

GENERAL HVAC NOTES																
1. PROVIDE ALL MATERIAL AND EQUIPMENT AND PERFORM ALL LABOR REQUIRED TO INSTALL COMPLETE AND OPERABLE MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED AND AS REQUIRED BY CODE.																
2. CONTRACT DOCUMENT DRAWINGS FOR MECHANICAL WORK (HVAC, PLUMBING, AND FIRE PROTECTION) ARE DIAGRAMMATIC AND ARE INTENDED TO CONVEY SCOPE AND GENERAL ARRANGEMENT ONLY.																
3. THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE ENGINEER BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.																
4. WHEN MECHANICAL WORK (HVAC, PLUMBING, SHEET METAL, FIRE PROTECTION, ETC.) IS SUBCONTRACTED, IT SHALL BE THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND THE ASSOCIATED CONTRACTS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.																
5. COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH ARCHITECTURAL, STRUCTURAL, CIVIL, ELECTRICAL WORK, ETC., SHOWN ON OTHER CONTRACT DOCUMENT DRAWINGS.																
6. INSTALL ALL MECHANICAL EQUIPMENT AND APPURTENANCES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.																
7. WHERE TWO OR MORE ITEMS OF THE SAME TYPE OF EQUIPMENT ARE REQUIRED, THE PRODUCT OF ONE MANUFACTURER SHALL BE USED.																
8. COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURERS' CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.																
9. ALL CONTROL WIRE AND CONDUIT SHALL COMPLY WITH THE NATIONAL ELECTRIC CODE AND ELECTRICAL DIVISION OF THE SPECIFICATION.																
10. PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.																
11. PROVIDE VIBRATION ISOLATORS FOR ALL PIPING SUPPORTS CONNECTED TO, AND WITHIN 50 FT. OF, ISOLATED EQUIPMENT (EXCEPT AT BASE ELBOW SUPPORTS AND ANCHOR POINTS).																
12. LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH THE STRAIGHT SECTION OF PIPE OR DUCT UP- AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.																
13. WHERE BEAMS ARE INDICATED TO BE PENETRATED WITH DUCTWORK OR PIPING, COORDINATE DUCTWORK AND PIPING LAYOUT WITH BEAM OPENING SIZE AND OPENING LOCATIONS. COORDINATION SHALL BE DONE PRIOR TO THE FABRICATION OF DUCTWORK, CUTTING OF PIPING, OR FABRICATION OF BEAMS.																
14. ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN THE DETAILS FOR PIPING, DUCTWORK, AND EQUIPMENT (UNLESS OTHERWISE NOTED) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.																
15. PROVIDE ACCESS PANELS FOR INSTALLATION IN WALLS AND CEILINGS, WHERE REQUIRED, TO SERVICE DAMPERS, VALVES, SMOKE DETECTORS, AND CONCEALED MECHANICAL EQUIPMENT. ACCESS PANELS SHALL BE TURNED OVER TO THE GENERAL CONTRACTOR FOR INSTALLATION. ACCESS PANELS SHALL HAVE THE EQUAL RATED CAPACITY (1HR, 2HR, ETC.) AS WALL.																
16. MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM A METAL DECK.																
17. ALL EQUIPMENT, PIPING, DUCTWORK, ETC., SHALL BE SUPPORTED AS DETAILED, SPECIFIED AND REQUIRED TO PROVIDE A VIBRATION-FREE INSTALLATION.																
18. ALL DUCTWORK, PIPING, AND EQUIPMENT SUPPORTED FROM STRUCTURAL STEEL SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. ALL ATTACHMENTS TO STEEL BAR JOISTS, TRUSSES, OR JOIST GIRDERS SHALL BE AT PANEL POINTS. PROVIDE BEAM CLAMPS MEETING MSS STANDARDS. WELDING TO STRUCTURAL MEMBERS SHALL NOT BE PERMITTED. THE USE OF C-CLAMPS SHALL NOT BE PERMITTED.																
19. ALL ROOF-MOUNTED EQUIPMENT CURBS/STEEL RAILS FOR EQUIPMENT PROVIDED BY THE MECHANICAL CONTRACTOR SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR.																
20. LOCATIONS AND SIZES OF ALL FLOOR, WALL, AND ROOF OPENINGS SHALL BE COORDINATED WITH ALL OTHER TRADES INVOLVED.																
21. ALL OPENINGS IN FIRE WALLS DUE TO DUCTWORK, PIPING, CONDUIT, ETC., SHALL BE FIRE STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUAL.																
22. ALL AIR CONDITIONING CONDENSATE DRAIN LINES FROM EACH AIR HANDLING UNIT SHALL BE PIPED FULL SIZE OF THE UNIT DRAIN OUTLET, WITH "P" TRAP, AND PIPED TO THE NEAREST DRAIN. SEE THE DETAILS SHOWN IN THE DRAWINGS OR THE CONTRACT SPECIFICATIONS FOR THE DEPTH OF THE AIR CONDITIONING CONDENSATE TRAP.																
23. REFER TO TYPICAL DETAILS FOR DUCTWORK, PIPING, AND EQUIPMENT INSTALLATION.																
AIR OUTLETS																
GENERAL:																
1) MARGIN TYPES, COLORS, FINISH AND METHODS OF ATTACHMENT FOR ALL DIFFUSERS, GRILLES AND REGISTERS SHALL BE COORDINATED WITH ARCHITECTURAL CEILING AND WALL DETAILS AND SPECIFICATIONS.																
2) FRAME TYPE SUITABLE FOR MOUNTING IN CEILING OR WALL CONSTRUCTION AS INDICATED ON ARCHITECTURAL PLANS.																
3) EXACT LOCATION OF ALL AIR OUTLETS AS PER ARCHITECTURAL PLANS.																
4) SUITABLE FOR OPERATION AT 20% EXCESS AND 20% LESS THAN NOTED CAPACITY FOR CONSTANT VOLUME SYSTEMS AND AT 20% EXCESS AND 60% LESS THAN NOTED CAPACITY FOR VARIABLE VOLUME SYSTEMS. MANUFACTURER RESPONSIBLE FOR EXAMINING APPLICATION OF EACH OUTLET AND GUARANTEE THAT EACH WILL PROVIDE REQUIRED NC LEVELS AND COMFORT SPACE CONDITIONS WITHOUT DRAFTS THROUGHOUT OPERATING RANGE.																
5) ALL DIFFUSERS SHALL BE PROVIDED WITH OPPOSED BLADE VOLUME DAMPERS. DAMPER OPERATING LEVERS SHALL BE ACCESSIBLE AT THE FACE OF AIR OUTLETS.																
A. SQUARE DIFFUSERS: DIFFUSERS SHALL BE STEEL CONSTRUCTION PAINTED WHITE SIMILAR TO ANEMOSTAT																
INSULATION — GENERAL REQUIREMENTS																
A. ALL INSULATION MATERIALS, INCLUDING JACKETS, FACING, ADHESIVE, COATINGS, AND ACCESSORIES ARE TO BE FIRE HAZARD RATED AND LISTED BY UNDERWRITERS LABORATORIES, INC. USING STEINER TUNNEL TEST METHOD FOR FIRE HAZARD CLASSIFICATION OF BUILDING MATERIALS, STANDARD UL 723 (ASTM E-84), (ASA A2.5-1993). FLAMESPREAD: MAXIMUM 25. FUEL CONTRIBUTED AND SMOKE DEVELOPED: MAXIMUM 50. FLAMEPROOFING TREATMENTS SUBJECT TO DETERIORATION FROM MOISTURE OR HUMIDITY ARE NOT ACCEPTABLE.																
B. DEFINITIONS:																
1) EXPOSED: INDOOR DUCTS, PIPING OR EQUIPMENT LOCATED IN MECHANICAL EQUIPMENT ROOMS AND IN AREAS WHICH WILL BE VISIBLE WITHOUT REMOVING CEILINGS OR OPENING ACCESS PANELS.																
2) CONCEALED: INDOOR DUCTS, PIPING OR EQUIPMENT WHICH IS NOT EXPOSED.																
3) OUTDOOR: DUCTS, PIPING OR EQUIPMENT WHICH IS EXPOSED TO THE WEATHER.																
DUCTWORK INSULATION																
A. INSULATE ALL DUCTWORK IN ACCORDANCE WITH INSULATION SCHEDULE EXCEPT AS OTHERWISE NOTED.																
INSULATION SCHEDULE — DUCTWORK																
SERVICE LOCATION R-VALUE TYPE FINISH																
SUPP/RET CONCEALED R-6 D-1 VAPORSEAL																
SUPP/RET EXPOSED R-8 D-1 VAPORSEAL																
INTAKE ALL R-8 D-1 VAPORSEAL																
KITCHEN EXH. INTERIOR 1.5" (2 LAYERS) 3M FIRE DUCT WRAP VAPORSEAL																
SUPPLY EXTERIOR R-8 D-1																
B. REINSULATE ALL DUCTWORK AND PIPING WHICH IS EXISTING TO REMAIN AND WAS DAMAGED DURING CONSTRUCTION OR SHOWN OR REQUIRED TO BE RELOCATED. INSULATE WITH SAME MATERIAL AND THICKNESS.																
C. NON-INSULATED DUCTWORK:																
1) WHERE SOUND LINING IS OF MINIMUM THICKNESS SPECIFIED FOR INSULATION.																
2) AIR CONDITIONING RETURN AIR DUCTWORK EXPOSED IN AIR CONDITIONED SPACES AND INSTALLED IN HUNG CEILINGS WHERE SPACE IMMEDIATELY ABOVE AND BELOW ARE BOTH AIR CONDITIONED.MATERIAL:																
D. MATERIAL:																
1) TYPE D-1: MINIMUM 1-LB DENSITY FIBERGLASS BLANKET, MAXIMUM 0.28 K-FACTOR AT 75 ADEG F MEAN TEMPERATURE WITH FACTORY-APPLIED FOIL-SKRIM-KRAFT FACING SIMILAR TO MANVILLE MICROLITE.																
2) TYPE D-2: 3 LB. FIBERGLASS BOARD. THE MAXIMUM K FACTOR SHALL BE 0.23 AT 75 DEG F MEAN TEMPERATURE WITH A MINIMUM DENSITY OF 3 LB. THE INSULATION SHALL BE PROVIDED WITH A FACTORY-APPLIED ALL PURPOSE OR ALL SERVICE FACING. THE INSULATION SHALL BE EQUAL TO MANVILLE TYPE 814 SPIN-GLAS AP.																
3) TYPE D-3: MINIMUM 6 LB FIBERGLASS BOARD. MAXIMUM 0.22 K-FACTOR AT 75 DEG F MEAN TEMPERATURE WITH FACTORY APPLIED ALL PURPOSE OR ALL SERVICE FACING. SIMILAR TO MANVILLE 817 SPIN-GLAS AP																
E. FINISH:																
1) TYPE F-1: FITTING COVER, MOLDED WHITE PVC JACKET, UL CLASS 1, MAXIMUM PERMEANCE 0.05 SIMILAR TO MANVILLE ZESTRON.																
2) TYPE F-2: WHITE VAPOR BARRIER COATING WITH 10X10 OR 20X20 MESH WHITE GLASS, POLYESTER OR NYLON CLOTH REINFORCING MEMBRANE, MINIMUM 31 MIL DRY FILM THICKNESS, SIMILAR TO FOSTER TITE-FIT, UL LABEL.																
3) TYPE F-4: ALUMINUM JACKETING WITH MINIMUM 0.016 IN. WALL THICKNESS AND LONGITUDINAL JOINTS WITH LOCK SEAMS.																
4) TYPE F-6: WHITE FINISHING AND INSULATING CEMENT APPLIED OVER HEXAGONAL WIRE MESH. CEMENT SIMILAR TO KEENE SUPERSLICK.																
F. INSTALLATION:																
a. FIBERGLASS BLANKET: 2 IN. LAP STRIPS AT ALL SEAMS. SECURE BOTTOM OF ALL DUCTS OVER 24 IN. WIDE WITH MIN 2 ROWS OF WELD PINS 12 IN. ON CENTER. SECURE ALL SEAMS WITH FOIL VAPOR BARRIER TAPE AND VAPORSEAL ADHESIVE.																
b. FIBERGLASS BOARD: SEAL JOINTS AND BREAKS IN FACING WITH 3 IN. WIDE TAPE TO MATCH FACING AND ADHERE WITH VAPOR SEAL ADHESIVE. APPLY 5 IN. WIDE TAPE AT CORNERS, WELD PINS ON TOP, SIDES AND BOTTOM.																
PIPING INSULATION																
A. INSULATE ALL PIPING IN ACCORDANCE WITH INSULATION SCHEDULE EXCEPT AS OTHERWISE NOTED.																
PIPING INSULATION SCHEDULE																
SERVICE SIZE THICKNESS MATERIAL FINISH																
REFRIGERANT PIPING 1.5" P-6																
CONDENSATE DRAIN 1" P-6																
B. PIPING, VALVES AND FITTINGS TO BE INSULATED:																
1) PROTECTIVE COVERINGS SHALL BE INSTALLED ON AREAS OF INSULATION THAT ARE EXPOSED TO WEATHER OR SUBJECT TO MECHANICAL DAMAGE. THE PROTECTIVE COVERING SHALL BE:																
a. ARMA-CHEK SILVER: MULTI-LAYER LAMINATE OF ALUMINUM, COATED WITH A UV PROTECTIVE FILM AND BACKED WITH A FLEXIBLE PVC FILM. THE MATERIAL SHOULD BE ADHERED WITH ARMAFLEX 520 ADHESIVE OR EQUIVALENT, AND ALL JOINS AND SEAMS SECURED WITH "ARMA-CHEK SILVER TAPE". INSTALLATION SHALL BE IN ALL CASES TO THE MANUFACTURER'S RECOMMENDATIONS.																
OR																
b. HIGH DENSITY RUBBER CLADDING OF THE "ARMA-CHECK R" TYPE BONDED USING AN APPROPRIATE FULL CONTACT ADHESIVE WITH A MINIMUM 50 MM OVERLAP AT ALL BUTT JOINTS AND LONGITUDINAL SEAMS. A WEATHER-PROOF MASTIC SEALANT SHALL BE APPLIED OVER ALL SEAMS AND JOINTS. ALL MATERIAL SHALL BE OVERLAPPED AND STAGGERED IN SUCH A WAY AS TO ENSURE A WATERSHED IS ALWAYS PROVIDED. INSTALLATION SHALL BE IN ALL CASES TO THE MANUFACTURER'S RECOMMENDATIONS. ALL EXCESS ADHESIVE VISIBLE ON THE SURFACE OF THE COMPLETED ASSEMBLY SHALL BE REMOVED USING AN APPROPRIATE CLEANING MATERIAL.																
OR																
c. METAL CLADDING, COMPRISED OF COATED SHEET METAL, WITH ALL EXTERNAL JOINTS AND FIXING MADE WEATHER-PROOF WITH SILICONE SEALANT.																
d.																
C. MATERIAL:																
1) TYPE P-1: MINIMUM 4 LB DENSITY MOLDED FIBERGLASS, MAXIMUM 0.24 K-FACTOR AT 75 DEG F MEAN TEMPERATURE, WITH FACTORY-APPLIED FIRE-RETARDANT FOIL-SKRIM-KRAFT FACING. ALL SERVICE JACKET, SIMILAR TO OWENS-CORNING 650 ASJ.																
2) TYPE P-3: MINIMUM 4 LB DENSITY MOLDED FIBERGLASS FITTING, MAXIMUM 0.23 K-FACTOR AT 75 DEG F MEAN TEMPERATURE SIMILAR TO EPOLUX HAMFAB MOLDED FITTINGS.																
3) TYPE P-4: MINIMUM 1 LB DENSITY FIBERGLASS FITTING INSERTS, MAXIMUM 0.27 K-FACTOR AT 75 DEG F MEAN TEMPERATURE SIMILAR TO MANVILLE HI-LO TEMP INSULATION INSERTS.																
4) TYPE P-6: MINIMUM 6 LB MOLDED FOAMED PLASTIC, MAXIMUM 0.27 K-FACTOR AT 75 DEG F MEAN TEMPERATURE, MAXIMUM 0.17 PERMEANCE. SIMILAR TO ARMSTRONG ARMAFLEX II.																
D. FINISH:																
1) TYPE F-1: FITTING COVER, MOLDED WHITE PVC JACKET, UL CLASS 1, MAXIMUM PERMEANCE 0.05 SIMILAR TO MANVILLE ZESTRON.																
2) TYPE F-2: WHITE VAPOR BARRIER COATING WITH 10X10 OR 20X20 MESH WHITE GLASS, POLYESTER OR NYLON CLOTH REINFORCING MEMBRANE, MINIMUM 31 MIL DRY FILM THICKNESS, SIMILAR TO FOSTER TITE-FIT, UL LABEL.																
3) TYPE F-4: ALUMINUM JACKETING WITH MINIMUM 0.016 IN. WALL THICKNESS AND LONGITUDINAL JOINTS WITH LOCK SEAMS.																
4) TYPE F-6: WHITE FINISHING AND INSULATING CEMENT APPLIED OVER HEXAGONAL WIRE MESH. CEMENT SIMILAR TO KEENE SUPERSLICK.																
VIBRATION ISOLATION																
A. GENERAL:																
1) PROVIDE ISOLATION FOR EQUIPMENT, PIPING AND DUCTWORK.																
2) INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.																
3) PROVIDE LEVELING DEVICES AND APPROVED RESILIENT RESTRAINING DEVICES AS REQUIRED TO LIMIT EQUIPMENT AND PIPING MOTION IN EXCESS OF 1/4".																
4) ACCEPTABLE MANUFACTURERS:																
a. MASON INDUSTRIES, INC.																
b. VIBRATION ELIMINATOR CO.																
c. KORFUND DYNAMICS CORP.																
B. CEILING-HUNG FANS AND EQUIPMENT:																
1) PROVIDE SPRING HANGER ROD ISOLATORS. STEEL COMPRESSION SPRING AND NEOPRENE SOUND PAD WITHIN A STEEL RETAINER BOX. SIMILAR TO MASON TYPE PCHS.																
2) 1 IN. MINIMUM STATIC DEFLECTION. 1/2 IN. MINIMUM RESERVE DEFLECTION. FACTORY-PRELOADED TO 75% OF RATED LOAD.																
3) PROVIDE SUPPLEMENTAL STEEL AS REQUIRED WHERE EQUIPMENT OR STRUCTURE CANNOT SUPPORT POINT LOADS.																
C. FLOOR MOUNTED EQUIPMENT HAVING INTERNAL ISOLATION:																
1) PROVIDE 5/16 IN.-THICK NEOPRENE ACOUSTICAL BASE PADS OF RUB.																
SECTION 233113 — METAL DUCTS																
1.1 CONSTRUCTION																
A. EACH DUCT SYSTEM SHALL BE CONSTRUCTED FOR THE SPECIFIC SMACNA DUCT PRESSURE CLASSIFICATIONS SHOWN ON THE CONTRACT DRAWINGS. WHERE NO PRESSURE CLASSES ARE SPECIFIED BY THE DESIGNER, THE SMACNA 2-1/2 INCH WG PRESSURE CLASS IS THE BASIS OF COMPLIANCE WITH THESE STANDARDS, REGARDLESS OF THE VELOCITY IN THE DUCT.																
B. ALL DUCTWORK SHALL BE CONSTRUCTED TO SMACNA 2" WG DESIGN AND NOT LESS THAN THE FOLLOWING STANDARDS:																
1. DUCTWORK SHALL BE TRANSVERSELY JOINTED BY CONNECTING SEAMS OF COMPANION ANGLES, FORMED FROM 1-1/2"x1-1/2"x1/8" GALVANIZED ANGLES, TACK-WELDED OR RIVETED TO THE DUCT. THE ANGLE FRAME SHALL BE CONTINUOUSLY FLANGED UP INTO UPRIGHT OF ANGLE AND EACH CORNER SHALL BE FILLED IN AND GROUND SMOOTH. JOINTS SHALL BE GASKETED WITH 1/8" THICK REINFORCED GASKET, OVERLAPPED AT CORNERS. GASKET SIMILAR TO 3M-1202 OR APPROVED EQUAL.																
2. RECTANGULAR FITTINGS AND ALL TRANSITION PIECES FROM RECTANGULAR TO ROUND SHALL BE NO. 16 GAUGE ALL WELDED CONSTRUCTION.																
3. HORIZONTAL DUCTS SHALL BE SUPPORTED ON NOT MORE THAN 6' CENTERS. VERTICAL RISERS SHALL BE SUPPORTED AT EACH FLOOR.																
4. LONGITUDINAL SEAMS FOR RECTANGULAR DUCTWORK SHALL BE PITTSBURGH LOCK SEAMS WITH SEALING																
5. COMPOUND, EQUAL TO BENJAMIN FOSTER NO. 30-03 INSERTED INTO SEAM. ALL SEAMS SHALL BE BRUSHED WITH NO. 30-02 AND COVERED WITH APPROVED SEALING TAPE.																
6. RECTANGULAR DUCTWORK 18 GAUGE AND HEAVIER, FILLER RODS SHALL BE IN ACCORDANCE WITH SPECIFICATIONS FOR IRON AND STEEL GAS WELDING RODS, ASTM A215; AWG A5.2.																
7. ALL FITTINGS SUCH AS ELBOWS, TEES, ETC., SHALL BE NO. 20 GAUGE ZINC COATED STEEL. ELBOWS SHALL BE OF FIVE (5) PIECE WELDED AIRTIGHT CONSTRUCTION.																
C. WHERE LATEST EDITION OF SMACNA DOES NOT CLEARLY STATE GAUGES AND/OR STIFFENERS TO BE USED OR, WHERE SMACNA STANDARDS REQUIRE INTERPRETATION, THE FOLLOWING MINIMUM METAL GAUGES AND BRACING SHALL BE USED:																
USG MAX. SIDE INCHES TRANSVERSE JOINTS AND BRACING																
22 UP TO 12 S SLIP, DRIVE SLIP, ONE INCH POCKET LOCK ON 8 FOOT CENTERS																
22 13 TO 24 1"x1"x1/8" ANGLES ON 4 FOOT CENTERS																
20 25 TO 35 1"x1"x1/8" ANGLES ON 2 FOOT CENTERS																
D. PROVIDE TAPPING IN DUCTS FOR THERMOMETERS WHERE SPECIFIED. IN ADDITION, PROVIDE AN AIRTIGHT PLUGGED TAPPING LOCATED AS FOLLOWS:																
1. UPSTREAM OF EACH REHEAT COIL AND VAV BOX.																
2. DOWNSTREAM OF EACH REHEAT COIL AND VAV BOX.																
E. FLAT OVAL OR ROUND DUCTWORK MAY BE PROVIDED IN LIEU RECTANGULAR DUCTWORK WITH THE REINFORCEMENT FOR FLAT SIDES SAME AS SPECIFIED FOR THE RECTANGULAR DUCTWORK, AND AS PER SMACNA FLAT OVAL DUCT CONSTRUCTION STANDARDS SHOWN IN FIG. 3-6 AND AS SHOWN IN FIG. 3-1 AND 3-2 FOR ROUND DUCTWORK.																
F. ALL DUCTWORK SHALL BE SEALED TO CLASS "A" AND LEAK TESTED TO MEAT SMACNA CLASS 6 FOR RECTANGULAR AND CLASS 3 FOR ROUND DUCTS.																
1.2 MATERIALS																
A. SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS.																
B. SINGLE-WALL ROUND AND FLAT-OVAL DUCTS AND FITTINGS.																
C. SHEET METAL MATERIALS:																
1. GALVANIZED SHEET STEEL.																
2. STAINLESS-STEEL SHEETS.																
3. ALUMINUM SHEETS.																
4. FACTORY-APPLIED ANTI-MICROBIAL COATING.																
DUCT LINER:																
1. FIBROUS GLASS, TYPE I, FLEXIBLE.																
a. WITH ANTI-MICROBIAL EROSION-RESISTANT COATING.																
2. FLEXIBLE ELASTOMERIC.																
3. NATURAL FIBER.																
SEALANT MATERIALS:																
1. TWO-PART TAPE SEALING SYSTEM.																
2. WATER-BASED JOINT AND SEAM SEALANT.																
3. SOLVENT-BASED JOINT AND SEAM SEALANT.																
4. FLANGED JOINT SEALANT.																
5. FLANGE GASKETS.																
6. ROUND DUCT JOINT O-RING SEALS.																
DUCT CLEANING																
A. CLEAN EXISTING DUCT SYSTEM(S) BEFORE TESTING, ADJUSTING, AND BALANCING.																
B. CLEAN THE FOLLOWING ITEMS:																
1. AIR OUTLETS AND INLETS.																
2. SUPPLY, RETURN, AND EXHAUST FANS.																
3. AIR-HANDLING UNITS.																
4. COILS AND RELATED COMPONENTS.																
5. RETURN-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.																
6. SUPPLY-AIR DUCTS, DAMPERS, ACTUATORS, AND TURNING VANES.																
7. DEDICATED EXHAUST AND VENTILATION COMPONENTS AND MAKEUP AIR SYSTEMS.																
DUCT SCHEDULE																
A. ALL DUCTS SHALL BE GALVANIZED STEEL EXCEPT AS FOLLOWS:																
8. MOIST ENVIRONMENT DUCT MATERIAL: ALUMINUM.																
9. END OF SECTION 233113																
ISSUE																
No. DATE DESCRIPTION																
DWG DATE: 02-16-2023																
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PROJECT No.: 23109																
DWG TITLE:																
MECHANICAL SPECIFICATIONS (I OF 2)																
SHEET No.																
M-2																

- A. CONTRACTOR SHALL BALANCE EACH DEVICE WITH THE CFM SHOWN ON PLAN.
- B. NEW DUCTWORK SHOWN ON PLAN ARE SCHEMATIC ONLY. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES FOR PIPING AND DUCTWORK ROUTING. OFFSET AND RUN PIPING, DUCTWORK INSIDE THE STRUCTURE IF REQUIRED. PROVIDE ANY EXTRA PIPING, DUCTWORK, FITTINGS, INSULATIONS AND OTHER ACCESSORIES IN ORDER TO COMPLETE THE INSTALLATION.
- C. COORDINATE LOCATIONS AND SIZES OF ROOF OPENINGS WITH OWNER AND STRUCTURAL ENGINEERS.
- D. EQUIPMENT SIZES, DIMENSIONS AND REQUIRED CONNECTIONS SHALL BE VERIFIED WITH THE ACTUAL EQUIPMENT SELECTED VENDOR DRAWINGS BEFORE FABRICATION OF DUCTWORK, PIPING ETC.
- E. DUCT SIZES SHOWN ON PLANS ARE CLEAR INSIDE AIR STREAM DIMENSIONS.
- F. CONTRACTOR SHALL COORDINATE ALL ELECTRICAL REQUIREMENTS FOR ALL HVAC BASED ON ACTUAL EQUIPMENT SELECTED PRIOR TO INSTALLATION.
- G. CONTRACTOR SHALL COORDINATE EQUIPMENT WEIGHTS AND SUPPORTS BASED ON ACTUAL EQUIPMENT SELECTED.
- H. COORDINATE WITH ALL TRADES FOR MATERIALS IN RATED AND PLENUM SPACES.
- I. MOUNT DUCTWORK AT HIGHS AS POSSIBLE.
- J. TEST AND BALANCE AIR SYSTEMS. PROVIDE REPORT TO G.C. AND OWNER.
- K. PROVIDE R-6 INSULATION FOR SUPPLY AND RETURN DUCT INSIDE THE SPACE AND R-8 INSULATION FOR OUTSIDE DUCTING.
- L. COORDINATE ALL EQUIPMENT WITH STRUCTURAL.
- M. PROVIDE FIRE OR FIRE+SMOKE DAMPER WHEREVER DUCTS ARE CROSSING FIRE/SMOKE RATED WALLS/ BARRIERS. COORDINATE WITH ARCHITECTURAL DRAWING FOR FIRE RATING OF THE WALLS.
- N. PROVIDE COR-OPERATED DAMPERS IN INACCESSIBLE CEILINGS.
- O. PROVIDE 1.5" FIRE WRAP (TWO LAYERS) TO KITCHEN EXHAUST DUCT AS PER MANUFACTURERS RECOMMENDATIONS.
- P. PROVIDE INTERNAL INSULATION FOR EXPOSE DUCTING AND EXTERNAL INSULATION FOR DUCTING IN GUTTERS.
- Q. ALL MOTORIZED DAMPER SHALL BE CLASS I MOTORIZED DAMPERS. THE DAMPERS SHALL HAVE AN AIR LEAKAGE RATE NOT GREATER THAN 4 CFM/FT2 OF DAMPER SURFACE AREA AT 1.0 INCH WATER GAUGE AND SHALL BE LABELED BY AN APPROVED AGENCY WHEN TESTED IN ACCORDANCE WITH AMCA 500D.

1. CONNECT 1-1/4" CD FROM AC TO NEAREST PLUMBING DRAIN WITH AIR GAP FITTING. INSTALL CONDENSATE DRAIN WITH 1% TOWARD SINK. PROVIDE CONDENSATE PUMP AS/IF REQUIRED.
2. INSTALL REFRIGERANT PIPING BETWEEN INDOOR AND OUTDOOR UNIT AS PER MANUFACTURERS RECOMMENDATIONS. PROVIDE INSULATION TO REF PIPING AS PER ENERGY CONSERVATION CODE. COORDINATE WITH BASE BUILDING ENGINEER FOR PIPE ROUTING AND RISER LOCATION. NOTIFY THE ENGINEER OF ANY DISCREPANCY BEFORE COMMENCING BID.
3. PROVIDE ACOUSTICAL JACKET TO AHU. PROVIDE AN AUXILIARY DRAIN PAN WITH WATER LEAKAGE SENSOR IN ORDER TO SHUT-OFF THE UNIT IN CASE OF WATER LEAKAGE. THE PAN SHALL HAVE A DRAIN OF NOT LESS THAN 1.5 INCHES. SHALL BE NOT LESS THAN 3 INCHES LARGER THAN THE UNIT. OR THE COIL. DIMENSIONS IN WIDTH AND LENGTH AND SHALL BE CONSTRUCTED OF CORROSION-RESISTANT MATERIAL. METALLIC PANS SHALL HAVE A THICKNESS OF NOT LESS THAN 0.0236 INCH (NO. 24 GAGE) FOR GALVANIZED SHEET METAL PANS, 0.0179 INCH (NO. 26 GAGE) FOR STAINLESS STEEL PANS, OR 0.0320 INCH (NO. 20 GAGE) FOR ALUMINUM PANS. NON-METALLIC PANS SHALL HAVE A THICKNESS OF NOT LESS THAN 0.0625 INCH.
4. PROVIDE REMOTE TEMP SENSOR AND WIRE BACK TO T-STAT.
5. MD TO INTERLOCK WITH RESPECTIVE AHU'S
6. 20"Ø GREASE EXHAUST DUCT UP TO ROOF TO KEF-1. DUCT TO BE 16GA. BLACK IRON WELDED LIQUID TIGHT. CLEAN OUT OPENING SHALL BE PROVIDED EVERY CHANGE IN DIRECTION WITHIN 3 FEET OF EXHAUST FAN.
7. 28"X8" SUPPLY AIR DUCT TO HOOD COLLAR.
8. PROVIDE PROGRAMMABLE THERMOSTAT WITH LOCKING COVER. COORDINATE LOCATION ON SITE WITH ARCHITECT / OWNER. PROVIDE REMOTE SENSOR LOCATED 72" ABOVE FINISHED FLOOR NEAR LOCATION INDICATED. SEAL WALL OPENINGS WITH CAULK. COORDINATE LOCATION OF SITE WITH GENERAL CONTRACTOR AND EQUIPMENT. AVOID LOCATION NEAR OR ABOVE SOURCES OF HEAT.
9. Ø3"Ø5" CONCENTRIC VENT FOR COMBUSTION AIR INTAKE/EXHAUST FROM WATER HEATER EQUIPMENT TO ROOF TERMINATION KIT.ROUTE PIPING WITH MINIMAL AMOUNT OF BEND AND LENGTH AS REQUIRED BY RESPECTIVE UNIT MANUFACTURERS'S REQUIREMENT.
10. PROVIDE A NEW CEILING-MOUNTED EXHAUST FAN, INTERCONNECT EXHAUST FAN WITH AHU-2 IN THE ROOM. REFER ELECTRICAL LIGHT FAN. FAN SHALL BE SUSPENDED STRUCTURE ABOVE. VERIFY EXACT LOCATION OF STRUCTURE MEMBER PRIOR TO INSTALLATION.
11. PROVIDE AIR SCOOP FOR SG-1.
12. TERMINATE 3"Ø VENT FOR COMBUSTION AIR INTAKE/EXHAUST FROM GAS FIRED EQUIPMENT TO THE ROOF WITH VENT CAP. RUN VENT AS HIGH AS POSSIBLE.

MECHANICAL
FLOOR PLAN

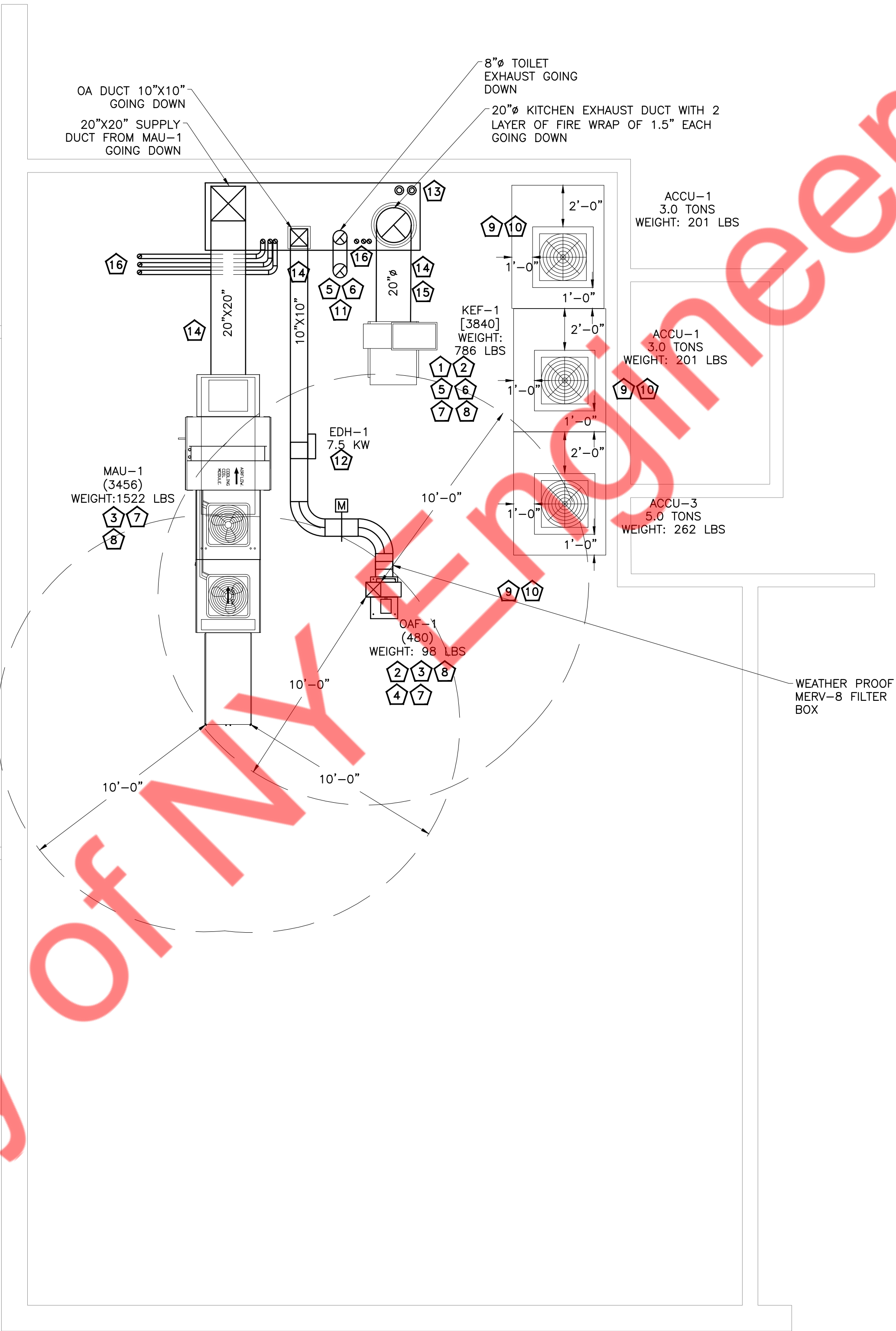
M-4

GENERAL NOTES

- A. ALL ROOF WORK (PENETRATIONS, CURBS, ETC.) TO BE COMPLETED BY HAMLIN ROOFING.
B. WALK PADS TO BE ADDED AT ANY EQUIPMENT ADDED ON THE ROOF.
C. SEE TYPICAL SHAFT (RESTAURANT) EXHIBIT FOR DETAIL TENAT CHASES.

ROOF PLAN KEY NOTES

- FAN ROOF RAIL BY CAPTIVEAIRE. SEE HOOD DRAWING.
- INSTALL EXHAUST AND OUTSIDE AIR INTAKE FAN ON THE ROOF AS PER MANUFACTURERS RECOMMENDATIONS.
- ALL OUTSIDE AIR INTAKE ON THE ROOF SHALL BE MINIMUM 10 FEET AWAY FROM ANY EXHAUST SOURCE. IF NOT MAINTAIN MINIMUM 3 FEET VERTICAL DISTANCE FROM ANY EXHAUST SOURCE.
- OUTSIDE AIR INTAKE DUCT. TERMINATE 36" ABOVE ROOF WITH GOOSENECK AND BIRD SCREEN.
- ALL EXHAUST AIR SOURCES ON THE ROOF SHALL BE MINIMUM 10 FT AWAY FROM OUTSIDE AIR INTAKE. IF NOT MAINTAIN 3 FEET VERTICAL DISTANCE. TERMINATE WITH GOOSENECK AND BIRD SCREEN.
- ALL EXHAUST SOURCE SHALL BE MINIMUM 5 FT AWAY FROM OUTSIDE AIR INTAKE OF ADJACENT TENANT.
- PROVIDE STRUCTURAL SUPPORT AS REQUIRED.
- COORDINATE WITH OWNER FOR EXHAUST AND OUTSIDE AIR FAN LOCATIONS ON THE ROOF.
- INSTALL OUTDOOR CONDENSING UNITS ON THE ROOF WITH ALL REQUIRED ACCESSORIES. COORDINATE EXACT LOCATION IN FIELD.
- INSTALL REFRIGERANT PIPING FROM INDOOR UNITS TO OUTDOOR UNITS AS PER MANUFACTURER RECOMMENDATION. PROVIDE WEATHER PROOF COATING FOR EXPOSED PIPING. PROVIDE PIPING INSULATION AS PER TABLE C403.11.3 2020 NYCECC.
- TERMINATE TOILET/GENERAL EXHAUST DUCT 36" ABOVE ROOF WITH GOOSENECK AND BIRD SCREEN.
- THE ELECTRIC DUCT HEATER AND FILTER RACK MUST BE RATED FOR OUTDOOR USE.
- WATER HEATER CONCENTRIC VENT KIT TERMINATION OUT AT ROOF. INSTALL AS PER MANUFACTURERS RECOMMENDATIONS.
- PROVIDE WEATHER PROOF COATING FOR ALL EXPOSE DUCTING AND REFRIGERANT PIPING.
- TENANT TO PROVIDE GREASE MAT ON ROOF WHERE GREASE EXHAUST COMES UP.
- TERMINATE 3"Ø VENT TO ROOF. MAINTAIN 10' DISTANCE FOR EXHAUST VENT FROM ANY OUTSIDE AIR INTAKE SOURCE. TERMINATE AS PER MANUFACTURERS RECOMMENDATIONS.

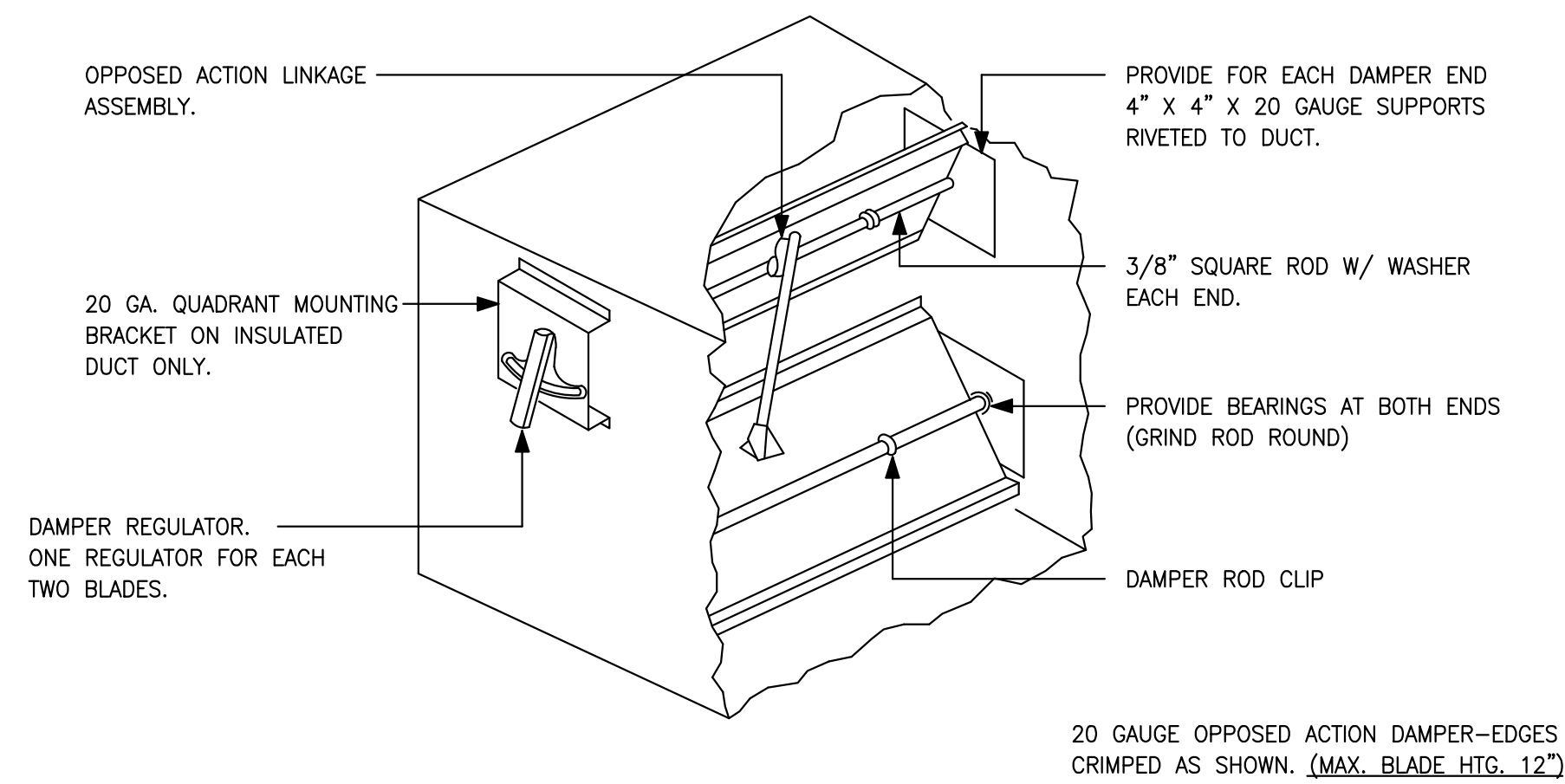


ISSUE		
No.	DATE	DESCRIPTION

DWG DATE: 02-16-2023
REVIEWED BY: NYE
PROJECT No.: 23109
DWG TITLE:

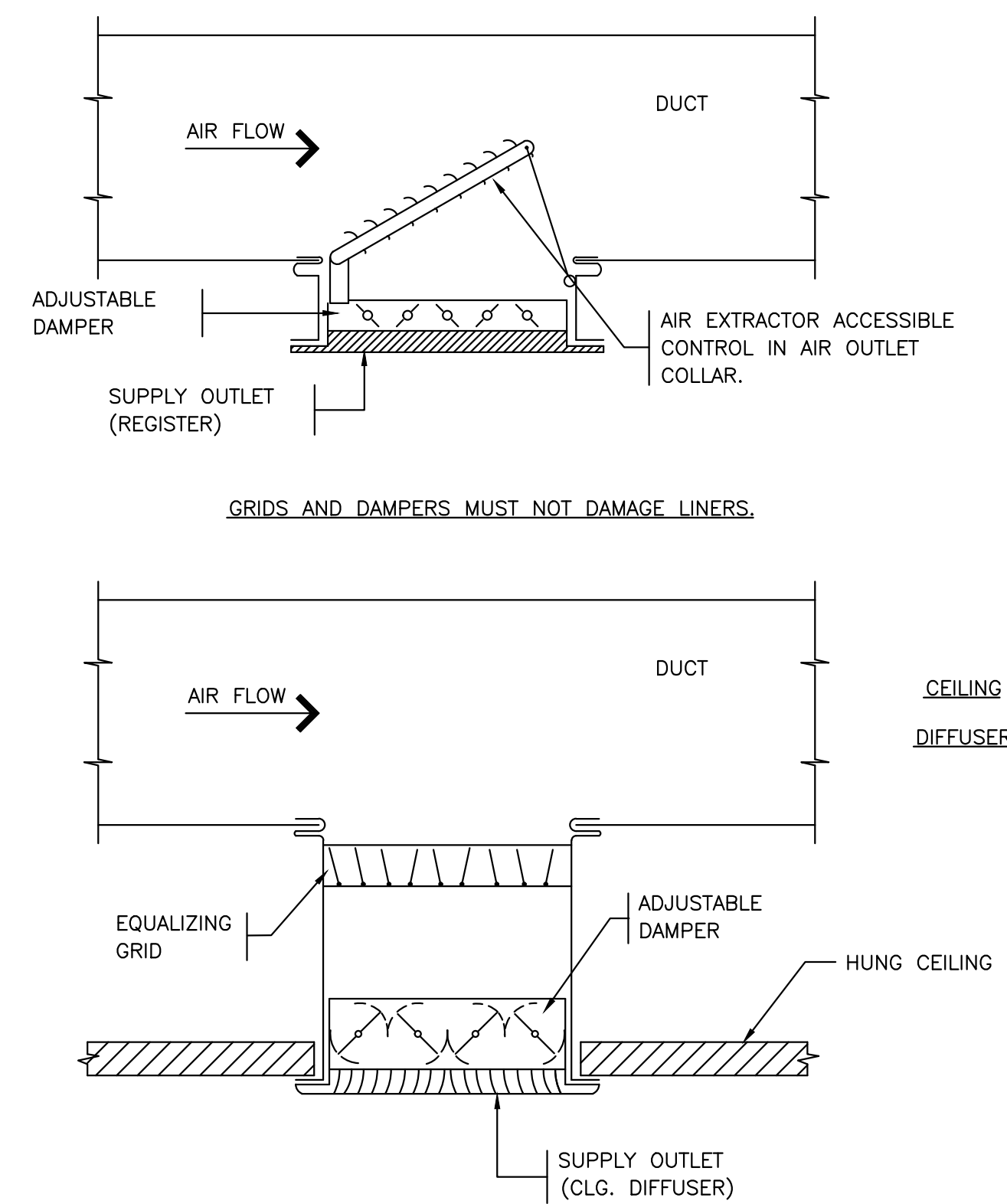
MECHANICAL
ROOF PLAN

SHEET No.
M-5



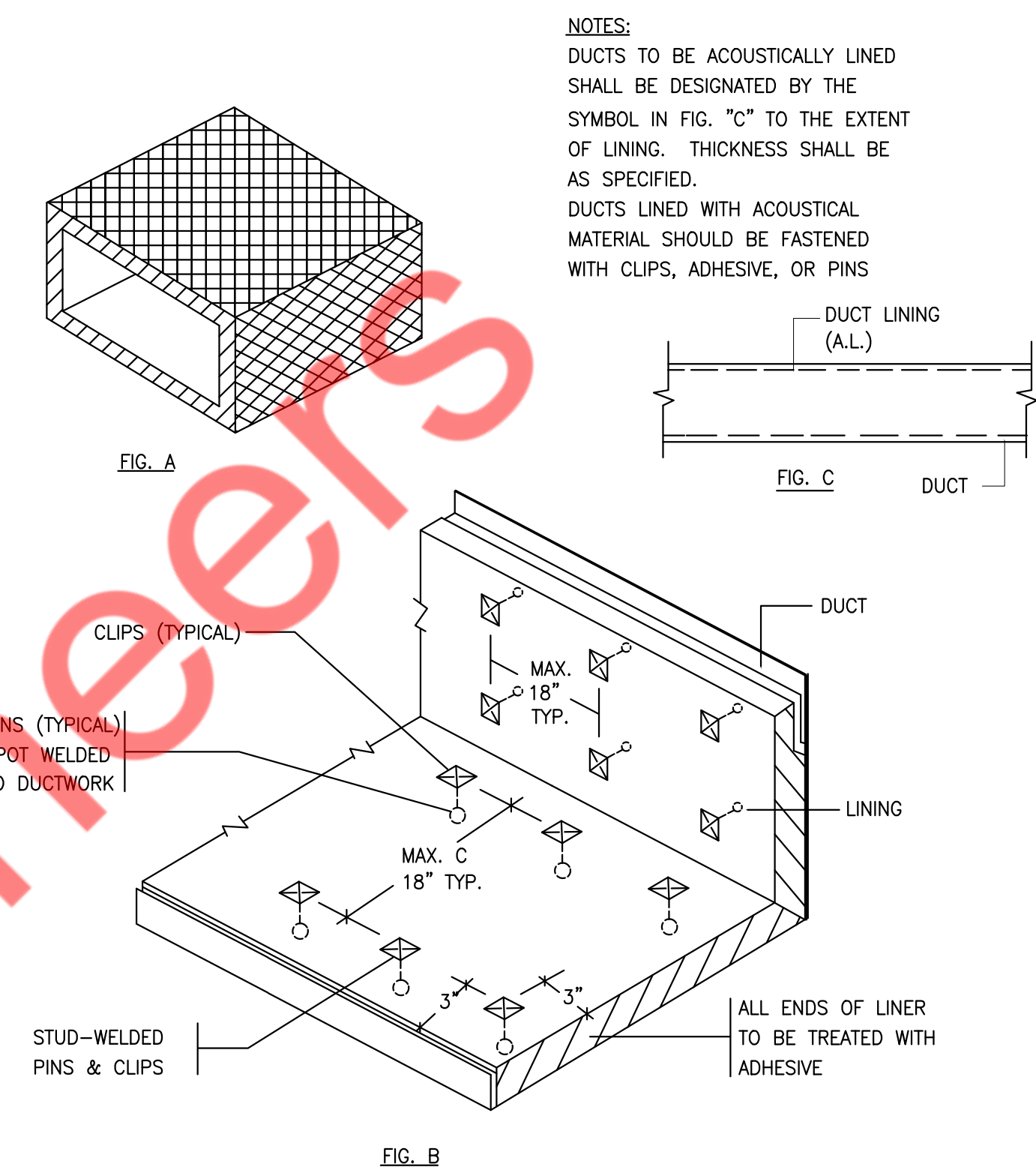
NOTE: 1. FOR DUCTS OVER 29" WIDE AND/OR OVER 12" HIGH.

1 LOW PRESSURE BALANCING DAMPER
M-6 N.T.S

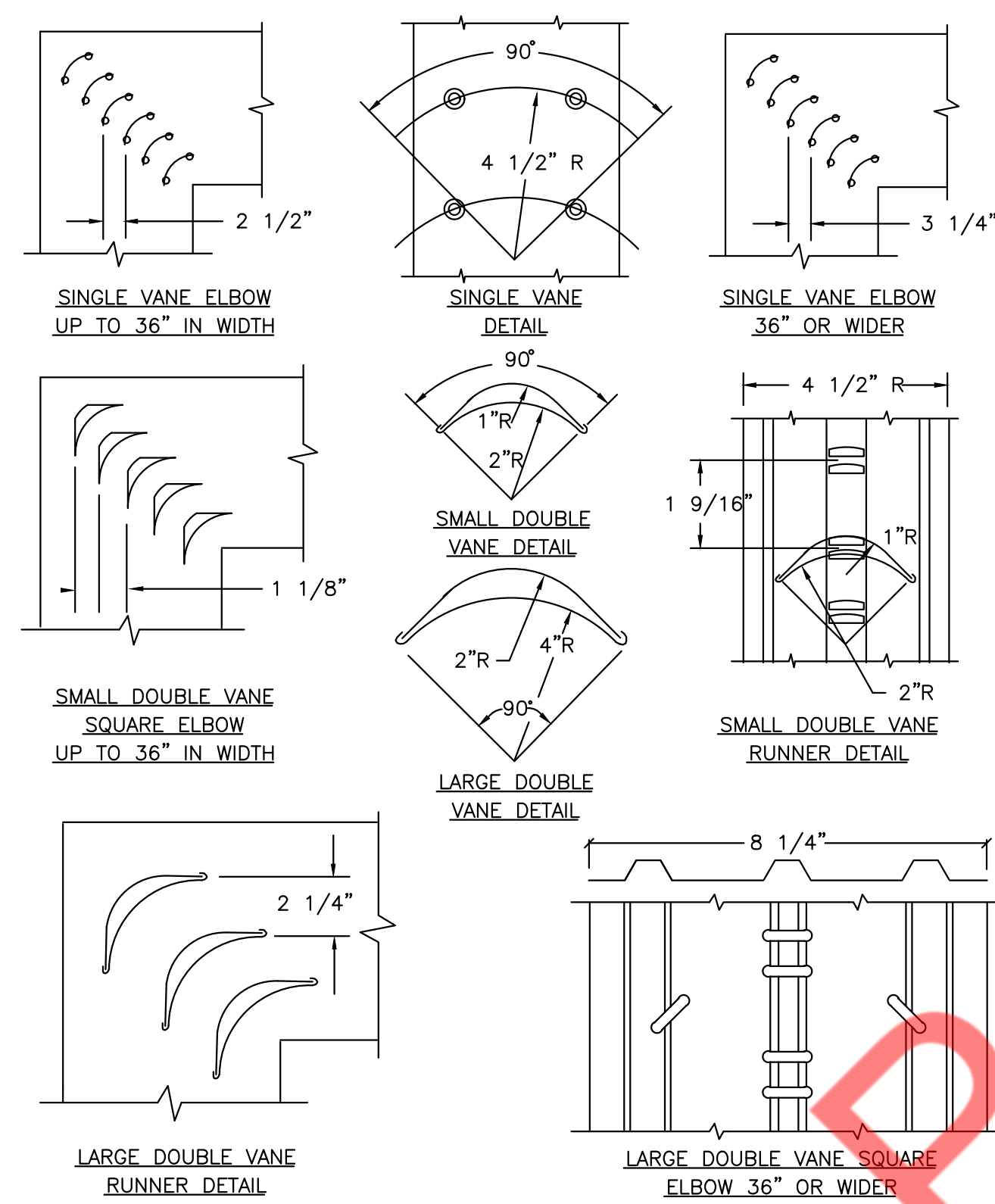


NOTE: GRILLE FLANGES MUST COVER DUCT FLANGES.

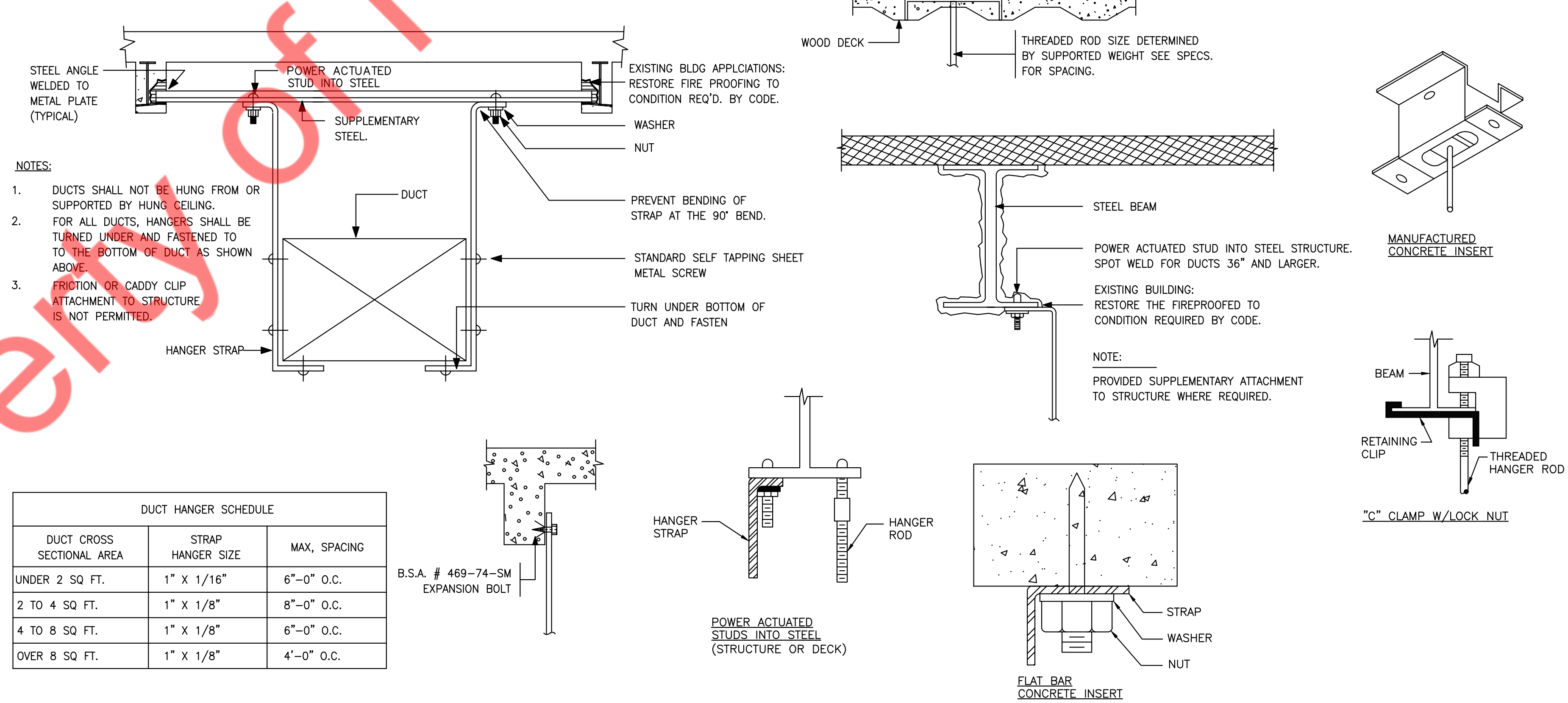
2 DIFFUSER AND REGISTER CONNECTIONS
M-6 N.T.S



3 ACOUSTICAL TREATMENT DUCT LINING
M-6 N.T.S



4 LOW VELOCITY DUCTWORK ELBOWS
M-6 N.T.S



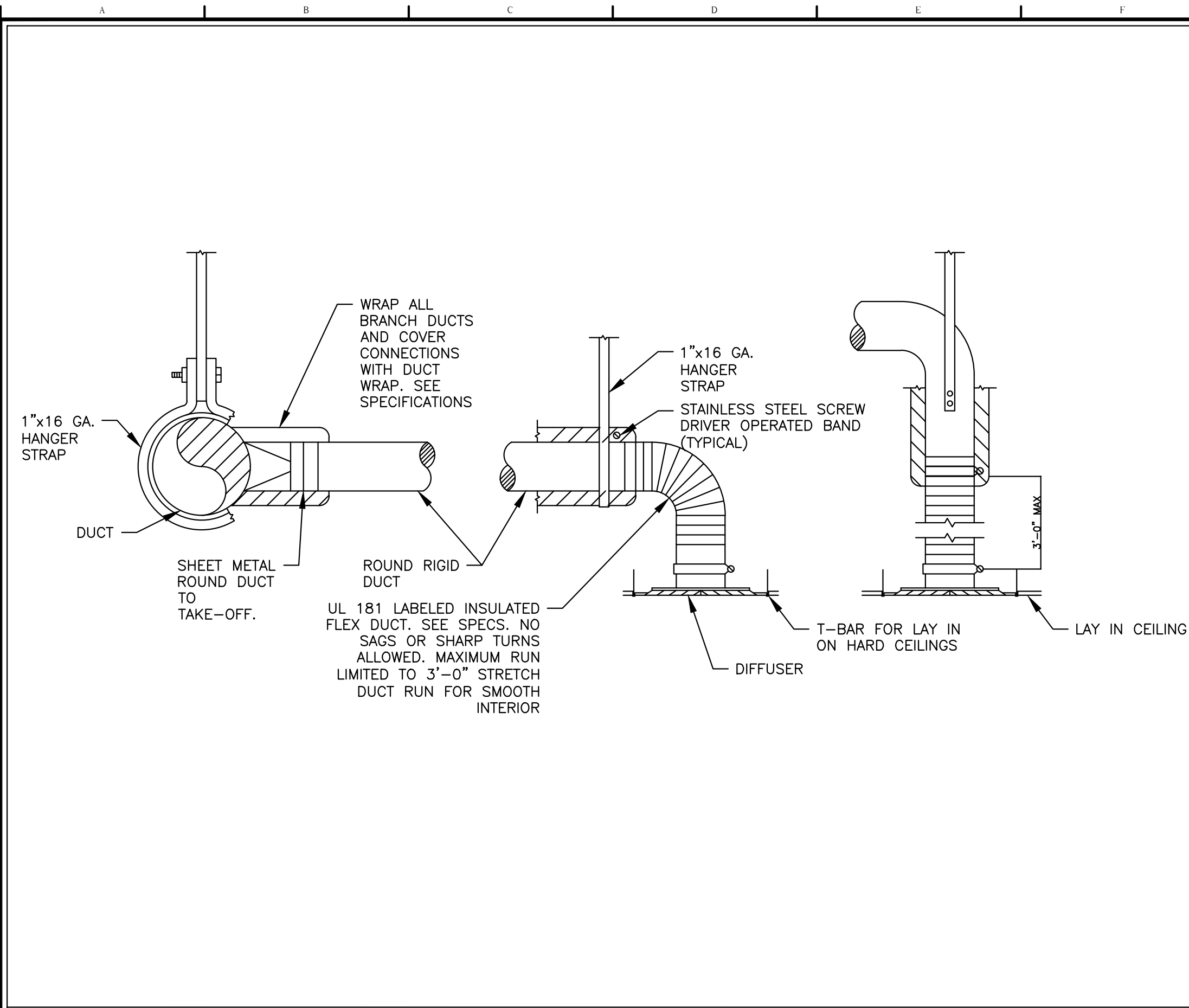
5 DUCT HANGING DETAILS
M-6 N.T.S



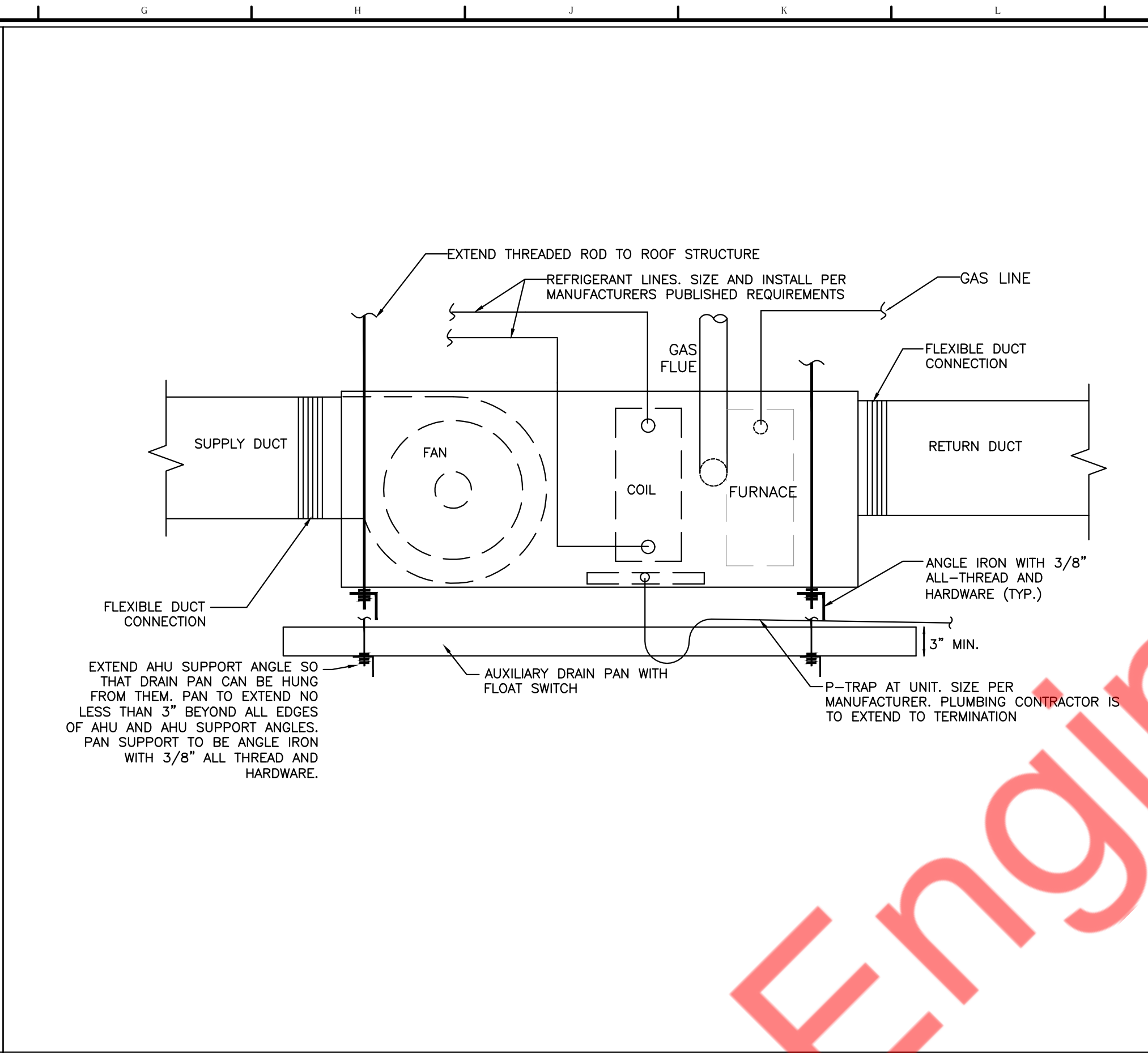
ISSUE		
No.	DATE	DESCRIPTION

MECHANICAL
DETAILS (1 OF 3)

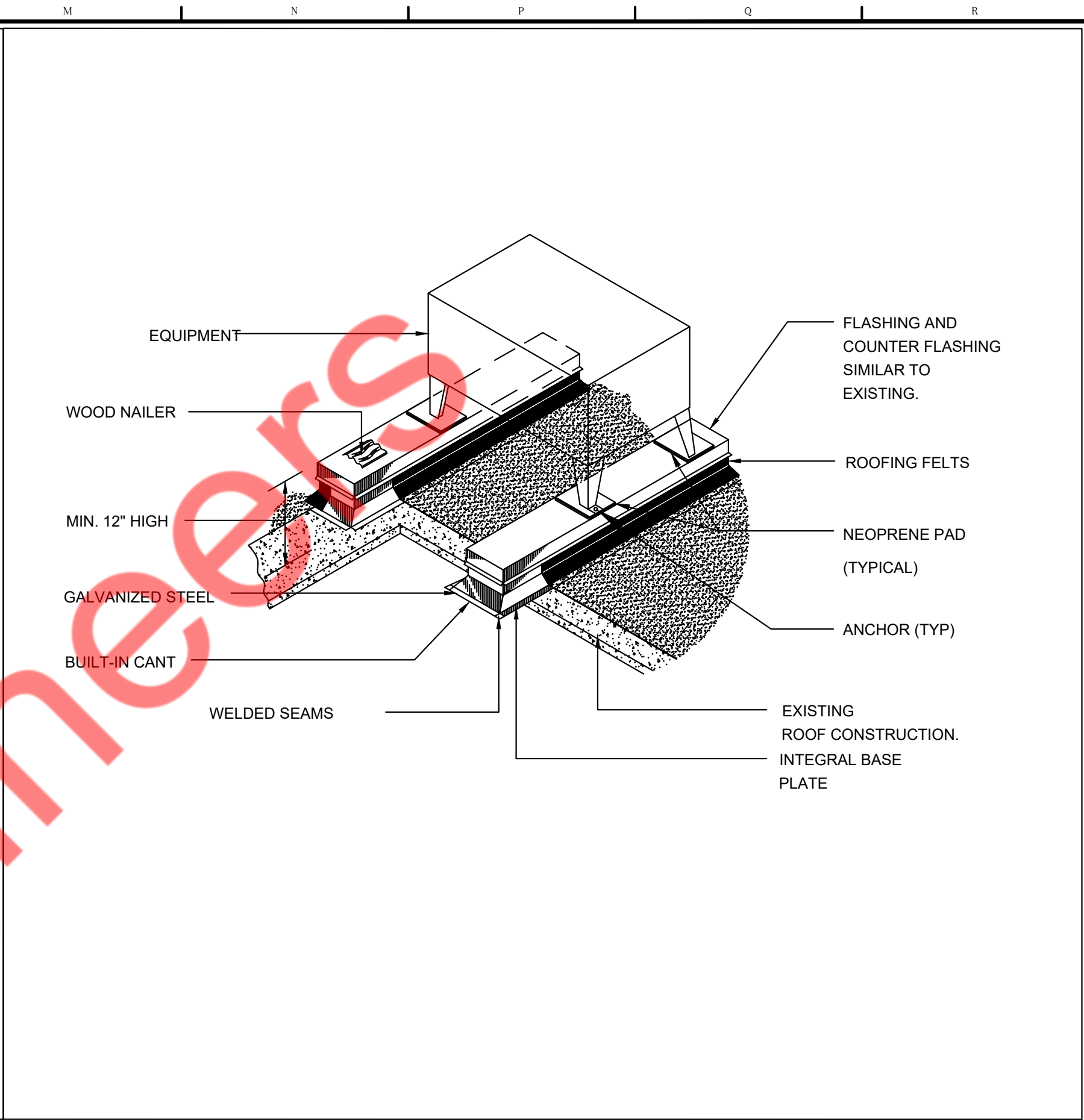
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M-6



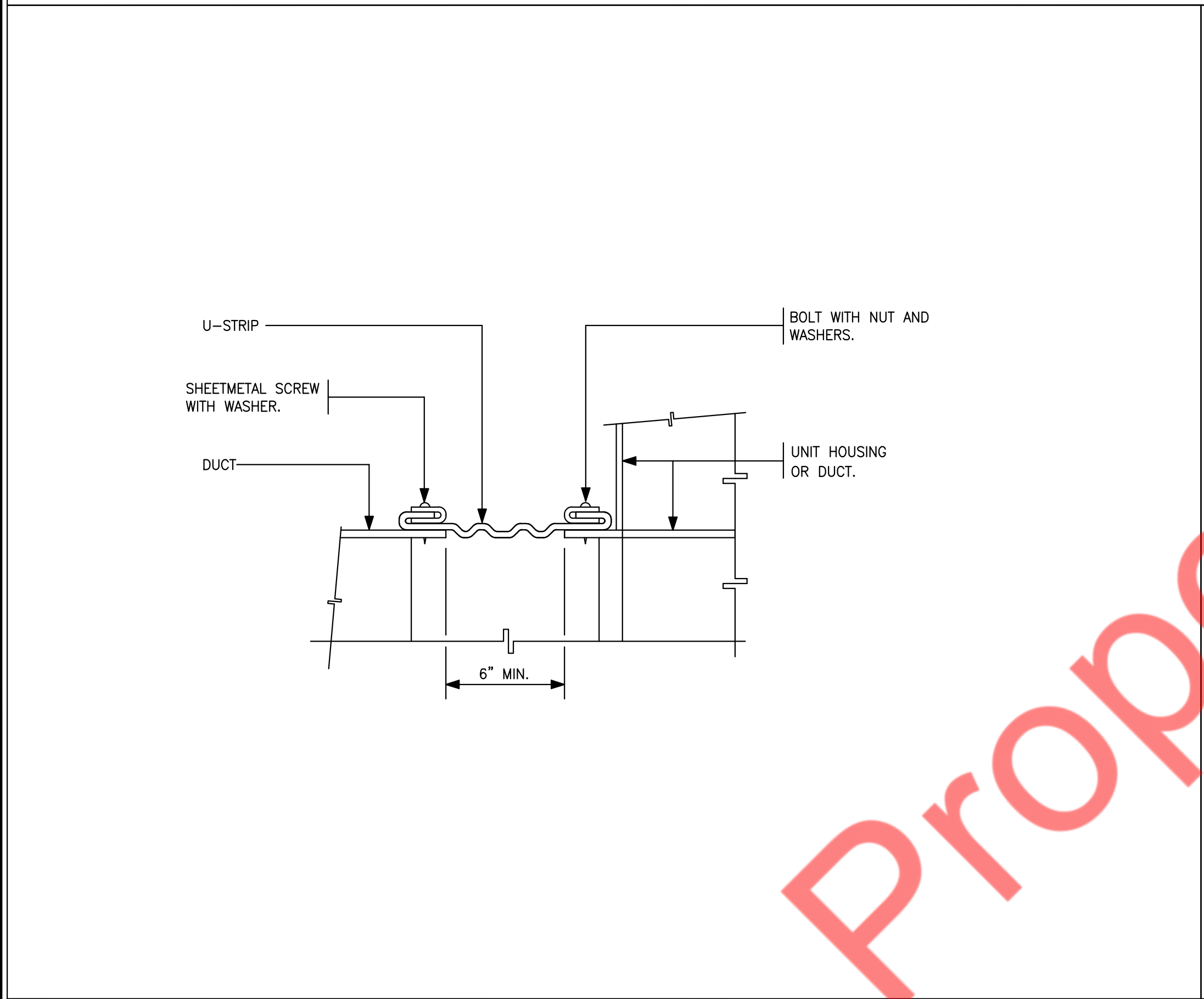
1
M-7
TYPICAL DIFFUSER CONNECTION DETAIL
N.T.S



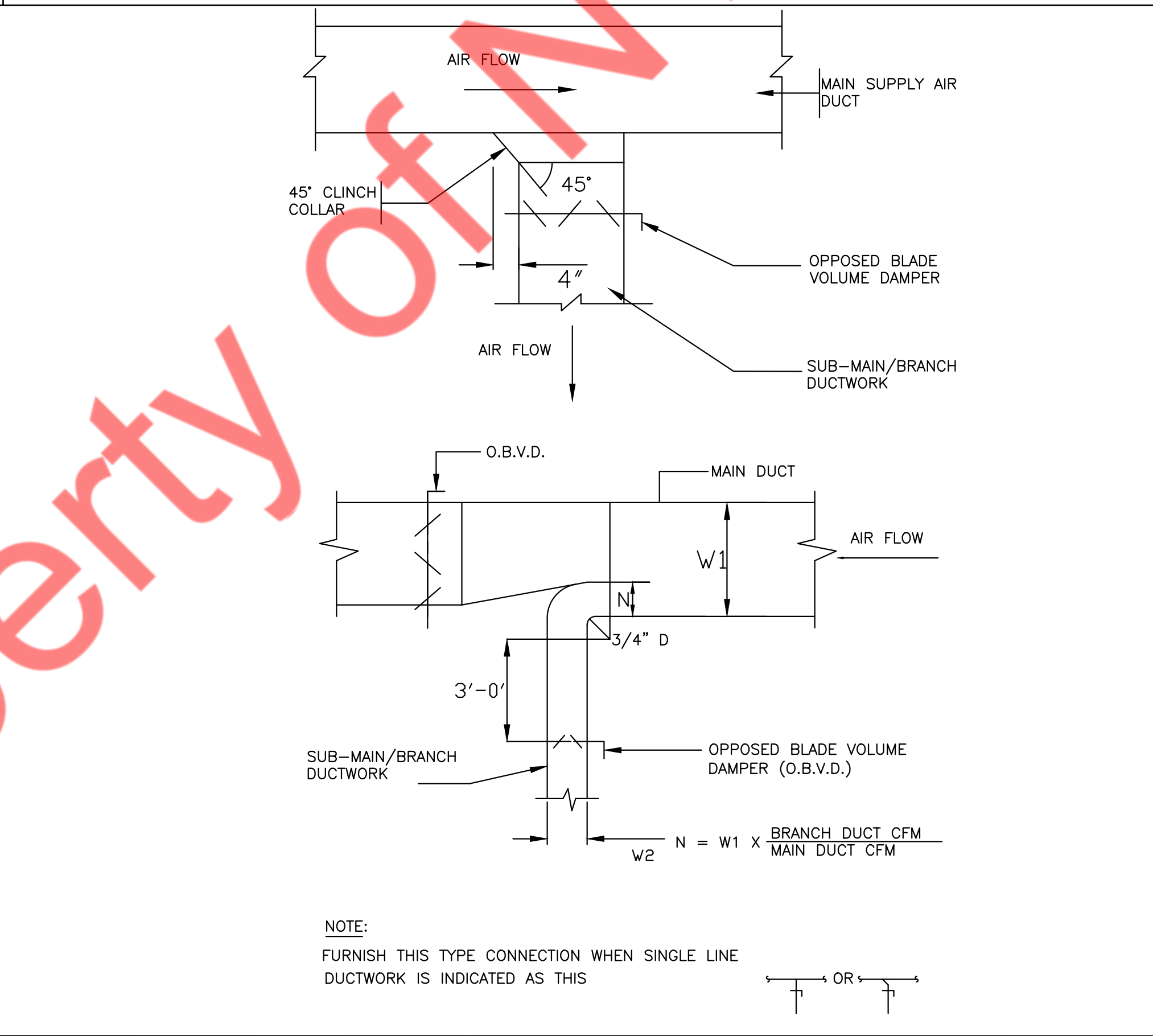
2
M-7
AIR HANDLING DETAIL
N.T.S



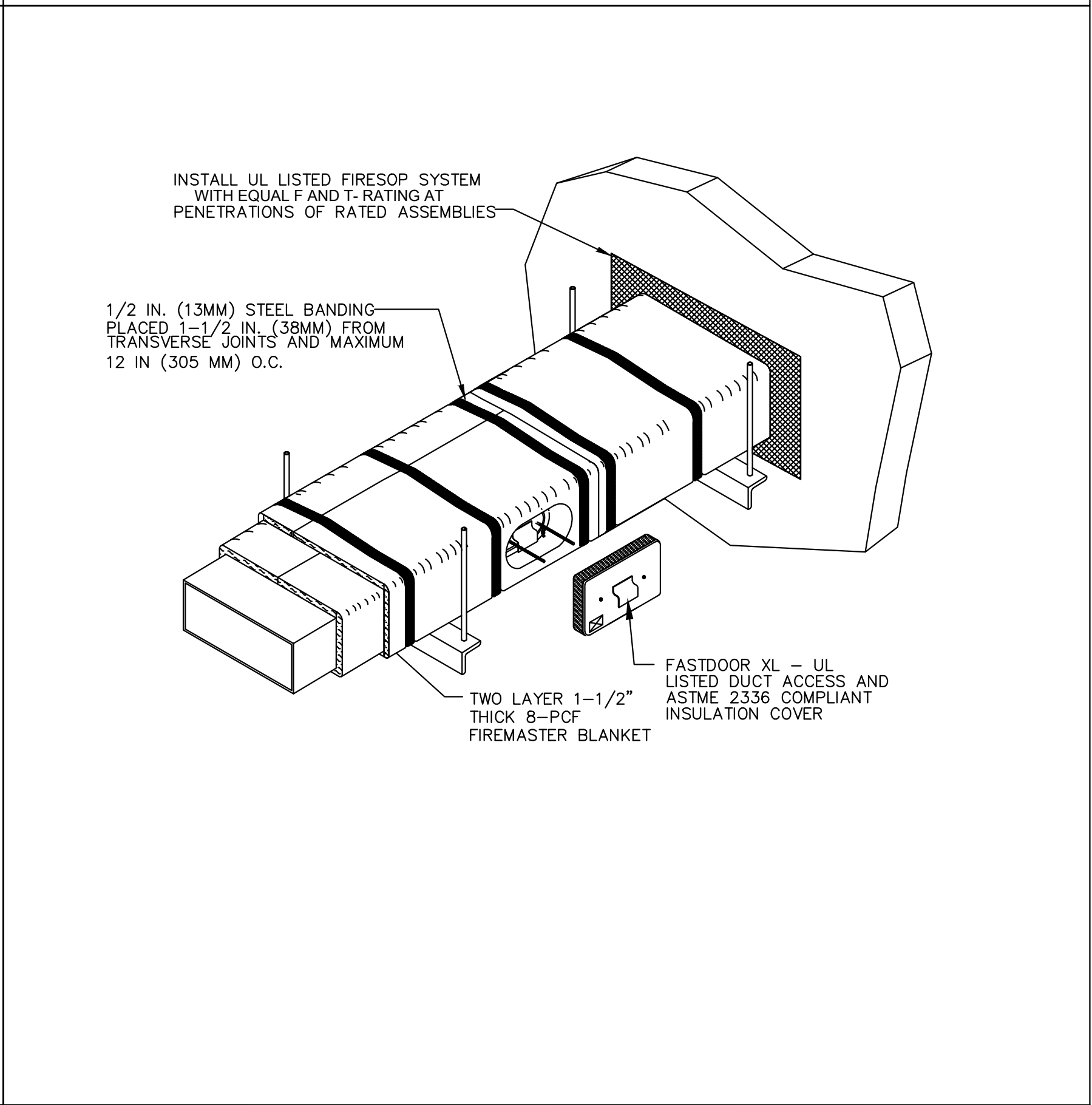
3
M-7
CONDENSING UNIT INSTALLATION DETAIL
N.T.S



4
M-7
FLEXIBLE CONNECTION (DUCT-EQUIPMENT)
N.T.S



5
M-7
SUB-MAIN/BRANCH DUCT CONNECTION
N.T.S



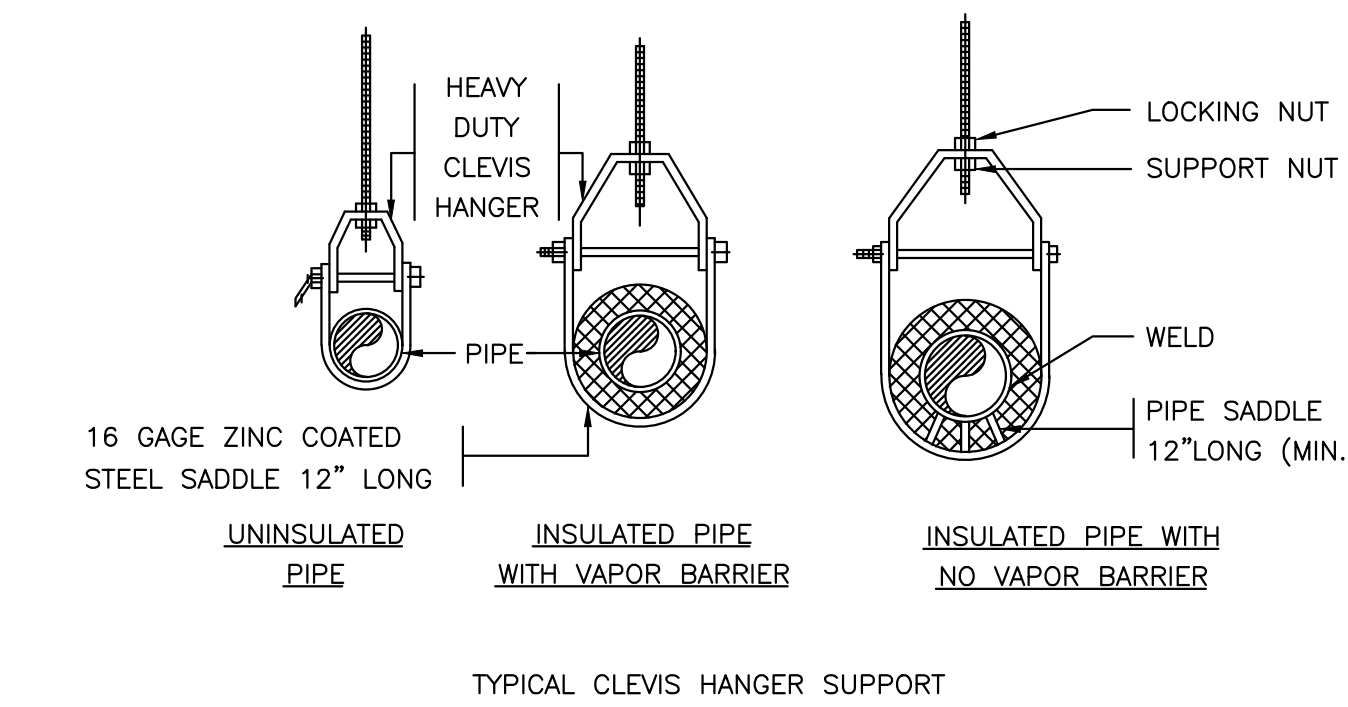
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M-7
KITCHEN EXHAUST DUCT DETAILS
N.T.S

ISSUE		
No.	DATE	DESCRIPTION

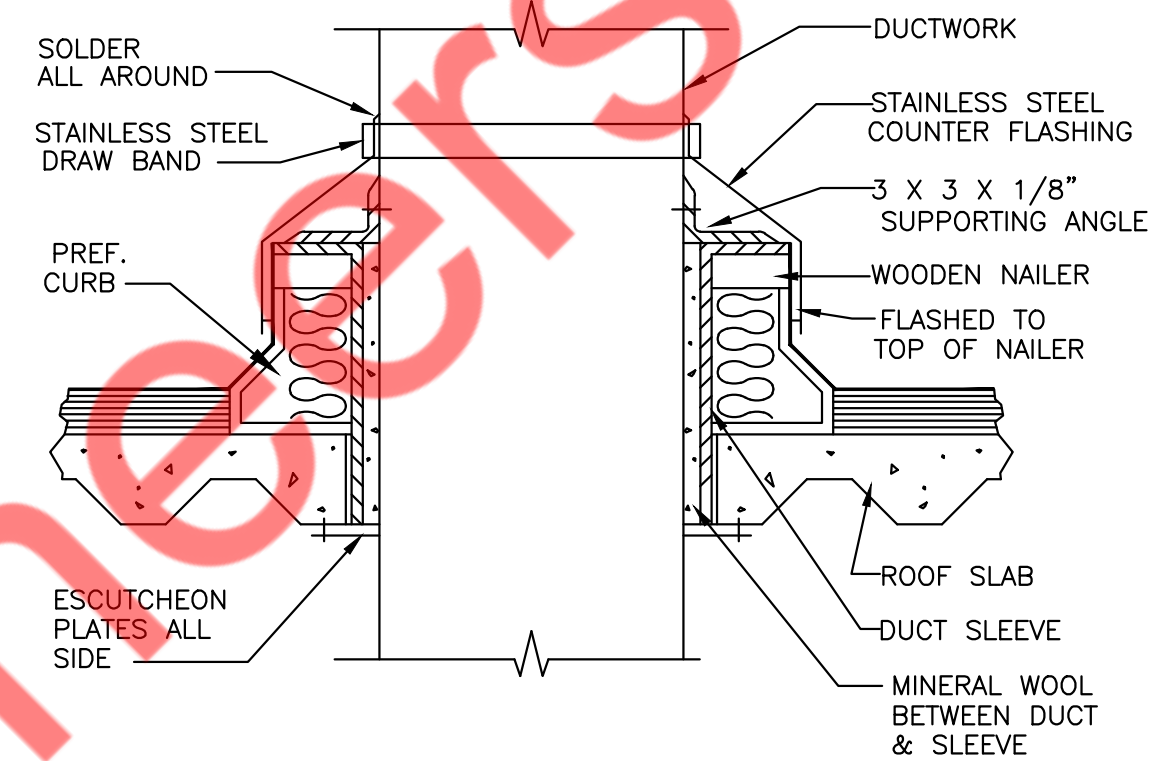
DWG DATE: 02-16-2023
 REVIEWED BY: NYE
 PROJECT No.: 23109
 DWG TITLE:

MECHANICAL
DETAILS (2 OF 3)

SHEET No.
M-7

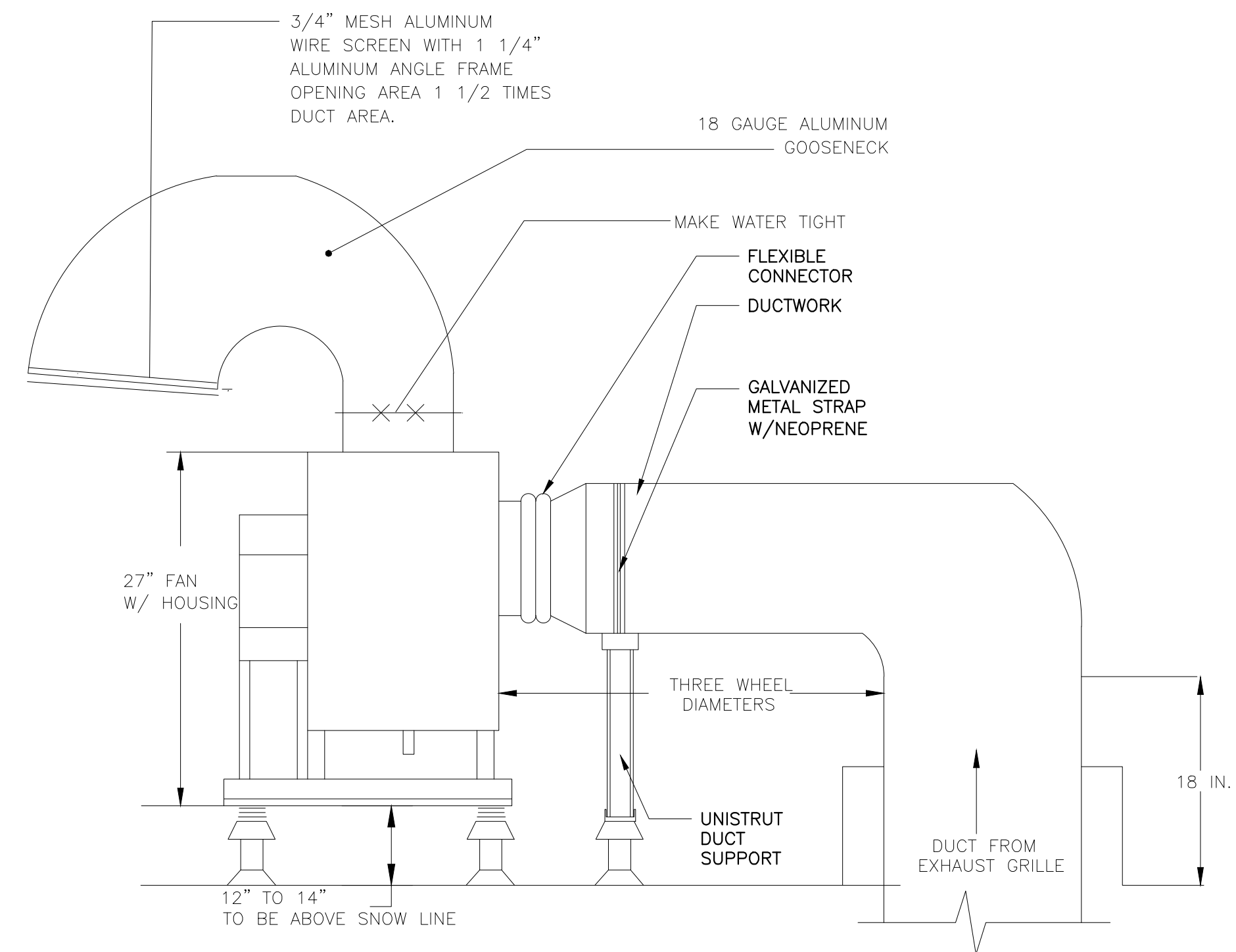
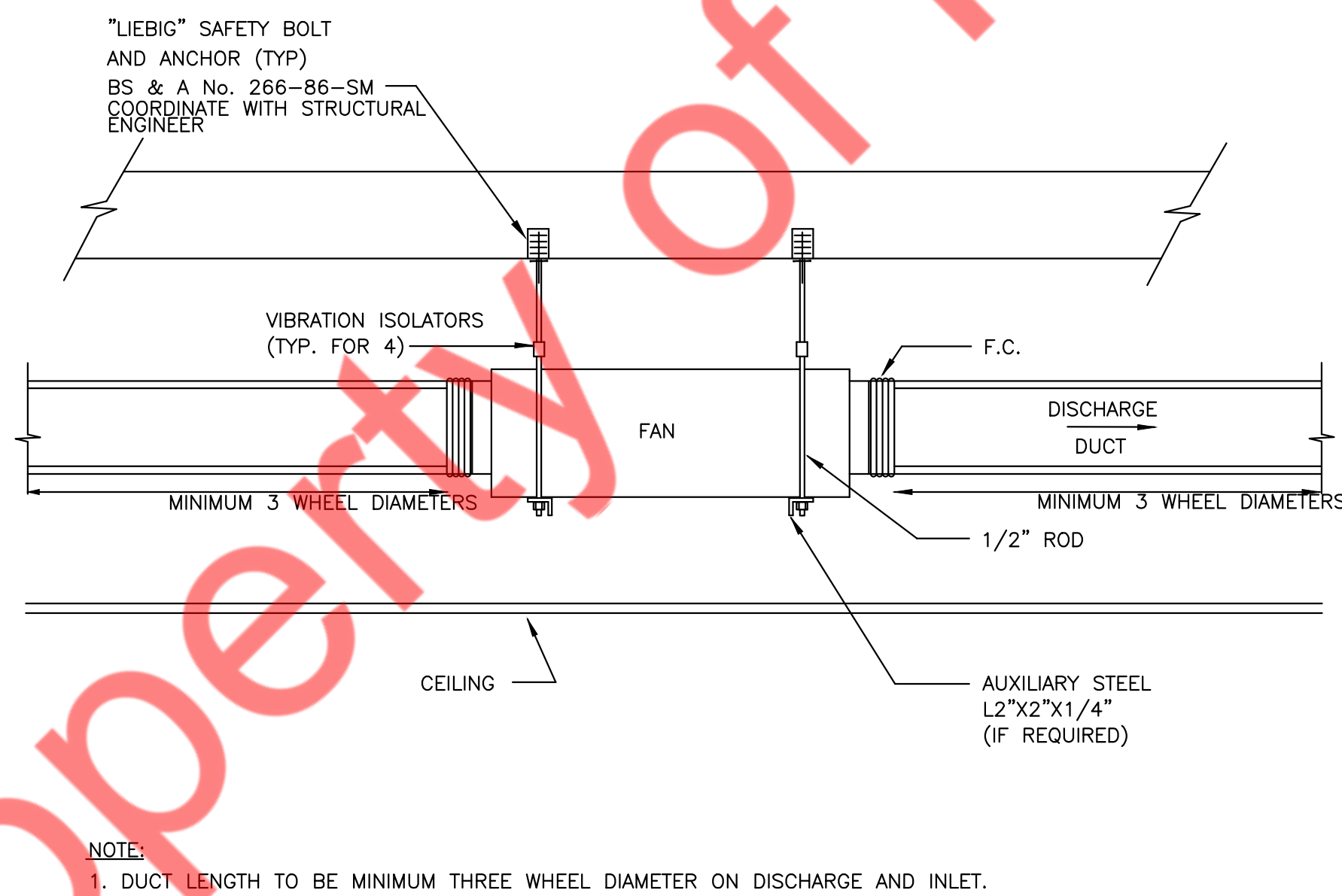
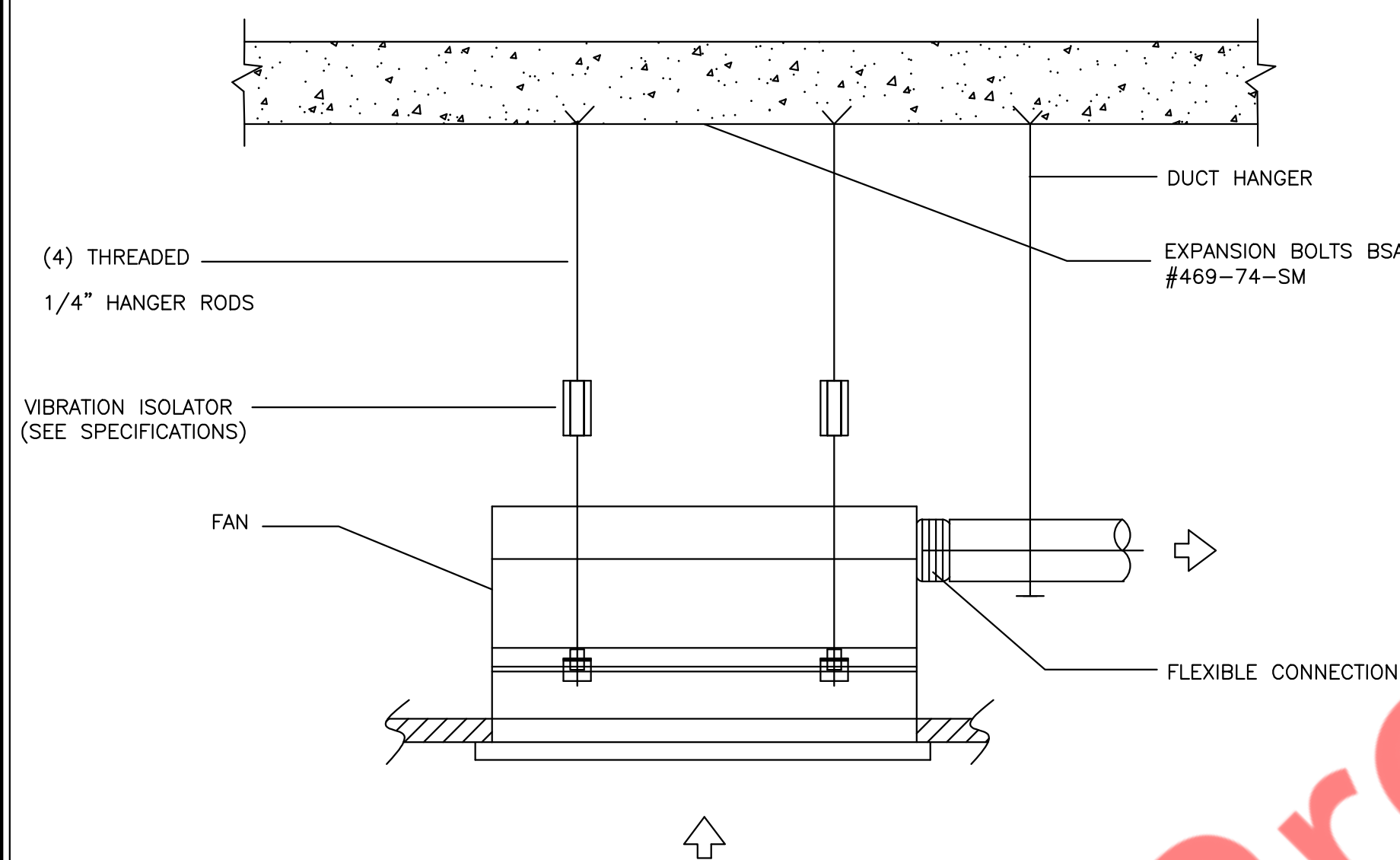


NOMINAL PIPE OR TUBE SIZE – INCHES	3/4	1	1 1/2	2	2 1/2	3	4	5	6
HANGER ROD SIZES – INCHES	3/8	3/8	3/8	3/8	1/2	1/2	5/8	5/8	7/8
MAXIMUM SPACING BETWEEN PIPE SUPPORTS – FEET	6	7	9	10	11	12	14	16	17
MAXIMUM SPACING BETWEEN CU. TUBE SUPPORTS – FEET	6	6	8	9	10	10	12	14	14
NOTES: TRAPEZE HANGER SPACING SHALL BE BASED ON SPACING OF SMALLEST PIPE ON TRAPEZE. TRAPEZE SHALL BE DESIGNED WITH A FACTOR OF SAFETY OF 5 FOR CENTER OF SPAN CONCENTRATED LOAD.									



1 M-8 HANGER SUPPORTS DETAIL N.T.S

2 DUCT PENETRATION DETAIL THROUGH ROOF
M-8 N.T.S.



3
M-8

CEILING FAN DETAIL

N.T.S

4
M-8

INLINE FAN SUPPORT DETAIL
N.T.S

5 UTILITY VENT SET FAN DETAIL
M-8 N.T.S

[illegible]MECHANICAL
DETAILS (3 OF 3)

SHEET No.

M-8

AIR CONDITIONING UNIT SCHEDULE (INDOOR)														MAKE : CARRIER				
TAG	AREA SERVED	TYPE	TON	TOTAL COOLING CAP. (MBH)	NOMINAL HEATING		SUPPLY AIRFLOW (CFM)	OUTDOOR AIR (CFM)	ELECTRICAL DATA			DIMENSIONS (HxWxD) (IN.)	REFRIGERANT PIPE SIZE (IN.)		WEIGHT (LBS.)	AFUE (%)	MODEL NO. (FURNACE/INDOOR COIL)	REMARK
					INPUT (MBH)	OUTPUT (MBH)			PH/VOLT/HZ	MCA (A)	MOCP (A)		LIQUID	SUCTION				
AHU-1	SEE PLAN	SEE PLAN	3	36	60	58	1200	100	1/115/60	12.6	15	61"X18"X30"	3/8"	7/8"	206	96.3	59TN68-060C17--14/CAPVP3617ACA OR EQUIVALENT	NEW
AHU-2	SEE PLAN	SEE PLAN	3	36	60	58	1200	100	1/115/60	12.6	15	61"X18"X30"	3/8"	7/8"	206	96.3	59TN68-060C17--14/CAPVP3617ACA OR EQUIVALENT	NEW
AHU-3	SEE PLAN	SEE PLAN	5	60	100	98	2000	280	1/115/60	18	20	69"X21"X30"	1-3/8"	7/8"	262	96.1	59TN68-100C21--22/CAPVP6021ACA OR EQUIVALENT	NEW
NOTES :-																		
1) SUPPLY AIR CFM BASED ON HIGH SPEED. PROVIDE VARIABLE AIRFLOW ADJUSTMENT CONTROL FOR ALL UNITS.																		
2) REFRIGERANT R410A SHALL BE PROVIDED.																		
3) PROVIDE ALL ASSOCIATED ACCESSORIES.																		
4) ALL REFRIGERANT PIPING TO BE SIZED AS PER MANUFACTURERS RECOMMENDATIONS.																		
5) CONTRACTOR SHALL PROVIDE A LONG LINE SET FOR REFRIGERANT PIPING IN THE EVENT THAT TOTAL REFRIGERANT LENGTH EXCEEDS THE MANUFACTURER'S STANDARD RECOMMENDED LENGTH.																		
6) PROVIDE DRAIN PAN WITH WATER LEAK DETECTOR TO SHUT DOWN AHUS.																		
7) PROVIDE DISCONNECT SWITCH & NON-POWERED GFI OUTLET.																		
8) PROVIDE ACCESS PANELS FOR THE UNITS.																		
9)PROVIDE CONDENSATE PUPM IF REQUIRED.																		
10) HOT GAS BYPASS SHALL BE LESS THAN 240 MBH.																		

CONDENSING UNITS SCHEDULE (OUTDOOR)															MAKE : CARRIER		
TAG	LOCATION	INDOOR UNITS SERVED	CAPACITY (TON)	TOTAL COOLING CAP. (MBH)	COMPRESSOR TYPE	UNIT DIMENSIONS IN.(HxWxD)	WEIGHT (LBS)	PIPING DIAMETER (IN.)		ELECTRICAL DATA			EER	SEER	SOUND RATING (DBA)	MODEL	REMARK
								LIQUID	GAS	PH./V/Hz	MCA (A)	MOCP (A)					
ACCU-1	SEE PLAN	AHU-1(N)	3	36	SCROLL	33"X35"X35"	201	3/8"	7/8"	1/208-230/60	19.8	35	13.5	17	72	24TPA736A003	NEW
ACCU-2	SEE PLAN	AHU-1(N)	3	36	SCROLL	33"X35"X35"	201	3/8"	7/8"	1/208-230/60	19.8	35	13.5	17	72	24TPA736A003	NEW
ACCU-3	SEE PLAN	AHU-2(N)	5	60	SCROLL	39"X35"X35"	256	1-3/8"	7/8"	1/208-230/60	33.2	50	13.5	16	74	24TPA760A003	NEW
NOTES :-																	
1. UNIT SHALL HAVE TEN YEAR EXTENDED WARRANTY FOR COMPRESSORS/PARTS.																	
2. PROVIDE COMPRESSOR CYCLE PROTECTOR.																	
3. STEEL RAILS FOR CONDENSER MOUNTING TO BE PROVIDED BY MECH. CONTRACTOR .																	
4. OUTDOOR REFRIGERANT LINESET TO BE WRAPPED IN UV RESISTANT, FIRE RATED, AND ANTI-MICROBIAL INSULATION PROTECTION BASED ON AIREX-FLEX GUARD OR EQUAL.																	
5. OUDOOR CONDENSING UNITS TO BE LOCATED WITH PROPER CLEARANCES AND MUST PREVENT RE-CIRCULATION OF AIR. COORDINATE WITH MANUFACTURER AND ARCHITECT.																	

FAN SCHEDULE										
UNIT ID	MANUFACTURER	CFM	ESP(IN W.G.)	RPM	HP	VOLTS/PH	FLA(A)	WEIGHT (LBS)	MODEL	NOTES
KEF-1	CAPTIVEAIRE	3840	2	1025	5	208/3	15.8	786	USBI22DD-RM	1
EF-1	GREENHECK	70	0.8	1493	-	115/1	1.5	24	CSP-A390-VG	2,3,4,5,6
OAF-1	GREENHECK	480	1	1618	0.25	115/1	5.8	98	USF-08-B3	6,7,8,9,10
REMARK:										
1. REFER SHEET H-1 TO H-3.										
2. INTERLOCK WITH AHU-2.										
3. PROVIDE BACKDRAFT DAMPER										
4. VARIABLE SPEED CONTROL										
5. THERMAL OVERLOAD PROTECTION										
6. AMCA SEAL & UL LISTING.										
7. PROVIDE 2" MERV-8 FILTER.										
8. WEATHERPROOF PRE-WIRED DISCONNECT SWITCH										
9.OAF-1 SHALL INTERLOCK WITH ALL AC UNITS.										
10.PROVIDE ALL MANUFACTURER RECOMMENDED ACCESSORIES.										

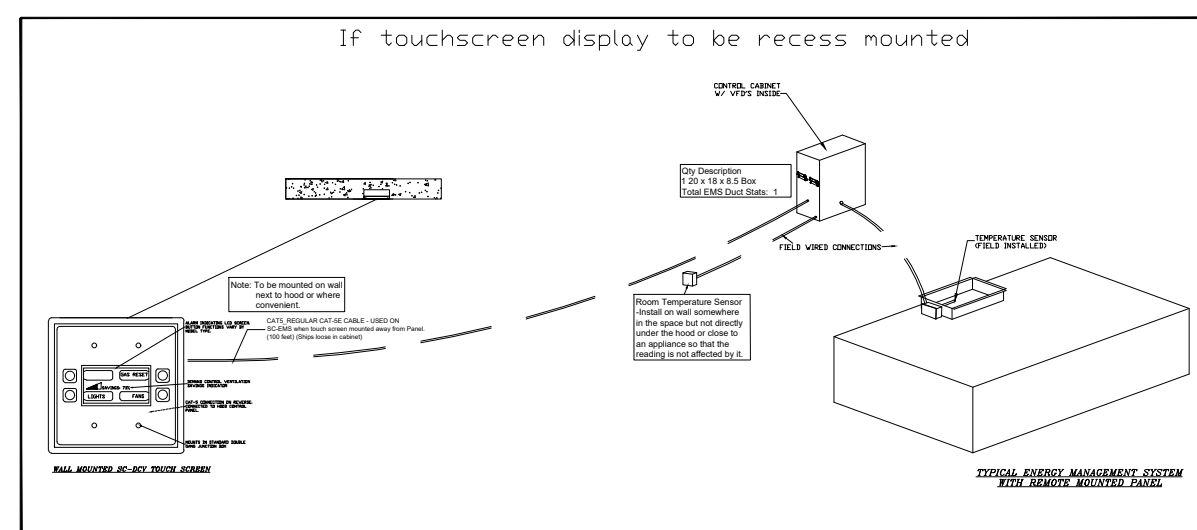
AIR BALANCE					
UNIT	AREA SERVED	SUPPLY AIR (CFM)	OUTSIDE AIR (CFM)	RETURN AIR (CFM)	EXHAUST AIR(CFM)
AHU-1	SEE PLAN	2000	280	1720	0 CFM
AHU-2	SEE PLAN	1200	100	1100	0 CFM
AHU-3	SEE PLAN	1200	100	1100	0 CFM
MAU-1	SEE PLAN	3456	3456	0	0 CFM
KEF-1		-	-	-	3840 CFM
EF-1		-	-	-	70 CFM
EF-2		-	-	-	70 CFM
TOTAL:		7856	3936	3920	3840
BUILDING PRESSURE:			96	POSITIVE	
NOTES:					
1. CONTRACTOR TO ADJUST MOTORIZED DAMPER ON FRESH AIR TAP TO PROVIDE OUTSIDE AIR AS MENTIONED IN ABOVE TABLE.					

KITCHEN MAKE UP AIR UNIT SCHEDULE																																
TAG	SERVICE	FLOW RATE CFM	EXTERNAL STATIC IN W.G.	SPEED RPM	COOLING DATA					GAS HEATING CAPACITY				PRESSURE RANGE IN. WC	TEPM RISE	ELECTRIC DATA						SONES	WEIGHT (LBS)	BASIS OF DESIGN		REMARK						
					COIL TYPE	NO OF CONDENSER	ENTERING DB TEMP °F	ENTERING WB	LEAVING DB	LEAVING WB TEMP °F	TOTAL CAPACITY	SENSIBLE CAPACITY	SEER			CONDENSER 1			CONDENSER 2					FAN								
																V/PH/HZ	MCA (A)	MOCP (A)	V/PH/HZ	MCA (A)	MOCP (A)			V/PH/HZ	MCA (A)		MOCP (A)	MANUFACTURER	MODEL			
MAU-1	HOOD	3456	0.5	1426	DX	2	92	76	76.8	69.9	79.6	54.6	14	205	190	92%	7-14	52 °F	208/3/60	11.2	20	208/3/60	21.4	30	208/3/60	11.9	20	12.8	1522	CAPTIVEAIRE	A2-D.250-20D-MPU	1,2
NOTES:-																																
1) PROVIDE ALL NECESSARY ACCESSORIES AS PER MANUFACTURER'S RECOMMENDATIONS.																																
2) REFER HOOD SHEET FROM H-1 TO H-3																																

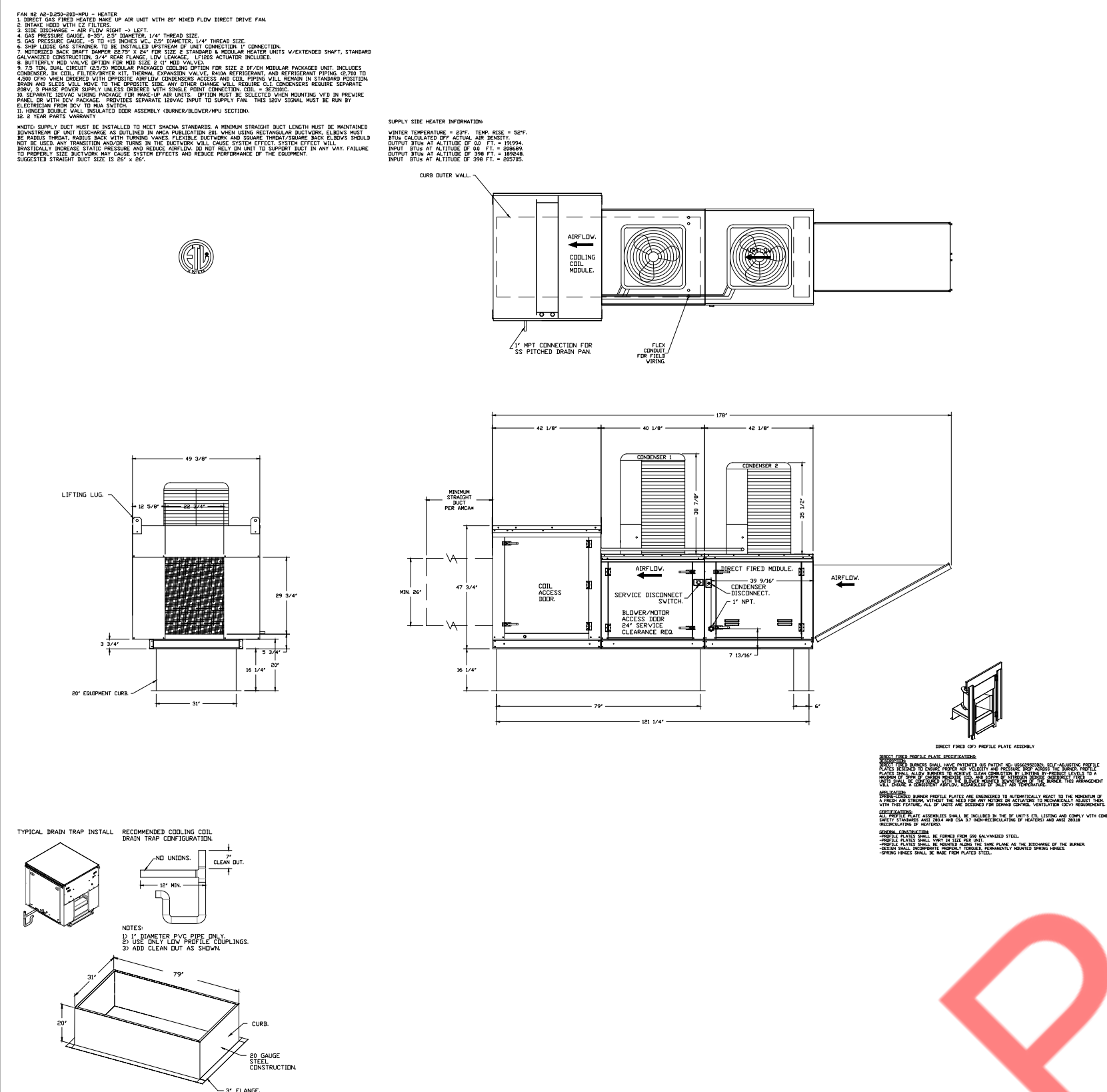
HOOD SCHEDULE											
UNIT ID	MANUFACTURER	LENGTH	MODEL	TYPE	COOKING		EXHAUST			CONSTRUCTION	WEIGHT
		(FEET-INCH)			TEMPERATURE (DEG F)	AIR (CFM)	COLLAR (INCH)	E.S.P (IN. W.G.)	(LBS)		
HOOD-1	CAPTIVE-AIRE	8'-0"	5424 ND-2-PSP-F	1	600	1920	14"	0.749		430 STAINLESS STEEL	847
HOOD-2	CAPTIVE-AIRE	8'-0"	5424 ND-2-PSP-F	1	600	1920	14"	0.749		430 STAINLESS STEEL	451

ELECTRIC DUCT HEATER SCHEDULE										BASIS OF DESIGN:GREENHECK	
UNIT ID	LOCATION	HEATER DIMENSION		QTY.	ELECTRICAL DATA					MODEL	HEATER TYPE
		W	H		KW	V	PH	Hz	Amps		
EDH-1	SEE PLAN	10	10	1	7.5	208	3	60	20.82	IDHE-O	SLIP IN
NOTES:											
1) INSTALL ELECTRIC DUCT HEATER AS PER MANUFACTURER'S RECOMMENDATION.											
2) PROVIDE T-STAT AND WIRE TO DUCT HEATER.											
3) PROVIDE DISCONNECT SWITCH, VAPOR BARRIER, DUST TIGHT BOX AND FAN INTERLOCK SWITCH.											
4) PROVIDE DUCT HEATER WITH SCR CONTROL.											

SCHEDULE OF GRILLES/DIFFUSER				MAKE: TITUS	
TAG	TYPE	CFM RANGE	DIMENSION(IN)	MODEL NO.	MAX NC dBA
SG-1	SUPPLY GRILLE	0-250	16X6	300 FS	25
CDS-1	SUPPLY	0-650	24X24	TDC-AA	20
CDS-1	SUPPLY(PERFORATED)	250-350	24X24	PAS	25
CDS-3	SUPPLY	50-175	12X12	TDC-AA	20
CDR-1	RETURN	500-1100	24X24	50FF	25
RG-1	RETURN GRILLE	0-1200	36X6	300 FS	25
NOTES FOR DIFFUSERS					
1. ALL GRILLES : CONTRACTOR SHALL COORDINATE WITH LATEST					
2. COORDINATE COLOR/FINISH WITH ARCHITECT.					
FOR DOWN NECK DIFFUSERS:					
6"-100 CFM					
8"-105-175 CFM					
10"-180-275 CFM					
12"-280-400 CFM					
14"-410-540 CFM					
16"-545-650 CFM					

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These products and others are available for demonstration at the Northern CA display center
--For more information or questions Contact--
Captive Aire Systems
1110 Burnett Ave, Suite G, Concord, CA 94520
Phone: (925)962-1999, Fax (925)566-8565
Email reg98@captiveaire.com



ISSUE		
No.	DATE	DESCRIPTION
DWG DATE:	02-16-2023	
REVIEWED BY:	NYE	
PROJECT No.:	23109	
DWG TITLE:		

HOOD DETAILS
(2 OF 2)

SHEET No.

H-2

1. MATERIALS AND INSTALLATION, AS A MINIMUM, ARE TO CONFORM WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE, THE LATEST EDITION OF N.F.P.A., AND THE LATEST EDITIONS OF THE LOCAL CODES AND ORDINANCES, INCLUDING ALL AMENDMENTS TO THE N.E.C. EQUIPMENT, WHERE APPLICABLE, WILL BE LISTED WITH THE UNDERWRITERS LABORATORIES, INC. QUALITY AND WORKMANSHIP ESTABLISHED BY DRAWINGS AND SPECIFICATIONS ARE NOT TO BE REDUCED BY THE ABOVE MENTIONED CODES.

2. BIDDERS ARE TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND SATISFY THEMSELVES AS TO THE NATURE AND SCOPE OF WORK. THE SUBMISSION OF A BID WILL BE EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS FOR LABOR, EQUIPMENT, OR MATERIALS REQUIRED, OR FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD AN EXAMINATION BEEN MADE, WILL NOT BE ALLOWED.

3. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST-CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM IS TO BE FULLY OPERABLE AND ACCEPTANCE OF THIS SYSTEM BY THE ENGINEER/ARCHITECT MUST BE A CONDITION OF THE SUB CONTRACT.

4. ALL WORK TO BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.

5. CONTRACTOR TO GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FOR PERIOD OF NOT LESS THAN ONE (1) YEAR FROM DATE OF ACCEPTANCE.

6. CORRECTION OF ANY DEFECTS TO BE COMPLETED WITHOUT ADDITIONAL CHARGE AND TO INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED THEREBY.

7. ALL REQUIRED INSURANCE TO BE PROVIDED FOR PROTECTION AGAINST PUBLIC LIABILITY OF PROPERTY DAMAGE FOR THE DURATION OF THE WORK.

8. CONTRACTOR TO PAY FOR ALL PERMITS, FEES INSPECTIONS AND TESTINGS.

9. ELECTRICAL INSTALLATION TO MEET ALL STANDARD REQUIREMENTS OF LOCAL POWER AND TELEPHONE COMPANIES. ELECTRICAL CONTRACTOR SHALL CONTACT LOCAL POWER AND TELEPHONE COMPANIES PRIOR TO START OF CONSTRUCTION.

10. ALL WIRING SHALL BE IN CONDUIT UNLESS OTHERWISE NOTED. MINIMUM WIRE SIZE SHALL BE #12 AWG, EXCLUDING CONTROL WIRING. ALL CONDUCTORS SHALL BE COPPER WITH THWN/THHN INSULATION. CONDUCTORS #10 AND SMALLER MAY BE SOLID; ALL THOSE #8 AND LARGER TO BE STRANDED.

11. ALL UNDERGROUND RACEWAYS SHALL BE MINIMUM 3/4", GALVANIZED RIGID STEEL CONDUIT OR SCHEDULE 40 P.V.C. ALL OTHER RACEWAYS TO COMPLY WITH GOVERNING CODES. WHERE RIGID STEEL IS USED, IT SHALL BE COMPLETELY COATED WITH AN ALKALI AND RUST RESISTANT BITUMASTIC PAINT. COPPER NO. 50, AND THREADS SHALL BE COATED WITH ZINC CHROMATE. RIGID STEEL SHALL ALSO BE USED WHEN CONDUIT IS EXPOSED TO EXTERIOR ENVIRONMENT SUCH AS EXTERIOR OF BUILDING OR WHERE IT IS EXPOSED AND SUBJECT TO DAMAGE, INSIDE OF BUILDING.

11.1 ALL UNDERGROUND SERVICE CONDUITS/RACEWAYS ENTERING BUILDING OR STRUCTURE FROM OUTSIDE TO INSIDE SHALL BE SEALED, INCLUDING SPARE CONDUITS. SEALANT SHALL BE SUITABLE FOR THIS USE.

12. OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET OR DAMP LOCATIONS, AND BE OF SPECIAL CONSTRUCTION FOR OTHER CLASSIFIED AREAS. ALL BOXES SHALL BE RECESSED (FLUSH) IN WALLS OR CEILINGS WHENEVER POSSIBLE.

13. DISCONNECT SWITCHES SHALL BE H.P. RATED, GENERAL DUTY, QUICK-MAKE, QUICK-BREAK TYPE. ENCLOSURES SHALL BE AS REQUIRED BY N.E.C. AND LOCATION (WEATHERPROOF, EXPLOSION PROOF, ETC.). ENGRAVED LAMINATED PLASTIC IDENTIFICATION PLATES SHALL BE FURNISHED AND INSTALLED ON ALL PANELS, DISCONNECT SWITCHES, CONTACTORS AND STARTERS.

13.1. ALL FUSES FOR SAFETY SWITCHES SHALL BE DUAL ELEMENT, CARTRIDGE TYPE. FUSES SHALL BE THOSE MANUFACTURED BY EITHER BUSSMAN OR LITFUSE. THE CONTRACTOR SHALL FURNISH TO THE OWNER ONE SPARE FUSE FOR EACH SIZE AND TYPE OF FUSE INSTALLED. FUSES 600 AMPS OR LESS SHALL BE CLASS RK1, TYPICAL UNLESS OTHERWISE NOTED. FUSES OVER 600 AMPS SHALL BE CLASS L.

14. ALL GENERAL PURPOSE SWITCHES AND RECEPTACLES SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER. CATALOG NUMBERS LISTED ARE LEVITON; HOWEVER, COMPARABLE DEVICES BY PASS & SEYMOUR, BRYANT, OR ARROW HART WILL BE ACCEPTED. COLOR OF DEVICES AND PLATES SHALL BE DICTATED BY ARCHITECT/OWNER.

A. SWITCHES: LEVITON #CSB1-20I (SALES AREA); LEVITON #CSB1-20B (SERVICE LINE)
B. RECEPTACLES: LEVITON #BR20-I (SALES AREA); LEVITON #BR20-B (SERVICE LINE)
C. COVER PLATES: STAINLESS STEEL

NOTE: ALL OTHER REQUIRED DEVICES SHALL MATCH IN COLOR AND STYLE.

15. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM, AND PROVIDE ALL NECESSARY DEVICES AND COMPONENTS FOR EQUIPMENT BE PLACED IN PROPER WORKING ORDER.

16.1. A SEPARATE, GREEN TYPE THW CONDUIT GROUND CONDUCTOR SHALL BE RUN FROM GROUND LUG OF EACH GROUNDED RECEPTACLE TO AN APPROVED CONNECTION INSIDE THE ENCLOSING STEEL OUTLET BOX. DEVICE MOUNTING SCREWS SHALL NOT BE CONSIDERED AN APPROVED GROUND.

16.2. A SEPARATE GROUND CONDUCTOR SHALL BE INSTALLED IN EVERY CONDUIT AND RACEWAY AND SECURELY BONDED IN AN APPROVED GROUNDING TERMINAL AT BOTH ENDS OF THE RUN. THE GROUNDING CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH TABLE 250.122 OF THE N.E.C. CONTRACTOR SHALL SIZE CONDUIT TO ACCOMMODATE ADDITIONAL CONDUCTOR.

16.3. GROUND RODS SHALL BE 5/8" DIAMETER, TEN (10) FEET LONG COPPERCLAD STEEL. OBTAIN TWENTY FIVE (25) OHMS MAXIMUM RESISTANCE AS READ WITH A GROUNDING RESISTANCE TESTER, USING TWO REFERENCE RODS. IF TWENTY FIVE (25) OHMS CANNOT BE ACHIEVED, CONTRACTOR SHALL PROVIDE ADDITIONAL RODS, UNTIL TWENTY FIVE (25) HAS BEEN OBTAINED.

17. LOAD DATA IS BASED ON INFORMATION GIVEN TO ENGINEER AT THE TIME OF DESIGN. VERIFY ALL EQUIPMENT NAMEPLATE RATINGS BEFORE ORDERING.

18. CIRCUITS SHOWN ON PLANS ARE TO DETERMINE LOAD DATA AND PANEL SIZES. THE CONTRACTOR IS TO PROVIDE CIRCUITS AND ROUTING OF CONDUITS TO SUIT JOB CONDITIONS.

19. FURNISH AND INSTALL DISCONNECT SWITCHES, WIRING, AND CONNECTIONS ON AIR CONDITIONING SYSTEM AS SHOWN ON PLANS. ELECTRICAL CONTRACTOR SHALL VERIFY AND COORDINATE WITH MECHANICAL CONTRACTOR REGARDING SUPPLY AND INSTALLATION OF ALL REQUIRED CONTROLS.

19.1. ELECTRICAL CONTRACTOR SHALL MAKE LINE VOLTAGE CONNECTIONS TO THE MAIN TERMINAL BLOCK OR LUGS ON ALL EQUIPMENT SHOWN. ANY ADDITIONAL LINE VOLTAGE CONNECTIONS BETWEEN VARIOUS COMPONENTS OF A MULTI-COMPONENT PIECE OF EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE EQUIPMENT INSTALLER, UNLESS THE FULL SCOPE OF THE ELECTRICAL INSTALLATION REQUIREMENTS ARE PROVIDED TO THE ENGINEER AT THE TIME OF DESIGN.

20. THE DISCONNECT SWITCH, FUSE SIZES, CONDUIT AND WIRE SHOWN FOR ALL HVAC ARE SIZED PER THE MANUFACTURER, AND MODEL NUMBER LISTED ON THE MECHANICAL PLANS. IF THERE IS AN EQUAL MANUFACTURER, OR OTHER MANUFACTURER PROVIDED, THE MECHANICAL/GENERAL CONTRACTOR SHALL BEAR ANY ADDITIONAL COST INCURRED IF THE ELECTRICAL IS NOT EQUAL TO SPECIFICATIONS.

21. ALL SWITCHBOARDS, PANELS, STARTERS, CONTACTORS ETC., SHALL BE THE PRODUCT OF A SINGLE MANUFACTURER. THE SYSTEM DESIGN IS BASED ON SQUARE "D"; HOWEVER, COMPARABLE EQUIPMENT BY SIEMENS, G.E. AND CUTLER HAMMER ONLY WILL BE ACCEPTABLE. ALL PANELBOARDS SHALL HAVE BOLT-ON TYPE CIRCUIT BREAKERS. TANDEM AND HALF-SPACE CIRCUIT BREAKERS SHALL NOT BE USED.

21.1. TYPEWRITTEN CIRCUIT INDEX SHALL BE AFFIXED TO INSIDE SURFACE OF EACH PANELBOARD DOOR, CLEARLY INDICATING AREA AND TYPE OF LOAD SERVED BY EACH BRANCH CIRCUIT PROTECTIVE DEVICE, INCLUDING SPARES. HAND PRINTED WILL NOT BE ACCEPTED.

21.2. ENGRAVED, LAMINATED PLASTIC IDENTIFICATION PLATES SHALL BE FURNISHED AND INSTALLED ON ALL PANELS AND SWITCHBOARDS. PLATES SHALL BE AFFIXED TO FRONT OF PANELS, INDICATING PANEL NAME, VOLTAGE AND AMPERAGE.

22. ALL UNDERGROUND PVC CONDUIT RUNS SHALL HAVE RIGID STEEL ELBOWS AND RIGID STEEL SECTIONS AT SLAB PENETRATIONS WHERE SUBJECT TO POSSIBLE DAMAGE.

23. THE ELECTRICAL CONTRACTOR SHALL MEET AND COORDINATE WITH THE LOCAL POWER COMPANY AT THE SITE PRIOR TO CONSTRUCTION. AT THAT TIME, THE CONTRACTOR SHALL COORDINATE ALL RELATED WORK WITH THE UTILITY COMPANY'S RESPONSIBILITIES TO MEET THE OWNER'S SCHEDULE.

24. ALL ELECTRICAL CONDUCTORS SHALL BE INSTALLED IN AN APPROVED RACEWAY, EMT, IBC, RIGID GALVANIZED CONDUIT OR SCHEDULE 40 P.V.C. TYPE "MC". ELECTRICAL NON-METALLIC TUBING, & FLEXIBLE METAL CONDUIT MAY BE USED FOR BRANCH CIRCUITING AS ALLOWED BY THE N.E.C. & AHJ. MAXIMUM NUMBER OF 120V CIRCUITS ALLOWED IN A COMMON CONDUIT SHALL BE SIX (6). THE CONTRACTOR SHALL STRICTLY CONFORM TO THE N.E.C. REQUIREMENTS OF DERATING FOR CONDUCTOR AMPACITY AND CONDUIT FILL. NO CONDUITS SHALL BE INSTALLED, EXPOSED ON ROOF.

24.1. CONDUCTORS SHALL BE COLOR CODED AS FOLLOWS:

208V SYSTEM	PHASE SEQUENCE
NEUTRAL - WHITE	ABC, TOP TO BOTTOM
PHASE A - BLACK	LEFT TO RIGHT, FRONT
PHASE B - RED	TO BACK
PHASE C - BLUE	
GRD.CON - GREEN	

24.2. WHEN MAIN ELECTRICAL SERVICE HAS A WIREWAY, E.C. SHALL TAP OFF OF ALL SERVICE ENTRANCE FEEDERS (PARALLEL CONDUCTORS) FOR TOTAL AMPACITY & BALANCING.

25. CONTRACTOR SHALL BE RESPONSIBLE FOR SEALING ALL CONDUIT PENETRATIONS MADE THROUGH FIRE RATED WALLS, CEILINGS, SLABS, ETC. PENETRATION SEALS SHALL BE PER U.L. ASSEMBLY STANDARDS.

26. CONTRACTOR SHALL PROVIDE SHOP DRAWING SUBMITTALS FOR LIGHT FIXTURES, SWITCHBOARDS, WIRING DEVICES, EMERGENCY GENERATOR/TRANSFER EQUIPMENT, AND ALL SYSTEMS (FIRE ALARM, SECURITY, ETC.). PROVIDE TWO (2) COPIES, TEN (10) DAYS PRIOR TO BID DATE FOR ENGINEER'S APPROVAL TO SUBMIT. ENGINEER'S APPROVAL OF THE PRIOR APPROVAL PACKAGE WILL BE CONSIDERED PRELIMINARY. FINAL APPROVAL WILL BE CONTINGENT UPON REVIEW OF FINAL SHOP DRAWINGS. ALL PROPOSED ALTERNATES MUST BE INDUSTRY STANDARD EQUALS TO THE ITEMS SPECIFIED AS THE BASIS OF DESIGN; HOWEVER, IF THE ITEMS ARE NOT CONSIDERED EQUAL BY THE ENGINEER, IT SHALL BE DISAPPROVED FOR FINAL SUBMITTAL. IF ELECTRICAL CONTRACTOR/GENERAL CONTRACTOR DOES NOT SUBMIT SHOP DRAWINGS TO ELECTRICAL ENGINEER FOR ITEMS LISTED ABOVE, ELECTRICAL ENGINEER WILL NOT BE RESPONSIBLE FOR ANY OMISSIONS AND/OR ERRORS DUE TO SHOP DRAWINGS NOT SUBMITTED. SHOP DRAWINGS WILL ONLY BE REVIEWED TWICE AS PART OF THIS CONTRACT. ADDITIONAL SHOP DRAWING REVIEWS SHALL BE INVOICED AT \$85.00 PER HOUR, BILLABLE TO THE SUB-CONTRACTOR, C.O.D.



















27. CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF CONTRACT DRAWINGS AT JOB SITE WITH COLORED MARKINGS INDICATING PROGRESS OF WORK. THIS SET OF CONTRACT DRAWINGS IS TO BE SEPARATE FROM AND IN ADDITION TO CONTRACTOR'S CONSTRUCTION SET. EVERY UNIT OF EQUIPMENT, DEVICE, CONDUIT AND WIRE IS TO BE MARKED WHEN INSTALLED. USE GREEN TO INDICATE INSTALLATION AS SHOWN ON DRAWINGS AND USE RED TO INDICATE FIELD CHANGES. UPON COMPLETION OF WORK, THIS SET OF CONTRACT DRAWINGS IS TO BE TURNED OVER TO, AND BECOME PROPERTY OF THE ARCHITECT.

28. THE OWNER RESERVES THE RIGHT TO REVISE THE DRAWING FROM TIME TO TIME TO INDICATE CHANGES IN THE WORK. WHEN REVISED DRAWINGS AND/OR ANY REVISIONS ARE ISSUED, THE CONTRACTOR SHALL EVALUATE THE CHANGES PROMPTLY, BEFORE INSTALLATION OF ANY ITEM OR PERFORMANCE THE WORK INDICATED BY THE REVISED DRAWINGS OR REVISIONS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IN WRITING THAT THE REVISED DRAWINGS INVOLVE AN ADDITION OR REDUCTION OF A SPECIFIC AMOUNT OF MONEY TO THE CONTRACT PRICE. THE CONTRACTOR SHALL NOT PROCEED WITH THE REVISED WORK WITHOUT PRIOR WRITTEN APPROVAL BY THE ARCHITECT/ENGINEER OF THE COST OF THE REVISED WORK.

29. IF ELECTRICAL CONTRACTOR HAS QUESTIONS, OR IN THEIR OPINION FINDS OMISSIONS OR ERRORS ON ELECTRICAL DOCUMENTS, IT IS THEIR RESPONSIBILITY TO BRING THIS TO THE ATTENTION OF THE ELECTRICAL ENGINEER/ARCHITECT/OWNER IMMEDIATELY. IF ELECTRICAL CONTRACTOR PROCEEDS WITH ANY CHANGES TO THE CONTRACT DOCUMENTS WITHOUT WRITTEN PRIOR APPROVAL FROM THE ELECTRICAL ENGINEER/ARCHITECT/OWNER WILL NOT BE COMPENSATED.

<div><div><div> LED LIGHT FIXTURE, LETTER INDICATES TYPE</div><div> RECESSED LIGHT FIXTURE, LETTER INDICATES TYPE</div><div> WALL BRACKET LIGHT FIXTURE, LETTER INDICATES TYPE</div><div> POLE WITH ARM MOUNTED FIXTURE, LETTER INDICATES TYPE</div><div> LIGHT FIXTURE ON EMERGENCY POWER OR WITH BATTERY PACK</div><div> EXIT LIGHT (ARROW INDICATES DIRECTION, SHADING INDICATES FACE)</div><div> BATTERY POWERED EMERGENCY LIGHT</div><div> TRACK LIGHTING</div></div><div><div> SINGLE POLE SWITCH, LOWER CASE LETTER INDICATES LIGHT CONTROLLED, MOUNT 48" AFF UON</div><div> DOUBLE POLE SWITCH, MOUNT 48" AFF UON</div><div> THREE-WAY SWITCH, MOUNT 48" AFF UON</div><div> FOUR-WAY SWITCH, MOUNT 48" AFF UON</div><div> DIMMER SWITCH, WATTS AS NOTED, (6- 600W, 10= 1000W) MOUNT 48" AFF UON</div><div> SINGLE POLE SWITCH WITH PILOT LIGHT, MOUNT 48" AFF UON</div><div> FAN CONTROLLER, MOUNT 48" AFF UON</div><div> MOTOR RATED SWITCH</div><div> MOMENTARY CONTACT SWITCH, MOUNT 48" AFF UON</div><div> KEY OPERATED SINGLE POLE SWITCH, MOUNT 48" AFF UON</div><div> OCCUPANCY SENSOR SWITCH, MOUNT 48" AFF UON</div><div> OCCUPANCY SENSOR SWITCH, CEILING MOUNT</div><div> SINGLE RECEPTACLE, 125V, 20A MOUNT 18" AFF UON</div><div> DUPLEX RECEPTACLE, MOUNT 18" AFF UON</div><div> DUPLEX RECEPTACLE, FLUSH CEILING MOUNT</div><div> DUPLEX RECEPTACLE, MOUNT ABOVE COUNTER HEIGHT UON</div><div> QUADRAPLEX RECEPTACLE, MOUNT 18" AFF UON</div><div> QUADRAPLEX RECEPTACLE, MOUNT ABOVE COUNTER HEIGHT UON</div><div> DUPLEX RECEPTACLE, HORIZONTAL MOUNT</div><div> 1/2 SWITCHED DUPLEX RECEPTACLE, MOUNT 18" AFF UON</div><div> 18, 250V, RECEPTACLE, AMPS AS NOTED, MOUNT 18" AFF UON</div><div> SPECIAL RECEPTACLE AS NOTED</div><div> FLOOR MOUNTED DUPLEX RECEPTACLE</div><div> PLUGMOLD (SIZE AND LENGTH AS NOTED)</div><div> JUNCTION BOX (FLUSH MOUNT IN FINISHED AREAS UON)</div><div> DISCONNECT SWITCH, NEMA/SIZE/POLE/FUSES (250V, NEMA 1 UON)</div><div> MAGNETIC MOTOR STARTER</div><div> COMBINATION MAGNETIC MOTOR STARTER/DISCONNECT SWITCH</div><div> LIGHTING OR POWER PANELBOARD</div><div> 277/480V, PANELBOARD</div><div> DRY TYPE TRANSFORMER</div><div> CONTACTOR (AS NOTED)</div><div> MANUAL FIRE ALARM PULL STATION 48" AFF</div></div></div> <div><div><div> CONDUIT CONCEALED IN WALL OR ABOVE CEILING WITH 2 #12, 1 #12 EG CONDUCTORS IN 1/2" CONDUIT MIN UON</div><div> CONDUIT CONCEALED BELOW FLOOR SLAB OR FINISHED GRADE WITH 2 #12, 1 #12 EG CONDUCTORS IN 3/4" CONDUIT MIN UON</div><div> CONDUIT EXPOSED ON WALL OR CEILING WITH 2 #12, 1 #12 EG CONDUCTORS IN 1/2" CONDUIT MIN UON</div><div> PHASE, NEUTRAL, ISOLATED GROUND CONDUCTORS</div><div> FLEXIBLE CONDUIT NOT TO EXCEED 6 FEET IN LENGTH</div><div> TELEVISION SYSTEM EMPTY CONDUIT WITH PULL WIRE</div><div> LOW VOLTAGE WIRING</div><div> CONDUIT SEAL-OFF FITTING FOR COOLER/FREEZER CIRCUITS</div><div> CONDUIT STUB</div><div> DRIVEN GROUND ROD</div><div> CONDUIT UP</div><div> CONDUIT DOWN</div><div> JUNCTION BOX FOR PADDL FAN, FLUSH MOUNTED PER THE N.E.C.</div><div> THERMOSTAT. PROVIDE SINGLE GANG BOX WITH 1/2" C STUBBED INTO CEILING SPACE, MOUNT 60" AFF UON (COORDINATE WITH MECHANICAL DRAWINGS PRIOR TO ROUGH-IN)</div><div> MOTOR PERMANENTLY CONNECTED WITH FLEXIBLE CONDUIT</div><div> ELECTRIC DUCT HEATER</div><div> SPEAKER</div><div> T.V. CAMERA</div><div> DATA OUTLET, PROVIDE SINGLE GANG BOX WITH 3/4" CONDUIT WITH PULL WIRE AND INSULATING BUSHING STUBBED INTO CEILING SPACE. MOUNT BOX 18" AFF UON</div><div> REFER TO LIKE NUMBERED NOTES/EQUIPMENT DESIGNATIONS</div><div> TELEVISION OUTLET, PROVIDE SINGLE GANG BOX WITH 3/4" CONDUIT WITH PULL WIRE AND INSULATING BUSHING STUBBED INTO CEILING SPACE. MOUNT BOX 18" AFF UON</div><div> TELEPHONE WALL OUTLET, PROVIDE SINGLE GANG BOX WITH 3/4" CONDUIT WITH PULL WIRE AND INSULATING BUSHING STUBBED INTO CEILING SPACE. MOUNT BOX 18" AFF UON</div><div> DATA WALL OUTLET, PROVIDE SINGLE GANG BOX WITH 3/4" CONDUIT WITH PULL WIRE AND INSULATING BUSHING STUBBED INTO CEILING SPACE. MOUNT BOX 48" AFF UON</div><div> FLOOR MOUNTED TELEPHONE OUTLET</div><div> TELEPHONE BACKBOARD (SIZE AS NOTED) #6 GROUNDING CONDUCTOR TO SERVICE GROUND.</div><div> COMBINATION TELEPHONE/DATA WALL OUTLET, PROVIDE SINGLE GANG BOX WITH 3/4" CONDUIT WITH PULL WIRE AND INSULATING BUSHING STUBBED INTO CEILING SPACE. MOUNT BOX 18" AFF UON</div><div> STUB-UP, PROVIDE SINGLE GANG BOX WITH 3/4" CONDUIT WITH PULL WIRE AND INSULATING BUSHING STUBBED INTO CEILING SPACE. MOUNT BOX 18" AFF UON</div><div> TELEPHONE/DATA-POWER POLE</div><div> PUSHBUTTON, MOUNT 48" AFF UON</div><div> DOOR CHIME WITH TRANSFORMER</div><div> DEVICE AS NOTED</div><div> TIME CLOCK</div><div> PHOTOCCELL</div></div><div><div><div> MANUAL PULL STATION MOUNTED 44" AFF</div><div> VISIBLE ONLY(STROBE) – WALL MOUNT CD– CANDELA RATING/SETTING</div><div> COMBINATION HORN/VISIBLE CD– CANDELA RATING/SETTING WALL MOUNTED.</div><div> DUCT SMOKE DETECTOR</div><div> REMOTE TEST/LED SWITCH</div><div> RELAY</div><div> MODULE</div><div> MINI HORN</div><div> SMOKE DETECTOR, PHOTOELECTRIC</div><div> HEAT DETECTOR</div><div> FLOW SWITCH</div><div> TAMPER SWITCH</div><div> SYSTEM BELL</div><div> WATER GONG</div><div> FIRE ALARM COMBINATION HORN/STROBE (75 CANDELLA UON) MOUNTED PER NFPA 72</div><div> FIRE ALARM STROBE (75 CANDELA UON) MOUNTED PER NFPA 72</div><div> FIRE ALARM CONTROL PANEL</div><div> FIRE ALARM ANNUNCIATOR PANEL</div></div><div><div><div><u>ABBREVIATIONS</u></div><div><div>A/C-CU CONDENSING UNIT HP HORSE POWER</div><div>AFF ABOVE FINISH FLOOR IG ISOLATED GROUND</div><div>AFG ABOVE FINISH GRADE JB JUNCTION BOX</div><div>AFI ARC FAULT INTERRUPTER LSIG LONG SHORT INSTANTANEOUS GROUND FAULT SETTING NEW</div><div>A/H-AHU AIR HANDLING UNIT (N)</div><div>ATS AUTOMATIC TRANSFER SWITCH NEUT NEUTRAL</div><div>BFG BELOW FINISHED GRADE NF NON FUSED</div><div>C CONDUIT NIC NOT IN CONTRACT</div><div>CLG CEILING MOUNTED NL NIGHT LIGHT</div><div>CT CURRENT TRANSFORMER NP NAME PLATE</div><div>DN DOWN NTS NOT TO SCALE</div><div>EX-(E) EXISTING PNL PANEL</div><div>EC ELECTRICAL CONTRACTOR RE-(R) RELOCATED</div><div>E/T-EF EXHAUST FAN RTU ROOF TOP UNIT</div><div>EG EQUIPMENT GROUND TL TWIST LOCK</div><div>EWK ELECTRIC WATER COOLER TTB TELEPHONE TERMINAL BOARD</div><div>EWH ELECTRIC WATER HEATER TYP TYPICAL</div><div>GEC GROUNDING ELECTRODE CONDUCTOR UON UNLESS OTHERWISE NOTED</div><div>GFI GROUND FAULT INTERRUPTER WP WEATHERPROOF</div><div>HID HIGH INTENSITY DISCHARGE WR WEATHER RESISTANT</div></div></div></div></div><div><div>LEGEND NOTES: 1. MOUNTING HEIGHTS SHOWN ARE MAXIMUM/MINIMUM HANDICAPPED ACCESSIBILITY STANDARDS – THEY SHALL NOT BE ALTERED WITHOUT WRITTEN AUTHORIZATION 2. ALL MOUNTING HEIGHTS ARE TO CENTERLINE UON. 3. ALL SYMBOLS MAY NOT BE USED</div></div></div>
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1. BIDDERS ARE TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND SATISFY THEMSELVES AS TO THE NATURE AND SCOPE OF WORK. THE SUBMISSION OF A BID WILL BE EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED, OR FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD AN EXAMINATION BEEN MADE, WILL NOT BE ALLOWED.
2. COORDINATE WITH OTHER TRADES FOR ITEMS IN THEIR SCOPE OF WORK WHICH WOULD REQUIRE ELECTRICAL WORK (DISCONNECTION/RECONNECTION, ETC.) AND ARE NOT INDICATED ON THE ELECTRICAL PLANS.

	MANUAL PULL STATION MOUNTED 44" AFF		
	VISIBLE ONLY (STROBE) - WALL MOUNT CD- CANDELLA RATING/SETTING		
	COMBINATION HORN/VISIBLE CD- CANDELLA RATING/SETTING WALL MOUNTED.		
	DUCT SMOKE DETECTOR		
	REMOTE TEST/LED SWITCH		
	RELAY		
	MODULE		
	MINI HORN		
	SMOKE DETECTOR, PHOTOELECTRIC		
	HEAT DETECTOR		
	FLOW SWITCH		
	TAMPER SWITCH		
	SYSTEM BELL		
	WATER GONG		
	FIRE ALARM COMBINATION HORN/STROBE (75 CANDELLA UON) MOUNTED PER NFPA 72		
	FIRE ALARM STROBE (75 CANDELLA UON) MOUNTED PER NFPA 72		
	FIRE ALARM CONTROL PANEL		
	FIRE ALARM ANNUNCIATOR PANEL		
<u>ABBREVIATIONS</u>			
ACC-CU	CONDENSING UNIT	HP	HORSE POWER
AFB	ABOVE FINISH FLOOR	IG	ISOLATED GROUND
AFG	ABOVE FINISH GRADE	JB	JUNCTION BOX
AFI	ARC FAULT INTERRUPTER	LSIG	LONG, SHORT, INSTANTANEOUS GROUND FAULT SETTING
A/H-AHU	AIR HANDLING UNIT	(N)	NEW
ATS	AUTOMATIC TRANSFER SWITCH	NEUT	NEUTRAL
BFG	BELOW FINISHED GRADE	NF	NON FUSED
C	CONDUIT	NIC	NOT IN CONTRACT
CLG	CEILING MOUNTED	NL	NIGHT LIGHT
CT	CURRENT TRANSFORMER	NP	NAME PLATE
DN	DOWN	NTS	NOT TO SCALE
EX-(E)	EXISTING	PNL	PANEL
EC	ELECTRICAL CONTRACTOR	RE-(R)	RELOCATED
E/F-EF	EXHAUST FAN	RTU	ROOF TOP UNIT
EG	EQUIPMENT GROUND	TL	TWIST LOCK
EWG	ELECTRIC WATER COOLER	TTB	TELEPHONE TERMINAL BOARD
EWB	ELECTRIC WATER HEATER	TYP	TYPICAL
GEC	GROUNDING ELECTRODE CONDUCTOR	UON	UNLESS OTHERWISE NOTED
GFI	GROUND FAULT INTERRUPTER	WP	WEATHERPROOF
HID	HIGH INTENSITY DISCHARGE	WR	WEATHER RESISTANT

ISSUE		
No.	DATE	DESCRIPTION
DWG DATE:		02-16-2023
REVIEWED BY:		NYE
PROJECT No.:		23109
DWG TITLE:		

E-0

#	FLOOR PLAN — POWER KEYED WORK NOTES
1.	COORDINATE FINAL PLACEMENT OF ALL DEVICES WITH FRANCHISEE.
2.	JUNCTION BOX FOR GAS WATER HEATER. E.C SHALL COORDINATE EXACT LOCATION WITH PLUMBING CONTRACTOR.
3.	NOT USED.
4.	PROVIDE POWER CONNECTION TO THE CAPSULE PAK SELF CONTAINED WALK-IN BOX EQUIPMENT. E.C SHALL COORDINATE EXACT LOCATION AND ELECTRICAL REQUIREMENT WITH EQUIPMENT MANUFACTURER. PROVIDE BREAKER AND BRANCH CIRCUIT ACCORDINGLY.
5.	E.C. TO COORDINATE WITH WALK IN COOLER/FREEZER FOR EXACT LOCATION OF ELECTRICAL CONNECTION AND POWER SUPPLY REQUIREMENT IN FIELD.
6.	JUNCTION BOX WITH TOGGLE DISCONNECT PER NEC FOR CONNECTION TO BUILDING MOUNTED SIGNAGE. VERIFY EXACT LOCATION AND CONNECT TO SIGN PER MANUFACTURE'S INSTRUCTION. ROUTE CIRCUIT TO PANEL VIA EXTERIOR LIGHTING/SIGNAGE.
7.	NEW 400A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL 'A' FOR THE SPACE. E.C. SHALL COORDINATE FINAL LOCATION WITH ARCHITECT/OWNER IN FIELD.
8.	NEW 125A, 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL 'B' FOR THE SPACE. E.C. SHALL COORDINATE FINAL LOCATION WITH ARCHITECT/OWNER IN FIELD.
9.	E.C. SHALL PROVIDE POWER AND NECESSARY WIRING FOR THE HOOD CONTROL PANEL AS PER MANUFACTURER/MECHANICAL DRAWINGS.
10.	TWO NUMBER OF GENERAL RECEPTACLE AND DATA OUTLET FOR DESK AREA. E.C. SHALL COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
11.	EXHAUST FAN SHALL BE POWERED AND CONTROLLED ALONG WITH AHU-2 IN THE ROOM. E.C SHALL COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR.
12.	ALL CONDUITS SHALL BE CONCEALED IN WALL FOR ALL PANELS.
13.	E.C. TO COORDINATE THE EXACT LOCATION AND ELECTRICAL REQUIREMENT OF MECHANICAL EQUIPMENTS WITH MECHANICAL CONTRACTOR. PROVIDE THE ELECTRICAL CONNECTION AS PER MECHANICAL EQUIPMENTS REQUIREMENT IN FIELD.
14.	DATA & ELECTRICAL CONDUIT DOWN TO WALL BELOW SLAB. TURN UP INTO MILLWORK CHASE WALL.
15.	ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ARCHITECT/OWNER FOR MORE INFORMATION ABOUT FIRE ALARM SYSTEM.
16.	INSTALL ANSUL CONDUIT IN WALL AND CONDUIT ON WALL SURFACE IS NOT ALLOWED.
17.	EXACT LOCATION, HEIGHT AND MOUNTING OF THE RECEPTACLE SHALL BE COORDINATED IN FIELD WITH ARCHITECT/OWNER.
18.	REFER TO INTERIOR ELEVATIONS FOR THE EXACT LOCATION AND MOUNTING HEIGHT OF THE OUTLETS.

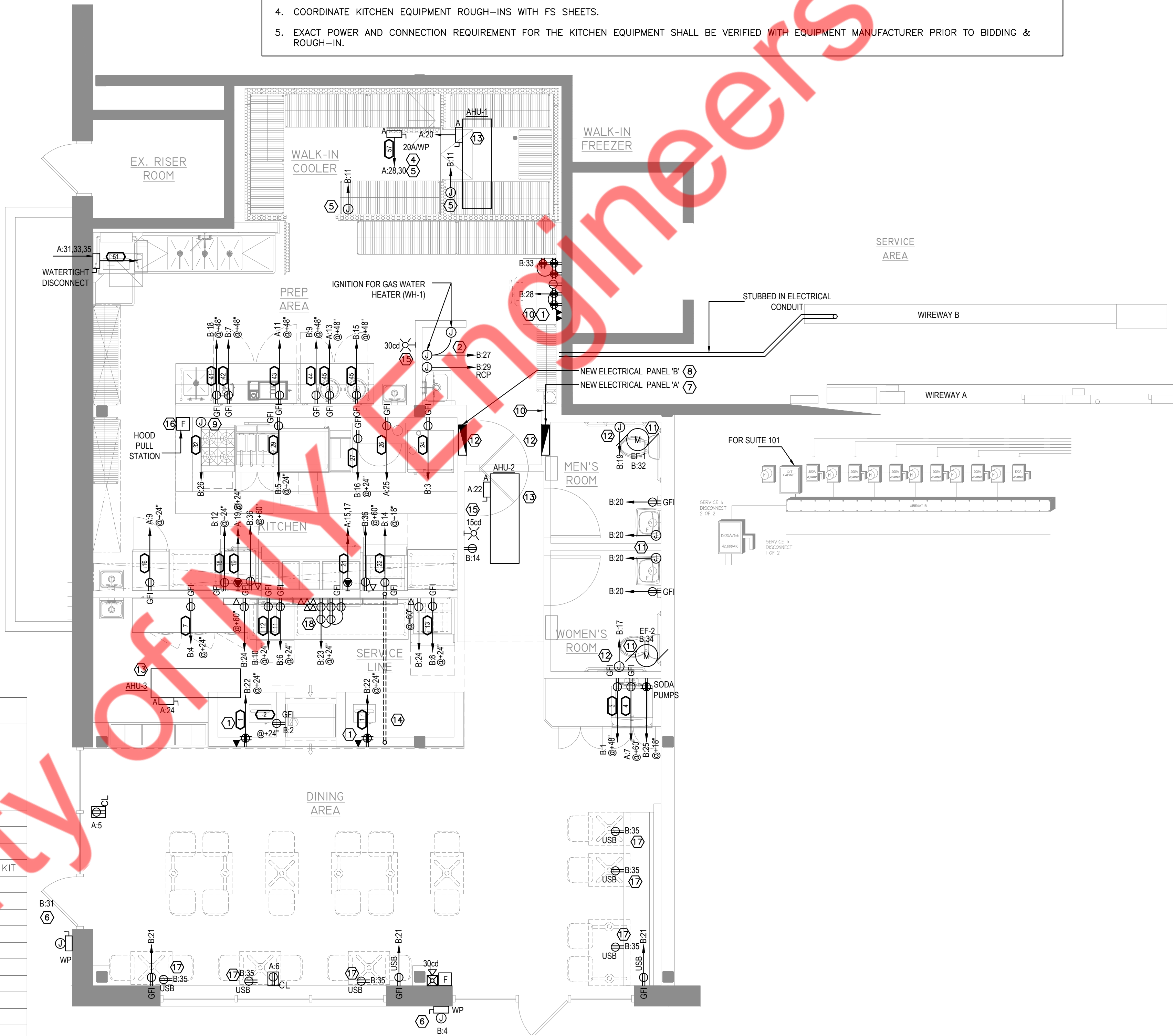
1. ALL RECEPTACLES IN KITCHEN AREA SHALL BE "GFCI" IN ACCORDANCE WITH NEC ARTICLE 210.8(B). PROVIDE GFI RATED BREAKER AT PANEL FOR KITCHEN EQUIPMENT.
2. ALL LOW VOLTAGE, POS, MENU BOARDS, TOUCH SCREEN MONITORS, ACCESS POINT AND MUSIC SPEAKERS TO HAVE CAT6 CABLE FOR DATA.
3. THE 2 POS TERMINALS ON THE FRONT SERVICE COUNTER REQUIRE A DATA LINE (2 LINES PER ITEM) AND ELECTRIC.
4. THE MENU BOARDS REQUIRE A DATA LINE AND ELECTRIC. FOUR MENU BOARDS, EACH REQUIRES ELECTRIC AND DATA.
5. THE TOUCH SCREENS ON EITHER SIDE OF THE EXPO WINDOW AND ALONG THE COOKS LINE REQUIRES ELECTRIC AND DATA TO EACH SCREEN.
6. THE ACCESS POINT IN THE DINING ROOM CEILING IS DATA ALONE.
7. ALL DATA CABLES ARE TO BE RUN THE IT BOX MOUNTED ON THE WALL ABOVE THE OFFICE SHELVING.
8. SEE ARCHITECTURAL ELEVATIONS FOR PLACEMENT OF DEVICES.
9. COORDINATE EXACT LOCATION OF HVAC EQUIPMENTS ON ABOVE CEILING WITH MECHANICAL CONTRACTOR.
10. ELECTRICAL CONTRACTOR SHALL COORDINATE DISCONNECT AND FUSE REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER FOR FINAL SELECTION PRIOR TO ROUGH-IN. E.C. COORDINATE LOCATION OF DISCONNECT SWITCH WITH MANUFACTURER AND MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES.
11. E.C. TO COORDINATE ALL OUTLETS HEIGHTS WITH ARCHITECT/MANUFACTURER IN FIELD.

Item No	Qty	Equipment Category	Manufacturer	Model Number	Amps	Volts	Phase	Direct Plug	NEMA	Equipment Remarks
1	2	POS System	TBD	TBD	vFY	120	1	X	5-15P	BY OWNER
2	1	Refrigerated Self-Service Counter Case	Structural Concepts	CO3324R-UC	12.0	120	1	X	5-15P	
3	1	Soda/Ice Dispenser	Cornelius Or Equal	ENDURO 150 OR EQUAL	3.0	120	1	X	5-15P	BY SODA SUPPLIER
4	1	Ice Maker w/o Bin	Manitowoc Ice	ITY0620A	20.0	115	1	X		W/ K00438 TOP AIR KIT
7	1	Refrigerator, Reach-In	True Mfg.	TBR84-RISZ1-L-B-GGGG-1	3.2	115	1	X	5-15P	
11	1	Refrigerator, Undercounter, ADA	True Mfg.	TUC-27D-2-ADA-HC	2.0	115	1	X	5-15P	
12	1	Hot Food Well, Countertop	Vollrath	72020	12.0	120	1	X	5-20P	
13	1	Refrigerator, Sandwich/Salad Prep	True Mfg.	TFP-32-12M-D-2	3.3	115	1	X	5-15P	
16	1	Heated Cabinet, Mobile, Elec.	Carter-Hoffman	HL4-18	17.5	120	1	X	5-20P	
18	1	Freezer, Undercounter	True Mfg.	TUC-27F-D-2-HC	5.0	115	1	X	5-15P	
19	1	Oven, Rapid-Cook, Electric	MerryChef	EIKON E4S	30.0	208	1	X	6-30P	
21	1	Steamtable, Electric	Vollrath	38119	16.6	208	1	X	6-30P	
22	1	Refrigerator, Sandwich/Salad Prep	True Mfg.	TFP-32-12M-D-2	3.3	115	1	X	5-15P	
24	1	Oven-Steamer, Combination, Gas	RATIONAL USA	ICOMBI PRO 6-HALF SIZE G	6.0	120	1	X	5-15P	
25	1	Tandoor Oven, Rotating, Gas	Rotoquip	RD-30	vFY	120	1		vFY	
27	1	Equipment Stand, Refrigerated	True Mfg.	TRCB-48	5.4	115	1	X	5-15P	
29	1	Fryer, Gas, w/ Filter	Pitco	SSH55R-2FD	0.7	115	1	X	5-15P	
32	1	Hood Fire Suppression System	Ansul	R-102	vFY	120/208	1/3	X		*INTEGRAL TO HOOD #31
41	1	Refrigerator, Undercounter, ADA	True Mfg.	TUC-60-ADA-HC	4.0	115	1	X	5-15P	
42	1	Food Processor	Robot Coupe	R602VW	12.0	120	1	X	5-15P	
43	1	Immersion Circulator	Vollrath	60039	12.0	120	1	X	5-15P	
44	1	Freezer, Undercounter, ADA	True Mfg.	TUC-48F-ADA-HC	3.2	115	1			
45	2	Cooker, Rice, Elec.	Town Food Service Equipment	57137	15.0	120	1	X	5-15P	
51	1	Warewasher, High Temp, Ventless	CMA Dishmachines	CMA-180-VL	49.0	208	3	X		WATERTIGHT DISCONNECT
56	1	Walk-In Cooler/Freezer	Nor-Lake	CUSTOM	4.0	120	1	X		
57	1	Capsule Pak Self Contained			-	208	1	X		

G1

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

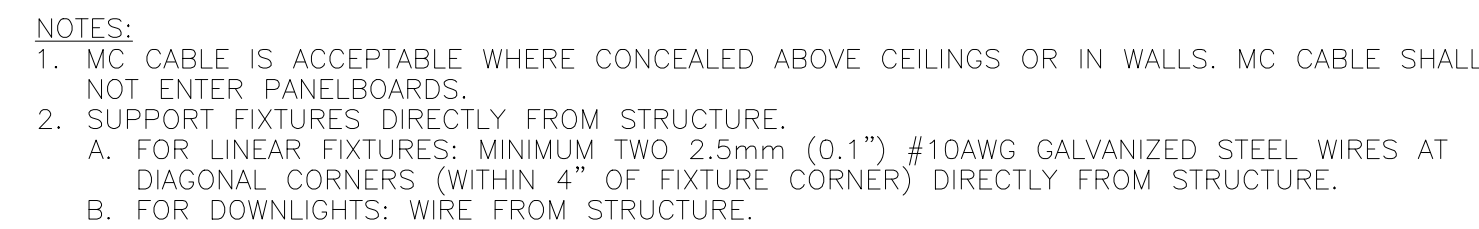
1. COORDINATE EXACT LOCATION, TERMINATIONS, MOUNTING HEIGHTS AND ELECTRICAL CHARACTERISTICS FOR EACH SPECIFIC MODEL AND PIECE OF EQUIPMENT WITH THE OWNER'S REPRESENTATIVE AND KITCHEN EQUIPMENT SUPPLIER PRIOR TO ROUGH-INS INSTALLATION. PROVIDE ELECTRICAL SERVICE AS REQUIRED FOR EACH PIECE OF EQUIPMENT. ALL RECEPTACLES SHALL BE VOLTAGE RATING AND AMPACITY TO MATCH MANUFACTURERS RECOMMENDATIONS. INCLUDE ALL COSTS IN BASE BID PROPOSAL.
2. ALL EXPOSED CONDUIT SHALL BE INSTALLED AT LEAST 6" OFF THE FLOOR AND 1" AWAY FROM THE WALL TO FACILITATE CLEANING.
3. ALL 125 VOLT, SINGLE, 15 AND 20 AMPERE RECEPTACLES INSTALLED IN KITCHEN AND WITHIN 6 FEET OF ANY SINK TO BE GFCI PROTECTED PER NEC 210.8(B).
4. COORDINATE KITCHEN EQUIPMENT ROUGH-INS WITH FS SHEETS.
5. EXACT POWER AND CONNECTION REQUIREMENT FOR THE KITCHEN EQUIPMENT SHALL BE VERIFIED WITH EQUIPMENT MANUFACTURER PRIOR TO BIDDING & ROUGH-IN.



ISSUE		
No.	DATE	DESCRIPTION
DWG DATE:	02-16-2023	
REVIEWED BY:	NYE	
PROJECT No.:	23109	
DWG TITLE:		

SHEET No.

三-2



NTS




GY. BOARD WALL PENETRATION
1 HR OR 2 HR
FIRE-RATING UL.

NOTE:

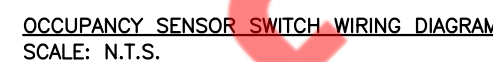
THIS DETAIL USED IN BOTH 1 HR. AND 2 HR. PARTITIONS. THIS DETAIL USED FOR BOTH HAND AND PLASTER/STUD PARTITIONS, DESIGNATED AS IF. FIELD VERIFY CONDITIONS.

E-5



- 
- ① TYPICAL FOR WOOD AND METAL STUD ROUGH-IN
 - ② PLASTER RINGS NOT SHOWN
 - ③ LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.
 - ④ IN ACCORDANCE WITH UBC 4304, OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE MUST BE SEPARATED BY A MIN. OF 24" HORIZONTAL DISTANCE.

E-5



NOTES:

1. ALL LOW VOLTAGE WIRING AND TERMINATIONS TO BE BY ELECTRICAL CONTRACTOR.
2. OCCUPANCY/VACANCY SENSOR SHALL BE "SENSOR SWITCH" WSX-PDT-SA-WH OR APPROVED EQUAL. A EXPOSED CONTROL WIRING SHALL BE IN CONDUIT.

4



5



- ① FOR CONCRETE BLOCK WALLS, CENTER CAULK CP-25 OR PUTTY 303 WITHIN WALL WITH DAMPING ON BOTH SIDES.
- ② RECOMMENDATIONS BASED ON PRODUCT PERFORMANCE PER ASTM E-814 (UL 1479) FIRE TEST AND UL CLASSIFICATION FOR FIRE STOP SYSTEMS.
- ③ WET INSTALLED DEPTH OF CAULK CP-25 OR PUTTY 303 DEPENDS ON TYPE AND SIZE OF PIPE:

PIPE SIZE	PIPE SIZE	FIRE RATING
1/2" (13mm)	MAX 6" (153mm)	3 HRS.
3/4" (19mm)	MAX 6" (153mm)	3 HRS.
- ④ UP TO 40% SHRINKAGE OF CP-25 OR PUTTY 303 IS ACCEPTABLE AFTER WET DEPTH INSTALLATION.
- ⑤ OPTIONS TO MASKING TAPE TO PREVENT SAGGING:
 - A. INSTALL ADDITIONAL DAMPING MATERIAL OVER PRODUCT TO HOLD WET PRODUCT IN PLACE.
 - B. REMOVE PRODUCT FROM CONTAINER AND ALLOW TO AIR CURE IN SMALL BATCHES FOR 12 HRS. THEN HAND FORM.
- ⑥ WHEN ANNUAL SPACE EXCEEDS 3/4" (19mm), 28 AWG METAL COVER PLATE MUST BE MECHANICALLY SECURED ATOP THE 3M FIRE BARRIER APPLICATION, OR TIGHTLY TIGHTEN A NON-SLACK A/C DAMPING MATERIAL AROUND INSTALLED CAULK OR PUTTY.

6

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ELECTRICAL DETAILS

SHEET No.

E-5

PANEL: A (NEW)											MOUNTING: RECESSED			
208Y/120	VOLTS,	3	PHASE,	4	WIRE	PANEL LOCATION: BOH								
MAIN CB:		400A		BUS:		400A		MIN,		FED FROM: 400A DISCONNECT SWITCH				
NOTE:														
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
						A	B	C						
1	20	LIGHTING - DINING AREA	L	0.24	2#12, #12G, 3/4"C	1.06			2#12, #12G, 3/4"C	0.83	L	LIGHTING - PREP AREA, RESTROOM	20	2
3	20	LIGHTING - FOH - SERVICE AREA, KITCHEN	L	0.64	2#12, #12G, 3/4"C		1.64		2#12, #12G, 3/4"C	1.00	R	EXTERIOR SIGNAGE	20	4
5	20	SHOW WINDOW RECEPTACLE	R	0.18	2#12, #12G, 3/4"C			0.36	2#12, #12G, 3/4"C	0.18	R	SHOW WINDOW RECEPTACLE	20	6
7	30	4_ICE MAKER W/O BIN	E	2.30	2#10, #10G, 3/4"C	3.64			3#12, #12G, 3/4"C	1.34	H	CONDENSER-1	3P-20A	8
9	20	16_HEATED CABINET, MOBILE, ELEC.	E	2.10	2#12, #12G, 3/4"C		3.44			1.34	H			10
11	20	43_IMMERSION CIRCULATOR	E	1.44	2#12, #12G, 3/4"C			2.78		1.34	H			12
13	20	45_COOKER, RICE, ELEC.	E	1.80	2#12, #12G, 3/4"C	4.37				2.57	H	CONDENSER-2	3P-30A	14
15	2P-30A	21_STEAMTABLE, ELECTRIC	E	1.73	2#10, #10G, 3/4"C		4.30		3#10, #10G, 3/4"C	2.57	H			16
17			E	1.73			4.30	2.57	H	18				
19	2P-40A	19_OVEN, RAPID-COOK, ELECTRIC	E	3.12	2#8, #10G, 3/4"C	4.57	4.57		2#12, #12G, 3/4"C	1.45	H	AHU-1	20	20
21			E	3.12					2#12, #12G, 3/4"C	1.45	H	AHU-2	20	22
23	20	SPARE						2.07	2#12, #12G, 3/4"C	2.07	H	AHU-3	20	24
25	20	25_TANDOOR OVEN	E	0.10	2#12, #12G, 3/4"C	0.20			2#12, #12G, 3/4"C	0.10	M	OAF-1	20	26
27	20	SPARE					0.56		2#12, #12G, 3/4"C	0.56	E	59_EVAPORATOR COIL, LOW TEMP	2P-20A	28
29	20	SPARE						0.56		0.56	E			30
31	3P-70A	51_WAREWASHER, HIGH TEMP, VENTLESS	E	5.89	3#4, #8G, 1"C	7.49			3#12, #12G, 3/4"C	1.60	O	KEF-1	3P-20A	32
33			E	5.89			7.49			1.60	O			34
35			E	5.89				7.49			1.60			O
37	2P-40A	ACCU-1	M	2.06	2#8, #10G, 3/4"C	7.72			4#3, #8G, 1 1/4"C	5.66	O	PANEL 'B'	3P-100A	38
39			M	2.06			7.72			5.66	O			40
41	2P-40A	ACCU-2	M	2.06	2#8, #10G, 3/4"C	3.49		4.88	3#12, #12G, 3/4"C	5.66	O	MAU-1	3P-20A	42
43			M	2.06							1.43			O
45	2P-50A	ACCU-3	M	3.45	2#8, #10G, 3/4"C			4.88		1.43	O			46
47			M	3.45						1.43	O	48		
49	20	SPARE				2.50				2.50	H	EDH-1	3P-30A	50
51	20	SPARE					2.50		3#10, #10G, 3/4"C	2.50	H			52
53	20	SPARE						2.50		2.50	H			54
TOTAL CONNECTED LOAD (KVA)						35.03	37.09	32.66						

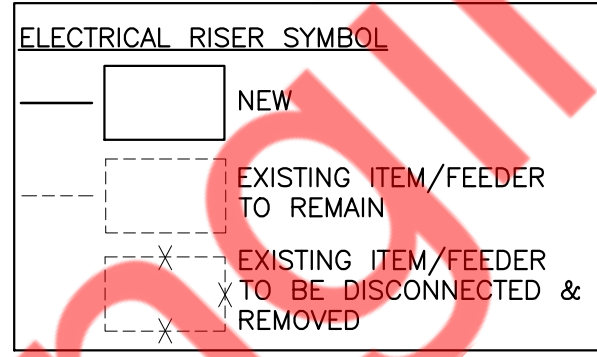
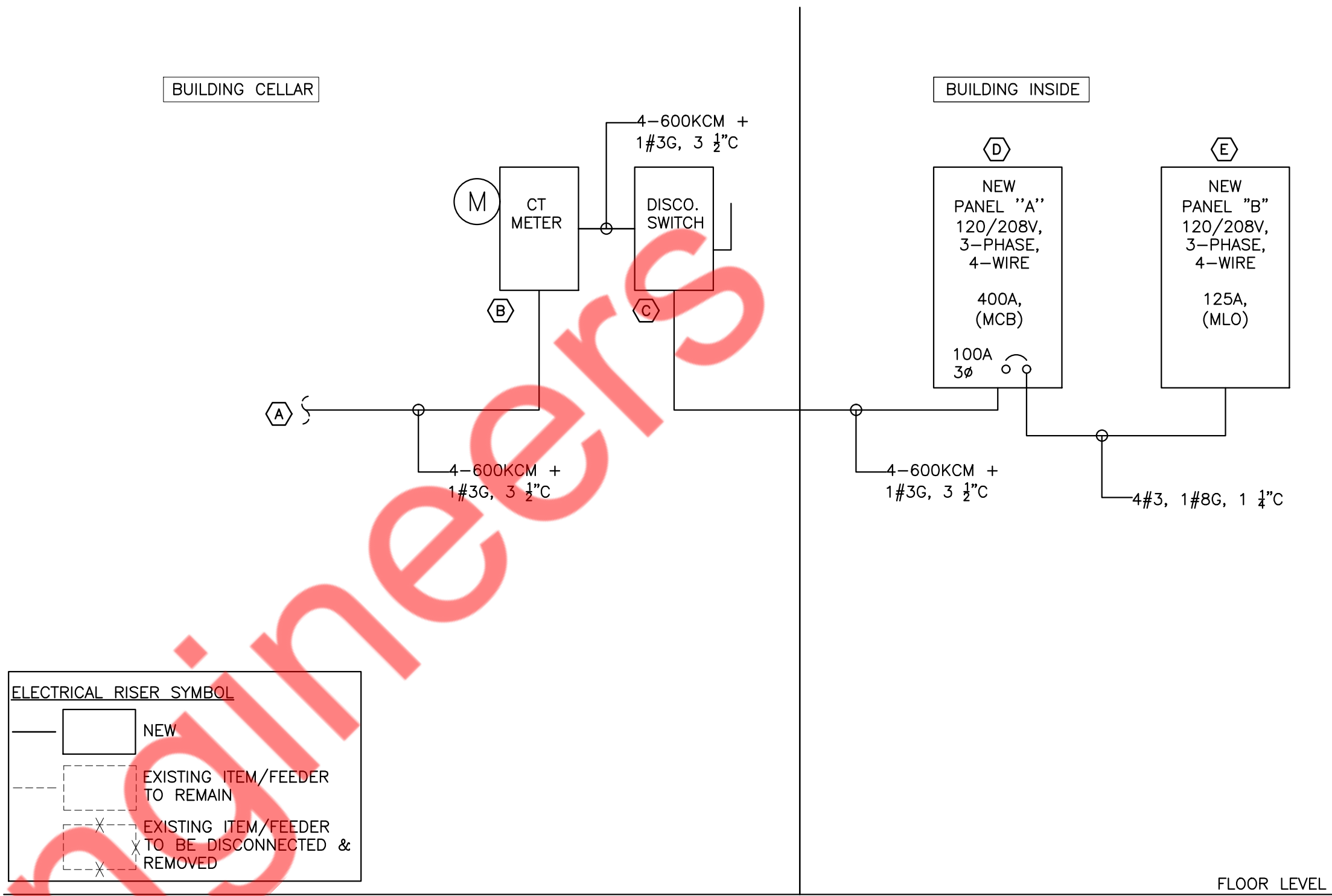
PANEL: B (NEW)										MOUNTING: RECESSED				
208Y/120	VOLTS,		3	PHASE,		4	WIRE			PANEL LOCATION: BOH				
MLO:		125A			BUS:	125A	MIN,			FED FROM: PANEL 'A'				
NOTE:														
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)			MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.
						A	B	C						
1	20	3_SODA/ICE DISPENSER	E	0.36	2#12, #12G, 3/4"C	1.80			2#12, #12G, 3/4"C	1.44	E	2_REFRIGERATED SELF-SERVICE COUNTER CASE	20	2
3	20	24_OVEN-STEAMER, COMBINATION, GAS	E	0.72	2#12, #12G, 3/4"C		1.09		2#12, #12G, 3/4"C	0.37	E	7_REFRIGERATOR, REACH-IN	20	4
5	20	29_FRYER, GAS, W/ FILTER	E	0.10	2#12, #12G, 3/4"C			0.33	2#12, #12G, 3/4"C	0.23	E	11_REFRIGERATOR, UNDERCOUNTER, ADA	20	6
7	20	42_FOOD PROCESSOR	E	1.44	2#12, #12G, 3/4"C	1.82			2#12, #12G, 3/4"C	0.38	E	13_REFRIGERATOR, SANDWICH/SALAD PREP	20	8
9	20	44_FREEZER, UNDERCOUNTER, ADA	E	0.37	2#12, #12G, 3/4"C		1.81		2#12, #12G, 3/4"C	1.44	E	12_HOT FOOD WELL, COUNTERTOP	20	10
11	20	56_WALK-IN COOLER/FREEZER	E	0.48	2#12, #12G, 3/4"C			1.06	2#12, #12G, 3/4"C	0.58	E	18_FREEZER, UNDERCOUNTER	20	12
13	20	SPARE				0.38			2#12, #12G, 3/4"C	0.38	E	22_REFRIGERATOR, SANDWICH/SALAD PREP	20	14
15	20	45_COOKER, RICE, ELEC.	E	1.80	2#12, #12G, 3/4"C		2.42		2#12, #12G, 3/4"C	0.62	E	27_EQUIPMENT STAND, REFRIGERATED	20	16
17	20	TOILET HAND DRYER	E	1.00	2#12, #12G, 3/4"C			1.46	2#12, #12G, 3/4"C	0.46	E	41_REFRIGERATOR, UNDERCOUNTER, ADA	20	18
19	20	TOILET HAND DRYER	E	1.00	2#12, #12G, 3/4"C	1.36			2#12, #12G, 3/4"C	0.36	R	TOLIET RECEPTACLE	20	20
21	20	GENERAL RECEPTACLE	R	0.54	2#12, #12G, 3/4"C		1.26		2#12, #12G, 3/4"C	0.72	R	1_POS RECEPTACLE	20	22
23	20	DIGITAL MENUBOARD RECEPTCLE	R	0.90	2#12, #12G, 3/4"C			1.30	2#12, #12G, 3/4"C	0.40	R	TOUCHSCREENS	20	24
25	20	SODA/ICE DISPENCER	E	0.40	2#12, #12G, 3/4"C	1.40			2#12, #12G, 3/4"C	1.00	E	32_HOOD CONTROLS	20	26
27	20	IGNITION FOR WATER HEATER (WH-1)	O	0.10	2#12, #12G, 3/4"C		0.82		2#12, #12G, 3/4"C	0.72	R	DESK RECEPTACLE	20	28
29	20	RCP	M	0.10	2#12, #12G, 3/4"C			0.82	2#12, #12G, 3/4"C	0.72	R	ROOFTOP RECEPTACLE	20	30
31	20	EXTERIOR SIGNAGE	E	1.00	2#12, #12G, 3/4"C	1.17			2#12, #12G, 3/4"C	0.17	H	EF-1	20	32
33	20	DESK RECEPTACLE	R	1.08	2#12, #12G, 3/4"C		1.25		2#12, #12G, 3/4"C	0.17	H	EF-2	20	34
35	20	USB RECEPTACLES	R	0.72	2#12, #12G, 3/4"C			1.12	2#12, #12G, 3/4"C	0.40	R	TOUCHSCREENS	20	36
37		SPACE				0.00						SPACE		38
39		SPACE					0.00					SPACE		40
41		SPACE						0.00				SPACE		42
TOTAL CONNECTED LOAD (KVA)						7.93	8.65	6.09						

PANEL SCHEDULE ABBREVIATIONS:
L = LIGHTING , R = RECEPTACLE , H = HVAC , E = EQUIPMENT , O = OTHER, M = MOTOR

A1

ELECTRICAL PANEL SCHEDULES

N.T.S



RISER DIAGRAM KEYED WORK NOTES

- A. NEW 400A, 120/208V, 3-PH, 4 WIRE FEEDER FROM THE EXISTING WIREWAY SWITCHGEAR. E.C. TO COORDINATE WITH OWNER/LANDLORD FOR MORE DETAILS.
- B. NEW 400A, 208Y/120V, 3Ø ELECTRICAL METER AND CT CABINET FOR THE PROJECT SPACE. E.C. SHALL COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION OF THE METER AND CT CABINET IN THE FIELD.
- C. NEW 400A, 208Y/120V, 3Ø ELECTRICAL DISCONNECT SWITCH FOR THE PROJECT SPACE. E.C. SHALL COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION OF THE DISCONNECT SWITCH IN THE FIELD.
- D. NEW 400A (MCB), 120/208V, 3-PH, 4-WIRE ELECTRICAL PANEL "A" FOR THE PROJECT SPACE. E.C. SHALL COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION OF THE PANEL IN FIELD.
- E. NEW 125A (MLO), 120/208V, 3-PH, 4-WIRE ELECTRICAL PANEL "B" FOR THE PROJECT SPACE. E.C. SHALL COORDINATE WITH ARCHITECT/OWNER FOR EXACT LOCATION OF THE PANEL IN FIELD.

RISER DIAGRAM GENERAL NOTES

- ABOVE RISER DIAGRAM IS FOR REFERENCE PURPOSE ONLY. E.C TO VERIFY EXACT POWER DISTRIBUTION & OPERABLE CONDITION OF EXISTING DEVICES IN FIELD AND INFORM, ENGINEER FOR ANY DISCREPANCY.
- E.C. SHALL VERIFY THE RATING, SIZE, LOCATION AND OPERABLE CONDITION OF ALL THE EXISTING PANELS AND ELECTRICAL CONNECTION IN FIELD. INFORM ENGINEER FOR ANY DISCREPANCY FOUND BEFORE COMMENCING ANY WORK.
- E.C. SHALL VERIFY THE INCOMING SERVICE AMPERAGE, VOLTAGE, NUMBER OF PHASES, WIRE SIZE AND DISTRIBUTION IN FIELD.
- E.C. TO COORDINATE FAULT CURRENT (ISC) RATING WITH UTILITY COMPANY AND AHJ PRIOR TO COMMENCING ANY WORK.
- E.C. SHALL VERIFY THE EXACT POWER DISTRIBUTION & INCOMING CONNECTION TO ALL PANELS IN FIELD. INFORM ENGINEER FOR ANY DISCREPANCY FOUND.
- E.C. TO VERIFY IF DEDICATED METER EXISTS FOR THE SPACE. ELSE COORDINATE WITH OWNER/LANDLORD FOR PROVIDING NEW METER.

L1

ELECTRICAL RISER DIAGRAM

N.T.S

PANEL SCHEDULE GENERAL NOTES

- ALL CIRCUITING SHOWN IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY CIRCUITING OF THE EXISTING DEVICES IN FIELD AND INFORM ENGINEER FOR ANY DISCREPANCIES.
- ELECTRICAL CONTRACTOR TO VERIFY THE EXACT PANEL SIZES AND INCOMING FEEDER SIZE.
- ELECTRICAL CONTRACTOR SHALL VERIFY EXACT CIRCUIT NUMBER & BREAKER SIZE OF EXISTING DEVICES IN FIELD.
- E.C. SHALL PROVIDE NEW CIRCUIT BREAKERS IN PLACE OF EXISTING CIRCUIT BREAKERS WHEREVER NECESSARY TO BE IN LINE WITH THE PANEL SCHEDULE. BASE BID ACCORDINGLY.
- E.C. SHALL VERIFY THE EXISTING EQUIPMENT LOAD & RATINGS IN FIELD AND ACCORDINGLY CONSIDER THE ELECTRICAL LOAD IN PANEL BOARD SCHEDULE.
- E.C. TO UPDATE THE PANEL BOARD SCHEDULE AS PER EXISTING SITE CONDITION & NEW EQUIPMENT REQUIREMENTS.
- EXISTING EQUIPMENTS AND ITS EXISTING ELECTRICAL CONNECTION SHALL REMAIN. E.C. SHALL VERIFY THE CIRCUIT NUMBER, BREAKER SIZE AND OPERABLE CONDITION OF EXISTING ELECTRICAL CONNECTION IN FIELD. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- ALL EXISTING HVAC EQUIPMENTS AND ITS ELECTRICAL CONNECTION SHALL REMAIN. E.C. SHALL VERIFY THE CIRCUIT NUMBER & OPERABLE CONDITION OF EXISTING ELECTRICAL CONNECTION IN FIELD. REPLACE IF FOUND INOPERABLE. BASE BID ACCORDINGLY.
- E.C. TO ENSURE THAT DEMAND LOAD AMPERES ON PANEL A SHALL NOT BE MORE THAN 225A.
- E.C. TO ENSURE THAT DEMAND LOAD AMPERES ON PANEL E SHALL NOT BE MORE THAN 100A.



ISSUE		
NO.	DATE	DESCRIPTION




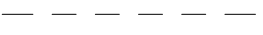



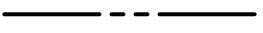
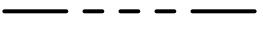
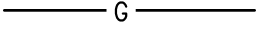
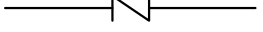

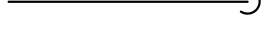

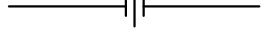
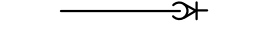
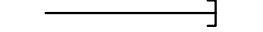










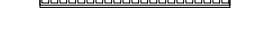
DWG DATE: 02-16-2023
REVIEWED BY: NYE
PROJECT No.: 23109
DWG TITLE:

ELECTRICAL RISER DIAGRAM & PANEL SCHEDULES

SHEET No.

E-4

PLUMBING LEGEND

SYMBOL	DESCRIPTION
	SAN
	SANITARY WASTE
	SANITARY SEWER (UNDERFLOOR)
	EXISTING SANITARY SEWER (UNDERFLOOR)
	CONDENSATE DRAIN PIPING
	VENT PIPING
	COLD WATER PIPING
	EX. COLD WATER PIPING
	HOT WATER PIPING
	HOT WATER RETURN PIPING
	GAS PIPING
	CHECK VALVE
	FLOOR DRAIN
	PIPE UP OR DOWN
	PIPE UP
	UNION
	SHUT-OFF VALVE IN RISER
	CAP ON END OF PIPE
	CLEANOUT
	SOLENOID VALVE
	DUAL CHECK VALVE
	EXPANSION TANK
	RECIRCULATION PUMP
	GAS SHUT-OFF VALVE
	GAS PRESURE REGULATOR
	WALL CLEANOUT
	TRENCH DRAIN
	POINT OF NEW CONNECTION

PLUMBING DRAWING LIST

- P-1 PLUMBING SYMBOLS, ABBREVIATIONS & SPECIFICATIONS
P-2 PLUMBING SPECIFICATIONS
P-3 PLUMBING ROOF GAS, DOMESTIC WATER & GAS FLOOR PLAN
P-4 PLUMBING SANITARY & VENT FLOOR PLAN
P-5 PLUMBING DETAILS
P-6 PLUMBING DETAILS
P-7 PLUMBING RISERS
P-8 PLUMBING SCHEDULES

CODE COMPLIANCE

- ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED AND AMENDED BY THE INSPECTING AUTHORITY. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THESE PROJECT:
- a. NORTH CAROLINA BUILDING CODE 2018
b. NORTH CAROLINA MECHANICAL CODE 2018
c. NORTH CAROLINA PLUMBING CODE 2018
d. NORTH CAROLINA FUEL GAS CODE 2018
e. NORTH CAROLINA ENERGY CONSERVATION CODE 2018
f. NORTH CAROLINA ELECTRIC CODE 2017

PLUMBING ABBREVIATIONS

CO	CLEANOUT
CODP	CLEAN OUT DECK PLATE
CW	COLD WATER
HW	HOT WATER
HWR	HOT WATER RETURN
SAN	SANITARY
S	SOIL
W	WASTE
LAV	LAVATORY
WC	WATER CLOSET
TYP.	TYPICAL
DN	DOWN
EXIST.	EXISTING
AFF	ABOVE FINISH FLOOR
FD	FLOOR DRAIN
FS	FLOOR SINK
SQ. FT.	SQUARE FEET
BFP	BACK FLOW PREVENTER
HWHT	HOT WATER HEATER
SV	SHUTOFF VALVE
ET	EXPANSION TANK
RCP	RECIRCULATION PUMP
WCO	WALL CLEANOUT

BUILDING DEPARTMENT PLUMBING NOTES

1. ALL PLUMBING SYSTEMS (SANITARY, WASTE, VENT, WATER) AND ASSOCIATED EQUIPMENT SHALL BE INSTALLED, OPERATED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 2018 NORTH CAROLINA PLUMBING CODE (IPC 2018).
2. INSTALLATION OF UNDERGROUND PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 702.2
3. PROTECTION OF PIPING AND PLUMBING SYSTEM COMPONENTS AS PER SECTION PC 305.
4. TRENCHING, EXCAVATION AND BACKFILL AS PER SECTION PC 306.
5. MATERIALS USED IN PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 303, PC 605, PC 702, PC 902,PC 1102.
6. EQUIPMENT CONNECTIONS AND JOINING OF PIPING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTERS 4, 5, 6, 7 AND 9.
7. DEEP SEAL TRAPS FOR FLOOR DRAINS SHALL BE PROVIDED AS PER PC 1002, AND CLEAN-OUTS SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 708
8. DRAINAGE PIPE CLEANOUTS AS PER SECTION PC 708.
9. VERTICAL AND HORIZONTAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION PC 308
10. WATER SUPPLY SYSTEMS SHALL BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 6 SECTION PC 601-603, 604, 606, 607, 608, 610
11. THE SANITARY DRAINAGE SYSTEM SHALL BE SIZED AND INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 7 SECTION PC 701, 704, 705, 706, 707, 708, 711.
12. VENT PIPING FOR THE SANITARY DRAINAGE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF CHAPTER 9 SECTIONS PC 901 THROUGH PC 912 THROUGH PC 917.
13. INSPECTION AND TESTING OF PLUMBING SYSTEMS SHALL BE IN ACCORDANCE WITH SECTION PC 312 TESTS AND INSPECTION.
14. GAS PIPING INSTALLATION SHALL BE IN ACCORDANCE WITH 2018 NORTH CAROLINA FUEL GAS CODE (2015 IFGC).

PLUMBING SPECIFICATIONS:

1. BASIC PLUMBING REQUIREMENTS, MATERIALS AND METHODS

1.01 SCOPE

A. PROVIDE ALL MATERIAL, TOOLS, SUPERVISION AND LABOR INCLUDING ALL MISCELLANEOUS AND INCIDENTAL ITEMS REQUIRED FOR COMPLETE AND OPERABLE PLUMBING INSTALLATIONS AS SHOWN OR DESCRIBED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.

B. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING AND NEW CONDITIONS AND MATERIALS WITHIN THE CONSTRUCTION AREA. ANY DAMAGE CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE OWNER'S SATISFACTION.

C. OBTAIN ALL PERMITS, PAY ALL PERMIT FEES AND SCHEDULE ALL REQUIRED INSPECTIONS. COPIES OF ALL PERMITS AND INSPECTION CERTIFICATES SHALL BE FORWARDED TO THE OWNER FOR RECORD.

D. THE GENERAL CONDITIONS OF THE CONTRACT AND ALL DIVISION 1 REQUIREMENTS APPLY TO THE WORK OF THIS SECTION.

E. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMITTING BID TO DETERMINE CONDITIONS AND THE EXTENT OF THE WORK. BY COMMENCING WORK, THE CONTRACTOR ACKNOWLEDGES HIS CONFIRMATION OF ALL CONDITIONS AS ACCEPTABLE WITH REFERENCE TO HIS CONTRACT, SCOPE OF WORK AND BID PRICE SUCH THAT NO ADDITIONAL COMPENSATION SHALL BE FORTHCOMING FOR UNFORESEEN EXISTING CONDITIONS.

F. IN ALL AREAS SUBJECT TO FREEZING CONDITIONS, THE CONTRACTOR SHALL PROVIDE FREEZE PROTECTION FOR ALL DOMESTIC WATER PIPING INSTALLED UNDER HIS CONTRACT.

G. ALL ELECTRICAL REQUIREMENTS SHALL BE COORDINATED WITH THE CONTRACTOR FOR ELECTRICAL WORK. THIS CONTRACTOR IS RESPONSIBLE FOR ALL LOW VOLTAGE WIRING FOR EQUIPMENT INSTALLED UNDER HIS CONTRACT. THE CONTRACTOR FOR ELECTRICAL WORK IS RESPONSIBLE FOR LINE VOLTAGE POWER WIRING ONLY.

H. COLOR AND FINISH SELECTIONS FOR ALL MATERIALS, INCLUDING PAINTING OF PIPING, SHALL BE AS DIRECTED AND/OR APPROVED BY THE ARCHITECT.

I. MINOR DETAILS NOT SHOWN OR SPECIFIED, BUT NECESSARY FOR THE PROPER AND ACCEPTABLE CONSTRUCTION, INSTALLATION OR OPERATION OF ANY PART OF THE WORK AS DETERMINED BY THE ENGINEER SHALL BE INCLUDED AS IF SPECIFIED OR INDICATED ON THE DRAWINGS.

J. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIREMENTS FOR THE INSTALLATION, CONNECTION, EXTENSION OR MODIFICATION TO ALL UTILITY SERVICES WITH RESPECTIVE PROVIDERS INCLUDING PAYMENT OF ALL ASSOCIATED FEES.

K. THE CONTRACTOR IS RESPONSIBLE FOR ALL PAINTING ASSOCIATED WITH CUTTING AND PATCHING. ALL PAINTING IN AREAS WITH COMPLETE FINISH RENOVATIONS SHALL BE PROVIDED BY THE GENERAL CONTRACTOR.

1.02 SUBMITTALS

A. SUBMITTAL REQUIREMENTS SHALL BE COORDINATED WITH THE ARCHITECT AND AUTHORITIES HAVING JURISDICTION. UNLESS OTHERWISE DIRECTED, CONTRACTOR SHALL PROVIDE SUBMITTALS AS LISTED BELOW.

- PIPE AND FITTINGS
- VALVES
- HANGERS AND SUPPORTS
- PLUMBING PIPING LAYOUT
- TESTS
- PLUMBING FIXTURES
- WATER HEATERS & ACCESSORIES
- FLOOR DRAINS
- MIXING VALVES
- ALL SCHEDULED PLUMBING EQUIPMENT

B. SUBMITTALS FROM SUPPLIERS OR MANUFACTURERS WHICH DO NOT BEAR THE STAMP OF THE SUBMITTING CONTRACTOR INDICATING THAT THE CONTRACTOR HAS REVIEWED THE SUBMITTAL FOR CONFORMANCE WITH THE PROJECT REQUIREMENTS WILL BE RETURNED REJECTED.

C. THE ENGINEER'S REVIEW OF SUBMITTALS IS A COURTESY WHICH DOES NOT RELIEVE THE CONTRACTOR FROM CONFORMING WITH THE CONSTRUCTION DOCUMENTS REGARDLESS OF THE ACTION INDICATED BY THE SHOP DRAWINGS STAMP.

D. SUBMIT PROOF OF APPROVAL AND/OR CONFIRMATION OF SATISFACTORY TEST RESULTS TO THE OWNER AND THE ARCHITECT.

E. SUBMIT TO THE OWNER'S MAINTENANCE PERSONNEL OPERATION AND MAINTENANCE DATA FOR ALL SYSTEM COMPONENTS, SERVING REQUIREMENTS, INSPECTION DATA, REPLACEMENT PART NUMBERS AND AVAILABILITY AND CONTACT INFORMATION FOR SERVICE/SUPPLY COMPANY.

F. FOR ALL BELOW GRADE PIPING WHERE ACTUAL INSTALLATION DEVIATES FROM CONSTRUCTION DRAWINGS, THE CONTRACTOR SHALL PROVIDE AS-BUILT DRAWINGS INDICATING BELOW GRADE PIPE LOCATIONS DIMENSIONED TO NEAREST COLUMN LINES.

G. RECORD AS-BUILT DRAWINGS SHALL BE SUPPLIED TO THE OWNER/TENANT AFTER COMPLETION OF THE WORK SHOWING ANY ALTERATIONS, ADDITIONS AND/OR DELETIONS TO THE SYSTEM(S) INSTALLED.

1.03 SUBSTITUTIONS

A. ALL EQUIPMENT SHALL BE PRODUCTS OF THE SPECIFIED MANUFACTURER OR MANUFACTURERS. ALL BIDS SHALL BE BASED ON THE SPECIFIED MANUFACTURER OR MANUFACTURER'S EQUIPMENT. FOR SUBSTITUTIONS OF OTHER MANUFACTURER'S EQUIPMENT TO BE CONSIDERED, THE SUBSTITUTION MUST BE INDICATED PRIOR TO BIDDING WITH THE REASON FOR THE PROPOSED SUBSTITUTION IDENTIFIED, AND THE PROPOSED CREDIT TO THE OWNER INDICATED. THE ENGINEER SHALL DETERMINE THE ACCEPTABILITY OF ANY PROPOSED SUBSTITUTIONS.

B. THE CONTRACTOR ASSUMES ALL RESPONSIBILITY FOR COORDINATING THE WORK OF OTHER TRADES WHICH MAY BE AFFECTED BY SUBSTITUTIONS, INCLUDING ALL RELATED COSTS.

1.04 DEFINITIONS

A. FURNISH: TO PURCHASE, PROCURE, ACQUIRE AND DELIVER, COMPLETE WITH RELATED ACCESSORIES.

B. INSTALL: TO ERECT, MOUNT AND CONNECT, COMPLETE WITH RELATED ACCESSORIES.

C. PROVIDE: TO FURNISH AND INSTALL.

D. PLUMBING CONTRACTOR, THE CONTRACTOR, THIS CONTRACTOR: THE CONTRACTOR FOR PLUMBING WORK WHICH IS SPECIFIED HEREIN AND SHOWN ON THESE DRAWINGS.

E. REFER TO THE INTERNATIONAL PLUMBING CODE 2018 FOR ADDITIONAL DEFINITIONS.

1.04 DRAWINGS

A. THE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO ILLUSTRATE THE GENERAL ARRANGEMENT AND ROUTING OF PIPING AND GENERAL LOCATIONS OF EQUIPMENT. PRECISE LOCATIONS OF EQUIPMENT, RISERS AND STACKS, AND ROUTING AND ELEVATION OF ALL PIPING SYSTEMS SHALL BE COORDINATED IN THE FIELD WITH THE ARCHITECT, ARCHITECTURAL DRAWINGS, THE WORK OF OTHER TRADES, EXISTING AND NEW BUILDING CONDITIONS AND/OR THE PREFERENCES OF THE OWNER/TENANT AS CONSTRUCTION PROCEEDS. ALL PIPING SHALL BE INSTALLED CONCEALED IN FINISHED SPACES, UNLESS NOTED OTHERWISE.

B. PROVIDE ALL NECESSARY INCIDENTAL MATERIALS AND ACCESSORIES REQUIRED TO MAKE THE WORK COMPLETE IN ALL RESPECTS, EVEN IF NOT PARTICULARLY SHOWN OR SPECIFIED.

C. REFER TO PLUMBING EQUIPMENT/FIXTURE SCHEDULE ON THE DRAWINGS FOR ALL FIXTURE AND EQUIPMENT SPECIFICATIONS.

D. REFER TO FIXTURE CONNECTION SIZE SCHEDULE FOR ALL FIXTURE ROUGHING SIZE REQUIREMENTS.

E. VERIFY ALL INDICATED CONDITIONS BEFORE STARTING WORK AND REPORT ANY DISCREPANCIES. THE DRAWINGS REFLECT CONDITIONS WHICH CAN BE REASONABLY INTERPRETED FROM THE EXISTING VISIBLE CONDITIONS OR FROM DRAWINGS AND INFORMATION FURNISHED BY THE OWNER.

F. LOCATE ALL FIXTURES AND EQUIPMENT AS PER THE FINAL ARCHITECTURAL DRAWINGS.

1.05 PRODUCTS

A. SANITARY AND VENT PIPING:

- ABOVE GRADE/ UNDERGROUND PIPING SHALL BE CAST IRON PIPE WHICH SHOULD COMPLY WITH ASTM A 74 STANDARD/CISPI 301.
- SLOPE OF DRAINAGE SYSTEM SHALL BE 1/8" PER FOOT OF RUN FOR PIPE OVER 3" (I.D.) AND 1/4" PER FOOT OF RUN FOR PIPE 2-1/2" AND SMALLER (I.D.). VENT PIPING SHALL BE PITCHED TO DRAIN.
- PVC OR OTHER COMBUSTIBLE PLASTIC PIPING SHALL NOT BE INSTALLED IN CEILING PLENUM SPACES.
- ALL CAST IRON SOIL PIPE AND FITTINGS SHALL BE MARKED WITH THE COLLECTIVE TRADEMARK OF THE CAST IRON SOIL PIPE INSTITUTE (CISPI) AND BE LISTED BY NSF INTERNATIONAL.

B. DOMESTIC WATER PIPING:

- ABOVE GRADE WATER PIPING SHALL BE TYPE 'L' HARD-DRAWN COPPER TUBE.
- FITTINGS IN DOMESTIC WATER PIPING SHALL BE COPPER OR COPPER ALLOY AS PER TABLE 605.5, 2018 NORTH CAROLINA PLUMBING CODE (IECC 2015).
- JOINTS SHALL BE MADE WITH LEAD-FREE SOLDER.
- THE ENTIRE DOMESTIC WATER DISTRIBUTION SYSTEM SHALL BE INSULATED INCLUDING ALL VALVES, FITTINGS, ETC.
- COMPLY WITH NSF 61 FOR MATERIALS FOR WATER-SERVICE PIPING AND SPECIALTIES FOR DOMESTIC WATER.
- ALL DOMESTIC WATER PIPING ABOVE GRADE SHALL BE INSULATED WITH FIRE-RETARDANT, FACTORY-APPLIED JACKET. PROVIDE COLD WATER PIPING WITH FACTORY-APPLIED VAPOR BARRIER. INSULATION REQUIREMENT SHOULD COMPLY WITH 2018 NORTH CAROLINA ENERGY CONSERVATION CODE (IECC 2015) SECTION C404.4. REFER BELOW TABLE C403.11.3 FOR MINIMUM PIPE INSULATION THICKNESS.

MINIMUM PIPE INSULATION THICKNESS						
FLUID OPERATING TEMPERATURE RANGE AND USAGE (°F)	INSULATION CONDUCTIVITY		NOMINAL PIPE OR TUBE SIZE (INCHES)			
	CONDUCTIVITY BTU IN./ (H·FT²·°F)	MEAN RATING TEMPERATURE, °F	<1	1 to < 1½	1½ to < 4	4 to < 8
105-140	0.21-0.28	100	1.0	1.0	1.5	1.5
40-60	0.21-0.27	75	0.5	0.5	1.0	1.0

- AS PER 2018 NORTH CAROLINA ENERGY CONSERVATION CODE (IECC 2015) SECTION C404.7 WATER DISTRIBUTION SYSTEM HAVING ONE OR MORE RECIRCULATION PUMPS THAT PUMP WATER FROM A HEATED-WATER SUPPLY PIPE BACK TO THE HEATED-WATER SOURCE THROUGH A COLD-WATER SUPPLY PIPE SHALL BE A DEMAND RECIRCULATION WATER SYSTEM.PUMPS SHALL HAVE CONTROLS THAT COMPLY WITH BOTH OF THE FOLLOWING:
 - THE CONTROL SHALL START THE PUMP UPON RECEIVING A SIGNAL FROM THE ACTION OF A USER OF A FIXTURE,SENSING THE PRESENCE OF A USER OF A FIXTURE OR SENSING THE FLOW OF HOT OR TEMPERED WATER TO A FIXTURE.
 - THE CONTROL SHALL LIMIT THE TEMPERATURE OF THE WATER ENTERING THE COLD-WATER PIPING TO 104°F(40°C).
- HW SYSTEM PIPING IS DESIGNED AS PER MAXIMUM ALLOWED PIPE LENGTH METHOD AS PER 2018 NORTH CAROLINA ENERGY CONSERVATION CODE (IECC 2015) SECTION C404.5, THE HW PIPE LENGTH FROM THE NEAREST SOURCE OF HEATED WATER TO THE TERMINATION OF THE FIXTURE SUPPLY PIPE SHALL BE AS PER FOLLOWING TABLE.

NOMINAL PIPE SIZE (INCHES)	MAXIMUM PIPING LENGTH (FEET)	
	PUBLIC LAV	OTHER FIXTURES
½"	2'	43'
¾"	0.5'	21'
1"	0.5'	13'
1¼"	0.5'	8'
1½"	0.5'	6'
2" OR LARGER	0.5'	4'

- AS PER NORTH CAROLINA ENERGY CONSERVATION CODE 2018 (IECC 2015) SECTION C404.6.1 HEATED-WATER CIRCULATION SYSTEMS SHALL BE PROVIDED WITH A CIRCULATION PUMP. THE SYSTEM RETURN PIPE SHALL BE A DEDICATED RETURN PIPE OR A COLD WATER SUPPLY PIPE. CONTROLS FOR CIRCULATING HOT WATER SYSTEM PUMPS SHALL START THE PUMP BASED ON THE IDENTIFICATION OF A DEMAND FOR HOT WATER WITHIN THE OCCUPANCY. THE CONTROLS SHALL AUTOMATICALLY TURN OFF THE PUMP WHEN THE WATER IN THE CIRCULATION LOOP IS AT THE DESIRED TEMPERATURE AND WHEN THERE IS NO DEMAND FOR HOT WATER.

C. GAS PIPING

A. PROVIDE A COMPLETE GAS PIPING SYSTEM TO SERVE GAS FIRED EQUIPMENT AND EQUIPMENT FURNISHED BY OTHERS, AS NOTED ON DRAWINGS

B. NATURAL GAS PIPING SHALL BE AS FOLLOWS:

- ASTM A-53 SCHEDULE 40 STEEL PIPE PAINTED WITH YELLOW ANTI-CORROSIVE PAINT, SCREWED OR WELDED IN ACCORDANCE WITH CODE REQUIREMENT (FITTINGS FOR LINES LARGER THAN 2" SHALL BE WELDED STEEL FITTINGS FOR LINES 2" AND SMALLER, EXCEPT WHEN LOCATED IN AIR PLENUMS, SHALL BE SCREWED STANDARD WEIGHT BLACK MALLEABLE).
- PROVIDE ALL UNIONS, SHUT-OFF VALVES AND DIRT LEGS REQUIRED BY NFPA-54 AND GOVERNING LOCAL CODES AND AT EACH GAS APPLIANCE CONNECTION.
- PROVIDE ALL TESTS, METERS, INSPECTIONS, HANGERS AND EQUIPMENT CONNECTIONS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM
- PAINT ALL GAS PIPING EXPOSED TO WEATHER WITH ONE COAT OF PRIMER, AND TWO COATS OF RUST-PROOF PAINT. COLOR OF PIPE ON ROOF SHALL BE YELLOW. COORDINATE COLOR OF PIPE ON EXTERIOR OF BUILDING WITH GC TO MATCH BUILDING COLORS.
- GAS COCKS 1-1/2" AND SMALLER SHALL BE ALL BRONZE, SCREWED, FLAT HEAD, BRASS PLUG AND WASHER 200 LB NOG PROVIDE LINE SIZE 6" LONG DIRT LEG DOWN STREAM OF GAS COCK AT ALL EQUIPMENT CONNECTIONS.

G. NO VALVES ARE TO BE LOCATED IN AIR PLENUMS

H. PROVIDE GAS PIPE SUPPORTS IN ACCORDANCE WITH CODE REQUIREMENTS

D. MIXING VALVES

- VALVE BODY SHALL BE MADE OF CAST BRASS. THE INTERNAL COMPONENTS SHALL BE MADE OF BRASS OR STAINLESS STEEL.
- TYPES A, C & D VALVES: VALVE SHUTS OFF IN FULL COLD POSITION AND MUST PASS THROUGH COLD RANGE BEFORE DELIVERING WARM AND/OR HOT WATER. TEMPERATURE LIMIT SET AT 105°F MAXIMUM DELIVERY TEMPERATURE. IF ONE SUPPLY SHOULD FAIL, THE OTHER WILL AUTOMATICALLY AND INSTANTLY SHUT DOWN. DELIVERY CAPACITY IS 5GPM @ 45 PSIG DIFFERENTIAL.

3. TYPES OF VALVES: TYPE A- THERMOSTATICALLY OPERATED BY MEANS OF BI-METALLIC STRIP, OR EXPANSION BELLOWS; TYPE B- SINGLE HANDLE MECHANICAL MIXER, OR INDIVIDUAL HOT AND COLD CONTROL VALVES; TYPE C- PRESSURE BALANCING SHOWER VALVE/PISTON OPERATED MIXING VALVE; TYPE D- BALANCED PRESSURE OPERATION, WITH INTEGRAL DIAL THERMOMETER INDICATING DELIVERED WATER TEMPERATURE.

4. EACH ELEMENT SHALL BE CONTROLLED BY AN INDIVIDUALLY MOUNTED THERMOSTAT AND HIGH TEMPERATURE CUT-OFF SWITCH. ALL INTERNAL CIRCUITS SHALL BE FUSED. THE OUTER JACKET SHALL BE OF BAKED ENAMEL FINISH AND SHALL BE PROVIDED WITH FULL SIZE CONTROL COMPARTMENT FOR PERFORMANCE OF SERVICE AND MAINTENANCE THROUGH HINGED FRONT PANEL AND SHALL ENCLOSE THE TANK WITH FOAM INSULATION. ELECTRICAL JUNCTION BOX WITH HEAVY DUTY TERMINAL BLOCK SHALL BE PROVIDED. THE DRAIN VALVE SHALL BE LOCATED IN THE FRONT FOR EASE OF SERVICING.

D. GAS FIRED INSTANTANEOUS WATER HEATER:

- PROVIDE HIGH EFFICIENCY GAS FIRED, INSTANTANEOUS WATER HEATERS. SIZE, LOCATION AND CAPACITY SHALL BE AS AS INDICATED ON THE DRAWINGS.
- FACTORY-INSTALLED TEMPERATURE AND PRESSURE RELIEF VALVE EXTEND DISCHARGE PIPE, FULL SIZE, TO WITHIN 6" ABOVE THE MOP SINK OR FLOOR DRAIN .
- PROVIDE POTABLE WATER EXPANSION TANK AS SPECIFIED EQUAL PRODUCTS BY WATTS, AMTROL, OR BELL & GOSSETT MAY BE PROVIDED AT THE CONTRACTOR'S OPTION.

E. HANGERS AND SUPPORTS:

- HANGERS SHALL BE STANDARD STEEL, MALLEABLE OR WROUGHT IRON, AS MANUFACTURED BY GRINNELL OR APPROVED EQUAL, SUITABLE FOR THE TYPE OF CONSTRUCTION. PIPING SHALL NOT BE HUNG FROM OTHER PIPE.
- SECTIONS OF INDIVIDUAL PIPE RUNS SHALL BE SUPPORTED BY CLEVIS HANGERS.
- ALL EQUIPMENT SHALL BE PROVIDED WITH APPROVED SUPPORTS..
- SUPPORTS SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE RECOMMENDATIONS OF THE PIPING MANUFACTURER.

F. HOT WATER RE-CIRCULATING PUMP

- IN-LINE PUMP: SINGLE STAGE VOLUTE TYPE PUMP SHALL BE MADE OF CAST IRON OR FORGED LEAD-FREE BRONZE IMPELLER.
- THE PUMP SHALL HAVE A GROUND AND POLISHED STEEL SHAFT WITH A HARDENED INTEGRAL THRUST COLLAR. THE SHAFT SHALL BE SUPPORTED BY TWO HORIZONTAL SLEEVE BEARINGS DESIGNED TO CIRCULATE OIL. THE PUMPS ARE TO BE EQUIPPED WITH A MECHANICAL SEAL WITH CARBON SEAL FACE ROTATING AGAINST CERAMIC SEAT. THE MOTOR SHALL BE NON-OVERLOADING AT ANY POINT ON PUMP CURVE.
- DIRECT CONNECT PUMP TO ELECTRIC MOTOR WITH FLEXIBLE COUPLING. THE MOTOR SHALL BE OF THE DRIP-PROOF, SLEEVE-BEARING, QUIET OPERATING, RUBBER-MOUNTED CONSTRUCTION. EQUIPMENT MOTOR WITH BUILT-IN THERMAL OVERLOAD PROTECTION.
- INSTALL IN-LINE CIRCULATING PUMPS BETWEEN PIPE FLANGES IN PIPING SYSTEMS. INSTALL OVERHEAD PIPE SUPPORTS, BOTH SIDES OF IN-LINE PUMPS, INSTALLED IN HORIZONTAL PIPING RUNS.



ISSUE		
NO.	DATE	DESCRIPTION

DWG DATE: 02-16-2023

REVIEWED BY: NYE

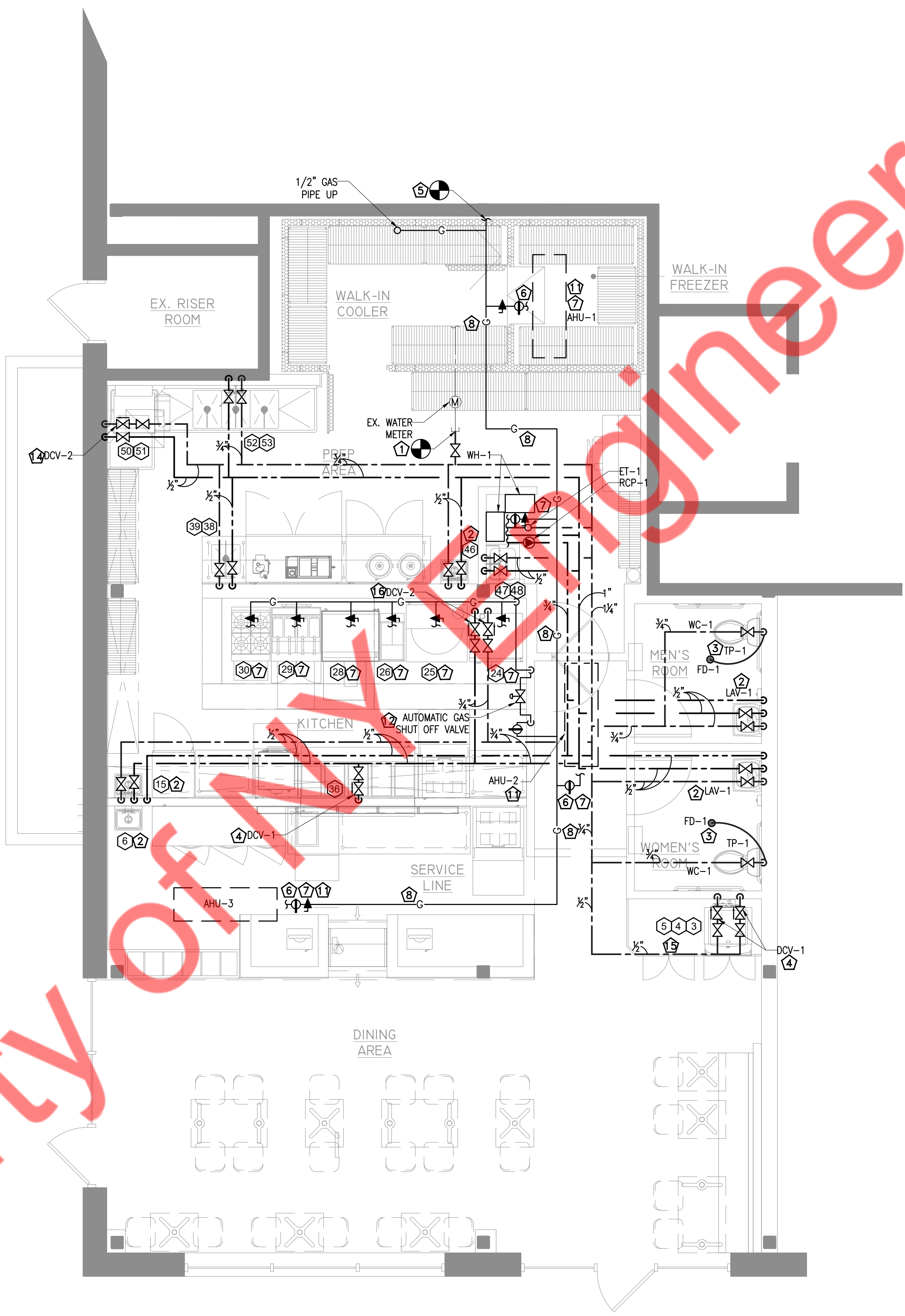
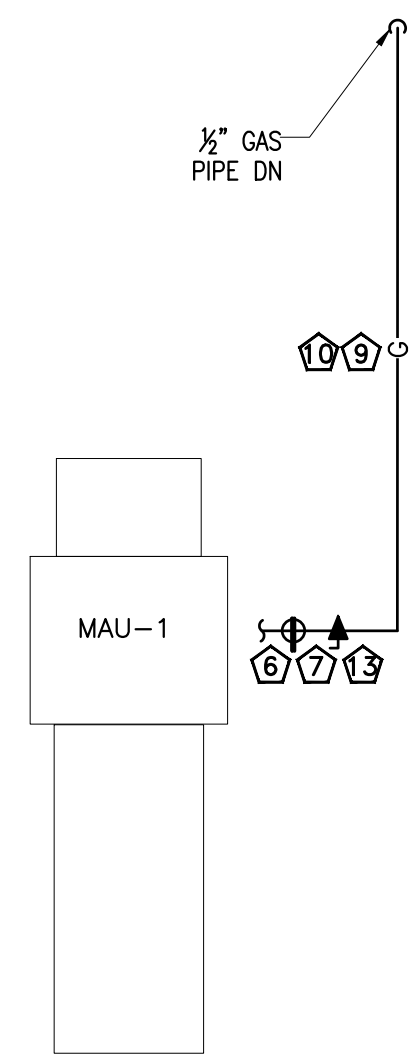
PROJECT No.: 23109

DWG TITLE:

PLUMBING
SYMBOLS,
ABBREVIATIONS &
SPECIFICATIONS

SHEET No.

P-1



PLUMBING KEYED NOTES:

- CONNECT NEW 1-1/2" CW PIPING TO EXISTING 1-1/2" CW PIPING IN SPACE WITH SHU-OFF VALVE. CONTRACTOR TO FIELD VERIFY THE REQUIREMENTS OF BACKFLOW PREVENTER AND WATER SUB METER AND BASE BID ACCORDINGLY.
- PROVIDE THERMOSTATIC MIXING VALVES AT ALL LAVATORIES AND HAND SINKS. SET AT 110° F MAX.
- ROUTE 1/2" TYPE "L" SOFT COPPER TRAP PRIMER LINES DOWN TO BELOW FLOOR TO CONNECTIONS TO FLOOR DRAIN.
- PROVIDE ASSE 1022 WATTS SD-3 DUAL CHECK BACKFLOW PREVENTER TO ICE MAKER, SODA DISPENSER & POT FILLER.
- CONNECT NEW 1-1/4" GAS PIPING TO EXISTING 1-1/4" GAS PIPE STUBOUT. CONTRACTOR SHALL VERIFY EXACT LOCATION, PRESSURE AND CAPACITY OF GAS SERVICE AND METER WITH UTILITY COMPANY.
- EXTEND GAS LINE TO AHU-1, AHU-2, AHU-3 & MAU-1. PROVIDE SHUTOFF VALVE, PRESSURE REGULATOR, UNION AND DIRTLEG.
- CONTRACTOR TO FIELD VERIFY EXISTING AVAILABLE GAS PRESSURE AND MAKE SURE TO PROVIDE ADEQUATE INLET PRESSURE REQUIRED FOR GAS FIRED AHU-1, AHU-2, AHU-3, MAU-1, GAS RANGE, GAS OVEN, GAS FRYER, GAS GRIDDLE & TANDOOR OVEN. PROVIDE GAS SHUTOFF VALVE & PRESSURE REGULATOR.
- NATURAL GAS LINE RUNNING THROUGH CEILING.
- NATURAL GAS LINE RUNNING ON ROOF.
- REFER RISER DIAGRAM FOR ALL GAS PIPE SIZES.
- ROUTE 1-1/4" CONDENSATE DRAIN FROM AHU-1, AHU-2, AHU-3 TO NEAREST FLOOR DRAIN OR FLOOR SINK.
- AUTOMATIC GAS VALVE CONNECT TO FIRE EXTINGUISHING SYSTEM. PROVIDE ISOLATION VALVE, LOCATE VALVES AT 9' AFF. (12" BELOW CEILING) IN KITCHEN ADJACENT TO HOOD.
- ROUTE 1-1/4" CONDENSATE DRAIN FROM MAU-1 TO NEAREST ROOF GUTTER.
- PROVIDE A BACKFLOW PREVENTER WITH AIR GAP SHALL COMPLY WITH A112.1.2 OR A112.1.3.
- MOUNT FILTER AND SODA PUMPS UNDER THE COUNTER.
- PROVIDE ASSE 1024 WILKINS 700 DUAL CHECK BACKFLOW PREVENTER TO OVEN.

GENERAL NOTES:

- CW/HW PIPING TO BE PROVIDED WITH INSULATION AS PER NORTH CAROLINA ENERGY CONSERVATION CODE 2018. REFER UNDER 1.05.B.6 ON SHEET P-1.
- PROVIDE ACCESS PANEL FOR WATER HAMMER ARRESTOR, CLEANOUTS & SHUT OFF VALVES AS REQUIRED.
- PROVIDE BRANCH PRV IF PRESSURE EXCEEDS 80 PSI.
- CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
- REFER RISER DIAGRAM FOR ALL PIPE SIZES.
- ALL NEW PLUMBING FOR TENANT MUST BE INSTALLED AFTER WATER SUBMETER.
- FOR ANYTHING RUN UNDER SLAB IN SPACE, AVOID ALL EXISTING PLUMBING LINES FROM ADJACENT TENANT SPACE THAT MAY BE LOCATED IN THIS AREA.



A1

ROOF PLUMBING PLAN - GAS

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

F1

PLUMBING PLAN - DOMESTIC WATER AND GAS

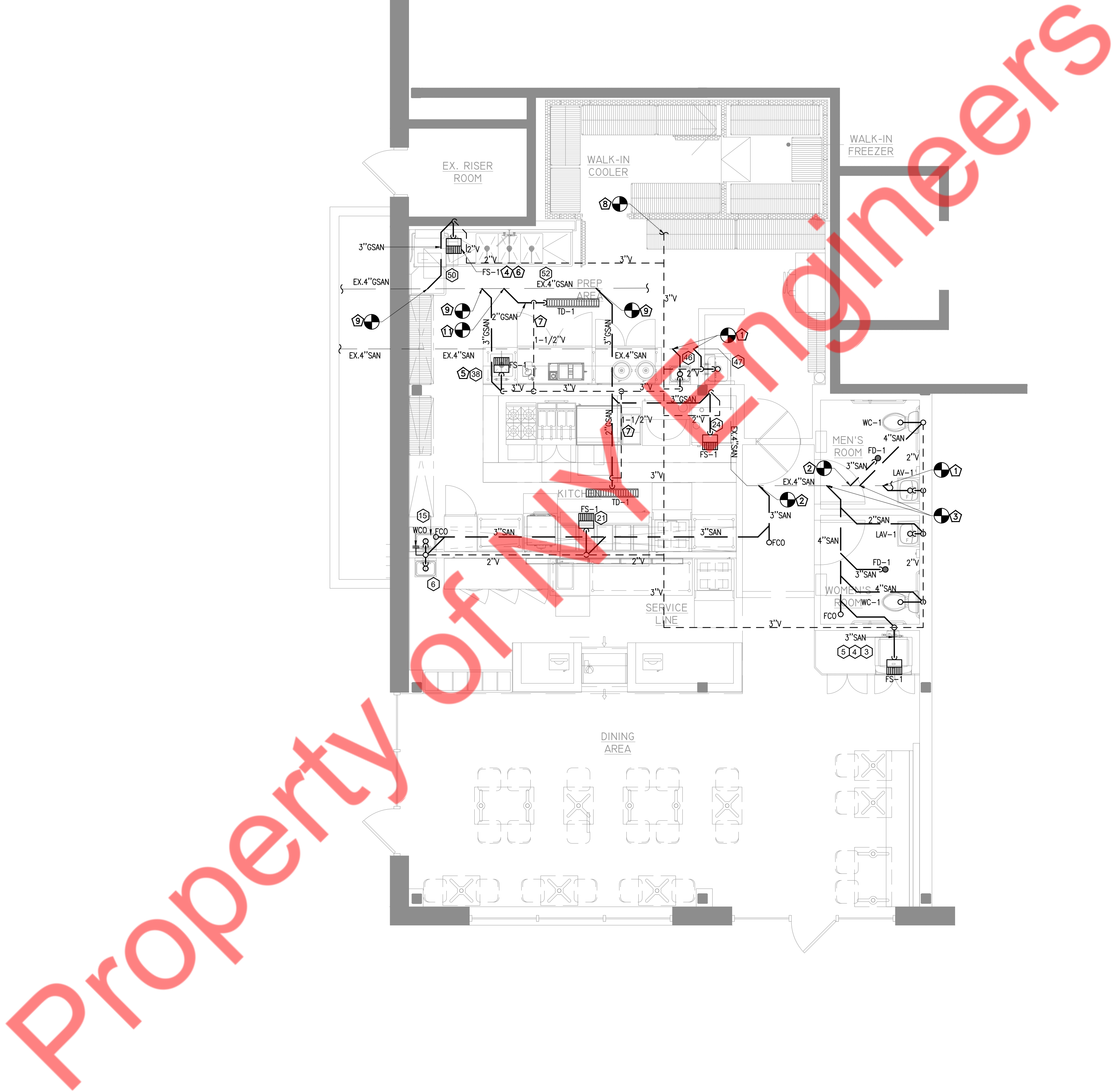
SCALE: 1/4" = 1'-0"

ISSUE		
NO.	DATE	DESCRIPTION

DWG DATE: 02-16-2023
REVIEWED BY: NYE
PROJECT No.: 23109

DWG TITLE:
PLUMBING ROOF
GAS, DOMESTIC
WATER & GAS
FLOOR PLAN

SHEET No.
P-3



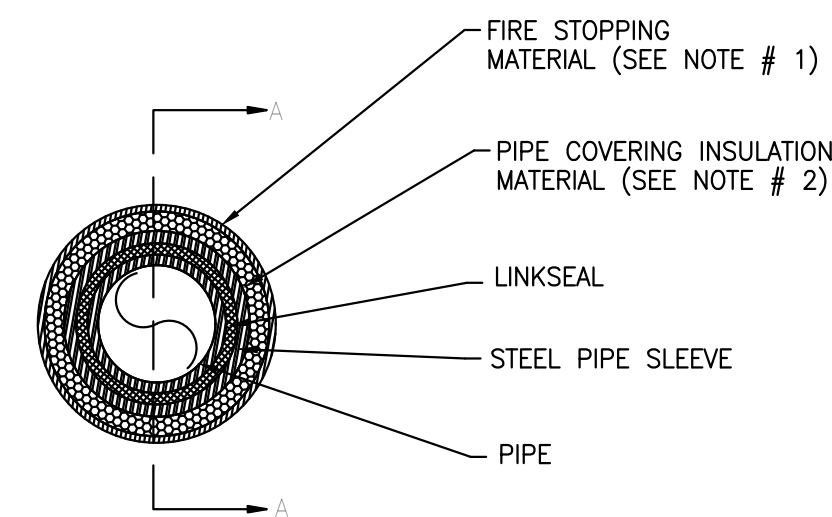
- ① CONNECT NEW 2" SANITARY WASTE PIPING TO EXISTING 4" SANITARY PIPING IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, INVERT AND LOCATION OF EXISTING PIPING. FOR MORE DETAILS REFER CIVIL PLAN.
- ② CONNECT NEW 3" SANITARY WASTE PIPING TO EXISTING 4" SANITARY PIPING IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, INVERT AND LOCATION OF EXISTING PIPING. FOR MORE DETAILS REFER CIVIL PLAN.
- ③ CONNECT NEW 4" SANITARY WASTE PIPING TO EXISTING 4" SANITARY PIPING IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, INVERT AND LOCATION OF EXISTING PIPING. FOR MORE DETAILS REFER CIVIL PLAN.
- ④ PROVIDE 2" INDIRECT WASTE FROM 3 COMP SINK TO FLOOR SINK WITH APPROVED AIR GAP.
- ⑤ PROVIDE 1-1/2" INDIRECT WASTE FROM PREP SINK TO FLOOR SINK WITH APPROVED AIR GAP.
- ⑥ PROVIDE 2" INDIRECT WASTE FROM DISHWASHER TO FLOOR SINK WITH APPROVED AIR GAP.
- ⑦ VENT PIPE RUNNING UNDER THE FLOOR.
- ⑧ CONNECT NEW 3" VENT PIPING TO EXISTING PIPING IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE & LOCATION OF EXISTING VENT PIPING. FOR MORE DETAILS REFER CIVIL PLAN.
- ⑨ CONNECT NEW 3" GREASE SANITARY WASTE PIPING TO EXISTING 4" GREASE SANITARY PIPING IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, INVERT AND LOCATION OF EXISTING PIPING. FOR MORE DETAILS REFER CIVIL PLAN.
- ⑩ CONNECT NEW 4" GREASE SANITARY WASTE PIPING TO EXISTING 4" GREASE SANITARY PIPING IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, INVERT AND LOCATION OF EXISTING PIPING. FOR MORE DETAILS REFER CIVIL PLAN.
- ⑪ CONNECT NEW 2" GREASE SANITARY WASTE PIPING TO EXISTING 4" GREASE SANITARY PIPING IN SPACE. CONTRACTOR TO FIELD VERIFY EXACT SIZE, INVERT AND LOCATION OF EXISTING PIPING. FOR MORE DETAILS REFER CIVIL PLAN.

1. CONTRACTOR TO FIELD VERIFY FEASIBILITY OF SLAB PENETRATION AS PER STRUCTURAL REQUIREMENT.
2. ALL NEW PLUMBING FOR TENANT MUST BE INSTALLED AFTER WATER SUBMETER.
3. FOR ANYTHING RUN UNDER SLAB IN SPACE, AVOID ALL EXISTING PLUMBING LINES FROM ADJACENT TENANT SPACE THAT MAY BE LOCATED IN THIS AREA.



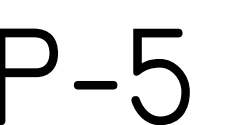
PLUMBING WASTE AND VENT PLAN

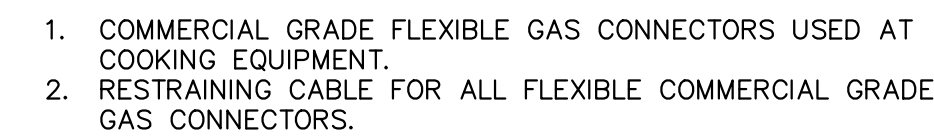
P-4



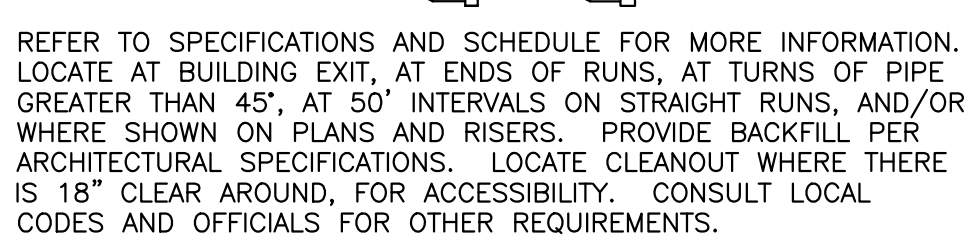
NOTES:

-
- CONCENTRIC VENT (TYP)
- CEILING
- RINNAI CU1991
- RINNAI CU1991
- Y-STRAINER
- SHUTOFF VALVE (TYP)
- GAS SUPPLY
- HW SUPPLY
- CW SUPPLY
- SOV
- HWR
- CHECK VALVE
- AQUASTAT CONNECTION
- RP-1 RECIRCULATION PUMP: GRUNDFOS NO. UPS 15-55SFC.
- CHECK VALVE

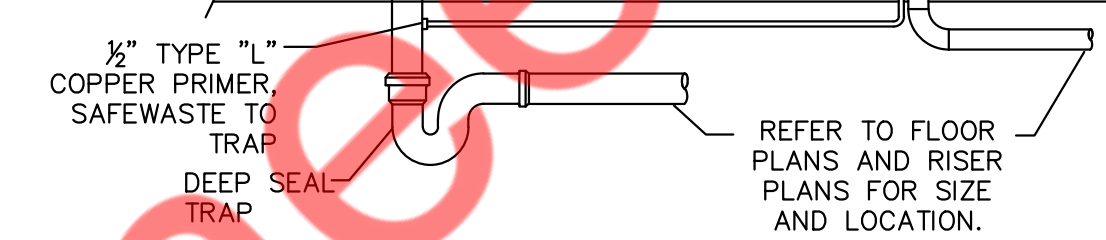




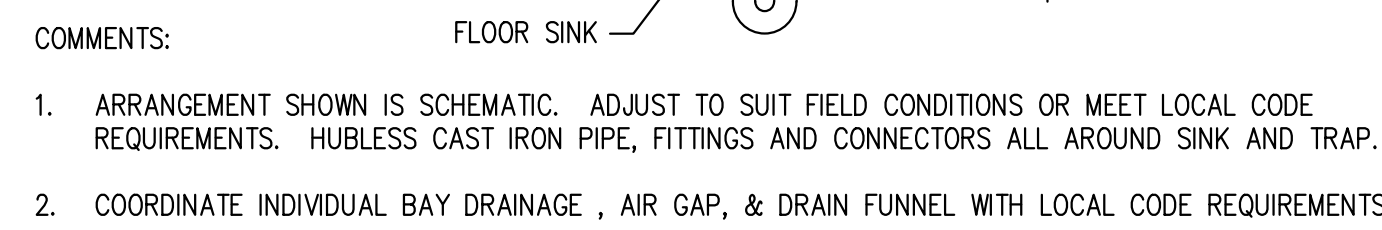
1	GAS PIPING AT EQUIPMENT
P-6	N.T.S



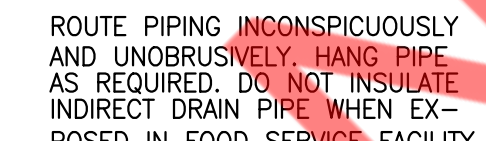
2	FLOOR CLEANOUT
P-6	N.T.S



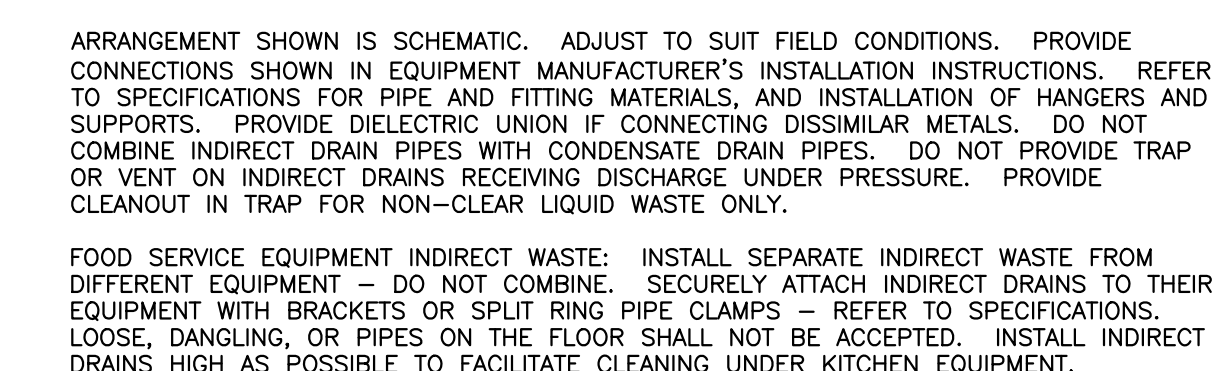
3 FLOOR DRAIN TRAP PRIMER DETAIL
P-6 N.T.S.



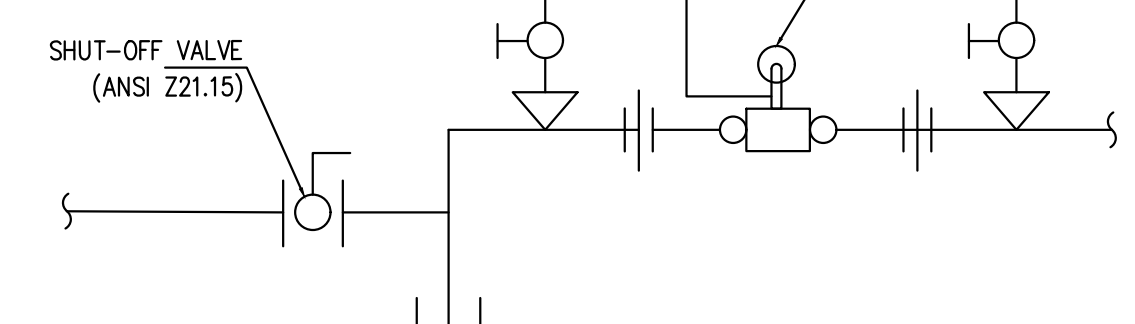
4
P-6 3 COMPARTMENT SINK DETAIL
N.T.S



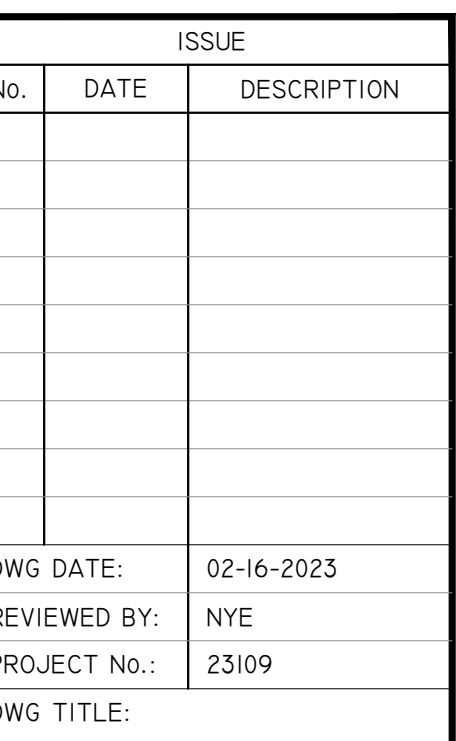
5	INDIRECT/CONDENSATE TO FLOOR SINK
P-6	N.T.S



6	INDIRECT WASTE INSTALLATION
P-6	N.T.S

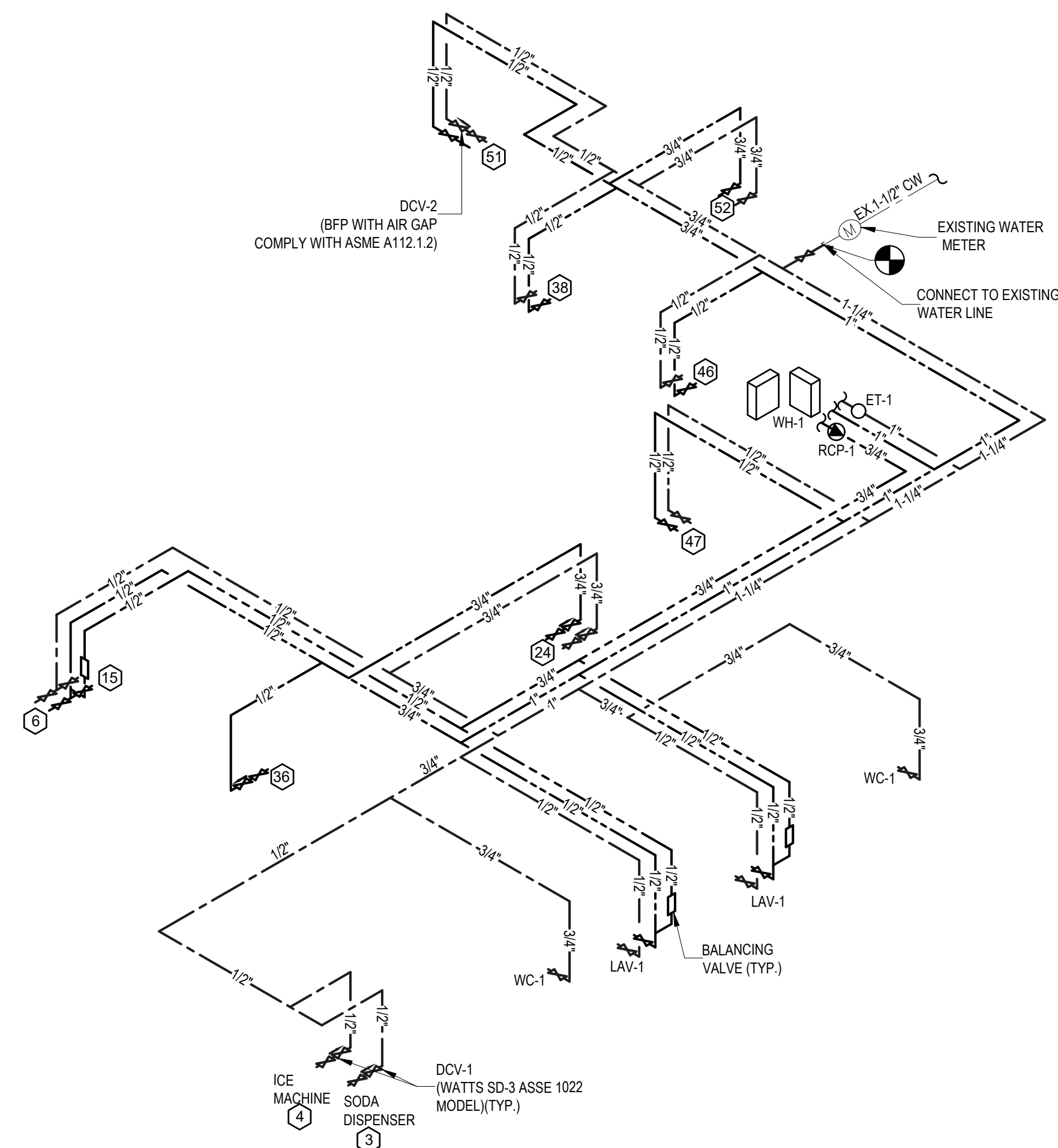


7 GAS PRESSURE REGULATOR DETAIL
P-6 NTS



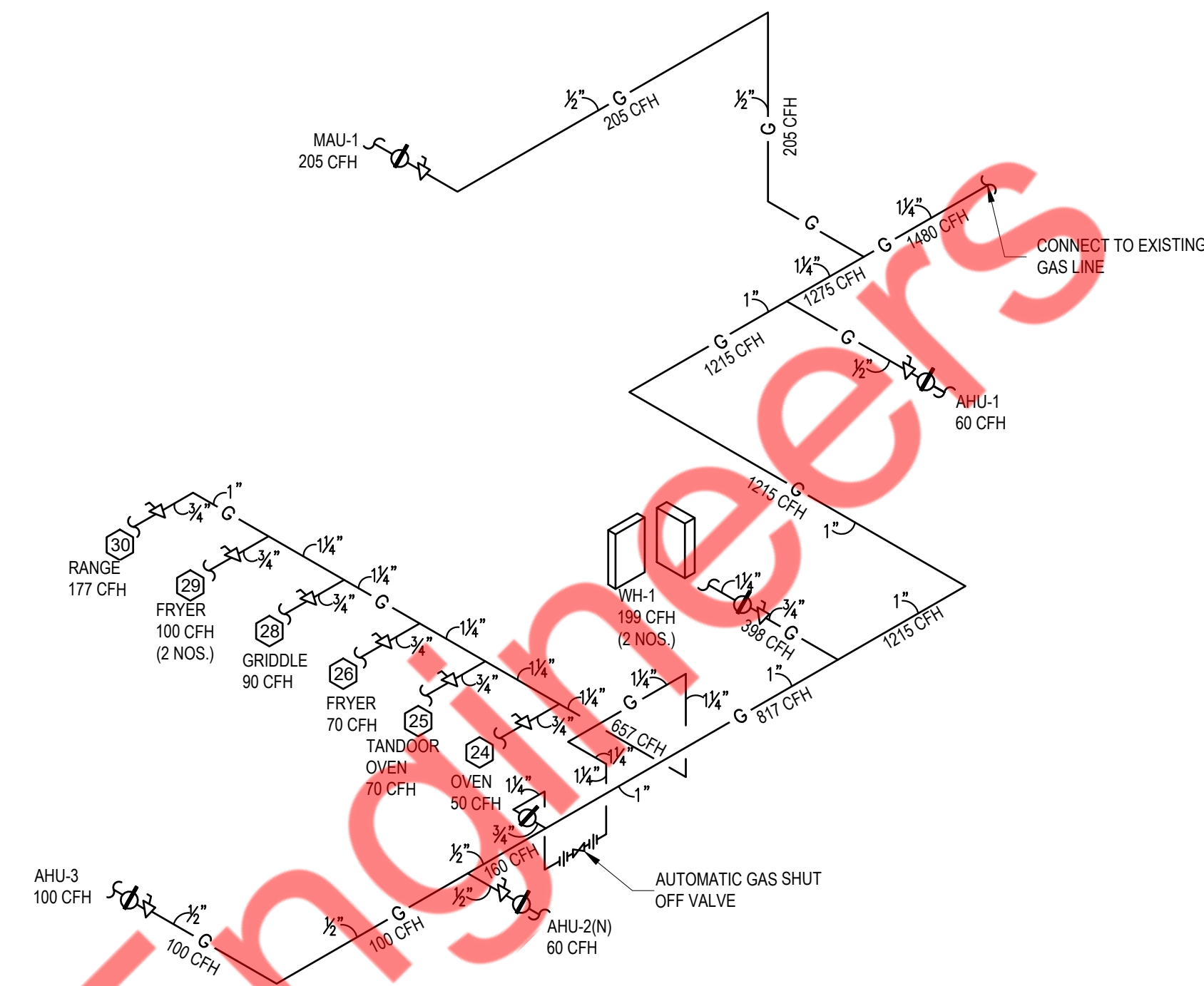
SHEET No.

P-6



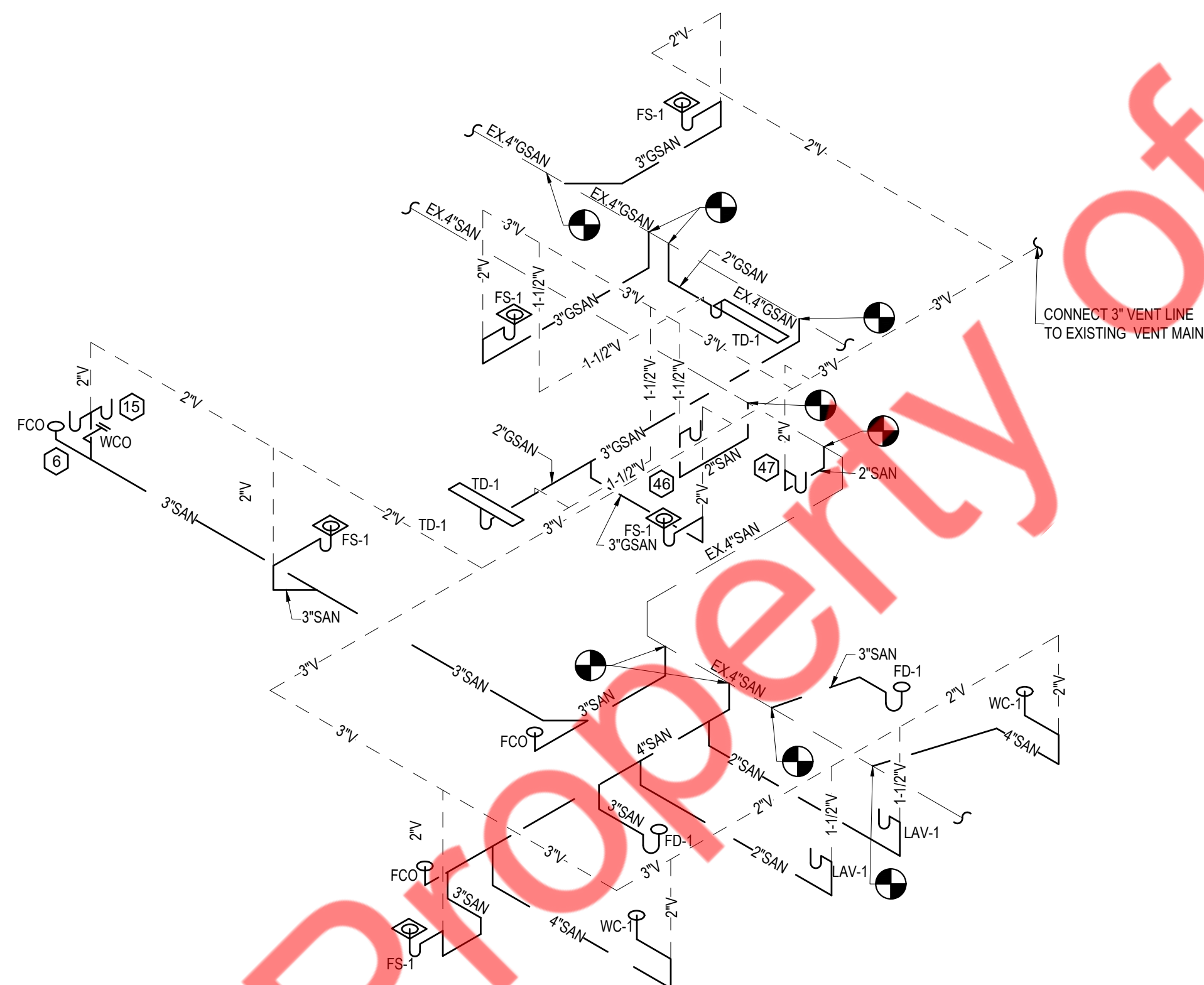
C7 PLUMBING WATER RISER DIAGRAM

SCALE: N.T.S.



M7 PLUMBING GAS RISER DIAGRAM

SCALE: N.T.S.



C7 PLUMBING SANITARY RISER DIAGRAM

SCALE: N.T.S.

NATURAL GAS PIPING SYSTEM

PROVIDE A COMPLETE GAS PIPING SYSTEM TO SERVE GAS EQUIPMENT FURNISHED BY OTHERS, AS NOTED ON THE DRAWINGS. PROVIDE EITHER THREADED STEEL OR MALLEABLE IRON PIPE WITH MALLEABLE FITTINGS OR WELDED STEEL PROVIDED ALL UNIONS, SHUT-OFF VALVES AND DIRT LEGS REQUIRED BY NFPA-54 AND GOVERNING LOCAL CODES AND AT EACH GAS APPLIANCE CONNECTION. PROVIDE ALL TESTS, METERS, INSPECTIONS, HANGERS AND EQUIPMENT CONNECTIONS REQUIRED FOR A COMPLETE AND OPERATING SYSTEM.

NOTES:

1. GAS PIPING TO BE SCHEDULE 40 STEEL PIPE W/125 CAST IRON SCREWED FITTINGS
2. GAS SYSTEM TO BE INSTALLED BY QUALIFIED LICENSED CONTRACTOR.
3. VERIFY ALL EQUIPMENT BTUS'S PRIOR TO INSTALLATION. ADJUST PIPE SIZE ACCORDING 2018 NORTH CAROLINA FUEL GAS CODE (IFGC 2015), TABLE 402.4(5).
4. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF EXISTING GAS METER, LOCATION, PRESSURE & CAPACITY. UPGRADE IF REQUIRED.
5. PROVIDE SHUT-OFF VALVE, PRESSURE REGULATOR IN AN ACCESSIBLE LOCATION.

GAS LOAD SUMMARY				
TAG	FIXTURE/EQUIPMENT	QTY	UNIT LOAD (CFH)	TOTAL CFH LOAD
AHU-1	AIR HANDLING UNIT	1	60	60
AHU-2	AIR HANDLING UNIT	1	60	60
AHU-3	AIR HANDLING UNIT	1	100	100
MAU-1	MAKEUP AIR UNIT	1	205	205
24	OVEN	1	50	50
25	TANDOOR OVEN	1	70	70
26	FRYER	1	70	70
28	GRIDDLE	1	90	90
29	FRYER	2	100	200
30	RANGE	1	177	177
WH-1	WATER HEATER	2	199	398
TOTAL				1480

GAS PIPE SIZING PER TABLE 402.4(5) NORTH CAROLINA FUEL GAS CODE (IFGC 2015)

GAS INLET PRESSURE- 2 PSI.

PRESSURE DROP- 1 PSI

SPECIFIC GRAVITY- 0.60

EQUIVALENT LENGTH OF PIPE = 168 FT

GAS PIPE SIZING PER TABLE 402.4(2) NORTH CAROLINA FUEL GAS CODE (IFGC 2015)

GAS INLET PRESSURE- ≤2 PSI.

PRESSURE DROP- 0.5 IN. W.C.

SPECIFIC GRAVITY- 0.60

EQUIVALENT LENGTH OF PIPE = 40 FT

ISSUE		
NO.	DATE	DESCRIPTION

DWG DATE: 02-16-2023
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DWG TITLE:

PLUMBING RISERS

SHEET No.
P-7

KITCHEN FIXTURE CONNECTION SCHEDULE

ITEM NO.	QTY	FIXTURE/EQUIPMENT	MANUFACTURER	MODEL	HOT WATER (IN.)	COLD WATER (IN.)	WASTE			GAS LOAD (MBH)	GAS (IN)	NOTES
							INDIRECT	DIRECT	VENT			
3	1	SODA DISPENSER	CORNELIUS OR EQUAL	ENDURO 150 OR EQUAL	--	1/2"	1"	--	2"	--	--	DRAIN TO FS
4	1	ICE MAKER	MANITOWOC ICE	IYT0620A	--	3/8"	1/2"	--	--	--	--	DRAIN TO FS
5	1	FILTER SYSTEM	EVERPURE	EV9324-21	--	1/2"	--	--	--	--	--	--
6	1	HAND SINK, WAll MOUNT	ADVANCE TABCO	7-PS-66	1/2"	1/2"	--	2"	1-1/2"	--	--	THERMOSTATIC MIXING VALVE
15	1	HAND SINK, WAll MOUNT	ADVANCE TABCO	7-PS-66	1/2"	1/2"	--	2"	1-1/2"	--	--	THERMOSTATIC MIXING VALVE
21	1	STEAMTABLE	VOLLRATH	38119	--	--	1-1/2"	--	--	--	--	DRAIN TO FS
24	1	OVEN-STEAMER	RATIONAL USA	ICOMBI PRO 6-HALF	3/4"	3/4"	--	2"	--	50	3/4"	DRAIN TO FS
26	1	FRYER	PITCO	VF35	--	--	--	--	--	70	3/4"	--
28	1	GRIDDIE	SOUTHBEND	HDG-48	--	--	--	--	--	90	3/4"	--
29	2	FRYER	PITCO	SSH55R-2FD	--	--	--	--	--	100	3/4"	--
30	1	RANGE	SOUTHBEND	4361D	--	--	--	--	--	177	3/4"	--
36	1	FAUCET, POT FILLER	T & S BRASS	B-0581	1/2"	--	--	--	--	--	--	--
38	1	PREP SINK	ADVANCE TABCO	KMS-3012	--	--	1-1/2"	--	2"	--	--	--
39	1	FAUCET, DECK MOUNT	T & S BRASS	B-0221	1/2"	1/2"	--	--	--	--	--	--
46	1	HAND SINK, WAll MOUNT	ADVANCE TABCO	7-PS-66	1/2"	1/2"	--	2"	1-1/2"	--	--	THERMOSTATIC MIXING VALVE
47	1	MOP SINK	ADVANCE TABCO	9-OP-20	--	--	--	2"	--	--	--	--
48	1	FAUCET, MOP SINK	T & S BRASS	B-0674-BSTP	1/2"	1/2"	--	--	--	--	--	--
51	1	WAREWASHER	CMA DISHMACHINES	CMA-180-VL	1/2"	1/2"	2"	--	--	--	--	DRAIN TO FS
52	1	3-COMP SINK	ADVANCE TABCO	FC-3-1824-24RL	3/4"	3/4"	2"	--	--	--	--	DRAIN TO FS
53	1	PRE-RINSE FAUCET	T & S BRASS	B-0133-12-CR-BC	1/2"	1/2"	--	2"	1-1/2"	--	--	--
25	1	TANDOOR OVEN	ROTOQUIP	RD-30	--	--	--	--	--	70	3/4"	--

NOTE:

1. ALL FIXTURE OR EQUIPMENTS MAY BE SUBSTITUTED WITH APPROVED EQUAL. CONTACT OWNER FOR APPROVAL.
2. REFER TO KITCHEN EQUIPMENT PLAN AND COORDINATED WITH KITCHEN CONSULTANT FOR MORE DETAILS.

FIXTURE BRANCH CONNECTION SCHEDULE					
FIXTURE TYPE	MANUFACTURER/MODEL	COLD WATER	HOT WATER	WASTE	VENT
WATER CLOSET (FLUSH VALVE)	KOHLER #K-3999	3/4"	--	4"	2"
LAVATORY	KOHLER #K-2005	1/2"	1/2"	2"	1-1/2"
MOP SINK	ADVANCE TABCO 9-0P-20	1/2"	1/2"	3"	2"
FLOOR SINK	JR SMITH #3001	--	--	3"	2"
FLOOR DRAIN	JR SMITH #2005	--	--	3"	2"
FLOOR CLEANOUT	SMITH #4051L	--	--	--	--
TRENCH DRAIN	ZURN #2884	--	--	2"	1-1/2"

WATER HEATER SCHEDULE

TAG No.	CAPACITY (GPM)	FIXTURES SERVING	QUANTITY	STATUS	TYPE	THERMAL EFFICIENCY %	MANUFACTURER & MODEL NO.	GAS LOAD (CFH)	GAS SUPPLY PRESSURE (WCH)		REMARKS
WH-1	4.1 @ 90°	3-COMPARTMENT SINK, PREP SINK, MOP SINK, HAND SINK, LAVATORY, DISHWASHER	2	NEW	GAS TANKLES WATER HEATER (WALL MOUNTED)	97	RINNAI CU1991	199 EACH	MIN 3.5	MAX 10.5	DIMENSIONS 18.5"(L) X 26.4"(H) X 11.4"(W)

RECIRCULATION PUMP SCHEDULE

MARK	SERVICE	QTY	GPM	TOTAL HEAD FT.	ELECTRICAL DATA	MANUFACTURER & REMARKS
RCP-1	HW RECIRCULATION	1	2	10	55 WATTS, 115V	BELL & GOSSET #UP 15-18 BUCS W/AQUASTAT & TIMER

EXPANSION TANK SCHEDULE

ITEM	SERVICE	QTY	GALLONS	MAKE	REMARKS
EXPANSION TANK (ET-1)	HOT WATER	1	2	AMTROL ST-1	DIMENSIONS - 4"(H) x 3.4"(DIA.) SHIPPING WEIGHT - 1 LBS.



ISSUE		
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DWG DATE:	02-16-2023	
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PLUMBING RISERS

SHEET No.

P-8