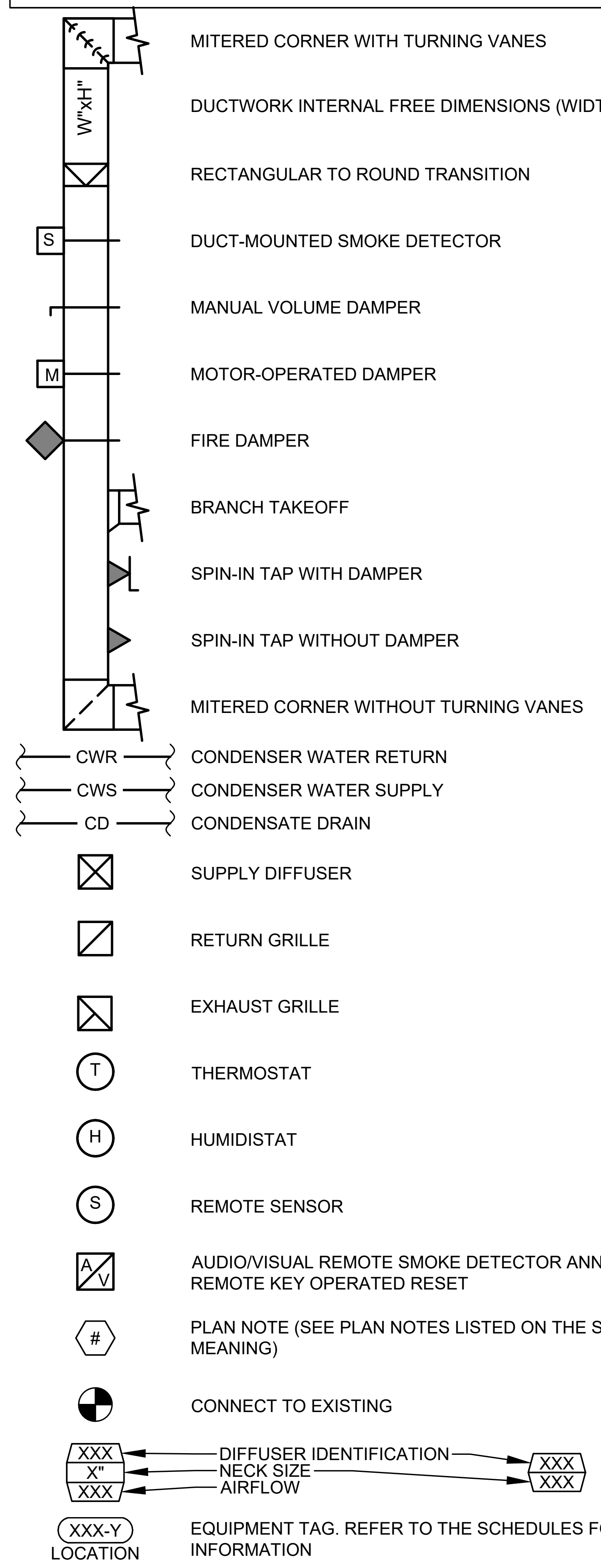
HVAC SYMBOLS & ABBREVIATIONS



MITERED CORNER WITH TURNING VANES
DUCTWORK INTERNAL FREE DIMENSIONS (WIDTH x HEIGHT)
RECTANGULAR TO ROUND TRANSITION
DUCT-MOUNTED SMOKE DETECTOR
MANUAL VOLUME DAMPER
MOTOR-OPERATED DAMPER
FIRE DAMPER
BRANCH TAKEOFF
SPIN-IN TAP WITH DAMPER
SPIN-IN TAP WITHOUT DAMPER
MITERED CORNER WITHOUT TURNING VANES
CONDENSER WATER RETURN
CONDENSER WATER SUPPLY
CONDENSATE DRAIN
SUPPLY DIFFUSER
RETURN GRILLE
EXHAUST GRILLE
THERMOSTAT
HUMIDISTAT
REMOTE SENSOR
AUDIO/VISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR WITH REMOTE KEY OPERATED RESET
PLAN NOTE (SEE PLAN NOTES LISTED ON THE SAME SHEET FOR MEANING)
CONNECT TO EXISTING
EQUIPMENT TAG. REFER TO THE SCHEDULES FOR MORE INFORMATION

HVAC ABBREVIATIONS

(D)	DEMOLISHED
(E)	EXISTING
(R)	RELOCATED
A.F.F.	ABOVE FINISHED FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
A.O.R.	ARCHITECT OF RECORD
BC	BLOWER COIL
B.F.F.	BELOW FINISHED FLOOR
CD	CEILING DIFFUSER
CU	CONDENSING UNIT
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ER	EXHAUST REGISTER
E.O.R.	ENGINEER OF RECORD
GC	GENERAL CONTRACTOR
MFR	MANUFACTURER
OBD	OPPOSED BLADE DAMPER
PL	PLENUM
RG	RETURN GRILLE
RTU	ROOFTOP UNIT
SG	SUPPLY GRILLE
SPEC	SPECIFICATION OR SPECIFIED
SR	SUPPLY REGISTER
UNO	UNLESS NOTED OTHERWISE
WSHP	WATER SOURCE HEAT PUMP

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SEAL

07/29/2024

PROJECT

CAVA

CAVA

300 NJ-18
East Brunswick, NJ 08816

△ DATE	DESCRIPTION
03/13/24	PERMIT SET
05/28/24	BID SET
1 07/26/24	BID SET

MECHANICAL COVER SHEET

Date Modified:	02/16/2024
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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.
7. 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 WITHOUT IMPACT TO THE PROJECT SCHEDULE.

6\. 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 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 TABB AS A T&B 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.
2. WATER SYSTEMS
    - 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.
3. 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 6.0.
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 ANSI/ASHRAE 62.1.
3. SECTION REQUIREMENTS
    - A. 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.
    - D. ELBOWS, TRANSITIONS, OFFSETS, BRANCH CONNECTIONS, AND OTHER DUCT CONSTRUCTION: SELECT TYPES AND FABRICATE ACCORDING TO SMACNA'S “HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE,” CHAPTER 4 FOR STATIC-PRESSURE CLASS, APPLICABLE SEALING REQUIREMENTS, MATERIALS INVOLVED, DUCT SUPPORT INTERVALS AND OTHER PROVISIONS AS REQUIRED.
2. ROUND DUCTS AND FITTINGS:
    - A. SPIRAL LOCK SEAM, WITHOUT INSULATION.
    - 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. SPIRAL LOCK SEAM, WITHOUT INSULATION.
    - 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. SPIRAL LOCK SEAM, 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 65% 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 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 CLEARANCES 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.
2. ALL DUCT COMPONENT OPENINGS SHALL BE COVERED WITH TAPE, PLASTIC OR SHEET METAL UNTIL THE FINAL START-UP OF THE HEATING COOLING AND VENTILATION EQUIPMENT.
3. DUCT SEALING: CONSTRUCT DUCTS WITH 2 INCH POSITIVE AND NEGATIVE DUCT PRESSURE CLASSIFICATIONS. CONSTRUCT TO SMACNA SEAL CLASS A.
4. 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.
5. 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.
6. 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.
7. PROVIDE AIR BALANCE IN ACCORDANCE WITH SECTION 23 05 93 “TESTING, ADJUSTING, AND BALANCING FOR HVAC.”
8. 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-OFF'S 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 96/E 96M.
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. INSTALL DUCTS FULLY EXTENDED.
    - 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, CFM, STATIC PRESSURE AND FAN CURVE.
    - 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.
    - E. GROUND EQUIPMENT 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. SUBMITTALS: PROVIDE SHOP DRAWINGS INDICATING THE DIMENSIONS, WEIGHTS, REQUIRED CLEARANCES, COMPONENTS, ELECTRICAL CHARACTERISTICS, CFM, STATIC PRESSURE AND FAN CURVE.
    - 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: OWNER TO FURNISH.

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 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.

(END OF SECTION 23 34 02)

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SEAL

07/29/2024

PROJECT

CAVA

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East Brunswick, NJ 08816

△	DATE	DESCRIPTION
	03/13/24	PERMIT SET
	05/28/24	BID SET
1	07/26/24	BID SET

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Date Modified: 02/16/2024
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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 CUTOUT.
    I. PROVIDE ALL ACCESSORIES AS NOTED IN THE SCHEDULES.
3. 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. SUBMITTALS: PROVIDE SHOP DRAWINGS INDICATING THE DIMENSIONS, WEIGHTS, REQUIRED CLEARANCES, COMPONENTS, EFFICIENCIES, CAPACITIES, ELECTRICAL CHARACTERISTICS AND LOCATION AND SIZE OF EACH FIELD CONNECTION FOR EACH RTU.
    B. WARRANTY: SUBMIT A WRITTEN WARRANTY, SIGNED BY THE MANUFACTURER AGREEING TO REPAIR OR REPLACE COMPONENTS OF RTUS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN 5 YEARS OF SUBSTANTIAL COMPLETION.

PART 2 - PRODUCTS
1. DESCRIPTION
    A. ASHRAE COMPLIANCE: COMPLY WITH ASHRAE 15 FOR REFRIGERATION SAFETY.
    B. ENERGY COMPLIANCE: COMPLY WITH THE APPLICABLE REQUIREMENTS OF THE ENERGY CODE LISTED ON THE COVER SHEET.
    C. ELECTRICAL COMPONENTS, DEVICES AND ACCESSORIES SHALL BE LABELED AND LISTED AS DEFINED IN NFPA 70 BY A QUALIFIED TESTING AGENCY.
2. MANUFACTURERS: AS NOTED IN THE MECHANICAL SCHEDULES. ALTERNATES BY YORK OR CARRIER. THIS CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL STRUCTURAL, ELECTRICAL AND OTHER REQUIREMENTS RESULTING FROM THE SUBSTITUTION. ALL CHANGE ORDERS RESULTING IN THE USE OF AN ALTERNATE SHALL BE PAID FOR BY THIS CONTRACTOR.
3. CHARACTERISTICS. PROVIDED WITH:
    A. CASING: GALVANIZED STEEL AND FACTORY-PAINTED FINISH. LINED WITH NEOPRENE-COATED FIBERGLASS. HINGED DOORS WITH TOOLLESS OPERATION.
    B. SUPPLY AIR FAN: BELT DRIVEN, FORWARD CURVED CENTRIFUGAL.
    C. CONDENSER-COIL FAN: PROPELLER, MOUNTED ON SHAFT OF PERMANENTLY LUBRICATED MOTOR.
    D. SUPPLY-AIR REFRIGERANT COIL: ALUMINUM-PLATE FIN AND SEAMLESS COPPER TUBE IN STEEL CASING. CAPACITIES AS NOTED IN MECHANICAL SCHEDULES.
    E. OUTDOOR-AIR REFRIGERANT COIL: ALUMINUM-PLATE FIN AND SEAMLESS COPPER TUBE IN STEEL CASING. AMBIENT TEMPERATURE AS NOTED IN MECHANICAL SCHEDULES.
    F. ELECTRIC HEATING COIL: FACTORY PROVIDED. CAPACITY AND STEPS AS NOTED IN THE MECHANICAL SCHEDULES.
    G. COMPRESSORS: HERMETIC, SCROLL MOUNTED ON VIBRATION ISOLATORS. REFER TO MECHANICAL SCHEDULES FOR NUMBER OF CIRCUITS.
    H. GAS FURNACE: NATURAL GAS FIRED WITH CONTROLS, ELECTRONIC IGNITION, HIGH LIMIT CUTOUT AND PROVING SWITCH. CAPACITIES AS NOTED IN THE MECHANICAL SCHEDULES.
    I. DAMPERS: PROVIDE WITH OUTDOOR AIR, RETURN AIR AND BAROMETRIC RELIEF DAMPERS. MODULATING MOTORS WITH ADJUSTABLE MINIMUM POSITION. COMPLY WITH ENERGY CODE REQUIREMENTS.
    J. FILTERS: FILTER RACK WITH MERV 8 FILTERS.
    K. ELECTRICAL CONNECTIONS: SINGLE POINT OF CONNECTION WITH UNIT-MOUNTED DISCONNECT SWITCH AND CONTROL-CIRCUIT TRANSFORMER WITH BUILT-IN OVERCURRENT PROTECTION.
    L. ECONOMIZER: AS NOTED IN THE MECHANICAL SCHEDULES.
    M. ACCESSORIES: AS NOTED IN THE MECHANICAL SCHEDULES.
4. CONTROLS:
    A. SCHEDULED OPERATION: OCCUPIED AND UNOCCUPIED PERIODS ON SEVEN-DAY CLOCK WITH A MINIMUM OF TWO PROGRAMMABLE PERIODS PER DAY.
    B. SUPPLY FAN OPERATION: AS NOTED IN THE SEQUENCE OF OPERATIONS.
    C. REFRIGERANT CIRCUIT OPERATION: AS NOTED IN THE SEQUENCE OF OPERATIONS.
    D. GAS FURNACE / ELECTRIC HEATING COIL OPERATION: AS NOTED IN THE SEQUENCE OF OPERATIONS.
    E. OUTDOOR-AIR DAMPER OPERATION: AS NOTED IN THE SEQUENCE OF OPERATIONS.

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 - DIRECT FIRED, ROOF-MOUNTED MAKEUP AIR UNIT

PART 1 - GENERAL
1. SECTION REQUIREMENTS
    A. SUBMITTALS: PROVIDE SHOP DRAWINGS INDICATING THE DIMENSIONS, WEIGHTS, REQUIRED CLEARANCES, COMPONENTS, EFFICIENCIES, CAPACITIES, ELECTRICAL CHARACTERISTICS AND LOCATION AND SIZE OF EACH FIELD CONNECTION FOR EACH RTU.
    B. WARRANTY: SUBMIT A WRITTEN WARRANTY, SIGNED BY THE MANUFACTURER AGREEING TO A TWO-YEAR PARTS WARRANTY AND A FIVE-YEAR BURNER WARRANTY.

PART 2 - PRODUCTS
1. DESCRIPTION: OWNER FURNISHED EQUIPMENT.

PART 3 - EXECUTION
1. INSTALLATION: GENERAL CONTRACTOR TO INSTALL.
    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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SEAL

07/29/2024

PROJECT

CAVA

CAVA

300 NJ-18
East Brunswick, NJ 08816

△	DATE	DESCRIPTION
	03/13/24	PERMIT SET
	05/28/24	BID SET
1	07/26/24	BID SET

MECHANICAL SPECIFICATIONS

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Scale:	AS NOTED
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Drawn By:	KLM
Checked By:	JAE

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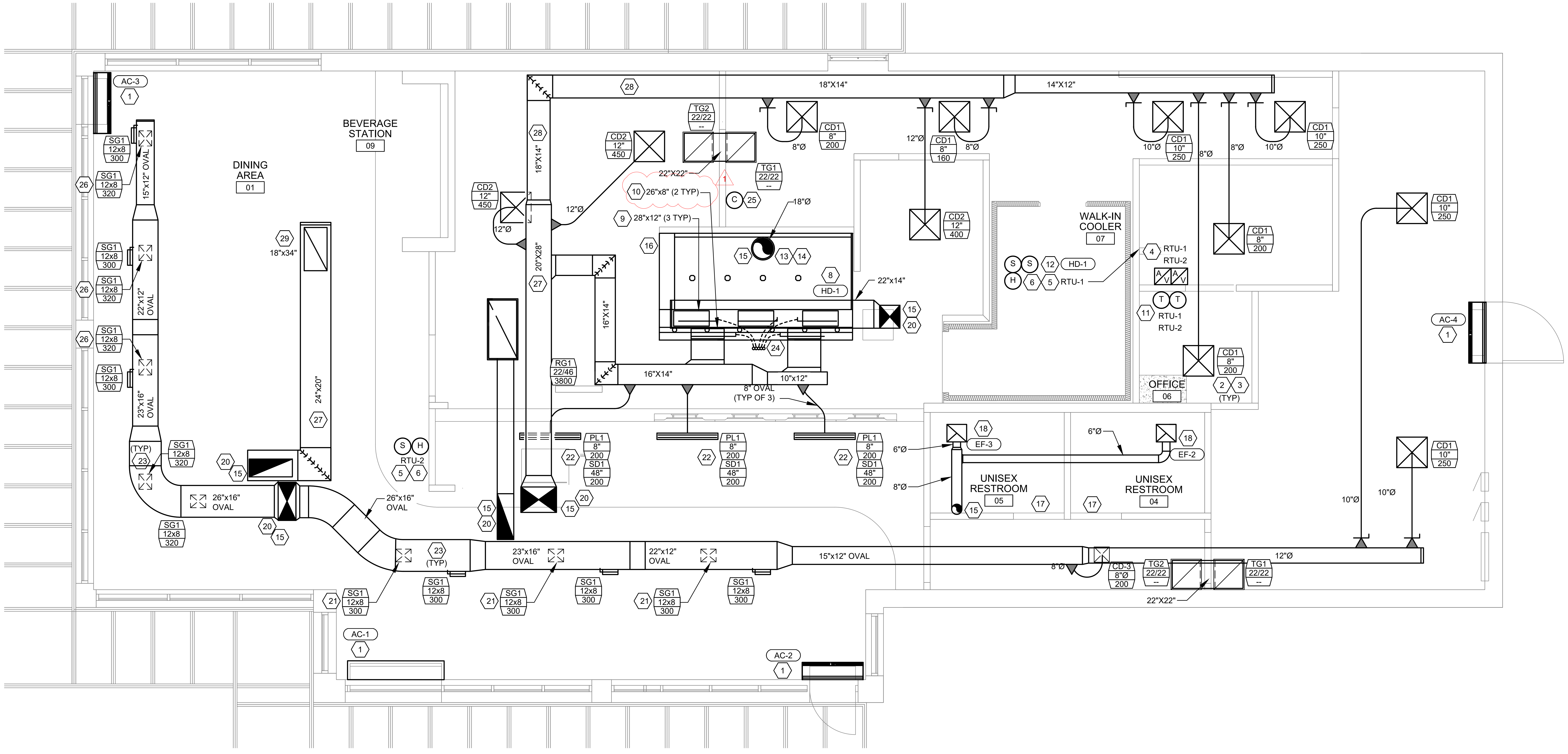
CODED NOTES

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.
6. INSTALL THE REMOTE HUMIDISTAT FOR THE HVAC EQUIPMENT NOTED AT THIS LOCATION IMMEDIATELY ABOVE THE TEMPERATURE SENSOR. 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%.
7. NOT USED.
8. 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 IT'S 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.
9. PROVIDE DUCT DROP FOR MAKEUP AIR AND CONNECT TO THE HOOD'S INTEGRAL MAKEUP AIR PLENUM.
10. PROVIDE DUCT DROP FOR CONDITIONED AIR AND CONNECT TO THE HOOD'S INTEGRAL AC PLENUM CONNECTION.
11. 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.
12. 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.
13. INSTALL OWNER FURNISHED UL-1978 AND UL-2221 LISTED DOUBLE-WALL GREASE DUCT, FROM HOOD COLLAR TO EXHAUST FAN ON ROOF. INSTALL EXHAUST DUCT PER MANUFACTURER'S INSTRUCTIONS. PROVIDE CLEANOUTS AT EVERY CHANGE OF DIRECTION IN THE DUCT AND/OR EVERY 10 FEET WITH MINIMUM OF 3 FEET OF CLEARANCE IN FRONT OF CLEAN-OUT. COORDINATE ROUTING OF DUCTWORK WITH OWNER'S CAPTIVEAIRE REPRESENTATIVE.
14. 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.
15. DUCTWORK TO/FROM ROOF. REFER TO THE HVAC ROOF PLAN FOR CONTINUATION.
16. 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.
17. UNDERCUT RESTROOM DOOR 1" FOR TRANSFER AIR.
18. PROVIDE CEILING MOUNTED EXHAUST FAN. TRANSITION FROM FAN DISCHARGE TO DUCT SIZE SHOWN AND EXTEND UP THROUGH ROOF.
19. NOT USED.
20. ROUTE DUCT UP BETWEEN AND THROUGH TRUSSES.
21. ADJUST SUPPLY REGISTERS SO THAT SUPPLY AIR HITS WALL ON EXTERIOR WALL SIDE OF ROOM AT APPROXIMATELY 7'-0" AFF WITH NO DRAFTS FELT IN THE DINING ROOM.
22. MOUNT SLOT DIFFUSER IN HORIZONTAL FACE AS SHOWN AND PER THE ARCHITECTURAL REFLECTED CEILING PLAN. PROVIDE BLANK OFF PLATES WHERE NO PLENUM IS SHOWN.
23. PROVIDE EXPOSED DUCTWORK AS SHOWN, PER THE SPECIFICATIONS AND PER DETAIL 1/M300. MOUNT EXPOSED DUCT TIGHT TO BOTTOM OF STRUCTURE.
24. REMOTE BALANCING DAMPER, TYPICAL FOR BALANCING DAMPERS IN HARD CEILING APPLICATIONS.
25. PROVIDE CO2 MEASUREMENT SPECIALISTS RAD-0102-6 REMOTE CO2 STORAGE SAFETY ALARM (OR EQUAL). INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
26. ADJUST SUPPLY REGISTERS SO THAT SUPPLY AIR HITS WALL ON INTERIOR WALL SIDE OF ROOM AT APPROXIMATELY 7'-0" AFF WITH NO DRAFTS FELT IN THE DINING ROOM.
27. DROP DUCT INTO STRUCTURAL SPACE AND ROUTE WITH DUCT WITHIN STRUCTURE SPACE ABOVE THE CEILING.
28. CONTINUE DUCT BELOW STRUCTURE.
29. PROVIDE RETURN AIR OPENING IN TOP OF LINED RETURN AIR DUCT. COVER WITH 1" WIRE MESH SCREEN. BALANCE TO RETURN VALUE INDICATED IN THE SCHEDULES.



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

CODED NOTES

CONSULTANT:

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SEAL

07/29/2024

PROJECT
CAVA

CAVA

300 NJ-18
East Brunswick, NJ 08816

DATE	DESCRIPTION
03/13/24	PERMIT SET
05/28/24	BID SET
1 07/26/24	BID SET

MECHANICAL PLAN

Date Modified:	02/16/2024
Date Created:	02/16/2024
Scale:	AS NOTED
Project No.:	230114
Drawn By:	KLM
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CODED NOTES

1. 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.
2. 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.
3. INSTALL THE HVAC EQUIPMENT PER THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND ALL STRUCTURAL DETAILS.
4. DUCTWORK TO/FROM SPACE. REFER TO THE HVAC MECHANICAL PLAN FOR CONTINUATION.
5. EXTEND EXHAUST DUCT UP THROUGH ROOF. PROVIDE A ROOF JACK, STORM COLLAR, AND ALL-WEATHER CAP.
6. EXHAUST DISCHARGE SHALL BE NO LESS THAN 10'-0" FROM ALL MECHANICAL INTAKES AND OPERABLE OPENINGS INTO THE BUILDING.
7. INSTALL EXHAUST FAN EF-1 PER DETAIL 4/M300 AND AS DETAILED IN THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
8. MAINTAIN 10' CLEARANCE BETWEEN WATER HEATER FLUE TERMINATION AND VENTILATION 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.
9. SMOKE DETECTOR IN THE RETURN AND SUPPLY AIR OF THE UNIT. UPON DETECTION OF SMOKE THE SUPPLY AIR FAN SHALL DE-ENERGIZE.

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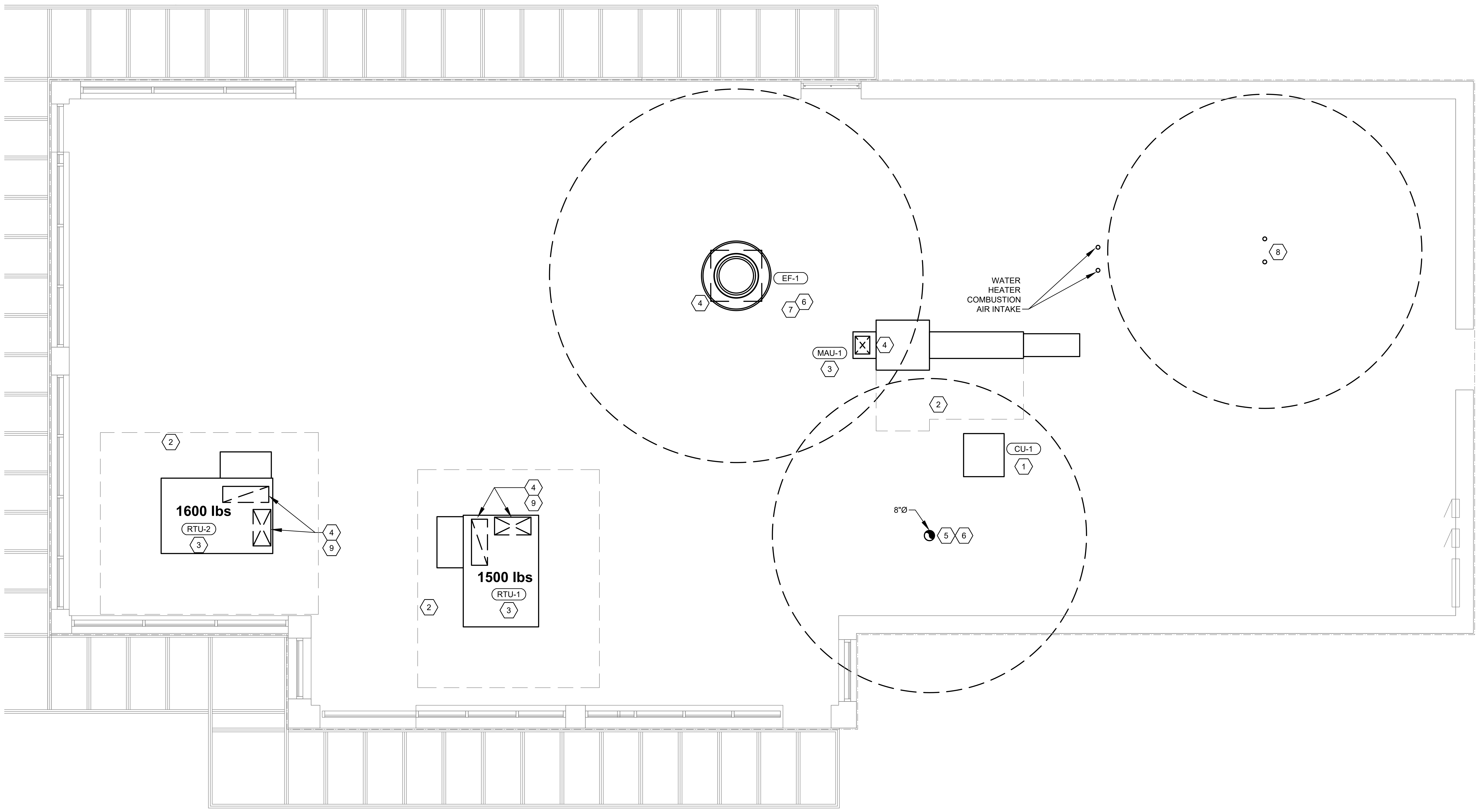

1 MECHANICAL ROOF PLAN
1/4" = 1'-0"

07/29/2024

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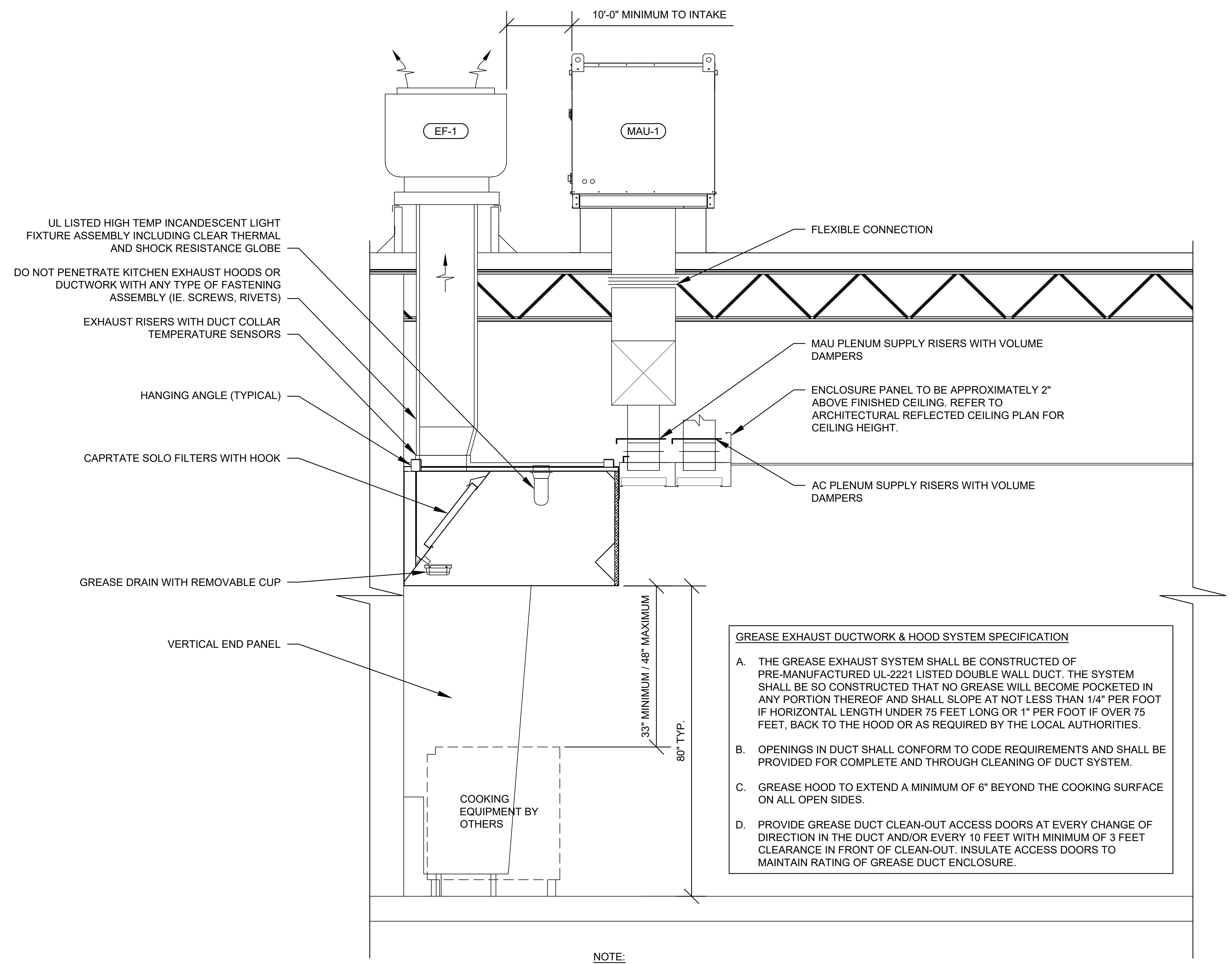


GREASE EXHAUST DUCTWORK & HOOD SYSTEM SPECIFICATION

A. 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.

B. OPENINGS IN DUCT SHALL CONFORM TO CODE REQUIREMENTS AND SHALL BE PROVIDED FOR COMPLETE AND THROUGH CLEANING OF DUCT SYSTEM.

C. GREASE HOOD TO EXTEND A MINIMUM OF 6" BEYOND THE COOKING SURFACE ON ALL OPEN SIDES.

D. 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:

1. INSTALL UL LISTED TYPE 1 EXHAUST HOOD.

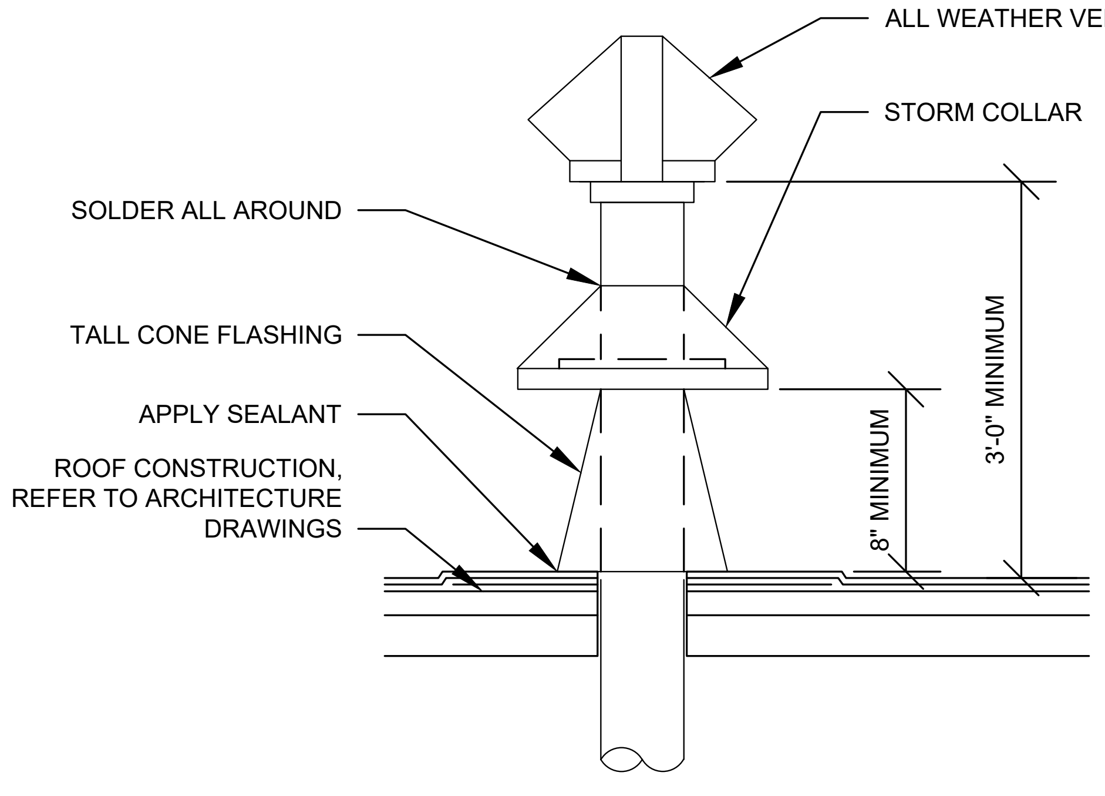
2. THE GREASE HOOD SHALL MEET THE REQUIREMENTS OF THE MECHANICAL CODE, NSF AND NFPA FOR A TYPE I HOOD.

3. 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.

4. INTEGRAL CHEMICAL FIRE SUPPRESSION SYSTEM AS REQUIRED BY NFPA 17A.

5. PERFORM SMOKE TEST ON TYPE I HOOD SYSTEM PER THE REQUIREMENTS OF LOCAL CODE AUTHORITIES.

5 KITCHEN HOOD SCHEMATICS
N.T.S.



3 DUCT THROUGH ROOF
N.T.S.

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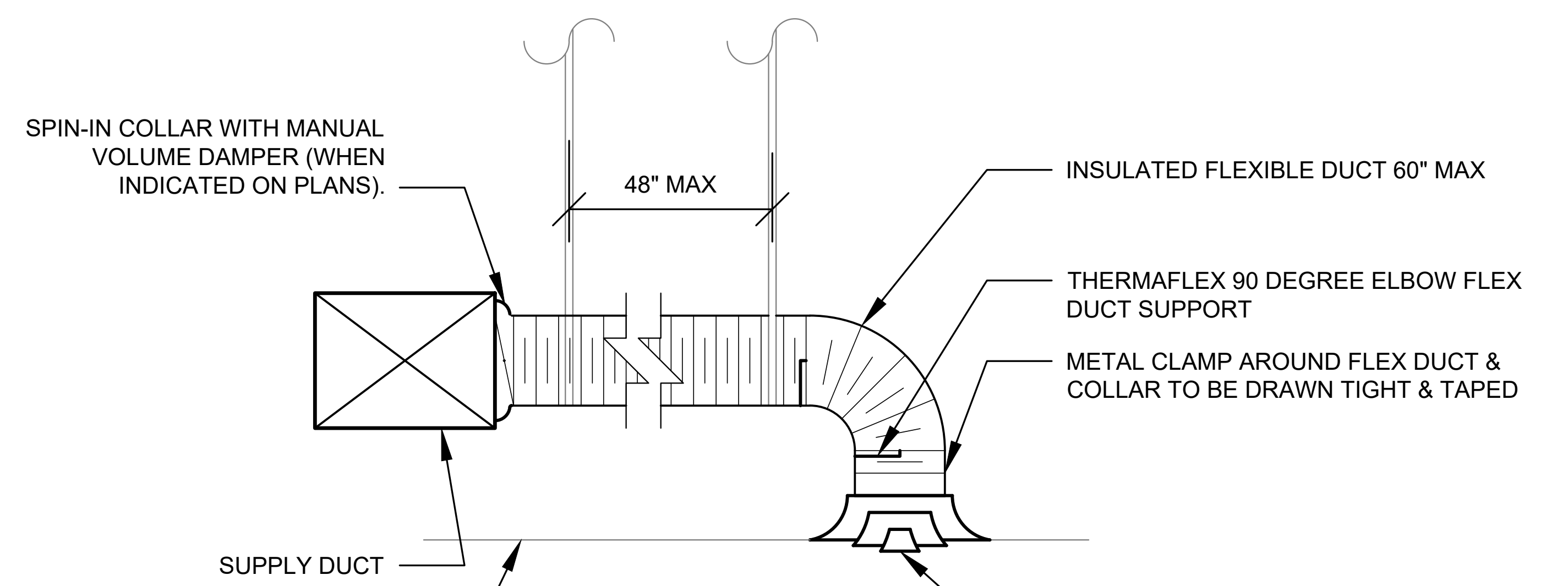
2 NOT USED
N.T.S.

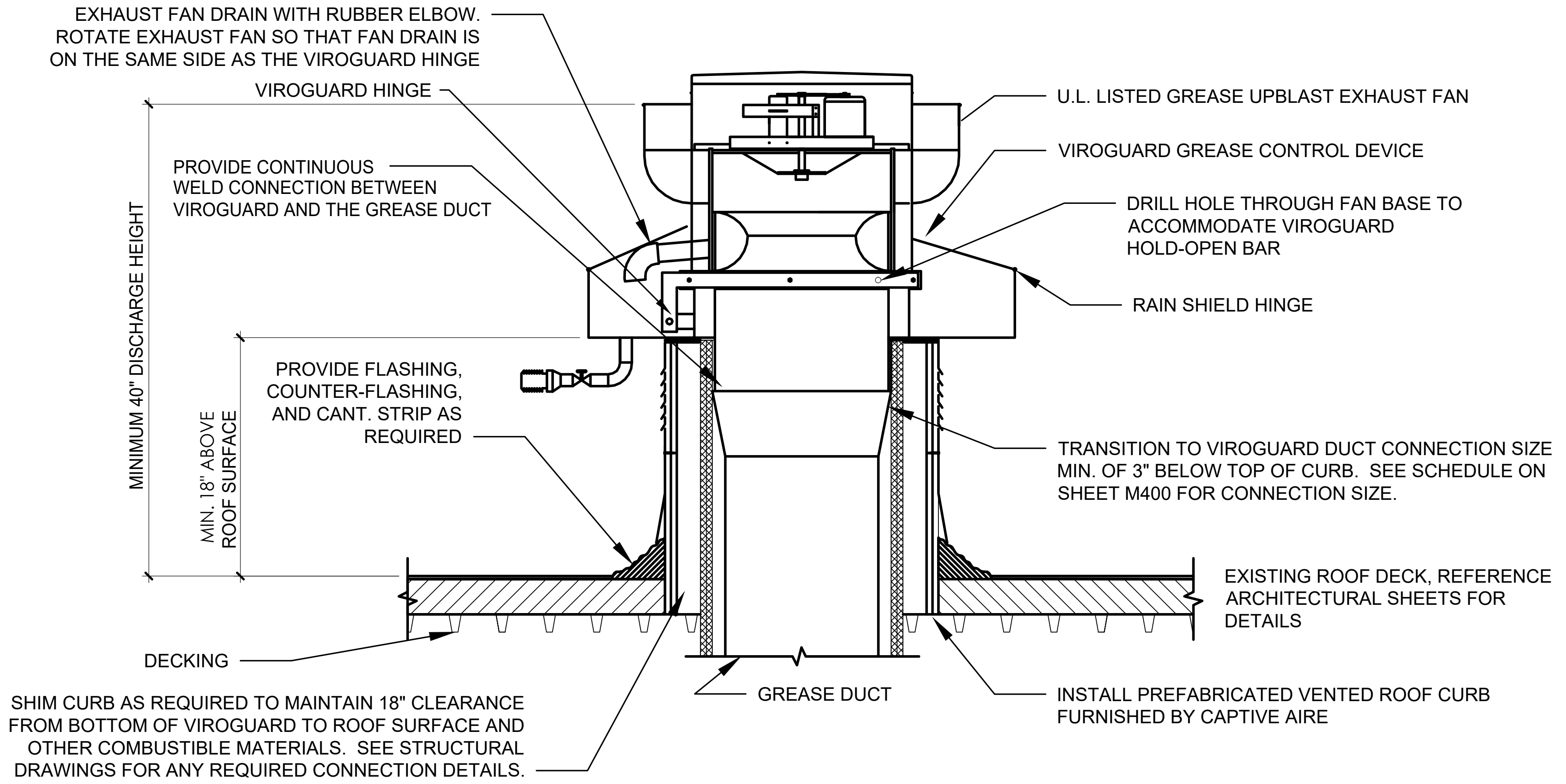


NOTE:

1. METHOD OF INSTALLATION FOR AIRTIGHT SEAL IS TYPICAL FOR ALL FLEX CONNECTIONS TO AIR DISTRIBUTION DEVICES.

6 DIFFUSER CONNECTION
N.T.S.

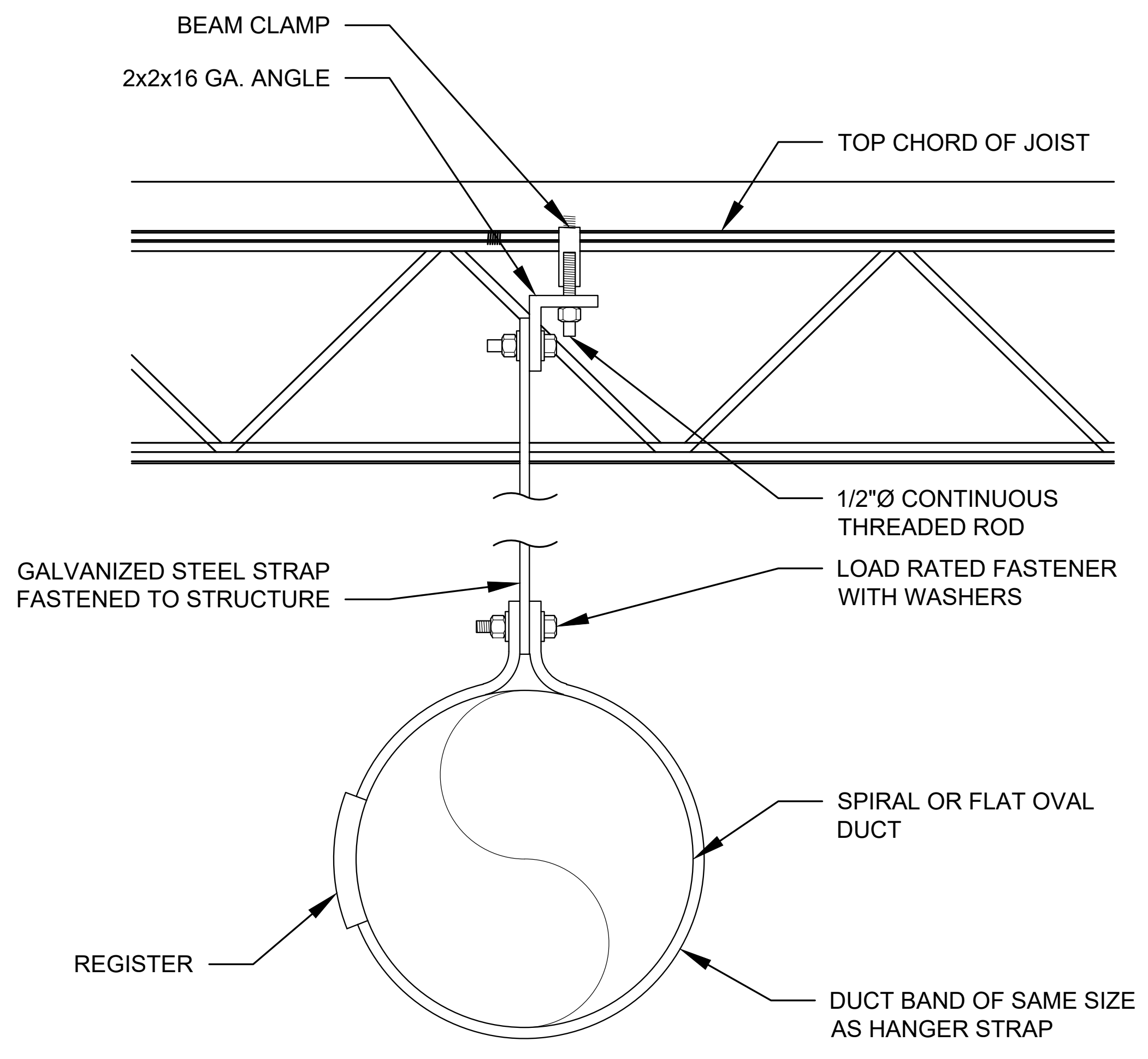
1



NOTES:

1. INSTALLATION SHALL BE IN ACCORDANCE WITH NFPA 96 REQUIREMENTS.
2. CUT AND PATCH EXISTING ROOFING AS REQUIRED FOR NEW CURB INSTALLATION.
3. CURB SHALL BE TAPERED TYPE AND MATCH THE PITCH OF THE ROOF.
4. CONTRACTOR TO PROVIDE TREATED WOOD BLOCKINGS AND SHIM FLAT ROOF CURB TILL LEVEL FOR ALL EXHAUST FANS AND TO ACHIEVE ROOF CURB HEIGHTS. PROVIDE ROOF CURB EXTENSION IF REQUIRED.
5. HINGE FAN SO IT TIPS BACK TOWARD FAN DRAIN AND TOWARD VIROGUARD DRAIN.

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



1 SPIRAL DUCT SUPPORT DETAIL
N.T.S.

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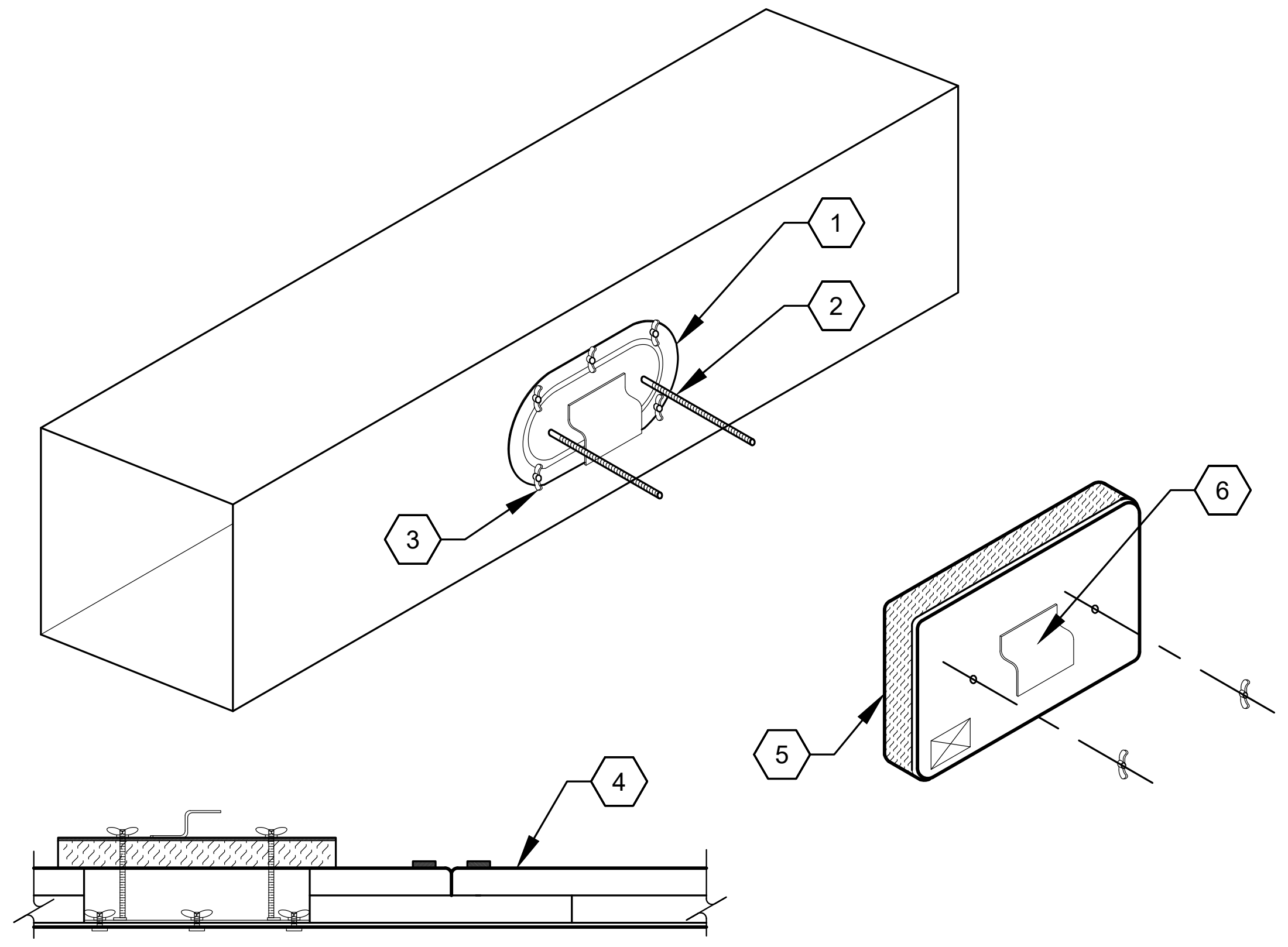
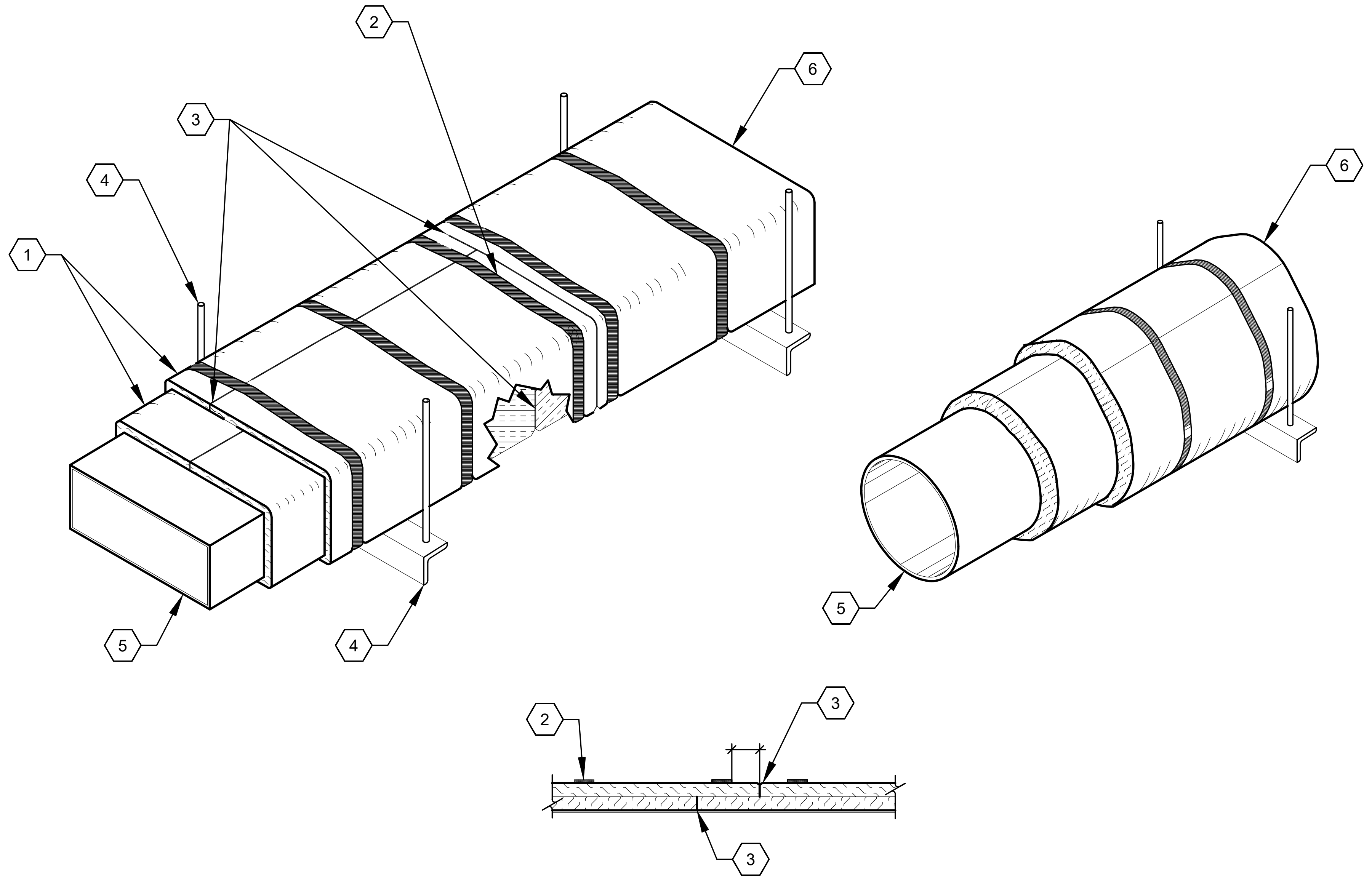


CODED NOTES:
1. UL LISTED FASTDOOR XL ACCESS PANEL.
2. ALL THREAD RODS AND WING NUTS PER THE MANUFACTURER'S INSTRUCTIONS.
3. RETAINER CLIPS WITH THREADED NUTS AND WING BOLTS.
4. INSULATION LAYERS AS REQUIRED BY THE UL LISTING.
5. FASTDOOR XL; 1-1/2" THICK SINGLE LAYER INSULATION.
6. PROVIDE THE FOLLOWING 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.



BUTT JOINT / BUTT JOINT TYPICAL

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 IT'S 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.

3 DUCT WRAP DETAIL (FIELD-FABRICATED DUCTWORK)

N.T.S.

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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	1,386.0	0	-0.70	0.00	-970.2	-2490.0
RESTROOM 04	58.0	1	0.00	-50.00	-50.0	-75.0
RESTROOM 05	50.9	1	0.00	-50.00	-50.0	-75.0

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	1,210.0	70.00	85	7.50	0.18	0.8	1,069.1	1100
CORRIDOR	85.0	0.00	0	0.00	0.06	0.8	6.4	10
STORAGE	468.0	0.00	0	0.00	0.12	0.8	70.2	70

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			
OFFICE	58.4	5.00	1	5.00	0.06	0.8	10.6	15.0
KITCHEN	1,386.0	20.00	1	7.50	0.12	0.8	217.3	220.0

5 VENTILATION CALCULATIONS

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. COMMISSIONING PLAN SHALL BE DEVELOPED BY A THIRD PARTY COMMISSIONING AGENT:

- 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 COMISSIONING REQUIREMENTS

N.T.S.

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.

EMERGENCY MODE:

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

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 RTU-1 & RTU-2

OCCUPIED MODE:

FAN OPERATION/OUTSIDE AIR DAMPER: WHEN SCHEDULED BY THE THERMOSTAT TO BE IN OCCUPIED MODE, THE ROOFTOP UNIT FANS ARE TO START AND RUN CONTINUOUSLY AND THE OUTSIDE AIR DAMPERS SHALL MODULATE TO THE MINIMUM POSITION.

HEATING: ON A FALL IN SPACE TEMPERATURE BELOW THE SETPOINT OF 70 DEGREES (ADJUSTABLE) THE HEATING SHALL BE ENERGIZED TO MAINTAIN THE SETPOINT. UPON A CONTINUED FALL IN SPACE TEMPERATURE, THE SECOND STAGE HEAT (WHEN APPLICABLE) SHALL BE ENERGIZED TO MAINTAIN THE SETPOINT.

COOLING: ON A RISE IN SPACE TEMPERATURE ABOVE THE SETPOINT OF 72 DEGREES (ADJUSTABLE), WHEN THE ENTHALPY OF THE OUTSIDE AIR IS FAVORABLE, THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN UP TO 100% TO PROVIDE COOLING FOR THE SPACE. WHEN THE ENTHALPY OF THE OUTSIDE AIR IS NOT FAVORABLE, OR THERE IS A SUDDEN DEMAND FOR SPACE COOLING, THE OUTSIDE AIR DAMPER SHALL MODULATE TO THE MINIMUM POSITION AND THE COOLING SHALL BE ENERGIZED AS REQUIRED TO MAINTAIN THE SETPOINT.

DEHUMIDIFICATION: UPON A SIGNAL FROM THE HUMIDISTAT THAT DEHUMIDIFICATION IS REQUIRED, THE COOLING COIL SHALL BE ENERGIZED TO SATISFACTORILY DEHUMIDIFY THE AIR AND THE HOT GAS REHEAT COIL SHALL BE ENGAGED AS REQUIRED TO MAINTAIN THE SPACE SETPOINT.

UNOCCUPIED MODE:

FAN OPERATION/OUTSIDE AIR DAMPER: WHEN SCHEDULED BY THE THERMOSTAT TO BE IN UNOCCUPIED MODE, THE ROOFTOP UNIT FANS ARE TO BE OFF AND THE OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED.

HEATING: ON A FALL IN SPACE TEMPERATURE BELOW THE SETPOINT OF 55 DEGREES (ADJUSTABLE) THE ROOFTOP UNIT FAN SHALL START AND THE HEATING SHALL BE ENERGIZED TO MAINTAIN THE SETPOINT. UPON A CONTINUED FALL IN SPACE TEMPERATURE, THE SECOND STAGE HEAT (WHEN APPLICABLE) SHALL BE ENERGIZED TO MAINTAIN THE SETPOINT.

COOLING: ON A RISE IN SPACE TEMPERATURE ABOVE THE SETPOINT OF 85 DEGREES (ADJUSTABLE) THE ROOFTOP UNIT FAN SHALL START. WHEN THE ENTHALPY OF THE OUTSIDE AIR IS FAVORABLE, THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN UP TO 100% TO PROVIDE COOLING FOR THE SPACE. WHEN THE ENTHALPY OF THE OUTSIDE AIR IS NOT FAVORABLE, OR THERE IS A SUDDEN DEMAND FOR SPACE COOLING, THE OUTSIDE AIR DAMPER SHALL REMAIN IN THE CLOSED POSITION AND THE COOLING SHALL BE ENERGIZED AS REQUIRED TO MAINTAIN THE SETPOINT.

DEHUMIDIFICATION: UPON A SIGNAL FROM THE HUMIDISTAT THAT DEHUMIDIFICATION IS REQUIRED THE ROOFTOP UNIT FAN SHALL START, THE COOLING COIL SHALL BE ENERGIZED TO SATISFACTORILY DEHUMIDIFY THE AIR AND THE HOT GAS REHEAT COIL SHALL BE ENGAGED AS REQUIRED TO MAINTAIN THE SPACE SETPOINT.

EMERGENCY MODE:

FAN OPERATION/OUTSIDE AIR DAMPER: UPON A SIGNAL FROM THE SMOKE DETECTOR, THE FAN SHALL STOP AND THE OUTSIDE AIR DAMPER SHALL CLOSE

1 SEQUENCE OF OPERATIONS

N.T.S.

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SEAL

07/29/2024

PROJECT

CAVA

CAVA

300 NJ-18
East Brunswick, NJ 08816

△ DATE	DESCRIPTION
03/13/24	PERMIT SET
05/28/24	BID SET
1 07/26/24	BID SET

MECHANICAL DETAILS

Date Modified: 02/16/2024
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Scale: AS NOTED
Project No.: 230114
Drawn By: KLM
Checked By: JAE

M301

VIROGUARD SCHEDULE

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

AIR BALANCE SCHEDULE

TAG	SUPPLY FLOW (CFM)	RETURN FLOW (CFM)	OUTSIDE AIRFLOW (CFM)	EXHAUST FLOW (CFM)	SUBTOTAL (CFM)
EF-1	0	0	0	2,490	-2,490
EF-2	0	0	0	75	-75
EF-3	0	0	0	75	-75
MAU-1	2,115	0	2,115	0	2,115
RTU-1	4,000	3,800	200	0	200
RTU-2	5,000	3,820	1,180	0	1,180
NET PRESSURE (CFM)					855

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
	EXPOSED RETURN	DOUBLE-WALL INSULATED ROUND OR OVAL AS NOTED

GRILLES, REGISTERS & DIFFUSERS SCHEDULE

TAG	DESCRIPTION	FACE SIZE	MATERIAL	FINISH	MOUNTING	FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS
								MANUFACTURER	MODEL	
CD1	PERFORATED DIFFUSER	24"x24"	STEEL	TO MATCH CEILING	LAY-IN CEILING	GC	GC	TITUS	PAS	
CD2	PERFORATED DIFFUSER	24"x24"	STEEL	TO MATCH CEILING	GYP CEILING	GC	GC	TITUS	PAS	PROVIDE WITH OBD. REMOVE FOUR WAY DEFLECTORS
CD3	PLAQUE CEILING 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 MILLWORK	FIXTURE	GC	GC	TITUS	FBPI-20	FURNISH WITH FACE-OPERATED INLET DAMPER
SD1	LINEAR SLOT DIFFUSER	WIDTH = 2"	ALUMINUM	TO MATCH CEILING	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 CEILING	DUCT MOUNT	GC	GC	TITUS	S300FS	PROVIDE WITH NECK MOUNTED OBD.
RG1	LOUVERED RETURN GRILLE. BLADES PARALLEL TO LONG DIMENSION	REFER TO NECK SIZE	STEEL	TO MATCH CEILING	GYP CEILING	GC	GC	TITUS	350RL	
TG1	LOUVERED TRANSFER GRILLE. BLADES PARALLEL TO LONG DIMENSION	REFER TO NECK SIZE	STEEL	TO MATCH CEILING	LAY-IN CEILING	GC	GC	TITUS	350RL	
TG2	LOUVERED TRANSFER GRILLE. BLADES PARALLEL TO LONG DIMENSION	REFER TO NECK SIZE	STEEL	TO MATCH CEILING	GYP CEILING	GC	GC	TITUS	350RL	

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)	MOCP (A)	V/P/H					
EF-1	UPBLAST EXHAUST FAN	2,490	1.0	DIRECT	1.0	150.0	6.9	15	208/1/60	OWNER	GC	CAPTIVEAIRE	DU85HFA	UL762 FAN, FURNISHED WITH VARIABLE SPEED CONTROL, GREASE DRAIN AND CUP, 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

AIR CURTAIN SCHEDULE

TAG	DESCRIPTION	NOZZLE WIDTH (INCHES)	AIRFLOW			ELECTRICAL				FURNISHED BY	INSTALLED BY	BASIS FOR DESIGN		REMARKS
			MAX VELOCITY (FPM)	AVERAGE VELOCITY (FPM)	AIRFLOW (CFM)	HEATER kW	MOCP (A)	MCA (A)	V/P/H			MANUFACTURER	MODEL	
AC-1	PRIMARY DINING ROOM DOOR	84.00	2,317	1,728	2,268	15	60	44.1	208/3/60	GC	GC	BERNER	AE08-E-2084E	FURNISHED WITH MAGNETIC DOOR SWITCH INTERLOCKED WITH PRIMARY DINING ROOM DOOR. DISCONNECT SWITCH. PROVIDE THERMOSTAT TO TURN ON AIR CURTAIN HEATER WHEN TEMPERATURE IS BELOW 45 DEG
AC-2	SECONDARY DINING DOOR	42.00	2,317	1,728	1,134	5.6	25	18	208/3/60	GC	GC	BERNER	AE08-E-1042E	FURNISHED WITH MAGNETIC DOOR SWITCH INTERLOCKED WITH DOOR. DISCONNECT SWITCH. PROVIDE THERMOSTAT TO TURN ON AIR CURTAIN HEATER WHEN TEMPERATURE IS BELOW 45 DEG
AC-3	SECONDARY DINING DOOR	42.00	2,317	1,728	1,134	5.6	25	18	208/3/60	GC	GC	BERNER	AE08-E-1042E	FURNISHED WITH MAGNETIC DOOR SWITCH INTERLOCKED WITH DOOR. DISCONNECT SWITCH. PROVIDE THERMOSTAT TO TURN ON AIR CURTAIN HEATER WHEN TEMPERATURE IS BELOW 45 DEG
AC-4	DELIVERY DOOR	42.00	2,274	1,964	1,289	---	15	4.4	120/1/60	GC	GC	BERNER	AE08-E-1042A	FURNISHED WITH MAGNETIC DOOR SWITCH INTERLOCKED WITH DOOR. DISCONNECT SWITCH.

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		COOLING CAPACITY (TONS)	TOTAL COOLING CAPACITY		MOTOR POWER (HP)	V/P/H	CONDENSING UNIT		MAKEUP AIR UNIT					MANUFACTURER	MODEL	
							DB (DEG. F)	WB (DEG. F)		TOTAL (MBH)	SENSIBLE (MBH)			(2x) MCA (A)	(2x) MOCP (A)	MCA (A)	MOCP (A)						
MAU-1	GAS FIRED MAKEUP AIR UNIT WITH AIR CONDITIONING	2,115	0.50	10.0	145.993	134.314	98.0	74.0	5	52.4	34.2	2.5	208/3/60	11.2	20	8.3	15	1,300	OWNER	GC	CAPTIVEAIRE	A1-D.250-16Z-MPU	FURNISHED WITH DISCONNECT, ROOF CURB, CONDENSING UNIT, 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.)	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	2,490	0.7	1	18	139.00	57.00	152.00	20.00	2,115	3	28	12	840	2	26	8	5	1,200	OWNER	GC	CAPTIVEAIRE	6030 ND-2-ACPSP-F	FURNISHED WITH FIELD WRAPPER, RIGHT END STANDOFF, 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)					MOCP (A)	MCA (A)	V/P/H					
RTU-1	KITCHEN PACKAGED ROOFTOP UNIT	10.0	11.0 (15.0)	4,000	3,750	250	0.80	118.0	92.8	75.9	65.4	93.0	250/ 200	205/ 164	62.6	2	1	23.2	1,500	60	51	208/3/60	OWNER	GC	CARRIER	48FCFN12	FURNISHED WITH HOT GAS REHEAT WITH 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, DISCONNECT, UNPOWERED CONVENIENCE RECEPTACLE, MULTI-SPEED FAN, AND 24" TALL ROOF CURB
RTU-2	DINING ROOM PACKAGED ROOFTOP UNIT	12.5	10.2 (15.0)	5,000	3,800	1,200	0.80	136.1	102.7	77.9	65.5	92.5	250/ 200	205/ 164	55.4	2	1	28.5	1,600	80	68	208/3/60	OWNER	GC	CARRIER	48FCFN14	FURNISHED WITH HOT GAS REHEAT WITH 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, DISCONNECT, UNPOWERED CONVENIENCE RECEPTACLE, MULTI-SPEED FAN, AND 24" TALL ROOF CURB

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