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WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES

LAWNDALE ELEMENTARY SCHOOL DISTRICT

4110 W 154TH ST, LAWNDALE, CA 90260

AGENCY

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124869 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/07/2025

PTN 64691-65 APPL 03-124869

DIRECTORY

OWNER

LAWNDALE ELEMENTARY
SCHOOL DISTRICT
4161 W. 147TH STREET
LAWNDALE, CA 90260
TEL: (310) 973-1300

STRUCTURAL ENGINEER

ORION STRUCTURAL GROUP, INC.
223 E. THOUSAND OAKS BLVD., #304
THOUSAND OAKS, CA 91360
DIRECT: (805) 390-9242
WILL@ORIONSTRUCTURAL.COM

MECHANICAL, ELECTRICAL & PLUMBING ENGINEER

BUDLONG
700 N. CENTRAL AVENUE., SUITE 520
GLENDALE, CA 91203
TEL: (818) 630-9307

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SHEET COUNT: 22 PAGES

PROJECT DATA

SCOPE OF WORK

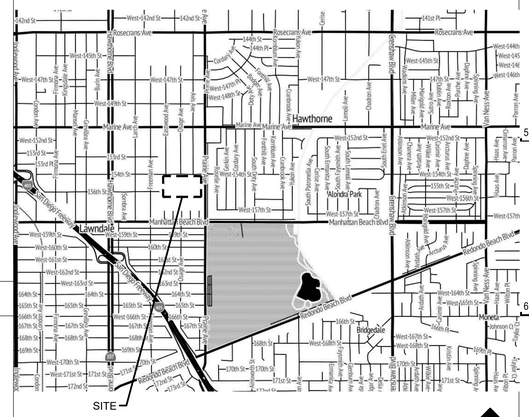
PROJECT SCOPE OF WORK IS TO PROVIDE SUPPLEMENTAL HVAC TO PROVIDE COOLING IN THE EXISTING FOLLOWING AREAS:

- KITCHEN 101
- SERVING LINE 103 & 106
- OFFICE 102 & 1118
- STORAGE 107 & 109

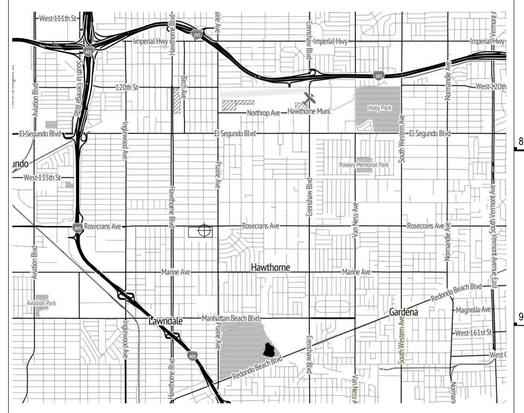
SITE SPECIFIC STRUCTURAL DESIGN CRITERIA

SEISMIC:

EQUIVALENT LATERAL FORCE FOR EQUIPMENT ANCHORAGE
SITE CLASS = D-DEFAULT
Ss = 1.8, Fa = 1.2, Sds = 1.44, Ip = 1.0
Fp = 0.43 Wp FOR GROUND MOUNTED CONDENSER WITH Ap = 1.0, Rp = 2.5
WIND:
95 MPH EXPOSURE C



VICINITY MAP



LOCATION MAP

REGISTERED PROFESSIONAL ENGINEER
MATT A. LANGLEY
No. 5430
Exp. 06/30/2026
STRUCTURAL
STATE OF CALIFORNIA
12/6/2024 LAWNDALE KITCHEN HVAC REVIEW

REGISTERED PROFESSIONAL ENGINEER
CURTIL PATEL
No. 29448
EXP. 06-30-25
MECHANICAL
STATE OF CALIFORNIA

An MBE|SBE|DBE|LSBE Firm
Glendale|Downtown LA|Fremont|Camarillo
W W W . B U D L O N G . C O M
JOB# - 24-025

LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWNDALE, CA 90260

JOB	24-025
SCALE	AS NOTED
PM	
DATE	01/22/2025

COVER SHEET

G-001

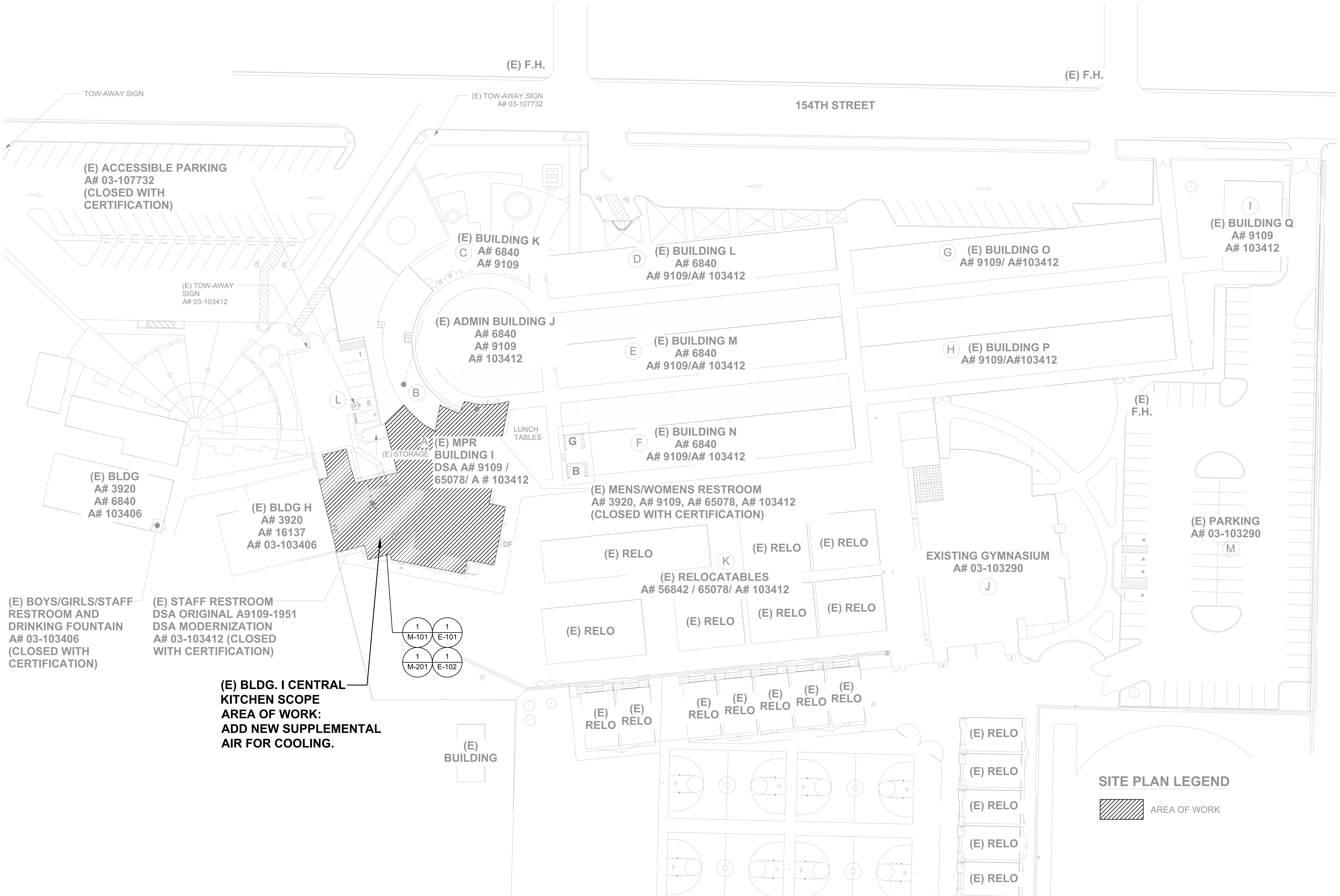
M:\24-025 LESD Rogers MS Central Kitchen HVAC Upgrades\M\24-025 G-001 COVER SHEET.dwg, 1/22/2025 11:44:09 AM, patrick

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PTN. 64691-65 APPL. 03-124869



SITE PLAN LEGEND

▨ AREA OF WORK

BUILDING KEY

PRIOR A#'S TO ELEMENTS UTILIZED FOR THIS PROJECT

A (E) MPR/CENTRAL KITCHEN BUILDING I - AREA OF WORK
DSA A# 3920
DSA A# 9109
DSA A# 65078
DSA A # 103412
(CLOSED WITH CERTIFICATION)

B (E) ADMIN BUILDING J - N.I.C.
DSA A# 6840
DSA A# 9109
DSA A# 103412
(CLOSED WITH CERTIFICATION)

C (E) BUILDING K - N.I.C.
DSA A# 6840
DSA A# 9109
(CLOSED WITH CERTIFICATION)

D (E) BUILDING L - N.I.C.
DSA A# 6840
DSA A# 9109
DSA A# 103412
(CLOSED WITH CERTIFICATION)

E (E) BUILDING M - AREA OF WORK
DSA A# 6840
DSA A# 9109/
DSA A# 103412
(CLOSED WITH CERTIFICATION)

F (E) BUILDING N - N.I.C.
DSA A# 6840
DSA A# 9109
DSA A# 103412

G (E) BUILDING O - N.I.C.
DSA A# 9109
DSA A#103412
(CLOSED WITH CERTIFICATION)

H (E) BUILDING P - N.I.C.
DSA A# 9109
DSA A#103412
(CLOSED WITH CERTIFICATION)

I (E) BUILDING Q - N.I.C.
DSA A# 9109
DSA A# 103412
(CLOSED WITH CERTIFICATION)

J EXISTING GYMNASIUM - N.I.C.
DSA A# 03-103290
(CLOSED WITH CERTIFICATION)

K (E) RELOCATABLES - N.I.C.
DSA A# 56842
DSA A# 65078
DSA A# 103412
(CLOSED WITH CERTIFICATION)

L (E) ACCESSIBLE PARKING - N.I.C.
A# 03-107732
(CLOSED WITH CERTIFICATION)

M (E) PARKING
A# 03-103290
(CLOSED WITH CERTIFICATION)

SITE PLAN G-101
1" = 30'-0"



12/6/2024 LAWNDALE
KITCHEN HVAC REVIEW



An MBE|SBE|DBE|LSBE Firm
Glendale|Downtown LA|Fremont|Camarillo
W W W . B U D L O N G . C O M
JOB# - 24-025

LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWNDALE, CA 90260

JOB	24-025
SCALE	AS NOTED
PM	
DATE	01/22/2025

SITE PLAN

G-101

J:\24-025 LESD Rogers MS Central Kitchen HVAC Upgrades\M\24-025 G-101 SITE PLAN.dwg, 1/22/2025 11:44:11 AM, patrick

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MECHANICAL NOTES

SCOPE OF WORK

1. THE WORK INCLUDED UNDER THIS SECTION CONSISTS OF FURNISHING ALL MATERIALS, EQUIPMENT AND LABOR, AND THE PERFORMING OF ALL FUNCTIONS, EXCEPT AS OTHERWISE SPECIFIED HEREIN OR SHOWN ON THE DRAWINGS TO BE PERFORMED BY OTHERS, AND FOR THE INSTALLATION OF ALL HEATING AND COOLING EQUIPMENT, PIPING AND ALL DUCTWORK, GRILLES, REGISTERS, ETC., INCLUDING ALL CONNECTIONS TO EACH SYSTEM AS SPECIFIED HEREIN AND SHOWN ON THE DRAWINGS. IT SHALL FURTHER INCLUDE FURNISHING AND INSTALLING ALL MISCELLANEOUS ITEMS REQUIRED FOR THE OPERATION OF THE SYSTEM, WHETHER SPECIFICALLY CALLED OUT OR NOT.

2. SPECIAL INSPECTIONS: WHERE THE PLANS INDICATE SPECIAL INSPECTIONS AND REPORT, OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION (AHJ), THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, HIRE AN INDEPENDENT THIRD PARTY INSPECTOR OR TESTING AGENCY TO PERFORM THE REQUIRED INSPECTIONS FOR THE TYPES OF WORK REQUIRED OR IDENTIFIED ON THE SPECIAL INSPECTION FORM. THE SPECIAL INSPECTOR SHALL SUBMIT A FINAL SIGNED REPORT TO THE REGISTERED DESIGN PROFESSIONAL ENGINEER, PROVIDING TEST RESULTS AND STATING WHETHER THE ITEMS REQUIRING SPECIAL INSPECTION WERE IN COMPLIANCE WITH THE INSPECTION REQUIREMENTS. PROVIDE ADDITIONAL COST FOR ENGINEER'S SEALED LETTER OF APPROVAL.

COORDINATION

1. CONTRACT DRAWINGS ARE DIAGRAMMATIC AND INTENDED TO SHOW APPROXIMATE LOCATIONS. COORDINATE WORK WITH ALL TRADES TO AVOID INTERFERENCE. INSTALLED HVAC WORK WHICH INTERFERES WITH THE WORK OF OTHER TRADES DUE TO LACK OF COORDINATION SHALL BE RE-INSTALLED AT NO ADDITIONAL COST TO THE OWNER.
2. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF EQUIPMENT, PARTITIONS, WALLS, AND GENERAL CONSTRUCTION.
3. ALL CONTRACTORS SHALL BE RESPONSIBLE FOR COORDINATING WORK WITH OTHER TRADES AFFECTED BY EACH OTHERS WORK.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL FIELD CONDITIONS WHICH MAY AFFECT HIS WORK BEFORE SUBMITTING BIDS.
5. PERFORMANCE OF ALL WORK SHALL BE SCHEDULED AS APPROVED BY THE OWNER. AVOID INTERFERENCE WITH FUNCTIONS IN OTHER PARTS OF THE FACILITY, AND COORDINATE WITH THE WORK OF OTHER TRADES. SERVICES SHALL NOT BE INTERRUPTED WITHOUT WRITTEN PRIOR APPROVAL OF THE OWNER.
6. NO STRUCTURAL MEMBER SHALL BE CUT WITHOUT PERMISSION FROM THE ARCHITECT AND THE STRUCTURAL ENGINEER.
7. PROTECT EXISTING BUILDING STRUCTURE AND GROUNDS FROM DAMAGE WHICH MAY OCCUR DURING DEMOLITION WORK. ANY DAMAGE TO THE EXISTING FACILITIES SHALL BE REPAIRED, REPLACED, OR RESTORED TO THE ORIGINAL CONDITION AT NO ADDITIONAL COST AND TO THE SATISFACTION OF THE OWNER.
8. SPACE ABOVE CEILINGS IS CRITICAL - THE CONTRACTOR SHALL VERIFY SPACE ABOVE CEILING & COORDINATE WITH PLUMBING, ELECTRICAL, STRUCTURAL, FIRE PROTECTION, ARCHITECTURAL, AND ALL OTHER TRADES INVOLVED BEFORE COMMENCEMENT OF WORK.
9. PATCH & PAINT TO MATCH EXISTING SURROUNDING AREA WHERE DUCTS, PIPES, ETC. PASS THROUGH WALL OR CEILING.
10. INSPECTOR SHALL ENFORCE MATT CERTIFICATION.

CODES AND PERMITS

1. ALL MATERIALS, EQUIPMENT AND INSTALLATION MUST COMPLY WITH ALL APPLICABLE LAWS, CODES, RULES AND REGULATIONS, REQUIRED BY CITY, COUNTY AND STATE, AS WELL AS FEDERAL REQUIREMENTS.
2. COMBUSTIBLE MATERIALS SHALL NOT BE USED IN A NON-COMBUSTIBLE BUILDING AS DEFINED BY THE BUILDING CODE. COMBUSTIBLE MATERIALS MAY BE PROTECTED AS SPECIFIED BY THE ENGINEER AND ARCHITECT OF RECORD.
3. PERMITS: OBTAIN AND PAY FOR ALL REQUIRED PERMITS, LICENSES AND FEES.
4. INSPECTIONS: FURNISH OWNER WITH CERTIFICATE OF INSPECTION AND APPROVAL BY LOCAL AUTHORITIES PRIOR TO FINAL ACCEPTANCE OF THE PROJECT BY THE OWNER. ALL WORK MUST BE INSPECTED.

PRODUCTS

1. ALL PRODUCTS SHALL BE NEW AND UNUSED OF ESTABLISHED AND REPUTABLE AMERICAN MANUFACTURERS. ITEMS OF EQUIPMENT USED FOR THE SAME PURPOSE SHALL BE OF THE SAME MANUFACTURER.
2. SYSTEMS SHALL BE COMPLETE AND OPERABLE. ANY ACCESSORIES REQUIRED FOR THE OPERATION OF THE SYSTEM SHALL BE INCLUDED AS THOUGH SPECIFICALLY INDICATED TO BE PROVIDED. SUCH ACCESSORIES INCLUDE BUT ARE NOT LIMITED TO FILTERS, CONDENSATE DRAINS, RELIEF VALVES, SERVICE VALVES, THERMOSTATS, VIBRATION ISOLATORS, ETC. MOTOR STARTERS FOR PREWIRED EQUIPMENT (AND OTHER PROTECTION AND CONTROL DEVICES) ARE ALSO INCLUDED IN THIS SPECIFICATION.
3. SPECIFIC REFERENCE TO A MANUFACTURER'S PRODUCT IS ONLY TO ESTABLISH TYPE, QUALITY, AND PERFORMANCE REQUIRED. THESE QUALIFICATIONS ARE IN ADDITION TO THE REQUIREMENTS SHOWN ON THE DRAWINGS AND SPECIFICATIONS. LISTING OF ALTERNATE EQUIPMENT MANUFACTURERS SHALL NOT BE CONSTRUED AS AN UNCONDITIONAL APPROVAL OF THE PRODUCTS OF THOSE MANUFACTURERS.
4. ACCEPTABLE HVAC EQUIPMENT MANUFACTURERS: AS SPECIFIED ELSEWHERE IN THESE DOCUMENTS.
5. PROVIDE CLEARANCES AS PER MANUFACTURERS RECOMMENDATIONS.

SUBSTITUTIONS

1. SUBSTITUTIONS OF MATERIALS OR PRODUCTS SHOWN HEREIN SHALL BE BY OWNER'S, ARCHITECTS, OR ENGINEER'S WRITTEN APPROVAL. ANY DEVIATION FROM THESE DRAWINGS WILL NOT BE ALLOWED.
2. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION OF ANY SUBSTITUTIONS AND COSTS OF CHANGES INCURRED BY OTHER TRADES DUE TO THE SUBSTITUTIONS. OTHER TRADES INCLUDE: ELECTRICAL, PLUMBING, STRUCTURAL, ROOFING, OR ANY TRADE EFFECTED BY THE SUBSTITUTION.

GENERAL REQUIREMENTS FOR CONTROLS AND CONTROL WIRING

1. ALL CONTROL EQUIPMENT, INTEGRAL STARTERS, INTERLOCKING STARTERS, SMOKE DETECTORS, RELAYS, TRANSFORMERS, PANELS AND OTHER DEVICES SHOWN, SPECIFIED OR NEEDED FOR A COMPLETE CONTROL SYSTEM ARE TO BE PROVIDED AND INSTALLED UNDER THIS MECHANICAL DIVISION. COMPONENTS AND WIRING NOT SHOWN, BUT REQUIRED FOR THE PROPER OPERATION OF EQUIPMENT OR CONTROL SYSTEMS, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE PROJECT.
2. POWER WIRING, LOW VOLTAGE WIRING AND RACEWAYS RELATED TO CONTROLS SYSTEMS ARE TO BE PROVIDED AND INSTALLED UNDER THIS MECHANICAL DIVISION.
3. INSTALLATION OF ALL EQUIPMENT, DEVICES AND WIRING SHALL CONFORM TO THE NATIONAL ELECTRIC CODE. ALL CONTROLS SHALL BE FURNISHED AND PROPERLY IDENTIFIED WITH INSTRUCTIONS FOR PROPER CONNECTIONS. RESPONSIBILITY FOR PROPER CONNECTIONS AND OPERATION IS INCLUDED UNDER THE MECHANICAL CONTRACTORS RESPONSIBILITY. VERIFY ALL VOLTAGES, PHASES AND ELECTRICAL CONNECTIONS WITH THE ELECTRICAL CONTRACTOR BEFORE ORDERING ANY EQUIPMENT, AND IF DISCREPANCIES OCCUR, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING WITH ANY WORK.
4. ALL TEMPERATURE CONTROLS ARE TO BE TESTED, ADJUSTED, AND CALIBRATED FOR PROPER OPERATION.
5. COORDINATE EXACT THERMOSTAT AND/OR MOUNTING HEIGHT ABOVE FINISHED FLOOR AND FINAL LOCATION WITH THE ARCHITECT.
6. THERMOSTATS LOCATED ON EXTERIOR WALLS SHALL HAVE AN INSULATED SUB-BASE.

RELIEF VENTS

1. ALL RELIEF VENT EXTERIOR PENETRATIONS SHALL BE PROVIDED WITH COUNTERBALANCED BAROMETRIC BACKDRAFT DAMPERS.

EQUIPMENT

1. ALL MECHANICAL EQUIPMENT SHALL BE PROPERLY LISTED AND LABELED BY AN APPROVED AGENCY.
2. ALL EQUIPMENT SHALL BE LABELED WITH STEEL TAGS EMBOSSED WITH 1/4" HIGH LETTERS, PERMANENTLY ATTACHED. TAG SHALL CLEARLY INDICATE THE AREA SERVED BY THE EQUIPMENT.
3. MAINTAIN MANUFACTURER'S RECOMMENDATIONS FOR ALL REQUIRED SERVICE CLEARANCES AND INSTALLATION OF EQUIPMENT.
4. REFER TO ARCHITECTURAL DRAWINGS FOR ACCESS TO ROOF INSTALLED MECHANICAL EQUIPMENT. ROOF ACCESS TO COMPLY WITH THE MECHANICAL CODE ADOPTED BY THE AUTHORITY HAVING JURISDICTION.

CLEANUP

1. REMOVE AS MUCH DIRT, SCRAP MATERIAL AND DEBRIS AS POSSIBLE, AT THE END OF EACH WORKING DAY TO PREVENT HAZARDOUS CONDITIONS AND EXCESS DUST.
2. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL EQUIPMENT AND APPURTENANCES TO BE REMOVED. CONTRACTOR SHALL MOVE ALL EQUIPMENT NOT REFUSED BY THE OWNER TO A LOCATION ON SITE DESIGNATED BY THE OWNER. COORDINATE REMOVAL WITH THE OWNER PRIOR TO START OF WORK. EQUIPMENT REFUSED BY THE OWNER SHALL BE PROPERLY DISPOSED OF BY THE CONTRACTOR.

FINAL TESTS

1. AN INDEPENDENT AABC, NEBB OR TABB LIFE SAFETY LEVEL 2 CERTIFIED CONTRACTOR SHALL BALANCE AIR DISTRIBUTION TO VALUES LISTED ON DRAWINGS. A FINAL COPY OF THE TEST AND BALANCE REPORT SHALL BE PROVIDED TO THE ENGINEER UPON COMPLETION OF THE REPORT. A PROJECT SHALL NOT BE CONSIDERED IN COMPLIANCE WITH THE PLANS AND SPECIFICATIONS UNTIL SUCH A REPORT HAS BEEN PROVIDED TO THE ENGINEER.
2. BEFORE ACCEPTANCE AND FINAL PAYMENT, IT SHALL BE DEMONSTRATED THAT ALL APPARATUS IS FUNCTIONING PROPERLY AND EFFICIENTLY. THE CONTRACTOR SHALL MAKE A THOROUGH TEST OF EACH SUPPLY, RETURN, AND EXHAUST SYSTEMS TO ASSURE THAT EACH DIFFUSER AND REGISTER HAS THE PROPER QUANTITY OF AIR IN ACCORDANCE WITH AABC OR NEBB. PROVIDE ADDITIONAL COMFORT BALANCE ADJUSTMENTS PER OWNER/TENANT REQUIREMENTS TO ADDRESS ANY NEEDED VARIATIONS IN DESIGN AIR FLOWS.
3. THE TEST AND BALANCE CONTRACTOR HAS THE RIGHT TO COMMUNICATE ANY INFORMATION TO THE MECHANICAL ENGINEER.

GUARANTEE

1. THE CONTRACTOR SHALL GUARANTEE ALL MATERIALS, EQUIPMENT AND WORKMANSHIP FROM DEFECT OF WORKMANSHIP, AND SHALL REPLACE OR REPAIR WITHOUT ADDITIONAL COST TO THE OWNER ALL DEFECTIVE MATERIAL AND WORKMANSHIP, FOR A PERIOD OF (1) YEAR AFTER COMPLETION AND ACCEPTANCE.

CLOSEOUT

1. SUBMIT THE SPECIFIED NUMBER OF COPIES OF SHOP DRAWINGS FOR MATERIALS, FIXTURES AND EQUIPMENT. INDICATE MANUFACTURERS, TRADE NAMES, SPECIFIC MODEL NUMBERS, AND TECHNICAL INFORMATION FOR EACH ITEM BEING FURNISHED.
2. ASSEMBLE OPERATION MANUALS FOR EACH ITEM INSTALLED FURNISH EQUIPMENT CUT SHEET AND CONTROL WIRING DIAGRAMS. SUBMIT COPIES AS DEFINED UNDER GENERAL CONDITIONS.
3. ALL SYSTEMS SHALL BE COMPLETE AND FULLY OPERATIONAL. ACCEPTANCE BY THE OWNER SHALL BE A CONDITION OF THE CONTRACT.
4. ALL MATERIALS, WORKMANSHIP, AND EQUIPMENT SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR AFTER SYSTEM ACCEPTANCE.
5. PROVIDE TYPE WRITTEN OPERATING INSTRUCTIONS AND EQUIPMENT WARRANTIES TO THE OWNERS REPRESENTATIVES.
6. CONTRACTOR SHALL FURNISH RECORD SET DRAWINGS CONSISTING OF REPRODUCIBLE CAD FILES UPON COMPLETION OF WORK FOR OWNER'S USE. MINIMUM SCALE SHALL BE 1/8"= 1'-0". THE COMPLETE SET OF RECORD DOCUMENTS IN SHALL BE IN AN AUTOCAD FORMAT AS REQUIRED BY OWNER, ON COMPACT DISC.
7. CONTRACTOR SHALL MAKE FINAL INSPECTION AND TESTS IN THE PRESENCE OF THE OWNER AND SHALL SUPPLY ALL LABOR, MATERIALS, INSTRUMENTS, AND EQUIPMENT REQUIRED FOR TESTING.

ORDER OF PRECEDENCE OF DOCUMENTS

1. SHOULD A CONFLICT ARISE BETWEEN CONSTRUCTION DOCUMENTS, THE ORDER OF PRECEDENCE SHALL BE:
   - 1.1. SPECIAL PROVISIONS
   - 1.2. GENERAL PROVISIONS
   - 1.3. SPECIFICATIONS
   - 1.4. DETAILS ON DRAWINGS
   - 1.5. PLAN DRAWINGS
2. THE ENGINEER OF RECORD SHALL BE NOTIFIED BEFORE A DECISION IS MADE.

TITLE 24 NOTES

1. ALL THERMOSTATS SHALL HAVE A DEADBAND BETWEEN HEATING AND COOLING, CAPABLE OF ADJUSTMENT UP TO 10°F.
2. ALL EQUIPMENT DESIGNED TO BE FIXED IN POSITION SHALL BE SECURELY FIXED IN PLACE IN ACCORDANCE WITH SEISMIC REQUIREMENTS.
3. REQUIRED ROUTINE MAINTENANCE ACTION SHALL BE CLEARLY STATED AND INCORPORATED ON A READILY ACCESSIBLE PERMANENT WEATHERPROOF LABEL. THE LABEL MAY BE LIMITED TO CROSS-REFERENCING THE MAINTENANCE MANUAL IF SUCH MAINTENANCE ACTION IS DESCRIBED THEREIN FOR THE LABELED ITEM.
4. AIR-HANDLING DUCT SYSTEMS SHALL BE CONSTRUCTED, INSTALLED, SEALED, AND INSULATED AS PROVIDED IN THE LATEST EDITION OF THE UNIFORM MECHANICAL CODE CHAPTER 6 OR SMACNA GUIDELINES AS A MINIMUM.
5. ALL EQUIPMENT SHALL CONFORM TO AND BE CERTIFIED IN ACCORDANCE WITH THE APPLICABLE STANDARDS AND THE REQUIREMENTS FOR SUCH DEVICES GIVEN IN THE PLANS AND SPECIFICATIONS APPROVED BY THE LOCAL ENFORCEMENT AGENCY.
6. ALL EQUIPMENT SHALL BE LABELED AS TO FUNCTION AND SPACES SERVED. (SEE SCHEDULE)

POLLUTANT CONTROL

INDOOR AIR QUALITY DURING CONSTRUCTION

TEMPORARY VENTILATION DURING CONSTRUCTION SHALL BE PROVIDED IN ACCORDANCE WITH THE FOLLOWING:

1. VENTILATION DURING CONSTRUCTION SHALL BE ACHIEVED THROUGH OPENINGS IN THE BUILDING SHELL USING FANS TO PRODUCE NOT LESS THAN THREE AIR CHANGES PER HOUR.
2. THE SUPPLY AND RETURN HVAC SYSTEM OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC SHEET METAL OR OTHER METHODS ACCEPTABLE TO THE ENFORCING AGENCY TO REDUCE THE AMOUNT OF DUST OR DEBRIS THAT CAN COLLECT IN THE SYSTEM.
3. THE BUILDING WILL BE OCCUPIED DURING DEMOLITION AND CONSTRUCTION, VENTILATION SHALL BE PROVIDED IN ACCORDANCE WITH THE CONTROL MEASURES OF THE SMACNA IAQ GUIDELINES FOR OCCUPIED BUILDINGS DURING CONSTRUCTION.
4. THE PERMANENT HVAC SYSTEM SHALL NO BE USED DURING CONSTRUCTION TO CONDITION AND VENTILATE THE BUILDING WITHIN THE REQUIRED TEMPERATURE RANGE FOR MATERIAL AND EQUIPMENT INSTALLATION. WHERE REQUIRED, A SUPPLEMENTAL HVAC SYSTEM SHALL BE USED DURING CONSTRUCTION.

APPLICABLE CODES

PARTIAL LIST OF APPLICABLE CODES

2022 CALIFORNIA ADMINISTRATIVE CODE, PART 1,TITLE 24 C.C.R.
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.
(2021 INTERNATIONAL BUILDING CODE VOLUMES 1 & 2 AND 2016 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.
(2020 NATIONAL ELECTRICAL CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA MECHANICAL CODE (CMC) PART 4, TITLE 24 C.C.R.
(2021 UNIFORM MECHANICAL CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.
(2021 UNIFORM PLUMBING CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 C.C.R.
2022 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R.
(2021 INTERNATIONAL FIRE CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR
(2021 INTERNATIONAL EXISTING CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 C.C.R.
2022 CALIFORNIA REFERENCED STANDARDS, PART 12,TITLE 24 C.C.R.
TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.

PARTIAL LIST OF APPLICABLE STANDARDS

NFPA 13	STANDARD FOR AUTOMATIC FIRE SPRINKLER SYSTEMS (CA AMENDED)	2022 ED.
NFPA 14	STANDARD FOR STANDPIPE AND HOSE SYSTEMS	2019 ED.
NFPA 17	STANDARD FOR DRY CHEMICAL EXTINGUISHING SYSTEMS	2021 ED.
NFPA 17A	STANDARD FOR WET CHEMICAL EXTINGUISHING SYSTEMS	2017 ED.
NFPA 20	STANDARD FOR STATIONARY PUMPS FOR FIRE PROTECTION	2022 ED.
NFPA 22	STANDARD FOR WATER TANKS FOR PRIVATE FIRE PROTECTION	2018 ED.
NFPA 24	STANDARD FOR THE INSTALLATION OF PRIVATE FIRE MAINS AND THEIR APPURTENANCES.	2022 ED.
NFPA 72	NATIONAL FIRE ALARM & SIGNALING CODE (CA AMENDED)	2022 ED.
NFPA 80	STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES	2022 ED.
NFPA 2001	STANDARD ON CLEAN AGENT FIRE EXTINGUISHING SYSTEMS	2018 ED.
UL 300	STANDARD FOR FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS FOR PROTECTION OF COMMERCIAL COOKING EQUIPMENT	2005 (R2010)
UL 464	AUDIBLE SIGNAL APPLIANCES FOR FIRE ALARM AND SIGNALING SYSTEMS, INCLUDING ACCESSORIES	2003 ED.
UL 521	STANDARD FOR HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS	1999 ED.
UL 1971	STANDARD FOR SIGNALING DEVICES FOR THE HEARING IMPAIRED	2002 ED.
ICC 300	STANDARD FOR BLEACHERS, FOLDING AND TELESCOPING SEATING AND GRANDSTANDS	2017 ED.

FOR A COMPLETE LIST OF APPLICABLE NFPA STANDARDS REFER TO 2022 CBC (SFM) CHAPTER 35 AND CALIFORNIA FIRE CODE CHAPTER 80.SEE CALIFORNIA BUILDING CODE, CHAPTER 35 FOR STATE OF CALIFORNIA AMENDMENTS TO NFPA STANDARDS.

GENERAL NOTES

THE CALIFORNIA ENERGY CODE SECTION 10-103 REQUIRES ACCEPTANCE TESTING ON ALL NEWLY INSTALLED LIGHTING CONTROLS, MECHANICAL SYSTEMS, ENVELOPES, AND PROCESS EQUIPMENT AFTER INSTALLATION AND BEFORE PROJECT COMPLETION. AN ACCEPTANCE TEST IS A FUNCTIONAL PERFORMANCE TEST TO HELP ENSURE THAT NEWLY INSTALLED EQUIPMENT IS OPERATING AND IN COMPLIANCE WITH THE ENERGY CODE.

LIGHTING CONTROLS ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN (ATT).

MECHANICAL SYSTEM ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED MECHANICAL ATT FOR PROJECTS SUBMITTED ON OR AFTER OCTOBER 1, 2021.

ENVELOPE AND PROCESS EQUIPMENT ACCEPTANCE TESTS SHALL BE PERFORMED BY THE INSTALLING CONTRACTOR, ENGINEER/ARCHITECT OF RECORD OR THE OWNER'S AGENT.

A LISTING OF CERTIFIED ATT CAN BE FOUND AT:
HTTPS://WWW.ENERGY.CA.GOV/PROGRAMS-AND-TOPICS/PROGRAMS/ACCEPTANCE-TEST-TECHNICIAN-CERTIFICATION-PROVIDER-PROGRAM/ACCEPTANCE.

THE ACCEPTANCE TESTING PROCEDURES MUST BE REPEATED, AND DEFICIENCIES MUST BE CORRECTED BY THE BUILDER OR INSTALLING CONTRACTOR UNTIL THE CONSTRUCTION/INSTALLATION OF THE SPECIFIED SYSTEMS CONFORM AND PASS THE REQUIRED ACCEPTANCE CRITERIA.

PROJECT INSPECTORS WILL COLLECT THE FORMS TO CONFIRM THAT THE REQUIRED ACCEPTANCE TESTS HAVE BEEN COMPLETED.

A DSA CERTIFIED CLASS 3 PROJECT INSPECTOR EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DIVISION OF THE STATE ARCHITECT SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN THE SECTION 4-342 PART 1, TITLE 24, C.C.R.

SCOPE OF WORK

1. PROVIDE THREE NEW HEAT PUMP VRF SPLIT SYSTEM TO SERVER KITCHEN, OFFICE'S STORAGE AND SERVING AREAS.

DSA ANCHORAGE NOTES

APPLICABLE CODE: 2022 CBC

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.

APPLICABLE CODE: 2022 CBC

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., HCAI OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.
MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP☐MD☐PP☐E☒ OPTION 1: DETAILED ON THE APPROVAL DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MECHANICAL SHEET INDEX

NUMBER	SHEET TITLE
M-001	MECHANICAL FRONT SHEET
M-002	MECHANICAL LEGENDS AND ABBREVIATIONS
M-003	MECHANICAL SCHEDULES
M-101	MECHANICAL DEMO FLOOR PLAN
M-201	MECHANICAL FIRST FLOOR PLAN
MP-301	MECHANICAL FIRST FLOOR CONDENSATE PLAN
M-401	MECHANICAL DETAILS SHEET
M-402	MECHANICAL DETAILS SHEET
M-403	MECHANICAL DETAILS SHEET
M-404	MECHANICAL DETAILS SHEET
M-405	MECHANICAL PIPING DIAGRAM
M-501	MECHANICAL TITLE-24
M-502	MECHANICAL TITLE-24

AGENCY

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124869 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/07/2025

PTN 64691-65 APPL 03-124869

REGISTERED PROFESSIONAL ENGINEER — MATT A. LANGE — No. 5430 — Exp. 06/30/2026 — STRUCTURAL — STATE OF CALIFORNIA
12/6/2024 LAWNDALE KITCHEN HVAC REVIEW

REGISTERED PROFESSIONAL ENGINEER — CUNTIL PATEL — No. 29448 — EXP. 06-30-25 — MECHANICAL — STATE OF CALIFORNIA

An MBE|SBE|DBE|LSBE Firm
Glendale|Downtown LA|Fremont|Camarillo
W W W . B U D L O N G . C O M
JOB# - 24-025

LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWNDALE, CA 90260

JOB	24-025
SCALE	AS NOTED
PM	
DATE	01/22/2025

MECHANICAL FRONT SHEET

M-001

J:\24-025 LESD Rogers MS Central Kitchen HVAC Upgrades\M\24-025 M-001 MECHANICAL FRONT SHEET.dwg, 1/22/2025 11:44:13 AM, patrick

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DUCTWORK SYMBOLS

- SUPPLY DUCT RISER IN PLAN
- RETURN DUCT RISER IN PLAN
- EXHAUST DUCT RISER
- RECTANGULAR DUCTWORK (WIDTH X DEPTH)
- RECTANGULAR DUCTWORK (WIDTH X DEPTH) — 10x8
- ROUND DUCTWORK (SIZE, DIAMETER) — 8" Ø
- FLAT OVAL DUCTWORK — 10xØ
- 1" ACOUSTICALLY LINED DUCTWORK — (L)
- SQUARE-THROATED ELBOW W/TURNING VANES
- RADIUS ELBOW
- RADIUS TEE — NK=
- SQUARE-THROATED TEE — NK=
- VOLUME DAMPER
- TRANSITION WITH FLAT SIDE
- TRANSITION ON CENTER
- RECTANGULAR-TO-ROUND TRANSITION
- TAKE-OFF TAP TO REC. DUCT AND VOLUME DAMPER
- CONICAL TAP TO REC. DUCT AND VOLUME DAMPER
- EXISTING DUCTWORK TO REMAIN (DASHED)
- NEW DUCTWORK (SOLID)
- (L) NEW LINED DUCTWORK (SOLID) — X(L)
- (DWL) NEW DOUBLE WALL LINED DUCTWORK (SOLID) — X(DWL)
- ACCESS REQUIRED FOR EQUIPMENT SERVICE
- SIDE WALL REGISTER/GRILLE
- RETURN GRILLE WITH ACOUSTICALLY LINED BOOT
- RETURN AIR GRILLE
- EXHAUST GRILLE
- THERMOSTAT (MAX. 48" A.F.F.)
- MANUAL VOLUME DAMPER
- EQUIPMENT TAG, DESCRIPTION(FCU), UNIT NUMBER 1, FLOOR NUMBER 1(2ND FLOOR), 2(3RD FLOOR) — FCU 1-1
- DETAIL REFERENCE, DETAIL 1, SHEET NUMBER M-1 — 1 / M-1
- DOOR LOUVER MIN. 12x12 — DL
- DOOR UNDERCUT MAX. 1" — DU 1/2"
- CONSTRUCTION NOTE #1

SUPPLY / TRANSFER GRILLE SIZES

SYSTEM	TAG	MANUFACTURER MODEL NO.	NOM. DUCT SIZE	CFM	NOISE CRITERIA	VELOCITY (FPM)	VEL. PRESSURE	TOTAL PRESSURE ("W.G.)			THROW (FT)			REMARKS
								0°	22.5°	45°	0°	22.5°	45°	
OUTSIDE AIR	SG-1	TITUS 300F	6x6	0-57	-	300	0.006	0.016	0.018	0.028	5-7-14	4-5-11	2-3-6	1. PROVIDE DAMPER
OUTSIDE AIR	SG-2	TITUS 300F	22x10	550-685	18	500	0.016	0.046	0.051	0.077	22-33-48	17-26-37	10-15-22	
OUTSIDE AIR	SG-3	TITUS 300F	24x22	1610-1715	22	500	0.016	0.046	0.051	0.077	35-53-76	27-41-59	16-24-34	
TRANSFER AIR	TG-1	TITUS 300R	8x8	0-110	-	300	0.006	0.016	0.018	0.028	6-10-19	5-8-15	3-5-9	

NOTES:
1. VERIFY ALL AIR DISTRIBUTION DEVICE LOCATION, APPEARANCES, AND FINISHES WITH ARCHITECT AND ENGINEER FOR APPROVAL BEFORE ORDERING.
2. PAINT THE INSIDE OF ALL GRILLE "FLAT-BLACK" TO PREVENT SEE THROUGH EFFECT.
3. FRAME TYPE TO MOUNT ON DUCT.
4. MODEL NUMBERS AND MATERIALS SHALL NOT BE CONSIDERED COMPLETE. REVIEW THE COMPLETE DESCRIPTION, NOTES, AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

HVAC ABBREVIATIONS

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
AC	AIR CONDITIONING UNIT	N/A	NOT APPLICABLE
AD	ACCESS DOOR	NC	NOISE CRITERIA
AFF	ABOVE FINISHED FLOOR	NO	NUMBER
BDD	BACK DRAFT DAMPER (WEIGHTED)	NTS	NOT TO SCALE
BTU	BRITISH THERMAL UNITS PER HOUR	OSA	OUTSIDE AIR
CD	CEILING DIFFUSER	RA	RETURN AIR
CFM	CUBIC FEET PER MINUTE	RG	RETURN GRILLE
CLG	CEILING	RLA	RATED LOAD AMPS
CONT.	CONTINUES	RPM	REVOLUTIONS PER MINUTE
CU	CONDENSING UNIT	SA	SUPPLY AIR
CSFD	COMBINATION FIRE/SMOKE DAMPER	SP	STATIC PRESSURE
DBT	DRY BULB TEMPERATURE	SR	SUPPLY REGISTER
DN	DOWN	TD	TEMPERATURE DIFFERENCE
DTR	DOWN THROUGH ROOF	TEMP	TEMPERATURE
EA	EACH	TG	TRANSFER GRILLE
EAT	ENTERING AIR TEMPERATURE	TSTAT	THERMOSTAT
EF	EXHAUST FAN	TYP	TYPICAL
EG	EXHAUST GRILLE	TSP	TOTAL STATIC PRESSURE
EFF	EFFICIENCY	UH	UNIT HEATER
EMS	ENERGY MANAGEMENT SYSTEM	UNO	UNLESS NOTED OTHERWISE
ESP	EXTERNAL STATIC PRESSURE	UTR	UP THROUGH ROOF
°F	DEGREES, FAHRENHEIT	V	VOLT
FCU	FAN COIL UNIT	VENT	VENTILATION
FLR	FLOOR	VTR	VENT THROUGH ROOF
FLA	FULL LOAD AMPS	W/	WITH
FPM	FEET PER MINUTE	W	WATT
FT	FEET	WBT	WET BULB TEMPERATURE
HPU	HEAT PUMP UNIT		
HP	HORSE POWER		
IN	INCHES		
LAT	LEAVING AIR TEMPERATURE		
LBS	POUNDS		
MAX	MAXIMUM		
MBH	ONE THOUSAND BTUH		
MCA	MINIMUM CIRCUIT AMPS		
MCOP	MAXIMUM CIRCUIT AMPS		
MIN	MINIMUM		
MVD	MANUAL VOLUME DAMPER		
MD	MOTORIZED DAMPER		

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REGISTERED PROFESSIONAL ENGINEER — SUNIL PATEL — No. 29448 EXP. 06-30-25 — MECHANICAL — STATE OF CALIFORNIA

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LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST. LAWNDALE, CA 90260

JOB	24-025
SCALE	AS NOTED
PM	
DATE	01/22/2025

MECHANICAL LEGEND AND ABBREVIATIONS

M-002

J:\24-025 LESD Rogers MS Central Kitchen HVAC Upgrades\M\24-025 M-002 MECHANICAL LEGEND AND ABBREVIATIONS.dwg, 1/22/2025 11:44:15 AM, patrick

VRF FAN COIL UNIT SCHEDULE

FC X SYMBOL	MANUFACTURER AND MODEL NO.	OUTDOOR UNIT CONNECTION	AREA SERVED	FAN COIL TYPE	FAN DATA CFM			COOLING RATED CAPACITY	HEATING RATED CAPACITY	NOMINAL COOLING DESIGN EAT	PROJECT HEATING DESIGN EAT	ESTIMATED COOLING COIL LAT	ESTIMATED HEATING COIL LAT	ELECTRICAL					DX LINES (IN)			OPERATING WEIGHT (LBS.)	MOUNTING DETAIL	NOTES
								Btu/h	Btu/h	DB/WB (°F)	DB (°F)	(°F)	(°F)	MCA	MOCP	VOLTAGE	Ø	HZ	LIQUID	SUCTION	DRAIN			
FC 1	TOSHIBA - CARRIER MMK-UP0301HP-UL	CU 1	SERVICE LINE - 3 106	HIGH WALL	705	825	940	30000	34000	80/67.1	70	59.2	99.5	0.83	15.0	208-230	1	60	3/8	5/8	7/8	46.3	3/M-402	SEE NOTES - 1,2,3,4,5,6,7,8,9 & 10
FC 2	TOSHIBA - CARRIER MMK-UP0301HP-UL	CU 1	SERVICE LINE - 3 106	HIGH WALL	705	825	940	30000	34000	80/67.1	70	59.2	99.5	0.83	15.0	208-230	1	60	3/8	5/8	7/8	46.3	3/M-402	SEE NOTES - 1,2,3,4,5,6,7,8,9 & 10
FC 3	TOSHIBA - CARRIER MMK-UP0071HP-UL	CU 1	OFFICE 118	HIGH WALL	160	225	285	7500	8500	80/67.1	70	62.9	94.3	0.21	15.0	208-230	1	60	1/4	3/8	7/8	27	3/M-402	SEE NOTES - 1,2,3,4,5,6,7,8,9,10 & 11
FC 4	TOSHIBA - CARRIER MMK-UP0121HP-UL	CU 1	STORAGE 109	HIGH WALL	160	240	320	12000	13500	80/67.1	70	55.5	104.4	0.25	15.0	208-230	1	60	1/4	3/8	7/8	27	3/M-402	SEE NOTES - 1,2,3,4,5,6,7,8,9,10 & 11
FC 5	TOSHIBA - CARRIER MMK-UP0241HP-UL	CU 2	KITCHEN 101	HIGH WALL	355	530	700	24000	27000	80 / 67.1	70	-	-	0.6	15.0	208-230	1	60	3/8	5/8	7/8	40	3/M-402	SEE NOTES - 1,2,3,4,5,6,7,8,9 & 10
FC 6	TOSHIBA - CARRIER MMK-UP0241HP-UL	CU 2	KITCHEN 101	HIGH WALL	355	530	700	24000	27000	80 / 67.1	70	-	-	0.6	15.0	208-230	1	60	3/8	5/8	7/8	40	3/M-402	SEE NOTES - 1,2,3,4,5,6,7,8,9 & 10
FC 7	TOSHIBA - CARRIER MMK-UP0071HP-UL	CU 3	OFFICE 102	HIGH WALL	160	225	285	7500	8500	80/67.1	70	62.9	94.3	0.21	15.0	208-230	1	60	1/4	3/8	7/8	27	3/M-402	SEE NOTES - 1,2,3,4,5,6,7,8,9,10 & 11
FC 8	TOSHIBA - CARRIER MMK-UP0301HP-UL	CU 3	SERVICE LINE - 1 103	HIGH WALL	705	825	940	30000	34000	80/67.1	70.0	59.2	99.5	0.83	15.0	208-230	1	60	3/8	5/8	7/8	46.3	3/M-402	SEE NOTES - 1,2,3,4,5,6,7,8,9 & 10
FC 9	TOSHIBA - CARRIER MMK-UP0301HP-UL	CU 3	SERVICE LINE - 1 103	HIGH WALL	705	825	940	30000	34000	80/67.1	70.0	59.2	99.5	0.83	15.0	208-230	1	60	3/8	5/8	7/8	46.3	3/M-402	SEE NOTES - 1,2,3,4,5,6,7,8,9 & 10
FC 10	TOSHIBA - CARRIER MMK-UP0121HP-UL	CU 3	WORK ROOM 104	HIGH WALL	160	240	320	12000	13500	80/67.1	70	55.5	104.4	0.25	15.0	208-230	1	60	1/4	3/8	7/8	27	3/M-402	SEE NOTES - 1,2,3,4,5,6,7,8,9,10 & 11
FC 11	TOSHIBA - CARRIER MMK-UP0071HP-UL	CU 3	STORAGE 112	HIGH WALL	160	225	285	7500	8500	80/67.1	70	62.9	94.3	0.21	15.0	208-230	1	60	1/4	3/8	7/8	27	3/M-402	SEE NOTES - 1,2,3,4,5,6,7,8,9,10 & 11
FC 12	TOSHIBA - CARRIER MMK-UP0241HP-UL	CU 2	KITCHEN 101	HIGH WALL	355	530	700	24000	27000	80 / 67.1	70	-	-	0.6	15.0	208-230	1	60	3/8	5/8	7/8	40	3/M-402	SEE NOTES - 1,2,3,4,5,6,7,8,9 & 10
FC 13	TOSHIBA - CARRIER MMK-UP0241HP-UL	CU 2	KITCHEN 101	HIGH WALL	355	530	700	24000	27000	80 / 67.1	70	-	-	0.6	15.0	208-230	1	60	3/8	5/8	7/8	40	3/M-402	SEE NOTES - 1,2,3,4,5,6,7,8,9 & 10

NOTES:

1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR AIR TEMPERATURE OF 80^0F DB / 67^0F WB, OUTDOOR AIR TEMPERATURE OF 95^0 F (DB).
2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR AIR TEMPERATURE OF 70^0F DB, OUTDOOR AIR TEMPERATURE OF 47^0 F DB / 43^0 F WB.
3. LATS ESTIMATED USING FORMULA FOR SENSIBLE CAPACITY = (1.08 BTU/(HR CFM ^{0}F)) X CFM X DELTA T.
4. ALL DUCTLESS FMA/FMC/FMU OR FV4 SERIES INDOOR UNITS REQUIRE A PIPING ADAPTOR KIT (MODEL #S: 331831-701 OR 40MD000003).
5. WARNING: ACCESSORIES ARE FILTERED BY SYSTEM AND UNIT TYPE. CHECK PRODUCT DATA TO CONFIRM ACCESSORY COMPATIBILITY WITH VOLTAGE, PRODUCT TIER, ETC.
6. WARNING: ONE OR MORE OUTSIDE AIR INDOOR UNITS IN THIS SYSTEM HAVE COOLING OR HEATING TEMPERATURES THAT ARE OUT OF RANGE.
7. FAN COILS SHALL BE FACTORY FURNISHED WITH PULSE WIDTH MODULATING CONTROL VALVES. PMV SHALL SHUT OFF100% OF FLOW WHEN SPACE TEMPERATURE SETPOINT IS SATISFIED.
8. PROVIDE COMMUNICATION WIRING PER MANUFACTURER'S RECOMMENDATION.
9. PROVIDE REFRIGERATION ISOLATION VALVES AT EACH FAN COIL UNIT. CONTRACTOR TO CONFIRM QUANTITY AND SIZE PER MANUFACTURERS RECOMMENDATION.
10. PROVIDE AND INSTALL NEW DDC THERMOSTAT PER MANUFACTURER RECOMMENDATION AND MOUNT AT 48" ABOVE FINISHED FLOOR.
11. PROVIDE CONDENSATE PUMP TO FAN COIL UNIT. BLUE DIAMOND MAXI BLUE 110V-X87-711.

VRF CONDENSING UNIT SCHEDULE

CU X SYMBOL	MANUFACTURER AND MODEL NO.	NOMINAL COOLING CAPACITY (BTUH)	NOMINAL HEATING CAPACITY (BTUH)	NOMINAL TONS	UNIT WEIGHT (LBS.)	EFFICIENCY EER	EFFICIENCY HEATING COP	REFRIGERANT PIPING LIQUID HIGH PRESSURE LINE (IN.)	REFRIGERANT PIPING GAS LOW PRESSURE LINE (IN.)	ELECTRICAL POWER REQUIREMENTS VOLT/PH/HZ	MCA	MOCP	TOTAL OPERATING WEIGHT (LBS.)	REFRIGERANT TYPE	MOUNTING DETAIL	NOTES
CU 1	TOSHIBA CARRIER MMY-MUP0721HT6P-UL	72,000	81,000	5.0	533	14.5	4.60	1/2	3/4	460/3/60	17.4	20	600	R-410A	7/M-402	SEE NOTES - 1,2,3,4,5 & 6
CU 2	TOSHIBA CARRIER MMY-MUP0961HT6P-UL	96,000	108,000	8.0	533	14.1	4.30	1/2	7/8	460/3/60	17.5	20	600	R-410A	7/M-402	SEE NOTES - 1,2,3,4,5 & 6
CU 3	TOSHIBA CARRIER MMY-MUP0721HT6P-UL	72,000	81,000	5.0	533	14.5	4.60	1/2	3/4	460/3/60	17.4	20	600	R-410A	7/M-402	SEE NOTES - 1,2,3,4,5 & 6

NOTES:

1. NOMINAL COOLING CAPACITIES ARE BASED ON INDOOR AIR TEMPERATURE OF 80^0F DB / 67^0F WB, OUTDOOR AIR TEMPERATURE OF 95^0 F (DB).
2. NOMINAL HEATING CAPACITIES ARE BASED ON INDOOR AIR TEMPERATURE OF 70^0F DB, OUTDOOR AIR TEMPERATURE OF 47^0 F DB / 43^0 F WB.
3. VRF EFFICIENCY VALUES FOR EER, IEER AND COP ARE FOR MIXED DUCTED AND NON-DUCTED INDOOR UNITS BASED ON AHRI 1230 TEST METHOD.
4. DUCTLESS AND SINGLE-PHASE VRF HEAT PUMP EFFICIENCY VALUES FOR EER, SEER, AND HSPF ARE FOR MIXED DUCTED AND NON-DUCTED INDOOR UNITS BASED ON AHRI 210/240 TEST METHOD.
5. PROVIDE EACH CONDENSING UNIT MODULE WITH SEPARATE POWER AND DISCONNECT.
6. PROVIDE CONDENSING UNITS WITH DUAL TWIN ROTARY COMPRESSORS.

SUPPLY FAN SCHEDULE

SF X SYMBOL	MANUFACTURER AND MODEL NO.	LOCATION	TYPE	DRIVE	FAN DUTY CFM	FAN DUTY E.S.P.	FAN DUTY RPM	MOTOR HP	ELECTRICAL VOLTS	PH	Hz	FLA	MCA	MOCP	OPERATING WEIGHT (LBS)	MOUNTING DETAIL	REMARKS
SF 1	GREENHECK SQ-7-M1-VG	SERVING LINE 3 106	INLINE	DIRECT	700	1.45	3385	1/2	208	1	60	4	5	15	60	8/M-401, 1/M-404	SEE NOTES - 1
SF 2	GREENHECK SQ-15-M2-VG	KITCHEN 101	INLINE	DIRECT	1700	0.87	1224	1	460	3	60	1.8	2.2	15	150	8/M-401, 1/M-404	SEE NOTES - 1
SF 3	GREENHECK SQ-7-M1-VG	SERVING LINE 1 103	INLINE	DIRECT	700	1.45	3385	1/2	208	1	60	4	5	15	60	8/M-401, 1/M-404	SEE NOTES - 1

NOTES:

1. PROVIDE SUPPLY FAN WITH MERV-13 FILTER.

REFRIGERANT VOLUME CALCULATION

SYSTEM SERVING	ROOM NAME	Area (FT²)	CEILING HEIGHT (FT)	ROOM VOLUME (FT³)	REFRIGERANT TYPE	REFRIGERANT SYSTEM	REFRIGERANT SYSTEM CHARGE (LBS.)	ALLOWED REFRIGERANT/ 1000 FT³ (LBS.)	ALLOWED REFRIGERANT IN ROOM (LBS.)	STATUS	REMARKS	NOTES
FC-1 & 2	SERVING LINE 3 #106	404	10.0	4040	R-410A	CU-1	23.86	26.0	105.0	PASSED	1	-
FC-3	STORAGE #109	347	8.0	2776	R-410A	CU-1	23.86	26.0	72.2	PASSED	1	-
FC-4	OFFICE #118	132	8.0	1056	R-410A	CU-1	23.86	26.0	27.5	PASSED	1	-
FC-5, 6, 11 & 12	KITCHEN #101	807	10.0	8070	R-410A	CU-2	21.69	26.0	209.8	PASSED	1	-
FC-7 & 8	SERVING LINE 1 #103	470	10.0	4700	R-410A	CU-3	24.63	26.0	122.2	PASSED	1	-
FC-9	WORKROOM #104	568	8.0	4544	R-410A	CU-3	24.63	26.0	118.1	PASSED	2	PROVIDED TRANSFER GRILLE TO SERVING LINE 1 #103 (98+470)
FC-10	OFFICE #102	158	8.0	1264	R-410A	CU-3	24.63	26.0	32.9	PASSED	1	-
FC-11	STORAGE (OFFICE) #112	515	8.0	4120	R-410A	CU-3	24.63	26.0	107.1	PASSED	2	PROVIDED TRANSFER GRILLE TO SERVING LINE 1 #103 (45+470)

REMARKS:

1. PASSED AS IS.
2. PASSED WITH TRASNFER GRILLE TO ADJACENT ROOM.
3. PASSED WITH TRASNFER GRILLE TO OPEN SPACE

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12/6/2024 LAWNDALE KITCHEN HVAC REVIEW

REGISTERED PROFESSIONAL ENGINEER SUNIL PATEL No. 29448 EXP. 06-30-25 MECHANICAL STATE OF CALIFORNIA

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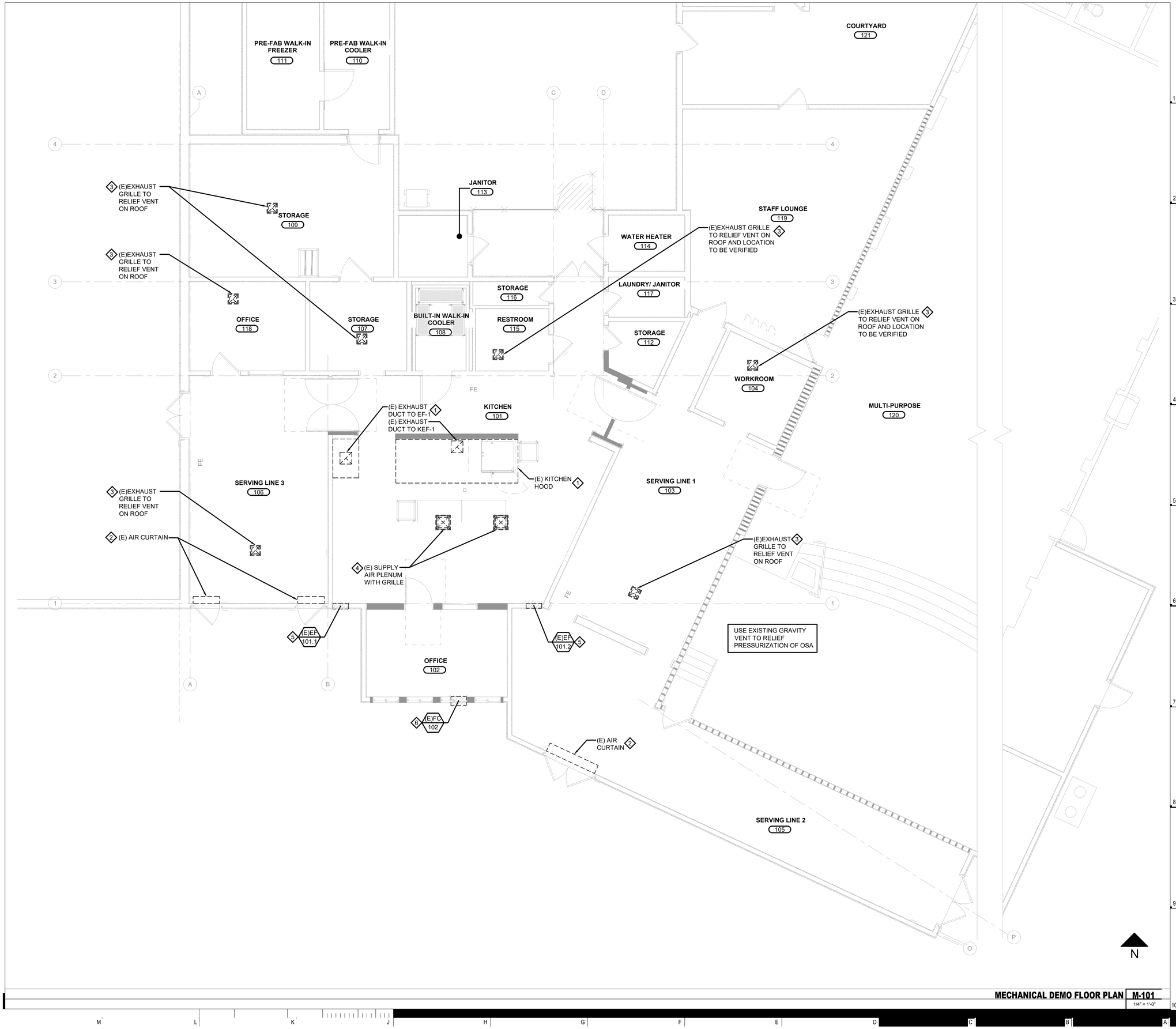
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MECHANICAL SCHEDULES

M-003

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DEMOLITION KEYNOTES

1. EXISTING EXHAUST HOOD TO REMAIN.
2. EXISTING AIR CURTAIN TO REMAIN.
3. EXISTING RELIEF GRILLE TO REMAIN AND REUSE.
4. EXISTING SUPPLY GRILLE TO REMAIN AND REUSE.
5. DEMO EXISTING WALL MOUNTED FANS.
6. DEMO EXISTING FAN COIL UNIT.

MECHANICAL DEMO FLOOR PLAN M-101 1/4" = 1'-0"

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MECHANICAL DEMO FLOOR PLAN

M-101

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PRE-FAB WALK-IN FREEZER 111
PRE-FAB WALK-IN COOLER 110
COURTYARD 121
JANITOR 113
STORAGE 109
STAFF LOUNGE 119
WATER HEATER 114
STORAGE 116
LAUNDRY/ JANITOR 117
OFFICE 118
STORAGE 107
BUILT-IN WALK-IN COOLER 108
RESTROOM 115
STORAGE 112
WORKROOM 104
KITCHEN 101
MULTI-PURPOSE 120
SERVING LINE 3 106
SERVING LINE 1 103
SERVING LINE 2 105
OFFICE 102

SG-1
SG-2
SG-3
TG-1
DU
(FC-1) (FC-2) (FC-3) (FC-4) (FC-5) (FC-6) (FC-7) (FC-8) (FC-9) (FC-10) (FC-11) (FC-12) (FC-13)
PROVIDE NEW 24x12 OSA LOUVER
DUCT DOWN TOWARDS LOWER CEILING
(N) MERV - 13 FILTER
(E) KITCHEN HOOD
(E) AIR CURTAIN TO REMAIN
USE EXISTING GRAVITY VENT TO RELIEF PRESSURIZATION OF OSA
TYP. FOR ALL HP
ELECTRICAL EQUIPMENT. SEE SHEET E-103
12"Ø 4"Ø 6"Ø 12x10 22x12 4"Ø (TYP.)

N

MECHANICAL FIRST FLOOR PLAN M-201
1/4" = 1'-0"

REMODEL KEYNOTES

1. EXISTING EXHAUST HOOD TO REMAIN.
2. EXISTING AIR CURTAIN TO REMAIN.
3. EXISTING RELIEF GRILLE TO REMAIN AND REUSE.
4. EXISTING SUPPLY GRILLE TO REMAIN AND REUSE.
5. PROVIDE NEW VENT LOUVER ON THE WALL ABOVE LOWER ROOF.
6. PROVIDE NEW FAN COIL UNIT AS PER SCHEDULE.
7. PROVIDE NEW VRF HEAT PUMP AS PER SCHEDULE.
8. PROVIDE NEW SUPPLY FAN WITH MERV-13 FILTER AS PER SCHEDULE.
9. PROVIDE NEW THERMOSTAT.
10. FOR REFRIGERANT PIPE SIZING REFER SHEET M-405.
11. PROVIDE NEW 8 x 8 TRANSFER GRILLE.
12. SEE MP-301 FOR DRAINING OF OUTDOOR UNITS.

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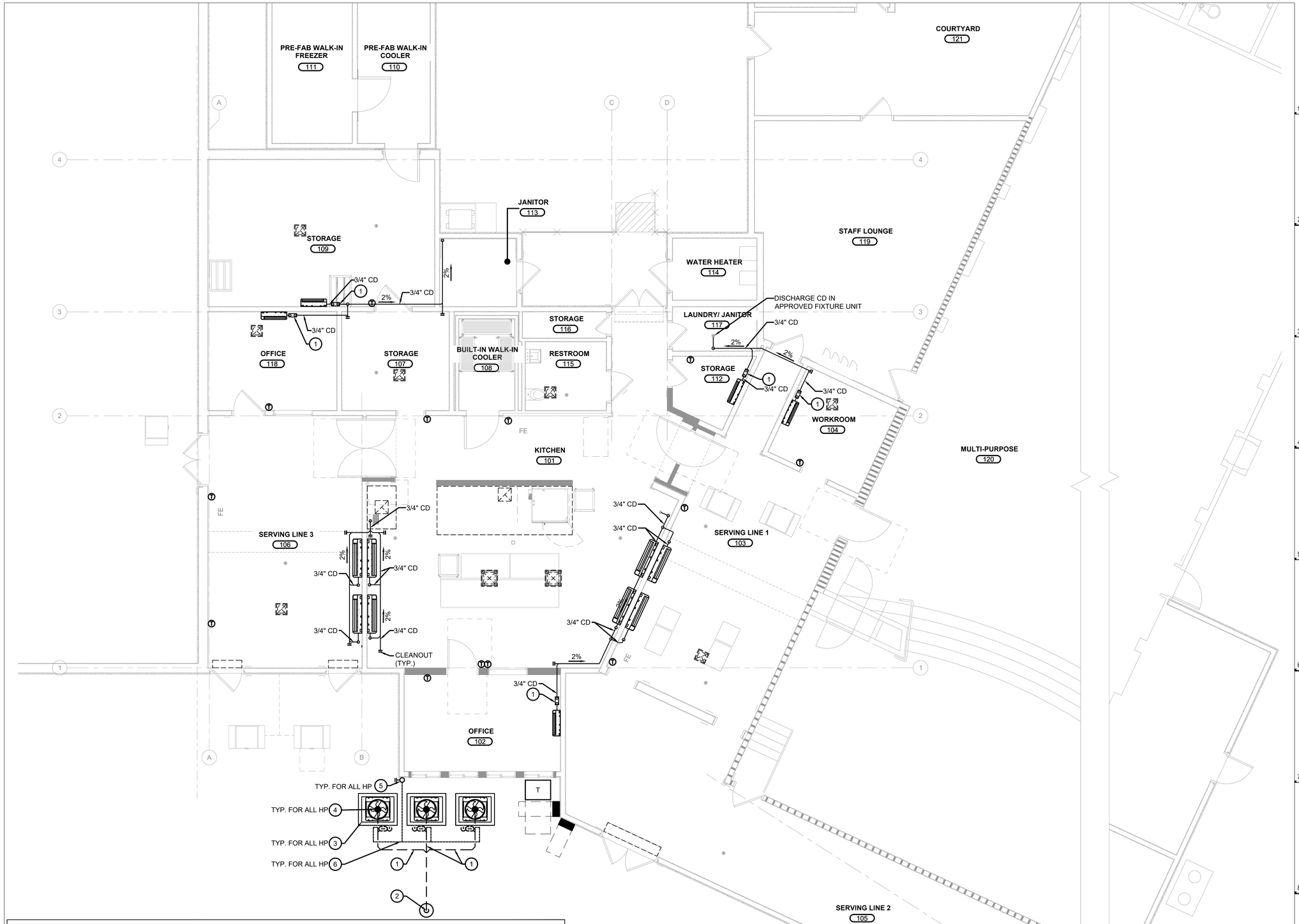
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MECHANICAL FIRST FLOOR PLAN

M-201

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PIPE AND FITTING MATERIALS

TYPE	SIZE	MATERIAL	FITTINGS	JOINTS	LOCATION
CONDENSATE	ALL SIZES	TYPE "L" HARD COPPER	WROUGHT COPPER	SOLDER	ABOVE GRADE
		TYPE "K" HARD COPPER	WROUGHT COPPER	SOLDER SILVER BRAZED	BELOW GRADE INSIDE BUILDING
		PVC/PVC-C900 SDR 18	PVC/PVC-C900 SDR 18 AWWA C907, C900	AWWA-C151-GASKETED SELF RETAINING ASME/ANSI B16.4 ASTM D2467	BELOW GRADE OUTSIDE BUILDING
VENT	ALL SIZES	ABS ASTM D3965, NSF 14, ASTM F628, D2661	ABS ASTM D3965, NSF 14, ASTM F628, D2661	ABS ASTM D3965, NSF 14, ASTM F628, D2661	BELOW GRADE INSIDE/OUTSIDE BUILDING
VENT	ALL SIZES	TYPE CPVC SCH 40	PLASTIC PIPE CEMENT JOINTS	PLASTIC PIPE CEMENT JOINTS	EXTERIOR OF BUILDING & BELOW GRADE. EXPOSED PIPING TO BE PAINTED WITH UV RESISTANT WATER BASED PAINT

MECHANICAL FIRST FLOOR CONDENSATE PLAN MP-301

1/4" = 1'-0"

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GENERAL NOTES

A. PROVIDE INSULATION ON ALL INTERIOR CONDENSATE DRAINS

REMODEL KEYNOTES

1. PLUMBING CONTRACTOR SHALL PROVIDE AND INSTALL 3/4" CONDENSATE DRAIN PIPE WITH 2% SLOPE TO FLOOR SINK.
2. INSTALL DRYWELL AT 10 FEET MINIMUM AWAY FROM BUILDING. REFER TO DETAIL #6/M-403
3. PROVIDE SHEET METAL PAN UNDER HEAT PUMP UNIT WITH DRAIN. CONNECT 3/4" CD TO PAN AND RUN BELOW GRADE AT 1% SLOPE TOWARDS DRYWELL. SEE #6 & 7/M-402
4. RUN 3/4" CD DOWN FROM SHEET METAL PAN AND THROUGH CONCRETE PAD. RUN BELOW GRADE AT 1% SLOPE TOWARDS DRYWELL. SEE #6 & 7/M-402
5. RUN 1" CD VENT UP ALONG EXTERIOR WALL OF BUILDING UP TO ROOF.
6. RUN 3/4" CD VENT BELOW GRADE. SEE DETAIL #6 & 7/M-402

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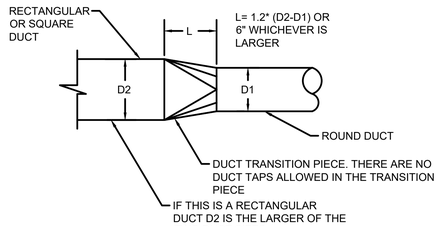
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MECHANICAL FIRST FLOOR CONDENSATE PLAN

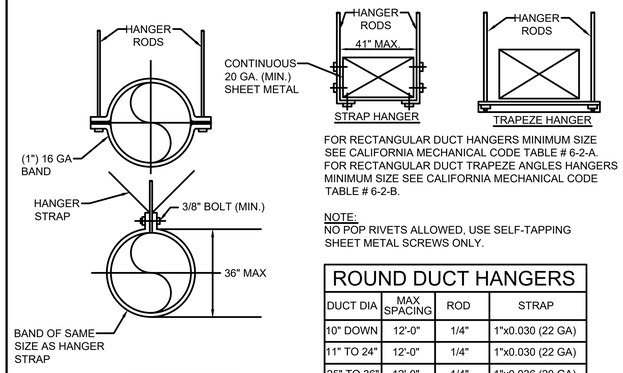
MP-301

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DUCT TRANSITION DIAGRAM — SCALE NTS — 3



FOR RECTANGULAR DUCT HANGERS MINIMUM SIZE SEE CALIFORNIA MECHANICAL CODE TABLE # 6-2-A. FOR RECTANGULAR DUCT TRAPEZE ANGLES HANGERS MINIMUM SIZE SEE CALIFORNIA MECHANICAL CODE TABLE # 6-2-B.

NOTE:
NO POP RIVETS ALLOWED, USE SELF-TAPPING SHEET METAL SCREWS ONLY.

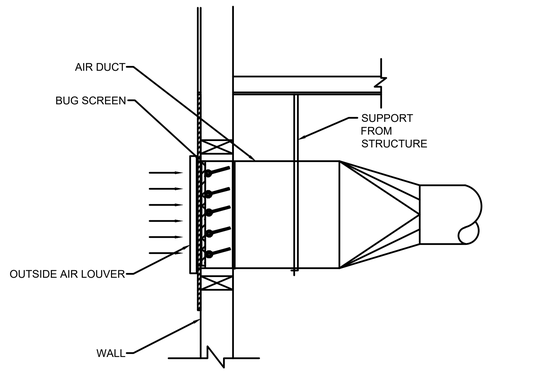
ALL TOPS OF DUCTS TO BE WITHIN 12" FROM STRUCTURE.

ROUND DUCT HANGERS			
DUCT DIA	MAX SPACING	ROD	STRAP
10" DOWN	12'-0"	1/4"	1"x0.030 (22 GA)
11" TO 24"	12'-0"	1/4"	1"x0.030 (22 GA)
25" TO 36"	12'-0"	1/4"	1"x0.036 (20 GA)
37" TO 94"	12'-0"	TWO 3/8"	-

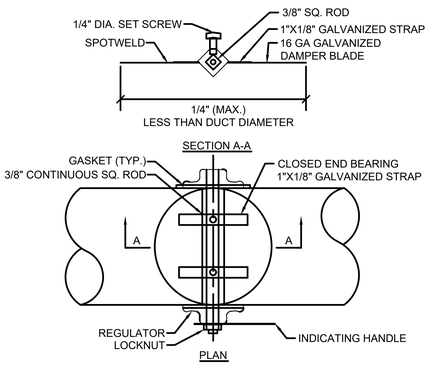
NOTES:

1. FOR HANGERS SIZE AND SPACING, SEE 2005 SMACNA HVAC DUCT CONSTRUCTION STANDARDS TABLE 5-1. FOR TRAPEZE ALLOWABLE LOAD SEE TABLE 5-3.
2. FOR UPPER ATTACHMENT TO BUILDING, SEE SMACNA HVAC DUCT CONSTRUCTION STANDARDS WITH SPECIFIC STRUCTURAL ENGINEER APPROVAL. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS WITH DETAILS AND SUPPORT LOCATIONS.

DUCT SUPPORT DIAGRAMS — SCALE NTS — 2



OUTSIDE AIR LOUVER — SCALE NTS — 1



NOTES:

1. LOCK DAMPER DURING AIR BALANCE AND MARK QUADRANT TO RECORD AIR BALANCED DAMPER POSITION.
2. PROVIDE "HAT" SECTION AT QUADRANT FOR ALL EXTERNALLY INSULATED DUCTWORK.
3. PROVIDE FLUORESCENT COLORED MARKERS AT ALL VOLUME DAMPERS LOCATIONS.

ROUND VOLUME DAMPER UPTO 14 IN. DIAMETER — SCALE NTS — 6

DUCT THROUGH WALL — SCALE NTS — 5

NOTES:

1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. MULTI-BLADE DAMPERS INSTALLATIONS SHALL BE SIMILAR.
3. LOCK DAMPER DURING AIR BALANCE AND MARK QUADRANT TO RECORD AIR BALANCED DAMPER POSITION.
4. PROVIDE "HAT" SECTION AT QUADRANT FOR ALL EXTERNALLY INSULATED DUCTWORK.
5. PROVIDE FLUORESCENT COLORED MARKERS ON CEILING AT ALL VOLUME DAMPERS LOCATIONS.

RECTANGULAR MANUAL VOLUME DAMPER — SCALE NTS — 4

SIDE MOUNTED S/A REGISTER — SCALE NTS — 9

INLINE SUPPLY FAN DETAIL — SCALE NTS — 8

NOTES:

1. ALL OUTSIDE DUCTS SHALL BE INSULATED.
2. PROVIDE FLEXIBLE CONNECTION AT INLET AND OUTLET.

FILTER BOX MOUNTING — SCALE NTS — 7

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4110 W 154TH ST, LAWNDALE, CA 90260

REGISTERED PROFESSIONAL ENGINEER — WILLY A. LAMBERT — No. 5430 — Exp. 08/30/2026 — STRUCTURAL — STATE OF CALIFORNIA
12/6/2024 PRINCIPAL KITCHEN HVAC REVIEW

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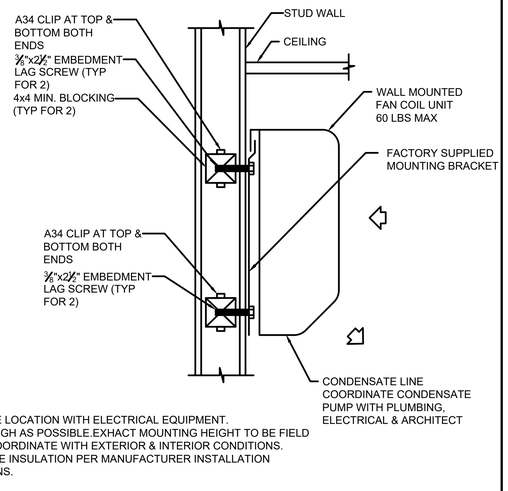
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MECHANICAL DETAILS
SHEET

M-401

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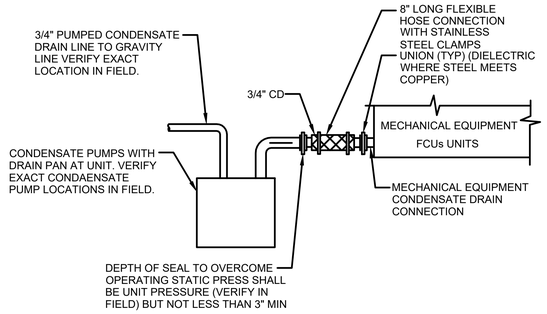
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NOTES:

1. COORDINATE LOCATION WITH ELECTRICAL EQUIPMENT.
2. MOUNT AS HIGH AS POSSIBLE,EXHACT MOUNTING HEIGHT TO BE FIELD VERIFIED. COORDINATE WITH EXTERIOR & INTERIOR CONDITIONS.
3. PROVIDE PIPE INSULATION PER MANUFACTURER INSTALLATION INSTRUCTIONS.

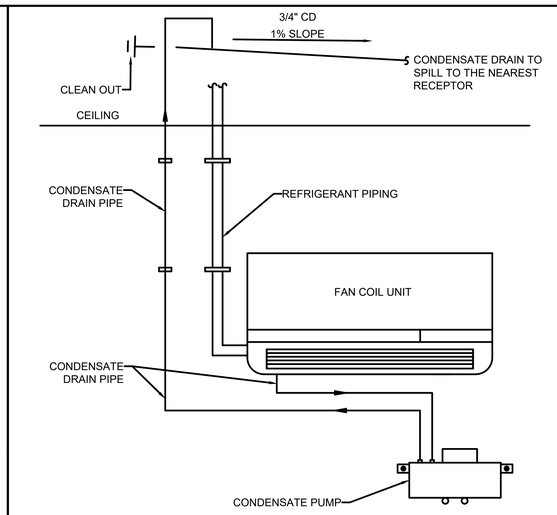
WALL MOUNTED FAN COIL — SCALE NTS — 3



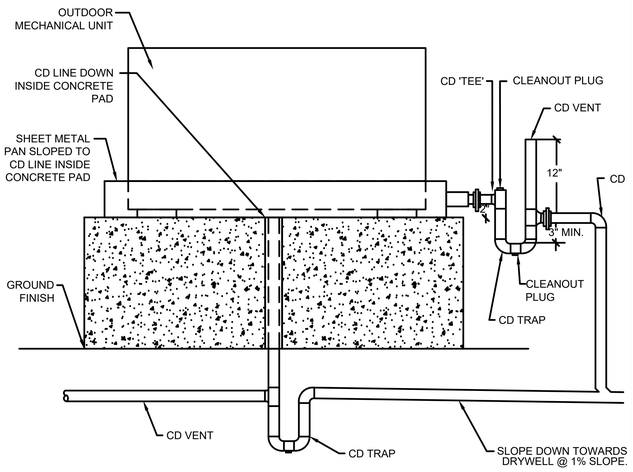
NOTES :

1. PROVIDE CD PIPING PER SPECIFICATIONS. DRAIN MECHANICAL EQUIPMENT CONNECTION AS REQUIRED.
2. MANUALLY PRIME TRAP TO PREVENT SAG. PROVIDE REMOVABLE TRAP FOR REMOTE CLEANING.
3. SUPPORT DRAIN LINE TO PREVENT SAG AND TERMINATE TO AN APPROVED RECEPTOR LAVATORY TAILPIECE, SERVICE SINK, FLOOR SINK, OR DRYWELL
4. PROVIDE REMOVABLE TRAP.

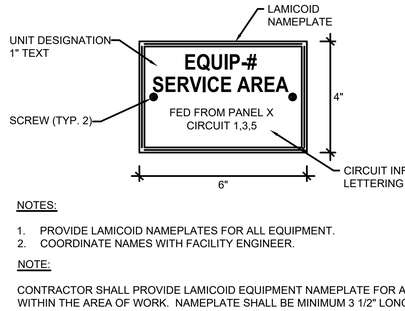
CONDENSATE DRAIN WITH CONDENSATE PUMP — SCALE NTS — 2



FCU CONDENSATE REMOVAL DETAIL — SCALE NTS — 1



OUTDOOR UNIT - PRIMARY & SECONDARY CD DETAIL — SCALE NTS — 6



NOTES:

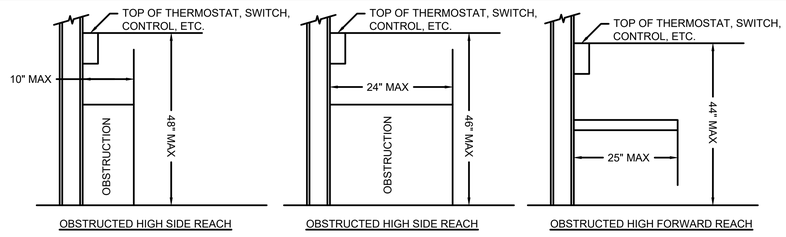
1. PROVIDE LAMICOID NAMEPLATES FOR ALL EQUIPMENT.
2. COORDINATE NAMES WITH FACILITY ENGINEER.

NOTE:

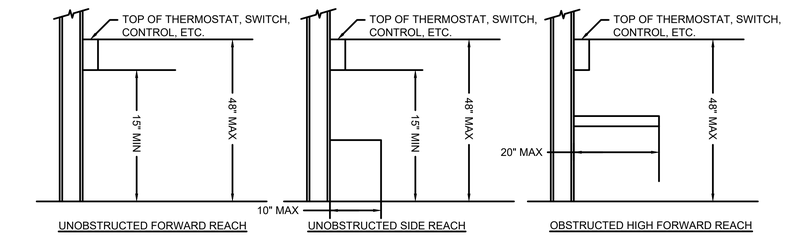
CONTRACTOR SHALL PROVIDE LAMICOID EQUIPMENT NAMEPLATE FOR ALL EQUIPMENT WITHIN THE AREA OF WORK. NAMEPLATE SHALL BE MINIMUM 3 1/2" LONG X 2" TALL. UNIT SHALL BE IMPRINTED WITH 1/2" TALL LETTERING, CENTERED HORIZONTALLY ON NAMEPLATE. DIRECTLY BELOW UNIT DESIGNATION UNCLUDE UNIT ELECTRICAL FED FROM SOURCE IN 3/8" LETTERING. E.G. "FED FROM PANEL X, CIRCUIT 1,3,5". SUBMIT EQUIPMENT NAMEPLATE INFORMATION AND SAMPLE PRIOR TO ORDERING AND INSTALLATION. ALL TEXT SHALL BE WHITE.

EQUIPMENT NAME PLATE — SCALE NTS — 5

NOT USED — SCALE NTS — 4

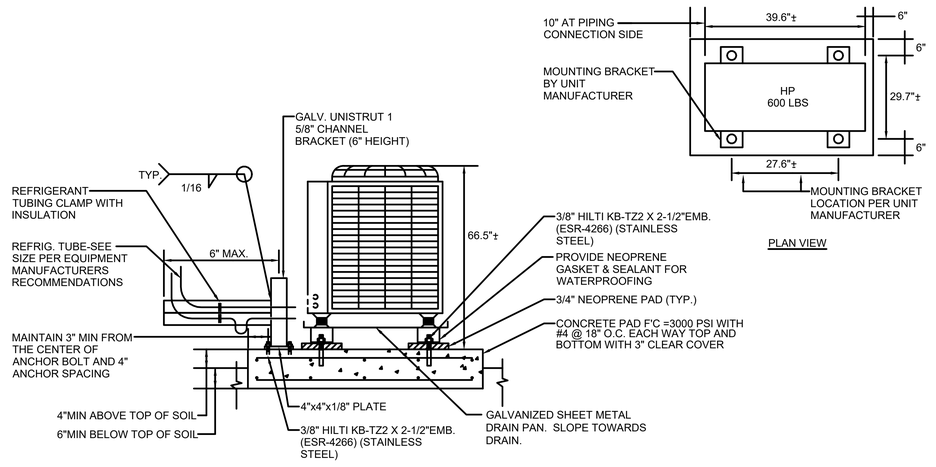


OBSTRUCTED HIGH SIDE REACH | OBSTRUCTED HIGH SIDE REACH | OBSTRUCTED HIGH FORWARD REACH



UNOBSTRUCTED FORWARD REACH | UNOBSTRUCTED SIDE REACH | OBSTRUCTED HIGH FORWARD REACH

THERMOSTAT INSTALLATION DIAGRAM — SCALE NTS — 8



OUTDOOR UNIT MOUNTING DETAIL — SCALE NTS — 7

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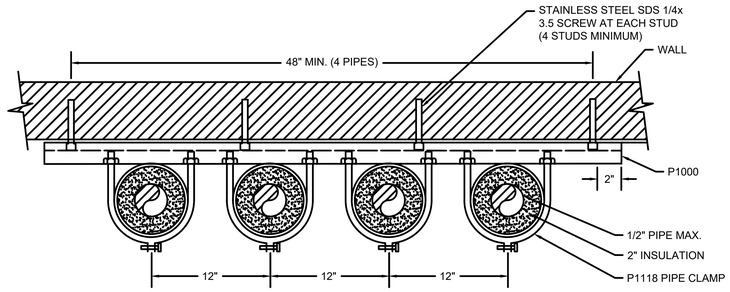
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MECHANICAL DETAILS SHEET

M-402

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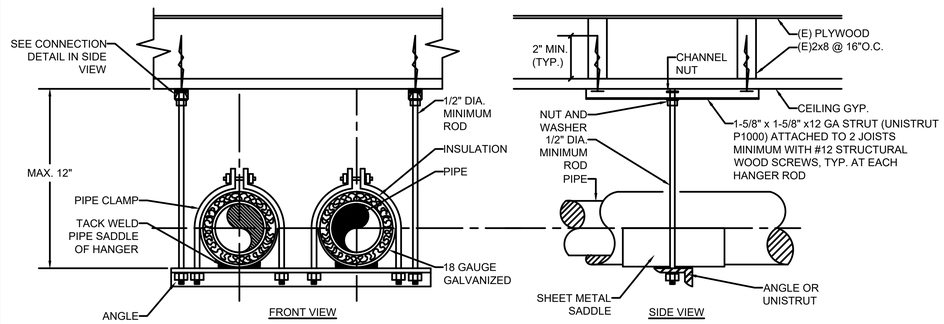
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SUPPORT SPACING NOT TO EXCEED 10'-0"

WALL PIPING RISER DIAGRAM

SCALE NTS | 2



PIPING SUPPORT UPPER ATTACHMENTS SHALL BE REVIEWED AND APPROVED BY SEOR BEFORE FABRICATION AND INSTALLATION.

PIPE SUPPORT SPACING SCHEDULE		
TYPE OF PIPE	NOM SIZE	MAX. SPACING
COPPER	3/4" AND SMALLER	5 FT.
	1" TO 1-1/4"	6 FT.
	1-1/2" TO 3"	7 FT.

MAX. PIPE SIZE: 1-1/8" DIAMETER = 7 LBS. PER LINEAR FOOT.

REFRIGERANT PIPING HANGER DETAIL

SCALE NTS | 1

RECTANGULAR LOW PRESSURE DUCTWORK

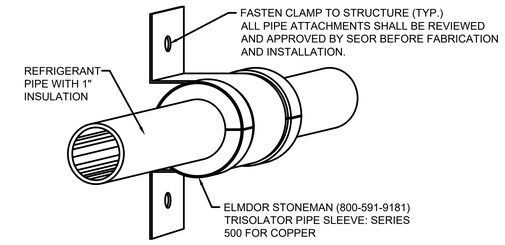
SINGLE LINE DIAGRAM	DOUBLE LINE CONFIGURATION	SINGLE LINE DIAGRAM	DOUBLE LINE CONFIGURATION
	W, R, R=W		5, 1/2, 1/2, 5, 1
T	T	T	T
C.D.	C.D., D/2, D		45°, W/2, W

ROUND LOW PRESSURE DUCTWORK

SINGLE LINE DIAGRAM	DOUBLE LINE CONFIGURATION	SINGLE LINE DIAGRAM	DOUBLE LINE CONFIGURATION
X" x Y", D"Ø	RECTANGULAR DUCT, X" x Y", ROUND DUCT, CONICAL FITTING, D"Ø	X" x Y", D"Ø	1D", D"Ø, X" x Y", RECTANGULAR TO ROUND TRANSITION
D",Ø, D",Ø, D",Ø	D",Ø, 45° LATERAL & REDUCING FITTING, 45° LATERAL FITTING	D",Ø, D",Ø	D",Ø, D", D",Ø, ROUND TO ROUND TRANSITION
D",Ø, D",Ø	45° LAT FITTING, THIS PORTION FOR CONTINUING DUCT RUN, 6" MIN., 45° LATERAL FITTING	D",Ø, D",Ø	D",Ø, 45° LATERAL & REDUCING FITTING, 90° ELBOW, D",Ø

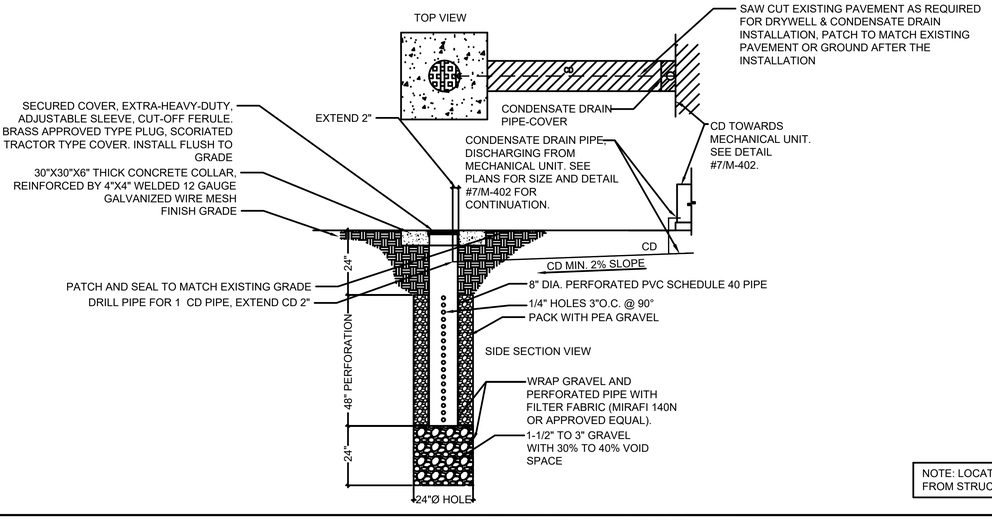
DUCT WORK

SCALE NTS | 4



REFRIGERANT PIPE WALL ATTACHMENT DIAGRAM

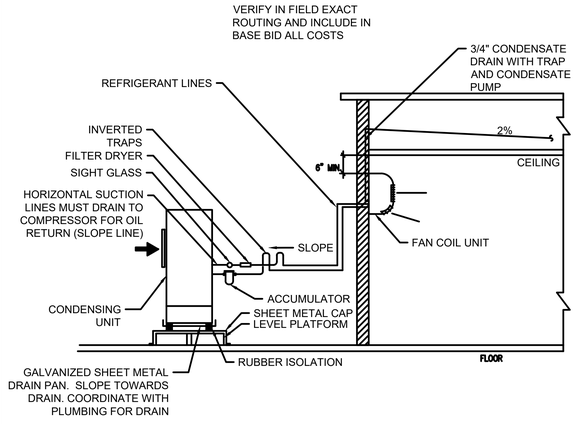
SCALE NTS | 3



NOTE: LOCATE DRYWELL NOT LESS THAN 10 FEET FROM STRUCTURES AND PROPERTY LINES.

CONDENSATE DRAINAGE DRYWELL

SCALE NTS | 6



SPLIT SYSTEM INSTALLATION DETAIL

SCALE NTS | 5

PTN. 64691-65 APPL. 03-124869

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JOB# - 24-025

LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWNDALE, CA 90260

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MECHANICAL DETAILS

SHEET

M-403

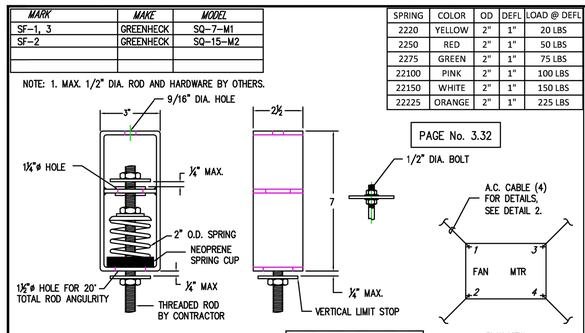
J:\24-025 LESD Rogers MS Central Kitchen HVAC Upgrades\M\24-025 M-403 MECHANICAL DETAILS SHEET.dwg, 1/22/2025 11:44:30 AM, patrick

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MARK	MAKE	MODEL
SF–1, 3	GREENHECK	SQ–7–M1
SF–2	GREENHECK	SQ–15–M2

NOTE: 1. MAX. 1/2" DIA. ROD AND HARDWARE BY OTHERS.

SPRING	COLOR	OD	DEFL	LOAD @ DEFL
2220	YELLOW	2"	1"	20 LBS
2250	RED	2"	1"	50 LBS
2275	GREEN	2"	1"	75 LBS
22100	PINK	2"	1"	100 LBS
22150	WHITE	2"	1"	150 LBS
22225	ORANGE	2"	1"	225 LBS

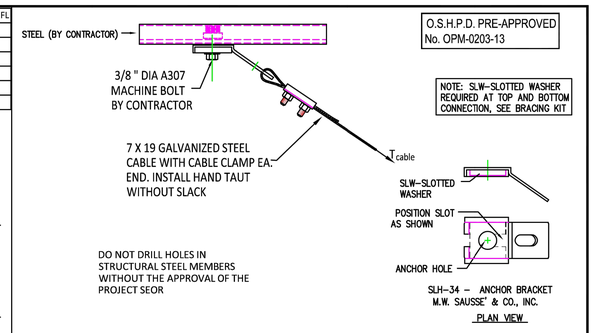


PAGE No. 3.32

VIBREX TYPE PRMXA–1C

O.S.H.P.D. PRE-APPROVED
No. OPM-0203-13

DETAIL–1 DETAIL–3



O.S.H.P.D. PRE-APPROVED
No. OPM-0203-13

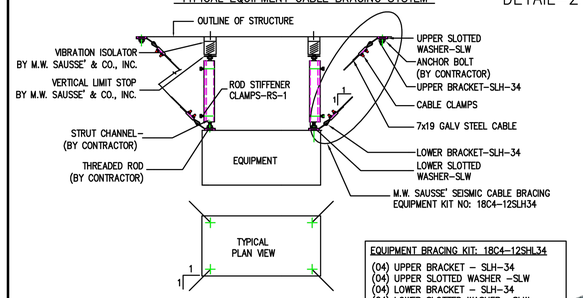
NOTE: SLW–SLOTTED WASHER REQUIRED AT TOP AND BOTTOM CONNECTION, SEE BRACING KIT

ANCHORAGE OF 1/8 INCH DIA. GALV STEEL CABLE IN STEEL

PAGE No. 3.24

DETAIL–2 DETAIL–4

TYPICAL EQUIPMENT CABLE BRACING SYSTEM



EQUIPMENT BRACING KIT: 18C4–12SHL34
(04) UPPER BRACKET – SLH–34
(04) UPPER SLOTTED WASHER –SLW
(04) LOWER BRACKET – SLH–34
(04) LOWER SLOTTED WASHER –SLW
(08) ROD STIFFENER CLAMPS – RS–1
(04) GALV STEEL CABLE – 1/8" – 10 ft
(08) CABLE CLAMPS – 1/8"

NOTE: 1) CABLE IS 7 X 19 GALVANIZED STEEL CABLE.
2) CABLES TO BE INSTALLED HAND TAUT W/O SLACK.
3) FOR CABLE ANCHORAGE, SEE DETAIL – 3
4) ROD STIFFENER MAY BE REQUIRED. SEE DETAIL – 4

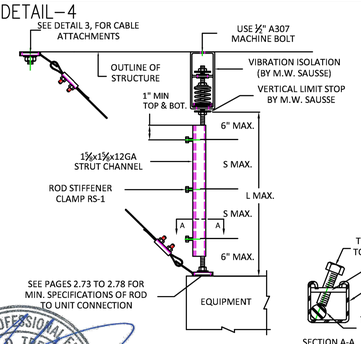


TABLE 1
(L MAX. WITHOUT ROD STIFFENER)

ROD DIA.	3/8"	1/2"
L MAX.	15"	21"

TABLE 2
(L MAX. WITH ROD STIFFENER)

ROD STIFFENER	1-5/8x1-5/8x12GA STRUT CHANNEL
L MAX.	116"

TABLE 3
(S MAX. WITH ROD STIFFENER)

ROD DIA.	3/8"	1/2"
S MAX.	15"	21"

RS–1 – ROD STIFFENER REQUIREMENTS FOR EQUIPMENT CABLE BRACING

M. W. SAUSSE & CO., INC.
28774 Whitherspoon Pkwy. Valencia, CA 91355
Phone: (661) 257-3311 Fax: (661) 257-7673

Vibrex vibration & seismic control PRMXA–1C & CBK

JOB NAME:	WILL ROGERS MS CENTRAL KITCHEN	REVISIONS:	
CUST.:			
CUST. P.O.:		DRN:	JO
MECH. ENGR.:	BUDLONG	DATE:	12/6/24
MARK:	SF–1, 2, 3	ID:	DRAWING NO.: –1

12/06/2024

SUPPLY FAN SUPPORT DETAILS — SCALE NTS 1

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4110 W 154TH ST, LAWNDALE, CA 90260

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MECHANICAL DETAILS SHEET

M-404

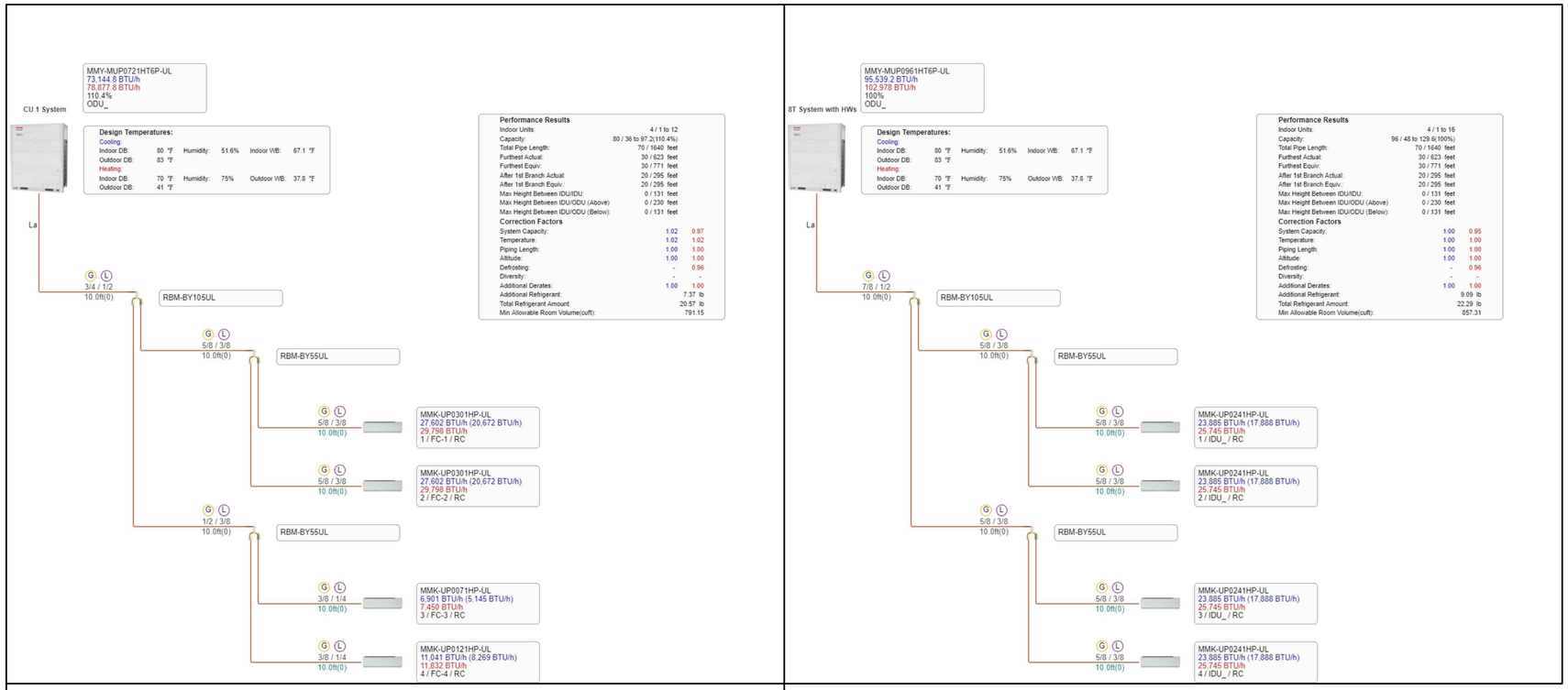
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REGISTERED PROFESSIONAL ENGINEER
WILL A. LANGLOIS
No. 5430
Exp. 06/30/2026
STRUCTURAL
STATE OF CALIFORNIA
12/6/2024 LAWNDALE KITCHEN HVAC REVIEW

REGISTERED PROFESSIONAL ENGINEER
JUNIL PATEL
No. 29448
EXP. 06-30-25
MECHANICAL
STATE OF CALIFORNIA

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4110 W 154TH ST, LAWNDALE, CA 90260

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DATE	01/22/2025

MECHANICAL PIPING DIAGRAM

M-405

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

Nonresidential Performance Compliance Method — **(Page 1 of 16)**

Project Name: WILL ROGERS MS - KITCHEN | **Date Prepared:** 2024-08-23

A. General Information

1	Project Name	WILL ROGERS MS - KITCHEN			
2	Run Title	Title 24 Analysis			
3	Project Location	4110W 154TH ST.			
4	City	LAWNDALE	5	Standards Version	Compliance 2022
6	Zip code	90260	7	Compliance Software (version)	EnergyPro 9.2
8	Climate Zone	8	9	Building Orientation (deg)	0
10	Building Type(s)	• Nonresidential	11	Weather File	FULLERTON_STYP20.epw
12	Project Scope	• Existing addition and alteration	13	Number of Dwelling Units	0
14	Total Conditioned Floor Area in Scope (ft^2)	2460.67	15	Total # of hotel/motel rooms	0
16	Total Unconditioned Floor Area (ft^2)	0	17	Fuel Type	Natural gas
18	Nonresidential Conditioned Floor Area	2460.67	19	Total # of Stories (Habitable Above Grade)	1
20	Residential Conditioned Floor Area	0			

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

Nonresidential Performance Compliance Method — **(Page 2 of 16)**

B. PROJECT SUMMARY

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

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

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

Nonresidential Performance Compliance Method — **(Page 3 of 16)**

C1. COMPLIANCE SUMMARY

	COMPLIES[3]		
	Time Dependent Valuaton (TDV)		Source Energy Use
	Efficiency[1] (kBtu/ft² - yr)	Total[2] (kBtu/ft² - yr)	Total[2] (kBtu/ft² - yr)
Standard Design	833.32	n/a	n/a
Proposed Design	575.52	n/a	n/a
Compliance Margins	**257.8**	**n/a**	**n/a**
	Pass	**n/a**	**n/a**

[1] Efficiency measures include improvements like a better building envelope and more efficient equipment
[2] Compliance Totals include efficiency, photovoltaics and batteries
[3] New Construction, Complete Addition Scope: Building complies when all efficiency and total compliance margins are greater than or equal to zero and unmet load hour limits are not exceeded
Existing, Addition and Alteration Scope: Building complies when efficiency compliance margin is greater than or equal to zero and unmet load hour limits are not exceeded

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

Nonresidential Performance Compliance Method — **(Page 4 of 16)**

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

	COMPLIES[2]		
Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV)[1]
Space Heating	73.58	66.62	6.96
Space Cooling	224.46	139.51	84.95
Indoor Fans	315.49	149.6	165.89
Heat Rejection	0	0	0
Pumps & Misc.	0	0	0
Domestic Hot Water	132.94	132.94	0
Indoor Lighting	86.85	86.85	0
Flexibility	---	---	---
EFFICIENCY COMPLIANCE TOTAL	**833.32**	**575.52**	**257.8 (30.9%)**
Photovoltaics	---	---	---
Batteries	---	---	---
TOTAL COMPLIANCE	**833.32**	**575.52**	**257.8 (30.9%)**

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

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

Nonresidential Performance Compliance Method — **(Page 5 of 16)**

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

Non-Regulated Energy Component	Standard Design (TDV)	Proposed Design (TDV)	Compliance Margin (TDV)[1]
Receptacle	138.14	138.14	---
Process	325.98	325.98	---
Other Ltg	---	---	---
Process Motors	---	---	---
TOTAL (TOTAL COMPLIANCE + NON-REGULATED COMPONENTS)	**1297.44**	**1039.64**	**257.8 (19.9%)**

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

C6. 'ABOVE CODE' QUALIFICATIONS

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

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

Nonresidential Performance Compliance Method — **(Page 6 of 16)**

C7. ENERGY USE SUMMARY

Energy Component	Standard Design Site (MWh)	Proposed Design Site (MWh)	Margin (MWh)	Standard Design Site (MBtu)	Proposed Design Site (MBtu)	Margin (MBtu)
Space Heating	4.1	5.6	-1.5	21.2	---	---
Space Cooling	14.6	8.7	5.9	---	---	---
Indoor Fans	27.4	13	14.4	---	---	---
Heat Rejection	---	---	---	---	---	---
Pumps & Misc.	---	---	---	---	---	---
Domestic Hot Water	0.4	0.4	0	123.7	123.7	0
Indoor Lighting	7.5	7.5	0	---	---	---
Flexibility	---	---	---	---	---	---
EFFICIENCY TOTAL	**54**	**35.2**	**18.8**	**144.9**	**123.7**	**21.2**
Photovoltaics	---	---	---	---	---	---
Batteries	---	---	---	---	---	---
ENERGY USE SUBTOTAL	**54**	**35.2**	**18.8**	**144.9**	**123.7**	**21.2**
Receptacle	12	12	0	---	---	---
Process	28.4	28.4	0	---	---	---
Other Ltg	---	---	---	---	---	---
Process Motors	---	---	---	---	---	---
ENERGY USE TOTAL	**94.4**	**75.6**	**18.8**	**144.9**	**123.7**	**21.2**

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

Nonresidential Performance Compliance Method — **(Page 7 of 16)**

C8. ENERGY USE INTENSITY (EUI)

	Standard Design (kBtu/ft² / yr)	Proposed Design (kBtu/ft² / yr)	Margin (kBtu/ft² / yr)	Margin Percentage
GROSS EUI[1]	189.78	155.1	34.68	18.27
NET EUI[1]	189.78	155.1	34.68	18.27

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

D1. EXCEPTIONAL CONDITIONS

• The building does not include service water heating. Verify that service water heating is not required and is not included in the design.
• The user model includes space(s) that are designed to be served by mechanical cooling systems, but the cooling systems were not included in the simulation model. A cooling system has been modeled for both the proposed and standard cases.
• The user model includes space(s) without sufficient cooling equipment. Cooling equipment has been added to the model to meet cooling loads.
• DesignedOccupancyUsedForCalculatingVentilation

G1. ENVELOPE GENERAL INFORMATION (conditioned spaces only)

01	02	03	04
Opaque Surfaces & Orientation	Total Gross Surface Area (ft^2)	Total Fenestration Area (ft^2)	Window to Wall Ratio (%)
North-Facing[1]	196.5	112	57
East-Facing[2]	68	0	0
South-Facing[3]	485.4	128	26.37
West-Facing[4]	79.28	0	0
Total	**829.18**	**240**	**28.94**
Roof	2460.67	0	0

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

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

Nonresidential Performance Compliance Method — **(Page 8 of 16)**

G4. NONRESIDENTIAL AIR BARRIER

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

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

Nonresidential Performance Compliance Method — **(Page 9 of 16)**

G5. OPAQUE SURFACE ASSEMBLY SUMMARY

01	02	03	04	05	06		07	08	09	10
					Continuous R-Value					
Surface Name	Construction Type	Area (ft^2)	Framing Type	Cavity R-Value	Interior	Exterior	Units	Value	Description of Assembly Layers	Status[1]
24-025 Slab On Grade6	Underground Floor	2,460.67	N/A	0	N/A	N/A	F-factor	0.73	Slab Type =Unheated slab on grade Insulation Orientation =None Insulation R-Value =none	E
24-025 Int Infill R-19 Wa8	Interior Wall	3,050.3	Wood	19	N/A	N/A	U-factor	0.0604	Gypsum plaster - 80 lb/ft3 - 1/2 in. Gypsum Board - 1/2 in. Composite-1 Gypsum Board - 1/2 in. Gypsum plaster - 80 lb/ft3 - 1/2 in.	E
24-025 R-21 Ext.Wall12	Exterior Wall	829.18	Wood	21	N/A	N/A	U-factor	0.0634	Hardwood - 1/2 in. Gypsum plaster - 80 lb/ft3 - 1/2 in. Gypsum Board - 1/2 in. Composite-2 Gypsum Board - 1/2 in. Gypsum plaster - 80 lb/ft3 - 1/2 in.	E
24-025 R-19 Roof No Attic19	Roof	2,460.67	Wood	19	N/A	N/A	U-factor	0.0499	AsphaltShingles0_25in Vapor permeable felt - 1/8 in. Plywood - 1/2 in. Air - Cavity - Wall Roof Ceiling - 4 in. or more Composite-3 Gypsum Board - 1/2 in.	E
R-21 Wall82	Interior Wall	298.64	Wood	21	N/A	N/A	U-factor	0.0659	Stucco - 7/8 in. Vapor permeable felt - 1/8 in. Composite-4 Gypsum Board - 1/2 in.	E

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

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4110 W 154TH ST, LAWNDALE, CA 90260

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

Nonresidential Performance Compliance Method — **(Page 10 of 16)**

G6A. OPAQUE DOOR SUMMARY (NONRESIDENTIAL)

01	02	03	04
Assembly Name	Area (ft^2)	Overall U-factor	Status[1]
Metal Door10	367.01	0.7	E

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

G7A. FENESTRATION ASSEMBLY SUMMARY (NONRESIDENTIAL)

01	02	03	04	05	06	07	08	09
Fenestration Assembly Name	Fenestration Type/ Product Type / Frame Type	Certification Method[1]	Assembly Method	Area (ft^2)	Overall U-factor	Overall SHGC	Overall VT	Status[3]
24-025 Single Metal Clear	Vertical fenestration Fixed window Metal	Default 110.6	Site built	240	1.19	0.83	0.77	E

[1] Notes: Newly installed fenestration shall have a certified NFRC Label Certificate or use the CEC default tables found in Table 110.6-A and Table 110.6-B. Center of Glass (COG) values are for the glass-only, determined by the manufacturer, and are shown for ease of verification. Site-built fenestration values are calculated per Nonresidential Appendix NA6 and are used in the analysis.
[2] Status: N - New, A - Altered, E - Existing

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

01	02	03	04	05	06	07	08	09	10	11	12
			Heating				Cooling				
Equipment Name	Equipment Type	Qty	Total Heating Output (kBtu/h)	Supp Heat Output (kBtu/h)	Efficiency Unit	Efficiency	Total Cooling Output (kBtu/h)	Efficiency Unit	Efficiency	Economizer Type (if present)	Status[1]
CU-01	Variable Refrigerant Flow	1	81	N/A	COP	4.6	72	EER	15.7	N/A	N

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

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

Nonresidential Performance Compliance Method — **(Page 11 of 16)**

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

01	02	03	04	05	06	07	08	09	10	11	12
			Heating				Cooling				
Equipment Name	Equipment Type	Qty	Total Heating Output (kBtu/h)	Supp Heat Output (kBtu/h)	Efficiency Unit	Efficiency	Total Cooling Output (kBtu/h)	Efficiency Unit	Efficiency	Economizer Type (if present)	Status[1]
CU-02	Variable Refrigerant Flow	1	108	N/A	COP	4.2	96	EER	14.1	N/A	E
CU-03	Variable Refrigerant Flow	1	81	N/A	COP	4.6	72	EER	15.7	N/A	N

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

H3. NONRESIDENTIAL / COMMON USE AREA FAN SYSTEMS SUMMARY

01	02	03	04	05	06	07	08	09	10	11	12	13
			Supply Fan				Return / Relief Fan					
Name or Item Tag	Qty	Design OA CFM	CFM	Power	Power Units	Control	Fan Type	CFM	Power	Power Units	Control	Status[1]
2-Serving line 3 106-VRF	2	330	940	0.07	BHP	VSD	N/A	N/A	N/A	N/A	N/A	N
3-Office 118-VRF	1	30	285	0.03	BHP	VSD	N/A	N/A	N/A	N/A	N/A	N
4-Storage 109-VRF	1	52.05	320	0.03	BHP	VSD	N/A	N/A	N/A	N/A	N/A	N
5-Kitchen 101-VRF	4	0	700	0.03	BHP	VSD	N/A	N/A	N/A	N/A	N/A	E
6-Office 102-VRF	1	30	285	0.03	BHP	VSD	N/A	N/A	N/A	N/A	N/A	N
7-Serving line 1 103-VRF	2	330	940	0.07	BHP	VSD	N/A	N/A	N/A	N/A	N/A	N
8-Workroom 104-VRF	1	14.63	320	0.03	BHP	VSD	N/A	N/A	N/A	N/A	N/A	N
9-Storage (Office) 112-VRF	1	6.77	285	0.03	BHP	VSD	N/A	N/A	N/A	N/A	N/A	N

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

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

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H5. GENERAL EXHAUST FAN SUMMARY

01	02	03	04	05	06	07	08
System ID	Zone Name	Qty	CFM	Power	Power Units	Continuous Operation?	Status[1]
Kitchen 10139	4-Kitchen 101	1	2500	1.5	BHP	No	E

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

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

01	02	03	04	05	06	07
		Mechanical Ventilation				
Zone Name	Ventilation Function	# of People	Supply OA CFM	Exhaust CFM	Conditioned Area (sf)	DCV or Occupant Sensor Controls, or Both
1-Serving line 3 106	Food Service - Cafeteria/fast-food dining	44	660	0	404	N/A
2-Office 118	Office - Office space	2	30	0	132	N/A
3-Storage 109	Misc - All others	0	52.05	0	347	N/A
4-Kitchen 101	Food Service - Kitchen (cooking)	10	150	2500	807	N/A
5-Office 102	Office - Office space	2	30	0	158	N/A
6-Serving line 1 103	Food Service - Cafeteria/fast-food dining	44	660	0	470	N/A
7-Workroom 104	Office - Office space	0.49	14.63	0	97.53	N/A
8-Storage (Office) 112	Office - Office space	0.23	6.77	0	45.14	N/A

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

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H11. ZONAL SYSTEM AND TERMINAL UNIT SUMMARY

01	02	03	04	05	06	07	08	09	10	11	12
			Rated Capacity (kBtuh)		Airflow (cfm)			Fan			VSD
System ID	System Type	Qty	Heating	Cooling	Design	Min.	Min. Ratio	Power	Power Units	Cycles	
2-Serving line 3 106-VRF	Variable Refrigerant Flow	2	34	30	940	705	0.75	0.07	BHP	Continuous	☒
3-Office 118-VRF	Variable Refrigerant Flow	1	8.5	7.5	285	160	0.56	0.03	BHP	Continuous	☒
4-Storage 109-VRF	Variable Refrigerant Flow	1	13.5	12	320	160	0.5	0.03	BHP	Continuous	☒
5-Kitchen 101-VRF	Variable Refrigerant Flow	4	27	24	700	355	0.51	0.03	BHP	Continuous	☒
6-Office 102-VRF	Variable Refrigerant Flow	1	8.5	7.5	285	160	0.56	0.03	BHP	Continuous	☒
7-Serving line 1 103-VRF	Variable Refrigerant Flow	2	34	30	940	705	0.75	0.07	BHP	Continuous	☒
8-Workroom 104-VRF	Variable Refrigerant Flow	1	13.5	12	320	160	0.5	0.03	BHP	Continuous	☒
9-Storage (Office) 112-VRF	Variable Refrigerant Flow	1	8.5	7.5	285	160	0.56	0.03	BHP	Continuous	☒
PropNoClg-NonResZnSys	Single Zone Air Conditioner	1	0	3.54	114.09	N/A	N/A	0	W/cfm	Cycling	☐
PropNoClg-NonResZnSys-2	Single Zone Air Conditioner	1	0	8.35	272.21	N/A	N/A	0	W/cfm	Cycling	☐
PropNoClg-NonResZnSys-3	Single Zone Air Conditioner	1	0	2.24	73.08	N/A	N/A	0	W/cfm	Cycling	☐
PropNoClg-NonResZnSys-4	Single Zone Air Conditioner	1	0	1.17	38.2	N/A	N/A	0	W/cfm	Cycling	☐

K1. INDOOR CONDITIONED LIGHTING GENERAL INFO

01	02	03	04	05	06
				Additional (Custom) Allowance	
Occupancy Type[1]	Conditioned Floor Area[2] (ft^2)	Installed Lighting Power (Watts)	Lighting Control Credits (Watts)	Area Category Footnotes (Watts)	Area Category Footnotes (Watts)
Office (250 square feet)	142.67	92.74	0	0	0
Building Totals:	**142.67**	**92.74**	**0**	**0**	**0**

[1]See Table 140.6-C
[2]See NRCC-LTI-E for unconditioned spaces
[3]Lighting information for existing spaces modeled is not included in this table

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

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K4. INDOOR CONDITIONED LIGHTING MANDATORY LIGHTING CONTROL

Building Level Controls

01	02
Mandatory Demand Response 110.12(c)	Shut-Off Controls 130.1(c) & 160.5(b)4C
Required	Required

Area Level Controls (includes all lighting controls installed in conditioned space to meet mandatory requirements per 130.1)

03	04	05	06	07	08	09
Area Description	Area Category Primary Function Area	Area Controls 130.1(a) & 160.5(b)4A	Multi-Level Controls 130.1(b) & 160.5(b)4B	Shut-Off Controls 130.1(c) & 160.5(b)4C	Primary Daylighting 130.1(d) & 160.5(b)4D	Secondary Daylighting 140.5(d) & 160.5(b)4D
Whole Building	All Other Space Types	Required	Required	Required	Required	Required

I. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

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

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

M. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

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

Building Component	Form/Title
Envelope	NRCA-ENV-02-F - NRFC label verification for fenestration
Indoor Lighting	NRCA-LTI-02-A - Occupancy Sensors and Automatic Time Switch Controls.
Indoor Lighting	NRCA-LTI-03-A - Automatic Daylight Controls.

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

Nonresidential Performance Compliance Method — **(Page 15 of 16)**

N. DECLARATION OF REQUIRED CERTIFICATES OF VERIFICATION

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

There are no Certificates of Verification applicable to this project

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

Nonresidential Performance Compliance Method — **(Page 16 of 16)**

Documentation Author's Declaration Statement

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

Documentation Author Name: Sunil Patel	Documentation Author Signature:
Company: Budlong & Associates	Signature Date: 08/23/2024
Address: 700 N. Central Avenue, Ste 520	CEA/HERS Certification Identification (if applicable):
City/State/Zip: Glendale, CA 91203	Phone: (818) 638-8780

Responsible Person's Declaration statement

I certify the following under penalty of perjury, under the laws of the State of California:

1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I understand that a registered copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections, and I will take the necessary steps to accomplish this requirement.
6. I understand that a registered copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy, and I will take the necessary steps to accomplish these requirements.

Responsible Designer Name: Sunil Patel	Responsible Designer Signature:	
Company: Budlong & Associates		
Address: 700 N. Central Avenue, Ste 520,	Date Signed: 08/23/2024	
City/State/Zip: Glendale, CA 91203	License #: 29448	
Phone: (818) 638-8780	Title: Mechanical Engineer	Scope:

AGENCY

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 03-124869 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/07/2025

PTN 64691-65 APPL 03-124869

REGISTERED PROFESSIONAL ENGINEER — SUNIL PATEL — No. 5430 — Exp. 06/30/2026 — STRUCTURAL — STATE OF CALIFORNIA
12/6/2024 LAWNDALE KITCHEN HVAC REVIEW

REGISTERED PROFESSIONAL ENGINEER — SUNIL PATEL — No. 29448 — EXP. 06-30-25 — MECHANICAL — STATE OF CALIFORNIA

An MBE|SBE|DBE|LSBE Firm
Glendale|Downtown LA|Fremont|Camarillo
W W W . B U D L O N G . C O M
JOB# - 24-025

LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES

LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWNDALE, CA 90260

JOB	24-025
SCALE	AS NOTED
PM	
DATE	01/22/2025

MECHANICAL
TITLE-24

M-502

X:\24-025 LESD Rogers MS Central Kitchen HVAC Upgrades\M\24-025 M-502 MECHANICAL TITLE-24.dwg, 1/22/2025 11:44:46 AM, patrick

GENERAL NOTES

1. CONSULT WITH THE OWNER BEFORE STARTING WORK.
2. NO CONDUITS ARE TO BE INSTALLED ON ARCADES OR ROOF U.O.N. ALL EXPOSED CONDUITS, SUPPORTS AND JUNCTION BOXES SHALL BE PAINTED TO MATCH THE PREDOMINANT COLOR OF THE BUILDING, AS APPROVED BY OWNER AND ENGINEER OF RECORD, EXCEPT WIREMOLD.
3. WIREMOLD SHALL BE WITH THE FACTORY FINISH MOST CLOSELY MATCHING THE COLOR OF WALL ON WHICH WIREMOLD IS TO BE INSTALLED. DO NOT PAINT WIREMOLD.
4. COORDINATE THE ELECTRICAL WORK WITH THE WORK OF OTHER TRADES.
5. THE CONTRACTOR SHALL USE SUFFICIENT BARRICADES AND TEMPORARY PROTECTION DEVICES TO PREVENT PEDESTRIANS OR NON-AUTHORIZED PERSONNEL ACCESS TO OPEN TRENCHES OR CONSTRUCTION ACTIVITY. THE CONTRACTOR SHALL ERECT A SAFETY BARRICADE AT ALL OPEN TRENCHES, DITCHES, PITS, SUMPS, ETC FOR THE PROTECTION AND SAFETY OF THE PUBLIC. ALL TRENCHES OUTSIDE OF THE BARRICADE LIMITS SHALL BE BACKFILLED AND PAVED NOT LATER THAN 72 HOURS AFTER BEING OPENED. DURING THE TIME THE TRENCHES ARE OPEN IN TRAFFIC AREAS, THE CONTRACTOR SHALL PROVIDE TRAFFIC PLATES. SAFETY BARRICADES SHALL BE PANELIZED CHAIN LINK FENCE. EACH FENCE PANEL SHALL BE 6FT TALL X 10FT WIDE WITH STAND AND TIED TOGETHER END TO END WITH A MINIMUM 8-GAUGE WIRE. NO TRENCHES SHALL BE LOCATED OUTSIDE BARRICADES.
6. WHERE STRUCTURAL WALLS ARE CORED FOR NEW CONDUIT RUNS, SEPARATION BETWEEN CORED HOLES SHALL BE THREE INCHES FROM NEW HOLES, UNLESS DIRECTED OTHERWISE BY THE OWNER. PROVIDE X-RAY TO PROTECT REBAR. STRUCTURAL ENGINEER APPROVAL IS REQUIRED FOR REBAR CUTTING OR REMOVAL.
7. ALL FEEDERS AND BRANCH CIRCUITS SHALL CARRY A GROUND WIRE, SIZED AS PER N.E.C. ARTICLE 250.
8. REFER TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS AND EQUIPMENT AND MATERIAL APPROVED FOR USE UNDER THIS CONTRACT.
9. PRIOR TO PULLING ANY CONDUCTORS, CLEAN AND MANDREL ALL CONDUITS.
10. CONTRACTOR SHALL INSTALL EQUIPMENT PER ADA (AMERICAN DISABILITIES ACT) REQUIREMENTS.
11. EXTERIOR EQUIPMENT, JUNCTION BOXES, ENCLOSURES AND CONNECTIONS SHALL BE WEATHERPROOF TYPE SUITABLE FOR EXTERIOR INSTALLATION.
12. COORDINATION:

    A. IN THE EVENT THAT CERTAIN FEATURES OF THE CONSTRUCTION ARE NOT FULLY SHOWN ON THE CONSTRUCTION DOCUMENTS, THE FEATURES SHALL BE OF THE SAME CHARACTER AS SIMILAR CONDITIONS THAT ARE SHOWN.
13. ALL DIMENSIONS, ELEVATIONS AND EXISTING CONDUITS SHALL BE VERIFIED ON THE SITE BY GENERAL CONTRACTOR, AND EACH SUB-CONTRACTOR BEFORE THE WORK BEGINS. ALL DISCREPANCIES SHALL BE BROUGHT TO THE OWNER'S ATTENTION BEFORE CONSTRUCTION BEGINS.
14. THE ENGINEER HAS PREPARED THESE DOCUMENTS ONLY FOR IMPROVEMENTS SPECIFIED, DETAILED OR SHOWN AS NEW WORK, AND ASSUMES NO RESPONSIBILITY FOR OTHER CONSTRUCTION, MATERIAL OR EQUIPMENT NOTED AS "PROVIDED BY OTHERS".
15. PROVIDE NYLON PULL CORD OR STRINGS IN ALL EMPTY CONDUITS.
16. ALL JUNCTION BOX COVER PLATES FOR BRANCH CIRCUIT SYSTEM SHALL BE CLEARLY MARKED WITH PERMANENT INK FELT PEN IDENTIFYING THE BRANCH CIRCUIT (BOTH PANEL NUMBER AND CIRCUIT NUMBER) CONTAINED IN THE BOX.
17. THE CONTRACTOR SHALL MAINTAIN THE UNIFORMITY AND CONTINUITY OF THE GROUNDING SYSTEM IN ALL CONDUITS/RACEWAYS.
18. TEST THE ENTIRE SYSTEM TO DEMONSTRATE TO THE OWNER THAT THE ELECTRICAL COMPONENTS AND SPECIAL SYSTEMS ARE COMPLETE AND FUNCTION PROPERLY. MAKE NECESSARY CORRECTIONS AND LEAVE SYSTEMS READY FOR OPERATION.
19. EXPOSED CONDUITS SHALL BE INSTALLED ALONG MECHANICAL PIPES. INSIDE BUILDING THE EXPOSED CONDUITS UP TO 7'-0" SHALL BE RIGID STEEL AND ABOVE 7'-0" MAY BE EMT. ALL EXPOSED EXTERIOR CONDUITS SHALL BE GALVANIZED RIGID CONDUITS. THREADLESS CONNECTORS & COUPLINGS SHALL NOT BE USED. CONDUIT LARGER THAN 1 1/4" SHALL BE GALVANIZED RIGID CONDUIT. ALL EXPOSED CONDUITS, RACEWAYS, AND BOXES SHALL BE PAINTED TO MATCH THE SURFACE WHERE INSTALLED. DO NOT PAINT THE WIREMOLD.
20. DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND THE SIZE AND LOCATION OF EQUIPMENT IS INDICATED TO SCALE WHENEVER POSSIBLE. COORDINATE LOCATION AND LAYOUT WITH OTHER WORK. CONTRACTOR SHALL PROVIDE TO THE ENGINEER A ¼"=1'-0" SCALED DRAWING OF ELECTRICAL EQUIPMENT ROOMS SHOWING LOCATION AND CLEARANCES OF SUBMITTED EQUIPMENT FOR REVIEW AND APPROVAL PRIOR TO ORDERING OF ELECTRICAL EQUIPMENT.
21. THE SEISMIC BRACING AND ANCHORAGE OF ELECTRICAL CONDUITS AND WIREWAY SHALL BE IN ACCORDANCE WITH THE "GUIDELINE FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS", PUBLISH BY SMACNA AND PPIC.
22. PROVIDE HANGERS, SUPPORTS, SEISMIC RESTRAINTS AND/ OR BRACING FOR ALL EQUIPMENT, CONDUIT, AND LIGHTING FIXTURES TO SUSTAIN VERTICAL LOADS AND RESIST HORIZONTAL FORCES IN ANY DIRECTION TO COMPLY WITH 2022 EDITION OF TITLE 24, PART 2, CALIFORNIA BUILDING CODE, CHAPTER 16, TABLE 16A AND ASSOCIATED NOTES.
23. PER CEC 300-21, "OPENINGS AROUND ELECTRICAL PENETRATIONS THROUGH FIRE-RESISTANT-RATED WALLS, PARTITIONS, FLOORS, CEILINGS SHALL BE FIRESTOPPED USING APPROVED METHODS TO MAINTAIN THE FIRE RESISTANCE RATING."
24. ALL OUTLETS SHALL BE OFFSET BY A MINIMUM OF 24".
25. ALL CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS SHALL BE COPPER, TYPE THWN/THHN, RATED FOR 75°C. SIZES #12 AWG MAY BE SOLID OR STRANDED, #10 AND LARGER SHALL BE STRANDED. PROVIDE 75°C RATED AND APPROVED TERMINATION FOR ALL CONDUCTORS.
26. ALL ELECTRICAL WORK SHALL BE PER THE APPLICABLE NEC CODE. CONTRACTOR SHALL INCLUDE IN HIS BID ALL REQUIRED LABOR, MATERIAL, EXPERTISE AND QUALIFIED PERSONNEL TO COMPLETELY INSTALL IN A CODE COMPLIANT MANNER, ALL WORK SHOWN ON THE PLANS OR REFERRED TO IN THE SPECIFICATIONS.
27. WHEN THERE ARE DISCREPANCIES BETWEEN CONTRACT DOCUMENTS (DRAWINGS AND/OR SPECIFICATIONS), OBTAIN CLARIFICATION FROM THE ENGINEER PRIOR TO BID. FOR BIDDING PURPOSES THE MORE STRINGENT OR MORE EXPENSIVE REQUIREMENT(S) SHALL APPLY.
28. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A DAILY RECORD OF ALL DEVIATIONS FROM THE BID DRAWINGS. ALL DIMENSIONS AND OTHER INFORMATION NECESSARY TO COMPLETELY EXPLAIN AND LOCATE ALL ELEMENTS OF THESE DEVIATIONS SHALL BE RECORDED. UPON COMPLETION OF WORK, THE CONTRACTOR SHALL SUBMIT TO THE OWNER, ONE COMPLETE SET OF REPRODUCIBLE DRAWINGS CORRECTED TO REFLECT "AS-BUILT" CONDITIONS OF THE WORK.
29. ANY SUBMITTALS FOR EQUIPMENT DIFFERENT FROM THE SPECIFIED ITEMS SHOWN ON THE PLANS SHALL BE ACCOMPANIED BY CUT SHEETS FOR THE ORIGINAL SPECIFIED ITEM(S). SUBMITTALS WITHOUT THE SPECIFIED CUT SHEETS WILL BE REJECTED AS INCOMPLETE.
30. CONDUIT INSTALLED BELOW EXISTING SLAB-ON-GRADE SHALL BE LOCATED BELOW BOTTOM OF EXISTING SLAB.
31. "PROVIDE" SHALL BE DEFINED AS: FURNISH AND INSTALL.
32. ALL MATERIALS, EQUIPMENT, CONDUIT AND WIRING SHALL BE NEW AND PROVIDED BY THE CONTRACTOR. REFER TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR EQUIPMENT AND MATERIAL APPROVED FOR USE UNDER THIS CONTRACT.
33. WIRING FOR ALL LOW VOLTAGE SYSTEMS SHALL BE ENCLOSED IN CONDUIT AND/OR RACEWAY.
34. ALL DIMENSIONS AND ELEVATIONS SHALL BE CHECKED AND VERIFIED ON THE SITE BY THE GENERAL CONTRACTOR AND EACH SUBCONTRACTOR BEFORE THE WORK BEGINS. ALL PERCEIVED ERRORS, OMISSIONS AND DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION BEFORE CONSTRUCTION BEGINS.
35. ALL RACEWAYS INSIDE OF BUILDING SHALL BE CONCEALED. INCLUDE ALL REQUIRED DEMOLITION, CUTTING, PATCHING AND FINISH TO MATCH EXISTING INSTALLATION AS REQUIRED TO INSTALL NEW CONDUIT AND RACEWAYS IN EXISTING BUILDING.
36. ALL CONDUIT PENETRATIONS THROUGH FIRE-RATED FLOOR SLABS, SHAFTS AND WALLS SHALL BE SEALED AGAINST THE SPREAD OF FIRE OR SMOKE WITH APPROVED CABLE & CONDUIT FIRE STOPS OR FIRE RESISTANT SEALANT TO GIVE THE EQUIVALENT FIRE RATING OF THE STRUCTURE BEFORE THE PENETRATION. ALL OTHER NON-RATED PENETRATIONS OF STRUCTURES SHALL BE SEALED.
37. EXPOSED AND CONDUITS ABOVE T-BAR CEILINGS SHALL BE INSTALLED PARALLEL TO OR AT RIGHT ANGLES TO EXISTING BEAMS OR WALLS. EXPOSED CONDUITS UP TO 7'-0" ABOVE FINISH FLOOR SHALL BE RIGID GALVANIZED STEEL AND ABOVE 7'-0" MAY BE EMT.
38. PROVIDE ELECTRICAL PANELS WITH TYPEWRITTEN "AS-BUILT" PANEL SCHEDULE. PANEL SCHEDULE SHALL INCLUDE LOCATION, QUANTITY AND TYPE OF DEVICES SERVED.
39. PROVIDE ELECTRICAL PANELS WITH ENGRAVED NAMEPLATE ON OUTSIDE OF PANEL ABOVE DOOR OPENING.
40. SUPPORT CONDUIT 2-1/2 INCH TRADE SIZE OR SMALLER WITH U.L. LISTED CLAMPS AND HANGERS IN ACCORDANCE WITH SMACNA STANDARDS.
41. EQUIPMENT SPECIFIED ON THESE DRAWING ARE BASIS OF DESIGN CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR ALL ADDITIONAL DESIGN AND CONSTRUCTION COSTS INCURRED BY THE USE OF ANY PRODUCT OTHER THAN THE BASIS OF DESIGN.
42. PROVIDE BREAKERS TIES TO BREAKERS FEEDING MULTI WIRE RUNS.
43. THESE PLANS ARE DIAGRAMMATIC, CONDUIT EXACT ROUTING, BOXES, FASTENERS, ETC. ARE CONSIDERED AS PART OF THE MEANS AND METHODS THAT THE CONTRACTOR IS USING TO PROVIDE AN OPERABLE AND APPROVED INSTALLATION
44. ALL ELECTRICAL EQUIPMENT SHALL BE LABELED, LISTED OR CERTIFIED BY A NATIONALLY RECOGNIZED TESTING LABORATORY ACCREDITED BY THE UNITED STATES OCCUPATIONAL SAFETY HEALTH ADMINISTRATION.
45. CONTRACTOR TO PROVIDE AUXILIARY J-BOXES WHEREVER REQUIRED TO FACILITATE THE INSTALLATION.
46. FOR ANY J-BOXES, PULL-BOXES AND HANDHOLES WITHOUT ANY SIZING INFORMATION ON THE PLANS CONTRACTOR SHALL BE RESPONSIBLE TO SIZE ENCLOSURES PER CEC SEC 314.
47. IN CASE OF ANY CONFLICTS BETWEEN PLAN SHEETS, CALCS AND SPECS CONTRACTOR SHALL CHOOSE MORE STRINGENT SPECIFICATIONS. CONTRACTOR TO PROVIDE QUESTIONS IN WRITING PRIOR TO BEGINNING OF WORK.
48. PATCH & PAINT TO MATCH EXISTING SURROUNDING AREA WHERE CONDUITS, ETC. PASS THRU WALL OR CEILING.
49. PATCH ROOF WHERE CONDUITS PASS THRU ROOF. SEAL WATERTIGHT. CONTRACTOR TO ENGAGE AND PAY FOR ROOF MANUFACTURER'S INSPECTION OF ROOF PATCHES AND PENETRATIONS. PROVIDE LETTER FROM ROOF MANUFACTURER EVIDENCING SATISFACTORY COMPLETION OF ROOF PATCHES AND PENETRATIONS AND CONTINUATION OF ROOF WARRANTY.

ELECTRICAL SYMBOLS

A-1,3,5 — HOMERUN TO PANEL "A". CIRCUITS 1,3,5. CROSS LINES INDICATE NUMBER OF #12 IN ADDITION TO 1#12 GREEN GROUND. 3/4"C., U.O.N.

- 3/4"C, 2 #12 & 1 #12 GND.
- 3/4"C, 3 #12 & 1 #12 GND.
- 3/4"C, 4 #12 & 1 #12 GND.
- 3/4"C, 5 #12 & 1 #12 GND.
- #10 1"C, 6 #10 & 1 #10 GND.
- #10 1"C, 7 #10 & 1 #10 GND.
- #10 1"C, 8 #10 & 1 #10 GND.

CONTACTOR SHALL PROVIDE CONDUIT AND WIRING PER CIRCUITS ON HOMERUNS FOR THE ELECTRICAL INSTALLTION WEATHER OR NOT HASH MARKS HAVE BEEN INDICATED ON PLANS.

- (E) CONDUIT: IN OR BELOW FLOOR OR BELOW GRADE
- CONDUIT: IN OR BELOW FLOOR OR BELOW GRADE
- CONDUIT: EXPOSED IN UNFINISHED AREAS; CONCEALED ABOVE CEILING OR IN WALL IN FINISHED AREAS. EXPOSED ABOVE CANOPY.

POWER SYSTEM

- JUNCTION BOX: SURFACE MOUNTED OR INSIDE WALL
- WP JUNCTION BOX WEATHER PROOF : SURFACE MOUNTED OR INSIDE WALL
- WP G.F.I. DUPLEX RECEPTACLE, 20A, 125 VOLTS, NEMA 5-20R, +18" U.O.N. WEATHER RESISTANT TYPE WITH HEAVY DUTY WEATHERPROOF COVER
- G GROUND ROD IN GROUND YARD BOX INSIDE LANDSCAPED AREA.
- 480V, HEAVY DUTY DISCONNECT SWITCH. H.P. RATED, PER EQUIPMENT MFC., 3P U.O.N. "F" INDICATES FUSED, PROVIDE FUSE SIZE BASED ON NAMEPLATE RATING OF EQUIPMENT.
- HEAVY DUTY COMBINATION FUSED MOTOR DISCONNECT SWITCH W/RK5 FUSE AND MAGNETIC MOTOR STARTER SIZED ACCORDING TO MOTOR MANUFACTURER RECOMMENDATIONS (STARTER SIZE 1, MIN.) WITH A SOLID STATE ADJUSTABLE OVERLOAD PROTECTION, WITH HOA SWITCH AND (2)FORM C CONTROL CONTACTS, MOUNTED. +48" TO TOP OF OPERATING HANDLE, U.O.N.
- SURFACE MOUNTED PANELBOARD
- MAIN SWITCHBOARD
- T TRANSFORMER

+18": ALL DUPLEX RECEPTACLES, WALL OUTLETS FOR DESK TELEPHONE, COMPUTER OUTLETS, UNLESS OTHERWISE NOTED (MEASURED TO CENTER OF BOX).

APPLICABLE CODES

PARTIAL LIST OF APPLICABLE CODES

2022 CALIFORNIA ADMINISTRATIVE CODE, PART 1,TITLE 24 C.C.R.
2022 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R. (2021 INTERNATIONAL BUILDING CODE VOLUMES 1 & 2 AND 2016 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R. (2020 NATIONAL ELECTRICAL CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA MECHANICAL CODE (CMC) PART 4, TITLE 24 C.C.R. (2021 UNIFORM MECHANICAL CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R. (2021 UNIFORM PLUMBING CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA ENERGY CODE (CEC), PART 6, TITLE 24 C.C.R.
2022 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R. (2021 INTERNATIONAL FIRE CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA EXISTING BUILDING CODE (CEBC), PART 10, TITLE 24 CCR (2021 INTERNATIONAL EXISTING CODE AND 2022 CALIFORNIA AMENDMENTS)
2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CALGREEN), PART 11, TITLE 24 C.C.R.
2022 CALIFORNIA REFERENCED STANDARDS, PART 12,TITLE 24 C.C.R. TITLE 19 C.C.R., PUBLIC SAFETY, STATE FIRE MARSHAL REGULATIONS.

PARTIAL LIST OF APPLICABLE STANDARDS

NFPA 13	STANDARD FOR AUTOMATIC FIRE SPRINKLER SYSTEMS (CA AMENDED)	2022 ED.
NFPA 14	STANDARD FOR STANDPIPE AND HOSE SYSTEMS	2019 ED.
NFPA 17	STANDARD FOR DRY CHEMICAL EXTINGUISHING SYSTEMS	2021 ED.
NFPA 17A	STANDARD FOR WET CHEMICAL EXTINGUISHING SYSTEMS	2017 ED.
NFPA 20	STANDARD FOR STATIONARY PUMPS FOR FIRE PROTECTION	2022 ED.
NFPA 22	STANDARD FOR WATER TANKS FOR PRIVATE FIRE PROTECTION	2018 ED.
NFPA 24	STANDARD FOR THE INSTALLATION OF PRIVATE FIRE MAINS AND THEIR APPURTENANCES.	2022 ED.
NFPA 72	NATIONAL FIRE ALARM & SIGNALING CODE (CA AMENDED)	2022 ED.
NFPA 80	STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES	2022 ED.
NFPA 2001	STANDARD ON CLEAN AGENT FIRE EXTINGUISHING SYSTEMS	2018 ED.
UL 300	STANDARD FOR FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS FOR PROTECTION OF COMMERCIAL COOKING EQUIPMENT	2005 (R2010)
UL 464	AUDIBLE SIGNAL APPLIANCES FOR FIRE ALARM AND SIGNALING SYSTEMS, INCLUDING ACCESSORIES	2003 ED.
UL 521	STANDARD FOR HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS	1999 ED.
UL 1971	STANDARD FOR SIGNALING DEVICES FOR THE HEARING IMPAIRED	2002 ED.
ICC 300	STANDARD FOR BLEACHERS, FOLDING AND TELESCOPING SEATING AND GRANDSTANDS	2017 ED.

FOR A COMPLETE LIST OF APPLICABLE NFPA STANDARDS REFER TO 2022 CBC (SFM) CHAPTER 35 AND CALIFORNIA FIRE CODE CHAPTER 80.SEE CALIFORNIA BUILDING CODE, CHAPTER 35 FOR STATE OF CALIFORNIA AMENDMENTS TO NFPA STANDARDS.

STANDARD ABBREVIATIONS

A OR AMP	AMPERES	CLK.	CLOCK SYSTEM
AFF	ABOVE FINISH FLOOR	J.BOX	JUNCTION BOX
BKR.	BREAKER	KW	KILOWATTS
BC	BARE COPPER	MDF	MAIN DISTRIBUTION FRAME
C	CONDUIT	N.I.C.	NOT IN CONTRACT
CKT.	CIRCUIT	PA	PUBLIC ADDRESS
C.O.	CONDUIT ONLY	PABX	PHONE BOARD EXCHANGE
D	DEPTH	PH OR Ø	PHASE
F.A.	FIRE ALARM	SL	SECURITY LIGHTING.
FLA	FULL LOAD AMPERES	SLC	SIGNALING LINE CIRCUIT
FO	FIBER OPTIC	SW.	SWITCH
GRND.	GROUND	TYP.	TYPICAL
G.F.I.	GROUND FAULT INTERRUPTER	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
H.P.	HORSEPOWER	UG	UNDERGROUND
IDF	INTERMEDIATE DISTRIBUTION FRAME	U.O.N.	UNLESS OTHERWISE NOTED
Isc	AVAILABLE SHORT CIRCUIT CURRENT	W.P./ WP	WEATHERPROOF
SEC.	SECURITY SYSTEM	W.R.	WEATHER RESISTANT
LADWP	LOS ANGELES DEPARTMENT OF WATER AND POWER	XFMR	TRANSFORMER
LV	LOW VOLTAGE.	C	CONTROLLED RECEPTACLES

APPLICABLE CODE: 2022 CBC

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 2022 CBC SECTIONS 1617A.1.18 THROUGH 1617A.1.26 AND ASCE 7-16 CHAPTERS 13, 26, AND 30:

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY, 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 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 A 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.

APPLICABLE CODE: 2022 CBC

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 2022 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., HCAI OPM FOR 2013 CBC OR LATER), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

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

MP☐ MD ☐ PP☐ E ☒ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

SCOPE OF WORK

1. PROVIDE POWER TO NEW HVAC EQUIPMENT.
2. PROVIDE NEW PANELBOARD AND TRANSFORMER TO SUPPLY POWER TO NEW HVAC EQUIPMENT.
3. PROVIDE NEW PANELBOARD FOR FUTURE USE OF KITCHEN EQUIPMENT.
4. CONNECT NEW PANELBOARD TO EXISTING MAIN SWITCHBOARD.
5. PROVIDE SINGLE DIAGRAM, PANEL SCHEDULE AND CALCULATION.

GENERAL NOTES

THE CALIFORNIA ENERGY CODE SECTION 10-103 REQUIRES ACCEPTANCE TESTING ON ALL NEWLY INSTALLED LIGHTING CONTROLS, MECHANICAL SYSTEMS, ENVELOPES, AND PROCESS EQUIPMENT AFTER INSTALLATION AND BEFORE PROJECT COMPLETION. AN ACCEPTANCE TEST IS A FUNCTIONAL PERFORMANCE TEST TO HELP ENSURE THAT NEWLY INSTALLED EQUIPMENT IS OPERATING AND IN COMPLIANCE WITH THE ENERGY CODE.

LIGHTING CONTROLS ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED LIGHTING CONTROLS ACCEPTANCE TEST TECHNICIAN (ATT).

MECHANICAL SYSTEM ACCEPTANCE TESTS MUST BE PERFORMED BY A CERTIFIED MECHANICAL ATT FOR PROJECTS SUBMITTED ON OR AFTER OCTOBER 1, 2021.

ENVELOPE AND PROCESS EQUIPMENT ACCEPTANCE TESTS SHALL BE PERFORMED BY THE INSTALLING CONTRACTOR, ENGINEER/ARCHITECT OF RECORD OR THE OWNER'S AGENT.

A LISTING OF CERTIFIED ATT CAN BE FOUND AT: HTTPS://WWW.ENERGY.CA.GOV/PROGRAMS-AND-TOPICS/PROGRAMS/ACCEPTANCE-TEST-TECHNICIAN-CERTIFICATION-PROVIDER-PROGRAM/ACCEPTANCE.

THE ACCEPTANCE TESTING PROCEDURES MUST BE REPEATED, AND DEFICIENCIES MUST BE CORRECTED BY THE BUILDER OR INSTALLING CONTRACTOR UNTIL THE CONSTRUCTION/INSTALLATION OF THE SPECIFIED SYSTEMS CONFORM AND PASS THE REQUIRED ACCEPTANCE CRITERIA.

PROJECT INSPECTORS WILL COLLECT THE FORMS TO CONFIRM THAT THE REQUIRED ACCEPTANCE TESTS HAVE BEEN COMPLETED.

ELECTRICAL SHEET INDEX

E-001	ELECTRICAL FRONT SHEET
E-002	ELECTRICAL SINGLE LINE DIAGRAM
E-003	ELECTRICAL PANEL SCHEDULES
E-101	ELECTRICAL SITE PLAN
E-102	ELECTRICAL ENLARGED SITE PLAN
E-103	ELECTRICAL POWER FLOOR PLAN
E-301	ELECTRICAL DETAILS SHEET

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APP: 03-124869 INC:
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SS ☑ FLS ☑ ACS ☐
DATE: 02/07/2025

PTN 64691-65 APPL 03-124869

REGISTERED PROFESSIONAL ENGINEER — WILLIAM A. LANDERS — No. 5430 — Exp. 09/30/2026 — STRUCTURAL — STATE OF CALIFORNIA
12x20 PRINCIPALE KITCHEN HVAC REVIEW

REGISTERED PROFESSIONAL ENGINEER — DIANA H. CHRISTIAN — No. EE 22864 — 07/30/25 — ELECTRICAL — STATE OF CALIFORNIA

An MBE|SBE|DBE|LSBE Firm
Glendale|Downtown LA|Fremont|Camarillo
WWW.BUDLONG.COM
JOB# - 24-025

LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWNDALE, CA 90260

JOB	24-025
SCALE	AS NOTED
PM	
DATE	01/22/2025

ELECTRICAL FRONT SHEET

E-001

J:\24-025 LESD Rogers MS Central Kitchen HVAC Upgrades\ Elc\24-025 E-001 ELECTRICAL FRONT SHEET.dwg, 1/22/2025 11:06:30 AM, patrick

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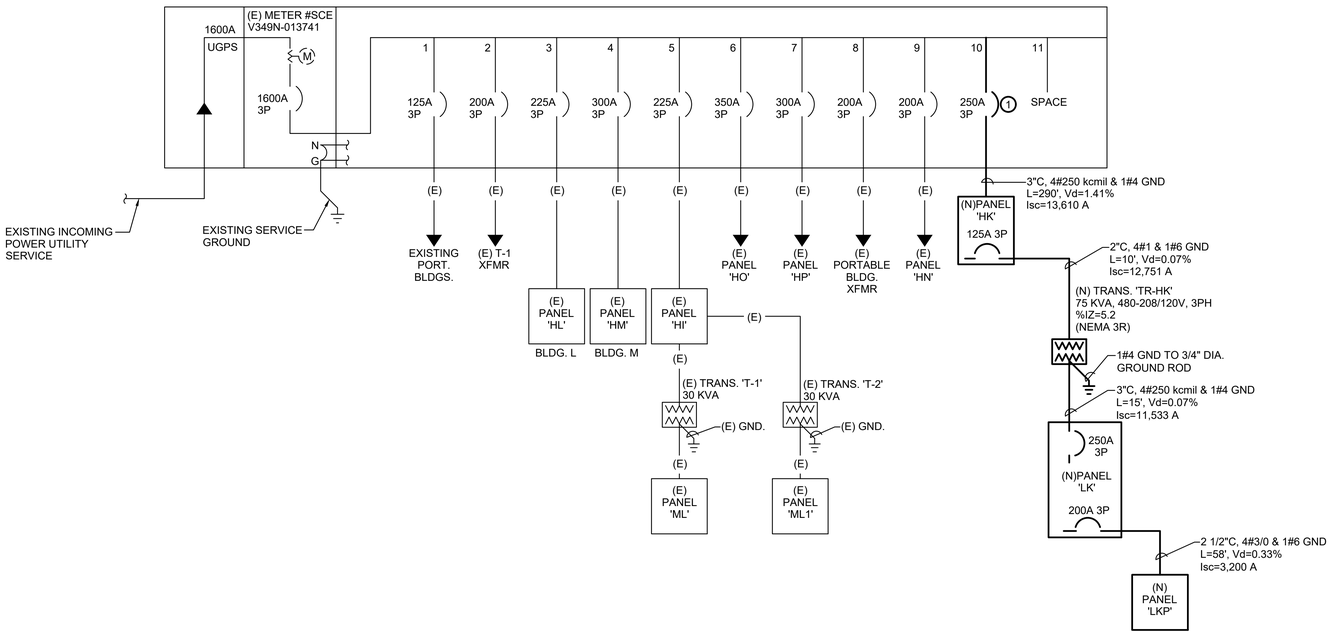
KEYNOTES

1. PROVIDE NEW CIRCUIT BREAKER AND ASSOCIATED MOUNTING BRACKET ON SPACE AVAILABLE. THE NEW CIRCUIT BREAKER SHALL MATCH THE HIGHEST EXISTING AIC-RATED CIRCUIT BREAKER WITHIN THIS BOARD.

GENERAL NOTES

1. LENGTH OF FEEDERS SHOWN ON SINGE LINE DIAGRAM ARE NOT TO BE USED FOR CONSTRUCTION OR BIDDING PURPOSE, CONTRACTOR TO VERIFY ACTUAL LENGTH REQUIRED.
2. ALL EQUIPMENT SHALL BE LISTED AND LABELED BY A NATIONALLY RECOGNIZED TESTING LABORATORY AND SHALL BE INSTALLED AS PER LISTING OR LABELING.
3. ALL DEVICES AND TERMINALS SHALL BE RATED FOR 75° AND SHALL BE TORQUED TO MANUFACTURERS LISTED SPECIFICATIONS.
4. ALL RACEWAYS SHALL CONTAIN A CODE-SIZED (CEC - 205.122), INSULATED, GREEN, COPPER EQUIPMENT GROUNDING CONDUCTOR AND SHALL BE BONDED TO THE METALLIC COMPONENTS OF THE RACEWAY SYSTEM.
5. ALL CONDUCTORS TO BE COPPER TYPE THWN/THHN.
6. EQUIPMENT/DEVICES AND TERMINATIONS ARE RATED FOR 75° AND FOR USE WITH 75° RATED CONDUCTORS.
7. ALL OVERCURRENT DEVICES IN AN INDIVIDUAL PIECE OF EQUIPMENT SHALL HAVE AN AIC RATING EQUAL TO THE OVERALL RATING OF THE EQUIPMENT.
8. THE DESIGN PROFESSIONAL HAS PERFORMED ALL REQUIRED SHORT CIRCUIT CALCULATIONS AND THE AIC RATING INDICATED FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.
9. THE DESIGN PROFESSIONAL HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUITS AND FEEDERS COMPLY WITH CEC 210-19(A) FPN NO. 4.

EXISTING 1600A 480Y/277V 3ø 4W ' MSA '
MINIMUM AIC = 100KA



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DATE: 02/07/2025

PTN 64691-65 APPL 03-124869

REGISTERED PROFESSIONAL ENGINEER
No. 5430
Exp. 06/30/2026
STRUCTURAL
STATE OF CALIFORNIA
12/6/2024 LAWNDALE KITCHEN HVAC REVIEW

REGISTERED PROFESSIONAL ENGINEER
MANAN H. CHRISTIAN
E 22864
6/30/25
ELECTRICAL
STATE OF CALIFORNIA

An MBE|SBE|DBE|LSBE Firm
Glendale|Downtown LA|Fremont|Camarillo
W W W . B U D L O N G . C O M
JOB# 24-025

LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWNDALE, CA 90260

JOB	24-025
SCALE	AS NOTED
PM	
DATE	01/22/2025

ELECTRICAL SINGLE LINE DIAGRAM

E-002

J:\24-025 LESD Rogers MS Central Kitchen HVAC Upgrades\D24-025 E-002 ELECTRICAL SINGLE LINE DIAGRAM.dwg, 1/22/2025 11:06:32 AM, patrick

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(N)PANEL: HK

277/480 VOLT, 3 PH, 4W — 400 AMP COPPER BUS

LOCATION: OUTDOOR (PANEL TO HAVE BOLT-ON BREAKERS) MAIN: 250 A

MOUNTING: SURFACE (NEMA 3R) LOAD: 160.2 kVA 193 AMPS

SCCR: 22 kAIC

CK #	NT	VA LOAD LINE A	VA LOAD LINE B	VA LOAD LINE C	LOAD DESCRIPTION	OUTLETS O	OUTLETS R	OUTLETS L	CKT BKR P	CKT BKR A	CKT BKR A	CKT BKR P	OUTLETS L	OUTLETS R	OUTLETS O	LOAD DESCRIPTION	VA LOAD LINE A	VA LOAD LINE B	VA LOAD LINE C	NT	CK #
1		25000			TRANSFORMER TR-HK				3	125	20	3			1	CU-1	4821			1	2
3			25000		----------				-	-	-	-				----------		4821			4
5				25000	----------				-	-	-	-				----------			4821		6
7	1	4850			CU-2	1			3	20	20	3			1	CU-3	4821			1	8
9			4850		----------				-	-	-	-				----------		4821			10
11				4850	----------				-	-	-	-				----------			4821		12
13					SPARE				2	20	50	3				iVARIO PRO L SKILLET (FUTURE)	9667				14
15					----------				-	-	-	-				----------		9667			16
17					SPARE				2	20	-	-				----------			9667		18
19					----------				-	-	15	3				SF-2	610			1	20
21					SPARE				2	20	-	-				----------		610			22
23					----------				-	-	-	-				----------			610		24
25					SPACE						20	2				SPARE					26
27					SPACE						-	-				----------					28
29					SPACE											SPACE					30
31					SPACE											SPACE					32
33					SPACE											SPACE					34
35					SPACE											SPACE					36
37					SPACE											SPACE					38
39					SPACE											SPACE					40
41					SPACE											SPACE					42
		29850	29850	29850	SUB - TOTALS											SUB - TOTALS	19919	19919	19919		
																LINE TOTALS:	49769	49769	49769		
																LCL ADDER	3623	3623	3623		
																TOTAL VA PER PHASE	53392	53392	53392		
																LINE AMPS	193	193	193		

NOTE: 1. HVAC Load is with 25% LCL.
2.
3.
4.

(N)PANEL: LK

120/208 VOLT, 3 PH, 4W — 400 AMP COPPER BUS

LOCATION: OUTDOOR (PANEL TO HAVE BOLT-ON BREAKERS) MAIN: 250 A

MOUNTING: SURFACE (NEMA 3R) LOAD: 49.7 kVA 144 AMPS

SCCR: 10 kAIC

CK #	NT	VA LOAD LINE A	VA LOAD LINE B	VA LOAD LINE C	LOAD DESCRIPTION	OUTLETS O	OUTLETS R	OUTLETS L	CKT BKR P	CKT BKR A	CKT BKR A	CKT BKR P	OUTLETS L	OUTLETS R	OUTLETS O	LOAD DESCRIPTION	VA LOAD LINE A	VA LOAD LINE B	VA LOAD LINE C	NT	CK #
1	1	87			FCU-1	1			2	15	15	2			1	FCU-2	87			1	2
3			87		----------				-	-	-	-				----------		87			4
5	1			22	FCU-3	1			2	15	15	2			1	FCU-4			26	1	6
7		22			----------				-	-	-	-				----------	26				8
9	1		62		FCU-5	1			2	15	15	2			1	FCU-6		62		1	10
11				62	----------				-	-	-	-				----------			62		12
13	1	22			FCU-7	1			2	15	15	2			1	FCU-8	87			1	14
15			22		----------				-	-	-	-				----------		87			16
17	1			87	FCU-9	1			2	15	15	2			1	FCU-10			26	1	18
19		87			----------				-	-	-	-				----------	26				20
21	1		22		FCU-11	1			2	15	15	2			1	SF-1		520		1	22
23				22	----------				-	-	-	-				----------			520		24
25	1	520			SF-3	1			2	15	15	2			1	FCU-12	62			1	26
27			520		----------				-	-	-	-				----------		62			28
29	1			62	FCU-13	1			2	15	20	1		1		SERVICE RECEP.			180		30
31		62			----------				-	-	15	2			1	SPARE					32
33					SPARE	1			2	15	-	-				----------					34
35					----------				-	-						SPACE					36
37	1	400			CONDENSATE PUMPS	2			1	20	200	3				PANEL - LKP	15065				38
39					SPACE						-	-				----------		15629			40
41	1			600	CONDENSATE PUMPS	3			1	20	-	-				----------			14097		42
		1200	713	855	SUB - TOTALS											SUB - TOTALS	15353	16447	14911		
																LINE TOTALS:	16553	17160	15766		
																LCL ADDER	104.5	101.75	64.75		
																TOTAL VA PER PHASE	16657	17261	15831		
																LINE AMPS	139	144	132		

NOTE: 1. HVAC Load is with 25% LCL.
2.
3.
4.

(N)PANEL: LKP

120/208 VOLT, 3 PH, 4W — 225 AMP COPPER BUS

LOCATION: KITCHEN (PANEL TO HAVE BOLT-ON BREAKERS) MAIN: 200 A

MOUNTING: SURFACE LOAD: 44.8 kVA 130 AMPS

SCCR: 10 kAIC

CK #	NT	VA LOAD LINE A	VA LOAD LINE B	VA LOAD LINE C	LOAD DESCRIPTION	OUTLETS O	OUTLETS R	OUTLETS L	CKT BKR P	CKT BKR A	CKT BKR A	CKT BKR P	OUTLETS L	OUTLETS R	OUTLETS O	LOAD DESCRIPTION	VA LOAD LINE A	VA LOAD LINE B	VA LOAD LINE C	NT	CK #
1		967.2			HL 400 MIXER (FUTURE)				2	15	125	3				SKILLET iVARIO PRO XL (FUTURE)	11333				2
3			967.2		----------				-	-	-	-				----------		11333			4
5				1100	RATIONAL COMBI OVEN (FUTURE)				2	15	-	-				----------			11333		6
7		1100			----------				-	-	20	2				TBC SERIES CHILLER (FUTURE)	1664				8
9			1664		TBC SERIES CHILLER (FUTURE)				2	20	-	-				----------		1664			10
11				1664	----------				-	-	20	2				SPARE					12
13					SPARE				2	20	-	-				----------					14
15					----------				-	-	20	2				SPARE					16
17					SPARE				2	20	-	-				----------					18
19					----------				-	-						SPACE					20
21					SPACE											SPACE					22
23					SPACE											SPACE					24
25					SPACE											SPACE					26
27					SPACE											SPACE					28
29					SPACE											SPACE					30
31					SPACE											SPACE					32
33					SPACE											SPACE					34
35					SPACE											SPACE					36
37					SPACE											SPACE					38
39					SPACE											SPACE					40
41					SPACE											SPACE					42
		2067.2	2631.2	2764	SUB - TOTALS											SUB - TOTALS	12997	12997	11333		
																LINE TOTALS:	15065	15629	14097		
																LCL ADDER	0	0	0		
																TOTAL VA PER PHASE	15065	15629	14097		
																LINE AMPS	126	130	117		

NOTE: 1.
2.
3.
4.

LOAD CALCULATION

(E) MAIN SWITCHBOARD - "MSA"
1600 A. MAIN, 480/277V, 3PH, 4W

I. EXISTING LOAD
(HIGHEST PEAK LOAD AS PER 12 MONTH BILLING)

217 KW, 261.1 A
216.1 A x 1.25 = 270.12 A

II. NEW LOAD
1. PANEL - HK (160.2 KVA) 192.7 A
2. PANEL - LK (51.3 KVA) 61.7 A
TOTAL DEMAND LOAD 524.5 A

THEREFORE: THE 1600 A MAIN BREAKER IS SUFFICIENT ENOUGH TO HANDLE THE EXISTING AND NEW LOAD.

PANEL SCHEDULE INDEX	
PANEL-HK	PANEL-LK
PANEL-LKP	

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APP: 03-124869 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☐
DATE: 02/07/2025

PTN: 64691-65 APPL: 03-124869

REGISTERED PROFESSIONAL ENGINEER — A. L. LAMBERT — No. 5430 — Exp. 06/30/2026 — STRUCTURAL — STATE OF CALIFORNIA
12/6/2024 LAWNDALE KITCHEN HVAC REVIEW

REGISTERED PROFESSIONAL ENGINEER — MANAN H. CHRISTIAN — No. E 22864 — 6/30/25 — ELECTRICAL — STATE OF CALIFORNIA

An MBE|SBE|DBE|LSBE Firm
Glendale|Downtown LA|Fremont|Camarillo
W W W . B U D L O N G . C O M
JOB# 24-025

LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES

LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWNDALE, CA 90260

JOB	24-025
SCALE	AS NOTED
PM	
DATE	01/22/2025

ELECTRICAL PANEL SCHEDULES

E-003

J:\24-025 LESD Rogers MS Central Kitchen HVAC Upgrades\D24-025 E-003 ELECTRICAL PANEL SCHEDULES.dwg, 1/22/2025 11:06:40 AM, patrick

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DATE: 02/07/2025

PTN 64691-65 APPL 03-124869

TOW-AWAY SIGN

(E) TOW-AWAY SIGN
A# 03-107732

(E) F.H.

154TH STREET

(E) F.H.

(E) ACCESSIBLE PARKING
A# 03-107732
(CLOSED WITH
CERTIFICATION)

(E) TOW-AWAY
SIGN
A# 03-103412

(E) BUILDING K
A# 6840
A# 9109

(E) BUILDING L
A# 6840
A# 9109/A# 103412

(E) BUILDING O
A# 9109/ A#103412

(E) BUILDING Q
A# 9109
A# 103412

(E) ADMIN BUILDING J
A# 6840
A# 9109
A# 103412

(E) BUILDING M
A# 6840
A# 9109/A# 103412

(E) BUILDING P
A# 9109/A#103412

(E)
F.H.

(E) STORAGE

LUNCH
TABLES

(E) MPR
BUILDING I
DSA A# 9109 /
65078/ A # 103412

(E) BUILDING N
A# 6840
A# 9109/A# 103412

(E) BLDG
A# 3920
A# 6840
A# 103406

(E) BLDG H
A# 3920
A# 16137
A# 03-103406

(E) MENS/WOMENS RESTROOM
A# 3920, A# 9109, A# 65078, A# 103412
(CLOSED WITH CERTIFICATION)

(E) RELO

(E) RELO

(E) RELO

(E) RELOCATABLES
A# 56842 / 65078/ A# 103412

EXISTING GYMNASIUM
A# 03-103290

(E) PARKING
A# 03-103290

(E) RELO

(E) RELO

(E) RELO

(E) RELO

(E) BOYS/GIRLS/STAFF
RESTROOM AND
DRINKING FOUNTAIN
A# 03-103406
(CLOSED WITH
CERTIFICATION)

(E) STAFF RESTROOM
DSA ORIGINAL A9109-1951
DSA MODERNIZATION
A# 03-103412 (CLOSED
WITH CERTIFICATION)

FOR ENLARGED
PLAN REFER TO
1
E-102

(E) BLDG. I CENTRAL KITCHEN SCOPE AREA OF WORK: ADD NEW SUPPLEMENTAL AIR FOR COOLING.

(E) RELO
(E) RELO
(E) RELO
(E) RELO
(E) RELO
(E) RELO
(E) RELO
(E) RELO
(E) RELO
(E) RELO
(E) RELO
(E) RELO
(E) RELO

(E)
BUILDING

SITE PLAN LEGEND

AREA OF WORK

BUILDING KEY

PRIOR A#'S TO ELEMENTS UTILIZED FOR THIS PROJECT

ANDERSON ES (N.I.C.) ◄ ROGERS MS ►

A (E) MPR/CENTRAL KITCHEN BUILDING I - AREA OF WORK
DSA A# 3920
DSA A# 9109
DSA A# 65078
DSA A # 103412
(CLOSED WITH CERTIFICATION)

B (E) ADMIN BUILDING J - N.I.C.
DSA A# 6840
DSA A# 9109
DSA A# 103412
(CLOSED WITH CERTIFICATION)

C (E) BUILDING K - N.I.C.
DSA A# 6840
DSA A# 9109
(CLOSED WITH CERTIFICATION)

D (E) BUILDING L - N.I.C.
DSA A# 6840
DSA A# 9109
DSA A# 103412
(CLOSED WITH CERTIFICATION)

E (E) BUILDING M - AREA OF WORK
DSA A# 6840
DSA A# 9109/
DSA A# 103412
(CLOSED WITH CERTIFICATION)

F (E) BUILDING N - N.I.C.
DSA A# 6840
DSA A# 9109
DSA A# 103412

G (E) BUILDING O - N.I.C.
DSA A# 9109
DSA A#103412
(CLOSED WITH CERTIFICATION)

H (E) BUILDING P - N.I.C.
DSA A# 9109
DSA A#103412
(CLOSED WITH CERTIFICATION)

I (E) BUILDING Q - N.I.C.
DSA A# 9109
DSA A# 103412
(CLOSED WITH CERTIFICATION)

J EXISTING GYMNASIUM - N.I.C.
DSA A# 03-103290
(CLOSED WITH CERTIFICATION)

K (E) RELOCATABLES - N.I.C.
DSA A# 56842
DSA A# 65078
DSA A# 103412
(CLOSED WITH CERTIFICATION)

L (E) ACCESSIBLE PARKING - N.I.C.
A# 03-107732
(CLOSED WITH CERTIFICATION)

M (E) PARKING
A# 03-103290
(CLOSED WITH CERTIFICATION)

N

ELECTRICAL SITE PLAN E-101
1" = 30'-0"

REGISTERED PROFESSIONAL ENGINEER
MINAH A. LAWLER
No. 5430
Exp. 06/30/2026
STRUCTURAL
STATE OF CALIFORNIA
12/6/2024 LAWNDALE
KITCHEN HVAC REVIEW

REGISTERED PROFESSIONAL ENGINEER
MINAH H. CHRISTIAN
E 22864
ELECTRICAL
STATE OF CALIFORNIA

An MBE|SBE|DBE|LSBE Firm
Glendale|Downtown LA|Fremont|Camarillo
W W W . B U D L O N G . C O M
JOB# - 24-025

LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES
LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWNDALE, CA 90260

JOB	24-025
SCALE	AS NOTED
PM	
DATE	01/22/2025

ELECTRICAL SITE PLAN

E-101

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RKING

TOW-AWAY
N
03-103412

(E) BUILDING K
A# 6840
A# 9109

(E) BUILDING L
A# 6840
A# 9109/A# 103412

(E) ADMIN BUILDING J
A# 6840
A# 9109
A# 103412

(E) BUILDING M
A# 6840
A# 9109/A# 103412

(E) MAIN ELECTRICAL ROOM

(E) MSA

LUNCH TABLES

(E) BUILDING N
A# 6840
A# 9109/A# 103412

(E) STORAGE

(E) MPR
BUILDING I
DSA A# 9109 /
65078/ A # 103412

3" C, 4#250 kcmil, 1#4 GND. (1)

PULLBOX 12"x12"x6"
NEMA 3R

(E) BLDG H
A# 3920
A# 16137
A# 03-103406

(E) MENS/WOMENS RESTROOM
A# 3920, A# 9109, A# 65078, A# 103412
(CLOSED WITH CERTIFICATION)

(E) RELO

(E) RELOCATABLES
A# 56842 / 65078/ A# 103412

FF RESTROOM
IGINAL A9109-1951
DERNIZATION
03412 (CLOSED
ERTIFICATION)

(E) BLDG. I CENTRAL KITCHEN SCOPE AREA OF WORK: ADD NEW SUPPLEMENTAL AIR FOR COOLING.

(E)

N

ELECTRICAL ENLARGED SITE PLAN E-102
1/16" = 1'-0"

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PTN 64691-65 APPL 03-124869

KEY NOTES

1. CONDUIT RUN EXPOSED ABOVE EXISTING CANOPY. REFER TO DETAIL SHEET 4/E-301 FOR CONDUIT SUPPORT.
2. CONDUIT PENETRATE THROUGH WALL. REFER TO DETAIL SHEET 5/E-301.
3. CONDUIT DOWN AND TERMINATE TO PANEL-HK BELOW. REFER TO SHEET E-103 FOR EXACT LOCATION OF PANEL. REFER TO DETAIL SHEET 4/E-301 FOR ROOF/CANOPY PENETRATION.
4. CONDUIT TERMINATED ABOVE EXISTING MAIN SWITCHBOARD-MSA TO WALL REFER TO DETAIL SHEET 4/E-301 FOR ROOF/CANOPY PENETRATION AND SINGLE LINE DIAGRAM ON SHEET E-002 FOR POWER CONNECTION.
5. CONDUIT RUN INSIDE THE ELECTRICAL ROOM ABOVE THE EXISTING-"MSA". TERMINATE ON SWITCHBOARD IN DISTRIBUTION SECTION.

REGISTERED PROFESSIONAL ENGINEER
MINAS A. LAMBRIS
No. 5430
Exp. 06/30/2026
STRUCTURAL
STATE OF CALIFORNIA
12/6/2024 LAWNDALE KITCHEN HVAC REVIEW

REGISTERED PROFESSIONAL ENGINEER
MIHAN H. CHRISTIAN
E 22864
ELECTRICAL
STATE OF CALIFORNIA

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LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES

LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWNDALE, CA 90260

JOB	24-025
SCALE	AS NOTED
PM	
DATE	01/22/2025

ELECTRICAL
ENLARGED SITE PLAN

E-102

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PTN 64691-65 APPL 03-124869

KEY NOTES

1. DRY TYPE TRANSFORMER, NEMA 3R. REFER TO DETAIL SHEET 2/E-301 FOR MOUNTING.
2. PANELBOARD, NEMA 3R. REFER TO DETAIL SHEET 1/E-301 FOR MOUNTING.
3. PANELBOARD, NEMA 1. REFER TO DETAIL SHEET 1/E-301 FOR MOUNTING.
4. PROVIDE 30AS/20AFU, 480V, 3P (NEMA 3R) WEATHERPROOF DISCONNECT SWITCH. PROVIDE CONDUIT, CONDUCTORS, BOXES AND ALL NECESSARY ACCESSORY WITH UNISTRUT SUPPORT.
5. PROVIDE 3/4"C, 3#12 CU., 1#12 CU. GND.
6. PROVIDE 3/4" CONDUIT FROM HVAC UNIT TO CORRESPONDING THERMOSTAT / OUTDOOR HVAC UNIT FOR CONTROL WIRING. COORDINATE WITH MECHANICAL CONTRACTOR AND REFER TO MECHANICAL SHEETS FOR WIRING.
7. PROVIDE NEMA 1 TOGGLE MOTOR RATED CONTROLLER/DISCONNECT SWITCH, 2P, 15A. 208V TYPICAL TO ALL FC'S, U.O.N..
8. PROVIDE NEMA 1 TOGGLE MOTOR RATED CONTROLLED/DISCONNECT SWITCH, 2P, 208V.
9. PROVIDE NEMA 1 TOGGLE MOTOR RATED CONTROLLED/DISCONNECT SWITCH, 3P, 460V.
10. PROVIDE 15AMP MOTOR RATED SWITCH FOR THE CONDENSATE PUMP, FIELD VERIFY MOUNTING HEIGHT.

PRE-FAB WALK-IN FREEZER 111
PRE-FAB WALK-IN COOLER 110
COURTYARD 121
JANITOR 113
K8 A002
STORAGE 109
STAFF LOUNGE 119
WATER HEATER 114
LAUNDRY/ JANITOR 117
STORAGE 116
OFFICE 118
STORAGE 107
BUILT-IN WALK-IN COOLER 108
RESTROOM 115
STORAGE 112
WORKROOM 104
KITCHEN 101
MULTI-PURPOSE 120
SERVING LINE 3 106
SERVING LINE 1 103
SERVING LINE 2 105
OFFICE 102

FC 3, FC 4, LK-5,7, LK-6,8, LK-37, SF 1, LK-22,24, FC 2, LK-9,11, FC 5, LK-2,4, LK-10,12, FC 1, LK-1,3, FC 6, PANEL-LKP 3, SF 2, HK-20,22,24 9, FC 11, LK-21,23, 7 (TYP.), LK-17,19, FC 10, SF 3, LK-25,27, LK-26,28, FC 8, FC 12, LK-29,31, FC 13, LK-14,16, FC 9, LK-13,15, LK-18,20, FC 7, LK-41, HK-8,10,12, HK-7,9,11, HK-2,4,6, CONNECT TO CU-3, CONNECT TO CU-2, CONNECT TO CU-1, WP 30, LK-30, CU 1, CU 2, CU 3, TRANSFORMER 1 "TR-HK", 2 PANEL "HK", 2 PANEL "LK", FE 6

N

ELECTRICAL POWER FLOOR PLAN E-103 1/4" = 1'-0"

REGISTERED PROFESSIONAL ENGINEER — WILLIAM A. LANDERS — No. 5430 — Exp. 09/30/2026 — STRUCTURAL — STATE OF CALIFORNIA
12-2-2025 PERMISSABLE KITCHEN HVAC REVIEW

REGISTERED PROFESSIONAL ENGINEER — MARK H. CHRISTIAN — No. E 22864 — 3/10/25 — ELECTRICAL — STATE OF CALIFORNIA

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JOB# - 24-025

LESD WILL ROGERS MS CENTRAL KITCHEN HVAC UPGRADES

LAWNDALE ELEMENTARY SCHOOL DISTRICT
4110 W 154TH ST, LAWNDALE, CA 90260

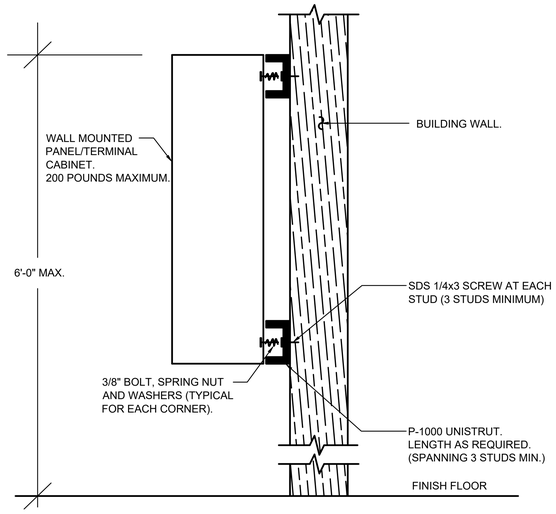
JOB	24-025
SCALE	AS NOTED
PM	
DATE	01/22/2025

ELECTRICAL POWER FLOOR PLAN

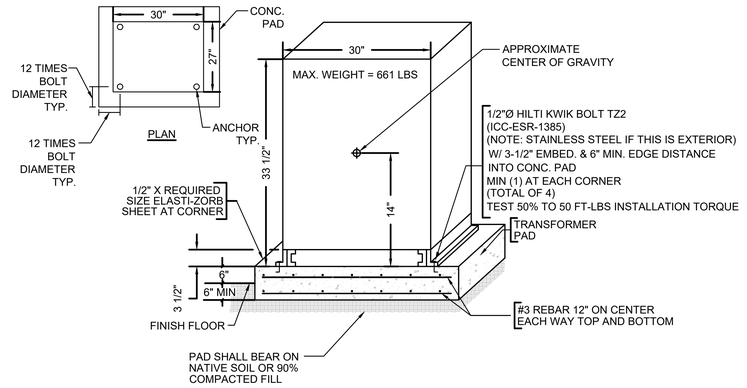
E-103

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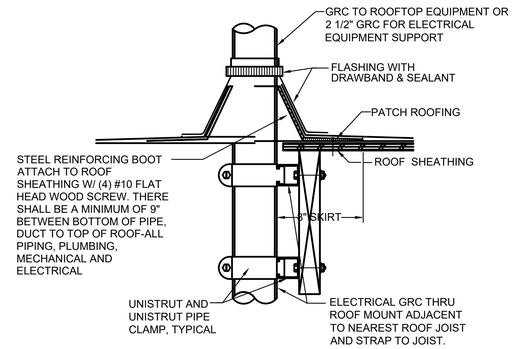
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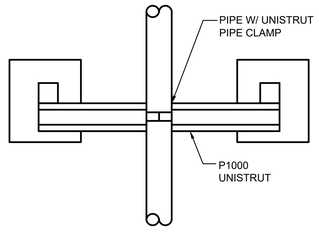
1 / E-301 SURFACE WALL MOUNTED PANEL CABINET WOOD FRAMING DETAIL
NTS

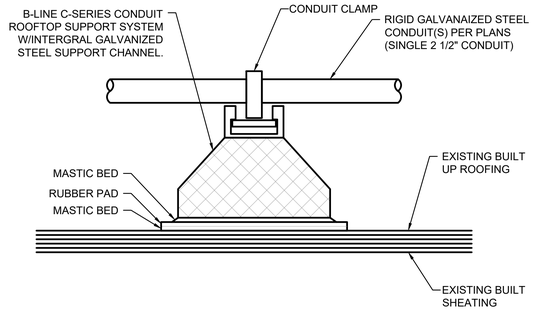


2 / E-301 TRANSFORMER MOUNTING DIAGRAM
NTS



3 / E-301 SUPPORT FOR ELEC. EQUIP. ROOF PENET. AND INDEPENDENT
NTS

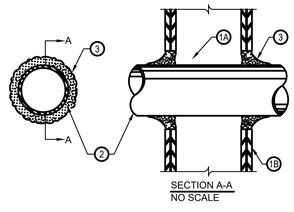




4 / E-301 ELECTRICAL CONDUIT SUPPORT ON ROOF
NTS

FRAMED WALL PENETRATION DETAIL U.L. SYSTEM NO. WL 1001

F RATINGS 1,2,3 AND 4 HR (SEE ITEMS 2 AND 3)
T RATINGS 0, 1, 2, 3, AND 4 HR (SEE ITEM 3)



1. WALL ASSEMBLY - THE 1,2,3, OR 4 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED I THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS (MAX 2H FIRE RATED ASSEMBLIES) OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC WITH NOM 2 BY 4 IN. LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN 3-5/8 IN. WIDE BY 1-3/8 IN. DEEP CHANNELS SPACED MAX 24 IN. OC.
   B. WALLBOARD, GYPSUM*- NOM 1/2 OR 5/8 IN. THICK, 4 FT. WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 13-1/2 IN.

2. PIPE OR CONDUIT- NOM 12 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE, NOM 6 IN. DIAM (OR SMALLER) STEEL CONDUIT, NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR TYPE L OR (OR HEAVIER) COPPER TUBING OR NOM 1 IN. DIAM (OR SMALLER) FLEXIBLE STEEL CONDUIT. WHEN COPPER PIPE OR FLEXIBLE STEEL CONDUIT IS USED, MAX F RATING OF FIRESTOP SYSTEM (ITEM 3) IS 2 H. STEEL PIPES OR CONDUITS LARGER THAN 4 IN. DIAM MAY ONLY BE USED IN WALLS CONSTRUCTED USING STEEL CHANNEL STUDS. A MAX OF ONE PIPE OR CONDUIT IS PERMITTED IN THE FIRE STOP SYSTEM. PIPE OR CONDUIT TO BE INSTALLED NEAR CENTER OF STUD CAVITY WIDTH AND TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY.

3. FILL, VOID OR CAVITY MATERIAL*-CAULK- CAULK FILL MATERIAL INSTALLED TO COMPLETELY FILL ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND GYPSUM WALLBOARD AND WITH A MIN 1/4 IN. DIAM BEAD OF CAULK APPLIED TO PERIMETER OF PIPE OR CONDUIT AT ITS EGRESS FROM THE WALL. CAULK INSTALLED SYMMETRICALLY ON BOTH SIDES OF WALL ASSEMBLY. THE HOURLY F RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS SHOWN IN THE FOLLOWING TABLE. THE HOURLY T RATING OF THE FIRESTOP SYSTEM IS DEPENDENT UPON THE TYPE OR SIZE OF THE PIPE OR CONDUIT AND THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS TABULATED BELOW:

THROUGH OPENING	ANNULAR SPACE, IN	F RATING, HR	T RATING, HR
1	0 TO 3/16	1 OR 2	0+, 1, OR 2
1	1/4 TO 1/2	3 OR 4	3 OR 4
4	O TO 1/4	1 OR 2	O
6	1/4 TO 3/8	3 OR 4	O
12	3/16 TO 3/8	1 OR 2	O

+WHEN COPPER PIPE IS USED, T RATING IS 0 H.
MINNESOTA MINING AND MFG CO. - CP-25, WB+
*BEARING THE UL CLASSIFICATION MARKING

5 / E-301 FRAMED WALL PENETRATION DETAIL
NTS

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REGISTERED PROFESSIONAL ENGINEER
A. L. LAMEY III
No. 5430
Exp. 06/30/2026
STRUCTURAL
STATE OF CALIFORNIA
12/6/2024 LAWNDALE KITCHEN HVAC REVIEW

REGISTERED PROFESSIONAL ENGINEER
MANAN H. CHRISTIAN
E 22864
3/30/25
ELECTRICAL
STATE OF CALIFORNIA

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4110 W 154TH ST, LAWNDALE, CA 90260

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ELECTRICAL DETAILS SHEET

E-301

J:\24-025 LESD Rogers MS Central Kitchen HVAC Upgrades\D24-025 E-301 ELECTRICAL DETAILS SHEET.dwg, 1/22/2025 11:32:32 AM, patrick