

SECTION 23 00 00 - MECHANICAL GENERAL REQUIREMENTS

- PART 1 - GENERAL
1. THE TERM "TENANT," "TENANT'S CONSTRUCTION MANAGER," "OWNER," OR "OWNER'S CONSTRUCTION MANAGER" SHALL REFER TO CAVA.
 2. THE TERM "FURNISH" MEANS TO SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS. THE TERM "INSTALL" DESCRIBES THE OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
 3. THE GENERAL CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR AS REQUIRED TO PROVIDE A COMPLETE WORKING SYSTEM AND AS DESCRIBED IN THESE DRAWINGS.
 4. THE GENERAL CONTRACTOR SHALL REVIEW A COMPLETE SET OF THE CONSTRUCTION DOCUMENTS. EACH SUB-CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF DRAWINGS ON SITE DURING THE CONSTRUCTION PROCESS.
 5. COORDINATE WORK AS REQUIRED WITH THE LANDLORD. THE GENERAL CONTRACTOR SHALL UTILIZE LANDLORD-REQUIRED CONTRACTORS AT THE GENERAL CONTRACTOR'S EXPENSE.
- PART 2 - PRODUCTS
1. PRODUCTS SHALL BE AS DESCRIBED IN THE DRAWINGS AND AS REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM.

- PART 3 - EXECUTION
1. UNLESS DIMENSIONS HAVE BEEN PROVIDED, THE DRAWINGS ARE DIAGRAMMATIC IN NATURE, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT AND REQUIRED EQUIPMENT. THEY SHALL NOT BE SCALED. COORDINATE WITH THE ARCHITECTURAL DRAWINGS, TENANT VENDORS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS AND CUTSHEETS AS REQUIRED.
 2. COMPLETE ALL WORK IN COMPLIANCE WITH THE CODES LISTED ON THE ARCHITECTURAL SHEETS INCLUDING ALL LOCAL AMENDMENTS, ALL RELEVANT NFPA CODES AND STANDARDS AND SMACNA STANDARDS.
 - A. VERIFY ALL CODE REQUIREMENTS AND LOCAL AMENDMENTS WITH THE AUTHORITY HAVING JURISDICTION PRIOR TO BID.
 - B. WHEN THERE IS A DISCREPANCY BETWEEN THE ADOPTED CODES AND THESE DRAWINGS, THE MORE STRINGENT REQUIREMENT SHALL APPLY.
 3. PROVIDE FIRESTOPPING AND SLEEVES AT ALL COMPONENTS PENETRATING RATED WALLS TO MAINTAIN THE FIRE RATING OF THE EXISTING SHELL SYSTEMS.
 4. COORDINATE WITH THE LOCAL AUTHORITY HAVING JURISDICTION AS NECESSARY. PURCHASE PERMITS ASSOCIATED WITH THE WORK AND ARRANGE ALL INSPECTIONS AS REQUIRED.
 5. COORDINATE WITH THE WORK OF OTHER TRADES, EQUIPMENT FURNISHED BY OTHERS, THE REQUIREMENTS OF THE OWNER AND OF THE EXISTING CONDITIONS AT THE PROJECT SITE.
 6. MAINTAIN A CLEAN CONSTRUCTION SITE DURING CONSTRUCTION. CLEAN SCRAP MATERIAL AND REMOVE FROM SITE DAILY AND MAINTAIN WORKING AREA IN AN ORDERLY FASHION.
 - A. ALL SHOP DRAWINGS SHALL BE REVIEWED AND STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO THE TENANT'S CONSTRUCTION MANAGER.
 - B. SHOP DRAWINGS SHALL BE SUBMITTED TO ALLOW FOR FIVE BUSINESS DAYS OF REVIEW TIME WITHOUT IMPACT TO THE PROJECT SCHEDULE.
 6. COMPANY NAME AND CONTACT INFORMATION OF THE CONTRACTORS UTILIZED FOR THE MECHANICAL SCOPE OF WORK.
 - A. REQUESTS FOR INFORMATION SHALL PROVIDE A DETAILED DESCRIPTION OF THE SITE CONDITION OR DISCREPANCY AND THE CONTRACTORS PROPOSED REMEDY.
 - B. REQUESTS FOR INFORMATION SHALL BE SUBMITTED TO ALLOW FOR FIVE BUSINESS DAYS OF REVIEW TIME.
 7. UPON COMPLETION OF WORK, THE GENERAL CONTRACTOR SHALL PROVIDE THE TENANT'S CONSTRUCTION MANAGER WITH A BOUND RECORD OF ALL MECHANICAL EQUIPMENT UTILIZED IN THE JOB. THE GENERAL CONTRACTOR SHALL PROVIDE THE SAME INFORMATION IN AN ELECTRONIC FORMAT AS DIRECTED BY THE OWNER. THE BINDER SHALL CONTAIN:
 - A. COVER SHEET INDICATING THE PROJECT NAME, ADDRESS AND TURNOVER DATE.
 - B. COMPANY NAME AND CONTACT INFORMATION OF THE CONTRACTORS UTILIZED FOR THE MECHANICAL SCOPE OF WORK.
 - C. CUTSHEETS, INSTALLATION MANUALS AND MAINTENANCE REQUIREMENTS FOR ALL MECHANICAL EQUIPMENT.
 8. UPON COMPLETION OF WORK, THE GENERAL CONTRACTOR SHALL PROVIDE THE TENANT'S CONSTRUCTION MANAGER A FULL SET OF DRAWINGS WITH ANY DEVIATIONS FROM THE DRAWINGS INDICATED IN RED INK.

(END OF SECTION 23 00 00)

SECTION 23 05 93 - TESTING, ADJUSTING AND BALANCING FOR HVAC

- PART 1 - GENERAL
1. QUALITY ASSURANCE: ALL TESTING AND BALANCING WORK SHALL BE COMPLETED BY AN INDEPENDENT CONTRACTOR AT THE GENERAL CONTRACTOR'S EXPENSE, CERTIFIED BY NEBB OR TABS AS A TABS TECHNICIAN. BALANCE THE SYSTEM IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING STANDARDS.
- PART 2 - PRODUCTS: N/A
- PART 3 - EXECUTION
1. AIR SYSTEMS
 - A. PROVIDE ALL LABOR AND MATERIALS REQUIRED TO BALANCE THE SYSTEM AS NOTED ON THE PLANS.
 - B. FAN SYSTEMS SHALL BE ADJUSTED SUCH THAT THE LOWEST FAN SPEED IS UTILIZED TO DELIVER THE REQUIRED CFM TO THE AIR TERMINALS.
 - C. ADJUST DAMPERS AS REQUIRED TO BALANCE THE SUPPLY, RETURN AND EXHAUST DEVICES TO 10% OF THE DESIGN RATES. ADJUST THE OUTSIDE AIR DAMPER AS REQUIRED TO OBTAIN THE MINIMUM OUTSIDE AIR REQUIREMENTS AS NOTED IN THE SCHEDULES.
 - D. RECORD THE OPERATING VOLTAGE, AMPACITY, SUPPLY/RETURN SYSTEM STATIC PRESSURES, SUPPLY/MIXED AIR TEMPERATURES (BOTH HEATING AND COOLING) AND FINAL FAN RPM.
 - E. VERIFY SYSTEM CONTROLS ARE FUNCTIONING AS INTENDED.
 - A. PROVIDE ALL LABOR AND MATERIALS REQUIRED TO BALANCE THE SYSTEM AS NOTED ON THE PLANS.
 - B. ADJUST BALANCING VALVES AS REQUIRED TO ACHIEVE A WATER FLOW WITHIN 5% OF THE DESIGN VALUE.
 - C. RECORD THE OPERATING FLOW RATE, WATER SUPPLY/RETURN TEMPERATURE CONDITIONS AND PRESSURE DROP ACROSS THE COIL.
 - D. VERIFY SYSTEM CONTROLS ARE FUNCTIONING AS INTENDED.
 2. REPORTING
 - A. THE TEST AND BALANCE AGENT SHALL PREPARE A REPORT INCLUDING THE FINAL VALUES OF THE AIR AND WATER SYSTEM BALANCING, SYSTEM DIAGRAMS, AND SYSTEM NOTES.
 - B. THE GENERAL CONTRACTOR SHALL REVIEW THE FINAL BALANCE REPORT PRIOR TO SENDING TO THE TENANT'S CONSTRUCTION MANAGER.
 - C. PROVIDE T&B REPORT TO THE LANDLORD AND THE AUTHORITY HAVING JURISDICTION AS REQUIRED.

(END OF SECTION 23 05 93)

SECTION 23 07 13 - DUCT INSULATION

- PART 1 - GENERAL
1. INSULATION SHALL BE PROVIDED ON THE FOLLOWING DUCT SERVICES:
 - A. INDOOR, CONCEALED SUPPLY AND OUTDOOR AIR.
 - B. INDOOR, CONCEALED RETURN.
 - C. INDOOR, CONCEALED OVEN AND WAREWASH EXHAUST FROM AIR TERMINAL TO PENETRATION OF BUILDING EXTERIOR.
 - D. INDOOR, CONCEALED GENERAL EXHAUST FROM AIR TERMINAL TO PENETRATION OF BUILDING EXTERIOR.
 - E. OUTDOOR, SUPPLY AND RETURN.
 2. QUALITY ASSURANCE
 - A. INSULATION INSTALLED INDOORS SHALL HAVE A FLAME-SPREAD INDEX OF 25 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS.
 - B. INSULATION INSTALLED OUTDOORS SHALL HAVE A FLAME-SPREAD INDEX OF 75 OR LESS, AND SMOKE-DEVELOPED INDEX OF 150 OR LESS.
- PART 2 - PRODUCTS
1. INTERIOR DUCTWORK SHALL HAVE FLEXIBLE FIBERGLASS DUCT WRAP LAMINATED TO FOIL REINFORCED KRAFT VAPOR BARRIER FACING WITH 2" STAPLING FLANGE AND AN INSTALLED THICKNESS OF 1-1/2" WITH AN R-VALUE OF 5.0.
 2. EXTERIOR DUCTWORK SHALL BE INSULATED WITH 2" THICK RIGID INSULATION WITH A MINIMUM R-VALUE OF 12.0, PROTECTED WITH ROOFING MEMBRANE.
- PART 3 - EXECUTION
1. PREPARATION: CLEAN AND DRY SURFACES. REMOVE MATERIALS THAT WILL ADVERSELY AFFECT INSULATION APPLICATION.
 2. GENERAL INSTALLATION REQUIREMENTS:
 - A. INSTALL INSULATION ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - B. INSTALL INSULATION AND ACCESSORIES AND FINISHES WITH SMOOTH, STRAIGHT AND EVEN SURFACES; FREE OF VOIDS THROUGHOUT THE LENGTH OF DUCT AND FITTINGS.
 - C. INSTALL ACCESSORIES COMPATIBLE WITH INSULATION MATERIALS AND SUITABLE FOR THE SERVICE. ACCESSORIES SHALL NOT CORRODE, SOFTEN OR OTHERWISE ATTACK INSULATION OR JACKET IN EITHER WET OR DRY STATE.
 - D. INSTALL INSULATION WITH LONGITUDINAL SEAMS AT TOP OF HORIZONTAL RUNS. LONGITUDINAL SEAMS AND END JOINTS SHALL BE TIGHT. BOND SEAMS AND JOINTS WITH ADHESIVE RECOMMENDED BY INSULATION MANUFACTURER TO MAINTAIN VAPOR BARRIER INTEGRITY.
 - E. APPLY ADHESIVES, MASTICS AND SEALANTS AT MANUFACTURER'S RECOMMENDED COVERAGE RATE.
 - F. CUT INSULATION IN A MANNER TO AVOID COMPRESSING INSULATION MORE THAN 75 PERCENT ITS NOMINAL THICKNESS.
 3. PENETRATIONS
 - A. ROOF PENETRATIONS: INSTALL INSULATION CONTINUOUSLY THROUGH ROOF PENETRATIONS. FOR APPLICATIONS REQUIRING ONLY INDOOR INSULATION, TERMINATE INSULATION ABOVE ROOF SURFACE AND SEAL WITH JOINT SEALANT. FOR APPLICATIONS REQUIRING INDOOR AND OUTDOOR INSULATION, INSTALL INSULATION FOR OUTDOOR APPLICATIONS TIGHTLY JOINED TO INDOOR INSULATION ENDS. SEAL JOINT WITH JOINT SEALANT.
 - B. WALL PENETRATIONS: INSTALL INSULATION CONTINUOUSLY THROUGH WALL PENETRATIONS. FOR APPLICATIONS REQUIRING ONLY INDOOR INSULATION, TERMINATE INSULATION OUTSIDE OF WALL SURFACE AND SEAL WITH JOINT SEALANT. FOR APPLICATIONS REQUIRING INDOOR AND OUTDOOR INSULATION, INSTALL INSULATION FOR OUTDOOR APPLICATIONS TIGHTLY JOINED TO INDOOR INSULATION ENDS. SEAL JOINT WITH JOINT SEALANT.
 - C. INTERIOR WALLS: INSTALL INSULATION CONTINUOUSLY THROUGH WALLS AND PARTITIONS THAT ARE NOT FIRE RATED. TERMINATE INSULATION AT FIRE DAMPER SLEEVES FOR FIRE-RATED WALL AND PARTITION PENETRATIONS. EXTERNALLY INSULATE THE DAMPER SLEEVES TO MATCH ADJACENT INSULATION AND OVERLAP DUCT INSULATION AT LEAST 2 INCHES.

(END OF SECTION 23 07 13)

SECTION 23 31 13 - METAL DUCTS

- PART 1 - GENERAL
1. SECTION INCLUDES
 - A. RECTANGULAR DUCTS AND FITTINGS
 - B. ROUND DUCTS AND FITTINGS
 - C. DOUBLE-WALL DUCTWORK AND FITTINGS
 - D. FLAT-OVAL DUCTS AND FITTINGS
 - E. SHEET METAL MATERIALS
 - F. SEALANTS AND GASKETS
 - G. HANGERS AND SUPPORTS
 2. PERFORMANCE REQUIREMENTS
 - A. DUCT CONSTRUCTION, INCLUDING SHEET METAL THICKNESS, SEAM AND JOINT CONSTRUCTION, REINFORCEMENTS AND HANGERS/SUPPORTS SHALL COMPLY WITH THE LATEST VERSION OF SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."
 - B. DUCT HANGERS AND SUPPORTS SHALL WITHSTAND THE EFFECTS OF GRAVITY LOADS AND STRESSES WITHIN LIMITS UNDER CONDITIONS DESCRIBED IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."
 - C. SURFACES IN CONTACT WITH THE AIRSTREAM SHALL COMPLY WITH REQUIREMENTS IN ANSIASHRAE 62.1.
 3. SUBMITTALS: NONE REQUIRED.
- PART 2 - PRODUCTS
1. RECTANGULAR DUCTS AND FITTINGS:
 - A. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" BASED ON INDICATED STATIC-PRESSURE CLASS UNLESS NOTED OTHERWISE.
 - B. TRAVERSE JOINTS: SELECT JOINT TYPES AND FABRICATE ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 2-1 FOR STATIC-PRESSURE CLASS. APPLICABLE SEALING REQUIREMENTS, MATERIALS INVOLVED, DUCT SUPPORT INTERVALS AND OTHER PROVISIONS AS REQUIRED.
 - C. LONGITUDINAL SEAMS: SELECT SEAM TYPES AND FABRICATE ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 2-2 FOR STATIC-PRESSURE CLASS. APPLICABLE SEALING REQUIREMENTS, MATERIALS INVOLVED, DUCT SUPPORT INTERVALS AND OTHER PROVISIONS AS REQUIRED.
 2. ROUND DUCTS AND FITTINGS:
 - A. RECTANGULAR DUCTS WITH 1" INSULATION THICKNESS.
 - B. BASIS OF DESIGN: LINDAB SAFE SINGLE WALL DUCTS AND FITTINGS. ALTERNATES BY MCGILL AIRFLOW. ALL DUCTWORK SHALL BE PREPPED AND READY TO RECEIVE PAINT.
 3. FLAT-OVAL DUCTS AND FITTINGS:
 - A. RECTANGULAR DUCTS WITH 1" INSULATION THICKNESS.
 - B. BASIS OF DESIGN: LINDAB FOSR FLAT-OVAL SPIRAL DUCTS AND FITTINGS. ALTERNATES BY MCGILL AIRFLOW. ALL DUCTWORK SHALL BE PREPPED AND READY TO RECEIVE PAINT.
 4. DOUBLE-WALL DUCTWORK AND FITTINGS:
 - A. RECTANGULAR DUCTS WITH 1" INSULATION THICKNESS.
 - B. BASIS OF DESIGN: LINDAB SAFE DOUBLE WALL DUCTS AND FITTINGS. ALTERNATES BY MCGILL AIRFLOW. ALL DUCTWORK SHALL BE PREPPED AND READY TO RECEIVE PAINT.
 4. MATERIALS: GALVANIZED SHEET STEEL, COMPLY WITH ASTM A 653/A 653M. G90 COATING DESIGNATION.
 5. SEALANTS AND GASKETS:
 - A. MAXIMUM FLAME-SPREAD INDEX: 25 (WHEN TESTED ACCORDING TO UL 723).
 - B. MAXIMUM SMOKE-DEVELOPED INDEX: 50 (WHEN TESTED ACCORDING TO UL 723).
 - C. TWO-PART TAPE SEALING SYSTEM: PROVIDE 3" TAPE CONSTRUCTED OF WOVEN COTTON FIBER IMPREGNATED WITH MINERAL GYPSUM AND MODIFIED ACRYLIC/SILICONE TO FORM A HARD, DURABLE AIRTIGHT SEAL. SEALANT SHALL BE A MODIFIED STYRENE ACRYLIC, COMPATIBLE WITH GALVANIZED SHEET STEEL, WATER, MOLD AND MILDEW RESISTANT, VOC CONTENT OF 250g/L OR LESS.
 - D. WATER BASED JOINT AND SEAM SEALANT: BRUSH ON WITH MINIMUM OF 85% SOLIDS CONTENT, MINIMUM SHORE A HARDNESS OF 20, COMPATIBLE WITH GALVANIZED SHEET STEEL, WATER, MOLD AND MILDEW RESISTANT, VOC CONTENT OF 75g/L (LESS WATER).
6. HANGERS AND SUPPORT:
- A. RECTANGULAR DUCTWORK: HANGER RODS SHALL BE CADMIUM-PLATED STEEL RODS AND NUTS. STRAP AND ROD SIZE SHALL COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," TABLE 5-1. SECURE TO DUCT WITH SHEET METAL SCREWS COMPATIBLE WITH DUCT MATERIALS.
 - B. ROUND DUCTWORK: SUPPORT WITH AIRCRAFT CABLE COMPLYING WITH ASTM A 603. CONNECT TO ENDS WITH CADMIUM-PLATED STEEL ASSEMBLIES WITH BRACKETS, SWIVEL AND BOLTS DESIGNED FOR DUCT HANGER SERVICE.
 - C. EXTERIOR DUCTWORK SHALL BE PROVIDED WITH DUCT SUPPORTS, SPACED PER THE MANUFACTURER'S RECOMMENDATIONS.
- PART 3 - EXECUTION
1. INSTALLATION
 - A. DRAWING PLANS, SCHEMATICS AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF DUCTWORK ROUTING. COORDINATE INSTALLATION WITH WORK OF ALL OTHER TRADES AND EXISTING CONDITIONS. ACCOMMODATE DUCT HANGER, RODS, INSULATION AND OTHER REQUIREMENTS AS REQUIRED.
 - B. DUCT DIMENSIONS ON PLANS INDICATE DIMENSIONS OF THE INTERNAL FREE AREA.
 - C. INSTALL DUCTS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" IN MAXIMUM PRACTICAL LENGTHS WITH FEWEST POSSIBLE JOINTS.
 - D. UNLESS NOTED OTHERWISE, INSTALL DUCTS PARALLEL AND PERPENDICULAR TO BUILDING LINES.
 - E. INSTALL DUCTS WITH SLEEVES AS REQUIRED TO ACCOMMODATE THE INSTALLATION OF INSULATION.
 - F. INSTALLATION OF EXPOSED DUCTWORK: PROTECT DUCTWORK FROM DAMAGE. REPAIR/REPLACE ALL DAMAGED SECTIONS AND FINISHED WORK. TRIM SEALANTS FLUSH WITH METAL. CREATE A SMOOTH AND UNIFORM EXPOSED BEAD. DO NOT USE TWO-PART TAPING SYSTEM. MAINTAIN CONSISTENCY, SYMMETRY AND UNIFORMITY IN THE INSTALLATION.
 - G. ALL DUCT COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC OR SHEET METAL UNTIL THE FINAL STARTUP OF THE HEATING/COOLING AND VENTILATION EQUIPMENT.
 2. DUCT SEALING: CONSTRUCT DUCTS WITH 2 INCH POSITIVE AND NEGATIVE DUCT PRESSURE CLASSIFICATIONS. CONSTRUCT TO SMACNA SEAL CLASS A.
 3. HANGER AND SUPPORT INSTALLATION: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," CHAPTER 5. HANGERS EXPOSED TO VIEW SHALL BE AIRCRAFT IN ACCORDANCE WITH THE MECHANICAL DETAILS.
 4. CONNECTIONS: MAKE CONNECTIONS TO EQUIPMENT WITH FLEXIBLE CONNECTORS COMPLYING WITH SECTION 23 33 00 "AIR DUCT ACCESSORIES." COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR BRANCH, OUTLET AND INLET, AND TERMINAL UNIT CONNECTIONS.
 5. CLEANING: CLEAN ALL EXISTING DUCTWORK TO REMAIN PRIOR TO TESTING, ADJUSTING AND BALANCING. REMOVE ALL SURFACE CONTAMINANTS AND DEPOSITS ON AIR OUTLETS AND INLETS PRIOR TO PUNCH.
 6. PROVIDE AIR BALANCE IN ACCORDANCE WITH SECTION 23 05 93 "TESTING, ADJUSTING, AND BALANCING FOR HVAC."
 7. DUCT ELBOWS
 - A. RECTANGULAR: PROVIDE MITERED ELBOWS WITH HOLLOW-FORMED, DOUBLE-THICKNESS TURNING VANES OR RADIUSED ELBOWS WITH INSIDE RADIUS NO SMALLER THAN 1/2 OF THE DUCT WIDTH.
 - B. ROUND DUCT ELBOWS: PROVIDE RADIUSED ELBOWS WITH AN INSIDE RADIUS NO SMALLER THAN 1/2 OF THE DUCT WIDTH.
 9. BRANCH CONFIGURATION
 - A. RECTANGULAR: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 4-6. RECTANGULAR MAIN TO RECTANGULAR BRANCH SHALL BE A 45-DEGREE ENTRY. RECTANGULAR MAIN TO ROUND BRANCH SHALL BE A SPIN-IN FITTING.
 - B. ROUND: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," FIGURE 3-5 AND FIGURE 3-6. PROVIDE 90 DEGREE TAP.

(END OF SECTION 23 31 13)

SECTION 23 33 00 - AIR DUCT ACCESSORIES

- PART 1 - GENERAL
1. SECTION INCLUDES
 - A. BACKDRAFT AND PRESSURE RELIEF DAMPERS
 - B. MANUAL VOLUME DAMPERS
 - C. CONTROL DAMPERS
 - D. FIRE DAMPERS
 - E. TURNING VANES
 - F. FLEXIBLE CONNECTORS
 - G. DUCT ACCESSORY HARDWARE
 2. SECTION REQUIREMENTS
 - A. SUBMITTALS: NONE REQUIRED.
- PART 2 - PRODUCTS
1. COMPLY WITH NFPA 90A AND WITH NFPA 90B.
 2. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, THICKNESS AND DUCT CONSTRUCTION METHODS UNLESS NOTED OTHERWISE. SHEET METAL MATERIALS SHALL BE FREE FROM PITTING, SEAM MARKS, ROLLER MARKS, STAINS, DISCOLORATIONS AND OTHER IMPERFECTIONS.
 3. GALVANIZED SHEET STEEL: COMPLY WITH ASTM A 653/A 653M. G90 COATING DESIGNATION.
 4. BACKDRAFT AND PRESSURE RELIEF DAMPERS: GRAVITY BALANCED, AS SPECIFIED ON THE PLANS.
 5. MANUAL VOLUME DAMPERS: STANDARD LEAKAGE RATING WITH LINKAGE OUTSIDE OF AIRFRAME. SUITABLE FOR HORIZONTAL OR VERTICAL APPLICATIONS
 - A. FRAME: HAT SHAPED WITH MITERED AND WELDED CORNERS. FLANGELESS FRAMES FOR INSTALLING IN DUCTS.
 - B. BLADES: RECTANGULAR DAMPERS SHALL BE MULTIPLE BLADES WITH OPPOSED-BLADE DESIGN. ROUND DAMPERS SHALL BE SINGLE BLADE.
 - C. BLADE AXLES: GALVANIZED STEEL.
 - D. BEARINGS: MOLDED SYNTHETIC.
 - E. TIE BARS AND BRACKETS: GALVANIZED STEEL.
 - F. JACKSHAFT: 1/2" DIAMETER CONSTRUCTED OF GALVANIZED STEEL WITHIN PIPE-BEARING ASSEMBLY WITH SUPPORTS. LENGTH AND NUMBER OF MOUNTINGS AS REQUIRED.
 - G. HARDWARE: ZINC-PLATED, DIE CAST CORE WITH DIAL HANDLE AND A LOCKING NUT.
 6. CONTROL DAMPERS
 - A. FRAME: HAT SHAPED WITH MITERED AND WELDED CORNERS. FLANGELESS FRAMES FOR INSTALLING IN DUCTS.
 - B. BLADES: RECTANGULAR DAMPERS SHALL BE MULTIPLE BLADES WITH OPPOSED-BLADE DESIGN. ROUND DAMPERS SHALL BE SINGLE BLADE. BLADE EDGING SHALL BE REPLACEABLE RUBBER SEALS.
 - C. BLADE AXLES: 1/2" DIAMETER. BLADE LINKAGE HARDWARE OF ZINC-PLATED STEEL AND BRASS; ENDS SEALED AGAINST BLADE BEARING.
 - D. BEARINGS: MOLDED SYNTHETIC.
 7. FIRE DAMPERS
 - A. TYPE: DYNAMIC, RATED AND LABELED ACCORDING TO UL 555.
 - B. CLOSING RATINGS IN DUCTS UP TO 4" STATIC PRESSURE CLASS AND MAXIMUM 2,000 FPM VELOCITY.
 - C. FIRE RATING: 1-1/2 HOURS, OR AS NOTED IN THE SCHEDULES.
 - D. FRAME: CURTAIN TYPE WITH BLADES INSIDE AIRSTREAM. CONSTRUCTED OF GALVANIZED STEEL.
 - E. MOUNTING SLEEVE: FACTORY FURNISHED.
 - F. MOUNTING ORIENTATION: AS NOTED ON PLANS.
 - G. BLADES: INTERLOCKING, CONSTRUCTED OF GALVANIZED STEEL.
 - H. HEAT-RESPONSIVE DEVICE: 165 DEGREE F RATED FUSIBLE LINK OR AS NOTED IN THE SCHEDULES.
 8. TURNING VANES: CURVED BLADES OF GALVANIZED SHEET STEEL, PROVIDED WITH SUPPORT BARS PERPENDICULAR TO BLADE SET SUITABLE FOR DUCT MOUNTING. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE," SINGLE WALL CONSTRUCTION.
 9. FLEXIBLE CONNECTORS: CONSTRUCTED OF FLAME-RETARDANT OR NONCOMBUSTIBLE FABRIC. FABRIC SHALL BE A GLASS FABRIC, DOUBLE COATED WITH NEOPRENE. COMPLY WITH UL 181 CLASS 1, FACTORY-FABRICATED WITH A FABRIC STRIP 3-1/2 INCHES WIDE ATTACHED TO TWO STRIPS OF 2-3/4 INCH THICK GALVANIZED SHEET STEEL.
- PART 3 - EXECUTION
1. INSTALLATION
 - A. INSTALL DUCT ACCESSORIES ACCORDING TO APPLICABLE DETAILS IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS-METAL AND FLEXIBLE."
 - B. INSTALL VOLUME DAMPERS AT POINTS NOTED ON PLANS AND AS REQUIRED FOR SYSTEM BALANCING. WHERE DAMPERS ARE INSTALLED IN DUCTS WITH DUCT LINER, INSTALL DAMPERS WITH HAT CHANNELS OF SAME DEPTH AS LINER AND TERMINATE LINER WITH NOSING AT HAT CHANNEL.
 - C. WHERE DAMPERS ARE INSTALLED IN WRAPPED DUCT, PROVIDE INSULATION STAND-OFFS AS REQUIRED.
 - D. SET DAMPERS TO FULLY OPEN POSITION BEFORE TESTING, ADJUSTING AND BALANCING.
 - E. INSTALL TEST HOLES AT FAN INLETS AND OUTLETS AND WHERE REQUIRED FOR TESTING AND BALANCING PURPOSES.
 - F. INSTALL FIRE DAMPERS ACCORDING TO UL LISTING.
 - G. INSTALL FLEXIBLE CONNECTORS TO CONNECT DUCTS TO EQUIPMENT.
 2. TESTS AND INSPECTIONS
 - A. OPERATE DAMPERS TO VERIFY FULL RANGE OF MOVEMENT.
 - B. OPERATE FIRE DAMPERS TO VERIFY FULL RANGE OF MOVEMENT AND VERIFY THAT PROPER HEAT-RESPONSE DEVICE IS INSTALLED.
 - C. INSPECT TURNING VANES FOR PROPER AND SECURE INSTALLATION.

(END OF SECTION 23 33 00)

SECTION 23 33 46 - FLEXIBLE DUCTS

- PART 1 - GENERAL
1. SECTION REQUIREMENTS
 - A. SUBMITTALS: NONE REQUIRED.
- PART 2 - PRODUCTS
1. COMPLY WITH NFPA 90A AND NFPA 90B.
 2. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" FOR ACCEPTABLE MATERIALS, MATERIAL THICKNESS AND DUCT CONSTRUCTION METHODS UNLESS NOTED OTHERWISE.
 3. COMPLY WITH ASTM E 98E 90A.
 4. INSULATED, FLEXIBLE DUCT UL 181, CLASS 1, FACTORY FABRICATED AND INSULATED, PROVIDED WITH INTERIOR LINER, FIBROUS-GLASS INSULATION AND VAPOR-BARRIER FILM.
 - A. PRESSURE RATING: 10" W.G. POSITIVE.
 - B. MAXIMUM VELOCITY: 4,000 FPM.
 - C. INSULATION R-VALUE: R6.0
 5. FLEXIBLE DUCT CONNECTORS SHALL BE NYLON STRAPS IN SIZES 3 THROUGH 18 INCHES TO SUIT DUCT SIZE.
- PART 3 - EXECUTION
1. INSTALLATION
 - A. INSTALL FLEXIBLE DUCTS ACCORDING TO APPLICABLE DETAILS IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."
 - B. INSTALL IN INDOOR APPLICATIONS ONLY. FLEXIBLE DUCTWORK IS ONLY PERMITTED TO CONNECT TO SUPPLY-AIR GRILLES, REGISTERS AND DIFFUSERS. MAXIMUM LENGTH SHALL BE 60 INCHES.
 - C. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH DRAW BANDS AND TAPE.
 - D. MAXIMUM VELOCITY: 4,000 FPM.
 - E. DO NOT BEND DUCTS ACROSS SHARP CORNERS.
 - F. BENDS OF FLEXIBLE DUCTING SHALL NOT EXCEED A MINIMUM OF ONE DUCT DIAMETER.
 - G. AVOID CONTACT WITH METAL FIXTURES, WATER LINES, PIPES, ADJACENT DUCTWORK OR CONDUIT.
 - H. INSTALL FLEXIBLE DUCTS IN A DIRECT LINE, WITHOUT SAGS, TWISTS OR TURNS.
 - I. SUSPEND FLEXIBLE DUCTS WITH BANDS 1-1/2 INCHES WIDE AND SPACED A MAXIMUM OF 48 INCHES APART. PROVIDE ADDITIONAL SUPPORT AT BENDS. DUCTS MAY REST ON CEILING JOISTS OR TRUSS SUPPORTS. SPACING BETWEEN THESE ELEMENTS SHALL NOT EXCEED 48 INCHES.

(END OF SECTION 23 33 46)

SECTION 23 34 01 - CEILING AND INLINE FANS

- PART 1 - GENERAL
1. SECTION REQUIREMENTS
 - A. SUBMITTALS: PROVIDE SHOP DRAWINGS INDICATING THE DIMENSIONS, WEIGHTS, REQUIRED CLEARANCES, COMPONENTS, ELECTRICAL CHARACTERISTICS.
 - B. WARRANTY: SUBMIT A WRITTEN WARRANTY, SIGNED BY THE MANUFACTURER AGREEING TO REPAIR OR REPLACE COMPONENTS OF FANS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN THE MANUFACTURER'S STANDARD WARRANTY PERIOD.
- PART 2 - PRODUCTS
1. DESCRIPTION
 - A. HIGH-CAPACITY FAN CAPABLE OF BEING MOUNTED IN THE CEILING OR INLINE ORIENTATION.
 2. MANUFACTURERS: AS NOTED IN THE MECHANICAL SCHEDULES. NO SUBSTITUTIONS SHALL BE PERMITTED.
 3. CHARACTERISTICS: PROVIDED WITH:
 - A. FAN: CONSTRUCTED OF GALVANIZED STEEL, FORWARD CURVED AND DIRECT DRIVE.
 - B. HOUSING: CONSTRUCTED OF 20 GAUGE GALVANIZED STEEL WITH 1/2" THICK ACOUSTIC INSULATION. PROVIDED WITH AN AUTOMATIC BACKDRAFT DAMPER ON THE DISCHARGE SIDE OF THE FAN LOCATED WITHIN THE DUCT CONNECTOR. PROVIDED WITH TWO 8-POSITION MOUNTING BRACKETS.
 - C. WHEEL: FORWARD CURVED, DYNAMICALLY BALANCED, POLYMERIC CENTRIFUGAL WHEEL ATTACHED TO THE MOTOR SHAFT WITH SET SCREWS.
 - D. MOTOR: OPEN DRIP MOTOR, PERMANENTLY LUBRICATED, RATED FOR CONTINUOUS DUTY, THERMALLY PROTECTED AND MOUNTED ON VIBRATION ISOLATORS. DISCONNECT SHALL BE INTERNAL AND OF THE PLUG TYPE.
 - E. ACCESSORIES: AS NOTED ON THE MECHANICAL SCHEDULES.
- PART 3 - EXECUTION
1. INSTALLATION
 - A. INSTALL CEILING-MOUNTED UNITS LEVEL, PLUMB AND SQUARE WITH CEILINGS AND WALLS.
 - B. SUPPORT CEILING-MOUNTED UNITS SO THEY WILL NOT FALL OR SAG. SUPPORT SUCH THAT THAT THE CEILING WILL NOT BE DEFORMED AFTER MAINTENANCE.
 - C. INSTALL INLINE UNITS PER THE MANUFACTURER'S INSTRUCTIONS.
 2. CONNECTIONS
 - A. COMPLY WITH DUCT INSTALLATION REQUIREMENTS SPECIFIED IN OTHER HVAC SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENTS OF DUCTS.
 - B. WHERE INSTALLING ADJACENT TO OTHER BUILDING SYSTEMS, ALLOW SPACE FOR SERVICE AND MAINTENANCE.
 - C. CONNECT DUCTWORK TO FAN WITH FLEXIBLE DUCT CONNECTORS.
 - D. CONNECT ELECTRICAL WIRING IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
 3. FIELD QUALITY CONTROL
 - A. AFTER INSTALLING FANS, TEST UNITS FOR COMPLIANCE WITH REQUIREMENTS.
 - B. CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATIONS.
 - C. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATION.

(END OF SECTION 23 34 01)

SECTION 23 34 02 - POWER VENTILATORS

- PART 1 - GENERAL
1. SECTION REQUIREMENTS
 - A. UNITS FURNISHED BY OWNER, INSTALLED BY GENERAL CONTRACTOR.
- PART 2 - PRODUCTS
1. DESCRIPTION: UNITS FURNISHED BY OWNER, INSTALLED BY GENERAL CONTRACTOR.
- PART 3 - EXECUTION
1. INSTALLATION: GENERAL CONTRACTOR TO INSTALL.
 - A. ROOF CURB: INSTALL ON ROOF STRUCTURE, LEVEL, SECURE, PER STRUCTURAL DETAILS AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - B. UNIT SUPPORT: INSTALL UNIT LEVEL ON STRUCTURAL CURBS PER STRUCTURAL DETAILS AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 2. CONNECTIONS
 - A. COMPLY WITH DUCT INSTALLATION REQUIREMENTS SPECIFIED IN OTHER HVAC SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENTS OF DUCTS.
 - B. INSTALL DUCTS TO TERMINATION TO TOP OF ROOF CURB. REMOVE ROOF DECKING ONLY AS REQUIRED FOR PASSAGE OF DUCTS. DO NOT CUT OUT DECKING UNDER ENTIRE ROOF CURB. CONNECT TO FANS WITH FLEXIBLE DUCT CONNECTORS.
 - C. WHERE INSTALLING PIPING ADJACENT TO FANS, ALLOW SPACE FOR SERVICE AND MAINTENANCE.
 - D. CONNECT ELECTRICAL WIRING IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
 - E. GROUND EQUIPMENT IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
 3. FIELD QUALITY CONTROL
 - A. AFTER INSTALLING FANS, TEST UNITS FOR COMPLIANCE WITH REQUIREMENTS.
 - B. INSPECT OR AND REMOVE SHIPMENT BOLTS, BLOCKS AND TIE-DOWN STRAPS.
 - C. CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATIONS.
 - D. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.
 - E. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATION.

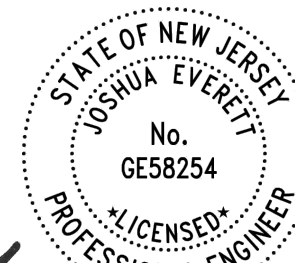
(END OF SECTION 23 34 02)

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DATE	DESCRIPTION
11/01/2024	LL CHANGES
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MECHANICAL SPECIFICATIONS

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M010

SECTION 23 34 33 - AIR CURTAINS

- PART 1 - GENERAL
1. SECTION REQUIREMENTS
 - A. SUBMITTALS: PROVIDE SHOP DRAWINGS INDICATING THE HEATING WATTAGE, ELECTRICAL CHARACTERISTICS, AIRFLOW CHARACTERISTICS, DIMENSIONS, WEIGHTS AND ACCESSORIES.
 - B. WARRANTY: PROVIDE MANUFACTURER'S WARRANTY EFFECTIVE FOR FIVE YEARS FOR UNHEATED UNITS, AND TWO YEARS FOR HEATED UNITS. THE GENERAL CONTRACTOR SHALL PROVIDE A 12 MONTH WARRANTY ON ALL WORKMANSHIP.
- PART 2 - PRODUCTS
1. MANUFACTURERS: AS NOTED IN THE MECHANICAL SCHEDULES.
 2. CHARACTERISTICS, PROVIDED WITH:
 - A. CABINET: ALUMINIZED STEEL CABINET WITH STAINLESS STEEL RIVETED CONSTRUCTION AND WHITE POWDER COATED FINISH.
 - B. MOUNTING: PROVIDE WALL OR SUSPENDED MOUNTING AS REQUIRED.
 - C. SERVICE ACCESS: REMOVABLE SCREEN AND REMOVABLE BOTTOM ACCESS PANEL.
 - D. MOTORS: DIRECT DRIVE, RESILIENT MOUNTED, RATED FOR CONTINUOUS DUTY WITH INTERNAL THERMAL-OVERLOAD PROTECTION AND PERMANENTLY LUBRICATED SEALED BALL BEARINGS.
 - E. FANS: BALANCED, FORWARD CURVED CROSS FLOW MADE OF ALUMINUM.
 - F. DISCHARGE NOZZLES: PROVIDE UNIFORM VELOCITY ACROSS WIDTH OF AIR CURTAIN.
 - G. INLET: PROVIDED WITH PERFORATED PATTERN SCREEN.
 - H. HEATING ELEMENTS (WHEN NOTED ON PLANS): UL-APPROVED, FACTORY-MOUNTED, FACTORY WIRED, THERMALLY PROTECTED, IN GALVANIZED STEEL FRAME. HELICAL COIL DESIGN WITH THERMAL CUTOFF.
 3. CONTROLS:
 1. PROVIDE ALL ACCESSORIES AS NOTED IN THE SCHEDULES.
 2. CONTROLS:
 - A. MANUAL SWITCH: FACTORY INSTALLED "FAN-OFF-FAN & HEAT" AND "HIGH-LOW" SWITCHES.
 - B. CONTROL PACKAGE: AIR CURTAIN SHALL TURN ON WHEN DOOR IS OPENED AND SHUT OFF WHEN DOOR IS CLOSED.
 - C. OUTDOOR AIR TEMPERATURE SENSOR (WHEN PROVIDED) WITH A HEATING ELEMENT AND INDICATED ON PLANS).
- PART 3 - EXECUTION
1. INSTALLATION
 - A. INSTALL AIR CURTAIN WHERE INDICATED ON DRAWINGS IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE CLEARANCE TO PERMIT SERVICING AND MAINTENANCE.
 - B. INSTALL LEVEL, PLUMB AND AS CLOSE AS PRACTICAL TO TOP OF OPENING AND FACE OF WALL.
 - C. INSTALL ALL ACCESSORIES.
 2. CONNECTIONS
 - A. CONNECT ELECTRICAL WIRING IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
 - B. GROUND EQUIPMENT IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
 3. FIELD QUALITY AND CONTROL
 - A. TEST AND OPERATE AIR CURTAIN TO VERIFY PERFORMANCE AS INDICATED.
 4. ADJUSTING
 - A. ADJUST MOTOR AND FAN SPEED TO PERFORM AS INDICATED.
 - B. ADJUST NOZZLES TO DEFLECT AIR OUTWARD UNLESS NOTED OTHERWISE.

(END OF SECTION 23 34 33)

SECTION 23 37 13 - GRILLES, REGISTERS & DIFFUSERS

- PART 1 - GENERAL
1. SECTION REQUIREMENTS
 - A. SUBMITTALS: NONE REQUIRED.
- PART 2 - PRODUCTS
1. GRILLES: MANUFACTURER, MODEL, MATERIAL, FINISH, MOUNTING AND ACCESSORIES SHALL BE AS NOTED IN THE MECHANICAL SCHEDULES. NO SUBSTITUTIONS SHALL BE PERMITTED.
 2. REGISTERS: MANUFACTURER, MODEL, MATERIAL, FINISH, MOUNTING AND ACCESSORIES SHALL BE AS NOTED IN THE MECHANICAL SCHEDULES. NO SUBSTITUTIONS SHALL BE PERMITTED.
 3. DIFFUSERS: MANUFACTURER, MODEL, MATERIAL, FINISH, MOUNTING AND ACCESSORIES SHALL BE AS NOTED IN THE MECHANICAL SCHEDULES. NO SUBSTITUTIONS SHALL BE PERMITTED, UNLESS OTHERWISE NOTED. ALL CEILING DIFFUSERS SHALL BE FOUR-WAY.
- PART 3 - EXECUTION
1. INSTALLATION
 - A. INSTALL GRILLES, REGISTERS & DIFFUSERS LEVEL AND PLUMB.
 - B. INSTALL GRILLES, REGISTERS & DIFFUSERS AS INDICATED. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION.
 - C. INSTALL GRILLES, REGISTERS & DIFFUSERS WITH AIRTIGHT CONNECTIONS TO DUCTS AND TO ALLOW SERVICE AND MAINTENANCE OF DAMPERS, EXTRACTORS AND OTHER ACCESSORIES.
 - D. ALL AIR DEVICE COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC OR SHEET METAL UNTIL THE FINAL START-UP OF THE HEATING COOLING AND VENTILATION EQUIPMENT.
 - E. WHEN INDICATED ON THE PLANS, PAINT THE GRILLES, REGISTERS & DIFFUSERS PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH AN ENAMEL PAINT, COLOR AS INDICATED.
 - F. AFTER INSTALLATION, ADJUST REGISTERS & DIFFUSERS TO AIR PATTERNS (IF NOTED) OR AS DIRECTED BY THE TENANT'S CONSTRUCTION MANAGER PRIOR TO STARTING AIR BALANCING.

(END OF SECTION 23 37 13)

SECTION 23 74 16 - PACKAGED ROOFTOP AIR-CONDITIONING UNITS

- PART 1 - GENERAL
1. SECTION REQUIREMENTS
 - A. UNITS FURNISHED BY OWNER; INSTALLED BY GENERAL CONTRACTOR.
- PART 2 - PRODUCTS
1. DESCRIPTION
 - A. UNITS FURNISHED BY OWNER; INSTALLED BY GENERAL CONTRACTOR.
- PART 3 - EXECUTION
1. INSTALLATION
 - A. ROOF CURB: INSTALL ON ROOF STRUCTURE, LEVEL, SECURE, PER STRUCTURAL DETAILS AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - B. UNIT SUPPORT: INSTALL UNIT LEVEL ON STRUCTURAL CURBS PER STRUCTURAL DETAILS AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - C. PROVIDE LABELING FOR ALL HVAC EQUIPMENT USING ENGRAVED PHENOLIC PLATES OR AS REQUIRED BY THE LANDLORD.
 2. CONNECTIONS
 - A. COMPLY WITH DUCT INSTALLATION REQUIREMENTS SPECIFIED IN OTHER HVAC SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENTS OF DUCTS.
 - B. INSTALL DUCTS TO TERMINATION TO TOP OF ROOF CURB. REMOVE ROOF DECKING ONLY AS REQUIRED FOR PASSAGE OF DUCTS. DO NOT CUT OUT DECKING UNDER ENTIRE ROOF CURB. CONNECT SUPPLY AND RETURN DUCTS TO RTUS WITH FLEXIBLE DUCT CONNECTORS.
 - C. INSTALL CONDENSATE DRAIN WITH TRAP AND INDIRECT CONNECTION AS NOTED ON THE PLANS.
 - D. WHERE INSTALLING PIPING ADJACENT TO RTUS, ALLOW SPACE FOR SERVICE AND MAINTENANCE.
 - E. CONNECT GAS PIPING TO BURNER, FULL SIZE OF GAS TRAIN INLET. CONNECT WITH UNION, SHUTOFF VALVE AND DIRT LEG WITH SUFFICIENT CLEARANCE FOR BURNER REMOVAL AND SERVICE.
 - F. CONNECT ELECTRICAL WIRING IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
 - G. GROUND EQUIPMENT IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
 3. FIELD QUALITY CONTROL
 - A. AFTER INSTALLING RTUS, TEST UNITS FOR COMPLIANCE WITH REQUIREMENTS.
 - B. INSPECT AND REMOVE SHIPPING BOLTS, BLOCKS, TIE-DOWN STRAPS AND ANY OTHER SHIPPING RELATED MATERIALS INSIDE OR OUTSIDE OF THE UNIT PRIOR TO OPERATION.
 - C. CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATIONS.
 - D. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.
 - E. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATION.
 - F. CLEAN FILTER HOUSINGS AND CHANGE FILTERS PRIOR TO AIR BALANCE AND IMMEDIATELY PRIOR TO TURNOVER.

(END OF SECTION 23 74 16)

SECTION 23 74 30 - ROOF-MOUNTED MAKEUP AIR UNIT

- PART 1 - GENERAL
1. SECTION REQUIREMENTS
 - A. UNITS FURNISHED BY OWNER; INSTALLED BY GENERAL CONTRACTOR.
- PART 2 - PRODUCTS
1. DESCRIPTION
 - A. UNITS FURNISHED BY OWNER; INSTALLED BY GENERAL CONTRACTOR.
- PART 3 - EXECUTION
1. INSTALLATION
 - A. ROOF MOUNTING: INSTALL ON ROOF STRUCTURE, LEVEL, SECURE, PER STRUCTURAL DETAILS AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 - B. UNIT SUPPORT: INSTALL UNIT LEVEL ON STRUCTURAL CURBS, MOUNTING RAIN AND STANDS PER STRUCTURAL DETAILS AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
 2. CONNECTIONS
 - A. COMPLY WITH DUCT INSTALLATION REQUIREMENTS SPECIFIED IN OTHER HVAC SECTIONS. DRAWINGS INDICATE GENERAL ARRANGEMENTS OF DUCTS.
 - B. INSTALL DUCTS TO TERMINATION TO TOP OF ROOF CURB. REMOVE ROOF DECKING ONLY AS REQUIRED FOR PASSAGE OF DUCTS. DO NOT CUT OUT DECKING UNDER ENTIRE ROOF CURB. CONNECT SUPPLY DUCT TO UNIT WITH FLEXIBLE DUCT CONNECTORS.
 - C. WHERE INSTALLING PIPING ADJACENT TO UNIT, ALLOW SPACE FOR SERVICE AND MAINTENANCE.
 - D. CONNECT GAS PIPING TO BURNER, FULL SIZE OF GAS TRAIN INLET. CONNECT WITH UNION, SHUTOFF VALVE AND DIRT LEG WITH SUFFICIENT CLEARANCE FOR BURNER REMOVAL AND SERVICE.
 - E. CONNECT ELECTRICAL WIRING IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
 - F. GROUND EQUIPMENT IN ACCORDANCE WITH THE ELECTRICAL SPECIFICATIONS.
 3. FIELD QUALITY CONTROL
 - A. AFTER INSTALLING UNIT, TEST UNITS FOR COMPLIANCE WITH REQUIREMENTS.
 - B. INSPECT OR AND REMOVE SHIPPING BOLTS, BLOCKS AND TIE-DOWN STRAPS.
 - C. CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATIONS.
 - D. TEST AND ADJUST CONTROLS AND SAFETIES. REPLACE DAMAGED AND MALFUNCTIONING CONTROLS AND EQUIPMENT.
 - E. OPERATIONAL TEST: AFTER ELECTRICAL CIRCUITRY HAS BEEN ENERGIZED, START UNITS TO CONFIRM PROPER MOTOR ROTATION AND UNIT OPERATION.
 - F. CLEAN FILTER HOUSINGS AND CHANGE FILTERS PRIOR TO AIR BALANCE AND IMMEDIATELY PRIOR TO TURNOVER.

(END OF SECTION 23 74 30)

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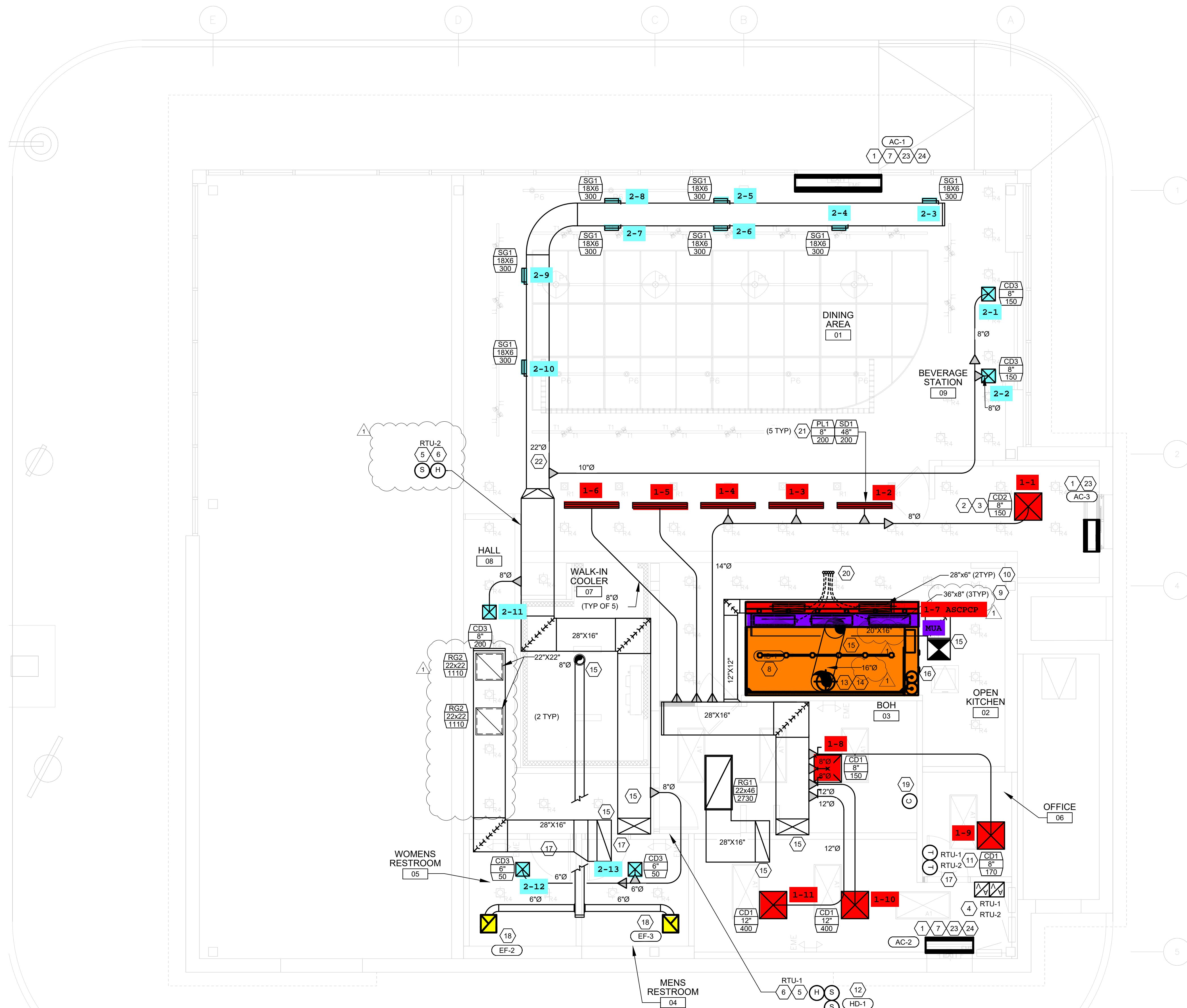
DATE	DESCRIPTION
11/01/2024	LL CHANGES
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M011



1 MECHANICAL PLAN
1/4" = 1'-0"

CODED NOTES

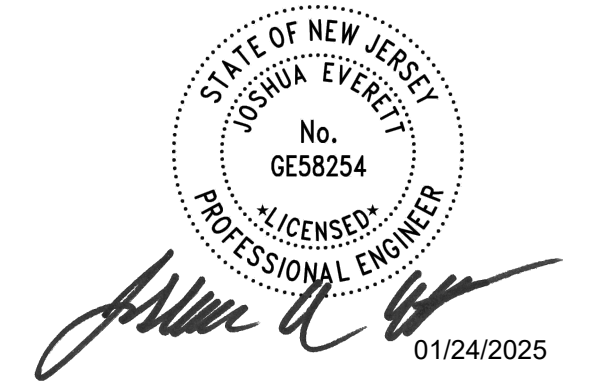
1. PROVIDE EQUIPMENT PER MANUFACTURER'S INSTALLATION INSTRUCTION AND PER THE STRUCTURAL DETAILS.
2. PROVIDE SUPPLY DIFFUSER CONNECTION PER DETAIL 6/M300.
3. REFER TO THE ARCHITECTURAL RCP FOR CEILING MOUNTED EQUIPMENT LOCATION. TYPICAL.
4. PROVIDE AUDIO/VISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR WITH REMOTE KEY OPERATED RESET. WIRE A UNIT BACK TO EACH SMOKE DETECTOR. MOUNT UNIT 60" AFF. TYPICAL.
5. PROVIDE A REMOTE TEMPERATURE SENSOR FOR THE HVAC EQUIPMENT NOTED AT THIS LOCATION AT 5'-0" AFF. COORDINATION LOCATION WITH EQUIPMENT AND WALL-MOUNTED FIXTURES AS REQUIRED SUCH THAT THE SENSOR IS NOT BLOCKED. ADJUST THE SENSOR FOR A DEADBAND TO ENERGIZE HOT GAS REHEAT WHEN THE HUMIDITY EXCEEDS 60% RELATIVE HUMIDITY AND TO DE-ENERGIZE WHEN THE HUMIDITY DROPS BELOW 50%.
6. ADJUST THE DOOR SWITCH SO THAT THE AIR CURTAIN'S FAN REMAINS ENERGIZED FOR TWO SECONDS AFTER THE DOOR IS SHUT.
7. INSTALL TYPE I KITCHEN HOOD FURNISHED BY THE KITCHEN EQUIPMENT SUPPLIER. SUPPORT PER THE MANUFACTURER'S INSTRUCTIONS AND PER THE STRUCTURAL DRAWINGS. INSTALL HOOD IN ACCORDANCE WITH THE REQUIREMENTS OF ITS LISTING AND IN ACCORDANCE WITH THE NFPA AND ALL APPLICABLE BUILDING CODES. HOOD SHALL HAVE AN INTEGRAL DUCT COLLAR TEMPERATURE SENSOR AND SHALL AUTOMATICALLY ENERGIZE THE EXHAUST AND MAKEUP AIR SYSTEMS IF COOKING TEMPERATURES ARE DETECTED. EXHAUST DUCTWORK SHALL BE FACTORY-MANUFACTURED, WATER AND AIR TIGHT OR WELDED STEEL. UPON INSTALLATION OF THE SYSTEM, PROVIDE GREASE DUCT TEST IN ACCORDANCE WITH SECTION 506.3.2.5 OF THE MECHANICAL CODE.
8. PROVIDE DUCT DROP FOR MAKEUP AIR AND CONNECT TO THE HOOD'S INTEGRAL MAKEUP AIR PLENUM.
9. PROVIDE DUCT DROP FOR CONDITIONED AIR AND CONNECT TO THE HOOD'S INTEGRAL AC PLENUM CONNECTION.
10. PROVIDE A HONEYWELL WIFI VISION PRO 8000 TOUCHSCREEN 7-DAY PROGRAMMABLE WITH AUTO-CHANGEOVER AND AUTOMATIC STATE CAPABILITY SERIES THERMOSTATS, COMPATIBLE WITH THE HVAC EQUIPMENT AT THIS LOCATION AT 48" A.F.F. ADJUST THE SETPOINT OVERLAP, DEADBAND AND OPTIMUM START SETTINGS AS REQUIRED PER THE ENERGY CODE. COORDINATE WITH ELECTRICAL DEVICES AND ARCHITECTURAL ELEMENTS IN THE AREA. EXTEND THE CONTROLS WIRING TO THE MECHANICAL EQUIPMENT AND ASSOCIATED SENSORS AS REQUIRED. COORDINATE LOCATION SO THAT THERMOSTATS ARE NOT BLOCKED. COORDINATE FINAL INSTALLATION LOCATION OF THERMOSTAT WITH OWNER'S REPRESENTATIVE. COORDINATE WITH CAVA REPRESENTATIVE FOR PASSWORD AND LOCKING THERMOSTAT.
11. INSTALL THE REMOTE TEMPERATURE SENSOR FOR THE HOOD, HD-1 AT THIS LOCATION AT 5'-0" AFF. PROVIDE CABLING TO THE HOOD CONTROL PANEL AS NOTED IN THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
12. ROUTE CUSTOM FABRICATED UL-1978 AND UL-2221 LISTED DOUBLE-WALL GREASE DUCT TYPE I KITCHEN EXHAUST DUCT FROM EXHAUST HOOD, UP THROUGH ROOF ABOVE AND CONNECT TO KITCHEN EXHAUST FAN. REFER TO SHEET M200 FOR CONTINUATION. COORDINATE WITH KES AND CAPTIVE AIRE DRAWINGS. SEAL WEATHER TIGHT. CONTRACTOR SHALL PROVIDE CLEANOUT EVERY 10' AND AT EVERY CHANGE OF DIRECTION IN TYPE I EXHAUST DUCT WITH MINIMUM OF 3 FEET OF CLEARANCE IN FRONT OF CLEAN-OUT. INSTALL EXHAUST DUCT PER MANUFACTURER'S INSTRUCTIONS. COORDINATE ROUTING OF DUCTWORK WITH OWNER'S CAPTIVE AIRE REPRESENTATIVE.
13. ALL GREASE DUCT BRACING AND SUPPORTS SHALL BE OF NON-COMBUSTIBLE MATERIAL. SECURELY ATTACHED TO THE STRUCTURE, BOLTS, SCREWS, RIVETS AND OTHER MECHANICAL FASTENERS SHALL NOT PENETRATE DUCT WALLS.
14. DUCTWORK TO/FROM ROOF. REFER TO THE HVAC ROOF PLAN FOR CONTINUATION.
15. HOOD CONTROL PANEL WITH INTEGRAL FIRE SUPPRESSION CABINET. COORDINATE EXACT MOUNTING LOCATION, FIRE SUPPRESSION PIPING AND ALL OTHER REQUIREMENTS WITH THE KITCHEN EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
16. UNDERCUT DOOR 1" FOR TRANSFER AIR.
17. PROVIDE CEILING MOUNTED EXHAUST FAN. TRANSITION FROM FAN DISCHARGE TO DUCT SIZE SHOWN AND EXTEND UP THROUGH ROOF.
18. PROVIDE CO2 MEASUREMENT SPECIALISTS RAD-0102-6 REMOTE CO2 STORAGE SAFETY ALARM (OR EQUAL). INSTALL PER MANUFACTURER'S RECOMMENDATIONS ON WALL.
19. REMOTE BALANCING DAMPER, TYPICAL FOR BALANCING DAMPERS IN HARD CEILING APPLICATIONS.
20. MOUNT SLOT DIFFUSER IN HORIZONTAL FACE AS SHOWN AND PER THE ARCHITECTURAL REFLECTED CEILING PLAN. PROVIDE BLANK OFF PLATES WHERE NO PLENUM IS SHOWN.
21. PROVIDE EXPOSED DUCTWORK AS SHOWN, PER THE SPECIFICATIONS AND PER DETAIL 1/M300. MOUNT EXPOSED DUCT TIGHT TO BOTTOM OF STRUCTURE.
22. PROVIDE AIR CURTAIN. MOUNT UNIT ON WALL DIRECTLY ABOVE DOOR PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.
23. PROVIDE TEMPERATURE SENSOR ON THE EXTERIOR OF THE BUILDING TO SERVE THE AIR CURTAIN. INTERLOCK THE SENSOR WITH THE EQUIPMENT SUCH THAT THE HEATER SHALL BE DE-ENERGIZED WHEN THE OUTDOOR AIR TEMPERATURE IS GREATER THAN 60°F, FAN TO CONTINUE TO ENERGIZE UPON DOOR OPEN.

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MECHANICAL PLAN

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Checked By:	JAE

M100

CODED NOTES

- COORDINATE MOUNTING LOCATION OF THE WALK-IN COOLER CONDENSING UNIT WITH THE KITCHEN EQUIPMENT SUPPLIER AND INSTALL THE WALK-IN COOLER CONDENSING UNIT, CU-1 ON THE ROOF. ENSURE ALL CLEARANCE REQUIREMENTS FOR THE UNIT ARE MAINTAINED THROUGH CONSTRUCTION. COORDINATE ALL INSTALLATION REQUIREMENTS WITH THE KITCHEN EQUIPMENT SUPPLIER AS NOTED.
- MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCE ZONES. NO DUCTWORK, PIPING, CONDUIT OR OTHER SYSTEMS SHALL BE PERMITTED IN THIS AREA. COORDINATE WITH SITE CONDITIONS AND WORK OF OTHER TRADES AS REQUIRED. TYPICAL.
- INSTALL THE HVAC EQUIPMENT PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND ALL STRUCTURAL DETAILS.
- DUCTWORK TO/FROM SPACE. REFER TO THE HVAC MECHANICAL PLAN FOR CONTINUATION.
- EXTEND EXHAUST DUCT UP THROUGH ROOF. PROVIDE A ROOF JACK, STORM COLLAR, AND ALL-WEATHER CAP.
- EXHAUST DISCHARGE SHALL BE NO LESS THAN 10'-0" FROM ALL MECHANICAL INTAKES AND OPERABLE OPENINGS INTO THE BUILDING.
- INSTALL EXHAUST FAN EF-1 PER DETAIL 4/M300 AND AS DETAILED IN THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
- MAINTAIN 10' CLEARANCE BETWEEN WATER HEATER FLUE TERMINATION AND OUTSIDE AIR INTAKES. MAINTAIN 10' CLEARANCE BETWEEN WATER HEATER COMBUSTION AIR INTAKE AND EXHAUST FAN EF-1 DISCHARGE. SEE PLUMBING DRAWINGS FOR MORE INFORMATION ON WATER HEATER FLUE AND COMBUSTION AIR TERMINATIONS.
- SMOKE DETECTOR INTEGRAL TO THE RETURN AIR OF THE UNIT. UPON DETECTION OF SMOKE THE SUPPLY AIR FAN SHALL DE-ENERGIZE.

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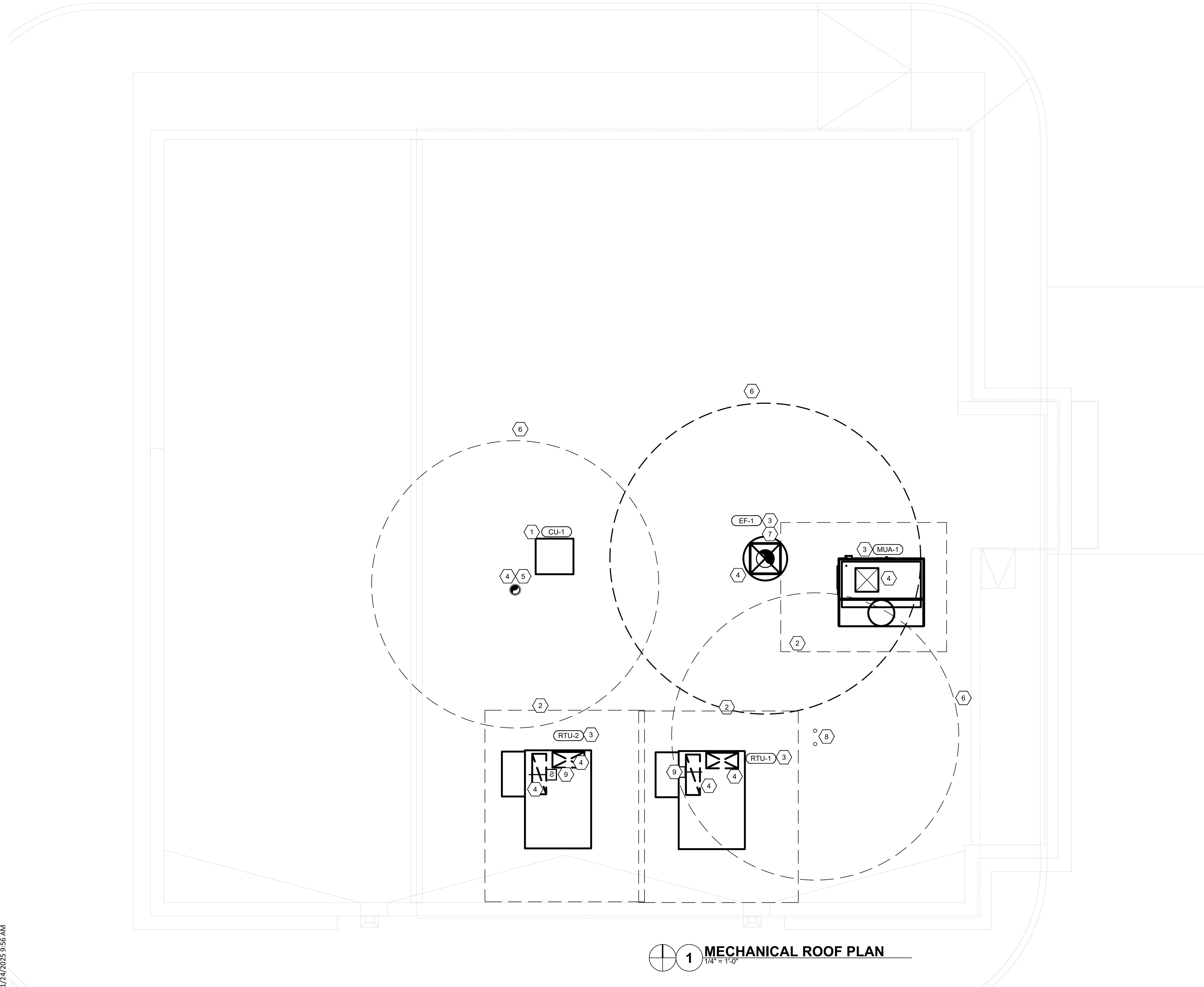
△ DATE	DESCRIPTION
11/01/2024	LL CHANGES
12/02/2024	DINING SENSOR MOVED
△ 01/27/2025	PERMIT ADDENDUM/CONST SET

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MECHANICAL ROOF PLAN

Date Modified:	07/26/2024
Date Created:	07/26/2024
Scale:	AS NOTED
Project No.:	240003
Drawn By:	KLM
Checked By:	JAE

M200



1 MECHANICAL ROOF PLAN
1/4" = 1'-0"



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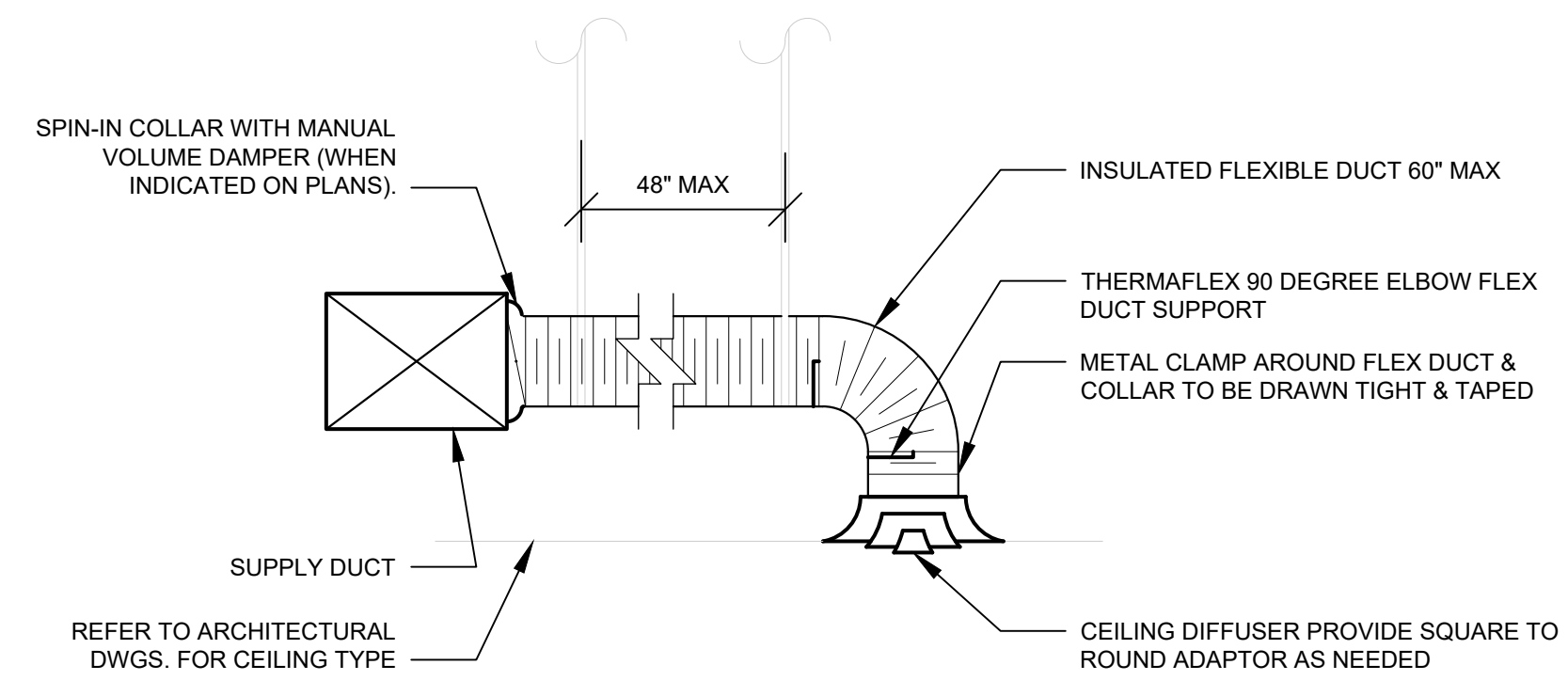
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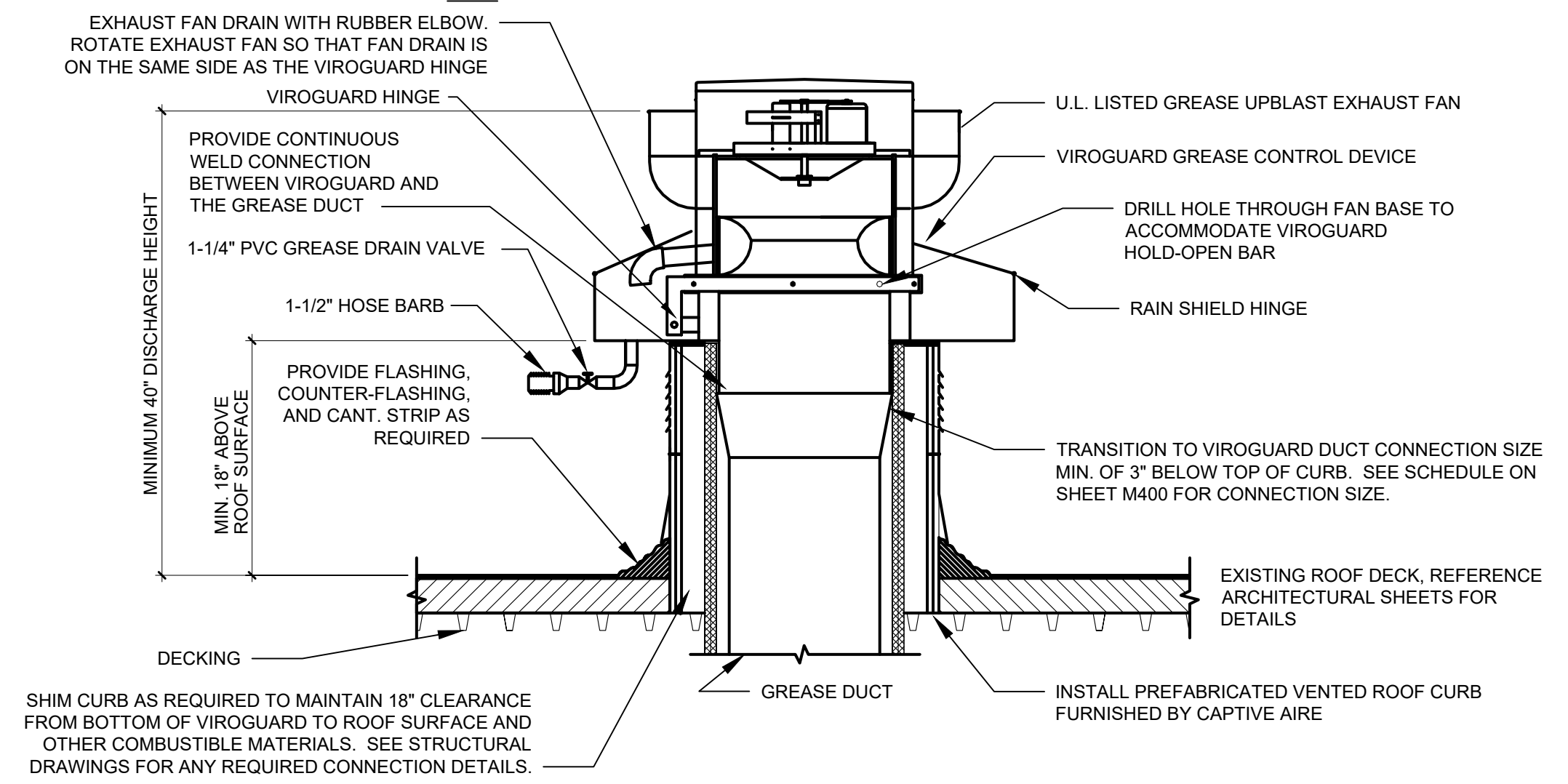
MECHANICAL DETAILS

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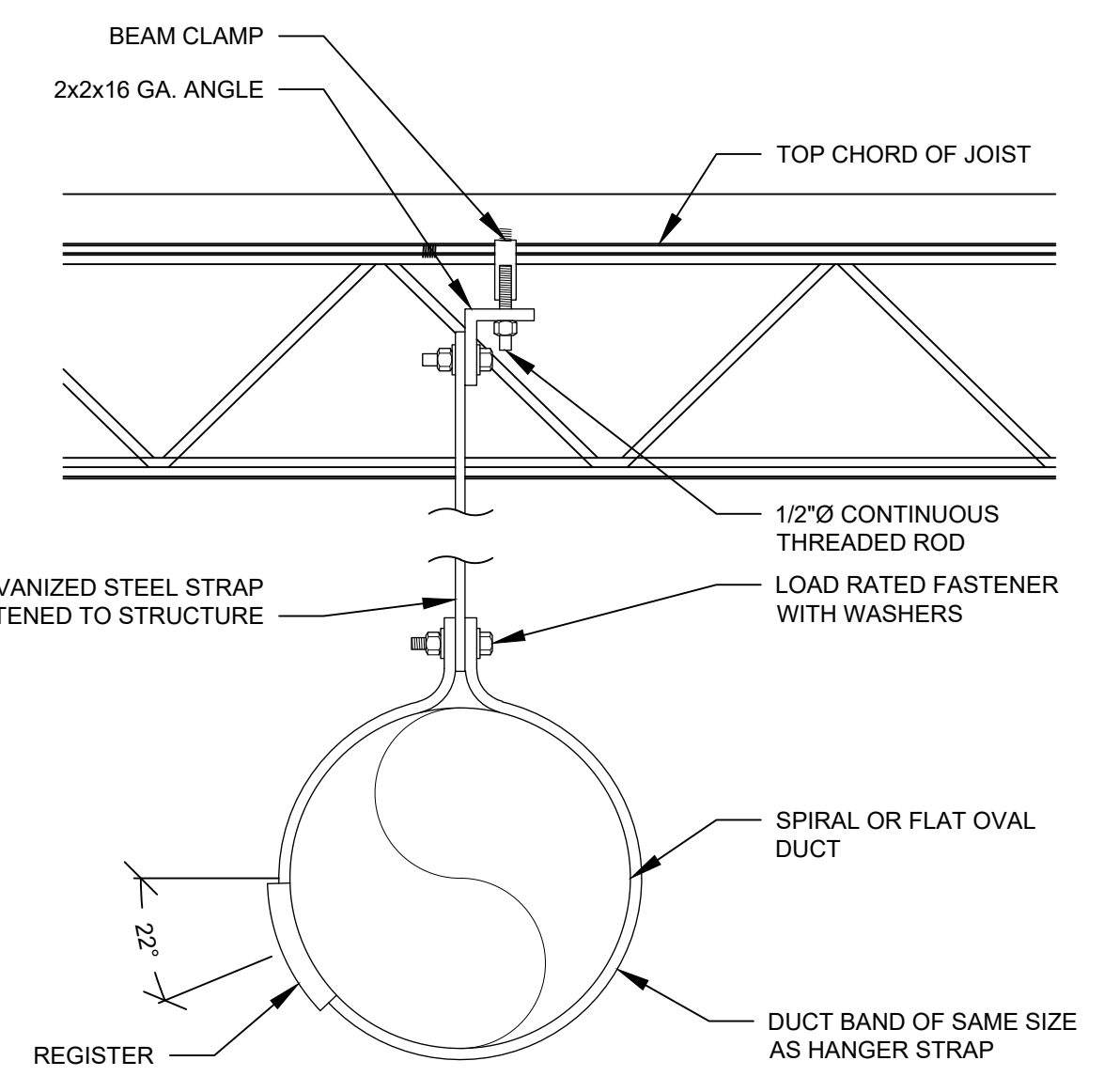
M300



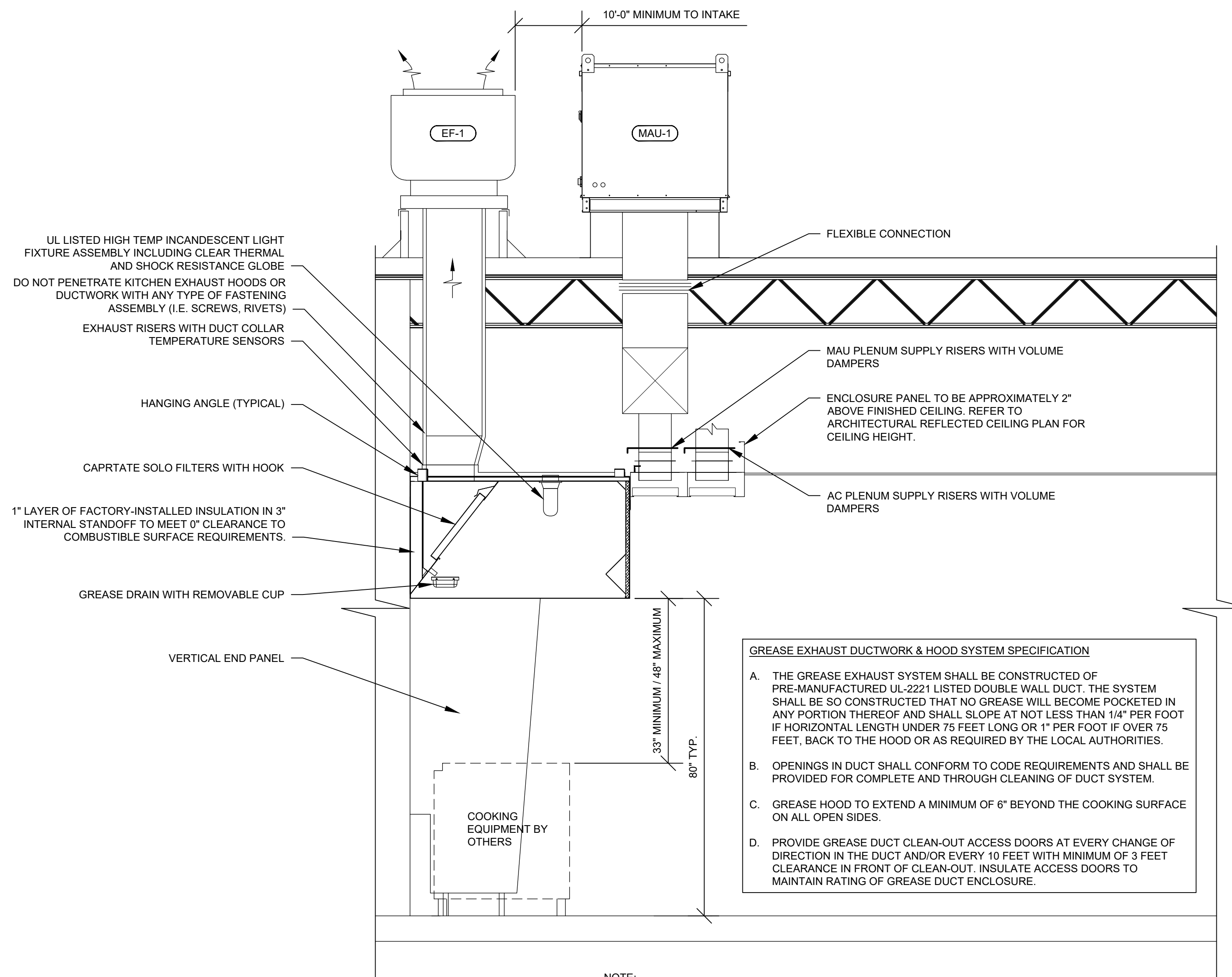
6 DIFFUSER CONNECTION
N.T.S.



4 ROOF MOUNTED GREASE EXHAUST FAN DETAIL
N.T.S.



1 SPIRAL DUCT SUPPORT DETAIL
N.T.S.

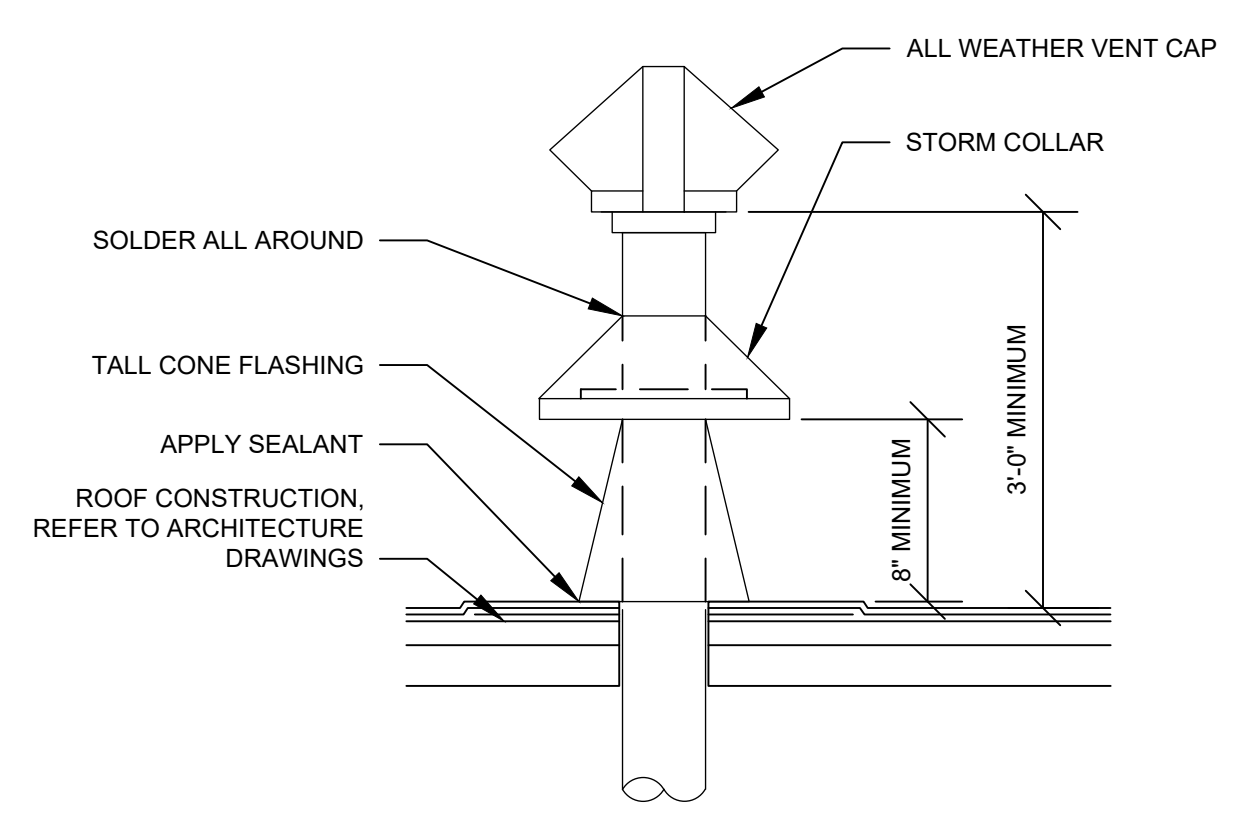


GREASE EXHAUST DUCTWORK & HOOD SYSTEM SPECIFICATION

- THE GREASE EXHAUST SYSTEM SHALL BE CONSTRUCTED OF PRE-MANUFACTURED UL-2221 LISTED DOUBLE WALL DUCT. THE SYSTEM SHALL BE SO CONSTRUCTED THAT NO GREASE WILL BECOME POCKETED IN ANY PORTION THEREOF AND SHALL SLOPE AT NOT LESS THAN 1/4" PER FOOT IF HORIZONTAL LENGTH UNDER 75 FEET LONG OR 1" PER FOOT IF OVER 75 FEET, BACK TO THE HOOD OR AS REQUIRED BY THE LOCAL AUTHORITIES.
- OPENINGS IN DUCT SHALL CONFORM TO CODE REQUIREMENTS AND SHALL BE PROVIDED FOR COMPLETE AND THROUGH CLEANING OF DUCT SYSTEM.
- GREASE HOOD TO EXTEND A MINIMUM OF 6" BEYOND THE COOKING SURFACE ON ALL OPEN SIDES.
- PROVIDE GREASE DUCT CLEAN-OUT ACCESS DOORS AT EVERY CHANGE OF DIRECTION IN THE DUCT AND/OR EVERY 10 FEET WITH MINIMUM OF 3 FEET CLEARANCE IN FRONT OF CLEAN-OUT. INSULATE ACCESS DOORS TO MAINTAIN RATING OF GREASE DUCT ENCLOSURE.

- NOTE:**
- INSTALL UL LISTED TYPE 1 EXHAUST HOOD.
 - THE GREASE HOOD SHALL MEET THE REQUIREMENTS OF THE MECHANICAL CODE, NSF AND NFPA FOR A TYPE I HOOD.
 - FIRE DEPARTMENT APPROVAL SHALL BE REQUIRED ON FIRE PROTECTION SYSTEM FOR GREASE HOODS AND DUCTS AS REQUIRED BY THE MECHANICAL CODE AND AS REQUIRED BY THE FIRE CODE.
 - INTEGRAL CHEMICAL FIRE SUPPRESSION SYSTEM AS REQUIRED BY NFPA 17A.
 - PERFORM SMOKE TEST ON TYPE I HOOD SYSTEM PER THE REQUIREMENTS OF LOCAL CODE AUTHORITIES.

3 KITCHEN HOOD SCHEMATICS
N.T.S.



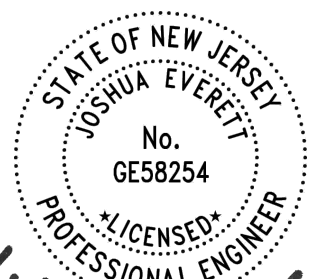
3 DUCT THROUGH ROOF
N.T.S.

2 NOT USED
N.T.S.



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Joshua Everj
01/24/2025

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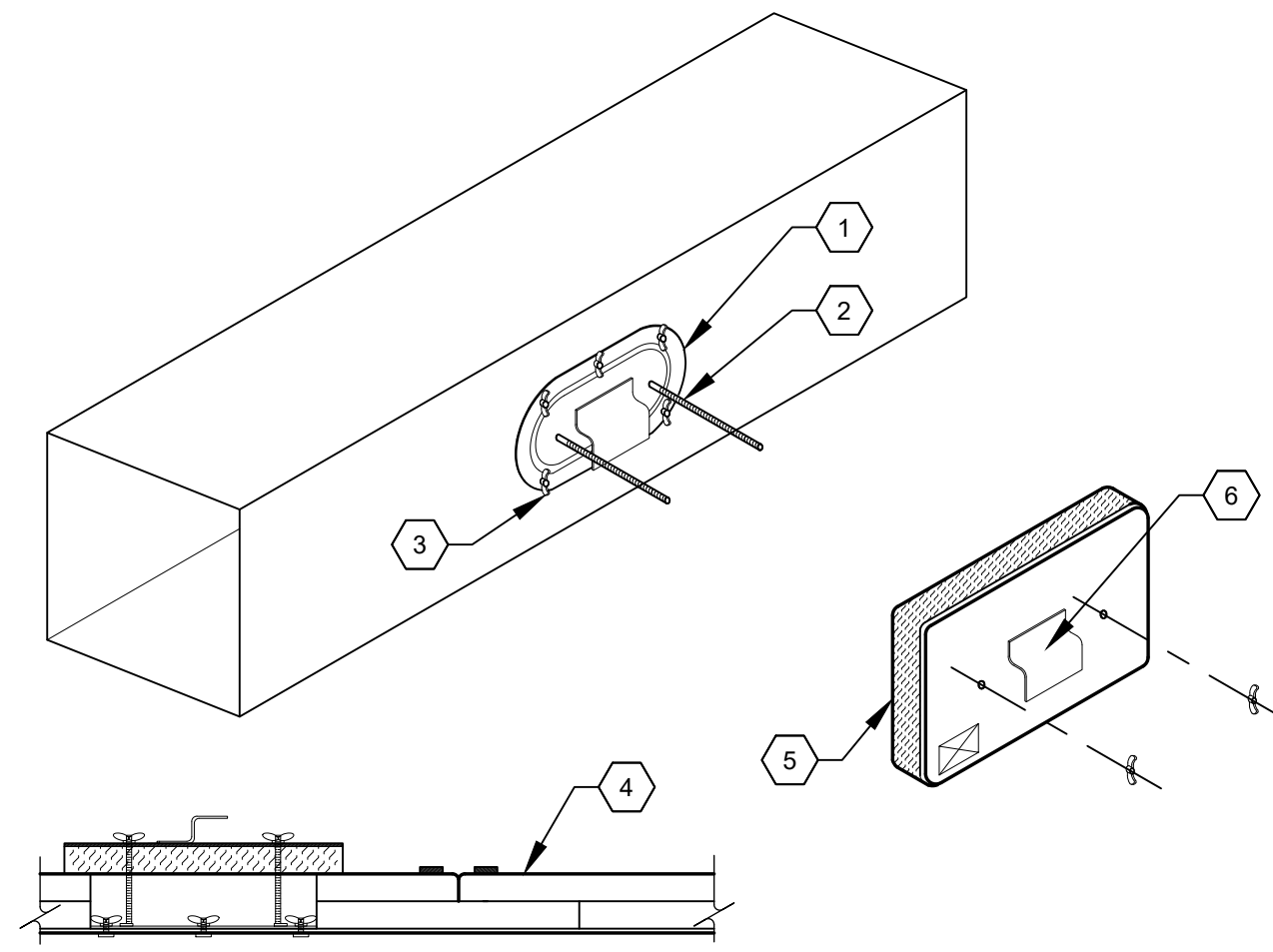
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M301



CODED NOTES:

1. UL LISTED FASTDOOR XL ACCESS PANEL.
2. ALL THREAD RODS AND WING NUTS PER THE MANUFACTURER'S INSTRUCTIONS.
3. RETAINER CLIPS WITH THREADED NUTS AND WING BOLTS.
4. INSULATION LAYERS AS REQUIRED BY THE UL LISTING.
5. FASTDOOR XL, 1-1/2" THICK SINGLE LAYER INSULATION.
6. PROVIDE THE FOLLOWING SIGN ON THE ACCESS PANEL: "ACCESS PANEL. DO NOT OBSTRUCT."

GENERAL NOTES:

- A. DETAIL SHALL APPLY TO FIELD-FABRICATED DUCTWORK ONLY.
- B. THE ACCESS PANEL SHALL HAVE A FIRE-RESISTIVE PROTECTION EQUAL TO THAT OF THE ENCLOSURE.

4 GREASE DUCT CLEANOUT DETAIL (FIELD-FABRICATED DUCTWORK)

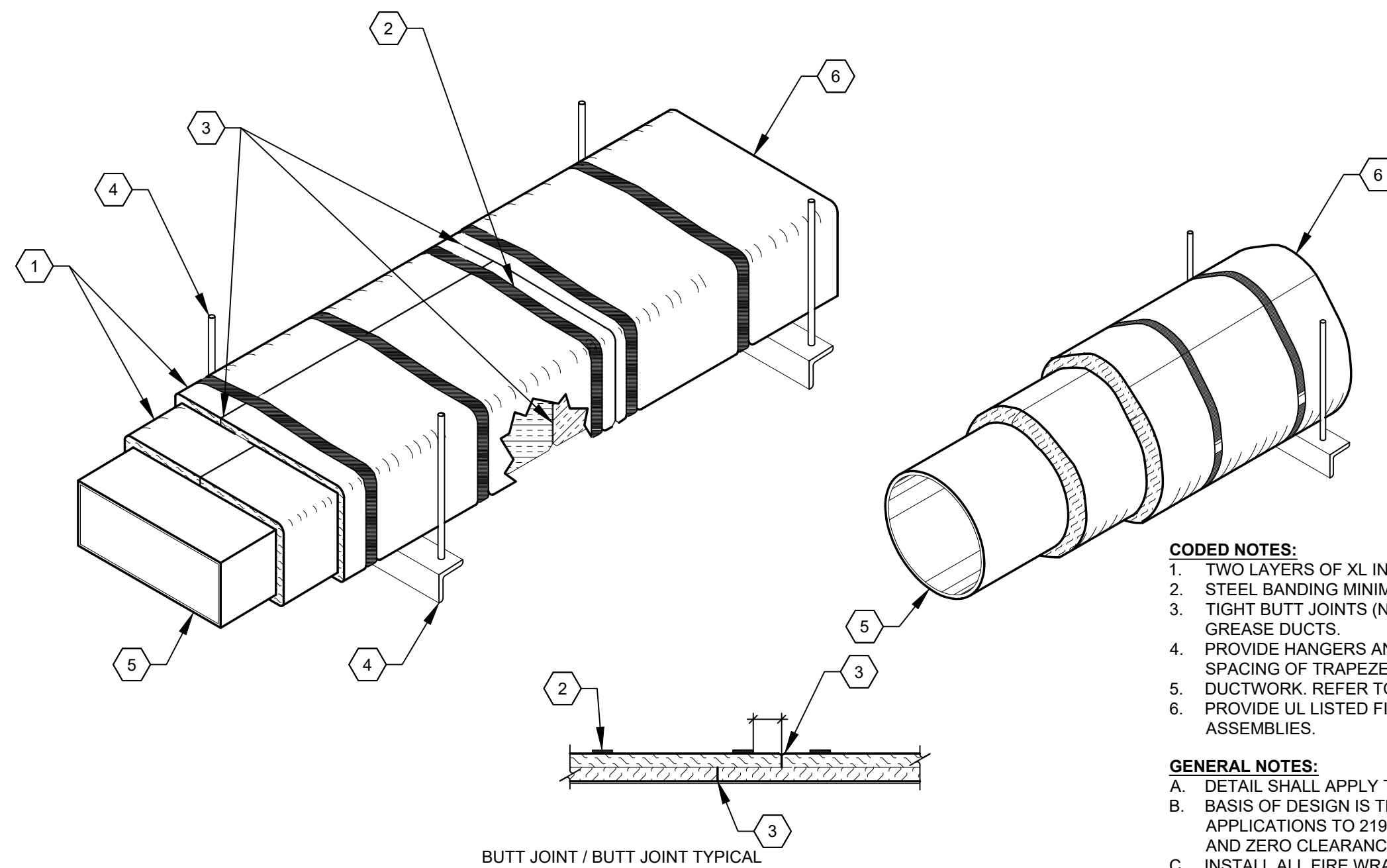
N.T.S.

AIR BALANCE SCHEDULE					
TAG	SUPPLY FLOW (CFM)	RETURN FLOW (CFM)	OUTSIDE AIRFLOW (CFM)	EXHAUST FLOW (CFM)	SUBTOTAL (CFM)
EF-1	0	0	0	2,315	-2,315
EF-2	0	0	0	75	-75
EF-3	0	0	0	75	-75
MAU-1	1,855	0	1,855	0	1,855
RTU-1	3,000	2,695	305	0	305
RTU-2	3,000	2,220	780	0	780
NET PRESSURE (CFM)					475

VENTILATION SCHEDULE, RTU-2								
PER TABLE 403.3.1.1 OF THE INTERNATIONAL MECHANICAL CODE								
CATEGORY	AREA	OCCUPANT DENSITY (PPL / 1000 SF)	OCCUPANT LOAD (PEOPLE)	AIR RATE		EFFECTIVENESS	VENTILATION REQUIRED (CFM)	VENTILATION PROVIDED (CFM)
				CFM / PERSON	CFM / SF			
DINING ROOM	900.0	70.00	55	7.50	0.18	0.8	718.1	770
CORRIDOR	133.0	0.00	0	0.00	0.06	0.8	10.0	10

VENTILATION SCHEDULE, RTU-1								
PER TABLE 403.3.1.1 OF THE INTERNATIONAL MECHANICAL CODE								
CATEGORY	AREA	OCCUPANT DENSITY (PPL / 1000 SF)	OCCUPANT LOAD (PEOPLE)	AIR RATE		EFFECTIVENESS	VENTILATION REQUIRED (CFM)	VENTILATION PROVIDED (CFM)
				CFM / PERSON	CFM / SF			
KITCHEN	980.0	20.00	15	7.50	0.12	0.8	287.6	290.0
OFFICE	56.0	5.00	1	5.00	0.06	0.8	10.5	15.0

EXHAUST SCHEDULE						
PER TABLE 403.3.1.1 OF THE INTERNATIONAL MECHANICAL CODE						
CATEGORY	AREA	NUMBER OF FIXTURES	AIR RATE		EXHAUST REQUIRED (CFM)	EXHAUST PROVIDED (CFM)
			CFM / SF	CFM / FIXTURE		
KITCHEN	980.0	0	-0.70	0.00	-686.0	-2605.0
RESTROOM 04	62.0	1	0.00	-50.00	-50.0	-75.0
RESTROOM 05	62.0	1	0.00	-50.00	-50.0	-75.0



CODED NOTES:

1. TWO LAYERS OF XL INSULATION FOR ASTM E2336 GREASE DUCT ENCLOSURES.
2. STEEL BANDING MINIMUM OF 1/2" WIDE BY 0.015" THICK.
3. TIGHT BUTT JOINTS (NO OVERLAP) AT PERIMETER AND LONGITUDINAL JOINTS, BOTH LAYERS FOR GREASE DUCTS.
4. PROVIDE HANGERS AND TRAPEZE SUPPORTS PER THE MANUFACTURER'S RECOMMENDATIONS. SPACING OF TRAPEZE SUPPORTS SHALL NOT EXCEED 60" ON CENTER.
5. DUCTWORK REFER TO PLANS FOR SIZE.
6. PROVIDE UL LISTED FIRESTOP SYSTEM WITH EQUAL F AND T-RATING AT PENETRATIONS OF RATED ASSEMBLIES.

GENERAL NOTES:

- A. DETAIL SHALL APPLY TO FIELD-FABRICATED DUCTWORK ONLY.
- B. BASIS OF DESIGN IS THERMAL CERAMICS FIREMASTER FASTWRAP XL, CLASSIFIED FOR APPLICATIONS TO 2192°F. UL LISTED FOR 1 AND 2 HOUR FIRE RESISTIVE ENCLOSURE PROTECTION AND ZERO CLEARANCE FOR KITCHEN EXHAUST DUCT.
- C. INSTALL ALL FIRE WRAP PER THE MANUFACTURER'S INSTRUCTIONS AND IN ACCORDANCE WITH ITS UL LISTING.
- D. ALL INSULATION SHALL BE APPLIED IN TWO LAYERS WITH TIGHT COMPRESSION JOINTS.
- E. DUCT WRAP SHALL BE INSTALLED DIRECTLY ONTO THE DUCT, APPLIED FROM THE HOOD CONNECTION TO THE CONNECTION TO ANY MECHANICAL EQUIPMENT.

BUTT JOINT / BUTT JOINT TYPICAL

3 DUCT WRAP DETAIL (FIELD-FABRICATED DUCTWORK)

N.T.S.

COMMISSIONING REQUIREMENTS

THE GENERAL CONTRACTOR SHALL PROVIDE COMMISSIONING OF THE FOLLOWING EQUIPMENT IN ACCORDANCE WITH SECTION 408 OF THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE:

- RTU-1
- RTU-2
- MAU-1

EQUIPMENT FUNCTIONAL TESTING SHALL DEMONSTRATE THE OPERATION OF COMPONENTS, SYSTEMS, INTERFACING RELATIONSHIPS SUCH THAT THE OPERATION, FUNCTION AND MAINTENANCE SERVICEABILITY FOR THE COMMISSIONED SYSTEMS IS CONFIRMED. TESTS SHALL INCLUDE ALL MODES AND SEQUENCE OF OPERATION, INCLUDING FULL-LOAD, PART-LOAD AND THE FOLLOWING EMERGENCY CONDITIONS.

- ALL MODES DESCRIBED IN THE SEQUENCE OF OPERATIONS
- AUTOMATIC BACK-UP MODES AS DESCRIBED BY THE MANUFACTURER
- PERFORMANCE OF ALARMS.
- MODE OF OPERATION UPON A LOSS OF POWER AND RESTORATION OF POWER.

THE HVAC CONTROL SYSTEMS SHALL BE TESTED TO DOCUMENT THAT CONTROL DEVICES, COMPONENTS AND EQUIPMENT SYSTEMS ARE CALIBRATED AND ADJUSTED AND OPERATE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.

AIR ECONOMIZERS SHALL UNDERGO FUNCTIONING TESTING TO DETERMINE THAT THEY OPERATE IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.

THE GENERAL CONTRACTOR SHALL PROVIDE A PRELIMINARY COMMISSIONING REPORT INDICATING THE TEST PROCEDURES AND RESULTS. THIS REPORT SHALL INDICATE THE FOLLOWING:

ITEMIZED LIST OF DEFICIENCIES FOUND DURING TESTING THAT HAVE NOT BEEN CORRECTED AT THE

TIME OF THE REPORT PREPARATION.

- DEFERRED TESTS THAT CANNOT BE PERFORMED AT THE TIME OF THE REPORT BECAUSE OF CLIMATIC CONDITIONS.
- CLIMATIC CONDITIONS REQUIRED FOR THE PERFORMANCE OF DEFERRED TESTS.
- RESULTS OF FUNCTIONAL TESTS.
- FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE.

THE SPACE SHALL NOT BE CONSIDERED AS ACCEPTABLE FOR FINAL INSPECTION UNTIL THE CODE OFFICIAL HAS RECEIVED THE PRELIMINARY COMMISSIONING REPORT.

WITHIN 90 DAYS OF THE RECEIPT OF THE CERTIFICATE OF OCCUPANCY, THE GENERAL CONTRACTOR SHALL PROVIDE A FINAL COMMISSIONING REPORT AND SHALL INCLUDE THE FOLLOWING:

- RESULTS OF THE PERFORMANCE TESTS.
- DISPOSITION OF DEFICIENCIES FOUND DURING TESTING, INCLUDING THE DETAILS OF CORRECTIVE MEASURES USED OR PREPARED.
- FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE.
- DEFERRED TESTS THAT CANNOT BE PERFORMED AT THE TIME OF THE REPORT PREPARATION DUE TO CLIMATIC CONDITIONS ARE NOT REQUIRED AS PART OF THIS REPORT.

2 COMMISSIONING REQUIREMENTS

N.T.S.

SEQUENCE OF OPERATIONS EF-2 & EF-3

OCCUPIED MODE:

FAN OPERATION: WHEN SCHEDULED BY THE TIMECLOCK TO BE IN OCCUPIED MODE, THE EXHAUST FANS ARE TO START AND RUN CONTINUOUSLY.

UNOCCUPIED MODE:

FAN OPERATION: WHEN SCHEDULED BY THE TIMECLOCK TO BE IN UNOCCUPIED MODE, THE EXHAUST FANS SHALL REMAIN OFF

EMERGENCY MODE:

FAN/DAMPER OPERATION: UPON A SIGNAL FROM THE FIRE ALARM SYSTEM, THE FANS SHALL STOP.

SEQUENCE OF OPERATIONS EF-1 & MAU-1

STANDARD OPERATION

FAN OPERATION: WHEN ACTIVATED BY A BUTTON PRESS ON THE HOOD CONTROL PANEL, OR WHEN COOKING TEMPERATURES ARE DETECTED, THE EXHAUST FAN SHALL START. THE MOTORIZED DAMPER SERVING THE MAKEUP AIR UNIT SHALL OPEN AND THE MAKEUP AIR UNIT FAN SHALL START. INTERLOCK ROOFTOP UNITS SO THAT THE PACKAGED ROOFTOP UNIT FANS START AND THE OUTSIDE AIR DAMPERS POWER OPEN WHEN THE EXHAUST FAN BECOMES ENERGIZED.

EMERGENCY MODE:

FAN/DAMPER OPERATION: UPON A SIGNAL FROM THE FIRE ALARM SYSTEM, THE FAN SHALL STOP AND ALL DAMPERS SHALL CLOSE.

1 SEQUENCE OF OPERATIONS

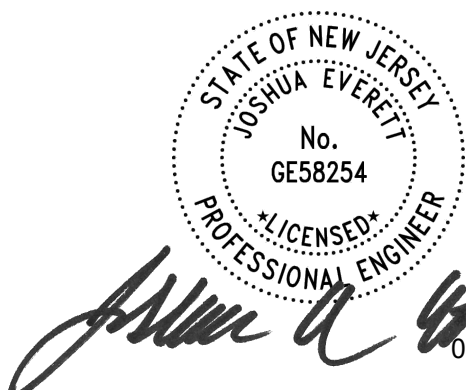
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CONSULTANT:



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GRILLES, REGISTERS & DIFFUSERS SCHEDULE

TAG	DESCRIPTION	FACE SIZE	MATERIAL	FINISH	MOUNTING	FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS
								MANUFACTURER	MODEL	
CD1	PERFORATED CEILING DIFFUSER	24"x24"	STEEL	TO MATCH CEILING	LAY-IN CEILING	GC	GC	TITUS	PAS	
CD2	PLAQUE FACE DIFFUSER	24"x24"	STEEL	TO MATCH CEILING	GYP CEILING	GC	GC	TITUS	OMNI	PROVIDE WITH OBD
CD3	PLAQUE FACE DIFFUSER	12"x12"	STEEL	TO MATCH CEILING	GYP CEILING	GC	GC	TITUS	OMNI	PROVIDE WITH OBD.
PL1	SLOT DIFFUSER PLENUM	HEIGHT: 2" LENGTH: 48"	STEEL	TO MATCH CEILING/ MILLWORK	FIXTURE	GC	GC	TITUS	FBP-20	FURNISH WITH FACE-OPERATED INLET DAMPER
SD1	LINEAR SLOT DIFFUSER	WIDTH = 2"	ALUMINUM	TAPE & SPACKLE	GYP CEILING	GC	GC	TITUS	FL-20-22	FURNISH WITH JET THROW PATTERN
SG1	DIRECT SPIRAL DUCT MOUNTED LOUVERED SUPPLY GRILLE	REFER TO NECK SIZE	ALUMINUM	TO MATCH DUCT	DUCT MOUNT	GC	GC	TITUS	S300FS	PROVIDE WITH NECK MOUNTED OBD. PROVIDE MODEL ASD, AIR SCOOP DEVICE
RG1	LOUVERED RETURN GRILLE. BLADES PARALLEL TO LONG DIMENSION	REFER TO NECK SIZE	STEEL	TO MATCH CEILING	LAY-IN CEILING	GC	GC	TITUS	350RL	
RG2	LOUVERED RETURN GRILLE. BLADES PARALLEL TO SHORT DIMENSION	REFER TO NECK SIZE	STEEL	TO MATCH CEILING	SURFACE	GC	GC	TITUS	350RL	

VIROGUARD SCHEDULE

TAG	DESCRIPTION	DUCT CONNECTION SIZE	FAN	FURNISHED BY	INSTALLED BY	MANUFACTURER	REMARKS
VG-1	VIROGUARD HOOD EXHAUST FAN ROOFTOP CONTAINMENT SYSTEM	16" X 16"	DU85HFA	OWNER	GC	ENVIROMATIC	GC TO INSTALL ON EF-1. ENVIROMATIC VIROGUARD HOOD EXHAUST FAN ROOFTOP CONTAINMENT SYSTEM.

FAN SCHEDULE

TAG	DESCRIPTION	EXHAUST AIRFLOW (CFM)	E.S.P. (IN. W.C.)	DRIVE TYPE	MOTOR POWER (HP)	WEIGHT (LB)	ELECTRICAL			FURNISHED BY	INSTALLED BY	MANUFACTURER	MODEL	REMARKS
							MCA (A)	MOCPP (A)	V/PH					
EF-1	UPBLAST EXHAUST FAN	2,315	1.0	DIRECT	1.0	100.0	11.6 FLA	20	120/1/60	OWNER	GC	CAPTIVEAIRE	DU85HFA	UL762 FAN, FURNISHED WITH VARIABLE SPEED CONTROL, GREASE DRAIN AND CURB. VENTED ROOF CURB AND NEMA 3R DISCONNECT SWITCH. GC TO INSTALL ENVIROMATIC VIROGUARD.
EF-2 EF-3	CEILING MOUNTED EXHAUST FAN	75	0.3	DIRECT	-	15.0	0.4	15	120/1/60	GC	GC	LOREN COOK	GC-148	FURNISHED WITH DISCONNECT SWITCH, BACKDRAFT DAMPER, BIRDSCREEN, SPEED CONTROLLER AND WHITE ALUMINUM GRILLE

MATERIAL SCHEDULE

CATEGORY	APPLICATION	ALLOWABLE MATERIAL
DUCT	CONCEALED SUPPLY	RECTANGULAR OR ROUND. INSULATED
	CONCEALED RETURN	RECTANGULAR OR ROUND. INSULATED
	CONCEALED GENERAL EXHAUST	RECTANGULAR OR ROUND. INSULATED
	CONCEALED, TYPE I HOOD EXHAUST	FACTORY-BUILT, COMMERCIAL KITCHEN, DOUBLE-WALL GREASE DUCT WITH 0" CLEARANCE TO COMBUSTIBLES. LISTED AND LABELED IN ACCORDANCE WITH UL1978/UL2221 AND INSTALLED IN ACCORDANCE WITH THE MECHANICAL CODE AND THE MANUFACTURER'S UL LISTING OR WELDED RECTANGULAR 16 GAUGE STEEL WITH ZERO CLEARANCE TO COMBUSTIBLE DUCT WRAP.
	EXPOSED SUPPLY	DOUBLE-WALL INSULATED ROUND OR OVAL AS NOTED

AIR CURTAIN SCHEDULE

TAG	DESCRIPTION	NOZZLE WIDTH (INCHES)	AIRFLOW			HEATER KW	ELECTRICAL				FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS
			MAX VELOCITY (FPM)	AVERAGE VELOCITY (FPM)	AIRFLOW (CFM)		MOCPP (A)	MCA (A)	V/PH	MANUFACTURER			MODEL		
AC-1	PRIMARY DINING ROOM DOOR	84.00	2,317	1,728	2,268	15	60	43.3	208/3/60	GC	GC	BERNER	AI08-E-2084E	FURNISHED WITH MAGNETIC DOOR SWITCH INTERLOCKED WITH DOOR. PROVIDE DISCONNECT SWITCH. PROVIDE THERMOSTAT TO TURN ON AIR CURTAIN HEATER WHEN TEMPERATURE IS BELOW 45 DEG.	
AC-2	KITCHEN REAR DOOR	42.00	2,317	1,728	1,134	5.6	25	18	208/3/60	GC	GC	BERNER	AI08-E-1042E	FURNISHED WITH MAGNETIC DOOR SWITCH INTERLOCKED WITH DOOR. PROVIDE DISCONNECT SWITCH. PROVIDE THERMOSTAT TO TURN ON AIR CURTAIN HEATER WHEN TEMPERATURE IS BELOW 45 DEG.	
AC-3	DRIVE THRU WINDOW	24.50	2,800	1,045	200	--	15	2.2	120/1/60	GC	GC	BERNER	DTU03-2026A	FURNISHED WITH FACTORY-INSTALLED FAN/HEAT SWITCH, BRACKET SYSTEM, POWER CORD AND THERMAL OVERLOAD PROTECTION.	

MAKEUP AIR UNIT SCHEDULE

TAG	DESCRIPTION	AIRFLOW (CFM)	E.S.P. (IN. W.C.)	HEATING			COOLING				ELECTRICAL				WEIGHT (LB)	FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS
				EAT (DEG. F)	GAS INPUT (MBH)	OUTPUT (MBH)	EAT		TOTAL COOLING CAPACITY		MOTOR POWER (HP)	V/PH	MCA (A)	MOCPP (A)				MANUFACTURER	MODEL	
							DB (DEG. F)	WB (DEG. F)	TOTAL (MBH)	SENSIBLE (MBH)										
MAU-1	GAS FIRED MAKEUP AIR UNIT WITH AIR CONDITIONING	1,855	0.50	10.0	168.830	136.752	93.0	74.0	64.0	40.7	2.0	208/3/60	28.4	30	1,300	OWNER	GC	ECON-AIR	EARTU1-1.200-15-5T-MPU	FURNISHED WITH DISCONNECT, FULLY MODULATING GAS RE-HEAT, ROOF CURB, SCREEN INTAKE AND WASHABLE ALUMINUM FILTERS.

KITCHEN HOOD SCHEDULE

TAG	DESCRIPTION	MAX COOKING TEMP. (DEG. F)	MATERIAL	EXHAUST PLENUM				PERFORATED SUPPLY PLENUMS										NO. OF LIGHT FIXTURES	WEIGHT (LB)	FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS		
				AIRFLOW (CFM)	E.S.P. (IN. W.C.)	DUCT COLLARS		LENGTH (IN.)	WIDTH (IN.)	MAU PLENUM			AC PLENUM			MANUFACTURER	MODEL									
						NO.	DIAMETER (IN.)			AIRFLOW (CFM)	DUCT COLLARS		AIRFLOW	DUCT COLLARS												
											NO.	WIDTH (IN.)		LENGTH (IN.)	NO.							WIDTH (IN.)	LENGTH (IN.)			
HD-1	TYPE 1 CANOPY HOOD WITH PERFORATED MAU AND AC SUPPLY PLENUMS	600	4030 STAINLESS STEEL	2,315	0.725	1	16	139.00	57.00	152.00	24.00	1,855	3	36	8	730	2	28	6	6	1,250	OWNER	GC	CAPTIVEAIRE	6030 ND-2-ACPPSP-F	FURNISHED WITH FIELD WRAPPER, RIGHT VERTICAL END PANEL, LEFT VERTICAL END PANEL, VAPORPROOF INCANDESCENT LIGHT FIXTURES, STAINLESS STEEL FILTERS, INTEGRAL UTILITY CABINET, TANK FIRE SUPPRESSION SYSTEM AND DUCT COLLAR TEMPERATURE SENSOR

ROOFTOP UNIT SCHEDULE

TAG	DESCRIPTION	COOLING CAPACITY (TONS)	EER (IEER)	AIRFLOW			COOLING					HEATING			NUMBER OF COMPRESSORS	NUMBER OF CIRCUITS	REFRIGERANT CHARGE (LB)	WEIGHT (LB)	ELECTRICAL			FURNISHED BY	INSTALLED BY	MANUFACTURER	MODEL	REMARKS	
				TOTAL (CFM)	RETURN (CFM)	OA (CFM)	E.S.P. (IN. W.C.)	GROSS TOTAL (MBH)	GROSS SENSIBLE (MBH)	EAT DB (DEG. F)	EAT WB (DEG. F)	O.A.T. (DEG. F)	INPUT (MBH)	OUTPUT (MBH)					EAT (DEG. F)	MOCPP (A)	MCA (A)						V/PH
RTU-1	KITCHEN ROOFTOP UNIT	8.5	11.2 (15.0)	3,000	2,730	270	0.80	99.3	67.6	75.5	65.2	98.0	180	148	64.3	2	1	21	1,200	50	41	208/3/60	OWNER	GC	CARRIER	48FCEN09	FURNISHED WITH HOT GAS REHEAT. PROVIDE REMOTE HUMIDISTAT, COMPARATIVE ENTHALPY ECONOMIZER WITH FAULT DETECTION AND DIAGNOSTICS. SMOKE DETECTOR IN RETURN AIR STREAM, BAROMETRIC RELIEF, HINGED PANELS, MERV 8 FILTERS, HAIL GUARD, MULTI-SPEED FAN, AND 14" TALL ROOF CURB
RTU-2	DINING ROOM ROOFTOP UNIT	8.5	11.2 (15.0)	3,000	2,220	780	0.80	99.3	67.6	77.9	66.5	98.0	180	148	55.1	2	1	21	1,200	50	41	208/3/60	OWNER	GC	CARRIER	48FCEN09	FURNISHED WITH HOT GAS REHEAT. PROVIDE REMOTE HUMIDISTAT, COMPARATIVE ENTHALPY ECONOMIZER WITH FAULT DETECTION AND DIAGNOSTICS. SMOKE DETECTOR IN RETURN AIR STREAM, BAROMETRIC RELIEF, HINGED PANELS, MERV 8 FILTERS, HAIL GUARD, MULTI-SPEED FAN, AND 14" TALL ROOF CURB

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MECHANICAL SCHEDULES

Date Modified: 07/26/2024
Date Created: 07/26/2024
Scale: AS NOTED
Project No.: 240003
Drawn By: KLM
Checked By: JAE

M400

PLUMBING SYMBOLS & ABBREVIATIONS

	ELBOW UP
	ELBOW DOWN
	DOMESTIC COLD WATER
	DOMESTIC HOT WATER
	DOMESTIC HOT WATER RECIRC.
	DOMESTIC FILTERED COLD WATER
	NATURAL GAS
	NATURAL GAS (ON ROOF)
	SANITARY WASTE
	GREASE WASTE
	SANITARY VENT
	CONDENSATE DRAIN
	UNION
	VALVE
	BALANCE VALVE
	CHECK VALVE
	PRESSURE REDUCING VALVE
	GAS METER
	WATER METER
	WATER SUB-METER
	WATER IRRIGATION METER
	REDUCED PRESSURE ZONE BACKFLOW PREVENTER
	FLOOR DRAIN
	FLOOR SINK
	CLEANOUT (FLOOR, WALL)
	EQUIPMENT TAG: SEE SCHEDULES FOR MORE INFORMATION
	CODED NOTE (SEE SAME SHEET FOR NOTE MEANING)
	CONNECT TO EXISTING

KITCHEN EQUIPMENT NOTES:

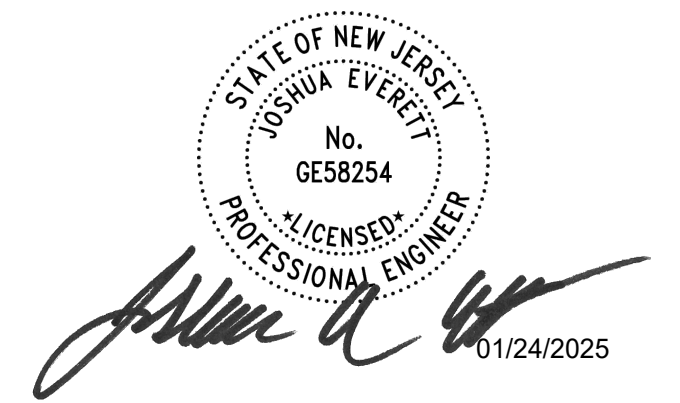
- A. INSTALL KITCHEN EQUIPMENT PIPING AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND REQUIREMENTS. SEE KITCHEN EQUIPMENT DOCUMENTATION FOR SPECIFIC DIRECTION AT INDIVIDUAL ITEMS.
- B. SEE KITCHEN EQUIPMENT DOCUMENTATION FOR ADDITIONAL INFORMATION PERTAINING TO KITCHEN EQUIPMENT PLUMBING REQUIREMENTS, INCLUDING UTILITIES REQUIRED, CONNECTION SIZES AND ROUGH-IN LOCATIONS FOR SPECIFIC ITEMS (SUPPLY AND DRAIN). COORDINATE FINAL INSTALLATION WITH THE KITCHEN EQUIPMENT AS ACTUALLY INSTALLED. LOCATIONS OF FLOOR DRAINS, FLOOR SINKS AND OTHER ASSEMBLIES UTILIZED FOR INDIRECT DRAINAGE FROM FOOD SERVICE EQUIPMENT, ARE TO BE DETERMINED FROM THE KITCHEN EQUIPMENT LAYOUT PLANS. THE PLUMBING CONTRACTOR SHALL EXTEND PIPING BELOW COUNTERS, IN CASEWORK OR STRUCTURE AS REQUIRED FROM DROP OR RISE POINTS INDICATED ON PLANS TO EQUIPMENT CONNECTION POINTS.
- C. COORDINATE INSTALLATION OF ALL ITEMS AND VERIFY CONDITIONS IN ADVANCE WITH THE KITCHEN EQUIPMENT CONTRACTOR.

CONSULTANT:



EVERJ ENGINEERING, INC.
1509 BUCK TRAIL LANE
WORTHINGTON, OH 43085
614-349-8054
www.everjengineering.com

SEAL



PROJECT

CAVA

CAVA - NORTH BRUNSWICK, NJ
222 GRAND AVE.
NORTH BRUNSWICK, NJ 08902

DATE	DESCRIPTION
11/01/2024	LL CHANGES
12/02/2024	DINING SENSOR MOVED
01/27/2025	PERMIT ADDENDUM/CONST SET

PLUMBING ABBREVIATIONS

(D)	DEMOLISHED
(E)	EXISTING
(R)	RELOCATED
A.F.F.	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
A.O.R.	ARCHITECT OF RECORD
B.F.F.	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
CO	CLEANOUT
FCO	FLOOR CLEANOUT
CW	COLD WATER
DFU	DRAINAGE FIXTURE UNIT
DW	DISHWASHER
DWH	DOMESTIC WATER HEATER
WH	WATER HEATER
E.O.R.	ENGINEER OF RECORD
ET	EXPANSION TANK
FD	FLOOR DRAIN
FS	FLOOR SINK
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
HB	HOSE BIBB
HD	HUB DRAIN
HW	HOT WATER
IE	INVERT ELEVATION
KES	KITCHEN EQUIPMENT SUPPLIER
LAV	LAVATORY
MBH	THOUSANDS OF BTU PER HOUR
MFR	MANUFACTURER
MS	MOP SINK
P	PUMP
PRV	PRESSURE REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
REQ'D	REQUIRED
S	SHOWER
SK	SINK
SOV	SHUT OFF VALVE
SPEC	SPECIFICATION OR SPECIFIED
SAN	SANITARY SEWER
S.S.	STAINLESS STEEL
TD	TRENCH DRAIN
TD	TRAP PRIMER
UNO	UNLESS NOTED OTHERWISE
UR	URINAL

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PLUMBING COVER SHEET

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Drawn By:	BRW
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P000

SECTION 22 00 00 - PLUMBING GENERAL REQUIREMENTS

PART 1 - GENERAL

1. THE TERM "TENANT" - TENANTS' CONSTRUCTION MANAGER, "OWNER" OR "OWNER'S CONSTRUCTION MANAGER" SHALL REFER TO CAVA.
2. THE TERM "FURNISH" MEANS TO SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING, ASSEMBLY, INSTALLATION, AND SIMILAR OPERATIONS. THE TERM "INSTALL" DESCRIBES THE OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR THE INTENDED USE.
3. THE GENERAL CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR AS REQUIRED TO PROVIDE A COMPLETE WORKING SYSTEM AND AS DESCRIBED IN THESE DRAWINGS.
4. THE GENERAL CONTRACTOR SHALL REVIEW A COMPLETE SET OF THE CONSTRUCTION DOCUMENTS. EACH SUB-CONTRACTOR SHALL MAINTAIN A COMPLETE SET OF DRAWINGS ON SITE DURING THE CONSTRUCTION PROCESS.
5. COORDINATE WORK AS REQUIRED WITH THE LANDLORD. THE GENERAL CONTRACTOR SHALL UTILIZE LANDLORD-REQUIRED CONTRACTORS AT THE GENERAL CONTRACTOR'S EXPENSE.

PART 2 - PRODUCTS

1. PRODUCTS SHALL BE AS DESCRIBED IN THE DRAWINGS AND AS REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM.

PART 3 - EXECUTION

1. PLUMBING FIXTURES, ACCESSORIES AND MATERIALS PROVIDED FOR DOMESTIC WATER USE SHALL BE LEAD FREE.
2. WHEN CORE-DRILLING IS REQUIRED, COORDINATE ALL REQUIREMENTS WITH THE LANDLORD PRIOR TO START OF WORK. COORDINATE WITH THE SHELL TEAM AS REQUIRED AND PROVIDE ALL SCANS, PAY REVIEW FEES AND COMPLETE ALL REQUIREMENTS OF THE LANDLORD PRIOR TO DRILLING.
3. UNLESS DIMENSIONS HAVE BEEN PROVIDED, THE DRAWINGS ARE DIAGRAMATIC IN NATURE, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT AND REQUIRED EQUIPMENT. THEY SHALL NOT BE SCALED. COORDINATE WITH THE ARCHITECTURAL DRAWINGS, TENANT VENDORS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS AND CUTSHEETS AS REQUIRED.
4. COMPLETE ALL WORK IN COMPLIANCE WITH THE CODES LISTED ON THE ARCHITECTURAL SHEETS INCLUDING ALL LOCAL AMENDMENTS, ALL RELEVANT NFPA CODES AND STANDARDS AND SMACNA STANDARDS.
 - A. VERIFY ALL CODE REQUIREMENTS AND LOCAL AMENDMENTS WITH THE AUTHORITY HAVING JURISDICTION PRIOR TO BID.
 - B. WHEN THERE IS A DISCREPANCY BETWEEN THE ADOPTED CODES AND THESE DRAWINGS, THE MORE STRINGENT REQUIREMENT SHALL APPLY.
5. PROVIDE FIRESTOPPING AND SLEEVES AT ALL COMPONENTS PENETRATING RATED ASSEMBLIES TO MAINTAIN THE FIRE RATING OF THE EXISTING SHLL SYSTEMS.
6. COORDINATE WITH THE LOCAL AUTHORITY HAVING JURISDICTION AS NECESSARY. PURCHASE PERMITS ASSOCIATED WITH THE WORK AND ARRANGE ALL INSPECTIONS AS REQUIRED.
7. MAINTAIN A CLEAN CONSTRUCTION SITE DURING CONSTRUCTION. CLEAN SCRAP MATERIAL AND REMOVE FROM SITE DAILY AND MAINTAIN WORKING AREA IN AN ORDERLY FASHION.
8. PROVIDE SUBMITTALS AS NOTED IN THESE SPECIFICATIONS AND AS REQUESTED BY THE TENANT'S CONSTRUCTION MANAGER.
 - A. ALL SHOP DRAWINGS SHALL BE REVIEWED AND STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO THE TENANT'S CONSTRUCTION MANAGER.
 - B. SHOP DRAWINGS SHALL BE SUBMITTED TO ALLOW FOR FIVE BUSINESS DAYS OF REVIEW TIME.
9. PROVIDE REQUESTS FOR INFORMATION TO THE TENANT'S CONSTRUCTION MANAGER.
 - A. REQUESTS FOR INFORMATION SHALL PROVIDE A DETAILED DESCRIPTION OF THE SITE CONDITION OR DISCREPANCY AND THE CONTRACTOR'S PROPOSED REMEDY.
 - B. REQUESTS FOR INFORMATION SHALL BE SUBMITTED TO ALLOW FOR FIVE BUSINESS DAYS OF REVIEW TIME WITHOUT IMPACTING THE CONSTRUCTION SCHEDULE.
10. UPON COMPLETION OF WORK, THE GENERAL CONTRACTOR SHALL PROVIDE THE TENANT'S CONSTRUCTION MANAGER WITH A BOUND RECORD OF ALL PLUMBING EQUIPMENT UTILIZED IN THE JOB. THE GENERAL CONTRACTOR SHALL PROVIDE THE SAME INFORMATION IN AN ELECTRONIC FORMAT AS DIRECTED BY THE OWNER. THE BINDER SHALL CONTAIN:
 - A. COVER SHEET INDICATING THE PROJECT NAME, ADDRESS AND TURNOVER DATE.
 - B. COMPANY NAME AND CONTACT INFORMATION OF THE CONTRACTORS UTILIZED FOR THE PLUMBING SCOPE OF WORK.
 - C. CUTSHEETS, INSTALLATION MANUALS AND MAINTENANCE REQUIREMENTS FOR ALL FINISHING EQUIPMENT.
11. UPON COMPLETION OF WORK, THE GENERAL CONTRACTOR SHALL PROVIDE THE TENANT'S CONSTRUCTION MANAGER A FULL SET OF DRAWINGS WITH ANY DEVIATIONS FROM THE DRAWINGS INDICATED IN RED INK.

(END OF SECTION 22 00 00)

SECTION 22 05 23 - VALVES

PART 1 - GENERAL

1. SECTION REQUIREMENTS
 - A. SUBMITTALS: NONE REQUIRED.

PART 2 - PRODUCTS

1. BALL VALVES
 - A. CWP RATING: 400 PSIG
 - B. BODY DESIGN: TWO-PIECE BRONZE, THREADED ENDS WITH PTFE SEATS, BRONZE OR BRASS STEM, CHROME-PLATED BRASS BALL AND SOLDERED ENDS.
 - C. PORT: REGULAR
2. CHECK VALVES
 - A. CWP RATING: CLASS 125
 - B. BODY DESIGN: CLASS 125 SWING CHECK VALVE WITH BRONZE DISK, HORIZONTAL FLOW, CONSTRUCTED OF ASTM B 62 BRONZE, PTFE DISK AND SOLDERED ENDS.
3. PLUG VALVES
 - A. CWP RATING: 200 PSIG
 - B. BODY DESIGN: CLASS 125, LUBRICATED PLUG VALVE CONSTRUCTED OF CAST IRON WITH LUBRICATION-SEALING SYSTEM, REGULAR PATTERN, CAST IRON PLUG WITH SEALANT GROOVE AND THREADED ENDS.

PART 3 - EXECUTION

1. GENERAL
 - A. UTILIZE BALL AND CHECK VALVES IN DOMESTIC WATER PIPING WHERE SHOWN ON THE PLANS AND AS REQUIRED BY THE CODE ADOPTED BY THE AUTHORITY HAVING JURISDICTION.
 - B. UTILIZE PLUG VALVES IN NATURAL GAS PIPING WHERE SHOWN ON THE PLANS AND AS REQUIRED BY THE CODE ADOPTED BY THE AUTHORITY HAVING JURISDICTION.
 - C. DO NOT ATTEMPT TO REPAIR DEFECTIVE VALVES. REPLACE WITH NEW VALVES.
 - D. IF VALVES WITH CWP RATINGS INDICATED ARE UNAVAILABLE, THE SAME TYPES OF VALVES WITH HIGHER CWP RATINGS MAY BE SUBSTITUTED.
2. INSTALLATION:
 - A. INSTALL VALVES WITH UNIONS TO ALLOW SERVICE AND MAINTENANCE.
 - B. LOCATE VALVES FOR EASY ACCESS AND PROVIDE SEPARATE SUPPORT WHERE NECESSARY.
 - C. INSTALL VALVES IN HORIZONTAL PIPING WITH STEM AT OR ABOVE CENTER OF PIPE AND WHERE FULLY ACCESSIBLE.
 - D. INSTALL VALVES IN POSITION TO ALLOW FULL STEM MOVEMENT.
 - E. INSTALL SWING CHECK VALVES FOR PROPER DIRECTION OF FLOW IN HORIZONTAL POSITION WITH HINGE PIN LEVEL.

(END OF SECTION 22 05 23)

SECTION 22 07 19 - PLUMBING PIPING INSULATION

PART 1 - GENERAL

1. QUALITY ASSURANCE: FLAME-SPREAD INDEX OF 25 OR LESS, AND A SMOKE DEVELOPED INDEX OF 50 OR LESS IN ACCORDANCE WITH ASTM E 84.
1. SECTION REQUIREMENTS
 - A. SUBMITTALS: NONE REQUIRED.

PART 2 - PRODUCTS

1. INSULATION MATERIALS
 - A. GLASS FIBER PIPE INSULATION: COMPLY WITH ASTM C 547, TYPE I, GRADE A WITH FACTORY APPLIED JACKET WITH VAPOR RETARDER
 - B. POLYOLEFIN PIPE INSULATION: UNICELLULAR, POLYETHYLENE PIPE INSULATION, COMPLY WITH ASTM C 534 OR ASTM C 1427, TYPE I, GRADE 1
2. PROTECTIVE SHELDING PIPE COVERS: MANUFACTURER'S MASTIC WRAPS FOR COVERING PLUMBING FIXTURE HOT AND COLD WATER SUPPLIES AND TRAP AND DRAIN PIPING. COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (ADA) REQUIREMENTS.

PART 3 - EXECUTION

1. PREPARATION: CLEAN AND DRY SURFACES. REMOVE MATERIALS THAT WILL ADVERSELY AFFECT INSULATION APPLICATION
2. GENERAL
 - A. INSTALL INSULATION ACCORDING TO MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PER THE PIPE INSULATION DETAIL.
 - B. INSTALL INSULATION AND ACCESSORIES AND FINISHES WITH SMOOTH, STRAIGHT AND EVEN SURFACES. FREE OF VOIDS THROUGHOUT THE LENGTH OF PIPE INCLUDING FITTINGS, VALVES AND SPECIALTIES.
 - C. INSTALL INSULATION OVER FITTINGS, VALVES, STRAINERS, FLANGES, UNIONS AND OTHER SPECIALTIES UNLESS NOTED OTHERWISE.
 - D. INSULATE PIPE ELBOWS USING PREFORMED FITTING INSULATION OR INTERED FITTINGS.
 - E. INSTALL VAPOR BARRIERS ON ALL COLD WATER AND CONDENSATE SYSTEMS.
 - F. INSTALL INSULATION WITH LONGITUDINAL SEAMS AT TOP OF HORIZONTAL RUNS. LONGITUDINAL SEAMS AND END JOINTS SHALL BE TIGHT, BOND SEAMS AND JOINTS WITH ADHESIVE RECOMMENDED BY INSULATION MANUFACTURER TO MAINTAIN VAPOR BARRIER INTEGRITY.
 - G. WHERE VAPOR BARRIER IS REQUIRED, SEAL JOINTS, SEAMS AND PENETRATIONS IN INSULATION AT HANGERS, SUPPORTS, ANCHORS AND OTHER PROJECTIONS WITH VAPOR-BARRIER MASTIC.
 - H. COVER JOINTS AND SEAMS WITH TAPE, ACCORDING MANUFACTURER'S INSTRUCTIONS TO MAINTAIN ALL VAPOR SEALS.
 - I. APPLY ADHESIVES, MASTICS AND SEALANTS AT MANUFACTURER'S RECOMMENDED COVERAGE RATE AND THICKNESS.
 - J. CUT INSULATION IN A MANNER TO AVOID COMPRESSING INSULATION MORE THAN 75 PERCENT ITS NOMINAL THICKNESS.
 - K. PROVIDE A ONE FOOT LENGTH OF NONCOMPRESSIBLE INSULATION AT ALL PIPE HANGERS AND SUPPORTS.
3. PENETRATIONS
 - A. INSULATION AT ABOVE GROUND EXTERIOR WALL PENETRATIONS: INSTALL INSULATION CONTINUOUSLY THROUGH WALL PENETRATIONS.
 - B. INSULATION AT INTERIOR WALL AND PARTITION PENETRATIONS (NOT FIRE RATED): INSTALL INSULATION CONTINUOUSLY THROUGH WALL AND PARTITIONS.
 - C. INSULATION AT FLOOR PENETRATIONS: INSTALL INSULATION CONTINUOUSLY THROUGH FLOOR PENETRATIONS.
4. INDOOR PIPING INSULATIONS THICKNESS REQUIREMENTS
 - A. DOMESTIC HOT, COLD & RECIRCULATION WATER: REFER TO THE INSULATION SCHEDULE FOR PIPE INSULATION THICKNESS.
 - B. CHILLED /HOT WATER FOR HVAC: REFER TO THE INSULATION SCHEDULE FOR PIPE INSULATION THICKNESS.
 - C. ROOF DRAIN AND OVERFLOW DRAIN PIPING AND BODIES: 1" THICK.
 - D. EXPOSED SANITARY DRAINS, DOMESTIC WATER AND STOPS FOR PLUMBING FIXTURES FOR PEOPLE WITH DISABILITIES: 1/2"THICK.
 - E. SANITARY WASTE PIPING WITH HEAT TRACE: 2" THICK.

(END OF SECTION 22 07 19)

SECTION 22 11 16 - DOMESTIC WATER PIPING

PART 1 - GENERAL

1. PERFORMANCE REQUIREMENTS: MINIMUM PRESSURE REQUIREMENTS FOR WATER PIPING ARE AS FOLLOWS
 - A. DOMESTIC WATER SUPPLY ENTRANCE: 100 PSIG.
 - B. DOMESTIC WATER PIPING: 80 PSIG.
2. SECTION REQUIREMENTS
 - A. SUBMITTALS: NONE REQUIRED.

PART 2 - PRODUCTS

1. GENERAL
 - A. PORTABLE-WATER PIPING AND COMPONENTS SHALL COMPLY WITH NSF 14 AND NSF 61 ANNEX G.
 - B. COMPLY WITH NSF STANDARD 372 FOR LOW LEAD.
2. COPPER TUBE AND FITTINGS
 - A. HARD COPPER TUBE: ASTM B 88, TYPE L WATER TUBE, DRAWN TEMPER.
 - B. CAST-COPPER, SOLDER-JOINT FITTINGS: ASME B16.18, PRESSURE FITTINGS.
 - C. WROUGHT-COPPER, SOLDER JOINT FITTINGS: ASME B16.22, WROUGHT-COPPER PRESSURE FITTINGS.
 - D. BRONZE FLANGES: ASME B16.24, CLASS 150, WITH SOLDER-JOINT ENDS.
 - E. COPPER UNIONS: MSS SP-123, CAST-COPPER-ALLOY, HEXAGONAL-STOCK BODY WITH BALL-AND-SOCKET, METAL-TO-METAL SEATING SURFACES AND SOLDER-JOINT OR THREADED ENDS.
3. PEX TUBE AND FITTINGS
 - A. PEX MATERIAL: PEX SILANE CROSS-LINKED, HIGH DENSITY POLYETHYLENE PLASTIC ACCORDING TO ASTM F876, ASTM F877 AND CSA B 137.5 WITH A CHLORINE RESISTANCE RATING OF 5 AND CERTIFIED FOR FLOOR AND WALL ASSEMBLIES, FLAME-SPREAD INDEX OF 25 OR LESS, SMOKE-DEVELOPED INDEX OF 50 OR LESS.
 - B. BRONZE FITTINGS (1" AND SMALLER): PRESS FITTINGS MANUFACTURED FROM COPPER ALLOY, MEETING THE REQUIREMENTS OF ASTM F877 WHEN TESTED AS A SYSTEM WITH MANUFACTURER'S PEX TUBING.
 - C. POLYMER FITTINGS (1" AND SMALLER): PRESS FITTINGS MANUFACTURED FROM POLYMER MEETING THE REQUIREMENTS OF ASTM F877 WHEN TESTED AS A SYSTEM WITH THE MANUFACTURER'S PEX TUBING.
 - D. METAL INSERT AND COPPER CRIMP-RINGS: ASTM F1807.
 - E. PRESSURE/TEMPERATURE RATING (2" AND SMALLER): PEX, HIGH-DENSITY, CROSS LINKED POLYETHYLENE TUBING SHALL BE CAPABLE OF WITHSTANDING 180°F AT 100 PSI.
4. STAINLESS STEEL PIPING
 - A. TUBE MATERIALS: ASTM A 312/A 312M, SCHEDULE 40
 - B. ASTM A312/A 312M FITTINGS
 - C. FITTINGS FOR GROOVED-END PIPE SHALL BE STAINLESS-STEEL CASTING WITH DIMENSIONS MATCHING STAINLESS-STEEL PIPE.
 - D. MECHANICAL COUPLINGS FOR GROOVED-END STAINLESS-STEEL PIPE SHALL BE AWWA C608 FOR STAINLESS STEEL PIPE DIMENSIONS, STAINLESS-STEEL HOUSING SECTIONS, STAINLESS-STEEL BOLTS AND NUTS, EPDM-RUBBER GASKET'S SUITABLE FOR HOT AND COLD WATER WITH A 250 PSIG MINIMUM PRESSURE RATING.
5. DIELECTRIC FITTINGS
 - A. DIELECTRIC UNIONS: ASSE 1079 WITH A PRESSURE RATING OF 125 PSIG MINIMUM AT 180 DEG F WITH SOLDER-JOINT COPPER ALLOY AND THREADED FERROUS END CONNECTIONS.

PART 3 - EXECUTION

1. PIPING INSTALLATION
 - A. DRAWING PLANS, SCHEMATIC AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF DOMESTIC WATER PIPING ROUTING. COORDINATE INSTALLATION WITH WORK OF ALL OTHER TRADES. ACCOMMODATE HANGERS, INSULATION AND OTHER REQUIREMENTS AS REQUIRED.
 - B. INSTALL DOMESTIC WATER PIPING LEVEL AND PLUMB. PIPING SHALL BE FREE OF SAGS AND BENDS.
 - C. USE ECCENTRIC REDUCER FITTINGS TO MAKE REDUCTIONS IN PIPE SIZES. INSTALL FITTINGS WITH LEVEL SIDE DOWN.
 - D. JOIN PEX PIPING ACCORDING TO THE FOLLOWING STANDARDS: ASTM F877 FOR BRONZE AND POLYMER INSERT PEX PRESS FITTINGS.
2. DIELECTRIC FITTING INSTALLATION
 - A. INSTALL DIELECTRIC FITTINGS IN PIPING AT CONNECTIONS OF DISSIMILAR METAL PIPING AND TUBING.
4. HANGER AND SUPPORT INSTALLATION
 - A. INSTALL HANGERS AND SUPPORTS FOR COPPER PIPING AS REQUIRED BY THE PLUMBING CODE ADOPTED BY THE AUTHORITY HAVING JURISDICTION AND AS RECOMMENDED BY THE PIPE MANUFACTURER.
 - B. INSTALL HANGERS AND SUPPORTS FOR HORIZONTAL PEX TUBING AS REQUIRED BY THE PLUMBING CODE ADOPTED BY THE AUTHORITY HAVING JURISDICTION AND AS RECOMMENDED BY THE PIPE MANUFACTURER. INSTALL HANGERS FOR VERTICAL PEX TUBING EVERY 48 INCHES.
5. CONNECTIONS
 - A. WHERE THE SUPPLY LINE SHOWN ON THE PLUMBING DIAGRAMS DIFFERS FROM THE FIXTURE OR EQUIPMENT CONNECTION SIZE, PROVIDE LINE SIZE PIPE TO WITHIN 6" OF THE FIXTURE OR EQUIPMENT CONNECTION SIZE.
 - B. WHEN INSTALLING PIPING ADJACENT TO EQUIPMENT AND MACHINES, ALLOW SPACE FOR SERVICE MAINTENANCE.
 - C. PROVIDE TRANSITIONS FROM PEX TO COPPER PIPING AS REQUIRED IN MANUFACTURER'S INSTALLATION INSTRUCTIONS.
6. INSPECTING AND CLEANING
 - A. FILL DOMESTIC WATER PIPING, CHECK COMPONENTS TO DETERMINE THAT THEY ARE NOT AIR BOUND AND THAT PIPING IS FULL OF WATER.
 - B. TEST FOR LEAKS AND DEFECTS IN NEW PIPING AND PARTS OF EXISTING PIPING THAT HAVE BEEN ALTERED, EXTENDED OR REPAIRED.
 - C. CAP AND SUBJECT PIPING TO STATIC WATER PRESSURE OF 90 PSIG ABOVE OPERATING PRESSURE, WITHOUT EXCEEDING THE PRESSURE RATING OF THE PIPING SYSTEM MATERIALS. ISOLATE TEST SOURCE AND ALLOW IT TO STAND FOR FOUR HOURS. LEAKS AND LOSS IN TEST PRESSURE CONSTITUTE A DEFECT THAT MUST BE REPAIRED.
 - D. REPAIR LEAKS AND DEFECTS WITH NEW MATERIALS AND RETEST PIPING UNTIL SATISFACTORY RESULTS ARE OBTAINED.
 - E. INSPECT AND TEST PIPING SYSTEMS AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.
 - F. USE PURGING AND DISINFECTING PROCEDURES PRESCRIBED BY THE AUTHORITY HAVING JURISDICTION.

(END OF SECTION 22 11 16)

SECTION 22 11 23 - NATURAL-GAS PIPING

PART 1 - GENERAL

1. COMPLY WITH NFPA 54 AND THE FUEL-GAS CODE ADOPTED BY THE AUTHORITY HAVING JURISDICTION FOR THE INSTALLATION AND PURGING OF NATURAL-GAS PIPING.
2. SECTION REQUIREMENTS
 - A. SUBMITTALS: NONE REQUIRED.

PART 2 - PRODUCTS

1. PERFORMANCE REQUIREMENTS
 - A. PIPING AND VALVES: 100 PSIG MINIMUM UNLESS NOTED OTHERWISE.
2. PIPES, TUBES AND FITTINGS
 - A. STEEL PIPE: ASTM A 53/A 53M, BLACK STEEL, SCHEDULE 40, TYPE S, GRADE B.
 - B. MALLEABLE-IRON THREADED FITTINGS: ASME B16.3, CLASS 150, STANDARD PATTERN.
 - C. WROUGHT-STEEL WELDING FITTINGS: ASTM A 234/A 234M FOR BUTT WELDING AND SOCKET WELDING.
 - D. UNIONS: ASME B16.39, CLASS 150, MALLEABLE IRON WITH BRASS-TO-IRON SEAT, GROUND JOINT AND THREADED ENDS.
3. BRONZE PLUG VALVES
 - A. BRONZE BODY COMPLYING WITH ASTM B 584 WITH A BRONZE PLUG WITH SQUARE HEAD WITH TAMPERPROOF FEATURE WHERE EASILY ACCESSIBLE. 125 PSIG PRESSURE CLASS OR SUITABLE FOR NATURAL-GAS SERVICE.
4. GAS VALVES
 - A. CAST IRON OR BRONZE BODY COMPLYING WITH ASTM A 128, CLASS B WITH A BRONZE PLUG WITH SQUARE HEAD WITH TAMPERPROOF FEATURE WHERE EASILY ACCESSIBLE. 125 PSIG PRESSURE CLASS, SUITABLE FOR NATURAL-GAS SERVICE.
5. LINE PRESSURE REGULATORS
 - A. COMPLY WITH ANSI Z21.80, SINGLE STAGE PRESSURE REGULATOR SUITABLE FOR NATURAL GAS WITH STEEL JACKET AND CORROSION RESISTANT COMPONENTS. PROVIDED WITH ELEVATION COMPENSATOR AND FACTORY-MOUNTED ATMOSPHERIC VENT. REFER TO PLANS FOR INLET PRESSURE, OUTLET PRESSURE AND FLOW VOLUME.
6. APPLIANCE PRESSURE REGULATORS
 - A. COMPLY WITH ANSI Z21.18, SINGLE STAGE PRESSURE REGULATOR SUITABLE FOR NATURAL GAS WITH STEEL JACKET AND CORROSION RESISTANT COMPONENTS. PROVIDED WITH ELEVATION COMPENSATOR AND FACTORY-MOUNTED ATMOSPHERIC VENT. REFER TO PLANS FOR INLET PRESSURE, OUTLET PRESSURE AND FLOW VOLUME.
7. DIELECTRIC FITTINGS
 - A. DIELECTRIC UNIONS: ASSE 1079 WITH A PRESSURE RATING OF 125 PSIG MINIMUM AT 180 DEG F WITH SOLDER-JOINT COPPER ALLOY AND THREADED FERROUS END CONNECTIONS.

PART 3 - EXECUTION

1. PIPING INSTALLATION
 - A. DRAWING PLANS, SCHEMATIC AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF NATURAL-GAS PIPING ROUTING. COORDINATE INSTALLATION WITH WORK OF ALL OTHER TRADES. ACCOMMODATE HANGERS, INSULATION AND OTHER REQUIREMENTS AS REQUIRED.
 - B. INSTALL FITTINGS AS REQUIRED FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS. USE ECCENTRIC REDUCER FITTINGS TO MAKE REDUCTIONS IN PIPE SIZES. INSTALL FITTINGS WITH LEVEL SIDE DOWN.
 - C. INSTALL PIPING FREE OF SAGS AND BENDS.
 - D. INSTALL NATURAL-GAS PIPING AT UNIFORM GRADE OF 2 PERCENT DOWN TOWARD DRIP AND SEDIMENT TRAPS.
 - E. INSTALL PIPING CONCEALED FROM VIEW AND PROTECTED FROM PHYSICAL CONTACT BY BUILDING OCCUPANTS UNLESS NOTED OTHERWISE.
 - F. ALL EXPOSED PIPING SHALL BE INSTALLED AT RIGHT ANGLES AND PARALLEL TO BUILDING WALLS. DIAGONAL RUNS ARE PROHIBITED UNLESS NOTED OTHERWISE.
 - G. INSTALL PIPING ABOVE ACCESSIBLE CEILINGS TO ALLOW SUFFICIENT SPACE FOR CEILING PANEL REMOVAL.
 - H. DRIPS AND SEDIMENT TRAPS: PROVIDE SEDIMENT TRAP AT EACH PIECE OF EQUIPMENT AND AT THE BOTTOM OF VERTICAL SECTIONS OF PIPING. PROVIDE DRIPS AT POINTS WHERE CONDENSATE MAY COLLECT. LOCATE WHERE ACCESSIBLE TO PERMIT CLEANING AND EMPTYING. DO NOT INSTALL WHERE CONDENSATE IS SUBJECT TO FREEZING.
 - I. EXTEND RELIEF VENT CONNECTIONS FOR REGULATORS TO OUTDOORS AND TERMINATE WITH WEATHERPROOF VENT CAP.
 - J. INSTALL UNIONS IN PIPES 2" AND SMALLER, ADJACENT TO EACH VALVE AND AT FINAL CONNECTION TO EACH PIECE OF EQUIPMENT.
 - K. DO NOT USE NATURAL-GAS PIPING AS GROUNDING ELECTRODE.
 - L. INSTALL STRAINER ON INLET OF EACH LINE-PRESSURE REGULATOR.
 - M. INSTALL ONE-PIECE ESCUTCHEONS FOR PIPING PENETRATING WALLS AND CEILINGS.
 - N. PAINT EXPOSED NATURAL-GAS PIPING WITH PRIMER AND ONE FINAL COAT OF EXTERIOR ENAMEL. COLOR SHALL MATCH SURROUNDING FINISHES OR AS REQUIRED BY THE LOCAL JURISDICTION.
2. VALVE INSTALLATION
 - A. INSTALL MANUAL GAS SHUTOFF VALVE FOR EACH GAS APPLIANCE.
 - B. ALLOW MAINTENANCE ACCESS FOR ALL VALVES AND REGULATORS.
 - C. LOCATE VALVES FOR EASY ACCESS, PROTECTED FROM DAMAGE.
3. HANGER AND SUPPORT INSTALLATION
 - A. INSTALL HANGERS AND SUPPORTS AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION AND AS RECOMMENDED BY THE PIPE MANUFACTURER.
4. CONNECTIONS
 - A. WHERE THE SUPPLY LINE SHOWN ON THE PLUMBING DIAGRAMS DIFFERS FROM THE FIXTURE OR EQUIPMENT CONNECTION SIZE, PROVIDE LINE SIZE PIPE TO WITHIN 6" OF THE FIXTURE OR EQUIPMENT BEFORE TRANSITIONING TO THE CONNECTION SIZE.
 - B. CONNECT TO THE UTILITY'S GAS MAIN ACCORDING TO THE UTILITY'S PROCEDURES AND REQUIREMENTS.
 - C. INSTALL NATURAL-GAS PIPING ELECTRICALLY CONTINUOUS, AND BONDED TO GAS APPLIANCE EQUIPMENT GROUNDING CONDUCTOR OF THE CIRCUIT POWERING THE APPLIANCE ACCORDING TO NFPA 70.
 - D. CONNECT PIPING TO APPLIANCES USING MANUAL GAS SHUTOFF VALVES AND UNIONS. INSTALL VALVE WITHIN 72 INCHES OF EQUIPMENT. INSTALL UNION BETWEEN THE VALVE AND EQUIPMENT.
 - E. SEDIMENT TRAPS: INSTALL TEE FITTINGS WITH CAPPED NIPPLE IN BOTTOM TO FORM DRIP, AS CLOSE AS PRACTICAL TO INLET OF EACH APPLIANCE.

(END OF SECTION 22 11 23)

SECTION 22 13 16 - SANITARY WASTE AND VENT PIPING

PART 1 - GENERAL

1. PERFORMANCE REQUIREMENTS: MINIMUM PRESSURE REQUIREMENTS FOR SOIL, WASTE AND VENT PIPING: 10-FOOT HEAD OF WATER.
2. SECTION REQUIREMENTS
 - A. SUBMITTALS: NONE REQUIRED.

PART 2 - PRODUCTS

1. GENERAL
 - A. COMPLY WITH THE REQUIREMENTS IN THE PIPING SCHEDULE FOR APPLICATIONS OF PIPE AND TUBE FOR SPECIFIC SERVICES AND SERVICE LOCATIONS
2. HUB AND SPIGOT, CAST IRON SOIL PIPE AND FITTINGS
 - A. COMPLY WITH CISPI'S "CAST IRON SOIL PIPE AND FITTINGS HANDBOOK"
 - B. PIPE AND FITTINGS: ASTM A 74 SERVICE CLASS.
 - C. GASKETS: ASTM C 564 RUBBER.
3. PVC PIPE AND FITTINGS
 - A. COMPLY WITH NSF 14, "PLASTICS PIPING SYSTEMS COMPONENTS AND RELATED MATERIALS" FOR PLASTIC PIPING COMPONENTS.
 - B. SOLID WALL SCHEDULE 40 PVC PIPE: ASTM D 2685, DRAIN, WASTE AND VENT.
 - C. PVC SOCKET FITTINGS: ASTM D 2665, MADE TO ASTM D 3311, DRAIN, WASTE AND VENT PATTERNS AND TO FIT SCHEDULE 40 PIPE.
4. STAINLESS-STEEL PIPE AND FITTINGS
 - A. COMPLY WITH ASME A112.3.1 AND APPLICABLE PLUMBING CODES.
 - B. PIPE AND FITTINGS: ASME A112.3.1, DRAINAGE PATTERN WITH SOCKET AND SPIGOT ENDS.
 - C. INTERNAL SEALING RINGS: ELASTOMERIC GASKETS SHAPED TO FIT SOCKET GROOVE.

PART 3 - EXECUTION

1. PIPING INSTALLATION
 - A. DRAWING PLANS, SCHEMATIC AND DIAGRAMS INDICATE GENERAL LOCATION AND ARRANGEMENT OF SANITARY WASTE AND VENT PIPING ROUTING. COORDINATE INSTALLATION WITH WORK OF ALL OTHER TRADES. ACCOMMODATE HANGER OTHER REQUIREMENTS AS REQUIRED.
 - B. INSTALL PIPING IN CONCEALED LOCATIONS UNLESS NOTED OTHERWISE.
 - C. INSTALL PIPING ABOVE ACCESSIBLE CEILINGS TO ALLOW SUFFICIENT SPACE FOR CEILING PANEL REMOVAL.
 - D. INSTALL PIPING AT INDICATED SLOPES.
 - E. INSTALL PIPING FREE OF SAGS AND BENDS.
 - F. INSTALL FITTINGS FOR CHANGES IN DIRECTION AND BRANCH CONNECTIONS AS REQUIRED PER THE PREVAILING PLUMBING CODE.
 - G. PROVIDE 1/4" PER FOOT SLOPE TO ALL HORIZONTAL SANITARY WASTE PIPING DOWNWARD IN THE DIRECTION OF FLOW.
 - H. PROVIDE 1/10" PER FOOT SLOPE TO VENT PIPING DOWN TOWARDS FIXTURE VENTS.
 - I. INSTALL CLEANOUTS WHERE INDICATED ON THE PLANS AND AS REQUIRED PER THE LOCAL AUTHORITY HAVING JURISDICTION.
 - J. INSTALL ONE-PIECE ESCUTCHEONS FOR PIPING PENETRATIONS OF WALLS AND CEILINGS.
 - K. PROVIDE TRAPS ON INDIRECT DRAINS AS REQUIRED BY THE PLUMBING CODE AND THE LOCAL AUTHORITY HAVING JURISDICTION.
2. JOINT CONNECTION
 - A. JOIN HUB-AND-SPIGOT, CAST IRON SOIL PIPING WITH GASKET JOINTS ACCORDING TO CISPI'S "CAST IRON SOIL PIPE AND FITTINGS HANDBOOK"
 - B. JOIN PVC PIPING ACCORDING TO ASTM D 2855 AND ASTM 2 2665 APPENDICES.
 - C. JOIN STAINLESS-STEEL PIPE AND FITTINGS WITH GASKETS ACCORDING TO ASME A112.3.1.
3. HANGER AND SUPPORT INSTALLATION
 - A. INSTALL HANGERS AND SUPPORTS AS REQUIRED BY THE PLUMBING CODE ADOPTED BY THE AUTHORITY HAVING JURISDICTION AND AS RECOMMENDED BY THE PIPE MANUFACTURER.
4. CONNECTIONS
 - A. PLUMBING FIXTURES AND EQUIPMENT: CONNECT WASTE PIPING IN SIZES INDICATED, BUT NOT SMALLER THAN REQUIRED BY PLUMBING CODE.
 - B. PLUMBING FIXTURES AND EQUIPMENT: CONNECT ATMOSPHERIC VENT PIPING IN SIZES INDICATED, BUT NOT SMALLER THAN REQUIRED BY PLUMBING CODE.
5. INSPECTING AND CLEANING
 - A. INSPECT AND TEST PIPING SYSTEMS AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.

(END OF SECTION 22 13 16)

SECTION 22 34 00 - DOMESTIC WATER HEATER, INSTANTANEOUS

PART 1 - GENERAL

1. ENERGY REQUIREMENTS
 - A. COMPLY WITH ALL REQUIREMENTS OF THE ENERGY CODE, AND ALL REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
2. SECTION REQUIREMENTS
 - A. SUBMITTALS: PROVIDE SUBMITTALS FOR ALL INSTANTANEOUS WATER HEATERS.

PART 2 - PRODUCTS

1. FACTORY INSTALLED OPTIONS
 - A. DIRECT VENT WATER HEATER CONSTRUCTED TO ANSI STANDARD Z21.10.3/CSA 4.3, RATED FOR 150 PSI WORKING PRESSURE WITH A GAS SUPPLY PRESSURE BETWEEN 3.5" TO 10.5" WATER COLUMN, PROVIDED WITH A STEEL CASE, DUAL STAINLESS STEEL HEAT EXCHANGERS, PREMIXED BURNER, NEGATIVE PRESSURE GAS VALVE, DUAL VENTURI GAS CONNECTION, 1.2 GALLON WATER HOLDING CAPACITY, CONDENSATE COLLECTOR, AN INTEGRAL CIRCULATION PUMP AND 0.5 GALLON BUFFER TANK.
 - B. THE UNIT SHALL HAVE ADJUSTMENTS FOR INSTALLATION AT HIGH ELEVATIONS AND TEMPERATURE LOCKOUTS.
 - C. THE UNIT SHALL BE CONTROLLED BY AN INTERNAL CIRCUIT BOARD WITH FLAME SENSOR SYSTEM, HIGH-LIMIT SENSORS, OVERHEAT PROTECTION DEVICE, FREEZE PROTECTION MODE AND FAN MOTOR ROTATION DETECTOR.
2. CHARACTERISTICS
 - A. REFER TO WATER HEATER SCHEDULE FOR GAS INPUT CAPACITY, MANUFACTURER AND MODEL.
3. EXECUTION
 - A. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES.
 - B. INSTALL WATER HEATER LEVEL AND PLUMB.
 - C. ARRANGE UNIT SUCH THAT CONTROLS AND DEVICES THAT REQUIRE SERVICING ARE ACCESSIBLE.
 - D. INSTALL COMBINATION TEMPERATURE-AND-PRESSURE RELIEF VALVES AND EXTEND COPPER PIPING AS NOTED IN THE WATER HEATER DETAIL.
 - E. INSTALL DRAIN PIPING AS NOTED IN THE WATER HEATER DETAIL.

(END OF SECTION 22 34 00)

SECTION 22 42 16 - PLUMBING FIXTURES

PART 1 - GENERAL

1. COMPLY WITH THE FOLLOWING STANDARDS
 - A. VITREOUS-CHINA FIXTURES: ASME A112.19.2
 - B. CAST-IRON FIXTURES: ASME A112.6.3
 - C. PVC FIXTURES: ASME A112.6.3
 - D. FLUSH VALVES: ASME A112.19.5
2. COMPLY WITH ALL FLOW REQUIREMENTS SET FORTH BY THE LOCAL AUTHORITY HAVING JURISDICTION.
3. SECTION REQUIREMENTS
 - A. SUBMITTALS: PROVIDE SUBMITTALS FOR ALL PLUMBING FIXTURES.

PART 2 - PRODUCTS

1. AS NOTED IN THE PLUMBING FIXTURE SCHEDULE

PART 3 - EXECUTION

1. INSTALLATION
 - A. INSTALL FIXTURES LEVEL AND PLUMB. INSTALL AT HEIGHTS COMPLIANT WITH THE AMERICANS WITH DISABILITIES ACT WHERE REQUIRED.
 - B. INSTALL WALL CARRIERS AND ACCESSORIES AS NOTED IN THE SCHEDULE REMARKS AND AS REQUIRED, WHERE NO CARRIERS ARE INDICATED, PROVIDE ADDITIONAL SUPPORT BUILT INTO WALL.
 - C. INSTALL ONE-PIECE ESCUTCHEONS AT ALL PIPING WALL PENETRATIONS.
 - D. INSTALL PROTECTIVE SHELDING PIPE COVERS AND ENCLOSURES ON EXPOSED PIPING OF ACCESSIBLE LAVATORIES.
 - E. INSTALL FLOOR-MOUNTED FIXTURES TO BUILDING SUBSTRATE.
 - F. SEAL ALL JOINTS BETWEEN FIXTURES/ESCUTCHEONS AND THE WALL/FLOOR USING SANITARY-TYPE, ONE-PART, MILDEW-RESISTANT SILICONE SEALANT.
 - G. INSTALL FLOOR DRAINS, FLOOR SINKS AND TRENCH DRAINS FLUSH WITH FINISHED FLOOR UNLESS NOTED OTHERWISE.
 - H. PROVIDE TRAP PRIMERS FOR ALL FLOOR DRAINS.
 - I. INSTALL FLASHING COLLARS OR FLANGE SO NO LEAKAGE OCCURS BETWEEN DRAIN AND ADJOINING FLOORING. MAINTAIN INTEGRITY OF WATERPROOF MEMBRANES WHERE PENETRATED.
2. CONNECTIONS
 - A. CONNECT FIXTURES WITH WATER SUPPLIES, QUARTER-TURN STOPS, BRAIDED STAINLESS RISERS, TRAPS, SANITARY AND WASTE PIPING AS REQUIRED.
 - B. PROVIDE QUARTER-TURN ANGLE STOPS IN AN ACCESSIBLE LOCATION BELOW THE FIXTURE, WHERE STOPS ARE NOT USED (FLUSH VALVE WATER CLOSETS, URINALS, MOP SINKS, ETC) PROVIDE ISOLATION VALVE IN AN ACCESSIBLE LOCATION ABOVE THE CEILING AT THE FIXTURE.
 - C. REFER TO PLUMBING FIXTURE SCHEDULE FOR CONNECTION LOCATIONS. USE SIZE FITTINGS AS REQUIRED TO MATCH FIXTURES.
3. ADJUSTING
 - A. OPERATE AND ADJUST FIXTURES AND CONTROLS TO ACHIEVE PROPER FLOW AND FUNCTION. REPLACE BATTERIES AND DEFECTIVE ITEMS PRIOR TO TURNOVER.

(END OF SECTION 22 42 16)

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CAVA - NORTH BRUNSWICK, NJ
222 GRAND AVE.
NORTH BRUNSWICK, NJ 08902

DATE DESCRIPTION

11/01/2024	LL CHANGES
12/02/2024	DINING SENSOR MOVED
11/27/2025	PERMIT ADDENDUM/CONST SET

11/27/2025 PERMIT ADDENDUM/CONST SET

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PLUMBING SPECIFICATIONS

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CODED NOTES

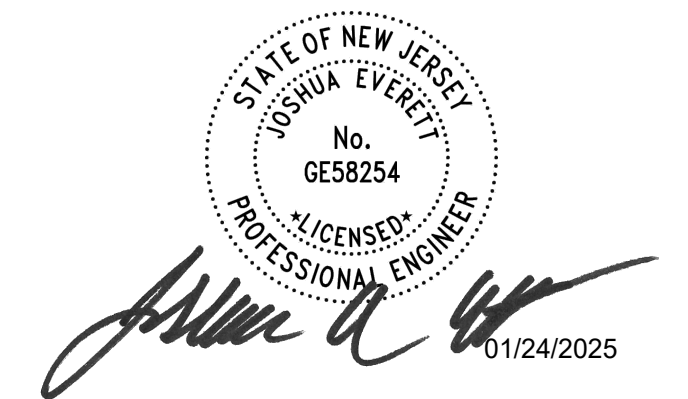
1. CONNECT TO EXISTING 2" DOMESTIC COLD WATER LINE. FIELD VERIFY EXACT LOCATION.
2. PROVIDE ACCESSIBLE VALVE IN WATER SUPPLY TO FIXTURE AS SHOWN.
3. INSTALL THE GAS MECHANICAL VALVE FURNISHED BY HOOD MANUFACTURER AND INSTALLED 6" BELOW CEILING FOR COOKING EQUIPMENT PER DETAIL 10/P201. INTERLOCK WITH ANSUL FIRE PROTECTION SYSTEM AT HOOD. COORDINATE WITH HOOD MANUFACTURER.
4. ROUTE GAS PIPING THROUGH ROOF PER DETAIL 2/P202. REFER TO SHEET P120 FOR CONTINUATION.
5. PROVIDE DOMESTIC WATER ROUGH-INS FOR THE MOP BASIN FAUCET AT 36" AFF.
6. PROVIDE GAS CONNECTIONS TO THE COOKING EQUIPMENT PER DETAIL 6/P201.
7. PROVIDE WATER HEATERS PER DETAIL 1/P201.
8. CONNECT TO EXISTING GAS PIPING. FIELD VERIFY EXACT LOCATION.
9. REFER TO ARCHITECTURAL DRAWINGS FOR PAINTING OF INTERIOR AND EXTERIOR EXPOSED GAS PIPE.
10. PROVIDE DOMESTIC COLD WATER ROUGH-IN FOR ICE MAKER WATER FILTER (K-23) AT 72" AFF. PROVIDE 1/2" BRAIDED STAINLESS STEEL LINE FROM THE FILTER TO THE ICE MAKER PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND PER DIRECTION OF THE KITCHEN EQUIPMENT SUPPLIER.
11. PROVIDE DOMESTIC WATER SUPPLY CONNECTION TO THE WAREWASH SINK PER DETAIL 1/P202.
12. PROVIDE 3/4" HOT WATER TO THE DISH MACHINE, MAKING FINAL CONNECTION USING CONNECTION BRAIDED STAINLESS STEEL HOSE (18" MAXIMUM). PROVIDE WATER PRESSURE REGULATOR AND SET LEAVING PRESSURE TO 25 PSI. PROVIDE WATER HAMMER ARRESTOR ON HOT WATER LINE. PROVIDE AN ACCESSIBLE SHUTOFF VALVE ADJACENT TO THE DISH MACHINE (COORDINATE LOCATION SUCH THAT THE VALVE IS NOT BLOCKED AFTER MACHINE IS INSTALLED) AND INSTALL A STRAINER IN AN ACCESSIBLE LOCATION AT THE CONNECTION TO THE UNIT.
13. PROVIDE ACCESSIBLE ISOLATION VALVE IN WATER SUPPLY TO ROOF HYDRANT. SUPPORT ROOF HYDRANT. REFER TO SHEET P120 FOR CONTINUATION.
14. FILTERED WATER LINES CONCEALED IN SOFFIT.
15. PROVIDE PIPING FROM THE WATER FILTER ASSEMBLY TO THE WATER DISPENSER AND ICE DISPENSER AS NOTED IN DETAIL 6/P202. CONTRACTOR SHALL PROVIDE WATTS SD-3 DUAL CHECK BACKFLOW DEVICE PRIOR TO FINAL CONNECTION OF EACH PIECE OF EQUIPMENT, ASSE 1022 COMPLIANT.
16. PROVIDE ASSE 1070 POINT-OF-USE THERMOSTATIC MIXING VALVE, WATTS LFMV-UT-M1, ON WATER SUPPLY TO KITCHEN HAND SINKS. PROVIDE ANGLE STOP BELOW SINK. FASTEN MIXING VALVE TO WALL. AND MAKE FINAL CONNECTION FROM ANGLE STOPS TO MIXING VALVE AND FROM MIXING VALVE TO FAUCET USING BRAIDED STAINLESS STEEL HOSE. ADJUST MIXING VALVE FOR A MAXIMUM DISCHARGE TEMPERATURE OF 110°F.
17. PROVIDE ACCESSIBLE TRAP PRIMER ABOVE LAY-IN CEILING AS SHOWN. INSTALL PER MANUFACTURER'S INSTALLATION INSTRUCTIONS WITH A SERVICE VALVE AT THE TRAP PRIMER INLET. REFER TO DETAIL 4/P202. PROVIDE 1/2" DISTRIBUTION PIPE(S) TO FLOOR DRAIN TRAP PRIMER CONNECTION(S) AS SHOWN. HORIZONTAL DISTRIBUTION PIPING SHALL HAVE CONTINUOUS SLOPE TO THE FLOOR DRAIN(S). ROUTE 1" COLD WATER DOWN IN WALL TO WATER FILTERS. INSTALL THE OWNER-FURNISHED WATER FILTERS ON THE WALL ABOVE THE BAG-IN-BOX. REFER TO DETAIL 6/P202 FOR MORE INFORMATION.
19. DO NOT ROUTE ANY PIPING ABOVE ELECTRICAL PANELS.
20. TWO WEEKS PRIOR TO THE SCHEDULED DATE OF THE MAINE ROOT INSTALLATION, THE GENERAL CONTRACTOR SHALL FIELD-VERIFY THE AVAILABLE WATER PRESSURE AT THE CARBONATOR WHILE FILTERED WATER IS FLOWING AT THE BEVERAGE STATION THRU BOTH K-73 AND K-66. IF PRESSURE IS LESS THEN 40 PSI AT CARBONATOR BACKFLOW PREVENTION INLET, PROVIDE A BOOSTER PUMP TO ENSURE MINIMUM OF 40 PSI FILTERED WATER PRESSURE IS AVAILABLE TO CARBONATOR AT ALL TIMES. COORDINATE THE EXACT REQUIREMENTS WITH THE MAINE ROOT VENDOR PRIOR TO PURCHASING PUMP. INSTALL PER MAINE ROOT VENDOR REQUIREMENTS.
21. ECOLAB VENDOR IS TO INSTALL ALL ECOLAB EQUIPMENT WITH CHECK VALVES OR BACKFLOW PREVENTION DEVICES AS APPLICABLE OR REQUIRED BY CODE.

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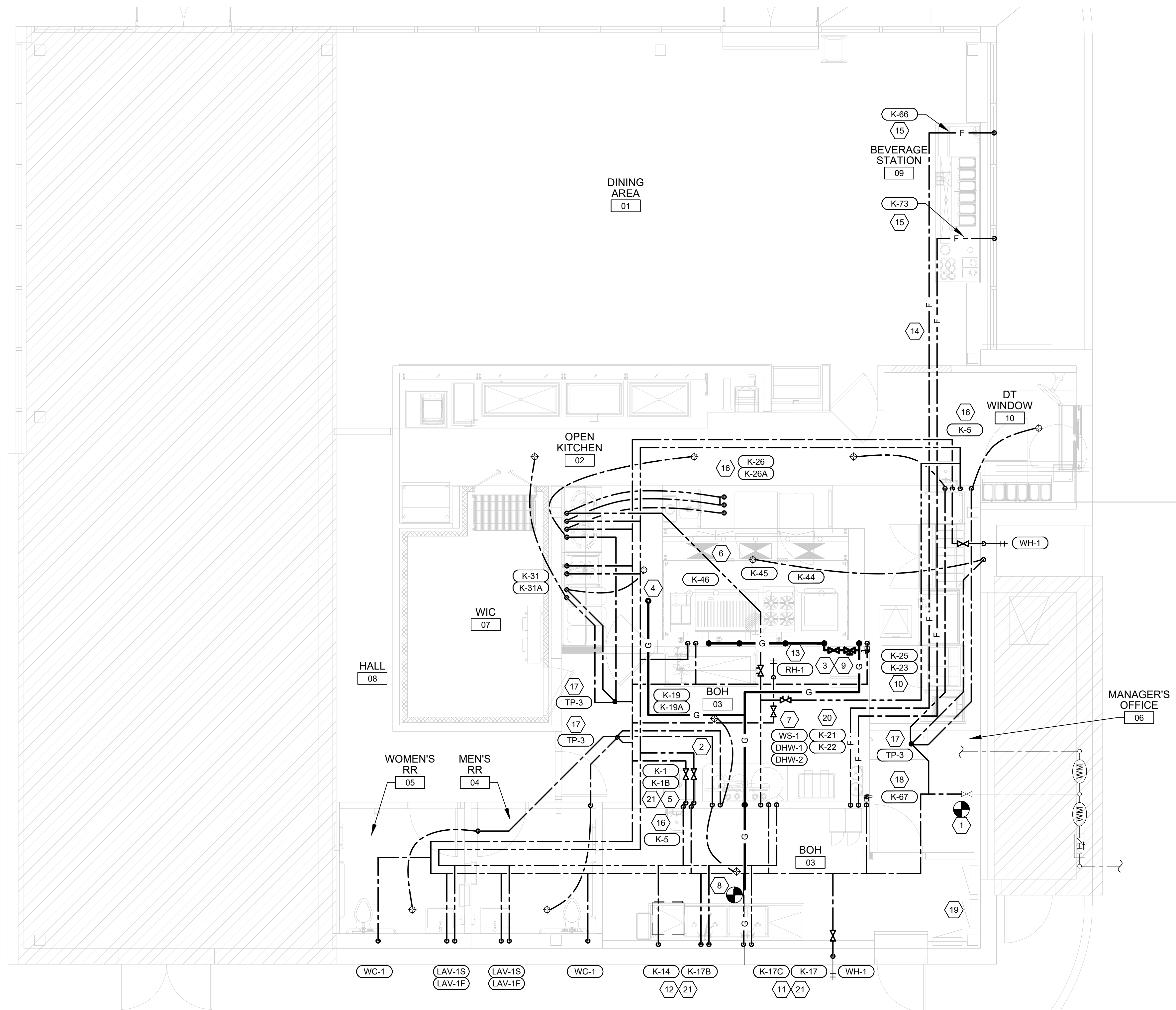
DATE	DESCRIPTION
11/01/2024	LL CHANGES
12/02/2024	DINING SENSOR MOVED
01/27/2025	PERMIT ADDENDUM/CONST SET

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PLUMBING SUPPLY PLAN

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Checked By:	JAE

P100



1 PLUMBING SUPPLY PLAN
1/4" = 1'-0"

CODED NOTES

- CONNECT TO EXISTING SANITARY WASTE LINE. FIELD VERIFY EXACT LOCATION AND MAKE NECESSARY CONNECTIONS AS REQUIRED.
- PROVIDE 3/4" INSULATED (CLOSE CELL) COPPER CONDENSATE DRAIN FROM THE WALK-IN COOLER EVAPORATOR TO THE MOP SINK BELOW AS SHOWN. SLOPE CONDENSATE DRAIN A MINIMUM OF 1" PER FOOT. HOLD EXPOSED CONDENSATE DRAIN IN WALK-IN COOLER AS HIGH AS POSSIBLE. CONCEAL DRAIN PIPING WITHIN FRAMED WALLS AS SHOWN. DISCHARGE THROUGH AN AIR GAP. MAKE FINAL CONNECTION TO EVAPORATOR INSIDE WALK-IN COOLER USING A UNION. PROVIDE CLEANOUT AS NECESSARY TO BE ABLE TO CLEAN AND REMOVE BLOCKAGES FROM THE PIPING WITHOUT DISASSEMBLING THE PIPING.
- PROVIDE SANITARY VENT THROUGH ROOF PER DETAIL 3/P202. LOCATE VENT MINIMUM 10'-0" AWAY FROM AIR INTAKES ON ROOF, UNLESS APPROVED BY ENGINEER PRIOR TO INSTALLATION.
- PROVIDE 3" INTAKE AND FLUE PIPING FROM THE WATER HEATER THROUGH THE ROOF AS SHOWN PER DETAIL 1/P201 AND PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- PROVIDE INDIRECT WASTE AND CONDENSATE DRAINS FROM FIXTURES OTHER THAN KITCHEN SINKS CONCEALED IN THE WALL AS SHOWN IN DETAIL 9/P201.
- PROVIDE DRAIN CONNECTIONS TO THE FOUR COMPARTMENT SINK PER DETAIL 3/P201.
- PROVIDE DRAIN LINES FROM THE FOOD PREP SINK TO THE FLOOR SINK. PROVIDE AN AIR GAP (MINIMUM OF TWO PIPE DIAMETERS) AT THE DISCHARGE TO THE FLOOR SINK.
- PROVIDE 1/2" DRAIN FROM DRIVE THRU TABLE / BEVERAGE COUNTER TO THE FLOOR SINK. DRAIN THROUGH AN AIR GAP.
- NOT USED.
- DO NOT PROVIDE WALL CLEANOUTS ON TILE OR PUBLICLY-VISIBLE WALLS. IF A WALL CLEANOUT IS REQUIRED ON THESE SURFACES, COORDINATE THE EXACT LOCATION WITH CONSTRUCTION MANAGER.
- PROVIDE 6" PVC SODA CONDUIT FROM THE BAG-IN-BOX LOCATION TO THE SODA DISPENSER. CONDUIT SHALL BE ROUTED THROUGH THE CEILING SPACE AND SHALL BE PROVIDED WITH LONG SWEEP ELBOWS IN ALL CHANGES IN DIRECTION. COORDINATE ROUTING WITH TENANT'S VENDOR AND INSTALL PER THEIR RECOMMENDATIONS. PROVIDE ESCUTCHEONS ON WALL AND CEILING PENETRATIONS.
- PROVIDE A 3/4" PVC DRAIN PIPE FROM THE ICE MACHINE AND A 3/4" PVC DRAIN PIPE FROM THE ICE BIN TO THE FLOOR SINK PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE A CODE-APPROVED AIR GAP AT THE DISCHARGE TO THE FLOOR SINK. SECURE DRAIN PIPES TO THE BOTTOM OF THE ICE MAKER.
- PROVIDE A 1" VALVED, INSULATED COPPER DRAIN FROM THE DROP-IN COLD UNIT TO THE SERVE LINE FLOOR SINK PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE UNIONS AT THE CONNECTION TO EACH WELL AND PROVIDE A CLEANOUT AT THE POINT OF CONNECTION. COORDINATE REQUIREMENTS WITH THE KITCHEN EQUIPMENT SUPPLIER PRIOR TO ROUGH-IN.
- ROUTE DRAIN AND CONDENSATE LINES FROM WATER SOFTENER AND WATER HEATERS TO MOP SINK.
- PROVIDE ISLAND LOOP VENT FOR SINK PER DETAIL 4/P201.
- EXISTING VENT TO ROOF FROM EXISTING GREASE INTERCEPTOR.

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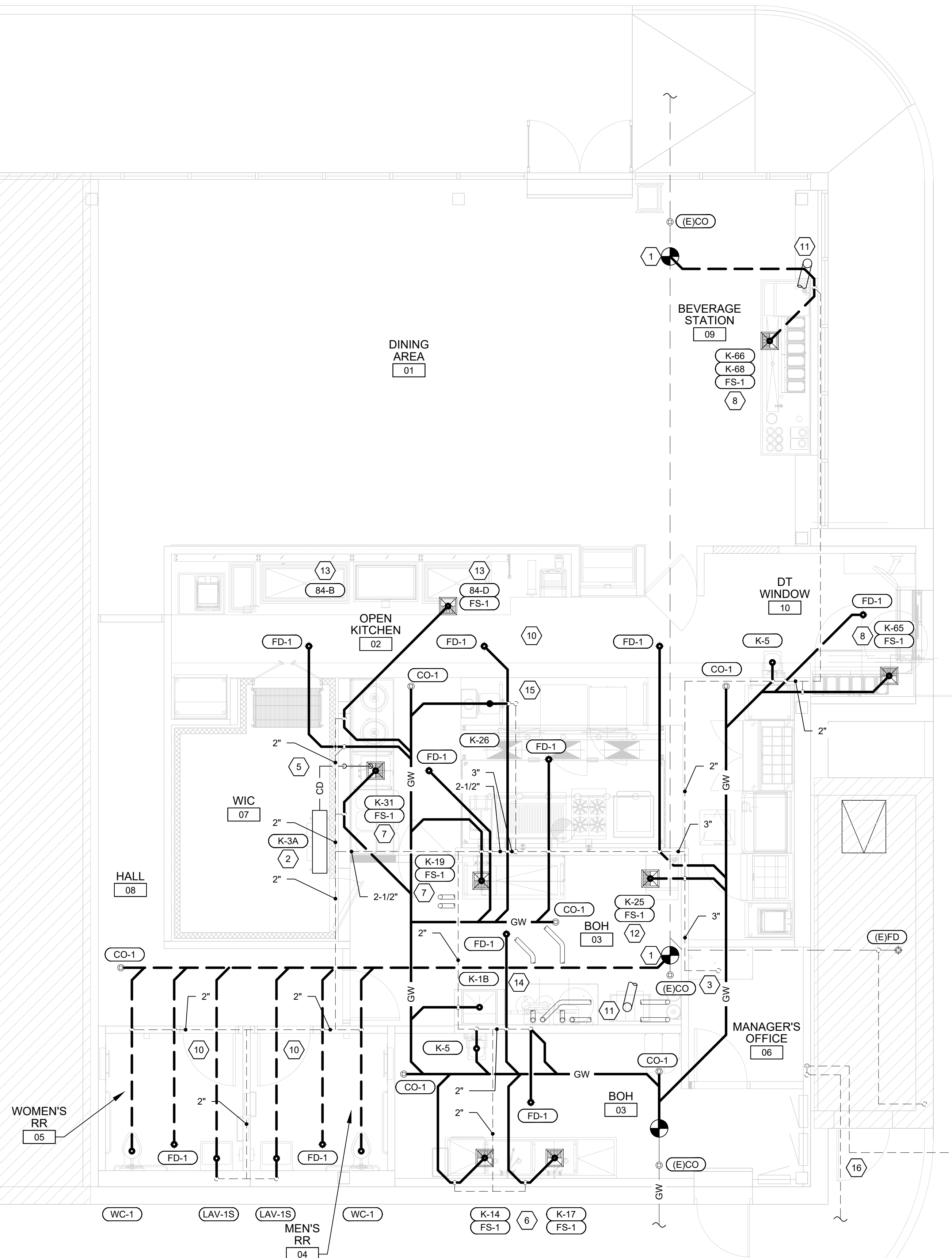
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PLUMBING SANITARY PLAN

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P110

1/24/2025 10:20 AM



1 SANITARY PLAN
1/4" = 1'-0"

CODED NOTES

1. SUPPORT THE GAS PIPE ON THE ROOF PER DETAIL 5/P202. WOOD BLOCKING IS NOT AN ACCEPTABLE METHOD OF SUPPORTING THE GAS PIPE.
2. PROVIDE ACCESSIBLE LINE-SIZED GAS VALVE, DIRT LEG, AND UNION AT GAS CONNECTION TO EQUIPMENT PER DETAIL 7/P202.
3. ROUTE GAS PIPING THROUGH ROOF PER DETAIL 2/P202. REFER TO SHEET P100 FOR CONTINUATION.
4. WATER HEATER FLUE THROUGH ROOF.
5. WATER HEATER COMBUSTION AIR INTAKE.
6. PROVIDE ROOF HYDRANT (RH-1) WITH BOTTOM OF NOZZLE INSTALLED 24" ABOVE THE BOTTOM OF THE ROOF DECK. PROVIDE ACCESSIBLE ISOLATION VALVE IN WATER SUPPLY TO ROOF HYDRANT. SUPPORT ROOF HYDRANT PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. REFER TO SHEET P100 FOR CONTINUATION.
7. PROVIDE CONDENSATE DRAIN FROM THE MECHANICAL EQUIPMENT TO A SPLASH BLOCK ON THE ROOF PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. ROUTE SUCH THAT THE DRAIN DOESN'T BLOCK ACCESS TO ANY ACCESS PANELS TO THE EQUIPMENT. TYPICAL OF ROOF TOP UNITS AND MAKEUP AIR UNIT.
8. SANITARY VENT THROUGH ROOF.

CONSULTANT:



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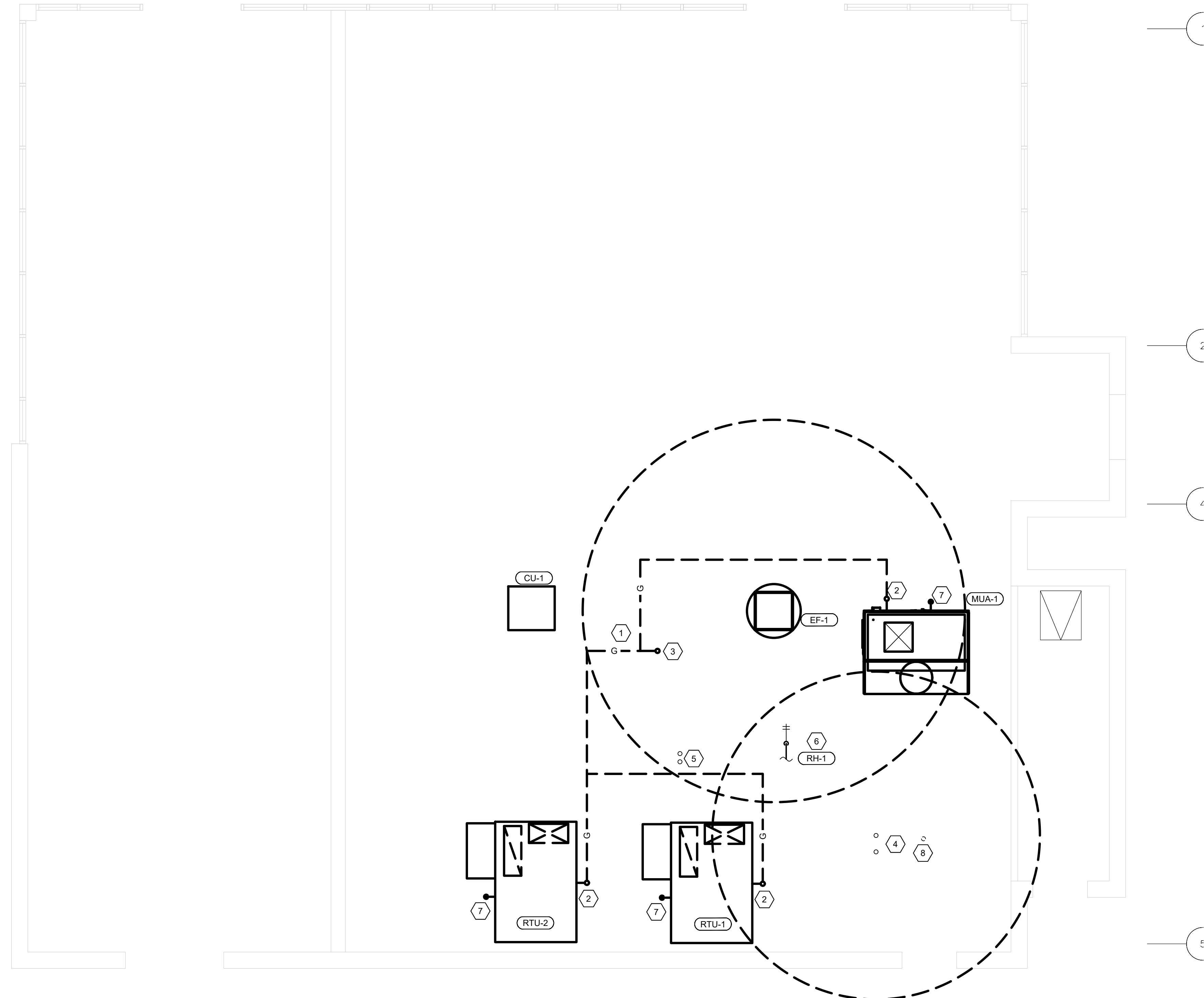
DATE	DESCRIPTION
11/01/2024	LL CHANGES
12/02/2024	DINING SENSOR MOVED
01/27/2025	PERMIT ADDENDUM/CONST SET

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PLUMBING SUPPLY ROOF PLAN

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Drawn By:	BRW
Checked By:	JAE

P120



1 PLUMBING ROOF PLAN
1/4" = 1'-0"

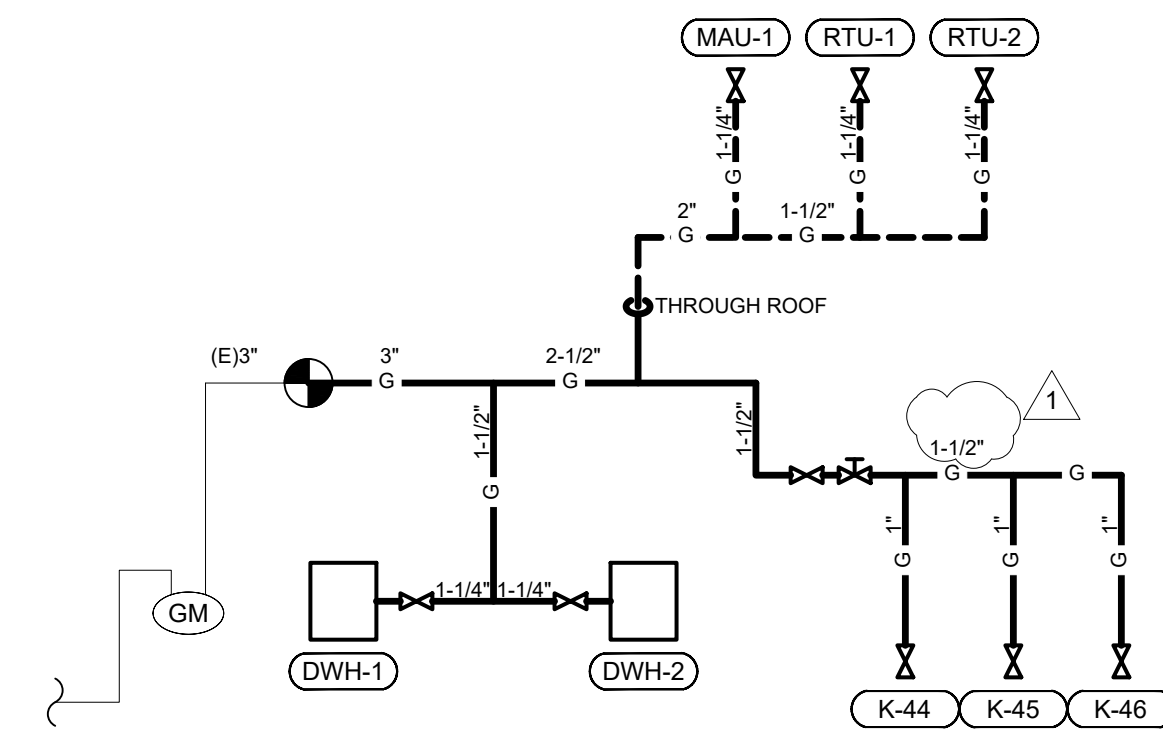


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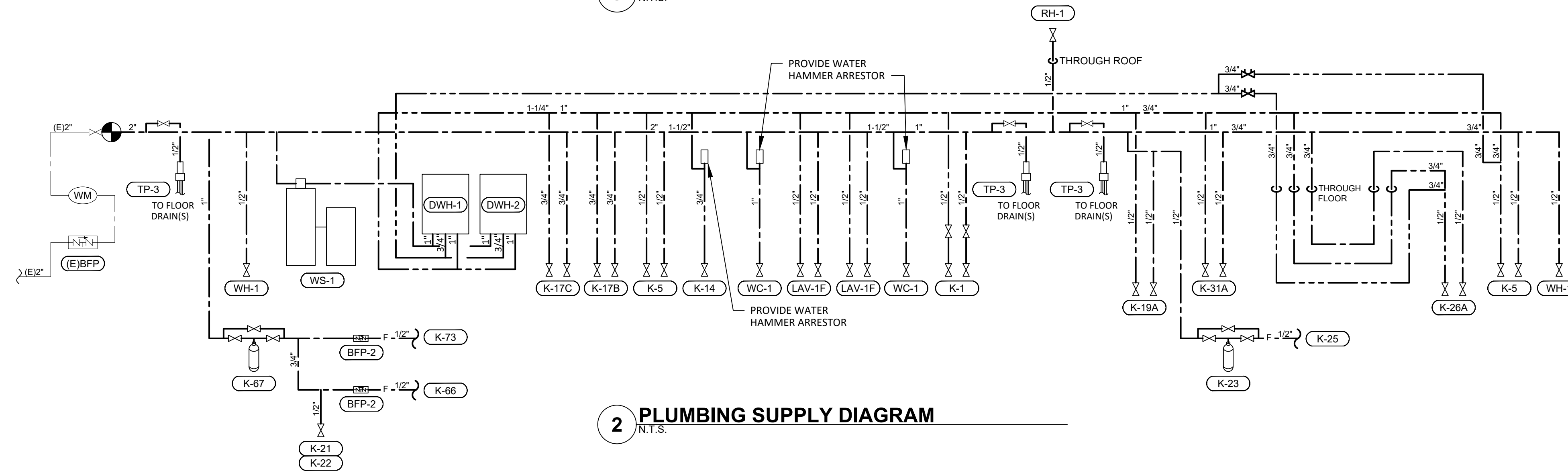
PLUMBING GAS CONNECTIONS

TAG	DESCRIPTION	EQUIVALENT LENGTH	INPUT (BTU/H)
DWH-1	WATER HEATER (GAS TANKLESS)	70'-0"	199,900
DWH-2	WATER HEATER (GAS TANKLESS)	70'-0"	199,900
K-44	GAS RANGE	100'-0"	120,000
K-45	48" GAS GRIDDLE	105'-0"	112,000
K-46	GAS FRYER	110'-0"	120,000
MAU-1	MAKE-UP AIR UNIT	100'-0"	168,830
RTU-1	KITCHEN ROOFTOP UNIT	105'-0"	180,000
RTU-2	DINING ROOFTOP UNIT	100'-0"	180,000
GRAND TOTAL			1,280,630

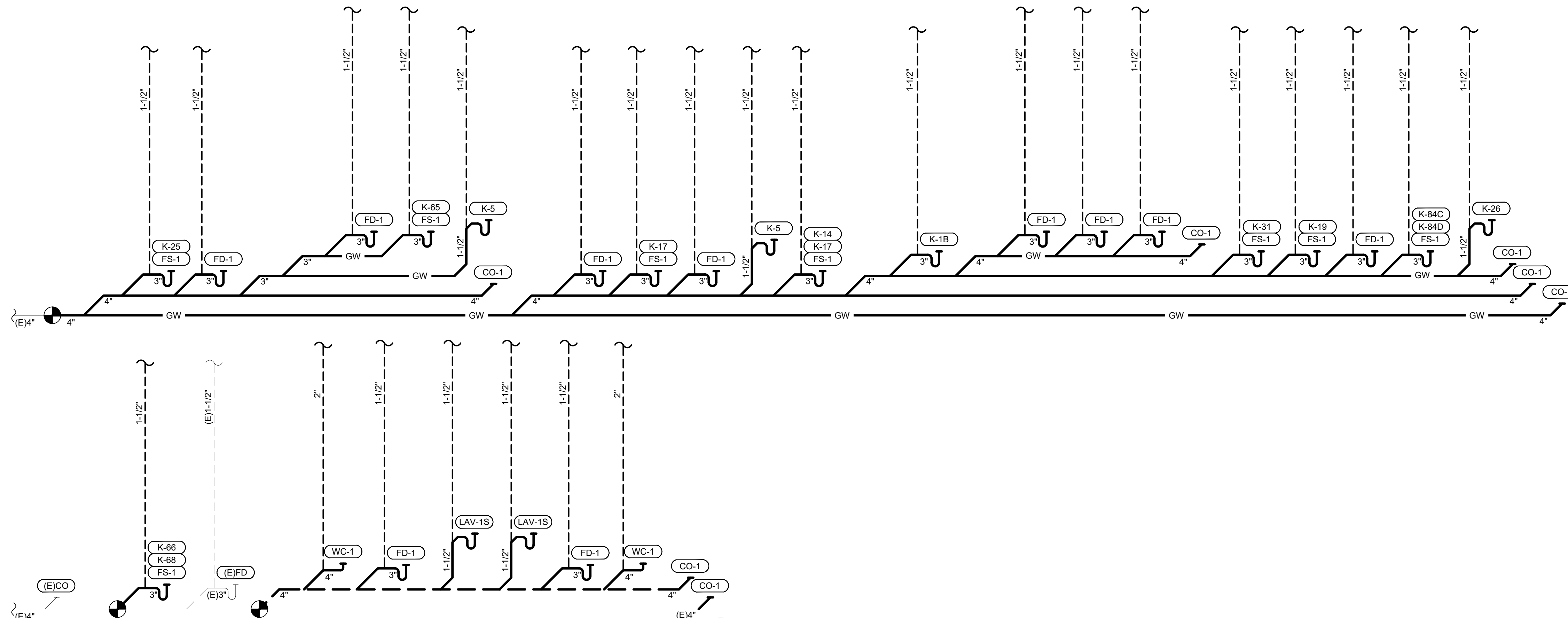
- NOTES:
- FIELD-VERIFY ALL LENGTHS PRIOR TO ROUGH-IN.
 - CALCULATIONS HAVE BEEN COMPLETED BASED ON A 7" WATER COLUMN SUPPLY PRESSURE AND A PRESSURE DROP OF 0.3" WATER COLUMN.
 - COORDINATE SUPPLY PRESSURE, METER INSTALLATION REQUIREMENTS AND ALL OTHER DETAILS WITH THE UTILITY PROVIDER PRIOR TO ROUGH-IN.



3 PLUMBING GAS DIAGRAM
N.T.S.



2 PLUMBING SUPPLY DIAGRAM
N.T.S.



1 PLUMBING WASTE DIAGRAM
N.T.S.

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PLUMBING DIAGRAMS

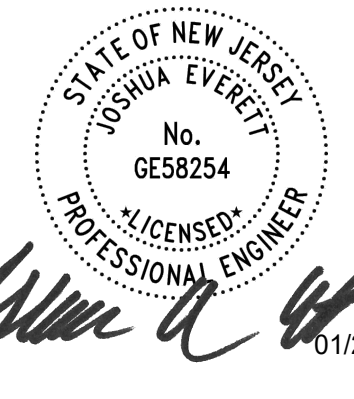
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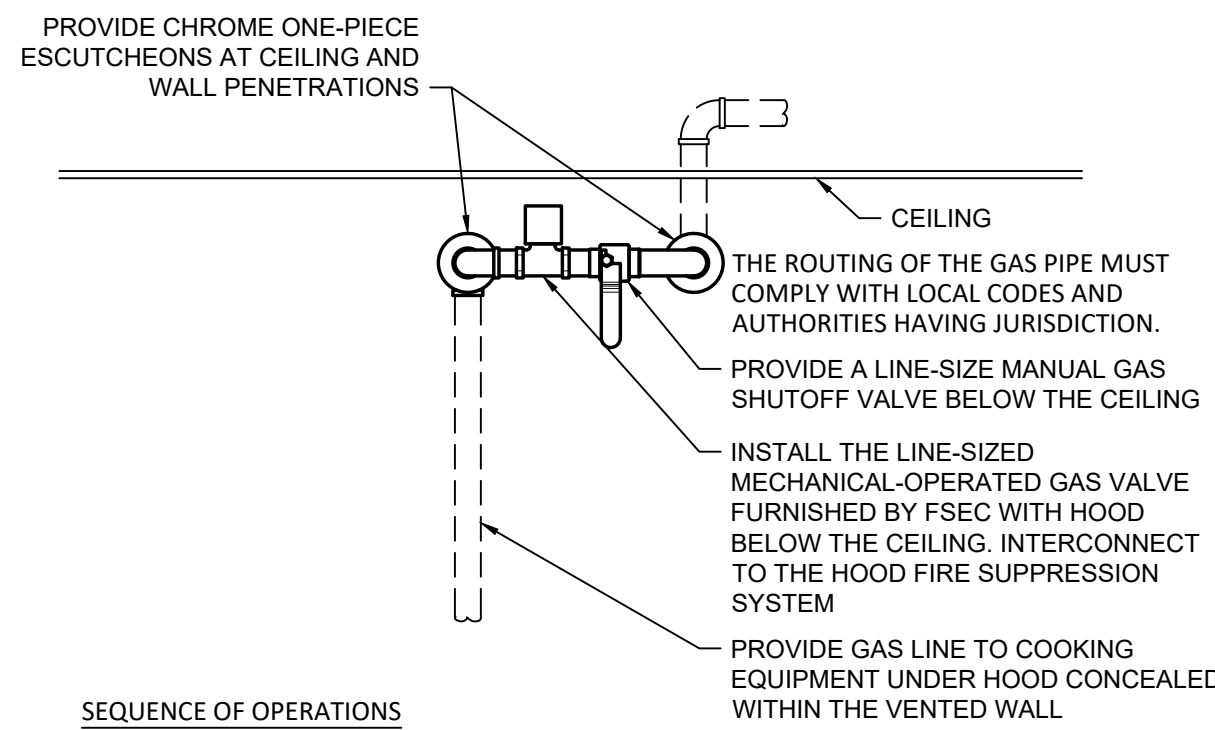
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PLUMBING DETAILS

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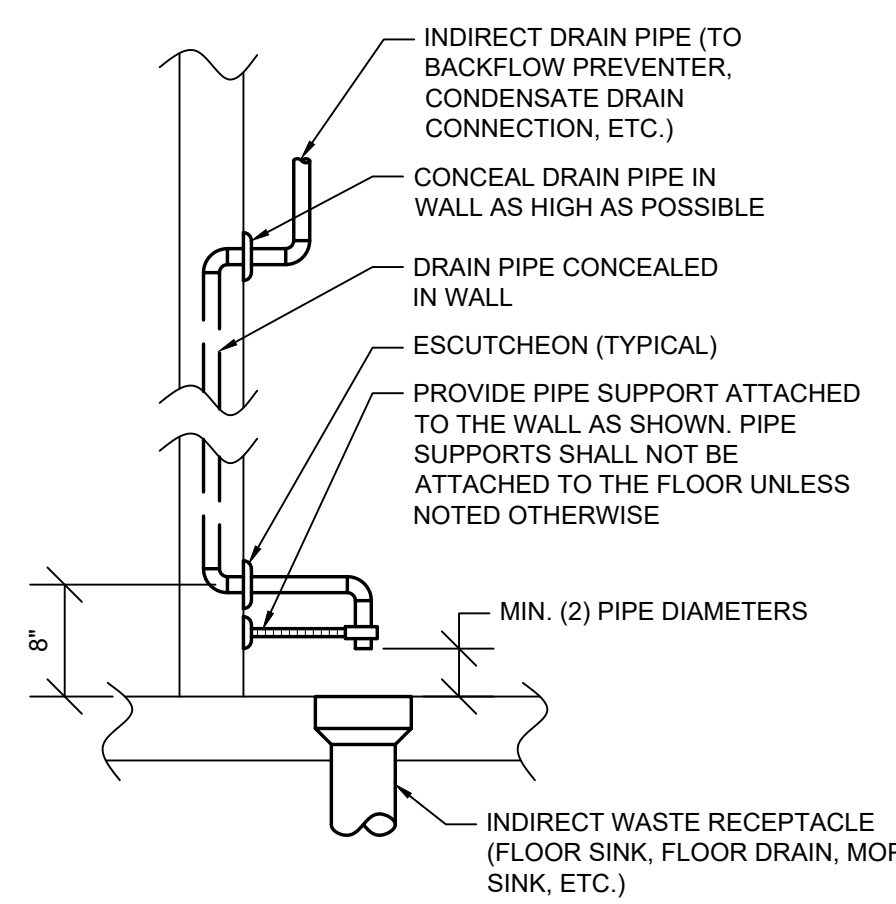
P201



SEQUENCE OF OPERATIONS

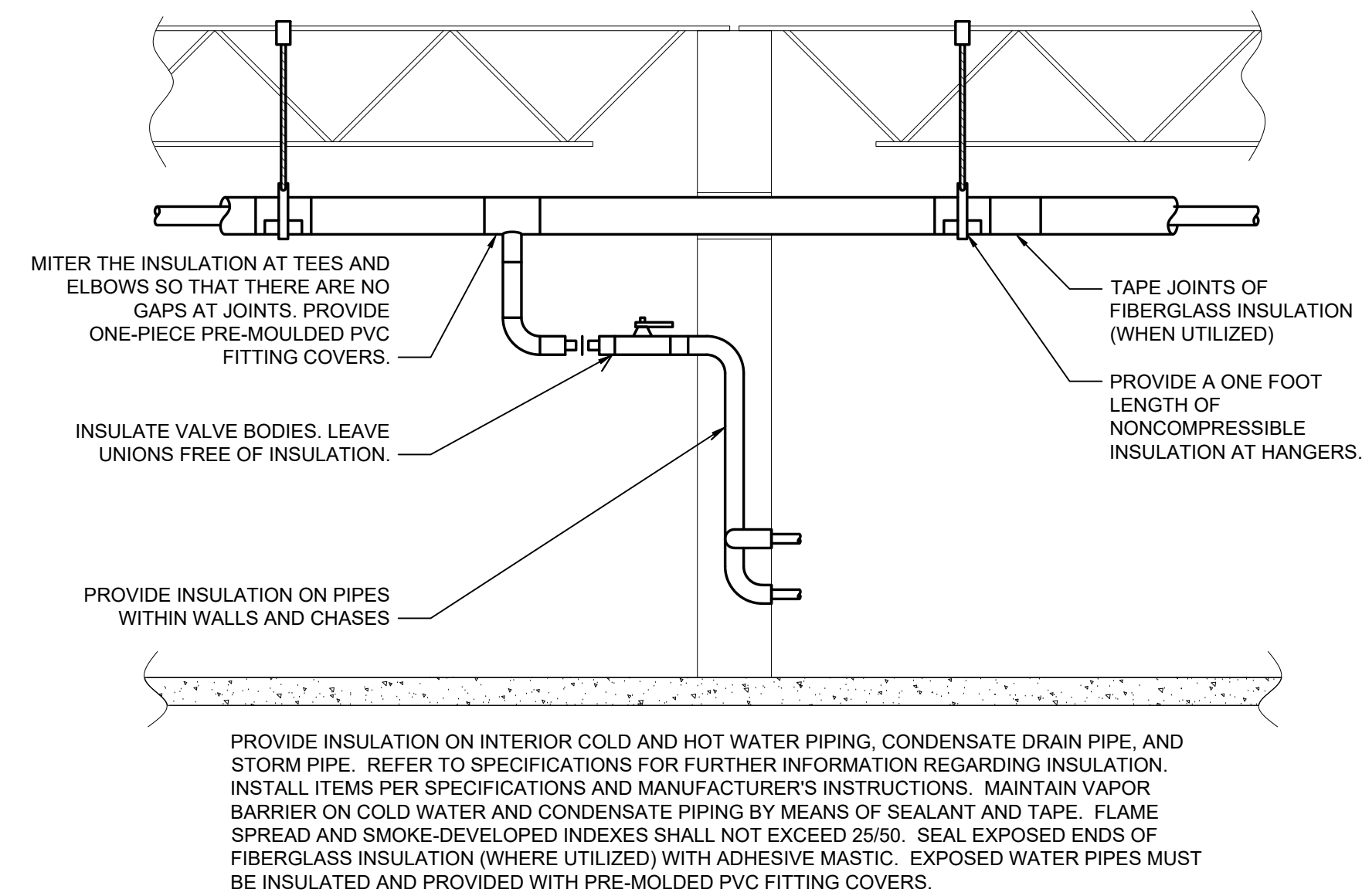
- NORMAL MODE:**
- DURING NORMAL OPERATION THE GAS SHUT-OFF VALVE SHALL BE OPEN.
- EMERGENCY MODE:**
- UPON ACTUATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE GAS SHUT-OFF VALVE SHALL CLOSE.

10 KITCHEN GAS SHUTOFF (AT CEILING)
N.T.S.

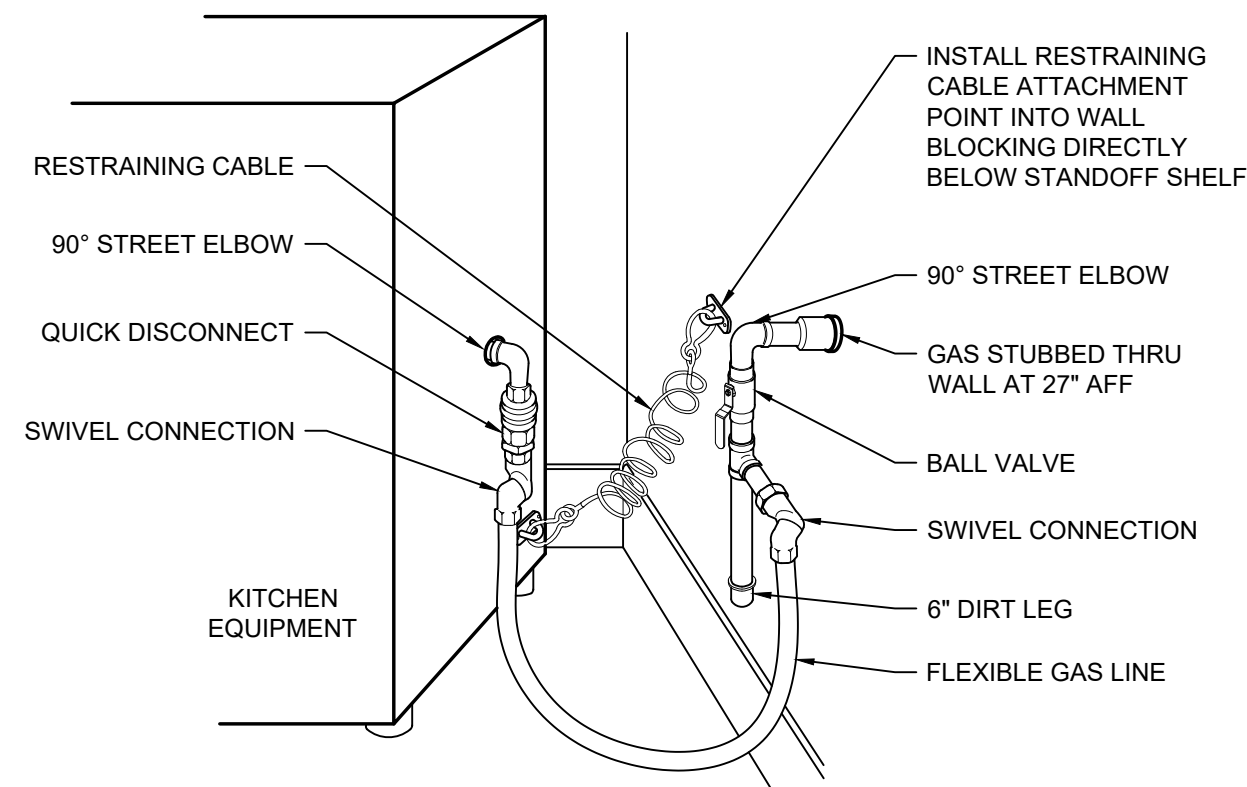


9 INDIRECT DRAIN
N.T.S.

8 NOT USED
N.T.S.



7 PIPE INSULATION DETAIL
N.T.S.

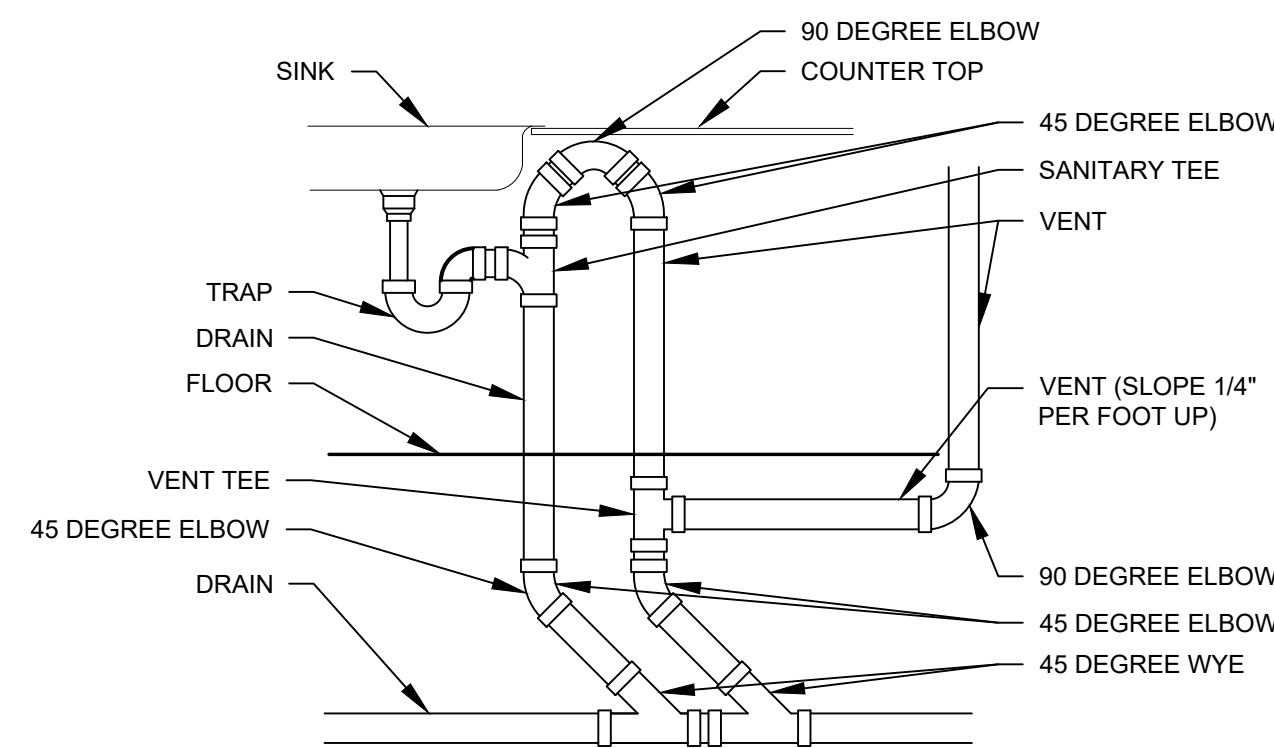


ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT ACTUAL CONNECTIONS. MAKE FINAL CONNECTION TO EQUIPMENT AS RECOMMENDED BY MANUFACTURER. PROVIDE WELDED FITTINGS/JOINTS IN ANY CONCEALED, UNSLEEVED LOCATION.

SPECIFICATION:

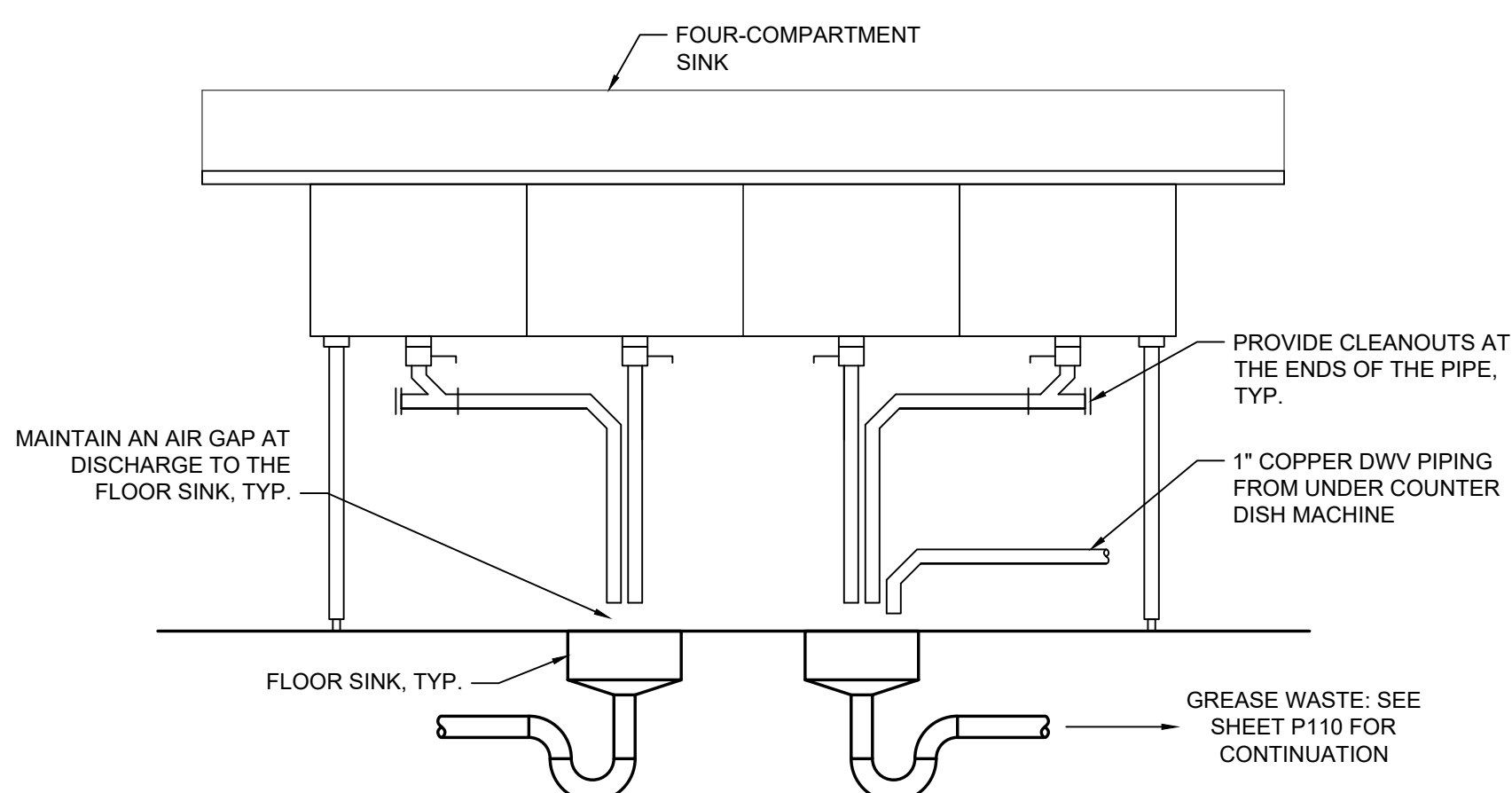
DORMONT 1675KIT2548
DORMONT BLUE HOSE MOVABLE GAS CONNECTOR KIT, 3/4" INSIDE DIA., 48" LONG, COVERED WITH STAINLESS STEEL BRAID, COATED WITH BLUE ANTIMICROBIAL PVC, (1) SNAPFAST QD, (2) SWIVEL MAX, (1) FULL PORT VALVE, COILED RESTRAINING CABLE WITH HARDWARE 160 MBH MINIMUM FLOW CAPACITY, LIMITED WARRANTY. PURCHASED BY CAVA AND INSTALLED BY GC.

6 KITCHEN GAS EQUIPMENT
N.T.S.



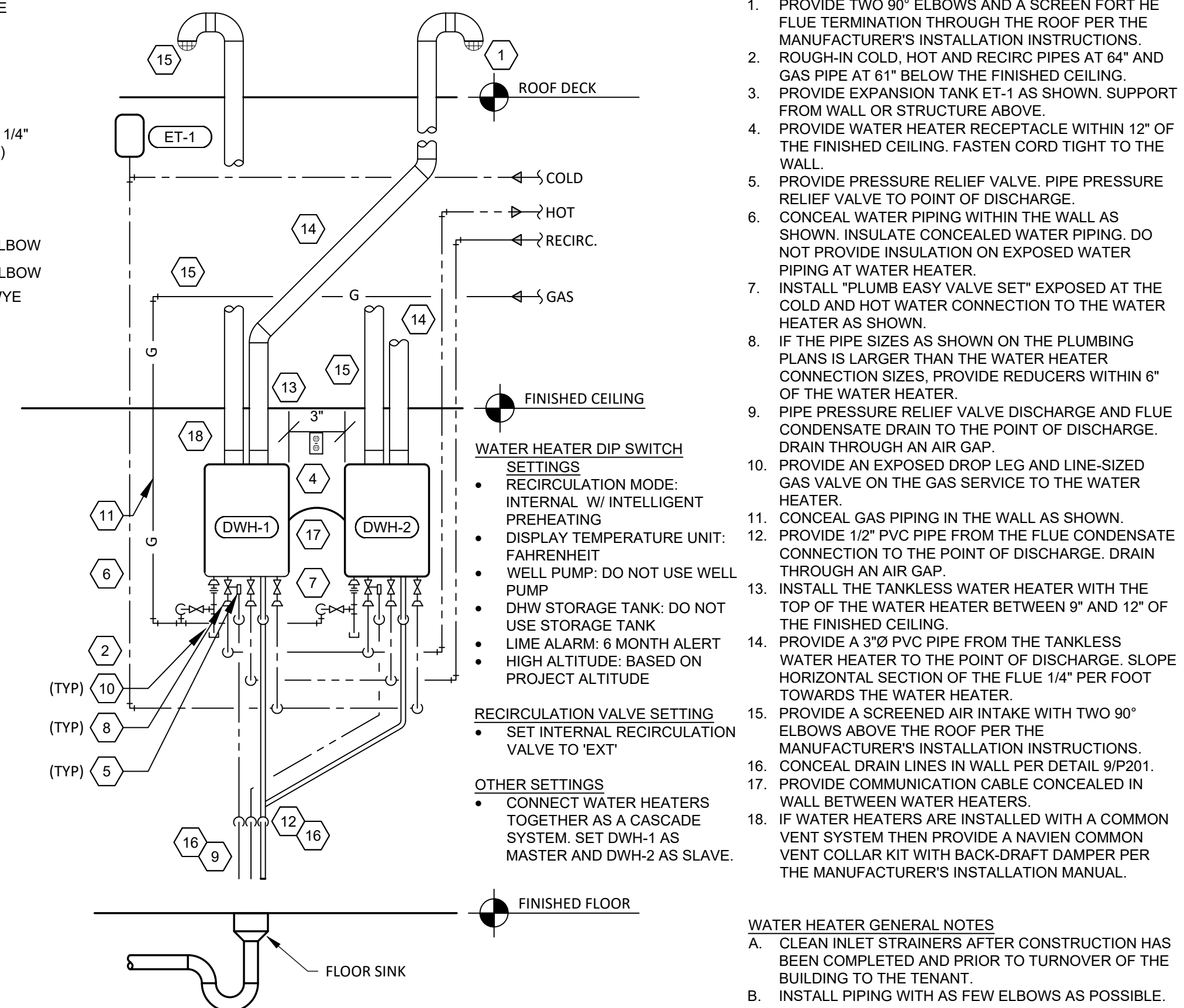
4 ISLAND LOOP VENT DETAIL
N.T.S.

5 NOT USED
N.T.S.



3 WARE WASH SINK
N.T.S.

2 NOT USED
N.T.S.



WATER HEATER DETAIL NOTES

- PROVIDE TWO 90° ELBOWS AND A SCREEN FOR THE FLUE TERMINATION THROUGH THE ROOF PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- ROUGH-IN COLD, HOT AND RECIRC PIPES AT 64" AND GAS PIPE AT 61" BELOW THE FINISHED CEILING.
- PROVIDE EXPANSION TANK ET-1 AS SHOWN. SUPPORT FROM WALL OR STRUCTURE ABOVE.
- PROVIDE WATER HEATER RECEPTACLE WITHIN 12" OF THE FINISHED CEILING. FASTEN CORD TIGHT TO THE WALL.
- PROVIDE PRESSURE RELIEF VALVE. PIPE PRESSURE RELIEF VALVE TO POINT OF DISCHARGE.
- CONCEAL WATER PIPING WITHIN THE WALL AS SHOWN. INSULATE CONCEALED WATER PIPING. DO NOT PROVIDE INSULATION ON EXPOSED WATER PIPING AT WATER HEATER.
- INSTALL "PLUMB EASY VALVE SET" EXPOSED AT THE COLD AND HOT WATER CONNECTION TO THE WATER HEATER AS SHOWN.
- IF THE PIPE SIZES AS SHOWN ON THE PLUMBING PLANS IS LARGER THAN THE WATER HEATER CONNECTION SIZES, PROVIDE REDUCERS WITHIN 6" OF THE WATER HEATER.
- PIPE PRESSURE RELIEF VALVE DISCHARGE AND FLUE CONDENSATE DRAIN TO THE POINT OF DISCHARGE. DRAIN THROUGH AN AIR GAP.
- PROVIDE AN EXPOSED DROP LEG AND LINE-SIZED GAS VALVE ON THE GAS SERVICE TO THE WATER HEATER.
- CONCEAL GAS PIPING IN THE WALL AS SHOWN.
- PROVIDE 1/2" PVC PIPE FROM THE FLUE CONDENSATE CONNECTION TO THE POINT OF DISCHARGE. DRAIN THROUGH AN AIR GAP.
- INSTALL THE TANKLESS WATER HEATER WITH THE TOP OF THE WATER HEATER BETWEEN 9" AND 12" OF THE FINISHED CEILING.
- PROVIDE A 3" PVC PIPE FROM THE TANKLESS WATER HEATER TO THE POINT OF DISCHARGE. SLOPE HORIZONTAL SECTION OF THE FLUE 1/4" PER FOOT TOWARDS THE WATER HEATER.
- PROVIDE A SCREENED AIR INTAKE WITH TWO 90° ELBOWS ABOVE THE ROOF PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- CONCEAL DRAIN LINES IN WALL PER DETAIL 9/P201.
- PROVIDE COMMUNICATION CABLE CONCEALED IN WALL BETWEEN WATER HEATERS.
- IF WATER HEATERS ARE INSTALLED WITH A COMMON VENT SYSTEM THEN PROVIDE A NAVIEN COMMON VENT COLLAR KIT WITH BACK-DRAFT DAMPER PER THE MANUFACTURER'S INSTALLATION MANUAL.

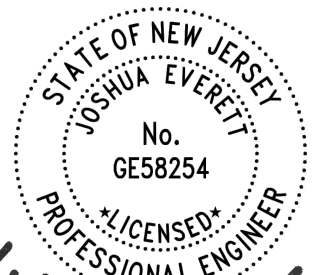
WATER HEATER GENERAL NOTES

- CLEAN INLET STRAINERS AFTER CONSTRUCTION HAS BEEN COMPLETED AND PRIOR TO TURNOVER OF THE BUILDING TO THE TENANT.
- INSTALL PIPING WITH AS FEW ELBOWS AS POSSIBLE.
- MAINTAIN REQUIRED CLEARANCE TO COMBUSTIBLE MATERIALS.
- ADJUST WATER HEATER TO A SETPOINT OF 140° F.



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Joshua Everj
01/24/2025

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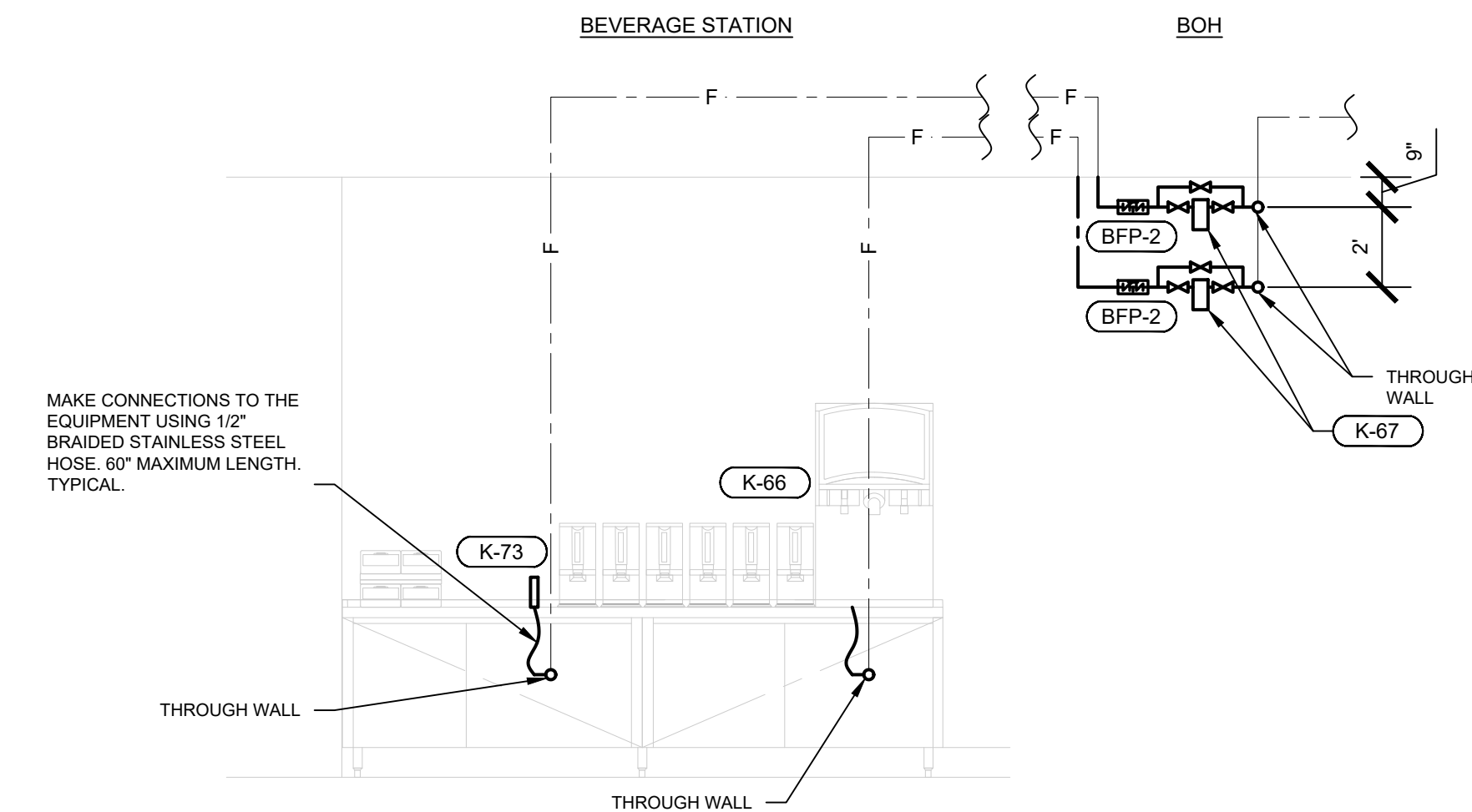
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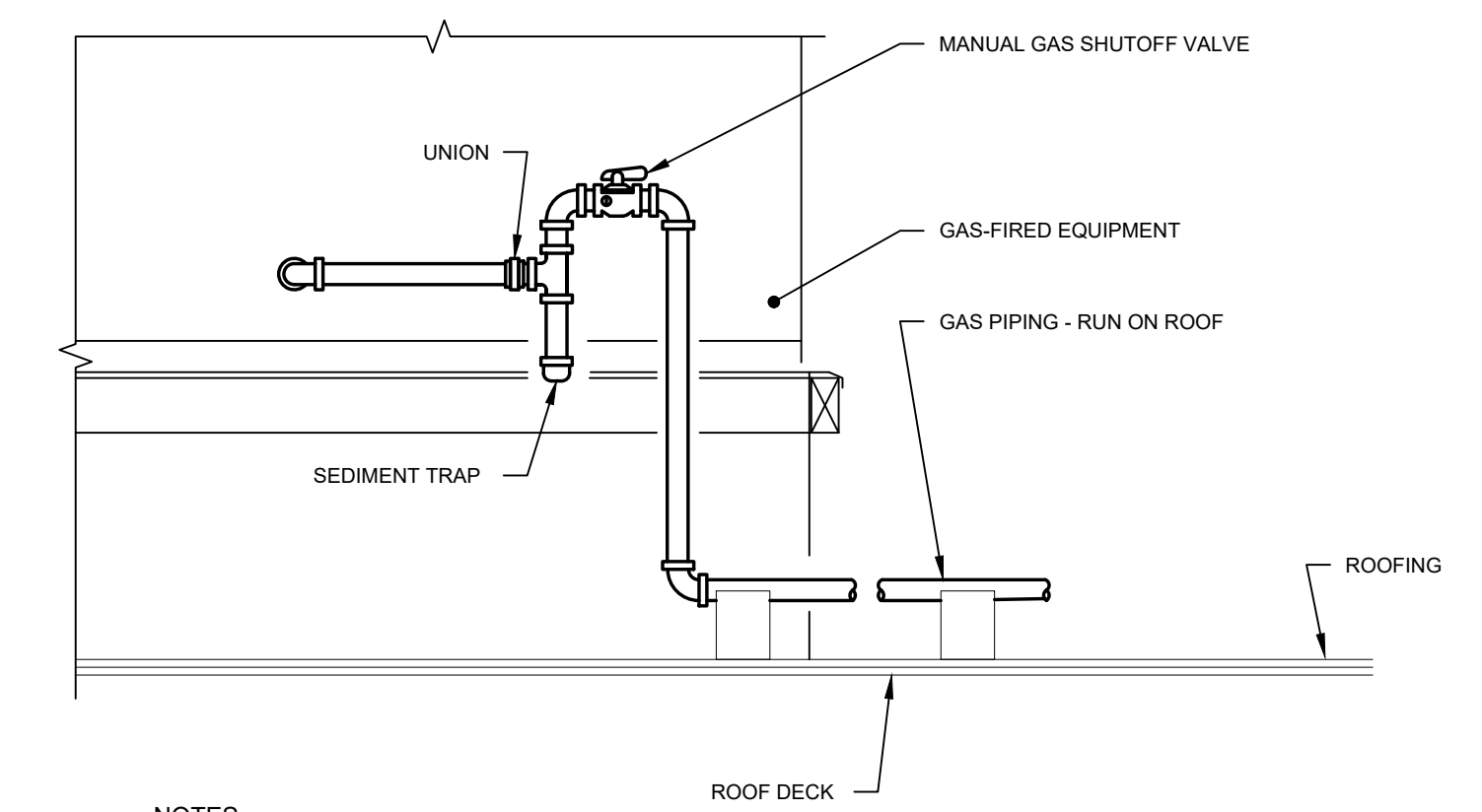
PLUMBING DETAILS

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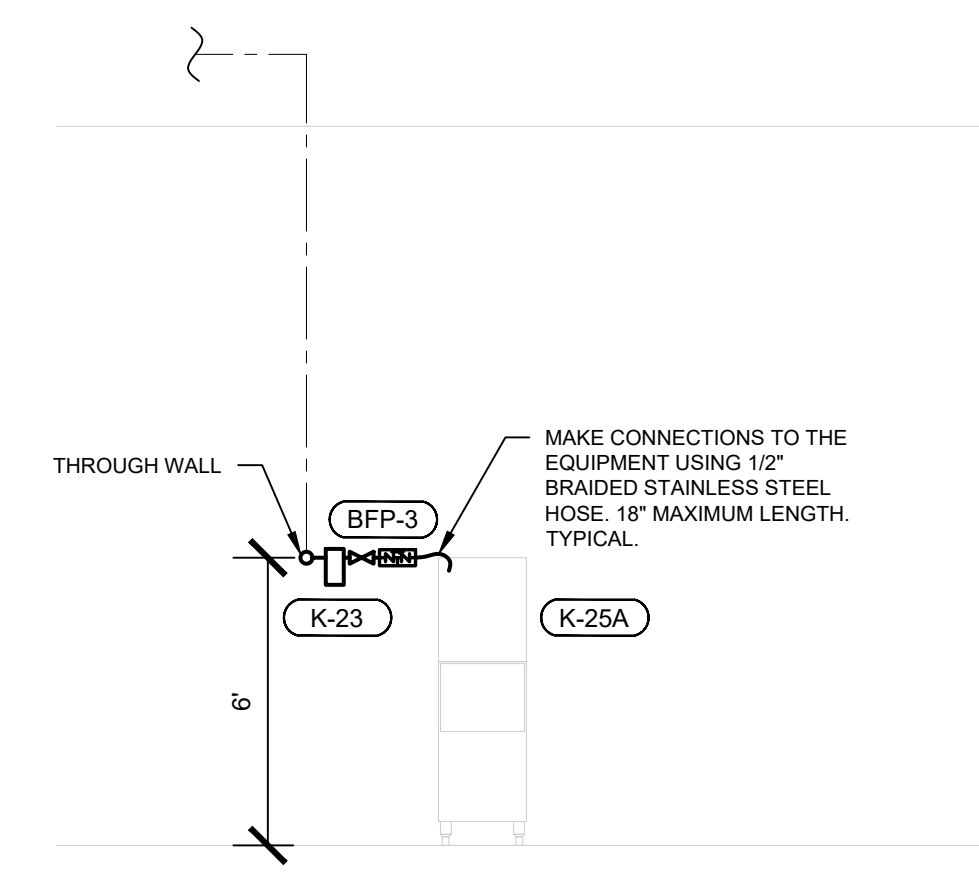
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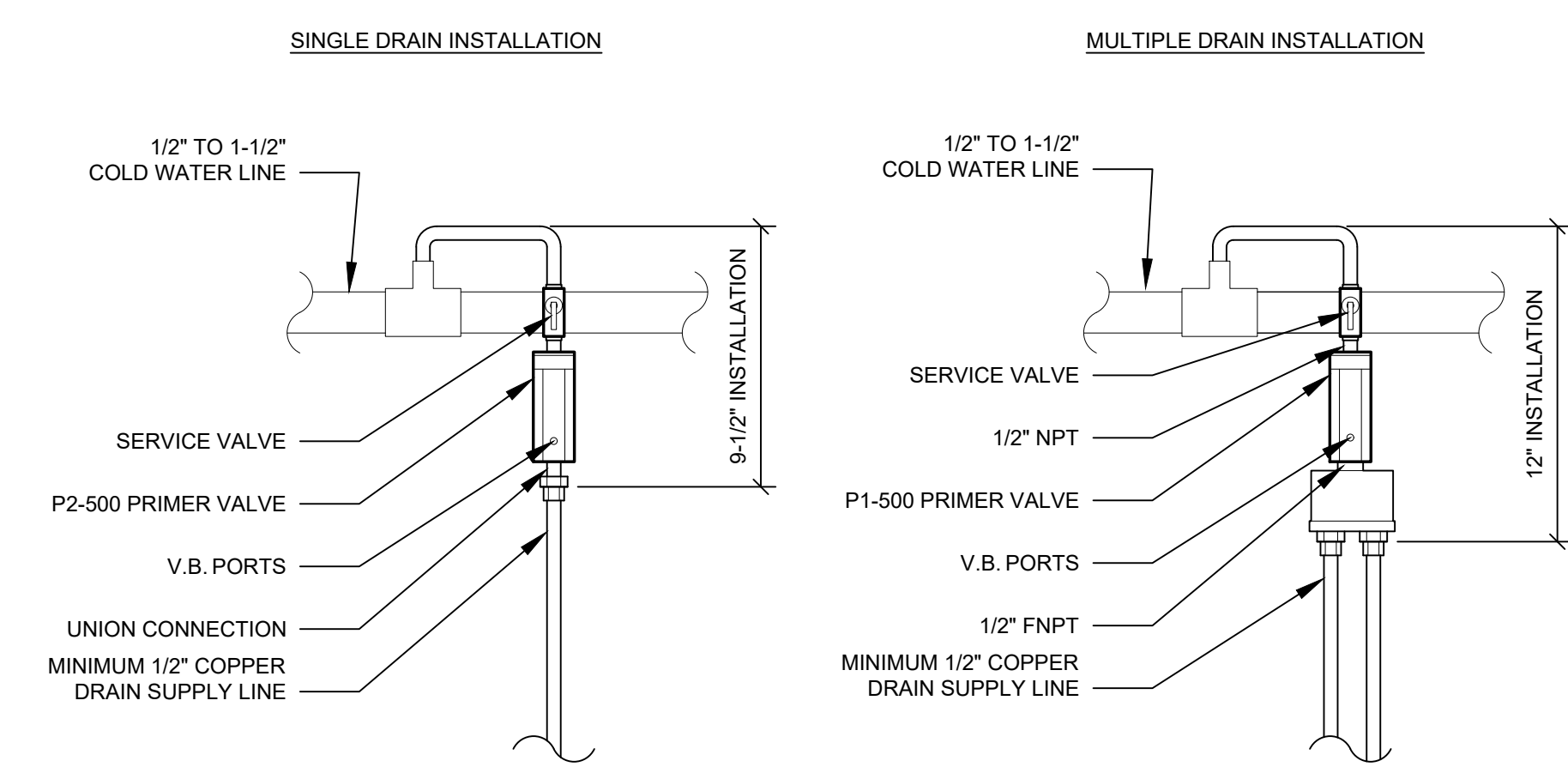
6 BEVERAGE STATION ELEVATION
N.T.S.



7 GAS PIPING CONNECTION DETAIL
N.T.S.

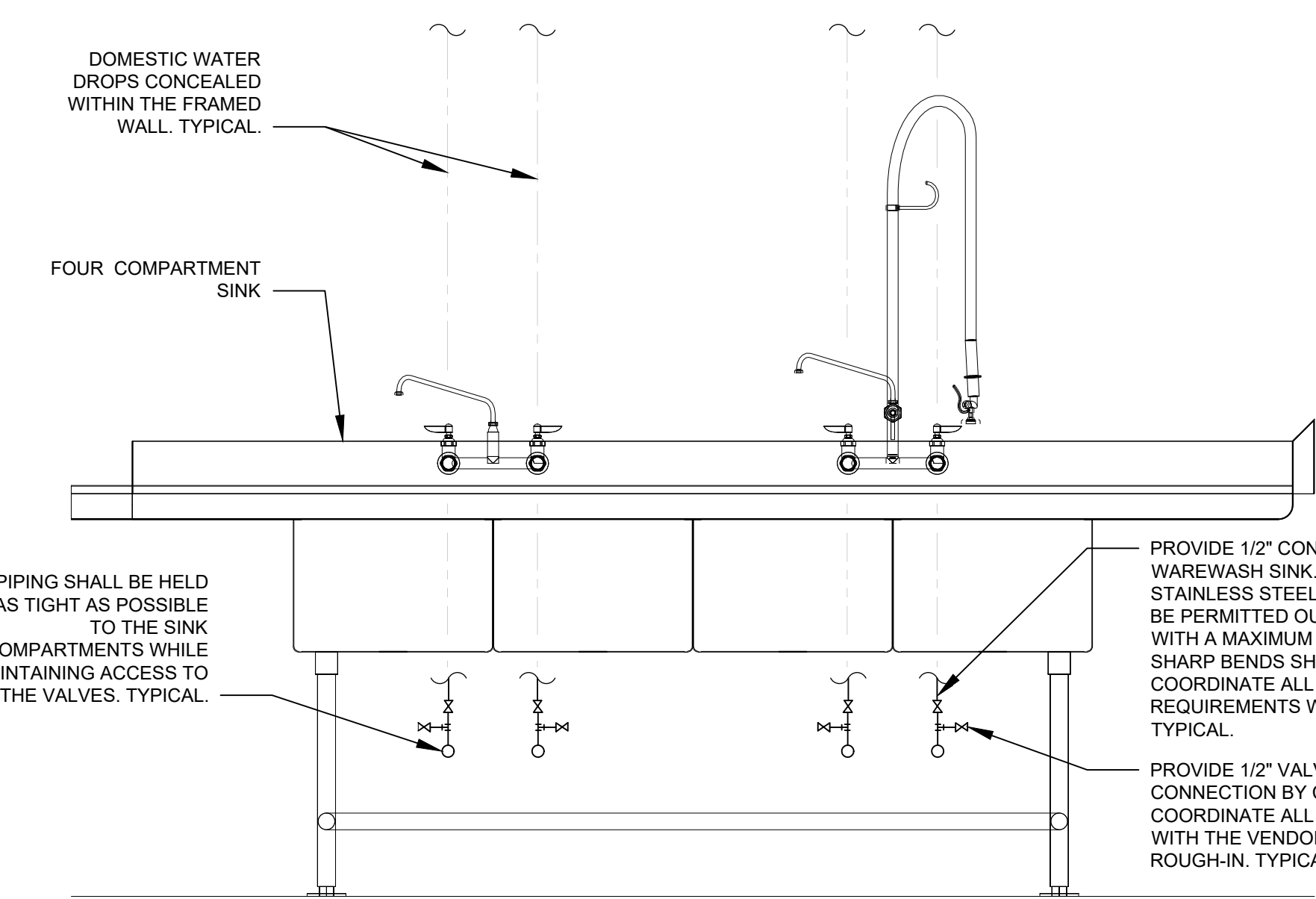


7 ICE MAKER ELEVATION
N.T.S.

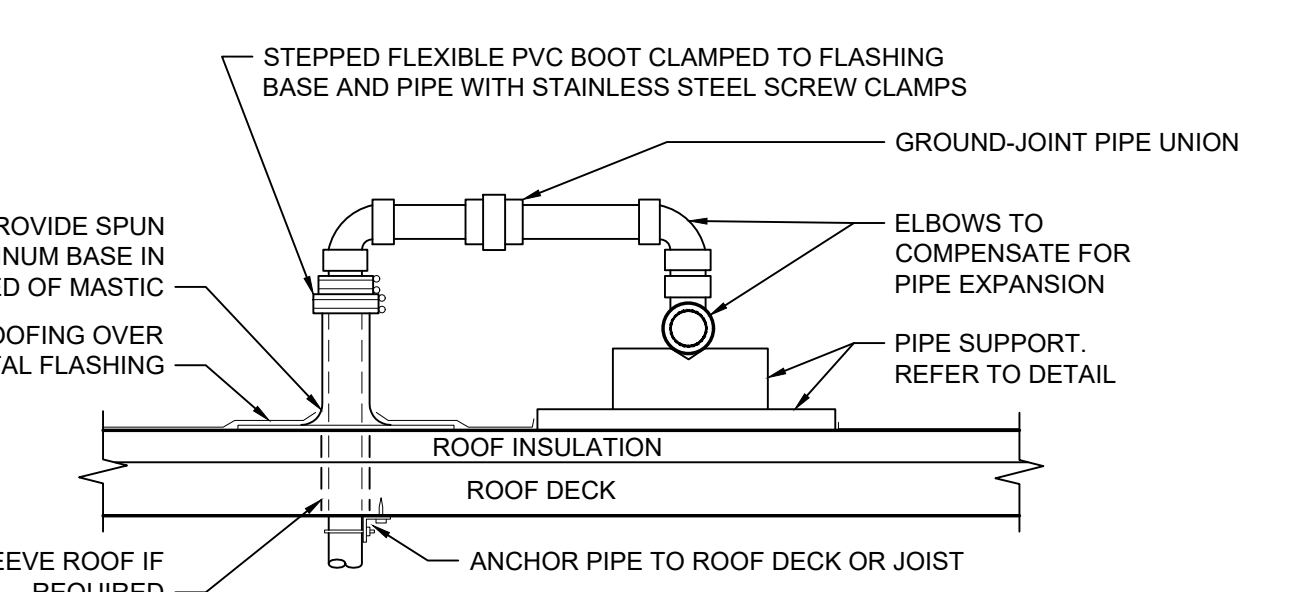


- NOTE:**
1. VALVE IS DESIGNED TO BE INSTALLED ON A 1/2" TO 1-1/2" COLD WATER LINE, FEEDING A FLUSH VALVE OR OTHER OPEN AND CLOSING VALVE SUPPLY LINE THAT IS FREQUENTLY USED.
 2. TRAP PRIMER VALVE MAKEUP LINE TO FLOOR DRAIN IS RECOMMENDED TO BE A MINIMUM OF 12" OFF THE FINISHED FLOOR BEFORE A 90 DEGREE ELBOW CAN BE INSTALLED.
 3. THE FURTHEST RECOMMENDED DISTANCE OF MAKEUP LINE IS 20' TO THE FLOOR DRAIN.
 4. TRAP PRIMER MAKE UP LINE MUST HAVE CONTINUOUS SLOPE TO THE FLOOR DRAIN (CONSULT LOCAL CODE REQUIREMENTS).
 5. INSTALL WITH A SHUT OFF VALVE FOR SERVICING ON THE INLET SIDE AND A UNION CONNECTION ON THE OUTLET SIDE.
 6. THE VALVE MUST BE INSTALLED LEVEL.
 7. IF USING THE DISTRIBUTION UNIT THE CLEAR PLASTIC COVER MUST BE USED.
 8. DO NOT SUBJECT THE VALVE TO ROUGH IN PRESSURE TEST.

4 TRAP PRIMER DETAIL
N.T.S.

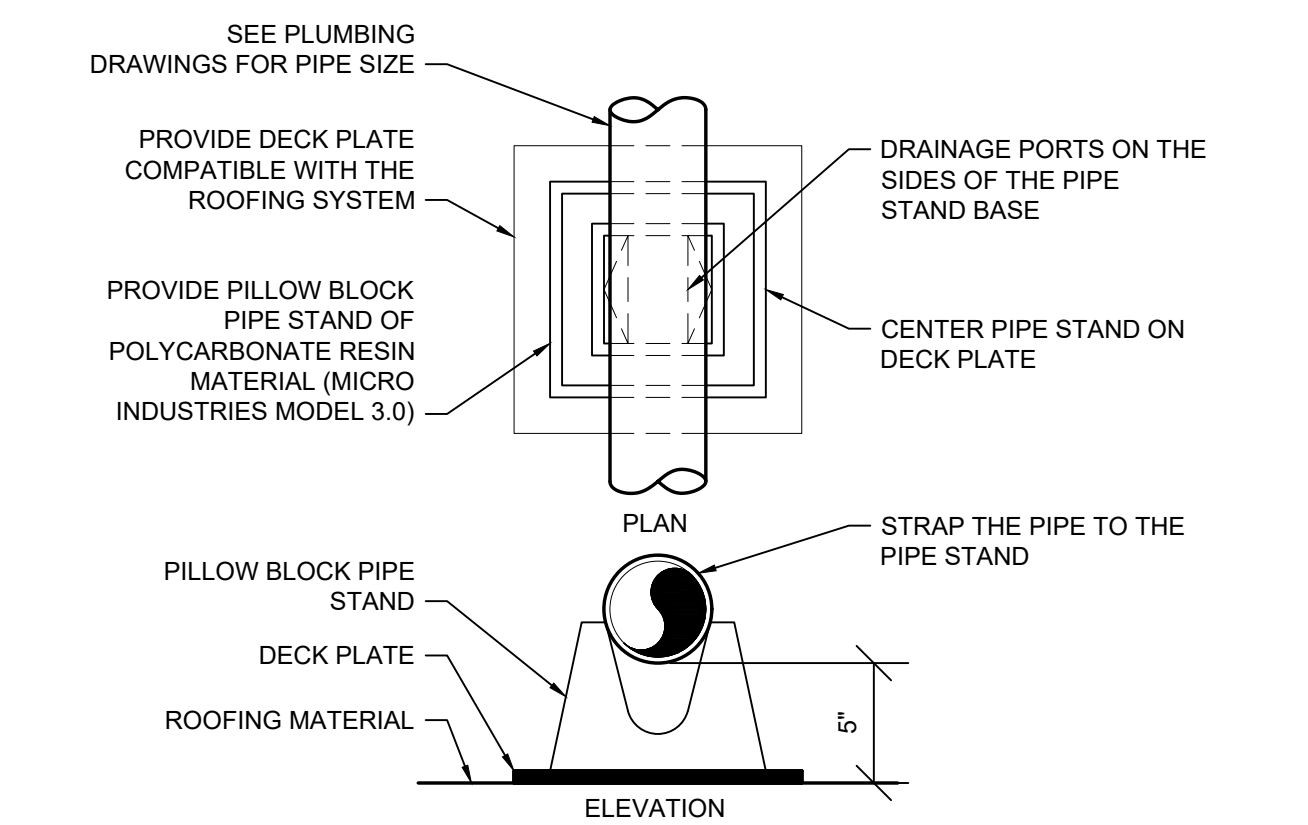


1 WARE-WASHING SINK SUPPLY DETAIL
N.T.S.



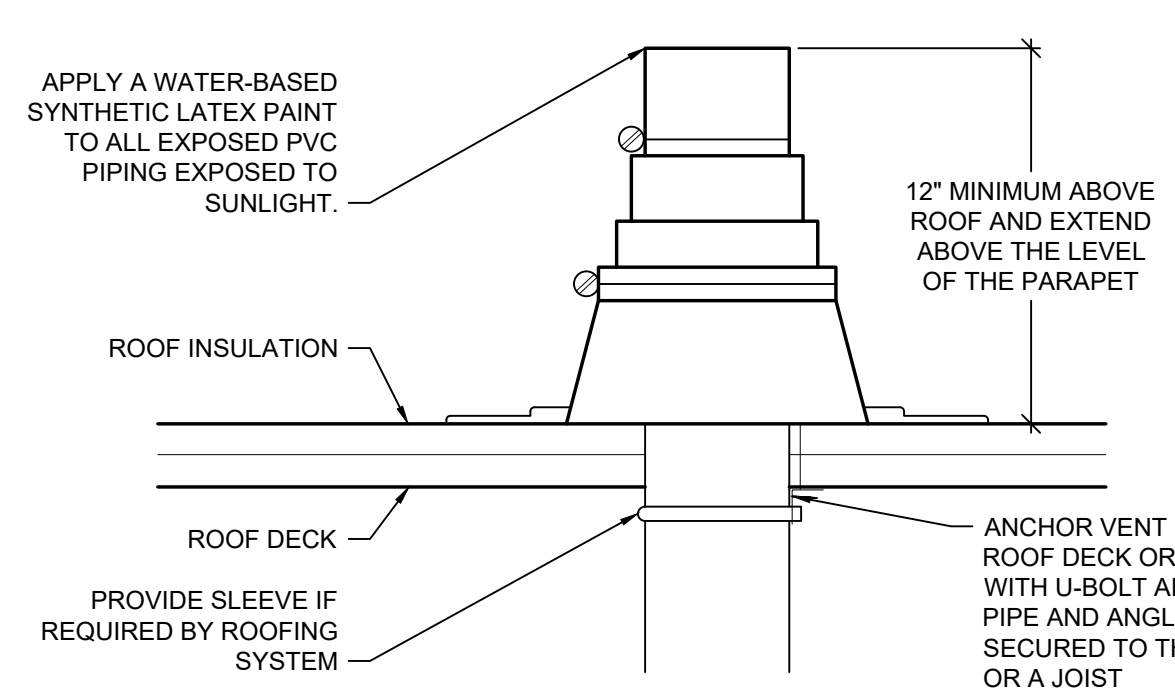
REFER TO PLANS FOR PIPE SIZE(S) AND LOCATION(S). USE WELDED OR SCREWED FITTINGS AS SPECIFIED FOR PIPE SIZE. LOCATE PENETRATION MINIMUM 18" FROM ADJACENT WALLS.

2 ROOF PENETRATIONS
N.T.S.



PROVIDE PIPE STANDS AS SHOWN FOR STEEL PIPE FROM 1/2" TO 1-1/2" DIAMETER. SUPPORT SPACING FOR PIPE SIZE: 1/2"-6"; 3/4"-1"-8"; 1 1/4" AND LARGER=10'; PROVIDE DECK PLATES ON ROOFING AND SET PIPE STAND FREE ON DECK PLATES. STACK PIPE STAND WHERE REQUIRED TO ELEVATE PIPING. INSTALL GAS PIPE TO ALLOW FOR EXPANSION AND CONTRACTION. PRIMER COAT AND PAINT EXTERIOR GAS PIPE. GAS PIPE ON THE ROOF SHALL BE PAINTED YELLOW AND GAS PIPE INSTALLED EXPOSED ON EXTERIOR WALLS SHOULD BE PAINTED TO MATCH THE WALL FINISH.

5 ROOFTOP PIPING SUPPORT
N.T.S.



REFER TO PLANS FOR VTR PIPE SIZES AND LOCATIONS. LOCATE VTR MINIMUM TEN FEET HORIZONTAL OR THREE FEET VERTICAL ABOVE ANY BUILDING OPENING OR FRESH AIR INTAKE, AND ONE FOOT FROM ANY VERTICAL SURFACE. PROVIDE 1" FIBERGLASS INSULATION WITH ALL-SERVICE JACKET ON VENT PIPE INSIDE BUILDING WITHIN SIX FEET OF VENT THRU ROOF LOCATION. FLASHING AND COUNTER FLASHING ARE TO BE COMPATIBLE WITH THE ROOFING SYSTEM.

3 VENT THROUGH ROOF
N.T.S.

MATERIAL SCHEDULE

CATEGORY	APPLICATION	ALLOWABLE MATERIAL
SANITARY WASTE & VENT PIPING	ABOVE GROUND, CONCEALED	PVC DWV PIPE AND FITTINGS
	ABOVE GROUND PREP SINK AND WARE WASHING SINK DRAINS	COPPER DWV PIPE AND FITTINGS
	ABOVE GROUND HAND SINK DRAINS	BRASS WITH CHROME FINISH
	BELOW SLAB	PVC DWV PIPE AND FITTINGS
WATER SUPPLY PIPE	ABOVE GRADE	TYPE L COPPER TUBE WITH FIBERGLASS INSULATION
NATURAL GAS	CONCEALED	SCHEDULE 40 STEEL PIPE, MALLEABLE IRON THREADED FITTINGS
	EXPOSED	SCHEDULE 40 STEEL PIPE, MALLEABLE IRON THREADED FITTINGS
CONDENSATE DRAINS	EXTERIOR	SCHEDULE 40 PVC PIPE AND FITTINGS

PIPING INSULATION THICKNESS SCHEDULE

PER TABLE C403.12.3 OF THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE.

FLUID TEMPERATURE (°F)	INSULATION CONDUCTIVITY (BTU-IN / (H*SF*°F))	<1"	1" TO <1-1/2"	1-1/2" TO <4"
105 - 140	0.21 - 0.28	1"	1"	1-1/2"
81 - 104	0.21 - 0.27	1/2"	1/2"	1"
40 - 60	0.21 - 0.27	1/2"	1/2"	1"
<40	0.20 - 0.26	1/2"	1"	1"

COMMISSIONING REQUIREMENTS

THE GENERAL CONTRACTOR SHALL PROVIDE COMMISSIONING OF THE FOLLOWING EQUIPMENT IN ACCORDANCE WITH SECTION 408 OF THE 2021 IECC:

- DWH-1
- DWH-2

EQUIPMENT FUNCTIONAL TESTING SHALL DEMONSTRATE THE OPERATION OF COMPONENTS, SYSTEMS, INTERFACING RELATIONSHIPS SUCH THAT THE OPERATION, FUNCTION AND MAINTENANCE SERVICEABILITY FOR THE COMMISSIONED SYSTEMS IS CONFIRMED. TESTS SHALL INCLUDE ALL MODES AND SEQUENCE OF OPERATION, INCLUDING FULL-LOAD, PART-LOAD AND THE FOLLOWING EMERGENCY CONDITIONS:

- AUTOMATIC BACK-UP MODES AS DESCRIBED BY THE MANUFACTURER
- PERFORMANCE OF ALARMS.
- MODE OF OPERATION UPON A LOSS OF POWER AND RESTORATION OF POWER.

THE WATER HEATER CONTROL SYSTEMS SHALL BE TESTED TO DOCUMENT THAT CONTROL DEVICES, COMPONENTS AND EQUIPMENT SYSTEMS ARE CALIBRATED AND ADJUSTED AND OPERATE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.

THE GENERAL CONTRACTOR SHALL PROVIDE A PRELIMINARY COMMISSIONING REPORT INDICATING THE TEST PROCEDURES AND RESULTS. THIS REPORT SHALL INDICATE THE FOLLOWING:

- ITEMIZED LIST OF DEFICIENCIES FOUND DURING TESTING THAT HAVE NOT BEEN CORRECTED AT THE TIME OF THE REPORT PREPARATION
- DEFERRED TESTS THAT CANNOT BE PERFORMED AT THE TIME OF THE REPORT BECAUSE OF CLIMATIC CONDITIONS.
- CLIMATIC CONDITIONS REQUIRED FOR THE PERFORMANCE OF DEFERRED TESTS.
- RESULTS OF FUNCTIONAL TESTS.
- FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE.

THE SPACE SHALL NOT BE CONSIDERED AS ACCEPTABLE FOR FINAL INSPECTION UNTIL THE CODE OFFICIAL HAS RECEIVED THE PRELIMINARY COMMISSIONING REPORT.

WITHIN 90 DAYS OF THE RECEIPT OF THE CERTIFICATE OF OCCUPANCY, THE GENERAL CONTRACTOR SHALL PROVIDE A FINAL COMMISSIONING REPORT AND SHALL INCLUDE THE FOLLOWING:

- RESULTS OF THE PERFORMANCE TESTS.
- DISPOSITION OF DEFICIENCIES FOUND DURING TESTING, INCLUDING THE DETAILS OF CORRECTIVE MEASURES USED OR PREPARED.
- FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE.
- DEFERRED TESTS THAT CANNOT BE PERFORMED AT THE TIME OF THE REPORT PREPARATION DUE TO CLIMATIC CONDITIONS ARE NOT REQUIRED AS PART OF THIS REPORT.

WATER HEATER SCHEDULE

TAG	FIXTURE	FURNISHED BY	INSTALLED BY	MANUFACTURER	MODEL	NATURAL GAS	ELECTRICAL	DESCRIPTION	ACCESSORIES/OPTIONS
						INPUT (BTU/H)	V/PH		
DWH-1	WATER HEATER (GAS TANKLESS)	GC	GC	NAVIEEN	NPE-240A2	199,900	120/1/60	RATED FLOW RATE: 3.9 GPM @ 100°F RISE; THERMAL EFFICIENCY: 96%	FURNISHED WITH CASCADE CABLE, "PLUMB EASY VALVE SET," AND CONDENSATE NEUTRALIZER.
DWH-2	WATER HEATER (GAS TANKLESS)	GC	GC	NAVIEEN	NPE-240A2	199,900	120/1/60	RATED FLOW RATE: 3.9 GPM @ 100°F RISE; THERMAL EFFICIENCY: 96%	FURNISHED WITH CASCADE CABLE, "PLUMB EASY VALVE SET," AND CONDENSATE NEUTRALIZER.

PLUMBING FIXTURE SCHEDULE

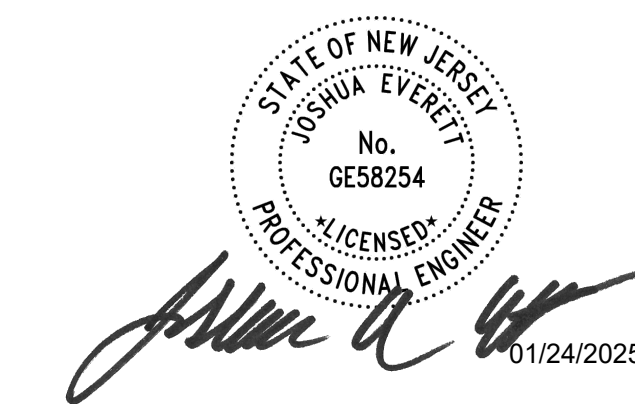
TAG	FIXTURE	FURNISHED BY	INSTALLED BY	MANUFACTURER	MODEL	DESCRIPTION	CONNECTION SIZES		
							CW	HW	SAN
BFP-2	DUAL CHECK VALVE	GC	GC	WATTS	SD2	ASSE 1032 DUAL CHECK VALVE BACKFLOW PREVENTER CERTIFIED TO ANSI/SNF STANDARD 18. CONSTRUCTED OF 316 STAINLESS STEEL.	3/8"		
BFP-3	DUAL CHECK VALVE	GC	GC	WATTS	LF9D	ASSE 1012 DUAL CHECK VALVE WITH ATMOSPHERIC VENT.	1/2"		
CO-1	FLOOR CLEAN OUT	GC	GC	SIoux CHIEF FINISHLINE	834-3DNRZ	ON-GRADE ADJUSTABLE CLEANOUT WITH INTERNAL THREADED CLEANOUT PLUG AND ROUND NICKEL-BRONZE RING AND COVER (OR APPROVED EQUAL WITH INTERNAL THREADED CLEANOUT PLUG)			4"
ET-1	EXPANSION TANK	GC	GC	RHEEM-RUUD	RRT-12	4.4 GALLON CAPACITY.	3/4"		
FD-1	FLOOR DRAIN	GC	GC	SIoux CHIEF FINISHLINE	833-23DNRB	CAST IRON DRAIN WITH NICKEL BRONZE STRAINER. PROVIDE WITH 1/2" TRAP PRIMER CONNECTED AND MEMBRANE FLASHING CLAMP. PROVIDE PROVENT SYSTEMS TRAP GUARD OR APPROVED EQUAL. PROVIDE OUTLET WITH P-TRAP AND CLEAN AND POLISH STRAINER TOP AFTER INSTALLATION.	1/2"		3"
FS-1	FLOOR SINK	GC	GC	SIoux CHIEF	861-24XF2WC	CAST IRON BODY. FLASHING CLAMP. ACID RESISTANT COATED INTERIOR AND CAST IRON GRATE. 8" SQUARE. PROVIDE WITH 1/2 GRATE AND ALUMINUM SEDIMENT BUCKET. PROVIDE OUTLET WITH P-TRAP. PROVIDE WITH GUARDIAN DOME-D-LOCK GDL-DOME-300 AND DUO 2-IN-1 BASKET SYSTEM (GDL-DUO-4500-BSK-S).			3"
LAV-1S	LAVATORY	GC	GC	KOHLER	K-1997-1N "BRENHAM"	WALL MOUNTED, WHITE VITREOUS CHINA. PROVIDE GRID STRAINER DRAIN WITH TAILPIECE, CHROME-PLATED CAST BRASS P-TRAP WITH CLEANOUT AND ZURN Z1231 EZ UNIVERSAL WALL CARRIER.			1 1/2"
LAV-1F	LAVATORY FAUCET	GC	GC	KOHLER	K-7514	POLISHED CHROME LAVATORY FAUCET WITH 0.5 GALLON PER MINUTE FLOW RATE AND 30 YEAR HYBRID ENERGY CELL. PROVIDE WITH WATTS LFMMV-UT-M1. ADJUST TO A MAXIMUM TEMPERATURE OF 110°F.	1/2"	1/2"	
RH-1	FREEZE PROOF ROOF HYDRANT	GC	GC	HOEPTNER	2131R	AUTOMATIC DRAINING, FREEZELESS ROOF HYDRANT WITH ANTI-SIPHON VACUUM BREAKER	3/4"		
TP-3	TRAP PRIMER	GC	GC	PRECISION PLUMBING	P1-500 WITH DU-U	ALL BRASS BODY TRAP PRIMER VALVE, PRESSURE DROP OF 5-10 PSIG OPENS VALVE, OPERATING RANGE: 35-75 PSIG, 1/2" MALE NPT INLET CONNECTION, 1/2" FEMALE NPT OUTLET CONNECTION. PROVIDE ON ALL FLOOR DRAINS.	1/2"		
WC-1	WATER CLOSET	GC	GC	KOHLER	K-96057-0	FLOOR MOUNTED WHITE VITREOUS CHINA FLUSH VALVE WATER CLOSET WITH ELONGATED BOWL. MANUAL FLUSH VALVE, 1.6 GPF, 16-1/2" RIM HEIGHT. PROVIDE HEAVY-DUTY PLASTIC OPEN FRON SEAT LESS COVER, OLSONITE 95CTSS. PROVIDE CHROME PLATED BRASS LOOSE KEY ANGLE STOP WITH CHROME PLATED FLEXIBLE COPPER SUPPLY RISER, MCGUIRE 2166LK. PROVIDE FLUSH VALVE WITH LEVER ON WIDE SIDE OF ROOM, MOEN 8310M16. INSTALLATION TO COMPLY WITH ADA ACCESSIBILITY REQUIREMENTS.	1/2"		4"
WH-1	WALL HYDRANT	GC	GC	WATTS	HY-330-3	ANTI-SIPHON, AUTOMATIC DRAINING QUARTER TURN WALL HYDRANT. NON-FREEZE WITH INTEGRAL VACUUM BREAKER. BRONZE INTERIOR PARTS AND KEY OPERATED. MOUNT 18" ABOVE FINISHED GRADE.	3/4"		
WHA-1	WATER HAMMER ARRESTOR	GC	GC	WATTS	LF15M2		1/2"		
WS-1	WATER SOFTENER	GC	GC	CUNO	CFSM1254E	POINT OF ENTRY HIGH CAPACITY WATER TREATMENT SYSTEM. PROVIDE STARTUP PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.	1"		
K-1	MOP SINK FAUCET	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	COMMERCIAL SERVICE, WALL-MOUNTED FAUCET WITH BUCKET HOOK. ROUGH CHROME FINISH. FURNISHED WITH INTEGRAL QUARTER TURN CERAMIC DISC VALVE.	1/2"	1/2"	
K-1B	MOP SINK	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	24"x24" MOLDED STONE MOP BASIN WITH STAINLESS STEEL DRAIN BODY AND DOME STRAINER/LINT BASKET.			3"
K-3A	EVAPORATOR COIL, COOLER	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	EQUIPMENT INSTALLED BY VENDOR. CONDENSATE DRAIN BY GC.			3/4"
K-5	HAND SINK	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	STAINLESS STEEL HAND SINK WITH FAUCET.	1/2"	1/2"	1 1/2"
K-14	UNDER COUNTER WAREWASHER, LOW TEMP	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	LOW TEMPERATUER UNDER-COUNTER DISHWASHER. 140°F HOT WATER TEMPERATURE INLET		3/4"	1"
K-17	SCULLERY SINK, 4 COMPARTMENTS	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	FOUR COMPARTMENT WAREWASH SINK WITH FOUR 46"x23"x14 COMPARTMENTS.			1 1/2"
K-17B	PRE-RINSE FAUCET, WALL MOUNT	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	WALL-MOUNTED PRE-RINSE ASSEMBLY WITH BUILT-IN BACKFLOW PREVENTER, QUARTER TURN VALVES, AND SPRAY HEAD.	1/2"	1/2"	
K-17C	FAUCET, WALL MOUNT	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	WALL-MOUNTED FAUCET FOR WAREWASH SINK.	1/2"	1/2"	
K-19	WORK TABLE WITH DROP-IN SINK	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	STAINLESS STEEL WORK TABLE WITH INTEGRAL 18"x20"x14" SINK.			1 1/2"
K-19A	DECK-MOUNTED FAUCET	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	DECK-MOUNTED FAUCET WITH 6" GOOSENECK SPOUT AND POLISHED CHROME FINISH.	1/2"	1/2"	
K-21	BAG-N-BOX	VENDOR	GC	REFER TO ARCH	REFER TO ARCH		1/2"		
K-22	CARBONATOR	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	SODA CARBONATOR(S) SHALL HAVE AN INTEGRAL ASSE 1022-RATED CARBONATED BEVERAGE BACKFLOW PREVENTION DEVICE.	1/2"		
K-23	WATER FILTRATION SYSTEM, FOR ICE MACHINE	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	EVERPURE INSURICE SINGLE - 4SI SYSTEM	1/2"		
K-25	ICE MAKER	VENDOR	GC	REFER TO ARCH	REFER TO ARCH		1/2"		3/4"
K-31	PREP TABLE WITH DROP-IN SINK	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	PREP TABLE WITH INTEGRAL 20"x20"x12" SINK.			1 1/2"
K-31A	FAUCET, DECK-MOUNT	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	DECK-MOUNTED FAUCET	1/2"	1/2"	
K-26	PREP TABLE WITH DROP IN SINK	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	STAINLESS STEEL WORK TABLE WITH INTEGRAL 14"x14"x6" SINK.			1 1/2"
K-26A	DECK-MOUNT FAUCET	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	DECK-MOUNTED FAUCET WITH 6" GOOSENECK SPOUT AND POLISHED CHROME FINISH.	1/2"	1/2"	
K-65	PICKUP BEVERAGE COUNTER	VENDOR	GC	REFER TO ARCH	REFER TO ARCH				1/2"
K-66	ICE DISPENSER W/ BEVERAGE HEADS	VENDOR	GC	REFER TO ARCH	REFER TO ARCH		1/2"		3/4"
K-67	WATER FILTRATION SYSTEM, FOR BEVERAGE COUNTER	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	CONNECT FILTERED WATER SUPPLY TO K-66	1/2"		
K-68	BEVERAGE COUNTER	VENDOR	GC	REFER TO ARCH	REFER TO ARCH				1/2"
K-73	WATER DISPENSER FAUCET	VENDOR	GC	REFER TO ARCH	REFER TO ARCH	WATER DISPENSER	1/2"		
K-84C	COLD WELL	VENDOR	GC	REFER TO ARCH	REFER TO ARCH				1"
K-84D	COLD WELL	VENDOR	GC	REFER TO ARCH	REFER TO ARCH				1"

CONSULTANT:



EVERJ ENGINEERING, INC.
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SEAL



PROJECT

CAVA

CAVA - NORTH BRUNSWICK, NJ
222 GRAND AVE.
NORTH BRUNSWICK, NJ 08902

DATE DESCRIPTION

11/01/2024	LL CHANGES
12/02/2024	DINING SENSOR MOVED
01/27/2025	PERMIT ADDENDUM/CONST SET

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PLUMBING SCHEDULES

Date Modified:	07/26/2024
Date Created:	07/26/2024
Scale:	AS NOTED
Project No.:	240003
Drawn By:	BRW
Checked By:	JAE

P300

GENERAL NOTES

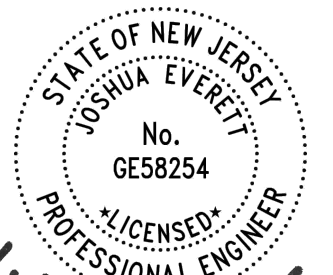
- A. FIRE PROTECTION WORK SHALL BE DONE IN ACCORDANCE WITH THE BUILDING CODE, NFPA 13, LOCAL FIRE DEPARTMENT STANDARDS, AND THE AUTHORITY HAVING JURISDICTION. REFER TO THE ARCHITECTURAL SHEETS FOR THE PREVAILING CODES.
- B. MODIFY THE EXISTING SPRINKLER HEAD AND FIRE ALARM DEVICE LAYOUT AND FIRE ALARM SYSTEM IN THE SPACES SHOWN TO SUIT THE FLOOR PLAN. PROVIDE NEW HEADS AND DEVICES AS NECESSARY FOR A COMPLETE SYSTEM. PROVIDE HYDRAULIC CALCULATIONS FOR REVISED FIRE PROTECTION SYSTEM AND BATTERY CALCULATIONS FOR THE REVISED FIRE ALARM SYSTEM.
- C. COORDINATE HEAD AND DEVICE LAYOUT WITH EXPOSED DUCTWORK, LIGHT FIXTURES, HVAC EQUIPMENT, STRUCTURAL CONDITIONS AND ARCHITECTURAL CEILING ELEMENTS. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR MORE INFORMATION. PROVIDE HEADS AND FIRE ALARM DEVICES IN LAY-IN CEILINGS AT ONE FOOT, TWO FEET OR THREE FEET ALONG THE LONG DIMENSION OF THE CEILING GRID. IN OTHER LOCATIONS, HEADS AND FIRE ALARM DEVICES SHALL BE PROVIDED ALONG CENTERLINES AND CENTERED BETWEEN OTHER CEILING-MOUNTED EQUIPMENT WHERE APPLICABLE. SUBMIT HEAD LAYOUT SHOP DRAWINGS TO ARCHITECT PRIOR TO SUBMITTING FOR PERMIT APPROVAL.
- D. OBTAIN PERMITS, APPROVALS, AND INSPECTIONS FOR REVISED FIRE PROTECTION AND ALARM SYSTEMS.
- E. CEILING HEIGHTS AND CEILING FIXTURE PLACEMENTS SHOWN ARE APPROXIMATE. SEE ARCHITECTURAL RCP FOR EXACT CEILING HEIGHTS AND CEILING FIXTURE DIMENSIONS.
- F. SUBMIT FIRE PROTECTION AND FIRE ALARM SHOP DRAWINGS SHOWING HEAD AND DEVICE LAYOUT TO ARCHITECT PRIOR TO SUBMITTING FOR PERMIT APPROVAL.
- G. THE TERM "FURNISH" MEANS SUPPLY AND DELIVER TO THE PROJECT SITE, READY FOR UNLOADING, UNPACKING ASSEMBLY, INSTALLATION AND SIMILAR OPERATIONS. THE TERM "INSTALL" DESCRIBES THE OPERATIONS AT THE PROJECT SITE INCLUDING THE ACTUAL UNLOADING, UNPACKING, ASSEMBLY, ERECTING, PLACING, ANCHORING, APPLYING, WORKING TO DIMENSION, FINISHING, CURING, PROTECTING, CLEANING, AND SIMILAR OPERATIONS. THE TERM "PROVIDE" MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED USE.
- H. FOR REFERENCE ONLY, FIRE PROTECTION AND ALARM SYSTEMS ARE TO BE DESIGNED AND PERMITTED BY THE GENERAL CONTRACTOR.
- I. THE GENERAL CONTRACTOR SHALL COORDINATE ALL FIRE ALARM AND FIRE SPRINKLER TIE-IN REQUIREMENTS WITH THE LANDLORD PRIOR TO BID. WHEN APPLICABLE, LANDLORD-REQUIRED VENDORS SHALL BE UTILIZED AT THE GENERAL CONTRACTOR'S EXPENSE.
- J. PAINT ALL EXPOSED SPRINKLER PIPING TO MATCH CEILING UNLESS PROHIBITED BY THE AUTHORITY HAVING JURISDICTION. TYPICAL.
- K. FIELD-VERIFY CONDITION AND FUNCTION OF ALL EXISTING HEADS TO REMAIN. REPAIR/REPLACE AS NECESSARY.
- L. PROVIDE PROTECTIVE CASES FOR SPRINKLER HEADS IN THE WALK-IN COOLER WHERE PERMITTED BY THE LOCAL AHJ.

CONSULTANT:



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Joshua Everj
11/24/2025

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FIRE PROTECTION SCHEDULE

ROOM #	DESCRIPTION	CEILING	HEIGHT	HAZARD
01	DINING AREA	EXPOSED STRUCTURE	VARIABLES	LIGHT
02	OPEN KITCHEN	GYPSUM BOARD	10'-0"	ORD. HAZ. 1
03	BOH	LAY-IN	9'-0"	ORD. HAZ. 1
04	MEN'S RR	GYPSUM BOARD	8'-0"	LIGHT
05	WOMEN'S RR	GYPSUM BOARD	8'-0"	LIGHT
06	MANAGER'S OFFICE	LAY-IN	10'-0"	ORD. HAZ. 1
07	WIC	INTEGRAL	8'-0"	ORD. HAZ. 1
08	HALLWAY	GYPSUM BOARD	9'-0"	LIGHT
09	BEVERAGE STATION	GYPSUM BOARD	10'-0"	LIGHT
10	DT WINDOW	GYPSUM BOARD	10'-0"	ORD. HAZ. 1

MATERIAL SCHEDULE

CATEGORY	APPLICATION	ALLOWABLE MATERIAL
SPRINKLER HEAD	EXPOSED STRUCTURE CEILING	WHITE UPRIGHT
	GYPSUM BOARD CEILING	WHITE CONCEALED PENDENT WITH WHITE COVER PLATE
	LAY-IN CEILING	WHITE RECESSED PENDENT WITH WHITE ESCUTCHEON
FIRE ALARM DEVICES	WALK-IN COOLER	FREEZE-PROOF PENDANT
	WALL-MOUNTED HORN AND/OR STROBE	WHITE WITH RED LETTERING
	CEILING-MOUNTED HORN AND/OR STROBE	WHITE WITH RED LETTERING
	PULL STATION	RED WITH WHITE LETTERING

FIRE ALARM / SPRINKLER ABBREVIATIONS

(D)	DEMOLISHED
(E)	EXISTING
(R)	RELOCATED
A.F.F.	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
A.O.R.	ARCHITECT OF RECORD
B.F.F.	BELOW FINISHED FLOOR
BOH	BACK OF HOUSE
CLG	CEILING
E.O.R.	ENGINEER OF RECORD
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
GC	GENERAL CONTRACTOR
LL	LANDLORD
NTS	NOT TO SCALE
UNO	UNLESS NOTED OTHERWISE

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FIRE PROTECTION PLAN

Date Modified: 07/26/2024
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Project No.: 240003
Drawn By: BRW
Checked By: JAE

**FOR REFERENCE ONLY:
FIRE PROTECTION AND ALARM SYSTEMS ARE TO BE
DESIGNED BY THE GENERAL CONTRACTOR**

F100

1 FIRE PROTECTION PLAN
1/4" = 1'-0"

