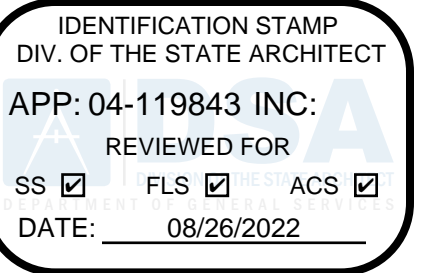


TOVASHAL ELEMENTARY SCHOOL - HVAC REPLACEMENT

MURRIETA VALLEY UNIFIED SCHOOL DISTRICT

23801 SAINT RAPHAEL DRIVE, MURRIETA, CA 92562



GENERAL NOTES

PROJECT TEAM

1. THESE DRAWINGS DO NOT CONTAIN THE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY.
 2. LOCATIONS OF ALL UTILITIES SHOWN ARE APPROXIMATE AND CONTRACTOR SHALL EXERCISE EXTREME CAUTION IN EXCAVATING AND TRENCHING ON THIS SITE TO AVOID INTERCEPTING EXISTING PIPING OR CONDUITS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHETHER SHOWN HEREON OR NOT AND TO PROTECT THEM FROM DAMAGE. THE ARCHITECT IS NOT RESPONSIBLE FOR THE LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES WHETHER OR NOT SHOWN OR DETAILED AND INSTALLED BY ANY OTHER CONTRACT. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ARCHITECT SHOULD ANY UNIDENTIFIED CONDITIONS BE DISCOVERED. THE CONTRACTOR SHALL BEAR ALL EXPENSE OF REPAIR OR REPLACEMENT OF UTILITIES OR OTHER PROPERTY DAMAGED BY OPERATIONS IN CONJUNCTION WITH THE EXECUTION OF THIS WORK.
 3. THESE DOCUMENTS AND THE IDEAS AND DESIGNS INCORPORATED HEREIN, AS AN INSTRUMENT OF PROFESSIONAL SERVICE, ARE THE PROPERTY OF WLC ARCHITECTS, INC., AND ARE NOT TO BE USED, IN WHOLE OR IN PART, FOR ANY OTHER PROJECT WITHOUT THE WRITTEN AUTHORIZATION OF WLC ARCHITECTS, INC.
 4. THE WORK SHOWN ON THESE DRAWINGS AS EXISTING CONDITIONS WAS PREPARED FROM INFORMATION FURNISHED BY THE OWNER. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, WLC ARCHITECTS, INC. IS NOT RESPONSIBLE FOR THE ACCURACY OR ADEQUACY OF ANY WORK SHOWN AS EXISTING NOR IS WLC ARCHITECTS, INC. RESPONSIBLE FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO THESE DRAWINGS AS A RESULT.
 5. EACH BIDDER SHALL POSSESS AT THE TIME OF BID A CLASS B OR THE APPROPRIATE CLASS C CONTRACTOR'S LICENSE PURSUANT TO PUBLIC CONTRACT CODE SECTION 3300 AND BUSINESS AND PROFESSIONS CODE SECTION 7028.15. THE SUCCESSFUL BIDDER MUST MAINTAIN THE LICENSE THROUGHOUT THE DURATION OF THIS CONTRACT.
 6. FIRE SAFETY DURING CONSTRUCTION
 - A. GENERAL: FIRE SAFETY DURING CONSTRUCTION SHALL COMPLY WITH CALIFORNIA FIRE CODE (CFC) CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 9, CHAPTER 5 AND CHAPTER 33.
 - B. ACCESS ROADS: FIRE DEPARTMENT ACCESS ROADS SHALL BE ESTABLISHED AND MAINTAINED IN ACCORDANCE WITH CHAPTER 5, SECTION 501.4 AND CHAPTER 33, SECTION 3310.
 - C. WATER SUPPLY: WATER MAINS AND HYDRANTS SHALL BE OPERATIONAL IN ACCORDANCE WITH CHAPTER 5, SECTION 501.4 AND CHAPTER 33, SECTION 3312.
 - D. BUILDING ACCESS: ACCESS TO BUILDINGS FOR THE PURPOSE OF FIRE FIGHTING SHALL BE PROVIDED. CONSTRUCTION MATERIAL SHALL NOT BLOCK ACCESS TO BUILDINGS, HYDRANTS OR FIRE APPLIANCES.
 - E. ALTERATIONS OF BUILDINGS: SHALL COMPLY WITH APPLICABLE PROVISIONS OF CHAPTER 33.
 - F. DEMOLITION OF BUILDINGS: SHALL COMPLY APPLICABLE PROVISIONS OF CHAPTER 33.
 - G. FIRE WATCH: MAINTAIN FIRE WATCH WHEN REQUIRED BY THE BUILDING OFFICIAL AND WHEN EXISTING FIRE PROTECTION SYSTEMS ARE SHUT DOWN FOR ALTERATIONS IN ACCORDANCE WITH CHAPTER 33, SECTION 3304.5. FIRE WATCH SHALL REMAIN IN EFFECT UNTIL EXISTING FIRE PROTECTION SYSTEMS ARE RETURNED TO SERVICE OR AS ALLOWED BY THE BUILDING OFFICIAL.
 7. PENETRATIONS TO FIRE RATED MATERIALS OR ASSEMBLIES SHALL BE RESTORED TO EQUAL RATING. FIRE STOP SYSTEMS AS LISTED BY UNDERWRITERS LABORATORIES SHALL BE INSTALLED PER FIRE RESISTANCE DIRECTORY. FIRE STOP SYSTEMS SHALL BE AS SPECIFIED.
 8. NONRESIDENTIAL ENERGY STANDARDS COMPLIANCE STATEMENT (TITLE 24, PART 6):

THE DESIGN INDICATED HEREIN COMPLIES WITH THE REQUIREMENTS OF THE ENERGY CONSERVATION STANDARDS OF TITLE 24, PART 6, CALIFORNIA CODE OF REGULATIONS. THE PROPOSED BUILDING(S) WILL BE IN COMPLIANCE WITH THE ENERGY CONSERVATION STANDARDS PROVIDED IT (THEY) IS (ARE) BUILT ACCORDING TO THESE DRAWINGS AND SPECIFICATIONS AND PROVIDED ANY FUTURE IMPROVEMENTS ARE COMPLETED ACCORDING TO THE REQUIREMENTS OF TITLE 24, PART 6, CALIFORNIA CODE OF REGULATIONS. THESE PLANS AND SPECIFICATIONS HAVE BEEN PREPARED TO INCLUDE ALL SIGNIFICANT ENERGY CONSERVATION FEATURES REQUIRED FOR COMPLIANCE WITH THE STANDARDS. BUILDING AREAS THAT ARE UNCONDITIONED AND/OR NOT SUBJECT TO THE STANDARDS ARE INDICATED ON THE PLANS.
8. (CONT) ENVELOPE MANDATORY MEASURES:
 - A. INSTALLED INSULATING MATERIALS SHALL HAVE BEEN CERTIFIED BY THE MANUFACTURER TO COMPLY WITH THE CALIFORNIA QUALITY STANDARDS FOR INSULATING MATERIAL.
 - B. ALL INSULATING MATERIALS SHALL BE INSTALLED IN COMPLIANCE WITH THE FLAME SPREAD RATING AND SMOKE DENSITY REQUIREMENTS OF TITLE 24, PART 2, CALIFORNIA CODE OF REGULATIONS, SECTIONS 720 AND 2603.
 - C. ALL EXTERIOR JOINTS AND OPENINGS IN THE BUILDING ENVELOPE THAT ARE POTENTIAL AND OBSERVABLE SOURCES OF AIR LEAKAGE SHALL BE CAULKED, GASKETED, WEATHERSTRIPPED OR OTHERWISE SEALED.
 - D. SITE CONSTRUCTED DOORS, WINDOWS, AND SKYLIGHTS SHALL BE CAULKED BETWEEN THE UNIT AND THE BUILDING, AND SHALL BE WEATHERSTRIPPED (EXCEPT FOR UNFRAMED GLASS DOORS AND FIRE DOORS).
 - E. MANUFACTURED DOORS AND WINDOWS INSTALLED SHALL HAVE AIR INFILTRATION RATES CERTIFIED BY THE MANUFACTURER IN ACCORDANCE WITH TITLE 24, PART 6, CALIFORNIA CODE OF REGULATIONS, SECTION 110.6.
 - F. MANUFACTURED FENESTRATION PRODUCTS IN THE ENVELOPE OF THE BUILDING, INCLUDING, BUT NOT LIMITED TO, WINDOWS, SLIDING GLASS DOORS, FRENCH DOORS, SKYLIGHTS, CURTAIN WALLS, AND GARDEN WINDOWS MUST BE LABELED FOR U-VALUE IN ACCORDANCE WITH THE (NFRC) NATIONAL FENESTRATION RATING COUNCIL'S INTERIM U-VALUE RATING PROCEDURE.
 - G. DEMISING WALL INSULATION SHALL BE INSTALLED IN ALL OPAQUE PORTIONS OF FRAMED WALLS (EXCEPT DOORS).
 9. PROOF LOAD TESTS FOR EXPANSION TYPE ANCHOR BOLTS:
 - A. ANCHOR DIAMETER REFERS TO THE THREAD SIZE FOR THE WEDGE CATEGORY ANCHOR.
 - B. APPLY PROOF TEST LOADS TO WEDGE ANCHORS WITHOUT REMOVING THE NUT IF POSSIBLE. IF NOT, REMOVE NUT AND INSTALL A THREADED COUPLER TO THE SAME TIGHTNESS OF THE ORIGINAL NUT USING A TORQUE WRENCH AND APPLY LOAD.
 - C. REACTION LOADS FROM TEST FIXTURES MAY BE APPLIED CLOSE TO THE ANCHOR BEING TESTED, PROVIDED THE ANCHOR IS NOT RESTRAINED FROM WITHDRAWING BY THE FIXTURE(S).
 - D. TEST EQUIPMENT IS TO BE CALIBRATED BY AN APPROVED TESTING LABORATORY IN ACCORDANCE WITH STANDARD RECOGNIZED PROCEDURES.
 - E. THE FOLLOWING CRITERIA APPLY FOR THE ACCEPTANCE OF INSTALLED ANCHORS:
 1. HYDRAULIC RAM METHOD: THE ANCHOR SHOULD HAVE NO OBSERVABLE MOVEMENT AT THE APPLICABLE TEST LOAD FOR WEDGE TYPE ANCHORS, A PRACTICAL WAY TO DETERMINE OBSERVABLE MOVEMENT IS THAT THE WASHER UNDER THE NUT BECOMES LOOSE. DROP IN ANCHORS ARE ONLY TO BE TESTED WITH THIS METHOD.
 2. TORQUE WRENCH METHOD: THE APPLICABLE TEST TORQUE MUST BE REACHED WITHIN THE FOLLOWING LIMITS FOR WEDGE ANCHORS: ONE-HALF (1/2) TURN OF THE NUT.
 11. POWDER DRIVEN CONCRETE FASTENERS:
 - A. GENERAL: USE OF POWDER DRIVEN CONCRETE FASTENERS FOR TENSION LOADS IS LIMITED TO SUPPORT OF MINOR LOADS LIKE ACOUSTICAL CEILINGS, DUCT WORK, CONDUIT.
 - B. ALLOWABLE LOADS: IN GENERAL, LOADS SHOULD BE LIMITED TO LESS THAN 100 POUNDS. HOWEVER, GREATER LOADS MAY BE PERMITTED FOR SPECIAL CASES WHEN APPROVED BY THE CHECKING SUPERVISOR OR FIRE ENGINEER.
 - C. TESTING: THE OPERATOR, TOOL, AND FASTENER SHALL BE PREQUALIFIED BY THE PROJECT INSPECTOR. HE SHALL OBSERVE THE TESTING OF THE FIRST 10 FASTENER INSTALLATIONS. A TEST "PULL-OUT" LOAD OF NOT LESS THAN TWICE THE DESIGN LOAD, OR 200 POUNDS, WHICHEVER IS GREATER SHALL BE APPLIED TO THE PIN IN SUCH A MANNER AS NOT TO RESIST THE SPALLING TENDENCY OF THE CONCRETE AROUND THE PIN. THEREAFTER, RANDOM TESTS UNDER THE PROJECT INSPECTOR'S SUPERVISION SHALL BE MADE OF APPROXIMATELY 1 IN 10 PINS, EXCEPT THAT WHEN THE DESIGN LOAD EXCEEDS 100 POUNDS, ONE HALF OF THE PINS SHALL BE TESTED. SHOULD FAILURE OCCUR ON ANY PIN TESTED, ALL INSTALLATIONS MUST BE TESTED AND UNFAIR PINS REPLACED.
 - D. ALL POWDER DRIVEN CONCRETE FASTENERS SHALL BE ONE OF THE FOLLOWING:
 1. HILTI, INC. X-CP 72 PINS - WOOD PLATE - ICCES NO. 2379 X-U PINS - STEEL TRACK - ICCES NO. 2269
 2. ITW RAMSET/REDHEAD DRIVE PIN - WOOD PLATE - ICCES NO. 2690 DRIVE PIN - STEEL TRACK - ICCES NO. 1799
 3. SIMPSON STRONG-TIE CO., INC. PDPWL-300MG - WOOD PLATE - ICCES NO. 2138 PDP4-12S - STEEL TRACK - ICCES NO. 2138
 12. SPECIFICATIONS FOR AUTOMATIC END WELDED STUDS
 - A. MATERIAL: AUTOMATIC END WELDED STUDS SHALL BE NELSON GRANULAR FLUX-FILLED SHEAR CONNECTOR OR ANCHOR STUDS (OR APPROVED EQUAL). STUDS SHALL BE MANUFACTURED OF C-1010 THROUGH C-1026 COLD-DRAWN STEEL WHICH CONFORMS TO ASTM A29, ICCES ESR-2656.
 - B. INSTALLATION: THE STUDS SHALL BE AUTOMATICALLY END WELDED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS IN SUCH A MANNER AS TO PROVIDE COMPLETE FUSION BETWEEN THE END OF THE STUD AND THE PLATE. THERE SHOULD BE NO POROSITY OR EVIDENCE OF LACK OF FUSION BETWEEN THE WELDED END OF THE STUD AND THE PLATE. THE STUD SHALL DECREASE IN LENGTH DURING WELDING APPROXIMATELY 1/8" FOR 5/8" AND UNDER AND 3/16" FOR OVER 5/8" DIAMETER. WELDING SHALL BE DONE ONLY BY QUALIFIED WELDERS APPROVED BY THE WELDING INSPECTOR.
 - C. INSPECTION AND TESTS: INSPECTION, IN ACCORDANCE WITH TITLE 24, PART 2, SECTION 2213A.2. ALL THE SHOP AND FIELD WELDING OPERATIONS FOR THE AUTOMATIC END WELDED STUDS SHALL BE MADE BY A QUALIFIED WELDING INSPECTOR (APPROVED BY THE DIVISION OF THE STATE ARCHITECT). THE TYPE AND CAPACITY OF THE WELDING EQUIPMENT SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SHALL BE CHECKED AND APPROVED BY A WELDING INSPECTOR.
 - D. AT THE BEGINNING OF EACH DAY'S WORK, A MINIMUM OF TWO TEST STUD WELDS SHALL BE MADE WITH THE EQUIPMENT TO BE USED TO METAL WHICH IS THE SAME AS THE ACTUAL WORK PIECE. THE TEST STUDS SHALL BE SUBJECTED TO A 90 DEGREE BEND TEST BY STRIKING THEM WITH A HEAVY HAMMER AFTER THE ABOVE TEST, THE WELD SECTION SHALL NOT EXHIBIT ANY TEARING OUT OR CRACKING.
 13. INSPECTOR OF RECORD REQUIREMENTS
 - A. ONE OR MORE INSPECTORS EMPLOYED BY THE OWNER IN ACCORDANCE WITH THE REQUIREMENTS OF TITLE 24 OF THE CALIFORNIA CODE OF REGULATIONS WILL BE ASSIGNED TO THE WORK. THE INSPECTOR'S DUTIES ARE SPECIFICALLY DEFINED IN SECTION 4-342 OF SAID TITLE 24, PART 1 AND IN ADDITION SHALL BE AS STIPULATED IN INTERPRETATION OF REGULATION DOCUMENT IR-A-8.
 - B. INSPECTOR SHALL BE CERTIFIED AS A CLASS 3 INSPECTOR THROUGH THE DIVISION OF THE STATE ARCHITECT INSPECTOR EXAMINATION PROGRAM. INSPECTOR SHALL ALSO BE SPECIFICALLY APPROVED BY THE DIVISION OF THE STATE ARCHITECT FOR THIS PROJECT AT LEAST 10 DAYS PRIOR TO THE START OF ANY WORK FOR THIS PROJECT.
 14. ALL WORK SHOWN ON THESE DRAWINGS SHALL COMPLY WITH THE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).
 15. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDUM OR A CONSTRUCTION CHANGE DOCUMENT APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY TITLE 24, CCR, PART 1, SECTION 4-338.
 16. GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.
 17. DRINKING WATER SHALL COMPLY WITH ALL LOCAL HEALTH DEPARTMENT REQUIREMENTS.
 18. FOOD HANDLING FACILITIES SHALL COMPLY WITH ALL LOCAL HEALTH REQUIREMENTS AND THE CALIFORNIA RETAIL FOOD FACILITIES LAW.
 19. THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ADDITION, ALTERATION OR RECONSTRUCTION IS IN COMPLIANCE WITH THE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS. SHOULD ANY CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT IDENTIFIED BY THE CONTRACT DOCUMENTS WHEREIN THE FINAL WORK WOULD NOT COMPLY WITH THE REQUIREMENTS OF TITLE 24, CALIFORNIA CODE OF REGULATIONS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER AND THE ARCHITECT OF THE CONDITION IN WRITING. NECESSARY INFORMATION REQUIRED TO CORRECT THE CONDITIONS ENCOUNTERED WILL BE ISSUED BY THE ARCHITECT. A CHANGE ORDER MAY BE ISSUED TO ADJUST THE CONTRACT SUM OR TIME COMMENSURATE WITH THE AMOUNT OF ADDITIONAL WORK REQUIRED IF ANY. A CONSTRUCTION CHANGE DOCUMENT SHALL BE APPROVED BY THE DIVISION OF THE STATE ARCHITECT PRIOR TO PROCEEDING WITH THE WORK REQUIRED BY THE CHANGE ORDER.
 20. ALL SLOPE AND CROSS SLOPE OF ACCESSIBLE ROUTE PAVING INDICATED ON THESE DRAWINGS WAS DESIGNED IN COMPLIANCE WITH THE 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN AND THE ACCESSIBILITY STANDARDS OF THE CALIFORNIA BUILDING CODE, (CBC) TITLE 24, PART 2, CHAPTER 11B OF THE CALIFORNIA CODE OF REGULATIONS (CCR), STRICT EXECUTION OF THE SLOPE AND CROSS SLOPE OF ACCESSIBLE ROUTE PAVING IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR. SHOULD A CONDITION PRESENT ITSELF THAT WOULD RESULT IN AN INSTALLATION OTHER THAN WHAT IS INDICATED IN THESE DRAWINGS, WLC ARCHITECTS, INC. SHALL BE NOTIFIED IN WRITING AND A COMPLIANT RESOLUTION WILL BE FORMULATED.

PROJECT ADDRESS
 TOVASHAL ELEMENTARY SCHOOL
 23801 SAINT RAPHAEL DRIVE
 MURRIETA, CA 92562
 PHONE: 909-987-0909 FAX: 909-980-9880

OWNER
 MURRIETA VALLEY UNIFIED SCHOOL DISTRICT
 41870 MCALBY COURT
 MURRIETA, CA 92562
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ARCHITECT
 WLC ARCHITECTS, INC.
 8163 ROCHESTER AVE., SUITE 100
 RANCHO CUCAMONGA, CA 91730
 PHONE: 909-987-0909 FAX: 909-980-9880

STRUCTURAL ENGINEER
 KNA STRUCTURAL ENGINEERS
 9931 MUIRLANDS BLVD
 IRVINE, CA 92618
 PHONE: 949-462-3200

MECHANICAL ENGINEER
 DUFOE CONSULTING ENGINEERS
 10680 TREENA STREET #163
 SAN DIEGO, CA 92131
 PHONE: 858-368-8630 FAX: 866-517-3293

ELECTRICAL ENGINEER
 JOHNSON CONSULTING ENGINEERS
 12875 BROOKPINTER PLACE #300
 POWAY, CA 92064
 PHONE: 858-679-4030 FAX: 858-513-0559

GOVERNING CODES & AGENCY

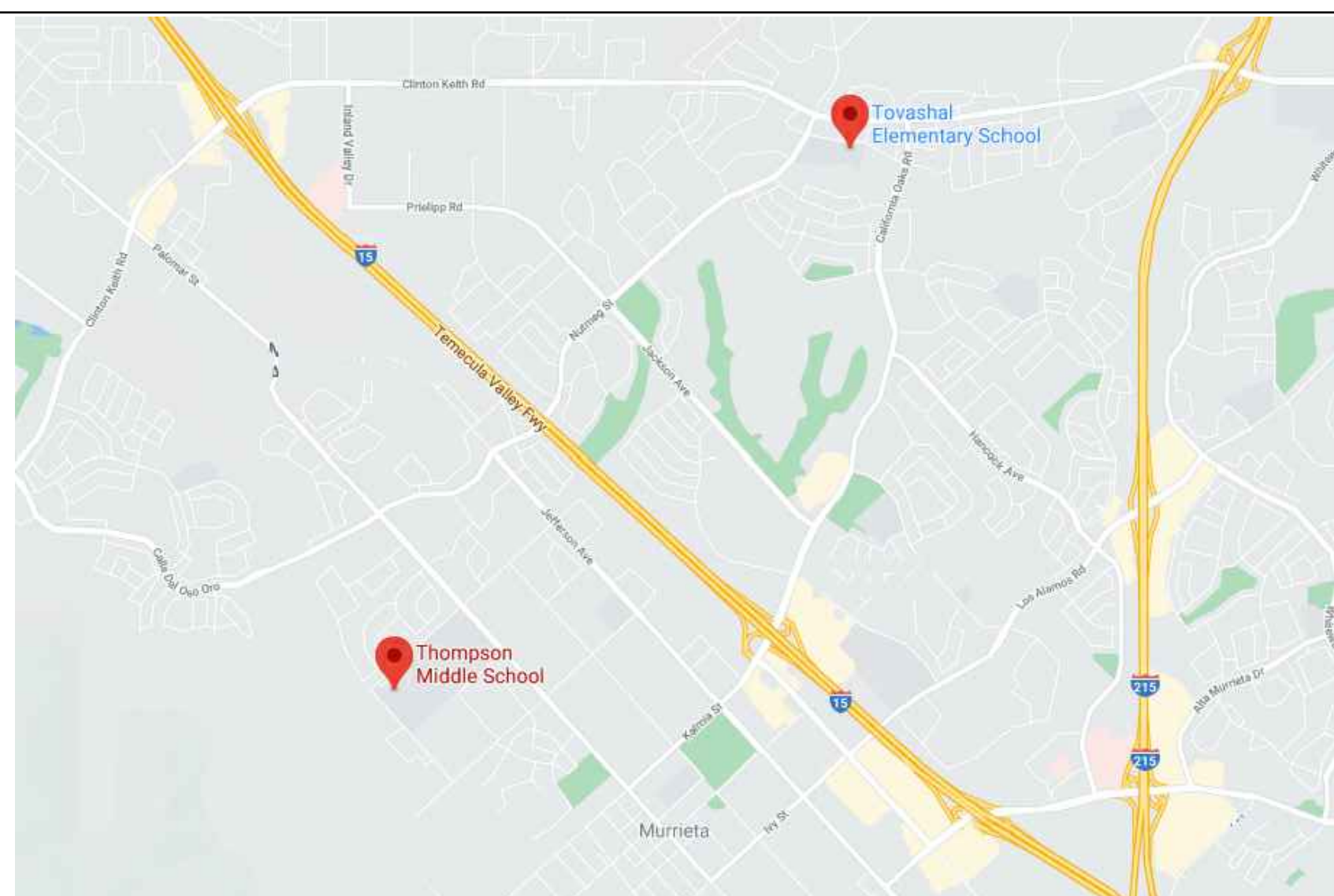
2019 CALIFORNIA BUILDING STANDARDS ADMINISTRATIVE CODE CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 1	(2018 INTERNATIONAL BUILDING CODE (IBC) W/ CALIFORNIA AMENDMENTS)	(2018 INTERNATIONAL FIRE CODE (IFC) W/ CALIFORNIA AMENDMENTS)
2019 CALIFORNIA BUILDING CODE (CBC) CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 2	(2018 INTERNATIONAL BUILDING CODE (IBC) W/ CALIFORNIA AMENDMENTS)	(2018 INTERNATIONAL EXISTING BUILDING CODE (IEBC) W/ CALIFORNIA AMENDMENTS)
2019 CALIFORNIA ELECTRICAL CODE (CEC) CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 3	(2017 NATIONAL ELECTRIC CODE (NEC) W/ CALIFORNIA AMENDMENTS)	2019 CALIFORNIA GREEN BUILDING STANDARDS CODE (CAL GREEN) CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 11
2019 CALIFORNIA MECHANICAL CODE (CMC) CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 4	(2018 UNIFORM MECHANICAL CODE (UMC) W/ CALIFORNIA AMENDMENTS)	2019 CALIFORNIA REFERENCED STANDARDS CODE - CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 12
2019 CALIFORNIA PLUMBING CODE (CPC) CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 5	(2018 UNIFORM PLUMBING CODE (UPC) W/ CALIFORNIA AMENDMENTS)	1990 STATE FIRE MARSHAL REGULATIONS (AS AMENDED TO DATE) CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 19
2019 CALIFORNIA ENERGY CODE CALIFORNIA CODE OF REGULATIONS (CCR) TITLE 24, PART 6		2010 AMERICANS WITH DISABILITY ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN (ADAS)

SCOPE OF WORK

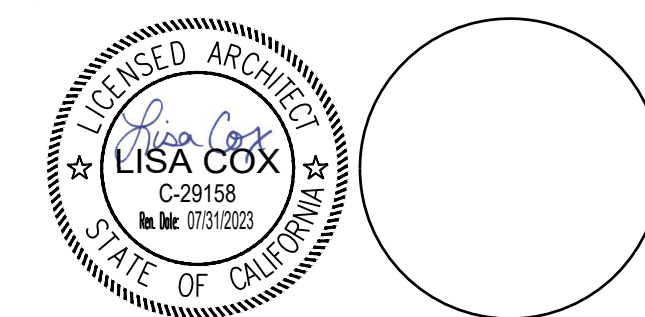
THE SCOPE OF THE WORK AS STATED BELOW IS FOR DSA PLAN REVIEW PURPOSES ONLY AND DOES NOT CONSTITUTE A DETAILED AND FULL EXPLANATION OF THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

GENERAL ALTERATION TO BUILDINGS A, B, C, D, E1 AND E2: REPLACEMENT OF ALL ROOFTOP HVAC PACKAGE UNITS. THIS PROJECT # 04-119843 WILL NOT BE CERTIFIED UNTIL ASSOCIATED PROJECT # 04-68344 IS CERTIFIED BY DSA.

VICINITY MAP



TOVASHAL ELEMENTARY SCHOOL
HVAC REPLACEMENT
MURRIETA VALLEY UNIFIED SCHOOL DISTRICT
 23801 SAINT RAPHAEL DRIVE
 MURRIETA, CA 92562



CONSULTANT			
NO	DATE	BY	DESCRIPTION
REVISIONS			

DRAWN:	CHECKED:
DATE: 12/16/2021	SCALE:
PROJECT NUMBER: 1726200	

GENERAL NOTES & PROJECT DIRECTORY

DRAWING NUMBER: **A0.1**

DRAWING INDEX

DRAWING INDEX CODE

DRAWING REF NO	DESCRIPTION	DRAWING REF NO	DESCRIPTION	DRAWING REF NO	DESCRIPTION	DRAWING REF NO	DESCRIPTION
A0.1	ARCHITECTURAL GENERAL NOTES / PROJECT DIRECTORY	M-0.1	MECHANICAL MECHANICAL LEGEND & GENERAL NOTES	E-1.0	ELECTRICAL ELECTRICAL LEGEND & NOTES		TOTAL SHEET COUNT: 30
A0.2	DRAWING INDEX	M-0.2	MECHANICAL TITLE 24 CALCULATIONS	E-6.1	ELECTRICAL ROOF PLAN - BLDG A		
A1.1	OVERALL SITE PLAN - FOR REFERENCE ONLY	M-0.3	MECHANICAL TITLE 24 CALCULATIONS	E-6.2	ELECTRICAL ROOF PLAN - BLDG B		
		M-1.1	MECHANICAL SCHEDULES	E-6.3	ELECTRICAL ROOF PLAN - BLDG C		
		M-2.A	MECHANICAL ROOF PLAN - BLDG A	E-6.4	ELECTRICAL ROOF PLAN - BLDG D		
	STRUCTURAL	M-2.B	MECHANICAL ROOF PLAN - BLDG B	E-6.5	ELECTRICAL ROOF PLAN - BLDG E1		
S-0.1	GENERAL NOTES	M-2.C	MECHANICAL ROOF PLAN - BLDG C	E-6.6	ELECTRICAL ROOF PLAN - BLDG E2		
S-2.A	BLDG A ROOF FRAMING PLAN	M-2.D	MECHANICAL ROOF PLAN - BLDG D	E-6.7	MECHANICAL EQUIPMENT SCHEDULE		
S-2.B	BLDG B ROOF FRAMING PLAN	M-2.E1	MECHANICAL ROOF PLAN - BLDG E1				
S-2.C	BLDG C ROOF FRAMING PLAN	M-2.E2	MECHANICAL ROOF PLAN - BLDG E2				
S-2.D	BLDG D ROOF FRAMING PLAN	M-5.1	MECHANICAL DETAILS				
S-2.E1	BLDG E1 ROOF FRAMING PLAN						
S-2.E2	BLDG E2 ROOF FRAMING PLAN						
S-3.1	DETAILS						

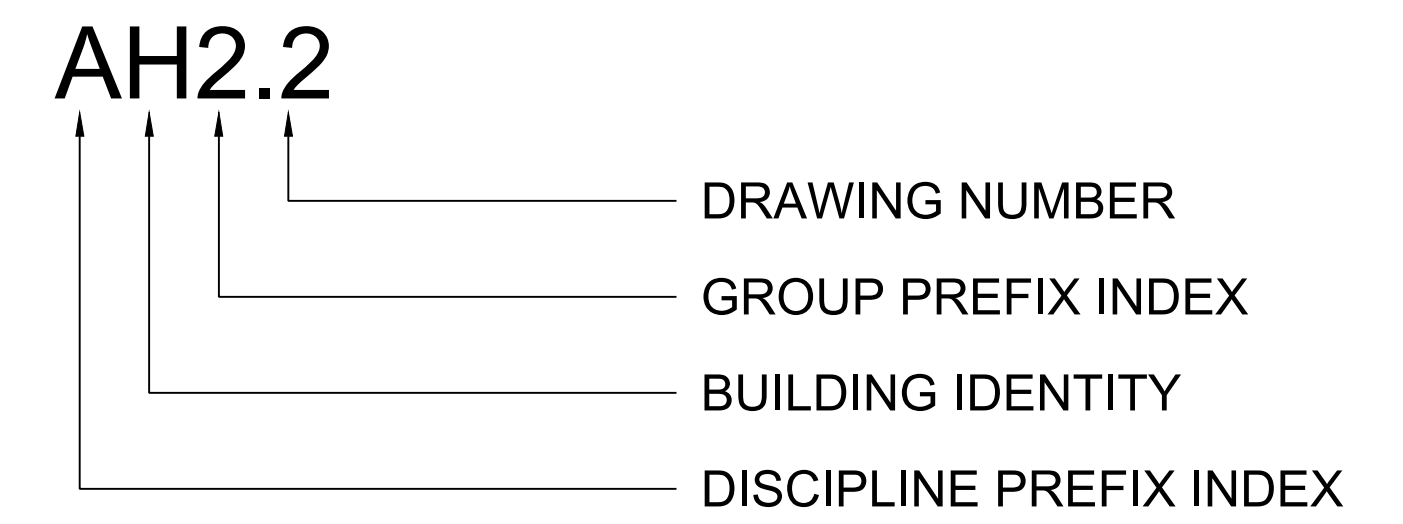
DRAWING DISCIPLINE PREFIX INDEX

- A. ARCHITECTURAL
- C. CIVIL
- D. INTERIOR DESIGN / FURNITURE
- E. ELECTRICAL
- F. FIRE PROTECTION / SPRINKLER SYSTEM
- G. GRAPHICS
- H. HAZARDOUS MATERIALS
- K. DIETARY / FOOD SERVICE
- L. LANDSCAPING
- M. MECHANICAL
- P. PLUMBING
- S. STRUCTURAL
- T. TELECOMMUNICATIONS

DRAWING GROUP PREFIX INDEX

- 0. GENERAL INFORMATION
- 1. SITE PLANS
- 2. FLOOR PLANS
- 3. REFLECTED CEILING PLANS
- 4. ROOF PLANS
- 5. EXTERIOR ELEVATIONS / SECTIONS
- 6. ENLARGED FLOOR PLANS
- 7. INTERIOR ELEVATIONS
- 8. CIRCULATION / STAIRS / ELEVATORS
- 9. 3D REPRESENTATIONS

DRAWING NUMBER CODE

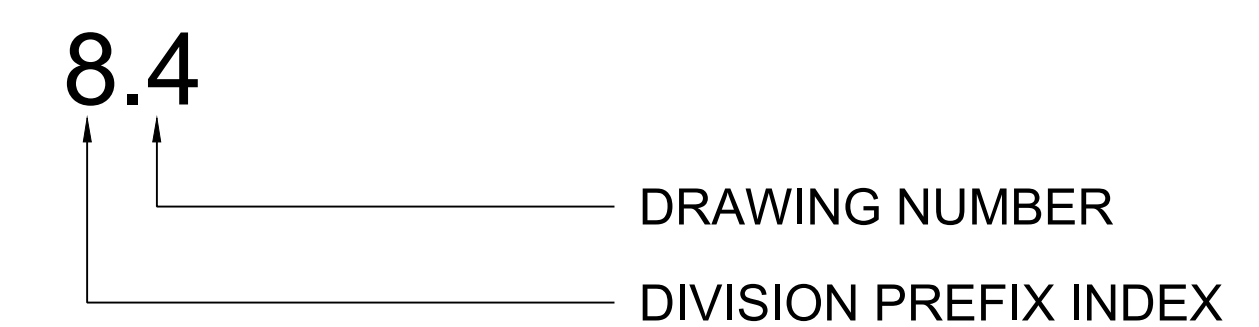


DISCIPLINE OR DRAWING GROUPS NOT INDICATED IN DRAWING INDEX ARE NOT APPLICABLE OR ARE INCLUDED IN THE 16 DIVISIONAL GROUPING OF THE DETAIL DRAWINGS. BUILDING IDENTITY DESIGNATIONS MAY OR MAY NOT BE UTILIZED. REFER TO KEY PLANS AND DRAWING INDEX FOR APPLICATION OF BUILDING DESIGNATIONS. THE DISCIPLINE AND DRAWING GROUPS ARE INTEGRAL WITH THE DETAIL DRAWINGS AND ARE NOT COMPLETE IN THEMSELVES. IN CASE OF DISCREPANCY BETWEEN THE INDEX AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.

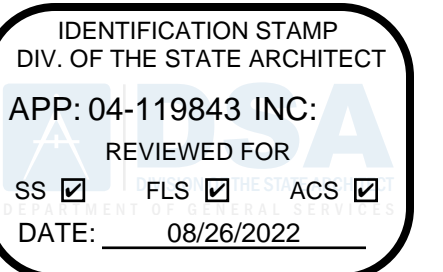
DETAIL DRAWING PREFIX INDEX

- DIVISION 1 - GENERAL REQUIREMENTS
- DIVISION 2 - SITE WORK
- DIVISION 3 - CONCRETE
- DIVISION 4 - MASONRY
- DIVISION 5 - METALS
- DIVISION 6 - WOOD AND PLASTICS
- DIVISION 7 - THERMAL AND MOISTURE PROTECTION
- DIVISION 8 - DOORS AND WINDOWS
- DIVISION 9 - FINISHES
- DIVISION 10 - SPECIALTIES
- DIVISION 11 - EQUIPMENT
- DIVISION 12 - FURNISHINGS
- DIVISION 13 - SPECIAL CONSTRUCTION
- DIVISION 14 - CONVEYING SYSTEMS
- DIVISION 15 - MECHANICAL
- DIVISION 16 - ELECTRICAL

DETAIL DRAWING CODE



THE DIVISION PREFIX NUMBERS ARE THOSE IDENTIFIED BY THE 16 DIVISION GROUPING SYSTEM OF MASTER FORMAT AS PUBLISHED BY THE CONSTRUCTION SPECIFICATION INSTITUTE (CSI) AND SHALL NOT BE SOLELY REPRESENTATIVE OF REQUIREMENTS FOR ANY ONE DIVISION. THOSE DIVISIONS NOTED AS BEING OMITTED ARE NOT APPLICABLE OR ARE INCLUDED UNDER DISCIPLINE DRAWINGS. IN CASE OF DISCREPANCY BETWEEN THE INDEX AND THE DRAWINGS, THE DRAWINGS SHALL GOVERN.

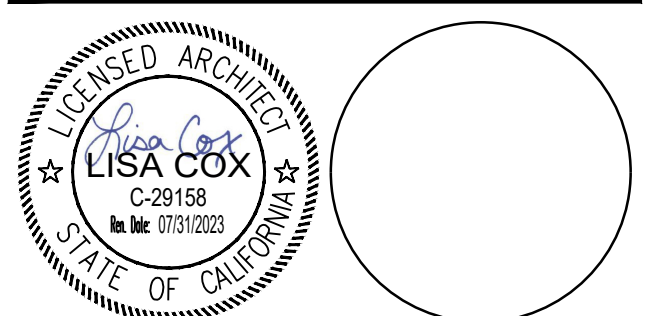


PBK WLC

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TOVASHAL ELEMENTARY SCHOOL
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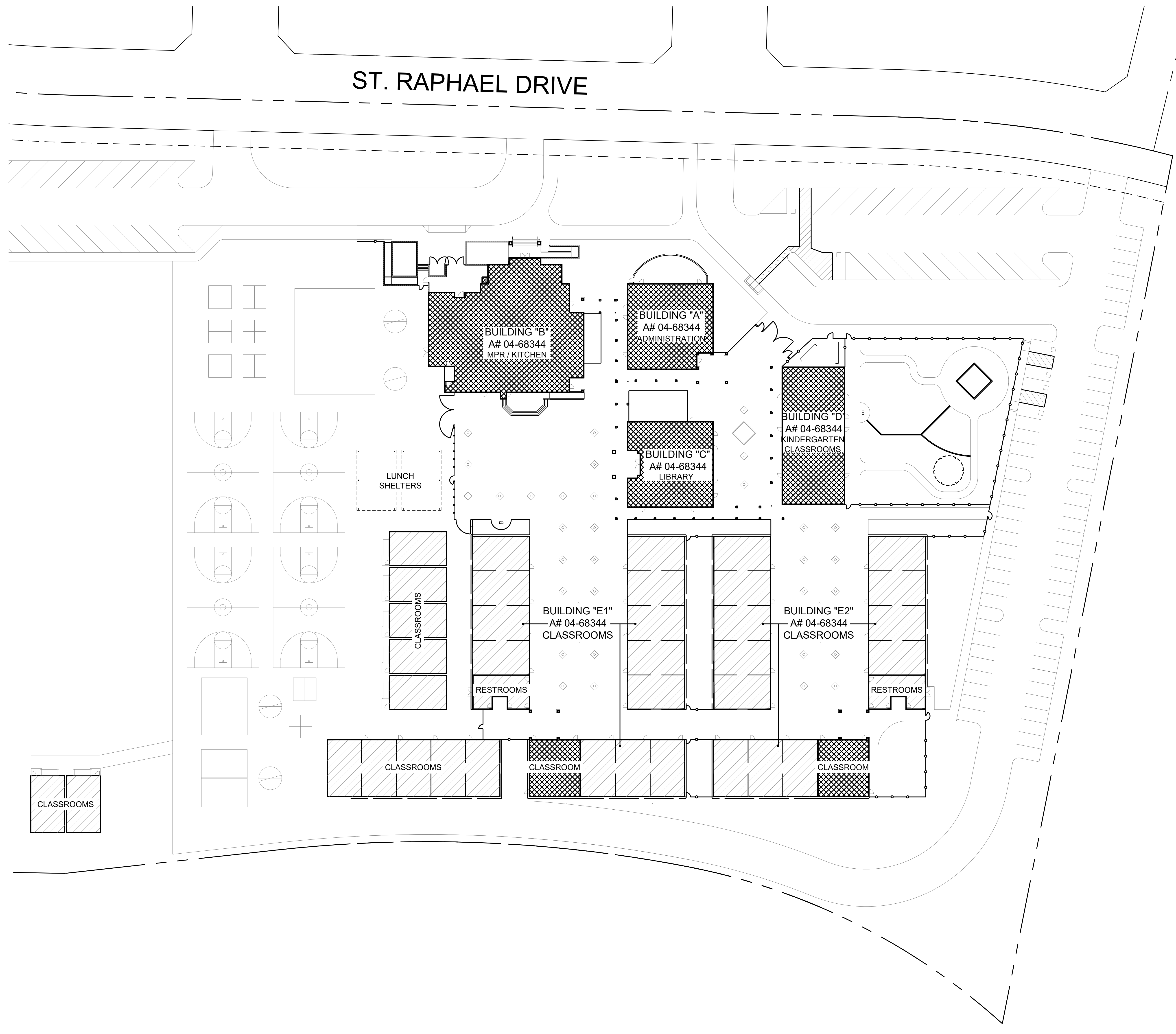
CONSULTANT	

NO	DATE	BY	DESCRIPTION
A			REVISIONS

DRAWN: WLC	CHECKED: WLC
DATE: 12/16/2021	SCALE: NONE
PROJECT NUMBER: 1726200	

DRAWING INDEX

DRAWING NUMBER: A0.2



EXG SURFACE TO REMAIN, TYP
 EXG BUILDING - NOT IN SCOPE
 EXG BUILDING - AREA OF WORK

EXISTING CONDITIONS NOTES:
 BUILDINGS A, C, D, E1 AND E2 ARE TYPE V-B CONSTRUCTION, FULLY SPRINKLERED.
 BUILDING B IS TYPE V-A CONSTRUCTION, FULLY SPRINKLERED.
 ALL ROOFS ARE CLASS "B", BUILT UP ROOF CONSTRUCTION.

DEMOLITION NOTES:
 DEMOLITION WORK IS TO BE CONFINED TO THE MINIMUM AREA REQUIRED FOR REMOVAL OF OLD AND INSTALLATION OF NEW ROOFTOP UNITS AND RELATED COMPONENTS PER THE STRUCTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS CONTAINED HEREIN.

ALL EXISTING SURFACES ARE TO BE PROTECTED AND PRESERVED IN THEIR EXISTING STATE. IN THE EVENT OF DAMAGE DURING DEMOLITION OR CONSTRUCTION, AFFECTED SURFACES ARE TO BE REPAIRED TO MATCH EXISTING ADJACENT.

NEW WORK NOTES:
 WHERE ADAPTER CURBS ARE IMPLEMENTED:
 1. ALL FASTENERS TO BE FURNISHED WITH CLIMASEAL COATING AND NEOPRENE WASHERS AS APPLICABLE.
 2. SEAL JOINTS WITH NON-SAG SINGLE COMPONENT POLYURETHANE SEALANT COMPLIANT WITH ASTM C920, TYPE S, GRADE NS, CLASS 25.
 3. STEEL TO BE PRIME PAINTED AND FINISHED WITH MINIMUM 3 COATS OF PAINT AS FOLLOWS. PRODUCTS TO BE DUNN EDWARDS AS SPECIFIED OR EQUIVALENT FROM SHERWIN WILLIAMS OR VISTA PAINT CORPORATION. COLOR TO MATCH EXISTING ADJACENT.
 1ST COAT - BRPR00 BLOC-RUST PREMIUM.
 2ND COAT - ASHL50 ARISTOSHIELD
 3RD COAT - ASHL50 ARISTOSHIELD

LEGEND AND NOTES

IDENTIFICATION STAMP
 DIV. OF THE STATE ARCHITECT
 APP: 04-119843 INC.
 REVIEWED FOR
 SS FLS ACS
 DATE: 08/26/2022



RANCHO CUCAMONGA
 8163 ROCHESTER AVENUE, SUITE 100
 RANCHO CUCAMONGA, CA 91730
 909-987-0909 P

**TOVASHAL ELEMENTARY SCHOOL
 HVAC REPLACEMENT
 MURRIETA VALLEY UNIFIED SCHOOL DISTRICT**
 23801 SAINT RAPHAEL DRIVE
 MURRIETA, CA 92562



CONSULTANT

NO	DATE	BY	DESCRIPTION

DRAWN: CHECKED:
 DATE: 12/16/2021 SCALE:
 PROJECT NUMBER: 1726200

**OVERALL
 SITE PLAN**

DRAWING NUMBER: **A1.1**

LIST OF ABBREVIATIONS

Table with 2 columns: Abbreviation and Description. Includes items like ADD'L, ALT, ADI, APA, ASTM, AWS, A.B., APPROX., ARCH., B, PL., BM, BRG., BTWN., BLK., BLKG., B.E., BOT. OR BOTT., B.N., BLDG., C, CBC, CIP., CLG., CJ, CJP, CLR., COL., CONC., CMU, COND., CONN., CONSTR., CONT'D, CONT., CONTR., CSK., DL, DP, DEMO, DTL., OR DET., DIAG., DIA. OR Ø, DM., DO, DBL., D.F., DWL., DN., DWG., EA., E.F., E.S., E.W., E.N., ELEC., ELEV., EMBED., ENG., EQ., EQUIP., EXCAV., (E), EXP., EJ, ES, ESR, EXT., F.O.C., F.O.M., F.O.S., F.S., FIN., F.F., FHWS, FLR., FD, FTG., FNDN., FRMG., GALV., GA, GLU-LAM, GLB, GR., HGR., HR, HDR., HT, HD, HSS, HORIZ., INFO., I.D., INT., IBC, ICC, INV., JST., KP, KSI, LAM., LDGR., LT. WT. OR LW, LL, LG., LLH, LLV, LO-HY, M.B., MFR., MAS., M.O., MATL., MAX., MECH., MTL., MIN., MISC., MJ, N.F., N.S., NSA, (N), NCC., NTS., NO. OR #, O.C., OPNG., OPP., O.H., O.D., PHWS, P.J., P., PIL, OR P, PLY., PWJ, PCF, PSF, PSI, PT, PTFD, PL, RAD., RFR., REF., REIN., REQ'D, REQ'D, R.F., R.D.

LIST OF ABBREVIATIONS (CONT'D)

Table with 2 columns: Abbreviation and Description. Includes items like RO., ROUGH, SCHED., SEC., SEL., SEP., SFRS., SHTG., SHT., S.M., SMS, SIM., SIMP., SPCG., SPCS., SQ., STGR., S.S., SPC, STD., STL, STIFF, STIRR., STRUCT., SYM., TSS, THK., K OR KIP, THRU, TN, T&G, T&B, T.O.F., T.O.L., T.O.S., T.O.W., TL, TS, TYP., U.N.O., VIF, VERT., WT., WWF, W/O, WD., WIJ, WP, W.S., ROUGH OPENING, SCHEDULE, SECTION, SELECT, SEPARATION, STRUCTURAL FORCE RESISTING SYSTEM, SHEATHING, SHEET, SHEET METAL, SHEET METAL SCREWS, SIMILAR, SIMPSON, SPACING, SPECIFICATION, SQUARE, STAGGER, STAINLESS STEEL, STANDARD PIPE COLUMN, STANDARD, STEEL, STIFFENER, STIRRUP, STRUCTURAL, SYMMETRICAL, TAPERED STEEL GIRDER, THICK, 1,000 POUNDS, THROUGH, TOE NAIL, TONGUE AND GROOVE, TOP AND BOTTOM, TOP OF FOOTING, TOP OF LEDGER, TOP OF STEEL OR TOP OF SHEATHING, TOP OF WALL, TOTAL LOAD, TUBE STEEL, TYPICAL, UNLESS NOTED OTHERWISE, VERIFY IN FIELD, VERTICAL, WEIGHT, WELDED WIRE FABRIC, WITHOUT, WOOD, WOOD-I-JOIST, WORK POINT, WOOD SCREW.

GENERAL

- 1. THESE STRUCTURAL DRAWINGS AND SPECIFICATIONS, INCLUDING ANY ADDENDA (COLLECTIVELY "THE PLANS") INCORPORATE ALL LEGAL AND INDUSTRY REQUIREMENTS AND STANDARDS INCLUDING WITHOUT LIMITATION THE FOLLOWING:
- THE CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 1 (CALIFORNIA ADMINISTRATIVE CODE), 2019 EDITION.
- THE CALIFORNIA CODE OF REGULATIONS, TITLE 24, PART 2 (CALIFORNIA BUILDING CODE), 2019 EDITION.
- OTHER REGULATING AGENCIES WHICH MAY HAVE AUTHORITY OVER ANY PORTION OF THE WORK, INCLUDING THE STATE OF CALIFORNIA DIVISION OF INDUSTRIAL SAFETY, AND THOSE CODES AND STANDARDS LISTED IN THESE NOTES AND SPECIFICATIONS.
- THE FUNCTIONALITY STANDARDS SET FORTH IN TITLE 7 OF THE CALIFORNIA CIVIL CODE (THE "RIGHT TO REPAIR ACT").
- THE MANUFACTURER'S REQUIREMENTS OR RECOMMENDATIONS FOR ANY INCORPORATED PRODUCTS.
- THE MOST CURRENT APPROVED ISSUES OF ANY NOTED SPECIFICATIONS, CODES AND STANDARDS, INCLUDING SUPPLEMENTS, UNLESS NOTED OTHERWISE.
2. THE PLANS REPRESENT ONLY THE FINISHED STRUCTURE, AND THEY ARE NOT INTENDED TO INDICATE OR REQUIRE ANY CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES. IN PARTICULAR AND WITHOUT LIMITATION, THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR ANY AND ALL EXCAVATION, DEMOLITION, SHORING AND ERECTION PROCEDURES AND FOR ANY AND ALL SAFETY PROGRAMS AND PRECAUTIONS.
3. IN USING THE PLANS FOR BIDDING OR CONSTRUCTION PURPOSES, THE CONTRACTOR IS REQUIRED TO REVIEW ALL OF THE PROJECT'S CONSTRUCTION DOCUMENTS AS A WHOLE IN ORDER TO IDENTIFY ALL REQUIREMENTS THAT DIRECTLY OR INDIRECTLY AFFECT ITS PORTION OF THE STRUCTURAL WORK, EVEN REQUIREMENTS LOCATED IN SECTIONS DESIGNATED AS APPLICABLE TO OTHER TRADES. IN CASE OF CONFLICTS, THE CONTRACTOR SHALL EITHER OBTAIN DIRECTION FROM AN APPROPRIATE OWNER REPRESENTATIVE OR OTHERWISE APPLY THE MORE STRINGENT REQUIREMENT.
4. IN INTERPRETING THE PLANS, THE FOLLOWING GENERAL RULES APPLY:
- WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DRAWINGS.
- SPECIFIC NOTES AND DETAILS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
- WORK NOT PARTICULARLY SHOWN OR SPECIFIED SHALL BE THE SAME AS SIMILAR PARTS THAT ARE SHOWN OR SPECIFIED.
- SCALED DIMENSIONS AND GRAPHICALLY SHOWN LOCATIONS ARE TO BE CONSIDERED ONLY APPROXIMATE.
5. IN IMPLEMENTING THE PLANS, THE FOLLOWING GENERAL RULES APPLY:
- BECAUSE THE PLANS ARE INTENDED TO SET FORTH THE REQUIREMENTS FOR CONSTRUCTION IN ONLY AN INDUSTRY-STANDARD LEVEL OF QUALITY AND DETAIL, AND THEREFORE ARE INTENDED TO BE SUPPLEMENTED BY APPROPRIATE REQUESTS FOR CLARIFICATION AND INFORMATION, ERRORS AND OMISSIONS ARE TO BE EXPECTED AND ANTICIPATED; AND THE CONTRACTOR IS REQUIRED TO CAREFULLY REVIEW THE PLANS FOR ERRORS AND OMISSIONS AND TO BRING THESE ERRORS AND OMISSIONS TO THE ATTENTION OF AN APPROPRIATE OWNER REPRESENTATIVE IN A TIMELY MANNER AND ASSUMES THE RISK OF THE CONSEQUENCES OF FAILING TO DO SO BEFORE BIDDING OR OTHERWISE PROCEEDING.
- THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION, AND NOTIFY THE ARCHITECT IMMEDIATELY OF ANY DISCREPANCIES OR INCONSISTENCIES.
6. SUBMITTALS WILL BE REVIEWED BY THE STRUCTURAL ENGINEER, IF AT ALL, ONLY PURSUANT TO THE INDUSTRY-STANDARD PROTOCOL SET FORTH IN AIA DOCUMENT A201, AND IN NO EVENT WILL THE SUBMITTAL REVIEW PROCESS RELIEVE OR LESSEN THE SUBMITTING CONTRACTOR'S RESPONSIBILITY FOR AN INAPPROPRIATE SUBMITTAL.
7. IN NO EVENT WILL ANY SITE VISITS BY THE STRUCTURAL ENGINEER CONCERN CONSTRUCTION MEANS AND METHODS OR CONSTRUCTION SAFETY, AND ALL SUCH MATTERS SHALL REMAIN THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. COPIES OF THE PLANS PROVIDED IN ANY ELECTRONIC FORM ARE SUBJECT TO THE SAME PROVISIONS AS THE OTHER INSTRUMENTS OF SERVICE PREPARED BY OR ON BEHALF OF STRUCTURAL ENGINEER FOR THE PROJECT, INCLUDING WITHOUT LIMITATION THE ENGINEER'S COMMON LAW, STATUTORY OR OTHER RESERVED RIGHTS, INCLUDING COPYRIGHTS. A RECIPIENT IS GRANTED AT MOST A TRANSFERABLE NONEXCLUSIVE LICENSE TO REUSE THE PLANS SOLELY FOR PROJECT PURPOSES; AND NO RECIPIENT IS AUTHORIZED TO USE OR TO ALLOW THE USE OF ALL OR ANY PORTION OF THESE PLANS FOR ANY OTHER PURPOSE, AND ANY USE FOR ANY OTHER PURPOSE WOULD CONSTITUTE ACTIONABLE PLAGIARISM. STRUCTURAL ENGINEER PROVIDES DOCUMENTS IN AN ELECTRONIC FORM ONLY IN ITS STANDARD FORMATS AND CONVENTIONS AND WITH NO GUARANTEE OF COMPATIBILITY WITH ANY RECIPIENT'S SOFTWARE OR HARDWARE, AND ANY USE WITH OR CONVERSION TO OTHER FORMATS OR CONVENTIONS, OR THE USE WITH ANY PARTICULAR SOFTWARE OR HARDWARE, IS AT THE RECIPIENT'S SOLE RISK.

PROJECT DESIGN CRITERIA

- 1. BASIC DESIGN LIVE LOADS:
ROOF LIVE LOAD: 20 PSF (REDUCIBLE)
(E) ROOF DEAD LOAD, BLDG A, B, C, D, E1, & E2: 13 PSF
2. RAIN LOADS
RAIN INTENSITY, i = 2.50 IN/HR
3. SNOW LOADS
GROUND SNOW LOAD, P_g= 0
4. WIND LOADS
RISK CATEGORY: III
EXPOSURE CATEGORY: C
BASIC DESIGN WIND SPEED (3-SECOND GUST), V = 102 MPH
VELOCITY PRESSURE EXPOSURE COEFFICIENT, K_e = 0.85 (0-15 FT)
TOPOGRAPHIC FACTOR, K_z = 1.0
WIND DIRECTIONALITY FACTOR, K_d = 0.85
GROUND ELEVATION FACTOR, K_e = 1.00
GUST EFFECT FACTOR, G = 0.85
A. WIND ON ROOFTOP EQUIPMENT (ASCE 7-16, CH. 29)
q_s = 0.00256 K_z K_d K_e V_{ULT}² = 19.24 PSF
F_s = q_s (Gc_r) Af = 36.56 PSF x Af LATERAL
= 28.86 PSF x Af UPLIFT
COEFFICIENT FOR LATERAL, (Gc_r) = 1.9
COEFFICIENT FOR UPLIFT, (Gc_r) = 1.5
5. EARTHQUAKE LOADS
SEISMIC DESIGN CRITERIA
S_s = 1.535
S₁ = 0.575
SITE CLASS: D
F_a = 1.2
F_v = 1.725
S_{ps} = 1.228
S₀₁ = 0.661
RISK CATEGORY: III
SEISMIC DESIGN CATEGORY: D
SEISMIC DESIGN REQUIREMENTS
NON-STRUCTURAL COMPONENTS
SEISMIC DESIGN FORCE
F_p = 0.4q_sS_{ps}W_p / (R_p/I_p) (1+2 B)
F_p IS NOT REQUIRED TO BE TAKEN AS GREATER THAN
F_p = 1.6S_{ps}W_p
AND F_p SHALL NOT BE TAKEN AS LESS THAN
F_p = 0.3S_{ps}W_p

DIMENSIONS

- 1. DIMENSIONS SHALL BE DEFINED TO INCLUDE BOTH HORIZONTAL DIMENSIONS AND VERTICAL DIMENSIONS (ELEVATIONS).
2. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DRAWINGS.
3. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT NOTED ON STRUCTURAL DRAWINGS.
4. SEE ARCHITECTURAL AND/OR CIVIL DRAWINGS FOR FINISH FLOOR ELEVATIONS.
5. SEE ARCHITECTURAL DRAWINGS FOR ALL TOP OF SHEATHING AND/OR ROOF ELEVATIONS.
6. THE CONTRACTOR SHALL REVIEW AND VERIFY ALL DIMENSIONS PRIOR TO STARTING CONSTRUCTION. THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES OR INCONSISTENCIES.

EXISTING CONDITIONS

- 1. ALL INFORMATION SHOWN ON THE PLANS RELATIVE TO EXISTING CONDITIONS IS GIVEN AS THE BEST PRESENT KNOWLEDGE FROM PLANS SUPPLIED BY THE OWNER, BUT WITHOUT GUARANTEE OF ACCURACY.
2. WHERE ACTUAL CONDITIONS ARE NOT IN ACCORDANCE WITH THE INFORMATION PRESENTED, THE ARCHITECT SHALL BE NOTIFIED IMMEDIATELY. NO MODIFICATIONS OF THE PLANS FOR NEW CONSTRUCTION SHALL BE MADE WITHOUT THE WRITTEN APPROVAL OF THE ARCHITECT.
3. PER AS-BUILTS, ALL (E) STRUCTURAL LUMBER IS DOUGLAS FIR OF THE FOLLOWING GRADES:
2X4 AND 3X4 NO. 1
2X6 AND LARGER NO. 1
4. PER AS-BUILTS, (E) STRUCTURAL STEEL PROPERTIES CONFORM TO THE FOLLOWING:
STRUCTURAL STEEL ASTM A-36
BOLTS ASTM A307
STRUCTURAL STEEL AND MISCELLANEOUS METAL
1. ALL PORTIONS OF WORK PERTAINING TO STRUCTURAL STEEL CONSTRUCTION SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 22A.
2. BOLTS SHALL CONFORM TO THE FOLLOWING, UNLESS NOTED OTHERWISE:
- MISCELLANEOUS CONNECTIONS: ASTM A-307
3. SQUARE AND RECTANGULAR HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A-500, GRADE B.
4. STRUCTURAL STEEL SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
5. ALL WELDING SHALL CONFORM TO THE STRUCTURAL WELDING CODE - STEEL, AWS D1.1 AND STRUCTURAL WELDING CODE SEISMIC SUPPLEMENT AWS D1.8, BY THE AMERICAN WELDING SOCIETY. WELDING RODS SHALL BE E70XX.
6. ALL WELDING SHALL BE PERFORMED BY CERTIFIED WELDERS.
7. ALL STRUCTURAL STEEL AND MISCELLANEOUS METAL ITEMS, INCLUDING CONNECTORS, EXPOSED TO WEATHER SHALL BE HOT-DIPPED GALVANIZED, AFTER FABRICATION.

COLD-FORMED STEEL FRAMING

- 1. ALL PORTIONS OF WORK PERTAINING TO COLD-FORMED STEEL CONSTRUCTION SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 22A.
2. ALL SHEET METAL SCREWS SHALL PROTRUDE 3 EXPOSED THREADS MINIMUM THROUGH BASE METAL FRAMING. SHEET METAL SCREWS SHALL BE PER ICC ESR-3223 OR EQUIVALENT.
3. ALL LIGHT GAUGE METAL FRAMING SHALL BE GALVANIZED AND SHALL CONFORM TO ASTM A-653 SS, GRADE 50, CLASS 1, WITH A MINIMUM YIELD STRENGTH OF 50 KSI FOR 16 GAUGE AND HEAVIER FRAMING, AND ASTM A-653 SS, GRADE 33, WITH A MINIMUM YIELD STRENGTH OF 33 FOR 18 GAUGE AND LIGHTER FRAMING.
4. WELDING SHALL BE IN ACCORDANCE WITH THE STRUCTURAL WELDING CODE - SHEET STEEL, AWS D1.3, BY THE AMERICAN WELDING SOCIETY.

WOOD

- 1. ALL PORTIONS OF WORK PERTAINING TO WOOD CONSTRUCTION SHALL CONFORM TO TITLE 24, PART 2, CHAPTER 23, INCLUDING ADDITIONAL REQUIREMENTS AND EXCEPTIONS, AS APPLICABLE.
2. LUMBER SHALL BE GRADED IN ACCORDANCE WITH THE STANDARD GRADING RULES NO. 17 OF THE WEST COAST LUMBER INSPECTION BUREAU, OR THE STANDARD GRADING RULES OF THE WESTERN WOOD PRODUCTS ASSOCIATION.
3. DIMENSION LUMBER SHALL BE DOUGLAS FIR-LARCH, NO. 1 AND BETTER GRADE, UNLESS NOTED OTHERWISE. TIMBERS SHALL BE DOUGLAS FIR LARCH, NO. 1 GRADE, UNLESS NOTED OTHERWISE. MOISTURE CONTENT AT TIME OF INSTALLATION SHALL BE 19% OR LESS.

IDENTIFICATION STAMP DIV. OF THE STATE ARCHITECT APP: 04-119843 INC. REVIEWED FOR ACS DATE: 08/26/2022

ARCHITECTS WLC CLIENT FOCUSED PASSION DRIVEN SOUTHERN CALIFORNIA 8163 ROCHESTER AVENUE, SUITE 100 RANCHO CUCAMONGA CALIFORNIA 91730-0729 TEL: 909-987-0909 www.wlcarcitects.com

TOVASHAL ELEMENTARY SCHOOL HVAC REPLACEMENT MURRIETA VALLEY UNIFIED SCHOOL DISTRICT 23801 SAINT RAPHAEL DRIVE MURRIETA, CA 92562

Licensed Architect LISA COX No. 45562 Exp. 6-30-23 REGISTERED PROFESSIONAL ENGINEER No. 45562 Exp. 6-30-23

CONSULTANT KNA STRUCTURAL ENGINEERS 9331 Mulhanda Boulevard, Irvine, CA 92618 Tel (949) 462-3200 Fax (949) 462-3201 www.KNAstructural.com KNA JOB NO.: 273.013

Table with 4 columns: NO, DATE, BY, DESCRIPTION. Includes a REVISIONS section.

Table with 2 columns: DRAWN: NP, CHECKED: JR. DATE: 03/10/2021, SCALE: PROJECT NUMBER: 1726200

GENERAL NOTES

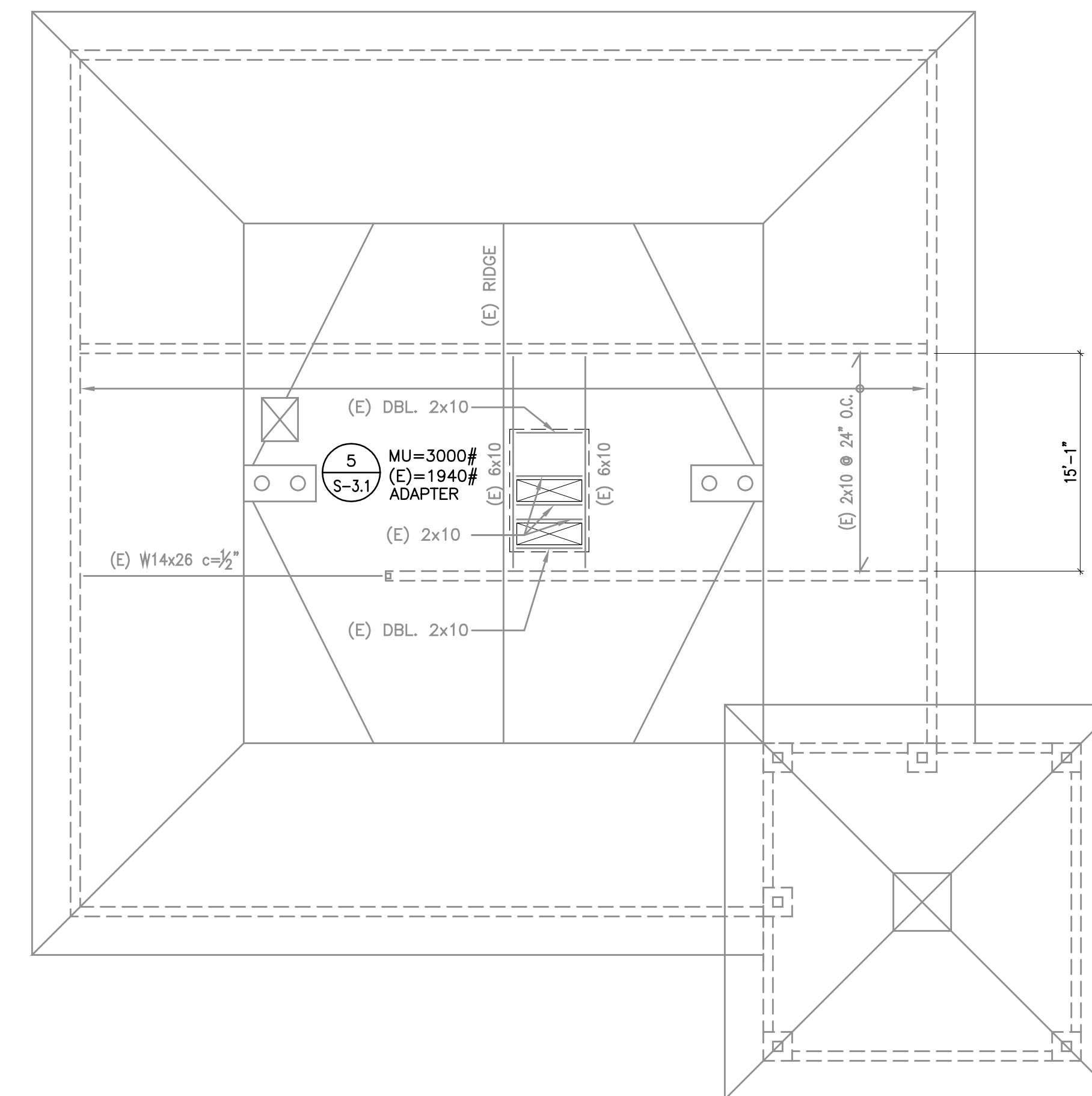
DRAWING NUMBER: S-0.1

ROOF FRAMING PLAN NOTES

1. SEE SHEET S0.1 FOR GENERAL NOTES.
2. MU INDICATES NEW MECHANICAL UNIT. EXISTING WEIGHT OF UNIT BEING REPLACED IS SHOWN. USE OF ADAPTER CURB WHERE APPLICABLE IS INDICATED. WEIGHT INCLUDES NEW UNIT PLUS ACCESSORIES AND ADAPTER CURB WHERE OCCURS. FOR WEIGHT OF (E) CURB, SEE MECHANICAL DRAWINGS.
3. SEE MECHANICAL DRAWINGS FOR ADDITIONAL UNIT INFORMATION.
4. ALL FRAMING IS EXISTING. ANY DIMENSIONS NOTED ARE FOR INFORMATION ONLY AND SUBJECT TO FIELD VERIFICATION.

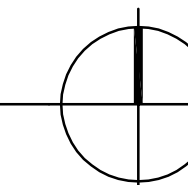
LEGEND

- : INDICATES EXISTING SPAN OF JOISTS
- : INDICATES EXISTING EXTENT OF JOISTS.

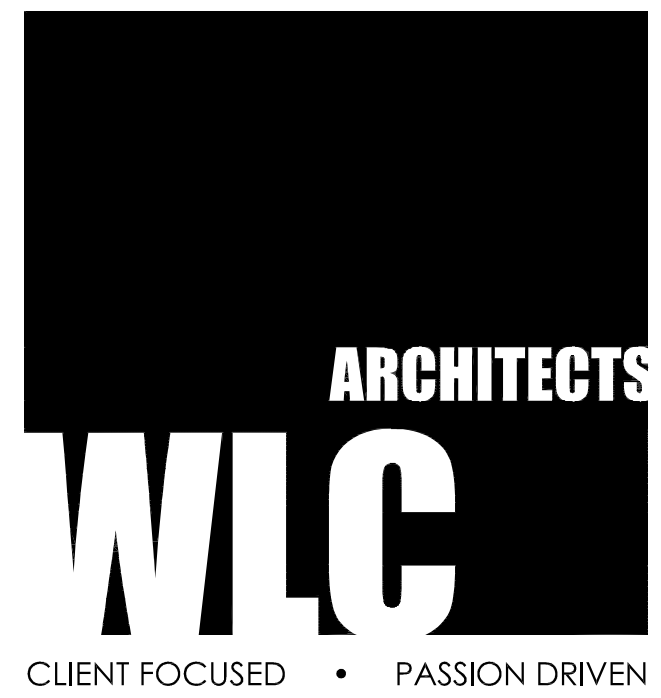


BUILDING A - ROOF FRAMING PLAN

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

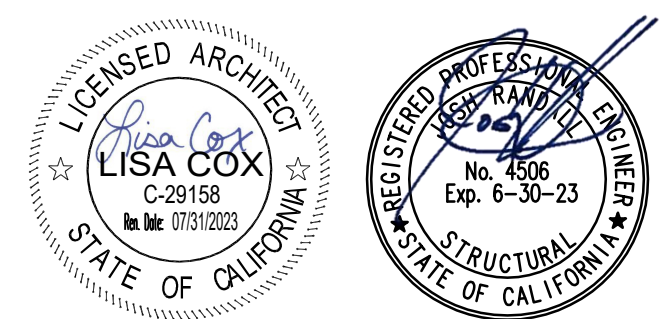


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KNA JOB NO.: 273.013

NO	DATE	BY	DESCRIPTION
REVISIONS			

DRAWN: NP CHECKED: JR
DATE: 03/10/2021 SCALE:
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**ROOF FRAMING PLAN
BLDG. A**

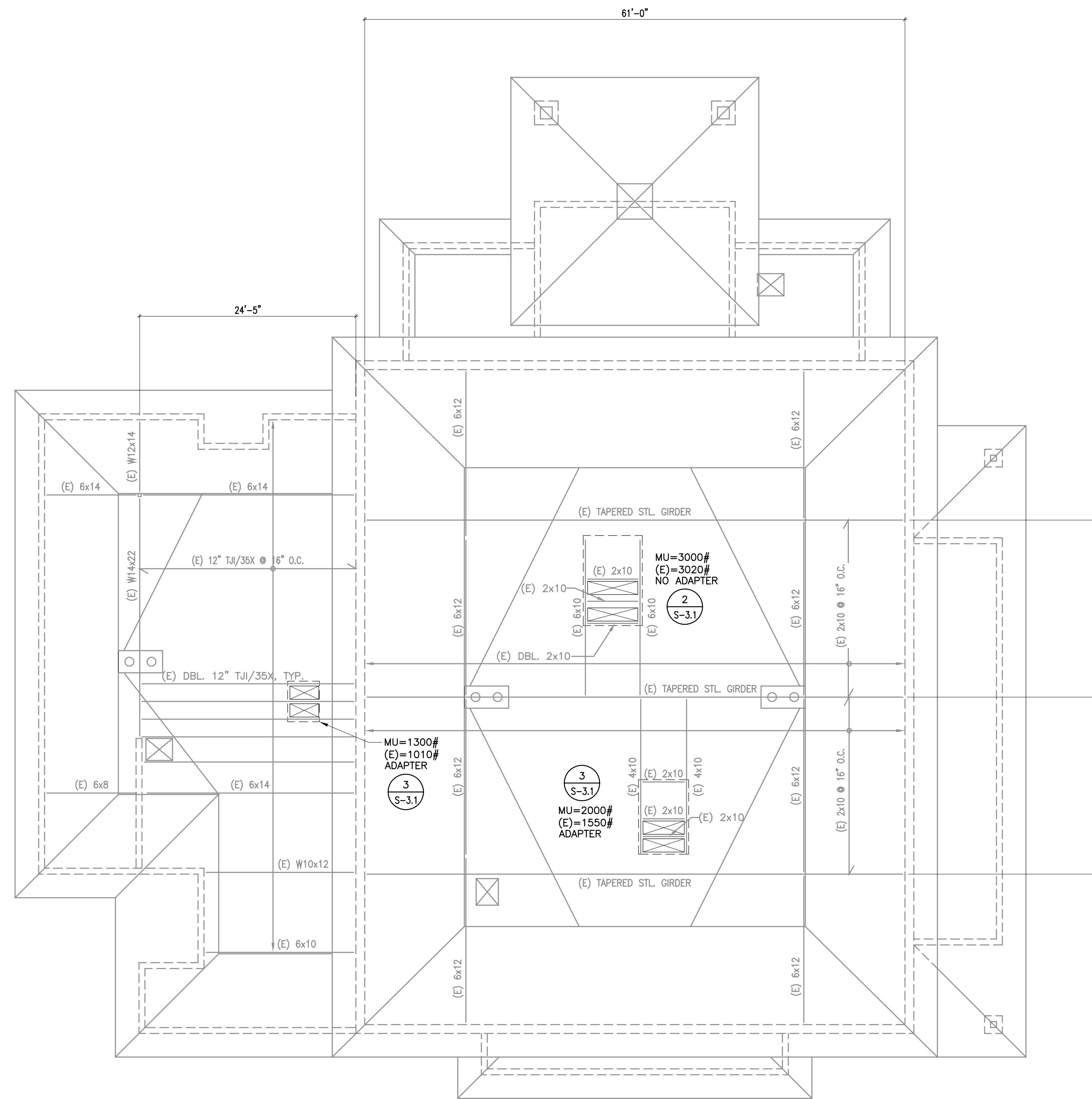
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ROOF FRAMING PLAN NOTES

- SEE SHEET S0.1 FOR GENERAL NOTES.
- MU INDICATES NEW MECHANICAL UNIT. EXISTING WEIGHT OF UNIT BEING REPLACED IS SHOWN. USE OF ADAPTER CURB WHERE APPLICABLE IS INDICATED. WEIGHT INCLUDES NEW UNIT PLUS ACCESSORIES AND ADAPTER CURB WHERE OCCURS. FOR WEIGHT OF (E) CURB, SEE MECHANICAL DRAWINGS.
- SEE MECHANICAL DRAWINGS FOR ADDITIONAL UNIT INFORMATION.
- ALL FRAMING IS EXISTING. ANY DIMENSIONS NOTED ARE FOR INFORMATION ONLY AND SUBJECT TO FIELD VERIFICATION.

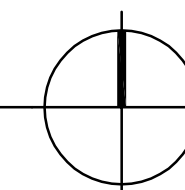
LEGEND

- : INDICATES EXISTING SPAN OF JOISTS
- : INDICATES EXISTING EXTENT OF JOISTS.

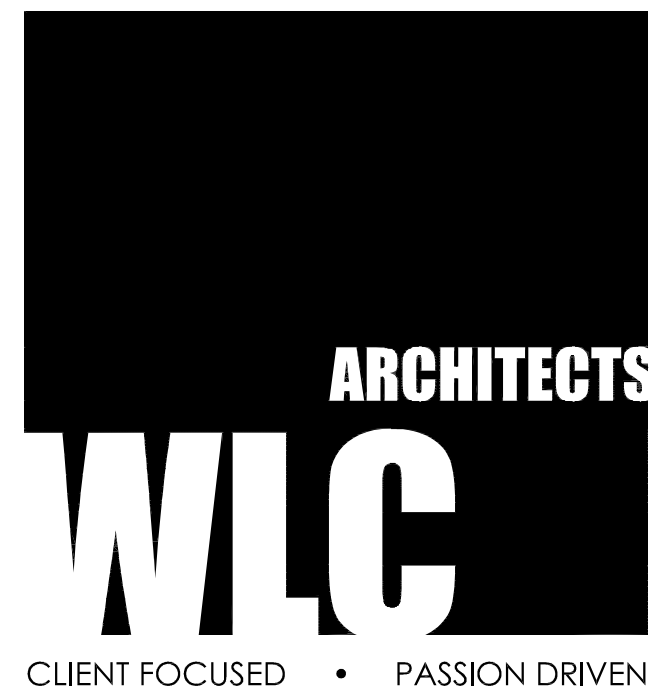


BUILDING B - ROOF FRAMING PLAN

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



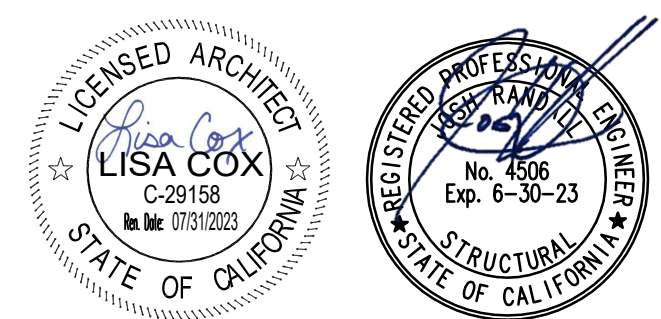
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KNA JOB NO.: 273.013

NO	DATE	BY	DESCRIPTION
REVISIONS			

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DATE: 03/10/2021 SCALE:
PROJECT NUMBER: 1726200




**ROOF FRAMING PLAN
BLDG. B**

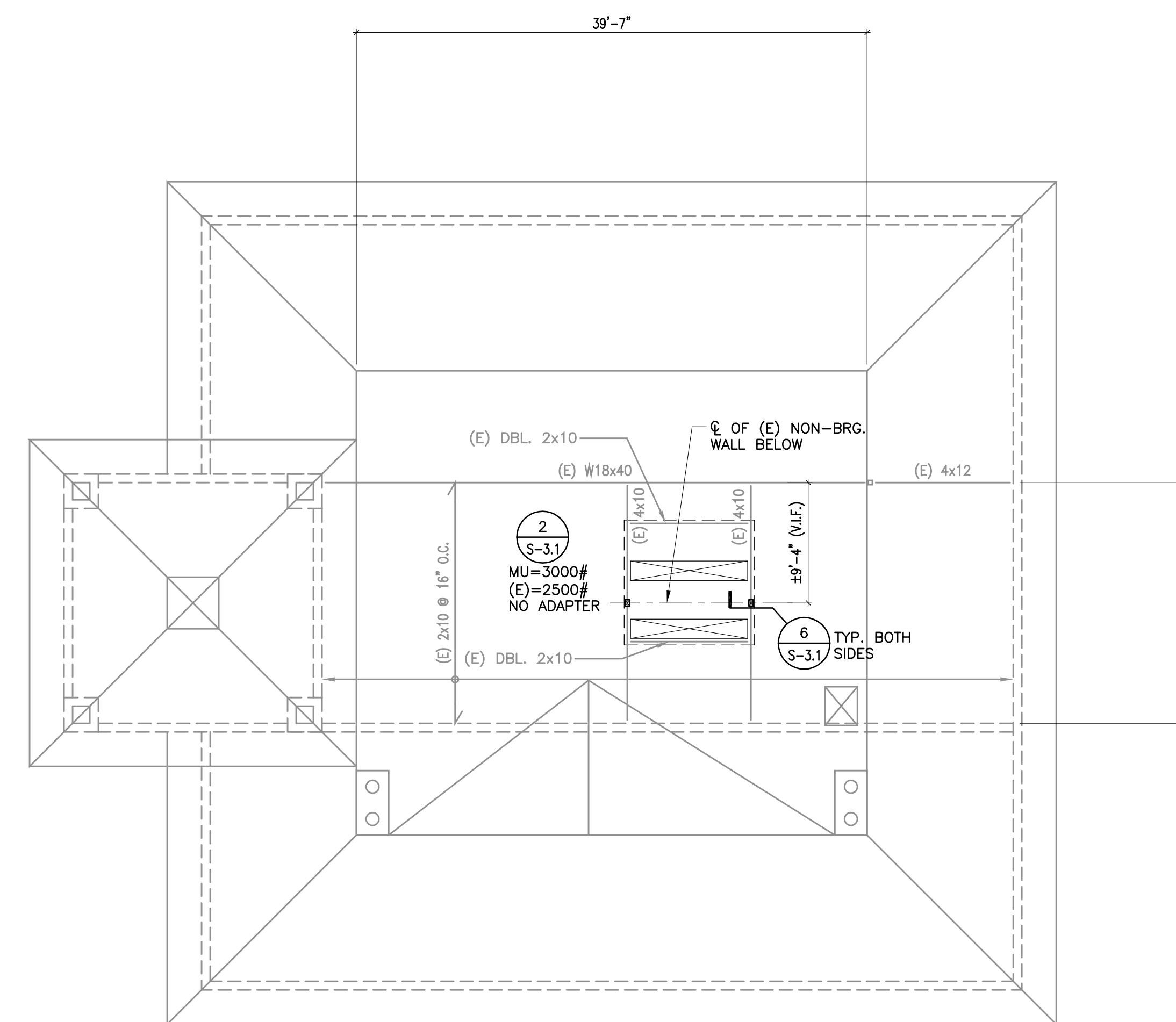
DRAWING NUMBER: **S-2.B**

ROOF FRAMING PLAN NOTES

- SEE SHEET S0.1 FOR GENERAL NOTES.
- MU INDICATES NEW MECHANICAL UNIT. EXISTING WEIGHT OF UNIT BEING REPLACED IS SHOWN. USE OF ADAPTER CURB WHERE APPLICABLE IS INDICATED. WEIGHT INCLUDES NEW UNIT PLUS ACCESSORIES AND ADAPTER CURB WHERE OCCURS. FOR WEIGHT OF (E) CURB, SEE MECHANICAL DRAWINGS.
- SEE MECHANICAL DRAWINGS FOR ADDITIONAL UNIT INFORMATION.
- ALL FRAMING IS EXISTING. ANY DIMENSIONS NOTED ARE FOR INFORMATION ONLY AND SUBJECT TO FIELD VERIFICATION.

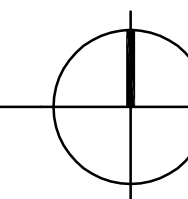
LEGEND

-  : INDICATES EXISTING SPAN OF JOISTS
-  : INDICATES EXISTING EXTENT OF JOISTS.
-  : INDICATES (N) 4x POST UNDER (E) BEAM. SEE 6/S-3.1 FOR ADD'L. INFORMATION.



BUILDING C - ROOF FRAMING PLAN

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



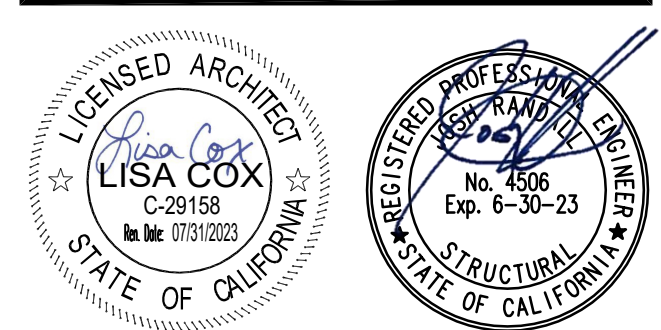
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**ROOF FRAMING PLAN
BLDG. C**

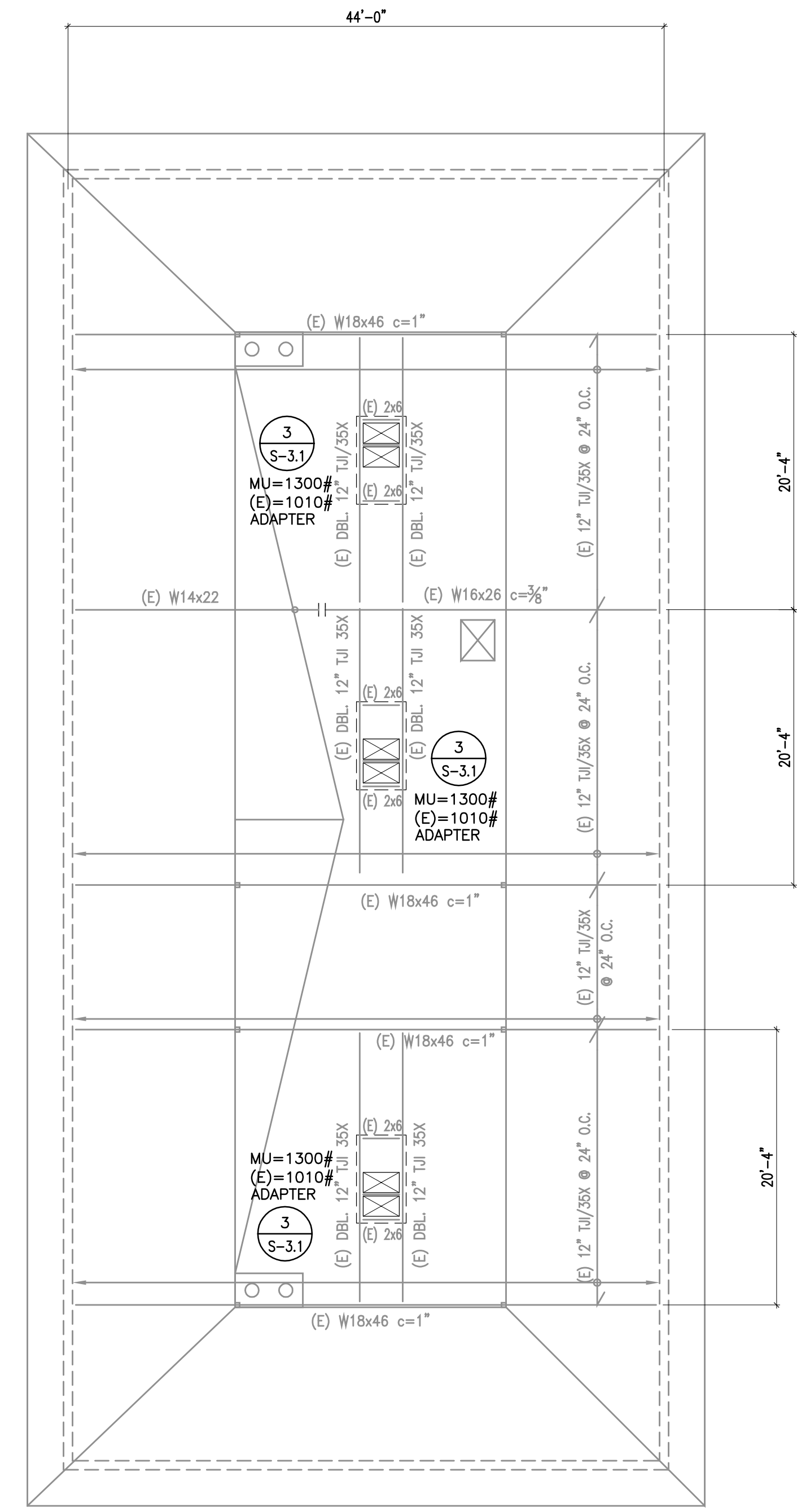
DRAWING NUMBER: **S-2.C**

ROOF FRAMING PLAN NOTES

- SEE SHEET S0.1 FOR GENERAL NOTES.
- MU INDICATES NEW MECHANICAL UNIT. EXISTING WEIGHT OF UNIT BEING REPLACED IS SHOWN. USE OF ADAPTER CURB WHERE APPLICABLE IS INDICATED. WEIGHT INCLUDES NEW UNIT PLUS ACCESSORIES AND ADAPTER CURB WHERE OCCURS. FOR WEIGHT OF (E) CURB, SEE MECHANICAL DRAWINGS.
- SEE MECHANICAL DRAWINGS FOR ADDITIONAL UNIT INFORMATION.
- ALL FRAMING IS EXISTING. ANY DIMENSIONS NOTED ARE FOR INFORMATION ONLY AND SUBJECT TO FIELD VERIFICATION.

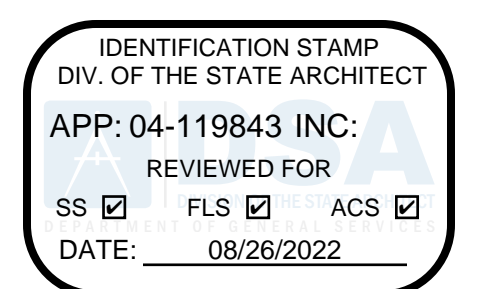
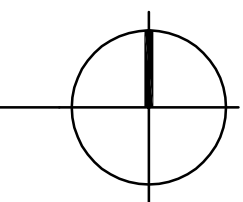
LEGEND

- : INDICATES EXISTING SPAN OF JOISTS
- : INDICATES EXISTING EXTENT OF JOISTS.



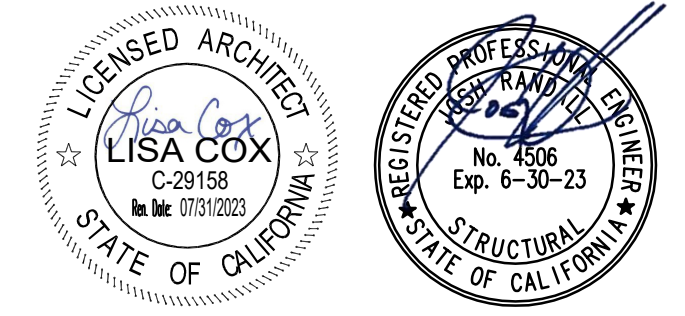
BUILDING D - ROOF FRAMING PLAN

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



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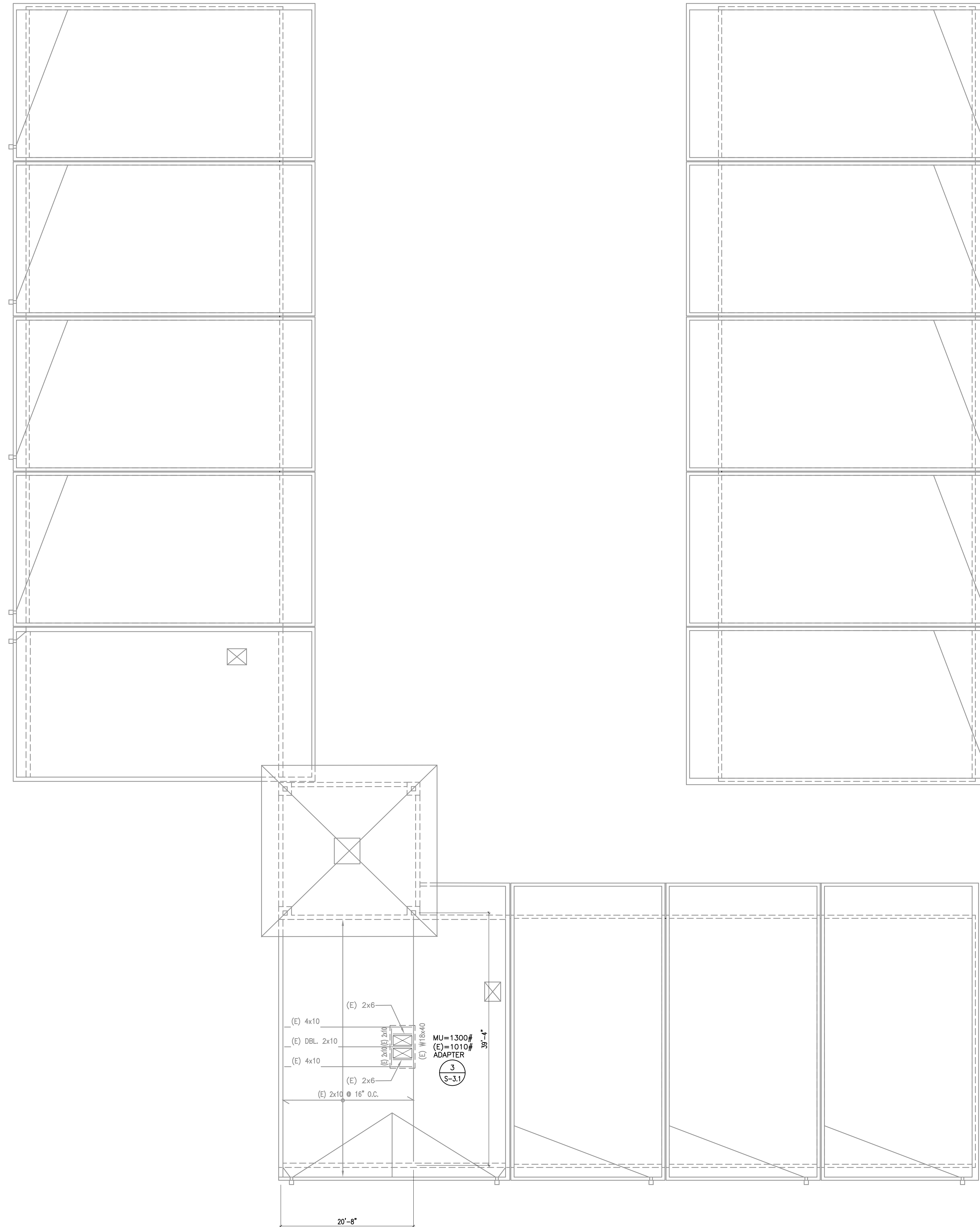
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 PROJECT NUMBER: 1726200

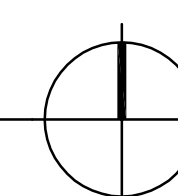
**ROOF FRAMING PLAN
 BLDG. D**

DRAWING NUMBER: **S-2.D**



BUILDING E.1 - ROOF FRAMING PLAN

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



ROOF FRAMING PLAN NOTES

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- SEE MECHANICAL DRAWINGS FOR ADDITIONAL UNIT INFORMATION.
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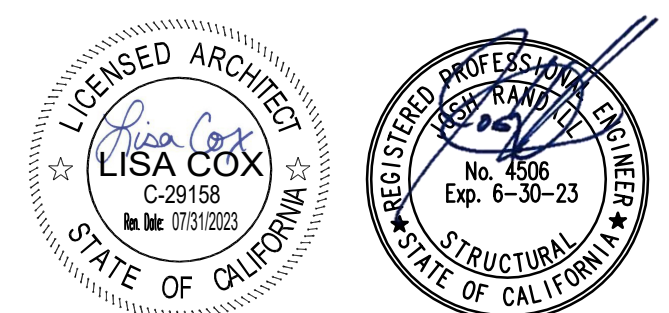
IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119843 INC.
REVIEWED FOR
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DATE: 08/26/2022



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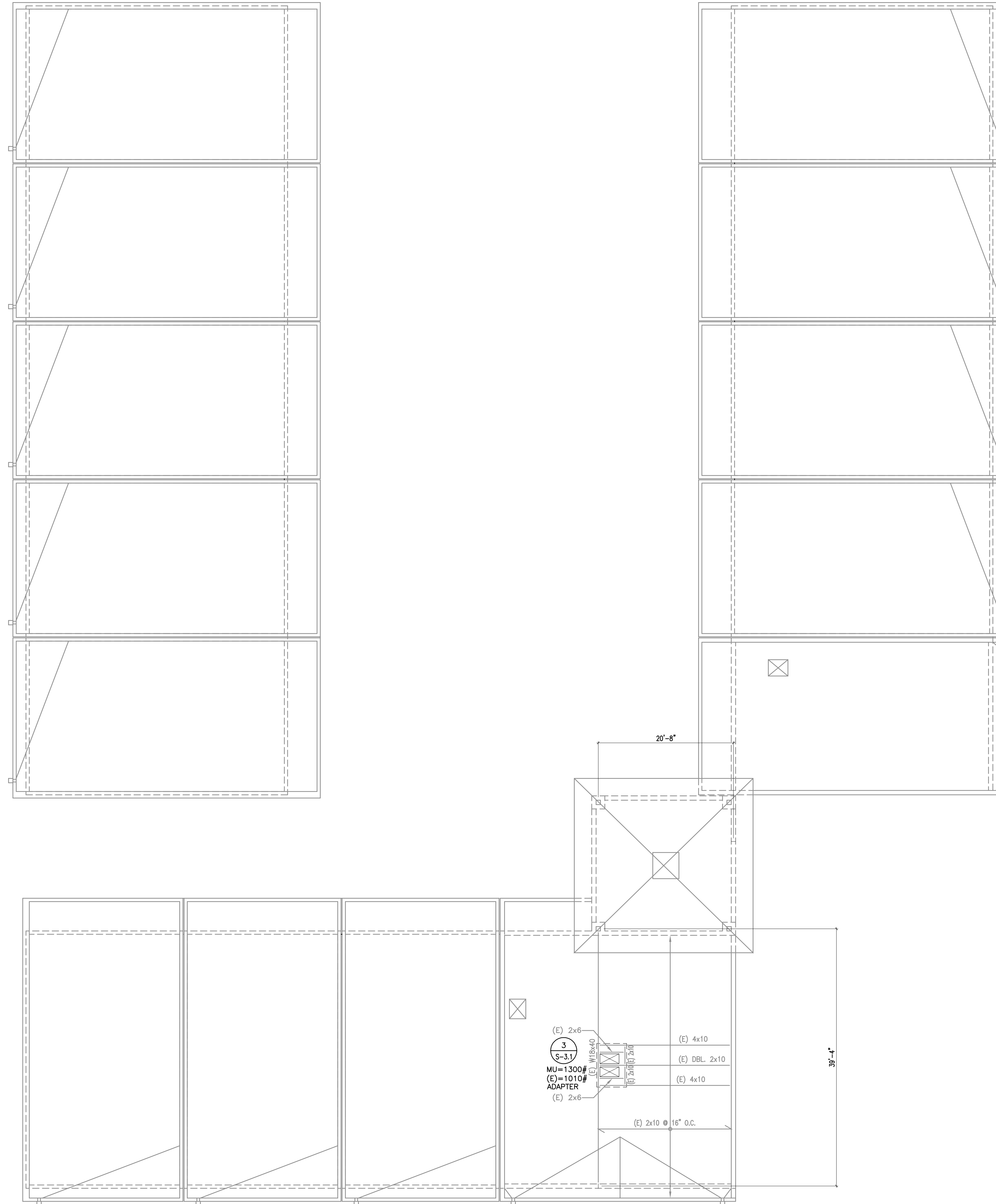
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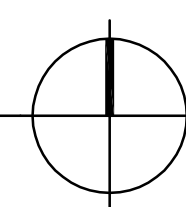
ROOF FRAMING PLAN
BLDG. E1

DRAWING NUMBER: **S-2.E.1**



BUILDING E.2 - ROOF FRAMING PLAN

SCALE: 3/8" = 1'-0"



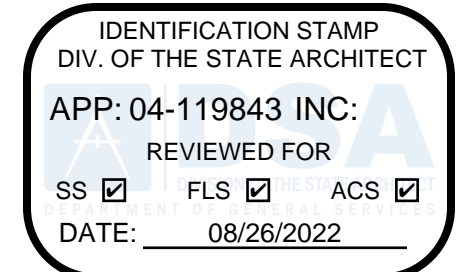
ROOF FRAMING PLAN NOTES

1. SEE SHEET S0.1 FOR GENERAL NOTES.
2. MU INDICATES NEW MECHANICAL UNIT. EXISTING WEIGHT OF UNIT BEING REPLACED IS SHOWN. USE OF ADAPTER CURB WHERE APPLICABLE IS INDICATED. WEIGHT INCLUDES NEW UNIT PLUS ACCESSORIES AND ADAPTER CURB WHERE OCCURS. FOR WEIGHT OF (E) CURB, SEE MECHANICAL DRAWINGS.
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LEGEND

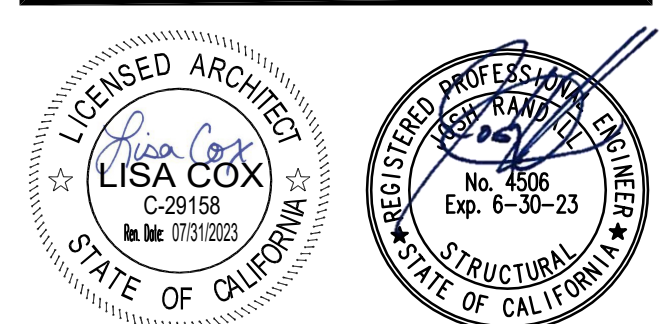
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DRAWN: NP CHECKED: JR
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**ROOF FRAMING PLAN
 BLDG. E2**

DRAWING NUMBER: **S-2.E.2**

DSA NOTES	
MEP COMPONENT ANCHORAGE NOTE	
ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:	
1.	ALL PERMANENT EQUIPMENT AND COMPONENTS.
2.	TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
3.	TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.
THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE BUT NEED NOT DEMONSTRATE DESIGN COMPLIANCE WITH THE REFERENCES NOTED ABOVE. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT. FLEXIBLE CONNECTIONS MUST ALLOW MOVEMENT IN BOTH TRANSVERSE AND LONGITUDINAL DIRECTIONS:	
A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVING A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.	
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.	
THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH THE ABOVE REQUIREMENTS.	
PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE	
PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-16 SECTION 13.3 AS DEFINED IN ASCE 7-16 SECTIONS 13.6.5, 13.6.6, 13.6.7, 13.6.8, AND 2019 CBC, SECTIONS 1617A.1.24, 1617A.1.25 AND 1617A.1.26.	
THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G., OSHPD OPM FOR 2019 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.	
MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):	
MP □ MD □ PP □ E □ - OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.	
MP ⊗ MD ⊗ PP ⊗ E ⊗ - OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM#) #0502-13 (B-LINE / TOLCO).	

PROJECT SHEET INDEX	
M-0.1	MECHANICAL LEGEND, NOTES AND SHEET INDEX
M-0.2	MECHANICAL TITLE 24 CALCULATIONS
M-0.3	MECHANICAL TITLE 24 CALCULATIONS
M-1.1	MECHANICAL SCHEDULES
M-2.A	MECHANICAL ROOF PLAN - BLDG A
M-2.B	MECHANICAL ROOF PLAN - BLDG B
M-2.C	MECHANICAL ROOF PLAN - BLDG C
M-2.D	MECHANICAL ROOF PLAN - BLDG D
M-2.E1	MECHANICAL ROOF PLAN - BLDG E1
M-2.E2	MECHANICAL ROOF PLAN - BLDG E2
M-5.1	MECHANICAL DETAILS

GENERAL NOTES	
1.	ALL WORK SHALL BE DONE IN ACCORDANCE WITH CITY CODES, 2019 CALIFORNIA BUILDING CODE, 2019 CALIFORNIA MECHANICAL CODE, 2019 CALIFORNIA ENERGY CODE, 2019 CALIFORNIA FIRE CODE, 2019 CALIFORNIA GREEN BUILDING STANDARDS, NFPA 90 & 91, STATE AND LOCAL FIRE DEPARTMENT REGULATIONS, AND ALL OTHER APPLICABLE CODES AS SHOWN ON SHEET G1-1.
2.	CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION AND PROVIDE REPAIR OF ADJACENT EXISTING SURFACES, EQUIPMENT, AREAS, AND PROPERTY THAT MAY BE DAMAGED AS A RESULT OF ANY DEMOLITION AND/OR NEW WORK.
3.	THE CONTRACTOR SHALL FURNISH ALL MATERIALS, LABOR, EQUIPMENT, TRANSPORTATION, AND SERVICES NECESSARY FOR THE COMPLETION OF THE WORK. ALL MATERIALS & WORK SHALL BE IN COMPLIANCE WITH ALL APPLICABLE CODES AND GOVERNING REGULATIONS AND SHALL MEET WITH THE APPROVAL OF THE CITY AND STATE FIRE MARSHALL.
4.	ALL DRAWINGS ARE CONSIDERED TO BE PART OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REVIEW AND COORDINATION OF ALL DRAWINGS AND SPECIFICATIONS PRIOR TO ANY CONSTRUCTION, INCLUDING ARCHITECTURAL, STRUCTURAL, AIR CONDITIONING, PLUMBING, AND ELECTRICAL. ANY DISCREPANCIES THAT OCCUR SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO THE START OF CONSTRUCTION SO THAT A CLARIFICATION MAY BE ISSUED. ANY WORK PERFORMED IN CONFLICT WITH THE CONTRACT DOCUMENTS OR ANY CODE REQUIREMENT SHALL BE CORRECTED BY THE CONTRACTOR AT HIS OWN EXPENSE, AND AT NO EXPENSE TO THE OWNER.
5.	DO NOT SCALE DRAWINGS - ALL DIMENSIONS AND JOB SITE CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE JOB SITE PRIOR TO BID SUBMITTAL, START OF CONSTRUCTION AND / OR FABRICATION OF MATERIALS. IF DISCREPANCIES ARE ENCOUNTERED, THE ENGINEER SHALL BE NOTIFIED FOR CLARIFICATION.
6.	CONTRACTOR SHALL COORDINATE ALL DUCT, PIPE AND EQUIPMENT LOCATIONS WITH PLUMBING, ELECTRICAL, STRUCTURAL, AND ALL OTHER TRADES.
7.	ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED & TESTED IN ACCORDANCE WITH THE MOST RESTRICTIVE OF LOCAL REGULATIONS AND PROCEDURES DETAILED IN THE A.S.H.R.A.E. HANDBOOK OF FUNDAMENTALS OR THE APPLICABLE STANDARDS ADOPTED BY S.M.A.C.A. PROVIDE RECTANGULAR DUCTS OF GALVANIZED STEEL & PREFABRICATED SPIRAL LOCKSEAM DUCTS AND FITTINGS.
8.	DUCT MATERIALS SHALL COMPLY WITH ANSISMACNA 006-2006 HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE, 3RD EDITION.
9.	PROVIDE DUCT MANUAL VOLUME DAMPERS IN EACH BRANCH DUCT AND IN EACH MAIN DUCT TO PROVIDE FOR COMPLETE AIR BALANCE OF THE SYSTEM. PROVIDE ADEQUATE ACCESS AND IDENTIFICATION.
10.	WHERE INTERNAL ACOUSTICAL DUCT LINER IS INDICATED, DUCT DIMENSIONS ARE NET CLEAR - e.g. AFTER LINER HAS BEEN INSTALLED.
11.	ALL DUCTWORK AND PIPING SHALL BE INSULATED CONSISTENTLY WITH THE REQUIREMENTS OF SECTIONS 120.3, 120.4 & 120.7 OF THE 2019 ENERGY EFFICIENCY STANDARDS (E.E.S.) AND TABLES 503.7.1(10) AND 503.7.1(11) OF 2019 C.M.C.
12.	INSULATION MATERIAL SHALL MEET THE CALIFORNIA QUALITY STANDARD PER SECTION 110.8 OF E.E.S.
13.	ROOM THERMOSTATS SHALL BE CAPABLE OF BEING SET TO MAINTAIN SPACE TEMPERATURE SET POINTS FROM 55 °F. TO 85 °F. AND BE CAPABLE OF OPERATING THE HEATING AND COOLING IN SEQUENCE. THERMOSTATS SHALL BE ADJUSTABLE TO PROVIDE A TEMPERATURE RANGE OF UP TO 10 °F. BETWEEN FULL HEATING AND FULL COOLING BEING SUPPLIED. CONTROLS SHALL HAVE CAPABILITY OF TERMINATING ALL HEATING AT A TEMPERATURE NOT MORE THAN 70 °F. AND COOLING AT A TEMPERATURE NOT LESS THAN 78 °F.
14.	TEMPERATURE CONTROL SYSTEM SHALL OPERATE IN ACCORDANCE WITH THE BASE BUILDING SEQUENCE OF OPERATION.
15.	WALL MOUNTED THERMOSTATS SHALL BE MOUNTED 48" A.F.F. TO THE HIGHEST OPERABLE PART. TEMPERATURE SENSORS SHALL BE WALL MOUNTED 60" A.F.F.
16.	PROVIDE SMOKE DETECTORS IN MAIN SUPPLY AIR DUCTS OF AIR MOVING SYSTEMS EXCEEDING 2000 CFM PER SECTION 606.0 2019 C.M.C.
17.	OUTSIDE AIR INTAKES SHALL BE LOCATED A MINIMUM OF 25 FEET AWAY FROM EXHAUST OUTLETS, PLUMBING VENTS, COOLING TOWERS, COMBUSTION EQUIPMENT STACKS, AREAS THAT MAY COLLECT VEHICULAR EXHAUST OR OTHER NOXIOUS FUMES, AND OTHER SOURCES OF CONTAMINATION.
18.	HVAC UNITS SHUTDOWN TO BE ACCOMPLISHED USING THE BUILDING'S FIRE ALARM SYSTEM.
19.	SEE PLUMBING DRAWINGS FOR PRIMARY AND SECONDARY CONDENSATE DRAINS.
20.	NO COMBUSTION VENTS, DRYER VENTS, RANGE HOOD VENTS, OR HEATING DUCTS ARE PERMITTED IN AREA SEPARATION WALLS.
21.	MATERIAL EXPOSED WITHIN A DUCT OR PLENUM SHALL COMPLY WITH SECTION 602.2 OF 2019 C.M.C.
22.	ALL OUTLETS FOR FUTURE CONNECTIONS SHALL BE INSTALLED SO AS TO PERMIT EASY CONNECTION. COORDINATE DUCTWORK, STRUCTURAL CONDITIONS AND ARCHITECTURAL LAYOUT.
23.	SEE ARCHITECTURAL DRAWINGS FOR ROOF ACCESS AND ADDITIONAL ENERGY CONSERVATION NOTES.
24.	SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF CEILING DIFFUSERS AND GRILLES.
25.	ALL CEILING DIFFUSERS SHALL BE 4-WAY THROW UNLESS SHOWN OTHERWISE.
26.	PACKAGED A.C. UNITS : A FULLY INTEGRATED ECONOMIZER MUST BE PROVIDED FOR EACH SYSTEM DELIVERING OVER 54,000 BTU/HR COOLING.
27.	AIRCRAFT CABLE SHALL BE PRE-STRETCHED.
28.	ALL H.V.A.C. SYSTEMS SHALL MEET THE CONTROL REQUIREMENTS PER SECTIONS 110.2 AND 120.2 OF E.E.S.
29.	ALL H.V.A.C. EQUIPMENT AND APPLIANCES SHALL MEET THE REQUIREMENTS PER SECTIONS 110.1-110.3, 110.5, 120.1-120.4 TITLE 24 ENERGY STANDARDS.
30.	H.V.A.C. EQUIPMENT AND SYSTEMS SHALL MEET THE ACCEPTANCE REQUIREMENTS PER SECTION 120.5 OF 2019 E.E.S. AS SPECIFIED BY THE REFERENCE NONRESIDENTIAL APPENDIX. ALL RELATED ACCEPTANCE DOCUMENTS SHALL BE SUBMITTED BY CONTRACTOR TO THE CITY INSPECTOR DURING CONSTRUCTION AND PRIOR TO OCCUPANCY.
31.	A COMPLETE REPORT OF COMMISSIONING PROCESS ACTIVITIES UNDERTAKEN THROUGH THE DESIGN, CONSTRUCTION, AND REPORTING RECOMMENDATIONS FOR POST-CONSTRUCTION PHASES OF THE BUILDING PROJECT SHALL BE COMPLETED AND PROVIDED TO THE OWNER OR REPRESENTATIVE.
32.	ISOLATE ALL HVAC REFRIGERANT PIPES SIZE 1-1/4" AND LARGER WITHIN MECHANICAL EQUIPMENT ROOMS. OUTSIDE EQUIPMENT ROOMS THIS PIPING SHALL BE ISOLATED FOR THE GREATER OF 50 FT. OR 100 PIPE DIAMETERS FROM ROTATING EQUIPMENT. THE FIRST THREE PIPE SUPPORTS SHALL HAVE COMBINATION SPRING AND RUBBER ISOLATION HANGERS WITH THE SAME DEFLECTION AS THE EQUIPMENT ISOLATORS. ALL OTHER ISOLATED PIPING WITHIN EQUIPMENT ROOMS SHALL BE ISOLATED WITH A 3/4" MINIMUM DEFLECTION ISOLATOR.
33.	SYSTEMS CONTAINING ECONOMIZERS: ECONOMIZER TO HAVE INTEGRATED CONTROLS THAT PROVIDE PARTIAL COOLING DURING ECONOMIZER MODE. WHEN ADDITIONAL MECHANICAL COOLING WOULD BE REQUIRED TO MEET ROOM TEMPERATURE SETPOINT, ECONOMIZER TO COME COMPLETE WITH DIRECT DRIVE ACTUATOR.
34.	ALL AIR DISTRIBUTION SYSTEM DUCTS AND PLENUMS MUST BE INSTALLED, SEALED AND INSULATED PER 2019 C.E.C. SECTION 120.4(a).
35.	ALL DUCTWORK SHALL BE SEALED TO A LEAKAGE RATE NOT TO EXCEED 6% OF THE NOMINAL AIR HANDLER AIRFLOW RATE. TO BE CONFIRMED THROUGH FIELD VERIFICATION AND DIAGNOSTIC TESTING DURING C/A PER 2019 C.E.C. SECTION 140.4(i).

MECHANICAL DEMOLITION NOTES	
1.	FIELD VERIFY AND REVIEW WITH THE ENGINEER EXISTING AND ABANDONED PIPING, DUCTWORK, MECHANICAL EQUIPMENT, CONTROLS AND THERMOSTATS. EXISTING DUCTWORK, MECHANICAL EQUIPMENT, CHILLED WATER, HEATING HOT WATER AND CONDENSATE PIPING, CONTROLS EQUIPMENT AND TUBING WHICH IS NOT INDICATED FOR REUSE SHALL BE DEMOLISHED AND REMOVED. ABANDONED MECHANICAL EQUIPMENT, DUCTWORK AND PIPING SHALL BE DEMOLISHED AND REMOVED. ABANDONED CONTROLS ACTUATORS, TUBING & WIRING, THERMOSTATS AND CONTROL PANELS SHALL BE DEMOLISHED AND REMOVED. ALL ABANDONED MECHANICAL CURBS AND PLATFORMS INCLUDING BUT NOT LIMITED TO CONCRETE, WOOD & STEEL SHALL BE DEMOLISHED AND REMOVED.
2.	FIELD VERIFY SIZES OF ALL EXISTING DUCTWORK SHOWN TO REMAIN AND BE REUSED. IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
3.	PATCH, INFILL AND REPAIR WITH LIKE MATERIALS TO NEW CONDITION ALL EXISTING MECHANICAL EQUIPMENT, CHILLED AND HOT WATER PIPING, DUCTWORK, PNEUMATIC TUBING AND CONDENSATE PIPING PENETRATIONS WHICH ARE NOT BEING REUSED OR WHICH HAVE BEEN DEMOLISHED. WHERE MECHANICAL CURBS & PLATFORMS HAVE BEEN DEMOLISHED, THE CONTRACTOR SHALL REPAIR, REFRESH, AND RESTORE ALL SURFACES & ADJOINING SURFACES TO A LEVEL, FLUSH AND UNIFORM APPEARANCE. FOR DEMOLISHED ROOF MOUNTED EQUIPMENT THE CONTRACTOR SHALL PATCH THE ROOF WITH LIKE MATERIALS ACCORDING TO THEIR RESPECTIVE ARCHITECTURAL SPEC SECTION.
4.	THE EXTENDED SCOPE OF DEMOLITION AND NEW WORK WILL REQUIRE CLOSE COORDINATION BETWEEN ALL TRADES. EXISTING UTILITIES TO REMAIN, SUCH AS CABLE TRAYS, CONDUIT, FIRE PROTECTION PIPING, ETC MAY HAVE TO BE RELOCATED OR ALTERED TO INSTALL NEW UTILITIES. CONTRACTOR SHALL TAKE PROVISIONS FOR THIS FACT AND IDENTIFY CONFLICTS AND PROPOSE SOLUTIONS TO THE ARCHITECT BEFORE PROCEEDING WITH THE WORK.

MECHANICAL LEGEND		
SYMBOL	ABBREV.	DESCRIPTION
	10 x 6	DUCTWORK (1ST NUMBER INDICATES SIDE SHOWN, DOUBLE OR SINGLE LINE)
	M.V.D.	MANUAL VOLUME DAMPER
	M.O.D.	MOTOR OPERATED DAMPER
	F.S.D.	COMBINATION FIRE AND SMOKE DAMPER
	F.C.	FLEXIBLE CONNECTION (DUCTWORK)
		LINED DUCTWORK (OR PLENUM)
		STAINLESS STEEL DUCTWORK (OR PLENUM)
		RECTANGULAR DUCT UP
		RECTANGULAR DUCT DOWN
		DUCT TRANSITION (RECTANGULAR TO ROUND)
		FLEXIBLE DUCTWORK
	S.A.	SUPPLY AIR DUCT
	R.A./O.A.	RETURN AIR DUCT/OUTSIDE AIR DUCT
	E.A.	EXHAUST AIR DUCT
		PIPE DOWN
		PIPE UP
	T'STAT	THERMOSTAT (NUMBER INDICATES EQUIPMENT OR ZONE SERVED)
	S.D.	SMOKE DETECTOR (DUCT MOUNTED)
	C.H.W.R.	CHILLED WATER RETURN
	C.H.W.S.	CHILLED WATER SUPPLY
	H.H.W.R.	HEATING HOT WATER RETURN
	H.H.W.S.	HEATING HOT WATER SUPPLY
	F.S.	FLOW SWITCH
	E.R.	ECCENTRIC REDUCER
	C.R.	CONCENTRIC REDUCER
	BL.V.	BALANCING VALVE
	B.V.	BALL VALVE
	BF.V.	BUTTERFLY VALVE
	CH.V.	CHECK VALVE
	C.V. (2W)	CONTROL VALVE (2-WAY)
	C.V. (3W)	CONTROL VALVE (3-WAY)
	F.M.	ELECTROMAGNETIC FLOW METER
	A.F.C.V.	AUTOMATIC FLOW CONTROL VALVE
	F.C.V.	FLOW CONTROL VALVE
	P.R.V.	PRESSURE REDUCING VALVE
	P.I.C.V. (2W)	PRESSURE INDEPENDENT CONTROL VALVE (2-WAY)
	P.S.V.	PRESSURE SUSTAINING VALVE
	G.V.	GATE VALVE
	GL.V.	GLOBE VALVE
	T.D.V.	TRIPLE DUTY VALVE (COMB. SHUT-OFF, CHECK & BALANCING)
	P.R.V.	PRESSURE RELIEF VALVE
	P.G.	PRESSURE GAUGE WITH GAUGE COCK
	STR.	STRAINER W/ DRAIN VALVE & 3/4" HOSE END & CAP
	B.F.	BLIND FLANGE
	TH.	THERMOMETER
	T.W.	TEST WELL (PETE'S PLUG - PRESSURE AND/OR TEMPERATURE)
	U.	UNION
	A.A.	ACOUSTICAL DUCT LINER ABOVE FINISH FLOOR
	C.F.M. CONC. CONTR.	CUBIC FEET PER MINUTE CONCRETE CONTRACTOR ACOUSTICAL DUCT LINER DOWN
	DN.	DOWN
	EXH.	EXHAUST
	FLR.	FLOOR
	FT.	FEET OR FOOT
	H.O.A. ISO.	HANDS - OFF - AUTOMATIC ISOLATION
	L.O.D. O.A.	LIMIT OF DEMOLITION OUTSIDE AIR
	P.O.C.	POINT OF CONNECTION
	QTY.	QUANTITY
	REQ'D.	REQUIRED
	RET.	RETURN
	SHT.	SHEET
	TYP.	TYPICAL
	UN.O.	UNLESS NOTED OTHERWISE
	U.T.R.	UP THRU ROOF
	V.F.D.	VARIABLE FREQUENCY DRIVE
	V.T.R.	VENT THRU ROOF
	W.	WITH
	RTU	ROOFTOP UNIT

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-119843 INC.
REVIEWED FOR
SS FLS ACS
DATE: 08/26/2022

ARCHITECTS
WLC
CLIENT FOCUSED • PASSION DRIVEN

SOUTHERN CALIFORNIA
8165 ROCHESTER AVENUE, SUITE 100
RANCHO CUCAMONGA
CALIFORNIA 91730-0729
TEL: 909-987-0909
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**TOVASHAL ELEMENTARY SCHOOL
HVAC REPLACEMENT
MURRIETA VALLEY UNIFIED SCHOOL DISTRICT**
23801 SAINT RAPHAEL DRIVE
MURRIETA, CA 92562

LICENSED ARCHITECT
LISA COX
C-29158
MECHANICAL
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
LISA COX
No. 32824
EXP. 06-30-22
MECHANICAL
STATE OF CALIFORNIA

Dufoe
consulting engineers
San Diego | Temecula
3080 Towne Square, Suite 103 | San Diego, CA 92131
958-369-8030 | Fax 858-517-2763 | www.dufoe.com

NO	DATE	BY	DESCRIPTION
REVISIONS			

DRAWN: RV	CHECKED: JD
DATE: 03/10/2021	SCALE:
PROJECT NUMBER: 1726200	

**MECHANICAL
LEGEND &
GENERAL NOTES**

DRAWING NUMBER: **M-0.1**

H. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)
Dry System Equipment Sizing (Includes air conditioners, condensers, heat pumps, VAV, furnaces and unit heaters)

Table with 11 columns (Q1-Q11) and 3 rows of equipment data including AC-1E2, AC-1B, AC-2B, AC-3B, AC-1C, AC-2D, AC-3D, and AC-1E1.

FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet design heating and cooling loads of the building per §140.4(a).
* Authority Having Jurisdiction may ask for load calculations used for compliance per §140.4(b).

Dry System Equipment Efficiency (Other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP))

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
Registration Date/Time: Report Version: 2019.1.003
Registration Provider: Energsoft
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H. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)
Dry System Equipment Sizing (Includes air conditioners, condensers, heat pumps, VAV, furnaces and unit heaters)

Table with 11 columns (Q1-Q11) and 3 rows of equipment data including AC-1A, AC-1B, AC-2B, AC-3B, AC-1C, AC-2D, AC-3D, and AC-1E1.

FOOTNOTES: Equipment shall be the smallest size, within the available options of the desired equipment line, necessary to meet design heating and cooling loads of the building per §140.4(a).
* Authority Having Jurisdiction may ask for load calculations used for compliance per §140.4(b).

Dry System Equipment Efficiency (Other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP))

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
Registration Date/Time: Report Version: 2019.1.003
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Report Generated: 2020-12-23 13:40:46

C. COMPLIANCE RESULTS
Table C will indicate if the project data input into the compliance document is compliant with mechanical requirements. This table is not editable by the user.

D. EXCEPTIONAL CONDITIONS
This table is left blank if no exceptional conditions are noted.

E. ADDITIONAL REMARKS
This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
Registration Date/Time: Report Version: 2019.1.003
Registration Provider: Energsoft
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A. GENERAL INFORMATION
Table with 4 columns (Q1-Q4) and 2 rows of project information including location, climate zone, and project details.

B. PROJECT SCOPE
This table includes mechanical systems or components that are within the scope of the permit application and are demonstrating compliance.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
Registration Date/Time: Report Version: 2019.1.003
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H. FAN SYSTEMS & AIR ECONOMIZERS
Table with 8 columns (Q1-Q8) and 3 rows of fan system data including AC-2D, AC-1B, AC-2B, AC-3B, AC-1C, AC-2D, AC-3D, and AC-1E1.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
Registration Date/Time: Report Version: 2019.1.003
Registration Provider: Energsoft
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H. FAN SYSTEMS & AIR ECONOMIZERS
Table with 8 columns (Q1-Q8) and 3 rows of fan system data including AC-3B, AC-1C, AC-1D, AC-2B, AC-3B, AC-1C, AC-2D, AC-3D, and AC-1E1.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
Registration Date/Time: Report Version: 2019.1.003
Registration Provider: Energsoft
Report Generated: 2020-12-23 13:40:46

H. FAN SYSTEMS & AIR ECONOMIZERS
Table with 8 columns (Q1-Q8) and 3 rows of fan system data including AC-1B, AC-2B, AC-3B, AC-1C, AC-2D, AC-3D, and AC-1E1.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
Registration Date/Time: Report Version: 2019.1.003
Registration Provider: Energsoft
Report Generated: 2020-12-23 13:40:46

F. HVAC SYSTEM SUMMARY (DRY & WET SYSTEMS)
Dry System Equipment Efficiency (Other than Package Terminal Air Conditioners (PTAC) and Package Terminal Heat Pumps (PTHP))

G. PUMPS
This section does not apply to this project.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
Registration Date/Time: Report Version: 2019.1.003
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J. VENTILATION AND INDOOR AIR QUALITY
Table with 9 columns (Q1-Q9) and 3 rows of ventilation data including Zone B1, Zone B2, and Zone B3.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
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J. VENTILATION AND INDOOR AIR QUALITY
Table with 9 columns (Q1-Q9) and 3 rows of ventilation data including Zone A, Zone B, and Zone C.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
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L. SYSTEM CONTROLS
Table with 9 columns (Q1-Q9) and 3 rows of control data including AC-1A, AC-1B, AC-2B, AC-3B, AC-1C, AC-1D, AC-2D, AC-3D, AC-1E1, and AC-1E2.

FOOTNOTES: Gravity gas wall heaters, gravity floor heaters, gravity room heaters, non-central electric heaters, fireplaces or decorative gas appliances, wood stoves are not required to have setback thermostats.

J. VENTILATION AND INDOOR AIR QUALITY
Table with 9 columns (Q1-Q9) and 3 rows of ventilation data including Zone 1D, Zone 2D, and Zone 3D.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
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H. FAN SYSTEMS & AIR ECONOMIZERS
Table with 8 columns (Q1-Q8) and 3 rows of fan system data including AC-1E2, AC-1C, AC-1D, AC-2B, AC-3B, AC-1C, AC-2D, AC-3D, and AC-1E1.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
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J. VENTILATION AND INDOOR AIR QUALITY
Table with 9 columns (Q1-Q9) and 3 rows of ventilation data including Zone 1E2, Zone 2E, and Zone 3E.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
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J. VENTILATION AND INDOOR AIR QUALITY
Table with 9 columns (Q1-Q9) and 3 rows of ventilation data including Zone 1E1, Zone 2E, and Zone 3E.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
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J. VENTILATION AND INDOOR AIR QUALITY
Table with 9 columns (Q1-Q9) and 3 rows of ventilation data including Zone 1E1, Zone 2E, and Zone 3E.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
Registration Date/Time: Report Version: 2019.1.003
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Report Generated: 2020-12-23 13:40:46

H. FAN SYSTEMS & AIR ECONOMIZERS
Table with 8 columns (Q1-Q8) and 3 rows of fan system data including AC-1E2, AC-1C, AC-1D, AC-2B, AC-3B, AC-1C, AC-2D, AC-3D, and AC-1E1.

Registration Number: CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance
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MURRIETA, CA 92562

LICENSED ARCHITECT
LISA COX
No. 29158
MECHANICAL
STATE OF CALIFORNIA

Dufoe consulting engineers
S a n d i e g o i t e m e c h a n i c a l
30800 Travena Street, Suite 103, San Diego, CA 92131
958-368-6030 Fax: 958-611-7293 www.dufoe.com
NO DATE BY DESCRIPTION
REVISIONS
DRAWN: RV CHECKED: JD
DATE: 03/10/2021 SCALE:
PROJECT NUMBER: 1726200
MECHANICAL
TITLE 24
CALCULATIONS
DRAWING NUMBER: M-0.2

L. DISTRIBUTION (DUCTWORK AND PIPING)

The answers to the questions below apply to the following duct systems: AC-2D Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities.
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)(13) or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code.

The answers to the questions below apply to the following duct systems: AC-3D Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities.
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)(13) or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code.

Registration Number: [Blank] Registration Date/Time: [Blank] Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Schema Version: rev 20200601 Report Generated: 2020-12-23 13:40:46

L. DISTRIBUTION (DUCTWORK AND PIPING)

The answers to the questions below apply to the following duct systems: AC-1C Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities.
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)(13) or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code.

The answers to the questions below apply to the following duct systems: AC-1D Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities.
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)(13) or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code.

Registration Number: [Blank] Registration Date/Time: [Blank] Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Schema Version: rev 20200601 Report Generated: 2020-12-23 13:40:46

L. DISTRIBUTION (DUCTWORK AND PIPING)

The answers to the questions below apply to the following duct systems: AC-2B Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities.
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)(13) or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code.

The answers to the questions below apply to the following duct systems: AC-2D Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities.
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)(13) or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code.

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L. DISTRIBUTION (DUCTWORK AND PIPING)

The answers to the questions below apply to the following duct systems: AC-1A Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities.
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)(13) or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code.

The answers to the questions below apply to the following duct systems: AC-1B Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities.
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)(13) or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code.

Registration Number: [Blank] Registration Date/Time: [Blank] Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Schema Version: rev 20200601 Report Generated: 2020-12-23 13:40:46

O. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCA/

Form/Title	Systems To Be Field Verified	Field Inspector
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.	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-03-A - Constant Volume Single Zone HVAC NOTE: This form does not automatically move to "Yes". If Constant Volume Single Zone HVAC Systems are included in the scope, permit applicants should move this form to "Yes".	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-04-A - Air Distribution Duct Leakage	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-05-A - Air Economizer Controls	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-06-A - Demand Control Ventilation Systems must be submitted for all systems (required to employ demand controlled ventilation (refer to §140.3(a)(13)) can vary outside ventilation flow rates based on maintaining interior carbon dioxide (CO2) concentration between.	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-07-A Supply Fan Variable Flow Controls	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-08-A Valve Leakage Test	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-09-A Supply Water Temperature Reset Controls	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-10-A Hydronic System Variable Flow Controls	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-11-A Automatic Demand Shed Controls	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-12-A FDD for Packaged Direct Expansion Units	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-13-A Automatic FDD for Air Handling Units and Zone Terminal Units Acceptance	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-14-A Distributed Energy Storage (DES) AC Systems Acceptance NOTE: This form does not automatically move to "Yes". If Distributed Energy System DES AC Systems are included in the scope permit applicant should move this form to "Yes".	<input type="checkbox"/>	<input type="checkbox"/>

P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction. The final documents must be created by a HERS Provider's registry, but drafts can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRVC/

Form/Title	Field Inspector
NRVC-MCH-04-H Duct Leakage Test NOTE: Must be completed by a HERS Rater	<input type="checkbox"/>
NRVC-MCH-24 Enclosure Air Leakage Worksheet NOTE: Must be completed by a HERS Rater	<input type="checkbox"/>
NRVC-MCH-19-A Occupancy Sensor Controls	<input type="checkbox"/>
NRVC-MCH-20 Multi-Family Ventilation	<input type="checkbox"/>
NRVC-MCH-21 Multi-Family Envelope Leakage	<input type="checkbox"/>

Q. MANDATORY MEASURES DOCUMENTATION LOCATION

This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.

Form/Title	Field Inspector
NRVC-MCH-04-H Duct Leakage Test NOTE: Must be completed by a HERS Rater	<input type="checkbox"/>
NRVC-MCH-24 Enclosure Air Leakage Worksheet NOTE: Must be completed by a HERS Rater	<input type="checkbox"/>
NRVC-MCH-19-A Occupancy Sensor Controls	<input type="checkbox"/>
NRVC-MCH-20 Multi-Family Ventilation	<input type="checkbox"/>
NRVC-MCH-21 Multi-Family Envelope Leakage	<input type="checkbox"/>

Registration Number: [Blank] Registration Date/Time: [Blank] Registration Provider: Energysoft
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Form/Title	Systems To Be Field Verified	Field Inspector
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.	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-03-A - Constant Volume Single Zone HVAC NOTE: This form does not automatically move to "Yes". If Constant Volume Single Zone HVAC Systems are included in the scope, permit applicants should move this form to "Yes".	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-04-A - Air Distribution Duct Leakage	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-05-A - Air Economizer Controls	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-06-A - Demand Control Ventilation Systems must be submitted for all systems (required to employ demand controlled ventilation (refer to §140.3(a)(13)) can vary outside ventilation flow rates based on maintaining interior carbon dioxide (CO2) concentration between.	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-07-A Supply Fan Variable Flow Controls	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-08-A Valve Leakage Test	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-09-A Supply Water Temperature Reset Controls	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-10-A Hydronic System Variable Flow Controls	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-11-A Automatic Demand Shed Controls	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-12-A FDD for Packaged Direct Expansion Units	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-13-A Automatic FDD for Air Handling Units and Zone Terminal Units Acceptance	<input type="checkbox"/>	<input type="checkbox"/>
NRCA-MCH-14-A Distributed Energy Storage (DES) AC Systems Acceptance NOTE: This form does not automatically move to "Yes". If Distributed Energy System DES AC Systems are included in the scope permit applicant should move this form to "Yes".	<input type="checkbox"/>	<input type="checkbox"/>

P. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction. The final documents must be created by a HERS Provider's registry, but drafts can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRVC/

Form/Title	Field Inspector
NRVC-MCH-04-H Duct Leakage Test NOTE: Must be completed by a HERS Rater	<input type="checkbox"/>
NRVC-MCH-24 Enclosure Air Leakage Worksheet NOTE: Must be completed by a HERS Rater	<input type="checkbox"/>
NRVC-MCH-19-A Occupancy Sensor Controls	<input type="checkbox"/>
NRVC-MCH-20 Multi-Family Ventilation	<input type="checkbox"/>
NRVC-MCH-21 Multi-Family Envelope Leakage	<input type="checkbox"/>

Q. MANDATORY MEASURES DOCUMENTATION LOCATION

This table is used to indicate where mandatory measures are documented in the plan set or construction documentation.

Form/Title	Field Inspector
NRVC-MCH-04-H Duct Leakage Test NOTE: Must be completed by a HERS Rater	<input type="checkbox"/>
NRVC-MCH-24 Enclosure Air Leakage Worksheet NOTE: Must be completed by a HERS Rater	<input type="checkbox"/>
NRVC-MCH-19-A Occupancy Sensor Controls	<input type="checkbox"/>
NRVC-MCH-20 Multi-Family Ventilation	<input type="checkbox"/>
NRVC-MCH-21 Multi-Family Envelope Leakage	<input type="checkbox"/>

Registration Number: [Blank] Registration Date/Time: [Blank] Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Schema Version: rev 20200601 Report Generated: 2020-12-23 13:40:46

M. COOLING TOWERS

This section does not apply to this project.

N. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at https://www.energy.ca.gov/title24/2019standards/2019_compliance_documents/Nonresidential_Documents/NRCI/

Form/Title	Field Inspector
NRCI-MCH-01-E - Must be submitted for all buildings	<input type="checkbox"/>

Registration Number: [Blank] Registration Date/Time: [Blank] Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Schema Version: rev 20200601 Report Generated: 2020-12-23 13:40:46

L. DISTRIBUTION (DUCTWORK AND PIPING)

The answers to the questions below apply to the following duct systems: AC-1E1 Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities.
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)(13) or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code.

The answers to the questions below apply to the following duct systems: AC-1E2 Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities.
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)(13) or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code.

The answers to the questions below apply to the following duct systems: AC-1E1 Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities.
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)(13) or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code.

The answers to the questions below apply to the following duct systems: AC-1E2 Duct leakage testing triggered for these systems? No

11	No	The scope of the project includes only duct systems serving healthcare facilities.
12	Yes	Duct system provides conditioned air to an occupiable space for a constant volume, single zone, space-conditioning system.
13	Yes	The space conditioning system serves less than 5,000 ft ² of conditioned floor area.
14	No	The combined surface area of the ducts in the following locations is more than 25% of the total surface area of the entire duct system: <input type="checkbox"/> Outdoors <input type="checkbox"/> In a space directly under a roof that has a U-factor greater than the u-factor of the ceiling, or if the roof does not meet the requirements of §140.3(a)(13) or if the roof has fixed vents or openings to the outside/unconditioned spaces <input type="checkbox"/> In an unconditioned crawl space <input type="checkbox"/> In other unconditioned spaces
15		The scope of the project includes extending an existing duct system, which is constructed, insulated or sealed with asbestos.
16		The scope of the project includes an existing duct system that is documented to have been previously sealed as confirmed through field verification and diagnostic testing in accordance with procedures in the Reference Nonresidential Appendix NA2.
17	Yes	Duct system shall be sealed in accordance with the California Mechanical Code.

Registration Number: [Blank] Registration Date/Time: [Blank] Registration Provider: Energysoft
CA Building Energy Efficiency Standards - 2019 Nonresidential Compliance Report Version: 2019.1.003 Schema Version: rev 20200601 Report Generated: 2020-12-23 13:40:46

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT
I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Rudy Valdez
Signature: [Signature]
Address: [Blank]
City/State/Zip: [Blank]
San Diego CA 92131

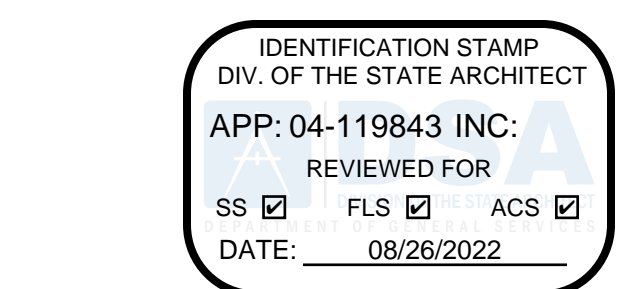
Documentation Author Signature: [Signature]
Signature Date: 12/20/2020
Address: 3060 Travena Street, Suite #163
City/State/Zip: San Diego, CA 92131
Phone: 619-368-8630

RESPONSIBLE PERSON'S DECLARATION STATEMENT
I certify the following under penalty of perjury, under the laws of the State of California:

- The information provided on this Certificate of Compliance is true and correct.
- I am eligible under Division 2 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
- The energy ratings 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.
- 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.
- I will ensure that a completed signed copy of this Certificate of Compliance shall be made available to the building permit issuer 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: Jeff Dufoe
Signature: [Signature]
Address: [Blank]
City/State/Zip: San Diego CA 92131
Phone: 619-368-8630

Registration Number: [Blank] Registration Date/Time: [Blank] Registration Provider: Energysoft
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MURRIETA VALLEY UNIFIED SCHOOL DISTRICT
23801 SAINT RAPHAEL DRIVE
MURRIETA, CA 92562



NO	DATE	BY	DESCRIPTION
REVISIONS			

DRAWN: RV CHECKED: JD
DATE: 03/10/2021 SCALE:
PROJECT NUMBER: 1726200

MECHANICAL
TITLE 24
CALCULATIONS

DRAWING NUMBER: M-0.3

GAS ROOFTOP PACKAGED AC UNITS

UNIT NO.	MANUFACTURER & MODEL NO.	SERVICE	C.F.M.	OSA (CFM)	E.S.P. (IN. WC)	COOLING			HEATING			ELECTRICAL				POWER EXHAUST				UNIT WEIGHT LBS	CURB ADAPTER WEIGHT LBS	EXISTING CURB WEIGHT LBS	REMARKS	
						TOTAL (MBH)	SENSIBLE (MBH)	E.E.R. / S.E.E.R.	INPUT (MBH)	OUTPUT (MBH)	A.F.U.E. (%)	INDOOR MOTOR B.H.P.	V./PH./HZ.	M.C.A.	M.O.P.	V./PH./HZ.	H.P.	F.L.A.	M.C.A.					M.O.C.P.
AC 1-A	TRANE YHD-150	BUILDING A	4,800	1,200	0.75	152.39	119.70	12.1 / 15.0	150.00	120.00	80	2.43	460/3/60	30	40	460/3/60	2	6.5	8.1	14.6	2,800	200	220	①②③④⑥⑧⑩⑪
AC 1-B	TRANE YHC-074	BUILDING B	2,400	360	0.75	73.60	58.70	13.1 / 16.0	80.00	64.80	80	.92	460/3/60	18	20	460/3/60	N/A	N/A	N/A	N/A	1,170	130	100	①②③④⑥⑦⑩⑪
AC 2-B	TRANE YSD-300	BUILDING B	10,000	3,300	1.00	281.98	201.36	10.0 / 12.0	250.00	200.00	80	8.73	460/3/60	56	70	460/3/60	6	14.3	17.9	32.2	2,800	N/A	250	①②③⑤⑥⑧⑩⑪
AC 3-B	TRANE YHC-120	BUILDING B	4,000	2,500	0.75	113.97	94.06	12.4 / 15.2	150.00	120.00	80	1.34	460/3/60	22	25	460/3/60	2	4.5	5.6	10.1	1,700	300	200	①②③④⑥⑧⑩⑪
AC 1-C	TRANE YHD-180	BUILDING C	6,000	1,500	1.00	180.52	142.17	12.0 / 15.0	250.00	200.00	80	2.98	460/3/60	33	45	460/3/60	2	6.5	8.1	14.6	3,000	N/A	220	①②③⑤⑥⑧⑨⑪
AC 1-D	TRANE YHC-074	BUILDING D	2,400	800	0.75	73.60	58.70	13.1 / 16.0	80.00	64.80	80	.92	460/3/60	18	20	460/3/60	N/A	N/A	N/A	N/A	1,170	130	100	①②③④⑥⑦⑩⑪
AC 2-D	TRANE YHC-074	BUILDING D	2,400	800	0.75	73.60	58.70	13.1 / 16.0	80.00	64.80	80	.92	460/3/60	18	20	460/3/60	N/A	N/A	N/A	N/A	1,170	130	100	①②③④⑥⑦⑩⑪
AC 3-D	TRANE YHC-074	BUILDING D	2,400	800	0.75	73.60	58.70	13.1 / 16.0	80.00	64.80	80	.92	460/3/60	18	20	460/3/60	N/A	N/A	N/A	N/A	1,170	130	100	①②③④⑥⑦⑩⑪
AC 1-E1	TRANE YHC-074	BUILDING E (AREA 1)	2,400	800	0.75	73.60	58.70	13.1 / 16.0	80.00	64.80	80	.92	460/3/60	18	20	460/3/60	N/A	N/A	N/A	N/A	1,170	130	100	①②③④⑥⑦⑩⑪
AC 1-E2	TRANE YHC-074	BUILDING E (AREA 2)	2,400	800	0.75	73.60	58.70	13.1 / 16.0	80.00	64.80	80	.92	460/3/60	18	20	460/3/60	N/A	N/A	N/A	N/A	1,170	130	100	①②③④⑥⑦⑩⑪

- ① VERTICAL DUCT DISCHARGE PACKAGED DX AC UNIT. ② ELECTRICAL TO PROVIDE FUSED DISCONNECT. ③ PROVIDE THERMOSTAT INSTALLED AT 48" AFF. ④ PROVIDE WITH CURB ADAPTER. ⑤ NO CURB ADAPTER REQUIRED, REUSE EXISTING CURB. ⑥ FURNISH WITH FACTORY PROVIDED CO2 MONITORING FOR DEMAND CONTROL VENTILATION
- ⑦ PROVIDE WITH UNIT WITH MODULATING ECONOMIZER WITH FAULT DETECTION & DIAGNOSTIC SYSTEM. ⑧ PROVIDE WITH UNIT WITH MODULATING ECONOMIZER AND POWER EXHAUST WITH FAULT DETECTION & DIAGNOSTIC SYSTEM.
- ⑨ UNIT MOUNTED CARRIER PREMIER LINK MODULE TO BE REMOVED AND RE-INSTALLED IN REPLACEMENT UNIT. CONTRACTOR SHALL REWIRE PER DISTRICT'S DIRECTION TO MATCH EXISTING MONITORING.
- ⑩ EXISTING UNIT THERMOSTAT TO BE REPLACED. CONTRACTOR TO INSTALL NEW WIFI THERMOSTAT "VENSTAR T2900SCH" AND CONNECT TO DISTRICT 2.4 GHZ WIFI NETWORK. PROVIDE ANY NECESSARY INTERFACE CARDS.
- ⑪ EXISTING SMOKE DETECTORS DUCT MOUNTED OR UNIT MOUNTED SHALL BE REMOVED AND RE-INSTALLED. PROVIDE NECESSARY HARDWARE FOR UNIT SHUT DOWN. COORDINATE WITH FIRE ALARM VENDOR.

IDENTIFICATION STAMP
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APP: 04-119843 INC:
REVIEWED FOR:
SS FLS ACS
DATE: 08/26/2022

ARCHITECTS

WLC

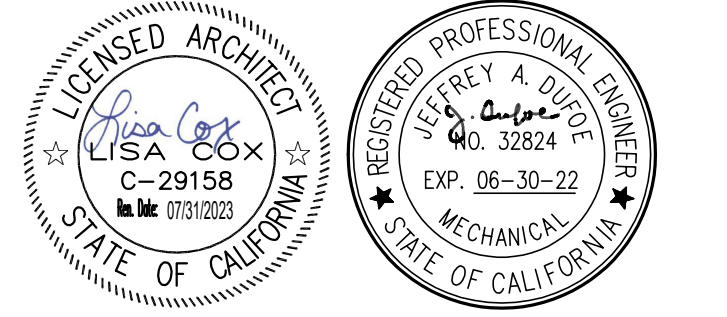
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8163 ROCHESTER AVENUE, SUITE 100
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TEL: 909-987-0909
www.wlccarchitects.com

**TOVASHAL ELEMENTARY SCHOOL
HVAC REPLACEMENT
MURRIETA VALLEY UNIFIED SCHOOL DISTRICT**

23801 SAINT RAPHAEL DRIVE
MURRIETA, CA 92562



Dufoe
consulting engineers

San Diego | Temecula
10000 Trivett Street, Suite 143 San Diego, CA 92131
959-368-8630 Fax 959-517-2923 www.dufoe.com

NO	DATE	BY	DESCRIPTION
REVISIONS			

DRAWN: RV CHECKED: JD
DATE: 03/10/2021 SCALE:
PROJECT NUMBER: 1726200

**MECHANICAL
SCHEDULES**

DRAWING NUMBER: **M-1.1**

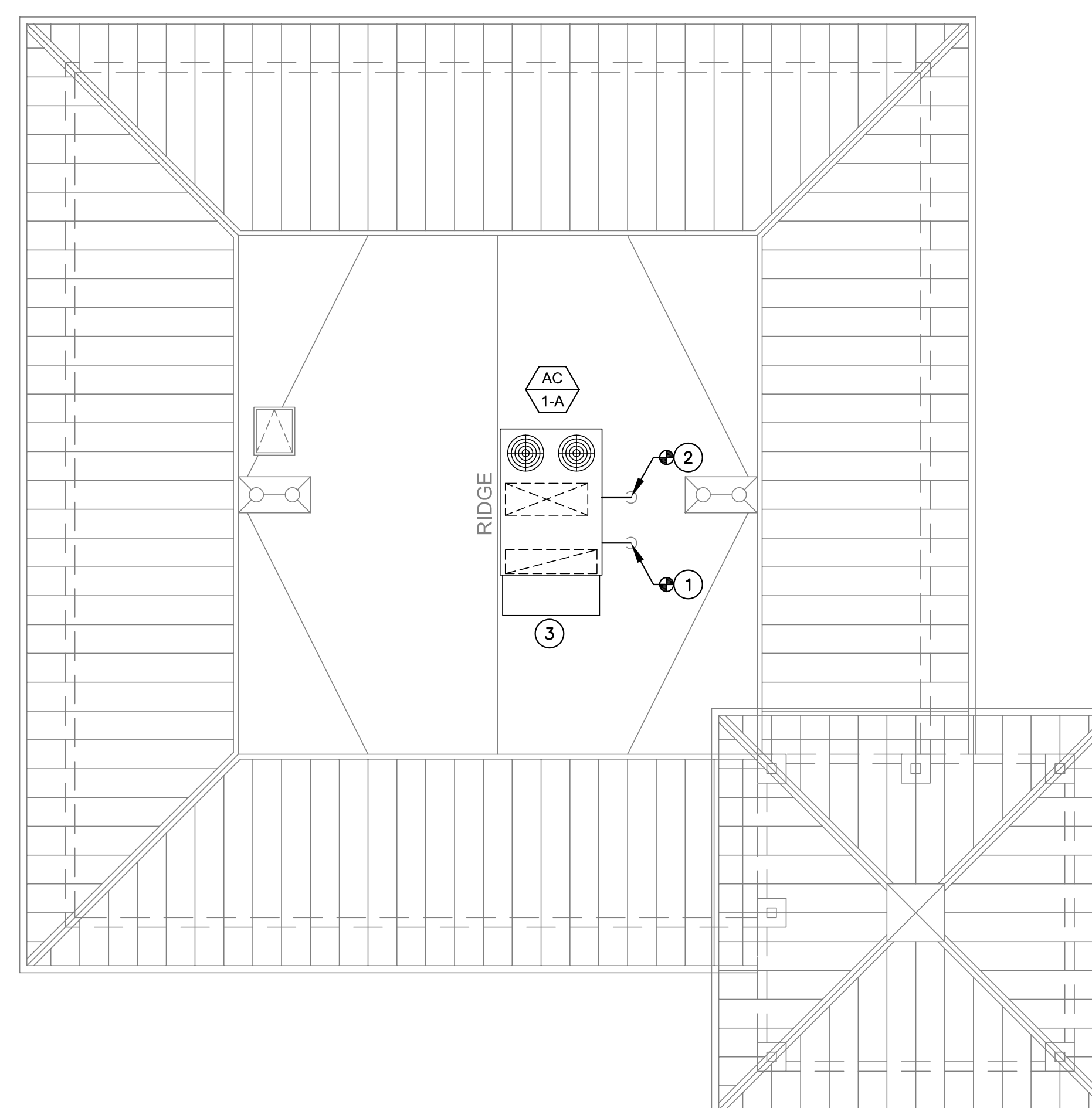
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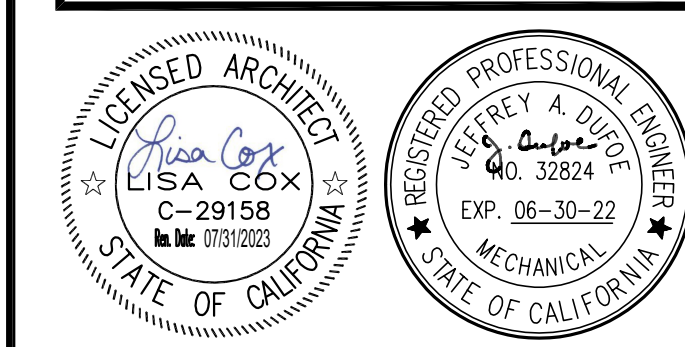
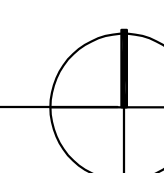
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**TOVASHAL ELEMENTARY SCHOOL
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 23801 SAINT RAPHAEL DRIVE
 MURRIETA, CA 92502

- NOTES:
- ① CONNECT NEW 1" CONDENSATE DRAIN TO EXISTING MAIN.
 - ② CONNECT NEW 3/4" GAS TO EXISTING MAIN.
 - ③ RTU OUTSIDE AIR INTAKE. REFER TO SCHEDULE SHEET M-1.1.



① MECHANICAL ROOF PLAN - BLDG A
 1/8" = 1'-0"



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 619-369-8630 Fax 858-517-2763 www.dufoe.com

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 PROJECT NUMBER: 1726200

**MECHANICAL
 ROOF PLAN -
 BLDG A**

DRAWING NUMBER: **M-2.A**

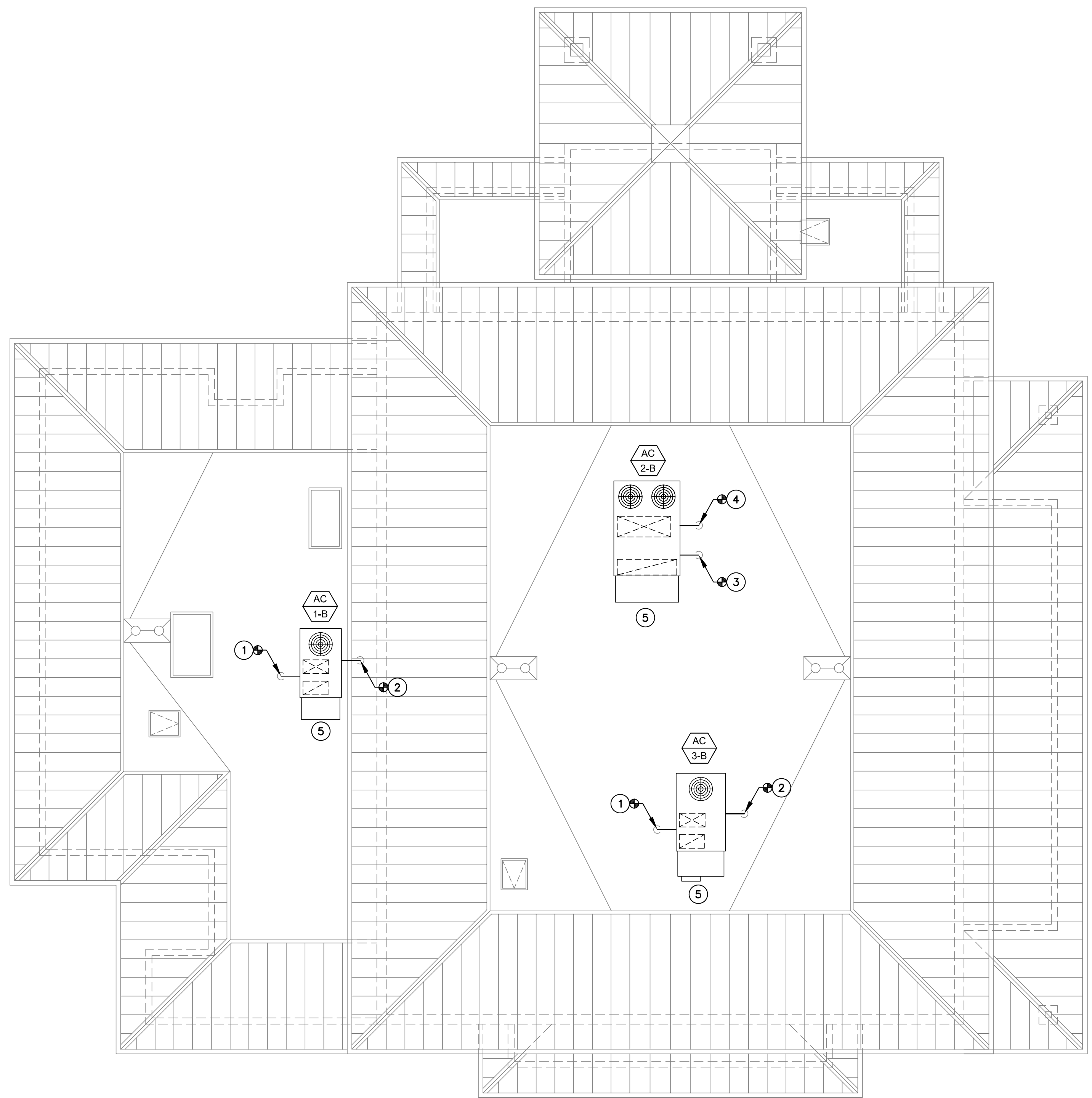
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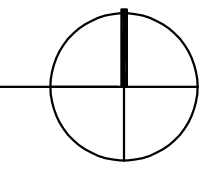
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- NOTES:
- ① CONNECT NEW 1" CONDENSATE DRAIN TO EXISTING MAIN.
 - ② CONNECT NEW 3/4" GAS TO EXISTING MAIN.
 - ③ CONNECT NEW 1-1/4" CONDENSATE DRAIN TO EXISTING MAIN.
 - ④ CONNECT NEW 1" GAS TO EXISTING MAIN.
 - ⑤ RTU OUTSIDE AIR INTAKE. REFER TO SCHEDULE SHEET M-1.1.



1 MECHANICAL ROOF PLAN - BLDG B
 1/8" = 1'-0"



LICENSED ARCHITECT
 LISA COX
 C-29158
 STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
 MECHANICAL
 EXP. 06-30-22
 STATE OF CALIFORNIA

Dufoe
 consulting engineers
 San Diego | Temecula
 30800 Trancas Street, Suite 103, San Diego, CA 92131
 954-369-8030 Fax 858-517-2763 www.dufoe.com

NO	DATE	BY	DESCRIPTION
REVISIONS			

DRAWN: RV CHECKED: JD
 DATE: 03/10/2021 SCALE:
 PROJECT NUMBER: 1726200

**MECHANICAL
 ROOF PLAN -
 BLDG B**

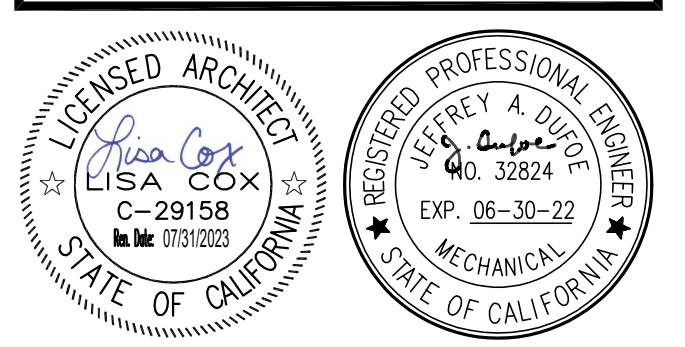
DRAWING NUMBER: **M-2.B**

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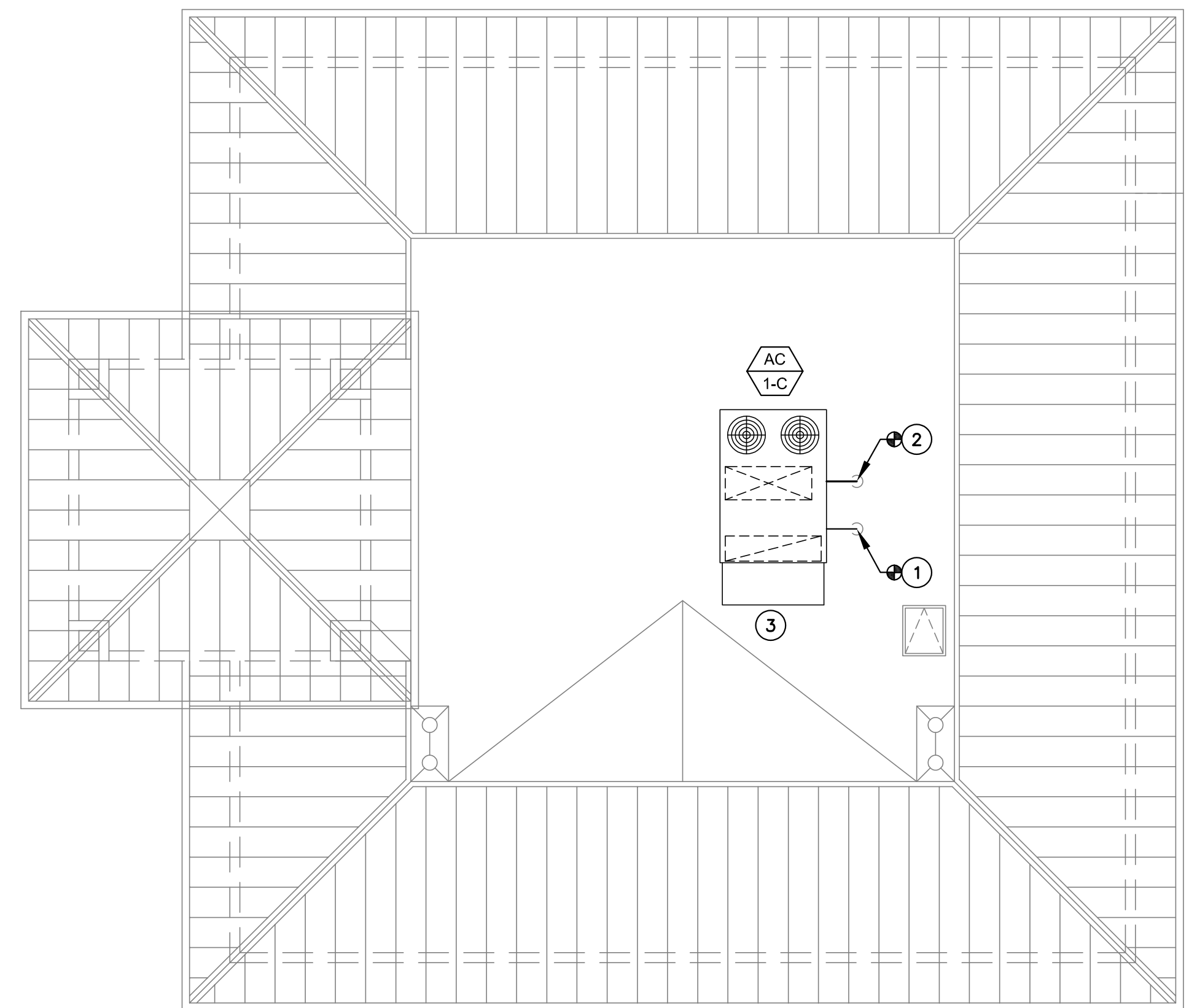
NO	DATE	BY	DESCRIPTION
REVISIONS			

DRAWN: RV	CHECKED: JD
DATE: 03/10/2021	SCALE:
PROJECT NUMBER: 1726200	

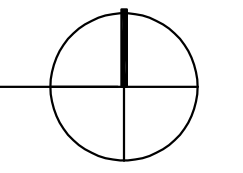
**MECHANICAL
 ROOF PLAN -
 BLDG C**

DRAWING NUMBER: **M-2.C**

- NOTES:
- ① CONNECT NEW 1" CONDENSATE DRAIN TO EXISTING MAIN.
 - ② CONNECT NEW 1" GAS TO EXISTING MAIN.
 - ③ RTU OUTSIDE AIR INTAKE. REFER TO SCHEDULE SHEET M-1.1.



① MECHANICAL ROOF PLAN - BLDG C
 1/8" = 1'-0"

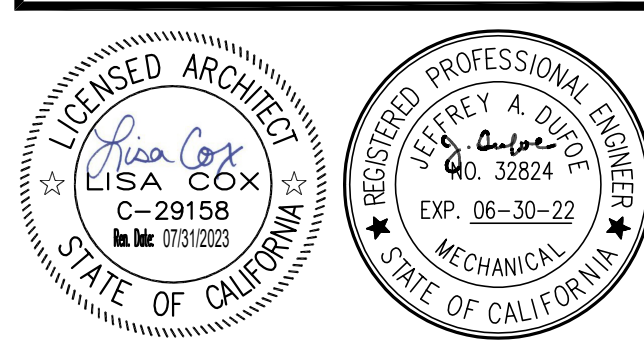


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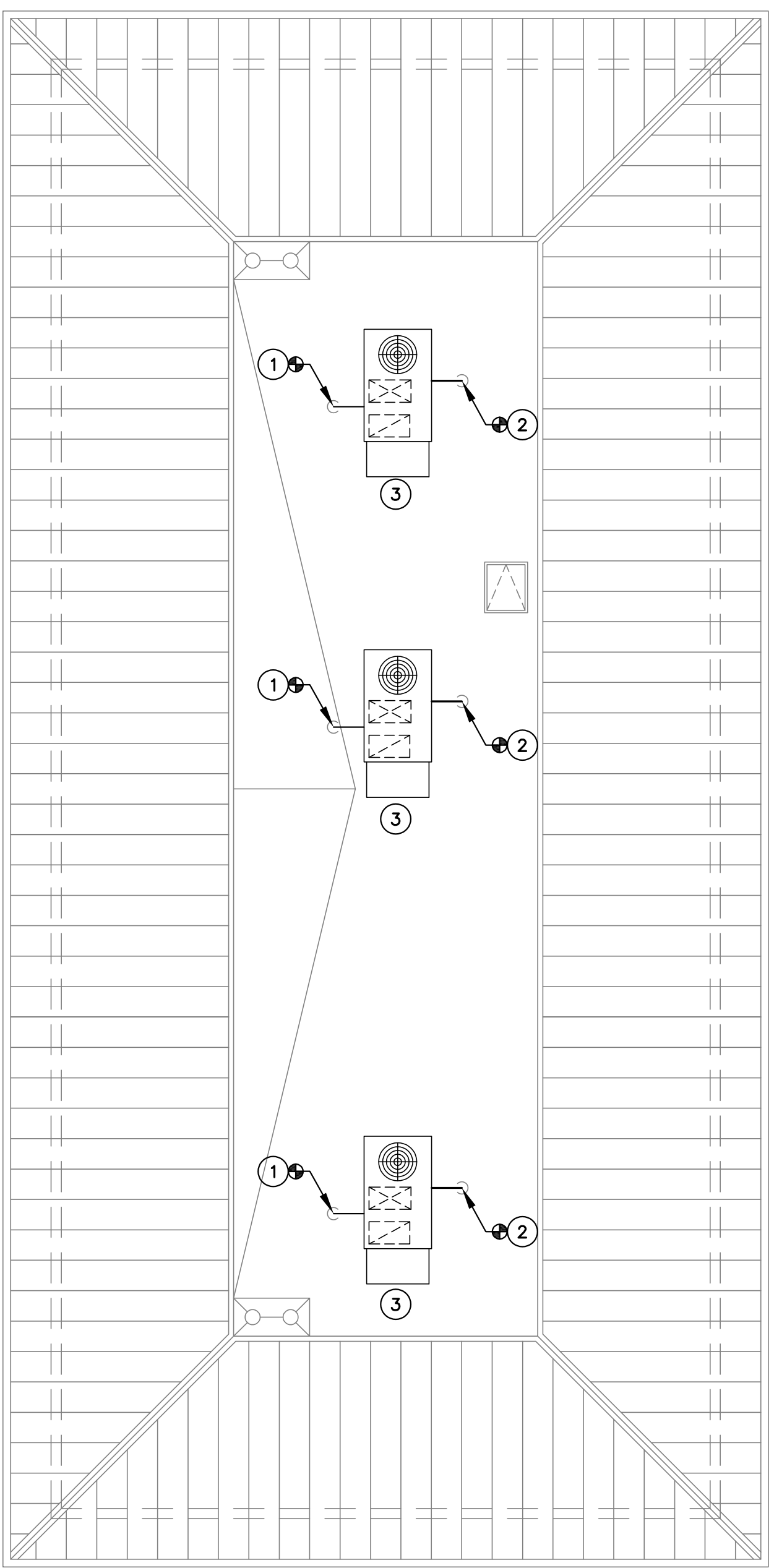
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DRAWN: RV CHECKED: JD
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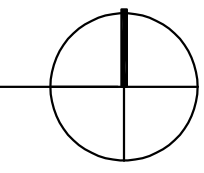
**MECHANICAL
 ROOF PLAN -
 BLDG D**

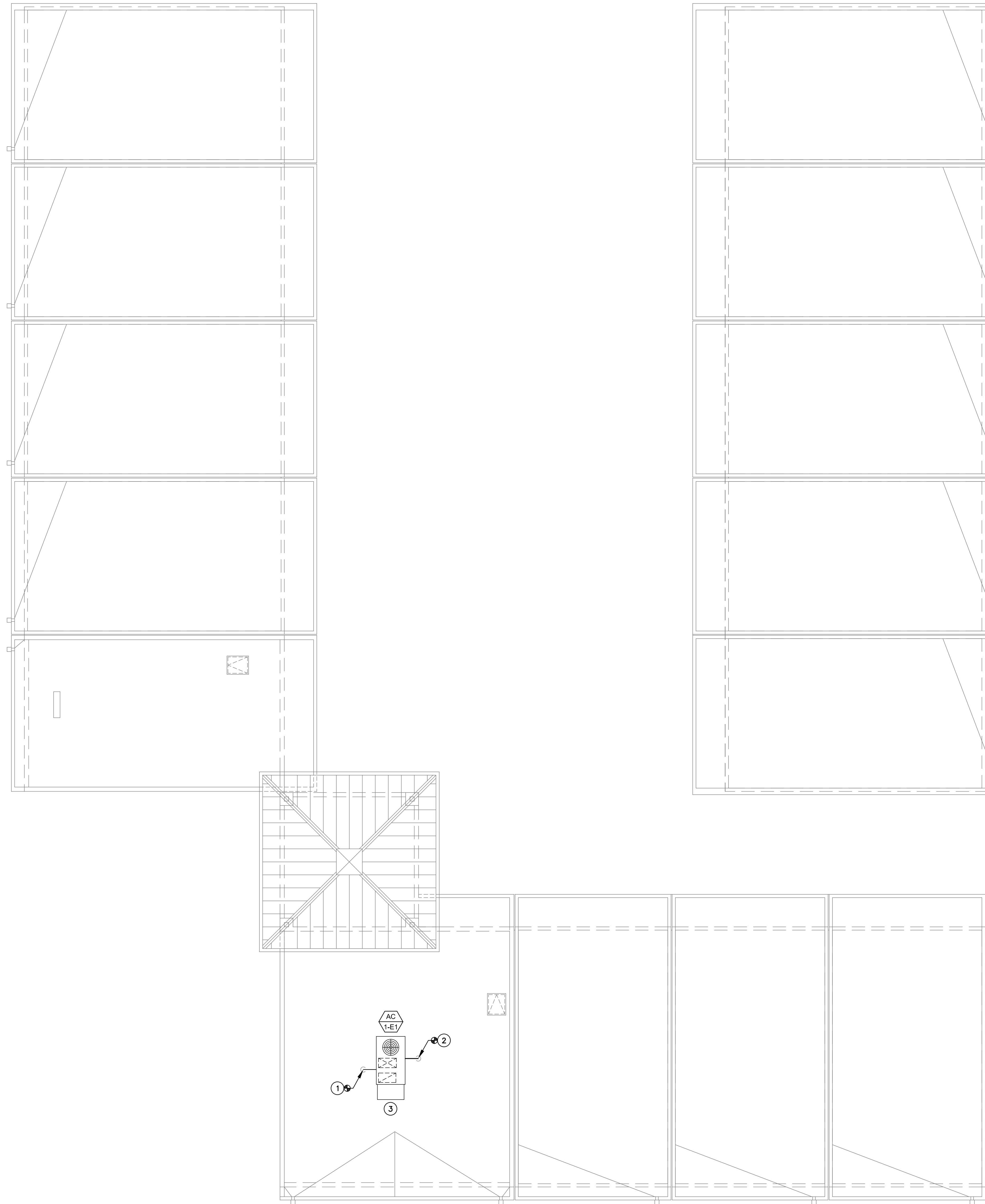
DRAWING
 NUMBER: **M-2.D**

- NOTES:
- ① CONNECT NEW 1" CONDENSATE DRAIN TO EXISTING MAIN.
 - ② CONNECT NEW 3/4" GAS TO EXISTING MAIN.
 - ③ RTU OUTSIDE AIR INTAKE. REFER TO SCHEDULE SHEET M-1.1.



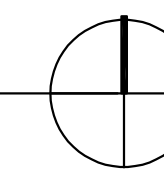
1 MECHANICAL ROOF PLAN - BLDG D
 1/8" = 1'-0"



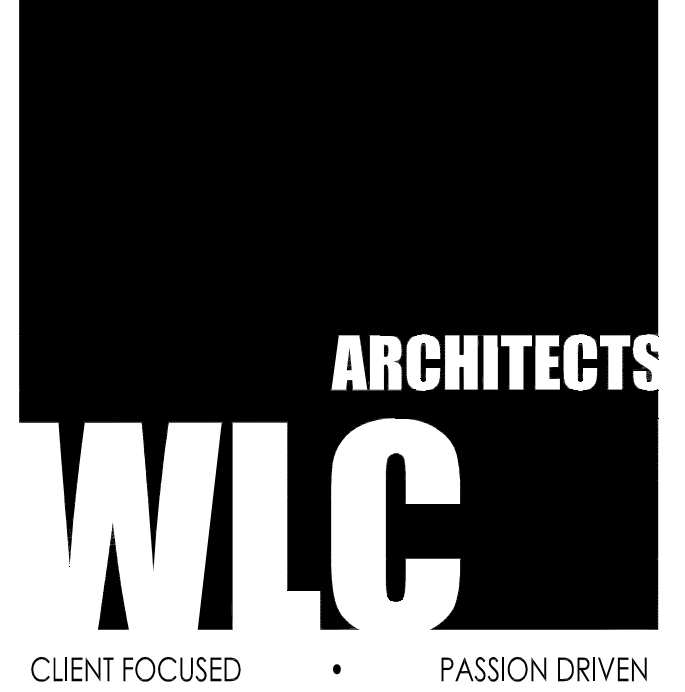


- NOTES:
- ① CONNECT NEW 1" CONDENSATE DRAIN TO EXISTING MAIN.
 - ② CONNECT NEW 3/4" GAS TO EXISTING MAIN.
 - ③ RTU OUTSIDE AIR INTAKE. REFER TO SCHEDULE SHEET M-1.1.

① MECHANICAL ROOF PLAN - BLDG E1
1/8" = 1'-0"



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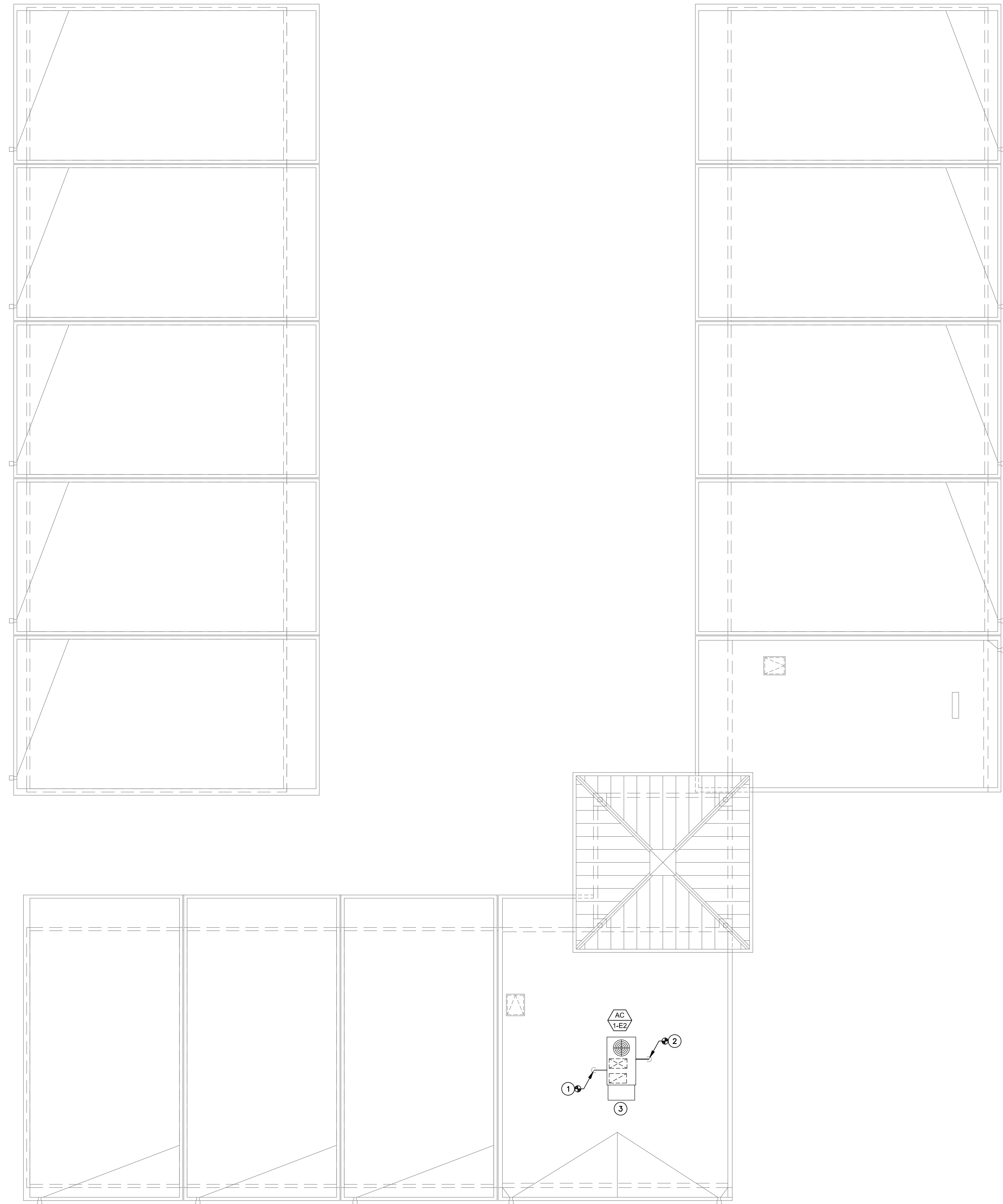


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PROJECT NUMBER: 1726200

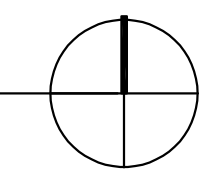
**MECHANICAL
ROOF PLAN -
BLDG E1**

DRAWING NUMBER: **M-2.E1**



- NOTES:
- ① CONNECT NEW 1" CONDENSATE DRAIN TO EXISTING MAIN.
 - ② CONNECT NEW 3/4" GAS TO EXISTING MAIN.
 - ③ RTU OUTSIDE AIR INTAKE. REFER TO SCHEDULE SHEET M-1.1.

① MECHANICAL ROOF PLAN - BLDG E2
1/8" = 1'-0"

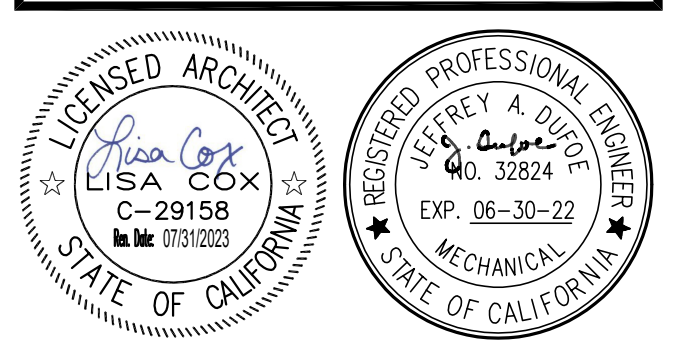


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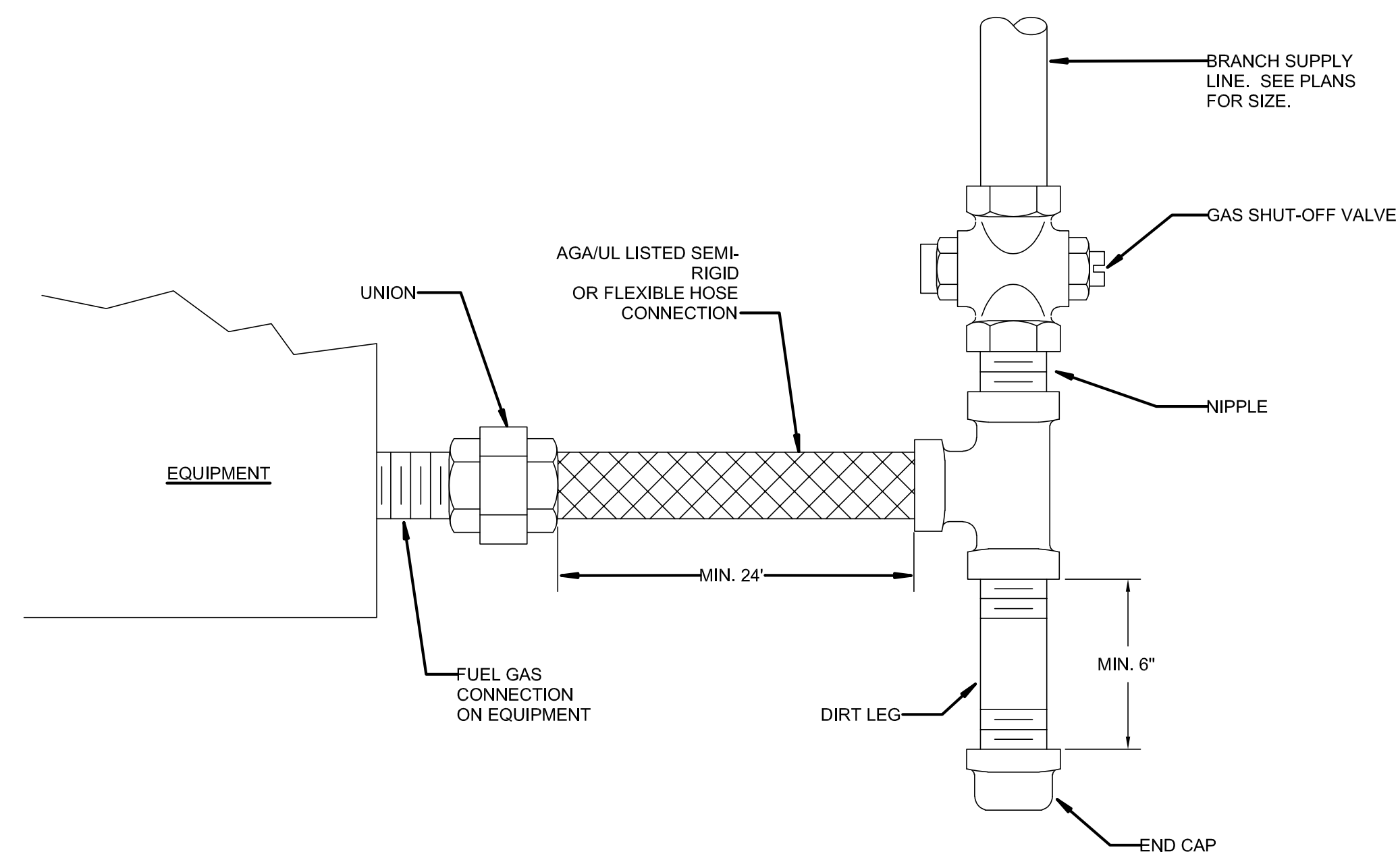
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954-369-8030 Fax 858-517-2763 www.dufoe.com

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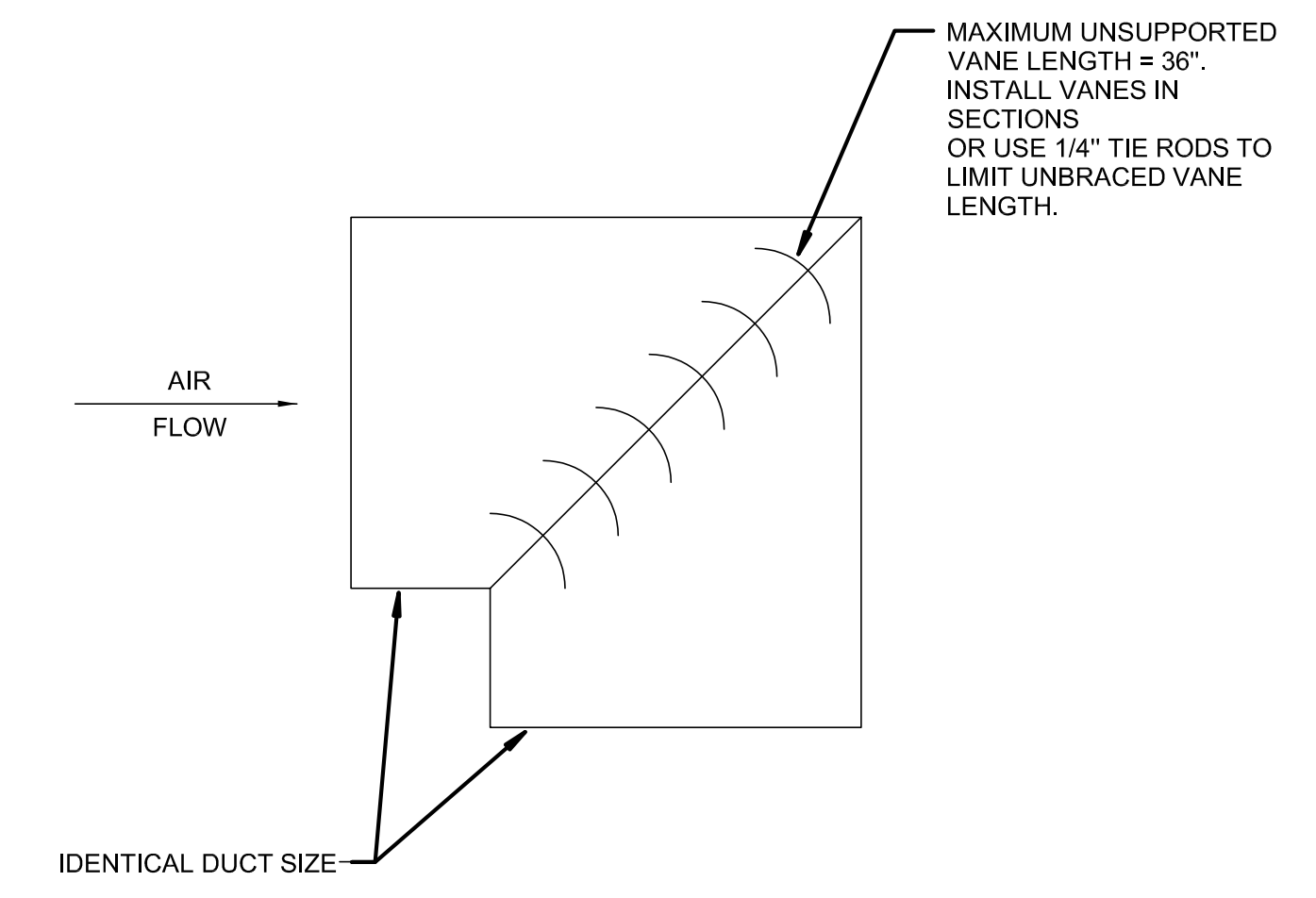
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**MECHANICAL
ROOF PLAN -
BLDG E2**

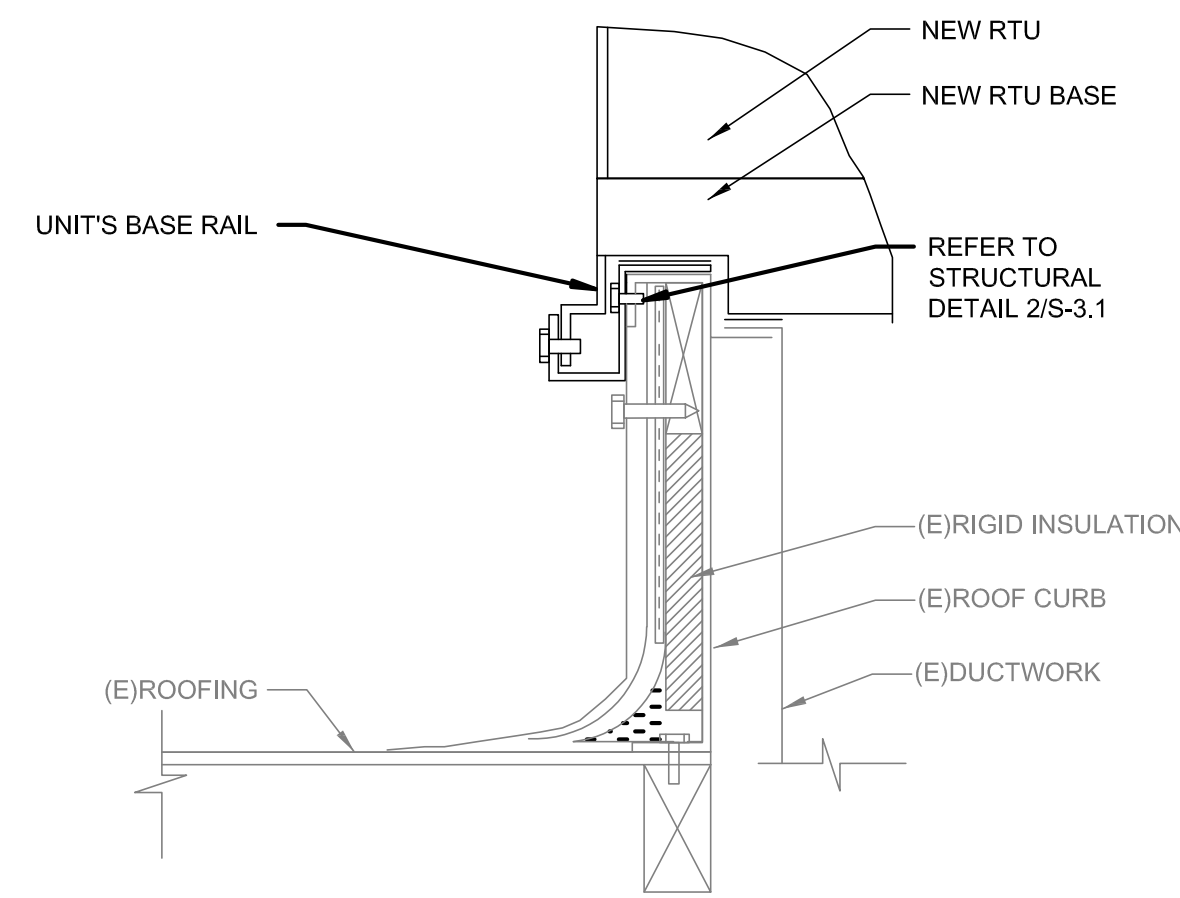
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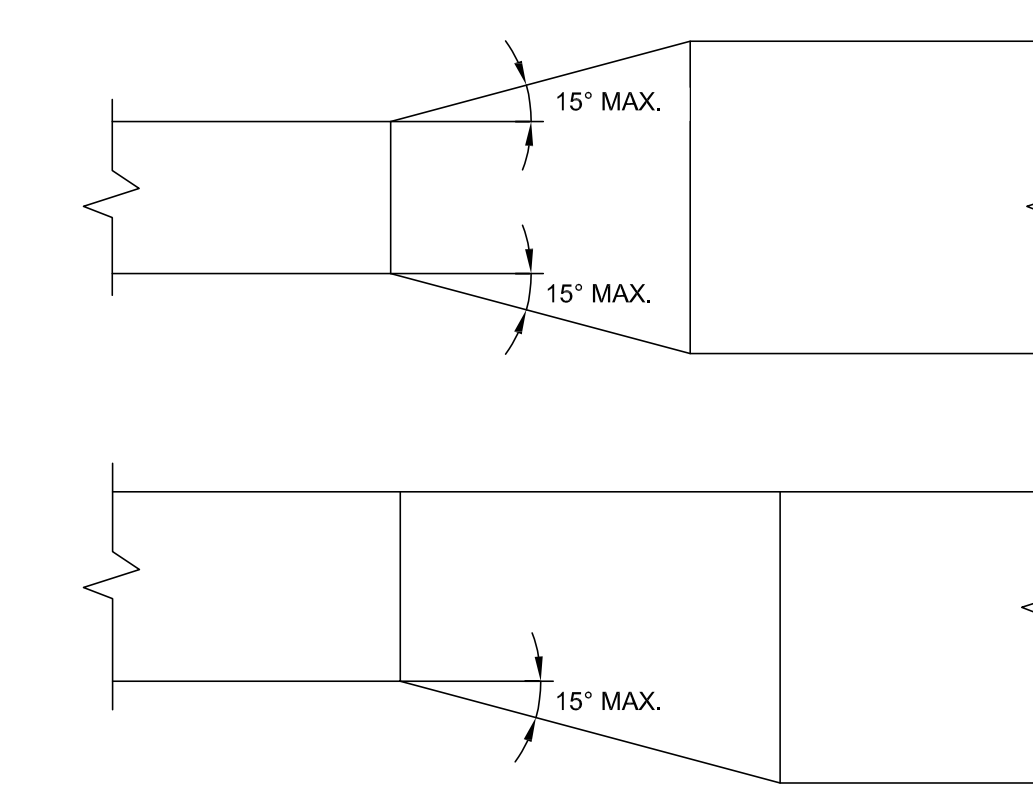
5 EQUIPMENT FUEL GAS CONNECTION DETAIL
NONE



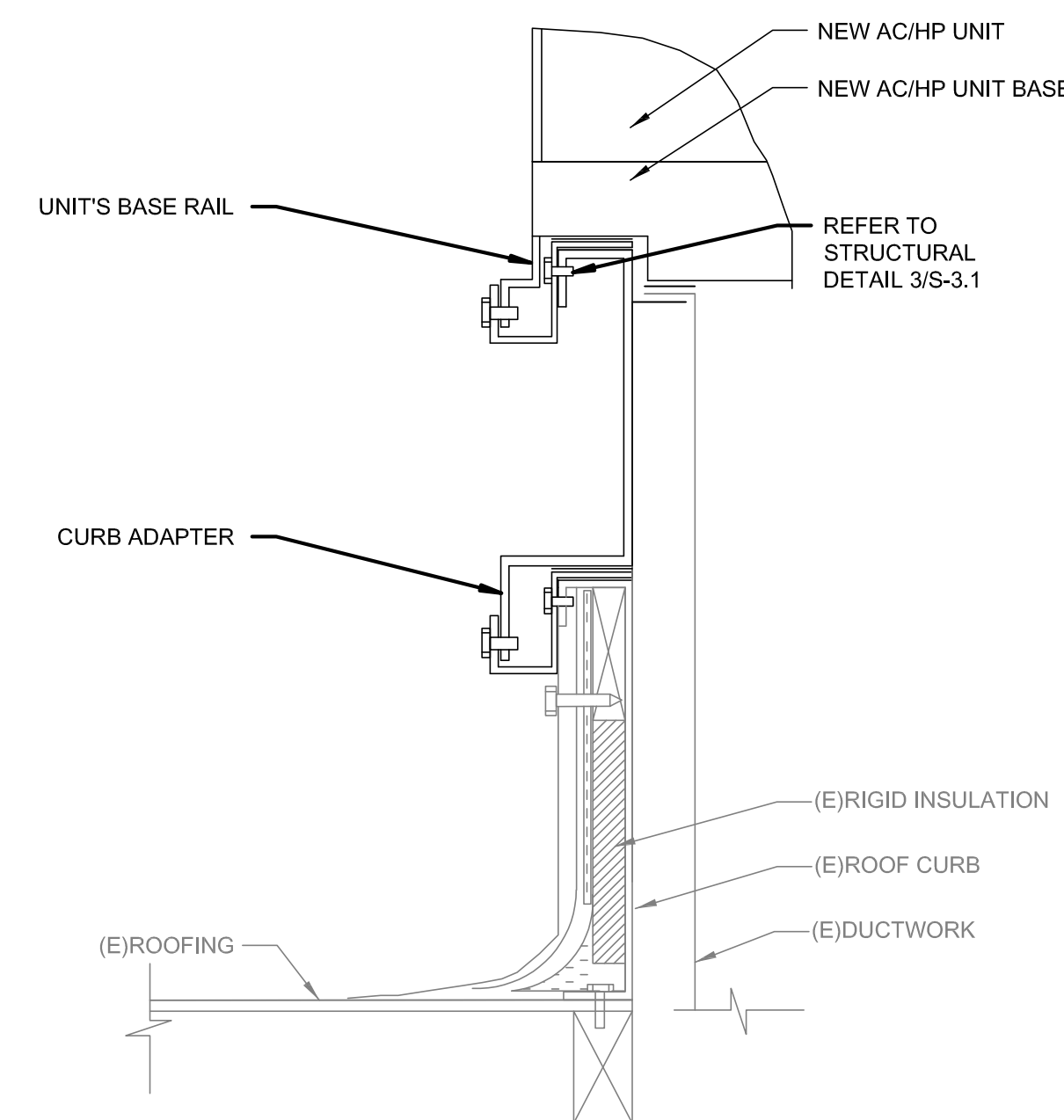
1 FILTERED ELBOW WITH TURNING VANES DETAIL
NONE



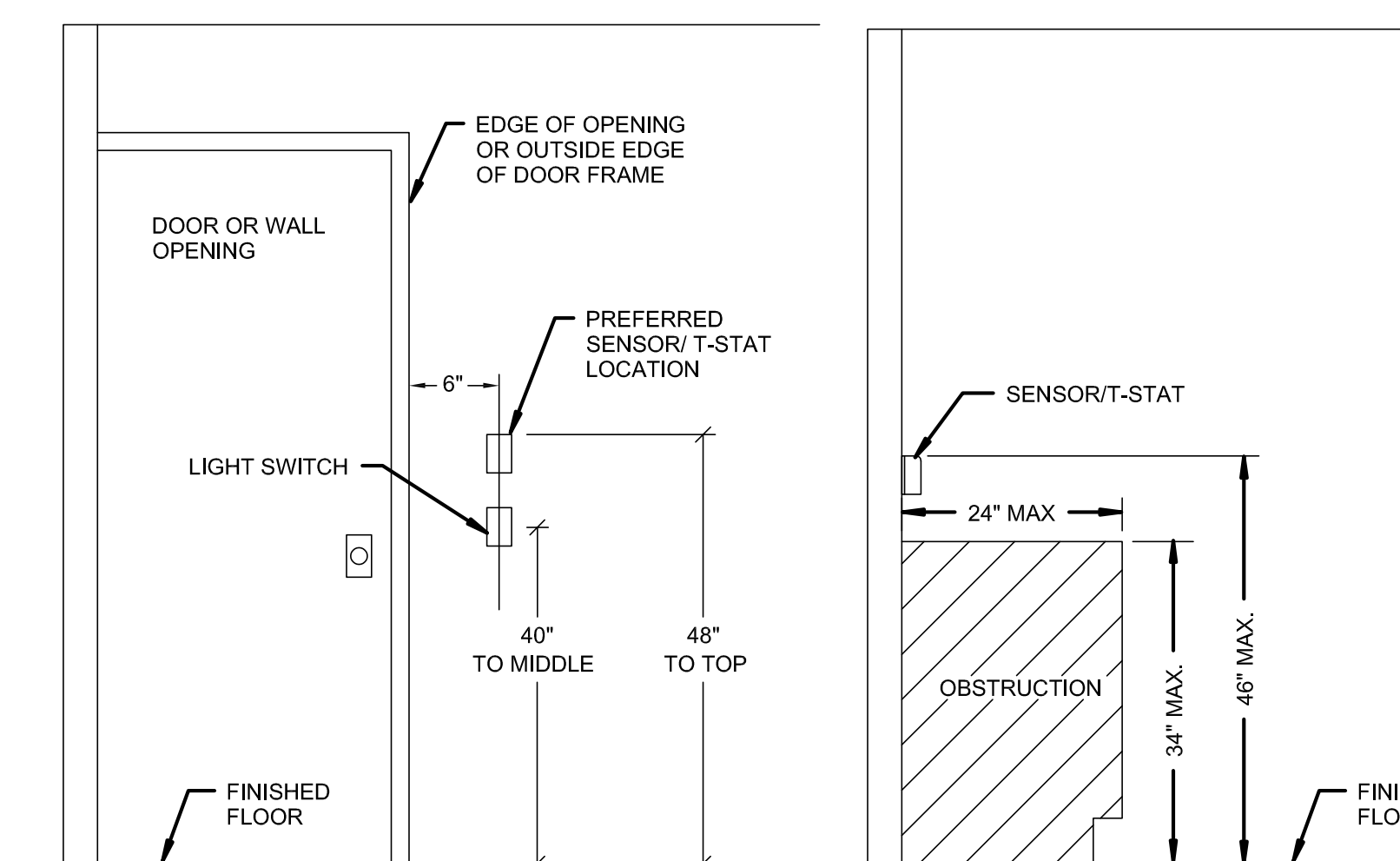
6 RTU AND EXISTING ROOF CURB DETAIL
NONE



2 DUCT TRANSITION DETAIL
NONE

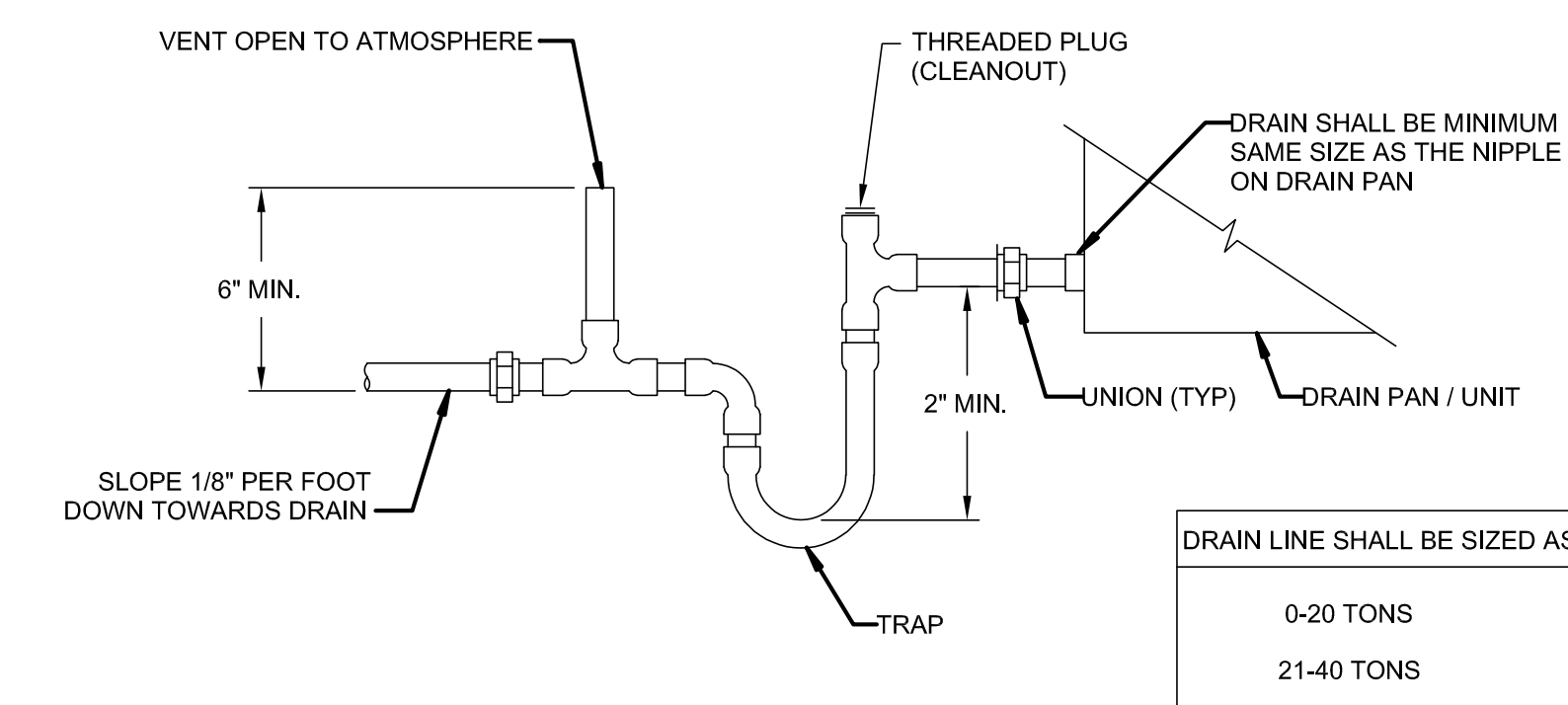


7 RTU, CURB ADAPTER, AND EXISTING ROOF CURB DETAIL
NONE



NOTES:
1. DO NOT INSTALL T-STATS ON EXTERIOR WALLS.
2. DO NOT INSTALL CO2 SENSORS ON ACOUSTICAL PANELS.
3. SEE ARCHITECTURAL DETAILS FOR FURTHER COORDINATION AND SENSOR CLUSTERS DETAILS.

3 THERMOSTAT MOUNTING DETAIL
NONE



* BUT NOT LESS THAN FULL SIZE EQUIP. CONN.

4 CONDENSATE DRAIN DETAIL
NONE

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LICENSED ARCHITECT
LISA COX
C-29158
EXPIRES 09/30/22
STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER
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LISA COX
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**MECHANICAL
DETAILS**

DRAWING NUMBER: **M-5.1**

ABBREVIATIONS

A	AMPERE (AMPS)
AC	ALTERNATING CURRENT
AF	AMPS-FRAME (RATING)
ACI	AMP INTERRUPTING CURRENT
AM	AMMETER
AS	AMP SWITCH (FUSED SWITCH RATING)
AT	AMPS-TRIP (RATING)
AWG	AMERICAN WIRE GAUGE
BC	BARE COPPER
BLDG	BUILDING
C	CONDUIT
CB	CIRCUIT BREAKER
CO	CONDUIT ONLY
CT	CURRENT TRANSFORMER
CU	COPPER
CFOI	CONTRACTOR FURNISHED OWNER INSTALLED
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
DPDT	DOUBLE POLE DOUBLE THROW
DPST	DOUBLE POLE SINGLE THROW
DWG	DRAWING
EX	EXISTING
FLA	FULL LOAD AMPS
FVR	FULL VOLTAGE REVERSING
FVNR	FULL VOLTAGE NON-REVERSING
GFI	GROUND FAULT INTERRUPTER
GRD/GND	GROUND
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTOMATIC
HP	HORSEPOWER
HPS	HIGH PRESSURE SODIUM
HZ	HERTZ
KW	KILOWATT
LCL	LONG CONTINUOUS LOAD
LRA	LOCKED ROTOR AMPS
LTG	LIGHTING
MCA	MINIMUM CIRCUIT AMPACITY
MCC	MOTOR CONTROL CENTER
MCM (KCM)	THOUSAND CIRCULAR MILS
MECH	MECHANICAL
NC	NORMALLY CLOSED
NF	NON-FUSED
NO	NORMALLY OPEN NUMBER
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
P	POLE
PH	PHASE
POC	POINT OF CONNECTION
FRS	PVC COATED RIGID STEEL (CONDUIT)
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE DUCT
SUBD	SUBBOARD
TYP	TYPICAL
UG	UNDERGROUND
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT-AMPERES
VM	VOLTMETER
VL	VERIFY LOCATION
W	WIRE/STRIPS
WF	WEATHERPROOF (NEMA TYPE 3R)
WT	WATERTIGHT
XP	EXPLOSION PROOF (RATED FOR AREA HAZARD)

ELECTRICAL SYMBOL LEGEND

DISTRIBUTION EQUIPMENT

	DRAW OUT TYPE EQUIPMENT
	VACUUM CIRCUIT BREAKER, RATING AS NOTED.
	AIR INTERRUPTER SWITCH AND FUSE
	AIR INTERRUPTER
	FUSE
	POWER TRANSFORMER, RATING AS NOTED
	POWER CIRCUIT BREAKER DRAWOUT
	AUTOMATIC TRANSFER SWITCH. SEE SCHEDULE
	AMMETER
	VOLTMETER
	CIRCUIT BREAKER
	FUSED SWITCH
	MOTOR CONTROL CENTER
	UTILITY COMPANY METER

POWER

	DUPLEX RECEPTACLE, FLOOR MOUNTED
	DUPLEX RECEPTACLE, WALL MOUNTED, 48" AFF. (U.ON.)
	RECEPTACLE, WALL MOUNTED HORIZONTALLY, 48" AFF. (U.ON.)
	FOURPLEX RECEPTACLE, WALL MOUNTED, 48" AFF. (U.ON.)
	PROVIDE (2) DUPLEX RECEPTACLE CEILING MOUNTED LOCATE ADJACENT TO PROJECTOR. FIELD VERIFY EXACT LOCATION PRIOR TO ROUGH-IN.
	SINGLE RECEPTACLE, WALL MOUNTED 48" AFF. (U.ON.)
	SWITCH CONTROLLED DUPLEX RECEPTACLE 48" U.ON.
	DUPLEX GROUND FAULT INTERRUPTING RECEPTACLE 48" AFF. (U.ON.)
	DUPLEX RECEPTACLE ON EMERGENCY CIRCUIT 48" AFF. (U.ON.)
	DUPLEX RECEPTACLE IN WEATHERPROOF ENCLOSURE 48" AFF. (U.ON.) (SEE TYPICAL DETAILS E3 SERIES SHEETS AND SPECIFICATIONS FOR REQUIRED TYPE)
	DUPLEX RECEPTACLE (ORANGE) ISOLATED GROUND WALL MOUNTED 48" AFF. (U.ON.)
	FOURPLEX RECEPTACLE (ORANGE) ISOLATED GROUND WALL MOUNTED 48" AFF. (U.ON.)
	JUNCTION BOX, CEILING OR WALL MOUNTED
	FUSED DISCONNECT SWITCH, WHERE SHOWN NF = NON-FUSED.
	MANUAL MOTOR STARTER WITH OVERLOAD PROTECTION 48" AFF. OR ON EQUIPMENT (U.ON.)
	MOTOR CONNECTION, NUMERAL INDICATES HORSEPOWER.
	MECHANICAL EQUIPMENT TAG (SEE MECHANICAL DRAWINGS FOR DESCRIPTION)
	CONDUIT AND WIRE, CONCEALED IN CEILING OR WALL
	CONDUIT AND WIRE, CONCEALED IN OR UNDER FINISHED FLOOR OR UNDER FINISHED GRADE.
	FLEXIBLE CONDUIT CONNECTION
	BRANCH CIRCUIT HOMERUN TO PANEL. SLASHES INDICATE NUMBER OF CONDUCTORS, EQUIPMENT GROUND WIRE NOT INDICATED U.ON. #2 CONDUCTORS ARE MINIMUM, NO HASH MARKS = MIN (2) #2
	3/4" CONDUIT STUBBED FROM DEVICE TO ABOVE ACCESSIBLE CEILING
	BRANCH CIRCUIT HOMERUN, NUMBER INDICATES INCREASED CONDUCTOR SIZE. CONDUCTORS SHALL REMAIN AS INDICATED FOR SIZE THROUGHOUT THE ENTIRE CIRCUIT.
	CONDUIT DROP.
	CONDUIT RISER.
	PANELBOARD, SURFACE MOUNTED.
	PANELBOARD, RECESSED
	STEP-DOWN TRANSFORMER
	DISTRIBUTION SWITCHBOARD

GENERAL PROJECT NOTES:

- UNLESS WHERE OTHERWISE NOTED, ALL WORK INDICATED ON THESE DRAWINGS SHALL BE CONSIDERED NEW WORK.
- UNLESS WHERE OTHERWISE NOTED, ALL DIMENSIONS ARE TO BE CENTERLINE OF THE DEVICE.
- "GENERAL NOTES" SHOWN ON AN INDIVIDUAL DRAWING APPLY TO ALL WORK SHOWN ON THAT SHEET. "KEY NOTES" ONLY APPLY TO SPECIFIC ITEMS WHERE ANNOTATED AT SPECIFIC LOCATIONS. SOME KEY NOTES MAY NOT APPLY TO ANY SPECIFIC ITEMS.
- UNLESS SPECIFICALLY SHOWN ON THESE PLANS, NO STRUCTURAL MEMBER SHALL BE CUT, NEITHER DRILLED NOR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER AND THE DIVISION OF THE STATE ARCHITECT.

MEP COMPONENT ANCHORAGE NOTE:

MEP COMPONENT ANCHORAGE NOTE
ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA- APPROVED CONSTRUCTION DOCUMENTS. THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2019 CBC SECTIONS 1617A.1.6 THROUGH 1617A.1.26 AND ASCE 1-16 CHAPTERS 13, 26, AND 30:

- ALL PERMANENT EQUIPMENT AND COMPONENTS.
- TEMPORARY, MOVABLE OR MOBILE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER. "PERMANENTLY ATTACHED" SHALL INCLUDE ALL ELECTRICAL CONNECTIONS EXCEPT PLUGS FOR 110/220 VOLT RECEPTACLES HAVING A FLEXIBLE CABLE.
- TEMPORARY, MOVABLE OR MOBILE EQUIPMENT WHICH IS HEAVIER THAN 400 POUNDS OR HAS A CENTER OF MASS LOCATED 4 FEET OR MORE ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT IS REQUIRED TO BE RESTRAINED IN A MANNER APPROVED BY DSA.

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

- 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 SUPPORT THE COMPONENT.
- COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

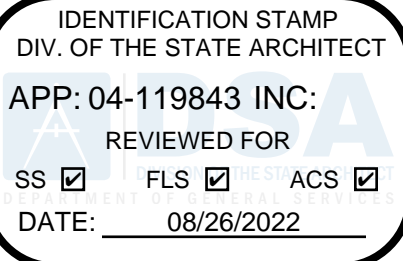
THE ANCHORAGE OF ALL MECHANICAL, ELECTRICAL AND PLUMBING COMPONENTS SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND ACCEPTANCE BY DSA. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE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

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE
PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 1-16 SECTION 13.3 AS DEFINED IN ASCE 1-16 SECTIONS 13.6.3, 13.6.6, 13.6.7, 13.6.8; AND 2019 CBC, SECTIONS 1617A.1.4, 1617A.1.25 AND 1617A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PREAPPROVED INSTALLATION GUIDE (E.G. OSHPD OFM FOR 2019 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

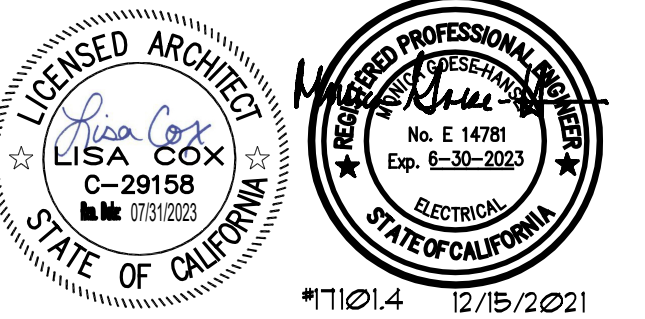
MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E).

- OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.
- OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVED (OPM) *



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www.je-inc.com

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**ELECTRICAL
LEGEND & NOTES**

DRAWING NUMBER: **E-1.0**



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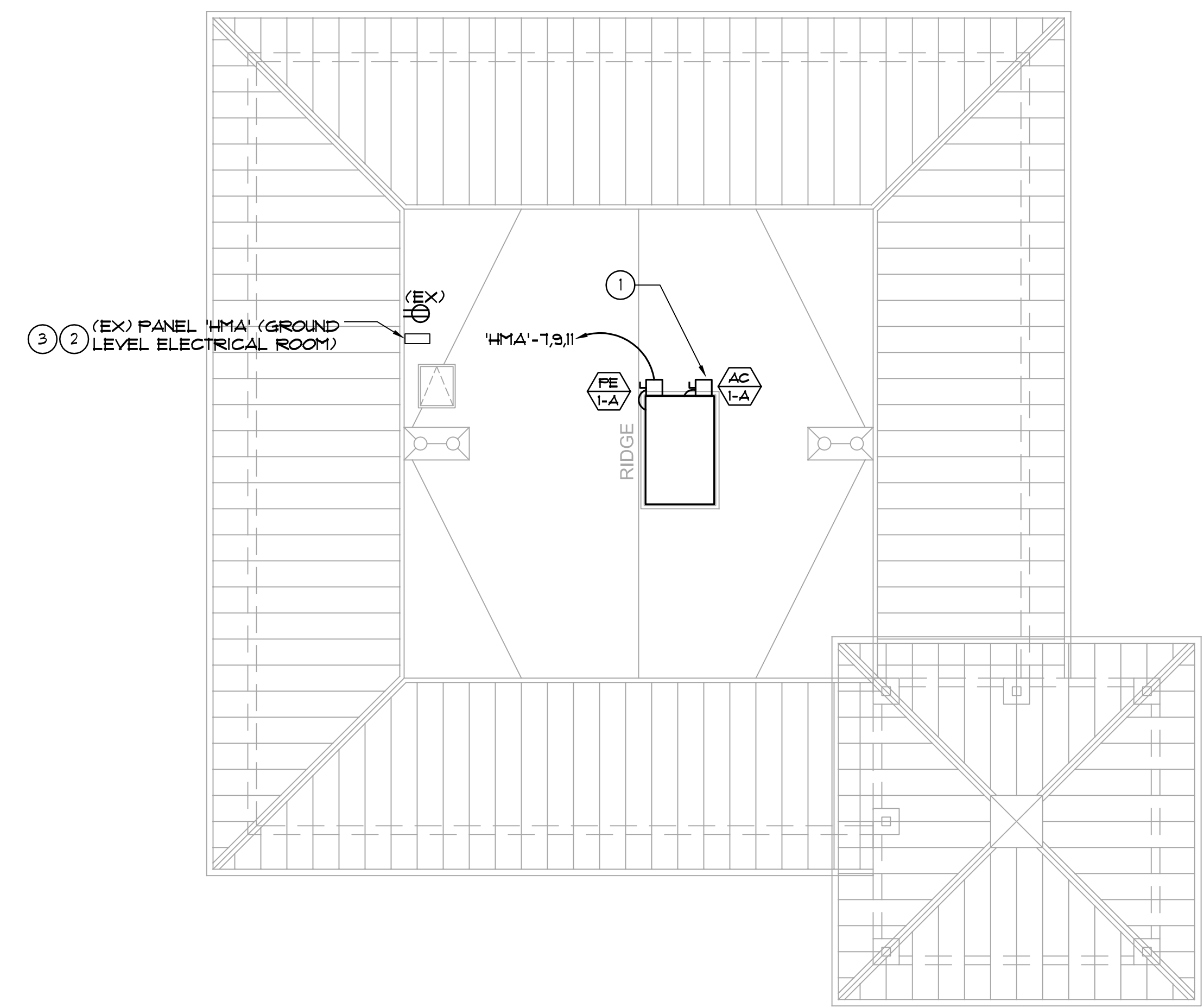
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GENERAL NOTES:

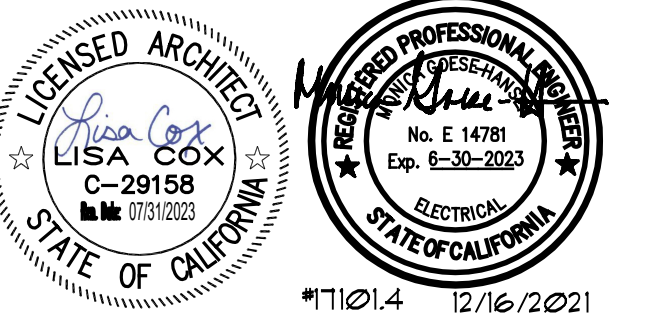
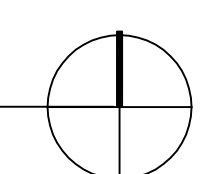
1. REFERENCE MECHANICAL PLANS FOR EXACT EQUIPMENT LOCATIONS PRIOR TO ROUGH-IN.
2. WHERE DRAWINGS SHOW EXISTING CONDITIONS, THEY HAVE BEEN DERIVED FROM EXISTING DRAWINGS AND/OR SITE INVESTIGATIONS. AN ATTEMPT HAS BEEN MADE TO SHOW ALL EXISTING ELECTRICAL EQUIPMENT LOCATIONS AND CHARACTERISTICS THAT WOULD AFFECT NEW WORK, AS ACCURATELY AS POSSIBLE. HOWEVER THIS DOES NOT RELIEVE THE ELECTRICAL CONTRACTOR FROM RESPONSIBILITY OF A THOROUGH SITE INVESTIGATION PRIOR TO SUBMITTING FINAL BID, TO ASCERTAIN ALL EXISTING CONDITIONS AND LIMITATIONS.
3. COORDINATE THE POINT OF CONNECTION FOR EACH AC UNIT WITH MECHANICAL CONTRACTOR.
4. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON SET FOR DISCONNECT SWITCH AND FUSES REQUIREMENTS FOR ALL NEW AC UNITS.
5. FIELD VERIFY EXACT PANEL, CIRCUIT, CONDUIT AND CONDUCTOR INFORMATION FOR EACH EXISTING UNIT.
6. ALL NON-HVAC ITEMS ATTACHED TO THE EXISTING UNITS SHALL BE CAREFULLY DISCONNECTED AND REMOVED. RE-INSTALL IN AN ALTERNATE LOCATION UPON COMPLETION OF NEW UNIT INSTALLATION. THE ITEMS SHALL BE TRANSFERRED AND REINSTALLED ON THE NEW UNIT IN THE SAME LOCATION AS REQUIRED. REPLACE EXISTING FLEX CONDUIT AS REQUIRED.
7. FIELD VERIFY EXACT LOCATION PRIOR TO DISCONNECT SWITCH INSTALLATION. COORDINATE WITH MECHANICAL CONTRACTOR AS REQUIRED.

KEY NOTES:

- 1 DISCONNECT AND REMOVE EXISTING ELECTRICAL CONNECTION TO EXISTING AC UNITS BEING REMOVED, INCLUDING DISCONNECT SWITCH, W/ J-BOX, DUPLEX RECEPTACLE AND FLEX CONNECTOR CONDUIT. EXISTING WIRING SHALL BE SAFFED-OFF PROTECTED AND RE-INSTALLED. PROVIDE NEW DISCONNECT SWITCH AND FUSES PER HVAC SCHEDULE. EXTEND EXISTING FEEDER TO NEW DISCONNECT AND AC UNIT AS REQUIRED.
- 2 PROVIDE (1) 20A/3P BREAKERS IN EXISTING SPACE #1, #3, #1. MATCH EXISTING BREAKER TYPE AND RATING.
- 3 DISCONNECT AND REMOVE EXISTING 40A/3P BREAKER FEEDING UNIT 'AC-1A' AT CIRCUIT #2, #4, #6. REPLACE WITH A 50A/3P BREAKER. MATCH EXISTING BREAKER TYPE AND RATING.



1 ELECTRICAL ROOF PLAN - BLDG A
 1/8" = 1'-0"



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**ELECTRICAL
 ROOF PLAN -
 BLDG A**

DRAWING NUMBER: **E-6.1**



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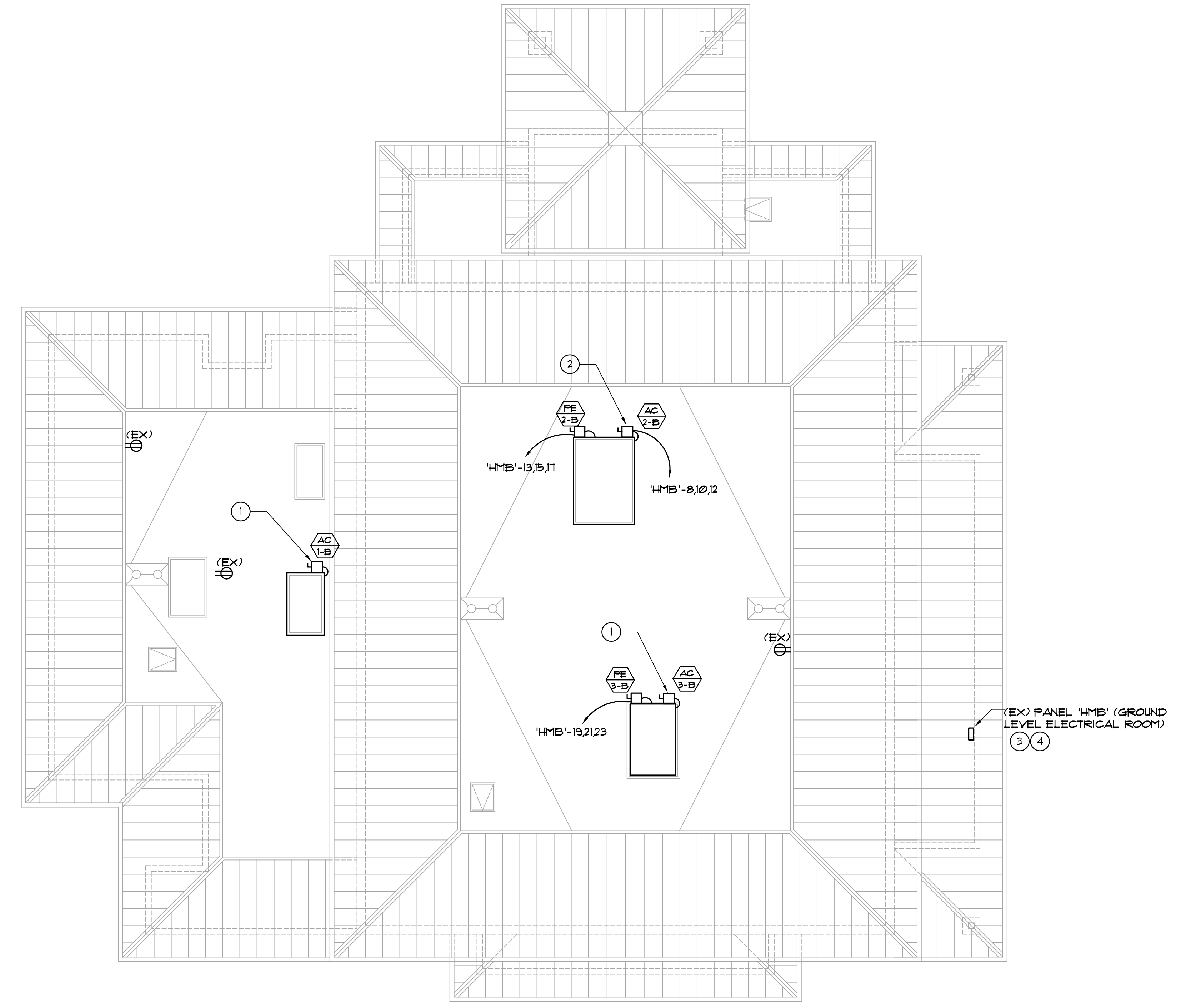
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GENERAL NOTES:

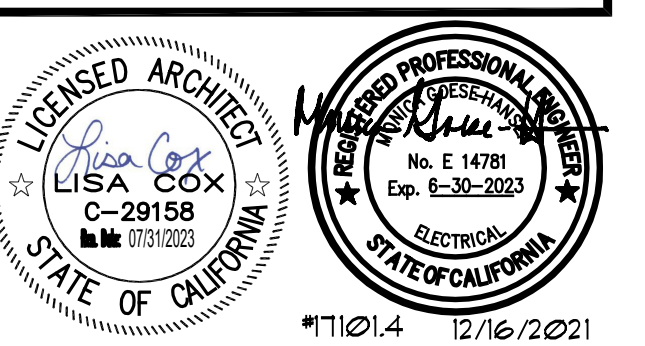
1. REFERENCE MECHANICAL PLANS FOR EXACT EQUIPMENT LOCATIONS PRIOR TO ROUGH-IN.
2. WHERE DRAWINGS SHOW EXISTING CONDITIONS, THEY HAVE BEEN DERIVED FROM EXISTING DRAWINGS AND/OR SITE INVESTIGATIONS, AN ATTEMPT HAS BEEN MADE TO SHOW ALL EXISTING ELECTRICAL EQUIPMENT LOCATIONS AND CHARACTERISTICS THAT WOULD AFFECT NEW WORK AS ACCURATELY AS POSSIBLE, HOWEVER THIS DOES NOT RELIEVE THE ELECTRICAL CONTRACTOR FROM RESPONSIBILITY OF A THOROUGH SITE INVESTIGATION, PRIOR TO SUBMITTING FINAL BID, TO ASCERTAIN ALL EXISTING CONDITIONS AND LIMITATIONS.
3. COORDINATE THE POINT OF CONNECTION FOR EACH AC UNIT WITH MECHANICAL CONTRACTOR.
4. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON E6.1 FOR DISCONNECT SWITCH AND FUSES REQUIREMENTS FOR ALL NEW AC UNITS.
5. FIELD VERIFY EXACT PANEL, CIRCUIT, CONDUIT AND CONDUCTOR INFORMATION FOR EACH EXISTING UNIT.
6. ALL NON-HVAC ITEMS ATTACHED TO THE EXISTING UNITS SHALL BE CAREFULLY DISCONNECTED AND REMOVED, RE-INSTALL IN AN ALTERNATE LOCATION, UPON COMPLETION OF NEW UNIT INSTALLATION, THE ITEMS SHALL BE TRANSFERRED AND REINSTALLED ON THE NEW UNIT IN THE SAME LOCATION AS REQUIRED. REPLACE EXISTING FLEX CONDUIT AS REQUIRED.
7. FIELD VERIFY EXACT LOCATION PRIOR TO DISCONNECT SWITCH INSTALLATION, COORDINATE WITH MECHANICAL CONTRACTOR AS REQUIRED.

KEY NOTES:

1. DISCONNECT AND REMOVE EXISTING ELECTRICAL CONNECTION TO EXISTING AC UNITS BEING REMOVED, INCLUDING DISCONNECT SWITCH, UP J-BOX DUPLEX RECEPTACLE AND FLEX CONNECTOR CONDUIT. EXISTING WIRING SHALL BE SAFFED-OFF PROTECTED AND RE-INSTALLED. PROVIDE NEW DISCONNECT SWITCH AND FUSES PER HVAC SCHEDULE. EXTEND EXISTING FEEDER TO NEW DISCONNECT AND AC UNIT AS REQUIRED.
2. DISCONNECT AND REMOVE EXISTING ELECTRICAL CONNECTION TO EXISTING AC UNITS BEING REMOVED, INCLUDING DISCONNECT SWITCH, UP J-BOX DUPLEX RECEPTACLE AND FLEX CONNECTOR CONDUIT. EXISTING WIRING SHALL BE REMOVED COMPLETELY BACK TO SOURCE. PROVIDE NEW DISCONNECT SWITCH, FUSES, CONDUIT AND WIRING PER HVAC SCHEDULE. CONNECT NEW CONDUCTORS TO NEW 80A/3P BREAKER AT PANEL, HMB, DISCONNECT SWITCH AND AC UNIT AS REQUIRED.
3. PROVIDE (1) 40A/3P BREAKERS IN SPACE #13, #15, #11 AND (1) 20A/3P BREAKER IN SPACE #15, #21, #23. MATCH EXISTING BREAKER TYPE AND RATING.
4. DISCONNECT AND REMOVE EXISTING 10A/3P BREAKER FEEDING UNIT "AC-2B" AT CIRCUIT #10 AND #2. REPLACE WITH A 80A/3P BREAKER. MATCH EXISTING BREAKER AND RATING.



1 ELECTRICAL ROOF PLAN - BLDG B
 1/8" = 1'-0"



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**ELECTRICAL
 ROOF PLAN -
 BLDG B**

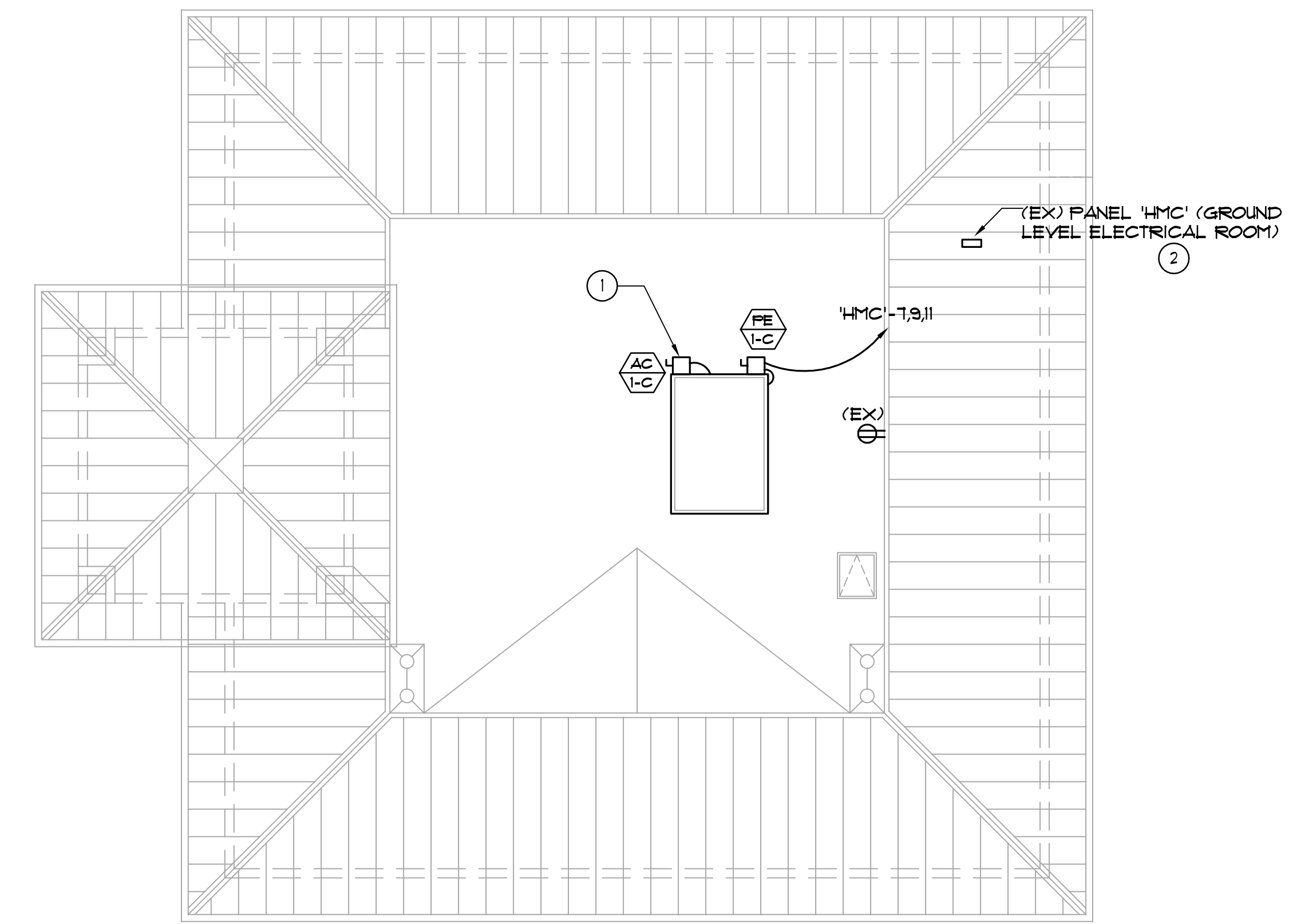
DRAWING NUMBER: **E-6.2**

GENERAL NOTES:

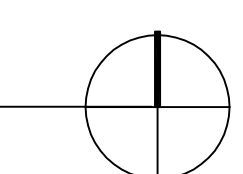
1. REFERENCE MECHANICAL PLANS FOR EXACT EQUIPMENT LOCATIONS PRIOR TO ROUGH-IN.
2. WHERE DRAWINGS SHOW EXISTING CONDITIONS, THEY HAVE BEEN DERIVED FROM EXISTING DRAWINGS AND/OR SITE INVESTIGATIONS. AN ATTEMPT HAS BEEN MADE TO SHOW ALL EXISTING ELECTRICAL EQUIPMENT LOCATIONS AND CHARACTERISTICS THAT WOULD AFFECT NEW WORK, AS ACCURATELY AS POSSIBLE. HOWEVER THIS DOES NOT RELIEVE THE ELECTRICAL CONTRACTOR FROM RESPONSIBILITY OF A THOROUGH SITE INVESTIGATION PRIOR TO SUBMITTING FINAL BID, TO ASCERTAIN ALL EXISTING CONDITIONS AND LIMITATIONS.
3. COORDINATE THE POINT OF CONNECTION FOR EACH AC UNIT WITH MECHANICAL CONTRACTOR.
4. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON E6.1 FOR DISCONNECT SWITCH AND FUSES REQUIREMENTS FOR ALL NEW AC UNITS.
5. FIELD VERIFY EXACT PANEL, CIRCUIT, CONDUIT AND CONDUCTOR INFORMATION FOR EACH EXISTING UNIT.
6. ALL NON-HVAC ITEMS ATTACHED TO THE EXISTING UNITS SHALL BE CAREFULLY DISCONNECTED AND REMOVED. RE-INSTALL IN AN ALTERNATE LOCATION UPON COMPLETION OF NEW UNIT INSTALLATION. THE ITEMS SHALL BE TRANSFERRED AND REINSTALLED ON THE NEW UNIT IN THE SAME LOCATION AS REQUIRED. REPLACE EXISTING FLEX CONDUIT AS REQUIRED.
7. FIELD VERIFY EXACT LOCATION PRIOR TO DISCONNECT SWITCH INSTALLATION. COORDINATE WITH MECHANICAL CONTRACTOR AS REQUIRED.

KEY NOTES:

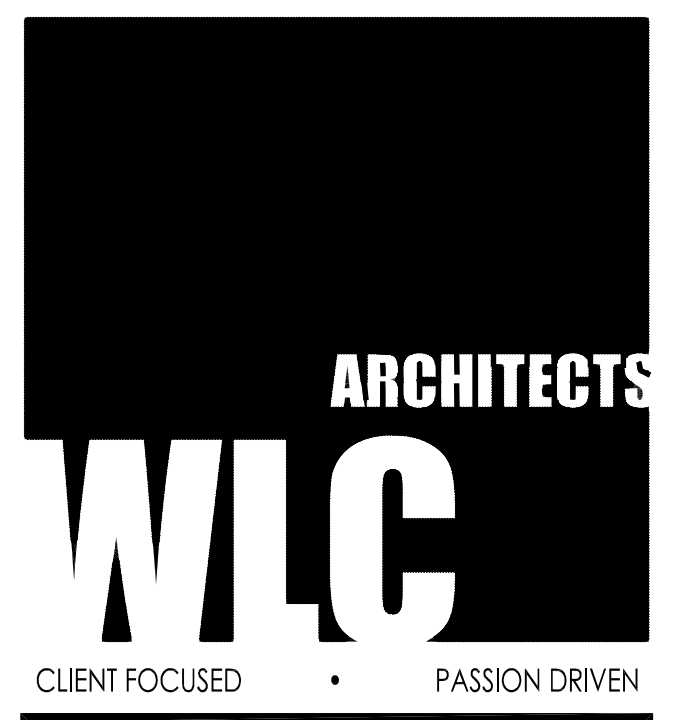
- 1 DISCONNECT AND REMOVE EXISTING ELECTRICAL CONNECTION TO EXISTING AC UNITS BEING REMOVED, INCLUDING DISCONNECT SWITCH, UP J-BOX, DUPLEX RECEPTACLE AND FLEX CONNECTOR CONDUIT. EXISTING WIRING SHALL BE SAFFED-OFF PROTECTED AND RE-INSTALLED. PROVIDE NEW DISCONNECT SWITCH AND FUSES PER HVAC SCHEDULE. EXTEND EXISTING FEEDER TO NEW DISCONNECT AND AC UNIT AS REQUIRED.
- 2 PROVIDE (1) 20A/3P BREAKERS IN SPACE #1, #2, #11. MATCH EXISTING BREAKER TYPE AND RATING.



1 ELECTRICAL ROOF PLAN - BLDG C
1/8" = 1'-0"

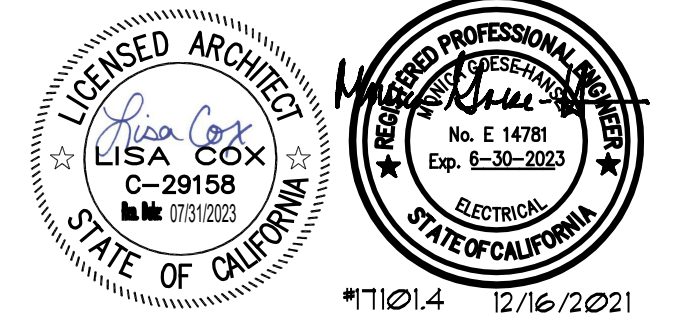


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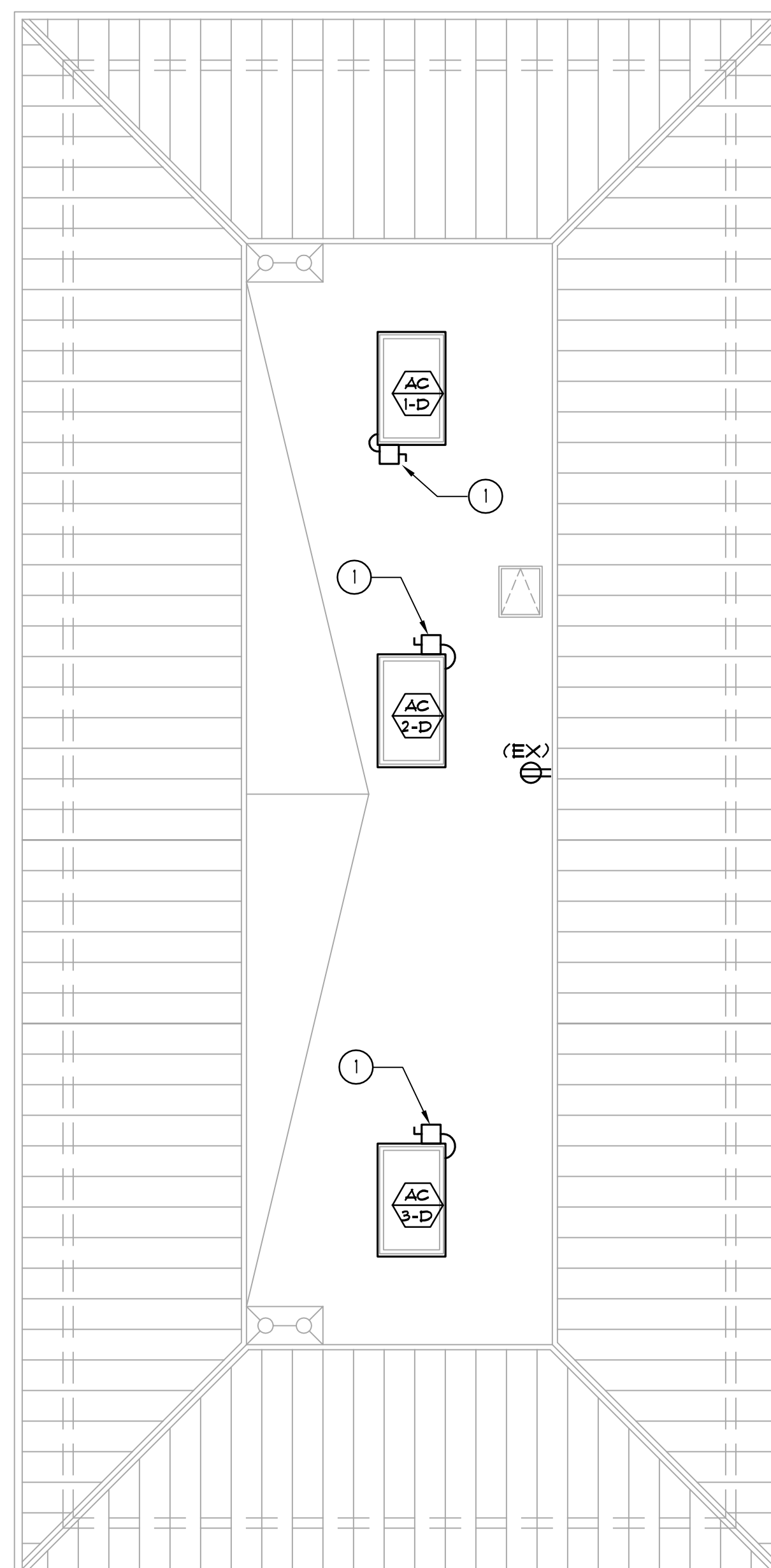
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**ELECTRICAL
ROOF PLAN -
BLDG C**

DRAWING NUMBER: **E-6.3**



1 ELECTRICAL ROOF PLAN - BLDG D
1/8" = 1'-0"

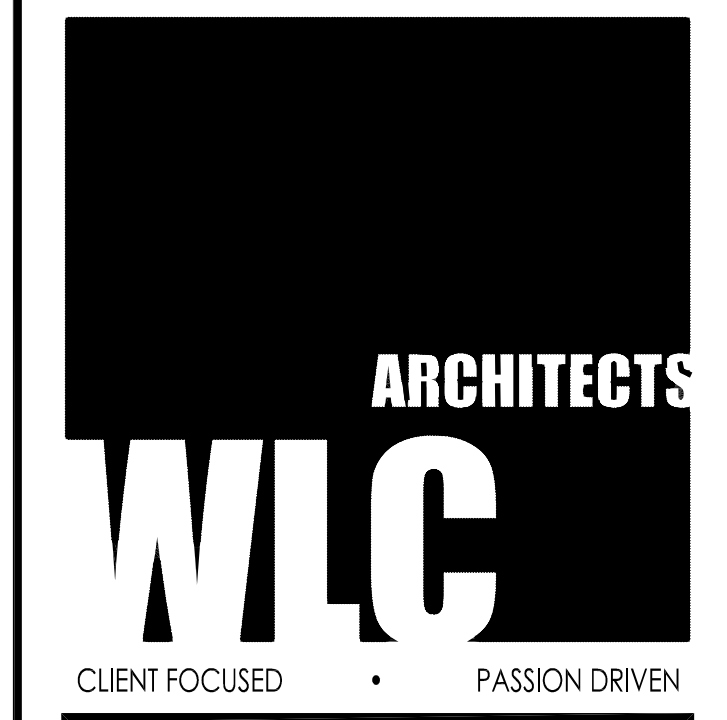
GENERAL NOTES:

1. REFERENCE MECHANICAL PLANS FOR EXACT EQUIPMENT LOCATIONS PRIOR TO ROUGH-IN.
2. WHERE DRAWINGS SHOW EXISTING CONDITIONS, THEY HAVE BEEN DERIVED FROM EXISTING DRAWINGS AND/OR SITE INVESTIGATIONS. AN ATTEMPT HAS BEEN MADE TO SHOW ALL EXISTING ELECTRICAL EQUIPMENT LOCATIONS AND CHARACTERISTICS THAT WOULD AFFECT NEW WORK AS ACCURATELY AS POSSIBLE. HOWEVER THIS DOES NOT RELIEVE THE ELECTRICAL CONTRACTOR FROM RESPONSIBILITY OF A THOROUGH SITE INVESTIGATION, PRIOR TO SUBMITTING FINAL BID, TO ASCERTAIN ALL EXISTING CONDITIONS AND LIMITATIONS.
3. COORDINATE THE POINT OF CONNECTION FOR EACH AC UNIT WITH MECHANICAL CONTRACTOR.
4. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON E6.1 FOR DISCONNECT SWITCH AND FUSES REQUIREMENTS FOR ALL NEW AC UNITS.
5. FIELD VERIFY EXACT PANEL, CIRCUIT, CONDUIT AND CONDUCTOR INFORMATION FOR EACH EXISTING UNIT.
6. ALL NON-HVAC ITEMS ATTACHED TO THE EXISTING UNITS SHALL BE CAREFULLY DISCONNECTED AND REMOVED. RE-INSTALL IN AN ALTERNATE LOCATION UPON COMPLETION OF NEW UNIT INSTALLATION. THE ITEMS SHALL BE TRANSFERRED AND REINSTALLED ON THE NEW UNIT IN THE SAME LOCATION AS REQUIRED. REPLACE EXISTING FLEX CONDUIT AS REQUIRED.
7. FIELD VERIFY EXACT LOCATION PRIOR TO DISCONNECT SWITCH INSTALLATION. COORDINATE WITH MECHANICAL CONTRACTOR AS REQUIRED.

KEY NOTES:

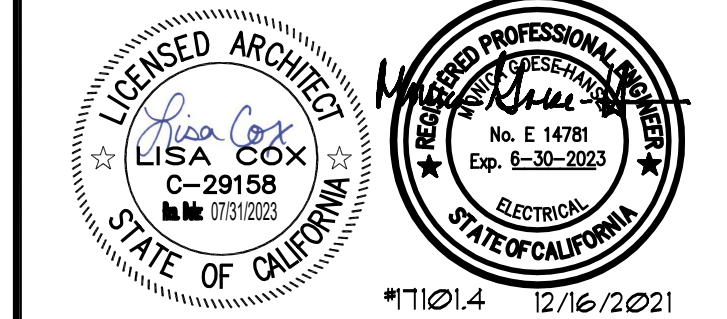
- 1 DISCONNECT AND REMOVE EXISTING ELECTRICAL CONNECTION TO EXISTING AC UNITS BEING REMOVED, INCLUDING DISCONNECT SWITCH, WP J-BOX DUPLEX RECEPTACLE AND FLEX CONNECTOR CONDUIT. EXISTING WIRING SHALL BE SAFED-OFF PROTECTED AND RE-INSTALLED. PROVIDE NEW DISCONNECT SWITCH AND FUSES PER HVAC SCHEDULE. EXTEND EXISTING FEEDER TO NEW DISCONNECT AND AC UNIT AS REQUIRED.

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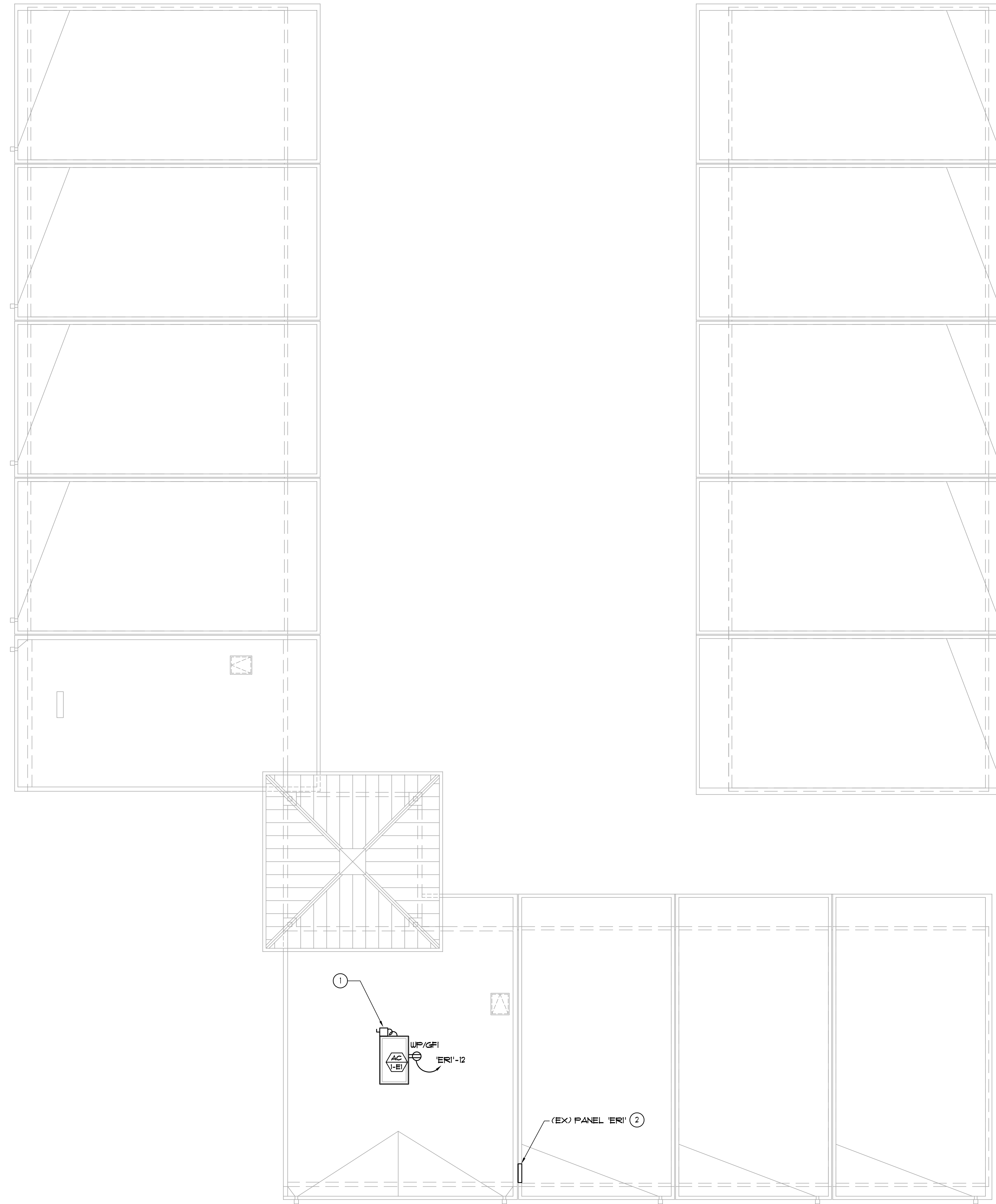
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**ELECTRICAL
ROOF PLAN -
BLDG D**

DRAWING NUMBER: **E-6.4**



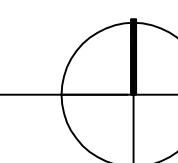
GENERAL NOTES:

1. REFERENCE MECHANICAL PLANS FOR EXACT EQUIPMENT LOCATIONS PRIOR TO ROUGH-IN.
2. WHERE DRAWINGS SHOW EXISTING CONDITIONS, THEY HAVE BEEN DERIVED FROM EXISTING DRAWINGS AND/OR SITE INVESTIGATIONS, AN ATTEMPT HAS BEEN MADE TO SHOW ALL EXISTING ELECTRICAL EQUIPMENT LOCATIONS AND CHARACTERISTICS THAT WOULD AFFECT NEW WORK, AS ACCURATELY AS POSSIBLE, HOWEVER THIS DOES NOT RELIEVE THE ELECTRICAL CONTRACTOR FROM RESPONSIBILITY OF A THOROUGH SITE INVESTIGATION PRIOR TO SUBMITTING FINAL BID, TO ASCERTAIN ALL EXISTING CONDITIONS AND LIMITATIONS.
3. COORDINATE THE POINT OF CONNECTION FOR EACH AC UNIT WITH MECHANICAL CONTRACTOR.
4. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON E6.1 FOR DISCONNECT SWITCH AND FUSES REQUIREMENTS FOR ALL NEW AC UNITS.
5. FIELD VERIFY EXACT PANEL, CIRCUIT, CONDUIT AND CONDUCTOR INFORMATION FOR EACH EXISTING UNIT.
6. ALL NON-HVAC ITEMS ATTACHED TO THE EXISTING UNITS SHALL BE CAREFULLY DISCONNECTED, REMOVED AND RE-INSTALL IN AN ALTERNATE LOCATION U.O.N. UPON COMPLETION OF NEW UNIT INSTALLATION, THE ITEMS SHALL BE TRANSFERRED AND RE-INSTALLED ON THE NEW UNIT IN THE SAME LOCATION AS REQUIRED. REPLACE EXISTING FLEX CONDUIT AS REQUIRED.

KEY NOTES:

- 1 DISCONNECT AND REMOVE EXISTING ELECTRICAL CONNECTION TO EXISTING AC UNITS BEING REMOVED, INCLUDING DISCONNECT SWITCH, UP J-BOX DUPLEX RECEPTACLE AND FLEX CONNECTOR CONDUIT. EXISTING WIRING SHALL BE SAFED-OFF PROTECTED AND RE-INSTALLED. PROVIDE NEW DISCONNECT SWITCH AND FUSES PER HVAC SCHEDULE. EXTEND EXISTING FEEDER TO NEW DISCONNECT AND AC UNIT AS REQUIRED.
- 2 PROVIDE (1) 20A/1P BREAKER IN EXISTING SPACE #2.

1 ELECTRICAL ROOF PLAN - BLDG E1
1/8" = 1'-0"



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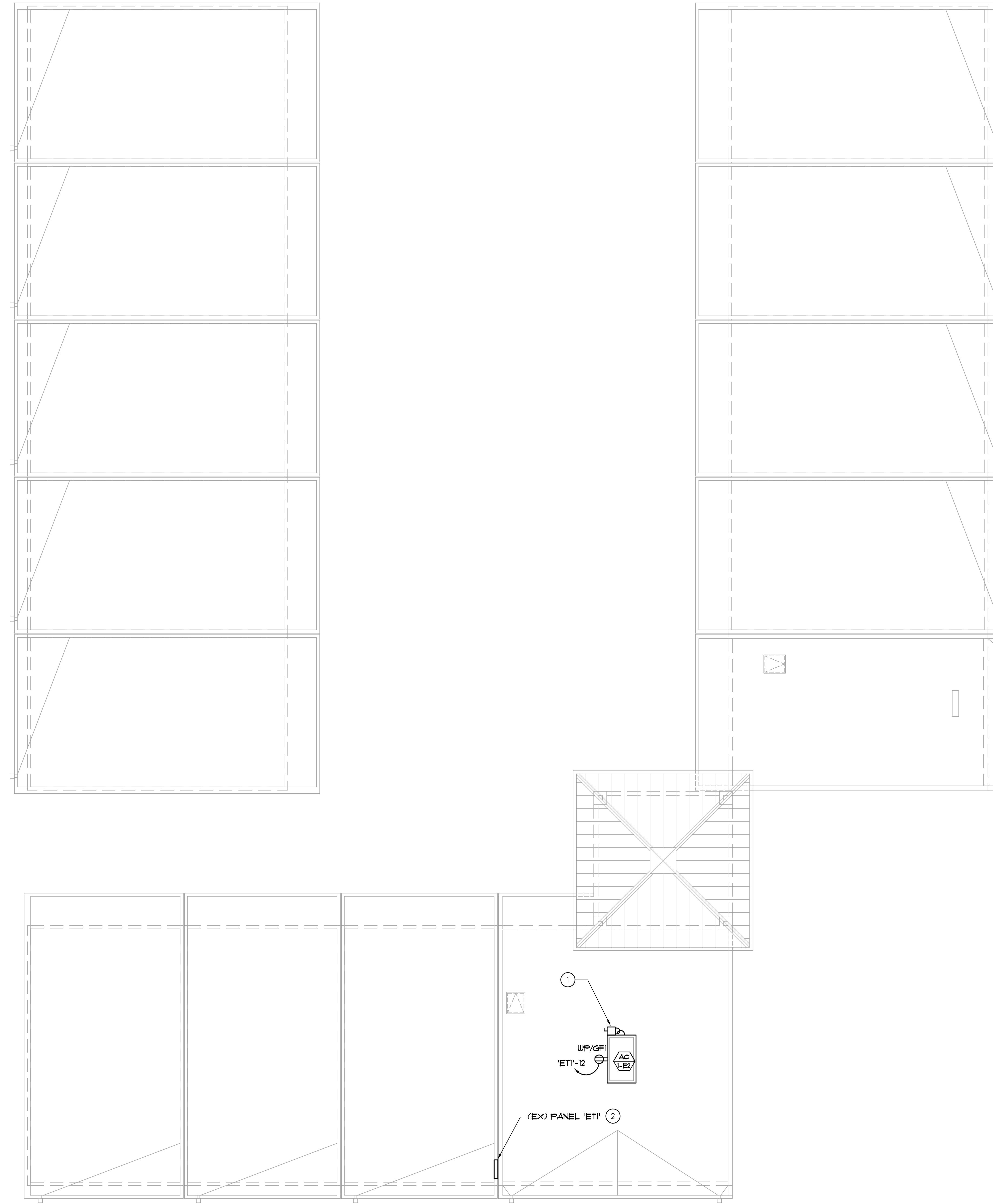
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**ELECTRICAL
ROOF PLAN -
BLDG E1**

DRAWING NUMBER: **E-6.5**



1 ELECTRICAL ROOF PLAN - BLDG E2
1/8" = 1'-0"

GENERAL NOTES:

1. REFERENCE MECHANICAL PLANS FOR EXACT EQUIPMENT LOCATIONS PRIOR TO ROUGH-IN.
2. WHERE DRAWINGS SHOW EXISTING CONDITIONS, THEY HAVE BEEN DERIVED FROM EXISTING DRAWINGS AND/OR SITE INVESTIGATIONS, AN ATTEMPT HAS BEEN MADE TO SHOW ALL EXISTING ELECTRICAL EQUIPMENT LOCATIONS AND CHARACTERISTICS THAT WOULD AFFECT NEW WORK, AS ACCURATELY AS POSSIBLE. HOWEVER, THIS DOES NOT RELIEVE THE ELECTRICAL CONTRACTOR FROM RESPONSIBILITY OF A THOROUGH SITE INVESTIGATION, PRIOR TO SUBMITTING FINAL BID, TO ASCERTAIN ALL EXISTING CONDITIONS AND LIMITATIONS.
3. COORDINATE THE POINT OF CONNECTION FOR EACH AC UNIT WITH MECHANICAL CONTRACTOR.
4. REFER TO MECHANICAL EQUIPMENT SCHEDULE ON E6.1 FOR DISCONNECT SWITCH AND FUSES REQUIREMENTS FOR ALL NEW AC UNITS.

FIELD VERIFY EXACT PANEL, CIRCUIT, CONDUIT AND CONDUCTOR INFORMATION FOR EACH EXISTING UNIT.

ALL NON-HVAC ITEMS ATTACHED TO THE EXISTING UNITS SHALL BE CAREFULLY DISCONNECTED, REMOVED AND RE-INSTALL IN AN ALTERNATE LOCATION UNLESS UPON COMPLETION OF NEW UNIT INSTALLATION, THE ITEMS SHALL BE TRANSFERRED AND RE-INSTALLED ON THE NEW UNIT IN THE SAME LOCATION AS REQUIRED. REPLACE EXISTING FLEX CONDUIT AS REQUIRED.

KEY NOTES:

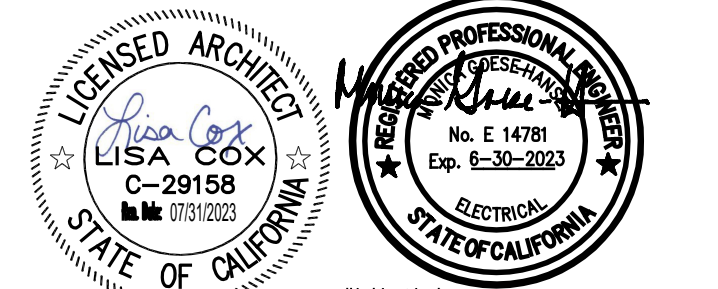
- 1 DISCONNECT AND REMOVE EXISTING ELECTRICAL CONNECTION TO EXISTING AC UNITS BEING REMOVED, INCLUDING DISCONNECT SWITCH, UP J-BOX DUPLEX RECEPTACLE AND FLEX CONNECTOR CONDUIT. EXISTING WIRING SHALL BE SAFFED-OFF PROTECTED AND RE-INSTALLED. PROVIDE NEW DISCONNECT SWITCH AND FUSES PER HVAC SCHEDULE. EXTEND EXISTING FEEDER TO NEW DISCONNECT AND AC UNIT AS REQUIRED.
- 2 PROVIDE (1) 20A/1P BREAKER IN EXISTING SPACE #2.

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**ELECTRICAL
ROOF PLAN -
BLDG E2**

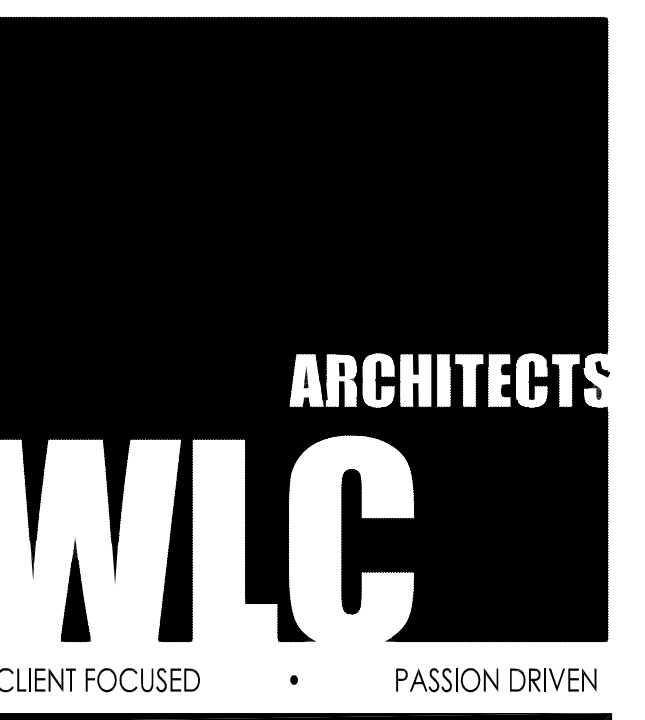
DRAWING NUMBER: **E-6.6**

MECHANICAL EQUIPMENT SCHEDULE						
MARK	VOLTAGE/ PHASE	CONDUIT/ WIRE	FUSE	DISC. SWITCH	PANEL	REMARKS
FE-L-A	480V/3PH	3/4" C. 4 #12, 1 #2 GND.	14.6	30A/3P/3R	SEE PLAN 8.1	MCA
FE-Q-B	480V/3PH	1" C. 4 #8, 1 #10 GND.	32.2	60A/3P/3R	SEE PLAN 17.9	MCA
FE-S-B	480V/3PH	3/4" C. 4 #12, 1 #2 GND.	10.1	30A/3P/3R	SEE PLAN 5.6	MCA
AC-L-C	480V/3PH	3/4" C. 4 #12, 1 #2 GND.	14.6	30A/3P/3R	SEE PLAN 8.1	MCA

MECHANICAL EQUIPMENT SCHEDULE						
MARK	VOLTAGE/ PHASE	CONDUIT/ WIRE	FUSE	DISC. SWITCH	PANEL	REMARKS
AC-L-A	480V/3PH	EXISTING	40	60A/3P/3R	EXISTING 30	MCA (1)
AC-L-B	480V/3PH	EXISTING	20	30A/3P/3R	EXISTING 18	MCA (1)
AC-V-B	480V/3PH	1-1/4" C. 4 #4, 1 #8 GND.	70	100A/3P/3R	EXISTING 56	MCA (1)
AC-S-B	480V/3PH	EXISTING	25	30A/3P/3R	EXISTING 22	MCA (1)
AC-L-C	480V/3PH	EXISTING	45	60A/3P/3R	EXISTING 33	MCA (1)
AC-L-D	480V/3PH	EXISTING	20	30A/3P/3R	EXISTING 18	MCA (1)
AC-V-D	480V/3PH	EXISTING	20	30A/3P/3R	EXISTING 18	MCA (1)
AC-S-D	480V/3PH	EXISTING	20	30A/3P/3R	EXISTING 18	MCA (1)
AC-V-E	480V/3PH	EXISTING	20	30A/3P/3R	EXISTING 18	MCA (1)
AC-S-E	480V/3PH	EXISTING	20	30A/3P/3R	EXISTING 18	MCA (1)

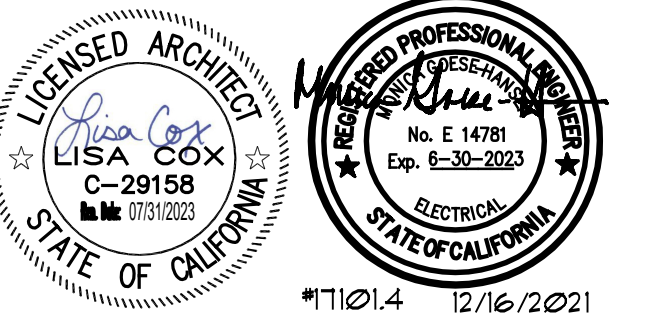
KEY NOTES:

(1) EXISTING DUCT SMOKE DETECTOR TO BE DISCONNECT AND REMOVED FROM EXISTING FIRE ALARM CIRCUIT. PROTECT DETECTOR AND EXISTING WIRING IN PLACE TEMPORARILY. EXTEND EXISTING CIRCUIT FROM THE LAST ACTIVE DEVICE TO THE NEXT ACTIVE DEVICE TO MAINTAIN FIRE ALARM CIRCUIT CONTINUITY. TEST TO ENSURE PROPER FUNCTIONALITY. RE-INSTALL DUCT SMOKE DETECTOR IN DUCT WORK WHEN DUCT WORK IS COMPLETED AND NEW UNIT IS SET AND EXTEND EXISTING WIRING TO NEW UNIT FOR UNIT SHUT OFF AS REQUIRED. RE-TEST FIRE ALARM SYSTEM UPON COMPLETION OF FIRE ALARM WORK. EXISTING DUCT SMOKE DETECTOR: NOTIFIER DNR CSR1 LISTING #3240-1653-0209



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MECHANICAL EQUIPMENT SCHEDULE

DRAWING NUMBER: **E-6.7**