

#### **ACOUSTICAL CEILING NOTES**

CEILING SYSTEM GENERAL NOTES:

1.02 The ceiling grid system must be rated heavy duty as defined by ASTM C635-08. 1.03 Ceiling systems. The following ceiling system(s) is/are part of the scope of this project: See specifications section 09 51 13 for information regarding manufacturer's name, product evaluation report type and number, manufacturer's main runner model number and cross runner catalog number, and seismic wall clip. 1.05 Ceiling panels shall not support any light fixtures, air terminals or devices.

1.06 For ceiling installations utilizing acoustical tile panels of mineral or glass fiber, it is not mandatory to provide 3/4" clearance between the acoustical tile panels and the wall on the sides of the ceiling which are free to slip. For all other ceiling panel types, provide 3/4" clearance between the ceiling panel and the wall on the sides of the ceiling free to slip.

ASTM A641-09a. Wire shall be #12 gage (0.106" diameter) with soft temper and minimum 2.02 Galvanized sheet steel (including that used for metal stud and track compression struts/post) shall conform to ASTM A653-11, or other equivalent sheet steel listed in Section A2.1 of the North American Specification for the Design of Cold-Formed Steel Structural Members 2007, including supplement 2 dated 2010 (AISI S100-07/S2-10). Material 43 mil (18 gage) and lighter shall have minimum yield strength of 33 ksi. Material 54 mil (16 gage) and heavier shall have a minimum yield strength of 50 ksi. 2.03 Electrical metallic tube (EMT) shall be ANSI C80.3/UL 797 carbon steel with G90 galvanizing. EMT shall have minimum yield strength (Fy) of 30 ksi and minimum ultimate

#### ATTACHMENT OF HANGER AND BRACING WIRES:

3.01 Separate all ceiling hanger and bracing wires at least six (6) inches from all 3.02 Hanger and bracing wires shall not attach to or bend around obstructions including but not limited to: piping, ductwork, conduit and equipment. 3.03 Hanger wires that are more than one (horizontal) in six (vertical) out of plumb 3.04 Slack safety wires shall be considered hanger wires for installation and testing 3.05 Hanger and bracing wire anchorage to the structure shall be installed in such a manner that the direction of the anchorage aligns closely with the direction of the wire. (e.g.

4.01 Sheet metal screws shall comply with ASTM C1513-10, ASME B18.6.4-89 (R2005). Penetration of screws through joined material shall not be less than three exposed threads. 4.02 Expansion anchors shall be: [RDP to indicate manufacturer, product, evaluation report number and load for each size specified per CBC 1913A.7.2.] 4.03 Power-Actuated Fasteners shall be: [RDP to indicate manufacturer, product,

4.04 If not otherwise specified in the evaluation report, power-actuated fasteners installed in steel shall be installed so the entire pointed end of the fastener is driven through the 4.05 Power-actuated fasteners in concrete are not permitted for bracing wires. 4.06 Concrete reinforcement and prestressing tendons shall be located by

TESTING: All field testing must be performed in the presence of the project

5.01 Post-installed anchors in concrete used to support hanger wires shall be tested at a requency of 10 percent. Power actuated fasteners in concrete shall be field tested for 200 lbs. in tension. All other post-installed anchors in concrete shall be tested in accordance with CBC Section 1913A.7.

6.01 All light fixtures shall be positively attached to the ceiling suspension systems by mechanical means to resist a horizontal force equal to the weight of the fixture. A minimum of two screws or approved fasteners are required at each light fixture. 6.02 Surface-mounted light fixtures shall be attached to the main runner with at least two

positive clamping devices. The clamping device shall completely surround the supporting ceiling runner and be made of steel with a minimum thickness of #14 gage. Rotational spring catches do not comply. A #12 gage slack safety wire shall be connected from each clamping device to the structure above. Provide additional supports when light fixtures are eight (8) feet or longer or exceed 56 lb. Maximum spacing between supports shall not 6.03 Light fixtures weighing less than or equal to 10 lb. shall have a minimum of one (1)

#12 gage slack safety wire connected from the fixture housing to the structure above. 6.04 Light fixtures weighing less than or equal to 10 lb. shall have a minimum of one (1) #12 gage slack safety wire connected from the fixture housing to the structure above. 6.05 Light fixtures weighing greater than 10 lb. but less than or equal to 56 lbs. may be supported directly on the ceiling runners, but they shall have a minimum of two (2) #12 gage slack safety wires connected from the fixture housing at diagonal corners to the structure above. Exception: All light fixtures greater than two by four feet weighing less than 56 lbs. shall have a #12 gage slack safety wire at each corner. 6.06 All Light fixtures weighing greater than 56 lb. shall be independently supported by not less than four (4) taut #12 gage hanger wires (one at each corner) attached from the fixture housing to the structure above or other approved hangers. The four (4) taut #12 gage wires or other approved hangers, including their attachment to the structure above, shall be

# SERVICES WITHIN THE CEILING:

7.01 All flexible sprinkler hose fitting mounting brackets, ceiling-mounted air terminals or other services shall be positively attached to the ceiling suspension systems by mechanical means. Screws or approved fasteners are required. A minimum of two attachments are 7.02 Ceiling-mounted air terminals or other services weighing less than or equal to 20 lb. shall have one (1) #12 gage slack safety wire attached from the terminal or service to the

7.03 Flexible sprinkler hose fittings, ceiling-mounted air terminals or other services weighing more than 20 lb. but less than or equal to 56 lb. shall have two (2) #12 gage slack safety wires (at diagonal corners) connected from the terminal or service to the structure

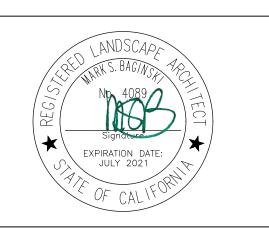
7.04 Flexible sprinkler hose fittings, ceiling-mounted air terminals or other services weighing more than 56 lb. shall be supported directly from the structure above by not less than four (4) taut #12 gage hanger wires attached from the terminal or service to the structure above or other approved hangers.

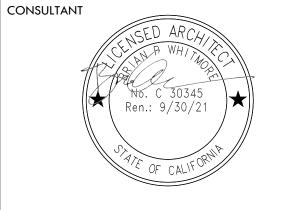
# OTHER DEVICES WITHIN THE CEILING:

8.01 All lightweight miscellaneous devices, such as strobe lights, occupancy sensors, speakers, exit signs, etc., shall be attached to the ceiling grid. In addition, devices weighing more than 10 lbs. shall have a #12 gage slack safety wire anchored to the structure above. Devices weighing more than 20 lb. shall be supported

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITEC APP: 02-118588 INC: REVIEWED FOR SS 🗹 FLS 🗹 ACS 🗹







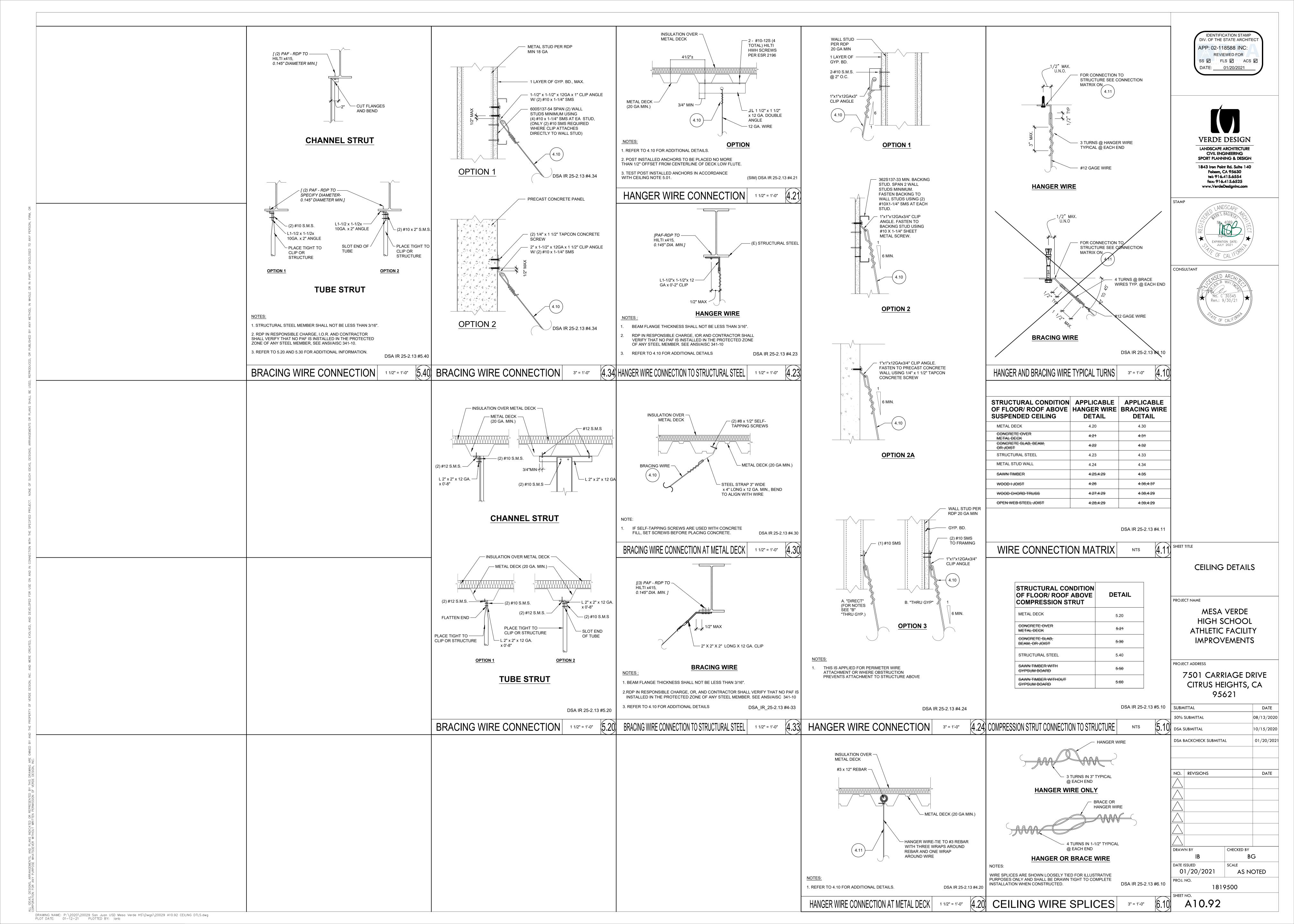
**CEILING DETAILS** 

PROJECT NAME MESA VERDE HIGH SCHOOL ATHLETIC FACILITY **IMPROVEMENTS** 

PROJECT ADDRESS

7501 CARRIAGE DRIVE CITRUS HEIGHTS, CA 95621

SUBMITTAL		DATE
50% SUBMITTAL	08/13/2020	
DSA SUBMITTAL		10/15/2020
DSA BACKCHECK SUBM	ITTAL	01/20/2021
NO. REVISIONS		DATE
$\triangle$		
DRAWN BY	CHECKED BY	
IB	В	G
DATE ISSUED	SCALE	
01/20/2021	OTED	
PROJ. NO.	1	
18	319500	
A10.9	]	



additional sets. B) The purpose of shop drawings submittals by the Contractor is to demonstrate to

installation methods he intends to use. C) Prior to fabrication, shop drawings shall be submitted for review to the Structural reinforcing steel, structural steel, and glued laminated beams. 3. Safety Note:

A) It is the Contractor's responsibility to comply with the pertinent sections, as they apply to this project, of the "Construction Safety Orders" issued by the State of California latest edition, and all OSHA requirements. B) The owner and the Structural Engineer do not accept any responsibility for the

materials he intends to furnish and install, and by detailing the fabrication and

Contractor's failure to comply with these requirements. C) The Contractor shall be responsible for adequate design and construction of all

forms and shoring required. 4. <u>The Contractor shall notify the Architect and Structural Engineer where a conflict or a</u> <u>discrepancy occurs between the structural drawings and any other portion of the contract</u> <u>documents or existing field conditions.</u> Such notification shall be given in due time so as not to affect the construction schedule. In case of a conflict between structural drawings and specifications, the more restrictive condition shall take precedence

unless written approval has been given for the least restrictive. Contractor shall verify all dimensions with architectural and structural drawings prior to commencing any work. 5. Where no specific detail is shown, the construction shall be identical or similar to that indicated for like cases of construction on this project. Should there be any question,

contact the Architect and Structural Engineer prior to proceeding. 6. These drawings are not complete until reviewed and approved by Division of the State 12. No wood spreaders allowed. No wood stakes allowed in areas to be concreted. Architect (DSA) and signed by the Structural Engineer

7. All drawings and written material appearing herein constitutes the original and unpublished work of the Structural Engineer and the same may not be auplicated, used or disclosed without written consent of the Structural Engineer and compensation.

The stability of this structure depends on the diaphragm and the bracing members shown. The Contractor is to provide for the design and construction of shoring for all earth, forms, concrete, steel, wood, and masonry to resist gravity, earth, wind, seismic, and construction loads. Shoring shall remain in place until all diaphragm and lateral resisting elements are in place in their entirety.

#### <u>Abbreviations</u>

<u> </u>	
adal Adaitional	lt. wtLight weight
alt Alternate	LLLive Load
AISC American Institute of	LLHLong leg horizontal
Steel Construction	LLVLong leg vertical
APA American Plywood Association	LVLLaminated veneer lumber
ASTM American Society for	MBMachine bolt
Testing and Materials	mfrManufacturer
AWS American Welding Society	max Maximum
AB Anchor bolt	mechMechanical
\$ And	min Minimum
arch Architect/Architectural	miscMiscellaneous
@ At	mtl Metal
bm Beam	(n)New
btwnBetween	ntsNot to scale
blkg Blocking	#Number or pounds
B.S Both sides	ocOn center'
bottBottom	ONGOpen web girder
BN Boundary nail	OWJÓpen web joist
_	O.HOpposite Hand
clgCeiling	o.dOutside diameter
ccCenter to center	PPPartial penetration
4Center line	尼Plate
clrClear	pcfPounds per cubic foot
col Column	psf Pounds per square foot
CP Complete Penetration	psi Pounds per square inch
CONC Concrete	PAFPowder actuated fasteners
CMU Concrete masonry unit	PSLParallel strand lumber
conn Connection	PTDFPressure treated
CJ Construction Joint	douglas fir
cont Continuous	r, radRadius
cskContersink	RDWDRedwood
CTJControl Joint	reinfReinforcing
DL Dead Load	req'dRequired
diagDiagonal	
dia Diameter	R.ORough opening
doDitto	schedSchedule
D.F Douglas Fir	
dbl Double	SDSTSSelf drilling self
dwg Drawings	tapping screw
eaEach	shtgSheathing
E.FEach Face	SMSSheet metal screw
embedEmbedment	simSimilar
ENEdge Nail	SPStructural Plywood #square
E.W Each Way	staggStaggered
elev, elElevation	stdStandard
eqEqual	stlSteel
equipEquipment	stfnrStiffener
(e)Existing	structStructural
EJExpansion Joint	symmSymmetrical
FCFace of concrete	TNToe nail
FBFace of block	t#bTop # bottom
FMFace of masonry	t.o.cTop of concrete
FS Face of Stud	t.o.fTop of framing
F.FFinish floor	t.o.PTop of plate
F.GFinish grade	t.o.sTop of Steel
firFloor	t.o.wTop of Wall
ftg Footing	t\$qTongue \$ Groove
fnd Foundation	TSTube Steel
frmgFraming	typTypical
galvGalvanized	v.n.oUnless noted
ga Gauge	otherwise
GLBGlved-laminated beam	vertVertical
hgr Hanger	w/
hdrHeader	W/in
ht Height	W/oWithout
HSBHigh strength bolt	W5
HSSHollow structural section	
horiz Horizontal	W.P Working point
intInterior	WWFWelded wire fabric
jstJoist	WCLIBWest Coast Lumber
	MSNECHAN DUCEOU

jh ...... Joist hanger <u>Design Criteria</u> <u>Codes and Standards:</u>

a.) 2019 California Building Code (CBC) b.) Building Code Requirements for Structural Concrete - ACI 318-14 c.) Building Code Requirements for Masonry Structures -TMS 402-2016 d.) Specification for Masonry Structures -TMS 602-2016

e.) Specification for Structural Steel Buildings - AISC 360-16 2. <u>Vertical Loads:</u> Roof Live Load = 20 psf (reducible) Floor Live Load = NA

Ground Snow Load = NA 3. <u>Soils Valves:</u> Allowable soil bearing pressures: a.) DL+LL= 2500 psf a.) DL+Wind/Seismic = 3325 psf

4. <u>Wind Load Design Criteria:</u> a.) Ult. Design Wind Speed, V<sub>iilt</sub>= 95 mph

Inspection Bureau

b.) Nom. Design Wind Speed, Vasa 74 mph c.) Risk Category - II d.) Wind Exposure - C e.) Internal Pressure

Coefficient, GCpi= -0.18, +0.18 5. <u>Seismic Load Design Criteria:</u>

a.) Risk Category - II b.) Seismic Importance Factor,  $I_e$ = 1.0 c.) Site Class = D

d.) 5 = 0.443 5 = 0.222 e.) 5 = 0.427 5 = 0.319 f.) Seismic Design Category, SDC = D a.) Seismic Force-Resisting System/s: Concessions Bldg: Intermediate Precast Shearwalls

Ticket Booth Bldg: Light Framed wall w/flat strap bracing h.) Response Modification Coef.: Concessions Bldq: R = 4.0Ticket Booth Bldq: R = 4.0i.) Analysis Procedure = Static

# <u>Foundations</u>

. All foundation work shall be done in accordance with the requirements of the Soils Report No. <u>NB205000</u> by <u>Terracon Consultants, Inc</u> dated <u>8-14-2020</u>

2. All foundations shall bear on <u>engineered fill.</u> 3. Building pad construction shall conform to the requirements of the Soils Report. The extent and depth of overexcavation and placement of engineered fill shall be as required by the Soils Report. Final depth and extent of excavation and fill shall be

determined at time of construction by a representative of the Soils Enqineer. 4. Bottoms of all foundations shall be level. Changes in bottom of foundation elevation

shall be constructed only as detailed on the drawings. 5. Foundations may be cast in neat excavations provided the footing excavations are stable and able to maintain a cut edge without sloughing. In such case, provide minimum formwork as detailed on the drawings to insure clean excavations immediately prior to and during concrete placement. Starter walls are required for all masonry and concrete walls. See "Mandatory Minimum Formwork" detail on the typical details

6. Notify the Structural Engineer 48 hours before casting foundations.

#### <u>Concrete</u>

General: All concrete construction shall conform to the California Building Code (CBC) and Building Code Requirements for Structural Concrete (ACI 318).

Structural concrete shall attain 28 day compressive strength as required in note #20. the Structural Engineer that he understands the design concept by indicating which 2. Selection of concrete proportions shall be per ACI 318 Sections 5.2 through 5.4. Mix designs shall be submitted to the laboratory responsible for the Special

Inspections for review and approval prior to concrete placement. 3. Testing, evaluation and acceptance of concrete shall be per ACI 318, Section 5.6. Engineer. Shop drawing's submittals shall include, but are not necessarily limited to 4. Concrete shall be mixed, placed, and cured in accordance with ACI 318, latest edition, 3. Structural steel tubing shall conform to ASTM A-500, grade B. and project specifications.

5. Cement shall conform to ASTM C-150 type I or II. 6. Concrete aggregates shall conform to ASTM C-33. Aggregates for lightweight concrete shall conform to ASTM C-330

. Construction joints shall be made rough and all loose materials removed from the surface. The entire surface of the joint shall be roughened by chipping, sand blasting or raking the surface to produce 4" deep deformations.

8. Remove all debris and loose materials from forms and excavations before casting 9. Reinforcina, dowels, bolts, anchors, sleeves, etc., to be embedded in concrete shall be tied securely in position before placing concrete.

10. Concrete shall not be dropped through reinforcing steel (as in walls) so as to cause segregation of aggregates. In such cases, hoppers and vertical chutes or trunks shall be used such that the free unconfined fall of concrete does not exceed six . Consolidate concrete placed in forms by mechanical vibrating equipment supplemented

of concrete in accordance with the recommended practices of ACI 309 to suit the type of concrete and project conditions 13. All saw cutting of construction joints shall be done after initial set has occurred to

avoid tearing or damage by the saw blade, but before initial shrinkage has occurred. 14. Additional reinforcing in precast or tilt-up panels required for lifting stresses shall be supplied by the Contractor at no additional cost to the Owner. 8. The structure shown on these drawings is structurally sound only in its completed form. 15. Provide 2-#4x4'-0" diagonal reinforcing at mid-depth of slab at all reentrant corners

16. See Architectural Drawings for wall openings, wall offsets, chamfers, kerfs, drips, etc. 17. Casting concrete during cold weather shall be in accordance with all provisions of ACĪ 306 (latest edītion), Standard Specification for Cold Weather Concreting. 18. Casting concrete during hot weather shall be in accordance with all provisions of ACT 305 (latest edition), Specification for Hot Weather Concreting.

19. Special provisions for floor slabs on ground: a.) The parameters for the mix design listed below for floor slabs on ground are intended to provide a low shrinkage concrete mixture.

b.) Joints in the floor slabs shall be constructed and spaced per 📙 c.) Floor slabs shall be cast directly on a vapor barrier as specified on the drawings or in the specifications.

d.) Floor slabs shall be moist cured for a minimum of 7 days unless otherwise noted in the specification. e.) Floor slabs shall not be loaded until they have reached their specified

20. Concrete types: Max WC Max Aggregate Unit <u>f'c @ 28 days</u> <u> Weight (pcf) Ratio</u> A Footings & Drilled Piers 3000 psi 145 0.60 Floor Slabs on Ground 4000 psi *145* 0.45 145 0.45 Precast Wall Panels 6000 psi *145* 0.50 D. Ext Walks & Pads 3000 psi \* A shrinkage reducing admixture conforming to ASTM C-494 Type S, shall be included in this mix.

a.) Concrete shall have a maximum slump of 4". b.) A water-reducing admixture should be added where increased workability

### <u>Reinforcina Steel</u>

is needed or desired.

design strength.

Reinforcing steel shall conform to ASTM A615- grade 60 for #4 and larger, and ASTM A615-grade 60 for #3 and smaller, except reinforcing steel to be welded shall

2. All preheating and welding of reinforcing bars shall be done in accordance with AWS DI.4 latest edition and shall be continuously inspected by a qualified laboratory. Contractor shall furnish to the laboratory, rebar mill certificates. 3. Reinforcing steel shall be fabricated in accordance with the ACI "Manual of Standard

Practice for Reinforced Concrete Construction", latest edition. 4. Wire fabric shall conform to ASTM A-185 and shall be lapped 12" minimum at splices. 5. Reinforcing steel shall be kept clean and free of rust

6. Shop drawings for reinforcing steel shall be submitted for review prior to fabrication and delivery of reinforcing steel. . Provide all accessories necessary to support and secure reinforcing steel in the positions shown on the plans. All reinforcing steel shall be tied securely in position

prior to placing concrete. 8. The following minimum concrete cover shall be provided for reinforcing steel: a.) For concrete cast against earth......

b.) For concrete exposed to earth or weather: #5 and smaller bars... #6 and larger bars.... #8 and smaller bars in tilt-up panels....

c.) For concrete not exposed to earth or weather......!½" 9. Splices in reinforcing steel shall be Class B unless noted otherwise and shall conform to the following schedule:

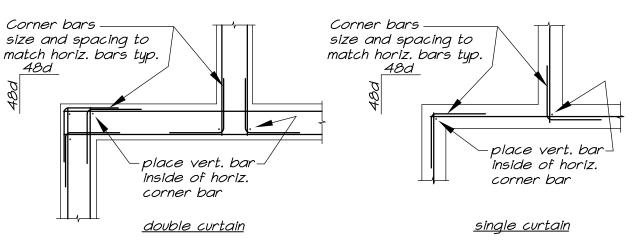
	Lap Splice Length Schedule									
Splice Class	Reinforcing Location	#3	#4	#5	#6	#7	#8	#9	#10	#//
В	Top Bars	17"	23"	33"	46"	74"	93"	113"	137"	162"
В	Other Bars	16"	17"	26"	35"	<i>5</i> 7"	72"	87"	106"	125"

a.) Schedule applies to uncoated, Grade 60 reinforcing steel, and normal weight, 3000 psi \$ 4000 psi concrete.

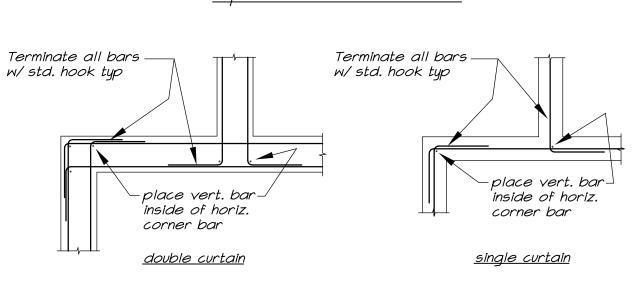
b.) Top bars are located such that 12" or more of fresh concrete is cast below the splice. c.) For light weight concrete, multiply lap lengths by 1.30. d.) Schedule applies to bars with a clear spacing of not less

than 2 inches plus one bar diameter, and, to bars with concrete cover of at least I inch. 10. The following minimum concrete cover shall be provided for reinforcing steel in

precast concrete walls manufactured under plant conditions: a.) For #11 and smaller bars exposed to weather or ground..........



Option A: Corner Bars



<u> Option B: Std. Hooks</u>



#### <u>Structural Steel</u>

General: All design, fabrication and erection of structural steel for buildings and structures shall be in accordance with the California Buildina Code (CBC), and, the Specification for Structural Steel Buildings (AISC 360).

Structural steel W and WT shapes shall conform with ASTM A992 steel. Structural steel angles, channels, miscellaneous channels, and plates shall conform with ASTM A36 steel

unless noted otherwise.

2. Steel pipe shall conform to ASTM A-53, Types E or S, grade B.

4. Welding shall be done by the electric arc process in accordance with American Welding Society standards, using only certified welders. All groove welds shall have complete penetration unless noted otherwise. All exposed welds shall be ground. All welding to 8. Testing of Anchors shall be in accordance with CBC 1910A.5 and : be done using E70xx electrodes, in addition welding of ASTM A572 grade 50 steel and ASTM A992 steel shall be done with low hydrogen E70xx electrodes. 5. All structural steel shall be erected plumb and true to line. Temporary bracing shall be

installed and shall be left in place until other means are provided to adequately brace the structure. b. Place non-shrink grout under all base plates before adding vertical load.

Bolted connections shall consist of unfinished bolts conforming to ASTM A-307 unless noted otherwise. Where high strength bolts are indicated, bolts conforming to ASTM A325-N shall be provided (provide A325-SC bolts where indicated.) 8. Holes for unfinished bolts shall be of the same nominal diameter of the bolt plus 46". Use

standard AISC gage and pitch for bolts except as noted otherwise. by hand-spading, rodding or tamping. Use equipment and procedures for consolidation 9. Holes for anchor bolts embedded in concrete shall be of the same nominal bolt diameter plus 3/6" unless noted otherwise. 10. Provide ½" diameter stitch bolts and ring fills, spaced at not more than 24"cc for all

double angle members. 'l. At wood to steel parallel contact, bolt with ½" diameter bolts at maximum 24"cc. 12. All structural steel shall receive minimum of one shop coat of red primer paint. Do not

embedded in concrete. Provide additional painting as noted in the specifications.

13. All Structural steel below grade shall have 3" minimum of concrete cover.

paint areas to be field welded, to receive friction type high strength bolts, or to be

### <u>Powder Actuated Fasteners (PAF)</u>

ESR report no. 1663.

I. These notes govern all conditions called out on the plans as 'PAF' unless specifically noted

2. All PAF shall be as manufactured by Hilti incorporated. Reference shall be made to the 2005 'Product Technical Guide' for additional information. 3. PAF driven into steel base material shall be X-R or X-CR type with P8 washers unless noted otherwise in the drawings. Length of fastener shaft shall be as required to penetrate through the steel base material. Minimum edge distance to any connected part shall be ½" and minimum fastener spacing shall be 2".

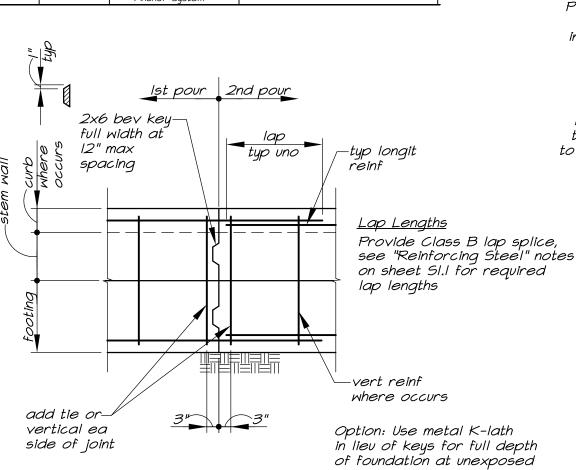
4. PAF driven into concrete base material shall be X-R or X-CR type with P8 washers unless noted otherwise in the drawings. Length of fastener shaft shall be as required to penetrate 1½" into the concrete base material. Minimum edge distance to any concrete material shall be 3" and minimum fastener spacing shall be 4".

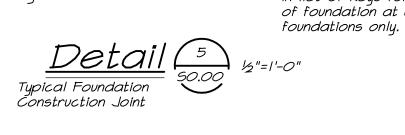
i. PAF driven into concrete base material through metal deck shall be X-R or X-CR type with P8 washers. Length of fastener shaft shall be as required to penetrate I" into the concrete through the low flute. Fastener shall be centered in the low flute and minimum fastener spacing shall be 4".

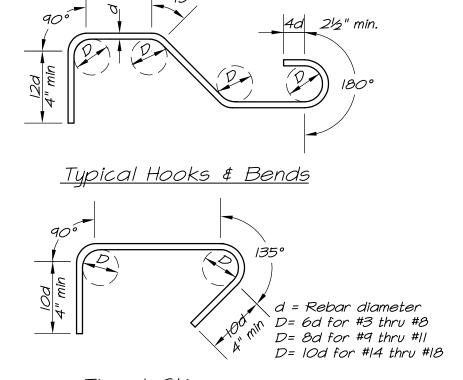
. Where steel washers are indicated on the drawings, fasteners shall be X-R or X-CR with premounted steel washers with a minimum diameter of 15 mm. Installation of fasteners shall be in accordance with manufacturer's recommendations and

#### Special Inspections, Verifications, and Tests Schedule Required CBC Code Section/

ltem	Required	Table/Reference	Notes
l. Steel Construction	X	1704A.3	
2. Welding	X	1704A.3.1 AWS DI.1	
3. High Strength Bolts		1704A.3.3	
4. All Concrete Construction	X	1704A.4	
5. Concrete Materials	X	1704A.4.1	
6. Inspection of Welded Reinforcing Bars	X	1704A.4.2	
7. Concrete Batch Plant Inspection	X	1704A.4.3	
8. Inspection of Prestressed Concrete		1704A.4.5	
9. Concrete Preplacement Inspection	X	1704A.4.6	
IO. Masonry - Level I		1704A.5.2	
II. Masonry - Level 2		1704A.5.3	
l2. Prefabricated Wood Structural Elements & Assemblies		1704A.6	
13. High Load Diaphragms		1704A.6.1	
14. Wood Structural Elements & Assemblies		1704A.6.2	
15. Structural Glued-Laminated Timber		1704A.6.2.1	
l6. Manufactured Open Web Trusses		1704A.6.2.2	
17. Timber Connectors		1704A.6.3	
15. Soils	X	1704A.7	
l6. Pile Foundations		1704A.8 \$ Table 1704A.8	
17. Pier Foundations		1704A.9	
lô. Expansion & Adhesive Anchors	X	I704A.I3 & current ICC Evaluation Report for Anchor System	







<u>Ties & Stirrups</u> Rebar Hooks & Bends ¾"=1'-0"

## Hilti Kwik Bolt TZ Expansion Anchor Notes

- Use Hilti Kwik Bolt TZ Expansion Anchors as manufactured by Hilti, Inc., Tulsa, Oklahoma.
- ICC-ES Report No. ESR-1917. 2. Installation of anchors shall be in accordance with the manufacturer's recommendations, ICC-ES report and these notes.
- 3. Special Inspection is required for all expansion anchor installations.
- 4. Allowable loads may not be increased for duration of loads such as wind or seismic forces. 5. When installing anchors in existing concrete, use care and caution to avoid cutting or damaging
- existing reinforcing bars. Do not install anchors in prestressed concrete elements. 6. Expansion anchors are to be used only where specifically detailed or specified.
- '. All anchors through pressure treated lumber shall be stainless steel.
- a) When anchors are listed for sill plate bolting applications, IO percent of the anchors shall be tension tested
- b) When anchors are used for other structural applications, all such anchors shall be tenstion tested c) When anchors are used for nonstructural applications such as equipment
- anchorage, 50 percent or alternate bolts in a group, including at least one-half the anchors in each group, shall be tension tested d) The tension testing of the anchors shall be done in the presence of the

special inspector and a report o the test results shall be submitted to the

enforcement agency. If any anchors fail the tension-testing requirements, the

additional testing requirements shall be acceptable to the enforcement agency. 9. All anchors shall be installed to the depth listed in the table below, unless noted otherwise on the drawings/details. Use of other embedment depths must be approved by DSA and the Structural Engineer.

#### NORMAL WEIGHT CONCRETE ANCHORS f'c = 3000psi HILTI KWIK BOLT TZ ICC-ES Report NO. ESR-191 ICC-ES Allowable Loads (lbs) Anchor | Embed | Edge | Spacing | Install. Torque per ACI 318-14 Diameter (v.n.o.) Distance (ft-lbs) Allowable Allowable Torque Tes Shear Tension Load 4" | 2" | 3" | 3" | 4 165 115 4 4" 4" *375 2*5 *2*5 230 5" 40 715" 565 460 40 4¾" 834" 5" 60 880 585 60 1070 5¾" 8" 110 670 110 165 4 l 3" 3" 115 4" | 2" *375* 230 *2*5 *2*5 40 565 460 40 *5*6" | *43*4" | 6" 5" 60 880 585 60

110

Note: Conduits to be

placed so as not to

cross other conduits

pipe –

D= depth of footing

Section View Thru Footing

Caulk where-

sleeve –

<u>Notes:</u>

`----<u>-</u>'(0)'----

Elevation View of Footing

I. Lean mix concrete fill to be placed

necessari

when turned up.

1070

670

110

I. \* Tabulated loads are allowable stress design loads. 2. Tabulated loads listed in this table are not for use when both shear and tension forces

10"

All pipes to clear

Pipes & conduit -

to be located

in middle 1/3 of

No digging for -

these lines.

trench parallel

to footing below

footing.

sleeve by I" all

around.

5¾"

2.5 factor required by ACI 318.

3. Tabulated loads are based on having no supplementary reinforcing present.

8"

Tabulated loads are based on a seismic design category of typ "D". 5. Tabulated loads are based on the assumption of a non-auctile connection and include the

6. For conditions not covered by this table, contact the Engineer of Record for direction prior to proceeding.

#### Simpson SET-XP Adhesive Anchors in Concrete

- 1. Use Simpson SET-XP Adhesive Anchors as manufactured by Simpson Strong Tie Company, Inc., ICC Report No. ESR-2508, latest issue.
- 2. Installation of anchors shall be in accordance with the manufacturer's recommendations, ICC report and these notes.
- 3. Holes for installation of the threaded rod or reinforcement bar must be cleaned

of dust and debris, using a nylon brush and oil-free compressed air as required to

- remove particulate debris and to achieve a relatively dust-free surface. 4. Special Inspection is required for anchor installations. 5. When installing anchors do not cut or damage existing reinforcing bars.
- 6. Threaded anchor rods to ASTM A307 Grade C, ASTM A193 Grade B7, or ASTM A193 Grades B6 or B8.
- 7. Deformed reinforcing bars (rebar) to conform to ASTM A615.
- 8. Concrete shall be normal weight with a minimum compressive strength of 2500 psi. 9. All anchors through pressure treated lumber shall be stainless steel. 10. Testing Requirements:
- a) When anchors are listed for sill plate bolting applications, 10 percent of the anchors shall be tension tested
- b) When anchors are used for other structural applications, all such anchors shall
- be tenstion tested c) When anchors are used for nonstructural applications such as equipment
- anchorage, 50 percent or alternate bolts in a group, including at least one-half the anchors in each group, shall be tension tested d) The tension testing of the anchors shall be done in the presence of the
- special inspector and a report o the test results shall be submitted to the enforcement agency. If any anchors fail the tension-testing requirements, the additional testing requirements shall be acceptable to the enforcement agency.

NORMAL WEIGHT CONCRETE ANCHORS 'c = 2500psi (min) Carbon Steel Anchors Simpson SET-XP ICC-ER Report NO. ESR-2508 ICBO Allowable Loads (lbs) \* Anchor Embed Edge Spacing per ACI 318-14 Diameter (v.n.o.) | Distance | Allowable Shear Allowable Tension Tension Tes 315 630 **½" | 3" | 6"** 4" 234" 230 460 12" 4" | 8" 12" 1005 *500* 1000 4550 1840 **¾" | 6" | 12" |** 12" 920

- \*Tabulated loads are allowable stress design loads. 2. Tabulated loads listed in this table are not for use when both shear and tension
- 3. The minimum concrete thickness is equal to  $2.25 \times \text{embedment depth.}$ 4. Tabulated loads are based on A307, Grade C material.
- 5. Tabulated loads are based on having no supplementary reinforcing present. 6. Tabulated loads are based on a setsmic design category of type "D". 7. Tabulated loads are based on the assumption of a non-ductile connection and
- include the 2.5 factor required by ACI 318. 8. For conditions not covered by this table, contact the Engineer of Record for direction prior to proceeding.

Class B reinforcing \ lap splice \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ <u>-==-</u> -all horiz reinforcing bars that are cut to install pipe/ conduits shall be replaced with the same size bar, lap spliced, & shaped as shown

Condition with Pipes/Conduits thru Lower 1/3 of Footing

before footing is cast. Make same width below spread footing, typ. as footing and full width of pipe trench. 3. If pipe is in place prior to Step footing if pipe is more than 2'-6" casting concrete, wrap pipe w/ below bottom of footing. compressible foam pipe wrap (I" min all around) in lieu of sleeve.

Class B reinforcing

-any horiz reinforcing bar

spliced as shown

diameter

concrete fill

that is cut to install pipe/

conduits shall be replaced

with the same size bar, lap

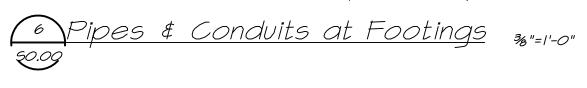
"s" shall be the larger of 1½"

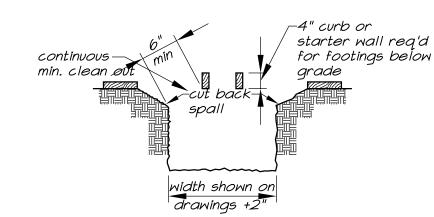
Typical Spacing Requirements

for Groups of Pipes/Conduits

2. No pipes shall be placed

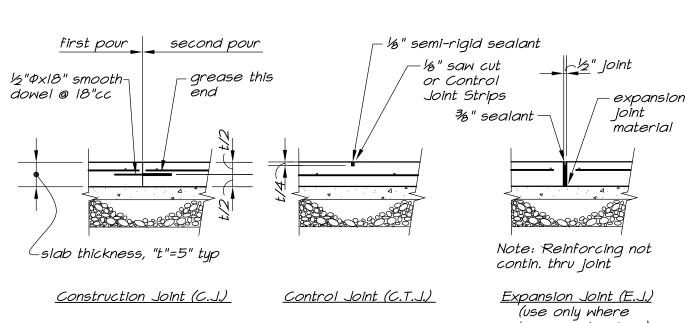
or the largest pipe/conduit





I. Foundation concrete may be placed directly into neat excavations provided the foundation trench walls are stable as determined by the Architect (Structural Engineer) subject to the approval of the Division of the State Architect. In such case the minimum formwork shown above is mandatory to insure clean excavations. 2. Stakes not permitted within footing section.



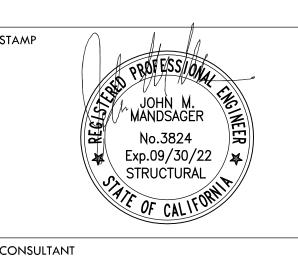


shown on drawings) Construction joints & control joints are recommended to be spaced not more than 24 times the slab thickness without reentrant corners # with length to width ratios not exceeding 1/2:1.

Sl<u>ab-On-Grade Joints</u> %"=1'-0"

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1132 Suncast Lane, Suite 6 El Dorado Hills, CA 95762 phone: (916) 941-2425 (916) 941-2429 STRUCTURAL ENGINEERS INC

**GENERAL NOTES** TYPICAL DETAILS

HIGH SCHOOL ATHLETIC FACILITY **IMPROVEMENTS** 

PROJECT NAME

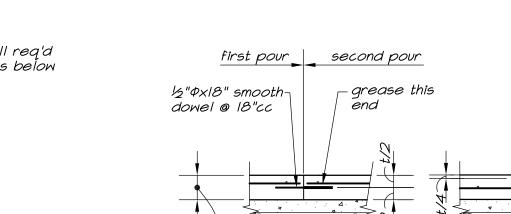
PROJECT ADDRESS 7501 CARRIAGE DRIVE CITRUS HEIGHTS, CA 95621

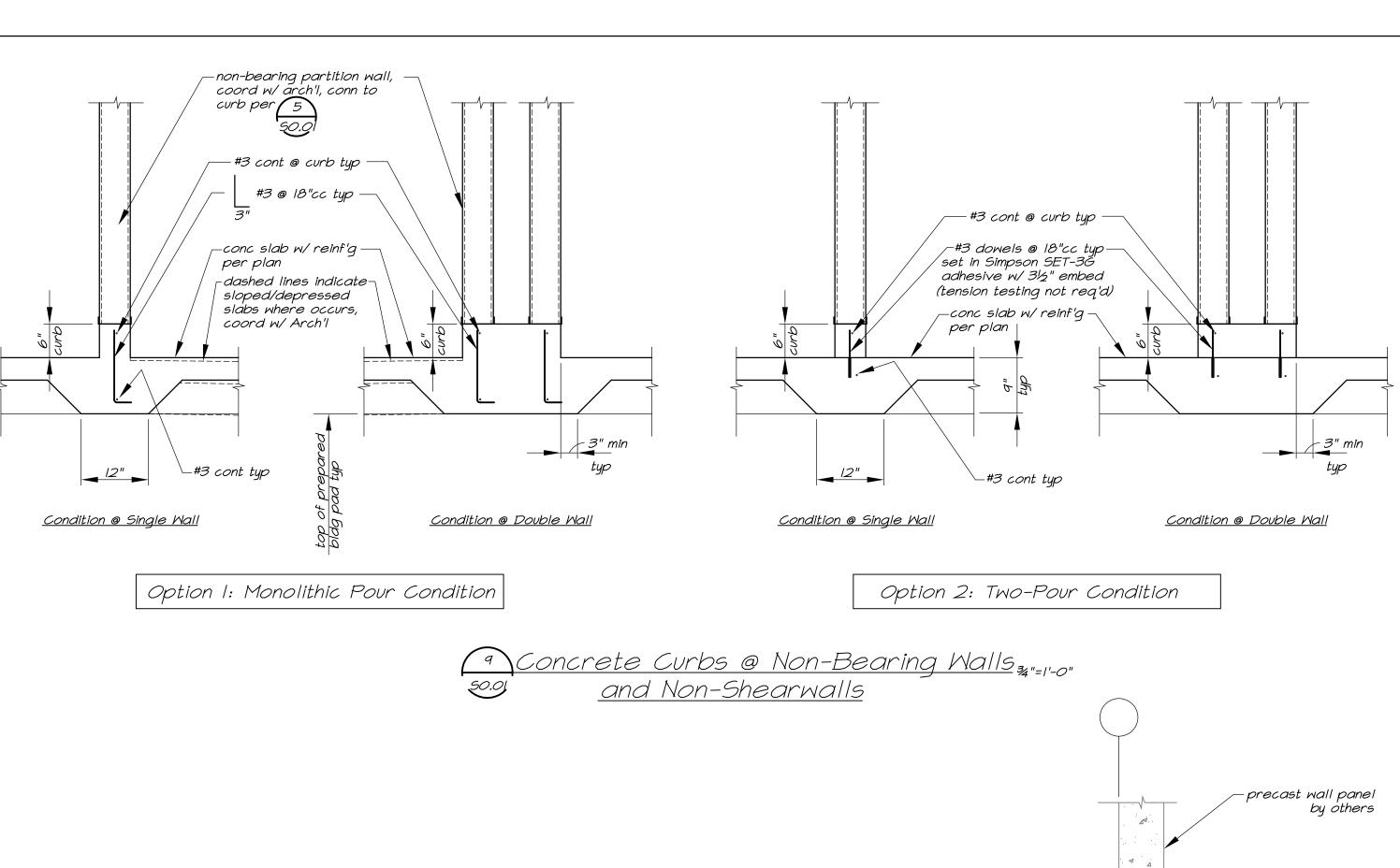
MESA VERDE

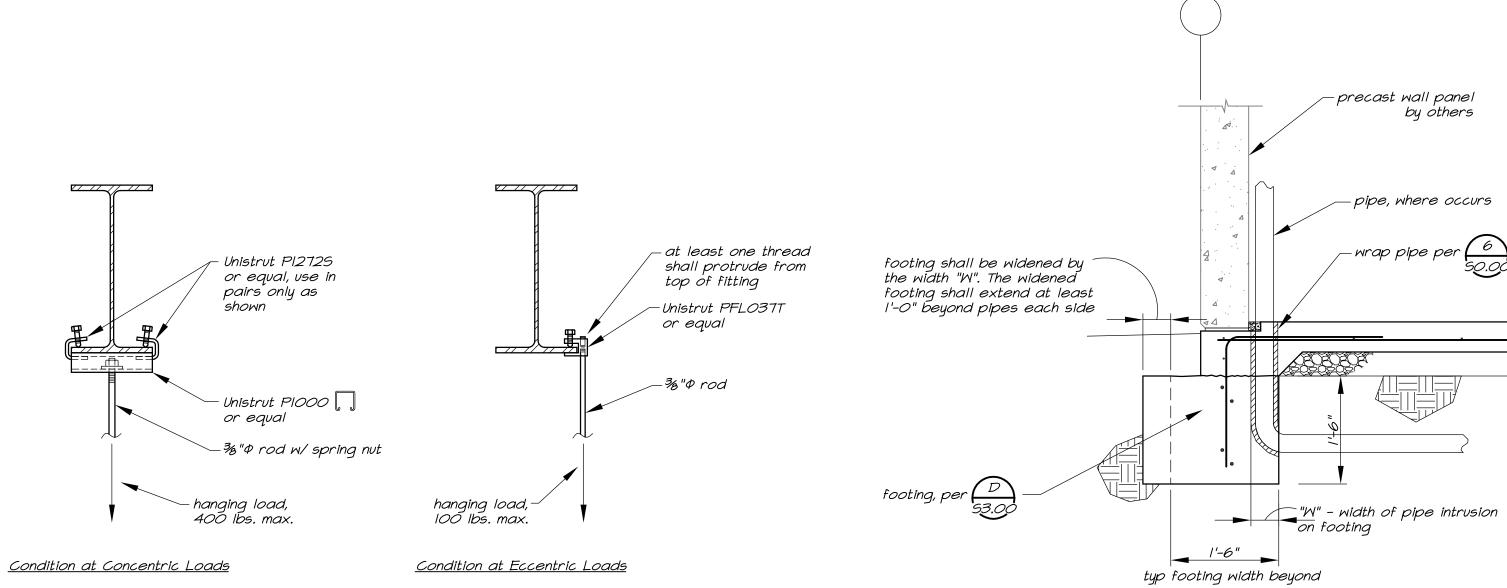
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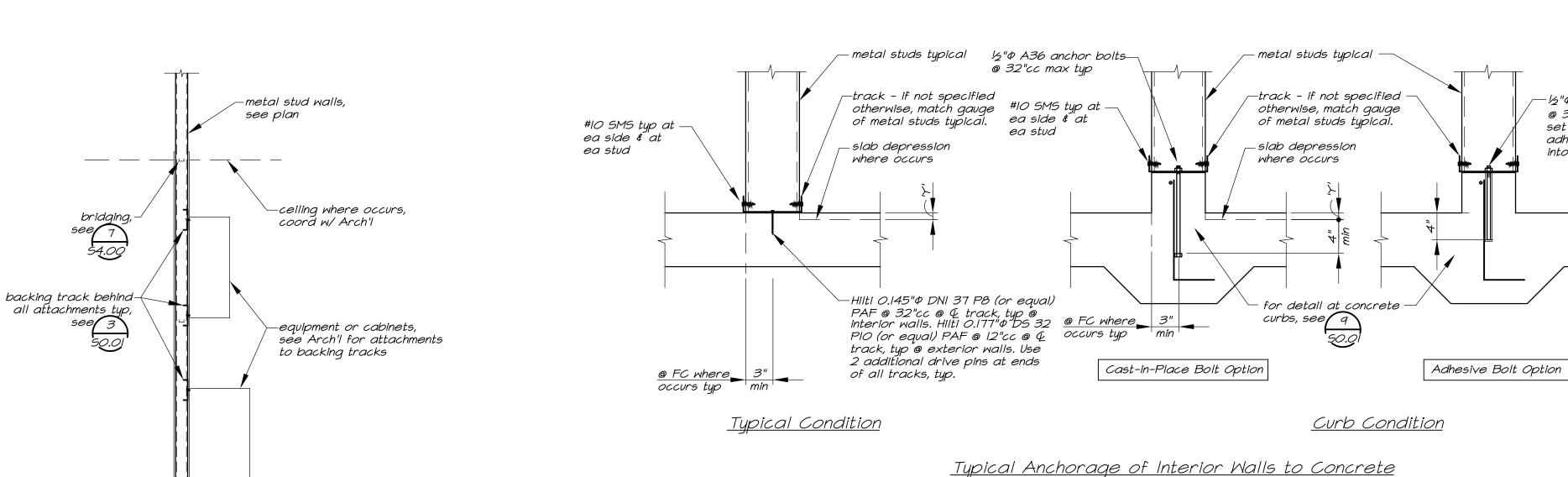


一 ½"Ф A36 all-thrd'd rod

@ 32"cc max, typ, set in Simpson SET-3G

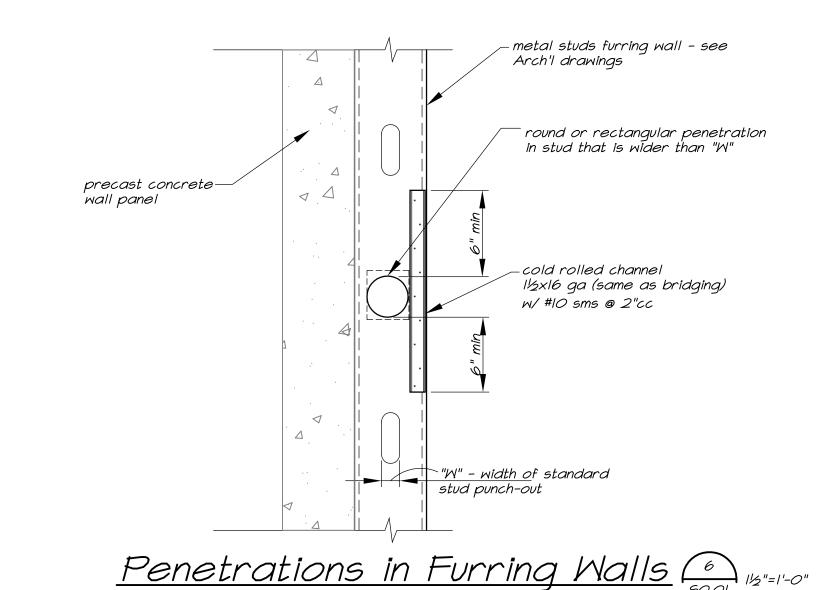
adhesive w/ 4" embed

into slab (Tension Test = 1500lbs)

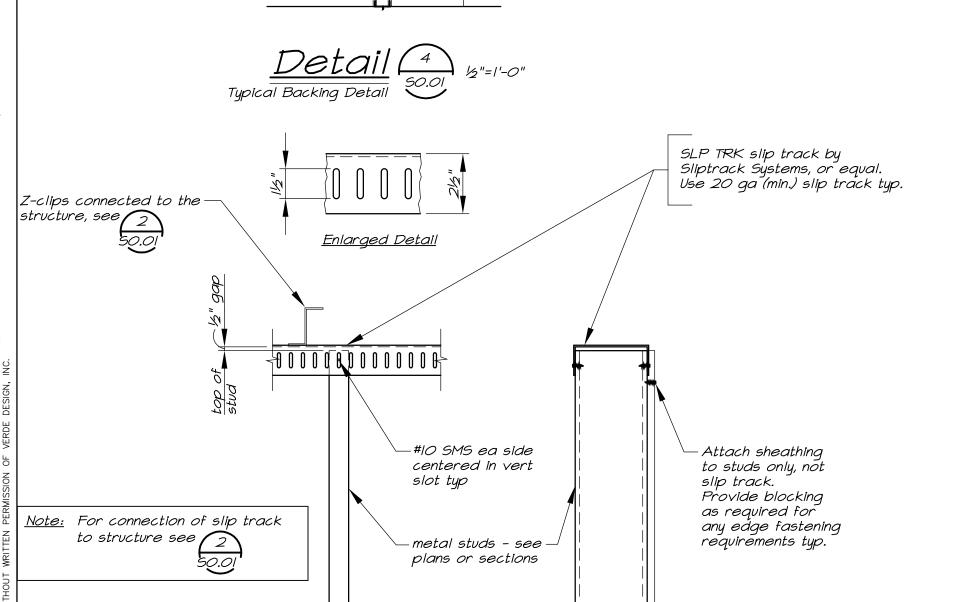


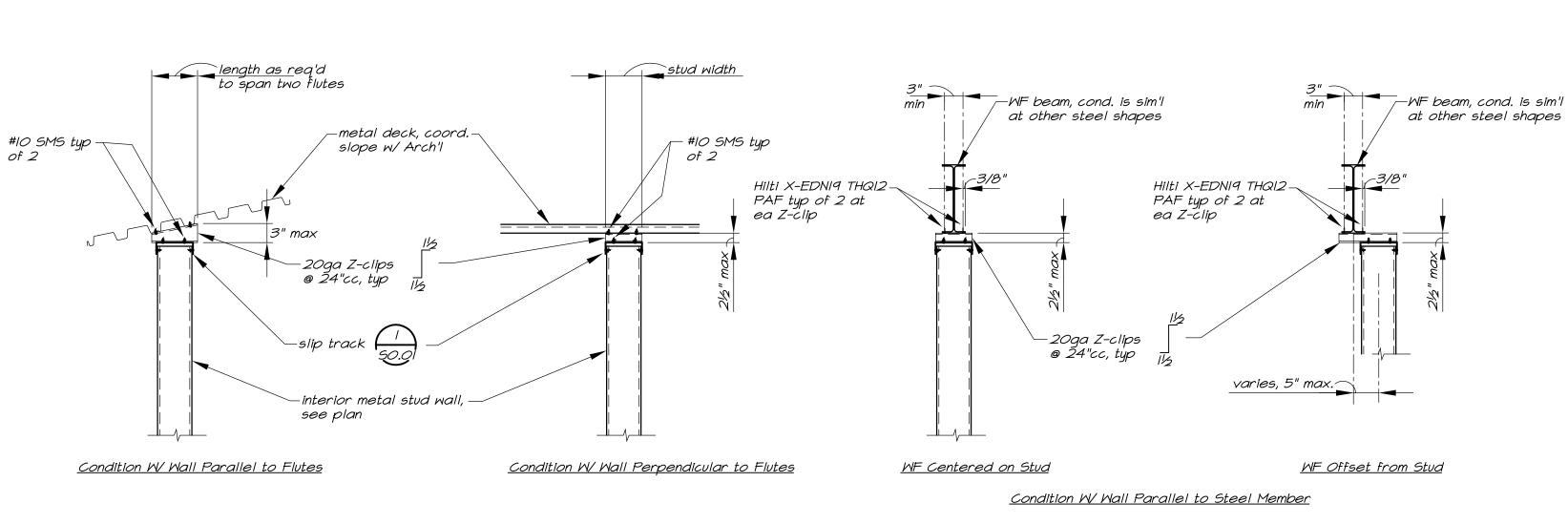
Detail (7)

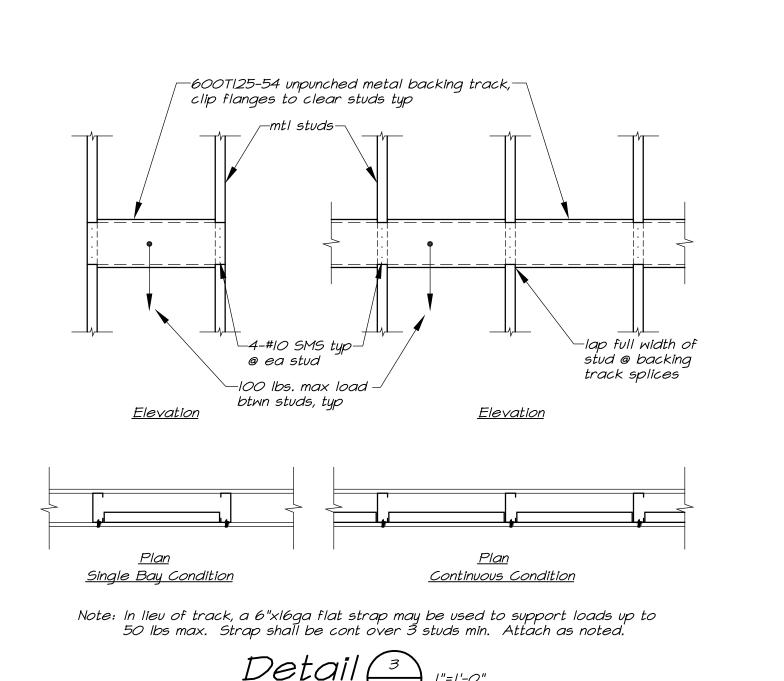
Typical Detail for Hanging Loads



Typical Lavatory Pipe Penetration Thru Footing







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APP: 02-118588 INC:

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SS FLS ACS D

DATE: 01/20/2021

VERDE DESIGN

LANDSCAPE ARCHITECTURE
CIVIL ENGINEERING
SPORT PLANNING & DESIGN

2455 The Alameda

Santa Clara, CA 95050 tel: 408.985.7200

fax: 408.985.7260 www.VerdeDesignInc.com

JOHN M.
MANDSAGER
No.3824
Exp.09/30/22
STRUCTURAL

OF CALIFORNIA

CONSULTANT

1132 Suncast Lane, Suite 6 El Dorado Hills, CA 95762 phone: (916) 941-2425 fax: (916) 941-2429

SHEET TITLE

TYPICAL DETAILS

PROJECT NAME

MESA VERDE
HIGH SCHOOL
ATHLETIC FACILITY
IMPROVEMENTS

PROJECT ADDRESS

7501 CARRIAGE DRIVE CITRUS HEIGHTS, CA 95621

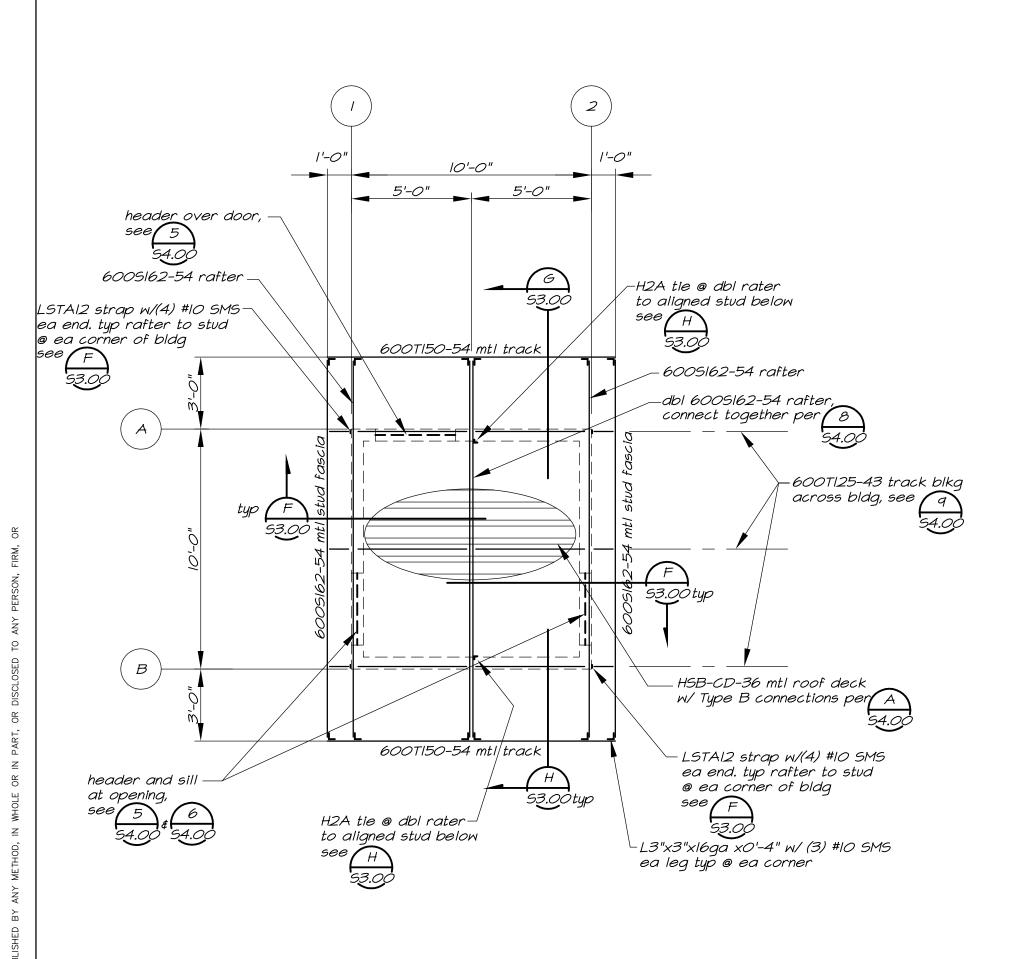
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SO.01

Slip Track Detail (50.01) 1/2"=1'-0"

<u>Typical Connection @ Studs</u>

<u>Detail</u> 2 50.01 ¾"=1'-0" Typical Interior Partition-to-Structure Connection

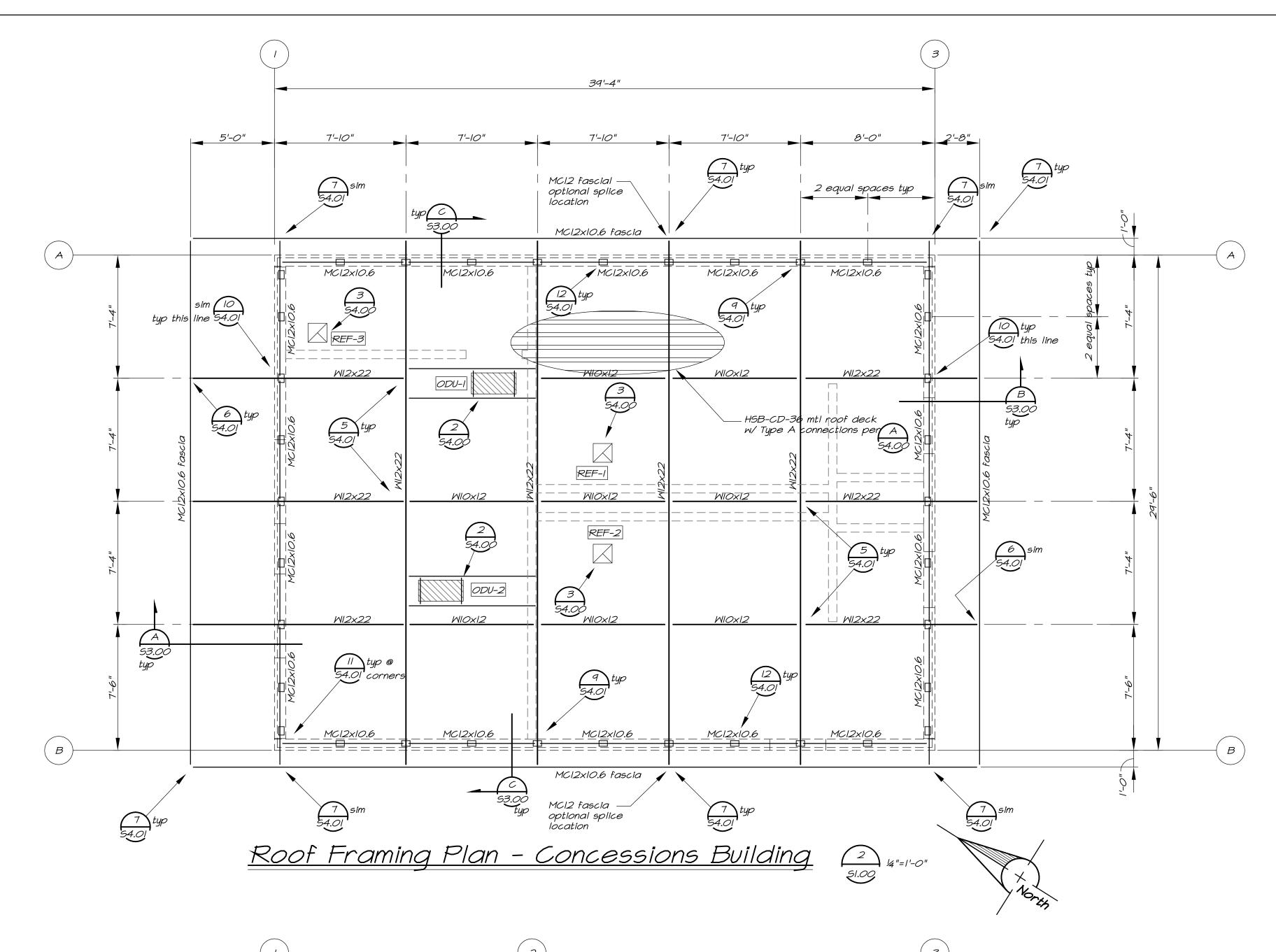


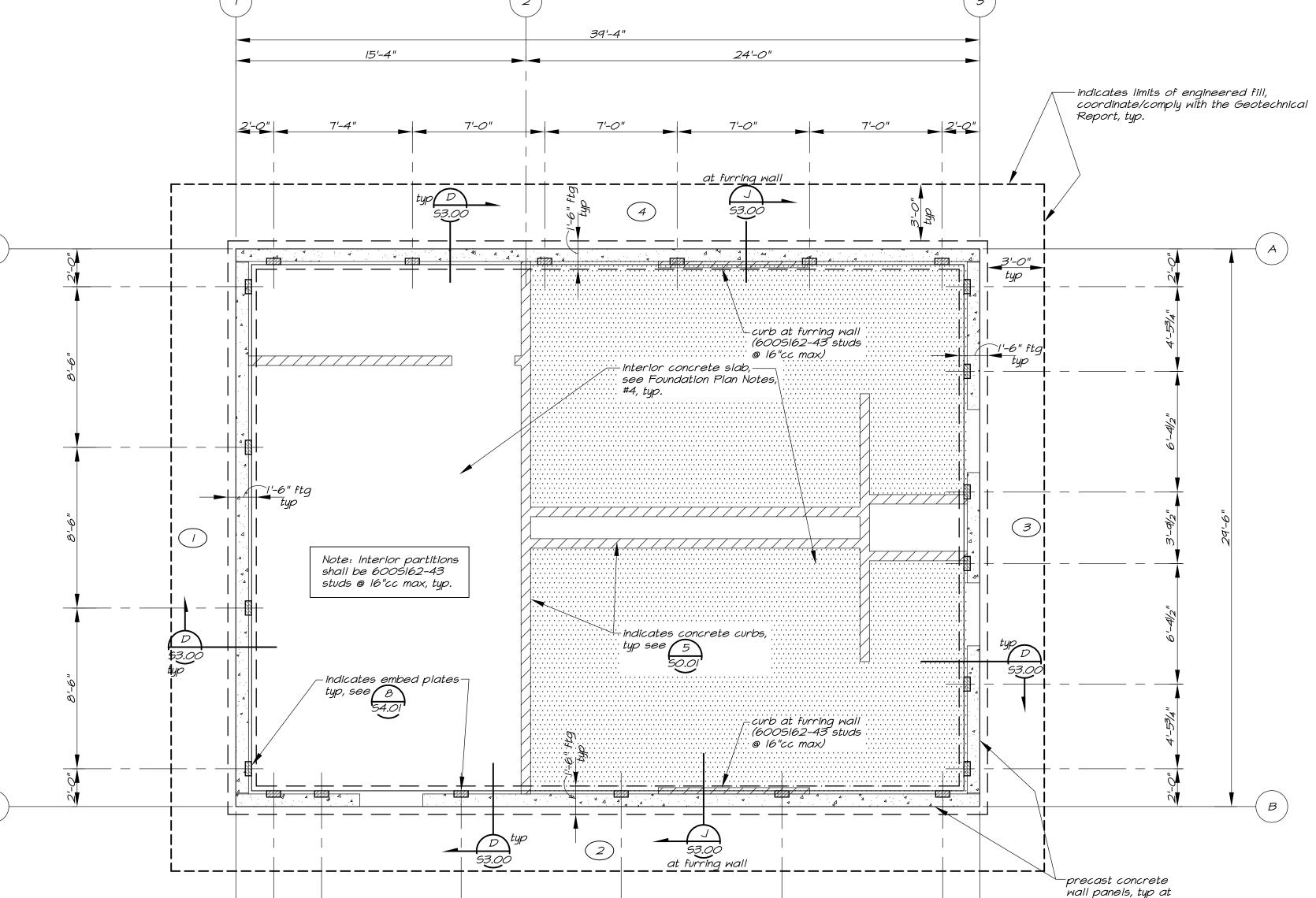
# Roof Framing Plan Notes - Both Buildings:

- I. Coordinate all dimensions with architectural drawings. Notify Architect of any discrepancies for resolution prior to proceeding.
- 2. See sheet SO.OO and SO.OI for typical notes and details. These notes and details apply to all construction unless noted or detailed otherwise. 3. For typical metal roof deck information and details, see sheet S4.00.
- 4. For typical structural steel details, see sheet S4.01.
- Indicates mechanical units. Coordinate/verify locations with mechanical drawings typ. Provide framing per details as follows:

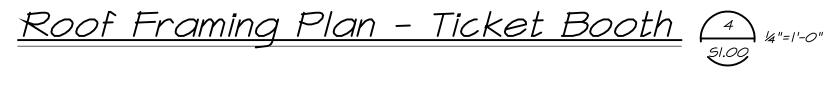
Unit/s	Weight	Framing Detail
REF-I # REF-2	50 lbs.	3 54.00
ODU-1 # ODU-2	100 lbs.	<u>2</u> 54.00

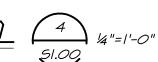
- 6. All interior walls shall be constructed using 6005137-33 metal studs All interior walls shall be constructed using 6005137-33 metal studs at 16" on center max, typical. Interior headers shall be constructed per
- 7. All interior non-bearing partition walls are to be built full-hieght to the bottom of the roof structure and connected per detail
- 8. All penetrations 12" or larger through the concrete wall panels shall be cast at the precast manufacturer's plant and shall be coordinated with the engineer of record and the precast concrete engineer prior to casting.
- 9. All penetrations smaller than 12" through the concrete wall panels shall be cored in the in the field and coordinated with the engineer of record and the precast concrete engineer. Prior to coring, the precast engineer shall review the locations to ensure the penetrations are not going through flexural reinforcement.





<u> Foundation Plan - Concessions Building</u>







- I. Coordinate all dimensions with architectural drawings. Notify Architect of any discrepancies for resolution prior to proceeding.
- 2. See sheet 50.00 and 50.01 for typical notes and details. These notes and details apply to all construction unless noted or detailed otherwise.
- 3. All bolts, embed plates, straps and other hardware embedded in concrete must be securely tied in place prior to foundation inspection.
- 4. Construction of concrete floor slabs shall conform to the following:
  - A.) Subgrade soils shall be prepared in strict accordance with the Geotechnical Report.
  - B.) Floor slabs shall be cast directly onto a 15 mil. vapor barrier. The vapor barrier should be properly lapped and sealed as well
  - as sealed around all plumbing lines, conduits, and other openings. C.) The vapor barrier shall be placed directly over a 4" thick capillary break consisting of free-draining crushed rock.
  - D.) The 4" capillary break material shall be graded such that 100% of the material passes a l' sieve and none passes a No. 4 sieve. E.) All concrete floor slabs shall be 5 inches thick and shall be reinforced with #4 bars at 18 inches on center each direction
  - placed at mid-depth of the slab. F.) Provide joints in the concrete floor slabs per 50.00 A slab joint plan shall be submitted to the Architect for
- approval prior to casting the slabs. 5. For typical pipe/conduit penetrations through footings, see  $\begin{pmatrix} 6 \\ 5 \end{pmatrix}$

6. All interior non-bearing partition walls are to be built full-hieght to the



bottom of the roof structure and connected per detail 2

8. All penetrations 12" or larger through the concrete wall panels shall be cast at the precast manufacturer's plant and shall be coordinated with the engineer of record and the precast concrete engineer prior to casting.

 $\cdot$  and location's with plumbing and architectural drawings. typ.

- 9. All penetrations smaller than 12" through the concrete wall panels shall be cored in the in the field and coordinated with the engineer of record and the precast concrete engineer. Prior to coring, the precast engineer shall review the locations to ensure the penetrations are not going through
- 10. ( | ) Indicates Precast Wall Panel number. See elevations on sheet S500.

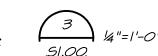
<u> Foundation Plan - Ticket Booth</u>

— awning above, see 22/A4.20 —

interior concrete slab,——

X-strap bracing at awning, see 12 54.00

see Foundation Plan Notes,`



indicates anchor angles

typ @ X-straps, see 2

X-strap bracing at awning,

II. 🖊 /// Indicates 6" tall concrete curbs.

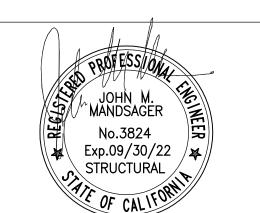


exterior, by others

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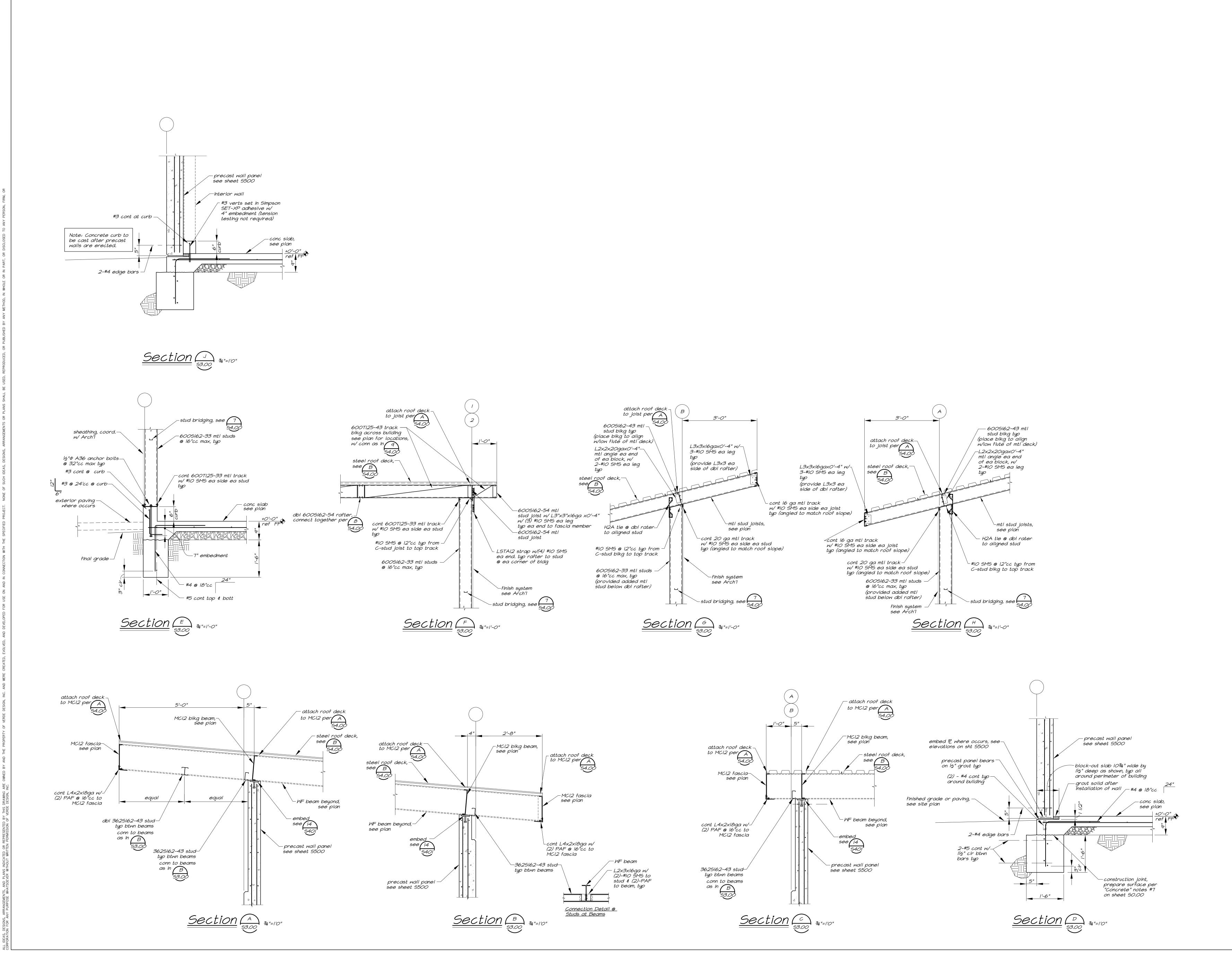
# FOUNDATION & **ROOF FRAMING PLANS**

PROJECT NAME

MESA VERDE HIGH SCHOOL ATHLETIC FACILITY **IMPROVEMENTS** 

PROJECT ADDRESS 7501 CARRIAGE DRIVE CITRUS HEIGHTS, CA 95621

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APP: 02-118588 INC:

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DATE: 01/20/2021



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SHEET TITLE

# SECTIONS & DETAILS

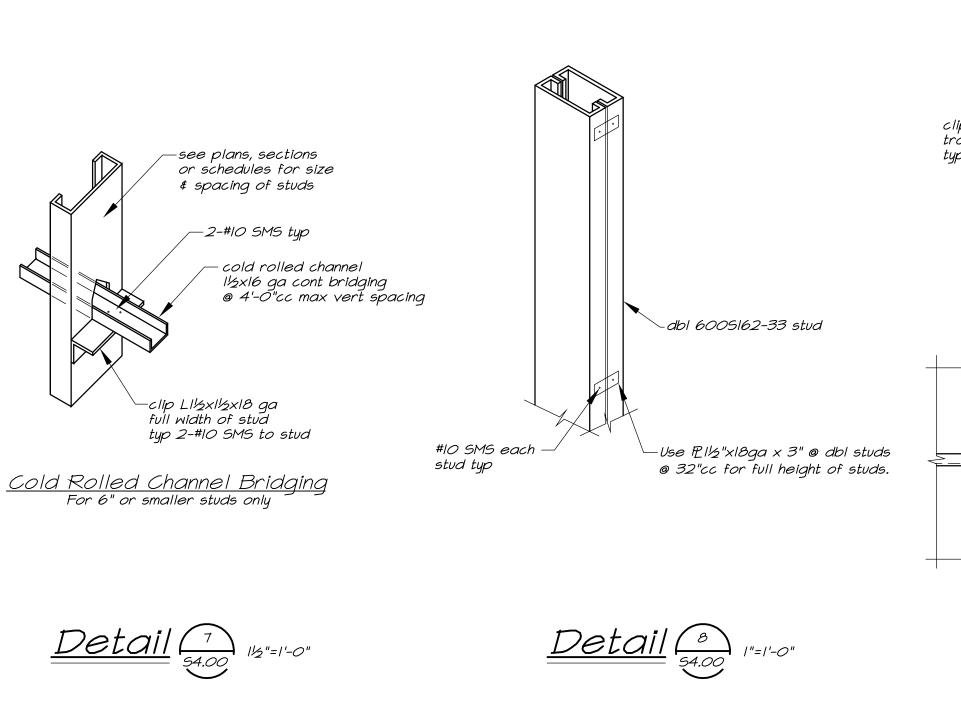
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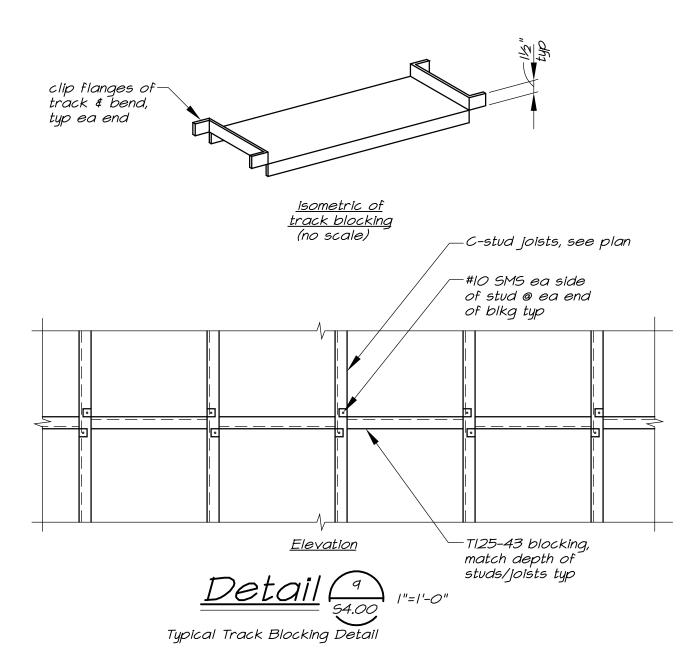
MESA VERDE
HIGH SCHOOL
ATHLETIC FACILITY
IMPROVEMENTS

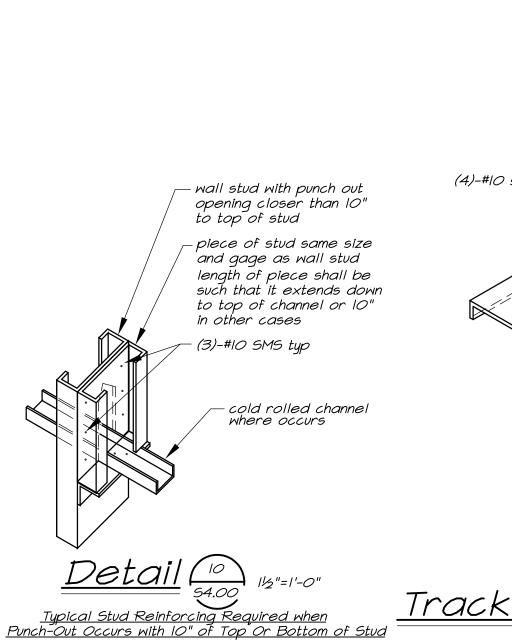
PROJECT ADDRESS

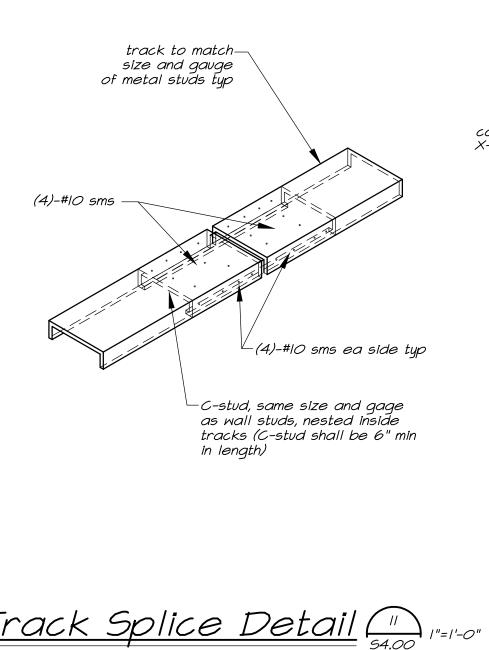
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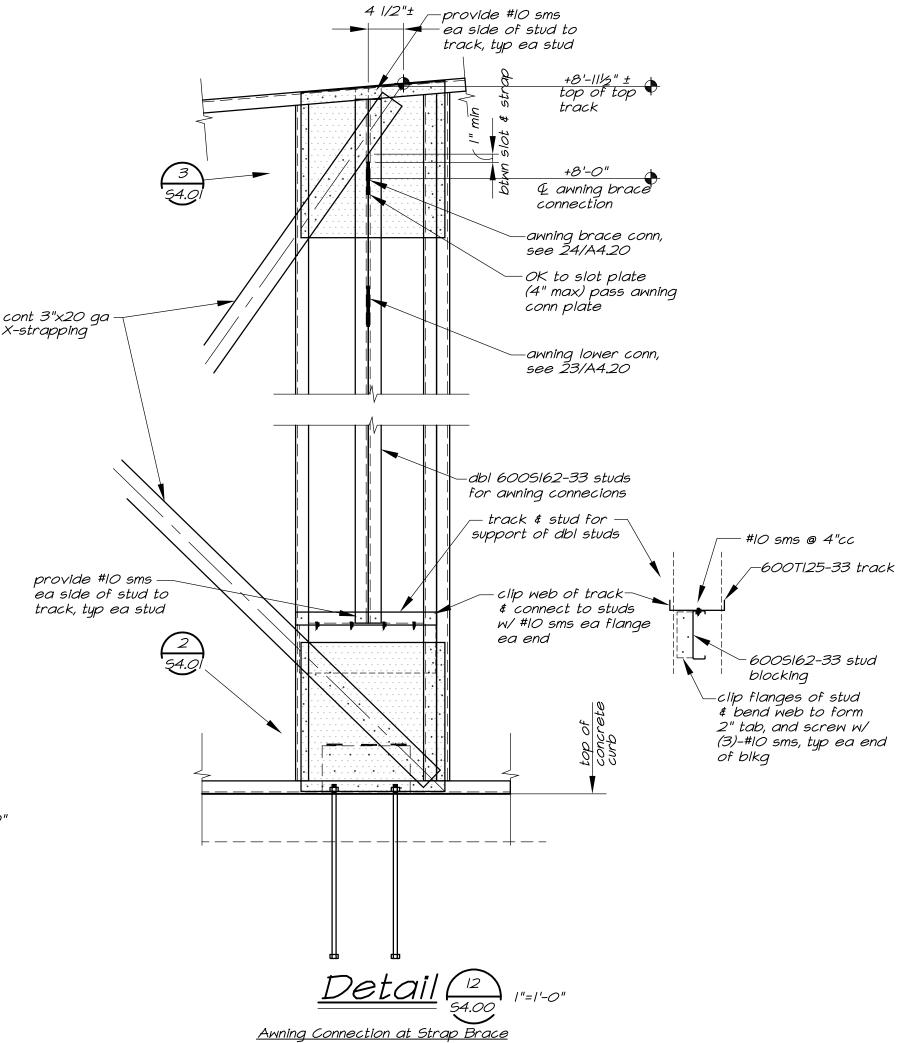
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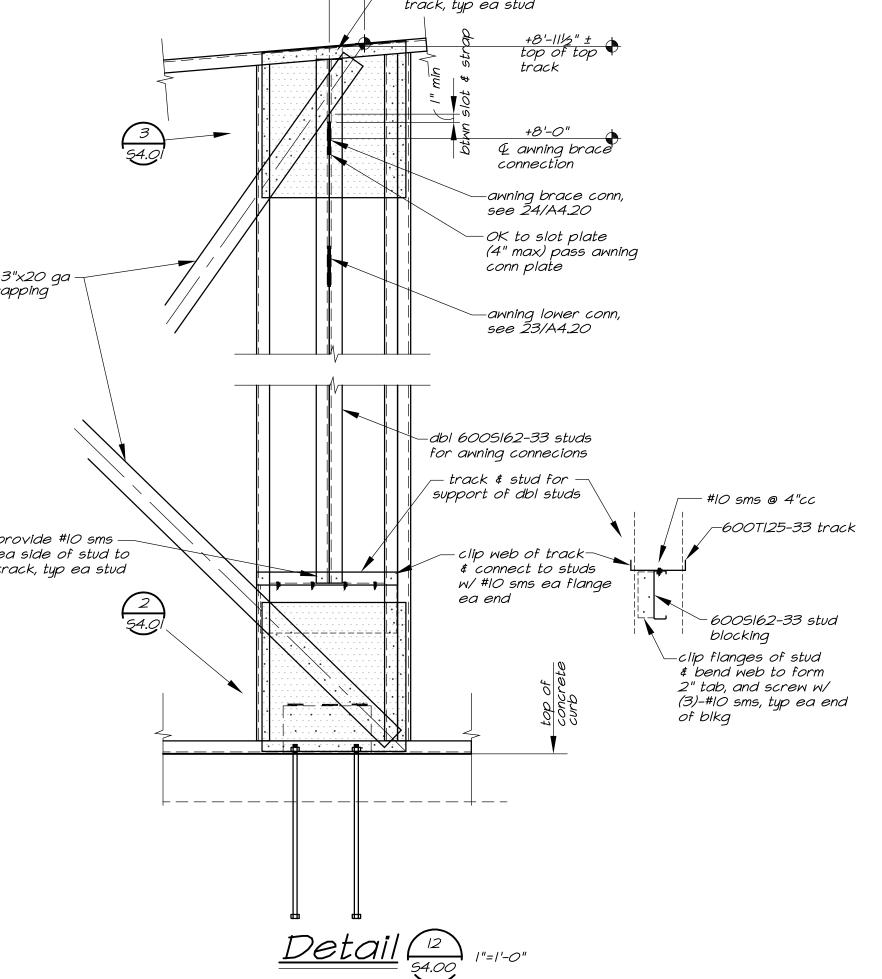






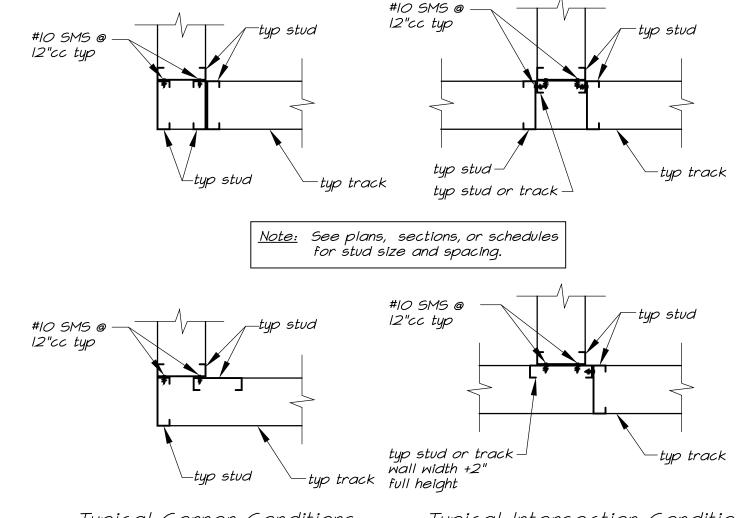


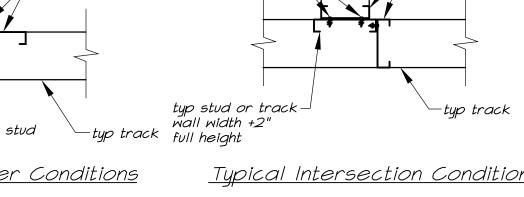


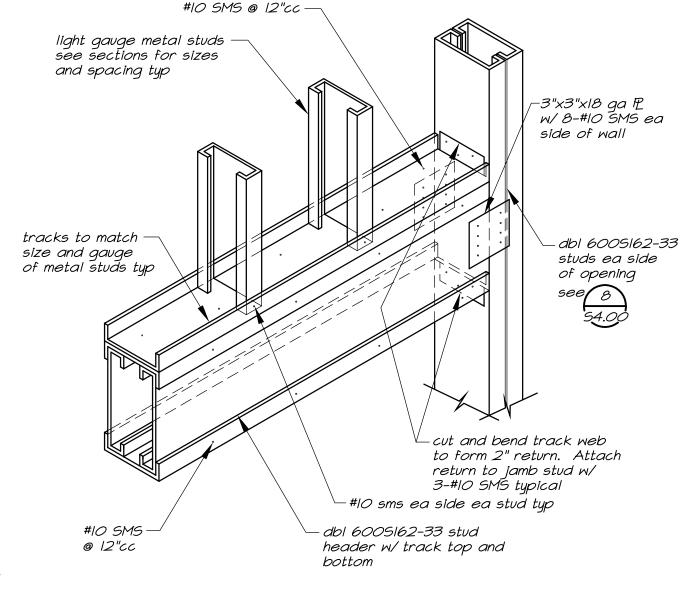




- I. Metal deck shall be "Cellular" type roof deck fabricated from galvanized steel made with a standard B-type röof deck on top and an unperforated (solid) flat bottom plate that are factory resistance-welded together.
- 2. Provide metal decking by Verco Manufacturing Co. or equal with the following minimum section properties:
- \* "20/20" indicates 20 gauge B-type roof deck with 20 gauge flat bottom plate. 3. Metal roof deck shall conform to ASTM A-653 grade 33 (min. yield 38 ksi) and
- shall be galvanized (zinc coated) per ASTM A-653, G-60 grade coating. 4. Prior to fabrication, the Contractor shall submit shop drawings for the metal decking, showing deck gauge, size, and layout as well as closure conditions, welds to supports
- 5. Connection of decking to structural supports and at deck side seams
- shall be as specified in the structural drawings. 6. Metal deck shall have factory installed insulation in all the "cells" formed between the roof deck and the flat bottom plate. Insulation shall conform to Architectural



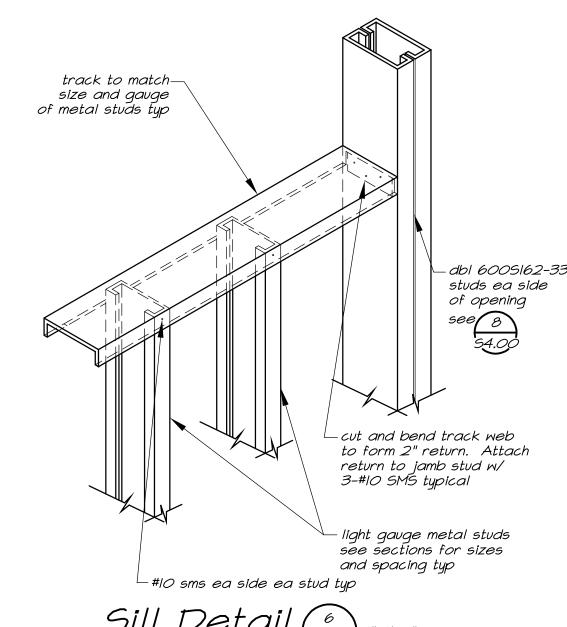


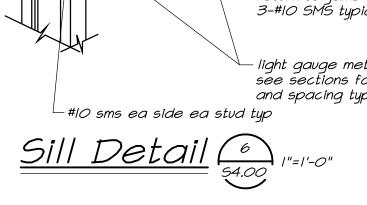


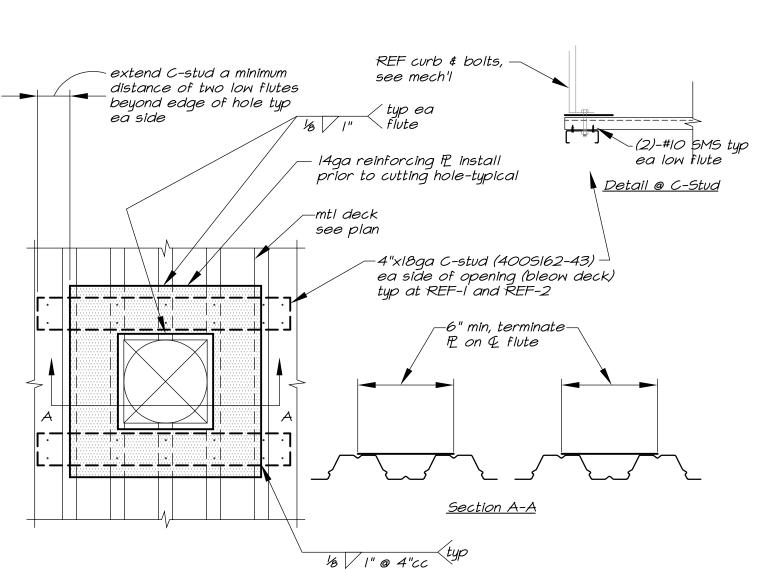


3/6 /typ @ horiz

~L4x4x¾6







I. Applies to round or rectangular holes from 6" to 18" wide. in metal decking with or without concrete fill. 2. At Contractor's option, #10 SMS @ 4"cc may be used in lieu of the 増"×1" welds shown.

# (A) Metal Deck Connections Schedule

$\mathcal{L}$	Peck	Connection	Patterns

Deck Type	Profile	Fastener Pattern Designation at Perpendicular Supports	Connections per Sheet
roof deck or equal		36/4	4 - connections per sheet, see schedule below for details

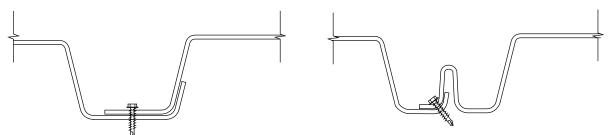
# Deck Connections

Connection Type	Deck Type	Depth \$ Gauge	Perpendicular Supports	Parallel Supports	Side Laps	Notes
Туре А	HSB-CD-36 roof deck or equal	1½" x 20 ga	4 - PAF <sup>2</sup> per sheet	PAF @ 12"cc	<sup>3</sup> 5-SLC OI @ 24" cc	20/20 cellular deck see specifications
Туре В	HSB-CD-36 roof deck or equal	1½" × 20 ga	4 - #12-14 HWH TEK screws per sheet	#12-14 HWH @ 12"cc	3 5-5LC OI @ 24" cc	20/20 cellular deck see specifications

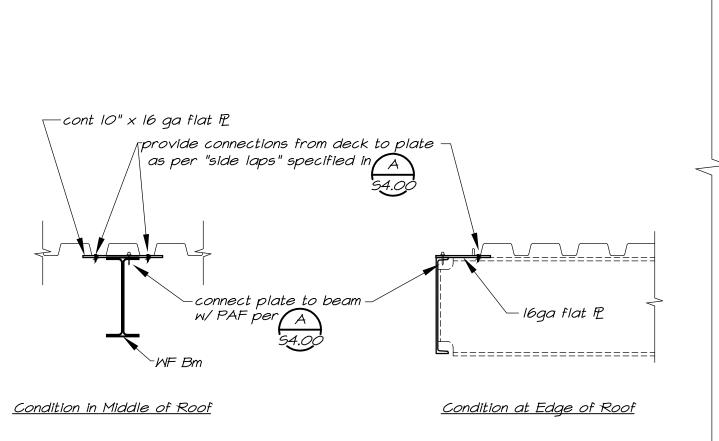
I. Deck installation shall be installed in strict conformance with ICC-ES Evaluation Report ESR-2776. The subcontractor responsible for the deck installation shall have a copy of this report on the jobsite. It is available at www.icc-es.org. 2. "PAF" in the context of this Connection Schedule shall mean the following types of powder actuated fasteners:

Steel Support Framing Hilti Fastener Thickness, "t" Hilti X-HSN 24 t ≤ %" t > %" Hilti X-ENP LI5

3. "S-SLC OI" in the context of this Connection Schedule shall mean Hilti side lap connection screws, Hilti S-SLC OI M HWH. See the



- 4. Hilti fasteners shall be installed in strict accordance with all Hilti guidelines, instructions and recommendations.
- 5. See diagram/s above for typical connection patterns.
- 8. Where Metal Deck is parallel to framing members, provide added continuous steel  $\mathbb{R}$  as req'd per  $\frac{1}{54.00}$



Note: This detail applies only where low flute is not located such that deck can be attached to top flange of WF bm or channel

typical detail @ metal roof deck parallel to beam

Plan Detail 2

Typical Opening in Roof Deck 54.00

1"=1'-0"

\_L4x4x316

WF beam -

typ @ vert

metal róðf deck ---

(no opening in deck

@ 9DU-1 & ODU-2)

WF beam —

3. At ODU-I and ODU-2 coord. frame dimensions with unit configuration and 4/MO.1

<u>Typical Bearing Connection</u>

<u>Notes:</u> I. This detail applies to

holes that exceed

see detail 3

2. Attach metal deck to

18" square or round. For

holes not exceeding 18",

members around opening

SUBMITTAL 50% SUBMITTAL DSA SUBMITTAL DSA BACKCHECK SUBMITTAL NO. REVISIONS CHECKED BY DRAWN BY DATE ISSUED

\_ dbl 6005l62-33

**IMPROVEMENTS** 

SHEET TITLE

PROJECT NAME

PROJECT ADDRESS 7501 CARRIAGE DRIVE

**DETAILS** 

MESA VERDE

HIGH SCHOOL

ATHLETIC FACILITY

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITEC

REVIEWED FOR SS 🗹 FLS 🗹 ACS 🗹

APP: 02-118588 INC:

DATE: 01/20/2021

VERDE DESIGN

LANDSCAPE ARCHITECTURE

CIVIL ENGINEERING

SPORT PLANNING & DESIGN

2455 The Alameda

Santa Clara, CA 95050

tel: 408.985.7200

fax: 408.985.7260

www.VerdeDesignInc.com

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No.3824

Exp.09/30/22 /

1132 Suncast Lane, Suite 6 El Dorado Hills, CA 95762

phone: (916) 941-2425

STRUCTURAL OF CALIFF

STRUCTURAL ENGINEERS INC

CONSULTANT

CITRUS HEIGHTS, CA 95621

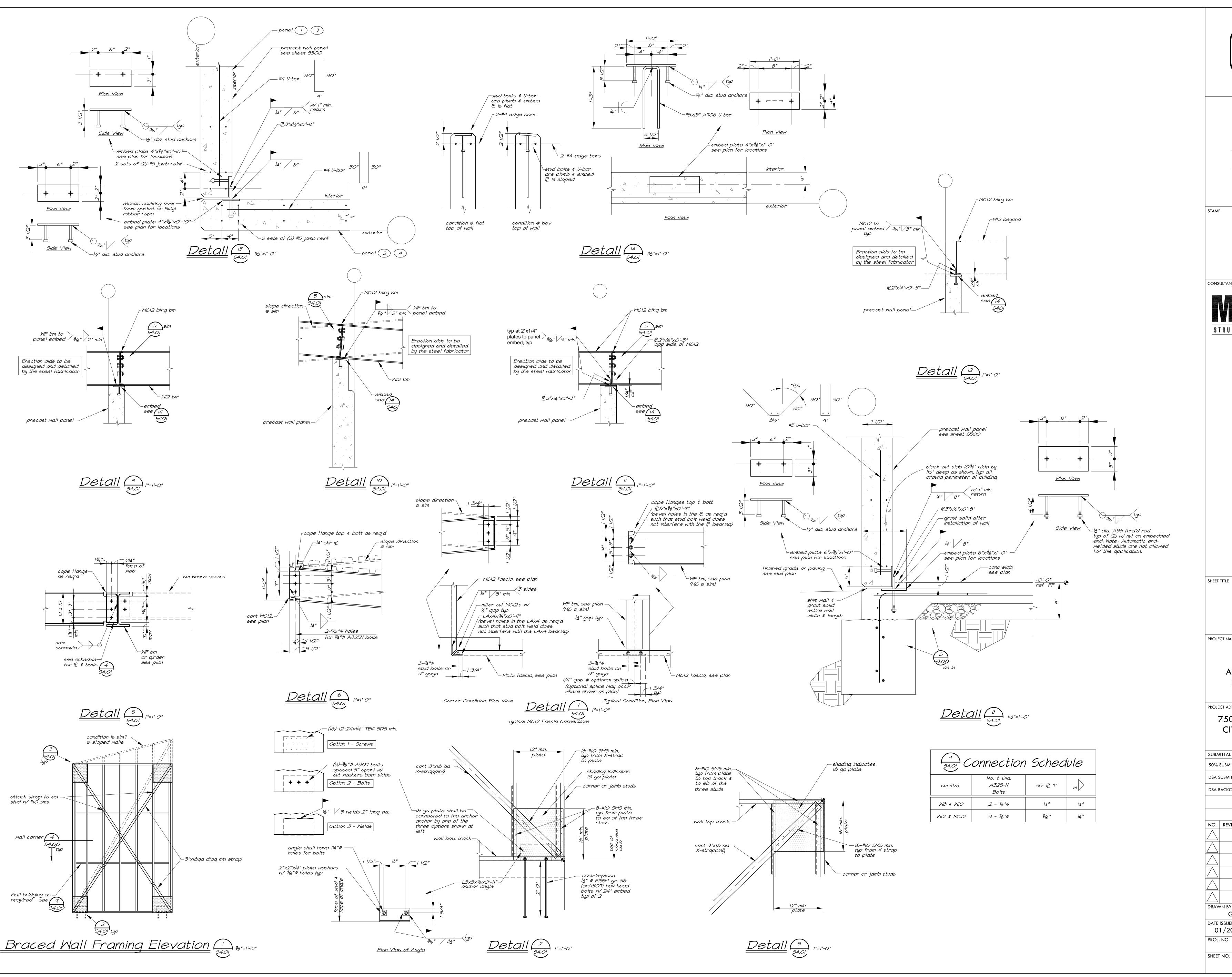
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10/15/2020 01/20/202

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1819500 SHEET NO. \$4.00

the following diagrams below: 6. Deck shall be 2-span minimum, typical. 7. For Metal Deck Notes, see B



IDENTIFICATION STAMP DIV. OF THE STATE ARCHITEC APP: 02-118588 INC: REVIEWED FOR SS 🗹 FLS 🗹 ACS 🗹 DATE: 01/20/2021

VERDE DESIGN LANDSCAPE ARCHITECTURE CIVIL ENGINEERING SPORT PLANNING & DESIGN 2455 The Alameda

Santa Clara, CA 95050 tel: 408.985.7200 fax: 408.985.7260 www.VerdeDesignInc.com

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CONSULTANT

1132 Suncast Lane, Suite 6 El Dorado Hills, CA 95762 phone: (916) 941-2425 STRUCTURAL ENGINEERS INC

SHEET TITLE

**DETAILS** 

PROJECT NAME

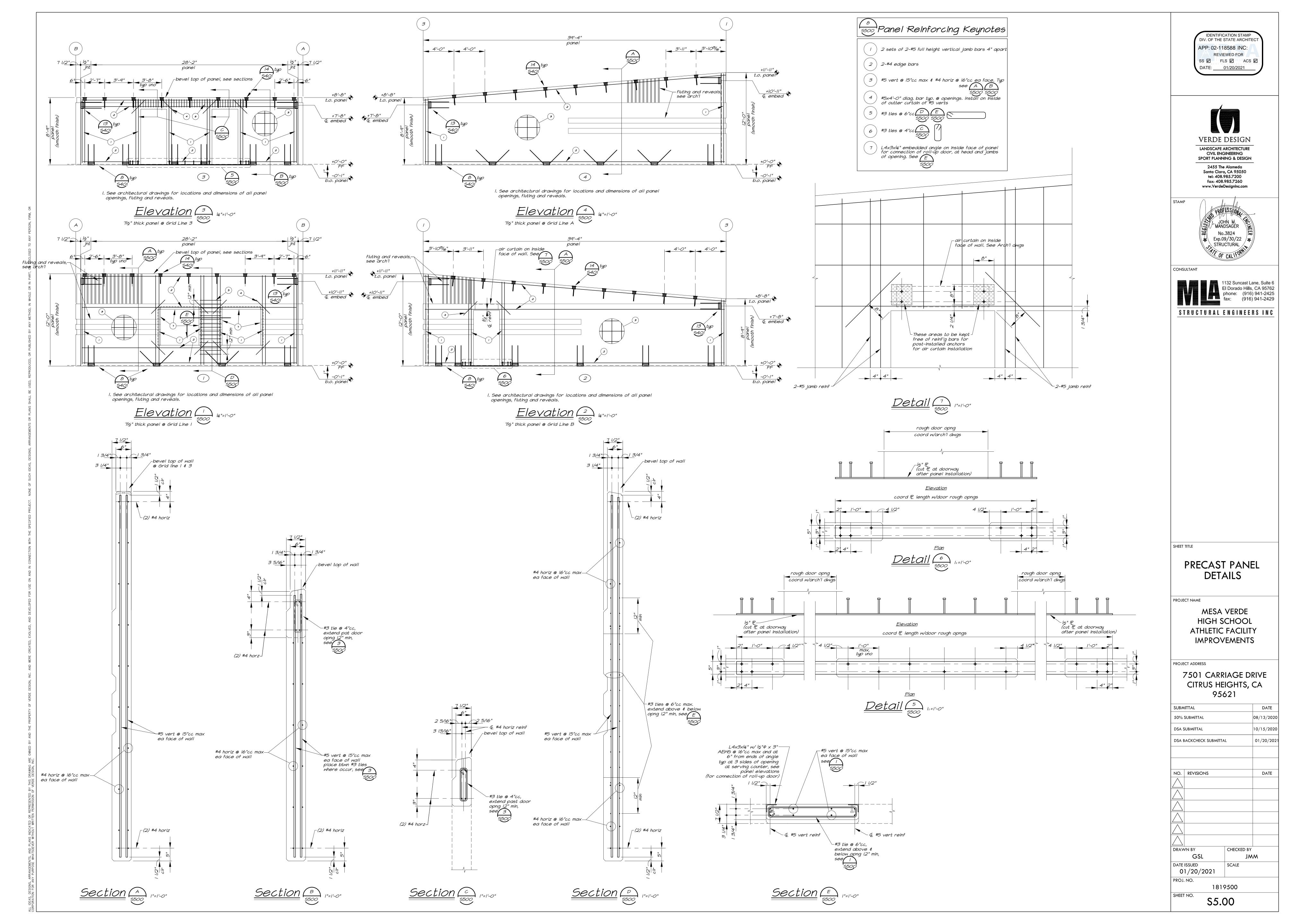
MESA VERDE HIGH SCHOOL ATHLETIC FACILITY **IMPROVEMENTS** 

PROJECT ADDRESS

7501 CARRIAGE DRIVE CITRUS HEIGHTS, CA 95621

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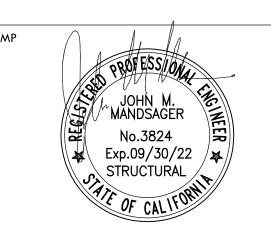
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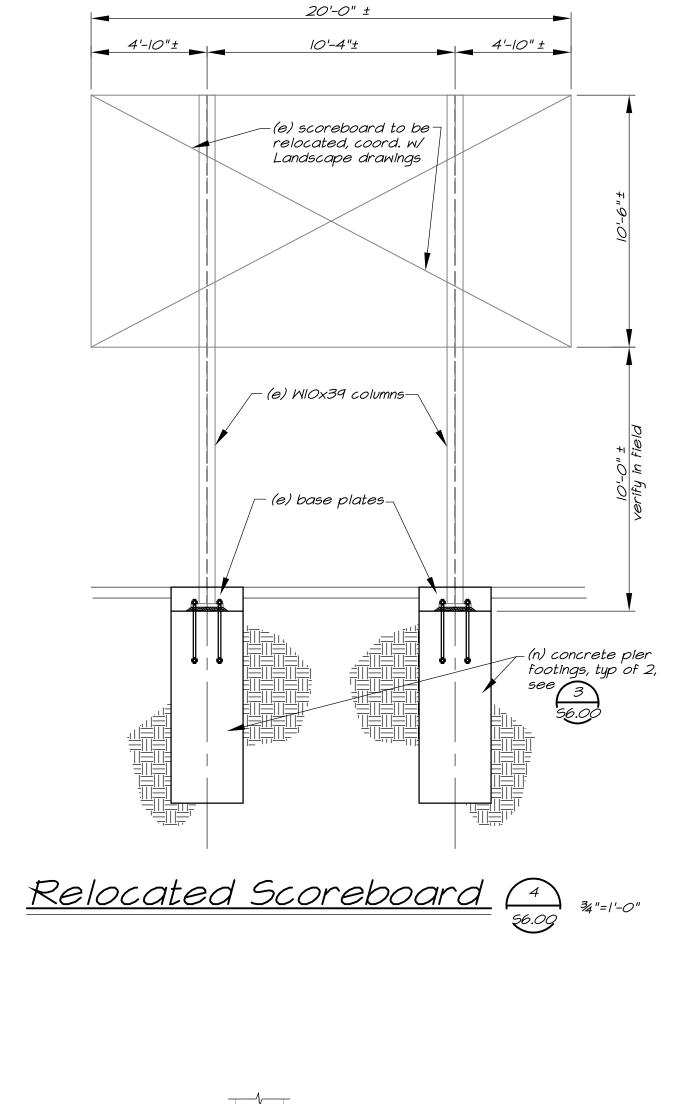
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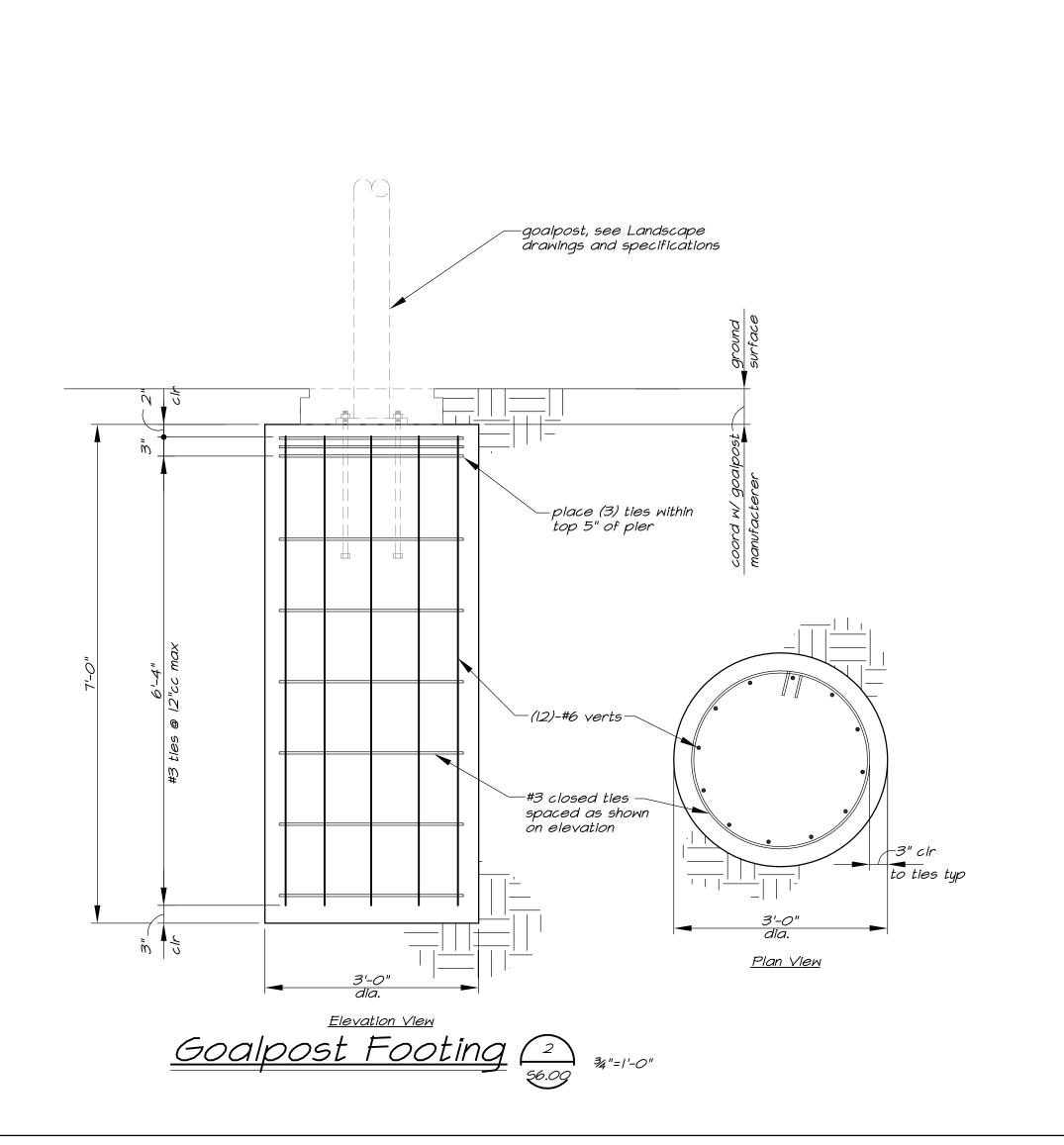
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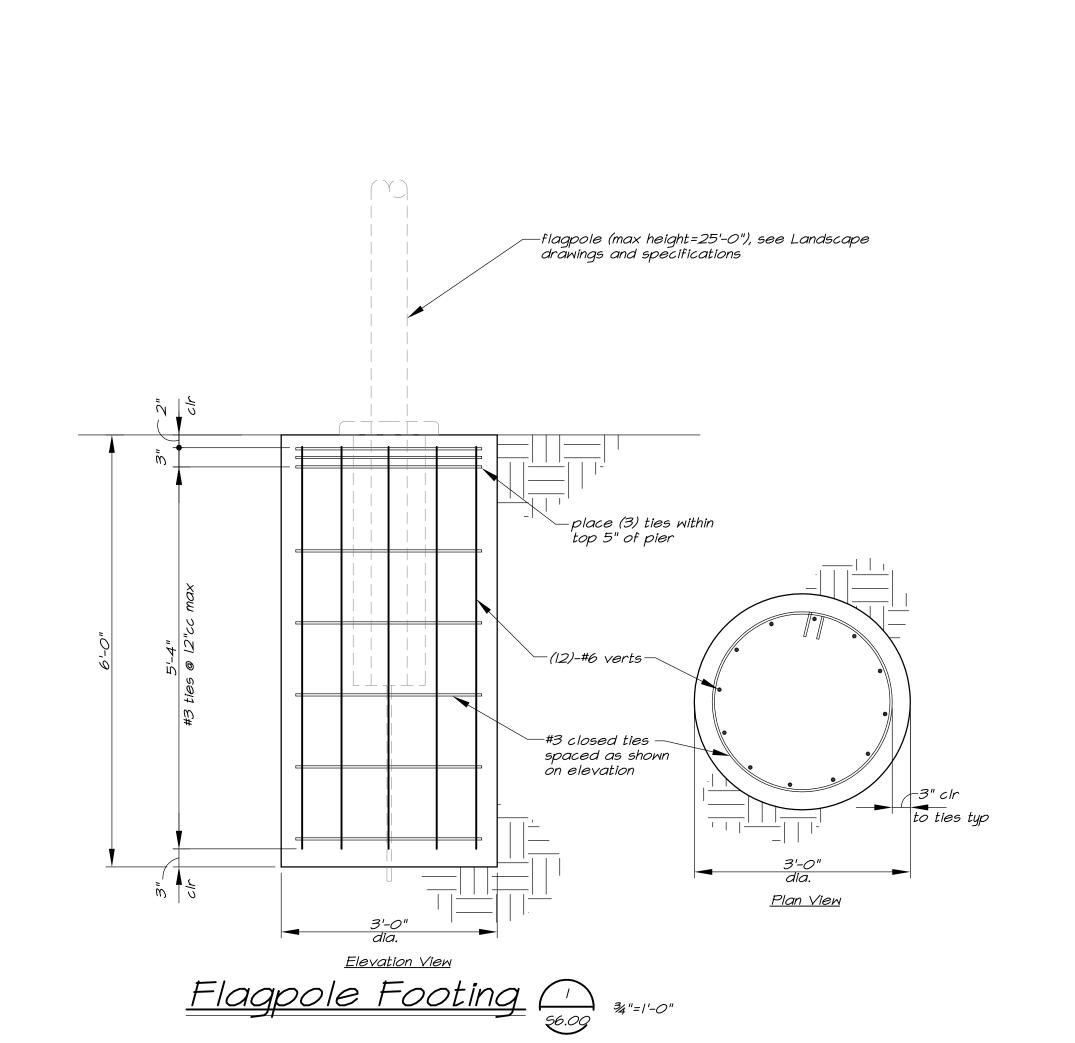
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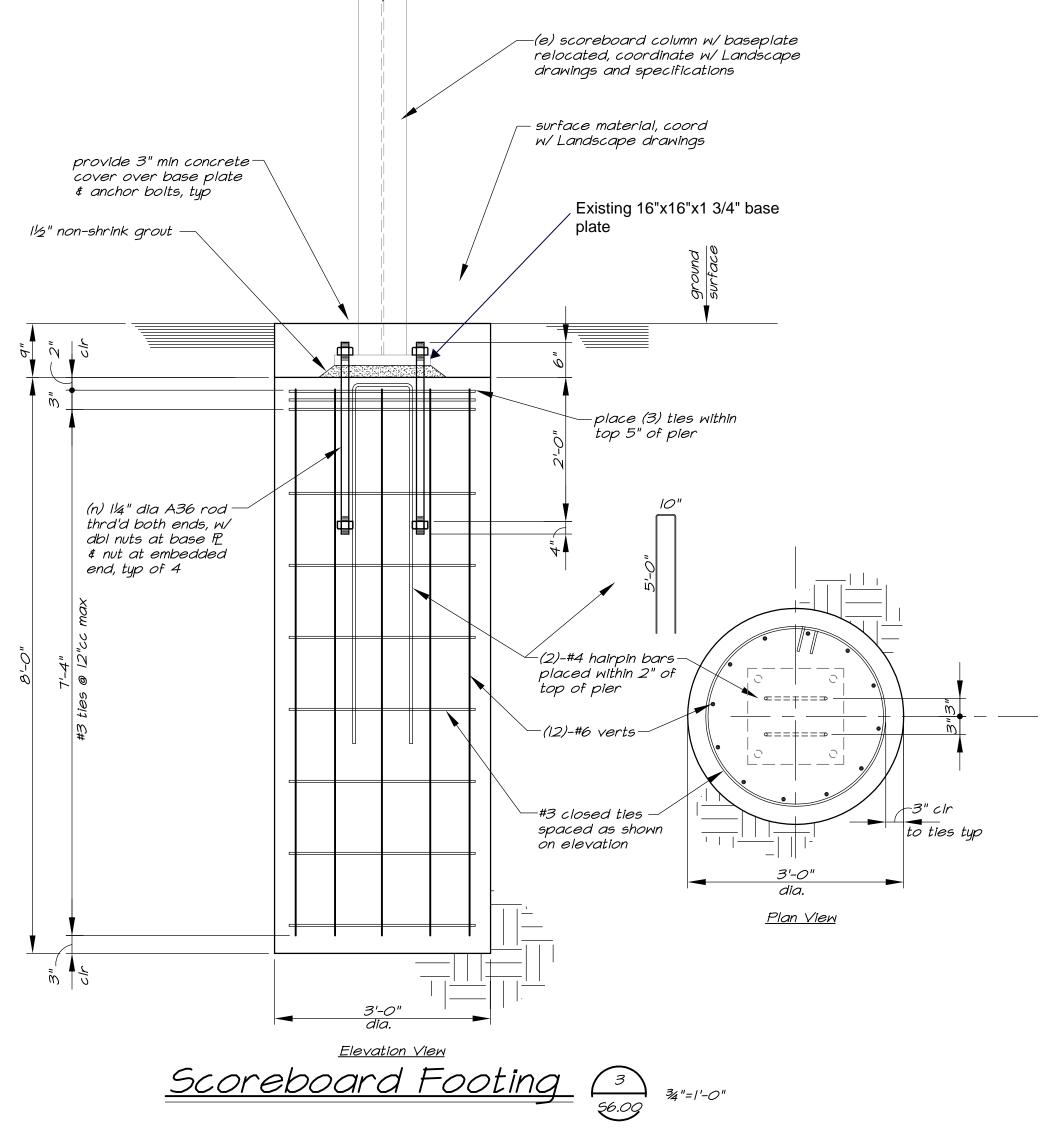
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- 1. ALL EXISTING EQUIPMENT, DEVICES, CONDUIT, AND WIRING, ETC., WHERE SHOWN ON PLANS ARE BASED ON AVAILABLE EXISTING DOCUMENTS AND LIMITED SITE SURVEYS AND ARE SHOWN FOR CLARITY. IT SHALL BE REGARDED AS AN APPROXIMATION ONLY. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT. PRIOR TO SUBMITTING BID AND BEFORE START OF ANY ELECTRICAL WORK, CONTRACTOR SHALL VERIFY ON-SITE ALL EXISTING LOCATIONS AND CONDITIONS TO ASCERTAIN ALL WORK REQUIRED.
- 2. EXISTING ELECTRICAL MAIN SERVICE IS BEING REPLACED WITH NEW THAT IS TO BE INCLUDED IN THE SCOPE OF WORK. CONTRACTOR SHALL VERIFY AND COORDINATE THE SEQUENCE OF WORK WITH THE LOCAL UTILITY COMPANY, THE OWNER/DISTRICT'S REPRESENTATIVE, AND OTHER TRADES AT THE EARLIEST START OF CONSTRUCTION FOR ALL REQUIREMENTS AND SCHEDULING OF THE REQUIRED WORK FOR A SMOOTH AND TIMELY TRANSFORMATION FROM THE EXISTING SERVICE TO THE NEW SERVICE TO ENSURE THAT ALL WORK PROCEEDS WITH A MINIMUM OF INTERFERENCE AND DELAY. LIMIT THE ELECTRICAL SHUTDOWN TO A MINIMUM SO IT WILL NOT AFFECT THE EXISTING FACILITY'S NORMAL DAILY FUNCTIONS AND OPERATION.
- 3. CAUSE AS LITTLE INTERFERENCE OR INTERRUPTION OF EXISTING UTILITIES AND/OR OTHER EXISTING FACILITY'S SYSTEMS AND SERVICES AS POSSIBLE. CONTRACTOR SHALL NOTIFY THE OWNER/DISTRICT'S REPRESENTATIVE AT LEAST 72 HOURS TO SCHEDULE ALL NECESSARY SHUTDOWN. SHUTDOWN WORK SHALL BE PERFORMED AFTER THE NORMAL OPERATION HOURS OF THE FACILITY, IF SO DIRECTED BY THE OWNER/DISTRICT'S REPRESENTATIVE.
- 4. ALL REMOVED AND/OR DEMOLISHED ELECTRICAL MATERIALS AND EQUIPMENT TO BE ACCOMPLISHED UNDER THIS CONTRACT, WHICH IN THE OPINION OF THE OWNER/DISTRICT'S REPRESENTATIVE ARE DEEMED SALVAGEABLE, SHALL REMAIN THE PROPERTY OF THE OWNER/DISTRICT. ALL ELECTRICAL MATERIAL AND EQUIPMENT CONSIDERED NOT SALVAGEABLE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF BY THE CONTRACTOR ACCORDINGLY.
- WHERE REMOVAL OF AN EXISTING SYSTEM'S DEVICE WILL RESULT IN LOSS OF CIRCUIT CONTINUITY, THE ISOLATED PORTIONS OF THE CIRCUIT SHALL BE RECONNECTED TO PROVIDE SERVICE TO ALL REMAINING DEVICES. IF SITE CONDITIONS MAKE RECONNECTION IMPOSSIBLE, CONNECTION SHALL BE MADE FROM AN ADJACENT AVAILABLE DEVICE AS NOTED AND/OR AS DIRECTED BY THE ARCHITECT AND/OR THE OWNER/DISTRICT'S REPRESENTATIVE.
- WHERE EXISTING CONCEALED CONDUITS, WHETHER SHOWN OR NOT, OR SPECIFIED TO BE REUSED, WHICH BECAME EXPOSED DUE TO CONSTRUCTION CHANGES, IT SHALL BE REROUTED TO THE NEAREST AVAILABLE REUSED OUTLET.
- 7. ALL EXISTING EXPOSED CONDUITS AND/OR WIRING THAT ARE DETERMINED BY THE DISTRICT AND ARCHITECT TO BE MAINTAINED FOR EXISTING SYSTEM FUNCTION AND CONTINUITY, WHETHER SHOWN ON PLAN OR NOT, ARE TO BE REROUTED CONCEALED IN WALL AND/OR CEILING FOR A CLEAN FINISHED SURFACE WITH NO EXPOSED CONDUITS AND/OR WIRING WITHIN THE REMODELED AREA.
- 8. REMOVE ALL EXISTING EXPOSED CONDUITS, WIRING, ELECTRICAL OUTLETS, DEVICES, AND EQUIPMENT THAT ARE DETERMINED BY THE DISTRICT REPRESENTATIVE/OWNER AND ARCHITECT TO BE NON FUNCTIONAL AND/OR NOT BEING USED FROM WITHIN THE REMODELED AREA FOR A CLEAN FINISHED
- 9. WHERE EXISTING WIRING OR EQUIPMENT IS ABANDONED AS A RESULT OF THIS CONTRACT, IT SHALL BE REMOVED INSOFAR AS POSSIBLE. THIS INCLUDES BUT IS NOT LIMITED TO: A. REMOVE ALL WIRE AND CABLE.
- B. REMOVE ALL DEVICES AND EQUIPMENT. REMOVE ALL EXPOSED CONDUIT AND CONDUIT IN ACCESSIBLE CONCEALED AREAS, AS FAR AS D. CUT OFF AND CAP ALL ABANDONED CONDUIT. STUBS SHALL NOT BE PROTRUDED ABOVE FLOOR AND/OR FINISHED WALLS AND CEILINGS.
- 10. WHEREVER EXISTING ELECTRICAL DEVICES, PANELS, CONDUITS, CABLES, ETC., CONFLICT WITH REMODEL WORK, WHETHER SHOWN OR NOT, RELOCATE THESE ITEMS AS DIRECTED BY THE ARCHITECT AND/OR OWNER/DISTRICT'S REPRESENTATIVE.
- 11. WHERE SHOWN ON PLAN FOR REMOVAL OF EXISTING CONDUITS, REMOVE ALL PORTIONS OF CONDUITS WHERE IT IS ACCESSIBLE AND ABANDON PORTIONS OF CONDUITS WHERE IT IS INACCESSIBLE. CUT OFF AND CAP ALL ABANDONED CONDUITS. STUBS SHALL NOT BE PROTRUDED ABOVE FLOOR AND/OR FINISHED WALLS AND CEILINGS.
- 12. CONTRACTOR SHALL UPDATE WITH NEW TYPEWRITTEN PANEL DIRECTORIES TO EXISTING PANELS INVOLVED IN THIS RENOVATION WORK THAT SHALL REFLECT ALL CHANGES TO THE CIRCUIT
- 13. PROVIDE AND INSTALL PROTECTIVE COVERING OVER EXISTING EQUIPMENT IN AREA WHEN INSTALLING ANY NEW WORK.
- 14. COORDINATE WITH OTHER TRADES AND PROMPTLY TRANSMIT ALL INFORMATION REQUIRED BY THEM. COORDINATE THE SEQUENCE OF DEMOLITION WITH OTHER TRADES TO ENSURE THAT ALL WORK PROCEEDS WITH A MINIMUM OF INTERFERENCE AND DELAY.
- 15. REFER TO MECHANICAL AND PLUMBING DRAWINGS FOR HEATERS, EXHAUST FANS, WATER HEATERS, PUMPS. ETC.. WHICH ARE REQUIRED TO BE DISCONNECTED BY THE ELECTRICAL CONTRACTOR FOR REMOVAL OR ABANDONMENT BY THE MECHANICAL AND/OR PLUMBING CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE SEQUENCE OF WORK WITH THE MECHANICAL AND/OR PLUMBING CONTRACTOR FOR REMOVAL OF ALL APPLICABLE STARTERS, DISCONNECT SWITCHES, AND ASSOCIATED CONDUIT, AND WIRING.
- 16. ALL LIGHT FIXTURES INDICATED AS RELOCATED SHALL BE CLEANED AND RE-LAMPED PRIOR TO THE RE-INSTALLATION.

# **EQUIPMENT ANCHORAGE NOTES**

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26 AND 30.

- 1. ALL PERMANENT EQUIPMENT AND COMPONENTS. 2. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES
- HAVING A FLEXIBLE CABLE. 3. TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS 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 IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:

- 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 DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

#### PIPING AND DUCTWORK DISTRIBUTION SYSTEM **BRACING NOTES**

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7—16 SECTION. 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8; AND 2019 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.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 A PRE-APPROVED INSTALLATION GUIDE (E.G., OSHPD OPM FOR 2013 CBC OR LATER), 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-APPROVAL □ □ □ (OPM#) #0043−13.

GENERAL NOTES

ALL GENERAL NOTES SHOWN BELOW ARE NOT NECESSARILY USED ON PLANS IF NOT REQUIRED.

- THESE GENERAL NOTES ARE INTENDED TO ASSIST THE CONTRACTOR IN THE EXECUTION OF THE ELECTRICAL WORK AND TO BE INCLUDED IN CONJUNCTION WITH THE CONTRACT DOCUMENT DRAWINGS AND SPECIFICATION REQUIREMENTS. SOME OF THE GENERAL NOTES ARE EXCERPTS FROM THE
  - PROCURE PERMITS AND LICENSES REQUIRED. PAY ALL NECESSARY FEES AND ARRANGE FOR INSPECTIONS REQUIRED BY LOCAL CODES, ORDINANCES, AND UTILITY COMPANIES.
- 3. COORDINATE ALL ELECTRICAL SERVICES WITH THE RESPECTIVE UTILITY COMPANIES AND PROVIDE ALL TRENCHING, CONDUITS, WIRING, METER FACILITIES AND OUTLETS REQUIRED BY THEM.
- 4. WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY. DEFECTIVE EQUIPMENT OR EQUIPMENT DAMAGED IN THE COURSE OF INSTALLATION OR TEST SHALL BE REPLACED OR REPAIRED IN A MANNER MEETING WITH THE ACCEPTANCE OF THE ARCHITECT.
- 5. INSTALL ALL EQUIPMENT, CONDUITS, OUTLETS, AND FIXTURES IN STRICT ACCORDANCE WITH THE CURRENT EDITION OF ALL APPLICABLE CODES (2019 CEC, STATE, COUNTY, AND CITY).
- 6. DO NOT SCALE PLANS FOR FIXTURES, DEVICES, OR APPLIANCE LOCATIONS. USE FIGURED DIMENSIONS IF GIVEN OR CHECK MECHANICAL AND ARCHITECTURAL PLANS. ALSO REFER TO ACTUAL ON-SITE
- 7. ALL MATERIAL AND EQUIPMENT IS TO BE LISTED AND INSTALLED PER MANUFACTURER'S
- 8. ALL ELECTRICAL DEVICES, EQUIPMENT, FIXTURES, CONDUITS, AND WIRING SHOWN ON THESE PLANS ARE NEW, UNLESS OTHERWISE NOTED.
- 9. OUTLET BOXES INSTALLED IN FIRE WALLS SHALL BE ONE-PIECE STEEL AND INSTALLED IN SEPARATE (STAGGERED) STUD PENETRATIONS, MINIMUM 24 INCHES HORIZONTAL SEPARATION. FIRE WALLS SHALL BE MADE IN ACCORDANCE WITH CBC AND ELECTRICAL CODES.
- 10. THE FINAL LOCATION OF ALL OUTLETS SHALL BE VERIFIED WITH THE ARCHITECT AND/OR OWNER AT TIME OF CONSTRUCTION.
- 11. ALL OUTDOOR ELECTRICAL EQUIPMENT SHALL BE WEATHER-PROTECTED.

SPECIFICATIONS AND CEC 110.3.

CEC STANDARDS OF INSTALLATION.

- 12. CONTRACTOR SHALL VERIFY THAT ALL LIGHTING FIXTURES, CEILING TRIMS, AND FRAMES ARE COMPATIBLE WITH CEILING SYSTEM INSTALLED.
- 13. CONTRACTOR SHALL COORDINATE LIGHT FIXTURE LOCATIONS AND INSTALLATIONS WITH THE MECHANICAL CONTRACTOR. MAINTAIN REQUIRED CLEARANCES (MINIMUM 3 INCHES, PER CEC 410.116) BETWEEN THE LIGHT FIXTURES AND MECHANICAL DUCTS OR EQUIPMENT FOR PROPER OPERATION, INSTALLATION AND/OR REMOVAL OF FIXTURES.
- 14. BEFORE SUBMITTING FOR ARCHITECT'S REVIEW AND PLACING ORDER FOR THE LIGHT FIXTURES, THE CONTRACTOR SHALL VERIFY THE VOLTAGE OF ALL THE LIGHTING FIXTURES TO MATCH THE VOLTAGE OF THE SERVICE PANEL, WHETHER THE VOLTAGE FOR THE LIGHT FIXTURES ARE SHOWN ON THE PLAN
- 15. PLACEMENT AND CIRCUITING OF EXIT SIGNS AND EGRESS LIGHTING SHALL COMPLY WITH CBC REQUIREMENTS.
- 16. ALL CONDUIT SHALL BE ROUTED CONCEALED UNLESS NOTED ON PLAN OR ACCEPTED BY THE
- 17. PROVIDE ALL NECESSARY SLEEVES AND INSERTS FOR ALL WORK PASSING THROUGH OR ATTACHING TO WALLS, FLOORS, OR CEILINGS.
- 18. ALL WIRING SHALL BE INSTALLED IN RIGID METALLIC CONDUIT, UNLESS OTHERWISE NOTED. CONDUITS INSTALLED CONCEALED IN WALL AND CEILING MAY BE EMT WITH STEEL COMPRESSION TYPE FITTINGS.

PVC WHERE INSTALLED UNDERGROUND AND/OR UNDER SLAB. ALL EXPOSED CONDUITS SHALL BE

RIGID STEEL CONDUITS WITH THREADED TYPE FITTINGS. INSTALL ALL CONDUITS IN ACCORDANCE WITH

- 19. ELECTRICAL NON-METALLIC TUBING (ENT) AND MC CABLE ARE NOT PERMITTED TO BE USED FOR THIS PROJECT, NO EXCEPTIONS.
- 20. WHERE EXISTING CONDUITS, CONCEALED OR EXPOSED, AND (WIREMOLD) SURFACE RACEWAY IS NOT IN PLACE AS SHOWN ON PLANS, PROVIDE NEW CONDUITS AND (WIREMOLD) SURFACE RACEWAY FOR THE NEW WORK. VERIFY EXISTING CONDITION ON SITE AND PROVIDE ALL NECESSARY NEW MATERIAL, APPARATUS, AND WORK THAT IS REQUIRED TO BE INCLUDED IN THE BID PACKAGE.
- 21. CONDUCTORS, #8 AND LARGER, SHALL BE STRANDED COPPER WITH THNN/THWN INSULATION, UNLESS OTHERWISE NOTED. CONDUCTORS #10 AND SMALLER SHALL BE SOLID CONDUCTORS.
- 22. PROVIDE WORKING CLEARANCE PER CEC 110.26 FOR SERVICE PANEL. SUBPANELS. MOTOR DISCONNECT SWITCHES, CONTROL SECTIONS, HVAC EQUIPMENT, APPLIANCES, ETC.
- 23. PROVIDE A WARNING LABEL (SIGN) CLEARLY VISIBLE TO QUALIFIED PERSONS TO COMPLY WITH NEC AND CEC 110.16 OF POTENTIAL ÉLECTRIC ARC FLASH HAZARDS AT SWITCHBOARDS, PANELBOARDS, INDUSTRIAL CONTROL PANELS AND MOTOR CONTROL CENTERS THAT ARE LIKELY TO REQUIRE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE WHILE ENERGIZED. SERVICE EQUIPMENT SHALL BE LEGIBLY MARKED WITH THE MAXIMUM AVAILABLE FAULT CURRENT PER CEC SECTION
- 24. BUILDING SERVICE AND SUBPANELS TO COMPLY WITH CEC 110.9 AND 110.10 INTERRUPTING RATING AND BRACING. PROVIDE A.I.C. CALCULATIONS FOR SUBPANELS IF INTERRUPTING RATING TO BE USED IS LOWER THAN MAIN SERVICE RATING.
- 25. ALL APPLIANCES SHALL COMPLY WITH CEC ARTICLE 422. APPLIANCE CONTROL AND PROTECTION PER CEC 422-III; BRANCH CIRCUITS PER 422-II.
- 26. BUILDING EXPANSION JOINTS MAY OR MAY NOT BE INDICATED ON THE ELECTRICAL DRAWINGS. VERIFY THE LOCATIONS OF ALL APPLICABLE BUILDING EXPANSION JOINTS WITH THE ARCHITECTURAL DRAWINGS. WIRING METHODS ACROSS EXPANSIONS JOINTS SHALL INCLUDE USE OF FLEXIBLE FITTINGS OR OTHER DEVICES AS APPROPRIATE TO EACH APPLICATION. IN NO CASE SHALL CONDUIT CROSS SUCH A JOINT IN BUILDING CONSTRUCTION WITHOUT USE OF THE APPROPRIATE WIRING METHODS.
- 27. CONTRACTOR SHALL SIZE ALL THE INTERIOR AND EXTERIOR BUILDING PULL BOXES AND UNDERGROUND PULL BOXES PER CEC 314.16 AND COMPLY WITH CEC 314.28 FOR INSTALLATION OF RACEWAYS AND WIRING AS REQUIRED BY CODE, UNLESS OTHERWISE NOTED.
- 28. WHERE ACCESSIBILITY IS NOT AVAILABLE TO ELECTRICAL OUTLETS, DEVICES AND/OR EQUIPMENT, COORDINATE WITH THE ARCHITECT FOR PROVISIONS TO PROVIDE ACCESSIBILITY TO THEM.
- 29. CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE MECHANICAL DRAWINGS AND PROVIDING ALL CONDUITS, CONTROL WIRING, AND POWER WIRING SHOWN ON THE MECHANICAL DRAWINGS THAT IS NOT SHOWN ON THE ELECTRICAL PLANS.
- LOCATIONS. COORDINATE ROOF PENETRATION WITH THE MECHANICAL CONTRACTOR FOR MECHANICAL CONNECTIONS. ENTER ROOF MOUNTED UNITS THROUGH EQUIPMENT MOUNTING CURES WHERE POSSIBLE. VERIFY ON-SITE. 31. PROVIDE CONVENIENCE OUTLET WITHIN 25 FEET OF MECHANICAL EQUIPMENT PER U.M.C. WHERE

30. CONTRACTOR SHALL REFER TO THE MECHANICAL DRAWINGS AND COORDINATE FOR THE EQUIPMENT

- LOCATED OUTSIDE, PROVIDE WEATHER PROOF AND GFCI CONVENIENCE OUTLET. SECURE ROOF MOUNTED OUTLET TO THE MECHANICAL EQUIPMENT. VERIFY LOCATION IN FIELD WITH THE MECHANICAL CONTRACTOR.
- 32. VERIFY SINGLE-POINT CONNECTIONS TO ROOF MOUNTED HVAC UNITS WITH MECHANICAL CONTRACTOR ON-SITE PRIOR TO ELECTRICAL ROUGH-IN. PROVIDE DUAL DISCONNECTS IF TWO-POINT CONNECTION IS REQUIRED, WHETHER SHOWN ON PLANS OR NOT.
- 33. SWITCH DEVICES CONTROLLING MECHANICAL EQUIPMENT SHALL BE OF SIZE AND TYPE REQUIRED AND SHALL BE SERVED WITH QUANTITY OF WIRES AS REQUIRED. REFER TO DIVISION 15 MECHANICAL PLANS AND SPECIFICATIONS.
- 34. COORDINATE THE HVAC EQUIPMENT FOR FUSES REQUIRED. WHERE FUSES ARE REQUIRED, VERIFY FUSE SIZE ON-SITE AND PROVIDE FOR HVAC EQUIPMENT PER UNIT NAMEPLATE SPECIFICATIONS.
- 35. MOTOR DISCONNECT SWITCHES SHALL COMPLY WITH CEC 430-IX AND 440-II.
- 36. MOTOR STARTERS FOR HVAC EQUIPMENT ARE PROVIDED BY MECHANICAL CONTRACTOR AND CONNECTED BY ELECTRICAL CONTRACTOR, UNLESS NOTED OTHERWISE.
- 37. ALL CONNECTIONS FROM THE DISCONNECT SWITCHES TO HVAC UNITS SHALL BE COPPER CONDUCTORS. MOTOR DISCONNECT SWITCHES SHALL COMPLY WITH CEC 430-VII, 430-VIII, AND
- 38. CONTRACTOR VERIFY LOCATION AND HEIGHT OF ALL MECHANICAL OR FIXTURE EQUIPMENT OUTLETS WITH SUPPLIER PRIOR TO ANY ROUGH-IN WORK. PROVIDE ALL RUNS AND CONNECTIONS TO
- 39. ALL TERMINATION PROVISIONS OF EQUIPMENT, INCLUDING CIRCUITS RATED 100 AMPERES OR LESS, SHALL BE RATED AT 60 DEGREE, CENTIGRADE PER CEC 110.14(c).
- 40. ALL LIGHT FIXTURES INSTALLED OVER FOOD HANDLING OR FOOD PREPARATION AREAS, OPEN FOOD STORAGE, AND UTENSIL WASHING AREAS SHALL BE OF SHATTERPROOF CONSTRUCTION OR SHALL BE PROTECTED WITH SHATTERPROOF SHIELDS AND SHALL BE READILY CLEANABLE.

### ELECTRICAL ABBREVIATIONS

SYMBOL	DESCRIPTIONS
A/AMP	AMPERES
AC	ALTERNATING CURRENT
AFF	ABOVE FINISHED FLOOR
AFC	ABOVE FINISHED CEILING
AFG	ABOVE FINISHED GRADE
AIC	AMPERES INTERRUPTING CAPACITY (SYMMETRICAL)
С	CONDUIT
CCT	CIRCUIT
CKT	CIRCUIT
DC	DIRECT CURRENT
(E)	EXISTING TO REMAIN
EC	EMPTY CONDUIT
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
FACP	FIRE ALARM CONTROL PANEL
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE METALLIC CONDUIT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND/G	GROUND
HP .	HORSEPOWER
IG	ISOLATED GROUND
J-BOX	JUNCTION BOX
KVA	KILOVOLT-AMPS
KW	KILOWATTS
LTG	LIGHTING
MCA	MINIMUM CIRCUIT AMPACITY
мсв	MAIN CIRCUIT BREAKER
MLO	MAIN LUGS ONLY
MTD	MOUNTED
(N)	NEW
N	NEUTRAL CONDUCTOR (GROUNDED CIRCUIT CONDUCTOR)
N.I.E.S.	NOT IN ELECTRICAL SCOPE OR SPECIFICATIONS
NL	NIGHT LIGHT
PH/P	PHASE OR POLE
PNL	PANELBOARD
PVC	POLYVINYL CHLORIDE CONDUIT (SCHEDULE 40)
(R)	RELOCATE/RELOCATED
RECEP	RECEPTACLE
RGSC	RIGID GALVANIZED STEEL CONDUIT
U	UNSWITCHED
UNO	UNLESS NOTED OTHERWISE
V	VOLTAGE OR VOLTS
W	WATTS
WP	WEATHERPROOF
WPU	WEATHER ROOF WHILE IN USE
(X)	REMOVE
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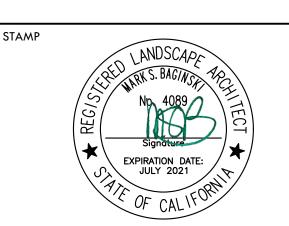
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l	BE0.2	ELECTRICAL SYMBOL LEGEND
l	BE2.1	ELECTRICAL PLANS
l	BE3.1	ELECTRICAL SCHEDULES & DETAILS
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CONSULTANT



SHEET TITLE

ELECTRICAL ABBREVIATION AND NOTES

PROJECT NAME

MESA VERDE HIGH SCHOOL ATHLETIC FACILITY **IMPROVEMENTS** 

PROJECT ADDRESS

7501 CARRIAGE DRIVE CITRUS HEIGHTS, CA 95621

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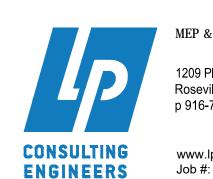
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ENGINEERS

MEP & FS / Sustainability / CxA 1209 Pleasant Grove Blvd. Roseville, CA 95678 p 916-771-0778

www.lpengineers.com Job #: 19-2245

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MEP & FS / Sustainability / CxA

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EXPIRATION DATE:
JULY 2021

OF CALLED

PROFESSIONAL No.18211
Exp. 12/31/21

SHEET TITLE

ELECTRICAL SYMBOL LEGEND

PROJECT NAME

MESA VERDE
HIGH SCHOOL
ATHLETIC FACILITY
IMPROVEMENTS

OJECT ADDRESS

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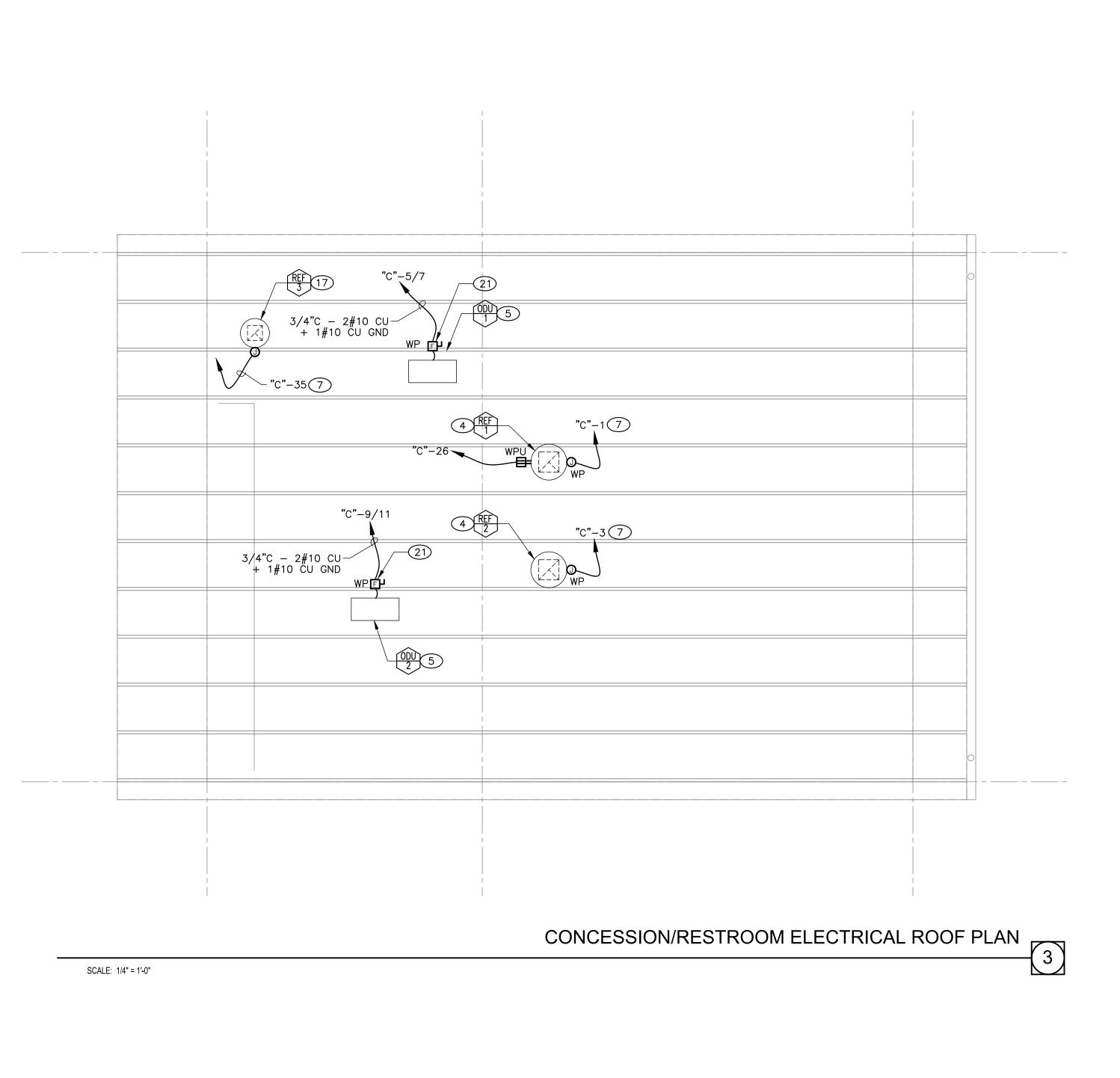
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www.lpengineers.com Job #: 19-2245

DRAWING NAME: P:\1-Project files\2019 LP Projects\19-2245 BCA\_Mesa Verde CRT bldg\Electrical\E-Sheets\192245\_BE0\_2\_(SYMBOLS).dwg



+9'-0" (BE) "C"-15 ♠ EM "C"-13 0 "C"-13 O EM O EM (TYP. UNO) 13

\_"C"-40/42 9 TIMECLOCK TC2 POWER SUPPLY 24 "C" - 38

SCALE: 1/4" = 1'-0"

SCALE: 1/4" = 1'-0"

"C"-22 "C"-40/42 +46"

CONCESSION/RESROOM LIGHTING PLAN

ENGINEERS

MEP & FS / Sustainability / CxA Roseville, CA 95678 p 916-771-0778

www.lpengineers.com Job #: 19-2245

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITEC APP: 02-118588 INC: REVIEWED FOR SS 🗹 FLS 🗹 ACS 🗹 DATE: 01/20/2021

**KEY NOTES** 

CONCRETE LID AND GROUND ROD (DETAIL 5/E3.1).

3 UNDERGROUND CONDUIT AND FEEDERS BY OTHERS.
CONTRACTOR SHALL COORDINATE EXACT PANEL LOCATION
WITH INCOMING CONDUIT LOCATIONS.

4 115V/1ø, 1/8 HP. FACTORY PREWIRED DISCONNECT

(5) 208V/1ø, 11 MCA, 30 MOCP. ELECTRICAL CONTRACTOR

7) INTERLOCK WITH LIGHTING CONTROLS IN RESPECTIVE

9 365-DAY ASTRONOMIC TIME CLOCK, 2-CIRCUITS, 30A

WATTSTOPPER #UT-300-2. PROVIDE WITH (2) POWER PACKS WATTSTOPPER BZ-200. ONE POWER PACK SHALL CONTROL THE LIGHTING VIA DIMMER SWITCH AND THE

11) 0-10V DIMMER, LUTRON #DVSTV. PROVIDE WITH POWER

PACK. INTERLOCK DIMMER" WITH RESPECTIVE KEYED

13 0-10V DIMMER, LUTRON #DVSTV. PROVIDE WITH POWE3R

(15) INDOOR UNIT POWERED FROM RESPECTIVE ODU.

(18) DUAL TECHNOLOGY LOW VOLTAGE CEILING SENSORS

PACKS WATTSTÖPPER BZ-200, ONE FOR EACH SWITCHLEG RUN OUTPUT OF POWER PACKS VIA

(20) 1-1/4"C w/ 8#10 CU (HOT), 3#10 CU (NEUTRAL)

(21) ELECTRICAL DISCONNECT SWITCHES SHALL NOT BE

3'-0" CLEARANCE IN FRONT OF THE SWITCH.

23) CONDENSATE PUMP OUTLET. COORDINATE EXACT LOCATION IN THE FIELD. COORDINATE OUTLET REQUIREMENTS WITH THE PUMP PROVIDED.

24 MOTORIZED ROLL-UP DOOR POWER. 120V, 2.6 FLA.

(26) RECEPTACLE TO BE INSTALLED INSIDE IDF CABINET.

COORDINATE EXACT LOCATION IN THE FIELD. VERIFY EXACT ELECTRICAL REQUIREMENTS WITH ROLL-UP DOOR

(25) ROLL-UP DOOR THREE-WAY PUSH-BUTTON STATION IN

(27) COORDINATE WITH MECHANICAL EQUIPMENT VENDOR AND

PROVIDE MICRO-SWITCH TO TURN FAN ON UPON DOOR

GENERAL NOTES

1. CIRCUIT EM BATTERY PACKS TO UNSWITCHED LIGHTING

2. ALL ELECTRICAL EQUIPMENT/DEVICES LOCATED OUTDOORS

3. PROVIDE WATERTIGHT EXPOSED CONDUIT AND WATERTIGHT BOXES AT ALL EXTERIOR CONCRETE PANEL WALLS.

PRE-CAST CONCRETE WALL NOTES

COORDINATED WITH THE ENGINEER OF RECORD AND THE

1. ALL PENETRATIONS 12" OR LARGER TO BE CAST AT THE PRE-CAST MANUFACTURER'S PLANT AND WILL BE

PRE-CAST CONCRETE ENGINEER PRIOR TO CASTING.

3. NO SURFACE-MOUNTED CONDUIT IS ALLOWED ON THE PROJECT. CONTRACTOR SHALL COORDINATE WITH THE PRE-CAST CONCRETE ENGINEER PRIOR TO CASTING TO ASSURE ALL CONDUITS WILL BE INSTALLED IN CONCEALED

2. ALL PENETRATIONS SMALLER THAN 12" SHALL BE CORED IN THE FIELD AND COORDINATED WITH THE ENGINEER OF RECORD AND THE PRE-CAST CONCRETE ENGINEER. PRIOR TO CORING, PRE-CAST ENGINEER TO REVIEW LOCATIONS TO ENSURE THE PENETRATIONS ARE NOT GOING THROUGH

4. RUN 0-10V CONTROL WIRING FROM EACH DIMMER TO

SHALL BE WEATHERPROOF/NEMA 3R RATED.

5. REFER TO SHEET E3.1 FOR KITCHEN EQUIPMENT

LIGHTS BEING CONTROLLED.

FLEXURAL REINFORCEMENT.

SCHEDULE

NEMA 1 ENCLOSURE. COORDINATE EXACT LOCATION WITH

MOUNTED ON THE UNIT. PROVIDE STAND-ALONE MOUNT

FOR CONDENSING UNIT DISCONNECT SWITCHES WITH

WATTSTOPPER #DT-300. PROVIDE WITH (2) POWER

8 DUAL TECHNOLOGY 0-10V DIMMING WALL SWITCH OCCUPANCY SENSOR - WATTSTOPPER DW-311.

RATED CONTACTS: INTERMATIC #ET9021CR.

(10) ULTRASONIC LOW VOLTAGE CEILING SENSOR:

OTHER THE ROOF EXHAUST FAN.

SWITCH IN RESTROOM.

(14) NOT USED.

(12) LABEL SWITCH "POPCORN MAKER".

208V/1ø, 1 MCA, 15 MOCP.

RESPECTIVE DIMMER SWITCH.

(19) MOUNT @ 5'-8" TO TOP OF PANEL.

(16) TO RESPECTIVE OUTDOOR UNIT.

(17) 115V/1ø, 1/60 HP.

1#10 CU GND.

22 NOT USED.

(1) CONCRETE GROUND RON BOX WITH REINFORCED

2) VIA SWITCH – SEE KEYNOTE #23.

SWITCH. INTERLOCK WITH LIGHTS.

TO PROVIDE DISCONNECT SWITCH.

6) 208V/3ø, 18KW, 50 FLA.

ROOM VIA POWER PACK.







SHEET TITLE

**ELECTRICAL POWER FLOOR** PLAN

PROJECT NAME

MESA VERDE HIGH SCHOOL ATHLETIC FACILITY **IMPROVEMENTS** 

PROJECT ADDRESS

PROJ. NO.

7501 CARRIAGE DRIVE CITRUS HEIGHTS, CA 95621

SUBMITTAL		DAT					
50% SUBMITTAL	08/13/2						
DSA SUBMITTAL	DSA SUBMITTAL						
DSA BACKCHECK SUBMITT	AL	01/20/2					
NO. REVISIONS		DAT					
DRAWN BY	CHECKED BY	/MB					
DATE ISSUED 01/20/2021	SCALE						
, ,							

1819500

TICKET BOOTH ELECTRICAL PLAN

"E"-4 VIA "TC1"

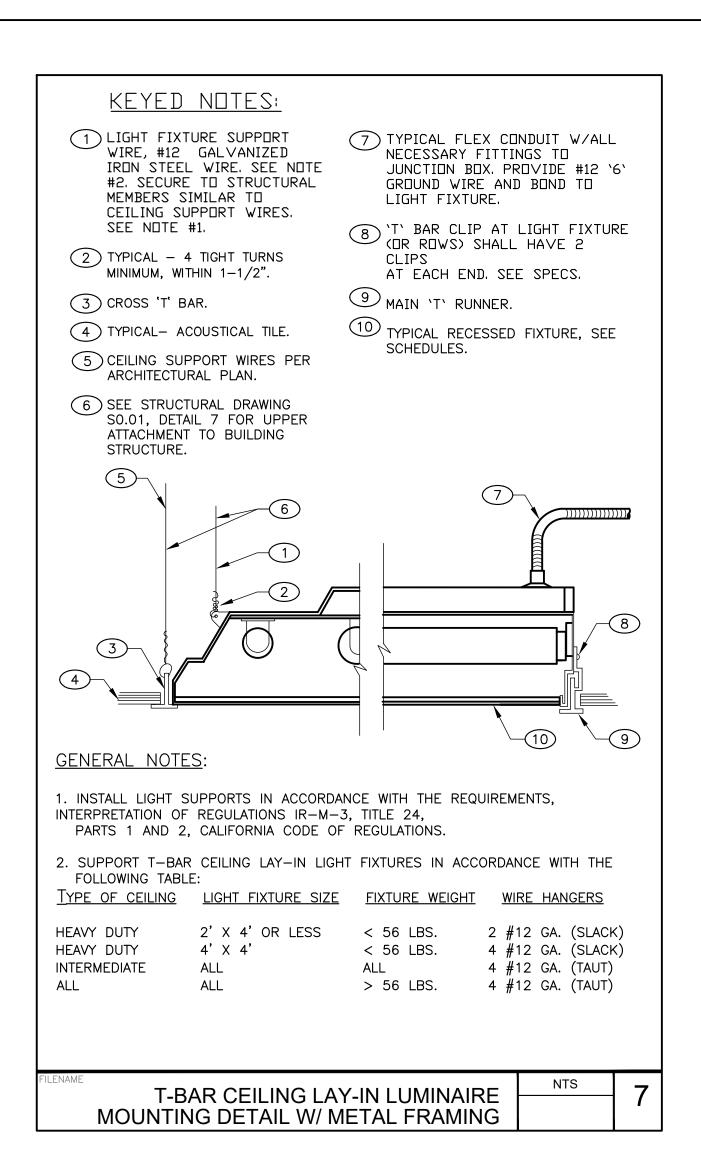
B +8'-0" "E"-4 (VIA-"TC")

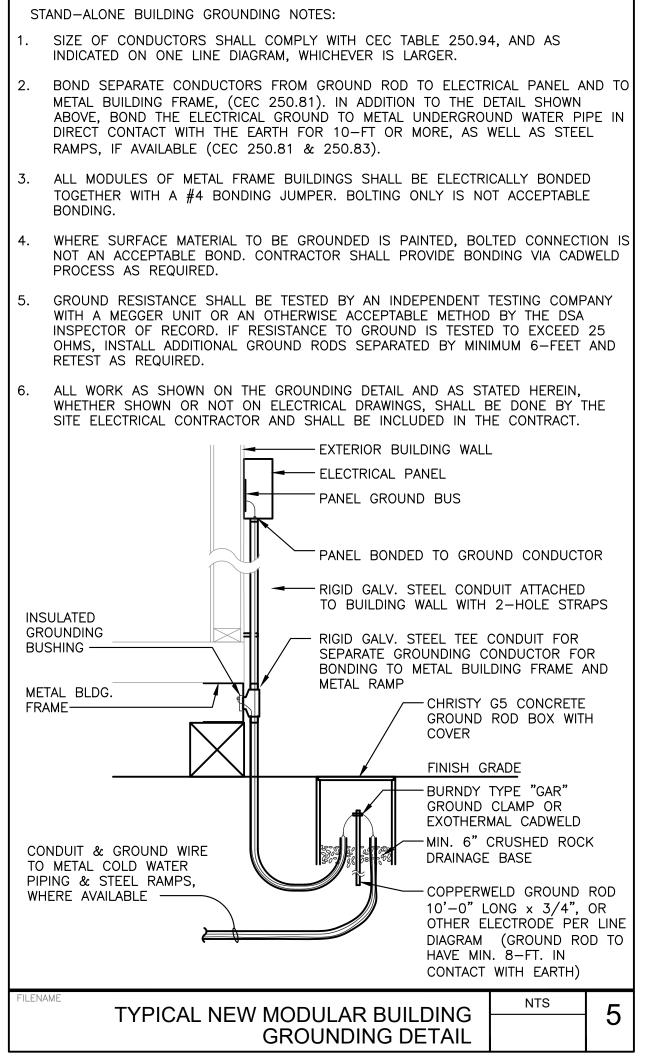
SCALE: 1/4" = 1'-0"

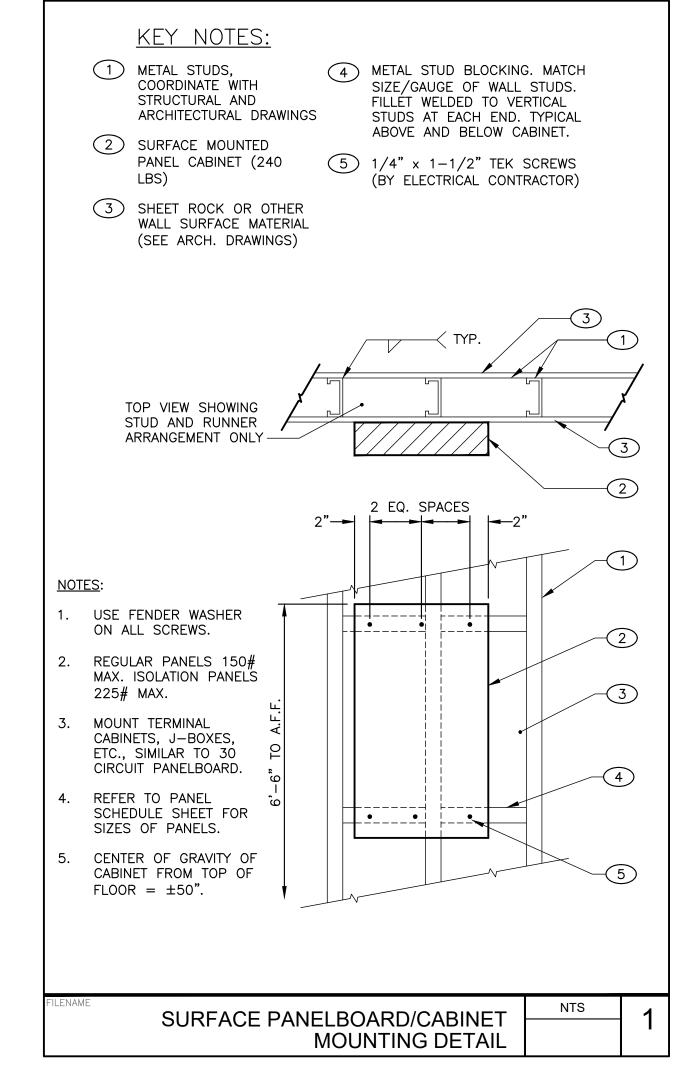
DRAWING NAME: P:\1-Project files\2019 LP Projects\19-2245 BCA\_Mesa Verde CRT bldg\Electrical\E-Sheets\192245\_BE2\_1 (Power Plan).DWG

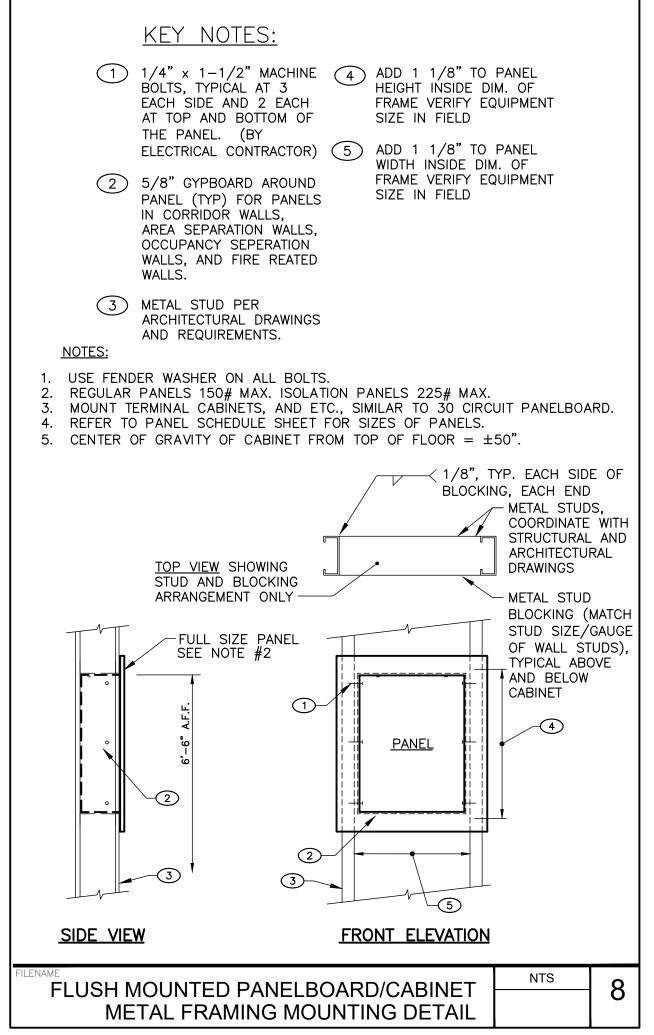
CONCESSION/RESTROOM POWER PLAN

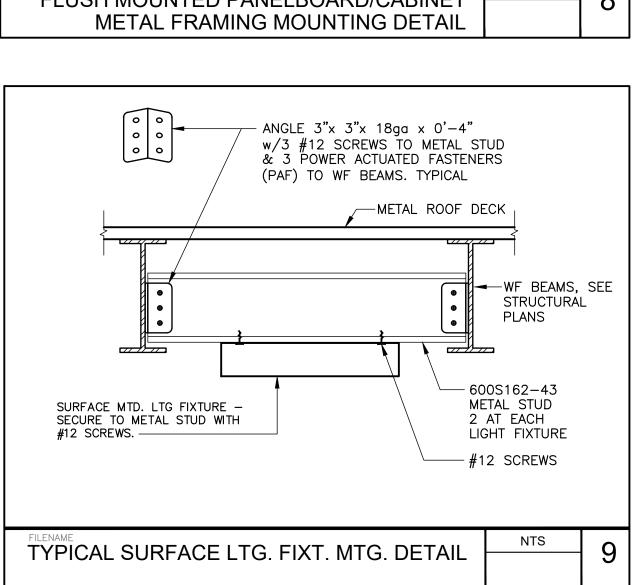
CONSULTANT

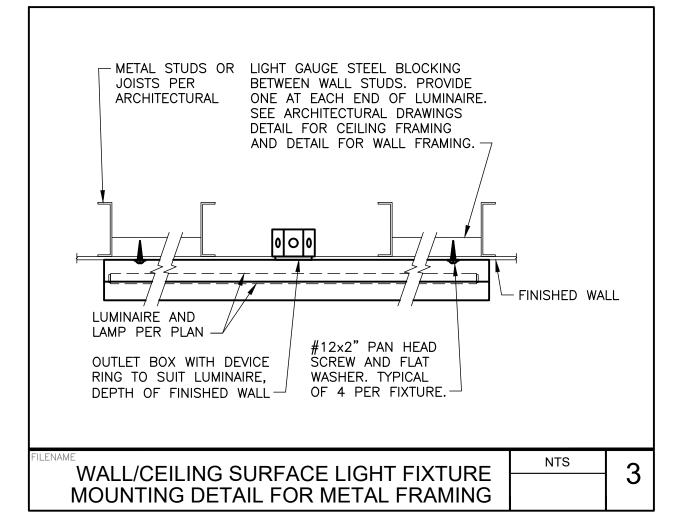












KEY NOTES:  1. PANELBOARD (240 L 2. (B-LINE) B22 CHANI FLUSH WITH EDGE O 3. 3/8"ø HILTI KB-TZ LOCATE REBARS PRIC 4. SECURE PANELBOARE HEX BOLTS, SIZE AN MANUFACTURER'S RE	IEL, (TYP). EDGE OF F PANEL. ANCHOR WITH 3-1/4 OR TO DRILLING (TYP F TO CHANNEL WITH D SPACING PER PAN	1" EMBEDM 3 EACH ( CHANNEL	ENT. CHANNEL).	7	
NOTES:	150	/ (4			
1. USE FENDER WAS ON ALL BOLTS.	TEK [			1/	
2. REGULAR PANELS			•		
MAX. ISOLATION P	ANELS			$\downarrow$	
225# MAX. 3. MOUNT TERMINAL				(2)	
CABINETS, J-BOX					
ETC., SIMILAR TO CIRCUIT PANELBO					
4. REFER TO PANEL					
SCHEDULE SHEET SIZES OF PANELS					
<ol><li>CENTER OF GRAVI</li></ol>	TY OF				
CABINET FROM TO					
$FLOOR = \pm 50$ ".	F	·		1	
				J	
FILENAME		4 D D / C 4	DINET	NTS	$\sim$
CONCRETE W	_				2
50	JRFACE MOUN	VIIIVG L	/C I AIL		

EQUIP. NO.	DESCRIPTION	AMPS	HP	WATTS	VOLTS	PHASE	DIRECT	PLUG	RECEPT. NEMA	ELEC. AFF (IN)	REMARKS	NOTE(S
E1	AIR CURTAIN	5.1	1/2	1/2	120	1				+86"	PROVIDE J-BOX FLUSH MOUNTED IN WALL. INSTALL DOOR LIMIT SWITCH FOR INSTANT ON/OFF SWITCH BY F.S.E.C SEE E/FS4.0	
E2	DUAL TEMP REFRIG/FREEZER	6.3			120	1		Х	5-15R	+48"	PROVIDE DUPLEX RECEPTACLE. UNIT PROVIDED WITH CORD AND PLUG SET (NEMA5-15P)	
E3	ISLAND SERVICE COUNTER	15EA.			120	1	Х			+34"	PROVIDE DOUBLE FACED PEDESTAL DUPLEX RECEPTACLE MT'D ON COUNTER TOP (COMPONENT HARDWARE NO. R58-1020) (R71-0721)(TOTAL OF 4 DCO OUTLETS) REFER L/FS4.0	1
E4	CASHIER STATION VERIFY W/DISTRICT FURN. POS UNIT	20			120	1		Х		+26"	PROVIDE DUPLEX RECEPTACLE SURFACE MOUNTED ON WALL BEHIND BACK PANEL OF SERVICE COUNTER	
E5	CASHIER STATION (DATA) VERIFY W/DISTRICT FURN. POS UNIT				120	1				+26"	PROVIDE WALL MT'D DATA PLUG SURFACE MOUNTED ON WALL BEHIND BACK PANEL OF SERVICE COUNTER	
E6	ICE MAKER	12.2			120	1	Х			+68"	PROVIDE J-BOX FLUSH MOUNTED IN WALL	
E7	COUNTER TOP WARMER			1440	120	1		Х	5-15R	+48"	PROVIDE DUPLEX RECEPTACLE. UNIT PROVIDED WITH CORD AND PLUG SET (NEMA5-15P)	
E8	MICROWAVE OVEN	13.0		1470	120	1		Х	5-15R	+48"	PROVIDE DUPLEX RECEPTACLE. UNIT PROVIDED WITH CORD AND PLUG SET (NEMA5-15P)	
<u>E9</u>	POPCORN MAKER			1470	120	1		X	5-15R	+48"	PROVIDE DUPLEX RECEPTACLE. UNIT PROVIDED WITH CORD AND PLUG SET (NEMA5-15P)	

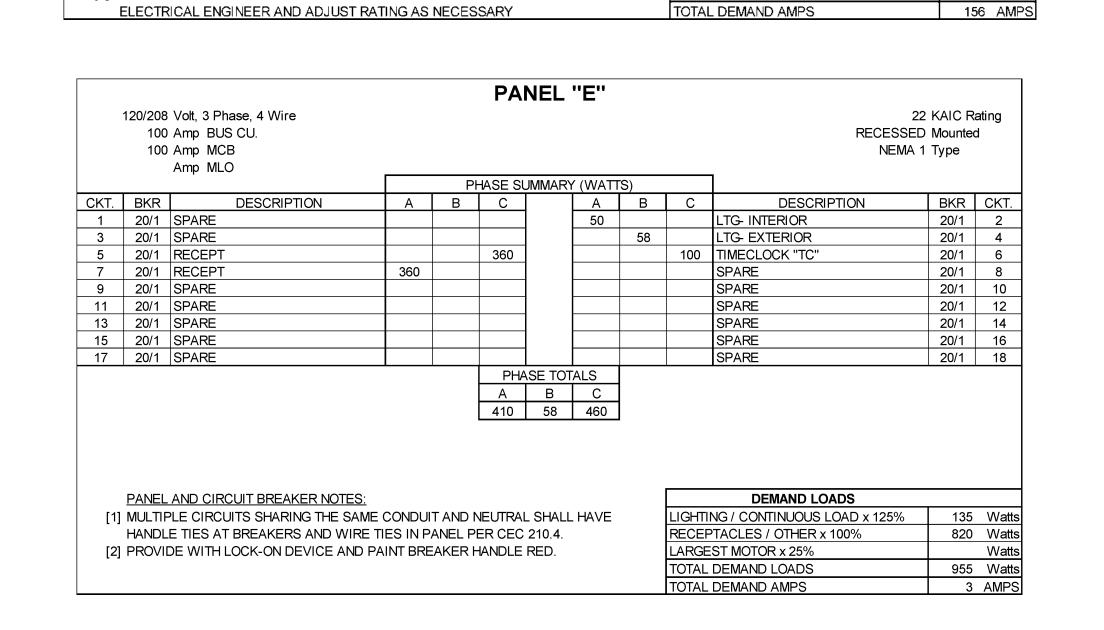
TYPE	MANUFACTURER & CATALOG NUMBER	LAMP (CROSS SECTION)	VOLTS / VA	MOUNTING	REMARKS
$\langle A \rangle$	KENALL MLHA8-48-F-MW-PP-45L50K-DCC-120-9500	5136 LM LED 5000K	120 / 50	SURFACE	4' WRAPAROUND, PEARLESCENT POLYCARBONATE LENS, 0-10V DIMMING.
(AE)	KENALL MLHA8-48-F-MW-PP-45L50K-DCC-120-LEL-9500	5136 LM LED 5000K	120 / 50	SURFACE	SIMILAR TO TYPE "A" EXCEPT WITH EMERGENCY BATTERY BACKUP.
В	LEOTEK ES1-24H-MV-CW-W-BK-350	3730 LM LED 5000K	120 / 29	WALL @ (SEE PLANS)	EXTERIOR LED WALL SCONCE
BE	LEOTEK ES1-24H-MV-CW-W-BK-350-EM	3730 LM LED 5000K	120 / 29	_	SIMILAR TO TYPE "B" EXCEPT WITH EMERGENCY BATTERY SYSTEM.
C	H.E. WILLIAMS LPT-24-L43/850-S-A12125-DIM-120	4300 LM LED 5000K	120 / 31	LAY-IN	2X4 LOW PROFILE LED TROFFER WITH CLE ACRYLIC PATTERNED LENS, 0-10V DIMMING
CE	H.E. WILLIAMS LPT-24-L43/850-S-A12125-EW10W-DIM-120	4300 L <b>M LE</b> D 5000K	120 / 31	LAY-IN	SIMILAR TO TYPE "C" EXCEPT WITH EMERGENCY LED BATTERY
D	H.E. WILLIAMS V6DR-L23-80-50-DIM-UNV-L-W-OF-XX-IP-WET/CC	2300 LM LED 5000K	120 / 27	RECESSED	VANDAL-RESISTANT, WET-LOCATION RATED DOWNLIGHT
DE	H.E. WILLIAMS V6DR-L23-80-50-EM/7W-DIM-UNV-L-W-OF-XX-IP-WET/CC	2300 LM LED 5000K	120 / 27	RECESSED	SIMILAR TO TYPE "D" EXCEPT WITH EMERGENCY LED BATTERY

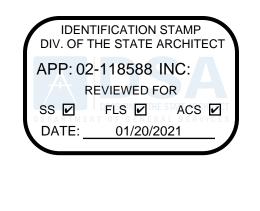
1. PROVIDE ALL LED FIXTURES WITH 0-10V DIMMING DRIVER WITH CONTINUOUS DIMMING 10%-100%., UNO.

2. ALL DRIVERS SHALL BE C.E.C. CERTIFIED.

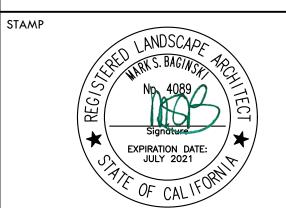
COORDINATE LUMINAIRE FINISH WITH ARCHITECT (TYPICAL).

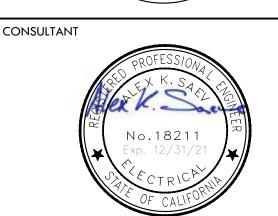
	120/208	Volt, 3 Phase, 4 Wire			IAIL	EL "C"			[3] 22	KAIC R	atir
	225	Amp BUS CU.							RECESSED	Mounted	d
	225	Amp MCB							NEMA 1	Туре	
		Amp MLO									
				PI	HASE SUMN	MARY (WAT	rs)				
CKT.	BKR	DESCRIPTION	Α	В	С	Α	В	С	DESCRIPTION	BKR	C
1	20/1	REF-1	506			180			RECEPT	20/1	
3	20/1	REF-2		506			180		RECEPT	20/1	
5	30/2	ODU-1			1,144			180	RECEPT	20/1	
7	-	-	1,144			180			RECEPT	20/1	
9	30/2	ODU-2	1	1,144			180		RECEPT	20/1	
11	-	-		,	1,144			180	RECEPT	20/1	
13	20/1	LTG- INTERIOR	824		1	180			RECEPT	20/1	
15	20/1	LTG- EXTERIOR	1	174			360		RECEPT	20/1	
17	20/1	TIMECLOCK "TC2"			100			360	RECEPT- IDF	20/1	
19	20/1	LED LIGHT ON POLE	500			100			FIRE ALARM POWER SUPPLY "FAPS"	20/1 [2]	:
21	20/1	AIR CURTAIN (E1)	1	612		133	360		RESTROOM RECEPTS	20/1	
23	20/1	ISLAND SERVICE COUNTER (E3)			1,800			756	FRIDGE/FREEZER (E2)	20/1	
25		ISLAND SERVICE COUNTER (E3)	1,800		1,,,,,,	180		100	RECEPT - ROOF MAINTENANCE	20/1	
27	20/1	ISLAND SERVICE COUNTER (E3)	1,555	1,800		1.50	1,440		COUNTERTOP WARMER (E7)	20/1	
29	20/1	ISLAND SERVICE COUNTER (E3)	1	1,000	1,800		.,	1,440	COUNTERTOP WARMER (E7)	20/1	
31	20/1	ISLAND SERVICE COUNTER (E3)	1,800		1,000	1,470		1,, 1,0	MICROWAVE OVEN (E8)	20/1	1
33	20/1	ICE MAKER (E6)	1,,,,,,,,	1,464		<u> </u>	1,470		POCORN MAKER (E9)	20/1	
35	20/1	REF-3	1	1, 10 1	50		1,	200	CONDENSATE PUMP - IDU-1&IDU-2	20/1	
37	70/3	WH-1	6,000			624			MOTORIZED ROLL-UP DOOR	20/1	
39	-	-	0,000	6,000		"-	950		HAND DRYER - MEN RR	20/1	
41	_	-	1	-,	6,000			950	-	20/1	1
43	100/3	PANEL "E" - TICKET BOOTH	410		3,305	950		- 555	HAND DRYER - WOMEN RR	20/1	1
45	_	-	† ···•	58		555	950		-	20/1	Ι.
47	_	_	1		460				SPARE	20/1	-
49	20/1	SPARE			'**				SPARE	20/1	
51		SPARE	1						SPARE	20/1	
53		SPARE	1						SPARE	20/1	
55		SPARE							SPARE	20/1	
57	20/1	SPARE							SPARE	20/1	<del>  </del>
59		SPARE	1						SPARE	20/1	
		1			PHASE	TOTALS					
						вС	1				
					16 848 17	648 16,564	1				
					,	, - , - , - , - , - ,					
	PANEL	AND CIRCUIT BREAKER NOTES:							DEMAND LOADS		
[1]		PLE CIRCUITS SHARING THE SAME	CONDU	T AND 1	NEUTRAL SE	HALL HAVE		LIGHTII	NG / CONTINUOUS LOAD x 125%	24,373	٧
1,1		E TIES AT BREAKERS AND WIRE T							TACLES / OTHER x 100%	31,562	
[2]		DE WITH LOCK-ON DEVICE AND PA							ST MOTOR x 25%	286	
		ACTOR SHALL COORDINATE AVAIL								+	
[0]	CONTR		$A \bowtie b \vdash b$	11111111111	IDDENIT (A/I)	TH CITE		LT∩T≬L	DEMAND LOADS	56,221	V











SHEET TITLE

ELECTRICAL SCHEDULES & DETAILS

PROJECT NAME

MESA VERDE
HIGH SCHOOL
ATHLETIC FACILITY
IMPROVEMENTS

7501 CARRIAGE DRIVE CITRUS HEIGHTS, CA

	950	521	
SUBM	ITTAL	DATE	
50%	SUBMITTAL		08/13/2020
DSA S	SUBMITTAL		10/15/2020
DSA B	BACKCHECK SUBMITTA	.L	01/20/2021
NO.	REVISIONS	DATE	
$\bigvee$			
$\triangle$			
DRAWN BY		CHECKED BY	MB
DATE I	SSUED 1/20/2021	SCALE	
PROJ.	NO.		

1819500

BE3.1

SHEET NO.

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Job #: 19-2245