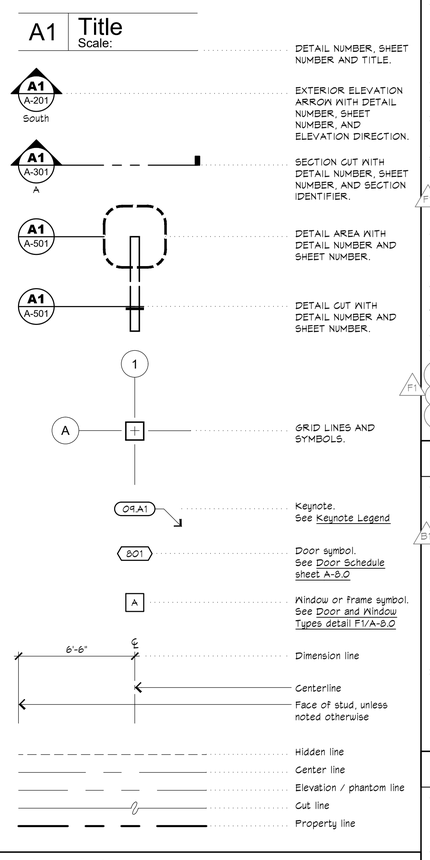
FRESNO COUNTY
ENVIRONMENTAL COMPLIANCE CENTER
EDUCATIONAL BUILDING

1327 W. DAN RONQUILLO DRIVE, FRESNO, CA 93706 (F1)

B2 BUILDING DEPT. PLAN CHECK 24-0097 2024-08-01
B1 BUILDING DEPT. PLAN CHECK 24-0097 2024-03-06
F1 FRESNO FIRE DEPT. PLAN CHECK 2024-03-07

SYMBOLS LEGEND



Abbreviations

(E)	Existing to remain	MIN	Minimum
(D)	Existing to demolish	MIRR	Mirror, Mirrored
(N)	New	MTL	Metal
(R)	Existing to relocate	NO	Number
ACT	Acoustical ceiling tile	NR	Not rated
ADA	The Americans with Disabilities Act	O/	Over
AL	Aluminum	O.C.	On center
CBC	California Building Code	PLA	Plastic Laminate
CCR	California Code of Regulations	PNT	Paint, Painted
CLNG	Ceiling	REQ'D	Required
CONC	Concrete	RM	Room
CPT	Carpet	SC	Solid Core Wood
DN	Down	SEQ	Sequence
DTL	Detail	SF	Storefront
EA	Each	SIM	Similar
EXT	Exterior	SS	Solid surface
FD	Fire Department	STD	Standard
FF	Finish floor, Factory finish	STN	Stain, Stained
FIN	Finish	STOR	Storage
FLR	Floor	TYP	Typical
FRP	Fiberglass reinforced panel	UNO	Unless noted otherwise
GA	Gauge	UTIL	Utility
GYP BD	Gypsum board	VCT	Vinyl composition tile
HC	Hollow Core Wood	W/	With
HM	Hollow Metal	W/O	Without
HR	Hour	WD	Wood
HT	Height		
INT	Interior		
MAX	Maximum		

GENERAL NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE TO STRICTLY COMPLY WITH DIMENSIONS ON THE DRAWINGS RELATING TO ACCESSIBILITY ELEMENTS. DIMENSIONS THAT DO NOT SPECIFY "MINIMUM" (MIN) OR "MAXIMUM" (MAX) TOLERANCES SHALL BE CONSIDERED AS "ABSOLUTE". MINIMUM AND MAXIMUM DIMENSIONS SHALL BE CONSIDERED THE ABSOLUTE TOLERANCE LIMITS. ACCESSIBILITY ELEMENTS INSTALLED THAT DO NOT COMPLY WITH DIMENSIONAL CONSTRAINTS SHALL BE REMOVED AND REINSTALLED WITH NO ADDITIONAL COST TO THE COUNTY OF FRESNO.
2. CHANGES FROM THE APPROVED PLANS DURING THE COURSE OF CONSTRUCTION SHALL CAUSE CONSTRUCTION SPECIFIC TO THE AREA OF CHANGE TO BE SUSPENDED UNTIL SUCH TIME AS THE PLANS CAN BE AMENDED BY THE ARCHITECT AND SUBMITTED TO THE COUNTY FOR REVIEW AND APPROVAL [CBC 107].
3. THE CONTRACTOR SHALL PROVIDE (1) ONE NFPA CLASS 2A-10BC FIRE EXTINGUISHER AT THE JOB SITE DURING CONSTRUCTION.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING THE WORK SITE IN A SECURED CONDITION.
5. IT IS THE RESPONSIBILITY OF THE OWNER, CONTRACTOR, AND SUB-CONTRACTOR TO COMPLY WITH THE PROVISIONS OF CALIFORNIA FIRE CODE CHAPTER 33, FIRE SAFETY DURING CONSTRUCTION AND DEMOLITION AND NFPA 241, STANDARD FOR SAFEGUARDING CONSTRUCTION, ALTERATION, AND DEMOLITION OPERATIONS. COMPLIANCE WITH THE PROVISIONS OF CFC CHAPTER 33 AND NFPA 241 ARE THE MINIMUM REQUIREMENTS FOR ANY CONSTRUCTION, ALTERATION OR DEMOLITION OPERATIONS OCCURRING WITHIN THE CITY OF FRESNO OR FRESNO FIRE DEPARTMENT CONTRACT SERVICE AREAS. (F1)
6. THE APPROVAL OF THESE PLANS AND SPECIFICATIONS DOES NOT PERMIT THE VIOLATION OF ANY SECTION OF THE BUILDING CODE, MUNICIPAL ORDINANCES, OR STATE LAWS.
7. THESE APPROVED PLANS AND RELATED DOCUMENTS MUST BE AVAILABLE AT THE JOB SITE DURING ANY INSPECTION ACTIVITY.
8. SOILS AND SPECIAL CONCRETE TESTING SHALL BE CONDUCTED BY THE FRESNO COUNTY MATERIALS AND TESTING LABORATORY.
9. STEEL FABRICATION SPECIAL INSPECTION SHALL BE CONDUCTED BY KRAZAN AND ASSOCIATES, 215 WEST DAKOTA AVENUE CLOVIS, CA 93612 (559-348 2200)
10. CONTRACTOR SHALL PROVIDE A CHEMICAL TOILET ON SITE DURING CONSTRUCTION.
11. CONSTRUCTION WASTE MANAGEMENT PLAN MUST BE FINALIZED PRIOR TO OCCUPANCY.
12. THE OWNER SHALL DESIGNATE A PERSON TO BE THE SITE SAFETY DIRECTOR PER FRESNO COUNTY POLICY. THE SITE SAFETY DIRECTOR SHALL BE RESPONSIBLE FOR ENSURING COMPLIANCE WITH THE SITE SAFETY PLAN. THE SITE SAFETY DIRECTOR SHALL HAVE THE AUTHORITY TO ENFORCE PROVISIONS OF THIS CHAPTER AND OTHER PROVISIONS AS NECESSARY TO SECURE THE INTENT OF THIS CHAPTER. WHERE GUARD SERVICE IS PROVIDED IN ACCORDANCE WITH NFPA 241, THE SITE SAFETY DIRECTOR SHALL BE RESPONSIBLE FOR THE GUARD SERVICE. 2022 CFC, SECTION 3303.2. (F1)

DEFERRED APPROVAL

1. PREFABRICATED METAL BUILDING: CONTRACTOR TO SUBMIT PLANS TO AND OBTAIN PERMIT FROM FRESNO COUNTY. PLANS TO INCLUDE ENGINEERING CALCULATIONS, ERECTION DRAWINGS AND ANCHOR BOLT PLACEMENT DIMENSIONS AND OTHER ITEMS REQUIRED FOR PERMIT. CONTRACTOR SHALL SUBMIT THE PLANS TO ARCHITECT FOR APPROVAL PRIOR TO SUBMITTING TO FRESNO COUNTY. REFER TO SPECIFICATIONS.

(B1) PERMIT APPLICATION FOR THE EDUCATIONAL BUILDING #24-001115 CANNOT BE ISSUED UNTIL THE PREFABRICATED METAL BUILDING PLANS AND STRUCTURAL CALCULATIONS ARE APPROVED BY THE COUNTY OF FRESNO DEPARTMENT OF PUBLIC WORKS AND PLANNING.

2. FIRE SPRINKLERS: CONTRACTOR TO SUBMIT PLANS TO AND OBTAIN PERMIT FROM FRESNO COUNTY PRIOR TO INSTALLATION OF THE FIRE SPRINKLERS. LAYOUT AND DETAIL OF THE FIRE SPRINKLER SHALL BE REVIEWED AND APPROVED BY THE ARCHITECT AND FRESNO FIRE DEPARTMENT (FFD) PRIOR TO SUBMITTING THE PLANS TO FRESNO COUNTY. THE FIRE SPRINKLER SYSTEM SHALL BE INSTALLED BY A LICENSED FIRE SPRINKLER CONTRACTOR AND SHALL BE INSPECTED AND APPROVED BY THE APPROPRIATE FIRE MARSHALL PRIOR TO APPROVAL OF OCCUPANCY OF THE BUILDING. REFER TO SPECIFICATIONS.
3. FIRE ALARMS: CONTRACTOR SHALL SUBMIT PLANS TO AND OBTAIN PERMIT FROM FRESNO COUNTY AND FRESNO FIRE DEPARTMENT FOR THE INSTALLATION OF FIRE ALARM SYSTEM. SEE SPECIFICATIONS. GENERAL CONTRACTOR SHALL COORDINATE FIRE ALARM SYSTEM INTERFACES BETWEEN FIRE ALARM CONTRACTOR, SPRINKLER CONTRACTOR, MECHANICAL CONTRACTOR AND ANY OTHER PERTINENT TRADES (FIRE ALARM, SPRINKLER SYSTEM, HOOD AND VENT EXTINGUISHING SYSTEM, HVAC, FIRE SMOKE DAMPERS, ETC.). ALL WORK MUST REMAIN VISIBLE AND MAY NOT BE COVERED UNTIL REQUIRED FIRE INSPECTIONS HAVE BEEN COMPLETED BY THE FIRE DEPARTMENT.

FRESNO FIRE DEPARTMENT NOTES

1. SUBMIT PLANS TO AND OBTAIN PERMIT FROM THE FIRE PREVENTION DIVISION FOR THE INSTALLATION OR MODIFICATION OF FIRE SPRINKLER SYSTEM. INSTALLATIONS MUST ALSO COMPLY WITH FFD POLICY SECTION 405. FFD POLICIES CAN BE FOUND ON THE FIRE DEPARTMENT WEBPAGE UNDER FIRE PREVENTION AND INVESTIGATION, FIRE DEPARTMENT POLICIES.
2. SUBMIT PLANS TO AND OBTAIN PERMIT FROM THE FIRE PREVENTION DIVISION FOR THE INSTALLATION OR MODIFICATION OF FIRE ALARM SYSTEM. REFER TO FFD POLICY 401.012.
3. THE GENERAL CONTRACTOR SHALL COORDINATE THE FIRE ALARM SYSTEM INTERFACES BETWEEN THE FIRE ALARM CONTRACTOR, SPRINKLER CONTRACTOR, MECHANICAL CONTRACTOR AND ANY OTHER PERTINENT TRADES (FIRE ALARM, SPRINKLER SYSTEM, HOOD AND VENT EXTINGUISHING SYSTEM, HVAC, FIRE SMOKE DAMPERS, ETC.). ALL WORK MUST REMAIN VISIBLE AND MAY NOT BE COVERED UNTIL THE REQUIRED FIRE INSPECTIONS HAVE BEEN COMPLETED BY THE FIRE DEPARTMENT.
4. EMERGENCY ALARM SYSTEM INTERCONNECTION REQUIREMENTS: WHERE AN EMERGENCY ALARM SYSTEM IS REQUIRED BY THIS SECTION AND A BUILDING FIRE ALARM IS INSTALLED, THE EMERGENCY ALARM SYSTEM SHALL BE INTERCONNECTED WITH AND SUPERVISED BY THE BUILDING FIRE ALARM SYSTEM. FMC 10-5092.8.4 AND NFPA SECTIONS 10.7 AND 10.10. IF APPLICABLE.
5. ALL WEATHER ACCESS ROADS SHALL BE INSTALLED AND MAINTAINED IN A SERVICEABLE CONDITION PRIOR TO AND DURING CONSTRUCTION. (FFD DEVELOPMENT POLICY 403.002)
6. ADDRESS IDENTIFICATION. FOR NEW AND EXISTING BUILDINGS, THE FIRE CODE OFFICIAL IS AUTHORIZED TO REQUIRE APPROVED ADDRESS OR BUILDING IDENTIFICATION SIGNAGE AS NEEDED TO READILY DETERMINE THE BUILDING OR AREA OF A BUILDING PROTECTED BY FIRE DEPARTMENT CONNECTIONS. FMC SECTION 10-5092.2.3.
7. IN BUILDINGS WITH OCCUPANCY GROUP 'A' HAVING AN OCCUPANCY LOAD OF 300 OR LESS, GROUPS 'B', 'F', 'M', AND 'S', AND IN PLACES OF RELIGIOUS WORSHIP, THE MAIN DOOR OR DOORS ARE PERMITTED TO BE EQUIPPED WITH KEY-OPERATED LOCKING DEVICES FROM THE EGRESS SIDE PROVIDED: (F1)
   A) THE LOCKING DEVICE IS READILY DISTINGUISHABLE AS LOCKED;
   B) A READILY VISIBLE DURABLE SIGN POSTED ON THE EGRESS SIDE ON OR ADJACENT TO THE DOOR STATING: THIS DOOR TO REMAIN UNLOCKED WHEN THIS SPACE IS OCCUPIED'. THE SIGN SHALL BE IN LETTERS 1 INCH HIGH ON A CONTRASTING BACKGROUND;
   C) THE USE OF THE KEY-OPERATED LOCKING DEVICE IS REVOCABLE BY THE FIRE CODE OFFICIAL FOR DUE CAUSE. 2022 CFC, SECTION 1010.2.4.
8. NO HAZARDOUS MATERIALS TO BE STORED OR USED IN THE BUILDING.
9. PROVIDE AN EXTERIOR KNOX BOX ON THE GROUND FLOOR ADJACENT THE MAIN ENTRANCE AT A MAXIMUM HEIGHT OF 6 FEET FROM GRADE. KNOX BOXES SHALL BE PROVIDED FOR BUILDINGS WHERE ANY OF THE FOLLOWING CONDITIONS EXIST: HIGH-RISE BUILDING, INTERIOR ELEVATOR(S), FIRE SPRINKLER SYSTEM WITH INTERIOR RISER(S), FIRE PUMP ROOMS, FIRE ALARM SYSTEM, UNDULY DIFFICULT ACCESS, AND / OR WHERE REQUIRED BY THE FIRE MARSHAL (OR DESIGNEE). KEYS PLACED IN THE KNOX BOX SHALL BE IDENTIFIED WITH A TAG OR LABEL. KNOX BOXES MAY BE ORDERED ON LINE AT https://www.knoxbox.com/store/departmentSearch.cfm.

SCOPE OF WORK

THE WORK CONSISTS OF CONSTRUCTION OF A NEW 3,015 SQUARE FEET TRAINING/CLASSROOM BUILDING AND A SIX STALL PARKING LOT - CONNECTED TO EXISTING DRIVEWAY.

THE SCOPE SHALL ALSO INCLUDE A 4.9 KW(DC) ROOFTOP PHOTOVOLTAIC (PV) SYSTEM. (B1)

UTILITY NOTES (B1)

1. A GAS AND / OR ELECTRICAL UTILITY CLEARANCE WILL BE ISSUED BY THE BUILDING OFFICIAL PRIOR TO FINAL APPROVAL OF THE STRUCTURE AS REQUIRED BY SECTION 15.08.020.F.3 OF THIS ORDINANCE, AS A CONDITION OF THE RELEASE, THE BUILDING OFFICIAL SHALL REQUIRE THE OWNER / PERMITTEE TO ENTER INTO AN AGREEMENT NOT TO OCCUPY THE STRUCTURE PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY FOR THE STRUCTURE.

CONTRACT DOCUMENTS

OWNER:
COUNTY OF FRESNO
2220 TULARE STREET, 8TH FLOOR
FRESNO, CALIFORNIA 93721
(559) 600-4477

ARCHITECT OF RECORD:
HOQUE KHAN, ARCHITECT
CALIFORNIA LICENSED ARCHITECT
LIC# C40030 (REN. 11-30-25)
FRESNO COUNTY
DEPARTMENT OF PUBLIC WORKS AND PLANNING
DEVELOPMENT SERVICES AND
CAPITAL PROJECTS DIVISION
2220 TULARE STREET, 8TH FLOOR
FRESNO, CALIFORNIA 93721
OFFICE: (559) 600-4410
EMAIL: ZKHAN@FRESNOCOUNTYCA.GOV

CONSULTANTS:
CIVIL AND STRUCTURAL ENGINEER OF RECORD:
JOSEPH C. HARRELL
CALIFORNIA LICENSE# C80424 (Exp. 3-31-25)
FRESNO COUNTY
DEPARTMENT OF PUBLIC WORKS AND PLANNING
DESIGN DIVISION
2220 TULARE STREET, 7TH FLOOR
FRESNO, CALIFORNIA 93721
OFFICE: : (559) 600-4104
EMAIL: JHARRELL@FRESNOCOUNTYCA.GOV

MECHANICAL ENGINEER OF RECORD:
MICHAEL D. CANTELMI
CALIFORNIA LICENSE# M23588 (Exp. 9-30-25)
LAWRENCE ENGINEERING GROUP
4810 E. CLINTON WAY, SUITE 101
FRESNO, CA 93727
OFFICE: (559) 431-0101
EMAIL: MIKE@LEGFRESNO.COM

ELECTRICAL ENGINEER OF RECORD:
JOHN BORRELLI
CALIFORNIA LICENSE# E16940 (Exp. 6-30-25)
BORRELLI AND ASSOCIATES, INC.
2032 N. GATEWAY BLVD.
FRESNO CA 93727
OFFICE: (559) 233-4138
EMAIL: JOHN@BORRELLIENGINEERING.COM

(B1) SPECIAL INSPECTORS:
MANDEEP SEKHON, PE
FRESNO COUNTY MATERIALS TESTING LABORATORY
4553 E. HAMILTON AVE., BUILDING 413,
FRESNO, CA 93702
OFFICE: (559) 600-7845

CODE CITATIONS

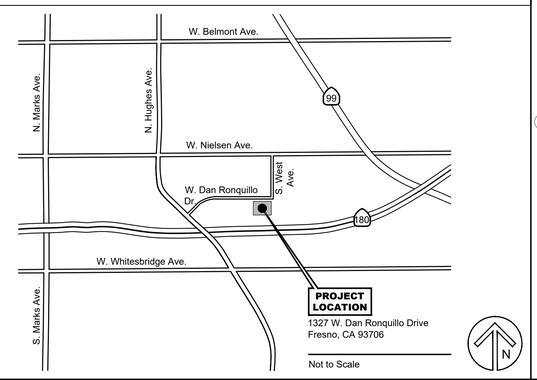
THE LATEST ADOPTED ADDITIONS OF THE CODES, STANDARDS AND REGULATIONS REQUIRED BY THE LOCAL JURISDICTION SHALL GOVERN ALL WORK IN THESE CONSTRUCTION DOCUMENTS INDICATED BY THE FOLLOWING.

APPLICABLE STATE CODES:
TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
TITLE 24 CCR, PART 1 - 2022 BUILDING STANDARDS ADMINISTRATIVE CODE
TITLE 24 CCR, PART 2 - 2022 CALIFORNIA BUILDING CODE (CBC)
TITLE 24 CCR, PART 3 - 2022 CALIFORNIA ELECTRICAL CODE (CEC)
TITLE 24 CCR, PART 4 - 2022 CALIFORNIA MECHANICAL CODE (CMC)
TITLE 24 CCR, PART 5 - 2022 CALIFORNIA PLUMBING CODE (CPC)
TITLE 24 CCR, PART 6 - 2022 CALIFORNIA ENERGY CODE
TITLE 24 CCR, PART 9 - 2022 CALIFORNIA FIRE CODE (CFC)
TITLE 24 CCR, PART 11 - 2022 CALIFORNIA GREEN BUILDING STANDARDS
TITLE 24 CCR, PART 12- 2022 CALIFORNIA REFERENCED STANDARDS

APPLICABLE CODE OF ORDINANCE:
COUNTY OF FRESNO ORDINANCE TITLE 15

APPLICABLE REFERENCE STANDARDS:
2022 NFPA 13, AUTOMATIC SPRINKLER SYSTEMS (CA AMENDED)
2022 NFPA 72, NATIONAL FIRE ALARM CODE (CA AMENDED);
SEE UL STD. 1971 FOR "VISUAL DEVICES"

VICINITY MAP



PROJECT DATA

PROJECT NAME:
FRESNO COUNTY ENVIRONMENTAL COMPLIANCE CENTER EDUCATIONAL BUILDING

ADDRESS: 1327 N. Dan Ronquillo Drive, Fresno, CA 93706

APN: 458-060-72

SITE AREA (FOR EDUCATIONAL BUILDING): 0.13 ACRE

TOTAL BUILDING AREA: 3,015 S.F.

TYPE OF CONSTRUCTION: V-B (SPRINKLERED)

OCCUPANCY GROUP: BUSINESS (B)

ZONING: M-1 LIGHT MANUFACTURING DISTRICT

SHEET INDEX

ADOPTION / APPROVAL

CONTRACT NUMBER: 24-S-01

ADOPTED BY COUNTY OF FRESNO BOARD OF SUPERVISORS

_____, 20 _____

NATHAN MAGSIG, CHAIRMAN	5rd DISTRICT
BUDDY MENDES, VICE CHAIRMAN	4th DISTRICT
BRIAN PACHECO	1st DISTRICT
STEVE BRANDAU	2nd DISTRICT
SAL QUINTERO	3th DISTRICT

APPROVED

STEVEN WHITE, DIRECTOR
DEPARTMENT OF PUBLIC WORKS AND PLANNING

STRUCTURAL LOADS

SOILS BEARING CAPACITY	
SOIL BEARING (DL + LL)	3,920 PSF
TOTAL LOADING	4,980 PSF
CONCRETE DESIGN STRENGTH (B1)	
4" SLAB ON GRADE	3,000 PSF
FOUNDATION	4,000 PSF
MATERIAL DEAD LOADS	
ROOF DL	14 PSF
MATERIAL LIVE LOADS	
ROOF LL	20 PSF

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721
Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building (F1)
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-18
Project no.: T90204
File name: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings\ECC Educational_Cover Sheet

Sheet Content:

Cover Sheet

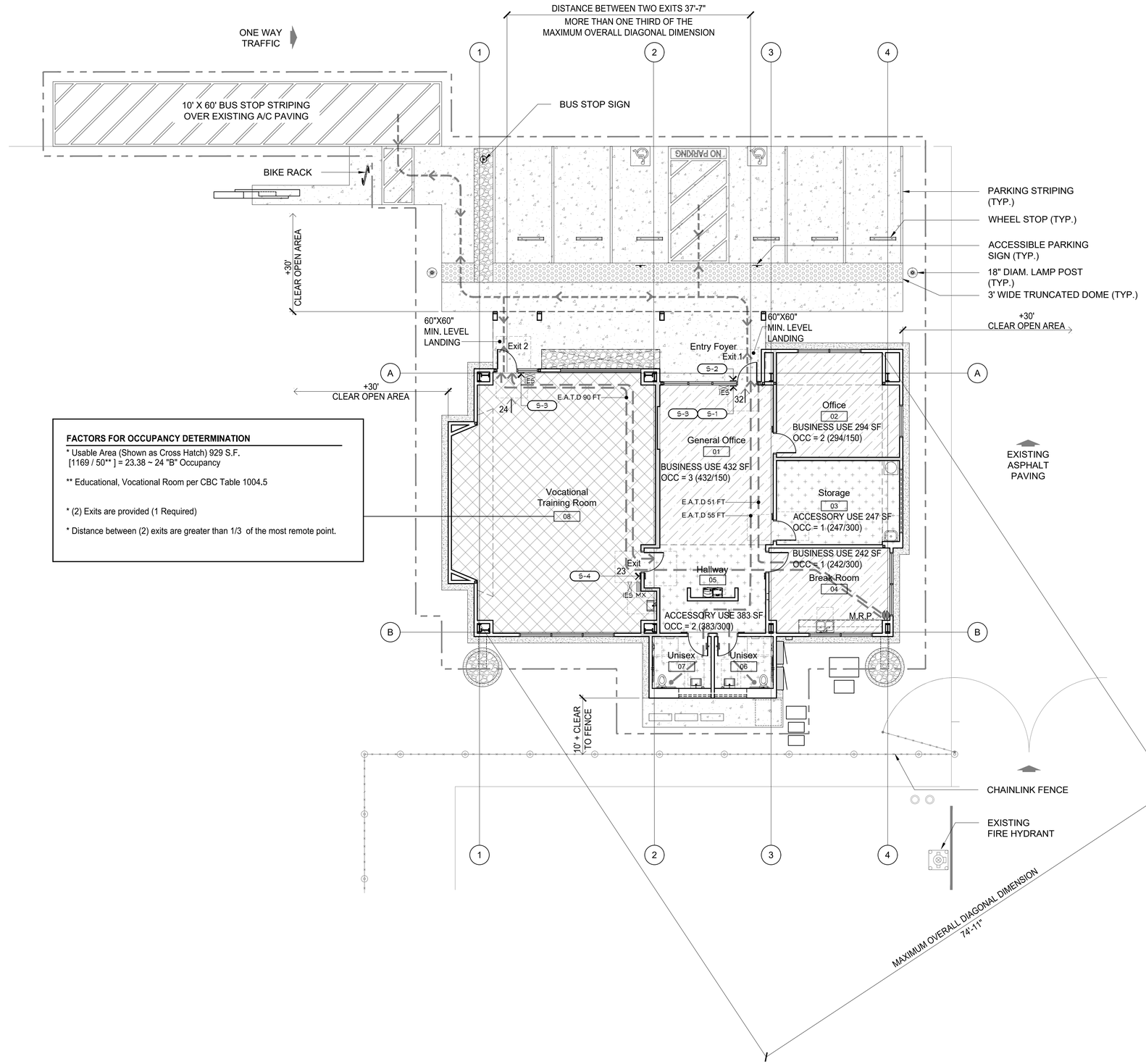
Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

G-1.0

Sheet of

Plot Date: 2024-07-18



FACTORS FOR OCCUPANCY DETERMINATION

* Usable Area (Shown as Cross Hatch) 929 S.F.
[1169 / 50**] = 23.38 ~ 24 "B" Occupancy

** Educational, Vocational Room per CBC Table 1004.5

* (2) Exits are provided (1 Required)

* Distance between (2) exits are greater than 1/3 of the most remote point.

EGRESS CALCULATIONS

GROSS FLOOR AREA 3,016 S.F.
OCC. GROUP B
TYPE V-B CONSTRUCTION / SPRINKLERED

OCCUPANCY

FLOOR AREA (ENCLOSED)	3,016 S.F.
ROOF OVERHANG (UNOCCUPIED)	346 S.F.
BUILDING TOTALS	3,362 S.F.
OCCUPANCY	B
BUILDING PERIMETER	250'
ACTUAL # OF STORIES (HEIGHT)	1 (18')
ALLOWABLE # OF STORIES (HEIGHT)	3 (60')
AUTOMATIC FIRE SPRINKLER	YES
ALLOWABLE TOTAL BUILDING AREA	36,000 S.F.

AREA AND OCCUPANT LOAD TABLE

	PRIMARY USE	SQ. FOOTAGE	FACTOR	OCC. LOAD
	BUSINESS USE	967 S.F.	150 (N)	7
	BUSINESS USE (VOCATIONAL TRAINING ROOM)	929 S.F.	50 (N)	24
+ +	ACCESSORY USE	630 S.F.	300 (G)	3
			TOTAL OCC. LOAD	34

PLUMBING CALCULATION NOTE

TWO UNISEX TOILETS ARE PROVIDED PER EXCEPTIONS #(3), CALIFORNIA PLUMBING CODE SECTION 422.2 SEPARATE FACILITIES.

EGRESS DOOR CALC'S

EXIT 1 REQUIRED OPENING	32 X 0.15 = 4.8"
PROVIDED OPENING	36"
EXIT 2 REQUIRED OPENING	24 X 0.15 = 3.6"
PROVIDED OPENING	36"

EGRESS LEGEND

→## PH		DENOTES OCCUPANT LOAD THROUGH DOOR/ EXIT OR CUMULATIVE OCCUPANT LOAD ALONG COMMON PATH OF TRAVEL. PANIC HARDWARE (PH) WHERE INDICATED
B1	IES	DENOTES ILLUMINATED EXIT SIGN. (WITH DIRECTIONAL SIGN WHERE APPLICABLE)
	PFE	DENOTES PORTABLE FIRE EXTINGUISHER AT 48" MAX. A.F.F. TO TOP OF EXTINGUISHER (4" MAX. PROJECTION) WITH A 75 - FOOT MAX. TRAVEL DISTANCE
	FA	FIRE ALARM
	C.P.T	COMMON PATH OF TRAVEL
	E.A.T.D.	EXIT ACCESS TRAVEL DISTANCE
	M.R.P	MOST REMOTE POINT
	MX	MAX OCCUPANCY SIGN
		LIMIT OF SCOPE OF WORK
B1		ACCESSIBLE ROUTE

Fire Sprinkler Notes

B1

1. THIS PROJECT HAS BEEN DESIGNED WITH A UNIFORM LOAD OF 1.0 POUNDS PER SQUARE-FOOT TO SUPPORT THE ADDED LOADS OF A FIRE SPRINKLER SYSTEM. THE MAIN FRAMING MEMBERS HAVE BEEN DESIGNED TO SUPPORT THE CONCENTRATED LOADS OF A SPRINKLER SYSTEM [CBC 107].
2. THIS PLAN REVIEW DOES NOT INCLUDED FIRE SPRINKLER REVIEW. THE FIRE SPRINKLER DRAWINGS TO BE REVIEWED BY THE CITY OF FRESNO FIRE DEPARTMENT.

Egress Notes

B1

1. THE PATH OF EGRESS TRAVEL ALONG A MEANS OF EGRESS SHALL NOT BE INTERRUPTED BY A BUILDING ELEMENT OTHER THAN A MEANS OF EGRESS COMPONENT AS SPECIFIED IN CBC CHAPTER 10 [CBC 1003.6].
2. THE PATH OF EGRESS TO ANY EXIT SHALL NOT BE BLOCKED [CBC 1003.6].
3. AN EXIT ACCESS SHALL NOT PASS THROUGH A ROOM OR SPACE THAT CAN BE LOCKED TO PREVENT ACCESS [CBC 1016.2(3)].
4. OBJECTS WITH LEADING EDGES MORE THAN 27" AND NOT MORE THAN 80" ABOVE THE FINISH FLOOR OR GROUND SHALL PROTRUDE 4" MAXIMUM HORIZONTALLY INTO THE CIRCULATION PATH [CBC 1013.4].
5. THE PRIMARY ENTRANCE DOOR IS PERMITTED TO BE EQUIPPED WITH KEY-OPERATED LOCKING DEVICES FROM THE EGRESS SIDE PROVIDED THE LOCKING DEVICE IS READILY DISTINGUISHED AS LOCKED [CBC 1010.2.4(3),3.1].

Signage Keynotes

B1

S-1	Door Remain Unlocked Sign. Refer to detail E6 / A-8.4.
S-2	I.S.A. Entry Sign. Refer to detail C10 / A-8.4.
S-3	Exit Sign. Refer to detail C6 / A-8.4.
S-4	Directional Exit Route Sign. Refer to detail A6 / A-8.4.

B1 BUILDING DEPT. PLAN CHECK 24-0097
2024-03-06

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C 40030 REN 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
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Sheet Content:
Code Analysis

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
G-1.1

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A1 CODE ANALYSIS
Scale: 1/8"=1'-0"

North

Plot Date: 2024-07-15

A5.602
CALGreen VERIFICATION GUIDELINES
MANDATORY MEASURES CHECKLIST
2022 CALGreen Code

Application: This checklist shall be used for nonresidential projects that meet one of the following: new construction, building additions of 1,000 square feet or greater, or building alterations with a permit valuation of $200,000 or more pursuant to Section 301.3 AND do not trigger a Tier 1 or Tier 2 requirement:

Y = Yes (section has been selected and/or included)
N/A = Not Applicable (code section does not apply to the project—mainly used for additions and alterations)
O = Other (provide explanation)
[N] = New construction pursuant to Section 301.3
[A] = Additions and/or Alterations pursuant to Section 301.3

Chapter 5 Divisions

DIVISION 5.1 Planning and Design

Requirement	SECTION TITLE	CODE SECTION	Y	N	N/A	O	PLAN SHEET, SPEC, OR ATTACH REFERENCE
Mandatory	Storm water pollution prevention for projects that disturb less than 1 acre of land	5.106.1 through 5.106.2	X				
Mandatory	Short-term bicycle parking (with exception)	5.106.4.1.1	X				
Mandatory	Long-term bicycle parking	5.106.4.1.2 through 5.106.4.1.5			X		
Mandatory	Electric vehicle (EV) charging [N] w/ exceptions	5.106.5.3			X		
Mandatory	EV capable spaces [N]	5.106.5.3.1			X		
Mandatory	Electric vehicle (EV) charging Stations (EVCS)	5.106.5.3.2			X		
Mandatory	Use of automatic load management systems (ALMS)	5.106.5.3.3			X		
Mandatory	Accessible EVCS	5.106.5.3.4			X		
Mandatory	Note for EVCS signs	5.106.5.3.4			X		
Mandatory	EV Capable Spaces	5.106.5.3.1,5.106.5.3.2, 5.106.5.3.3			X		
Mandatory	Electric vehicle (EV) charging: medium-duty and heavy-duty [N]	5.106.5.4			X		
Mandatory	Electric vehicle charging readiness requirements for warehouses, grocery stores and retail stores with planned off-street loading spaces [N]	5.106.5.4.1			X		
Mandatory	Electric vehicle charging readiness requirements for warehouses, grocery stores and retail stores with planned off-street loading spaces	5.106.5.4 and 5.106.5.4.1			X		
Mandatory	Light pollution reduction [N] (with exceptions, notes and table)	5.106.8 through 5.106.8.2	X				
Mandatory	Grading and paving (exception for additions and alterations not altering the drainage path)	5.106.10			X		

DIVISION 5.2 Energy Efficiency

Requirement	SECTION TITLE	CODE SECTION	Y	N	N/A	O	PLAN SHEET, SPEC, OR ATTACH REFERENCE
Mandatory	Meet the minimum energy efficiency standard	5.201.1	X				

DIVISION 5.3 Water Efficiency and Conservation

Requirement	SECTION TITLE	CODE SECTION	Y	N	N/A	O	PLAN SHEET, SPEC, OR ATTACH REFERENCE
Mandatory	Separate meters (new buildings or additions > 50,000 sf that consume more than 100 gal/day)	5.303.1.1			X		
Mandatory	Separate meters (for tenants in new buildings or additions that consume more than 1,000 gal/day)	5.303.1.2			X		
Mandatory	Water closets shall not exceed 1.28 gallons per flush (gpf)	5.303.3.1	X				
Mandatory	Wall-mounted urinals shall not exceed 0.125 gpf	5.303.3.2.1			X		
Mandatory	Floor-mounted urinals shall not exceed 0.5 gpf	5.303.3.2.2			X		
Mandatory	Single showerhead shall have maximum flow rate of 1.8 gpm (gallons per minute) at 80 psi	5.303.3.3.1			X		
Mandatory	Multiple showerheads serving one shower shall have a combined flow rate of 1.8 gpm at 80 psi	5.303.3.3.2			X		
Mandatory	Nonresidential lavatory faucets	5.303.3.4.1	X				
Mandatory	Kitchen faucets	5.303.3.4.2	X				
Mandatory	Wash fountains	5.303.3.4.3	X				
Mandatory	Metering faucets	5.303.3.4.4			X		
Mandatory	Metering faucets for wash fountains	5.303.3.4.5			X		
Mandatory	Pre-rinse spray valve	5.303.3.4.6			X		
Mandatory	Food waste disposers	5.303.4.1			X		
Mandatory	Areas of additions or alterations	5.303.5			X		
Mandatory	Standards for plumbing fixtures and fittings	5.303.6	X				
Mandatory	Outdoor potable water use in landscape areas (with notes)	5.304.1			X		

Documentation Author's / Responsible Designer's Declaration Statement
☐ Mandatory: I attest that this mandatory provisions checklist is accurate and complete.

Signature:	
Company:	Data:
Address:	License:
City/State/Zip:	Phone:

DIVISION 5.4 Material Conservation and Resource Efficiency

Requirement	SECTION TITLE	CODE SECTION	Y	N	N/A	O	PLAN SHEET, SPEC, OR ATTACH REFERENCE
Mandatory	Weather protection	5.407.1	X				
Mandatory	Moisture control: sprinklers	5.407.2.1			X		
Mandatory	Moisture control: exterior door protection	5.407.2.2.1	X				
Mandatory	Moisture control: flashing	5.407.2.2.2	X				
Mandatory	Construction waste management — comply with either: Sections 5.408.1.1, 5.408.1.2, 5.408.1.3 or more stringent local ordinance	5.408.1.1, 5.408.1.2, 5.408.1.3	X				
Mandatory	Construction waste management: documentation	5.408.1.4	X				
Mandatory	Universal waste [A]	5.408.2			X		
Mandatory	Excavated soil and land clearing debris (100% reuse or recycle)	5.408.3	X				
Mandatory	Recycling by occupants (with exception)	5.410.1	X				
Mandatory	Recycling by occupants: additions (with exception)	5.410.1.1	X				
Mandatory	Recycling by occupants: sample ordinance	5.410.1.2	X				
Mandatory	Commissioning new buildings (≥ 10,000 sf) [N]	5.410.2			X		
Mandatory	Owner's or owner representative's Project Requirements (OPR) [N]	5.410.2.1	X				
Mandatory	Basis of Design (BOD) [N]	5.410.2.2	X				
Mandatory	Commissioning plan [N]	5.410.2.3	X				
Mandatory	Functional performance testing [N]	5.410.2.4	X				
Mandatory	Documentation and training [N]	5.410.2.5	X				
Mandatory	Systems manual [N]	5.410.2.5.1	X				
Mandatory	Systems operation training [N]	5.410.2.5.2	X				
Mandatory	Commissioning report [N]	5.410.2.6	X				
Mandatory	Testing and adjusting for new buildings < 10,000 sf or new systems that serve additions or alterations [A]	5.410.4	X				
Mandatory	System testing plan for renewable energy, landscape irrigation and water reuse [A]	5.410.4.2	X				
Mandatory	Procedures for testing and adjusting	5.410.4.3	X				
Mandatory	Procedures for HVAC balancing	5.410.4.3.1	X				
Mandatory	Reporting for testing and adjusting	5.410.4.4	X				
Mandatory	Operation and maintenance (O&M) manual	5.410.4.5	X				
Mandatory	Inspection and reports	5.410.4.5.1	X				

DIVISION 5.5 Environmental Quality

Requirement	SECTION TITLE	CODE SECTION	Y	N	N/A	O	PLAN SHEET, SPEC, OR ATTACH REFERENCE
Mandatory	Fireplaces	5.503.1			X		
Mandatory	Woodstoves	5.503.1.1			X		
Mandatory	Temporary ventilation	5.504.1	X				
Mandatory	Covering of ducts openings and protection of mechanical equipment during construction	5.504.3	X				
Mandatory	Adhesives, sealants, and caulks	5.504.4.1	X				
Mandatory	Paints and coatings	5.504.4.3	X				
Mandatory	Aerosol paints and coatings	5.504.4.3.1	X				
Mandatory	Aerosol paints and coatings: verification	5.504.4.3.2	X				
Mandatory	Carpet systems	5.504.4.4			X		
Mandatory	Carpet cushion	5.504.4.4.1			X		
Mandatory	Carpet adhesives per Table 5.504.4.1	5.504.4.4.2			X		
Mandatory	Composite wood products	5.504.4.5	X				
Mandatory	Composite wood products: documentation	5.504.4.5.3	X				
Mandatory	Resilient flooring systems	5.504.4.6	X				
Mandatory	Resilient flooring: verification of compliance	5.504.4.6.1	X				
Mandatory	Thermal insulation	5.504.4.7	X				
Mandatory	Verification of compliance	5.504.4.7.1	X				
Mandatory	Acoustical ceilings and wall panels	5.504.4.8	X				
Mandatory	Verification of compliance	5.504.4.8.1	X				
Mandatory	Filters (with exceptions)	5.504.5.3	X				
Mandatory	Filters: labeling	5.504.5.3.1	X				
Mandatory	Environmental tobacco smoke (ETS) control	5.504.7	X				
Mandatory	Indoor moisture control	5.505.1	X				
Mandatory	Outside air delivery	5.506.1	X				
Mandatory	Carbon dioxide (CO_2) monitoring	5.506.2	X				
Mandatory	Acoustical control (with exception)	5.507.4	X				
Mandatory	Exterior noise transmission, prescriptive method (with exceptions)	5.507.4.1		X			
Mandatory	Noise exposure where noise contours are not readily available	5.507.4.1.1		X			
Mandatory	Performance method	5.507.4.2		X			
Mandatory	Site features	5.507.4.2.1		X			
Mandatory	Documentation of compliance	5.507.4.2.2		X			
Mandatory	Interior sound transmission (with note)	5.507.4.3		X			
Mandatory	Ozone depletion and greenhouse gas reductions	5.508.1	X				
Mandatory	Chlorofluorocarbons (CFCs)	5.508.1.1	X				
Mandatory	Halons	5.508.1.2	X				
Mandatory	Supermarket refrigerant leak reduction for retail food stores 8,000 square feet or more	5.508.2 through 5.508.2.6.3	X				
	END OF MANDATORY PROVISIONS						

CALGreen Notes

1. Contractor shall submit a Waste Management Plan (WMP) to CITY OF FRESNO construction and demolition waste management requirements.
2. Recycling by occupants is as follows:
   a. Baskets are provided for paper products - in all offices, service counters, gifting, video and scanning, photo processing and workroom. These are sorted daily and collected by custodial staff and taken to the recycling bins.
   b. Barrels for cans / plastic / glass - in break room. These are sorted daily and collected by custodial staff and taken to the recycling bins.
   c. Bins for cans / plastic / glass / paper - located in existing trash enclosure. Bins are collected by a private recycling company which further sorts the materials.
3. Provide finishes in compliance to GGBSC Section 5.504.4.
   a. Adhesives, sealants, and caulks shall comply with requirements per CGBSC Section 5.504.4.1.
   b. Paints and coatings shall comply with requirements per CGBSC Section 5.504.4.3.
   c. Carpet systems shall comply with requirements per CGBSC Section 5.504.4.4.
   d. Composite wood products shall comply with requirements per CGBSC section 5.504.4.5.
   e. Resilient flooring systems shall comply with requirements per CGBSC Section 5.504.4.6.

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-15
Project no.: T90204
File name: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings\ECC Educational_Cal Green Sheets

Sheet Content:
California Green Building Standards Code

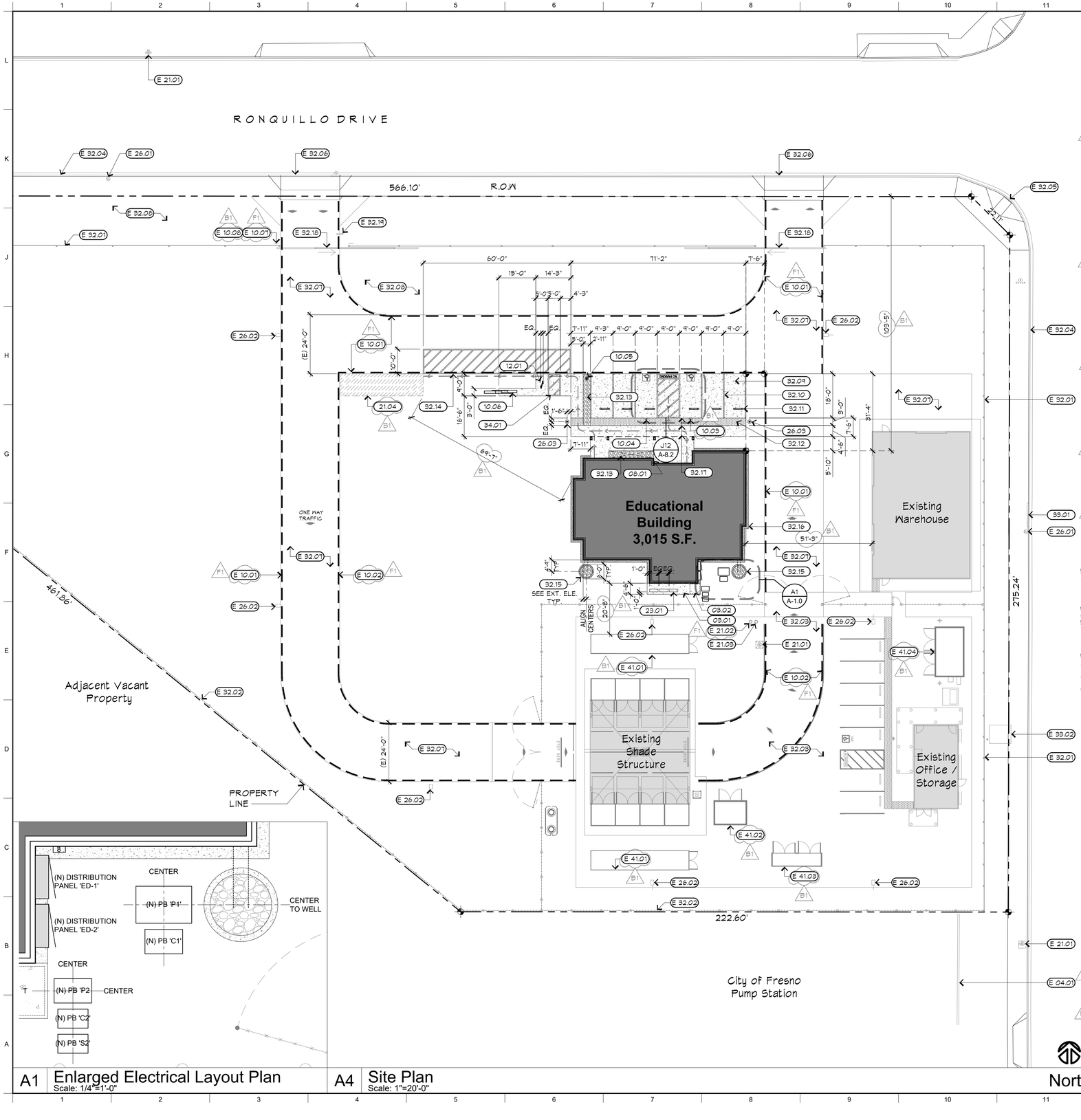
Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
G-1.2

Sheet of

Plot Date: 2024-07-15



A1 Enlarged Electrical Layout Plan
Scale: 1/4"=1'-0"

A4 Site Plan
Scale: 1"=20'-0"

Site Keynotes

- 03.01 Reinforced Concrete Mechanical and Electrical Pad. Refer to Civil and Mechanical Drawings.
- 03.02 Transformer Pad. Refer to Electrical Drawings.
- E 04.01 Not Used.
- 08.01 Knox box. Refer to Sheet G-1.0 Fire Department Notes, Floor Plan, and Exterior Elevations.
- E 10.01 (F1) Existing Emergency Vehicle Access Lane. Painted curb (top and side).
- E 10.02 (F1) Existing Emergency Vehicle Access Lane. Painted road surface along lane edge.
- 10.03 Van Accessible Parking Sign.
- 10.04 Accessible Parking Sign.
- 10.05 Bus Stop Sign mounted of post. Refer to detail J4 / A-8.2.
- 10.06 Monument LED Sign and Metal Cladding. Refer to Detail C1/A-8.2, Electrical, and Civil Drawings.
- E 10.07 (F1) Existing 18" x 24" Fire Lane Sign as indicated: "WARNING - VEHICLES STOPPED, PARKED OR LEFT STANDING IN FIRE LANES WILL BE IMMEDIATELY REMOVED AT OWNER'S EXPENSE - 22658(A) CALIFORNIA VEHICLE CODE - FRESNO POLICE DEPARTMENT 621-7000."
- E 10.08 (B1) Existing 24" x 24" Entry Sign as indicated: "UNAUTHORIZED VEHICLES PARKED IN DESIGNATED ACCESSIBLE SPACES NOT DISPLAYING DISTINGUISHING PLACARDS OR SPECIAL LICENSE PLATES ISSUED FOR PERSONS WITH DISABILITIES WILL BE TOWED AWAY AT THE OWNER'S EXPENSE OWNER'S EXPENSE. TOWED VEHICLES MAY BE RECLAIMED AFTER RELEASE FROM THE SHERIFF RECORDS OFFICE LOCATED AT 2200 TULARE ST. FRESNO, CA 93721 OR BY TELEPHONING (554) 600-3111. MINIMUM FINE $250."
- 12.01 (B1) Bike Rack. Refer to detail J5 / A-8.2.
- E 21.01 Existing Fire Hydrant.
- E 21.02 (F1) Existing Fire Department Connections (F.D.C.) shall not be installed within 5 feet of any building opening, excluding a Fire Department Riser access door. (FFD Development Policy 405.025).
- E 21.03 Existing Post Indicator Valve (P.I.V.).
- 21.04 (B1) Safe Dispersal Area (285 SF needed 305 SF provided per CBC 1028.5. Permanently maintained and identified.
- 23.01 Mechanical Equipment. Refer to Mechanical Drawings.
- E 26.01 Existing Street Light.
- E 26.02 Existing Site Light Post.
- 26.03 Lamp Post on 18" diameter Concrete Base. LITHONIA RADEAN post top or equal on 4" LITHONIA RSA0 base poles or equal. Color silver. Top of concrete base to flush with sidewalk grade. Top of lamp post shall be at 14'-0" above finish floor. Refer to Electrical Drawings.
- E 32.01 Existing Wrought Iron Fence, privacy screen at drop off location.
- E 32.02 Existing 6'-0" High Chain-Link Fence.
- E 32.03 Existing Concrete Paving.
- E 32.04 Existing Curb and Gutter.
- E 32.05 Existing ADA Curb Ramp.
- E 32.06 Existing Concrete Drive Approach.
- E 32.07 Existing Asphalt Paving.
- 32.08 Existing Drought Resistant Landscaping and Irrigation System.
- 32.09 Concrete Parking Stall and Access Isle.
- 32.10 Parking Striping.
- 32.11 Wheel Stop. Refer to detail G12 / A-8.2.
- 32.12 3'-0" Wide Truncated Dome. Refer to detail B4 / A-8.2.
- 32.13 8" Deep Concrete Basin Filled with cleaned 4"-8" San Joaquin Valley River Rock, typical. Refer to Civil Drawings.
- 32.14 Bus Stop Striping over Existing A/C Paving. 4" Wide painted Borderline and Hatch line maximum of 36" o.c. at 45 degrees. Verify color with Architect.
- 32.15 Roof Drop Dry Well with 6" Wide x 8" Deep Concrete Curb. Refer to Civil Drawings.
- 32.16 1'-0" Wide Mow Strip, typical.
- 32.17 Concrete Sidewalk shall be flush with Detectable Warning and Accessible Parking Spaces.
- E 32.18 (B1) Existing Electric Rolling Access Gate and Gate Operator (Lift Master CSL24U) with Built-in Battery Backup System.
- E 32.19 (F1) Existing Wireless Keypad (KPW5) with Existing Access One Fire Lock Box with Best Pad Lock.
- E 33.01 Existing Storm Drain.
- E 33.02 Existing P.G.E. Transfer.
- 34.01 5' x 8' Loading Zone. 4" Wide Blue Painted Borderline Around Perimeter. The Area Within Shall Be Marked With 4" Wide Hatched Lines a Maximum of 36" o.c. at 45 Degrees in a Color Contrasting With That of the Aisle Surface.
- E 41.01 (B1) Existing Seatrain Storage Container.
- E 41.02 Existing Used Oil Storage.
- E 41.03 Existing Antifreeze Tank Storage Unit.
- E 41.04 Existing Hazmat Container Reuse Center.

Site Legend

B1

- Accessible Route. There shall be no vertical offset greater than 1/2 inch along the entire path from the Accessible Parking Stall into the Building. Refer to Civil Drawings.
- Unobstructed Path of Travel.

Fire Site Notes

F1

1. Not Used.
2. Fire Department Connections shall be located within 40 feet of a Fire Apparatus Access Lane. (FFD Development Policy 405.025).
3. The minimum size of all Fire Department Connections shall be based upon the system type. No connection shall be less than 2 1/2 inch in size. (FFD Development Policy 405.025).
4. Fire Department Connections shall be located on the street side of buildings or facing approved Fire Apparatus Access Roads, fully visible and recognizable from the street or nearest point of Fire Department Vehicle Access or as otherwise approved by the Fire Chief. 2022 CFC, Section 912.2.1.
5. Emergency vehicle access shall be designated by painting the curb red (top and side) and stenciling "FIRE LANE NO PARKING" in 3 inch white letters on the most vertical curb, at least every 50 feet. If no curb is present, a minimum 6 inch wide red stripe shall be painted along the edge of the roadway with "FIRE LANE" in 3 inch white letters at least every 50 feet. (FFD Development Policy 405.005)
6. Signs may be used in conjunction with, or in lieu of, curb painting. (FFD Development Policy 405.005) The curbside signs shall be at a minimum:
   - A) The sign shall be at a minimum 12" x 18" sign with a white reflective background.
   - B) The sign shall read "FIRE LANE NO PARKING" in minimum 3 inch red letters.
   - C) Signs shall be placed at the beginning and end of the Designated Fire Lane and be at least every 50 feet. Directional arrows shall be placed on the signs to indicate the extent and direction of the fire lanes.
   - D) Signs shall be set at least 18 inches but not more than 24 inches from the curb and must have a finished height of 7 feet to the bottom of the sign when adjacent to sidewalks.
   - E) Signs shall not be obstructed by landscaping or street fixtures and shall be readily visible from a vehicle.

B1 BUILDING DEPT. PLAN CHECK 24-0097 2024-09-06

F1 FRESNO FIRE DEPT. PLAN CHECK 2024-09-07

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C 40030 REN 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
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Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-15
Project no.: T90204
File name: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings\ECC Educational_Drawings

Permit Numbers

B1

1. Educational Building - Permit #24-001115.
2. Monument Sign - Permit #24-002685.
3. Roof Mount Photovoltaic System - Permit #24-002858.

Elevation and Slope Notes

1. Finish floor elevation is to be above the crown of the street.
2. Provide a two percent slope away from the proposed building for a minimum of 5 feet. [FCOC 15.08.020 C]
3. Driveways and private roads shall have a maximum slope of 12%. The grade may be increased to a maximum of 20% for paved surfaces. [FCOC 15.60.505].

Sheet Content:

Site Plan

Fresno County Department of Public Works and Planning
Capital Projects

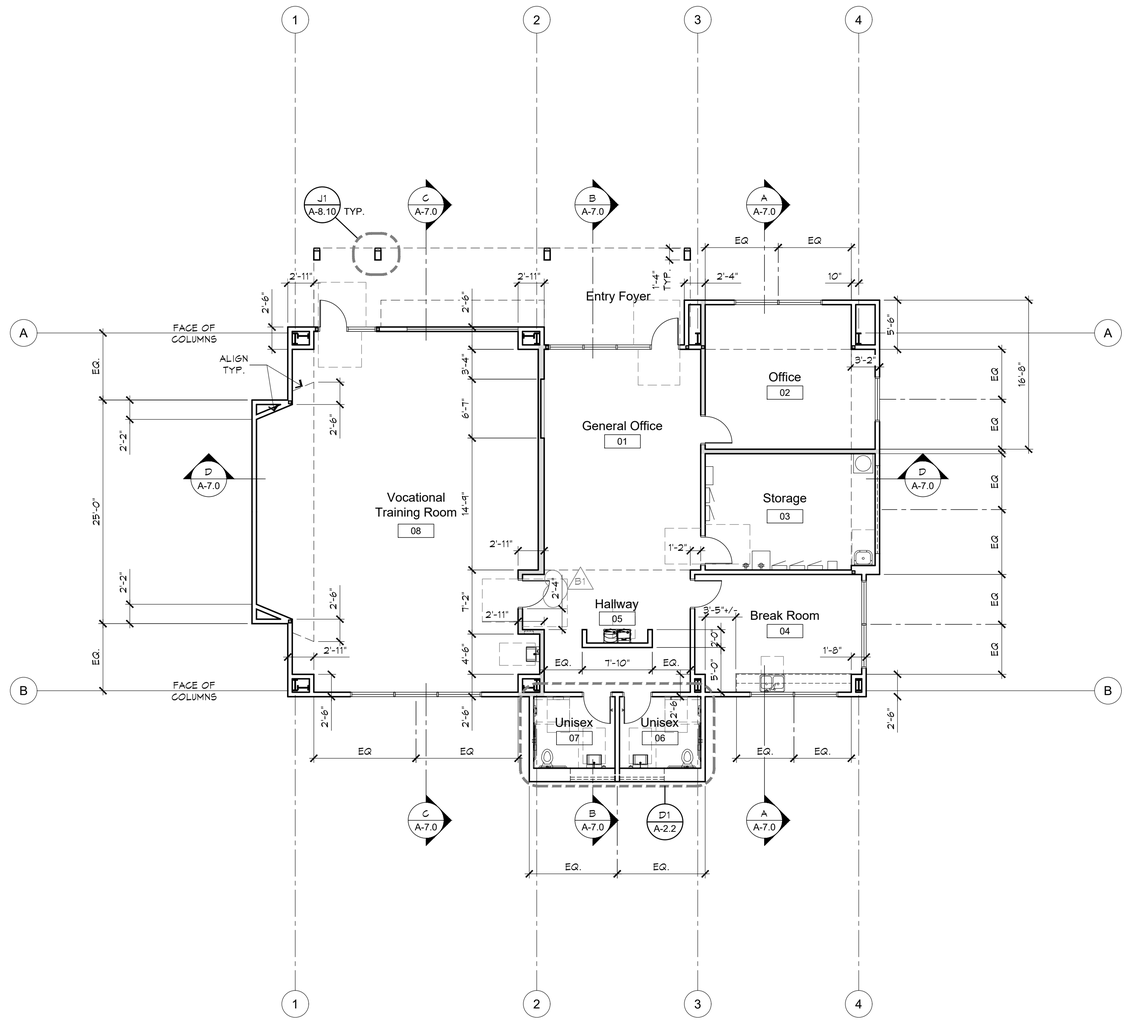
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

A-1.0

Sheet of

Plot Date: 2024-07-15



Dimension Notes

B2

1. Refer to Sheet S2.0 for Column Layout Dimensions.

B2 BUILDING DEPT. PLAN CHECK 24-0097 2024-08-07

B1 BUILDING DEPT. PLAN CHECK 24-0097 2024-03-06

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Sheet Content:

Dimension Floor Plan

Fresno County Department of
Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

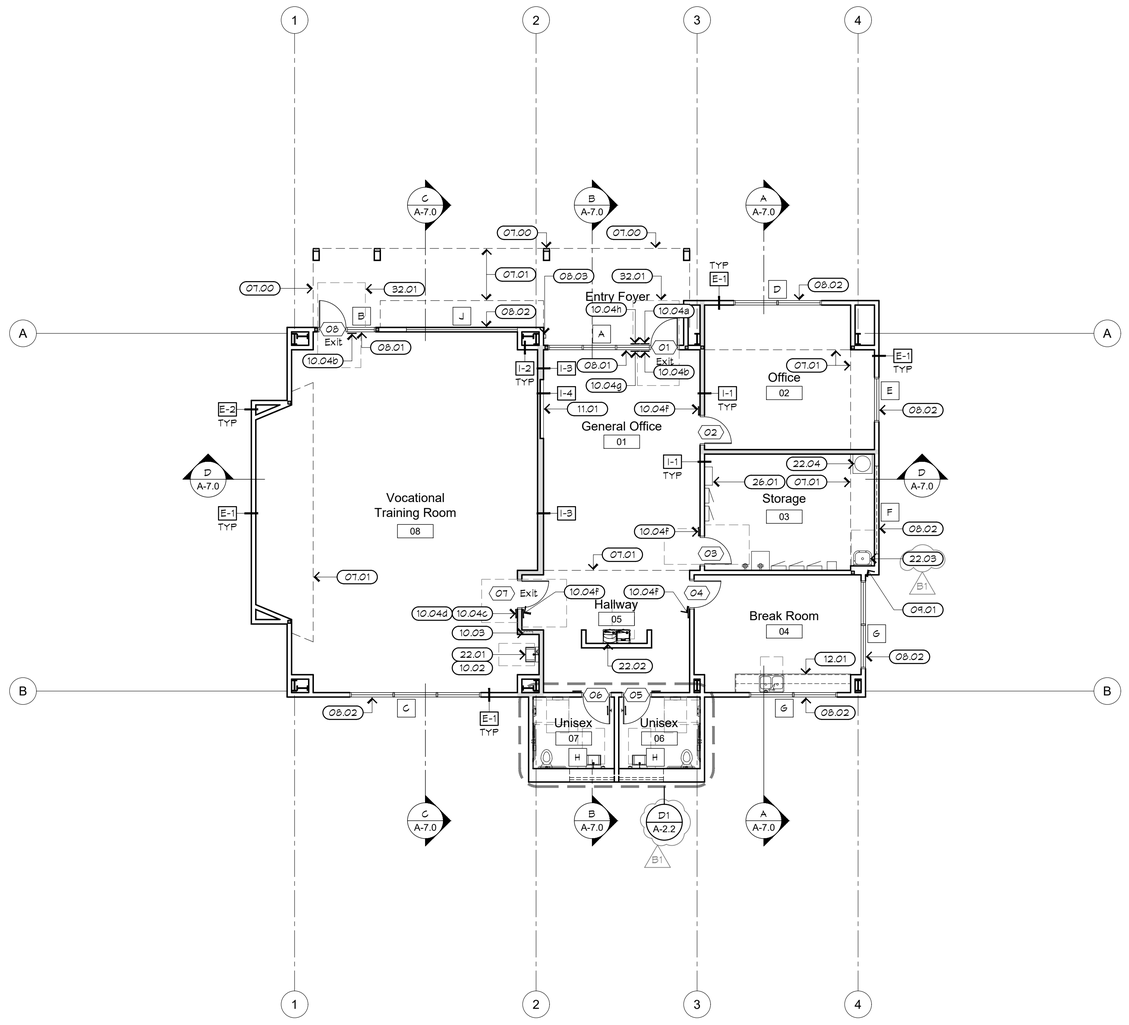
A-2.0

Sheet of

Plot Date: 2024-07-15

A1 Floor Plan
Scale: 1/8"=1'-0"

North



Floor Plan

Total Conditioned Area: 3,015 S.F.

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

North

Floor Keynotes

- 07.00 Metal Fascia and Column Cladding. Refer to Exterior Elevations.
- 07.01 Dashed line indicates Roof / Soffit above.
- 08.01 Aluminum Storefront Door and Window System. Refer to Dimension Floor Plan, Door Schedule, Framing Elevations, and Specifications for additional information.
- 08.02 Aluminum Storefront Window System with 1" insulated glazing. Refer to Dimension Floor Plan, Door Schedule, Framing Elevations, and Specifications for additional information. (F1)
- 08.03 Knox Box. Refer to Fire Department Notes and Exterior Elevations.
- 10.02 Soap Dispenser, wall mounted. Refer to detail J10/A-8.3 and Specifications for additional information.
- 10.03 Semi-Recessed Dual Paper Towel Dispenser and Trash Receptacle. Refer to detail J10/A-8.3 and Specifications for additional information. (B1)
- 10.04 Signage. Refer to Door Schedule (A-8.0). Contractor to provide submittals for all Signage.
  - a I.S.A. Refer to detail C10 / A-8.4.
  - b Exit. Refer to detail C6 / A-8.4.
  - c Directional Exit Route. Refer to Detail a6 / A-8.4.
  - d Occupancy. Refer to detail E10 / A-8.4.
  - e All Gender. Refer to detail G6 / A-8.4.
  - f Room Signage. Refer to detail K10 / A-8.4.
  - g Door Remain Unlocked Sign. Refer to detail E6 / A-8.4.
  - h Blank Signage. Match Dimensions to "Door Remain Unlocked" sign.
- 11.01 Recessed wall mounted TV (Samsung 85", UN85AU8000FXZA or equal) and TV Bracket (MV mounts - MW 130C64 or equal). Refer to Electrical Drawings.
- 12.01 Casework. Refer to Interior Elevation and details D9, H5 and H9/A-8.6 for anchorage.
- 22.01 Accessible Lavatory, wall mounted. Refer to Plumbing Drawings and detail G13/A-8.3.
- 22.02 Accessible Hi / Low Drinking Fountain. Refer to Plumbing Drawings and detail E10/A-8.3 for accessibility requirements. (B1)
- 22.03 Service Sink. Refer to Plumbing Drawings.
- 22.04 Water Heater. Refer to Plumbing and Electrical Drawings.
- 26.01 Electrical Equipments. Refer to Electrical Drawings.
- 32.01 5'-0" Square "level" landing (1/4" per 1'-0" maximum slope) that is flush with floor at threshold and transitions to adjacent walk at 2 percent maximum slope. Refer to Civil Plans and details for the extent of work.
- 09.01 Double 600S162-54 Metal Studs with 600T200-54 Tracks Plumbing Wall. Refer to Plumbing Drawings.

Wall Assembly Types

- E-1 Exterior. 600S162-54 Metal Studs at 16" o.c. with 600T200-54 Tracks U.N.O.
  Interior Side: 5/8" Type "X" Gypsum Board terminals at 10'-6" Above Finish Floor.
  Exterior Side: Insulated Metal Panel.
- E-2 Exterior. 600S162-54 Metal Studs at 16" o.c. with 600T200-54 Tracks U.N.O.
  Exterior Side: Insulated Metal Panel.
- I-1 Interior. 600S162-43 Metal Studs at 16" o.c. with 600T200-43 Tracks U.N.O.
  Interior Side: 5/8" Type "X" Gypsum Board on both sides terminals at 10'-6" Above Finish Floor.
  Provide Sound Batt Insulation where hatch is shown.
- I-2 Interior. 600S162-43 Metal Studs at 16" o.c. with 600T200-43 Tracks U.N.O.
  Interior Side: 5/8" Type "X" Gypsum Board terminals at 10'-6" Above Finish Floor.
- I-3 Interior. 800S162-43 Metal Studs at 16" o.c. with 800T200-43 Tracks U.N.O.
  Interior Side: 5/8" Type "X" Gypsum Board on both sides terminals at 10'-6" Above Finish Floor.
  Provide Sound Batt Insulation where hatch is shown. (B1)
- I-4 Interior. 350S162-43 Metal Studs at 16" o.c. with 350T200-43 Tracks U.N.O.
  Interior Side: 5/8" Type "X" Gypsum Board on both sides terminals at 10'-6" Above Finish Floor.
  Provide Sound Batt Insulation where hatch is shown.

Refer to Structural Drawings for more information.

Floor Plan General Notes

1. All exterior walls shall be wall assembly type E-1 U.N.O.
2. All interior walls shall be wall assembly type I-1 U.N.O.
3. Provide portable Assistive Listening Systems with three receivers. Two receivers shall be hearing aid compatible as per CBC Section 11B-708.3. (B1)
4. Refer to Door Schedule on Sheet A-8.0 for Door information.
5. Refer to Framing Elevations on Sheet A-8.0 for Window and Storefront information.

Occupancy Notes (B2)

- Occupancy Group: B.
- Type V-B Construction / Sprinklered.

(B2) BUILDING DEPT. PLAN CHECK 24-0097 2024-06-07
(B1) BUILDING DEPT. PLAN CHECK 24-0097 2024-03-06
(F1) FRESNO FIRE DEPT. PLAN CHECK 2024-03-07

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C 40030 REN: 11-30-25 STATE OF CALIFORNIA

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Sheet Content:

Noted Floor Plan

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

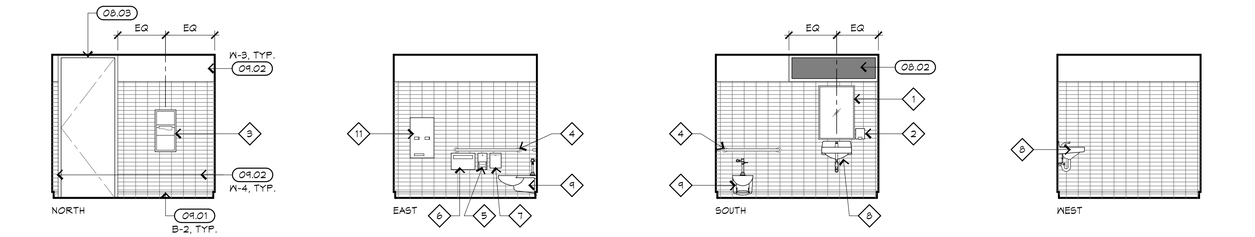
Sheet No.:

A-2.1

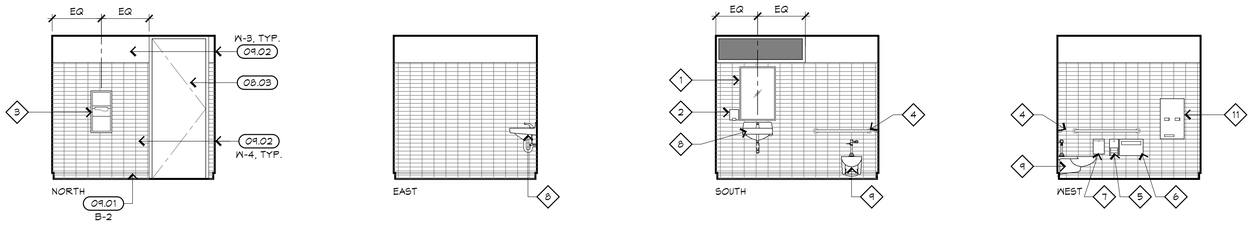
Sheet of

A1 Floor Plan
Scale: 1/8"=1'-0"

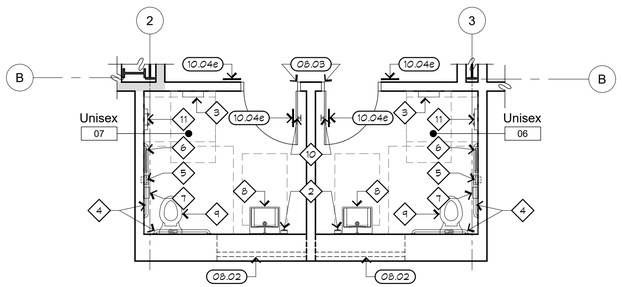
Plot Date: 2024-07-15



K1 Unisex Room 06
Scale: 1/4" = 1'-0"



G1 Unisex Room 07
Scale: 1/4" = 1'-0"



D1 Enlarged Unisex Rooms 06 and 07
Scale: 1/4" = 1'-0"

Restroom

1. Mirror, wall mounted (BOBRICK B-165 SERIES OR EQUAL). Refer to Interior Elevations, detail J10/A-8.3 and Specifications for additional information.
2. Soap Dispenser, wall mounted (BOBRICK B-2111 OR EQUAL). Refer to Interior Elevations, detail J10/A-8.3 and Specifications for additional information.
3. Paper Towel Dispenser and Waste Receptacle, recessed mounted (BOBRICK B-364 OR EQUAL). Refer to Interior Elevations, detail J10/A-8.3 and Specifications for additional information.
4. Side and Rear Grab Bars (BOBRICK B-6806 SERIES OR EQUAL). Provide required blocking in wall per Manufacturer's specifications. Refer to Interior Elevations G10/A-8.3 and Specifications for additional information.
5. Toilet Paper Dispenser, recessed mounted (BOBRICK B-3888 OR EQUAL). Refer to Interior Elevations, detail G10/A-8.3 and Specifications for additional information.
6. Toilet Seat Cover Dispenser, surface mounted (BOBRICK B-221 OR EQUAL). Refer to Interior Elevations, detail J10/A-8.3 and Specifications for additional information.
7. Sanitary Napkin Disposal, surface mounted (BOBRICK B-270 OR EQUAL). Refer to Interior Elevations, detail J10/A-8.3 and Specifications for additional information.
8. Accessible Lavatory, wall mounted. Refer to Plumbing Drawings and detail G13/A-8.3.
9. Accessible Water Closet, wall mounted. Refer to Plumbing Drawings and detail G10/A-8.3.
10. Hat and Coat Hook, surface mounted (BOBRICK B-682 SERIES OR EQUAL). Refer to Interior Elevations, detail J10/A-8.3 and Specifications for additional information.
11. Recessed Napkin / Tampon Vendor. (BOBRICK B-37069C OR EQUAL). Refer to Interior Elevations, detail J10/A-8.3 and Specifications for additional information.

B1

Interior Elevation Notes

1. Refer to Noted Dimensioned and Noted Floor Plan, Reflected Ceiling Plan and Finish schedule for additional information.
2. Refer to details on Sheet A-8.6 for cabinet anchorage requirements.
3. Refer to details on Sheet A-8.3 for mounting height requirement.

Restroom Keynotes

- 08.02 Aluminum Storefront Window System with 1" insulated glazing. Refer to Floor plan, Door Schedule and Framing Elevations. Refer to Specifications for additional information.
- 08.03 Door with Frame. Refer to Floor Plan and Door Schedule. B1
- 09.01 Wall Base. Refer to Finish Schedule A-8.1.
- 09.02 Wall Finish. Refer to Finish Schedule A-8.1.
- 10.04 Signage. Refer to Door Schedule (A-8.0). Contractor to provide submittals for all Signage.
  - a I.S.A. Refer to detail C10 / A-8.4.
  - b Exit. Refer to detail C6 / A-8.4.
  - c Directional Exit Route. Refer to Detail a6 / A-8.4.
  - d Occupancy. Refer to detail E10 / A-8.4.
  - e All Gender. Refer to detail G6 / A-8.4.
  - f Room Signage. Refer to detail K10 / A-8.4.
  - g Door Remain Unlocked Sign. Refer to detail E6 / A-8.4.
  - h Blank Signage. Match Dimensions to "Door Remain Unlocked" sign.

B1 BUILDING DEPT. PLAN CHECK 24-0097
2024-08-06

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C 40030 REN 11-30-25 STATE OF CALIFORNIA

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Development Services & Capital Projects Division
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E-mail: zkhan@fresnocountyca.gov

Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-15
Project no.: T90204
File name: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings\ECC Educational_Drawings

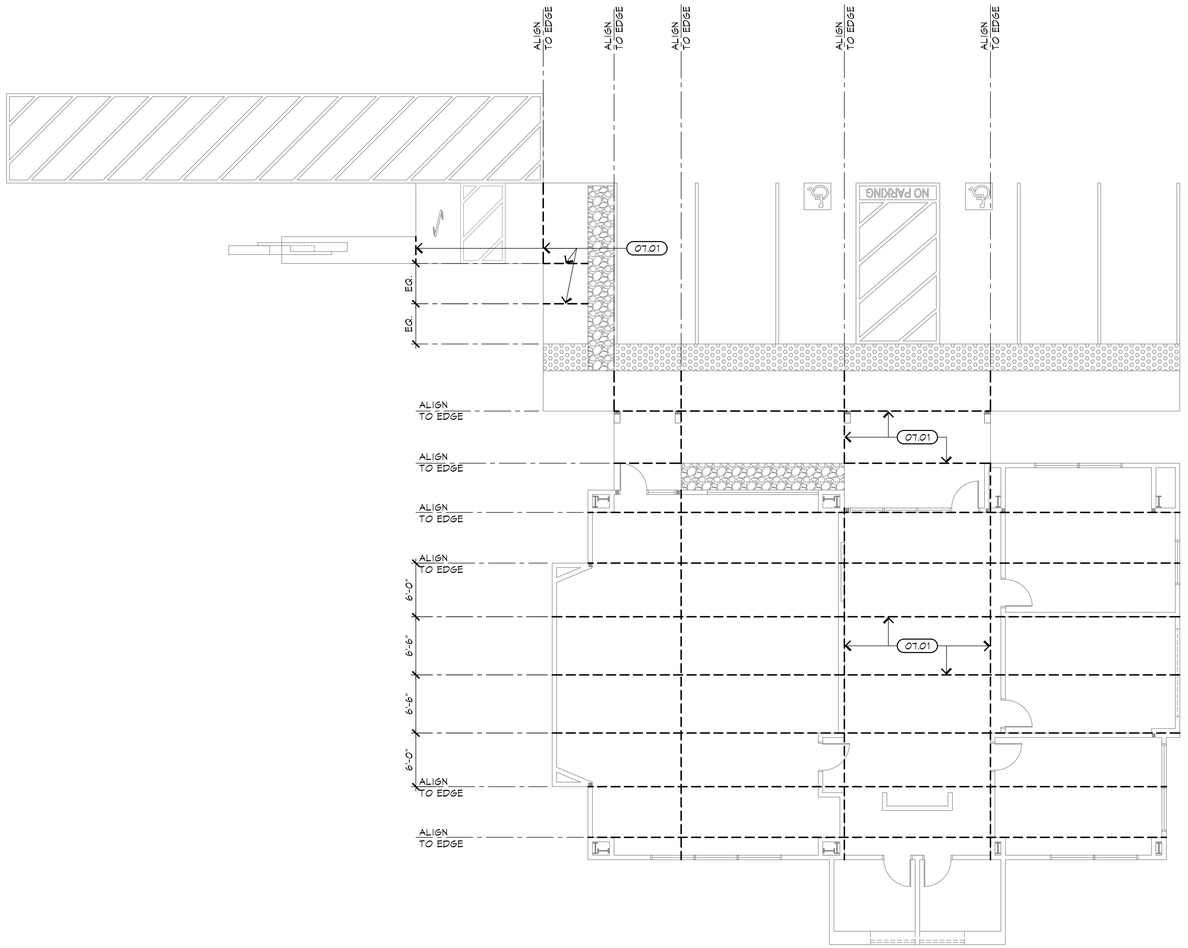
Sheet Content:
Restroom Enlarged Floor Plan and Interior Elevations

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
A-2.2

Sheet of

Plot Date: 2024-07-15



KEYNOTES

XX.XX

07.01 CONCRETE CONTROL JOINT. 1/4" WIDE x 1/4 OF THE SLAB THICKNESS - SAW-CUT. FILL WITH BACKER ROD AND SEALANT (DOWSIL 813C CONSTRUCTION AND CONCRETE SILICONE SEALANT OR EQUAL)

SUBMIT PIGMENT COLOR CHART FOR ARCHITECT'S APPROVAL.

North

A1 Concrete Slab / Walk Control Joint Plan
Scale: 1/8"=1'-0"

ZAHIDUL HOQUE KHAN
C 40030
REN 11-30-25
LICENSED ARCHITECT
STATE OF CALIFORNIA

ARCHITECT:
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File name: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings\T90204 - Slab Plan

Sheet Content:

Concrete Slab / Walk Control Joint Plan

Fresno County Department of Public Works and Planning
Capital Projects

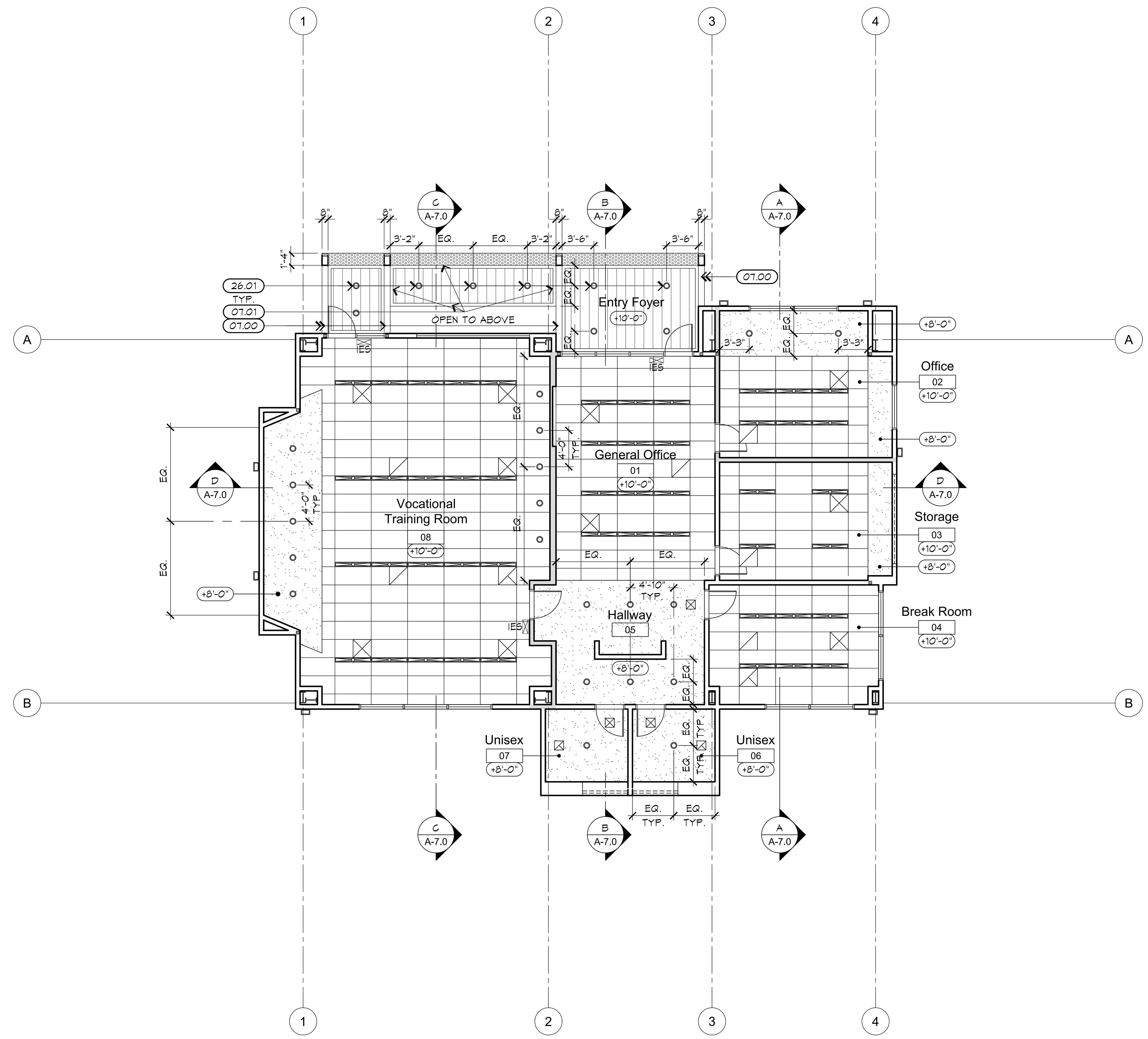
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

A-2.3

Sheet of

Plot Date: 2024-07-15



A1 Reflected Ceiling Plan
Scale: 1/8"=1'-0"

North

Ceiling Plan Keynotes

07.00	Metal Fascia and Soffit Cladding. Refer to Exterior Elevations Sheet A-6.0, Keynote #07.02 for Requirements.
07.01	4" x 24 GA. Sheet Metal Soffit Panel Trim. Paint. Match to Soffit Panel Color and Sheen.
26.01	All Can Lights Shall be at Center of Each Metal Panel. Typical.

Ceiling Legend

x'-x"	Ceiling height as indicated.
	Gypsum Board Ceiling System. Refer to Structural Drawings and Finish Schedule for additional information.
	24 GA. Pre-Finished Powder Coated Sheet Metal Soffit Vent. Match Soffit Panel Color.
	Pre-Fabricated Metal Soffit Panel. *MBCI ARTISAN L12, 24 GA.,Coco Brown, Smooth Finish, Signature 200 Coating* or Equal.
	2'-0" x 4'-0" Suspended Ceiling System. Armstrong Second Look - Scored Acoustical Panels (1762). Refer to Finish Schedule for all Interior Finishes and requirements.
	Recessed LED Ceiling Light Fixture. Refer to Electrical Drawings for additional information.
	Ceiling Mounted Fixture Recessed Can Light. Refer to Electrical Drawings for additional information.
	Exterior Light Fixture. Refer to Exterior Elevation and Electrical Drawings for additional information.
	Supply Air Diffuser. Refer to Mechanical Drawings for additional information.
	Return Air Grille. Refer to Mechanical Drawings for additional information.
	Ceiling Exhaust Fan. Refer to Mechanical Drawings for additional information.
IES	Illuminated Exit Sign (with Directional Sign where applicable).

B1

Refected Ceiling Notes

1. Heights are based on heights above 0'-0" Above Floor Slab.
2. Dimension are to Face of Stud Unless Noted Otherwise.
3. Ceiling Height indicated for Suspended Acoustical Tile Ceilings is to bottom of T-Bar.
4. Ceiling Height indicated for Gypsum Board Ceiling / Soffits, Exterior Cement Plaster Ceiling / Soffits is to bottom of Support Framing or Suspension System Above. Refer to Sections and details.
5. Refer to Noted Floor Plan for Wall Type Assemblies for construction of Rated and Non-Rated Assemblies.
6. Objects or devices, such as can lights, pendant lights, light fixtures, fire sprinkler heads, motion sensors, etc., shall be centered within ceiling/Soffit panels.

B1

Soffit Vent Calculation

REQUIRED VENTILATION
347 SQ.FT. / 150 = 2.3 SQ.FT. VENTILATION

PROVIDED VENTILATION
39 Linear Feet * 0.83 Feet wide = 32.37 SQ.FT.

NOTE:
MESH HOLES ARE 1/8" MINIMUM AND 1/4" MAXIMUM.

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN: 11-30-25 STATE OF CALIFORNIA

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Sheet Content:

Reflected Ceiling Plan

Fresno County Department of Public Works and Planning Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

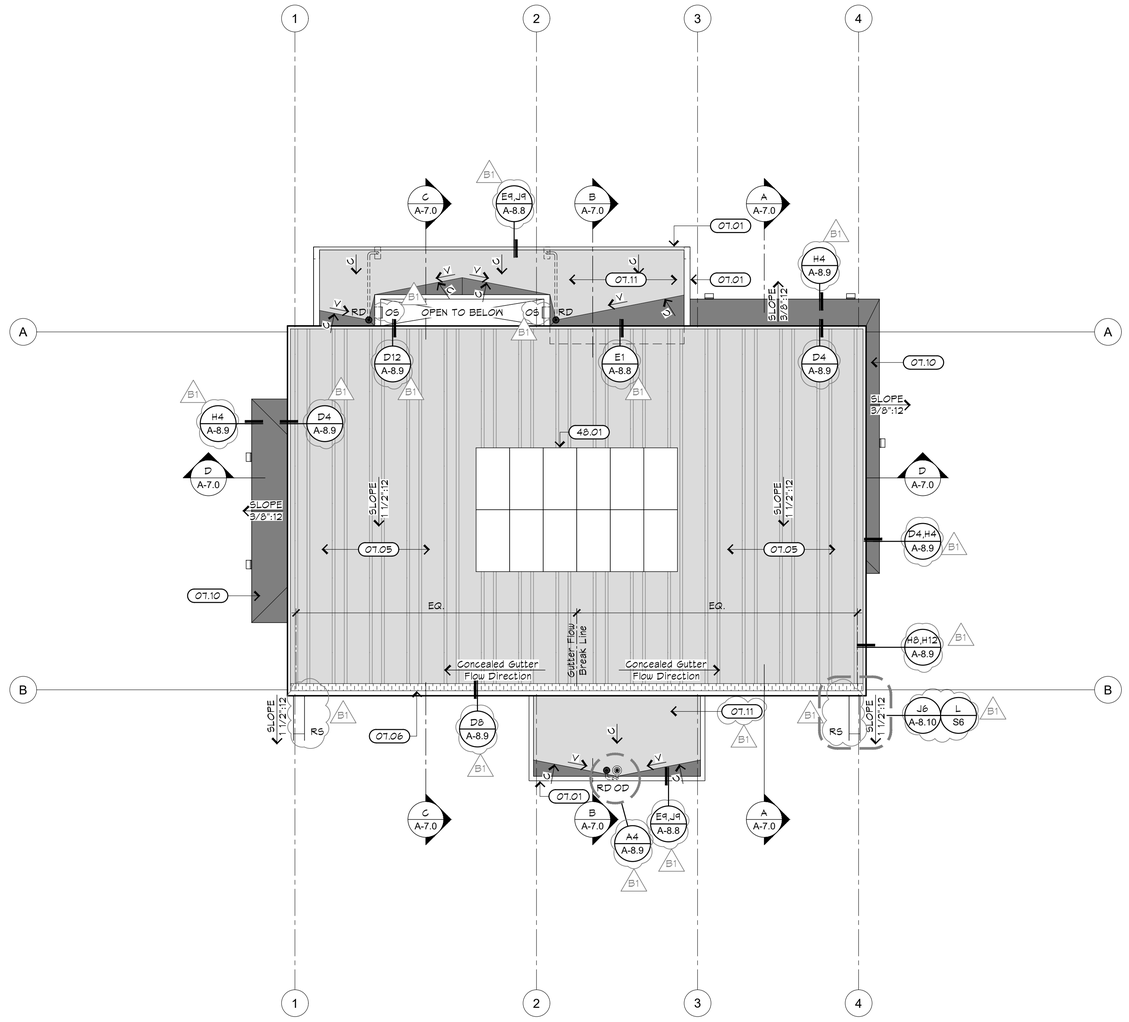
B1 BUILDING DEPT. PLAN CHECK 24-0097
2024-03-06

Sheet No.:

A-3.0

Sheet of

Plot Date: 2024-07-15



Roof Legend

C →	Tapered Rigid insulation Roof Cricket, slope surface minimum 1/2" per 1'-0" minimum unless noted otherwise.
RD-OD	Roof and Overflow Drain Combination. Provide water tight penetration through Exterior Finish. Refer to detail A4/A-8.9 and Plumbing Drawings.
OS	Overflow Scrapper Provide water tight penetration through Exterior Finish. Refer to detail A5/A-8.8.
RD (B1)	Roof Drain Pipe. Provide water tight penetration through Exterior Finish. Refer to Roof Plan detail E5/A-8.8 and Plumbing Drawings.
RS	Roof Scupper. Refer to Architectural and Structural Details.
V →	Slope Valleys 1/8" per 1'-0" minimum secure with screws and plates to Roof Deck.

Roof Keynotes

07.01	Sheet Metal Parapet Cap. Refer to Exterior Elevations Sheet A-5.0, Keynote 07.02 for information.
07.05	Insulated Metal Roof Panels. Refer to Specifications for additional information.
07.06	Concealed Metal Roof Gutter and Stainless Steel Perforated gutter screen.
07.10	20 GA Sheet Metal Roofing Cap. Continuous Weld at Roof Hips.
(B1) 07.11	RUBEROID / GAFGLAS Roofing Membrane or equal over 1/2" Glass-Mat over 1/2" Grade "C" Plywood.
48.01	Solar Panels. Refer to Electrical Drawings for additional information.

General Notes

1. The Contractor shall provide the design of the gutter and Scupper system and shop drawings and shall be responsible for the coordination between the sheet metal and roofing contractors.
2. The total length of any roof panel shall be from single panel - no splices.
3. (B1) Refer to Plumbing Drawings (P-3.0) for the size of Roof Drains and Overflow Drains.
4. All Membrane Roofing material shall be minimum Class "C".

(B1) BUILDING DEPT. PLAN CHECK 24-0097
2024-05-06

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C 40030 REN 11-30-25 STATE OF CALIFORNIA

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Sheet Content:

Roof Plan

Fresno County Department of
Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

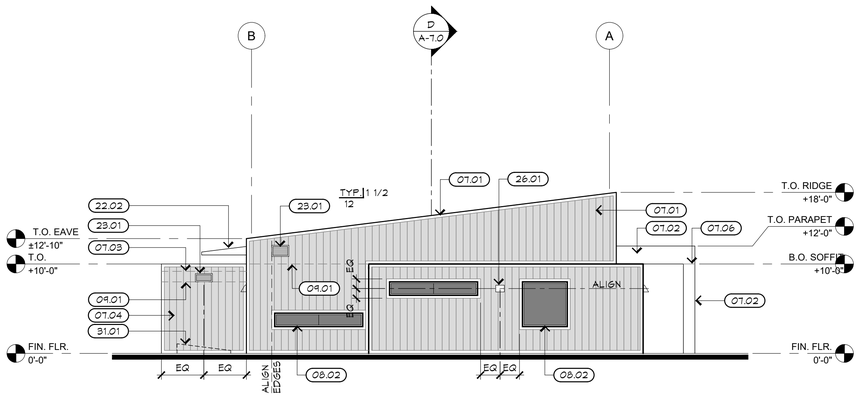
A-4.0

Sheet of

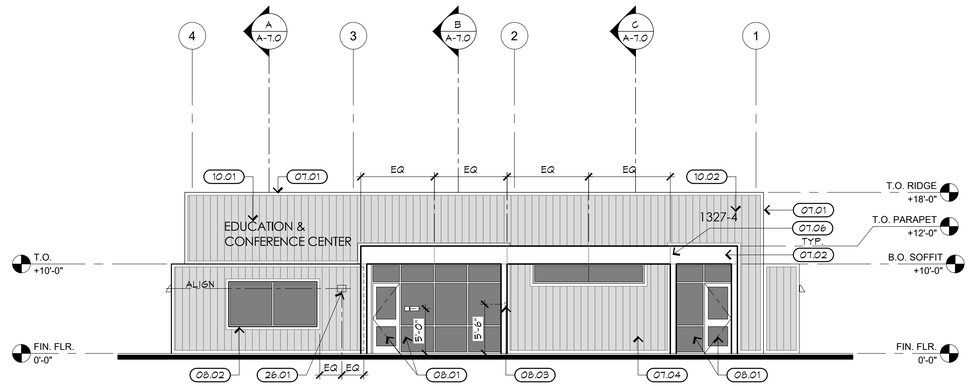
North

A1 Roof Plan
Scale: 1/8"=1'-0"

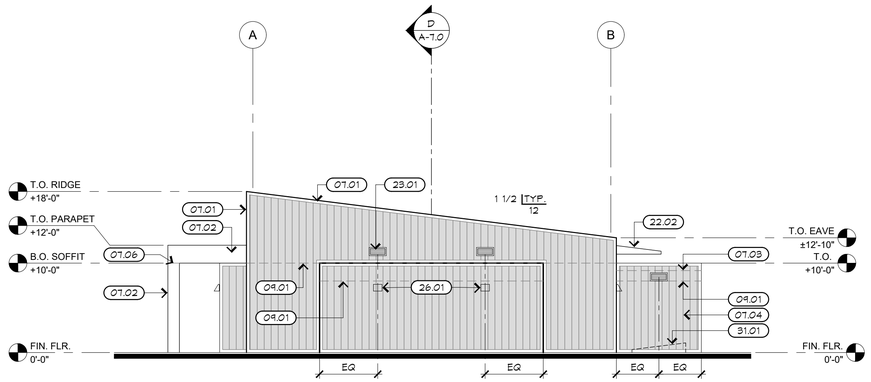
Plot Date: 2024-07-15



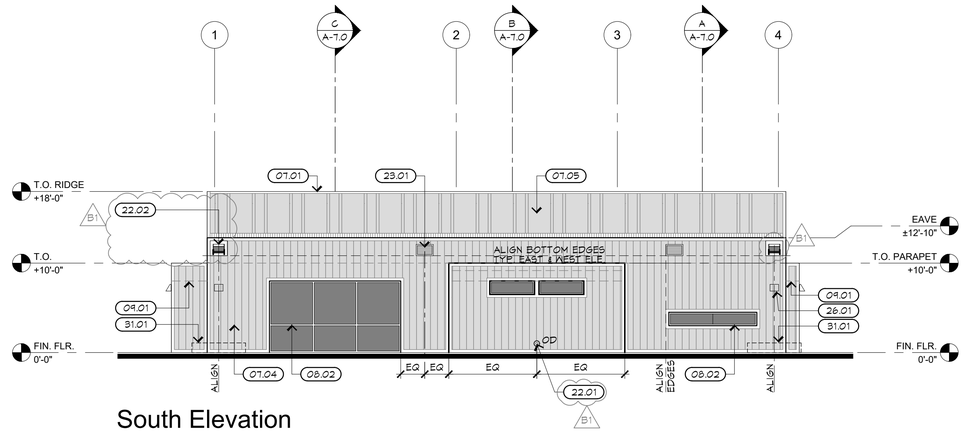
East Elevation



North Elevation



West Elevation



South Elevation

Ext. Elevation Keynote

07.01	24 GA Galvanized Iron Sheet Metal Trim. Paint to Match Adjacent Metal Wall Panel Color and Sheen.
07.02	20 GA Pre-Finished Powder Coated Sheet Metal Fascia and Column Cladding with 24 GA with Pre-Finished Powder Coated Parapet Cap, Mounted to Framing with 18 GA GI Cleat and Edge Supports at 12" Centers Fastened with Torx Head Tamper Proof Self Drilling Screws. SEAMS ARE ONLY AT CORNERS AND LOCATIONS SHOWN IN EXTERIOR ELEVATIONS. THERE SHALL BE NO EXPOSED FASTENERS ON THE CLADDING. Contractor Shall Submit Shop Drawings of the Complete Metal Fascia/Cladding System. Refer to Detail J1/A-8.10. The Fascia/Cladding System Shall be Water Tight. Verify Paint Color and Texture with Architect. (C2)
07.03	Roof line beyond.
07.04	Insulated Metal Wall Panel. Refer to details A9, F13, J4 and J13/A-8.8. Refer to Specifications for Additional Information. (B1)
07.05	Insulated Metal Roof Panels. Refer to Specifications for additional information.
07.06	Sheet Metal Cladding Seam Line.
08.01	Aluminum Storefront Door and Window System. Refer to Floor Plans, Door Schedule and Framing Elevations. Refer to Specifications for additional information.
08.02	Aluminum Storefront Window System and Glazing. Refer to Floor Plans, Door Schedule and Framing Elevations. Refer to Specifications for Additional Information.
08.03	Knox box. Refer to Fire Department Notes, and Floor Plan.
09.01	Interior Ceiling Line Beyond.
10.01	12" High x 2 1/4" Deep Cast Aluminum Letters with Dark Bronze Paint Finish. Font to be "Ribbon Deep". Letters to Read "EDUCATION & CONFERENCE CENTER". Refer to detail C13/A-8.8. Sign Installation under Permit #24-002685. (B1)
10.02	12" High x 2 1/4" Deep Cast Aluminum Numbers with Dark Bronze Paint Finish. Font to be "Ribbon Deep". Numbers to Read "1327-4". Refer to detail C13/A-8.8. Sign Installation under Permit #24-002685.
22.01	Roof Overflow Downspout Nozzle. Provide Water Tight Penetration Through Exterior Finish. Refer to Roof Plan and Plumbing Drawings.
22.02	Roof Scupper. Refer to Roof Plan. (B1)
23.01	Mechanical Exhaust Vent. Refer to Mechanical Drawings.
26.01	Light Fixture. Refer to Electrical Drawings.
31.01	Roof Drop Dry Well with 6" Wide x 8" Deep Concrete Curb. Refer to Civil Drawings.

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C 40030 REN 11-30-25 STATE OF CALIFORNIA

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Sheet Content:

Exterior Elevations

General Notes

F1

1. Buildings more than 50 feet from the street shall have a minimum of 12 inch high address numbers on the street side of the building. Buildings 50 feet or less from the street shall have a minimum of six inch high address numbers on the street side of the building. Installation and design shall be in accordance with Development and Resource Management Policy 02-111 and / or G-002. 2022 FMC Section 10-505(5.1.

B1 BUILDING DEPT. PLAN CHECK 24-0097
2024-03-06

F1 FRESNO FIRE DEPT. PLAN CHECK
2024-03-07

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

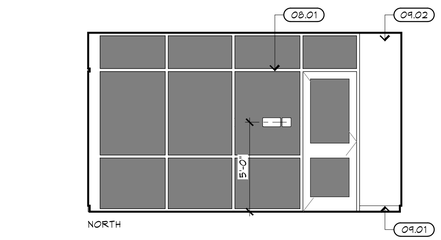
Sheet No.:

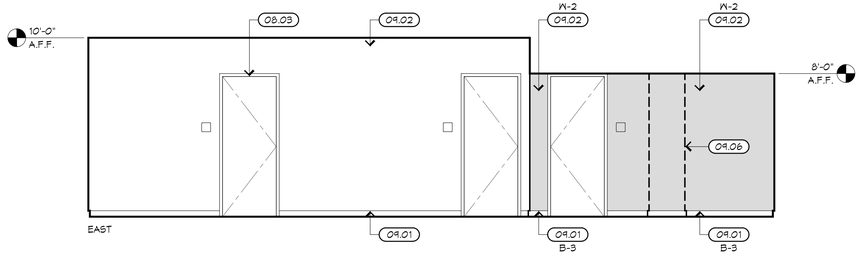
A-5.0

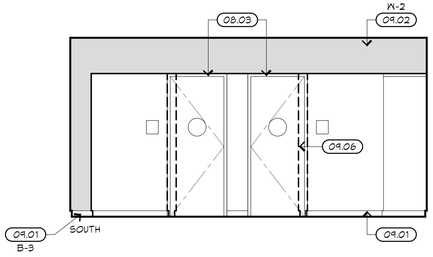
Sheet of

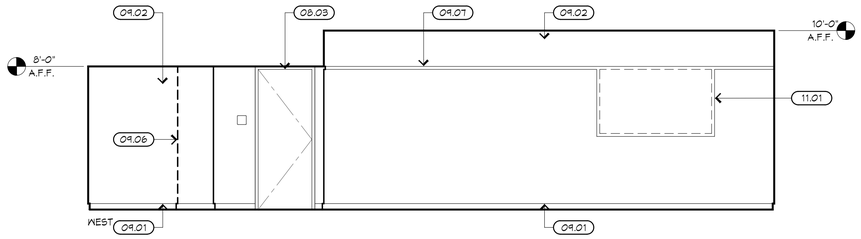
A1 Exterior Elevations
Scale: 1/8"=1'-0"

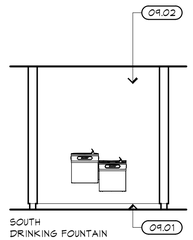
Plot Date: 2024-07-15





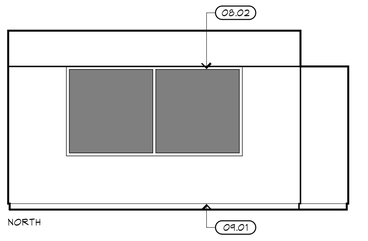


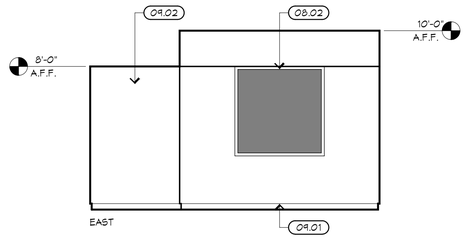


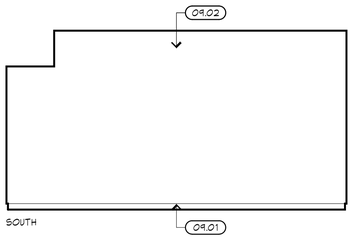


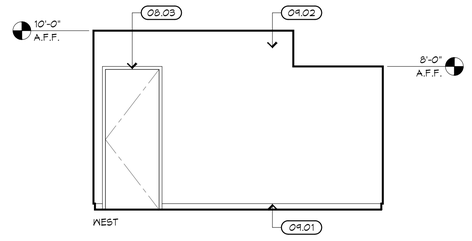
G1 General Office and Hallway Rooms 01 and 05

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



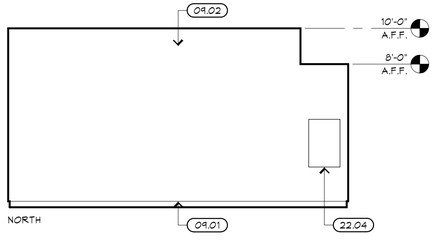


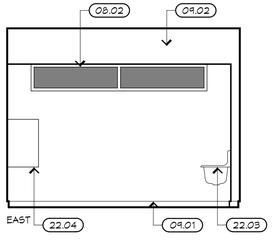


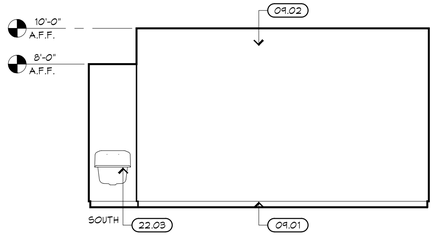


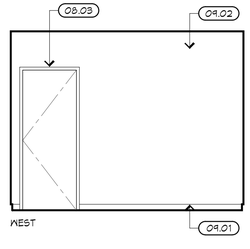
E1 Office Room 02

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









C1 Storage Room 03

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

Interior Elevation Notes

1. Refer to Noted Dimensioned and Noted Floor Plan, Reflected Ceiling Plan and Finish schedule for additional information.
2. Refer to details on Sheet A-8.6 for cabinet anchorage requirements.
3. Refer to details on Sheet A-8.3 for mounting height requirement.

Interior Elevation Keynotes

08.01	Aluminum Storefront Door and Window System. Refer to Floor plans, Door Schedule, Framing Elevations and Specifications for additional information.
08.02	Aluminum Storefront Window System. Refer to Floor plan, Door Schedule, Framing Elevations and Specifications for additional information.
08.03	Door with Frame. Refer to Floor Plan and Door Schedule.
09.01	Wall Base. All Wall Base is "B-1" U.N.O. Refer to Finish Schedule A-8.1. (B1)
09.02	Wall Finish. All Wall Finish is "W-1" U.N.O. Refer to Finish Schedule A-8.1.
09.06	Drinking Fountain alcove in foreground shown dashed for clarity.
09.07	Aluminum Reveal. Refer to detail F6/A-8.5.
10.02	Soap Dispenser, wall mounted. Refer to detail J10/A-8.3 and Specifications for additional information.
11.01	Recessed wall mounted TV (Samsung 85", UN85AU8000FXZA or equal) and TV Bracket (MV mounts - MN 130C64 or equal).
12.01	Base Cabinet with adjustable shelves. Refer to detail D9/A-8.6.
12.02	3/4" Removeable plastic laminate face panel. Refer to detail H5/A-8.6.
12.03	Countertop and Full Height Backsplash with returns. Refer to details D9 and H5/A-8.6.
12.04	Upper Cabinet with adjustable shelves. Refer to detail H9/A-8.6.
22.01	Accessible Lavatory, wall mounted. Provide 30"x48" clear space in front. Refer to Plumbing Drawings and detail G13/A-8.3.
22.03	Service Sink. Refer to Plumbing Drawings.
22.04	Water Heater. Refer to Plumbing Drawings.

(B1) BUILDING DEPT. PLAN CHECK 24-0097
2024-09-06

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-15
Project no.: T90204
File name: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings\ECC Educational_Drawings

Sheet Content:

Interior Elevations

Fresno County Department of Public Works and Planning
Capital Projects

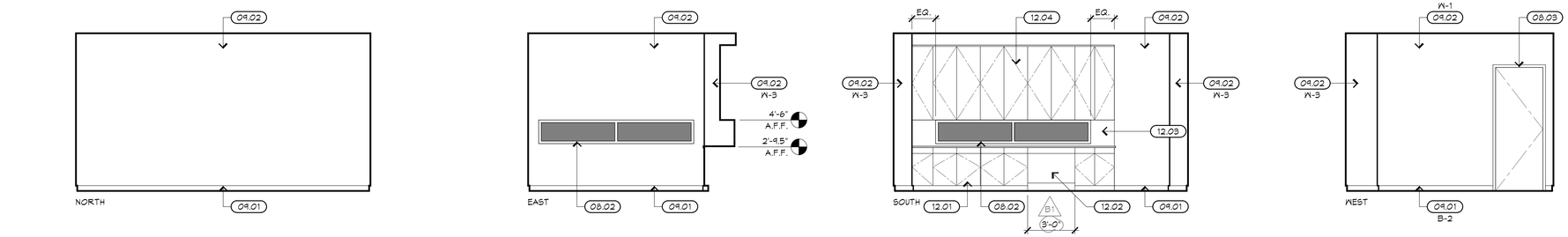
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

A-6.0

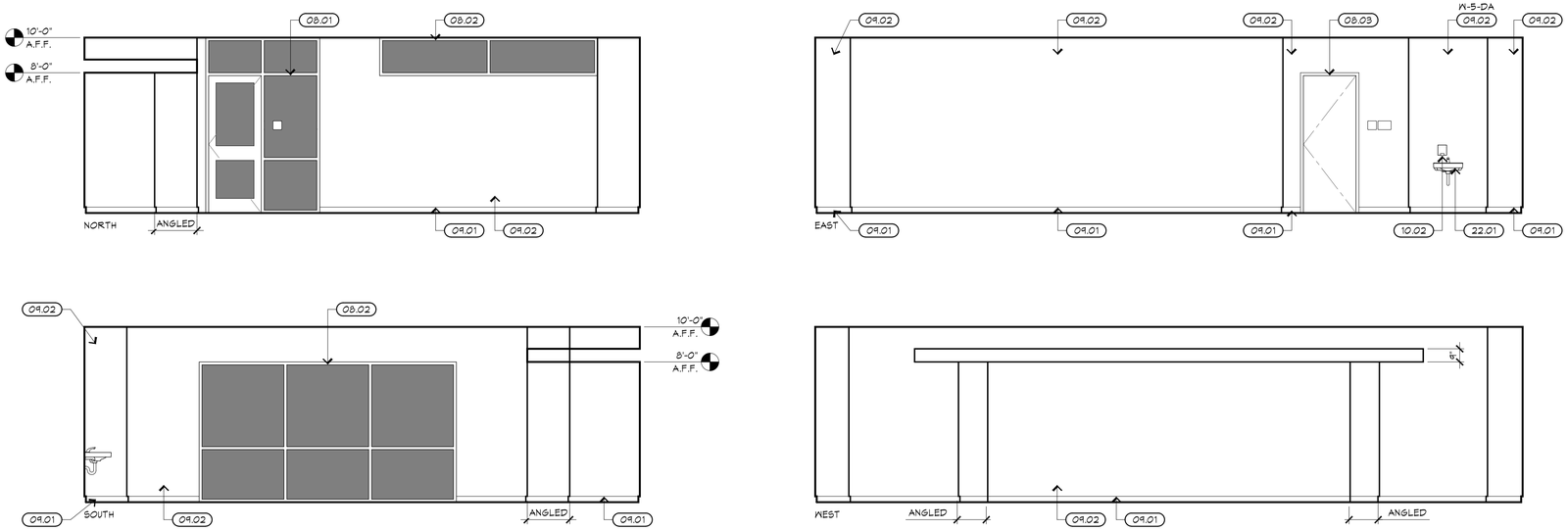
Sheet of

Plot Date: 2024-07-15



J1 Break Room 04

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



E1 Vocational Training Room 08

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

Interior Elevation Notes

1. Refer to Noted Dimensioned and Noted Floor Plan, Reflected Ceiling Plan and Finish schedule for additional information.
2. Refer to details on Sheet A-8.6 for cabinet anchorage requirements.
3. Refer to details on Sheet A-8.3 for mounting height requirement.

Interior Elevation Keynotes

08.01	Aluminum Storefront Door and Window System. Refer to Floor plans, Door Schedule, Framing Elevations and Specifications for additional information.
08.02	Aluminum Storefront Window System. Refer to Floor plan, Door Schedule, Framing Elevations and Specifications for additional information.
08.03	Door with Frame. Refer to Floor Plan and Door Schedule.
09.01	Wall Base. All Wall Base is "B-1" U.N.O. Refer to Finish Schedule A-8.1.
09.02	Wall Finish. All Wall Finish is "W-1" U.N.O. Refer to Finish Schedule A-8.1.
09.06	Drinking Fountain alcove in foreground shown dashed for clarity.
09.07	Aluminum Reveal. Refer to detail F6/A-8.5.
10.02	Soap Dispenser, wall mounted. Refer to detail J10/A-8.3 and Specifications for additional information.
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B1 BUILDING DEPT. PLAN CHECK 24-0097
2024-09-06

ARCHITECT:
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Sheet Content:

Interior Elevations

Fresno County Department of Public Works and Planning
Capital Projects

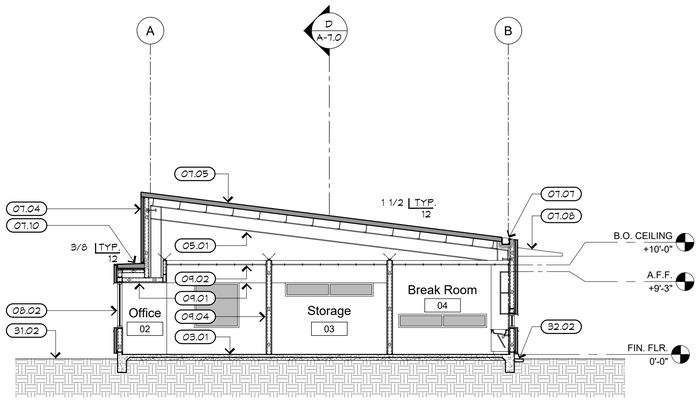
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

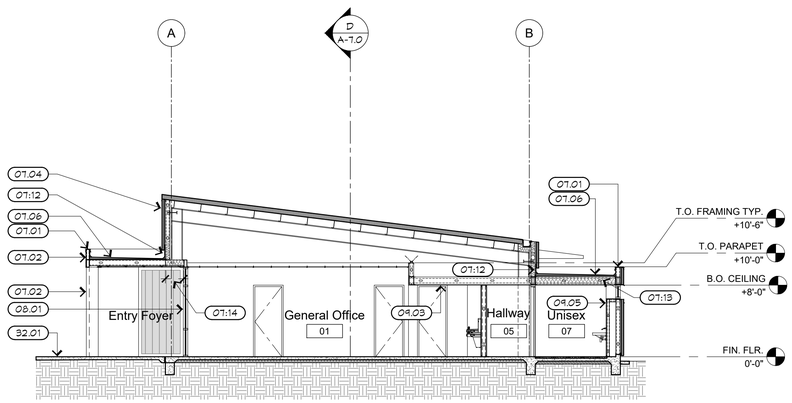
A-6.1

Sheet of

Plot Date: 2024-07-15



Section A-A



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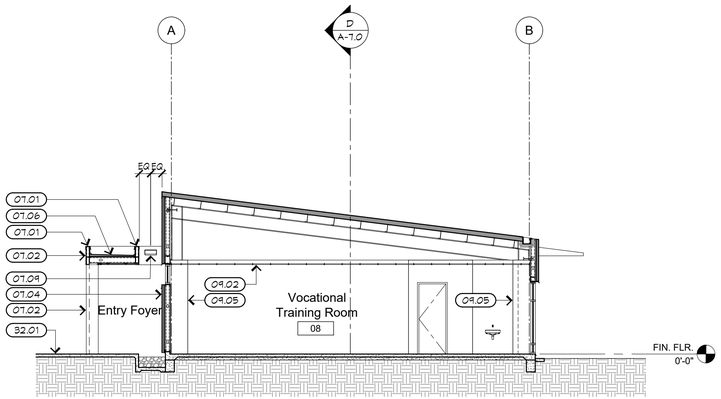
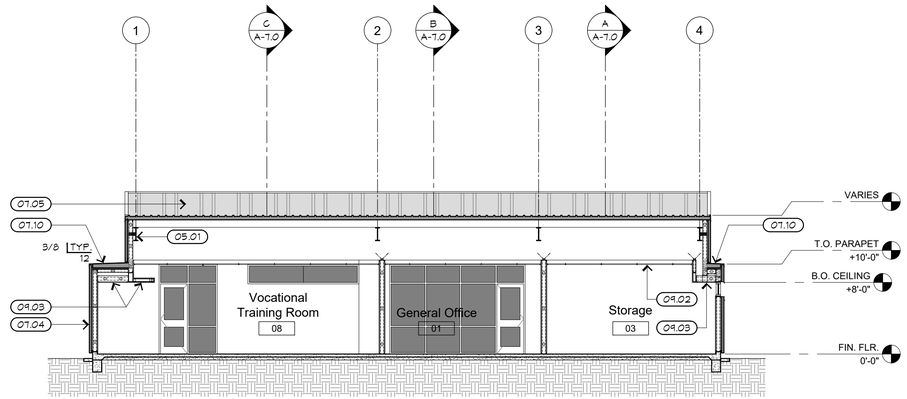


Section C-C



Section D-D

Building Sections Keynote

- 03.01 Concrete Slab. Refer to Structural Drawings.
- 05.01 Steel Building Framing. Contractor to Provide Design and Shop Drawings. Refer to Structural.
- 07.01 Sheet Metal Parapet Cap. Refer to Exterior Elevations Sheet A-5.0, Keynote 07.02 for information.
- 07.02 Metal Fascia and Column Cladding. Refer to Exterior Elevations.
- 07.04 Insulated Metal Wall Panel. Refer to details A9, F13 and J13/A-8.8. Refer to Specifications for Additional Information. (B1)
- 07.05 Insulated Metal Roof Panels. Refer to Specifications for additional information.
- 07.06 Asphalt Modified Bituminous Roofing Over 1/2" GlassMatt Over 1/2" Plywood Sheathing. Refer to Roof Plans, Details, and Specifications.
- 07.07 Concealed Gutter System. Refer to Architectural and Structural Details and Roof Plan General Notes.
- 07.08 Roof Scupper Beyond. Refer to Roof Plan, Architectural and Structural Details.
- 07.09 Metal Overflow Scupper. Refer to Roof Plan and details.
- 07.10 20GA Galvanized Iron Sheet Metal Roofing Cap. Continuous Weld at Roof Hips, Paint.
- 07.11 Soffit Vent. Refer to Reflected Ceiling Plan.
- 07.12 Asphalt Modified Bituminous Roofing Base Flushing Over 1/2" Plywood Sheathing Over In-Stud R-19 Fiber Glass Batt Insulation.
- 07.13 In-Joist R-30 Fiber Glass Batt Insulation.
- 07.14 Weather Resistive Barrier Over In-Joist R-19 Fiber Glass Batt Insulation.
- 08.01 Aluminum Storefront Door and Window System. Refer to Floor Plans, Door Schedule, Framing Elevations and Specifications for additional information.
- 08.02 Aluminum Storefront Window System and Glazing. Refer to Floor Plans, Door Schedule, Framing Elevations and Specifications for Additional Information.
- 09.01 Interior Ceiling Line Beyond.
- 09.02 Suspended Acoustic Ceiling Tile System. Refer to Reflected Ceiling Plan and Details.
- 09.03 Gypsum Board Dropped Soffit over Light Gauge Metal Framing. Refer to Structural Details.
- 09.04 Type "X" Gypsum Board over Light Gauge Metal Framing Wall. Refer to Floor Plans and Details.
- 09.05 Furred Metal Wall. Refer to Floor Plans and Details.
- 31.02 Graded Native Soil. Refer to Civil Drawings.
- 32.01 Accessible Concrete Walk. Refer to Civil Drawings.
- 32.02 Concrete Mow Strip. Refer to Civil Drawings.

General Notes (F1)

1. The General Contractor and the Sprinkler Contractor shall coordinate the protection of roof "crickets" or other concealed combustible spaces (where applicable). FFD Policy NO. 405.007.
2. After installing wall, ceiling, or floor insulation, the installer shall make available to the enforcement agency or post in a conspicuous location in the building a certificate signed by the installer stating that the installation is consistent with the plans and specifications. The certificate shall also state the manufacturer's name and material identification, the installed R-Value and (in applications of loose fill insulation) the minimum installed weight per square foot consistent with the manufacturer's labeled installed design density for the desired R-Value. (B1)
3. The insulation shall conform to the flame spread rating and smoke density requirements of [CBC 707.3].
4. Joints and other openings in the building envelope that are potential sources of air leakage shall be caulked, equipped with gaskets, weatherstripped, or otherwise sealed to limit internal or external air filtration.
5. Every manufactured and site-built fenestration product or fenestration system installed in construction subject to Title 24, Part 6 shall have attached to it a clearly visible temporary label or have an associated label certificate that lists the U-Factor, the solar heat gain coefficient (SHGC) of that product and the method used to derive those values and certifies compliance with air leakage requirements of the California Energy Code. The label shall not be removed until approved by the Building Inspector.

Energy Calculations (B1)

LOCATION	U-FACTOR / R-VALUES	
	OVERALL PER MECHANICAL	PROVIDED
ROOF	U-0.0411 / R-24.33	33
WALL	U-0.063 / R-15.87	20

NOTE:

1. REFER TO MECHANICAL DRAWINGS (M-4.1) FOR ADDITIONAL INFORMATION.

(B1) BUILDING DEPT. PLAN CHECK 24-0097
2024-03-06

(F1) FRESNO FIRE DEPT. PLAN CHECK
2024-03-07

LICENSED ARCHITECT
ZAHIDUL HOQUE KHAN
C-40030
REN 11-30-25
STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
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Sheet Content:

Building Sections

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

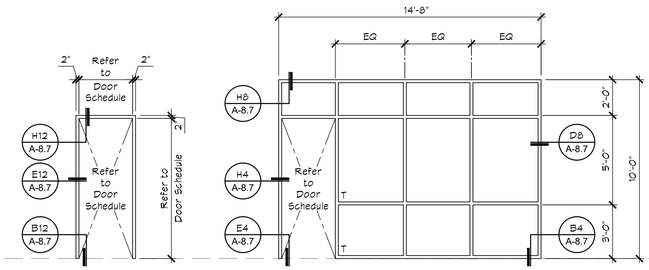
Sheet No.:

A-7.0

Sheet of

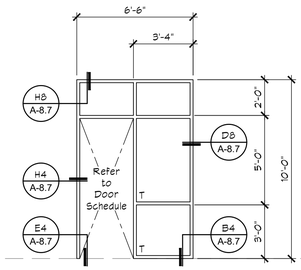
A1 Building Sections
Scale: 1/8"=1'-0"

Plot Date: 2024-07-15

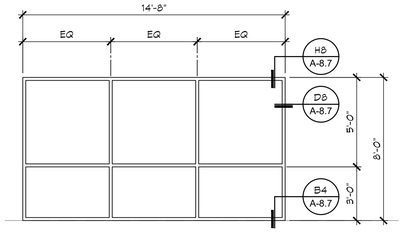


1

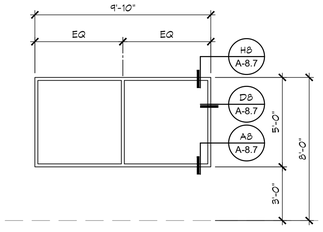
A Exterior Aluminum Storefront System
(Oldcastle Building Envelope
Series 3000 Thermal MultiPlane 2" x 4 1/2")



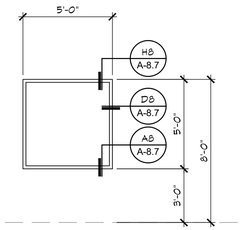
B Exterior Aluminum Storefront System
(Oldcastle Building Envelope
Series 3000 Thermal MultiPlane 2" x 4 1/2")



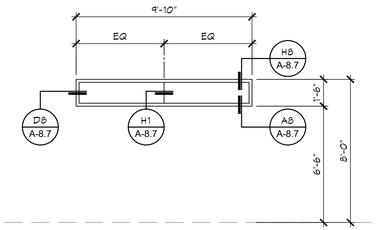
C Exterior Aluminum Fixed Window
(Oldcastle Building Envelope
Series 3000 Thermal MultiPlane 2" x 4 1/2")



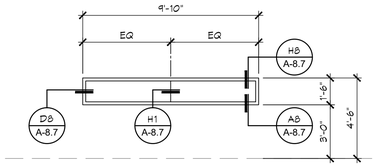
D Exterior Aluminum Fixed Window
(Oldcastle Building Envelope
Series 3000 Thermal MultiPlane 2" x 4 1/2")



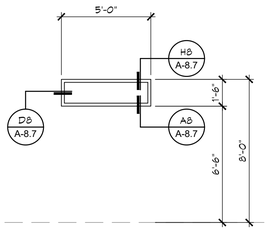
E Exterior Aluminum Fixed Window
(Oldcastle Building Envelope
Series 3000 Thermal MultiPlane 2" x 4 1/2")



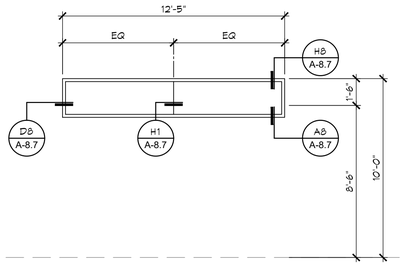
F Exterior Aluminum Fixed Window
(Oldcastle Building Envelope
Series 3000 Thermal MultiPlane 2" x 4 1/2")



G Exterior Aluminum Fixed Window
(Oldcastle Building Envelope
Series 3000 Thermal MultiPlane 2" x 4 1/2")

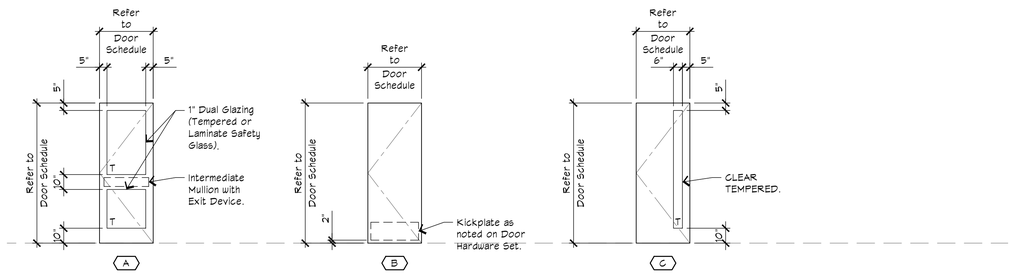


H Exterior Aluminum Fixed Window
(Oldcastle Building Envelope
Series 3000 Thermal MultiPlane 2" x 4 1/2")

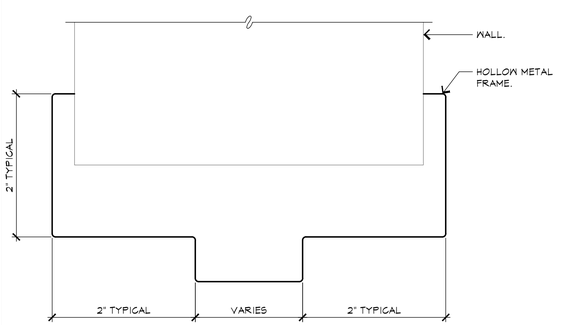


J Exterior Aluminum Fixed Window
(Oldcastle Building Envelope
Series 3000 Thermal MultiPlane 2" x 4 1/2")

G1 Framing Elevations
Scale: 1/4" = 1'-0"



D1 Door Types
Scale: 1/4" = 1'-0"



A1 Hollow Metal Frame Detail
Scale: 1'-0" = 1'-0"

Door Notes

1. Per CA Ref Stds Code 12-10-202, the lever of lever actuated latches or locks shall be curved with a return to within 1/2 inch of the door to prevent catching on the clothing of persons during egress.
2. Per CBC 11B-404.2.3, door openings shall provide a clear width of 32 inches minimum. Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees. Openings more than 24 inches deep shall provide a clear opening of 36 inches minimum. There shall be no projections into the required clear opening width lower than 34 inches above the finish floor or ground. Projections into the clear opening width between 34 inches and 80 inches above the finish floor or ground shall not exceed 4 inches.
3. Per CBC 11B-404.2.7, handles, pulls, latches, locks and other operable parts on doors and gates shall be 34 inches minimum and 44 inches maximum above the finish floor or ground. Where sliding doors are in the fully open position, operating hardware shall be exposed and usable from both sides.
4. Per CBC 11B-404.2.9, the force for pushing or pulling open a door or gate shall be as follows:
   - 4.1. Interior hinged doors and gates: 5 pounds maximum.
   - 4.2. Sliding or folding doors: 5 pounds maximum.
   - 4.3. Exterior hinged doors: 5 pounds maximum.
5. Per CBC 11B-404.2.10, swinging door and gate surfaces within 10 inches of the finish floor or ground measured vertically shall have a smooth surface on the push side extending the full width of the door or gate. Parts creating horizontal or vertical joints in these surfaces shall be within 1/16 inch of the same plane as the other and be free of sharp or abrasive edges. Cavities created by added kick plates shall be capped.
6. Hardware supplier shall coordinate keying requirements with the County. Provide additional keys at the County's request.
7. The unlatching of any door or leaf shall not require more than one operation. 2022 CFC, Section 1010.2.1.
8. Door handles, pulls, latches, locks and other operating devices on doors shall not require tight grasping, tight pinching or twisting of the wrist to operate. 2022 CFC, Section 1010.2.2.

F1

Energy Calculations

B1

LOCATION	OVERALL	
	U-FACTOR	SHGC FACTOR
FIXED WINDOWS	0.71	0.6
STOREFRONT	0.79	0.59

NOTE:
1. REFER TO MECHANICAL DRAWINGS (M-4.1) FOR ADDITIONAL INFORMATION.

Glass and Glazing Notes

1. Each pane shall bear the manufacture's mark designating the type and thickness of the glass or glazing material.
2. Glass shall be firmly supported on all four sides.
3. Glazing subject to human impact shall be "Tempered Glass".
4. Each pane of tempered glass shall be permanently identified by the manufacturer. The identification shall be of a type that, once applied, cannot be removed without being destroyed and shall be visible when the unit is glazed. Exception: tempered spandrel glass is permitted to be identified by the manufacturer with a removable paper designation.
5. The following locations shall require safety glazing:
   - 5.1. Glazing in all fixed and operable panels of swinging, sliding and bifold doors
   - 5.2. Glazing in an individual fixed or operable panel adjacent to a door where the nearest vertical edge of the glazing is within a 24-inch arc of either vertical edge of the door in a closed position and where the bottom exposed edge of the glazing is less than 60 inches above the walking surface.
6. Safety glazing shall be required in an individual fixed or operable panel that meets all of the following conditions:
   - 6.1. The exposed area of an individual pane is greater than 9 square feet.
   - 6.2. The bottom edge of the glazing is less than 18 inches above the floor.
   - 6.3. The top edge of the glazing is greater than 36 inches above the floor.
   - 6.4. One or more walking surface(s) are within 36 inches, measured horizontally and in a straight line, of the plane of the glazing.

Door Abbreviations

AL . . . . . Aluminum
F . . . . . Flush
FF . . . . . Factory Finish
FG . . . . . Full Glass
G . . . . . Half Glass
HC . . . . . Hollow Core Wood
HM . . . . . Hollow Metal
PLA . . . . Plastic Laminate
PM . . . . Pre-Finished Metal Door Frames with Adjustable Throat
PNT . . . . Painted
PR . . . . . Pair
L . . . . . Louvre
SC . . . . . Solid Core Wood
SF . . . . . Store Front
STN . . . . Stained
T . . . . . Tempered
V . . . . . Narrow Vision
WD . . . . Wood

Door Schedule

Door Number	Location	Door: Width	Height	Thickness	Type, Refer to Detail C1/A-8.0	Material	Finish	Hardware Set	Frame: Type, Refer to Detail F1/A-8.0	Material	Finish	U.L. Rated Fire Assembly	Notes
01	General Office	3'-0"	7'-10"	1-3/4"	A	AL	FF	1.0	A	AL	FF	-	
02	Office	3'-0"	7'-10"	1-3/4"	B	SC	PLA	2.0	1	HM	FF	-	
03	Storage	3'-0"	7'-10"	1-3/4"	B	SC	PLA	3.0	1	HM	FF	-	
04	Break Room	3'-0"	7'-10"	1-3/4"	C	SC	PLA	5.0	1	HM	FF	-	
05	Unisex	3'-0"	7'-10"	1-3/4"	B	SC	PLA	4.0	1	HM	FF	-	
06	Unisex	3'-0"	7'-10"	1-3/4"	B	SC	PLA	4.0	1	HM	FF	-	
07	Vocational/Training Room	3'-0"	7'-10"	1-3/4"	C	SC	PLA	2.0	1	HM	FF	-	
08	Vocational/Training Room	3'-0"	7'-10"	1-3/4"	A	AL	FF	1.0	B	AL	FF	-	

B1 BUILDING DEPT. PLAN CHECK 24-0097 2024-08-26
F1 FRESNO FIRE DEPT. PLAN CHECK 2024-08-07

ARCHITECT:
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Sheet Content:

Opening Schedules

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

A-8.0

Sheet of

Plot Date: 2024-07-15

Interior Finish Schedule

Room Number	Room Name	Floor Material/ Finish	Base Material / Finish	Walls Material / Finish	Wainscot Material / Finish	Wainscot Height	Ceiling Material / Finish	Notes
01	General Office	F-1	B-1	W-1 / W-2	-	-	C-1	Refer to Interior Elevations and Reflected Ceiling Plan.
02	Office	F-1	B-1	W-1	-	-	C-1 / C-2	Refer to Interior Elevations and Reflected Ceiling Plan.
03	Storage	F-1	B-1	W-1 / W-2	-	-	C-1 / C-2	Refer to Interior Elevations and Reflected Ceiling Plan.
04	Break Room	F-1	B-1	W-1 / W-2	-	-	C-1 / C-2	Refer to Interior Elevations and Reflected Ceiling Plan.
05	Hallway	F-1	B-1	W-1 / W-2	-	-	C-3	Refer to Interior Elevations and Reflected Ceiling Plan.
06	Unisex	F-3	B-2	W-3	W-4	6'-6"	C-3	Refer to Interior Elevations and Reflected Ceiling Plan.
07	Unisex	F-3	B-2	W-3	W-4	6'-6"	C-3	Refer to Interior Elevations and Reflected Ceiling Plan.
08	Vocational Training Room	F-1	B-1	W-1	-	-	C-1 / C-2	Refer to Interior Elevations and Reflected Ceiling Plan.

Interior Finish Legend

	Code	Description	Remarks
FLOOR	F-1	Polished Concrete Finish.	Surface Class: B-Fine Aggregate, Gloss Level: 2-Medium Gloss, Color Dye: To Be Determined, Refer to Specification Section 033543
	F-2	Polished Concrete with Clear Satin Concrete Sealer.	Manufacturer: GHOST SHIELD, Model: SILOXA-TEK 8510 or Approved Equal. Grade: Industrial, Color: NO Color,
	F-3	1"X6" Ceramic Mosaic Floor Tile with Colored Epoxy Grout.	Set over Full Mortar Bed. Recess Slab as indicated. DELTILE, COLOR WHEEL MOSAIC, MATTE SUEDE GRAY 782 or Approved Equal. Grout Color Dye: To Be Determined. See General Finish Notes #3
	F-4-DA	Linoleum Modular Flooring	FORBO, MARMOLEUM STRIATO TEXTURA or Approved Equal. Thickness: 2.5 MM, Size: 79"Wx105"L,
BASE	B-1	4" Coved Rubber Topset Base U.N.O.	JOHNSONITE Resilient base, Type: BASEWORKS or Approved Equal. Color: To Be Determined, Refer to Specifications.
	B-2	6"x6" Integral Coved Ceramic Tile.	Integral and Flush with Ceramic Tile Floor and Wainscot, provide colored grout. DELTILE, COLOR WHEEL MOSAIC, MATTE SUEDE GRAY 782, Shape Number: 53619TN, or Approved Equal. Grout Color Dye: To Be Determined. See General Finish Notes #3
	B-3	4" Coved Rubber Topset Base U.N.O.	JOHNSONITE Resilient base, Type: BASEWORKS or Approved Equal. Color: To Be Determined, Refer to Specifications.
WALL	W-1	Latex Paint.	Over Gypsum Board. Level 5 Finish, U.N.O. SHERWIN-WILLIAMS or Approved Equal. Paint Color: To Be Determined
	W-2	Latex Paint at Accent Walls and Ceilings.	Over Gypsum Board. Level 5 Finish, U.N.O. SHERWIN-WILLIAMS or Approved Equal. Paint Color: To Be Determined
	W-3	Enamel Semi-Gloss Paint	Over Gypsum Board (Moisture Resistant at Following Locations:). 1. At Drinking Fountain Alcove, (3) Sides. 2. At (2) Toilets, All Sides Above Tiles Wainscoting. 3. South Wall of Storage Room and Break Room. Refer to Interior Elevations. Level 5 Finish, U.N.O. SHERWIN-WILLIAMS or Approved Equal. Paint Color: To Be Determined
	W-4	1" x 6" Ceramic Mosaic Wall Tile and Tile Trim with colored Epoxy grout.	Thinset over Cement Board (Full Mortar Bed at Contractors option), Refer to Specifications. DELTILE, COLOR WHEEL MOSAIC (Tile Trim: Jolly 1/2x12), MATTE SUEDE GRAY 782 or Approved Equal. Grout Color Dye: To Be Determined. See General Finish Notes #3
	W-5-DA	Decorative Protection Panel Wainscot.	FORMICA HARDSTOP or Approved Equal Butt Joint Seams with Water Proof Sealant. Color: To Be Determined, .
CEILING	C-1	2'-0" X 4'-0" SUSPENDED CEILING SYSTEM.	In 2x4 Suspended Ceiling Grid. ARMSTRONG SECOND LOOK - SCORED ACOUSTICAL PANELS (1762) or Approved Equal.
	C-2	Paint with W-1 over 5/8" Gypsum Board Ceiling over Ceiling Framing.	Level 5 Finish, U.N.O.
	C-3	Paint with W-2 over 5/8" Gypsum Board Ceiling over Ceiling Framing.	Level 5 Finish, U.N.O.
MISC.			

Finish Abbreviations

ACT . . . . Acoustical ceiling tile
CONC . . Concrete
CPT . . . . Carpet
CPB . . . . Carpet base
CT . . . . Ceramic tile
CTB . . . Ceramic tile base
FF . . . . . Factory finish
FRP . . . . Fiberglass reinforced panel
GBC . . . Gypsum board ceiling
GBW . . . Gypsum board wall
ICB . . . . Integral cove base
PLA . . . . Plastic laminate
PNT . . . . Paint
PT . . . . . Porcelain tile
PTB . . . . Porcelain tile base
RB . . . . . Rubber base, thermoset
SS . . . . . Solid surface
STN . . . . Stain
SV . . . . . Sheet vinyl
VCT . . . . Vinyl composition tile
VWC . . . Vinyl wall covering
WD . . . . Wood

General Finish Notes

1. Refer to Reflected Ceiling Plan, Sheet A-3.0 for ceiling heights.
2. Walls shall be painted from floor to ceiling and corner to corner.
3. All Floor and Wall Tile Grout Lines Shall Match.

B1 BUILDING DEPT. PLAN CHECK 24-0097
2024-09-06

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
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E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-15
Project no.: T90204
File name: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings\T90204_Schedules

Sheet Content:

Finish Schedules

Fresno County Department of
Public Works and Planning
Capital Projects

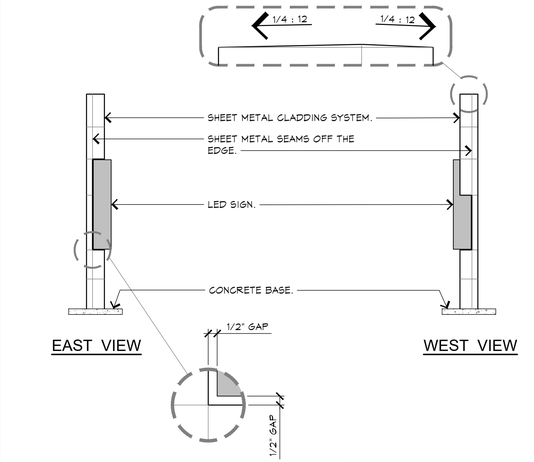
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

A-8.1

Sheet of

Plot Date: 2024-07-15



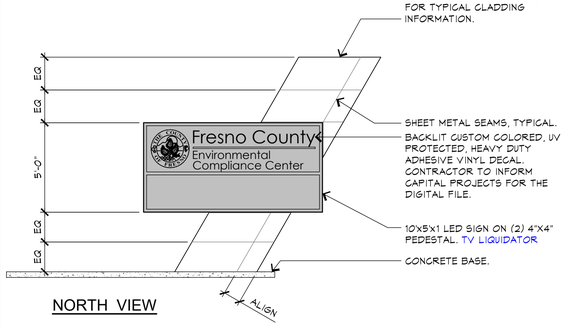
EPOXY COATING NOTE:
FROM THE CONCRETE BASE TO +9'-0" HEIGHT, APPLY EPOXY PRIMER (3M SCOTCHKOTE MG 145) AND COATING (3M SCOTCHKOTE 323) TO THEREIN PORTION OF TUBE STEEL FRAMINGS, ALL FACES OF METAL TRACKS, STUDS, BLOCKINGS, METAL CLEATS, EDGE SUPPORTS, FASTENERS, AND INNER SIDES OF ALL POWDER-COATED METAL CLADDINGS.

THOROUGHLY DEGREASE ALL METAL SURFACES BEFORE APPLYING PRIMER.

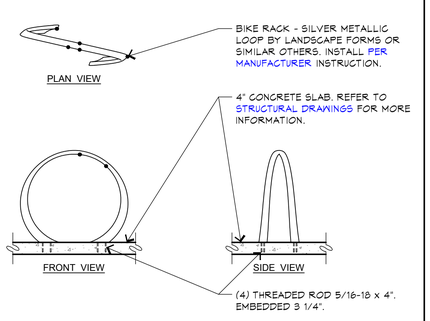
REFER TO PRODUCT SPECIFICATION BEFORE APPLICATION.

20 GA. PRE-FINISHED POWDER COATED SHEET METAL CLADDING MOUNTED TO TUBE STEEL AND LIGHT GAUGE METAL FRAMING W/ 16 GA. STEEL CLEAT AND EDGE SUPPORTS AT 12" CENTERS FASTENED WITH TORX HEAD TAMPER PROOF SELF DRILLING SCREWS. REFER TO STRUCTURAL DRAWINGS. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF THE METAL CLADDING SYSTEM. THE CLADDING SYSTEM SHALL BE WATER TIGHT. THERE SHALL BE NO EXPOSED FASTENERS ON THE CLADDING.

REFER TO DETAIL J1/A-8.10 FOR TYPICAL CLADDING INFORMATION.

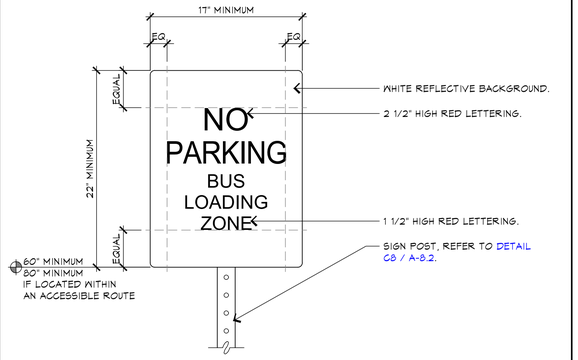


C1 Monument Sign Pedestal
A-8.2 | Scale: 1/4" = 1'-0"

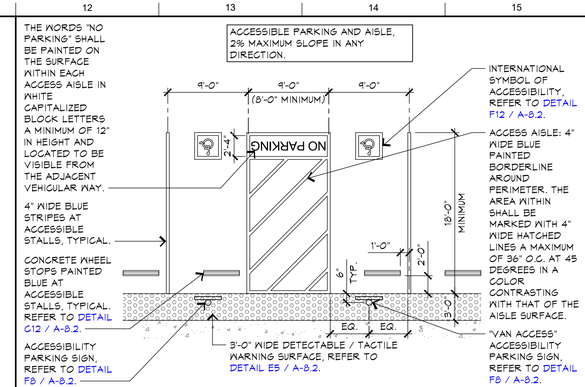


NOTES:
EMBEDDED MOUNT OPTION: CHEMICAL ANCHORING ADHESIVE (HILTI HIT RE 500 OR EQUIVALENT.

J5 Bike Rack - Loop
A-8.2 | Scale: 1/2" = 1'-0"



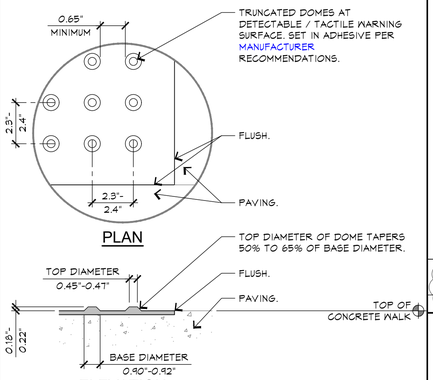
J8 Bus Loading Signage
A-8.2 | SCALE: 1 1/2"=1'-0"



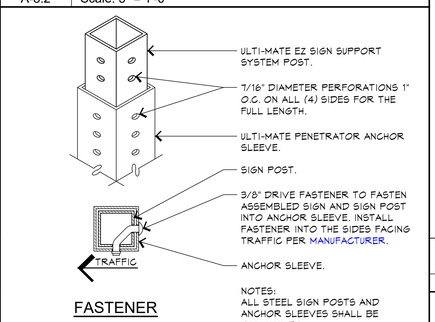
J12 Accessible Parking Stall
A-8.2 | Scale: 1/8" = 1'-0"

B1

NOTES:
DETECTABLE WARNING SURFACES SHALL CONTRAST VISUALLY WITH ADJACENT WALKING SURFACES, LIGHT-ON-DARK OR DARK-ON-LIGHT. COLOR SHALL BE YELLOW AND APPROXIMATE FG33538 OF FEDERAL STANDARD 595C.



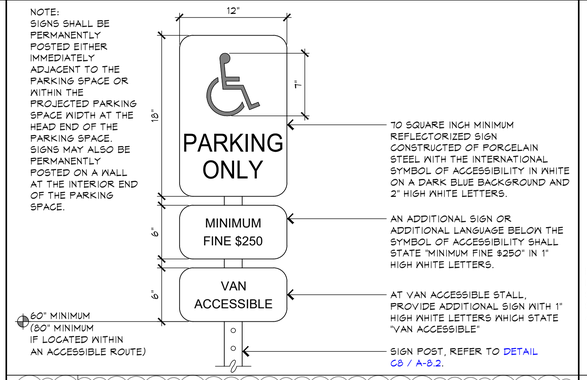
E5 Truncated Domes
A-8.2 | Scale: 3" = 1'-0"



NOTES:
ALL STEEL SIGN POSTS AND ANCHOR SLEEVES SHALL BE GALVANIZED.

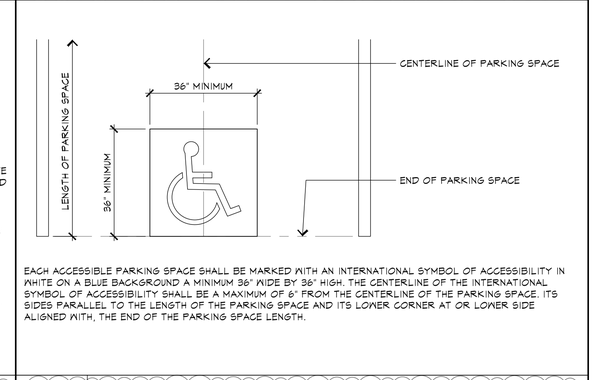
B5 Breakaway Anchor Sleeve
A-8.2 | SCALE: 3" = 1'-0"

NOTE:
SIGNS SHALL BE PERMANENTLY POSTED EITHER IMMEDIATELY ADJACENT TO THE PARKING SPACE OR WITHIN THE PROJECTED PARKING SPACE WIDTH AT THE HEAD END OF THE PARKING SPACE. SIGNS MAY ALSO BE PERMANENTLY POSTED ON A WALL AT THE INTERIOR END OF THE PARKING SPACE.



F8 Accessible Parking Sign
A-8.2 | SCALE: 1 1/2"=1'-0"

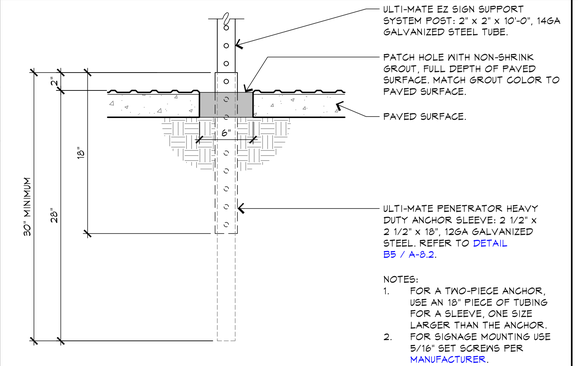
B1



EACH ACCESSIBLE PARKING SPACE SHALL BE MARKED WITH AN INTERNATIONAL SYMBOL OF ACCESSIBILITY IN WHITE ON A BLUE BACKGROUND A MINIMUM 36" WIDE BY 36" HIGH. THE CENTERLINE OF THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL BE A MAXIMUM OF 6" FROM THE CENTERLINE OF THE PARKING SPACE. ITS SIDES PARALLEL TO THE LENGTH OF THE PARKING SPACE AND ITS LOWER CORNER AT OR LOWER SIDE ALIGNED WITH, THE END OF THE PARKING SPACE LENGTH.

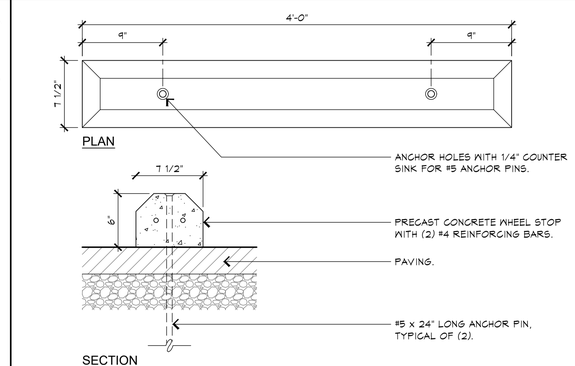
F12 Accessible Parking Symbol
A-8.2 | SCALE: 1/2"=1'-0"

B1



NOTES:
1. FOR A TWO-PIECE ANCHOR, USE AN 18" PIECE OF TUBING FOR A SLEEVE, ONE SIZE LARGER THAN THE ANCHOR.
2. FOR SIGNAGE MOUNTING USE 5/16" SET SCREWS PER MANUFACTURER.

C8 Breakaway Post at Domes
A-8.2 | SCALE: 1 1/2" = 1'-0"



C12 Concrete Wheel Stop
A-8.2 | SCALE: 1 1/2"=1'-0"

B1

B1 BUILDING DEPT. PLAN CHECK 24-0097
2024-09-06

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C 40030 REN 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-15
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File name: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings\T90204_Details

Sheet Content:
Site Details

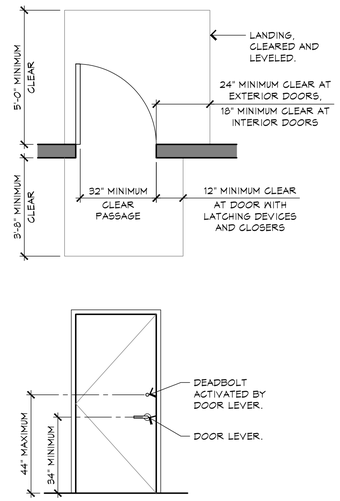
Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
A-8.2

Sheet of

Plot Date: 2024-07-15



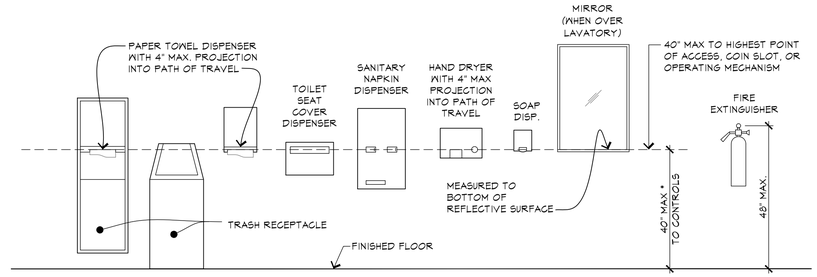
NOTES:

1. DOORS SHALL BE OPERABLE FROM THE INSIDE WITH A SINGLE EFFORT BY A LEVER HANDLE, PUSH / PULL BAR, OR EXIT DEVICE, AND WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT.
2. DOORS SHALL BE ABLE TO OPEN 90 DEGREES MINIMUM.
3. DOORS SHALL NOT BE LESS THAN 3'-0" WIDE x 6'-8" HIGH DOOR LEAF WIDTH SHALL NOT EXCEED 4'-0".
4. DOOR LANDINGS SHALL NOT BE MORE THAN 1/2" LOWER THAN THE TOP OF THE THRESHOLD OF THE DOORWAY. A CHANGE IN LEVEL BETWEEN 1/4" AND 1/2" SHALL BE BEVELED WITH A SLOPE NOT TO EXCEED 1:2 CHANGE IN LEVEL.
5. SLOPE GREATER THAN 1/2" SHALL BE ACCOMPLISHED BY MEANS OF A RAMP. THE BOTTOM 10" OF DOORS SHALL HAVE A SMOOTH UNOBSTRUCTED SURFACE.
6. THE MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 5 LBS. FOR EXTERIOR DOORS AND 5 LBS. FOR INTERIOR DOORS. THE FORCE SHALL BE THE PUSH / PULL EFFORT APPLIED AT RIGHT ANGLES TO HINGED DOORS.

F7 Accessible Door Heights

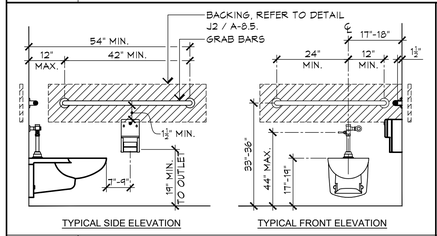
A-8.3 | Scale: 3/8" = 1'-0"

- 35" MAX. FOR MIRRORS WHEN INSTALLED AT LOCATIONS OTHER THAN ABOVE COUNTERTOPS AND LAVATORIES
- MOUNTING HEIGHTS INDICATED ABOVE ARE MAX. HEIGHTS ALLOWED BY CODE. VERIFY W/ OWNER FOR PREFERRED MOUNTING HEIGHTS WITHIN LIMITS ALLOWED.



J10 Miscellaneous Accessories

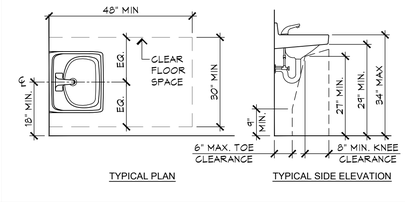
A-8.3 | Scale: 1/2"=1'-0"



TYPICAL SIDE ELEVATION | TYPICAL FRONT ELEVATION

G10 Accessible Toilet

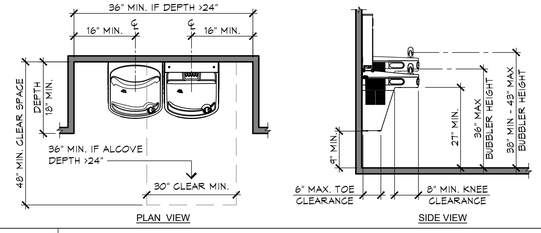
A-8.3 | Scale: 1/2" = 1'-0"



TYPICAL PLAN | TYPICAL SIDE ELEVATION

G13 Accessible Sink

A-8.3 | Scale: 1/2" = 1'-0"



PLAN VIEW | SIDE VIEW

E10 Accessible Drinking Fountain

A-8.3 | Scale: 1/2"=1'-0"

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
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Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
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Sheet Content:

Accessible Details

Fresno County Department of Public Works and Planning
Capital Projects

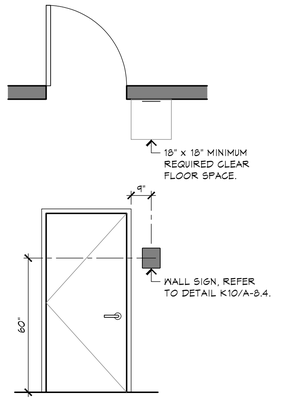
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

A-8.3

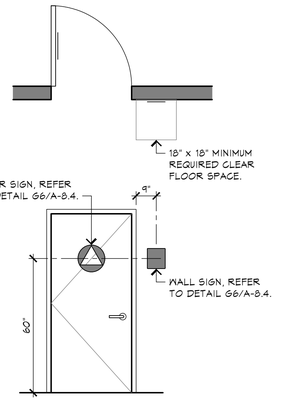
Sheet of

Plot Date: 2024-07-15



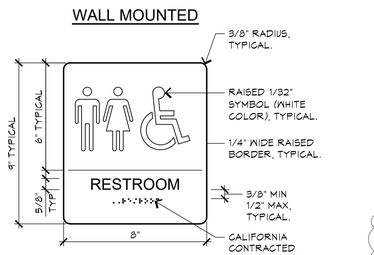
NOTES:
1. SIGNAGE SHALL BE MOUNTED 9" MINIMUM FROM LATCH SIDE TO CENTERLINE OF WALL SIGN, OR 4" MINIMUM FROM LATCH SIDE TO EDGE OF WALL SIGN. SIGNAGE SHALL BE LOCATED 48" MINIMUM ABOVE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE LOWEST LINE OF BRAILLE AND 60" MAXIMUM ABOVE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE HIGHEST RAISED CHARACTERS.
2. AT WALL SIGNAGE, PROVIDE 18" x 18" MINIMUM REQUIRED CLEAR FLOOR SPACE CENTERED ON THE TACTILE CHARACTERS BEYOND THE ARC OF ANY DOOR SWING BETWEEN THE CLOSED POSITION AT 45 DEGREE OPEN POSITION. SIGNAGE SHALL BE MOUNTED TO ALLOW FOR A PERSON TO APPROACH WITHIN 3" OF THE SIGNAGE WITHOUT ENCOUNTERING PROTRUDING OBJECTS OR STANDING WITHIN THE SWING OF A DOOR.
3. PERMANENT ROOM IDENTIFICATION SIGNAGE SHALL BE LOCATED OUTSIDE OF THE ROOM BEING IDENTIFIED ADJACENT TO THE LATCH SIDE OF THE ENTRANCE DOOR TO THE ROOM. AT DOORS WITH NO CLEARANCE ON STRIKE SIDE; PERMANENT IDENTIFICATION SIGN SHALL BE MOUNTED ON THE NEAREST ADJACENT WALL, PREFERABLY ON THE RIGHT.
4. EXIT SIGNAGE SHALL BE LOCATED WITHIN THE ROOM / SPACE BEING EXITED ADJACENT TO THE DOOR AS IT IS APPROACHED TO EXIT FROM THE ROOM / SPACE.

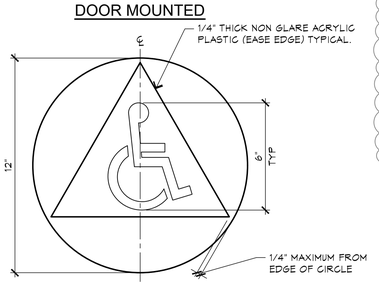
G3 Typical Sign Placement
A-8.4 — Scale: 3/8" = 1'-0"



NOTES:
1. SIGNAGE SHALL BE MOUNTED 9" MINIMUM FROM LATCH SIDE TO CENTERLINE OF WALL SIGN, OR 4" MINIMUM FROM LATCH SIDE TO EDGE OF WALL SIGN. SIGNAGE SHALL BE LOCATED 48" MINIMUM ABOVE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE LOWEST LINE OF BRAILLE AND 60" MAXIMUM ABOVE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE HIGHEST RAISED CHARACTERS.
2. AT WALL SIGNAGE, PROVIDE 18" x 18" MINIMUM REQUIRED CLEAR FLOOR SPACE CENTERED ON THE TACTILE CHARACTERS BEYOND THE ARC OF ANY DOOR SWING BETWEEN THE CLOSED POSITION AT 45 DEGREE OPEN POSITION. SIGNAGE SHALL BE MOUNTED TO ALLOW FOR A PERSON TO APPROACH WITHIN 3" OF THE SIGNAGE WITHOUT ENCOUNTERING PROTRUDING OBJECTS OR STANDING WITHIN THE SWING OF A DOOR.
3. PERMANENT ROOM IDENTIFICATION SIGNAGE SHALL BE LOCATED OUTSIDE OF THE ROOM BEING IDENTIFIED ADJACENT TO THE LATCH SIDE OF THE ENTRANCE DOOR TO THE ROOM. AT DOORS WITH NO CLEARANCE ON STRIKE SIDE; PERMANENT IDENTIFICATION SIGN SHALL BE MOUNTED ON THE NEAREST ADJACENT WALL, PREFERABLY ON THE RIGHT.

B3 Restroom Sign Placement
A-8.4 — Scale: 3/8" = 1'-0"



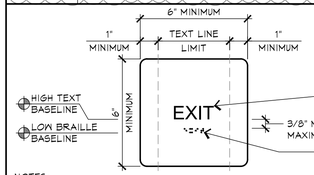


NOTES:
1. ALL PICTOGRAMS AND TEXT TO BE CONTRASTING COLOR, RAISED 1/32". CONTRACTOR SHALL SUBMIT COLOR CHARTS TO ARCHITECT FOR SELECTION.
2. SIGN MATERIAL: 1/4" ACRYLIC FEATURES.
3. BACKGROUND COLOR AND CONTRASTING COLOR FOR SIGNS SHALL BE SIGNIFICANTLY DIFFERENT FROM THE COLOR OF THE BACKGROUND.
4. FOR MOUNTING INFORMATION, REFER TO DETAIL B3 / A-8.4.
5. FOR MORE INFORMATION, REFER TO THE ACCESSIBLE SIGNAGE NOTES ON SHEET A-8.4.

G6 All Gender Restroom Signage
A-8.4 — Scale: 3" = 1'-0"

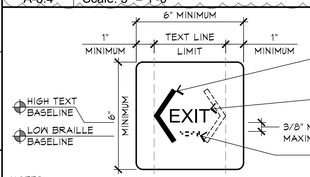
NOTES:
1. TEXT TO BE CONTRASTING COLOR, RAISED 1/32". CONTRACTOR SHALL SUBMIT COLOR CHARTS TO ARCHITECT FOR SELECTION.
2. SIGN MATERIAL: 1/4" ACRYLIC FEATURES.
3. SIGN LOCATION AT PRIMARY ENTRANCE ADJACENT TO DOOR AT STRIKE SIDE. INSTALL I.S.A. ENTRY SIGN ON THE OPPOSITE SIDE (EXTERIOR) OF THE GLAZING WHEN OCCURS.
4. FOR MOUNTING INFORMATION, REFER TO DETAIL G3 / A-8.4.

E6 Door Unlocked Signage
A-8.4 — Scale: 3" = 1'-0"



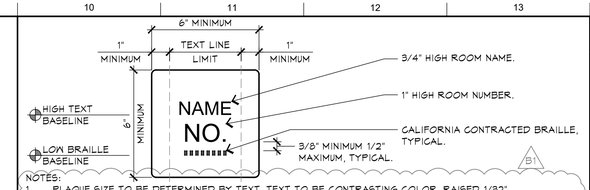
NOTES:
1. TEXT TO BE CONTRASTING COLOR, RAISED 1/32". CONTRACTOR SHALL SUBMIT COLOR CHARTS TO ARCHITECT FOR SELECTION.
2. FOR MOUNTING INFORMATION, REFER TO DETAIL G3 / A-8.4.
3. FOR MORE INFORMATION, REFER TO THE TACTILE EXIT SIGNAGE NOTES ON SHEET A-8.4.

C6 Exit Signage
A-8.4 — Scale: 3" = 1'-0"



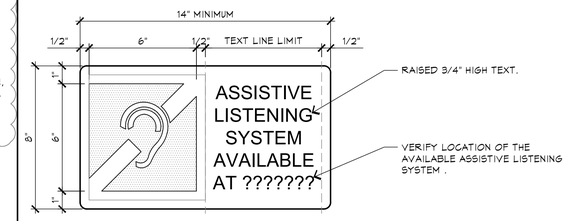
NOTES:
1. ALL PICTOGRAMS AND TEXT TO BE CONTRASTING COLOR, RAISED 1/32". CONTRACTOR SHALL SUBMIT COLOR CHARTS TO ARCHITECT FOR SELECTION.
2. FOR MOUNTING INFORMATION, REFER TO DETAIL G3 / A-8.4.
3. FOR MORE INFORMATION, REFER TO THE TACTILE EXIT SIGNAGE NOTES ON SHEET A-8.4.

A6 Directional Exit Route Signage
A-8.4 — Scale: 3" = 1'-0"



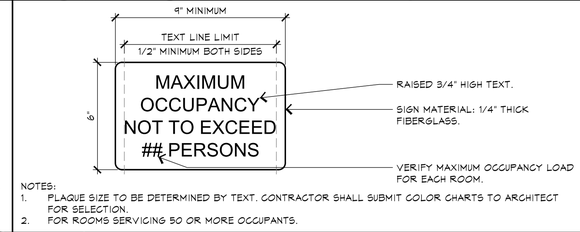
NOTES:
1. PLAQUE SIZE TO BE DETERMINED BY TEXT. TEXT TO BE CONTRASTING COLOR, RAISED 1/32". CONTRACTOR SHALL SUBMIT COLOR CHARTS TO ARCHITECT FOR SELECTION.
2. VERIFY ROOM NAME AND NUMBER WITH OWNER.
3. FOR MOUNTING INFORMATION, REFER TO DETAIL G3 / A-8.4.
4. FOR MORE INFORMATION, REFER TO SPECIFICATIONS.

K10 Typical Room Signage
A-8.4 — Scale: 3" = 1'-0"



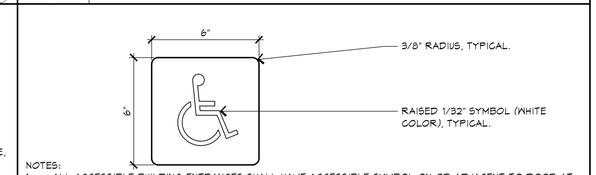
NOTES:
1. ALL PICTOGRAMS AND TEXT TO BE CONTRASTING COLOR, RAISED 1/32". CONTRACTOR SHALL SUBMIT COLOR CHARTS TO ARCHITECT FOR SELECTION.
2. SIGN MATERIAL: 1/4" ACRYLIC FEATURES.
3. BACKGROUND COLOR AND CONTRASTING COLOR FOR SIGNS SHALL BE SIGNIFICANTLY DIFFERENT FROM THE COLOR OF THE BACKGROUND.
4. FOR MOUNTING INFORMATION, REFER TO DETAIL G3 / A-8.4.

G10 ALS Symbol Signage
A-8.4 — Scale: 3" = 1'-0"



NOTES:
1. PLAQUE SIZE TO BE DETERMINED BY TEXT. CONTRACTOR SHALL SUBMIT COLOR CHARTS TO ARCHITECT FOR SELECTION.
2. FOR ROOMS SERVICING 50 OR MORE OCCUPANTS.

E10 Occupancy Load Signage
A-8.4 — Scale: 3" = 1'-0"



NOTES:
1. ALL ACCESSIBLE BUILDING ENTRANCES SHALL HAVE ACCESSIBLE SYMBOL ON OR ADJACENT TO DOOR AT STRIKE SIDE, UNLESS NOTED OTHERWISE.
2. ALL PICTOGRAMS TO BE CONTRASTING COLOR, RAISED 1/32". CONTRACTOR SHALL SUBMIT COLOR CHARTS TO ARCHITECT FOR SELECTION.
3. FOR MOUNTING INFORMATION, REFER TO DETAIL G3 / A-8.4.

C10 I.S.A. Entry Signage
A-8.4 — Scale: 3" = 1'-0"

Accessible Signage

1. General. (CBC 11B-703.1)
Where both visual and tactile characters are required, either one sign with both visual and tactile characters, or two separate signs, one with visual, and one with tactile characters, shall be provided.
2. Raised Characters. (CBC 11B-703.2)
2.1. Raised characters shall be 1/32" min above their background.
2.2. Characters shall be uppercase.
2.3. Characters shall be sans serif. Characters shall not be italic, oblique, script, highly decorative, or of other unusual forms.
2.4. Characters shall be selected from fonts where the width of the uppercase letter "O" is 60% min and 110% max of the height of the uppercase letter "I".
2.5. Character height measured vertically from the baseline of the character shall be 5/8" min and 2" max based on the height of the uppercase letter "I".
2.6. Stroke thickness of the uppercase letter "I" shall be 15% max of the height of the character.
2.7. Character spacing shall be measured between the two closest points of adjacent raised characters within a message, excluding word spaces. Where characters have rectangular cross sections, spacing between individual raised characters shall be 1/8" min and 4 times the raised character stroke width max. Where characters have other cross sections, spacing between individual raised characters shall be 1/16" min and 4 times the raised character stroke width max at the base of the cross sections, and 1/8" min and 4 times the raised character stroke width max at the top of the cross sections. Characters shall be separated from raised borders and decorative elements 3/8" min.
2.8. Spacing between the baselines of separate lines of raised characters within a message shall be 135% min and 170% max of the raised character height.
2.9. Text shall be in a horizontal format.
3. Braille. (CBC 11B-703.3)
Braille shall be contracted (Grade 2) and shall comply with the following:
3.1. Braille dots shall have a domed or rounded shape and shall comply with table 11B-703.3.1. The indication of an uppercase letter or letters shall only be used before the first word of sentences, proper nouns and names, individual letters of the alphabet, initials, and acronyms.
3.2. Braille shall be positioned below the corresponding text in a horizontal format, flush left or centered. If text is multi-lined, braille shall be placed below the entire text. Braille shall be separated 3/8" min and 1/2" max from any other tactile characters and 3/8" min from raised borders and decorative elements.
4. Installation Height and Location. (CBC 11B-703.4)
Signs with tactile characters shall comply with the following:
4.1. Tactile characters on signs shall be located 48" min above the finish floor or ground surface, measured from the baseline of the lowest braille cells and 60" max above the finish floor or ground surface, measured from the baseline of the highest line of raised characters.
4.2. Where a tactile sign is provided at a door, the sign shall be located alongside the door at the latch side. Where a tactile sign is provided at double doors with one active leaf, the sign shall be located on the inactive leaf. Where a tactile sign is provided at double doors with two active leafs, the sign shall be located to the right of the right hand door. Where there is no wall space at the latch side of a single door or at the right side of double doors, signs shall be located on the nearest adjacent wall. Signs containing tactile characters shall be located so that a clear floor space of 18" min by 18" min, centered on the tactile characters, is provided beyond the arc of any door swing between the closed position and 45 degree open position. Where provided, signs identifying permanent rooms and spaces shall be located at the entrance to, and outside of the room or space. Where provided, signs identifying exits shall be located at the exit door when approached in the direction of egress travel.

Tactile Exit Signage

1. Provide Tactile Exit Signs at required areas and exits per CBC Section 1013.4.
2. Each grade level Exterior Exit Door shall be identified by a Tactile Exit Sign with the word "EXIT".
3. Each Exit Door that leads directly to a grade level Exterior Exit by a means of a stairway or ramp shall be identified by a Tactile Exit Sign with the following words as appropriate:
3.1. "EXIT STAIR DOWN"
3.2. "EXIT RAMP DOWN"
3.3. "EXIT STAIR UP"
3.4. "EXIT RAMP UP"
4. Each Exit Door that leads directly to a grade level Exterior Exit by means of an exit enclosure or an exit passageway shall be identified by a Tactile Exit Sign with the words "EXIT ROUTE".
5. Each Exit Access Door from an interior room or area to a corridor or hallway that is required to have a Visual Exit Sign, shall be identified by a Tactile Exit Sign with the words: "EXIT ROUTE".

B1 BUILDING DEPT. PLAN CHECK 24-0097
2024-03-06

LICENSED ARCHITECT — ZAHIDUL HOQUE KHAN — C 40030 — REN 11-30-25 — STATE OF CALIFORNIA

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Zahidul Hoque Khan, Architect
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Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-15
Project no.: T90204
File name: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings\T90204_Details

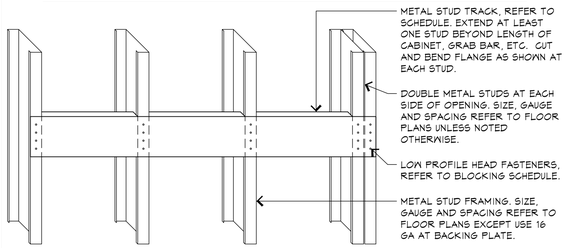
Sheet Content:
Signage Details

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

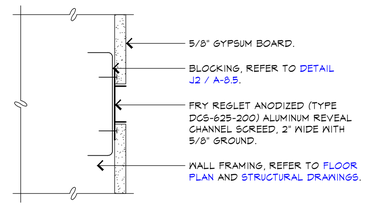
Sheet No.:
A-8.4
Sheet of

Plot Date: 2024-07-15

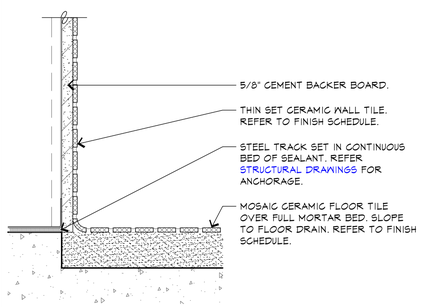
BACKING SCHEDULE		
ITEM	TRACK	SCREW
CASEWORK, CABINETRY, TOILET ACCESSORIES	600T125-54 (16 GAUGE)	(4) #10
GRAB BAR	600T125-68 (14 GAUGE)	(4) #10
MISC. FRAMING	ONE SIZE LARGER	(4) #10



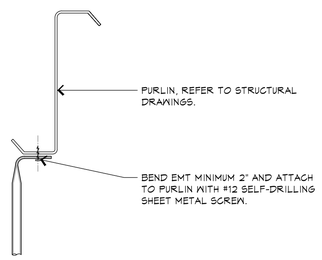
J2 A-8.5 — Metal Track Blocking
Scale: 1 1/2" = 1'-0"



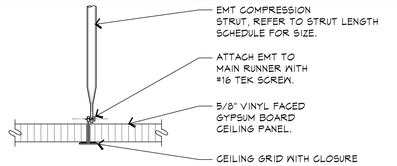
F6 A-8.5 — Wall Reveal Detail
Scale: 3" = 1'-0"



C6 A-8.5 — Ceramic Tile / Transition
Scale: 3" = 1'-0"



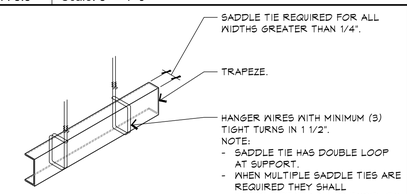
J9 A-8.5 — Compression Strut Connection at Purlin
Scale: 3" = 1'-0"



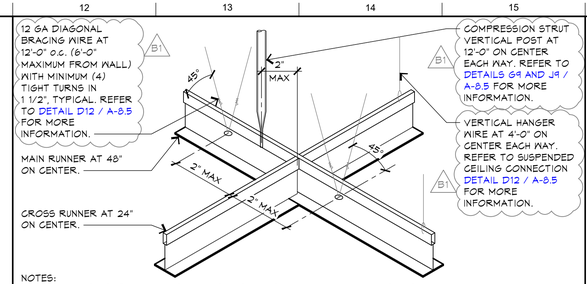
G9 A-8.5 — Compression Strut Connection
Scale: 3" = 1'-0"

Strut Length Schedule	
LENGTH (L/R = 200 MAXIMUM)	STRUT SIZE
0'-0" to 2'-11"	1/2" RIGID GALVANIZED STEEL
2'-11" to 4'-5"	3/4" RIGID GALVANIZED STEEL
4'-5" to 5'-10"	1" RIGID GALVANIZED STEEL
5'-11" to 7'-4"	1 1/4" RIGID GALVANIZED STEEL
7'-4" to 8'-10"	1 1/2" RIGID GALVANIZED STEEL
< 5'-10"	USE METAL STUDS HAVING STEEL SECTION WITH L/R RATIO OF 200 MAXIMUM, PER INTERPRETATION OF REGULATIONS IR 25-2.

E9 A-8.5 — Strut Length Schedule
Scale: 3" = 1'-0"



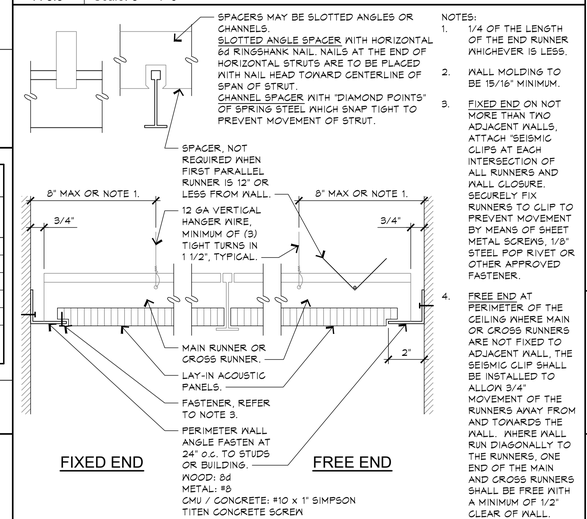
C9 A-8.5 — Saddle Tie
Scale: 3" = 1'-0"



NOTES:
1. PROVIDE VERTICAL HANGERS WIRE 8" FROM EACH WALL OR DISCONTINUITY.
2. ANCHOR SUSPENDED CEILING SYSTEM FROM RAFTERS (NOT FURRING ELEMENTS), TYPICAL.
3. ALL LIGHTING FIXTURE SUSPENSION WIRES SHALL BE FURNISHED AND CONNECTED TO THE STRUCTURE ABOVE BY CEILING CONTRACTOR.
4. DO NOT INSERT SCREW EYE PARALLEL TO LAMINATIONS OR CLOSER THAN 6" TO TRUSS JOIST PIN, TYPICAL.
5. LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING.

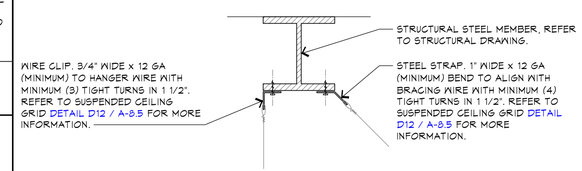
Ceiling Grid Classification - Heavy Duty	
MANUFACTURERS	REFER TO SPECIFICATIONS AND DRAWINGS.
MAIN RUNNERS	NUMBER 200: 1 1/2" x 15/16".
CROSS RUNNERS	NUMBER 1210: 1 1/2" x 15/16".
SUB TEES	SAME AS CROSS RUNNERS.
WALL MOLDINGS	NUMBER 1420: 3/4" x 15/16", 0.020" THICKNESS METAL WALL ANGLES.
SEISMIC CLIP	NUMBER 1496 PERIMETER SEISMIC CLIP (ICC REPORT NO. ESR-2631).
FINISH	BAKED VINYL ENAMEL FINISH COATS, FACTORY APPLIED TO CLEANED AND BONDERIZED MEMBERS, MATTE FINISH TYPICAL. COLOR: WHITE FOR ALL MEMBERS.

H12 A-8.5 — Suspended Ceiling Grid
Scale: 3" = 1'-0"



NOTES:
1. 1/4 OF THE LENGTH OF THE END RUNNER WHICHEVER IS LESS.
2. WALL MOLDING TO BE 15/16" MINIMUM.
3. FIXED END ON NOT MORE THAN TWO ADJACENT WALLS, ATTACH "SEISMIC CLIPS AT EACH INTERSECTION OF ALL RUNNERS AND WALL CLOSURE. SECURELY FIX RUNNERS TO CLIP TO PREVENT MOVEMENT BY MEANS OF SHEET METAL SCREWS, 1/8" STEEL POP RIVET OR OTHER APPROVED FASTENER.
4. FREE END AT PERIMETER OF THE CEILING WHERE MAIN OR CROSS RUNNERS ARE NOT FIXED TO ADJACENT WALL, THE SEISMIC CLIP SHALL BE INSTALLED TO ALLOW 3/4" MOVEMENT OF THE RUNNERS AWAY FROM AND TOWARDS THE WALL. WHERE WALL RUN DIAGONALLY TO THE RUNNERS, ONE END OF THE MAIN AND CROSS RUNNERS SHALL BE FREE WITH A MINIMUM OF 1/2" CLEAR OF WALL.

D12 A-8.5 — Suspended Ceiling Connection
Scale: 3" = 1'-0"



B12 A-8.5 — Wire Connection at Steel Beams
Scale: 3" = 1'-0"

B1 BUILDING DEPT. PLAN CHECK 24-0097
2024-09-06

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C 40030 REN 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
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Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
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Project no.: T90204
File name: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings\T90204_Details

Sheet Content:
Interior Details

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
A-8.5

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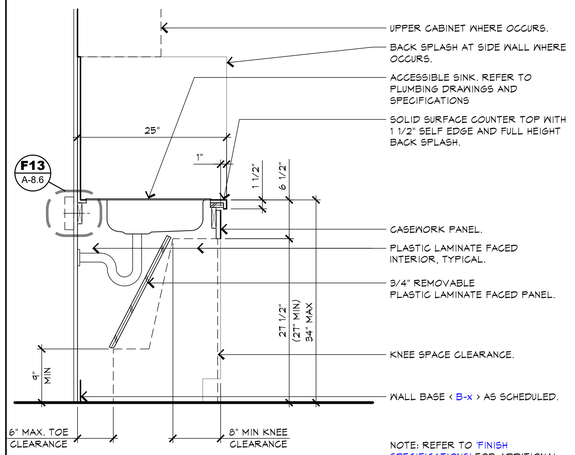
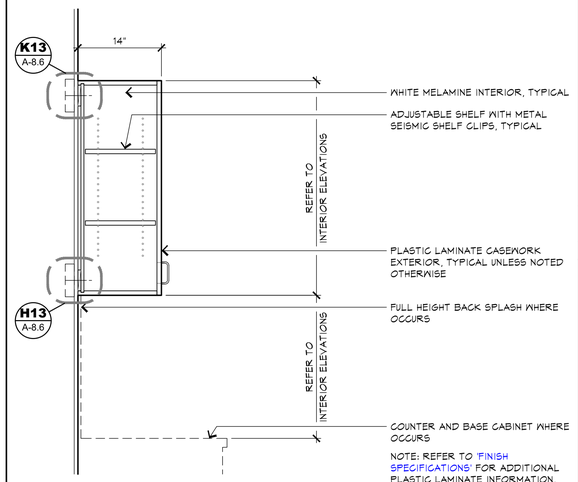
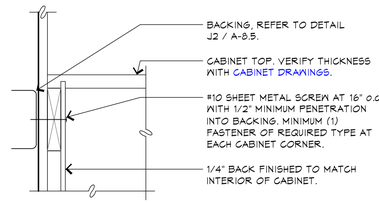
Plot Date: 2024-07-15



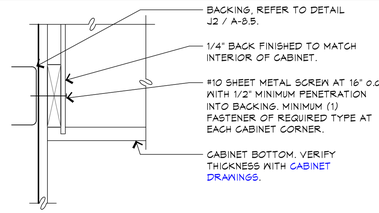
H5 A-8.6 — Base Cabinet at Accessible Sink
Scale: 1" = 1'-0"



H9 A-8.6 — Upper Cabinet
Scale: 1" = 1'-0"

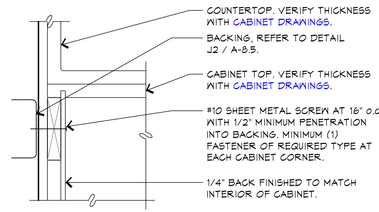


K13 A-8.6 — Anchorage Detail
Scale: 3" = 1'-0"

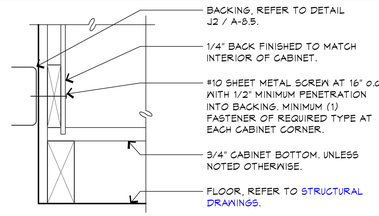


H13 A-8.6 — Anchorage Detail
Scale: 3" = 1'-0"

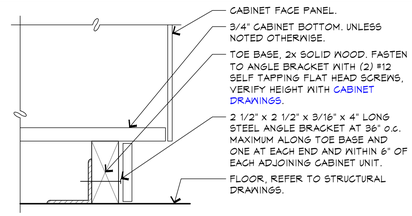
D9 A-8.6 — Base Cabinet
Scale: 1" = 1'-0"



F13 A-8.6 — Anchorage Detail
Scale: 3" = 1'-0"



D13 A-8.6 — Anchorage Detail
Scale: 3" = 1'-0"



B13 A-8.6 — Anchorage Detail
Scale: 3" = 1'-0"

ARCHITECT:
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2220 Tulare Street, Eighth Floor
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Sheet Content:

Interior Details

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

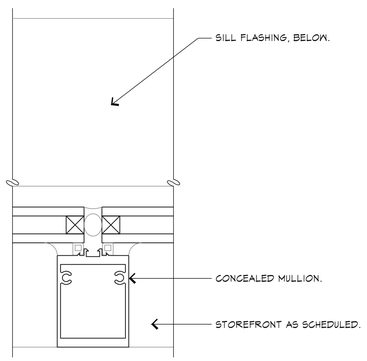
Sheet No.:

A-8.6

Sheet of

Plot Date: 2024-07-15

EXTERIOR

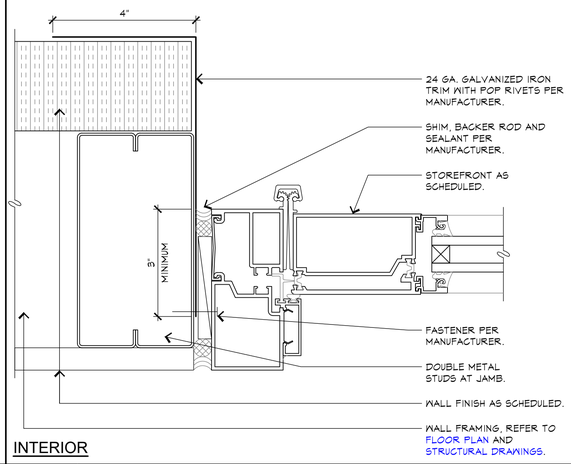


INTERIOR

H1 Storefront Concealed Mullion

A-8.7 Scale: 6" = 1'-0"

EXTERIOR

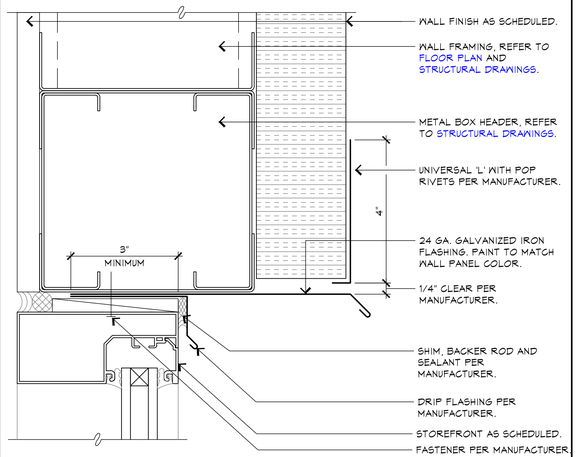


INTERIOR

H4 Storefront Door Jamb

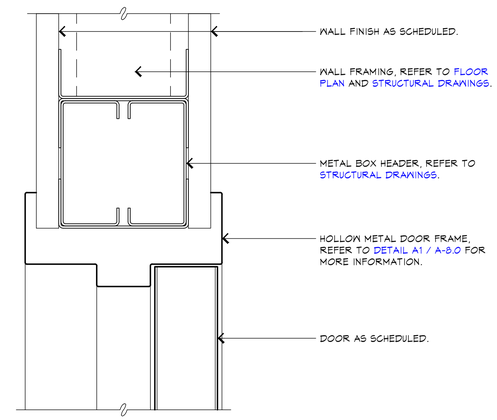
A-8.7 Scale: 6" = 1'-0"

INTERIOR EXTERIOR



H8 Storefront Window Header

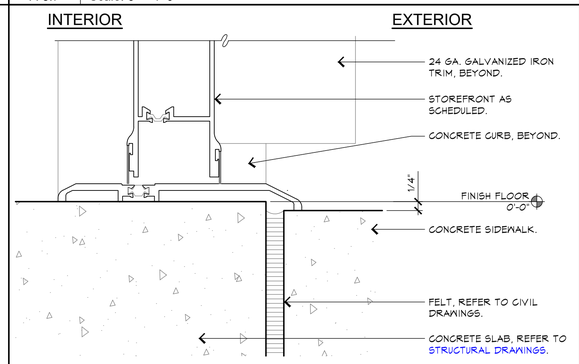
A-8.7 Scale: 6" = 1'-0"



H12 Pre-finished Metal Door Header

A-8.7 Scale: 6" = 1'-0"

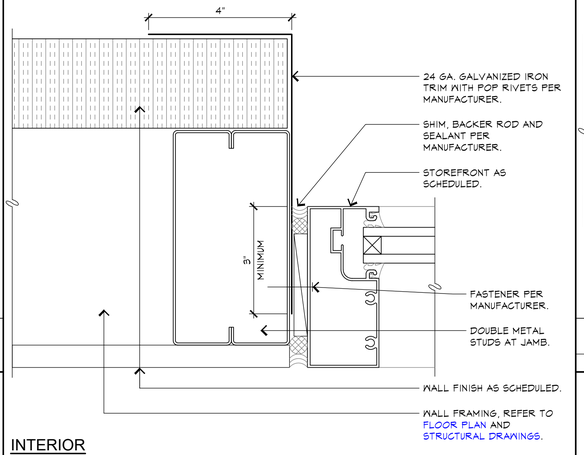
INTERIOR EXTERIOR



E4 Storefront Door Threshold

A-8.7 Scale: 6" = 1'-0"

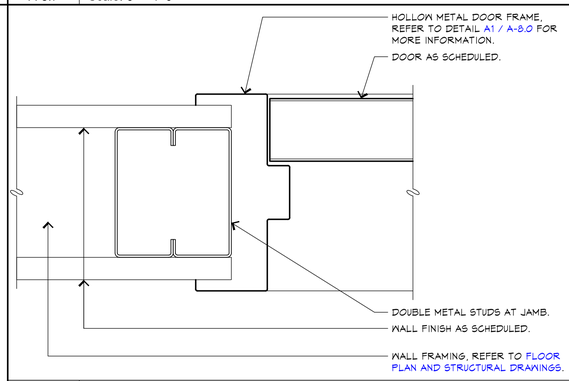
EXTERIOR



INTERIOR

D8 Storefront Window Jamb

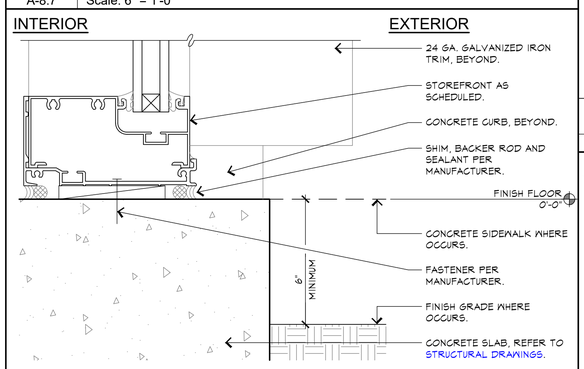
A-8.7 Scale: 6" = 1'-0"



E12 Pre-finished Metal Door Jamb

A-8.7 Scale: 6" = 1'-0"

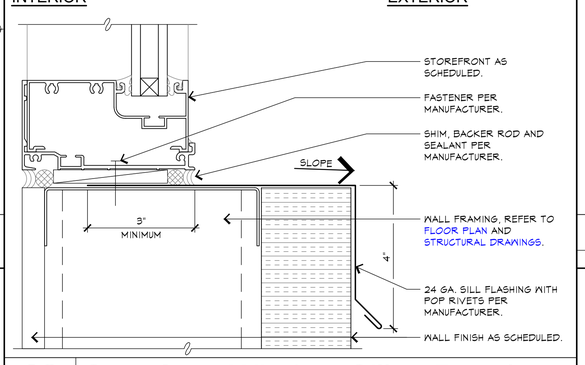
INTERIOR EXTERIOR



B4 Storefront Window Sill at Floor

A-8.7 Scale: 6" = 1'-0"

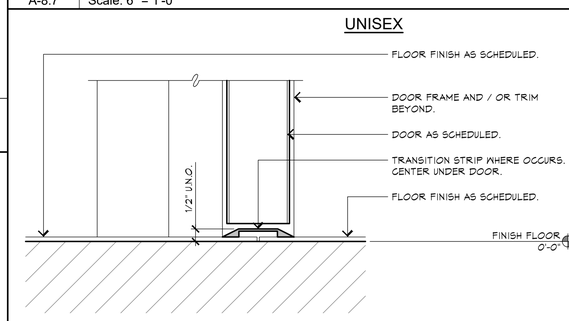
INTERIOR EXTERIOR



A8 Storefront Window Sill at Panels

A-8.7 Scale: 6" = 1'-0"

UNISEX



B12 Interior Door Threshold at Unisex

A-8.7 Scale: 6" = 1'-0"

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-15
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Sheet Content:

Opening Details

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

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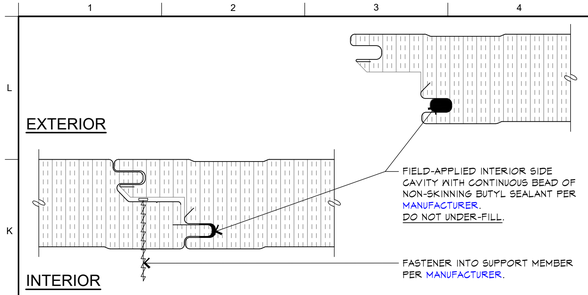
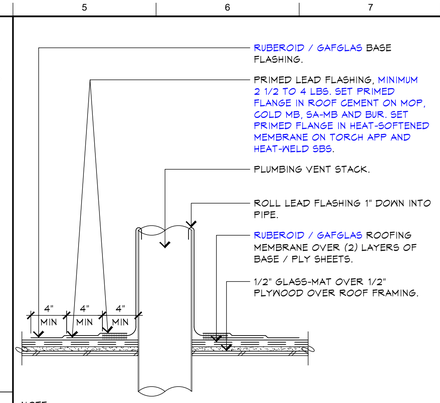


J1 Metal Wall Panel Joint

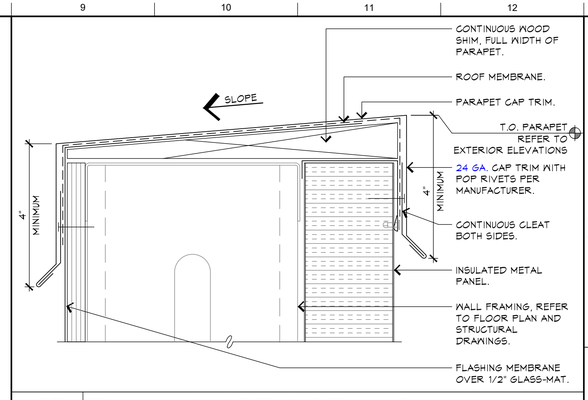
A-8.8 Scale: 6" = 1'-0"



NOTE:
1. MINIMUM 18" CLEARANCE FROM PIPES, WALLS AND CURBS.
2. BASE / PLY SHEET(S) TURNED OVER EDGE A MINIMUM OF 1 1/2" OR THICKNESS OF NAILER, WHICHEVER IS GREATER, OR A SEPARATION MEMBRANE SHEET IS INSTALLED AS SHOWN.
3. SHEET LEAD MINIMUM OF 2 1/2" POUNDS PER SQUARE FOOT.
4. FOR HEAT-WELD OR TORCH-APPLIED RUBEROID MB, TORCH THE AREA OF RIBEROID MB OVER WHICH THE METAL IS TO BE PLACED TO A MOLTEN STATE. PRESS THE PRIMED FLANGE INTO THE MODIFIED BITUMEN WHILE IT IS STILL MOLTEN.

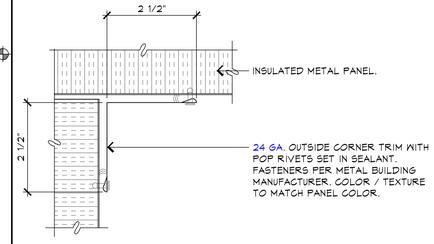
H6 Vent Stack Flashing

A-8.8 Scale: 1 1/2" = 1'-0"



J9 Parapet at Metal Panel

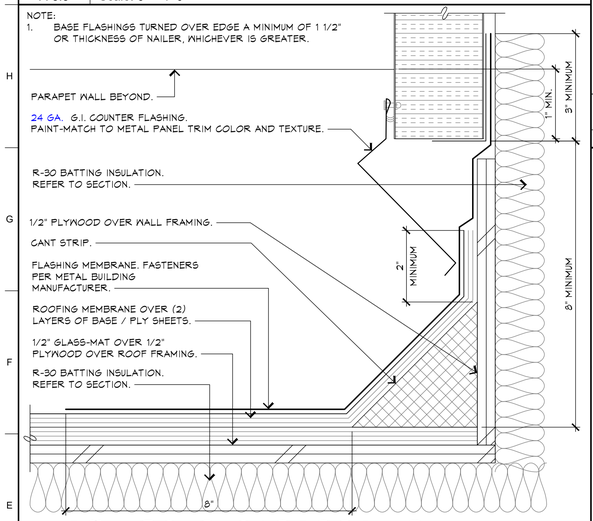
A-8.8 Scale: 6" = 1'-0"



J13 Metal Panel Inside Corner Transition

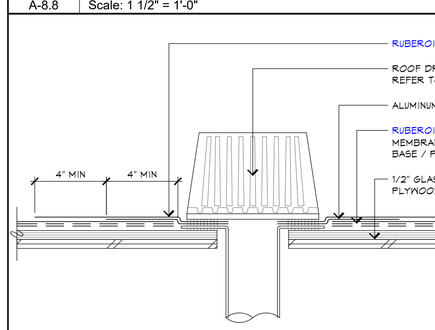
A-8.8 Scale: 6" = 1'-0"

NOTE:
1. BASE FLASHINGS TURNED OVER EDGE A MINIMUM OF 1 1/2" OR THICKNESS OF NAILER, WHICHEVER IS GREATER.



E1 Wall Flashing at Roof

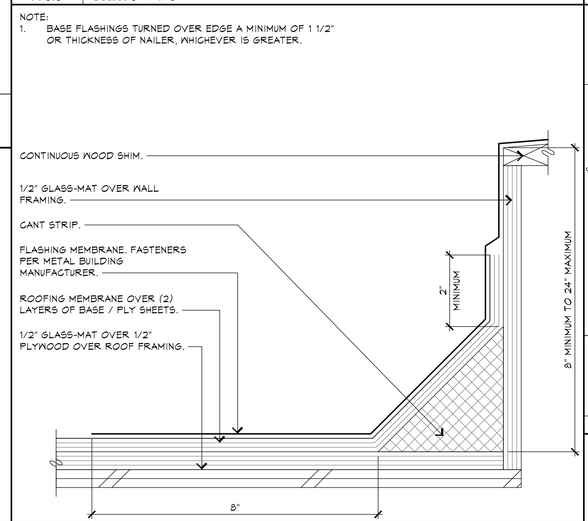
A-8.8 Scale: 6" = 1'-0"



NOTE:
1. DRAIN TO BE LOCATED IN SUMP.

E5 Roof Drain Flashing

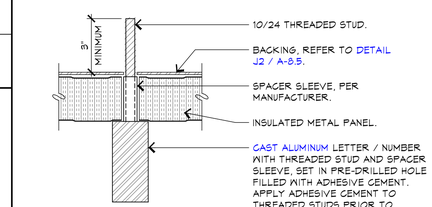
A-8.8 Scale: 3" = 1'-0"



E9 Parapet Cricket (8" to 24")

A-8.8 Scale: 6" = 1'-0"

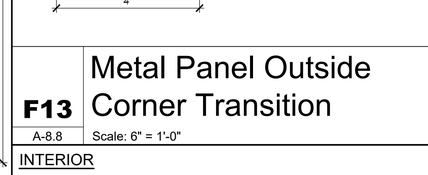
INTERIOR



EXTERIOR

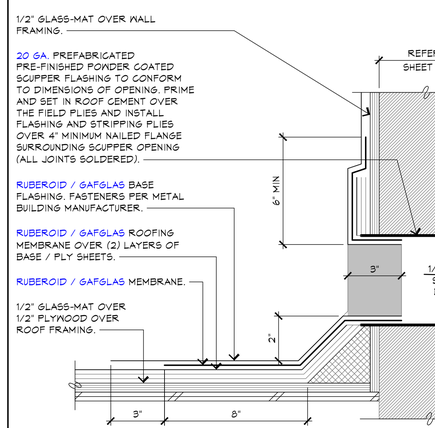
C13 Exterior Letter / Number Mounting

A-8.8 Scale: 3" = 1'-0"



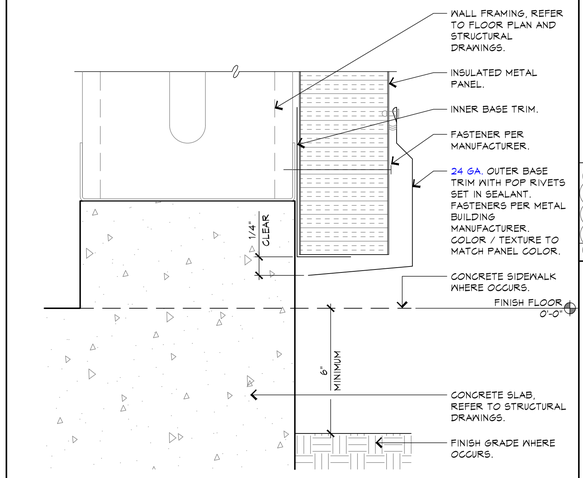
F13 Metal Panel Outside Corner Transition

A-8.8 Scale: 6" = 1'-0"



A5 Overflow Scupper Flashing

A-8.8 Scale: 3" = 1'-0"



A9 Metal Panel Base Condition

A-8.8 Scale: 6" = 1'-0"

BUILDING DEPT. PLAN CHECK 24-0097
2024-09-06

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
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Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

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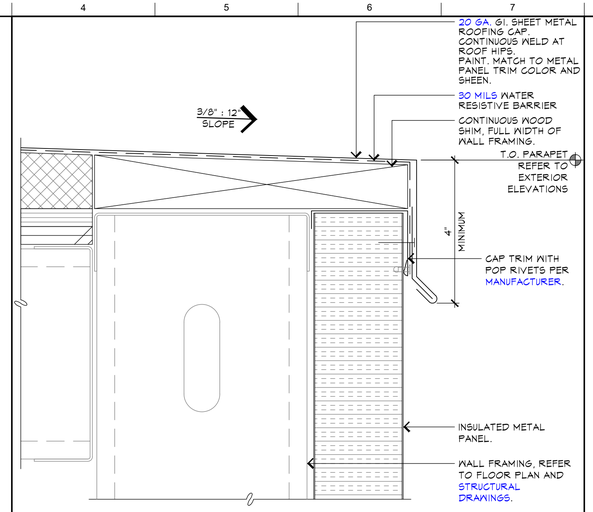
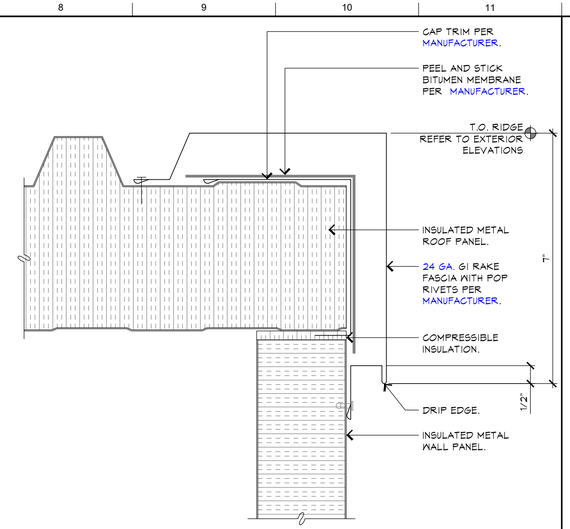
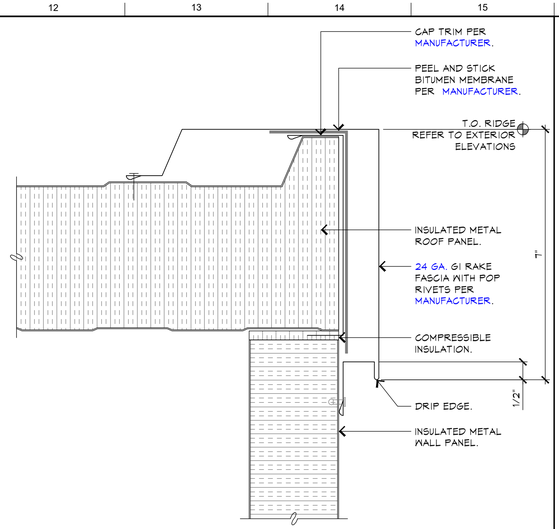
Plot Date: 2024-07-15



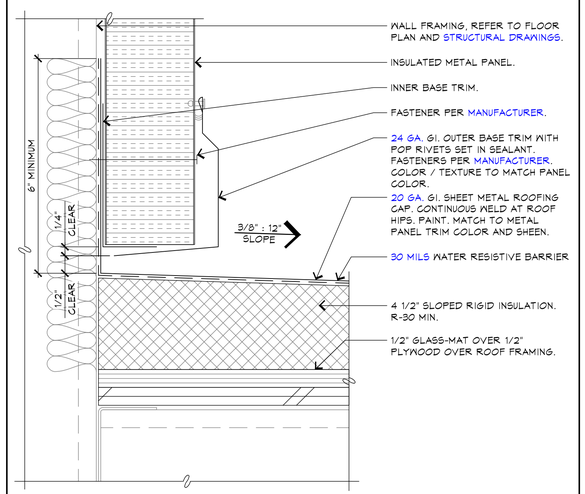
H4 A-8.9 — Sheet Metal Cap Flashing
Scale: 6" = 1'-0"



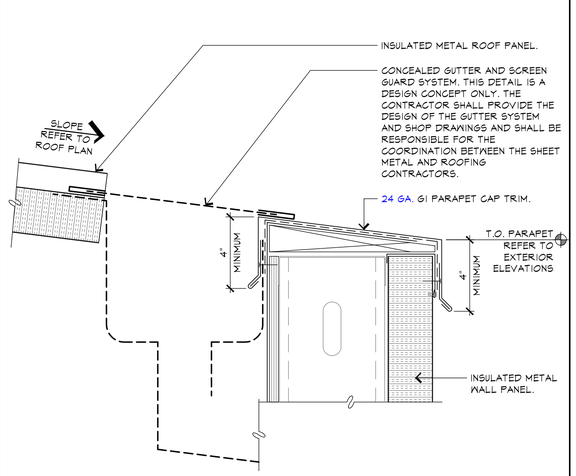
H8 A-8.9 — Rake Fascia Flashing at Rib
Scale: 6" = 1'-0"



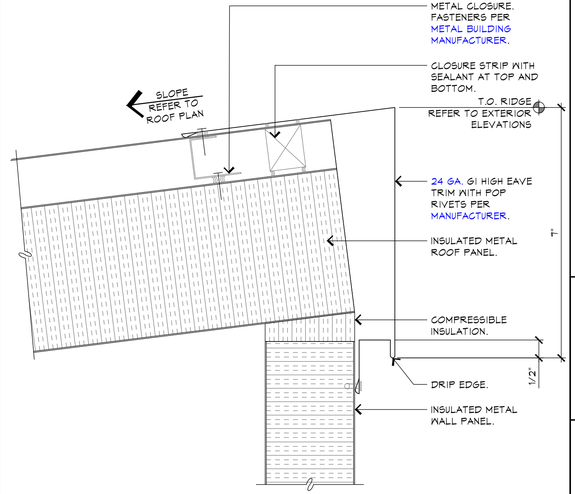
H12 A-8.9 — Rake Fascia Flashing at Valley
Scale: 6" = 1'-0"



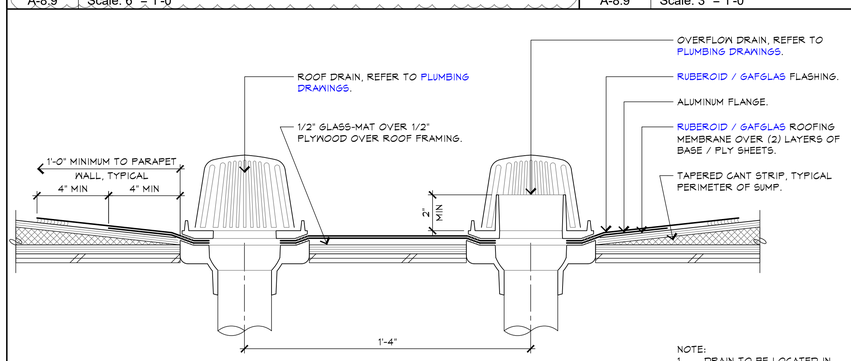
D4 A-8.9 — Sheet Metal Cap Flashing
Scale: 6" = 1'-0"



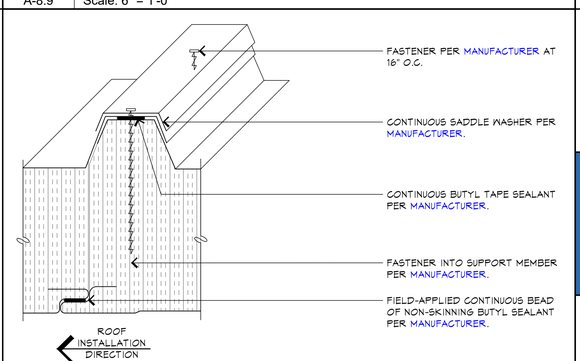
D8 A-8.9 — Concealed Gutter Design Concept
Scale: 3" = 1'-0"



D12 A-8.9 — High Eave Roof Flashing
Scale: 6" = 1'-0"



A4 A-8.8 — Roof Drain Combination Outlet Flashing
Scale: 3" = 1'-0"



A12 A-8.9 — Metal Roof Panel Joint
Scale: 6" = 1'-0"

B1 BUILDING DEPT. PLAN CHECK 24-0097
2024-09-06

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Rem. 11-30-23
Fresno County Dept. of Public Works & Planning
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2220 Tulare Street, Eighth Floor
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Roof Details

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Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
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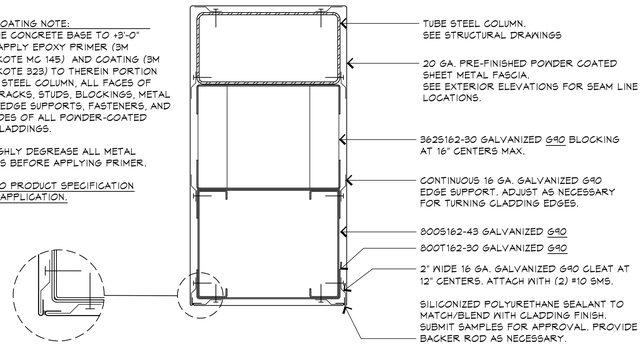
Plot Date: 2024-07-15

EPOXY COATING NOTE:
FROM THE CONCRETE BASE TO +3'-0" HEIGHT, APPLY EPOXY PRIMER (3M SCOTCHKOTE MC 145) AND COATING (3M SCOTCHKOTE 323) TO THEREIN PORTION OF TUBE STEEL COLUMN, ALL FACES OF METAL TRACKS, STUDS, BLOCKINGS, METAL CLEATS, EDGE SUPPORTS, FASTENERS, AND INNER SIDES OF ALL POWDER-COATED METAL CLADDINGS.

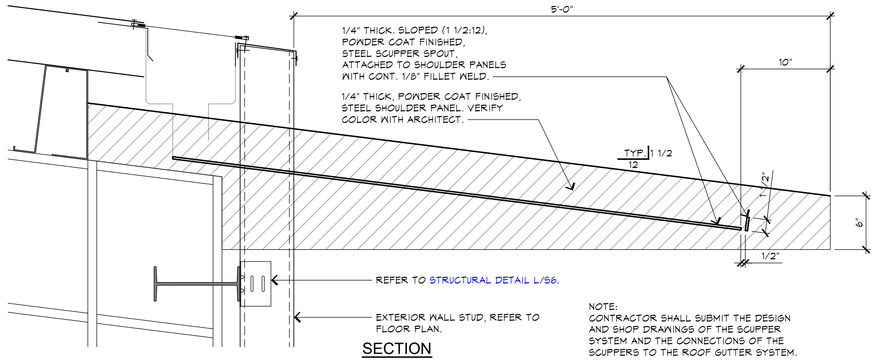
THOROUGHLY DEGREASE ALL METAL SURFACES BEFORE APPLYING PRIMER.

REFER TO PRODUCT SPECIFICATION BEFORE APPLICATION.



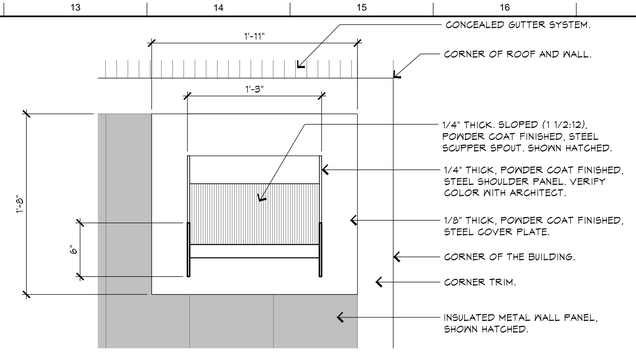
J1 Metal Column Furring & Typical Cladding Detail

A-8.10 SCALE: 3" = 1'-0"



SECTION

NOTE:
CONTRACTOR SHALL SUBMIT THE DESIGN AND SHOP DRAWINGS OF THE SCUPPER SYSTEM AND THE CONNECTIONS OF THE SCUPPERS TO THE ROOF GUTTER SYSTEM.



FRONT VIEW

J6 Roof Scupper Detail

A-8.10 SCALE: 1 1/2" = 1'-0"

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
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Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

A-8.10

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Plot Date: 2024-07-15

ESTIMATED QUANTITIES:

CUT: 500 CU. YDS FILL: 1700 CU. YDS.

THESE QUANTITIES DO NOT INCLUDE ANY SHRINKAGE, SUBSIDENCE, OVER-EXCAVATION, OR ANY SPECIAL CONDITIONS OR REQUIREMENTS THAT MAY BE SPECIFIED IN THE GEOTECHNICAL INVESTIGATION REPORT. THESE QUANTITIES IN THE AREA FOR PERMIT PURPOSES ONLY. ALL CONTRACTORS BIDDING ON THIS PROJECT SHOULD MAKE THEIR OWN DETERMINATION OF EARTHWORK QUANTITIES PRIOR TO SUBMITTING A BID.

ABBREVIATIONS:

AC	ASPHALT CONCRETE	FOC	FACE OF CURB	TOB	TOP OF BASIN
AP	ASSESSORS PARCEL NUMBER	FWY, F/W	FRONT OF WALK	TYP.	TYPICAL
BEG.	BEGIN	HW	HIGH WATER	TRW	TOP OF WALL
B/W, BMW	BACK OF CONC. WALK	GAR. BARK.	GRADE BREAK	VR.	VARIES, VARIABLE
BOB	BOTTOM OF BASIN	L	LENGTH	W	WATER
C	CURB, CONCRETE	LP	GUTTER LIP	WES	WATER SERVICES
CHG, ELK.	CHAIN LINK (FENCE)	LSD	LANDSCAPE AREA		
JCL	CENTER LINE	LTV	LEFT		
C.N.S.	COMPACTED NATIVE UPGRADE	N.T.S	NOT TO SCALE		
CONC.	CONCRETE	OH	OVERHEAD UTILITY LINES		
CONST.	CONSTRUCT	P, PAVE.	PAVEMENT		
CSP	CORRUGATED STEEL PIPE	PL	PROPERTY LINE		
D	DIRT	PROP.	PROPOSED		
D/W	DRIVEWAY	R	RADIUS, RIGHT		
EEC	END OF CURB	RIEL.	RELOCATE, RELATIVE		
ELEVEN.	ELEVATION	R/W	RIGHT OF WAY		
EPA	EDGE OF AC PAVEMENT	S	SLOPE, SOUTH		
EXIST., (E)	EXISTING	SD	STORM DRAIN		
E OH	ELECTRIC OVERHEAD	SW	SWALES		
FL	LOWLINESS	ATC, T/C	TOP OF CURB		

Monumentation Notes:

1. CONTRACTOR IS RESPONSIBLE FOR RE-SETTING ANY SURVEY MONUMENTS DAMAGED DURING CONSTRUCTION. CONTRACTOR TO FILE A CORNER RECORD OR RECORD OF SURVEY (AS APPLICABLE) 45 DAYS PRIOR TO THE FINAL AS-BUILT ALTA SURVEY

CONSTRUCTION STAKING NOTES:

1. ENGINEERING/LAND SURVEYING FIRM IS RESPONSIBLE FOR CONSTRUCTION STAKING SHALL CERTIFY AND BE FAMILIAR WITH THE CITY'S AND COUNTY AS-BUILT CERTIFICATION REQUIREMENTS.
2. STAKING CONTRACTOR WILL BE RESPONSIBLE FOR SIGNING THE COUNTY'S INDEMNIFICATION FORM PROVIDED TO THE GENERAL CONTRACTOR'S LAND SURVEYOR. THE COUNTY WILL ONLY PROVIDE THE CAD FILE OF THE BASE SITE PLAN ONLY. CONTRACTOR'S STAKING SURVEYOR IS RESPONSIBLE FOR ALL CALCULATIONS BASED ON THE PLAN SHEETS PROVIDED WITHIN THE PERMIT SET. A CAD FILE OF THE GRADING AND UTILITY PLAN WILL NOT BE PROVIDED. CONTRACTOR TO PROVIDE SIGNED INDEMNIFICATION LETTER 72 HOURS PRIOR TO NEED THE CAD FILE.
3. A TIE-IN SURVEY IS REQUIRED PER COUNTY REQUIREMENTS. STAKING CONTRACTOR SHALL CERTIFY AND PROVIDE TO THE COUNTY FOR REVIEW.

CONSTRUCTION OPERATION NOTES:

DUST SHALL BE CONTROLLED. WASTEWATER GENERATED DURING CONSTRUCTION SHALL NOT BE DISCHARGED TO THE STORM DRAIN SYSTEM. THIS INCLUDES WASTE FROM PAINTING, SALUTING, CONCRETE WORK, ETC. THE CONTRACTOR SHALL MAKE ARRANGEMENTS TO ELIMINATE DISCHARGES TO THE STORM DRAIN SYSTEM AND, IF NECESSARY, PROVIDE AN AREA FOR ON-SITE WASHING ACTIVITIES DURING CONSTRUCTION. MATERIALS WHICH COULD CONTAMINATE STORM RUNOFF SHALL BE STORED IN AREAS WHICH ARE DESIGNED TO PREVENT EXPOSURE TO RAINFALL AND TO NOT ALLOW STORM WATER TO RUN ONTO THE AREA.

PAVEMENT CLEANING:

FLUSHING OF STREETS/PARKING LOTS TO REMOVE DIRT AND CONSTRUCTION DEBRIS IS PROHIBITED UNLESS PROPER SEDIMENT CONTROL ARE USED, PREFERABLY AREAS REQUIRING CLEANING SHOULD BE SWEPT.

NOTES:

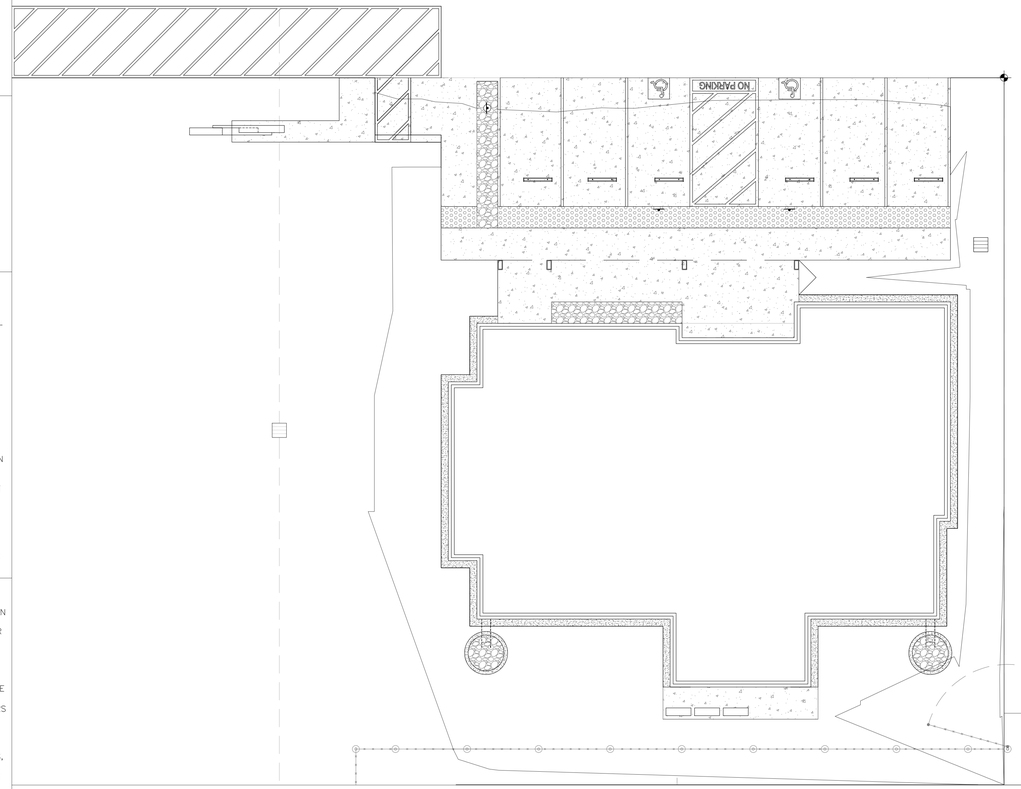
1. IN THE EVENT OF CONFLICTING PROVISION BETWEEN THE SPECIFICATIONS AND DRAWING; THE MORE SPECIFIC WILL TAKE PRECEDENCE OVER THE LESS SPECIFIC; THE MORE STRINGENT WILL TAKE PRECEDENCE OVER THE LESS STRINGENT. ON ALL THE DRAWINGS, FIGURES TAKE PRECEDENCE OVER SCALED DIMENSIONS. SCALING OF DIMENSION, IF DONE IS DONE AT CONTRACTOR'S OWN RISK.
2. NO OPEN BURNING SHALL OCCUR ON THE PROJECT SITE UNLESS A LAND CLEARING PERMIT IS OBTAINED FROM THE DISTRICT.
3. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING.
4. CONTRACTOR SHALL PROVIDE THE COUNTY OF FRESNO WITH AN AS-BUILT MLA PLANS. PLANS ARE TO BE SUBMITTED UPON COMPLETION OF PROJECT PRIOR TO ACCEPTANCE.
5. THE CONTRACTOR SHALL VERIFY THE ELEVATION OF THE EXISTING (WITH PLUS AND/OR MINUS SIGN SHOWN ON PLANS) SUCH AS CURB & GUTTER, PAVEMENT, SEWER & STORM LOWLINESS, ETC. AT THE POINT OF CONNECTION AND NOTIFY THE ENGINEER IMMEDIATELY IF MORE THAN 0.02 FOOT DIFFERENCE EXISTS FROM THIS PLAN.
6. CONTRACTOR SHALL REPLACE AND/OR REPAIR ALL DAMAGES AFFECTED BY CONSTRUCTION TO EXISTING ADJACENT OFF-SITE IMPROVEMENTS TO THE SATISFACTION OF CITY/COUNTY CONSTRUCTION MANAGEMENT AND/OR PROJECT REPRESENTATIVE.
7. CONTRACTOR SHALL COORDINATE HIS SCHEDULE WITH ALL UTILITY COMPANIES AFFECTED BY THIS WORK. NO ADDITIONAL COMPENSATION WILL BE MADE FOR SUCH COORDINATION WITH UTILITY COMPANIES.
8. FOUNDATION FOR MANHOLE, CURB INLET, CATCH BASIN, UTILITY BOX, ETC. SHALL BE UNDERLAIN BY ENGINEERED FILL IN ACCORDANCE WITH THE GEOGRAPHICAL REPORT.

CONTRACTORS: THESE IMPROVEMENT PLANS HAVE BEEN PREPARED WITH THE INTENT THAT THE COUNTY OF FRESNO WILL BE PERFORMING THE CONSTRUCTION STAKING FOR THE COMPLETE PROJECT. IF ANYONE OTHER THAN THE DESIGN ENGINEER IS EMPLOYED TO USE THESE PLANS FOR THE PURPOSE OF CONSTRUCTION STAKING, NOTICE IS HEREBY GIVEN THAT THE COUNTY OF FRESNO WILL NOT ASSUME ANY RESPONSIBILITY FOR ERRORS OR OMISSIONS, IF ANY, WHICH MIGHT OCCUR AND WHICH COULD HAVE BEEN AVOIDED, CORRECTED, OR MITIGATED IF THE COUNTY OF FRESNO HAD PERFORMED THE STAKING WORK.

THE EXISTENCE AND APPROXIMATE LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS WERE DETERMINED FROM INFORMATION PROVIDED BY A FIELD INVESTIGATION AND RECORD INFORMATION. THERE MAY BE OTHER UTILITIES AND/OR STRUCTURES IN THE AREA. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURE TO PROTECT THE UTILITIES OR STRUCTURES SHOWN AND ANY OTHER UTILITIES OR STRUCTURES THAT MAY BE AT THE SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNERS OF THE UTILITIES OR STRUCTURES CONCERNED AND CALL USA ALERT 1-811 BEFORE STARTING WORK. WHERE NON-SITE UTILITIES ARE NOT COVERED BY USA ALERT AND PRECAUTIONARY MEASURE JUSTIFY, THE CONTRACTOR SHALL EMPLOY A PROFESSIONAL TO LOCATE EXISTING UTILITIES AND STRUCTURES.

CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT HIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE DESIGN PROFESSIONAL.

UNAUTHORIZED CHANGES AND USES: LARS ANDERSEN & ASSOCIATES, INC. WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITING AND MUST BE APPROVED BY THE PREPARER OF THE PLANS.



SHEET INDEX:

GENERAL CONSTRUCTION NOTES:

1. ALL CURB AND/OR GUTTER SHALL BE WATER TESTED UNDER THE DIRECTION AND IN THE PRESENCE OF THE ENGINEER AND/OR PROJECT REPRESENTATIVE.
2. ALL UTILITY MANHOLES/BOXES AFFECTED BY THIS PROJECT SHALL BE ADJUSTED TO GRADE AS NECESSARY AND INCLUDED IN THIS WORK.
3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE COUNTY STANDARD DRAWINGS AND SPECIFICATIONS, AND ANY APPLICABLE SECTION OF THE CALTRANS STANDARD SPECIFICATIONS.
4. BEFORE COMMENCING WORK, THE CONTRACTOR SHALL NOTIFY ALL UTILITY AUTHORITIES OR UTILITY COMPANIES HAVING POSSIBLE INTEREST IN THE WORK OF THE CONTRACTOR'S INTENTION TO EXCAVATE PROXIMATE TO EXISTING FACILITIES AND THE CONTRACTOR SHALL VERIFY THE LOCATION OF ANY UTILITIES IN THE WORK AREA. THE CONTRACTOR SHALL NOTIFY U.S.A. TWO (2) DAYS PRIOR TO BEGINNING ANY EXCAVATION.
5. RELATIVE COMPACTION TESTS MUST BE WITHIN TWO PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT TO BE CONSIDERED AS PASSING.
6. THE COST OF ALL REPEAT TESTING REQUIRED FOR ACCEPTANCE OF WORK SHALL BE FULLY BORNE BY THE CONTRACTOR.
7. ALL WATER MAIN VALVES (CAP AND LID) SHALL BE ADJUSTED TO GRADE.
8. ADJUSTMENT TO BUILDING PAD ELEVATIONS OR PARKING LOT GRADES TO ACHIEVE EARTHWORK BALANCE SHALL BE MADE ONLY WITH APPROVAL OF THE ENGINEER.
9. ANY DIRT OR DEBRIS TRACKED ONTO ANY CITY/COUNTY STREET FROM THIS PROJECT SHALL BE CLEANED OFF AT THE END OF EACH WORKING DAY TO THE SATISFACTION OF THE CITY/COUNTY.
10. DURING THE SITE CONSTRUCTION, AND PUBLIC STREETS FRONTING THE PROJECT SHALL BE KEPT CLEAR OF ANY CONSTRUCTION OR LANDSCAPING DEBRIS AND SHALL NOT BE USED AS A STORAGE AREA FOR EQUIPMENT, MATERIALS, OR OTHER ITEMS.
11. ANY EXISTING SECTION CORNERS OR PROPERTY CORNER MONUMENTS DAMAGE BY THIS DEVELOPMENT SHALL BE RESET TO THE SATISFACTION OF THE CITY/COUNTY ENGINEER. A LICENSED LAND SURVEYOR OR CIVIL ENGINEER LICENSED TO PERFORM LAND SURVEYING HALL CERTIFY THE PLACEMENT OF ALL REQUIRED MONUMENTATION PRIOR TO FINAL ACCEPTANCE. BRASS CAPS REQUIRED TO BE PROVIDED FOR REPLACEMENT OF EXISTING MONUMENTS SHALL BE DONE SOLELY AT THE CONTRACTORS EXPENSE.
12. NOT USED.
13. THE DEVELOPER SHALL COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE CALIFORNIA CODE OF REGULATIONS, COUNTY ORDINANCES, STATE REGULATIONS, NATIONALLY RECOGNIZED CODES AND STANDARDS , AND ADOPTED POLICIES OF THE FIRE DEPARTMENT.
14. ALL GRADING SHALL CONFORM TO THE UNIFORM BUILDING CODE APPENDIX J, C.B.C. 2019.
15. MAXIMUM CUT OR FILL SLOPES SHALL BE 2:1 OR AS SHOWN. ALL GRADING SHALL BE DONE UNDER THE SUPERVISION OF A REGISTERED SOILS ENGINEER. FILL LAYERS SHALL NOT EXCEED 8 INCHES IN THICKNESS.
16. IT IS THE CONTRACTOR'S RESPONSIBILITY FOR THE LOCATION AND PROTECTION OF ALL UTILITIES.
17. THE DEVELOPER AND/OR CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES FORTY-EIGHT (48) HOURS PRIOR TO GRADING AND/OR DIGGING: 811 IS THE UNDERGROUND SERVICE ALERT NUMBER.
18. ALL GRADING SHALL BE DONE IN CONFORMANCE WITH THE GEOTECHNICAL REPORT PREPARED BY COUNTY OF FRESNO, DEPARTMENT OF PUBLIC WORKS AND PLANNING PROJECT NUMBER: T90203 DATED: 4-22-2020 AND PER LATEST ADDENDUM REPORT PREPARED BY COUNTY OF FRESNO.
19. CONTRACTOR TO PROVIDE THE COUNTY WITH AS-GRADED PLANS. PLANS ARE TO BE SUBMITTED UPON COMPLETION OF PROJECT AND PRIOR TO ACCEPTANCE.
20. ALL SITE WORK SHALL BE IN CONFORMANCE WITH TITLE 24 OF CALIFORNIA ADMINISTRATIVE CODE.
21. THE TYPES, LOCATIONS, SIZES, AND/OR DEPTHS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THE IMPROVEMENT PLANS WERE OBTAINED FROM SOURCES OF VARYING RELIABILITY. THE CONTRACTOR IS CAUTIONED THAT ONLY ACTUAL EXCAVATION WILL REVEAL THE TYPES, EXTENT, SIZES, LOCATIONS AND DEPTHS OF SUCH UNDERGROUND UTILITIES. (A REASONABLE EFFORT HAS BEEN MADE TO LOCATE AND DELINEATE ALL KNOWN UNDERGROUND UTILITIES). HOWEVER, THE ENGINEER CAN ASSUME NO RESPONSIBILITY FOR THE COMPLETENESS OR ACCURACY OF THE DELINEATION OF SUCH UNDERGROUND UTILITIES WHICH MAY BE ENCOUNTERED, BUT WHICH ARE NOT SHOWN ON THESE DRAWINGS.
22. THE UNDERGROUND CONTRACTOR SHALL SET HIS STRING OR WIRE THROUGH AT LEAST THREE GRADE STAKES TO VERIFY THE GRADE. IF THE STAKES DO NOT PRODUCE A UNIFORM GRADE, NOTIFY ENGINEER IMMEDIATELY AND HAVE THE GRADES CHECKED PRIOR TO TRENCHING.
23. ALL UTILITY STRUCTURES INCLUDING, BUT NOT LIMITED TO MANHOLES, CATCH BASINS, WATER VALVES, FIRE HYDRANTS, TELEPHONE AND ELECTRIC VAULTS AND PULL BOXES THAT LIE WITHIN AREAS AFFECTED BY WORK ON THIS PROJECT SHALL BE ADJUSTED TO GRADE BY THE CONTRACTOR OR THE RESPECTIVE UTILITY COMPANY. THE CONTRACTOR IS RESPONSIBLE TO AFFECT COORDINATION.
24. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE O.S.H.A. REGULATIONS.
25. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT. INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.
26. UNDERGROUND UTILITY TRENCH BACKFILL TO BE TESTED AND WRITTEN REPORT SUBMITTED TO THE BUILDING OFFICIAL, BY THE SOILS ENGINEER.
27. ALL GRADING AND EROSION CONTROL SHALL BE DONE IN CONFORMANCE WITH CURRENT STATE BMP'S.
28. ALL RELATIVE COMPACTION ON STREETS SHALL CONFORM TO SECTION 19-5.03 OF THE STATE OF CALIFORNIA STANDARD SPECIFICATIONS LATEST EDITION (TYPICAL).
29. PRIOR TO EXCAVATION, CONTRACTOR SHALL LOCATE ALL EXISTING UNDERGROUND UTILITIES. CALL 811 TO HAVE UTILITIES LOCATED AND MARKED.
30. DUST CONTROL SHALL CONFORM TO THE PROVISION IN SECTION 10 OF THE STATE STANDARD SPECIFICATIONS.
31. CONTRACTOR SHALL PROVIDE A MINIMUM OF 48 HOURS NOTICE IN ADVANCE OF ANY REQUIRED INSPECTION. ANY TEMPORARY SUSPENSION OF WORK OR RETURNING TO WORK FOR ANY REASON WILL BE CAUSE FOR THE CONTRACTOR TO TELEPHONE THE PUBLIC WORKS DEPARTMENT.
32. CONTRACTOR SHALL SEE TO IT THAT TRUCKS LEAVING THE SITE SHALL DO SO IN SUCH A MANNER THAT MUD AND EARTH WILL NOT BE DEPOSITED ON ADJACENT STREET PAVEMENTS. ANY MUD OR EARTH DEPOSITED ON STREET PAVEMENT SHALL BE PROMPTLY REMOVE BY THIS CONTRACTOR.
33. ALL PORTLAND CEMENT CONCRETE TO BE 3000 PSI UNLESS NOTED OTHERWISE.
34. CONTRACTOR SHALL REPLACE AND/OR REPAIR ALL DAMAGES AFFECTED BY CONSTRUCTION ON EXISTING ADJACENT OFF-SITE IMPROVEMENTS TO THE SATISFACTION OF THE COUNTY MAINTENANCE AND OPERATION DIVISION.
35. CONTRACTOR SHALL HAVE ONE COPY OF FMFCD AND FRESNO COUNTY STANDARD AND SPECIFICATION BOOK ON-SITE DURING CONSTRUCTION.

North

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5/24/2024

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Project:

ECC Phase II - Educational Center

Project Address: 1327 Dan Ronquillo Drive, Fresno, CA 93706

Project No. T90204

File Path: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings

Sheet Content:

COVER SHEET

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.

C1.0

A1 | COVER SHEET
Scale: 1/32"=1'-0"

Drawn by: SS, BV

Plotted on: 08.24.23

GENERAL NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR NOTIFICATION OF UNDERGROUND SERVICE ALERT (USA) AT LEAST TWO WORKING DAYS (48 HOURS) IN ADVANCE BEGINNING OF WORK.
2. THE CONTRACTOR IS RESPONSIBLE FOR ARRANGING A PRE-CONSTRUCTION JOB SITE CONFERENCE WITH GOVERNING AGENCIES, ALL UTILITY COMPANIES AND OWNER'S REPRESENTATIVES PRIOR TO COMMENCING WORK. THIS MEETING WILL VERIFY SCHEDULES, METHODS AND MATERIALS TO BE USED IN CONSTRUCTION OF THE PROJECT.
3. THE CONTRACTOR IS RESPONSIBLE AND FIRST ORDER OF WORK FOR POT HOLING OF EXISTING UNDERGROUND SERVICES AND EXTENSIONS OF EXISTING/NEW UNDERGROUND SERVICES TO PROPERTY LINE PRIOR TO COMMENCING ANY ON-SITE OR OFFSITE WORK. ANY DISCREPANCIES WITH SERVICE LOCATION, SIZE OR DEPTH WITH THAT SHOWN ON THESE PLANS SHALL BE REPORTED TO THE OWNER, AFFECTED UTILITIES AND LARS ANDERSEN AND ASSOC., INC. WITHIN 48 HOURS OF DISCOVERY.
4. INSTALLATION OF ALL GRAVITY UTILITIES (I.E. SEWER, STORM DRAIN) SHALL BE FROM THE POINT OF CONNECTION UPSTREAM.
5. THE CONTRACTOR IS RESPONSIBLE FOR THE CALCULATION OF EARTHWORK QUANTITIES. ANY IMPORT OR EXPORT REQUIRED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
6. CERTIFICATIONS SHALL BE SUPPLIED TO THE OWNER BY THE CONTRACTOR FOR THE FOLLOWING STAGES OF COMPLETION:

A. ROUGH GRADE TO PLUS OR MINUS ONE-TENTH OF A FOOT. ROUGH GRADE SOIL COMPACTION PRIOR TO ANY UNDERGROUND CONSTRUCTION
B. TRENCH BACKFILL
C. SEWER, WATER & STORM DRAIN TESTING COMPLETE AND PASSING PRIOR TO FINE GRADING AND BASE ROCK PLACEMENT.
D. FINE GRADING TO PLUS OR MINUS ONE-TENTH OF A FOOT PRIOR TO ANY BASE ROCK PLACEMENT.
E. RETAINING WALL BACK FILL COMPACTION RESULTS. (WHERE APPLIES)
F. FINISH PAD GRADE & OVERESTIMATION & DEPTH CALCULATIONS.
G. FINAL GRADING INCLUDING ALL TC, GRATES, SANITARY SEWER AND STORM DRAIN FLOWLINES
H. A LICENSED SURVEYOR SHALL SURVEY THE VERTICAL AND HORIZONTAL LIMITS OF THE OVER-EXCAVATION PRIOR TO PLACEMENT OF ANY FILL. CONTRACTOR TO VERIFY THAT GEOTECHNICAL ENGINEER APPROVES.

THE ABOVE CERTIFICATES SHALL BE PERFORMED BY A LICENSED SURVEYOR AND THE SOILS ENGINEER AND PAID FOR BY THE CONTRACTOR. ANY COSTS FOR REWORKING, RETESTING OR RESURVEYING DUE TO NONCOMPLIANCE WITH THE SPECIFICATIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

7. THE CONTRACTOR IS RESPONSIBLE FOR CALCULATIONS NECESSARY TO DETERMINE QUANTITY OF BASE ROCK. COPIES OF CALCULATIONS SHALL BE FURNISHED TO OWNER. CONTRACTOR SHALL FURNISH LOAD TICKETS TO OWNER FOR USE IN CHECKING QUANTITY OF BASE ROCK ACTUALLY PLACED ON JOB SITE. OWNER MAY REQUEST BORINGS BY SOILS ENGINEER TO CONFIRM THICKNESS OF BASE ROCK.
8. TRENCH BACK FILL SHALL BE DONE IN A CONTINUOUS OPERATION AND COMPLETED TO SUBGRADE. AREAS OF MINIMUM COVER SHALL BE PROTECTED.
9. LANDSCAPE IRRIGATION LINES SHALL BE BURIED A MINIMUM OF TWELVE (12) INCHES BELOW SUB GRADE AND 36 INCHES BELOW FINISHED GRADE AND BACKFILL OVER THE LINES, COMPACTED TO 92% MINIMUM RELATIVE COMPACTION. (95% IN PAVED AREAS)
10. RETAINING WALLS SHALL BE CONSTRUCTED AND BACK FILLED IN ACCORDANCE WITH THE STRUCTURAL ENGINEER'S AND SOILS ENGINEER'S RECOMMENDATIONS. (WHERE APPLIES)
11. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE SOILS REPORT, CITY STANDARD AND SPECIFICATIONS (LATEST EDITION), APPENDIX CHAPTER 33 OF THE UNIFORM BUILDING CODE (LATEST EDITION), CALIFORNIA BUILDING CODE 2013, AND THE CONTRACT DOCUMENTS AND SPECIFICATIONS. THE MOST STRINGENT OF THE REQUIREMENT SET FORTH IN THE REFERENCED DOCUMENTS SHALL APPLY TO THE PROJECT.
12. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE SOILS ENGINEER'S REPORTS AND RECOMMENDATIONS. THE GEOTECHNICAL ENGINEERING INVESTIGATION REPORT PREPARED BY COUNTY OF FRESNO, DEPARTMENT OF PUBLIC WORKS AND PLANNING PROJECT NUMBER: T90203 DATED: 4-22-2020 AND PER LATEST ADDENDUM REPORT PREPARED BY COUNTY OF FRESNO.
13. ALL GRADING OPERATIONS, EXCAVATION, FILL COMPACTION, TRENCHING AND BACK FILL SHALL BE OBSERVED AND TESTED BY A QUALIFIED REGISTERED SOILS ENGINEER SHALL BE DESIGNATED BY AND PAID FOR BY THE OWNER.
14. ALL GRADING OPERATIONS INCLUDING, BUT NOT LIMITED TO, ROUGH GRADE, RETAINING WALLS, FINE GRADE, BUILDING LAYOUT, CURBS AND CURB AND GUTTERS SHALL BE STAKED BY A REGISTERED CIVIL ENGINEER OR LICENSED LAND SURVEYOR. THE CIVIL ENGINEER/SURVEYOR MUST BE APPROVED BY THE OWNER. THE CONTRACTOR IS TO NOTIFY THE ENGINEER/SURVEYOR A MINIMUM OF TWO WORKING DAYS IN ADVANCE ON STAKING REQUESTS.
15. PRIOR TO THE START OF GRADING, ALL EXISTING VEGETATION AND DEBRIS, INCLUDING EXISTING STRUCTURES, SLABS, PAVEMENTS, FOOTINGS, FOUNDATIONS, RUBBLE, TREES AND ROOT SYSTEMS SHALL BE REMOVED FROM THE SITE TO THE SATISFACTION OF THE SOILS ENGINEER.
16. AFTER STRIPPING THE DEBRIS, OVEREXCAVATION SHOULD BE CONDUCTED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT. ANY EXISTING LOOSE FILL OR DISTURBED NATURAL SOILS SHALL BE EXCAVATED TO THE SATISFACTION OF THE SOILS ENGINEER.
17. THE EXPOSED SOILS SHALL THEN BE INSPECTED BY THE SOILS ENGINEER, AND ANY ADDITIONAL EXCAVATION SHALL THEN BE MADE IN ACCORDANCE WITH THE SOILS ENGINEER'S RECOMMENDATIONS.
18. NO FILL MAY BE PLACED UNTIL THE EXPOSED SURFACES HAVE BEEN SURVEYED BY A LICENSED SURVEYOR AND APPROVED BY THE SOILS ENGINEER AND CITY GRADING INSPECTOR.
19. ALL FILL AND BACK FILL MATERIAL MUST BE APPROVED BY THE SOILS ENGINEER AND UTILITY COMPANY INVOLVED. A SAMPLE OF THE PROPOSED BACKFILL MATERIAL SHALL BE PROVIDED BY THE CONTRACTOR TO THE SOILS ENGINEER FOR TESTING AND APPROVAL AT LEAST SEVEN DAYS PRIOR TO HAULING THE PROPOSED BACKFILL MATERIAL TO THE SITE.
20. MATERIAL FOR FILL MAY CONSIST OF ON-SITE SOILS BELOW THE STRIPPED LAYER FREE OF DEBRIS AND HAVING AN ORGANIC CONTENT OF LESS THAN 3% BY WEIGHT, SUBJECT TO THE APPROVAL OF THE SOILS ENGINEER. ALL IMPORTED MATERIAL SHALL BE TESTED AND APPROVED BY THE SOILS ENGINEER PRIOR TO DELIVERY TO THE SITE. "ALL IMPORTED MATERIAL TO BE USED AS ENGINEERED FILL SHALL BE PREDOMINANTLY GRANULAR, WITH THE FOLLOWING ACCEPTANCE CRITERIA."

PERCENT PASSING 3-INCH SIEVE	100
PERCENT PASSING NO. 4 SIEVE	85-100
PERCENT PASSING NO. 200 SIEVE	10-40
PLASTICITY INDEX	MAXIMUM 12
EXPANSION INDEX (ASTM D4829)	LESS THAN 15
R-VALUE	MINIMUM 40*
MINIMUM RESISTIVITY (OHMS-CM)	>5000
MINIMUM SULFATES (BY DRY WEIGHT)	<0.05%
ORGANIC CONTENT (BY DRY WEIGHT)	<3%

*FOR PAVEMENT AREAS ONLY

21. COMPACTION SHALL BE OBTAINED TO THE DEGREE SPECIFIED BY THE SOILS ENGINEER
22. IF ANY UNKNOWN SUBSURFACE STRUCTURES ARE ENCOUNTERED DURING CONSTRUCTION, THEY SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE SOILS ENGINEER AND THE OWNER PRIOR TO PROCEEDING.
23. DUST SHALL BE CONTROLLED BY WATERING THROUGHOUT THE GRADING AND BUILDING CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL ARRANGE AND PAY FOR CONSTRUCTION WATER.
24. THE CONTRACTOR SHALL TAKE OUT THE GRADING PERMIT AND NOTIFY THE COUNTY INSPECTOR, SOILS ENGINEER AND OWNER AT LEAST 48 HOURS PRIOR TO THE START OF CONSTRUCTION.
25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES TO REMAIN IN USE WITHIN THE CONSTRUCTION AREA WHETHER SHOWN OR NOT SHOWN HEREON. ABANDONMENT OF EXISTING UTILITIES NOT TO REMAIN IN USE SHALL BE IN ACCORDANCE WITH THE SOILS ENGINEER'S RECOMMENDATIONS AND THE GOVERNING UTILITY COMPANY REQUIREMENTS, WHICHEVER IS MOST STRINGENT. ALL EXISTING RIGID UTILITY LINES, 8 INCHES OR SMALLER IN DIAMETER, MAY REMAIN WITHIN THE AREAS TO BE PAVED PROVIDED A MINIMUM OF 30 INCHES OF COVER EXISTS FROM THE TOP OF THE PIPE TO THE FINISHED PAVEMENT ELEVATIONS AND SUBJECT TO THE APPROVAL OF THE SOILS ENGINEER. ALL EXISTING PIPES LARGER THAT 8 INCHES IN DIAMETER SHALL BE REMOVE (PER SOILS REPORT) TO THE SATISFACTION OF THE SOILS ENGINEER.
26. PROTECTIVE MEASURES SHALL BE TAKEN BY THE CONTRACTOR TO PROTECT ADJACENT PROPERTIES, PUBLIC AND PRIVATE, AT ALL TIMES DURING CONSTRUCTION AND NOT TO CAUSE ANY MUD, SILT OR DEBRIS TO BE ONTO THE ADJACENT PROPERTIES. AND MUD OR DEBRIS CAUSED ON ADJACENT PROPERTY & STREETS SHALL BE REMOVED IMMEDIATELY.
27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING AND/OR EXPORTING ALL MATERIAL AS REQUIRED TO PROPERLY GRADE THE SITE TO THE FINISHED ELEVATION SHOWN HERON IN ACCORDANCE WITH THE APPROVED PLANS, SPECIFICATIONS AND THE SOILS ENGINEER'S RECOMMENDATIONS.
28. THE GRADING CONTRACTOR SHALL BACK FILL ALL PLANTER AREAS TO WITHIN 2 INCHES OF ADJACENT TOP OF CURB OR BACK OF WALK, AS APPLICABLE, WITH SOIL FREE FROM DEBRIS AND APPROVED BY THE ARCHITECT. TOPSOIL SHALL BE THE RESPONSIBILITY OF THE LANDSCAPE CONTRACTOR AND SHALL BE REPLACED TO WITHIN 2 INCHES OF THE ADJACENT TOP OF CURB. COMPACTION SHALL BE AS DESIGNATED BY THE SOIL ENGINEER.
29. A SEPARATE PERMIT SHALL BE REQUIRED BY THE CONTRACTOR FROM THE CITY OF FRESNO PUBLIC WORKS OR CAL TRANS PRIOR TO PERFORMING ANY WORK WITHIN THEIR STREET RIGHT-OF-WAYS. ALL COSTS FOR THIS PERMIT SHALL BE BORNE BY THE CONTRACTOR.
30. AFTER THE COMPLETION OF THE ROUGH GRADING AND PRIOR TO THE START OF ANY UTILITY CONSTRUCTION, THE CONTRACTOR SHALL OBTAIN A CERTIFICATE FROM THE SOILS ENGINEER AND FURNISH TWO APPROVED COPIES TO THE OWNER AND ARCHITECT FOR APPROVAL, THAT THE GRADING HAS BEEN INSPECTED AND TESTED AND MEETS WITH HIS RECOMMENDATIONS AND APPROVAL. THIS CERTIFICATE SHALL INCLUDE COMPACTION REPORTS, TYPE OF MATERIALS ENCOUNTERED AND A DESCRIPTION OF THE WORK PERFORMED.
31. ALL CURB AND GUTTER SHALL BE WATER TESTED UNDER THE DIRECTION OF THE ENGINEER OF THE PROJECT REPRESENTATIVE.
32. ALL FILL SHALL BE STRUCTURAL ENGINEERED FILL IN COMPLIANCE WITH THE SOILS INVESTIGATION.
33. THE CONTRACTOR SHALL ARRANGE AND PAY FOR A CIVIL ENGINEER/SURVEYOR, FOR ALL STAKING, SURVEYS, CERTIFICATIONS AND RELATED WORK AS SPECIFIED HEREIN.
34. ALL TESTS AND INSPECTIONS REQUIRED BY GOVERNING AGENCIES SHALL BE ARRANGED FOR BY THE CONTRACTOR AND PAID FOR BY THE CLIENT EXCEPT FOR RETESTS.
35. ALL AREAS SHALL BE GRADED AT 1.5% (UNLESS CONCRETE) MINIMUM FOR DRAINAGE EXCEPT ALONG FLOW LINE OF CURB AND GUTTER OR VALLEY GUTTER.
36. THE DEVELOPER SHALL OBTAIN WRITTEN AUTHORIZATION FROM ANY ADJACENT PROPERTY OWNER GIVING HIM PERMISSION TO ENTER HIS PROPERTY FOR PURPOSED OF CONSTRUCTING THE IMPROVEMENTS DELINEATED ON THESE PLANS AND TRANSITION THERETO. THE DEVELOPER SHALL PROVIDE THE COUNTY WITH A COPY PRIOR TO START OF WORK.
37. MAXIMUM CUT OR FILL SLOPES SHALL BE 2H:1V OR FLATTER.
38. CONTRACTOR TO PROVIDE THE COUNTY WITH MYLAR AS-GRADED PLANS. PLANS ARE TO BE SUBMITTED UPON COMPLETION OF PROJECT AND PRIOR TO ACCEPTANCE. THE ENGINEER SHALL CERTIFY THE PAD ELEVATIONS PRIOR TO ISSUANCE OF ANY BUILDING PERMIT. AS BUILT SHALL BE PREPARED BY A LICENSED SURVEYOR OR ENGINEER.
39. ALL SITE WORK SHALL BE IN CONFORMANCE WITH TITLE 24 OF CALIFORNIA ADMINISTRATIVE CODE.
40. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE O.S.H.A REGULATIONS.
41. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSON AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY. CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.
42. CONSTRUCTION ACTIVITIES SHALL BE ALL LIMITED TO 7:00 A.M. TO 7:00 P.M. ON WEEKDAYS. 9:00 A.M. TO 5:00 P.M. ON WEEKENDS WITH WRITTEN APPROVAL OF THE PUBLIC WORKS DIRECTOR.
43. ATTENTION IS DIRECTED FOR ALL PERSONNEL WORKING ON THIS PROJECT SECTION 7-1.011, 7-1.09 AND SECTION 7-1.13 OF THE STATE STANDARD SPECIFICATIONS, LATEST EDITION AND THE FOLLOWING SPECIAL PROVISIONS REGARDING TRAFFIC MAINTENANCE AND CONTROL:

A. SIGNS, TRAFFIC CONES AND LIGHTED BARRICADES AT NIGHT SHALL BE PROVIDED BY THE CONTRACTOR ENCLOSE THE WORK SITE AT ALL TIMES.
B. FLAGMEN ARE REQUIRED WHEN TRAFFIC IS RESTRICTED TO THE USE OF ONE LANE, MAXIMUM 12 FOOT WIDTH.
C. STREET CLOSING IS PROHIBITED UNLESS PERMISSION IS GRANTED BY THE DIRECTOR OF PUBLIC WORKS ONE WEEK IN ADVANCE OF THE CLOSURE. CONTRACTOR SHALL CONTACT ALL EMERGENCY SERVICES. DETOUR SIGN PLACEMENT SHALL BE AS APPROVED BY THE CITY.
D. PROVISIONS SHALL BE MADE BY THE CONTRACTOR TO MAINTAIN PEDESTRIAN FACILITIES DURING CONSTRUCTION.
E. ACCESS TO DRIVEWAYS AND BUSINESS ESTABLISHMENTS SHALL BE MAINTAINED AT ALL TIMES BY USE OF STEEL PLATES OR MEAN ACCEPTABLE TO THE CITY INSPECTOR.

44. DUST CONTROL SHALL CONFORM TO THE PROVISIONS IN SECTION 10 OF THE STATE STANDARD SPECIFICATIONS
45. CONTRACTOR SHALL SEE TO IT THAT TRUCKS LEAVING THE SITE SHALL DO SO IN SUCH A MANNER THAT MUD AND EARTH WILL NOT BE DEPOSITED ON ADJACENT STREET PAVEMENTS. ANY MUD OR EARTH DEPOSITED ON STREET PAVEMENT SHALL BE PROMPTLY REMOVED BY THIS CONTRACTOR OR AS REQUESTED BY THE INSPECTOR.
46. CONTRACTOR SHALL REPLACE AND/OR REPAIR ALL DAMAGES AFFECTED BY CONSTRUCTION ON EXISTING ADJACENT OFF-SITE IMPROVEMENTS TO THE SATISFACTION OF THE CITY OF FRESNO PUBLIC WORKS DEPARTMENT.
47. THE FOLLOWING CONTROL MEASURES SHALL BE INCORPORATED INTO ANY PERMITS FOR ALL PHASES OF THE PROJECT:

A. WATER ALL ACTIVE CONSTRUCTION AREAS AT LEAST TWICE DAILY. (LATE MORNING AND THE END OF THE DAY)
B. COVER ALL TRUCKS HAULING OIL, SAND, AND OTHER LOOSE MATERIALS OR REQUIRE ALL TRUCKS TO MAINTAIN AT LEAST TWO FEET OF FREEBOARD.
C. PAVE OR APPLY WATER THREE TIMES DAILY, OR APPLY (NON-TOXIC) SOIL STABILIZER TO ALL UNPAVED ACCESS ROADS, PARKING AREAS AND STAGING AREAS AT CONSTRUCTION SITES.
D. SWEEP DAILY (WITH WATER SWEEPERS) ALL PAVED ACCESS ROADS, PARKING AREAS AND STAGING AREAS AT CONSTRUCTION SITES.
E. SWEEP STREETS DAILY (WITH WATER SWEEPERS) IF VISIBLE SOIL MATERIAL IS CARRIED ONTO ADJACENT PUBLIC STREETS.
F. HYDROSEED OR APPLY (NON-TOXIC) SOIL STABILIZERS TO INACTIVE CONSTRUCTION AREAS (PREVIOUSLY GRADED AREAS INACTIVE FOR TEND DAYS OR MORE).
G. ENCLOSE, COVER, WATER TWICE DAILY OR APPLY (NON-TOXIC) SOIL BINDERS TO EXPOSED STOCKPILES (DIRT, SAND, ETC.)
H. LIMIT TRAFFIC SPEEDS ON UNPAVED ROADS TO 15 MPH.
I. INSTALL SANDBAGS OR OTHER EROSION CONTROL MEASURES TO PREVENT SILT RUNOFF TO PUBLIC ROADWAYS.
J. REPLANT VEGETATION IN DISTURBED AREAS AS QUICKLY AS POSSIBLE.
K. INSTALL WHEEL WASHERS FOR ALL EXISTING TRUCKS, OR WASH OFF THE TIRES OR TRACKS OF ALL TRUCKS AND EQUIPMENT LEAVING THE SITE.
L. INSTALL WIND BREAKS, OR PLANT TREES/VEGETATIVE WIND BREAKS AT WINDWARD SIDE(S) OF CONSTRUCTION AREAS.
M. SUSPEND EXCAVATION AND GRADING ACTIVITY WHEN WINDS (INSTANTANEOUS GUSTS) EXCEED 25 MILES PER HOUR.
N. LIMIT THE AREA SUBJECT TO EXCAVATION, GRADING AND OTHER CONSTRUCTION ACTIVITY AT ANY ONE TIME.

48. "IF ARCHAEOLOGICAL RESOURCES OR HUMAN REMAINS ARE DISCOVERED DURING CONSTRUCTION, WORK SHALL BE HALTED AT A MINIMUM OF 200 FEET FROM THE FIND AND THE AREA SHALL BE STAKED OFF TO THE PROJECT DEVELOPER SHALL NOTIFY THE CORONER OR THE DIRECTOR OF THE ARCHAEOLOGICAL REGIONAL RESEARCH CENTER & THE PLANNING DIRECTOR. IF THE FIND IS DETERMINE TO BE SIGNIFICANT, APPROPRIATE MITIGATION MEASURES SHALL BE FORMULATED AND IMPLEMENTED."

ASPHALT PAVEMENT

49. PRIOR TO THE DELIVERY OF ASPHALT PAVEMENT TO THE SITE, THE CONTRACTOR SHALL OBTAIN A CERTIFICATED FROM THE SOILS ENGINEER AND FURNISH TWO COPIES TO THE OWNER AND ARCHITECT FOR APPROVAL THAT THE SUB-GARDE AND BASE MATERIALS HAVE BEEN PROPERLY PREPARED, GRADED AND COMPACTED AND ARE SUITABLE FOR THE PLACEMENT OF THE ASPHALT MATERIAL.
50. THE CERTIFICATION REQUIRED IN NOTE NO. 51 SHALL BE PERFORMED IMMEDIATELY PRIOR TO THE PLACEMENT OF THE ASPHALT MATERIAL. IN ADDITION, THE SOILS ENGINEER SHALL BE PRESENT DURING THE PLACEMENT OF THE ASPHALT.
51. UPON COMPLETION OF THE ASPHALT PAVEMENT AND PRIOR TO THE PAINT STRIPING AND SEALCOATING OF THE PARKING LOT, THE CONTRACTOR SHALL HAVE THE SOILS ENGINEER CORE THE PAVED AREAS AT LOCATIONS SPECIFIED BY THE OWNER FOR APPROVAL PRIOR TO THE PAINTING AND SEALING OF THE PAVEMENT. CORE TESTS SHALL INCLUDE TYPES OF MATERIAL ENCOUNTERED AND PAVEMENT AND BASE THICKNESS.
52. PAVE DRIVEWAY AND PARKING LOT PER GRADING PLAN AND GEOTECHNICAL REPORT REQUIREMENTS, WHICHEVER IS MOST STRINGENT.

SEWER, WATER AND STORM DRAIN

53. ALL WORK SHALL BE DONE IN ACCORDANCE WITH CITY STANDARDS AND SPECIFICATIONS AND THE CONTRACT SPECIFICATIONS AND THE PROJECTS GEOTECHNICAL ENGINEERING REPORT WHICHEVER REQUIREMENT IS THE MOST STRINGENT.
54. EXISTING PRIVATE AND PUBLIC UTILITIES SHOWN HEREON REFLECT AVAILABLE RECORD DATA. THE CONTRACTORS SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UTILITIES WHICH ARE TO REMAIN IN USE, WHETHER SHOWN OR NOT SHOWN HEREON. THE CONTRACTOR SHALL NOTIFY ALL PUBLIC UTILITY COMPANIES AND OWNERS OF PRIVATE UTILITIES WITHIN THE CONSTRUCTION AREA 48 HOURS PRIOR TO THE START OF ANY CONSTRUCTION.
55. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS AND LICENSE PRIOR TO THE START OF CONSTRUCTION.
56. THE CONTRACTOR SHALL VERIFY THE FLOW LINE ELEVATION OF THE EXISTING SEWER/STORM DRAIN AT THE POINT OF CONNECTION AND NOTIFY THE ENGINEER IMMEDIATELY IF MORE THAN 0.10 FOOT OF DIFFERENCE EXISTS FROM THIS PLAN.
57. THE CONTRACTOR SHALL COORDINATE THE SEWER, WATER AND STORM DRAIN CONSTRUCTION IN A MANNER TO PREVENT ANY CONFLICTS WHERE UTILITY LINES CROSS EACH OTHER. THE SEWER, WATER AND STORM DRAIN CONTRACTORS SHALL BE RESPONSIBLE FOR OBTAINING PLANS FOR ALL OTHER UTILITIES FOR THIS DEVELOPMENT FROM THE ARCHITECT, SHALL FAMILIARIZE THEMSELVES THEREWITH AND SHALL NOTIFY THE ARCHITECT AND ENGINEER IMMEDIATELY OF ANY CONFLICT WITH THIS PLAN PRIOR TO THE START OF CONSTRUCTION.
58. SEWER LINES MAY NOT PASS OVER THE TOP OF WATER LINES. WHERE SEWER LINES PASS BENEATH WATER LINES WITH LESS THAN THREE (3) FEET OF VERTICAL CLEARANCE, THE SEWER LINES SHALL BE FULLY ENCASED WITH 6 INCH MINIMUM THICK CONCRETE FOR A MINIMUM DISTANCE OF TEN (10) FEET ON EACH SIDE OF THE CROSSING. MINIMUM HORIZONTAL CLEARANCE BETWEEN PARALLEL SEWER AND WATER LINES SHALL BE TEN (10) FEET CLEAR.
59. ALL SEWER AND WATER SERVICES SHALL BE CONSTRUCTED TO THE RIGHT-OF-WAY LINE OTHERWISE SHOWN HEREON. THE CONTRACTOR SHALL VERIFY THE SIZE, LOCATION AND ELEVATION OF THE UTILITY SERVICES, INCLUDING THE FIRE SERVICE, WITH THE BUILDING CONTRACTOR PRIOR TO THE INSTALLATION THEREOF AND SHALL NOTIFY THE ARCHITECT AND OWNER IMMEDIATELY OF ANY DISCREPANCY FROM THIS PLAN PRIOR TO PROCEEDING.
60. ALL ON-SITE SANITARY SEWER P.V.C. PIPE SHALL CONFORM TO ASTM SPECIFICATION D-SDR 26 OR GREATER.
61. WATER LINES 4" AND LARGER FROM THE DETECTOR CHECK TO WITHIN 5' OF THE BUILDING SHALL BE P.V.C. PIPE, PC 305, WITH RIGHT-TITE JOINTS CONFORMING TO A.W.W.A. C900 (C.I. DIA. RATIO 18).
62. DOMESTIC SERVICE LINES 2" AND SMALLER SHALL BE P.V.C PRESSURE PIPE, PC 235, UNLESS OTHERWISE SHOWN UPON THE PLANS.
63. WATER LINES 12" AND LARGER SHALL HAVE A MINIMUM COVER OF 36 INCHES. WATER LINES SMALLER THAN 12" SHALL HAVE A MINIMUM COVER OF 20 INCHES. UNLESS OTHERWISE NOTED.
64. NOT USED.
65. THE UNDERGROUND CONTRACTOR SHALL SET HIS STRING OR WIRE THROUGH AT LEAST THREE GRADE STAKES TO VERIFY THE GRADE. IF THE STAKES DO NOT PRODUCE A UNIFORM GRADE, NOTIFY THE ENGINEER IMMEDIATELY AND HAVE THE GRADES CHECKED PRIOR TO TRENCHING. A LASER SHALL BE USED TO SET ALL PIPE.
66. ALL UTILITY STRUCTURES INCLUDING, BUT NOT LIMITED TO MANHOLES, CATCH BASINS, WATER VALVES, FIRE HYDRANTS, TELEPHONE AND ELECTRIC VAULTS AND PULL BOXES THAT LIE WITHIN AREAS EFFECTED BY WORK ON THIS PROJECT SHALL BE ADJUSTED TO GRADE BY THE CONTRACTOR OR THE RESPECTIVE UTILITY COMPANY. THE CONTRACTOR IS RESPONSIBLE TO AFFECT COORDINATION.
67. AIR TEST OF THE SEWER MAINS AND BUILDING SERVICES SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF CITY & THE MANUFACTURER'S AIR TESTING MANUAL. THE AIR TEST IS TO BE MADE ON THE PIPE INSTALLATION WITHOUT THE ADDITION OF SEALERS TO THE PIPE INTERIOR. THE APPLICATION OF MORTAR. EPOXY, CAULKING COMPOUNDS, OR OTHER MATERIAL TO THE PIPE WILL BE PROHIBITED. FAILURE TO MEET THE AIR TEST WILL REQUIRE CONTRACTOR TO REPLACE SECTIONS AS REQUIRED. CONTRACTOR MAY ELECT IN LIEU OF EXPOSING ENTIRE LINE, THE OPTION TO SELECT DEFECTIVE PORTIONS OF THE PIPELINE, OR ISOLATE MAIN IN MINIMUM OF 5' SECTIONS, AND RETEST EACH SECTION UNTIL FAILURE IS LOCATED, AND THEN REPLACE AS NECESSARY. ALL COSTS, (INCLUDING PHOTOGRAPHER'S WORK ASSOCIATED WITH THE FINAL REPAIR) WILL BE THE CONTRACTOR'S. AIR TEST IS TO BE PERFORMED UPON COMPLETION OF COMPACTION.
68. IN ADDITION TO THE AIR TEST, THE CONTRACTOR SHALL INSPECT THE SEWER & STORM DRAIN INSTALLATION WITH A CLOSED CIRCUIT TELEVISION CAMERA TO CITY STANDARDS. ANY BROKEN PIPE SEPARATION OF JOINS OR ANY PIPE NOT LAID TO TRUE LINE AND GRADE, SHALL BE REPLACED. ALL COST ASSOCIATED WITH THE FINAL REPAIR AND COLORED DVD WILL BE THE CONTRACTORS.
69. FINAL AIR TEST OF THE SEWER SYSTEM SHALL BE MADE AFTER ALL UNDERGROUND UTILITIES HAVE BEEN INSTALLED AND COMPACTED IN THAT AREA. TELEVISION CAMERA CHECK OF SEWER SYSTEM AND STORM DRAIN SYSTEM SHALL BE MADE AFTER AIR TEST OR WATER TEST ON SEWER AND PRIOR TO PLACING OF FINAL PAVEMENT. CONTRACTOR SHALL FORWARD A COPY OF COLORED DVD TO THE PROJECT'S ENGINEER AFTER THE FINAL CAMERA INSPECTION.
70. NOT USED.
71. ALL SEWER AND STORM DRAIN CONSTRUCTION SHALL PROCEED FROM THE DOWNSTREAM CONNECTION TO THE UPSTREAM TERMINUS.
72. SEWER LATERALS SHALL BE PLUGGED AT THE POINT OF TERMINUS SHOW HEREON, AND THE ENTIRE SYSTEM SHALL THEN BE TESTED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS AND GOVERNING AGENCY REQUIREMENTS. NO BUILDING CONNECTIONS SHALL BE MADE TO THE LATERALS UNTIL THE ENTIRE SYSTEM HAS BEEN TESTED, APPROVED AND ACCEPTED BY THE CITY AND THE OWNER. FINAL AIR LEAKAGE TESTS SHALL BE MAE AFTER ALL BACK FILL HAS BEEN COMPLETED AND APPROVED BY THE SOILS ENGINEER.
73. MANHOLE, VALVE, METER BOX AND CLEANOUTS RIM ELEVATIONS, SHOWN OR NOT SHOWN HEREON, ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADJUSTING THE RIMS AND COVERS TO THE FINISHED PAVEMENT GRADE AFTER THE SITE IS PAVED AND SHALL MAKE ARRANGEMENTS FOR ANY ADDITIONAL PAVING REQUIRED.
74. UTILITY LINE CONSTRUCTION SHALL NOT COMMENCE UNTIL THE SITE HAS BEEN ROUGH GRADED AND CERTIFIED BY THE APPROVED SOILS ENGINEER AND CIVIL ENGINEER/SURVEYOR IN ACCORDANCE WITH THE CONTRACT PLANS AND SPECIFICATIONS.
75. ALL CHLORINIZATION, STERILIZATION, PRESSURE TESTS, HYDROSTATIC AND OTHER TESTS OF WATER LINES SHALL BE MADE IN ACCORDANCE WITH THE CITY STANDARDS AND SPECIFICATIONS.
76. THE CONTRACTOR SHALL ARRANGE AND SCHEDULE ALL TESTS AND INSPECTIONS REQUIRED BY GOVERNING AGENCIES.
77. THE CONTRACTOR SHALL PAY ALL UTILITY FEES INCLUDING, BUT NOT LIMITED TO, WATER METERS, WATER CONNECTION, SEWER CONNECTION, INSTALLATION COSTS, WATER PARTICIPATION FEES AND OTHER FEES REQUIRED BY THE GOVERNING AGENCIES FOR THE INSTALLATION OF THE COMPLETE, OPERABLE AND USABLE UTILITY SYSTEMS SHOWN THEREON.
78. ALL MATERIAL SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. EXCEPT AS NOTED ON PLAN.
79. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE AMPLE COVERAGE FOR THE PROTECTION OF ALL INSTALLED UTILITIES DURING THE CONSTRUCTION OF THIS PROJECT.
80. CONCRETE THRUST BLOCKS SHALL BE INSTALLED ON ALL WATER LINES AT ALL BENDS, ELBOWS, TEES AND WHERE DIRECTED BY THE ENGINEER AND INSPECTOR.
81. THE CONTRACTOR IS TO FURNISH THE OWNER WITH A COPY OF ALL PERMITS AND FINAL ACCEPTANCES GRANTED BY UTILITIES AND GOVERNING AGENCIES.
82. PRIOR TO THE INSTALLATION OF ANY UTILITY LINE, THE TRENCH SHALL BE INSPECTED AND APPROVED BY THE SOILS ENGINEER. THE CONTRACTOR SHALL PROVIDE A COPY OF THE SOILS ENGINEER'S INSPECTION REPORT AND APPROVAL TO THE OWNER, CITY, AND ARCHITECT.
83. ALL UTILITY LINE BACK FILL MATERIAL SHALL BE APPROVED BY THE SOILS ENGINEER AND GOVERNING AGENCY. WHOSOEVER REQUIREMENTS ARE MOST STRINGENT. BACK FILL PLACEMENT AND COMPACTION SHALL BE MADE BY METHODS AND TO THE DEGREE SPECIFIED BY THE SOILS ENGINEER. BACK FILL COMPACTION TESTES AND REPORTS SHALL BE MADE BY THE SOILS ENGINEER AND FURNISHED TO THE OWNER AND ARCHITECT FOR APPROVAL. UTILITY LINES MAY NOT BE COVERED UNTIL AFTER THEY HAVE BEEN TESTED AND APPROVED.
84. UPON COMPLETION OF THE BACK FILL OPERATIONS, AND THE APPROVAL THEREOF BY THE SOILS ENGINEER, THE UTILITY LINES SHALL BE RETESTED. IN ADDITION, IMMEDIATELY AFTER SCARIFYING AND RECOMPACTING THE SUB GRADE SOIL IN PREPARATION OF, BUT PRIOR TO, THE LAYING OF THE ASPHALT SUB-BASE MATERIAL, THE WATER LINES SHALL BE RETESTED. ANY DEFECTS SHALL BE CORRECTED PRIOR TO THE PAVING OF THE LOT. THESE TESTS SHALL BE MADE IN THE PRESENCE OF THE ARCHITECT. THIS SHALL INCLUDE LANDSCAPE IRRIGATION LINES.
85. THE WIDTH OF ALL TRENCHES SHALL PROVIDE A MINIMUM CLEARANCE OF 8 INCHES BETWEEN THE SIDEWALLS OF THE PIPE AND THE TRENCH, OR AS NECESSARY TO PROVIDE A TRENCH WIDTH THAT IS 12 INCHES GREATER THAT 1.25 TIMES THE OUTSIDE DIAMETER OF THE PIPE WHICHEVER IS GREATER. THE BOTTOM OF THE TRENCH IS DISTURBED VT ACCIDENTAL OVER EXCAVATION OF THE CONTRACTOR SHALL REMOVE ALL LOOSE SOILS OR COMPACT THE LOOSE SOILS AS ENGINEERED FILL PRIOR TO PLACEMENT OF BEDDING, PIPE AND BACKFILL OF TRENCH. AS A MINIMUM, THE PIPE BEDDING SHALL CONSIST OF 4 INCHES OF COMPACTED (92 PERCENT RELATIVE COMPACTION) SELECT SAND WITH A MINIMUM SAND EQUIVALENT OF 30 AND MEETING THE FOLLOWING REQUIREMENTS: 100 PERCENT PASSING THE $\frac{1}{4}$ SIEVE, A MINIMUM OF 90 PERCENT PASSING THE NO. 4 SIEVE AND NOT MORE THAN 10 PERCENT PASSING THE NO. 200 SIEVE. THE HAUNCHES AND INITIAL BACKFILL (12 INCHES ABOVE THE TOP OF PIPE) SHALL CONSIST OF A SELECT SAND MEETING THESE SAND EQUIVALENT AND GRADATION REQUIREMENTS THAT IS PLACED IN MAXIMUM 6-INCH THICK LIFTS AND COMPACTED TO A MINIMUM RELATIVE COMPACTION OF 92 PERCENT USING HAND EQUIPMENT. OPEN GRADED GRAVEL AND ROCK MATERIALS SUCH AS $\frac{3}{4}$ INCH CRUSHED ROCK OR $\frac{1}{2}$ INCH CRUSHED ROCK SHALL NOT BE USED AS BACKFILL INCLUDING TRENCH BACKFILL. IN THE EVEN GRAVEL OR ROCK IS REQUIRED BY A REGULATORY AGENCY FOR USE AS A BACKFILL, ALL OPEN GRADED MATERIALS SHALL BE FULLY ENCASED IN A GEOTEXITILE FILTER FABRIC, SUCH AS MIRAFI 140N, TO PREVENT MIGRATION OF FINE GRAINED SOILS INTO THE POROUS MATERIAL.
86. PROCEDURE ABOVE PIPE ZONE: THE FINAL FILL (12 INCHES ABOVE THE PIPE TO THE SURFACE) SHALL BE ON-SITE OR IMPORTED, NON-EXPANSIVE MATERIALS MOISTURE CONDITIONED TO BETWEEN OPTIMUM AND THREE (3) PERCENT ABOVE OPTIMUM MOISTURE CONTENT AND COMPACTED TO A MINIMUM OF 92 PERCENT RELATIVE COMPACTION. THE UPPER 12 INCHES OF FILL AND SUBGRADE COMPACTED IN PAVEMENT AREAS SHALL BE COMPACTED TO A MINIMUM OF 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM TEST METHOD D1557. FINAL UTILITY TRENCH BACKFILL PLACED IN OR ADJACENT TO BUILDING AREAS, EXTERIOR SLABS OR PAVEMENTS SHALL BE PLACED IN 8 INCH LIFTS. LIFE THICKNESS CAN BE INCREASED IF THE CONTRACTOR CAN DEMONSTRATE THE MINIMUM COMPACTION REQUIREMENTS CAN BE ACHIEVED.
87. PRIOR TO THE PLACEMENT OF UNDERGROUND UTILITIES, THE TRENCH SHALL BE EXAMINED FOR SUBSURFACE SEEPAGE. IF SEEPAGE IS ENCOUNTERED, THE SOILS ENGINEER SHALL BE CONSULTED SO THAT RECOMMENDATIONS FOR SUBSURFACE DRAINAGE CAN BE MADE. TRENCHES CONTAINING FREE WATER SHALL BE DE-WATERED PRIOR TO BACKFILLING.
88. WATER SETTING (JETTING): JETTING OF BEDDING AND BACK FILL SHALL NOT BE PERMITTED.
89. EACH BACK FILL LAYER SHALL BE EVENLY SPREAD, PROPERLY MOISTENED AND COMPACTED TO THE SPECIFIED RELATIVE DENSITY. ANY DAMAGE TO THE PIPE AS A RESULT OF CONTRACTOR'S OPERATION SHALL BE REPAIRED AND/OR REPLACED AT THE CONTRACTOR'S EXPENSE.
90. NO MATERIAL GREATER THAN 3 INCHES IN ANY DIMENSION SHALL BE PLACED WITHIN ONE FOOT OF ANY PIPE, MANHOLE OR STRUCTURE.
91. MAXIMUM DENSITY/OPTIMUM MOISTURE CONTENT SHALL BE DETERMINED IN ACCORDANCE WITH ASTM TEST METHOD D1557 AND ALL BEDDING AND BACK FILL SHALL BE PLACED UNDER THE SUPERVISION OF THE SOILS ENGINEER.
92. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO SUPERVISE AND CERTIFY THAT PROPER COMPACTION HAS BEEN OBTAINED BY SUBCONTRACTORS AND AGENCIES CONCERNING UTILITY LINE BACK FILL INCLUDING, BUT NOT LIMITED TO SEWERS, WATER LINES, ELECTRICAL, TELEPHONE, GAS AND LANDSCAPE IRRIGATION LINE.
93. ALL UTILITIES SHALL BE UNDERGROUND.

RETAINING WALL TRENCHING AND EXCAVATION

94. NOT USED
95. NOT USED
96. THE PROJECT AREA SHALL BE FENCED AS NECESSARY DURING CONSTRUCTION, FOR SAFETY PURPOSES AND TO KEEP OUT UNAUTHORIZED PERSONNEL.
97. ALL PUBLIC IMPROVEMENTS SHALL CONFORM TO CITY ENGINEERING STANDARDS & PROPOSED STANDARDS AND SPECIFICATIONS

GRADING

98. ALL CUT AND FILL SLOPES SHALL IMMEDIATELY BE LANDSCAPED AND WATERED FOR EROSION CONTROL AS SHOWN ON THE LANDSCAPE PLAN. WATERING SHALL BEGIN IMMEDIATELY AFTER PLANTING. ALL LANDSCAPING SHALL BE WATERED AND MAINTAINED BY THE DEVELOPER
99. THE SOILS REPORT SHALL BE STRICTLY ADHERED TO IN THE GRADING AND CONSTRUCTION OF THE PROJECT.

AIR QUALITY

100. CONTRACTOR TO IMPLEMENT THE FOLLOWING THROUGH OUT THE PROJECTS CONSTRUCTION PHASE:
-FOR EACH PROJECT PHASE, WITHIN 30-DAYS OF ISSUANCE OF THE FIRST CERTIFICATE OF OCCUPANCY. IF APPLICABLE, SUBMIT TO THE SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT (THE DISTRICT) A SUMMARY REPORT OF THE CONSTRUCTION START, AND END DATES, AND THE DATE OF ISSUANCE OF THE FIRST CERTIFICATE OF OCCUPANCY. OTHERWISE, SUBMIT TO THE DISTRICT A SUMMARY REPORT OF THE CONSTRUCTION START AND END DATES WITHIN 30-DAYS OF THE END OF EACH PHASE OF CONSTRUCTION.
-FOR EACH PROJECT PHASE, ALL RECORDS SHALL BE MAINTAINED ON SITE DURING CONSTRUCTION AND FOR A PERIOD OF TEN YEARS FOLLOWING EITHER THE END OF CONSTRUCTION OR THE ISSUANCE OF THE FIRST CERTIFICATE OCCUPANCY, WHICHEVER IS LATER. RECORDS SHALL BE MADE AVAILABLE FOR DISTRICT INSPECTION UPON REQUEST.
-FOR EACH PROJECT PHASE, MAINTAIN RECORDS OF (1) THE CONSTRUCTION START AND END DATES AND (2) THE DATE OF ISSUANCE OF THE FIRST CERTIFICATE OF OCCUPANCY, IF APPLICABLE.

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Project No. T90204
File Path: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings

Sheet Content:
NOTES SHEET

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.
C2.0

A1 NOTES SHEET

GENERAL GRADING AND DRAINAGE NOTES:

THE REQUIREMENTS AND INFORMATION SET OUT BELOW ARE PROVIDED FOR THE CONTRACTOR'S CONVENIENCE AND DO NOT ENCOMPASS ALL PROJECT REQUIREMENTS DESCRIBED BY THE PROJECT PLANS AND SPECIFICATIONS AND/OR APPLICABLE LAWS, REGULATIONS AND/OR BUILDING CODES.

1. CONSTRUCTION OF ALL PROJECT SITE IMPROVEMENTS SUBJECT TO ADA ACCESS COMPLIANCE, INCLUDING ACCESSIBLE PATH OF TRAVEL, CURB RETURNS, PARKING STALL(S) AND UNLOADING AREAS, BARRIER FREE AMENITIES AND/OR OTHER APPLICABLE SITE IMPROVEMENTS SHALL CONFORM TO THE AMERICANS WITH DISABILITIES ACT, CALIFORNIA TITLE 24, AND THE CALIFORNIA BUILDING CODE, CURRENT EDITIONS(S).

2. CONTRACTOR SHALL FIELD VERIFY ALL GRADES AND SLOPES PRIOR TO THE PLACEMENT OF CONCRETE AND/OR PAVEMENT FOR CONFORMANCE WITH ADA ACCESS COMPLIANCE REQUIREMENTS. EXAMPLES OF MINIMUM AND MAXIMUM LIMITS RELATED TO ADA ACCESS COMPLIANCE INCLUDE BUT ARE NOT LIMITED TO:

   a. ACCESSIBLE OF TRAVEL CROSS SLOP–SLOPE SHALL NOT EXCEED 2.00%
   b. ACCESSIBLE PATH OF TRAVEL LONGITUDINAL SLOPES SHALL NOT EXCEED 5.00%
   c. RAMP LONGITUDINAL SLOPES SHALL NOT EXCEED 8.33%
   d. WALKS SHALL NOT HAVE LESS THAN 48 INCHES IN UNOBSTRUCTED WIDTH

3. CONTRACTOR MUST IMMEDIATELY NOTIFY THE ENGINEER OF RECORD, IDENTIFIED BY THE PROFESSIONAL ENGINEERING SEAL AND SIGNATURE ON THESE PLANS, OF ANY SITE CONDITION(S) AND/OR DESIGN INFORMATION THAT PREVENTS THE CONTRACTOR FROM COMPLYING WITH THE LAWS, REGULATIONS AND/OR BUILDING CODES GOVERNING ADA ACCESS COMPLIANCE.

4. GROUND SLOPES AWAY FROM BUILDING PADS IN LANDSCAPED OR DIRT AREAS SHALL BE NO LESS THAN 5.0% FOR AT LEAST TEN (10) FEET, OR AS OTHERWISE NOTED ON THE PLANS.

5. DRAINAGE SHALL NOT BE ALLOWED ONTO ADJACENT PROPERTY.

6. ALL FILL MATERIAL USED TO SUPPORT THE FOUNDATIONS OF ANY BUILDING OR STRUCTURE SHALL BE PLACED UNDER THE DIRECTION OF A LICENSED GEOTECHNICAL ENGINEER, AND IN COMPLIANCE WITH THE PROJECT SPECIFICATIONS. A SOILS COMPACTION REPORT SHALL BE SUBMITTED TO THE ENGINEER OF RECORD AS REQUIRED BY THE PROJECT SPECIFICATIONS.

7. THE CONTRACTOR SHALL MAKE ADEQUATE PROVISION FOR DUST CONTROL FOR THE DURATION OF THE WORK. DUST CONTROL MEASURES SHALL BE FULLY AND ADEQUATELY CARRIED OUT ON WEEKDAYS, HOLIDAYS, AND WHEN NECESSARY BEFORE OR AFTER NORMAL WORKING HOURS.

8. THE CONTRACTOR SHALL IMPLEMENT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) AS REQUIRED BY THE PROJECT SPECIFICATIONS.

9. IF APPLICABLE THE DEVELOPER SHALL ALSO COMPLY WITH THE REGIONAL WATER QUALITY CONTROL BOARD CENTRAL VALLEY REGION ORDER NO. 5–00–175 CONSTRUCTION ACTIVITY REQUIREMENTS FOR ALL WATER DISCHARGES INTO THE CITY'S STORM DRAIN COLLECTION SYSTEM, RESULTING FROM, BUT NOT LIMITED TO PRESSURE TESTING, LEAKAGE TESTING AND DISINFECTING.

10. THE CONTRACTOR SHALL OBTAIN A GRADING PERMIT AND PAY THE PERMIT FEE PRIOR TO GRADING.

11. THE GRADING CONTRACTOR SHALL REMOVE ALL ORGANIC MATTER, DEBRIS AND OTHER DELETERIOUS MATERIAL FROM THE SITE WITHIN PROJECT LIMIT.

12. THE UPPER 12 INCHES OF SUBGRADE BENEATH THE STRUCTURAL SECTION SHOULD BE SCARIFIED, MOISTURE CONDITIONED AS NECESSARY AND COMPACTED TO AT LEAST 95 PERCENT OF THE MAXIMUM DRY DENSITY AS DETERMINE BY ASTM D1557 METHODS. THE COUNTY SHALL BE PROVIDED WITH COMPACTION REPORTS PREPARED BY A CITY APPROVED TESTING AGENCY.

13. THE LANDSCAPING GROUND IMMEDIATELY ADJACENT TO ALL FOUNDATIONS SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN 2% FOR A MINIMUM DISTANCE OF 10 FEET MEASURE PERPENDICULAR TO THE FACE OF THE WALL. IF PHYSICAL OBSTRUCTIONS OR LOT LINE PROHIBIT 10 FEET OF HORIZONTAL DISTANCE FROM THE FOUNDATION, THEN A SWALE THAT RUNS PARALLEL TO THE FOUNDATION MAY BE USED AND WILL BE REQUIRED TO BE A MINIMUM SLOPE OF 2% WITHIN 10 FEET OF THE BUILDING FOUNDATION. ALL OTHER SITE GRADING OUTSIDE OF THE BUILDING ENVELOPE IS REQUIRED TO BE A MINIMUM OF 0.5%.

14. THE QUANTITIES NOTED FOR THE EARTHWORK DO NOT INCLUDE ANY SHRINKAGE, SUBSIDENCE, OVER EXCAVATION, OR ANY SPECIAL CONDITIONS OR REQUIREMENTS THAT MAY BE SPECIFIED IN THE SOILS REPORT. THESE QUANTITIES ARE FOR PERMIT PURPOSES ONLY. ALL CONTRACTORS BIDDING ON THIS PROJECT SHOULD MAKE THEIR OWN DETERMINATION OF EARTHWORK QUANTITIES PRIOR TO SUBMITTING A BID.

15. ANY VERTICAL CUT OR FILL DIFFERENTIAL EQUAL TO OR GREATER THAN TWELVE (12") INCHES BETWEEN ADJACENT PROPERTIES SHALL BE SUPPORTED BY AN APPROVED RETAINING WALL. DIFFERENTIALS LESS THAN TWELVE (12") INCHES SHALL HAVE A MAXIMUM SLOPE OF TWO (2) HORIZONTAL TO ONE (1) VERTICAL.

16. ALL GRADING AND FILLING SHALL COMPLY WITH THE 2022 CBC, CALIFORNIA BUILDING CODE.

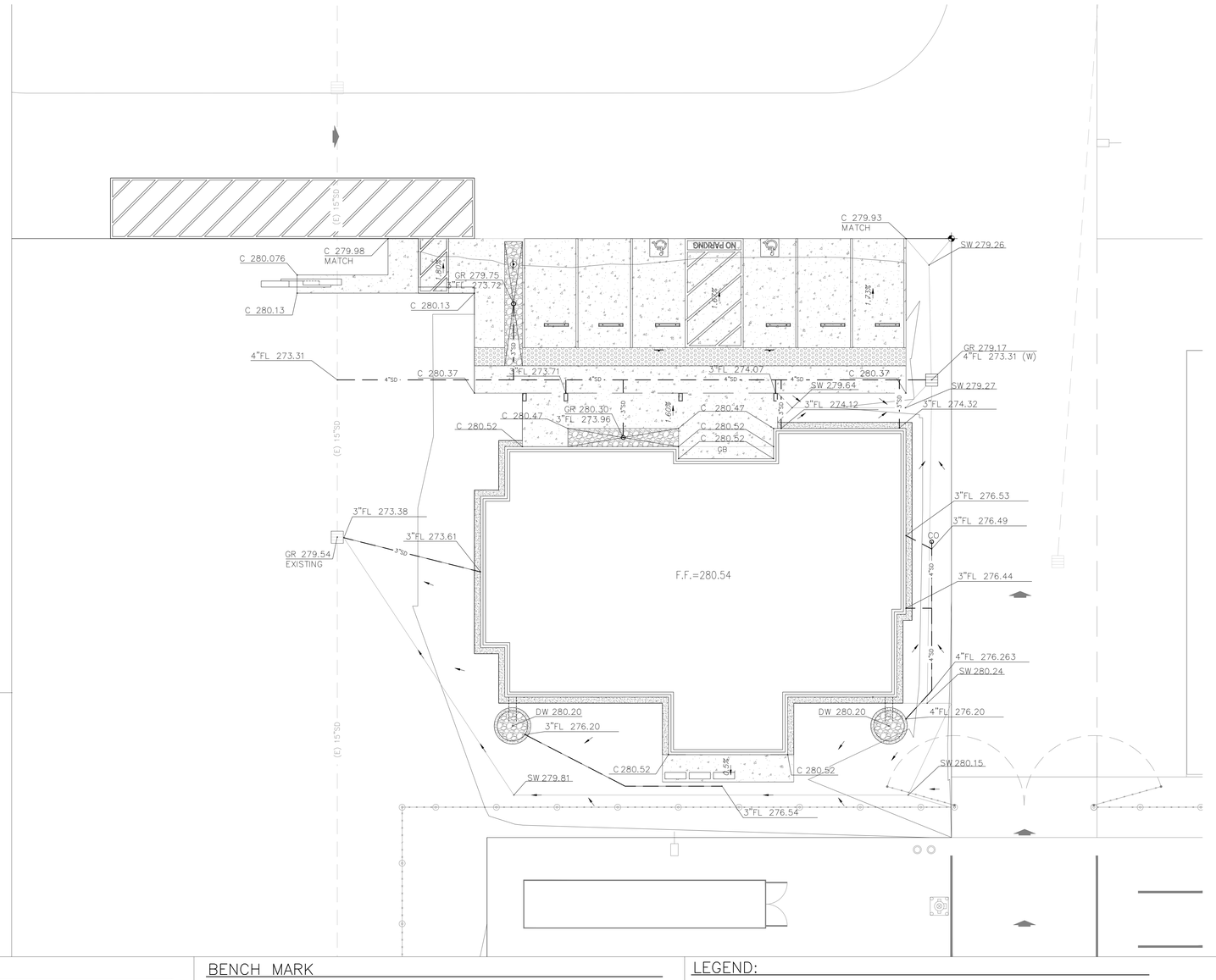
17. RECOMMENDATIONS AS OUTLINE IN THE SOILS REPORT SHALL BECOME REQUIREMENTS FOR THIS DEVELOPMENT. THE REPORT IS COUNTY OF FRESNO, DEPARTMENT OF PUBLIC WORKS AND PLANNING PROJECT NUMBER: T290203 DATED: 4–22–2020 AND PER LATEST ADDENDUM REPORT PREPARED BY COUNTY OF FRESNO.

18. ALL PROPOSED TREE REMOVAL TO BE APPROVED BY THE COUNT PLANNER IN WRITING PRIOR TO REMOVAL.

19. ALL GRADING AND FILLING SHALL BE DESIGNATED AS "ENGINEERED GRADING" AND CONFORM TO THE REQUIREMENTS OF THE CALIFORNIA BUILDING CODE APPENDIX CHAPTER 33.

20. THIS GRADING PLAN IS FOR APPROVAL OF ON–SITE ELEVATIONS ONLY. THE ELEVATIONS SHOWN WITHIN THE PUBLIC RIGHT OF WAY REQUIRE SEPARATE PUBLIC WORKS DEPARTMENT APPROVAL AND PERMIT. ANY NOTES THAT APPLY TO THE PUBLIC RIGHT OF WAY ARE FOR REFERENCE ONLY. IF ON–SITE ELEVATIONS SHOWN DO NOT COINCIDE WITH APPROVED STREET PLANS, AND APPROVED AMENDMENT IS REQUIRED.

CONCRETE



FLOOD INFORMATION:

THIS PROPERTY IS LOCATED IN ZONE "X" OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 06019C2110H, WHICH BEARS AN EFFECTIVE DATE OF 02/18/2009 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA. NO FIELD SURVEYING WAS PERFORMED TO DETERMINE THIS ZONE AND AN ELEVATION CERTIFICATE MAY BE NEEDED TO VERIFY THIS DETERMINATION OR APPLY FOR A VARIANCE FROM THE FEDERAL EMERGENCY MANAGEMENT AGENCY.
ZONE "X" DENOTES AREAS MODERATE TO LOW RISK.

BENCH MARK

BASIS OF BEARINGS:
THE WEST LINE OF THE SOUTHWEST QUARTER OF SECTION 5, TOWNSHIP 14 SOUTH, RANGE 20 EAST, M. D. B. & M., WAS TAKEN TO BEAR NO 07°03'E PER PARCEL MAP NO. 2005–15, FILED IN BOOK 65 OF PARCEL MAPS, AT PAGES 93–95, ON FILE WITH THE FRESNO COUNTY RECORDERS OFFICE.

BASIS VERTICAL CONTROL:
CITY OF FRESNO TBM 4619, A CHISELED SQUARE ON CURB, WEST SIDE OF WEST AVENUE, 550 FEET SOUTH OF NIELSEN AVENUE, HAS NGVD29 ELEVATION OF 278.846 FEET PER CITY OF FRESNO BENCHMARK RECORDS

LEGEND:

X.XX FSG	EXISTING SURFACE GRADE		NEW STORM DRAINAGE INLET
335.70	NEW FINISHED GRADE	1%	DRAINAGE DIRECTION AND SLOPE
C	CONCRETE		DIRECTION OF FLOW
GB	GRADE BREAK	G.B.	GRADE BREAK
GR	GRATE INLET		LIMIT OF GRADING
MS	MOWSTRIP	4"SD	STORM DRAIN LINE, SIZE AS NOTED; BACKFILL TRENCH PER D/C5.0 SEE SPECIFICATIONS FOR PIPE MATERIAL.
SW	SWALE		
DW	TOP OF DRY WELL		

Know what's below. Call before you dig.

A1 Grading Plan
Scale: 1"=10'-0"

North

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ECC Phase II - Educational Center
Project Address: 1327 Dan Ronquillo Drive, Fresno, CA 93706

Project No. T90204

File Path: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings

Sheet Content:
Grading Plan

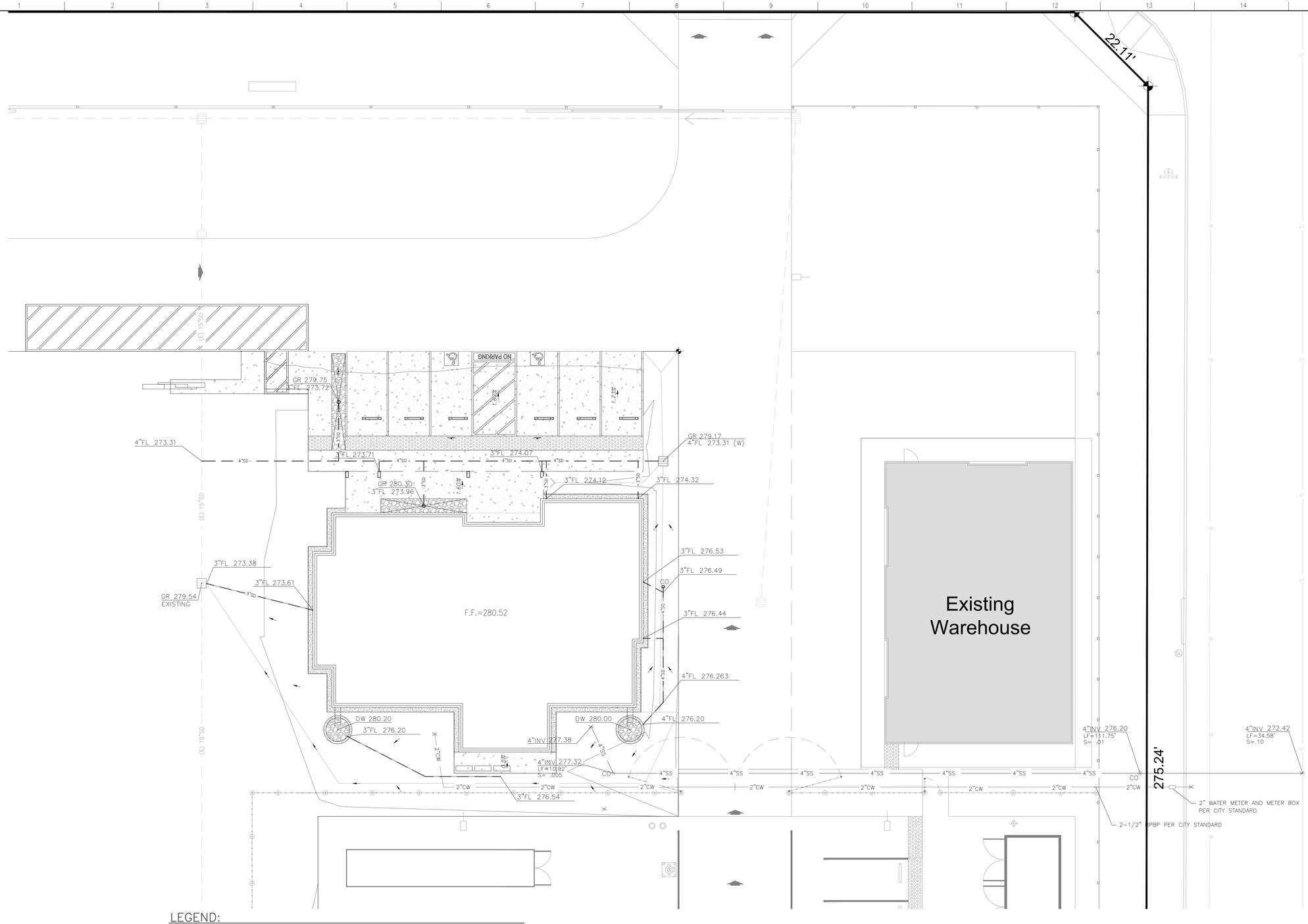
Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.
C3.0

Drawn by: SS, BV

Plotted on: 08.24.23



LEGEND:

EXISTING SURFACE GRADE	NEW STORM DRAINAGE INLET	4"SD	STORM DRAIN LINE, SIZE AS NOTED;
335.70 NEW FINISHED GRADE	DRAINAGE DIRECTION AND SLOPE	4"SS	PVC SDR-35 SEWER LINE, SIZE AS NOTED.
C CONCRETE	DIRECTION OF FLOW	2" CW	PVC C-900, CLASS 200 WATER LINE, SIZE AS NOTED.
GB GRADE BREAK	G.B. GRADE BREAK		
GR GRATE INLET	LIMIT OF GRADING		
MS MOWSTRIP			
SW SWALE			

811 Know what's below. Call before you dig.

North

A1 Site Utility Plan
Scale: 1"=10'-0"

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5/24/2024

ARCHITECT:
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Project:
ECC Phase II - Educational Center
Project Address: 1327 Dan Ronquillo Drive, Fresno, CA 93706

Project No. T90204

File Path: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings

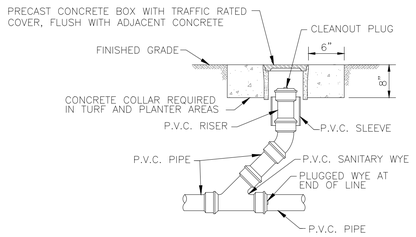
Sheet Content:
Utility Plan

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.
C4.0

Drawn by: SS, BV

Plotted on: 08.24.23

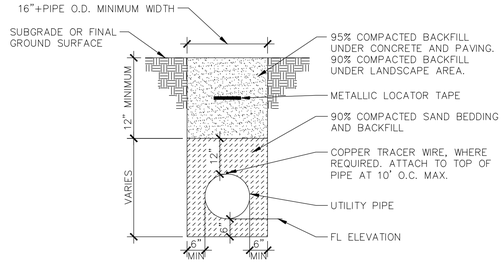


F SURFACE CLEANOUT

SDB130-17

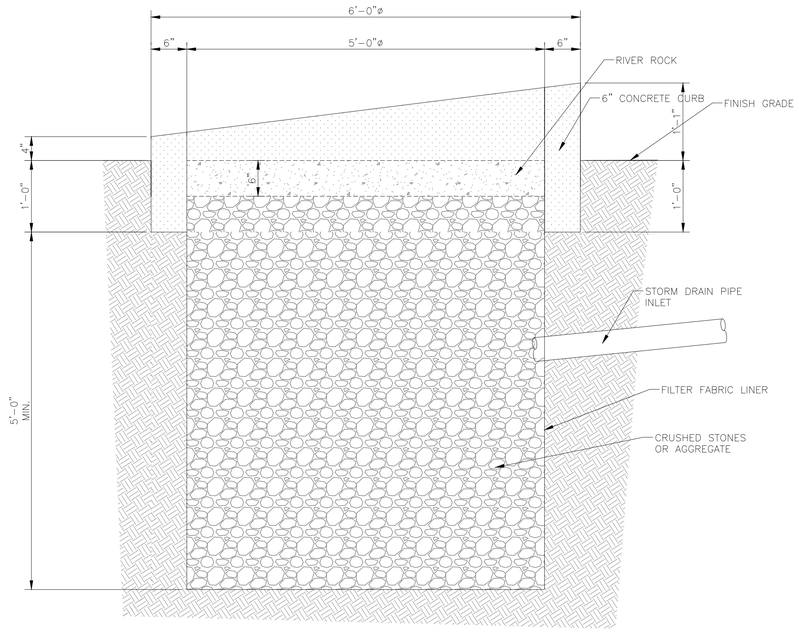
SCALE: NOT TO SCALE

NOTE:
SEWER, WASTE, OR VENT PIPE WITH LESS THAN 24" OF COVER SHALL BE STANDARD WEIGHT COATED CAST IRON PIPE AND FITTINGS, CISPI 301 OR ASTM A888.



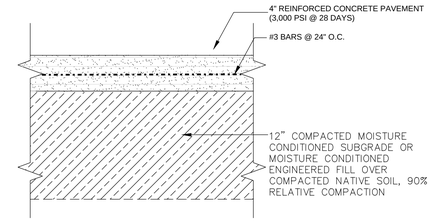
D PIPE TRENCH

SCALE: 1/2" = 1'-0"



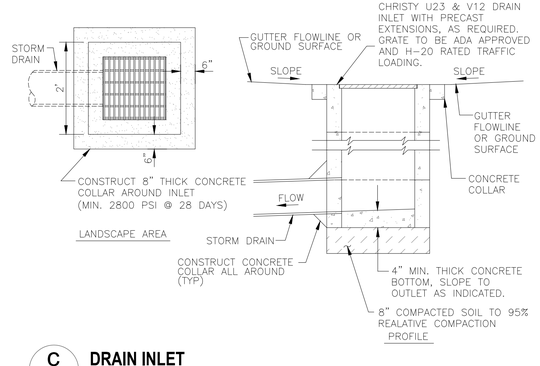
E DRYWELL

SCALE: 1" = 1'-0"



B PAVEMENT SECTION

SCALE: 1 1/2" = 1'-0"



C DRAIN INLET

SDB130-18

SCALE: NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER
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5/24/2024

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Project:

ECC Phase II - Educational Center

Project Address: 1327 Dan Ronquillo Drive, Fresno, CA 93706

Project No. T90204

File Path: G:\Capital\Active Projects\T90204 - ECC Educational Center\01 Design\Drawings

Sheet Content:

Detail

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.

C5.0

SITE OBSERVATION BY ENGINEER OF RECORD:

1. SITE OBSERVATIONS ARE REQUIRED IN ACCORDANCE WITH THE FOLLOWING SCHEDULE:

   A. 24 HOURS (OR LESS) PRIOR TO ALL CONCRETE FOUNDATION POURS.
   B. AT THE COMPLETION OF ALL CONSTRUCTION BUT PRIOR TO THE CONCEALMENT OF STRUCTURAL COMPONENTS AND ASSEMBLIES.

2. A MINIMUM OF 3 SITE OBSERVATIONS SHALL BE MADE BY THE ENGINEER OF RECORD (EOR) OR THE EOR'S REPRESENTATIVE.

3. THE CONTRACTOR SHALL NOTIFY THE EOR AT LEAST 48 HOURS IN ADVANCE OF ANY SITE OBSERVATION.

4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE TIMELY SCHEDULING OF ALL SITE OBSERVATIONS.

5. CONSTRUCTION PERFORMED WITHOUT SITE OBSERVATION IS SUBJECT TO REJECTION AND RECONSTRUCTION.

CONTRACTOR RESPONSIBILITY (CBC 1706.1):

EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN WIND – OR SEISMIC – FORCE – RESISTING SYSTEM. DESIGNATED SEISMIC SYSTEM OR A WIND – OR SEISMIC – RESISTING COMPOMENT LISTED IN THE STATEMENT OF SPECIAL INSPECTIONS SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN THE FOLLOWING:

1. ACKNOWLEDGEMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS.
2. ACKNOWLEDGEMENT THAT CONTROL WILL BE EXCERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE BUILDING OFFICIAL.
3. PROCEDURES FOR EXCERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND DISTRIBUTION OF THE REPORTS.
4. IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXCERCISING SUCH CONTROL AND THEIR POSITION(S) IN THE ORGANIZATION.

SPECIAL INSPECTION NOTES:

1. IN ACCORDANCE WITH THE REFERENCED CODE, THE OWNER SHALL EMPLOY A SPECIAL INSPECTOR WHO SHALL PROVIDE INSPECTIONS DURING CONSTRUCTION ON THE FOLLOWING TYPES OF WORK:
   A. EMBEDDED ITEMS IN CONCRETE AND MASONRY – PERIODIC
   B. STRUCTURAL STEEL WELDING – CONTINUOUS
   C. PLACING OF REINFORCING STEEL – PERIODIC
   D. ALL MASONRY – CONTINUOUS
   E. ALL POST INSTALLED ANCHORS – CONTINUOUS
   F. ADEQUACY AND PREPARATION OF ALL FILL MATERIAL & SUBGRADE – PERIODIC
   G. PLACEMENT AND COMPACTION OF FILL MATERIALS – CONTINUOUS
   B1 H. CONCRETE WITH f'c GREATER THAN 2500 PSI
2. SPECIAL INSPECTOR'S BACKGROUND AND QUALIFICATIONS SHALL BE FORWARDED TO THE ARCHITECT AT LEAST 3 DAYS BEFORE ANY INSPECTIONS ARE PREFORMED.
3. "CONTINUOUS" SPECIAL INSPECTION MEANS THE FULL–TIME OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION BY AN APPROVED SPECIAL INSPECTOR WHO IS PRESENT IN THE AREA WHERE THE WORK IS BEING PERFORMED "PERIODIC" SPECIAL INSPECTION MEANS THE PART–TIME OR INTERMITTENT OBSERVATION OF WORK REQUIRING SPECIAL INSPECTION WHO IS PRESENT IN THE AREA WHERE THE WORK HAS BEEN, OR IS, BEING PERFORMED AND AT THE COMPLETION OF THE WORK.
4. INSPECTION FOR PREFABRICATED CONSTRUCTION SHALL BE THE SAME AS IF THE MATERIAL USED IN THE CONSTRUCTION TOOK PLACE ON SITE.
5. ANY CONSTRUCTION OR MATERIAL THAT HAS FAILED INSPECTION SHALL BE SUBJECT TO REMOVAL AND REPLACEMENT AT CONTRACTOR'S EXPENSE.
6. EPOXY AND EXPANSION ANCHOR'S MAY BE USED ONLY WHEN APPROVED BY THE ARCHITECT.
7. SPECIAL INSPECTION OF SOILS SHALL REFERENCE THE APPROVED SOILS REPORT TO DETERMINE COMPLIANCE.
8. SEE THE PROJECT SPECIFICATIONS FOR ADDITIONAL TESTING AND INSPECTION REQUIREMENTS.
9. THESE ELEMENTS OF CONSTRUCTION MUST BE INSPECTED BY APPROVED INDEPENDENT INSPECTORS WHO SHALL BE RETAINED BY THE OWNER. INSPECTORS SHALL SUBMIT THEIR REPORTS DIRECTLY TO THE FRESNO COUNTY DEVELOPMENT SERVICES DIVISION. B1

CONCRETE NOTES: (CBC CHAPTER 19)

1. PROPERTIES** OF CONCRETE SHALL BE AS FOLLOWS:

USE	MAXIMUM AGGREGATE SIZE	MINIMUM 28 DAY COMP. STRENGTH (PSI)	MAXIMUM WATER/CEMENT RATIO	MINIMUM CEMENT SACK PER CY	MAX. SLUMP
4" SLAB ON GRADE	1"	3000	0.45	6.5	4"
FOUNDATION	1"	4000	0.55	5.5	4"

** SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

2. CONCRETE SPECIFIED IN THESE DRAWINGS SHALL BE CONSIDERED AS STRUCTURAL CONCRETE.
3. THE DIMENSIONS SHOWN FOR LOCATION OF REINFORCING STEEL ARE TO FACE OF BAR AND DENOTE CLEAR COVERAGE. UNLESS SPECIFICALLY NOTED, CONCRETE COVERAGE SHALL BE AS FOLLOWS:

LOCATION	COVERAGE
CONCRETE DEPOSITED DIRECTLY AGAINST THE GROUND (EXCEPT SLABS)	3"
CONCRETE EXPOSED TO THE GROUND BUT PLACED IN FORMS	2"
SLABS ON GRADE (CLEARANCE TO TOP SURFACE)	3/4"

B1 COMPLY WITH CBC TABLE 1808.8.2

4. REINFORCEMENT SHALL CONFORM TO ASTM A615 GRADE 60.
5. CONTINUOUS REINFORCEMENT SHALL BE SPLICED BY LAPPING THE REINFORCEMENT WITH THE MINIMUM LENGTH SHOWN IN THE DETAIL.
6. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. SPLICE BY LAPPING ADJOINING PIECES NOT LESS THAN THE SPACING OF THE CROSS WIRES + 2".
7. SEE ARCHITECTURAL AND CIVIL DRAWINGS FOR NON–STRUCTURAL EXTERIOR SLABS AND WALKWAYS.
8. ANCHOR BOLTS EXTENDING TO THE BOTTOM OF FOOTING SHALL HAVE MINIMUM 3" CONCRETE COVER.
9. ALL ANCHOR BOLTS SHALL CONFORM TO ASTM A307, UNLESS NOTED OTHERWISE.
10. ALL MOULDS, ORNAMENTS, GROOVES, CLIPS, ANCHOR BOLTS, ETC., SHOWN ON ARCHITECTURAL DRAWINGS SHALL BE PROVIDED FOR IN THE FORMWORK BEFORE THE CONCRETE IS POURED.
11. REFER TO BOTH ARCHITECTURAL AND MECHANICAL DRAWINGS FOR LOCATION AND SPACING OF ALL PLUMBING FIXTURES.
12. ALL REINFORCING STEEL, ANCHOR BOLTS, DOWEL AND OTHER INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO POURING CONCRETE.
13. ANCHOR BOLTS OR SILL BOLTS SHALL HAVE A FOUR DIAMETER TAIL AT ENDS UNLESS OTHERWISE NOTED. DO NOT USE UPSET (ROLLED) THREADS.
14. ALL WELDING OF REINFORCEMENT SHALL BE LOW HYDROGEN ELECTRODES UNLESS OTHERWISE NOTED. WELDING OF REINFORCING SHALL BE ALLOWED ONLY WHERE DETAILED ON DRAWINGS. ALL WELDING SHALL BE DONE IN ACCORDANCE WITH THE AMERICAN WELDING SOCIETY SPECIFICATIONS AWS D1.4. WELDING SHALL NOT BE DONE WITHIN TWO BAR DIAMETERS OF ANY BENT PORTION OF A BAR THAT HAS BEEN BENT COLD. WELDING OF CROSSING BARS SHALL NOT BE PERMITTED FOR ASSEMBLY OF REINFORCEMENT UNLESS AUTHORIZED BY THE STRUCTURAL ENGINEER OF RECORD. ASTM A706 REINFORCING SHALL BE USED FOR ALL REINFORCING THAT IS BEING WELDED.
15. PIPES LARGER THAN 1–1/2" DIAMETER SHALL NOT BE EMBEDDED IN STRUCTURAL CONCRETE EXCEPT WHERE SPECIFICALLY APPROVED BY STRUCTURAL ENGINEER. PIPES SHALL NOT DISPLACE OR INTERRUPT REINFORCING BARS.
16. SEE PROJECT SPECIFICATIONS FOR ADDITIONAL CONCRETE MIX DESIGN REQUIREMENTS.
17. SEE ARCHITECTURAL PLAN FOR SIZE AND LOCATION OF NONBEARING WALLS FOR LOCATING ANCHOR BOLTS.
18. WHERE STEEL COLUMN MEMBERS BEAR IN CONCRETE OR MASONRY WALLS, OPENINGS SHALL BE DRY PACKED AFTER STEEL IS IN PLACE.
19. ALL ANCHOR BOLTS SHALL HAVE MINIMUM EMBEDMENT OF 7" INTO CONCRETE.

STRUCTURAL STEEL NOTES:

1. CODES: AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION FOR STRUCTURAL STEEL BUILDINGS; MANUAL OF STEEL CONSTRUCTION (16TH EDITION); STRUCTURAL WELDING CODE AWS D1.1, AWS D1.4, AND AWS D1.8
2. IDENTIFICATION: ROLLED STRUCTURAL STEEL SHAPES SHALL BE IDENTIFIED WITH MILL IDENTIFICATION MARKS IN CONFORMANCE WITH ASTM A6. PIPES SHALL BE IDENTIFIED WITH MILL IDENTIFICATION IN ACCORDANCE WITH ASTM A53 AND TUBE SHAPES IN ACCORDANCE WITH ASTM A500.
3. MATERIALS:

STRUCTURAL SHAPES		
WIDE FLANGE	ASTM A992	GRADE 50
CHANNELS	ASTM A36	GRADE 36
ANGLES, PLATES, AND BARS	ASTM A36	GRADE 36
HSS SHAPES (TUBE COLUMNS)	ASTM A500	GRADE B
PIPE COLUMNS	ASTM A53	TYPE E OR S, GRADE B
MACHINE BOLTS (MB)	ASTM A307	GRADE A
NUTS	ASTM A563	HEX, GRADE A
HIGH STRENGTH BOLTS (HSB)	ASTM A325	OR F1852
NUTS	ASTM A563	HEAVY HEX, GRADE C OR DH
WASHERS	ASTM F436	
EXTRA STRENGTH BOLTS (XSB)	ASTM A490	OR F2280
NUTS	ASTM 564	HEAVY HEX, GRADE DH
WASHERS	ASTM F436	
NON–SHRINK GROUT	ASTM C1107	7,000 PSI (NON–METALLIC)

4. WELDED HEADED STUDS AND THREADED ANCHORS: STUDS SHALL CONFORM TO ASTM A29 GRADES 1010 THROUGH 1020. HEADED–TYPE ANCHORS SHALL MEET MECHANICAL PROPERTIES FOR 'TYPE B'. ALL WELDING SHALL CONFORM TO AWS D1.1, CHAPTER 7.
5. WELDING: ALL WELDING SHALL BE IN CONFORMANCE WITH AWS D1.1

A) ELECTRODES	CLASS E_70 XX SERIES, LOW HYDROGEN, NOTCH TOUGHNESS OF 20 FT/LBS AT 40 DEGREES FARENHEIT
B) WELDERS	QUALIFIED PER AWS D1.1 SECTION 4.2.2
C) GROOVE AND BUTT	COMPLETE JOINT PENETRATION (CJP) WELDS UON
D) FILLET WELDS	SIZES SPECIFIED ARE MINIMUM STRUCTURAL WELDS. INCREASE AS REQUIRED BY AISC SPECIFICATION TABLE J2.4
E) FIELD WELDING	MAY BE REQUIRED TO FACILIATE CONSTRUCTION
F) TERMINATION	WELDS TERMINATING AT ENDS OR SIDES, WHEREVER PRACTICABLE, SHALL BE RETURNED CONTINUOUSLY AROUND CORNERS A DISTANCE OF 2 TIMES THE NOMINAL SIZE OF THE WELD PER AISC SPECIFICATION J2.2B
G) LENGTHS	WHERE LENGTH IS NOT SPECIFIED, IT SHALL BE THE FULL LENGTH OF THE JOINT
H) SPECIFICATION	THE CONTRACTOR SHALL SUBMIT A WELDING PROCEDURE SPECIFICATION (WPS), DEVELOPED BY THE FABRICATOR, IN CONFORMANCE WITH AWS D1.1 FOR REVIEW BY THE ARCHITECT. ALL WELDS SHALL BE PRE–QUALIFIED SHALL INCLUDE THE WELDING PARAMETERS ELECTRODE MANUFACTURER.

6. SHOP DRAWINGS: REVIEWED BY THE ARCHITECT IN ADVANCE OF FABRICATION, IN ACCORDANCE WITH AISC 360 SECTION M1.
7. BOLT HOLES ON STEEL SHALL BE 1/16 INCH LARGER THAN NOMINAL SIZE OF BOLT USED, EXCEPT ANCHOR BOLT HOLES. ALL BOLT HOLES IN STEEL SHALL BE PUNCHED OR DRILLED, NO TORCHING OF HOLES IS ALLOWED.
8. STRUCTURAL STEEL SURFACES THAT ARE NOT EXPOSED TO WEATHER SHALL BE LEFT UNPAINTED. SURFACES THAT ARE TO BE WELDED SHALL BE LEFT UNPAINTED AND FREE OF RUST. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATION FOR ANY OTHER REQUIREMENTS.
9. WELDS SHALL BE MADE ONLY BY WELDERS, TACKERS, AND WELDING OPERATORS WHO HAVE PREVIOUSLY QUALIFIED BY TESTS AS PERSCRIBED IN A.W.S D1.1 AND D1.3. WELDED JOINTS SHALL CONFORM TO THE PREQUALIFIED JOINT DETAILS AS INDICATED IN THE STRUCTURAL WELDING CODE (AWS D1.1) BY THE AMERICAN WELDING SOCIETY. WELDS SHALL BE MADE USING E70XX LOW HYDROGEN ELECTRODES U.N.O. BEVEL AND GROOVE WELDS SHALL BE FULL PENETRATION UNLESS OTHERWISE NOTED.
10. WELD LENGTHS CALLED FOR ON PLANS ARE THE NET EFFECTIVE LENGTH REQUIRED. WELD SIZE SHALL BE AISC MINIMUM UNLESS A LARGER SIZE IS NOTED.
11. SEE ARCHITECTURAL, MECHANICAL, ELECTRICAL, ETC., FOR SIZE AND LOCATIONS OF DECK OPENINGS AND DECK OPENINGS SMALLER THAN 12" NOT SHOWN ON THE STRUCTURAL DRAWINGS. SEE TYPICAL DETAILS FOR FRAMING REQUIREMENTS AT DECK OPENINGS. OPENINGS LARGER THAN 12" SHALL NOT BE PLACED IN DECK UNLESS SPECIFICALLY SHOWN ON THE STRUCTURAL DRAWINGS.
12. IF DETAILS ARE NOT SHOWN, BEAMS SHALL BE CONNECTED USING ¾"ø A325N BOLTS PER PART 7, TABLE 7–1 OF AISC MANUAL OF STEEL CONSTRUCTION 14TH EDITION. THE NUMBER OF BOLTS SHALL BE THE MAXIMUM POSSIBLE FOR THE PARTICULAR BEAM DEPTH.
13. SHEAR CONECTORS: SHEAR CONNECTORS SHALL BE ASTM A108 WITH F_v=65 KSI
14. SHIMS: PROVIDE STEEL SHIMS AT SPLICES OF PARTS HAVING MORE THAN ⅛" DIFFERENCE IN THICKNESS.
15. BEVELED WASHERS: PROVIDE BEVELED WASHERS ON ALL CONNECTIONS TO SLOPING FLANGES OF I SECTIONS AND CHANNELS.

FOUNDATION NOTES:

1. NOMINAL TOP OF FLOOR SLAB ELEVATION = DATUM 0'–0" UNLESS OTHERWISE NOTED.
2. ALL FOOTINGS SHALL EXTEND TO FIRM BEARING IN UNDISTURBED SOIL OR COMPACTED ENGINEERED FILL.
3. SEE ARCHITECTURAL DRAWINGS FOR SIZE AND LOCATION OF NON–BEARING PARTITIONS.
4. SEE ARCHITECTURAL DRAWINGS FOR LOCATION AND EXTENT OF EXTERIOR WALKWAYS.
5. CONSTRUCTION JOINTS ARE TO BE PROVIDED AT INTERIOR NON–BEARING PARTITIONS TO BREAK FLOOR SLAB INTO WORKING AREAS WITH A MAXIMUM LENGTH TO WIDTH RATIO NOT EXCEEDING 2 : 1 AND NOT LARGER THAN 225 S.F. AREAS SHALL BE POURED IN AN ALTERNATE SEQUENCE, PER DETAIL. B1
6. FOUNDATIONS FOR BUILDINGS SHALL BE STEPPED AS REQUIRED SO THAT BOTH TOP AND BOTTOM OF SUCH FOUNDATIONS ARE LEVEL.
7. ALL REINFORCING STEEL, ANCHOR BOLTS, AND OTHER EMBEDDED ITEMS SHALL BE SECURELY POSITIONED IN THE FORMS PRIOR TO POURING OF CONCRETE.
8. SHORING AND BRACING: IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO DESIGN AND PROVIDE ADEQUATE SHORING, BRACING AND FORMWORK AS REQUIRED FOR THE CONSTRUCTION OF THE BUILDING. PROVIDE TEMPORARY BRACING AS REQUIRED TO HOLD THE VARIOUS ELEMENTS IN PLACE UNTIL FINAL SUPPORT IS SECURELY ANCHORED.
9. EXCAVATION: THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION PROCEDURES AND FOR PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS, AND UTILITIES.
10. BACKFILL: DO NOT BACKFILL AROUND THE EXTERIOR PERIMETER WALL UNTIL AFTER THE WALLS ARE SUPPORTED BY THE COMPLETION OF THE INTERIOR FLOOR SYSTEMS. DO NOT BACKFILL UNTIL 7 DAYS MINIMUM AFTER COMPLETION OF THE FLOOR SLABS.
11. FOUNDATION DESIGNS ARE BASED UPON SOILS REPORT PROJECT #T90203, DATED APRIL 22, 2020 BY COUNTY OF FRESNO DEPARTMENT OF PUBLIC WORKS AND PLANNING CONSTRUCTION DIVISION, MATERIAL TESTING LABORATORY.
13. SEE DETAIL FOR TYP. SOIL PREPARATION REQUIREMENTS.
14. ALL CONTINOUS FOOTING REINFORCEMENT SHALL RUN THROUGH PAD FOOTINGS.

GENERAL STRUCTURAL NOTES:

1. ALL MATERIALS AND WORK SHALL CONFORM TO THE REQUIREMENTS OF THE CALIFORNIA CODE OF REGULATIONS(CCR). TITLE 24, PART 2, 2022 CALIFORNIA BUILDING CODE.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. NOTIFY THE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES OR INCONSISTENCIES.
3. NOTES AND DETAILS ON DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS OR SPECIFICATIONS.
4. WHERE REFERENCE IS MADE TO VARIOUS TEST STANDARDS FOR MATERIALS, SUCH STANDARDS SHALL BE THE LATEST EDITION AND/OR ADDENDUM.
5. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING AND SHORING FOR LOADS DUE TO CONSTRUCTION EQUIPMENT.
6. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DESIGN AND PROVIDE ADEQUATE SHORING, BRACING AND FORMWORK AS REQUIRED FOR THE CONSTRUCTION OF THE BUILDING. PROVIDE TEMPORARY BRACING AS REQUIRED TO HOLD THE VARIOUS ELEMENTS IN PLACE UNTIL FINAL SUPPORT IS SECURELY ANCHORED.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EXCAVATION PROCEDURES AND FOR PROTECTION OF ADJACENT PROPERTY, STRUCTURES, STREETS AND UTILITIES IN ACCORDANCE WITH THE LOCAL BUILDING DEPARTMENT.
8. OPENINGS, POCKETS, ETC. SHALL NOT BE PLACED IN SLABS, DECKS, BEAMS, JOISTS, COLUMNS, WALLS, ETC. UNLESS SPECIFICALLY DETAILED ON THE STRUCTURAL DRAWINGS. NOTIFY THE ARCHITECT WHEN DRAWINGS BY OTHERS SHOW OPENINGS POCKETS ETC., NOT SHOWN ON THE STRUCTURAL DRAWINGS, BUT WHICH ARE LOCATED IN STRUCTURAL MEMBERS.
9. CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAME FLOOR OR ROOF. LOAD SHALL NOT EXCEED THE DESIGN LIVE LOAD PER SQUARE FOOT. PROVIDE ADEQUATE SHORING AND/OR BRACING WHERE SUCH LOADS WOULD EXCEED DESIGN LIVE LOAD.
10. CONTRACTOR SHALL READ AND FOLLOW ALL REFERENCED ICC REPORTS FOR INSTALLATION OF ITEMS SHOWN. ALTERNATIVE METHODS OF CONSTRUCTION MAY BE SUBMITTIED FOR APPROVAL TO THE ARCHITECT WITH APPLICABLE ICC REPORTS.
11. IT IS THE INTENT OF THESE PLANS TO PROVIDE DETAILS OF CONSTRUCTION NECESSARY TO GUIDE THE GENERAL CONTRACTOR WITH STRUCTURAL ASPECTS OF THE PROJECT ONLY. ARCHITECTURAL FEATURES WILL BE COORDINATED WITH THE OWNER.
12. DO NOT SCALE STRUCTURAL DRAWINGS. IF DIMENSIONS OR DETAILS ARE NOT CLEAR, OR IF DISCREPANCIES EXIST ON THE DRAWINGS CONTACT THE ARCHITECT/ENGINEER.
13. SEE MECHANICAL, ELECTRICAL AND/OR ARCHITECTURAL DRAWINGS FOR LOCATION AND SIZES OF PIPES, CONDUITS, FLOOR DRAINS, VENTS, DUCTS, DRAIN LEADERS AND OTHER SIMILAR OPENINGS NOT INDICATED ON THESE STRUCTURAL DRAWINGS.
14. SEE MECHANICAL, ELECTRICAL AND/OR ARCHITECTURAL DRAWINGS FOR EMBEDMENT OF BOLTS, ANCHORS AND OTHER MISCELLANEOUS EMBEDDED ITEMS NOT SHOWN ON THESE STRUCTURAL DRAWINGS.
15. SITE OBSERVATIONS OF THE PROJECT ARE NOT INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON , OR NEAR THE CONSTRUCTION SITE.
16. STRUCTURAL PLANS INDICATE ONLY THE APPROXIMATE LOCATION OF MECHANICAL, ELECTRICAL AND OTHER EQUIPMENT, AS WELL AS THE RELATED AUXILIARY FRAMING NECESSARY TO SUPPORT SUCH EQUIPMENT. THE FINAL POSITIONING OF THESE ITEMS IS DEPENDENT UPON THE EQUIPMENT PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WORK BETWEEN SUBCONTRACTORS AND CRAFTS IN THIS REGARD, AND PROVIDING NECESSARY DIMENSIONS IN A TIMELY TO ALL PARTIES INVOLVED.
17. ANY SUPPORT SERVICES PERFORMED BY THE RESIDENT ENGINEER DURING CONSTRUCTION SHALL BE DISTINGUISHED FROM CONTINUOUS AND DETAILED INSPECTION SERVICES WHICH ARE FURNISHED BY OTHERS. SUPPORT SERVICES PERFORMED BY THE RESIDENT ENGINEER WHETHER OF MATERIAL OR WORK, AND WHETHER PERFORMED PRIOR TO, DURING, OR AFTER COMPLETION OF CONSTRUCTION, ARE PERFORMED SOLELY FOR THE PURPOSE OF ASSISTING IN QUALITY CONTROL AND IN ACHIEVING CONFORMANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS BUT DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OF CONSTRUCTION.
18. CONSTRUCTION METHODS AND SAFETY: THE CONTRACT DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE AND DO NOT INDICATE METHODS, PROCEDURES OR SEQUENCE OF CONSTRUCTION. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS TO MAINTAIN AND INSURE THE INTEGRITY OF THE STRUCTURE DURING CONSTRUCTION. NEITHER THE OWNER, ARCHITECT NOR ENGINEER WILL ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL DESIGN, CONSTRUCT AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING AND BRACING, AND BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS AND REGULATIONS.
19. THE PROJECT SPECIFICATIONS AND SOILS REPORT ARE PART OF THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR ADHERENCE TO ALL REQUIREMENTS OF CONSTRUCTION DOCUMENTS.
20. THIS PROJECT HAS BEEN DESIGNED WITH A UNIFORM LOAD OF 1.0 PSF TO SUPPORT THE ADDED LOADS OF A FIRE SPRINKLER SYSTEM. THE MAIN FRAMING MEMBERS HAVE BEEN DESIGNED TO SUPPORT THE CONCENTRATED LOADS OF A SPRINKLER SYSTEM. B1

BASIS OF DESIGN:

1. THE FOLLOWING APPLIED LOADS WERE USED IN THE DESIGN OF THE PROPOSED BUILDING:

ROOF LIVE LOAD = 20 PSF (REDUCED FOR TRIBUTARY AREA AND SLOPE)

FIRE SPRINKLERS	– 2 psf
MECHANICAL AND LIGHTING	– 2
SOLAR PANELS	– 4
COLLATERAL LOAD	– 8 psf
SUPERIMPOSED LOAD	– 6 psf

TOTAL ROOF DEAD LOADS = 14 PSF

WIND LOAD: EXPOSURE C
BASIC WIND SPEED = 94 MPH
WIND PRESSURE qh = 16.34 PSF

SEISMIC LOAD: SITE CLASS D
SEISMIC DESIGN CATEGORY D
I = 1.00
R = 6.5
SDS = .68
SD1 = .43
Cs = SDS = .194
(R/I)

SOIL BEARING CAPACITY PER SOILS REPORT :
DL + LL = 3320 PSF
TOTAL LOADING = 4980 PSF B1

NOTE:

METAL BUILDING FOUNDATION DESIGN IS PRELIMINARY. FOUNDATION DIMENSIONS NEED TO BE VERIFIED UPON RECEIPT OF FINAL METAL BUILDING MANUFACTURER'S DESIGN.

LICENSED ARCHITECT RAHUL HOQUE RAY C 40030 REN: 11-30-25 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER JOSEPH C. HARRELL No. C80424 CIVIL STATE OF CALIFORNIA
5/24/2024

ENGINEER:
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Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-24
Project no.: T90204
File name: Y:\Projects - Capital Projects\T90203 ECC Site Imrpovement and Shade Structure\PS&Es - Exhibits - Maps\Working Drawings\ECC CAD Files 5-13-24\S1.00 TYPICAL STRUCTURAL NOTES

Sheet Content:
Typical Structure Notes

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
S1.00

Sheet of

Plot Date: 2024-05-24

COLD FORMED STEEL STUDS AND JOISTS:

1. CODES AND FABRICATION: 2022 CALIFORNIA BUILDING CODE SECTION 2211A; CLARK–DIETRICH/STEEL FRAMING INDUSTRY ASSOC. ICC ESR–2457, STEEL STUD MANUFACTURER'S ASSOCIATION ER REPORT NO. 3064P OR APPROVED EQUAL; SPECIFICATION FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS; STRUCTURAL WELDING CODE, AWS D1.3

2. IDENTIFICATION: EACH STUD SHALL BE IDENTIFIED WITH THE MANUFACTURER'S NAME, YIELD STRENGTH (IF GREATER THAN 33 KSI), MINIMUM BASE METAL THICKNESS, AND THE ICC ESR REPORT NUMBER EMBOSSED OR STAMPED ON THE WEB OF EACH SECTION AT A MAXIMUM OF 48 INCHES ON CENTER.

3. MATERIALS: GALVANIZED STEEL STUDS, JOISTS, AND TRACKS SHALL CONFORM TO ASTM A654 GRADE 33 (50 KSI FOR 54 MIL 16 GAUGE AND THICKER.)

4. WELDING: ALL WELDING SHALL BE IN CONFORMANCE WITH AWS D1.3 WITH CLASS E–6012, E–6013, OR E–7014 SMAW ELECTRODES PER AWS A5.1. QUALIFICATION OF WELDERS SHALL BE IN ACCORDANCE WITH AWS D1.3, CHAPTER C "WELDER PERFORMANCE QUALIFICATION".

5. ALL CONNECTIONS, CONSTRUCTION AND DETAILS SHALL CONFORM TO MANUFACTURER'S RECOMMENDED PRACTICE AND AISI STANDARDS.

6. SHOP DRAWINGS: REVIEWED BY ARCHITECT PRIOR TO FABRICATION.

7. SPLICES IN STUDS SHALL NOT BE PERMITTED.

8. TEMPORARY BRACING SHALL BE PROVIDED AND SAFELY SECURED TO THE STRUCTURE AS REQUIRED UNTIL ERECTION IS COMPLETE.

9. MAXIMUM GAP BETWEEN END OF STUD AND TRACK SHALL BE 3/16" AT NON–BEARING WALLS AND 1/16" AT LOAD BEARING WALLS.

10. WEB CUT–OUTS NOT PERMITTED WITHIN 12" FROM SECTION ENDS.

11. TRACK TO BE SAME MIL (GAUGE) AS STUD.

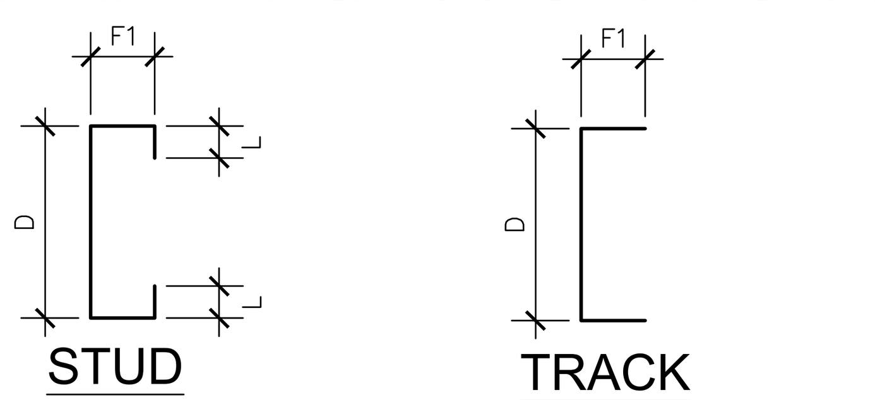
12. PROVIDE UNPUNCHED STUDS AND JOISTS, TYPICAL U.N.O.

13. STUDS SHALL BE GALVANIZED, TYPICAL U.N.O.

14. BENT, KICKED, DISTORTED, OR DAMAGED SECTIONS SHALL NOT BE USED.

15. ROOFING AND FLOOR CONSTRUCTION SHALL BE IN PLACE PRIOR TO CONSTRUCTION OF METAL STUD INFILL WALLS.

16. FRAMING CONNECTORS: SIMPSON STRONG–TIE, CATALOG C–CFS–10, ICC APPROVED AND INSTALLED ACCORDINGLY. BEFORE USING EQUIVALENT CONNECTORS, SUBMIT LOAD COMPARISONS WITH CATALOG AND ICC REPORTS TO THE ARCHITECT FOR REVIEW.



	MARK	GA	DESIGN THK	DIMENSIONS IN INCHES			EFFECTIVE SECTION		Fy (ksi)
				L	D	F1	Ix IN^4	S IN^3	
COLD FORMED STEEL STUDS	400S125-33	20	0.0346	0.188"	4.000"	1.250"	0.524	0.203	33
	600S125-33	20	0.0346	0.188"	6.000"	1.250"	1.361	0.369	33
	250S137-33	20	0.0346	0.375"	2.500"	1.375"	0.203	0.158	33
	362S137-33	20	0.0346	0.375"	3.625"	1.375"	0.479	0.232	33
	600S137-33	20	0.0346	0.375"	6.000"	1.375"	1.548	0.455	33
	400S162-43	18	0.0451	0.500"	4.000"	1.625"	0.892	0.417	33
	400S162-68	14	0.0713	0.500"	4.000"	1.625"	1.346	0.658	50
	600S162-33	20	0.0346	0.500"	6.000"	1.625"	1.793	0.577	33
	600S162-43	18	0.0451	0.500"	6.000"	1.625"	2.316	0.767	33
	600S162-54	16	0.0566	0.500"	6.000"	1.625"	2.860	0.916	50
	600S162-68	14	0.0713	0.375"	6.000"	1.625"	3.525	1.164	50
	600S137-68	14	0.0713	0.500"	6.000"	1.375"	3.094	1.030	50
	800S162-54	16	0.0566	0.500"	8.000"	1.625"	5.600	1.229	50
	1000S200-54	16	0.0566	0.625"	10.000"	2.000"	10.769	1.705	50
TRACKS	250T125-33	20	0.0346	—	2.50"	1.250"	0.166	0.103	33
	362T125-33	20	0.0346	—	3.625"	1.250"	0.384	0.174	33
	600T125-33	20	0.0346	—	6.0"	1.250"	1.258	0.297	33
	400T125-43	18	0.0451	—	4.0"	1.250"	0.666	0.282	33
	600T125-43	18	0.0451	—	6.0"	1.250"	1.768	0.461	33
	600T125-54	16	0.0566	—	6.0"	1.250"	2.241	0.592	50
	800T125-43	18	0.0451	—	8.0"	1.250"	3.484	0.64	33

METAL TO METAL FASTENER SIZE (UON)	
METAL THICKNESS 'T'	SCREW TYPE
T < 12 GA	#10 HWH W/ #2 POINT
12 GA < T < 1/8"	1/4-14 W/ #3 POINT 1/8-1/4 # 12-24 HWH #4 POINT
1/4" < T < 1/2"	#12-24 HWH #5 POINT
METAL TO WOOD FASTENER SIZE	
METAL THICKNESS 'T'	SCREW TYPE
T < 12 GA	#10 PFH W/ #3 POINT

COLD FORMED STEEL STUD NOTES

1. ALL SECTIONS SHALL BE MANUFACTURED IN ACCORDANCE WITH THE LASTEST AISI SPECIFICATION AND ESR–3064P

2. BENT, KINKED, DISTORTED, OR DAMAGE SECTIONS SHALL NOT BE USED

3. STUDS MAY HAVE 1½"x4" WEB CUT–OUTS @ 24". CUT–OUTS SHALL NOT BE CLOSER THAN 12" FROM SECTION ENDS UON

4. BOX HEADER AND JAMB STUDS SHALL BE UNPUNCHED

5. SECTION PROPERTIES ARE BASED UPON THE "STEEL STUD MANUFACTURER'S ASSOCIATION" (SSMA) CATALOG

6. USE: 400S137–54 @ 16" UON WHERE 4" STUDS ARE SPECIFIED
   USE: 400T200–54 WHERE 4" TRACKS ARE SPECIFIED UON
   USE: 600S137–54 @ 16" UON WHERE 6" STUDS ARE SPECIFIED
   USE: 600T150–54 WHERE 6" TRACKS ARE SPECIFIED UON
   USE: 800S137–54 @ 16" UON WHERE 8" STUDS ARE SPECIFIED
   USE: 800T150–54 WHERE 8" TRACKS ARE SPECIFIED UON

FASTENER NOTES:

1. FASTENERS SHALL BE HILTI BRAND AS MANUFACTURED BY HILTI, INC. OR APPROVED EQUAL

POST INSTALLED ANCHORS

1. USE POST–INSTALLED ANCHORS ONLY WHERE SHOWN ON APPROVED DRAWINGS

2. ANCHORS MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND A VALID ICC–ES EVALUATION REPORT. IN CASE OF CONFLICT THE FIRST GOVERNS.

3. DO NOT INSTALL POST–INSTALLED ANCHORS IN CONCRETE THAT IS LESS THAN 7 DAYS OLD.

4. PERIODIC SPECIAL INSPECTION IS REQUIRED PER ICC–ESR AND TABLE 1705A.3 OF THE 2022 CBC

5. THE TESTING OF POST–INSTALLED ANCHORS SHALL BE DONE IN THE PRESENCE OF THE SPECIAL INSPECTOR AND A REPORT OF THE TEST RESULTS SHALL BE SUBMITTED TO THE ENFORCEMENT AGENCY. TEST ANCHORS AS FOLLOWS:

   10% OF SILL PLATE BOLTS
   50% OF EQUIPMENT ANCHORAGE BOLTS
   100% OF ALL OTHER STRUCTURAL ANCHORS

   IF ANY ANCHOR FAILS, TEST ALL ANCHORS OF THE SAME CATEGORY NOT PREVIOUSLY TESTED UNTIL 20
   CONSECUTIVE ANCHORS PASS THE TEST REQUIREMENTS. THE INITIAL TESTING FREQUENCY SHALL THEN BE RESUMED.

6. CONCRETE:

A) EPOXIED BOLTS:

a) SHALL BE ASTM A307 GRADE A ALL–THREAD RODS WITH SIMPSON SET–XP EPOXY IN CURED CONCRETE
   INSTALLED IN ACCORDANCE WITH ICC ESR–2508.

   PROVIDE HOT DIPPED GALVANIZED ANCHORS COMPLYING WITH ASTM A–153, CLASS C OR D, OR STAINLESS STEEL ANCHORS WHERE ANCHORS ARE USED IN WET, HARSH, OR EXTERIOR CONDITIONS.

b) MINIMUM EMBEDMENT DEPTHS SHALL BE AS FOLLOWS:

DIAMETER	MIN. EMBEDMENT
3/8"	3½"
½"	4½"
5/8" OR GREATER	PER DETAIL

c) ALL BOLTS SHALL BE TESTED.

DIAMETER	TENSION
½"	1,500 LBS
5/8"	1,700 LBS
¾"	1,900 LBS

d) TEST ACCEPTANCE CRITERIA: HYDRAULIC RAM METHOD

B) EXPANSION ANCHORS:

a) THE USE OF TORQUE CONTROLLED EXPANSION ANCHORS SHALL BE LIMITED TO LOCATIONS SPECIFIED ON THE APPROVED CONTRACT DRAWINGS.

b) THE ANCHORS MUST BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS AND A VALID ICC–ES EVALUATION REPORT. IN CASE OF CONFLICT THE REPORT GOVERNS. SEE ICC ESR–1917 FOR HILTIKWIK BOLT TZ ANCHORS.

c) EXPANSION ANCHORS, USED IN CONCRETE, SHALL BE HILTI KWIK BOLT TZ AS MANUFACTURED BY HILTI, 5400 SOUTH 122nd EAST AVENUE, TULSA, OKLAHOMA 74146. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND ICC REPORT NO. ESR–1917. PROVIDE AISI TYPE 316 STAINLESS STEEL ANCHORS WHERE ANCHORS ARE USED IN WET, HARSH, OR EXTERIOR CONDITIONS. AISI TYPE 316 STAINLESS STEEL WASHERS AND HEX NUTS, CONFORMING TO THE ICC ESR EVALUATION REPORT SHALL BE PROVIDED.

d) MINIMUM EMBEDMENT DEPTHS SHALL BE AS FOLLOWS:

DIAMETER	MIN. EMBEDMENT
3/8"	2¾"
½"	3¼"
5/8"	4"
¾"	4¾"

e) EXPANSION BOLTS SHALL BE TESTED IN TENSION BY AN APPROVED TESTING AND INSPECTION AGENCY
   TO THE TENSION TEST LOADS LISTED BELOW:

DIAMETER	TENSION	TORQUE
3/8"	1,100 LBS	25 FT–LBS
½"	2,000 LBS	40 FT–LBS
5/8"	2,300 LBS	60 FT–LBS
¾"	3,700 LBS	110 FT–LBS

f) TEST EQUIPMENT INCLUDING TORQUE WRENCHES ARE TO BE CALIBRATED USING AN APPROVED TESTING LABORATORY. THEY MUST BE CALIBRATED BY A STANDARD TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST).

g) EXPANSION ANCHORS ARE PROHIBITED FOR RESISTING VIBRATIONAL LOADS AND FOR USE WITH FIRE–RESISTANT CONSTRUCTION (UNLESS PROTECTED BY APPROVED FIRE–RESISTANCE RATED MATERIALS.)

h) PERIODIC SPECIAL INSPECTION IS REQUIRED UNLESS UON IN TABLE 1704A.4 "REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION", INCLUDED WITH THESE GENERAL NOTES.

i) ACCEPTANCE CRITERIA SHALL BE BASED ON APPROVED TEST REPORT USING CRITERIA ADOPTED IN 2022 CBC 1910A.5 FIELD TEST SHALL SATISFY FOLLOWING MINIMUM REQUIREMENTS:

   1) 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 DISCERNABLE MOVEMENT DURING THE TENSION TEST, E.G., AS EVIDENCED BY LOOSENING OF THE WASHER UNDER THE NUT.

   2) TORQUE WRENCH METHOD: ANCHORS TESTED WITH A CALIBRATED TORQUE WRENCH SHALL ATTAIN THE SPECIFIED TORQUE WITHIN ½ TURN OF THE NUT.

   EXCEPTIONS:

   a. WEDGE OR SLEEVE TYPE
      ONE–QUARTER (1/4) TURN OF THE NUT FOR A 3/8 IN. SLEEVE ANCHOR ONLY.

   b. THREADED TYPE
      ONE–QUARTER (1/4) TURN OF THE SCREW AFTER INITIAL SEATING OF THE SCREW HEAD.

C) SCREW ANCHORS:

a) SCREW ANCHORS SHALL BE SIMPSON "TITEN–HD" ANCHORS INSTALLED IN ACCORDANCE WITH ICC–ESR 2713. INTERIOR APPLICATIONS ONLY.

SIMPSON TITEN HD SCREW ANCHOR (ESR 2713)							
INSTALLATION ITEMS	UNITS	ANCHOR DIAMETER					
		3/8"	1/2"	5/8"	3/4"	3/8 ROD HANGER	1/2 ROD HANGER
MIN. NOMINAL EMBED	INCH	3-1/4	4	5-1/2	6-1/4	2-1/2	2-1/2
MIN. EDGE DIST (UON)	INCH	3-5/8	4-1/2	6-3/8	7-5/16	2-11/16	2-11/16
MIN. SPACING (UON)	INCH	3	3	3	3	3	3
MIN. CONC. THICKNESS	INCH	5	6-1/4	8-1/2	10	4	4-1/2
MAX. INSTALL TORQUE	FT-LB	50	65	100	150	50	50

b) TEST EQUIPMENT INCLUDING TORQUE WRENCHES ARE TO BE CALIBRATED USING AN APPROVED TESTING LABORATORY. THEY MUST BE CALIBRATED BY A STANDARD TRACEABLE TO THE NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST).

c) ACCEPTANCE CRITERIA SHALL BE BASED ON APPROVED TEST REPORT USING CRITERIA ADOPTED IN 2022 CBC 1910A FIELD TEST SHALL SATISFY FOLLOWING MINIMUM REQUIREMENTS:

   1) TORQUE WRENCH METHOD: ANCHORS TESTED WITH A CALIBRATED TORQUE WRENCH SHALL ATTAIN THE SPECIFIED TORQUE WITHIN ½ TURN OF THE NUT.

d) SCREW ANCHORS ARE PROHIBITED FOR RESISTING FATIGUE OR SHOCK LOADING AND ARE NOT PERMITTED TO SUPPORT FIRE–RESISTANT CONSTRUCTION.

7. SOLID GROUTED MASONRY

A) EPOXY ANCHORS ARE TO BE ASTM A307 GRADE A ALL–THREAD RODS WITH SIMPSON SET–XP EPOXY IN
   CURED CONCRETE INSTALLED IN ACCORDANCE WITH ICC ESR–2508.

B) EXPANSION BOLTS USED IN MASONRY SHALL BE KWIK BOLT T2 (ESR–1385) AND SHALL BE USED TO
   SUPPORT NON–STRUCTURAL ELEMENTS ONLY.

8. POWER DRIVEN PINS

A) THE USE OF POWER DRIVEN FASTENERS FOR TENSION LOADS IS LIMITED TO SUPPORT OF MINOR LOADS, SUCH
   AS ACCOUSTICAL CEILINGS, DUCT WORK, CONDUIT, ETC.

B) POWER DRIVEN FASTENERS SHALL NOT BE USED IN CURBS

C) QUALIFICATION FOR USE OF ALL POWER ACTIVATED TOOLS SHALL MEET ANSI A10.3 STANDARD AS REQUIRED
   BY THE MANUFACTURER AND SHALL MEET ALL OSHA REQUIREMENTS

D) THE OPERATOR, TOOL, AND FASTENERS SHALL BE PREQUALIFIED BY THE INSPECTOR. HE SHALL OBSERVE THE
   INSTALLATION OF THE FIRST TEN (10) FASTENER INSTALLATIONS. A "PULL OUT" TEST LOAD OF 200 LBS.
   SHALL BE APPLIED TO THE PIN IN SUCH A MANNER AS NOT TO RESIST THE SPALLING TENDENCY OF THE
   CONCRETE SURROUNDING THE PIN. THEREAFTER RANDOM TESTS, UNDER THE PROJECT INSPECTOR'S
   SUPERVISION, SHALL BE MADE OF APPROXIMATELY (1) IN (10) PINS. IF ANY PIN FAILS TESTING, TEST ALL
   PINS OF THE SAME CATEGORY NOT PREVIOUSLY TESTED UNTIL (20) CONSECUTIVE PINS PASS, THEN RESUME
   INITIAL TESTING FREQUENCY.

METAL BUILDING NOTES:

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN APPROPRIATE APPROVALS AND SECURE NECESSARY PERMITS FROM CITY, COUNTY, STATE, OR FEDERAL AGENCIES AS REQUIRED, AND TO ADVISE / RELEASE / AUTHORIZE BUILDING MANUFACTURER TO BEGIN FABRICATION UPON RECEIVING SUCH.

BUILDING SPECIFICATIONS APPLY UNLESS STIPULATED OTHERWISE IN THE CONTRACT DOCUMENTS, ALONG WITH THIRD PARTY FABRICATION STANDARDS, QUALITY CRITERIA, STANDARDS, PRACTICE, METHODS, AND TOLERANCES SHALL GOVERN THE WORK WITH ANY OTHER INTERPRETATIONS TO THE CONTRARY NOT WITHSTANDING. IT IS UNDERSTOOD BY BOTH PARTIES THAT THE CONTRACTOR IS RESPONSIBLE FOR CLARIFICATION OF INCLUSIONS OR EXCLUSIONS FROM THE ARCHITECTURAL PLANS AND/OR SPECIFICATIONS. IN CASE OF DISCREPANCIES BETWEEN THE BUILDING PLANS AND OTHER TRADES THE BUILDING PLANS SHALL GOVERN. (SECTION 3 AISC CODE OF STANDARD PRACTICES, 9TH EDITION)

APPROVAL OF BUILDING DRAWINGS AND CALCULATIONS INDICATES THAT THE BUILDING DRAWINGS HAVE BEEN CORRECTLY INTERPRETED AND APPLIED TO THE CONTRACT DOCUMENTS. THIS APPROVAL CONSTITUTES THE CONTRACTOR ACCEPTANCE OF THE BUILDING DESIGN CONCEPTS, ASSUMPTIONS, AND LOADING. (SECTION 4 AISC CODE)

ONCE THE CONTRACTOR HAS SIGNED APPROVAL PACKAGE FOR THE BUILDING THE PROJECT IS RELEASED FOR FABRICATION, AND CHANGES SHALL BE BILLED TO THE CONTRACTOR INCLUDING MATERIAL, ENGINEERING, AND OTHER COSTS AS PER THE TERMS AND CONDITIONS OF THE CONTRACT. AN ADDITIONAL FEE MAY BE CHARGED IF THE PROJECT MUST BE MOVED FROM THE FABRICATION AND SHIPPING SCHEDULE.

THE CONTRACTOR IS RESPONSIBLE FOR OVERALL PROJECT COORDINATION. ALL INTERFACE, COMPATIBILITY AND DESIGN CONSIDERATIONS CONCERNING ANY MATERIALS NOT SUPPLIED BY THE BUILDING MANUFACTURER ARE TO BE CONSIDERED COORDINATED BY THE CONTRACTOR. SPECIFIC DESIGN CRITERIA CONCERNING THIS INTERFACE BETWEEN MATERIALS MUST BE FURNISHED BEFORE RELEASE FOR FABRICATION OR BUILDING MANUFACTURER ASSUMPTIONS WILL GOVERN (AISC CODE OF STANDARD PRACTICE 9TH EDITION)

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT BUILDING PLANS COMPLY WITH THE APPLICABLE REQUIREMENT OF ANY GOVERNING BUILDING AUTHORITIES.

THE CONTRACTOR IS RESPONSIBLE FOR SETTING OF ANCHOR BOLTS AND ERECTION OF STEEL IN ACCORDANCE WITH THE "FOR CONSTRUCTION "DRAWINGS ONLY. TEMPORARY SUPPORTS SUCH AS GUYS, BRACES, FALSE WORK, CRIBBING OR OTHER ELEMENTS REQUIRED FOR THE ERECTION OPERATION SHALL BE DETERMINED FURNISHED AND INSTALLED BY THE ERECTOR. NO ITEMS SHOULD BE PURCHASED FROM A PRELIMINARY SET OF DRAWINGS, INCLUDING ANCHOR BOLTS. USE ONLY FINAL "FOR CONSTRUCTION DRAWINGS "FOR THE USE. (SECTION 7 AISC CODE OF STANDARD PRACTICE, 9TH EDITION)

THE BUILDING MANUFACTURER IS RESPONSIBLE FOR THE DESIGN OF THE ANCHOR BOLT TO PERMIT THE TRANSFER OF FORCES BETWEEN THE BASE PLATE AND THE ANCHOR BOLT IN SHEAR, BEARING, AND TENSION BUT IS NOT RESPONSIBLE FOR THE TRANSFER OF ANCHOR BOLT FORCES TO THE CONCRETE OR THE ADEQUACY OF THE ANCHOR BOLT IN RELATION TO THE CONCRETE.

CONTRACTOR IS TO ASSURE THAT ADEQUATE PROVISIONS ARE MADE IN THE FOUNDATION DESIGN FOR LOADS IMPOSED BY COLUMN REACTIONS OF THE BUILDING, OTHER IMPOSED LOADS, AND BEARING CAPACITY OF THE SOIL AND OTHER CONDITIONS OF THE BUILDING SITE.

THE FOUNDATION DRAWINGS IN THE APPROVED BUILDING PLANS ARE TO BE CONSIDERED FOR BIDDING PURPOSES ONLY. THE ENGINEER OF RECORD WILL FINALIZE THE FOUNDATION PLANS AND ASSOCIATED ANCHORAGE WHEN THE METAL BUILDING DRAWINGS AND CALCULATIONS ARE FINALIZED.

NORMAL ERECTION OPERATIONS INCLUDE THE CORRECTIONS OF MINOR MISFITS BY MODERATE AMOUNTS OF REAMING, CHIPPING, WELDING OR CUTTING AND THE DRAWING OF ELEMENTS INTO LINE THROUGH THE USE OF DRIFT PINS. ERRORS WHICH CANNOT BE CORRECTED BY THE FOREGOING MEANS OR WHICH REQUIRE MAJOR CHANGES IN MEMBER CONFIGURATION ARE TO BE REPORTED IMMEDIATELY TO BUILDING MANUFACTURER AND CONTRACTOR TO ENABLE WHOEVER IS RESPONSIBLE EITHER TO CORRECT THE ERROR OR APPROVE THE MOST EFFICIENT AND ECONOMIC METHOD OF CORRECTN TO BE USED BY OTHERS. (SECTION 7 AISC CODE OF STANDARD PRACTICE, 9TH EDITION) NEITHER THE ERECTOR NOR THE CONTRACTOR WILL CUT, DRILL, OR OTHERWISE ALTER HIS WORK, OR THE WORK OF OTHER TRADES TO ACCOMMODATE OTHER TRADES UNLESS SUCH WORK IS CLEARLY SPECIFIED, THE CONTRACTOR IS RESPONSIBLE FOR FURNISHING COMPLETE INFORMATION AS TO MATERIALS, SIZE, LOCATION, AND NUMBER OF ALTERATIONS PRIOR TO PREPARATION OF SHOP DRAWINGS. (SECTION 7 AISC CODE OF STANDARD PRACTICE, 9TH EDTION)

THE BUILDING MANUFACTURER HAS A COMMITMENT TO DESIGN QUALITY BUILDINGS THAT CAN BE SAFELY ERECTED. HOWEVER, THE SAFETY COMMITMENT AND JOB SITE PRACTICES OF THE ERECTOR ARE BEYOND THE BUILDING MANUFACTURER. IT IS STRONGLY RECOMMENDED THAT SAFE WORKING CONDITIONS AND ACCIDENT PREVENTION PRACTICES ARE THE TOP PRIORITY OF ANY JOB SITE. LOCAL, STATE, AND FEDERAL SAFETY AND HEALTH STANDARDS SHOULD ALWAYS BE FOLLOWED TO HELP ENSURE WORKERS SAFETY. MAKE CERTAIN ALL EMPLOYEES KNOW THE SAFEST AND MOST PRODUCTIVE WAY OF ERECTING A BUILDING. ALL EMPLOYEES SHOULD KNOW EMERGENCY PROCEDURES, DAILY MEETINGS, HIGHLIGHTING SAFETY PROCEDURES ARE ALSO RECOMMENDED. THE USE OF HARD HATS, RUBBER SOLE SHOES FOR ROOF WORK, PROPER EQUIPMENT FOR HANDLING MATERIAL, AND SAFETY NETS WHERE APPLICABLE ARE RECOMMENDED.

DO NOT CUT, REMOVE, OR RELOCATE GIRTS OR X BRACING. NO ADDITIONAL OPENINGS ALLOWED WITHOUT WRITTEN APPROVAL FROM THE STEEL BUILDING MANUFACTURER.

HARDWARE SUCH AS WINDOWS, OVERHEAD DOORS, AND ASSOCIATED ATTACHMENTS THAT ARE SUPPLIED BY OTHERS MUST HAVE THE SAME LEVEL OF WIND RESISTANCE AS WALL PANELS.

WORKERS SHALL NOT HAVE THEIR WEIGHT ON FRAMES OR INDIVIDUAL COLUMNS UNTIL THEY HAVE BEEN SECURE WITH GIRTS AND CROSS BRACING.

NOTES: APPROVAL DRAWINGS: APPROVAL ORDERS MUST BE RELEASED FOR FABRICATION WITHIN FIVE CALENDAR DAYS AFTER THE SUBMITTAL DRAWINGS ARE ISSUED OR THEY WILL BE SUBJECT TO ANY CURRENT PRICE INCREASES. SPECIAL ATTENTION SHOULD BE GIVEN IN APPROVING DIMENSIONS AND / OR DETAILS.

BUILDERS RESPONSIBILITES :

THE CONTRACTOR / BUILDER MUST SECURE ALL REQUIRED APPROVALS AND PERMITS FROM THE APPROPRIATE AGENCY AS REQUIRED. APPROVAL OF BUILDING MANUFACTURER DRAWINGS AND CALCULATIONS INDICATES THAT THE BUILDING MANUFACTURER HAS CORRECTLY INTERPRETED AND APPLIED THE REQUIREMENTS OF THE CONTRACT DRAWINGS AND SPECIFICATIONS. (SECTION 4.2.1 AISC CODE OF STANDARD PRACTICE, 9TH EDITION) WHERE DISCREPANCIES EXIST BETWEEN THE BUILDING PLANS AND THE PLANS OF OTHER TRADES, THE STRUCTURAL PLANS FOR THE BUILDING WILL GOVERN. (SECTION 33 AISC CODE OF STANDARD PRACTICE, 9TH EDITION) DESIGN CONSIDERATIONS OF ANY MATERIALS IN THE STRUCTURE (WHICH ARE NOT DESIGNED BY THE BUILDING MANUFACTURER) ARE THE RESPONSIBILITY OF THE BUILDER AND ENGINEERS OTHER THAN THE BUILDING MANUFACTURERS UNLESS SPECIFICALLY INDICATED. THE CONTRACTOR IS RESPONSIBLE FOR ALL ERECTION OF STEEL AND ASSOCIATED WORK IN COMPLIANCE WITH THE BUILDING MANUFACTURERS "CONSTRUCTION DRAWINGS ".

BUILDING MANUFACTURER PRODUCT SPECIFICATIONS APPLY AND UNLESS STIPULATED OTHERWISE IN THE CONTRACT DOCUMENTS, FABRICATION STANDARDS, QUALITY CRITERIA, AND TOLERANCES WILL GOVERN THE WORK. IN CASE OF DISCREPANCIES BETWEEN THE BUILDING MANUFACTURER STRUCTURAL PLANS AND PLANS FOR OTHER TRADES. THE STRUCTURAL PLANS SHALL GOVERN.

ONCE THE CONTRACTOR HAS SIGNED THE BUILDING MANUFACTURER'S APPROVAL PACKAGE, CHANGES FROM THE PURCHASE ORDER BY THE BUILDER WILL BE BILLED TO THE CONTRACTOR FOR MATERIAL, ENGINEERING, AND HANDLING FEES. SUCH CHANGES MAY CAUSE THE PROJECT TO BE MOVED FROM THE FABRICATION AND OR SHIPPING SCHEDULE.A PENALTY FEE MAY BE CHARGED IF THE PROJECT MUST BE MOVED FROM THE FABRICATION AND / OR SHIPPING SCHEDULE.

THE CONTRACTOR IS RESPONSIBLE FOR THE OVERALL PROJECT CONDITION. ALL INTERFACE AND COMPATIBILITY CONCERNING ANY MATERIALS NOT FURNISHED BY THE MANUFACTURER ARE TO BE CONSIDERED AND COORDINATED BY THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL OTHER PROJECT PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE REQUIREMENTS OF ANY GOVERNING BUILDING AUTHORITY. SUPPLYING DRAWINGS BY THE BUILDING MANUFACTURER DOES NOT IMPLY OR CONSTITUTE AN AGREEMENT THAT THE BUILDING MANUFACTURER OR ITS DESIGN ENGINEER IS ACTING AS THE ENGINEER OF RECORD OR DESIGN PROFESSIONAL FOR THE CONSTRUCTION COMPLIANCE WITH ALL REQUIREMENTS OF THE PURCHASE ORDER.

THE CONTRACTOR IS RESPONSIBLE FOR SETTING OF ANCHOR BOLTS AND ERECTION OF STEEL BUILDING COMPONENTS IN ACCORDANCE WITH THE BUILDING MANUFACTURER "FOR CONSTRUCTION "DRAWINGS. TEMPORARY SUPPORTS OR BRACING REQUIRED FOR THE BUILDING ERECTION WILL BE THE RESPONSIBILITY OF THE ERECTOR TO DETERMINE, FURNISH, AND INSTALL. THE BUILDING MANUFACTURER IS NOT REQUIRED TO WARRANT STRUCTURAL INTEGRITY OF ANY COMPONENTS FIELD MODIFIED OR DESIGNED AND FABRICATED BY OTHERS.

SHOP PRIMER PAINT IS A RUST INHBITIVE PRIMER, WHICH MEETS THE END PERFORMANCE OF FEDERAL SPECIFICATION TT–P–636 AND IS RED OXIDE COLOR. THIS PAINT IS NOT INTENDED FOR LONG–TERM EXPOSURE TO THE ELEMENTS. THE BUILDING MANUFACTURER IS NOT RESPONSIBLE FOR ANY DETERIORATION OF THE SHOP PRIMER PAINT BECAUSE OF IMPROPER HANDLING AND / OR STORAGE. THE BUILDING MANUFACTURER SHALL NOT BE RESPONSIBLE FOR ANY FIELD APPLIED PAINT AND / OR COATINGS. (SECTION 6.5 AISC CODE OF STANDARD PRACTICE 9TH EDITION) NORMAL THICKNESS OF PRIMER SHALL BE 1 MIL UNLESS OTHERWISE SPECIFIED IN CONTRACT DOCUMENTS.

GALVANIZED OR SPECIAL COATINGS – SEE CONTRACT DOCUMENTS ALL BOLTS ARE 0' 0–1/2 "DIA. X 0'–1 "A307
EXCEPT:
A) EAVE STRUT CONNECTION – ½ "X 0'–1 1/2 "A307
B) END WALL RAFTER SPLICE – 5/8 "X 0' 1–3/4 "A325–N
C) END WALL COL. / RAFT CONNECTIONS – SEE CROSS SECTION

A325 BOLT TIGHTENING REQUIREMENTS

ALL HIGH STRENGTH BOLTS ARE A325–N

STRUCTURAL BOLTS SHALL BE TIGHTENED BY THE TURN OF THE NUT METHOD IN ACCORDANCE WITH THE 9TH EDITION AISC "SPECIFICATION FOR STRUCTURAL JOINTS "USING ASTM A325 OR A490 BOLTS. WHEN SPECIFICALLY REQUIRED A325–N BOLTS ARE SUPPLIED WITHOUT WASHER UNLESS NOTED ON THE DRAWINGS AS PROVIDED BY BUILDING MANUFACTURER.

ALL BOLTED CONNECTIONS UNLESS NOTED ARE DESIGNED AS BEARING TYPE CONNECTIONS WITH THREADS NOT EXCLUDED FROM THE SHEAR PLANE.

CLOSURE STRIPS ARE FURNISHED ONLY IF NOTED ON SHIPPING DOCUMENTS

INSIDE – UNDER ROOF PANELS AT EAVE

OUTSIDE – BETWEEN END WALL PANELS AND RAKE TRIM

UNDER CONTINUOUS RIDGE VENT SKIRTS

ERECTION NOTE: ALL BRACING STRAPPING & BRIDGING SHALL BE INSTALLED BY THE ERECTOR AS A PERMANENT PART OF THE STRUCTURE. IF ADDITIONAL BRACING IS REQUIRED FOR STABILITY DURING ERECTION, IT SHALL BE THE ERECTOR'S RESPONSIBILITY TO DETERMINE THE AMOUNT OF SUCH BRACING AND TO PROCURE AND INSTALL AS NEEDED.

ERECTING AND UNLOADING TO BE DONE BY CONTRACTOR

SHORTAGES: ANY CLAIMS OR SHORTAGES BY THE CONTRACTOR MUST BE MADE TO THE MANUFACTURER WITHIN SEVEN DAYS AFTER DELIVERY OR SUCH CLAIMS SHALL BE CONSIDERED WAIVED BY THE CUSTOMER AND DISALLOWED.

CORRECTIONS OF ERRORS AND REPAIRS (MBMA 6.10)

CLAIMS FOR CORRECTION OF ALLEGED MISFITS WILL BE DISALLOWED UNLESS THE MANUFACTURER HAVE RECEIVED PRIOR NOTICE THEREOF AND ALLOWED REASONABLE INSPECTION OF SUCH MISFITS.THE CORRECTION OF MINOR MISFITS BY THE USE OF DRIFT PINS TO DRAW THE COMPONENTS INTO LINE, MODERATE AMOUNTS OF REAMING, CHIPPING, SHIMMING AND CUTTING AND THE REPLACEMENT OF MINOR SHORTAGES OF MATERIAL ARE A NORMAL PART OF ERECTION AND ARE NOT SUBJECT TO CLAIM. NO PART OF THE BUILDING MAY BE RETURNED FOR ALLEGED MISFITIS WITHOUT THE PRIOR APPROVAL OF THE BUILDING MANUFACTURER.

BUILDING SPECIFICATIONS: THE STRUCTURE UNDER THIS CONTRACT HAS BEEN DESIGNED AND DETAILED FOR THE LOADS AND CONDITIONS STIPULATED IN THE CONTRACT AND SHOWN ON THESE DRAWINGS. ANY ALTERATIONS TO THE STRUCTURAL SYSTEM OR REMOVAL OF ANY COMPONENT PARTS OR THE ADDITION OF OTHER CONSTRUCTION MATERIALS OR LOADS MUST BE DONE UNDER THE ADVICE OF A REGISTERED ARCHITECT, CIVIL OR STRUCTURAL ENGINEER. THE BUILDING MANUFACTURER WILL NOT ASSUME RESPONSIBILITY FOR ANY LOADS NOT INDICATED.

LICENSED ARCHITECT
ZAHIDUL HOQUE KHAN
C-40030
REN: 11-30-25
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
JOSEPH C. HARRELL
No. C80424
CIVIL
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5/24/2024

ENGINEER:
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California Licensed Civil Engineer No. C80424
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Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-24
Project no.: T90204
File name: Y:\Projects - Capital Projects\T90203 ECC Site Imrpovement and Shade Structure\PS&Es - Exhibits - Maps\Working Drawings\ECC CAD Files 5-13-24\S1.01 TYPICAL STRUCTURAL NOTES

Sheet Content:

Typical Sturcture Notes

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

S1.01

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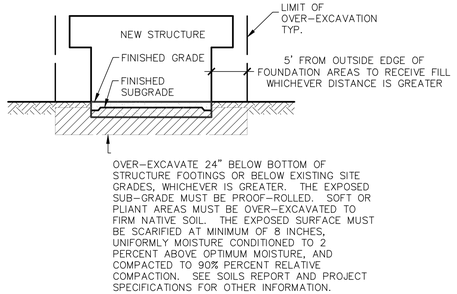
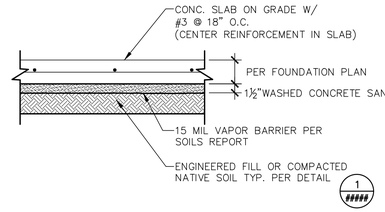
Plot Date: 2024-05-24

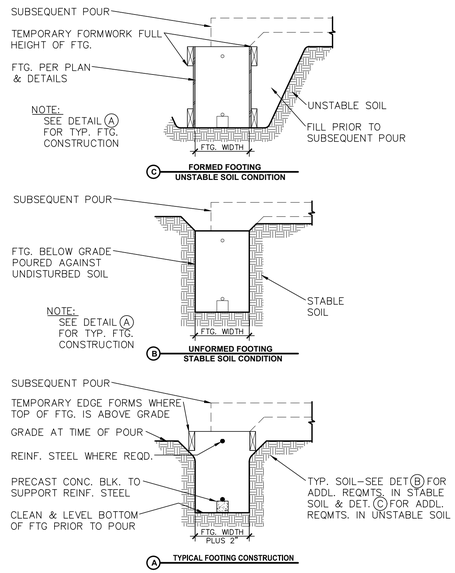


1 Over Excavation & Compaction
S1.02 Scale: 1/2"=1'-0"



NOTE:
SEE FOUNDATION NOTES, CIVIL DRAWINGS, AND SOILS REPORT FOR ADDITIONAL REQUIREMENTS

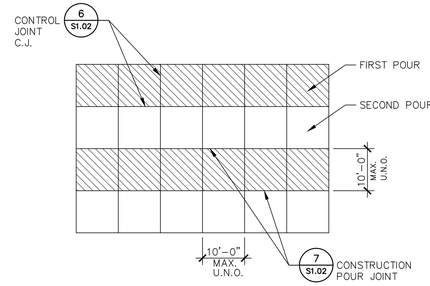
2 Typical Slab on Grade
S1.02 Scale: N.T.S.



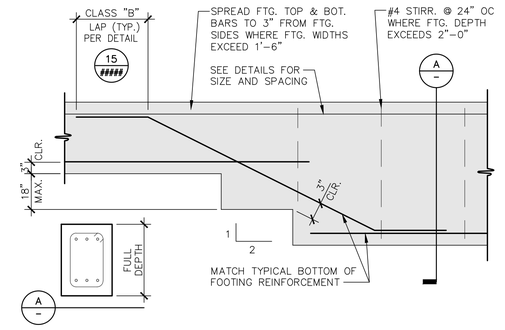
NOTES:

1. ALL FOOTINGS SHALL BE PLACED PER THE TYPICAL REQUIREMENTS OF DETAIL A.
2. FOOTINGS MAY BE POURED DIRECTLY INTO NEAT EXCAVATIONS PER DETAIL B WHERE SOIL IS CONSIDERED STABLE AS DETERMINED BY THE ARCHITECT OR SOILS ENGINEER.
3. PROVIDE FORMWORK PER DETAIL C WHERE SOIL IS CONSIDERED UNSTABLE AS DETERMINED BY THE ARCHITECT OR SOILS ENGINEER.
4. SEE THE SOILS REPORT FOR OTHER REQUIREMENT.

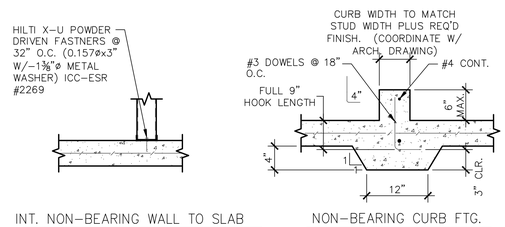
3 Typical Foundation Formwork
S1.02 Scale: 3/4" = 1'-0"

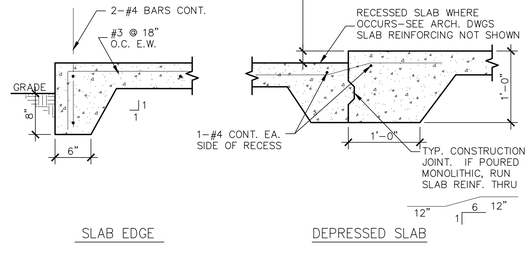


4 Control Joints
S1.02 Scale: N.T.S.

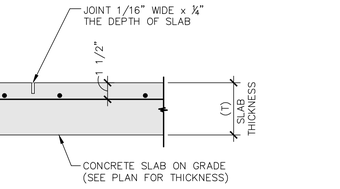


5 Step Continuous Footing
S1.02 Scale: N.T.S.



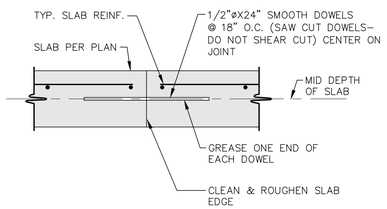


8 Typical Slab Detail/Transitions
S1.02 Scale: 3/4" = 1'-0"

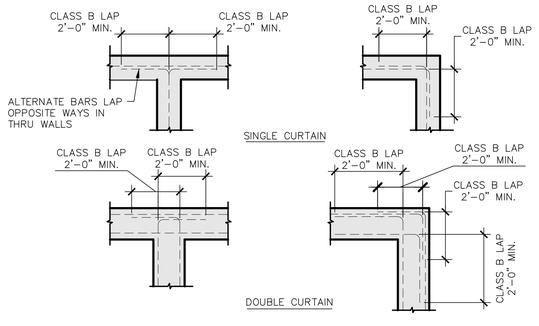


NOTE: SAWCUT SLAB WITHIN 12 HOURS OF POUR AND IN ACCORDANCE WITH AC1 302.IR

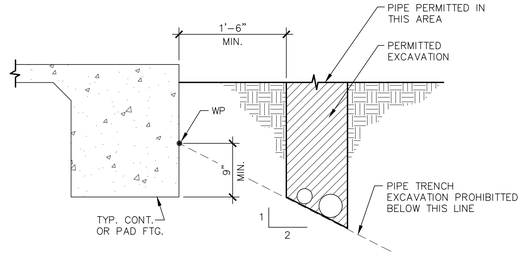
6 Slab Control Joint (C.J.)
S1.02 Scale: N.T.S.



7 Slab Control Joint (P.J.)
S1.02 Scale: N.T.S.



9 Typ. Reinf. (Foundation & Walls)
S1.02 Scale: 1/2" = 1'-0"



10 Pipes Adjacent to Footings
S1.02 Scale: 1" = 1'-0"

LICENSED ARCHITECT RAQUEL HOQUE KING C 40030 REN: 11-30-25 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER JOSEPH C. HARRELL No. C80424 CIVIL STATE OF CALIFORNIA
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ENGINEER:
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Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-24
Project no.: T90204
File name: Y:\Projects - Capital Projects\T90203 ECC Site Improvement and Shade Structure\PS&Es - Exhibits - Maps\Working Drawings\ECC CAD Files 5-13-24\S1.02 & S1.03 TYPICAL FRAMING DETAILS

Sheet Content:

Typical Framing Details

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Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

S1.02

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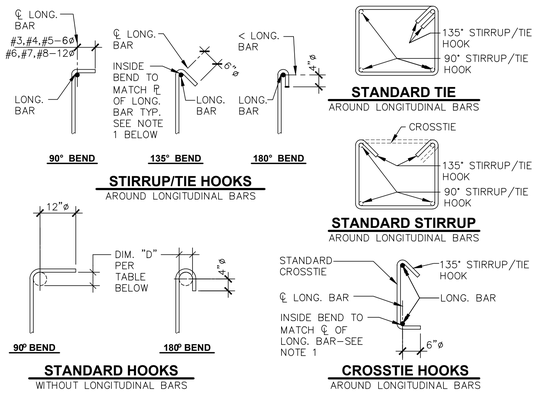
Plot Date: 2024-05-24



BENT BAR SIZE	BENT BAR DIA.	DIM. FOR: 4ø	6ø	8ø	12ø	DIM. "D"
3	0.375"	2.50"	3.00"	3.00"	4.50"	2.25"
4	0.500"	2.50"	3.00"	4.00"	6.00"	3.00"
5	0.625"	2.50"	3.75"	5.00"	7.50"	3.75"
6	0.750"	3.00"	4.50"	6.00"	9.00"	4.50"
7	0.875"	3.50"	5.25"	7.00"	10.50"	5.25"
8	1.000"	4.00"	6.00"	8.00"	12.00"	6.00"
9	1.125"	4.50"	6.75"	9.00"	13.50"	9.00"
10	1.250"	5.00"	7.50"	10.00"	15.00"	10.00"

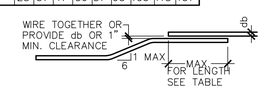
NOTES:

1. INSIDE RADIUS BEND OF THE BAR ENCLOSING THE LONGITUDINAL BAR SHALL NOT BE LESS THAN THE RADIUS OF THE LONGITUDINAL BAR.
2. INSIDE DIAMETER OF BENDS IN WELDED WIRE FABRIC, PLAIN OR DEFORMED, FOR STIRRUPS AND TIES SHALL BE AT LEAST FOUR WIRE DIAMETERS FOR WIRE LARGER THAN D6 OR W6 AND TWO WIRE DIAMETERS FOR ALL OTHER WIRES. BENDS WITH INSIDE DIAMETER OF LESS THAN EIGHT WIRE DIAMETERS SHALL BE LESS THAN FOUR DIAMETERS FROM THE NEAREST WELDED INTERSECTION.
3. UNLESS NOTED OTHERWISE ABOVE, BAR BENDS SHALL NOT EXTEND LESS THAN 6 BAR DIAMETERS.

11 Typical Reinforcement Bends

S1.03 Scale: 1/2"=1'-0"

LAP LENGTH									
BAR SIZE	#3	#4	#5	#6	#7	#8	#9	#10	#11
BOTTOM BAR	22"	29"	36"	43"	63"	72"	81"	91"	101"
TOP BAR	28"	37"	47"	56"	81"	93"	105"	118"	131"

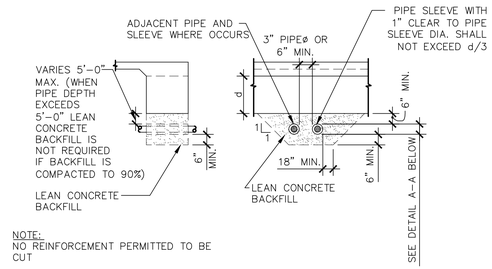


NOTES:

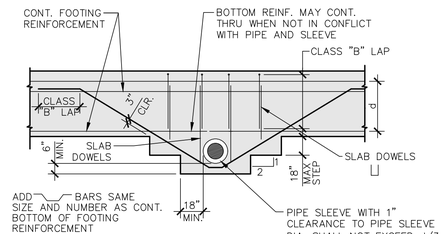
1. SPLICES ARE SHOWN IN INCHES AND SHALL CONFORM TO CLASS "B" SPLICES AS PER ACI 318 (LATEST EDITION).
2. SPLICE LENGTHS ASSUME THE MODIFICATION FACTORS OF ACI 318 SECTIONS 12.2 ARE 1.0. FOR OTHER CONDITIONS PROVIDE SPLICE LENGTHS IN ACCORDANCE WITH ACI 318.
3. USE THE SPLICE LENGTH GIVEN FOR TOP BARS WHEN MORE THAN 12" OF CONC. IS CAST BELOW HORIZONTAL BARS IN THE MEMBER. USE THE SPLICE LENGTH GIVEN FOR BOTTOM BARS FOR ALL OTHER CONDITIONS.

12 Concrete Reinf. Bar Splice Length

S1.03 Scale: 1"=1'-0"



NOTE:
NO REINFORCEMENT PERMITTED TO BE CUT



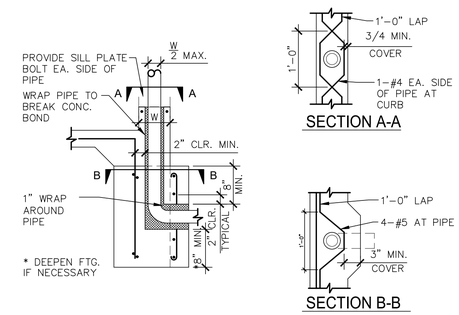
A-A

NOTE:

1. WHEN MORE THAN ONE PIPE AND SLEEVE OCCURS, PROVIDE A MINIMUM OF 3" PIPE ø OR 6" CLEAR BETWEEN EACH SLEEVE, WHICHEVER IS GREATER.
2. ALL PENERATIONS SHALL BE PERPENDICULAR TO THE LINE OF FOOTING, TYPICAL. NO PIPES ALLOWED AT COLUMN FOOTINGS.

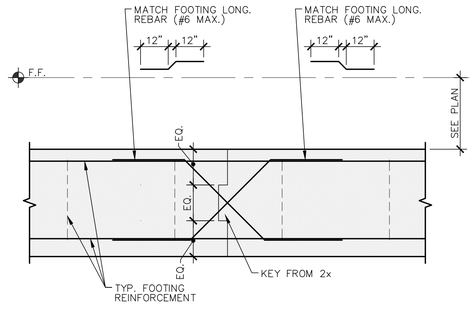
13 Pipes Below Concrete Footings

S1.03 Scale: N.T.S.



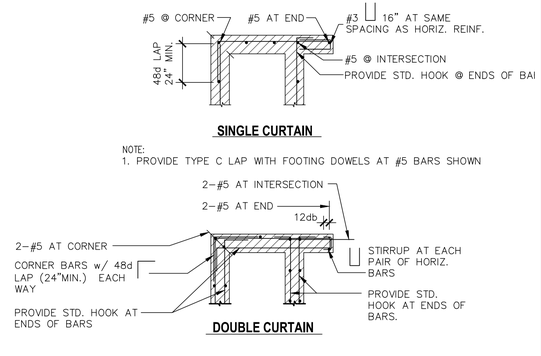
14 Drain Pipe at Footing

S1.03 Scale: 1/2" = 1'-0"



15 Typical Footing Construction Joint

S1.03 Scale: N.T.S.



16 Typical Intersection Wall Reinf.

S1.03 Scale: 3/4" = 1'-0"

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Sheet No.:

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Plot Date: 2024-05-24

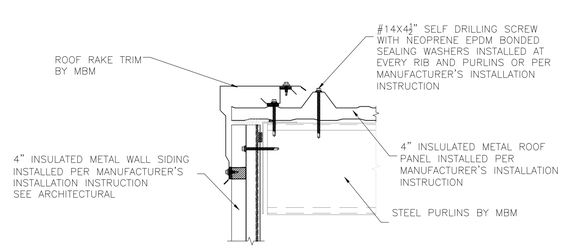
UNLESS LARGER SIZES ARE SHOWN, THE MINIMUM SIZE OF FILLET WELDS SHALL BE AS SHOWN IN TABLE J2.4. THESE PROVISIONS DO NOT APPLY TO FILLET WELD REINFORCEMENTS OF PARTIAL – OR COMPLETE – JOINT – PENETRATION GROOVE WELDS.

TABLE J2.4 AISC MINIMUM SIZE OF FILLET WELDS

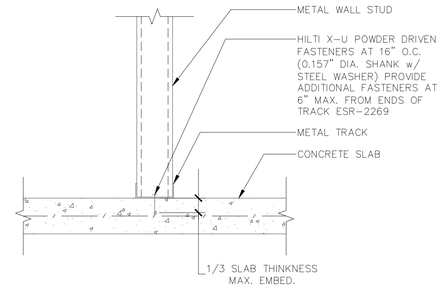
MATERIAL THICKNESS OF THINNER PART JOINED (IN)	MINIMUM SIZE OF FILLET WELD (IN) *
TO 1/4 INCLUSIVE	USE 1/8 MIN
OVER 1/4 TO 1/2	3/16
OVER 1/2 TO 3/4	1/4
OVER 3/4	5/16

* LEG DIMENSION OF FILLET WELDS. SINGLE – PASS WELDS MUST BE USED.

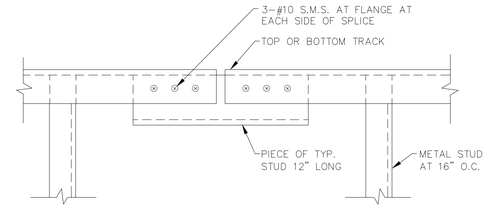
1 Fillet Welds
S1.04 Scale: 1"=1'-0"



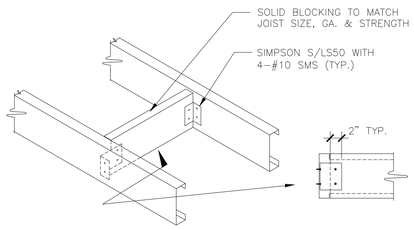
2 Roof Attachment
S1.04 Scale: 1"=1'-0"



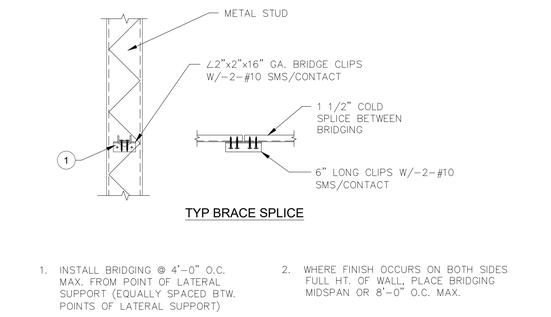
3 Interior Wall at Slab
S1.04 Scale: 1-1/2"=1'-0"



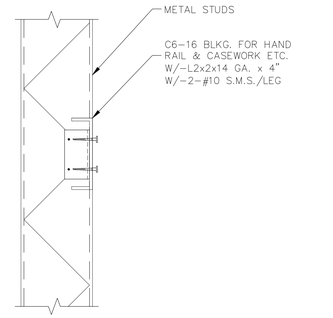
4 Track Splice
S1.04 Scale: 1"=1'-0"



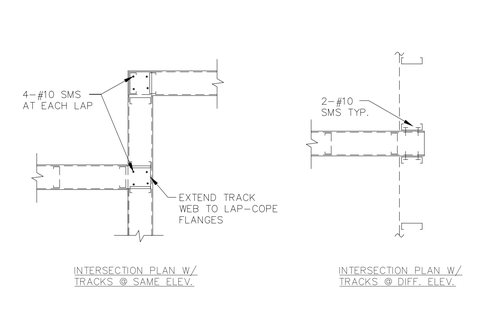
5 Solid Blocking at Joists
S1.04 Scale: N.T.S.



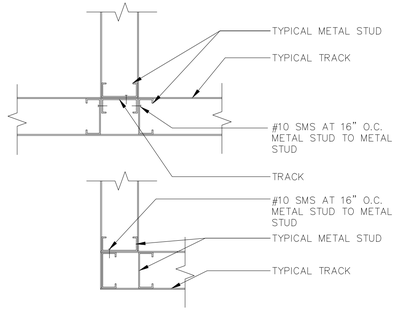
6 Stud Lateral Bridging
S1.04 Scale: 3/4" = 1'-0"



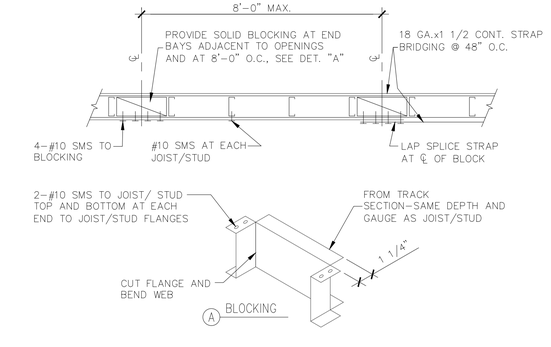
7 Typical Stud Backing Block
S1.04 Scale: N.T.S.



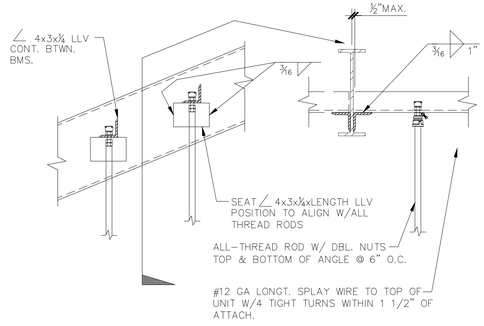
8 Typical Top Track Intersection
S1.04 Scale: 3/4" = 1'-0"



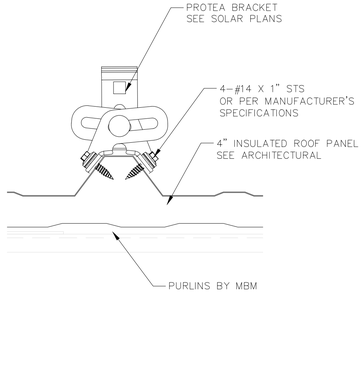
9 Stud Intersection
S1.04 Scale: 1-1/2"=1'-0"



10 Blocking/Bridging
S1.04 Scale: N.T.S.



11 Equipment Support (Typ.)
S1.04 Scale: N.T.S.



12 Solar Bracket Roof Attachment
S1.04 Scale: N.T.S.

LICENSED ARCHITECT RAJINDEL HOQUE KHAN C 40030 REN: 11-30-25 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER JOSEPH C. HARRELL No. C80424 CIVIL STATE OF CALIFORNIA
5/24/2024

ENGINEER:
Joseph C. Harrell
California Licensed Civil Engineer No. C80424
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E-mail: jharrell@fresnocountyca.gov

Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-24
Project no.: T90204
File name: Y:\Projects - Capital Projects\T90203 ECC Site Improvement and Shade Structure\PS&Es - Exhibits - Maps\Working Drawings\ECC CAD Files 5-13-24\S1.04 & S1.05 TYPICAL STRUCTURAL DETAILS

Sheet Content:
Typical Structural Details

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

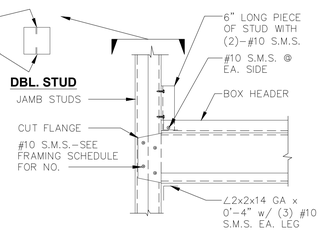
Sheet No.:
S1.04

Sheet of

Plot Date: 2024-05-24

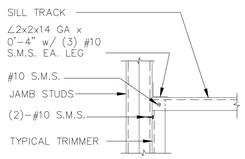
TRIPLE STUD

∠2x2x14 GA x 0'-4" w/ (3) #10 S.M.S. EA. LEG



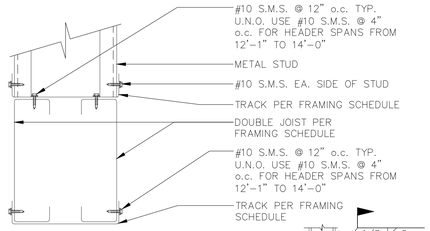
DBL. STUD

B **HEADER CONNECTION**

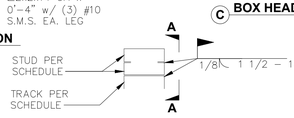


A **SILL CONNECTION**

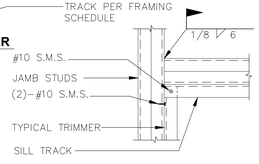
NOTE:
GAUGE PER SCHEDULE



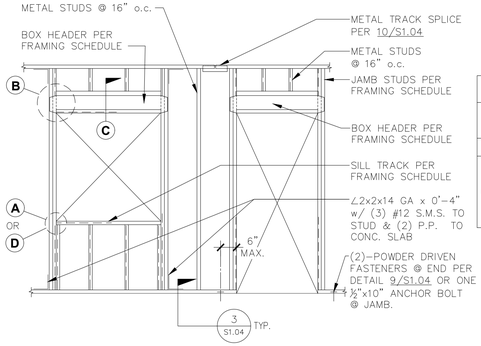
C **BOX HEADER**



D **SILL CONSTRUCTION**



VIEW A-A



HEADER FRAMING SCHEDULE

WALL TYPE	SPAN LENGTH	BOX HEADER		JAMB STUDS	SILL TRACK	NO #10 S.M.S. AT EACH JOIST TO JAMB	REMARKS
		DBL. JOIST	TRACK				
4" STUDS	0" TO 10'-0"	(2)-600S162-43	(2)-400T200-43	(2)-400S162-43	400T200-43	5	(2)
6" STUDS	0" TO 8'-0"	(2)-600S162-43	(2)-400T200-43	(2)-600S162-43	600T200-43	6	(2)
	8'-1" TO 14'-0"	(2)-600S162-54	(2)-600T200-54	(3)-600S162-54	(2)-600T200-68 & 600T200-54	-	(1), (2)
	14'-1" TO 20'-0"	(2)-800S200-68	(2)-600T200-68	(3)-600S162-68	(2)-600T200-68 & 600T200-68	-	(1), (2)

(1) REFER TO DETAIL D ABOVE FOR SILL
(2) USE UNPUNCHED STUDS

1 Metal Stud Wall Framing
S1.05 Scale: 1"=1'-0"

LICENSED ARCHITECT
RAJIVUL HOQUE KHAN
C 40030
REN: 11-30-25
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
JOSEPH C. HARRELL
No. C80424
CIVIL
STATE OF CALIFORNIA
5/24/2024

ENGINEER:
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Typical Structural Details

Fresno County Department of Public Works and Planning
Capital Projects

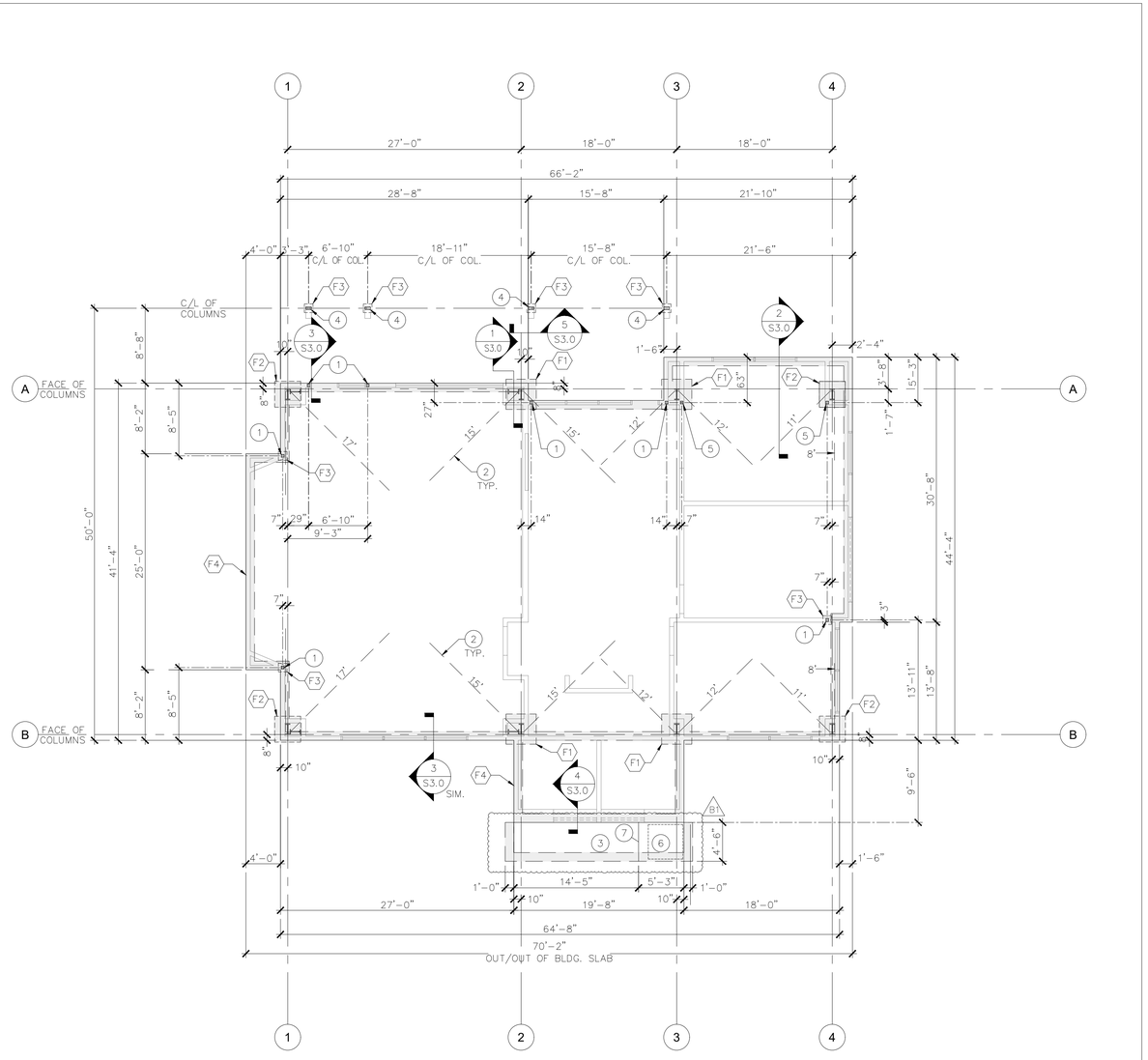
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

S1.05

Sheet of

Plot Date: 2024-05-24



C1 Foundation Plan

S2.0 Scale: 1/8"=1'-0"

FOUNDATION NOTES

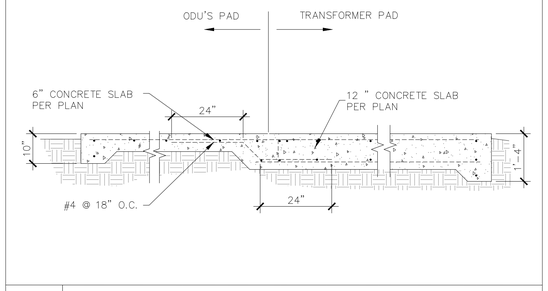
1. SEE NOTES AND DETAILS ON SHEET S1.0., S1.02
2. DIMENSIONS ARE TO CENTERLINE OF COLUMN OR EDGE OF SLAB UNLESS OTHERWISE NOTED.
3. ALL CONT. PERIMETER FOOTINGS SHALL BE 1'-0" WIDE WITH 2-#4 CONT. TOP & BOT. UNLESS NOTED OTHERWISE
4. CONCRETE SLAB TO BE 4" THICK (MIN) W/ #3 @ 18" O.C. EACH WAY UNLESS NOTED OTHERWISE
5. REFER TO SITE PLAN FOR LOCATION AND DIMENSIONS OF SIDEWALKS, MOWSTRIPS, AND PLANTERS.
6. FOR COLUMN BLOCKOUT SEE 7/S3
7. FOR METHOD OF POUR OF CONCRETE SLABS ON GRADE, AND LOCATION OF CONTROL AND CONSTRUCTION JOINTS, SEE ARCHITECTURAL PLANS
8. FOR REBAR SPLICE REQUIREMENTS SEE 15/S1.03
9. REBAR BENDING AND FABRICATION TO BE PER 11/S1.03
10. COORDINATE ALL FLOOR DRAINS SIZES AND SPECS WITH MECHANICAL AND PLUMBING DRAWINGS.
11. PENETRATION OF FOOTINGS WITH PLUMBING PER 13/S1.03
12. DRAIN PIPES TO PENETRATE FOUNDATIONS PER 14/S1.03
13. FOUNDATIONS TO BE FORMED PER 3/S1.02
14. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL PLANS AND STEEL BUILDING PLANS.
15. FOR CONSTRUCTION JOINT IN SLAB SEE 7/S1.02
16. ALL COLUMNS ARE TO BE CENTERED ON PADS AND FOOTINGS.
17. ALL EMBEDDED ITEMS SHALL BE IN PLACE AND SECURE PRIOR TO POURING OF CONCRETE.
18. REFER TO DETAIL 3/S1.04 FOR NON-BEARING WALLS AT SLAB.
19. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH METAL BUILDING DRAWINGS WITH THESE STRUCTURAL DRAWINGS PRIOR TO CONSTRUCTION.
20. ALL REBAR & EMBEDDED ITEMS MUST BE TIED IN PLACE AND SECURE PRIOR TO FOUNDATION INSPECTION.
21. THE CONTRACTOR SHALL SUBMIT TO ARCHITECT/ENGINEER COLUMN REACTIONS, ANCHOR BOLT LAYOUT, BUILDING DESIGN DATA, CALCULATIONS AND SHOP DRAWINGS FOR THE PURPOSE OF OBTAINING THE BUILDING PERMIT.
22. DEPTH OF FOOTINGS SHALL EXTEND INTO UNDISTURBED OR COMPACTED SOIL. (B1)

KEYNOTES

1. TS4x4x¼" ; SEE DETAIL 5/S3
2. #4 HAIR PIN AROUND ANCHOR BOLTS (TYP.)
3. 6" CONCRETE SLAB WITH #4 @ 18" O.C. EACH WAY
4. TS8X4X1/8" (TYP. OF 4)
5. TS4x4x¼" ; SEE DETAIL 7/S3 AND 8/S3
6. 12" CONCRETE SLAB WITH #4 TOP AND BOT @ 10" O.C. SEE DETAIL 1 THIS SHEET
7. TRANSITION BETWEEN 12" SLAB TO 6" SLAB (VERIFY) SEE DETAIL 1 THIS SHEET

FOOTING SCHEDULE

TYPE	SIZE W x L	THICKNESS	REINFORCEMENT
F1	3'-6" SQ.	1'-6"	(5) #5 EA. WAY TOP & BOTTOM W/ #3 TIES @ 18" O.C.
F2	3'-0" SQ.	1'-6"	(4) #5 EA. WAY TOP & BOTTOM
F3	1'-0" SQ.	1'-0"	(3) #5 EA. WAY
F4	1'-0" WIDE CONT.	1'-0"	(2) #4 TOP & BOTTOM



1 Equipment Pad

Scale: 1/2"=1'-0"

LICENSED ARCHITECT RAJPAL HOQUE KHAN C 40039 REN 11-30-25 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER JOSEPH C. HARRELL No. C80424 CIVIL STATE OF CALIFORNIA

5/24/2024

ENGINEER:
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E-mail: jharrell@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
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Sheet Content:

Foundation Plan

Fresno County Department of Public Works and Planning
Capital Projects

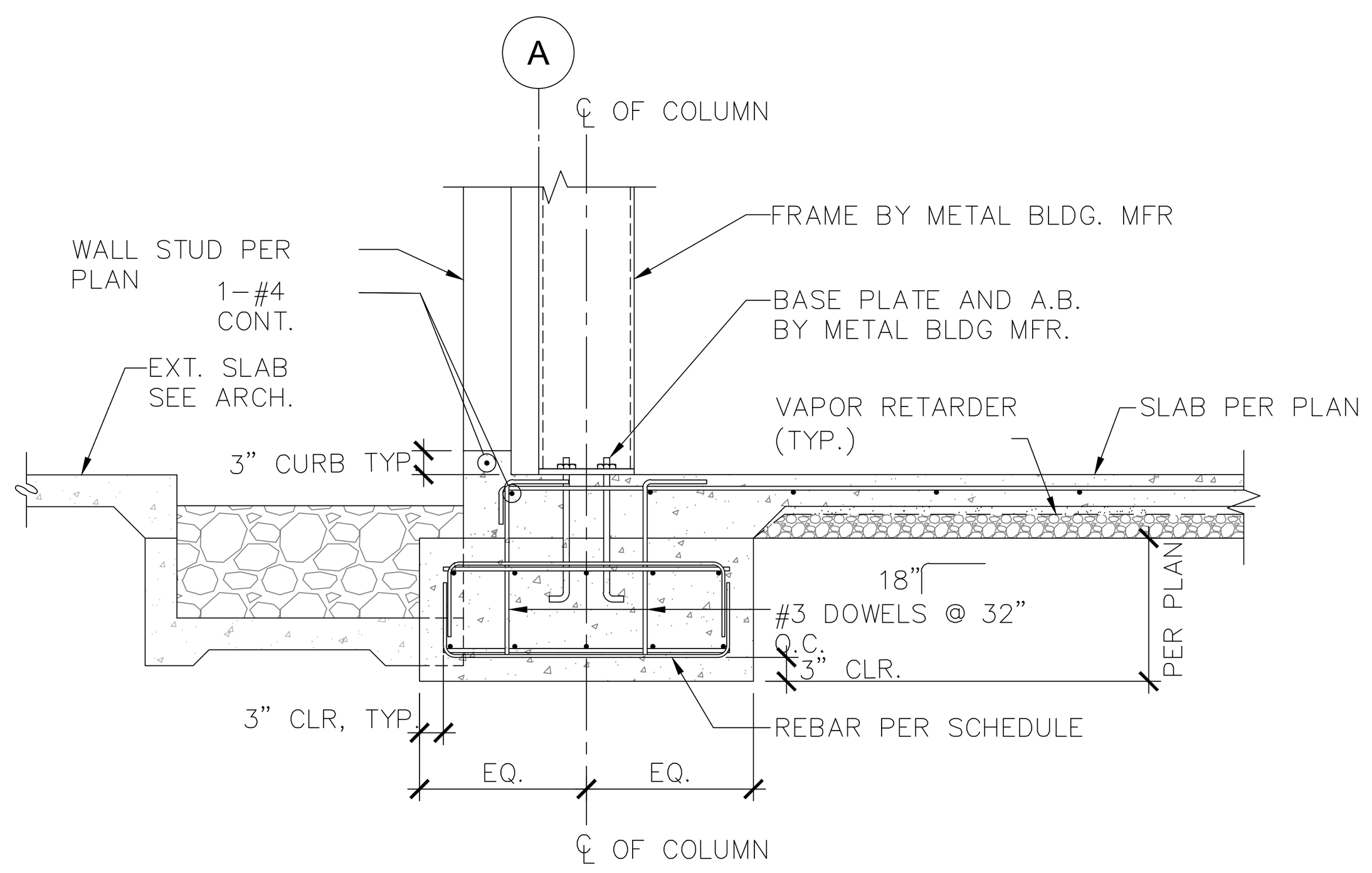
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

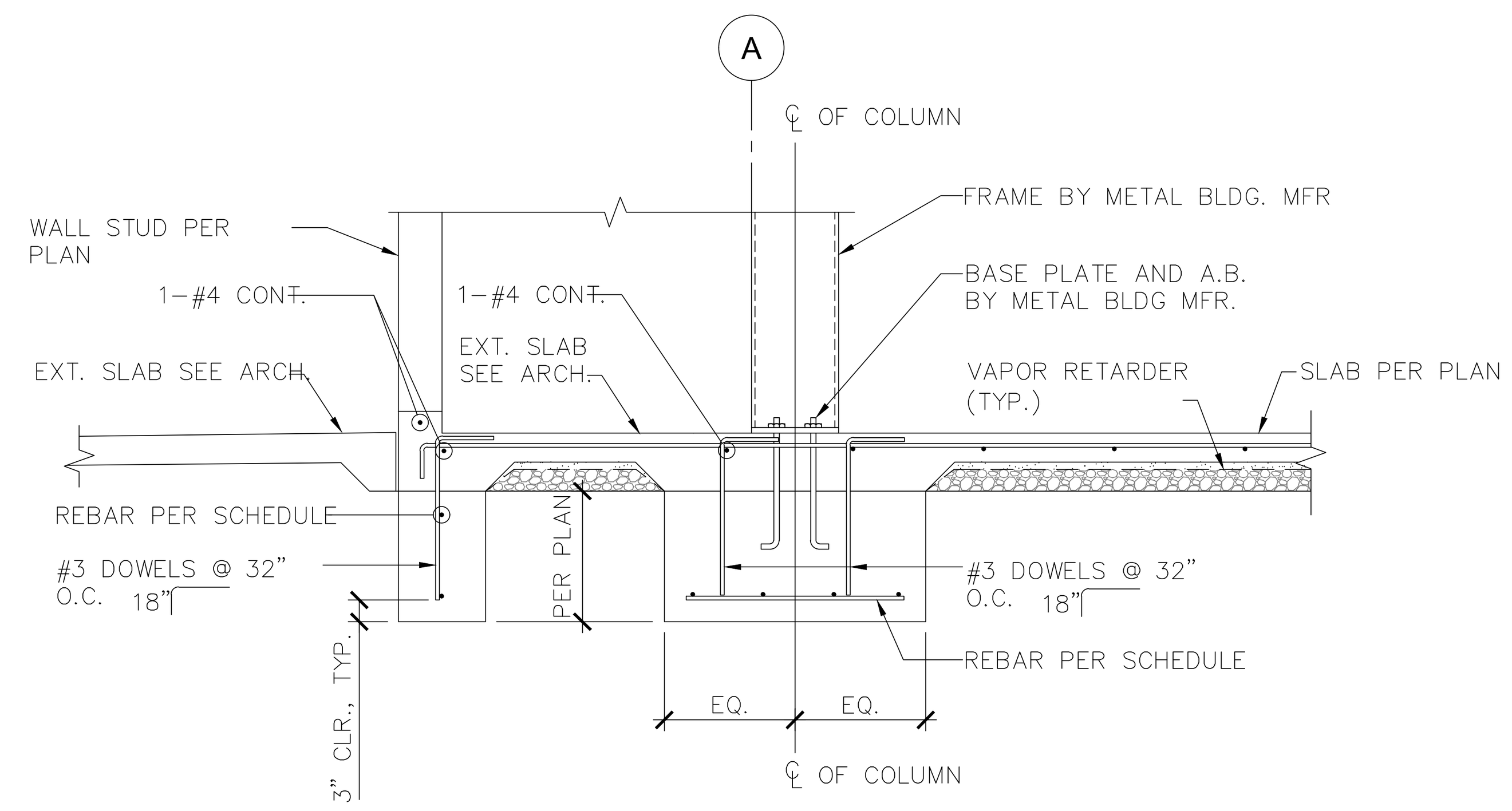
S2.0

Sheet of

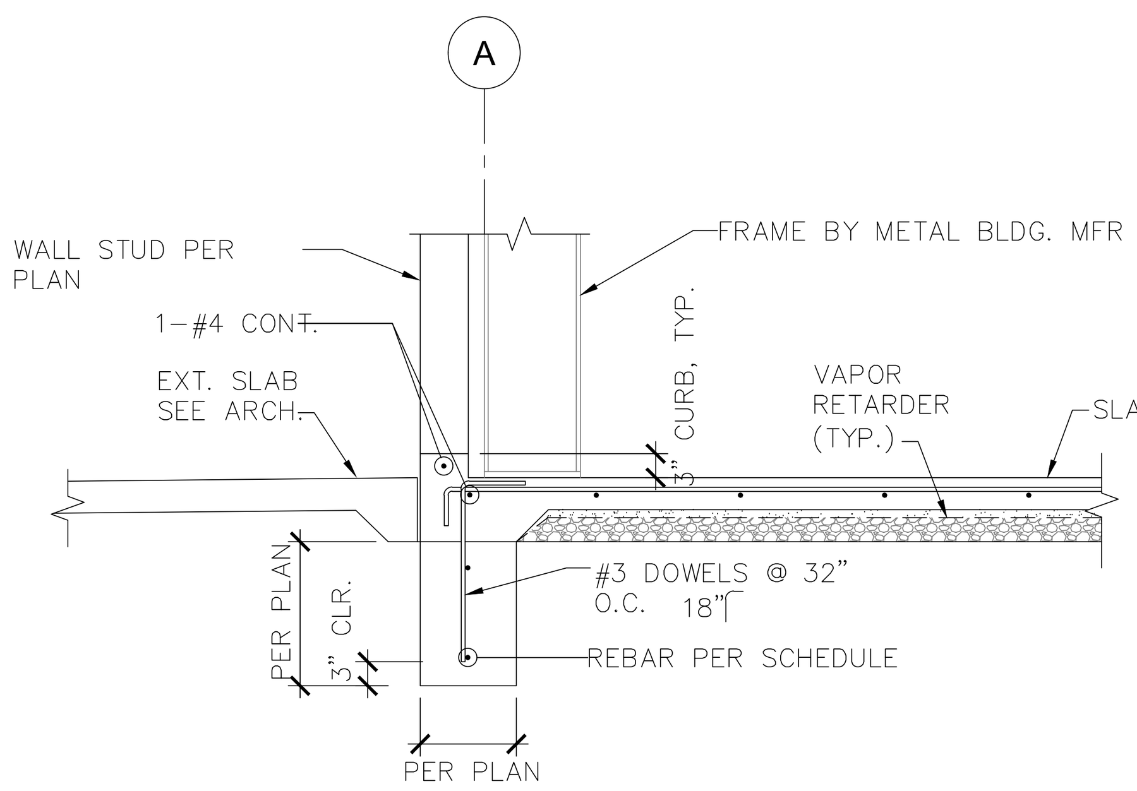
Plot Date: 2024-05-24



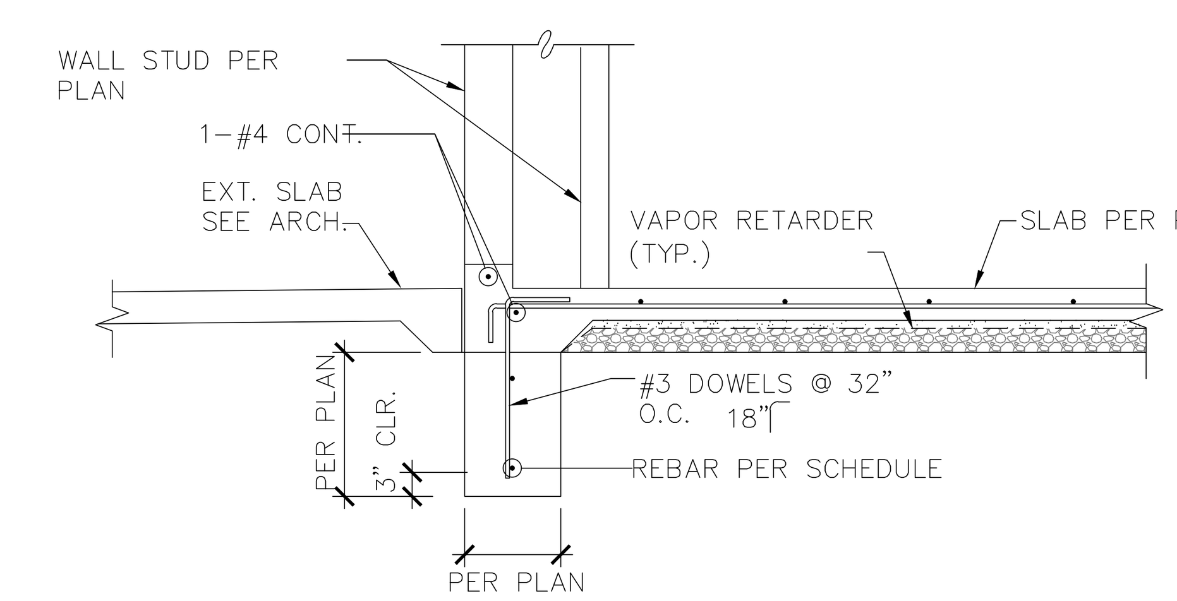
1 Concrete Footing
S3.0
Scale: 1/2"=1'-0"



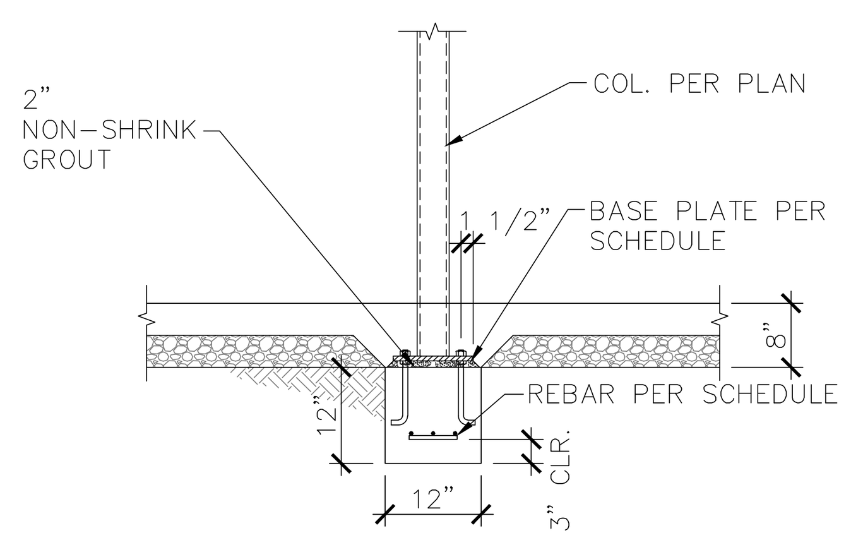
2 Concrete Footing
S3.0
Scale: 1/2"=1'-0"



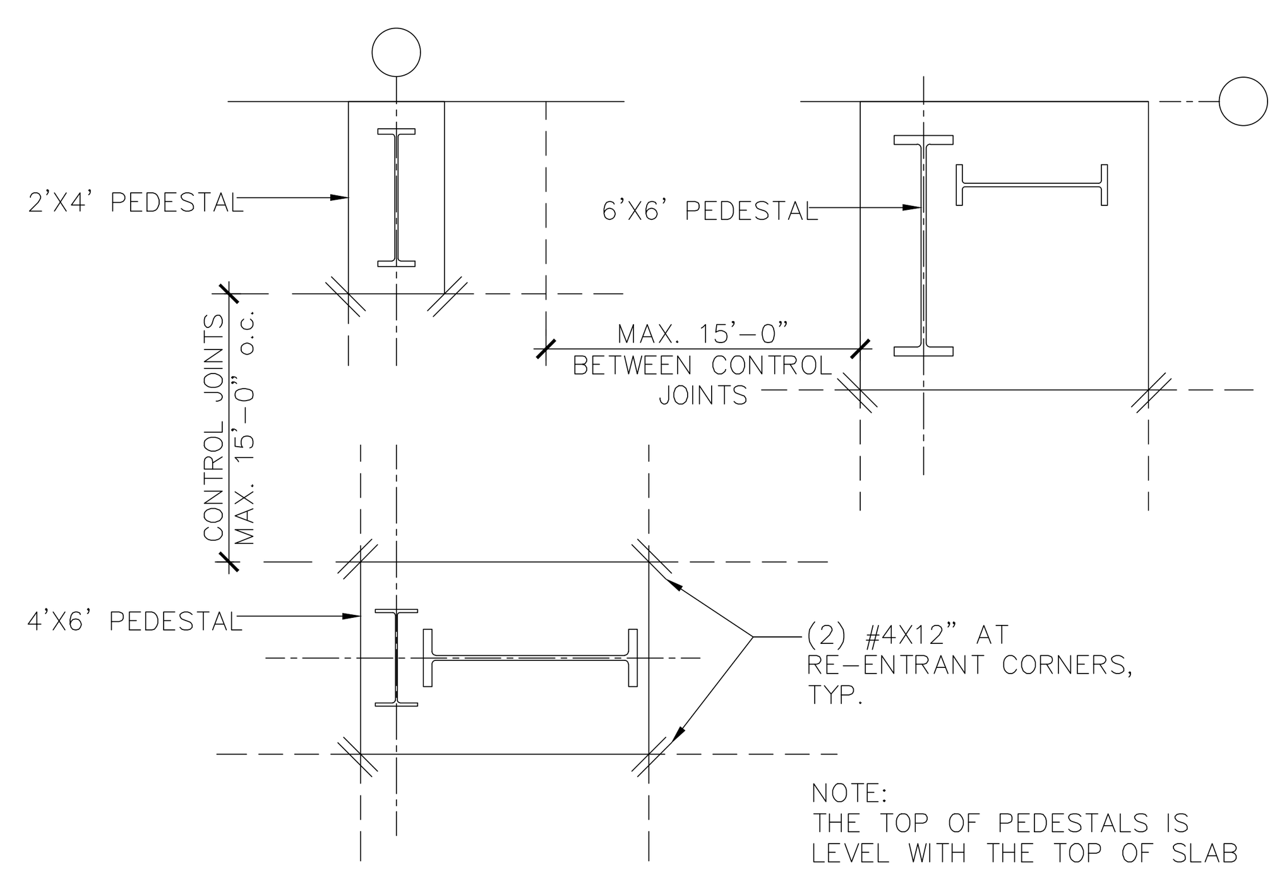
3 Concrete Footing
S3.0
Scale: 1/2"=1'-0"



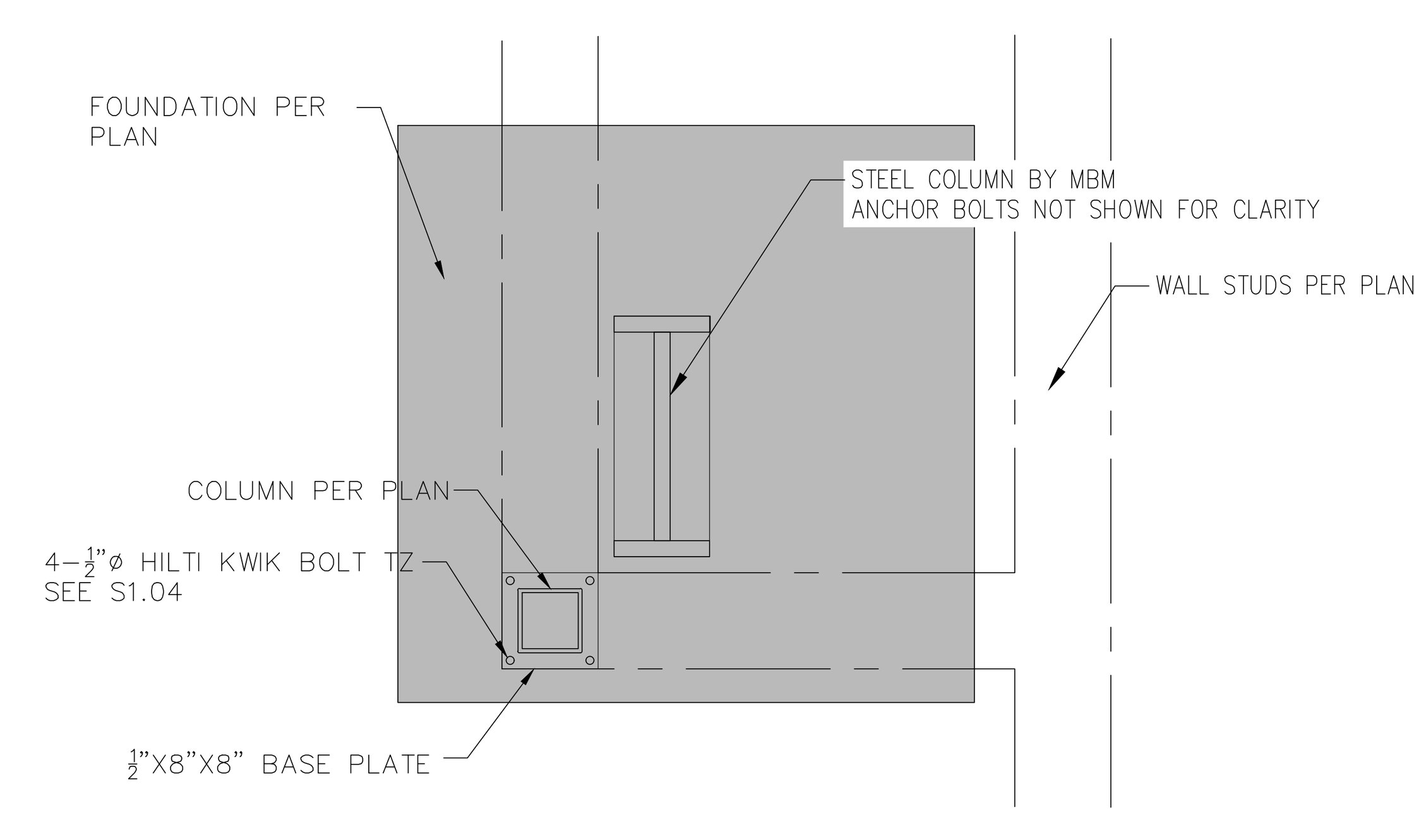
4 Concrete Footing
S3.0
Scale: 1/2"=1'-0"



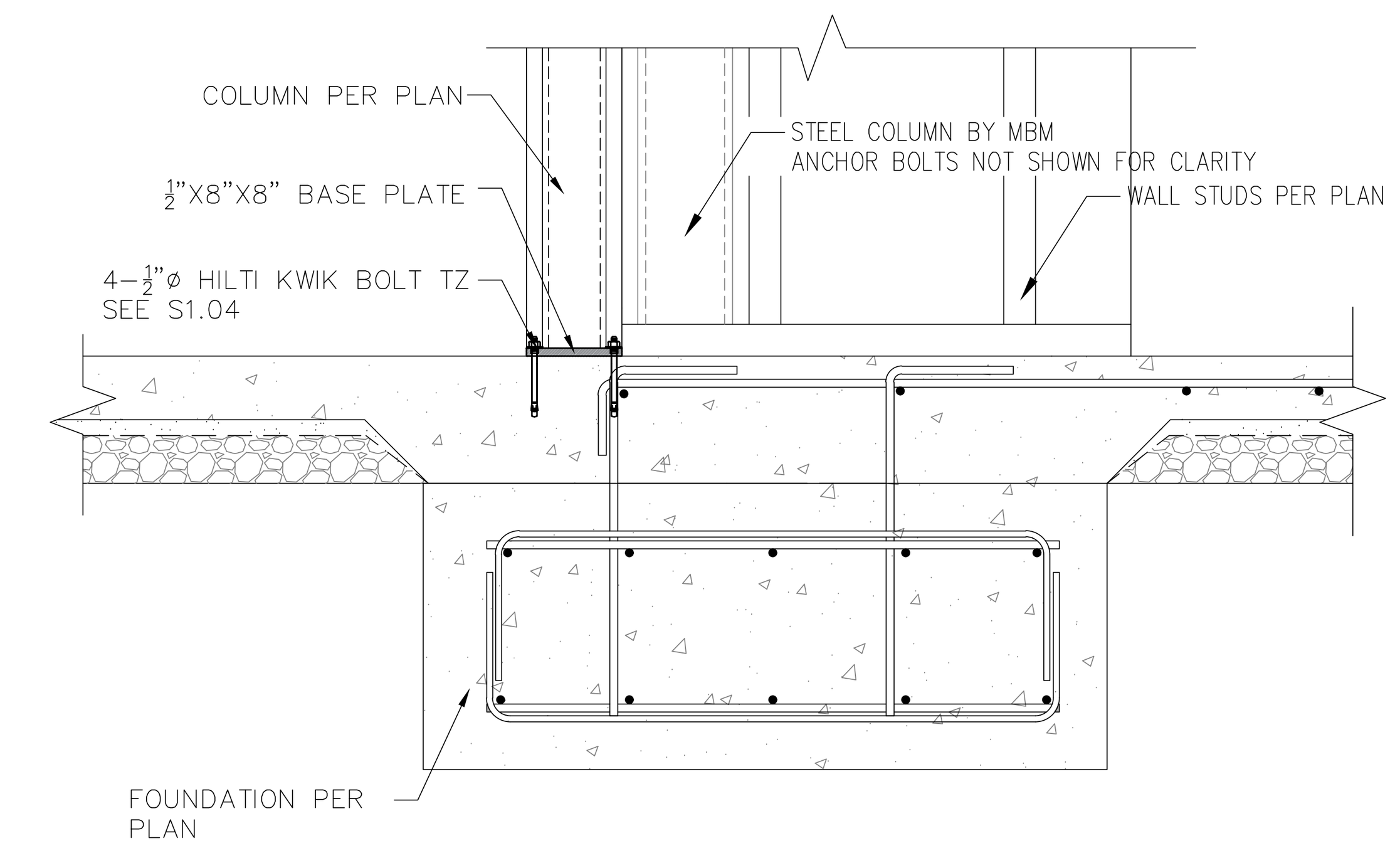
B2
5 Concrete Footing
S3.0
Scale: 1/2"=1'-0"



6 Control Joint Locations
S3.0
N.T.S.



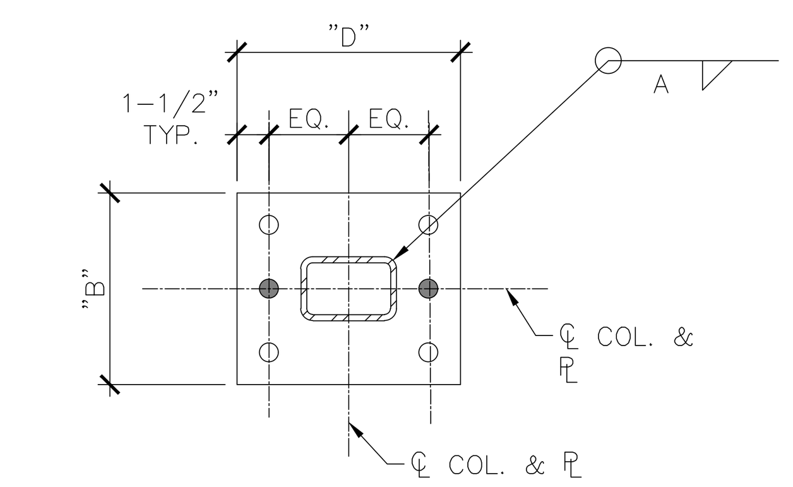
7 Tube Steel & Base Plate (Plan)
S3.0
1"=1'-0"



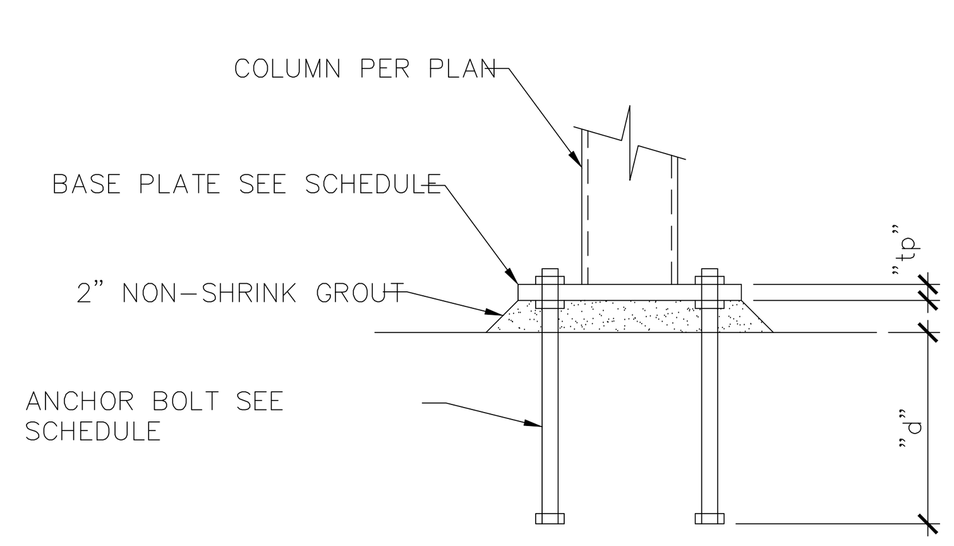
8 Tube Steel & Base Plate (Elev.)
S3.0
1"=1'-0"

B2 BUILDING DEPT. PLAN CHECK 24-0097
2024-06-10

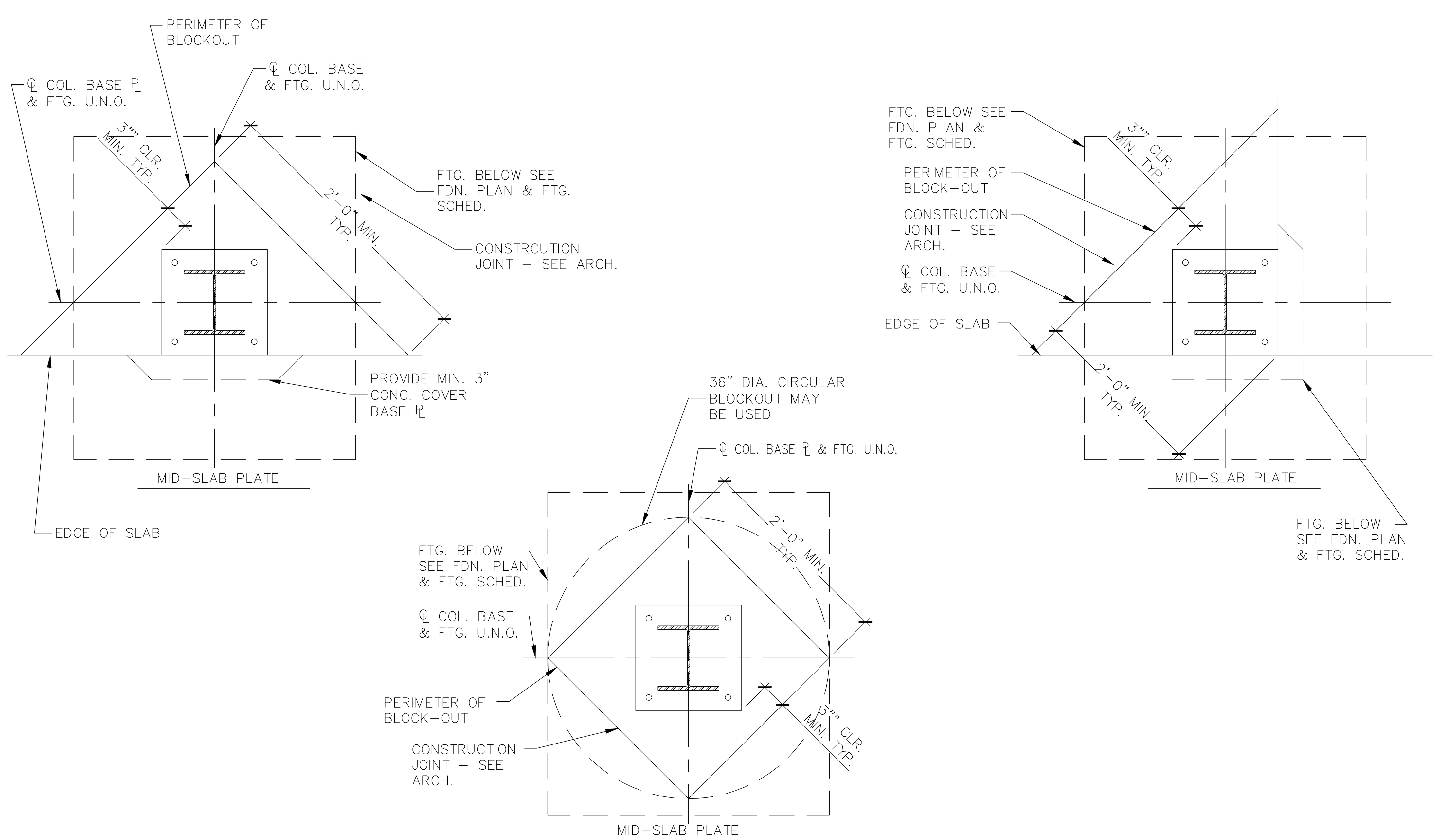
BASE PLATE SCHEDULE						
SIZE	BASE PLATE			HEX HEAD BOLTS		WELD TYPE
	"B"	"D"	"t"	NO.& SIZE	"d"	A
TS4x4	10"	10"	1/4"	4-1/2"Ø	8"	1/4
TS8x4	10"	14"	1/4"	4-1/2"Ø	8"	1/4



MID-SLAB PLATE



9 Base Plate
S3.0
N.T.S.



10 Typical Slab Block-Out
S3.0
N.T.S.
(WHERE REQUESTED BY CONTRACTOR)

LICENSED ARCHITECT
ZAHIDUL HOQUE KHAN
C-40030
REN: 11-30-25
STATE OF CALIFORNIA
[illegible]

REGISTERED PROFESSIONAL ENGINEER
JOSEPH C. HARRELL
No. C80424
CIVIL
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[illegible]
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Sheet Content:
Foundation Details

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Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
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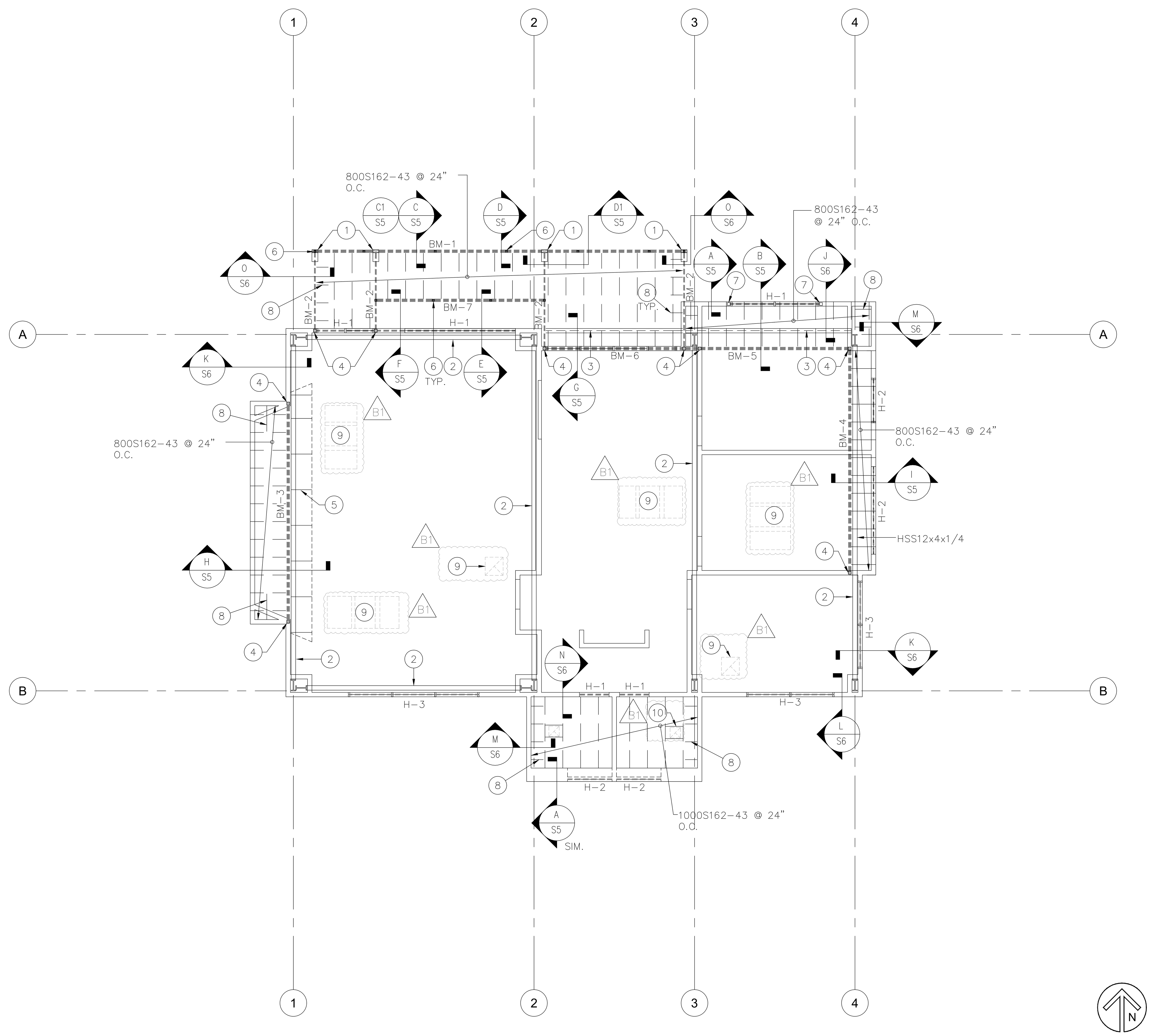
Plot Date: 2024-05-24



D1 Roof Framing Plan
S4.0 Scale: 1/8"=1'-0"

ROOF FRAMING NOTES

1. SEE TYPICAL DETAIL SHEETS FOR GENERAL NOTES, SCHEDULES AND TYPICAL DETAILS WHERE SPECIFIC DETAILS ARE NOT SHOWN, THE TYPICAL DETAILS SHALL APPLY
2. ALL ROOF FRAMING SPACES AS SHOWN ON PLANS SHALL BE AS MEASURED ON OF SLOPE
3. CONTRACTOR SHALL VERIFY AND COORDINATE THE WEIGHTS AND LOCATIONS OF ALL ROOF SUPPORTED MECHANICAL AND ELECTRICAL UNITS AND PROVIDE ADDITIONAL FRAMING AS REQUIRED FOR PROPER SUPPORT. DO NOT CUT JOISTS EXCEPT WHERE SHOWN ON DRAWINGS.
4. USE TOP PLATE TRACK SPLICE PER DETAIL 4/S1.04 TYP
5. ALL EXTERIOR WALLS SHALL BE 600S162-54 STUDS @ 16" O.C. WITH 600T200-54 TRACKS U.N.O. —ALL INTERIOR WALLS SHELL BE 600S162-43 STUDS @ 16" O.C. WITH 600T200-43 TRACKS U.N.O.
6. IT IS NOT THE INTENT OF THESE DRAWINGS TO SHOW FIRE BLOCKING OR BLOCKING REQUIRED FOR FINISHES OR OTHER NON-STRUCTURAL ELEMENTS. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS
7. PROVIDE FRAMING AT ALL HARD CEILINGS PER DETAIL 4/S6 REFER TO THE ARCHITECTURAL DRAWINGS FOR LOCATIONS OF HARD CEILINGS
8. SEE ARCHITECTURAL DRAWINGS FOR SIZE AND LOCATIONS OF ROOF ACCESSES PROVIDE FRAMING AND BLOCKING AROUND OPENINGS PER TYP. DETAIL WHERE APPLICABLE FRAME OPENING IN CEILING FRAMING ALSO

KEYNOTES

1. TS8X4X1/8"
2. STEEL FRAME BY OTHERS
3. PROVIDE BLOCKING TO MATCH RAFTER SIZE, GA., & STRENGTH WHERE WALL OCCURS (TYP.)
4. TS4X4X1/8"
5. TS4X4X1/8" @ 48" O.C.
6. TS 3X3/1/8" PARAPET BRACE @ 8'-0" O.C. MAX SEE DETAIL C1/S5.0
7. 3-600S162-68 FULL HEIGHT TO TOP OF PARAPET WALL
8. BLOCKING @ 24" O.C. (TYP.)
9. INDOOR MECHANICAL UNITS . SEE DETAIL 11/S1.04
10. PROVIDE BLOCKING TO MATCH RAFTER SIZE FOR ROOF TOP UNIT SUPPORT (TYP.) SEE D/M3.0

B1

HEADER SCHEDULE (U.N.O.)

WALL TYPE	BOX HEADER	JAMB STUDS	NO #10 S.M.S. AT EACH JOIST TO JAMB
H-1	(2)-1000S200-68	(3)-600S162-68	4
H-2	(2)-600S162-43	(2)-600S162-43	3
H-3	(2)-600S162-68	(2)-600S162-68	3

BEAM SCHEDULE

BM-1	HSS10X4X1/8"
BM-2	HSS2X8X1/8"
BM-3	HSS12X6X1/4"
BM-4	HSS12X4X1/4"
BM-5	HSS10X4X3/16"
BM-6	HSS8X4X3/16"
BM-7	HSS8X4X1/8"

LICENSED ARCHITECT ABDUL HOQUE KHAN C 40030 REN. 11-30-25 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER JOSEPH C. HARRELL No. C80424 CIVIL STATE OF CALIFORNIA
5/24/2024

ENGINEER:
Joseph C. Harrell
California Licensed Civil Engineer No. C80424
Ren.03-31-25
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Public Works and Planning
2220 Tulare Street, 7th Floor
Fresno, California 93721

Office: (559) 600-4534
E-mail: jharrell@fresnocountyca.gov

Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-24
Project no.: T90204
File name: Y:\Projects - Capital Projects\T90203 ECC Site Imrpovement and Shade Structure\PS&Es - Exhibits - Maps\Working Drawings\ECC CAD Files 5-13-24\T90204_Roof Framing

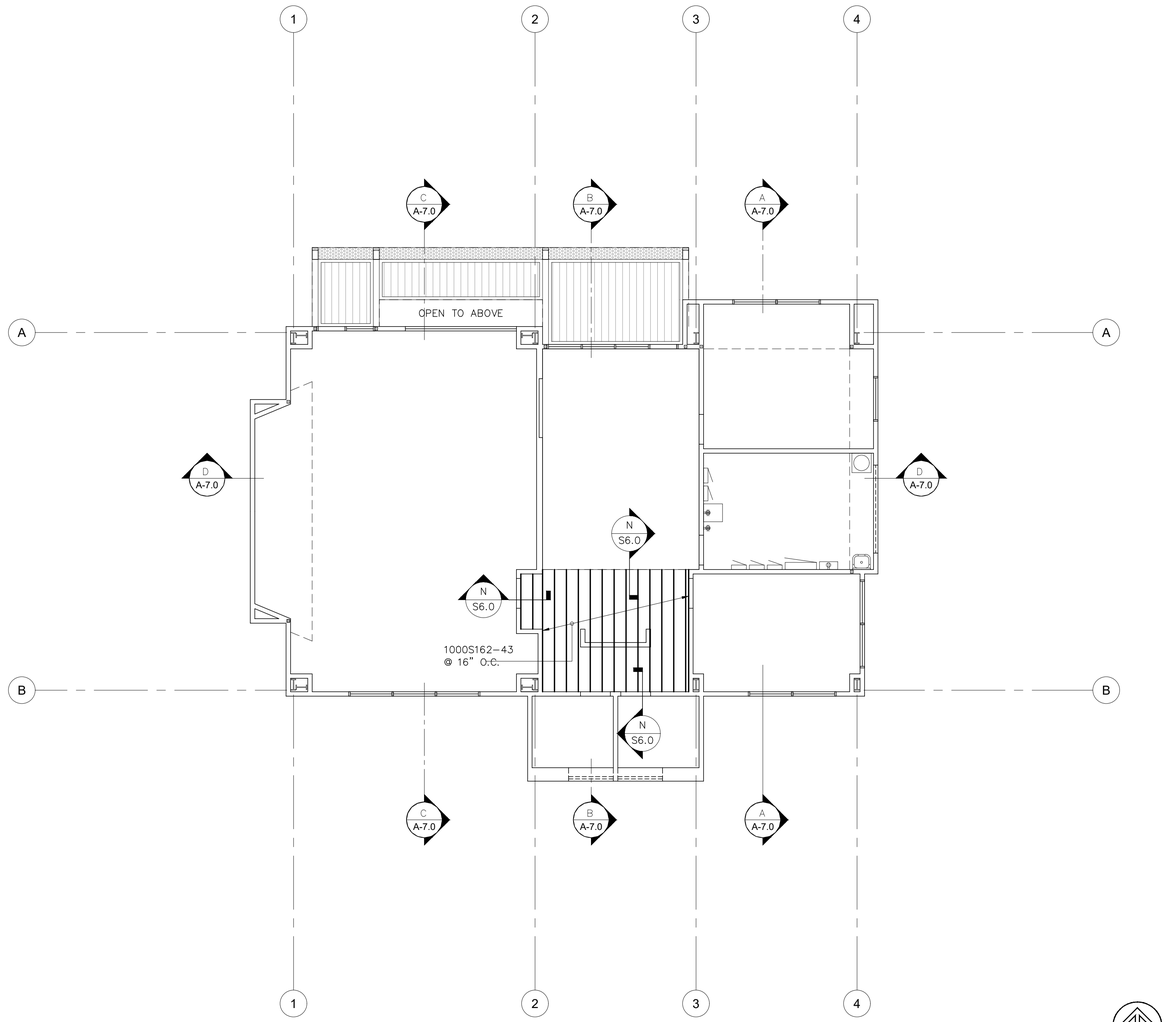
Sheet Content:
Roof Framing Plan

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
S4.0

Sheet of



D1 S4.1 — Ceiling Framing Plan

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

LICENSED ARCHITECT
TAHIDUL HOQUE KHAN
C 40030
REN 11-30-25
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Sheet Content:

Ceiling Framing Plan

Fresno County Department of Public Works and Planning
Capital Projects

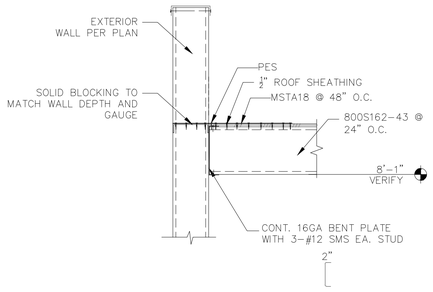
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

S4.1

Sheet of

Plot Date: 2024-05-24



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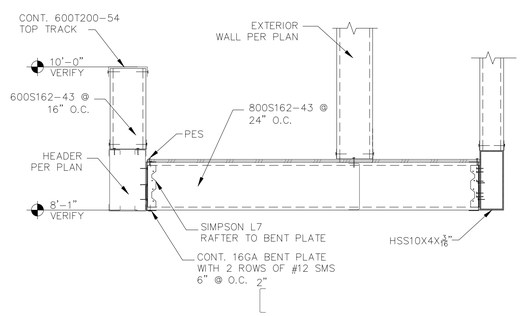

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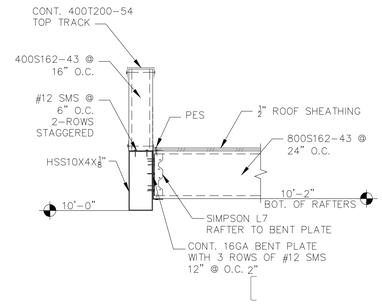

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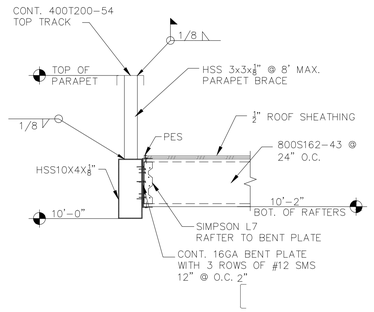

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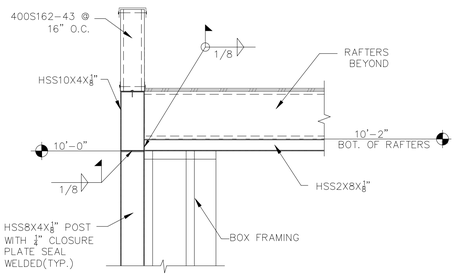

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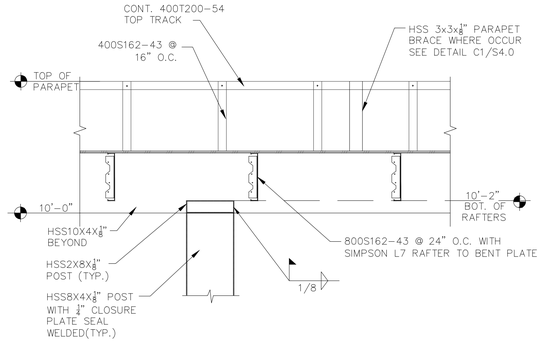

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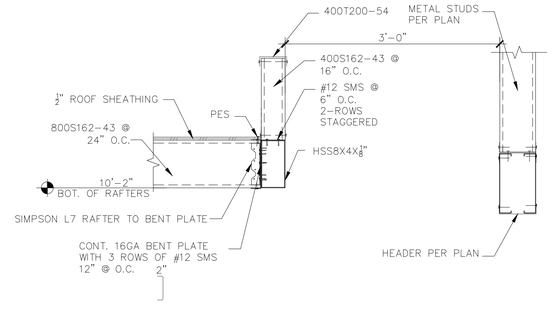

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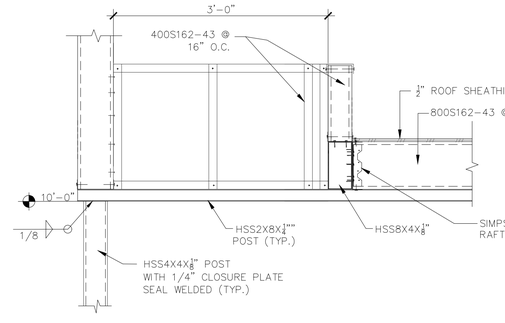

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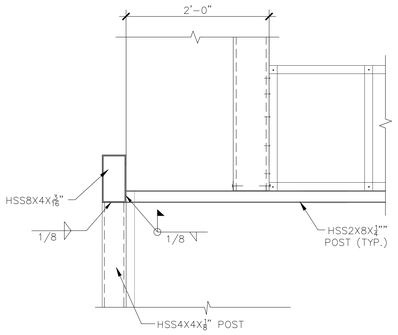

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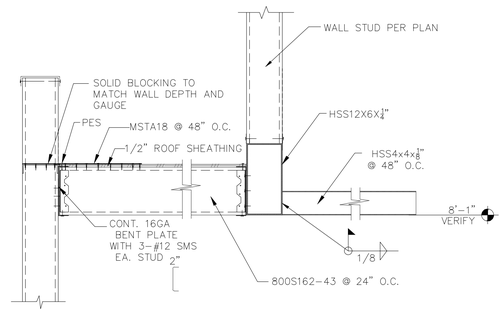

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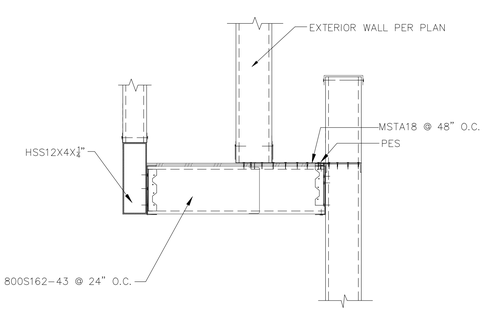

I Detail
S5.0 Scale: 1"=1'-0"

LICENSED ARCHITECT RAFIBUL HOQUE KHAN C 40030 REN 11-30-25 STATE OF CALIFORNIA

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Sheet Content:

Details

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

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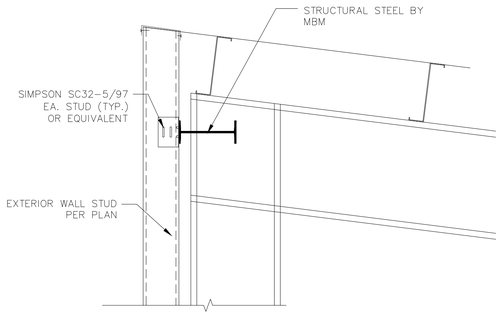
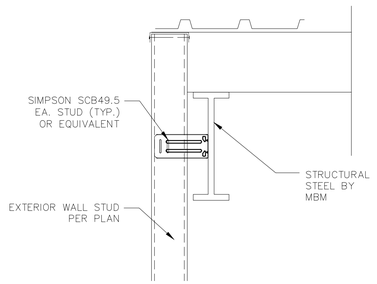
Sheet of

Plot Date: 2024-05-24



J Detail
S6.0 Scale: 1"=1'-0"



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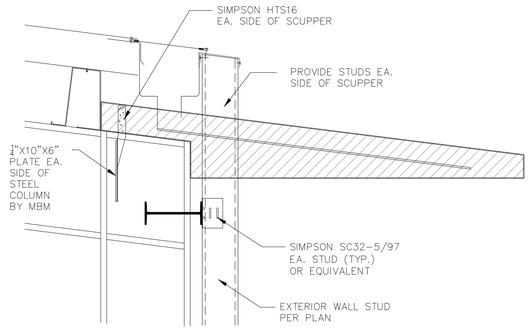

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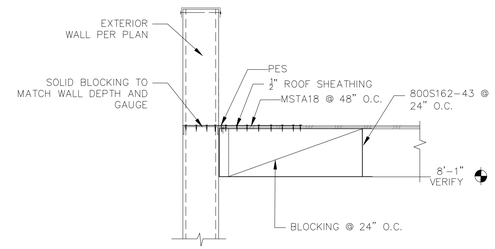

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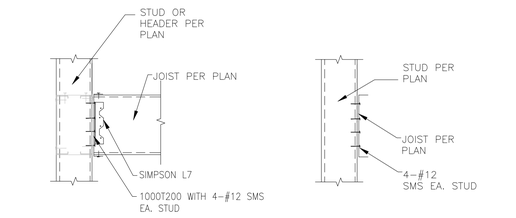
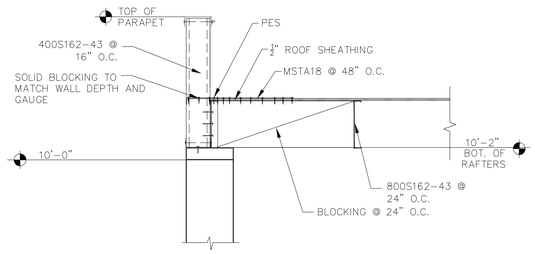


A JOIST STUD SUPPORT **B** JOIST PARALLEL TO WALL



N Detail
S6.0 Scale: 1"=1'-0"

O Detail
S6.0 Scale: 1"=1'-0"

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Capital Projects
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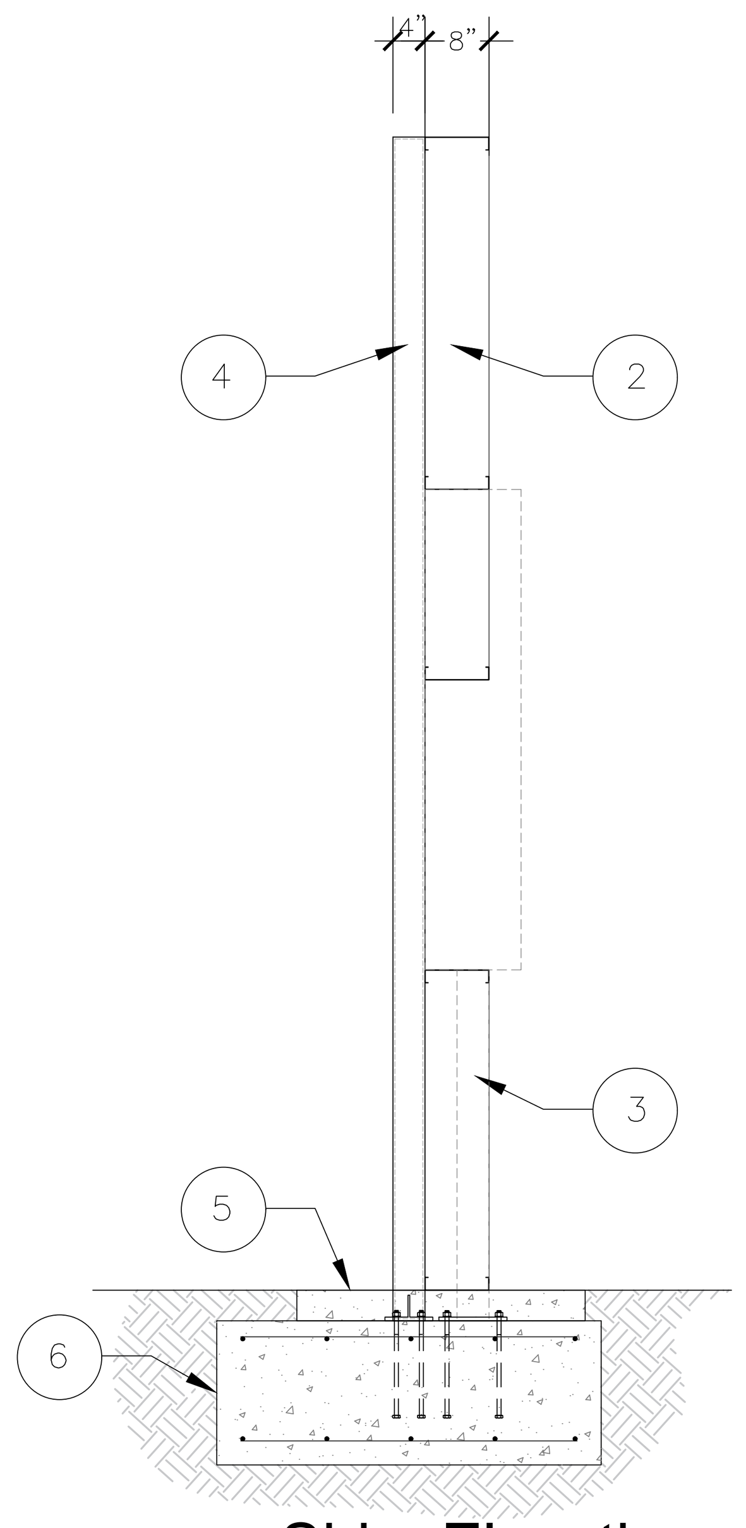
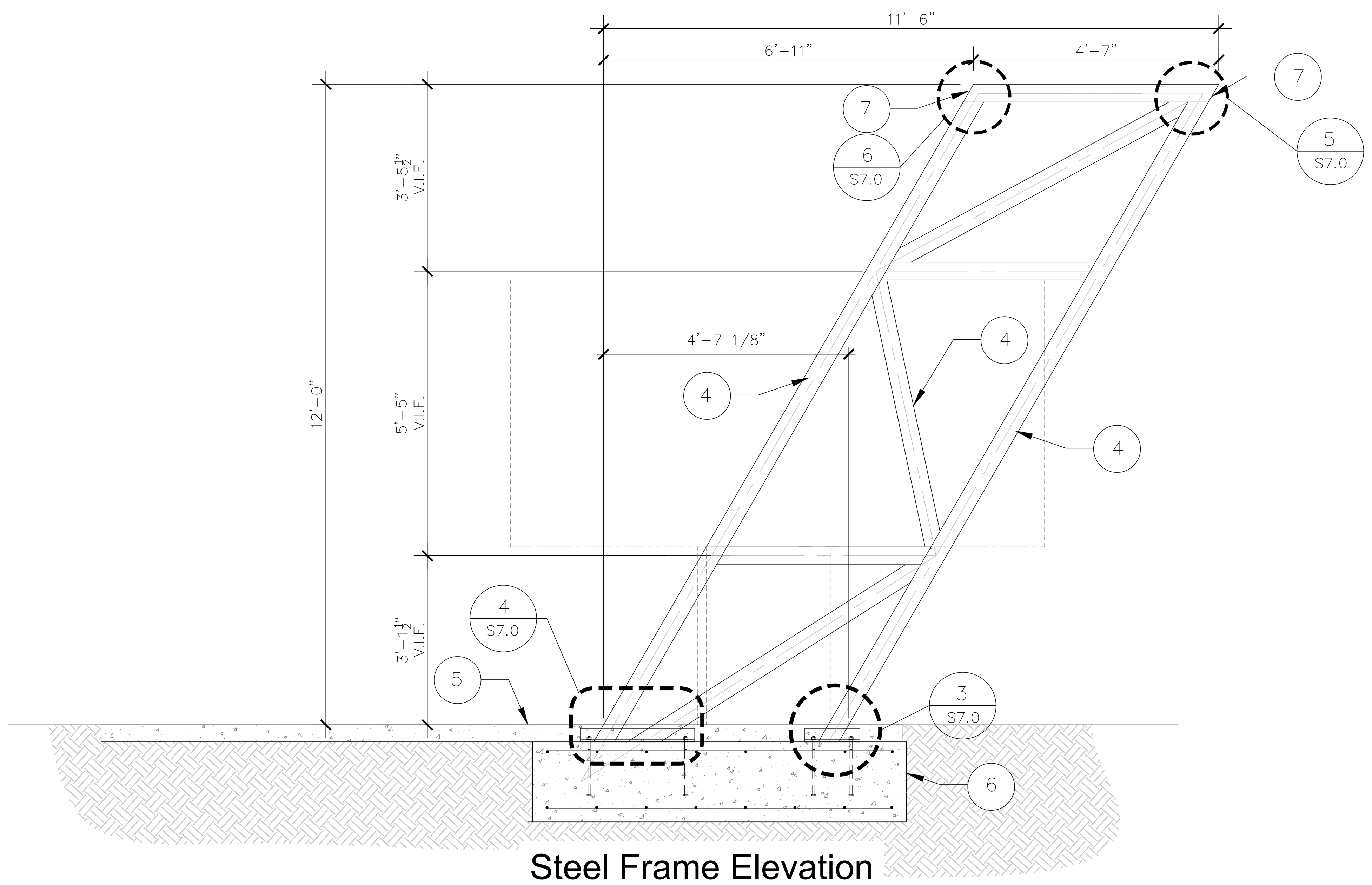
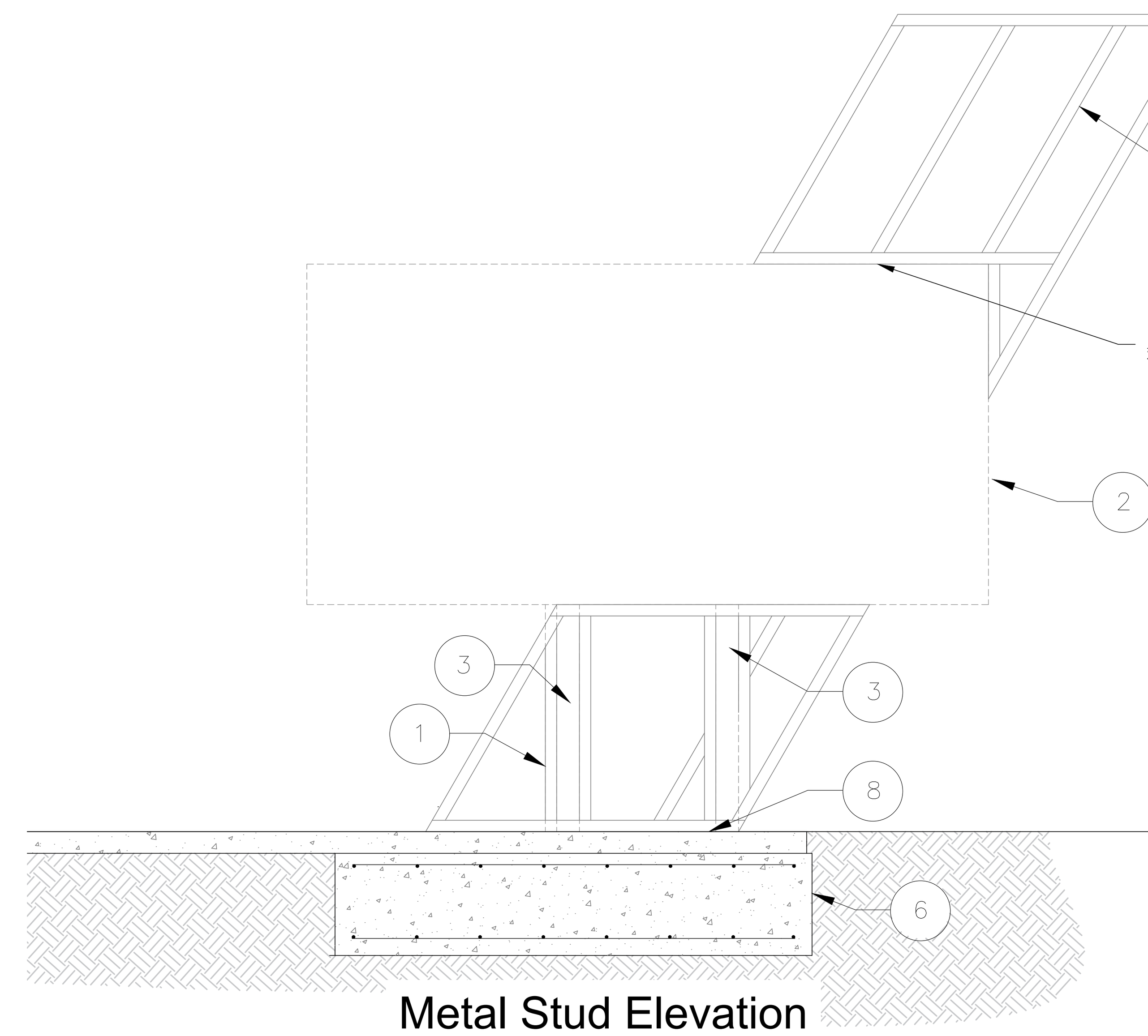


Side Elevation
SCALE ½" = 1'-0"



Steel Frame Elevation
SCALE ½" = 1'-0"

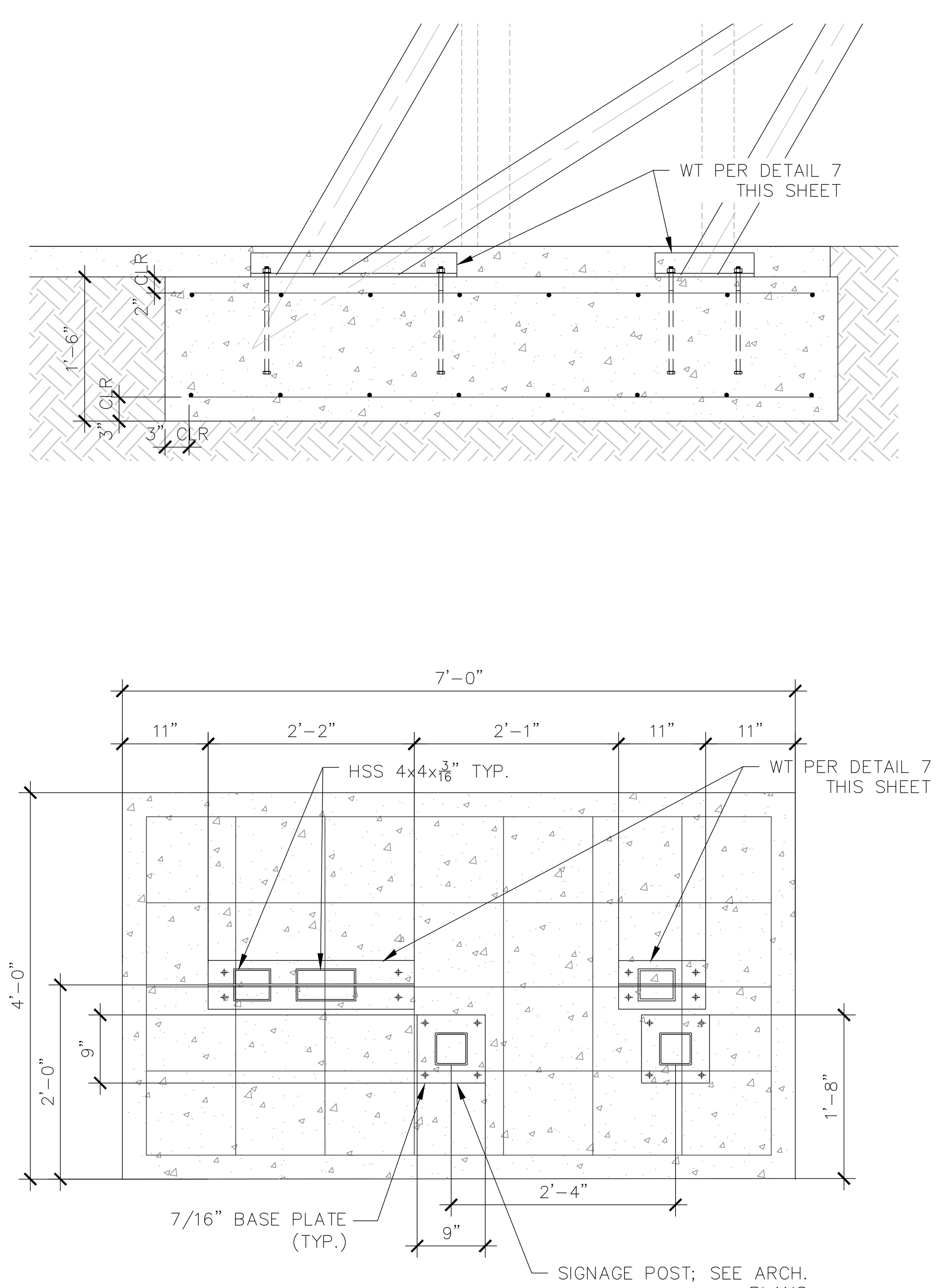


Metal Stud Elevation
SCALE ½" = 1'-0"

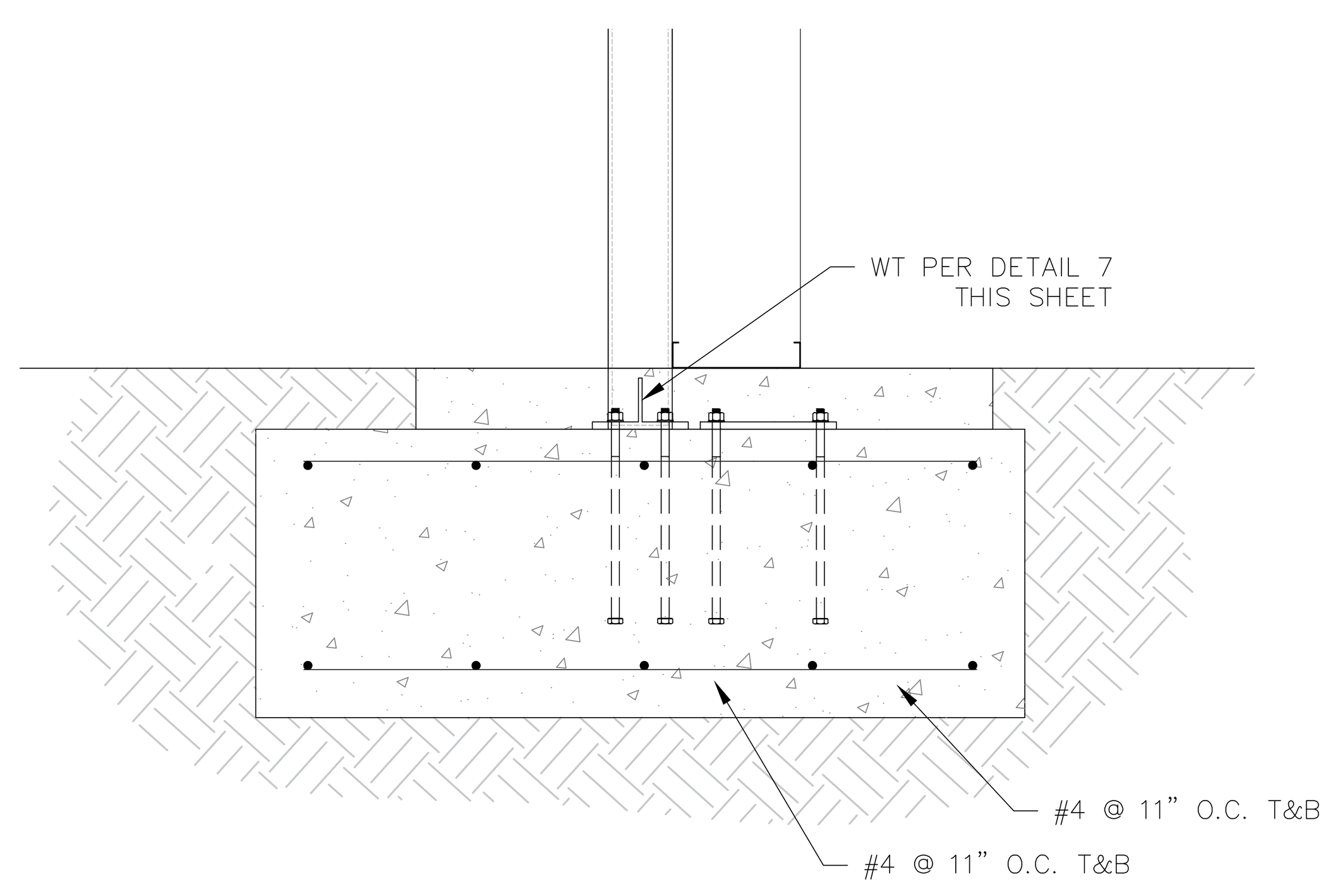
KEYNOTES:

1. 800S162-33 GALVANIZED-G90 METAL STUDS ATTACH TO HSS WITH #10 SMS @ 16" O.C. (TYP.)
2. LINE OF SIGN PERIMETER, SEE MONUMENT SIGN PLAN ON SHEET
3. SIGN COLUMN SUPPORT, SEE MONUMENT SIGN PLAN ON SHEET A-8.20
4. HSS 4x4x3⁄16 (TYP.) TO ALL FRAME MEMBER
5. 4" CONCRETE SLAB; SEE ARCHITECTURAL
6. MONUMENT SIGN FOUNDATION SEE DETAIL 1 THIS SHEET
7. 3/16" WELDED CLOSURE PLATE
8. SEE 3/S1.04

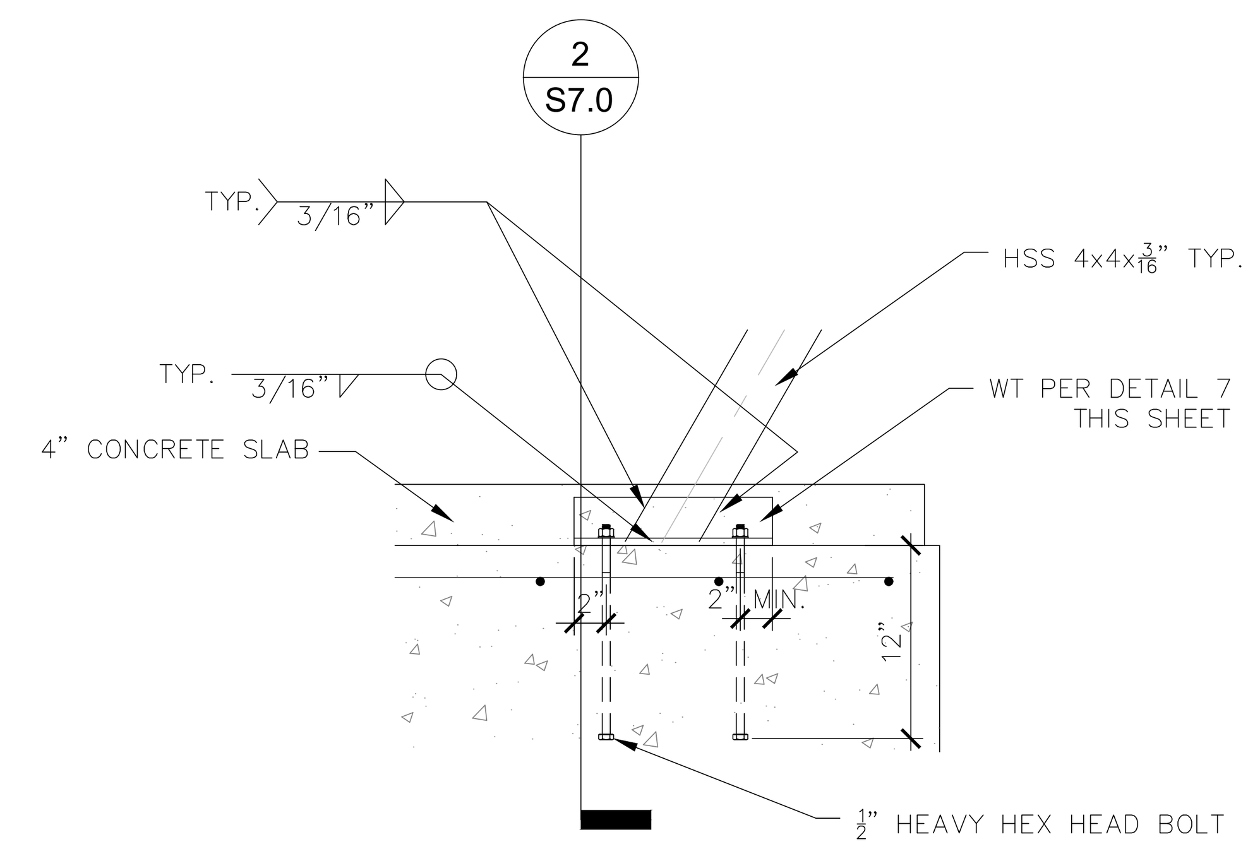
NOTES:
REFER TO C-1/SHEET A-8.2 FOR EPOXY COATING REQUIREMENTS.



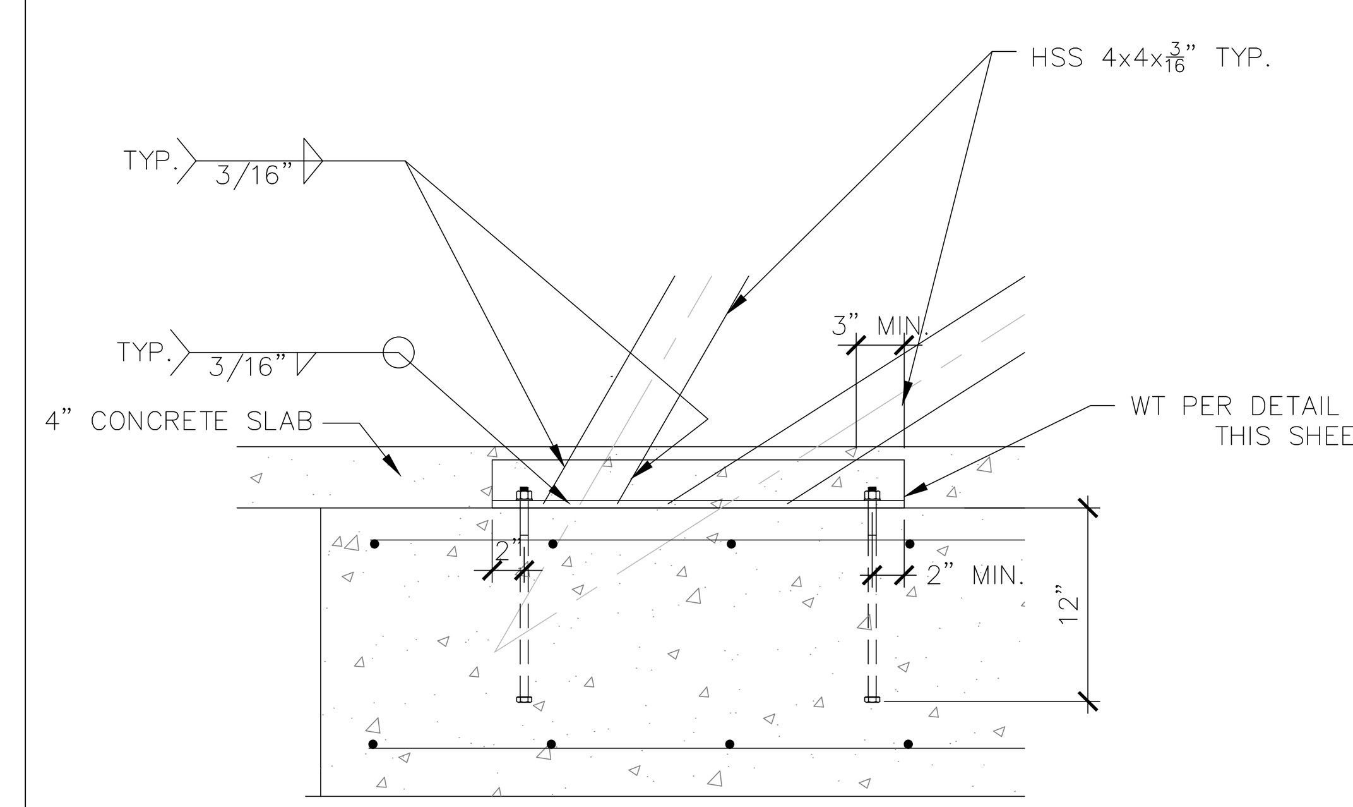
1 Foundation Detail
Scale: 3/4"=1'-0"



2 Foundation Detail
Scale: 1"=1'-0"



3 Frame Connection
Scale: 1"=1'-0"



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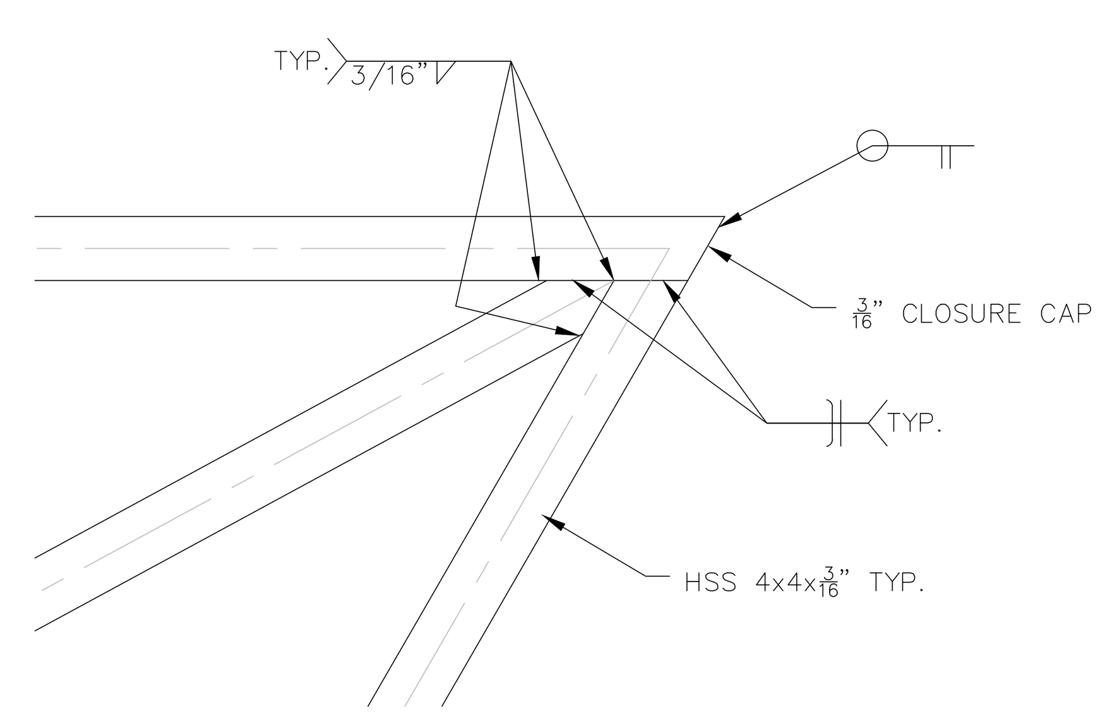

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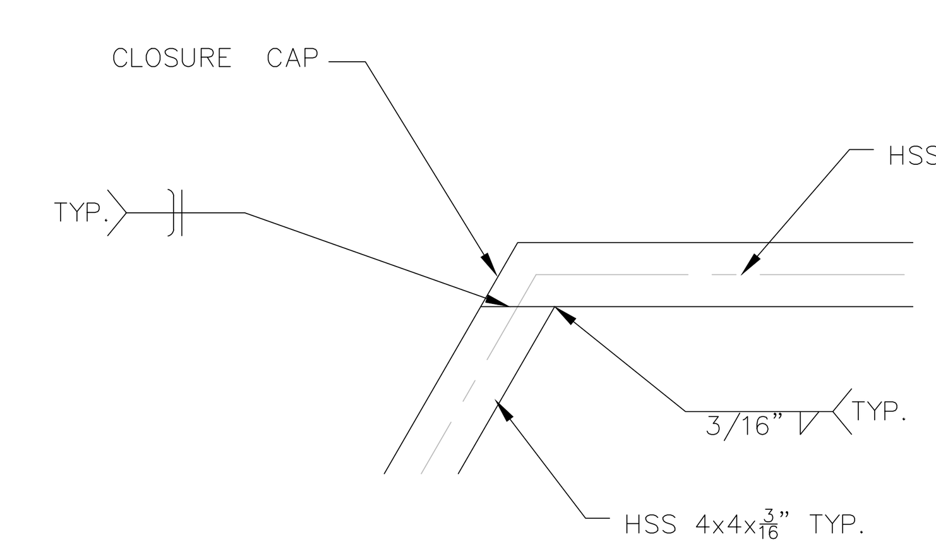

6 Frame Connection
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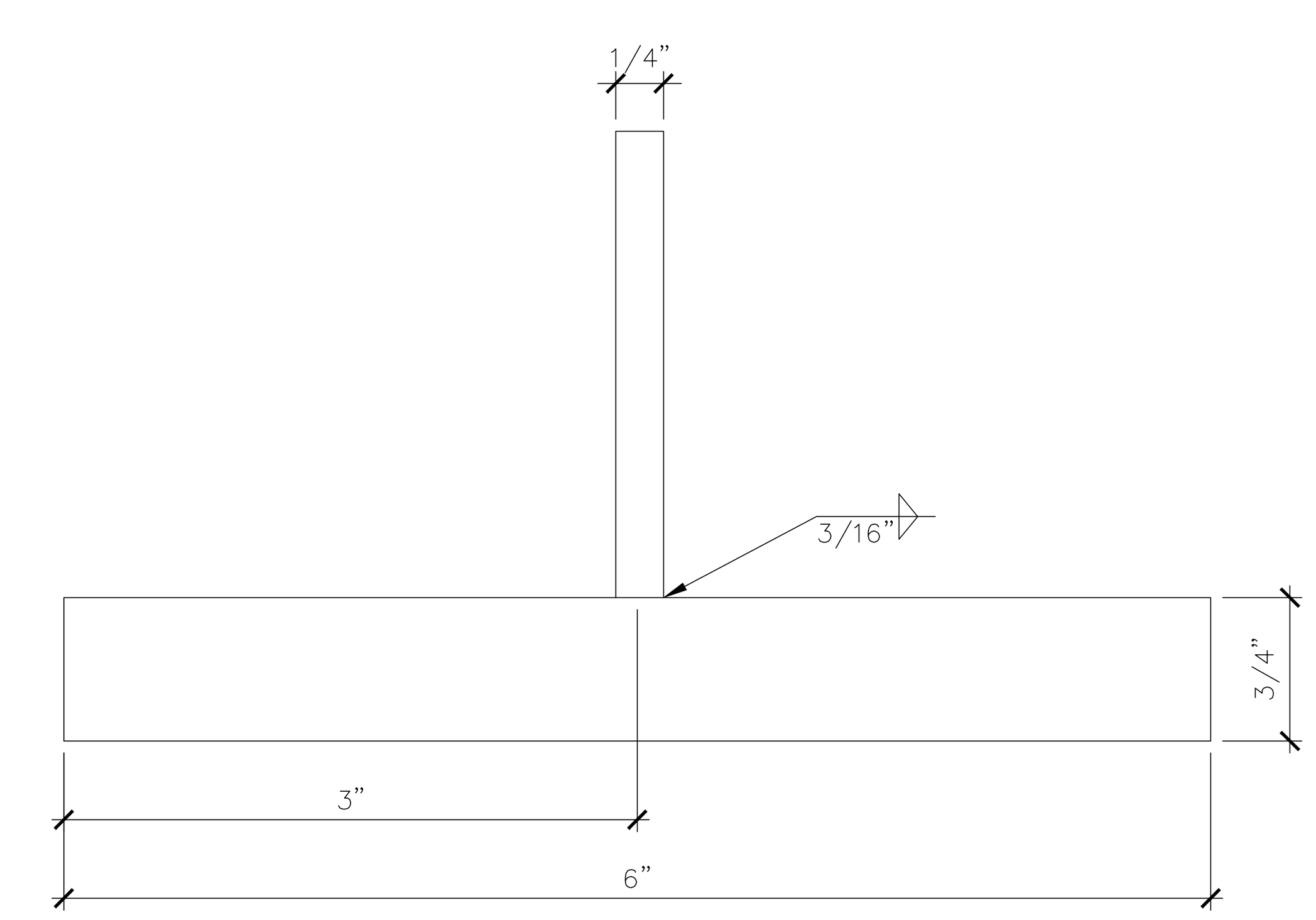

7 Typ. Base Plate with Knife Plate
Scale: 1'=1'-0"

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[illegible]

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Sheet Content:
Monument Sign Details

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

Sheet No.:
S-7.0

Sheet of

Plot Date: 2024-06-14

PLUMBING FIXTURE AND EQUIPMENT SCHEDULE

MARK	FIXTURE	CONNECTION SIZES				DESCRIPTION
		S or W	V	CW	HW	
WH-1	WATER HEATER **(ELECTRIC REQUIRED)**	-	-	3/4"	3/4"	**RHEEM #EGSP30** COMMERCIAL ELECTRIC WATER HEATER, 22-1/4"Ø x 32" HIGH, 30 GALLON STORAGE CAPACITY, APPROX. 23 GPH RECOVERY AT 80°F RISE, FULL SIZE P&T RELIEF VALVE. REFER TO DETAIL E/P-4.0. **ELEC: 4,500 WATT ELEMENT, 208V, 21.6 FLA** OPERATING WEIGHT = 380 LBS.
CP-1	DOMESTIC HOT WATER CIRCULATING PUMP **(ELECTRIC REQUIRED)**	-	-	-	3/4"	**B&G/XYLEM #NBF-25,** LEAD-FREE WET ROTOR CIRCULATOR, (OR GRUNDFOS OR TACO EQUAL) THREE SPEED IN-LINE CENTRIFUGAL PUMP WITH B&G/XYLEM FLANGED IPS CONNECTIONS WITH INTEGRAL BALL AND CHECK VALVES. 3/4" FLANGE, SET AT MIN.: SPEED 1. PROVIDE WITH AQUASTAT, WITH MINIMUM TEMP AT 115°F. REFER TO DETAIL E/P-4.0. **ELECTRICAL: 125 WATTS, 2,950 RPM, 1.10 FLA, 115V/1Ø** WEIGHT = 11 LBS.
EP-1	WATER HEATER EQUIPMENT PLATFORM	1"	-	-	-	**HOLDRITE QUICK STAND #50-SWHP-WM,** WALL MOUNTED GALVANIZED STEEL EQUIPMENT PLATFORM AND DRAIN PAN COMBINATION, 26-1/2" X 26-1/2" X 2-1/2" (INSIDE WALL), 1" DRAIN FITTING, PRE-ASSEMBLED AND WATER-TIGHT, MAX 600 LB. LOAD RATING, HANGER RODS AND HARDWARE. REFER TO DETAIL E/P-4.0.
TET-1	THERMAL EXPANSION TANK	-	-	3/4"	-	**WESSELS #TTA-12,** 5 GALLON ASME RATED TANK, 3.3 GALLON ACCEPTANCE WITH FDA APPROVED HEAVY DUTY BUTYL BLADDER FOR POTABLE WATER USE. 12"Ø X 14" WEIGHT: 70 LBS.
DC-1	DOWNSPOUT W/ HINGED COVER	-	-	-	-	**JAY R. SMITH #1775-U,** (OR MIFAB EQUAL), STAINLESS STEEL DOWNSPOUT COVER WITH HINGED PERFORATED COVER, VANDAL PROOF (-U). REFER TO DRAWINGS FOR OUTLET SIZE.
SA-1	SHOCK ABSORBER	-	-	3/4"	-	**JAY R. SMITH #5005**, (OR MIFAB EQUAL) STAINLESS STEEL CONSTRUCTION, P.D.I. SYMBOL "A" FOR UP TO 11 FIXTURE UNITS. INSTALL IN UPWARD POSITION.
RD-1	ROOF DRAIN	-	-	-	-	**MIFAB #R1100-90-M-B-U-E,** 8" DIA. LACQUERED CAST IRON DRAIN WITH SIDE OUTLET, METAL DOME, SUMP RECEIVER, & UNDERDECK CLAMP, AND EXTENSION AS REQUIRED. PROVIDE 4 LB. LEAD FLASHING ON TOP OF ROOF DECK PEENED IN AND CLAMPED TO DRAIN. REFER TO PLANS FOR OUTLET SIZE. CONFIRM WITH ARCHITECTURAL ROOF DRAIN DETAIL PRIOR TO ORDERING. PROVIDE THE DRAIN WITH SIDE OUTLETS WHERE STRUCTURAL OR CONSTRUCTABILIITY CONDITIONS PROHIBIT INSTALLATION OF THE STANDARD ROOF DRAIN BODY. NOTE: POSSIBLE LONG LEAD TIME FOR EXTENSIONS, ORDER ROOF AND OVERFLOW DRAIN ASSEMBLY EARLY. NO JOBSITE FABRICATED EXTENSIONS ALLOWED.
OD-1	OVERFLOW DRAIN	-	-	-	-	**MIFAB #R1100-90-W-M-B-U-E,** ADJUSTABLE WATER DAM SET AT +2" ABOVE ROOF DRAIN INLET (CONFIRM OVERFLOW HEIGHT WITH ARCH. DRAWINGS). ALL ELSE PER RD-1.
HB-1	HOSE BIBB **(EXTERIOR, FREEZE PROTECTION)**	-	-	3/4"	-	**ACORN #8160,** (OR MIFAB OR WOODFORD EQUAL). NON-FREEZE INTEGRAL VACUUM BREAKER DUAL CHECK HYDRANT RECESSED HOSE BOX (SINGLE TEMPERATURE), WITH STAINLESS STEEL DOOR AND WALL FLANGE. DOOR INCLUDES CAM CYLINDER LOCK WITH TWO KEYS. DUAL CHECK VALVE PROVIDES POSITIVE FREEZE RESISTANCE. VALVE AND SCREWDRIVER STOP ARE CAST BRONZE WITH A STAINLESS STEEL FACE. REFER TO DETAIL B/P-4.2.

PLUMBING FIXTURE AND EQUIPMENT SCHEDULE

MARK	FIXTURE	CONNECTION SIZES				DESCRIPTION
		S or W	V	CW	HW	
S-1 ♿	SINK **(MANUAL)**	2"	2"	1/2"	1/2"	**ELKAY #LRAD332155,** (OR JUST EQUAL), CBC ACCESS COMPLIANT, DOUBLE COMPARTMENT 18 GAUGE STAINLESS STEEL, 33" X 21-1/4" X 5-1/2" O.D., 13-1/2" X 16" X 5-3/8" EACH BOWL SIZE I.D., THREE HOLE PUNCHING, RIGHT AND LEFT REAR CENTER DRAIN OPENINGS. NOTE: 4-1/2" TO 6-1/2" DEEP BOWL. CONFIRM MAX. SINK DEPTH WITH ARCHITECTURAL CASEWORK AND CABINETRY DETAILS. **ELKAY #LK35**, 3-1/2" STAINLESS STEEL BASKET STRAINER AND TAILPIECE. **CHICAGO FAUCETS #2300-8E34ABCP**, 8" CENTERS, 10" SWING SPOUT, 1.5 GPM PRESSURE COMPENSATING SOFTFLO AERATOR, 4-5/8" SINGLE LEVER. **LEONARD #170-LF-BP-BRKT** ASSE 1070 THERMOSTATIC MIXING VALVE MOUNTED ON WALL BELOW SINK WITH BRACKET "BRKT", COLD WATER BY-PASS "BP". PIPING FROM THE ANGLE STOPS TO THE THERMOSTATIC MIXING VALVE SHALL BE RIGID TUBING. SET MAX. TEMPERATURE AT 110°F. (2) LOOSE KEY COMPRESSION ANGLED WALL STOPS WITH SUPPLIES, 17 GAUGE . C.P. P-TRAP/TAILPIECE WITH ESCUTCHEON. WRAP H.W. AND TRAP/TAILPIECE PER SPECIFICATIONS.
SS-1	SERVICE SINK	3"	2"	3/4"	3/4"	**KOHLER "BANNON" #K-6716,** 24" x 20-1/4" ENAMELED CAST IRON WALL-MOUNT SERVICE SINK WITH RIM GUARD, TWO-HOLE BACKSPLASH, 8" CENTERS. **KOHLER #K-6673,** 3" ADJUSTABLE TRAP STANDARD WITH CLEANOUT PLUG AND STRAINER. **ZURN #Z841L1,** CHROME PLATED CAST BRASS SERVICE SINK FAUCET, QUARTER TURN CERAMIC DISC CARTRIDGES, 2-1/2" SWIVEL INLETS WITH INTEGRAL STOPS, 2-1/2" VACUUM BREAKER SPOUT WITH 3/4" HOSE THREADED OUTLET, 2-1/2" VANDAL RESISTENT COLOR-CODED LEVER HANDLES. **FLORESTONE #MR-370,** 5/8" 5' LONG HOSE WITH CLAMP. **FLORESTONE #MR-372,** MOP HANGER WITH 3 CLAMPS. PROVIDE A STEEL SUPPORT PLATE FOR MOUNTING FIXTURE PER DETAIL C/P-4.0.
DF-1 ♿	DRINKING FOUNTAIN **ELECTRICAL REQUIRED**	-	-	-	-	**ELKAY "ezH2O" #LZSTL8WSSP** ELECTRONIC SENSOR BOTTLE FILLING STATION & BI-LEVEL ADA COOLER, FILTERED, REFRIGERATED, STAINLESS STEEL. ELECTRONIC FRONT AND SIDE BUBBLER PUSHBAR. 8.0 GPH OF 50°F. DRINKING WATER BASED ON 80°F INLET WATER AND 90°F AMBIENT. ANTIMICROBIAL, AUTOMATIC FILTER STATUS RESET, ENERGY SAVINGS, FILTERED, GREEN TICKER, LAMINAR FLOW, REAL DRAIN, VISUAL FILTER MONITOR, QUICK FILTER CHANGE, FLEXI-GUARD SAFETY BUBBLER. DIMENSIONS: 36-3/4" X 19" X 39-1/2" **WALL MOUNTED FOR INDOOR APPLICATIONS ONLY.** PROVIDE SERVICE STOP, 17 GAUGE C.P. TRAP/TAILPIECE. **ELKAY #MLP200**: PROVIDE IN-WALL CARRIER FOR BI-LEVEL ON-WALL BOTTLE FILLERS COOLERS & FOUNTAINS. **ELKAY FILTER #51600C**: PROVIDE (2) TWO WATERSENTRY HIGH CAPACITY FILTER. CERTIFIED TO NSF 42, 53, AND 372 FOR LEAD, PARTICULATE CLASS 1, CHLORINE, TASTE AND ODOR REDUCTION. 6,000 GAL./1 YEAR. DRINKING FOUNTAIN ANCHORAGE PER DETAIL C/P-4.1. INSTALL IN COMPLIANCE WITH MANUFACTURER'S INSTALLATION GUIDELINES. MOUNT BOTTLE FILLER ON LOW SIDE. REFER TO ARCHITECTURAL DRAWINGS FOR CBC ACCESS MOUNTING HEIGHT. WEIGHT: 150 LBS **ELECTRICAL: 115V/60HZ, 5 FLA, 370 WATTS**

PLUMBING FIXTURE AND EQUIPMENT SCHEDULE

MARK	FIXTURE	CONNECTION SIZES				DESCRIPTION
		S or W	V	CW	HW	
WC-1 ♿	WATER CLOSET **(BATTERY SENSOR WITH MECHANICAL OVERRIDE)**	4"	2"	1"	-	**KOHLER "KINGSTON" ULTRA #K-84325-SS**, ELONGATED WALL-MOUNT, TOP SPUD FLUSHOMETER BOWL, ANTIMICROBIAL FINISH. **SLOAN "ROYAL" #111-SFSM-1.28-TMO**, 1.28 GPF, BATTERY SENSOR EXPOSED WATER CLOSET FLUSHOMETER, POLISHED CHROME FINISH, DIAPHRAGM VALVE, TOP SPUD CONNECTION, SINGLE FLUSH, WITH TRUE MECHANICAL OVERRIDE FLUSH BUTTON. MOUNT FLUSH VALVE WITH TRUE MECHANICAL OVERRIDE FLUSH BUTTON POINTED TOWARDS WIDE/OPEN SIDE OF STALL. **BEMIS #1955SSCT** COMMERCIAL HEAVY-DUTY PLASTIC WHITE TOILET SEAT, OPEN-FRONT LESS COVER, SELF-SUSTAINING CHECK HINGES WITH NON-CORRODING 300 SERIES STAINLESS STEEL POSTS AND PINTLES, STA-TITE FASTENING SYSTEM. **JAY R. SMITH SERIES #0410Y SUPPORT CARRIER** (OR MIFAB EQUAL) WITH REAR SUPPORT LUG AND -M51 ANCHOR FOOT ASSEMBLY. CBC ACCESS COMPLIANT. REFER TO ARCH. DWGS. FOR MOUNTING HEIGHT.
L-1 ♿	LAVATORY **(BATTERY SENSOR)**	2"	2"	1/2"	1/2"	**AMERICAN STANDARD #9024-001EC,** "DECORUM" WALL MOUNT FIXTURE WITH EVERCLEAN, CBC ACCESS COMPLIANT, 20"x18-1/4", VIT. CHINA WITH REAR OVERFLOW. VERIFY PRIOR TO ORDER TO MATCH FAUCET HOLE REQUIREMENTS. **SLOAN #SF-2450-4-BAT-TEE-CP-0.5GPM-MLM-FCT,** BATTERY-POWERED DECK MOUNT, INFRARED SENSOR-ACTIVATED, 4" TRIM PLATE, POLISHED CHROME, 0.5 GPM MULTI-LAMINAR SPRAY OUTLET. 4-AA-SIZE MOUNT BATTERY CONTROL MODULE ON WALL BELOW FIXTURE. CBC ACCESS COMPLIANT. **McGUIRE #155A,** GRID DRAIN. **LEONARD #170A-LF-STSTL-REC** ASSE 1070 THERMOSTATIC MIXING VALVE MOUNTED BEHIND LOCKING WALL ACCESS PANEL BELOW FIXTURE. PIPING FROM THE ANGLE STOPS TO THE THERMOSTATIC MIXING VALVE SHALL BE RIGID TUBING. SET TEMPERATURE AT 105°F. ADJUST FAUCET TO STAY OPEN FOR 10-15 SECONDS. **JAY R. SMITH #0723** CONCEALED ARMS, AND A STEEL SUPPORT PLATE FOR MOUNTING FIXTURE PER DETAIL C/P-4.0. OR OPTION: **JAY R. SMITH #0700** FLOOR MOUNTED CONCEALED ARM CARRIER. **CBC ACCESS COMPLIANT ROUND BOTTLE TRAP**, TAILPIECE, & TRAP ARM WITH ESCUTCHEON. (2) LOOSE KEY COMPRESSION ANGLED WALL STOPS WITH SUPPLIES. WRAP CW, HW, AND TRAP/TAILPIECE PER SPECIFICATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHT.
HS-1 ♿	HAND SINK **(BATTERY SENSOR)**	2"	2"	1/2"	1/2"	**ALL ELSE PER L-1.**

PLUMBING LEGEND

SYMBOL	ITEM	ABBR
	SOIL or WASTE	S or W
	VENT	V
	VENT RISER	VR
	VENT THRU ROOF	VTR
	DOMESTIC COLD WATER	CW
	DOMESTIC HOT WATER	HW
	DOMESTIC HOT WATER RETURN	HWR
—G—	LOW PRESSURE NATURAL GAS	G
—2#G—	2 PSI GAS	2#G
—5#G—	5 PSI GAS	5#G
--GSM--	GAS SERVICE MAIN BY THE LOCAL GAS UTILITY	GSM
—C—	CONDENSATE DRAIN	CD
—RWL—	RAIN WATER LEADER	RWL
—OD—	OVERFLOW DRAIN	OD
—SD—	STORM DRAIN	SD
—IW—	INDIRECT WASTE	IW
—F—	FIRE PROTECTION LINE	F
	EXISTING PIPING	(E)
(E)	EXISTING	
(N)	NEW	
	ABOVE CEILING	ABV CLG
	BELOW FLOOR	BEL FLR
	BELOW GRADE	BEL GR
	TYPICAL	TYP
	CONTINUATION	CONT
	DOWN	DN
	FLOOR CLEANOUT	FCO
	CLEANOUT TO GRADE	COTG
	WALL CLEANOUT	WCO
	PIPING TURN UP	
	PIPING TURN DOWN	
	POINT OF CONNECTION	POC
	SHUT-OFF VALVE IN BOX	SOV
	SHUT-OFF VALVE	SOV
	SHUT-OFF VALVE IN RISER	-
	SHUT-OFF VALVE IN DROP	-
	GATE VALVE	-
	BUTTERFLY VALVE	-
	GLOBE VALVE	-
	CHECK VALVE	-
	PLUG VALVE	-
	BALL VALVE	-
	BALANCE COCK	-
	REDUCER	-
	MANHOLE	MH
	FLOW LINE	FL
	UNION	-
	RELIEF VALVE	-
	BALANCING VALVE	-
	PRESSURE GAUGE	-
	THERMOMETER	-

REGISTERED PROFESSIONAL ENGINEER
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LICENSED ARCHITECT
ZAHIDUL HOQUE KHAN
C-40030
REN: 11-30-25
STATE OF CALIFORNIA

ARCHITECT:
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California Licensed Architect No. C-40030
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E-mail: zkhan@fresnocountyca.gov

Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-21
Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\5 P\P-0.1 - P-0.2 Plumbing Notes, Legend, Schedule, and Calculations

Sheet Content:
PLUMBING LEGEND AND SCHEDULES

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

Sheet No.:
P-0.1

Sheet of

Plot Date: 2024-05-21

21 May 2024 12:44 PM P:\2023\23139 Fresno County ECC Education Building\4-Drawings\5 P\P-0.1 - P-0.2 Plumbing Notes, Legend, Schedule, and Calculations.dwg david m

21 May 2024 12:44 PM P:\2023\23139 Fresno County ECC Education Building\4-Drawings\5 P\P-0.1 - P-0.2 Plumbing Notes, Legend, Schedule, and Calculations.dwg david m

STORM DRAINAGE

FRESNO: 1.5 (in/h)

TABLE 1103.1
SIZING ROOF DRAINS, LEADERS, AND VERTICAL RAINWATER PIPING[2, 3]

SIZE OF DRAIN, LEADER, OR PIPE	FLOW	MAXIMUM ALLOWABLE HORIZONTAL PROJECTED ROOF AREAS AT VARIOUS RAINFALL RATES (square feet)												
inches	gpm[1]	1 (in/h)	2 (in/h)	3 (in/h)	4 (in/h)	5 (in/h)	6 (in/h)	7 (in/h)	8 (in/h)	9 (in/h)	10 (in/h)	11 (in/h)	12 (in/h)	1.5 (in/h)
2	30	2880	1440	960	720	575	480	410	360	320	290	260	240	1,920
3	92	8800	4400	2930	2200	1760	1470	1260	1100	980	880	800	730	5,866
4	192	18 400	9200	6130	4600	3680	3070	2630	2300	2045	1840	1675	1530	12,266
~~5~~	~~360~~	~~34 600~~	~~17 300~~	~~11 530~~	~~8650~~	~~6920~~	~~5765~~	~~4945~~	~~4325~~	~~3845~~	~~3460~~	~~3145~~	~~2880~~	
6	563	54 000	27 000	17 995	13 500	10 800	9000	7715	6750	6000	5400	4910	4500	36,000
8	1208	116 000	58 000	38 660	29 000	23 200	19 315	16 570	14 500	12 890	11 600	10 545	9600	77,333

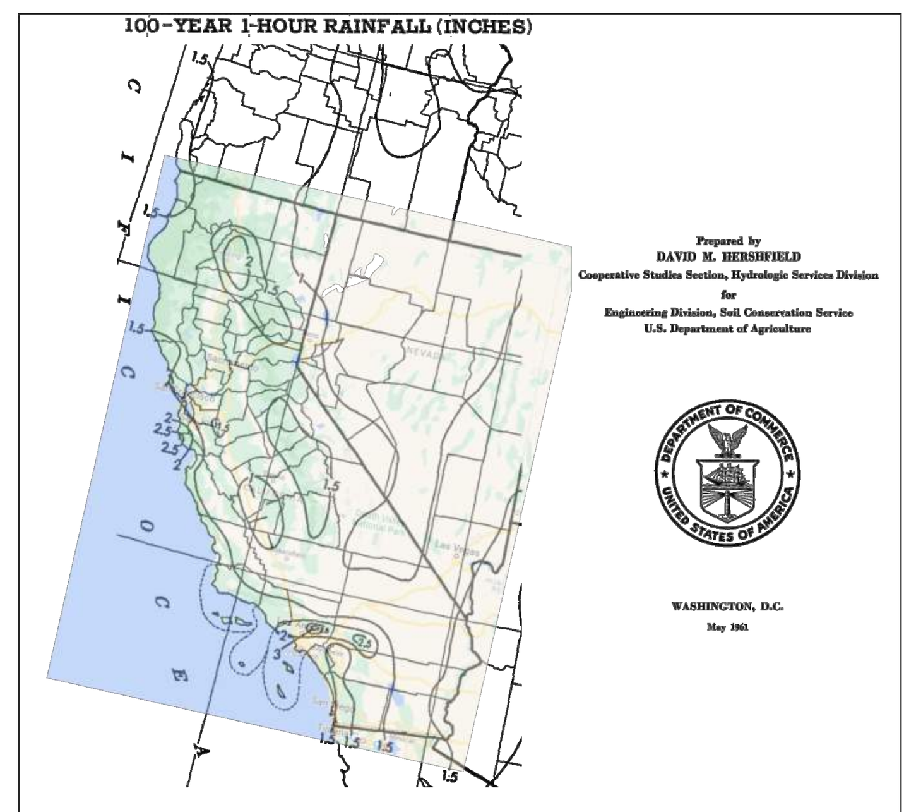
For SI units: 1 inch = 25 mm, 1 gallon per minute = 0.06 L/s, 1 inch per hour = 25.4 mm/h, 1 square foot = 0.0929 m^2

Notes:

1 Maximum discharge capacity, gpm (L/s) with approximately 1¾ inch (44 mm) head of water at the drain.

2 For rainfall rates other than those listed, determine the allowable roof area by dividing the area given in the 1 inch per hour (25.4 mm/h) column by the desired rainfall rate.

3 Vertical piping shall be round, square, or rectangular. Square pipe shall be sized to enclose its equivalent round pipe. Rectangular pipe shall have not less than the same cross-sectional area as its equivalent round pipe, except that the ratio of its side dimensions shall not exceed 3 to 1.



SOURCE: TECHNICAL PAPER NO. 40 RAINFALL FREQUENCY ATLAS OF THE UNITED STATES

*Additional source: 2018 International Plumbing Code (IPC): Fresno **1.1 in/hr***
(Rainfall rate, in/hr, based on storm of 1-hour duration and 100-year return period)

CALIFORNIA PLUMBING CODE

STORM DRAINAGE

FRESNO: 1.5 (in/h)

TABLE 1103.2
SIZING OF HORIZONTAL RAINWATER PIPING[1, 2]

SIZE OF PIPE	FLOW (⅛ inch per foot slope)	MAXIMUM ALLOWABLE HORIZONTAL PROJECTED ROOF AREAS AT VARIOUS RAINFALL RATES (square feet)						
inches	gpm	1 (in/h)	2 (in/h)	3 (in/h)	4 (in/h)	5 (in/h)	6 (in/h)	1.5 (in/h)
3	34	3288	1644	1096	822	657	548	2,192
4	78	7520	3760	2506	1880	1504	1253	5,013
~~5~~	~~139~~	~~13 360~~	~~6680~~	~~4453~~	~~3340~~	~~2672~~	~~2227~~	
6	222	21 400	10 700	7133	5350	4280	3566	14,266
8	478	46 000	23 000	15 330	11 500	9200	7670	30,666
10	860	82 800	41 400	27 600	20 700	16 580	13 800	55,200
12	1384	133 200	66 600	44 400	33 300	26 650	22 200	88,800
15	2473	238 000	119 000	79 333	59 500	47 600	39 650	158,666

SIZE OF PIPE	FLOW (¼ inch per foot slope)	MAXIMUM ALLOWABLE HORIZONTAL PROJECTED ROOF AREAS AT VARIOUS RAINFALL RATES (square feet)						
inches	gpm	1 (in/h)	2 (in/h)	3 (in/h)	4 (in/h)	5 (in/h)	6 (in/h)	1.5 (in/h)
3	48	4640	2320	1546	1160	928	773	3,093
4	110	10 600	5300	3533	2650	2120	1766	7,066
~~5~~	~~196~~	~~18 880~~	~~9440~~	~~6293~~	~~4720~~	~~3776~~	~~3146~~	
6	314	30 200	15 100	10 066	7550	6040	5033	20,133
8	677	65 200	32 600	21 733	16 300	13 040	10 866	43,466
10	1214	116 800	58 400	38 950	29 200	23 350	19 450	77,866
12	1953	188 000	94 000	62 600	47 000	37 600	31 350	125,333
15	3491	336 000	168 000	112 000	84 000	67 250	56 000	224,000

SIZE OF PIPE	FLOW (½ inch per foot slope)	MAXIMUM ALLOWABLE HORIZONTAL PROJECTED ROOF AREAS AT VARIOUS RAINFALL RATES (square feet)						
inches	gpm	1 (in/h)	2 (in/h)	3 (in/h)	4 (in/h)	5 (in/h)	6 (in/h)	1.5 (in/h)
3	68	6576	3288	2192	1644	1310	1096	4,384
4	156	15 040	7520	5010	3760	3010	2500	10,026
~~5~~	~~278~~	~~26 720~~	~~13 360~~	~~8900~~	~~6680~~	~~5320~~	~~4450~~	
6	445	42 800	21 400	14 267	10 700	8580	7140	28,533
8	956	92 000	46 000	30 650	23 000	18 400	15 320	61,333
10	1721	165 600	82 800	55 200	41 400	33 150	27 600	110,400
12	2768	266 400	133 200	88 800	66 600	53 200	44 400	177,600
15	4946	476 000	238 000	158 700	119 000	95 200	79 300	317,333

For SI units: 1 inch = 25 mm, 1 gallon per minute = 0.06 L/s, ⅛ inch per foot = 10.4 mm/m, 1 inch per hour = 25.4 mm/h, 1 square foot = 0.0929 m^2

Notes:

1 The sizing data for horizontal piping are based on the pipes flowing full.

2 For rainfall rates other than those listed, determine the allowable roof area by dividing the area given in the 1 inch per hour (25.4 mm/h) column by the desired rainfall rate.

CALIFORNIA PLUMBING CODE

PLUMBING FIXTURE CALCULATIONS

ROOM	FIXTURE	NO.	CW WSFU UNIT	CW WSFU TOTAL	HW WSFU UNIT	HW WSFU TOTAL	SEWER DFU UNIT	SEWER DFU TOTAL
Unisex	WC - FV	2	5.00	10	-	-	4.00	8.00
Unisex	Lav - Public	2	1.00	2	1.00	2	1.00	2.00
Hallway	DF	2	0.50	1	-	-	0.50	1.00
Break Room	Break Room Sink	1	1.50	2	1.50	2	2.00	2.00
Classroom	Single Comp	1	1.50	2	1.50	2	-	-
Exterior	HB 1ST	1	2.50	3	-	-	-	-
Exterior	HB 2ND	2	1.00	2	-	-	-	-
Storage	Service Sink	1	3.00	3	3.00	3	3.00	3.00
		-	-	-	-	-	-	-
SUBTOTAL / TOTAL				24		8		16.0
GPM FLOW				38		7		

DOMESTIC WATER DEMAND AND PIPE SIZING

WATER METER SIZE — WATER METER USED?	YES	2"
TOTAL FIXTURE UNITS		24
FIXTURE UNIT GPM		38
ADDITIONAL EQUIPMENT GPM		0
TOTAL BUILDING GPM		38
MINIMUM PSI AVAILABLE AT JOBSITE		35.00
PSI FLOW LOSS THROUGH WATER METER (CHART A-1)		3.00
PSI LOSS THROUGH BACK FLOW PREVENTER (*RP = 12.0 PSI / *D.C. = 12.0 PSI.)		12.0
SITE WATER PIPE SIZE		2"
TOTAL DEVELOPED LENGTH FROM METER TO BUILDING POINT OF ENTRY (FT)		200.0
SITE WATER PSI PRESSURE DROP/100' OF PIPE		0.43
TOTAL PSI MAIN LOSS FROM METER TO BUILDING		0.86
TOTAL PRESSURE AVAILABLE AT BUILDING EXTERIOR WALL		19.1
TOTAL DEVELOPED BUILDING MAIN LENGTH TO MOST REMOTE FIXTURE (FT)		90.0
TOTAL RISE FOR HEAD LOSS (FT x 0.43)	5.0	2.2
MAIN PRV PSI LOSS OR OTHER SIMILAR EQUIPMENT / MAIN PSI LOSS		0.0
PSI REQUIRED FOR GOVERNING FIXTURE		15.0
TOTAL BUILDING LOSS (PSI)		17.2
REMAINING PSI AVAILABLE (IF NEGATIVE, USE BOOSTER PUMP)		2.0
BOOSTER PUMP (PSI)		0.0
TOTAL REMAINING PSI AVAILABLE		2.0
FRICTION LOSS (PSI/100 FT.)		2.2
MAXIMUM COLD WATER VELOCITY ALLOWED (FT/S)		6.0
MAXIMUM HOT WATER VELOCITY ALLOWED (FT/S)		4.0

COLD WATER COPPER TYPE L SYSTEM

PIPE SIZE INCHES (ID)		GPM	VELOCITY (fps)	FLUSH VALVE	FLUSH TANK
8"	7.725	-	-	-	-
6"	5.845	-	-	-	-
5"	4.875	-	-	-	-
4"	3.905	-	-	-	-
3"	2.945	-	-	-	-
2.5"	2.465	-	-	-	-
2"	1.985	50.5	5.3	48	129
1.5"	1.505	24.1	4.3	10	39
1.25"	1.265	15.1	3.9	-	21
1"	1.025	8.6	3.4	-	11
.75"	0.785	4.2	2.8	-	5
.50"	0.545	1.6	2.0	-	1

HOT WATER COPPER TYPE L SYSTEM

PIPE SIZE INCHES (ID)		GPM	VELOCITY (fps)	FLUSH VALVE	FLUSH TANK
8"	7.725	-	-	-	-
6"	5.845	-	-	-	-
5"	4.875	-	-	-	-
4"	3.905	-	-	-	-
3"	2.945	-	-	-	-
2.5"	2.465	59.2	4.0	72	170
2"	1.985	38.2	4.0	23	80
1.5"	1.505	22.0	4.0	9	34
1.25"	1.265	15.1	3.9	-	21
1"	1.025	8.6	3.4	-	11
.75"	0.785	4.2	2.8	-	5
.50"	0.545	1.6	2.0	-	1

B1

GENERAL PLUMBING NOTES:

1. *THE APPLICABLE CODES AND REGULATIONS FOR THIS PROJECT INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:*

   CALIFORNIA CODE OF REGULATIONS
   TITLE 8, INDUSTRIAL RELATIONS
   TITLE 19, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
   TITLE 24, PART 1, ADMINISTRATIVE REGULATIONS
   2022 CALIFORNIA BUILDING CODE, PART 2, TITLE 24 CCR
   2022 CALIFORNIA ELECTRICAL CODE, PART 3, TITLE 24 CCR
   2022 CALIFORNIA MECHANICAL CODE, PART 4, TITLE 24 CCR
   2022 CALIFORNIA PLUMBING CODE, PART 5, TITLE 24 CCR
   2022 CALIFORNIA FIRE CODE, PART 9, TITLE 24 CCR

   NFPA 101 2021 EDITION
   OSHA - OCCUPATIONAL SAFETY AND HEALTH ACT

2. *LAYOUT OF MATERIALS, EQUIPMENT AND SYSTEMS IS GENERALLY DIAGRAMMATIC UNLESS SPECIFICALLY DIMENSIONED. SOME WORK MAY BE SHOWN OFFSET FOR CLARITY. THE PLUMBING BUILDING PLANS HAVE BEEN PREPARED TO MATCH THE ARCHITECTURAL PLANS. IF DIFFERENCES OCCUR, THE ARCHITECTURAL PLANS ARE TO TAKE PRECEDENCE. THE ACTUAL LOCATIONS OF ALL MATERIALS, PIPING, DUCTWORK, FIXTURES, EQUIPMENT, SUPPORTS, ETC. SHALL BE CAREFULLY PLANNED, PRIOR TO INSTALLATION OF ANY WORK, TO AVOID ALL INTERFERENCE WITH EACH OTHER, OR WITH STRUCTURAL, ELECTRICAL, ARCHITECTURAL, OR OTHER ELEMENTS. ALL PIPE OFFSET ELBOWS FOR COORDINATION BETWEEN TRADES ARE NOT SHOWN. CONTRACTOR SHALL INCLUDE SUFFICIENT FUNDS FOR THE COORDINATION OFFSETS IN THE BID. VERIFY THE PROPER VOLTAGE AND PHASE OF ALL EQUIPMENT WITH THE ELECTRICAL PLANS. ALL CONFLICTS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT AND THE ENGINEER PRIOR TO INSTALLATION OF ANY WORK OR THE ORDERING OF ANY EQUIPMENT.*

3. *PENETRATIONS OF PIPES, CONDUITS, ETC. IN WALLS OR FLOORS REQUIRING PROTECTED OPENINGS SHALL BE FIRE STOPPED. SEE SPECIFICATIONS.*

4. *ALL PIPING AND CONDUIT REQUIRING SEISMIC BRACE AND SUPPORT SHALL BE SUPPORTED PER MASON WEST, INC. "SEISMIC RESTRAINT COMPONENTS FOR SUSPENDED DISTRIBUTION SYSTEMS", 2022 EDITION, HCAI (OSHPD) PRE-APPROVED ANCHORAGE OPM-0043, OR OTHER HCAI (OSHPD) PRE-APPROVED SYSTEM.*

5. *WHEN INSTALLING DRILLED-IN ANCHORS AND/OR POWDER-DRIVEN PINS IN EXISTING NON-PRESTRESSED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING THEM INTO EXISTING PRE-STRESSED CONCRETE (PRE- OR POST-TENSIONED), LOCATE THE PRESTRESSED TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR AND/OR PIN.*

6. *FIELD VERIFY THE EXACT LOCATION, DEPTH AND SIZE OF ALL NEW POINTS OF CONNECTION TO EXISTING UTILITIES PRIOR TO COMMENCING NEW UTILITY WORK.*

7. *INSTALLATION, TYPE AND MANUFACTURERS MODELS OF DOMESTIC WATER METERS, BACKFLOW PREVENTERS, FIRE HYDRANTS, DETECTOR CHECK VALVES, MANHOLES, DRAIN INLETS/OUTLETS AND OTHER APPURTENANCES OF SITE UTILITY SYSTEMS SHALL BE DONE IN STRICT ACCORDANCE WITH GOVERNING AUTHORITY REQUIREMENTS.*

8. *BACKFLOW PREVENTER SHALL BE INSTALLED AT THE MINIMUM HEIGHT ABOVE FINISH GRADE AS ALLOWED BY GOVERNING AUTHORITY.*

9. *ALL DOMESTIC WATER PIPING SHALL BE A MINIMUM OF 1/2" SIZE UNLESS NOTED OTHERWISE. USE A REDUCING DROP ELL AT FIXTURE CONNECTION WHEN APPLICABLE.*

10. *REFER TO DETAIL A/P-4.2 FOR PIPE HANGER DETAIL, SUPPORT SPACING, AND ROD DIAMETER.*

B1

11. *ALL HOSE BIBBS SHALL BE EQUIPPED WITH NON-REMOVABLE BACKFLOW PREVENTERS.*

12. *PLUMBING, FLUE VENTS AND DISCHARGE OUTLETS OF EXHAUST FANS SHALL BE AT LEAST THREE FEET (914 mm) ABOVE, OR TEN FEET (3048 mm) AWAY FROM ALL OUTSIDE AIR-INTAKE OPENINGS INTO THE BUILDING [CMC 501.1].*

B1 BUILDING DEPT. PLAN CHECK 24-0097
2024-03-06

REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. CANTELMI
No. M23588
Exp. 9-30-25
MECHANICAL
STATE OF CALIFORNIA

LAWRENCE
ENGINEERING GROUP
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LICENSED ARCHITECT
ZAHIDUL HOQUE KHAN
C-40030
REN: 11-30-25
STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
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E-mail: zkhan@fresnocountyca.gov

Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-21
Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\5 P\P-0.1 - P-0.2 Plumbing Notes, Legend, Schedule, and Calculations

Sheet Content:
PLUMBING CALCULATIONS AND NOTES

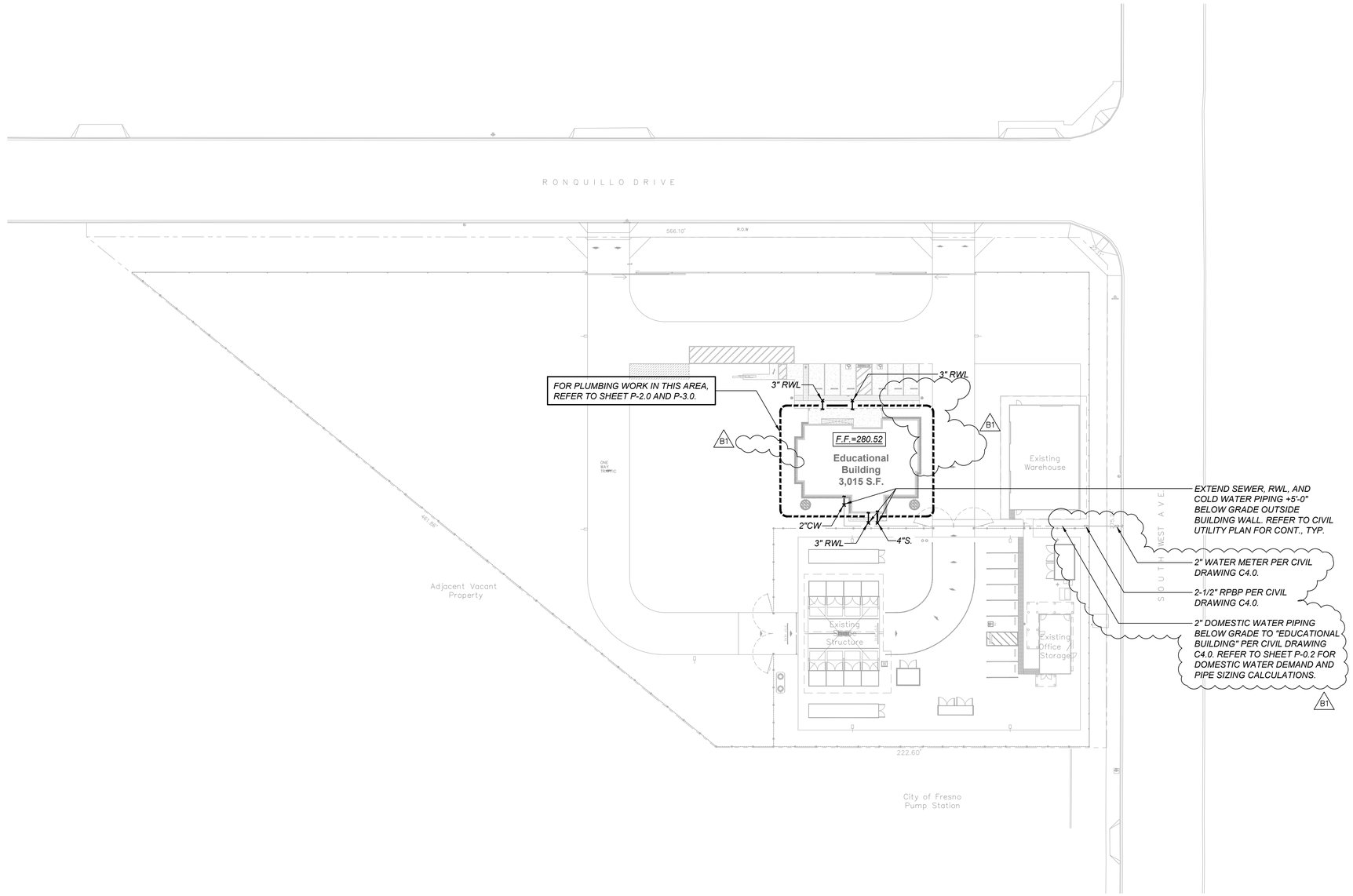
Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
P-0.2

Sheet of

Plot Date: 2024-05-21



Plumbing Site Plan

Scale: 1/32" = 1'-0"

B1 BUILDING DEPT. PLAN CHECK 24-0097
2024-03-06

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File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\5 P\P-1.0 - Plumbing Site Plan

Sheet Content:

PLUMBING SITE PLAN

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

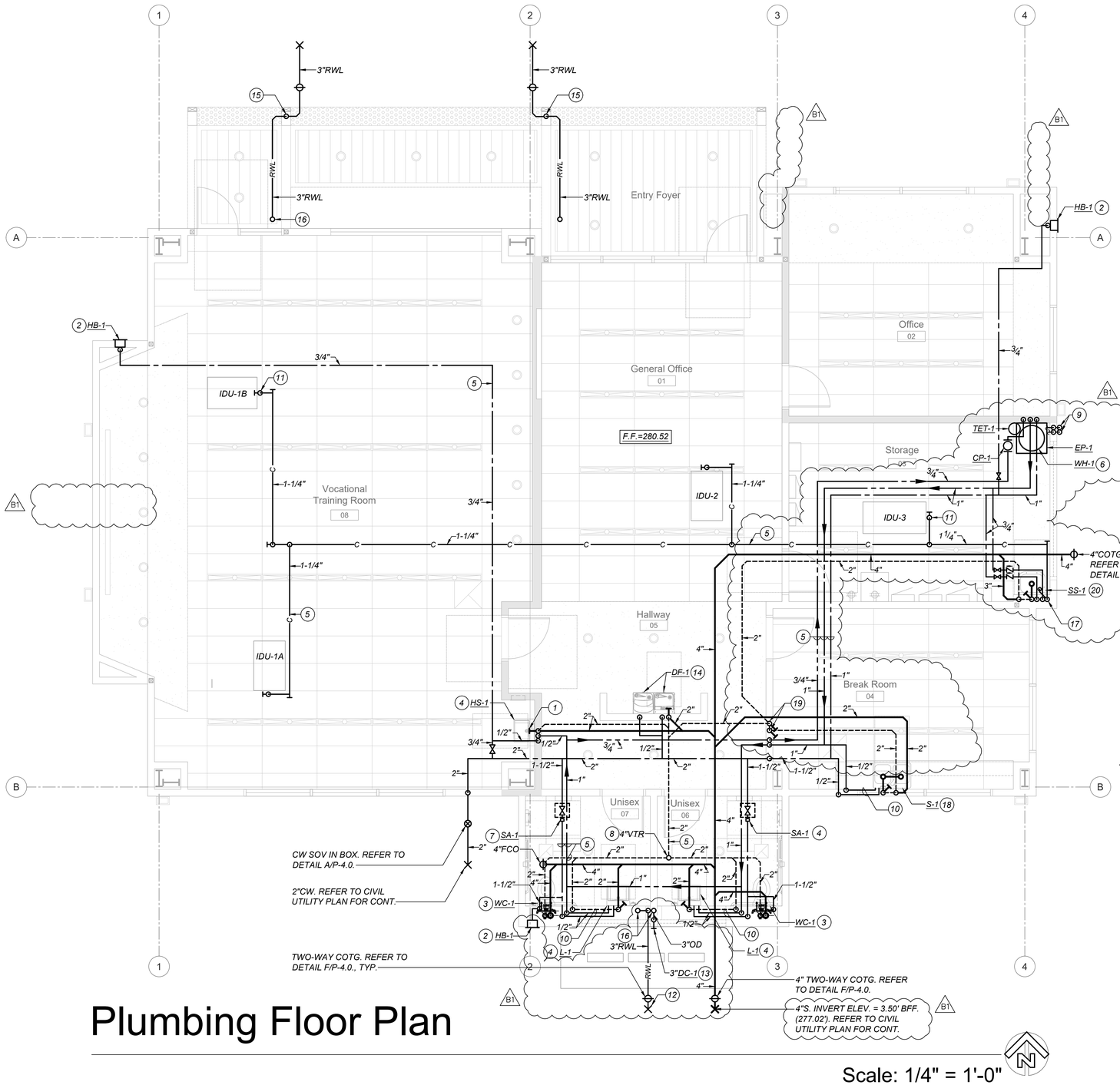
THE COUNTY OF FRESNO 1856

Sheet No.:

P-1.0

Sheet of

Plot Date: 2024-05-21



Plumbing Floor Plan

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

KEYNOTES: (THIS SHEET ONLY)

1. *WALL CLEANOUT (WCO). REFER TO DETAIL D/P-4.0. TYPICAL.*
2. *3/4"CW DN. TO HOSE BIBB AT +12" ABV. FIN. GRADE, TYP. REFER TO DETAIL B/P-4.2.*
3. *1-1/2"CW, 4"S DN., 2"V.R. TO AND FROM FLUSH VALVE WATER CLOSET, TYP.*
4. *1/2"CW, 1/2"HW, 2"W, 2"V.R., WITH WCO, TO AND FROM LAVATORY OR HAND SINK. PROVIDE OPTIONAL ISLAND VENT ROUGH-IN OR WHERE NECESSARY DUE TO WINDOW OR WALL FRAMING CONDITIONS. FOR ISLAND VENT, REFER TO DETAIL A/P-4.1. TYPICAL.*
5. *PIPING LOCATED IN SPACE ABOVE CEILING.*
6. *1"CW, 1"HW, 3/4"HWR TO AND FROM WATER HEATER SYSTEM. WATER HEATER MOUNTED ON EQUIPMENT PLATFORM +2'-3" A.F.F. REFER TO DETAIL E/P-4.0.*
7. *SHOCK ABSORBER AND/OR S.O.V. LOCATED IN SPACE ABOVE CEILING WITH ACCESS DOOR/PANEL, TYPICAL.*
8. *VENT THRU ROOF. MAINTAIN MINIMUM 10'-0" CLEARANCE FROM OUTSIDE AIR INTAKE. REFER TO DETAIL B/P-4.1. TYPICAL ALL VENT RISERS.*
9. *FULL SIZE P&T RELIEF VALVE PIPING AND 1" DRAIN PAN PIPING DOWN IN WALL FROM WATER HEATER SYSTEM. ELBOW OUT THRU EXTERIOR WALL AT +6" ABOVE FINISH GRADE AND TURN DOWN TO DAYLIGHT.*
10. *OFFSET PIPING IN WALL BELOW WINDOW.*
11. *CONNECT CONDENSATE PIPING TO MECH. IDU WITH INTEGRAL CONDENSATE PUMP. REFER TO MECHANICAL DRAWINGS. PROVIDE CLEANOUTS AT ALL CHANGE OF DIRECTIONS AND AS INDICATED, TYPICAL.*
12. *RWL DN. IN WALL TO BELOW GRADE AND EXTEND +5'-0" OUTSIDE BUILDING WALL. PROVIDE TWO-WAY COTG PER DETAIL F/P-4.0. REFER TO CIVIL UTILITY PLAN FOR CONT., TYP.*
13. *OVERFLOW DRAIN. DN. IN WALL & DAYLIGHT +1'-0" ABV. FINISH. GRADE WITH DC-1, TYPICAL.*
14. *1/2"CW, 2"W DN., WITH WCO, 2"V.R. TO AND FROM DRINKING FOUNTAIN. REFER TO DETAIL C/P-4.1. REFER TO ARCHITECTURAL PLANS FOR CBC ACCESS COMPLIANT MOUNTING HEIGHT.*
15. *RWL DN. IN COLUMN TO BELOW GRADE AND EXTEND +5'-0" OUTSIDE BUILDING WALL. PROVIDE TWO-WAY COTG PER DETAIL F/P-4.0. REFER TO CIVIL UTILITY PLAN FOR CONT., TYP.*
16. *RWL AND/OR OD PIPING DOWN FROM ROOF DRAIN TO CEILING SPACE IMMEDIATELY BELOW ROOF. ROUTE TO WALL OR COLUMN AS INDICATED. REFER TO SHEET P-3.0 FOR ROOF DRAIN. TYPICAL.*
17. *1-1/4"CD DOWN IN WALL, ELBOW OUT AND TURN DOWN AT +6" ABOVE FLOOD RIM OF SERVICE SINK WITH FULL AIR GAP.*
18. *1/2"CW, 1/2"HW, 2"W, 2"V.R., WITH WCO, TO AND FROM SINK. PROVIDE ISLAND VENT. REFER TO DETAIL A/P-4.1.*
19. *2" FOOT VENT RISER FROM ISLAND SINK TO SPACE ABOVE CEILING. PROVIDE WCO ABOVE SPILL RIM LEVEL OF SINK.*
20. *3/4"HW, 3/4"CW, 3"W, 2"V, 3"WCO, TO & FROM SERVICE SINK. PROVIDE ISLAND VENT. REFER TO DETAIL A/P-4.1.*

B1 BUILDING DEPT. PLAN CHECK 24-0097 2024-03-06

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Issue date: 2024-05-21
Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\5 P\P-2.0 - Plumbing Floor Plan

Sheet Content:

PLUMBING FLOOR PLAN

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

P-2.0

Sheet of

Plot Date: 2024-05-21

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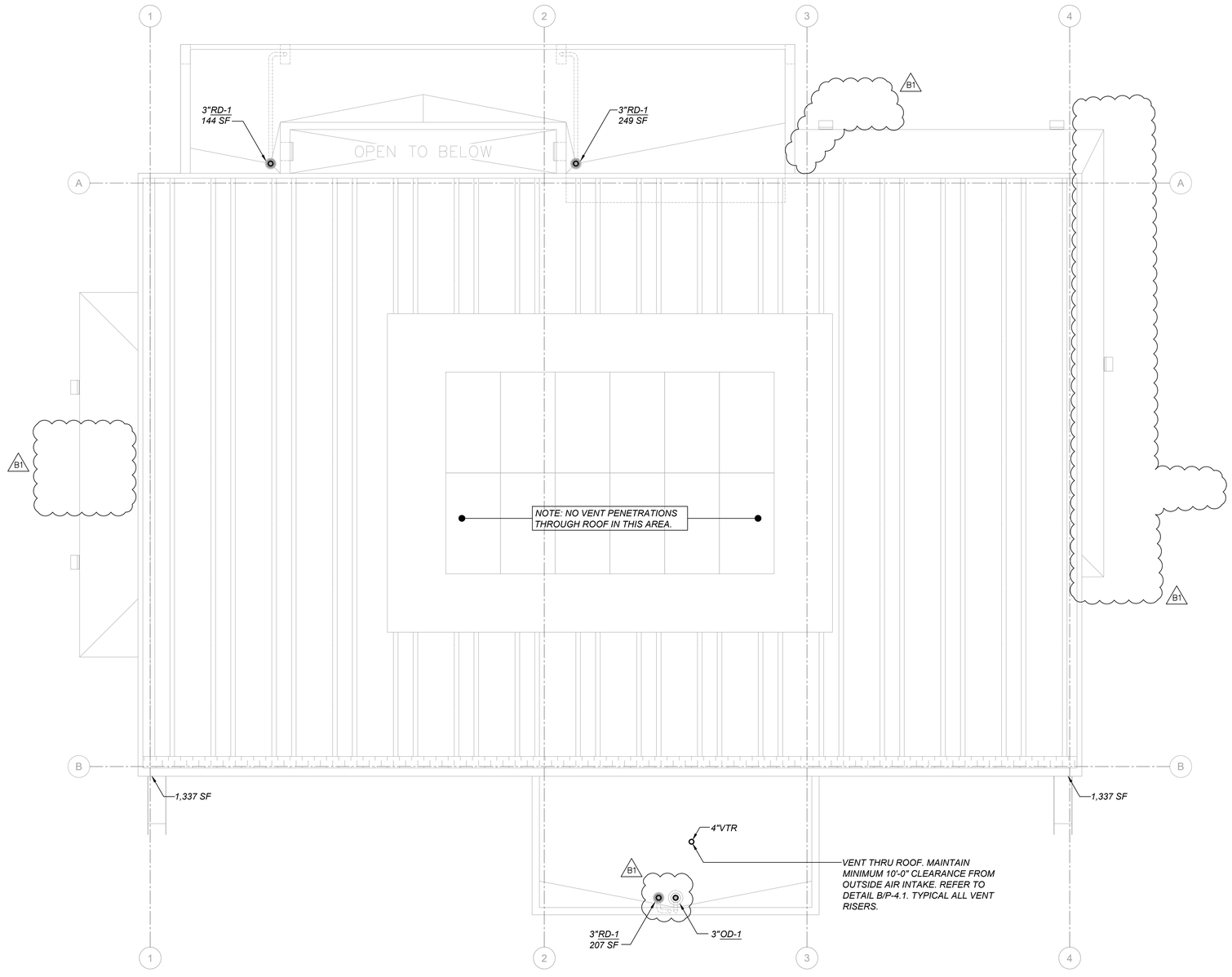

Plumbing Roof Plan

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

B1 BUILDING DEPT. PLAN CHECK 24-0097
2024-03-06

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23139

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File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\5 P\P-3.0 - Plumbing Roof Plan

Sheet Content:

PLUMBING ROOF PLAN

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

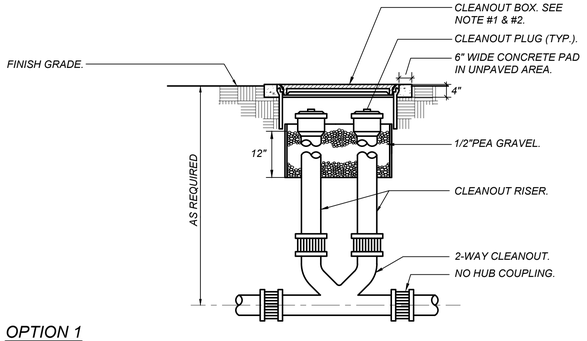
THE COUNTY OF FRESNO 1856

Sheet No.:

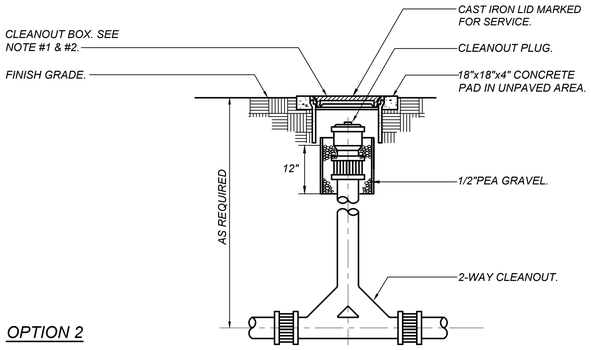
P-3.0

Sheet of

Plot Date: 2024-05-21



OPTION 1



OPTION 2

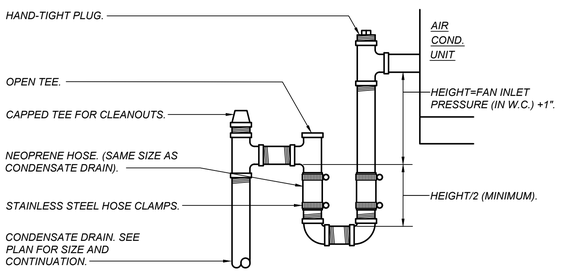
NOTE:
1. ALL CLEANOUT BOXES WITHIN 10'-0" OF EACH OTHER SHALL BE LINED UP WITH EACH OTHER AND PARALLEL TO SIDEWALK OR BUILDING WALL.

2. FOR FOOT TRAFFIC AREAS, PROVIDE CHRISTY B03 BOX WITH CAST IRON LID MARKED FOR SERVICE. FOR ROADWAYS, PROVIDE H20 RATED CHRISTY BOX G05 OR LARGER AS NECESSARY WITH H20 CAST IRON LID MARKED FOR SERVICE. REFER TO FLOOR PLAN FOR LOCATION.

TWO-WAY CLEANOUT TO GRADE DETAILS

F P-4.0

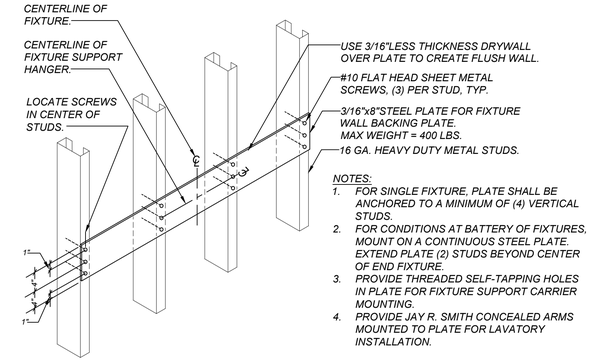
SCALE: NONE



CONDENSATE DRAIN CONNECTION DETAIL

G P-4.0

SCALE: NONE



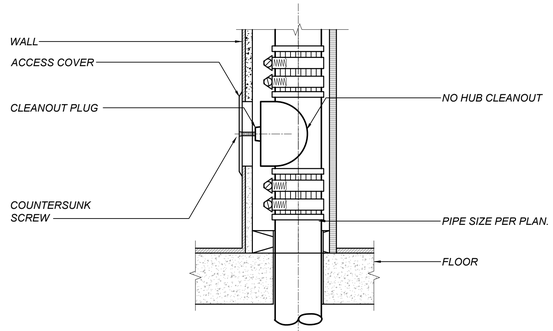
NOTES:
1. FOR SINGLE FIXTURE, PLATE SHALL BE ANCHORED TO A MINIMUM OF (4) VERTICAL STUDS.
2. FOR CONDITIONS AT BATTERY OF FIXTURES, MOUNT ON A CONTINUOUS STEEL PLATE. EXTEND PLATE (2) STUDS BEYOND CENTER OF END FIXTURE.
3. PROVIDE THREADED SELF-TAPPING HOLES IN PLATE FOR FIXTURE SUPPORT CARRIER MOUNTING.
4. PROVIDE JAY R. SMITH CONCEALED ARMS MOUNTED TO PLATE FOR LAVATORY INSTALLATION.

METAL STUD WALL

FIXTURE SUPPORT BACKING PLATE DETAIL

C P-4.0

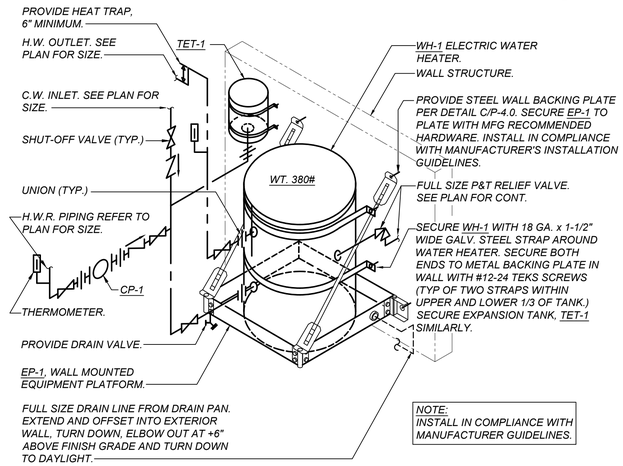
SCALE: NONE



WALL CLEANOUT

D P-4.0

SCALE: NONE

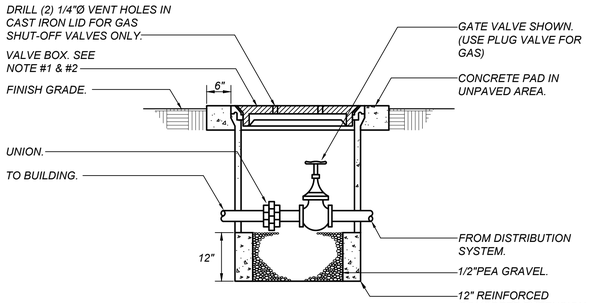


NOTE:
INSTALL IN COMPLIANCE WITH MANUFACTURER GUIDELINES.

WATER HEATER DETAIL

E P-4.0

SCALE: NONE



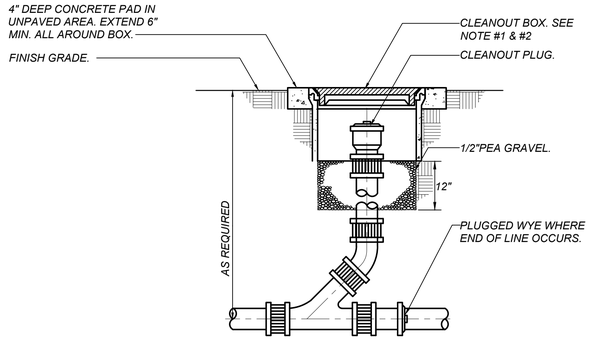
NOTE:
1. ALL SHUT-OFF VALVE BOXES WITHIN 10'-0" OF EACH OTHER SHALL BE LINED UP WITH EACH OTHER AND PARALLEL TO SIDEWALK OR BUILDING WALL.

2. FOR FOOT TRAFFIC AREAS, PROVIDE CHRISTY B03 BOX WITH CAST IRON LID. FOR ROADWAYS, PROVIDE H20 RATED CHRISTY BOX G05 OR LARGER AS NECESSARY WITH H20 CAST IRON LID. REFER TO FLOOR PLAN FOR LOCATION. LABEL LID W/VALVE USE (GAS OR WATER).

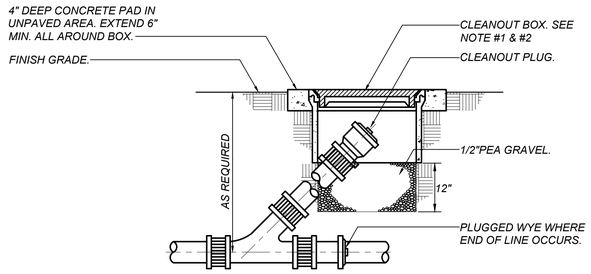
SHUT-OFF VALVE IN BOX DETAIL

A P-4.0

SCALE: NONE



OPTION 1



OPTION 2

NOTE:
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2. FOR FOOT TRAFFIC AREAS, PROVIDE CHRISTY B03 BOX WITH CAST IRON LID MARKED FOR SERVICE. FOR ROADWAYS, PROVIDE H20 RATED CHRISTY BOX G05 OR LARGER AS NECESSARY WITH H20 CAST IRON LID MARKED FOR SERVICE. REFER TO FLOOR PLAN FOR LOCATION.

CLEANOUT TO GRADE DETAILS

B P-4.0

SCALE: NONE

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Sheet Content:

PLUMBING DETAILS

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

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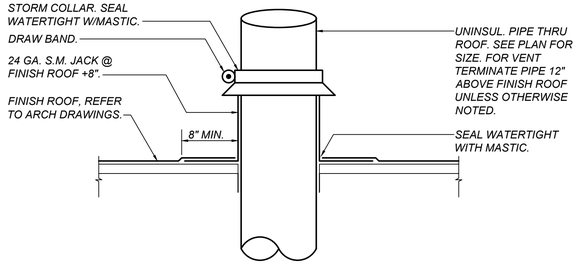
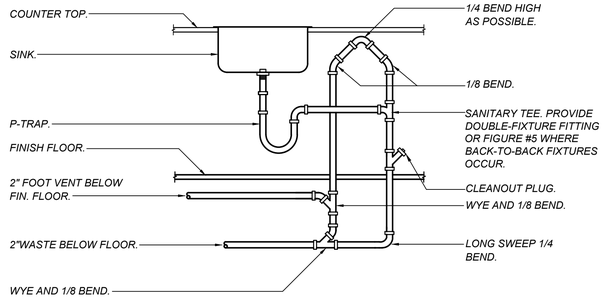
Plot Date: 2024-05-21



PIPE THRU ROOF DETAIL - UNINSULATED

B P-4.1

SCALE: NONE

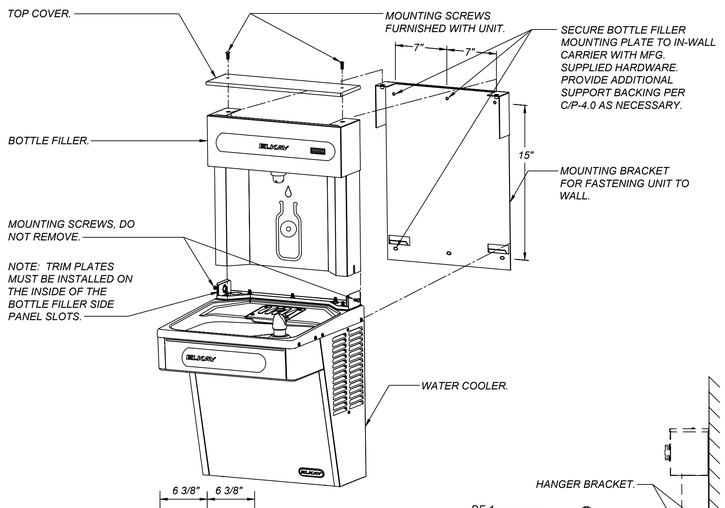


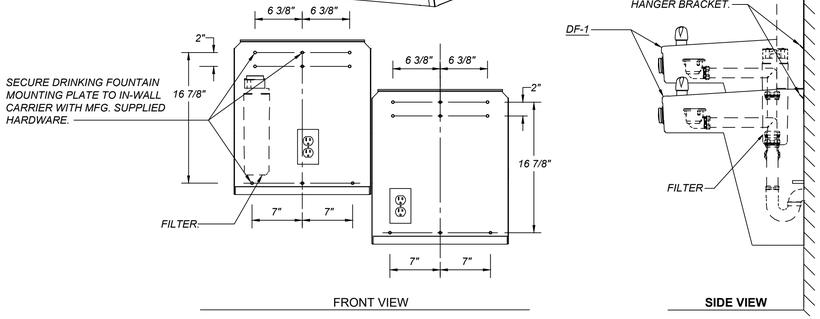
ISLAND VENT DETAIL

A P-4.1

SCALE: NONE

P144





ANCHORAGE DETAIL

NOTE: STANDARD TWO-LEVEL REVERSE CONFIGURATION SIMILAR. INSTALL IN COMPLIANCE WITH THE MANUFACTURER'S INSTALLATION GUIDELINES.

DRINKING FOUNTAIN / BOTTLE FILLER DETAIL

C P-4.1

SCALE: NONE

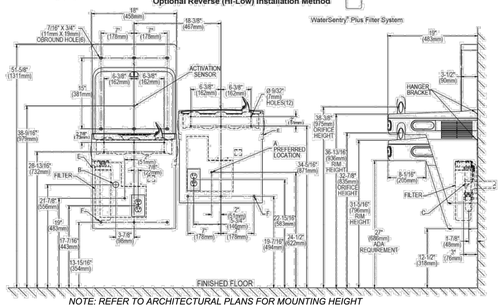
Model LZSTL8WSSP

IMPORTANT!
INSTALLER PLEASE NOTE :
This water cooler has been designed and built to provide water to the user which has not been altered by materials in the cooler waterways. The grounding of electrical equipment such as telephone, computer, etc. to water lines is a common procedure. The grounding may be in the building but may also occur away from this building. This grounding can cause electrical feedback into a water cooler creating an electrolysis, which creates a metallic taste or causes an increase in the metal content of the water. This condition is avoidable by installing the cooler using the proper materials as shown below :

NOTICE
This water cooler must be connected to the water supply using a dielectric coupling. The cooler is furnished with a non-metallic strainer which meets this requirement. The drain trap which is provided by the installer should also be plastic to completely isolate the cooler from the building plumbing system.
Bottle filler unit on bracket attached to wall by 6 holes (as shown). Water and electrical will connect through pre-punched hole in basin.

OPERATION OF QUICK CONNECT FITTINGS:
Simply push in tube to attach
Tube is secured in position
Push in collet to release tube
Pushing tube in before pulling it out helps to release tube

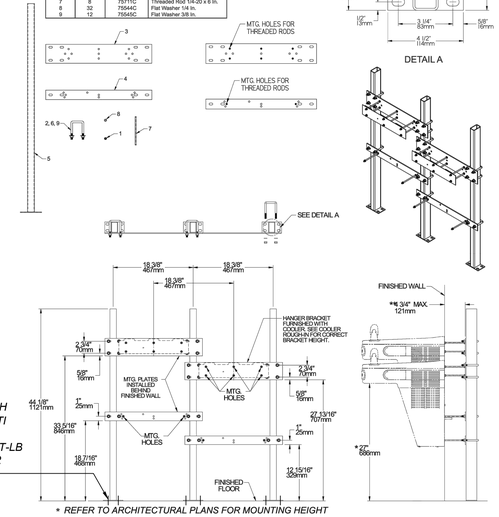
Optional Reverse (Hi-Low) Installation Method



NOTE: REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHT

LEGEND:
A = Recommended Water Supply location. Shut-off Valve (not furnished) to accept 3/8" O.D. unplated copper tube. Up to 3" (76mm) maximum out from wall.
B = Recommended Waste Outlet location. To accommodate 1-1/2" nominal drain. Drain stub 2" (51mm) out from wall.
C = 1-1/2" Trap (not furnished).
D = Electrical Supply (3) Wire Recessed Box Duplex Outlet.
E = Insure proper ventilation by maintaining 6" (152mm) minimum clearance from cabinet louvers to wall.
F = 7/16" (11mm) Bolt Holes for fastening to wall.
Note : New Installations Must Use Ground Fault Circuit Interrupter (GFCI).

ITEM NO.	QTY.	PART NO.	DESCRIPTION
1	32	110041663890	Hex Nut 1/4-20
2	12	110175443890	Hex Nut 3/8-16
3	1	28779C	Upper Mounting Plate
4	1	28780C	Lower Mounting Plate
5	2	28781C	Support Column Assy.
6	6	75707C	U-Bolt 3/8-16 UNC 2A
7	8	75711C	Threaded Rod 1/4-20 x 6 In.
8	32	75544C	Flat Washer 1/4 In.
9	12	75545C	Flat Washer 3/8 In.



* REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHT

SECURE TO CONCRETE WITH STAINLESS STEEL 3/8"Ø HILTI KB-TZ2 ANCHOR W/ 2-1/2" NOMINAL EMBEDMENT, 30 FT-LB INSTALLATION TORQUE PER ESR-4266. TYPICAL.

** WITH STANDARD STUD LENGTH OF 6 INCHES.
NOTE - AFTER INSTALLATION, U-BOLTS AND THREADED RODS MAY NEED TO BE TRIMMED.

For Technical Service, please contact us at 1.800.476.4106
ROUGH-IN FOR LEFT-HAND HIGH SIDE INSTALLATION SHOWN. MIRROR FOR RIGHT-HAND HIGH SIDE.

In-wall Carrier for Bi-level On-wall Bottle Fillers Coolers & Fountains
Model(s) MLP200

DETAIL A

REGISTERED PROFESSIONAL ENGINEER
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Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\5 P\P-4.0 Plumbing Details

Sheet Content:

PLUMBING DETAILS

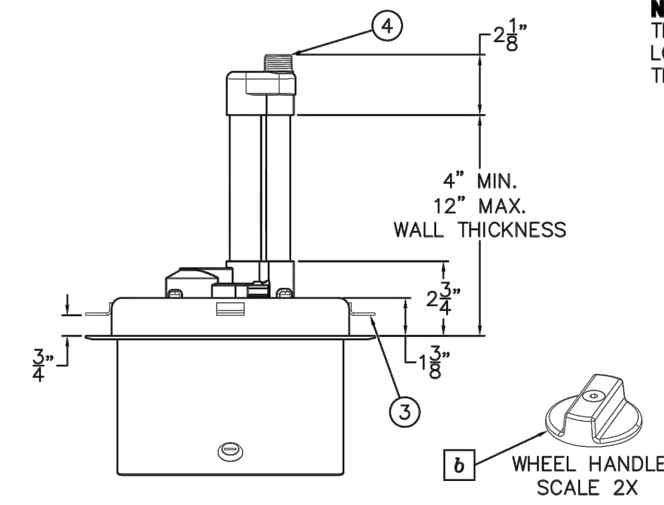
Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

P-4.1

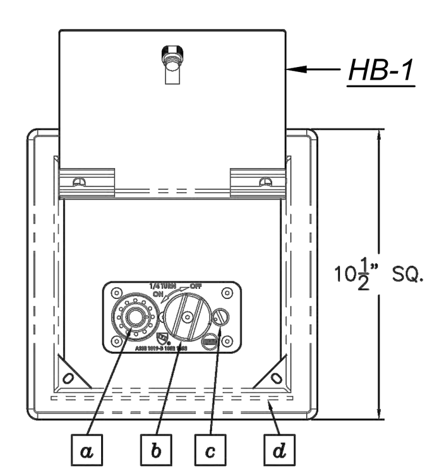
Sheet of

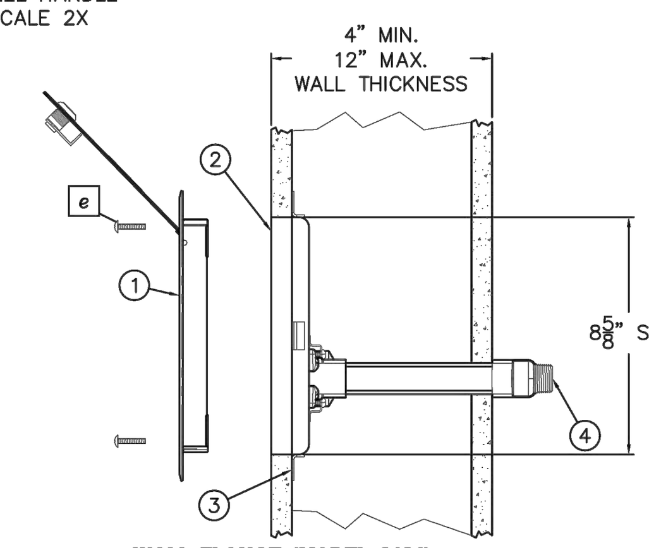
Plot Date: 2024-05-21



NOTE:
THE HYDRANT MUST BE ORDERED WITH A CASING LONG ENOUGH TO LOCATE THE VALVE SEAT INSIDE THE HEATED AREA.

- a INTEGRAL VACUUM BREAKER WITH 3/4" HOSE CONNECTION.
- b 1/4 TURN WHEEL HANDLE WITH 5/16" SQUARE OPENING TO ACCOMMODATE SQUARE VALVE STEM.
- c SCREWDRIVER STOP.
- d GRAY FOAM WEATHERSTRIPPING TAPE.
- e STAINLESS STEEL #10–32 UNF x 1" LONG WALL FLANGE / DOOR ANCHORING SCREWS.





WALL FLANGE (MODEL 8161)
DOOR FRAME SHOWN (MODEL 8160)

NOTE: MAXIMUM RECOMMENDED WORKING WATER PRESSURE IS 125 PSI; MAXIMUM TEMPERATURE IS 140° F.

WARNING: PRIOR TO MAKING INSTALLATION, SUPPLY LINES MUST BE FLUSHED OF ALL FOREIGN MATERIAL SUCH AS PIPE DOPE, CHIPS, SOLDER, ETC.

INSTALLATION INSTRUCTIONS:

A– REMOVE THE WALL FLANGE OR DOOR FRAME ① FROM THE BOX ②.

B– SELECT RECESSED MOUNTING LOCATION WITH THE VALVE SEAT POSITIONED IN AN AREA NOT SUBJECT TO FREEZING AND BLOCK OUT AND/OR PROVIDE ADEQUATE WALL BACKING OR FRAMING BY OTHERS.

C– USING MOUNTING TABS ③, POSITION AND SECURE THE BOX TO THE STUD FRAMING OR WALL BACKING WITH THE BOX OPENING FLUSH WITH THE FINISHED WALL. PLUMB AND LEVEL AS REQUIRED.

D– MAKE UP SUPPLY CONNECTIONS TO VALVE INLET ④ 3/4" NPT MALE or 1/2" NPT FEMALE AND TEST FIXTURE FOR LEAKS AND OPERATION.

E– INSTALL WALL FLANGE OR DOOR FRAME ① TO THE RECESSED BOX ② TO COMPLETE THE INSTALLATION.

ACORN ENGINEERING COMPANY P.O. BOX 3527 Industry, CA 91744 15125 Proctor Ave Industry, CA 91746 (626) 336-4561 FAX (626) 961-2200	TITLE **8160 SERIES RECESSED HOSE BOX**		
11/84	MANUFACTURE DATE **APRIL 2012** **TO PRESENT**	DATE ISSUED **01/28/13** DATE REVISED **06/20/13**	DRAWING NUMBER **9901-021-001**

HOSE BIBB DETAIL (HB-1)

SCALE: NONE

B / P-4.2

PIPE SUPPORT SPACING AND ROD DIAMETER

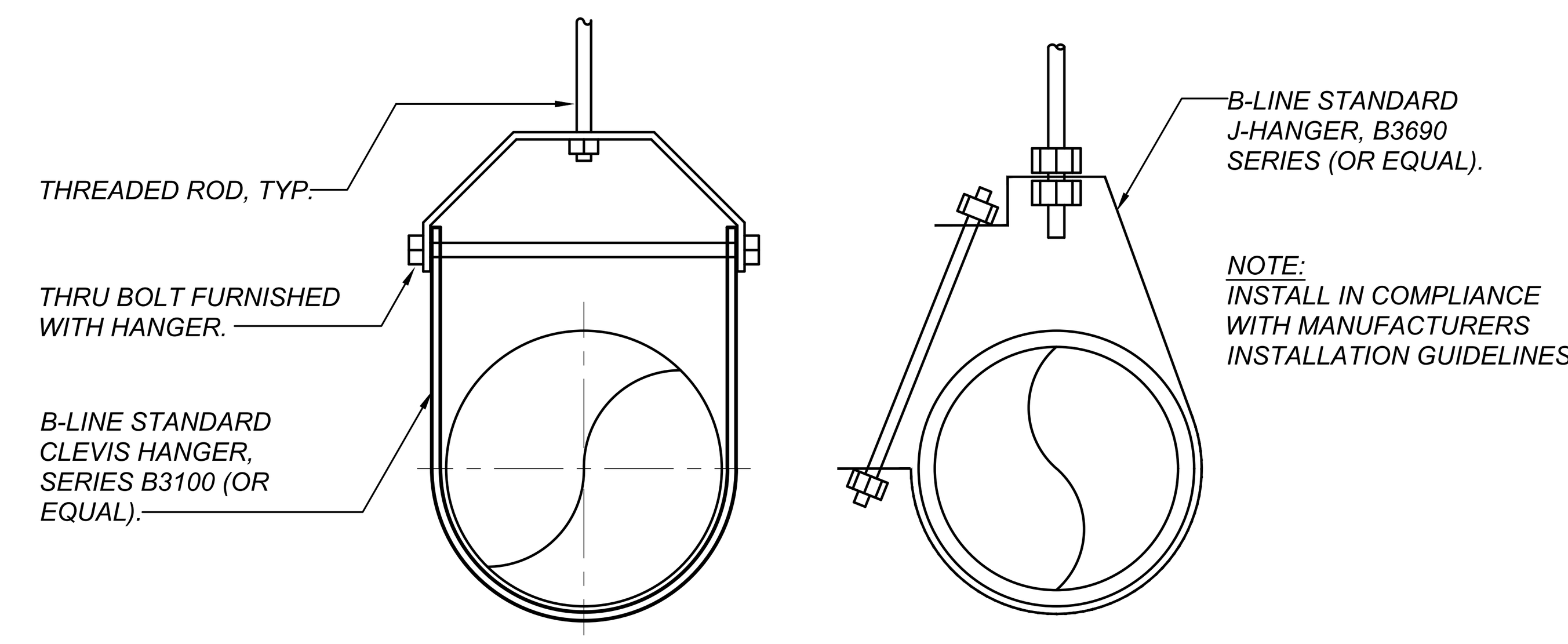
Pressure Pipe:

Pipe Size (Inches)	Threaded Rod Size (Inches)	Copper	Maximum Spacing* Between Supports (ft.) Sch. 40 steel
1/2"	3/8"	6	6
3/4"	3/8"	6	8
1"	3/8"	6	8
1-1/4"	3/8"	6	10
1-1/2"	3/8"	6	10
2"	3/8"	10	10
3"	3/8"	10	10

Notes:
**Based on straight lengths of pipe with couplings only. Provide additional supports for equipment, valves or other fittings. Seismic requirements may reduce maximum spacing.*

Gravity Drain Pipe: Piping shall be supported at each length of pipe or fitting, but in no case at greater spacing than indicated above for pressure pipe.

General: Hangers shall be placed to support piping without strain on joints or fittings. Maximum spacing between supports shall be as specified above. Actual spacing requirements will depend on structural system. Vertical piping shall be supported with riser clamp at 20' on center (maximum). Support pipe within 12" of all changes in direction. Support individual pipes with pipe hanger.



NOTES:
A. FOR ADDITIONAL NOTES FOR PIPING SUPPORTS AND SPACING, REFER TO SPECIFICATION 22 04 00, PART 2.1, E.1 "PRODUCTS - PIPING MATERIALS - MISCELLANEOUS PIPING ITEMS - PIPE SUPPORT" AND SECTION 22 04 00, PART 3.1, "EXECUTION - PIPING INSTALLATION."

B. FOR ATTACHMENT DETAILS, REFER TO FIRE SPRINKLER DRAWINGS.

PIPE HANGER DETAIL

SCALE: NONE

A / P-4.2

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REN: 11-30-25
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ARCHITECT:
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2220 Tulare Street, 8th Floor
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THE COUNTY OF FRESNO 1856

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Plot Date: 2024-05-21

AIR CONDITIONING LEGEND

SYMBOL	ITEM	ABBR
	ROUND DUCT	Ø
	FLAT OVAL DUCT	
	SHEET METAL DUCT	—
	ACOUSTIC LINING FOR DUCT OR GRILLES	(L)
	DUCT W/EXT INSULATION & GALV. SM SUNSHIELD	—
	SUPPLY AIR DUCT DROP	—
	RETURN AIR DUCT DROP	—
	EXHAUST DUCT AIR DROP	—
	SUPPLY AIR DUCT RISE	—
	RETURN AIR DUCT RISE	—
	EXHAUST AIR DUCT RISE	—
	TURNING VANES	TV
	EXTRACTOR	—
	VOLUME CONTROL DAMPER W/LOCKING QUADRANT	VCD
OBD	OPPOSED BLADE DAMPER	OBD
BDD	BACKDRAFT DAMPER	BDD
VCR	VOLUME CONTROL DAMPER W/ REMOTE REGULATOR	VCR
F/SD	FIRE/SMOKE DAMPER WITH ACCESS PANEL	F/SD
FD	FIRE DAMPER WITH ACCESS PANEL	FD
SD	SMOKE DAMPER WITH ACCESS PANEL	SD
CFM	CUBIC FEET OF AIR PER MINUTE	CFM
M	EMS MOTORIZED DUCT DAMPER/ PIPE VALVE ACTUATOR	—
T	THERMOSTAT @ +4'-0" TOP OF BOX	T'STAT
H	HUMIDISTAT @ +4'-0" TOP OF BOX	H'STAT
C	CO_2 SENSOR @ +4'-0" TOP OF BOX	CO_2
T	EMS TEMPERATURE SENSOR @ +4'-0" TOP OF BOX	—
H	EMS HUMIDITY SENSOR @ +4'-0" TOP OF BOX	—
C	EMS CO_2 SENSOR @ +4'-0" TOP OF BOX	CO_2
SP	EMS STATIC PRESSURE SENSOR	SP
DP	EMS DIFFERENTIAL PRESSURE SENSOR	DP
CS	EMS CURRENT SENSOR	CS
	DIRECTION OF FLOW	—
	SUPPLY AIR	SA
	RETURN AIR	RA
	EXHAUST AIR	EA
	OUTSIDE AIR	OSA
	PIPE/DUCT TURN DOWN	—
	PIPE/DUCT TURN UP	—
	POINT OF CONNECTION	POC
	EXISTING (DESIGNATED)	(E)
	NEW (DESIGNATED)	(N)
SD	DUCT SMOKE DETECTOR	SD
A/V	AUDIBLE/VISUAL ALARM	A/VA
	BYPASS TIMER	BPT
EMS	ENERGY MANAGEMENT SYSTEM CABLE IN CONDUIT	EMS

GENERAL MECHANICAL NOTES:

1. THE INTENT OF THE DRAWING AND SPECIFICATIONS IS TO CONSTRUCT THE BUILDING IN ACCORDANCE WITH THE 2022 EDITION OF TITLE 24, CALIFORNIA CODE OF REGULATIONS. CHANGES TO THE STRUCTURAL, ACCESSIBILITY OR FIRE AND LIFE-SAFETY PORTIONS OF THE APPROVED PLANS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR CONSTRUCTION CHANGE DOCUMENT AS REQUIRED IN SECTION 4-338, PART 1, TITLE 24, CCR, AND SHALL BE SUBMITTED TO AND APPROVED BY AHJ PRIOR TO COMMENCEMENT OF THE WORK.
2. LAYOUT OF MATERIALS, EQUIPMENT AND SYSTEMS IS GENERALLY DIAGRAMMATIC UNLESS SPECIFICALLY DIMENSIONED. SOME WORK MAY BE SHOWN OFFSET FOR CLARITY. THE HVAC BUILDING PLANS HAVE BEEN PREPARED TO MATCH THE ARCHITECTURAL PLANS. IF DIFFERENCES OCCUR, THE ARCHITECTURAL PLANS ARE TO TAKE PRECEDENCE. THE ACTUAL LOCATIONS OF ALL MATERIALS, PIPING, DUCTWORK, FIXTURES, EQUIPMENT, SUPPORTS, ETC. SHALL BE CAREFULLY PLANNED, PRIOR TO INSTALLATION OF ANY WORK TO AVOID ALL INTERFERENCES WITH EACH OTHER, OR WITH STRUCTURAL, ELECTRICAL, ARCHITECTURAL, OR OTHER ELEMENTS. ALL DUCT AND PIPE OFFSET ELBOWS FOR COORDINATION BETWEEN TRADES ARE NOT SHOWN. CONTRACTOR SHALL INCLUDE SUFFICIENT FUNDS FOR THE COORDINATION OFFSETS IN THE BID. VERIFY THE PROPER VOLTAGE AND PHASE OF ALL EQUIPMENT WITH THE ELECTRICAL PLANS. ALL CONFLICTS SHALL BE CALLED TO THE ATTENTION OF THE ARCHITECT AND THE ENGINEER PRIOR TO THE INSTALLATION OF ANY WORK OR THE ORDERING OF ANY EQUIPMENT.
3. PENETRATIONS OF PIPES, CONDUITS, ETC. IN WALLS OR FLOORS REQUIRING PROTECTED OPENINGS SHALL BE FIRE STOPPED INCLUDING EXISTING PIPE AND CONDUIT THROUGH NEW WALLS AND FLOORS. SEE DETAIL H/M3.0.
4. ALL PIPING, DUCTWORK AND CONDUIT REQUIRING SEISMIC BRACE AND SUPPORT SHALL BE SUPPORTED PER MASON INDUSTRIES, INC. "SEISMIC RESTRAINT COMPONENTS FOR SUSPENDED UTILITIES", HCAI (OSHPD) PREAPPROVED ANCHORAGE OPM-0043-13 OR OTHER HCAI (OSHPD) PREAPPROVED SYSTEM.
5. WHEN INSTALLING DRILLED-IN ANCHORS AND/OR POWDER-DRIVEN PINS IN EXISTING NON-PRESTRESSED CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. WHEN INSTALLING THEM INTO EXISTING PRESTRESSED CONCRETE (PRE-OR POST-TENSIONED), LOCATE THE PRESTRESSED TENDONS BY USING A NON-DESTRUCTIVE METHOD PRIOR TO INSTALLATION. EXERCISE EXTREME CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE TENDONS DURING INSTALLATION. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR AND/OR PIN.
6. ALL PERMANENT EQUIPMENT AND COMPONENTS:
   A. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER.
   B. 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.
7. DUCTWORK SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS. WHERE ACOUSTIC LINING IS SHOWN, INCREASE EACH SHEET METAL DIMENSION TO ACCOMMODATE LINING & MAINTAIN CLEAR INSIDE DUCT DIMENSIONS SHOWN.
8. WHEN A FIRE ALARM SYSTEM IS PRESENT AND THE TOTAL COMBINED CFM FOR ALL HVAC UNITS IN A BUILDING IS IN EXCESS OF 2000, DETECTION OF SMOKE IN ONE OF THE DUCT DETECTORS SHALL SHUTOFF THE POWER SOURCE TO ALL THE UNITS PER FDD POLICY 407.004. (F1)

INDOOR UNIT (IDU) SCHEDULE

DESIGNATION		IDU 1A	IDU 1B	IDU 2	IDU 3
BLOWER	SUPPLY AIR (CFM)	750	750	750	1,000
	EXT. S P (IN. WC)	0.4"	0.4"	0.4"	0.4"
	MCA/MOCP	2.88 / 15	2.88 / 15	2.88 / 15	4.25 / 15
	FLA (AMPS)	1.24	1.24	1.24	2.01
	VOLTS/PHASE	208 / 1	208 / 1	208 / 1	208 / 1
	SEER / EER	-	-	-	-
COOLING	SENSIBLE (MBH)	30.0	30.0	30.0	36.0
	TOTAL (MBH)	30.0	30.0	30.0	36.0
	EADB/EAWB (°F)	80/67	80/67	80/67	80/67
	REFRIGERANT	R410a	R410a	R410a	R410a
HEATING	CAPACITY (MBH) @47°F	34.0	34.0	34.0	40.0
	COP	-	-	-	-
	STAGES	-	-	-	-
FILTER	QUANTITY/SIZE	1 / FACTORY	1 / FACTORY	1 / FACTORY	1 / FACTORY
	TYPE	FACTORY	FACTORY	FACTORY	FACTORY
	P D (IN. WC)	-	-	-	-
MANUFACTURER		TRANE MITSUBISHI	TRANE MITSUBISHI	TRANE MITSUBISHI	TRANE MITSUBISHI
TYPE		DUCTED	DUCTED	DUCTED	DUCTED
MODEL NUMBER		TPEFYP030MA144A	TPEFYP030MA144A	TPEFYP030MA144A	TPEFYP036MA144A
CONDENSING UNIT		ODU-1	ODU-1	ODU-2	ODU-3
LOCATION		EDUCATION RM	EDUCATION RM	GENERAL OFFICE	STORAGE
OPER. WT (LBS.)		67	67	67	84
ACCESSORIES		1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4	1, 2, 3, 4

1. INTEGRATE CONDENSATE LIFT PUMP OVERFLOW SWITCH FOR UNIT SHUT DOWN, AND FAULT ALARM TO EMS.
2. PROVIDE STANDALONE TEMPERATURE SENSOR FOR TEMPERATURE MONITORING AT EMS, EMS SHALL ALARM ANYTIME SPACE TEMPERATURE REACHES ABOVE 78°F (ADJ.)
3. PROVIDE WITH MERV 13 FILTER AND FACTORY FILTER BOX AT UNIT RETURN.
4. PROVIDE DUCT SMOKE DETECTOR IN MAIN SUPPLY. A SMOKE DETECTOR SHALL BE PROVIDED IN THE MAIN SUPPLY AIR DUCT FOR EACH HVAC UNIT TO SHUTOFF THE POWER SOURCE OF THE UNIT UPON THE DETECTION OF SMOKE WHEN THE TOTAL CFM IN EXCESS OF 2,000 (CMC609.1). (F1)

TITLE 24 ACCEPTANCE TESTING TABLE

DESIGNATION		IDU 1A	IDU 1B	IDU 2	IDU 3
FORM / TITLE	NRCA-MCH-02-A OUTDOOR AIR.	X	X	X	X
	NRCA-MCH-03-A CONSTANT VOLUME SINGLE ZONE HVAC.	X	X	X	X
	NRCA-MCH-04-A AIR DISTRIBUTION DUCT LEAKAGE.				
	NRCA-MCH-05-A AIR ECONOMIZER CONTROLS.				
	NRCA-MCH-06-A DEMAND CONTROL VENTILATION SYSTEMS.				
	NRCA-MCH-07-A SUPPLY FAN VARIABLE FLOW CONTROLS.				
	NRCA-MCH-08-A VALVE LEAKAGE TEST.				
	NRCA-MCH-09-A SUPPLY WATER TEMPERATURE RESET CONTROLS.				
	NRCA-MCH-10-A HYDRONIC SYSTEM VARIABLE FLOW CONTROLS.				
	NRCA-MCH-11-A AUTOMATIC DEMAND SHED CONTROLS.				
	NRCA-MCH-12-A FDD FOR PACKAGED DIRECT EXPANSION UNITS.				
	NRCA-MCH-13-A AUTOMATIC FDD FOR AIR HANDLING UNITS AND ZONE TERMINAL UNITS.				
	NRCA-MCH-14-A DISTRIBUTED ENERGY STORAGE DX AC SYSTEMS.				
	NRCA-MCH-15-A THERMAL ENERGY STORAGE (TES) SYSTEM.				
	NRCA-MCH-16-A SUPPLY AIR TEMPERATURE RESET CONTROLS.				
	NRCA-MCH-17-A CONDENSER WATER TEMPERATURE RESET CONTROLS.				
	NRCA-MCH-18-A ENERGY MANAGEMENT CONTROL SYSTEMS.				
	NRCA-MCH-19-A OCCUPANCY SENSOR CONTROLS.				
	NRCA-MCH-20 MULTI-FAMILY VENTILATION.				
	NRCA-MCH-21 MULTI-FAMILY ENVENLOPE LEAKAGE.				
	NRCA-MCH-22-A MF DUCT LEAKAGE.				
	NRCA-MCH-23-A MF HRV/ERV VERIFICATION.				

1. REFER TO TITLE-24 DOCUMENTS FOR ADDITIONAL INFORMATION.
2. NRCA MUST BE SUMBITTED AND COMPLETED BY A CERTIFED ACCEPTANCE TEST TECHNICIAN TO COMPLY WITH CALIFORNIA ENERGY CODE.
3. SUBMIT ACCEPTANCE FORMS TO PROJECT INSPECTOR & MEOR FOR REVIEW.

GRILLE SCHEDULE

MARK	DUTY	DESCRIPTION
A	CEILING SUPPLY	TITUS TMS (TYPE 3) ROUND NECK DIFFUSER FOR STD. LAY-IN T-BAR CEILING, FLAT BLACK INTERIOR, AND NO. 26 OFF-WHITE FINISH.
B	CEILING SUPPLY	TITUS MCD (TYPE 1) MODULAR CAORE RECTANGULAR NECK DIFFUSER FOR SURFACE MOUNTING, FLAT BLACK INTERIOR, AND NO. 25 OFF-WHITE FINISH.
C	CEILING RETURN OR EXHAUST	TITUS CORE 50F (TYPE 3) ALUMINUM EGG CRATE REGISTER WITH 1/2" x 1/2" GRID, FOR LAY-IN CEILING, AND NO. 26 OFF-WHITE FINISH.
D	CEILING RETURN OR EXHAUST	TITUS CORE 50F (TYPE 1) ALUMINUM EGG CRATE REGISTER WITH 1/2" x 1/2" GRID, FOR SURFACE MOUNTING WITH NO. 26 OFF-WHITE FINISH.
E	INTAKE LOUVER	TITUS 4FL 45° FIXED DEFLECTION WITH 1/2" BLADE SPACING, BLADES PARALLEL TO LONG DIMENSION, WITH O.B.D., AND NO. 26 OFF-WHITE FINISH.
F	EXHAUST LOUVER	TITUS 4FL 45° FIXED DEFLECTION WITH 1/2" BLADE SPACING, BLADES PARALLEL TO LONG DIMENSION, AND NO. 26 OFF-WHITE FINISH.

EXHAUST FAN SCHEDULE

DESIGNATION	EF 1	EF 2	EF 3	EF 4
CFM	500	125	125	200
EXT. S.P. (IN. WC)	0.3	0.2	0.2	0.3
HP / BHP	0.25 / 0.04	20.4 W / -	20.4 W / -	43 W / -
VOLTS / PHASE	208 / 1	115/1	115/1	115/1
MCA / MOP (AMPS)	4 / 15	-	-	-
FLA (AMPS)	2.85	0.19	0.19	0.46
RPM	982	1100	1100	837
TIP SPEED/ SONES	2876 / 3.5	- / 0.6	- / 0.6	- / 1.5
DRIVE	DIRECT	DIRECT	DIRECT	DIRECT
MOUNTING	IN-LINE DUCT	CEILING	CEILING	CEILING
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK
TYPE	IN-LINE	CEILING	CEILING	CEILING
MODEL NUMBER	SQ-100-VG	SP-A125	SP-A125	SP-A200
CONTROL	SEE SPECS	SEE SPECS	SEE SPECS	SEE SPECS
LOCATION	EDUCATION RM	UNISEX	UNISEX	BREAK RM
OPER. WT. (LBS)	50	30	30	32
ACCESSORIES	1,2,3	2,4	2,4	2,5

1. VARI-GREEN EC MOTOR WITH DIAL FOR BALANCING.
2. BACKDRAFT DAMPER AT EXTERIOR DISCHARGE.
3. INTERLOCK FAN CONTROL WITH IDU 1A&1B
4. INTERLOCK FAN CONTROL WITH IDU 2
5. INTERLOCK FAN CONTROL WITH IDU 3

OUTDOOR UNIT (ODU) SCHEDULE

DESIGNATION	ODU 1	ODU 2	ODU 3
COOLING CAPACITY (MBH)	60.0	36.0	36.0
HEATING CAPACITY (MBH)	65.0	42.0	42.0
NOMINAL TONS	5.0 TONS	3.0 TONS	3.0 TONS
VOLTS/PHASE	208-230/1	208-230/1	208-230/1
FLA	20.6	20.2	20.2
MCA / MOCP	36 / 50	29 / 40	29 / 40
SEER / EER / HSPF (AT ARI)	17.8 / 11.1 / 10.7	18.3 / 12.6 / 11.2	18.3 / 12.6 / 11.2
AMBIENT (°F)	105	105	105
REFRIG. LINE SIZE			
LIQUID (IN.OD)	3/8	3/8	3/8
GAS (IN. OD)	3/4	5/8	5/8
REFRIG. TYPE	410a	410a	410a
MANUFACTURER	TRANE MITSUBISHI	TRANE MITSUBISHI	TRANE MITSUBISHI
TYPE	HEAT PUMP	HEAT PUMP	HEAT PUMP
MODEL NUMBER	NTXMSM60A182AA	NTXMSM36A142AA	NTXMSM36A142AA
SERVICE	IDU-1A & 1B	IDU-2	IDU-3
OPER. WT (LBS)	302	271	271
ACCESSORIES	1	1	1

1. BACNET ENABLED.

(F1) FRESNO FIRE DEPT. PLAN CHECK 2024–03–07

REGISTERED PROFESSIONAL ENGINEER RICHARD D. CAMPBELL No. M43588 Exp. 9-30-25 MECHANICAL STATE OF CALIFORNIA

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ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
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Sheet Content:

HVAC NOTES, LEGEND & SCHEDULES

Fresno County Department of Public Works and Planning
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2220 Tulare Street, 8th Floor
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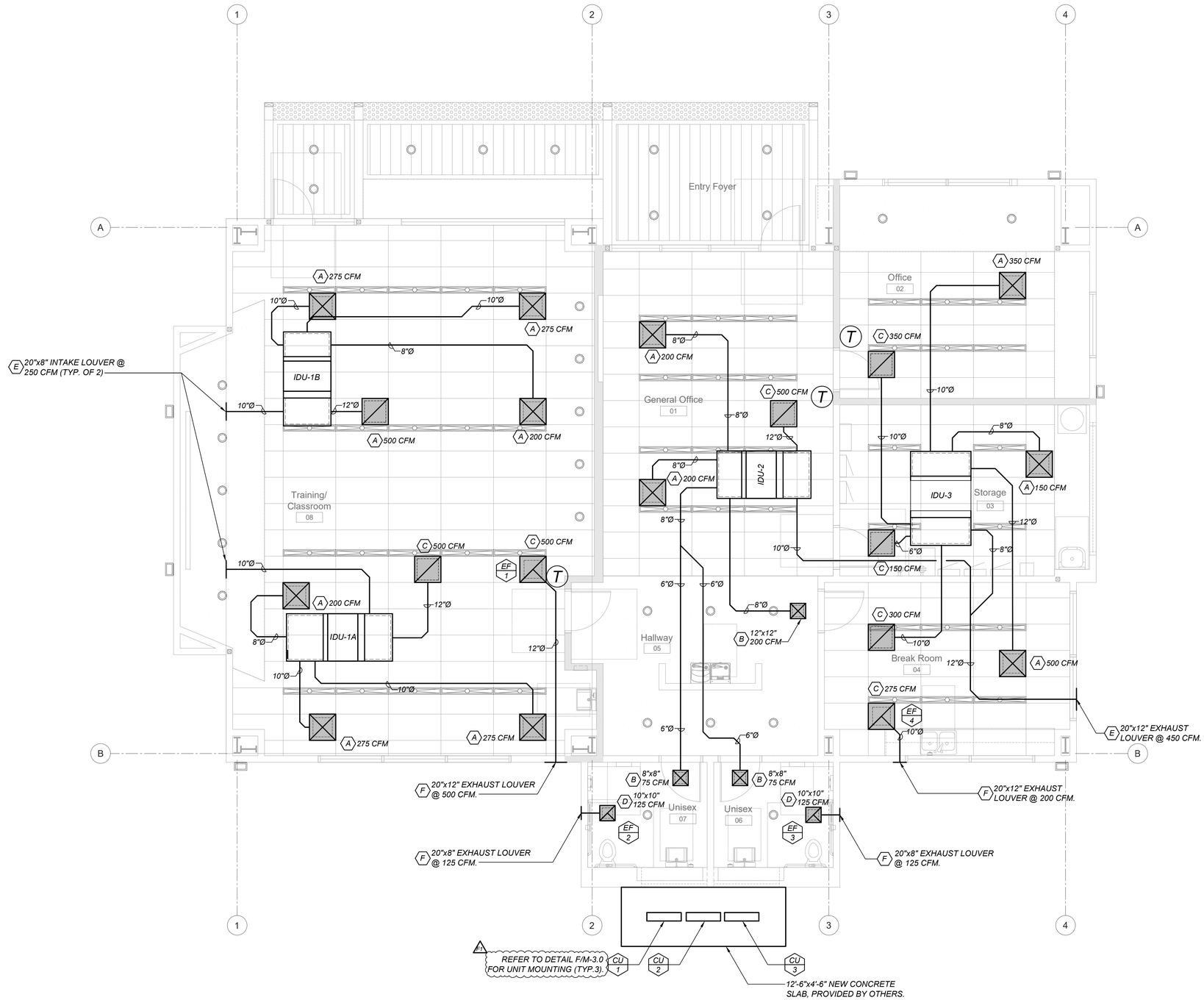

HVAC Floor Plan - Duct

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

GENERAL NOTES

REFER TO ARCHITECTURAL EXTERIOR ELEVATION FOR LOCATIONS OF THE EXHAUST LOUVERS.

REFER TO ARCHITECTURAL SITE PLAN FOR LOCATIONS OF THE MECHANICAL OUTDOOR UNITS

F1 FRESNO FIRE DEPT. PLAN CHECK 2024-03-07

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ARCHITECT:
Zahidul Hoque Khan, Architect
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Sheet Content:

HVAC FLOOR PLAN - DUCT

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Sheet No.:

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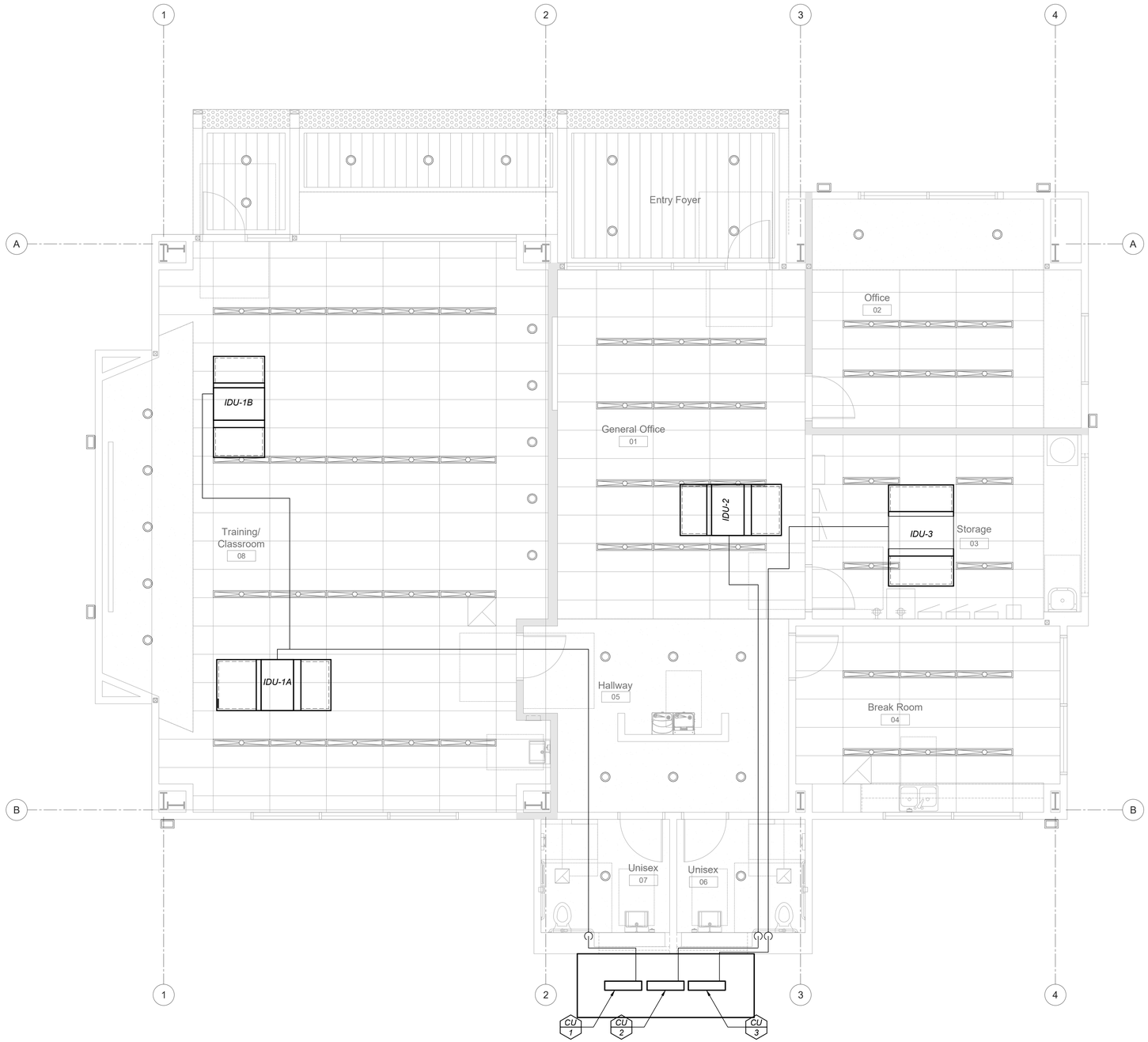
Plot Date: 2024-05-20

20 May 2024 9:34 AM P:\2023\23139 Fresno County ECC Education Building\4-Drawings\4 M\M-2.0 HVAC Floor Plan - Duct.dwg matthew



SHEET NOTES:

1. *REFER TO SHEET M-2.2, VRF PIPING DIAGRAMS FOR SIZES AND CONNECTIONS.*

HVAC Floor Plan - VRF Piping

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

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Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-20
Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\4 M\M-2.1 HVAC Floor Plan - VRF Piping

Sheet Content:

HVAC FLOOR PLAN - VRF PIPING

Fresno County Department of Public Works and Planning
Capital Projects

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Fresno, California 93721

THE COUNTY OF FRESNO 1856

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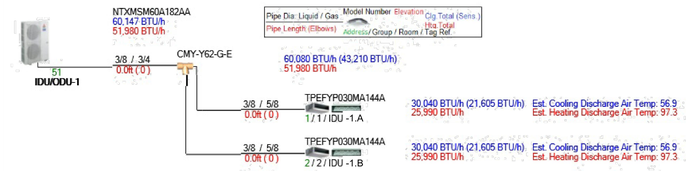
Plot Date: 2024-05-20

Design View Piping Diagrams



HVAC - VRF DIAGRAMS

Scale: NONE

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Sheet Content:

HVAC - VRF DIAGRAMS

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Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO

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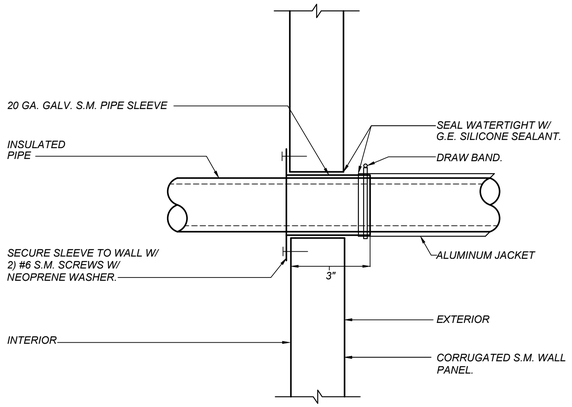
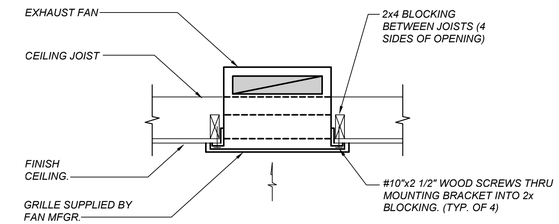


PIPE THRU EXTERIOR WALL DETAIL

H / M-3.0

SCALE: NONE

MP031

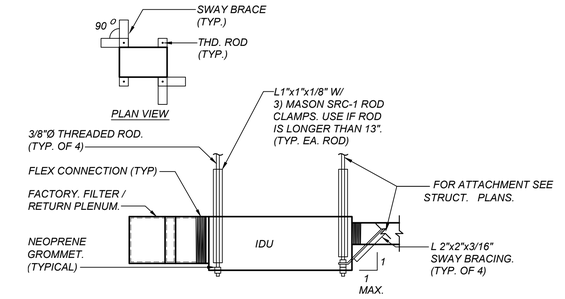


CEILING EXHAUST FAN MOUNTING DETAIL

D / M-3.0

SCALE: NONE

MM011

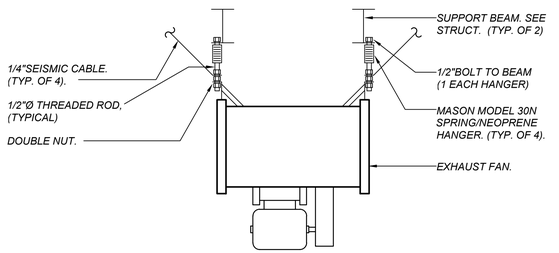


IDU MOUNTING DETAIL

A / M-3.0

SCALE: NONE

MM174

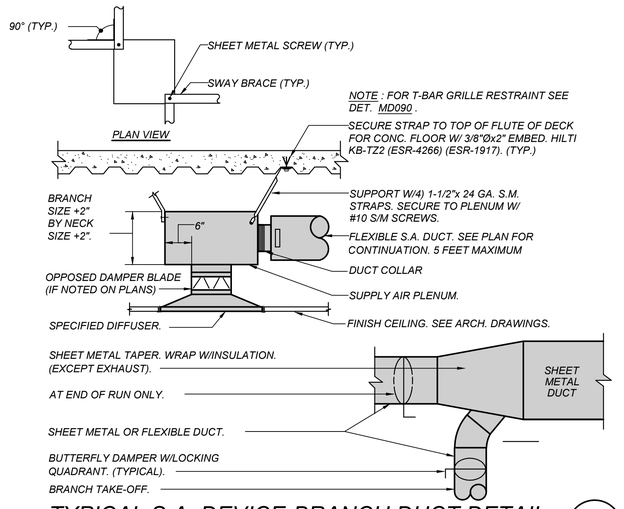


EXHAUST FAN MOUNTING DETAIL

E / M-3.0

SCALE: NONE

MM025

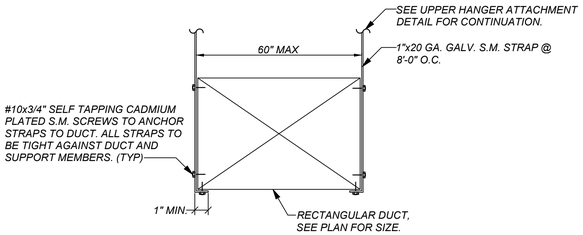


TYPICAL S.A. DEVICE-BRANCH DUCT DETAIL

B / M-3.0

SCALE: NONE

MD065

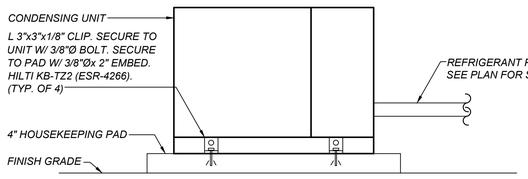


NOTE: THIS DETAIL IS FOR DUCTS SMALLER THAN 6 SQ. FT. CROSS AREA AND DO NOT REQUIRE LATERAL BRACING PER OPM-0052-13, SECTION 5.0.

RECTANGULAR DUCT HANGING DETAIL

J / M-3.0

SCALE: NONE

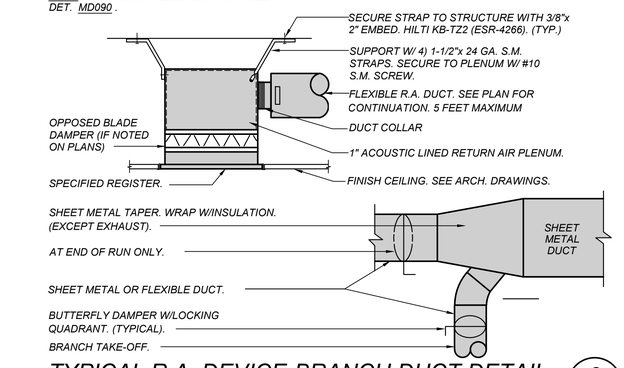


OUTDOOR UNIT MOUNTING DETAIL

F / M-3.0

SCALE: NONE

MM098



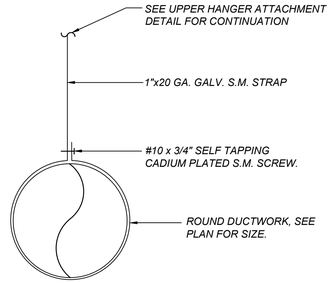
TYPICAL R.A. DEVICE-BRANCH DUCT DETAIL

C / M-3.0

SCALE: NONE

MD073

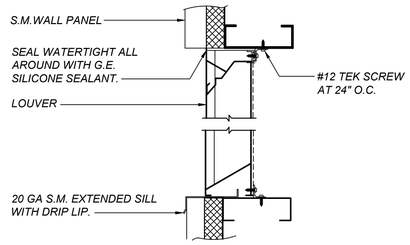
NOTE: DUCT SUPPORTS SHALL BE 10'-0" O.C. ALL DUCTS ARE LESS THAN 24"Ø AND DON'T REQUIRE DIAGONAL BRACING PER OPM-0052-13, SECTION 5.0.



ROUND DUCT HANGING DETAIL

K / M-3.0

SCALE: NONE



LOUVER MOUNTING DETAIL

G / M-3.0

SCALE: NONE

MM183

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Sheet Content:

HVAC DETAILS

Fresno County Department of Public Works and Planning
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CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 3 of 17)**

C1. COMPLIANCE SUMMARY

COMPLIES[3]

	Time Dependent Valuaton (TDV)		Source Energy Use
	Efficiency[1] (kBtu/ft² - yr)	**Total[2] (kBtu/ft² - yr)**	**Total[2] (kBtu/ft² - yr)**
Standard Design	267.26	267.26	20.71
Proposed Design	212.74	212.74	15.72
Compliance Margins	**54.52**	**54.52**	**4.99**
	Pass	**Pass**	**Pass**

[1] Efficiency measures include improvements like a better building envelope and more efficient equipment
[2] Compliance Totals include efficiency, photovoltaics and batteries
[3] Building complies when efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 2 of 17)**

B. PROJECT SUMMARY

Table B shows which building components are included in the performance calculation. If indicated as not included, the project must show compliance prescriptively if within the permit application.

Building Components Complying via Performance						Building Components Complying Prescriptively	
Envelope (See Table G)	Nonres	Performance	Solar Thermal Water Heating (See Table I3)	☐	Performance	The following building components are ONLY eligible for prescriptive compliance and should be documented on the NRCC form listed if within the scope of the permit application (i.e. compliance will not be shown on the NRCC-PRF-E).	
	MultiFam	Not Included		☒	Not Included		
Mechanical (See Table H)	Nonres	Performance	Covered Process: Commercial Kitchens (see Table J)	☐	Performance	Indoor Lighting (Unconditioned) 140.6 & 170.2(e)	NRCC-LTI-E is required
	MultiFam	Not Included		☒	Not Included	Outdoor Lighting 140.7 & 170.2(e)	NRCC-LTO-E is required
Domestic Hot Water (See Table I)	Nonres	Performance	Covered Process: Laboratory Exhaust (see Table J)	☐	Performance	Sign Lighting 140.8 & 170.2(e)	NRCC-LTS-E is required
	MultiFam	Not Included		☒	Not Included	**Building Components Complying with Mandatory Measures**	
Lighting (Indoor Conditioned, see Table K)	Nonres	Not Included	Photovoltaics (see Table F)	☒	Performance	Electrical power systems, commissioning, solar ready, elevator and escalator requirements are mandatory and should be documented on the NRCC form listed if applicable (i.e. compliance will not be shown on the NRCC-PRF-E.)	
	MultiFam	Not Included		☐	Not Included	Electrical Power Distribution 110.11	NRCC-ELC-E is required
			Battery (see Table F)	☐	Performance	Commissioning 120.8	NRCC-CXR-E is required
				☒	Not Included	Solar and Battery 110.10	NRCC-SAB-E is required

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 1 of 17)**

Project Name: Fresno county Educational Center — **Date Prepared:** 2024-01-15

A. General Information

1	Project Name	Fresno county Educational Center			
2	Run Title	Title 24 Analysis			
3	Project Location	1327 Dan Ronquillo Drive			
4	City	Fresno	**5**	Standards Version	Compliance 2022
6	Zip code	93706	**7**	Compliance Software (version)	EnergyPro 9.1
8	Climate Zone	13	**9**	Building Orientation (deg)	0
10	Building Type(s)	• Nonresidential	**11**	Weather File	FRESNO-YOSEMITE_STYP20.epw
12	Project Scope	• New envelope and mechanical	**13**	Number of Dwelling Units	0
14	Total Conditioned Floor Area in Scope (ft²)	2763	**15**	Total # of hotel/motel rooms	0
16	Total Unconditioned Floor Area (ft²)	0	**17**	Fuel Type	Natural gas
18	Nonresidential Conditioned Floor Area	2763	**19**	Total # of Stories (Habitable Above Grade)	1
20	Residential Conditioned Floor Area	0			

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 6 of 17)**

C4. SOURCE ENERGY COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual SOURCE Energy Use, kBtu/ft² /yr)

COMPLIES[2]

Energy Component	Standard Design (SOURCE)	Proposed Design (SOURCE)	Compliance Margin (SOURCE)[1]
Space Heating	1.63	1.7	-0.07
Space Cooling	4.85	5.31	-0.46
Indoor Fans	10.85	5.51	5.34
Heat Rejection	0	0	0
Pumps & Misc.	0	0	0
Domestic Hot Water	0.76	0.58	0.18
Indoor Lighting	2.62	2.62	0
Flexibility	---	---	---
EFFICIENCY COMPLIANCE TOTAL	**20.71**	**15.72**	**4.99 (24.1%)**
Photovoltaics	---	---	---
Batteries	---	---	---
TOTAL COMPLIANCE	**20.71**	**15.72**	**4.99 (24.1%)**

[1] Notes: This number in parenthesis following the Compliance Margin in column 4, represents the Percent Better than Standard.

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 5 of 17)**

C3. TDV ENERGY RESULTS FOR NON-REGULATED COMPONENTS[1]

Non-Regulated Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV)[1]
Receptacle	103.09	103.09	---
Process	94.49	94.49	---
Other Ltg	---	---	---
Process Motors	---	---	---
TOTAL (TOTAL COMPLIANCE + NON-REGULATED COMPONENTS)	**464.84**	**410.32**	**54.52 (11.7%)**

[1] Notes: This table is not used for Energy Code Compliance.

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 4 of 17)**

C2. TDV ENERGY COMPLIANCE RESULTS FOR PERFORMANCE COMPONENTS (Annual TDV Energy Use, kBtu/ft² - yr)

COMPLIES[2]

Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV)[1]
Space Heating	11.16	11.83	-0.67
Space Cooling	98.89	102.18	-3.29
Indoor Fans	114.77	57.82	56.95
Heat Rejection	0	0	0
Pumps & Misc.	0	0	0
Domestic Hot Water	8.76	7.23	1.53
Indoor Lighting	33.68	33.68	0
Flexibility	---	---	---
EFFICIENCY COMPLIANCE TOTAL	**267.26**	**212.74**	**54.52 (20.4%)**
Photovoltaics	---	---	---
Batteries	---	---	---
TOTAL COMPLIANCE	**267.26**	**212.74**	**54.52 (20.4%)**

[1] Notes: This number in parenthesis following the Compliance Margin in column 4, represents the Percent Better than Standard.

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 9 of 17)**

C8. ENERGY USE INTENSITY (EUI)

	Standard Design (kBtu/ft² / yr)	Proposed Design (kBtu/ft² / yr)	Margin (kBtu/ft² / yr)	Margin Percentage
GROSS EUI[1]	58.53	51.37	7.16	12.23
NET EUI[1]	58.53	51.37	7.16	12.23

[1] Notes: Gross EUI is Energy Use Total (not including PV)/Total Building Area. Net EUI is Energy Use Total (including PV)/Total Building Area.

D1. EXCEPTIONAL CONDITIONS

• The project uses the Simplified Geometry Performance Modeling Approach which is not capable of modeling daylighting controls and assumes the prescriptive Secondary Daylit Control requirements are met. PRESCRIPTIVE COMPLIANCE documentation (form NRCC-LTI-02-E) for the requirements of section 140.6(d) Automatic Daylighting Controls in Secondary Daylit Zones is required.
• Project is claiming Exception 2 to Section 140.10(a): No PV system is required where the required PV system size is less than 4 kWdc.

F1. REQUIRED PV SYSTEMS

01	02	03	04	05	06	07	08	09	10	11	12
DC System Size (kWdc)	**Exception[1]**	**Module Type**	**Array Type**	**Power Electronics**	**CFI**	**Azimuth (deg)**	**Tilt Input**	**Array Angle (deg)**	**Tilt: (x in 12)**	**Inverter Eff. (%)**	**Annual Solar Access (%)**

[1]See Table D1 for any PV exceptions used.

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 8 of 17)**

C7. 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	0.9	1	-0.1	---	---	---
Space Cooling	8.1	7.9	0.2	---	---	---
Indoor Fans	11.2	5.6	5.6	---	---	---
Heat Rejection	---	---	---	---	---	---
Pumps & Misc.	---	---	---	---	---	---
Domestic Hot Water	0.9	0.8	0.1	---	---	---
Indoor Lighting	3.7	3.7	0	---	---	---
Flexibility	---	---	---	---	---	---
EFFICIENCY TOTAL	**24.8**	**19**	**5.8**	**0**	**0**	**0**
Photovoltaics	---	---	---	---	---	---
Batteries	---	---	---	---	---	---
ENERGY USE SUBTOTAL	**24.8**	**19**	**5.8**	**0**	**0**	**0**
Receptacle	11.8	11.8	0	---	---	---
Process	10.8	10.8	0	---	---	---
Other Ltg	---	---	---	---	---	---
Process Motors	---	---	---	---	---	---
ENERGY USE TOTAL	**47.4**	**41.6**	**5.8**	**0**	**0**	**0**

CERTIFICATE OF COMPLIANCE - NONRESIDENTIAL PERFORMANCE COMPLIANCE METHOD — **NRCC-PRF-E**

Nonresidential Performance Compliance Method — **(Page 7 of 17)**

C5. SOURCE ENERGY RESULTS FOR NON-REGULATED COMPONENTS[1]

Non-Regulated Energy Component	Standard Design (SOURCE)	Proposed Design (SOURCE)	Compliance Margin (SOURCE)[1]
Receptacle	7.55	7.55	---
Process	6.92	6.92	---
Other Ltg	---	---	---
Process Motors	---	---	---
TOTAL (TOTAL COMPLIANCE + NON-REGULATED COMPONENTS)	**35.18**	**30.19**	**4.99 (14.2%)**

[1] Notes: This table is not used for Energy Code Compliance.

C6. 'ABOVE CODE' QUALIFICATIONS

☐ This project is pursuing CalGreen Tier 1 ☐ This project is pursuing CalGreen Tier 2

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Sheet Content:

HVAC TITLE 24

Fresno County Department of Public Works and Planning
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2220 Tulare Street, 8th Floor
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THE COUNTY OF FRESNO 1856

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Plot Date: 2024-05-20

G7A. FENESTRATION ASSEMBLY SUMMARY (NONRESIDENTIAL)

01	02	03	04	05	06	07	08	09
Fenestration Assembly Name	Fenestration Type/ Product Type / Frame Type	Certification Method[1]	Assembly Method	Area (ft^2)	Overall U-factor	Overall SHGC	Overall VT	Status[2]
Double Metal Tinted	Vertical fenestration Fixed window Metal	Default 110.6	Site built	395.86	0.71	0.6	0.77	N
DOOR Double Metal Tinted	Vertical fenestration Operable window Metal	Default 110.6	Site built	26.49	0.79	0.59	0.67	N

[1] Notes: 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

H1. DRY SYSTEM EQUIPMENT (FURNACES, AIR HANDLING UNITS, HEAT PUMPS, VRF, ECONOMIZERS ETC.)

01	02	03	04	05	06	07	08	09	10	11	12
			Heating				Cooling				
Equipment Name	Equipment Type	Qty	Total Heating Output (kBtu/h)	Supp Heat Output (kBtu/h)	Efficiency Unit	Efficiency	Total Cooling Output (kBtu/h)	Efficiency Unit	Efficiency	Economizer Type (if present)	Status[1]
ODU/IDU 2 : NTXMSM36A142A	Single Zone Heat Pump (SZHP) Air System	1	35.41	0	N/A	NA	28.8	EER SEER	12.6 18.3	No Economizer	N
ODU/IDU 3 :NTXMSM36A142AA	Single Zone Heat Pump (SZHP) Air System	1	41.66	0	N/A	NA	34.56	EER SEER	12.6 18.3	No Economizer	N

[1] Status: N - New, A - Altered, E - Existing

G4. NONRESIDENTIAL AIR BARRIER

01	02
Building Story Name	Air Barrier
Com-Floor 1	No air barrier

G5. OPAQUE SURFACE ASSEMBLY SUMMARY

01	02	03	04	05	06		07	08	09	10
					Continuous R-Value					
Surface Name	Construction Type	Area (ft^2)	Framing Type	Cavity R-Value	Interior	Exterior	Units	Value	Description of Assembly Layers	Status[1]
23139 Exterior Wall9	Exterior Wall	2,619	N/A	0	N/A	N/A	U-factor	0.063	Metal Insulated Panels - 2 1/2 in.	N
23139 Metal Roof22	Roof	2,763	N/A	0	N/A	N/A	U-factor	0.0411	Metal Insulated Panels - 4 in.	N
Slab On Grade24	Underground Floor	2,763	N/A	0	N/A	N/A	F-factor	0.73	Slab Type =Unheated slab on grade Insulation Orientation =None Insulation R-Value =none	N

[1] Status: N - New, A - Altered, E - Existing

F1B. PV BATTERY BUILDING TYPE(S)

01	02	03
Building Occupancy Type* (From Table 140.10-A/B and 170.2-U/V)	Conditioned Floor Area (ft^2)	Unconditioned Floor Area (ft^2)
Grocery	0	0
High-Rise Multifamily	0	0
Office, Financial Institutions, Unleased Tenant Space	2763	0
Retail	0	0
School	0	0
Warehouse	0	0
Auditorium, Convention Center, Hotel/Motel, Library, Medical Office Building/Clinic, Restaurant, Theater	0	0
None	0	0

** Building Occupancy Types are defined in Section 100.1 of the Energy Code*

G1. ENVELOPE GENERAL INFORMATION (conditioned spaces only)

01	02	03	04
Opaque Surfaces & Orientation	Total Gross Surface Area (ft^2)	Total Fenestration Area (ft^2)	Window to Wall Ratio (%)
North-Facing[1]	936	251.55	26.88
East-Facing[2]	487	43.8	8.99
South-Facing[3]	743	127	17.09
West-Facing[4]	453	0	0
Total	**2619**	**422.35**	**16.13**
Roof	2763	0	0

Notes
[1]North-Facing is oriented to within 45 degrees of true north, including 45 00'00" east of north (NE), but excluding 45 00'00" west of north (NW),
[2]East-Facing is oriented to within 45 degrees of true east, including 45 00'00" south of east (SE), but excluding 45 00'00" north of east (NE),
[3]South-Facing is oriented to within 45 degrees of true south, including 45 00'00" west of south (SW), but excluding 45 00'00" east of south (SE),
[4]West-Facing is oriented to within 45 degrees of true west, including 45 00'00" north of west (NW), but excluding 45 00'00" south of west (SW),

H11. ZONAL SYSTEM AND TERMINAL UNIT SUMMARY

01	02	03	04	05	06	07	08	09	10	11	12
			Rated Capacity (kBtuh)		Airflow (cfm)			Fan			
System ID	System Type	Qty	Heating	Cooling	Design	Min.	Min. Ratio	Power	Power Units	Cycles	VSD
2-Zone 2-Trm	Uncontrolled	1	N/A	N/A	750	N/A	0	N/A	N/A	N/A	☐
3-Zone 3-Trm	Uncontrolled	1	N/A	N/A	1,000	N/A	0	N/A	N/A	N/A	☐
2-Zone 1-VRF	Variable Refrigerant Flow	2	34	30	750	N/A	N/A	0.14	BHP	Continuous	☐

I1. WATER HEATER EQUIPMENT SUMMARY

01	02	03	04	05	06	07	08	09	10	11	12	13	14
Name	Heater Element Type	Tank Type	Qty	Tank Vol (gal)	Rated Input	Rated Input Unit	Efficiency	Efficiency Unit	Tank Insulation R-value Int/Ext	Standby Loss Fraction	1st Hr. Rating or Flow Rate (gal)	Heat Pump Type	Tank Location or Ambient Condition
Rheem EGSP302	Electricity	Storage	1	30	4.5	kW	0.92	UEF	N/A	N/A	N/A	N/A	N/A

L. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections made by Documentation Author indicate which Certificates of Installation must be submitted for the features to be recognized for compliance. These documents must be retained and provided to the building inspector during construction and can be found online

Building Component	Form/Title
Envelope	NRCI-ENV-01-E - Must be submitted for all buildings
Envelope	NRCI-ENV-E - Envelope (for all buildings)
Mechanical	NRCI-MCH-01-E - Must be submitted for all buildings
Mechanical	NRCI-MCH-E - For all buildings with Mechanical Systems
Plumbing	NRCI-PLB-01-E - Must be submitted for all buildings
Plumbing	NRCI-PLB-E - For all buildings with Plumbing Systems

H5. GENERAL EXHAUST FAN SUMMARY

01	02	03	04	05	06	07	08
System ID	Zone Name	Qty	CFM	Power	Power Units	Continuous Operation?	Status[1]
Zone 13	1-Zone 1	1	500	0.04	BHP	No	N
Zone 225	2-Zone 2	1	250	0.05	BHP	No	N
Zone 345	3-Zone 3	1	200	0.05	BHP	No	N

[1] Status: N - New, A - Altered, E - Existing

H8. SYSTEM SPECIAL FEATURES

01	02	03	04
System Name	Equipment Type	Interlocks per 140.4(n)[1]	Other Special Features and Controls
ODU/IDU 2 : NTXMSM36A142A	Single Zone Heat Pump (SZHP) Air System	No	
ODU 1 : NTXMSM60A182AA	Variable Refrigerant Flow	No	
Rheem EGSP301 - SHW	Service Hot Water	N/A	Fixed Temperature Control

Notes: This table includes controls related to the performance path only. For projects using the prescriptive path, mandatory and prescriptive controls requirements are documented on the NRCC-MCH-E.
[1] Yes = interlocks are provided, No = interlocks are not provided, NA means no operable openings.

H9. NONRESIDENTIAL / COMMON USE AREA & HOTEL/MOTEL VENTILATION

01	02	03	04	05	06	07
	Mechanical Ventilation					
Zone Name	Ventilation Function	# of People	Supply OA CFM	Exhaust CFM	Conditioned Area (sf)	OCV or Occupant Sensor Controls, or Both
1-Zone 1	Office - Office space	5.85	175.5	500	1170	N/A
2-Zone 2	Office - Office space	4.05	121.65	250	811	N/A
3-Zone 3	Office - Office space	3.91	117.3	200	782	N/A

H1. DRY SYSTEM EQUIPMENT (FURNACES, AIR HANDLING UNITS, HEAT PUMPS, VRF, ECONOMIZERS ETC.)

01	02	03	04	05	06	07	08	09	10	11	12
			Heating				Cooling				
Equipment Name	Equipment Type	Qty	Total Heating Output (kBtu/h)	Supp Heat Output (kBtu/h)	Efficiency Unit	Efficiency	Total Cooling Output (kBtu/h)	Efficiency Unit	Efficiency	Economizer Type (if present)	Status[1]
ODU 1 : NTXMSM60A182AA	Variable Refrigerant Flow	1	65	N/A	HSPF	10.7	60	N/A		N/A	N

[1] Status: N - New, A - Altered, E - Existing

H3. NONRESIDENTIAL / COMMON USE AREA FAN SYSTEMS SUMMARY

01	02	03	04	05	06	07	08	09	10	11	12	13
			Supply Fan				Return / Relief Fan					
Name or Item Tag	Qty	Design OA CFM	CFM	Power	Power Units	Control	Fan Type	CFM	Power	Power Units	Control	Status[1]
ODU/IDU 2 : NTXMSM36A142A	1	121.65	750	0.34	BHP	Constant Vol	N/A	N/A	N/A	N/A	N/A	N
ODU/IDU 3 :NTXMSM36A142AA	1	117.3	1,000	0.34	BHP	Constant Vol	N/A	N/A	N/A	N/A	N/A	N
2-Zone 1-VRF	2	87.75	750	0.14	BHP	Constant Vol	N/A	N/A	N/A	N/A	N/A	N

[1] Status: N - New, A - Altered, E - Existing

STATE OF CALIFORNIA
Domestic Water Heating System
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE NRCC-PLB-E

This document is used to demonstrate compliance for nonresidential occupancies with requirements in 110.1, 110.3, 120.3, and 140.5, and with requirements in 141.0 for additions and alterations, for domestic water heating scopes using the prescriptive path. For high-rise residential and hotel/motel occupancies compliance is demonstrated with requirements in 110.1, 110.3, 160.4 and 170.2(d), and with requirements 180.1 for additions and 180.2 for alterations.

Project Name:	ECC Phase II - Educational Center	**Report Page:**	**(Page 1 of 6)**
Project Address:	1327 Dan Ronquillo Drive	**Date Prepared:**	1/15/2024

A. GENERAL INFORMATION

01	Project Location (city)	Fresno	02	Climate Zone	13
03	Occupancy Types Within Project (select all that apply):			

● Office

B. PROJECT SCOPE

This table includes domestic water heating systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive paths outlined in 140./ 170.2(d) and 141.0(a)/ 180.1, or 141.0(b)2N / 180.2 for additions or alterations. Solar water heating systems are documented on the NRCC-SAB compliance document. Combined hydronic water heating systems are documented on the NRCC-MCH compliance document.

01	02	03		
My project consists of (check all that apply):	System Type[1,2]	System Components		
☒ New system (DHW system being installed for the first time)	Individual System (serving nonresidential spaces)	☒ Equipment	☒ Distribution	☒ Controls
☐ System Alteration (equipment, distribution or controls)		☐ Equipment	☐ Distribution	☐ Controls

[1]FOOTNOTES: Point of use water heaters, or other non-central systems used to serve nonresidential spaces, are considered individual systems.
[2] Dwelling units refers to hotel/motel guest rooms and units in a multifamily residential occupancy.
[3] DHW systems serving 2 or more dwelling units are considered "Central Systems" for multifamily occupancies

C. COMPLIANCE RESULTS

Table C will indicate if the project data input into the compliance document is compliant with water heating requirements. If this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. or the table indicated as not compliant for guidance.

01	02	03	04
Domestic Hot Water Equipment	Distribution Systems	Controls	Compliance Results
Table F	Table G	Table H	
Yes	Yes	Yes	COMPLIES

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

Documentation Author's Declaration Statement

1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Brent Yang	Documentation Author Signature: Brent Yang
Company: Lawrence Engineering Group	Signature Date: 2024-01-15
Address: 4910 E Clinton Way	CEA/HERS Certification Identification (if applicable):
City/State/Zip: Fresno, CA 93727	Phone: 5594310101

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 understand that a registered 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, and I will take the necessary steps to accomplish this requirement.
6. I understand that a registered copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy, and I will take the necessary steps to accomplish these requirements.

Responsible Designer Name: Zahidul Hoque Khan	Responsible Designer Signature:	
Company: Fresno County Department of Public Works and Planning Capital Projects		
Address: 2220 Tulare Street, 8th Floor	Date Signed:	
City/State/Zip: Fresno, CA 93721	License #: C 40030	
Phone: (559) 600-4410	Title:	Scope:
Responsible Designer Name: Michael D. Cantelmi	Responsible Designer Signature: Michael Cantelmi	
Company: Lawrence Engineering group		
Address: 4910 E. Clinton Way, Suite 101	Date Signed: 2024-01-15	
City/State/Zip: Fresno, CA 93727	License #: M23588	
Phone: (559) 431 - 0101	Title:	Scope:

M. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections made by Documentation Author indicate which Certificates of Acceptance must be submitted for the features to be recognized for compliance. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP).

Building Component	Form/Title
Envelope	NRCA-ENV-02-F - NRFC label verification for fenestration
Mechanical	NRCA-MCH-02-A - Outdoor Air must be submitted for all newly installed HVAC units. Note: MCH-02-A can be performed in conjunction with MCH-07-A Supply Fan VFD Acceptance (if applicable) since testing activities overlap
Mechanical	NRCA-MCH-03-A - Constant Volume Single Zone HVAC

N. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

Selections made by Documentation Author indicate which Certificates of Verification must be submitted for the features to be recognized for compliance. These documents must be retained and provided to the building inspector during construction and can be found online

There are no Certificates of Verification applicable to this project

REGISTERED PROFESSIONAL ENGINEER MICHAEL D. CANTELMI No. M23588 Exp. 9-30-25 MECHANICAL STATE OF CALIFORNIA

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-0101 23139 FAX (559) 431-1362

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C 40030 REN: 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721
Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-20
Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\4 M\M-4.0 - M-4.2 HVAC TITLE 24

Sheet Content:
HVAC TITLE 24

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
M-4.1
Sheet of

Plot Date: 2024-05-20

STATE OF CALIFORNIA
Domestic Water Heating System
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-PLB-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 4 of 6)**
	Date Prepared:	1/15/2024

H. DOMESTIC HOT WATER CONTROLS

This table is used to demonstrate compliance with control requirements in 110.3 for all occupancies. For multifamily residential and hotel/motel occupancies, compliance is also demonstrated with requirements in 160.4(e) / 170.2(d).

	Yes	No	Not Applicable	Requirement
01	☒	☐	☐	Construction documents require manufacturer certification that service water-heating systems are equipped with automatic temperature controls capable of adjusting temperature settings per 110.3(a).
02	☐	☐	☒	Systems with capacity > 167,000 BTUH equipped with outlet temperature controls per 110.3(c)1 unless covered by California Plumbing Code 613.0.
03	☐	☐	☒	Controls for circulating pumps or electrical heat trace systems are capable of automatically turning off the system per §110.3(c)2 unless systems serves healthcare facility.
04	☐	☐	☒	For recirculation systems serving multiple dwelling units, design includes automatic pump controls per 170.2(d) or 180.1(b)3 for additions.
05	☐	☐	☒	For recirculation systems serving individual dwelling units, design includes manual on/off controls as specified in Reference Appendix RA4.4.9 per 170.2(d).
06	☐	☐	☒	Combustion air positive shut-off shall be provided per 160.4(3).on all newly installed commercial boilers as follows: • Boilers with input capacity >= 2.5 MMBtu/h, in which the boiler is designed to operate with a nonpositive vent static pressure • Boilers where one stack serves two or more boilers with a total combined input capacity per stack of 2.5 MMBtu/h.
07	☐	☐	☒	Boiler combustion air fans with motor >= 10 hp shall meet one of the following • The fan motor shall be driven by a variable speed drive OR • The fan motor shall include controls that limit the fan motor demand to <=30% of the total design wattage at 50% of the design air volume.
08	☐	☐	☒	Newly installed boilers with an input capacity (d:gte/] 5MMBtu/h and a steady state full-load combustion efficiency < 90% shall maintain excess (stack-gas) oxygen concentrations <= 5% by volume on a dry basis over firing rates of 20-100%. Combustion air volume shall be controlled with respect to firing rate or flue gas oxygen concentration. Use of a common gas and combustion air control linkage or jack shaft is prohibited.

STATE OF CALIFORNIA
Domestic Water Heating System
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-PLB-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 3 of 6)**
	Date Prepared:	1/15/2024

G. DOMESTIC HOT WATER DISTRIBUTION SYSTEM

This table is used to demonstrate compliance for nonresidential occupancies with distribution requirements in 120.3 and 140.5. For multifamily and hotel/motel occupancies, compliance is demonstrated with requirements 110.3(c), 160.4, 170.2(d).

Mandatory Pipe Insulation All Occupancies

13	☐	For systems serving dwelling units, pipe insulation must meet the minimum insulation requirements in Table 160.4-A (see blow) except: • Piping that penetrates framing members shall not be required to have pipe insulation for the distance of the framing penetration. Piping that penetrates metal framing shall use grommets, plugs, wrapping or other insulating material to assure that no contact is made with the metal framing. Insulation shall abut securely against all framing members • Piping installed in interior or exterior walls shall not be required to have pipe insulation if all of the requirements are met for compliance with Quality Insulation Installation (QII) as specified in the Reference Residential Appendix RA3.5. • Piping surrounded with a minimum of 1 inch of wall insulation, 2 inches of crawlspace insulation, or 4 inches of attic insulation, shall not be required to have pipe insulation.
14	☒	For systems serving nonresidential spaces, pipe insulation for the following applications is specified to comply with Table 120.3-A (see below) per 120.3: • Recirculating system piping, including supply and return piping of the water heater • The first 8 ft of hot and cold outlet piping, including between storage tank and heat trap, for a nonrecirculating storage system • Pipes that are externally heated
15	☐	Insulation shall be protected from damage, including that due to sunlight, moisture, equipment maintenance, and wind. Insulation exposed to weather shall be installed with a cover suitable for outdoor service per 120.3(b) / 160.4(f). Pipe insulation buried below grade must be installed in a water proof and non-crushable casing or sleeve.

TABLE 120.3-A / 160.4-A PIPE INSULATION THICKNESS

Fluid Temperature Range (°F)	Conductivity Range (Btu-in per hour per ft² per °F)	Insulation Mean Rating Temp (°F)	Nominal Pipe Diameter (in)			
			< 1	1 to < 1.5	1.5 to < 4	1.5 to < 4 Multifamily & Hotel/Motel
			Minimum Insulation Required			
105-140	0.22 - 0.28	100	1.0 in or R-7.7	1.5 in or R-12.5	1.5 in or R-11	2.0 in or R-16

STATE OF CALIFORNIA
Domestic Water Heating System
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-PLB-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 2 of 6)**
	Date Prepared:	1/15/2024

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. DOMESTIC HOT WATER EQUIPMENT

This table is used to demonstrate compliance with mandatory equipment requirements in 110.1 and 110.3. Compliance with prescriptive requirements in 140.5(c) / 170.2(d) must also be demonstrated and with 141.0 / 180.1/ 180.2 for addition and alteration scopes.

Equipment Schedule: Water Heating Efficiency and Standby Loss

03		04		05	06		
System Name	Rheem EGSP30	Exception to 140.5(c)/ 170.2(d)3		☐	Gas Service Water Heating System >= 1MMBtu/h[1]	Capacity-weighted Average Efficiency %	
07	08	09	10	11	12	13	14	15
Name or Item Tag	Equipment Type	Volume (gal)	Rated Input Capacity (Btu/h)	Max GPM/ First Hour Rating (FHR)	Rated Efficiency	Minimum Efficiency Required	Efficiency Unit	Designed Standby Loss	Maximum Standby Loss
Rheem EGSP30	Consumer Rated Electric Storage	30	15,355	18 <= FHR <51	0.92	0.93	UEF		

[1]*FOOTNOTE: In systems >= 1MMBtu/h with multiple units, gas water heaters with input capacity > 100,000 Btu/h may meet 90% Et requirements via an input capacity-weighted average.*

Water Heating Equipment All Occupancies

	Yes	No	Not Applicable	Requirement
18	☐	☐	☒	Unfired storage tank insulation shall have Internal + External >=R-16 OR External >=R-3.5. Label required per 110.3(c)3
19	☐	☐	☒	New state buildings 60% of energy for service water heating from site solar energy or recovered energy per 110.3(c)5
20	☐	☐	☒	Isolation valves for instantaneous water heater with input rating >6.8 kBTUH or 2 kW has been specified per 110.3(c)6
21	☐	☐	☒	School buildings < 25,000 ft² and < 4 stories must install a heat pump water heating system per 140.5(a)1. Water heating systems serving an individual bathroom space may be an instantaneous electric water heater.

STATE OF CALIFORNIA
Domestic Water Heating System
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-PLB-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 6 of 6)**
Project Address: 1327 Dan Ronquillo Drive	**Date Prepared:**	1/15/2024

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Brent Yang	Documentation Author Signature: Brent Yang
Company: Lawrence Engineering Group	Signature Date: 2024-01-15
Address: 4910 E Clinton Way	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Fresno CA 93727	Phone: 5594310101

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: Michael D. Cantelmi	Responsible Designer Signature:
Company: Lawrence Engineering group	Date Signed: 2024-01-15
Address: 4910 E. Clinton Way, Suite 101	License: M23588
City/State/Zip: Fresno CA 93727	Phone: (559) 431 - 0101

STATE OF CALIFORNIA
Domestic Water Heating System
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-PLB-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 5 of 6)**
	Date Prepared:	1/15/2024

I. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online

Form/Title
NRCI-PLB-E - Must be submitted for all buildings

J. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

There are no forms required for this project.

K. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

There are no forms required for this project.

REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. CANTELMI
No. M23588
Exp. 9-30-25
MECHANICAL
STATE OF CALIFORNIA

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-0101 23139 FAX (559) 431-1362

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C 40030 REN: 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-20
Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\4 M\M-4.0 - M-4.2 HVAC TITLE 24

Sheet Content:

HVAC TITLE 24

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

M-4.2

Sheet of

Plot Date: 2024-05-20

20 May 2024 9:35 AM P:\2023\23139 Fresno County ECC Education Building\4-Drawings\4 M\M-4.0 - M-4.2 HVAC TITLE 24.dwg mathew

GENERAL NOTES

1. ALL WORK AND MATERIAL SHALL CONFORM TO LATEST CODES AND ORDINANCES. IT IS THE INTENTION OF THESE PLANS AND SPECIFICATIONS TO COVER ALL THINGS REQUIRED TO PROVIDE COMPLETE AND OPERATIVE SYSTEMS. THE CONTRACTOR SHALL FURNISH LABOR, MATERIAL, TRANSPORTATION, EQUIPMENT, MISCELLANEOUS SERVICES, ETC. REQUIRED TO ACCOMPLISH THIS RESULT. ANYTHING WHICH MAY BE REASONABLY CONSTRUED AS A NECESSARY PART OF THE INSTALLATION SHALL BE INCLUDED. NOTHING IN THESE PLANS OR SPECIFICATIONS MAY BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO ANY CONSTRUCTION CODES.
2. ALL EQUIPMENT SHALL HAVE TESTING LABORATORY LABEL ATTACHED (U.L. C.S.A. ETC.) AS PER N.E.C. 110. PROOF OF TESTING LABELS REQUIRED WITH ALL SUBMITTALS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL THESE REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO PURCHASING, IF ANY OF THE SPECIFIED MATERIAL FAILED THESE REQUIREMENTS. WHERE A FIELD CERTIFIED PRODUCT MAY BE REQUIRED FOR FIELD ASSEMBLED COMPONENT, PROVIDE CERTIFIED REPORT BY AN APPROVED TESTING AGENCY ACCEPTABLE TO THE AUTHORITIES HAVING JURISDICTION. INCLUDE ALL TESTING FEES IN BID.
3. THE ENGINEERING SERVICE ARE LIMITED TO PREPARATION OF PLANS AND SPECIFICATIONS. THE PLANS AND SPECIFICATIONS ARE INTENDED TO BE USED AS CONSTRUCTION GUIDELINES ONLY AND NOT THE TOTAL INSTRUMENT OF CONTRACT DOCUMENTS. IT IS NOT THE INTENTION OF ANY CONSTRUCTION PLANS TO DIVIDE WORK AMONG DIFFERENT TRADES. VERIFY SCOPE OF WORK WITH GENERAL CONTRACTOR/OWNER SINCE THE ENGINEER IS NOT SUPERVISING THE JOB. THE ENGINEER WILL PROVIDE INTERPRETATION OF THE CONSTRUCTION DOCUMENTS, BUT SUPERVISION IS UNDER THE RESPONSIBILITY OF THE OWNER OR HIS APPOINTEE.
4. WORKING CLEARANCE SHALL BE MAINTAINED AS PER C.E.C/N.E.C. FOR ALL PANEL(S), SERVICE EQUIPMENT, DISCONNECT SWITCH, ETC. LOCAL UTILITY COMPANY WORKING CLEARANCE REQUIREMENT SHALL ALSO BE OBSERVED. POWER EQUIPMENT MANUFACTURER'S PRODUCT MAY VARY IN DIMENSION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF WORKING CLEARANCE REQUIREMENT WHEN LAYING OUT THE ELECTRICAL EQUIPMENT.
5. AVAILABLE FAULT CURRENT SHALL BE INDICATED ON ALL NEWLY INSTALLED SERVICE EQUIPMENT. THE FIELD MARKING SHALL INCLUDE THE DATE OF THE FAULT CURRENT CALCULATION WAS PERFORMED.
6. PROVIDE A LABEL ON THE MAIN ELECTRICAL SERVICE EQUIPMENT INDICATING THE AVAILABLE FAULT CURRENT AT THE SERVICE PER 110.24. FOR MODIFICATION TO THE ELECTRICAL INSTALLATION, THE AVAILABLE FAULT CURRENT SHALL BE RECALCULATED INCLUDING THE NEW LOADS AND POSTED ON SITE PRIOR TO FINAL INSPECTION PER CEC ARTICLE 110.24.
7. THE CONTRACTOR SHALL VERIFY EXACT LOCATION OF TERMINAL BOXES AND CONDUIT ENTRANCES OF ALL EQUIPMENT AGAINST SHOP DRAWINGS BEFORE STUBBING UP CONDUITS OR PENETRATING EXTERIOR WALL(S) OF BUILDING(S).
8. IN CASE OF INTERFERENCE BETWEEN ELECTRICAL EQUIPMENT SHOWN ON THE DRAWINGS AND OTHER EQUIPMENT, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING BEFORE PROCEEDING.
9. ALL OUTDOOR DEVICES SHALL BE WEATHERPROOF.
10. ONLY MAJOR PULL BOXES ARE SHOWN. CONTRACTOR SHALL PROVIDE ADDITIONAL PULL BOXES WHERE THEY ARE REQUIRED TO MAKE A WORKABLE INSTALLATION. ALL PULL BOXES ABOVE GROUND SHALL BE PAD LOCKABLE. ALL PULL BOXES UNDERGROUND SHALL HAVE HOLD DOWN BOLTS AND BE TRAFFIC RATED.
11. MARK ALL PANELS WITH LAMANOID TAGS. PROVIDE TYPE WRITTEN PANEL SCHEDULE AT ALL NEW AND MODIFIED PANELS.
12. ALL FLOOR/GROUND MOUNTED EQUIPMENT SHALL SIT ON A CONCRETE PAD 3" HIGHER THAN SURROUNDING SURFACE FOR INTERIOR EQUIPMENT AND 6" FOR EXTERIOR EQUIPMENT.
13. CONTRACTOR SHALL FURNISH ALL MATERIALS, TOOLS, LABOR, EQUIPMENT AND SUPERVISION NECESSARY TO COMPLETE INSTALLATION, CHECKOUT AND INITIAL OPERATION.
14. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GENERAL ARRANGEMENT OF EQUIPMENT SHOWN AND SHALL SUBMIT SHOP DRAWINGS FOR ALL EQUIPMENT PRIOR TO PURCHASE.
15. CAUTION SHOULD BE USED WHEN EXCAVATING OR TRENCHING TO LOCATE EXISTING UNDERGROUND CONDUITS. COORDINATE WITH AGENCIES SUCH AS UNDERGROUND SERVICE ALERT PRIOR TO EXCAVATION.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING VISITED THE SITE AND SATISFIED HIMSELF AS TO THE CONDITIONS UNDER WHICH THE WORK IS TO BE PERFORMED. THE CONTRACTOR SHALL CHECK ALL OF THE CONDITIONS WHICH MAY AFFECT HIS WORK. THE SITE VISIT SHALL BE MADE PRIOR TO SUBMITTING THE BID. BIDDERS SHALL PREARRANGE A SITE VISIT WITH THE OWNER/ARCHITECT.
17. THE CONTRACTOR SHALL OBTAIN A FULL SET OF PLANS WHEN BIDDING THE JOB.
18. ALL PHASE CONDUCTORS SHALL HAVE THEIR OWN NEUTRALS. NO SHARING OF NEUTRALS ALLOWED.
19. A CERTIFIED ELECTRICAL SHALL BE PRESENT ON THE PROJECT WHENEVER ELECTRICAL WORK IS IN PROGRESS. AN ELECTRICAL CONTRACTOR IS NOT EXEMPT FROM THIS REQUIREMENT AND SHALL ALSO BE CERTIFIED IF HE IS WORKING AS THE RESPONSIBLE PROJECT ELECTRICIAN . VIOLATION OF THIS REQUIREMENT BY EITHER ELECTRICIANS OR WORKING CONTRACTORS SHALL BE REPORTED TO THE STATE LICENSE CONTRACTOR BOARD AS REQUIRED UNDER THE EXISTING LABOR CODE SECTION 108.2. NO VOLUNTEERS ARE ALLOWED TO PERFORM WORK ON THIS PROJECT AND ALL CITY INSURANCE REQUIREMENTS MUST BE MET PRIOR TO PERFORMING ANY WORK.
20. ALL CONDUIT SHALL BE CONCEALED WITHIN ATTIC SPACE AND WALLS.
21. COORDINATE WITH PLUMBING CONTRACTORS AND ELECTRICAL PLANS FOR CIRCUITRY OF TRANSFORMER AND ELECTRICAL PLUMBING EQUIPMENT.
22. ALL FASTENERS USED SHALL BE STAINLESS STEEL GRADE 316.
23. ALL THE DATA/TELEPHONE CABLING WITHIN THE BUILDING(S) SHALL BE ROUTED TO THE BUILDING(S) IDF.
24. ISOLATED GROUNDING CONDUCTORS WHERE INDICATED FOR RECEPTACLES SHALL BE SIZED TO MATCH THE EQUIPMENT GROUNDING CONDUCTOR SIZE AND INSTALLED AND CONNECTED ONLY TO THE RECEPTACLES REQUIRED TO BE CONNECTED TO THE ISOLATED GROUNDING SYSTEM AND GROUNDED AT THE MAIN GROUNDING BUS WITHIN THE THE PANEL OF CIRCUIT ORIGIN. THE ISOLATED GROUNDING CONDUCTOR SHALL NOT BE CONNECTED TO ANY OTHER GROUNDING SYSTEM ALONG IT'S PATH.
25. ALL EXTERIOR RECEPTACLES SHALL BE GFCI TYPE WITH A LOCKING, WEATHERPROOF IN-USE COVER.
26. ALL DISCONNECTS SHALL BE READILY ACCESSIBLE AND IN SIGHT OF THE EQUIPMENT, PER THE CALIFORNIA ELECTRICAL CODE. IF THE DISCONNECTING MEANS CANNOT BE LOCATED WITHIN SIGHT OF THE EQUIPMENT SERVED, IT SHALL HAVE THE CAPABILITY OF BEING LOCKED IN THE OPEN POSITION.
27. ALL CONDUCTORS IN STALLED IN UNDERGROUND OR WET LOCATIONS SHALL BE LISTED FOR WET LOCATIONS AND MARKED WITH "W" PER CEC.
28. SPLICES AND TERMINALS SHALL BE COMPRESSION TYPE OF SEAMLESS PURE COPPER, TIN PLATED, LONG BARREL (TERMINALS WITH TWO-HOLE PAD AND INSPECTION WINDOW WITH NEMA DRILLING), AS MANUFACTURED BY BURNDY TYPE YS, YAZ-2N OR EQUAL. CLEAN ALL SURFACES AND INSTALL WITH OXIDE INHIBITING COMPOUND, BURNDY PENETROX-E OR EQUAL. INSTALL COMPRESSION CONNECTORS WITH 360° CIRCUMFERENTIAL COMPRESSION DYE, BURNDY HYPRESS OR EQUAL. THE INDENTER OR OTHER TYPE TOOLS WILL NOT BE ACCEPTABLE.
29. INSTALL 'MECHANICALLY FASTENED PHENOLIC NAMEPLATE WITH WHITE LETTERING ON BLACK BACKGROUND ON ALL EQUIPMENT, INCLUDING PULL BOXES, WITH DESCRIPTION INDICATED ON DRAWINGS. NAMEPLATES SHALL READ EXACTLY AS DESCRIBED ON THE DRAWINGS. IN GENERAL NAMEPLATE LETTERING SIZE SHALL BE 3/16-INCH HIGH FOR ALL NAMEPLATES SERVING FEEDER AND BRANCH CIRCUIT BREAKERS. ON MAIN SERVICE PANELS AND ALL OTHER NAMEPLATES LETTERING SHALL BE 1/4-INCH HIGH.

29.1 ALL SWITCHBOARDS, SWITCHGEAR, PANELBOARDS, VFD'S, MOTORS, JUNCTION BOXES, PULL BOXES, DISCONNECT SWITCHES, ETC., SHALL BE MARKED TO INDICATE EACH DEVICE OR EQUIPMENT WHERE THE POWER ORIGINATES PER CEC 408.4, FIELD IDENTIFICATION REQUIRED, (B) SOURCE OF SUPPLY.

30. COORDINATE EQUIPMENT LOCATIONS, CONTROL AND POWER WIRING REQUIREMENTS AND CONNECT POINTS WITH ALL APPLICABLE DISCIPLINES.
31. PROVIDE AND INSTALL FUSES PER UNIT NAMEPLATE DATA ON THE EQUIPMENT PROVIDED.
32. VERIFY CEILING TYPES PRIOR TO ORDERING LUMINARIES. CONFIRM THAT FEATURES DESCRIBED IN THE SPECIFICATION OF THE LUMINARIE ARE INCLUDED AS WELL AS PART NUMBERS LISTED ON SCHEDULE IN THE SUBMITTAL PACKAGE. CLARIFY NOTED DISCREPANCIES WITH ENGINEER PRIOR TO BID.
33. ALL OUTDOOR ENCLOSURES SHALL BE WEATHERPROOF RATED AND SHALL HAVE LOCKING HASP. INCLUDING, BUT NOT LIMITED TO SWITCHBOARDS, DISCONNECTS, ENCLOSURES, ETC.. THE COUNTY WILL PROVIDE THEIR OWN KEYED LOCKS. OUTDOOR PANELS SHALL HAVE KEYED LOCKING MECHANISM, KEYED PER COUNTY STANDARD.
34. PATCH AND REPAIR ALL REMOVED CONCRETE TO MATCH ADJACENT SURFACES.
35. ONLY RIGID OR IMC CIRCUIT SHALL BE USED WHEN TRANSITIONING FROM UNDERGROUND PVC CONDUIT TO ABOVE GROUND, PVC NOT ALLOWED.

STANDARD SYMBOL LEGEND

- FIXTURE DESIGNATOR - '#' INDICATES FIXTURE TYPE.
- LIGHT FIXTURE - APPROXIMATELY TO SCALE
- FIXTURE WITH EMERGENCY BATTERY BACK-UP UNIT - SEE TYPICAL WIRING DETAIL
- 3 a — FIXTURE OUTLET - WALL OR CEILING MOUNTED. '3' INDICATES CIRCUIT, 'a' INDICATES SWITCH CONTROL.
- EXIT LIGHTS- CEILING OR WALL MOUNTED, ARROW(S) INDICATES DIRECTION.
- # — POLE LIGHTING
- LOW LEVEL EXIT MARKER, SELF ILLUMINATING TYPE, ACTIVE SAFETY #2002-S-WM SERIES.
- K — LOW LEVEL EXIT MARKER, SELF ILLUMINATING TYPE WITH KICKPLATE, ACTIVE SAFETY #2002-K18000 SERIES.
- CEILING MOUNTED MOTION SENSOR: NLIGHT #NCM-PDT-10-RJB
- LV a — NLIGHT #NPODM LOW VOLTAGE SWITCH, 'a' INDICATES CONTROL
- D a — NLIGHT #NPODM-DX DIMMER SWITCH, 'a' INDICATES CONTROL
- DS — NLIGHT NPODM-4P-DX PROGRAMMABLE SCENE DIMMING SWITCH
- PS — NLIGHT #NCM-ADCX-RJB PHOTOSENSOR
- D1 — NLIGHT #NPP16-D-EFP FOR NORMAL CIRCUITS; NLIGHT #NPP16-D-ER-EFP FOR EMERGENCY CIRCUITS
- D2 — NLIGHT #NPS-80-EZ FOR NORMAL CIRCUITS; NLIGHT #NPS-80-EZ-ER FOR EMERGENCY CIRCUITS
- R2 — NLIGHT #NPP20 PLUG LOAD CONTROLLER
- 'PNL'-#a D# — PANEL IDENTIFICATION; CIRCUIT IDENTIFICATION; SWITCH-LEG IDENTIFICATION

LIGHTING AND ROOM RECEPTACLE CONTROLLERS SHALL BE LOCATED ABOVE THE T-BAR CEILING FOR THE ROOMS THEY ARE CONTROLLING. IF THE ROOM WITH THE CONTROLLED DEVICES HAS A HARD CEILING THEN LOCATE THE ROOM CONTROLLERS AT THE NEAREST ADJACENT ROOM WITH A T-BAR CEILING. IF NO T-BAR CEILINGS EXISTS LOCATE THE ROOM CONTROLLERS IN THE ELECTRICAL ROOM. LABEL ALL ROOM LIGHTING AND RECEPTACLE CONTROLLERS WITH THE ROOM NAME, ROOM NUMBER, AND CIRCUIT(S) THEY CONTROL.

- SKYLIT OR PRIMARY SIDE DAYLIT ZONE
- SECONDARY SIDE DAYLIT ZONE
- $a — SPST TOGGLE WALL SWITCH - 20A, 120/277V, `a' INDICATES CONTROL
- $OC — OCCUPANCY SENSOR COMBO WALL SWITCH - 20A, 120/277V RATED
- $T — THERMAL RATED SNAP SWITCH FOR CONTROLLING FRACTIONAL HORSEPOWER MOTORS.
- J — CEILING OR WALL MOUNTED JUNCTION BOX
- PULLBOX(S) - SIZE AND NUMBER AS INDICATED
- SINGLE RECEPTACLE - 20A, 120V & GROUND
- RECEPTACLE, DUPLEX - 20A, 120V & GROUND
- IG — RECEPTACLE, DUPLEX - 20A, 120V & ISOLATED GROUND
- RECEPTACLE, DUPLEX CEILING MOUNTED
- RECEPTACLE, DUPLEX - WITH ONE-HALF SWITCHED/CONTROLLED
- RECEPTACLE, DUPLEX- WITH GFCI PROTECTION
- WP — RECEPTACLE, DUPLEX - WITH GFCI PROTECTION IN WEATHERPROOF HOUSING
- 20A, 120V RECEPTACLE, DUPLEX- WITH TWO USB PORTS
- 20A, 120V RECEPTACLE, DUPLEX- WITH TWO USB PORTS WITH ONE-HALF SWITCHED/CONTROLLED
- 20A, 120V RECEPTACLE, DUPLEX- WITH TWO USB PORTS AND GFI PROTECTION
- RECEPTACLE, 50A, 3-WIRE, 250V
- RECEPTACLE, DOUBLE DUPLEX - (2) 20A, 120V & GROUND
- RECEPTACLE, DOUBLE DUPLEX CEILING MOUNTED
- RECEPTACLE, DOUBLE DUPLEX WITH GFCI PROTECTION
- RECEPTACLE, DOUBLE DUPLEX - WITH ONE-HALF SWITCHED/CONTROLLED
- RECEPTACLE, DOUBLE DUPLEX - WITH ONE-HALF SWITCHED/CONTROLLED, FLUSH FLOOR BOX - CARPET PLATE WHERE REQUIRED.
- RECEPTACLE, SPECIAL - REFER TO FLOOR PLAN FOR RECEPTACLE SIZE.
- TELEPHONE OUTLET: PROVIDE & INSTALL 2-GANG BOX WITH 1" CONDUIT. STUB-UP INTO T-BAR CEILING. FOR HARD CEILINGS, RUN THE CONDUIT TO THE CABLE TERMINATION LOCATION INDICATED PER THE RISER DIAGRAM. PROVIDE A SINGLE 1" CONDUIT FOR UP TO 4 CABLES.
- # — DATA OUTLET: PROVIDE & INSTALL 2-GANG BOX, FACEPLATE, AND QUANTITY OF CAT-6A DATA PORTS INDICATED WITH 1" CONDUIT. STUB-UP INTO T-BAR CEILING. FOR HARD CEILINGS, RUN THE CONDUIT TO THE CABLE TERMINATION LOCATION INDICATED PER THE RISER DIAGRAM OR IDF LOCATION INDICATED. PROVIDE A SINGLE 1" CONDUIT FOR UP TO 4 CABLES. LABEL ALL DATA PORTS PER THE OWNER'S REQUIREMENTS.
- INTERCOM OUTLET: PROVIDE & INSTALL 2-GANG BOX WITH 1" CONDUIT. STUB-UP INTO T-BAR CEILING. FOR HARD CEILINGS, RUN THE CONDUIT TO THE CABLE TERMINATION LOCATION INDICATED PER THE RISER DIAGRAM.
- RECEPTACLE, FLUSH FLOOR BOX - CARPET PLATE WHERE REQUIRED.
- RECEPTACLE WITH ONE-HALF SWITCHED/CONTROLLED, FLUSH FLOOR BOX - CARPET PLATE WHERE REQUIRED.
- TELEPHONE OUTLET, FLUSH FLOOR BOX - CARPET PLATE WHERE REQUIRED.
- DATA OUTLET, FLUSH FLOOR BOX - CARPET PLATE WHERE REQUIRED.
- INTERCOM OUTLET, FLUSH FLOOR BOX - CARPET PLATE WHERE REQUIRED.
- FLUSH, FLOOR MOUNTED DUPLEX RECEPTACLE, DATA JACK, AND TELEPHONE JACK.
- DATA OUTLET, CEILING MOUNTED
- CEILING OR WALL MOUNTED WIRELESS ACCESS POINT. PROVIDE AND INSTALL TWO DATA CABLES FROM EACH ACCESS POINT TO IDF. FOR HARD CEILINGS TERMINATE THE CABLES INTO A BOX WITH COVER PLATE. FOR T-BAR CEILINGS TERMINATE THE CABLES INTO A CUBE CAT-6A PORT AND CURL UP THE CABLE WITH 10-FEET OF SLACK. LEAVE ABOVE THE T-BAR CEILING. PROVIDE A LABEL BENEATH THE T-BAR CEILING TO INDICATE DATA PORTS ABOVE. FOR EXPOSED CEILINGS, TERMINATE CABLING WITH DATA JACKS AND FASTEN WITHIN A TWO-GANG BOX. THE BOX SHALL BE LOCATED WITHIN THE ATTIC LEVEL.
- S — SPEAKER - WALL OR CEILING MOUNTED. PROVIDE AND INSTALL A 3/4-INCH CONDUIT AND ONE CAT-6A DATA CABLE BACK TO THE IDF.
- (5) (4) (2) — NUMBER IN PARENTHESIS INDICATES QUANTITY OF DEVICES. TYPICAL FOR ALL TYPES OF DEVICES.
- FIRE SPRINKLER. REFER TO FIRE PROTECTION DRAWING

- 3/4" THICK x 96" TALL FIRE RETARDANT PLYWOOD BACKBOARD, PROVIDE QUANTITY OF PLYWOOD SHEETS TO ENCOMPASS ENTIRE LENGTH INDICATED ON PLANS.
- TERMINAL CABINET - SURFACE OR FLUSH MOUNTED WITH FLAME RETARDANT PLYWOOD BACKBOARD
- PANELBOARD - SURFACE OR FLUSH MOUNTED
- DISTRIBUTION OR SWITCHBOARD
- NEUTRAL LINK
- TRANSFORMER
- WIREMOLD 5400 SERIES DUAL CHANNEL IVORY RACEWAY. PROVIDE ALL ACCESSORIES, FITTINGS, DIVIDERS, ETC FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM.
- WIREMOLD RACEWAY VERTICAL RUNS. PROVIDE ALL ELBOWS, FITTINGS, AND CONNECTORS AS NECESSARY FOR A COMPLETE RACEWAY SYSTEM.
- T — TRANSFORMER
- #A/#B/#C — FUSED DISCONNECT - MOTOR RATED. FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR. DISCONNECTS TO BE FURNISHED WITH DUAL ELEMENT FUSES SIZED ACCORDING TO NAME PLATE DATA ON EQUIPMENT INSTALLED. SIZE AS : #A = AMPERE RATING OF DISCONNECT, #B = POLES, #C = FUSE SIZE REQUIRED. ALSO REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR DISCONNECT REQUIREMENTS. IF NO AMPERE RATING IS INDICATED ON PLAN SIZE DISCONNECT PER NAMEPLATE RATING AND NEC/CEC. MAINTAIN FRONTAL CLEARANCE OF 48-INCHES AND SIDE CLEARANCES OF 30-INCHES WIDE PER THE NEC/CEC.
- #A/#B — UNFUSED DISCONNECT - MOTOR RATED, FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR: #1 = AMPERE RATING OF DISCONNECT, #2 = POLES REQUIRED. ALSO REFER TO MECHANICAL EQUIPMENT SCHEDULE FOR DISCONNECT REQUIREMENTS. IF NO AMPERE RATING IS INDICATED ON PLAN SIZE DISCONNECT PER NAMEPLATE RATING AND NEC/CEC. MAINTAIN FRONTAL CLEARANCE OF 48-INCHES AND SIDE CLEARANCES OF 30-INCHES WIDE PER THE NEC/CEC.
- MAGNETIC MOTOR STARTER FURNISHED, INSTALLED AND CONNECTED BY ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED.
- M — MOTOR - FURNISHED AND INSTALLED BY MECHANICAL CONTRACTOR AND CONNECTED BY ELECTRICAL CONTRACTOR.
- GROUND ROD - 3/4" DIAMETER x 10-FEET LONG COPPER CLAD
- M — METER
- PROVIDE AND INSTALL JUNCTION BOX AND SURVEILLANCE CAMERA; REFER TO SPECIFICATIONS AND ELECTRICAL DETAILS. RUN 1" CONDUIT AND CAT-6A CABLE TO THE IDF. RUN 1/2" CONDUIT TO THE NEAREST 120V ELECTRICAL PANEL. MAKE ALL CONNECTIONS FOR A FULLY FUNCTIONAL SYSTEM.
- INTRUSION ALARM DOOR CONTACT CONDUIT PROVISION, SEE TYPICAL DETAILS. PROVIDE AND INSTALL CONDUIT PROVISIONS BACK TO THE INTRUSION ALARM PANEL.
- # — INTRUSION ALARM KEYPAD. PROVIDE AND INSTALL CONDUIT PROVISIONS BACK TO THE INTRUSION ALARM PANEL.
- WALL OR CEILING MOUNTED INTRUSION ALARM MOTION SENSOR. PROVIDE AND INSTALL CONDUIT PROVISIONS BACK TO THE INTRUSION ALARM TERMINAL PANEL.
- G — WALL OR CEILING MOUNTED GLASS BREAK DETECTOR. PROVIDE AND INSTALL CONDUIT PROVISIONS BACK TO THE INTRUSION ALARM PANEL.
- SURGE SUPPRESSION DEVICE
- GROUND
- CIRCUIT BREAKER
- CB — CIRCUIT BREAKER, SIZE AS INDICATED
- FUSED SWITCH
- PANIC ALARM BUTTON
- PB — PUSH BUTTON CONTROL STATION
- EXISTING ABOVE GROUND CONDUIT
- EXISTING UNDERGROUND CONDUIT
- 1 HOUR FIRE RATED WALL
- 2 HOUR FIRE RATED WALL
- WIREMOLD 5400 SERIES DUAL CHANNEL IVORY RACEWAY. PROVIDE ALL ACCESSORIES, FITTINGS, DIVIDERS, ETC FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM.
- WIREMOLD RACEWAY VERTICAL RUNS. PROVIDE ALL ELBOWS, FITTINGS, AND CONNECTORS AS NECESSARY FOR A COMPLETE RACEWAY SYSTEM.
- NEW ELECTRICAL EQUIPMENT
- EXISTING ELECTRICAL EQUIPMENT TO REMAIN
- EXISTING ELECTRICAL EQUIPMENT TO BE DEMOLISHED
- GROUND WIRE WITH GREEN INSULATION SIZE PER N.E.C., U.O.N.
- CONDUIT CONCEALED IN WALL OR CEILINGS. PROVIDE NUMBER OF WIRES NECESSARY FOR BRANCH CIRCUIT, SWITCH LEGS, ETC. PROVIDE SEPARATE NEUTRALS FOR EACH PHASE WIRE. SIZE SHALL BE DETERMINED BY OCPD CONNECTED TO THE PHASE CONDUCTORS AND VOLTAGE DROP CONSIDERATIONS. ALL CONDUITS SHALL HAVE GROUND CONDUCTOR(S). SIZE CONDUIT PER NEC.
- CONDUIT CONCEALED UNDERGROUND OR BELOW FLOOR, MINIMUM SIZE IS 3/4". PROVIDE NUMBER OF WIRES NECESSARY FOR BRANCH CIRCUIT, SWITCH LEGS, ETC. PROVIDE SEPARATE NEUTRALS FOR EACH PHASE WIRE. SIZE SHALL BE DETERMINED BY OCPD CONNECTED TO THE PHASE CONDUCTORS AND VOLTAGE DROP CONSIDERATIONS. ALL CONDUITS SHALL HAVE GROUND CONDUCTOR(S). SIZE CONDUIT PER NEC.
- CONDUIT- UP
- CONDUIT-DOWN
- # — SHEET NOTE NUMBER - #, SEE NOTE DESCRIPTION ON SAME SHEET.
- # — GENERAL NOTE NUMBER - #, SEE NOTE DESCRIPTION ON SAME SHEET.
- #/# — REFERENCE TO PLAN/DETAIL/DIAGRAM
- XX X — DESIGNATES SIZE AND QUANTITY OF FEEDERS SEE FEEDER SCHEDULE
- # — ADDENDUM OR REVISION NUMBER, SEE DESCRIPTION ON SAME SHEET.
- #10 — CONDUIT CONCEALED IN WALL OR CEILINGS. PROVIDE NUMBER OF WIRES NECESSARY FOR BRANCH CIRCUIT, SWITCH LEGS, ETC. PROVIDE SEPARATE NEUTRALS FOR EACH PHASE WIRE. SIZE SHALL BE DETERMINED BY OCPD CONNECTED TO THE PHASE CONDUCTORS AND VOLTAGE DROP CONSIDERATIONS. ALL CONDUITS SHALL HAVE GROUND CONDUCTOR(S). SIZE CONDUIT PER NEC. HASH MARKS INDICATE THE NUMBER OF CONDUCTORS AND THE ADJACENT NUMBER INDICATES CONDUCTOR SIZE.
- QUANTITY OF SWITCHED/DIMMED VOLTAGE CONDUCTORS
- QUANTITY OF UNSHIELDED, TWISTED, 0-10VDC CONTROL PAIRS
- QUANTITY OF UNSWITCHED HOT CONDUCTORS
- QUANTITY OF NEUTRAL CONDUCTORS
- QUANTITY OF GROUND CONDUCTORS

ELECTRICAL SHEET LIST

THESE PLANS ARE ACCOMPANIED WITH BOOK SPECIFICATIONS THAT FORM PART OF THE CONTRACT DOCUMENTS.

EXPOSED/UNFINISHED CEILING EQUIPMENT INSTALLATION NOTE

ALL CONDUITS AND CABLES SHALL BE CONCEALED. IF THE CONSTRUCTION WILL NOT ALLOW THE CONDUIT OR CABLE TO BE CONCEALED THEN INSTALL THE EXPOSED CONDUITS AND CABLES USING THE FOLLOWING INSTALLATION METHODS.

1. REFER TO THE ARCHITECTURAL PLANS FOR AREAS WITHIN THE BUILDING STRUCTURE WHICH WILL UNFINISHED CEILINGS. ELECTRICAL CONDUIT, CABLING AND OTHER ITEMS VISUALLY EXPOSED SHALL BE NEATLY INSTALLED. THE CONDUIT AND CABLING WITHIN THESE AREAS SHALL BE INSTALLED AT THE SIDE WALLS ABOVE THE CEILING LEVEL OF THE ROOM WITH THE EXPOSED CEILINGS. ALL CONDUITS AND CABLE RUNS SHALL BE INSTALLED PARALLEL AND PERPENDICULAR TO THE STRUCTURE. J-BOXES SHALL SHALL ALSO BE INSTALLED ON THE SIDE WALLS ABOVE THE CEILING LEVEL WITHIN ROOMS THAT HAVE UNFINISHED CEILINGS. CONDUIT, CABLING, FLEXIBLE METAL CONDUIT IF REQUIRED TO TERMINATE AT THESE J-BOXES SHALL HAVE TERMINATE EITHER AT 90-DEGREE ANGLES FROM THE J-BOXES.
2. ALL LOW VOLTAGE CABLING BEING INSTALLED WITHIN HE AREAS ABOVE THE CEILING LEVEL WITH EXPOSED/UNFINISHED CEILINGS SHALL BE RUN IN CONDUITS.
3. ALL THESE CONDUIT SYSTEMS SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO THE ROOF DECK LEVEL. IF THERE ARE PROTRUDING BEAMS THAT EXTEND DOWNWARD FROM THE ROOF DECK, THEN ADJUST THE CONDUIT LEVEL TO 3-INCHES BELOW THE BOTTOM OF THE BEAM LEVEL. AVOID ANY BENDING OF CONDUIT WHERE POSSIBLE .

ELECTRICAL DUCTWORK ANCHORING NOTES

DUCTWORK AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13, 16, AND 30 AND 13.6.8, AND 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26.

THE BRACING AND ATTACHMENTS TO THE STRUCTURE SHALL BE DETAILED ON THE APPROVED DRAWINGS OR THEY SHALL COMPLY WITH ON OF THE OSHPD PRE-APPROVALS (OPM #) AS MODIFIED TO SATISFY ANCHORAGE REQUIREMENTS OF ACI 318, APPENDIX D.

COPIES OF THE MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF HANGING AND BRACING OF THE PIPE, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS.

THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

ELECTRICAL EQUIPMENT NOTES

1. THE ELECTRICAL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF ELECTRICAL EQUIPMENT, DEVICES AND WIRING. SEE SECTION 260000 OF THE SPECIFICATIONS.
2. FOR THE EXACT LOCATION OF ELECTRICAL EQUIPMENT AND DEVICES SEE THE ARCHITECTURAL ELEVATIONS, DETAILS AND DIMENSIONS SHOWN ON THE DRAWINGS.

120V BRANCH CIRCUIT VOLT DROP CONDUCTOR LENGTH CHART

LOAD IN VOLT AMPERES	LENGTH OF CONDUCTOR				
	WIRE SIZE IN (GAUGE)				
	#12	#10	#8	#6	#4
1200VA	74	121	183	284	434
1560VA	57	93	141	218	334
1800VA	49	81	122	189	289
1920VA	46	76	115	178	271
2340VA	X	62	94	146	223
2880VA	X	51	76	118	181
3000VA	X	48	73	114	174
3900VA	X	X	56	87	134
4800VA	X	X	46	71	108

NOTES:
1. THIS CHART IS FOR COPPER CONDUCTORS ONLY.
2. THIS CHART ASSUME AN 80% POWER FACTOR AND STEEL RACEWAYS.
3. 2022 CALIFORNIA ENERGY CODE, 130.5(c) ALLOWS A MAXIMUM COMBINED VOLTAGE DROP OF 5%. THIS CHART ASSUMES A MAXIMUM LENGTH OF CONDUCTORS FOR LESS THAN 2% VOLTAGE DROP ON A BRANCH CIRCUIT AT GIVEN VA LOAD.
4. USE WIRE SIZE FROM THIS CHART UNLESS LARGER CONDUCTOR SIZES ARE NOTED ON THE DRAWINGS.
5. FOR VA VALUES NOT SHOWN USE NEXT HIGHEST VALUE FROM VALUE FROM THE CHART.

ABBREVIATIONS

A, AMP	AMPERES
A.F.F.	ABOVE FINISHED FLOOR
AL	ALUMINUM CONDUCTOR OR BUS
AT	AMP TRIP
BD	BOARD
BESS	BATTERY ENERGY STORAGE SYSTEM
C	CONDUIT
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CU	COPPER CONDUCTOR OR BUS
DB	DISTRIBUTION BOARD
DIST	DISTRIBUTION
EM,EMER	EMERGENCY
EMERPO	EMERGENCY POWER-OFF
(E)	EXISTING
EOL	END-OF-LINE
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
F	FUSE
FA/F.A.	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FATC	FIRE ALARM TERMINAL CABINET
F.B.O.	FURNISHED BY OTHER/FURNISHED BY OWNER
FLA	FULL LOAD AMPS
G,GND	GROUND, GREEN GROUND WIRE
GFCI	GROUND FAULT CIRCUIT INTERRUPT
HP	HORSEPOWER
IBO	INSTALLED BY OTHER
J/JB	JUNCTION BOX
KV	KILOVOLTS
KVA	KILOVOLTS-AMPERES
KW	KILOWATT
LTG	LIGHTING
MLO	MAIN LUG ONLY
MSB	MAIN SWITCHBOARD
MPOE	MINIMUM POINT OF ENTRY
MW	MICROWAVE
NTS	NOT TO SCALE
N	NEUTRAL
NIC	NOT IN CONTRACT
OSHPD	OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
P	POLE
PA/P.A.	PUBLIC ADDRESS SYSTEM
PB	PULL BOX
PNL	PANEL
REC.	RECEPTACLE
REF.	REFRIGERATOR
RM	ROOM
SCTB	SIGNAL AND COMMUNICATION TERMINAL BOARD
STC	SIGNAL TERMINAL CABINET
SW	SWITCH
TEL	TELEPHONE
TERM	TERMINAL
TPB	TELEPHONE PULL BOX
TS	TAMPER SWITCH
TTB	TELEPHONE TERMINAL BOARD
TTC	TELEPHONE TERMINAL CABINET
TYP	TYPICAL
U.C.	UNDER COUNTER
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLTS/VOLTAGE
W	WATTS
WM	WIREMOLD
WP	WEATHERPROOF
XMFR	TRANSFORMER
Ø	PHASE

REGISTERED PROFESSIONAL ENGINEER — JOHN BORRELLI — No. E16890 — EXP. 6/30/25 — ELECTRICAL — STATE OF CALIFORNIA

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No.	Revision Description	Date
B1	Building Dept. Plan Check 24-0097	05/15/2024
F1	Fresno Fire Dept. Plan Check	05/15/2024
C1	County Generated Changes	06/04/2024
B2	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT — ZAHIDUL HOQUE KHAN — C-40030 — REN: 11-30-25 — STATE OF CALIFORNIA

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Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:
SHEET INDEX, SYMBOLS LIST, ABBREVIATIONS, AND NOTES

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

Sheet No.:

E1.01

Sheet 1 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

ELECTRICAL EQUIPMENT BRACING NOTES

ALL ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE 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 2022 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 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 MOTE THAN 8 HOURS AND HEAVIER THAN 400 POUNDS ARE REQUIRED TO BE ANCHORED WITH TEMPORARY ATTACHMENTS.

THE ATTACHMENT OF THE FOLLOWING ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT 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 HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORTS 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

FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE STRUCTURAL ENGINEER OF RECORD AND THE STRUCTURAL ENGINEER. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.

SOLAR PHOTOVOLTAIC NOTES

LABELING GENERAL NOTES

1. ALL SWITCHBOARDS, PANEL BOARDS, INDUSTRIAL CONTROL PANELS AND MOTOR CONTROL CENTERS SHALL BE FIELD MARKED.
2. A PERMANENT PLAQUE OR DIRECTORY SHALL BE INSTALLED AT EACH SERVICE DISCONNECTING LOCATION IN COMPLIANCE WITH NEC ARTICLES 225.37 AND 230.2(E).
3. A PERMANENT PLAQUE OR DIRECTORY DENOTING THE LOCATION OF ALL ELECTRIC POWER SOURCE DISCONNECTING MEANS ON OR IN THE PREMISES SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT THE LOCATION(S) OF THE SYSTEM DISCONNECT(S) FOR ALL ELECTRIC POWER PRODUCTION SOURCES CAPABLE OF BEING INTERCONNECTED. THE MARKING SHALL COMPLY WITH 110.21(B).
4. EACH PV SYSTEM DISCONNECTING MEANS SHALL PLAINLY INDICATE WHETHER IN THE OPEN (OFF) OR CLOSED (ON) POSITION AND BE PERMANENTLY MARKED 'PV SYSTEM DISCONNECT OR EQUIVALENT. ADDITIONAL MARKINGS SHALL BE PERMITTED BASED UPON THE SPECIFIC SYSTEM CONFIGURATION. FOR PV SYSTEM DISCONNECTING MEANS WHERE THE LINE AND LOAD TERMINALS MAY BE ENERGIZED IN THE OPEN POSITION, THE DEVICE SHALL BE MARKED WITH THE FOLLOWING WORDS OR EQUIVALENT:

WARNING
ELECTRIC SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES
MAY BE ENERGIZED IN THE OPEN POSITION

5. 690.53 DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE.
   A PERMANENT LABEL FOR THE DC PV POWER SOURCE

   SHALL BE PROVIDED BY THE INSTALLER AT DC PV SYSTEM DISCONNECTING MEANS AND AT EACH DC EQUIPMENT DISCONNECTING MEANS REQUIRED BY 690.15. WHERE A DISCONNECTING MEANS HAS MORE THAN ONE DC PV POWER SOURCE, THE VALUES IN 690.53(5.1) THROUGH (5.3) SHALL BE SPECIFIED FOR EACH SOURCE.

   5.1. MAXIMUM VOLTAGE

      5.1.1. INFORMATIONAL NOTE TO (1): SEE 690.7 FOR VOLTAGE.

   5.2. MAXIMUM CIRCUIT CURRENT

      5.2.1. INFORMATIONAL NOTE TO (2): SEE 690.8(A) FOR CALCULATION OF MAXIMUM CIRCUIT CURRENT.

   5.3. MAXIMUM RATED OUTPUT CURRENT OF THE CHARGE CONTROLLER OR DC-TO-DC CONVERTER (IF INSTALLED).

6. THE MAXIMUM VALUES FOR THE PV POWER SOURCE CAN BE CALCULATED BY ADDING VOLTAGE RATINGS OF SERIES-CONNECTED MODULES AND ADDING CURRENT RATINGS OF PARALLEL-CONNECTED MODULES OR PV SOURCE CIRCUITS. SOME CHARGE CONTROLLERS HAVE HIGHER-RATED OUTPUT CURRENTS THAN THE INPUT CURRENTS FROM THE PV ARRAY. THEY REDUCE THE INPUT VOLTAGE FROM THE PV ARRAY WHILE INCREASING THE OUTPUT OF THE BATTERY
7. 690.54 INTERACTIVE SYSTEM POINT OF INTERCONNECTION.
   ALL INTERACTIVE SYSTEM(S) POINTS OF INTERCONNECTION WITH OTHER SOURCES SHALL BE MARKED AT AN ACCESSIBLE LOCATION AT THE DISCONNECTING MEANS AS A POWER SOURCE AND WITH THE RATED AC OUTPUT CURRENT AND NOMINAL OPERATING AC VOLTAGE.

CONDUCTOR LABELING AND GROUPING NOTES

1. IDENTIFICATION AND GROUPING.
   PV SOURCE CIRCUITS AND PV OUTPUT CIRCUITS SHALL NOT BE CONTAINED IN THE SAME RACEWAY, CABLE TRAY, CABLE, OUTLET BOX, JUNCTION BOX, OR SIMILAR FITTING AS CONDUCTORS, FEEDERS, BRANCH CIRCUITS OR OTHER NON-PV SYSTEMS, OR INVERTER OUTPUT CIRCUITS, UNLESS THE CONDUCTORS OF THE DIFFERENT SYSTEMS ARE SEPARATED BY A PARTITION. PV SYSTEM CIRCUIT CONDUCTORS SHALL BE IDENTIFIED AND GROUPED AS REQUIRED BY 690.31(B)(1) THROUGH (2). THE MEANS OF IDENTIFICATION SHALL BE PERMITTED BY SEPARATE COLOR CODING, MARKING TAPE, TAGGING, OR APPROVED MEANS.

   ALTERNATING-CURRENT BRANCH-CIRCUIT CONDUCTORS THAT SUPPLY AN EXTERIOR LUMINAIRE INSTALLED NEAR A ROOF-MOUNTED PV

1.1. IDENTIFICATION. PV SYSTEM CIRCUIT CONDUCTORS SHALL BE IDENTIFIED AT ALL ACCESSIBLE POINTS OF TERMINATION, CONNECTION, AND SPLICES. THE MEANS OF IDENTIFICATION SHALL BE PERMITTED BY SEPARATE COLOR CODING, MARKING TAPE, TAGGING, OR OTHER APPROVED MEANS. ONLY SOLIDLY GROUNDED PV SYSTEM CIRCUIT CONDUCTORS, IN ACCORDANCE WITH 690.41(A)(5), SHALL BE MARKED IN ACCORDANCE WITH 200.6.

   1.1.1. EXCEPTION: WHERE THE IDENTIFICATION OF THE CONDUCTORS IS EVIDENT BY SPACING OR ARRANGEMENT. FURTHER IDENTIFICATION SHALL NOT BE ACQUIRED.

1.2. GROUPING. WHERE THE CONDUCTORS OF MORE THAN ONE

   1.2.1. EXCEPTION: THE REQUIREMENT FOR GROUPING SHALL NOT APPLY IF THE CIRCUIT ENTERS FROM A CABLE FOR RACEWAY UNIQUE TO THE CIRCUIT THAT MAKES THE GROUPING OBVIOUS

BESS COMMISSIONING

CONTRACTOR TO HAVE THE MANUFACTURER DO THE COMMISSIONING OF THE BESS. COMMISSIONING OF NEWLY INSTALLED BESS SHALL BE CONDUCTED PRIOR TO THE BESS BEING PLACED IN SERVICE IN ACCORDANCE WITH THE FOLLOWING:

1. A NARRATIVE DESCRIPTION OF THE ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING, INCLUDING THE PERSONNEL INTENDED TO ACCOMPLISH EACH OF THE ACTIVITIES.
2. A LISTING OF THE SPECIFIC BESS AND ASSOCIATED COMPONENTS, CONTROLS AND SAFETY-RELATED DEVICES TO BE TESTED, A DESCRIPTION OF THE TESTS TO BE PERFORMED AND THE FUNCTIONS TO BE TESTED.
3. CONDITIONS UNDER WHICH ALL TESTING WILL BE PERFORMED, WHICH ARE REPRESENTATIVE OF THE CONDITONS DURING NORMAL OPERATIONS OF THE BESS.
4. DOCUMENTATION OF THE OWNER'S PROJECT REQUIREMENTS AND THE BASIS OF DESIGN NECESSARY TO UNDERSTAND THE INSTALLATION AND OPERATION OF THE BESS.
5. VERIFICATION THAT REQUIRED EQUIPMENT AND SYSTEMS ARE INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS.
6. INTEGRATED TESTING FOR ALL FIRE AND SAFETY SYSTEMS.
7. TESTING FOR ANY REQUIRED THERMAL MANAGEMENT, VENTILATION OR EXHAUST SYSTEMS ASSOCIATED WITH THE BESS INSTALLATION.
8. PREPARATION AND DELIVERY OF OPERATION AND MAINTENANCE DOCUMENTATION.
9. TRAINING OF FACILITY OPERATING AND MAINTENANCE STAFF.
10. IDENTIFICATION AND DOCUMENTATION OF THE REQUIREDS FOR MAINTAINING SYSTEM PERFORMANCE TO MEET THE ORIGINAL DESIGN INTENT DURING THE OPERATION PHASE.
11. IDENTIFICATION AND DOCUMENTATION OF PERSONNEL WHO ARE QUALIFIED TO SERVICE, MAINTAIN, AND DECOMMISSION THE BESS, AND RESPOND TO INCIDENTS INVOLVING THE BESS, INCLUDING DOCUMENTATION THAT SUCH SERVICE HAS BEEN CONTRACTED FOR.
12. PG&E APPROVAL OF THE INTERACTIVE BESS AND SOLAR SYSTEM TO BE OBTAINED PRIOR TO COMMISSIONING OF THE BESS SYSTEM. BESS SHALL BE SET TO OFF GRID MODE WHEN THERE IS NO POWER FROM UTILITY.
13. THE BESS OPERATIONAL MODE SHALL BE SET TO PEAK SHAVING AND THE BESS SHALL BE PROGRAMMED SO CHARGING IS DONE OFF PEAK.
14. PROVIDE AN EXTENDED WARRANTY OF 10 YEARS WITH YEARLY MAINTENANCE.

INITIAL ACCEPTANCE TESTING
DURING THE COMMISSIONING PROCESS A BESS SHALL BE EVALUATED FOR PROPER OPERATION IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND THE COMMISSIONING PLAN PRIOR TO FINAL APPROVAL.

COMMISSIONING REPORT
A REPORT DESCRIBING THE RESULTS OF THE SYSTEM COMMISSIONING, INCLUDING THE RESULTS OF THE INITIAL ACCEPTANCE TESTING REQUIRED PER CFC IN SECTION 1207.2.1.1, SHALL BE PROVIDED TO THE FIRE CODE OFFICIAL PRIOR TO FINAL INSPECTION AND APPROVAL AND MAINTAINED AT AN APPROVED ON-SITE LOCATION.

BESS SIGNAGE REQUIREMENTS

2.4 SIGNAGE

2.4.1 PROVIDE REQUIRED SIGNAGE, PER CFC 1207.4.8 AND CEC 706

2.4.2 PROVIDE MARKINGS FOR DISCONNECTING MEANS, PER CFC 1207.4.1 AND CEC 110.21(B) AND 706.15(C)

2.4.3 THE BESS MANUFACTURER AND/OR BESS APPROVED SUB CONTRACTOR SHALL MAINTAIN THE ENERGY STORAGE SYSTEM IN A PROPER AND SAFE OPERATING CONDITION. THE REQUIRED MAINTENANCE SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS AND INDUSTRY STANDARDS. A WRITTEN RECORD OF THE SYSTEM MAINTENANCE SHALL BE KEPT AND SHALL INCLUDE RECORDS OF REPAIRS AND REPLACEMENTS NECESSARY TO MAINTAIN THE SYSTEM IN PROPER AND SAFE OPERATING CONDITION.

BATTERY ENERGY SYSTEM STORAGE REQUIREMENTS

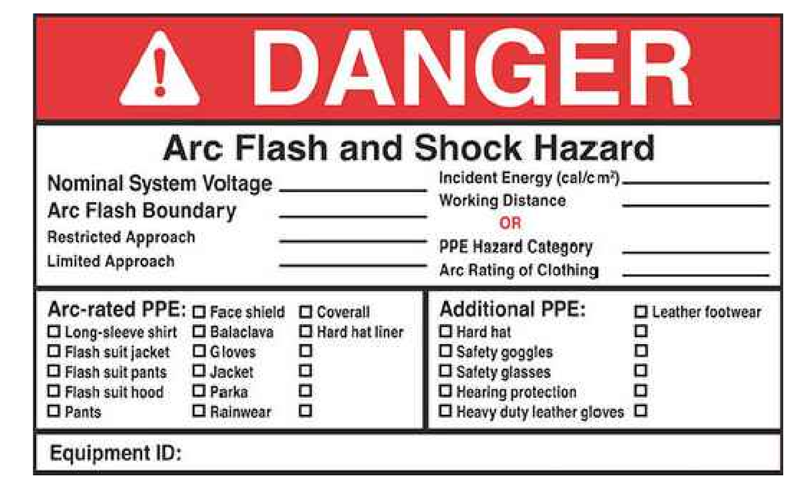
1. THE CONTRACTOR SHALL OBTAIN A SEPARATE OPERATION PERMIT FROM THE LOCAL FIRE DEPARTMENT FOR THE INSTALLATION AND OPERATION OF THE BATTERY ENERGY STORAGE SYSTEM.
2. GENERALLY REMOTE BATTERY ENERGY STORAGE SYSTEMS ARE LOCATED 100FT FROM BUILDINGS AND PROPERTY LINES. HOWEVER, THE BESS IS UNDER REVIEW BY LOCAL FIRE CODE OFFICIAL FOR APPROVAL CONSIDERATION SINCE IT IS LOCATED 96FT FROM NORTHERN PROPERTY LINE AND 87FT FROM SOUTH-WEST PROPERTY LINE.

ARC FLASH WARNING LABEL REQUIREMENTS

CONDITION 1

1. ARC FLASH HAZARD HAZARD WARNING LABELS SHALL BE FIELD MARKED/PLACED ON ALL NEW AND EXISTING ELECTRICAL DISTRIBUTION BOARDS, MAIN SWITCHBOARDS, TRANSFORMERS, PANELS, PANELBOARDS, DISCONNECTS, MCC'S. PER CEC/NEC 110.16A THAT IS WITHIN THE SCOPE OF THIS PROJECT. LABELS SHALL BE APPLIED TO EXISTING EQUIPMENT WHERE NEW CONNECTIONS ARE MADE. THE LABELS SHALL MEET THE REQUIREMENTS OF 110.21(B) PER ANSI Z535.4-2011 GUIDELINES BY USING EFFECTIVE COLORS, SYMBOLS OR ANY COMBINATION THEREOF.

CONDITION 2



1. ARC FLASH HAZARD WARNING LABELS FOR AN ENTIRELY NEW ELECTRICAL SERVICE AND DISTRIBUTION SYSTEMS, THE EXCEPTION TO 110.16(B) SHALL BE UTILIZED AND ALL ELECTRICAL COMPONENTS OF THE DISTRIBUTION EQUIPMENT SHALL HAVE AN ARC FLASH WARNING LABEL WITH THE FOLLOWING INFORMATION:
   a. NOMINAL SYSTEM VOLTAGE
   b. ARC FLASH BOUNDARY
   c. MINIMAL ARC RATING OF CLOTHING
   d. AT LEAST ONE, BUT NOT BOTH OF THE FOLLOWING:
      - INCIDENT ENERGY & CORRESPONDING WORKING DISTANCE
      - THE ARC FLASH PPE CATEGORY

   THE LABELS SHALL MEET THE REQUIREMENTS OF 110.21(B) PER ANSI Z535.4-2011 GUIDELINES BY USING EFFECTIVE COLORS, SYMBOLS OR ANY COMBINATION THEREOF.
   THE CONTRACTOR SHALL HAVE THE EQUIPMENT MANUFACTURER PROVIDE THE REQUIRED LABELING OR OBTAIN THE SERVICES OF A THIRD PARTY OR THE ELECTRICAL ENGINEER OF RECORD.

CONDITION 3

1. ARC FLASH HAZARD WARNING LABELS SHALL BE FIELD MARKED/PLACED ON ALL NEW SERVICE EQUIPMENT WITH THE FOLLOWING INFORMATION: NOMINAL SYSTEM VOLTAGE, AVAILABLE FAULT CURRENT AT THE SERVICE OVERCURRENT PROTECTIVE DEVICES, CLEARING TIME OF THE SERVICE OVERCURRENT PROTECTIVE DEVICES BASED ON THE AVAILABLE FAULT CURRENT AT THE SERVICE EQUIPMENT, THE DATE THE LABEL WAS APPLIED. THE LABELS SHALL MEET THE REQUIREMENTS OF 110.21(B) PER ANSI Z535.4-2011 GUIDELINES BY USING EFFECTIVE COLORS, SYMBOLS OR ANY COMBINATION THEREOF.

CALIFORNIA CODE OF REGULATIONS

PARTIAL LIST OF APPLICABLE CODES AS OF JANUARY 1, 2023

2022 CALIFORNIA ADMINISTRATIVE CODE (CAC), PART 1, TITLE 24 CCR
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 CCR (2021 INTERNATIONAL BUILDING CODE, VOL. 1 & 2, AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 CCR (2020 NATIONAL ELECTRICAL CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 CCR (2021 IAPMO UNIFORM MECHANICAL CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 CCR(2021 IAPMO UNIFORM PLUMBING CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 CCR
2022 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24 CCR(2021 INTERNATIONAL FIRE CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR (2021 INTERNATIONAL EXISTING BUILDING CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 CCR
2022 CALIFORNIA REFERENCED STANDARDS CODE, PART 12, TITLE 24 CCR TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS
2019 ASME A17.1/CSA B44-13 SAFETY CODE FOR ELEVATORS AND ESCALATORS (PER 2022 CBCPART 2 CH 35)NOTE: CAL/OSHA ELEVATOR UNIT ENFORCES CCR TITLE 8 AND USES THE 2004 PART 2 CH 35)NOTE: CAL/OSHA ELEVATOR UNIT ENFORCES CCR TITLE 8 AND USES THE 2004 ASME A17.1 BY ADOPTION.

COUNTY OF FRESNO ORDINANCE CODE

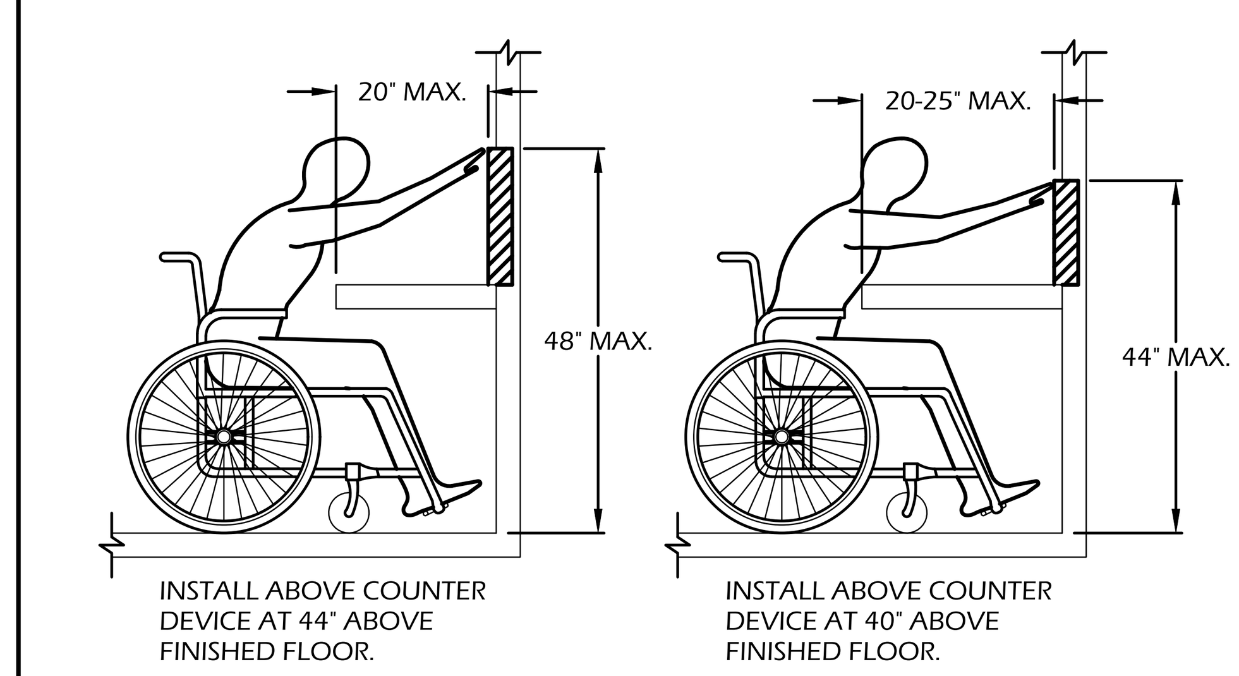
COUNTY OF FRESNO ORDINANCE TITLE 15

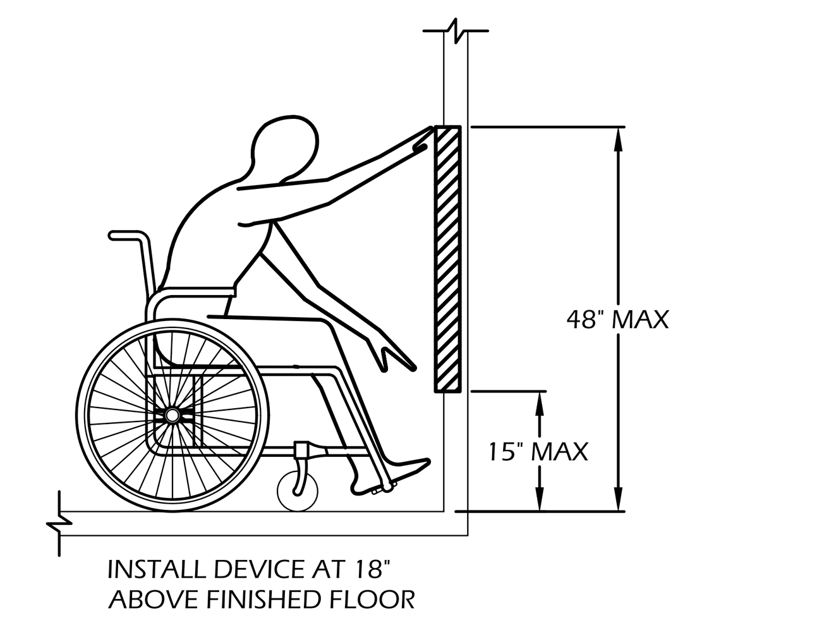
PARTIAL LIST OF APPLICABLE STANDARDS

NFPA 13 - STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS (CA AMENDED) - 2022 EDITION
NFPA 14 - STANDARD FOR THE INSTALLATION OF STANDPIPE AND HOSE SYSTEMS (CA AMENDED) - 2019 EDITION
NFPA 17 - STANDARD FOR DRY CHEMICAL EXTINGUISHING SYSTEMS - 2021 EDITION
NFPA 17A - STANDARD FOR WET CHEMICAL EXTINGUISHING SYSTEMS - 2021 EDITION
NFPA 20 - STANDARD FOR THE INSTALLATION OF STATIONARY PUMPS FOR FIRE PROTECTION - 2019 EDITION
NFPA 22 - STANDARD FOR WATER TANKS FOR PRIVATE FIRE PROTECTION - 2023 EDITION
NFPA 24 - STANDARD FOR THE INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES (CA AMENDED) - 2019 EDITION
NFPA 72 - NATIONAL FIRE ALARM AND SIGNALING CODE (CA AMENDED) - 2022 EDITION
NFPA 80 - STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES - 2019 EDITION
NFPA 2001 - STANDARD ON CLEAN AGENT FIRE EXTINGUISHING SYSTEMS (CA AMENDED) - 2018 EDITION
UL 300 - STANDARD FOR FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS FOR PROTECTION OF COMMERCIAL COOKING EQUIPMENT - 2005 (R2010)
UL 464 - AUDIBLE SIGNALING DEVICES FOR FIRE ALARM AND SIGNALING SYSTEMS, INCLUDING ACCESSORIES - 2003 EDITION
UL 521 - STANDARD FOR HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS - 1999 EDITION
ICC 300 - STANDARD FOR BLEACHERS, FOLDING AND TELESCOPIC SEATING, AND GRANDSTANDS - 2017 EDITION
FOR A COMPLETE LIST OF APPLICABLE NFPA STANDARDS REFER TO 2022 CBC (SFM) CHAPTER 35 AND CALIFORNIA FIRE CODE CHAPTER 80.

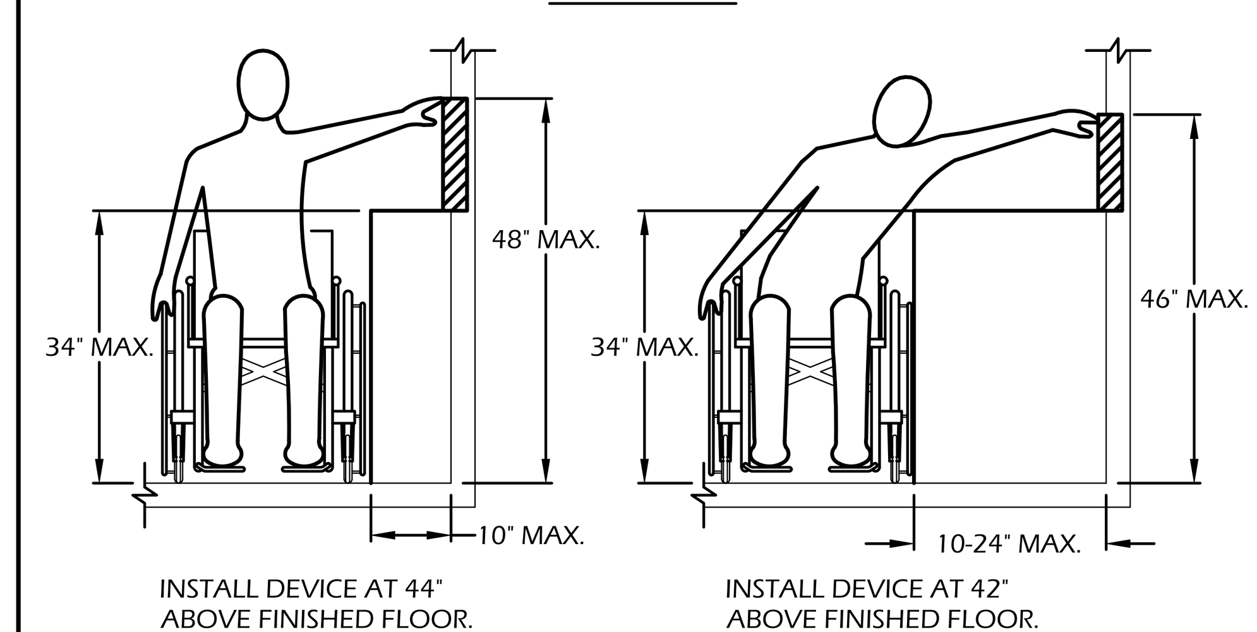
TYPICAL WALL DEVICE MOUNTING HEIGHTS

ADA GUIDELINES





FRONT ACCESS



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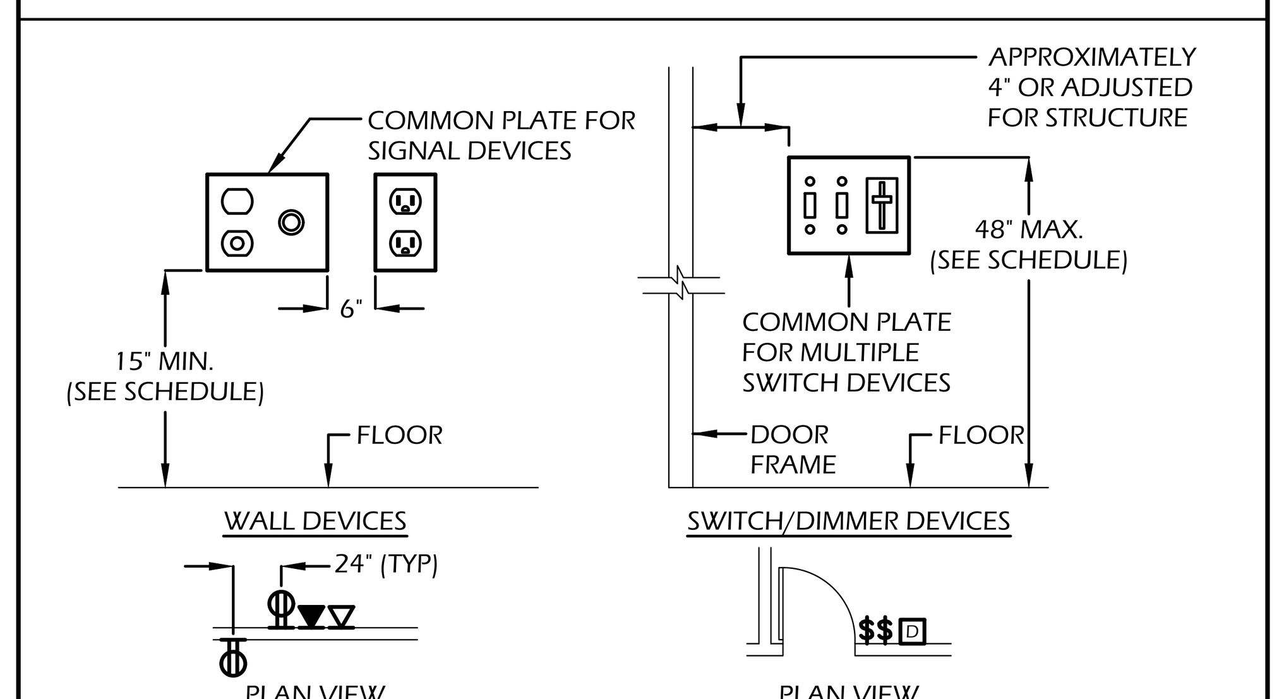

DEVICE TYPE	MOUNTING HEIGHT
SWITCHES	NO MORE THAN 48" A.F.F. TO TOP OF DEVICE
DIMMERS	NO MORE THAN 48" A.F.F. TO TOP OF DEVICE
RECEPTACLES	NO LESS THAN 15" A.F.F. TO BOTTOM OF DEVICE
TELEPHONE OUTLETS (OFFICE)	NO LESS THAN 15" A.F.F. TO BOTTOM OF DEVICE
TELEPHONE OUTLETS (CLASSROOMS)	NO MORE THAN 48" A.F.F. TO TOP OF DEVICE
DATA OUTLETS	NO LESS THAN 15" A.F.F. TO BOTTOM OF DEVICE
INTERCOM OUTLETS	NO LESS THAN 15" A.F.F. TO BOTTOM OF DEVICE
TELEVISION OUTLETS	NO LESS THAN 15" A.F.F. TO BOTTOM OF DEVICE
MICROPHONE OUTLETS	NO LESS THAN 15" A.F.F. TO BOTTOM OF DEVICE
RECEPTACLES, OUTLETS, SWITCHES, ETC. MOUNTED ABOVE COUNTERS	WITHIN THE REACH RANGES SPECIFIED IN SECTION 1138A.3 OF THE CALIFORNIA BUILDING CODE.
CLOCKS	AS SHOWN ON DRAWINGS
SPEAKERS	AS SHOWN ON DRAWINGS
HAND DRYERS	REFER TO ARCHITECTURAL PLANS
HAIR DRYERS	REFER TO ARCHITECTURAL PLANS
WALL SCONCES	ABOVE 80" FOR PROJECTIONS INTO CORRIDORS OF MORE THAN 4" OR AS SHOWN ON DRAWING
EXIT LIGHTS	SEE DETAILS
EXIT MARKERS	SEE DETAILS
EMERGENCY LIGHTING WALL PACK	AS SHOWN ON DRAWINGS
KEYPADS	NO MORE THAN 48" A.F.F. TO TOP OF DEVICE
WIREMOLD	MOUNTING HEIGHT SHALL BE SUCH THAT THE LOWEST DEVICE MOUNTED ON WIREMOLD IS AT 15" A.F.F. TO BOTTOM OF DEVICE, U.O.N.

NOTES:
1. ALL VERTICAL MEASUREMENTS ARE 'ABOVE FINISHED FLOOR' - (A.F.F.).
2. SEE DRAWINGS FOR NON-TYPICAL MOUNTING HEIGHTS.
3. WHERE MOUNTING HEIGHTS ARE NOT SHOWN, REFER TO ARCHITECTURAL PLANS.
4. RECEPTACLES, LIGHT SWITCHES, TELEPHONE-DATA OUTLETS AND OTHER RECESSED ELECTRICAL DEVICES THAT ARE SHOWN BACK-TO-BACK ON WALLS SEPARATING CORRIDORS, ROOMS AND OPEN AREAS SHALL BE SEPARATED HORIZONTALLY BY AT LEAST 24 INCHES. THIS REQUIREMENT IS TO SATISFY BOTH THE CONDITIONS AT FIRE RATED CORRIDORS AND SOUND TRANSMISSION FACTOR BETWEEN ALL CORRIDORS, ROOMS AND OPEN AREAS INCLUDING EXTERIOR WALLS.

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BAI Project Number :	23183
Drawn By:	BAI
Checked By:	JB

No.	Revision Description	Date
B1	Building Dept. Plan Check 24-0097	05/15/2024
F1	Fresno Fire Dept. Plan Check	05/15/2024
C1	County Generated Changes	06/04/2024
B2	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN: 11-30-25 STATE OF CALIFORNIA

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Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:
ADDITIONAL NOTES AND REQUIREMENTS

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
E1.02

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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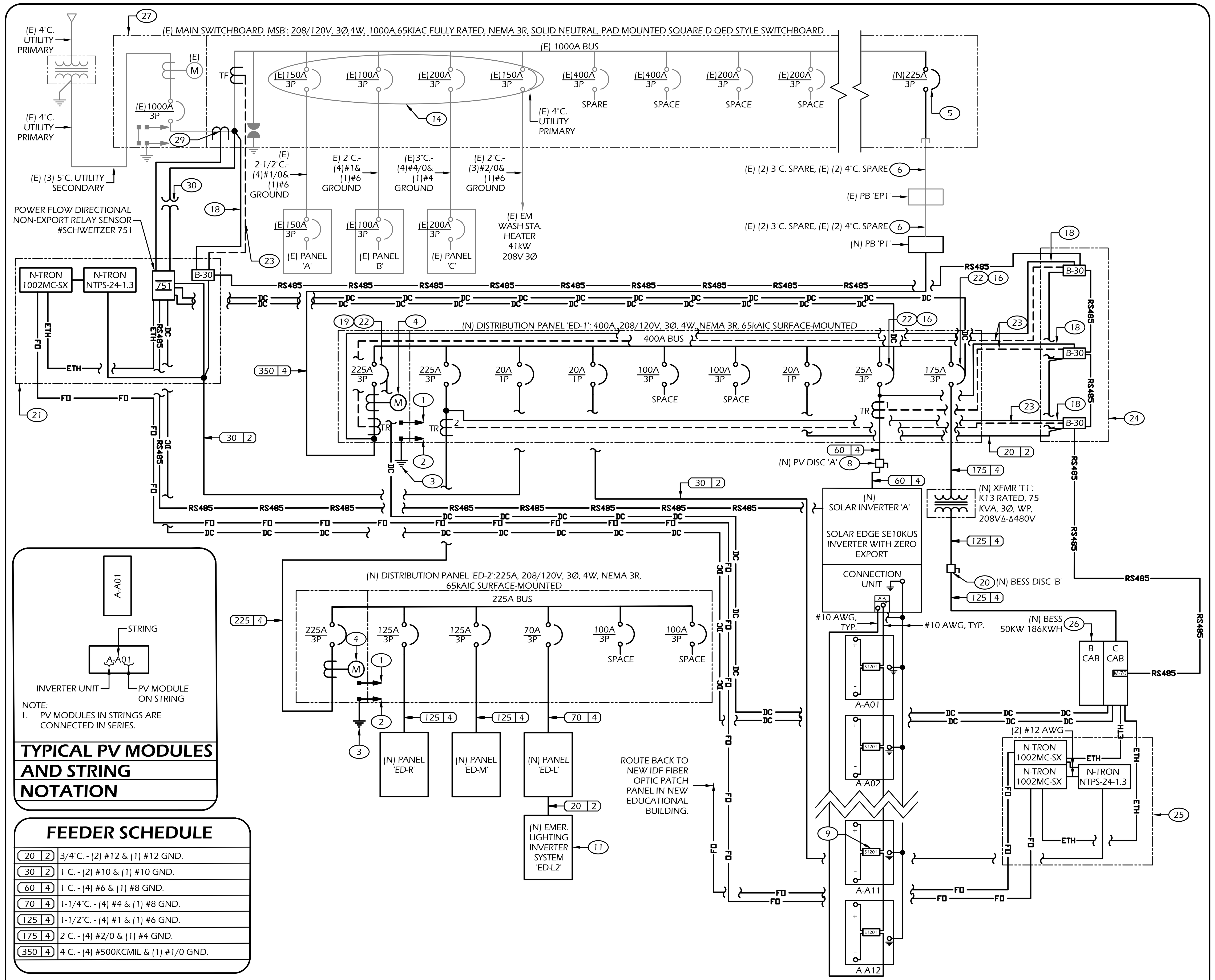

FEEDER SCHEDULE

20 | 2	3/4"C. - (2) #12 & (1) #12 GND.
30 | 2	1"C. - (2) #10 & (1) #10 GND.
60 | 4	1"C. - (4) #6 & (1) #8 GND.
70 | 4	1-1/4"C. - (4) #4 & (1) #8 GND.
125 | 4	1-1/2"C. - (4) #1 & (1) #6 GND.
175 | 4	2"C. - (4) #2/0 & (1) #4 GND.
350 | 4	4"C. - (4) #500KCMIL & (1) #1/0 GND.

2 / -
SINGLE LINE DIAGRAM
NOT TO SCALE

ON-GRID MODE - SOLAR AND BESS SYSTEM

BATTERY ENERGY STORAGE SYSTEM (PCS CRD) - FOR NON-EXPORT		
BESS NON-EXPORT (BESS ON PEAK SHAVING	1. MONITOR THE POWER AT THE SWITCHBOARD, LOAD, AND SOLAR SYSTEM WITH BESS PCS CRD. BESS PCS CRD SHALL ADJUST POWER OUTPUT FOR NON-EXPORT.	
SOLAR SYSTEM (ZERO GRID EXPORT) - FOR NON-EXPORT		
SOLAR SYSTEM (ZERO GRID EXPORT)	2. MONITOR THE POWER AT THE SWITCHBOARD WITH #SCHWEITZER 751 AND COMMUNICATE BACK TO THE SOLAR INVERTER. SOLAR INVERTER EXPORT LIMITATION TO ADJUST INVERTER POWER PRODUCTION FOR NON-EXPORT.	

OFF-GRID MODE - SOLAR AND BESS SYSTEM

OFF-GRID MODE	1. MONITOR THE POWER AT THE SWITCHBOARD, LOAD, AND SOLAR SYSTEM WITH BESS PCS CRD.	
	1.1	IF THERE IS NO POWER PRESENT AT THE EXISTING SWITCHBOARD AND THERE IS NO POWER AHEAD OF DISTRIBUTION PANEL 'ED-1' MAIN CIRCUIT BREAKER:
	1.1.A	CLOSE THE ELECTRICALLY OPERATED MAIN CIRCUIT BREAKER AT 'ED-1' AND EXECUTE BESS ON GRID-FORMING MODE.
	1.1.B	BESS TO KEEP MONITORING THE POWER AT THE LOAD AND SOLAR SYSTEM WITH BESS PCS CRD FOR OPTIMAL POWER OUTPUT.
	1.2	IF THERE IS POWER PRESENT AT THE EXISTING SWITCHBOARD, CLOSE THE ELECTRICALLY OPERATE MAIN CIRCUIT BREAKER OF DISTRIBUTION PANEL 'ED-1' AND EXECUTE BESS IN ON-GRID MODE.

NOTES:
1. ELECTRICAL CONTRACTOR TO COORDINATE WITH BESS AND SOLAR INVERTER MANUFACTURER AND PROVIDE PROGRAMMING TO ACHIEVE FUNCTIONAL REQUIREMENTS.

BESS SYMBOL LIST

SYMBOL	DEVICE	MANUFACTURER
M-70	COMMUNICATION GATEWAY	SOCOMEC #M-70
B-30	POWER MONITORING	SOCOMEC #DIRIS B-30
TR 1	CURRENT SENSOR (S) WITH RJ12 SOCOMEC CONNECTOR (1) PER PHASE AND NEUTRAL	SOCOMEC #TR/ITR-10
TR 2	CURRENT SENSOR (S) WITH RJ12 SOCOMEC CONNECTOR (1) PER PHASE AND NEUTRAL	SOCOMEC #TR/ITR-21
TF	CURRENT SENSOR (S) WITH RJ12 SOCOMEC CONNECTOR (1) PER PHASE AND NEUTRAL	SOCOMEC #TF-120
22	MOTORIZED BREAKER	'EO' ELECTRICALLY OPERATED CIRCUIT BREAKER RECOMMENDED BY SOCOMEC: SQUARE D MASTER PACT
23	CURRENT SENSOR CABLE	SOCOMEC CABLES WITH RJ12 CONNECTOR
751	POWER FLOW DIRECTIONAL NON-EXPORT RELAY SENSOR WITH RS-485, ETHERNET, AND ROGOWSKI CURRENT SENSOR INPUT	#SCHWEITZER 751 751201A1B1B0X851D00
ETH	OUTDOOR RATED CAT 6 CABLE	BERK-TEK
RS485	OUTDOOR RATED 2-PAIR RS485 CABLE	BELDEN #3107A
FO	OUTDOOR RATED SIX STRAND MULTIMODE FIBER OPTIC CABLE	BELDEN #FD4D006R9
DC	OUTDOOR RATED (4)#12 AWG	

NOTES:
1. CONTRACTOR TO COORDINATE WITH SOCOMEC FOR BESS WIRING CONNECTIONS AND POWER MONITORING.

10kW INVERTER CALCULATION

NUMBER OF STRINGS/INPUTS PER UNIT	1/4
NUMBER OF DESIGN SOLAR MODULES PER STRING	12
INVERTER MAXIMUM ALLOWABLE INPUT POWER	17500W
MAXIMUM DESIGN INPUT POWER PER STRING	6000W
MAXIMUM DESIGN INPUT TOTAL POWER	6000W
MAXIMUM DESIGN OUTPUT TOTAL POWER	5820W
INVERTER MAXIMUM ALLOWABLE INPUT VOLTAGE	600VDC
DESIGN NOMINAL INPUT VOLTAGE	400VDC
INVERTER MAXIMUM ALLOWABLE INPUT CURRENT	27.8ADC
MAXIMUM DESIGN INPUT CURRENT PER STRING	15ADC
MAXIMUM DESIGN INPUT CURRENT	15ADC

10kW INVERTER SPECIFICATONS

MAXIMUM INPUT POWER	17500W
NOMINAL INPUT VOLTAGE	400VDC
MAXIMUM INPUT VOLTAGE	600VDC
NOMINAL L-N OUTPUT VOLTAGE	120VAC
NOMINAL L-L OUTPUT VOLTAGE	208VAC
MAXIMUM INPUT CURRENT	27.8ADC
MAXIMUM INPUT SHORT CIRCUIT CURRENT	55ADC
MAXIMUM OUTPUT CURRENT	27.8AAC
INVERTER EFFICIENCY	97.00%

PV MODULE SPECIFICATONS

POWER AT MPP	500W
VOLTAGE AT MPP	38.8V
OPEN CIRCUIT VOLTAGE	45.78V
CURRENT AT MPP	12.89A
SHORT CIRCUIT CURRENT	13.48A

NOTES:
1. ALL PHOTOVOLTAIC MODULES SHALL B SILFAB SOLAR #SIL-500 HM 500W PHOTOVOLTAIC MODULES.
2. MINIMUM SIZE GROUND CONDUCTOR FOR THE SOLAR ARRAY CONNECTION SHALL BE #10 AWG.
3. MINIMUM SIZE CONDUCTOR FOR THE SOLAR ARRAY CONNECTION SHALL BE #10 AWG.

1 / -
SOLAR PV MODULE SPECIFICATION, INVERTER SPECIFICATION, AND DESIGN CALCULATIONS
NOT TO SCALE

GENERAL NOTES

1. THE WORKING CLEARANCES REQUIRED BY [CEC 110.26] MUST BE PERMANENTLY MAINTAINED IN FRONT OF ALL ELECTRICAL EQUIPMENT.

SHEET NOTES

1. BOARD SHALL HAVE FULL NEUTRAL BUS.
2. BOARD SHALL HAVE LENGTH GROUND BUS.
3. PROVIDE GROUNDING ELECTRODE PER SPECIFICATIONS. PROVIDE SIZE #2/0 COPPER CONDUCTOR FOR THE GROUND CONNECTION FROM THE SERVICE MAIN GROUND BUS TO THE GROUND ROD. GROUND BOND TO COLD WATER PIPE GROUND CONDUCTOR.
4. PROVIDE POWER AND ENERGY METER PER CEC 130.5(A) CAPABLE OF MEASURING INSTANTANEOUS kW DEMAND. HISTORICAL PEAK DEMAND kW, AND TRACKING kWh USAGE FOR ONE YEAR OF MEASURING TRACKING.
5. PROVIDE AND INSTALL THE NEW INDICATED CIRCUIT BREAKER AND ALL MOUNTING HARDWARE.
6. PROVIDE AND INSTALL THE INDICATED CONDUCTORS FOR THE NEW DISTRIBUTION PANEL 'ED-1' BACK TO THE EXISTING MAIN SWITCHBOARD 'MSB' WITHIN ONE OF THE EXISTING 4-INCH SPARE CONDUITS.
7. NOT USED.
8. PROVIDE AND INSTALL EATON 600-VOLT, 60-AMP, 3-PHASE, NEMA 4X, WITH VIEWING WINDOW AND ENHANCED VISIBLE BLADE HEAVY DUTY SAFETY FUSED SWITCH DISCONNECT #DH362NWKW WITH 200KA SHORT-CIRCUIT RATING. PROVIDE MARKING PER CEC 690.13.
9. MOUNT THE POWER OPTIMIZERS IN A SHADED LOCATION NEAR THE PV MODULES, ON THE STRUCTURE OR RACKING TO WHICH THE MODULE IS ATTACHED, USING THE MOUNTING HOLES. AVOID MOUNTING POWER OPTIMIZERS IN LOCATIONS WHERE THEY WILL BE EXPOSED TO DIRECT SUNLIGHT. ATTACH EACH WASHERS. REFER TO SOLAR EDGE INSTALLATION GUIDE FOR CONNECTING POWER OPTIMIZERS TO MODULES AND METHODS TO GROUND THE POWER OPTIMIZER.
10. NOT USED.
11. PROVIDE AND INSTALL A 1kVA, 120V-IN & 120V-OUT, 1 PHASE, MYERS #1-EM-1-S-BA2004-5YP EMERGENCY LIGHTING INVERTER WITH 90 MINUTES OF RUN TIME (27.5" TALL X 24.5" WIDE X 10.5" DEEP 281 POUNDS TOTAL SYSTEM WEIGHT) OR APPROVED EQUAL. PROVIDE MANUFACTURER FLOOR MOUNTING BRACKETS FOR FLOOR MOUNTING.
12. NOT USED.
13. NOT USED.
14. REARRANGE AND MOVE ONE EXISTING CIRCUIT BREAKER HIGH UP ON THE EXISTING MAIN SWITCHBOARD LINEUP TO ACCOMMODATE THE NEW BREAKER. EXTEND THE CONDUCTORS AS NECESSARY.
15. NOT USED.
16. DO NOT CONNECT SIGNAL CABLE COMING FROM THE #SCHWEITZER 751. CURL UP AND LEAVE WITHIN CIRCUIT BREAKER SECTION.
17. NOT USED.
18. PROVIDE AND INSTALL #12 AWG CONDUCTORS FOR VOLTAGE MEASUREMENT FOR EACH PHASE AND NEUTRAL LINE. PROVIDE AND INSTALL 3-PHASE DIMRAIL MOUNTING FUSE HOLDER AND FUSES 0.5 A CLASS CC. COORDINATE WITH MANUFACTURER FOR WIRING CONNECTIONS.
19. ON/OFF CONTROL OF CIRCUIT BREAKER VIA THE BATTERY POWER MANAGEMENT SYSTEM FOR ON-GRID TO OFF-GRID OR OFF-GRID TO ON-GRID TRANSITION.
20. PROVIDE AND INSTALL EATON 600-VOLT, 200-AMP, 3-PHASE, NEMA 4X, WITH VIEWING WINDOW AND ENHANCED VISIBLE BLADE HEAVY DUTY SAFETY FUSED SWITCH DISCONNECT #DH363NWKW WITH 90A FUSE AND 200KA SHORT-CIRCUIT RATING. PROVIDE MARKING PER CEC 706.15.
21. PROVIDE AND INSTALL A NEMA 3R JUNCTION BOX. REFER TO SHEET E2.01, SHEET NOTE 6 FOR LOCATION AND REQUIREMENTS. PROVIDE AND INSTALL WITHIN THE JBOX DIM RAIL TO SPAN THE ENTIRE WIDTH. PROVIDE AND INSTALL DIRECTIONAL POWER FLOW NON-EXPORT RELAY SENSOR, N-TRON MEDIA CONVERTER, N-TRON DC POWER SUPPLY, AND DIRIS B-30. MAKE ALL CONNECTIONS.
22. PROVIDE AND INSTALL 'EO' ELECTRICALLY-OPERATED CIRCUIT BREAKER RECOMMENDED BY SOCOMEC #SQUARE D MASTER PACT.
23. PROVIDE AND INSTALL SOCOMEC CABLES WITH RJ12 CONNECTOR FROM THE CURRENT ACQUISITION MODULES BACK TO THE CURRENT SENSORS.
24. REFER TO SHEET NOTE 8 ON SHEET E2.01.
25. PROVIDE AND INSTALL A NEMA 3R JUNCTION BOX. REFER TO SHEET E2.01, SHEET NOTE 9 FOR LOCATION AND REQUIREMENTS. PROVIDE AND INSTALL WITHIN THE JBOX DIM RAIL TO SPAN THE ENTIRE WIDTH. PROVIDE AND INSTALL N-TRON MEDIA CONVERTER AND N-TRON DC POWER SUPPLY. MAKE ALL CONNECTIONS.
26. PROVIDE AND INSTALL SOCOMEC #SUNSYS HES L 480/277V, 3 Ø, 4W, 50KVA, 186KWH, WITH LITHIUM FERRO-PHOSPHATE BATTERIES, NEMA 3R OUTDOOR RATED BATTERY ENERGY STORAGE SYSTEM WITH INTERNAL UPS AND 10 YEAR EXTENDED WARRANTY. COORDINATE WITH BESS CONTRACTOR TO SET THE PEAK SHAVING AND BACKUP MODE PROFILE OPTIONS. CONTRACTOR TO INSTALL ALL BESS CONDUIT AND PULL IN ALL POWER AND LOW VOLTAGE WIRING. CONTRACTOR SHALL NOT MAKE FINAL CONDITIONS UNTIL SOCOMEC MAKES THE COMMISSIONING OF THE BESS SYSTEM. CONTRACTOR TO REFER TO THE COMMISSIONING NOTES ON SHEET E1.02. SWIVEL MOUNTING BRACKET FOR FIRE ALARM FLAME DETECTOR TO BE INSTALLED BY BESS MANUFACTURER. ELECTRICAL CONTRACTOR TO COORDINATE WITH THE BESS CONTRACTOR AND THE FIRE ALARM CONTRACTOR.
27. PROVIDE AND INSTALL A PLACARD WITH CLEAR MAP AND SIGN INDICATING THE LOCATION OF THE SOLAR AND BESS DISCONNECT SWITCH. REFER TO SHEET E5.04.
28. NOT USED.
29. PROVIDE AND INSTALL UTILITY GRADE 200:1 CURRENT TRANSFORMER. COORDINATE WITH THE UTILITY COMPANY AND THE FACILITIES FOR POWER SHUTOFF WHICH IS TO BE DONE AT THE PG&E TRANSFORMER.
30. PROVIDE AND INSTALL UTILITY GRADE 2:1 POTENTIAL TRANSFORMER. COORDINATE WITH THE UTILITY COMPANY AND THE FACILITIES FOR POWER SHUTOFF WHICH IS TO BE DONE AT THE PG&E TRANSFORMER.

SCAN ME

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BAI Project Number :	23183
Drawn By:	BAI
Checked By:	JB

No.	Revision Description	Date
B1	Building Dept. Plan Check 24-0097	05/15/2024
F1	Fresno Fire Dept. Plan Check	05/15/2024
C1	County Generated Changes	06/04/2024
B2	Fresno Fire Department Review	06/27/2024

ARCHITECT:
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California Licensed Architect No. C-40030
Ren. 11-30-23
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LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN: 11-30-25 STATE OF CALIFORNIA

Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:
SINGLE LINE DIAGRAM

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
E1.03

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

G:\Government\Counties\Fresno\EnvironmentalComplianceCtrEdCtr\23183E1-03.dwg, 7/9/2024 4:02:40 PM, LC2032, AutoCAD PDF (High Quality Print).pc3, ARCH full bleed D (36.00 x 24.00 Inches)

(N) PANEL 'ED-L'

VOLTAGE: 208/120V, 3Ø, 4W | BUS: 125A | MAIN BREAKER: 70A/3P | BREAKER AIC: 50,000 | MOUNTING: SURFACE | NEMA 1 ENCLOSURE

CIR #	BKR	LOAD (VA) PHASE A	PHASE B	PHASE C	DESCRIPTION	DESCRIPTION	LOAD (VA) PHASE C	PHASE B	PHASE A	BKR	CIR #
1	15A/1P	286.5			LIGHTING INVERTER *	EXIT LIGHTS			10	20A/1P	2
3	20A/1P		677.9		LTG. INDOOR	ATTIC MECHANICAL LTG		53.6		↓	4
5	↓			500	LTG CONTROL PANEL	SPARE	0			↓	6
7	↓	264			LIGHTPOLE	LTG ED. ROOM			527.2	↓	8
9	↓		80		SIGN LIGHTING	SPARE		0		↓	10
11	↓			290.5	OUTDOOR LTG	ECLYPSE CONTROLLER	100			↓	12
13		0			SPACE	SPACE			0		14
15	↓		0		↓	↓		0		↓	16
17	↓			0	↓	↓	0			↓	18
19	↓	0			↓	↓			0	↓	20
21	↓		0		↓	↓		0		↓	22
23	↓			0	↓	↓	0			↓	24
25	↓	0			↓	↓			26	↓	26
27	↓		0		↓	↓		0		↓	28
29	↓			0	↓	↓				↓	30

TOTAL Ø LOADS (VA):	PHASE A = 1114	PHASE B = 812	PHASE C = 891
TOTAL Ø LOADS (A):	PHASE A = 9	PHASE B = 7	PHASE C = 7
TOTAL LOAD:	2817 VA	8 A	

NOTE:
1. * = CIRCUIT BREAKER PROTECTING THE SYSTEM MUST BE A "MOTOR START", DELAYED TRIP TYPE.

(N) PANEL 'ED-M'

VOLTAGE: 208/120V, 3Ø, 4W | BUS: 125A | MAIN BREAKER: 125A/3P | BREAKER AIC: 50,000 | MOUNTING: SURFACE | NEMA 1 ENCLOSURE

CIR #	BKR	LOAD (VA) PHASE A	PHASE B	PHASE C	DESCRIPTION	DESCRIPTION	LOAD (VA) PHASE C	PHASE B	PHASE A	BKR	CIR #
1	40A/2P	2995			ODU-1	IDU-1A			239.6	15A/2P	2
3			2995					239.6			4
5	30A/2P			2413	ODU-2	IDU-1B	239.6			15A/2P	6
7		2413							239.6		8
9	30A/2P		2413		ODU-3	IDU-2		239.6		15A/2P	10
11				2413			239.6				12
13	15A/1P	125			CIRCULATING PUMP	IDU-3			353.6	15A/2P	14
15	30A/2P		2250		WATER HEATER			353.6			16
17				2250		EF-1	332.8			15A/2P	18
19	20A/1P	0			SPARE				332.8		20
21	↓		0		↓	EF-2		20.4		15A/1P	22
23	15A/1P			43	EF-4	EF-3	20.4			15A/1P	24
25		0			SPACE	SPACE			0		26
27			0		↓	↓		0			28
29				0	↓	↓	0				30
31		0			↓	↓			0		32
33			0		↓	↓		0			34
35				0	↓	↓	0				36
37		0			↓	↓			0		38
39			0		↓	↓		0			40
41				0	↓	↓	0				42

TOTAL Ø LOADS (VA):	PHASE A = 6699	PHASE B = 8511	PHASE C = 7951
TOTAL Ø LOADS (A):	PHASE A = 56	PHASE B = 71	PHASE C = 66
SUB TOTAL LOAD:	23161 VA	64 A	
25% OF LARGEST MOTOR:	1498 VA	4 A	
TOTAL LOAD:	24659 VA	68 A	

NOTE:

(N) PANEL 'ED-R'

VOLTAGE: 208/120V, 3Ø, 4W | BUS: 125A | MAIN BREAKER: 125A/3P | BREAKER AIC: 50,000 | MOUNTING: SURFACE | NEMA 1 ENCLOSURE

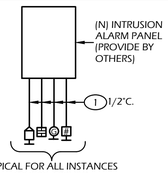
CIR #	BKR	LOAD (VA) PHASE A	PHASE B	PHASE C	DESCRIPTION	DESCRIPTION	LOAD (VA) PHASE C	PHASE B	PHASE A	BKR	CIR #
1	20A/1P	540			RM#2 OFFICE REC.	RM#8 EDUCATION REC.			720	20A/1P	2
3	↓		540		RM#2 OFFICE REC.	RM#8 EDUCATION REC.		720		↓	4
5	↓			1080	RM#1,RM#3 & RM#5 REC.	RM#8 EDUCATION REC.	540			↓	6
7	↓	360			RM#1 GEN. OFFICE REC.	SPARE			0	↓	8
9	↓		180		RM#6 REST. REC.	RM#4 REF. REC.		1000		↓	10
11	↓			180	RM#7 REST. REC.	RM#4 MW. REC.	1400			↓	12
13	↓	0			SPARE	RM#4 MW. REC.			1400	↓	14
15	↓		720		MONUMENT LED SIGN	RM#4 COUNTER T. REC.		180		↓	16
17	↓			0	SPARE	RM#4 BREAKRM REC.	720			↓	18
19	↓	600			DRINKING FOUNTAIN	SCTB REC.			360	↓	20
21	↓		180		EXTERIOR REC.	IDF REC.		960		↓	22
23	↓			180	HVAC REC.	FACP *	120			↓	24
25	↓	720			ATTIC HVAC REC.	INTRUSION ALARM PNL			46	↓	26
27	↓		0		SPARE	↓		0		↓	28
29	↓			0	↓	↓	0			↓	30
31	↓				SPACE	SPACE			0		32
33	↓		0		↓	↓		0		↓	34
35	↓			0	↓	↓	0			↓	36
37	↓	0			↓	↓			0	↓	38
39	↓		0		↓	↓		0		↓	40
41	↓			0	↓	↓	0			↓	42

TOTAL Ø LOADS (VA):	PHASE A = 4746	PHASE B = 4480	PHASE C = 4220
TOTAL Ø LOADS (A):	PHASE A = 40	PHASE B = 37	PHASE C = 35
TOTAL LOAD:	13446 VA	37 A	

NOTE:
1.*= PROVIDE AND INSTALL A CIRCUIT BREAKER COMPLYING WITH NFPA 72 (RED AND WITH MECHANICAL LOCKING DEVICE) FOR THE DEDICATED CIRCUIT SUPPLYING POWER TO THE FIRE ALARM PANEL.

SHEET NOTES (#)

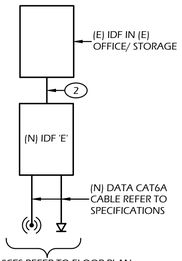
1. PROVIDE AND INSTALL CONDUIT PROVISIONS BACK TO THE INTRUSION ALARM PANEL LOCATION. COORDINATE CONDUIT PROVISION LOCATION WITH INTRUSION ALARM CONTRACTOR PRIOR TO CONDUIT ROUGH-IN.
2. PROVIDE AND INSTALL 12-STRAND OS2 SINGLE MODE FIBER OPTIC CABLE. CURL 20 FT OF CABLE AT EACH END. REFER TO SPECIFICATIONS.



GENERAL NOTES:
1. PROVIDE AND INSTALL CONDUIT PROVISIONS AND INTRUSION ALARM TERMINAL PUNCHDOWN BLOCK AT THE INTRUSION ALARM PANEL LOCATION INDICATED.
2. ALL WIRING INTRUSION ALARM DEVICES AND SENSORS, POWER SUPPLY, INTRUSION ALARM SYSTEM CONNECTIONS, AND PROGRAMMING BE DONE BY INTRUSION ALARM CONTRACTOR.

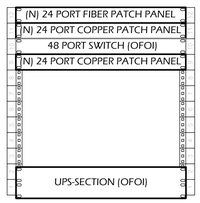
3 / - **INTRUSION ALARM RISER DIAGRAM**

NOT TO SCALE



1 / - **NETWORK RISER DIAGRAM**

NOT TO SCALE



2 / - **NEW IDF 'E' ELEVATION**

ELECTRICAL DISTRIBUTION WEIGHT & DIMENSIONS SCHEDULE

NAME	CB	WEIGHT(Lb)	W	D	H	MOUNTING	MANUFACTURER
DISTRIBUTION PANEL 'ED-1'	225A	637	42"	12.95"	59"	SURFACE MOUNTED	SQUARE D OR EQUAL
DISTRIBUTION PANEL 'ED-2'	225A	637	42"	12.95"	59"	SURFACE MOUNTED	SQUARE D OR EQUAL
PANEL 'ED-R'	125A	168	20"	5.75"	44"	SURFACE MOUNTED	SQUARE D OR EQUAL
PANEL 'ED-L'	70A	139	20"	5.75"	38"	SURFACE MOUNTED	SQUARE D OR EQUAL
PANEL 'ED-M'	125A	168	20"	5.75"	44"	SURFACE MOUNTED	SQUARE D OR EQUAL

SOLAR AND BESS DISTRIBUTION SYSTEM WEIGHT & DIMENSIONS SCHEDULE

NAME	CB	WEIGHT(Lb)	W	D	H	MOUNTING	MANUFACTURER
INVERTER 'A'	-	SEE SHEET E5.05	SEE SHEET E5.05	SEE SHEET E5.05	SEE SHEET E5.05	SURFACE MOUNTED	SOLAREDGE
PV DISC. 'A'	-	22	8.76"	10.22"	19.08"	SURFACE MOUNTED	EATON
PV MODULE #SIL-500 HN	-	SEE SHEET E5.04	SEE SHEET E5.04	SEE SHEET E5.04	SEE SHEET E5.04	SEE SHEET E5.06	SILFAB
BESS	-	SEE SHEET E5.07	SEE SHEET E5.07	SEE SHEET E5.07	SEE SHEET E5.07	FREE-STANDING	SOCOMEC
BESS DISC. 'B'	-	61	16.95"	11.63"	35.38"	SURFACE MOUNTED	EATON

TRANSFORMER WEIGHT & DIMENSIONS SCHEDULE

NAME	kVA	WEIGHT(Lb)	W	D	H	LOCATION	MANUFACTURER
XFMR 'T1'	75 kVA	995	30.06"	27.43"	33.50"	ONSITE	SQUARE D OR EQUAL

MECHANICAL EQUIPMENT SCHEDULE

DESIG. (#)	DESCRIPTION	MCA/HP/W/ RLA/FLA	STARTER/ FUSES	VOLT (V)	PHASE	MAX. OCPD SIZE	CON-DUIT SIZE	CONDUCTOR #	CONDUCTOR SIZE	GND.
ODU - 1	OUTDOOR UNIT	36 MCA	FUSE/DISC.	208V	1	NOTE 2	3/4"	2	#8	NOTE 3
ODU - 2	↓	29 MCA	↓	↓	↓	↓	↓	↓	#10	↓
ODU - 3	↓	29 MCA	↓	↓	↓	↓	↓	↓	↓	↓
IDU - 1A	INDOOR UNIT	2.88 MCA	↓	208V	↓	↓	↓	↓	#12	↓
IDU - 1B	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
IDU-2	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
IDU-3	↓	4.25 MCA	↓	↓	↓	↓	↓	↓	↓	↓
EF - 1	EXHAUST FAN	0.25 HP	↓	208V	↓	↓	↓	↓	↓	↓
EF - 2	↓	20.4W	↓	120V	↓	↓	↓	↓	↓	↓
EF - 3	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓
EF - 4	↓	43W	↓	↓	↓	↓	↓	↓	↓	↓
CP - 1	CIRCULATING PUMP	125W	↓	↓	↓	↓	↓	↓	↓	↓
WH - 1	WATER HEATER	4500W	DISC.	208V	3	↓	↓	4	↓	↓

NOTES:
1. *=THERMAL RATED SWITCH FOR FRACTIONAL HORSEPOWER MOTORS.
2. REFER TO THE PANEL SCHEDULE AND SINGLE LINE DIAGRAM FOR THE CIRCUIT BREAKER AND CONDUIT SIZES, IF NOT INDICATED WITHIN THE SCHEDULE.
3. GROUNDING CONDUCTOR SIZE TO MATCH CONDUCTOR SIZE.
4. **=POWERED BY RESPECTIVE OUTDOOR UNIT.

GENERAL NOTES:
1. COORDINATE LOCATIONS AND POWER REQUIREMENT FOR MECHANICAL AND PLUMBING EQUIPMENT WITH MECHANICAL AND PLUMBING CONTRACTOR.
2. PROVIDE DISCONNECT PER NAME PLATE RATING OF MECHANICAL UNITS .

REGISTERED PROFESSIONAL ENGINEER — JOHN BORRELLI — ELECTRICAL — CALIFORNIA — EXP. 6/30/25

SCAN ME

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BAI Project Number : 23183
Drawn By: BAI
Checked By: JB

No.	Revision Description	Date
E1.0	Building Dept. Plan Check 24-0097	05/15/2024
E1.0	Fresno Fire Dept. Plan Check	05/15/2024
E1.0	County Generated Changes	06/04/2024
E1.0	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT — ZAHIDUL HOQUE KHAN — C-40030 — REN: 11-30-25 — STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
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Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

DATA AND INTRUSION ALARM RISER DIAGRAM, PANEL AND WEIGHT & DIMENSION SCHEDULES

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E1.04

Sheet 4 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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LIGHTING FIXTURE SCHEDULE (#)

TYPE	LIGHTS	MANUFACTURER AND MODEL	LAMPS	REMARKS	WATTS	LBS
A1		LITHONIA # FEM-L24-2000LM-LPPCL-WD-MVOLT-GZ10-40K-80CRI-SBOR10	LED	6.8-IN x 2-FT., 2,000 LUMENS (NOMINAL) LED FIXTURE SURFACE MOUNTED.	13.4	9
B1		LITHONIA # LSIX-4FT-3000LM-80CRI-40K-FFR-SWL-MIN10-ZT-MVOLT-MW	LED	4-FT. x 6-IN., 3,199 LUMENS (NOMINAL) LED FIXTURE RECESS MOUNTED IN A T-BAR CEILING. FIXTURE SHALL HAVE CONTINOUS 0-10V DIMMING. FIXTURE TO HAVE EMERGENCY NLIGHTER OPTION AT EMERGENCY LIGHTING FIXTURES WHERE INDICATED ON FLOOR PLAN.	24.7	7
C1		LITHONIA # LDN6-40/10-L06-120-EZ1-NPS80EZ	LED	6-IN DIAMETER, 1,000 LUMENS (NOMINAL), LED FIXTURE RECESSED MOUNTED IN A HARD CEILING. FIXTURE SHALL HAVE CONTINOUS 0-10V DIMMING DRIVER. FIXTURE TO HAVE EMERGENCY NPS80EZER OPTION AT EMERGENCY LIGHTING FIXTURES WHERE INDICATED ON FLOOR PLAN.	10.4	10
C2		LITHONIA # LDN6-40/15-L06-120-EZ1-NPS80EZ	LED	6-IN DIAMETER, 1,500 LUMENS (NOMINAL), LED FIXTURE RECESSED MOUNTED IN A HARD CEILING. FIXTURE SHALL HAVE CONTINOUS 0-10V DIMMING DRIVER.	17.5	10
C3		LITHONIA # LDN6-40/07-L06-120-EZ1-NPS80EZ	LED	6-IN DIAMETER, 750 LUMENS (NOMINAL), LED FIXTURE RECESSED MOUNTED IN A HARD CEILING. FIXTURE SHALL HAVE CONTINOUS 0-10V DIMMING DRIVER.	8.9	10
C4		LITHONIA # LDN6-40/07-L06-120-EZ1-NPS80EZ	LED	6-IN DIAMETER, 750 LUMENS (NOMINAL), LED FIXTURE RECESSED MOUNTED IN A T-BAR CEILING. FIXTURE SHALL HAVE CONTINOUS 0-10V DIMMING DRIVER.	8.9	10
E1		LITHONIA # LDN6-40/15-L06-120-EZ1-NPS80EZ	LED	6" DIAMETER, 1,500 LUMEN (NOMINAL) LED, WET LOCATION RATED RECESS CAN LIGHT MOUNTED IN EXTERIOR COVERED HARD CEILING. FIXTURE SHALL HAVE CONTINOUS 0-10V DIMMING DRIVER.	17.5	10
E2		LITHONIA #WDGE2 LED-P2-40K-80CRI-TFTM-MVOLT-SRM-AWS-DMG	LED	2,030 LUMENS, LED, SURFACE MOUNTED ON WALL. FIXTURE SHALL HAVE 0-10V DIMMING DRIVER.	19	13.5
E3		LITHONIA #WDGE2 LED-P2-40K-80CRI-TFTM-MVOLT-SRM-AWS-DMG	LED	2,030 LUMENS, LED, SURFACE MOUNTED ON WALL. FIXTURE SHALL HAVE 0-10V DIMMING DRIVER.	19	13.5
R		LITHONIA # LDN6-40/15-L06-120-EZ1-NPS80EZ	LED	6-IN DIAMETER, 1,500 LUMENS (NOMINAL), LED FIXTURE RECESSED MOUNTED IN A HARD CEILING. FIXTURE TO HAVE EMERGENCY NPS80EZER OPTION AT EMERGENCY LIGHTING FIXTURES WHERE INDICATED ON FLOOR PLAN.	17.5	10
S1		LITHONIA # RADPT LED-P2-40K-PATH-MVOLT-PT4-NLTAIR2-HS # RSA0-14FT-T35-TP	LED	5,169 LUMEN, LED TYPE PATH, POST TOP MOUNTED FIXTURE. FIXTURE SHALL SLIP OVER A 14-FOOT HIGH, 4-INCH ROUND POLE. FIXTURE SHALL HAVE NLIGHT AIR WIRELESS CAPABILITY. FIXTURE SHALL BE PROGRAMMED TO BE CAPABLE OF TWO NIGHTTIME MODES WITH AT LEAST 50% DIMMING.	38	38
S2		LITHONIA # DSX1-LED-P7-40K-80CRI-TS1-MVOLT-RPA-NLTAIR2 PIRHN-DNAXD	LED	23,700 LUMEN, LED TYPE T1S, POLE MOUNTED FIXTURE. FIXTURE SHALL BE MOUNTED ON A 25-FOOT HIGH, 5-INCH ROUND POLE. FIXTURE SHALL HAVE NLIGHT AIR WIRELESS CAPABILITY. FIXTURE SHALL BE PROGRAMMED TO BE CAPABLE OF TWO NIGHTTIME MODES WITH AT LEAST 50% DIMMING.	184	36
X		CHLORIDE OR EQUAL #CN6GCA1ICTA	LED	UNIVERSAL MOUNTED, EDGE LIT EXIT SIGN WITH CLEAR AND GREEN LETTERS. PROVIDE INDICATING ECHELON ARROWS REQUIRED PER DIRECTION INDICATED. PROVIDE TEST SWITCH, INDICATING LEDS, AND BATTERY PACK WITH INTEGRAL CHARGER. REFER TO FLOOR PLANS FOR WALL OR CEILING MOUNTING LOCATIONS.	5	10

SCHEDULE NOTES

1. COORDINATE ALL COLORS WITH OWNER/ARCHITECT PRIOR TO ORDERING. CONTRACTOR SHALL PROVIDE COLOR SAMPLES DURING SUBMITTAL STAGE
2. ALL CLEAR, ACRYLIC, PRISMATIC LENSES ARE TO BE MINIMUM 0.125" PATTERN K12, U.O.N
3. ALL LEDS SHALL HAVE A CRI OF 0.8 AND COLOR TEMPERATURE OF 4000K.
4. ALL HALF SHADED FIXTURES SHALL HAVE AN EMERGENCY DRIVER WITH BATTERY BACKUP IN ORDER TO PROVIDE A MINIMUM OF 90 MINUTES OF BACKUP IN THE EVENT OF POWER OUTAGE WITH MINIMUM 1100 LUMEN OUTPUT. THE BATTERY CHARGER SHALL BE CONNECTED TO THE UN-SWITCHED SOURCE. IF LIGHT FIXTURE IS CONNECTED TO EMERGENCY CIRCUIT INTEGRAL BATTERY BACKUP IS NOT REQUIRED. REFER TO ELECTRICAL SINGLE LINE DIAGRAM.
5. ALL EXIT LIGHT FIXTURES SHALL BE CONNECTED TO AN UN-SWITCHED SOURCE.
6. ALL RECESS MOUNTED FIXTURES SHALL COME WITH BAR HANGERS. THE CONTRACTOR SHALL VERIFY CEILING TYPE PRIOR TO ORDERING.
7. ALL DRIVERS SHALL HAVE LESS THAN 10% THD.
8. FIXTURE TYPE IS SHOWN WITHIN MOST FIXTURES.
9. PRIOR TO ORDERING FIXTURES REFER TO THE LIGHTING PLAN FOR THE CORRECT VOLTAGES TO BE UTILIZED FOR THE FIXTURES.
10. THE SYSTEM DESIGNED HERE IN IS A NLIGHT NETWORKED LIGHTING SYSTEM. ALL ROOM CONTROLLERS/POWERPACKS, NETWORK BRIDGES, OCCUPANCY SENSORS, PHOTO SENSORS, LIGHTING RELAY PANEL, ETC. SHALL BE NETWORKED TOGETHER WITH THE ECLYPSE CONTROLLER AND/OR LIGHTING RELAY PANEL. REFER TO PLANS FOR SPECIFICS. REFER TO TYPICAL DETAILS.

REGISTERED PROFESSIONAL ENGINEER JOHN BORRELLI ELECTRICAL CALIFORNIA

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LICENSED ARCHITECT ARIFUL HOQUE KHAN C-40030 REN. 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
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LIGHT FIXTURE SCHEDULE

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E1.05

Sheet 5 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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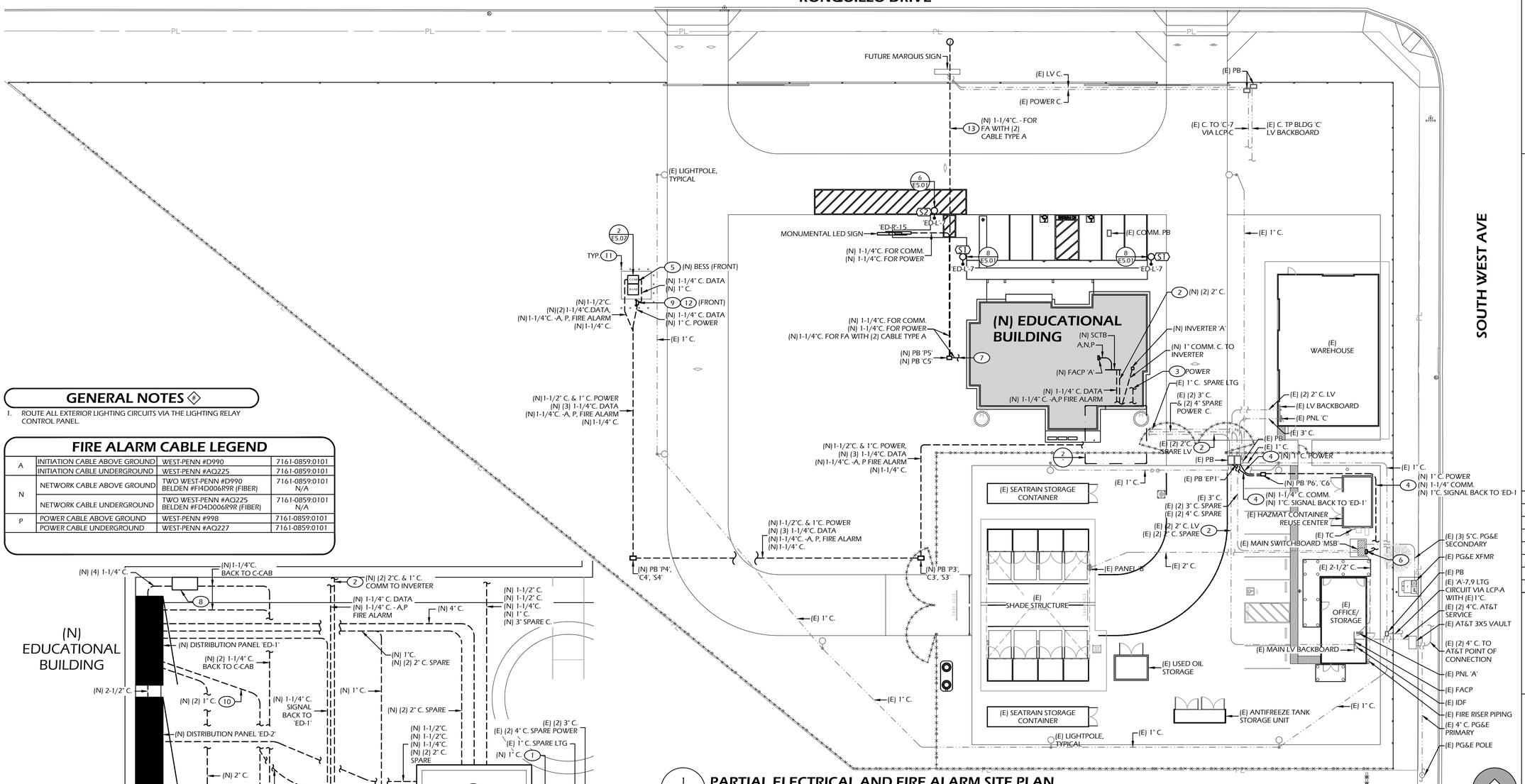


1 / - **PARTIAL ELECTRICAL AND FIRE ALARM SITE PLAN**

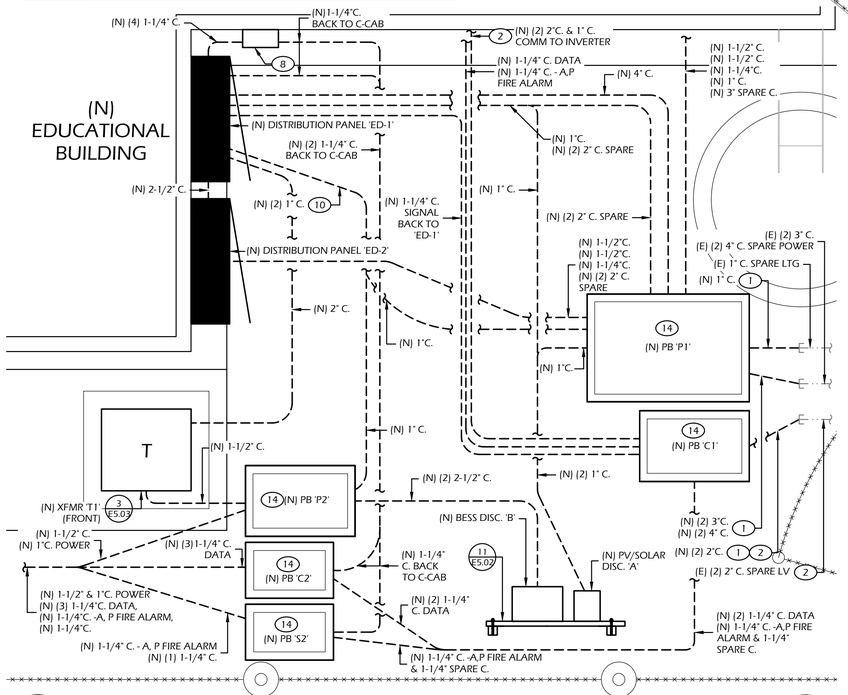
SCALE: 1"=20'-0"

GENERAL NOTES (#)

1. ROUTE ALL EXTERIOR LIGHTING CIRCUITS VIA THE LIGHTING RELAY CONTROL PANEL.

FIRE ALARM CABLE LEGEND

A	INITIATION CABLE ABOVE GROUND	WEST-PENN #D990	7161-0859:0101
	INITIATION CABLE UNDERGROUND	WEST-PENN #AQ225	7161-0859:0101
N	NETWORK CABLE ABOVE GROUND	TWO WEST-PENN #D990 BELDEN #FI4D006R9R (FIBER)	7161-0859:0101 N/A
	NETWORK CABLE UNDERGROUND	TWO WEST-PENN #AQ225 BELDEN #FD4D006R9R (FIBER)	7161-0859:0101 N/A
P	POWER CABLE ABOVE GROUND	WEST-PENN #998	7161-0859:0101
	POWER CABLE UNDERGROUND	WEST-PENN #AQ227	7161-0859:0101



2 / - **PARTIAL ELECTRICAL AND FIRE ALARM SITE PLAN**

SCALE: 1/2"=1'-0"

PULL BOX SCHEDULE

	DESIGNATION	MINIMUM SIZE	LXW(IN)	LID TYPE	SYSTEM
POWER	PB 'P1'	B3048	36.125 X 54.375	H/20	POWER
	PB 'P2'	B1730	23.75 X 36.75	H/20	POWER
	PB 'P3'	B1730	23.75 X 36.75	H/20	POWER
	PB 'P4'	B1730	23.75 X 36.75	H/20	POWER
	PB 'P5'	B1017	15.75 X 22.375	H/20	POWER
	PB 'P6'	B1017	15.75 X 22.375	H/20	POWER
COMM.	PB 'C1'	B1730	23.75 X 36.75	H/20	COMM.
	PB 'C2'	B1324	18.5 X 29.5	H/20	COMM.
	PB 'C3'	B1324	18.5 X 29.5	H/20	COMM.
	PB 'C4'	B1324	18.5 X 29.5	H/20	COMM.
	PB 'C5'	B1017	15.75 X 22.375	H/20	COMM.
	PB 'C6'	B1017	15.75 X 22.375	H/20	COMM.
SIGNAL	PB 'S1'	-	-	-	-
	PB 'S2'	B1324	18.5 X 29.5	H/20	SIGNAL
	PB 'S3'	B1324	18.5 X 29.5	H/20	SIGNAL
	PB 'S4'	B1324	18.5 X 29.5	H/20	SIGNAL

NOTES:
1. ALL PULL BOXES SHALL BE EITHER BROOKS, CHRISTY, OR EQUIVALENT.
2. ALL PULL BOXES SHALL BE PROVIDED WITH EXTENSION RINGS AND BOLT DOWN COVERS AS REQUIRED TO SUIT THE APPLICATION. VERIFY PULL BOX LOCATIONS REQUIRING FULL TRAFFIC COVERS WITH THE ARCHITECT AND CIVIL ENGINEER.
3. LABEL PULL BOXES 'ELECTRICAL', 'SIGNAL' OR 'COMMUNICATIONS' AS REQUIRED.
4. PULL BOX COVERS SHALL BE FULL TRAFFIC H20 RATED.

SHEET NOTES (#)

1. PROVIDE AND INSTALL NEW INDICATED CONDUIT BACK TO THE NEW PULLBOX TO EXTEND THE EXISTING SPARE CONDUITS.
2. PULL IN NEW INDICATED 12-STRAND OS2 SINGLE MODE FIBER OPTIC CABLE, REFER TO THE NETWORK RISER DIAGRAM ON SHEET E1.03. PULL IN NEW INDICATED FIRE ALARM CABLE 'N'. REFER TO FIRE ALARM RISER DIAGRAM ON SHEET E4.01.
3. ROUTE 1-1/2-INCH CONDUIT BACK TO (N) PANEL 'ED-R'. ROUTE 1-1/2-INCH CONDUIT BACK TO (N) PANEL 'ED-M'. ROUTE 1-1/4-INCH CONDUIT BACK TO (N) PANEL 'ED-L'. ROUTE 1-INCH CONDUIT BACK TO (N) INVERTER 'A'. ROUTE 3-INCH SPARE CONDUIT AND STUB UP NEXT TO PANEL 'ED-R'.
4. SAWCUT THE EXISTING CONCRETE AND HAUL AWAY THE DEBRIS. PATCH AND REPAIR TO MATCH THE EXISTING SURFACE.
5. BATTERY ENERGY STORAGE SYSTEM. REFER TO SINGLE LINE DIAGRAM AND TYPICAL DETAILS FOR BARRIER PROTECTION.
6. PROVIDE AND INSTALL 18" WIDE X 18" TALL X 10" DEEP, NEMA 3R LOCKABLE JUNCTION BOX WITH HINGED DOOR. JUNCTION BOX SHALL HAVE AN INTERNAL FRONT METAL PANEL TO MOUNT THE POWER FLOW SENSING DEVICES. NOTCH HOLE WITHIN THE PANEL TO ACCOMMODATE THE RELAY SENSORS. MOUNT THE JUNCTION BOX TO THE BACK OF THE EXISTING MAIN SWITCHBOARD 'MSB' WITH #10 SMS. NIPPLE THROUGH THE EXISTING MAIN SWITCHBOARD 'MSB' WITH (3) 1-1/4-INCH NIPPLE CHASE CONDUIT.
7. PROVIDE AND INSTALL A NEW 1-1/4" UNDERGROUND COMMUNICATION CONDUIT BACK TO THE (N) SCTB. PROVIDE AND INSTALL A NEW 1-1/4" BACK TO THE FACP. PROVIDE AND INSTALL A NEW 1-1/4" UNDERGROUND POWER CONDUIT BACK TO NEW PANEL 'ED-R' AND MAKE ALL CONNECTIONS.
8. PROVIDE AND INSTALL A 12X12X6 (HXWXD) NEMA 3R LOCKABLE JUNCTION BOX WITH HINGED DOOR. JUNCTION BOX SHALL HAVE AN INTERNAL FRONT METAL PANEL TO MOUNT DIM RAIL FOR MOUNTING OF THE SOCOMEC #DIRIS B-30 DEVICES.
9. PROVIDE AND INSTALL 18" WIDE X 18" TALL X10" DEEP, NEMA 3R LOCKABLE JUNCTION BOX WITH HINGED DOOR. JUNCTION BOX SHALL HAVE AN INTERNAL FRONT METAL PANEL TO MOUNT THE DIM RAIL MOUNTING.
10. POWER CONDUIT FOR N-TRON POWER SUPPLY FOR MEDIA CONVERTER AT THE BESS. POWER CONDUIT FOR THE #SCHWEITZER 751, MEDIA CONVERTER, AND DIRIS B-30 AT THE EXISTING MSB. REFER TO THE ELECTRICAL SINGLE LINE DIAGRAM
11. PROVIDE AND INSTALL FIXED BARRIER POST CONSISTING OF A 72"X4"Ø, CONCRETE FILLED, SCHEDULE 80, STEEL PIPE AND CAP PAINTED WITH CORROSION RESISTANT PAINT, EMBEDDED 36" INTO A 42"X15"Ø CONCRETE BASE PER CALIFORNIA FIRE CODE SECTION 312. PROVIDE AND INSTALL TWO 3" REFLECTIVE TAPE BANDS ON EACH POST.
12. SURFACE MOUNT TO THE ENCLOSURE A MUSHROOM HEAD PUSH BUTTON FOR EMERGENCY POWER OFF OF THE BESS. PROVIDE AND INSTALL 1-INCH CONDUIT WITH (3) #12 AWG CONDUCTORS WITHIN BACK TO THE BESS INPUT -EPO (EMERGENCY POWER OFF). COORDINATE WITH THE BESS MANUFACTURER FOR WIRING CONNECTIONS TO THE BESS INPUT - EPO (EMERGENCY POWER OFF).
13. PROVIDE AND INSTALL INDICATED UNDERGROUND CONDUIT BACK TO THE NEW FACP FOR TAMPER SWITCH MONITORING OF P.I.V. REFER TO THE FIRE ALARM RISER DIAGRAM SHEET E4.01.
14. REFER TO ARCHITECTURAL SITE PLAN FOR PLACEMENT.

REGISTERED PROFESSIONAL ENGINEER — BRIAN BORRELLI — ELECTRICAL — CALIFORNIA — No. E-18890 — EXP. 8/30/25

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California Licensed Architect No. C-40030
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ELECTRICAL AND FIRE ALARM SITE PLAN

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

Sheet No.:

E2.01

Sheet 6 of 34

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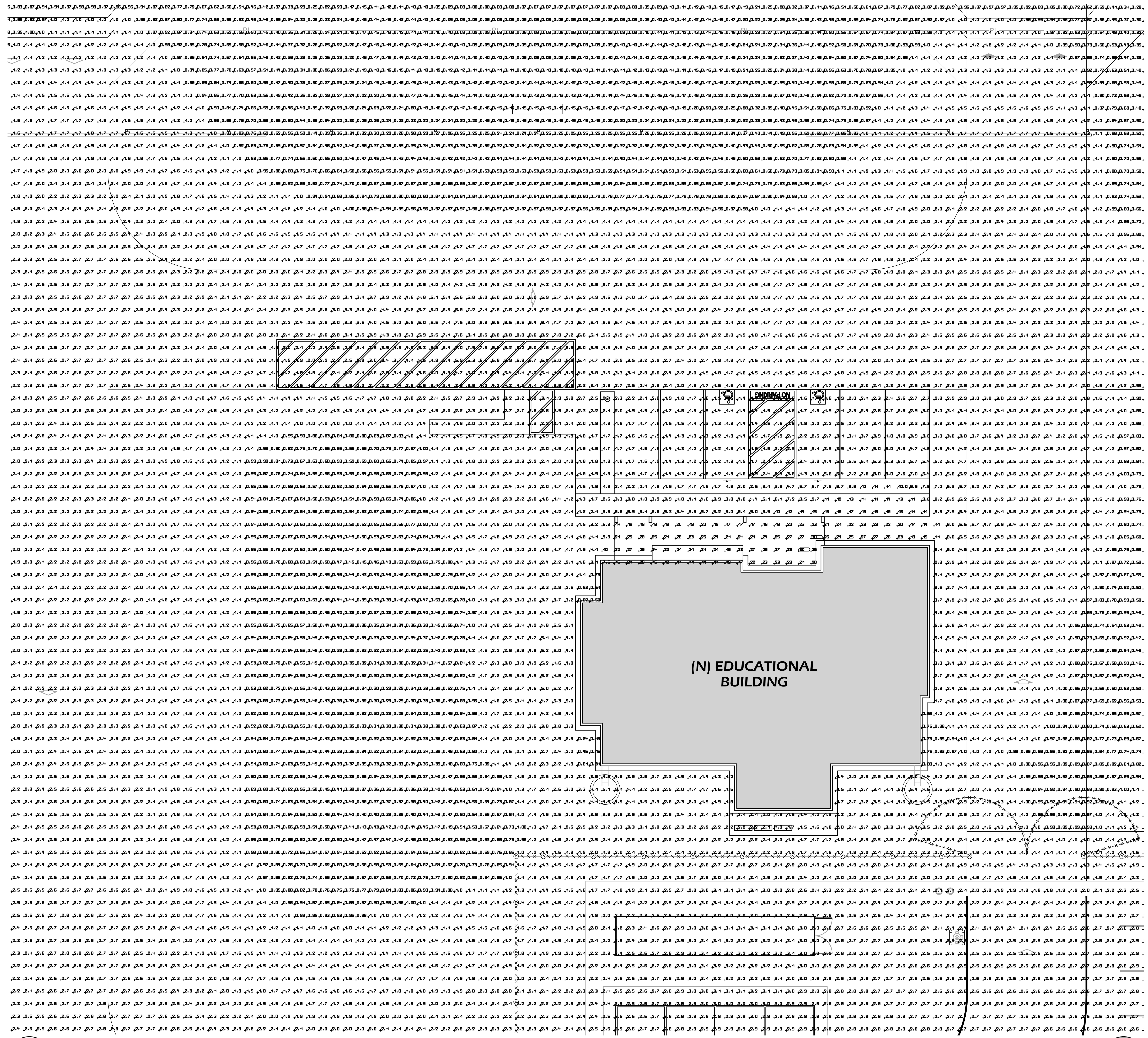

1 PARTIAL PHOTOMETRIC SITE PLAN

SCALE: 1"=10'-0"

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PARTIAL PHOTOMETRIC SITE PLAN

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Capital Projects

2220 Tulare Street, 8th Floor
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THE COUNTY OF FRESNO 1856

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Sheet No.:

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Sheet 7 of 34

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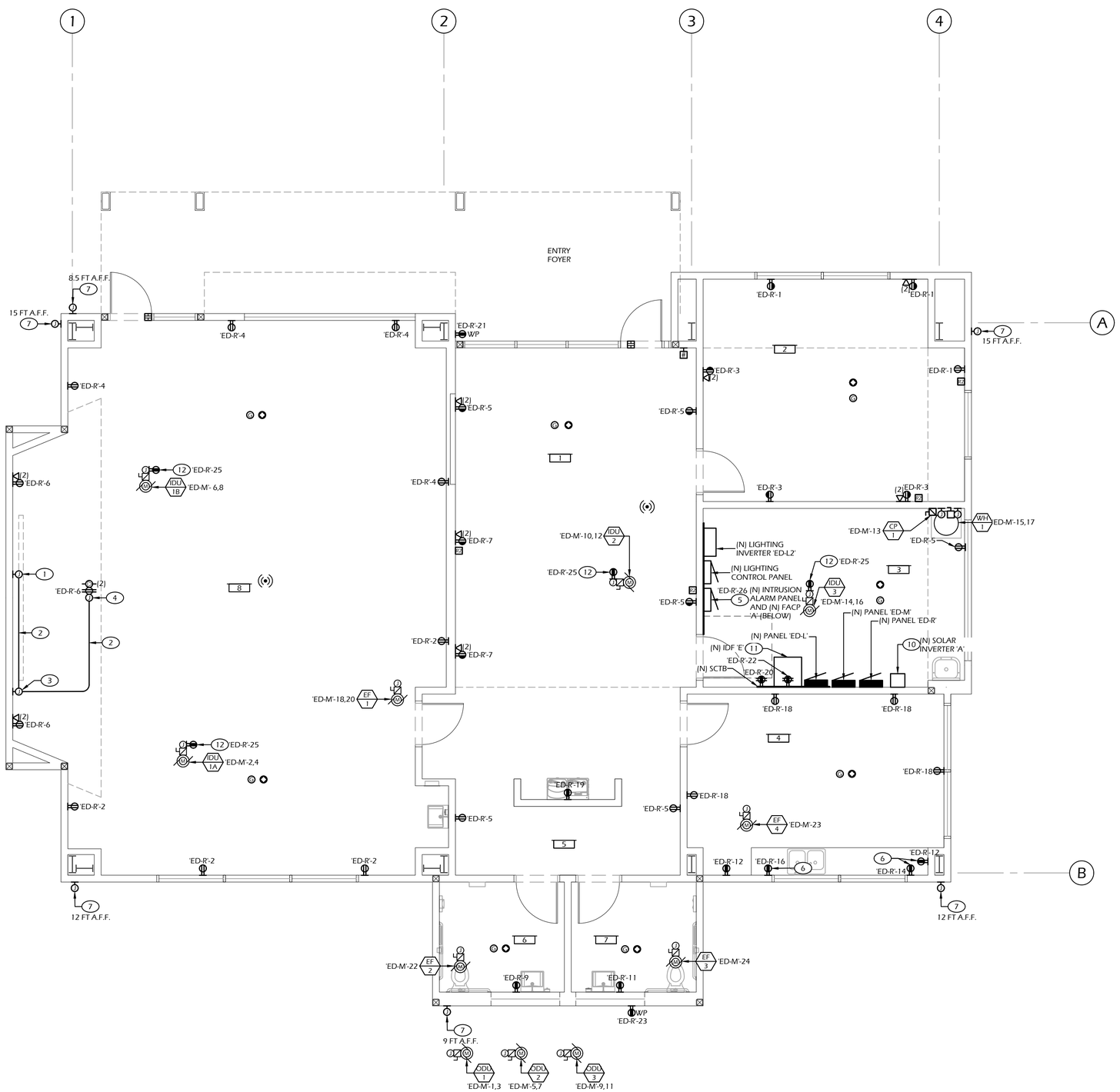

ROOM SCHEDULE

###	ROOM NAME	###	ROOM NAME
	ENTRY FOYER	5	HALLWAY
1	GENERAL OFFICE	6	UNISEX
2	OFFICE	7	UNISEX
3	STORAGE	8	EDUCATION ROOM
4	BREAKROOM		

SHEET NOTES (#)

1. PROVIDE AND INSTALL A HDMI WALL PLATE WITH TWO PORTS AT THE SCREEN DISPLAY CONNECTION INPUTS LEVEL AND TERMINATE THE HDMI CABLES.
2. PROVIDE AND INSTALL 1-1/2-INCH CONDUIT AND ROUTE WITHIN TWO HDMI CABLES.
3. PROVIDE AND INSTALL A HDMI WALL PLATE WITH 4 PORTS AT 18 INCHES ABOVE FURNISHED FLOOR AND TERMINATE THE HDMI CABLES.
4. PROVIDE AND INSTALL A HDMI CEILING MOUNTED PLATE WITH 2 PORTS AND TERMINATE THE HDMI CABLES.
5. PROVIDE AND INSTALL THREE #12 AWG CONDUCTORS WITHIN A 3/4-INCH CONDUIT BACK TO THE PANEL INDICATED AND MAKE ALL CONNECTIONS TO THE INTRUSION ALARM PANEL. COORDINATE WITH THE OWNER'S INTRUSION ALARM CONTRACTOR FOR THE EXACT LOCATION. INTRUSION ALARM PANEL PROVIDED AND INSTALLED BY OTHERS.
6. INSTALL ABOVE COUNTERTOP. COORDINATE WITH ARCHITECTURAL ELEVATIONS.
7. PROVIDE AND INSTALL 4x4x2-1/8 INCH DEEP WEATHERPROOF JUNCTION BOX AT THE INDICATED HEIGHT ABOVE FINISHED FLOOR FOR CAMERA PROVISIONS. PROVIDE AND INSTALL A 3/4-INCH CONDUIT AND A CAT6A DATA CABLE WITHIN BACK TO THE IDF. PENETRATE THROUGH THE WALL AND RUN CONDUIT WITHIN THE ATTIC SPACE BACK TO THE NEW IDF. CAMERAS ARE OWNER FURNISHED OWNER INSTALL. TERMINATE WITH RJ45 CONNECTORS AND TEST ALL DATA CABLES.
8. NOT USED.
9. NOT USED.
10. PROVIDE AND INSTALL A CAT6A DATA CABLE BACK TO THE IDF AND MAKE ALL CONNECTIONS.
11. PROVIDE AND INSTALL 12-RACK UNIT IDF TRIPPLITE #SRW12USDP, 64 LBS, 25.060 x 23.630 x 25.500 (HxWxD)-INCHES.
12. PROVIDE AND INSTALL GFCI TYPE RECEPTACLE WITHIN THE ATTIC SPACE ADJACENT TO THE MECHANICAL UNIT.

GENERAL NOTES (#)

1. CONTRACTOR TO COORDINATE THE EXACT LOCATION OF MECHANICAL UNITS WITH MECHANICAL PLANS.

1 / - **ELECTRICAL POWER AND SIGNAL FLOOR PLAN**
SCALE: 1/4"=1'-0"

REGISTERED PROFESSIONAL ENGINEER — JOHN BORRELLI — ELECTRICAL — CALIFORNIA
No. E-18890 EXP. 6/30/25

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ELECTRICAL POWER AND SIGNAL FLOOR PLAN

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Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E3.01

Sheet 8 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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SWITCH LEG(S): a
SWITCH LEG(S): c
SWITCH LEG(S): b
SWITCH LEG(S): d

A LIGHTING CONTROL SCENARIO - A

SWITCH LEG(S): f
SWITCH LEG(S): h
SWITCH LEG(S): g
SWITCH LEG(S): f,g,h

B LIGHTING CONTROL SCENARIO - B

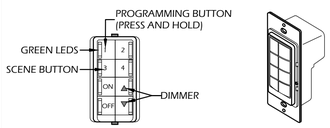
C LIGHTING CONTROL SCENARIO - C (NOT USED)

SWITCH LEG(S): t
SWITCH LEG(S): v
SWITCH LEG(S): u
SWITCH LEG(S): w

D LIGHTING CONTROL SCENARIO - D

SWITCH LEG(S): x
SWITCH LEG(S): z
SWITCH LEG(S): y
SWITCH LEG(S): x,y

E LIGHTING CONTROL SCENARIO - E



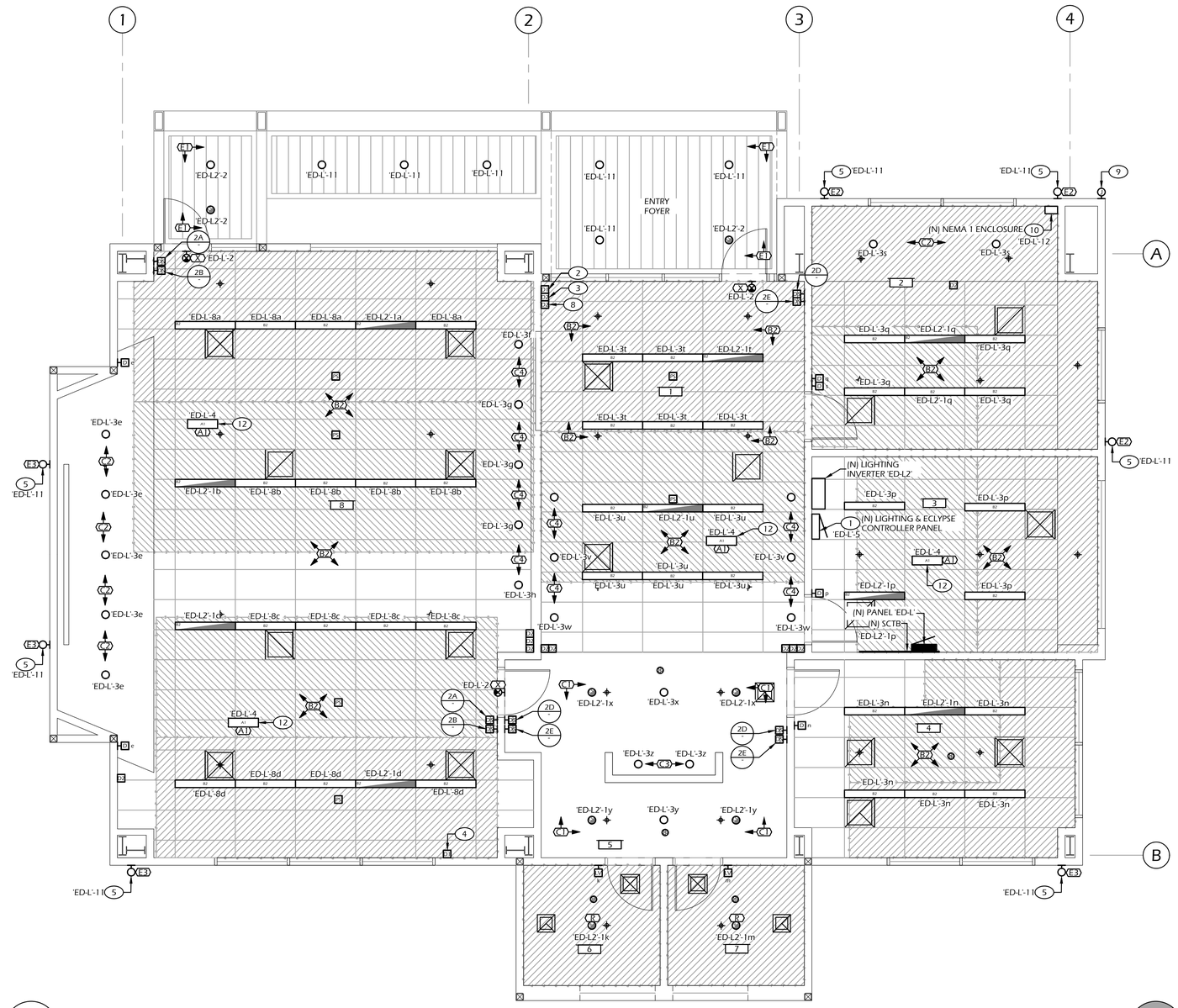
1. THE SWITCH INDICATED IN THIS DETAIL IS THE nLIGHT nPODM-4P-DX SCENE SWITCH.
2. PROGRAM THE SWITCH AS INDICATED ABOVE.
3. REFER TO MANUFACTURER'S PROGRAMMING INSTRUCTIONS.

2 / - **TYPICAL LIGHTING SCENE CONTROL DETAIL**

NOT TO SCALE

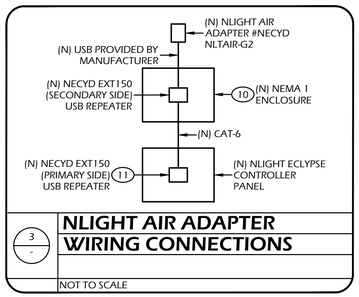
LIGHTING INVERTER UNIT SPECIFICATIONS

1. ALL EMERGENCY SOURCE CIRCUITS SHALL BE INSTALLED IN SEPARATE RACEWAYS (FROM NORMAL POWER), PER 2022 CEC 700.10(B), OR APPLICABLE CODE AT THE TIME OF PERMITTING.
2. INPUT SHALL BE EQUIPPED WITH UL294 SURGE PROTECTION AND 1HZ NOMINAL SYNCHRONIZING SLEW RATE.
3. OUTPUT VOLTAGE STATIC REGULATION SHALL BE +/- 5% FOR 100% RESISTIVE LOAD.
4. OUTPUT DISTORTION SHALL BE 5% THD MAXIMUM.
5. OVERLOAD RATING: 150% MOMENTARY; 115% FOR 10 MINUTES.
6. TRANSFER TIME: LESS THAN 2 MILLISECONDS.
7. BATTERY SHALL BE SEALED LEAD CALCIUM, 10 YEAR LIFE, 90 MINUTE RUN TIME, WITH AUTO-DISCONNECT FOR LOW BATTERY VOLTAGE.
8. PROVIDE RS232 PORT AND RJ-45 ETHERNET PORT FOR EXTERNAL COMMUNICATIONS.
9. INVERTER SHALL BE PWM TYPE.
10. PROVIDE INTERNAL MAINTENANCE BYPASS.
11. PROVIDE IN NEMA 1 ENCLOSURE, FRONT ACCESS ONLY.
12. PROVIDE FACTORY STARTUP AND TEST OF UNIT TO THE SATISFACTION OF BUILDING INSPECTION AUTHORITIES AND WITH MAXIMUM 4 HOURS OF PERSONNEL TRAINING FOLLOWING STARTUP.
13. AUTO SELF TESTING.
14. PROVIDE OUTPUT CIRCUIT BREAKERS RATED 20 AMPS EACH WITH DEDICATED CIRCUITS FOR EACH OF THE EMERGENCY LIGHTING LOADS: 5 OUTPUT BREAKERS.
15. SEISMIC QUALIFIED MOUNTING.



1 / - **LIGHTING FLOOR PLAN**

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



3 / - **NLIGHT AIR ADAPTER WIRING CONNECTIONS**

NOT TO SCALE

GENERAL NOTES

1. OCCUPANCY SENSOR TO BE INSTALLED 4 TO 6 FEET AWAY FROM AIR SUPPLY DUCTS. THE OCCUPANCY SENSOR SHALL BE INSTALLED BETWEEN 8 TO 10 FEET ABOVE FINISHED FLOOR.
2. ROUTE ALL EXTERIOR LIGHTING CIRCUITS VIA THE LIGHTING RELAY CONTROL PANEL.
3. PROVIDE NORMAL POWER FOR EMERGENCY FIXTURES AS REQUIRED PER MANUFACTURER. CONNECT TO THE UNSWITCHED SIDE.
4. REFER TO ARCHITECTURAL EXTERIOR ELEVATION FOR EXTERIOR WALL LIGHT LOCATIONS.
5. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR RECESSED CEILING CAN LIGHT LOCATIONS.

ROOM SCHEDULE

###	ROOM NAME	###	ROOM NAME
	ENTRY FOYER	5	HALLWAY
1	GENERAL OFFICE	6	UNISEX
2	OFFICE	7	UNISEX
3	STORAGE	8	EDUCATION ROOM
4	BREAKROOM		

SHEET NOTES

1. PROVIDE AND INSTALL ONE NLIGHT ECLYPSE #NECY-MVOLT-RAC-ENC-GFXK. PROVIDE AND INSTALL 8-PORT NLIGHT BRIDGE #NBRG-8 AND NLIGHT RELAY PANEL #ARP INTENC08-NLT-8FCR-MVOLT-HLK-SM. NETWORK THE ECLYPSE PANEL TO THE RELAY PANEL VIA THE BRIDGE. MOUNT THE RELAY PANEL ABOVE THE ECLYPSE PANEL.
2. PROVIDE AND INSTALL (1) NPP16-D-EFP POWER PACK INSIDE THE BUILDING WITHIN ACCESSIBLE ATTIC SPACE FOR CONTROL OF THE LIGHT FIXTURE TYPE E2. PROVIDE AND INSTALL ALL WIRING CONNECTIONS. PROGRAM THE POWER PACK FOR TWO NIGHTTIME PERIODS (OCCUPIED AND UNOCCUPIED). PROGRAM THE CONTROLLER TO DIM THE LIGHTS TO 50% DURING UNOCCUPIED PERIOD. COORDINATE THE TWO NIGHTTIME PERIODS WITH OWNER.
3. PROVIDE AND INSTALL (1) NPS-80-EZ POWER PACK INSIDE THE BUILDING WITHIN ACCESSIBLE ATTIC SPACE FOR CONTROL OF THE LIGHT FIXTURE TYPE E1. PROVIDE AND INSTALL ALL CONNECTIONS. PROGRAM THE POWER PACK FOR TWO NIGHTTIME PERIODS (OCCUPIED AND UNOCCUPIED). PROGRAM THE CONTROLLER TO DIM THE LIGHTS TO 50% DURING UNOCCUPIED PERIOD. COORDINATE THE TWO NIGHTTIME PERIODS WITH OWNER.
4. PROVIDE AND INSTALL (1) NPP16-D-EFP POWER PACK INSIDE THE BUILDING WITHIN ACCESSIBLE ATTIC SPACE FOR CONTROL OF THE LIGHT FIXTURE TYPE E3. PROVIDE AND INSTALL ALL CONNECTIONS. PROGRAM THE POWER PACK FOR TWO NIGHTTIME PERIODS (OCCUPIED AND UNOCCUPIED). PROGRAM THE CONTROLLER TO DIM THE LIGHTS TO 50% DURING UNOCCUPIED PERIOD. COORDINATE THE TWO NIGHTTIME PERIODS WITH OWNER.
5. REFER TO ARCHITECTURAL EXTERIOR ELEVATIONS FOR MOUNTING HEIGHT.
6. NOT USED.
7. NOT USED.
8. PROVIDE AND INSTALL (1) NPS-80-EZ-ER POWER PACK INSIDE THE BUILDING WITHIN ACCESSIBLE ATTIC SPACE FOR CONTROL OF THE EMERGENCY LIGHT FIXTURE TYPE E1. PROVIDE AND INSTALL ALL CONNECTIONS. PROGRAM THE POWER PACK FOR TWO NIGHTTIME PERIODS (OCCUPIED AND UNOCCUPIED). PROGRAM THE CONTROLLER TO DIM THE LIGHT 50% DURING UNOCCUPIED PERIOD. COORDINATE THE TWO NIGHTTIME PERIODS WITH OWNER.
9. PROVIDE AND INSTALL NLIGHT AIR ADAPTER #NECYD NLTAIR-G2 AT 15FT A.F.F. PROVIDE AND INSTALL USB CONNECTION BACK TO THE NECYD EXT150 (SECONDARY SIDE) USB REPEATER. REFER TO NLIGHT AIR ADAPTER WIRING CONNECTIONS.
10. PROVIDE AND INSTALL A 10X10X6-INCH HINGED NEMA 1 ENCLOSURE WITHIN THE ATTIC SPACE. PROVIDE AND INSTALL A NECYD EXT150 (SECONDARY SIDE) USB REPEATER. PROVIDE AND INSTALL A 120V, 20A DUPLEX RECEPTACLE WITHIN AND MAKE ALL CONNECTIONS. REFER TO NLIGHT AIR ADAPTER WIRING CONNECTIONS. PROVIDE AND INSTALL CAT6 CABLE BACK TO THE NLIGHT ECLYPSE CONTROLLER PANEL.
11. MAKE CONNECTION TO THE ECLYPSE CONTROLLER.
12. PROVIDE AND INSTALL INDICATED LIGHT FIXTURE WITHIN THE ATTIC SPACE ADJACENT TO THE MECHANICAL UNIT. PROVIDE AND INSTALL SPST TOGGLE LIGHT SWITCH - 20A, 120V RATED.

NETWORK LIGHTING SYSTEM NOTES

1. THE SYSTEM DESIGNED HERE IS A NETWORKED LIGHTING SYSTEM. ALL ROOM CONTROLLERS/POWERPACKS, NETWORKED BRIDGES, OCCUPANCY SENSOR, PHOTO SENSORS, ETC. SHALL BE NETWORKED TOGETHER WITH THE LIGHTING RELAY CONTROL PANEL.
2. OCCUPANCY SENSING CONTROLS INSTALLED IN CORRIDORS AND STAIRWELLS SHALL SEPARATELY REDUCE THE LIGHTING POWER IN EACH SPACE BY AT LEAST 50 PERCENT WHEN THE SPACE IS UNOCCUPIED. WHEN THE SPACE IS OCCUPIED, THE SENSING CONTROLS SHALL BE CAPABLE OF AUTOMATICALLY TURNING THE LIGHTING FULLY ON ONLY IN THE SEPARATELY CONTROLLED SPACE REGARDLESS OF ANY OTHER CONTROL.
3. ALL ROOM CONTROLLERS/POWERPACKS TO BE NETWORKED TO THE LIGHTING RELAY CONTROL PANEL (WITH ASTRONOMICAL TIME SWITCH). PROGRAM ALL ROOM CONTROLLERS TO TURN ON/OFF THE LIGHTS AFTER CERTAIN HOURS. COORDINATE THE LIGHTING ON (TYPICALLY OCCUPIED HOURS) AND LIGHTING OFF (TYPICALLY UNOCCUPIED HOURS) TIME SCHEDULE WITH THE OWNER. PROGRAM ALL DIMMERS/SWITCHES TO INITIATE A 2-HOUR OVERRIDE ON THEIR RESPECTIVE LOAD LIGHTING CONTROL INDICATED PER THE SWITCH ON THE LIGHTING FLOOR PLAN. PROGRAM THE ROOM CONTROLLERS/POWERPACKS AND LIGHTING RELAY CONTROL PANEL TO INDICATE THE USER WITH A WARNING (BY MEANS OF BLINKING LIGHTING) 5 MINUTES PRIOR TO THE END OF THE 2-HOUR OVERRIDE COUNT DOWN. THE SWITCH/DIMMER OVERRIDE CONTROL CANNOT EXCEED 5000 SQUARE FEET. PROGRAM THE ROOM CONTROLLERS/POWERPACKS AND NETWORK CONTROLLER/SEGMENT MANAGER (WITH ASTRONOMICAL TIME SWITCH) TO INCLUDE THE HOLIDAY "SHUT-OFF" FEATURE. AN AUTOMATIC HOLIDAY SHUT-OFF FEATURE WILL TURN OFF ALL LOADS FOR AT LEAST 24 HOURS BEFORE RESUMING THE NORMALLY SCHEDULED OPERATION.

REGISTERED PROFESSIONAL ENGINEER — JOHN BORRELLI — No. E016890 — Exp. 9/30/25 — ELECTRICAL — CALIFORNIA

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BAI Project Number : 23183
Drawn By: BAI
Checked By: JB

No.	Revision Description	Date
4	Building Dept. Plan Check 24-0097	05/15/2024
3	Fresno Fire Dept. Plan Check	05/15/2024
2	County Generated Changes	06/04/2024
1	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT — ZAHIDUL HOQUE KHAN — C-40030 — REN: 11-30-25 — STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren: 11-30-25
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Development Services & Capital Projects Division
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Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

LIGHTING FLOOR PLAN

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E3.02

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DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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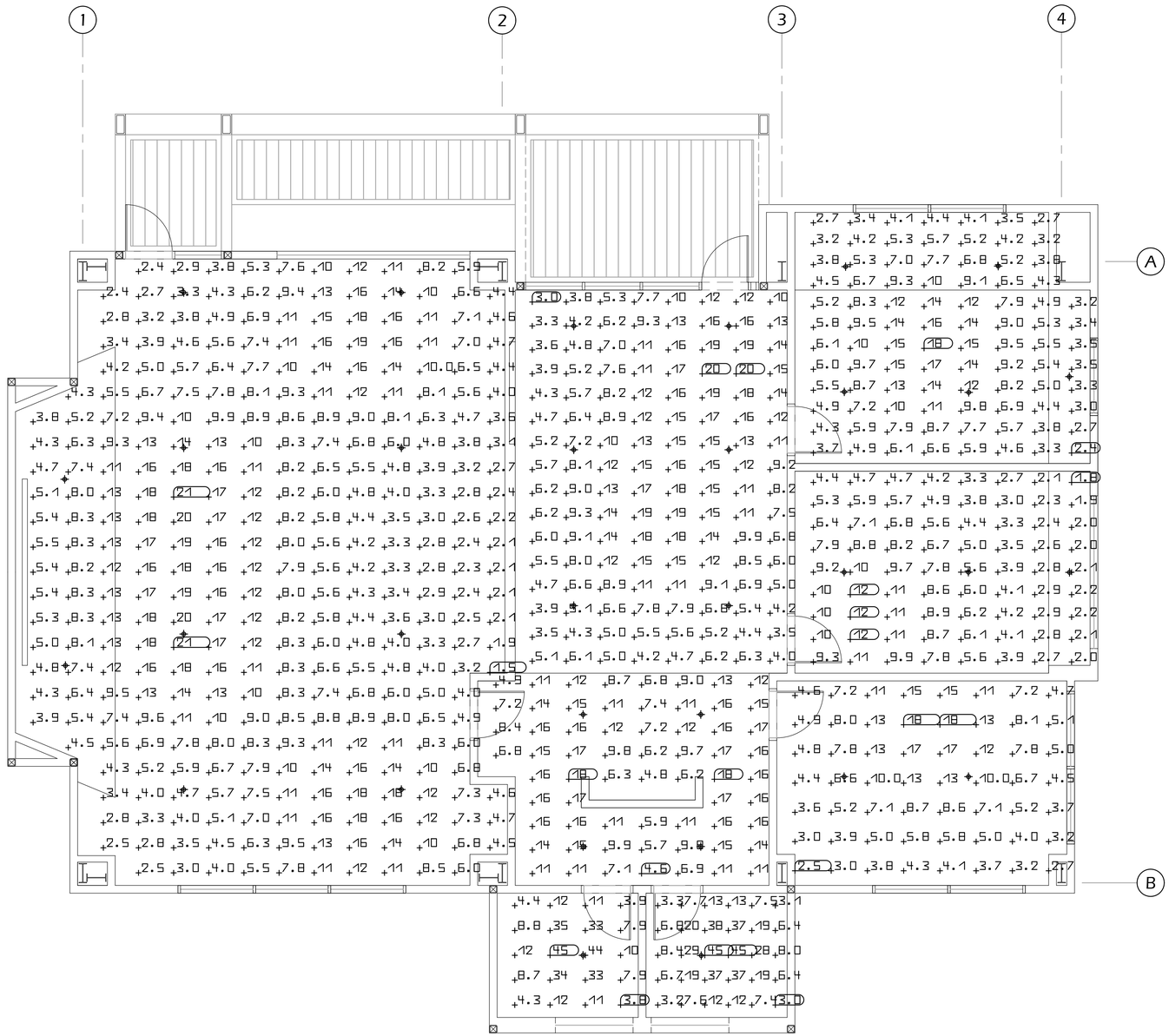

1 - **EMERGENCY PHOTOMETRIC FLOOR PLAN**
SCALE: 1/4"=1'-0"

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http://www.borrelliengineering.com/
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BAI Project Number :	23183
Drawn By:	BAI
Checked By:	JB

No.	Revision Description	Date
B1	Building Dept. Plan Check 24-0097	05/15/2024
F1	Fresno Fire Dept. Plan Check	05/15/2024
1	County Generated Changes	06/04/2024
B2	Fresno Fire Department Review	06/27/2024

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
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EMERGENCY PHOTOMETRICS FLOOR PLAN

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
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Sheet No.:

E3.03

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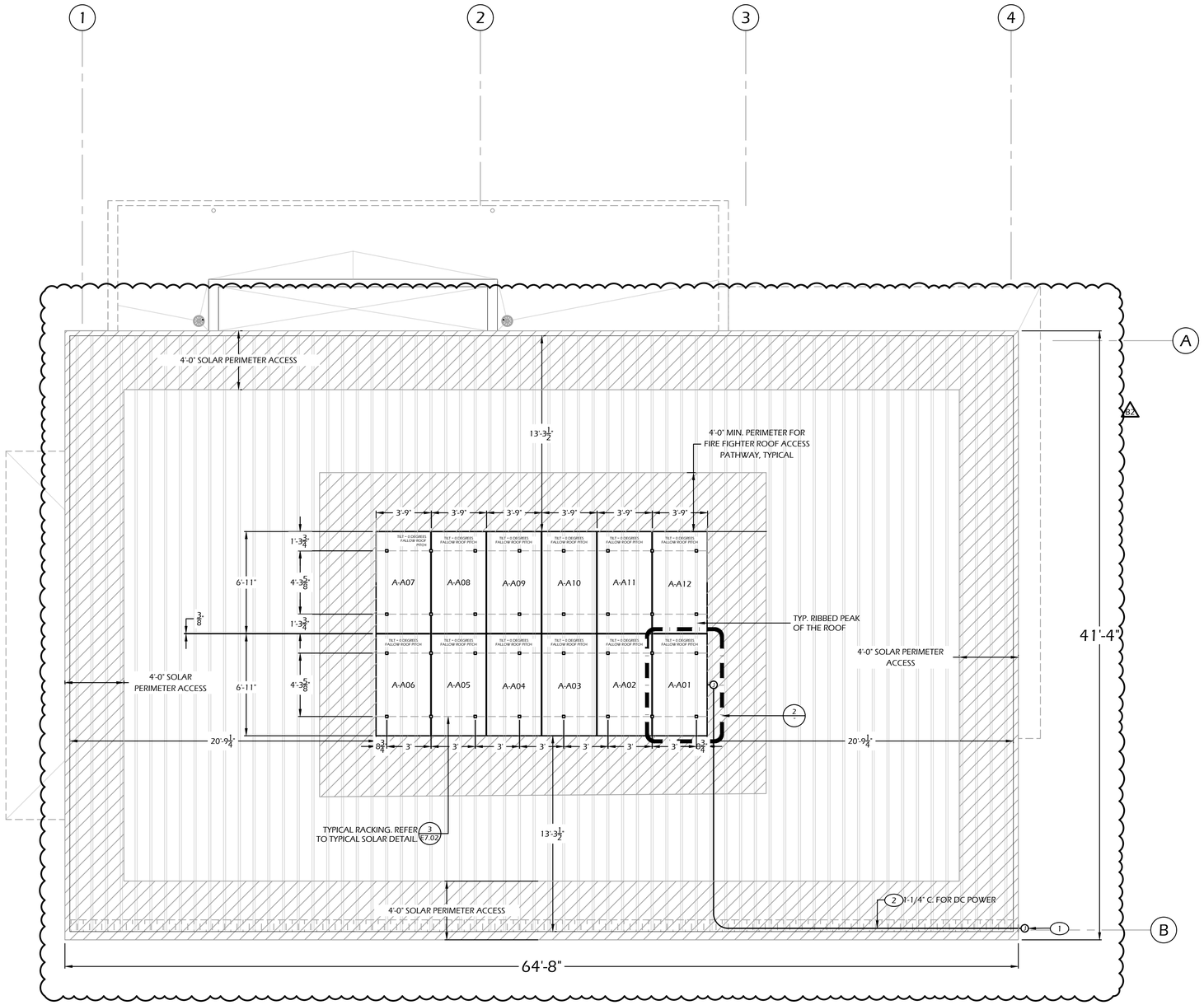
DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09



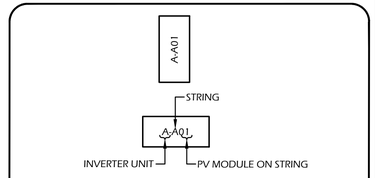
1 / - **ELECTRICAL ROOF PLAN**
SCALE: 1/4"=1'-0"

SHEET NOTES

1. RUN CONDUIT DOWN THE WALL AND PENETRATE THE WALL ABOVE THE CEILING LEVEL AND ROUTE CONDUIT TO THE INVERTER 'A'.
2. PROVIDE AND INSTALL THE DC CONDUCTORS WITHIN RIGID CONDUIT WITHIN THE ATTIC SPACE AND ALONG THE MAIN STRUCTURAL STEEL I-BEAM. THE CONDUIT SHALL BE FASTENED TO THE MAIN STRUCTURAL I-BEAMS USING APPROVED ERICO CADDY CLIPS. UTILIZED THREADED COUPLINGS TO CONNECT LENGTHS OF CONDUIT. WHEN INSTALLING CONDUIT UNDERGROUND CAN TRANSITION TO PVC FOR UNDERGROUND INSTALL.

GENERAL NOTES

1. NOT USED.
2. LIQUID TIGHT FLEXIBLE METAL CONDUIT SHALL BE USED AT ALL CONDUIT CONNECTIONS TO THE SOLAR SYSTEM PANELS. LIQUID TIGHT FLEXIBLE METAL CONDUIT CAN TRANSITION TO RIGID CONDUIT ONCE THE CONDUIT IS FASTENED TO THE MAIN SUPPORT STRUCTURE OF THE ROOF.
3. ALL EXTERIOR RACKING AND SUPPORT EQUIPMENT SHALL BE GALVANIZED WEATHER RATED.
4. ALL FIRE FIGHTER PATHWAY SHALL BE CAPABLE OF SUPPORTING FIGHT FIGHTER ACCESSING THE ROOF AND HAVE MINIMAL OBSTRUCTIONS.
5. LOCATIONS OF DC CONDUCTORS
   CONDUIT, WIRING SYSTEMS AND RACEWAYS FOR PHOTOVOLTAIC CIRCUITS SHALL BE LOCATED AS CLOSE AS POSSIBLE TO THE RIDGE OR HIP OR VALLEY AND FROM THE HIP OR VALLEY AS DIRECTLY AS POSSIBLE TO AN OUTSIDE WALL TO REDUCE TRIP HAZARDS AND MAXIMIZE VENTILATION OPPORTUNITIES. CONDUIT RUNS BETWEEN SUB ARRAYS AND TO DC COMBINER BOXES SHALL BE INSTALLED IN A MANNER THAT MINIMIZES THE TOTAL AMOUNT OF CONDUIT ON THE ROOF BY TAKING THE SHORTEST PATH FROM THE ARRAY TO THE DC COMBINER BOX. THE DC COMBINER BOXES SHALL BE LOCATED SUCH THAT CONDUIT RUNS ARE MINIMIZED IN THE PATHWAYS BETWEEN ARRAYS. DC WIRING SHALL BE INSTALLED IN METALLIC CONDUIT OR RACEWAYS WHEN LOCATED WITHIN ENCLOSED SPACES IN A BUILDING. CONDUIT SHALL RUN ALONG THE BOTTOM OF LOAD BEARING MEMBERS.



NOTE:
1. PV MODULES IN STRINGS ARE CONNECTED IN SERIES.

2 / - **TYPICAL PV MODULES AND STRING NOTATION**
NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER — JOHN BORRELLI — ELECTRICAL — CALIFORNIA — EXP. 6/30/25

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2	County Generated Changes	06/04/2024
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ELECTRICAL ROOF PLAN

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E3.04

Sheet 11 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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FIRE ALARM CONTROL PANEL 'A' BATTERY CALCULATIONS

Device Type: FACP 'A'		Amount	Supv. I	Supv. I_T	Alarm I	Alarm I_T
FACP (GAMEWELL #S3)		1	0.1140	0.1140	0.1940	0.1940
Smoke detector		1	0.0002	0.0002	0.0045	0.0045
Duct detector		0	0.0032	0.0000	0.0345	0.0000
Remote Annunciator		1	0.0300	0.0300	0.0650	0.0650
Relay Module		1	0.0004	0.0004	0.0650	0.0650
Manual Pull Station		2	0.0003	0.0006	0.0030	0.0060
Monitor Module		3	0.0003	0.0008	0.0000	0.0000
DACT	-	1	0.0000	0.0000	0.0000	0.0000
15cd Wall Strobe	V15	0	0.0000	0.0000	0.0220	0.0000
30cd Wall Strobe	V30	0	0.0000	0.0000	0.0300	0.0000
75cd Wall Strobe	V75	0	0.0000	0.0000	0.0600	0.0000
110cd Wall Strobe	V110	0	0.0000	0.0000	0.0860	0.0000
15cd Wall Horn/Strobe	AV15	5	0.0000	0.0000	0.0370	0.1850
30cd Wall Horn/Strobe	AV30	0	0.0000	0.0000	0.0460	0.0000
75cd Wall Horn/Strobe	AV75	2	0.0000	0.0000	0.0770	0.1540
110cd WP Wall Horn/Strobe	AV110	0	0.0000	0.0000	0.1090	0.0000
15cd Ceiling Strobe	V15C	0	0.0000	0.0000	0.0220	0.0000
30cd Ceiling Strobe	V30C	0	0.0000	0.0000	0.0300	0.0000
75cd Ceiling Strobe	V75C	0	0.0000	0.0000	0.0600	0.0000
95cd Ceiling Strobe	V95C	0	0.0000	0.0000	0.0860	0.0000
15cd Ceiling Horn/Strobe	AV15C	0	0.0000	0.0000	0.0370	0.0000
30cd Ceiling Horn/Strobe	AV30C	0	0.0000	0.0000	0.0460	0.0000
75cd Ceiling Horn/Strobe	AV75C	0	0.0000	0.0000	0.0770	0.0000
110 cd Ceiling Horn/Strobe	AV110C	0	0.0000	0.0000	0.1090	0.0000
Weatherproof Horn	WP	0	0.0000	0.0000	0.0610	0.0000
Totals				0.1460		0.6735
Minimum runtime on batteries (Hours)			24 HR		15.0000 MIN	
Subtotal battery standby (Amp-Hours)				3.5036		0.1684
Total battery standby (Amp-Hours)						3.6720
Safety Factor						125.00%
Minimum Capacity (Amp-Hours)						4.5900
Battery Size (Amp-Hours)						7

PROJECT: EDUCATIONAL CENTER CIRCUIT: SA1 VISUAL

Device Label	AV15	AV15	AV75	AV75	AV15	AV15	AV15	-	-	-
Device Number	1	2	3	4	5	6	7	8	9	10
Wire Gauge	12	12	12	12	12	12	12	12	12	12
Distance in Feet	24.000	16.000	13.000	50.000	55.000	16.000	15.000	0.000	0.000	0.000
Amps @ Device	0.037	0.037	0.077	0.077	0.037	0.037	0.037	0.000	0.000	0.000
Running Amps	0.339	0.302	0.265	0.188	0.111	0.074	0.037	0.000	0.000	0.000
Voltage Drop	0.032	0.019	0.014	0.037	0.024	0.005	0.002	0.000	0.000	0.000
Volts at Device	20.368	20.349	20.335	20.298	20.274	20.269	20.267	20.267	20.267	20.267

Device Label	-	-	-	-	-	-	-	-	-	-
Device Number	11	12	13	14	15	16	17	18	19	20
Wire Gauge	12	12	12	12	12	12	12	12	12	12
Distance in Feet	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Amps @ Device	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Running Amps	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Voltage Drop	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Volts at Device	20.267	20.267	20.267	20.267	20.267	20.267	20.267	20.267	20.267	20.267

Total Current	=	0.339	Amps	Legend			Formula: V_{drop} =(2K X L X I)/CMIL	
Total Distance	=	189.00	Ft	Symbol	Model	Description	K=12.9, L=Dist. in ft., I=Current	
Total Voltage Drop	=	0.13	Volts	V15	ELSTR	Strobe	Wire Size	/M FT.	Circular Mils
85% of Nominal Voltage	=	20.4	Volts	V30	ELSTR	Strobe			
% Voltage Drop	=	0.65	%	V75	ELSTR	Strobe	10	1.018	10380
% Spare Voltage Drop	=	20.92	%	V110	ELSTR	Strobe	12	1.59	6530
				AV15	ELHSR	Horn/Strobe	14	2.52	4110
				AV30	ELHSR	Horn/Strobe	16	4.02	2580
				AV75	ELHSR	Horn/Strobe	18	6.39	1620
				AV110	ELHSR	Horn/Strobe	20	10.1	1020
				WP	ET-1010-R	Weatherproof Horn	24	25.7	404

FIRE ALARM OPERATION MATRIX

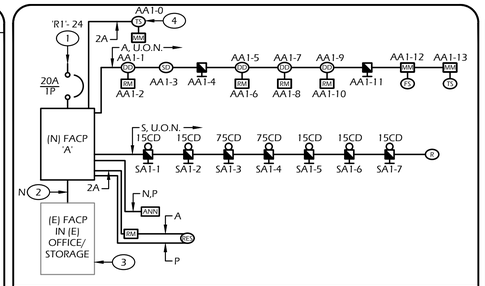
INPUT	OUTPUT: ANNUNCIATE ALARM AT FACP AND ANNUNCIATORS	ANNUNCIATE TROUBLE AT FACP AND ANNUNCIATORS	ANNUNCIATE SUPERVISORY AT FACP AND ANNUNCIATORS	TRANSMIT SIGNAL TO CENTRAL STATION	ACTIVATE NOTIFICATION APPLIANCES	SHUT DOWN HVAC
MANUAL PULL STATION	●	●		●	●	
POWER FAILURE		●	●	●		●
AREA SMOKE DETECTORS	●	●		●	●	●
DUCT SMOKE DETECTORS		●	●	●		●

FIRE ALARM RECORD DOCUMENTS CABINET

1. THE FIRE ALARM SYSTEM WORK SHALL INCLUDE A DOCUMENTATION CABINET, INSTALLED AT THE SYSTEM CONTROL PANEL OR OTHER APPROVED LOCATION PER NFPA 72, 7.7.2.
2. THE DOCUMENTATION CABINET SHALL BE RED WITH A HINGED, LOCKING DOOR AND SHALL BE PROMINENTLY LABELED "SYSTEM RECORD DOCUMENTS".
3. ALL RECORD AND TESTING DOCUMENTATION SHALL BE STORED INSIDE THE CABINET.
4. CONTENTS SHALL BE ACCESSIBLE BY AUTHORIZED PERSONNEL ONLY.
5. WHERE CABINET IS INSTALLED IN A LOCATION OTHER THAN THE SYSTEM CONTROL UNIT, ITS LOCATION SHALL BE IDENTIFIED AT THE SYSTEM CONTROL UNIT.
6. PROVIDE SYSTEM DOCUMENTS AS APPLICABLE:
   a. RECORD DRAWINGS/ AS-BUILTS
   b. EQUIPMENT CUT SHEETS AND CA SFM LISTINGS
   c. ALTERNATIVE MEANS AND METHODS
   d. PERFORMANCE BASED DESIGN DOCUMENTATION (NFPA 72. 7.3.7)
   e. SYSTEM RECORD OF COMPLETION AND ANY SUPPLEMENTAL INSPECTION AND TESTING DOCUMENTATION (NFPA 72, 7.8.2)
   f. EMERGENCY RESPONSE PLAN (NFPA 72, 7.3.8)
   g. EVALUATION DOCUMENTATION (NFPA 72, 7.3.9)
   h. RISK ANALYSIS DOCUMENTATION (NFPA 72, 7.3.6)
   i. SOFTWARE AND FIRMWARE CONTROL DOCUMENTATION (NFPA 72, 23.2.2)

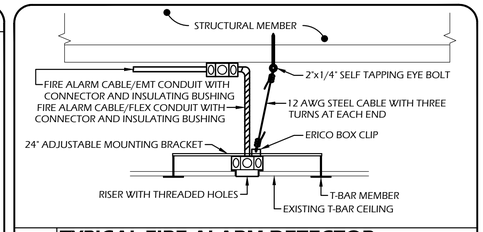
FIRE ALARM SYSTEM NOTES

1. ALL WORK AND MATERIALS SHALL COMPLY WITH THE LATEST REGULATIONS OF THE STATE FIRE MARSHAL, CALIFORNIA CODE OF REGULATIONS, SERVING UTILITY COMPANIES, AND OTHER APPLICABLE STATE ORDINANCES. NOTHING IN THESE PLANS OR SPECIFICATIONS IS TO BE CONSTRUED AS TO PERMIT WORK NOT CONFORMING TO THESE CODES. WHERE WORK OF A HIGHER DEGREE IS INDICATED IN THE PLANS OR SPECIFICATIONS THIS REQUIREMENT SHALL GOVERN.
2. THE FIRE ALARM SYSTEM DESIGN IS A "COMPLETE PLAN SUBMITTAL". THE CONTRACTOR SHALL INSTALL THE SYSTEM AS SHOWN AND AS HEREIN SPECIFIED. CONTRACTOR SHALL SUBMIT THESE FIRE ALARM PLANS TO THE LOCAL FIRE AUTHORITY FOR THEIR REVIEW AND APPROVAL AND MAKE ANY ADJUSTMENTS AS REQUIRED BY THE LOCAL FIRE AUTHORITY IN ORDER TO OBTAIN A SEPARATE FIRE ALARM INSTALLTION PERMIT. THE FIRE ALARM INSTALLTION PERMIT SHALL NOT RIDE ON THE MAIN BUILDING CONSTRUCTION PERMIT.
3. ALARM INDICATING DEVICES OF A FIRE ALARM SYSTEM INTENDED TO ALERT ALL OCCUPANTS SHALL BE SO LOCATED AND UNOBSTRUCTED AS TO CAUSE A LEVEL OF AUDIBILITY OF NOT LESS THAN 15 DB ABOVE AMBIENT NOISE LEVELS MEASURED FOUR FEET ABOVE THE FLOOR INSIDE BUILDING. AMBIENT NOISE LEVELS SHALL BE CONSTRUED TO MEAN THAT WHICH CAN NORMALLY BE EXPECTED TO EXIST WHEN THE FACILITY, BUILDING, ROOM OR AREA IS FUNCTIONING UNDER NORMAL OPERATIVE OR WORKING CONDITIONS.
4. UPON COMPLETION OF THE INSTALLATION OF THE FIRE PROTECTIVE SIGNALING EQUIPMENT, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE ENFORCING FIRE AGENCY PER CHAPTER 14, NFPA 72, AND A CERTIFICATE OF COMPLETION SHALL BE PROVIDED TO THE OWNER PER CHAPTER 7, NFPA 72 AND THE CALIFORNIA FIRE CODE, SECTION 907.7.
5. THE FIRE ALARM SYSTEM SHALL CONFIRM TO ARTICAL 760 OF THE CALIFORNIA ELECTRICAL CODE AND SECTION 907 OF THE CALIFORNIA FIRE CODE.
6. ALL AUDIBLE AND VISUAL DEVICES SHALL BE SYNCHRONIZED.
7. ALL FIRE PROTECTION SIGNALING COMPONENTS SHALL BE ONLY THOSE APPROVED AND LISTED IN THE STATE FIRE MARSHAL'S LISTING SERVICE. AN ITEMIZED MATERIALS LIST SHOWING MAKE, MODEL NUMBER AND ITS CORRESPONDING STATE FIRE MARSHAL'S LISTING NUMBER SHALL BE FURNISHED TO THE PROJECT INSPECTOR. UPON COMPLETION OF THE INSTALLATION OF THE FIRE PROTECTIVE SIGNALING EQUIPMENT, A SATISFACTORY TEST OF THE ENTIRE SYSTEM SHALL BE MADE IN THE PRESENCE OF THE LOCAL FIRE AUTHORITY WITH I.O.R. INSTALLATION REQUIREMENTS SHALL BE PER NFPA 72, CALIFORNIA BUILDING CODE, AND CALIFORNIA FIRE CODE.
8. THE FIRE ALARM SYSTEM SHALL TRANSMIT THE ALARM, SUPERVISORY, AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION IN ACCORDANCE WITH NFPA 72. THE SUPERVISING STATION SHALL BE LISTED AS EITHER UUFX (CENTRAL STATION) OR UUJS (REMOTE AND PROPRIETARY) BY UNDERWRITERS LABORATORY (UL) OR SHALL COMPLY WITH THE REQUIREMENTS OF STANDARD FM 3011.
9. AFTER SUCCESSFUL TESTING OF THE FIRE ALARM SYSTEM, COMPLETE THE NFPA 72 RECORD OF COMPLETION AND PROVIDE COPIES TO THE DESIGN PROFESSIONAL, OWNER, AND LOCAL FIRE AUTHORITY.
10. HVAC SHUT-OFF SHALL OCCUR AT ALL AC UNIT LOCATIONS WHERE DUCT DETECTORS OR RELAY MODULE LOCATIONS ARE INDICATED. THE FIRE ALARM CONTRACTOR WILL PROVIDE THE DUCT DETECTOR FOR INSTALLATION BY THE MECHANICAL CONTRACTOR. THE FIRE ALARM CONTRACTOR WILL MAKE THE FIRE ALARM CONNECTIONS. THE MECHANICAL CONTRACTOR SHALL MAKE THE HVAC SHUT OFF CONNECTIONS FROM THE DUCT DETECTOR TO THE HVAC SHUT OFF RELAY.
11. FIRE ALARM CONTROL PANELS AND REMOTE ANNUNCIATORS SHALL BE INSTALLED WITH THEIR BOTTOMS MOUNTED AT 48" ABOVE THE FINISHED FLOOR.



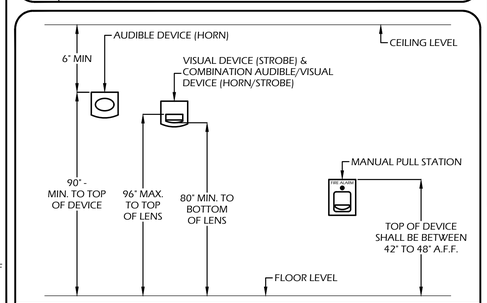
1 - FIRE ALARM RISER DIAGRAM

NOT TO SCALE



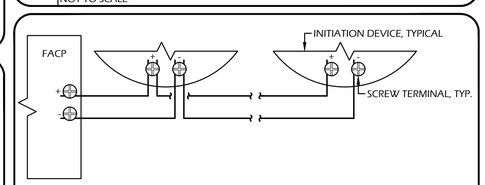
2 - TYPICAL FIRE ALARM DETECTOR MOUNTING AT T-BAR CEILING

NOT TO SCALE



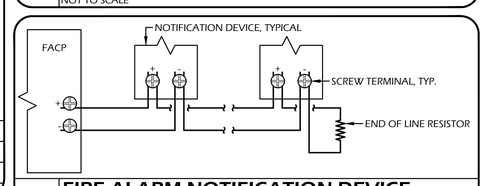
3 - FIRE ALARM DEVICE MOUNTING HEIGHTS DETAIL

NOT TO SCALE



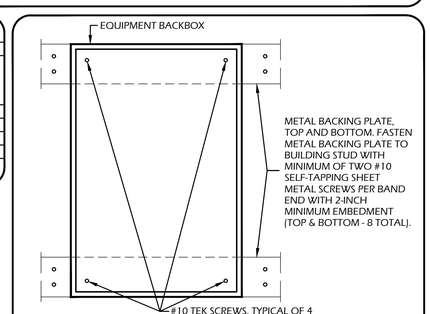
4 - FIRE ALARM INITIATION DEVICE WIRING DIAGRAM

NOT TO SCALE



5 - FIRE ALARM NOTIFICATION DEVICE WIRING DIAGRAM

NOT TO SCALE



NOTE:
FACP MAXIMUM WEIGHT NOT TO EXCEED 50 POUNDS.

6 - SCE ANCHORAGE FOR EQUIPMENT WEIGHING OVER 20 LBS

NOT TO SCALE

FIRE ALARM SYMBOL LIST

SYMBOL	DEVICE TYPE	MANUFACTURER AND MODEL NUMBER	CSFM LISTING NUMBER
	(E) FIRE ALARM PANEL (FACP) NEW NETWORKING CARD NEW MULTIMODE FIBER NETWORK MODULE	GAMEWELL FCI #S3 GAMEWELL FCI #RPT E3-UTP GAMEWELL FCI #FML -E3	7165-1703:0176 7165-1703:0125 7165-1703:0125
	FIRE ALARM CONTROL PANEL (FACP) GAMEWELL FCI #S3 MAIN BOARD SLC LOOP POWER SUPPLY LCD DISPLAY NETWORKING CARD MULTIMODE FIBER NETWORK MODULE ENCLOSURE	 GAMEWELL FCI #SLP-E3 GAMEWELL FCI #SLC-PM GAMEWELL FCI #FLPS-7 GAMEWELL FCI #LCD-SLP GAMEWELL FCI #RPT-E3-UTP GAMEWELL FCI #FML-E3 GAMEWELL FCI #SLP-RED	 7165-1703:0176 7165-1703:0176 7165-1703:0176 7165-1703:0176 7165-1703:0125 7165-1703:0125 7165-1703:0176
ANN	REMOTE ANNUNCIATOR ENCLOSURE	GAMEWELL FCI #LCD-SLP GAMEWELL FCI #E3BB-FLUSH-LCD	7165-1703:0176 7165-1703:0176
SD	SMOKE DETECTOR - SPOT TYPE DETECTOR BASE	GAMEWELL FCI #ASD-PL3 SYSTEM SENSOR #B300-6	7272-1703:0501 7300-1653:0109
DD	DUCT SMOKE DETECTOR	GAMEWELL FCI #LCD-SLP SYSTEM SENSOR #DNR SYSTEM SENSOR #DST1.5 SYSTEM SENSOR #RTS151KEY	7165-1703:0176 3240-1653:0209 3240-1653:0209 7300-1653:0212
	MANUAL PULL STATION	NOTIFIER #MS-7AF	7150-1703:0199
	MULTI-CANDELA HORN/STROBE - WALL MOUNTED	WHEELOCK #ELHSR	7135-0785:0504
RM	RELAY MODULE	GAMEWELL FCI #AOM-2SF	7300-1703:0102
MM	MONITOR MODULE	GAMEWELL FCI #AMM-2F	7300-1703:0102
FS	FIRE SPRINKLER FLOW SWITCH	POTTER #VSG	7700-0328:0001
TS	FIRE SPRINKLER TAMPER SWITCH	POTTER #OSYSU-1	7700-0328:0010
P	END OF LINE RESISTOR 3.9KΩ	VARIOUS	
	CABLE LEGEND		
A	INITIATION CABLE ABOVE GROUND	WEST-PENN #D990	7165-0859:0101
	INITIATION CABLE UNDERGROUND	WEST-PENN #AQ225	7161-0859:0101
N	NETWORK CABLE ABOVE GROUND	TWO WEST-PENN #D990 BELDEN #FI4D006R9R (FIBER)	7161-0859:0101 N/A
	NETWORK CABLE UNDERGROUND	TWO WEST-PENN #AQ225 BELDEN #FD4D006R9R (FIBER)	7161-0859:0101 N/A
P	POWER CABLE ABOVE GROUND	WEST-PENN #998	7165-0859:0101
	POWER CABLE UNDERGROUND	WEST-PENN #AQ227	7161-0859:0101
S	SIGNAL CABLE ABOVE GROUND	WEST-PENN #998	7165-0859:0101

NOTES:
1. INSTALL DUCT DETECTOR AT THE HVAC UNIT. REFER TO THE MECHANICAL PLANS FOR THE UNIT LOCATIONS. COORDINATE WITH MECHANICAL CONTRACTOR.
2. SWIVEL MOUNTING BRACKET FOR FLAME DETECTOR TO BE INSTALLED BY BESS MANUFACTURER WITHIN THE BATTERY SIDE OF THE ENCLOSURE. FIRE ALARM CONTRACTOR TO COORDINATE WITH BESS CONTRACTOR. FIRE ALARM CONTRACTOR TO INSTALL THE FLAME DETECTOR AND MAKE ALL WIRING CONNECTIONS.

FIRE ALARM PLAN SUBMITTAL NOTE

THE FIRE ALARM PLANS ARE A DEFERRED SUBMITTAL. FIRE ALARM CONTRACTOR SHALL QUOTE A FULLY FUNCTIONAL FIRE ALARM SYSTEM INDICATED IN THESE PLANS . THE FIRE ALARM CONTRACTOR SHALL SUBMIT THEIR SET OF FIRE ALARM PLANS TO THE LOCAL FIRE MARSHAL WITH FULL VOLTAGE DROP, BATTERY CALCULATIONS, CSFM LISTING SHEETS, AND DATA SHEETS AS REQUIRED TO OBTAIN APPROVAL. ANY ADJUSTMENTS NEEDED SHALL BE MADE ACCORDINGLY. AFTER APPROVAL A SEPARATE PERMIT FOR THE FIRE ALARM SYSTEM SHALL BE ISSUED. THE FIRE ALARM SYSTEM PERMIT SHALL NOT RIDE ON THE BUILDING PERMIT.

SYSTEM DESCRIPTION

1. THE SYSTEM SHOWN IS A NEW MANUAL AND ADDRESSABLE SYSTEM.
2. CLASS B WIRING METHOD IS UTILIZED FOR ALL SIGNALING CIRCUITS.

SCOPE OF FIRE ALARM WORK

THE FIRE ALARM SYSTEM CONSISTS OF A NEW MANUAL AND ADDRESSABLE SYSTEM WITH AUDIBLE/VISUAL DEVICES FOR NOTIFICATION.

SHEET NOTES (#)

1. PROVIDE AND INSTALL A CIRCUIT BREAKER COMPLYING WITH NFPA 72 (RED AND WITH MECHANICAL LOCKING DEVICE) FOR EACH DEDICATED CIRCUIT SUPPLYING POWER TO FIRE ALARM DEVICE. THIS CIRCUIT SHALL BE LABELED ON THE INSIDE OF THE RAT DOOR PROVIDED WITH A CIRCUIT LOCK ACCESSIBLE BY AUTHORIZED PERSONNEL ONLY. CIRCUIT DISCONNECTING MEANS SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT." THE CIRCUIT DISCONNECTING MEANS SHALL HAVE A RED MARKING.
2. PROVIDE AND INSTALL FIRE ALARM MULTIMODE FIBER OPTIC CABLE WITHIN NEW AND EXISTING CONDUIT. REFER TO SHEET E2.01.
3. PROVIDE AND INSTALL WITHIN THE EXISTING PANEL A NEW NETWORKING CARD AND NEW MULTIMODE FIBER NETWORK MODULE. REFER TO THE FIRE ALARM SYMBOL LIST.
4. REFER TO SITE PLAN, SHEET E2.01 FOR P.I.V. MONITORING.

REGISTERED PROFESSIONAL ENGINEER — JOHN BORRELLI — ELECTRICAL — CALIFORNIA
Exp. 9/30/25

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BAI Project Number : 23183
Drawn By: BAI
Checked By: JB

No.	Revision Description	Date
1	Building Dept. Plan Check 24-0097	05/15/2024
2	Fresno Fire Dept. Plan Check	05/15/2024
3	County Generated Changes	06/04/2024
4	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT — ZAHIDUL HOQUE KHAN — C-40030 REN: 11-30-25 — STATE OF CALIFORNIA

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California Licensed Architect No. C-40030
Ren. 11-30-23
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Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:
FIRE ALARM RISER DIAGRAM, NOTES, AND CALCULATIONS - FOR REFERENCE ONLY

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
E4.01
Sheet 12 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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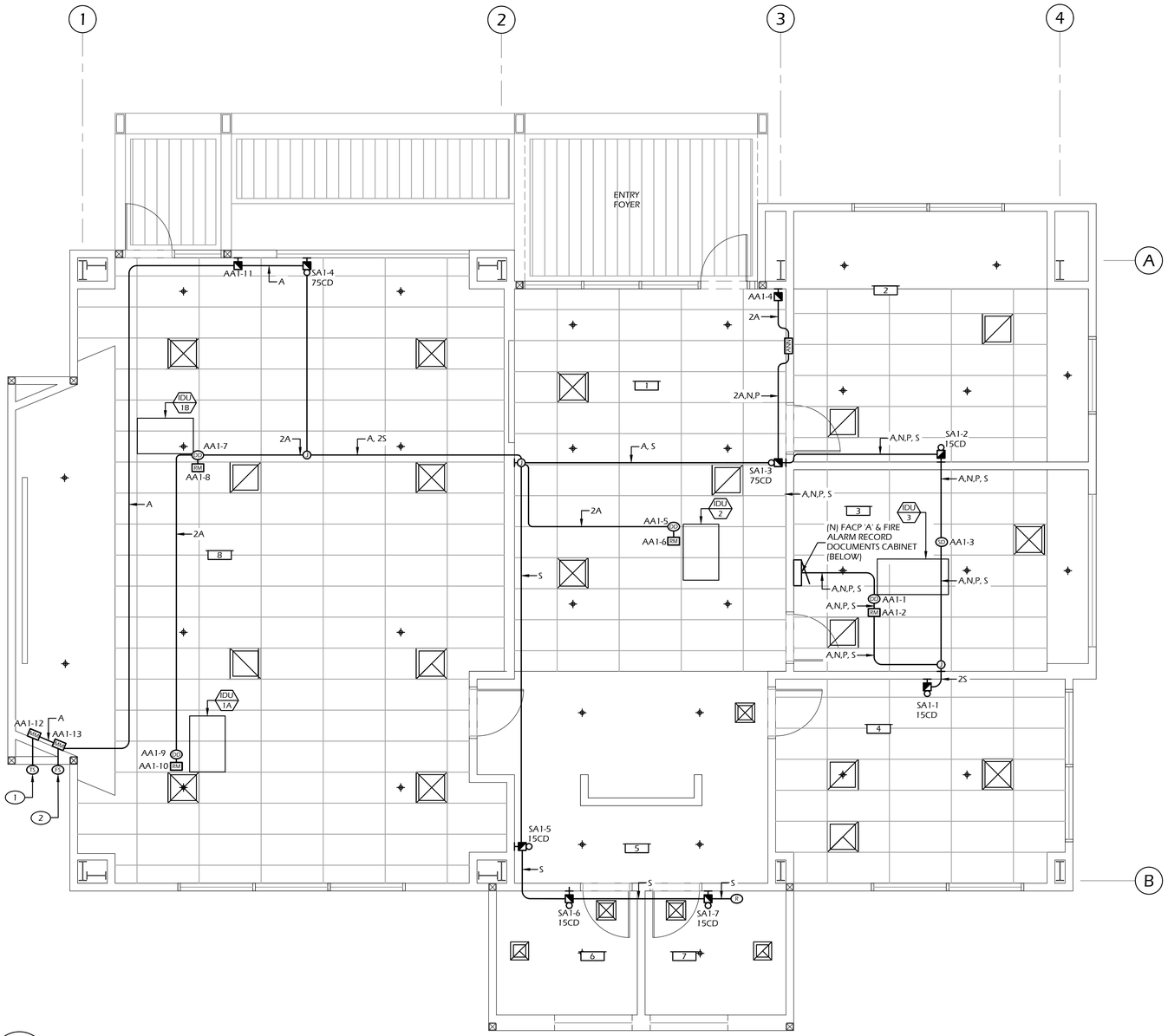

1 / - **FIRE ALARM FLOOR PLAN - FOR REFERENCE ONLY**

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

ROOM SCHEDULE

###	ROOM NAME	###	ROOM NAME
	ENTRY FOYER	5	HALLWAY
1	GENERAL OFFICE	6	UNISEX
2	OFFICE	7	UNISEX
3	STORAGE	8	EDUCATION ROOM
4	BREAKROOM		

SHEET NOTES (#)

1. PROVIDE AND INSTALL SIGNALING LINE CIRCUIT CABLE FROM THE MONITOR MODULE TO THE TAMPER SWITCH ON THE DETECTOR CHECK VALVE OF THE FIRE SPRINKLER.
2. PROVIDE AND INSTALL SIGNALING LINE CIRCUIT CABLE FROM THE MONITOR MODULE TO THE FLOW SWITCH TO MONITOR FIRE SPRINKLER WATER FLOW.

GENERAL NOTES (#)

1. SMOKE DETECTORS SHALL NOT BE ANY CLOSER THAN 1-FOOT FROM FIRE SPRINKLERS OR 3-FEET FROM ANY SUPPLY DIFFUSER.
2. PROVIDE AND INSTALL MINIMUM 1-1/4-INCH CONDUIT SIZE FOR THE FIRE ALARM.

REGISTERED PROFESSIONAL ENGINEER — JOHN BORRELLI — ELECTRICAL — CALIFORNIA — No. E14890 — EXP. 9/30/25

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BAI Project Number :	23183
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4	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT — ZAHIDUL HOQUE KHAN — C-40030 — REN: 11-30-25 — STATE OF CALIFORNIA

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Fresno County Dept. of Public Works & Planning
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Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

FIRE ALARM FLOOR PLAN - FOR REFERENCE ONLY

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E4.02

Sheet 13 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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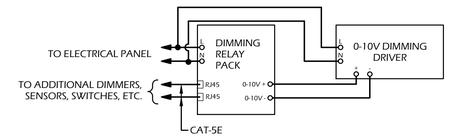
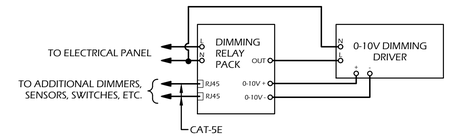
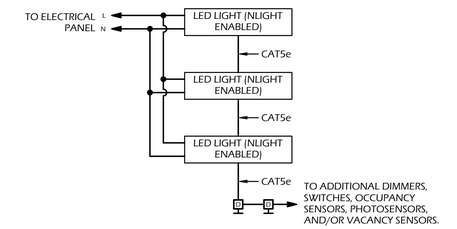


A NPS-80-EZ DIMMING PACK



B NPP-16 DIMMING PACK



NOTES:
1. ALL CONDUCTORS ARE #12 AWG, U.O.N.
2. CABLES BETWEEN NLIGHT ENABLED DEVICES ARE CAT-5E WITH RJ-45 CONNECTORS.
3. PROVIDE ALL PROGRAMMING FOR A COMPLETE AND FULLY FUNCTIONAL SYSTEM.

C NLIGHT ENABLED LIGHT FIXTURES

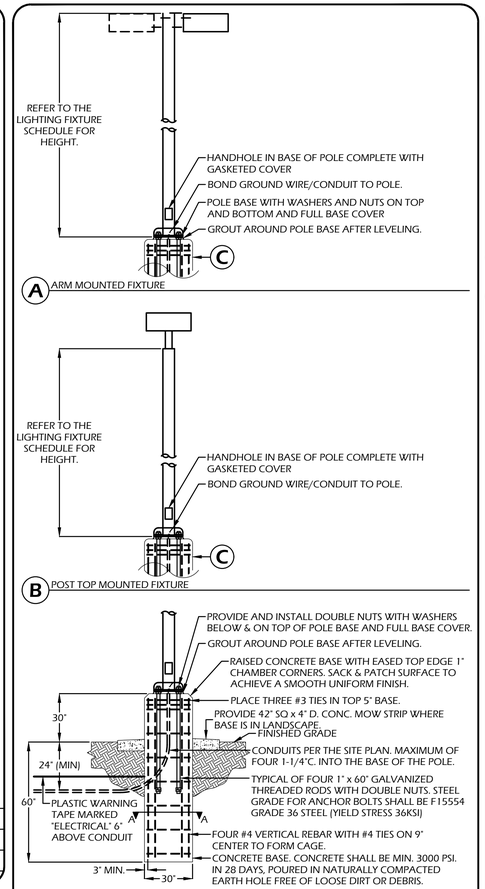
7 - TYPICAL 0-10VDC LOCAL ROOM DIGITAL DIMMING CONTROL

NOT TO SCALE

A-A SECTION

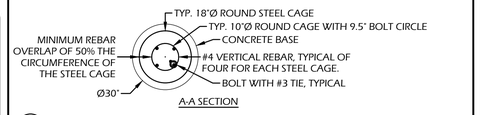
8 - LIGHTING POLE MOUNTING DETAIL

NOT TO SCALE GB-0139-01-02-06



A ARM MOUNTED FIXTURE

B POST TOP MOUNTED FIXTURE



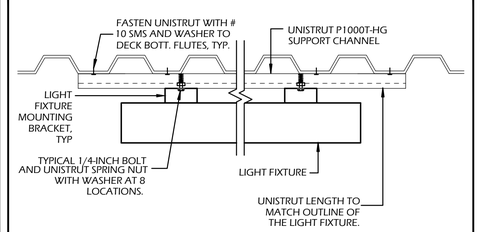
A-A SECTION

C POLE BASE

GENERAL NOTE:
1. LIGHT POLE IS EXEMPT PER IR A-22 AND IS NOT PART OF DSA APPROVAL.
2. POLE BASE AND ALL MOUNTING PROVISIONS SHALL BE BY POLE MANUFACTURER.

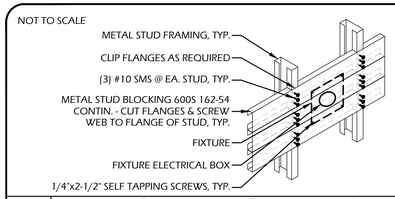
6 - LIGHTING POLE MOUNTING DETAIL

NOT TO SCALE GB13-1-20



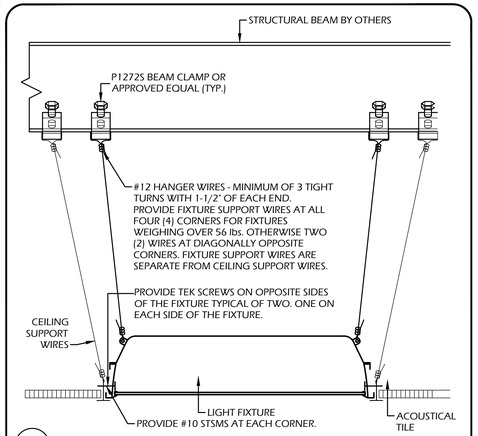
9 - LIGHT FIXTURE TYPE A1 MOUNTING DETAIL

NOT TO SCALE

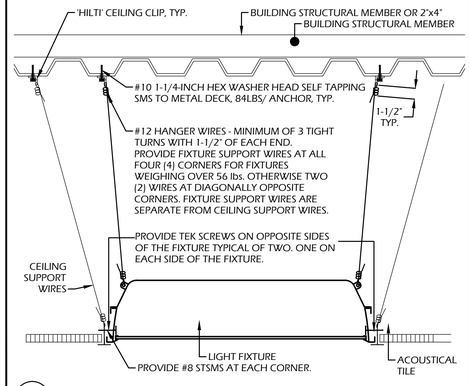


4 - WALL MOUNTED LIGHT FIXTURE

NOT TO SCALE



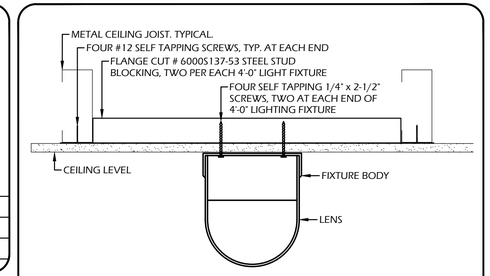
A LIGHT FIXTURE IN T-BAR CEILING



B LIGHT FIXTURE IN METAL DECK

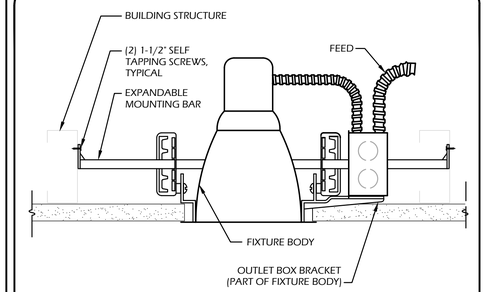
5 - LIGHT FIXTURE MOUNTING DETAIL

NOT TO SCALE



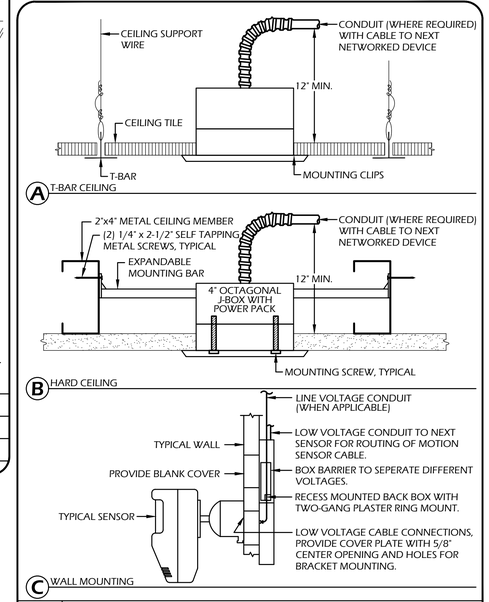
1 - TYPICAL SURFACE MOUNTED FIXTURE ON HARD CEILING

NOT TO SCALE GB3-2-08



2 - DOWNLIGHT IN HARD CEILING - STEEL STRUCTURE

NOT TO SCALE GB-01-01-02-0025



A T-BAR CEILING

B HARD CEILING

C WALL MOUNTING

3 - INTERIOR LIGHTING OCCUPANCY SENSOR MOUNTING

NOT TO SCALE GB9-1-02A

REGISTERED PROFESSIONAL ENGINEER JOHN BORRELLI ELECTRICAL CALIFORNIA

EXP. 6/30/25

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BAI Project Number : 23183
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Checked By: JB

No.	Revision Description	Date
B1	Building Dept. Plan Check 24-0097	05/15/2024
F1	Fresno Fire Dept. Plan Check	05/15/2024
1	County Generated Changes	06/04/2024
F2	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN: 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
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Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
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Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

TYPICAL ELECTRICAL DETAILS

Fresno County Department of Public Works and Planning
Capital Projects

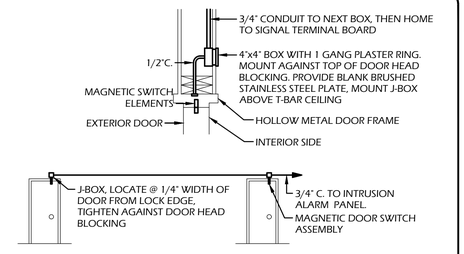
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E5.01

Sheet 14 of 34

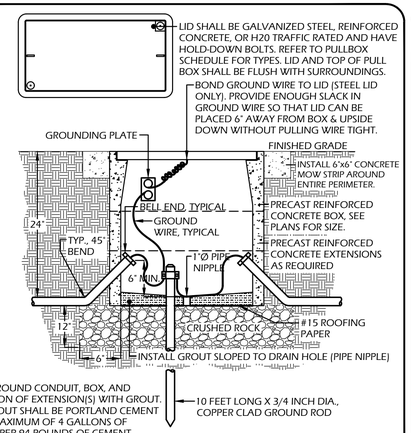
DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09



NOTES:
1. AT DOUBLE DOOR LOCATIONS, CENTER (1) J-BOX BETWEEN DOORS AND STUB (1) 1/2" CONDUIT DOWN INTO FRAME OF EACH DOOR.
2. WHERE SPACE ABOVE DOOR IS INADEQUATE FOR INSTALLATION OF J-BOX, BOX SHALL BE LOCATED IN WALL ADJACENT TO DOORWAY AS CLOSE TO DOOR & CEILING AS POSSIBLE. WHERE THIS OCCURS, 1/2" CONDUIT. TO MAGNETIC SWITCH ELEMENT LOCATION SHALL BE CHANGED TO 3/4" CONDUIT.

9 - **INTRUSION ALARM PROVISION DETAIL**

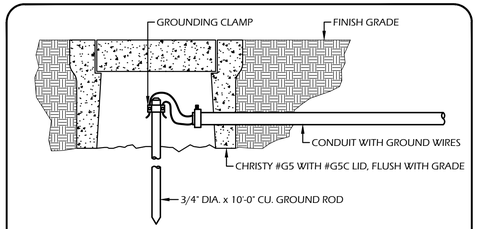
NOT TO SCALE GB130-01-01



NOTES:
1. SEAL AROUND CONDUIT, BOX, AND JUNCTION OF EXTENSION(S) WITH GROUT.
2. ALL GROUT SHALL BE PORTLAND CEMENT WITH MAXIMUM OF 4 GALLONS OF WATER PER 94 POUNDS OF CEMENT.

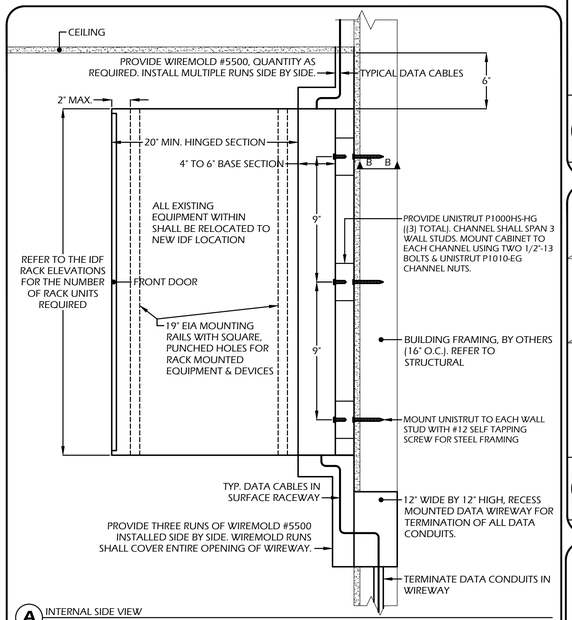
7 - **PULL BOX DETAIL**

NOT TO SCALE GB30-01-01

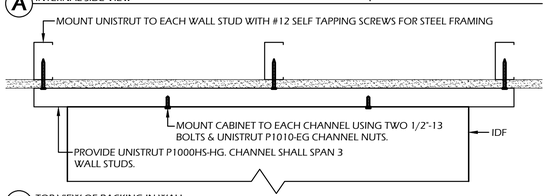


10 - **TYPICAL GROUND ROD DETAIL**

NOT TO SCALE GB30-01-06



A INTERNAL SIDE VIEW

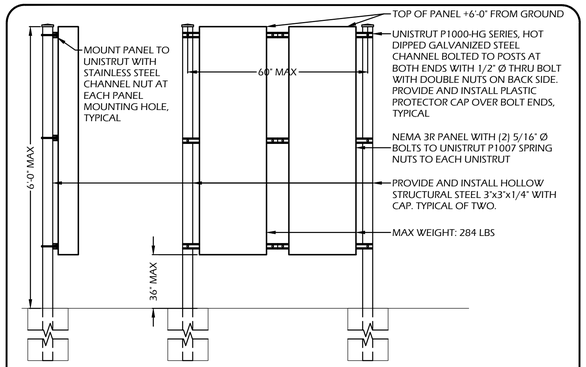


B TOP VIEW OF BACKING IN WALL

IDF NOTES:
1. PROVIDE END CAPS FOR THE EXPOSED UNISTRUT.
2. PAINT UNISTRUT BLACK TO MATCH IDF CABINET.
3. REFER TO SPECIFICATIONS FOR ADDITIONAL EQUIPMENT TO BE INSTALLED IN IDF CABINET.
4. MAX WEIGHT CAPACITY 200 POUNDS.

8 - **EXISTING IDF RELOCATION MOUNTING DETAIL**

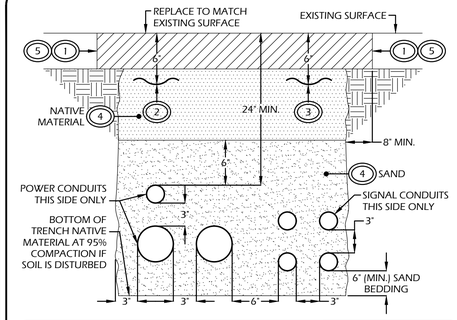
NOT TO SCALE



A SECTION VIEW
NO SCALE

11 - **TYPICAL POST MOUNTED TWO SWITCH DISCONNECT MOUNTING DETAIL**

NOT TO SCALE

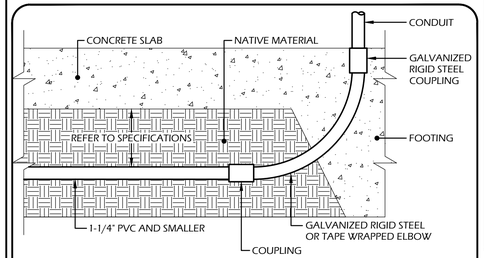


DETAIL NOTES (#)

1. SAWCUT ALL EDGES NEATLY.
2. PROVIDE AND INSTALL DETECTABLE WARNING TAPE MARKED "POWER" ABOVE POWER CONDUITS.
3. PROVIDE AND INSTALL DETECTABLE WARNING TYPE MARKED "COMMUNICATIONS" ABOVE COMMUNICATIONS CONDUIT.
4. THE CONTRACTOR SHALL RETAIN AND PAY FOR THE SERVICES OF A SOILS LAB TO TEST FOR THE COMPACTION OF THE BACKFILL. A SOILS PROFILE SHALL BE DONE OF THE EXCAVATED NATIVE TRENCHED DIRT SO THE COMPACTION TEST CAN BE COMPARED WITH THE NATIVE DIRT PROFILE. THE CONTRACTOR SHALL PROVIDE ALL COMPACTION OF THE TRENCH REQUIRED TO MEET A 95% COMPACTION REQUIREMENT. AN INSPECTED AND SIGNED COMPACTION TESTING REPORT SHALL BE PROVIDED BY THE SOILS TESTING LAB AND COPY OF THE COMPACTION TEST SHALL BE PROVIDED TO THE ENGINEER OF RECORD/PROJECT COORDINATOR PRIOR INSTALLING THE HARDSCAPE. THE CONTRACTOR SHALL BE REQUIRED TO PAY FOR ALL TESTS UNTIL THE COMPACTION RESULTS MEET OR EXCEED THE COMPACTION REQUIREMENTS.
5. PROVIDE 12"x1/2", STEEL REBAR DOWELS AT 12" CENTER TO CENTER ALONG ENTIRE PATH OF TRENCH BENEATH CONCRETE. DOWELS SHALL BE INSERTED 6" INTO EXISTING CONCRETE. PREPARE THE EXISTING CONCRETE BY DRILLING HOLES WITHIN IT AND PROVIDING EPOXY TO HOLD THE DOWEL IN PLACE.

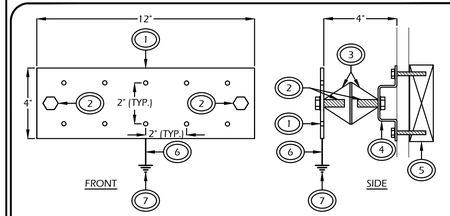
4 - **TRENCH DETAIL WITHOUT SPACERS AND UNDER EXISTING SURFACE**

NOT TO SCALE



5 - **TYPICAL CONDUIT INSTALLATION AT CONCRETE SLAB ON GRADE**

NOT TO SCALE GB30-02-14

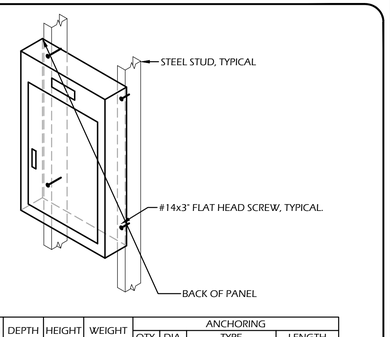


DETAIL NOTES (#)

1. 1/4" THICK SOLID COPPER GROUND BAR WITH 1/16" DIAMETER HOLES AS INDICATED.
2. 1/2" DIAMETER BOLTS
3. INSULATORS
4. STAND-OFF BRACKET WITH (2) 1/4"x2" SELF TAPPING BOLTS TO BLOCKING (2 PER BAR)
5. HORIZONTAL BLOCKING
6. #6 AWG, COPPER GROUND WIRE
7. BUILDING METAL, COLD WATER PIPE, UFER GROUND, OR GROUNDING ELECTRODE

6 - **GROUND BAR BUS DETAIL AT ALL IDF AND MDF RACKS/CABINETS**

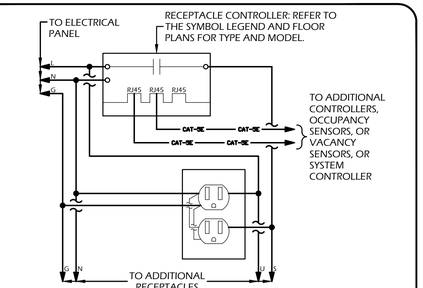
NOT TO SCALE



WIDTH	DEPTH	HEIGHT	WEIGHT	ANCHORING			
				QTY.	DIA.	TYPE	LENGTH
42.00"	9.50"	88.00"	750 LBS.	8	#14	SCREW	3"
20.00"	5.75"	69.52"	250 LBS.	6	#14	SCREW	3"

1 - **SURFACE MOUNTED PANEL MOUNTING DETAIL**

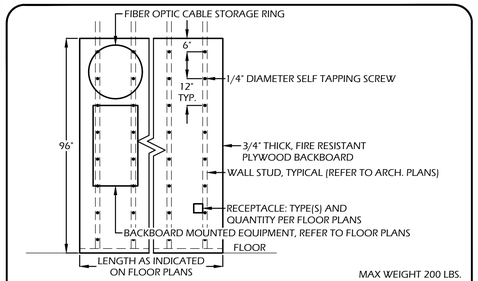
NOT TO SCALE



NOTES:
1. ALL CONDUCTORS ARE #12 AWG, U.O.N.
2. CABLES BETWEEN CONTROLLERS, BRIDGE, OCCUPANCY SENSORS, AND VACANCY SENSORS ARE CAT-5E WITH RJ-45 CONNECTORS.
3. PROGRAM RECEPTACLE CONTROLLER TO TURN OFF SWITCHED RECEPTACLES ONLY WHEN SENSORS DEDECT THE ROOM IS EMPTY. RECEPTACLES SHALL NOT BE SWITCHED BY LIGHT SWITCHES OR DIMMERS. RECEPTACLES SHALL BE SWITCHED OFF 1 MINUTE AFTER LIGHTS.
4. ROOMS REQUIRING SWITCH RECEPTACLES ARE OFFICES, LOBBIES, CONFERENCE ROOMS, KITCHENS, AND COPY ROOMS. RECEPTACLES SUPPLYING EQUIPMENT TO REMAIN ON WHEN ROOM IS VACANT, SUCH AS REFRIGERATORS, NETWORK PRINTERS, NETWORK EQUIPMENT, ETC., ARE EXEMPT.

2 - **TYPICAL SWITCHED RECEPTACLE CONTROL**

NOT TO SCALE



3 - **SCTB MOUNTING DETAIL**

NOT TO SCALE GB23-01-06

Borrelli & Associates, Inc.
Consulting Electrical Engineers
2032 N. Gateway Boulevard
Fresno, CA. 93727
Phone: 559-233-4138
http://www.borrelliengineering.com/
ca-bai@borrelliengineering.com

BAI Project Number :	23183
Drawn By:	BAI
Checked By:	JB

No.	Revision Description	Date
1	Building Dept. Plan Check 24-0097	05/15/2024
2	Fresno Fire Dept. Plan Check	05/15/2024
2A	County Generated Changes	06/04/2024
2B	Fresno Fire Department Review	06/27/2024

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
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Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721
Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

TYPICAL ELECTRICAL DETAILS

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

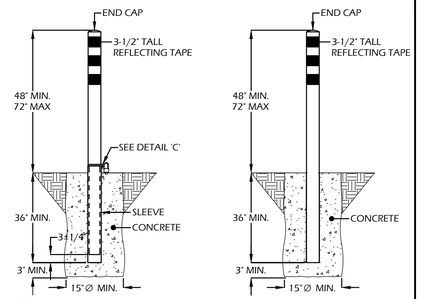
Sheet No.:

E5.02

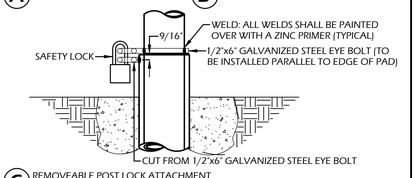
Sheet 15 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

G:\Government\Counties\Fresno\EnvironmentalComplianceCtrEdCtr\23183E5-02.dwg, 7/9/2024 4:04:58 PM, LC2032, AutoCAD PDF (High Quality Print).pc3, ARCH full bleed D (36.00 x 24.00 Inches)



A REMOVEABLE STEEL POST B FIXED STEEL POST



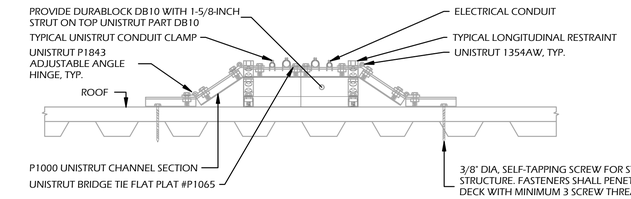
C REMOVEABLE POST LOCK ATTACHMENT

ITEM	MATERIAL
POST	4" GALVANIZED, STEEL PIPE, STANDARD, SCHEDULE NO. 80
SLEEVE	5" GALVANIZED, STEEL PIPE 36" LONG, STANDARD, SCHEDULE NO. 80
END CAP	4" GALVANIZED, MALLEABLE IRON, THREADED (SCREWED)

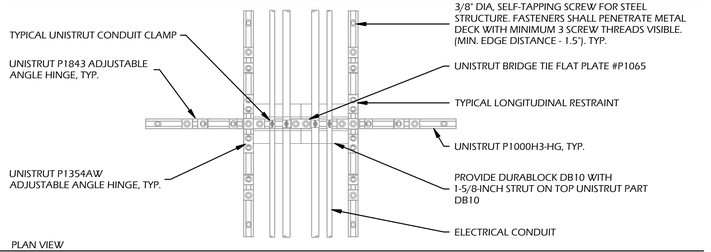
CONCRETE SHALL BE MIN 3000 LBS. IN 28 DAYS.

6 - **BARRIER POST DETAIL**

NOT TO SCALE GB30-02-10



ELEVATION VIEW



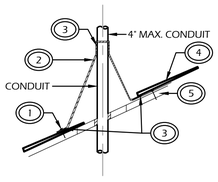
PLAN VIEW

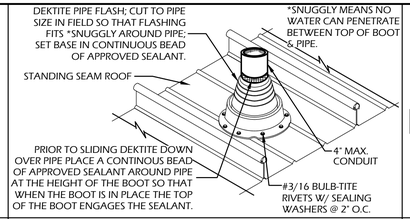
NOTES:

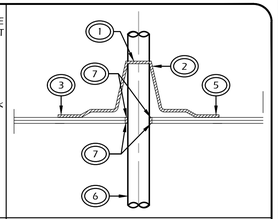
1. ALL HARDWARE: NUTS AND WASHERS SHALL BE HOT DIP GALVANIZED.
2. CONDUIT SHALL BE SUPPORTED EVERY 8-FEET. A CONDUIT SUPPORT SHALL BE PROVIDED WITHIN 18-INCHES FOR EVERY CHANGE IN HORIZONTAL DIRECTION ON BOTH SIDES.
3. CONDUIT SHALL BE SUPPORTED PER THIS DETAIL JUST PRIOR TO THE POINT OF CONNECTION TO THE UTILIZATION EQUIPMENT. CONDUIT SUPPORT SHALL BE SUPPORTED WITHIN 36-INCHES OF THE UTILIZATION EQUIPMENT.
4. ANY CHANGE IN VERTICAL DIRECTION OF THE CONDUIT REQUIRES A SEISMIC RESTRAINT JUST PRIOR TO THE ELEVATION CHANGE. PROVIDE ADDITIONAL CONDUIT SLEEPER FASTENED IN PLACE PER THIS DETAIL FOR THE RESTRAINT.
5. CONTRACTOR SHALL UTILIZE A LICENSED ROOFER TO SEAL ALL ROOF PENETRATIONS.
6. PROVIDE AND INSTALL CONDUIT SLEEPERS ON EACH SIDE OF EVERY 90-DEGREE CONDUIT CHANGE IN DIRECTION EXCLUDING 45-DEGREE OR LESS OFFSET.
7. UTILIZE ALL CHANNEL SPRING NUTS AND BOLTS FOR FASTENING THE STRUT PARTS.
8. DURABLOCK TO BE FASTENED IN PLACE FOR EVERY OTHER SLEEPER SUPPORT.
9. LONGITUDINAL RESTRAINT TO BE PROVIDED FOR EVERY OTHER PIPE SUPPORT BLOCKING. LONGITUDINAL RESTRAINT IS STILL REQUIRED FOR EVERY CHANGE IN HORIZONTAL DIRECTION ON BOTH SIDES.

4 - **CONDUIT ON ROOF DETAIL**

NOT TO SCALE







SHINGLE ROOF

DETAIL NOTES: (#)

1. TYPICAL OF (4). TYPICAL WASHERED ROOFING NAIL, SIMPSON TYPE 304 8-PENNY x2" 10Ga. AT ALL FOUR CORNERS OF THE ROOF JACK. SEAL EACH NAIL WITH RUBBERIZED MASTIC.
2. METAL ROOF FLASHING/JACK.
3. SEAL WITH RUBBERIZED MASTIC.
4. EXISTING ROOF SHINGLE, SLIP ROOF JACK BENEATH SHINGLE.
5. NAIL ROOF JACK AT UPPER SIDE OF ROOF BENEATH UPPER SHINGLE. SEAL WITH MASTIC.

STANDING SEAM ROOF

NOTES:

1. THE DEKTITE CONDUIT FLASHING MUST BE FASTENED TO THE PANEL ONLY AND NOT INTO THE ROOF SUBSTRATE TO ALLOW THE PANEL TO MOVE THERMALLY.
2. ADEQUATE CLEARANCE MUST BE LEFT BETWEEN THE CONDUIT AND THE PANEL TO ALLOW FOR THERMAL MOVEMENT WITHOUT INTERFERENCE.
3. THE CONDUIT MUST BE CENTERED IN THE PANEL TO ALLOW ADEQUATE CLEARANCE FOR INSTALLATION OF THE DEKTITE WITHOUT INTERFERENCE WITH THE PANEL RIBS.
4. FOR REGIONS WITH SNOW & ICE, A ROW OF SNOW GUARDS MUST BE INSTALLED NO GREATER THAN 3' IN FRONT OF THE CONDUIT PENETRATION FOR PROTECTION.

ROLL ON ROOF

DETAIL NOTES: (#)

1. SEAL MASTIC.
2. ROOF JACK.
3. REMOVE CAP SHEET, SET ROOF JACK IN HOT ASPHALT OR RUBBERIZED ROOF MASTIC.
4. NOT USED.
5. APPLY 6' FIBER TAPE CENTERED ON PERIMETER OF ROOF JACK BASE IN HOT ASPHALT.
6. 4" MAXIMUM CONDUIT.
7. CAULK FORCED INTO SPACE TO MAXIMUM EXTENT POSSIBLE. CAULK SHALL BE INSTALLED FLUSH WITH ROOF MEMBRANE AND CEILING.

5 - **TYPICAL CONDUIT ROOF PENETRATIONS**

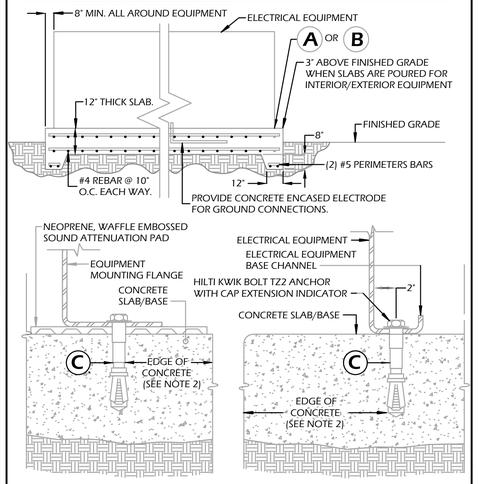
NOT TO SCALE GB160-01-05

HILTI KWIK BOLT TZ2 STAINLESS STEEL NOTES

1. EXPANSION ANCHORS SHALL BE STAINLESS STEEL HILTI KWIK BOLT KB-TZ2 AS MANUFACTURED BY HILTI, INC., 5400 SOUTH 122ND EAST AVENUE, TULSA, OKLAHOMA 74146. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND I.C.C. REPORT NO. ESR-4266.
2. TEST VALUES AND INSTALLATION REQUIREMENTS SHALL BE AS FOLLOWS:

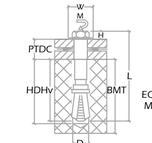
BOLT SIZE	EFF. EMBED	EDGE DISTANCE	SPACING	CONC. THKS.	TORQUE INSTALLATION
3/8"	2 -1/2"	5"	5"	5"	30 # FT
1/2"	3 -1/4"	6"	6"	5 1/2"	40 # FT
5/8"	4"	6"	7"	6"	60 # FT
3/4"	4 - 3/4"	6"	8"	8"	125 # FT

3. PLACEMENT GUIDELINES FOR ABOVE VALUES IN ITEM 2 REQUIRE THE FOLLOWING CONDITIONS:
   3.1. TABLE VALUES ARE BASED ON F'C 2500 PSI MIN.
   3.2. HOLES DRILLED WITH A HAMMER DRILL AND CARBIDE BIT COMPLYING W/ ANSI B212.15-1994.
   3.3. BIT DIAMETER EQUALS THE SIZE OF THE ANCHOR BEING INSTALLED.
   3.4. HOLE DEPTH MUST EXCEED EFF. EMBED PER ICC REPORT.
   3.5. ANY SEISMIC DESIGN CATEGORY PER 2022 C.B.C.
   3.6. A.C.I. 'CRACKED' CONCRETE CONDITION IS SUFFICIENT.
   3.7. FOR STAINLESS STEEL BOLTS UNLESS SPECIFIED OTHERWISE.
4. WHEN INSTALLING EXPANSION ANCHORS IN EXISTING CONCRETE, USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING THE EXISTING REINFORCING BARS. MAINTAIN A MINIMUM CLEARANCE OF ONE-INCH BETWEEN THE EXISTING REINFOREMENT AND THE EXPANSION ANCHOR.
5. KWIK BOLT TZ2 EXPANSION ANCHORS SHALL BE INSTALLED IN HOLES DRILLED WITH HILTI CARBIDE TIPPED DRILL BITS. ANCHORS SHALL BE INSTALLED AND TORQUED PER MANUFACTURERS RECOMMENDATIONS.
6. ANCHOR SIZES, QUANTITIES, AND TORQUES SHALL BE PER TABLES.
7. REFER TO ESR-4266 REPORT FOR FURTHER REQUIREMENTS.
8. POST-INSTALLED ANCHORS SHALL BE INSTALLED PER THE TORQUE LISTED WITH SPECIAL INSPECTION.
9. CONTRACTOR TO OBTAIN SPECIAL INSPECTIONS TESTING TO VERIFY BOLTS ARE TORQUED PROPERLY AND A REPORT SHALL BE PROVIDED TO THE ENGINEER OF RECORD AND THE PROJECT INSPECTOR.

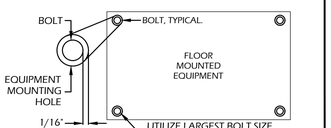


A MOUNTING WITH SOUND PAD DETAIL TRANSFORMER INSTALLATIONS

B MOUNTING WITHOUT SOUND PAD DETAIL DIST.BOARD, MAIN SWITCHBOARDS, BESS ETC.



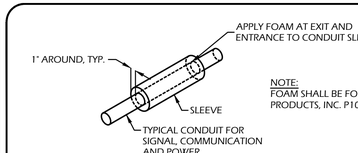
C ANCHOR DETAIL



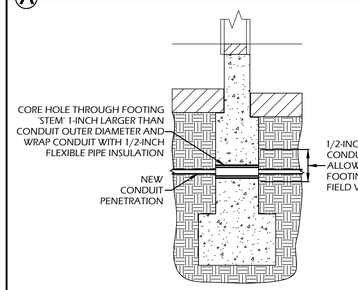
D TYPICAL ANCHOR BOLT LAYOUT

3 - **FREESTANDING ELECTRICAL EQUIPMENT TYPICAL FOR ALL GROUND MOUNTED EQUIPMENT**

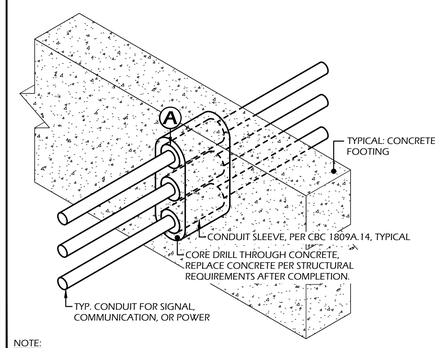
NOT TO SCALE GB30-02-10C



A **FOAM SEAL AROUND CONDUIT**



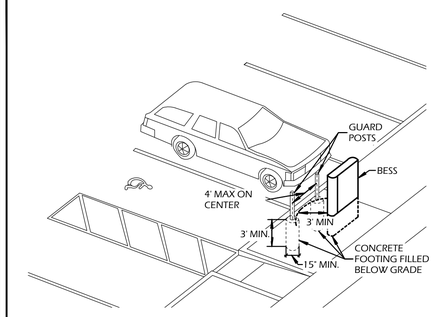
B **FOOTING DETAIL**



NOTE:
PRIOR TO CORE DRILLING CONCRETE OBTAIN APPROVAL IN WRITING FROM STRUCTURAL ENGINEER FOR THE PROPOSED NUMBER AND LOCATION OF CORES DRILLED.

1 - **TYPICAL CONDUIT THROUGH CONCRETE FOOTING**

NOT TO SCALE GB30-02-10C



NOTES:
1. BESS REQUIRING VEHICLE IMPACT PROTECTION.
2. PROTECTION - GUARD POSTS - 4-INCH MINIMUM TUBE STEEL FILLED SOLID WITH CONCRETE.
3. TOP OF THE POSTS TO BE NO LESS THAN 3 FEET ABOVE GROUND.
4. LOCATED NO LESS THAN 3 FEET FROM PROTECTED OBJECT.
5. SET NO LESS THAN 3 FEET DEEP IN A CONCRETE FOOTING OF NO LESS THAN A 15-INCH DIA.

2 - **TYPICAL BARRIER PROTECTION DETAIL FOR BESS SUBJECT TO VEHICLE DAMAGE**

NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER — JOHN BORRELLI — ELECTRICAL — CALIFORNIA — No. E-18890 — EXP. 6/30/25

SCAN ME

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BAI Project Number :	23183
Drawn By:	BAI
Checked By:	JB

No.	Revision Description	Date
1	Building Dept. Plan Check 24-0097	05/15/2024
2	Fresno Fire Dept. Plan Check	05/15/2024
3	County Generated Changes	06/04/2024
3.1	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT — ZAHIDUL HOQUE KHAN — C-40030 — REN: 11-30-25 — STATE OF CALIFORNIA

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Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

TYPICAL ELECTRICAL DETAILS

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E5.03

Sheet 16 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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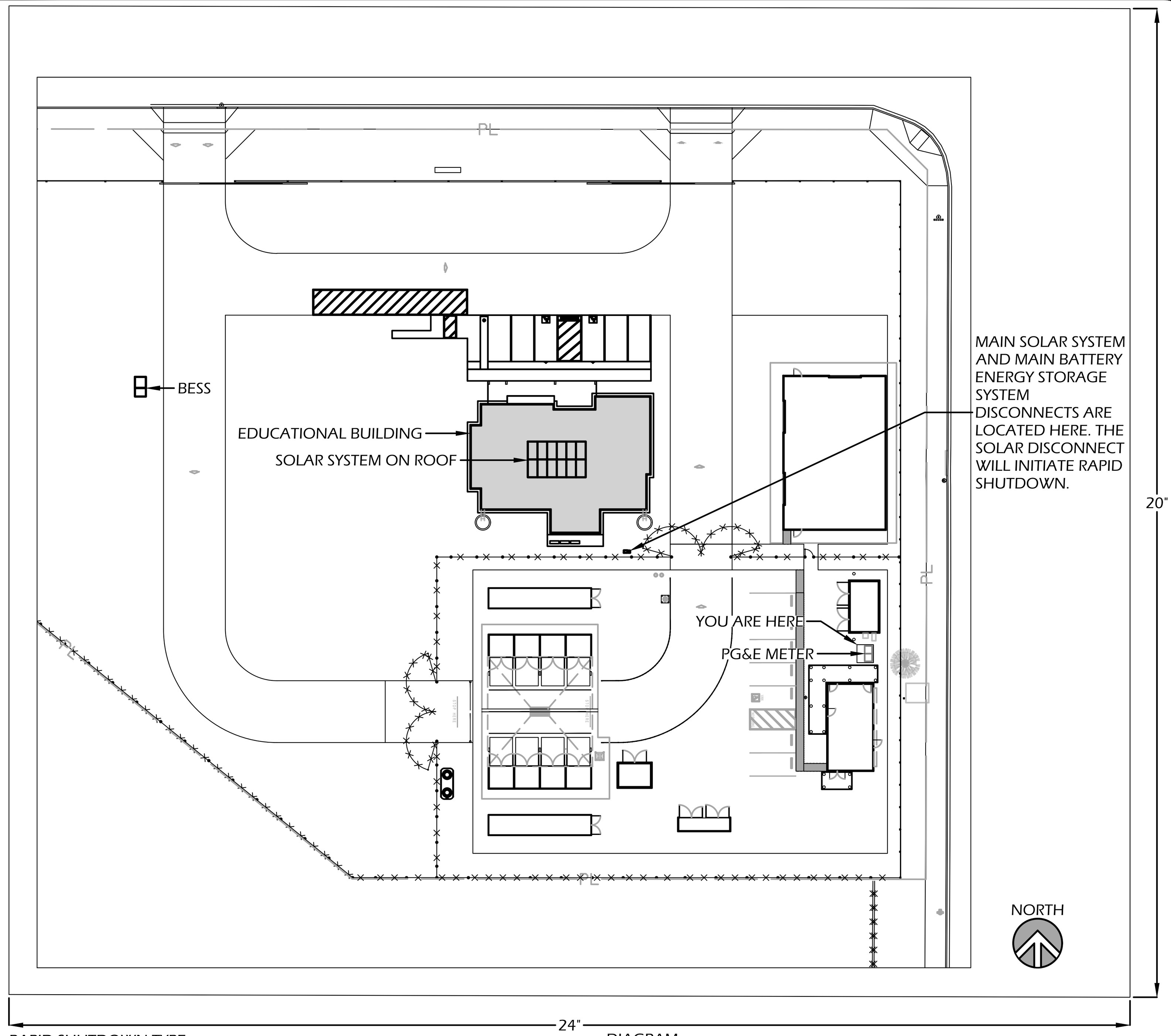


RAPID SHUTDOWN TYPE

THE TYPE OF SOLAR PHOTOVOLTAIC SYSTEM RAPID SHUTDOWN SHALL BE LABELED WITH ONE OF THE FOLLOWING:

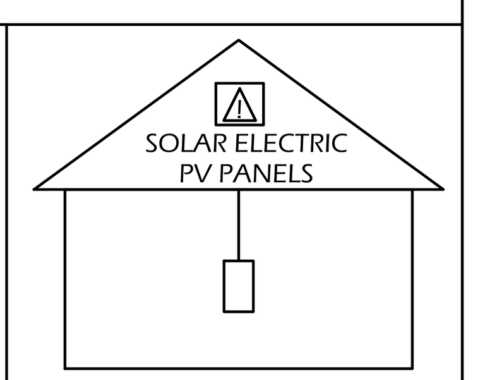
1. FOR SOLAR PHOTOVOLTAIC SYSTEMS THAT SHUT DOWN THE ARRAY AND THE CONDUCTORS LEAVING THE ARRAY, A LABEL SHALL BE PROVIDED. THE FIRST TWO LINES OF THE LABEL SHALL BE UPPERCASE CHARACTERS WITH A MINIMUM HEIGHT OF 3/8-INCH (10 MM) IN BLACK ON A YELLOW BACKGROUND. THE REMAINING CHARACTERS SHALL BE UPPERCASE WITH A MINIMUM HEIGHT OF 3/16-INCH (5 MM) IN BLACK ON A WHITE BACKGROUND. THE LABEL SHALL BE IN ACCORDANCE WITH FIGURE -A AND STATE THE FOLLOWING:

   SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN. TURN RAPID SHUTDOWN SWITCH TO THE 'OFF' POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD.

2. FOR PHOTOVOLTAIC SYSTEMS THAT ONLY SHUT DOWN CONDUCTORS LEAVING THE ARRAY, A LABEL SHALL BE PROVIDED. THE FIRST TWO LINES OF THE LABEL SHALL BE UPPERCASE CHARACTERS WITH A MINIMUM HEIGHT OF 3/8-INCH (10 MM) IN WHITE ON A RED BACKGROUND AND THE REMAINING CHARACTERS SHALL BE CAPITALIZED WITH A MINIMUM HEIGHT OF 3/16-INCH (5 MM) IN BLACK ON A WHITE BACKGROUND. THE LABEL SHALL STATE THE FOLLOWING:

   THIS SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN SOLAR DISCONNECT SWITCH. TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY. CONDUCTORS WITHIN ARRAY REMAIN ENERGIZED IN SUNLIGHT.

   LABEL FOR SOLAR PV SYSTEMS THAT REDUCE SHOCK HAZARD WITHIN ARRAY AND SHUT DOWN CONDCUTORS LEAVING ARRAY.

THIS SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN	
TURN RAPID SHUTDOWN SOLAR DISCONNECT SWITCH TO THE OFF POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY. CONDUCTORS WITHIN ARRAY REMAIN ENERGIZED IN SUNLIGHT	

(A) SOLAR DISCONNECT/RAPID SHUTDOWN DESCRIPTION LABEL

NOTES:
1. TEXT SHALL BE 1/2" ARIAL FONT.

DIAGRAM:
THE LABELS SHALL INCLUDE A SIMPLE DIAGRAM OF A BUILDING WITH A ROOF. DIAGRAM SECTIONS IN RED SIGNIFY SECTIONS OF THE SOLAR PHOTOVOLTAIC SYSTEM THAT ARE NOT SHUT DOWN WHEN RAPID SHUTDOWN SWITCH IS TURNED OFF.
LOCATION:
THE RAPID SHUTDOWN LABEL SHALL BE LOCATED NOT GREATER THAN 3 FEET (914 MM) FROM THE SERVICE DISCONNECTING MEANS TO WHICH THE PHOTOVOLTAIC SYSTEMS ARE CONNECTED, AND SHALL INDICATE THE LOCATION OF ALL IDENTIFIED RAPID SHUTDOWN SWITCHES IF NOT AS THE SAME LOCATION.
BUILDINGS WITH MORE THAN ONE RAPID SHUTDOWN TYPE:
SOLAR PHOTOVOLTAIC SYSTEMS THAT CONTAIN RAPID SHUTDOWN IN ACCORDANCE WITH BOTH ITEMS 1 AND 2 OF SECTION 1205.4.1 OR SOLAR PHOTOVOLTAIC SYSTEMS WHERE ONLY PORTIONS OF THE SYSTEMS ON THE BUILDING CONTAIN RAPID SHUTDOWN, SHALL PROVIDE A DETAILED PLAN VIEW DIAGRAM OF THE ROOF SHOWING EACH DIFFERENT PHOTOVOLTAIC SYSTEM AND A DOTTED LINE AROUND AREAS THAT REMAIN ENERGIZED AFTER THE RAPID SHUTDOWN SWITCH IS OPERATED.
RAPID SHUTDOWN SWITCH:
A RAPID SHUTDOWN SWITCH SHALL HAVE A LABEL LOCATED NOT GREATER THAN 1 FOOT (914 MM) FROM THE SWITCH THAT STATES THE FOLLOWING:
RAPID SHUTDOWN SWITCH
FOR SOLAR PV SYSTEM

SOLAR SYSTEM PLACARD NOTES

GENERAL PLACARD NOTES:
1. NOT ALL PLACARDS DESCRIBED IN THESE NOTES MAY APPLY TO THIS PROJECT.
2. ELECTRICAL SUBCONTRACTOR SHALL PROVIDE ALL PLACARDS AS REQUIRED BY THE NEC, LOCAL FIRE DEPARTMENT, THE AUTHORITY HAVING JURISDICTION, AND LOCAL UTILITY REQUIREMENT. PLACARDS IN ADDITION TO THOSE SHOWN HERE MAY BE REQUIRED BY THE NEC AND ARE THE RESPONSIBILITY OF THE ELECTRICAL SUBCONTRACTOR.
3. PLACARDS SHALL USE ARIAL OR SIMILAR FONT, NON-BOLD.
4. FONT SIZES SHALL BE THE MINIMUM SHOWN IN THESE DRAWINGS.
5. PLACARDS SHALL HAVE LETTERING IN CAPITAL LETTERS.
6. PLACARDS SHALL BE WEATHER RESISTANT AND SUITABLE FOR THE ENVIRONMENT AND COMPLY WITH ANSI Z535.4-2011.
7. PLACARDS SHALL BE ADHERED WHEN POSSIBLE AND MEET WITH UL969 STANDARDS. IF MECHANICALLY AFFIXED TO EQUIPMENT, USE RIVETS OR SCREWS. SEALANTS AND GASKETED HARDWARE SHALL BE USED TO MAINTAIN EQUIPMENT LISTINGS WHERE REQUIRED. NEMA 4R EQUIPMENT SHALL NOT BE DRILLED.
8. SUBMITTALS REQUIRED FOR PLACARDS AND FOR ADHESIVES USED TO SECURE PLACARDS TO EQUIPMENT.
9. PLACARDS WITH MOUNTING HOLES SHOULD BE 1/8" THICKNESS AND HOLES SHOULD BE 1/2" INSIDE FROM THE EDGE.

EQUIPMENT ID PLACARDS:
1. SUBCONTRACTOR SHALL LABEL ALL ARRAYS, PULL BOXES, JUNCTION BOXES, COMBINER BOXES, DC SAFETY SWITCHES, CIRCUIT BREAKER SAFETY SWITCHES, MULTIPLE DISCONNECT SAFETY SWITCHES, DC CONTACTOR DISCONNECTS, REMOTE PV TIES, BI-POLAR ARRAY COMBINERS, OPTIMIZERS, INVERTERS, AC SAFETY SWITCHES, TRANSFORMERS, PANEL BOARDS, CIRCUIT BREAKERS, SWITCHGEAR, RECTIFIERS, DATA MONITORING ENCLOSURES, AND METERING CABINETS. A PARTIAL LIST OF PLACARDS IS SHOWN HERE.
2. EQUIPMENT ID PLACARDS - THE FIRST TYPE OF EACH REQUIRED EQUIPMENT ID PLACARD IS SHOWN HERE. ELECTRICAL SUBCONTRACTOR SHALL GENERATE PLACARDS FOR EACH PIECE OF EQUIPMENT AND NUMBER ALL EQUIPMENT PER THE NAMING AND NUMBERING CONVENTION DEFINED IN THESE PLANS.
3. ARRAY ID PLACARD - SHALL BE AFFIXED TO THE REAR CORNERS OF EACH ARRAY AND NUMBERED PER PLANS. IF ATTACHING TO MODULE FRAME ADHESIVE SHALL BE USED; DO NOT DRILL OR RIVET THE MODULE FRAMES.

2 - SOLAR SYSTEM AC DISCONNECT & RAPID SHUTDOWN AND BESS DISCONNECTS LOCATION PLACARD DETAIL

NOT TO SCALE

ELECTRICAL SPECIFICATIONS		500 HM	
Test Conditions		STC	NOCT
Module Power (Pmax)	Wp	500	369
Maximum power voltage (Vpmax)	V	38.80	35.69
Maximum power current (Ipmax)	A	12.89	10.34
Open circuit voltage (Voc)	V	45.78	42.11
Short circuit current (Isc)	A	13.48	10.82
Module efficiency	%	21.0%	19.4%
Maximum system voltage (VDC)	V	1500	
Series fuse rating	A	25	
Power Tolerance	Wp	0 to +10	

Measurement conditions: STC 1000 W/m² • AM 1.5 • Temperature 25 °C • NOCT 800 W/m² • AM 1.5 • Measurement uncertainty ≤ 3%
Sun simulator calibration reference modules from Fraunhofer Institute. Electrical characteristics may vary by ±5% and power by 0 to +10W.

MECHANICAL PROPERTIES / COMPONENTS	METRIC	IMPERIAL
Module weight	26.2kg ± 0.2kg	57.8lbs ± 0.4lbs
Dimensions (H x L x D)	2098 mm x 1133 mm x 35 mm	82.6 in x 44.6 in x 1.37 in
Maximum surface load (wind/snow)*	2400 Pa rear load / 5400 Pa front load	50.1 lb/ft² rear load / 112.8 lb/ft² front load
Hail impact resistance	ø 25 mm at 83 km/h	ø 1 in at 51.6 mph
Cells	132 Half cells - Si mono PERC 10 busbar - 182 mm x 91 mm	132 Half cells- Si mono PERC 10 busbar - 3.58 x 7.16 in
Glass	3.2 mm high transmittance, tempered, DSM antireflective coating	0.126 in high transmittance, tempered, DSM antireflective coating
Cables and connectors (refer to installation manual)	1350 mm, ø 5.7 mm, EVO2 from Staubli	53.15 in, ø 0.22 in (12AWG), EVO2 from Staubli
Backsheet	High durability, superior hydrolysis and UV resistance, multi-layer dielectric film, fluorine-free PV white backsheet	
Frame	Anodized Aluminum (Silver)	
Bypass diodes	3 diodes - GF5045 (45V max DC blocking voltage, 50A max forward rectified current)	
Junction Box	UL 3730 Certified, IEC 62790 Certified, IP68 rated	

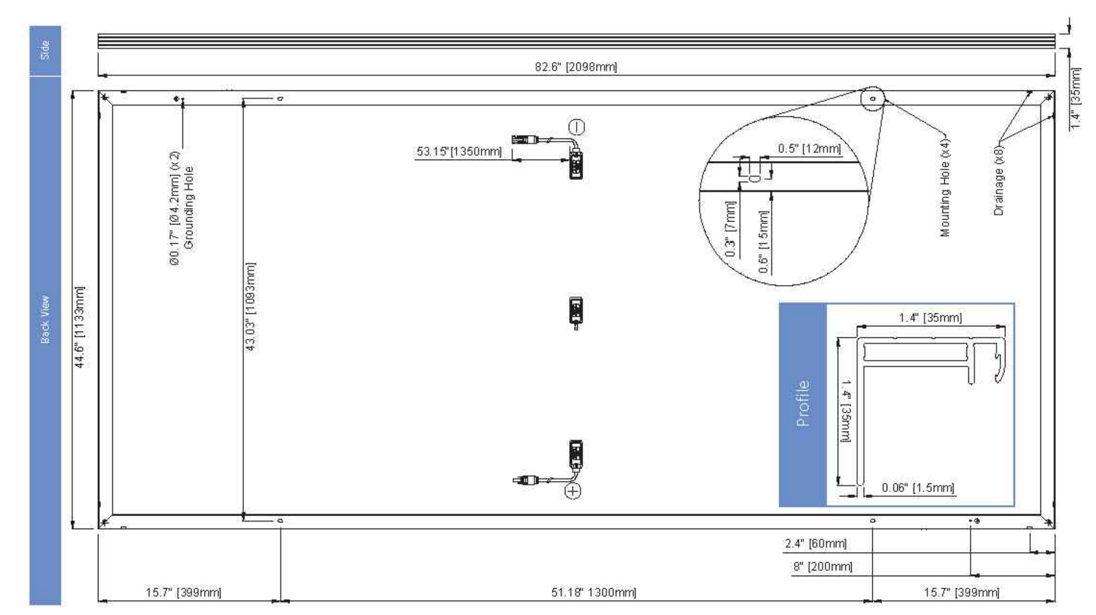
TEMPERATURE RATINGS	
Temperature Coefficient Isc	+0.064 %/°C
Temperature Coefficient Voc	-0.28 %/°C
Temperature Coefficient Pmax	-0.36 %/°C
NOCT (± 2°C)	45 °C
Operating temperature	-40/+85 °C

WARRANTIES	
Module product workmanship warranty	25 years**
Linear power performance guarantee	30 years
	≥ 97.1% end 1st yr ≥ 91.6% end 12th yr ≥ 85.1% end 25th yr ≥ 82.6% end 30th yr

CERTIFICATIONS	
Product	UL 61215-1:2017 Ed.1, UL 61215-2:2017 Ed.1, UL 61730-1:2017 Ed.1, UL 61730-2:2017 Ed.1, CSA C22.2#61730-1:2019 Ed.2, CSA C22.2#61730-2:2019 Ed.2, IEC 61215-1:2016 Ed.1, IEC 61215-2:2016 Ed.1, IEC 61730-1:2016 Ed.2, IEC 61730-2:2016 Ed.2, IEC 61701:2020 (Salt Mist Corrosion), IEC 62716:2013 (Ammonia Corrosion), CEC Listing, UL Fire Rating: Type 1
Factory	ISO9001:2015

SHIPPING SPECS	
Modules Per Pallet:	29 or 29 (California)
Pallets Per Truck	24 or 23 (California)
Modules Per Truck	696 or 667 (California)

* ⚠ Warning. Read the Safety and Installation Manual for mounting specifications and before handling, installing and operating modules.
** 12 year extendable to 25 years subject to registration and conditions outlined under "Warranty" at silfabsolar.com
PAN files generated from 3rd party performance data are available for download at: silfabsolar.com/downloads



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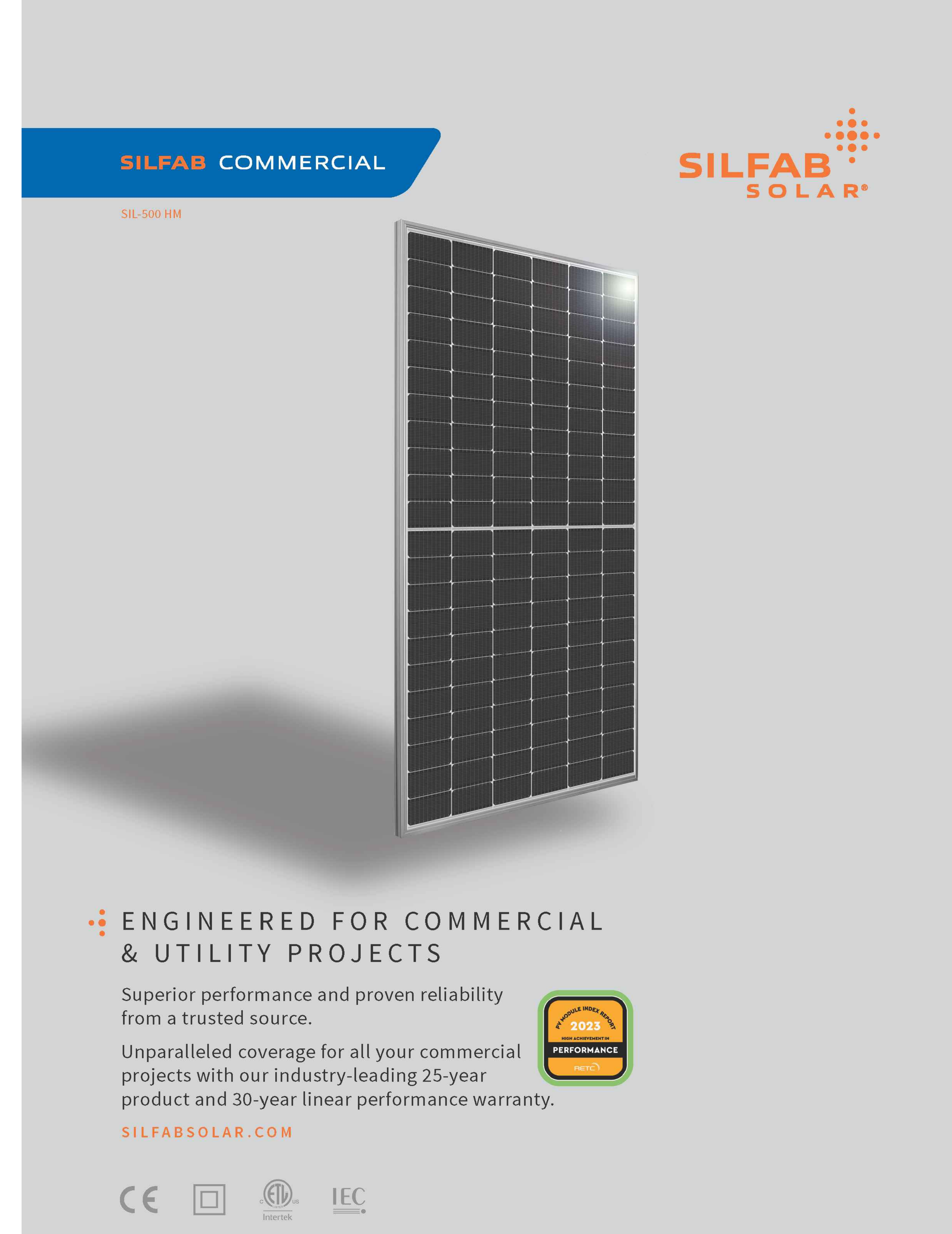

1 - PV MODULE

NOT TO SCALE

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SCAN ME

BAI Project Number : 23183
Drawn By: BAI
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ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
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Development Services & Capital Projects Division
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Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:
SOLAR SYSTEM DATASHEETS

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

Sheet No.:
E5.04

Sheet 17 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

Three Phase Inverters for the 120/208V Grid

For North America

SE10KUS / SE17.3KUS

12-20 YEAR WARRANTY

INVERTERS

The best choice for SolarEdge enabled systems

- Specifically designed to work with power optimizers
- Quick and easy inverter commissioning directly from a smartphone using SolarEdge SetApp
- Fixed voltage inverter for superior efficiency and longer strings
- Built-in type 2 DC and AC Surge Protection, to better withstand lightning events
- Small, lightest in its class, and easy to install outdoors or indoors on provided bracket
- Integrated arc fault protection and rapid shutdown for NEC 2014, 2017, and 2020, per article 690.11 and 690.12
- Built-in module-level monitoring with Ethernet, wireless or cellular communication for full system visibility
- Integrated Safety Switch
- UL1741 SA and SB certified, for CPUC Rule 21 grid compliance

solaredge.com

solaredge

Three Phase Inverters for the 120/208V Grid(1)

For North America

SE10KUS / SE17.3KUS

Model Number	SE10KUS	SE17.3KUS	
Applicable to inverters with part number	SEXXK-USX2IXXXX		
OUTPUT			
Rated AC Power Output	10000	17300	W
Maximum Apparent AC Output Power	10000	17300	VA
AC Output Line Connections	3W + PE, 4W + PE		
AC Output Voltage Minimum-Nominal-Maximum(2) (L-N)	105 – 120 – 132.5		Vac
AC Output Voltage Minimum-Nominal-Maximum(2) (L-L)	183 – 208 – 229		Vac
AC Frequency Minimum-Nominal-Maximum(2)	59.3 – 60 – 60.5		Hz
Continuous Output Current (per Phase)	27.8	48.25	Aac
GFDI Threshold	1		A
Utility Monitoring, Islanding Protection, Country Configurable Set Points	Yes		
THD	≤ 3		%
Power Factor Range	+/- 0.85 to 1		
INPUT			
Maximum DC Power (Module STC)	17500	30275	W
Transformer-less, Ungrounded	Yes		
Maximum Input Voltage DC+ to DC-	600		Vdc
Operating Voltage Range	370 – 600		Vdc
Maximum Input Current	27.8	48.25	Adc
Maximum Input Short Circuit Current	55		Adc
Reverse-Polarity Protection	Yes		
Ground-Fault Isolation Detection	167kΩ Sensitivity(3)		
CEC Weighted Efficiency	97	97.5	%
Night-time Power Consumption	< 4		W
ADDITIONAL FEATURES			
Supported Communication Interfaces	2 x RS485, Ethernet, Cellular (optional)		
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection		
Rapid Shutdown	NEC2014, NEC2017 and NEC2020 compliant/certified		
RS485 Surge Protection Plug-in	Supplied with the inverter, Built-in		
AC, DC Surge Protection	Type II, field replaceable, Built-in		
DC Fuses (Single Pole)	25A, Built-in		
Smart Energy Management	Export Limitation		
DC SAFETY SWITCH			
DC Disconnect	Integrated		
STANDARD COMPLIANCE			
Safety	UL1741, UL1741 SA, UL1741 SB, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07		
Grid Connection Standards	IEEE1547-2018, Rule 21, Rule 14 (HI)		
Emissions	FCC part15 class A		
INSTALLATION SPECIFICATIONS			
AC Output Conduit size /AWG range	¾" or 1" / 6 - 10 AWG		
DC Input Conduit size / AWG range	¾" or 1" / 6 - 12 AWG		
Number of DC inputs pairs	4		
Dimensions with Safety Switch (H x W x D)	31.8 x 12.5 x 11.8 / 808 x 317 x 300		in / mm
Weight with Safety Switch	78.2 / 35.5		lb / kg
Cooling	Fans (user replaceable)		
Noise	< 62		dBA
Operating Temperature Range	-40 to +140 / -40 to +60(4)		˚F / ˚C
Protection Rating	NEMA 3R		
Mounting	Bracket provided		

(1) For 277/480V inverters refer to the Three Phase Inverters for the 277/480V Grid for North America datasheet.
(2) For other regional settings please contact SolarEdge support.
(3) Where permitted by local regulations.
(4) For power de-rating information refer to the Temperature De-rating - Technical Note (North America).

2 / -

THREE PHASE INVERTERS

NOT TO SCALE

Power Optimizer

For North America

S1201

25 YEAR WARRANTY

POWER OPTIMIZER

SolarEdge's most advanced, cost-effective Power Optimizer for commercial and large field installations

- **Greater Energy Yields**
  - High efficiency (99.5%) with module-level MPPT, for maximized system energy production and revenue, and fast project ROI
  - Supports high power and bifacial PV modules, and high string current for more power per string.
- **Maximum Protection with Built-In Safety**
  - Designed to automatically reduce high DC voltage to touch-safe levels, upon grid/inverter shutdown, with SafeDC™
  - Includes SolarEdge Sense Connect, allowing continuous monitoring to detect overheating due to installation issues or connector-level wear and tear
- **Lower BoS Costs**
  - Flexible system design enables maximum space utilization and up to 2x longer string lengths, 50% less cables, fuses and combiner boxes
  - Supports connection of two PV modules in series with easy cable management and fast installation times
- **Simpler O&M**
  - Module-level system monitoring enabling pinpointed fault detection and remote, time-saving troubleshooting

solaredge.com

solaredge

Power Optimizer

For North America

S1201

	S1201	Units
INPUT		
Rated Input DC Power(1)	1200	W
Absolute Maximum Input Voltage (Voc)	125	Vdc
MPPT Operating Range	12.5 – 105	Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	15	Adc
Maximum Efficiency	99.5	%
Weighted Efficiency	98.8	%
Overvoltage Category	II	
OUTPUT DURING OPERATION		
Maximum Output Current	18	Adc
Maximum Output Voltage	80	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)		
Safety Output Voltage per Power Optimizer	1	Vdc
STANDARD COMPLIANCE		
Photovoltaic Rapid Shutdown System	Compliant with NEC 2014, 2017, 2020	
EMC	FCC Part15, IEC 61000-6-2, and IEC 61000-6-3	
Safety	IEC62109-1 (class II safety), UL1741, UL3741, CSA C22.2#107.1	
Material	UL94 V-0, UV Resistant	
RoHS	Yes	
Fire Safety	VDE-AR-E 2100-712:2013-05	
INSTALLATION SPECIFICATIONS		
Maximum Allowed System Voltage	1000	Vdc
Dimensions (W x L x H)	129 x 155 x 59 / 5.08 x 6.10 x 2.32	mm / in
Weight	1106 / 2.4	gr / lb
Input Connector	MC4(2)	
Input Wire Length	1.6 / 5.25(3)	m / ft
Output Connector	MC4	
Output Wire Length	(+) 5.3 (-) 0.10 / (+) 17.38, (-) 0.32	m / ft
Operating Temperature Range(4)	-40 to +85 / -40 to +185	˚C / ˚F
Protection Rating	IP68 / NEMA6P	
Relative Humidity	0 – 100	%

(1) Rated power of the module at STC will not exceed the power optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed.
(2) For other connector types please contact SolarEdge.
(3) The Sense Connect feature is only enabled on the output cable connectors.
(4) For ambient temperatures above +65°C / +149°F power de-rating is applied.

PV System Design Using a SolarEdge Inverter(5)(6)(7)		208V Grid SE10K	208V Grid SE17.3K*	277/480V Grid SE20K, SE30K	277/480V Grid SE40K*	
Compatible Power Optimizers		S1201				
Minimum String Length	Power Optimizers	8	10	15	15	
	PV Modules	15	19	29	29	
Maximum String Length	Power Optimizers	30	30	30	30	
	PV Modules	60	60	60	60	
Maximum Continuous Power per String		7200	8820	15300	15300	W
Maximum Allowed Connected Power per String(7)		1 string – 8400	1 string – 10020	1 string – 17550	2 strings or less – 17550	W
		2 strings or more – 10600	2 strings or more – 13000	2 strings or more – 23000	3 strings or more – 23000	
Parallel Strings of Different Lengths or Orientations		Yes				
Maximum Difference in Number of Power Optimizers Allowed Between the Shortest and Longest String Connected to the Same Inverter Unit		5 Power Optimizers				

*The same rules apply for Synergy units of equivalent power ratings, that are part of the modular Synergy Technology inverter.
(5) S1201 cannot be mixed with any other Power Optimizers models in the same string.
(6) For each string, a Power Optimizer may be connected to a single PV module if 1) each Power Optimizer is connected to a single PV module or 2) it is the only Power Optimizer connected to a single PV module in the string.
(7) To connect more STC power per string, design your project using SolarEdge Designer.

1 / -

POWER OPTIMIZER

NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER JOHN BORRELLI No. E16390 EXP. 6/30/25 ELECTRICAL CALIFORNIA

SCAN ME

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SOLAR SYSTEM DATASHEETS

Fresno County Department of Public Works and Planning
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2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

Sheet No.:

E5.05

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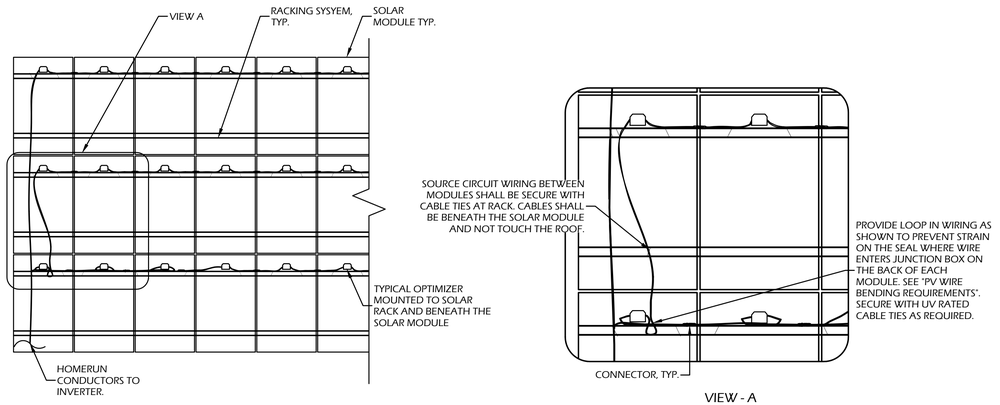


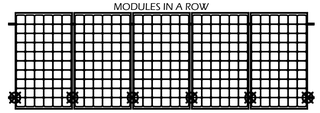
VIEW - A

NOTES:
1. CABLE TIES SHALL BE BY HELLERMANNTYTON AND BE UV RATED. MATERIAL FOR CABLE TIES SHALL BE ACETAL.
2. PROVIDE MEANS TO PREVENT CHAFFING OF WIRES WHERE THEY MAY COME IN CONTACT WITH SHARP EDGES OF THE RACK.
3. SOURCE CIRCUIT HOMERUN WIRES IN REAR PURLIN SHALL BE SECURED EVERY 12 INCHES OR MORE AS REQUIRED TO PREVENT CABLING TOUCHING THE ROOF.
4. CABLES SHALL NOT BE FASTENED ON ROOF NOR TOUCHING ANY PORTION OF THE ROOF. FASTING ALL CABLES NEATLY TO THE RACKING SYSTEM AND BENEATH THE SOLAR SYSTEM UTILZING AN APPROVED SOLAR CABLE TIE SYSTEM.

3 / -

TYPICAL SOURCE CIRCUIT WIRE MANAGEMENT

NOT TO SCALE



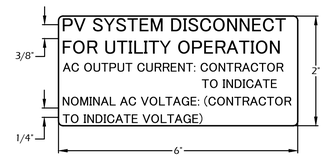
DENOTES PLACES TO INSTALL GROUNDING CLIP

NOTES:
1. EACH MODULE SHALL BE CONNECTED A SEPARATE GROUNDED CLIP.
2. REFER TO MANUFACTURER INSTALLATION INSTRUCTIONS FOR EXACT MOUNTING DETAILS

1 / -

MODULE GROUNDING CLIP LAYOUT

NOT TO SCALE



LOCATION: MSB

2 / -

UITILITY PHOTOVOLTAIC DISCONNECTING MEANS

NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER — JOHN BORRELLI — ELECTRICAL — CALIFORNIA

Exp. 6/30/25

SCAN ME

Borrelli & Associates, Inc.
Consulting Electrical Engineers
2032 N. Gateway Boulevard
Fresno, CA. 93727
Phone: 559-233-4138
http://www.borrelliengineering.com/
ca-bai@borrelliengineering.com

BAI Project Number :	23183
Drawn By:	BAI
Checked By:	JB

No.	Revision Description	Date
B1	Building Dept. Plan Check 24-0097	05/15/2024
F1	Fresno Fire Dept. Plan Check	05/15/2024
1	County Generated Changes	06/04/2024
B2	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT — ZAHIDUL HOQUE KHAN — C-40030 REN: 11-30-25 — STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

SOLAR SYSTEM DATASHEETS

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

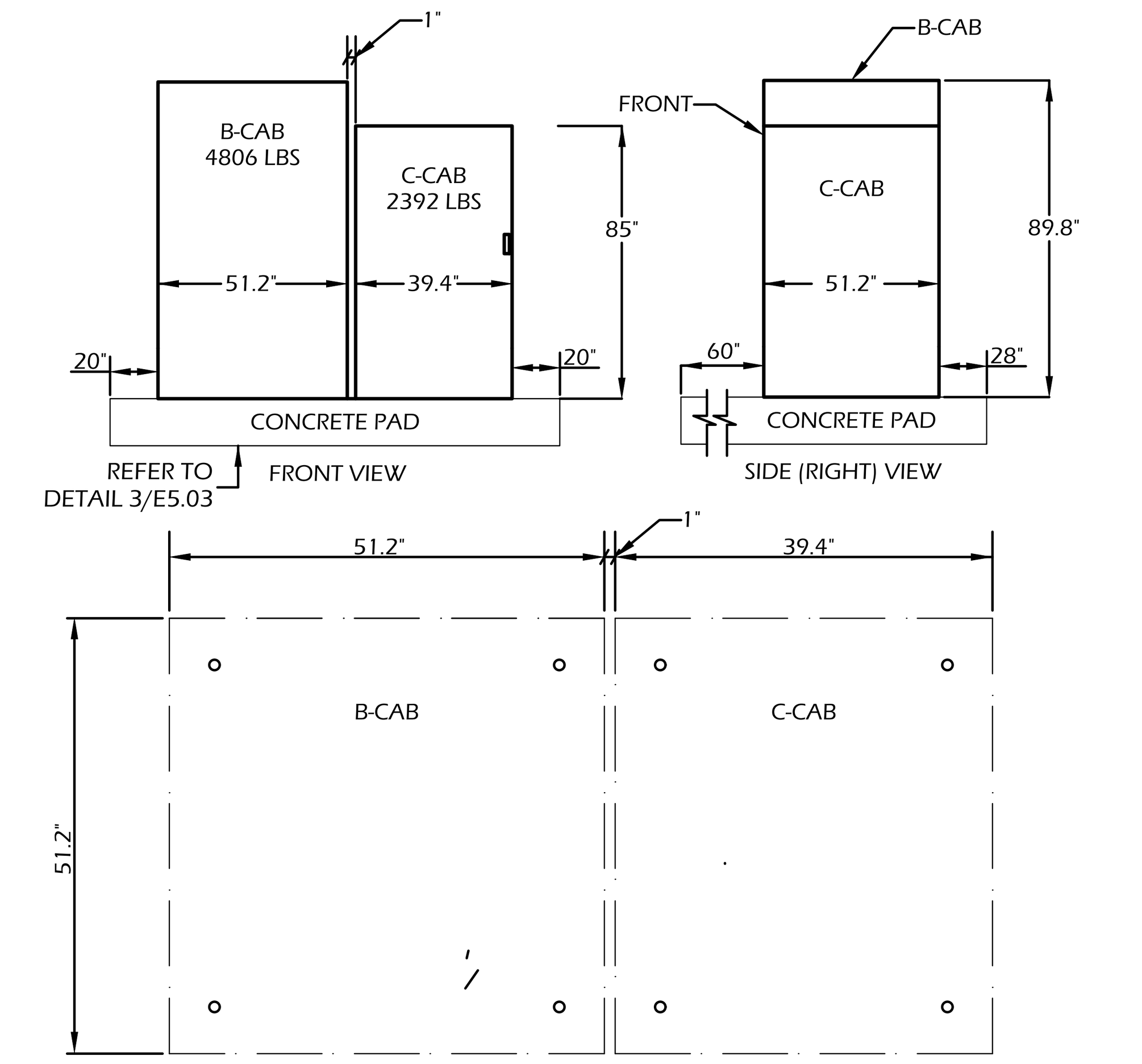
Sheet No.:

B2 **E5.06**

Sheet 19 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

G:\Government\Counties\Fresno\EnvironmentalComplianceCtrEdCtr\23183E5-06.dwg, 7/9/2024 4:05:39 PM, LC2032, AutoCAD PDF (High Quality Print).pc3, ARCH full bleed D (36.00 x 24.00 Inches)



GENERAL NOTES:

1. ANCHOR SHALL BE HILTI KWIK BOLT TZ-2 (ICC ESR-4266)

2. CONTRACTOR SHALL OBTAIN LATEST FOOTPRINT PATTERN LAYOUT FOR THE BESS FROM THE MANUFACTURER PRIOR TO DRILLING HOLES

SDS	CABINET	BOLT DIAMETER	LOAD	
			TENSION	SHEAR
2.5g	C-CAB	0.5 INCH	2282 LBS (10151 N)	1118 LBS (4973 N)
	B-CAB	0.625 INCH	2954 LBS (13140 N)	2911 LBS (12494 N)
1.5g	C-CAB	0.5 INCH	1210 LBS (5382 N)	671LBS (2985 N)
	B-CAB	0.625 INCH	1525 LBS (6784 N)	1747 LBS (7771 N)

THE ANCHOR ROAD MUST BE OF THE FOLLOWING EMBEDMENT LENGTH:

1. 3.25-INCH FOR BOTH C-CAB AND B-CAB FOR SDS 1.5G.
2. 3.25-INCH FOR THE C-CAB AND 6.5-INCH FOR THE B-CAB FOR SDS 2.5G.

2
-

BESS TYPICAL BOLT PATTERN LAYOUT DETAIL

NOT TO SCALE

SUNSYS HES L©

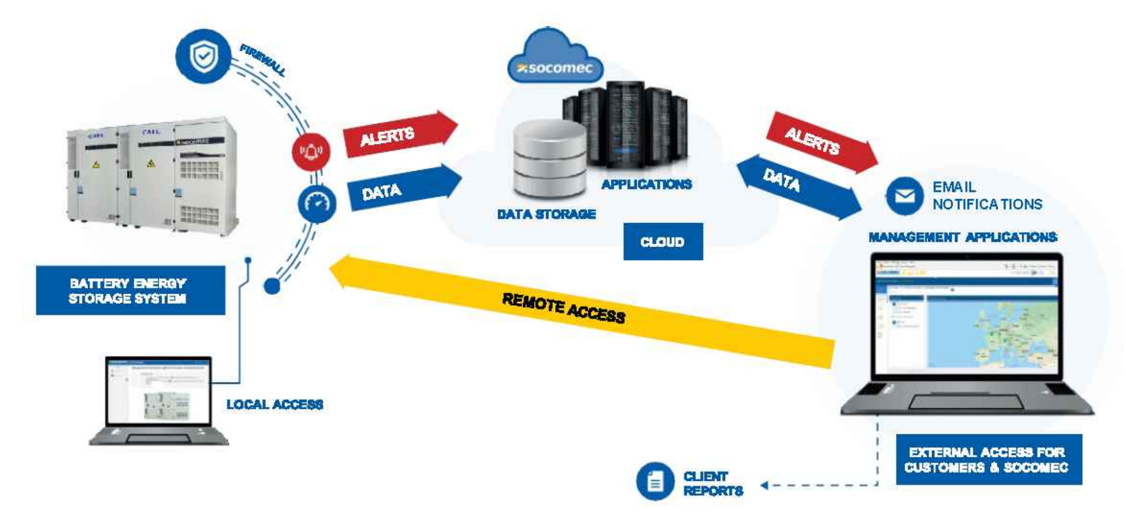
Scalable outdoor energy storage system
from 50 kVA / 186 kWh to 300 kVA / 1116 kWh

Many system configurations are available to meet customer requirements

Power (kVA) \ Energy (kWh)	186	372	558	744	930	1116
50	3.4 h	7.0 h				
100	2.0 h*	3.4 h	5.2 h			
150		2.3 h	3.4 h	4.7 h	5.8 h	
200		2.0 h*	2.6 h	3.4 h	4.4 h	5.2 h
250			2.1 h	2.7 h	3.4 h	4.2 h
300			2.0 h*	2.3 h	2.9 h	3.4 h

*Maximum power is reduced by 9%, to respect the C-rate of the batteries.

Maximum savings and fast ROI



Local management

The Socomec Power Management System, coordinating the operation of all converter and battery components. It's capabilities include:
This open platform, integrated in the C-Cab, provides access to:

- peak shaving, energy shifting, self-consumption and fuel saving to maximise valuable savings,
- transitions between on-grid and microgrid operation,
- autonomous microgrid management,
- compatibility with 3rd party energy management software suites, through a Sunspec 2.0 or Modbus interface,
- SCADA integration through Modbus/TCP.

Remote monitoring

In addition, the C-Cab also integrates IoT devices that make it possible to continuously monitor the system remotely.
These devices enable the following, through 2 offers SoLive and SoLive Pro:

- web dashboard for on-line monitoring,
- web access to the system KPIs,
- smartphone app,
- remote firmware upgrade.

1C

SUNSYS HES L

SUNSYS HES L©

Scalable outdoor energy storage system
from 50 kVA / 186 kWh to 300 kVA / 1116 kWh

SUNSYS HES L is outdoor energy storage system designed for both on-grid and off-grid applications. It is available in a variety of configurations, to provide the ideal system size for a range of project requirements.
It supports dedicated applications such as optimization of photovoltaics with self consumption, peak shaving, backup power, and EV charging infrastructure.
Thanks to this, SUNSYS HES L combines the economic returns of on-grid operation with the security of a microgrid when the grid may fail.

High safety standards

SUNSYS HES L integrates advanced power conversion and LFP battery technologies to create a winning formula.
The B-Cab (battery storage cabinet) uses liquid-cooled, lithium iron phosphate chemistry, with an integrated fire protection system, and meets the requirements of the latest international fire code.
The complete system is certified to
UL 9540-2020, the safety standard for energy storage systems in both the Canada and the USA.

Extreme scalability

Based on 2 standard cabinets,
SUNSYS HES L is a modular energy storage system that uses 2 standard cabinets to enable 22 UL certified configurations, providing ideal system sizing for a variety of projects. Based on standard equipment and pre-tested configurations, the design, quotation, installation and commissioning process is much faster as a result.

Fast and safe installation

SUNSYS HES L is supplied with all internal energy modules pre-assembled and plug and play power modules to guarantee maximum quality, the rapid installation and ease of transport.
It includes all cables and hardware to connect the B-Cabs and C-Cabs. The battery cabinets are delivered fully assembled, and include made-to measure cable kits for DC, communication and auxiliary power connections.

Combines the best technologies

Thanks to a co-design between CATL and Socomec, you can be assured of compatibility between products, and that the complete system has been validated and certified.
The C-Cab (power conversion cabinet) has been designed to include everything required for battery operation, including the management system as well as the power supply.

The solution for

- Commercial and industrial buildings
- EV charging infrastructure
- Isolated microgrids
- Resilient microgrids
- Renewable energy integration

Strong points

- High safety standards
- Extreme scalability
- Fast and safe installation
- Combines the best technologies

Conformity to standards

- Safety: UL 9540-2020; UL 9540A; UL 1973; NFPA 855; NFPA 68
- EMC: FCC part 15 Level A
- Environment: RoHS; REACH, IEC 61249
- **Communication protocol:** Modbus TCP; SunSpec 2.0
- Grid code: UL 1741 SB; UL 1741 PCS CRD; IEEE 1547-2018; IEEE 1547.1-2020; CA Rule 21; HECO Rule 14H
- CEC listed; HECO listed

Please consult us for additional ones.

Expert Services

An experienced and skilled team is at your service to make your project a success!

- Project development: pre-sales support, project design
- **Deployment:** training, field inspection, pre-commissioning, commissioning
- **Operation:** maintenance contracts, spare parts replacement, remote monitoring
- Cloud data storage
- Extended warranty on both product and performance

For more information, please contact us.

1A

Technical Data

System information	
Power modularity	50 kVA power modules - up to 300 kVA
Symmetrical overload	110% during 60 min - 125% during 20 min - 150% during 60 s
Chemistry	LFP - Lithium Iron Phosphate
Energy Nameplate	186 kWh per rack
AC/AC Max Round Trip Efficiency	90%
Maximum C-rate	0.5 C
Maximum DC current	82 A charging / 87 A discharging per 50 kVA power module

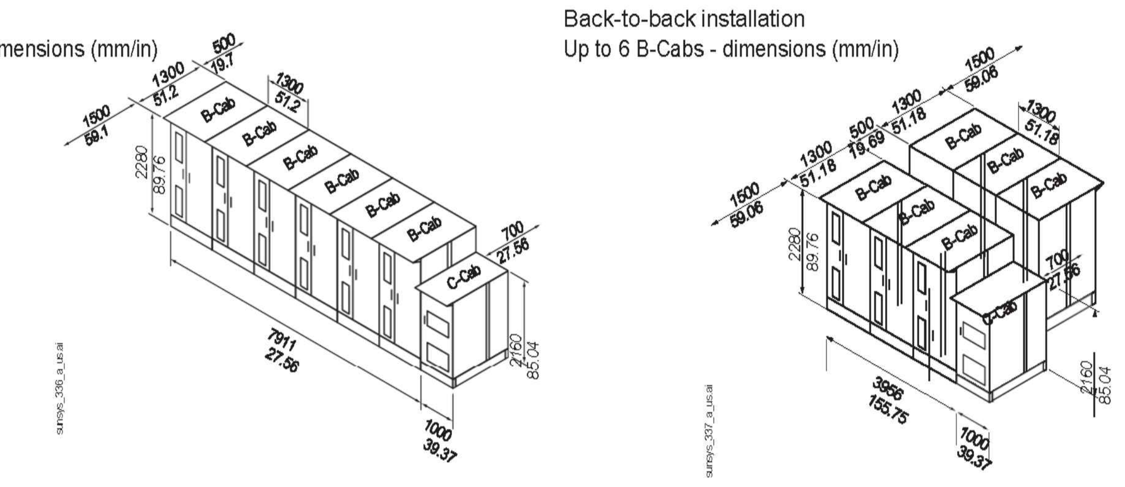
Power rating	50 kW	100 kW	150 kW	200 kW	250 kW	300 kW
AC rated current	60 A	120 A	180 A	241 A	301 A	361 A
AC max. temporary current (overload)	90 A	180 A	271 A	361 A	451 A	541 A

AC connections	Up to 4x95mm²/3/0AWG - 3x150mm²/300MCM - 2x185mm²/350MCM
Rated voltage (Un)	480 Vac (3ph+N) ±20%
Rated frequency	60 Hz ±5%
Fire protection	Fire Safety System including smoke detectors, heat detectors and aerosol
Environment	
Degree of protection	IP 55 / NEMA 3R (Outdoor)
Operation temperature	-20 to +45 C° / -4 to +113°F without derating - up to +50°C / 122°F with derating
Storage temperature	-20 to +60 C° / -4 to +140°F
Acoustic level at 1 m	< 64.8 dB
Maximum altitude	1000 m / 3280 ft. without derating (consult us for requirements above this)

Two system installation options according to the space available on your site

In-line installation
Up to 6 B-Cabs - dimensions (mm/in)

Back-to-back installation
Up to 6 B-Cabs - dimensions (mm/in)



Also available

SUNSYS HES XL
Outdoor energy storage system
from 500 kVA / 1116 kWh to 500 kVA / 2232 kWh systems

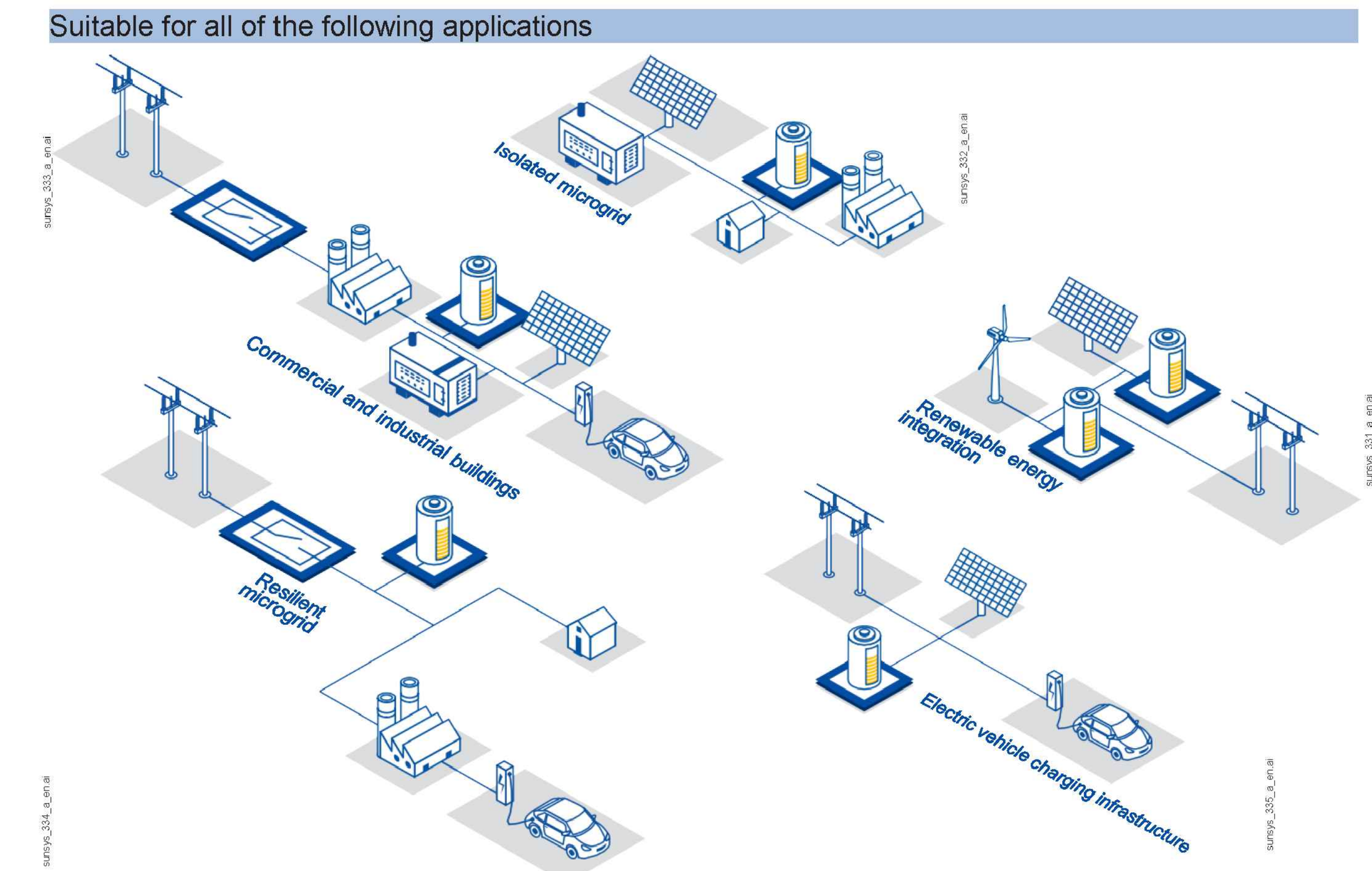
SUNSYS HES XXL
High power energy storage system
from 1 MVA / 2 MWh to 6 MVA / 24 MWh systems

1D

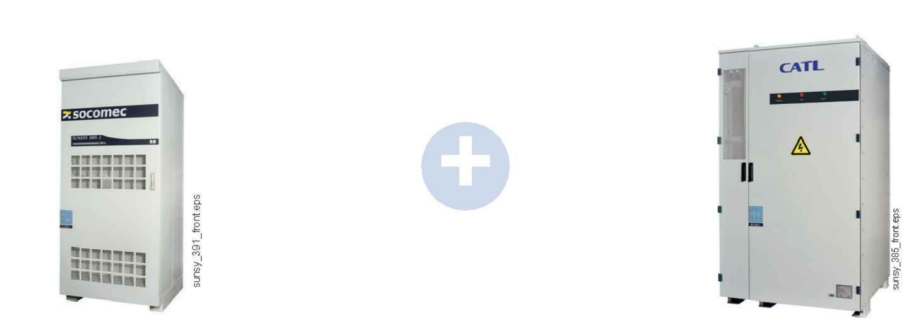
socomec
Innovative Power Solutions

www.socomec.com

Suitable for all of the following applications



2 modular units for maximum flexibility



Up to 1005 kg / 2215 lbs

2280 kg / 5026 lbs

C-Cab L - Converter Cabinet

- Bidirectional power converter
- 50 to 300 kVA / cabinet
- Automation functions
- AC/DC distribution and protection
- Battery management system
- IoT Ready

B-Cab L - Battery Cabinet

- Lithium ion battery
- LFP technology
- 186 kWh / rack
- Liquid cooling thermal management
- Integrated fire safety detection and suppression system
- Life cycle of up to 8000 cycles at 25°C; 0.5C

socomec
Innovative Power Solutions

1B

1
-

BATTERY ENERGY STORAGE SYSTEM DATASHEET

NOT TO SCALE

SCAN ME

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Consulting Electrical Engineers
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Fresno, CA. 93727
Phone: 559-233-4138
http://www.borrelliengineering.com/
ca-bai@borrelliengineering.com

BAI Project Number :		23183
Drawn By:		BAI
Checked By:		JB
No.	Revision Description	Date
B1	Building Dept. Plan Check 24-0097	05/15/2024
F1	Fresno Fire Dept. Plan Check	05/15/2024
C1	County Generated Changes	06/04/2024
B2	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN: 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

BATTERY ENERGY STORAGE SYSTEM DATASHEETS

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E5.07

Sheet 20 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

STATE OF CALIFORNIA
Electrical Power Distribution
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-ELC-E
Project Name: ECC Phase II - Educational Center	**Report Page:** (Page 3 of 5)
	Date Prepared: 2023-10-13T17:40:29-04:00

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

H. VOLTAGE DROP

This table includes entirely new or complete replacement electrical power distribution systems, or alterations that add, modify or replace both feeders and branch circuits to demonstrate compliance with 130.5(c)/ 160.6(c). For alterations, only the altered circuits must demonstrate compliance per 141.0(b)2Piii/ 180.2(b)4Bviic.

01	02				03	04	05	
Electrical Service Designation/Description	Combined Voltage Drop on Installed Feeder/Branch Circuit Conductors Compliance Method				Location of Voltage Drop Calculations[1]	Sheet Number for Voltage Drop Calculations in Construction Documents	Field Inspector	
							Pass	Fail
(N) DISTRIBUTION PANEL 'ED'	☒	Voltage drop less than 5%	☐	Permitted by CA Elec Code (Exception to 130.5(c))*	Contractor Responsible		☐	☐
(N) PANEL 'ED-R'	☒	Voltage drop less than 5%	☐	Permitted by CA Elec Code (Exception to 130.5(c))*	Contractor Responsible		☐	☐
(N) PANEL 'ED-M'	☒	Voltage drop less than 5%	☐	Permitted by CA Elec Code (Exception to 130.5(c))*	Contractor Responsible		☐	☐
(N) PANEL 'ED-L'	☒	Voltage drop less than 5%	☐	Permitted by CA Elec Code (Exception to 130.5(c))*	Contractor Responsible		☐	☐

** NOTES: If "Permitted by CA Elec Code *" is selected under Compliance Method above, please indicate where the exception applies in the space provided below.*

[1] FOOTNOTES: Voltage drop calculations may be attached to the permit application outside the construction documents if allowed by the Authority Having Jurisdiction. Select "attached" if applicable. If calculations will be the responsibility of the installing contractor, select "Contractor Responsible".

STATE OF CALIFORNIA
Electrical Power Distribution
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-ELC-E
Project Name: ECC Phase II - Educational Center	**Report Page:** (Page 4 of 5)
	Date Prepared: 2023-10-13T17:40:29-04:00

K. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online

Form/Title
NRCI-ELC-E - Must be submitted for all buildings

L. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

There are no forms required for this project.

STATE OF CALIFORNIA
Electrical Power Distribution
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-ELC-E
This document is used to demonstrate compliance with mandatory requirements in 130.5, for electrical systems in newly constructed nonresidential and hotel/motel occupancies and 160.6 and 160.9 for electrical systems in newly constructed multifamily occupancies. Additions and alterations to electrical service systems in nonresidential and hotel/motel occupancies will also use this document to demonstrate compliance per 141.0(a) or 141.0(b)2P for alterations. For multifamily addition or alterations compliance will be documented per 180.1(a) or 180.2 (b)4Bvii	
Project Name: ECC Phase II - Educational Center	**Report Page:** (Page 1 of 5)
Project Address: 1327 Dan Ronquillo Drive, Fresno, CA, 93706	**Date Prepared:** 2023-10-13T17:40:29-04:00

A. GENERAL INFORMATION

01	Project Location (city)	Fresno	02	Climate Zone	13
			03	Occupancy Types Within Project:	All Other OccupanciesClassroom

B. PROJECT SCOPE

This table includes electrical systems that are within the scope of the permit application.

01	02	03	04	05	06	07
Electrical Service Designation/ Description	Scope of Work[1]	Rating[2] (kVA)	Utility Provided Metering System Exception to 130.5(a)/ 160.6(a)[3]	System subject to CA Elec Code Article 517 Exception to 130.5(a)and (b)	Demand Response Controls	Provides power to dwelling units/common living areas only in multifamily occupancy
(N) DISTRIBUTION PANEL 'ED'	Add/Alt to feeders and branch circuits only	---	☐	☐	Where required, demand response controls must be specified which are capable of receiving and automatically responding to at least one standards based messaging protocol which enables demand response after receiving a demand response signal. Sections 120.2/ 160.3, 130.1/ 160.5, and 130.3/ 160.5, and mechanical, indoor lighting, and sign lighting Certificate of Compliance documents will indicate when demand response controls are required.	☐
(N) PANEL 'ED-R'	Add/Alt to feeders and branch circuits only	---	☐	☐	Where required, demand response controls must be specified which are capable of receiving and automatically responding to at least one standards based messaging protocol which enables demand response after receiving a demand response signal. Sections 120.2/ 160.3, 130.1/ 160.5, and 130.3/ 160.5, and mechanical, indoor lighting, and sign lighting Certificate of Compliance documents will indicate when demand response controls are required.	☐

STATE OF CALIFORNIA
Electrical Power Distribution
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-ELC-E
Project Name: ECC Phase II - Educational Center	**Report Page:** (Page 2 of 5)
	Date Prepared: 2023-10-13T17:40:29-04:00

B. PROJECT SCOPE

This table includes electrical systems that are within the scope of the permit application.

(N) PANEL 'ED-M'	Add/Alt to feeders and branch circuits only	---	☐	☐	Where required, demand response controls must be specified which are capable of receiving and automatically responding to at least one standards based messaging protocol which enables demand response after receiving a demand response signal. Sections 120.2/ 160.3, 130.1/ 160.5, and 130.3/ 160.5, and mechanical, indoor lighting, and sign lighting Certificate of Compliance documents will indicate when demand response controls are required.	☐
(N) PANEL 'ED-L'	Add/Alt to feeders and branch circuits only	---	☐	☐	Where required, demand response controls must be specified which are capable of receiving and automatically responding to at least one standards based messaging protocol which enables demand response after receiving a demand response signal. Sections 120.2/ 160.3, 130.1/ 160.5, and 130.3/ 160.5, and mechanical, indoor lighting, and sign lighting Certificate of Compliance documents will indicate when demand response controls are required.	☐

[1] FOOTNOTES: Adding only new feeders and branch circuits triggers Voltage Drop 130.5(c)/160.6(c), no other requirements from 130.5/160.6 are required.
[2] If common use areas in a multifamily are submetered, rating is for submeter size serving common use areas.
[3] Applicable if the utility company is providing a metering system that indicates instantaneous kW demand and kWh for a utility-defined period.

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through J. Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

01		02		03		04	05	06
Service Electrical Metering 130.5(a)/ 160.6(a) (See Table F)	AND	Separation for Monitoring 130.5(b)/ 160.6(b) (See Table G)	AND	Voltage Drop 130.5(c)/ 160.6(c) (See Table H)	AND	Controlled Receptacles 130.5(d)/ 160.6(d) (See Table I)	Electric Ready 160.9 (See Table J)	**Compliance Results**
	AND		AND	Yes	AND			COMPLIES

REGISTERED PROFESSIONAL ENGINEER — JOHN BORRELLI — ELECTRICAL — CALIFORNIA
Exp. 6/30/25

SCAN ME

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ca-bai@borrelliengineering.com

BAI Project Number : 23183
Drawn By: BAI
Checked By: JB

No.	Revision Description	Date
1	Building Dept. Plan Check 24-0097	05/15/2024
2	Fresno Fire Dept. Plan Check	05/15/2024
3	County Generated Changes	06/04/2024
3.1	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT — ZAHIDUL HOQUE KHAN — C-40030 — REN: 11-30-25 — STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721
Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

POWER TITLE 24

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E6.01

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

STATE OF CALIFORNIA

Electrical Power Distribution

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE			NRCC-ELC-E
Project Name:	ECC Phase II - Educational Center	Report Page:	(Page 5 of 5)
Project Address:	1327 Dan Ronquillo Drive, Fresno, CA, 93706	Date Prepared:	2023-10-13T17:40:29-04:00

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name:	John Borrelli, PE	Documentation Author Signature:	
Company:	Borrelli and Associates, Inc.	Signature Date:	5/14/24
Address:	2032 North Gateway Boulevard	CEA/ HERS Certification Identification (if applicable):	
City/State/Zip:	Fresno, CA 93727	Phone:	(559) 233-4138

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:	John Borrelli, PE	Responsible Designer Signature:	
Company:	Borrelli and Associates, Inc.	Date Signed:	5/14/24
Address:	2032 North Gateway Boulevard	License:	E16390
City/State/Zip:	Fresno, CA 93727	Phone:	(559) 233-4138

Generated Date/Time: Documentation Software: Energy Code Ace

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

Report Version: 2022.0.000
Schema Version: rev 20220101

Compliance ID: 149115-1023-0003
Report Generated: 2023-10-13 14:40:33

SCAN ME

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No.	Revision Description	Date
B1	Building Dept. Plan Check 24-0097	05/15/2024
F1	Fresno Fire Dept. Plan Check	05/15/2024
C1	County Generated Changes	06/04/2024
B2	Fresno Fire Department Review	06/27/2024

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

POWER TITLE 24

Fresno County Department of Public Works and Planning Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E6.02

Sheet 22 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

STATE OF CALIFORNIA

Outdoor Lighting

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-E
Project Name: ECC Phase II - Educational Center	Report Page: (Page 3 of 10)
	Date Prepared: 2024-01-22T13:14:28-05:00

F. OUTDOOR LIGHTING FIXTURE SCHEDULE

For new or altered lighting systems demonstrating compliance with 140.7 / 170.2(e)6 all new luminaires being installed and any existing luminaires remaining or being moved within the spaces covered by the permit application are included in the Table below. For altered lighting systems using the Existing Power method per 141.0(b)2L only new luminaires being installed and replacement luminaires being installed as part of the project scope are included (ie, existing luminaires remaining or existing luminaires being moved are not included). Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily outdoor lighting is included here.

Designed Wattage:

01	02		03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description		Watts per luminaire[1, 2]	How is Wattage determined	Total Number Luminaires[2]	Luminaire Status[3]	Excluded per 140.7(a) / 170.2(e)6A	Design Watts	Cutoff Req. > 6,200 initial lumen output 130.2(b) / 160.5(c)1[4]	Field Inspector	
										Pass	Fail
E1	6" DIAMETER, 1,500 LUMEN	☐ Linear	17.5	Mfr. Spec	9	New	☐	157.5	NA: < 6200 lumens	☐	☐
E2	2,030 LUMEN, LED	☐ Linear	19	Mfr. Spec	3	New	☐	57	NA: < 6200 lumens	☐	☐
E3	2,030 LUMEN, LED	☐ Linear	19	Mfr. Spec	4	New	☒	---	NA: < 6200 lumens	☐	☐
S2	LIGHTPOLE	☐ Linear	184	Mfr. Spec	1	New	☐	184	Provided	☐	☐
S1	POST TOP	☐ Linear	38	Mfr. Spec	2	New	☐	76	NA: < 6200 lumens	☐	☐
							Total Design Watts:	474.5			

* NOTES: Selections with a * require a note in the space below explaining how compliance is achieved.
EX: Luminaire is lighting a statue; EXCEPTION 2 to 130.2(b)

[1]*FOOTNOTES: Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per 130.0(c) / 160.5(b)*

[2] *For linear luminaires, wattage should be indicated as W/lf instead of Watts/luminaire. Total linear feet should be indicated in column 05 instead of number of luminaires.*

[3] *Select "New" for new luminaires in a new outdoor lighting project, or for added luminaires in an alteration. Select "Altered" for replacement luminaires in an alteration. Select "Existing to Remain" for existing luminaires within the project scope that are not being altered and are remaining. Select "Existing Reinstalled" for existing luminaires which are being removed and reinstalled as part of the project scope.*

[4] *Compliance with mandatory shielding requirements is required for luminaires with initial lumen output >= 6,200 unless exempted by 130.2(b)/ 160.5(c)*

STATE OF CALIFORNIA

Outdoor Lighting

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-E
This document is used to demonstrate compliance with requirements in 110.9, 130.0, 130.2, 140.7, and 141.0(b)2L for outdoor lighting scopes using the prescriptive path for nonresidential and hotel/motel occupancies. It is also used to document compliance with requirements in 160.5, 170.2(e)6, 180.1(a) and 180.2(b)4Bv for outdoor lighting scopes using the prescriptive path for multifamily and mixed-use occupancies. Multifamily includes dormitory and senior living facilities.	
Project Name: ECC Phase II - Educational Center	Report Page: (Page 1 of 10)
Project Address: 1327 Dan Ronquillo Drive, Fresno, CA, 93706	Date Prepared: 2024-01-22T13:14:28-05:00

A. GENERAL INFORMATION

01	Project Location (city)	Fresno	04	Total Illuminated Hardscape Area (ft^2)	2326.5
02	Climate Zone	13			
03	Outdoor Lighting Zone per Title 24 Part 1 10.114 or as designated by Authority Having Jurisdiction (AHJ):				
☐	LZ-0: Very Low - Undeveloped Parkland	☐ LZ-2: Moderate - Urban Clusters	☐	LZ-4: High - Must be reviewed by CA Energy Commission for Approval	
☐	LZ-1: Low - Rural Areas	☒ LZ-3: Moderately High - Urban Areas			
05	Occupancy Types within Project				
• Classroom • All Other Occupancies					

B. PROJECT SCOPE

This table includes outdoor lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.7 / 170.2(e)6 or 141.0(b)2L / 180.2(b)4Bv for alterations.

My Project Consists of:

01	02	
☒ New Lighting System	Must Comply with Allowances from 140.7 / 170.2(e)6	
☐ Altered Lighting System	Is your alteration increasing the connected lighting load (Watts)? ○ Yes ○ No	
03	04	05
% of Existing Luminaires Being Altered[1]	Sum Total of Luminaires Being Added or Altered	Calculation Method
☐ < 10% ☐ >= 10% and < 50% ☐ >= 50%		

Please proceed to Table F. Outdoor Lighting Fixture Schedule to define the project's luminaires.

[1] *FOOTNOTES: % of Existing Luminaires Being Altered = (Sum Total of Luminaires Being Added or Altered / Existing Luminaires within the Scope of the Permit Application) x 100.*

STATE OF CALIFORNIA

Outdoor Lighting

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-E
Project Name: ECC Phase II - Educational Center	Report Page: (Page 4 of 10)
	Date Prepared: 2024-01-22T13:14:28-05:00

G. SHIELDING REQUIREMENTS (BUG)

This table includes fixtures of >=6,200 initial lumens indicated on Table F as needing to comply with Shielding Requirements. Maximum lumens can be found in Title 24, Part 11, Section 5.106.8.

01	02	03	04	05	06	07	08	09	10	11	12	
Name or Item Tag	Complete Luminaire Description	Backlight Rating[2]			Uplight Rating[2]			Glare Rating (Lumens)[2]			Field Inspector	
		Mounting Height[1]	Max Allowable Backlight Rating[3]	Backlight Rating Per Design	Lighting type	Max Allowable Uplight Rating[3]	Uplight Rating Per Design	Mounting Height[1]	Max Allowable Glare Rating[3]	Glare Rating Per Design	Pass	Fail
S2	LIGHTPOLE	2 MH from property line	No Limit	B2	Area Lighting	U0	U0	> 2 MH from property line	G3	G3	☐	☐

[1]*FOOTNOTES: Mounting Height is labeled MH in this table.*

[2] *Authority Having Jurisdiction may ask for Luminaire cut sheets or other documentation to confirm luminaire type, uplight ratings and glare ratings used for compliance per 130.2(b)/ 160.5(c)*

[3] *BUG ratings with a lower number than the 'Max Allowable' are compliant. Ex. If Max Allowable is Bug Rating B4, then B0, B1, B2 and B3 are all compliant.*

STATE OF CALIFORNIA

Outdoor Lighting

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTO-E
Project Name: ECC Phase II - Educational Center	Report Page: (Page 2 of 10)
	Date Prepared: 2024-01-22T13:14:28-05:00

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through N. Note: If any cell on this table says "COMPLIES with Exceptional Conditions" refer to Table D. Exceptional Conditions for guidance or see applicable Table referenced below.

Calculations of Total Allowed Lighting Power (Watts) 140.7 / 170.2(e)6 or 141.0(b)2L / 180.2(b)4Bv													Compliance Results			
01		02		03		04		05		06		07		08	09
General Hardscape Allowance 140.7(d)1 / 170.2(e)6 (See Table I)	+	Per Application 140.7(d)2 / 170.2(e)6 (See Table J)	+	Sales Frontage 140.7(d)2 (See Table K)	+	Ornamental 140.7(d)2 / 170.2(e)6 (See Table L)	+	Per Specific Area 140.7(d)2 / 170.2(e)6 (See Table M)	OR	Existing Power Allowance 141.0(b)2L / 180.2(b)4Bv (See Table N)	=	**Total Allowed** (Watts)	≥	**Total Actual** (Watts)	**07 must be >= 08**
345.06	+	38	+	---	+	---	+	93.15	OR	---	=	476.21	≥	474.5	COMPLIES
Shielding Compliance (See Table G for Details)											COMPLIES				
Controls Compliance (See Table H for Details)											COMPLIES				

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

REGISTERED PROFESSIONAL ENGINEER
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No. E16390
EXP. 6/30/25
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http://www.borrelliengineering.com/
ca-bai@borrelliengineering.com

BAI Project Number :	23183
Drawn By:	BAI
Checked By:	JB

No.	Revision Description	Date
B1	Building Dept. Plan Check 24-0097	05/15/2024
F1	Fresno Fire Dept. Plan Check	05/15/2024
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LICENSED ARCHITECT
ZAHIDUL HOQUE KHAN
C -40030
REN: 11-30-25
STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
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Fresno County Dept. of Public Works & Planning
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Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

OUTDOOR LIGHTING
TITLE 24

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

Sheet No.:

E6.03

Sheet 23 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 7 of 10)**
	Date Prepared:	2024-01-22T13:14:28-05:00

J. LIGHTING ALLOWANCE: PER APPLICATION

This table includes areas using the wattage allowance per application from Table 140.7-B / Table 170.2-S.

01	02	03	04	05	06	07	08	09	10
Area Description	Application per Table 140.7-B[1]	CALCULATED ALLOWANCE (Watts)			DESIGN WATTS				Additional Allowance (Watts)
		# of Locations	Allowance per Location[2]	Extra Allowance (Watts)	Luminaire Name or Item Tag	Watts per Luminaire	# of Luminaires	Design Watts	
EXIT/ENTRANCE	Building Entrance/Exit	2	19	38	E1	17.5	9	157.5	38
					E2	19	1	19	
							Total Design Watts for this Area:	176.5	
							Total Allowance (Watts) All Areas:		38

[1] FOOTNOTES: Primary entrance applications are only available for senior care facilities, healthcare facilities, police stations, hospitals, fire stations, and emergency vehicle facilities.
[2] The Allowance per Location for ATMs is 100W for the first ATM and 35W for each additional per Table 140.7-B /Table 170.2-S.
[3] For luminaires indicated in Table F as linear, wattage in column 07 is W/lf instead of Watts/luminaire. Total linear feet should be indicated in column 08 instead of number of luminaires.

K. LIGHTING ALLOWANCE: SALES FRONTAGE

This section does not apply to this project.

L. LIGHTING ALLOWANCE: ORNAMENTAL

This section does not apply to this project.

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 8 of 10)**
	Date Prepared:	2024-01-22T13:14:28-05:00

M. LIGHTING ALLOWANCE: PER SPECIFIC AREA

This table includes areas using the wattage allowance per specific area from Table 140.7-B /Table 170.2-S. More than one specific area allowance may be taken in a single project, if applicable. However, multiple specific area allowances may not be taken for the exact same area on the site.

01	02	03	04	05	06	07	08	09	10
Area Description	Specific Area Type per Table 140.7-B	CALCULATED ALLOWANCE (Watts)			DESIGN WATTS				Additional Allowance (Watts)
		Specific Area (ft²)[1]	Allowed Density (W/ft²)	Extra Allowance (Watts)	Luminaire Name or Item Tag	Watts per Luminaire	# of Luminaires	Design Watts	
CANOPY	NonSalesCanopy	345	0.27	93.15	E1	17.5	9	157.5	93.15
							Total Design Watts for this Area:	157.5	
							Total Allowance (Watts) All Areas:		93.15

[1] FOOTNOTES: See Table 140.7-B /Table 170.2-S for rules for calculating the specific areas (ft² for these additional lighting allowances.
[2] For luminaires indicated in Table F as linear, wattage in column 07 is W/lf instead of Watts/luminaire. Total linear feet should be indicated in column 08 instead of number of luminaires.

N. EXISTING CONDITIONS POWER ALLOWANCE (alterations only)

This section does not apply to this project.

O. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selection has been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online

Form/Title
NRCI-LTO-E - Must be submitted for all buildings

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 5 of 10)**
	Date Prepared:	2024-01-22T13:14:28-05:00

H. OUTDOOR LIGHTING CONTROLS

This table demonstrates compliance with controls requirements for all new or altered luminaires installed as part of the permit application. For alteration projects, luminaires which are existing to remain (ie untouched) and luminaires which are removed and reinstalled (wiring only) do not need to be included in this table even if they are within the spaces covered by the permit application.
Outdoor lighting for nonresidential buildings, parking garages and common service areas in multifamily buildings must be documented separately from outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit

Mandatory Controls for Nonresidential Occupancies, Parking Garages & Common Areas in Multifamily Buildings

01	02	03	04	05	
Area Description	Shut-Off 130.2(c)1 / 160.5(c)	Auto-Schedule 130.2(c)2 / 160.5(c)	Motion Sensor 130.2(c)3 / 160.5(c)	Field Inspector	
				Pass	Fail
HARSDCAPE: "E2"	Astronomical Timer	Provided	NA: Each Luminaire <= 40 Watts	☐	☐
HARSDCAPE: "E3"	Astronomical Timer	Provided	NA: Each Luminaire <= 40 Watts	☐	☐
HARSDCAPE: "S2"	Astronomical Timer	Provided	NA: >=24 ft	☐	☐
HARSDCAPE: "S1"	Astronomical Timer	Provided	Provided	☐	☐
CANOPY: "E1"	Astronomical Timer	Provided	NA: Each Luminaire <= 40 Watts	☐	☐

[1] FOOTNOTE: Text has been abbreviated, please refer to Table 160.5-A to confirm compliance with the specific light source technologies listed.
[2] Authority having jurisdiction may ask for cutsheets or other documentation to confirm compliance of light source.
[3] Recessed luminaires marked for use in fire-rated installations, and recessed luminaires installed in non-insulated ceilings are excepted from ii and iii.

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 6 of 10)**
	Date Prepared:	2024-01-22T13:14:28-05:00

I. LIGHTING POWER ALLOWANCE (per 140.7 / 170.2(e))

This table includes areas using allowance calculations per 140.7 / 170.2(e). General Hardscape Allowance is per Table 140.7-A/Table 170.2-R while "Use it or lose it" Allowances are per Table 140.7-B /Table 170.2-S. Indicate which allowances are being used to expand sections for user input. Luminaires that qualify for one of the "Use it or lose it" allowances shall not qualify for another "Use it or lose it" allowance.
Outdoor lighting attached to multifamily buildings and controlled from the inside of a dwelling unit are included in Table H. and are not included here. All other multifamily outdoor lighting is included here.

	01				
	"Use it or lose it" Allowance (select all that apply) (select all that apply)				
☒ General Hardscape Allowance Table I (below)	☒ Per Application Table J	☐ Sales Frontage Table K	☐ Ornamental Table L	☒ Per Specific Area Table M	

Calculated General Hardscape Lighting Power Allowance per Table 140.7-A for Nonresidential & Hotel/Motel

02	03	04	05	06	07	08	09
Area Description	Area Wattage Allowance (AWA)			Linear Wattage Allowance (LWA)			Total General AWA + LWA (Watts)
	Illuminated Area (ft²)	Allowed Density (W/ft²)	Area Allowance (Watts)	Perimeter Length (lf)	Allowed Density (W/lf)	Linear Allowance (Watts)	
HARSDCAPE	2326.5	0.021	48.86	231	0.2	46.2	95.06
					Initial Wattage Allowance for Entire Site (Watts):		250
					Instances of Initial Wattage Allowance (LZ 0 only)[3]		
					Total General Hardscape Allowance (Watts):		345.06

REGISTERED PROFESSIONAL ENGINEER JOHN BORRELLI ELECTRICAL CALIFORNIA
Exp. 6/30/25

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BAI Project Number :	23183
Drawn By:	BAI
Checked By:	JB

No.	Revision Description	Date
1	Building Dept. Plan Check 24-0097	05/15/2024
2	Fresno Fire Dept. Plan Check	05/15/2024
3	County Generated Changes	06/04/2024
3.1	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN: 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
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File name:

Sheet Content:

OUTDOOR LIGHTING TITLE 24

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E6.04

Sheet 24 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 9 of 10)**
	Date Prepared:	2024-01-22T13:14:28-05:00

P. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selection has been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified
NRCA-LTO-02-A - Must be submitted for all outdoor lighting controls except for alterations where controls are added to <= 20 luminaires.	HARSDCAPE: "E2"; HARSDCAPE: "E3"; HARSDCAPE: "S2"; HARSDCAPE: "S1"; CANOPY: "E1"

STATE OF CALIFORNIA
Outdoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTO-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 10 of 10)**
Project Address: 1327 Dan Ronquillo Drive, Fresno, CA, 93706	**Date Prepared:**	2024-01-22T13:14:28-05:00

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: John Borrelli, PE	Documentation Author Signature:
Company: Borrelli and Associates, Inc.	Signature Date: 5/14/24
Address: 2032 North Gateway Boulevard	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Fresno, CA 93727	Phone: (559) 233-4138

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: John Borrelli, PE	Responsible Designer Signature:
Company: Borrelli and Associates, Inc.	Date Signed: 5/14/24
Address: 2032 North Gateway Boulevard	License: E16390
City/State/Zip: Fresno, CA 93727	Phone: (559) 233-4138

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance
Generated Date/Time: Report Version: 2022.0.000 Schema Version: rev 20220101
Documentation Software: Energy Code Ace Compliance ID: 149115-0124-0014 Report Generated: 2024-01-22 10:14:30

REGISTERED PROFESSIONAL ENGINEER JOHN BORRELLI ELECTRICAL CALIFORNIA
Exp. 6/30/25

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BAI Project Number :	23183
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Checked By:	JB

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LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN: 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
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California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
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Sheet Content:

OUTDOOR LIGHTING TITLE 24

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

Sheet No.:

E6.05

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 3 of 9)**
	Date Prepared:	2024-05-10T15:27:55-04:00

F. INDOOR LIGHTING FIXTURE SCHEDULE

This table includes all planned permanent and portable lighting other than dwelling unit/ hotel/ motel room lighting. Multifamily dwelling unit and hotel/motel room lighting is documented in Table T. If using Table T to document lighting in multifamily common use areas providing shared provisions for living, eating, cooking or sanitation, those luminaires are not included here.

Designed Wattage: Conditioned Spaces

01	02	03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change[1]	Watts per luminaire[2]	How is Wattage determined	Total Number of Luminaires	Excluded per 140.6(a)3 / 170.2(e)2C	Design Watts	Field Inspector	
									Pass	Fail
B1	4-FT. x 6-IN., 3,199 LUMENS (NOMINAL) LED FIXTURE	No	NA	24.7	Mfr. Spec	48	No	1,185.6	☐	☐
C1	6-In diameter, LED, 1,000 Lumens, recess mounted in hard ceiling	No	NA	10.4	Mfr. Spec	6	No	62.4	☐	☐
C2	6-In diameter, LED, 1,500 Lumens, recess mounted in hard ceiling	No	NA	17.5	Mfr. Spec	7	No	122.5	☐	☐
C3	6-In diameter, LED, 750 Lumens, wall wash, recess mounted in hard ceiling	No	NA	8.9	Mfr. Spec	2	No	17.8	☐	☐
R	1x4-foot, LED, 3,000 Lumens, Surface mounted fixture in a hard ceiling	No	NA	17.5	Mfr. Spec	2	No	35	☐	☐
C4	6-In diameter, LED, 750 Lumens, wall wash, recess mounted in hard ceiling	No	NA	8.9	Mfr. Spec	11	No	97.9	☐	☐
							Total Designed Watts: CONDITIONED SPACES	1,521.2		

Designed Wattage: Unconditioned Spaces

01	02	03	04	05	06	07	08	09	10	
Name or Item Tag	Complete Luminaire Description	Modular (Track) Fixture	Small Aperture & Color Change[1]	Watts per luminaire[2]	How is Wattage determined	Total Number of Luminaires	Excluded per 140.6(a)3 / 170.2(e)2C	Design Watts	Field Inspector	
									Pass	Fail

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 4 of 9)**
	Date Prepared:	2024-05-10T15:27:55-04:00

F. INDOOR LIGHTING FIXTURE SCHEDULE

A1	6.8-IN x 2-FT., 2,000 LUMENS	No	NA	13.4	Mfr. Spec	4	No	53.6	☐	☐
							Total Designed Watts: UNCONDITIONED SPACES	53.6		

[1]*FOOTNOTE: Design Watts for small aperture and color changing luminaires which qualify per 140.6(a)4B / 170.2(e)2D is adjusted to be 75% /80% of their rated wattage. Table F automatically makes this adjustment, the permit applicant should enter full rated wattage in column 05.*

[2]*Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per 130.0(c) / 160.5(b). Wattage used must be the maximum rated for the luminaire, not the lamp.*

G. MODULAR LIGHTING SYSTEMS

This section does not apply to this project.

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

This table includes lighting controls for conditioned and unconditioned spaces.

Building Level Controls

01	02	03	
		Field Inspector	
Mandatory Demand Response 110.12(c)	Shut-off controls 130.1(c) / 160.5(b)4C	Pass	Fail
NA < 4,000W subject to multilevel	See Area/Space Level Controls	☐	☐

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
This document is used to demonstrate compliance with requirements in 110.9, 110.12(c), 130.0, 130.1, 140.6 and 141.0(b)2 for indoor lighting scopes using the prescriptive path for nonresidential and hotel/motel occupancies. It is also used to document compliance with requirements in 160.5, 170.2(e) and 180.2(b)4 for indoor lighting scopes using the prescriptive path for multifamily occupancies. Multifamily includes dormitory and senior living facilities.		
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 1 of 9)**
Project Address: 1327 Dan Ronquillo Drive, Fresno, CA, 93706	**Date Prepared:**	2024-05-10T15:27:55-04:00

A. GENERAL INFORMATION

01	Project Location (city)	Fresno	04	Total Conditioned Floor Area (ft²)	2,761.61
02	Climate Zone	13	05	Total Unconditioned Floor Area (ft²)	256
03	Occupancy Types Within Project (select all that apply):		06	# of Stories (Habitable Above Grade)	1
● School or Classroom					

B. PROJECT SCOPE

This table includes any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in 140.6 / 170.2(e) or 141.0(b)2 / 180.2(b)4 for alterations.

Scope of Work	Conditioned Spaces		Unconditioned Spaces	
01	02	03	04	05
My Project Consists of (check all that apply):	Calculation Method	Area (ft²)	Calculation Method	Area (ft²)
☒ New Lighting System	Area Category Method	2761.61	Area Category Method	256
☐ New Lighting System - Parking Garage	N/A	0	N/A	0
Total Area of Work (ft²)	2761.61		256	

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 2 of 9)**
	Date Prepared:	2024-05-10T15:27:55-04:00

C. COMPLIANCE RESULTS

If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. for guidance.

Lighting in conditioned and unconditioned spaces must not be combined for compliance per 140.6(b)1 / 170.2(e)	Allowed Lighting Power per 140.6(b) / 170.2(e) (Watts)						Adjusted Lighting Power per 140.6(a) / 170.2(e) (Watts)					Compliance Results
	01	02	03	04		05	06	07		08		09
	Complete Building 140.6(c)1	Area Category 140.6(c)2 / 170.2(e)4	Area Category Additional 140.6(c)2G / 170.2(e)4Av (+)	Tailored 140.6(c)3 / 170.2(e)4B (+)		**Total Allowed** (Watts)	Total Designed (Watts)	Adjustments PAF Lighting Control Credits 140.6(a)2 / 170.2(e)1B (-)		**Total Adjusted** (Watts) *Includes Adjustments		**05 must be >= 08 140.6 / 170.2(e)**
	(See Table I)	(See Table I)	(See Table J)	(See Table K)			(See Table F)	(See Table P)				
Conditioned		1,556.23			=	1,556.23	≥ 1,521.2		=	1521.2		COMPLIES
Unconditioned		102.4			=	102.4	≥ 53.6		=	53.6		COMPLIES
								Controls Compliance (See Table H for Details)				COMPLIES
								Rated Power Reduction Compliance (See Table Q for Details)				

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

Borrelli & Associates, Inc.
Consulting Electrical Engineers
2032 N. Gateway Boulevard
Fresno, CA. 93727
Phone: 559-233-4138
http://www.borrelliengineering.com/
ca-bai@borrelliengineering.com

BAI Project Number :	23183
Drawn By:	BAI
Checked By:	JB

No.	Revision Description	Date
1	Building Dept. Plan Check 24-0097	05/15/2024
2	Fresno Fire Dept. Plan Check	05/15/2024
3	County Generated Changes	06/04/2024
3.1	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN: 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721
Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:
INDOOR LIGHTING TITLE 24

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
E6.06

Sheet 26 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	(Page 7 of 9)
	Date Prepared:	2024-05-10T15:27:55-04:00

K. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE

This section does not apply to this project.

L. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY

This section does not apply to this project.

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING

This section does not apply to this project.

N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED DECORATIVE /SPECIAL EFFECTS

This section does not apply to this project.

O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE

This section does not apply to this project.

P. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (POWER ADJUSTMENT FACTOR (PAF))

This section does not apply to this project.

Q. RATED POWER REDUCTION COMPLIANCE FOR ONE-FOR-ONE ALTERATIONS

This section does not apply to this project.

R. 80% LIGHTING POWER FOR ALL ALTERATIONS - CONTROLS EXCEPTIONS

This section does not apply to this project.

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	(Page 8 of 9)
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S. DAYLIGHT DESIGN POWER ADJUSTMENT FACTOR (PAF)

This section does not apply to this project.

T. DWELLING UNIT LIGHTING

This section does not apply to this project.

U. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selections have been changed by permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online

Form/Title
NRCI-LTI-E - Must be submitted for all buildings

V. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in this document. If any selections have been changed by the permit applicant, an explanation should be included in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and any with "-A" in the form name must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/attcp/providers.html

Form/Title	Systems/Spaces To Be Field Verified
NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	01- General Office; 02- Office; 04- Break Room; 05- Hallway; 06- Restroom; 07- Restroom; 08- Education Room; WITHIN ATTIC SPACE AT MECHANICAL UNITS
NRCA-LTI-03-A - Must be submitted for automatic daylight controls.	01- General Office; 08- Education Room
NRCA-LTI-04-A - Must be submitted for demand responsive lighting controls.	03- Support; 05- Hallway

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	(Page 5 of 9)
	Date Prepared:	2024-05-10T15:27:55-04:00

H. INDOOR LIGHTING CONTROLS (Not including PAFs)

Area Level Controls

04	05	06	07	08	09	10	11	12	
Area Description	Complete Building or Area Category Primary Function Area	Manual Area Controls 130.1(a) / 160.5(b)4A	Multi-Level Controls 130.1(b) / 160.5(b)4B	Shut-Off Controls 130.1(c) // 160.5(b)4C	Primary/Skylit Daylighting 130.1(d) / 160.5(b)4D	Secondary Daylighting 130.1(d) / 160.5(b)4D	Interlocked Systems 140.6(a)1/ 170.2(e)2A	Field Inspector	
								Pass	Fail
01- General Office	Office (>250 square feet)	Readily Accessible	Dimmer	Auto. Time Switch	Included	Included	No	☐	☐
02- Office	Office (>250 square feet)	Readily Accessible	Dimmer	Auto. Time Switch	NA: General Ltg < 120W	NA: General Ltg < 120W	No	☐	☐
03- Support	All Other Space Types	Readily Accessible	Dimmer	NA: Elec. equip. rm	NA: General Ltg < 120W	NA: General Ltg < 120W	Yes	☐	☐
04- Break Room	Lounge	Readily Accessible	Dimmer	Occupancy Sensor	NA: General Ltg < 120W	NA: General Ltg < 120W	No	☐	☐
05- Hallway	Corridor	Readily Accessible	Dimmer	Occupancy Sensor	NA: Not daylit zone	NA: Not daylit zone	Yes	☐	☐
06- Restroom	Restroom	Readily Accessible	NA: Restrooms	Occupancy Sensor	NA: General Ltg < 120W	NA: General Ltg < 120W	No	☐	☐
07- Restroom	Restroom	Readily Accessible	NA: Restrooms	Occupancy Sensor	NA: General Ltg < 120W	NA: General Ltg < 120W	No	☐	☐
08- Education Room	Classroom, Lecture, or Training Vocational	Readily Accessible	Dimmer	Occupancy Sensor	Included	Included	No	☐	☐
WITHIN ATTIC SPACE AT MECHANICAL UNITS	All Other Space Types	Auth. Personnel	NA: General Ltg <= 0.5W/SF	Occupancy Sensor	NA: Not daylit zone	NA: Not daylit zone	No	☐	☐
							13		
							Plan Sheet Showing Daylit Zones:		
							E3.02		

STATE OF CALIFORNIA
Indoor Lighting
CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	(Page 6 of 9)
	Date Prepared:	2024-05-10T15:27:55-04:00

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

Each area complying using the Complete Building or Area Category Methods per 140.6(b) are included in this table. Column 06 indicates if additional lighting power allowances per 140.6(c) or adjustments per 140.6(a) are being used .

Conditioned Spaces

01	02	03	04	05	06	
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft^2)	Area (ft^2)	Allowed Wattage (Watts)	Additional Allowance / Adjustment	
					Area Category	PAF
01- General Office	Office (>250 square feet)	0.6	432	259.2	No	No
02- Office	Office (>250 square feet)	0.6	294	176.4	No	No
03- Support	All Other Space Types	0.4	247	98.8	No	No
04- Break Room	Lounge	0.55	241.11	132.61	No	No
05- Hallway	Corridor	0.4	232.7	93.08	No	No
06- Restroom	Restroom	0.65	72.65	47.22	No	No
07- Restroom	Restroom	0.65	72.65	47.22	No	No
08- Education Room	Classroom, Lecture, or Training Vocational	0.6	1,169.5	701.7	No	No
		TOTALS:	2,761.61	1,556.23	See Tables J, or P for detail	

Unconditioned Spaces

01	02	03	04	05	06	
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft^2)	Area (ft^2)	Allowed Wattage (Watts)	Additional Allowance / Adjustment	
					Area Category	PAF
WITHIN ATTIC SPACE AT MECHANICAL UNITS	All Other Space Types	0.4	256	102.4	No	No
		TOTALS:	256	102.4	See Tables J, or P for detail	

J. ADDITIONAL ALLOWANCE: AREA CATEGORY METHOD QUALIFYING LIGHTING SYSTEM

This section does not apply to this project.

REGISTERED PROFESSIONAL ENGINEER JOHN BORRELLI ELECTRICAL CALIFORNIA
Exp. 6/30/25

SCAN ME

Borrelli & Associates, Inc.
Consulting Electrical Engineers
2032 N. Gateway Boulevard
Fresno, CA. 93727
Phone: 559-233-4138
http://www.borrelliengineering.com/
ca-bai@borrelliengineering.com

BAI Project Number : 23183
Drawn By: BAI
Checked By: JB

No.	Revision Description	Date
5	Building Dept. Plan Check 24-0097	05/15/2024
4	Fresno Fire Dept. Plan Check	05/15/2024
3	County Generated Changes	06/04/2024
2	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN: 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

INDOOR LIGHTING TITLE 24

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E6.07

Sheet 27 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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STATE OF CALIFORNIA

Indoor Lighting

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-LTI-E
Project Name:	ECC Phase II - Educational Center	**Report Page:** (Page 9 of 9)
Project Address:	1327 Dan Ronquillo Drive, Fresno, CA, 93706	**Date Prepared:** 2024-05-10T15:27:55-04:00

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT	
I certify that this Certificate of Compliance documentation is accurate and complete.	
Documentation Author Name: John Borrelli, PE	Documentation Author Signature:
Company: Borrelli and Associates, Inc.	Signature Date: 05/14/24
Address: 2032 East Gateway Boulevard	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Fresno, CA 93727	Phone: (559) 233-4138

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: John Borrelli, PE	Responsible Designer Signature:
Company: Borrelli and Associates, Inc.	Date Signed: 05/14/24
Address: 2032 East Gateway Boulevard	License: E16390
City/State/Zip: Fresno, CA 93727	Phone: (559) 233-4138

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

Generated Date/Time:

Report Version: 2022.0.000
Schema Version: rev 20220101

Documentation Software: Energy Code Ace

Compliance ID: 149115-0524-0017
Report Generated: 2024-05-10 12:28:01

REGISTERED PROFESSIONAL ENGINEER — JOHN BORRELLI — ELECTRICAL — CALIFORNIA — E16390 — EXP. 8/30/25

SCAN ME

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Consulting Electrical Engineers
2032 N. Gateway Boulevard
Fresno, CA. 93727
Phone: 559-233-4138
http://www.borrelliengineering.com/
ca-bai@borrelliengineering.com

BAI Project Number : 23183
Drawn By: BAI
Checked By: JB

No.	Revision Description	Date
5	Building Dept. Plan Check 24-0097	05/15/2024
4	Fresno Fire Dept. Plan Check	05/15/2024
3	County Generated Changes	06/04/2024
2	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT — ZAHIDUL HOQUE KHAN — C-40030 REN: 11-30-25 — STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

INDOOR LIGHTING
TITLE 24

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO — 1856

Sheet No.:

E6.08

Sheet 28 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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STATE OF CALIFORNIA
Solar And Battery CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-SAB-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 3 of 5)**
	Date Prepared:	2024-01-22T16:12:08-05:00

E. ADDITIONAL REMARKS

This table is includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. ALLOCATED SOLAR ZONE

This section does not apply to this project.

G. PERMANENTLY INSTALLED SOLAR PV FOR SOLAR READY EXCEPTION

This section does not apply to this project.

H. PERMANENTLY INSTALLED SOLAR HOT WATER SYSTEMS

This section does not apply to this project.

I. SMART THERMOSTATS AND ALTERNATIVE EFFICIENCY MEASURE FOR SOLAR READY EXCEPTION

This section does not apply to this project.

STATE OF CALIFORNIA
Solar And Battery CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-SAB-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 4 of 5)**
	Date Prepared:	2024-01-22T16:12:08-05:00

J. PHOTOVOLTAIC (PV) AND BATTERY SYSTEMS

This table documents compliance with prescriptive photovoltaic and battery system requirements in 140.10/ 170.2(g and h). Unless the project meets one of the listed exceptions, or trades-off PV in an energy model using performance path, 140.10/ 170.2(g and h) requires installed photovoltaic and battery systems for newly constructed buildings. The installed PV systems must meet the minimum requirements in Joint Appendix 11.

Photovoltaic (PV) System

01	02	03	04	05	06	07	08
Occupancy	Conditioned Floor Area (ft^2)	Area of New Roof[1] (ft^2)	Roof Area < 70% Solar Access[2] (ft^2)	Plansheet or Document showing Solar Access Calculations	Occupied Roof Area[3] (ft^2)	Solar Access Roof Area (SARA) (ft^2)	Min Size of PV System Required (kWdc)
School or Classroom	3,015	2,590	0	N/A	0	2,590	4.91
					Total Min Size PV System Required for all Spaces (kWdc):		4.91
					Total Size PV System in Design (kWdc):		6

[1]*FOOTNOTES: Includes the area of the building's roof space capable of structurally supporting a PV system and the area of all roof space on covered parking areas, carports, and all other newly constructed structures on the site that are compatible with supporting a PV system per Title 24, Part 2 Section 1511.2.*
[2]*Solar access must be determined using CEC approved solar access calculation tools found at https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/solar-assessment-tools.*
[3]*As specified by CBC Section 503.1.4.*

K. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in this document. If any selections have been changed by the permit applicant, an explanation should be included Table E. Additional Remarks and ExceptionalConditionMessageCCSABE += UserChangedSelectionInCI. These documents must be provided to the building inspector during construction and can be found online

Form/Title
NRCI-SAB-01-E - Must be submitted for all buildings that must comply with solar readiness or PV/Battery requirements.

L. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

There are no forms required for this project.

STATE OF CALIFORNIA
Solar And Battery CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-SAB-E
This document is used to demonstrate compliance with prescriptive PV and battery requirements in 140.10/ 170.2 for nonresidential, multifamily and mixed-use buildings and prescriptive solar thermal requirements in 170.2(d)3C for multifamily and hotel/ motel occupancies. When PV/battery/solar thermal requirements don't apply or are traded using the performance approach, this document demonstrates compliance with mandatory solar readiness requirements in 110.10/ 160.8 for newly constructed buildings which are either multifamily ten stories or fewer, hotel/motel ten stories or fewer or all other nonresidential buildings three stories or fewer. It is also used to demonstrate compliance with solar readiness in 110.10/ 160.8 for additions to nonresidential, multifamily or hotel/motel building types which add more than 2,000 ft^2 of roof area. Alterations, or additions of less than 2,000 ft^2 of roof area, are not required to comply with solar readiness, solar PV and battery requirements and do not need to complete this document.		
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 1 of 5)**
Project Address: 1327 Dan Ronquillo Drive, Fresno, CA, 93706	**Date Prepared:**	2024-01-22T16:12:08-05:00

A. GENERAL INFORMATION

01	Project Location (city)	Fresno	04	Building Occupancies	All Other OccupanciesSchool or Classroom
02	Climate Zone	13	05	Construction Type	New construction
03	Conditioned Floor Area (ft^2)	3015	06	Number of Stories	Bldg <= 3 stories

B. PROJECT SCOPE

The compliance path the project is using to comply per 110.10(b)1B/ 140.10/ 170.2(g and h) is indicated below.

Compliance with Solar Photovoltaic (PV) and Battery Requirements in 140.10/ 170.2(g and h)

01		
☐	Provided PV system and battery storage sized per 140.10/ 170.2 (g and h)	The project has included an installed PV system and battery storage system per requirements in 140.10/ 170.2(g and h) as documented in Table J.
☐	Exception to PV and Battery: Not enough Solar Access Roof Area	The total of all available Solar Access Roof Area(s) of the project site is less than three percent of the conditioned floor area as documented in Table J.
☐	Exception to PV and Battery: Required PV < 4kW	The required PV system size is less than 4 kW dc as documented in Table J..
☐	Exception to PV and Battery: No contiguous Solar Access Roof Area	The Solar Access Roof Area(s) of the project site contains less than 80 contiguous square feet as documented in Table J.
☐	Exception to PV and Battery: Can't meet snow load	The project has a roof design where the enforcement authority has verified it is not possible for the PV system, including panels, modules, components, supports, and attachments to the roof structure, to meet ASCE 7-16 Chapter 7, Snow Loads.
☐	Exception to PV and Battery: Multi-tenant without VNEM or Community Solar	The project is a multi-tenant building in an area where a load serving entity does not provide either a Virtual Net Metering (VNEM) or community solar program.
☐	The prescriptive PV/battery requirement has been traded off using the performance compliance approach as documented on the PRF Certificate of Compliance form.	

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Generated Date/Time: Report Version: 2022.0.000 Schema Version: rev 20220101 | Documentation Software: Energy Code Ace Compliance ID: 149115-0124-0016 Report Generated: 2024-01-22 13:12:10

STATE OF CALIFORNIA
Solar And Battery CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-SAB-E
Project Name: ECC Phase II - Educational Center	**Report Page:**	**(Page 2 of 5)**
	Date Prepared:	2024-01-22T16:12:08-05:00

Compliance with Solar Thermal Water Heating Requirements in 170.2(d)3C (Multifamiily and hotel/ motel occupancies only)

01	
☐	The project includes a hotel/motel or multifamily occupancy with a gas or propane central water-heating system (serves 2+ dwelling units) and includes a permanently installed domestic solar water-heating system to comply with 170.2(d)3C and Reference Residential Appendix RA4, as documented in Table H. Compliance meets Exception 2 to solar ready requirements in 110.10(b).

C. COMPLIANCE RESULTS

Results in this table are automatically calculated from data input and calculations in Tables F through I. Note: If any cell on this table says "DOES NOT COMPLY" or "COMPLIES with Exceptional Conditions" refer to Table D. for guidance or see the applicable Table referenced below.

Allocated Solar Zone				Installed PV System				Installed SWH System				Smart Tstat and Alternative EE Measure		Compliance Results
01		02		03		04		05		06		07	08	
Required Minimum Area (ft^2)	<=	Designated Area (ft^2)	OR	Required Minimum DC Power Rating (Watts)	<=	Designed DC Power Rating (Watts)	OR	Required Minimum Solar Savings Fraction	<=	Designed/Rated Solar Savings Fraction	OR	JA5 Compliant Thermostat Specified?	Alternative Energy Efficiency Measure	
(See Table F)				(See Tables G or J)				(See Table H)				(See Table I)		
	<=		OR	4,910	<=	6,000	OR		<=		OR			
Location in construction documents showing the location for inverters and metering equipment and a pathway for the routing of conduit/ plumbing to the electrical service/ water heating system per §110.10(c).														
Battery storage system design meets the minimum requirements in Joint Appendix JA12 and the minimum energy (kWh)/ power (kW) capacity per Table J.														Not Applicable

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with uneditable comments because of selections made or data entered in tables throughout the form.

Table F indicates a subarea that is not in compliance with the requirements. Please revisit Table F

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance | Generated Date/Time: Report Version: 2022.0.000 Schema Version: rev 20220101 | Documentation Software: Energy Code Ace Compliance ID: 149115-0124-0016 Report Generated: 2024-01-22 13:12:10

REGISTERED PROFESSIONAL ENGINEER JOHN BORRELLI ELECTRICAL CALIFORNIA
Exp. 6/30/25

SCAN ME

Borrelli & Associates, Inc.
Consulting Electrical Engineers
2032 N. Gateway Boulevard
Fresno, CA. 93727
Phone: 559-233-4138
http://www.borrelliengineering.com/
ca-bai@borrelliengineering.com

BAI Project Number : 23183
Drawn By: BAI
Checked By: JB

No.	Revision Description	Date
1	Building Dept. Plan Check 24-0097	05/15/2024
2	Fresno Fire Dept. Plan Check	05/15/2024
3	County Generated Changes	06/04/2024
4	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN: 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

SOLAR AND BATTERY TITLE 24

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E6.11

Sheet 29 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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STATE OF CALIFORNIA

Solar And Battery

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE		NRCC-SAB-E
Project Name:	ECC Phase II - Educational Center	**Report Page:** (Page 5 of 5)
Project Address:	1327 Dan Ronquillo Drive, Fresno, CA, 93706	**Date Prepared:** 2024-01-22T16:12:08-05:00

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: John Borrelli, PE	Documentation Author Signature:
Company: Borrelli and Associates, Inc.	Signature Date: 10/24/23
Address: 2032 North Gateway Boulevard	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: Fresno, CA 93727	Phone: (559) 233-4138

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: John Borrelli, PE	Responsible Designer Signature:
Company: Borrelli and Associates, Inc.	Date Signed: 10/24/23
Address: 2032 North Gateway Boulevard	License: E16390
City/State/Zip: Fresno, CA 93727	Phone: (559) 233-4138

CA Building Energy Efficiency Standards - 2022 Nonresidential Compliance

Generated Date/Time:

Report Version: 2022.0.000
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REGISTERED PROFESSIONAL ENGINEER JOHN BORRELLI ELECTRICAL CALIFORNIA

E16390 EXP. 8/30/25

SCAN ME

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Consulting Electrical Engineers
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Phone: 559-233-4138
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ARCHITECT:
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SOLAR AND BATTERY TITLE 24

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

Sheet No.:

E6.12

Sheet 30 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

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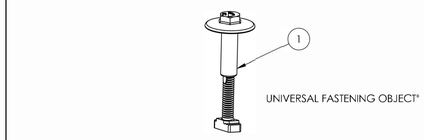
Cut Sheet

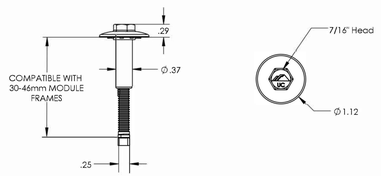
IRONRIDGE

Universal Fastening Object®

Only for installation and use with IronRidge products in accord with written instructions see IronRidge.com/UFO



ITEM NO.	DESCRIPTION
UFO-CL-01-A1	UNIVERSAL MODULE CLAMP, CLEAR
UFO-CL-01-B1	UNIVERSAL MODULE CLAMP, BLACK



Property	Value
Material	300 Series Stainless Steel
Finish	Clear and Black

v1.32

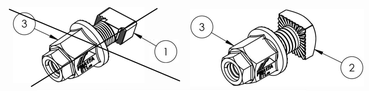
5 - **UNIVERSAL FASTENING OBJECT**

NOT TO SCALE

Cut Sheet

IRONRIDGE

Bonding Hardware

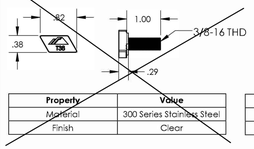


ITEM NO.	DESCRIPTION
~~1~~	~~BOLT, T CSTM, 3/8-16~~
2	BOLT, BONDING 3/8-16 SQ HEAD
3	NUT, BONDING STEP

BONDING HARDWARE

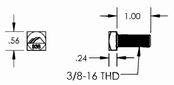
Part Number	Description
BHW-TB-02-A1	T-BOLT, BONDING HARDWARE
BHW-SQ-02-A1	SQUARE-BOLT, BONDING HARDWARE

1) BOLT, T CSTM, 3/8-16



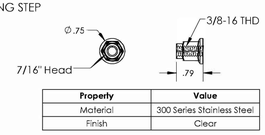
Property	Value
Material	300 Series Stainless Steel
Finish	Clear

2) BOLT, BONDING 3/8-16 SQ HEAD



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

3) NUT, BONDING STEP



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.30

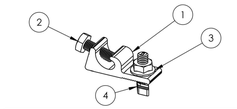
3 - **BONDING HARDWARE**

NOT TO SCALE

Cut Sheet

IRONRIDGE

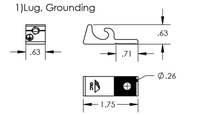
Grounding Lug



ITEM NO.	DESCRIPTION
1	LUG, GROUNDING, LAY-IN - LOW PROFILE
2	BOLT, 1/4-28 X .750" HEX CS SST
3	NUT, FLANGE HEX 1/4-20 SST
4	BOLT, T CSTM 1/4-20 X 1.188" LOCK SS

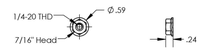
Part Number	Description	Wire Size Range (AWG)
XR-LUG-03-A1	GROUNDING LUG, LOW PROFILE	4-10

1)Lug, Grounding



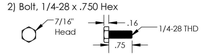
Property	Value
Material	Tin Plated Copper
Finish	Clear Matte

3) Nut, Flange Hex 1/4-20



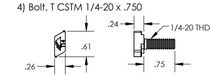
Property	Value
Material	300 Series Stainless Steel
Finish	Clear

2) Bolt, 1/4-28 x .750 Hex



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

4) Bolt, T CSTM 1/4-20 x .750



Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.10

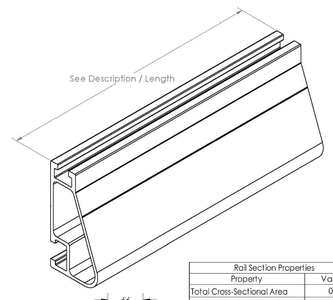
1 - **GROUNDING LUG**

NOT TO SCALE

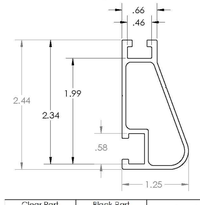
Cut Sheet

IRONRIDGE

XR100® Rail



Rail Section Properties	
Property	Value
Total Cross-Sectional Area	0.582 in²
Section Modulus (X-axis)	0.297 in³
Moment of Inertia (X-axis)	0.390 in⁴
Moment of Inertia (Y-axis)	0.085 in⁴
Torsional Constant	0.214 in⁴
Polar Moment of Inertia	0.126 in⁴



APPROVED MATERIALS:
6005-T6, 6005A-T61, 6105-T5, 6N01-T6
(34,000 PSI YIELD STRENGTH MINIMUM)

Clear Part Number	Black Part Number	Description / Length	Material	Weight
XR-100-132A	XR-100-132B	XR100, Rail 132" (11 Feet)	6000-Series Aluminum	7.50 lbs.
XR-100-168A	XR-100-168B	XR100, Rail 168" (14 Feet)		9.55 lbs.
XR-100-204A	XR-100-204B	XR100, Rail 204" (17 Feet)		11.60 lbs.

v1.11

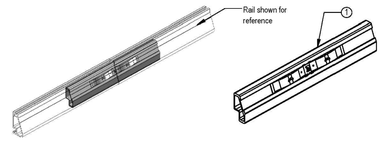
4 - **XR100 RAIL**

NOT TO SCALE

Cut Sheet

IRONRIDGE

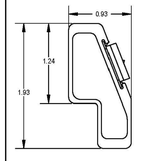
BOSS® XR100®

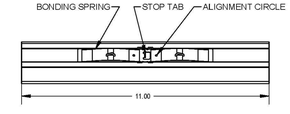


ITEM NO	DESCRIPTION	QTY IN KIT
1	SPLICE, XR100®, MILL	1

Part Number	Description
XR100®-BOSS®-01-M1	Bonded Splice, XR100®

1) Bonded Splice, XR100





Propery	Value
Material	6000 Series Aluminum
Finish	Mill

v1.01

2 - **BOSS XR100**

NOT TO SCALE

Borrelli & Associates, Inc.
Consulting Electrical Engineers
2032 N. Gateway Boulevard
Fresno, CA. 93727
Phone: 559-233-4138
http://www.borrelliengineering.com/
ca-bai@borrelliengineering.com

BAI Project Number :	23183
Drawn By:	BAI
Checked By:	JB

No.	Revision Description	Date
B3	Building Dept. Plan Check 24-0097	05/15/2024
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LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN: 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
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TYPICAL SOLAR DETAILS

Fresno County Department of Public Works and Planning
Capital Projects

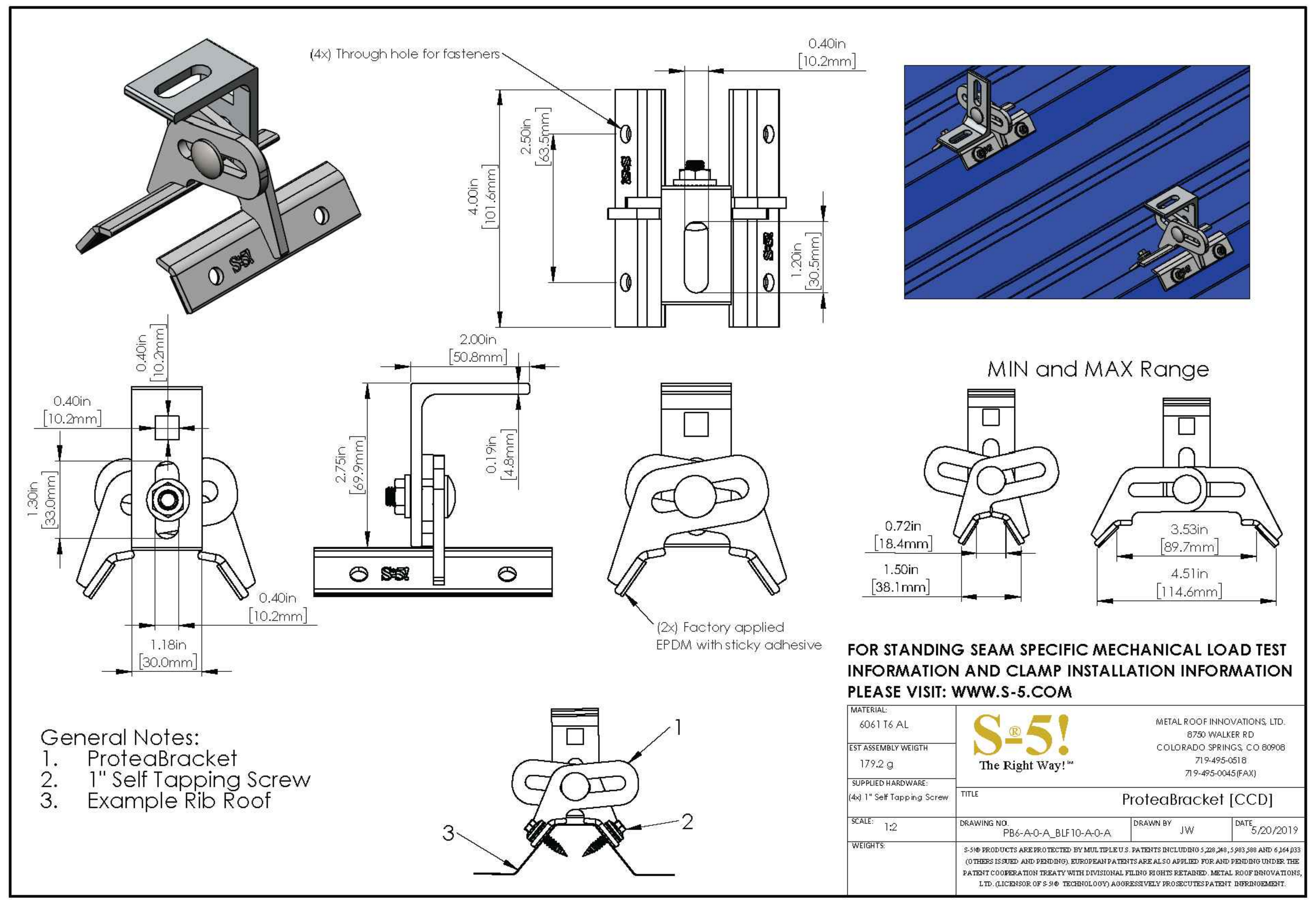
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E7.01

Sheet 31 of 34

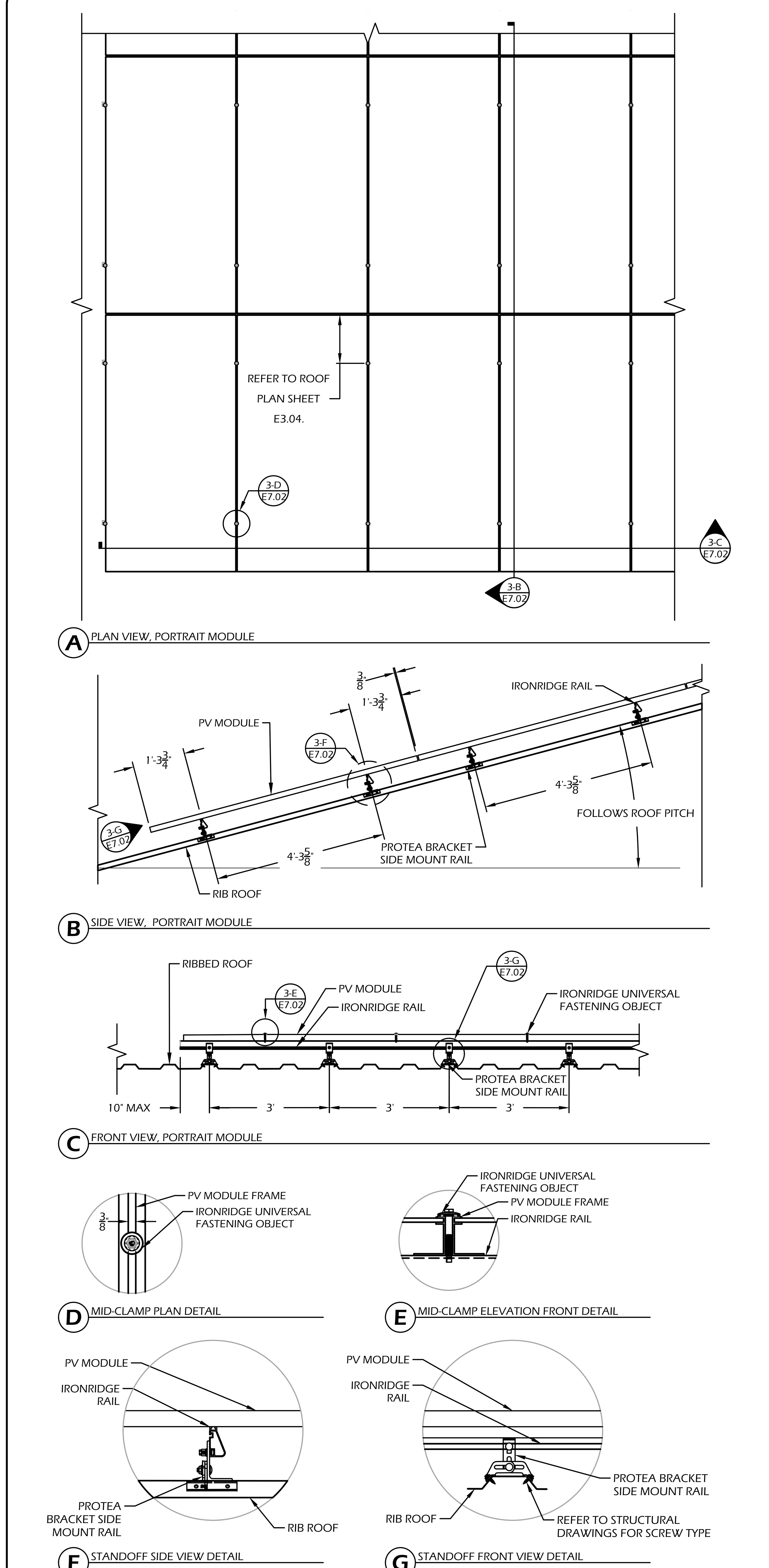
DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09



PROTEA BRACKET SIDE MOUNT RAIL

4 / -

NOT TO SCALE



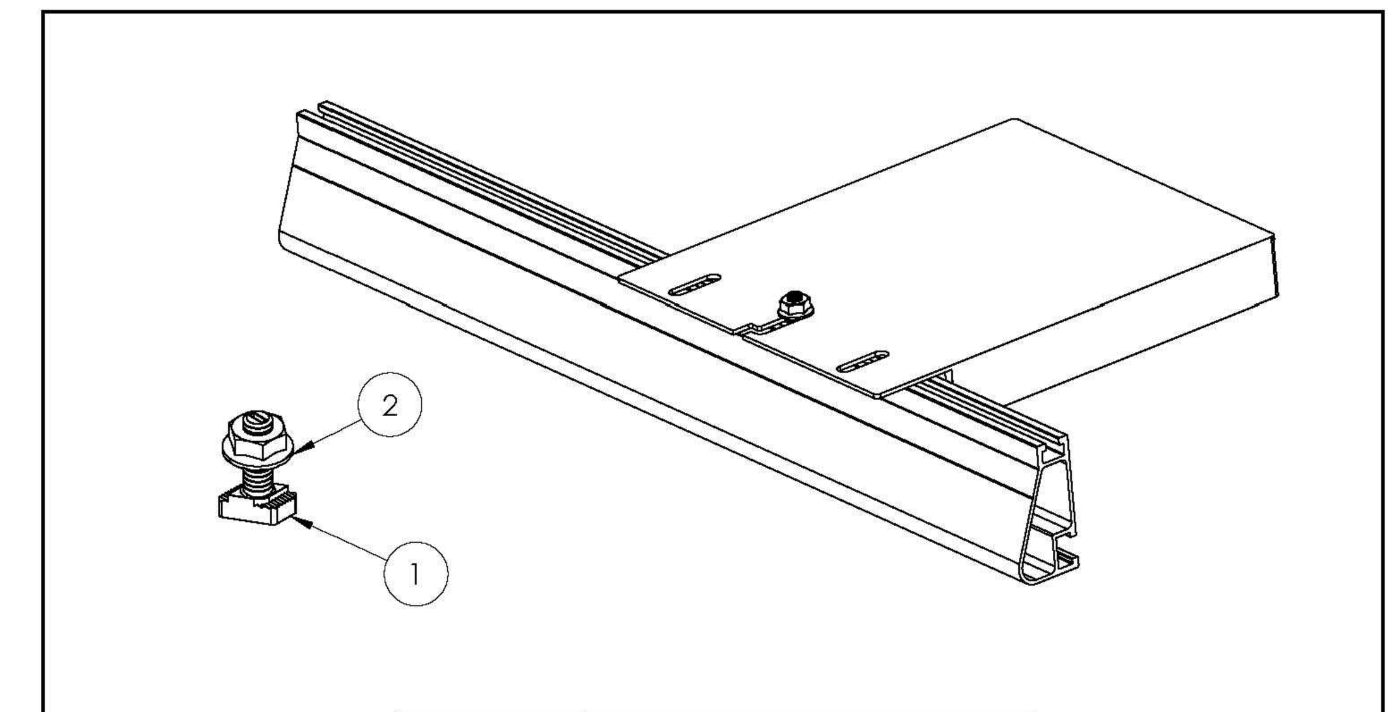
NOTES:
1. PV ARRAYS SHALL BE GROUNDED TO THE STEEL ROOF THROUGH A GROUND LUG AND GROUND CONDUCTOR.

SOLAR PANEL MOUNTING DETAILS

3 / -

NOT TO SCALE

IRONRIDGE Microinverter Bonding Hardware



Item Number	Description
1	Bolt, T CSTM 1/4-20 X .75" Lock SS
2	Nut, Flange, Hex 1/4-20 SS

Microinverter Bonding Hardware

Part Number	Description
BHW-MI-01-A1	Microinverter Bonding Hardware, T-Bolt

1) Bolt, T CSTM 1/4-20 x .75

Property	Value
Material	300 Series Stainless Steel
Finish	Clear

2) Nut, Flange Hex 1/4-20

Property	Value
Material	300 Series Stainless Steel
Finish	Clear

v1.20

MICROINVERTER BONDING HARDWARE

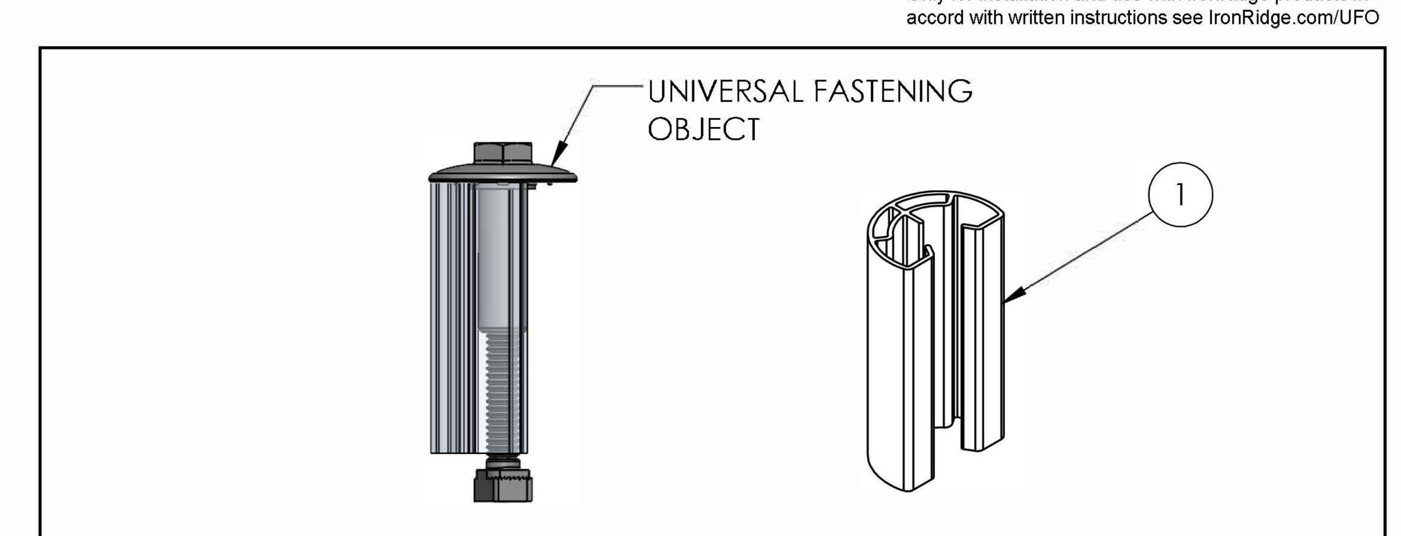
1 / -

NOT TO SCALE

Cut Sheet

IRONRIDGE Stopper Sleeve®

Only for installation and use with IronRidge products in accord with written instructions see IronRidge.com/UFO



ITEM NO.	COMPONENT
1	STOPPER SLEEVE

TABLE 1: STOPPER SLEEVE PART NUMBES AND HEIGHT

MILL PART NUMBER	BLACK PART NUMBER	HEIGHT "X" (mm)
UFO-STP-30MM-M1	UFO-STP-30MM-B1	30
UFO-STP-32MM-M1	UFO-STP-32MM-B1	32
UFO-STP-33MM-M1	UFO-STP-33MM-B1	33
UFO-STP-35MM-M1	UFO-STP-35MM-B1	35
UFO-STP-38MM-M1	UFO-STP-38MM-B1	38
UFO-STP-40MM-M1	UFO-STP-40MM-B1	40
UFO-STP-42MM-M1	UFO-STP-42MM-B1	42
UFO-STP-46MM-M1	UFO-STP-46MM-B1	46

Property	Value
Material	6000 Series Aluminum
Finish	Mill or Black

v1.32

STOPPER SLEEVE

2 / -

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SCAN ME

Borrelli & Associates, Inc.
Consulting Electrical Engineers
2032 N. Gateway Boulevard
Fresno, CA. 93727
Phone: 559-233-4138
http://www.borrelliengineering.com/
ca-bai@borrelliengineering.com

BAI Project Number : 23183
Drawn By: BAI
Checked By: JB

No.	Revision Description	Date
B1	Building Dept. Plan Check 24-0097	05/15/2024
F1	Fresno Fire Dept. Plan Check	05/15/2024
C1	County Generated Changes	06/04/2024
B2	Fresno Fire Department Review	06/27/2024

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

TYPICAL SOLAR DETAILS

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

E7.02

Sheet 32 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

5 — BILL OF MATERIALS

1329 West Dan Ronquillo Drive _ Ironr... (#1322213)
pitched roof

IRONRIDGE 28357 INDUSTRIAL BLVD., HAYWARD, CA 94545

Bill of Materials

Part	Spares	Total Qty
Rails & Splices		
XR-100-204A XR100, Rail 204" Clear	0	8
XR100-BOSS-01-M1 Bonded Splice, XR100	0	4
Clamps & Grounding		
UFO-CL-01-A1 Universal Module Clamp, Clear	0	28
UFO-STP-35MM-M1 Stopper Sleeve, 35MM, Mill	0	8
XR-LUG-03-A1 Grounding Lug, Low Profile	0	2
Attachments		
BHW-SQ-02-A1 Square-Bolt Bonding Hardware	0	32

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3 — SPAN RAILING AND REACTION FORCES

1329 West Dan Ronquillo Drive _ Ironr... (#1322213)
pitched roof

IRONRIDGE 28357 INDUSTRIAL BLVD., HAYWARD, CA 94545

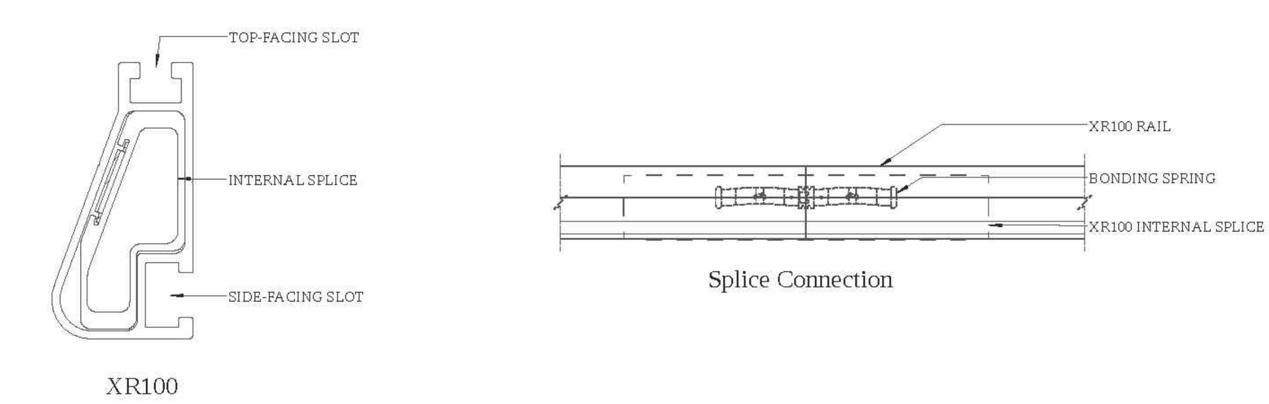
Span Details XR100 - Portrait

Zone	Module Position	Max span	Max cantilever
Zone 1/2e	Normal	10'	3'
	Exposed	10'	3'
	Edge	8'	3'
Zone 2n/2r/3e	Normal	10'	3'
	Exposed	8' 8"	3'
	Edge	6' 5"	2' 7"
Zone 3r	Normal	9' 11"	3'
	Exposed	7' 8"	3'
	Edge	5' 11"	2' 4"

Reaction Forces XR100 - Portrait

Zone	Module Position	Uplift (PSF)	Down (lbs)	Uplift (lbs)	Lateral Par (lbs)	Lateral Perp (lbs)
Zone 1/2e	Normal	10.7	132	134	16	11
	Exposed	16.1	132	212	16	11
	Edge	25.4	132	276	16	11
Zone 2n/2r/3e	Normal	14.6	132	210	16	11
	Exposed	21.9	132	325	16	11
	Edge	34.6	132	421	16	11
Zone 3r	Normal	17.3	132	256	16	11
	Exposed	26.0	132	394	16	11
	Edge	41.1	132	509	16	11

Splice Details



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1 — PROJECT DETAILS

1329 West Dan Ronquillo Drive _ Ironr... (#1322213)
pitched roof

IRONRIDGE 28357 INDUSTRIAL BLVD., HAYWARD, CA 94545

Project Details

Name	1329 West Dan Ronquillo Drive _ Ironridge Rail with ProteaBracket	Date	06/04/2024
Location	1329 West Dan Ronquillo Drive, Fresno, CA 93706	Total modules	12
Module	Silfab: SIL-500HM (35mm)	Total watts	6,000
Dimensions	Dimensions: 82.6" x 44.61" x 1.38" (2098.0mm x 1133.0mm x 35.0mm)	Attachments	32
ASCE	7-16	Rails per row	2

System Weight

Total system weight	795.4 lbs
Weight/attachment	24.9 lbs
Racking weight	102.3 lbs
Distributed weight	2.5 psf

Load Assumptions

Wind exposure	B
Wind speed	101 mph
Ground snow load	0 psf
Attachment spacing portrait	3.0'
Site Elevation	212.0 ft
S_{DS}	0.627

Roof Information

Roof Material Family	Metal	Roof material	Other
Risk category	III	Roof attachment	PROTEA BRACKET SIDE MOUNT RAIL
		Staggered attachments	No
Attachment hardware	Square		
Roof shape	Gable		

Last updated by Borrelli Borrelli on 06/03/24 04:51 PM

Page 1 of 5

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6 — ATTACHMENTS INSTALLATION

ATTACHMENTS

PRE-INSTALLATION

- ☐ Verify module compatibility.

TOOLS REQUIRED

- ☐ Cordless Drill (non-impact)
- ☐ Impact Driver (for lag bolts)
- ☐ Torque Wrench (0-250 in-lbs)
- ☐ 7/16" Socket
- ☐ 1/2" Socket
- ☐ 9/16" Socket
- ☐ 7/32" Drill Bit
- ☐ 3/8" Socket
- ☐ 1/8" Drill Bit
- ☐ 1/4" Drill Bit
- ☐ T30 Bit
- ☐ Channel Lock Pliers
- ☐ #3 Phillips Bit
- ☐ 3/16" Hex Bit

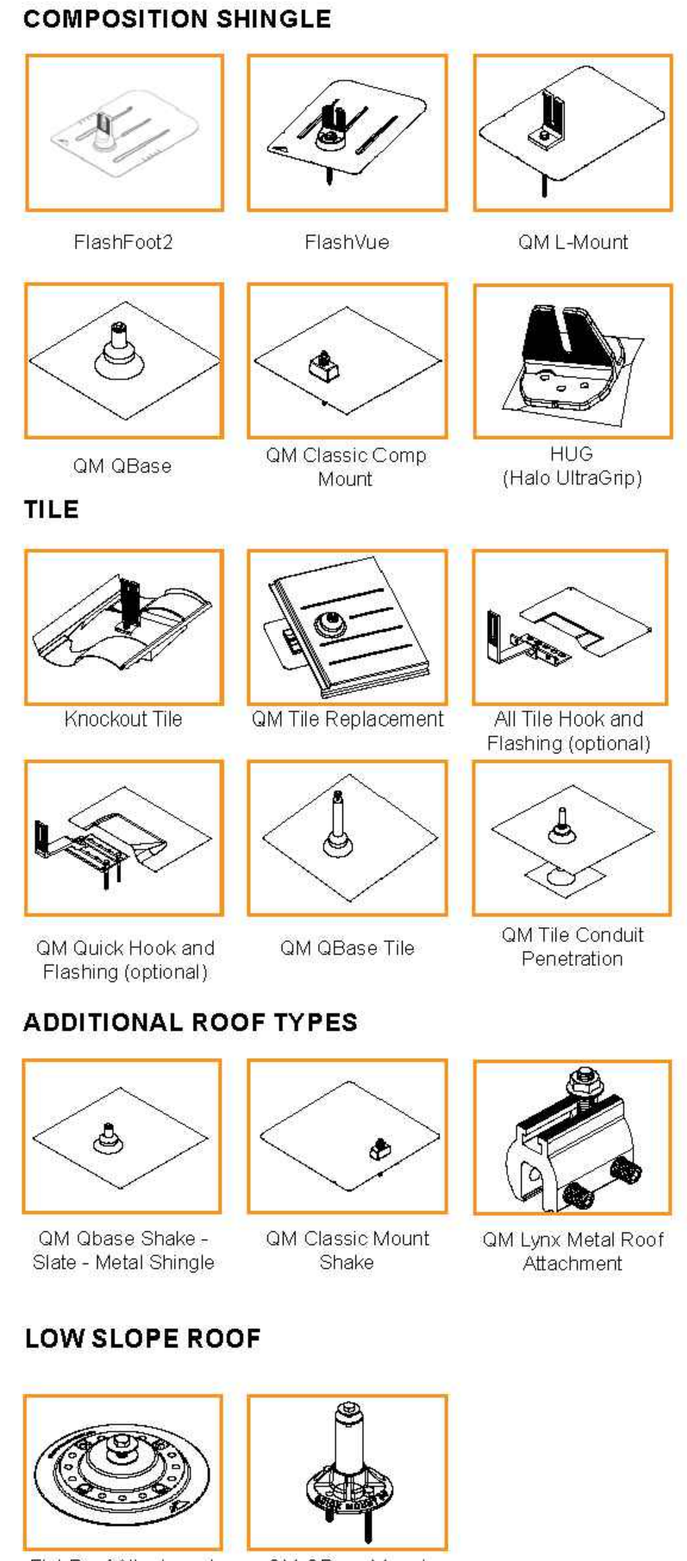
BONDING HARDWARE TORQUE VALUES

Please refer to each attachment's individual section for full details on all torque values and instructions.

- ☐ 3/8" Bonding Hardware Nuts (7/16" Socket): 250 in-lbs
- ☐ All Tile Hook Carriage Bolts (7/16" Socket): 132 in-lbs
- ☐ Flat Roof Attachment Nuts (9/16" Socket): 250 in-lbs
- ☐ Lynx Set Screw (3/16" Hex Drive): 150 in-lbs
- ☐ Lynx Flange Nut (1/2" Socket): 150 in-lbs

➤ **If using previous version of Integrated Grounding Mid Clamps, End Clamps, Expansion Joints and for a list of approved 3rd party components please refer to Alternate Components Addendum (Version 1.9)**

ATTACHMENTS



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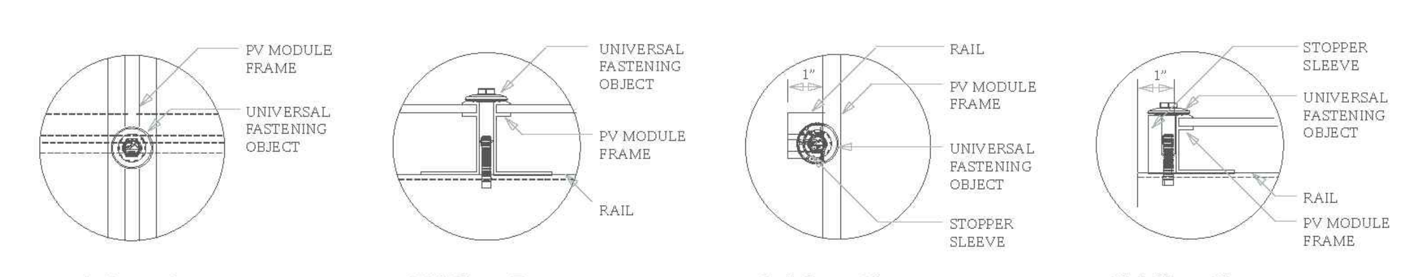
4 — GROUNDING DIAGRAM AND CLAMP DETAILS

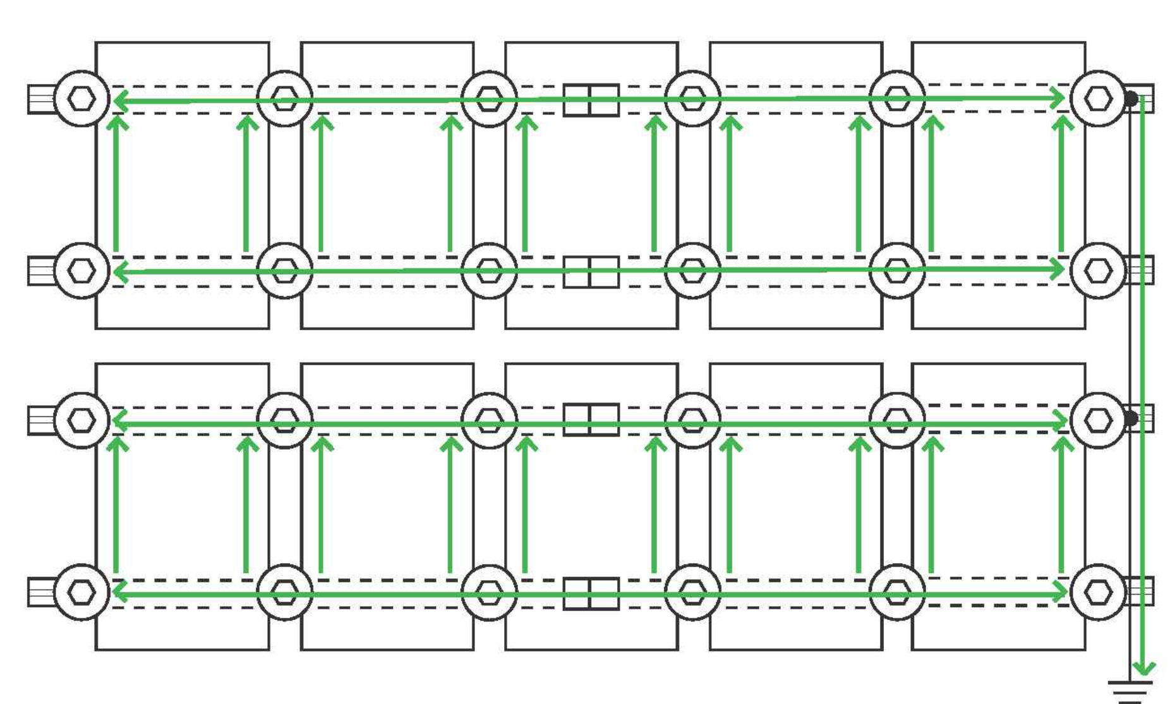
1329 West Dan Ronquillo Drive _ Ironr... (#1322213)
pitched roof

IRONRIDGE 28357 INDUSTRIAL BLVD., HAYWARD, CA 94545

Clamp Detail



Grounding Diagram



* Grounding Lugs and Wire are not required in systems using Enphase microinverters.

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2 — ROOF PV MODULE LAYOUT

1329 West Dan Ronquillo Drive _ Ironr... (#1322213)
pitched roof

IRONRIDGE 28357 INDUSTRIAL BLVD., HAYWARD, CA 94545

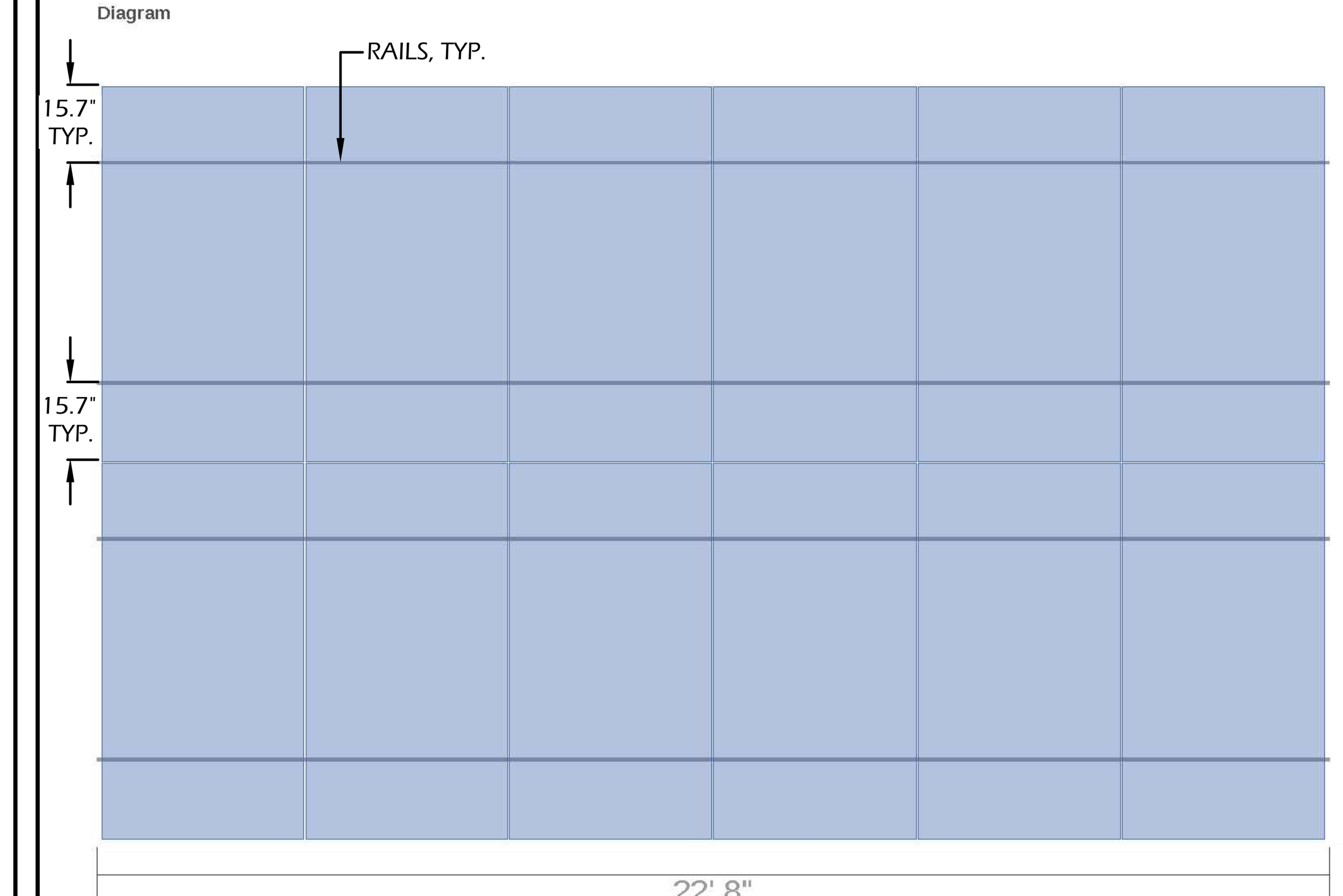
Roof Plane A

Height	15 ft	Slope	8 °	Rafter spacing	36 in

Roof Plane A: Roof Section 1

Details		Weights
Panels: 12	Provided rail: 136' [8 x 204"]	Total weight: 795.4 lbs
Rail orientation: East-West	Attachments: 32	Weight/attachment: 24.9 lbs
Panel orientation: Portrait	Splices: 4	Total Area: 312.2 sq ft
Entry type: Graphical	Clamps: 28	Distributed weight: 2.5 psf

Diagram



Segments

Identifier	Columns	Row length	Rail length	Cantilever	Rail	Attachments	Splices	Clamps
A	6	22' 8"	22' 8"	10"	68' [4 x 204"]	16	2	14
			Row segment totals (x 2) →		**136' [8 x 204"]**	**32**	**4**	**28**

NOT TO SCALE

REGISTERED PROFESSIONAL ENGINEER — JOHN BORRELLI — E-16890 — EXP. 6/30/25 — ELECTRICAL — STATE OF CALIFORNIA

SCAN ME

Borrelli & Associates, Inc.
Consulting Electrical Engineers
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Phone: 559-233-4138
http://www.borrelliengineering.com/
ca-bai@borrelliengineering.com

BAI Project Number :	23183
Drawn By:	BAI
Checked By:	JB

No.	Revision Description	Date
B1	Building Dept. Plan Check 24-0097	05/15/2024
F1	Fresno Fire Dept. Plan Check	05/15/2024
C1	County Generated Changes	06/04/2024
B2	Fresno Fire Department Review	06/27/2024

LICENSED ARCHITECT — ZAHIDUL HOQUE KHAN — C-40030 — REN: 11-30-25 — STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

Sheet Content:

TYPICAL SOLAR DETAILS

Fresno County Department of Public Works and Planning
Capital Projects

2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

Sheet No.:

E7.03

Sheet 33 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09

Rail: XR100

Gable Roof Flush Mount System Span Table (inches) - Portrait or Landscape Installation
**Max Module Length: 86", Max Module SF: 24.5 SF
Exposure B

Wind Speed (mph)	Roof Slope (deg.)	Ground Snow: 0 psf			10 psf			20 psf			30 psf			40 psf			50 psf		
		Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3
90 mph	8-20	116	116	116	97	97	97	82	82	82	80	80	80	72	72	72	65	65	65
	21-27	114	114	114	96	96	96	81	81	81	80	80	80	73	73	73	66	66	66
	28-45	111	111	111	96	96	96	81	81	81	79	79	79	74	74	74	69	69	69
95 mph	8-20	116	116	116	97	97	97	82	82	82	80	80	80	72	72	72	65	65	65
	21-27	114	114	114	96	96	96	81	81	81	80	80	80	73	73	73	66	66	66
	28-45	111	111	111	96	96	96	81	81	81	79	79	79	74	74	74	69	69	69
100 mph	8-20	116	116	116	97	97	97	82	82	82	80	80	80	72	72	72	65	65	65
	21-27	114	114	114	96	96	96	81	81	81	80	80	80	73	73	73	66	66	66
	28-45	111	111	111	96	96	96	81	81	81	79	79	79	74	74	74	69	69	69
105 mph	8-20	116	116	109	97	97	97	82	82	82	80	80	80	72	72	72	65	65	65
	21-27	114	114	114	96	96	96	81	81	81	80	80	80	73	73	73	66	66	66
	28-45	111	111	111	96	96	96	81	81	81	79	79	79	74	74	74	69	69	69
110 mph	8-20	116	114	102	97	97	97	82	82	82	80	80	80	72	72	72	65	65	65
	21-27	114	114	114	96	96	96	81	81	81	80	80	80	73	73	73	66	66	66
	28-45	111	111	111	96	96	96	81	81	81	79	79	79	74	74	74	69	69	69
115 mph	8-20	116	108	96	97	97	96	82	82	82	80	80	80	72	72	72	65	65	65
	21-27	114	114	110	96	96	96	81	81	81	80	80	80	73	73	73	66	66	66
	28-45	111	111	106	96	96	96	81	81	81	79	79	79	74	74	74	69	69	69
120 mph	8-20	116	102	91	97	97	91	82	82	82	80	80	80	72	72	72	65	65	65
	21-27	114	110	104	96	96	96	81	81	81	80	80	80	73	73	73	66	66	66
	28-45	111	111	101	96	96	96	81	81	81	79	79	79	74	74	74	69	69	69
130 mph	8-20	116	91	81	97	91	81	82	82	81	80	80	80	72	72	72	65	65	65
	21-27	114	99	96	96	96	96	81	81	81	80	80	80	73	73	73	66	66	66
	28-45	111	104	93	96	96	93	81	81	81	79	79	79	74	74	74	69	69	69
140 mph	8-20	106	83	74	97	83	74	82	82	74	80	80	74	72	72	72	65	65	65
	21-27	112	90	84	96	90	84	81	81	81	80	80	80	73	73	73	66	66	66
	28-45	108	96	85	96	96	85	81	81	81	79	79	79	74	74	74	69	69	69
150 mph	8-20	96	75	67	96	75	67	82	75	67	80	75	67	72	72	67	65	65	65
	21-27	103	83	77	96	83	77	81	81	77	80	80	77	73	73	73	66	66	66
	28-45	99	89	79	96	89	79	81	81	79	79	79	79	74	74	74	69	69	69
160 mph	8-20	85	69	64	85	69	64	82	69	64	80	69	64	72	69	64	65	65	64
	21-27	96	76	72	96	76	72	81	76	72	80	76	72	73	73	72	66	66	66
	28-45	92	82	73	92	82	73	81	81	73	79	79	73	74	74	73	69	69	69
170 mph	8-20	76	64	54	76	64	54	76	64	54	76	64	54	72	64	54	65	64	54
	21-27	88	72	65	88	72	65	81	72	65	80	72	65	73	72	65	66	66	65
	28-45	86	77	68	86	77	68	80	77	68	79	77	68	73	73	68	68	68	68
175 mph	8-20	74	61	48	74	61	48	74	61	48	74	61	48	72	61	48	65	61	48
	21-27	85	68	64	85	68	64	81	68	64	80	68	64	73	68	64	66	66	64
	28-45	83	74	66	83	74	66	79	74	66	78	74	66	72	72	66	67	67	66
180 mph	8-20	72	59	44	72	59	44	72	59	44	72	59	44	72	59	44	65	59	44
	21-27	82	65	60	82	65	60	81	65	60	80	65	60	73	65	60	66	65	60
	28-45	80	72	64	80	72	64	79	72	64	78	72	64	72	72	64	67	67	64

Wind Speed (mph)	Roof Slope (deg.)	60 psf			70 psf*			80 psf*			90 psf*			100 psf*		
		Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3
90 mph	8-20	60	60	60	56	56	56	53	53	53	50	50	50	48	48	48
	21-27	61	61	61	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51
95 mph	8-20	60	60	60	56	56	56	53	53	53	50	50	50	48	48	48
	21-27	61	61	61	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51
100 mph	8-20	60	60	60	56	56	56	53	53	53	50	50	50	48	48	48
	21-27	61	61	61	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51
105 mph	8-20	60	60	60	56	56	56	53	53	53	50	50	50	48	48	48
	21-27	61	61	61	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51
110 mph	8-20	60	60	60	56	56	56	53	53	53	50	50	50	48	48	48
	21-27	61	61	61	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51
115 mph	8-20	60	60	60	56	56	56	53	53	53	50	50	50	48	48	48
	21-27	61	61	61	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51
120 mph	8-20	60	60	60	56	56	56	53	53	53	50	50	50	48	48	48
	21-27	61	61	61	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51
130 mph	8-20	60	60	60	56	56	56	53	53	53	50	50	50	48	48	48
	21-27	61	61	61	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51
140 mph	8-20	60	60	60	56	56	56	53	53	53	50	50	50	48	48	48
	21-27	61	61	61	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51
150 mph	8-20	60	60	60	56	56	56	53	53	53	50	50	50	48	48	48
	21-27	61	61	61	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51
160 mph	8-20	60	60	60	56	56	56	53	53	53	50	50	50	48	48	48
	21-27	61	61	61	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51
170 mph	8-20	60	60	54	56	56	54	53	53	53	50	50	50	48	48	48
	21-27	61	61	61	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51
175 mph	8-20	60	60	48	56	56	48	53	53	48	50	50	48	48	48	48
	21-27	61	61	61	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51
180 mph	8-20	60	59	44	56	56	44	53	53	44	50	50	44	48	48	44
	21-27	61	61	60	57	57	57	53	53	53	51	51	51	48	48	48
	28-45	64	64	64	60	60	60	56	56	56	53	53	53	51	51	51

Wind Speed (mph)	Roof Slope (deg.)	110 psf*			120 psf*			Exposed Mod.			Edge Mod.		
		Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3
90 mph	8-20	45	45	45	43	43	43	116	114	102	104	84	76
	21-27	48	48	48	44	44	44	114	114	114	109	91	85
	28-45	48	48	48	48	48	48	111	111	110	105	96	86
95 mph	8-20	45	45	45	43	43	43	116	106	96	96	79	72
	21-27	48	48	48	44	44	44	114	114	108	103	85	80
	28-45	48	48	48	48	48	48	111	111	104	100	90	82
100 mph	8-20	45	45	45	43	43	43	116	99	88	89	75	68
	21-27	48	48	48	44	44	44	114	107	101	97	81	76
	28-45	48	48	48	48	48	48	111	110	99	96	86	77
105 mph	8-20	45	45	45	43	43	43	116	93	82	84	72	64
	21-27	48	48	48	44	44	44	114	100	96	93	76	72
	28-45	48	48	48	48	48	48	111	105	96	90	82	74
110 mph	8-20	45	45	45	43	43	43	114	87	78	79	67	61
	21-27	48	48	48	44	44	44	114	96	89	88	73	68
	28-45	48	48	48	48	48	48	111	100	89	86	78	72
115 mph	8-20	45	45	45	43	43	43	105	82	73	74	64	57
	21-27	48	48	48	44	44	44	111	90	84	84	69	65
	28-45	48	48	48	48	48	48	107	96	85	82	75	67
120 mph	8-20	45	45	45	43	43	43	98	77	69	72	61	51
	21-27	48	48	48	44	44	44	105	85	79	80	66	61
	28-45	48	48	48	48	48	48	102	91	81	79	72	64
130 mph	8-20	45	45	45	43	43	43	85	69	64	64	52	41
	21-27	48	48	48	44	44	44	96	77	72	74	60	54
	28-45	48	48	48	48	48	48	96	83	73	72	66	59
140 mph	8-20	45	45	45	43	43	43	76	64	52	59	42	33
	21-27	48	48	48	44	44	44	87	72	64	68	54	44
	28-45	48	48	48	48	48	48	85	76	67	67	61	52
150 mph	8-20	45	45	45	43	43	43	68	57	39	53	35	29
	21-27	48	48	48	44	44	44	80	64	59	64	45	36
	28-45	48	48	48	48	48	48	78	72	64	64	57	44
160 mph	8-20	45	45	45	43	43	43	64	44	32	48	32	25
	21-27	48	48	48	44	44	44	74	59	48	60	38	30
	28-45	48	48	48	48	48	48	72	65	57	58	49	38
170 mph	8-20	45	45	45	43	43	43	59	35	29	41	27	22
	21-27	48	48	48	44	44	44	69	49	37	55	33	25
	28-45	48	48	48	48	48	48	67	61	48	51	42	32
175 mph	8-20	45	45	45	43	43	43	56	33	27	39	25	21
	21-27	48	48	48	44	44	44	66	44	32	52	32	24
	28-45	48	48	48	48	48	48	65	59	44	48	39	30
180 mph	8-20	45	45	44	43	43	43	52	32	25	37	24	20
	21-27	48	48	48	44	44	44	64	39	30	49	29	22
	28-45	48	48	48	48	48	48	64	57	39	42	37	28

= min 72" span; = min 64" span; = min 48" span
= Shaded cells indicate conditions in which UFO Mid Clamp connection capacity is exceeded.

* = Note: additional installation requirement for CAMO module clamp.

REV 02/09/2021

Grouping of ASCE 7-16 Roof Zones (Gable)

Roof Slope	8° - 27°			28° - 45°		
Group	Group 1	Group 2	Group 3	Group 1	Group 2	Group 3
ASCE 7-16 Roof Zones	1 2e	2n 2r 3e	3r	1 2e 2r	2n 3r	3e

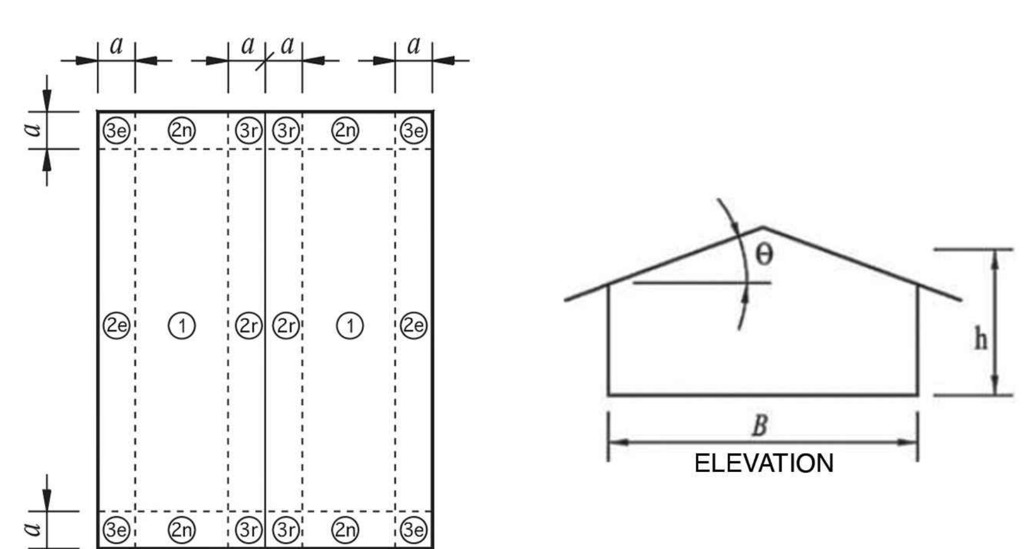


Figure 2: ASCE Roof Zone Locations for Gable Roofs

Notation (Per ASCE 7-16)

a = 10% of least horizontal dimension or 0.4h, whichever is smaller, but not less than either 4% of least horizontal dimension or 3 ft (0.9 m). If an overhang exists, the edge distance shall be measured from the outside edge of the overhang. The horizontal dimensions used to compute the edge distance shall not include any overhang distances.

B = Horizontal dimension of building measured normal to wind direction, in ft (m).

h = Mean roof height, in ft (m).

θ = Angle of plane of roof from horizontal, in degrees.

**Wind pressure loads used to generate the span tables for modules with maximum lengths of 86" and 92.5" are based on the wind tunnel study "*Design Wind Loads for Solar Modules Mounted Parallel to the Roof of a Low-rise Building*"[1], referenced in ASCE 7-16 Section 29.4.4.

1. Sarah E. Stenabaugh 2015 *Design Wind Loads for Solar Modules Mounted Parallel to the Roof of a Low-rise Building*, University of Western Ontario, Ph.D Program Dissertation.

2 / - **GABLE ROOF FLUSH MOUNT SYSTEM SPAN TABLE**
NOT TO SCALE

COMPONENTS

PRE-INSTALLATION

- ☐ Verify module compatibility.

TOOLS REQUIRED

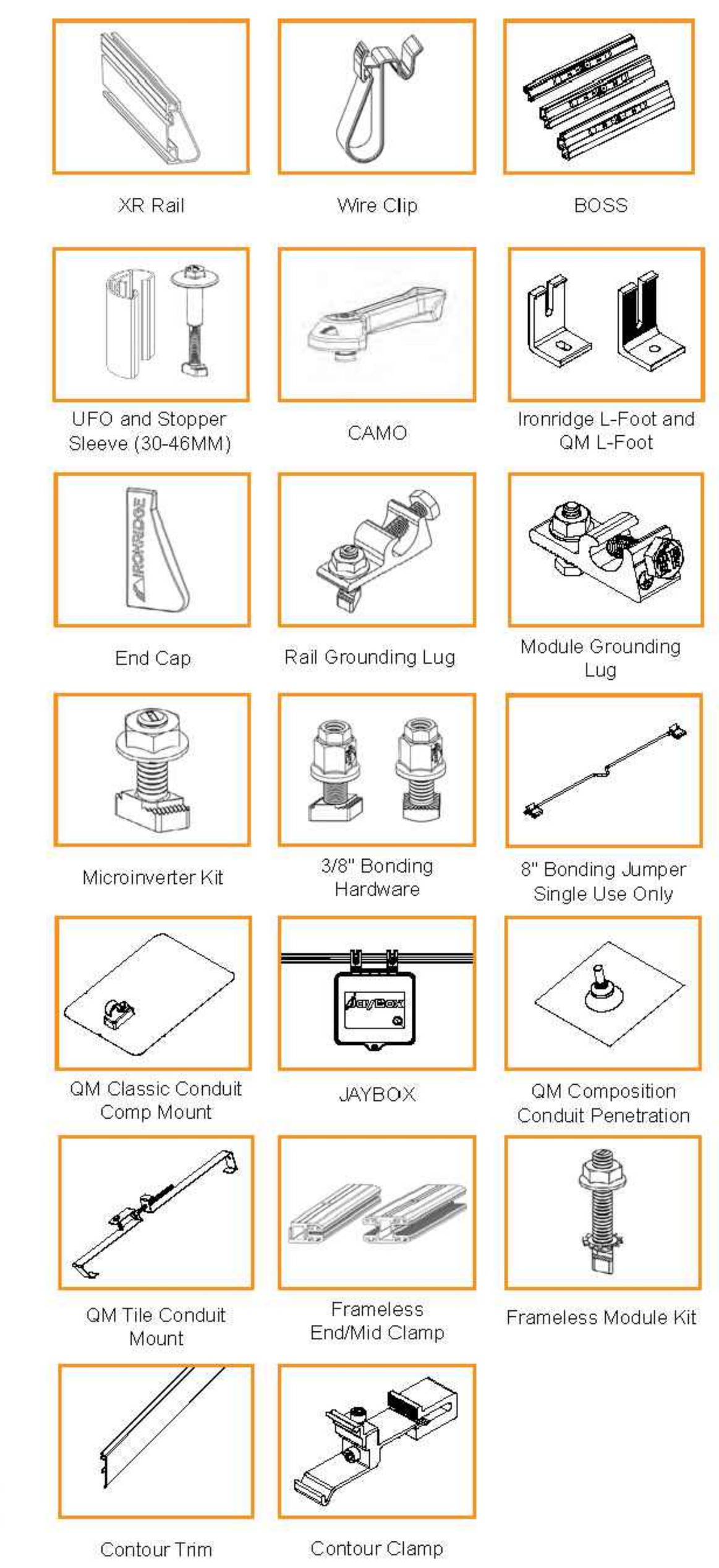
- ☐ Cordless Drill (non-impact)
- ☐ Impact Driver (for lag bolts)
- ☐ Torque Wrench (0-250 in-lbs)
- ☐ 7/16" Socket
- ☐ 1/2" Socket
- ☐ 9/16" Socket
- ☐ 7/32" Drill bit
- ☐ 1/8" Drill bit
- ☐ 1/4" Drill bit
- ☐ T30 Torx Bit
- ☐ Channel Lock Pliers
- ☐ #3 Phillips Bit
- ☐ Paddle Bit

BONDING HARDWARE TORQUE VALUES

Please refer to each attachment's individual section for full details on all torque values and instructions.

- ☐ Universal Fastening Object (7/16" Socket): 80 in-lbs
- ☐ Rail Grounding Lug Nut (7/16" Socket): 80 in-lbs
- ☐ Module Grounding Lug
  - ☐ Grounding Nut (7/16" Socket): 60 in-lbs
  - ☐ Grounding Lug Terminal Screws (7/16" Socket): 20 in-lbs
- ☐ Microinverter Kit Nuts (7/16" Socket): 80 in-lbs
- ☐ Frameless Module Kit Nuts (7/16" Socket): 80 in-lbs
- ☐ 3/8" Bonding Hardware Nuts (7/16" Socket): 250 in-lbs
- ☐ Contour Clamp (T-30 Torx Bit): 80 in-lbs

COMPONENTS



➢ **Unless otherwise noted, all components have been evaluated for multiple use. They can be uninstalled and reinstalled in the same or new location.**

1 / - **COMPONENTS INSTALLATION**
NOT TO SCALE

Borrelli & Associates, Inc.
Consulting Electrical Engineers
2032 N. Gateway Boulevard
Fresno, CA. 93727
Phone: 559-233-4138
http://www.borrelliengineering.com/
ca-bai@borrelliengineering.com

SCAN ME

BAI Project Number :	23183
Drawn By:	BAI
Checked By:	JB

No.	Revision Description	Date
B1	Building Dept. Plan Check 24-0097	05/15/2024
F1	Fresno Fire Dept. Plan Check	05/15/2024
C1	County Generated Changes	06/04/2024
B2	Fresno Fire Department Review	06/27/2024

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721

Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:
ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-07-09
Project no.: T90204
File name:

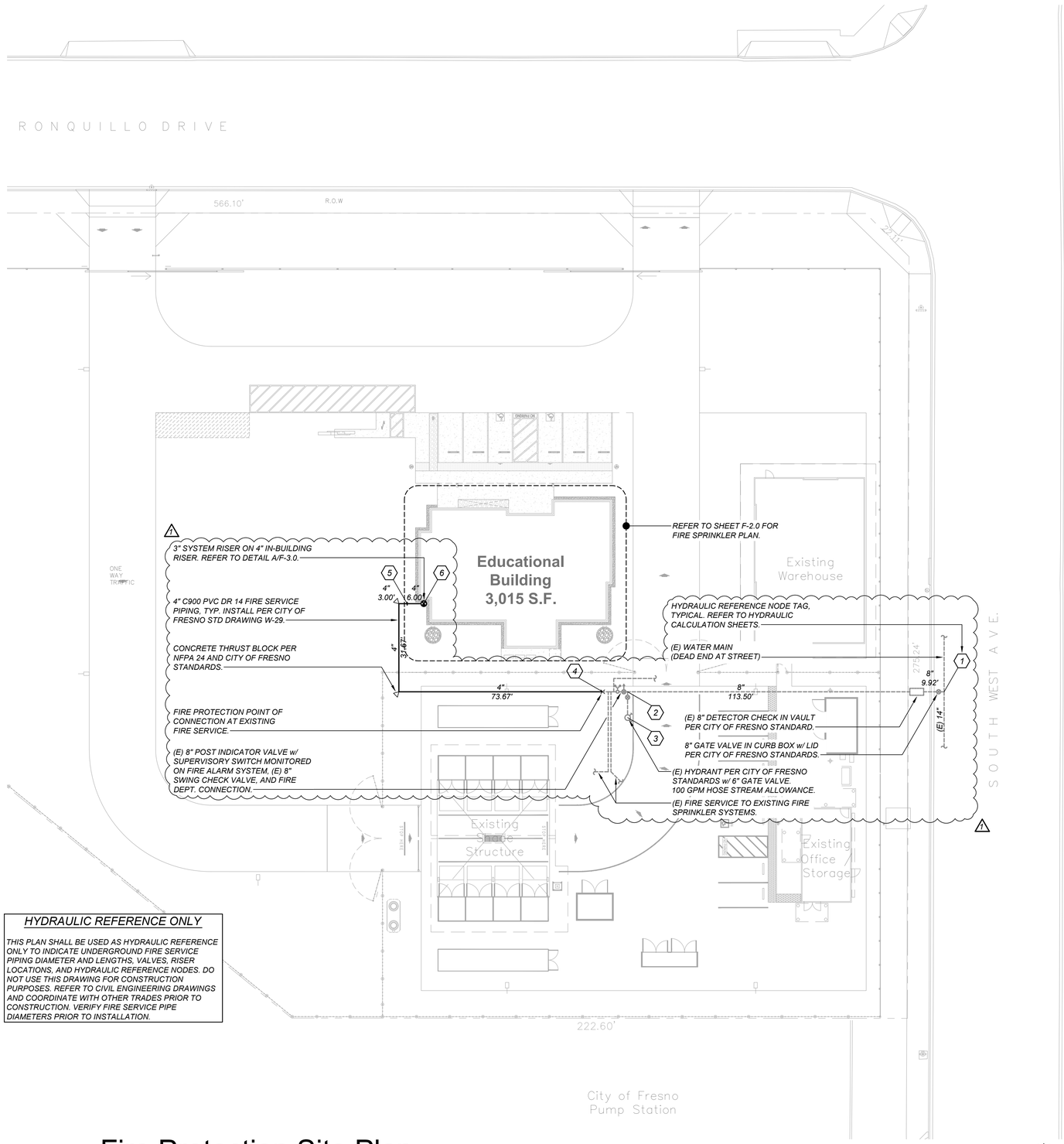
Sheet Content:
TYPICAL SOLAR DETAILS

Fresno County Department of Public Works and Planning Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:
E7.04

Sheet 34 of 34

DRAWN BY: <INITIALS> PLOT DATE: 2024-07-09



HYDRAULIC REFERENCE ONLY

THIS PLAN SHALL BE USED AS HYDRAULIC REFERENCE ONLY TO INDICATE UNDERGROUND FIRE SERVICE PIPING DIAMETER AND LENGTHS, VALVES, RISER LOCATIONS, AND HYDRAULIC REFERENCE NODES. DO NOT USE THIS DRAWING FOR CONSTRUCTION PURPOSES. REFER TO CIVIL ENGINEERING DRAWINGS AND COORDINATE WITH OTHER TRADES PRIOR TO CONSTRUCTION. VERIFY FIRE SERVICE PIPE DIAMETERS PRIOR TO INSTALLATION.

Fire Protection Site Plan

SCALE: 1" = 20'

Scale: 1" = 20'-0"

GENERAL NOTES

SPRINKLER SYSTEM DESIGNED IN ACCORDANCE WITH NFPA 13 (2022), CFC/CBC (2022), AND CITY OF FRESNO FIRE DEPARTMENT STANDARDS. ALL WORK TO BE DONE IN ACCORDANCE WITH THESE PLANS AND ALL NATIONAL, STATE, AND LOCAL CODES.

THESE DRAWINGS ARE NOT COORDINATED PLANS (AMONGST THE TRADES). IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FURNISH AND INSTALL ALL ITEMS REQUIRED FOR A COMPLETE ACCEPTABLE WORKING INSTALLATION, WHETHER SHOWN OR NOT SHOWN, APPLICABLE TO ALL CITED CODES AND STANDARDS. IT SHALL BE THE RESPONSIBILITY OF THE SPRINKLER INSTALLATION CONTRACTOR TO COORDINATE WITH ALL TRADES.

CONTRACTOR TO REVIEW FOR BID, THE PLANS AS DESIGNED BY ENGINEER. ANY ALTERNATE PROPOSED DESIGN CHANGES OR REVISIONS BY CONTRACTOR, ARE TO BE SUBMITTED IN WRITTEN FORMAT, REVIEWED AND RESPONDED TO, BY ENGINEER PRIOR TO BIDDING. AFTER AWARD OF BID, ALL DEVIATIONS FROM THE ORIGINAL DESIGN INTENTION SHALL BE CLOUDED AND NOTED ON CONTRACTOR ISSUED SHOP DRAWINGS TO ENGINEER, WHICH HAVE BEEN COORDINATED AMONGST THE TRADES, FOR REVIEW AND APPROVAL BY ENGINEER.

GENERAL CONTRACTOR IS SOLELY RESPONSIBLE FOR INSURING ALL SUB-CONTRACTOR'S COORDINATE SHOP DRAWINGS PRIOR TO ORDERING OR INSTALLATION OF ANY EQUIPMENT, DEVICE, MATERIAL, ETC. SUBMISSION OF SHOP DRAWINGS TO THE ENGINEER CONSTITUTES THAT THE DRAWINGS SUBMITTED HAVE BEEN COORDINATED AMONGST THE TRADES. FAILURE TO COORDINATE ALL SHOP DRAWINGS AMONGST THE TRADES, FOR REVIEW AND APPROVAL BY ENGINEER, WILL NOT CONSTITUTE A CHANGE ORDER TO THE OWNER, FOR UNIDENTIFIED FIELD COORDINATION ISSUES.

ANY REVISIONS OR DEVIATIONS THAT ARISE FROM COORDINATION AND CONSTRUCTION OF INSTALLATION METHODS AND MEANS AMONGST THE TRADES DURING CONSTRUCTION, SHALL BE PROVIDED TO THE ARCHITECT BY RFI, DETAILING COORDINATION ISSUE AND PROPOSED SOLUTION. ONCE REVIEWED AND APPROVED BY ENGINEER, THE DESIGN REVISIONS OR DEVIATIONS SHALL BE APPROVED BY THE FRESNO FIRE DEPARTMENT, THEN COORDINATED IN THE FIELD AMONGST THE IMPACTED TRADES, AND SHOWN ON THE AS-BUILT DRAWINGS. A COMPLETE, ACCURATE SET OF AS-BUILT DRAWINGS SHALL BE MAINTAINED ONSITE DURING CONSTRUCTION, AND ARE TO BE ISSUED TO ARCHITECT AND ENGINEER UPON COMPLETION, INSPECTION, AND TESTING OF INSTALLATION.

CONTRACTOR TO PROVIDE SIX (6) SETS OF THE FOLLOWING:

A. FULLY COORDINATED AMONGST THE TRADES INSTALLATION SHOP DRAWINGS, INCLUDING ALL PIPE CUT LENGTHS, FITTINGS, HANGERS, BRACES, SPRINKLERS WITH LEGEND, HYDRAULIC AND SEISMIC CALCULATIONS, AND PRODUCT SUBMITTAL.
B. BOUND SUBMITTAL TO INCLUDE COVER PAGE, PIPING, HARDWARE, AND MATERIALS (INCLUDING FIRE STOPPING). COVER PAGE TO INCLUDE PROJECT NAME, SPRINKLER CONTRACTOR, GENERAL CONTRACTOR, ARCHITECT, AND DATE SUBMITTED FOR REVIEW.

ALL ITEMS REQUIRED BY NFPA 13 (2022) CHAPTER 28 (FOR WORKING DRAWINGS) SHALL BE PROVIDED ON THE SHOP DRAWINGS. SUBMITTALS ARE IN ADDITION TO, AND NOT IN LIEU OF, THIS REQUIREMENT.

FINAL INSTALLATION SPACING FOR SPRINKLER SYSTEM PIPING AND SPRINKLERS, MAY VARY WITH FIELD COORDINATION ISSUES. ALL VARIANCES TO COMPLY WITH LISTING OF SPRINKLERS, NFPA 13 (2022), CFC/CBC (2022), AND CITY OF FRESNO FIRE DEPARTMENT REQUIREMENTS.

LOCATION OF SEISMIC BRACING AND HANGERS ARE SCHEMATIC IN NATURE AND INTENDED TO SHOW APPROXIMATE LOCATIONS. SPRINKLER CONTRACTOR SHALL BE RESPONSIBLE FOR SHOWING THE EXACT LOCATION OF SEISMIC RESTRAINTS ON SUBMITTED COORDINATED AMONGST THE TRADES SHOP DRAWINGS, AND FINAL AS-BUILT DRAWINGS.

SUBMITTED SHOP DRAWINGS SHALL DESIGNATE THE TYPE AND LOCATION OF EACH BRACE, HANGER OR RESTRAINT, AND SHALL BE ACCOMPANIED BY A DETAIL WITH LEGEND, AND CALCULATIONS (IF APPLICABLE) IN ACCORDANCE WITH NFPA 13 (2022), CFC/CBC (2022), AND THE APPROPRIATE SEISMIC DESIGN CRITERIA FOR THE PROJECT.

SHOP DRAWINGS THAT HAVE NOT BEEN COORDINATED AMONGST THE TRADES UTILIZING THE MOST CURRENT 2D/3D FILES, WILL NOT BE ACCEPTED FOR REVIEW.

ELECTRONIC (DIGITAL) SUBMITTAL IN PDF FORMAT IS ACCEPTABLE, IF PREPARED IN ACCORDANCE WITH SPECIFICATION 2105 00, SECTION (1-10, A.5). SUBMITTALS NOT CONFORMING TO THE SPECIFICATION WILL NOT BE REVIEWED.

SITE UNDERGROUND PLAN NOTES

1. UNDERGROUND FIRE PIPING INSTALLATION CONTRACTOR SHALL COORDINATE WITH EXISTING BUILDINGS, SITE UTILITIES, TREES, ROADWAYS, AND EQUIPMENT PRIOR TO INSTALLATION.
2. UNDERGROUND FIRE PIPING INSTALLATION CONTRACTOR SHALL COORDINATE WITH PLUMBING, CIVIL, LANDSCAPE, AND MECHANICAL PIPING PLANS PRIOR TO INSTALLATION.
3. ALL UNDERGROUND PIPE LENGTHS INDICATED ON PLANS REFLECT TOTAL PIPE LENGTH (CENTER TO CENTER) WITH NO TAKEOUT FOR FITTINGS.
4. ALL UNDERGROUND PVC, C-900, OR OTHER PLASTIC PIPING UTILIZED SHALL BE EQUIPPED WITH A SUITABLE MAGNETIC LOCATION TAPE INSTALLED APPROPRIATELY TO THE TOP OF THE PIPING.
5. EXISTING UNDERGROUND UTILITIES AND IMPROVEMENTS ARE SHOWN IN THEIR APPROXIMATE LOCATIONS BASED UPON RECORD INFORMATION AVAILABLE TO THE ENGINEER AT THE TIME OF PREPARATION OF THESE PLANS. LOCATIONS MAY NOT HAVE BEEN VERIFIED IN THE FIELD AND NO GUARANTEE IS MADE AS TO THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN.
6. THE CONTRACTOR SHALL NOTIFY UTILITY COMPANIES AT LEAST 2 WORKING DAYS IN ADVANCE OF CONSTRUCTION TO FIELD LOCATE UTILITIES. CALL UNDERGROUND SERVICE ALERT (U.S.A.), AT 8-1-1.
7. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE THE EXISTENCE AND LOCATION OF THOSE UTILITIES SHOWN ON THESE PLANS OR INDICATED IN THE FIELD BY LOCATING SERVICES. ANY ADDITIONAL COSTS INCURRED AS A RESULT OF CONTRACTOR'S FAILURE TO VERIFY LOCATIONS OF EXISTING UTILITIES PRIOR TO BEGINNING OF CONSTRUCTION IN THEIR VICINITY SHALL BE BORNE BY THE CONTRACTOR AND ASSUMED INCLUDED AND MERGED IN THE CONTRACT UNIT.

SITE PIPING SPECIFICATIONS

PIPING TO BE AS FOLLOWS:

1. UNDERGROUND SITE PIPING SHALL BE DR14 PVC UPSTREAM OF THE FIRE DEPARTMENT CONNECTION PER LOCAL AUTHORITY HAVING JURISDICTION REQUIREMENTS, AND SHALL BE DR14 PVC DOWNSTREAM OF THE FIRE DEPARTMENT CONNECTION.
2. UNDERGROUND PIPING INSTALLATION TO MEET REQUIREMENTS OF NFPA 13 (2022), NFPA 24 (2019), CBC/CFC (2022), AND CITY OF FRESNO FIRE DEPARTMENT REQUIREMENTS.
3. ALL PIPE TO BE INSTALLED WITH A 36" MIN. BURY, FROM TOP OF PIPE, OR AS APPLICABLE TO LOCATION, AS PER NFPA 13 (2022), NFPA 24 (2019). CBC/CFC (2022), DIVISION OF THE STATE ARCHITECT - DEPARTMENT OF GENERAL SERVICES, AND FRESNO COUNTY/CAL FIRE REQUIREMENTS.
4. ALL THRUST BLOCKS & RESTRAINING GLANDS TO BE POURED IN PLACE AND SIZED IN ACCORDANCE TO NFPA 13 (2022), NFPA 24 (2019), CBC/CFC (2022), AND CITY OF FRESNO REQUIREMENTS.
5. UNDERGROUND PIPING RISING UP AT BASE OF RISER SHALL BE A STAINLESS STEEL, SINGLE PIECE IN-BUILDING RISER, LISTED FOR FIRE PROTECTION USE.
6. ALL MECHANICAL JOINT FITTINGS SHALL BE COATED WITH A NON-OXIDIZING, CORROSIVE PROHIBITING COATING, AND WRAPPED WITH 2 MIL POLY WRAP.
7. ALL UNDERGROUND PIPING, COATED / WRAPPED FITTINGS, VALVES, DETECTION WIRE LOCATION AND TYPE, ETC TO BE INSPECTED BY A REPRESENTATIVE FROM THE FRESNO FIRE DEPARTMENT BEFORE BACKFILL.
8. PER NFPA 24 §6.2.9(1)(a), THE POST INDICATOR VALVE MINIMUM DISTANCE TO BUILDING SHALL NOT BE LESS THAN THE HEIGHT OF THE EXTERIOR WALL FACING THE POST INDICATOR VALVE OR AS ALLOWED BY THE FRESNO FIRE DEPARTMENT.

THIS PLAN SHALL BE USED FOR DESIGN REFERENCE ONLY. INSTALLING CONTRACTOR SHALL SUBMIT INSTALLATION DRAWINGS FOR PERMIT AND APPROVAL.

PROJECT INFORMATION

AUTHORITY HAVING JURISDICTION	FRESNO FIRE DEPARTMENT PREVENTION DIVISION 911 H. STREET FRESNO, CALIFORNIA 93721 (559) 621-4000
APPLICABLE CODES	CBC 2022 CFC 2022 NFPA 13 (2022) NFPA 24 (2019)
WATER PURVEYOR	CITY OF FRESNO
WATER FLOW DATA	45 PSI - STATIC 35 PSI - RESIDUAL 1350 GPM
BUILDING AREA	TOTAL: ±3,015 FT²

NFPA DESIGN CRITERIA

CONSTRUCTION TYPE	II-B
MAXIMUM SPRINKLER COVERAGE PER TABLE 10.2.4.2.1(a)-(d)	225 FT² - LIGHT HAZARD 130 FT² - ORDINARY HAZARD

F1 FRESNO FIRE DEPT. PLAN CHECK 2024-03-07

REGISTERED PROFESSIONAL ENGINEER MICHAEL O. CANNON No. M23588 Exp. 9-30-25 MECHANICAL STATE OF CALIFORNIA

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 Fresno, CA 93727
(559) 431-0101 23139 FAX (559) 431-1362

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C 40030 REN 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721
Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-20
Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\6 F\F-1.0 - Fire Protection Site Plan

Sheet Content:

FIRE PROTECTION SITE PLAN

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

F-1.0

Sheet of

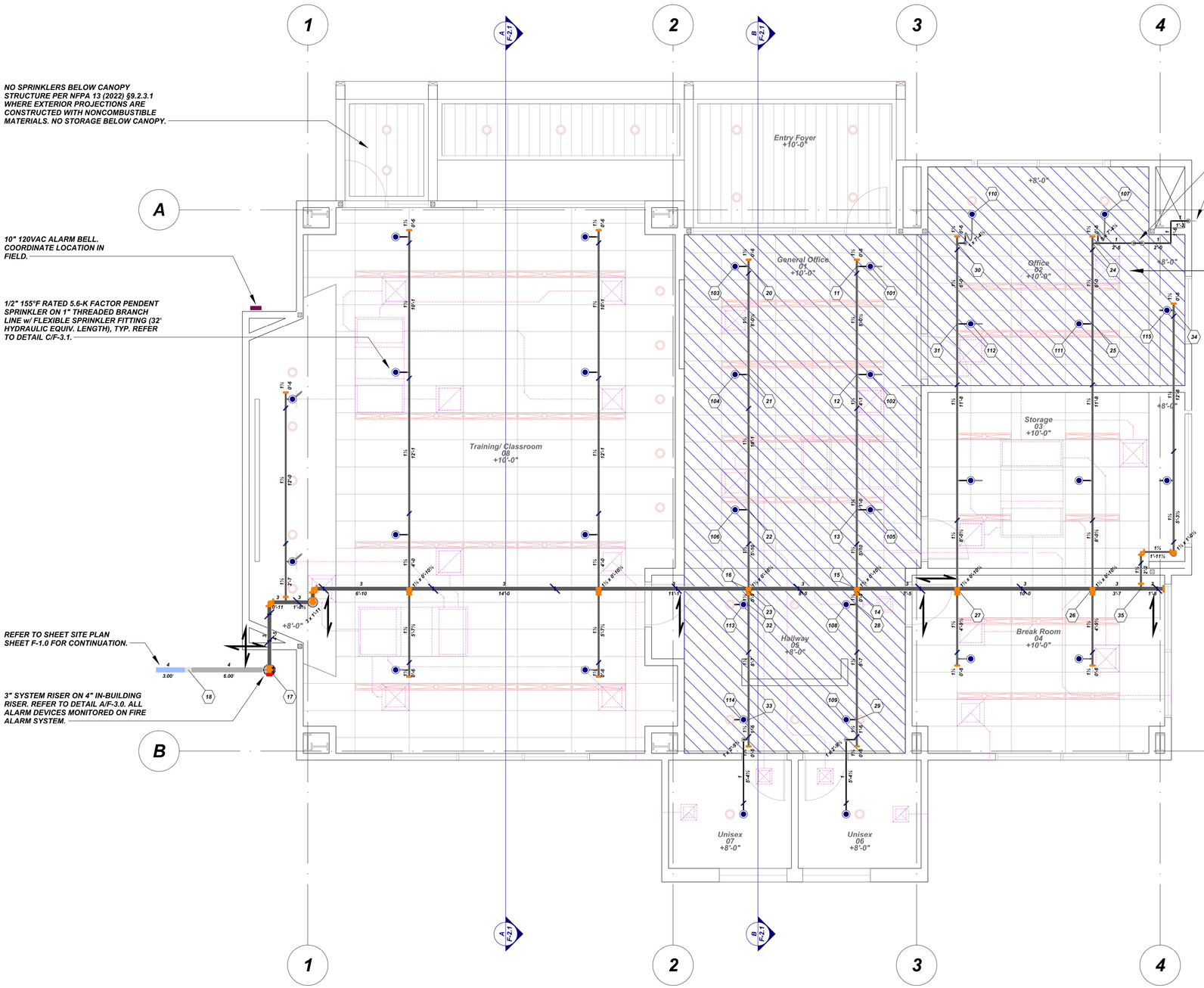
Plot Date: 2024-05-20

20 May 2024 10:22 AM P:\2023\23139 Fresno County ECC Education Building\4-Drawings\6 F\F-1.0 - Fire Protection Site Plan.dwg bolt

Sprinkler Legend

Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
◉	Victaulic	V2708	FL-QR	32	5.6	Pendent	½	Quick	Chrome	155°F	
				Total = 32							

SPRINKLER LEGEND DATA IS FOR PLAN REVIEW ONLY. THE INSTALLING CONTRACTOR SHALL VERIFY THE ACCURACY OF THE SPRINKLER LAYOUT AND SPRINKLER HEAD QUANTITIES TO MEET NFPA 13 STANDARDS. NO PRICING ADJUSTMENTS WILL BE PERMITTED FOR SPRINKLER HEADS ADDED BY THE CONTRACTOR.



Hydraulic Information

Remote Area 1	
OCCUPANCY CLASSIFICATION	Light Hazard
DENSITY (gpm/ft²)	0.100 for 1500.00ft² (Actual 954.31ft²)
QUICK RESPONSE REDUCTION	10'-0 Ceiling (40.0%) 900.00ft²
TOTAL HOSE STREAMS	100.00
TOTAL HEADS FLOWING	15
K-FACTOR	5.6
TOTAL WATER REQUIRED	388.20
TOTAL PRESSURE REQUIRED	37.345
BASE of RISER (gpm)	288.20
BASE of RISER (psi)	32.355
SAFETY MARGIN (psi)	+6.658 (15.1%)

DESIGN CRITERIA NOTES

LIGHT HAZARD NOTES:

1. AREAS OF LIGHT HAZARD OCCUPANCY SHALL INCLUDE: LOBBY/RECEPTION AREAS, OFFICES, EXAM ROOMS, CONFERENCE ROOMS, CORRIDORS, BREAK ROOMS, ATTICS, AND SIMILAR USE AREAS.
2. SPRINKLER COVERAGE SHALL NOT EXCEED 225 FT² PER SPRINKLER. SPRINKLER SPACING SHALL NOT EXCEED 7'-6" FROM ANY WALL OR 15-FEET BETWEEN SPRINKLERS, WITH A MINIMUM 6-FOOT SPACING BETWEEN SPRINKLERS.
3. LIGHT HAZARD OCCUPANCY DESIGN DENSITY SHALL BE 0.10 GPM/FT² OVER A MINIMUM REMOTE AREA OF 1500 FT². NOTE, PER NFPA 13 (2022) Fig. 19.2.3.2.3.1, THE DESIGN AREA MAY BE REDUCED FOR QUICK-RESPONSE SPRINKLERS.

STANDARD CITY OF FRESNO FIRE DEPT. NOTES

1. STORAGE APPLICATION:
   - 1.1. STORAGE LIMITED TO 12-FEET WITH A MINIMUM 18-INCHES FROM THE PENDENT SPRINKLER DEFLECTOR TO THE TOP OF STORAGE.
   - 1.2. STORAGE LIMITED TO 12-FEET WITH A MINIMUM 36-INCHES FROM UPRIGHT SPRINKLER DEFLECTOR TO THE TOP OF THE STORAGE.
   - 1.3. NO HIGH PILED STORAGE PERMITTED.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAKE WORK AVAILABLE FOR INSPECTION.
3. A COPY OF THE APPROVED PLAN SET SHALL BE ON SITE DURING ANY FIRE DEPARTMENT INSPECTION.
4. A PERMANENT AND DURABLE GENERAL INFORMATION SIGN PER NFPA 13 (2022) §29.6 SHALL BE INSTALLED IN ADDITION TO THE HYDRAULIC DESIGN INFORMATION SIGN.
5. ALL CBC OR CFC SUBSTITUTIONS SHALL BE NOTED. IT IS THE DESIGNER'S/CONTRACTOR'S RESPONSIBILITY TO PROVIDE ADEQUATE AND NECESSARY DOCUMENTATION WHEN USING THESE KINDS OF EXCEPTIONS PER CFC, SECTION 105.
6. IF MECHANICAL TEES ARE INSTALLED, PIPE COUPONS SHALL BE HUNG WITHIN 6-INCHES OF THE TEE.

THIS PLAN SHALL BE USED FOR DESIGN REFERENCE ONLY. INSTALLING CONTRACTOR SHALL SUBMIT INSTALLATION DRAWINGS FOR PERMIT AND APPROVAL.

Fire Protection Plan

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

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

PROJECT INFORMATION

AUTHORITY HAVING JURISDICTION	FRESNO FIRE DEPARTMENT PREVENTION DIVISION 911 H. STREET FRESNO, CALIFORNIA 93721 (559) 621-4000
APPLICABLE CODES	CBC 2022 CFC 2022 NFPA 13 (2022) NFPA 24 (2019)
WATER PURVEYOR	CITY OF FRESNO
WATER FLOW DATA	45 PSI - STATIC 35 PSI - RESIDUAL 1350 GPM
BUILDING AREA	TOTAL: ±3,015 FT²

NFPA DESIGN CRITERIA

CONSTRUCTION TYPE	II-B
MAXIMUM SPRINKLER COVERAGE PER TABLE 10.2.4.2.1(a)-(d)	225 FT² - LIGHT HAZARD 130 FT² - ORDINARY HAZARD

SPRINKLER LEGEND

SYMBOL	DESCRIPTION
	LATERAL SEISMIC BRACE (PERPENDICULAR)
	LONGITUDINAL SEISMIC BRACE (PARALLEL)
	4-WAY SEISMIC BRACE (PARALLEL/PERPENDICULAR)
	LINE RESTRAINT
	PIPE HANGERS
	PENDENT SPRINKLER ON 1" DROP
	UPRIGHT SPRINKLER ON BRANCH LINE
	SEISMIC SEPARATION ASSEMBLY
	HYDRAULIC NODE
	FIRE PIPING
	EXISTING FIRE PIPING

REGISTERED PROFESSIONAL ENGINEER
MICHAEL D. CANNON
No. M23588
Exp. 9-30-25
MECHANICAL
STATE OF CALIFORNIA

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 (559) 431-0101
Fresno, CA 93727 FAX (559) 431-1362
23139

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C 40030 REN 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721
Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-20
Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\6 F\F-2.0 - Fire Protection Plan

Sheet Content:

FIRE PROTECTION PLAN

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

F-2.0

Sheet of

Plot Date: 2024-05-20

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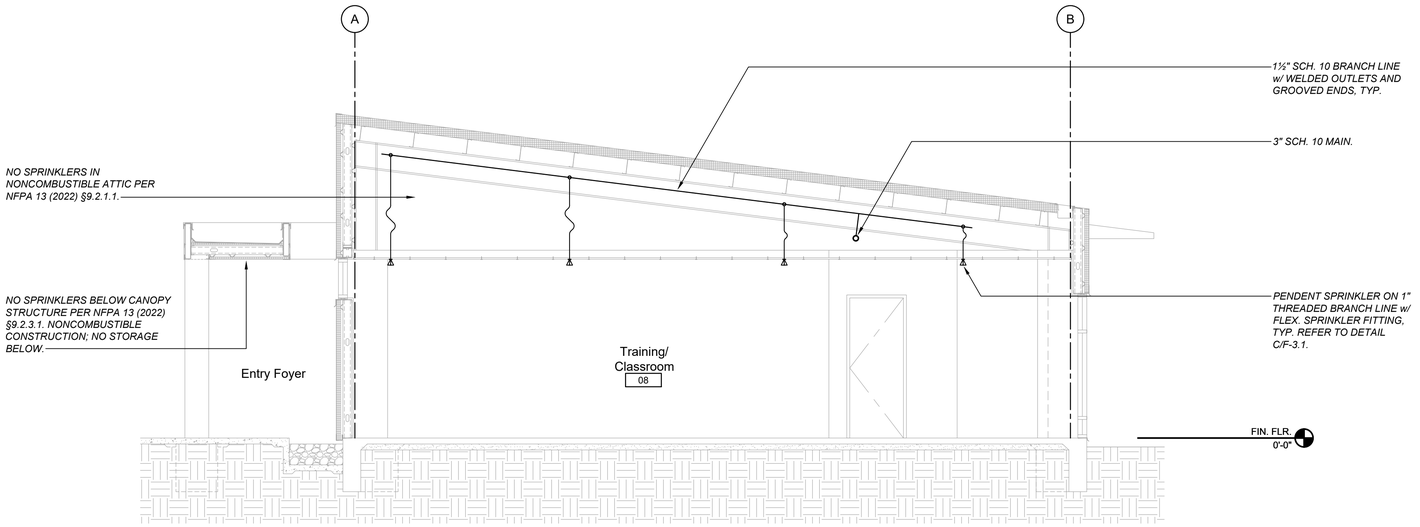
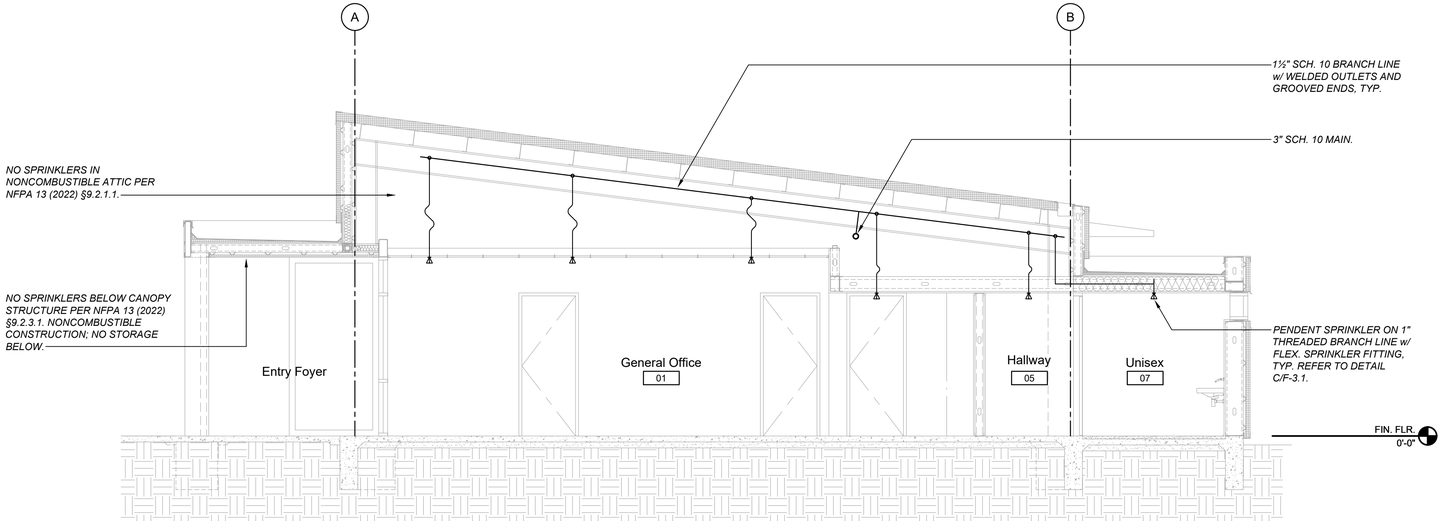


BUILDING SECTION

SCALE: NONE

FRM010

A F-2.1



BUILDING SECTION

SCALE: NONE

FRM010

B F-2.1

SPRINKLER SYSTEM NOTES

SPRINKLER SYSTEM DESIGN CRITERIA:

1. SYSTEM SHALL BE DESIGNED TO CONFORM WITH NFPA 13 (2022 CALIFORNIA EDITION), CFC/CBC (2022), AND CITY OF FRESNO FIRE DEPARTMENT STANDARDS.
2. SPRINKLER DISCHARGE DENSITY FOR THIS PROJECT SHALL BE IN ACCORDANCE WITH NFPA 13 (2022) §19.2.3.1 WITH DESIGN DENSITY IN ACCORDANCE WITH TABLE §19.2.3.1.1.
   - 2.1. LIGHT HAZARD OCCUPANCY SHALL INCLUDE ALL OFFICE, CORRIDOR, DINING, CONCEALED ATTIC SPACES, RESTROOMS, AND SIMILAR AREAS. LIGHT HAZARD OCCUPANCY SHALL HAVE A DESIGN DENSITY OF 0.10 GPM/FT² OVER A MINIMUM REMOTE AREA OF 1500 FT². THE MAXIMUM ALLOWABLE PROTECTION AREA OF COVERAGE FOR A SPRINKLER SHALL BE IN ACCORDANCE WITH THE VALUE INDICATED IN TABLE 10.2.4.2.1(a) AND SHALL NOT EXCEED 225FT².
   - 2.2. ORDINARY HAZARD GROUP I (OH1) SHALL FOOD SERVICE AREAS, ELECTRICAL AND MECHANICAL EQUIPMENT ROOMS, PORTE COCHERES, AND SIMILAR AREAS INDICATED IN NFPA 13 (2022) §A.4.3.3.1 OH1 OCCUPANCY SHALL HAVE A DENSITY OF 0.15GPM/FT² OVER A MINIMUM REMOTE AREA OF 1500FT². THE MAXIMUM ALLOWABLE PROTECTION AREA OF COVERAGE FOR A SPRINKLER SHALL BE IN ACCORDANCE WITH THE VALUE INDICATED IN TABLE 10.2.4.2.1(b) - 130FT².
   - 2.3. ORDINARY HAZARD GROUP II (OH2) SHALL INCLUDE AUTOMOTIVE WORKSHOP AREAS, SCIENCE LABORATORIES, STAGES, STORAGE ROOMS, SIMILAR AREAS INDICATED IN NFPA 13 (2022) §A.4.3.3.2 OH2 OCCUPANCY SHALL HAVE A DESIGN DENSITY OF 0.20GPM/FT² OVER A MINIMUM REMOTE AREA OF 1500FT². THE MAXIMUM ALLOWABLE PROTECTION AREA OF COVERAGE FOR A SPRINKLER SHALL BE IN ACCORDANCE WITH THE VALUE INDICATED IN TABLE 10.2.4.2.1(b) - 130FT².
3. MAXIMUM SPRINKLER SPACING SHALL NOT EXCEED 15'-0" ON CENTER, UNLESS SPECIFICALLY LISTED BY THE SPRINKLER MANUFACTURER.
4. HOSE STREAM ALLOWANCE GPM FLOW SHALL BE IN ACCORDANCE WITH THE VALUES INDICATED IN TABLE 19.2.3.1.2: LIGHT HAZARD - 100 GPM; ORD HAZARD - 250 GPM.
5. PER NFPA 13 (2022) §19.2.3.2.3.1, WHERE LISTED QUICK-RESPONSE SPRINKLERS ARE USED THROUGHOUT A SYSTEM OR PORTION OF A SYSTEM HAVING THE SAME HYDRAULIC DESIGN BASIS, THE SYSTEM AREA OF OPERATION SHALL BEPERMITTED TO BE REDUCED WITHOUT REVISING THE DENSITY AS INDICATED IN FIG. 19.2.3.2.3.1. NOTE: REMOTE AREA REDUCTION EXCLUDES EXTENDED COVERAGE SPRINKLER HEADS AND ONLY APPLICABLE TO LIGHT HAZARD OCCUPANCY ONLY.
6. PER NFPA 13 (2022) §19.2.3.2.4, THE SYSTEM REMOTE AREA SHALL BE INCREASED BY 30% WITHOUT REVISING THE DENSITY WHEN SPRAY SPRINKLERS AND CMSA SPRINKLERS ARE USED ON SLOPED CEILINGS WITH A PITCH EXCEEDING 1 IN 6 (A RISE OF 2 UNITS IN A RUN OF 12 UNITS) IN NON-STORAGE APPLICATIONS.
7. PER NFPA 13 (2022) §19.2.3.2.8.1, MULTIPLE ADJUSTMENTS CAN BE MADE TO THE REMOTE AREA WHEN BOTH QUICK RESPONSE SPRINKLER AREA REDUCTIONS AND SLOPED CEILING AREA INCREASE ARE APPLICABLE.
8. THE HYDRAULIC CALCULATION SOURCE SHALL BE TO THE FLOW TEST HYDRANT OR APPLICABLE STREET CONNECTION, ACCORDING TO LOCAL FIRE PREVENTION DISTRICT WATER CURVE DETERMINATIONS AND OR TESTING PROCEDURES. REFER TO SITE PLAN AND HYDRAULIC CALCULATIONS.
9. STORAGE HEIGHT SHALL NOT EXCEED 8-FEET.
10. MICROBIAL INDUCED CORROSION WILL NOT BE A FACTOR FOR THIS SYSTEM.
11. THE FIRE SPRINKLER ALARM SYSTEM SHALL BE DESIGNED, INSTALLED AND PERMITTED BY OTHERS, AND IS NOT IN THE SCOPE OF WORK. SUPERVISORY FLOW DETECTORS AND TAMPER RESISTANT VALVES INSTALLED ON THE OVERHEAD SPRINKLER SYSTEM PIPING WILL BE SUPPLIED AND INSTALLED BY FIRE SPRINKLER CONTRACTOR AND WIRED BY ALARM CONTRACTOR.
12. PER PROJECT SPECIFICATIONS, IF DESIGN OR MATERIALS DIFFER FROM THAT SPECIFIED HEREIN, SUPPLEMENTAL ENGINEERING DESIGN, SUBMITTAL, AND REVIEW SHALL BE REQUIRED.

GENERAL INSTALLATION REQUIREMENTS:

1. OVERHEAD FIRE SPRINKLER PIPING SHALL BE AS FOLLOWS (UNLESS NOTED OTHERWISE ON PLANS):
   - 1.1. PIPING 2-1/2" AND LARGER SHALL BE SCH. 10 BLACK STEEL WITH ROLLED GROOVED FITTINGS, RISER TO BE SCH.10 GALVANIZED STEEL PIPE.
   - 1.2. PIPING 2" AND LESS SHALL BE SCH. 40 BLACK STEEL.
   - 1.3. DRAINAGE PIPING 2" OR SMALLER, DOWNSTREAM OF THE DRAIN VALVE SHALL BE SCH. 40 GALVANIZED PIPE WITH GALVANIZED FITTINGS.
2. WHERE APPLICABLE IN UNOBSTRUCTED CONSTRUCTION CONDITIONS (AS DEFINED PER NFPA 13 §3.3.43.2); PER NFPA 13 (2022) §10.2.6.1.1.1, THE DISTANCE BETWEEN THE SPRINKLER DEFLECTOR AND THE CEILING SHALL BE A MINIMUM OF 1-INCH AND A MAXIMUM OF 12-INCHES THROUGHOUT THE AREA OF COVERAGE OF THE SPRINKLER.
3. WHERE APPLICABLE IN OBSTRUCTION CONSTRUCTION CONDITIONS (AS DEFINED PER NFPA 13 §3.3.43.1); PER NFPA 13 (2022) §10.2.6.1.2, SPRINKLER DEFLECTORS SHALL BE INSTALLED WITH THE DEFLECTORS WITHIN THE HORIZONTAL PLANES OF 1-INCH TO 6-INCHES BELOW THE STRUCTURAL MEMBERS AND A MAXIMUM DISTANCE OF 22-INCHES FROM THE CEILING/ROOF DECK.
4. PER NFPA 13 (2022) §9.4.1.3 UPRIGHT SPRINKLERS SHALL BE INSTALLED WITH THE FRAME ARMS PARALLEL TO THE BRANCH LINE, UNLESS SPECIFICALLY LISTED FOR OTHER ORIENTATION.
5. PER NFPA 13 (2022) §9.5.4.2 DEFLECTORS OF SPRINKLERS SHALL BE ALIGNED PARALLEL TO CEILINGS, ROOFS, OR THE INCLINE OF STAIRS.
6. PER NFPA 13 (2022) §8.3.17.1 CONCEALED SPACES OF EXPOSED COMBUSTIBLE CONSTRUCTION SHALL BE PROTECTED BY SPRINKLERS EXCEPT IN CONCEALED SPACES WHERE SPRINKLERS ARE NOT REQUIRED TO BE INSTALLED BY §9.2.1.1 THROUGH §9.2.1.20 AND §9.2.2.
7. PER NFPA 13 (2022) §9.2.1.1 CONCEALED SPACES OF NONCOMBUSTIBLE WITH MINIMAL COMBUSTIBLE LOADING HAVING NO ACCESS SHALL NOT REQUIRE SPRINKLER PROTECTION.
8. PER NFPA 13 (2106) §9.2.1.3 CONCEALED SPACES FORMED BY STUDS OR JOISTS WITH LESS THAN 6-INCHES BETWEEN THE INSIDE OR NEAR EDGES OF THE STUDS OR JOISTS SHALL NOT REQUIRE SPRINKLER PROTECTION.
9. PER NFPA 13 (2022) §9.2.1.7 CONCEALED SPACES FILLED WITH NONCOMBUSTIBLE INSULATION SHALL NOT REQUIRE SPRINKLER PROTECTION; MAXIMUM 2-INCH AIR GAP AT THE TOP OFTHE SPACE SHALL BE PERMITTED.
10. PER NFPA 13 (2022) §9.2.1.20.2 COMBUSTIBLE SOFFITS, EAVES, OVERHANGS, AND DECORATIVE FRAME ELEMENTS SHALL NOT EXCEED 4-FEET IN WIDTH SHALL NOT REQUIRED SPRINKLER PROTECTION.
11. PER NFPA 13 (2022) §9.2.1.20.4 SPRINKLERS SHALL BE PERMITTED TO BE OMITTED WHERE THE EXTERIOR CANOPIES, ROOFS, PORTE-COCHERES, BALCONIES, DECKS, AND SIMILAR PROJECTIONS ARE CONSTRUCTED WITH MATERIALS THAT ARE NONCOMBUSTIBLE.
12. PER NFPA 13 (2022) §9.2.3.2 SPRINKLERS SHALL BE PERMITTED TO BE OMITTED FROM BELOW THE EXTERIOR PROJECTIONS OF COMBUSTIBLE CONSTRUCTION, PROVIDED THE EXPOSED FINISH MATERIAL ON THE EXTERIOR PROJECTIONS ARE NON-COMBUSTIBLE AND THE EXTERIOR PROJECTIONS CONTAIN ONLY SPRINKLERED CONCEALED SPACES OR ANY OF THE FOLLOWING UNSPRINKLERED COMBUSTIBLE CONCEALED SPACES: (1) COMBUSTIBLE CONCEALED SPACES FILLED ENTIRELY WITH NON-COMBUSTIBLE INSULATION, (2) LIGHT OR ORDINARY HAZARD OCCUPANCIES WHERE NONCOMBUSTIBLE OR LIMITED-COMBUSTIBLE CEILINGS ARE DIRECTLY ATTACHED TO THE BOTTOM OF SOLID WOOD JOISTS SO AS TO CREATE ENCLOSED JOIST SPACES 220-FT³ OR LESS IN VOLUME, INCLUDING SPACE BELOW INSULATION THAT IS LAID DIRECTLY ON TOP OR WITHIN THE CEILING JOISTS IN AN OTHERWISE SPRINKLERED ATTIC, OR (3) CONCEALED SPACES OVER ISOLATED SMALL EXTERIOR PROJECTIONS NOT EXCEEDING 55FT² IN AREA
13. CAGE-TYPE SPRINKLER HEAD GUARDS SHALL BE INSTALLED TO PROTECT ALL SPRINKLERS SUBJECT TO MECHANICAL DAMAGE, INCLUDING ALL NON-CONCEALED PENDENT SPRINKLER BELOW 8-FEET ABOVE FINISH FLOOR OR EXPOSED UPRIGHTS AND PENDENT SPRINKLER INSTALLED DIRECTLY ON PIPING WITHIN A GYMNASIUM AREA.
14. ALL HANGERS, BRACES, AND RESTRAINTS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 13 (2022 CALIFORNIA EDITION), CBC/CFC (2022), AND FRESNO FIRE DEPARTMENT STANDARDS.
15. PER NFPA 13 (2022) §18.6.5 BRANCH LINE RESTRAINT SHALL NOT BE REQUIRED WHERE BRANCH LINES ARE SUPPORTED BY RODS LESS THAN 6" IN LENGTH WHEN MEASURED BETWEEN THE TOP OF THE PIPE TO THE POINT OF ATTACHMENT TO THE BUILDING STRUCTURE.

THIS PLAN SHALL BE USED FOR DESIGN REFERENCE ONLY. INSTALLING CONTRACTOR SHALL SUBMIT INSTALLATION DRAWINGS FOR PERMIT AND APPROVAL.

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Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-20
Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\6 F\F-2.1 - Section Drawings

Sheet Content:

SECTION DRAWINGS

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

Sheet No.:

F-2.1

Sheet of

Plot Date: 2024-05-20

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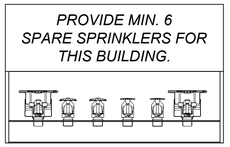


SPARE HEAD BOX NOTES:

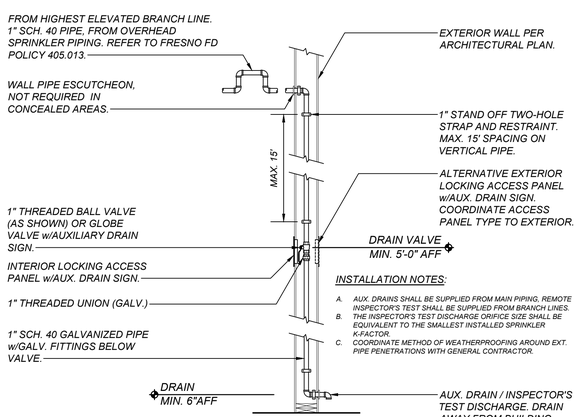
1. PER NFPA 13 (2022) §16.2.7.3 THE SPRINKLERS SHALL BE KEPT IN A CABINET LOCATED WHERE THE TEMPERATURE TO WHICH THEY ARE SUBJECTED WILL AT NO TIME EXCEED THE MAXIMUM CEILING TEMPERATURES SPECIFIED IN TABLE 6.2.5.1 FOR EACH OF THE SPRINKLERS WITHIN THE CABINET.
2. THE SPARE HEAD CABINET SHALL BE PLACED IN A SECURE LOCATION, PREFERABLY FASTENED TO A WALL ABOVE 6'-0" A.F.F. LOCATION SHALL BE COORDINATED BY THE OWNER.
3. PER NFPA 13 (2022) §16.2.7.5 THE STOCK OF SPARE SPRINKLERS SHALL INCLUDE ALL TYPES AND RATINGS INSTALLED AND SHALL BE AS FOLLOWS:
   - 3.1. FOR PROTECTED FACILITIES HAVING UNDER 300 SPRINKLERS — NO FEWER THAN SIX SPRINKLERS.
   - 3.2. FOR PROTECTED FACILITIES HAVING 300 TO 1000 SPRINKLERS — NO FEWER THAN 12 SPRINKLERS.
   - 3.3. FOR PROTECTED FACILITIES HAVING OVER 1000 SPRINKLERS — NO FEWER THAN 24 SPRINKLERS.
   - 3.4. A MINIMUM OF TWO SPRINKLERS OF EACH TYPE AND TEMPERATURE RATING SHOULD BE PROVIDED.
4. PER NFPA 13 (2022) §16.2.7.6 ONE SPRINKLER WRENCH AS SPECIFIED BY THE SPRINKLER MANUFACTURER SHALL BE PROVIDED IN THE CABINET FOR EACH TYPE OF SPRINKLER INSTALLED TO BE USED FOR THE REMOVAL AND INSTALLATION OF SPRINKLERS IN THE SYSTEM. ONE SPRINKLER WRENCH DESIGN CAN BE APPROPRIATE FOR MANY TYPES OF SPRINKLERS AND SHOULD NOT REQUIRE MULTIPLE WRENCHES OF THE SAME DESIGN.
5. PER NFPA 13 (2022) §16.2.7.7 A LIST OF THE SPRINKLERS INSTALLED IN THE PROPERTY SHALL BE POSTED IN THE SPRINKLER CABINET. THE LIST SHALL INCLUDE THE FOLLOWING:
   - 5.1. SPRINKLER IDENTIFICATION NUMBER (SIN) IF EQUIPPED; OR THE MANUFACTURER, MODEL, ORIFICE, DEFLECTOR TYPE, THERMAL SENSITIVITY, AND PRESSURE RATING.
   - 5.2. GENERAL DESCRIPTION.
   - 5.3. QUANTITY OF EACH TYPE TO BE CONTAINED IN THE CABINET.
   - 5.4. ISSUE OR REVISION DATE OF THE LIST.

SPARE HEAD BOX DETAIL

B / F-3.0

SCALE: NONE

FRM010



INSTALLATION NOTES:

A. AUX. DRAINS SHALL BE SUPPLIED FROM MAIN PIPING, REMOTE INSPECTOR'S TEST SHALL BE SUPPLIED FROM BRANCH LINES.
B. THE INSPECTOR'S TEST DISCHARGE ORIFICE SIZE SHALL BE EQUIVALENT TO THE SMALLEST INSTALLED SPRINKLER K-FACTOR.
C. COORDINATE METHOD OF WEATHERPROOFING AROUND EXT. PIPE PENETRATIONS WITH GENERAL CONTRACTOR.

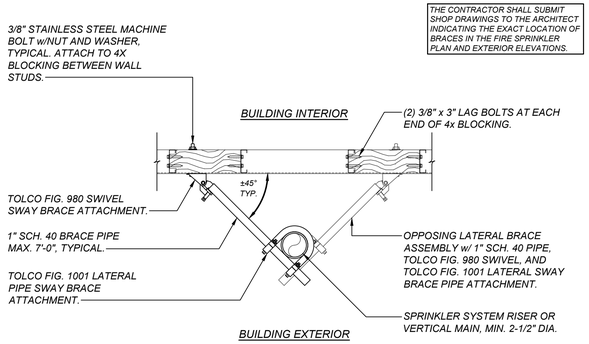
CONCEALED AUXILIARY DRAIN DETAIL/ REMOTE INSPECTOR'S TEST

C / F-3.0

SCALE: NONE

FRM010

THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ARCHITECT INDICATING THE EXACT LOCATION OF BRACES IN THE FIRE SPRINKLER PLAN AND EXTERIOR ELEVATIONS.



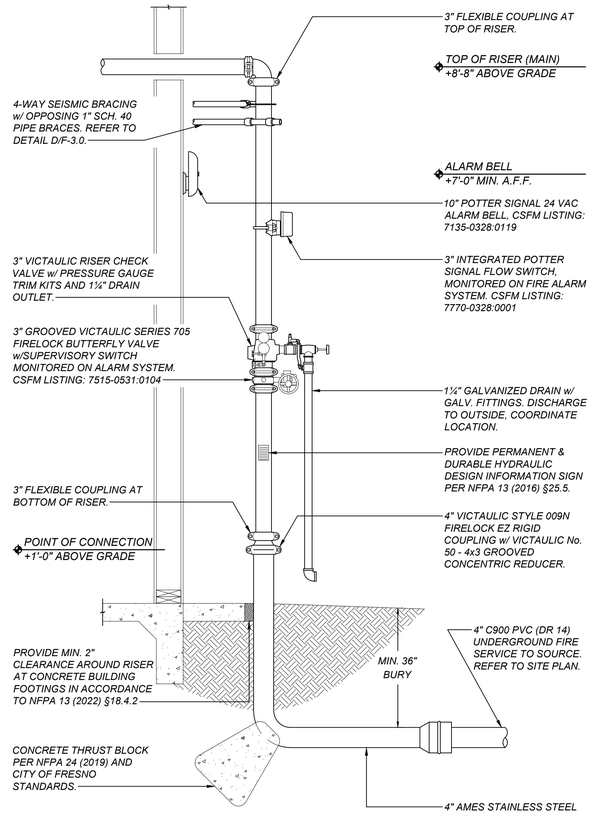
SYMBOL

4-WAY BRACE DETAIL AT RISER / VERTICAL MAIN PIPING

D / F-3.0

SCALE: NONE

FSS101



TITLE 19 ARTICLE 906 (A). A LABEL OF THE SELF-ADHESIVE TYPE SHALL BE PLACED ON THE FIRE DEPARTMENT CONNECTION OR ON THE RISER FOR FIRE SPRINKLER SYSTEM WITH THE DATE OF SERVICE AND/OR DATE INSTALLATION WAS PERFORMED AND LICENSE NUMBER OF PERSON PERFORMING SERVICE WORK.

RISER NOTES:

1. EACH RISER DETAIL IS A SCHEMATIC REPRESENTATION OF THE RISER(S). ORIENTATION OF FITTINGS, VALVES, GAUGES, AND OTHER DEVICES HAVE BEEN MODIFIED FOR ILLUSTRATION PURPOSES AND MAY VARY IN ACTUAL INSTALLATION.
2. PER NFPA 13 (2022) §18.2.3.1 - A FLEXIBLE COUPLING SHALL BE INSTALLED WITHIN 24" OF THE TOP AND BOTTOM OF ALL RISERS. RISERS LESS THAN 3 FT IN LENGTH MAY OMIT FLEX COUPLINGS. ONE FLEX COUPLING IS ADEQUATE FOR RISERS 3' TO 7' IN LENGTH.
3. PER NFPA 13 (2022) §18.5.8.3 - WHEN A FOUR-WAY BRACE AT THE TOP OF A RISER IS ATTACHED ON THE HORIZONTAL PIPING, IT SHALL BE WITHIN 24" OF THE CENTERLINE OF THE RISER AND THE LOADS FOR THAT BRACE SHALL INCLUDE BOTH THE VERTICAL AND HORIZONTAL PIPE.
4. PER NFPA 13 (2022) §29.4. - THE INSTALLING CONTRACTOR SHALL IDENTIFY A HYDRAULICALLY DESIGNED SPRINKLER SYSTEM WITH A PERMANENTLY MARKED WEATHERPROOF METAL OR RIGID PLASTIC SIGN SECURED WITH CORROSION RESISTANT WIRE, CHAIN, OR OTHER APPROVED MEANS.
5. PER NFPA 13 (2022) §29.4.1 - THE INSTALLING CONTRACTOR SHALL PROVIDE A GENERAL INFORMATION SIGN USED TO DETERMINE SYSTEM DESIGN BASIS AND INFORMATION RELEVANT TO THE INSPECTION, TESTING, AND MAINTENANCE REQUIREMENTS REQUIRED BY NFPA 25.
6. LOCATION OF 1¼" SYSTEM DRAIN TO BE COORDINATED WITH GENERAL CONTRACTOR. DRAIN PIPE AND FITTINGS SHALL BE GALV.
7. FIRE RISER ROOM SHALL COMPLY WITH CBC (2022) 901.3 PER CFC (2022) SECTION 509.1 FIRE EQUIPMENT ROOMS SHALL BE IDENTIFIED IN AN APPROVED MANNER. APPROVED SIGNS SHALL BE DURABLE, PERMANENT, AND VISIBLE.
8. WHERE APPLICABLE, EXTERIOR RISER AND EXTERIOR PIPING INCLUDING DRAIN PIPING SHALL BE PROTECTED WITH PROTECTIVE ENAMEL PAINT w/ OIL-BASED PRIMER, TWO COATS MIN. REFER TO PAINT SPECS AND CONFIRM PAINT TYPE & COLOR w/ ARCHITECT PRIOR TO PAINTING EXTERIOR PIPING.

RISER DETAIL: 3" SYSTEM RISER ON 4" IN-BUILDING RISER (EXT)

A / F-3.0

SCALE: NONE

FSSXXX

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REGISTERED PROFESSIONAL ENGINEER — MICHAEL D. CANNON — No. M23588 Exp. 9-30-25 — MECHANICAL — STATE OF CALIFORNIA

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LICENSED ARCHITECT — ZAHIDUL HOQUE KHAN — C 40030 — REN: 11-30-25 — STATE OF CALIFORNIA

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2220 Tulare Street, Eighth Floor
Fresno, California 93721
Office: (559) 600-4410
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Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-20
Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\6 F\F-3.0 - Riser & Piping Details

Sheet Content:

RISER AND PIPING DETAILS

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

Sheet No.:

F-3.0

Sheet of

Plot Date: 2024-05-20

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SERIES AH2/AH2-CC VICTAULIC VICFLEX - FRICTION LOSS DATA (UL)									
LENGTH IN INCHES	OUTLET SIZE	1 - 90° BEND	2 - 90° BEND	3 - 90° BEND	4 - 90° BEND	5 - 90° BEND	6 - 90° BEND	7 - 90° BEND	8 - 90° BEND
31"	1/2"	11.0'	13.0'	15.0'	16.0'	N/A	N/A	N/A	N/A
	3/4"	12.0'	14.0'	19.0'	20.0'	N/A	N/A	N/A	N/A
36"	1/2"	14.0'	16.0'	18.0'	19.0'	21.0'	N/A	N/A	N/A
	3/4"	17.0'	19.0'	21.0'	22.0'	23.0'	N/A	N/A	N/A
48"	1/2"	18.0'	19.0'	21.0'	23.0'	25.0'	27.0'	30.0'	32.0'
	3/4"	21.0'	24.0'	26.0'	28.0'	31.0'	33.0'	35.0'	37.0'
60"	1/2"	21.0'	24.0'	27.0'	30.0'	32.0'	35.0'	37.0'	40.0'
	3/4"	23.0'	25.0'	27.0'	29.0'	32.0'	34.0'	37.0'	40.0'
72"	1/2"	27.0'	29.0'	31.0'	34.0'	37.0'	40.0'	43.0'	46.0'
	3/4"	26.0'	28.0'	30.0'	33.0'	37.0'	40.0'	44.0'	48.0'

INSTALLATION NOTES:

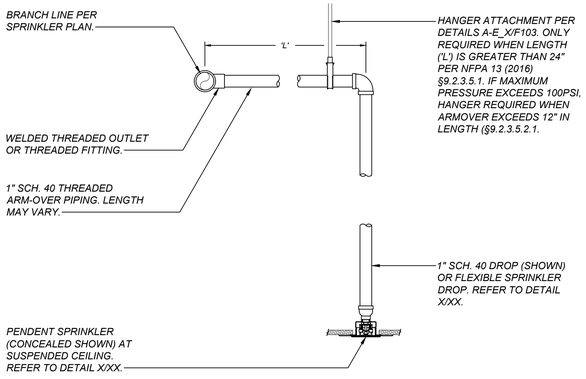
A. ALL VICTAULIC VICFLEX FLEXIBLE SPRINKLER HOSE FITTINGS AND ANCHORING COMPONENTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER GUIDELINES.
B. PER NFPA 13 (2022) §17.4.1.3.3, THE MAXIMUM UNSUPPORTED LENGTH FOR FLEXIBLE HOSE SPRINKLER FITTINGS SHALL NOT EXCEED 6-FEET.
C. PER NFPA 13 (2022) §17.4.1.3.3.4, WHERE FLEXIBLE SPRINKLER HOSE FITTINGS ARE USED TO CONNECT SPRINKLERS TO BRANCH LINES IN SUSPENDED CEILINGS, A LABEL LIMITING RELOCATION OF THE SPRINKLER SHALL BE PROVIDED ON THE ANCHORING COMPONENT.

VICFLEX FLEXIBLE SPRINKLER DROP FRICTION LOSS DATA AND INSTALLATION NOTES

D F-3.1

SCALE: NONE

FSSXXX



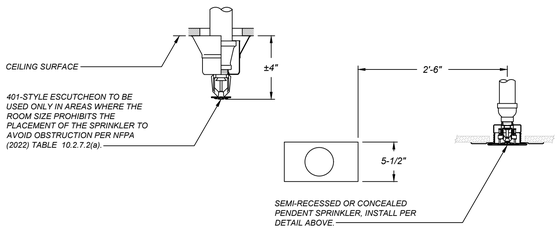
ARM-OVER PIPING w/ 1" DROP DETAIL (OPTIONAL)

E F-3.1

SCALE: NONE

FSSXXX

THIS DETAIL IS TO BE USED FOR AVOIDING OBSTRUCTIONS PRESENTED BY SURFACE MOUNTED LIGHTING IN GYPBOARD CEILINGS. SPRINKLER SPACING TO BE IN ACCORDANCE WITH NFPA 13 (2022) FOR PARTICULAR HAZARD, AND TYPE OF SPRINKLER WHERE OBSTRUCTION OCCURS. DETAIL AS SHOWN IS FOR STANDARD SPRAY PENDENT SPRINKLER, WITH PRESSURES FROM 15 PSI TO 100 PSI ONLY. IF EXTENDED COVERAGE OR SPECIAL LISTED SPRINKLERS ARE USED, REFER TO APPROPRIATE NFPA 13 (2022) TABLE FOR THE SPECIFIC REQUIREMENTS FOR EACH SPECIFIC TYPE OF SPRINKLER.



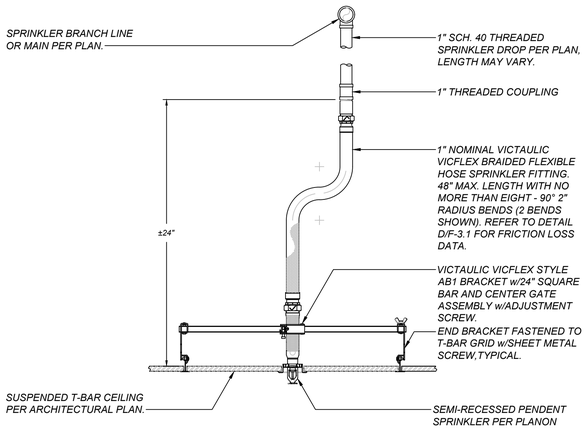
NFPA 13 (2022) TABLE 10.2.7.2(a) POSITIONING OF SPRINKLERS TO AVOID OBSTRUCTIONS TO DISCHARGE	
DISTANCE FROM SPRINKLERS TO SIDE OF OBSTRUCTION	MAX. ALLOWABLE DISTANCE OF DEFLECTOR ABOVE BOTTOM OF OBSTRUCTION
2' TO LESS THAN 2'-6"	5-1/2"
COORDINATE ALL CONCEALED PENDENT SPRINKLERS W/ CURRENT LIGHT LAYOUT AND TYPES. AN AREAS W/ SURFACE MOUNTED LIGHT FIXTURES, UTILIZE OBSTRUCTION SPACING PER NFPA 13 (2022). IF SIZE OF ROOM PROHIBITS SPACING REQUIREMENTS TO BE MET, UTILIZE ST-1E 401 ESCUTCHEON W/ PENDENT SPRINKLER OF SAME TEMPERATURE, K-FACTOR, AND DESIGN CRITERIA.	

SPRINKLER HEAD OBSTRUCTION DETAIL

B F-3.1

SCALE: NONE

FSSXXX



VICFLEX FLEXIBLE SPRINKLER DROP w/SEMI-RECESSED PENDENT SPRINKLER

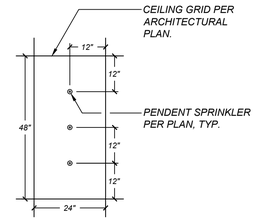
C F-3.1

SCALE: NONE

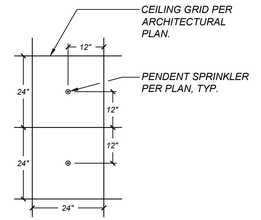
FSSXXX

INSTALLATION NOTES:

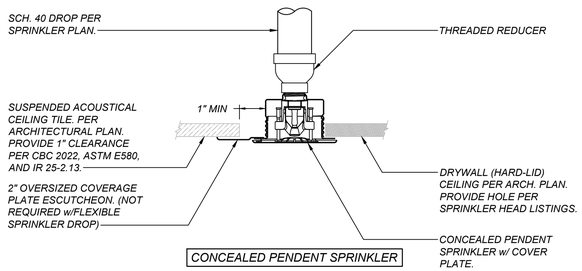
A. PENDENT SPRINKLER HEADS INSTALLED WITHIN SUSPENDED CEILING TILES SHALL BE POSITIONED "CENTER OF TILE" AS INDICATED PER PROJECT SPECIFICATIONS. HOWEVER, SPRINKLER SPACING SHALL NOT EXCEED THE MAXIMUM SPRINKLER SPACING PER NFPA 13 (2022) §10.2.5.1, §10.2.5.2, §10.2.5.2.3.1, §11.2.3.1, §11.2.3.2 AND FIRE SPRINKLER MANUFACTURER LISTINGS.
B. PENDENT SPRINKLER HEADS INSTALLED IN DRY-WALL CEILINGS SHALL BE POSITIONED PER PLAN, ALIGNED WITH LIGHTING, AUDIO, AND OTHER CEILING FEATURES. HOWEVER, SPRINKLER SPACING SHALL NOT EXCEED MAXIMUM NFPA 13 REQUIREMENTS AND FIRE SPRINKLER MANUFACTURER LISTINGS.



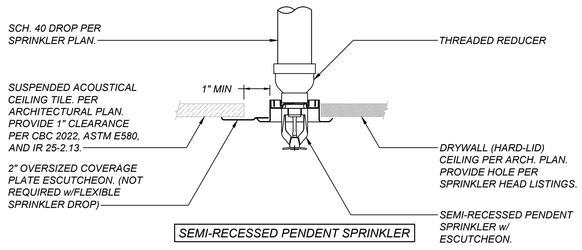
INSTALLATION AT 24"x48" CEILING TILES



INSTALLATION AT 24"x24" CEILING TILES



CONCEALED PENDENT SPRINKLER



SEMI-RECESSED PENDENT SPRINKLER

SPRINKLER HEAD INSTALLATION DETAIL

A F-3.1

SCALE: NONE

FSSXXX

REGISTERED PROFESSIONAL ENGINEER MICHAEL O'CANN No. M23588 Exp. 9-30-25 MECHANICAL STATE OF CALIFORNIA

LAWRENCE ENGINEERING GROUP
4910 E. Clinton Way, Suite 101 (559) 431-0101
23139
Fresno, CA 93727 FAX (559) 431-1362

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
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Fresno, California 93721
Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-20
Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\6 F\F-3.1 - Installation Details

Sheet Content:
INSTALLATION DETAILS

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO 1856

Sheet No.:

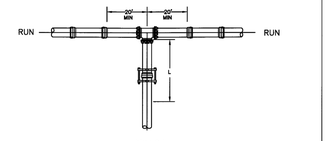
F-3.1

Sheet of

THIS PLAN SHALL BE USED FOR DESIGN REFERENCE ONLY. INSTALLING CONTRACTOR SHALL SUBMIT INSTALLATION DRAWINGS FOR PERMIT AND APPROVAL.

Plot Date: 2024-05-20

20 May 2024 10:22 AM P:\2023\23139 Fresno County ECC Education Building\4-Drawings\6 F\F-3.1 - Installation Details.dwg bolt



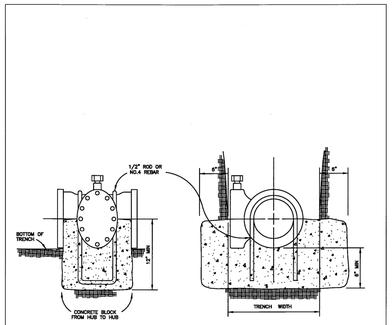
BRANCH SIZE \ RUN SIZE	4	6	8	10	12	14	16	18	20	24
4	*	*	*	*	*	*	*	*	*	*
6		*	*	*	*	*	*	*	*	*
8			*	*	*	*	*	*	*	*
10				*	*	*	*	*	*	*
12					13	*	*	*	*	*
14						24	13	*	*	*
16							36	25	14	*
18								47	37	16
20									58	39
24										79

* –FOR THIS CONDITION NEED ONLY RESTRAIN THE BRANCH OUTLET OF THE TEE.

RESTRAINED LENGTHS, "L" (IN FEET)

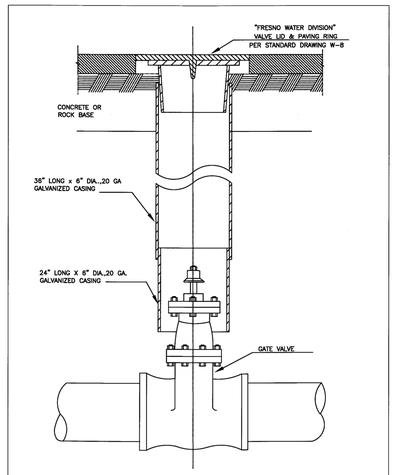
1. RESTRAIN THE TWO MECHANICAL JOINTS ON THE RUN SIDES OF THE TEE. WHEN LESS THAN A FULL 20' LENGTH OF PIPE IS INSTALLED ON EACH SIDE OF THE RUN.
2. ALL JOINTS WITHIN THE LENGTH "L" ON THE BRANCH MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS ON PUSH–ON PIPE PER CITY SPECIFICATION.
3. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION 22 OF GENERAL CONDITIONS.

PVC TEE RESTRAINTS	REF. & REV. MAR., 2006	CITY OF FRESNO W–31



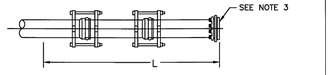
NOTE:
OPERATING NUT OF BUTTERFLY VALVE SHALL BE PLACED ON SOUTH OR WEST SIDE DEPENDING ON LINE LOCATION.

VALVE ANCHOR FOR LINE VALVE	REF. & REV. AUG., 2002	CITY OF FRESNO W–25



VALVE LID & PAVING RING WITH GALVANIZED CASING	REF. & REV. AUG., 2002	CITY OF FRESNO W–7

DEAD END FOR PVC PIPE



1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH–ON PIPE PER CITY STANDARD SPECIFICATIONS.
2. FOR TEST PRESSURES AND LAYING CONDITIONS, SEE SECTION 22 OF GENERAL CONDITIONS.
3. WHEN APPROVED, CONCRETE THRUST BLOCK MAY BE USED AS SHOWN ON STANDARD DRAWING W–8.

PIPE SIZE	4	6	8	10	12	14	16
	52	73	96	115	136	155	174

RESTRAINED LENGTHS, "L" (IN FEET)

GENERAL NOTES ON USE OF RESTRAINED JOINT LENGTHS

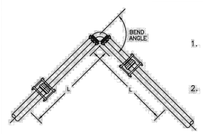
THESE RESTRAINED LENGTH CALCULATIONS ARE BASED ON THE FOLLOWING DESIGN CRITERIA

1. THREE (3) FEET MINIMUM DEPTH OF COVER
2. A SAFETY FACTOR OF 1.5
3. SOIL TYPE OF SM--SILTY GRAVEL AND SILTY SANDS AS DEFINED BY ASTM D–2487
4. TRENCH COMPACTION OF TYPE 5 – PIPE BEDDED IN COMPACTED GRANULAR MATERIAL TO THE CENTER LINE OF PIPE, 4 INCHES MINIMUM UNDER PIPE. COMPACTED GRANULAR MATERIAL OR SELECT MATERIAL TO TOP OF THE PIPE. (APPROXIMATELY 90 PERCENT STANDARD PROCTOR DENSITY, AASHTO T–99)
5. TEST PRESSURES OF 200 PSI FOR THE 4 THROUGH 16 INCH SIZES

IF ACTUAL CONDITIONS DIFFER FROM THOSE LISTED ABOVE OR THE REQUIRED RESTRAINED LENGTH CANNOT BE MET, CONSULT THE DESIGN ENGINEER FOR MODIFICATIONS TO THE RESTRAINED LENGTHS OR DESIGN.

PVC PIPE RESTRAINTS	REF. & REV. MAR., 2006	CITY OF FRESNO W–33

HORIZONTAL BEND

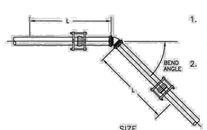


1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH–ON PIPE PER CITY STD. SPECIFICATIONS.
2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION 22 OF GENERAL CONDITIONS.

BEND ANGLE \ SIZE	4	6	8	10	12	14	16
11.25	3	3	3	4	4	5	5
22.5	3	5	7	7	9	10	11
45	7	11	13	15	18	20	23
90	17	24	31	37	43	49	55

RESTRAINED LENGTHS, "L" (IN FEET)

VERTICAL BEND

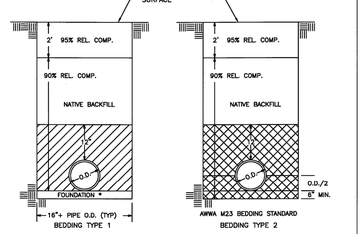


1. ALL JOINTS WITHIN LENGTH "L" MUST BE RESTRAINED. USE RETAINER GLAND AT MECHANICAL JOINTS AND HARNESS WITH PUSH–ON PIPE PER CITY STD. SPECIFICATIONS.
2. FOR TEST PRESSURES AND LAYING CONDITIONS SEE SECTION 22 OF GENERAL CONDITIONS.

BEND ANGLE \ SIZE	4	6	8	10	12	14	16
11.25	5	7	9	11	13	15	17
22.5	11	15	19	23	27	31	35
45	23	31	40	48	56	64	72

RESTRAINED LENGTHS, "L" (IN FEET)

PVC BEND RESTRAINTS	REF. & REV. MAR., 2006	CITY OF FRESNO W–32



SIZE OF WATER MAIN	PIPE MATERIAL: DUCTILE IRON**	PVC CL.150	PVC CL.235
8" – 12"	TYPE 1	TYPE 2	N.A.
14" AND LARGER	TYPE 1	N.A.	TYPE 1

SELECT MATERIAL – 2" DIAMETER OR SMALLER

SELECT MATERIAL – 3/4" DIAMETER OR SMALLER

BELL HOLES ARE REQUIRED FOR PUSH ON AND MECHANICAL JOINT PIPE.

NO JETTING ALLOWED FOR PVC WATER PIPE.

* IF HARDPAN EXISTS, EXCAVATE 4" AND BACKFILL WITH SELECT MATERIAL.
** CLASS 250 (14" TO 20") OR 350 (UP TO AND INC. 12")

WATER MAIN BEDDING DETAILS	REF. & REV. DEC., 2003	CITY OF FRESNO W–29

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REGISTERED PROFESSIONAL ENGINEER MICHAEL D. GANNON No. M23588 Exp. 9-30-25 MECHANICAL STATE OF CALIFORNIA

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(559) 431-0101 23139 FAX (559) 431-1362

LICENSED ARCHITECT ZAHIDUL HOQUE KHAN C-40030 REN 11-30-25 STATE OF CALIFORNIA

ARCHITECT:
Zahidul Hoque Khan, Architect
California Licensed Architect No. C-40030
Ren. 11-30-23
Fresno County Dept. of Public Works & Planning
Development Services & Capital Projects Division
2220 Tulare Street, Eighth Floor
Fresno, California 93721
Office: (559) 600-4410
E-mail: zkhan@fresnocountyca.gov

Project:

ECC - Educational Building
1327 W. Dan Ronquillo Drive, Fresno, CA 93706
APN: 458-060-72
Issue date: 2024-05-20
Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\6 F\F-3.2 - Site Fire Details

Sheet Content:

SITE FIRE DETAILS

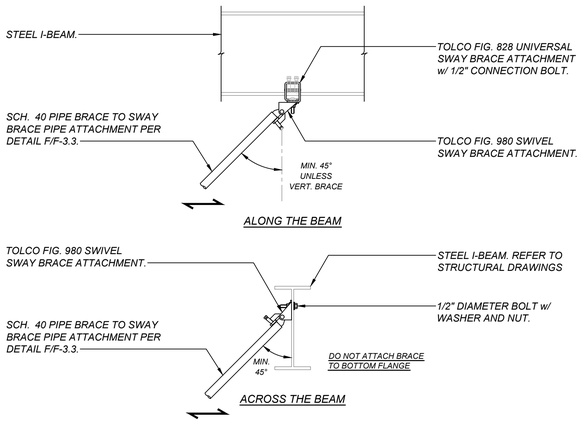
Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

Sheet No.:

F-3.2

Sheet of

Plot Date: 2024-05-20

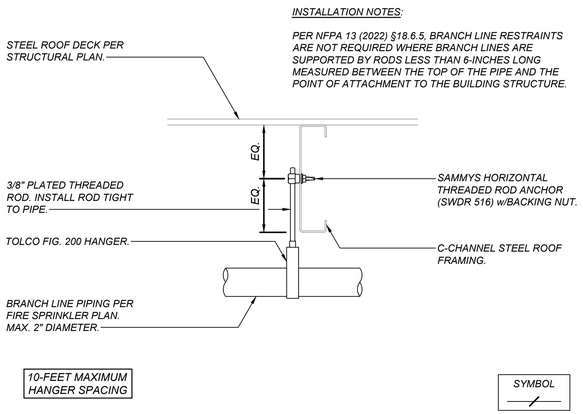


SWAY BRACE STRUCTURAL ATTACHMENT TO STEEL I-BEAM

SCALE: NONE

FSS007

E F-3.3

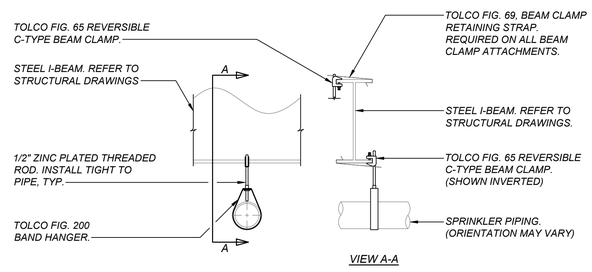


BRANCH LINE HANGER SUPPORT AT METAL CHANNEL ROOF FRAMING

SCALE: NONE

FSS101

C F-3.3



12-FEET MAXIMUM HANGER SPACING

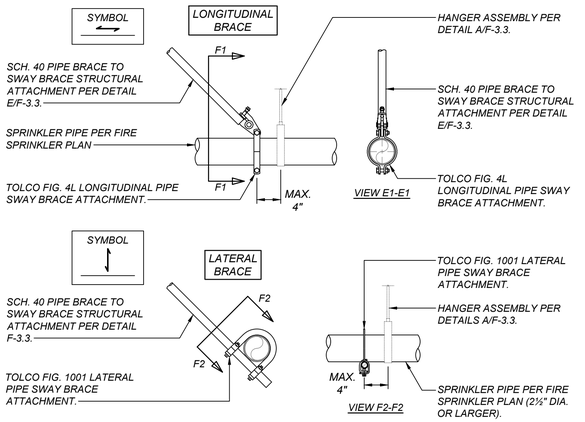
SYMBOL

SPRINKLER PIPE HANGER SUPPORT AT STEEL I-BEAM

SCALE: NONE

FSS301-03.20

A F-3.3

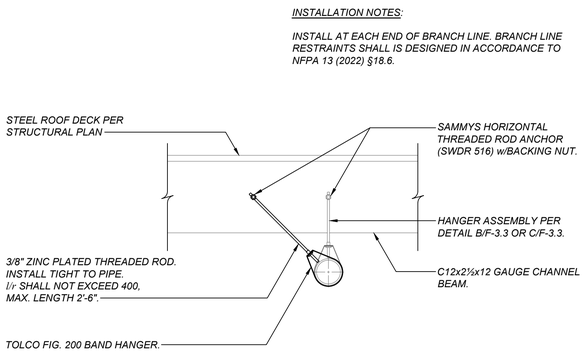


SWAY BRACE ATTACHMENT AT SPRINKLER MAIN PIPING

SCALE: NONE

FSS008

F F-3.3

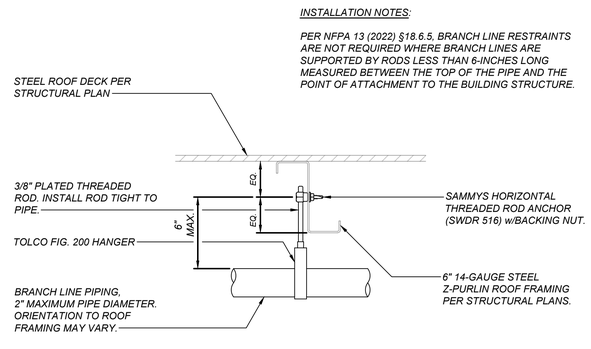


BRANCH LINE RESTAINT AT METAL CHANNEL ROOF FRAMING

SCALE: NONE

FSS101

D F-3.3



BRANCH LINE HANGER SUPPORT AT STEEL Z-PURLIN ROOF FRAMING (AMS)

SCALE: NONE

FSS101

B F-3.3

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REGISTERED PROFESSIONAL ENGINEER MICHAEL O'CANN No. M23588 Exp. 9-30-25 MECHANICAL STATE OF CALIFORNIA

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Project no.: T90204
File name: P:\2023\23139 Fresno County ECC Education Building\4-Drawings\6 F\F-3.3 - Structural Details

Sheet Content:

STRUCTURAL DETAILS

Fresno County Department of Public Works and Planning
Capital Projects
2220 Tulare Street, 8th Floor
Fresno, California 93721

THE COUNTY OF FRESNO

Sheet No.:

F-3.3

Sheet of

Plot Date: 2024-05-20