

HEATING, VENTILATION AND AIR CONDITIONING

PART 1 - GENERAL

1.1 DESCRIPTION

A. WORK UNDER THIS SECTION INCLUDES ALL LABOR, EQUIPMENT, MATERIAL, SERVICES, TRANSPORTATION, ETC. REQUIRED FOR AND REASONABLY INCIDENTAL TO THE COMPLETE AND SATISFACTORY INSTALLATION OF ALL OF THE HVAC SYSTEMS AS INDICATED ON THE DRAWINGS OR SPECIFIED HEREIN.

B. VISIT THE SITE OF WORK, COMPARE THE EXISTING CONDITIONS WITH THE DRAWINGS AND SPECIFICATIONS AS TO THE CONDITIONS TO WHICH THE WORK IS TO BE PERFORMED, ASCERTAIN AND CHECK ALL CONDITIONS AND ELEVATIONS AND TAKE ALL MEASUREMENTS WHICH MAY AFFECT THE WORK. NO ALLOWANCES SHALL SUBSEQUENTLY BE MADE FOR ANY ADDITIONAL EXPENSE OR CLAIMS DUE TO THE FAILURE OR NEGLECT UNDER THIS SECTION TO MAKE SUCH EXAMINATION INCLUDING EXAMINATION OF CONFINED WORKING CONDITIONS OR SUCH OTHER DIFFICULTIES VISUALLY OBSERVABLE DURING THE SITE VISIT.

1.2 WORK INCLUDED IN THIS SECTION:

A. METAL DUCTS AND ACCESSORIES INCLUDING AIR TERMINAL UNITS, DIFFUSERS, REGISTERS AND GRILLES.

B. PIPE AND DUCT INSULATION.

C. TEST AND BALANCE.

D. SUBMITTALS AND SHOP DRAWINGS.

E. RECORD DRAWINGS, OPERATION, AND MAINTENANCE MANUALS INCLUDING GUARANTEES.

1.3 RELATED WORK SPECIFIED ELSEWHERE

A. ELECTRICAL SUPPLY TO UNITS. SEE ELECTRICAL DRAWINGS.

1.4 REFERENCES

A. ASAC - NATIONAL STANDARDS FOR FIELD MEASUREMENT AND INSTRUMENTATION.

B. CALIFORNIA MECHANICAL CODE - 2019 EDITION.

C. SMACNA - HVAC DUCT CONSTRUCTION STANDARDS.

1.5 SUBMITTALS AND SHOP DRAWINGS

A. PREPARE AND SUBMIT SHOP DRAWINGS (PLANS AND SECTIONS) OF ALL AREAS OF THE PROJECT. SHOP DRAWINGS SHALL BE COORDINATED, DIMENSIONED AND INDICATE EQUIPMENT, DUCT, PIPE, AND ELECTRICAL IN RELATION TO ARCHITECTURAL AND STRUCTURE FEATURES. INDICATE EXACT LOCATIONS AND ELEVATIONS OF VALVES, PIPING SPECIALTIES, ACCESS DOORS, AIR OUTLETS, DAMPERS, ETC. HIGHLIGHT ANY DEVIATIONS IN WORK FROM WHAT IS INDICATED ON CONTRACT DOCUMENTS. MINIMUM SCALE: 1/4" = 1'-0".

B. MATERIALS AND EQUIPMENT AS SOON AS POSSIBLE AFTER AWARD OF THE CONTRACT, AND BEFORE THEIR PURCHASE. THE CONTRACTOR SHALL SUBMIT TO THE ARCHITECT SEVEN BOUND BOOKLETS FOR APPROVAL CONTAINING A COMPLETE LIST OF MATERIALS, SPECIALTIES AND EQUIPMENT CONTRACTOR IS TO FURNISH FOR THE INSTALLATION. LITERATURE SHALL BE STANDARD MANUFACTURER'S CATALOG CUTS AND ITEMS TO BE INSTALLED SHALL BE CLEARLY INDICATED. ALL SUBMITTALS SHALL BE MADE AT ONE TIME.

C. DETAILED PROCEDURES, AGENDA, SAMPLE REPORT FORMS, AND COPY OF ASAC NATIONAL PROJECT PERFORMANCE GUARANTEE.

1.6 SUBSTITUTIONS

A. THE ENTIRE COST OF ALL CHANGES OF ANY TYPE DUE TO SUBSTITUTION FOR MATERIALS SPECIFIED SHALL BE BORNE BY THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.

1.7 RECORD DRAWINGS

A. THE CONTRACTOR SHALL ARRANGE AND PAY FOR ONE SET OF WHITE PRINTS OF THE HVAC DRAWINGS, WHICH THE SHALL ALTER IN RED TO SHOW ALL CHANGES MADE TO THE ORIGINAL LAYOUT. THESE DRAWINGS SHALL BE KEPT CURRENT.

1.8 OPERATION AND MAINTENANCE DATA

A. SUBMIT TWO SETS PRIOR TO FINAL INSPECTION, BOUND IN 8-1/2 X 11 INCH TEXT PAGES, BINDERS WITH DURABLE PLASTIC COVERS. PREPARE BINDER COVERS WITH PRINTED TITLE "OPERATION AND MAINTENANCE INSTRUCTIONS", AND TITLE OF PROJECT, INTERNALLY SUBDIVIDE THE BINDER COVERS WITH PERMANENT PAGE DIVIDERS, LOGICALLY ORGANIZED AS DESCRIBED BELOW, WITH TAB TITLING CLEARLY PRINTED UNDER REINFORCED LAMINATED PLASTIC TABS.

1.9 GUARANTEES

A. THE CONTRACTOR, IN ACCEPTING THIS CONTRACT, BINDS HIMSELF TO REPLACE OR REPAIR AT HIS OWN EXPENSE ANY DEFECT IN WORKMANSHIP OR MATERIAL WHICH MAY APPEAR WITHIN A PERIOD OF ONE YEAR FROM THE DATE OF THE FINAL ACCEPTANCE OF THE TENANT SPACE, AND TO REPAIR ALL RESULTING DAMAGE WHICH SHALL APPEAR WITHIN THE SAID PERIOD. PROVIDED ALWAYS THAT THE CONTRACTOR SHALL NOT BE LIABLE FOR ANYTHING ATTRIBUTABLE TO ACTS OF THE AGENTS OF THE OWNER, OR FOR ORDINARY WEAR, ALSO, GIVEN DATE OF WORK PERFORMED BY THE CONTRACTOR BE ACCEPTED BY THE OWNER, HE SHALL AGREE TO CORRECT ANY DEFICIENCIES OR OMISSIONS IN RESPECT TO THE PLANS OR SPECIFICATIONS WHICH MAY APPEAR IN THE AFOREMENTIONED TWENTY-FOUR MONTH PERIOD.

1.10 RULES, REGULATIONS AND CODES

A. ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH THE LATEST CALIFORNIA MECHANICAL CODE, CALIFORNIA PLUMBING CODE, CALIFORNIA BUILDING CODE AND LOCAL RULES AND REGULATIONS, STATE FIRE MARSHAL REGULATIONS, THE SAFETY ORDERS OF THE DIVISION OF INDUSTRIAL SAFETY, THE NATIONAL ELECTRIC CODE, THE STANDARDS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, AMERICAN GAS ASSOCIATION, OCCUPATION AND SAFETY ACT, AMERICAN NATIONAL STANDARDS INSTITUTE, AMERICAN SOCIETY OF MECHANICAL ENGINEERS, AMERICAN SOCIETY FOR TESTING AND MATERIALS, INSTALLATION STANDARDS PUBLISHED BY THE INTERNATIONAL ASSOCIATION OF PLUMBING AND MECHANICAL OFFICIALS (IAPMO) AND OTHER APPLICABLE LAWS, CODES, OR REGULATIONS. NOTHING IN THESE SPECIFICATIONS SHALL BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

B. THE CONTRACTOR SHALL FURNISH, WITHOUT EXTRA CHARGE, ANY ADDITIONAL MATERIAL AND LABOR WHEN AND WHERE REQUIRED TO COMPLY WITH THESE RULES AND REGULATIONS, THOUGH THE WORK BE NOT MENTIONED IN THESE SPECIFICATIONS OR SHOWN ON THE DRAWINGS. WHEN THESE SPECIFICATIONS OR DRAWINGS CALL FOR OR DESCRIBE MATERIALS OR CONSTRUCTION OF A BETTER QUALITY OR LARGER SIZES THAN REQUIRED BY THE AFOREMENTIONED RULES AND REGULATIONS, THE PROVISIONS OF THESE SPECIFICATIONS AND ACCOMPANYING DRAWINGS SHALL TAKE PRECEDENCE.

1.11 FEES AND PERMITS

A. THE CONTRACTOR MUST OBTAIN AND PAY ALL FEES FOR PERMITS, LICENSES, INSPECTIONS, ETC., WHICH ARE REQUIRED BY ANY LEGALLY CONSTITUTED AUTHORITY. COORDINATE EXACT REQUIREMENTS WITH THE OWNER PRIOR TO BID.

1.12 COORDINATION

A. FOLLOWING THE GENERAL ARRANGEMENT INDICATED ON THE DRAWINGS AS CLOSELY AS POSSIBLE, THE CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL, STRUCTURAL, PLUMBING, FIRE SPRINKLER, ELECTRICAL, AND ALL OTHER TRADES PRIOR TO INSTALLATION OF THE MATERIALS AND EQUIPMENT TO VERIFY ADEQUATE SPACE AVAILABLE FOR INSTALLATION OF THE WORK SHOWN. THE OWNER SHALL BE IMMEDIATELY NOTIFIED IF AN AREA OF CONFLICT OCCURS BETWEEN TRADES.

1.13 DRAWINGS

A. THE WORK SHALL BE INSTALLED AS INDICATED ON DRAWINGS. HOWEVER, CHANGES TO ACCOMMODATE INSTALLATION OF THIS WORK WITH OTHER WORK, OR IN ORDER TO MEET ARCHITECTURAL OR STRUCTURAL CONDITIONS, SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER.

B. FOR THE PURPOSE OF CLARITY AND LEGIBILITY, THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC TO THE EXTENT THAT MANY OFFSETS, BONDS, UNIONS, SPECIAL FITTINGS AND EXACT LOCATIONS ARE NOT INDICATED. THE CONTRACTOR SHALL MAKE USE OF ALL DATA IN ALL OF THE CONTRACT DOCUMENTS, AND SHALL VERIFY THIS INFORMATION AT THE SITE.

C. WHERE CHANGES IN INDICATED LOCATIONS OR ARRANGEMENTS ARE NECESSARY DUE TO CONDITIONS IN BUILDING CONSTRUCTION, REARRANGEMENT OF EQUIPMENT, OR CONFLICT IN LOCATION, MAKE SUCH CHANGES AT NO COST TO THE OWNER, PROVIDED THAT THE CHANGE IS ORDERED BEFORE PIPE, DUCTWORK AND/OR EQUIPMENT IS INSTALLED AND THAT THE LENGTH OF RUN IS NOT REVERSED BY MORE THAN FIVE PERCENT (5%) OF THE INDICATED RUN.

1.14 INSPECTION

A. THE CONTRACTOR SHALL NOT ALLOW OR CAUSE ANY OF HIS WORK TO BE COVERED UP OR CLOSED IN UNTIL IT HAS BEEN INSPECTED, TESTED, APPROVED BY ALL AUTHORITIES HAVE JURISDICTION, AND UNTIL PROJECT RECORD DRAWINGS HAVE BEEN PROPERLY ANNOTATED.

B. SHOULD ANY OF HIS WORK BE COVERED UP OR CLOSED IN BEFORE SUCH INSPECTION, HE SHALL, AT HIS OWN EXPENSE, UNCOVER THE WORK TO THE SATISFACTION OF THE INSPECTION PARTY. ALL RELATED REPAIR WORK COST SHALL BE BORNE BY THE CONTRACTOR.

1.15 DELIVERY, STORAGE AND PROTECTION OF PROPERTY

A. THE CONTRACTOR SHALL PROVIDE TEMPORARY STORAGE AND SHOP AREAS THAT ARE REQUIRED AT THE SITE FOR THE SAFE AND PROPER STORAGE OF MATERIALS, TOOLS, AND OTHER ITEMS USED.

B. ALL WORK, EQUIPMENT AND MATERIALS SHALL BE NEW AND OF THE BEST OF THEIR RESPECTIVE GRADES, FREE FROM ALL DEFECTS AND OF THE MAKE, BRAND OR QUALITY HEREN SPECIFIED OR AS ACCEPTED BY THE OWNER.

C. EQUIPMENT AND MATERIALS DAMAGED DURING TRANSPORTATION, INSTALLATION OPERATION SHALL BE CONSIDERED AS "TOTALLY DAMAGED" AND SHALL BE REPLACED WITH NEW. ANY VARIANCE FROM THIS CLAUSE SHALL BE MADE ONLY WITH WRITTEN APPROVAL OF THE OWNER.

C. WHERE NO SPECIFIC MAKE OF MATERIAL OR EQUIPMENT IS MENTIONED, ANY

FIRST CLASS PRODUCT OF A REPUTABLE MANUFACTURER MAY BE USED, PROVIDED IT CONFORMS TO THE REQUIREMENTS OF THE SYSTEM AND MEETS WITH THE APPROVAL OF THE OWNER.

2.2 DUCTWORK AND ACCESSORIES

A. GENERAL: NON-RUSTING OR CONFORMING TO REQUIREMENTS FOR CLASS 1 AIR DUCT MATERIALS, OR UL 181.

B. RIGID DUCTS: ASTM A525 OR ASTM A527 GALVANIZED STEEL SHEET, LOCK-FORMING QUALITY, FINISHING ZINC COATING OF 1.25 OZ PER SQ FT FOR EACH SIDE IN CONFORMANCE WITH ASTM A40, ROUND DUCT SHALL BE SPIRAL SEAM CONSTRUCTION.

C. INSULATED FLEXIBLE DUCTS: FLEXIBLE DUCT WRAPPED WITH FLEXIBLE GLASS FIBER INSULATION, ENDS AND ELBOWS IN PLACE OF RECTANGULAR DUCTS IN PIGMENTED PLASTIC VAPOR BARRIER JACKET, MAXIMUM Q23 K VALUE AT 75 DEGREES F W/METAL CONNECTORS.

D. SEALANT: NON-HARDENING, WATER RESISTANT, FIRE RESISTIVE, COMPATIBLE WITH HEATING MATERIALS, LIQUID USED ALONE OR WITH TAPE, OR HEAVY DUTY E- HANGER ROD, STEEL, GALVANIZED, THREADED BOTH ENDS, THREADED ONE END, OR CONTINUOUSLY THREADED.

F. METAL DUCTS

1. FABRICATE AND SUPPORT IN ACCORDANCE WITH 2019 CMC, SMACNA 44" W.G. STATIC PRESSURE CLASS AND SEAL CLASS A FOR SUPPLY AND 42" W.G. STATIC PRESSURE CLASS AND SEAL CLASS A FOR RETURN DUCT CONSTRUCTION STANDARDS AND ASHRAE HANDBOOKS.

2. SIZE ROUND DUCTS TO FIT IN PLACE OF RECTANGULAR DUCTS IN ACCORDANCE WITH ASHRAE TABLE OF EQUIVALENT RECTANGULAR AND ROUND DUCTS. NO VARIATION OF DUCT CONFIGURATION OR SIZES PERMITTED EXCEPT BY WRITTEN PERMISSION.

3. CONSTRUCT T'S, BENDS, AND ELBOWS WITH RADII OF NOT LESS THAN 1-1/2 TIMES WIDTH OF DUCT ON CENTERLINE, WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS ARE USED, PROVIDE TURNING VANES.

4. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 16 DEGREES DIVERGENCE WHEREVER POSSIBLE. DIVERGENCE UPSTREAM OF EQUIPMENT SHALL NOT EXCEED 30 DEGREES, CONVERGENCE DOWNSTREAM SHALL NOT EXCEED 45 DEGREES.

5. USE DOUBLE NUTS AND LOCK WASHERS ON THREADED ROD SUPPORTS.

6. VOLUME CONTROL DAMPERS:

1. FABRICATE IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS.

2. OPPOSED BLADE DAMPERS SHALL HAVE FACTORY FABRICATED SIZES, WITH FACTORY ASSEMBLED LINKAGES, MOUNTED IN FRAMES. BLADES SHALL HAVE INTERLOCKING EDGES AND ENDS, RECTANGULAR DAMPERS 6" OR MORE WIDE, SHALL BE THE MULTI-BLADE TYPE. BLADES ON MULTI-BLADE TYPE DAMPERS MUST NOT BE OVER 8" WIDE. DAMPERS SHALL BE OF THE OPPOSED BLADE TYPE. DAMPERS SHALL HAVE BAR OR CHANNEL FRAMES AND CORNER BRACINGS. ALL BLADE AND LINKAGE BEARINGS SHALL BE SELF-LUBRICATING PLASTIC. DAMPER ASSEMBLY LEAKAGE NOT TO EXCEED 1% WITH 4.0 W.C. STATIC PRESSURE.

3. PROVIDE LOCKING, INDICATING QUADRANT REGULATORS ON SINGLE AND MULTI-BLADE DAMPERS, MOUNT QUADRANT REGULATORS ON STANDOFF MOUNTING BRACKETS, BASES, OR ADAPTERS.

2.8 CONTROLS

A. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER COORDINATION OF ALL CONTROL WORK AND ELECTRICAL WORK IN CONNECTION THEREWITH.

B. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL LINE VOLTAGE CONTROL WIRING, AND IN ALL CONDUIT, WIRE SIZING AND LENGTH OF RUN SHALL BE COORDINATED WITH THE MANUFACTURER AND ELECTRICAL ENGINEER. ALL EMS CONTROLS, WIRING, AND CONDUIT SHALL BE BY EMS CONTRACTOR.

C. CALIBRATION OF CONTROLS SHALL BE BY THE CONTRACTOR. CALIBRATE AND ADJUST ALL CONTROLS AS REQUIRED TO MAINTAIN CONTROL CONDITIONS AND MAXIMUM ENERGY CONSERVATION.

2.7 INSULATION

A. GENERAL:

1. ALL INSULATION SHALL HAVE COMPOSITE INSULATION, JACKET OR FACING, AND ADHESIVE USED TO ACHIEVE THE RATING OR R-VALUE TO THE INSULATION FIRE SMOKE HAZARD RATINGS AS TESTED BY PROCEDURE ASTM E84, NFPA 255 AND UL 723 NOT EXCEEDING:

FLAME SPREAD: 25

SMOKE DEVELOPED: 50

2. THE INSULATION VALUES SHOWN ARE A MINIMUM. IF THE REQUIREMENTS OF TITLE 24 EXCEED THESE VALUES, THE AMOUNT OF AND/OR TYPE MUST BE INCREASED TO MEET THE TITLE 24 REQUIREMENTS.

2.8 SUPPORT AND HANGERS

A. GENERAL REQUIREMENTS FOR SUPPORTING ELEMENTS: PROVIDE DUCTING SYSTEM AND EQUIPMENT SUPPORTING ELEMENTS INCLUDING BUT NOT LIMITED TO BUILDING STRUCTURE ATTACHMENTS, SUPPLEMENTARY STEEL, HANGER RODS, HORIZONTAL DUCT ATTACHMENTS, ANCHORS, SUPPORTS. DESIGN SUPPORTING ELEMENTS TO BE IN ACCORDANCE WITH THE MINIMUM SAFETY FACTOR OF 4.0 BASED ON DUCT BEING 50 PERCENT FULL OF PARTICULATE CONVEYED. SUPPORTING ELEMENTS SHALL CONFORM TO SMACNA INDUSTRY PRACTICE, SMACNA RECTANGLE DUCT CONSTRUCTION, AS APPLICABLE, AND MODIFIED AND SUPPLEMENTARY REQUIREMENTS AS APPLICABLE. DO NOT USE WELD STUDS AND POWDER ACTUATED ANCHORING DEVICES TO SUPPORT MECHANICAL SYSTEM COMPONENTS WITHOUT PRIOR APPROVAL.

1. ADHERE INSULATION WITH ADHESIVE FOR 100 PERCENT COVERAGE. SECURE INSULATION WITH CHANNEL LINER FASTENERS. REFER TO SMACNA STANDARDS FOR SPACING, SEAL AND SMOOTH JOINTS. SEAL LINE SURFACE PENETRATIONS WITH ADHESIVE.

2. DUCT DIMENSIONS INDICATED ARE NET INSIDE DIMENSIONS REQUIRED FOR AIRFLOW. INCREASE DUCT SIZE TO ALLOW FOR INSULATION THICKNESS.

3.3 JOB COMPLETION

A. ALL EQUIPMENT FURNISHED UNDER THIS SECTION SHALL BE PROVIDED WITH THE MANUFACTURER'S METAL IDENTIFICATION LABELS SECURELY ATTACHED AND SHOWING ALL PERTINENT DATA, INCLUDING PERFORMANCE CHARACTERISTICS, SIZE, MODEL, AND SERIAL NUMBER. LABELS SHALL NOT BE OBLISCURED IN ANY MANNER.

B. FINAL OPERATION: UPON COMPLETION OF THE INSTALLATION OF THE EQUIPMENT AND AFTER ALL SYSTEMS HAVE BEEN TESTED, CLEANED, THE CONTRACTOR SHALL PLACE A COMPETENT PERSON IN CHARGE WHO SHALL OPERATE THE EQUIPMENT FOR A PERIOD OF THREE EIGHT-HOUR DAYS, DURING THIS PERIOD OF OPERATION, ALL SAFETY AND OPERATING CONTROLS SHALL BE ACTUATED TO DEMONSTRATE PROPER OPERATION. DURING THIS OPERATING PERIOD, THE OWNER'S REPRESENTATIVE SHALL BE INSTRUCTED IN ALL DETAILS OF OPERATION AND MAINTENANCE. ALL REQUIRED INSTRUCTIONS FROM THE EQUIPMENT MANUFACTURER'S REPRESENTATIVE SHALL BE GIVEN DURING THE PERIOD.

C. CLEAN-UP:

1. AFTER ALL HEATING, VENTILATING AND AIR CONDITIONING WORK HAS BEEN TESTED AND APPROVED, THE CONTRACTOR SHALL THOROUGHLY CLEAN ALL PARTS OF THE EQUIPMENT INSTALLATION. EXPOSED PARTS WHICH ARE TO BE PAINTED ARE TO BE THOROUGHLY CLEANED OF CEMENT PLASTER AND OTHER MATERIALS AND ALL GREASES AND OIL SPOTS REMOVED WITH SOLVENT. EXPOSED ROUGH METAL WORK TO BE CAREFULLY BRUSHED DOWN WITH STEEL BRUSHES TO REMOVE RUST AND OTHER SPOTS AND LEFT IN PROPER CONDITION TO RECEIVE PAINTER'S FINISH.

2. REMOVE ALL DEBRIS FROM THE JOB SITE, ALL CARTONS, BOXES, PACKING CRATES, EXCESS MATERIALS NOT USED OCCASIONED BY THE WORK AND TO THE SATISFACTION OF THE OWNER.

3. THE CONTRACTOR SHALL REMOVE ON A DAILY BASIS ALL DEBRIS FROM THE JOB SITE TO THE SATISFACTION OF THE OWNER.

4. IF THE ABOVE REQUIREMENTS OF CLEANUP ARE NOT TO THE SATISFACTION OF THE OWNER, THE OWNER RESERVES THE RIGHT TO ORDER THE WORK DONE BY A THIRD PARTY AND THE COST OF WHICH SHALL BE BORNE BY THE CONTRACTOR.

SOUND NOTES

ARCHITECT/OWNER MUST VERIFY WITH A SOUND ENGINEER THE LOCATION AND THE REQUIREMENT OF ALL MECHANICAL UNITS TO MAKE SURE THAT THE SOUND OF THE MECHANICAL UNITS DO NOT EXCEED THE REQUIRED DB.

GENERAL CONSTRUCTION NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH, BUT NOT LIMITED TO, THE STATE OF CALIFORNIA, LOCAL CITY, TITLE 24, UNIFORM MECHANICAL PLUMBING CODES, LOCAL MECHANICAL CODE, AMENDMENTS AND ALL OTHER GOVERNING CODES AND ORDINANCES.

2. LOCATION OF DUCTWORK IS APPROXIMATE. ALL DRAWINGS AND LAYOUTS ARE DIAGRAMMATIC TO SHOW DESIGN INTENT ONLY. CONTRACTOR SHALL PREPARE FULLY COORDINATED SHOP DRAWINGS SHOWING ALL DUCTWORK, PIPINGS, CABLE TRAY, BEAMS AND BUILDING STRUCTURE. IF FIELD CONDITIONS DIFFER SIGNIFICANTLY FROM THOSE SHOWN ON THE DRAWINGS AND AFFECT MECHANICAL WORK, INFORM ARCHITECT IMMEDIATELY BEFORE PROCEEDING WITH THAT AREA.

3. CONTRACTOR SHALL NOTE THE CRITICAL SPACE AVAILABLE ABOVE CEILINGS. PROVIDE TRANSITION PIECES AND BEAM BOXES AT CROSSOVERS, UNDER BEAMS, OVER/UNDER BEAMS AS REQUIRED TO ACCOMMODATE TO ACCOMMODATE DUCTS WITHIN SPACE AVAILABLE. PROVIDE EQUIVALENT DUCT SIZE TO THE DIAMETER SHOWN COORDINATE CLOSELY WITH OTHER SECTIONS TO REMOVE NECESSITY OF TRANSITION TO A MINIMUM. NO ADDITIONAL COSTS WILL BE PAID FOR ANY REQUIRED TRANSITIONS, BEAM BOXES OR OTHER SPECIAL CHANGE SHAPE PIECES.

4. CONTRACTOR SHALL PROVIDE MATERIAL AND LABOR TO PHYSICALLY TEST ALL FIRE AND COMBINATION FIRE / SMOKE DAMPERS AND RESET THEM FOR ITS DESIGN FUNCTION. TESTING PROCEDURES AND TEST RESULTS SHALL BE WITNESSED AND APPROVED BY THE AUTHORITIES HAVING JURISDICTION.

5. IN CASES WHERE SHEET METAL DUCTS INTERSECT FIRE-RATED WALLS AT OTHER THAN RIGHT ANGLES, CONTRACTORS SHALL OFFSET THE RATED WALL ABOVE CEILING SUCH THAT THE OFFSET WALL WILL BE PERPENDICULAR TO THE DUCT. FIRE DAMPER SHALL BE PROVIDED AT THE WALL ACCORDINGLY.

6. ALL NON-RATED DOORS REQUIRING UNDERCUT SHALL BE 3/4 INCH MINIMUM, UNLESS NOTED OTHERWISE. ALL FIRE-RATED DOORS REQUIRING UNDERCUT SHALL BE: DOUBLE DOORS NOT TO EXCEED 14" AND SINGLE DOORS NOT TO EXCEED 3/8". ALL UNDER CUTS TO BE COORDINATED WITH THE ARCHITECTURAL DDOOR SCHEDULE AND SPECIFICATIONS.

7. FIRE DAMPERS, COMBINATION FIRE / SMOKE DAMPERS AND THE NECESSARY ACCESS PANELS SHALL BE PROVIDED FOR ALL DUCTS PENETRATING FIRE AND/OR SMOKE PARTITIONS AS REQUIRED BY CODE. SEE ARCHITECTURAL DRAWINGS FOR THE EXACT LOCATION OF FIRE AND/OR SMOKE RATED PARTITIONS.

8. COMBINATION FIRE/SMOKE DAMPERS SHALL BE PROVIDED FOR SUPPLY AND RETURN AIR DUCTS PENETRATING RATED WALLS/CORRIDORS PER UBC AND IMC. EACH COMBINATION FIRE/SMOKE DAMPER SHALL BE PROVIDED WITH DUCT SMOKE DETECTORS THAT ARE INSTALLED WITHIN 6'-0" OF THE DAMPER.

9. DUCT SMOKE DETECTORS SHALL BE INSTALLED PER MANUFACTURER'S WRITTEN RECOMMENDATIONS AND SHALL BE TIED-IN TO THE BUILDING FIRE ALARM SYSTEM, CONNECTION TO FIRE ALARM FOR SUPERVISION ONLY.

10. ALL DUCTWORK SHALL BE SUPPORTED AND SEISMICALLY RESTRAINED PER THE CALIFORNIA BUILDING CODE, UNIFORM MECHANICAL CODE AND SMACNA STANDARD.

11. ALL REQUEST FOR ACCESS OR CONNECTIONS, INCLUDING THOSE NOTED BELOW MUST BE MADE IN WRITING 48 HOURS IN ADVANCE OF WORK ACTIVITY THROUGH THE BUILDING MANAGER.

12. PROTECT AND MAINTAIN ALL RETURN AIR DUCT OPENINGS WITH PROPER FILTER MEDIA DURING ALL CONSTRUCTION ACTIVITY.

13. ALL SYMBOLS SHOWN ON SYMBOL LIST ARE NOT NECESSARILY USED ON THIS PROJECT.

14. IF ANY EQUIPMENT SUBMITTED BY THE CONTRACTOR IS DIFFERENT FROM THAT SPECIFIED, OR REQUIRE CHANGES IN MATERIAL OR LABOR FROM THAT REQUIRED IN THE CONTRACT DOCUMENTS AFFECTING THIS AND/OR OTHER TRADES, SUCH CHANGES SHALL BE SUBMITTED AS SHOP DRAWINGS, SUBMITTALS SHALL INCLUDE CREDIT DUE TO OWNER, IF ANY, BECAUSE OF THE CHANGES. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR PAYMENT CHARGES RESULTING FROM THE REVIEW OF SUBSTITUTED EQUIPMENT AND ADDITIONS OR CHANGES IN THE WORK OF OTHER TRADES NECESSARY TO ACCOMMODATE THE REQUESTED MODIFICATION. ALL CHANGES SHALL BE SHOWN ON RECORD AND ASBUILT DRAWINGS.

15. THESE DRAWINGS INDICATE THE FINISHED REQUIREMENTS FOR THE MECHANICAL AND PLUMBING SYSTEMS. DUE TO THE STRUCTURAL, CONDITIONS, MECHANICAL, DUCT OR PIPING INTERFERENCE, RETAINED EXISTING FACILITIES OR OTHER REASONS, THE CONTRACTOR MAY DESIRE TO INSTALL WORK IN A MANNER DIFFERENT FROM THAT SHOWN. SUCH CHANGES SHALL BE PRESENTED TO THE OWNER/ENGINEER FOR APPROVAL BEFORE PROCEEDING, AND THE RECORD DRAWINGS SHALL BE ACCURATELY REVISED TO SHOW THE CHANGES AS COMPLETED.

16. ALL UNDER FLOOR CONDUIT AND PIPING SHALL BE INSTALLED AS NOT TO INTERFERE WITH BUILDING SYSTEMS OR OTHER TENANT'S IMPROVEMENTS.

17. THERE SHALL BE NO PLUMBING PIPING THROUGH ELECTRICAL AND/OR COMMUNICATION ROOMS.

PART 3 - EXECUTION

3.1 INSTALLATION

A. EQUIPMENT: INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

B. DUCTWORK AND ACCESSORIES:

1. PROVIDE OPENINGS IN DUCTWORK WHERE REQUIRED TO ACCOMMODATE THERMISTORS AND CONTROLLERS. PROVIDE PLOT TUBE OPENINGS WHERE REQUIRED FOR TESTING OF SYSTEMS. COMPLETE WITH METAL CAN WITH SPRING DEVICE OR SCREW TO ENSURE AGAINST AIR LEAKAGE. WHERE OPENINGS ARE PROVIDED IN INSULATED DUCTWORK, INSTALL INSULATION MATERIAL INSIDE A METAL RING.

2. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES.

3. INSTALL ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

4. HANGER STRAPS TO TURN UNDER BOTTOM OF RECTANGULAR DUCTS AND SHALL ATTACH WITH SHEET METAL SCREWS AT THIS POINT AS WELL AS MINIMUM TWO (2) ADDITIONAL SCREWS INTO SIDES OF DUCT FOR SIZES 18" AND UNDER; THREE (3) SCREWS FOR SIZES ABOVE 18". (TYPICAL FOR EACH STRAP). DUCTS IN SIZES ABOVE 48" SHALL RUN CONTINUOUSLY UNDER BOTTOM OF DUCT. STRAPS FOR ROUND DUCT SHALL RUN FULLY COMPLETELY AROUND UNDERSIDE OF DUCT AND SHALL BE SECURED IN PLACE WITH MINIMUM OF TWO (2) SHEET METAL SCREWS EACH SIDE.

5. BRACE ALL DUCTWORK LATERALLY TO STRUCTURAL FRAMING TO PREVENT SWAYING OR LATERAL MOVEMENT IN ACCORDANCE WITH SMACNA "GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS". WHERE GUIDELINES DO NOT ADDRESS THE SMALLER SIZE DUCTS AND FLEXIBLE DUCTS, THIS CONTRACTOR SHALL PROVIDE SWAY BRACING CONSISTING OF METAL STRAPS OR ANGLE IRON THAT WILL RESTRICT ANY SWAYING TO WITHIN 2 INCHES IN ANY DIRECTION.

5. ACCESS DOORS:

a. AIRTIGHT SHEET METAL ACCESS DOORS SHALL BE INSTALLED IN DOORS. DOORS SHALL BE OF SIZES SHOWN, OR AS DETACHED WHERE NO SIZES ARE SHOWN. ALL DOORS SHALL BE CONSTRUCTED PER SMACNA STANDARDS OF AT LEAST THE SAME WEIGHT AS THE DUCT. REINFORCING SHALL BE INSTALLED TO PREVENT DISTORTION AND VIBRATION. ALL DOORS SHALL BE FITTED WITH FELT STRIPS TO SEAL AIR TIGHTNESS.

b. EACH DOOR SHALL BE HUNG ON TWO (2) OR MORE HINGES. DOORS SHALL BE PROVIDED WITH VENT LOCK NO. 100 LATCHES, OR APPROVED EQUAL.

6. DUCT TAPE AND SEALER:

a. ALL LONGITUDINAL SNAP LOCK JOINTS SHALL BE MADE AIRTIGHT WITH HIGH PRESSURE DUCT SEALANT TREMCO J.S. 773, GREY A/F, AND TRANSVERSE JOINTS SEALED WITH HARDCAST AFG NO. 142 FOL GFR INSTANT TAPE SEALANT FOR RECTANGULAR DUCTS AND ROUND DUCTS. ALL U/L CLASSIFIED, AT CONTRACTOR'S OPTION, ALL ROUND DUCT TRANSVERSE JOINTS SHALL BE MADE WITH MIRACLE D-149 WATER BASED, DUCT SEALANT U/L CLASSIFIED 309I AS MANUFACTURED BY MIRACLE ADHESIVES CORP.

C. THERMOSTATS: INSTALL AT 48" ABOVE FINISHED FLOOR UNLESS OTHERWISE SPECIFIED.

D. INSULATION:

1. DUCT INSULATION:

a. FIBERGLASS DUCT WRAP:

1) SECURE INSULATION WITH VAPOR BARRIER WITH WIRES AND SEAL JACKET JOINTS WITH VAPOR BARRIER ADHESIVE OR TAPE TO MATCH JACKET.

2) SECURE INSULATION WITH VAPOR BARRIER WITH STRAPLES, TAPE, OR WIRES.

2) INSTALL WITHOUT SAG ON UNDERSIDE OF DUCTWORK. USE ADHESIVE OR MECHANICAL FASTENERS WHERE NECESSARY TO PREVENT SAGGING. LIFT DUCTWORK OFF TRAPEZE HANGERS AND INSERT SPACERS.

4) SEAL VAPOR BARRIER PENETRATIONS BY MECHANICAL FASTENERS WITH VAPOR BARRIER ADHESIVE.

5) STOP AND POINT INSULATION AROUND ACCESS DOORS AND DAMPER OPERATORS TO ALLOW OPERATION WITHOUT DISTURBING WRAPPING.

b. DUCT AND PLENUM LINDER APPLICATION:

FIELD VERIFY ALL CONDITIONS

DESIGN DRAWINGS ARE SCHEMATIC. THIS CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.

THE CONTRACTOR SHALL CONTACT THE ARCHITECT/ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT/ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTOR'S COST.

BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL EQUIPMENT INSTALLED IN STRICT ACCORDANCE WITH ALL APPLICABLE GOVERNING CODES. THE PLANS AND SPECIFICATIONS NOT WITHSTANDING, THE CONTRACTOR SHALL VERIFY ALL MATERIALS, EQUIPMENT AND WORKMANSHIP. APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

ALL WORK TO COMPLY WITH 2019 CALIFORNIA MECHANICAL CODE.

GENERAL NOTES

1. CODES, RULES AND REGULATIONS: DESIGN OF SYSTEM

A. ALL WORK AND MATERIALS SHALL BE IN FULL ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL LAWS, ORDINANCES AND CODES.

B. WHEN THE DRAWINGS CALL FOR MATERIALS OR CONSTRUCTION OF A BETTER QUALITY OR LARGER SIZES THAN REQUIRED BY THE ABOVE MENTIONED CODES AND RULES, WORK SHALL BE AS SPECIFIED OR SHOWN RATHER THAN AS REQUIRED BY CODE. ALL ITEMS OR FEATURES OF THE MECHANICAL SYSTEMS REQUIRED BY CODE SHALL BE INCLUDED, EVEN THOUGH NOT SPECIFIED HEREIN.

C. INSTALLATION OF THE SYSTEMS SHALL BE IN ACCORDANCE WITH THE ABOVE MENTIONED CODES AND REGULATIONS AND ALSO SHALL CONFORM TO GOOD, ACCEPTED MECHANICAL PRACTICES.

2. CUTTING AND PATCHING: ALL CUTTING AND PATCHING REQUIRED OF THE EXISTING STRUCTURE SHALL BE PROVIDED UNDER OTHER SECTIONS OF THE WORK. PROVIDE NECESSARY REQUIREMENTS TO THE PROJECT SUPERINTENDENT, (BY G.C.).

3. CLEANUP: UPON COMPLETION OF THE WORK UNDER THIS SECTION, THE CONTRACTOR SHALL REMOVE ALL SURPLUS MATERIALS, EQUIPMENT AND DEBRIS INCIDENTAL TO THIS WORK AND LEAVE THE PREMISES CLEAN AND ORDERLY.

4. COORDINATION: THE DRAWING ARE DIAGRAMMATIC AND INTENDED TO SHOW SCOPE OF WORK. CONTRACTOR SHALL COORDINATE HIS WORK WITH OTHER TRADES TO PROVIDE BEST ARRANGEMENT OF ALL DUCTS, CONDUIT, ECT., LOCATION OF EXISTING PIPING AND DUCTWORK SHOWN APPROXIMATE. CONTRACTOR SHALL VERIFY THEIR LOCATION PRIOR TO BEGINNING WORK OF THIS SECTION AND SHALL MAKE MODIFICATIONS AND ADJUSTMENTS REQUIRED TO INSTALL THE WORK OF THIS SECTION.

5. INSULATION:

A. INSULATE ALL INTERIOR CONDITIONED SUPPLY AND RETURN AIR DUCTWORK WITH 1" R-80L PER CU. FT. DENSITY FIBERGLASS INSULATION WITH VAPOR BARRIER (MAX. CONDENSATE = 48).

B. CONDITIONED SUPPLY AND RETURN AIR DUCTWORK EXPOSED TO THE WEATHER SHALL BE LINED WITH 1-1/2" THICK, 15 LB. PER CU. FT. DENSITY FIBERGLASS DUCT LINER (MAX. CONDENSATE = 59).

C. CONDENSATE PIPING SHALL BE INSULATED WITH 3/8" FOAM PLASTIC.

D. REFRIGERANT PIPING SHALL BE INSULATED WITH FIBERGLASS, BE INSULATION (MIN. R = 4.0), INSULATION EXPOSED TO THE WEATHER SHALL SECURELY FASTENED IN PLACE.

6. PIPING:

A. CONDENSATE PIPING SHALL BE TYPE "N" COPPER.

B. REFRIGERANT PIPING SHALL BE TYPE "C" COPPER WITH WROUGHT COPPER FITTINGS.

7. ALL DUCTWORK SHALL BE PER 2019 C.M.C.

8. DUCT INSULATION TO CONFORM TO LOCAL ENERGY CONSERVATION STANDARD CODES.

9. WRING DIAGRAM IS INTENDED TO INDICATE SEQUENCE OF CONTROL AND DOES NOT NECESSARILY SHOW ALL CONNECTIONS REQUIRED BY LOCAL CODES.

10. AUTOMATIC TEMPERATURE CONTROL DEVICE FOR REGULATION OF SPACE TEMPERATURE SHALL BE CAPABLE OF BEING SET FROM 55 TO 85F, AND HAVE THE ABILITY TO OPERATE THE HEATING AND COOLING IN SEQUENCE. CONTROL SHALL BE ADJUSTABLE TO PROVIDE A RANGE OF UP TO 5°F BETWEEN FULL HEATING AND FULL COOLING AND HAVE CAPABILITY OF TERMINATING ALL HEATING OR TEMPERATURE NO MORE THAN 70°F, AND COOLING AT A TEMPERATURE NOT LESS THAN 78°F. EACH HVAC SYSTEM THERMOSTAT SHALL BE EQUIPPED WITH NET SETBACK FEATURE.

11. ROOF MOUNTED EQUIPMENT SHALL BE LABELED AS TO THE SPACE IT SERVES.

12. APPLIANCES DESIGNED TO BE FIXED IN POSITION SHALL BE FASTENED IN PLACE.

13. PROVIDE SEISMIC BRACING FOR ALL MECHANICAL EQUIPMENT STRUCTURE MOUNTED, AS REQD. PER LOCAL CODE, (IF APPLICABLE).

14. A MAINTENANCE LABEL SHALL BE AFFIXED TO MECHANICAL EQUIPMENT AND A MAINTENANCE MANUAL SHALL BE PROVIDED FOR THE OWNERS USE.

15. CONCEALED BUILDING SPACES USED AS RETURN AIR PLENUMS SHALL BE OF NON-COMBUSTIBLE MATERIAL.

16. PROVIDE ACCESS PANEL FOR ALL CEILING MOUNTED EQUIPMENT.

17. DUCTS SIZE FOR CFM SHOWN SHALL BE PER FOLLOWING SCHEDULE, UNLESS OTHERWISE NOTED ON PLAN.

| CFM | DUCT SIZE |
|-----------|-----------------------|
| 0-110 | 6/0 |
| 110-240 | 8/0 |
| 240-420 | 10/0 OR 10X8 |
| 420-675 | 12/0 OR 12X10 OR 14X8 |
| 675-1050 | 14/0 |
| 1050-1500 | 16/0 |
| 1500-2000 | 18/0 |
| 2000-3000 | 20/0 |

18. THE MECHANICAL CONTRACTOR SHALL SECURE AND PAY FOR ALL REQUIRED PERMITS AND FEES.

19. GENERAL CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE EQUIPMENT SPECIFIED.

20. GENERAL CONTRACTOR TO PROVIDE FLASHING WHEREVER DUCTWORK OR PIPING PENETRATES ROOF OR EXTERIOR WALLS.

21. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO VERIFY AVAILABLE SPACE FOR INSTALLATION OF NEW WORK.

22. HIGH VOLTAGE CONDUITS AND WIRE AND LOW VOLTAGE CONDUIT UNDER ELECTRICAL SECTION OF THE WORK. LOW VOLTAGE WIRING UNDER THIS SECTION OF THE WORK.

23. FILTER(S) SHALL BE U.L. APPROVED.

24. CEILING DIFFUSERS TO BE EQUAL TO KRUEGER SERIES 5800.

25. RETURN REGISTERS TO BE EQUAL TO KRUEGER SERIES S580 OR MATCH C.L.G. DIFFUSERS.

26. COORDINATE EXACT LOCATION OF ALL AIR OUTLETS AND INLETS (DIFFUSERS AND REGISTERS) WITH G.C..

27. PLUMBING CONTRACTOR TO FURNISH & INSTALL ALL CONDENSATE PIPING, INCLUDING FINAL CONNECTIONS.

28. ALL WIRING, CONDUIT & PIPING IN R.A. CEILING PLENUM SHALL BE NON-COMBUSTIBLE & APPROVED RATED PLENUM.

29. GAS VENTS SHALL COMPLY WITH CHAPTER 8 OF THE MECHANICAL CODE.

30. EXH. OUTLETS SHALL BE 3" FROM PROPERTY LINE, 3" FROM ANY OPENING INTO THE BUILDING. EXH. DUCT SHALL BE EQUIPPED WITH BACK DRAFT DAMPERS.

CAL GREEN NOTES

1. CONTRACTOR SHALL PROVIDE TESTING AND BALANCING REQUIREMENTS PER SECTION 5.14.0.4 OF THE CALIFORNIA BUILDING CODE.

2. MATERIALS USED SHALL HAVE VOC LIMITS IN COMPLIANCE WITH TABLE 5.534.1 OF THE CALIFORNIA BUILDING CODE.

3. ALL AIR FILTRATION MEDIA SHALL HAVE AT LEAST A MERV RATING OF 13.

4. ALL APPLIANCES AND PLUMBING VENTS AND DISCHARGE OUTLET OF EXHAUST FANS SHALL BE AT LEAST 10 FEET FROM THE INDIVIDUAL AIR OUTLET, OR 3 FEET ABOVE THE OUTSIDE AIR INTAKE VENT UNITS.

MECHANICAL NOTES

1. RUN ALL DUCTS AS TIGHT AS POSSIBLE TO THE STRUCTURE ABOVE UNLESS OTHERWISE NOTED.

2. ALL DUCTWORK SHALL BE GALVANIZED STEEL AND GAUGE 26 MINIMUM. DUCTWORKS SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH CHAPTER 6 OF THE MECHANICAL CODE. DUCT GAUGES SHALL BE PER TABLE 6-A, 6-B AND 6-C.

3. DUCTWORK SHALL BE INSULATED IN ACCORDANCE WITH THE SPECIFICATIONS AND TITLE 24.

4. DUCT AND PIPE DIMENSIONS SHOWN ARE NET INSIDE CLEAR DIMENSIONS.

5. CONTRACTOR SHALL COORDINATE VOLTAGE AND PHASE OF EACH PIECE OF EQUIPMENT WITH THE ELECTRICAL CONTRACTOR PRIOR TO ORDERING.

6. CONTRACTOR SHALL PROVIDE WRITTEN WARRANTY TO REPLACE ALL FAULTY MATERIALS AND/OR LABOR AT NO COST TO OWNER FOR A PERIOD OF ONE YEAR FROM DATE OF OWNER ACCEPTANCE.

7. UPON COMPLETION OF WORK, CONTRACTOR SHALL CLEAN AND REMOVE ALL DEBRIS ASSOCIATED WITH HISHER WORK AND DISPOSE OF IT. AREA SHALL BE LEFT IN A CONDITION ACCEPTABLE TO OWNER.

8. CONTRACTOR SHALL PROVIDE ACCESS PANELS FOR ALL NEW AND EXISTING EQUIPMENT LOCATED ABOVE HARD LID CEILING.

9. CONTRACTOR SHALL SEAL ALL UNUSED DUCT OPENINGS AND REPAIR ALL LEAKING DUCTS AS PART OF THIS WORK.

10. MATERIALS EXPOSED WITHIN DUCTS OR PLENUMS SHALL HAVE A FLAME-SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE DEVELOPED RATING OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH UNIFORM BUILDING CODE.

11. CEILING SPACES USED AS RETURN AIR PLENUMS SHALL FULLY COMPLY WITH ALL THE PROVISIONS OF SECTIONS 601.4.0.1-1.0.2.

12. CONTRACTOR SHALL LAYOUT THE DRAWING PER CONTRACT DOCUMENT AS MUCH AS POSSIBLE. ANY SIGNIFICANT DEVIATION IN LAYOUT SHALL BE APPROVED BY THE ARCHITECT PRIOR TO CONSTRUCTION.

13. CONTRACTOR SHALL SUBMIT THREE (3) SETS OF HARD COPIES AND ELECTRONIC CAD FILES OF AS-BUILTS TO THE BUILDING OWNER AND ONE (1) SET OF HARD COPY TO MARKS ENGINEERING. IN ADDITION TO THIS REQUIREMENTS, CONTRACTOR SHALL COMPLY WITH CLOSE-OUT REQUIREMENTS AS SPECIFIED UNDER GENERAL PROVISIONS AND DIVISION 10.

14. ALL SUPPLY CEILING DIFFUSERS AND RETURN GRILLES SHALL BE CLEARED OF MAIN HVAC DUCT LOOP.

15. ALL PENETRATIONS THROUGH NON-RATED CONSTRUCTION SHALL BE PROPERLY AND GENEROUSLY CAULKED WITH NON-SHRINKING TYPE SOUND RESISTANT MATERIAL SUCH AS SILICONE. USE ACoustICAL SEALANT AROUND DUCTS INSTALLED INTO ACoustICAL PARTITIONS.

16. RUN ALL DUCTS AS TIGHT AS POSSIBLE TO STEEL BEAMS, ALL PIPING OTHER THAN FOR CONDENSATE SHALL BE ROUTED ABOVE THE DUCTWORK UNLESS APPROVED OTHERWISE.

17. SEAL ALL DUCTS AND JOINTS WITH HIGH VELOCITY, WATER BASED, UL-FIRE RATED DUCT SEALER.

18. CONTRACTOR TO PROVIDE UNED TRANSFER DUCTS, SIZED PER OUR DETAIL, FOR ALL ROOMS ENCLOSED BY FULL HEIGHT WALL ON ALL SIDES. ALL EXISTING INSULATION ON THE MAIN DUCTWORK THAT IS LOOSE OR DAMAGED SHALL BE REPLACED BY THE CONTRACTOR.

19. CONTRACTOR SHALL REPAIR OR REPLACE ALL DAMAGED DUCT SUPPORTS FOR THE MAIN DUCTWORK.

20. ALL DUCTWORK SHALL BE CONSTRUCTED, ERECTED AND INSTALLED IN ACCORDANCE WITH CMC CHAPTER 6.

21. ALL EQUIPMENT AND WIRING (COMMUNICATION, POWER, FIRE ALARM, ETC.) INSTALLED IN A PLENUM SHALL BE LISTED FOR INSTALLATION IN SUCH AREAS.

22. PROVIDE TEMPORARY FILTERS DURING CONSTRUCTION, REPLACE TEMPORARY FILTERS WITH PERMANENT FOR ALL AIR AREAS INCLUDING THE BASE BUILDING MAIN AIR HANDLING UNIT SERVING EACH FLOOR.

23. NO WATER PIPING IS ALLOWED ABOVE THE ELEC. ROOM, TELEPHONE SWITCH ROOM AND DATA/COMMUNICATION ROOM.

24. CONTRACTOR SHALL PROVIDE A SCHEDULE OF MATERIALS AS-BUILT, SAID AS-BUILT SHALL BE PROVIDED PRIOR TO, AND AS A CONDITION OF FINAL PAYMENT BEING RELEASED.

25. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS, FEES AND LICENSES AS REQUIRED.

26. CONTRACTOR SHALL PROVIDE WRITTEN WARRANTY TO REPLACE ALL FAULTY MATERIALS AND/OR LABOR, AT NO COST TO OWNER, FOR A PERIOD OF ONE YEAR FROM THE DATE OF THE TENANT OCCUPANCY.

27. OUTDOOR CONDENSING UNITS SHALL BE INSTALL IN MATTER THAT THE SOUND LEVEL SHALL NOT EXCEED 50 DBA PER SECTION 10.26.045 OF THE NEMC.

FIRE LIFE SAFETY NOTES

1. THE ELECTRICAL CONTRACTOR SHALL INTERCONNECT ALL FANS AND AC UNITS WITH THE BUILDING LIFE SAFETY SYSTEM FOR UNIT SHUT DOWN UPON A SIGNAL FROM THE LIFE SAFETY SYSTEM.

2. WHERE DUCT MOUNTED SMOKE DETECTORS FOR FANS AND AC UNITS ARE REQUIRED, THE HVAC CONTRACTOR SHALL FURNISH AND INSTALL THE SMOKE DETECTORS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRING AND CONDUIT TO SIGNAL THE LIFE SAFETY SYSTEM. THE LIFE SAFETY SYSTEM SHALL SHUT DOWN THE EXHAUST FANS OR AC UNITS AS DESCRIBED IN ITEM #1.

3. ALL SMOKE DETECTORS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION AND SHALL BE COMPATIBLE WITH THE BASE BUILDING STANDARDS.

4. EACH SINGLE SYSTEM PROVIDING HEATING OR COOLING AIR IN EXCESS OF 2000 CFM OR 64,000 BTUH SHALL BE EQUIPPED WITH AN AUTOMATIC SHUT-OFF. THE SMOKE DETECTOR SHALL BE INSTALLED IN THE MAIN SUPPLY AIR DUCT DOWNSTREAM OF THE FILTERS OR THEY MAY BE INSTALLED IN EACH ROOM OR SPACE SERVED BY THE SUPPLY AIR DUCT. DETECTORS SHALL ALSO BE INSTALLED IN THE MAIN RETURN DUCT (IF FEED) BY THE LOCAL CODES, AHEAD OF DSA INTAKE, SEE CODE FOR EXEMPTIONS AND LOCAL AUTHORITY FOR CODE INTERPRETATION, OR AS INDICATED ON PLAN.

SPECIAL NOTES

1. CONTRACTOR SHALL OBTAIN THE ENTIRE CONTRACT DOCUMENTS INCLUDING BUT NOT LIMITED TO ARCHITECTURAL DRAWINGS AND SPECIFICATIONS, ELECTRICAL DRAWINGS AND SPECIFICATIONS, STRUCTURAL DRAWINGS AND SPECIFICATIONS, AND PRIOR TO BIDDING CAREFULLY STUDY AND REVIEW THE ENTIRE SCOPE OF WORK OF THE PROJECT.

2. ENGINEER DRAWINGS ARE DIAGRAMMATIC, THEY ARE MEANT TO DESCRIBE THE INTEND OF THE REQUIRED WORK AND DO NOT SHOW THE OFFSET AND EXACT LOCATION OF DUCTWORKS, PIPINGS AND EQUIPMENT. PRIOR TO BIDDING, CONTRACTOR SHALL CAREFULLY EXAMINE ALL THE CEILING HEIGHT REQUIREMENTS INDICATED ON ARCHITECTURAL DRAWINGS AND WEATHER SHOWN ON THE DRAWINGS OR NOT. CONTRACTOR SHALL INCLUDE IN HIS BID ALL THE WORK NECESSARY TO RELOCATE THE EXISTING PIPINGS, DUCTWORKS AND EQUIPMENTS TO ACHIEVE THE REQUIRED CEILING HEIGHTS. NO CHANGE ORDERS RELATED TO RELOCATION OF DUCTWORKS, PIPINGS AND EQUIPMENTS TO MEET THE INTENT OF THE CONTRACT DOCUMENT WILL BE APPROVED.

AIR BALANCE NOTES

1. THE AIR BALANCE WORK AS DESCRIBED IN SPECIFICATION SHALL BE CONTRACTED DIRECTLY BY THE GENERAL CONTRACTOR AND COORDINATED BY THIS CONTRACTOR.

2. AIR BALANCE SHALL BE PERFORMED FOR ENTIRE CORE AND CORE SPACE UNDER THIS CONTRACT, ALL EXHAUST SYSTEM, AC UNITS, DIFFUSERS AND GRILLES. BALANCING SHALL BE PERFORMED BY AN "AABC" CERTIFIED CONTRACTOR ACCORDING TO THE CURRENT "AABC" NATIONAL STANDARDS.

3. REFER TO THE SPECIFICATION "START-UP, TESTING AND BALANCING FOR THE WORK TO BE PERFORMED BY THE AIR AND WATER BALANCE CONTRACTOR".

4. IN ADDITION, THE AIR BALANCE WORK SHALL CONSIST OF THE FOLLOWING:

A. CHECK ALL MECHANICAL UNITS FOR CORRECT OPERATION.

B. BALANCE THE INDIVIDUAL AIR OUTLETS TO DESIGN QUANTITIES, MEASURE & DOCUMENT THE ACTUAL ROOM SUPPLY AIR TEMPERATURE DURING

EXISTING GAS/ ELECTRIC A/C & MA UNITS SCHEDULE

AC
2&3
 CARRIER MODEL NO. 48HJD012,
 TOTAL COOLING CAP. = 120,000 BTUH; EER @ 11.0; SENSIBLE COOLING CAPACITY = 82,000 BTUH
 HEATING CAPACITY: 180,000 INPUT, 147,600 OUTPUT
 FAN: 4.2 HP, RPM: 1100 CFM OSA
 POWER: 480 V-3 PH-60 HZ; 24.9 MCA; 30 MFS
 OPERATING WEIGHT = 1,200 LBS
 AC-1: 3500 CFM AT 1.00" ESP
 FURNISH WITH ROOF CURB, AIR SIDE ECONOMIZER, AUTOMATIC OSA DAMPER, 2 STAGE GAS VALVE,
 SUPPLY AIR SMOKE DETECTOR, CONVIENCE OUTLET, HONEYWELL T7300 THERMOSTAT WITH SUB-BASE AND
 T7047C2007 REMOTE SENSOR.

AC
2&3
 CARRIER MODEL NO. 48HJD014,
 TOTAL COOLING CAP. = 146,200 BTUH; EER @ 9.9; SENSIBLE COOLING CAPACITY = 106,100 BTUH
 HEATING CAPACITY: 224,000 INPUT, 183,700 OUTPUT
 FAN: 5.25 HP, RPM: 1100 CFM OSA
 POWER: 480 V-3 PH-60 HZ; 31.8 MCA; 40 MFS
 OPERATING WEIGHT = 1,250 LBS
 AC-2: 4,800 CFM AT 1.00" ESP; AC-3: 5,010 CFM AT 1.00" ESP
 FURNISH WITH ROOF CURB, AIR SIDE ECONOMIZER, AUTOMATIC OSA DAMPER, 2 STAGE GAS VALVE,
 SUPPLY AIR SMOKE DETECTOR, HONEYWELL T7300 THERMOSTAT WITH SUB-BASE AND
 T7047C2007 REMOTE SENSOR.

MAU
1
 CAPTIVE AIR MODEL NO. A3-D.1000-G18, 3280 CFM @ 0.40" SP
 SET @ 3,280 CFM @ 0.40" SP
 HEATING INPUT: 200,000 BTU-H, OUTPUT: 160,000 BTU-H
 POWER: 1.5HP, 480V-3-60 HZ;
 OPERATING WEIGHT: 450 LBS.
 SERVING: HOOD# 1 MAKE-UP AIR
 PROVIDE 409SS HEAT EXCHANGER AND BURNER, INTERMITTANT SPARK PILOT WITH 100% SHUT OFF,
 AG-2 TWO STAGE CONTROL, OPTIONAL FAN CONTROL, TERMINAL BLOCK WIRING, REMOTE
 CONSOLE, 2 STAGE HTG/CLG THERMOSTAT

NOTE: EXHAUST FAN AND LIGHT SWITCH ARE INTERLOCKED IN THE MEN'S AND WOMEN'S RESTROOMS.

AIR DEVICE SCHEDULE

| TYPE | USAGE | MODEL NO. & DESCRIPTION | ACCESSORIES | REMARKS |
|------|--------------------------------------|---|---|--|
| A* | SUPPLY 24X24 LAY-IN TYPE | TITUS OMI ARCHITECTURAL CEILING DIFFUSER | RAPID MOUNT 12X12 MODULE SIZE FRAME FOR PLASTER CEILING | PROVIDE DIRECTIONAL BLOW PATTERN CONTROLLERS ON 1, 2, AND 3 WAY DIFFUSERS. |
| B* | RETURN CEILING MOUNTED | TITUS 350 FL ALUMINUM REGISTER | OPPOSED BLADE DAMPER | 3/4" SPACING, BORDER FOR CEILING TYPE INTENDED. SEE FLOOR PLAN FOR SIZE |
| C* | SUPPLY WALL/ CEILING REGISTER | TITUS 300 FL ALUMINUM REGISTER | OPPOSED BLADE DAMPER | 3/4" SPACING |
| D* | EXHAUST/RETURN WALL/CEILING REGISTER | TITUS 350 FL ALUMINUM REGISTER | OPPOSED BLADE DAMPER | 3/4" SPACING |
| E* | SUPPLY DIFFUSER | TITUS #TMR-AA ALUMINUM ROUND CEILING DIFFUSER | | POSITION 1 |
| F* | SUPPLY DIFFUSER (THERMAFUSER) | THERMAFUSER TF-HC | | |

* ALL AIR OUTLET DEVICES IN THE HIGH 2x2 CEILING SHALL BE SUPPLIED BLACK COLOR.

GREEN BUILDING NOTES

IF THE HVAC SYSTEM IS USED DURING CONSTRUCTION, USE RETURN AIR FILTERS WITH A MERV OF 8. REPLACE ALL FILTERS IMMEDIATELY PRIOR TO OCCUPANCY.

ALL DUCTS AND OTHER RELATED AIR DISTRIBUTION COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC, OR SHEET METAL UNTIL THE FINAL STARTUP OF THE HEATING, COOLING AND VENTILATING EQUIPMENT.

AN AIR FILTER WITH A MINIMUM EFFICIENCY REPORTING VALUE (MERV) OF 8 OR HIGHER SHALL BE INSTALLED IN THE MECHANICAL SYSTEM FOR OUTSIDE AND RETURN AIR PRIOR TO OCCUPANCY.

THE BUILDING SHALL MEET OR EXCEED THE PROVISIONS FOR MECHANICAL VENTILATION OF SECTION 1203 OF THE SAN DIEGO BUILDING CODE.

BUILDING THAT USE DEMAND CONTROL VENTILATION SHALL HAVE CO2 SENSORS AND VENTILATION CONTROLS INSTALLED IN ACCORDANCE WITH THE REQUIREMENT OF CURRENT EDITION OF THE CALIFORNIA ENERGY CODE, CCR, TITLE24, PART 6, SECTION 121(C).

FIELD VERIFY ALL CONDITIONS

DESIGN DRAWINGS ARE SCHEMATIC. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING OR AWARD OF CONTRACT TO INSPECT EXISTING FIELD CONDITIONS. THIS CONTRACT SHALL INCLUDE ALL LABOR AND MATERIALS NECESSARY FOR FIELD MODIFICATIONS DUE TO EXISTING CONDITIONS.

THE CONTRACTOR SHALL CONTACT THE ARCHITECT, ENGINEER OR OWNER PRIOR TO BIDDING FOR INTERPRETATIONS AND CLARIFICATIONS OF THE DESIGN AND INCLUDE IN HIS BID ALL COSTS TO MEET THE DESIGN INTENT. CLARIFICATIONS MADE BY THE ARCHITECT, ENGINEER OR OWNER AFTER BIDDING WILL BE FINAL AND SHALL BE IMPLEMENTED AT CONTRACTORS COST.

BIDDING CONTRACTORS SHALL HAVE A WORKING KNOWLEDGE OF LOCAL CODES AND ORDINANCES AND SHALL INCLUDE IN THEIR BIDS THE COSTS FOR ALL WORK INSTALLED IN STRICT ACCORDANCE WITH GOVERNING CODES, THE PLANS AND SPECIFICATIONS NOT WITHSTANDING. THE CONTRACTOR SHALL ALERT ARCHITECT, ENGINEER OR OWNER OF ANY APPARENT DISCREPANCIES BETWEEN GOVERNING CODES AND DESIGN INTENT.

EXISTING & NEW EXHAUST FAN UNITS SCHEDULE

EF
1
 (E) CAPTIVE AIRE NCA18HPFA.
 3600 CFM AT 1.5" SP BELT
 1271 RPM; 2.0 HP; POWER: 480V-3-60 HZ;
 WITH HINGED ROOF CURB AND EXTENSION, DRAIN, UPBLAST DISCHARGE, DISCONNECT SWITCH
 OPERATING WEIGHT: 200 LBS.
 SERVING: HOOD # 1 (MAIN HOOD)

EF
2
 (E) CAPTIVE AIRE NCA08FA.
 800 CFM AT 0.75" SP BELT
 1390 RPM; 1/4 HP; POWER: 120V-1-60 HZ;
 WITH UPBLAST DISCHARGE, DISCONNECT SWITCH, ROOF CURB
 OPERATING WEIGHT: 100 LBS.
 SERVING: HOOD # 2 (DISHWASHER)

EF
3
 REPLACE EXISTING FAN WITH NEW CAPTIVEAIR FAN (SEE CAPTIVEAIR DRAWINGS FOR ADDITIONAL INFORMATION)
 MODEL DU240HFA; 3140 CFM AT 1.5" SP DIRECT
 768 RPM; 2 HP; POWER: 460V-3 PH-60 HZ;
 WITH HINGED ROOF CURB AND EXTENSION, DRAIN, UPBLAST DISCHARGE, DISCONNECT SWITCH
 OPERATING WEIGHT: 339 LBS.
 SERVING: HOOD # 2 (TYPE 1 HOOD)

EF
4
 (E) COOK MODEL NO.120C3B; 975 CFM @ 0.75" S.P. BELT
 1435 RPM; 1/4 HP; POWER: 120V-1 PH-60 HZ;
 ROOF CURB, BIRDSCREEN, DOWNBLAST DISCHARGE, DISCONNECT SWITCH
 OPERATING WEIGHT: 80 LBS.
 SERVING: ELECTRICAL ROOM

EF
5
 (E) COOK MODEL NO.120C3B; 720 CFM @ 0.75" S.P. BELT
 1435 RPM; 1/4 HP; POWER: 120V-1 PH-60 HZ;
 ROOF CURB, BIRDSCREEN, DOWNBLAST DISCHARGE, DISCONNECT SWITCH
 OPERATING WEIGHT: 80 LBS.
 SERVING: TOILETS, GENERAL EXHAUST

EF
6
 (E) COOK MODEL NO.GC160; 160 CFM @ 0.50" S.P. CEILING
 1500 RPM; 113 WATTS; POWER: 120V-1 PH-60 HZ;
 ROOF JACK, BACKDRAFT DAMPER
 OPERATING WEIGHT: 15 LBS.
 SERVING: WASH ROOM

EXISTING EXHAUST HOOD CALCULATION

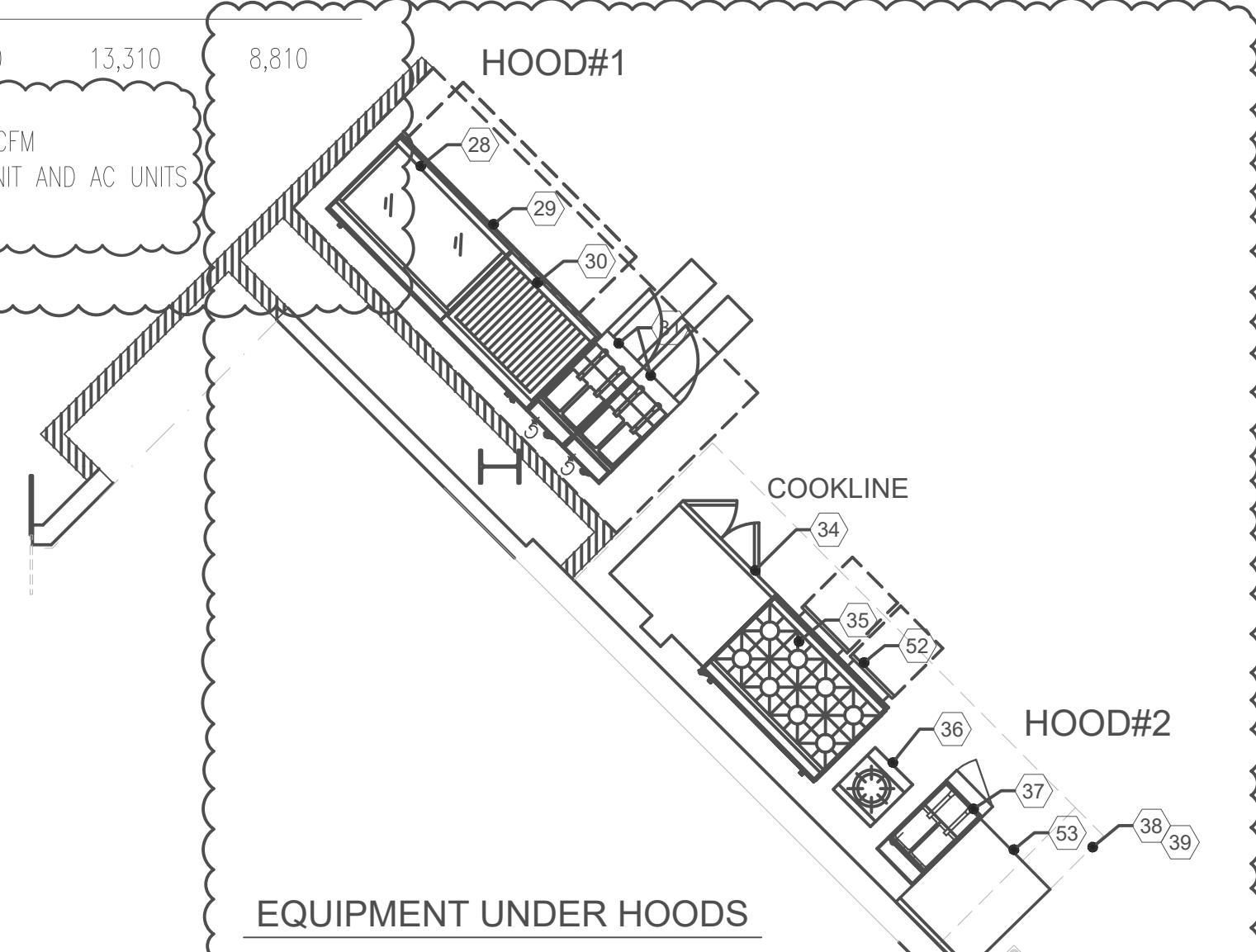
HOODS # 1 (TYPE- I):

1. SIZE OF HOOD: 11'-5" (L) X 4'-0" (D)
2. EXHAUST CFM (CUBIC FT./MIN.): HOOD LENGTH X 275 CFM (UL HOOD) PER CAPTIVEAIR DRAWINGS
3. EXHAUST CFM (CUBIC FT./MIN.): 3140 CFM
4. TOTAL EXHAUST CFM (CUBIC FT./MIN.) provided: 3140 CFM

HOOD BALANCE

| | EA | MUA | OSA | SA | RA |
|-------------------|-------|-------|-------|--------|-------|
| MAIN COOKING HOOD | 3,600 | -- | -- | -- | -- |
| DISHWASHER | 800 | -- | -- | -- | -- |
| HOOD-2 (NEW) | 3140 | -- | -- | -- | -- |
| TOILET EXHAUST | 720 | -- | -- | -- | -- |
| AC-1 | -- | -- | 1,300 | 3,500 | 2,200 |
| AC-2 | -- | -- | 1,600 | 4,800 | 3,200 |
| AC-3 | -- | -- | 1,600 | 5,010 | 3,410 |
| MUA-1 | -- | 3,280 | -- | -- | -- |
| TOTAL | 8,260 | 3,280 | 4,500 | 13,310 | 8,810 |

8,260 CFM EXH x 90% SUPPLY = 7,434 CFM
 TOTAL SUPPLY CFM = (3280 MUA + 4500 AC UNITS) = 7,780 CFM
 ALL EXHAUST FANS SHALL BE INTERLOCK WITH MAKE UP AIR UNIT AND AC UNITS



AIR CONDITIONING SYMBOLS AND ABBREVIATIONS

| SYMBOLS | ABBR | DESCRIPTION | ABBR/SYMBOL | DESCRIPTION | ABBR/SYMBOL | DESCRIPTION |
|-----------|------|--|-------------|--------------------------|-------------|---|
| FD | | AUTOMATIC FIRE DAMPER | GA | GAUGE | WB | WATER BULB |
| C.S.F.D. | | COMBINATION SMOKE FIRE DAMPER | AC | AIR CONDITIONING | WG | WATER GAGE |
| APV | | AIR PROPORTIONING VANE | B.H.P. | BREAK HORSEPOWER | △ | DIFFERENCE BETWEEN |
| F.C. | | FLEXIBLE DUCT CONNECTION | B.O.D. | BOTTOM OF DUCT ELEVATION | CFM | CUBIC FEET / MINUTE (CFM) |
| TH | | THROAT AND SIZE | O.C | ON CENTER | ☐ | SUPPLY DIFFUSER |
| TV | | TURNING VANES | COMP. | COMPRESSOR | ☐ | RETURN REGISTER |
| MVD OR VD | | MANUAL VOLUME DAMPER WITH INDIVIDUAL BLADE QUADRANTS | COND. | CONDENSER (ING) | ☐ | CEILING EXHAUST REGISTER |
| | | | DB | DRY BULB | ☐ | ROOF EXHAUST FAN |
| | | | DISH. | DISCHARGE | ☐ | EXIST. SUPPLY DIFFUSER |
| | | | EXT | EXTERNAL | ☐ | EXIST. RETURN REGISTER |
| OBD | | OPPOSED BLADE DAMPER | EVAP | EVAPORATOR (ING) (IVE) | ☐ | EXIST. CEILING EXHAUST REGISTER |
| PBD | | PARALLEL BLADE DAMPER | FT.IN | SQUARE FEET CUBIC INCH | ☐ | EXIST. ROOF EXHAUST FAN |
| -MO | | -MOTOR OPERATED | Ⓣ | THERMOSTAT | ☐ | EXIST. MANUAL VOLUME DAMPER |
| -HO | | -HAND OPERATED (QUADRANT) | FPM | FEET PER MINUTE | ☐ | EXIST. SMOKE DETECTOR |
| BFT | | BOTTOM FLAT TRANSITION | HP | HORSEPOWER | ☐ | NEW SUPPLY DUCT |
| TFT | | TOP FLAT TRANSITION | INSUL | INSULATE INSULATION | ☐ | NEW RETURN DUCT |
| LINE | | PLENUM OR DUCT LINER | MBH | THOUSAND BTU PER HOUR | ☐ | NEW EXHAUST DUCT |
| FLEX | | FLEXIBLE DUCT | NIC | NOT IN CONTRACT | ☐ | NEW MAKE-UP DUCT |
| ☐ | | EXHAUST DUCT SECTION | CD | CEILING DIFFUSER | ☐ | NEW GREASE DUCT |
| ☐ | | RETURN DUCT SECTION | CR | CEILING REGISTER | ☐ | NEW OSA DUCT |
| ☐ | | SUPPLY DUCT SECTION | CG | CEILING GRILLE | ☐ | EXISTING SUPPLY/ RETURN/ EXHAUST/ MAKE-UP/ GREASE/ OSA DUCT |
| ☐ | | EXH EXHAUST | TR | TOP REGISTER | ☐ | RELOCATED |
| ☐ | | OSA OUTSIDE AIR FLOW | BR | BOTTOM REGISTER | (R) | EXISTING |
| ☐ | | RA RETURN AIR | RH | RELATIVE HUMIDITY | (E) | EXISTING |
| ☐ | | SA SUPPLY AIR | REQ'D | REQUIRED | (N) | NEW |
| ☐ | | UC UNDERCUT DOOR | S.P | STATIC PRESSURE | EXIST. | EXISTING |
| ☐ | | D.LVR DOOR LOUVER WITH CROSS | T.S | TIP SPEED | ☐ | SUPPLY AIR DUCT UP |
| ☐ | | TR TRANSFER AIR FLOW | TYP | TYPICAL FOR | ☐ | RETURN AIR DUCT UP |
| ☐ | | P.O.C POINT OF CONNECTION | O.V | OUTLET VELOCITY (FPM) | ☐ | EXHAUST AIR DUCT UP |
| ☐ | | POINT OF DISCONNECTION | UTR | UP THRU ROOF | ☐ | SUPPLY AIR DUCT DOWN |
| ☐ | | DIAMETER OR ROUND | OPNG | OPENING | ☐ | RETURN AIR DUCT DOWN |
| ☐ | | DUCT SMOKE DETECTOR | Ⓜ | BY ELECTRICAL CONTRACTOR | ☐ | EXHAUST AIR DUCT DOWN |
| ☐ | | BACKDRAFT DAMPER | Ⓜ | BY MECHANICAL CONTRACTOR | ☐ | EQUIPMENT DESIGNATION |
| ☐ | | | | | ☐ | FLEXIBLE CONNECTION |

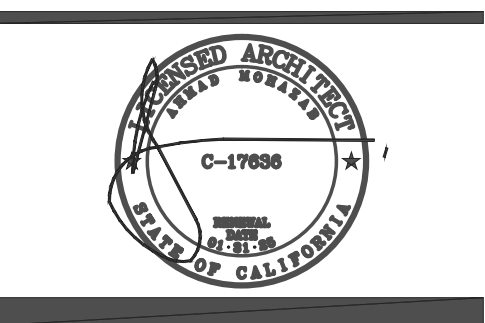
CONTROL LEGEND

| | |
|---|---|
| --- | LINE VOLTAGE WIRING UNDER ELECTRICAL SECTION. |
| --- | LOW VOLTAGE WIRING UNDER THIS SECTION. |
| Ⓜ | ITEMS FURNISHED AND INSTALLED UNDER ELECTRICAL SECTION. |
| NOTE ALL CONDUIT UNDER ELECTRICAL SECTION. | |
| DIAGRAMS SHOWN ARE SCHEMATIC AND INTENDED TO SHOW SEQUENCE OF OPERATION ONLY. CONTRACTOR TO PROVIDE ALL ITEMS AND WIRING REQUIRED FOR PROPER OPERATION AND COMPLIANCE WITH CODE, VERIFY THE EXACT REQUIREMENTS WITH EQUIPMENT MANUFACTURER. | |

UNITS TO BE INSTALLED AS PER MANUFACT. REQUIREMENTS.

EQUIPMENT SCHEDULE

| ITEM NO. | QTY. | DESCRIPTION | MAKE | MODEL # |
|----------|------|--|------------|----------|
| 28 | 1 | 48" WIDE GAS GRIDDLE ON ITEM #29 | KINTERA | KGR-48T |
| 29 | 1 | SELF-CONTAINED CHEF BASE 4 DRAWERS w/LOCKING CASTERS | TRUE | TRCB-72 |
| 30 | 1 | 36" LONG GAS CHAR-BROILER ON ITEM #29 | SOUTHBEND | HDC-36 |
| 31 | 2 | 40LB GAS FRYERS w/ LOCKING CASTERS | PITCO | SG14 |
| 32 | 1 | STAINLESS STEEL TYPE I EXHAUST HOOD 11'-8" L x 60" D w/ LIGHTS AND FILTERS | CAPTIVEAIR | |
| 33 | 1 | EXHAUST FAN FOR ITEM #32 | | |
| 34 | 1 | GAS DOUBLE STACKED CONVECTION OVEN | MONTAQUE | 2-115A |
| 35 | 1 | 8 OPEN BURNER COUNTERTOP GAS RANGE | SOUTHBEND | HDO-48 |
| 36 | 1 | GAS STOCK POT STOVE | WOLF | WSPR1 |
| 37 | 1 | 40 LB GAS FRYER | PITCO | SG18 |
| 38 | 1 | EXISTING TYPE I EXHAUST HOOD 14'-0" x 48" w/ LIGHTS AND FILTERS | EXISTING | |
| 39 | 1 | EXISTING EXHAUST FAN FOR ITEM #38 | | |
| 52 | 1 | SELF-CONTAINED CHEF BASE 2 DRAWER w/LOCKING CASTERS | TRUE | TRCB-48 |
| 53 | 1 | STAINLESS STEEL WORK TABLE 30" x 36" w/ S.S LEGS AND UNDER SHELF | KINTERA | KEWT3036 |



ARCHITECTURAL PROJECT NO.: 22120

FLORES

TENANT IMPROVEMENT
 FLORES
 5614 BAY STREET
 EMERYVILLE, CA 94608

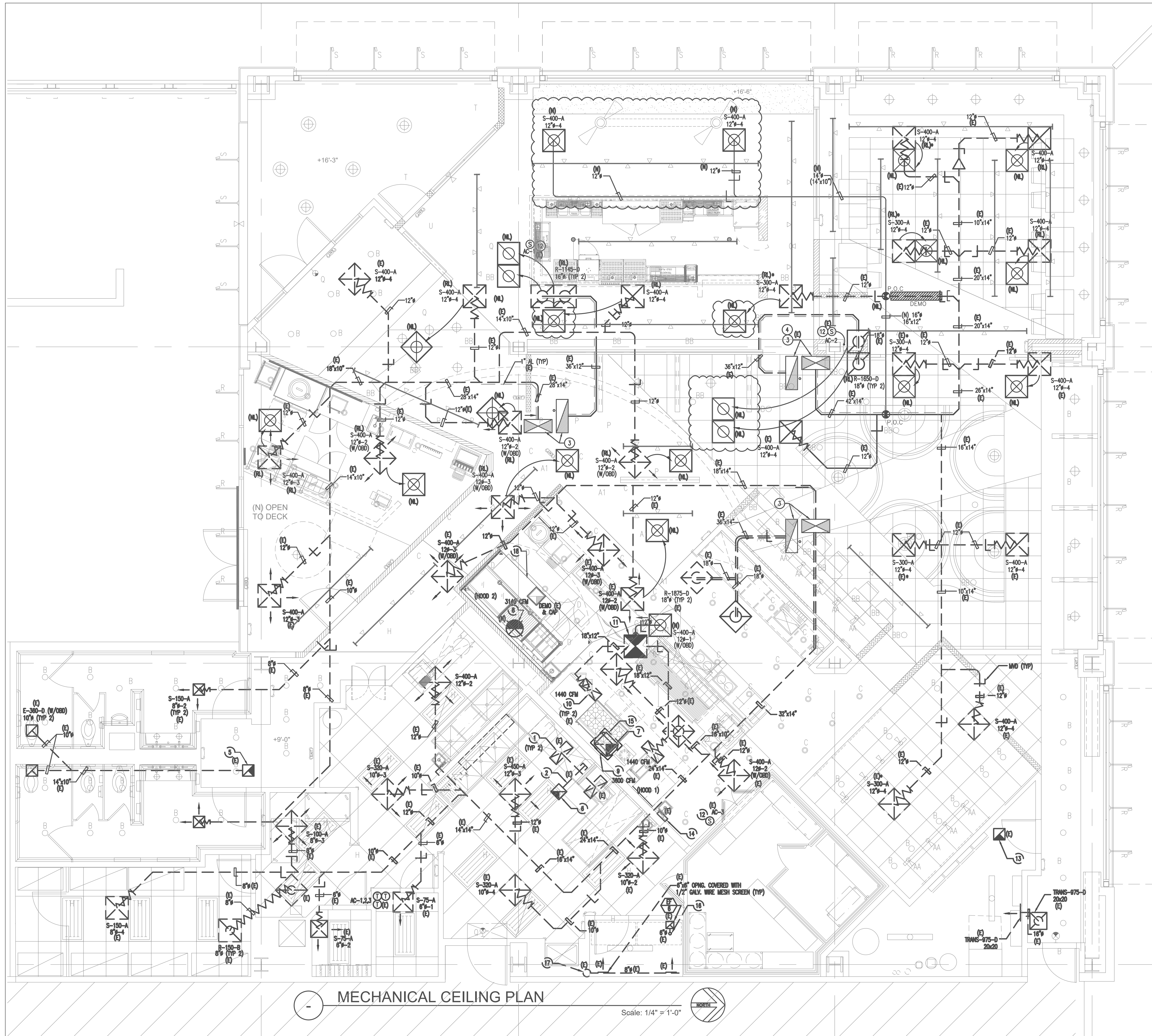


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| NO. | REVISIONS: | DATE: |
|-----|----------------------------------|----------|
| 1 | LANDLORD REVIEW | 12/15/22 |
| 2 | BUILDING & HEALTH DEPT SUBMITTAL | 12/22/22 |
| 3 | BID REVISIONS | 01/16/23 |
| 4 | PLAN CHECK COMMENT RESPONSE | 03/07/23 |
| 5 | HEALTH RESPONSE | 03/23/23 |
| 6 | REVISIONS DUE TO SITE CONDITIONS | 04/27/23 |
| 7 | | |
| 8 | | |
| 9 | | |
| 10 | | |

DRAWING TITLE:
 MECHANICAL SCHEDULE

DRAWING NUMBER:
 M-1.1



MECHANICAL CEILING PLAN

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

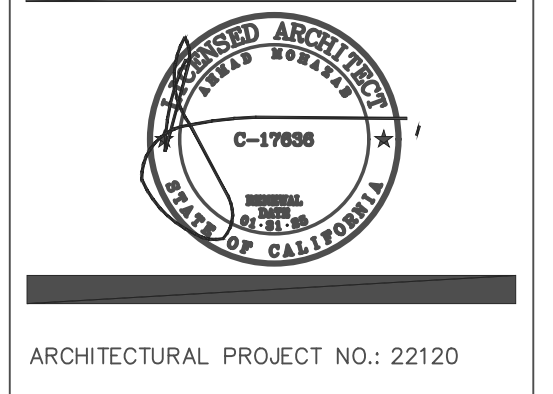
GENERAL NOTES:
 1- PROVIDE MANUAL VOLUME DAMPER FOR ALL DUCT WORK BRANCHES.

- CONSTRUCTION NOTES:**
- EXISTING CONNECTION TO DISHWASHER CONNECTION.
 - EXISTING ALUMINUM DUCTWORK SLOPED BACK TO DISHWASHER AT 2%.
 - EXISTING 36"x12" RA AND 28"x14" SA DUCT UP THRU ROOF, WITH 1" ACOUSTICAL LINING.
 - EXISTING TRANSITION TO 42"x14" SA IN VERTICAL DROP, 24" BELOW ROOF.
 - EXISTING 12"x12" EA UP THRU ROOF TO (E) EF-5.
 - EXISTING 12"x12" EA UP THRU ROOF TO (E) EF-2.
 - EXISTING 24"x12" HOOD E.A. CONNECTION, TRANSITION TO EXISTING 18"x18" GREASE EA UP THRU ROOF TO (E) EF-1.
 - NEW 18" GREASE EA UP THRU ROOF TO (N) EF-3.
 - EXISTING GREASE EXHAUST AIR DUCT WITH FIREWRAP COVERING ACCESS DOOR, WITH ACCESS DOOR IN CEILING. WITH EXISTING SIGN ON ACCESS DOOR.
 - EXISTING 24"x10" MUA CONNECTION TO PLENUM IN FRONT OF HOOD, SET @ 1600 CFH EACH.
 - EXISTING 19"x22" SA DUCT UP THRU ROOF TO (E) MUA-1.
 - EXISTING REMOTE SENSOR W/ SECURITY COVER, MOUNT AT 36" TO 48" AFF, CONNECTED TO EXISTING THERMOSTAT IN OFFICE.
 - EXISTING 14"x14" EA UP THRU ROOF TO (E) EF-4.
 - EXISTING MUA-1 CONTROL PANEL.
 - EXISTING TYPE 1 HOOD GREASE EXHAUST DUCT, WRAPPED WITH FIREWRAP BLANKET TO REMAIN.
 - EXISTING 6" UP THRU ROOF TO ROOF JACK.
 - EXISTING 8" UP THRU ROOF, WITH CAP AT 3 FT. ABOVE ROOF DECK.
 - NEW TYPE 1 HOOD GREASE EXHAUST DUCT, WRAPPED WITH FIREWRAP BLANKET.

GENERAL NOTES:
 THE FOLLOWING PERFORMANCE TEST WILL BE REQUIRED PER CODE.
 508.10 Performance Test. Upon completion and before final approval of the installation of a ventilation system serving commercial food heat-processing equipment, a performance test may be required to verify the rate of airflow and proper operation as specified in this chapter. The permittee shall furnish the necessary test equipment and devices required to perform the tests.

NOTE: REMOVE ALL UNUSED MECHANICAL EQUIPMENT AND DUCTWORK. CAP UNUSED DUCTWORK ABOVE CEILING OR ON ROOF. CLEAN EXISTING CEILING DIFFUSERS AND RETURN AIR GRILLE AS NEEDED. SEE ARCHITECTURAL DEMO PLAN.

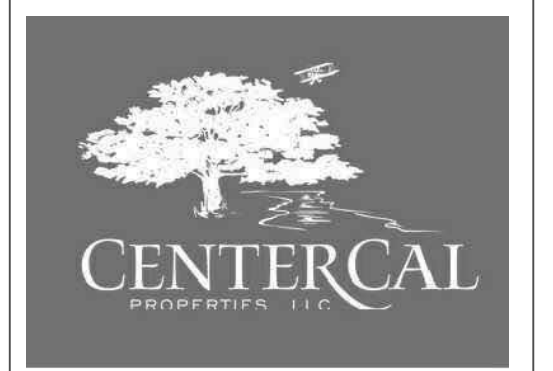
- LEGEND:**
- (E)* = EXISTING TO REMAIN ADJUST CFM AS INDICATED.
 - (NL) = NEW LOCATION OF EXISTING DEVICE INTERCEPT DUCTWORK EXTEND TO NEW LOCATION OF THE DEVICE AND RECONNECT AS REQUIRED.
 - (N) = NEW TO MATCH EXISTING. SEE NEW DUCTWORK LAYOUT.
 - (RL) = RELOCATE EXISTING DEVICE
 - (RL)* = RELOCATE EXISTING DEVICE. ADJUST CFM AS INDICATED.



ARCHITECTURAL PROJECT NO: 22120

FLORES

TENANT IMPROVEMENT
 FLORES
 5614 BAY STREET
 EMERYVILLE, CA 94608



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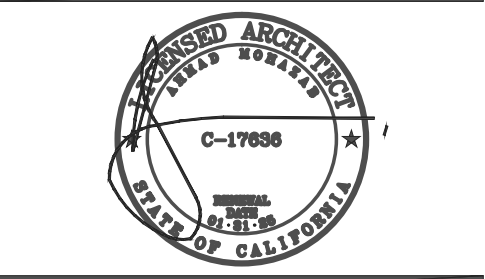
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| 6 | REVISIONS DUE TO SITE CONDITIONS | 04/27/23 |

DRAWING TITLE:
MECHANICAL CEILING PLAN

DRAWING NUMBER:
M-2.0



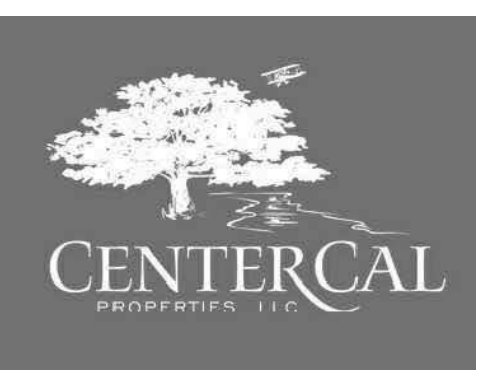
MARS Engineering Group, INC.
 Electrical • Mechanical • Plumbing
 22715 VICTORY BLVD. PH: (818)593-8999
 WEST HILLS, CA 91307 FAX: (818)230-7773



ARCHITECTURAL PROJECT NO: 22120

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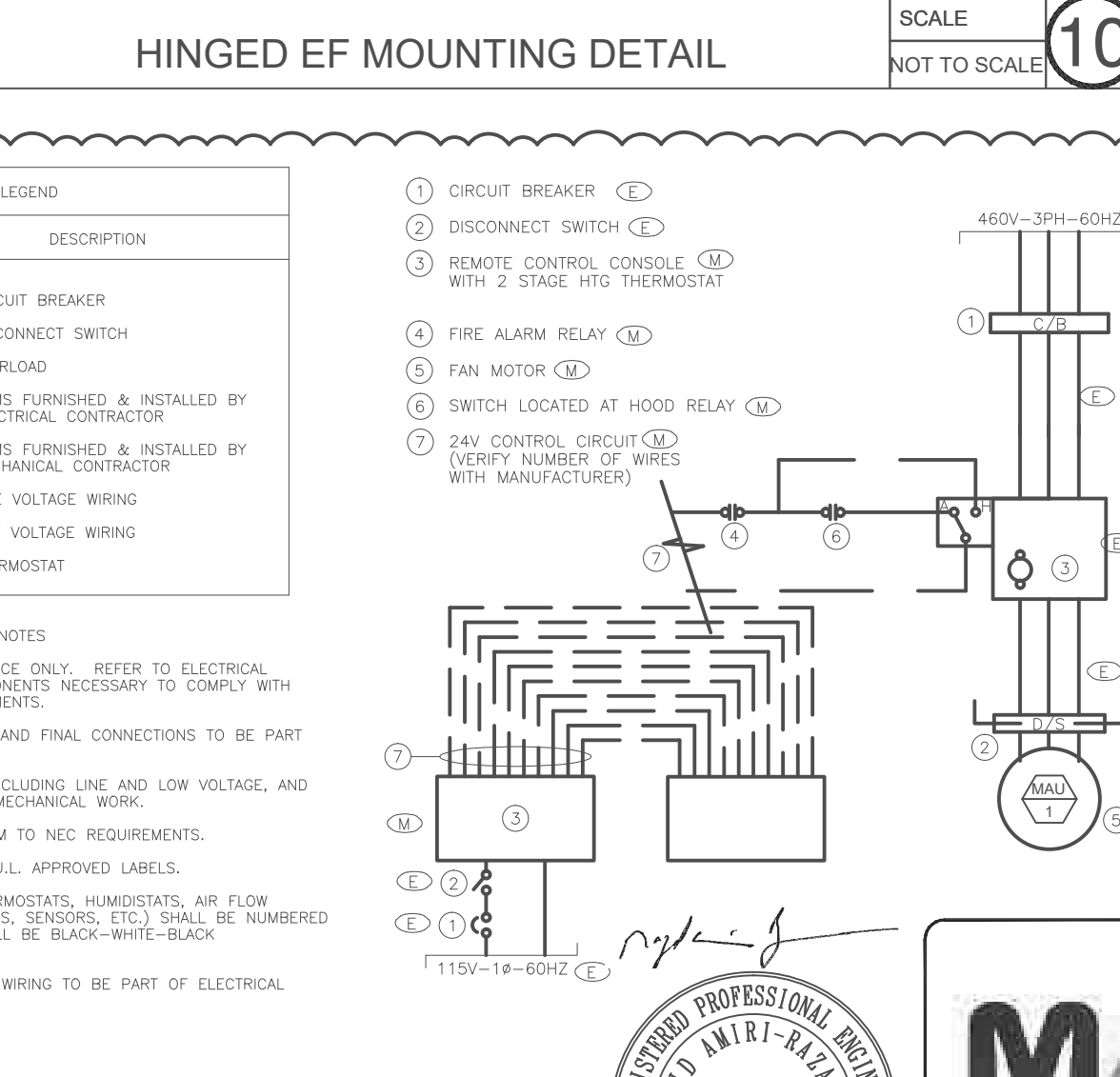
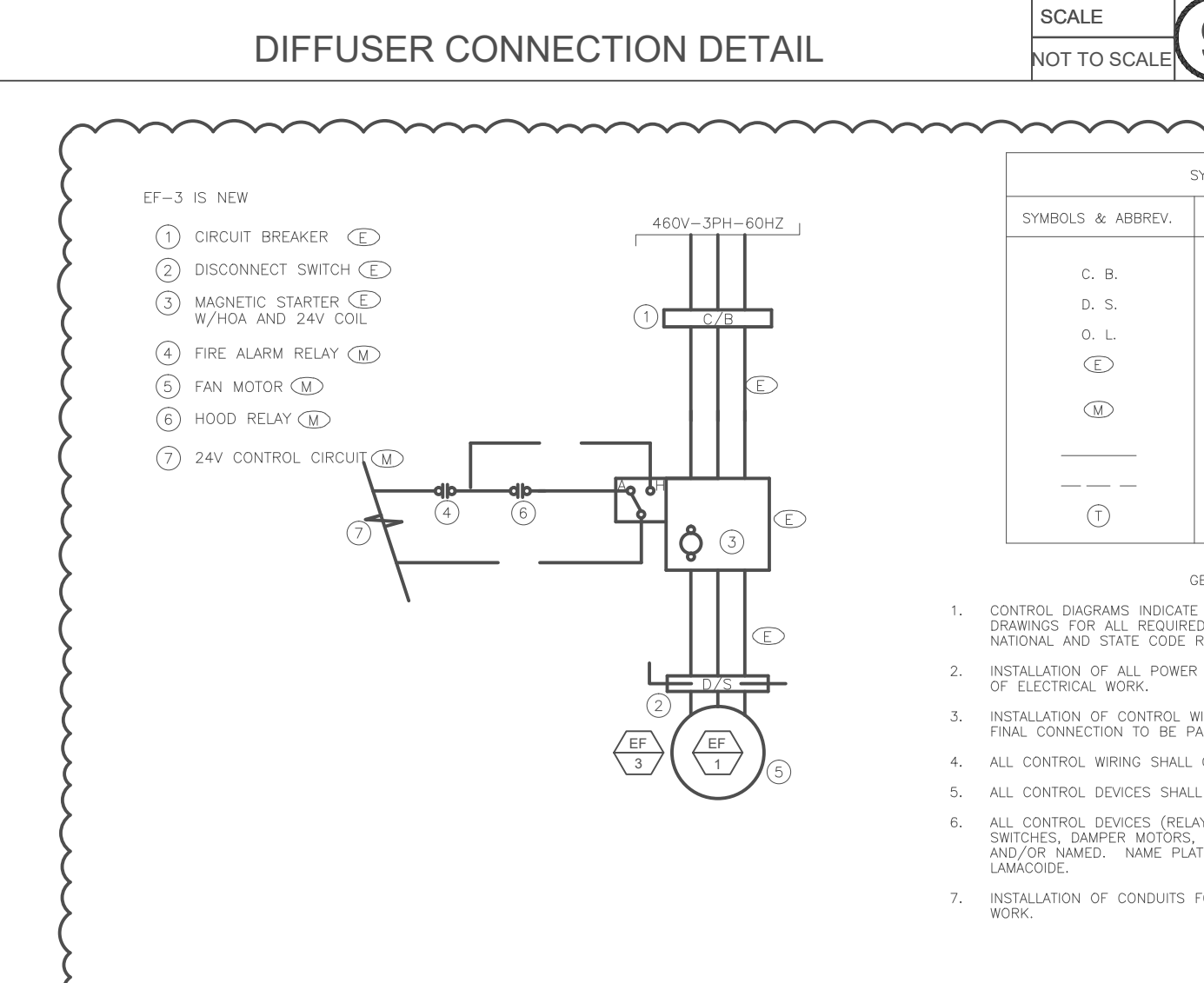
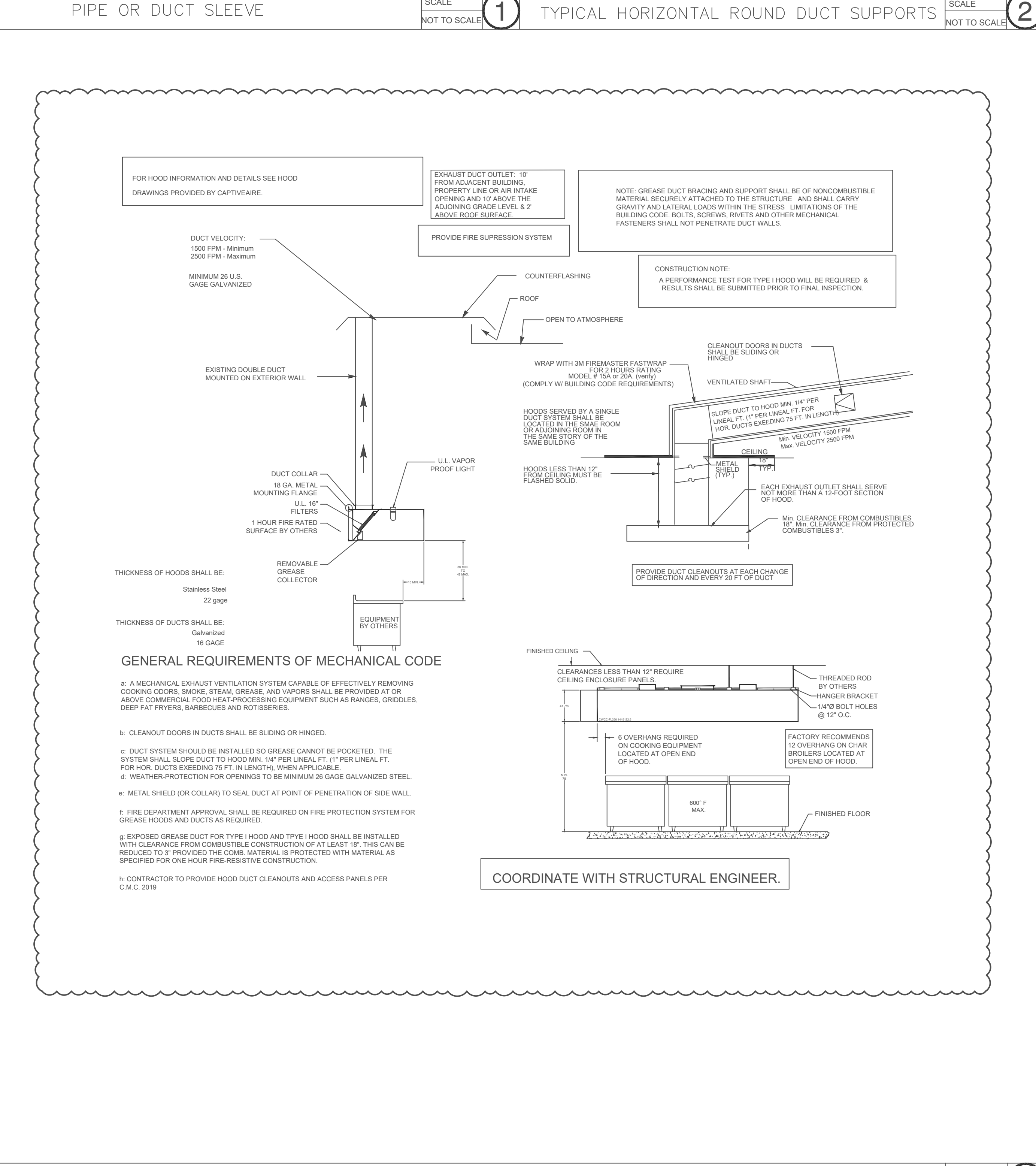
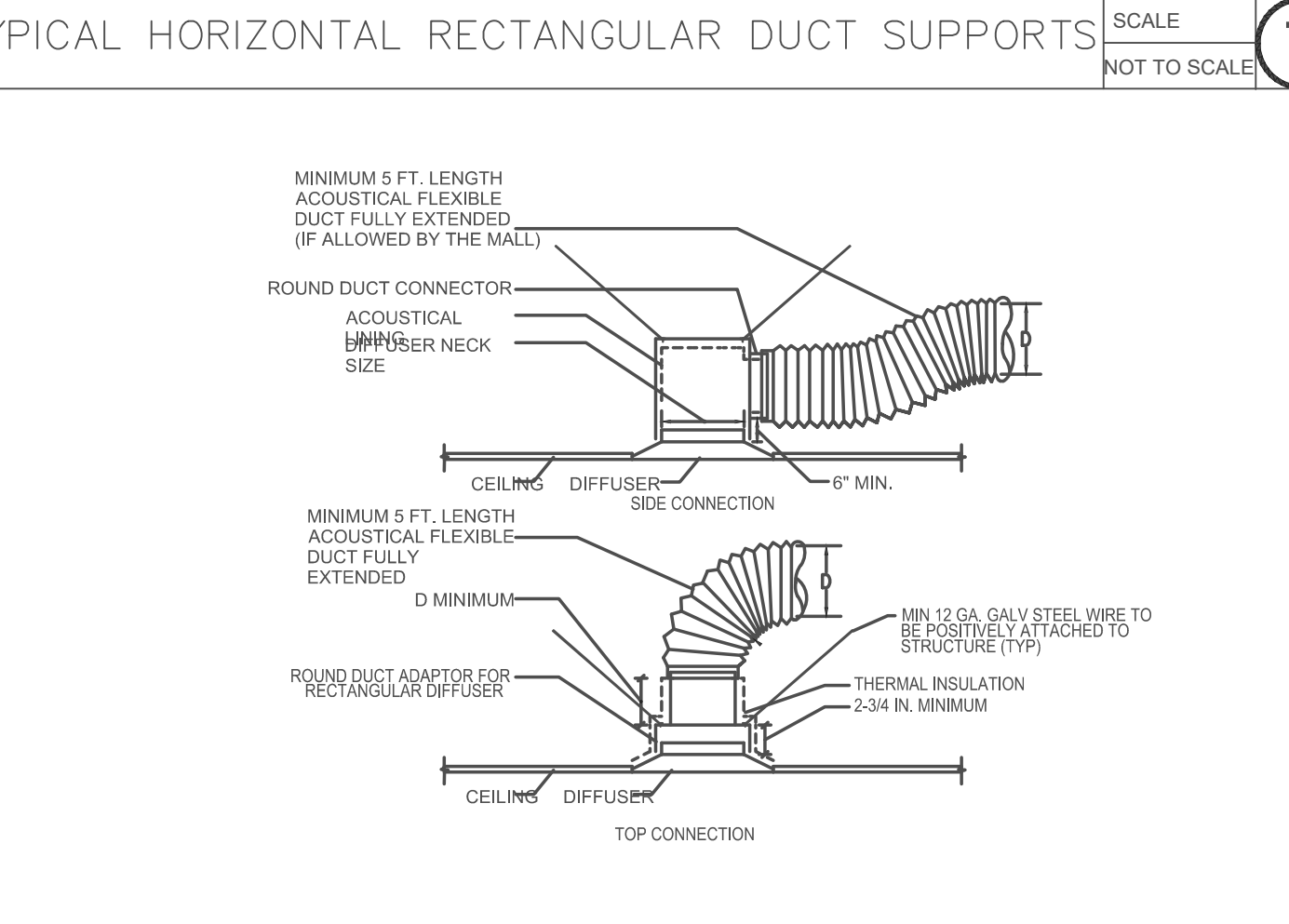
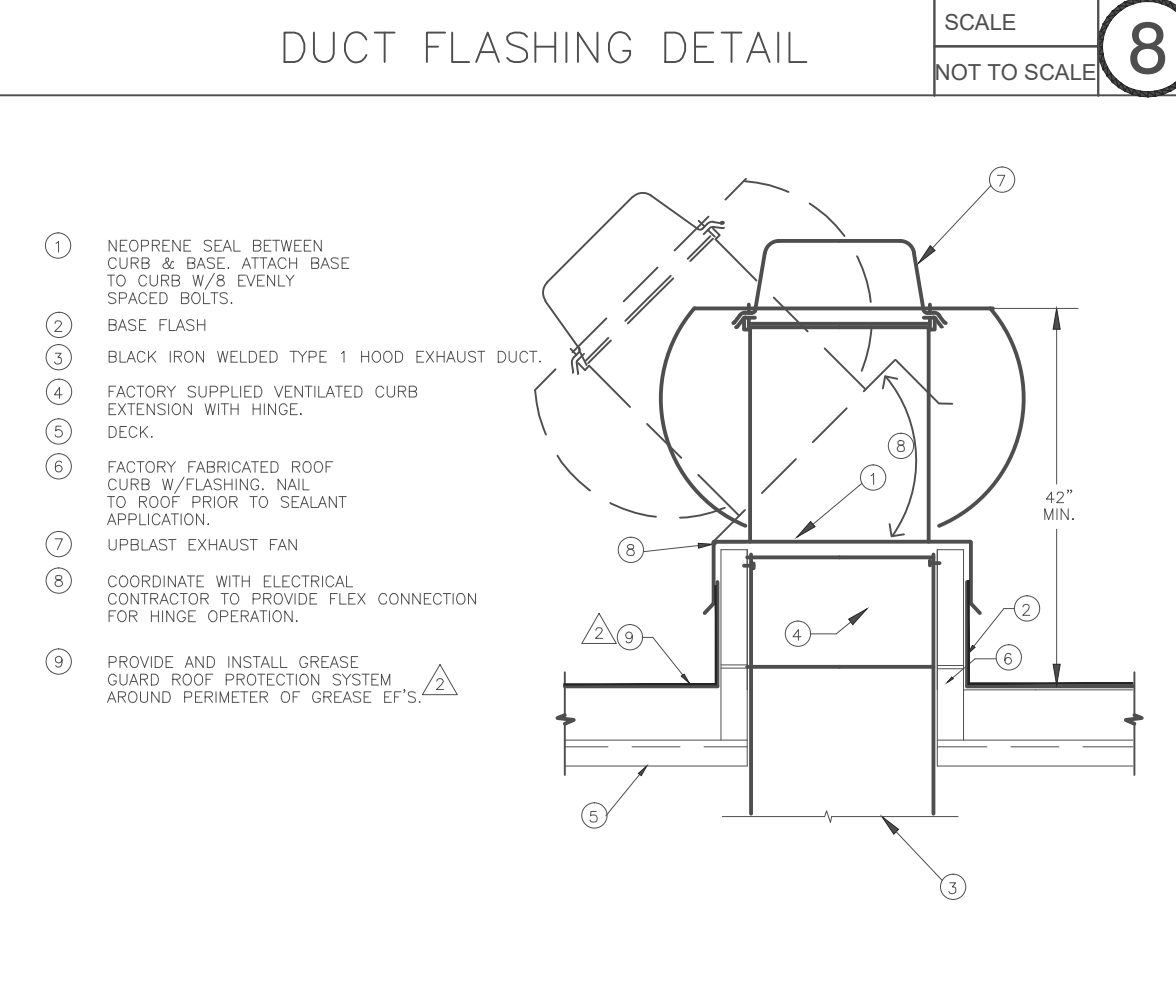
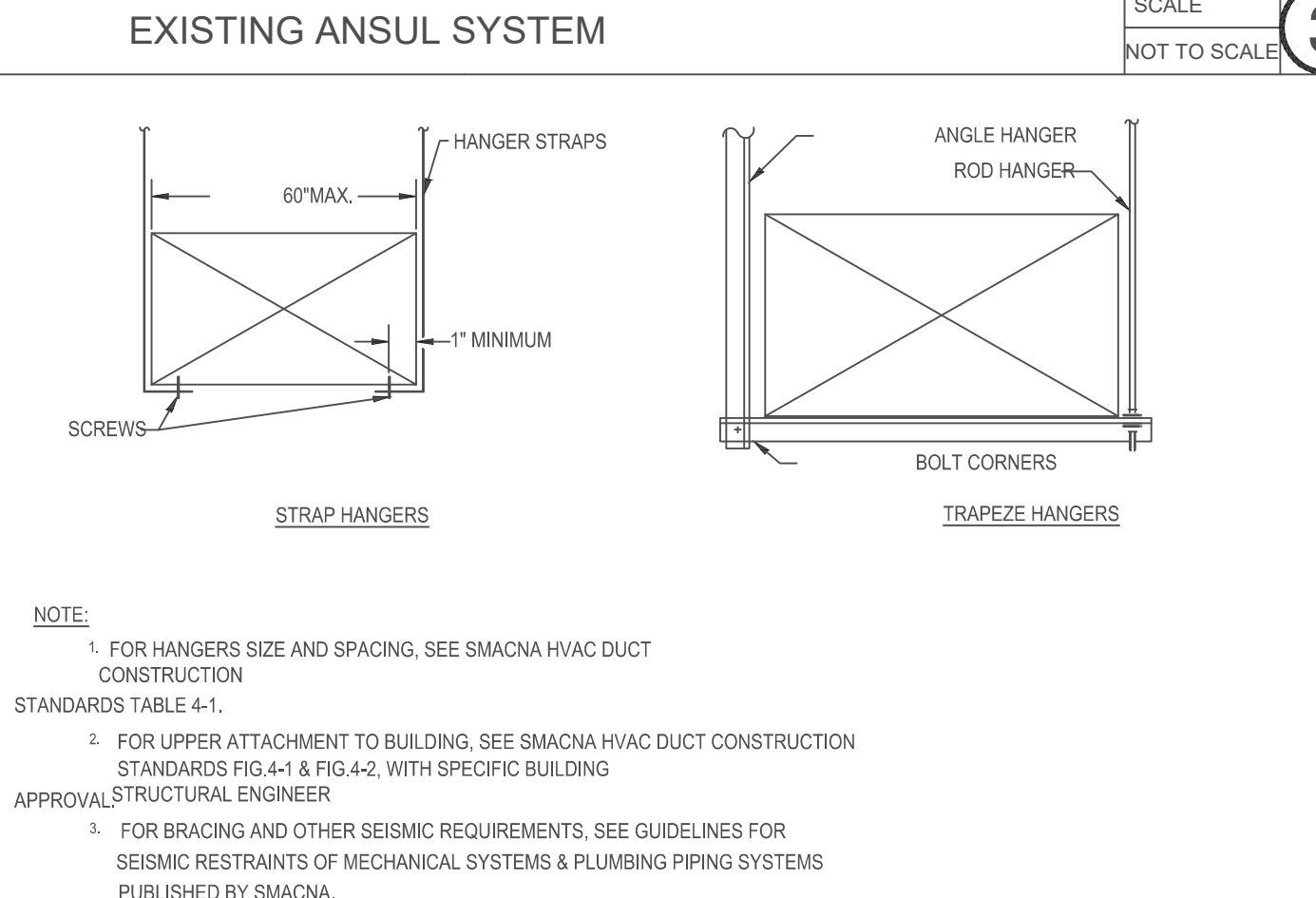
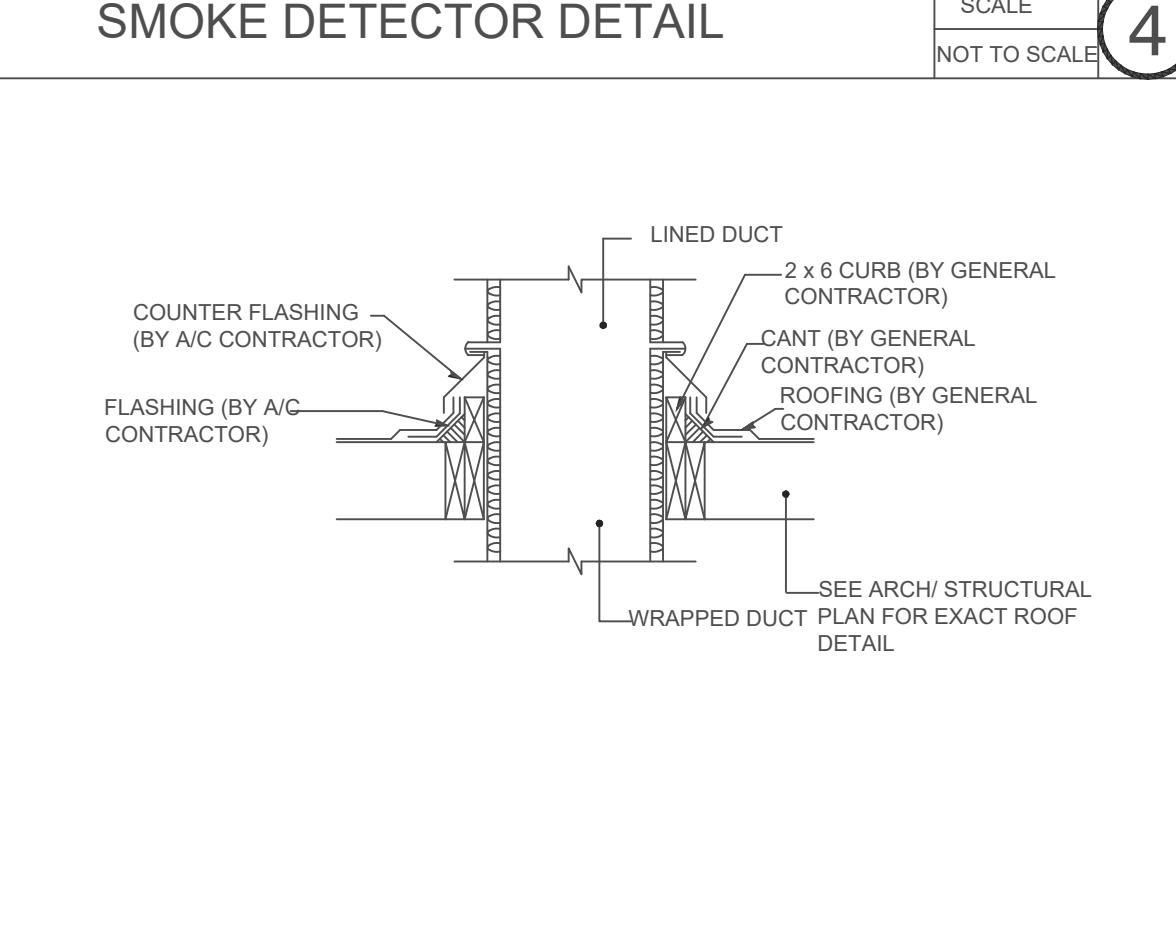
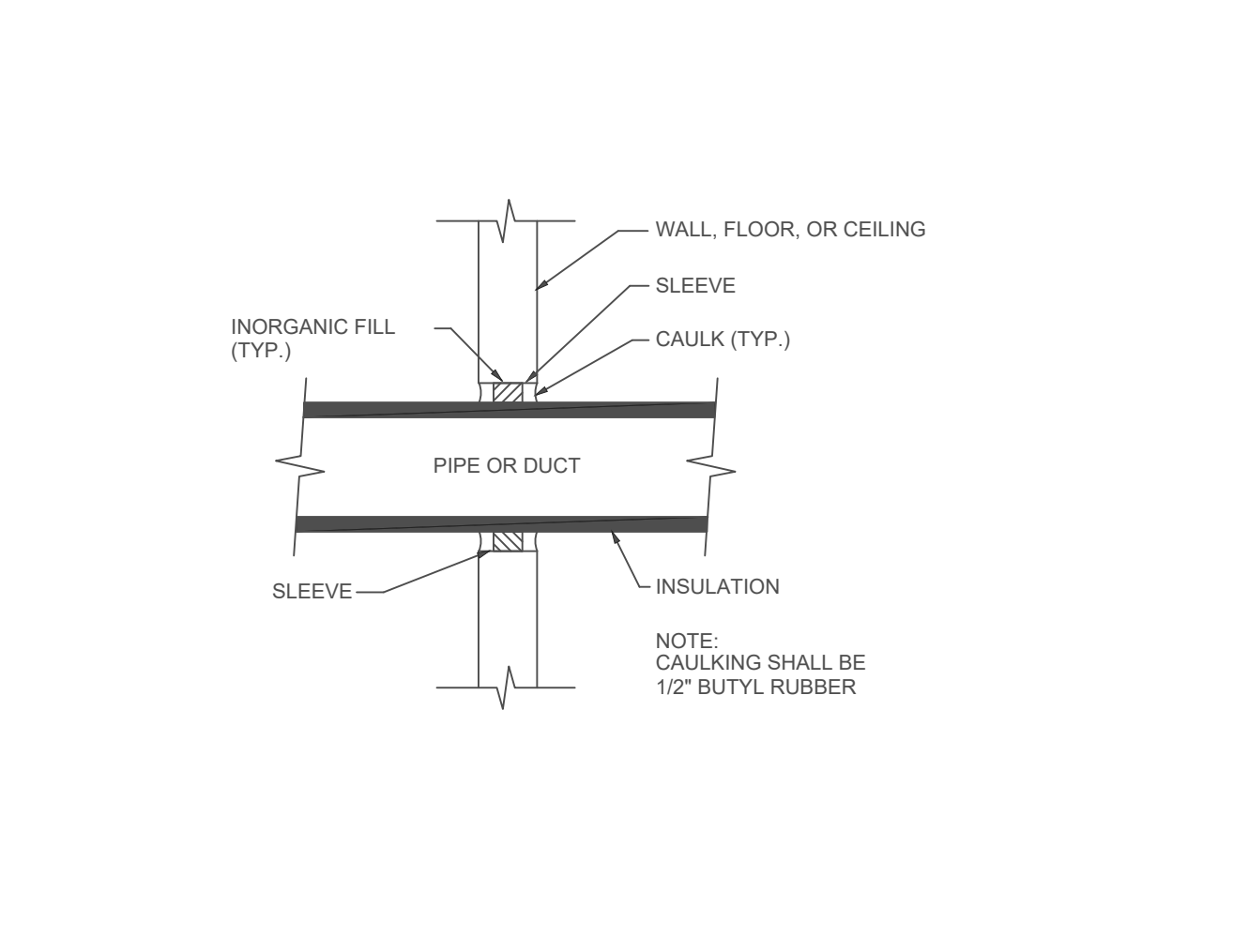
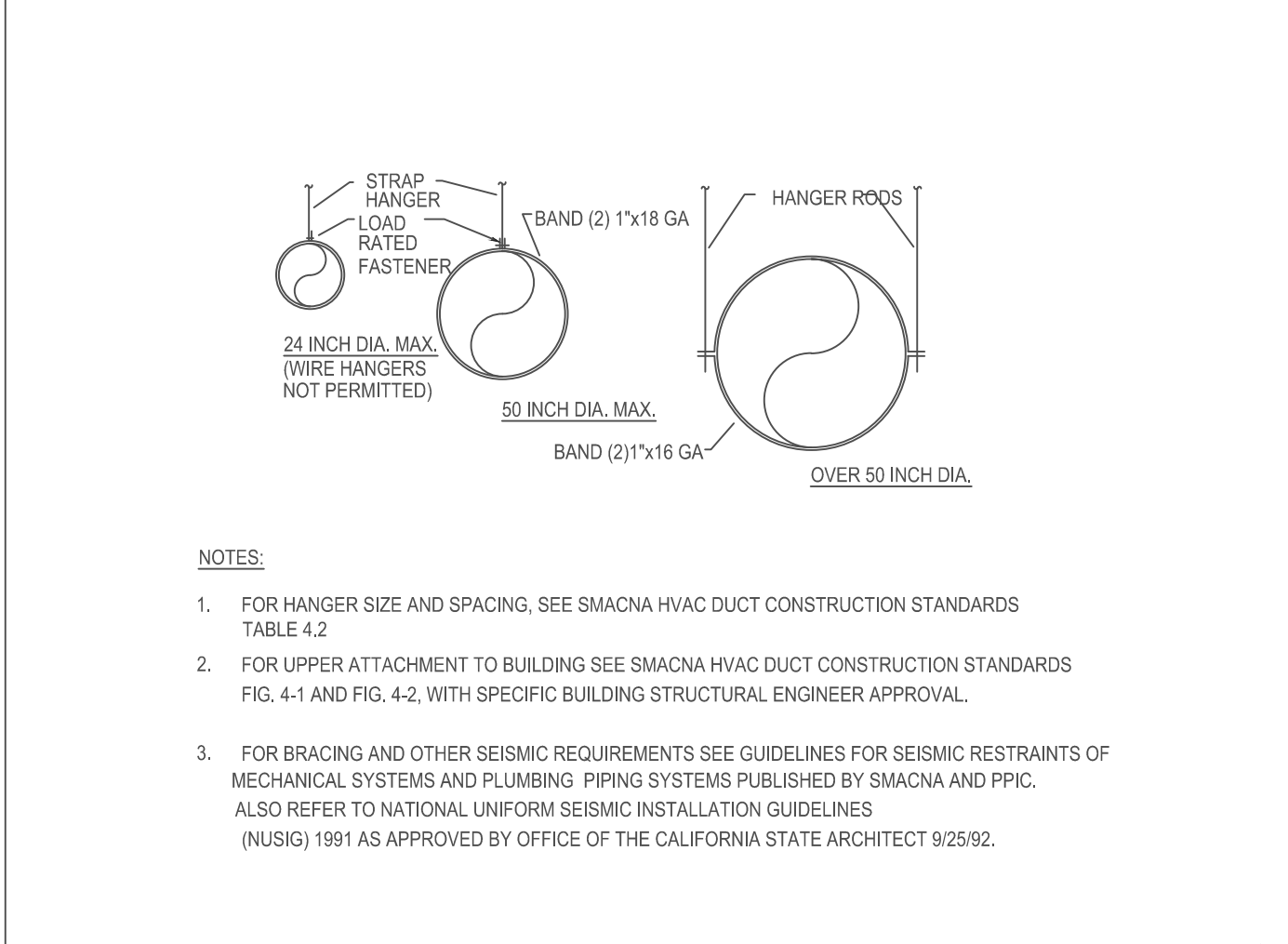
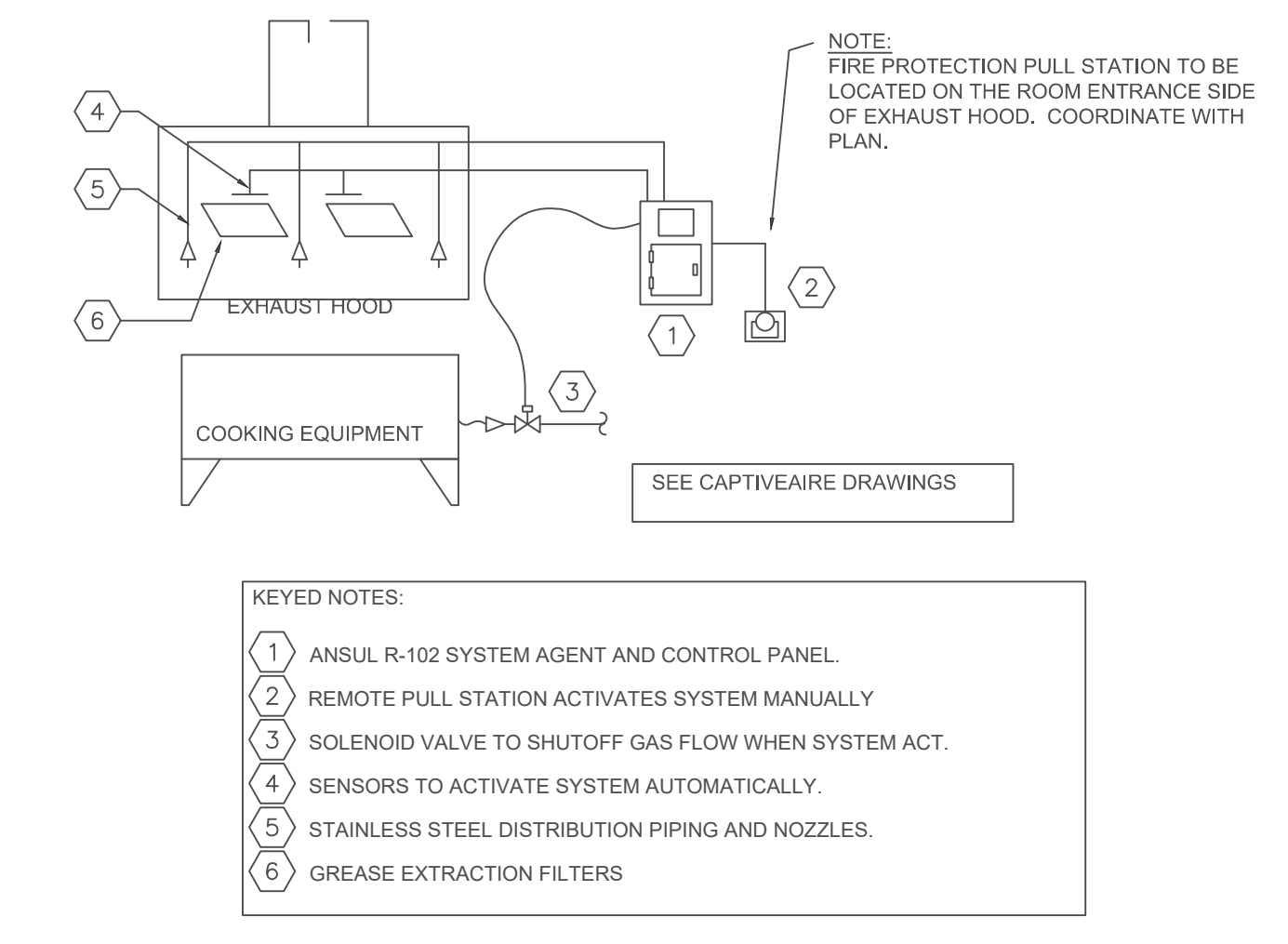
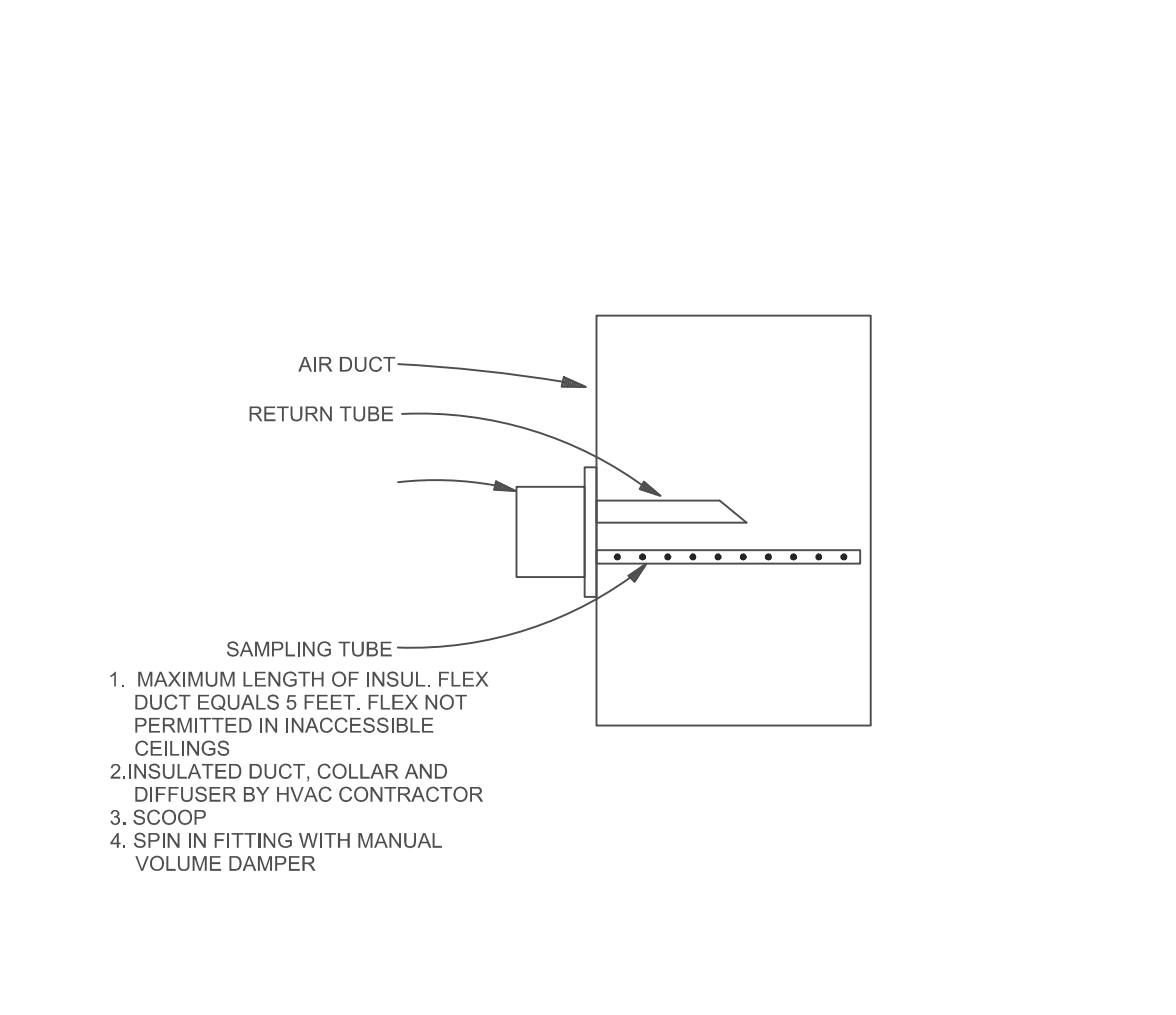
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DRAWING TITLE:
MECHANICAL DETAILS

DRAWING NUMBER:
M-3.0



Electrical • Mechanical • Plumbing
 22715 VICTORY BLVD. PH: (818) 593-8999
 WEST HILLS, CA 91307 FAX: (818) 230-7773



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 Engineering Group, INC.
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 WEST HILLS, CA 91307 FAX: (818) 230-7773

FOR QUESTIONS, CALL THE
Central CA
REGION 91
PHONE: (415) 956-2200
EMAIL: reg91@captivaire.com

PATENT NUMBERS
EXHAUST HOODS ND-2/BD-2/SND-2 (CANADA) - CA PATENT 2520435.C.

HOOD INFORMATION - JOB#5785229

| HOOD NO | TAG | MODEL | MANUFACTURER | LENGTH | MAX COOKING TEMP | TYPE | APPLIANCE DUTY | DESIGN CFM/FT | TOTAL EXH CFM | MIN CFM | EXHAUST PLENUM | | | | HOOD CONSTRUCTION | HOOD CONFIG | | | | |
|---------|-----|-----------|--------------|--------|------------------|------|----------------|---------------|---------------|---------|----------------|------|--------|-----|-------------------|-------------|---------|----------------------|--------|-------|
| | | | | | | | | | | | WIDTH | LENG | HEIGHT | DIA | | CFM | VEL | SP | END TO | ROW |
| 1 | | 6024 ND-2 | CAPTIVEAIRE | 11' 5" | 600 DEG | I | HEAVY | 275 | 3140 | 2512 | | | 4" | 18" | 3140 | 1777 | -1.052" | 430 SS WHERE EXPOSED | ALONE | ALONE |

HOOD INFORMATION

| HOOD NO | TAG | FILTER(S) | | | | LIGHT(S) | | | | UTILITY CABINET(S) | | | | FIRE SYSTEM PIPING | HOOD HANGING WEIGHT | | |
|---------|-----|----------------------|-----|--------|--------|------------------------|-----|----------------|------------|--------------------|-------------|------------------|--------------------|--------------------|---------------------|-------------------|---------|
| | | TYPE | QTY | HEIGHT | LENGTH | EFFICIENCY @ 7 MICRONS | QTY | TYPE | WIRE GUARD | LOCATION | SIZE | FIRE SYSTEM SIZE | ELECTRICAL MODEL # | | | SWITCHES QUANTITY | |
| 1 | | CAPTRATE SOLO FILTER | 8 | 20" | 16" | 85% SEE FILTER SPEC | 3 | RECESSED ROUND | NO | WALL MNT | 12"x48"x24" | TANK FS | 4.0/4.0 | DCV-1111 | 1 LIGHT 1 FAN | YES | 563 LBS |

HOOD OPTIONS

| HOOD NO | TAG | OPTION |
|---------|-----|--|
| 1 | | FIELD WRAPPER 18.00" HIGH FRONT, LEFT. BACKSPASH 80.00" HIGH X 140.00" LONG 430 SS VERTICAL. RIGHT SIDESPLASH 80.00" HIGH X 60.00" LONG 430 SS VERTICAL. RIGHT END STANDOFF (FINISHED) 3" WIDE 60" LONG INSULATED. LEFT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS. |

WALL-MOUNT UTILITY CABINET

| HOOD NO | LOCATION | SIZE | UTILITY CABINET(S) | | | | WEIGHT |
|---------|----------|-------------|--------------------|---------|--------------------|-------------------|------------|
| | | | FIRE SYSTEM TYPE | SIZE | ELECTRICAL MODEL # | SWITCHES QUANTITY | |
| 1 | WALL MNT | 12"x48"x24" | TANK FS | 4.0/4.0 | DCV-1111 | 1 LIGHT 1 FAN | 340.00 LBS |

GREASE DUCT & CHIMNEY SPECIFICATIONS:
PROVIDE GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW" ROUND 20 GAUGE 430 STAINLESS STEEL DUCTWORK. MODEL "DW" IS LISTED TO UL-1978 AND IS INSTALLED USING "V" CLAMP LOCKING CONNECTIONS SEALED WITH 3M FIRE BARRIER 2000 PLUS. MODEL "DW" DOES NOT REQUIRE WELDING PROVIDING IT HAS BEEN INSTALLED PER THE MANUFACTURERS INSTALLATION GUIDE.
PROVIDE RATED ACCESS DOORS AT EVERY CHANGE IN DIRECTION AND EVERY 12' ON CENTER. PER MANUFACTURERS LISTING MODEL "DW" HORIZONTAL RUNS LESS THAN 75 FT. CAN BE SLOPED 1/16" PER 12", HORIZONTAL RUNS MORE THAN 75 FT. CAN BE SLOPED 3/16" PER 12". DUCT SHOULD BE SLOPED AS MUCH AS POSSIBLE TO REDUCE THE CHANCE OF GREASE ACCUMULATION IN HORIZONTAL RUNS.
IF THE DUCT OR CHIMNEY IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 OR UL-103 HT LISTED DOUBLE WALL GREASE DUCT OR DOUBLE WALL CHIMNEY EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW- 2R, 2R TYPE HT, 3R, OR 3Z" ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.

CAPTIVEAIRE SYSTEMS RECOMMENDS THE USE OF LISTED, PRE-FABRICATED ROUND GREASE EXHAUST DUCT TO REDUCE STATIC PRESSURE IN THE SYSTEM, MINIMIZE INSTALLATION AND INSPECTION TIMES, AND ENSURE DUCT IS LIQUID TIGHT

VERIFY CEILING HEIGHT
HEIGHT REQUIRED TO VERIFY THAT HOOD FITS SPACE AND TO SIZE THE ENCLOSURE PANELS

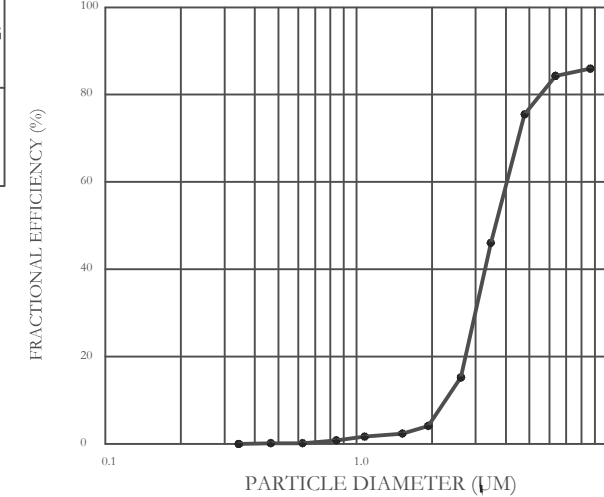
HVAC DISTRIBUTION NOTE
HIGH VELOCITY DIFFUSERS OR HVAC RETURNS SHOULD NOT BE PLACED WITHIN TEN (10) FEET OF THE EXHAUST HOOD. PERFORATED DIFFUSERS ARE RECOMMENDED.

CUSTOMER APPROVAL TO MANUFACTURE:
APPROVED AS NOTED
APPROVED WITH NO EXCEPTION TAKEN
REVISE AND RESUBMIT
SIGNATURE _____ DATE _____
YOUR TITLE _____

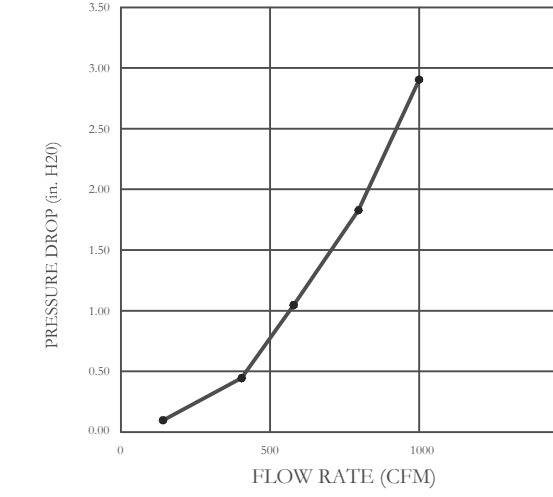
SPECIFICATION: CAPTRATE GREASE-STOP SOLO FILTER

THE CAPTRATE GREASE-STOP SOLO FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-Baffle DESIGN IN CONJUNCTION WITH A SLOTTED REAR Baffle DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.
FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).
UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.
GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.
THE CAPTRATE GREASE-STOP SOLO WAS TESTED TO ASTM STANDARD ASTM F2519-05. MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER.

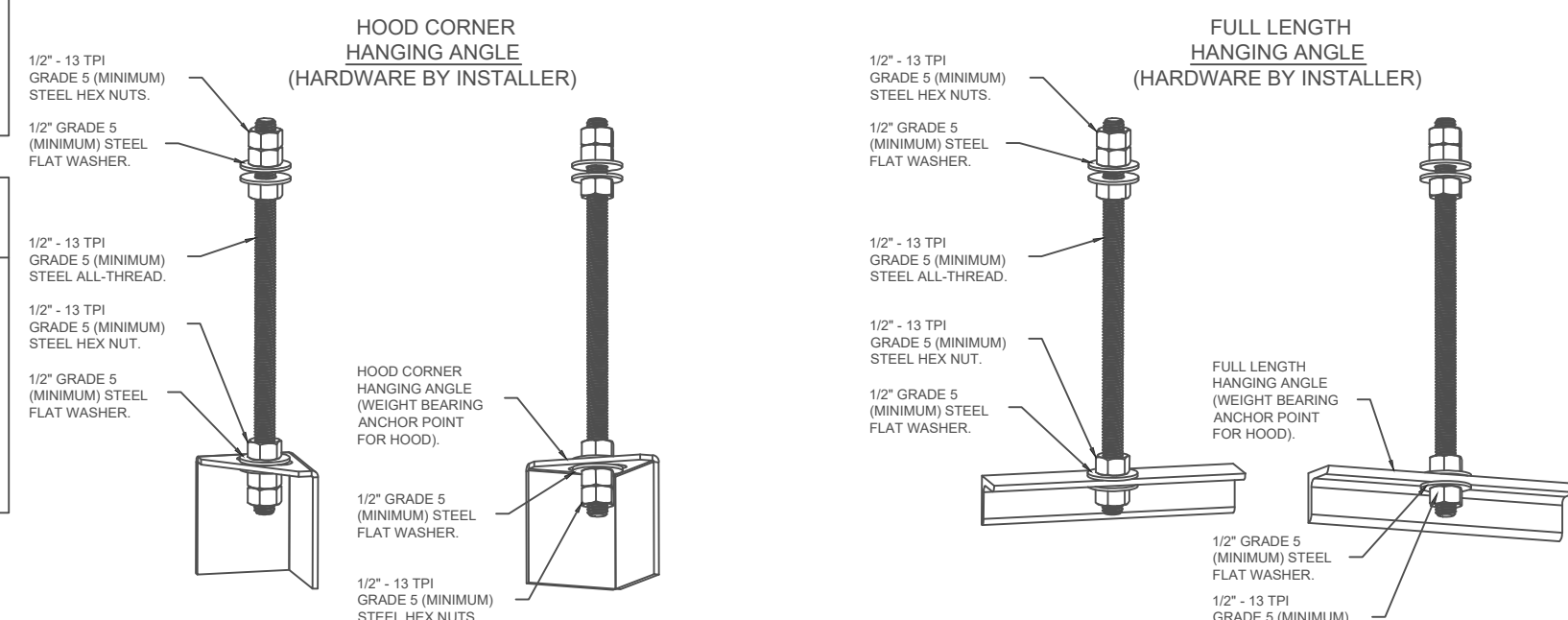
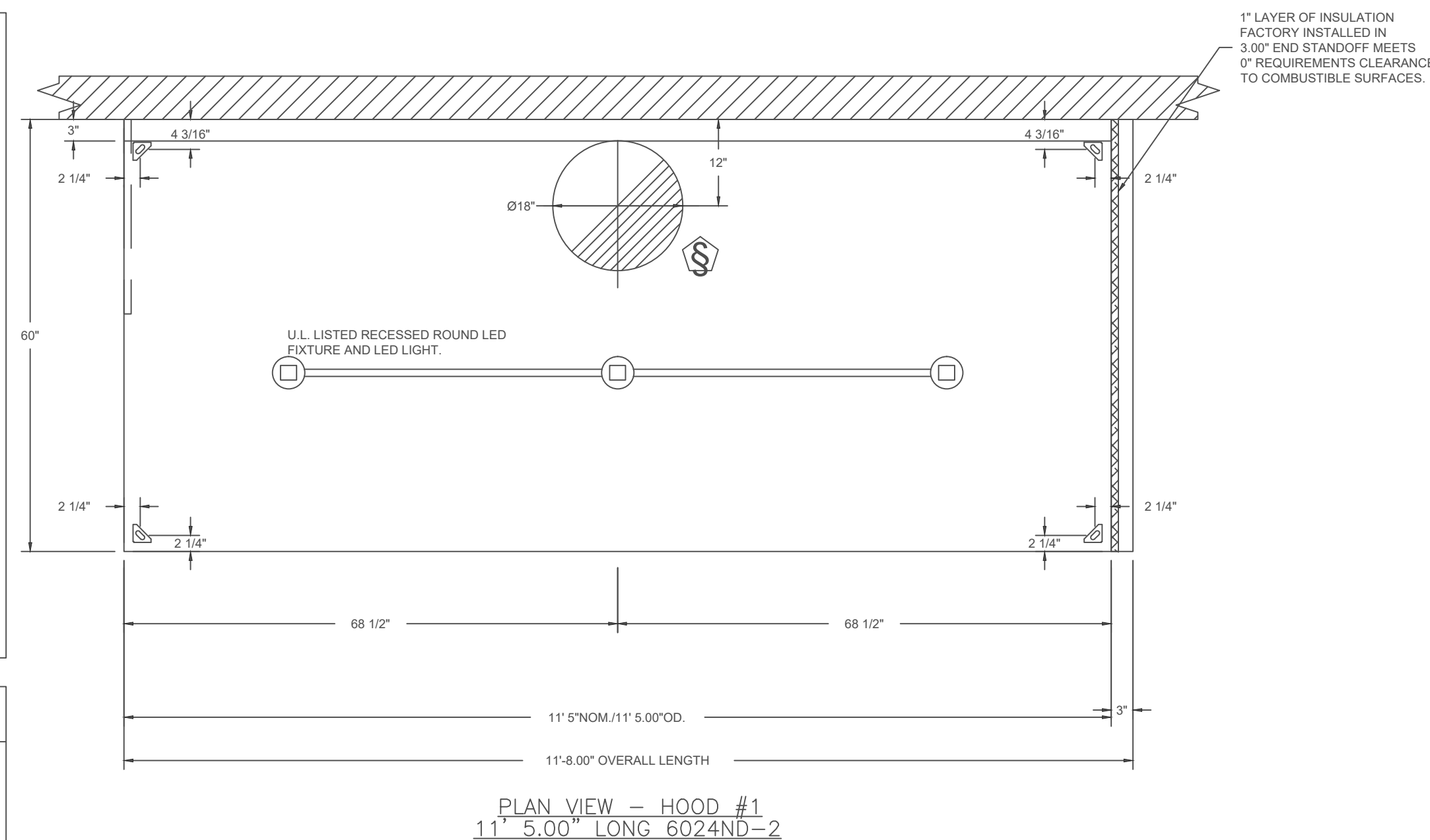
EFFICIENCY VS. PARTICLE DIAMETER



PRESSURE DROP VS. FLOW RATE



CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH:
NFPA #96
NSF STANDARD #2
UL STANDARD #1046
INT. MECH. CODE (M.C.)
ULC-S649.



ASSEMBLY INSTRUCTIONS
HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD, SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.

FOR QUESTIONS, CALL THE CAPTIVEAIRE SYSTEMS CENTRAL CALIFORNIA OFFICE
Region 91
8 ADRIAN COURT BURLINGAME, CA 94010
PHONE: (415) 956-2200
EMAIL: REG91@CAPTIVEAIRE.COM

CAPTIVEAIRE HOODS ARE BUILT IN COMPLIANCE WITH
NFA #96
UL 710 & UL 710 STANDARDS
E.T.L. LISTED 3054894-001

CAPTRATE & KLEEN-GARD FILTERS ARE BUILT IN COMPLIANCE WITH
NFA #96
NSF STANDARD #2
UL STANDARD #1046
INT. MECH. CODE (M.C.)

REVISIONS

| NO. | DESCRIPTION | DATE |
|-----|-------------|------|
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| | | |
| | | |
| | | |



CAPTIVEAIRE
Central CA
8 Adrian Court, Burlingame, CA, 94010
PHONE: (415) 956-2200 FAX: (415) 227-5940
EMAIL: reg91@captivaire.com
www.captivaire.com

Flores - Emeryville
5614 Bay Street,
Emeryville, CA, 94608

DATE: 12/27/2022
DWG.#: 5785229
DRAWN BY: Danny Ng
SCALE: 3/4" = 1'-0"
MASTER DRAWING

SHEET NO.
1

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ARCHITECTURAL PROJECT NO.: 22120

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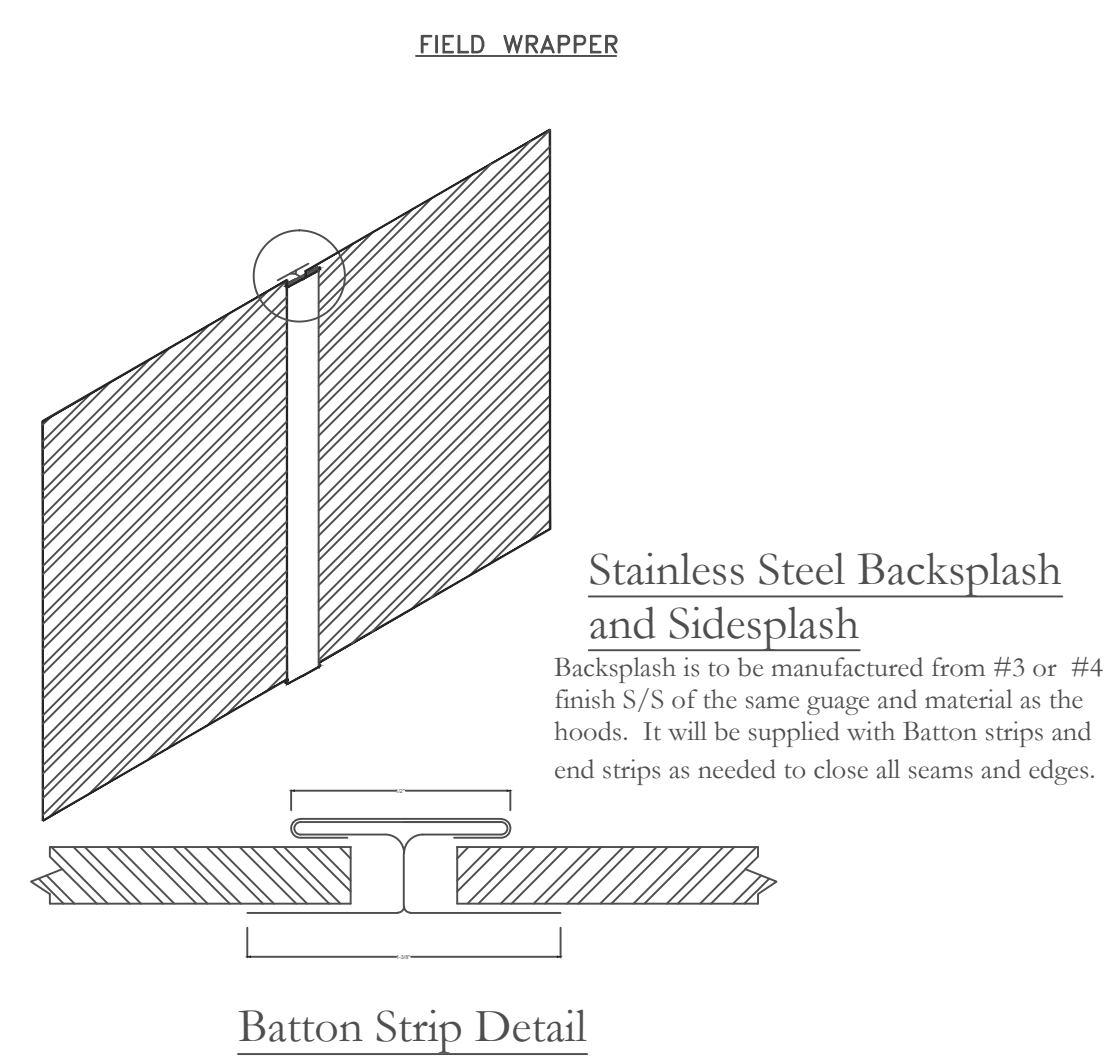
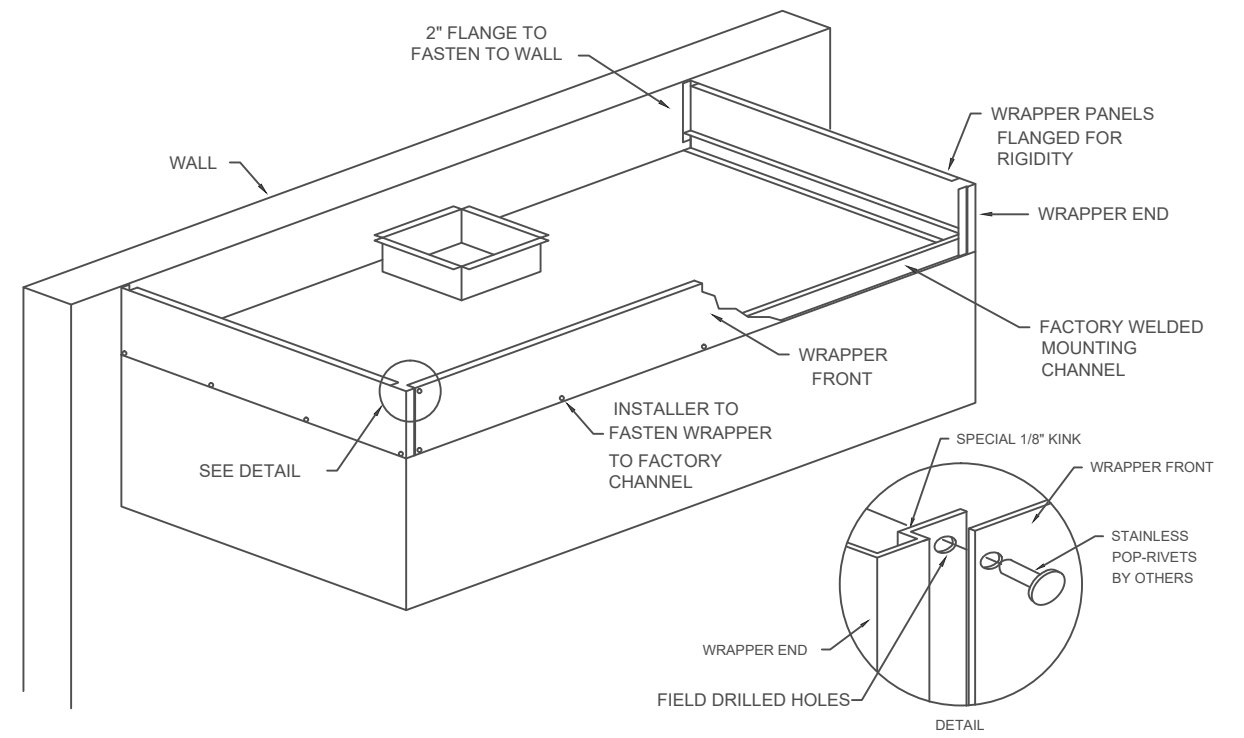
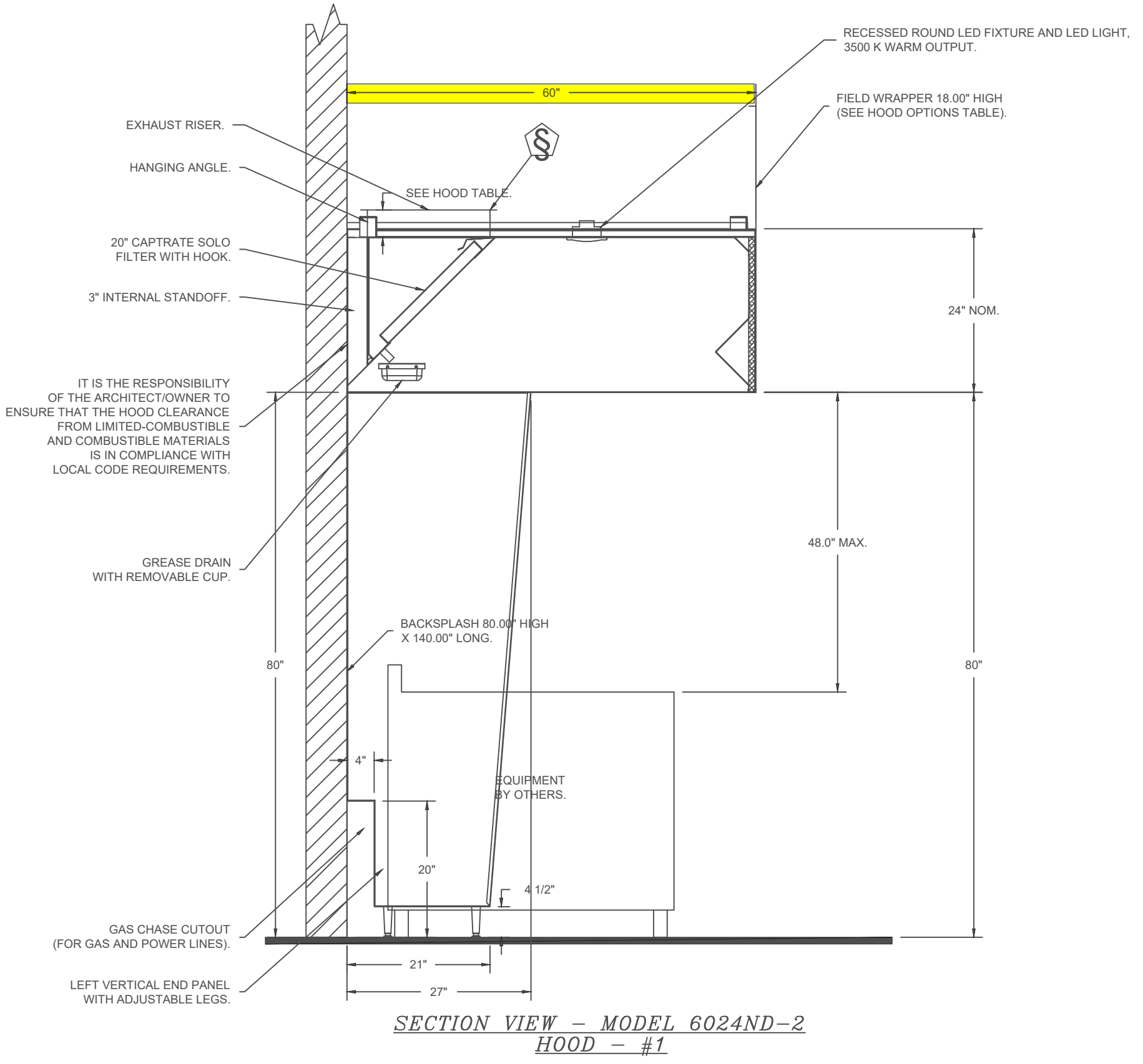
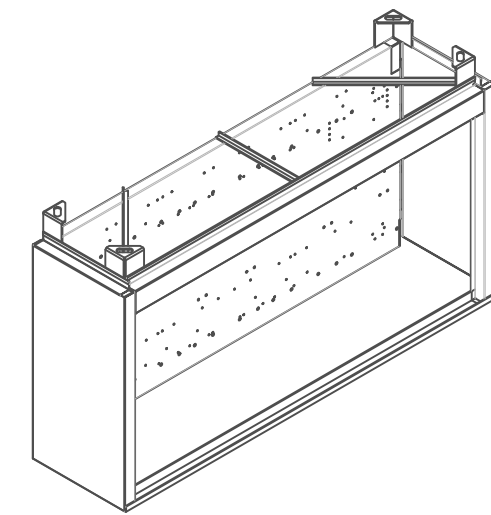
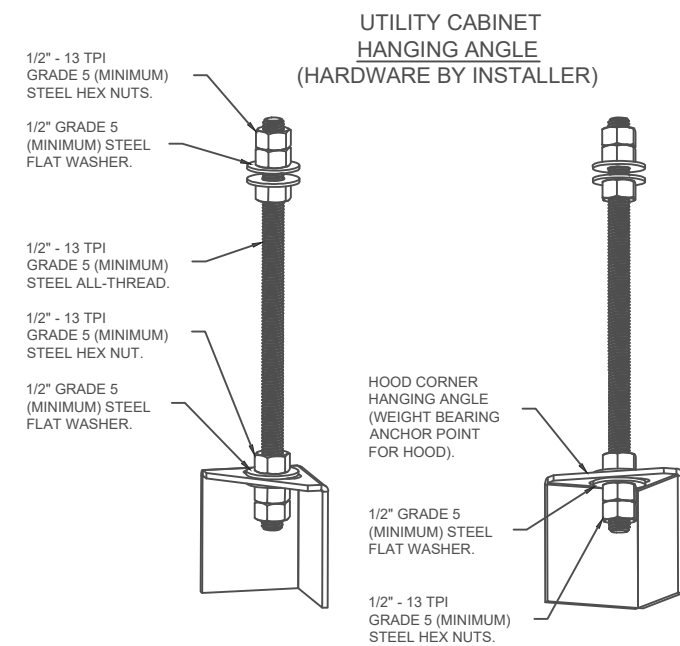
DRAWING TITLE:
HOOD DRAWINGS

DRAWING NUMBER:
M-5.0



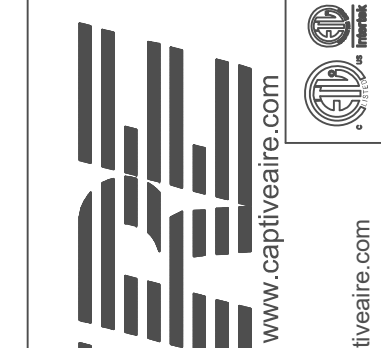
**WALL-MOUNT UTILITY CABINET
ASSEMBLY INSTRUCTIONS**

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH UTILITY CABINET HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.



REVISIONS

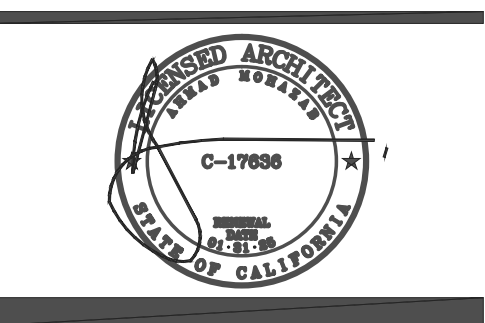
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5614 Bay Street,
Emeryville, CA, 94608

DATE: 12/27/2022
DWG.#: 5785229
DRAWN BY: Danny Ng
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 2



ARCHITECTURAL PROJECT NO.: 22120

FLORES

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| NO. | REVISIONS: | DATE: |
|-----|------------------------------------|----------|
| | LANDLORD REVIEW | 12/15/22 |
| | BUILDING & HEALTH DEPT SUBMITTAL | 12/22/22 |
| | BID REVISIONS | 01/16/23 |
| 1 | PLAN CHECK COMMENT RESPONSE | 03/07/23 |
| 2 | PLAN CHECK COMMENT HEALTH RESPONSE | 03/23/23 |
| | REVISIONS DUE TO SITE CONDITIONS | 04/27/23 |
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DRAWING TITLE:
HOOD DRAWINGS

DRAWING NUMBER:
M-5.1



FIRE SYSTEM INFORMATION - JOB#5785229

| FIRE SYSTEM NO | TAG | TYPE | SIZE | FLOW POINTS | INSTALLATION | |
|----------------|-----|---------|---------|-------------|---------------------------|------------------|
| | | | | | SYSTEM | LOCATION ON HOOD |
| 1 | | TANK FS | 4.0/4.0 | 37 | WALL UTILITY CABINET LEFT | N/A |

CAS VALVE(S)

| FIRE SYSTEM NO | TAG | TYPE | SIZE | SUPPLIED BY |
|----------------|-----|---------------|-------|---------------------|
| 1 | | SC ELECTRICAL | 2.000 | CAPTIVEAIRE SYSTEMS |

FIRE SYSTEM PARTS LIST KEY

| FIRE SYSTEM NO | TAG | KEY NUMBER - PART DESCRIPTION | QTY BY FACTORY | QTY BY DIST |
|----------------|-----|---|----------------|-------------|
| | | 0-0 - TANK FIRE SUPPRESSION POST-DISCHARGE PROCEDURE UTILITY CABINET LABEL SHEET. | 1 | 0 |
| | | 0-0 - TANK FIRE SUPPRESSION MAINTENANCE GUIDE UTILITY CABINET LABEL SHEET. | 1 | 0 |
| | | 0-0 - 12-F28021-32144-OT-360 DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS. NO. CLOSE ON TEMP RISE AT 360°F. | 1 | 0 |
| | | 0-0 - 361091 3/8" BRASS PLUG. | 3 | 0 |
| | | 0-0 - 4429K153 1/2" MALE NPT TO 1/2" FEMALE NPT ELBOW, BRASS. | 2 | 0 |
| | | 0-0 - 4429K422 1/2" X 1/4" BRASS REDUCING BUSHING. | 1 | 0 |
| | | 0-0 - 79425 3/8" NPT FEMALE TO 1/2" MALE PROGRESS ADAPTER. | 3 | 0 |
| | | 0-0 - 79525 1/2" 90 PRO-PRESS ELBOW WITH 1/2" NPT FEMALE CONNECTION, VIEGA. | 1 | 0 |
| | | 0-0 - 79580 1/2" X 1/2" PRO-PRESS TEE X 1/2" NPT FEMALE CONNECTION, VIEGA. | 2 | 0 |
| | | 0-0 - 87-120042-001 SECONDARY ACTUATOR VALVE (SVA) - SINGLE ACTUATOR, REQUIRES PRIMARY RELEASE ACTUATOR, TANK FIRE SUPPRESSION. | 1 | 0 |
| | | 0-0 - 87-120045-001 HOSE, SECONDARY ACTUATOR HOSE, 7.5" BRAIDED STAINLESS STEEL, TANK FIRE SUPPRESSION. | 1 | 0 |
| | | 0-0 - 87-300001-001 TANK - PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION. | 2 | 0 |
| | | 0-0 - 87-300030-001 PRIMARY ACTUATOR KIT (PAK) - ACTUATOR AND RELEASE SOLENOID ASSEMBLY, ONE NEEDED PER FIRE SYSTEM, SUPERVISED, TANK FIRE SUPPRESSION. | 1 | 0 |
| | | 0-0 - 87-300152-001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION. | 8 | 0 |
| | | 0-0 - 9055455PC PRO PRESS 1/2 PRESS X PRESS 90 ELBOW LD. | 5 | 0 |
| | | 0-0 - 9097200PC PRO PRESS PC611 1/2 PRESS TEE LD. | 8 | 0 |
| | | 0-0 - 98694A115 HARDWARE, DATANKLOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION. | 4 | 0 |
| | | 0-0 - A0034332 JUNCTION BOX FOR MANUAL PULL STATION. 1.5" DEEP BACK BOX, RED COLOR. | 1 | 0 |
| | | 0-0 - A31484 1/4" NPT SCHRADER VALVE AND CAP, JB INDUSTRIES. 1/4" FLARE X 1/4" MPT HALF UNION. USED ON TANK SERVICE PORT. | 1 | 0 |
| | | 0-0 - BI145 3/8" BLACK IRON 90 ELL. | 3 | 0 |
| | | 0-0 - DATANKLOCK DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION. | 2 | 0 |
| | | 0-0 - SLPCON-20FT SUPERVISED LOOP CONNECTION KIT. CONTAINS THE PARTS NEEDED TO CONNECT THE SUPERVISED LOOP BETWEEN HOODS WITH UP TO 19' GAP. KIT CONTAINS 22 FEET OF BLACK MG WIRE, 22 FEET OF TAN MG WIRE, 20 FEET OF FLEXIBLE CONDUIT, AND TWO 7/8" CONNECTORS. | 2 | 0 |
| | | 0-0 - TANK STRAP TANK STRAP - USED FOR TANK FIRE SUPPRESSION. | 6 | 0 |
| | | 0-0 - TFS-UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION. | 2 | 0 |
| | | 0-0 - WK-283952-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION. | 2 | 0 |
| | | 16 - 16 - 79210 1/2" X 3/8" NPT MALE ADAPTER, VIEGA. | 8 | 0 |
| | | 16 - 16 - OL-F NOZZLE - TANK PROTECTION APPLIANCE COVERAGE NOZZLE (INCLUDES METAL BLOW OFF CAP, LANYARD, USED WITH CHROME-PLATED PIPE)- 4 FLOW POINTS. | 8 | 0 |
| | | 26 - 26 - QSA-3/8 QUIK SEAL - 3/8" (UL). | 8 | 0 |
| | | 34 - 34 - A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION) WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT, RED COLOR. | 1 | 0 |

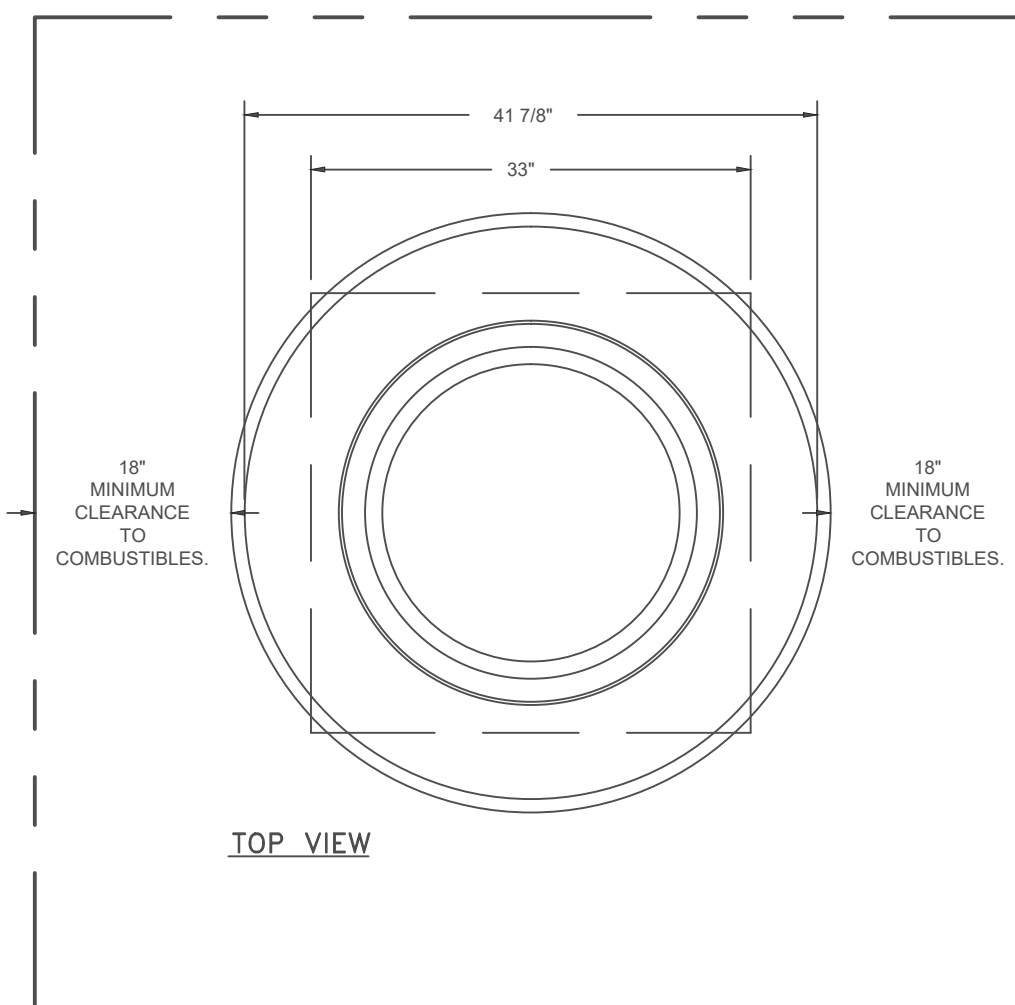
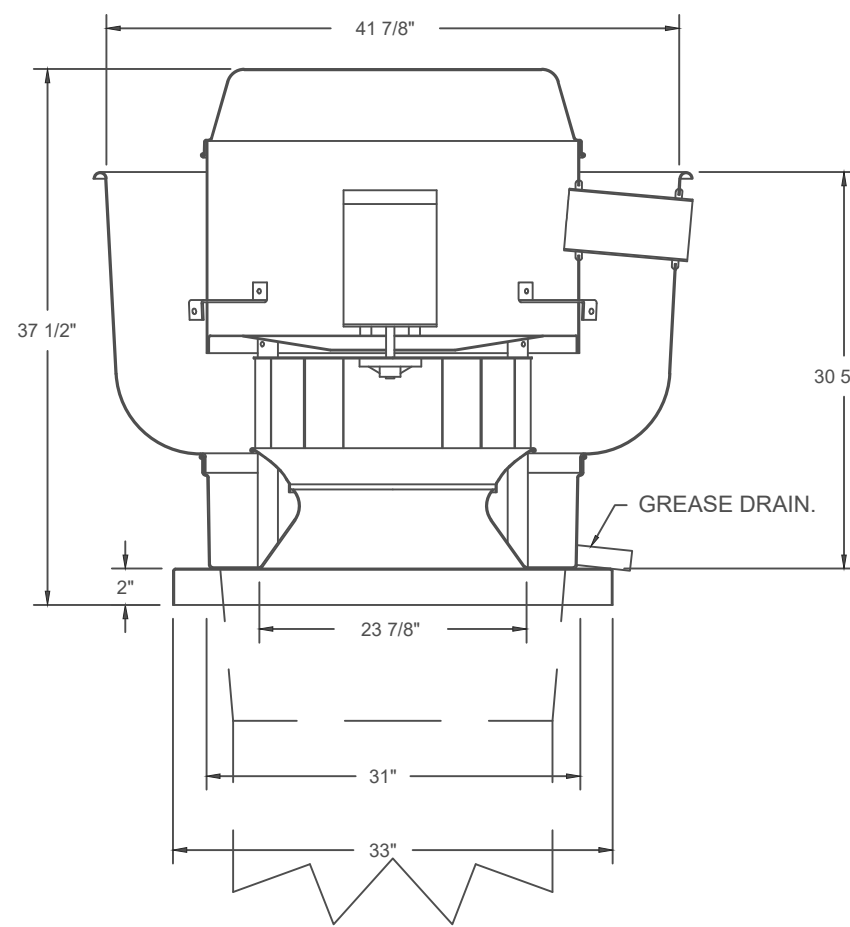
FAN ACCESSORIES

| FAN UNIT NO | TAG | EXHAUST | | | | SUPPLY | | |
|-------------|-----|------------|----------------|------------|----------------|----------------|------------------|------------|
| | | GREASE CUP | GRAVITY DAMPER | WALL MOUNT | SIDE DISCHARGE | GRAVITY DAMPER | MOTORIZED DAMPER | WALL MOUNT |
| 1 | | YES | | | | | | |

EXHAUST FAN INFORMATION - JOB#5785229

| FAN UNIT NO | TAG | QTY | FAN UNIT MODEL # | MANUFACTURER | CFM | ESP | RPM | MOTOR ENCL | HP | BHP | PHASE | VOLT | FLA | DISCHARGE VELOCITY | WEIGHT (LBS) | SONES |
|-------------|-----|-----|------------------|--------------|------|-------|-----|--------------|-------|--------|-------|------|-----|--------------------|--------------|-------|
| 1 | | 1 | DU240HFA | CAPTIVEAIRE | 3140 | 1.150 | 758 | TEFC,PREMIUM | 2.000 | 1.2210 | 3 | 208 | 7.4 | 714 FPM | 339 | 12 |

FAN #1 DU240HFA - EXHAUST FAN



FEATURES:

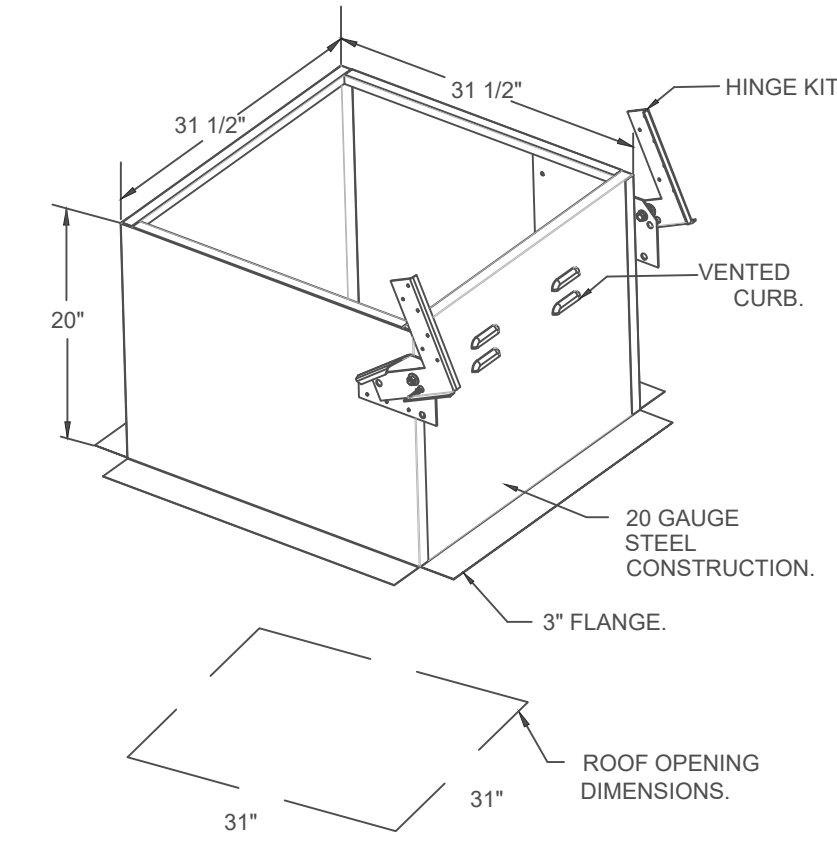
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL763 AND UL-C-5645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

- GREASE BOX.
- FAN BASE CERAMIC SEAL - INSTALLED AT PLANT - FOR GREASE DUCTS.
- 2 YEAR PARTS WARRANTY.



| REVISIONS | |
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| DESCRIPTION | DATE |
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5614 Bay Street,
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DATE: 12/27/2022

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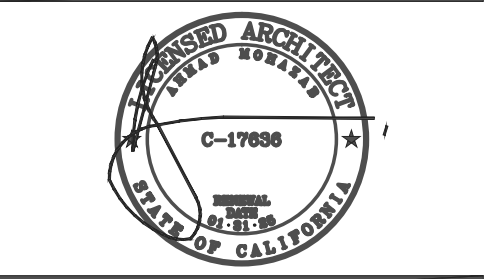
DRAWN BY: Danny Ng

SCALE: 3/4" = 1'-0"

MASTER DRAWING

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| 5 | PLAN CHECK COMMENT HEALTH RESPONSE | 03/23/23 |
| 6 | REVISIONS DUE TO SITE CONDITIONS | 04/27/23 |
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| 9 | | |
| 10 | | |

DRAWING TITLE:
HOOD DRAWINGS

DRAWING NUMBER:
M-5.2



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