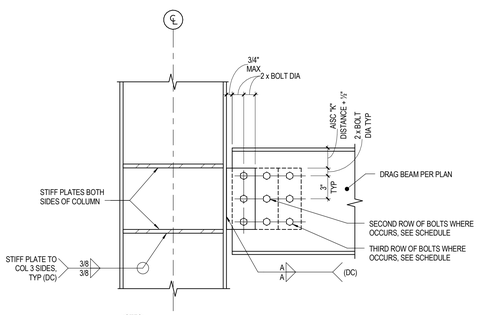
NOTES:
1. SEE DRAG STRUT CONNECTION SCHEDULE 41/S1.3 FOR WELD SIZE, PLATE THICKNESS AND NUMBER OF BOLTS.
2. ——● THIS SYMBOL INDICATES DRAG STRUT CONNECTION, SEE PLAN FOR LOCATION.
3. ALL WELDS OF DRAG STRUT CONNECTIONS REQUIRE CHARPY V-NOTCH TOUGHNESS MEETING 20FT-LBS AT 70 DEGREES.

43 S4.1 TYP BEAM TO BEAM DRAG STRUT CONNECTION
SCALE: 1 1/2" = 1'-0"



NOTES:
1. SEE DRAG STRUT CONNECTION SCHEDULE 41/S1.3 FOR WELD SIZE, PLATE THICKNESS AND NUMBER OF BOLTS.
2. ——● THIS SYMBOL INDICATES DRAG STRUT CONNECTION, SEE PLAN FOR LOCATION.
3. ALL WELDS OF DRAG STRUT CONNECTIONS REQUIRE CHARPY V-NOTCH TOUGHNESS MEETING 20FT-LBS AT 70 DEGREES.

44 S4.1 TYP BEAM TO COLUMN FLANGE DRAG STRUT CONNECTION
SCALE: 1 1/2" = 1'-0"



NOTES:
1. SEE DRAG STRUT CONNECTION SCHEDULE 41/S1.3 FOR WELD SIZE, PLATE THICKNESS AND NUMBER OF BOLTS.
2. ——● THIS SYMBOL INDICATES DRAG STRUT CONNECTION, SEE PLAN FOR LOCATION.
3. ALL WELDS OF DRAG STRUT CONNECTIONS REQUIRE CHARPY V-NOTCH TOUGHNESS MEETING 20FT-LBS AT 70 DEGREES.

95% CONSTRUCTION DOCUMENTS

STEEL TYP DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

S4.1
75-16217-00
08/24/2017
Revisions
BY01 10/05/17

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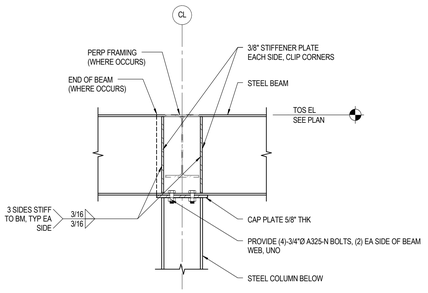
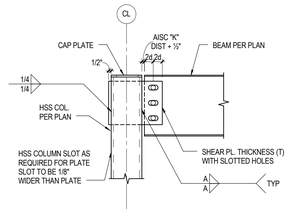
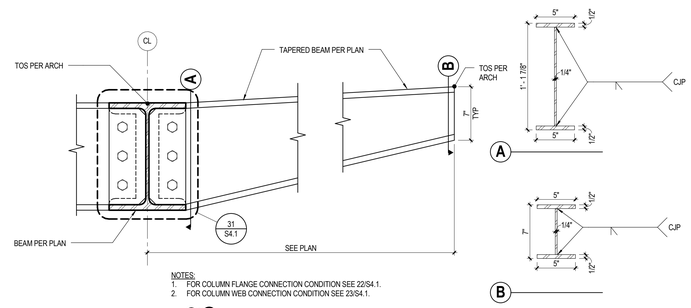


11 S4.2 TYP BEAM OVER COLUMN DETAIL
SCALE: 1" = 1'-0"



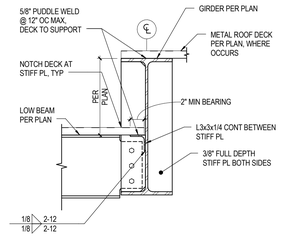
NOTES:
1. SEE BOLTED BEAM CONNECTION SCHEDULE 11/S4.1 FOR PLATE THICKNESS, NUMBER AND SIZE OF BOLTS.
2. FOR DATA NOT NOTED SEE TYPICAL BOLTED DETAILS.
3. SHEAR PLATE THICKNESS ("T") IS GOVERNED BY REQUIREMENT OF DEEPER BEAM ON EITHER SIDE OF POST.

12 S4.2 TYP WF BEAM TO HSS COLUMN
SCALE: 1" = 1'-0"



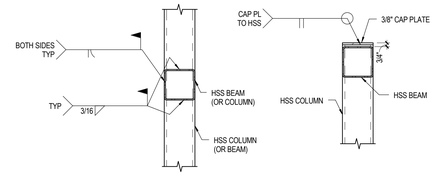
NOTES:
1. FOR COLUMN FLANGE CONNECTION CONDITION SEE 22/S4.1.
2. FOR COLUMN WEB CONNECTION CONDITION SEE 23/S4.1.

13 S4.2 TAPERED ROOF BEAM (RB-1)
SCALE: 1 1/2" = 1'-0"
ADD-2



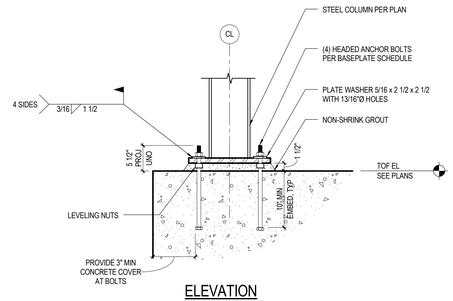
NOTES:
1. SEE 32/S4.1 FOR BOLTED BEAM CONNECTION W/ TOP FLANGE AT DIFFERENT ELEVATION.

14 S4.2 HIGH BEAM TO LOW BEAM CONNECTION
SCALE: 1" = 1'-0"

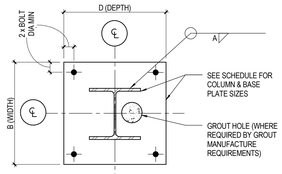


NOTE:
SIM FOR OVERRUN BEAM ATOP COLUMN.

15 S4.2 TYP HSS BEAM TO HSS COLUMN CONNECTION DETAIL
SCALE: 1" = 1'-0"



ELEVATION



PLAN

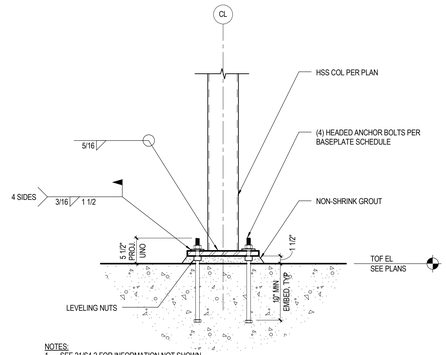
NOTES:
1. SEE 11/S3.2 FOR FOOTING INFORMATION NOT SHOWN INCLUDING REINFORCEMENT.
2. SEE 22/S4.2 FOR BASEPLATE AND ANCHOR BOLT SIZE INFORMATION.
3. INCREASE BOLT EDGE SPACING PARALLEL TO "D" AS REQUIRED TO AVOID INTERFERENCE WITH COLUMN FLANGE.
4. SEE S4.3 FOR MOMENT FRAME COLUMN BASEPLATE INFORMATION.

21 S4.2 TYP COL BASEPLATE DETAIL
SCALE: 1" = 1'-0"

WELDING SCHEDULE	
BASE PL. THICKNESS "T"	WELD "A"
TO 3/4"	1/4"
OVER 3/4" TO 1½"	5/16"
OVER 1½"	1/2"

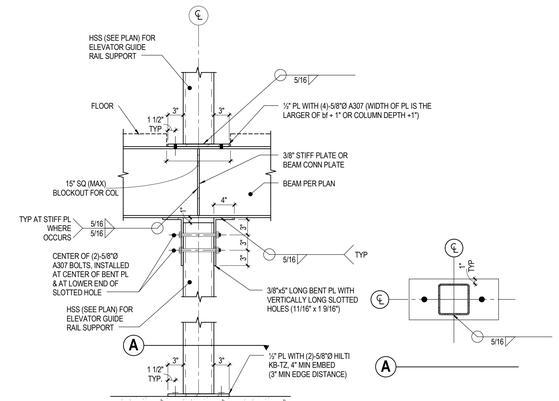
GRAVITY COLUMN BASEPLATE SCHEDULE			
COLUMN SIZE	BASEPLATE SIZE	BASEPLATE THK	ANCHOR BOLT DIA
W10x45	1'-4" SQ	7/8"	1"
HSS4x4x1/4	1'-0" SQ	5/8"	7/8"

22 S4.2 COLUMN BASEPLATE SCHEDULE
SCALE: 3/4" = 1'-0"



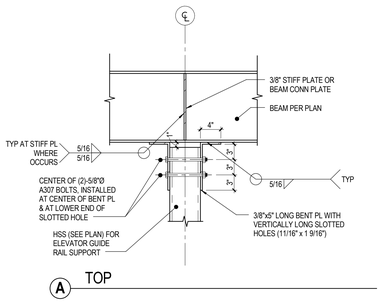
NOTES:
1. SEE 21/S4.2 FOR INFORMATION NOT SHOWN.
2. SEE 11/S3.2 FOR FOOTING INFORMATION NOT SHOWN INCLUDING REINFORCEMENT.
3. SEE 22/S4.2 FOR BASEPLATE AND ANCHOR BOLT SIZE INFORMATION.

23 S4.2 TYP HSS COLUMN BASE PLATE DETAIL
SCALE: 1" = 1'-0"

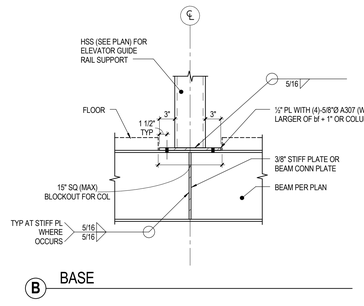


NOTE:
1. HSS COLUMN SHALL BE INSTALLED AFTER CONCRETE FILL REACHES DESIGN STRENGTH. PROVIDE BLOCKOUT AS SHOWN. POUR CONCRETE IN BLOCKOUT AFTER HSS COLUMN IS INSTALLED.

24 S4.2 TYP HSS ELEVATOR GUID RAIL POST DETAILS
SCALE: 1" = 1'-0"

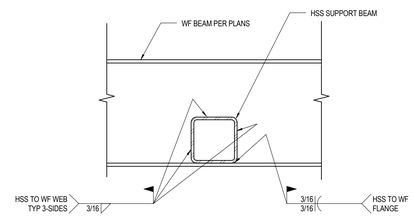


A TOP

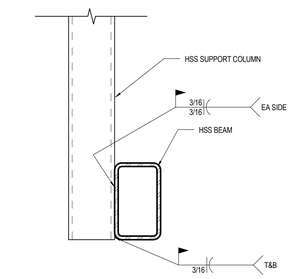


B BASE

31 S4.2 TYP HSS TO WF BEAM CONNECTION
SCALE: 1" = 1'-0"



32 S4.2 HSS TO ROOF WF BM
SCALE: 1 1/2" = 1'-0"



33 S4.2 NANA WALL HSS SUPPORT COL TO BM
SCALE: 1 1/2" = 1'-0"

95% CONSTRUCTION DOCUMENTS

STEEL TYP DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

S4.2
75-16217-00
08/24/2017
Revisions
#1 02/ 1/2017
ADD-2 2/9/18

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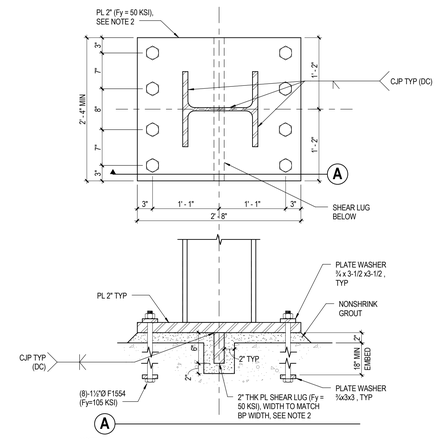
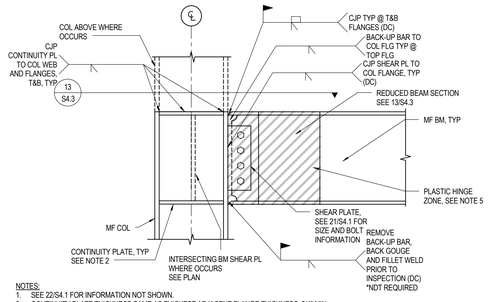


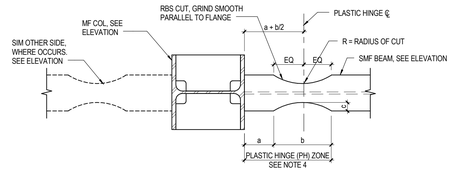
NOTE:
1. "(DC)" INDICATES DEMAND CRITICAL WELD PER AISC 341-10, SECTION A3.4(B) AND AWS D1.8, SECTION 3.2. PROVIDE QUALITY ASSURANCE FOR DEMAND CRITICAL WELDS PER AWS D1.8 AND WELDING PROCEDURE SPECIFICATIONS (WPS). SEE GENERAL STRUCTURAL NOTES FOR ADDITIONALINFORMATION.
2. WELDS INDICATED ARE PART OF SFRS SYSTEM PROVIDE TESTING AND INSPECTION REQUIRED AS PER AISC 341-10

11 / S4.3 MOMENT FRAME BASEPLATE DETAIL
SCALE: 1" = 1'-0"



NOTES:
1. SEE 2/S4.1 FOR INFORMATION NOT SHOWN.
2. CONTINUITY PLATE THICKNESS SAME AS THICKEST ADJACENT FLANGE THICKNESS, 3/4" MIN.
3. FIRST METAL DECK ATTACHMENT TO MF BEAM SHALL OCCUR OUTSIDE OF PLASTIC HINGE ZONE.
4. "(DC)" INDICATES DEMAND CRITICAL WELD PER AISC 341-10, SECTION A3.4(B) AND AWS D1.8, SECTION 3.2. PROVIDE QUALITY ASSURANCE FOR DEMAND CRITICAL WELDS PER AWS D1.8 AND WELDING PROCEDURE SPECIFICATIONS (WPS). SEE GENERAL STRUCTURAL NOTES FOR ADDITIONAL INFORMATION.
5. NO WELDED, SCREWED, BOLTED OR SHOT-IN ATTACHMENT IS PERMITTED IN THE EXPECTED PLASTIC HINGE ZONE (PH ZONE). NO SHEAR STUDS ARE PERMITTED. ZONE IS TO BE PAINTED OR MARKED CLEARLY SO THAT IT IS EASILY RECOGNIZABLE IN FIELD.
6. ALL SMF CONNECTION DETAILS ARE PART OF SFRS SYSTEM. ALL AISC 314-10 REQUIREMENTS FOR WELDING, TESTING AND INSPECTION ARE TO BE SATISFIED.

12 / S4.3 MOMENT FRAME BEAM TO COLUMN CONNECTION DETAIL
SCALE: 1" = 1'-0"

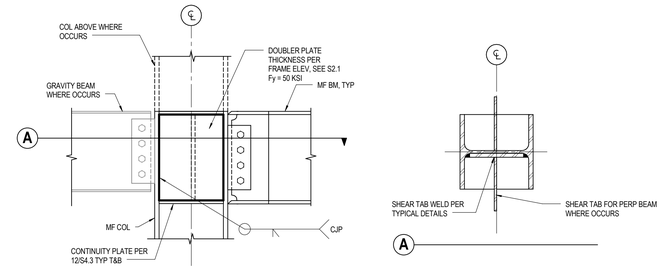


NOTES:
1. FOR DIMENSIONS a, b & c SEE RBS FLANGE CUT SCHEDULE.
2. RBS CUT APPLIES ONLY TO BEAMS IN MOMENT FRAMES.
3. EDGES OF CUT FLANGES SHALL BE GROUND TO HAVE A SURFACE ROUGHNESS VALUE NOT IN EXCESS OF 500 AS DEFINED IN ANSI/ASME B46.1. GRIND MARKS SHALL BE PARALLEL TO GIRDER AXIS.
4. NO WELDED, SCREWED, BOLTED OR SHOT-IN ATTACHMENT IS PERMITTED IN THE EXPECTED PLASTIC HINGE (PH) ZONE. NO SHEAR STUDS ARE PERMITTED. ZONE IS TO BE PAINTED OR MARKED CLEARLY SO THAT IT IS EASILY RECOGNIZABLE IN FIELD.
5. SEE DETAIL 12/S4.3 FOR INFORMATION NOT SHOWN.
6. ALL SMF CONNECTION DETAILS ARE PART OF SFRS SYSTEM. ALL AISC 314-10 REQUIREMENTS FOR WELDING, TESTING AND INSPECTION ARE TO BE SATISFIED.

RBS FLANGE CUT SCHEDULE

MEMBER SIZE	a	b	c	R	PLASTIC HINGE ZONE LENGTH
W14x53	5"	10.5"	2"	7.89"	15.5"
W14x68	6.25"	10.5"	2"	7.89"	16.75"
W16x40	4.5"	12"	2"	10"	16.5"
W16x77	6.5"	12.5"	2"	10.77"	19"
W18x50	5"	14"	1.75"	14.88"	19"
W18x97	7"	14"	2.25"	12.01"	21"
W18x119	7"	14.25"	2.25"	12.41"	21.25"

13 / S4.3 MOMENT FRAME REDUCED BEAM SECTION DETAIL
SCALE: 1" = 1'-0"



NOTES:
1. PROVIDE CJP GROOVE WELDED JOINT BETWEEN DOUBLER PLATE AND COLUMN WEB AND CONTINUITY PLATE.
2. SEE FRAME ELEVATIONS FOR DOUBLER PLATE SIZES AND LOCATIONS.
3. SEE DETAIL 12/S4.3 FOR INFORMATION NOT SHOWN.

21 / S4.3 MOMENT FRAME DOUBLER PLATE DETAIL
SCALE: 1" = 1'-0"

95% CONSTRUCTION DOCUMENTS

STEEL MOMENT FRAME DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

S4.3
75-16217-00
08/24/2017
Revisions
8/901 10/09/17

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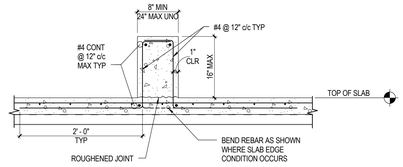
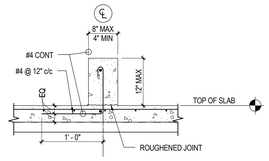
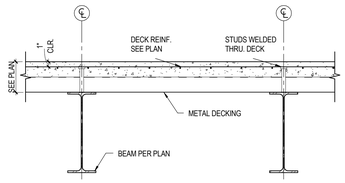


A DETAIL



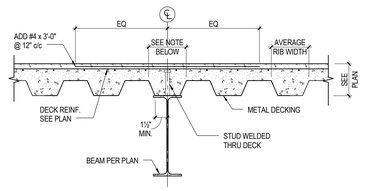
B DETAIL

NOTES:
1. SEE ARCH DRAWINGS FOR LOCATION AND DIMENSIONS OF CONCRETE CURBS.



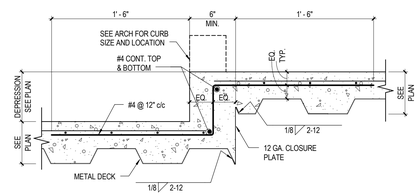
DECKING PERPENDICULAR TO BEAM

NOTE:
REFER TO ARCH DRAWINGS FOR TYPICAL CEILING SUPPORT SYSTEM.



DECKING PARALLEL TO BEAM

NOTE:
DECK RIB VALLEY TO BE CENTERED OVER BEAM WHERE POSSIBLE OR DECK MUST BE SPLIT FULL LENGTH OF BEAM TO PROVIDE CONCRETE HAUNCH WITH MIN. WIDTH EQUAL TO AVERAGE RIB WIDTH. ENLARGE HAUNCH TO ACCOMMODATE DOUBLE STUDS IF REQUIRED.



11 TYP CONCRETE CURB ON METAL DECK

S5.1 SCALE: 1" = 1'-0"

12 TYPICAL CONCRETE SLAB OVER METAL DECK DETAIL

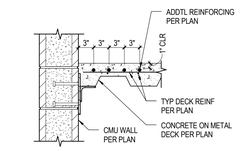
S5.1 SCALE: 1" = 1'-0"

13 TYPICAL CONCRETE SLAB OVER METAL DECK DETAIL

S5.1 SCALE: 1" = 1'-0"

14 SLAB DEPRESSION PARALLEL WITH DECK SPAN

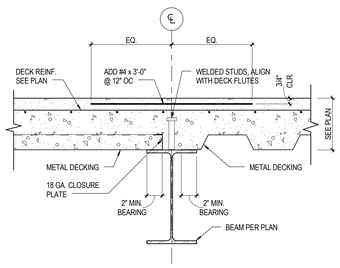
S5.1 SCALE: 1 1/2" = 1'-0"



NOTES:
1. SPLICE BARS WITH CLASS B LAP SPLICE PER 12/S3.1 AS REQUIRED.

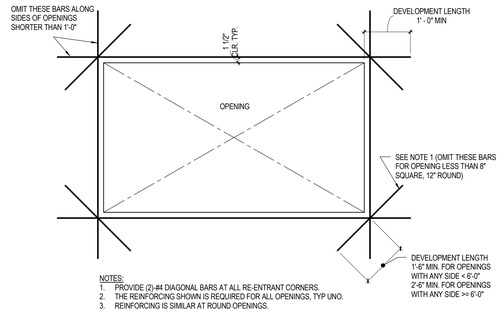
15 DECK COLLECTOR REINFORCING

S5.1 SCALE: 1" = 1'-0"



21 TYPICAL DECK TRANSITION

S5.1 SCALE: 1 1/2" = 1'-0"

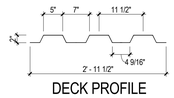


NOTES:
1. PROVIDE (2)-#4 DIAGONAL BARS AT ALL RE-ENTRANT CORNERS.
2. THE REINFORCING SHOWN IS REQUIRED FOR ALL OPENINGS, TYP UNO.
3. REINFORCING IS SIMILAR AT ROUND OPENINGS.

22 TYPICAL SLAB REINF AT METAL DECK OPENINGS

S5.1 SCALE: 3/4" = 1'-0"

PLW2 FORMLOK DECK PROPERTIES (ICC REPORT #1735P)			
GA	I [in⁴]	S [in³]	S [in³]
20	.423	.361	.370



DECK PROFILE

23 W2 COMPOSITE FLOOR DECK PROPERTIES

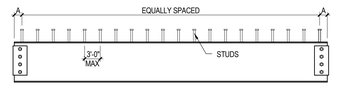
S5.1 SCALE: 3/4" = 1'-0"

A. BEAMS:

1. THE NUMBER SHOWN THUS (#) FOLLOWING THE BEAM SIZE INDICATES THE NUMBER OF HEADED STUDS TO BE PLACED ON THE BEAM. THE MAXIMUM STUD SPACING SHALL BE 3'-0". DECK VALLEYS WITHOUT STUDS SHALL BE WELDED.

2. STUD PLACEMENT SHALL BE AS FOLLOWS:
   A. NUMBER OF STUDS IS LESS THAN THE NUMBER OF DECK VALLEYS.
      UNIFORMLY SPACE STUDS SYMMETRICALLY WITH THE BEAM CENTERLINE.
   B. NUMBER OF STUDS IS GREATER THAN THE NUMBER OF DECK VALLEYS.
      PLACE ONE STUD IN EACH VALLEY STARTING AT THE ENDS OF THE BEAM. WHEN TWO STUDS ARE REQUIRED, PLACE STUDS 1 1/2" EACH SIDE OF THE BEAM WEB.

NOTE: SPACE 'A' TO COORDINATE WITH DECK LAYOUT.

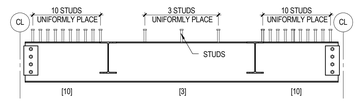


EXAMPLE LAYOUT

B. GIRDERS:

1. THE SERIES OF NUMBERS SHOWN THUS [#-#-#] FOLLOWING THE GIRDER SIZE WHEN ADDED TOGETHER, REPRESENT THE TOTAL NUMBER OF STUDS TO BE PLACED ON THE GIRDER. FOR EXAMPLE, [10]-[3]-[10] REPRESENTS THE TOTAL OF 23 STUDS TO BE LOCATED ON THE GIRDER. THE FIRST AND LAST NUMBERS REPRESENTS THE NUMBER OF STUDS TO BE PLACED BETWEEN THE END OF THE GIRDER AND THE FIRST (OR LAST) INTERSECTING BEAM. THE MIDDLE NUMBER REPRESENTS THE NUMBER OR STUDS TO BE LOCATED BETWEEN THE TWO INTERSECTING BEAMS.

2. PLACE STUDS UNIFORMLY ALONG THE BEAMS OR PORTION OF BEAM INDICATED. CENTER THE STUDS OVER THE WEB AND PROVIDE A MAXIMUM SPACING OF 3'-0" AND A MINIMUM SPACING OF 4 1/2". IF THE REQUIRED NUMBER OF STUDS EXCEEDS WHAT CAN BE PLACED AT 4 1/2", PLACE A SECOND ROW OF STUDS SPACED AT 4 1/2" CENTERS STARTING AT THE END OF THE BEAM UNTIL THE REQUIRED NUMBER OF STUDS IS REACHED. WHEN TWO ROWS OF STUDS ARE REQUIRED, PLACE STUDS 1 1/2" EACH SIDE OF THE BEAM CENTER LINE.

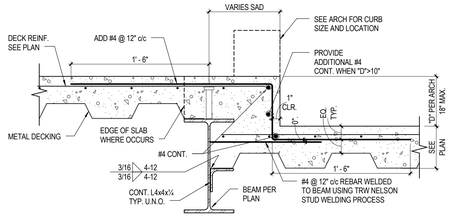


EXAMPLE LAYOUT

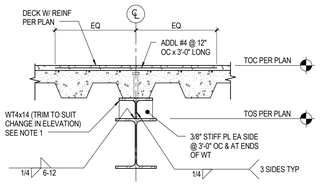
EXAMPLE: [10]-[3]-[10]

24 TYP STUD PLACEMENT DETAIL

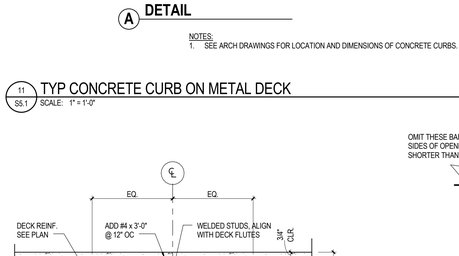
S5.1 SCALE: 1/2" = 1'-0"



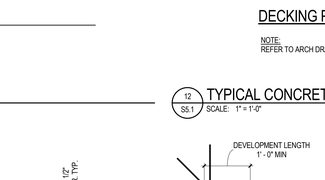
DECK FLUTES PARALLEL WITH BEAM



DECK FLUTES PARALLEL WITH BEAM

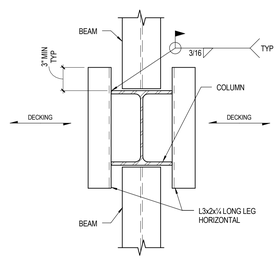


DECK FLUTES PERPENDICULAR TO BEAM

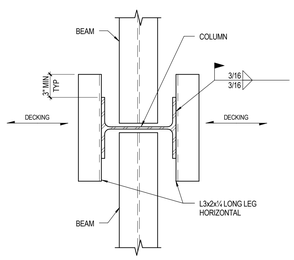


DECK FLUTES PERPENDICULAR TO BEAM

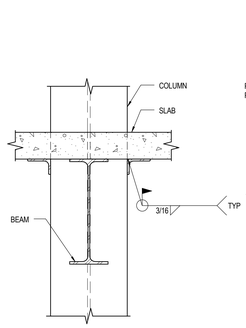
NOTE:
1. USE WT8x18 (TRIM TO SUIT CHANGE IN ELEVATION) INSTEAD OF WT4x14 WHERE DEPRESSION BEYOND EXCEEDS 4" UNO



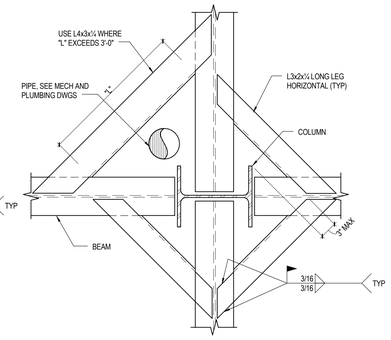
PLAN



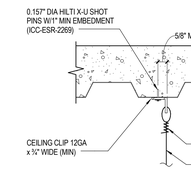
PLAN



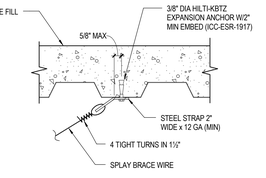
ELEVATION



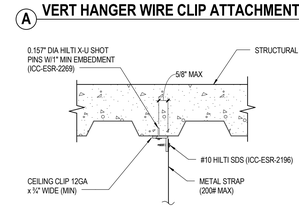
PLAN



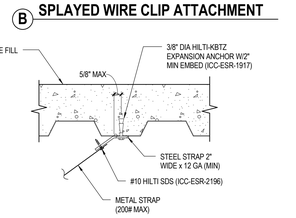
A VERT HANGER WIRE CLIP ATTACHMENT



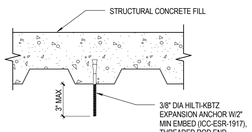
B SPLAYED WIRE CLIP ATTACHMENT



C VERT METAL STRAP ATTACHMENT



D SPLAYED METAL STRAP ATTACHMENT



E THREADED ROD ATTACHMENT

41 SLAB DEPRESSION DETAIL

S5.1 SCALE: 1 1/2" = 1'-0"

42 WT TO TOP OF FLOOR BEAM DETAIL

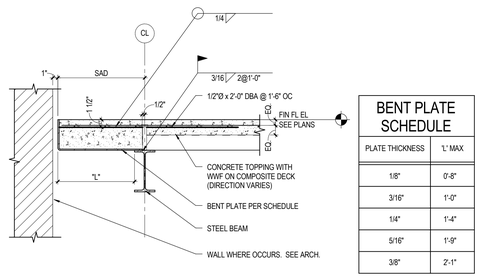
S5.1 SCALE: 1" = 1'-0"

43 TYPICAL DETAIL FOR SUPPORT OF METAL DECK AT COLUMNS

S5.1 SCALE: 1 1/2" = 1'-0"

44 CONNECTIONS TO COMPOSITE DECK

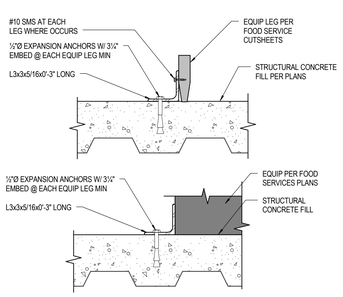
S5.1 SCALE: 1 1/2" = 1'-0"



BENT PLATE SCHEDULE	
PLATE THICKNESS	'L' MAX
1/8"	0'-8"
3/16"	1'-0"
1/4"	1'-4"
5/16"	1'-9"
3/8"	2'-1"

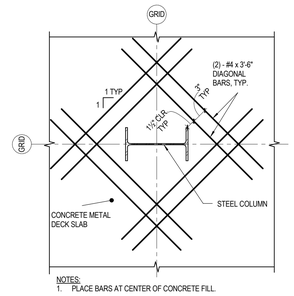
51 TYP SLAB EDGE DETAIL

S5.1 SCALE: 1" = 1'-0"



52 EQUIP ANCHORAGE AT CONC FILL METAL DECK

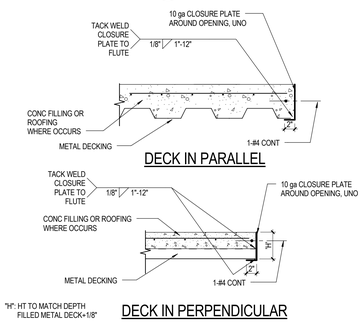
S5.1 SCALE: 1 1/2" = 1'-0"



NOTES:
1. PLACE BARS AT CENTER OF CONCRETE FILL.

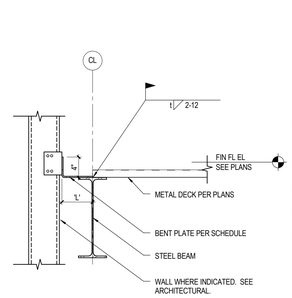
53 TYP METAL DECK SLAB REINFORCING AT STEEL COLUMN

S5.1 SCALE: 1" = 1'-0"



54 TYP METAL DECK EDGE

S5.1 SCALE: 1" = 1'-0"



BENT PLATE SCHEDULE		
PLATE THICKNESS	'L' MAX	t
1/8"	1'-0"	1/8"
1/4"	1'-9"	3/16"
3/8"	2'-4"	3/16"

55 TYP DECK EDGE DETAIL

S5.1 SCALE: 1" = 1'-0"

95% CONSTRUCTION DOCUMENTS

METAL DECK TYP DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

S5.1
75-16217-00
08/24/2017
Revisions
BY01 10/30/17

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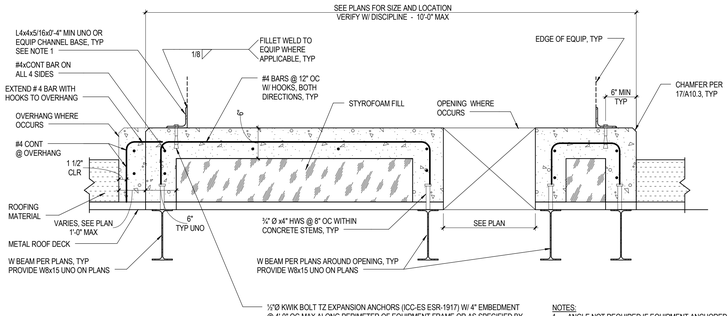
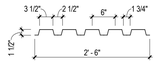


NOTES:
1. ANGLE NOT REQUIRED IF EQUIPMENT ANCHORED DIRECTLY TO BASE.
2. WHERE ANCHOR LOCATIONS SPECIFIED BY EQUIP MFR, PROVIDE 1/2" DIA HILTI KWIK BOLT TZ EXPANSION ANCHORS (ICC-ES ESR 1917) W/ 4" EMBEDMENT AT SPECIFIED LOCATIONS.

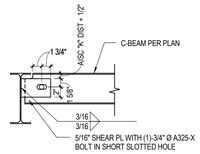
11 S5.2 EQUIPMENT PAD ON STANDARD ROOF
SCALE: 1" = 1'-0"

PLB36 DECK PROPERTIES (ICC REPORT #1735P)			
GA	I [in⁴]	S [in³]	S [in³]
18	.302	.322	.335

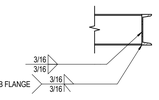


DECK PROFILE

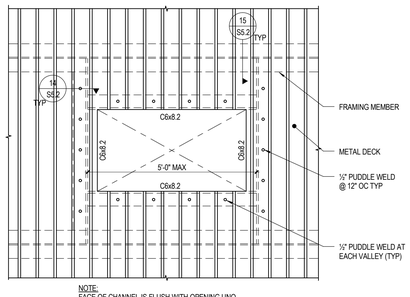
12 S5.2 PLB36 ROOF DECK PROPERTIES
SCALE: 3/4" = 1'-0"



15 S5.2 DECK OPENING CHANNEL TO WF BM
SCALE: 1" = 1'-0"

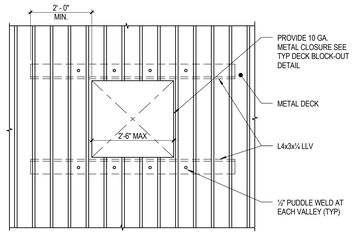


14 S5.2 DECK OPENING TRIM CHANNEL
SCALE: 1" = 1'-0"



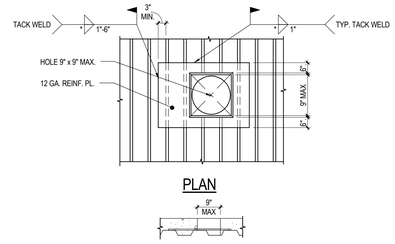
NOTE:
FACE OF CHANNEL IS FLUSH WITH OPENING UNO

A OPENINGS WITH ANY SIDE GREATER THAN 30" AND LESS THAN OR EQUAL TO 5'-0"



NOTE:
1. TRANSVERSE AND LONGITUDINAL SPACING OF SIMILAR DECK OPENINGS SHALL NOT BE LESS THAN 6'-0".
2. METAL DECK AT OPENING SHALL NOT BE CUT UNTIL AFTER CONCRETE HAS BEEN POURED AND REACHED 75% OF DESIGN STRENGTH.

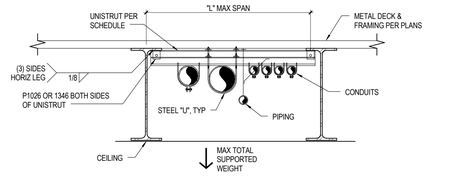
B OPENINGS WITH ANY SIDE GREATER THAN 9" AND LESS THAN OR EQUAL TO 30"



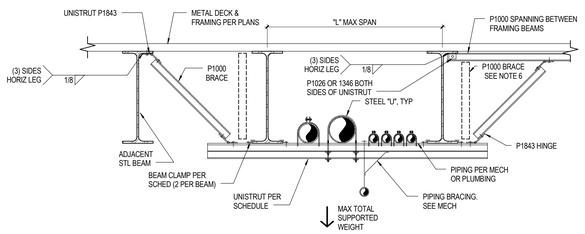
NOTE:
FOR HOLES LESS THAN 4"x4" NO REINF. PLATE IS NEEDED.
* PROVIDE MAX WELD THICKNESS PER AWS D1.1 & DECK THICKNESS.

C OPENINGS EQUAL OR LESS THAN 9" x 9"

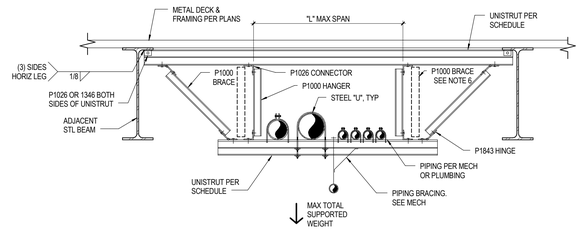
21 S5.2 TYPICAL METAL DECK REINF AT OPENINGS
SCALE: 1/2" = 1'-0"



WHERE CEILING IS DIRECTLY UNDER BOTTOM FLANGE OF BEAMS



WHERE SPACE IS AVAILABLE BETWEEN BOTTOM FLANGE AND CEILING

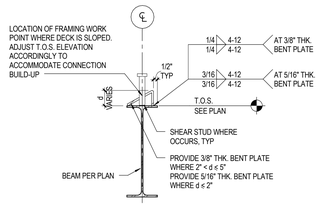


WHERE TRAPEZE SPANS SMALL PORTION OF BAY

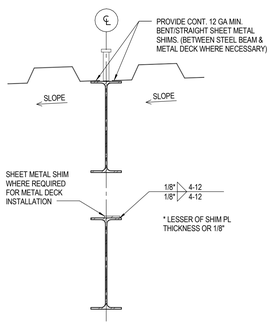
TRAPEZE SUPPORT SCHEDULE				
TRAPEZE SUPPORT MEMBER		MAX SPAN "L"	MAX TOTAL SUPPORTED WEIGHT (LBS)	BEAM CLAMP
UNISTRUT P-1000 1 5/8 x 1 5/8 x 12GA		6'-6"	250	P1379S
		8'-0"	190	
		10'-6"	160	
UNISTRUT P-5500 1 5/8 x 2 7/16 x 12GA		6'-6"	700	P2786
		8'-0"	650	
		10'-6"	560	
UNISTRUT P-1001 1 5/8 x 3 1/4 x 12GA		6'-6"	1000	P2786
		8'-0"	850	
		10'-6"	220	

NOTES
1. THE MAXIMUM TOTAL SUPPORTED WEIGHT SCHEDULED IS BASED ON A UNIFORM DISTRIBUTION OF WEIGHT ACROSS THE TRAPEZE WIDTH. REDUCE THE MAXIMUM ALLOWABLE TOTAL SUPPORTED WEIGHT BY 50% WHEN THE WEIGHT CENTROID IS OFFSET GREATER THAN "L/8" FROM THE MIDSPAN OF THE TRAPEZE.
2. TRAPEZE HANGER SPACING SHALL NOT EXCEED THE SPACINGS FOR THE MAXIMUM SUPPORTED LOAD & ALLOWABLE SPAN OF THE PIPES.
3. PIPING/CONDUIT BRACING FORCE SHALL NOT EXCEED TWICE MAXIMUM ALLOWED SUPPORT LOAD IN SCHEDULE.
4. SEE SMACNA GUIDELES FOR HANGER ROD AND BRACING INFORMATION.
5. OSPHD OPA-0120 DETAIL.
6. PROVIDE (2) P-1000 BRACE IN LONGITUDINAL DIRECTION OF PIPING AT 10'-0" OC AND AT ENDS OF HORIZONTAL RUNS. FASTEN SIM OTHER BRACES.

31 S5.2 DUCT/PIPE/CONDUIT HANGER ATTACHMENT AT UNTOPPED METAL DECK
SCALE: 1 1/2" = 1'-0"



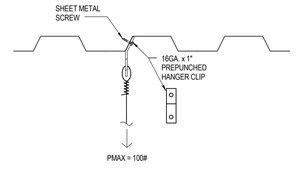
SECTION A



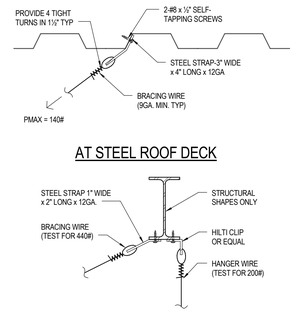
SECTION B

NOTES:
1. FOR SLOPES SEE PLAN.
2. ALL STEEL BEAM WEBS ARE ORIENTED TO ALIGN WITH THE VERTICAL PLANE, AND ARE NOT ROTATED, UNO.
3. METAL DECK CONTRACTOR SHALL CUT DECKING AT STEEL BEAMS TO ALLOW NECESSARY BENDING OF METAL DECK TO ACHIEVE BEARING/CONNECTION TO STEEL BEAM. SEE SECTION A.
4. WHERE SECTION B DETAIL IS SELECTED TO BE USED BY THE CONTRACTORS, THE FOLLOWING SHALL BE DONE:
   A. THE STEEL CONTRACTOR SHALL ADJUST TOP OF STEEL ELEVATIONS AT BEAMS TO ALLOW THE INSTALLATION OF BENT PLATES.
   B. THE STEEL CONTRACTOR SHALL COORDINATE THIS WORK WITH THE METAL DECK CONTRACTOR.
5. WIDE FLANGE BEAM CONDITIONS ARE SHOWN. WHEN HSS BEAMS OCCUR, DETAILS ARE SIMILAR.

32 S5.2 STEEL BEAM DETAILS AT SLOPING METAL DECK
SCALE: 1 1/2" = 1'-0"

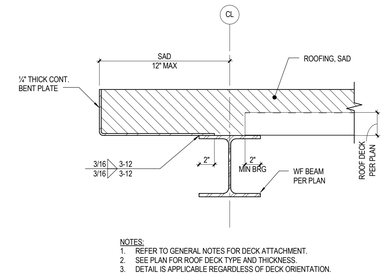


AT STEEL ROOF DECK



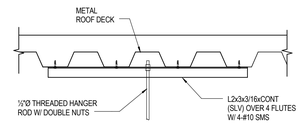
AT STEEL BEAMS

33 S5.2 HANGER WIRE DETAIL
SCALE: 1 1/2" = 1'-0"



NOTES:
1. REFER TO GENERAL NOTES FOR DECK ATTACHMENT.
2. SEE PLAN FOR ROOF DECK TYPE AND THICKNESS.
3. DETAIL IS APPLICABLE REGARDLESS OF DECK ORIENTATION.

34 S5.2 TYPICAL SECTION AT ROOF DECK EDGES
SCALE: 1 1/2" = 1'-0"



METAL DECK WITHOUT CONCRETE FILL

ROOF DECK ASSEMBLY:
THE FOLLOWING HANGING LOADS MAY BE HUNG FROM THE METAL DECKING PER DETAILS ABOVE:
1. PIPES THAT ARE LESS THAN 8" DIA.
2. SUSPENDED UNITS WEIGHING LESS THAN 400 LBS.
3. HANGER SUPPORTING LESS THAN 100 LBS PER HANGER
4. ANY 8'-0"x8'-0" AREA SUPPORTING LESS THAN 600 LBS OF SUSPENDED PIPIES, EQUIPMENT, ETC.

35 S5.2 EQUIPMENT HANGER DETAIL
SCALE: 1" = 1'-0"

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METAL ROOF DECK DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

S5.2
75-16217-00
08/24/2017
Revisions

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MASONRY REINFORCING SPLICE TABLE					
BAR SIZE	8" BLOCK		12" BLOCK		REMARKS
	BAR AT CL	BAR AT EDGE	BAR AT CL	BAR AT EDGE	
#4	1'-9"	2'-2"	1'-9"	2'-2"	
#5	2'-2"	3'-4"	2'-2"	3'-4"	
#6	3'-4"	6'-2"	3'-4"	6'-2"	
#7	4'-5"	--	3'-10"	8'-5"	

SPLICE LENGTHS PER ACI 530.05 / ASCE 7-05 / TMS 402-05, USING STRENGTH DESIGN AND ALLOWABLE STRESS DESIGN (ASD).

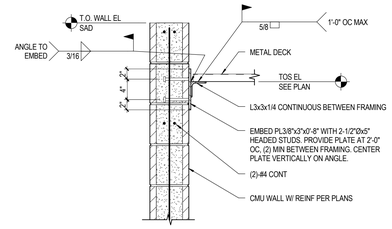
MINIMUM WALL REINFORCING			
WALL THICKNESS (NOMINAL)	VERT REINF	HORIZ REINF	VERT BARS @ END OF WALL , CORNER, OR INT
12"	#5 @ 8" OC EF	#4 @ 16" OC EF	(4)-#6 CONT
8"	#5 @ 8" OC	#4 @ 16" OC	(2)-#5 CONT

NOTES:
1. PROVIDE MINIMUM (2)-#5 AT EACH SIDE AND TOP OF ALL OPENINGS, UNO PER 31/S6.1.
2. WALL HORIZONTAL REINFORCING SHALL BE PLACED IN THE OUTER LAYERS AND VERTICAL REINFORCING IN THE INNER LAYER, UNO. VERTICAL REINFORCING SHALL BE PLACED IN THE CENTER OF THE WALL FOR 8" CMU WALL.

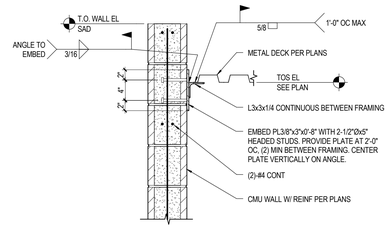
NOT USED

11 S6.1 CMU REINFORCING SPLICE TABLE
SCALE: 3/4" = 1'-0"

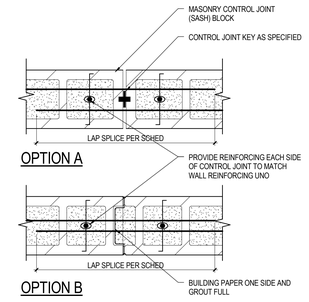
12 S6.1 MINIMUM CMU WALL REINF
SCALE: 3/4" = 1'-0"



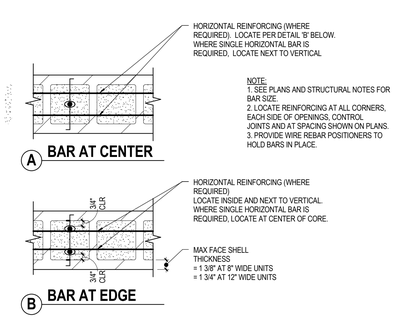
14 S6.1 DECK TO WALL CONNECTION - PERPENDICULAR
SCALE: 1" = 1'-0"



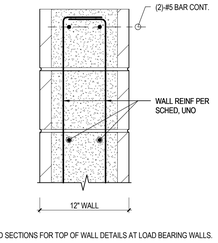
15 S6.1 DECK TO WALL CONNECTION - PARALLEL
SCALE: 1" = 1'-0"



21 S6.1 TYP MASONRY CONTROL JOINT
SCALE: 1 1/2" = 1'-0"

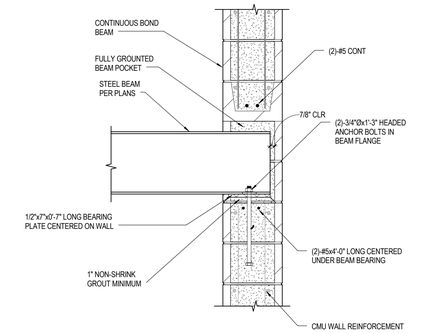


22 S6.1 TYP MASONRY WALL REINFORCING PLACEMENT
SCALE: 1 1/2" = 1'-0"

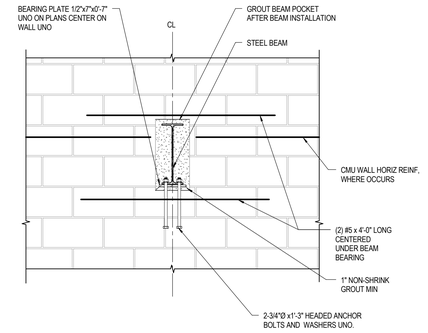


NOTE:
SEE PLANS AND SECTIONS FOR TOP OF WALL DETAILS AT LOAD BEARING WALLS.

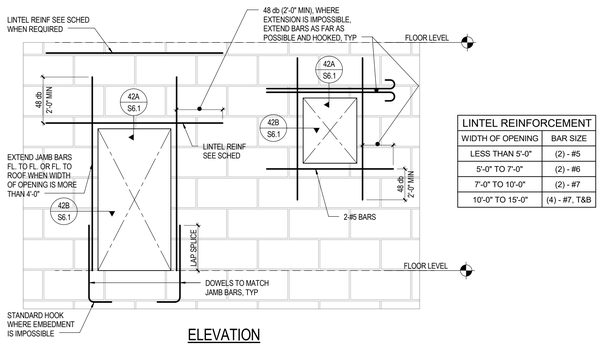
23 S6.1 TYP DETAIL AT TOP OF MASONRY WALL
SCALE: 1 1/2" = 1'-0"



24 S6.1 STEEL BEAM TO EXTERIOR CMU WALL
SCALE: 1" = 1'-0"

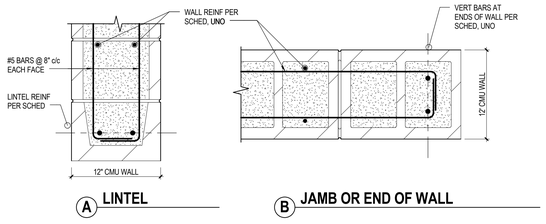


25 S6.1 TYP BEARING STEEL ON MASONRY
SCALE: 3/4" = 1'-0"

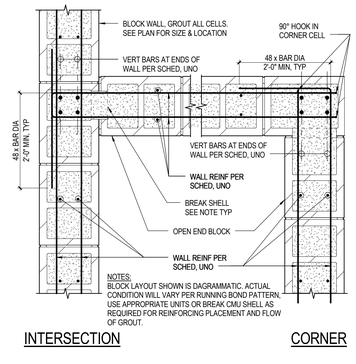


LINTEL REINFORCEMENT	
WIDTH OF OPENING	BAR SIZE
LESS THAN 5'-0"	(2) - #5
5'-0" TO 7'-0"	(2) - #6
7'-0" TO 10'-0"	(2) - #7
10'-0" TO 15'-0"	(4) - #7, T&B

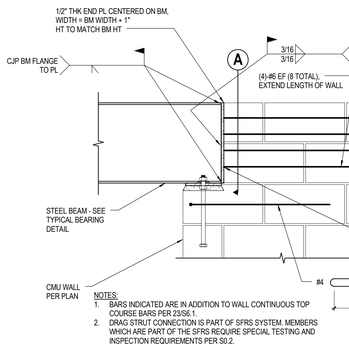
31 S6.1 MASONRY WALL - MIN REINF AT OPENINGS
SCALE: 3/4" = 1'-0"



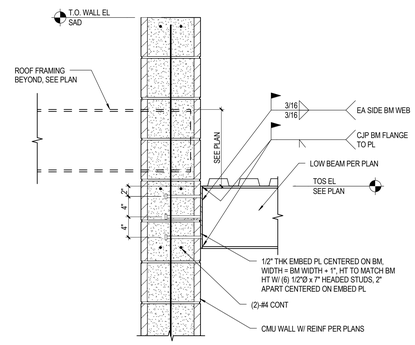
32 S6.1 SECTIONS AT LINTEL, DOOR JAMB, AND END OF WALL
SCALE: 1 1/2" = 1'-0"



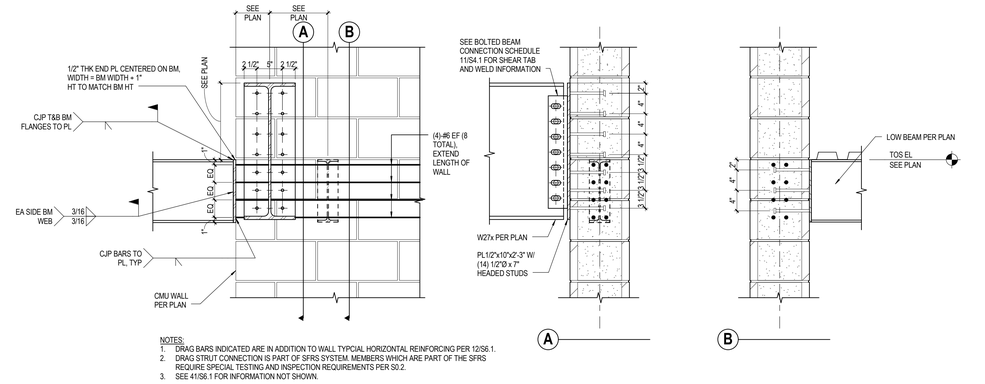
34 S6.1 TYPICAL MIN REINF AT 12" CMU WALL INTERSECTION
SCALE: 1" = 1'-0"



41 S6.1 DRAG STRUT CONNECTION AT WALL END
SCALE: 1" = 1'-0"



42 S6.1 ENTRY ROOF CANTILEVER BEAM CONNECTION
SCALE: 1" = 1'-0"



NOTES:
1. DRAG BARS INDICATED ARE IN ADDITION TO WALL TYPCIAL HORIZONTAL REINFORCING PER 12/S6.1.
2. DRAG STRUT CONNECTION IS PART OF SFRS SYSTEM. MEMBERS WHICH ARE PART OF THE SFRS REQUIRE SPECIAL TESTING AND INSPECTION REQUIREMENTS PER S0.2.
3. SEE 41/S6.1 FOR INFORMATION NOT SHOWN.

43 S6.1 DRAG STRUT CONNECTION AT ALL END - ENTRY ROOF
SCALE: 1" = 1'-0"

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CMU DETAILS
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75-16217-00
08/24/2017
Revisions
#01 10/05/17
#02 11/14/17

DLR Group
Architecture Engineering Planning Interiors

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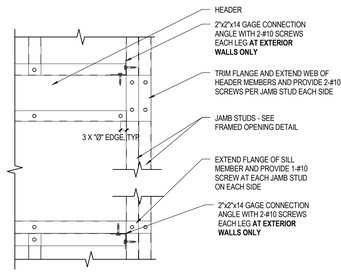
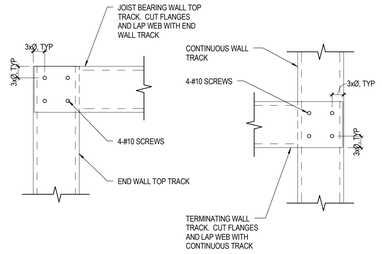
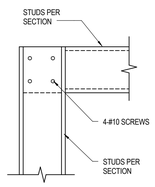


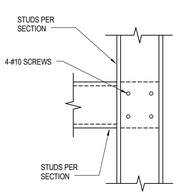
11 S7.1 HEADER, SILL, AND JAMB ELEVATION
SCALE: 1 1/2" = 1'-0"

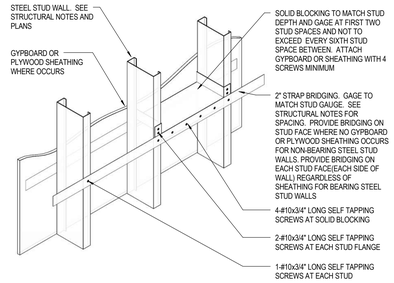


12 S7.1 TYP TOP TRACK SPLICES (PLAN VIEW)
SCALE: 1 1/2" = 1'-0"



13 S7.1 TYP STUD CONNECTION
SCALE: 1 1/2" = 1'-0"

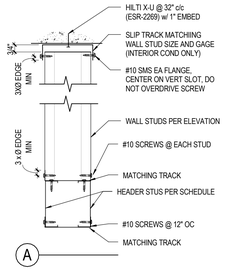


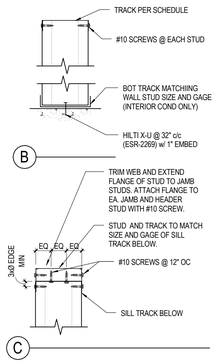


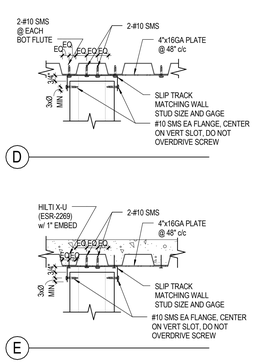
14 S7.1 TYP STUD BRIDGING
SCALE: 1" = 1'-0"

INTERIOR COLD FORMED METAL FRAMED OPNG SCHED		
OPENING WIDTH 'W'	HEADER	SILL
0'-6"≤8'	2-6"x1 5/8x20GA	20GA TRACK - SEE B
8'-6"≤12'	2-8"x1 5/8x20GA	20GA TRACK - SEE B
14'-6"≤18'	2-10"x1 5/8x18GA	16GA TRACK - SEE B

EXTERIOR COLD FORMED METAL FRAMED OPNG SCHED		
OPENING WIDTH 'W'	HEADER	SILL
0'-6"≤8'	2-6"x1 5/8x16GA	16GA TRACK - SEE B
8'-6"≤14'	2-8"x1 5/8x16GA	16GA TRACK - SEE C
14'-6"≤18'	2-10"x1 5/8x16GA	16GA TRACK - SEE C







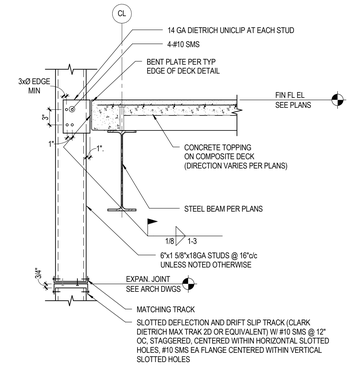
21 S7.1 COLD-FORMED FRAMING DETAILS
SCALE: 1 1/2" = 1'-0"

STEEL STUD PROPERTIES

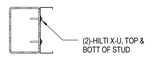
STEEL STUD PROPERTIES (I.C.B.O. #ER-4943P)				STUD BRIDGING REQUIREMENTS	
MARK	GA.	Ix [in⁴]	Sx [in³]	SIZE	MAX. O.C. SPACING
800S200-43 (33KSI)	18	5.302	1.293	C 1½ x 16 GA. MIN.	4'-0"
600S200-43 (33KSI)	18	2.316	0.767		4'-0"
400S200-43 (33KSI)	18	0.892	0.443		4'-0"
600S163-33 (33KSI)	20	1.793	0.577		4'-0"
400S163-33 (33KSI)	20	0.692	0.332		4'-0"
250S162-43 (33KSI)	18	0.299	0.239		4'-0"
250S162-68 (50KSI)	14	0.450	0.360		4'-0"
362S137-54 (33KSI)	16	0.753	0.416		4'-0"
600S162-54 (33KSI)	16	2.853	0.951		4'-0"
800T200-43 (33KSI)	18	3.825	0.741		
600T200-43 (33KSI)	18	1.868	0.534		
400T200-43 (33KSI)	18	0.719	0.293		
600T150-33 (33KSI)	20	1.385	0.335		
400T150-33 (33KSI)	20	0.519	0.208		
362T125-54 (33KSI)	16	0.725	0.379		
600T125-54 (33KSI)	16	2.349	0.757		

NOTES:
1. STEEL STUD BRIDGING IS REQUIRED WHEN STUD FLANGE IS NOT CONTINUOUSLY BRACED BY SOLID SHEATHING.

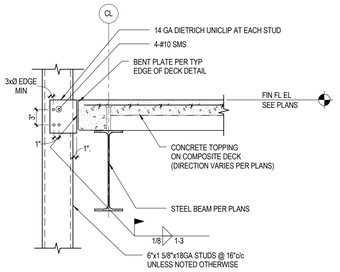
22 S7.1 STEEL STUD PROPERTIES
SCALE: 3/4" = 1'-0"



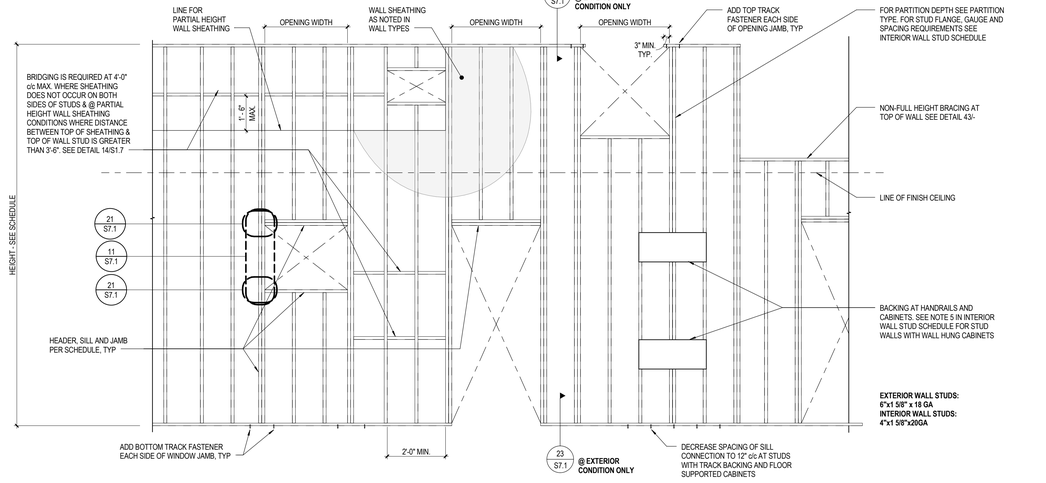
23 S7.1 TYP EXTERIOR EDGE DETAIL TYPE
SCALE: 1" = 1'-0"



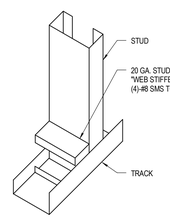
24 S7.1 LIGHT GAGE STUD TO HSS DETAIL
SCALE: 1 1/2" = 1'-0"



25 S7.1 TYP EXTERIOR EDGE DETAIL TYPE 4
SCALE: 1" = 1'-0"



31 S7.1 TYPICAL OPENING DETAIL IN COLD-FORMED FRAMING DETAIL
SCALE: 3/8" = 1'-0"



METAL STUD WEB STIFFENER

NOTES:
1. ALL STUD SECTIONS HAVE A STIFFENER LIP.
2. TRACKS SHALL HAVE A 1¼" FLANGE MINIMUM EXCEPT AS NOTED OTHERWISE FOR NESTED VERTICAL SLIP TRACK CONNECTIONS.
3. BACKING CAPACITY INDICATES STUD IS DESIGNED FOR HALF A 200 LB. GRAB BAR LOAD. WALLS THAT SUPPORT CABINETS OR OTHER FIXTURES THAT REQUIRE BACKING SHALL BE SUPPORTED BY STUDS THAT ARE INDICATED TO HAVE BACKING CAPACITY.
4. WALLS ARE DESIGNED FOR DEFLECTIONS LESS THAN L/360.
5. PROVIDE 16 GA. STUDS AT INTERIOR WALLS WITH WALL HUNG CABINETS.

WALL OPENING FRAMING SCHEDULE

MAX OPNG WIDTH	MAX WALL HEIGHT	JAMB			HEADER			SILL		
		DETAIL NO.	STUD SIZE / TRACK SIZE	SECTION	DETAIL NO.	STUD SIZE / TRACK SIZE	SECTION	DETAIL NO.	STUD SIZE / TRACK SIZE	SECTION
3'-6"	15'-0"		362S162-33			NONE			NONE	
			NONE			362T200-33			362T200-33	
3'-6"	18'-0"		362S162-43			362S162-43			NONE	
			NONE			362T200-43			362T200-43	
8'-0"	15'-0"		362S162-33			600S162-54			362S162-33	
			NONE			362T200-43			362T200-33	
8'-0"	18'-0"		362S162-43			600S162-68			362S162-33	
			NONE			362T200-68			362T200-43	

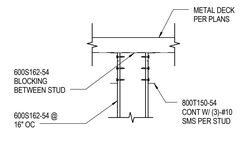
NOTES:
1. STUDS HAVE 1 5/8" FLANGES, EXCEPT AS NOTED AND TRACKS HAVE 1¼" FLANGES, UNO FOR SLIP TRACK CONNECTION.
2. STUD FLANGES ARE 1 1/4" MIN. TO FACILITATE SCREW ATTACHMENT W/ 2½". TRACK SECTION USE 18 GA STUDS W/ WELDED ASSEMBLY IF STUDS W/ 1" FLANGES ARE NOT USED.
3. WHERE WELDS REQUIRED, STUD TO STUD WELD SHALL BE 1" FLARE V WELD @ 12" OC, TYP.

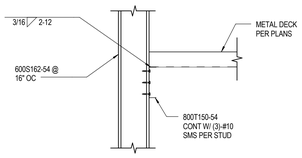
WALL STUD SCHEDULE

STUD DESIGNATION	STUD DEPTH	MAX. HEIGHT	SPACING	GAUGE	FLANGE WIDTH	BACKING CAPACITY	WEB STIFFENER
362S162-43*	3 5/8"	15'-0"	16" c/c	18	1 5/8"	YES	NO
362S200-54*	3 5/8"	17'-0"	16" c/c	16	2"	YES	NO
400S200-54	4"	17'-2"	16" c/c	16	2"	YES	NO
600S200-54	6"	20'-0"	16" c/c	16	2"	YES	NO
250S162-68*	2 1/2"	20'-0"	12" c/c	14	1 5/8"	YES	NO
600S162-54*	6"	20'-0"	16" c/c	16	1 5/8"	YES	NO
362S137-54*	3 5/8"	15'-0"	16" c/c	16	1 5/8"	YES	NO
600S162-43	6"	23'-7"	16" c/c	18	1 5/8"	YES	NO

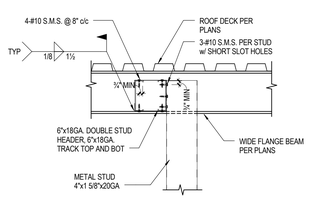
* INTERIOR NON BEARING WALLS ONLY

32 S7.1 WALL STUD AND OPENING FRAMING SCHEDULES
SCALE: 3/4" = 1'-0"

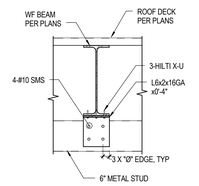




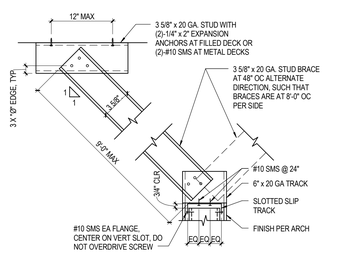
33 S7.1 EXTERIOR STUD WALL TO BARE METAL DECK DETAIL
SCALE: 1" = 1'-0"



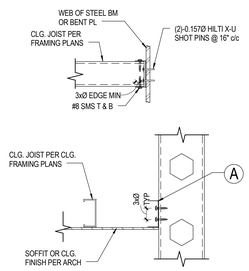
41 S7.1 TOP OF LIGHT GAGE STUD DETAIL
SCALE: 1" = 1'-0"



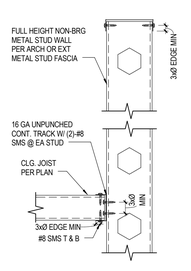
42 S7.1 LIGHT GAGE STUD DETAIL
SCALE: 1" = 1'-0"



43 S7.1 NON-FULL HEIGHT PARTITION BRACING
SCALE: 1" = 1'-0"

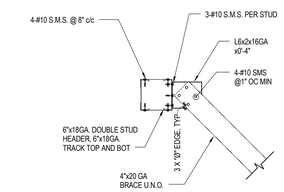


B SECTION

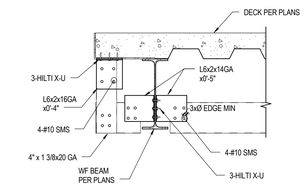


A SECTION

44 S7.1 CEILING JOIST DETAIL
NO SCALE



45 S7.1 TOP OF LIGHT GAGE BRACE DETAIL1
SCALE: 1" = 1'-0"



46 S7.1 LIGHT GAGE STUD DETAIL
SCALE: 1" = 1'-0"

95% CONSTRUCTION DOCUMENTS

COLD FORMED STEEL TYP DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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75-16217-00
08/24/2017
Revisions
#/Yr 10/0017

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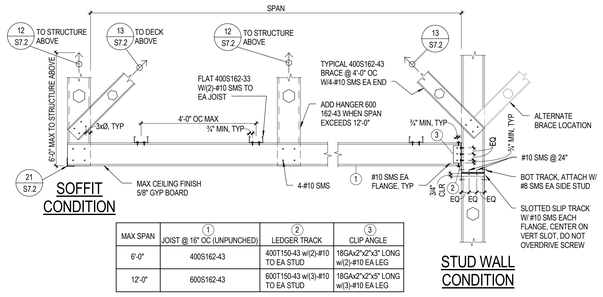
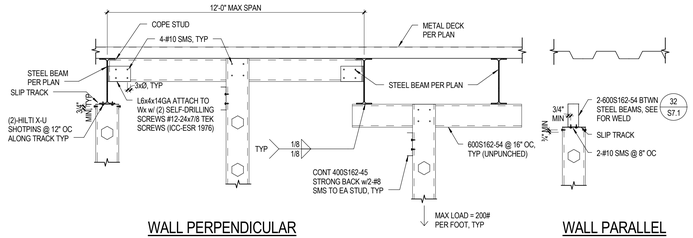
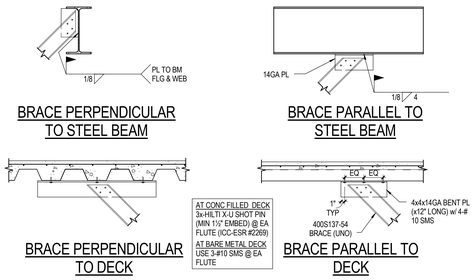


MAX SPAN	1 JOIST @ 16" OC (UNPUNCHED)	2 LEDGER TRACK	3 CLIP ANGLE
6'-0"	400S162-43	400T150-43 w/(2)-#10 TO EA STUD	18GAx2"x2"x3" LONG w/(2)-#10 EA LEG
12'-0"	600S162-43	600T150-43 w/(3)-#10 TO EA STUD	18GAx2"x2"x5" LONG w/(3)-#10 EA LEG

11 S7.2 TYPICAL CEILING SOFFIT SUPPORT DETAIL
SCALE: 3/4" = 1'-0"



12 S7.2 TYPICAL METAL STUD HANGING SOFFIT CONNECTION TO BARE METAL DECK
SCALE: 3/4" = 1'-0"



13 S7.2 TYPICAL INTERIOR METAL STUD WALL BRACE DETAIL
SCALE: 3/4" = 1'-0"

21 S7.2 TYP METAL STUD CORNER/SOFFIT EDGE DETAIL
SCALE: 1 1/2" = 1'-0"

MAX SPAN	1 JOIST @ 16" OC	2 LEDGER TRACK	3 CLIP ANGLE
16'-0"	600S137-43	600T150-43 w/(2)-#10 TO EA STUD	18GAx2"x2"x3" LONG w/(2)-#10 EA LEG

22 S7.2 TYPICAL WALL SUPPORTED METAL STUD CEILING DETAIL
SCALE: 3/4" = 1'-0"

23 S7.2 BACKING MOUNTING DETAIL
SCALE: 1 1/2" = 1'-0"

95% CONSTRUCTION DOCUMENTS

COLD FORMED STEEL TYP DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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DUCT LEGEND

SINGLE LINE SYMBOL	DOUBLE LINE SYMBOL	DESCRIPTION
24x12	24x12	RECTANGULAR DUCT - WIDTH x DEPTH (PLAN VIEW) DEPTH x WIDTH (SECTION VIEW)
26x14L	26x14L	ACOUSTICALLY LINED RECTANGULAR DUCT-DIMENSIONS ARE OUTSIDE
		MANUAL AIR DAMPER
R OR D	RISE OR DROP	RISE OR DROP DUCT IN DIRECTION OF AIR FLOW
OR		RECTANGULAR TO RECTANGULAR TRANSISTION , MAX. SLOPE OF 1:3 RECTANGULAR TO ROUND TRANSITION , MAX. SLOPE OF 1:3
	W, R, R/W = 1.5	ELBOW, RECTANGULAR, SMOOTH RADIUS, WITHOUT TURNING VANES
		SQUARE/RECTANGULAR DUCT ELBOW WITH TURNING VANES
		CONVERGING OR DIVERGING TEE, 45° ENTRY, RECTANGULAR MAIN AND BRANCH. WHEN REDUCING MAIN, SIDE OF TAKE OFF OR ENTRY BRANCH TO BE FLAT, OTHER SIDES MAX. SLOPE OF 1:3
		CONICAL DUCT TAKE OFF FROM RECTANGULAR VIA SPIN-IN W/DAMPER AND SCOOP
ROUND DUCT		ROUND DUCT TAKE OFF FROM RECTANGULAR VIA SMOOTH CONVERGING BELL MOUTH
		RECTANGULAR DUCT TEE MAD'S ON THE 2 BRANCHES, THROAT SIZED FOR EQUAL PRESSURE DROP
		RECTANGULAR DUCT SPLIT MAD'S, THROAT SIZED FOR EQUAL PRESSURE DROP
		3-WAY RECTANGULAR SPLIT WITH TWO TRANSITIONAL ELBOWS AND TRANSITIONING MAIN. DOWNSTREAM MAD'S ON THE TREE BRANCHES. THROATS SIZED FOR EQUAL PRESSURE DROP.
		FOR CONCEALED DUCT: DROP TO DIFFUSER SHALL BE FULL SIZE OF DIFFUSER NECK. FOR EXPOSED DUCT: DROP SHALL BE FULL SIZE OF OD DIFFUSER FRAME, FLANGE FOR MOUNTING DIFFUSER TURNED IN. AIR EXTRACTOR AND EQUALIZER GRID AT CONNECTION TO MAIN.
		SUPPLY AIR, SUPPLY AIR DUCT IN SECTION, SUPPLY DROP
		RETURN AIR, RETURN AND OUTSIDE AIR DUCT IN SECTION, RETURN AIR DROP
		EXHAUST AIR, EXHAUST AIR DUCT IN SECTION, EXHAUST AIR DROP
		FLEXIBLE DUCT (ROUND)
		FLEXIBLE DUCT (FABRIC)
MAD	18" DIA., 10" DIA., 12" DIA., 12" DIA.	45° REDUCING LATERAL FITTING
MAD	18" DIA., 10" DIA., 18" DIA., 10" DIA., 12" DIA.	90° REDUCING TEE FITTING

MECHANICAL GENERAL NOTES

1. ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, SPECIFICATIONS, LOCAL ORDINANCES AND INDUSTRY STANDARDS.
2. VERIFY EXACT LOCATION OF ALL (E) EQUIPMENT, DUCTWORK, DIFFUSERS, REGISTERS AND GRILLES. NOTIFY ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES BETWEEN (E) SYSTEMS AND DRAWINGS.
3. COORDINATE EXACT LOCATION OF EQUIPMENT AND ALL PENETRATIONS THROUGH ROOF, FLOORS AND WALLS WITH ARCHITECTURAL STRUCTURAL SYSTEMS PRIOR TO COMMENCING WORK.
4. COORDINATE EXACT SIZE AND ROUTING OF DUCTWORK WITH ARCHITECTURAL PLANS, STRUCTURE AND EQUIPMENT PRIOR TO COMMENCING WORK.
5. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL CEILING DIFFUSERS, REGISTERS AND GRILLES.
6. FURNISH AND INSTALL MANUAL AIR DAMPERS AT ALL DUCT BRANCH TAKEOFFS TO A SINGLE SUPPLY DUFFUSER.
7. FLEXIBLE DUCTWORK CONNECTIONS TO CEILING DIFFUSERS ARE LIMITED TO 5' MAXIMUM LENGTH AND SHALL NOT BE USED IN LIEU OF RIGID ELBOWS OR FITTINGS.
8. ALL DUCTWORK, CEILING DIFFUSERS/REGISTERS/GRILLES, EQUIPMENT, PIPING ETC., ARE NEW U.O.N. (SHOWN HEAVY). (E) DUCTWORK, PIPING ETC. IS SHOWN LIGHT. SEE LEGEND.
9. (E) DUCTWORK AND ITEMS TO BE REMOVED ARE SHOWN CROSSED ("X") OUT, SEE LEGEND, COORDINATE CLOSELY WITH (N) DUCTWORK AND P.O.C.'S SHOWN. ALL OTHER (E) DUCTWORK, ETC. TO REMAIN.
10. WHERE INLET DUCT DIAMETER AND DIFFUSER NECK SIZE ARE THE SAME (I.E. 9" DIA. & 9x9) CONTRACTOR SHALL OVERSIZE THE SHEET METAL PLENUM TO ACCOMODATE THE ROUND DUCT CONNECTION.
11. THERMOSTAT TO BE INSTALLED AT 46" ABOVE FINISHED FLOOR (TOP OF THERMOSTAT), DO NOT INSTALL THERMOSTAT OVER CASEWORK OR SHELVING OVER 24" IN DEPTH & 34" IN HEIGHT.

MECHANICAL LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	ABV	ABOVE
	ABC	ABOVE CEILING
	AF	ABOVE FLOOR
	AFF	ABOVE FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
	AD , AP	ACCESS DOOR, ACCESS PANEL
	AC	AIR CONDITIONING
	APD	AIR PRESSURE DROP, INCHES WATER COLUMN
	AB	ANCHOR BOLT
	BDD	BACK DRAFT DAMPER
	BF	BELOW FLOOR
	BHP	BRAKE HORSE POWER
	BTU(H)	BRITISH THERMAL UNITS (PER HOUR)
BPT	BPT	BYPASS TIMER
	CC	CENTER TO CENTER
	CLG	CEILING
	CEF	CEILING EXHAUST FAN
	CLR	CLEAR
	CONC	CONCRETE
		CONCENTRIC REDUCER
CD	CD	CONDENSATE DRAIN
	COND	CONDENSER
	CONN	CONNECT OR CONNECTION
	CONT	CONTINUATION
	CONTR	CONTRACTOR
f	CFM	CUBIC FEET OF AIR FLOW PER MINUTE
	DPR	DAMPER
°F		DEGREES FAHRENHEIT
–	DIA	DIAMETER , PHASE
	DL	DOOR LOUVER
	DN	DOWN
	DR	DRAIN
	DB	DRY BULB (DEGREES FAHRENHEIT)
DS	DS	DYNAMIC SENSOR
		ECCENTRIC REDUCER
	EP	ELECTRICAL PANEL
	EL	ELEVATION
	ENT	ENTERING
	EDB	ENTERING DRY BULB
	EW	ENTERING WATER
	EWT	ENTERING WATER TEMPERATURE
	EWB	ENTERING WET BULB
	EVAP	EVAPORATOR
	EC	EVAPORATIVE COOLER
	EA	EXHAUST AIR
	EAD	EXHAUST AIR DAMPER
	EF	EXHAUST FAN
	(E), EXIST	EXISTING
	(E)	EXISTING TO BE REMOVED
	(E)	EXISTING TO BE ABANDONED
	ESP	EXTERNAL STATIC PRESSURE
	FPM	FEET PER MINUTE
	FIN	FINISH
	FD	FIRE DAMPER
FS	FS	FIRE/SMOKE DAMPER
	FC	FLEXIBLE CONNECTION
	FLR	FLOOR
		FLOW IN DIRECTION OF ARROW
	FLV	FLOW LIMITING VALVE
	FA	FROM ABOVE
	FB	FROM BELOW
	FLA	FULL LOAD AMPS
	GALV	GALVANIZED
	GI	GALVANIZED IRON
	GA	GAUGE

MECHANICAL LEGEND cont'd

SYMBOL	ABBREVIATION	DESCRIPTION
	HTG	HEATING
H X	H	HUMIDISTAT, "X" INDICATES DEVICE CONTROLLED
	IE	INVERT ELEVATION
	KW	KILOWATTS
	KWH	KILOWATT HOUR
	LDB	LEAVING DRY BULB IN DEGREES FAHRENHEIT
	LWB	LEAVING WET BULB IN DEGREES FAHRENHEIT
	LRA	LOCKED ROTOR AMPERES
	LVR	LOUVER
	MAD, MD	MANUAL AIR DAMPER
	MFR	MANUFACTURER
	MAX	MAXIMUM
	MIN	MINIMUM
	MCC	MOTOR CONTROL CENTER
	(N)	NEW
	OC	ON CENTER
	OA	OUTSIDE AIR
	OAD	OUTSIDE AIR DAMPER
	OD	OUTSIDE DIAMETER
	OV	OUTLET VELOCITY
	OH	OVERHEAD
		PIPE DROP
		PIPE RISE
		PITCH DOWN IN DIRECTION OF FLOW
	POC	POINT OF CONNECTION
	LBS	POUNDS
	PSI (G) (A)	POUNDS PER SQUARE INCH (GAUGE) (ABSOLUTE)
	PD	PRESSURE DROP
	PRV	PRESSURE REDUCING VALVE
RG	RG	REFRIGERANT GAS PIPING
RS	RS	REFRIGERANT SUCTION PIPING
RL	RL	REFRIGERANT LIQUID PIPING
	RA	RETURN AIR
	RAD	RETURN AIR DAMPER
	RPM	REVOLUTIONS PER MINUTE
	RLA	RUNNING LOAD AMPERES
	SB	SECURITY BARS
	SM	SHEET METAL
SD	SD	SMOKE DAMPER
SD	SKD	SMOKE DETECTOR
	SD	SPLITTER DAMPER
	SQFT, FT2~~	SQUARE FEET
	SQIN, IN2	SQUARE INCHES
	SP	STATIC PRESSURE
	SPD	STATIC PRESSURE DROP
	SA	SUPPLY AIR
	SF	SUPPLY FAN
	TCP	TEMPERATURE CONTROL PANEL
	TCV	TEMPERATURE CONTROL VALVE
TS X		TEMPERATURE SENSOR, "X" INDICATES DEVICE CONTROLLED
T X	T	THERMOSTAT, "X" INDICATES DEVICE CONTROLLED
	MBH	THOUSAND BRITISH THERMAL UNITS PER HOUR
	TA	TO ABOVE
	TB	TO BELOW
	TP	TOTAL PRESSURE
	TSP	TOTAL STATIC PRESSURE
	TYP	TYPICAL
	UG	UNDERGROUND
	UCD	UNDER CUT DOOR
	UON	UNLESS OTHERWISE NOTED
	WPD	WATER PRESSURE DROP
	W	WATTS
	WT	WEIGHT
	WB	WET BULB
	WMS	WIRE MESH SCREEN

PIPING, DUCTWORK & ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-10 SECTION 13.3 AS DEFINED IN ASCE 7-10 SECTION 13.6.5.6, 13.6.7, 13.6.8, AND 2016 CBC, SECTIONS 1616A.1.23, 1616A.1.24, 1616A.1.25 AND 1616A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON PREAPPROVED INSTALLATION GUIDE (e.g., SMACNA OR OSHPD OPM). COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP☐ MD☐ PP☐ E☐ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS

MP☒ MD☒ PP☐ E☐ OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM #) #0043-13

MP☐ MD☐ PP☐ OPTION 3: SHALL COMPLY WITH THE SMACNA SEISMIC RESTRAINT MANUAL. OSHP EDITION (2009), INCLUDING ANY ADDENDA. FASTENERS AND OTHER ATTACHMENTS NOT SPECIFICALLY IDENTIFIED IN THE SMACNA SEISMIC RESTRAINT MANUAL, OSHPD EDITION, ARE DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS. THE DETAILS SHALL ACCOUNT FOR THE APPLICABLE SEISMIC HAZARD LEVEL ____ AND CONNECTION LEVEL ____ FOR THE PROJECT AND CONDITIONS.

FIRE MARSHAL NOTES

1. COMPLIANCE WITH THE 2016 CMC REQUIREMENT 608 (PREVIOUSLY 609) SHALL BE MET FOR AIR HANDLING UNITS (AHU) / AIR MOVING SYSTEM GLOBAL / AGGREGATE SIMULTANEOUS SMOKE SHUTDOWN OF AREA SERVED PER CSFM INTERPRETATION # 02-024 & 08-065 UPON ACTIVATION OF ANY SINGLE DUCT SMOKE DETECTOR.
2. ALL AHU / HVAC UNIT DUCT-SMOKE DETECTORS SHALL BE CONNECTED TO BUILDING FIRE ALARM PANEL TO INITIATE A SUPERVISORY SIGNAL UPON ACTIVATION, BE INTERCONNECTED AND SHALL ALL SHUT DOWN SIMULTANEOUSLY UPON ACTIVATION OF ANY ONE SINGLE DETECTOR.
3. ALL AHU / HVAC UNIT DUCT-SMOKE DETECTORS SHALL BE TESTED BY MANOMETER TO INSURE AIR VOLUME AND VELOCITIES ARE WITHIN THE TOLERANCE SPECIFICATIONS OF THE RATINGS REQUIRED BY THE MANUFACTURER'S DATA ON EACH DUCT-SMOKE DETECTOR INSTALLED WITHIN THE UNIT / DUCTWORK PER 2016 CFC 907.3.1, 2016 NFPA 72- 17.7.4 & 2016 CMC 608.

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2016 CBC, SECTIONS 1616A.1.18 THROUGH 1616A.1.26 AND ASCE 7-10 CHAPTER 13, 26 AND 30.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER.
3. MOVABLE EQUIPMENT WHICH IS STATIONED IN ONE PLACE FOR MORE THAN 8 HOURS AND HEAVIER THAN 400 POUNDS ARE REQUIRED TO BE ANCHORED WITH TEMPORARY ATTACHMENTS.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT THE ATTACHMENT NEED NOT BE DETAILED ON THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTION SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND THE DSA DISTRICT STRUCTURAL ENGINEER. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

REGISTERED PROFESSIONAL ENGINEER — MICHAEL A. ROSA — M 22836 — EXPIRES 9/30/18 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: 05/01/18

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD - RCC/JH — PM - DESIGN TEAM
151121.00 — PROJECT NO.

MECHANICAL LEGENDS AND NOTES
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

M0001

75-16217-00	
05.01.2018	
Revisions	09/29/2017
Bureau Veritas resubmittal	

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DIFFUSER, REGISTER & GRILLE SCHEDULE

SYMBOL	DESCRIPTION	KRUEGER	METALAIRE	NAILOR	TITUS	TUTTLE & BAILEY
CD	MODULAR CORE SURFACE MOUNT CEILING DIFFUSER BEVEL FRAME 3/4" DROP	1240 FRAME 21 - 1-1/4"	9000-2	7500-S	MCD BORDER TYPE 6	SQD-SB
CDL	MODULAR CORE LAY-IN CEILING DIFFUSER FOR T-BAR CEILING 24x24 PANEL	1240 FRAME 23	9000-6P	7500-L	MCD BORDER TYPE 3	SQD-LT
CR	CEILING RETURN WITH 1/2" EGG CRATE CORE SURFACE MOUNT	EGC-5	CC5D	61 EC-S	MODEL 50 F BORDER TYPE 1	CRE500-SF
CRL	CEILING RETURN WITH 1/2" EGG CRATE CORE IN 24x24 PANEL FOR T-BAR CEILING	EGC-5TB	CC5D-TBD	61 EC-L	MODEL 50 F BORDER TYPE 3	CRE500-LT
S *	DOUBLE DEFLECTION SUPPLY GRILLE WITH VERTICAL FRONT BARS, 3/4" SPACING	880 V	V 4004 S	61 DV	300 RS	T54
R & E *	RETURN OR EXHAUST GRILLE WITH 35° OR 45° HORIZONTAL BARS.	S 80 H	SRH	7145 H	350 RL	T70D
LD	ALUMINUM LINEAR SLOT DIFFUSER WITH 4-3/4" SLOTS & FIELD FABRICATED PLENUM	-	-	-	MIL-38	6000
SDS	DOUBLE DEFLECTION SPIRAL DUCT MOUNTED SUPPLY GRILLE WITH CURVED FRAME, AIR SCOOP EXTRACTOR, VERTICAL FRONT BLADES, 3/4" SPACING.	EQUAL	EQUAL	EQUAL	S300FS	EQUAL

NOTES:
1. ALL SYMBOLS NOTED MAY NOT BE USED. REFER TO PLANS FOR SIZE AND QUANTITY.
2. ALL SUPPLY AIR DIFFUSERS ARE 4 WAY BLOW UNLESS SHOWN OTHERWISE.
3. FURNISH ALL PRODUCTS OF A SINGLE MANUFACTURER.
4. COORDINATE DIFFUSER TYPE WITH REFLECTED CEILING PLAN.
5. OPPOSED BLADE DAMPERS ARE NOT REQUIRED AT DIFFUSERS, REGISTERS OR GRILLES.
6. PROVIDE MANUAL AIR DAMPERS AT EACH BRANCH DUCT TO A SINGLE DIFFUSER, REGISTER OR GRILLE.

* ALUMINUM REGISTERS FOR SHOWERS AND DAMP AREAS

BRANCH SELECTOR BOX SCHEDULE

UNIT	"DAIKIN" MODEL NO. (INDOOR UNIT)	ELECTRICAL DATA			OPER. WT. (LBS.)	MOUNTING DETAIL	NOTES
		VOLT/PH	MCA	MOP			
BSB 1	BSQ36TJV	208V/1	0.10	15.0	27	5 / M502	1
BSB 2	BS8Q54TVJ	208V/1	0.80	15.0	73	5 / M502	1
BSB 3	BS4Q54TVJ	208V/1	0.40	15.0	49	5 / M502	1

NOTES:
1. REFER TO VRF PIPING DIAGRAM 2/M602 FOR REFRIGERANT PIPING SIZES.

FAN COIL UNIT SCHEDULE

UNIT	LOCATION SERVED	"DAIKIN" MODEL NO. (INDOOR UNIT)	CFM	MIN. OA (CFM)	ESP (IN. WG)	SENSIBLE COOLING CAPACITY (BTUH)	TOTAL COOLING CAPACITY (BTUH)	COOLING EAT DB/WB (DEG F)	COOLING LAT DB (DEG F)	TOTAL HEATING CAPACITY (BTUH)	HEATING EAT DB (DEG F)	HEATING LAT DB (DEG F)	ELECTRICAL DATA				CONNECTED TO OUTDOOR UNIT	CONNECTED TO BRANCH SELECTOR BOX	OPER. WT. (LBS.)	MOUNTING DETAIL	CONTROL DIAGRAM	NOTES
													VOLT/PH	FAN MOTOR	MCA	MOP (AMPS)						
FC 1	TAPING 105	FXZQ09MVJU9	320	60	0.0	6,800	9,500	78.1/63.3	50.6	13,500	63.1	95.2	208V/1	1	0.8	15	CU 1	BSB 3	45	2 / M501	1 / M602	1, 2, 3, 4, 6, 7
FC 2	UMPIRE LOCKER 103	FXZQ12MVJU9	320	30	0.0	6,800	9,500	78.8/64.8	51.3	13,500	64.7	96.8	208V/1	1	0.8	15	CU 1	BSB 3	45	2 / M501	1 / M602	1, 2, 3, 4, 6, 7
FC 3	LOCKER ROOM 112	FXTQ60TAVJUA	1800	1200	0.9	41,300	60,000	84.0/63.7	53.1	68,000	44.7	78.6	208V/1	1	8.6	15	CU 1	BSB 2	150	10 / M501	1 / M602	1, 2, 3, 4, 5, 7
FC 4	LOUNGE 101, MUD ROOM 108, LAUNDRY 109	FXTQ48TAVJUA	1520	UPPER 920 LOWER 210	0.9	32,700	48,000	83.7/63.1	54.5	54,000	45.7	78.6	208V/1	1	6.5	15	CU 1	BSB 2	150	10 / M501	1 / M602	1, 2, 3, 4, 5, 7, 8
FC 5	MULTIPURPOSE 202	FXTQ60TAVJUA	1800	UPPER 775 LOWER 190	0.9	41,300	60,000	82.7/63.1	51.8	68,000	47.4	81.3	208V/1	1	8.6	15	CU 1	BSB 2	150	10 / M501	1 / M602	1, 2, 3, 4, 5, 7, 8
FC 6	COACH LOCKER 214, OFFICES 209-211, 216	FXTQ42TAVJUA	1095	300	0.9	27,000	36,000	81.8/63.2	51.4	47,500	50.6	90.8	208V/1	1	6.5	15	CU 1	BSB 2	150	10 / M501	1 / M602	1, 2, 3, 4, 5, 7
FC 7	CONF ROOM 212	FXUQ24PVJU	795	105	0.0	12,900	18,000	77.5/63.3	56.5	27,00	65.1	88.4	208V/1	1	0.6	15	CU 1	BSB 1	60	2 / M501	1 / M602	1, 2, 3, 4, 6, 7

NOTES:
1. CONNECT OUTSIDE AIR SUPPLY SYSTEM AS SHOWN ON PLANS.
2. PROVIDE WITH WALL MOUNTED THERMOSTAT.
3. PROVIDE WITH MFR'S FILTER BOX AND LONG LIFE WASHABLE MERV 11 FILTERS.
4. REFER TO VRF PIPING DIAGRAM 2/M602 FOR REFRIGERANT PIPING SIZES.
5. UNIT CAPABLE OF FULL ECONOMIZER MODE.
6. PROVIDE WITH "FANTECH" FG 6M INLINE BOOSTER FAN WITH SPEED CONTROLLER FOR BALANCING.
7. THE BUILDING MANAGEMENT SYSETM SHALL CONNECT TO THE VRF CONTROL MODULE(S) VIA BACNET COMMUNICATION INTERFACE(S) TO MONITOR VRF SYSTEM PARAMETERS AND ALARMS.
8. PROVIDE CO2 DEMAND CONTROLLED VENTILATION, SEE CONTROL SEQUENCE FOR REQUIRED OPERATION.

CONDENSING UNIT SCHEDULE

UNIT	LOCATION	"DAIKIN" MODEL NO.	COOL (BTUH)	HEAT (BTUH)	ELECTRICAL DATA								EER	OPER. WT. (LBS.)	MOUNTING DETAIL	CONTROL DIAGRAM	NOTES
					VOLT/PH	POWER INPUT				MCA		MOCP					
						COOLING		HEATING		MOD.1	MOD.2	MODULE-1	MODULE-2				
CU 1	ON GRADE	REYQ240TTJU	240,000	270,000	208V/3□	18.20 KW	27.4 RLA	23.50 KW	38.8 RLA	38	55	45 AMP MAX FUSE SIZE	70 AMP MAX FUSE SIZE	12.2	1520	1 / M502	1 / M602	1, 2, 3

NOTES:
1. R410A REFRIGERANT.
2. COOLING CAPACITY RATED AT 80°F DB / 67°F WB INDOOR AIR AND 95°F DB / 75°F OUTDOOR AIR.
3. HEATING CAPACITY IS RATED AT 70°F DB / 60°F WB INDOOR AIR AND 47°F DB & 43°F WB OUTDOOR AIR.

SPLIT SYSTEM AC UNIT SCHEDULE

LOCATION	"DAIKIN" INDOOR UNIT	UNIT	CFM	FAN MOTOR FLA	FAN MOTOR OUT-PUT	VOLT	INDOOR UNIT WT. (LBS.)	IN-DOOR MTG. DTL.	"DAIKIN" OUTDOOR UNIT	UNIT	TOTAL COOL. CAP. BTUH	MIN. AMP-ACITY	FAN MOTOR FLA	FAN MOTOR OUT-PUT	MOCP	VOLT/PH	PIPING		SEER	OUTDOOR UNIT WT. (LBS.)	OUT-DOOR MTG. DTL.	NOTES
																	RL	RS				
ELEV EQUIP 106	FTKN12NMVJU	SAC 1	300	0.2	22 WATTS	24V	18	5 / M501	RKN12NMVJU	SCU 1	12,000	8.6	0.21	26 WATTS	15	208/1	1/4"	3/8"	15.0	60	9 / M501	1, 2, 3, 4, 5
IT ROOM 219	FTKN12NMVJU	SAC 2	300	0.2	22 WATTS	24V	18	5 / M501	RKN12NMVJU	SCU 2	12,000	8.6	0.21	26 WATTS	15	208/1	1/4"	3/8"	15.0	60	9 / M501	1, 2, 3, 4, 5

NOTES:
1. PROVIDE ALL INDOOR UNITS WITH THERMOSTAT, HARD WIRED, WALL MOUNTED.
2. COOLING CAPACITY RATED AT 80°F DB / 67°F WB INDOOR AIR AND 95°F DB / 75°F WB OUTDOOR AIR.
3. FOR CONTROL DIAGRAM SEE PROVIDE WITH BACNET INTERFACE CAPABILITY. (2 / M601)
4. PROVIDE WITH 'GOBI' CONDENSATE PUMP, 2 GPM @ 20 FT./HD WITH GRAVITY HORIZONTAL, 16 WATTS, 120V, 1PH, 60 HZ., ALARM RELAY 5 AMPS, 30 VDC, 250 VAC BREAK ON FAULT. SECURE PUMP BACK PLATE TO BLOCKING IN WALL WITH (3) - 3/16" DIA. x 2" WOOD SCREWS AND PLACE PUMP ON THE MOUNTING POSTS.
5. PROVIDE 208V, 1PH TO THE OUTDOOR UNIT, FROM OUTDOOR UNIT PROVIDE 24V TO INDOOR UNIT, PROVIDE SEPARATE 120V TO INDOOR UNIT FOR CONDENSATE PUMP.

EXHAUST FAN SCHEDULE

UNIT	LOCATION SERVED	"GREENHECK" MODEL NO.	CFM	SP (IN. W.G.)	DUTY	STYLE	FAN WHEEL DIA.	RPM	HP (WATTS)	VOLT/PH	SONES	OPER. WT. (LBS.)	INTERLOCK TO RUN WITH	MOUNTING DETAIL	CONTROL DIAGRAM	NOTES
CEF 1	ALL GENDER TLT 102	SP-A200	125	0.375	E	CE	6.75"	900	(50)	120V, 1	3.5	24	LIGHT SWITCH	3 / M501	3 / M601	2
CEF 2	UMPIRE TOILET 104	SP-A200	150	0.375	E	CE	6.75"	900	(51)	120V, 1	3.0	24	FC-2	3 / M501	3 / M601	2
IEF 3	EQUIPMENT/ LAUNDRY 109	CSP-A700	600	0.5	E	CA	7.75"	1100	(350)	120V, 1	6.0	34	FC-4	7 / M501	3 / M601	2
REF 4	MEN 205/ WOMEN 206	G-133 VG	1150 MAX	0.5	E	RE	13.125"	1060	0.25	120V, 1	7.7	41	FC-5	4 / M502	3 / M601	1
REF 5	COACH TOILET 215	G-103 VG	500	0.5	E	RE	11.125"	1140	0.25	120V, 1	4.2	35	FC-6	4 / M502	3 / M601	1
REF 6	TOILET 113, PLUNGE POOL 114, SHOWER 115	G-133 VG	1200	0.5	E	RE	13.125"	1140	0.25	120V, 1	8.7	41	FC-3	4 / M502	3 / M601	1
REF 7	JANITOR 218	G-097 VG	125	0.375	E	RE	11.188"	1060	0.25	120V, 1	4.1	35	LIGHT SWITCH	4 / M502	3 / M601	1
REF 8	ELECTRICAL 217	G-097 VG	150	0.375	E	RE	11.188"	1140	0.25	120V, 1	4.9	35	THERMOSTAT	4 / M502	3 / M601	1
																MAX

LEGEND
DUTY: S-SUPPLY, R-RETURN, E-EXHAUST, C-CIRCULATION
STYLE: RE-ROOF EXHAUST, IE-INLINE, CE-CEILING, CA-CABINET

NOTES:
1. PROVIDE WITH BACKDRAFT DAMPER & SELF-WELDED ROOF CURB.
2. PROVIDE WITH BACKDRAFT DAMPER.

MECHANICAL SCHEDULES
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

M002
75-16217-00
05.01.2018
Revisions
05/14/2018 #403
PRE-MASBALL BACKCHECK 05/14/2018
2

REGISTERED PROFESSIONAL ENGINEER
THOMAS A. POPP
M 22836
EXPIRES 9/30/18
MECHANICAL
STATE OF CALIFORNIA
DATE SIGNED: 05/14/18

CAPITAL ENGINEERING CONSULTANTS, INC.
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Project Name:	Cal Poly Fieldhouse	NRCC-PRF-01-E	Page 1 of 22
Project Address:	1 Grand Ave San Luis Obispo 93407	Calculation Date/Time:	10:03, Tue, Oct 17, 2017
Compliance Scope:	NewEnvelopeAndMechanical	Input File Name:	Cal Poly Fieldhouse_v7.cibd16x

A. PROJECT GENERAL INFORMATION

1.	Project Location (city)	San Luis Obispo	**8.**	Standards Version	Compliance2016
2.	CA Zip Code	93407	**9.**	Compliance Software (version)	EnergyPro 7.1
3.	Climate Zone	5	**10.**	Weather File	SAN LUIS-CO_722897_CZ2010.epw
4.	Total Conditioned Floor Area in Scope	6,805 ft²	**11.**	Building Orientation (deg)	(N) 0 deg
5.	Total Unconditioned Floor Area	614 ft²	**12.**	Permitted Scope of Work	NewEnvelopeAndMechanical
6.	Total # of Stories (Habitable Above Grade)	2	13	Building Type(s)	Nonresidential
7.	Total # of dwelling units	0	14	Gas Type	NaturalGas

B. COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual TDV Energy Use, kBtu/ft ²-yr) | **§ 140.1**

BUILDING COMPLIES

1. Energy Component	2. Standard Design (TDV)	3. Proposed Design (TDV)	4. Compliance Margin (TDV)	5. Percent Better than Standard
Space Heating	15.41	13.53	1.88	12.2%
Space Cooling	52.61	47.57	5.04	9.6%
Indoor Fans	31.07	31.52	-0.45	-1.4%
Heat Rejection	--	--	--	--
Pumps & Misc.	3.01	--	3.01	--
Domestic Hot Water	7.34	7.72	-0.38	-5.2%
Indoor Lighting	69.98	69.98	--	0.0%
COMPLIANCE TOTAL	**179.42**	**170.32**	**9.10**	**5.1%**
Receptacle	76.52	76.52	0.0	0.0%
Process	--	--	--	--
Other Ltg	--	--	--	--
TOTAL	**255.94**	**246.84**	**9.1**	**3.6%**

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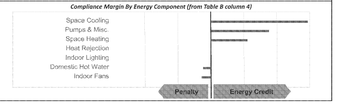
C. PRIORITY PLAN CHECK/ INSPECTION ITEMS (in order of highest to lowest TDV energy savings)

1st	Space Cooling: Check envelope and mechanical
2nd	Pumps & Misc.: Check mechanical
3rd	Space Heating: Check envelope and mechanical
4th	Heat Rejection: Check envelope and mechanical
5th	Indoor Lighting: Check lighting
6th	Domestic Hot Water: Check mechanical
7th	Indoor Fans: Check envelope and mechanical

Compliance Margin By Energy Component (from Table B column 4)



D. EXCEPTIONAL CONDITIONS

The project shows partial compliance, either envelope only or mechanical only, excluding lighting systems. The building must show partial compliance including lighting or full new building compliance or show prescriptive lighting compliance before operation

This project includes Domestic Hot Water in the analysis. Please verify that Domestic Hot Water is included in the design for the permitted scope of work.

E. HERS VERIFICATION

This Section Does Not Apply

F. ADDITIONAL REMARKS

None Provided

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G. COMPLIANCE PATH & CERTIFICATE OF COMPLIANCE SUMMARY

Identify which building components use the performance or prescriptive path for compliance. "NA"= not in project

For components that utilize the performance path, indicate the sheet number that includes mandatory notes on plans.

Building Component	Compliance Path	Compliance Forms *(required for submittal)*	Location of Mandatory Notes on Plans
Envelope	☒ Performance	NRCC-PRF-ENV-DETAILS (section of the NRCC-PRF-01-E)	
	☐ Prescriptive	NRCC-ENV-01 / 02 / 03 / 04 / 05 / 06-E	
	☐ NA		
Mechanical	☒ Performance	NRCC-PRF-MCH-DETAILS (section of the NRCC-PRF-01-E)	
	☐ Prescriptive	NRCC-MCH-01 / 02 / 03 / 04 / 05 / 06 / 07-E	
	☐ NA		
Domestic Hot Water	☒ Performance	NRCC-PRF-PLB-DETAILS (section of the NRCC-PRF-01-E)	
	☐ Prescriptive	NRCC-PLB-01-E	
	☐ NA		
Lighting (Indoor Conditioned)	☐ Performance	NRCC-PRF-LTI-DETAILS (section of the NRCC-PRF-01-E)	
	☐ Prescriptive	NRCC-LTI-01 / 02 / 03 / 04 / 05-E	
	☒ NA		
Covered Process: Commercial Kitchens	☐ Performance	52 (section of the NRCC-PRF-01-E)	
	☐ Prescriptive	NRCC-PRC-01/ 03-E	
	☒ NA		
Covered Process: Computer Rooms	☐ Performance	53 (section of the NRCC-PRF-01-E)	
	☐ Prescriptive	NRCC-PRC-01/ 04-E	
	☒ NA		
Covered Process: Laboratory Exhaust	☐ Performance	54 (section of the NRCC-PRF-01-E)	
	☐ Prescriptive	NRCC-PRC-01/ 09-E	
	☒ NA		

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G. COMPLIANCE PATH & CERTIFICATE OF COMPLIANCE SUMMARY

The following building components are only eligible for prescriptive compliance. Indicate which are relevant to the project.			*The following building components may have mandatory requirements per Part 6. Indicate which are relevant to the project.*			
Yes	**NA**	**Prescriptive Requirement**	**Compliance Forms**	**Yes**	**NA**	**Mandatory Requirement**	**Compliance Forms**
☒	☐	Lighting (Indoor Unconditioned) §140.6	NRCC-LTI-01 / 02 / 03 / 04 / 05-E	☐ ☐	☒ ☒	Commissioning: §120.8 Simple Systems Complex Systems	NRCC-CXR-01 / 02 / 03 / 05-E NRCC-CXR-01 / 02 / 04 / 05-E
☐	☒	Lighting (Outdoor) §140.7	NRCC-LTO-01 / 02 / 03-E	☐	☒	Electrical: §130.5	NRCC-ELC-01-E
☐	☒	Lighting (Sign) §140.8	NRCC-LTS-01-E	☐	☒	Solar Ready: §110.10	NRCC-SRA-01 / 02-E
☐	☒	Solar Thermal Water Heating: §140.5	NRCC-STH-01-E	☐ ☐ ☐ ☐ ☐	☒ ☒ ☒ ☒ ☒	Covered Process: §120.6 Parking Garage Commercial Refrigeration Warehouse Refrigeration Compressed Air Process Boilers	NRCC-PRC-01-E NRCC-PRC-02-E NRCC-PRC-05-E NRCC-PRC-06/07/08-E NRCC-PRC-10-E NRCC-PRC-11-E

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H. CERTIFICATE OF INSTALLATION, CERTIFICATE OF ACCEPTANCE & CERTIFICATE OF VERIFICATION SUMMARY (NRCI/NRCA/NRCV) – Documentation Author to indicate which Certificates must be submitted for the features to be recognized for compliance (Retain copies and verify forms are completed and signed to post in field for Field Inspector to verify). See Tables G. and H. in MCH and LTI Details Sections for Acceptance Tests and forms by equipment.

Building Component	Compliance Forms *(required for submittal)*	Confirmed Pass	Confirmed Fail
Envelope	☒ NRCI-ENV-01-E - For all buildings	☐	☐
	☒ NRCA-ENV-02-F- NFRC label verification for fenestration	☐	☐
Mechanical	☒ NRC-MCH-01-E - For all buildings with Mechanical Systems	☐	☐
	☒ NRCA-MCH-02-A- Outdoor Air	☐	☐
	☒ NRCA-MCH-03-A – Constant Volume Single Zone HVAC	☐	☐
	☐ NRCA-MCH-04-H- Air Distribution Duct Leakage	☐	☐
	☒ NRCA-MCH-05-A- Air Economizer Controls	☐	☐
	☒ NRCA-MCH-06-A- Demand Control Ventilation	☐	☐
	☐ NRCA-MCH-07-A – Supply Fan Variable Flow Controls	☐	☐
	☐ NRCA-MCH-08-A- Valve Leakage Test	☐	☐
	☐ NRCA-MCH-09-A – Supply Water Temp Reset Controls	☐	☐
	☐ NRCA-MCH-10-A- Hydronic System Variable Flow Controls	☐	☐
	☐ NRCA-MCH-11-A – Auto Demand Shed Controls	☐	☐
	☐ NRCA-MCH-12-A- Packaged Direct Expansion Units	☐	☐
	☐ NRCA-MCH-13-A- Air Handling Units and Zone Terminal Units	☐	☐
	☐ NRCA-MCH-14-A- Distributed Energy Storage	☐	☐
	☐ NRCA-MCH-15-A – Thermal Energy Storage	☐	☐
	☐ NRCA-MCH-16-A- Supply Air Temp Reset Controls	☐	☐
	☐ NRCA-MCH-17-A – Condensate Water Temp Reset Controls	☐	☐
	☐ NRCA-MCH-18-A- Energy Management Controls Systems	☐	☐
	☐ NRCV-MCH-04-H- Duct Leakage Test	☐	☐

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Building Component	Compliance Forms *(required for submittal)*	Confirmed Pass	Confirmed Fail
Plumbing	☒ NRCI-PLB-01-E - For all buildings with Plumbing Systems	☐	☐
	☐ NRCI-PLB-02-E - required on central systems in high-rise residential, hotel/motel application.	☐	☐
	☐ NRCI-PLB-03-E - Single dwelling unit systems in high-rise residential, hotel/motel application.	☐	☐
	☐ NRCI-PLB-21-E - HERS verified central systems in high-rise residential, hotel/motel application.	☐	☐
	☐ NRCI-PLB-22-E - HERS verified single dwelling unit systems in high-rise residential, hotel/motel application.	☐	☐
	☐ NRCV-PLB-23-H- HERS verified central systems in high-rise residential, hotel/motel application.	☐	☐
	☐ NRCV-PLS-22-H - HERS verified single dwelling unit systems in high-rise residential, hotel/motel application.	☐	☐
	☐ NRCI-STH-01-E - Any solar water heating	☐	☐
Indoor Lighting	☐ NRCI-LTI-01-E - For all buildings	☐	☐
	☐ NRCI-LTI-02-E - Lighting control system, or for an Energy Management Control System (EMCS)	☐	☐
	☐ NRCI-LTI-03-E - Line-voltage track lighting integral current limiter, or for a supplementary overcurrent protection panel used to energize only line-voltage track lighting	☐	☐
	☐ NRCI-LTI-04-E - Two interlocked systems serving an auditorium, a convention center, a conference room, or a theater	☐	☐
	☐ NRCI-LTI-05-E - Lighting Control Credit Power Adjustment Factor (PAF)	☐	☐
	☐ NRCI-LTI-06-E - Additional wattage installed in a video conferencing studio	☐	☐
	☐ NRCA-LTI-02-A - Occupancy sensors and automatic time switch controls.	☐	☐
	☐ NRCA-LTI-03-A - Automatic daylighting controls	☐	☐
	☐ NRCA-LTI-04-A - Demand responsive lighting controls	☐	☐
Outdoor Lighting	☐ NRCI-LTO-01-E – Outdoor Lighting	☐	☐
	☐ NRCI-LTO-02-E- EMCS Lighting Control System	☐	☐
	☐ NRCA-LTO-02-A - Outdoor Lighting Control	☐	☐
Sign Lighting	☐ NRCI-LTS-01-E – Sign Lighting	☐	☐
Electrical	☐ NRCI-ELC-01-E - Electrical Power Distribution	☐	☐
Photovoltaic	☐ NRCI-SPV-01-E Photovoltaic Systems	☐	☐

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H. CERTIFICATE OF INSTALLATION, CERTIFICATE OF ACCEPTANCE & CERTIFICATE OF VERIFICATION SUMMARY (NRCI/NRCA/NRCV) – Documentation Author to indicate which Certificates must be submitted for the features to be recognized for compliance (Retain copies and verify forms are completed and signed to post in field for Field Inspector to verify). See Tables G. and H. in MCH and LTI Details Sections for Acceptance Tests and forms by equipment.

Building Component	Compliance Forms *(required for submittal)*	Confirmed Pass	Confirmed Fail
Covered Process	☐ NRCI-PRC-01-E Refrigerated Warehouse	☐	☐
	☐ NRCA-PRC-01-F- Compressed Air Systems	☐	☐
	☐ NRCA-PRC-02-F- Kitchen Exhaust	☐	☐
	☐ NRCA-PRC-03-F- Garage Exhaust	☐	☐
	☐ NRCA-PRC-04-F- Refrigerated Warehouse- Evaporator Fan Motor Controls	☐	☐
	☐ NRCA-PRC-05-F- Refrigerated Warehouse- Evaporative Condenser Controls	☐	☐
	☐ NRCA-PRC-06-F- Refrigerated Warehouse- Air Cooled Condenser Controls	☐	☐
	☐ NRCA-PRC-07F- Refrigerated Warehouse- Variable Speed Compressor	☐	☐
	☐ NRCA-PRC-08-F- Electrical Resistance-Underslab Heating System	☐	☐

I. ENVELOPE GENERAL INFORMATION (See NRCC-PRF-ENV-DETAILS for more information)

						Confirmed Pass	Confirmed Fail
1.	Total Conditioned Floor Area	6,605 ft²	**5.**	Number of Floors Above Grade	2		
2.	Total Unconditioned Floor Area	614 ft²	**6.**	Number of Floors Below Grade	0		
3.	Addition Conditioned Floor Area	0 ft²					
4.	Addition Unconditioned Floor Area	0 ft²					

7. Opaque Surfaces & Orientation	8. Total Gross Surface Area	9. Total Fenestration Area	10. Window to Wall Ratio	Pass	Fail
North Wall	979 ft²	247 ft²	25.2%	☐	☐
East Wall	645 ft²	33 ft²	05.1%	☐	☐
South Wall	1,770 ft²	996 ft²	56.3%	☐	☐
West Wall	1,097 ft²	186 ft²	16.9%	☐	☐
Total:	**4,490 ft²**	**1,462 ft²**	**32.6%**	☐	☐
Roof	3,189 ft²	0 ft²	00.0%	☐	☐

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J. FENESTRATION ASSEMBLY SUMMARY | **§ 110.6** | **Confirmed**

1. Fenestration Assembly Name / Tag or I.D.	2. Fenestration Type / Product Type / Frame Type	3. Certification Method[1]	4. Assembly Method	5. Area ft²	6. Overall U-factor	7. Overall SHGC	8. Overall VT	9. Status[2]	Pass	Fail
PPG SOLARBAN 70 XL Clear	VerticalFenestration FixedWindow N/A	NFRC Rated	SiteBuilt	1462	0.56	0.31	0.63	N	☐	☐

[1] *Newly installed fenestration shall have a certified NFRC Label Certificate or use the CEC default tables found in Table 110.6-A and Table 110.6-B. Center of Glass (COG) values are for the glass only, determined by the manufacturer, and are shown for ease of verification. Site-built fenestration values are calculated per Nonresidential Appendix NA6 and are used in the analysis.*

[2] *Status: N - New, A – Altered, E – Existing*

Taking compliance credit for fenestration shading devices? (If "Yes", see NRCC-PRF-ENV-DETAILS for more information)	No

K. OPAQUE SURFACE ASSEMBLY SUMMARY | **§ 120.7/ § 140.3** | **Confirmed**

1. Surface Name	2. Surface Type	3. Area (ft²)	4. Framing Type	5. Cavity R-Value	6. Continuous R-Value	7. U-Factor / F-Factor / C-Factor	8. Status[1]	Pass	Fail
R-0 Floor No Crawlspace6	InteriorFloor	3341	NA	0	NA	U-Factor: 0.183	N	☐	☐
Slab On-Grade9	UndergroundFloor	4118	NA	0	NA	F-Factor: 0.730	N	☐	☐
R-19 Wall Metal Stud_R213	ExteriorWall	3331	Metal	19	8	U-Factor: 0.072	N	☐	☐
6 Concrete Wall w/R-13I9	ExteriorWall	2072	Wood	13	NA	U-Factor: 0.098	N	☐	☐
R-11 Wall44	InteriorWall	60	Wood	11	NA	U-Factor: 0.103	N	☐	☐
R-30 Metal Deck RoofS3	Roof	2479	NA	0	29	U-Factor: 0.031	N	☐	☐
R-30 Roof Attic63	Roof	710	Wood	30	NA	U-Factor: 0.038	N	☐	☐

[1] *Status: N – New, A – Altered, E – Existing*

L. ROOFING PRODUCT SUMMARY | **§ 140.3** | **Confirmed**

1. Product Type	2. Product Density (lb/ft³)	3. Aged Solar Reflectance	4. Thermal Emittance	5. SRI	6. Cool Roof Credit	7. Roofing Product Description	Pass	Fail
R-30 Metal Deck RoofS3	4.13167	0.08	0.75	NA	No	NA	☐	☐
R-30 Roof Attic63	4.65104	0.08	0.75	NA	No	NA	☐	☐

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M. HVAC SYSTEM SUMMARY (see NRCC-PRF-MCH-DETAILS for more information) | **§ 110.1 / § 110.2**

Dry System Equipment [1] (Fan & Economizer info included below in Table N) | Confirmed

1. Equip Name	2. Equip Type	3. System Type (Simple [2] or Complex [3])	4. Qty	5. Total Heating Output (kBtu/h)	6. Supp Heat Source (Y/N)	7. Supp Heat Output (kBtuh)	8. Total Cooling Output (kBtu/h)	9. Efficiency: Cooling	9. Efficiency: Heating	10. Acceptance Testing Required? (Y/N) [4]	11. Status[5]	Pass	Fail
FC-1	SZHP (Split1Phase)	Simple	1	11	No	0	9	SEER-14.0 / EER-12.2	HSPF-8.0	Yes	N	☐	☐
FC-2	SZHP (Split1Phase)	Simple	1	11	No	0	9	SEER-14.0 / EER-12.2	HSPF-8.0	Yes	N	☐	☐
FC-3	SZHP (Split1Phase)	Simple	1	66	No	0	58	SEER-14.0 / EER-12.2	COP-3.2	Yes	N	☐	☐
113 TOILET22	Exhaust (InLB)	Simple	1	0	No	0	0	NA	NA	No	N	☐	☐
114 PLUNGE POOL28	Exhaust (InLB)	Simple	1	0	No	0	0	NA	NA	No	N	☐	☐
115 SHOWER32	Exhaust (InLB)	Simple	1	0	No	0	0	NA	NA	No	N	☐	☐
FC-4	SZHP (Split1Phase)	Simple	1	54	No	0	46	SEER-14.0 / EER-12.2	HSPF-8.0	Yes	N	☐	☐
FC-5	SZHP (Split1Phase)	Simple	1	66	No	0	58	SEER-14.0 / EER-12.2	COP-3.2	Yes	N	☐	☐
FC-6	SZHP (Split1Phase)	Simple	1	40	No	0	35	SEER-14.0 / EER-12.2	HSPF-8.0	Yes	N	☐	☐
FC-7	SZHP (Split1Phase)	Simple	1	20	No	0	17	SEER-14.0 / EER-12.2	HSPF-8.0	Yes	N	☐	☐
SAC-1	SZHP (Split1Phase)	Simple	1	0	No	0	12	SEER-14.0 / EER-12.2	HSPF-8.0	Yes	N	☐	☐
SAC-2	SZHP (Split1Phase)	Simple	1	0	No	0	12	SEER-14.0 / EER-12.2	HSPF-8.0	Yes	N	☐	☐

[1] *Dry System Equipment includes furnaces, air handling units, heat pumps, etc.*

[2] *Simple Systems must complete NRCC-CXR-01-E commissioning design review form*

[3] *Complex Systems must complete NRCC-CXR-04-E commissioning design review form*

[4] *A summary of which acceptance tests are applicable is provided in NRCC-PRF-MCH-DETAILS*

[5] *Status: N - New, A – Altered, E – Existing*

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TITLE 24 COMPLIANCE DOCUMENTATION
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

REGISTERED PROFESSIONAL ENGINEER
NICHOLAS A. VALENCIA
M 22836
EXPIRES 9/30/18
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 09/01/18

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA

TD - RCC/JH — PM - DESIGN TEAM
151121.00 — PROJECT NO.

M0003
75-16217-00
05.01.2018
Revisions

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Wet System Equipment [1]								*Pumps*					Confirmed	
12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.		
Equip Name	Equip Type	Qty	Vol (gal)	Rated Capacity (kBtu/h)	Efficiency	Standby Loss	Tank Ext. R Value	Qty	GPM	HP	VSD (Y/N)	Status[2]	Pass	Fail
Standard Gas 50 gal or Le2	Storage	1	50	39	EF: 0.600	NA	NA	NA	NA	NA	No	N	☐	☐

[1] *Wet System Equipment includes boilers, chillers, cooling towers, water heaters, etc.*
[2] *Status: N - New; A – Altered; E – Existing*

Discrepancy between modeled and designed equipment sizing? (if "Yes", see Table F "Additional Remarks" for an explanation)	No

N. ECONOMIZER & FAN SYSTEMS SUMMARY[1]												§ 140.4		Confirmed	
1.	2.	3.					4.					5.			
Equip Name	Outside Air	Supply Fan					Return Fan					Economizer Type (if present)		Pass	Fail
	CFM	CFM	HP	BHP	TSP (inch WC)	Control	CFM	HP	BHP	TSP (inch WC)	Control				
FC-1	32	320	0.035	0.035	0.35	ConstantVolume	NA	NA	NA	NA	NA	NoEconomizer		☐	☐
FC-2	14	320	0.035	0.035	0.35	ConstantVolume	NA	NA	NA	NA	NA	NoEconomizer		☐	☐
FC-3	237	1800	0.400	0.400	0.71	ConstantVolume	NA	NA	NA	NA	NA	DifferentialDryBulb		☐	☐
FC-4	508	1520	0.300	0.300	0.63	ConstantVolume	NA	NA	NA	NA	NA	DifferentialDryBulb		☐	☐
FC-5	765	1800	0.400	0.400	0.71	ConstantVolume	NA	NA	NA	NA	NA	DifferentialDryBulb		☐	☐
FC-6	120	1095	0.200	0.200	0.58	ConstantVolume	NA	NA	NA	NA	NA	DifferentialDryBulb		☐	☐
FC-7	97	670	0.100	0.100	0.47	ConstantVolume	NA	NA	NA	NA	NA	NoEconomizer		☐	☐
SAC-1	11	350	0.031	0.031	0.26	ConstantVolume	NA	NA	NA	NA	NA	NoEconomizer		☐	☐
SAC-2	14	350	0.031	0.031	0.26	ConstantVolume	NA	NA	NA	NA	NA	NoEconomizer		☐	☐

[1] *Mechanical ventilation calculations and exhaust fans are included in the NRCC-PRF-MCH-DETAILS section*

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O. EQUIPMENT CONTROLS	§ 120.2	Confirmed	
1.	2.	3.	Pass	Fail
Equip Name	Equip Type	Controls		
FC-1	SZHP	No DCV Controls No Economizer No Supply Air Temp. Control No Optimum Start No Evaporative Cooler	☐	☐
FC-2	SZHP	No DCV Controls No Economizer No Supply Air Temp. Control No Optimum Start No Evaporative Cooler	■	☐
FC-3	SZHP	No DCV Controls Differential DryBulb Economizer No Supply Air Temp. Control No Optimum Start No Evaporative Cooler	☐	☐
113 TOILET22	Exhaust	No DCV Controls Economizer type not properly specified No Supply Air Temp. Control No Optimum Start No Evaporative Cooler	☐	☐
114 PLUNGE POOL28	Exhaust	No DCV Controls Economizer type not properly specified No Supply Air Temp. Control No Optimum Start No Evaporative Cooler	☐	☐
115 SHOWER32	Exhaust	No DCV Controls Economizer type not properly specified Differential DryBulb Economizer No Supply Air Temp. Control No Optimum Start No Evaporative Cooler	☐	☐
FC-4	SZHP	1 Zones With CO2Sensor Vent. Control Differential DryBulb Economizer No Supply Air Temp. Control No Optimum Start No Evaporative Cooler	☐	☐

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O. EQUIPMENT CONTROLS	§ 120.2	Confirmed	
1.	2.	3.	Pass	Fail
Equip Name	Equip Type	Controls		
FC-5	SZHP	1 Zones With CO2Sensor Vent. Control No Economizer No Supply Air Temp. Control No Optimum Start No Evaporative Cooler	☐	☐
FC-6	SZHP	No DCV Controls Differential DryBulb Economizer No Supply Air Temp. Control No Optimum Start No Evaporative Cooler	☐	☐
FC-7	SZHP	No DCV Controls No Economizer No Supply Air Temp. Control No Optimum Start No Evaporative Cooler	☐	☐
SAC-1	SZHP	No DCV Controls No Economizer No Supply Air Temp. Control No Optimum Start No Evaporative Cooler	☐	☐
SAC-2	SZHP	No DCV Controls No Economizer No Supply Air Temp. Control No Optimum Start No Evaporative Cooler	☐	☐
Undefined Plant 1 - SHW	Service Hot Water, Primary Only	Fixed Temperature Control, No DOC	☐	☐

P. SYSTEM DISTRIBUTION SUMMARY	§ 120.4/ § 140.4(l)						
		Dry System Distribution				Confirmed	
1.	2.	3.	4.	5.		Pass	Fail
Equip Name	Equip Type	Duct Leakage and Sealing Required per 140.4(l)	Duct Leakage will be verified per NA1 and NA2	Ducts			
				Insulation R-Value	Location		
FC-1	SZHP	No	No	8	Unconditioned	☐	☐

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P. SYSTEM DISTRIBUTION SUMMARY	§ 120.4/ § 140.4(l)						
		Dry System Distribution				Confirmed	
1.	2.	3.	4.	5.		Pass	Fail
Equip Name	Equip Type	Duct Leakage and Sealing Required per 140.4(l)	Duct Leakage will be verified per NA1 and NA2	Ducts			
				Insulation R-Value	Location		
FC-2	SZHP	No	No	8	Unconditioned	☐	☐
FC-3	SZHP	No	No	8	Unconditioned	☐	☐
FC-4	SZHP	No	No	8	Unconditioned	☐	☐
FC-5	SZHP	No	No	8	Unconditioned	☐	☐
FC-6	SZHP	No	No	8	Unconditioned	☐	☐
FC-7	SZHP	No	No	8	Unconditioned	☐	☐
SAC-1	SZHP	No	No	8	Unconditioned	☐	☐
SAC-2	SZHP	No	No	8	Unconditioned	☐	☐

Does the Project Include Zonal Systems? (if "Yes", see NRCC-PRF-MCH-DETAILS for system information)	No
Does the Project Include a Solar Hot Water System? (if "Yes", see NRCC-PRF-MCH-DETAILS for system information)	No
Multifamily or Hotel/ Motel Occupancy? (if "Yes", see NRCC-PRF-MCH-DETAILS for DHW system information)	No

Q. INDOOR CONDITIONED LIGHTING GENERAL INFO (see NRCC-PRF-LTI-DETAILS for more info)
This Section Does Not Apply

R. INDOOR CONDITIONED LIGHTING SCHEDULE (Adapted from NRCC-LTI-01-E)[1]	§ 130.0
This Section Does Not Apply	

[1] If lighting power densities were used in the compliance model Building Departments will need to check prescriptive forms for Luminaire Schedule details.

S1. COVERED PROCESS SUMMARY – ENCLOSED PARKING GARAGES	§ 140.9
This Section Does Not Apply	

S2. COVERED PROCESS SUMMARY – COMMERCIAL KITCHENS	§ 140.9
This Section Does Not Apply	

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S3. COVERED PROCESS SUMMARY – COMPUTER ROOMS	§ 140.9
This Section Does Not Apply	

S4. COVERED PROCESS SUMMARY – LABORATORY EXHAUSTS	§ 140.9
This Section Does Not Apply	

T. UNMET LOAD HOURS

Thermal Zone Name	Cooling Unmet Load Hour Limit for Thermal Zone	Proposed Cooling Unmet Load Hours	Heating Unmet Load Hour Limit for Thermal Zone	Proposed Heating Unmet Load Hours
10-202 MULTIPURPOSE	150	259.5	150	0
12-209 ASST. COACH	150	2176	150	1823.75
13-210 ASST. COACH	150	2168.25	150	1805
14-211 HEAD COACH	150	1997.75	150	1330.25

U. ENERGY USE SUMMARY

Energy Component	Standard Design Site (MWh)	Proposed Design Site (MWh)	Margin (MWh)	Standard Design Site (MBtu)	Proposed Design Site (MBtu)	Margin (MBtu)
Space Heating	0.0	5.3	--	66.7	--	--
Space Cooling	8.0	7.4	0.6	--	--	--
Indoor Fans	8.1	9.2	-1.1	--	--	--
Heat Rejection	--	--	--	--	--	--
Pumps & Misc.	1.0	--	--	--	--	--
Domestic Hot Water	--	--	--	34.0	35.7	-1.7
Indoor Lighting	19.0	19.0	0.0	--	--	--
COMPLIANCE TOTAL	**36.1**	**40.9**	**-4.8**	**100.7**	**35.7**	**65.0**
Receptacle	20.7	20.7	0.0	1.1	1.1	0.0
Process	--	--	--	--	--	--
Other Ltg	--	--	--	--	--	--
TOTAL	**56.8**	**61.6**	**-4.8**	**101.8**	**36.8**	**65.0**

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DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	§ 10-103
I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: Aaron Winternmith	Signature:
Company: Capital Engineering Consultants Inc.	
Address: 11020 Sun Center Drive # 100	Signature Date: 10/17/2017
City/State/Zip: Rancho Cordova CA 95670	CEA Identification (if applicable):
Phone: (916) 851-3500	

RESPONSIBLE PERSON'S DECLARATION STATEMENT	
I certify the following under penalty of perjury, under the laws of the State of California:	
1	I hereby affirm that I am eligible under the provisions of Division 3 of the Business and Professions Code to sign this document as the person responsible for its preparation; and that I am licensed in the State of California as a civil engineer, mechanical engineer, electrical engineer, or I am a licensed architect.
2	I affirm that I am eligible under the provisions of Division 3 of the Business and Professions Code by section 5537.2 or 6737.3 to sign this document as the person responsible for its preparation; and that I am a licensed contractor performing this work.
3	I affirm that I am eligible under Division 3 of the Business and Professions Code to sign this document because it pertains to a structure or type of work described as exempt pursuant to Business and Professions Code Sections 5537, 5538 and 6737.1.

Responsible Envelope Designer Name:	Signature:
Company: DLR Group	
Address: 1050 20th Street, Suite #250	Date Signed:
City/State/Zip: Sacramento CA 95811	Declaration Statement Type:
Phone: (916) 446-0206	Title: License #:
Responsible Lighting Designer Name:	Signature: NOT IN SCOPE
Company:	
Address:	Date Signed:
City/State/Zip:	Declaration Statement Type:
Phone:	Title: License #:
Responsible Mechanical Designer Name: Thomas Duval	Signature:
Company: Capital Engineering Consultants, Inc.	
Address: 11020 Sun Center Dr. #100	Date Signed: 10/17/2017
City/State/Zip: Rancho Cordova CA 95670	Declaration Statement Type:
Phone: (916) 851-3500	Title: License #: M22836

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NRCC-PRF-ENV-DETAILS -SECTION START-

A. OPAQUE SURFACE ASSEMBLY DETAILS				Confirmed	
1.	2.	3.	4.	Pass	Fail
Surface Name	Surface Type	Description of Assembly Layers	Notes		
R-0 Floor No Crawlspace6	InteriorFloor	Air - Cavity - Wall Roof Ceiling - 4 in. or more Plywood - 1/2 in. Carpet - 3/4 in.		☐	☐
Slab On Grade9	UndergroundFloor	Slab Type = UnheatedSlabOnGrade Insulation Orientation = None Insulation R-Value = R0		☐	☐
R-19 Wall Metal Stud_R213	ExteriorWall	Stucco - 7/8 in. Vapor permeable felt - 1/8 in. Metal framed wall, 16in. OC, 5.5in., R-19 Gypsum Board - 5/8 in. Expanded Polystyrene - EPS - 2 in. R8.3		☐	☐
6 Concrete Wall w/R-1319	ExteriorWall	Concrete - 140 lb/ft3 - 6 in. Wood framed wall, 16in. OC, 3.5in., R-13 Gypsum Board - 5/8 in.		☐	☐
R-11 Wall44	InteriorWall	Stucco - 7/8 in. Vapor permeable felt - 1/8 in. Wood framed wall, 16in. OC, 3.5in., R-11 Gypsum Board - 1/2 in.		☐	☐
R-30 Metal Deck Roof53	Roof	Built-up roofing - 3/8 in. Plywood - 1/2 in. Air - Cavity - Wall Roof Ceiling - 4 in. or more Cellular polyisocyanurate (unfaced) - 5 in. R29		☐	☐
R-30 Roof Attic63	Roof	Asphalt shingles - 1/4 in. Vapor permeable felt - 1/8 in. Plywood - 1/2 in. Air - Cavity - Wall Roof Ceiling - 4 in. or more Wood framed roof, 24in. OC, 3.5in., R-30 Gypsum Board - 1/2 in.		☐	☐

B. OVERHANG DETAILS (Adapted from NRCC-ENV-02-E)
This Section Does Not Apply

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C. OPAQUE DOOR SUMMARY							Confirmed	
1.	2.	3.	4.	5.	6.	7.		
Opaque Door Assembly Name / Tag or I.D.	Door Type	Certification Method	Operation	Area	Overall U-factor	Status[1]	Pass	Fail
Wood Door15	WoodGreaterThanOrEqual7to1.75inThickDoor	DefaultPerformance	Swinging	105	0.500	N	☐	☐

[1] *Status: N - New, A – Altered, E – Existing*

NRCC-PRF-MCH-DETAILS -SECTION START-

A. MECHANICAL VENTILATION AND REHEAT *(Adapted from 2016-NRCC-MCH-03-E)*																				Confirmed	
		1. DESIGN AIR FLOWS							2. VENTILATION (§ 120.1)												
CONDITIONED ZONE NAME	HEATING/COOLING SYSTEM ID	DESIGN PRIMARY AIR FLOW (CFM)	DESIGN PRIMARY MINIMUM AIR FLOW (CFM)	MINIMUM PRIMARY AIR FLOW FRACTION	MAXIMUM HEATING AIR FLOW (CFM)	MAXIMUM HEATING AIR FLOW FRACTION	CZEC CONTROL (Y/N)	VENT SYSTEM ID	CONDITIONED AREA (ft2)	MIN. VENT FOR AREA (CFM/ft2)	DESIGN NUM. OF PEOPLE	MIN. VENT FOR PEOPLE (CFM/PERSON)	REQ'D VENT AIR FLOW (CFM)	DESIGN VENT AIR FLOW (CFM)	TRANSFER AIRFLOW (CFM)	DCV (Y/N)	Operable Window Interlock § 140.4(k) (Y/N)	Pass	Fail
1-105 TAPING	FC-1	320	NA	NA	NA	NA	N	FC-1	213	NA	2	15.0	32	32	NA	N	NA	☐	☐
2-103 UMPIRE LOCKER	FC-2	320	NA	NA	NA	NA	N	FC-2	95	NA	1	15.0	14	14	NA	N	NA	☐	☐
3-112 LOCKER RM	FC-3	1,800	NA	NA	NA	NA	N	FC-3	1,580	NA	16	15.0	237	237	NA	N	NA	☐	☐
7-101 PLAYER LOUNGE	FC-4	760	NA	NA	NA	NA	N	FC-4	791	NA	26	15.0	396	396	NA	Y	NA	☐	☐
8-108 MUD ROOM	FC-4	360	NA	NA	NA	NA	N	FC-4	365	NA	2	30.0	55	55	NA	N	NA	☐	☐
9-109 EQUIPMENT/LAUNDRY	FC-4	380	NA	NA	NA	NA	N	FC-4	386	NA	2	30.0	58	58	NA	N	NA	☐	☐
10-202 MULTIPURPOSE	FC-5	1,176	NA	NA	NA	NA	N	FC-5	1,320	NA	44	15.0	660	660	NA	Y	NA	☐	☐
11-VESTIBULE 201	FC-5	624	NA	NA	NA	NA	N	FC-5	700	NA	4	30.0	105	105	NA	N	NA	☐	☐

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A. MECHANICAL VENTILATION AND REHEAT *(Adapted from 2016-NRCC-MCH-03-E)*																				Confirmed	
		1. DESIGN AIR FLOWS							2. VENTILATION (§ 120.1)												
CONDITIONED ZONE NAME	HEATING/COOLING SYSTEM ID	DESIGN PRIMARY AIR FLOW (CFM)	DESIGN PRIMARY MINIMUM AIR FLOW (CFM)	MINIMUM PRIMARY AIR FLOW FRACTION	MAXIMUM HEATING AIR FLOW (CFM)	MAXIMUM HEATING AIR FLOW FRACTION	CZEC CONTROL (Y/N)	VENT SYSTEM ID	CONDITIONED AREA (ft2)	MIN. VENT FOR AREA (CFM/ft2)	DESIGN NUM. OF PEOPLE	MIN. VENT FOR PEOPLE (CFM/PERSON)	REQ'D VENT AIR FLOW (CFM)	DESIGN VENT AIR FLOW (CFM)	TRANSFER AIRFLOW (CFM)	DCV (Y/N)	Operable Window Interlock § 140.4(k) (Y/N)	Pass	Fail
12-209 ASST. COACH	FC-6	162	NA	NA	NA	NA	N	FC-6	118	NA	1	30.0	18	18	NA	N	NA	☐	☐
13-210 ASST. COACH	FC-6	162	NA	NA	NA	NA	N	FC-6	118	NA	1	30.0	18	18	1	N	NA	☐	☐
14-211 HEAD COACH	FC-6	251	NA	NA	NA	NA	N	FC-6	183	NA	1	30.0	27	27	NA	N	NA	☐	☐
15-216 VOLUNTEER COACH/ DIR.	FC-6	280	NA	NA	NA	NA	N	FC-6	204	NA	1	30.0	31	31	NA	N	NA	☐	☐
16-214 COACH LOCKER	FC-6	239	NA	NA	NA	NA	N	FC-6	174	NA	2	15.0	1	26	NA	N	NA	☐	☐
17-212 VIDEO ROOM	FC-7	670	NA	NA	NA	NA	N	FC-7	194	NA	6	15.0	97	97	NA	N	NA	☐	☐
18-106 ELEV EQUIP	SAC-1	350	NA	NA	NA	NA	N	SAC-1	74	NA	0	100.0	11	11	NA	N	NA	☐	☐
19-IT RM	SAC-2	350	NA	NA	NA	NA	N	SAC-2	90	NA	0	100.0	14	14	NA	N	NA	☐	☐
								TOTAL	7,219		NA		NA	NA	NA		☐	☐

B. ZONAL SYSTEM AND TERMINAL UNIT SUMMARY										§ 140.4	
1.	2.	3.	4.		5.	6.	7.		8.		Confirmed
System ID	System Type	Qty	Rated Capacity (kBtuh)		Economizer	Zone Name	Airflow (cfm)		Fan		Pass	Fail
			Heating	Cooling			Design	Min. Ratio	BHP	Cycles	ECM Motor		
1-105 TAPING-Trm	Uncontrolled	1	NA	NA	NA	1-105 TAPING	320	NA	NA	NA	NA	☐	☐

REGISTERED PROFESSIONAL ENGINEER
THOMAS A. DUVAL
M22836
EXPIRES 9/30/18
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 05/01/18

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD - RCC/JH — PM - DESIGN TEAM
151121.00 — PROJECT NO.

TITLE 24 COMPLIANCE DOCUMENTATION
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

M004
75-1627.00
05.01.2018
Revisions

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B. ZONAL SYSTEM AND TERMINAL UNIT SUMMARY — § 140.4

1.	2.	3.	4.		5.	6.	7.			8.			Confirmed	
System ID	System Type	Qty	Rated Capacity (kBtuh)		Economizer	Zone Name	Airflow (cfm)			Fan			Pass	Fail
			Heating	Cooling			Design	Min.	Min. Ratio	BHP	Cycles	ECM Motor		
2-103 UMPIRE LOCKER-Trm	Uncontrolled	1	NA	NA	NA	2-103 UMPIRE LOCKER	320	NA	NA	NA	NA	☐	☐	☐
3-112 LOCKER RM-Trm	Uncontrolled	1	NA	NA	NA	3-112 LOCKER RM	1800	NA	NA	NA	NA	☐	☐	☐
9-109 EQUIPMENT/LAUNDRY-Trm	Uncontrolled	1	NA	NA	NA	9-109 EQUIPMENT/LAUNDRY	380	NA	NA	NA	NA	☐	☐	☐
8-108 MUD ROOM-Trm	Uncontrolled	1	NA	NA	NA	8-108 MUD ROOM	360	NA	NA	NA	NA	☐	☐	☐
7-101 PLAYER LOUNGE-Trm	Uncontrolled	1	NA	NA	NA	7-101 PLAYER LOUNGE	780	NA	NA	NA	NA	☐	☐	☐
11-VESTIBULE 201-Trm	Uncontrolled	1	NA	NA	NA	11-VESTIBULE 201	624	NA	NA	NA	NA	☐	☐	☐
10-202 MULTIPURPOSE-Trm	Uncontrolled	1	NA	NA	NA	10-202 MULTIPURPOSE	1176	NA	NA	NA	NA	☐	☐	☐
16-214 COACH LOCKER-Trm	Uncontrolled	1	NA	NA	NA	16-214 COACH LOCKER	239	NA	NA	NA	NA	☐	☐	☐
15-216 VOLUNTEER COACH/ DIR.-Trm	Uncontrolled	1	NA	NA	NA	15-216 VOLUNTEER COACH/ DIR.	280	NA	NA	NA	NA	☐	☐	☐
14-211 HEAD COACH-Trm	Uncontrolled	1	NA	NA	NA	14-211 HEAD COACH	251	NA	NA	NA	NA	☐	☐	☐
13-210 ASST. COACH-Trm	Uncontrolled	1	NA	NA	NA	13-210 ASST. COACH	162	NA	NA	NA	NA	☐	☐	☐
12-209 ASST. COACH-Trm	Uncontrolled	1	NA	NA	NA	12-209 ASST. COACH	162	NA	NA	NA	NA	☐	☐	☐
17-212 VIDEO ROOM-Trm	Uncontrolled	1	NA	NA	NA	17-212 VIDEO ROOM	670	NA	NA	NA	NA	☐	☐	☐
18-106 ELEV EQUIP-Trm	Uncontrolled	1	NA	NA	NA	18-106 ELEV EQUIP	350	NA	NA	NA	NA	☐	☐	☐

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B. ZONAL SYSTEM AND TERMINAL UNIT SUMMARY — § 140.4

1.	2.	3.	4.		5.	6.	7.			8.			Confirmed	
System ID	System Type	Qty	Rated Capacity (kBtuh)		Economizer	Zone Name	Airflow (cfm)			Fan			Pass	Fail
			Heating	Cooling			Design	Min.	Min. Ratio	BHP	Cycles	ECM Motor		
19-IT RM-Trm	Uncontrolled	1	NA	NA	NA	19-IT RM	350	NA	NA	NA	NA	☐	☐	☐

C. EXHAUST FAN SUMMARY — Confirmed

1.	2.	3.	4.	5.	6.	Pass	Fail
System ID	Zone Name	Qty	CFM	Motor BHP	Total Static Pressure (in H20)		
113 TOILET22	4-113 TOILET	1	400	0.083	0.79	☐	☐
114 PLUNGE POOL28	5-114 PLUNGE POOL	1	400	0.083	0.79	☐	☐
115 SHOWER32	6-115 SHOWER	1	400	0.083	0.79	☐	☐

D. DHW EQUIPMENT SUMMARY – *(Adapted from NRCC-PLB-01)* — § 110.3 — Confirmed

1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	Pass	Fail
DHW Name	Heater Element Type	Tank Type	Qty	Tank Vol (gal)	Rated Input (kBtu/h)	Efficiency	Tank Insulation R-value (Int/Ext)	Pilot Energy (Btu/h)	Standby Loss	Heat Pump Type	Tank Location or Ambient Condition		
Standard Gas 50 gal or Le2	Gas	Storage	1	50	39	EF: 0.600	NA		0	NA	NA	☐	☐

E. MULTI-FAMILY CENTRAL DHW SYSTEM DETAILS

This Section Does Not Apply

F. SOLAR HOT WATER HEATING SUMMARY (Adapted from NRCC-STH-01)

This Section Does Not Apply

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G. MECHANICAL HVAC ACCEPTANCE TESTS & FORMS *(Adapted from 2016-NRCC-MCH-01-E)* — § RA4

Declaration of Required Acceptance Certificates (NRCA) – Acceptance Certificates that may be submitted. (Retain copies and verify forms are completed and signed to post in field for Field Inspector to verify).

Test Description	MCH-02A	MCH-03A	MCH-04A	MCH-05A	MCH-06A	MCH-07A	MCH-08A	MCH-09A	MCH-10A	MCH-11A	MCH-12A	MCH-13A	MCH-14A	MCH-15A	MCH-16A	MCH-17A	MCH-18A	Confirmed	
Equipment Requiring Testing or Verification	# of units	Outdoor Air	Single Zone Unitary	Air Dist. Ducts	Economizer Controls	DCV	Supply Fan VFD	Valve Leakage	Supply Water Temp. Reset	Hyd. Variable Flow Control	Auto Demand Shed Control	FDD for DX Units	Auto Lgts Out Ast & Zone	Duct Energy Storage (DX AC)	TES Systems	Supply Air Temp. Reset	Condenser Water Reset Controls	ECMS	Pass	Fail
Undefined Plant1 - SHW	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	☐	☐
FC-1	1	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	☐	☐
FC-2	1	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	☐	☐
FC-3	1	X	X	--	X	--	--	--	--	--	--	--	--	--	--	--	--	--	☐	☐
113 TOILET22	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	☐	☐
114 PLUNGE POOL28	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	☐	☐
115 SHOWER32	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	☐	☐
FC-4	1	X	X	--	X	X	--	--	--	--	--	--	--	--	--	--	--	--	☐	☐
FC-5	1	--	X	--	X	X	--	--	--	--	--	--	--	--	--	--	--	--	☐	☐
FC-6	1	X	X	--	X	--	--	--	--	--	--	--	--	--	--	--	--	--	☐	☐
FC-7	1	X	X	--	--	X	--	--	--	--	--	--	--	--	--	--	--	--	☐	☐
SAC-1	1	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	☐	☐
SAC-2	1	X	X	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	☐	☐

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H. EVAPORATIVE COOLER SUMMARY

This Section Does Not Apply

NRCC-PRF-LTI-DETAILS -SECTION START-

A. INDOOR CONDITIONED LIGHTING CONTROL CREDITS (Adapted from NRCC-LTI-02-E) — § 140.6

This Section Does Not Apply

B. INDOOR CONDITIONED LIGHTING MANDATORY LIGHTING CONTROLS (Adapted from NRCC-LTI-02-E) — § 130.1

This Section Does Not Apply

C. TAILORED METHOD CONDITIONED LIGHTING POWER ALLOWANCE SUMMARY AND CHECKLIST (Adapted from NRCC-LTI-04-E) — § 140.6

This Section Does Not Apply

D. GENERAL LIGHTING POWER (Adapted from NRCC-LTI-04-E) — § 140.6-D

This Section Does Not Apply

E. GENERAL LIGHTING FROM SPECIAL FUNCTION AREAS (Adapted from NRCC-LTI-04-E) — § 140.6(c) 3H

This Section Does Not Apply

F. ROOM CAVITY RATIO (Adapted from NRCC-LTI-04-E)

This Section Does Not Apply

G. ADDITIONAL "USE IT OR LOSE IT" (Adapted from NRCC-LTI-04-E)

This Section Does Not Apply

H. INDOOR & OUTDOOR LIGHTING ACCEPTANCE TESTS & FORMS (Adapted from NRCC-LTI-01-E and NRCC-LTO-01-E) — § 130.4

This Section Does Not Apply

ENVELOPE MANDATORY MEASURES: NONRESIDENTIAL — ENV-MM

Project Name: *Cal Poly SLO Baseball Fieldhouse* Date: *10/17/2017*

DESCRIPTION

Building Envelope Measures:

§110.8(a):	Installed insulating material shall have been certified by the manufacturer to comply with the California Quality Standards for insulating material, Title 20 Chapter 4, Article 3.
§110.8(c):	All insulating Materials shall be installed in compliance with the flame spread rating and smoke-density requirements of Sections 2602 and 707 of Title 24, Part 2.
§110.8(f):	The opaque portions of framed demising walls in nonresidential buildings shall have insulation with an installed R-value of no less than R-13 between framing members.
§110.7(a):	All Exterior Joints and openings in the building that are observable sources of air leakage shall be caulked, gasketed, weatherstripped or otherwise sealed.
§110.6(a):	Manufactured fenestration products and exterior doors shall have air infiltration rates not exceeding 0.3 cfm/ft.² of window area, 0.3 cfm/ft.² of door area for residential doors, 0.3 cfm/ft.² of door area for nonresidential single doors (swinging and sliding), and 1.0 cfm/ft.² for nonresidential double doors (swinging).
§110.6(a):	Fenestration U-factor shall be rated in accordance with NFRC 100, or the applicable default U-factor.
§110.6(a):	Fenestration SHGC shall be rated in accordance with NFRC 200, or NFRC 100 for site-built fenestration, or the applicable default SHGC.
§110.6(b):	Site Constructed Doors, Windows and Skylights shall be caulked between the unit and the building, and shall be weatherstripped (except for unframed glass doors and fire doors).

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REGISTERED PROFESSIONAL ENGINEER — THOMAS K. KUNZ — M 22836 — EXPIRES 9/30/18 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: 05/01/18

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD - RCC/JH — PM - DESIGN TEAM
151121.00 — PROJECT NO.

TITLE 24 COMPLIANCE DOCUMENTATION
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

M0005
75-16217-00
05.01.2018
Revisions

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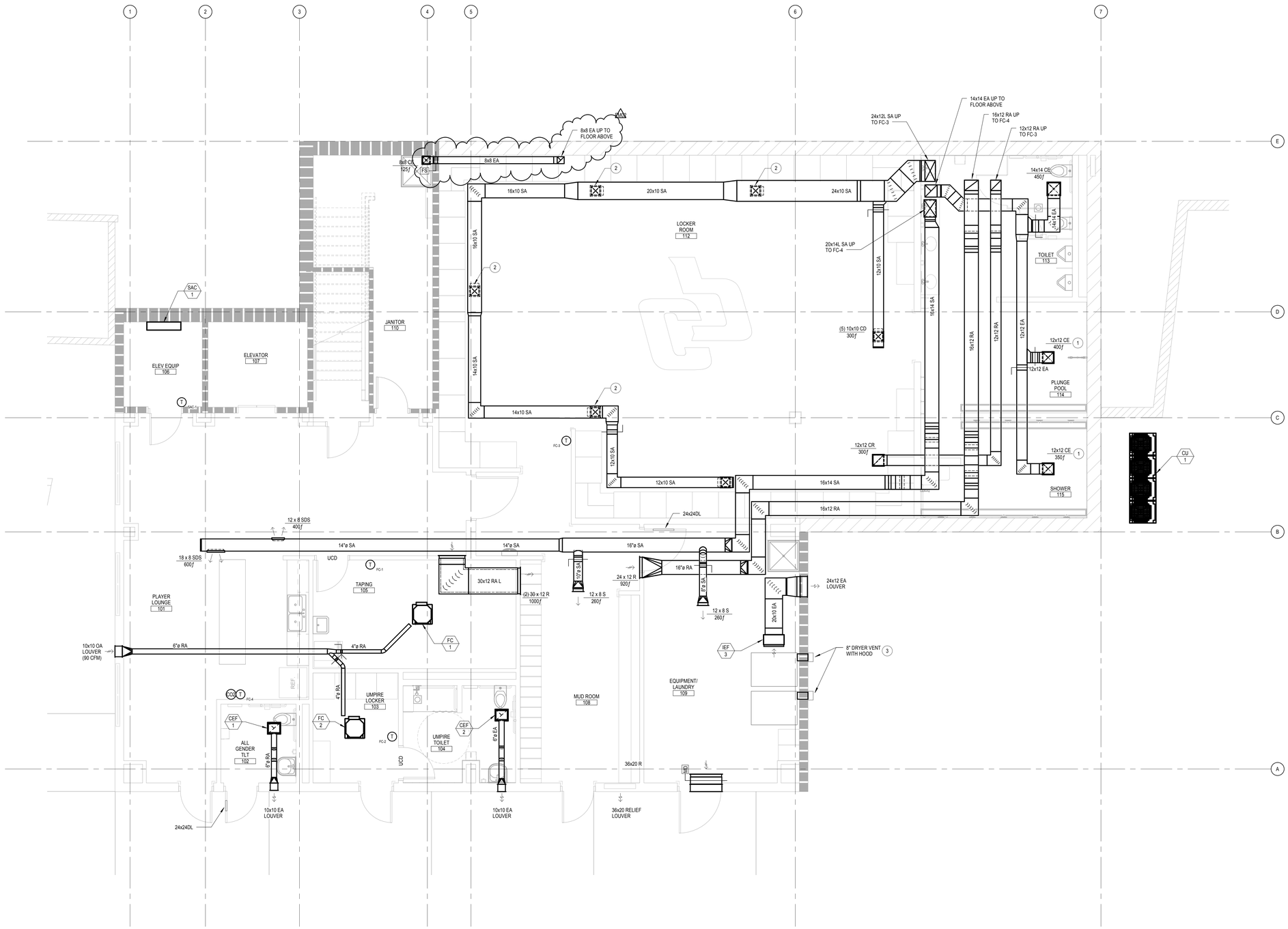

1 M101 MECHANICAL FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. ALL DIVISION 21, 22 AND 23 SERVICES SUCH AS DUCTWORK, DIFFUSERS, REGTISTER, VAV TERMINALS, PIPING, CONDUIT, EQUIPMENT SUPPORTS, ETC, INSTALLED OVERHEAD IN EXPOSED BUILDING STRUCTURES SHALL BE FINISH PAINTED BY THE PROJECT PAINTING SUBCONTRACTOR. DIVISION 21, 22 AND 23 CONTRACTORS SHALL CLEAN AND PREP THESE ITEMS FOR THE FINAL FINISH PAINTING. ITEMS WHICH ARE TYPICALLY PROVIDED WITH A FACTORY PAINT FINISH SUCH AS DIFFUSERS AND REGISTERS SHALL INSTEAD BE PROVIDED WITH A FACTORY PRIMED FINISH TO ALLOW FOR THE FINAL ON-SITE PAINTING. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF OVERHEAD EXPOSED BUILDING STRUTURE.

2. WHERE NOTED ON FLOOR PLAN WITH "UCD", PROVIDE 3/4" DOOR UNDERCUT FOR TRANSFER / MAKE-UP AIR. REFER TO ARCHITECTURAL DOOR SCHEDULE FOR DETAILS.

3. FOR CLARITY, ALL MANUAL VOLUME AIR DAMPERS MAY NOT BE SHOWN ON MECHANICAL FLOOR PLANS. PROVIDE A MANUAL AIR DAMPER AT EVERY SA/RA/EA BRANCH DUCT SERVING A SINGLE DIFFUSER/GRILLE, TYP.

4. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF CEILING DIFFUSERS/GRILLES/FANS/ACCESS PANELS, TYP.

5. FOR TYPICAL LAY-IN DIFFUSER/GRILLE MOUNTING, REFER TO DETAIL 4/M501.

SHEET NOTES

1. PROVIDE ALUMINUM EXHAUST GRILLE OR REGISTER AND STAINLESS STEEL DUCTWORK FOR A LENGTH OF 20 FEET FROM THE EXHAUST GRILLE OR REGISTER.
2. PROVIDE MANUAL VOLUME DAMPER ON THE VERTICAL DUCT BETWEEN MAIN AND SUPPLY DIFFUSER.
3. 8" DIA. DRYER VENT THRU WALL W/ INTEGRAL BACKDRAFT DAMPER & WALL HOOD. INSTALL VENT PER 2016 CMC 504.4.3 FOR COMMERCIAL CLOTHES DRYER AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.

WALL LEGEND

WALL HOURLY FIRE RATING		
0	=	0 HOUR
1	=	1 HOUR

REGISTERED PROFESSIONAL ENGINEER — THOMAS A. ROSS — M 22836 — EXPIRES 9/30/18 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: 05/14/18

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD - RCC/JH — PM - DESIGN TEAM
151121.00 — PROJECT NO.

MECHANICAL FIRST FLOOR PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

M101

75-16217-00
05.01.2018

Revisions	
ADDENDUM #01	01/26/2018
FIRE MARSHALL BACKCHECK	04/09/2018
FIRE MARSHALL BACKCHECK 2	05/14/2018

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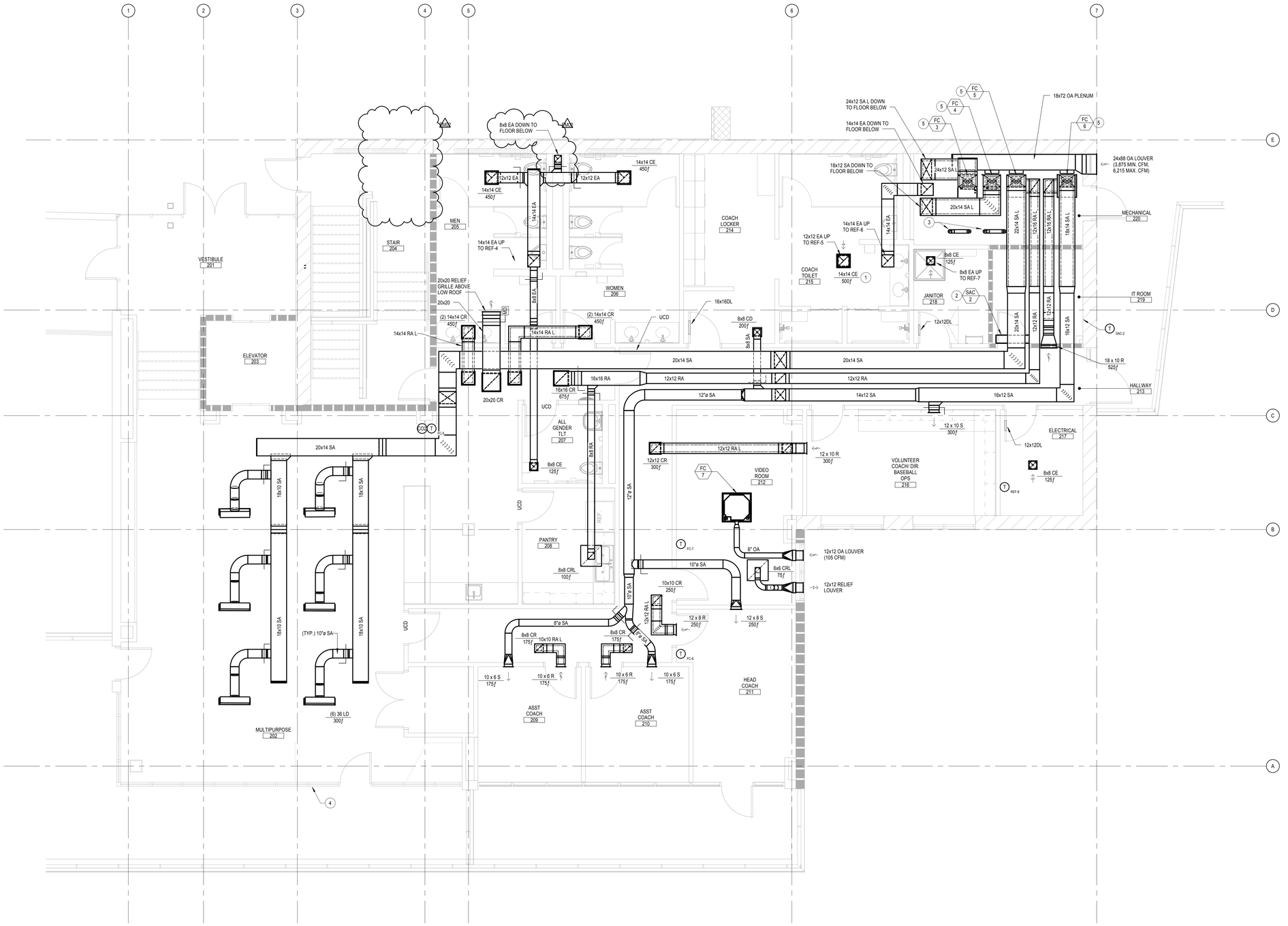

1 M102 MECHANICAL SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. ALL DIVISION 21, 22 AND 23 SERVICES SUCH AS DUCTWORK, DIFFUSERS, REGTISTER, VAV TERMINALS, PIPING, CONDUIT, EQUIPMENT SUPPORTS, ETC, INSTALLED OVERHEAD IN EXPOSED BUILDING STRUCTURES SHALL BE FINISH PAINTED BY THE PROJECT PAINTING SUBCONTRACTOR. DIVISION 21, 22 AND 23 CONTRACTORS SHALL CLEAN AND PREP THESE ITEMS FOR THE FINAL FINISH PAINTING. ITEMS WHICH ARE TYPICALLY PROVIDED WITH A FACTORY PAINT FINISH SUCH AS DIFFUSERS AND REGISTERS SHALL INSTEAD BE PROVIDED WITH A FACTORY PRIMED FINISH TO ALLOW FOR THE FINAL ON-SITE PAINTING. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF OVERHEAD EXPOSED BUILDING STRUTURE.

2. WHERE NOTED ON FLOOR PLAN WITH "UCD", PROVIDE 3/4" DOOR UNDERCUT FOR TRANSFER / MAKE-UP AIR. REFER TO ARCHITECTURAL DOOR SCHEDULE FOR DETAILS.

3. FOR CLARITY, ALL MANUAL VOLUME AIR DAMPERS MAY NOT BE SHOWN ON MECHANICAL FLOOR PLANS. PROVIDE A MANUAL AIR DAMPER AT EVERY SA/RA/EA BRANCH DUCT SERVING A SINGLE DIFFUSER/GRILLE, TYP.

4. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF CEILING DIFFUSERS/GRILLES/FANS/ACCESS PANELS, TYP.

5. FOR TYPICAL LAY-IN DIFFUSER/GRILLE MOUNTING, REFER TO DETAIL 4/M501.

6. FOR TYPICAL FAN COIL UNIT CONDENSATE DRAIN PIPING, REFER TO DETAIL 7/M502.

SHEET NOTES

1. PROVIDE ALUMINUM EXHAUST GRILLE OR REGISTER AND STAINLESS STEEL DUCTWORK FOR A LENGTH OF 20 FEET FROM THE EXHAUST GRILLE OR REGISTER.
2. MOUNT CONDENSATE PUMP ON ADJACENT WALL WITHIN JANITOR 218. REFER TO PLUMBING PLANS FOR ROUTING OF CONDENSATE PIPING.
3. COMBUSTION AIR INTAKE & FLUE VENT PIPING UP TO WATER HEATER MFR'S CONCENTRIC COMBUSTION AIR/VENT KIT. SEE DETAIL 6/M502 & 2/P501, TYP.
4. PROVIDE DOOR SWITCH ON OPERABLE WALL. INTERLOCKED WITH FC-5. REFER TO DETAIL 1/M602.
5. PROVIDE REMOVABLE ACCESS PANEL AT FRONT OF MIXED AIR PLENUM FOR ACCESS TO CONTROL DAMPERS. REFER TO DETAIL 10/M501.

WALL LEGEND

WALL HOURLY FIRE RATING	
0	= 0 HOUR
1	= 1 HOUR

REGISTERED PROFESSIONAL ENGINEER
NICHOLAS A. ROSA
M 22836
EXPIRES 9/30/18
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 05/14/18

CAPITAL
ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA

TD - RCC/JH — PM - DESIGN TEAM
151121.00 — PROJECT NO.

MECHANICAL SECOND FLOOR PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

M102

75-16217-00
05.01.2018
Revisions
ADDENDUM#1 01/26/2018
FIRE MARSHALL BACKCHECK 04/06/2018
ADDENDUM
FIRE MARSHALL BACKCHECK 05/14/2018
2

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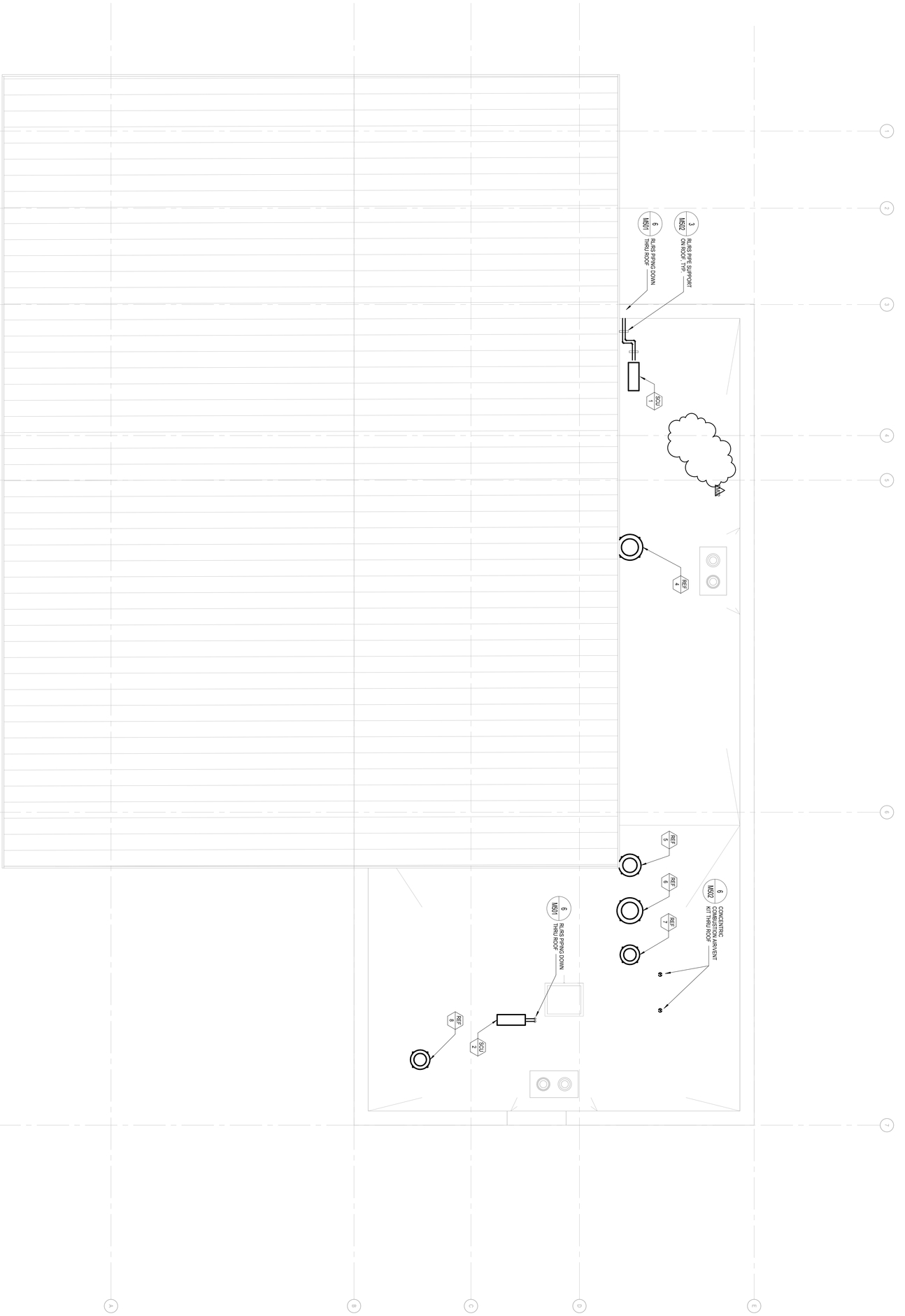

1 M103 MECHANICAL ROOF PLAN

SCALE: 1/4" = 1'-0"

CAPITAL
ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TEL: (916) 851-8700
FAX: (916) 851-8783
PROJECT NO.
1651.01
DATE SIGNED
SIGNATURE
REGISTERED PROFESSIONAL ENGINEER
STATE OF CALIFORNIA
MECHANICAL
M 22008
EXPIRES 6/30/19

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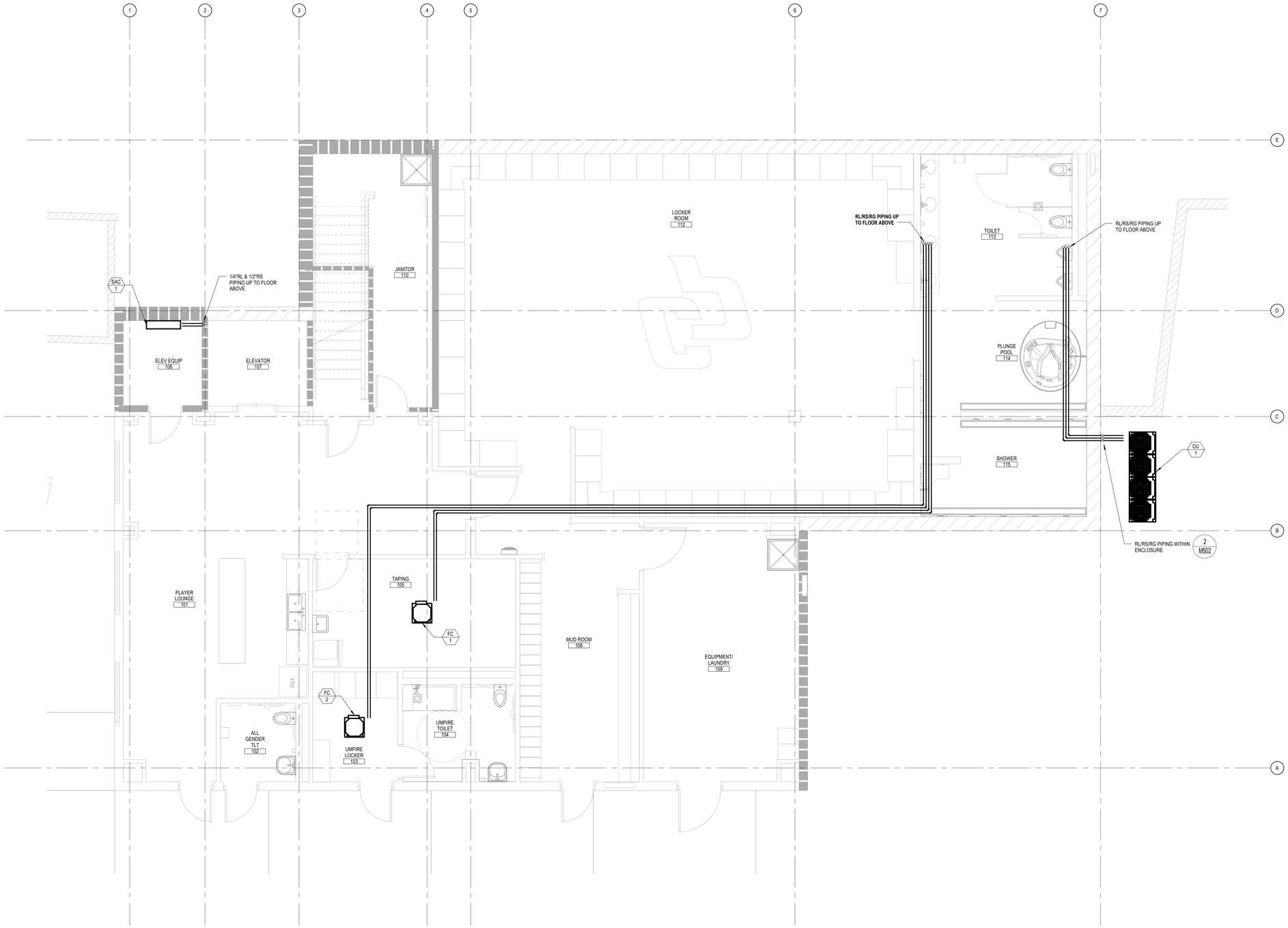
75-16217-00
05.01.2018
Revisions
ADDENDUM #03 02/16/2018
FIRE MARSHALL BACKCHECK 05/14/2018
2

MECHANICAL ROOF PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo



1 M201 MECHANICAL PIPING FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. ALL DIVISION 21, 22 AND 23 SERVICES SUCH AS DUCTWORK, DIFFUSERS, REGTISTER, VAV TERMINALS, PIPING, CONDUIT, EQUIPMENT SUPPORTS, ETC. INSTALLED OVERHEAD IN EXPOSED BUILDING STRUCTURES SHALL BE FINISH PAINTED BY THE PROJECT PAINTING SUBCONTRACTOR. DIVISION 21, 22 AND 23 CONTRACTORS SHALL CLEAN AND PREP THESE ITEMS FOR THE FINAL FINISH PAINTING. ITEMS WHICH ARE TYPICALLY PROVIDED WITH A FACTORY PAINT FINISH SUCH AS DIFFUSERS AND REGISTERS SHALL INSTEAD BE PROVIDED WITH A FACTORY PRIMED FINISH TO ALLOW FOR THE FINAL ON-SITE PAINTING. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF OVERHEAD EXPOSED BUILDING STRUTURE.

2. FOR VRF REFRIGERANT PIPING SIZES, REFER TO VRF PIPING DIAGRAM 2/M602, TYP.

3. FOR TYPICAL PIPE THRU WALL DETAIL, REFER TO DETAIL 11/M501.

WALL LEGEND

WALL HOURLY FIRE RATING		
0	=	0 HOUR
1	=	1 HOUR

REGISTERED PROFESSIONAL ENGINEER
NICHOLAS A. ROSA
M 22836
EXPIRES 9/30/18
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 05/01/18

CAPITAL
ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA

TD - RCC/JH — PM - DESIGN TEAM
151121.00 — PROJECT NO.

MECHANICAL PIPING FIRST FLOOR PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

M201
75-16217-00
05.01.2018
Revisions
FIRE MARSHALL BACKCHECK 04/09/2018

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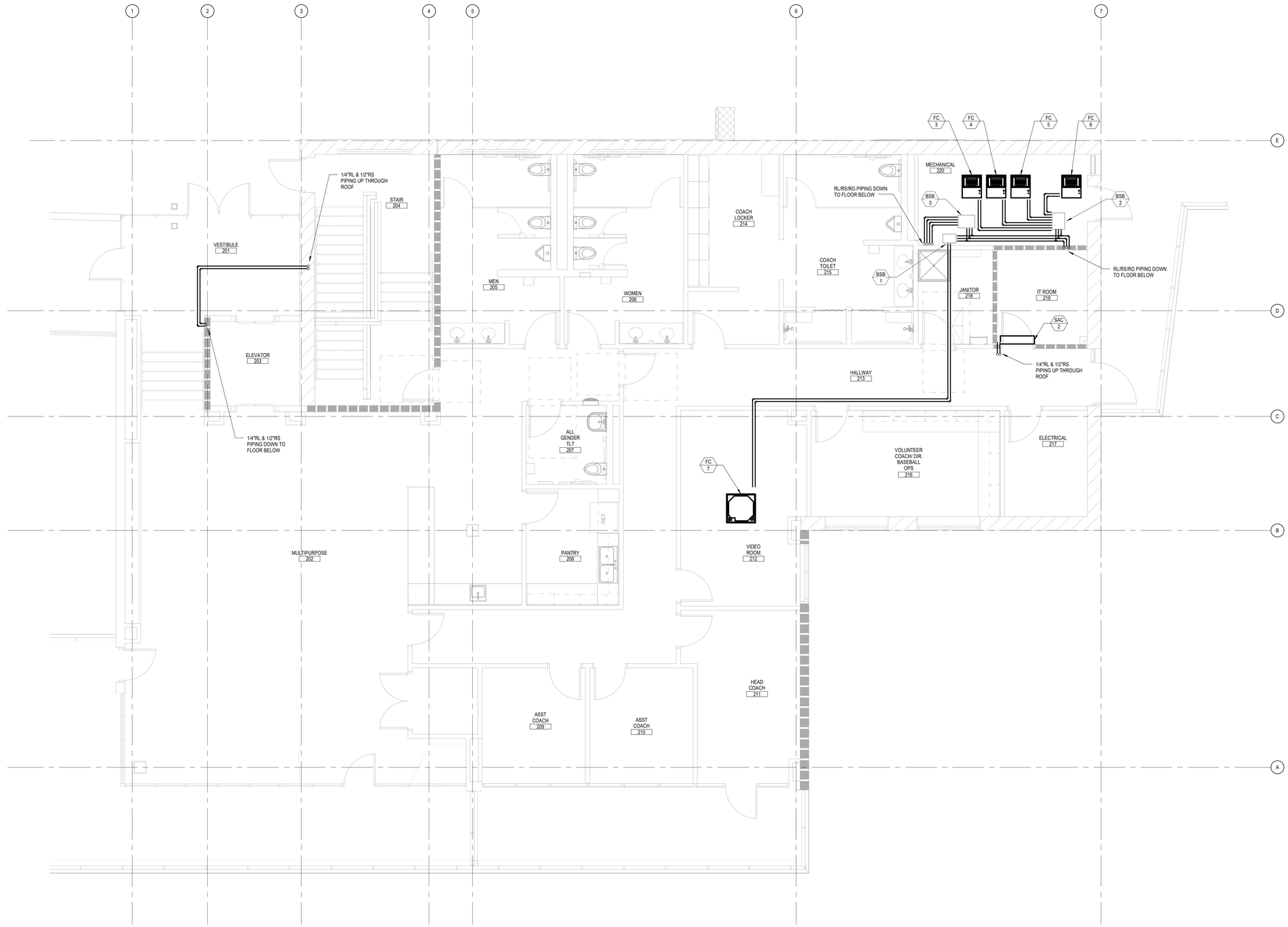

1 M202 MECHANICAL PIPING SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. ALL DIVISION 21, 22 AND 23 SERVICES SUCH AS DUCTWORK, DIFFUSERS, REGTISTER, VAV TERMINALS, PIPING, CONDUIT, EQUIPMENT SUPPORTS, ETC. INSTALLED OVERHEAD IN EXPOSED BUILDING STRUCTURES SHALL BE FINISH PAINTED BY THE PROJECT PAINTING SUBCONTRACTOR. DIVISION 21, 22 AND 23 CONTRACTORS SHALL CLEAN AND PREP THESE ITEMS FOR THE FINAL FINISH PAINTING. ITEMS WHICH ARE TYPICALLY PROVIDED WITH A FACTORY PAINT FINISH SUCH AS DIFFUSERS AND REGISTERS SHALL INSTEAD BE PROVIDED WITH A FACTORY PRIMED FINISH TO ALLOW FOR THE FINAL ON-SITE PAINTING. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF OVERHEAD EXPOSED BUILDING STRUTURE.

2. FOR VRF REFRIGERANT PIPING SIZES, REFER TO VRF PIPING DIAGRAM 2/M602, TYP.

3. FOR TYPICAL PIPE THRU WALL DETAIL, REFER TO DETAIL 11/M501.

WALL LEGEND

WALL HOURLY FIRE RATING		
0	=	0 HOUR
1	=	1 HOUR

REGISTERED PROFESSIONAL ENGINEER — THOMAS A. ROON — M 22836 — EXPIRES 9/30/18 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: 05/01/18

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD - RCC/JH — PM - DESIGN TEAM
151121.00 — PROJECT NO.

MECHANICAL PIPING SECOND FLOOR PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

M202
75-16217-00
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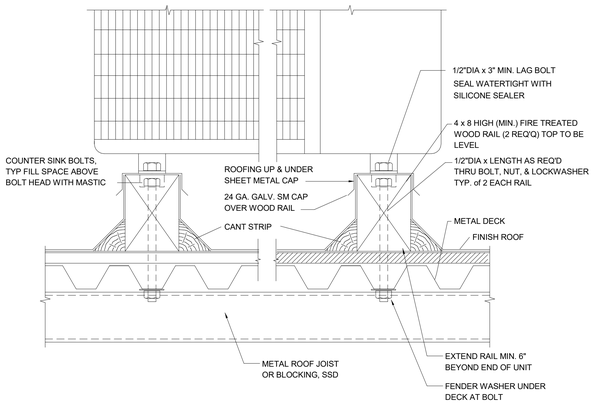
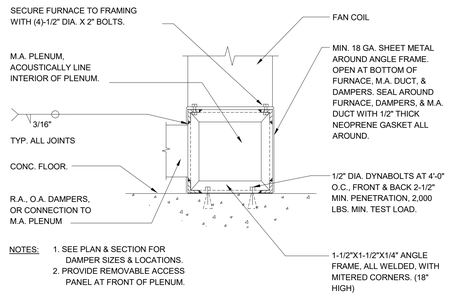


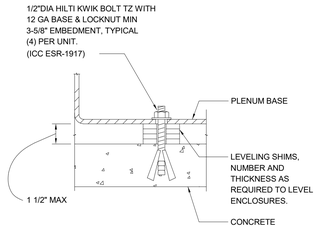
SPLIT SYSTEM OUTDOOR UNIT MOUNTING

SCALE : NONE

9 M501



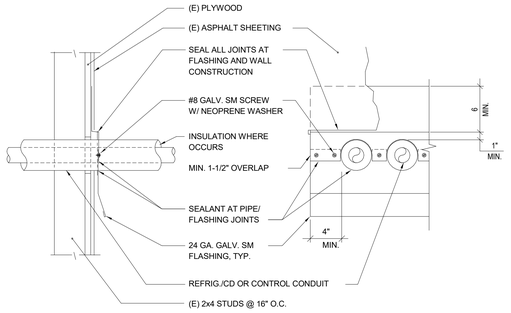
NOTES:
1. SEE PLAN & SECTION FOR DAMPER SIZES & LOCATIONS.
2. PROVIDE REMOVABLE ACCESS PANEL AT FRONT OF PLENUM.



FAN COIL ANCHORAGE

SCALE : NONE

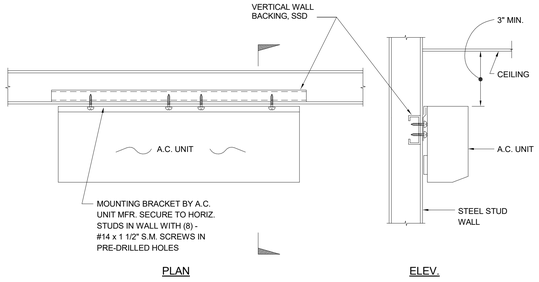
10 M501



PIPE THRU WALL DETAIL

SCALE : NONE

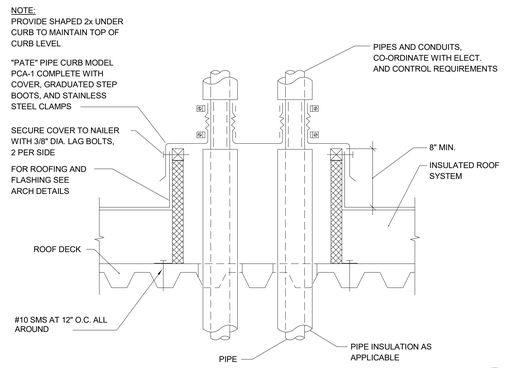
11 M501



INDOOR F.C. UNIT MTG. @ MTL STUDS

SCALE : NONE

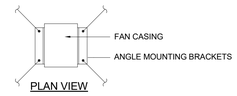
5 M501



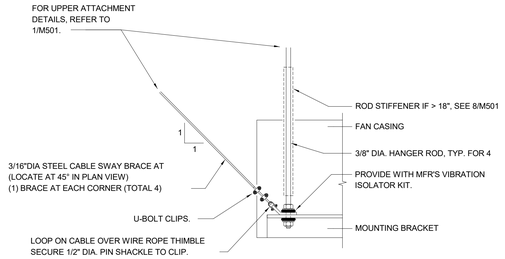
PIPE THROUGH ROOF

SCALE : NONE

6 M501



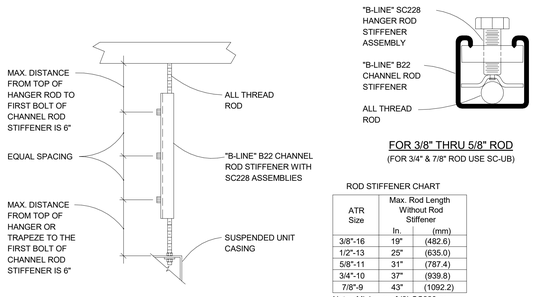
PLAN VIEW



EXHAUST FAN MOUNTING

SCALE : NONE

7 M501



ROD STIFFENER CHART

ATR Size	Max. Rod Length Without Rod Stiffener In.	(mm)
3/8"-16	19"	(482.6)
1/2"-13	25"	(635.0)
5/8"-11	31"	(787.4)
3/4"-10	37"	(939.8)
7/8"-9	43"	(1092.2)

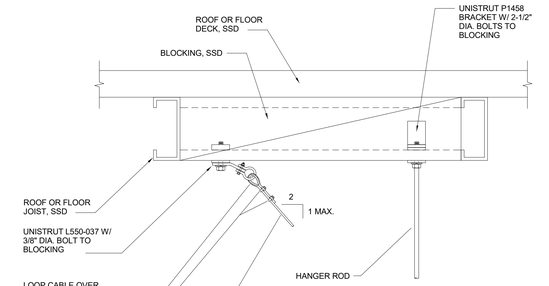
Note: Minimum of (2)-SC228 or SC-UB are required per rod.

DETAIL FROM "B-LINE" SEISMIC RESTRAINTS SYSTEM, OSHPD PRE-APPROVAL No. OPA-300.

ROD STIFFENER DETAIL

SCALE : NONE

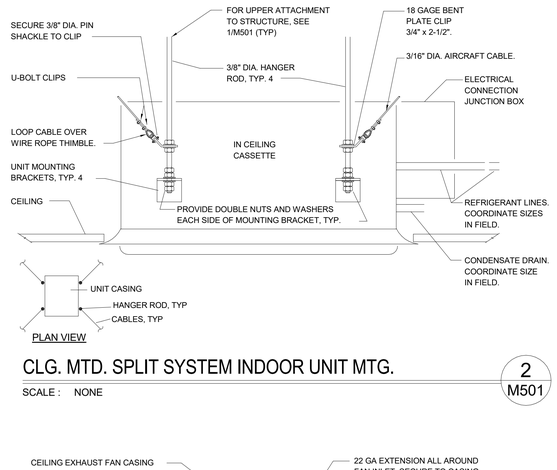
8 M501



HANGER ROD/CABLE ATTACHMENT

SCALE : NONE (AT STRUCTURE)

1 M501

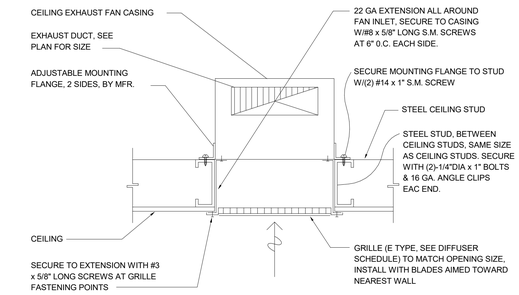


PLAN VIEW

CLG. MTD. SPLIT SYSTEM INDOOR UNIT MTG.

SCALE : NONE

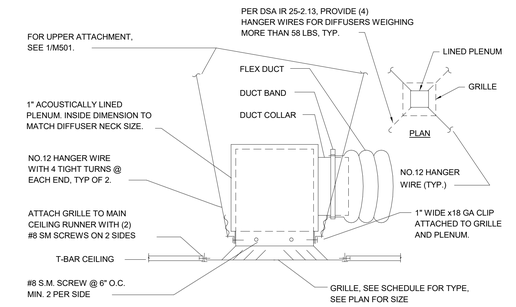
2 M501



CEILING EXHAUST FAN DETAIL

SCALE : NONE

3 M501



TYP. LAY-IN DIFFUSER/GRILLE MOUNTING

SCALE : NONE

4 M501

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MECHANICAL DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

M501
75-16217-00
05.01.2018
Revisions
ADDENDUM #01
01/05/2018

REGISTERED PROFESSIONAL ENGINEER
THOMAS A. MOSS
M 22836
EXPIRES 9/30/18
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 05/01/18

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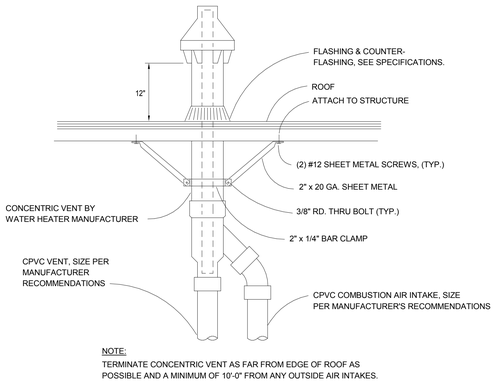
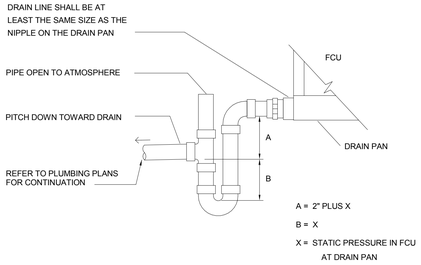


NOTE:
TERMINATE CONCENTRIC VENT AS FAR FROM EDGE OF ROOF AS POSSIBLE AND A MINIMUM OF 10'-0" FROM ANY OUTSIDE AIR INTAKES.

VENT & COMBUSTION AIR PIPING

SCALE : NONE

6 / M502



A = 2" PLUS X

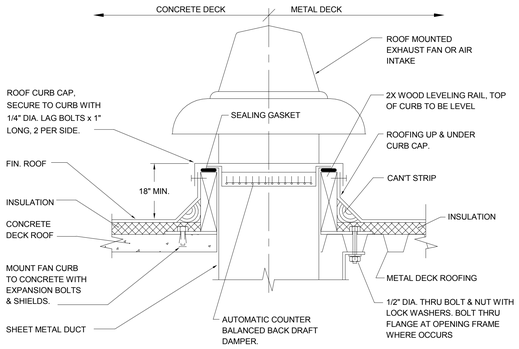
B = X

X = STATIC PRESSURE IN FCU AT DRAIN PAN

CONDENSATE DRAIN PIPING

SCALE : NONE

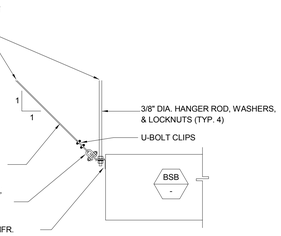
7 / M502



REF MOUNTING DETAIL

SCALE : NONE

4 / M502

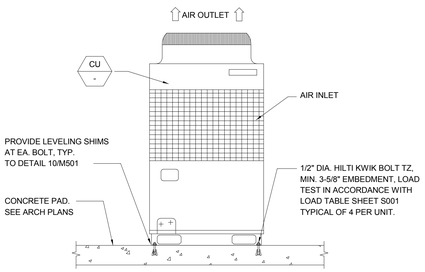


NOTE:
WEB STIFFENERS ARE 2x8 WEB FILLERS EACH SIDE WITH (2) ROWS OF 4-16d, TYPICAL.

BRANCH SELECTOR BOX MOUNTING

SCALE : NONE

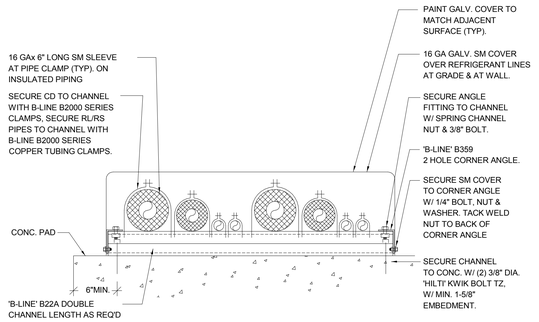
5 / M502



CONDENSING UNIT MOUNTING

SCALE : NONE

1 / M502

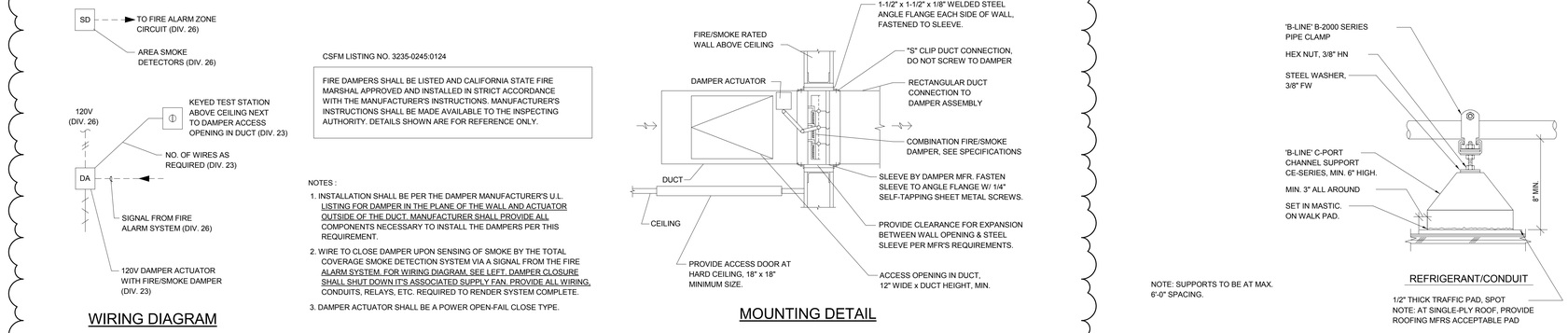


NOTES:
1. ALL CHANNELS AND FITTINGS SHALL BE ELECTRO-GALVANIZED.
2. SPACE PIPE SUPPORTS ON GRADE AT 4' O.C. MIN. 2 SUPPORTS.
3. SEE PLANS FOR NUMBER OF PIPES ON EACH SUPPORT.
4. ALL EXPOSED METAL PARTS INCLUDING SHEET METAL COVER SHALL BE PRIMED AND PAINTED TO MATCH ROOF SURFACE.
5. PROVIDE MIN. 1/2" SPACE BETWEEN BOTTOM OF 16 GA. COVER AND CONC. PAD TO ALLOW FOR PROPER DRAINAGE.

PIPE AT GRADE / EXT. WALL

SCALE : NONE

2 / M502



WIRING DIAGRAM

MOUNTING DETAIL

COMBINATION FIRE/SMOKE DAMPER THRU WALL MOUNTING

SCALE : NONE

8 / M502

NOTE: SUPPORTS TO BE AT MAX. 6'-0" SPACING.

1/2" THICK TRAFFIC PAD, SPOT
NOTE: AT SINGLE-PLY ROOF, PROVIDE ROOFING MFRS ACCEPTABLE PAD

PIPE ON ROOF MOUNTING DETAIL

SCALE : NONE

3 / M502

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MECHANICAL DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

M502
75-16217-00
05.01.2018
Revisions
PERMIT SET 03/16/2018
FIRE MARSHALL BACKCHECK 05/14/2018
2

REGISTERED PROFESSIONAL ENGINEER
THOMAS A. RUSH
M 22836
EXPIRES 9/30/18
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 05/14/18

CAPITAL
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RANCHO CORDOVA, CALIFORNIA
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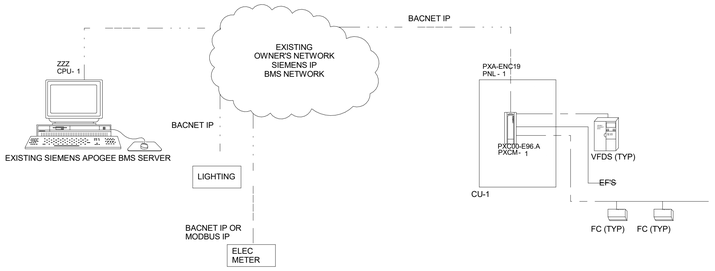


NOTE: CONTRACTOR SHALL DEVELOP CONTROL GRAPHICS DESIGN WITH SIEMENS AND CAMPUS REPRESENTATIVES.

CONTROL SYMBOL	CONTROL SYMBOL DESCRIPTION
AC	AIR COMPRESSOR
AD	AIR DRYER
AE	ACTUATOR ELECTRIC
AEM	APOGEE ETHERNET MICROSERVER
AF	AIR FILTER
AFS	AIR FLOW STATION
AOP	ANALOG OUTPUT, PNEUMATIC
AP	ACTUATOR PNEUMATIC
APS	AUX. POWER SUPPLY
AT	AUTOMATIC TRAP
ATD	AUTO TANK DRAIN
ATEC	ACTUATOR TEC
AZM	AUTOZERO MODULE
BELL	BELL
BIM	BUS INTERFACE MODULE
BOIL	BOILER
CBL	CABLES
CKV	CHECK VALVE
CM	CONSTRUCTION MATERIALS
CP	COMPONENT PANEL
CPU	CENTRAL PROCESSING UNIT
CRT	CATHODE RAY TUBE
CS	CURRENT SWITCH
CT	CURRENT TRANSDUCER
CVC	CONSTANT VOLUME CONTROLLER
D	DAMPER
DDC	DUAL DUCT CONTROLLER
DEM	DEMAND ENERGY MONITOR
DP	DEW POINT TRANSMITTER
DPR	DIFFERENTIAL PRESS. REGULATOR
DPS	DIFFERENTIAL PRESSURE SWITCH
DPTE	DIFF. PRESS. TRANSMITTER ELEC.
DPTP	DIFFERENTIAL PRESSURE PNEUMATIC
DPU	DIGITAL POINT UNIT
EC	ENTHALPY COMPARITOR
EP	ELECTRO-PNEUMATIC VALVE
ES	END SWITCH
ET	ENTHALPY TRANSMITTER
EXP	EXPANSION PANEL
FAN	FAN
FHC	FUME HOOD CONTROLLER
FM	FLOW MTR. (FLOW METER STATION)
FMS	FIRE MGMT. SYSTEM
FS	FLOW SWITCH
FTP	FLOW TRANSMITTER PNEU.
G	GAUGE

CONTROL SYMBOL	CONTROL SYMBOL DESCRIPTION
GD	GAS DETECTOR
HE	HUMIDIFIER ELECTRIC
H	HYGROSTATS
HHC	HAND-HELD OPERATOR'S TERMINAL
HL	HIGH LIMIT
HOA	HAND-OFF-AUTO SWITCH
HORN	HORN
HPC	HEAT PUMP CONTROLLER
HTD	HIGH TEMPERATURE DETECTOR
HTE	HUMIDITY TRANSMITTER ELECTRIC
HTP	HUMIDITY TRANSMITTER PNEUMATIC
INT	INTERCOM
KWM	ELECTRIC KILOWATT METER
LC	LIMIT CONTROLLER (LIMITEM)
LLS	LIQUID LEVEL SWITCH
LLT	LIQUID LEVEL TRANS
LPR	POWER SUPPLY 24VAC/24VDC
LTDE	LOW TEMP. DETECTOR ELECTRIC
LTDP	LOW TEMP. DETECTOR PNEUMATIC
LUI	LOCAL USER INTERFACE
MBC	MODULAR BUILDING CONTROLLER
MDM	MODEM
ME	ELECTRONIC ACTUATOR
MEC	MODULAR EQUIPMENT CONTROLLER
MG	MAGNEHELIC GAUGE
MPU	MULTI-POINT UNIT
MS	MOTOR STARTER
OBS	OBSOLETE
ODP	OPERATOR DATA PANEL
P	PUMP
PA	PULSE ACCUMULATOR
PCT	PROGRAMMABLE CLOCK TIMER
PE	PRESSURE ELECTRIC SWITCH
PL	PILOT LIGHT
PM	POWER MONITOR
PNL	PANEL
PPM	POINT PICKUP MODULE
PRC	PRESSURE REG. CONTROLLER
PRV	PRESSURE REDUCING VALVE
PS	POSITIONING SWITCH
PSE	POSITION SENSOR ELECTRIC
PST	PULL STATION
PT	PITOT TUBE
PTE	PRESSURE TRANSMITTER ELECTRIC
PTP	PRESSURE TRANSMITTER PNEUMATIC
PTR	PRINTER
PV	PILOT VALVE
PXCC	PX COMPACT CONTROLLER

CONTROL SYMBOL	CONTROL SYMBOL DESCRIPTION
PXCM	PXC-MODULAR CONTROLLER
RBC	REMOTE BUILDING CONTROLLER
RC	RECEIVER CONTROLLER
RCU	REMOTE CONTROL UNIT
RE	RELAY ELECTRIC
RP	RELAY PNEUMATIC
RS	RESTRICTOR
RV	RELIEF VALVE
S/W	SOFTWARE
SC	STEP CONTROLLER
SCU	STAND ALONE CONTROL UNIT
SD	SMOKE DETECTOR
SE	SWITCH ELECTRIC
SPKR	SPEAKER
SPP	STATIC PRESSURE PROBE
SPR	STATIC PRESSURE REGULATOR
SV	SOLENOID VALVE
SW	SWITCH PNEUMATIC
T	ROOM THERMOSTAT, PNEUMATIC
TBC	TERMINAL BOX CONTROLLER
TC	TEMPERATURE CONTROLLER(S200)
TCU	TERMINAL CONTROL UNIT
TDR	TIME DELAY RELAY
TE	THERMOSTAT, ELECTRIC
TEC	TERMINAL EQUIPMENT CONTROLLER
TH	THERMOMETER
TI	TRUNK INTERFACE
TIE	TRUNK ISOLATOR EXTENDER
TIU	TELCOM INTERFACE UNIT
TMR	TIMER, TIME CLOCK
TTE	TEMPERATURE TRANSMITTER ELECTRIC
TTP	TEMPERATURE TRANSMITTER PNEUMATIC
TXIO	TX-I/O FAMILY CONTROLLER MODULES
UC	UNITARY CONTROLLER
UCC	UNIT CONDITIONER CONTROLLER
UVC	UNIT VENT CONTROLLER
V	VALVE
V*	VALVE SERVICE PARTS
VA	TEC VALVE ACTUATOR
VAC	VIBRATION ISOLATOR
VB	VARIABLE AIR VOLUME CONTROLLER
VTE	VELOCITY TRANSMITTER ELECTRICAL
W	WELL
XDR	TRANSDUCER
XFMR	TRANSFORMER

DDC ELECTRICAL POINT

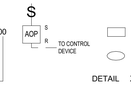
PTNAME 0 00 0 00 00

TRUNK NUMBER
CABINET NUMBER
LAN TRUNK
DROP NUMBER
POINT NUMBER

DDC PNEUMATIC POINT

PTNAME 0 00 0 00 00

TRUNK NUMBER
CABINET NUMBER
LAN TRUNK
DROP NUMBER
POINT NUMBER



DETAILS

- ELECTRICAL TERMINATION
- PNEUMATIC TERMINATION
- DETAIL XX — STANDARD DDC TERMINATION
- NOTE OR REVISION
- DETAIL XX — PAGE REFERENCE

APOGEE: PII - EXAMPLE

LOGICAL POINT NAME — AH1LTD 0.10.3.10.27
DETAIL 5A — READ AS " SEE PAGE 5A FOR MORE DETAIL "
DETAIL MC — DIGITAL INPUT

BLN NUMBER
CABINET NUMBER
FLN TRUNK
DROP NUMBER
POINT NUMBER

APOGEE: ETHERNET - EXAMPLE

LOGICAL POINT NAME — AH1LTD 0001.3.10.27
DETAIL 5A — READ AS " SEE PAGE 5A FOR MORE DETAIL "
DETAIL MC — DIGITAL INPUT

REFERENCE NUMBER
NODE NUMBER
FLN TRUNK
DROP NUMBER
POINT NUMBER

1 M601 BMS COMMUNICATION RISER

SCALE: NONE

SEQUENCE OF OPERATION:

THE BMS SHALL MONITOR THE ROOM TEMPERATURE AND ALARM IF THE UNIT IS NOT MAINTAINING SETPOINT.

THE UNIT SHALL RUN INDEPENDENTLY FROM THE BMS AND RUN 24/7. THE UNIT SHALL RUN THE FAN AND STAGE THE COOLING TO MAINTAIN THE ROOM TEMPERATURE AT 74 DEG F.

INSTALLATION NOTES:

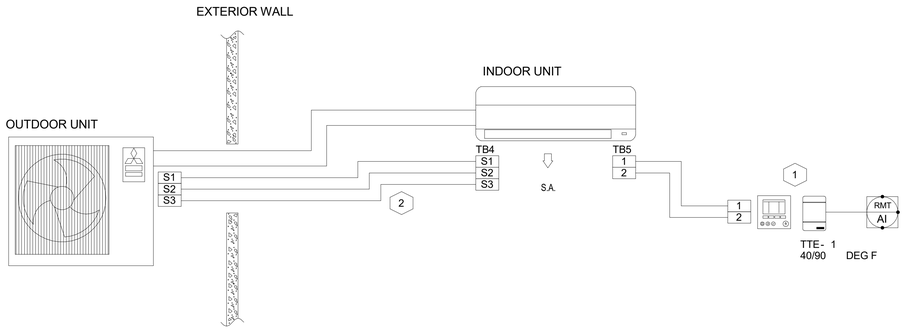
1. LOCATE UNIT REMOTE AND MONITORING ROOM TEMPERATURE SENSOR AS SHOWN ON PLANS/CONTRACT DOCUMENTS. WIRING BY CONTROLS CONTRACTOR.
2. WIRING BETWEEN INDOOR AND OUTDOOR UNITS BY CONTROLS CONTRACTOR. POWER BY DIV 26.

BUILDING NATURAL GAS METER ("SENSUS" PULSE METER)
PROVIDED PER PLUMBING PLANS
METER MANUFACTURER TO PROVIDE PULSED OUTPUT
FOR BMS INTEGRATION

NATURAL GAS METER
LOCATION: SEE PLUMBING PLANS
SERVES: BUILDING

BUILDING WATER METER ("SENSUS" PULSE METER)
PROVIDED PER PLUMBING PLANS
METER MANUFACTURER TO PROVIDE PULSED
OUTPUT FOR BMS INTEGRATION

BUILDING WATER METER
LOCATION: SEE PLUMBING PLANS
SERVES: BUILDING

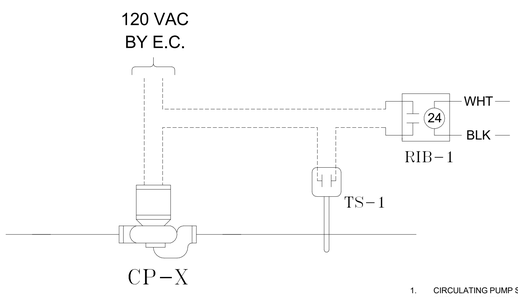


4 M601 UTILITY METER DETAILS

SCALE: NONE

2 M601 SPLIT SYSTEM AC UNIT CONTROL DIAGRAM

SCALE: NONE



1. CIRCULATING PUMP SHALL RUN DURING OCCUPIED HOURS.
2. SET AQUASTAT TO SHUT OFF PUMP WHEN RETURN WATER TEMPERATURE REACHES 140 DEG F.
3. SEE PLUMBING PLANS FOR LOCATION.

4 M601 DOMESTIC HW CIRCULATING PUMP CONTROL DIAGRAM

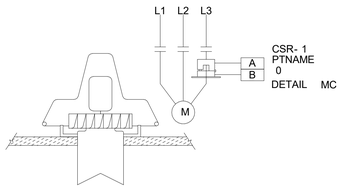
SCALE: NONE

AHU INTERLOCK (CEF-2, IEF-3, REF-4, REF-5 & REF-6)

SEQUENCE OF OPERATION:

THE EXHAUST FANS SHALL BE SOFTWARE INTERLOCKED WITH THEIR ASSOCIATED FCU. DURING OCCUPIED HOURS, THE EXHAUST FAN SHALL BE COMMANDED ON. DURING UNOCCUPIED HOURS, THE EXHAUST FAN SHALL BE COMMANDED OFF. IF THE FAN'S ACTUAL STATE DOES NOT MATCH THE COMMANDED STATE, AN ALARM SHALL DISPLAY ON THE BMS.

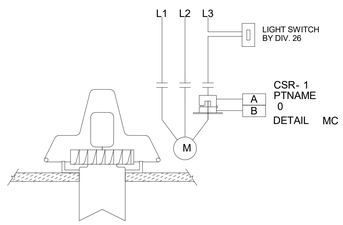
IEF-3 SHALL BE INTERLOCKED WITH THE (2) CLOTHES DRYERS AND SHALL BE COMMANDED OFF WHEN THE DRYERS ARE OPERATING.



LIGHT SWITCH (CEF-1, REF-7 & REF-9)

SEQUENCE OF OPERATION:

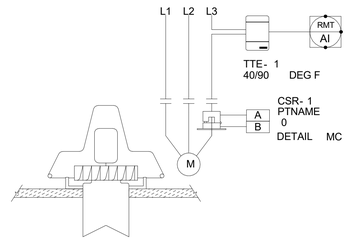
THE EXHAUST FANS SHALL OPERATE ACCORDING TO THE POSITION OF WALL-MOUNTED ON/OFF LIGHT SWITCH. IF THE FAN'S ACTUAL STATE DOES NOT MATCH THE COMMANDED STATE, AN ALARM SHALL DISPLAY ON THE BMS.



LINE-VOLTAGE THERMOSTAT (REF-8)

SEQUENCE OF OPERATION:

THE EXHAUST FAN SHALL BE CONTROLLED BY A LINE-VOLTAGE THERMOSTAT MOUNTED IN THE SPACE. THE FAN SHALL OPERATE TO MAINTAIN THE ROOM TEMPERATURE AT 85 DEG F (ADJ.). IF THE FAN'S ACTUAL STATE DOES NOT MATCH THE COMMANDED STATE, AN ALARM SHALL DISPLAY ON THE BMS.



3 M601 EXHAUST FAN CONTROL DIAGRAM

SCALE: NONE

REGISTERED PROFESSIONAL ENGINEER — THOMAS A. KOLB — M 22836 EXPIRES 9/30/18 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: 05/01/18

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MECHANICAL CONTROL DIAGRAMS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

M601
75-16217-00
05.01.2018
Revisions
ADDENDUM #01 01/26/2018

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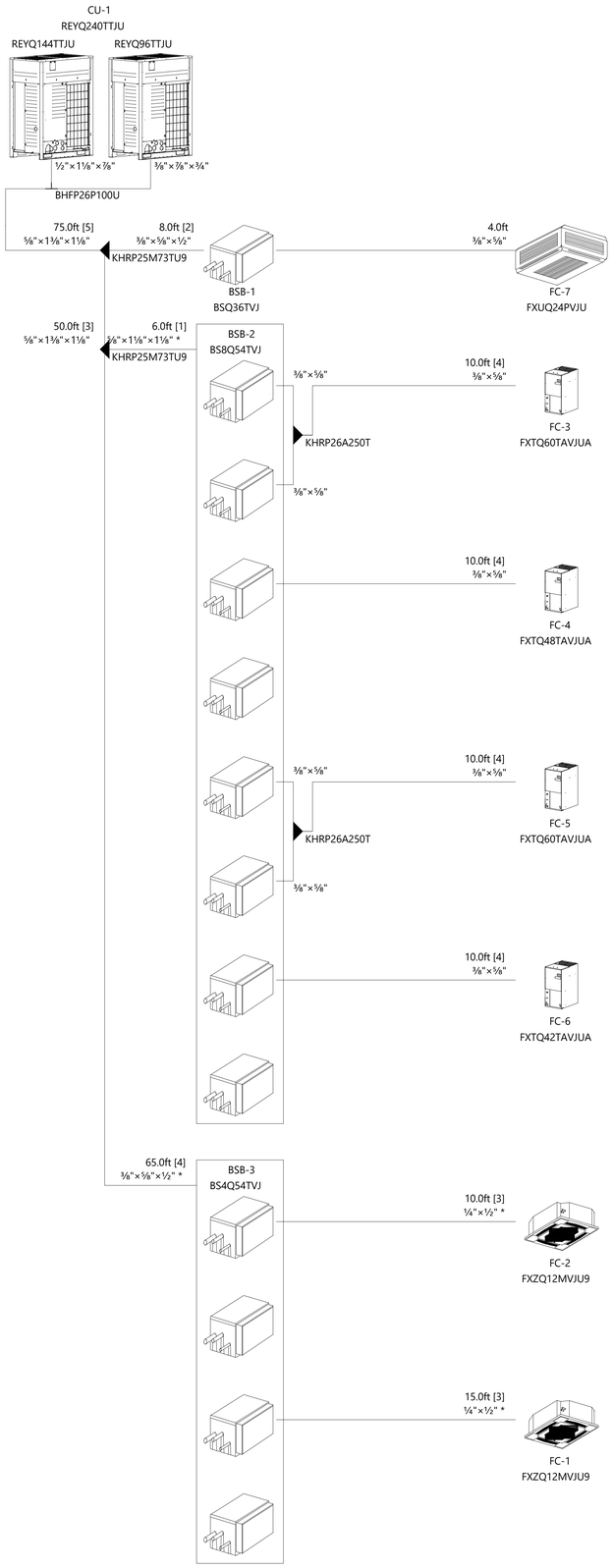
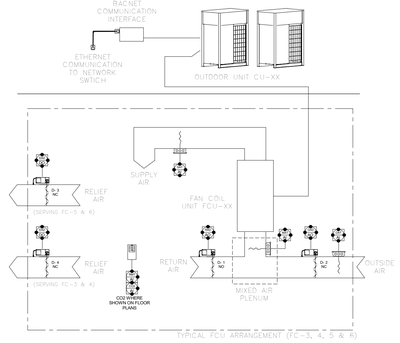
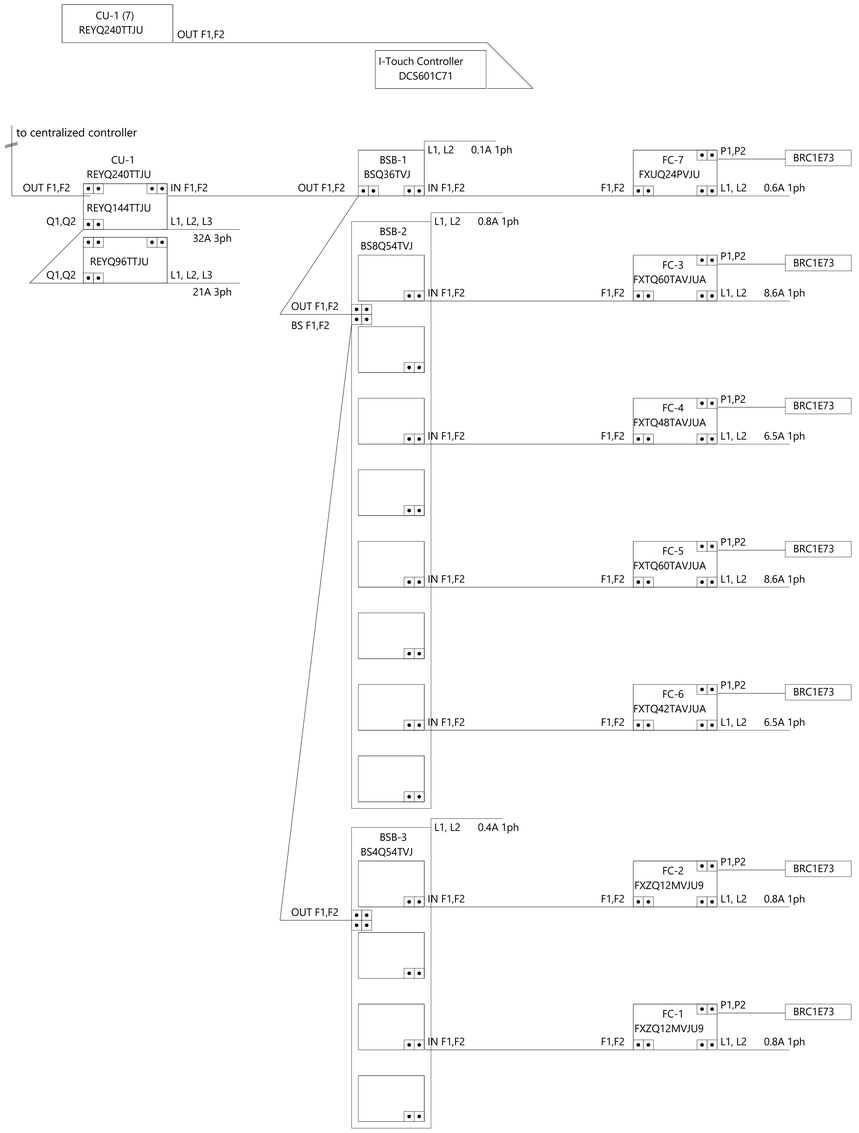




FAN COIL UNIT SEQUENCE OF OPERATIONS

1. THE ROOM FAN COIL UNIT IS A PART OF THE VRF SYSTEM CONTROL.
2. THE ROOM FCU SHALL BE PROGRAMMED TO OPERATE VIA ITS OWN CONTROL MODULES. ALL TEMPERATURE CONTROL SETPOINTS AND RUN SCHEDULES SHALL BE PROGRAMMED THROUGH VRF CONTROL SYSTEM.
3. THE BUILDING MANAGEMENT SYSETM SHALL CONNECT TO THE VRF CONTROL MODULE(S) VIA BACNET COMMUNICATION INTERFACE(S) TO MONITOR VRF SYSTEM PARAMETERS AND ALARMS.
4. ECONOMIZER OPERATION (FC-3, 4, 5 & 6): OUTSIDE AIR DAMPER, RETURN AIR DAMPER AND RELIEF AIR DAMPER (RELIEF AIR DAMPER IS 2-POSITION) ARE WIRED TO OPERATE SIMULTANEOUSLY BY THE ECONOMIZER CONTROLLER. UPON A CALL FOR COOLING FROM THE ROOM FAN COIL UNIT (THE FIRST STAGE OF COOLING), THE ECONOMIZER DAMPERS WILL MODULATE OPEN (IF OUTSIDE AIR IS SUITABLE FOR COOLING) TO PROVIDE FREE OUTDOOR AIR COOLING AND MAINTAIN THE MIXED AIR TEMPERATURE AT SETPOINT (55 DEG F, ADJUSTABLE). IF OUTSIDE AIR TEMPERATURE EXCEEDS 74 DEG F (ADJUSTABLE), THE SYSTEM WILL RETURN TO MINIMUM OUTSIDE AIR POSITION.
5. NANAWALL DOOR CONTACT OPERATION (FC-5): IF EXTERIOR DOORS ARE OPEN FOR 5 MINUTES (ADJ) AS SEEN BY DOOR SWITCH CONTACT CLOSURE, MECHANICAL COOLING AND HEATING SHALL BE LOCKED OUT WHILE SUPPLY FAN REMAINS ENABLES. ONCE EXTERIOR DOORS ARE CLOSED FOR 5 MINUTES (ADJ), MECHANICAL COOLING AND HEATING SHALL BE AVAILABLE AS NEEDED TO SATISFY ZONE TEMPERATURE LOAD. DOOR SWITCH SHALL BE HARDWIRED TO BMS DDC CONTROLLER BY DIV. 23 BMC CONTRACTOR.
6. GAS DRYER INTERLOCK (FC-4): INTERLOCK FC-4 TO RUN WHEN THE (2) GAS DRYERS ARE OPERATING.
7. DEMAND CONTROL VENTILATION (FC-4 & 5): THE ECONOMIZER CONTROLLER WILL CONSTANTLY MONITOR THE ROOM CO2 LEVEL. UPON INCREASE OF THE CO2 LEVEL IN THE SPACE ABOVE 1000 PPM (ADJUSTABLE), THE ECONOMIZER CONTROLLER WILL MODULATE THE ECONOMIZER DAMPERS TOWARD OPEN POSITION DRAWING MORE FRESH AIR INTO THE SPACE. WHEN THE C02 LEVEL IN THE SPACE DROPS BELOW THE 1000 PPM LEVEL, THE ECONOMIZER CONTROLLER WILL RESUME ITS NORMAL OPERATION.



2 M602 VRF PIPING DIAGRAM
SCALE: NONE

1 M602 VRF WIRING DIAGRAM
SCALE: NONE

REGISTERED PROFESSIONAL ENGINEER
THOMAS A. ROSA
M 22836
EXPIRES 9/30/18
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 05/01/18

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MECHANICAL CONTROL DIAGRAMS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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PLUMBING EQUIPMENT SCHEDULE

SYMBOL	DESCRIPTION
GWH 1&2	GAS FIRED WATER HEATER-1 & 2: "A.O. SMITH", CYCLONE MODEL BTH-199A 97 PERCENT EFFICIENT, GAS FIRED WATER HEATER, TOTAL STORAGE CAPACITY OF 100 GALLONS WITH 294 GALLONS PER HOUR RECOVER AT 80 DEGREE F RISE. UNIT SHALL ALSO INCLUDE MANUFACTURER OPTION - CONCENTRIC VENT - LOW PROFILE TERMINATION KIT AND CONDENSATE NEUTRALIZATION KIT PHYSICAL DATA: 76 1/2" TALL x 27 3/4" DIAMETER. FLUE/AIR INTAKE: 4" ROUND SEALED DIRECT VENTED SHALL TERMINATE UP THRU ROOF WITH CONCENTRIC VENT FITTING. SEE DIV. 23, 'M' SHEETS FOR CONTINUATION. NATURAL GAS INPUT: 199,900 BTU/H EACH. TOTAL FULL WEIGHT: 2,000 LBS. EACH. LOCATED: SECOND FLOOR MECHANICAL ROOM - SEE SHEET P102 DETAIL: 2/P501 NOTE: CONDENSING WATER HEATER. CONDENSATE DRAIN LINE SHALL BE PLUMBED TO UNIT AS PER MANUFACTURER'S INSTRUCTIONS AND SHALL ROUTE TO AND TERMINATE AT FLOOR SINK (FS) WITH A TURNED DOWN ELL.
CP 1	CIRCULATING PUMP-1: "BELL & GOSSETT" SERIES PR, 115V/1 PH., 1/6 HP, 1.9 FLA , 1725 RPM MOTOR LEAD-FREE ALL BRONZE CONSTRUCTION, 10 GPM AT 18.0 FT/HD, 1-1/4" FLANGE CONNECTIONS. TOTAL WEIGHT: 30 LBS. LOCATED: SECOND FLOOR MECHANICAL ROOM - SEE SHEET P102 DETAIL: 2/P501
ET 1	EXPANSION TANK-1: "AMTROL", MODEL ST-5 EXPANSION TANK, .43 GALLONS MAXIMUM ACCEPTANCE VOLUME, TOTAL VOLUME OF 2.1 GALLONS (MAXIMUM RELIEF VALVE SETTING MUST BE 100 PSIG) CONTRACTOR SHALL CHARGE TANK PRESSURE EQUAL TO SYSTEM PRESSURE. PHYSICAL DATA: 10" DIAMETER x 10-1/2" TALL TOTAL FULL WEIGHT: 40 LBS. LOCATED: SECOND FLOOR MECHANICAL ROOM - SEE SHEET P102 DETAIL: 2/P501
TMV 1	THERMOSTATIC MIXING VALVE-1: THERMOSTATIC MIXING VALVE: "LEONARD" MODEL XL-200-SW-LF-BDT-IT, LEAD FREE MASTER MIXING VALVE. 2" INLETS, 2" OUTLET ADJUST TEMPERED WATER TEMPERATURE TO SUPPLY 110 F DEGREE WATER. UNIT SHALL INCLUDE WALL SUPPORT AND INLET THERMOMETERS. UNIT SHALL BE PIPED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS FOR TMV INCLUDING RE-CIRC LINE. LOCATED: SECOND FLOOR MECHANICAL ROOM - SEE SHEET P102
LT 1	LINT TRAP-1: "JAY R. SMITH", MODEL 8910-150 ALL STAINLESS STEEL LINT TRAP RATED FOR A TOTAL FLOW RATE OF 150 GPM INCLUDING FLASHING FLANGE WITH FLASHING CLAMP, NO-HUB INLET & OUTLET CONNECTION AND EXTENSIONS AS REQUIRED. PHYSICAL DATA: 6" INLET & OUTLET CONNECTIONS, 51" LENGTH x 32" WIDTH x 44" TALL LOCATED: EQUIPMENT/LAUNDRY - SEE SHEET P101

DOMESTIC COLD WATER CALCULATIONS

DESIGN CRITERIA

Total estimated demand (GPM) from fixture calc sheet:		82
Water meter size required, based on the above demand:		3"
1. Pressure @ Street Main (Static Pressure - Information from the local Water Purveyor):		74
2. Pressure loss thru meter (Note: losses may vary from 2 PSI up to 5 PSI - verify meter type and losses with the local Water Purveyor).		3
3. Pressure loss thru other devices (i.e., BFP) (Note: losses may vary from 8 PSI up to 15 PSI - verify BFP type and losses with the local Water Purveyor).		12
4. Pressure loss due to elevation change.	25 Feet x .434	11
5. Total pressure loss (add lines 2, 3 & 4)		26
6. Pressure required at highest fixture.		30
7. Pressure available for Friction Loss		18
8. Total developed length of pipe run		200
From line 7 = 18 PSI x 100 From line 8 = 200 FEET	9 PSI/100 Feet.	

DOMESTIC WATER PIPE SIZE SCHEDULE

PIPE SIZES CALCULATED ARE BASED ON THE 2016 CPC - APPENDIX A

SIZE: TYPE K COPPER		CW MAX FLOW		CW FIXTURE UNIT VALUES		HW MAX FLOW		HWFU
NOMINAL DIAMETER	INTERNAL DIAMETER	GPM	FPS	FLUSH TANK	FLUSH VALVE	GPM	FPS	HOT WATER
3/4"	0.785	4.3	2.8	4	0	4.3	2.8	4
1"	1.025	8.6	3.3	10	0	8.6	3.3	10
1-1/4"	1.265	15.0	3.8	20	5	15.0	3.8	20
1-1/2"	1.505	23.6	4.3	36	8	23.6	4.3	36
2"	1.985	48.2	5.1	119	44	45.0	5.0	100
2-1/2"	2.465	74.4	5.8	305	176	-	-	-
3"	2.945	106.2	6.0	517	410	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-

PLUMBING GENERAL NOTES

1. ACCESS PANELS SHALL BE PROVIDED AS NECESSARY TO PROPERLY ACCESS THE PLUMBING SYSTEM INCLUDING VALVES, REFER TO SPECIFICATION SECTION 08310.
2. OFFSET VENT THROUGH ROOFS 10'-0" MINIMUM FROM AIR INTAKES AND 4'-0" FROM OUTSIDE WALLS.
3. HVAC EQUIPMENT IS SHOWN FOR THE COORDINATION OF UTILITIES ONLY. REFER TO 'M' SHEETS FOR MORE INFORMATION.
4. THE CONNECTION OF CONDENSATE DRAIN LINES TO HVAC EQUIPMENT SHALL INCLUDE A MINIMUM 4" DEEP "P"-TRAP AND PLUGGED TEE AT ALL OFFSETS.
5. PROVIDE WATER HAMMER ARRESTORS (WHA) AS INDICATED ON PLUMBING PLANS AND AS DESCRIBED WITHIN DIVISION 22 SPECIFICATIONS. SIZING SHALL BE IN ACCORDANCE WITH PDI STANDARD WH-201.
6. FOR PIPES PASSING THROUGH, UNDER OR PARALLEL TO BUILDING FOOTINGS, RETAINING WALLS ETC. REFER TO STRUCTURAL DETAILS, 'S' SHEETS, FOR TYPICAL ARRANGEMENT.
7. CONTRACTOR SHALL FIELD VERIFY ALL POINTS OF CONNECTION TO SITE PIPING (LOCATIONS AND INVERT) PRIOR TO EXCAVATION, FABRICATION AND INSTALLATION OF ASSOCIATED PIPING RUNS. NOTIFY THE PROJECT ARCHITECT AND CIVIL ENGINEER IMMEDIATELY IF POINTS OF CONNECTION OR INVERTS ARE DIFFERENT THAN REPRESENTED ON THE DRAWINGS.
8. OFFSET ALL RISERS AND DROPS TO AVOID PENETRATIONS AT TOP PLATES.
9. PENETRATION OF PIPES, CONDUIT, ETC., IN WALLS AND/OR FLOORS REQUIRING PROTECTED OPENINGS SHALL BE FIRE STOPPED. MATERIAL SHALL BE A TESTED ASSEMBLY APPROVED BY THE STATE FIRE MARSHAL.
10. SEAL ALL PIPE PENETRATIONS THRU FLOORS WATERTIGHT.
11. DRAWINGS SHALL BE CONSIDERED DIAGRAMMATIC ONLY. CONTRACTOR SHALL FIELD VERIFY WHERE POSSIBLE, EXACT LOCATIONS, SIZES, AND ELEVATIONS OF ALL ITEMS SHOWN PRIOR TO THE INSTALLATION OF ANY NEW WORK.
12. THE DRAWINGS ARE NOT INTENDED TO SHOW EVERY OFFSET OR FITTING OR EVERY STRUCTURAL DIFFICULTY THAT MAY BE ENCOUNTERED DURING INSTALLATION OF THE WORK. LOCATION OF ALL ITEMS NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. EXACT LOCATIONS NECESSARY TO SECURE BEST CONDITIONS AND RESULTS MUST BE DETERMINED AT THE JOB SITE AND SHALL HAVE THE APPROVAL OF THE ARCHITECT BEFORE BEING INSTALLED.
13. ALL VALVES SHOWN SHALL BE FULL LINE SIZE UNLESS OTHERWISE NOTED.
14. CLOSELY COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO TRENCHING OR INSTALLATION OF NEW. IDENTIFY SIZE AND LOCATIONS OF ALL PENETRATIONS THROUGH FOUNDATIONS, WALLS OR ROOFS PRIOR TO FABRICATION OF ANY SYSTEMS OR ORDERING MATERIALS AFFECTED BY POSSIBLE COORDINATION CONFLICTS.
15. CONCRETE ANCHORS SHALL BE HILTI, KWIK BOLT TZ 3/8" - REFER TO STRUCTURAL PLANS.
16. PIPING SHALL BE SUPPORTED AND BRACED IN STRICT COMPLIANCE WITH DIVISION 22 SPECIFICATIONS.
17. ALL NEW SANITARY WASTE PIPING SHOWN SHALL BE SLOPED AT 1/4" PER FOOT MINIMUM UNLESS OTHERWISE NOTED ON PLANS. WHERE SLOPES LESS THAN 1/4" PER FOOT ARE INDICATED, CONTRACTOR SHALL SLOPE NEW PIPING UNIFORMLY BETWEEN UPPER TERMINAL OF PIPE AND THE POINT OF CONNECTION TO THE SITE PIPING (AS INDICATED ON THE CIVIL PLANS) TO ACHIEVE MAXIMUM SLOPE POSSIBLE AND IN NO CASE SHALL THE PIPING BE SLOPED LESS THAN THE MINIMUM INDICATED.
18. CONCEAL ALL PIPING IN WALL FURRING, PARTITIONS, ETC., EXCEPT AT MECHANICAL ROOMS.
19. REFER TO ARCHITECTURAL DRAWINGS FOR BUILDING DIMENSIONS AND EXACT LOCATIONS OF PLUMBING FIXTURES.
20. THE CONNECTION OF NATURAL GAS LINES TO HVAC EQUIPMENT SHALL INCLUDE A LINE SIZE UNION, GAS SHUT-OFF VALVE AND A MINIMUM 6" LONG DIRT LEG WITH AN ACCESSIBLE & REMOVABLE END CAP.
21. PIPE, PLUMBING FITTINGS, FIXTURES, SOLDER AND FLUX SHALL COMPLY WITH LEAD FREE REQUIREMENTS OF THE CALIFORNIA HEALTH AND SAFETY CODE SECTION 116875. PROVIDE PRODUCTS LISTED AND LABELED AS COMPLYING WITH NSF 61, ANNEX G, OR PROVIDE OTHER EVIDENCE OF COMPLIANCE WITH THE CALIFORNIA HEALTH AND SAFETY CODE SECTION 116875. PROVIDE PRODUCT SUBMITTAL INFORMATION PROVING COMPLIANCE WITH LEAD FREE REQUIREMENTS. ALSO REFER TO SPECIFICATION SECTIONS 22 00 50, 22 10 00 AND 22 40 00.

PIPING, DUCTWORK & ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-10 SECTION 13.3 AS DEFINED IN ASCE 7-10 SECTION 13.6.5.6, 13.6.7, 13.6.8, AND 2016 CBC, SECTIONS 1616A.1.23, 1616A.1.24, 1616A.1.25 AND 1616A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON PREAPPROVED INSTALLATION GUIDE (e.g., SMACNA OR OSHPD OPM), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP☐ MD☐ PP☐ E☐ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS

MP☐ MD☐ PP☐ E☐ OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM #) #_____

GAS DEMANDS & PIPE SCHEDULE

NATURAL GAS DEMANDS

EQUIPMENT	NUMBER OF	GAS DEMAND (MBH/EACH)	TOTAL MBH
GAS FIRED WATER HEATERS	2	200	400
-	-	-	-
		TOTAL DEMAND =	400

PIPE SIZING SCHEDULE

PIPE SIZES ARE BASED ON A 10" W.C. GAS DELIVERY SYSTEM - 2016 CPC, CHAPTER 12 - FUEL GAS PIPING; TABLE 1216.2(1)

TOTAL DEVELOP LENGTH OF PIPE (FROM METER/GAS PRESSURE REGULATOR TO THE FURTHEST MOST GAS FIRED EQUIPMENT) = 60 FT.

	PIPE SIZE (INCH)						
NOMINAL	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"
LENGTH (FEET)	CAPACITY IN CUBIC FEET OF GAS PER HOUR						
10	360	678	1390	-	-	-	-
20	247	466	957	-	-	-	-
30	199	374	768	-	-	-	-
40	170	320	657	-	-	-	-
50	151	284	583	-	-	-	-
60	137	257	528	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

PLUMBING LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
	AB.C.	ABOVE CEILING
	AFF	ABOVE FINISHED FLOOR
	AFG	ABOVE FINISHED GRADE
	AF , BF	ABOVE FLOOR , BELOW FLOOR
	AD	ACCESS DOOR
	BFP	BACKFLOW PREVENTER ASSEMBLY
	BV	BALL VALVE
		BRANCH - TOP CONNECTION
		BRANCH - BOTTOM CONNECTION
or		BRANCH - SIDE CONNECTION
	COP	CAP ON END OF PIPE
	RD	ROOF DRAIN
%%153		CENTER LINE
	CKV	CHECK VALVE
	CW	DOMESTIC - COLD WATER PIPING
CD	CD	CONDENSATE DRAIN LINE
CO CO	CO	CLEANOUT
°F		DEGREES FAHRENHEIT
F	F	FIRE PROTECTION WATER SUPPLY
FU		FIXTURE UNIT
∅	CO	CLEANOUT
	FD	FLOOR DRAIN
	FS	FLOOR SINK
		FLOW IN DIRECTION OF ARROW
		BALANCE VALVE
FV		FLUSH VALVE
(FA) , (TA)		FROM ABOVE , TO ABOVE
(FB) , (TB)		FROM BELOW , TO BELOW
	GSOV	GAS SHUT-OFF VALVE
NGLP	NGLP	NATURAL GAS - LOW PRESSURE
NGMP	NGMP	NATURAL GAS - MEDIUM PRESSURE
R	GPR	GAS PRESSURE REGULATOR
	BV	BALL VALVE
	GPM	GALLONS PER MINUTE
∅	CO	CLEANOUT
	HB	HOSE BIBB
	HW	DOMESTIC - HOT WATER PIPING
	(N) , (E)	NEW , EXISTING
	(NTS)	NOT TO SCALE
	OH	OVERHEAD
OFL	OFL	OVERFLOW LEADER
	OFD	OVERFLOW DRAIN
	POC	POINT OF CONNECTION
	PG	PRESSURE GAUGE
P & TRV	P & TRV	PRESSURE & TEMPERATURE RELIEF VALVE PIPING
RWL	RWL	RAINWATER LEADER
	I.E.	INVERT ELEVATION
		RISER DOWN (ELBOW)
		RISER UP (ELBOW)
	(R) (D)	RISE OR DROP
S, W	S, W	SOIL, WASTE OR SANITARY SEWER ABOVE FLOOR
S, W	S, W	SOIL, WASTE OR SANITARY SEWER BELOW FLOOR
SD	SD	STORM DRAIN
	TH	THERMOMETER
TP w/AD	TP w/AD	TRAP PRIMER VALVE IN WALL BOX WITH ACCESS DOOR. SEE PLUMBING DETAIL 1/P501.
	(TYP.)	TYPICAL
	UN	UNION OR FLANGE
	VB	VALVE IN VALVE BOX (REFER TO SPECIFICATIONS FOR VALVE TYPE).
	V	VENT PIPING
V , VR , VTR		VENT , VENT RISER , VENT THRU ROOF
	WCO	WALL CLEANOUT
	WHA	WATER HAMMER ARRESTER
	HWR	DOMESTIC - HOT WATER RETURN PIPING

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2016 CBC, SECTIONS 1616A.1.18 THROUGH 1616A.1.26 AND ASCE 7-10 CHAPTER 13, 26 AND 30.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (e.g. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER.
3. MOVABLE EQUIPMENT WHICH IS STATIONED IN ONE PLACE FOR MORE THAN 8 HOURS AND HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT ARE REQUIRED TO BE ANCHORED WITH TEMPORARY ATTACHMENTS.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT THE ATTACHMENT NEED NOT BE DETAILED ON THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTION SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND THE DSA DISTRICT STRUCTURAL ENGINEER. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

REGISTERED PROFESSIONAL ENGINEER THOMAS A. KOHL M.J.2836 EXPIRES 9/30/18 MECHANICAL STATE OF CALIFORNIA

DATE SIGNED: 05/01/18

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD - RCC/JH (PM - DESIGN TEAM) 151121.00 (PROJECT NO.)

PLUMBING LEGENDS, SCHEDULES AND NOTES
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

P001
75-16217-00
05.01.2018
Revisions
ADDENDUM #03

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PLUMBING FIXTURE SPECIFICATION & CONNECTION SCHEDULE

ADA	SYMBOL	FIXTURE	FIXTURE MANUFACTURER AND MODEL No.	FAUCET OR VALVE MANUFACTURER AND MODEL No.	TRIM MANUFACTURER AND MODEL No.	REMARKS	VENT	WASTE		COLD WATER		HOT WATER	
								BRANCH	OUTLET	BRANCH	OUTLET	BRANCH	OUTLET
	WC-1	WATER CLOSET WALL MOUNTED FLUSH VALVE STANDARD/ADA COMPLIANT	"AMERICAN STANDARD", AFWALL FLOWISE WATER CLOSET, VITREOUS CHINA, ELONGATED, SIPHON JET ACTION, 1.28 GPF WITH 1-1/2" TOP SPUD.	"ZURN" MODEL ZTS6200EV LOW WATER CONSUMPTION, ADA COMPLIANT, 1.28 GPF, BATTERY POWERED SENSOR OPERATED CHROME PLATED FLUSHOMETER.	ELONGATED OPEN-FRONT SEAT. "AMERICAN STANDARD HEAVY DUTY TOILET SEAT WITH EVERCLEAN FINISH. PROVIDE WITH SELF- SUSTAINING CONCEALED CHECK HINGES, ONE PIECE STAINLESS STEEL POST HINGES, WHITE COLOR. CARRIER: OR "ZURN" Z1203 AND Z1204 SERIES PROVIDE REAR SUPPORT LUG & ANCHOR FOOT ASSEMBLY.	MOUNT AT HEIGHT INDICATED ON ARCHITECTURAL DRAWINGS. WHERE USED FOR ADA ACCESSIBLE WATER CLOSETS, THE FLUSH VALVE HANDLE SHALL BE MOUNTED ON THE WIDE SIDE OF THE WC ENCLOSURE.	2"	4"	4"	1-1/4"	1"	-	-
	UR-1	URINAL WALL MOUNTED FLUSH VALVE ADA COMPLIANT	"ZURN" MODEL Z5798 SERIES 1/8, WALL HUNG, VITREOUS CHINA, WASHOUT, 3/4" TOP SPUD, 2" THREADED OUTLET, .125 GPF	"ZURN" MODEL ZER6000AV-CPM, AQUASENSE LOW WATER CONSUMPTION, ADA COMPLIANT, 0.125 GPF, BATTERY POWERED SENSOR OPERATED CHROME PLATED FLUSHOMETER.	CARRIER: "ZURN", MODEL 1221.	MOUNT AT HEIGHT INDICATED ON ARCHITECTURAL DRAWINGS.	1-1/2"	2"	2"	1"	3/4"	-	-
	L-1	LAVATORY COUNTERTOP MOUNTED HOT AND COLD WATER ADA COMPLIANT	"ZURN", MODEL Z5361 WALL HUNG VITREOUS CHINA, HIGH BACK LAVATORY WITH OVERFLOW, 20" x 18"	"MOEN", MODEL CA8306 AC POWERED SENSOR FAUCET DECK MOUNTED SINGLE HOLE, NON-MIXING ELECTRONIC SINK FAUCET WITH INFRARED SENSOR. WITH 0.5 GPM VANDAL RESISTANT OUTLET FOR CALGREEN COMPLIANT .20 GALLONS PER CYCLE.	ADA COMPLIANT. LAVATORY GRID DRAIN WITH 1-1/4" OFFSET TAILPIECE, INTEGRAL PERFORATED GRID, CHROME FINISH. MOUNT P-TRAP FLUSH TO WALL.	UNIT SHALL INCLUDE A MOEN (OR EQUAL) BELOW DECK POINT-OF-USE ASSE 1070 APPROVED THERMOSTATIC MIXING VALVE TO LIMIT HW TEMPERATURE TO 110 F.	1-1/2"	2"	1-1/2"	3/4"	1/2"	3/4"	1/2"
	L-2	LAVATORY COUNTER MOUNTED HOT AND COLD WATER STD/ACCESSIBLE	"ZURN" MODEL Z5814 COUNTERTOP, ENAMELED CAST IRON, FRONT OVERFLOW, 4" CENTERS, 20" x 17" WITH FITTING LEDGE, SELF-RIMMING STYLE.	"MOEN", MODEL CA8306 AC POWERED SENSOR FAUCET DECK MOUNTED SINGLE HOLE, NON-MIXING ELECTRONIC SINK FAUCET WITH INFRARED SENSOR. WITH 0.5 GPM VANDAL RESISTANT OUTLET FOR CALGREEN COMPLIANT .20 GALLONS PER CYCLE.	ADA COMPLIANT. LAVATORY GRID DRAIN WITH 1-1/4" OFFSET TAILPIECE, INTEGRAL PERFORATED GRID, CHROME FINISH. MOUNT P-TRAP FLUSH TO WALL.	UNIT SHALL INCLUDE A MOEN (OR EQUAL) BELOW DECK POINT-OF-USE ASSE 1070 APPROVED THERMOSTATIC MIXING VALVE TO LIMIT HW TEMPERATURE TO 110 F.	1-1/2"	2"	1-1/2"	3/4"	1/2"	3/4"	1/2"
	S-1	SINK COUNTER MOUNTED HOT AND COLD WATER	"ELKAY" MODEL LRADQ2219-65-BP, 19" FRONT TO BACK, 22" WIDE x 6-1/2" DEPTH OVERALL. 18 GAUGE STAINLESS STEEL, LEDGE BACK WITH SELF- RIM. PROVIDE SINGLE FAUCET HOLE. PROVIDE REAR DRAIN LOCATION. PROVIDE FACTORY ADHERED VANDAL RESISTANT BACKING PLATE AT FAUCET, AND SLOT AT FAUCET FOR VANDAL RESISTANT PINS.	"MOEN", MODEL 8279SMF-12, TWO HANDLE, 4" CENTER SET, ADA COMPLIANT GOOSENECK FAUCET, 1.2 GPM VANDAL RESISTANT LAMINAR FLOW AERATOR. PROVIDE VANDAL RESISTANT PIN IN FAUCET, ARRANGED TO MATE WITH SLOT IN SINK.	"ELKAY" MODEL LKAD18, OFFSET STRAINER DRAIN AND P-TRAP. INSTALL P-TRAP FLUSH TO WALL.		1-1/2"	2"	1-1/2"	3/4"	1/2"	-	-
	S-2	SINK COUNTER MOUNTED HOT AND COLD WATER TWO COMPARTMENT SINK WITH GARBAGE DISPOSAL	"ELKAY" MODEL LRADQ33-19-60, 19" FRONT TO BACK, 33" WIDE x 6" DEPTH OVERALL. 18 GAUGE STAINLESS STEEL, TWO COMPARTMENT WITH LEDGE BACK, SELF-RIM. PROVIDE FAUCET HOLES ON 8" CENTERS. PROVIDE REAR DRAIN LOCATION FOR BOTH COMPARTMENTS.	"MOEN", MODEL 7425 SINGLE HANDLE, ADA COMPLIANT KITCHEN FAUCET, SWING SPOUT, 1.5 GPM VANDAL RESISTANT LAMINAR FLOW AERATOR. PROVIDE VANDAL RESISTANT PIN IN FAUCET, ARRANGED TO MATE WITH SLOT IN SINK.	"ELKAY" MODEL LKAD35, OFFSET CRUMB CUP STRAINER WITH REMOVABLE BASKET AND P-TRAP FOR EACH COMPARTMENT. INSTALL P-TRAP FLUSH TO WALL.	DISPOSER: "IN-SINK-ERATOR" EVOLUTION ESSENTIAL, CONTINUOUS FEED, 3/4 HP, CAPACITOR START. INSTALL DISPOSER IN RIGHT HAND COMPARTMENT. PROVIDE WALL SWITCH FOR OPERATION OF DISPOSER AND PROVIDE FULL 6 YEAR PARTS AND SERVICE WARRANTY FOR DISPOSER.	1-1/2"	2"	1-1/2"	3/4"	1/2"	3/4"	1/2"
	S-3	SINK WALL MOUNTED HOT AND COLD WATER	"ELKAY" MODEL ELVW02219CS3, 19" FRONT TO BACK, 22" WIDE x 5-1/2" DEEP, 18 GAUGE STAINLESS STEEL WALL MOUNTED, THREE-HOLE CENTER SET CENTER PUNCH WITH CONNECTED OVERFLOW, REAR DRAIN OUTLET.	"MOEN", MODEL 8279SMF-12, TWO HANDLE, 4" CENTER SET, ADA COMPLIANT GOOSENECK FAUCET, 1.2 GPM VANDAL RESISTANT LAMINAR FLOW AERATOR. PROVIDE VANDAL RESISTANT PIN IN FAUCET, ARRANGED TO MATE WITH SLOT IN SINK.	"ELKAY" MODEL LKAD18, OFFSET STRAINER DRAIN AND P-TRAP. INSTALL P-TRAP FLUSH TO WALL.		1-1/2"	2"	1-1/2"	3/4"	1/2"	3/4"	1/2"
	SH-1	SHOWER FLUSH MOUNTED	"BRADLEY" MODEL WS-1F-HD/SX-RSD FLUSH MOUNTED INDIVIDUAL WALL SHOWER	COMPLETE WITH HOT AND COLD WATER PRESSURE BALANCED MIXING VALVES, 2 GPM FLOW CONTROL, EQUA-FLO HEAVY DUTY PRESSURE BALANCED MIXING VALVE, SEVERE SERVICE SHOWER HEAD AND RECESSED SOAP DISH.	INTEGRAL	MOUNT AT HEIGHT INDICATED ON ARCHITECTURAL DRAWINGS.	-	-	-	-	3/4"	1/2"	3/4"	1/2"
	SH-2	SHOWER FLUSH MOUNTED ACCESSIBLE	"BRADLEY" MODEL HN200-T24 (California) - HD/SX-RSD FLUSH MOUNTED INDIVIDUAL WALL SHOWER ADA COMPLIANT	COMPLETE WITH HOT AND COLD WATER PRESSURE BALANCED MIXING VALVES, 2 GPM FLOW CONTROL, EQUA-FLO HEAVY DUTY PRESSURE BALANCED MIXING VALVE, SEVERE SERVICE SHOWER HEAD AND RECESSED SOAP DISH.	INTEGRAL	MOUNT AT HEIGHT INDICATED ON ARCHITECTURAL DRAWINGS. SEE PLAN FOR ACCESSIBLE SEAT AND BAR LOCATION	-	-	-	-	3/4"	1/2"	3/4"	1/2"
	SS-1	SERVICE SINK FLOOR MOUNTED HOT AND COLD WATER JANITORS	"ACORN" TSH-24-SSC, TERRAZZO-WARE, 24"x24"x12" DEEP FLOOR MOUNTED, TERRAZZO, WITH STAINLESS STEEL CAP ON ALL FOUR TOP SURFACES. UNIT SHALL INCLUDE MODEL KH36 HOSE WITH WALL HANGER, KMH MOP HANGER WITH 3 SPRING LOADED GRIPS ON A STAINLESS STEEL BRACKET.	"CHICAGO" MODEL 897-CP WALL MOUNTED POLISHED CHROME FAUCET WITH VACUUM BREAKER, ADJUSTABLE TOP BRACE AND 3/4" MALE THREADED HOSE OUTLET.		AS PART OF ROUGH-IN FOR FAUCET, PROVIDE SUITABLE BLOCKING FOR TOP BRACE. PROVIDE CAP WITH FLANGE ON SIDES ADJACENT TO WALLS.	2"	3"	3"	3/4"	3/4"	3/4"	3/4"
	BF-1	BOTTLE FILLING STATION SURFACE MOUNTED	"ELKAY", MODEL LZWSSM FILTERED NON-REFRIGERATED STAINLESS, SURFACE MOUNTED BOTTLE FILLING STATION. HANDS-FREE ACTIVATION, VISUAL FILTER MONITOR, FILTERED, GREEN TICKER, LAMINAR FLOOR, ANTIMICROBIAL, REAL DRAIN.	INTEGRAL	WITH P-TRAP	115V/60 Hz., 15 AMP. FOR POWER REFER TO DIVISION 26 PLANS & SPECIFICATIONS.	1-1/2"	2"	1-1/2"	3/4"	1/2"	-	-
	TFF-1	TUB FILLER FAUCET WALL MOUNTED	"T&S BRASS", MODEL B-0592-LVR, CHROME-PLATED BRASS BODY, DOUBLE JOINT SWING NOZZLE.				-	-	-	3/4"	1/2"	-	-
	HB	HOSE BIBB	ROOF MOUNTED - WOODFORD MODEL RHMC-MS, OR EQUAL. INTERIOR WALL MOUNTED - WOODFORD MODEL 24PC, OR EQUAL.				-	-	-	3/4"	3/4"	-	-
	WH	WALL HYDRANT	RECESSED WALL HYDRANT - MIFAB MODEL MHY-55, WOODFORD MODEL B24 OR EQUAL	RECESSED WALL HOSE BOX WITH DOOR AND VACUUM BREAKER. BOX IS ONE PIECE CAST CONSTRUCTION WITH BUILT-IN LIP. WALL FLANGE IS CAST ALUMINUM WITH PRIME COAT FINISH SECURED WITH VANDAL RESISTANT SCREWS. DOOR AND FRAME ARE OF CAST ALUMINUM ALLOY WITH CYLINDER KEYED LOCK. VALVE SHALL BE CARTRIDGE TYPE WITH VANDAL RESISTANT LOCK SHIELD LOOSE KEY HANDLE AND SCREWDRIVE STOP.			-	-	-	3/4"	3/4"	-	-
	RIM	REFRIGERATOR ICE MAKER	"GUY GRAY" MODEL SSIB2AB LEAD FREE ICE MAKER HOOK-UP, WITH 1/2" FIP INLET AND 1/4" COMPRESSION OUTLET.	INTEGRAL	INTEGRAL	PROVIDE 20 GAUGE BOX AND 18 GAUGE STAINLESS STEEL FACE PLATE.	-	-	-	1/2"	1/4"	-	-
	TP	TRAP PRIMER	"MIFAB" MODEL M-500 SERIES	PROVIDE BALL VALVE AT EACH TP LOCATION.	MOUNT TRAP PRIMER IN SHEET METAL BOX WITH "KARP" OR EQUAL ACCESS DOOR. REFER TO DETAIL - SHEET P501 PROVIDE UL APPROVED FIRE WRAP AROUND SHEET METAL BOX AND A FIRE RATED ACCESS DOOR WHEN INSTALLED IN A FIRE RATED ASSEMBLY. FOR CONTINUATION REFER TO SPECIFICATIONS SECTION 22 00 50.	INSTALL PER MANUFACTURER'S INSTRUCTIONS. PROVIDE DISTRIBUTION UNIT WITH FEEDER PIPING FOR A MAX. OF FOUR TRAPS WHEN NEEDED.	-	-	-	-	-	-	-
	FS	FLOOR SINK	ZURN MODEL ZN-1901-KC-2, OR EQUAL, 12 INCH x 12 INCH x 8 INCH DEEP, A.R.E. INTERIOR WITH NICKEL BRONZE RIM, HALF GRATE AND DOME STRAINER.	PROVIDE SEEPAGE PAN AND CLAMPING COLLAR.		COORDINATE GRATES WITH THE PROJECT ARCHITECT	2"	2"	2"	-	-	-	-
	FD	FLOOR DRAIN	GENERAL SERVICE FD - ZURN MODEL ZN-415, OR EQUAL, DURA-COATED CAST IRON BODY WITH BOTTOM OUTLET AND HEEL PROOF, POLISHED NICKEL BRONZE TOP.		TYPE "B" STRAINER FOR EXPOSED CONCRETE TYPE "S" SQUARE STRAINER FOR TOILET ROOMS TYPE "SL STRAINER FOR COMPOSITION FLOOR	PROVIDE FLASHING RING AND CLAMP AT FLOORS WITH WATER RESISTANT MEMBRANE. SET TOP OF DRAIN SLIGHTLY BELOW FLOOR TO INSURE DRAINAGE. INSTALL VENTED P-TRAP. WHERE TRAP PRIMERS ARE INDICATED PROVIDE PROPER CONNECTION TO P-TRAP.	2"	2"	2"	-	-	-	-
	TD	TRENCH DRAIN	"ACO DRAIN" FLOW DRAIN - FG200 CHANNEL SYSTEM WITH STAINLESS STEEL FRAME, 8" INTERNAL WIDTH x 72" LENGTH (2 - 36" INTERNALLY SLOPED CHANNELS) WITH 6" OUTLET, WITH F660 BAR GALVANIZED STEEL GRATE. REFER TO ARCHITECTURAL PLANS TO CONFIRM TOTAL TRENCH DRAIN LENGTH.			GRATE SHALL BE LOCKED DOWN WITH SOCKET HEAD BOLTS GRATE SHALL BE INTERRUPTED IN EQUIP./LAUNDRY RM. 109 TO ALLOW FOR WASHING MACHINE DRAIN TO DRAIN INDIRECTLY TO TRENCH DRAIN.	-	6"	6"	-	-	-	-
	RD/OF	ROOF DRAIN OVERFLOW	COMBINATION ROOF DRAIN AND OVER FLOW 3" RD. AND 4"RD. PIPE SIZE MAX. - J.R. SMITH MODEL SQ-1-1481, ZURN MODEL Z165 OR EQUAL.	SECURE DECK PLATE TO ROOF. PROVIDE 6" HIGH CAST IRON VANDAL PROOF DOME TYPE STRAINER INLET AND CLAMPING COLLARS FOR PRIMARY AND OVERFLOW.			-	3"	3"	-	-	-	-

NOTES:

1. WATER SUPPLIES AND STOPS (REFER TO SPECIFICATION SECTION OR 22 40 00)
   A. PROVIDE 85 PERCENT IPS RED BRASS PIPE, SECURELY ANCHORED TO BUILDING CONSTRUCTION, FOR EACH CONNECTION TO FAUCETS, STOPS, HOSE BIBBS, ETC. EACH FIXTURE, EXCEPT HOSE BIBBS, SHALL HAVE A STOP VALVE INSTALLED ON WATER SUPPLY LINES TO PERMIT REPAIRS WITHOUT SHUTTING OFF WATER MAINS.
   B. PROVIDE ALL WATER SUPPLIES TO FIXTURES WITH COMPRESSION SHUT-OFF STOPS WITH IPS INLETS WITH THREADED BRASS NIPPLES AT PIPE CONNECTION AND LOCK SHIELD LOOSE KEY. PROVIDE COMBINATION FIXTURES WITH COMPRESSION STOP AND IPS INLET ON EACH WATER SUPPLY FITTING. PROVIDE LOOSE KEY HANDLE FOR EACH STOP.
   C. PROVIDE 1/2 INCH RISER TUBES WITH REDUCING COUPLING FOR ALL FIXTURES, UNLESS OTHERWISE NOTED.
2. PIPE, PLUMBING FITTINGS, FIXTURES, SOLDER AND FLUX SHALL COMPLY WITH LEAD FREE REQUIREMENTS OF THE CALIFORNIA HEALTH AND SAFETY CODE SECTION 116875. PROVIDE PRODUCTS LISTED AND LABELED AS COMPLYING WITH NSF 61, ANNEX G, OR PROVIDE OTHER EVIDENCE OF COMPLIANCE WITH THE CALIFORNIA HEALTH AND SAFETY CODE SECTION 116875. PROVIDE PRODUCT SUBMITTAL INFORMATION PROVING COMPLIANCE WITH LEAD FREE REQUIREMENTS.

REGISTERED PROFESSIONAL ENGINEER
THOMAS A. ROSA
M 22836
EXPIRES 9/30/18
MECHANICAL
STATE OF CALIFORNIA

DATE SIGNED: 05/01/18

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PLUMBING FIXTURE SCHEDULE
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

P002
75-16217-00
05.01.2018
Revisions
ADDENDUM #03

02/16/2018

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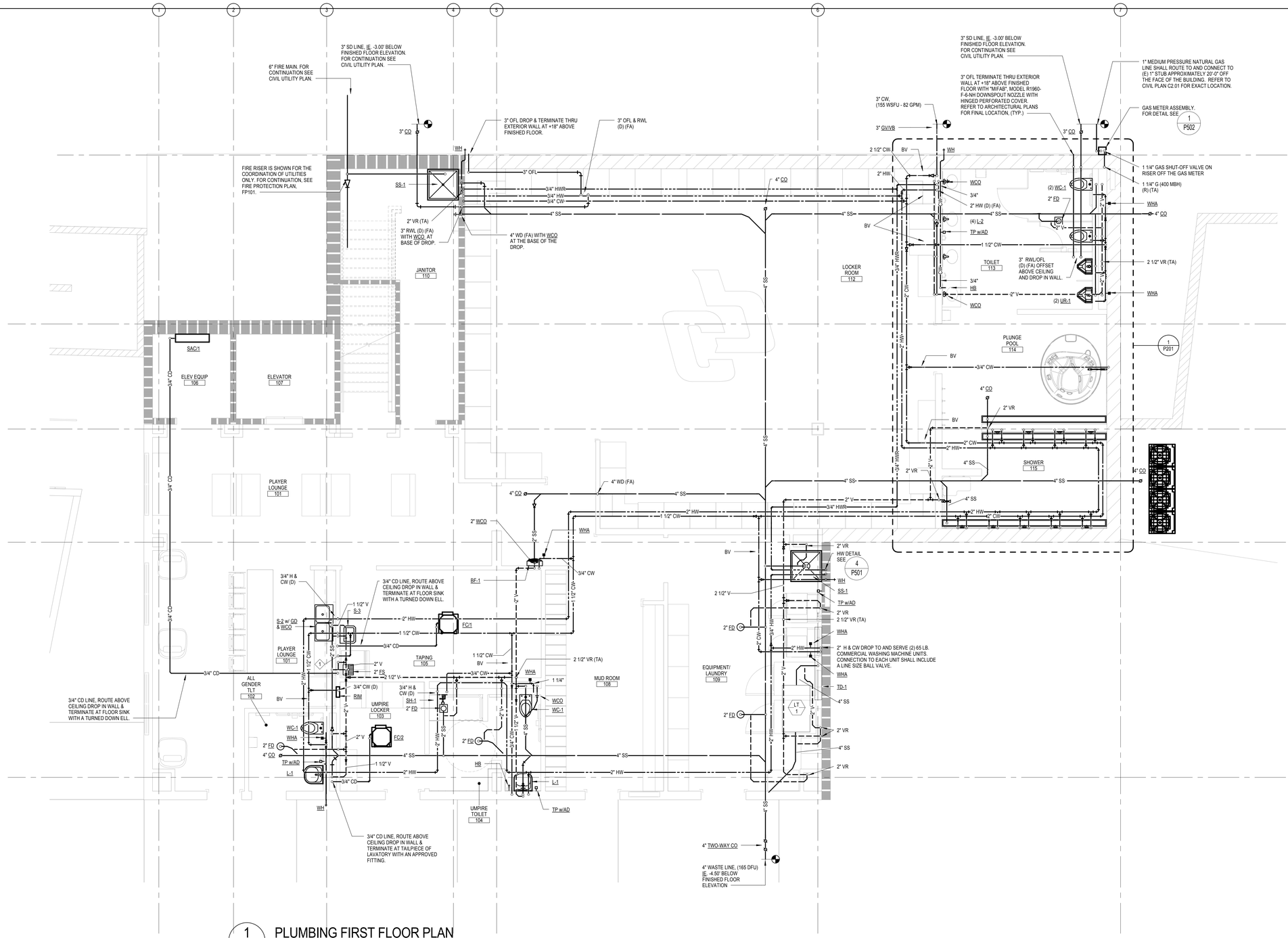

SHEET NOTES

1. ALL DIVISION 21, 22 AND 23 SERVICES SUCH AS DUCTWORK, DIFFUSERS, REGISTERS, VAV TERMINALS, PIPING, CONDUIT, EQUIPMENT SUPPORTS, ETC. INSTALLED OVERHEAD IN EXPOSED BUILDING STRUCTURES SHALL BE FINISH PAINTED BY THE PROJECT PAINTING SUBCONTRACTOR. DIVISION 21, 22 AND 23 CONTRACTORS SHALL CLEAN AND PREP THESE ITEMS FOR THE FINAL FINISH PAINTING. ITEMS WHICH ARE TYPICALLY PROVIDED WITH A FACTORY PAINT FINISH SUCH AS DIFFUSERS AND REGISTERS SHALL INSTEAD BE PROVIDED WITH A FACTORY PRIMED FINISH TO ALLOW FOR THE FINAL ON-SITE PAINTING. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF OVERHEAD EXPOSED BUILDING STRUCTURE.

2. REFER TO FIRESTOP WALL PENETRATOR GUIDE ON P502 FOR FIREPROOFING DETAILS AT RATED ASSEMBLIES.

KEY NOTES

1 3/4" CW DROP IN WALL. PROVIDE "WATTS", SERIES LFU009 REDUCED PRESSURE ZONE ASSEMBLY (OR EQUAL) FOR CONNECTION TO ICE MACHINE.

WALL LEGEND

WALL HOURLY FIRE RATING		
0	=	0 HOUR
1	=	1 HOUR

1 P101 PLUMBING FIRST FLOOR PLAN
SCALE: 1/4" = 1'-0"

PLUMBING FIRST FLOOR PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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P101
75-16217-00
05.01.2018
Revisions
FIRE MARSHALL BACKCHECK 5/4/05/2018

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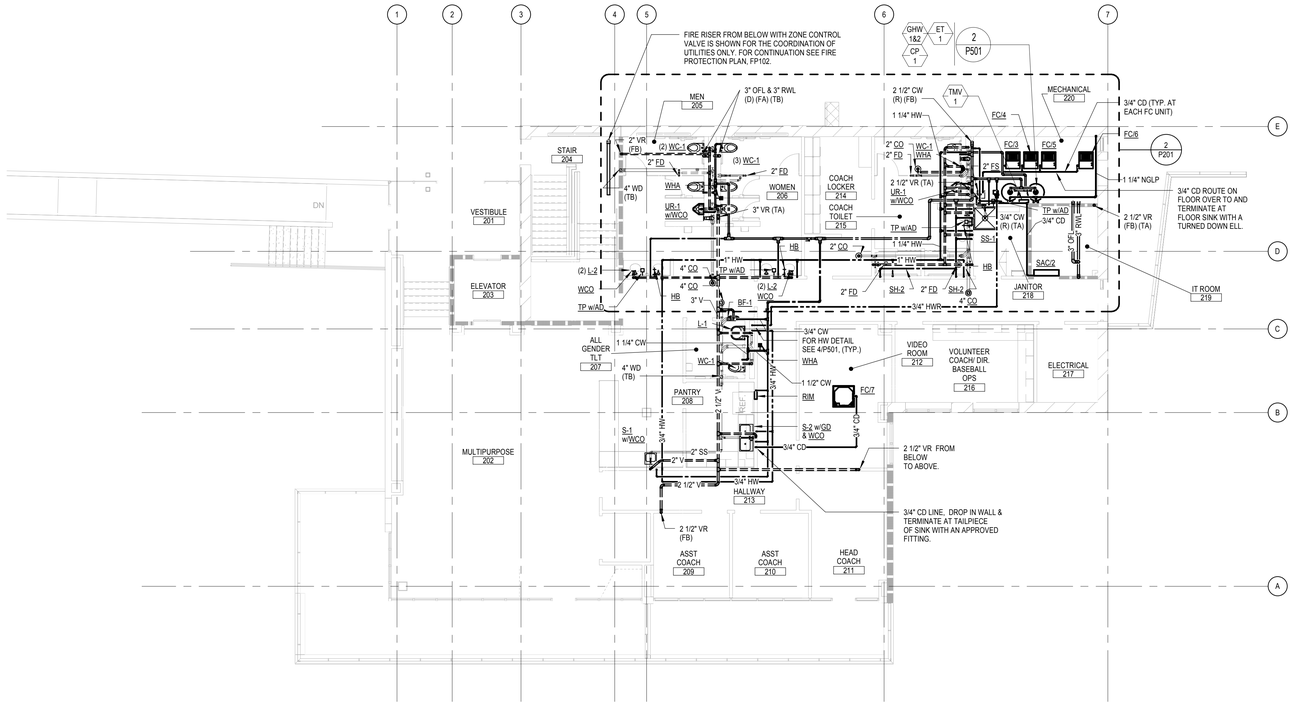

1 / P102 PLUMBING SECOND FLOOR PLAN

SCALE: 1/8" = 1'-0"

SHEET NOTES

1. ALL DIVISION 21, 22 AND 23 SERVICES SUCH AS DUCTWORK, DIFFUSERS, REGISTERS, VAV TERMINALS, PIPING, CONDUIT, EQUIPMENT SUPPORTS, ETC. INSTALLED OVERHEAD IN EXPOSED BUILDING STRUCTURES SHALL BE FINISH PAINTED BY THE PROJECT PAINTING SUBCONTRACTOR. DIVISION 21, 22 AND 23 CONTRACTORS SHALL CLEAN AND PREP THESE ITEMS FOR THE FINAL FINISH PAINTING. ITEMS WHICH ARE TYPICALLY PROVIDED WITH A FACTORY PAINT FINISH SUCH AS DIFFUSERS AND REGISTERS SHALL INSTEAD BE PROVIDED WITH A FACTORY PRIMED FINISH TO ALLOW FOR THE FINAL ON-SITE PAINTING. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF OVERHEAD EXPOSED BUILDING STRUCTURE.

2. REFER TO FIRESTOP WALL PENETRATOR GUIDE ON P502 FOR FIREPROOFING DETAILS AT RATED ASSEMBLIES.

WALL LEGEND

WALL HOURLY FIRE RATING		
0	=	0 HOUR
1	=	1 HOUR

REGISTERED PROFESSIONAL ENGINEER — THOMAS A. HOM — M 22836 — EXPIRES 9/30/18 — MECHANICAL — STATE OF CALIFORNIA

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PLUMBING SECOND FLOOR PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

P102
75-16217-00
05.01.2018
Revisions
FIRE MARSHALL BACKCHECK, 04/30/2018

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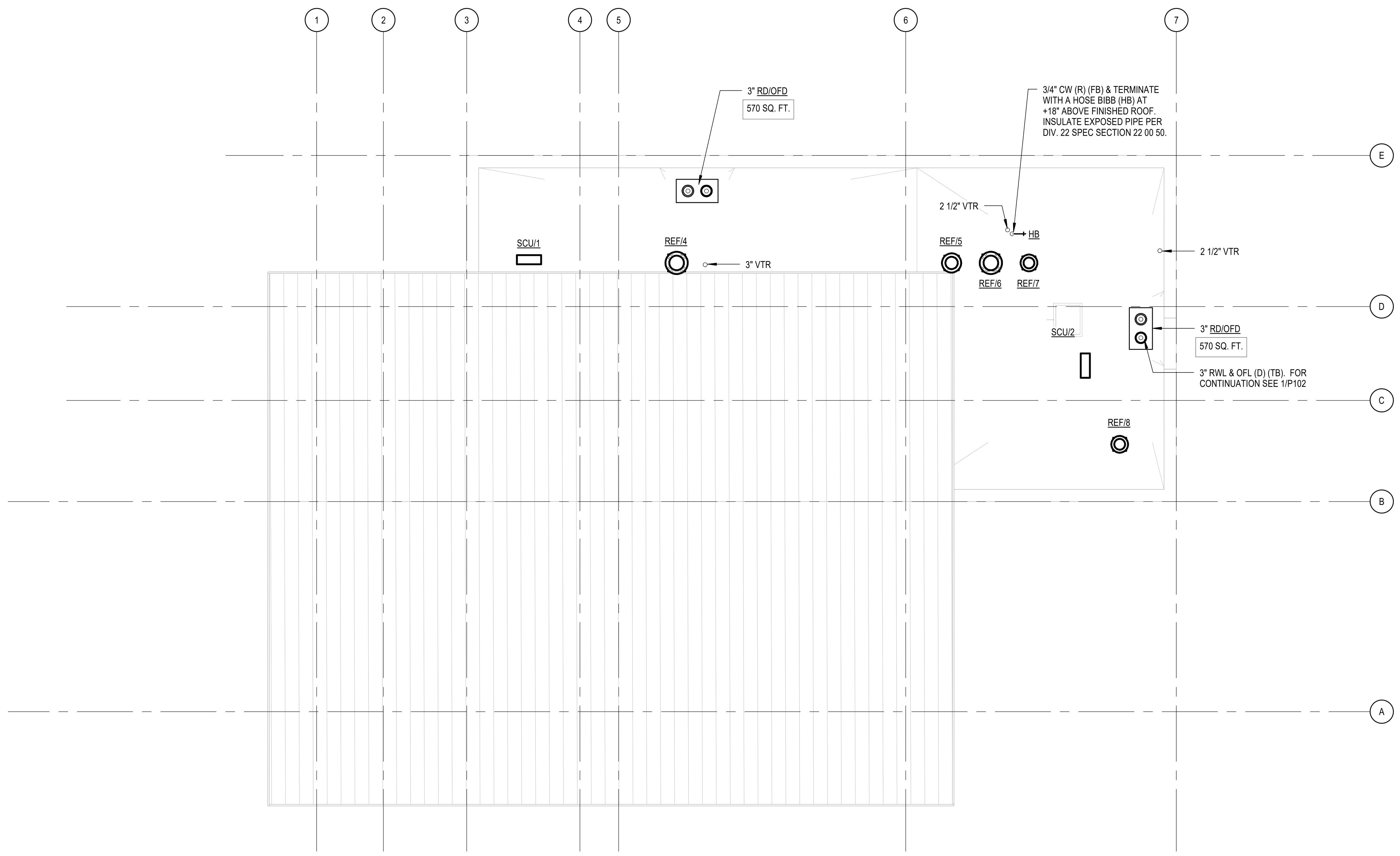

1
P103

PLUMBING ROOF PLAN

SCALE: 1/8" = 1'-0"

PLUMBING ROOF PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

P103
75-16217-00
05.01.2018
Revisions

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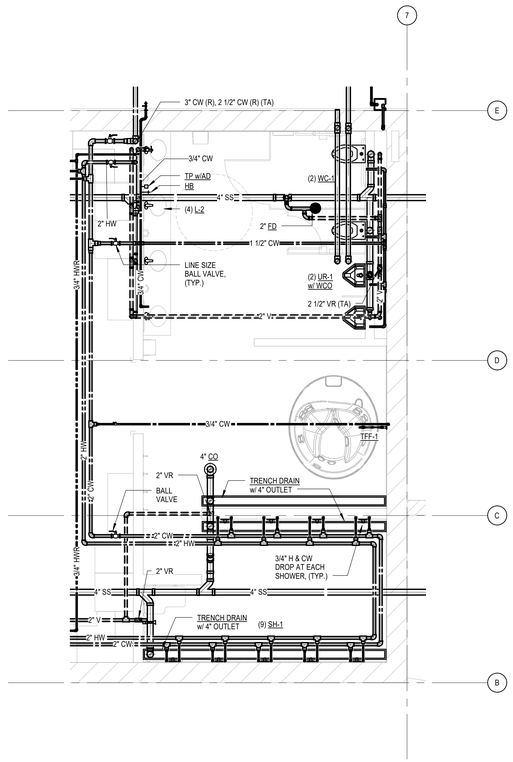
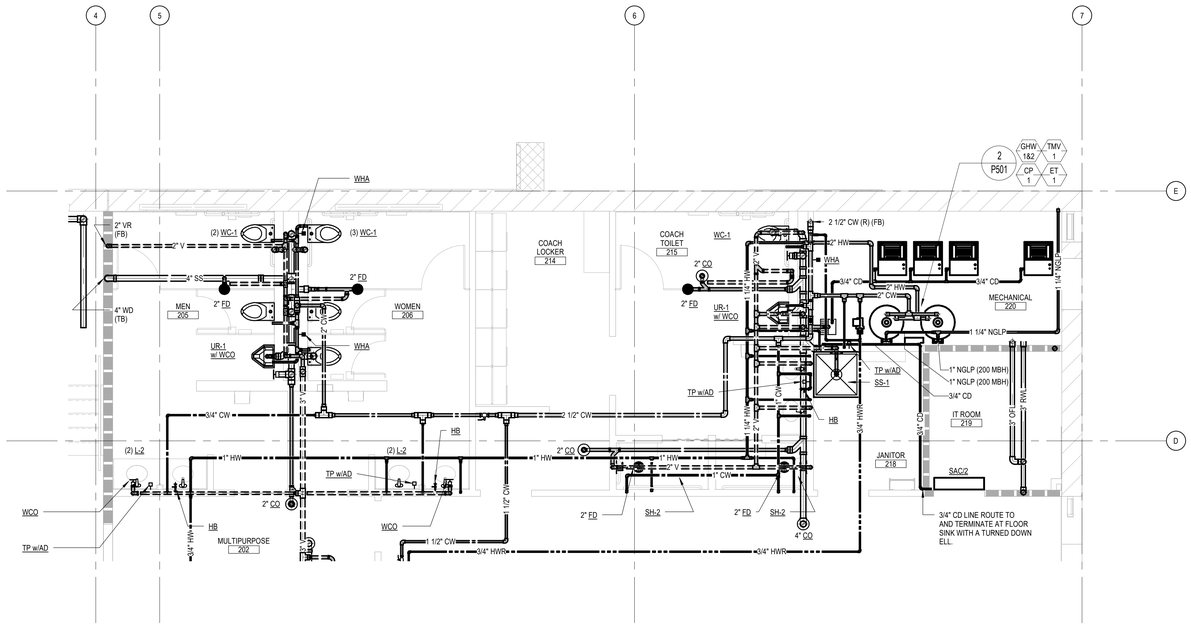


1 P201 ENLARGED PLUMBING PLAN - FIRST FLOOR

SCALE: 1/4" = 1'-0"



2 P201 ENLARGED PLUMBING PLAN - SECOND FLOOR

SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. ALL DIVISION 21, 22 AND 23 SERVICES SUCH AS DUCTWORK, DIFFUSERS, REGISTERS, VAV TERMINALS, PIPING, CONDUIT, EQUIPMENT SUPPORTS, ETC. INSTALLED OVERHEAD IN EXPOSED BUILDING STRUCTURES SHALL BE FINISH PAINTED BY THE PROJECT PAINTING SUBCONTRACTOR. DIVISION 21, 22 AND 23 CONTRACTORS SHALL CLEAN AND PREP THESE ITEMS FOR THE FINAL FINISH PAINTING. ITEMS WHICH ARE TYPICALLY PROVIDED WITH A FACTORY PAINT FINISH SUCH AS DIFFUSERS AND REGISTERS SHALL INSTEAD BE PROVIDED WITH A FACTORY PRIMED FINISH TO ALLOW FOR THE FINAL ON-SITE PAINTING. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF OVERHEAD EXPOSED BUILDING STRUCTURE.

WALL LEGEND

WALL HOURLY FIRE RATING	
0 =	0 HOUR
1 =	1 HOUR

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ENLARGED PLUMBING PLANS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

P201

75-16217-00
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ADDENDUM #3	03/15/2018
PRE MARSHALL BACKCHECK	04/06/2018

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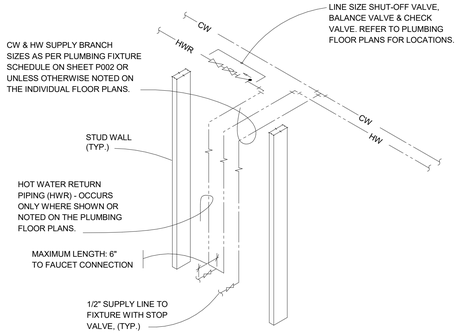
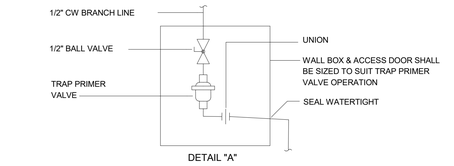


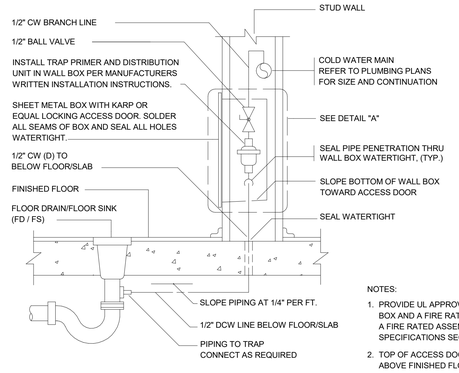
DHWR PIPING DETAIL

SCALE : NONE

4 / P501



DETAIL "A"



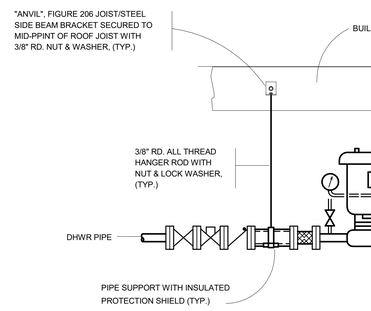
NOTES:

1. PROVIDE UL APPROVED FIRE WRAP AROUND SHEET METAL BOX AND A FIRE RATED ACCESS DOOR WHEN INSTALLED IN A FIRE RATED ASSEMBLY. FOR CONTINUATION REFER TO SPECIFICATIONS SECTION 22 00 50.
2. TOP OF ACCESS DOOR SHALL BE A MAXIMUM OF 28" ABOVE FINISHED FLOOR.
3. CONTRACTOR SHALL CONFIRM FINAL LOCATION OF TRAP PRIMER/ACCESS DOOR WITH THE PROJECT ARCHITECT AND PROVIDE ELEVATION PLANS INDICATING ACCESS DOOR LOCATIONS WITH THEIR FINAL AS-BUILT/SHOP DRAWING SUBMITTAL.

TRAP PRIMER TO FLOOR DRAIN

SCALE : NONE

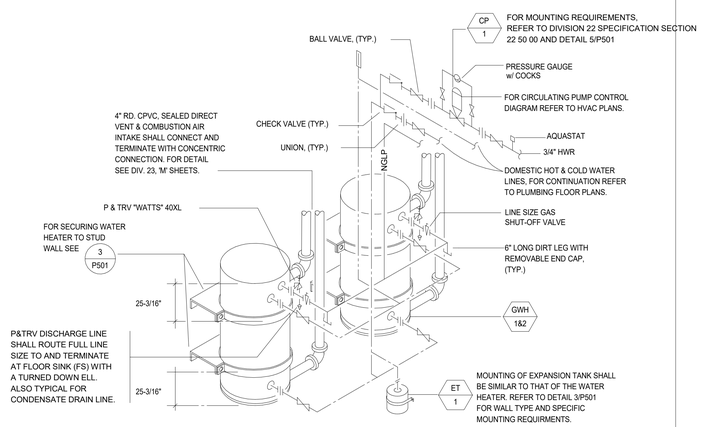
1 / P501



DHWR CIRCULATING PUMP MOUNTING

SCALE : NONE

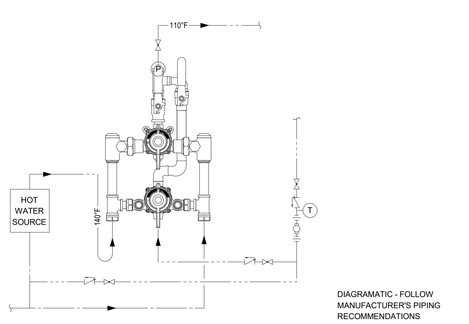
5 / P501



GAS FIRED WATER HEATER DETAIL

SCALE : NONE

2 / P501

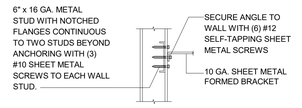


DIAGRAMATIC - FOLLOW MANUFACTURER'S PIPING RECOMMENDATIONS

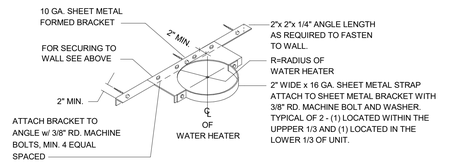
THERMOSTATIC MIXING VALVE DETAIL

SCALE : NONE

6 / P501



METAL STUD



MOUNTING STRAP

WATER HEATER MOUNTING

SCALE : NONE

3 / P501

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PLUMBING DETAILS
BASEBALL CLUBHOUSE FACILITY
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P501
75-16217-00
05.01.2018
Revisions
A0208CM#01
01/26/2018

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ProSet FIRESTOP WALL PENETRATOR GUIDE

Penetrators through Masonry & Gypsum Walls

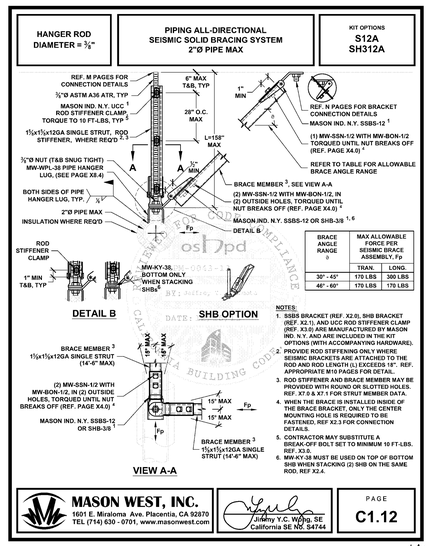
Recommended drawing numbers are shown below
Other options may be available

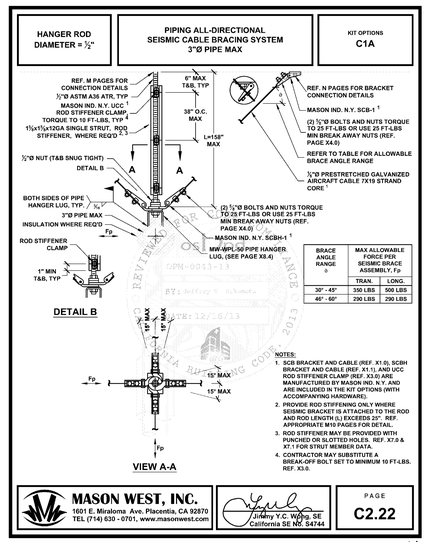
NEW! Click on the Drawing Number to Open the Drawing

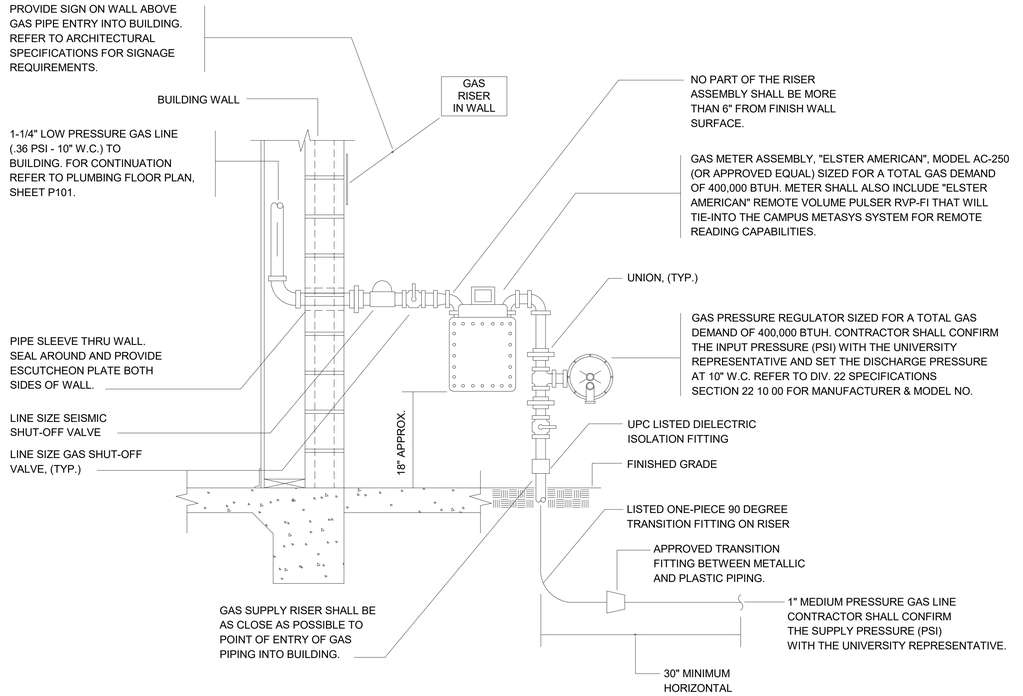
Pressure Pipe and PVC/ABS Pipe - All sleeves are 8" long— Consult factory for other options

Size	Type of Wall	Copper	Steel	CPVC	PVC Pressure	PVC/ABS DWV	Other
1/2"	CONCRETE	A-1010-a	A-1010-a	A-1011-a	A-1011-a	A-1011-a	Multiple Pipes
	BLOCK	A-1010-g	A-1010-g	A-1011-g	A-1011-g	A-1011-g	A-1003-ax
	GYPSUM	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	Chilled Water
3/4"	CONCRETE	A-1010-a	A-1010-a	A-1011-a	A-1011-a	A-1011-a	A-1006-a
	BLOCK	A-1010-g	A-1010-g	A-1011-g	A-1011-g	A-1011-g	Glass Pipe
	GYPSUM	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	A-1015-a
1"	CONCRETE	A-1010-a	A-1010-a	A-1011-a	A-1011-a	A-1011-a	Waterproof
	BLOCK	A-1010-g	A-1010-g	A-1011-g	A-1011-g	A-1011-g	Thru-pipe
	GYPSUM	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	A-1017-g
1 1/4"	CONCRETE	A-1010-a	A-1010-a	A-1011-a	A-1011-a	A-1011-a	Optional Wall
	BLOCK	A-1010-g	A-1010-g	A-1011-g	A-1011-g	A-1011-g	Sleeve Fasteners
	GYPSUM	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	For Gypsum Walls
1 1/2"	CONCRETE	A-1010-a	A-1010-a	A-1011-a	A-1011-a	A-1011-a	A-1012-f and
	BLOCK	A-1010-g	A-1010-g	A-1011-g	A-1011-g	A-1011-g	A-1013-for
	GYPSUM	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	A-1012-f or 13-f	A-1014-f and
2"	CONCRETE	A-1014-a	A-1014-a	A-1015-a	A-1015-a	C-9049-a	A-1015-f
	BLOCK	A-1015-g	A-1015-g	A-1015-g	A-1015-g	C-9049-g	polypropylene
	GYPSUM	A-1014-f	A-1014-f	A-1015-f	A-1015-f	C-9049-f	Acid waste pipe
2 1/2"	CONCRETE	A-1014-a	A-1014-a	A-1015-a	A-1015-a	C-9049-a	C-9049-f
	BLOCK	A-1015-g	A-1015-g	A-1015-g	A-1015-g	C-9049-g	C-9049-g
	GYPSUM	A-1014-f	A-1014-f	A-1015-f	A-1015-f	C-9049-f	Polyethylene
3"	CONCRETE	A-1014-a	A-1014-a	A-1015-a	A-1015-a	C-9049-a	A-1011-a
	BLOCK	A-1015-g	A-1015-g	A-1015-g	A-1015-g	C-9049-g	A-1011-g
	GYPSUM	A-1014-f	A-1014-f	A-1015-f	A-1015-f	C-9049-f	A-1012-f or
4"	CONCRETE	A-1014-a	A-1014-a	A-1015-a	A-1015-a	C-9049-a	A-1013-f
	BLOCK	A-1015-g	A-1015-g	A-1015-g	A-1015-g	C-9049-g	Insulated pipe
	GYPSUM	A-1014-f	A-1014-f	A-1015-f	A-1015-f	C-9049-f	A-1004-a
5"	CONCRETE	A-1014-a	A-1014-a	A-1015-a	A-1015-a	N.A	A-1010-ai
	BLOCK	A-1015-g	A-1015-g	A-1015-g	A-1015-g	N.A	Refrigeration
	GYPSUM	A-1014-f	A-1014-f	A-1015-f	A-1015-f	N.A	A-1003-a
6"	CONCRETE	A-1014-a	A-1014-a	A-1015-a	A-1015-a	N.A	
	BLOCK	A-1015-g	A-1015-g	A-1015-g	A-1015-g	N.A	
	GYPSUM	A-1014-f	A-1014-f	A-1015-f	A-1015-f	N.A	

Plumbing Fixture Wall Openings: 1-1/2" Lavatory and Sink Stub Outs: Use ProSet P-90 PVC Pipe See drawing No. C-8112-f
Wall Outlet 3" or 4" Water Closets See ProSet Drawing No. C-4492-a and C-4492-dlhc
ProSet Systems, Inc., 1355 Capital Circle Lawrenceville, GA 30043-5866 1-800-262-5355 FAX (770) 339-1784







1 P502 GAS METER ASSEMBLY
SCALE: 12" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER THOMAS A. ROSS M 22836 EXPIRES 9/30/18 MECHANICAL STATE OF CALIFORNIA

DATE SIGNED: 05/01/18

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD - RCC/JH PM - DESIGN TEAM
151121.00 PROJECT NO.

PLUMBING DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

P502
75-16217-00
05.01.2018
Revisions

IDENTIFICATION STAMP
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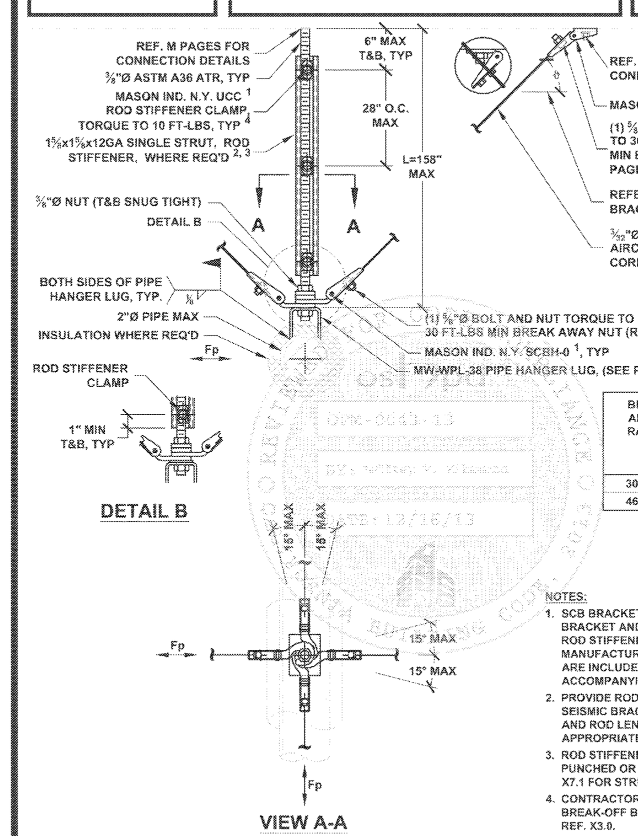
HANGER ROD DIAMETER = 3/8"

PIPING ALL-DIRECTIONAL SEISMIC CABLE BRACING SYSTEM 2"Ø PIPE MAX

KIT OPTIONS C0A



BRACE ANGLE RANGE θ	MAX ALLOWABLE FORCE PER SEISMIC BRACE ASSEMBLY, Fp	
	TRAN.	LONG.
30° - 45°	170 LBS	270 LBS
46° - 60°	170 LBS	170 LBS

NOTES:
1. SCB BRACKET AND CABLE (REF. X1.0), SCBH BRACKET AND CABLE (REF. X1.1), AND UCC ROD STIFFENER CLAMP (REF. X3.0) ARE MANUFACTURED BY MASON IND. N.Y. AND ARE INCLUDED IN THE KIT OPTIONS (WITH ACCOMPANYING HARDWARE).
2. PROVIDE ROD STIFFENING ONLY WHERE SEISMIC BRACKET IS ATTACHED TO THE ROD AND ROD LENGTH (L) EXCEEDS 18". REF. APPROPRIATE M10 PAGES FOR DETAIL.
3. ROD STIFFENER MAY BE PROVIDED WITH PUNCHED OR SLOTTED HOLES. REF. X7.0 & X7.1 FOR STRUT MEMBER DATA.
4. CONTRACTOR MAY SUBSTITUTE A BREAK-OFF BOLT SET TO MINIMUM 10 FT-LBS. REF. X3.0.

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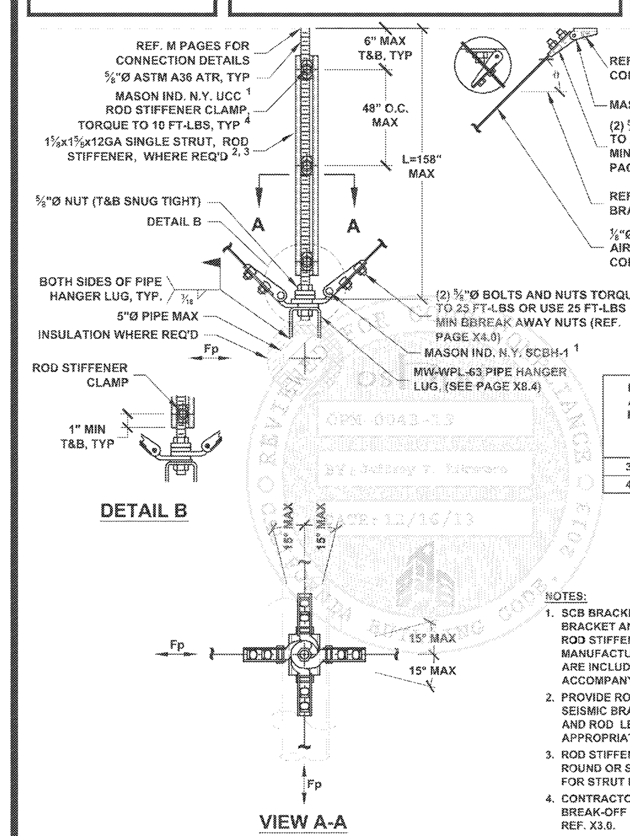
HANGER ROD DIAMETER = 5/8"

PIPING ALL-DIRECTIONAL SEISMIC CABLE BRACING SYSTEM 5"Ø PIPE MAX

KIT OPTIONS C1A



BRACE ANGLE RANGE θ	MAX ALLOWABLE FORCE PER SEISMIC BRACE ASSEMBLY, Fp	
	TRAN.	LONG.
30° - 45°	540 LBS	540 LBS
46° - 60°	380 LBS	380 LBS

NOTES:
1. SCB BRACKET AND CABLE (REF. X1.0), SCBH BRACKET AND CABLE (REF. X1.1), AND UCC ROD STIFFENER CLAMP (REF. X3.0) ARE MANUFACTURED BY MASON IND. N.Y. AND ARE INCLUDED IN THE KIT OPTIONS (WITH ACCOMPANYING HARDWARE).
2. PROVIDE ROD STIFFENER ONLY WHERE SEISMIC BRACKET IS ATTACHED TO THE ROD AND ROD LENGTH (L) EXCEEDS 31". REF. APPROPRIATE M10 PAGES FOR DETAILS.
3. ROD STIFFENER MAY BE PROVIDED WITH ROUND OR SLOTTED HOLES. REF. X7.0 & X7.1 FOR STRUT MEMBER DATA.
4. CONTRACTOR MAY SUBSTITUTE A BREAK-OFF BOLT SET TO MINIMUM 10 FT-LBS. REF. X3.0.

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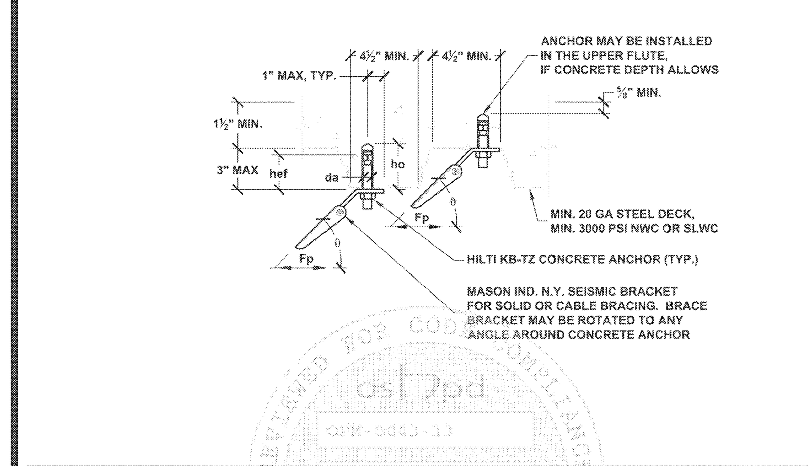
SEISMIC BRACKET ATTACHMENT TO CONCRETE FILLED METAL DECK WITH (1) HILTI KB-TZ CONCRETE ANCHOR



BRACE BRACKET ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp LBS	Ω₀ = 2.5 [1] BRACE BRACKET ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp LBS	MAX BRACE RANGE θ	HILTI KB-TZ CONCRETE ANCHOR (ICC ESR-1917) SPECIAL INSPECTION REQ'D DIA. da INCH	MIN. EFF. EMBED. hef INCH	MIN. HOLE DEPTH ho INCH	MIN. SPACING Smin INCH	MIN. END DIST. Cmin INCH	TORQUE REQ'D FT-LBS
38A TO 38C	200	38A TO 38B	160	30° - 45°	3/8	2	2 5/8	6 3/4	3 3/8	25
38A TO 38A	120	38A TO 38A	110	46° - 60°						
50A TO 50C	230	50A TO 50C	210	30° - 45°	1/2	2	2 5/8	6 3/4	3 3/8	40
50A TO 50B	130	50A TO 50B	140	46° - 60°						
50A TO 50E	410	50A TO 50E	370	30° - 45°	1/2	3 1/4	4	9 3/4	4 7/8	40
50A TO 50C	230	50A TO 50C	240	46° - 60°						
63A TO 63D	320	63A TO 63D	290	30° - 45°	5/8	3 1/8	3 3/4	9 3/8	4 3/4	60
63A TO 63C	180	63A TO 63C	190	46° - 60°						
63A TO 63G	680	63A TO 63F	570	30° - 45°	5/8	4	4 3/4	12	6	60
63A TO 63E	400	63A TO 63E	390	46° - 60°						

SEE DETAIL N0.00 FOR SECTION NOTES
[1] OVERSTRENGTH FACTOR AS REQUIRED FOR ANCHORAGE TO CONCRETE.

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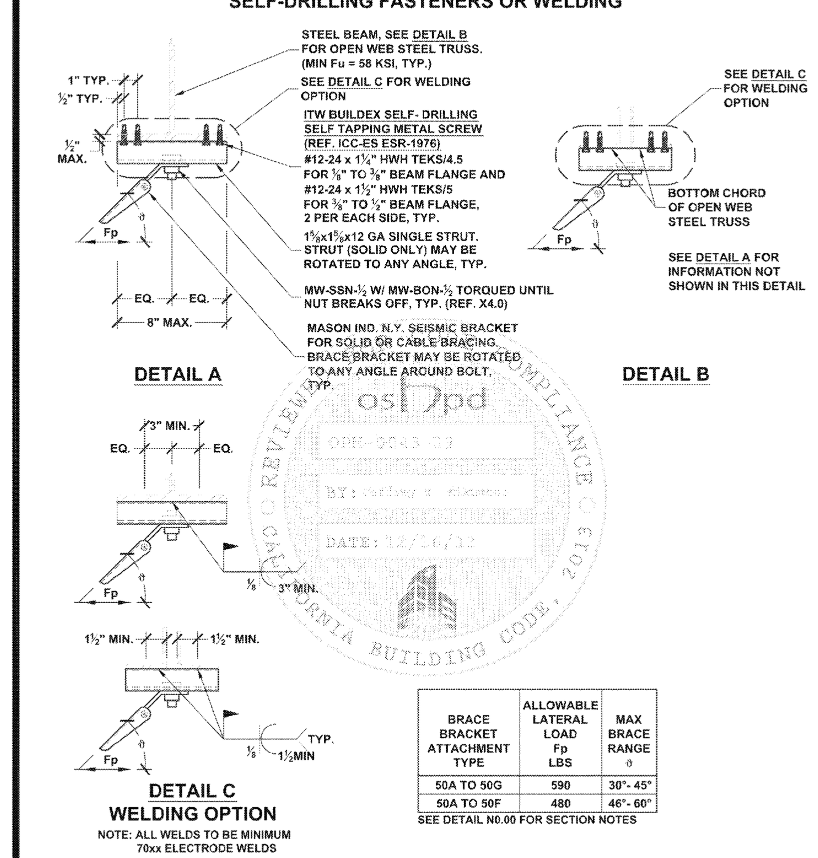
SEISMIC BRACKET ATTACHMENT TO STEEL BEAM OR OPEN WEB STEEL TRUSS WITH SELF-DRILLING FASTENERS OR WELDING



BRACE BRACKET ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp LBS	MAX BRACE RANGE θ
50A TO 50G	590	30° - 45°
50A TO 50F	480	46° - 60°

SEE DETAIL N0.00 FOR SECTION NOTES

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BRACE BRACKET DESIGNATION, ATTACHMENT AND SECTION NOTES

BRACE ANCHOR SIZE	
DESIGNATION	DIAMETER (INCH)
38	3/8
50	1/2
63	5/8
75	3/4
88	7/8
100	1
125	1 1/4

HORIZONTAL LOAD RATING	
DESIGNATION	MAXIMUM ALLOWABLE LOAD (LBS)
A	75
B	125
C	175
D	250
E	350
F	450
G	575
H	700
J	850
K	1000
L	1250
M	1600
N	2000
P	2500
Q	3500
R	5000
S	7500

NOTES:

1 - "N" SERIES PAGES ARE COMPRISED OF SEISMIC BRACE BRACKET ANCHORAGE CAPACITIES FOR VARIOUS TYPES OF ANCHORAGE CONDITIONS. EACH BRACE BRACKET ATTACHMENT TYPE IS DESIGNATED BY A SET OF NUMBERS AND A LETTER. THE NUMBERS REPRESENTS THE BRACE BRACKET ATTACHMENT SIZE (FOUND IN THE BRACE ANCHOR SIZE TABLE) AND THE LETTER REPRESENTS THE MAXIMUM ALLOWABLE HORIZONTAL LOAD CAPACITY (FOUND IN THE HORIZONTAL LOAD RATING TABLE).

LEGEND (HANGER ATTACHMENT TYPE)

X — DENOTES BRACKET ANCHOR SIZE; DENOTES HORIZONTAL LOAD RATING

EXAMPLE: 63L REPRESENTS BRACE BRACKET ANCHOR SIZE OF 5/8"Ø WITH A MAXIMUM HORIZONTAL LOAD RATING OF 1,250 LBS.

2 - BRACE BRACKET ANCHORAGE ATTACHMENTS TO STRUCTURE MAY BE USED WITH ANY ONE OF "N" SERIES PAGES, PROVIDED BRACE BRACKET ATTACHMENT SIZE IS APPROPRIATE FOR THE APPLICATION AND THE ALLOWABLE HORIZONTAL LOAD CAPACITY IS MET.

3 - STRUCTURAL ENGINEER OF RECORD TO VERIFY ADEQUACY OF THE STRUCTURE FOR THE TABULATED LOADS.

4 - THREADED ROD ENGAGEMENT INTO MW-PAL-A SHALL BE MINIMUM OF ONE ROD DIAMETER. ROD INSTALLATION TO MW-PAL-A SHALL BE SNUG-TIGHT.

5 - WHEN CONCRETE ANCHORS IS INSTALLED AT THE BOTTOM OF THE CONCRETE FILLED METAL DECK, MINIMUM END DISTANCE AND SPACING REQUIREMENTS ARE ALONG FLUTE LENGTH ONLY.

6 - SEE X7.0 AND X7.1 FOR STRUT MEMBER DATA.

7 - ALL CONCRETE MUST HAVE A MINIMUM OF #4 BAR OR GREATER BETWEEN THE ANCHOR AND THE EDGE OF CONCRETE.

8 - ON PAGES N1.XX AND N2.XX, THE DESIGN PROFESSIONAL SHALL USE THE ALLOWABLE LATERAL LOADS UNDER OVERSTRENGTH FACTOR $Ω_0$ =2.5 UNLESS THE LATERAL SUPPORT COMPLIES WITH ONE OF THE CONDITIONS LISTED IN ACI 318-11 APPENDIX D, SECTION D.3.3.4.3.

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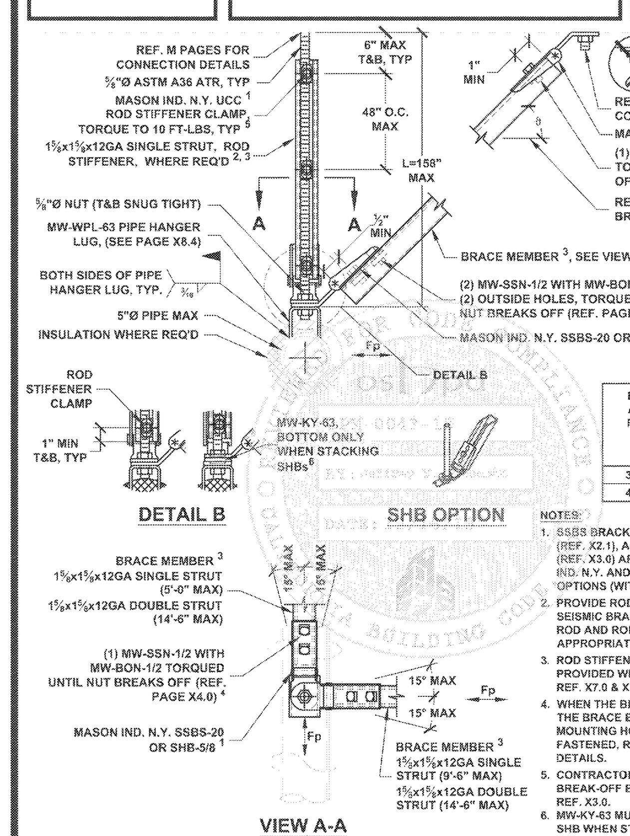
HANGER ROD DIAMETER = 5/8"

PIPING ALL-DIRECTIONAL SEISMIC SOLID BRACING SYSTEM 5"Ø PIPE MAX

KIT OPTIONS S20A SH520A



BRACE ANGLE RANGE θ	MAX ALLOWABLE FORCE PER SEISMIC BRACE ASSEMBLY, Fp	
	TRAN.	LONG.
30° - 45°	580 LBS	590 LBS
46° - 60°	410 LBS	420 LBS

NOTES:
1. SSBS BRACKET (REF. X2.0), SHB BRACKET (REF. X2.1), AND UCC ROD STIFFENER CLAMP (REF. X3.0) ARE MANUFACTURED BY MASON IND. N.Y. AND ARE INCLUDED IN THE KIT OPTIONS (WITH ACCOMPANYING HARDWARE).
2. PROVIDE ROD STIFFENING ONLY WHERE SEISMIC BRACKETS ARE ATTACHED TO THE ROD AND ROD LENGTH (L) EXCEEDS 31". REF. APPROPRIATE M10 PAGES FOR DETAIL.
3. ROD STIFFENER AND BRACE MEMBER MAY BE PROVIDED WITH ROUND OR SLOTTED HOLES. REF. X7.0 & X7.1 FOR STRUT MEMBER DATA.
4. WHEN THE BRACE IS INSTALLED INSIDE OF THE BRACE BRACKET, ONLY THE CENTER MOUNTING HOLE IS REQUIRED TO BE FASTENED, REF X2.3 FOR CONNECTION DETAILS.
5. CONTRACTOR MAY SUBSTITUTE A BREAK-OFF BOLT SET TO MINIMUM 10 FT-LBS. REF. X3.0.
6. MW-KY-63 MUST BE USED ON TOP OF BOTTOM SHB WHEN STACKING (2) SHB ON THE SAME ROD, REF X2.4.

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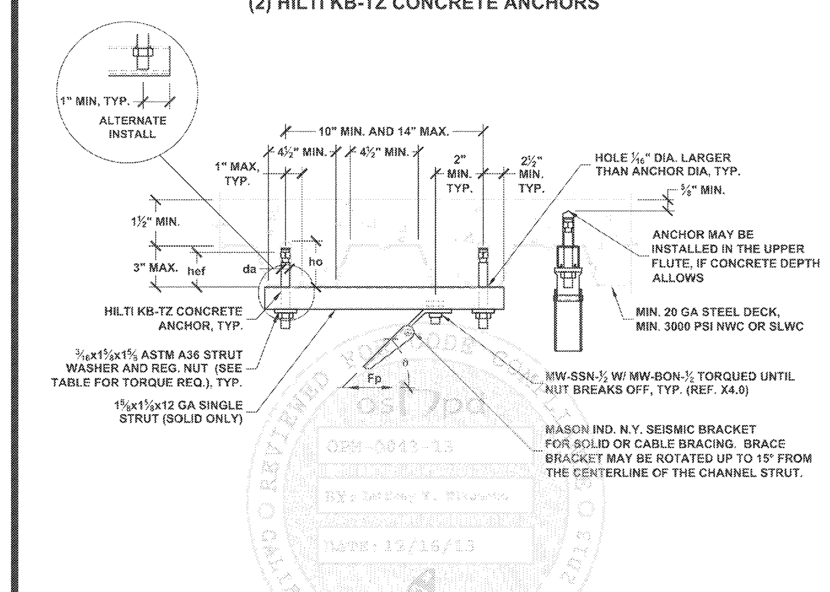
SEISMIC BRACKET ATTACHMENT TO CONCRETE FILLED METAL DECK WITH (2) HILTI KB-TZ CONCRETE ANCHORS



BRACE BRACKET ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp LBS	Ω₀ = 2.5 [1] BRACE BRACKET ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp LBS	MAX BRACE RANGE θ	HILTI KB-TZ CONCRETE ANCHOR (ICC ESR-1917) SPECIAL INSPECTION REQ'D DIA. da INCH	MIN. EFF. EMBED. hef INCH	MIN. HOLE DEPTH ho INCH	MIN. SPACING Smin INCH	MIN. END DIST. Cmin INCH	TORQUE REQ'D FT-LBS
50A TO 50H	770	50A TO 50E	390	30° - 45°	1/2	3 1/4	4	9 3/4	4 7/8	40
50A TO 50F	550	50A TO 50D	260	46° - 60°						
63A TO 63H	770	50A TO 50G	630	30° - 45°	5/8	3 1/4	4	9 3/4	4 7/8	40
63A TO 63F	550	50A TO 50E	440	46° - 60°						

SEE DETAIL N0.00 FOR SECTION NOTES
[1] OVERSTRENGTH FACTOR AS REQUIRED FOR ANCHORAGE TO CONCRETE.

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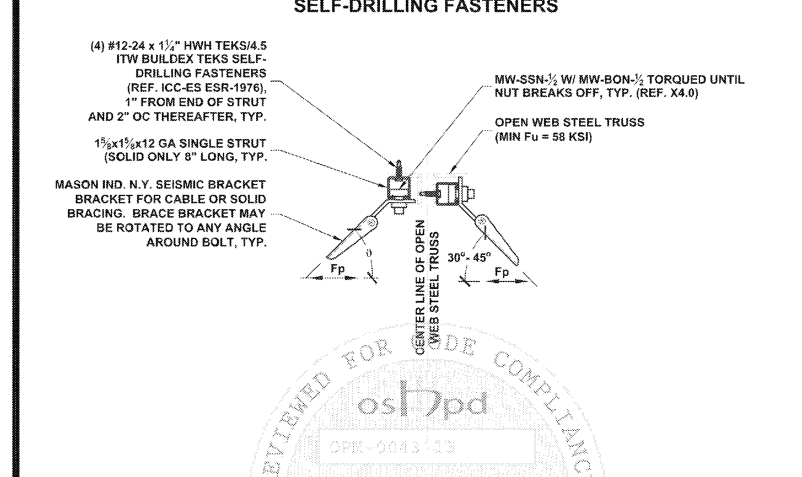
SEISMIC BRACKET ATTACHMENT TO OPEN WEB STEEL TRUSS STRUCTURE WITH SELF-DRILLING FASTENERS



BRACE BRACKET ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp LBS	MAX BRACE RANGE θ	BOLT DIA. INCH
50A TO 50G	590	30° - 45°	1/2
50A TO 50F	480	46° - 60°	1/2

SEE DETAIL N0.00 FOR SECTION NOTES

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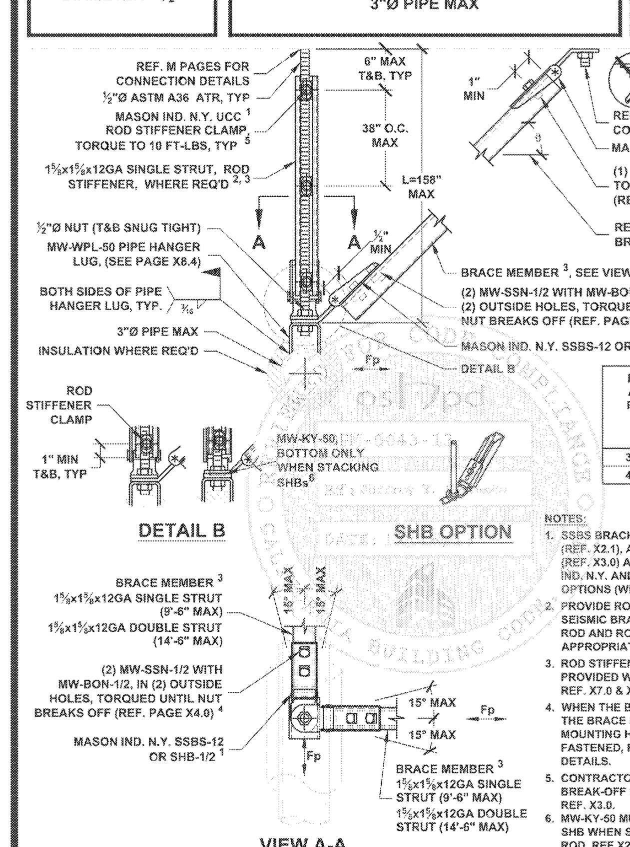
NOTE:
REFER TO SPECIFICATION SECTION 22 00 50 – 1.10, I. FOR SEISMIC SUPPORTS, ANCHORAGES, AND RESTRAINTS. CONTRACTOR SHALL PROVIDE LAYOUT/SHOP DRAWINGS INDICATING FINAL PIPING AND RESTRAINT LOCATIONS.

HANGER ROD DIAMETER = 1/2"

PIPING ALL-DIRECTIONAL SEISMIC SOLID BRACING SYSTEM 3"Ø PIPE MAX

KIT OPTIONS S12A SH412A



BRACE ANGLE RANGE θ	MAX ALLOWABLE FORCE PER SEISMIC BRACE ASSEMBLY, Fp	
	TRAN.	LONG.
30° - 45°	350 LBS	500 LBS
46° - 60°	290 LBS	290 LBS

NOTES:
1. SSBS BRACKET (REF. X2.0), SHB BRACKET (REF. X2.1), AND UCC ROD STIFFENER CLAMP (REF. X3.0) ARE MANUFACTURED BY MASON IND. N.Y. AND ARE INCLUDED IN THE KIT OPTIONS (WITH ACCOMPANYING HARDWARE).
2. PROVIDE ROD STIFFENING ONLY WHERE SEISMIC BRACKETS ARE ATTACHED TO THE ROD AND ROD LENGTH (L) EXCEEDS 25". REF. APPROPRIATE M10 PAGES FOR DETAIL.
3. ROD STIFFENER AND BRACE MEMBER MAY BE PROVIDED WITH ROUND OR SLOTTED HOLES. REF. X7.0 & X7.1 FOR STRUT MEMBER DATA.
4. WHEN THE BRACE IS INSTALLED INSIDE OF THE BRACE BRACKET, ONLY THE CENTER MOUNTING HOLE IS REQUIRED TO BE FASTENED, REF X2.3 FOR CONNECTION DETAILS.
5. CONTRACTOR MAY SUBSTITUTE A BREAK-OFF BOLT SET TO MINIMUM 10 FT-LBS. REF. X3.0.
6. MW-KY-50 MUST BE USED ON TOP OF BOTTOM SHB WHEN STACKING (2) SHB ON THE SAME ROD, REF X2.4.

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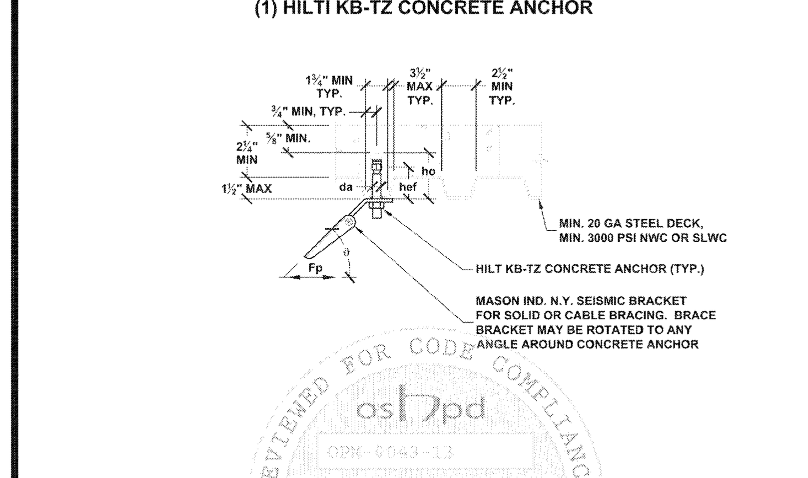
SEISMIC BRACKET ATTACHMENT TO CONCRETE FILLED METAL DECK WITH (1) HILTI KB-TZ CONCRETE ANCHOR



BRACE BRACKET ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp LBS	Ω₀ = 2.5 [1] BRACE BRACKET ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp LBS	MAX BRACE RANGE θ	HILTI KB-TZ CONCRETE ANCHOR (ICC ESR-1917) SPECIAL INSPECTION REQ'D DIA. da INCH	MIN. EFF. EMBED. hef INCH	MIN. HOLE DEPTH ho INCH	MIN. SPACING Smin INCH	MIN. END DIST. Cmin INCH	TORQUE REQ'D FT-LBS
38A TO 38C	230	38A TO 38C	190	30° - 45°	3/8	2	2 5/8	6	3	25
38A TO 38B	140	38A TO 38B	130	46° - 60°						
50A TO 50C	210	50A TO 50C	190	30° - 45°	1/2	2	2 5/8	6	3	40
50A TO 50A	120	50A TO 50A	120	46° - 60°						
50A TO 50E	440	50A TO 50E	380	30° - 45°	1/2	3 1/4	4	9 3/4	4 7/8	40
50A TO 50D	260	50A TO 50D	260	46° - 60°						
63A TO 63E	440	63A TO 63E	380	30° - 45°	5/8	3 1/8	3 3/4	9 3/8	4 3/4	60
63A TO 63D	250	63A TO 63D	250	46° - 60°						

SEE DETAIL N0.00 FOR SECTION NOTES
[1] OVERSTRENGTH FACTOR AS REQUIRED FOR ANCHORAGE TO CONCRETE.

MASON WEST, INC. 1601 E. Miraloma Ave. Placentia, CA 92870 TEL (714) 630 - 0701, www.masonwest.com | Jimmy Y.C. Wong, SE California SE No. S4744 | PAGE N2.24

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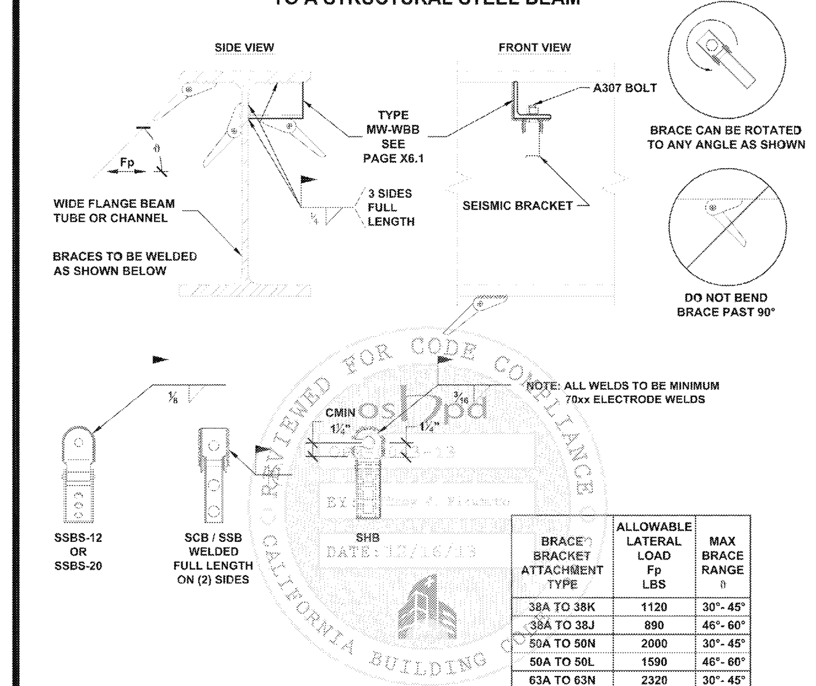
12/16/2013 OPM-0043-13: Reviewed for Code Compliance by Jeffrey Y. Kikumoto Page 287 of 369

SEISMIC BRACKET WELDED ATTACHMENT TO A STRUCTURAL STEEL BEAM



BRACE BRACKET ATTACHMENT TYPE	ALLOWABLE LATERAL LOAD Fp LBS	MAX BRACE RANGE θ
38A TO 38K	1120	30° - 45°
38A TO 38J	890	46° - 60°
50A TO 50N	2000	30° - 45°
50A TO 50L	1590	46° - 60°
63A TO 63N	2320	30° - 45°
63A TO 63M	1700	46° - 60°
75A TO 75N	2320	30° - 45°
75A TO 75M	1700	46° - 60°
88A TO 88N	2320	30° - 45°
88A TO 88M	1700	46° - 60°

1 SEE DETAIL N0.00 FOR SECTION NOTES
2 WELDED ATTACHMENT TO STEEL BEAM SHALL NOT BE PLACED WITHIN THE PROTECTED ZONE.

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12/16/2013 OPM-0043-13: Reviewed for Code Compliance by Jeffrey Y. Kikumoto Page 301 of 369

REGISTERED PROFESSIONAL ENGINEER THOMAS A. DUVAL M 22836 EXPIRES 9/30/18 MECHANICAL STATE OF CALIFORNIA

DATE SIGNED: 05/01/18

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD - RCC/JH PM - DESIGN TEAM | 151121.00 PROJECT NO.

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BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

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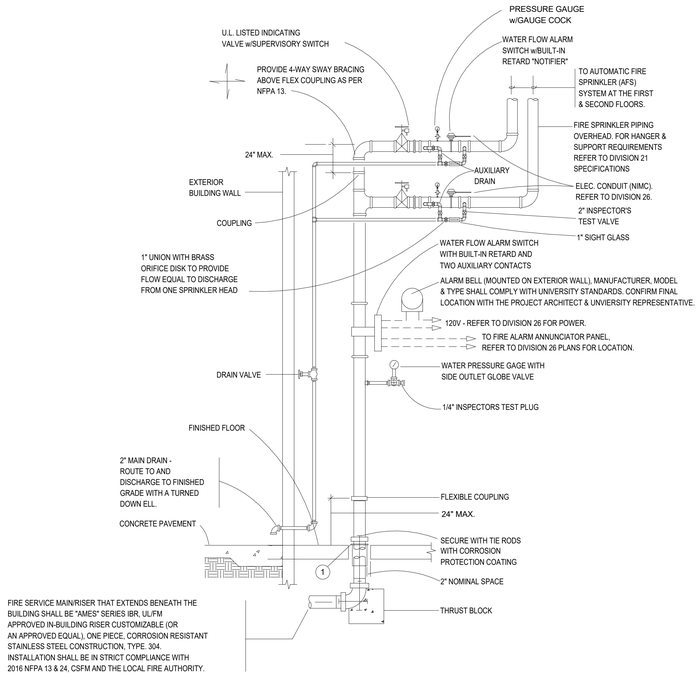

DETAIL NOTE :

(1) INSTALL 24 GAUGE GALVANIZED STEEL PIPE SLEEVE, ONE PIPE SIZE LARGER THAN PIPING AND OF SUFFICIENT SIZE TO ALLOW FREE MOTION OF PIPE. THE 2" NOMINAL SPACE THRU FLOOR SLAB SHALL BE CAULKED WITH OAKUM & MASTIC AND MADE WATERTIGHT. THE SPACE BETWEEN PIPE AND SLEEVE & BETWEEN SLEEVE AND SLAB SHALL BE SEALED WATERTIGHT. A STAINLESS STEEL PLATE SHALL BE PROVIDED AT THE BASE OF THE RISER.

AUTOMATIC FIRE SPRINKLER RISER

SCALE : NONE

1
FP001

OVERHEAD FIRE SPRINKLER SYSTEM GENERAL NOTES

ALL WORK SHALL BE DONE IN STRICT COMPLIANCE WITH 2016 NFPA 13 & 24, 2016 CFC & CBC CODES, DIVISION 21 SPECIFICATIONS AND UNIVERSITY STANDARDS.

1. A COPY OF THE ORIGINAL, PREVIOUSLY APPROVED UNDERGROUND PIPING PLANS OR OTHER WATER SUPPLY COMPONENTS, SUCH AS WATER TANKS, FIRE PUMPS, ETC., FOR THE PROJECT SHALL BE INCLUDED IN ALL AUTOMATIC FIRE SPRINKLER DEFERRED SUBMITTAL PLAN PACKAGES. ALL DEVIATIONS FROM THE PREVIOUSLY APPROVED PLANS SHALL BE JUSTIFIED AND SUBMITTED TO CSFM VIA THE CHANGE ORDER PROCESS AS APPLICABLE. UNDERGROUND PIPING SIZE IS NOT THE RESPONSIBILITY OF CSFM AND THE ARCHITECT OF RECORD SHALL ASSUME FULL LIABILITY FOR UNDERSIZED PIPING SHOULD THE FINAL DESIGN OF THE FIRE SPRINKLER SYSTEM REQUIRE LARGER PIPING, ADDITIONAL WATER SUPPLY, FIRE PUMPS, OR OTHER EQUIPMENT OR ITEMS.
2. THE DESIGNER SHALL INDICATE ON THE PLANS ALL PIPING SUBJECT TO FREEZING (WHERE WATER TEMPERATURE CANNOT BE MAINTAINED ABOVE 40 DEGREES FAHRENHEIT) AND PROVIDE APPROVED PROTECTION.
3. UNDERGROUND MAINS AND LEAD-IN CONNECTIONS TO SYSTEM RISERS SHALL BE COMPLETELY FLUSHED OUT BEFORE CONNECTION IS MADE TO OVERHEAD SPRINKLER PIPING. WHERE UNDERGROUND PIPING IS FLUSHED AND NOT IMMEDIATELY CONNECTED TO THE OVERHEAD PIPING, THE RISER SHALL BE CAPPED OR OTHERWISE PROTECTED TO PREVENT DEBRIS, DIRT, OR ANIMALS FROM ENTERING INTO THE UNDERGROUND PIPING (WITNESSED BY THE PROJECT INSPECTOR).
4. PROVIDE "WET SIGNED" WATER FLOW TEST DATA NO MORE THAN 6 MONTHS OLD AND INDICATE THE LOCATIONS AND HEIGHT ELEVATIONS OF THE TEST AND RESIDUAL FLOW HYDRANTS. WATER FLOW TEST DATA MUST BE PROVIDED BY OR WITNESSED BY THE LOCAL WATER PURVEYOR, UTILITIES COMPANY, OR LOCAL FIRE DEPARTMENT.
5. ARCHITECT OF RECORD, MECHANICAL ENGINEER & FIRE PROTECTION CONTRACTOR (C-16) SHALL AFFIX THEIR SEAL, STAMP AND SIGN ALL SUBMITTALS.
6. A COPY OF COMPLETED AND SIGNED "CONTRACTOR'S MATERIALS & TEST CERTIFICATE FOR UNDERGROUND PIPING" SHALL BE INCLUDED IN THE SUBMITTAL.
7. ALL PIPING AND ATTACHED APPURTENANCES SUBJECTED TO SYSTEM WORKING PRESSURE SHALL BE HYDROSTATICALLY TESTED AT 200 PSI, OR 50 PSI IN EXCESS OF THE SYSTEM WORKING PRESSURE, WHICHEVER IS GREATER, AND SHALL MAINTAIN THAT PRESSURE WITHOUT LOSS FOR 2 HOURS. (WITNESSED BY PROJECT INSPECTOR).
8. PROVIDE SPARE SPRINKLER HEAD CABINET, SPRINKLER WRENCH, AND NO FEWER THAN 6 SPARE SPRINKLER HEADS MATCHING THE TYPES AND TEMPERATURE RATING IN EACH PROTECTED AREA FOR SYSTEMS LESS THAN 300 SPRINKLERS. (12 SPARE SPRINKLER HEADS FOR SYSTEMS 300 TO 1,000 SPRINKLERS).
9. THE END SPRINKLER ON EACH LINE SHALL BE RESTRAINED AGAINST EXCESSIVE VERTICAL AND LATERAL MOVEMENT.
10. THE INSPECTOR'S TEST VALVE LOCATION SHALL BE INSTALLED WITHIN THE MOST HYDRAULICALLY REMOTE SYSTEM AREA. THE PIPE SIZE SHALL BE NO LESS THAN 1 INCH, WITH A SMOOTH BORE, CORROSION-RESISTANT ORIFICE, PROVIDING THE EQUIVALENT FLOW OF THE SMALLEST ORIFICE OF THE SPRINKLER TYPES INSTALLED WITHIN THE SYSTEM. THE DISCHARGE SHALL BE TO THE EXTERIOR OF THE BUILDING.
11. THE SPRINKLER FLOW SWITCH SHALL BE TESTED TO CONFIRM THAT WHEN THE INSPECTOR'S TEST VALVE IS ACTIVATED AN ALARM WILL SOUND NO MORE THAN 90 SECONDS AFTER INITIAL FLOW (WITNESSED BY THE PROJECT INSPECTOR).
12. CONNECTIONS TO THE PROTECTED PREMISES AND SUPERVISING STATION FIRE ALARM SYSTEMS SHALL BE TESTED TO VERIFY PROPER IDENTIFICATION AND TRANSMISSION OF ALARMS FROM AUTOMATIC FIRE EXTINGUISHING SYSTEMS (WITNESSED BY PROJECT INSPECTOR).
13. SIGNAGE SHALL BE PROVIDED AS REQUIRED, INCLUDING "RISER ROOM IDENTIFICATION".
14. THE MAIN FIRE ALARM PANEL VALVE MONITORING AND WATER-FLOW ALARM AND TROUBLE SIGNALS SHALL BE DISTINCTLY DIFFERENT AND SHALL BE AUTOMATICALLY TRANSMITTED TO AN APPROVED CENTRAL STATION MONITORING COMPANY.
15. A PERMANENT HYDRAULIC CALCULATIONS DESIGN DATA PLACARD SHALL BE ATTACHED TO EACH RISER.
16. FLOW SWITCH SHALL BE CONNECTED TO A 10 INCH OUTSIDE ALARM BELL OR OTHER AUDIBLE ALARM DEVICE AT EACH RISER. APPROVED IDENTIFICATION SIGNS SHALL BE PROVIDED ON THE OUTSIDE ALARM BELL "SPRINKLER FIRE ALARM - WHEN ALARM SOUNDS CALL 911/FIRE DEPARTMENT".
17. A LABEL OF THE SELF-ADHESIVE TYPE SHALL BE PLACED ON THE FIRE DEPARTMENT CONNECTION OR ON THE RISER FOR FIRE SPRINKLER SYSTEM AND SHALL INCLUDE THE DATE OF INSTALLATION AND/OR DATE SERVICE WAS PERFORMED AND LICENCE NUMBER OF PERSON PERFORMING SERVICE WORK.
18. SPRINKLER CONTRACTOR SHALL COMPLETE AND SIGN CONTRACTOR'S MATERIAL & TEST CERTIFICATE FOR THE ABOVEGROUND PIPING. THIS FORM SHALL BE GIVEN TO THE PROJECT INSPECTOR WHO WILL FORWARD TO CSFM FOR FILING IN PROJECT RECORDS.

FIRE SPRINKLER LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
AFS	AFS	AUTOMATIC FIRE SPRINKLER PIPING
BFP/WM	BFP/WM	BACKFLOW PREVENTOR/WATER METER
F	F	FIRE SPRINKLER SUPPLY MAIN. REFER TO CIVIL ENGINEERING PLANS FOR CONTINUATION.
D	D	FIRE SPRINKLER PIPING DRAIN
	FSR	FIRE SPRINKLER RISER

FIRE PROTECTION GENERAL NOTES

ALL DIVISION 21, 22 AND 23 SERVICES SUCH AS DUCTWORK, DIFFUSERS, REGISTERS, VAV TERMINALS, PIPING, CONDUIT, EQUIPMENT SUPPORTS, ETC. INSTALLED OVERHEAD IN EXPOSED BUILDING STRUCTURES SHALL BE FINISH PAINTED BY THE PROJECT PAINTING SUBCONTRACTOR. DIVISION 21, 22 & 23 CONTRACTORS SHALL CLEAN AND PREP THESE ITEM FOR THE FINAL FINISH PAINTING. ITEMS WHICH ARE TYPICALLY PROVIDED WITH A FACTORY PAINT FINISH SUCH AS DIFFUSERS AND REGISTERS SHALL INSTEAD BE PROVIDED WITH A FACTORY PRIMED FINISH TO ALLOW FOR THE FINAL ON-SITE PAINTING. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF OVERHEAD EXPOSED BUILDING STRUCTURE.

WATER FLOW DATA MUST BE SUBMITTED WITH THE ORIGINAL BUILDING PLANS, AND MUST NOT BE OLDER THAN SIX MONTHS. THE ORIGINAL WATER FLOW DATA WILL HELP TO IDENTIFY IF ADEQUATE GPM/PSI IS AVAILABLE, AND HELP TO DETERMINE IF OTHER SOURCES OF WATER OR EQUIPMENT WILL BE REQUIRED OR ACCEPTABLE, IE: WATER TANKS, FIRE PUMPS, ETC. ADDITIONALLY, THIS DATA CAN BE USED TO APPROVE OR REJECT PLANS, FOR EXAMPLE THOSE THAT USE A SPRINKLER SYSTEM IN LIEU OF ONE-HOUR CONSTRUCTION OR TAKE THE SPRINKLER INCREASE. IF THE WATER GPM/PSI IS NOT AVAILABLE THEN ADDITIONAL MEASURES MUST BE PROVIDED OR THE BUILDING MUST BE CONSTRUCTED WITH ONE-HOUR CONSTRUCTIONS, REDUCE THE SIZE, ETC.

IF THE SPRINKLER PLANS ARE TO BE SUBMITTED AS A "DEFERRED SUBMITTAL" THEN THE WATER FLOW DATA MUST BE ALSO BE SUBMITTED WITH THE SPRINKLER PLANS AND BE NO OLDER THAN SIX MONTHS, REGARDLESS OF WHEN THE ORIGINAL BUILDING PLANS AND WATER FLOW DATA WERE SUBMITTED. A COPY OF THE ORIGINAL TEST MAY BE USED IF THE TEST DATA IS LESS THAN SIX MONTHS OLD.

EXAMPLE: THE BUILDING PLANS ARE SUBMITTED WITH WATER FLOW DATA THAT IS TWO (2) MONTHS OLD. THIS MEETS THE TIME FRAME AND IS ACCEPTABLE. THE DEFERRED SUBMITTAL OF THE SPRINKLER PLANS IS SUBMITTED NINE (9) MONTHS LATER. AN ADDITIONAL TEST WOULD BE REQUIRED AND THE WATER FLOW DATA FROM THAT TEST WOULD BE INCLUDED WITH THE DEFERRED SUBMITTAL SINCE THE TOTAL TIME FROM THE LAST TEST EXCEEDS THE SIX MONTH TIME FRAME.

ALL WATER FLOW DATA (TESTS) MUST BE CONDUCTED OR WITNESSED AND "WET" SIGNED BY THE LOCAL WATER PURVEYOR SHALL BE WITNESSED BY A DEPUTY STATE FIRE MARSHAL LOCAL FIRE AUTHORITY HAVING JURISDICTION.

- PROVIDE LETTER OF CERIFICATION SIGNED BY APPROVED RESPONSIBLE AUTHORITY FOR FIRE FLOW DATA.
- PROVIDE TIME, DATE AND LOCATION OF TEST HYDRANT.
- IF FIRE FLOW TEST CANNOT BE MADE, PROVIDE A SIGNED ESTIMATE DERIVED FROM WATER PURVEYOR'S COMPUTER GENERATED MODEL. NFPA 24.
- PROVIDE A WET-STAMPED AND WET-SIGNED STRUCTURAL COMPLIANCE LETTER FROM THE STRUCTURAL ENGINEER OF RECORD FOR THIS PROJECT DETAILING ACCEPTANCE OF ALL METHODS OF ATTACHMENT AND LOADING FOR THIS PROPOSED FIRE SPRINKLER SYSTEM.
- UPDATE FIRE FLOW REPORT WITHIN 6 MONTHS OF INSTALLATION.

"FOR REFERENCE ONLY - FIRE SPRINKLERS ARE A DEFERRED APPROVAL ITEM"

"THESE SHEETS ARE NOT APPROVED FOR THE INSTALLATION OF ANY SPRINKLER OR FIRE PROTECTION SYSTEM AND A SEPARATE SUBMITTAL FOR REVIEW AND APPROVAL IS REQUIRED BY THE INSTALLING LICENSED C-16 FIRE PROTECTION CONTRACTOR PRIOR TO ANY INSTALLATION OF ANY FIRE PROTECTION COMPONENTS"

CSFM #18-40-03-001-295

REGISTERED PROFESSIONAL ENGINEER — MICHAEL A. MOHR — M22836 — EXPIRES 9/30/18 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: 05/01/18

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD - RCC/JH — PM - DESIGN TEAM
151121.00 — PROJECT NO.

FIRE PROTECTION LEGEND, NOTES & DETAIL
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

FP001
75-16217-00
05.01.2018
Revisions
FIRE MARSHALL BACKCHECK: 04/30/2018

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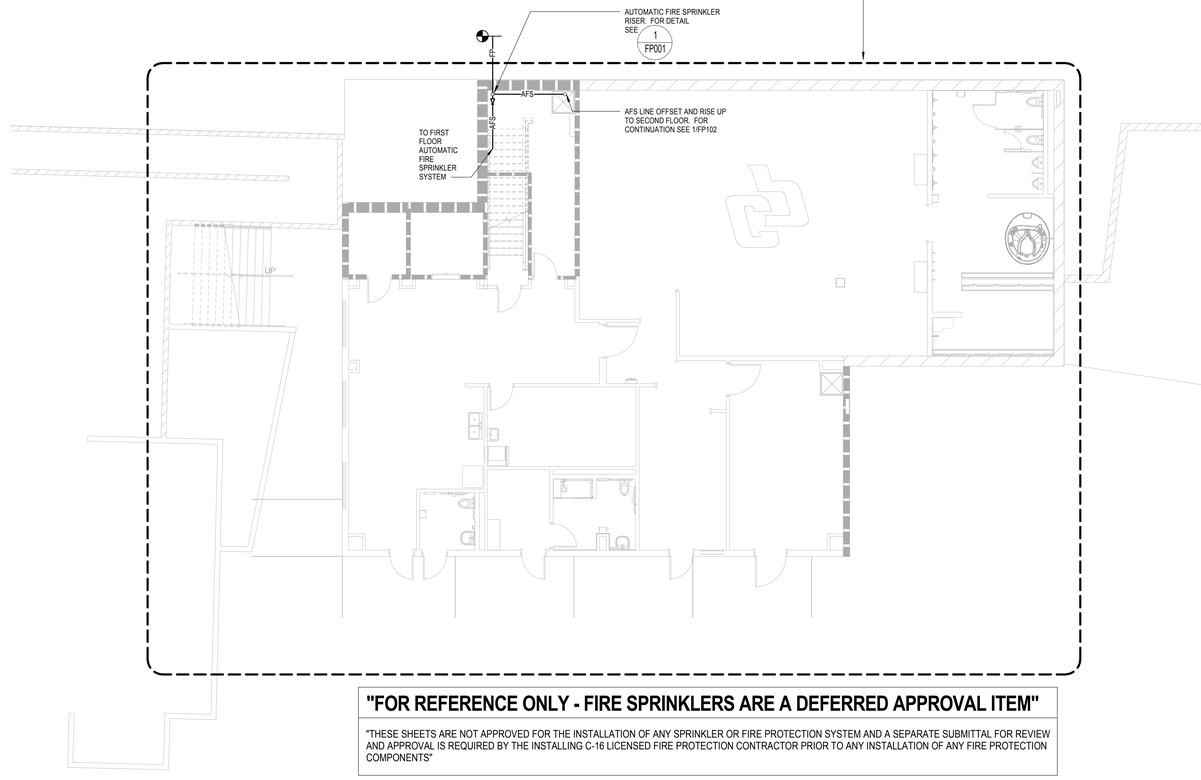
NOTE:

UNLESS OTHERWISE NOTED AND/OR SHOWN - ALL AREAS WITHIN THE OUTLINE SHALL BE FULLY PROTECTED WITH AN AUTOMATIC WET PIPE FIRE SPRINKLER SYSTEM INCLUDING ATTIC SPACES, AREAS WITH NO CEILINGS AND ENCLOSED EAVES, ETC.

PROVIDE DRY PENDANT SPRINKLER HEADS FOR ALL AREAS SUBJECT TO FREEZING

INSULATE PIPING OUTSIDE OF THE BUILING INSULATION ENVELOPE (I.E., SOFFITS AND OVERHANGS, ETC.)

ALL WORK SHALL CONFORM WITH DIVISION 21 SPECIFICATIONS, FIRE PROTECTION GENERAL NOTES ON SHEET FP001, NFPA 13, AND THE LATEST EDITIONS OF ALL APPLICABLE CODES.



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1 / FP101 FIRST FLOOR FIRE PROTECTION PLAN

SCALE: 1/8" = 1'-0"

GENERAL NOTES

1. ALL DIVISION 21, 22 AND 23 SERVICES SUCH AS DUCTWORK, DIFFUSERS, REGISTERS, VAV TERMINALS, PIPING, CONDUIT, EQUIPMENT SUPPORTS, ETC. INSTALLED OVERHEAD IN EXPOSED BUILDING STRUCTURES SHALL BE FINISH PAINTED BY THE PROJECT PAINTING SUBCONTRACTOR. DIVISION 21, 22 AND 23 CONTRACTORS SHALL CLEAN AND PREP THESE ITEMS FOR THE FINAL FINISH PAINTING. ITEMS WHICH ARE TYPICALLY PROVIDED WITH A FACTORY PAINT FINISH SUCH AS DIFFUSERS AND REGISTERS SHALL INSTEAD BE PROVIDED WITH A FACTORY PRIMED FINISH TO ALLOW FOR THE FINAL ON-SITE PAINTING. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF OVERHEAD EXPOSED BUILDING STRUCTURE.

WALL LEGEND

WALL HOURLY FIRE RATING		
0	=	0 HOUR
1	=	1 HOUR

REGISTERED PROFESSIONAL ENGINEER — THOMAS A. ROSS — M 22836 — EXPIRES 9/30/18 — MECHANICAL — STATE OF CALIFORNIA

DATE SIGNED: 05/14/18

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD - RCC/JH — PM - DESIGN TEAM
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FIRST FLOOR FIRE PROTECTION PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

FP101
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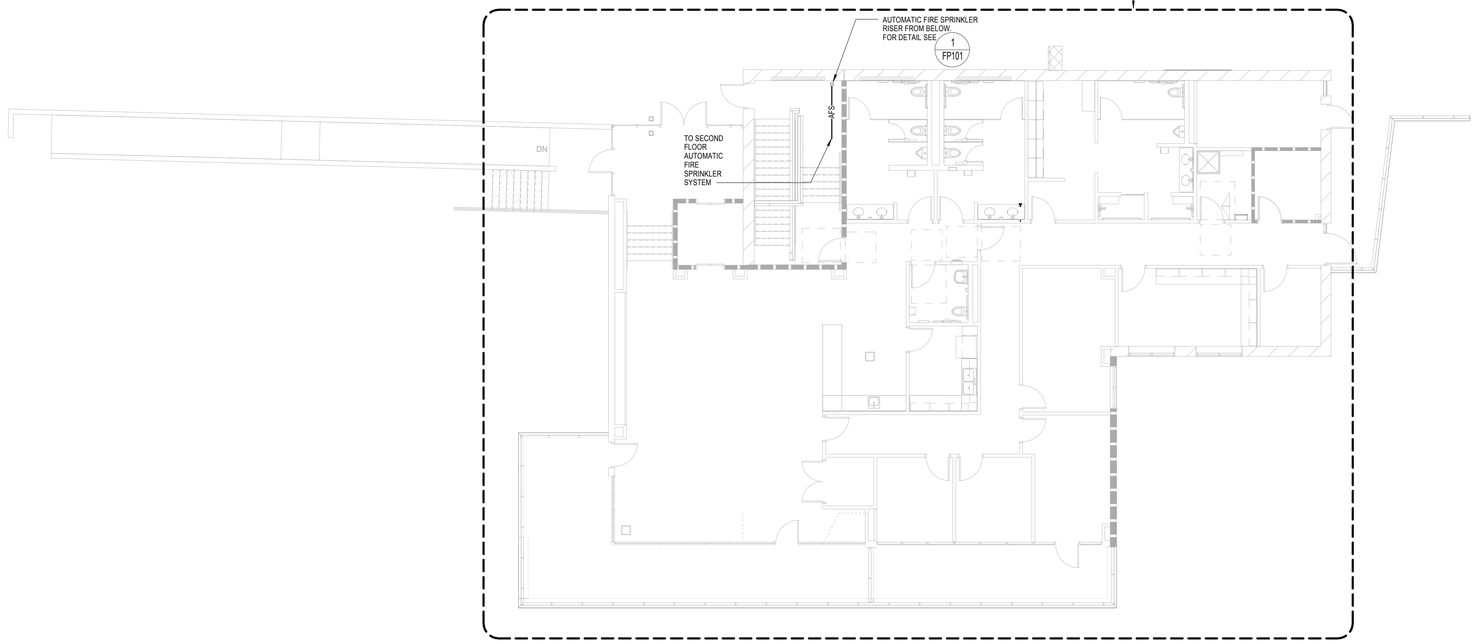
NOTE:

UNLESS OTHERWISE NOTED AND/OR SHOWN - ALL AREAS WITHIN THE OUTLINE SHALL BE FULLY PROTECTED WITH AN AUTOMATIC WET PIPE FIRE SPRINKLER SYSTEM INCLUDING ATTIC SPACES, AREAS WITH NO CEILINGS AND ENCLOSED EAVES, ETC.

PROVIDE DRY PENDANT SPRINKLER HEADS FOR ALL AREAS SUBJECT TO FREEZING

INSULATE PIPING OUTSIDE OF THE BUILING INSULATION ENVELOPE (I.E., SOFFITS AND OVERHANGS, ETC.)

ALL WORK SHALL CONFORM WITH DIVISION 21 SPECIFICATIONS, FIRE PROTECTION GENERAL NOTES ON SHEET FP001, NFPA 13, AND THE LATEST EDITIONS OF ALL APPLICABLE CODES.



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1 FP102 SECOND FLOOR FIRE PROTECTION PLAN

SCALE: 1/8" = 1'-0"

CSFM #18-40-03-001-295

GENERAL NOTES

1. ALL DIVISION 21, 22 AND 23 SERVICES SUCH AS DUCTWORK, DIFFUSERS, REGISTERS, VAV TERMINALS, PIPING, CONDUIT, EQUIPMENT SUPPORTS, ETC. INSTALLED OVERHEAD IN EXPOSED BUILDING STRUCTURES SHALL BE FINISH PAINTED BY THE PROJECT PAINTING SUBCONTRACTOR. DIVISION 21, 22 AND 23 CONTRACTORS SHALL CLEAN AND PREP THESE ITEMS FOR THE FINAL FINISH PAINTING. ITEMS WHICH ARE TYPICALLY PROVIDED WITH A FACTORY PAINT FINISH SUCH AS DIFFUSERS AND REGISTERS SHALL INSTEAD BE PROVIDED WITH A FACTORY PRIMED FINISH TO ALLOW FOR THE FINAL ON-SITE PAINTING. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF OVERHEAD EXPOSED BUILDING STRUCTURE.

WALL LEGEND

WALL HOURLY FIRE RATING		
0	=	0 HOUR
1	=	1 HOUR

REGISTERED PROFESSIONAL ENGINEER THOMAS A. HOM M 22836 EXPIRES 9/30/18 MECHANICAL STATE OF CALIFORNIA

DATE SIGNED: 05/14/18

CAPITAL ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD - RCCJH — PM - DESIGN TEAM
151121.00 — PROJECT NO.

SECOND FLOOR FIRE PROTECTION PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

FP102
75-16217-00
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FIRE MARSHALL BACKCHECK: 04/30/2018

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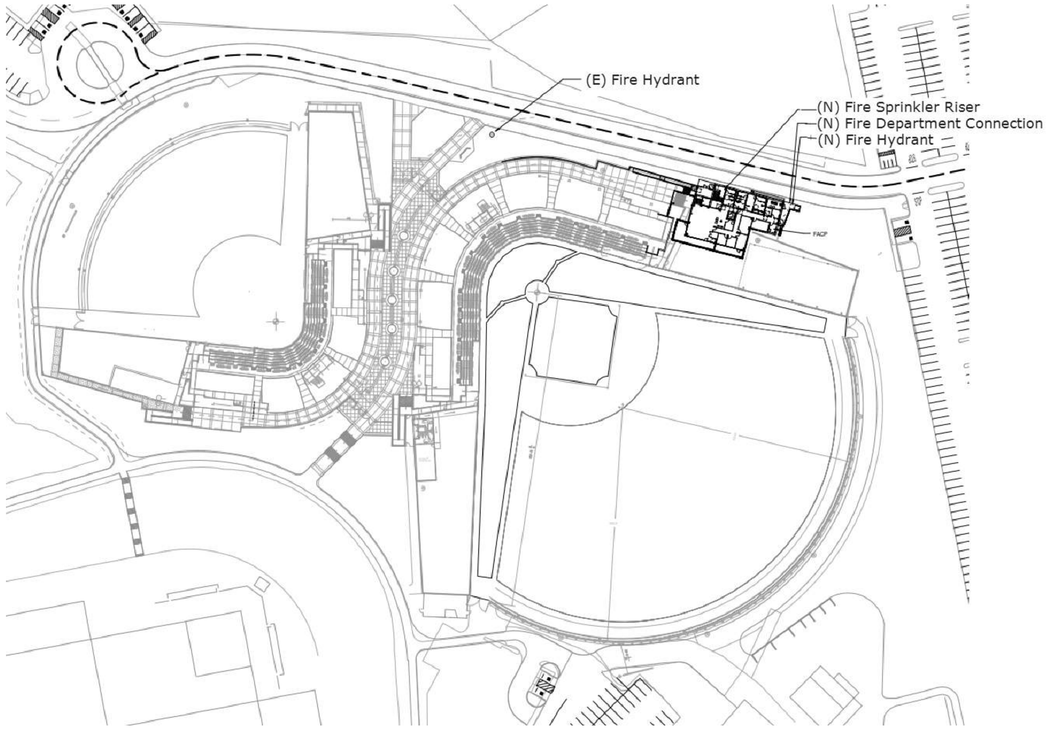

1 FP501 **FIRE HYDRANT SITE PLAN**
SCALE: NONE

COLLINGS & ASSOCIATES
Fire Protection Engineering
260 Maple Court,Suite 241, Ventura, Ca. 93003
PH: (805) 658-0003 FAX: (805) 658-0044

Fire Flow Test Data

Project: Cal Poly Baseball Clubhouse Project
Date: 01/04/18

Location: Cal Poly SLO Campus, Sports Complex Road
Observers: Jack Collings F.P.E, Collings & Associates
Josh Gibson, CFSM

Fire Dept: San Luis Obispo City Fire Department

Water Purveyor: San Luis Obispo City Public Works

		Time					Pressure (psi)		Flow Rates		NFPA
Test	Location	Date	Time	Day	C	Dia.	Static	Pitot	Residual	Observed	Actual at 20 psi	Class
1	Flow Hydrant : #106	1/4/2018	8:15 AM	Thurs	0.9	2.5	84	61	74	1310.5	3570.9	AA
	Gage Hydrant: # 107											

NFPA 291: Hydrants should be classified in accordance with their rated capacities at 20 psi (1.4 bar) residual pressure or other designated value] as follows:

(1) Class AA: Rated capacity of 1500 gpm (5680 L/min) or greater
(2) Class A: Rated capacity of 1000–1499 gpm (3785–5675 L/min
(3) Class B: Rated capacity of 500–999 gpm (1900–3780 L/min)
(4) Class C: Rated capacity of less than 500 gpm (1900 L/min)

Note:
This fire flow test data is provided for information only. The Engineer makes no guarantee that the results of this test can be repeated, except to state that at the time and date indicated, the test yielded the results indicated

2 FP501 **FIRE HYDRANT FLOW TEST**
SCALE: NONE

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"THESE SHEETS ARE NOT APPROVED FOR THE INSTALLATION OF ANY SPRINKLER OR FIRE PROTECTION SYSTEM AND A SEPARATE SUBMITTAL FOR REVIEW AND APPROVAL IS REQUIRED BY THE INSTALLING C-16 LICENSED FIRE PROTECTION CONTRACTOR PRIOR TO ANY INSTALLATION OF ANY FIRE PROTECTION COMPONENTS"

CSFM #18-40-03-001-295

DATE SIGNED: 05/01/18

CAPITAL
ENGINEERING CONSULTANTS, INC.
RANCHO CORDOVA, CALIFORNIA
TD - RCC/JH — PM - DESIGN TEAM
151121.00 — PROJECT NO.

FIRE FLOW INFORMATION
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

FP501
75-16217-00
05.01.2018
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FIRE MARSHAL BACKCHECK 04/06/2018

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Architecture Engineering Planning Interiors

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SYMBOLS LIST

POWER DISTRIBUTION

- SWITCHBOARD, DISTRIBUTION BOARD, SUBSTATION OR MOTOR CONTROL CENTER, FLOOR MOUNTED.
- PANELBOARD, 277/480V, SURFACE MOUNTED ON WALL.
- PANELBOARD, 277/480V, FLUSH MOUNTED IN WALL.
- PANELBOARD, 120/208V, SURFACE MOUNTED ON WALL.
- PANELBOARD, 120/208V, FLUSH MOUNTED IN WALL.
- DRY-TYPE STEP-DOWN TRANSFORMER, FLOOR MOUNTED 3Ø,480-120/208V, UON.
- ELECTRIC MOTOR, NIEC. MAKE POWER CONNECTIONS ONLY AS NOTED ON PLANS.
- F — INDOOR EXHAUST FAN MOTOR, SINGLE PHASE. MAKE POWER CONNECTIONS TO INCLUDE JUNCTION BOX MOUNTED MANUAL MOTOR STARTER AND DISCONNECT ADJACENT TO FAN WITH 2 #12 CONDUCTORS PLUS GROUND IN 1/2" FLEXIBLE CONDUIT BETWEEN STARTER AND MOTOR.
- V — INDOOR FAN POWERED VAV BOX MOTOR, SINGLE PHASE, MOUNTED FROM STRUCTURE ABOVE, NIEC. MAKE POWER CONNECTIONS TO INCLUDE JUNCTION BOX MOUNTED MANUAL MOTOR STARTER AND DISCONNECT ADJACENT TO VAV BOX WITH 2 #12 CONDUCTORS PLUS GROUND IN 1/2" FLEXIBLE CONDUIT BETWEEN STARTER AND MOTOR.
- P — PULLBOX OR HANDHOLE, SIZE AND TYPE AS NOTED ON PLANS.
- E — ELECTRICAL MANHOLE
- C — COMMUNICATIONS MANHOLE
- A, AF — SAFETY DISCONNECT SWITCH, 3 POLE, UON. ADJACENT NUMBER INDICATES FUSE SIZE WHEN APPLICABLE. LABELING CONVENTION AS FOLLOWS:

A:	30A, NON-FUSED	AF:	30A, FUSED
B:	60A, NON-FUSED	BF:	60A, FUSED
C:	100A, NON-FUSED	CF:	100A, FUSED
D:	200A, NON-FUSED	DF:	200A, FUSED
E:	400A, NON-FUSED	EF:	400A, FUSED
F:	600A, NON-FUSED	FF:	600A, FUSED
G:	800A, NON-FUSED	GF:	800A, FUSED

- 1 — MAGNETIC MOTOR STARTER. ADJACENT NUMBER INDICATES NEMA SIZE OF STARTER.
- 1 — COMBINATION MAGNETIC MOTOR STARTER/SAFETY DISCONNECT SWITCH. ADJACENT NUMBER INDICATES NEMA SIZE OF STARTER.
- PACKAGE MOTOR CONTROLLER OR STARTER FURNISHED AND INSTALLED UNDER ANOTHER DIVISION WITH EQUIPMENT CONTROLLED. PROVIDE SINGLE-POINT POWER SERVICE CONNECTION UNDER THIS DIVISION AS NOTED ON PLANS.
- VFD — VARIABLE FREQUENCY DRIVE FURNISHED AND INSTALLED UNDER ANOTHER DIVISION. PROVIDE POWER SERVICE CONNECTION UNDER THIS DIVISION AS NOTED ON PLANS.
- VFD — VARIABLE FREQUENCY DRIVE WITH INTEGRAL DISCONNECT FURNISHED AND INSTALLED UNDER ANOTHER DIVISION. PROVIDE POWER SERVICE CONNECTION UNDER THIS DIVISION AS NOTED ON PLANS.
- DRIVEN GROUND ROD.
- DRIVEN GROUND ROD IN GROUND WELL WITH COVER.
- ELECTRICAL VEHICLE CHARGING STATION, WALL MOUNTED.
- ELECTRICAL VEHICLE CHARGING STATION, PEDESTAL MOUNTED.
- 2,4,6 — BRANCH CIRCUIT POWER DISTRIBUTION BOX OF MANUFACTURED WIRING SYSTEM WITH MODULAR CONNECTORS FOR INTERFACE TO BRANCH CIRCUIT MODULAR CABLE SETS AND CABLE OR CONDUIT HOMERUN. BOX MOUNTED FROM STRUCTURE ABOVE IN ACCESSIBLE CEILING SPACE. ADJACENT NUMBERS INDICATE CIRCUITS AVAILABLE AT BOX.
- 2,4,6 — DEVICE BRANCH CIRCUIT POWER DISTRIBUTION BOX FOR INTERFACE BETWEEN MULTI-CIRCUIT HOMERUN AND MC CABLE BRANCH CIRCUITING. MINIMUM BOX SIZE IS 10"X10"X4" DEEP. BOX MOUNTED FROM STRUCTURE ABOVE IN ACCESSIBLE CEILING SPACE. ADJACENT NUMBERS INDICATE CIRCUITS AVAILABLE AT BOX.
- INDICATES TERMINATION POINT FOR POWER CABLE & BUS.
- BOLTED PRESSURE OR HIGH PRESSURE CONTACT SWITCH.
- FUSED SWITCH.
- MEDIUM-VOLTAGE LOAD INTERRUPTER SWITCH.
- GROUP MOUNTED MOLDED CASE CIRCUIT BREAKER.
- INDIVIDUALLY FIXED MOUNTED INSULATED-CASE OR POWER CIRCUIT BREAKER.
- INDIVIDUALLY DRAW-OUT MOUNTED INSULATED-CASE OR POWER CIRCUIT BREAKER.
- 52 — MEDIUM-VOLTAGE, INDIVIDUALLY DRAW-OUT MOUNTED VACUUM CIRCUIT BREAKER.
- G — INDICATES INTEGRAL GROUND FAULT RELAY WHEN ASSOCIATED WITH CIRCUIT BREAKER.
- C — INDICATES COMMUNICATION NETWORK WIRING WHEN ASSOCIATED WITH CIRCUIT BREAKER.
- EO — INDICATES ELECTRICALLY OPERATED WHEN ASSOCIATED WITH CIRCUIT BREAKER.
- ST — INDICATES SHUNT TRIP WHEN ASSOCIATED WITH OVERCURRENT PROTECTION DEVICES.
- K 1 — INDICATES KIRK-KEY INTERLOCK WHEN ASSOCIATED WITH OVERCURRENT PROTECTION DEVICES. ADJACENT NUMBER CORRESPONDS WITH DEVICE INTERLOCK.
- GFR — GROUND FAULT RELAY WITH SHUNT TRIP.
- GFA — GROUND FAULT ALARM, NO SHUNT TRIP.
- M — UTILITY METER.
- TRANSFORMER.
- CONNECTION TO GROUND.
- CURRENT TRANSFORMERS.
- POTENTIAL TRANSFORMERS.
- AUTOMATIC OR MANUAL TRANSFER SWITCH.
- NORM. EM. — AUTOMATIC TRANSFER/BY-PASS ISOLATION SWITCH.
- G — EMERGENCY GENERATOR.
- BATTERIES.
- NEUTRAL SERVICE DISCONNECT LINK.
- SPD — SURGE PROTECTION DEVICE, 'SPD'.
- C — CONTROL CONTACTOR.
- NORMALLY OPEN CONTACT.
- NORMALLY CLOSED CONTACT.
- DMU — DIGITAL METERING UNIT.
- GND — GROUND BUS.
- WHM — WATT HOUR METER.
- NEU — NEUTRAL BUS.

WIRING DEVICES

- J — JUNCTION BOX, WALL MOUNTED, +18" UON.
- J — JUNCTION BOX, MOUNTED IN FLUSH FLOOR BOX.
- J — JUNCTION BOX, MOUNTED FLUSH IN CEILING.
- J — JUNCTION BOX, SURFACE OR PENDANT MOUNTED TO STRUCTURE IN ACCESSIBLE CEILING SPACE.
- J — JUNCTION BOX, MOUNTED ON CONDUIT STANCHION FLOOR PENETRATION, +12" UON.
- SINGLE-PLEX CONVENIENCE RECEPTACLE DEVICE, WALL MOUNTED, +18" UON.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, WALL MOUNTED, +18" UON.
- DOUBLE DUPLEX CONVENIENCE RECEPTACLE DEVICE, WALL MOUNTED, +18" UON.
- DENOTES WALL MOUNTED OVER COUNTER, 6" ABOVE BACK SPLASH UON.
- G — 'G' DENOTES GROUND FAULT CURRENT INTERRUPTER (GFCI), 'A' DENOTES ARC FAULT CURRENT INTERRUPTER (AFCI).
- WP — DUPLEX RECEPTACLE WEATHER RESISTANT WITH GROUND FAULT CURRENT INTERRUPTER "GFCI" WITH WEATHERPROOF COVER, WALL MOUNTED, +18" UON.
- SHADING DENOTES SPLIT WIRED DEVICE.
- SHADING DENOTES DEVICE CONNECTED TO EMERGENCY POWER CIRCUIT.
- SHADING DENOTES CONTROLLED RECEPTACLE. REFER TO DETAIL A/E6.03 FOR CONTROLS.
- SHADING DENOTES SPECIALTY DEVICE, TYPE AS NOTED ON PLANS.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FLUSH FLOOR BOX.
- DOUBLE DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FLUSH FLOOR BOX.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING.
- DOUBLE DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED FLUSH IN CEILING.
- DOUBLE DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED FLUSH IN CEILING.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED ON CONDUIT STANCHION FLOOR PENETRATION, +12" UON.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, MOUNTED IN FLOOR MONUMENT.
- COMBINATION POWER/TELECOMMUNICATION DEVICE, MOUNTED IN FLUSH FLOOR BOX. TYPE AS NOTED ON PLANS OR IN SPECIFICATIONS.
- DUPLEX CONVENIENCE RECEPTACLE DEVICE, CORD OR REEL HUNG FROM STRUCTURE ABOVE. TYPE AS NOTED ON PLANS.
- P — ELECTRIFIED FURNITURE PARTITION POWER FEED, WALL MOUNTED, +18" UON. CONSISTS OF 4 11/16" SQ. X 2 1/8" DEEP JUNCTION BOX, SINGLE GANG RING, AND STAINLESS STEEL COVER PLATE WITH KO TO ACCEPT FURNITURE WHIP.
- P T — ELECTRIFIED FURNITURE PARTITION COMBINATION POWER/TELECOMMUNICATION FEEDS, MOUNTED IN FLUSH FLOOR BOX WITH KO'S IN COVER TO ACCEPT FURNITURE WHIPS
- P — ELECTRIFIED FURNITURE PARTITION POWER FEED, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING WITH KO IN COVER TO ACCEPT FURNITURE WHIP.
- POWER/TELECOMMUNICATION POLE, MOUNTED TO EXTEND FROM FLOOR TO CEILING. TYPE AS NOTED ON PLANS.
- S — SINGLE-POLE, SINGLE-THROW SWITCH, WALL MOUNTED, +42" UON.
- S^3 — THREE-WAY SWITCH, WALL MOUNTED, +42" UON.
- S^4 — FOUR-WAY SWITCH, WALL MOUNTED, +42" UON.
- S^K — KEY-OPERATED, SINGLE-POLE, SINGLE-THROW SWITCH, WALL MOUNTED, +42" UON.
- S^P — PILOT LIGHT, SINGLE-POLE, SINGLE-THROW SWITCH, WALL MOUNTED, +42" UON.
- S^T — MANUAL MOTOR STARTER SWITCH WITH THERMAL OVERLOAD ELEMENT, MOUNTED ADJACENT TO MOTOR.
- S^M — MANUAL MOTOR STARTER/DISCONNECT SWITCH, MOUNTED ADJACENT TO MOTOR.
- S^F — SWITCH FURNISHED UNDER ANOTHER DIVISION, BUT INSTALLED AND WIRED UNDER THIS DIVISION, WALL MOUNTED, +42" UON.
- S^D — WALLBOX DIMMER SWITCH, +42" UON. SIZED PER CONNECTED LOAD ON PLANS AND FURNISHED FOR LAMP SOURCE SERVED. PROVIDED FOR DERATING WHEN INSTALLED GANGED LOCATIONS.
- S^{TC} — SINGLE-POLE, TIMER CONTROLLED SWITCH, WALL MOUNTED, +42" UON.
- S^{EP} — SINGLE-POLE, SINGLE-THROW, EXPLOSION PROOF SWITCH, WALL MOUNTED, +42" UON.
- S — LINE-VOLTAGE MULTIPLE GANG SWITCHING STATION, WALL MOUNTED, 42" UON. REFER TO PLANS FOR DEVICE QUANTITIES AND TYPES.
- L — LOW-VOLTAGE LIGHTING CONTROL SWITCHING STATION, WALL MOUNTED, +42" UON. REFER TO PLANS AND SCHEDULES FOR DEVICE QUANTITIES AND RELAYS CONTROLLED
- M — LIGHTING CONTROL OCCUPANCY SENSOR WITH DUAL LEVEL SWITCHING, WALL MOUNTED, + 42" UON.
- M1 — LIGHTING CONTROL OCCUPANCY SENSOR WITH SINGLE LEVEL SWITCHING, WALL MOUNTED, + 42" UON.
- M — LIGHTING CONTROL OCCUPANCY SENSOR, CEILING MOUNTED FOR AREA COVERAGE.
- D — PRESET SCENE CONTROL LIGHTING STATION WITH DIMMING CAPABILITIES, WALL MOUNTED, + 42" UON. REFER TO PLANS AND SCHEDULES FOR CONTROL.
- ETD — EGRESS LIGHTING TRANSFER DEVICE
- CONTROL STATION, WALL MOUNTED, +42" UON.
- PC — PHOTOELECTRIC CELL
- DS — DAYLIGHT SENSOR

AUDIO/VISUAL

- S — LOUDSPEAKER, WALL MOUNTED, 12" BELOW CEILING OR +96" AFF, WHICHEVER IS LOWER.
- S — LOUDSPEAKER, CEILING MOUNTED IN FLUSH BACK BOX. ADJACENT 70V OR 100V INDICATES DISTRIBUTED SAME VOLTAGE SPEAKER.
- S — PROGRAM SPEAKER, CEILING OR STRUCTURE MOUNTED.
- IP — AUDIO AND VIDEO INTERFACE PLATE, WALL MOUNTED, +18" UON OR AS OTHERWISE NOTED. 4-11/16" BOX WITH 1.25"C TO ACCESSIBLE CEILING.
- IP — AUDIO AND VIDEO INTERFACE PLATE, MOUNTED IN FLUSH FLOOR BOX. WITH 1.25"C FROM FLOOR BOX TO ACCESSIBLE CEILING.
- AV — AUDIO AND VIDEO CABLE DISPLAY PLATE, WALL MOUNTED, 4 11/16" BOX WITH 1.25" CONDUIT TO ACCESSIBLE CEILING. HEIGHT AS NOTED.
- AV — AUDIO AND VIDEO CABLE AT PROJECTOR THROUGH SUPPORT, DIRECT CONNECT TO PROJECTOR.
- TD — FLAT PANEL DISPLAY, WALL MOUNTED AT 60" AFF OR AS NOTED.
- SD — SIGNAGE DISPLAY, WALL MOUNTED AT 84" AFF OR AS NOTED.
- PR — PROJECTOR WITH PROJECTOR MOUNT, 1.5"-2" NPT COLUMN AND CEILING SUPPORT HARDWARE.
- CP — AUDIO AND VIDEO CONTROL PANEL, FLUSH WALL MOUNTED AT 42" UON IN BACKBOX. 4-11/16" BOX WITH 1.25"C TO ACCESSIBLE CEILING.
- CP — AUDIO AND VIDEO CONTROL PANEL, MOUNTED ON CASEWORK IN SURFACE BOX OR WITH STAND.
- CP — AUDIO AND VIDEO CONTROL PANEL, RACK MOUNTED.
- C — VIDEO CONFERENCING CAMERA, WALL MOUNTED @ 84"UON.
- C — VIDEO CONFERENCING CAMERA, CEILING MOUNTED IN CAMERA DOME.
- PROJECTION SCREEN, SIZE AND TYPE AS NOTED.
- PS — PROJECTION SCREEN 3 WAY POWER SWITCH, WALL MOUNTED, +42" UON.
- V — VOLUME CONTROLLER, WALL MOUNTED, +42" UON.
- M — MICROPHONE JACK, WALL MOUNTED, +18" UON.
- M — MICROPHONE JACK, MOUNTED IN FLUSH FLOOR BOX.
- I M — INTERCOM STATION, WALL MOUNTED, +42" UON. 'M' DENOTES MASTER STATION.
- I M — INTERCOM STATION, MOUNTED ON DESK. 'M' DENOTES MASTER STATION.
- INDICATING CLOCK WITH CLOCK OUTLET, WALL MOUNTED, 12" BELOW CEILING OR +96" AFF, WHICHEVER IS LOWER.
- S — COMBINATION LOUDSPEAKER/INDICATING CLOCK WITH CLOCK OUTLET, WALL MOUNTED IN COMBINATION BACK BOX, 12" BELOW CEILING OR +96" AFF, WHICHEVER IS LOWER.
- TELEVISION JACK, WALL MOUNTED +18" UON OR AS NOTED.
- TELEVISION JACK, MOUNTED IN FLUSH FLOOR BOX.

LIGHTING

- LIGHT FIXTURE, RECESSED IN CEILING.
- LIGHT FIXTURE, SURFACE OR PENDANT MOUNTED.
- LIGHT FIXTURE, WALL MOUNTED.
- STRIPLIGHT FIXTURE, SURFACE OR PENDANT MOUNTED.
- STRIP LIGHT FIXTURE, SURFACE MOUNTED IN ARCHITECTURAL CEILING COVE.
- STRIP LIGHT FIXTURE, SURFACE MOUNTED VERTICALLY ON WALL OR IN COVE.
- DOWNLIGHT FIXTURE, RECESSED IN CEILING.
- DOWNLIGHT/INDUSTRIAL FIXTURE, SURFACE OR PENDANT MOUNTED.
- SINGLE DIRECTIONAL, WALLWASH LIGHT FIXTURE, RECESSED IN CEILING.
- DUAL DIRECTIONAL, WALLWASH LIGHT FIXTURE, RECESSED IN CEILING.
- SINGLE DIRECTIONAL, WALLWASH LIGHT FIXTURE, SURFACE OR PENDANT MOUNTED.
- DUAL DIRECTIONAL, WALLWASH LIGHT FIXTURE, SURFACE OR PENDANT MOUNTED.
- ADJUSTABLE ACCENT LIGHT FIXTURE, RECESSED IN CEILING.
- ADJUSTABLE ACCENT LIGHT FIXTURE, SURFACE OR PENDANT MOUNTED.
- LINEAR WALLWASH LIGHT FIXTURE, RECESSED IN CEILING.
- LINEAR WALLWASH LIGHT FIXTURE, SURFACE OR PENDANT MOUNTED.
- LINEAR, MULTI-HEAD, ADJUSTABLE ACCENT LIGHT FIXTURES, RECESSED IN CEILING.
- SCONCE LIGHT FIXTURE, WALL MOUNTED.
- DECORATIVE CHANDELIER OR BOWL TYPE FIXTURE, PENDANT MOUNTED.
- J — LINEAR TRACK SYSTEM WITH PLUG-IN ADJUSTABLE LIGHT FIXTURE HEADS. TRACK SHALL BE EITHER RECESSED, SURFACE OR PENDANT MOUNTED TO CEILING AS NOTED IN FIXTURE SCHEDULE.
- EXIT SIGN LIGHT FIXTURE, CEILING OR WALL MOUNTED WITH DIRECTIONAL ARROWS AS NOTED ON PLANS. WORD 'EXIT' TO BE LOCATED IN SHADED FACE(S).
- COMBO EXIT SIGN AND EGRESS LIGHTING FIXTURE, CEILING OR WALL MOUNTED WITH ARROWS AS NOTED ON PLANS OR IN FIXTURE SCHEDULE.
- EMERGENCY SELF-POWERED BATTERY PACK WITH LIGHT FIXTURE HEADS AS NOTED ON PLANS OR IN FIXTURE SCHEDULE.
- HALF SHADING OF ANY FIXTURE INDICATES LIFE SAFETY/EGRESS LIGHTING.
- FULL SHADING OF ANY FIXTURE INDICATES STANDBY/CRITICAL LIGHTING.

EXTERIOR:

- SINGLE-HEAD AREA LIGHT FIXTURE WITH BRACKET ARM AND POLE, MOUNTED TO CONCRETE BASE.
- TWO-HEAD AREA LIGHT FIXTURES WITH BRACKET ARMS AND POLE, MOUNTED TO CONCRETE BASE.
- SINGLE-HEAD AREA POST-TOP LIGHT FIXTURE WITH POLE, MOUNTED TO CONCRETE BASE.
- AREA LIGHT FIXTURE, SURFACE OR RECESSED MOUNTED TO WALL.
- BOLLARD OR PEDESTRIAN SCALE AREA LIGHTING.
- GROUNDWELL MOUNTED FLUSH IN FINISHED GRADE.
- FLOODLIGHT FIXTURE, STANCHION MOUNTED ABOVE GRADE.
- LINEAR SIGN LIGHT FIXTURE, STANCHION MOUNTED ABOVE GRADE.
- STEPLIGHT FIXTURE, WALL MOUNTED.

RACEWAYS

- CONDUIT RUN EXPOSED ON WALL OR CEILING.
- CONDUIT RUN CONCEALED IN SLAB, UNDER SLAB OR UNDERGROUND.
- CONDUIT RUN CONCEALED IN WALL OR ABOVE CEILING.
- CONDUIT HOMERUN, CONTINUOUS RUN TO PANEL OR EQUIPMENT CABINET.
- CONDUIT..
- FLEXIBLE METALLIC CONDUIT.
- CONDUIT TURNED UP
- CONDUIT TURNED DOWN.
- CONDUIT CAPPED OR STUBBED WITH INSULATED BUSHINGS.
- CONDUIT SLEEVE, WITH INSULATING BUSHINGS.
- CROSSMARKS ON BRANCH CIRCUIT CONDUIT RUNS INDICATE THE QUANTITY OF CONDUCTORS AS FOLLOWS (GROUND CONDUCTORS ARE NOT NOTED, BUT SHOULD BE INCLUDED IN EVERY CONDUIT WITH POWER CONDUCTORS):
  1. NO CROSSMARKS INDICATES TWO #12 AWG CONDUCTORS, UON.
  2. THREE TO SIX CROSSMARKS INDICATES THE QUANTITY OF #12 AWG CONDUCTORS, UON.
  3. SEVEN OR MORE CROSSMARKS INDICATES THE QUANTITY OF #10 AWG CONDUCTORS, UON.
- MULTI-OUTLET TWO PIECE SURFACE RACEWAY; TYPE, DEVICE SPACING AND MOUNTING AS NOTED ON PLANS.
- TWO PIECE SURFACE METAL RACEWAY, MOUNTED AS NOTED IN PLANS.
- CABLE TRAY, CABLE RUNWAY OR LADDER RACK SUSPENDED FROM STRUCTURE ABOVE. REFER TO PLANS FOR SIZE AND MOUNTING.
- FLOOR DUCT

CONVENTIONS

- 1 — NUMBERED NOTE, APPLIES TO ALL DRAWINGS.
- 1 — NUMBERED SHEET NOTE, APPLIES TO DRAWING CONTAINING NOTES ONLY.
- 1 — OVERCURRENT PROTECTIVE DEVICE SPACE IDENTIFICATION TAG. REFERS TO LOCATION OF PROTECTIVE OR CONTROL DEVICE WITHIN SWITCHBOARDS, DISTRIBUTION BOARDS, MOTOR CONTROL CENTERS, ETC.
- NAME — EQUIPMENT IDENTIFICATION TAG: ITEM FURNISHED AND INSTALLED UNDER ANOTHER SECTION AND WIRED UNDER THIS SECTION.
- P2 — CABLE AND/OR RACEWAY TAG, FUNCTION AS NOTED BELOW:
  P = POWER T = TELEPHONE C = COMMUNICATION
- 2004 — FEEDER SIZE. REFER TO FEEDER SCHEDULE.
- A / E-801 — DETAIL REFERENCE: SHEET NUMBER; DETAIL DESIGNATION
- 2-F3 — FIXTURE IDENTIFICATION TAG: FIXTURE TYPE; QUANTITY

TELECOMMUNICATION

- W — TELECOMMUNICATION DEVICE, WALL MOUNTED AT +42". CAT 6, 1 CABLE.
- TELECOMMUNICATION DEVICE, WALL MOUNTED, +18" UON, QTY AS NOTED.
- TELECOMMUNICATION DEVICE, WALL MOUNTED OVER COUNTER, 6" ABOVE BACK SPLASH, UON, QTY AS NOTED.
- TELECOMMUNICATION DEVICE, MOUNTED IN FLUSH FLOOR BOX, QTY AS NOTED.
- TELECOMMUNICATION DEVICE, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTING, QTY AS NOTED.
- TELECOMMUNICATION DEVICE, MOUNTED IN FLOOR MONUMENT, QTY AS NOTED.
- TELECOMMUNICATION DEVICE, MOUNTED ABOVE ACCESSIBLE CEILING IN SURFACE MOUNT BOX, QTY AS NOTED.
- COMBINATION POWER/TELECOMMUNICATION DEVICES, MOUNTED IN FLUSH FLOOR BOX. TYPE AS NOTED ON PLANS OR IN SPECIFICATIONS, QTY AS NOTED.
- COMBINATION POWER/TELECOMMUNICATION DEVICES, MOUNTED IN FIRE-RATED POKE-THRU FLOOR FITTINGS. TYPE AS NOTED ON PLANS OR IN SPECIFICATIONS, QTY AS NOTED
- T — ELECTRIFIED FURNITURE PARTITION TELECOMMUNICATION CABLE FEED, WALL MOUNTED, +18" UON. CONSISTS OF 4 11/16" SQ. X 2 1/8" DEEP JUNCTION BOX, SINGLE GANG RING, AND STAINLESS STEEL COVERPLATE WITH 1 1/4" KO AND GROMMET. WRAP EXPOSED CABLE WITH SPIRAL WRAP, QTY AS NOTED.
- P T — ELECTRIFIED FURNITURE PARTITION COMBINATION POWER/TELECOMMUNICATION FEEDS, MOUNTED IN FLUSH FLOOR BOX WITH KO'S IN COVERS TO ACCEPT FURNITURE WHIPS. TELECOMMUNICATIONS WHIP SHALL BE 1 1/4" MINIMUM.
- T — ELECTRIFIED FURNITURE PARTITION TELECOMMUNICATION CABLE FEEDS, MOUNTED IN FIRE-RATED POKE-THRU THRU FLOOR FITTING WITH 1 1/4" KO'S IN COVER TO ACCEPT FURNITURE WHIPS.
- WAP — WIRELESS ACCESS POINT, WALL MOUNTED, 8" BFC UON, 3 CAT 6A CABLES.
- WAP — WIRELESS ACCESS POINT, CEILING MOUNTED,3 CAT 6A CABLES
- #D/#V — QUANTITY OF DATA AND/OR VOICE TELECOMMUNICATIONS DEVICES.

FIRE ALARM

- SMOKE DETECTOR INITIATING DEVICE, CEILING MOUNTED ON FLUSH OR SURFACE JUNCTION BOX.
- SMOKE DETECTOR INITIATING DEVICE, STRUCTURE MOUNTED ABOVE SUSPENDED CEILING TO SURFACE JUNCTION BOX.
- SMOKE DETECTOR INITIATING DEVICE, DUCT-MOUNTED TYPE WITH SAMPLING TUBE, LOCATED AT SUPPLY AIR FANS 2000cfm AND LARGER.
- SMOKE DETECTOR INITIATING DEVICE, IN-DUCT MOUNTED TYPE AT, DUCTED FSD'S.
- BT, BR — PROJECTED BEAM SMOKE DETECTOR INITIATING DEVICES TO INCLUDE TRANSMITTER, RECEIVER AND REMOTE INDICATOR STATION, WALL OR PENDANT MOUNTED IN FLUSH OR SURFACE JUNCTION BOX AS NOTED ON PLANS. BT=BEAM TRANSMITTER, BR=BEAM RECEIVER.
- HEAT DETECTOR INITIATING DEVICE, CEILING MOUNTED ON FLUSH OR SURFACE JUNCTION BOX.
- HEAT DETECTOR INITIATING DEVICE, STRUCTURE MOUNTED ABOVE SUSPENDED CEILING TO SURFACE JUNCTION BOX.
- F — MANUAL PULL STATION INITIATING DEVICE, WALL MOUNTED AT +48" UON.
- D 2 — MOTOR OPERATED FIRE/SMOKE DAMPER 'FSD', NIEC. SYMBOL DENOTES INTERFACE FOR POWER, CONTROL AND POSSIBLY MONITORING CONNECTIONS FROM FIRE ALARM SYSTEM. ALSO, INCLUDES LOCAL POWER DISCONNECT MEANS. 'ES' BY FSD IMPLIES END SWITCH CONNECTIONS FOR MONITORING BOTH 'OPEN' AND 'CLOSED POSITIONS. ADJACENT NUMBER INDICATES QUANTITY OF ACTUATORS AND END SWITCH GROUPS REQUIRING CONNECTION PER FSD, IF MORE THAN 1.
- SPRINKLER SYSTEM WATER FLOW SWITCH, NIEC. SYMBOL DENOTES INTERFACE FOR MONITORING CONNECTION FROM FIRE ALARM SYSTEM.
- SPRINKLER SYSTEM TAMPER SWITCH, NIEC. SYMBOL DENOTES INTERFACE FOR MONITORING CONNECTION FROM FIRE ALARM SYSTEM.
- SPRINKLER SYSTEM POST INDICATING VALVE 'PIV', NIEC. SYMBOL DENOTES INTERFACE FOR MONITORING CONNECTION FROM FIRE ALARM SYSTEM. INCLUDE A REMOTE MOUNTED ADDRESSABLE MONITORING MODULE AT PIV.
- SM — REMOTE MOUNTED SINGLE INPUT, ADDRESSABLE, MONITORING MODULE FOR INITIATING CIRCUIT CONNECTION.
- DM — REMOTE MOUNTED DUAL INPUT, ADDRESSABLE, MONITORING MODULE FOR INITIATING CIRCUIT CONNECTION.
- CR — REMOTE MOUNTED PROGRAMMABLE CONTROL RELAY MODULE FOR ADDRESSABLE CONTROL.
- DPS — DIFFERENTIAL PRESSURE SWITCH, NIEC. SYMBOLS DENOTES INTERFACE FOR MONITORING CONNECTION FROM FIRE ALARM SYSTEM TO ANNUNCIATE FAN OPERATION. INCLUDE A REMOTE MOUNTED ADDRESSABLE MONITORING MODULE AT EACH LOCATION.
- EOL — END-OF-LINE RESISTOR.
- PS — AIR PRESSURE SWITCH FOR PRE ACTION SPRINKLER SYSTEMS, NIEC. SYMBOL DENOTES INTERFACE FOR MONITORING CONNECTION FROM FIRE ALARM SYSTEM. INCLUDE A REMOTE MOUNTED ADDRESSABLE MONITORING MODULE AT EACH LOCATION.
- MAGNETIC TYPE DOOR HOLD OPEN/RELEASE DEVICE, WALL MOUNTED, NIEC. SYMBOL DENOTES INTERFACE FOR POWER AND CONTROL CONNECTIONS FROM FIRE ALARM SYSTEM.
- AUDIBLE NOTIFICATION APPLIANCE, WALL MOUNTED, 6" BELOW CEILING OR +80" AFF, WHICHEVER IS LOWER.
- VISIBLE NOTIFICATION APPLIANCE, WALL MOUNTED, 6" BELOW CEILING OR +80" AFF, WHICHEVER IS LOWER. NUMBER ASSOCIATED WITH 'cd' REPRESENTS CANDELA RATING OF STROBE.
- AUDIBLE/VISIBLE NOTIFICATION APPLIANCE, WALL MOUNTED, 6" BELOW CEILING OR +80" AFF, WHICHEVER IS LOWER. NUMBER ASSOCIATED WITH 'cd' REPRESENTS CANDELA RATING OF STROBE.
- AUDIBLE NOTIFICATION APPLIANCE, CEILING MOUNTED IN FLUSH BACK BOX.
- VISIBLE NOTIFICATION APPLIANCE, CEILING MOUNTED IN FLUSH BACK BOX. NUMBER ASSOCIATED WITH 'cd' REPRESENTS CANDELA RATING OF STROBE.
- AUDIBLE/VISIBLE NOTIFICATION APPLIANCE, CEILING MOUNTED IN FLUSH BACK BOX. NUMBER ASSOCIATED WITH 'cd' REPRESENTS CANDELA RATING OF STROBE.
- FIREMAN'S TELEPHONE JACK, WALL MOUNTED, +42" UON.
- RSMP — REMOTE SWITCH MICROPHONE PANEL

SECURITY

- A — ALARM MONITORING CONTACT, MOUNTED AS NOTED ON PLANS.
- EL — ELECTRIC MORTISE DOOR LOCK, NIEC, BUT WIRED UNDER THIS DIVISION.
- ES — ELECTRIC DOOR STRIKE, NIEC, BUT WIRED UNDER THIS DIVISION.
- ML — ELECTROMAGNETIC DOOR LOCK, NIEC, BUT WIRED UNDER THIS DIVISION.
- EP — ELECTRIFIED PANIC HARDWARE, NIEC, BUT WIRED UNDER THIS DIVISION.
- MP — MECHANICAL PANIC HARDWARE, NIEC, BUT WIRED UNDER THIS DIVISION.
- RX — REQUEST-TO-EXIT SWITCH, NIEC, FURNISH WITH DOOR HARDWARE AND WIRED UNDER THIS DIVISION.
- P — POWER TRANSFER HINGE, NIEC.
- R — DOOR RELEASE MOTION SENSOR, WALL OR CEILING MOUNTED ABOVE DOOR, UON.
- D — DURESS STATION, MOUNTED AS NOTED ON PLANS.
- M — AREA MOTION SENSOR, CEILING MOUNTED, UON.
- PS — AREA MOTION SENSOR, WALL MOUNTED, +84" UON.
- GB — GLASS BREAK DETECTOR, CEILING MOUNTED, UON.
- CR — CARD READER CONTROLLER, WALL MOUNTED, +36" UON.
- K — KEY PAD CONTROLLER, WALL MOUNTED, +42" UON.
- PS — REMOTE MOUNTED POWER SUPPLY FOR LOW-VOLTAGE EQUIPMENT CONNECTIONS.
- FIXED POSITION CCTV CAMERA, MOUNTED AS NOTED ON PLANS.
- PAN/TILT/ZOOM (PTZ) CCTV CAMERA, MOUNTED AS NOTED ON PLANS, 1 CAT 6 CABLE.
- CCTV MONITOR, 1 CAT 6 CABLE.

ABBREVIATIONS

A	AMPERES
AFI	ARC FAULT CIRCUIT INTERRUPTER
AF	AMPERE OVERCURRENT FRAME SIZE (WHEN APPLIED TO CIRCUIT BREAKERS) OR AMPERE FUSE SIZE (WHEN APPLIED TO FUSES)
AFF	ABOVE FINISHED FLOOR
AIC	ASYMMETRIC INTERRUPTING CURRENT
AL	ALUMINUM
AT	AMPERE OVERCURRENT TRIP (WHEN APPLIED TO CIRCUIT BREAKERS)
ATS	AUTOMATIC TRANSFER SWITCH
BAS	BUILDING AUTOMATION SYSTEM
BPS	BOLTED PRESSURE CONTACT SWITCH
C	CONDUIT
CCTV	CLOSED CIRCUIT TELEVISION
CL	CURRENT LIMITING CIRCUIT BREAKER OR FUSE
CP	CIRCULATION PUMP
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
CU	COPPER
DF	DRINKING FOUNTAIN
DW	DISH WASHER
(E)	EXISTING TO REMAIN
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EP	EXPLOSION PROOF
EPO	EMERGENCY POWER OFF
EMCS	ENERGY MANAGEMENT CONTROLS SYSTEM
EMT	ELECTRICAL METALLIC TUBING
ETD	EMERGENCY TRANSFER DEVICE
EWH	ELECTRIC WATER HEATER
F	FUSED
(F)	FUTURE
FACP	FIRE ALARM CONTROL PANEL
FAJB	FIRE ALARM JUNCTION BOX
FFCP	FIREMAN'S FAN CONTROL PANEL
FLA	FULL LOAD AMPERES
FMC	FLEXIBLE METAL CONDUIT
FSD	FIRE/SMOKE DAMPER
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FRAP	FIREMAN'S REMOTE ANNUNCIATOR PANEL
G	GROUND
GB	GROUND BUS
GD	GARBAGE DISPOSAL
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GRAP	GENERATOR REMOTE ANNUNCIATOR PANEL
BWH	GAS WATER HEATER
HPC	HIGH PRESSURE CONTACT SWITCH
IMC	INTERMEDIATE METAL CONDUIT
IWH	INSTANTANEOUS OR POINT OF USE WATER HEATER
JB	JUNCTION BOX
JB	JUNCTION BOX
LSCP	LIFE SAFETY CONTROL PANEL
LCP	LIGHTING CONTROL PANEL
MBGB	MAIN BUILDING GROUND BUS
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MLO	MAIN LUGS ONLY
MT	EMPTY
MTC	EMPTY CONDUIT
MTS	MANUAL TRANSFER SWITCH
MW	MIRCOWAVE
(N)	NEW
NC	NORMALLY CLOSED
NF	NON-FUSED
NIEC	NOT IN ELECTRICAL CONTRACT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
PNL	PANEL
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
RF	REFRIGERATOR
(R)	EXISTING TO BE REMOVED
(RR)	REMOVE AND RELOCATE
RSC	RIGID STEEL CONDUIT
SAD	SEE ARCHITECTURAL DRAWINGS
TC	TIME CLOCK
TP	TWISTED-PAIR
SPD	SURGE PROTECTION DEVICE
TX	TRANSFORMER
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
UR	UNDERCOUNTER REFRIGERATOR
V	VOLTS
VA	VOLTS-AMPS
VFD	VARIABLE FREQUENCY DRIVE
VM	VENDING MACHINE
W	WATTS
WAP	WIRELESS ACCESS POINT
WH	WATER HEATER
WP	WEATHERPROOF
2SP	TWO SPEED
1Ø	1 PHASE
3Ø	3 PHASE
1P	1 POLE
2P	2 POLE
3P	3 POLE
3W	3 WIRE
4W	4 WIRE

DRAWING INDEX

ELECTRICAL SHEET MATRIX

SHEET NO.	SHEET NAME	SCHEMATIC DESIGN	DESIGN DEVELOPMENT	CONSTRUCTION DOCUMENTS
E0.01	DRAWING AND SYMBOLS LIST	•	•	•
E0.02	SCHEDULES AND PROJECT NOTES		•	•
E0.03	SCHEDULES			•
E0.04	TITLE 24			•
E0.05	TITLE 24			•
E1.01	OVERALL ELECTRICAL SITE PLAN	•	•	•
E1.02	ELECTRICAL SITE PLAN		•	•
E2.01	LIGHTING PLAN - LEVEL 1		•	•
E2.02	LIGHITNG PLAN - LEVEL 2		•	•
E3.01	POWER AND TELECOM PLAN - LEVEL 1	•	•	•
E3.02	POWER AND TELECOM PLAN - LEVEL 2	•	•	•
E3.03	POWER PLAN-ROOF		•	•
E4.01	SPECIAL SYSTEMS PLAN - LEVEL 1		•	•
E4.02	SPECIAL SYSTEMS PLAN - LEVEL 2		•	•
E5.01	ROOM ENLARGEMENTS	•	•	•
E6.01	POWER ONE LINE DIAGRAM	•	•	•
E6.02	LOW VOLTAGE RISER DIAGRAMS	•	•	•
E6.03	LIGHTING CONTROL RISER DIAGRAMS		•	•
E7.01	ELECTRICAL DETAILS			•
E7.02	ELECTRICAL DETAILS			•
E7.03	ELECTRICAL DETAILS			•
E7.04	ELECTRICAL DETAILS			•
E7.05	ELECTRICAL DETAILS			•
E8.01	EMERGENCY LIGHTING CALCS - LEVEL 1			•
E8.02	EMERGENCY LIGHTING CALCS - LEVEL 2			•

95% CONSTRUCTION DOCUMENTS

ADD-2

The Engineering Enterprise
Consulting Engineers
1125 HIGH STREET
AUBURN, CA 95603
(530) 886-8556

REGISTERED PROFESSIONAL ENGINEER
SCOTT WHEELER
No. E015491
Exp. 06/30/19
ELECTRICAL
STATE OF CALIFORNIA

DRAWING AND SYMBOLS LIST
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E0.01
Project Number
07.11.2017
Revisions
ADD-2 ADDENDUM 2 2.09.18

IDENTIFICATION STAMP
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CAL POLY BASEBALL CLUBHOUSE
LIGHTING FIXTURE SCHEDULE

Type Mark	MANUFACTURER & CATALOG NUMBER	LIGHT SOURCE QTY/TYPE	BALLAST/DRIVER TYPE	WATTS	VOLTAGE	DESCRIPTION
F1	LITHONIA ZL1D-L48-SMR-3000LM-FST-MVOLT-35K-80CRI-CS93W-WH-Z ACHV OR APPROVED EQUAL	LED ~4000 LUMEN 80+ CRI MIN 100,000 HR L70	LED DRIVER	30 VA	120	NOMINAL 4' LONG SURFACE MOUNTED COMPACT LINEAR LED FIXTURE, WITH STEEL HOUSING WITH WHITE ENAMEL FINISH, AND DIFFUSE SNAP-ON LENS. INSTALL IN CONTINUOUS ROW WHERE INDICATED ON THE PLANS. PROVIDE WITH AC CABLE KIT AND SUSPEND FIXTURE AT +10'-0" A.F.F. U.O.N. WHERE CEILING IS OPEN TO STRUCTURE.
F1A	LITHONIA ZL1D-L96-SMR-6000LM-FST-MVOLT-35K-80CRI-CS93W-WH-Z ACHV OR APPROVED EQUAL	LED ~8000 LUMEN 80+ CRI MIN 100,000 HR L70	LED DRIVER	60 VA	120	SAME AS TYPE F1 EXCEPT 8' LONG, AND NO BATTERY BACK UP.
F1B	LITHONIA ZL1D-L48-SMR-3000LM-FST-MVOLT-35K-80CRI-E7W-CS93W-WH-ZACHV OR APPROVED EQUAL	LED ~4000 LUMEN 80+ CRI MIN 100,000 HR L70	LED DRIVER	30 VA	120	SAME AS TYPE F1 EXCEPT 4' LONG, WITH BATTERY BACK UP.
F2	PRUDENTIAL WAL14-LED35-SO-4-WFA-TMW-SC-UNV-WM-DM10-EMH OR APPROVED EQUAL	LED 40W / 4' ~4200 LUMENS / 4' 4000K 84 CRI MIN 60,000 HR L90	0-10V LED DRIVER	40 VA	120	WALL MOUNTED ARCHITECTURAL LED STAIRWELL FIXTURE, NOMINAL 4' LONG, WITH FROSTED ACRYLIC LENS, AND INTEGRAL OCCUPANCY SENSOR. SET SENSOR DELAY TO 15 MINUTE; FIXTURE WILL DIM TO MINIMUM LIGHT LEVELS IN 'STANDBY MODE' WHEN SPACE IS UNOCCUPIED. PROVIDE EMERGENCY BATTERY PACK FOR EGRESS.
F3	LITHONIA VW150I M12 OR EQUAL	CREE LED, 13.5W 1100 LUMENS A19 BULB	LED DRIVER	13.5 VA	120	WALL MOUNTED UTILITY LUMINAIRE. DIE-CAST ALUMINUM HOUSING WITH GRAY FINISH. INSTALL FIXTURE WITHOUT GLASS GLOBE
F4	GOTHAM EVO-35-15-4AR-MD-LSS-MVOLT-EZ1 OR APPROVED EQUAL	LED ~1500 LUMEN 3500K 80+CRI MIN 600,000 HR L70	0-10V DIMMING LED DRIVER	17.3 VA	120	LED DOWNLIGHT, NOMINAL 4" ROUND APERTURE, WITH SELF FLANGED SEMI-SPECULAR FINISHING TRIM AND 45° CUTOFF TO SOURCE AND SOURCE IMAGE. FULLY SERVICABLE AND UPGRADEABLE LENSED LED LIGHT ENGINE AND DRIVER ACCESSIBLE THROUGH APERTURE.
F4A	GOTHAM EVO-35-15-4AR-MD-LSS-MVOLT-EZ1-EL OR APPROVED EQUAL	LED ~1500 LUMEN 3500K 80+CRI MIN 600,000 HR L70	0-10V DIMMING LED DRIVER	17.3 VA	120	SAME AS FIXTURE TYPE F4, WITH EMERGENCY BATTERY PACK WITH INTEGRAL TEST SWITCH.
F5	PHILIPS SLIM SURFACE S6S-8-35K-10-AL-Z10U OR APPROVED EQUAL	LED 650 LUMENS 3500K 80 CRI MIN 50,000 HR L70	0-10V DIMMING LED DRIVER	17.5 VA	120	4" SQUARE SLIM SURFACE MOUNTED LED FIXTURE INSTALLED OVER JUNCTION BOX, ALUMINUM FINISH.
F6	HE WILLIAMS AT1-22-L30/835-D-DIM-UNV OR APPROVED EQUAL	LED 3000 LUMENS 3500K 82 CRI MIN 50,000 HR L70	0-10V DIMMING LED DRIVER	30 VA	120	RECESSED 2X2 LED TROFFER, STEEL HOUSING WITH HIGHLY REFLECTIVE, WHITE POWDER COATED REFLECTOR AND FROSTED ACRYLIC LENS AND CENTER CHANNEL DIFFUSER. DLC QUALIFIED, MIN. 5 YEAR WARRANTY.
F7/X	PRUDENTIAL PSTD-REG3-LED35-MO-RX-TMW-SAL-D1-WTW-SC-UNV-X7B F-ND-EMH OR APPROVED EQUAL	LED, 7W / 1' 600 LUMENS / 1' 3500K 83 CRI >100,000 HR L70	LED DRIVER	7 VA / FT	120	WALL TO WALL PERIMETER LED LUMINAIRE, NOMINAL 4" APERTURE WITH REGRESSED ACRYLIC LENS, EXTRUDED ALUMINUM HOUSING WITH POWDER COAT FINISH AND MUD-OVER DRYWALL MOUNTING FLANGE, DIRECT DISTRIBUTION. REFER TO PLANS FOR LENGTH OF FIXTURE. FIXTURE IS TO EXTEND 'WALL TO WALL' U.O.N. PROVIDE BATTERY PACK FOR EGRESS LIGHTING WHERE DENOTED ON PLANS. 'X' = APPROXIMATE FIXTURE LENGTH.
F8/X	FINELITE HP-2-WW-R-K-X-S-835-120V-SC-XX OR APPROVED EQUAL	LED ~154 LUMENS/FT 3500K 80+ CRI MIN 100,000 HR L90	0-10V DIMMING LED DRIVER	2W / 1'	120	RECESSED LINEAR LED WALL WASH FIXTURE, 2" APERATURE, EXTRUDED ALUMINUM HOUSING WITH WHITE POWDER COAT FINISH, FLUSH FROSTED ACRYLIC DIFFUSER AND DIMMING BALLAST. VERIFY CEILING TYPE WITH THE PLANS/ARCHITECT. WHERE THERE ARE CORNERS, PROVIDE LIT CORNERS. 'X' = APPROXIMATE FIXTURE...
F9/X	FINELITE HP-2-R-X'X"-S-835-F-120V-SC-XX OR APPROVED EQUAL	LED ~336 LUMENS/FT 3500K 80+ CRI MIN 100,000 HR L90	0-10V DIMMING LED DRIVER	3.6W / 1'	120	RECESSED LINEAR LED SLOT FIXTURE, 2" APERATURE, EXTRUDED ALUMINUM HOUSING WITH WHITE POWDER COAT FINISH, FLUSH FROSTED ACRYLIC DIFFUSER AND DIMMING BALLAST. VERIFY CEILING TYPE WITH THE PLANS/ARCHITECT. PROVIDE CONTINUOUS RUN WITH LIT CORNERS. PROVIDE BATTERY PACK FOR EGRESS LIGHTING WHERE DENOTED ON PLANS. 'X' = APPROXIMATE FIXTURE LENGTH.
F10 (ADD-1)	XAL VELA EVO VELA-75-1-36060-7-2-7-0-O-7 OR APPROVED EQUAL	LED 6000 LUMENS 3500K 80 CRI >80,000 HR L80	0-10V DIMMING LED DRIVER	50 VA	120	CIRCULAR LED FIXTURE MOUNTED TO 48" CABLE SUSPENSION, 3' DIAMETER, 6000 LUMENS, ALUMINUM HOUSING WITH WHITE FINISH, OPAL LAY IN COVER/LENS.
F10A	XAL VELA EVO VELA-75-1-36060-7-2-7-1-O-7 OR APPROVED EQUAL	LED 6000 LUMENS 3500K 80 CRI >80,000 HR L80	0-10V DIMMING LED DRIVER	50 VA	120	SAME AS TYPE F10 EXCEPT WITH BATTERY PACK FOR EGRESS LIGHTING.
F11/X'	DEL RAY LIGHTING DOS LED CIRCLES UCD-X'-W-W35-NCR-BDIM-W1 OR APPROVED EQUAL	LED 2'-4400; 3'-6600; 4'-8600; 5'-10800 LUMENS 3500K >90 CRI >80,000 HR L80	0-10V DIMMING LED DRIVER	2'-47 VA 3'-70 VA 4'-94 VA 5'-117 VA	120	CIRCULAR DIRECT/INDIRECT LED RING FIXTURE MOUNTED VIA NEXUS CENTRAL CABLE, REMOTE DRIVER, 2', 3', 4' AND 5' DIAMETER (AS DENOTED ON PLANS), ALUMINUM OUTER RING WITH WHITE FROSTED ACRYLIC DIFFUSER. 'X' = FIXTURE DIAMETER.
F11A/X'	DEL RAY LIGHTING DOS LED CIRCLES UCD-X'-W-W35-NCR-BDIM-W1-CREM OR APPROVED EQUAL	LED 2'-4400; 3'-6600; 4'-8600; 5'-10800 LUMENS 3500K >90 CRI >80,000 HR L80	0-10V DIMMING LED DRIVER	2'-47 VA 3'-70 VA 4'-94 VA 5'-117 VA	120	SAME AS TYPE F11 EXCEPT WITH BATTERY PACK FOR EGRESS LIGHTING.
F12	DEL RAY LIGHTING DOS LINEAR LED UDL-X'-W-W35-NCR-BDIM-W1 OR APPROVED EQUAL	LED ~625 LUMENS/FT 3500K 80+ CRI MIN 100,000 HR L90	0-10V DIMMING LED DRIVER	12W / 1'	120	LINEAR DIRECT/INDIRECT LED FIXTURE IN RECTANGULAR SHAPE, AIR CRAFT CABLE MOUNTED, REMOTE DRIVER, ALUMINUM HOUSING WITH DR FROSTED ACRYLIC DIFFUSER. PROVIDE IN 6'-0"X6'-0" SQUARE GEOMETRIC CONFIGURATION AS SHOWN ON THE PLANS, WITH ILLUMINATED CORNERS.
F12/A	DEL RAY LIGHTING DOS LINEAR LED UDL-X'-W-W35-NCR-BDIM-W1 OR APPROVED EQUAL	LED ~625 LUMENS/FT 3500K 80+ CRI MIN 100,000 HR L90	0-10V DIMMING LED DRIVER	12W / 1'	120	LINEAR DIRECT/INDIRECT LED FIXTURE IN RECTANGULAR SHAPE, AIR CRAFT CABLE MOUNTED, REMOTE DRIVER, ALUMINUM HOUSING WITH DR FROSTED ACRYLIC DIFFUSER. PROVIDE IN 12'-0"X6'-0" RECTANGULAR GEOMETRIC CONFIGURATION AS SHOWN ON THE PLANS, WITH ILLUMINATED CORNERS.
F13/X'	AION WHITE LED STRIP 4000-WW-WR	LED 3200K	LED	3W/ 1'	120	RECESSED LED TAPE LIGHT MOUNTED UNDER EXTERIOR BAR AT TOP OF BALCONY. FIXTURE SHALL BE WET LISTED.
F14/X'	LITHONIA UCLD-X'-35K-90CRI-BN OR EQUAL	LED ~400 LUMENS/FT 3500K >90 CRI MIN 100,000 HR L90	LED DRIVER	7.3W / 1'	120	UNDERCOUNTER LED FIXTURE WITH BRUSHED NICKEL FINISH. 'X' = FIXTURE LENGTH.
F15	GOTHAM EVO-SQ-35-20-4AR-MD-LSS-MVOLT-EZ1 OR APPROVED EQUAL	(FM01) LED ~2000 LUMEN 3500K 80+CRI...	0-10V DIMMING LED DRIVER	18.5 VA	120	LED DOWNLIGHT, NOMINAL 4" SQUARE APERTURE, WITH SELF FLANGED SEMI-SPECULAR FINISHING TRIM AND 45° CUTOFF TO SOURCE AND SOURCE IMAGE. FULLY SERVICABLE AND UPGRADEABLE LENSED LED LIGHT ENGINE AND DRIVER ACCESSIBLE THROUGH...
F15A (FM01)	GOTHAM EVO-SQ-35-20-4AR-MD-LSS-MVOLT-EZ1-EL OR APPROVED EQUAL	(FM01) LED ~2000 LUMEN 3500K 80+CRI MIN 600,000 HR L70	0-10V DIMMING LED DRIVER	18.5 VA	120	SAME AS FIXTURE TYPE F15, WITH EMERGENCY BATTERY PACK WITH INTEGRAL TEST SWITCH.
F15B	GOTHAM EVO-SQ-40-20-4AR-MD-LSS-MVOLT-EZ1 OR APPROVED EQUAL	LED ~2000 LUMEN 4000K 80+CRI MIN 600,000 HR L70	0-10V DIMMING LED DRIVER	18.5 VA	120	SAME AS FIXTURE TYPE F15 EXCEPT FOR 4000K
F15C	GOTHAM EVO-SQ-40-20-4AR-MD-LSS-MVOLT-EZ1-EL OR APPROVED EQUAL	LED ~2000 LUMEN 4000K 80+CRI MIN 600,000 HR L70	0-10V DIMMING LED DRIVER	18.5 VA	120	SAME AS FIXTURE TYPE F15A EXCEPT FOR 4000K
F16	EMERGILITE PRECEPTOR BA-PDN-1/2-G OR APPROVED EQUAL	LED	LED DRIVER	N/A	120	DIE-CAST ALUMINUM LED EXIT SIGN, UNIVERSAL MOUNTING, FIELD SELECTABLE CHEVRONS, UNIVERSAL SINGLE OR DOUBLE FACE, UNIVERSAL VOLTAGE INPUT.
F17	BRUCK CYRUS 113-100-MC OR APPROVED EQUAL	LED 1000 LUMENS 3000K 90 CRI...	0-10V DIMMING LED DRIVER	17 VA	120	LED PENDANT CYLINDER DOWNLIGHT, WITH WHITE SHADE COLOR AND MATTE CHROME FINISH.
F18	(FM01) PRISMA "MIMIK 20" TYPE III 071628-EM OR APPROVED EQUAL	(FM01) LED 1264 LUMENS 4000K	LED DRIVER	(FM01) 15 VA	120	WALL MOUNTED, FULL CUT-OFF LED LUMINAIRE, WITH LOW PROFILE 8" SQUARE DIE-CAST ALUMINUM HOUSING, TYPE III OPTICAL DISTRIBUTION, CUSTOM FINISH TBD BY ARCH, AND TEMPERED PRISMATIC GLASS DIFFUSER. IP65 RATED FOR WET LOCATIONS, ADA COMPLIANT. PROVIDE WITH OPTIONAL ACCESSORY PLATE AND INSTALL FAÇADE MATERIAL AS DIRECTED BY ARCHITECT. PROVIDE WITH INTEGRAL EMERGENCY BATTERY. (FM01)
F19	FINELITE HP-2-WW-D-K-X-S-835-120V-FA-SC-C4-OBO OR APPROVED EQUAL	LED ~154 LUMENS/FT 3500K 80+ CRI MIN 100,000 HR L90	0-10V DIMMING LED DRIVER	(FM01) 2W / 1'	120	PENDANT MOUNTED LINEAR LED WALL WASH FIXTURE, 2" APERATURE, EXTRUDED ALUMINUM HOUSING WITH WHITE POWDER COAT FINISH, FLUSH FROSTED ACRYLIC DIFFUSER AND DIMMING BALLAST. PROVIDE LIT CORNERS. 'X' = APPROXIMATE FIXTURE LENGTH. PROVIDE WITH INTEGRAL OCCUPANCY SENSOR, PROGRAMMED TO DIM FIXTURE TO 10% WHEN VACANT, WITH DELAY TIME OF 15 MINUTES.
F19A/X	FINELITE HP-2-D-K-X-S-835-120V-FA-SC-C4-OBO OR APPROVED EQUAL	LED ~154 LUMENS/FT 3500K 80+ CRI MIN 100,000 HR L90	0-10V DIMMING LED DRIVER	(FM01) 2W / 1'	120	SAME AS TYPE F19 EXCEPT WITHOUT WALL WASHER. 'X' = APPROXIMATE FIXTURE LENGTH. (BV01)
F19B	FINELITE HP-2-WW-D-K-X-S-835-120V-FA-SC-C4 OR APPROVED EQUAL	LED ~154 LUMENS/FT 3500K 80+ CRI...	0-10V DIMMING LED DRIVER	(FM01) 2W / 1'	120	SAME AS TYPE F19 EXCEPT WITHOUT INTEGRAL OCCUPANCY SENSOR. 'X' = APPROXIMATE FIXTURE LENGTH
(FM01) F20	JUNO JSFSQ-12IN13LM-40K-90CRI-MVOLTZT-WH-EL OR APPROVED EQUAL	LED 1300 LUMENS 4000K 90+ CRI	0-10V DIMMING LED DRIVER	15 VA	120	12" SQUARE SLIM SURFACE MOUNTED LED DOWNLIGHT FIXTURE INSTALLED OVER JUNCTION BOX. FIXTURE SHALL HAVE WHITE FINISH AND INTEGRAL EMERGENCY BATTERY BACK-UP.

LIGHTING CONTROL MATRIX / SEQUENCE OF OPERATIONS

ROOM NAME/NUMBER	ZONE	LOAD TYPE	OPERATING MODE	OCC MODE - ON (manual or auto)	ON SETPOINT (% or target fc)	OCC MODE - OFF (off, dim%, or target fc)	OCC SENSOR TIME DELAY (MIN)	DAYLIGHT SENSOR SETPOINT	RECEPTACLE CONTROL	LIGHITNG CONTROL NETWORK	TIME BASED CONTROLS (SWEEP OFF)	EMERGENCY LIGHTING CONTROL UNIT (UL924)	AUTOMATIC DEMAND RESPONSE	MANUAL CONTROLS	WIRING DIAGRAM	NOTES
Elevator Machine Room	a	NON-DIM	NORMAL	N/A	N/A	N/A	N/A	N/A	NO	NO	N/A	N/A	N/A			
Utility Room (Elect, IT, Pump, etc.)	a	NON-DIM	NORMAL	auto	N/A	auto	15	N/A	NO	NO	N/A	N/A	N/A			
Storage, Custodial, Laundry etc	a	NON-DIM	NORMAL	auto	N/A	auto	5	N/A	NO	NO	N/A	N/A	N/A			
Single User Restroom	a	NON-DIM	NORMAL	auto	N/A	auto	15	N/A	NO	NO	N/A	N/A	N/A			
Multi-user Restroom	a	NON-DIM	NORMAL	auto	N/A	auto	15	N/A	NO	NO	N/A	N/A	N/A			
	b	NON-DIM	NORMAL	auto	N/A	auto	15	N/A								
	c	NON-DIM	NORMAL	auto	N/A	auto	15	N/A								
Private Office	a	0-10V DIM	NORMAL	auto	25 fc	auto	15	N/A	YES	YES	N/A	N/A	N/A			
Video Room	a	0-10V DIM	NORMAL	man	35 fc	off	15	N/A	YES	YES	NO	NO	50%			
			AFTER				5									
	b	0-10V DIM	NORMAL	man	35 fc	off	15	N/A								
			AFTER				5									
	c	0-10V DIM	NORMAL	man	35 fc	off	15	N/A								
			AFTER				5									
Taping, Volunteer Coach/Dir. Baseball OPS.	a	0-10V DIM	NORMAL	man	25 fc	off	15	N/A	YES	YES	NO	NO	50%			
			AFTER				5									
Player Lounge	a	0-10V DIM	NORMAL	auto	25 fc	10 fc	15	N/A	NO	YES	YES	NO	50%			
			AFTER			off	5									
	b	0-10V DIM	NORMAL	auto	25 fc	10 fc	15	N/A				YES				
			AFTER			off	5									
	c	0-10V DIM	NORMAL	auto	25 fc	10 fc	15	N/A				NO				
			AFTER			off	5									
	d	0-10V DIM	NORMAL	auto	25 fc	10 fc	15	N/A				NO				
			AFTER			off	5									
	e	0-10V DIM	NORMAL	auto	25 fc	10 fc	15	N/A				NO				
			AFTER			off	5									
Locker Room	a	0-10V DIM	NORMAL	auto	10 fc	10 fc	15	N/A	NO	YES	NO	NO	50%			
			AFTER			off	5									
	b	0-10V DIM	NORMAL	auto	10 fc	10 fc	15	N/A				YES				
			AFTER			off	5									
	c	0-10V DIM	NORMAL	auto	10 fc	10 fc	15	N/A				NO				
			AFTER			off	5									
Hallway	a	0-10V DIM	NORMAL	auto	25 fc	10 fc	15	N/A	NO	YES	NO	YES	50%			
			AFTER			off	5									
	b	0-10V DIM	NORMAL	auto	25 fc	10 fc	15	N/A				YES				
			AFTER			off	5									
	c	0-10V DIM	NORMAL	auto	25 fc	10 fc	15	N/A				YES				
			AFTER			off	5									
Pantry	a	NON-DIM	NORMAL	auto	25 fc	off	15	N/A	NO	NO	NO	NO	50%			
Balcony	a	0-10V DIM	NORMAL	auto	10 fc	off	5	N/A	NO	YES	NO	NO	50%			
			AFTER				5									
Multipurpose/Vestibule	a	0-10V DIM	NORMAL	auto	20 fc	10 fc	15	N/A	NO	YES	YES	NO	50%			
			AFTER			off	5									
	b	0-10V DIM	NORMAL	auto	20 fc	10 fc	15	N/A				YES				
			AFTER			off	5									
	c	0-10V DIM	NORMAL	auto	20 fc	10 fc	15	N/A				NO				
			AFTER			off	5									
	d	0-10V DIM	NORMAL	auto	20 fc	10 fc	15	N/A				NO				
			AFTER			off	5									
	e	0-10V DIM	NORMAL	auto	20 fc	10 fc	15	N/A				NO				
			AFTER			off	5									
	f	0-10V DIM	NORMAL	auto	20 fc	10 fc	15	N/A				NO				
			AFTER			off	5									
	g	0-10V DIM	NORMAL	auto	20 fc	10 fc	15	N/A				NO				
			AFTER			off	5									
Plunge Pool/Showers	a	NON-DIM	NORMAL	auto	10 fc	10 fc	15	N/A	NO	NO	NO	NO	50%			
	b	NON-DIM	NORMAL	auto	10 fc	10 fc	15	N/A				YES				
	c	NON-DIM	NORMAL	auto	10 fc	10 fc	15	N/A				NO				
	d	NON-DIM	NORMAL	auto	10 fc	10 fc	15	N/A				NO				

ADD-1

T24 - PROJECT NOTES

COMPLIANCE & DOCUMENTATION:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLETING ALL CALIFORNIA BUILDING ENERGY EFFICIENCY STANDARDS (T24 PART 6) FORMS REQUIRED FOR THIS PROJECT.
2. THE CONTRACTOR SHALL PROVIDE THE CERTIFICATE OF INSTALLATION (NRCI) AND THE CERTIFICATE OF ACCEPTANCE (NRCA) FORMS REQUIRED FOR THIS PROJECT AND SUBMIT THE SIGNED FORMS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INITIAL FIELD INSPECTIONCHECKING REQUIRED ON THE TITLE 24 COMPLIANCE FORMS (NRCC). THEY SHALL COMPLETE ALL FIELDS INDICATED AS COMPLETED BY "FIELD INSPECTOR" AND SHALL SUBMIT COMPLETED AND SIGNED FORMS.
4. THE ACCEPTANCE TESTING SHALL BE PROVIDED BY THE CONTRACTOR AND COMPLETED BY A CERTIFIED LIGHTING TECHNICIAN AS REQUIRED IN THE STANDARD.
5. THE CONTRACTOR SHALL PROVIDE ALL MANDATORY CA TITLE 24 COMMISSIONING AS PART OF THIS PROJECT.
6. REFER TO FLOOR PLANS FOR DEMONSTRATION OF COMPLIANCE WITH MANDATORY LIGHTING CONTROL REQUIREMENTS. ALL NEW LIGHTING FIXTURES AND CONTROLS SHOWN ON THE PLAN SHALL COMPLY WITH THE MANDATORY LIGHTING CONTROL REQUIREMENTS OF THE CODE.

GENERAL NOTES

2 MOUNTING HEIGHTS SHOWN ARE FROM FINISHED FLOOR TO THE CENTERLINE OF THE DEVICE. ALL MOUNTING HEIGHTS SHALL BE AS SHOWN ON THE SYMBOLS LIST UNLESS OTHERWISE NOTED ON THE PLANS OR IN THE SPECIFICATIONS.

3 REFER TO POWER AND SIGNAL DRAWINGS FOR THE LOCATION OF ALL PANELBOARDS.

4 FURNISH AND INSTALL ALL PANELBOARDS WITH CIRCUIT BREAKERS AS SHOWN ON PANEL SCHEDULES.

5 REFER TO ELECTRICAL DRAWINGS FOR THE FIXTURE SCHEDULE.

6 SUBSCRIPTS ON SWITCH SYMBOLS (Sa) DENOTE THE OUTLETS CONTROLLED.

7 DO NOT INSTALL TELEPHONE OR POWER OUTLETS BACK TO BACK IN STUD WALLS.

8 REFER TO ELECTRICAL ONE LINE DIAGRAM AND FEEDER SCHEDULE FOR THE SIZE OF CONDUITS AND CONDUCTORS BETWEEN MAJOR POWER COMPONENTS OF THE ELECTRICAL SYSTEM.

9 REFER TO TELEPHONE RISER DIAGRAM FOR TELEPHONE CLOSET INTERCONNECTIONS AND TELEPHONE RISER CONDUIT SIZES.

10 PROVIDE 12KV CONNECTION FROM HOUSING PROJECT AND EXTEND AS SHOWN.

11 PROVIDE TELECOM CONNECTION FROM EXISTING POWER POLE AS SHOWN.

12 CONTRACTOR IS RESPONSIBLE TO SUBMIT REVISED LAYOUT OF EQUIPMENT IN MAIN ELECTRICAL ROOM OR ELECTRICAL CLOSET FOR WRITTEN APPROVAL BY ENGINEER IF PROPOSED INSTALLATION LAYOUT DIFFERS FROM CONSTRUCTION DOCUMENTS. SUBMISSION MUST BE APPROVED PRIOR TO RELEASE OF ORDER FOR EQUIPMENT AND PRIOR TO INSTALLATION.

13 CONTRACTOR SHALL NOTIFY ARCHITECT TWO WEEKS PRIOR TO CORE DRILLING FOR FLOOR MONUMENTS TO PERMIT ON SITE VERIFICATION OF OUTLET POSITIONS. FLOOR SLAB SHALL BE MARKED TO INDICATE THE LOCATION OF EACH OUTLET PENETRATION TO ASSIST THE ARCHITECT IN PERFORMING HIS REVIEW. CORE DRILLING SHALL COMMENCE ONLY AFTER FIELD LAYOUTS HAVE BEEN REVIEWED AND APPROVED.

14 THE CONTRACTOR SHALL VISIT THE JOBSITE AND VERIFY ALL EXISTING CONDITIONS BEFORE BIDDING AND SHALL INCLUDE IN THE BID THE NECESSARY COSTS TO CONSTRUCT THIS PROJECT IN ACCORDANCE WITH THE ELECTRICAL DRAWINGS, SPECIFICATIONS AND ALL APPLICABLE CODES.

15 ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE LISTED BY UNDER-WRITERS LABORATORIES AND BEAR THEIR LABEL.

16 ALL MECHANICAL LINE AND LOW VOLTAGE CONTROL AND INTERLOCK WIRING SHALL BE PROVIDED UNDER DIVISION 23. THIS SHALL ALSO INCLUDE THE SHUTDOWN WIRING FROM THE FIRE ALARM OUTPUT RELAY ON ONE OF THE DUCT DETECTORS SERVING EACH AC UNIT.

17 CONTRACTOR SHALL REMOVE ALL LEFT OVER CONDUIT, WIRE, SCRAPS, ETC. AND LEAVE PREMISES CLEAN AND FREE OF TRASH OR DEBRIS RESULTING FROM HIS WORK.

18 CONTRACTOR SHALL REPORT TO THE OWNER'S ENGINEER ANY OBSERVATIONS OF CONDITIONS WHICH ARE DISCOVERED IN THE BUILDING WHICH WOULD PREVENT THE CORRECT INSTALLATION OF THE ELECTRICAL SYSTEM.

19 PROVIDE INDIVIDUAL GFCI RECEPTACLES AT EACH LOCATION SHOWN, DO NOT USE FEED-THRU GFCI TYPE RECEPTACLES. LOCATE RECEPTACLE AT END OF A BRANCH CIRCUIT WIRE.

20 PROVIDE RECORD DRAWINGS IN 2D. RECORD DRAWINGS SHALL SHOW, IN DETAIL, ALL CONDUIT ROUTING, CONDUIT RACKING, ETC.

21 ADHERE TO THE CAMPUS STANDARD ELECTRICAL SPECIFICATIONS IN PERFORMING WORK OUTLINED IN THESE DOCUMENTS.

22 VERIFY THE EXACT LOCATION OF ALL MECHANICAL PUMP AND FAN MOTORS. SPRINKLER VALVE MONITORS AND FLOW SWITCHES, DUCT SMOKE DETECTORS, CONTROL DEVICES, ETC. PRIOR TO DETERMINING CONDUIT TERMINATION POINTS.

23 COORDINATE ALL INCOMING ELECTRICAL SERVICE WORK WITH THE CAMPUS PRIOR TO INSTALLATION.

24 COORDINATE ALL INCOMING TELEPHONE SERVICE WORK WITH THE CAMPUS PRIOR TO INSTALLATION.

25 REFER TO LANDSCAPE ARCHITECT'S DRAWINGS FOR EXACT LOCATION OF STREET LIGHTING FIXTURES, LIGHT BOLLARDS, BENCH LIGHTS, STEP LIGHTS, WELL LIGHTS, TREE UP-LIGHTS, IRRIGATION CONTROLLERS, PULLBOXES, ETC.

26 PRIOR TO COMMENCING TRENCHING OPERATIONS, CONTACT THE UTILITIES UNDERGROUND SERVICE ALERT BUREAU AND DETERMINE THE EXACT LOCATION OF ANY EXISTING UTILITY LINES WHICH MIGHT BE DAMAGED DURING THE INSTALLATION OF THIS WORK. HAND TRENCH, BACKFILL AND COMPACT IN AREAS OF EXISTING UTILITY LINES TO AVOID DAMAGE TO SAME.

27 SIZE PULLBOXES TO MINIMUM CODE REQUIREMENTS. OBTAIN THE LANDSCAPE ARCHITECTS APPROVAL OF ANY PULLBOX(ES) ADDED TO FACILITATE THE INSTALLATION OF CONDUITS SHOWN ON THE PLANS.

28 COORDINATE LOCATIONS OF ALL SITE PULLBOXES, TRANSFORMER PADS AND TRENCHING WITH LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. UTILITY LINES SHALL BE A MINIMUM OF 10'-0" AWAY FROM TREE LOCATIONS.

29 CONDUIT ROUTING (WHERE SHOWN) IS ESSENTIALLY DIAGRAMMATIC. CONTRACTOR SHALL LAYOUT RUNS TO SUIT FIELD CONDITIONS AND THE COORDINATION REQUIREMENTS OF OTHER TRADES. PREPARE A DETAILED CONDUIT ROUTING DIAGRAM, INCLUDING MAJOR CONDUIT RUNS AND ALL BRANCH CIRCUIT CONNECTIONS (DOWN TO DEVICE LEVEL), LIGHT FIXTURE CONNECTIONS, CONTROLS, ETC. THIS DIAGRAM SHALL BE SUBMITTED AND APPROVED BY THE CAMPUS PRIOR TO ANY ROUGH-IN.

30 ALL CONDUIT AND RACEWAY PENETRATIONS THROUGH FIRE RATED WALLS AND FLOORS SHALL BE SEALED TO MAINTAIN THE FIRE SEPARATION RATING.

31 REFER TO STRUCTURAL DRAWINGS FOR CONDUIT INSTALLATION REQUIREMENTS AND LIMITATIONS AT FOOTINGS AND FOR CONDUIT RUNS IN OR THROUGH CONCRETE SLABS, JOISTS AND BEAMS.

32 ALL CONDUITS CROSSING EXPANSION JOINTS SHALL BE PROVIDED WITH SPECIFIED EXPANSION/DEFLECTION FITTINGS.

33 INSTALL FLAT TAPE NYLON PULL ROPE WITH DISTANCE MARKERS IN ALL EMPTY CONDUITS, AND DEVICES.

34 ALL LIGHTING FIXTURES NOT SHOWN CIRCUITED WITH CONDUIT AND WIRE SHALL BE CONNECTED USING CONDUIT AND WIRE. CONNECT FIXTURES AND DEVICES ACCORDING TO CIRCUIT NUMBERS ADJACENT TO FIXTURES OR LOCAL SWITCH CONTROL STATIONS.

35 REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF CEILING MOUNTED LIGHT FIXTURES AND LIFE SAFETY DEVICES. THESE DRAWINGS INDICATE APPROXIMATE LOCATIONS ONLY.

36 REFER TO ARCHITECTURAL ELEVATIONS FOR EXACT LOCATIONS OF WALL MOUNTED LIGHT FIXTURES. THESE DRAWINGS INDICATE APPROXIMATE LOCATIONS ONLY.

37 ALL LIGHTING FIXTURES SHALL BE LED WITH A MINIMUM OF 50,000 HOURS OF LIFE.

38 ALL 600V AND LESS CONDUCTORS SHALL BE STRANDED COPPER.

39 ALL 600V AND LESS ARE TO BE MANUFACTURED WITH CORRESPONDING PHASE COLOR INSULATION. PHASE TAPING OR OTHER MEANS OF FIELD MARK CONDUCTORS IS NOT ACCEPTABLE.

40 ALL EQUIPMENT THAT IS NOT CONNECTED VIA CORD AND PLUG SHALL BE PROVIDED WITH A LOCKABLE FUSED DISCONNECT WITHIN SITE OF THE EQUIPMENT, BUT NOT TO EXCEED 25 FEET FROM SUCH EQUIPMENT.

41 POWER AND TELECOM CONNECTIONS TO ELECTRIFIED PARTITIONS SHALL REMAIN ACCESSIBLE.

42 ALL DIVISION 26 SERVICES SUCH AS CONDUIT, CABLE TRAY, EQUIPMENT SUPPORTS, ETC. INSTALLED OVERHEAD IN EXPOSED BUILDING STRUCTURE AREAS SHALL BE FINISH PAINTED BY THE PROJECT PAINTING SUBCONTRACTOR. DIVISION 26 CONTRACTOR SHALL CLEAN AND PREP THESE ITEMS FOR THE FINAL FINISH PAINTING. ITEMS WHICH ARE TYPICALLY PROVIDED WITH A FACTORY PAINT FINISH SUCH AS CABLE TRAY SHALL INSTEAD BE PROVIDED WITH A FACTORY PRIMED FINISH TO ALLOW FOR THE FINAL ON-SITE PAINTING. SEE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF OVERHEAD EXPOSED BUILDING STRUCTURE.

43 PROVIDE RECORD DRAWINGS IN 2D. RECORD DRAWINGS SHALL SHOW, IN DETAIL, ALL CONDUIT ROUTING, CONDUIT RACKING, ETC.

ADD-2

95% CONSTRUCTION DOCUMENTS

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Consulting Engineers
1125 HIGH STREET
AUBURN, CA 95603
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REGISTERED PROFESSIONAL ENGINEER
SCOTT WHEELER
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Exp. 06/30/19
ELECTRICAL
STATE OF CALIFORNIA

SCHEDULES AND PROJECT NOTES
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E0.02
Project Number
07.11.2017
Revisions
ADD-2 ADDENDUM 2 2.09.18
FM01 FIRE MARSHALL BACKCHECK 1 4.6.18

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5/14/2018 4:35:09 PM

Branch Panel: LB

Location: ELECTRICAL 217	Supply From: MSB	Phases: 3	A.I.C. Rating: 10K AIC	Mains Rating: 100 A
Mounting: SURFACE	Volts: 120/208 Wye	Wires: 4	Mains Type: MLO	MCB Ratings:

LOAD SERVED	Amp	P...	#	A	B	C	#	P...	Amp	LOAD SERVED
LTG FIRST FLOOR	20 A	1	1	0.9 kVA 0.3 kVA			2	1	20 A	LTG EMERGENCY FIRST FL.
LTG FIRST FLOOR	20 A	1	3		0.9 kVA 1.7 kVA		4	1	20 A	LTG SECOND FLOOR
LTG EMERGENCY SECOND FL.	20 A	1	5			0.8 kVA 1.7 kVA	6	1	20 A	LTG SECOND FLOOR
INT. SIGNAGE BACK LIT...	20 A	1	7	0.6 kVA 0.4 kVA			8	1	20 A	LTG EXTERIOR
EXT. SIGNAGE BACK LIT...	20 A	1	9		0.2 kVA 0.2 kVA		10	1	20 A	LCP
LTG	20 A	1	11			0.1 kVA 0.1 kVA	12	1	20 A	EXT. LTG. WALLPACKS 2ND FL
SPARE	20 A	1	13	0.0 kVA 0.0 kVA			14	1	20 A	SPARE
SPARE	20 A	1	15		0.0 kVA 0.0 kVA		16	--	--	Space
(E) BATTING CAGE LTG	20 A	2	17			1.0 kVA 0.0 kVA	18	--	--	Space
--	--	--	19	1.0 kVA 0.0 kVA			20	--	--	Space
(E) BATTING CAGE LTG	20 A	2	21		1.0 kVA 0.0 kVA		22	--	--	Space
--	--	--	23			1.0 kVA 0.0 kVA	24	--	--	Space
Space	--	--	25	0.0 kVA 0.0 kVA			26	--	--	Space
Space	--	--	27		0.0 kVA 0.0 kVA		28	--	--	Space
Space	--	--	29			0.0 kVA 0.0 kVA	30	--	--	Space
Space	--	--	31	0.0 kVA 0.0 kVA			32	--	--	Space
Space	--	--	33		0.0 kVA 0.0 kVA		34	--	--	Space
Space	--	--	35			0.0 kVA 0.0 kVA	36	--	--	Space
Space	--	--	37	0.0 kVA 0.0 kVA			38	--	--	Space
Space	--	--	39		0.0 kVA 0.0 kVA		40	--	--	Space
Space	--	--	41			0.0 kVA 0.0 kVA	42	--	--	Space
		Total Load:		3.2 kVA	4.0 kVA	4.7 kVA				
		Total...		27 A	34 A	40 A				

Load Classification	Connected...	Demand Factor	Estimated...	Panel Totals	
EQUIP	0.4 kVA	100.00%	0.4 kVA	Total Conn. Load:	7.7 kVA
Lighting	7.0 kVA	125.00%	8.7 kVA	Total Est. Demand:	9.4 kVA
Power	0.4 kVA	100.00%	0.4 kVA	Total Conn.:	21 A
				Total Est. Demand:	26 A

Notes:

Branch Panel: LM

Location: ELECTRICA...	Supply From: MSB	Phases: 3	A.I.C. Rating: 10K AIC	Mains Rating: 225 A
Mounting: SURFACE	Volts: 120/208 Wye	Wires: 4	Mains Type: MLO	MCB Ratings:

LOAD SERVED	Amp	P...	#	A	B	C	#	P...	Amp	LOAD SERVED
REF-4 ROOF	20 A	1	1	0.5 kVA 0.5 kVA			2	1	20 A	REF-7 ROOF
REF-6 ROOF	20 A	1	3		0.5 kVA 0.5 kVA		4	1	20 A	REF-5 ROOF
REF-8 ROOF	20 A	1	5			0.5 kVA 1.3 kVA	6	2	20 A	FC-3,4 (108),FC-7 (112)
FC-1 (105), FC-2 (123)	20 A	2	7	0.1 kVA 1.3 kVA			8	--	--	--
--	--	--	9		0.1 kVA 0.4 kVA		10	1	20 A	IEF-3 RM 127
REF-9 ROOF	20 A	1	11			0.5 kVA 0.3 kVA	12	1	20 A	GWH-1,2 ; CP-1 (108)
CU-1A EXTERIOR	45 A	3	13	4.6 kVA 6.6 kVA			14	3	70 A	CU-1B EXTERIOR
--	--	--	15		4.6 kVA 6.6 kVA		16	--	--	--
--	--	--	17			4.6 kVA 6.6 kVA	18	--	--	--
SCU-2	20 A	2	19	1.2 kVA 1.2 kVA			20	2	20 A	SCU-1
--	--	--	21		1.2 kVA 1.2 kVA		22	--	--	--
FC-5,6 (108)	20 A	2	23			1.3 kVA 0.0 kVA	24	1	20 A	SPARE
--	--	--	25	1.3 kVA 0.0 kVA			26	1	20 A	SPARE
BSB-1,2,3 (108)	20 A	2	27		0.1 kVA 0.0 kVA		28	1	20 A	SPARE
--	--	--	29			0.1 kVA 0.0 kVA	30	1	20 A	SPARE
Space	--	--	31	0.0 kVA 1.6 kVA			32	3	40 A	GRINDER PUMPS
Space	--	--	33		0.0 kVA 1.6 kVA		34	--	--	--
Space	--	--	35			0.0 kVA 1.6 kVA	36	--	--	--
Space	--	--	37	0.0 kVA 0.0 kVA			38	--	--	Space
Space	--	--	39		0.0 kVA 0.0 kVA		40	--	--	Space
Space	--	--	41			0.0 kVA 0.0 kVA	42	--	--	Space
		Total Load:		18.8 kVA	16.7 kVA	16.8 kVA				
		Total...		157 A	139 A	140 A				

Load Classification	Connected...	Demand Factor	Estimated...	Panel Totals	
MECHANICAL	52.3 kVA	109.47%	57.2 kVA	Total Conn. Load:	52.3 kVA
				Total Est. Demand:	57.2 kVA
				Total Conn.:	145 A
				Total Est. Demand:	159 A

Notes:

Branch Panel: LA

Location: ELECTRICA...	Supply From: MSB	Phases: 3	A.I.C. Rating: 10K AIC	Mains Rating: 225 A
Mounting: SURFACE	Volts: 120/208 Wye	Wires: 4	Mains Type: MLO	MCB Ratings:

LOAD SERVED	Amp	P...	#	A	B	C	#	P...	Amp	LOAD SERVED
{2} REC LOCKER RM 128	20 A	1	1	0.9 kVA 0.8 kVA			2	1	20 A	REC RM 122, 121
{2} REC LOCKER RM 128	20 A	1	3		1.1 kVA 0.5 kVA		4	1	20 A	REC. RM. 208, 202
{2} REC LOCKER RM 128	20 A	1	5			0.7 kVA 0.9 kVA	6	1	20 A	REC TAPING RM 105
{2} REC LOCKER RM 128	20 A	1	7	1.6 kVA 0.7 kVA			8	1	20 A	REC RM 127, 126
{2} REC LOCKER RM 128	20 A	1	9		0.9 kVA 1.0 kVA		10	1	20 A	REC RM105, 124, 123
{2} REC LOCKER RM 128	20 A	1	11			1.1 kVA 1.1 kVA	12	1	20 A	REC RM 120-2, 107, 121
{2} REC LOCKER RM 128	20 A	1	13	1.1 kVA 1.3 kVA			14	1	20 A	REC FIRST FLOOR EXTERIOR
{2} REC LOCKER RM 128	20 A	1	15		1.3 kVA 1.8 kVA		16	1	20 A	MONITORS
REC IT RM 219	20 A	1	17			0.9 kVA 1.7 kVA	18	1	20 A	REC MENS RM 105
REC HALLWAY RM 115	20 A	1	19	1.3 kVA 0.5 kVA			20	1	20 A	REC MULTIPURPOSE RM104
REC HALLWAY RM 115	20 A	1	21		0.9 kVA 1.1 kVA		22	1	20 A	REC HEAD COACH RM 116
REC RM 116	20 A	1	23			1.1 kVA 1.1 kVA	24	1	20 A	REC HALLWAY RM115
REC MULTIPURPOSE RM 104	20 A	1	25	1.1 kVA 0.4 kVA			26	1	20 A	REC EXT DECK/PATIO
REC HALLWAY RM 115	20 A	1	27		1.1 kVA 0.5 kVA		28	1	20 A	REC POWER EXTER ROOF
{2} REC ICE POD-TUB RM 130	20 A	1	29			0.5 kVA 0.5 kVA	30	1	20 A	{2} REC ICE POD-TUB RM 130
REC ELEV. SUP PUMP RM 107	20 A	1	31	0.2 kVA 0.2 kVA			32	1	20 A	ICE MACHINE
REFRIGERATOR	20 A	1	33		0.2 kVA 1.7 kVA		34	1	20 A	DRYER RM 127
BMS	20 A	1	35			0.2 kVA 1.7 kVA	36	1	20 A	DRYER RM 127
WASHING MACHINE RM 127	20 A	3	37	0.7 kVA 0.7 kVA			38	3	20 A	WASHING MACHIINE RM 127
--	--	--	39		0.7 kVA 0.7 kVA		40	--	--	--
--	--	--	41			0.7 kVA 0.7 kVA	42	--	--	--
{1} FACP	20 A	1	43	0.2 kVA 1.2 kVA			44	1	20 A	IT RACK
GARBAGE DISPOSAL RM 114	20 A	1	45		0.2 kVA 1.2 kVA		46	1	20 A	IT RACK
AUTO DOOR	20 A	1	47			0.2 kVA 0.2 kVA	48	1	20 A	EXTERIOR REC
REC VIDEO ROOM 212	20 A	1	49	0.4 kVA 0.2 kVA			50	1	20 A	EXTERIOR REC
SPARE	20 A	1	51		0.0 kVA 0.2 kVA		52	1	20 A	EXTERIOR REC
GARBAGE DISPOSAL RM 121	20 A	1	53			0.2 kVA 0.2 kVA	54	1	20 A	EXTERIOR REC
ELEVATOR CAB LIGHTS RM...	20 A	1	55	0.3 kVA 0.2 kVA			56	1	20 A	INTRUSION PANEL
HAND DRYER RM 205	20 A	1	57		1.3 kVA 1.3 kVA		58	1	20 A	HAND DRYER RM 215
HAND DRYER RM 206	20 A	1	59			1.3 kVA 1.3 kVA	60	1	20 A	HAND DRYER RM 207
EXTERIOR SPECIALTY...	50 A	3	61	3.0 kVA 1.3 kVA			62	1	20 A	HAND DRYER RM 113
--	--	--	63		3.0 kVA 1.3 kVA		64	1	20 A	HAND DRYER RM 114
--	--	--	65			3.0 kVA 1.3 kVA	66	1	20 A	HAND DRYER RM 104
HAND DRYER RM 122	20 A	1	67	1.3 kVA 0.0 kVA			68	1	20 A	SPARE
(E) REC - DUGOUTS	20 A	1	69		0.4 kVA 0.0 kVA		70	1	20 A	SPARE
(E) REC - DUGOUTS	20 A	1	71			0.4 kVA 0.0 kVA	72	1	20 A	SPARE
(E) REC - DUGOUTS	20 A	1	73	0.4 kVA 0.0 kVA			74	--	--	Space
(E) LTG - DUGOUTS	20 A	1	75		0.5 kVA 0.0 kVA		76	--	--	Space
MOTORIZED BLINDS	20 A	1	77			3.0 kVA 0.0 kVA	78	--	--	Space
Space	--	--	79	0.0 kVA 0.0 kVA			80	--	--	Space
Space	--	--	81		0.0 kVA 0.0 kVA		82	--	--	Space
Space	--	--	83			0.0 kVA 0.0 kVA	84	--	--	Space
		Total Load:		19.7 kVA	22.8 kVA	23.8 kVA				
		Total...		164 A	193 A	202 A				

Load Classification	Connected...	Demand Factor	Estimated...	Panel Totals	
EQUIP	0.2 kVA	100.00%	0.2 kVA	Total Conn. Load:	64.7 kVA
Other	2.9 kVA	100.00%	2.9 kVA	Total Est. Demand:	56.7 kVA
Receptacle	27.5 kVA	68.20%	18.7 kVA	Total Conn.:	179 A
Lighting	3.3 kVA	125.00%	4.1 kVA	Total Est. Demand:	158 A
MECHANICAL	0.1 kVA	112.50%	0.1 kVA		
Power	30.7 kVA	100.00%	30.7 kVA		

Notes:
{1} CIRCUIT SERVING FIRE ALARM LOAD SHALL BE IDENTIFIED WITH RED MARKINGS, LABELLING AND BREAKER LOCK AS REQUIRED BY CODE 2016 CFC/CBC SECTION 907, 2016 NFPA 72 SECTION 10.6 AND 2016 CEC SECTION 760.
{2} PROVIDE GFCI CIRCUIT BREAKER.

RELAY PANEL SCHEDULE

PANEL NAME:	LCP	VOLTAGE:	FEED-THROUGH	MOUNTING:	SURFACE
LOCATION:	ELECTRICAL ROOM 110	INPUT POWER:	120V	ENCLOSURE:	NEMA 1, IP20

CONTROL RELAY			CIRCUIT CONTROLLED				EXTERNAL CONTROL		
NUMBER	VOLTAGE	AMP	PANEL	CIRCUIT	ZONE	AREA SERVED	TIME	DAYLIGHT	OCC.
1	120V	20	LB	11g		LEVEL 1 DOWNLIGHTS	OFF 2	ON 1	NO
2	120V	20	LB	7		LEV 2: INTERIOR BACKLIT GRAPHICS	ON/OFF 2	NO	NO
3	120V	20	LB	8		LEV 2: EXTERIOR ENTRY DOWNLIGHTS (F15A'S)	ON/OFF 2	NO	NO
4	120V	20	LB	4h		LEV 2: BALCONY TAPE LIGHT (F13)	OFF 2	ON 1	NO
5	120V	20	LB	12		LEV 2: WALLPACKS	ON/OFF	NO	NO
6	120V	20	LB	9		LEV 2: EXTERIOR BACKLIT GRAPHICS	ON/OFF	ON 1	NO
7	120V	20	LB	5i		LEV 2: BALCONY DOWNLIGHTS	OFF 2	ON 1	NO
8	120V	20							

NOTES:
1. PROVIDE PHOTOCELL AND CONNECT TO LCP.
2. FIXTURES TO HAVE A LOCAL SWITCH/DIMMER. LCP TO ACTIVATE SWITCH BASED ON TIME AND/OR PHOTOCELL.

SPEAKER SCHEDULE

Speaker Type	Speaker Type	Power/Setting	Indoor/Outdoor	Mount	Cable
S1	70V	60W	Multi-Purpose	Ceiling	14 Gauge
S2	70V	30W	Conference Rm	Ceiling	14 Gauge

COPPER FEEDER SCHEDULE

FEEDER TAG	FEEDER DESCRIPTION	CONDUIT	CONDUCTORS PHASE/NEUTRAL	CONDUCTORS GROUND	REMARKS
40004	4000 AMP,3 PHASE,4 WIRE	11-3.50"	11 SETS OF 4 #500 KCMIL	1 #500 KCMIL/SET	-
40003	4000 AMP,3 PHASE,3 WIRE	11-3.00"	11 SETS OF 3 #500 KCMIL	1 #500 KCMIL/SET	-
35004	3500 AMP,3 PHASE,4 WIRE	10-3.50"	10 SETS OF 4 #500 KCMIL	1 #500 KCMIL/SET	-
35003	3500 AMP,3 PHASE,3 WIRE	10-3.00"	10 SETS OF 3 #500 KCMIL	1 #500 KCMIL/SET	-
30004	3000 AMP,3 PHASE,4 WIRE	8-3.50"	8 SETS OF 4 #500 KCMIL	1 #400 KCMIL/SET	-
30003	3000 AMP,3 PHASE,3 WIRE	8-3.00"	8 SETS OF 3 #500 KCMIL	1 #400 KCMIL/SET	-
25004	2500 AMP,3 PHASE,4 WIRE	7-3.50"	7 SETS OF 4 #500 KCMIL	1 #350 KCMIL/SET	-
25003	2500 AMP,3 PHASE,3 WIRE	7-3.00"	7 SETS OF 3 #500 KCMIL	1 #350 KCMIL/SET	-
20004	2000 AMP,3 PHASE,4 WIRE	6-3.00"	6 SETS OF 4 #400 KCMIL	1 #250 KCMIL/SET	-
20003	2000 AMP,3 PHASE,3 WIRE	6-3.00"	6 SETS OF 3 #400 KCMIL	1 #250 KCMIL/SET	-
16004	1600 AMP,3 PHASE,4 WIRE	5-3.00"	5 SETS OF 4 #400 KCMIL	1 #4/0 PER SET	-
16003	1600 AMP,3 PHASE,3 WIRE	5-3.00"	5 SETS OF 3 #400 KCMIL	1 #4/0 PER SET	-
14004	1400 AMP,3 PHASE,4 WIRE	4-3.50"	4 SETS OF 4 #500 KCMIL	1 #4/0 PER SET	-
14003	1400 AMP,3 PHASE,3 WIRE	4-3.50"	4 SETS OF 3 #500 KCMIL	1 #4/0 PER SET	-
12004K	1200 AMP,3 PHASE,4 WIRE	4-3.00"	4 SETS OF 3 #400 KCMIL, 1 #500 KCMIL NEU.	1 #3/0 PER SET	(1)
12004	1200 AMP,3 PHASE,4 WIRE	4-3.00"	4 SETS OF 4 #350 KCMIL	1 #3/0 PER SET	-
12003	1200 AMP,3 PHASE,3 WIRE	4-2.50"	4 SETS OF 3 #350 KCMIL	1 #3/0 PER SET	-
10004	1000 AMP,3 PHASE,4 WIRE	3-3.00"	3 SETS OF 4 #400 KCMIL	1 #2/0 PER SET	-
10003	1000 AMP,3 PHASE,3 WIRE	3-3.00"	3 SETS OF 3 #400 KCMIL	1 #2/0 PER SET	-
9004K	900 AMP,3 PHASE,4 WIRE	3-3.00"	3 SETS OF 3 #400 KCMIL, 1 #500 KCMIL NEU.	1 #2/0 PER SET	(1)
8004K	800 AMP,3 PHASE,4 WIRE	3-3.00"	3 SETS OF 3 #300 KCMIL, 1 #500 KCMIL NEU.	1 #1/0 PER SET	(1)
8004	800 AMP,3 PHASE,4 WIRE	3-3.00"	3 SETS OF 4 #300 KCMIL	1 #1/0 PER SET	-
8003	800 AMP,3 PHASE,3 WIRE	2-3.00"	2 SETS OF 3 #500 KCMIL	1 #1/0 PER SET	-
7004	700 AMP,3 PHASE,4 WIRE	2-3.50"	2 SETS OF 4 #500 KCMIL	1 #1/0 PER SET	-
7003	700 AMP,3 PHASE,3 WIRE	2-3.00"	2 SETS OF 3 #400 KCMIL	1 #1/0 PER SET	-
6004K	600 AMP,3 PHASE,4 WIRE	2-3.00"	2 SETS OF 3 #400 KCMIL, 1 #500 KCMIL NEU.	1 #1 PER SET	(1)
6004	600 AMP,3 PHASE,4 WIRE	2-3.00"	2 SETS OF 4 #350 KCMIL	1 #1 PER SET	-
6003	600 AMP,3 PHASE,3 WIRE	2-2.50"	2 SETS OF 3 #350 KCMIL	1 #1 PER SET	-
5004K	500 AMP,3 PHASE,4 WIRE	2-3.00"	2 SETS OF 3 #250 KCMIL, 1 #500 KCMIL NEU.	1 #2 PER SET	(1)
5004	500 AMP,3 PHASE,4 WIRE	2-2.50"	2 SETS OF 4 #250 KCMIL	1 #2 PER SET	-
5003	4000 AMP,3 PHASE,3 WIRE	2-2.00"	2 SETS OF 3 #250 KCMIL	1 #2 PER SET	-
4504K	450 AMP,3 PHASE,4 WIRE	2-2.50"	2 SETS OF 3 #250 KCMIL, 2 #2/0 NEU.	1 #2 PER SET	(1)
4504	450 AMP,3 PHASE,4 WIRE	2-2.50"	2 SETS OF 4 #4/0	1 #2 PER SET	-
4503	450 AMP,3 PHASE,3 WIRE	2-2.00"	2 SETS OF 3 #4/0	1 #2 PER SET	-
4004K	400 AMP,3 PHASE,4 WIRE	2-2.50"	2 SETS OF 3 #3/0, 1 #350 KCMIL NEU.	1 #2 PER SET	(1)
4004	400 AMP,3 PHASE,4 WIRE	1-4.00"	4 #500 KCMIL	1 #2	-
S4004	400 AMP,3 PHASE,4 WIRE	1-4.00"	4 #500 KCMIL	1 #1/0	-
4003	400 AMP,3 PHASE,3 WIRE	1-3.00"	3 #500 KCMIL	1 #2	-
3504K	350 AMP,3 PHASE,4 WIRE	1-3.50"	3 #500 KCMIL, 2 #250 KCMIL NEU.	1 #2	(1)
3504	350 AMP,3 PHASE,4 WIRE	1-2.50"	4 #400 KCMIL	1 #2	-
S3504	350 AMP,3 PHASE,4 WIRE	1-3.00"	4 #400 KCMIL	1 #1/0	-
3503	350 AMP,3 PHASE,3 WIRE	1-2.50"	3 #400 KCMIL	1 #2	-
3004K	300 AMP,3 PHASE,4 WIRE	1-3.00"	3 #350 KCMIL, 2 #4/0 NEU.	1 #4	(1)
3004	300 AMP,3 PHASE,4 WIRE	1-3.00"	4 #350 KCMIL	1 #4	-
S3004	300 AMP,3 PHASE,4 WIRE	1-3.00"	4 #350 KCMIL	1 #2	-
3003	300 AMP,3 PHASE,3 WIRE	1-2.50"	3 #350 KCMIL	1 #4	-
2754	275 AMP,3 PHASE,4 WIRE	1-3.00"	4 #300 KCMIL	1 #4	-
S2754	275 AMP,3 PHASE,4 WIRE	1-3.00"	4 #300 KCMIL	1 #2	-
2753	275 AMP,3 PHASE,3 WIRE	1-2.50"	3 #300 KCMIL	1 #4	-
2504K	250 AMP,3 PHASE,4 WIRE	1-3.00"	3 #250 KCMIL, 1 #500 KCMIL NEU.	1 #4	(1)
2504	250 AMP,3 PHASE,4 WIRE	1-2.50"	4 #250 KCMIL	1 #4	-
S2504	250 AMP,3 PHASE,4 WIRE	1-2.50"	4 #250 KCMIL	1 #2	-
2503	250 AMP,3 PHASE,3 WIRE	1-2.00"	3 #250 KCMIL	1 #4	-
2254K	225 AMP,3 PHASE,4 WIRE	1-3.00"	3 #4/0, 1 #400 KCMIL NEU.	1 #4	(1)
2254	225 AMP,3 PHASE,4 WIRE	1-2.50"	4 #4/0	1 #4	-
S2254	225 AMP,3 PHASE,4 WIRE	1-2.50"	4 #4/0	1 #2	-
2253	225 AMP,3 PHASE,3 WIRE	1-2.00"	3 #4/0	1 #4	-
2004K	200 AMP,3 PHASE,4 WIRE	1-2.50"	3 #3/0, 1 #350 KCMIL NEU.	1 #6	(1)
2004	200 AMP,3 PHASE,3 WIRE	1-2.00"	4 #3/0	1 #6	-
S2004	200 AMP,3 PHASE,3 WIRE	1-2.00"	4 #3/0	1 #4	-
2003	200 AMP,3 PHASE,3 WIRE	1-2.00"	3 #3/0	1 #6	-
1754K	175 AMP,3 PHASE,4 WIRE	1-2.00"	3 #2/0, 1 #4/0 NEU.	1 #6	(1)
1754	175 AMP,3 PHASE,4 WIRE	1-2.00"	4 #2/0	1 #6	-
S1754	175 AMP,3 PHASE,4 WIRE	1-2.00"	4 #2/0	1 #4	-
1753	175 AMP,3 PHASE,3 WIRE	1-1.50"	3 #2/0	1 #6	-
1504K	150 AMP,3 PHASE,4 WIRE	1-2.00"	3 #1/0, 1 #4/0 NEU.	1 #6	(1)
1504	150 AMP,3 PHASE,4 WIRE	1-1.50"	4 #1/0	1 #6	-
S1504	150 AMP,3 PHASE,4 WIRE	1-1.50"	4 #1/0	1 #6	-
1503	150 AMP,3 PHASE,3 WIRE	1-1.50"	4 #1/0	1 #6	-
1254	125 AMP,3 PHASE,4 WIRE	1-1.50"	4 #1	1 #6	-
S1254	125 AMP,3 PHASE,4 WIRE	1-1.50"	4 #1	1 #6	-
1253	125 AMP,3 PHASE,3 WIRE	1-1.25"	3 #1	1 #6	-
1004K	100 AMP,3 PHASE,4 WIRE	1-1.50"	3 #1, 1 #1/0 NEU.	1 #8	(1)
1004	100 AMP,3 PHASE,4 WIRE	1-1.50"	4 #1	1 #8	-
S1004	100 AMP,3 PHASE,4 WIRE	1-1.50"	4 #1	1 #6	-
1003	100 AMP,3 PHASE,3 WIRE	1-1.25"	3 #1	1 #8	-
904	90 AMP,3 PHASE,4 WIRE	1-1.25"	4 #2	1 #8	-
S904	90 AMP,3 PHASE,4 WIRE	1-1.25"	4 #2	1 #8	-
903	90 AMP,3 PHASE,3 WIRE	1-1.25"	3 #2	1 #8	-
804	80 AMP,3 PHASE,4 WIRE	1-1.25"	4 #4	1 #8	-
S804	80 AMP,3 PHASE,4 WIRE	1-1.25"	4 #4	1 #8	-
803	80 AMP,3 PHASE,3 WIRE	1-1.00"	3 #4	1 #8	-
704	70 AMP,3 PHASE,4 WIRE	1-1.25"	4 #4	1 #8	-
S704	70 AMP,3 PHASE,4 WIRE	1-1.25"	4 #4	1 #8	-
703	70 AMP,3 PHASE,3 WIRE	1-1.00"	3 #4	1 #8	-
604K	60 AMP,3 PHASE,4 WIRE	1-1.25"	3 #6, 1#2 NEU.	1 #10	(1)
604	60 AMP,3 PHASE,4 WIRE	1-1.25"	4 #6	1 #10	-
S604	60 AMP,3 PHASE,4 WIRE	1-1.25"	4 #6	1 #8	-
603	60 AMP,3 PHASE,3 WIRE	1-1.00"	3 #6	1 #10	-
504K	50 AMP,3 PHASE,4 WIRE	1-1.00"	3 #8, 1#4 NEU.	1 #10	(1)
504	50 AMP,3 PHASE,4 WIRE	1-1.00"	4 #6	1 #10	-
S504	50 AMP,3 PHASE,4 WIRE	1-1.00"	4 #6	1 #8	-
503	50 AMP,3 PHASE,4 WIRE	1-0.75"	3 #8	1 #10	-
404K	40 AMP,3 PHASE,4 WIRE	1-1.00"	3 #8, 1#4 NEU.	1 #10	(1)
404	40 AMP,3 PHASE,4 WIRE	1-0.75"	4 #8	1 #10	-
S404	40 AMP,3 PHASE,4 WIRE	1-0.75"	4 #8	1 #8	-
403	30 AMP,3 PHASE,4 WIRE	1-0.75"	3 #8	1 #10	-
304K	30 AMP,3 PHASE,4 WIRE	1-0.75"	3 #10, 1#6 NEU.	1 #10	(1)
304	30 AMP,3 PHASE,4 WIRE	1-0.75"	4 #10	1 #10	-
303	30 AMP,3 PHASE,3 WIRE	1-0.75"	3 #10	1 #10	-
204	20 AMP,3 PHASE,4 WIRE	1-0.75"	4 #12	1 #12	-
203	20 AMP,3 PHASE,3 WIRE	1-0.75"	3 #12	1 #12	-
154	15 AMP,3 PHASE,4 WIRE	1-0.75"	4 #12	1 #12	-
153	15 AMP,3 PHASE,3 WIRE	1-0.75"	3 #12	1 #12	-

FEEDER SCHEDULE GENERAL NOTES

1. CONDUCTORS AND CONDUITS SHOWN IN THIS SCHEDULE ARE BASED ON COPPER CONDUCTORS WITH THHN/THWN INSULATION.
2. FEEDERS CONSISTING OF MULTIPLE SETS OF CONDUTORS AND CONDUITS ARE TO BE PROVIDED WITH THE INDICATED SIZE GROUND CONDUCTOR IN EACH CONDUIT.

FEEDER SCHEDULE REMARK

(1) OVERSIZED NEUTRAL FOR SERVICE FROM K-13 RATED TRANSFORMERS.

Switchboard: MSB

Location: ELECTRICAL 217	Served From:	Phases: 3	A.I.C....: NOTE 1	Bus Rating: NOTE 1
Mounting: SURFACE	Volts: 120/208 Wye	Wires: 4	Main Type: MCB	Main Rating: NOTE 1

CKT	Circuit Description	Load	Remarks
1	LA	66.2 kVA	
2	LB	11.9 kVA	
3	LM	52.3 kVA	
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
		124.6 kVA	
		346 A	

Load Classification	Connected Load	Demand Factor	Estimated...	Panel Totals	
EQUIP	0.6 kVA	100.00%	0.6 kVA	Total Conn. Load:	124.6 kVA
Other	2.9 kVA	100.00%	2.9 kVA	Total Est. Demand:	123.4 kVA
Lighting	10.2 kVA	125.00%	12.8 kVA	Total Conn.:	346 A
Receptacle	27.5 kVA	68.20%	18.7 kVA	Total Est. Demand:	342 A
MECHANICAL	52.4 kVA	109.45%	57.3 kVA		
Power	31.0 kVA	100.00%	31.0 kVA		

Notes: 1. REFER TO A/E6.01 FOR ADDITIONAL INFORMATION

95% CONSTRUCTION DOCUMENTS

The Engineering Enterprise
Consulting Engineers
1125 HIGH STREET
AUBURN, CA 95603
(530) 886-8556

REGISTERED PROFESSIONAL ENGINEER SCOTT WHEELER No. E015491 Exp. 06/30/19 ELECTRICAL STATE OF CALIFORNIA

SCHEDULES
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E0.03
Project Number
07.11.2017
Revisions
BV01 BUREAU VERITAS 10.06.17
BV02 BUREAU VERITAS 11.09.17
ADD-2 ADDENDUM 2 2.09.18
FM01 FIRE MARSHALL BACKCHECK 1 4.6.18

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
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STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 1 of 6)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

A. General Information

Climate Zone: 5	Conditioned Floor Area:			
	Unconditioned Floor Area:			
Building Type:	☐ Nonresidential	☐ High-Rise Residential	☐ Hotel/Motel	
☑ Schools	☐ Relocatable Public Schools	☑ Conditioned Spaces	☐ Unconditioned Spaces	
Phase of Construction:	☐ New Construction	☐ Addition	☑ Alteration	
Method of Compliance:	☐ Complete Building	☑ Area Category	☐ Tailored	
Project Address: San Luis Obispo, CA 93407				

B. LIGHTING COMPLIANCE DOCUMENTS (select yes for each document included)
For detailed instructions on the use of this and all Energy Efficiency Standards compliance documents, refer to the Nonresidential Manual published by the California Energy Commission.

YES	NO	FORM	TITLE
◉	○	NRCC-LTI-01-E	Certificate of Compliance. All Pages required on plans for all submittals.
◉	○	NRCC-LTI-02-E	Lighting Controls, Certificate of Compliance, and PAF Calculation. All Pages required on plans for all submittals.
◉	○	NRCC-LTI-03-E	Indoor Lighting Power Allowance
○	○	NRCC-LTI-04-E	Tailored Method Worksheets
○	○	NRCC-LTI-05-E	Line Voltage Track Lighting Worksheets
○	○	NRCC-LTI-06-E	Line Voltage Track Lighting Worksheets

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 2 of 6)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

C. Summary of Allowed Lighting Power
Conditioned and Unconditioned space Lighting must not be combined for compliance

	Indoor Lighting Power for Conditioned Spaces		Watts	Indoor Lighting Power for Unconditioned Spaces		Watts
01	**Installed** Lighting NRCC-LTI-01-E, Table H, page 5	+	5,940	**Installed** Lighting NRCC-LTI-01-E, Table H, page 5	+	
02	PORTABLE ONLY FOR OFFICES NRCC-LTI-01-E, Table G, page 4	+				
03	Minus Lighting Control Credits NRCC-LTI-02-E, page 2	-		Minus Lighting Control Credits NRCC-LTI-01-E, page 2	-	
04	Adjusted **Installed** Lighting Power (row 1 plus row 2 minus row 3)	=	5,940	Adjusted **Installed** Lighting Power (row 1 plus row 2 minus row 3)	=	
	Complies ONLY if **Installed** <= **Allowed** (Box 04 < Box 05)		↕	Complies ONLY if **Installed** <= **Allowed** (Box 04 < Box 05)		
05	**Allowed** Lighting Power Conditioned NRCC-LTI-03-E, page 1 Alterations with replacement luminaires that have at least 50/35%lower power compared to the original existing luminaires, may instead use the allowed wattage from NRCC-LTI-06, page 2		6,849	**Allowed** Lighting Power Unconditioned NRCC-LTI-03-E, page 1 Alterations with replacement luminaires that have at least 50/35%lower power compared to the original existing luminaires, may instead use the allowed wattage from NRCC-LTI-06, page 2		

D. Declaration of Required Installation Certificates
Declare by selecting yes for all Installation Certificates that will be submitted. (Retain copies and verify forms are completed and signed.)

YES	NO	FORM/TITLE	
◉	○	NRCI-LTI-01-E - Must be submitted for all buildings	☐ Field Inspector
◉	○	NRCI-LTI-02-E - Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐ Field Inspector
◉	○	NRCI-LTI-03-E - Must be submitted for a line-voltage track lighting integral current limiter, or for a supplementary overcurrent protection panel used to energize only line-voltage track lighting, to be recognized for compliance.	☐ Field Inspector
○	◉	NRCI-LTI-04-E - Must be submitted for two interlocked systems serving an auditorium, a convention center, a conference room, a multipurpose room, or a theater to be recognized for compliance.	☐ Field Inspector
○	◉	NRCI-LTI-05-E - Must be submitted for a Power Adjustment Factor (PAF) to be recognized for compliance.	☐ Field Inspector
○	◉	NRCI-LTI-06-E - Must be submitted for additional wattage installed in a video conferencing studio to be recognized for compliance.	☐ Field Inspector

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 3 of 6)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

E. Declaration of Required Certificates of Acceptance
Declare by checking all of the Certificates of Acceptance that will be submitted. (Retain copies and verify forms are completed and signed.)

YES	NO	FORM/TITLE	
◉	○	NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	☐ Field Inspector
◉	○	NRCA-LTI-03-A - Must be submitted for automatic daylight controls.	☐ Field Inspector
○	○	NRCA-LTI-04-A - Must be submitted for demand responsive lighting controls.	☐ Field Inspector
○	○	NRCA-LTI-05-A - Must be submitted for institutional tuning power adjustment factor (PAF)	☐ Field Inspector

A separate Lighting Schedule Must Be Filled Out for Conditioned and Unconditioned Spaces. Installed Lighting Power listed on this Lighting Schedule is only for:
☑ **CONDITIONED SPACE** ☐ **UNCONDITIONED SPACE**

F. INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST
☑ The actual indoor lighting power listed on this page and on the next page includes all installed permanent and planned portable lighting systems.
☐ When Complete Building Method is used for compliance, list each different type of luminaire on separate lines.
☑ When Area Category Method or Tailored Method is used for compliance, list each different type of luminaire by each different function area on separate lines
☐ Also include track lighting in schedule, and submit the track lighting compliance form (NRCC-LTI-05-E) when line-voltage track lighting is installed.

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 4 of 6)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

G. Installed Portable Luminaires in Offices - Exception to Section 140.G(a)
- This section shall be filled out ONLY for portable luminaires in offices (As defined in §100.1). All other planned portable luminaires shall be documented on next page of this compliance form.
- This section is used to determine if greater than 0.3 watts of portable lighting is planned for any office
- Fill out a separate line for each different office. Small offices that are typical (having the same general and portable lighting) may be grouped together. This allowance shall not be traded between offices having different lighting systems.

Office Portable Luminaire Schedule	Office Installed Portable Luminaire W/ft ²							Office Location	Field Inspector	
01	02	03	04	05	06	07	08	09	10	
Complete Luminaire Description (i.e., LED, under cabinet, furniture mounted direct/indirect)	Watts per Luminaire	Number of Luminaires	Installed portable luminaire watts in this office (G02 x G03)	Square feet of this office	Watts per square foot (G04/G05)	If G06 <= 0.3, enter zero; if G06> 0.3, (G06-0.3)	(G05 x G07)	Identify Office area in which these portable luminaires are installed	Pass	Fail
									○	○
									○	○
									○	○
									○	○
									○	○
Total installed portable luminaire watts that are greater than 0.3 watts per square foot per office:								Enter sum total of all pages into NRCC- LTI-01-E; page 2		

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 5 of 6)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

A separate Lighting Schedule Must Be Filled Out for Conditioned and Unconditioned Spaces. Installed Lighting Power listed on this Lighting Schedule is only for:
☑ **CONDITIONED SPACE** ☐ **UNCONDITIONED SPACE**

H. INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Luminaire Schedule		Installed Watts					Location	Inspector	
01	02	03	04		05	06	07	08	
Name or Item Tag	Complete Luminaire Description (i.e, 3 lamp fluorescent troffer, F32T8, one dimmable electronic ballast}	Watts per Luminaire	How wattage was determined: CEC Default NA8	According to §130.0(c)	Number of Luminaires	Total Installed Watts in this area (H03 x H05)	Primary Function area in which these luminaires are installed	Pass	Fail
F1,F1B	LED STRIP LIGHT	30	☐	☑	12	360		○	○
F1A	LED STRIP LIGHT	60	☐	☑	1	60		○	○
F1B	LED STRIP LIGHT	30	☐	☑	6	180		○	○
F2	ARCHITECTURAL LED STAIRWELL FIXTURE	40	☐	☑	3	120		○	○
F3	UTILITY LUMINAIRE	13.5	☐	☐	2	27		○	○
F4	LED DOWNLIGHT	17.3	☐	☑	13	225		○	○
F4A	LED DOWNLIGHT	17.3	☐	☑	9	156		○	○
F5	SQUARE SLIM SURFACE LED	17.5	☐	☑	7	123		○	○
F6	LED TROFFER	30	☐	☑	10	300		○	○
F7/X	WALL TO WALL PERIMETER LED	7	☐	☑	83	581		○	○
F8/X	RECESSED LINEAR LED	2	☐	☑	140	280		○	○
F8A/X	RECESSED LINEAR LED	2	☐	☑	31	62		○	○
F9/X	RECESSED LINEAR SLOT FIXTURE	3.6	☐	☑	83	299		○	○
F10	CIRCULAR LED	50	☐	☑	3	150		○	○
F10A	CIRCULAR LED	50	☐	☑	3	150		○	○
F11/2	CIRCULAR DIRECT/INDIRECT LED	47	☐	☑	8	376		○	○
F11/4'	CIRCULAR DIRECT/INDIRECT LED	94	☐	☑	3	282		○	○
F11A/5'	CIRCULAR DIRECT/INDIRECT LED	117	☐	☑	4	468		○	○
			Installed Watts Page Total:			4,198	Enter sum total of all pages into NRCC-LTI-01-E; page 2		

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 5 of 6)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

A separate Lighting Schedule Must Be Filled Out for Conditioned and Unconditioned Spaces. Installed Lighting Power listed on this Lighting Schedule is only for:
☑ **CONDITIONED SPACE** ☐ **UNCONDITIONED SPACE**

H. INDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Luminaire Schedule		Installed Watts					Location	Inspector	
01	02	03	04		05	06	07	08	
Name or Item Tag	Complete Luminaire Description (i.e, 3 lamp fluorescent troffer, F32T8, one dimmable electronic ballast}	Watts per Luminaire	How wattage was determined: CEC Default NA8	According to §130.0(c)	Number of Luminaires	Total Installed Watts in this area (H03 x H05)	Primary Function area in which these luminaires are installed	Pass	Fail
F12X	LINEAR DIRECT/INDIRECT LED	12	☐	☑	48	576		○	○
F12A	LINEAR DIRECT/INDIRECT LED	12	☐	☐	36	432		○	○
F14/X	UNDERCOUNTER LED FIXTURE	7.3	☐	☑	10	73		○	○
F15	LED DOWNLIGHT	18.5	☐	☑	23	426		○	○
F15A	LED DOWNLIGHT	18.5	☐	☑	10	185		○	○
F17	LED PENDANT CYLINDER DOWNLIGHT	17	☐	☑	3	51		○	○
			☐	☐				○	○
			☐	☐				○	○
			☐	☐				○	○
			☐	☐				○	○
			☐	☐				○	○
			☐	☐				○	○
			☐	☐				○	○
			☐	☐				○	○
			☐	☐				○	○
			☐	☐				○	○
			☐	☐				○	○
			☐	☐				○	○
			Installed Watts Page Total:			1,743	Enter sum total of all pages into NRCC-LTI-01-E; page 2		

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 6 of 6)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT
1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Mabel Alcantara	Documentation Author Signature:
Company: The Engineering Enterprise	Signature Date: August 22, 2017
Address: 1125 High Street	CEA Certification Identification (if applicable):
City/State/Zip Auburn, CA 95603	Phone: (530) 886-8556

RESPONSIBLE PERSON'S DECLARATION STATEMENT
I certify the following under penalty of perjury, under the laws of the State of California:
1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Scott Wheeler	Responsible Designer Signature:
Company: The Engineering Enterprise	Signature Date: August 22, 2017
Address: 1125 High Street	License: E015491
City/State/Zip Auburn, CA 95603	Phone: (530) 886-8556

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA
INDOOR LIGHTING - LIGHTING CONTROLS
CEC-NRCC-LTI-02-E (Revised 01/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-02-E
Indoor Lighting - Lighting Controls	(Page 1 of 3)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

A. Mandatory Lighting Control Declaration Statements (Indicate if the measure applies by checking yes or no below)

YES	NO	Control Requirements
◉	○	Lighting shall be controlled by self-contained lighting control devices which are certified to the Energy Commission according to the Title 20 Appliance Efficiency Regulations in accordance with Section 110.9.
◉	○	Lighting shall be controlled by a lighting control system or energy management control system in accordance with §110.9. An Installation Certificate shall be submitted in accordance with Section 130.4(b).
○	◉	One or more Track Lighting Integral Current Limiters shall be installed which have been certified to the Energy Commission in accordance with §110.9 and §130.0. An Installation Additionally, an Installation Certificate shall be submitted in accordance with Section 130.4(b).
○	○	A Track Lighting Supplementary Overcurrent Protection Panel shall be installed in accordance with Section 110.9 and Section 130.3. Additionally, an Installation Certificate shall be installed in accordance with Section 130.4(b).
◉	○	All lighting controls and equipment shall comply with the applicable requirements in §110.9 and shall be installed in accordance with the manufacturer's instructions in accordance with Section 130.1.
◉	○	All luminaires shall be functionally controlled with manually switched ON and OFF lighting controls in accordance with Section 130.1(a).
◉	○	General lighting shall be separately controlled from all other lighting systems in an area. Floor and wall display, window display, case display, ornamental, and special effects lighting shall each be separately controlled on circuits that are 20 amps or less. When track lighting is used, general, display, ornamental, and special effects lighting shall each be separately controlled; in accordance with Section 130.0(a)4.
◉	○	The general lighting of any enclosed area 100 square feet or larger, with a connected lighting load that exceeds 0.5 watts per square foot shall meet the multi-level lighting control requirements in accordance with Section 130.1(b).
◉	○	All installed indoor lighting shall be equipped with controls that meet the applicable Shut-OFF control requirements in Section 130.1(c).
◉	○	Lighting in all Daylit Zones shall be controlled in accordance with the requirements in Section 130.1(d) and daylit zones are shown on the plans.
◉	○	Lighting power in buildings larger than 10,000 square feet shall be capable of being automatically reduced in response to a Demand Responsive Signal in accordance with Section 130.1(e).
◉	○	Before an occupancy permit is granted for a newly constructed building or area, or a new lighting system serving a building, area, or site is operated for normal use, indoor lighting controls serving the building, area, or site shall be certified as meeting the Acceptance Requirements for Code Compliance in accordance with Section 130.4.(a}. The controls required to meet the Acceptance Requirements include automatic daylight controls, automatic shut-OFF controls, and demand responsive controls.

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance January 2016

STATE OF CALIFORNIA
INDOOR LIGHTING - LIGHTING CONTROLS
CEC-NRCC-LTI-02-E (Revised 01/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-02-E
Indoor Lighting - Lighting Controls	(Page 2 of 3)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

A separate document must be filled out for Conditioned and Unconditioned Spaces. This page is used only for the following:
☑ **CONDITIONED SPACE** ☐ **UNCONDITIONED SPACE**

B. Mandatory and Prescriptive Indoor Lighting Control Schedule, PAF Calculation, and Field Inspection Checklist

Lighting Control Schedule			Standards Complying With[1] (✓ all that apply, or enter 'E' if Exempted)							PAF Credit Calculation			✓ if acceptance test required	Field Inspector	
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	
Location in Building	Type/ Description of Lighting Control (i.e.: occupancy sensor, automatic time switch, dimmer, automatic daylight, etc.)	# of units	§130.1(a)	§130.1(b)	§130.1(c)	§130.1(d)	§130.1(e)	§140.6(a)2	§140.6(d)	Watts of Controlled Lighting	PAF	Control Credit (11 x 12)		Pass	Fail
														○	○
														○	○
														○	○
														○	○
														○	○
														○	○
														○	○
Control Credit PAGE TOTAL (Sum of column 13):															
IF MULTIPLE PAGES ARE USED, ENTER SUM TOTAL OF Control Credit for all pages HERE (Sum of all Column 13):															
												Enter Control Credit total into NRCC-LTI-01-E; Page 1.			

1. §130.1(a) = Manual area controls; §130.1(b) = Multi Level; §130.1(c) = Auto Shut-Off; §130.1(d) = Mandatory Daylight; §130.1(e) = Demand Responsive; §140.6(d) = Additional lighting controls installed to earn a PAF; §140.6(d) = Prescriptive Secondary Sidelit Daylight Controls.
2. Check Table 140.6-A for correct Factor. PAFs shall not be traded between conditioned and unconditioned spaces. As a condition to earn a PAF, an Installation Certificate is also required to be filled out, signed, and submitted.

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance January 2016

STATE OF CALIFORNIA
INDOOR LIGHTING - LIGHTING CONTROLS
CEC-NRCC-LTI-02-E (Revised 01/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-02-E
Indoor Lighting - Lighting Controls	(Page 3 of 3)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT
1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Mabel Alcantara	Documentation Author Signature:
Company: The Engineering Enterprise	Signature Date: August 22, 2017
Address: 1125 High Street	CEA/HERS Certification (if applicable):
City/State/Zip Auburn, CA 95603	Phone: (530) 886-8556

RESPONSIBLE PERSON'S DECLARATION STATEMENT
I certify the following under penalty of perjury, under the laws of the State of California:
1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Scott Wheeler	Responsible Designer Signature:
Company: The Engineering Enterprise	Signature Date: August 22, 2017
Address: 1125 High Street	License: E015491
City/State/Zip Auburn, CA 95603	Phone: (530) 886-8556

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance January 2016

STATE OF CALIFORNIA
INDOOR LIGHTING POWER ALLOWANCE
CEC-NRCC-LTI-03-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 1 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

ALLOWED LIGHTING POWER
A separate document must be filled out for Conditioned and Unconditioned Spaces. This page is used only for the following:
☑ **CONDITIONED SPACE** ☐ **UNCONDITIONED SPACE**

A. SUMMARY TOTALS OF LIGHTING POWER ALLOWANCES
☐ If using Complete Building Method for compliance, use only the total in column (a) as total allowed building watts.
☑ If using Area Category Method, Tailored Method, or a combination of Area Category and Tailored Method for compliance, use only the total in column (b) as the total allowed building watts

	(a)	(b)
01 Complete Building Method Allowed Watts. Documented in section B of NRCC-LTI-03-E (below on this page)		
02 Area Category Method Allowed Watts. Documented in section C-1 of NRCC-LTI-03-E (below on this page)		6,849
03 Tailored Method Allowed Watts. Documented in section A of NRCC-LTI-04-E		
TOTAL ALLOWED BUILDING WATTS. Enter number into correct cell on NRCC-LTI-01, Page 2, Row 1		6,849

☐ Check here if building contains both conditioned and unconditioned areas.

B. COMPLETE BUILDING METHOD LIGHTING POWER ALLOWANCE

01		02		03		04
TYPE OF BUILDING (From §140.6 Table 140.6-B)		Watts per (ft²)	X	Complete Building Area	=	Allowed Watts
				Total Area:		
Total Watts. Enter Total Watts into section A, row 1 (Above on this page)						

C-1. AREA CATEGORY METHOD TOTAL LIGHTING POWER ALLOWANCES (C-2 plus C-3)

	Watts
Total from section C-2:	6,849
Total from section C-3:	
Total Watts. Enter Total Watts into section A, row 2 (Above on this page)	6,849

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

INDOOR LIGHTING POWER ALLOWANCE
CEC-NRCC-LTI-03-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 2 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

A separate document must be filled out for Conditioned and Unconditioned Spaces. This page is used only for the following:
☑ **CONDITIONED SPACE** ☐ **UNCONDITIONED SPACE**

C-2 AREA CATEGORY METHOD GENERAL LIGHTING POWER ALLOWANCE
- Do not include portable lighting for offices. Portable lighting for offices shall be documented only in section B of NRCC-LTI-01-E.
- Separately list lighting for each primary function area as defined in §100.1 of the Standards.

A: AREA CATEGORY (From §140.6 Table 140.6-C) Location in Building	Primary Function Area per Table 140.6-C	B: Watts per (ft²)	x	C: Area (ft²)	=	D: Allowed Watts
SEE PLANS	Corridors, Restrooms, Stairs And Support Areas	0.6		2,922		1,753
SEE PLANS	Locker/Dressing Room	0.7		1,754		1,228
SEE PLANS	Electrical, Mechanical, Telephone Rooms	0.55		301		166
SEE PLANS	Offices ≤ 250 Square Feet	1		607		607
SEE PLANS	Convention, Conference, Multipurpose And Meeting Ce	1.2		1,282		1,538
SEE PLANS	Classrooms, Lecture, Training Vocational Room	1.2		417		500
SEE PLANS	Lounge/Recreation	0.9		896		806
SEE PLANS	Laundry	0.7		357		250
		TOTALS		8,536		
Enter sum total Area Category allowed watts into section C-1 of NRCC-LTI-03-E (this compliance form)						6,849 WATTS

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

INDOOR LIGHTING POWER ALLOWANCE
CEC-NRCC-LTI-03-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 3 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

A separate document must be filled out for Conditioned and Unconditioned Spaces. This page is used only for the following:
☑ **CONDITIONED SPACE** ☐ **UNCONDITIONED SPACE**

C-3 Area Category Method Additional Lighting Wattage Allowance (from Table 140.6-C Footnotes)

01	02	03	04	05	06	07
Primary Function	Sq Ft or linear ft[1]	Additional Watts Allowed	Wattage Allowance (02 x 03)	Description(s) and Quantity of Special Luminaire Types in each Primary Function Area	Total Design Watts[3]	Allowed Watts Smaller of 04 or 06
			TOTALS - Enter into TOTAL AREA CATEGORY METHOD ADDITIONAL ALLOWANCES - Section C-1		

1. Use linear feet only for additional allowance for white board or chalk board. All other additional Area Category allowances shall use watts per square foot.
2 . Additional watts are available only when allowed according to the footnotes on bottom of Table 146-C, which include: Specialized task work; Ornamental lighting; Precision commercial and industrial work; Per linear foot of white board or chalk board; Accent, display and feature lighting; and Videoconferencing Studio lighting.
3. Luminaire classification and wattage shall be determined in accordance with §130.0(c) of the Standards.

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA
INDOOR LIGHTING POWER ALLOWANCE
CEC-NRCC-LTI-03-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 4 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT
1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Mabel Alcantara	Documentation Author Signature:
Company: The Engineering Enterprise	Signature Date: August 22, 2017
Address: 1125 High Street	CEA/HERS Certification (if applicable):
City/State/Zip Auburn, CA 95603	Phone: (530) 886-8556

RESPONSIBLE PERSON'S DECLARATION STATEMENT
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1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
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Responsible Designer Name: Scott Wheeler	Responsible Designer Signature:
Company: The Engineering Enterprise	Signature Date: August 22, 2017
Address: 1125 High Street	License: E015491
City/State/Zip Auburn, CA 95603	Phone: (530) 886-8556

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA
OUTDOOR LIGHTING
CEC-NRCC-LTO-01-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-01-E
Outdoor Lighting	(Page 1 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

A. General Information

Project Address: San Luis Obispo, CA 93407			Total Illuminated Hardscape Area	
Phase of Construction:	☐ New Construction	☐ Addition	☑ Alteration	
Outdoor Lighting Zone (LZ)	☐ LZ-1	☐ LZ-2	☑ LZ-3	☐ LZ-4
I have confirmed with the AHJ which OLZ applies to this site. For default lighting zone designations, see Title 24 Part 6, §10-114				

B. LIGHTING COMPLIANCE DOCUMENTS (check box for each document included)
For detailed instructions on the use of this and all Enegery Efficiency Standards compliance documents, refe to the Nonresidential Manual pulished by the California Energy Commission.
☑ NRCC-LTO-01-E Certificate of Compliance
☑ NRCC-LTO-02-E Outdoor Lighting Controls Certificate of Compliance
☑ NRCC-LTO-03-E Outdoor Lighting Power Allowance Certificate of Compliance
☐ NRCC-LTO-04-E Outdoor Lighting Existing Conditions Certificate of Compliance

C. Summary of Allowed Lighting Power		Watts
01 **Sum Total of ALLOWED** Outdoor Lighting Wattage from NRCC-LTO-03-E, page 1	=	849.33
Complies ONLY if **Installed** (Box 02) **<= Allowed** (Box 1)		↕
02 **Sum Total INSTALLED** Outdoor Lighting Wattage from NRCC-LTO-01-E, page 3		589.5

D. Declaration of Required Installation Certificates - Declare by checking all Installation Certificates that will be submitted. (Retain copies and verify forms are completed and signed.)
☑ NRCI-LTO-01-E - Must be submitted for all buildings ☑ Field Inspector
☑ NRCI-LTO-02-E - Must be submitted for lighting control system, or for an Emergy Management Control System (EMCS), to be recognized for compliance ☑ Field Inspector
E. Declaration of Required Certificates of Acceptance - Declare by checking all Certificates of Acceptance that will be submitted. (Retain copies and verify forms are completed and signed.)
☑ NRCA-LTO-02-A - Must be submitted for outdoor lighting controls. ☑ Field Inspector

F. Schedule of luminaires exempt from the outdoor power lighting power requirements in §140.7

01	02
Name or Symbol	Description of exempt luminaire in accordance with the exemptions

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA
OUTDOOR LIGHTING
CEC-NRCC-LTO-01-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-01-E
Outdoor Lighting	(Page 2 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

G. Schedule of luminaires exempt from the cuttoff requirements in §130.2(b)

01	02
Name or Symbol	Description of exempt luminaire in accordance with the exemptions

H. Schedule of luminaires exempt from the outdoor lighting control requirements in §130.2(c)

01	02
Name or Symbol	Description of exempt luminaire in accordance with the exemptions

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

95% CONSTRUCTION DOCUMENTS

ADD-2

The Engineering Enterprise
Consulting Engineers
1125 HIGH STREET
AUBURN, CA 95603
(530) 886-8556

REGISTERED PROFESSIONAL ENGINEER
SCOTT WHEELER
No. E015491
Exp. 06/30/19
ELECTRICAL
STATE OF CALIFORNIA

TITLE 24
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E0.04
Project Number
07.11.2017
Revisions
ADD-2 ADDENDUM 2 2.09.18

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
APPL. #03-118789
AC______FLS______SS______
DATE____________

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5/14/2018 4:35:14 PM

OUTDOOR LIGHTING

CEC-NRCC-LTO-01-E (Revised 04/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-01-E
Outdoor Lighting	(Page 3 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

I. OUTDOOR LIGHTING SCHEDULE and FIELD INSPECTION ENERGY CHECKLIST

Luminaire Schedule		Installed Watts				Location	Cutoff	Field Inspector	
01	02	03	04	05	06	07	08	09	
Name or Item Tag	Complete Luminaire Description	Watts per luminaire	CEC Certified Luminaire or Assembly (ER3XXX)	Number of Luminaires	Total Installed Watts in this area (03 x 05)	Primary Function area in which these luminaires are installed (Outdoor Lighting Zone)	BUG Rating	Pass	Fail
F13X	LED TAPE	3	☐	☑	118	354			
							UH:		
							UL:		
							FVH:	☐	☐
							BVH:		
							FH:		
							BH:		
F15	LED DOWNLIGHT	18.5	☐	☑	5	92.5			
							UH:		
							UL:		
							FVH:	☐	☐
							BVH:		
							FH:		
							BH:		
F18	LED	13	☐	☑	11	143			
							UH:		
							UL:		
							FVH:	☐	☐
							BVH:		
							FH:		
							BH:		
	INSTALLED WATTS PAGE TOTAL:				589.5	Enter sum total of all pages (**Sum Total INSTALLED** Outdoor lighting wattage) into NRCC-LTO-01-E, page 2			

STATE OF CALIFORNIA

OUTDOOR LIGHTING

CEC-NRCC-LTO-01-E (Revised 04/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-01-E
Outdoor Lighting	(Page 4 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Mabel Alcantara	
Company:	Signature Date:
The Engineering Enterprise	August 22, 2017
Address:	CEA/HERS Certification (if applicable):
1125 High Street	
City/State/Zip	Phone:
Auburn, CA 95603	(530) 886-8556

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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Responsible Designer Name:	Responsible Designer Signature:
Scott Wheeler	
Company:	Signature Date:
The Engineering Enterprise	August 22, 2017
Address:	License:
1125 High Street	E015491
City/State/Zip	Phone:
Auburn, CA 95603	(530) 886-8556

STATE OF CALIFORNIA

OUTDOOR LIGHTING CONTROLS

CEC-NRCC-LTO-02-E (Revised 08/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-02-E
Outdoor Lighting Controls	(Page 1 of 3)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

The NRCC-LTO-02-E shall be used to document all mandatory and prescriptive lighting controls that are applicable to the project.

A. Mandatory Outdoor Lighting Control Declaration Statements

check all that apply:

- ☑ Lighting shall be controlled by self-contained lighting control devices which are certified to the Energy Commission according to the Title 20 Appliance Efficiency Regulations in accordance with Section 110.9
- ☐ Lighting shall be controlled by a lighting control system or energy management control system in accordance with §110.9. An Installation Certificate shall be submitted in accordance with Section 130.4(b)
- ☑ All lighting controls and equipment shall comply with the applicable requirements in §110.9 and shall be installed in accordance with the manufacturer's instructions in accordance with §130.1
- ☐ Part-Night Outdoor Lighting Controls, as defined in Section 100.1, shall meet the requirements in Section 110.9(b)5
- ☐ All outdoor incandescent luminaires rated over 100 watts, determined in accordance with Section 130.0(c), shall be controlled by a motion sensor.
- ☐ All outdoor luminaires rated for use with lamps greater than 150 lamp watts, determined in accordance with Section 130.0(c), shall comply with Backlight, Uplight, and Glare (collectively referred to as "BUG") in accordance with Section 130.2(b)
- ☐ All installed outdoor lighting shall be controlled by a photocontrol or outdoor astronomical time-switch control in accordance with Section 130.2(j)1
- ☑ All installed outdoor lighting shall be circuited and independently controlled from other electrical loads by an automatic scheduling control in accordance with Section 130.2(c)2.
- ☑ All installed outdoor lighting, where the bottom of the luminaire is mounted 24 feet or less above the ground, shall be controlled with automatic lighting controls in accordance with Section 130.2(c)3
- ☐ For Outdoor Sales Frontage, Outdoor Sales Lots, and Outdoor Sales Canopies lighting, an automatic lighting control in accordance with Section 130.2(c)4.
- ☐ For Building Facade, Ornamental Hardscape and Outdoor Dining lighting, an automatic lighting control in accordance with Section 130.2(c)5
- ☑ Before an occupancy permit is granted for a newly constructed building or area, or a new lighting system serving a building, area, or site is operated for normal use, indoor lighting controls serving the building, area, or site shall be certified as meeting the Acceptance Requirements for Code Compliance in accordance with §130.4.(a). Outdoor lighting controls shall comply with the applicable requirements of Section 130.2(c) and Reference Nonresidential Appendix NA7.8

STATE OF CALIFORNIA

OUTDOOR LIGHTING CONTROLS

CEC-NRCC-LTO-02-E (Revised 08/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-02-E
Outdoor Lighting Controls	(Page 2 of 3)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

B. MANDATORY OUTDOOR LIGHTING CONTROL SCHEDULE and FIELD INSPECTION CHECKLIST

Outdoor Lighting Control Schedule			Standards Complying With (✓ all that apply, or leave empty if Exempted)						Field Inspector (Check that the system complies)	
01	02	03	04	05	06	07	08	09	10	11
Location and Application of Luminaires Being Controlled	Type/ Description of Lighting Control (i.e. outdoor motion sensor, outdoor photocontrol, outdoor astronomical time-switch control, part-night outdoor lighting control)	# of units	§130.2(a)	§130.2(c)1	§130.2(c)2	§130.2(c)3	§130.2(c)4	§130.2(c)5		
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STATE OF CALIFORNIA

OUTDOOR LIGHTING CONTROLS

CEC-NRCC-LTO-02-E (Revised 08/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-02-E
Outdoor Lighting Controls	(Page 3 of 3)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	Documentation Author Signature:
Mabel Alcantara	
Company:	Signature Date:
The Engineering Enterprise	August 22, 2017
Address:	CEA/HERS Certification (if applicable):
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City/State/Zip	Phone:
Auburn, CA 95603	(530) 886-8556

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Scott Wheeler	
Company:	Signature Date:
The Engineering Enterprise	August 22, 2017
Address:	License:
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STATE OF CALIFORNIA

OUTDOOR LIGHTING POWER ALLOWANCES

CEC-NRCC-LTO-03-E (Revised 01/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-03-E
Outdoor Lighting Power Allowances	(Page 1 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

A. Outdoor Lighting Power Allowance Summary

1. General Hardscape Lighting Power Allowance (Site Total from Section B of NRCC-LTO-03-E)		779.33
2. Additional Specific "use it or lose it" Lighting Power Allowances listed in each of these cells shall be identical to total allowed watts determined in Section C-1 to C-4 of NRCC-LTO-04-E		
PER APPLICATION from Section C-1	PER UNIT LENGTH (SALES FRONTAGE) from Section C-2	PER HARDSCAPE AREA (ORNAMENTAL LIGHTING) from Section C-3	PER SPECIFIC AREA from Section C-4	20
70	+	+	+	20
3. **Sum Total ALLOWED** Outdoor Lighting Wattage (add rows 1 and 2)				899.33

B. General Hardscape Lighting Power Allowance From Table 140.7-A

Area Wattage Allowance (AWA)				Linear Wattage Allowance (LWA)			Initial Wattage Allowance (IWA)	Total General Hardscape Lighting Allowance
01	02	03	04	05	06	07	08	09
Name of area	Illuminated Hardscape Area	AWA Per Square Foot	AWA (B02 x B03)	Perimeter Length of General Hardscape	LPA per Linear Foot	LWA (B05 x B06)	IWA (Watts)	B04 + B07 + B08
EXTERIOR	1662	0.04	66.48	551	0.35	192.85	520	779.33
							TOTAL	779.33

STATE OF CALIFORNIA

OUTDOOR LIGHTING POWER ALLOWANCES

CEC-NRCC-LTO-03-E (Revised 01/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-03-E
Outdoor Lighting Power Allowances	(Page 2 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

C. ADDITIONAL "USE IT OR LOSE IT" OUTDOOR LIGHTING POWER ALLOWANCES FOR SPECIFIC APPLICATIONS

☐ The additional specific outdoor lighting power allowance shall be smaller of the allowed lighting power or the actual lighting power used.
☐ Use Outdoor Lighting Zone (OLZ) that is documented on page 1 of NRCC-LTO-01-E to calculate the specific wattage allowances.

C-1. WATTAGE ALLOWANCE PER APPLICATION – Table 140.7-B

☐ Available only for qualifying locations, which include Building Entrances or Exits; Primary Entrances to Senior Care Facilities, Police Stations, Hospitals, Fire Stations, and Emergency Vehicle Facilities; Drive Up Windows; Vehicle Service Station Uncovered Fuel Dispenser, ATM Machine Lighting
☐ If more than one luminaire type is used per location, use multiple rows for that location

01	02	03	04	05	06	07	08	09	10
ALLOTED WATTS					DESIGN WATTS				
Name of Location for Which Allowance is Claimed	Number of Qualifying Locations	Wattage Allowance per Qualifying Location	Alloted Watts (02 x 03)	Luminaire Code or Symbol	Luminaire Description	Luminaire Quantity	Watts per Luminaire	Design Watts (07 x 08)	Allowed Watts (smaller of 04 or 09)
Building Entrance/Exit	2	35	70	F15	LED DOWNLIGHT	11	18.5	203.5	70
						Sum total allowance per application on this site			70

C-2. WATTAGE ALLOWANCE PER UNIT LENGTH (Sales Frontage) from Table 140.7-B

☐ If more than on luminaire type is used per location, use multiple rows for that location

01	02	03	04	05	06	07	08	09	10
ALLOTED WATTS					DESIGN WATTS				
Name of Location for Which Allowance is Claimed	Linear Feet of Sales Frontage	Wattage Allowance per Linear Foot	Alloted Watts (02 x 03)	Luminaire Code or Symbol	Luminaire Description	Luminaire Quantity	Watts per Luminaire	Design Watts (07 x 08)	Allowed Watts (smaller of 04 or 09)
						Sum total allowance for sales frontage on this site			

STATE OF CALIFORNIA

OUTDOOR LIGHTING POWER ALLOWANCES

CEC-NRCC-LTO-03-E (Revised 01/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-03-E
Outdoor Lighting Power Allowances	(Page 3 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

C-3. WATTAGE ALLOWANCE PER SQUARE FOOT OF HARDSCAPE AREA (Ornamental Lighting) – Table 140.7-B

- Allowance for the total site illuminated hardscape area. Luminaires qualifying for this allowance shall be rated for 100 watts or less as determined in accordance with Section 130.0(c), and shall be post-top luminaires, lanterns, pendant luminaires, or chandeliers.
- If more than om luminaire type is used per location, use multiple rows for that location

01	02	03	04	05	06	07	08	09	10
ALLOTED WATTS					DESIGN WATTS				
Name of area for which ornamental allowance is claimed	Square feet of Hardscape	Wattage Allowance per square foot	Allotted Watts (02 x 03)	Luminaire Code or Symbol	Luminaire Description	Luminaire Quantity	Watts per luminaire	Design Watts (07 x 08)	Allowed Watts (smaller of 04 or 09)
						Sum total allowance for ornamental lighting on this site			

C-4. WATTAGE ALLOWANCE PER SQUARE FOOT OF SPECIFIC AREA – Table 140.7-B

Allowances for Building Facades; Outdoor Sales Lots; Vehicle Service Station Canopies; Sales Canopies; Non-sales Canopies; Guard Stations; Student Pick-up/Drop-off sone; Outdoor Dining; Special Security Lighting for Retail Parking and Pedestrian Hardscape
If more than om luminaire type is used per location, use multiple rows for that location

01	02	03	04	05	06	07	08	09	10
ALLOTED WATTS					DESIGN WATTS				
Name of Location for which allowance is claimed	Illuminated Area of Application	Wattage Allowance per square foot	Allotted Watts (02 x 03)	Luminaire Code or Symbol	Luminaire Description	Luminaire Quantity	Watts per luminaire	Design Watts (07 x 08)	Allowed Watts (smaller of 04 or 09)
						Sum total allowance for specific area on the site			

STATE OF CALIFORNIA

OUTDOOR LIGHTING POWER ALLOWANCES

CEC-NRCC-LTO-03-E (Revised 01/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-03-E
Outdoor Lighting Power Allowances	(Page 4of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

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STATE OF CALIFORNIA

Electrical Power Distribution

CEC-NRCC-ELC-01-E (January 2016) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-ELC-01-E
Electrical Power Distribution	(Page 4of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

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STATE OF CALIFORNIA

Electrical Power Distribution

CEC-NRCC-ELC-01-E (January 2016) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-ELC-01-E
Electrical Power Distribution	(Page 1 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

General Information

Project Address:		Climate Zone:	Conditioned Floor Area:
San Luis Obispo, CA 93407		5	Unconditioned Floor Area:
Building Type:	☐ Nonresidential	☐ High-Rise Residential	☐ Hotel/Motel
☒ Schools	☐ Relocatable Public Schools	☒ Conditioned Spaces	☐ Unconditioned Spaces
Phase of Construction:	☐ New Construction	☒ Addition	☒ Alteration

In the table below identify all applicable construction documents that specify the requirements for the scope of responsibility reported by this certificate. Use additional pages as needed to list all construction documents related to compliance of Section 130.5

Document Number	Document Title/Descriptions (Include description information for Table or Schedule if it contains compliance information)	Document Sheet # or Page #	Indicate which subsection of Section 130.5 is related to the document (e.g. 130.5(a) for service electrical metering)
1	CAL POLY BASBALL CLUBHOUSE SET	E6.01	POWER ONE LINE DIAGRAM

A. Service Electrical Metering

Check one of the three boxes below if the electrical power distribution is in compliance with Section 130.5(a).

☐ For newly installed electrical service in newly constructed buildings, Service Electrical Metering is required according to Section 130.5(a). Fill out Column 1 through 6 of table below.
☐ For new or replacement electrical service equipment in existing buildings, Service Electrical Metering is required according to Section 141.0(b)2H. *Fill out Column 1 through 6 of table below.*
☐ EXCEPTION to Electrical Service Metering: Service or feeder for which the utility company provides a metering system that indicates instantaneous kW demand and kWh for a utility-defined period. *Fill out Column 1, 2 and 6 of table below with the compliance information.*

Fill out a separate line for each electrical service that is connected to the building.

Electrical Service Schedule	Electrical	Metering Capabilities (check all that are present)			Exception to	Field Inspector
01	02	03	04	05	06	07	08
Electrical Service Designation/ Location/Description	bulk	Instantaneous (at the time) kW	Historical peak (kW)	Tracking kWh for a user-definable period	kWh per rate period	Utility metering system	Check that the metering complies
MSB	1A6	☐	☐	☐	☐	☐	☐

STATE OF CALIFORNIA

Electrical Power Distribution

CEC-NRCC-ELC-01-E (January 2016) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-ELC-01-E
Electrical Power Distribution	(Page 2 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

B. Separation of Electrical Circuits for Electrical Energy Monitoring

Check all boxes below if the electrical power distribution system is compliance with Section 130.5(b).

☐ The electrical power distribution system meets the separation of electrical circuits for electrical energy monitoring requirement of Section 130.5(b). The electrical power distribution system is designed so that measurement devices can monitor the electrical energy usage of load types to TABLE 130.5-B.
☐ Describe the electrical power distribution system installed and the compliance method chosen in meeting the requirements of Section 130.5(b). Use the space below to include the information. Examples of compliance methods are detailed in Nonresidential Compliance Manual Chapter 8.

Fill out Column 1 thru 3 with the compliance information.

General Information	Electrical Power Distribution System Information and Method of Compliance	Electrical Service Rating	Enforcement Agency
01	02	03	04
Electrical Service Designation/Location/Description	Describe the electrical power distribution system installed and the compliance method used	Historical peak demand (kW)	kWh per rate period
SEE SINGLE LINE DIAGRAMS			☑

Field Inspector Notes:

STATE OF CALIFORNIA

Electrical Power Distribution

CEC-NRCC-ELC-01-E (January 2016) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-ELC-01-E
Electrical Power Distribution	(Page 3 of 4)
Project Name: Cal Poly Baseball Clubhouse	Date Prepared: August 22, 2017

C. Voltage Drop

Check all boxes if the electrical power distribution system is in compliance with Section 130.5(c).

	Enforcement Agency Check that the system complies
☐ The electrical power distribution system meets the voltage drop requirements of Section 130.5(c). The maximum combined voltage drop on feeder conductors and branch circuit conductors to the farthest connected load or outlet, do not exceed 5%.	☐
☐ Voltage drop calculation documents showing compliance to Section 130.5(c) are submitted as part of the compliance document submittal.	☐

D. Circuit Controls for 120-Volt Receptacles and Controlled Receptacles

Check one or more boxes below for applicable requirements of Section 130.5(d) for electrical power distribution system.

	Field Inspector Check that the system complies
☐ The control is capatie of automatically shutting OFF the controlled receptacles when the space is typically unoccupied, either at the receptacle or circuit level. For the automatic time switch control, it incorporates an override control that allows the controlled receptacle to remain ON for no more than 2 hours when an override is initiated and an automatic holiday "shut-OFF" feature that turns OFF all loads for at least 24 hours and then resumes the normally schedules operation. Countdown timer switches are not to be used to comply with the automatic time switch control requirements. The controls meet the requirement of Section 130.5(d)1	☐
☐ There is at least one controlled receptacle within 6 ft from each uncontrolled receptacle. Where receptacles are installed in modular furniture in open office area, at least one controlled receptacle is installed at each workstation. The receptacles meet the requirement of Section 130.5(d)2.	☐
☐ There are installed split wired receptacles with at least one controlled and one uncontrolled receptacle. Where receptacles are installed in modular furniture open office area, at least one controlled receptacle is intalled at each workstation. The receptacles meet the requirement of Section 130.5(d)2.	☐
☐ Permanent and durable marking for controlled receptacles or circuits to differentiatiate them from uncontrolled receptacles or circuits is provided. The markings meet the requirement of Section 130.5(d)3.	☐
☐ For hotel and motel guest rooms, there are controlled receptacles for at least one-half of the 120-volt receptacles in each guest room. Electric circuits serving controlled receptacles in guestrooms are installed to have captive key controls, occupancy sensing controls, or automatic controls so the power is switched off no longer than 30 minutes after the guest rom has been vacated. The receptacles meet the requirement of Section 130.5 (d)4.	☐
☐ ~~Exc~~ receptacles that are ony for the tolowing purposes are excepted from section 130.5(d): - Receptacles specifically for refrigeratorsand water dispensers in kitchen areas. - Receptacles located a minimum of six ft. above the floor that are specifically for clocks. - Receptacles for network copiers, fax machines, A/V and data equipment other than personal computers in copy rooms. - Receptacles on circuits rated more than 20 amperes. - Receptacles connected to an uninterruptible power supply (UPS) that are intended to be in continuous use, 24 hours per day/365 days per year, and are marked to differentiate them from	☐

△2 ADDENDUM 2 2.09.18

Project: CAL POLY BASEBALL CLUBHOUSE FACILITY — Note: Enter Nominal Conductor Sizes except as below: 1/0 = 101; 2/0 = 102; 3/0 = 103; 4/0 = 104

Circuit			Raceway		Conductor			Load			Line-to-Neutral		Line-to-Line	
Designation	Voltage	Phase	Material (RS or Non-Metallic (NM))	Material (ALL or CU)	Nominal Size	Parallel Runs	Length in Feet	kVA/Ft	Power Factor	Volt Drop	%	Volt Drop	%
FEEDERS														
MSB	208	3	M	CU	500	1	150	300.3	95%			2.21	1.06
SA	208	3	M	CU	4	1	12	30.3	95%			0.30	0.15
LA	208	3	M	CU	6	1	12	30.3	95%			0.30	0.15
LM	208	3	M	CU	163	1	8	160.6	95%			0.20	0.10

C:\Users\Christian\Documents\Revit Local Models\Electrical Model Cal Poly_christian@engent.com.rvt
5/14/2018 4:35:15 PM

95% CONSTRUCTION DOCUMENTS

The Engineering Enterprise
Consulting Engineers
1125 HIGH STREET
AUBURN, CA 95603
(530) 886-8556

REGISTERED PROFESSIONAL ENGINEER — SCOTT WHEELER — No. E015491 — Exp. 06/30/19 — STATE OF CALIFORNIA

TITLE 24
BASEBALL CLUBHOUSE
California Polytechnic State University San Luis Obispo

E0.05
Project Number
07.11.2017
Revisions

△1 BUREAU VERITAS 10.06.17
△2 ADDENDUM 2 2.09.18

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
OFFICE OF REGULATION SERVICES
APPL. #03-118789
AC____FLS____SS____
DATE_____

DLR Group
Architecture Engineering Planning Interiors

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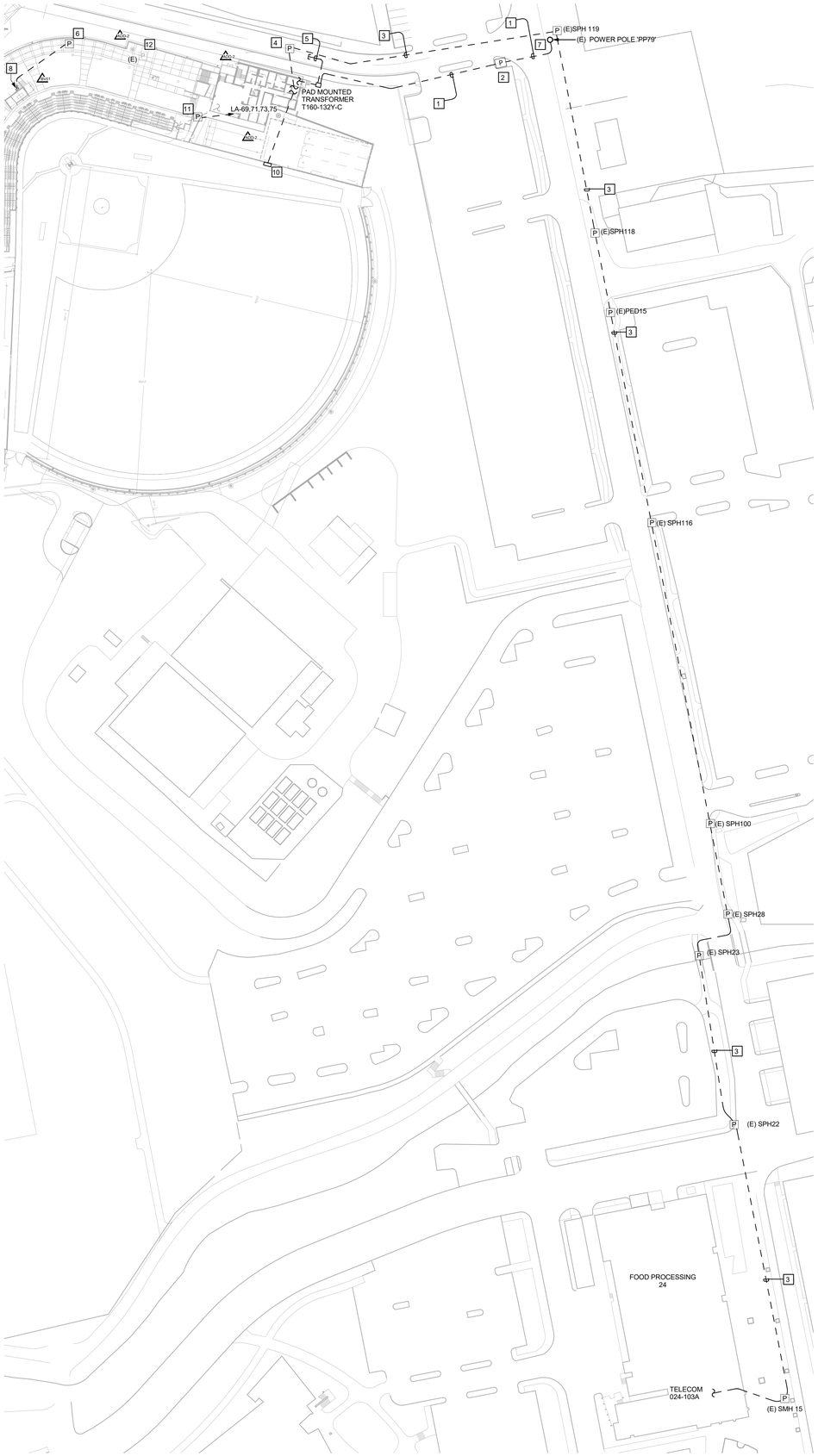


A E1.01 OVERALL ELECTRICAL SITE PLAN

SCALE: 1" = 60'-0"

GENERAL SHEET NOTES

A REFER TO LANDSCAPE DRAWINGS FOR THE TREE LAYOUT. KEEP DUCT BANKS A MINIMUM OF 10' AWAY FROM TREE TRUNKS.

B PROVIDE A SPARE 2"C FOR FUTURE SCADA FIBER OPTIC CABLE WITH EACH 12KV DUCT BANK.

C POWER AND TELECOM CONDUITS SHALL BE ROUTED IN DIFFERENT TRENCHES. REFER TO DETAIL D/E7.04.

NUMBERED SHEET NOTES

1 PROVIDE NEW 15KV FEEDER (INCLUDING ONE SPARE CONDUIT). REFER TO POWER ONE LINE DIAGRAM, E6.01.

2 PROVIDE NEW MEDIUM VOLTAGE MANHOLE, 8'W X 10'L X 8' HIGH (INTERIOR DIMENSIONS).

3 PROVIDE TELECOM FIBER AND COPPER IN EXISTING CONDUIT. REFER TO TELECOM RISER DIAGRAM.

4 PROVIDE TELECOM VAULT (3'X5'). INTERCEPT EXISTING 4" CONDUIT.

5 PROVIDE TWO 5" MTC FOR FUTURE MEDIUM VOLTAGE EXTENSION. CAP CONDUIT AND PROVIDE MARKER.

6 LOCATE EXISTING UNDERGROUND FEEDER SERVING LOCKER ROOM. PROVIDE 16" X 24" CONCRETE PULLBOX AND INTERCEPT FEEDER PRIOR TO LOCKER ROOM DEMO. SPLICE FEEDER (2 #2/0 THWN Cu + 1 # 6 GND IN 1.5" C) AND ROUTE TO EXISTING SCORERS SHACK. REFER TO B/E1.01.

7 ROUTE FEEDER UP EXISTING POLE AND CONNECT TO OVERHEAD 12KV. REFER TO DETAIL I/E7.05.

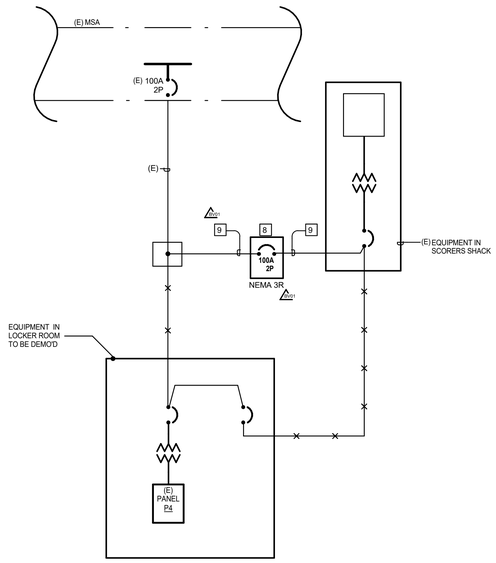
8 PROVIDE NEW ENCLOSED CIRCUIT BREAKER, NEMA 3R. MOUNT TO BACK SIDE OF SCORER'S SHACK. ENCLOSURE SHALL BE PROVIDED WITH LOCK.

9 PROVIDE 2 #2/0 THWN CU AND 1 #6 GND IN 1.5"C.

10 PROVIDE 2-3 UG CONDUITS FROM IT ROOM TO BASEBALL FIELD. TERMINATE IN A 24"H X 24"W X 6"D NEMA 4 ENCLOSURE WITH HINGED LOCKABLE DOOR.

11 EXISTING HOMERUN FROM DUGOUT TO OLD LOCKER ROOM. PANEL P4. CIRCUITS 36,38,40 & 42. INTERCEPT CONDUIT WITH AN N9 PULLBOX. PROVIDE NEW HOMERUN TO PANEL LA AS SHOWN. PROVIDE 8 #10 &#10 GROUND IN 1" C. THESE CIRCUITS NEED TO REMAIN ACTIVE DURING CONSTRUCTION. PROVIDE A TEMPORARY PANEL AND SERVE THE 4 CIRCUITS. RELOCATE TO PANEL LA WHEN PERMANENT POWER IS AVAILABLE.

12 EXISTING CONTROLS CHRISTY BOX. CONDUIT AND WIRE ROUTE FROM THIS BOX TO KEY SWITCHES IN OLD LOCKER ROOM, WHICH CONTROL THE STADIUM LIGHTS. INTERCEPT THE FEED AND ROUTE TO NEW SWITCH LOCATIONS AS SHOWN ON E2.1. THE SWITCHES NEED TO REMAIN ACTIVE DURING CONSTRUCTION. PROVIDE LOCKABLE CABINET WITH SWITCHES MOUNTED NEAR TEMPORARY POWER PANEL DURING CONSTRUCTION. RELOCATE SWITCHES WHEN BUILDING IS AVAILABLE AND REMOVE THE TEMPORARY DEVICES.



B E1.01 SCORERS SHACK POWER CONNECTION

SCALE: NTS

95% CONSTRUCTION DOCUMENTS

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OVERALL ELECTRICAL SITE PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E1.01
Project Number
07.11.2017
Revisions
1 BUREAU VERITAS 10.06.17
2 ADDENDUM 2 2.09.18

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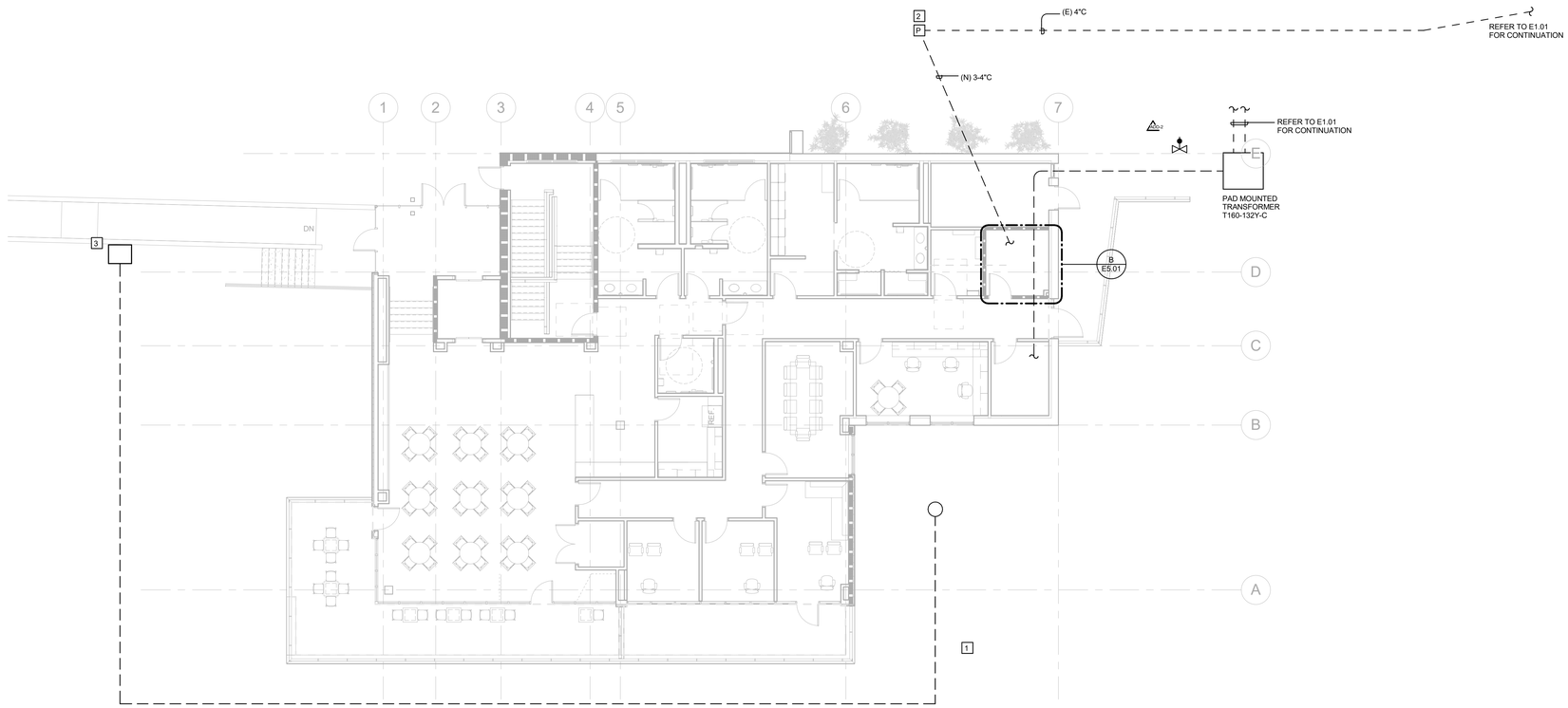
NUMBERED SHEET NOTES

1 INTERCEPT EXISTING BRANCH CIRCUITS TO BATTING CAGE LIGHTING AND ROUTE TO NEW PANEL LB, CIRCUIT 17/19 & 21/23. PROVIDE 4 #10 & 1 #10 GROUND IN 1" C. CHANGE BALLAST TAP FROM 240V TO 208V.

2 INTERCEPT EXISTING 4" CONDUITS WITH A 3'X5' INTERCEPT PULLBOX.

3 INTERCEPT EXISTING FIELD LIGHTING FEEDER IN NEW CONCRETE PULLBOX, SPLICE AND ROUTE AROUND NEW BUILDING TO STADIUM LIGHT FIXTURE. FEEDER SHALL BE 3 #1 THWN CU & 1 #6 CU GND IN 1.5"C.



A
E1.02 ENLARGED ELECTRICAL SITE PLAN

SCALE: NTS

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ELECTRICAL SITE PLAN
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E1.02
Project Number
07.11.2017
Revisions
2 ADDENDUM 2 2.09.18

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WALL SEPERATION LEGEND

WALL HOURLY RATING

0 = 0 HOUR

1 = 1 HOUR

GENERAL SHEET NOTES

A EXTEND UNSWITCHED HOT TO ALL EGRESS FIXTURES FOR EMERGENCY/BATTERY USE. FIXTURES SHALL GO TO FULL BRIGHT UPON LOSS OF POWER.

NUMBERED SHEET NOTES

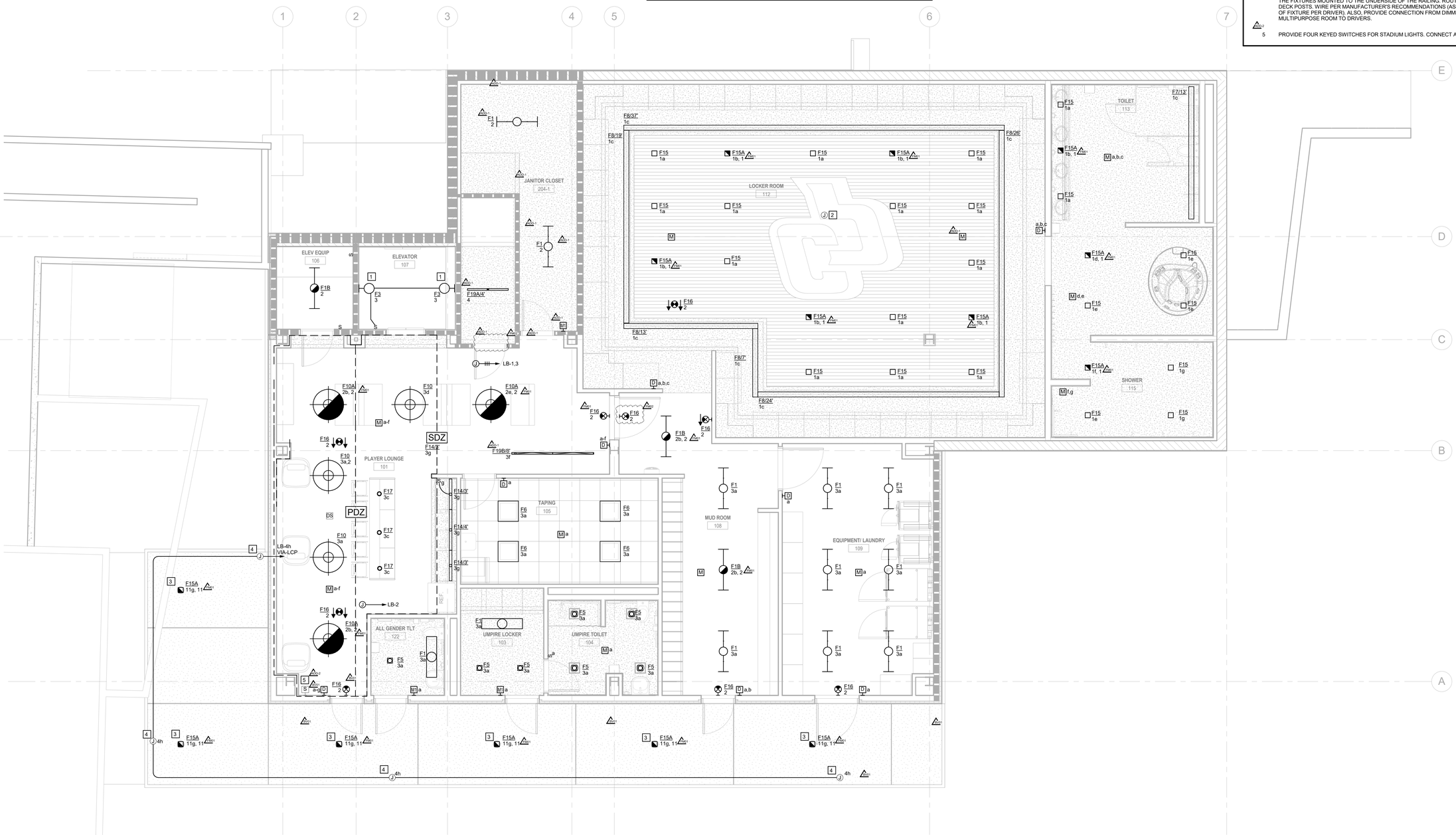
1 ELEVATOR PIT LIGHT, REFER TO FIXTURE SCHEDULE, COORDINATE EXACT LOCATION WITH FINAL ELEVATOR SHOP DRAWINGS.

2 PROVIDE POWER CONNECTION TO INTERNALLY ILLUMINATED SIGNAGE/LETTERING.

3 ROUTE HOMERUN VIA LCP. EXTEND UNSWITCHED HOT TO FIXTURE FOR EMERGENCY/BATTERY USE. ALSO, PROVIDE CONNECTION TO SWITCH INSIDE PLAYER LOUNGE.

4 PROVIDE LED DRIVER FOR F13 FIXTURE MOUNTED TO DECK RAILING ON LEVEL 2. COORDINATE ACCESS DOOR FOR DRIVER ACCESS. MOUNT DRIVER IN NEMA 3R CAN WITH HINGED COVER. ROUTE HOMERUN VIA LCP. FIXTURES SHALL BE CONTROLLED BY INTERIOR SWITCH/DIMMER LOCATED IN LEVEL 2 MULTIPURPOSE ROOM. PROVIDE 120V CONNECTION TO ALL DRIVERS (ASSUME FOUR), WHICH SHALL ALL BE LOCATED IN CAVITY ABOVE ACCESS DOOR. FROM THE DRIVERS, PROVIDE CLASS 2 OUTDOOR WIRING, #16 AWG, TO THE FIXTURES MOUNTED TO THE UNDERSIDE OF THE RAILING. ROUTE THIS CABLE VIA THE DECK POSTS. WIRE PER MANUFACTURER'S RECOMMENDATIONS (ASSUME 30' MAX LENGTH OF FIXTURE PER DRIVER). ALSO, PROVIDE CONNECTION FROM DIMMER SWITCH IN MULTIPURPOSE ROOM TO DRIVERS.

5 PROVIDE FOUR KEYED SWITCHES FOR STADIUM LIGHTS. CONNECT AS SHOWN E1.01.



A E2.01 LIGHTING PLAN - LEVEL 1

SCALE: 1/4" = 1'-0"

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LIGHTING PLAN - LEVEL 1
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E2.01
Project Number
07-111.2017
Drawing

1 BUREAU VERITAS 10.08.17
2 ADDENDUM #01 01.26.18
3 ADDENDUM 2 2.09.18
4 PRE MARSHALL BACKCHECK 1 4.6.18
5 PRE MARSHALL BACKCHECK 2 5.14.18

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WALL SEPERATION LEGEND

WALL HOURLY RATING

0 = 0 HOUR

1 = 1 HOUR

GENERAL SHEET NOTES

A EXTEND UNSWITCHED HOT TO ALL EGREE FIXTURES FOR EMERGENCY/BATTERY USE. FIXTURE SHALL GO TO FULL BRIGHT UPON LOSS OF POWER.

NUMBERED SHEET NOTES

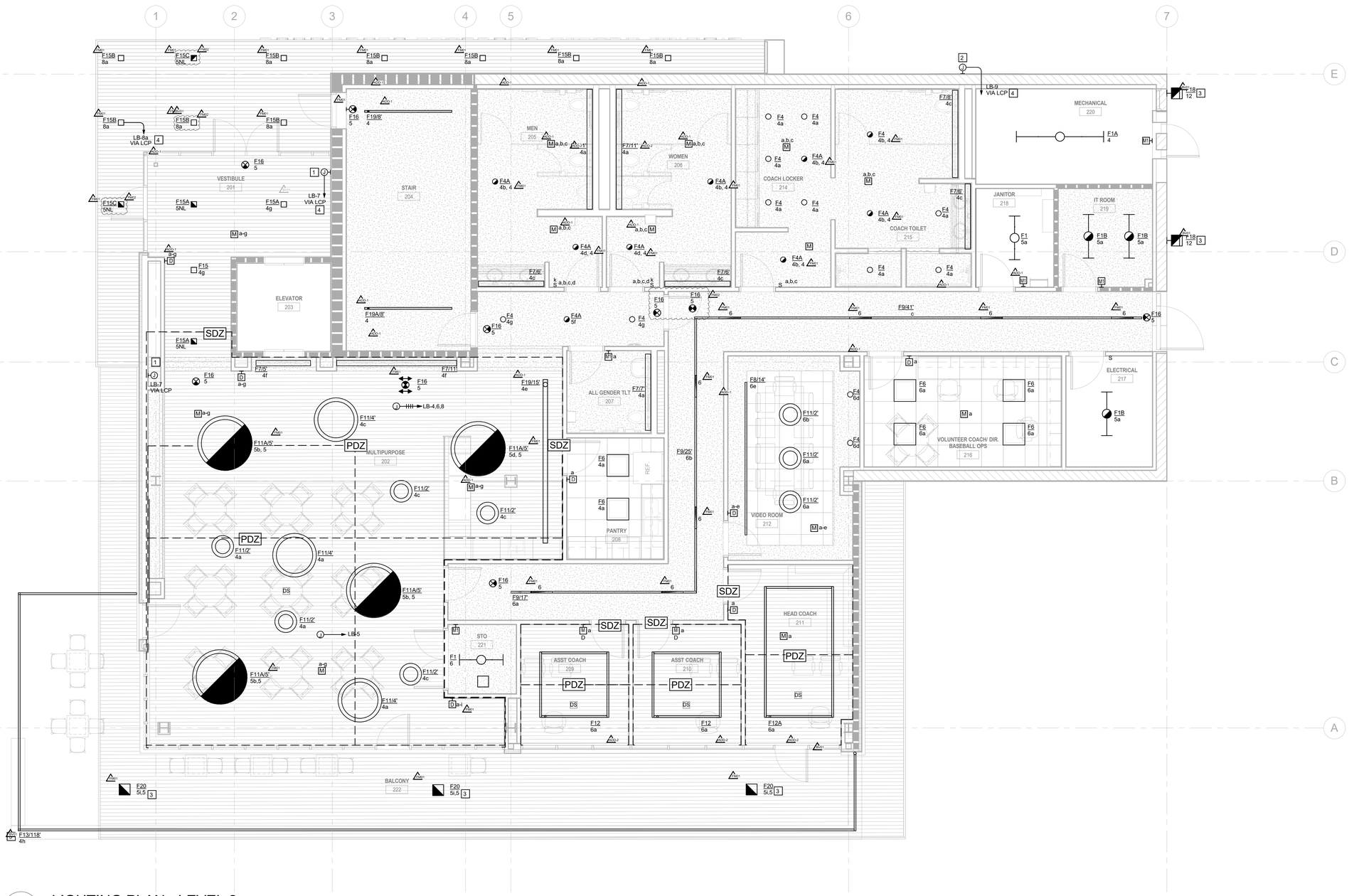
1 PROVIDE POWER CONNECTION TO SIGNAGE BACK LIT GRAPHICS.

2 PROVIDE POWER CONNECTION TO EXTERIOR BACK LIT GRAPHICS.

3 ROUTE HOMERUN VIA LCP. EXTEND UNSWITCHED HOT FOR EMERGENCY/BATTERY USE.

4 ROUTE HOMERUN VIA LCP. FIXTURES SHALL ALSO BE CONTROLLED BY INTERIOR SWITCH/DIMMER.

5 SERVE FROM DRIVERS MOUNTED BELOW. REFER TO E2.01



A E2.02 LIGHTING PLAN - LEVEL 2

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BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E2.02

Project Number
07.11.2017
Date

1 ADDENDUM BUREAU VERITAS 10.06.17
2 ADDENDUM #01 01.26.18
3 ADDENDUM #2 2.23.18
4 FIRE MARSHALL BACKCHECK 1 4.6.18
5 FIRE MARSHALL BACKCHECK 2 5.14.18

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WALL SEPERATION LEGEND

WALL HOURLY RATING

0 = 0 HOUR

1 = 1 HOUR

GENERAL SHEET NOTES

A ALL TELECOM WALL AND CEILING OUTLETS SHALL HAVE A-4-11/16" SQUARE BOX WITH SINGLE GANG RING AND 1.25" CONDUIT TO ACCESSIBLE CEILING OR TO IT ROOM WHEN ROUTED EXPOSED OR IN NON ACCESSIBLE CEILING.

B ALL TELECOM CABLE SHALL BE SUPPORTED ABOVE ACCESSIBLE CEILING WITH J-HOOKS EVERY 48 INCHES. J-HOOKS SHALL BE SIZED FOR A MAXIMUN FILL OF 40%.

C ALL TELECOM CEILING OUTLETS IN AN ACCESSIBLE CEILING SHALL HAVE A SINGLE GANG BOX SUPPORTED FROM STRUCTURE. PROVIDE A J-HOOK FOR CABLE SLACK.

D CABLE LENGTHS BETWEEN TERMINATION JACKS AND PATCH PANEL SHALL NOT EXCEED 90 METERS.

NUMBERED SHEET NOTES

1 PROVIDE POWER TO ELEVATOR PIT SUMP PUMP. COORDINATE OUTLET REQUIREMENTS WITH PLUMBING CONTRACTOR.

2 PROVIDE RECEPTACLE INSIDE LOCKER, MOUNT HORIZONTALLY ABOVE TOP SHELF.

3 PROVIDE POWER TO THE 'ICEPOD COLDTUB', 15A,120V. SERVE FROM GFCI BREAKER.

4 ELEVATOR PHONE WITH 1"C TO 2ND FLOOR TELECOM ROOM. COORDINATE ELEVATOR CONTROL PANEL LOCATION WITH ELEVATOR CONTRACTOR.

5 PROVIDE WASHING MACHINE RECEPTACLE, NEMA 15-30.

6 DATA/POWER FOR TV. REFER TO E4 SERIES DRAWINGS. TERMINATE ABOVE ACCESSIBLE CEILING OR BELOW NON ACCESSIBLE CEILING.

7 DATA CABLE FOR SECURITY CAMERAS. REFER TO E4 SERIES DRAWINGS. TERMINATE ABOVE ACCESSIBLE CEILING OR BELOW NON ACCESSIBLE CEILING.

8 PROVIDE 120V FOR SINK SENSORS.

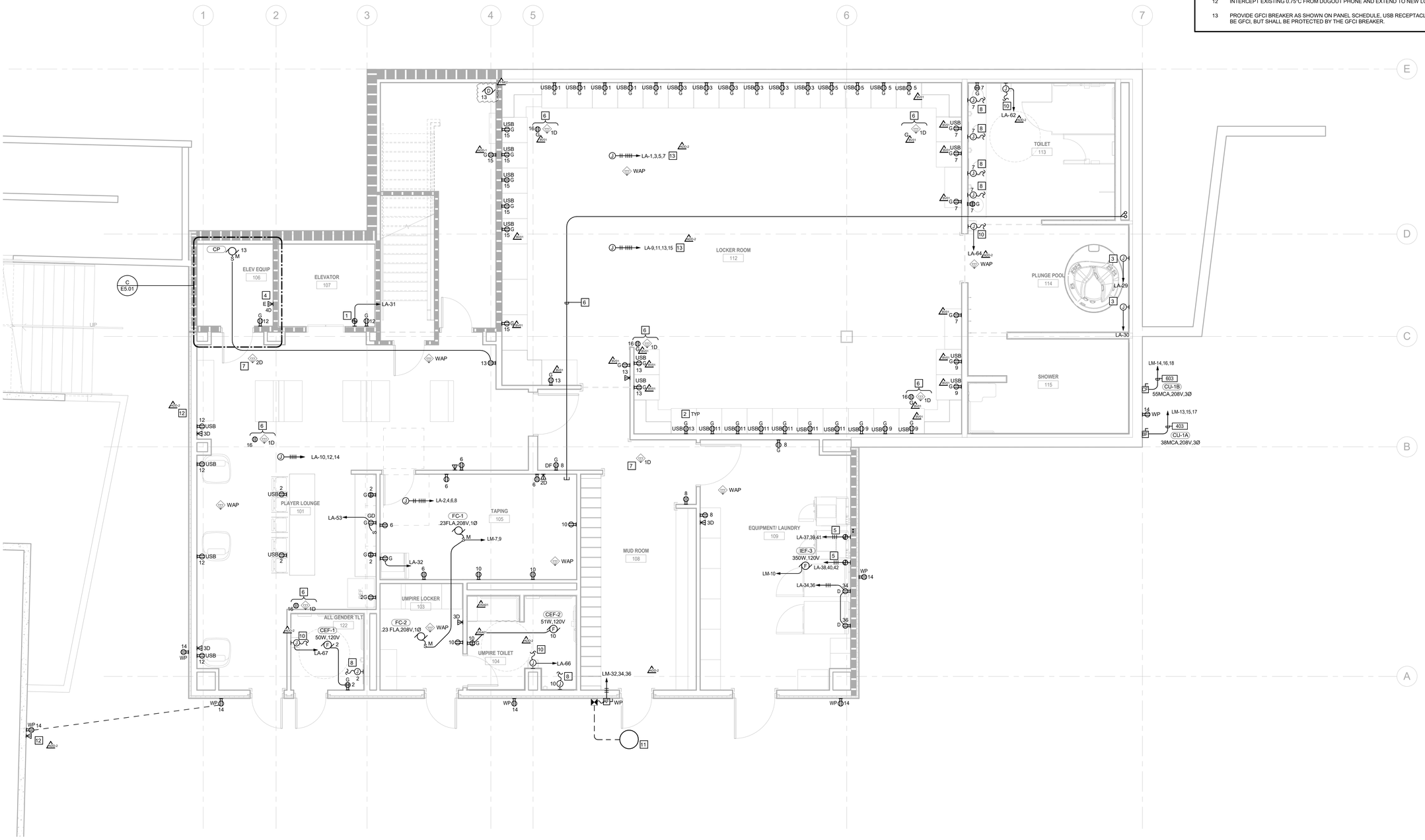
9 2-2" CONDUITS FROM IT ROOM.

10 PROVIDE 120V CONNECTION TO ELECTRIC HAND DRYER.

11 PROVIDE CONNECTION TO SEWAGE GRINDER PUMPS, TWO 208V, 3Ø, 1.5HP PUMPS.

12 INTERCEPT EXISTING 0.75"C FROM DUGOUT PHONE AND EXTEND TO NEW LOCATION.

13 PROVIDE GFCI BREAKER AS SHOWN ON PANEL SCHEDULE, USB RECEPTACLE SHALL NOT BE GFCI, BUT SHALL BE PROTECTED BY THE GFCI BREAKER.



A E3.01 POWER AND TELECOM PLAN - LEVEL 1

SCALE: 1/4" = 1'-0"

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POWER AND TELECOM PLAN - LEVEL 1
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E3.01

Project Number
07.11.2017
Revisions

1 BUREAU VERITAS 10.06.17
2 ADDENDUM #01 01.26.18
3 ADDENDUM 2 2.09.18
4 FIRE MARSHALL BACKCHECK 1 4.6.18
5 DSA BACKCHECK 1 04.27.18
6 FIRE MARSHALL BACKCHECK 2 5.14.18

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WALL SEPERATION LEGEND

WALL HOURLY RATING

0 = 0 HOUR

1 = 1 HOUR

GENERAL SHEET NOTES

A ALL TELECOM WALL AND CEILING OUTLETS SHALL HAVE A 4-11/16" SQUARE BOX WITH SINGLE GANG RING AND 1.25" CONDUIT TO ACCESSIBLE CEILING OR TO IT ROOM WHEN ROUTED EXPOSED OR IN NON ACCESSIBLE CEILING.

B ALL TELECOM CABLE SHALL BE SUPPORTED ABOVE ACCESSIBLE CEILING WITH J-HOOKS EVERY 48 INCHES. J-HOOKS SHALL BE SIZED FOR A MAXIMUN FILL OF 40%.

C ALL TELECOM CEILING OUTLETS IN AN ACCESSIBLE CEILING SHALL HAVE A SINGLE GANG BOX SUPPORTED FROM STRUCTURE. PROVIDE A J-HOOK FOR CABLE SLACK.

D CABLE LENGTHS BETWEEN TERMINATION JACKS AND PATCH PANEL SHALL NOT EXCEED 90 METERS.

NUMBERED SHEET NOTES

1 DATA/POWER FOR TV. REFER TO E4 SERIES DRAWINGS. TERMINATE ABOVE ACCESSIBLE CEILING OR BELOW NON ACCESSIBLE CEILING.

2 TERMINATE ABOVE ACCESSIBLE CEILING OR BELOW NON ACCESSIBLE CEILING.

3 PROVIDE 120V FOR SINK SENSORS.

4 2-4" CONDUITS FROM IT ROOM INTO ACCESSIBLE CEILING.

5 DATA/POWER FOR INTRUSION PANEL. REFER TO E4 SERIES DRAWINGS.

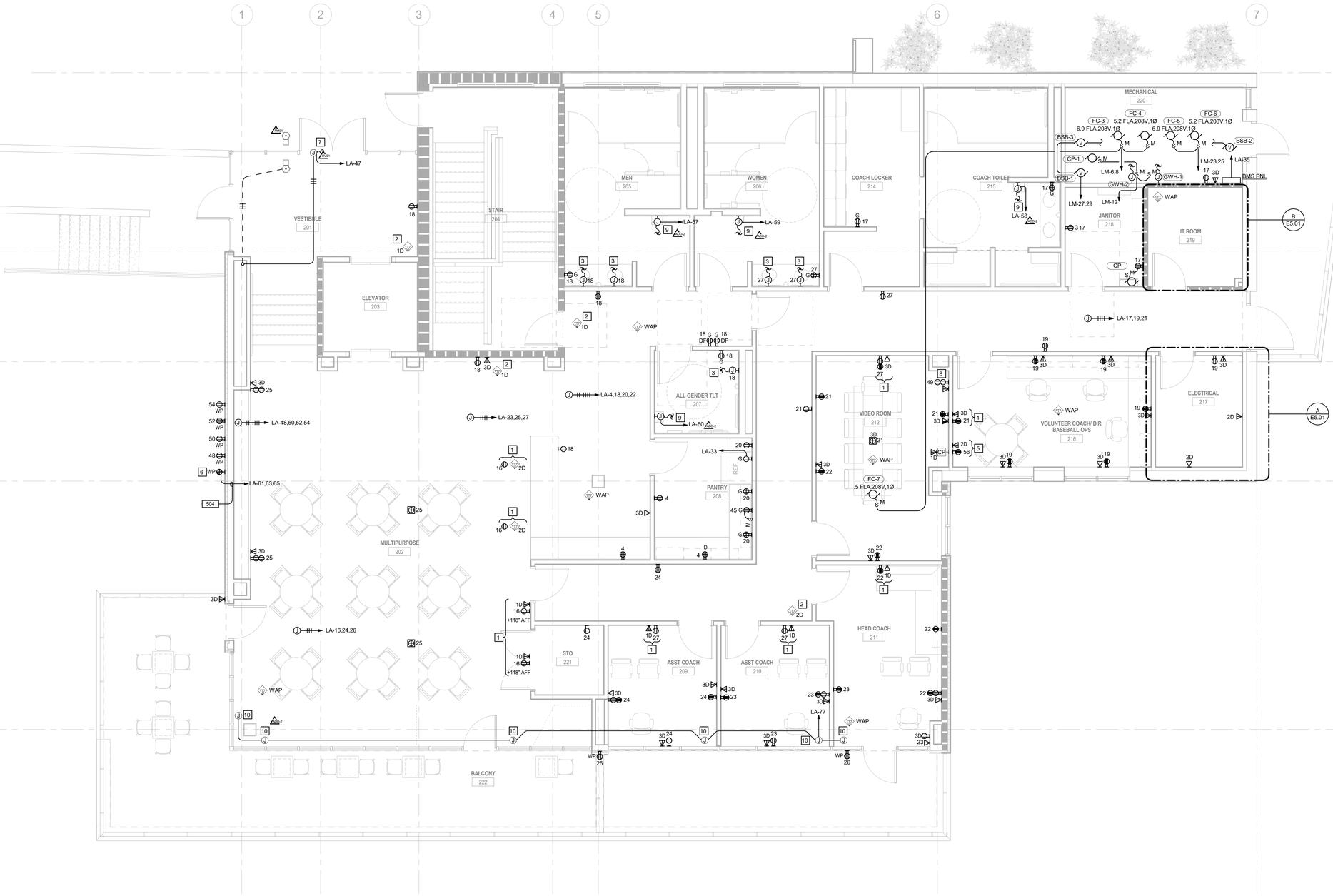
6 PROVIDE 50A, 125/250V TWIST/LOCK RECEPTACLE. CONFIRM NEMA CONFIGUREATION WITH OWNER PRIOR TO ROUGH IN.

7 PROVIDE 120V CONNECTION TO AUTO DOOR AS SHOWN. PROVIDE CONNECTION TO PUSH PADDLE BOLLARDS (AUTO DOOR OPERATORS) VIA UNDERGROUND CONDUIT. PROVIDE WIRING PER MANUFACTURERS REQUIREMENTS.

8 PROVIDE POWER AND DATA IN CASEWORK FOR AV EQUIPMENT.

9 PROVIDE 120V CONNECTION TO ELECTRIC HAND DRYER.

10 PROVIDE 120V CONNECTION TO MOTORIZED SHADES. PROVIDE CONNECTION TO LIGHTING CONTROL SYSTEM FOR AUTOMATIC AND MANUAL SHADE CONTROL.



A E3.02 POWER AND TELECOM PLAN-LEVEL 2

SCALE: 1/4" = 1'-0"

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POWER AND TELECOM PLAN - LEVEL 2
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California Polytechnic State University San Luis Obispo

E3.02
Project Number
07.11.2017
Revision

1 BUREAU VERITAS 10.06.17
2 ADDENDUM 2 2.09.18
3 FIRE MARSHALL BACKCHECK 1 4.6.18

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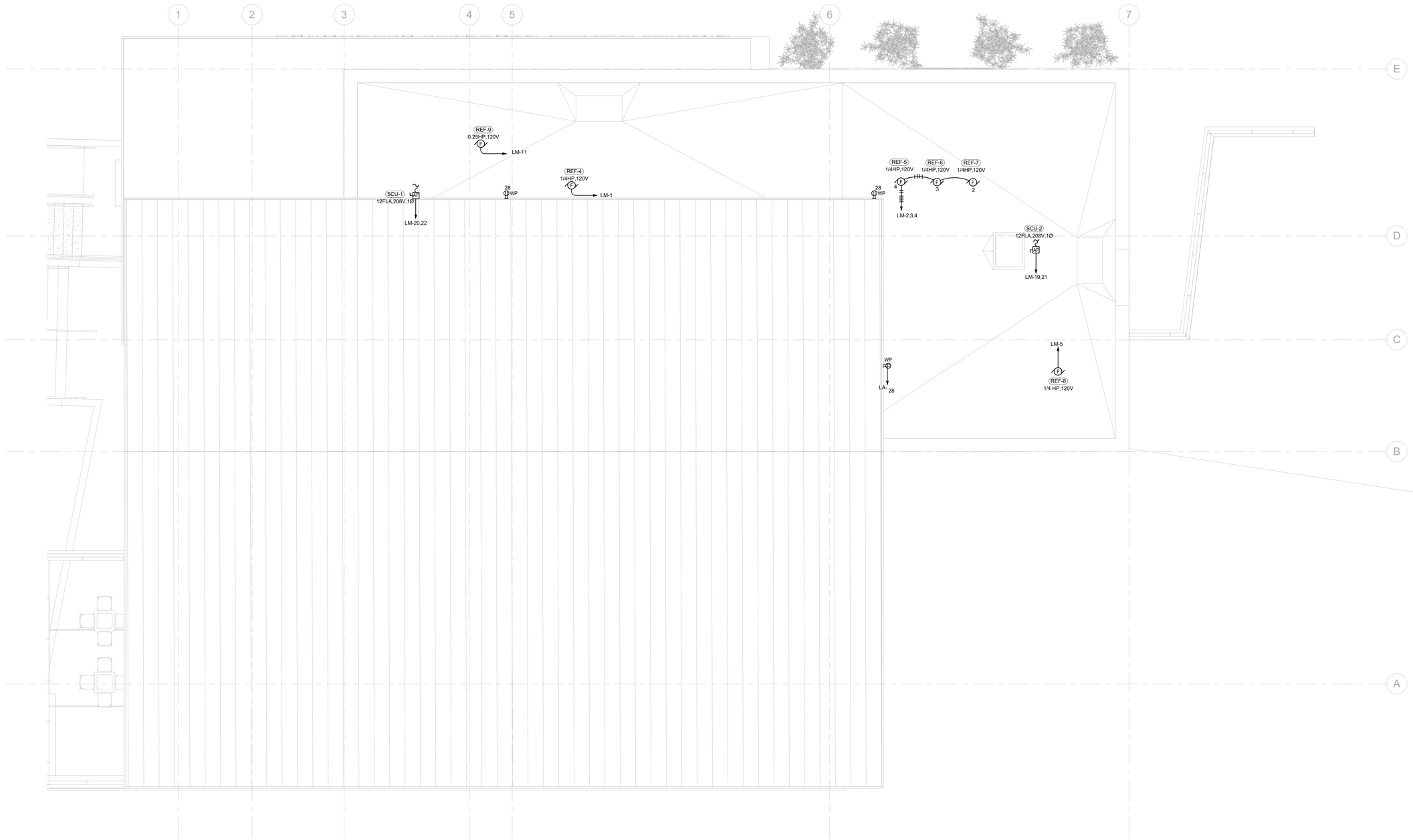

A E3.03 POWER PLAN-ROOF

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POWER PLAN-ROOF
BASEBALL CLUBHOUSE FACILITY
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E3.03
Project Number
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Revisions
1 ADDENDUM 2 2.09.18

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WALL SEPERATION LEGEND

WALL HOURLY RATING

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1 = 1 HOUR

GENERAL SHEET NOTES

A ALL AV WALL AND CEILING OUTLETS SHALL HAVE A 4-4-11/16" SQUARE BOX WITH SINGLE GANG RING AND 1.25" CONDUIT TO ACCESSIBLE CEILING TO AV CABINET IN CONFERENCE ROOM.

B ALL INTRUSION ALARM DEVICES SHALL BE INSTALLED IN MINIMUM 3/4" CONDUIT TO SECURITY ALARM PANEL.

NUMBERED SHEET NOTES

1 PROVIDE A 70" FLAT SCREEN TV WITH TILTING MOUNT. REFER TO I/E7.02

2 PROVIDE A 70" FLAT SCREEN TV SUSPENDED FROM CEILING STRUCTURE WITH TILTING MOUNT. REFER TO J/E7.02

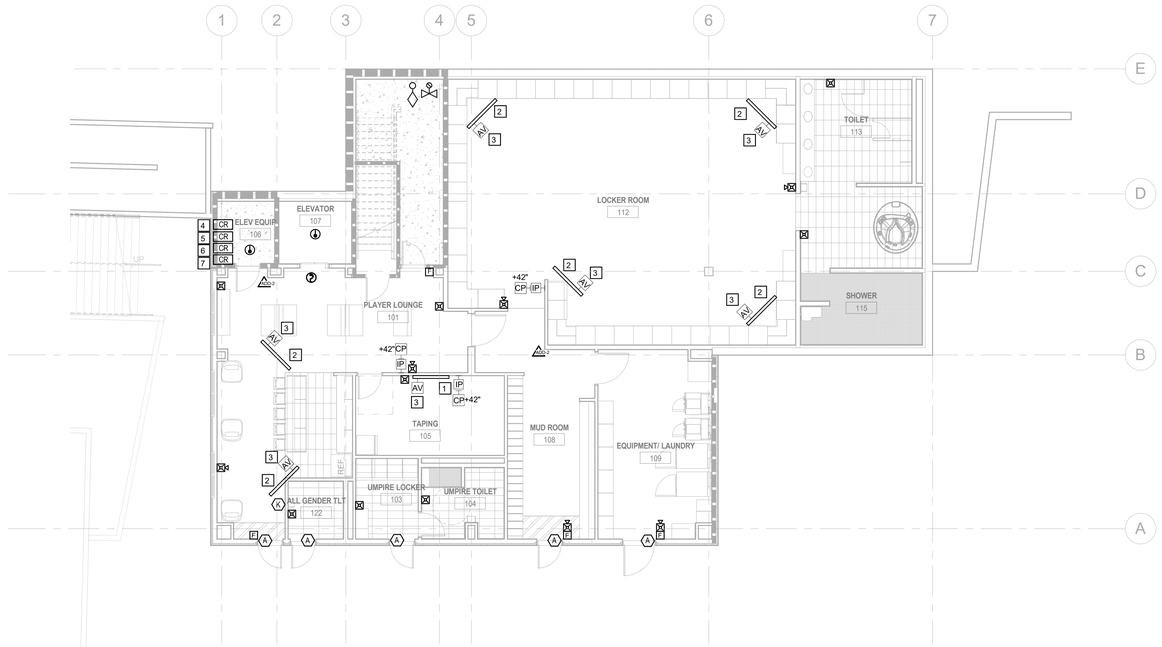
3 CAT 7a, SHIELDED FOR VIDEO CONNECTION TO DISPLAY. ROUTE CABLE FROM AV CABINET IN ROOM 112. PROVIDE A 1.25"C AND BACKBOX AS REQUIRED.

4 PROVIDE 12"x12"X6"D JUNCTION BOX ABOVE CEILING FOR POWER (REFER TO POWER DRAWINGS) AND INTERCOM TRANSFORMER. PROVIDE A 3/4" CONDUIT TO MASTER INTERCOM BACK BOX.

5 RELAY FOR ALTERNATE PHONE RECALL.

6 RELAY FOR SMOKE/HEAT DETECTOR IN EQUIPMENT ROOM AND/OR HOIST WAY.

7 RELAY FOR SHUNT TRIP.



A E4.01 SPECIAL SYSTEMS PLAN - LEVEL 1

SCALE: 1/8" = 1'-0" Add.1

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Add.2

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SPECIAL SYSTEMS PLAN - LEVEL 1
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E4.01
Project Number
07.11.2017
Revisions

Add.1 ADDENDUM 2 2.09.18
Add.2 FIRE MARSHALL BACKCHECK 1 4.6.18

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WALL SEPERATION LEGEND

WALL HOURLY RATING

0 = 0 HOUR

1 = 1 HOUR

NUMBERED SHEET NOTES

1 PROVIDE A 14U (19.25"D X 27.5"H) EQUIPMENT RACK IN CASEWORK.

2 PROVIDE 2 EACH 2" CONDUITS FROM BACK OF AV CABINET TO ACCESSIBLE CEILING FOR AV CABLING. TERMINATE IN A 12"X12"X4" FLUSH J-BOX AT BACK OF RACK.

3 TOUCH SCREEN CONTROL PANEL SHALL BE INSTALLED IN A CRESTON FLUSH J-BOX FOR A TSW-560P TOUCH SCREEN. PROVIDE A 1" CONDUIT TO ACCESSIBLE CEILING. PROVIDE A CAT 7a DATA CABLE FROM THE AVC 1 EQUIPMENT CABINET.

4 PROVIDE AN HDMI INTERFACE PLATE AT THE FLOOR BOX. REFER TO C/E6.01.

5 PROVIDE A 2 GANG OUTLET BOX WITH 1.25"C TO ACCESSIBLE CEILING.

6 PROVIDE CEILING MOUNT SPEAKERS. ROUTE CABLE TO AV CABINET.

7 PROVIDE A 70" FLAT SCREEN TV WITH TILTING MOUNT. REFER TO I/E7.02

8 CAT 7a, SHIELDED FOR VIDEO CONNECTION TO DISPLAY. ROUTE CABLE FROM AV CABINET IN ROOM 112. PROVIDE A 1.25"C AND BACKBOX AS REQUIRED.

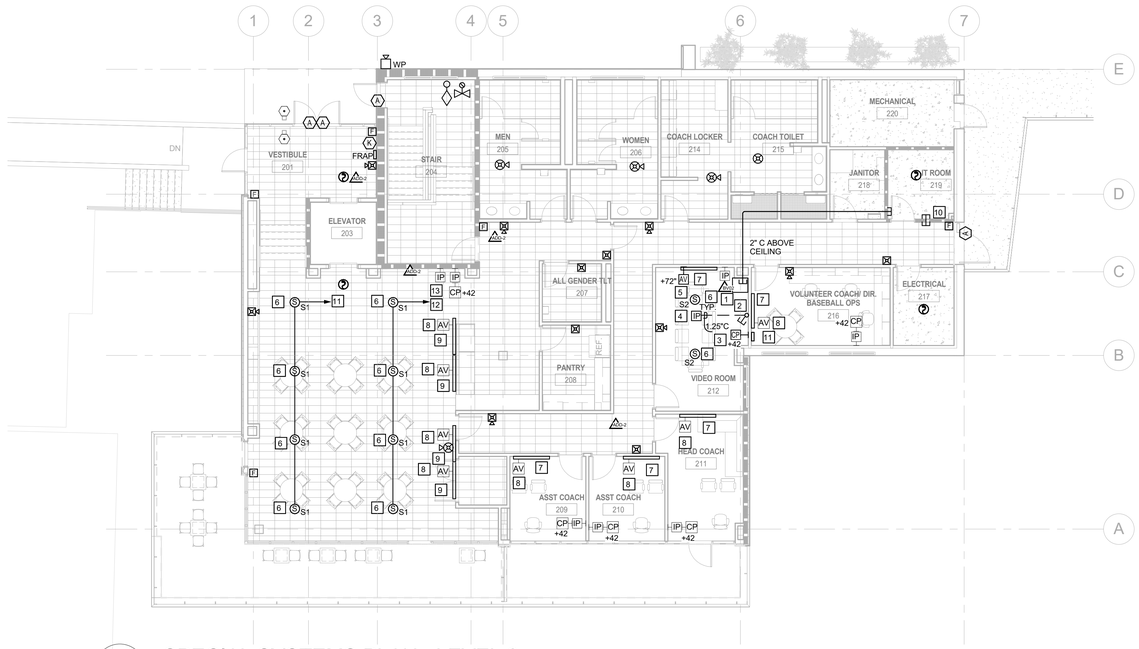
9 PROVIDE A 70" FLAT SCREEN TV SUSPENDED FROM CEILING STRUCTURE WITH TILTING MOUNT. REFER TO J/E7.02

10 PROVIDE 2-4" CONDUIT SLEEVES ABOVE ACCESSIBLE CEILING.

11 PROVIDE AN INTRUSION ALARM PANEL AND POWER SUPPLY ON WALL. ROUTE CONDUIT IN WALL TO ACCESSIBLE CEILING.

12 PROVIDE 16 GUAGE SPEAKER CABLE TO CONFERENCE ROOM AV CABINET AND BETWEEN SPEAKERS.

13 AUDIO INPUT PLATE WITH TWO AUDIO CABLES & TWO SETS OF L/R RCA CONNECTORS FOR MOBILE ALS TRANSMITTER AND WIRELESS MIC TRANSMITTER. REFER TO C/E6.01.



A E4.02 SPECIAL SYSTEMS PLAN - LEVEL 2

SCALE: 1/8" = 1'-0" Δ01

95% CONSTRUCTION DOCUMENTS Δ02

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ELECTRICAL
STATE OF CALIFORNIA

SPECIAL SYSTEMS PLAN - LEVEL 2
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E4.02
Project Number
07.11.2017
Revisions
Δ02 ADDENDUM 2 2.09.18
Δ01 FIRE MARSHALL BACKCHECK 1 4.6.18

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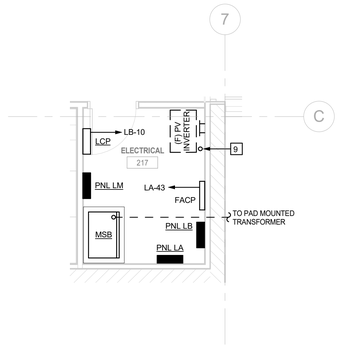
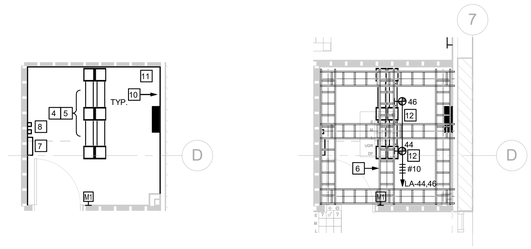


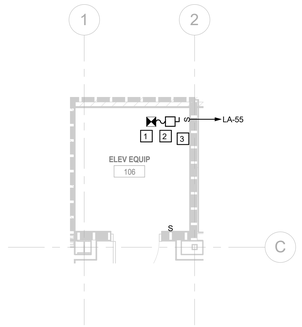
A E5.01 ELECTRICAL ROOM ENLARGEMENT

SCALE: 1/4" = 1'-0"



B E5.01 I.T. ROOM 109

SCALE: 1/4" = 1'-0"



C E5.01 ELEVATOR EQUIPMENT ROOM

SCALE: 1/4" = 1'-0"

NUMBERED SHEET NOTES

1. REFER TO E6.01 FOR CONNECTION REQUIREMENTS.
2. ELEVATOR MOTOR DISCONNECTING MEANS FUSED PER ELEVATOR SHOP DRAWINGS. PROVIDE WITH AUXILIARY CONTACTS AND CONTROL WIRING BACK TO MAIN BREAKER TO SHUT DOWN ELEVATOR BATTERY POWER SUPPLY UPON SHUNT TRIP OF THE BREAKER PER CEC-620.91(C).
3. ELEVATOR CAB LIGHT AND VENTILATION DISCONNECTING MEANS CAPABLE OF BEING LOCKED IN THE OPEN POSITION.
4. PROVIDE 3KVA RACK MOUNTED UPS WITH 30 MINUTE BATTERY IN EACH RACK.
5. PROVIDE 2 POST SIESMIC EQUIPMENT RACKS WITH 10" W x 20.2" D x 84" H VERTICAL CABLE MANAGERS AT RACK ENDS AND BETWEEN RACKS.
6. PROVIDE 12" CABLE LADDER AT 90° AFF. SUPPORT TO WALLS USING ANGLE BRACKETS, TO STRUCTURE WITH 1/2" ATR AND TO TOP OF RACKS WITH 6" RACK STANDOFFS. PROVIDE CABLE DROP OUTS AT EACH VERTICAL WIRE MANAGER.
7. PROVIDE 2 EACH 100 PAIR BUILDING ENTRANCE PROTECTORS (BEP) WITH 710 SPLICE MODULES AND 66 TERMINATION BLOCKS.
8. PROVIDE 66M1-50 TERMINATION BLOCKS TO TERMINATE RISER AND HORIZONTAL VOICE STATION CABLES.
9. LOCATION OF FUTURE ROOF PENETRATION FOR ROOFTOP PV CONNECTION.
10. PROVIDE 0.75" FIRE RATED PLYWOOD AROUND PERIMETER OF ROOM AS SHOWN. PLYWOOD SHALL BE PAINTED WITH TWO COATS OF FIRE RETARDENT PAINT. PLYWOOD SHALL EXTEND FROM FLOOR TO +8'6". LEAVE 1-STAMP UNPAINTED PER PIECE TO CONFIRM FIRE RETARDENT WOOD. (Add'l)
11. PROVIDE 4"X12" COPPER GROUND BUS AT 6" BELOW CABLE TRAY.
12. PROVIDE 20A, 120V TWISTLOCK RECEPTACLE, NEMA L5-20R. MOUNT TO LADDER RACK.

Add'2

95% CONSTRUCTION DOCUMENTS

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ROOM ENLARGEMENTS
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California Polytechnic State University San Luis Obispo

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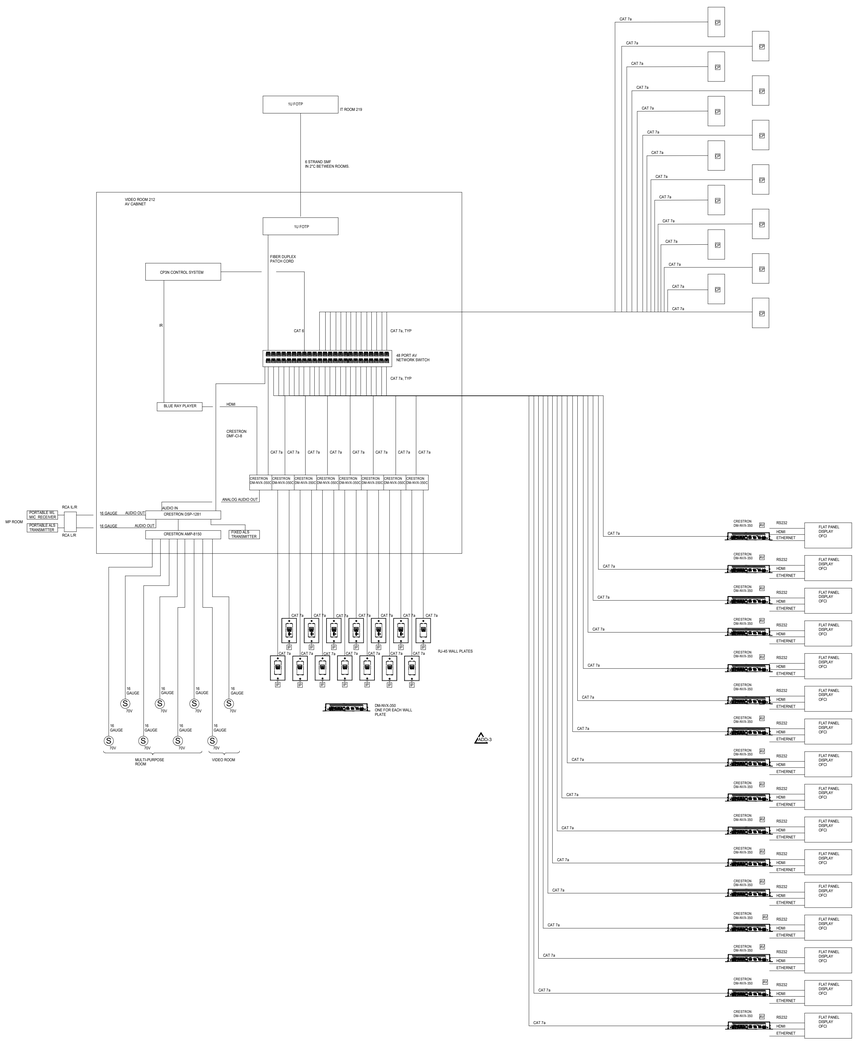
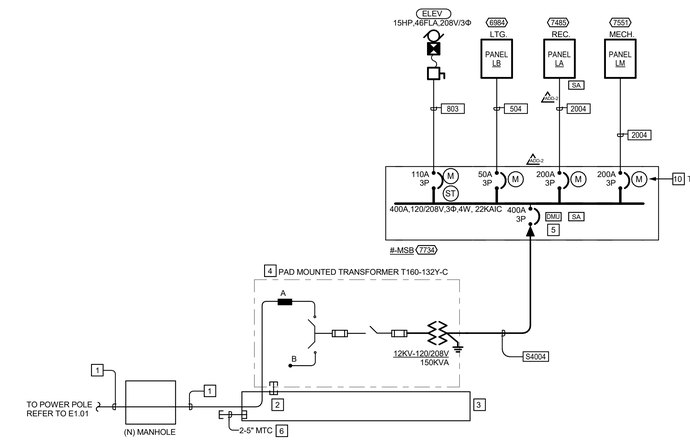
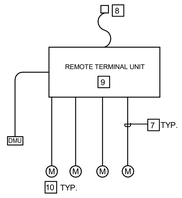




A E6.01 POWER ONE LINE DIAGRAM

SCALE: 12" = 1'-0"



NOTES:

A. PROVIDE ALL EQUIPMENT, WIRING, PROGRAMMING, TESTING, ETC. TO ASSURE SYSTEM IS OPERATIONAL. CONFIRM DATA IS ACCURATELY BEING DISPLAYED AT CAMPUS SCADA SYSTEM.

B E6.01 METERING DETAIL

SCALE: 12" = 1'-0"

C E6.01 CLUBHOUSE AV SYSTEM

SCALE: 6" = 1'-0"

NUMBERED SHEET NOTES

1. PROVIDE 3-#1/0 CU EPR (15KV) SHIELDED CONDUCTORS WITH #2 AWG, CU, TYPE THWN-2 EQUIPMENT GROUND CONDUCTOR WITH GREEN JACKET IN 5"C. BOND INSIDE VAULT AND TO PAD MOUNTED TRANSFORMER. PROVIDE ONE SPARE 5" MTC FOR FUTURE LOOP CABLING. MEDIUM VOLTAGE DUCT BANK SHALL BE CONCRETE ENCASED. UTILIZING RED CONCRETE. PROVIDE A #4/0 COPPER COUNTEREMPOSED GROUND WIRE THAT TERMINATES ON THE MANHOLE GROUNDING SYSTEM AND THE GROUND RING AT THE PAD MOUNTED TRANSFORMER. CONDUCTOR SHALL BE ROUTED FROM POLE TO TRANSFORMER WITH NO SPLICES.
2. NOT USED.
3. PROVIDE A UTILITY TRANSFORMER VAULT UNDER PAD MOUNTED TRANSFORMER. PRIMARY AND SECONDARY CABLES SHALL ROUTE THOUGH VAULT AND THROUGH THE VAULT LID WINDOW INTO THE TRANSFORMER COMPARTMENT. REFER TO DETAILS D/E7.05 AND E/E7.05.
4. PROVIDE PAD MOUNTED TRANSFORMER. REFER TO SPECIFICATION 261219 AND DETAIL D/E7.05.
5. CONNECT METER TO CAMPUS SCADA SYSTEM VIA INTERNET GATEWAY.
6. PROVIDE 3-5" CONDUITS, TWO SPARE AND ONE WITH CONDUCTORS.
7. PROVIDE WIRING FROM METER TO RTU PER MANUFACTURER'S REQUIREMENTS.
8. PROVIDE ETHERNET CONNECTION WHICH SHALL SERVE AS GATEWAY TO CAMPUS SCADA SYSTEM.
9. PROVIDE REMOTE TERMINAL UNIT (RTU) FOR INTEGRATION OF BUILDING METERS TO CAMPUS SCADA SYSTEM. RTU TO MATCH CAMPUS STANDARD, SQUARE D QUANTUM.
10. PROVIDE METERS TO MATCH CAMPUS STANDARD, SQUARE D PM 5560 REFER TO A/E6.01 FOR EXACT QUANTITY.

AVAILABLE SHORT CIRCUIT CURRENT

= AVAILABLE SHORT CIRCUIT CURRENT AT EQUIPMENT IN AMPS.

NOTES :

A. THE VALUES SHOWN ARE FROM THE PRELIMINARY SHORT CIRCUIT CALCULATION. THE CONTRACTOR IS RESPOSIBLE FOR PROVIDING A POWER SYSTEM STUDY PER SPEC SECTION 26 00 60.

B. EQUIPMENT SHALL NOT BE RELEASED UNTIL POWER SYSTEM STUDY IS COMPLETE.

95% CONSTRUCTION DOCUMENTS

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POWER ONE LINE DIAGRAM
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California Polytechnic State University San Luis Obispo

E6.01
Project Number
07.11.2017
Revisions
ADDENDUM 2 2.09.18
ADDENDUM 3 2.16.18

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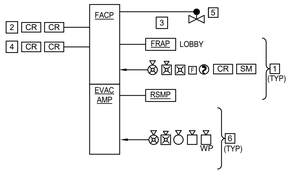
FIRE ALARM SHEET NOTES

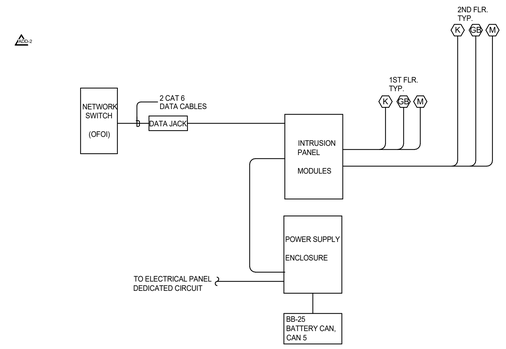
1. ALL FIRE ALARM INITIATING DEVICES, NOTIFICATION DEVICES AND MONITORING DEVICES SHALL BE INTERTIED BACK TO THE FIRE ALARM CONTROL PANEL. REFER TO THE FIRE ALARM SYSTEM FLOOR PLANS AND DRAWINGS FOR LOCATIONS OF ALL WALL, CEILING AND SITE DEVICES. THE INTERTIE OF THESE DEVICES HAS NOT BEEN SHOWN ON THESE PLANS AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AS PART OF THE FIRE ALARM SYSTEM SHOP DRAWINGS. SEE SPECIFICATIONS SECTION 283100 FOR ADDITIONAL REQUIREMENTS.
2. PROVIDE INTERFACE WITH ACCESS/SECURITY SYSTEM FOR STATUS MONITORING AND DOOR LOCK OVERRIDES.
   - ONE COMMON ALARM CONTACT/RELAY
   - ONE SUPERVISORY ALARM CONTACT/RELAY
3. COORDINATE THE FIRE ALARM REMOTE ANNUNCIATOR PANEL LOCATIONS WITH THE ARCHITECTUAL DRAWINGS PRIOR TO INSTALLATION.
4. PROVIDE INTERFACE WITH BMS FOR STATUS MONITORING AND DOOR LOCK OVERRIDES.
   - ONE COMMON ALARM CONTACT/RELAY
   - ONE SUPERVISORY ALARM CONTACT/RELAY
5. PROVIDE 1.0" CONDUIT TO EACH SITE FIRE ALARM VALVE FOR MONITORING. CONFIRM THE QUANTITY, LOCATIONS AND TYPE WITH THE CIVIL AND PLUMBING DRAWINGS.
6. ALL FIRE ALARM SPEAKER DEVICES SHALL BE INTERTIED BACK TO THE EMERGENCY EVACUATION SYSTEM VOICE AMPLIFIER AND SHALL TONE WHEN A FIRE ALARM SOUNDS FOLLOWED BY VOICE COMMANDS PER THE 2016 CALIFORNIA FIRE CODE. REFER TO THE FIRE ALARM SYSTEM FLOOR PLANS AND DRAWINGS FOR LOCATIONS OF ALL WALL, CEILING AND SITE DEVICES. THE INTERTIE OF THESE DEVICES HAS NOT BEEN SHOWN ON THESE PLANS AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AS PART OF THE FIRE ALARM SYSTEM AND EMERGENCY EVACUATION SYSTEM SHOP DRAWINGS. SEE SPECIFICATIONS SECTION 286113 FOR ADDITIONAL REQUIREMENTS. △2/E1



A E6.02 FIRE ALARM RISER DIAGRAM

SCALE: NTS

LEGEND NOTES ARE COMMON TO ALL SOME NOTES MAY NOT APPLY TO THIS SHEET

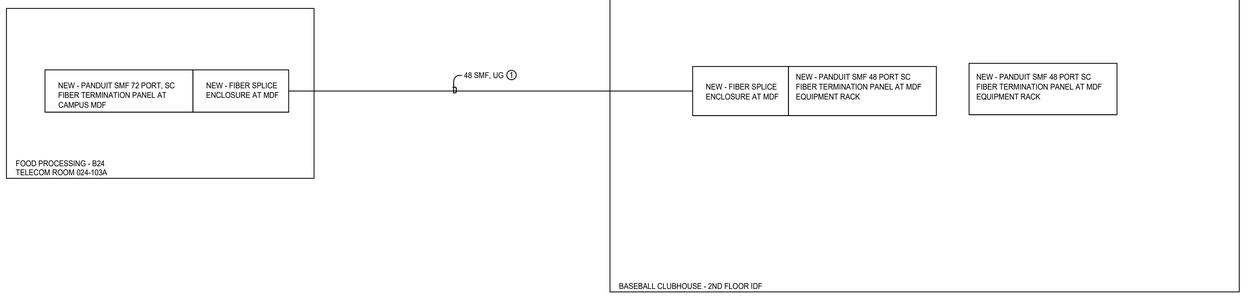


C E6.02 SECURITY SYSTEM RISER DIAGRAM

SCALE: NTS

FIBER SHEET NOTES

1. PLACE FIBER CABLE IN 1.25" UG RATED INNERDUCT. FUSION SPLICE FIBER CABLE AT BOTH ENDS TO SC (SMF) AND ST (MMF) PIGTAILS.
2. PLACE FIBER CABLE IN 1.25" RISER RATED INNERDUCT. FUSION SPLICE FIBER CABLE AT BOTH ENDS TO SC (SMF) AND ST (MMF) PIGTAILS.

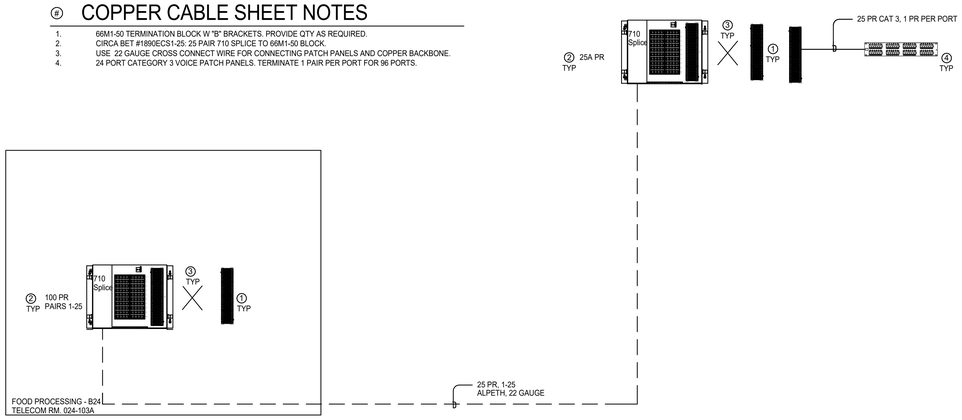


D E6.02 FIBER BACKBONE RISER DIAGRAM

SCALE: NTS

COPPER CABLE SHEET NOTES

1. 66M1-50 TERMINATION BLOCK W "B" BRACKETS. PROVIDE QTY AS REQUIRED.
2. CIRCA BET #1890ECS1-25: 25 PAIR 710 SPLICE TO 66M1-50 BLOCK.
3. USE .22 GAUGE CROSS CONNECT WIRE FOR CONNECTING PATCH PANELS AND COPPER BACKBONE.
4. 24 PORT CATEGORY 3 VOICE PATCH PANELS. TERMINATE 1 PAIR PER PORT FOR 96 PORTS.



E E6.02 TELEPHONE COPPER RISER DIAGRAM

SCALE: NTS

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LOW VOLTAGE RISER DIAGRAMS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E6.02
Project Number
07.11.2017
Revisions

△2-1 ADDENDUM 2 2.09.18
△2-2 FIRE MARSHALL BACKCHECK 1 4.6.18

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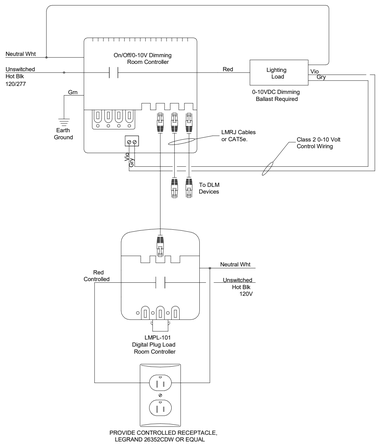
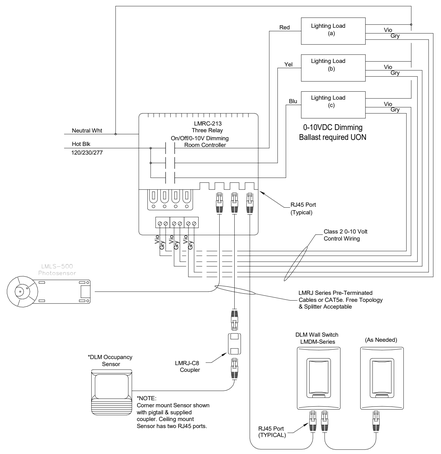


A TYPICAL RECEPTACLE CONTROL

E6.03 SCALE:NONE



DIMMING ROOM CONTROLLER W/ DAYLIGHT & OCCUPANCY SENSOR(S)
Number of relays and quantity of room controllers varies, refer to plans
Refer to the seqence of operations for programming requirements
Provide daylight sensor per plans, sensor shall continuously dim to maintain light levels in each daylit zone

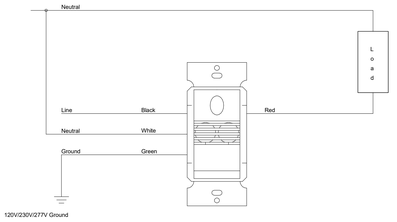
△D01 Light levels are manually adjustable from dimmer switches

△D01 Refer to detail on this sheet for integration with lighting control network device
NOTE: Provide an unswitched hot to each emergency battery driver to allow fixture to bypass dimmer controls upon loss of power.

B TYPICAL DIMMING/DAYLIGHT CONTROL

E6.03 SCALE:NONE

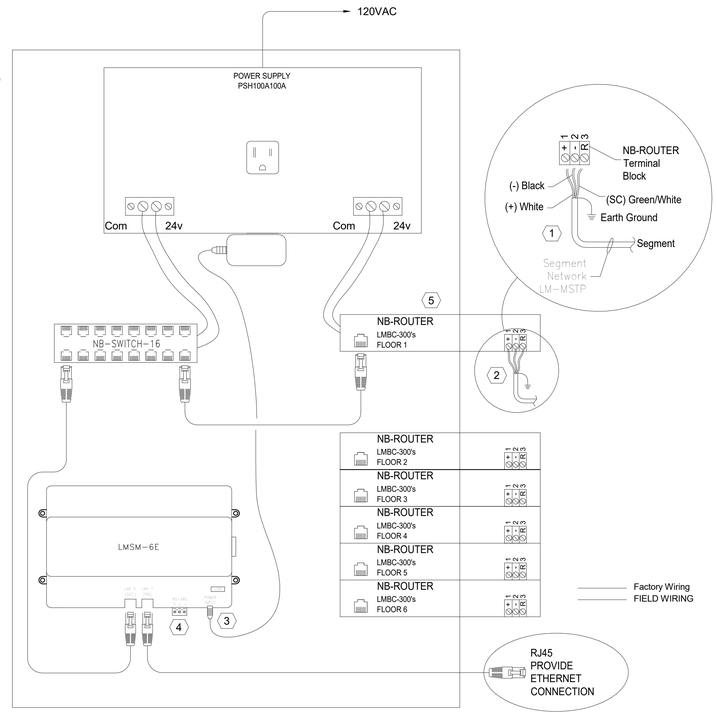
△D01



SINGLE RELAY WALL MOUNTED DUAL-TECHNOLOGY OCCUPANCY SENSOR
Typical at storage rooms, custodial rooms, single user restrooms, etc.
Set time delay to 15 min., sensitivity to max.
Primary load (switchleg 'a') is manual on, automatic off

C SINGLE LEVEL WALLBOX SENSOR

E6.03 SCALE:NONE



NOTE:

1. REQUIRED LM-MASTP, 3/#22 AWG TWISTED PAIR W/SHIELD LINEAR TOPOLOGY.
2. TERMINATE SHIELD TO EARTH GROUND AT ROUTER ONLY.
3. CONNECT TO 24VDC POWER SUPPLY LOCATED IN THIS PANEL.
4. ON-BOARD RS-485 PORT ARE NOT TO BE WIRED IN THIS CONFIGURATION.
5. EACH NB-ROUTER REQUIRES A SEPARATE DEVICE ID AND NETWORK NUMBER. (SNET)

GENERAL NOTES:

1. 300 ROOM LIMIT PER LMSM-6E
2. 40 (MAX) LMBC-300'S PER SEGMENT.
3. SEGMENT NETWORK MAY NOT CONNECT TO LMBC-300'S ON MORE THAN ONE FLOOR.
4. BACNET/IP INTEGRATION BY SEGMENT MANAGER EXPORT TABLE ONLY WITHOUT PM APPROVAL.
5. WATTSTOPPER SERVICES ARE RECOMMENDED FOR NETWORK PROJECTS.

G SEGMENT MANAGER ENCLOSURE

E6.03 SCALE:NONE

GENERAL SHEET NOTES

A CONTRACTOR SHALL PROVIDE COMPLETE SHOP DRAWINGS FOR ALL LIGHTING CONTROLS, TO INCLUDE PRODUCT DATA SHEETS, DETAILED ROOM BY ROOM WIRING DIAGRAMS, AND COMPLETE SEQUENCE OF CONTROL OPERATIONS.

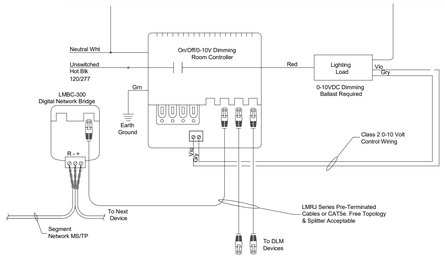
B REFER TO LIGHTING CONTROL SEQUENCE OF OPERATIONS ON SHEET E0.2 FOR ADDITIONAL PROGRAMMING REQUIREMENTS FOR NETWORKED LIGHTING CONTROLS.

C WIRING DIAGRAMS HAVE BEEN PROVIDED TO CONVEY GENERAL DESIGN INTENT. PROVIDE ALL COMPONENTS, CABLING, ETC. AS REQUIRED TO PROVIDE A FULLY FUNCTIONAL SYSTEM MEETING THE DESIGN INTENT AS SHOWN ON THE PLANS.

D ROOM CONTROLLERS, POWER PACKS, ARE NOT SHOWN ON THE PLANS. LOCATE IN AN EASILY SERVICEABLE LOCATION IN ACCESSIBLE CEILING SPACE. IF THE ROOM CEILING IS NOT ACCESSIBLE, LOCATE IN ADJACENT ROOM ACCESSIBLE CEILING SPACE AND DENOTE LOCATION ON THE RECORD DRAWINGS.

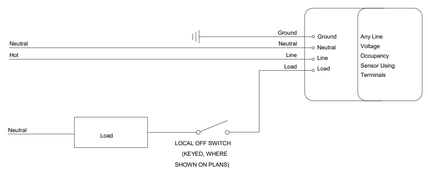
E 0-10V WIRING IS NOT SHOWN ON THE PLANS. PROVIDE 18-AWG SOLID COPPER WIRE RATED 600V MIN., 105°C, WITH VIOLET. GRAY SHEATHING. 0-10 WIRE MAY BE ROUTED FREE AIR, CABLE TIE WIRES TO CONDUIT FOR LINE VOLTAGE WIRING.

F PROVIDE WIRING TO INTERCONNECT EACH INDIVIDUAL ROOM CONTROLS, AS REQUIRED TO NETWORK THE DIGITAL LIGHTING CONTROL SYSTEM.



D TYPICAL NETWORK INTERFACE

E6.03 SCALE:NONE



E DETAIL NOT USED

E6.03 SCALE:NONE

F LINE VOLTAGE CEILING SENSOR

E6.03 SCALE:NONE

△D2 95% CONSTRUCTION DOCUMENTS

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LIGHTING CONTROL RISER DIAGRAMS
BASEBALL CLUBHOUSE FACILITY
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E6.03
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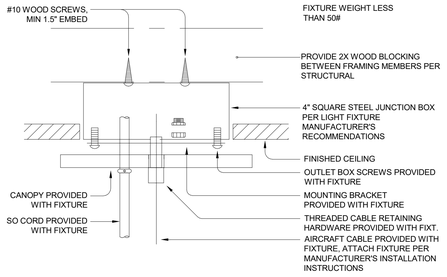

A E7.01 PENDANT MOUNTED FIXTURE

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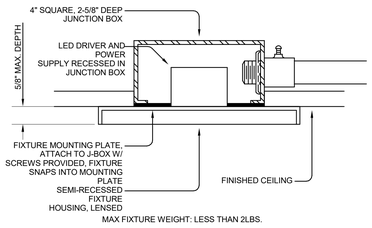
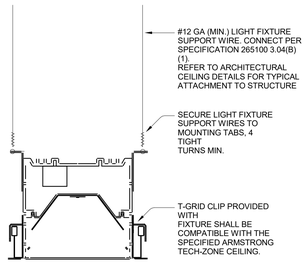


B E7.01 SEMI-RECESSED FIXTURE

SCALE: 12" = 1'-0"



C E7.01 RECESSED LINEAR 'SLOT' LIGHT FIXTURE

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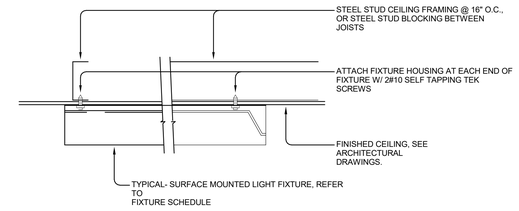
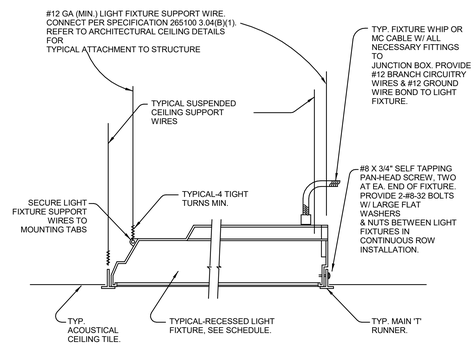


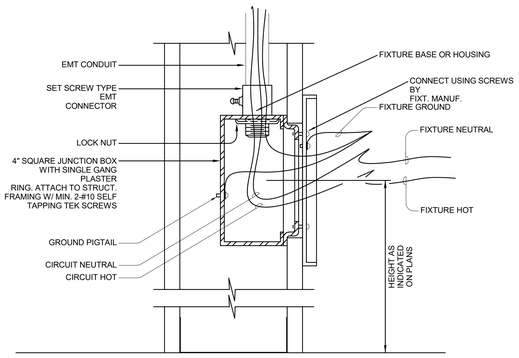
D E7.01 SURFACED MOUNTED FIXTURE

SCALE: 12" = 1'-0"



E E7.01 RECESSED TROFFER LIGHT FIXTURE

SCALE: 12" = 1'-0"

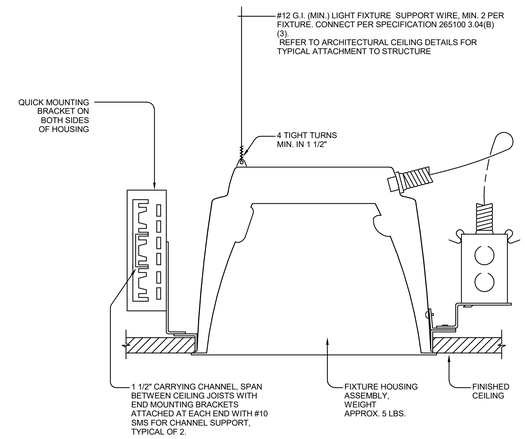


GENERAL NOTE :

FOR FIXTURES OVER 16" IN LENGTH OR OVER 15 LBS., CONTRACTOR IS TO PROVIDE #16 GAUGE STEEL BACKING ATTACHED TO (3) STUDS WITH (2) #8 SHEET METAL SCREWS PER STUD. ATTACH FIXTURE TO BACKING WITH #10 X 1.5" TEK SCREWS.

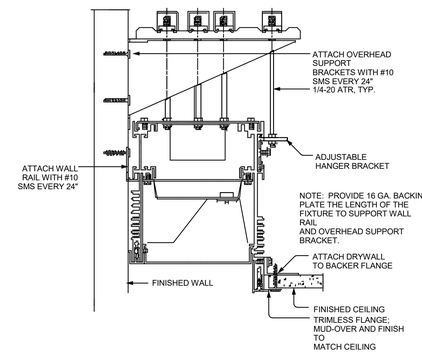
F E7.01 WALL MOUNTED LIGHT FIXTURE

SCALE: 12" = 1'-0"



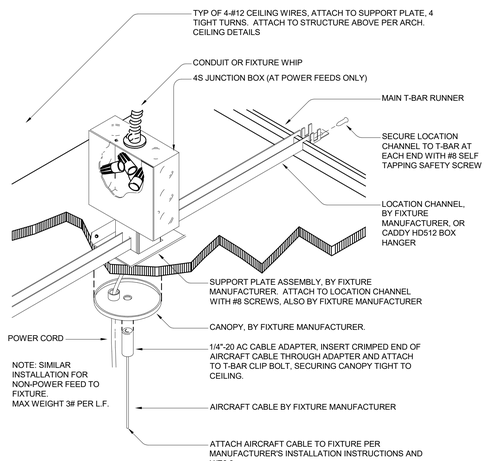
G E7.01 RECESSED DOWNLIGHT

SCALE: 12" = 1'-0"



H E7.01 RECESSED PERIMETER FIXTURE

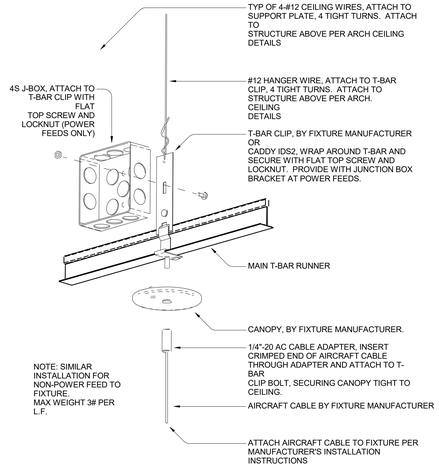
SCALE: 3/4" = 1'-0"



SUSPENDED FIXTURE INSTALLATION AT T-BAR CEILING, BETWEEN T-BAR RUNNERS

I E7.01 SUSPENDED LIGHT FIXTURE 1/2

SCALE: 12" = 1'-0"



SUSPENDED FIXTURE INSTALLATION AT T-BAR CEILING, ON T-BAR RUNNER

J E7.01 SUSPENDED LIGHT FIXTURE 2/2

SCALE: 12" = 1'-0"

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E7.01
Project Number
07.11.2017
Revisions
2 ADDENDUM 2 2.09.18

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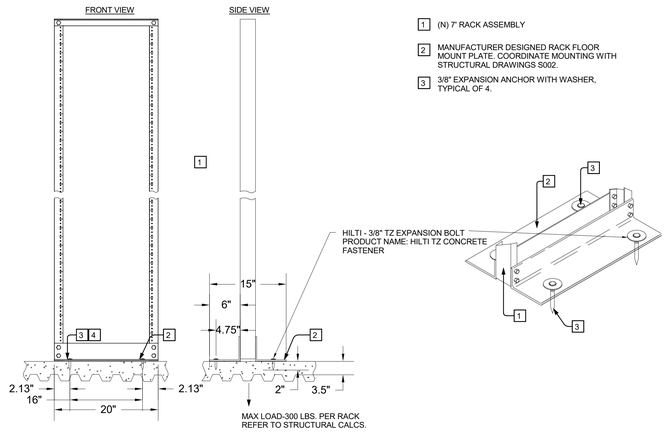

A E7.02 EQUIPMENT RACK BASE SUPPORT

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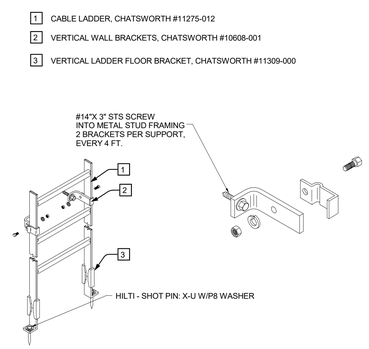
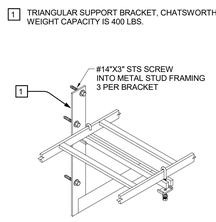


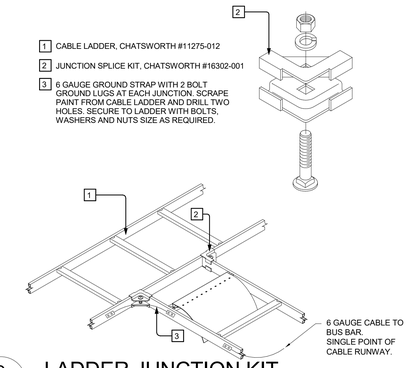
B E7.02 VERTICAL LADDER SUPPORT

SCALE: 12" = 1'-0"



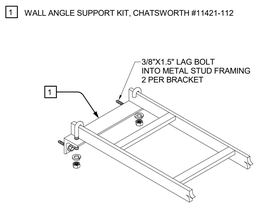
C E7.02 ANGLE WALL SUPPORT

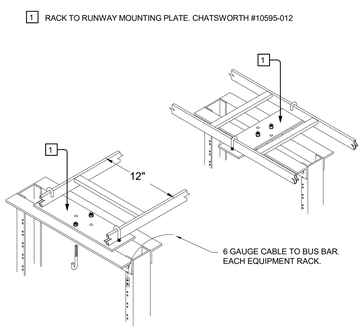
SCALE: 12" = 1'-0"

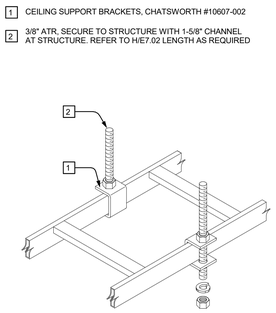


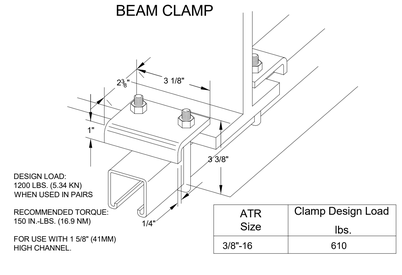
D E7.02 LADDER JUNCTION KIT

SCALE: 12" = 1'-0"





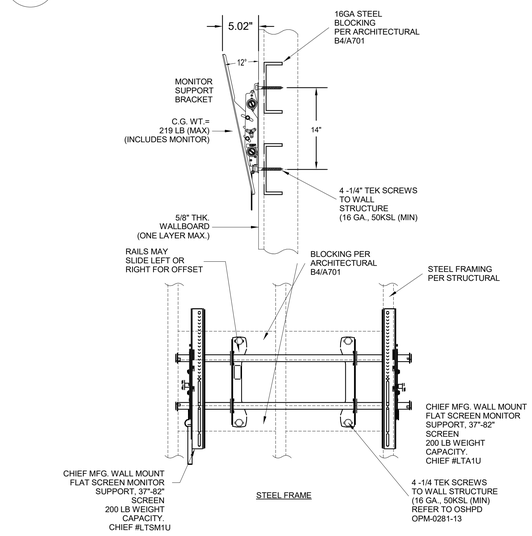




ATR Size	Clamp Design Load lbs.
3/8"-16	610

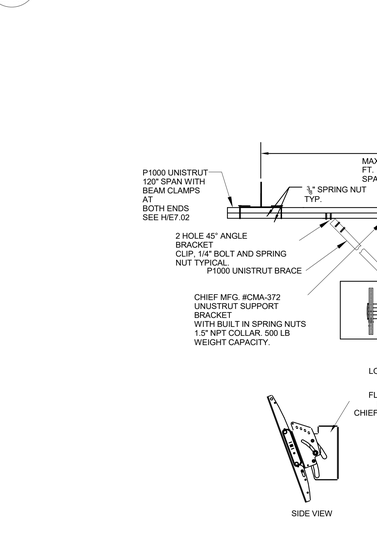
H E7.02 I-BEAM CLAMP DETAIL

SCALE: 12" = 1'-0"



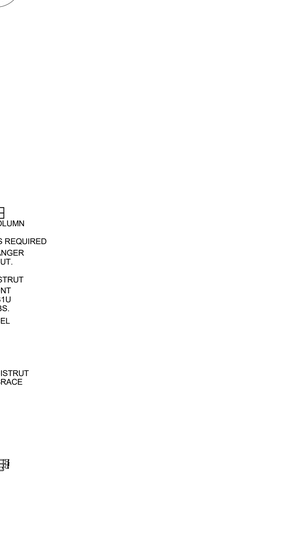
E E7.02 END SUPPORT BRACKET

SCALE: 12" = 1'-0"



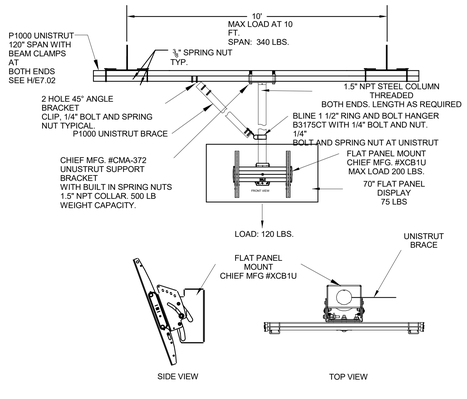
F E7.02 LADDER TO RACK SUPPORT

SCALE: 12" = 1'-0"



G E7.02 LADDER TRAPEZE SUPPORT

SCALE: 12" = 1'-0"



I E7.02 FLAT SCREEN TV WALL MOUNT

SCALE: 12" = 1'-0"

J E7.02 FLAT SCREEN TV CEILING MOUNT

SCALE: NTS

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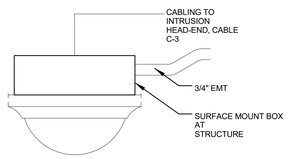
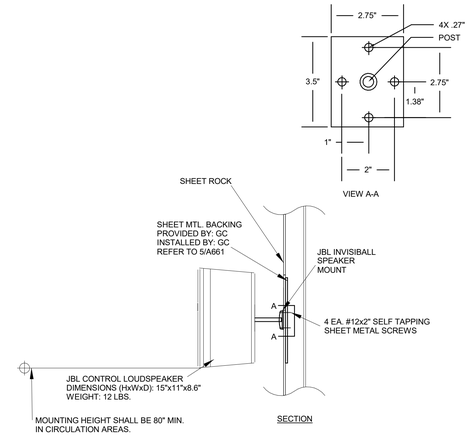


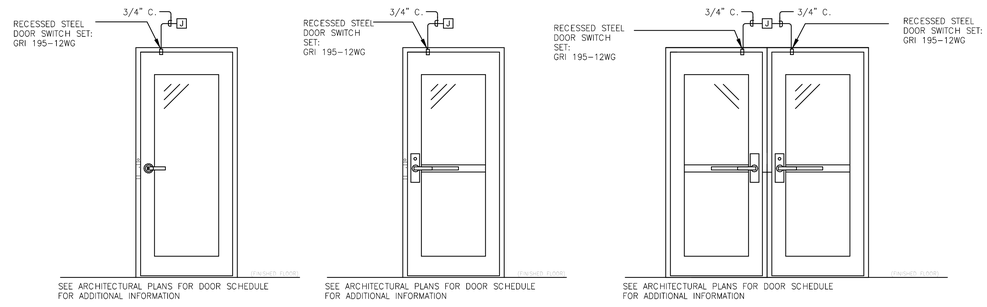
A E7.03 DOME TYPE MOTION DETECTOR

SCALE: 12" = 1'-0"



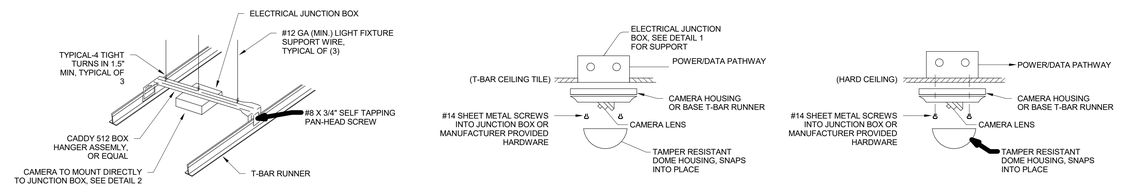
B E7.03 WALL SPEAKER SUPPORT

SCALE: 12" = 1'-0"



C E7.03 TYPICAL DOOR ELEVATIONS ACCESS AND INTRUSION

SCALE: 12" = 1'-0"



D E7.03 SECURITY CAMERA MOUNTING DETAILS

SCALE: 12" = 1'-0"

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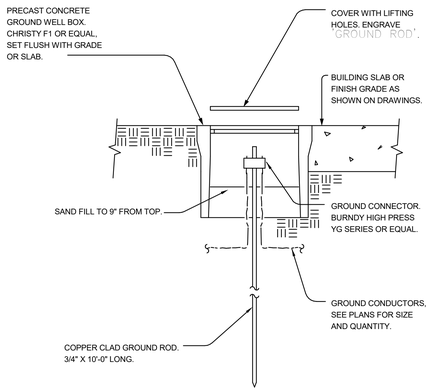
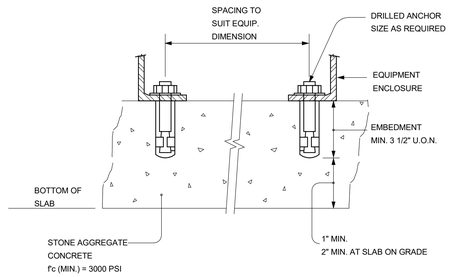


A E7.04 GROUND ROD WELL

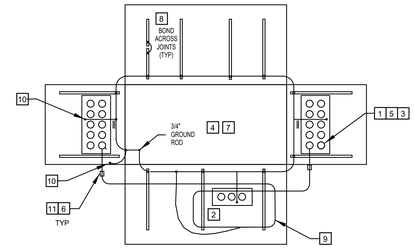
SCALE: 12" = 1'-0"



DISTRIBUTION BOARDS : 3 PER SIDE PER CUBICLE.
TRANSFORMERS : 2 PER SIDE.

B E7.04 EQUIPMENT PAD

SCALE: 12" = 1'-0"

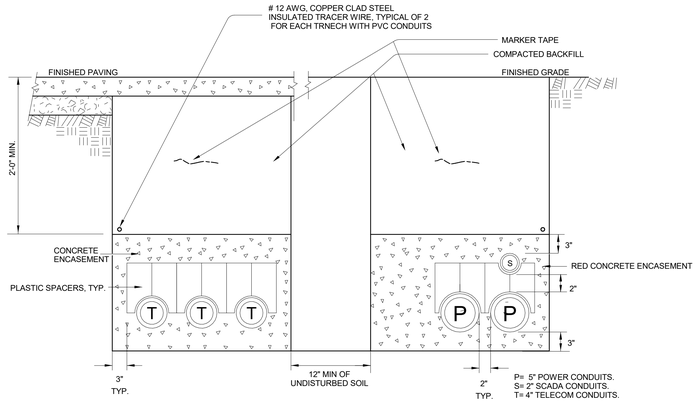


DETAIL NOTES :

1. PVC CONDUIT END BELL.
2. CAP CABLE ENDS IMMEDIATELY AFTER PULL IF CABLE TERMINATIONS ARE TO BE INSTALLED LATER.
3. ALL UNUSED CONDUIT SHALL HAVE PULL LINE INSTALLED AND SECURED. CONDUITS SHALL BE SEALED USING A RAYCHEM ROSS SEAL OR EQUAL.
4. GROUND ROD PER SPECIFICATION.
5. CONDUITS SHALL BE SEALED AT ENTRANCE TO MANHOLES, PULLBOXES AND CABLE TRENCHES.
6. UPON COMPLETION OF ALL CABLE RECONNECTION AND INSTALLATION, RELABEL ALL CABLES WITH PROPER CIRCUIT IDENTIFICATION AND OTHER REQUIRED DATA FOR PROPER IDENTIFICATION.
7. INSTALL #2/0 AWG BARE COPPER GROUND LOOP.
8. BOND ALL NON CURRENT CARRYING BRACKETS, RACKS AND SUPPORTS TO GROUND LOOP.
9. PROVIDE CABLE LOOP (MINIMUM 8' DIAMETER) FOR NEW CIRCUITS IN ALL MANHOLES AS SHOWN WHETHER OR NOT CABLE IS SPLICED.
10. BOND DUCTBANK GROUNDING CONDUCTOR AND CIRCUIT GROUNDING CONDUCTOR TO GROUND LOOP.
11. TAG ALL CABLES. TAGS SHALL BE INSTALLED WITHIN 18 INCHES OF CABLE ENTRY AND EXIT OF ACCESSIBLE SPACES SUCH AS MANHOLES, CABLE TRENCHES, ETC. IDENTIFY CIRCUIT NUMBER, SOURCE LOCATION, TOTAL LENGTH; FROM: SOURCE ID (UPSTREAM SWITCHGEAR OR MANHOLE, ETC.), DISTANCE TO: LOAD ID (DOWNSTREAM SWITCH, MANHOLE, ETC.), DISTANCE.

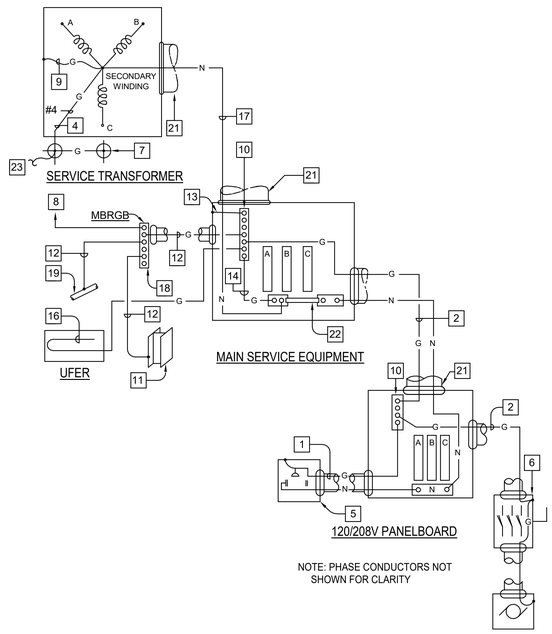
C E7.04 TYPICAL MANHOLE INTERIOR DETAIL

SCALE: 12" = 1'-0"



D E7.04 JOINT TRENCH DETAIL

SCALE: 12" = 1'-0"



NOTE: PHASE CONDUCTORS NOT SHOWN FOR CLARITY

E E7.04 GROUND SYSTEM SCHEMATIC WIRING DIAGRAM

SCALE: 12" = 1'-0"

1. ALL EQUIPMENT GROUNDING CONDUCTORS FOR RECEPTACLE BRANCH CIRCUITS SHALL BE SIZED PER N.E.C. ARTICAL 250. MULTIPLE BRANCH CIRCUIT HOMERUNS SHALL USE ONLY ONE EQUIPMENT GROUNDING CONDUCTOR, UON.
2. SIZE EQUIPMENT GROUNDING CONDUCTORS FOR FEEDER CIRCUITS PER FEEDER SCHEDULE OR IF NOT SHOWN PER N.E.C. ARTICLE 250.
3. ROUTE ONE COPPER GROUNDING ELECTRODE CONDUCTOR, SIZED PER N.E.C. ARTICAL 250, IN CONDUIT TO GROUNDING ELECTRODES SHOWN.
4. UTILITY SERVICE GROUNDING SHALL BE IN ACCORDANCE WITH N.E.C. ARTICLE 250.
5. TYPICAL RECEPTACLE WITH EQUIPMENT GROUNDING CONDUCTOR. GROUND PER N.E.C. ARTICLE 250.
6. CONNECT EQUIPMENT GROUNDING CONDUCTORS TO GROUND LUG BONDED TO THE ENCLOSURE.
7. GROUND ROD OR OTHER MADE ELECTRODES PER N.E.C. ARTICLE 250 AND AS SHOWN ON DRAWINGS AND SPECIFICATIONS. PROVIDE 10'-0" MINIMUM BETWEEN RODS. REFER TO DETAIL F/E7.05.
8. GROUND CONNECTION TO COMMUNICATION BACKBOARDS, ETC. REFER TO EACH SYSTEM FOR SIZE AND QUANTITY.
9. MAIN BONDING JUMPER: SIZE PER N.E.C. ARTICLE 250.
10. EQUIPMENT COPPER GROUNDING BAR BONDED TO ENCLOSURE.
11. NEAREST EFFECTIVELY GROUNDED BUILDING STEEL.
12. GROUNDING ELECTRODE COPPER CONDUCTOR: #4/0 AWG MIN.
13. EQUIPMENT BONDING JUMPER PER N.E.C. ARTICLE 250.
14. SERVICE MAIN BONDING JUMPER PER N.E.C. ARTICLE 250.
15. SEPARATELY DERIVED SYSTEM GROUNDING ELECTRODE PER N.E.C. ARTICLE 250. CONNECT TO MAIN BUILDING REFERENCE GROUND BUS IF IN SAME ROOM.
16. UFER GROUND. REFER TO SPECIFICATION SECTION 16061.
17. GROUNDED CONDUCTOR (NEUTRAL) BROUGHT TO SERVICE EQUIPMENT PER N.E.C. ARTICLE 250.
18. MAIN BUILDING REFERENCE GROUND BUS. REFER TO SPECIFICATION SECTION 16061
19. COLD WATER PIPE PER N.E.C. ARTICLE 250.
20. TO LIGHTING OR OTHER 277 VOLT BRANCH CIRCUIT.
21. BOND PARALLEL METALLIC CONDUITS TOGETHER USING GROUNDING BUSHINGS AND ONE GROUNDING CONDUCTOR IDENTICAL IN SIZE TO GROUNDING CONDUCTOR IN EACH OF THE PARALLEL CONDUIT RUNS.
22. REMOVABLE NEUTRAL DISCONNECT LINK.
23. PROVIDE COUNTER EMPOSED GROUND WIRE IN 12KV DUCT BANK PER SPECIFICATIONS.

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07.11.2017
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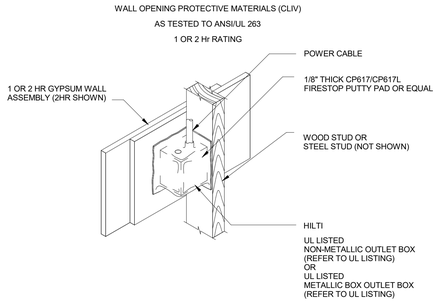
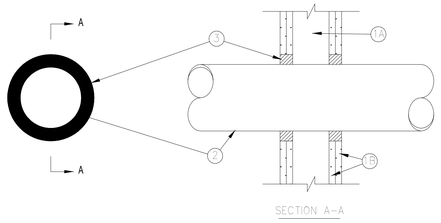


A E7.05 WALL OPENING PROTECTIVE MATERIALS (CLIV)

SCALE: 12" = 1'-0"

System No. W-L-1054
F Ratings - 1 and 2 Hr (See Items 1 and 3)
T Rating - 0 Hr
L Rating At Ambient - Less Than 1 CFM/Sq Ft
L Rating At 400 F - 4 CFM/Sq Ft



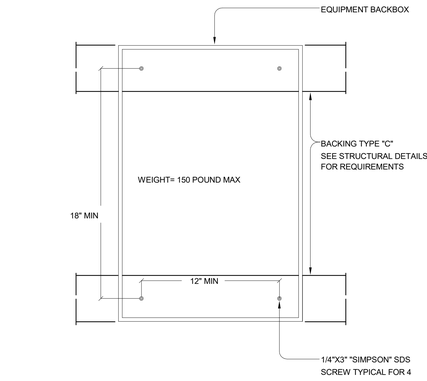
1. Wall Assembly -- The 1 or 2 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs -- Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2-1/2 in. wide and spaced max 24 in. OC. When steel studs are used and the diam of opening exceeds the width of stud cavity, the opening shall be framed on all sides using lengths of steel stud installed between the vertical studs and screw-attached to the steel studs at each end. The framed opening in the wall shall be 4 to 6 in. wider and 4 to 6 in. higher than the diam of the penetrating item such that, when the penetrating item is installed in the opening, a 2 to 3 in. clearance is present between the penetrating item and the framing on all four sides.
   B. Gypsum Board* -- 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 32-1/4 in. for steel stud walls. Max diam of opening is 14-1/2 in. for wood stud walls.
   The *F* Rating of the firestop system is equal to the fire rating of the wall assembly.
2. Through-Penetrants -- One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 0 in. to max 2-1/4 in. Pipe may be installed with continuous point contact. Pipe, conduit or tubing may be installed at an angle not greater than 45 degrees from perpendicular. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe -- Nom 30 in diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe -- Nom 30 in. diam (or smaller) cast or ductile iron pipe.
   C. Conduit -- Nom 4 in diam (or smaller) steel electrical metallic tubing or 6 in. diam steel conduit.
   D. Copper Tubing -- Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
   E. Copper Pipe -- Nom 6 in. diam (or smaller) regular (or heavier) copper pipe.
3. Fill, Void or Cavity Material* -- Sealant -- Min 5/8 in. thickness of fill material applied within the annulus, flush with both surfaces of wall. At the point or continuous contact locations between pipe and wall, a min 1/2 in. diam bead of fill material shall be applied at the pipe wall interface on both surfaces of wall .
   HILTI CONSTRUCTION CHEMICALS, DIV OF
   HILTI INC -- FS-One Sealant
*Bearing the UL Classification Mark

HILTI FIRESTOP SYSTEMS

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc.

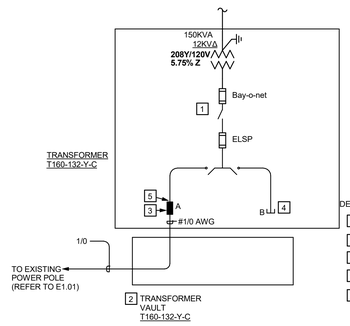
B E7.05 PENETRATION THRU FIRE RATED WALL

SCALE: 12" = 1'-0"



C E7.05 ELECTRICAL EQUIPMENT FASTENING DETAIL

SCALE: 12" = 1'-0"

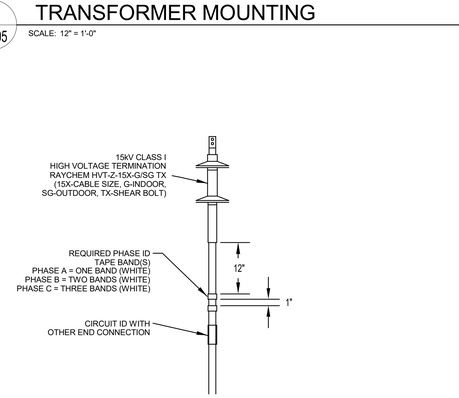


DETAIL NOTES:

1. PAD MOUNTED TRANSFORMER 2 POSITION SWITCH. TYPICAL OF 3
2. PROVIDE VAULT UNDER PAD MOUNTED TRANSFORMER.
3. PROVIDE 200A LOADBREAK ELBOW. REFER TO DETAIL H/E7.05.
4. PROVIDE INSULATED CAPS FOR 200A LOADBREAK BUSHINGS.
5. PROVIDE 200A BUSHING WELLS AND INSERTS TO MATCH EXISTING CAMPUS INVENTORY (TYPICAL).

D E7.05 TRANSFORMER VAULT DETAIL2

SCALE: 12" = 1'-0"



PAD SECTION
SCALE: NTS

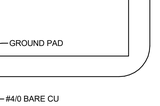
GENERAL DETAIL NOTES:
CONDUITS, SIZE, QUANTITY AND LOCATIONS PER PROJECT PLANS AND AS REQUIRED FOR A COMPLETE INSTALLATION.

DETAIL NOTES:

1. TRANSFORMER PAD. DIMENSIONS OF PAD SHALL EXCEED TRANSFORMER BASE DIMENSIONS. PAD SHALL HAVE A CURB AND BE SLOPED AWAY FROM BUILDING. REFER TO SHEET A0.11 AND DETAIL 25/S4.12.
2. PROVIDE EXOTHERMIC WELDS FOR BURIED CONNECTIONS AND MECHANICAL BOLTED CONNECTIONS FOR ACCESSABLE CONNECTIONS.
3. COVERED ACCESS OPENING, MARKED "DANGER-HIGH VOLTAGE" ON WARNING PLATE.
4. SLAB BOX 4'-0" X 7'-0" INTERIOR DIMENSIONS.
5. INSTALL FIBERGLASS UNISTRUT CHANNEL TO SUPPORT CABLE AT PAD OPENING.
6. AFTER TRANSFORMER IS SECURED AND ANCHORED, INSTALL A BEAD OF CLEAR SEALANT (MINIMUM 1/4" THICK) TO CLOSE ALL GAPS BETWEEN THE TRANSFORMER ENCLOSURE AND FRAME AND PAD.
7. CONTRACTOR PROVIDED AND INSTALLED TRANSFORMER ENGRAVED IDENTIFICATION LABEL.
8. CONTRACTOR PROVIDED AND INSTALLED ARC FLASH HAZARD WARNING LABEL.
9. CONTRACTOR PROVIDED AND INSTALLED "DANGER-HIGH VOLTAGE" WEATHERPROOF WARNING LABEL.

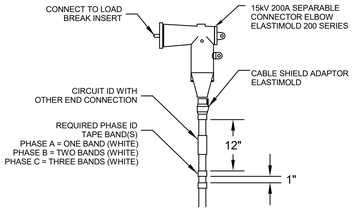
E E7.05 TRANSFORMER MOUNTING

SCALE: 12" = 1'-0"



F E7.05 TRANSFORMER GROUNDING

SCALE: 12" = 1'-0"

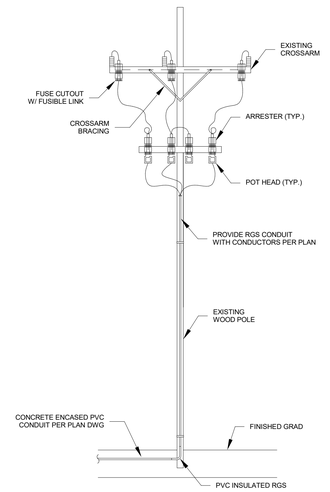


G E7.05 200A ELBOW TERMINATION

SCALE: 12" = 1'-0"

H E7.05 15KV TERMINATION

SCALE: 12" = 1'-0"



I E7.05 TYPICAL SWITCH SERVICE POLE DETAIL

SCALE: 12" = 1'-0"

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ELECTRICAL DETAILS
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E7.05
Project Number
07.11.2017
Revisions

BUREAU VERITAS 11.09.17
ADDENDUM 2 2.09.18
FIRE MARSHALL BACKCHECK 1 4.6.18

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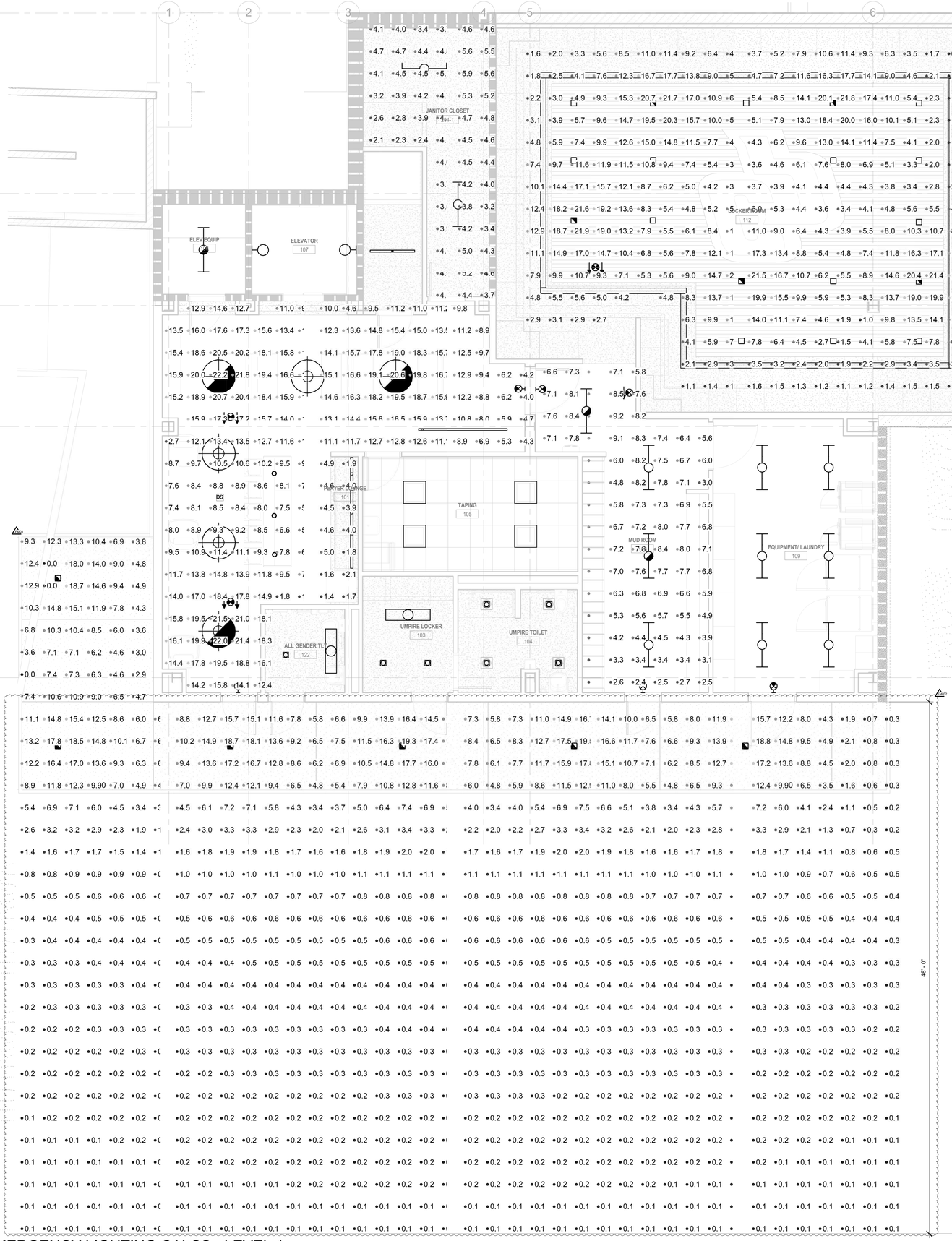

Emergency Illuminance Results Overall			
Calculation Points Name	Average	Maximum	Minimum
LOCKER ROOM 112	8.1 fc	21.9 fc	0.5 fc
MUD ROOM 108	6.1 fc	9.2 fc	2.4 fc
PLAYER LOUNGE 101	12.3 fc	22.2 fc	1.4 fc
STAIR 204-1	4.2 fc	5.9 fc	2.1 fc
1ST FLOOR EXTERIOR	2.6 fc	19.5 fc	0.1 fc

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STATE OF CALIFORNIA

EMERGENCY LIGHTING CALCS - LEVEL 1
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E8.01
Project Number
07.11.2017
Restore

1 BUREAU VERITAS 11.09.17
2 ADDENDUM 2 2.09.18
1 FIRE MARSHALL BACKCHECK 1 4.6.18
2 FIRE MARSHALL BACKCHECK 2 5.14.18

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A
E8.01
EMERGENCY LIGHTING CALCS - LEVEL 1
SCALE: 1/4" = 1'-0"

FIELD

48' - 0"

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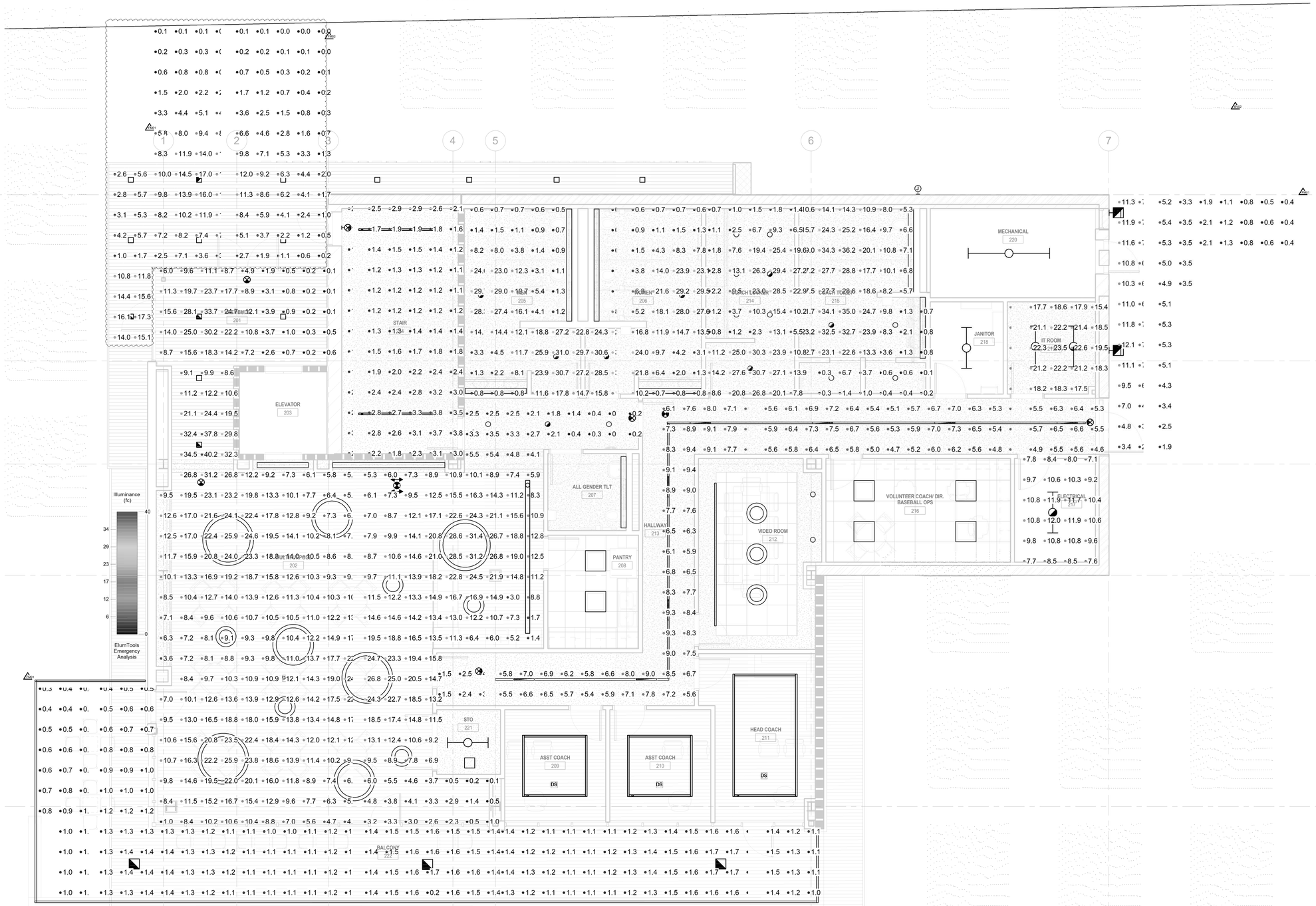
Emergency Illuminance Results - LEVEL 2			
Calculation Points Name	Average	Maximum	Minimum
HALLWAY 213	6.3 fc	9.5 fc	1.5 fc
VESTIBULE 201	12.2 fc	40.2 fc	0.1 fc
STAIR 204	2.0 fc	3.8 fc	1.1 fc
MULTIPURPOSE 202	12.2 fc	40.2 fc	0.1 fc
2ND FLOOR EXTERIOR	5.0 fc	17.3 fc	0.0 fc

STREET



A E8.02 EMERGENCY LIGHTING CALCS - LEVEL 2

SCALE: 1/4" = 1'-0"

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EMERGENCY LIGHTING CALCS - LEVEL 2
BASEBALL CLUBHOUSE FACILITY
California Polytechnic State University San Luis Obispo

E8.02
Project Number
07.11.2017
Revisions

1 BUREAU VERITAS 11.09.17
2 ADDENDUM 2 2.09.18
3 FIRE MARSHALL BACKCHECK 1 4.6.18
4 FIRE MARSHALL BACKCHECK 2 05.14.18

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