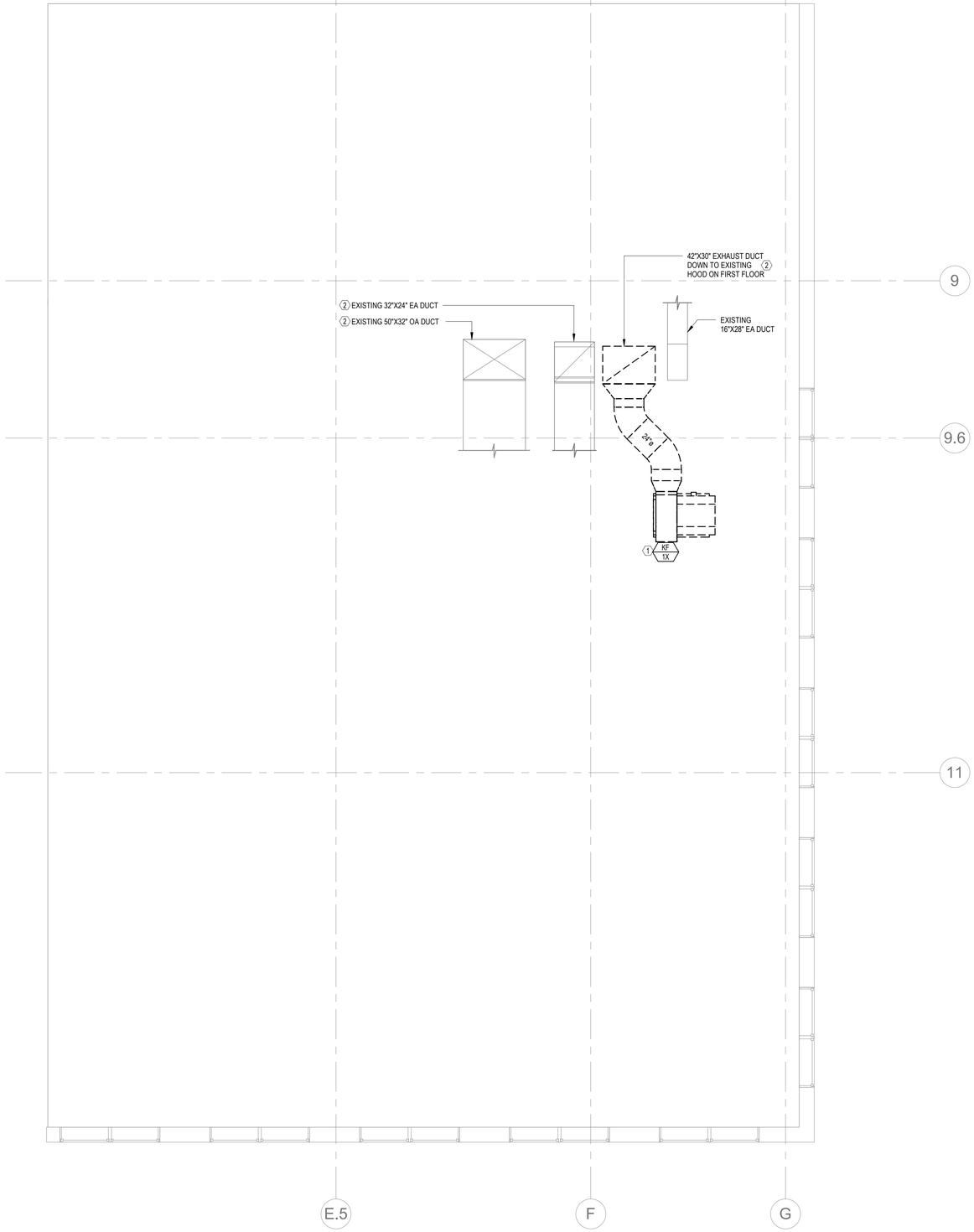


1 MD102 **MECHANICAL DEMO ROOF PLAN**
SCALE: 1/4" = 1'-0"

DEMOLITION GENERAL NOTES

1. ALL UNUSED DUCTWORK SHALL BE CAPPED BACK TO MAIN.
2. ALL UNUSED EQUIPMENT, HANGERS, DUCTS, SUPPORTS, PIPES, AND WIRING SHALL BE DISCONNECTED, PROPERLY DISPOSED, AND REMOVED BACK TO SOURCE.
3. NO PIPE NOR DUCTWORK SHALL BE EXPOSED IN TENANT SPACE UNLESS INDICATED OTHERWISE.
4. ALL RESULTING UNUSED OPENINGS IN WALLS, FLOORS, AND CEILINGS DUE TO DEMOLITION SHALL BE PATCHED TO MATCH EXISTING CORRESPONDING MATERIAL.
5. CONTRACTOR IS TO PERFORM DEMOLITION WORK IN A NEAT, SKILLFUL, AND CAREFUL MANNER SO AS NOT TO DAMAGE OR DEFACE EXISTING CONSTRUCTION THAT IS TO REMAIN.
6. PATCH ALL HOLES IN ROOFS, WALLS AND CEILING WHERE MECHANICAL EQUIPMENT IS REMOVED. IF THE REMOVAL OF MECHANICAL EQUIPMENT COMPROMISES THE FIRE RATING OF THESE ITEMS, THE CONTRACTOR SHALL SEAL OPENINGS WITH CODE-APPROVED FIRE STOPPING MATERIAL.
7. BECOME FAMILIAR WITH THE EXISTING CONDITIONS PRIOR TO SUBMITTING A COMPLETE BID WITHIN THE SCOPE OF THE PLANS AND SPECIFICATIONS. WHEN UNCLEAR, VERIFY THE EXTENT OF REMOVALS PRIOR TO BID. BRING TO THE ATTENTION OF THE ENGINEER ANY QUESTIONS IN REGARD TO THE EXTENT OF WORK OR ANY OTHER ISSUES RELATING TO THIS PROJECT.
8. REMOVE ALL EXISTING MATERIAL AND EQUIPMENT INDICATED ON PLAN. THE OWNER SHALL HAVE FIRST RIGHTS TO ALL EQUIPMENT TO BE REMOVED. DISPOSE OF ALL EQUIPMENT AND MATERIAL THAT IS NOT WANTED BY OWNER IN AN APPROVED MANNER PER LOCAL AUTHORITY.
9. WHEN THE EXTENT OF REMOVALS IS UNCLEAR, REQUEST CLARIFICATION FROM THE ENGINEER PRIOR TO COMMENCING WORK.

   WHEN MECHANICAL SYSTEMS ARE BEING REMODELED, COVER AND SEAL OPENINGS IN DUCTWORK, PIPING, OR MECHANICAL EQUIPMENT IN OPERATION THROUGH THE REMAINDER OF THE PROJECT.
10. THE LOCATION AND SIZE OF EQUIPMENT SHOWN ON THE DRAWINGS IS BASED ON SITE OBSERVATIONS AND THE BEST AVAILABLE INFORMATION AT THE TIME OF DRAWING PREPARATION AND SOME DISCREPANCIES MAY EXIST.
11. VERIFY EXACT LOCATIONS AND SIZES OF EQUIPMENT TO BE REMOVED OR REMAINING IN THE FIELD AND NOTIFY ENGINEER OF DISCREPANCIES WITH PLANS.

CUTTING, PATCHING AND REPAIRING OF WALL/FLOOR/CEILING/ROOF ASSEMBLIES MAY BE NECESSARY FOR INSTALLATION OF NEW WORK. CONTRACTOR TO VERIFY EXISTING CONDITIONS AND REVIEW DEMO DRAWINGS PRIOR TO SUBMITTING BID.

MECHANICAL DEMO KEY NOTES

① EXISTING KITCHEN EXHAUST FAN AND ASSOCIATED DUCTWORK TO BE DEMOLISHED IN ITS ENTIRETY. EXISTING ROOF CURB/SUPPORT RAILS TO REMAIN AND BE RE-USED FOR NEW UNIT. EXACT LOCATION OF EXISTING KITCHEN EXHUAST FAN TO BE FIELD VERIFIED.

② EXISTING BASE BUILDING EXHAUST/OUTSIDE AIR DUCTWORK TO REMAIN TO SERVE ADJACENT TENANTS. CONTRACTOR TO FIELD COORDINATE EXISTING LOCATIONS WITH NEW ROOFTOP EQUIPMENT.

ferris+sloane
100 N. Howard Street, Suite 4500 Spokane, WA 99201

COMMONWEALTH OF MASSACHUSETTS
ANDREW E. DUTSCHEVER
ARCHITECT
No. 51110
REGISTERED
PROFESSIONAL ENGINEER

CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER:
CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL DEMO ROOF PLAN

SHEET:
MD102

rtm engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180 www.rtmec.com

2/24/2025 11:19:33 AM

MECHANICAL SYMBOLS LEGEND

ABBREVIATIONS:

AFF	ABOVE FINISHED FLOOR
BOD	BOTTOM OF DUCT
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DB	DRY BULB
EAT	ENTERING AIR TEMPERATURE
ESP	EXTERNAL STATIC PRESSURE
FOB	FLAT ON BOTTOM
HZ	FREQUENCY
NC	NOISE CRITERIA
PSI	POUNDS PER SQUARE INCH
STR VFD	STANDARD VARIABLE FREQUENCY DRIVE
TYP	TYPICAL
WC	WATER COLUMN
WB	WET BULB
X	EXISTING

GRILLES/DIFFUSERS:

- SUPPLY DIFFUSER
- SUPPLY DIFFUSER WITH 3-WAY THROW
- SUPPLY DIFFUSER WITH 2-WAY THROW
- SIDEWALL MOUNTED SUPPLY REGISTER
- RETURN GRILLE
- EXHAUST GRILLE
- LINEAR DIFFUSER

EQUIPMENT:

- ROOF MOUNTED EXHAUST FAN
- CEILING MOUNTED EXHAUST FAN
- WATER SOURCE HEAT PUMP
- MAKE-UP AIR UNIT
- TS — TEMPERATURE SENSOR - ELECTRIC
- T — THERMOSTAT
- CO2 — CARBON DIOXIDE SENSOR
- SD — DUCT SMOKE DETECTOR
- A — AUDIO/VISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR
- H — HUMIDITY SENSOR

DOUBLE LINE DUCT SYMBOLS:

- NEW SHEET METAL DUCTWORK
- SUPPLY OR OUTSIDE AIR DUCT
- RETURN AIR DUCT
- EXHAUST AIR DUCT
- DUCTWORK TRANSITION
- DUCTWORK TRANSITION - RECTANGULAR TO ROUND
- SUPPLY DUCT ELBOW UP OR DOWN
- RETURN DUCT ELBOW UP OR DOWN
- EXHAUST DUCT ELBOW UP OR DOWN
- DUCT ELBOW WITH FIXED TURNING VANES
- DUCT BRANCH TAKE-OFF
- ROUND SPIN-IN WITH DAMPER
- SQUARE TO ROUND TAP WITH DAMPER
- FLEXIBLE DUCT CONNECTION
- VOLUME DAMPER
- BD — BACKDRAFT DAMPER
- FLEXIBLE DUCTWORK

GENERAL REFERENCES/NOTATIONS:

- CONNECT TO EXISTING
- DISCONNECT FROM EXISTING
- # — NOTE DESIGNATION
- # — REVISION DESIGNATION
- TYPE # — MECHANICAL EQUIPMENT DESIGNATION
- TAG / CFM — DIFFUSER DESIGNATION AND CFM

SYMBOLS LEGEND NOTES:

1. REFER TO SPECIFICATIONS AND PLAN NOTES FOR DETAILED DESCRIPTION OF ALL DEVICES SHOWN IN THIS SCHEDULE.
2. PROJECT MAY NOT USE EVERY SYMBOL OR DEVICE INDICATED ON THIS LEGEND.

CONTRACTOR PLAN NOTES

THIS DRAWING IS BASED ON BEST AVAILABLE INFORMATION AT TIME OF DESIGN AND MAY NOT REFLECT AS-BUILT CONDITIONS. ALL MECHANICAL INSTALLATIONS INDICATED ON THIS SHEET SHALL BE FIELD VERIFIED PRIOR TO BID AND DEMOLITION.

THIS CONTRACTOR SHALL DO A DETAILED INVESTIGATION TO DETERMINE ALL EXISTING CONDITIONS AND SHALL PRODUCE SHOP DRAWINGS FOR DUCT LAYOUTS WITH ADJUSTMENTS THAT SUIT FIELD CONDITIONS AT NO ADDED COSTS TO OWNER. FAILURE TO DO PROPER FIELD INVESTIGATION AND DUE DILIGENCE WILL NOT JUSTIFY CHANGE ORDERS.

THIS CONTRACTOR TO VISIT THE SITE PRIOR TO FINALIZING HIS BID AND VERIFY IF INSTALLATION OF RECTANGULAR DUCT IS REQUIRED FOR ANY PORTION OF THE JOB AND SUBMIT BIDS TO COVER ALL COST.

THE PROJECT INVOLVES VEY TIGHT CEILING CLEARANCE ABOVE THE T-BAR CEILING SYSTEM. THERE ARE EXISTING DUCTWORK, PIPES, BEAMS, AND CONDUITS OVERHEAD. THIS CONTRACTOR SHALL DO A DETAILED INVESTIGATION TO DETERMINE ALL OBSTRUCTIONS FOR DUCT LAYOUTS AND EQUIPMENT LAYOUTS WITH ADJUSTMENTS THAT SUIT FIELD CONDITIONS AND TO AVOID CONFLICTS WITH PROPOSED CEILING HEIGHTS AT NO ADDED COSTS TO OWNER. FAILURE TO DO PROPER FIELD INVESTIGATION AND DUE DILIGENCE WILL NOT JUSTIFY CHANGE ORDERS.

GENERAL NOTES

A. CONTRACTORS AND SUB-CONTRACTORS SHALL CAREFULLY REVIEW THE CONSTRUCTION DOCUMENTS. INFORMATION REGARDING THE COMPLETE WORK IS DISPERSED THROUGHOUT THE DOCUMENT SET AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCE TO THE COMPLETE DOCUMENT SET.

B. COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE. PROVIDE DUCT RISES AND DROPS AS REQUIRED FOR FIELD INSTALLATION AND TRADE COORDINATION. NOTIFY ARCHITECT OF ANY DISCREPANCIES.

C. DRAWINGS FOR HVAC WORK ARE DIAGRAMMATIC, SHOWING THE GENERAL LOCATION, TYPE, LAYOUT, AND EQUIPMENT REQUIRED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS. REFER TO MANUFACTURER'S STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE DUCTWORK, CONNECTIONS, ACCESSORIES, OFFSETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.

D. ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE GOVERNING CITY. PURCHASE ALL PERMITS ASSOCIATED WITH THE WORK. OBTAIN ALL INSPECTIONS REQUIRED BY CODE.

E. INSTALL EQUIPMENT PER MANUFACTURER'S INSTRUCTIONS AND MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCE.

F. CONTACT LANDLORD APPROVED ROOFING CONTRACTOR TO FLASH AND SEAL RELATED ROOF PENETRATIONS TO MAINTAIN ROOFING WARRANTY.

G. INSTALL EXHAUST FAN A MINIMUM OF 10 FT FROM INTAKE AIR OPENINGS.

ENERGY NOTES

1. MOTORIZED DAMPERS SHALL BE INSTALLED ON ALL INTAKES AND EXHAUST OPENINGS UNLESS NOTED OTHERWISE.
2. MAXIMUM FAN NAMEPLATE HORSEPOWER SHALL NOT EXCEED 1.1 HP/1000CFM.
3. LOAD CALCULATIONS WERE BASED ON ASHRAE 2021 FUNDAMENTALS
4. ALL PROGRAMMABLE THERMOSTATS SHALL HAVE 5 DEGREE DEADBAND AND SHALL HAVE 7-DAY CLOCK, 2-HOUR MANUAL OVERRIDE, 10 HOUR BACKUP AND SETBACK CAPABLE OF 55 DEGREES HEATING AND 85 DEGREES COOLING. (EXCEPT CONTINUOUS OPERATING ZONES)
5. DUCT INSULATION AS SPECIFIED WITH MINIMUM VALUES AS FOLLOWS:
   a. R-6 SUPPLY AND RETURN DUCT INSULATION IN UNCONDITIONED SPACES.
   b. R-12 SUPPLY AND RETURN DUCT INSULATION FOR EXTERIOR DUCTS.
   c. R-3 SUPPLY AND RETURN DUCT INSULATION UNDERGROUND.
   d. 1" INTERNAL LINER ON DUCTS WITHIN INDIRECTLY CONDITIONED PLENUM SPACES.
6. ALL DUCTWORK SHALL BE SEALED PRESSURE SENSITIVE TAPE IS NOT USED AS THE PRIMARY SEALANT. LONGITUDINAL AND TRANSVERSE SEAMS FOR DUCTS IN UNCONDITIONED SPACES AND WALL PENETRATIONS. TRANSVERSE SEAMS ON BURIED DUCTS.
7. ALL MOTORS SHALL MEET THE REQUIREMENTS OF IECC C405.8.
8. PROVIDE COMMISSIONING PER IECC C408.

INSULATION SCHEDULE

ALL EXPOSED DUCTWORK IN CONDITIONED SPACES	1" DUCT LINER
ALL EXTERIOR DUCTWORK	MIN. R-12
ALL CONCEALED SUPPLY AND RETURN DUCT	MIN. R-6
ALL EXHAUST UP TO 10'-0" FROM DISCHARGE	MIN. R-8

NOTE:

ALL SUPPLY AND RETURN AIR DUCTS AND PLENUMS SHALL BE INSULATED WITH A MINIMUM OF R-6 INSULATION WHEN LOCATED IN UNCONDITIONED SPACES AND WITH A MINIMUM OF R-12 INSULATION WHEN LOCATED OUTSIDE THE BUILDING ENVELOPE. WHEN LOCATED WITHIN A BUILDING ENVELOPE ASSEMBLY, THE DUCT OR PLENUM SHALL BE SEPARATED FROM THE BUILDING EXTERIOR OR UNCONDITIONED OR EXEMPT SPACES BY A MINIMUM OF R-12 INSULATION. ALL JOINTS, LONGITUDINAL AND TRANSVERSE SEAMS, AND CONNECTIONS IN DUCTWORK SHALL BE SECURELY FASTENED AND SEALED WITH WELDS, GASKETS, MASTICS, MASTIC-PLUS-EMBEDDED-FABRIC SYSTEMS OR TAPES. TAPES AND MASTICS SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B. DUCT CONNECTIONS TO FLANGES OF AIR DISTRIBUTION SYSTEM EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED. DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS.

DUCTS INCLUDING LININGS, COVERING AND VIBRATION CONNECTORS INSTALLED ON THE EXTERIOR OF THE BUILDING SHALL BE PROTECTED AGAINST THE ELEMENTS. INSULATED EXTERIOR DUCTS SHALL BE PROTECTED WITH AN APPROVED WEATHERPROOF BARRIER.

APPLICABLE CODES

AS ADOPTED BY THE CITY OF MEDFORD, MASSACHUSETTS:

2021 INTERNATIONAL MECHANICAL CODE
2021 INTERNATIONAL PLUMBING CODE
2021 INTERNATIONAL BUILDING CODE
2021 INTERNATIONAL FIRE CODE
2021 INTERNATIONAL EXISTING BUILDING CODE
2021 INTERNATIONAL ENERGY CONSERVATION CODE WITH STATE AMENDMENTS
MA BUILDING CODE 780 CMR TENTH EDITION

DESIGN CRITERIA

BASED ON ASHRAE HANDBOOK - 2021 FUNDAMENTALS

SOMERVILLE, MA
OUTDOOR DESIGN CONDITION

1% COOLING: 90.8°/76.0°F DB/WB

99.6% HEATING: 7.7°F DB

INDOOR DESIGN CONDITION (ADJUSTABLE)

SUMMER: 75°F DB/50% RH

WINTER: 70°F DB

rtm engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180: www.rtmec.com

ferris+sloane
100 N. Howard Street, Suite 4563 Spokane, WA 99201

CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

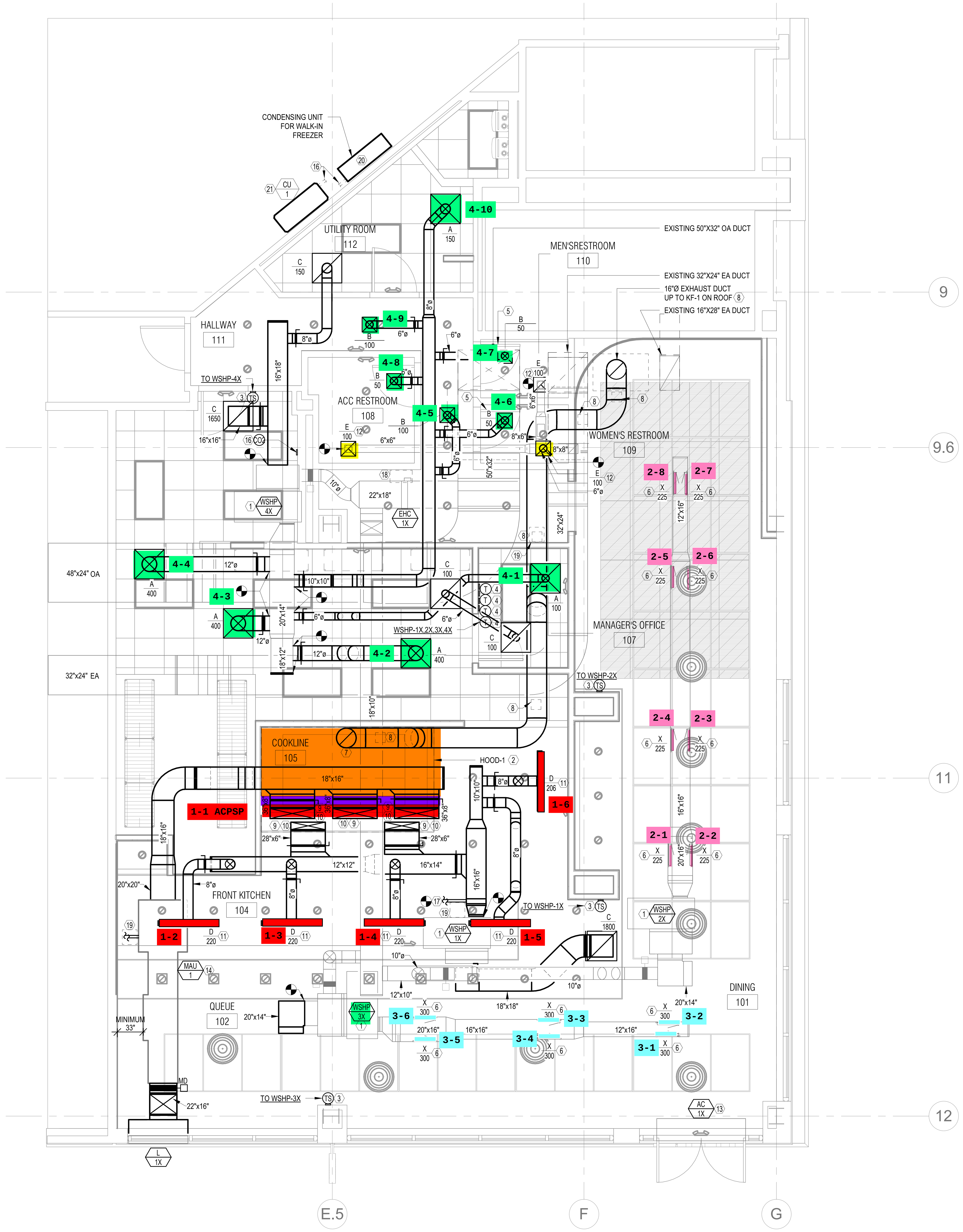
AOR PROJECT NUMBER:
CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL GENERAL NOTES, SYMBOLS & LEGEND

SHEET:
M000

2/24/2025 11:16:34 AM



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

KEYED NOTES

1. EXISTING WSHP TO REMAIN AND BE RE-USED. CONTRACTOR TO VERIFY OPERATION AND PROVIDE ROUTINE MAINTENANCE. EXISTING CONDENSER WATER PIPING TO REMAIN AND BE RE-USED. CONDENSATE PIPING TO BE RE-ROUTED AS SEEN ON PLUMBING SHEETS.
2. INSTALL OWNER FURNISHED TYPE I GREASE EXHAUST HOOD. SUPPORT HOOD PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE TRAPEZE HANGERS AND MOUNTING BRACKETS FOR ALL THREAD SUPPORT UNDER DUCTWORK AS REQUIRED. REFER TO HOOD DRAWINGS IN FOOD SERVICE SET FOR HOOD SPECIFICATION AND ADDITIONAL INFORMATION INCLUDING BALANCE OF MAKEUP AND CONDITIONED SUPPLY AIR TO HOOD.
3. PROVIDE REMOTE TEMPERATURE SENSOR COMPATIBLE WITH THERMOSTAT AND EXISTING WATER SOURCE HEAT PUMP'S CONTROLLER. MOUNT SENSOR 48" ABOVE FINISHED FLOOR. COORDINATE EXACT LOCATION WITH OWNER.
4. INSTALL LED TOUCHSCREEN 24/7 PROGRAMMABLE THERMOSTAT WITH CONTROLS LOCKED BY CODE) MOUNTED AT 48" AFF. COORDINATE EXACT LOCATION WITH OWNER.
5. UNDERCUT RESTROOM DOOR 1" FOR TRANSFER AIR.
6. EXISTING DIFFUSERS TO REMAIN AND BE RE-USED. CLEAN DIFFUSERS AND ADJUST DIFFUSER BLADES AS APPLICABLE TO WASH WINDOWS.
7. PROVIDE UL-2221 LISTED DOUBLE-WALL GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL DW-3R OR 32 ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL, FROM HOOD COLLAR 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 A MINIMUM OF 3 FEET OF CLEARANCE IN FRONT OF CLEAN-OUT. COORDINATE ROUTING OF DUCTWORK WITH OWNER'S CAPTIVEAIRE REPRESENTATIVE.
8. ACCESS PANELS FOR KITCHEN EXHAUST DUCT CLEANOUTS. PROVIDE CLEANOUTS ON THE SIDE OF THE KITCHEN EXHAUST DUCT WHERE POSSIBLE. OTHERWISE PROVIDE CLEANOUTS ON THE BOTTOM OF KITCHEN EXHAUST DUCT.
9. REFER TO HOOD DRAWINGS FOR BALANCE OF MAKEUP AIR AND CONDITIONED SUPPLY AIR.
10. PROVIDE YOUNG REGULATOR MODEL 830ACC RECTANGULAR CABLE CONTROLLED OPPOSED BLADE BALANCING DAMPER, MODEL 270-301EZ BOWDEN CABLE CONTROL KIT, AND BCW CONTROL WIRE AND CASINGS. COORDINATE INSTALLATION LOCATION WITH ARCHITECT AND MOUNT CABLE CONTROLLER IN CEILING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
11. REMOTE CABLE OPERATED BALANCING DAMPER, TYPICAL FOR BALANCING DAMPERS IN HARD CEILING APPLICATIONS.
12. NEW EXHAUST GRILLE TO CONNECT TO EXISTING BASE BUILDING EXHAUST MAIN. ADJUST/EXTEND DUCTWORK AS NEEDED.
13. EXISTING AIR CURTAIN ABOVE ENTRANCE DOOR TO REMAIN AND BE RE-USED. CONTRACTOR TO VERIFY OPERATION AND PROVIDE ROUTINE MAINTENANCE.
14. PROVIDE NEW CEILING HUNG MAKE-UP AIR UNIT. INSTALL PER MANUFACTURER'S INSTRUCTIONS AND ENSURE MANUFACTURER'S CLEARANCES. COORDINATE EXACT LOCATION WITH ACTUAL FIELD CONDITIONS. TRAP AND SLOPE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS. ROUTE REFRIGERANT LINES OVER TO CU-1. CONTRACTOR TO FIELD COORDINATE EXACT ROUTING WITH EXISTING CONDITIONS. PROVIDE LONG LINE KIT AS NEEDED.
15. PROVIDE CO2 MEASUREMENT SPECIALISTS RAD-0102-6 REMOTE CO2 STORAGE SAFETY ALARM(OR EQUAL), INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
16. FIELD COORDINATE EXACT ROUTING OF NEW REFRIGERANT LINES TO ASSOCIATED UNIT PRIOR TO INSTALLATION. PROVIDE LONG LINE KIT AS NEEDED.
17. NEW LOCATION OF EXISTING COIL. VERIFY EXACT LOCATION IN FIELD PRIOR TO INSTALLATION. RECONNECT EXISTING BRANCH CWS/CWR LINES TO COIL. PROVIDE ALL NECESSARY ACCESSORIES AND CONTROLS FOR COMPLETE INSTALLATION AND OPERATION.
18. PROVIDE A 18"X10" ACCESS PANEL IN CEILING. COORDINATE EXACT LOCATION WITH ARCHITECT.
19. PROVIDE A 12"X12" ACCESS PANEL IN CEILING. COORDINATE EXACT LOCATION WITH ARCHITECT.
20. PROVIDE WALL MOUNTED EQUIPMENT SUPPORT RAILS AND INSTALL OWNER FURNISHED REMOTE CONDENSING UNIT FOR WALK-IN COOLER. MOUNT UNIT AS HIGH AS POSSIBLE AND FIELD COORDINATE FINAL LOCATION WITH EXISTING CONDITIONS PRIOR TO INSTALLATION. INSTALL REFRIGERANT LINE SET, THERMOSTATIC EXPANSION VALVE, SOLENOID VALVE, TEMPERATURE CONTROL, SIGHT GLASS, FILTER DRIER, PRESSURE CONTROL, CRANKCASE HEATER, LOW AMBIENT CONTROLS, AND WEATHER PROOF HOUSING. TRAP AND SLOPE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO FIELD COORDINATE EXACT REFRIGERANT ROUTING WITH EXISTING CONDITIONS. SEAL PIPING PENETRATIONS THROUGH COOLER ROOF. PROVIDE LONG LINE KITS AS NEEDED.
21. PROVIDE WALL MOUNTED EQUIPMENT SUPPORT RAILS AND INSTALL OWNER FURNISHED REMOTE CONDENSING UNIT FOR MAKE-UP AIR UNIT. MOUNT UNIT AS HIGH AS POSSIBLE AND FIELD COORDINATE FINAL LOCATION WITH EXISTING CONDITIONS PRIOR TO INSTALLATION. TRAP AND SLOPE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE LONG LINE KITS AS NEEDED.

GENERAL NOTES

1. CONTRACTOR SHALL PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR AS REQUIRED TO INSTALL A COMPLETE AND OPERABLE HVAC SYSTEM PER THE NEW ARCHITECTURAL LAYOUT AND AS TO COMPLY WITH THE SPECIFICATIONS, DETAILS, THIS SCOPE OF WORK AND ALL APPLICABLE CODES.
2. ALL WORK PERFORMED SHALL CONFORM TO ALL APPLICABLE STATE AND LOCAL CODES.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY ALL EXISTING CONDITIONS AND COORDINATE ALL NEW WORK WITH ALL TRADES PRIOR TO ANY WORK BEING DONE TO ENSURE CONFLICTS DO NOT OCCUR.
4. DISRUPTION OF ANY EXISTING SERVICE SHALL BE CLEARED WITH THE OWNER AND SHALL BE PERFORMED AT A TIME AND IN A MANNER SO AS TO CAUSE THE OWNER A MINIMUM OF INCONVENIENCE.
5. ALL DUCT SIZES INDICATED ON PLANS AND RISERS ARE CLEAR INSIDE DIMENSIONS. DUCT SIZES NOT SHOWN SHALL BE SIZED TO VELOCITIES NO GREATER THAN UPSTREAM SECTION USING SIMILAR ASPECT RATIOS.
6. ALL SUPPLY AIR TAKEOFFS FROM MAIN TRUNK DUCTS ARE TO BE INSTALLED WITH BELL MOUTH FITTINGS OR 45 DEGREE ENTRY TO PROVIDE THE SMOOTHEST AIR FLOW POSSIBLE.
7. PROVIDE TURNING VANES IN ALL LOW-PRESSURE 90-DEGREE DUCT TURNS.
8. ALL THERMOSTAT LOCATIONS SHALL BE APPROVED BY THE ARCHITECT.
9. ALL DUCTS LOCATED ABOVE INACCESSIBLE CEILINGS ARE TO BE BALANCED PRIOR TO CEILING INSTALLATIONS.
10. CONTRACTOR SHALL PROVIDE ACCESS DOORS FOR SERVICE AND MAINTENANCE OF ALL EQUIPMENT LOCATED ABOVE INACCESSIBLE CEILINGS.
11. PROVIDE GUIDES, HANGERS, EXPANSION LOOPS AND SUPPLEMENTARY STEEL SUPPORT WHERE REQUIRED FOR ALL PIPING.
12. DO NOT PENETRATE KITCHEN EXHAUST HOODS OR DUCTWORK WITH ANY TYPE OF FASTENING ASSEMBLY (I.E. SCREWS, RIVETS).
13. IF NOT PAINTED, ALL DUCTWORK SHALL HAVE GASKET A SEAL.
14. EXPOSED DUCTWORK IN THE DINING AREA SHALL BE MADE OF ELECTRO -GALVANIZED STEEL (PAINTLOCK). SEE MECHANICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
15. COORDINATE ACCESS PANEL LOCATIONS WITH ARCHITECTURAL SHEETS.

HVAC COMMISSIONING

GENERAL CONTRACTOR SHALL HIRE A THIRD PARTY REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY TO DEVELOP A COMMISSIONING PLAN THAT SHALL INCLUDE THE FOLLOWING ITEMS:

1. NARRATIVE DESCRIPTION OF ACTIVITIES THAT WILL BE ACCOMPLISHED DURING EACH PHASE OF COMMISSIONING, INCLUDING PERSONNEL INTENDED TO ACCOMPLISH EACH PHASE OF ACTIVITY.
2. LISTING OF SPECIFIC EQUIPMENT, APPLIANCES OR SYSTEMS TO BE TESTED AND DESCRIPTION OF TESTS TO BE PERFORMED.
3. FUNCTIONS TO BE TESTED, INCLUDING, BUT NOW LIMITED TO CALIBRATIONS AND ECONOMIZER CONTROLS.
4. CONDITIONS UNDER WHICH TEST WILL BE PERFORMED. AT MINIMUM, TESTING SHALL AFFIRM WINTER AND SUMMER DESIGN CONDITIONS AND FULL OUTSIDE AIR CONDITIONS.
5. MEASURABLE CRITERIA FOR PERFORMANCE.

A PRELIMINARY REPORT OF COMMISSIONING TEST PROCEDURES AND RESULTS SHALL BE COMPLETED AND CERTIFIED BY REGISTERED DESIGN PROFESSIONAL OR APPROVED AGENCY IN ACCORDANCE WITH REQUIREMENTS OF SECTION C408.2 OF THE ENERGY CONSERVATION CODE AND PROVIDED TO PROJECT OWNER. A COPY OF THE REPORT SHALL BE MADE AVAILABLE TO CODE OFFICIAL IF REQUESTED.

FINAL COMMISSIONING REPORT SHALL BE DUE TO PROJECT OWNER WITHIN 90 DAYS OF RECEIPT OF CERTIFICATE OF OCCUPANCY.

CONTRACTOR PLAN NOTES

THIS DRAWING IS BASED ON BEST AVAILABLE INFORMATION AT TIME OF DESIGN AND MAY NOT REFLECT AS-BUILT CONDITIONS. ALL MECHANICAL INSTALLATIONS INDICATED ON THIS SHEET SHALL BE FIELD VERIFIED PRIOR TO BID AND DEMOLITION.

THIS CONTRACTOR SHALL DO A DETAILED INVESTIGATION TO DETERMINE ALL EXISTING CONDITIONS AND SHALL PRODUCE SHOP DRAWINGS FOR DUCT LAYOUTS WITH ADJUSTMENTS THAT SUIT FIELD CONDITIONS AT NO ADDED COSTS TO OWNER. FAILURE TO DO PROPER FIELD INVESTIGATION AND DUE DILIGENCE WILL NOT JUSTIFY CHANGE ORDERS.

THIS CONTRACTOR TO VISIT THE SITE PRIOR TO FINALIZING HIS BID AND VERIFY IF INSTALLATION OF RECTANGULAR DUCT IS REQUIRED FOR ANY PORTION OF THE JOB AND SUBMIT BIDS TO COVER ALL COST.

THE PROJECT INVOLVES VEY TIGHT CEILING CLEARANCE ABOVE THE T-BAR CEILING SYSTEM. THERE ARE EXISTING DUCTWORK, PIPES, BEAMS, AND CONDUITS OVERHEAD. THIS CONTRACTOR SHALL DO A DETAILED INVESTIGATION TO DETERMINE ALL OBSTRUCTIONS FOR DUCT LAYOUTS AND EQUIPMENT LAYOUTS WITH ADJUSTMENTS THAT SUIT FIELD CONDITIONS AND TO AVOID CONFLICTS WITH PROPOSED CEILING HEIGHTS - AT NO ADDED COSTS TO OWNER. FAILURE TO DO PROPER FIELD INVESTIGATION AND DUE DILIGENCE WILL NOT JUSTIFY CHANGE ORDERS.

EQUIPMENT CLEARANCE NOTES

VERIFY ALL EXISTING EXHAUST OUTLETS WITHIN 10'-0" OF OUTDOOR AIR INTAKES ARE MINIMUM 3'-0" HIGHER THAN OUTDOOR AIR INTAKES. CONTACT THE ARCHITECT AND ENGINEER IMMEDIATELY IF ANY EXISTING EXHAUST OUTLETS WITHIN 10'-0" OF OUTDOOR AIR INTAKES ARE OBSERVED TO BE LESS THAN 3'-0" HIGHER THAN OUTDOOR AIR INTAKES.

ferris+sloane
100 N. Howard Street, Suite 4563 Spokane, WA 99201

rtm engineering consultants

KATHRYN E. DUYTSCHAEVER ARCHITECTURAL No. 51710 — COMMONWEALTH OF MASSACHUSETTS — REGISTERED PROFESSIONAL ENGINEER

CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

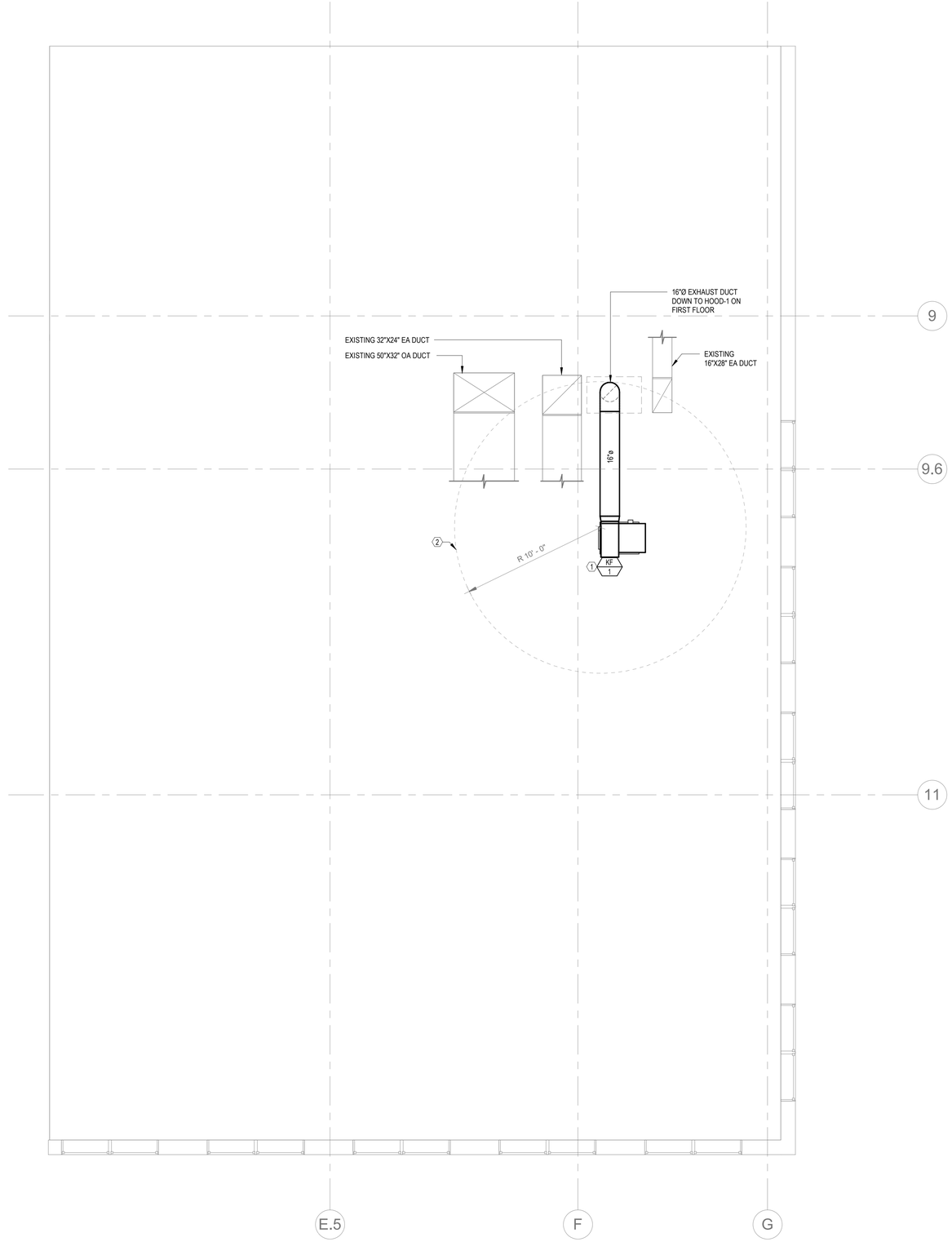
AOR PROJECT NUMBER: CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL PLAN

SHEET: **M101**

2/24/2025 11:16:46 AM



N

1 M201 **MECHANICAL ROOF PLAN**

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

GENERAL NOTES

1. ALL ROOFTOP EQUIPMENT LOCATIONS SHALL BE COORDINATED WITH ROOF DRAINS. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR EXACT LOCATIONS OF EQUIPMENT.
2. THE INSTALLING CONTRACTOR SHALL PROVIDE ROOF CURBS AND LEVELING CURBS TO MATCH THE ROOF PITCH IF REQUIRED. THE ROOFING CONTRACTOR SHALL FLASH ALL CURBS INTO ROOF.
3. ALL ROOFTOP EQUIPMENT SHALL BE SET ON CURBS OR RAILS. ALL PIPE AND DUCT PENETRATIONS THROUGH THE ROOF SHALL HAVE A WEATHER PROOF CURB OR FLASHING. ALL ROOF FLASHING SHALL BE PERFORMED BY THE ROOFING CONTRACTOR.
4. ALL VENTS AND EXHAUSTS SHALL BE LOCATED A MINIMUM OF 10'-0" AWAY FROM FRESH AIR INTAKES PER LOCAL CODE.
5. VENT TERMINATIONS PROVIDED BY THE PLUMBING CONTRACTOR SHALL BE 12'-0" MINIMUM FROM ANY AIR INTAKE. EXTEND TERMINATION HEIGHT TO PROVIDE 12'-0" CROSS SECTION CLEARANCE WHERE NEEDED.
6. ANY PENETRATIONS THROUGH THE ROOF SHALL BE COORDINATED WITH THE ROOFING CONTRACTOR.
7. ALL STRUCTURAL OPENINGS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER PRIOR TO CUTTING. INDICATE ON 1/8" SHOP DRAWINGS EXACT LOCATION OF OPENINGS COORDINATED WITH STRUCTURAL TRADES. PROVIDE DUCT ROOF CURBS AT ALL DUCT PENETRATIONS THRU THE ROOF.
8. ALL EQUIPMENT SHALL BE A MINIMUM OF 10'-0" AWAY FROM ROOF EDGE.
9. ACCESS TO MECHANICAL APPLIANCES INSTALLED IN UNDER-FLOOR AREAS, IN ATTIC SPACES, AND ON ROOFS OR ELEVATED STRUCTURES SHALL BE IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE.
10. EXHAUST TERMINATION OF ENVIRONMENTAL AIR DUCTS SHALL TERMINATE NOT LESS THAN 3'-0" FROM A PROPERTY LINE, 10'-0" FROM A FORCED AIR INLET, AND 3'-0" FROM OPENINGS INTO BUILDINGS.
11. PROVIDE GUARDS FOR ANY MECHANICAL EQUIPMENT THAT REQUIRES SERVICE ON ROOF THAT IS LOCATED WITHIN 10' OF A ROOF EDGE. THE TOP OF THE GUARD SHALL BE LOCATED NOT LESS THAN 42" ABOVE THE ELEVATED SURFACE ADJACENT TO THE GUARD.

KEYED NOTES

1. INSTALL NEW KITCHEN EXHAUST FAN ON EXISTING CURB/SUPPORT RAILS. CONTRACTOR TO FIELD VERIFY EXACT LOCATION OF EXISTING CURB/SUPPORT RAILS PRIOR TO STARTING WORK.
2. MAINTAIN A MINIMUM 10'-0" CLEARANCE FROM EXHAUST DISCHARGE TO ANY OUTSIDE AIR INTAKES.

EQUIPMENT CLEARANCE NOTE

VERIFY ALL EXISTING EXHAUST OUTLETS WITHIN 10'-0" OF OUTDOOR AIR INTAKES ARE MINIMUM 3'-0" HIGHER THAN OUTDOOR AIR INTAKES. CONTACT THE ARCHITECT AND ENGINEER IMMEDIATELY IF ANY EXISTING EXHAUST OUTLETS WITHIN 10'-0" OF OUTDOOR AIR INTAKES ARE OBSERVED TO BE LESS THAN 3'-0" HIGHER THAN OUTDOOR AIR INTAKES.

ferris+sloane
100 N. Howard Street, Suite 4500 Spokane, WA 99201

COMMONWEALTH OF MASSACHUSETTS
ANDREW C. DUTSCHEVER
ARCHITECT
No. 51110
REGISTERED PROFESSIONAL ENGINEER

CAVA

DC 20016

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER:
CAV065

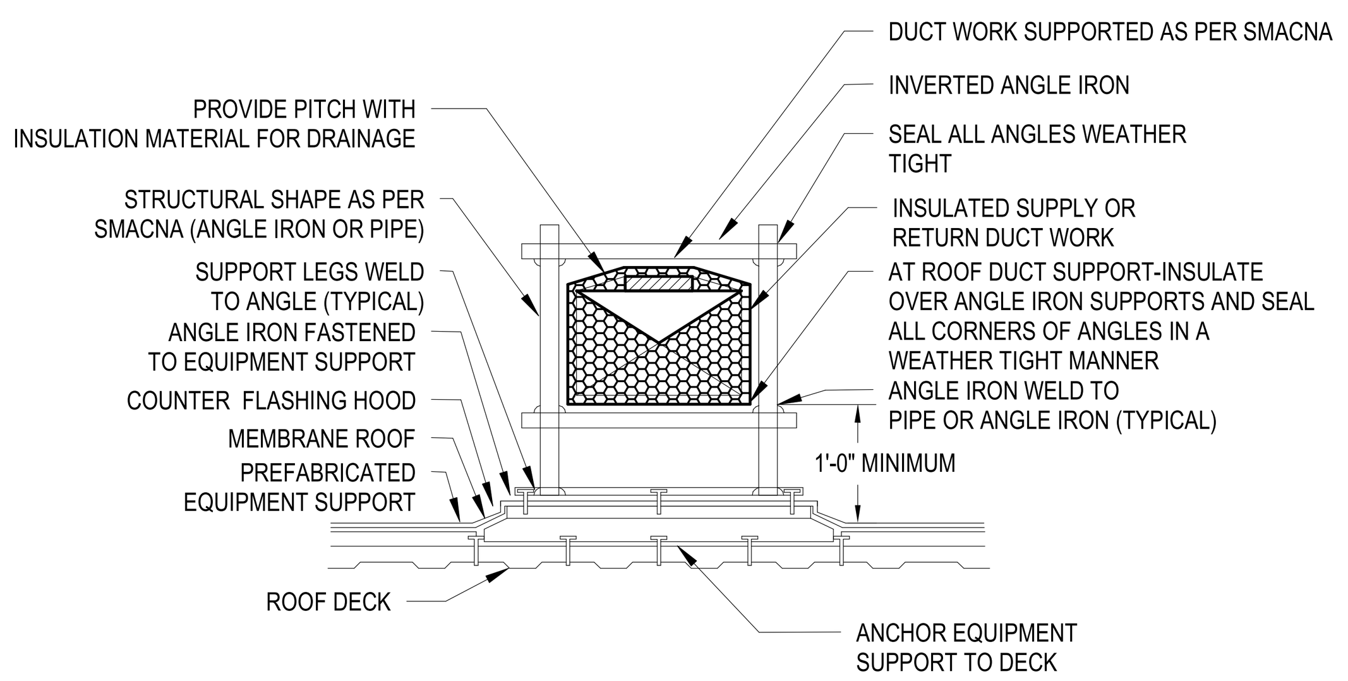
ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL ROOF PLAN

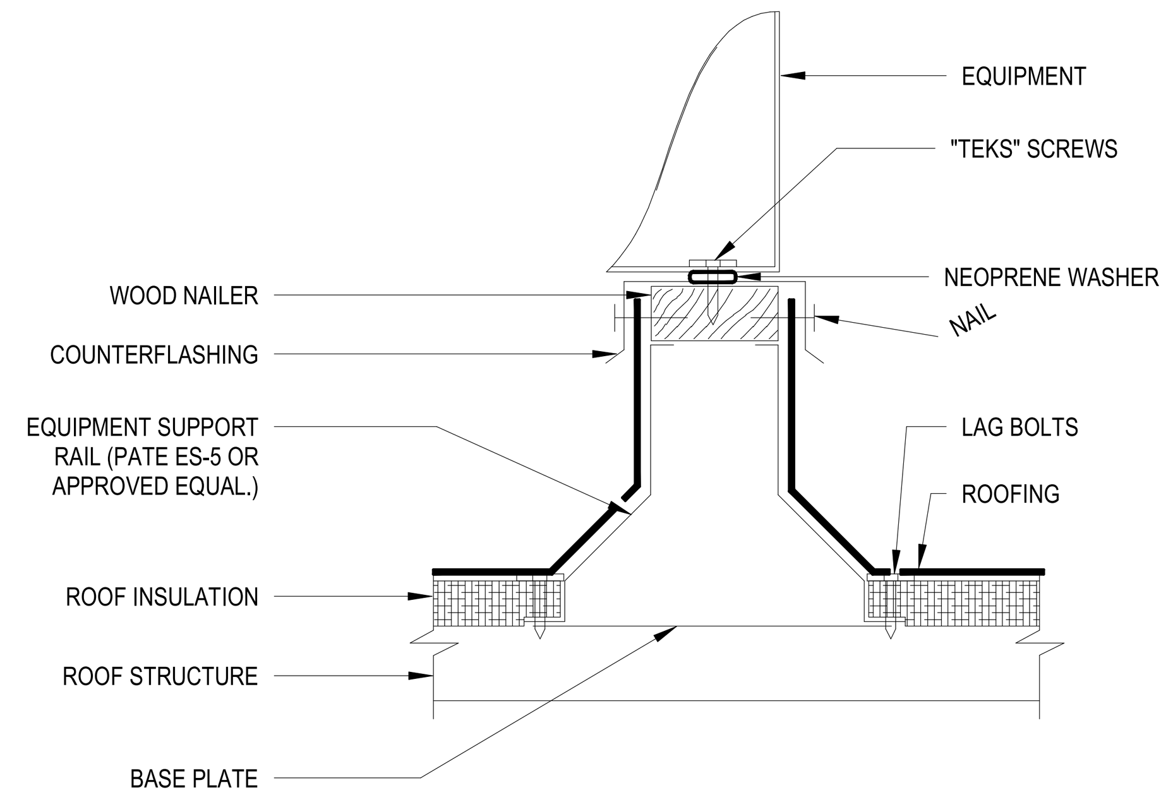
SHEET:
M201

rtm engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180 www.rtmec.com

2/24/2025 11:17:12 AM

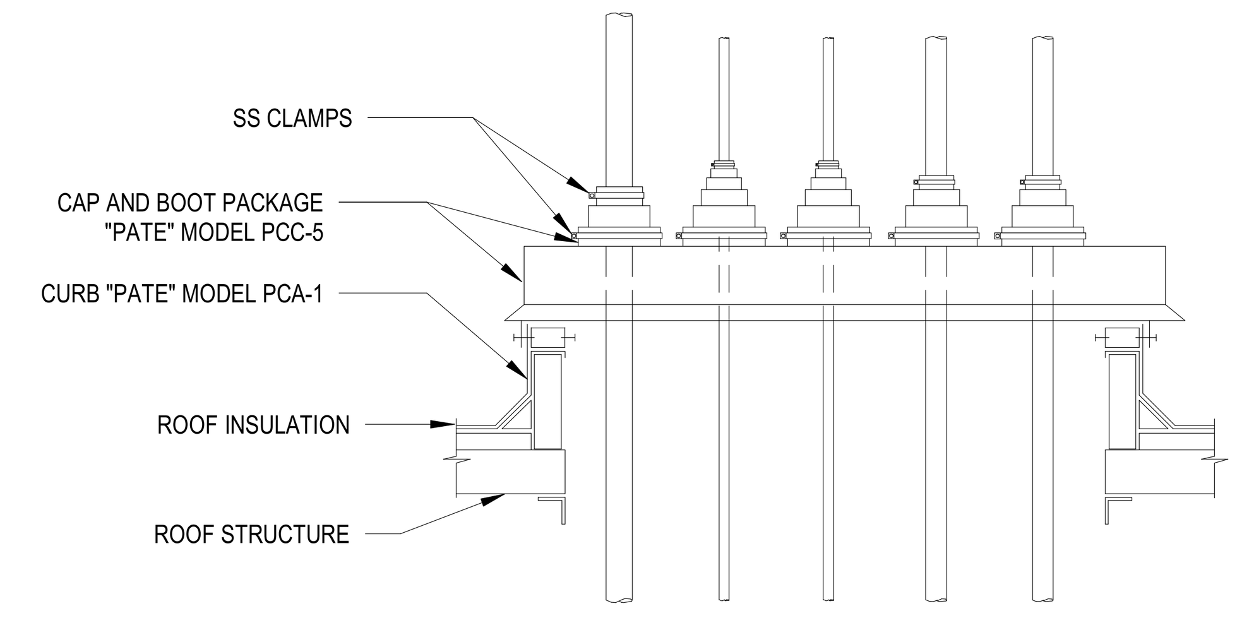


1 ROOF DUCT SUPPORT DETAIL
SCALE: N.T.S.



NOTES: 1) PROVIDE TWO ROOF RAILS FOR EACH UNIT.

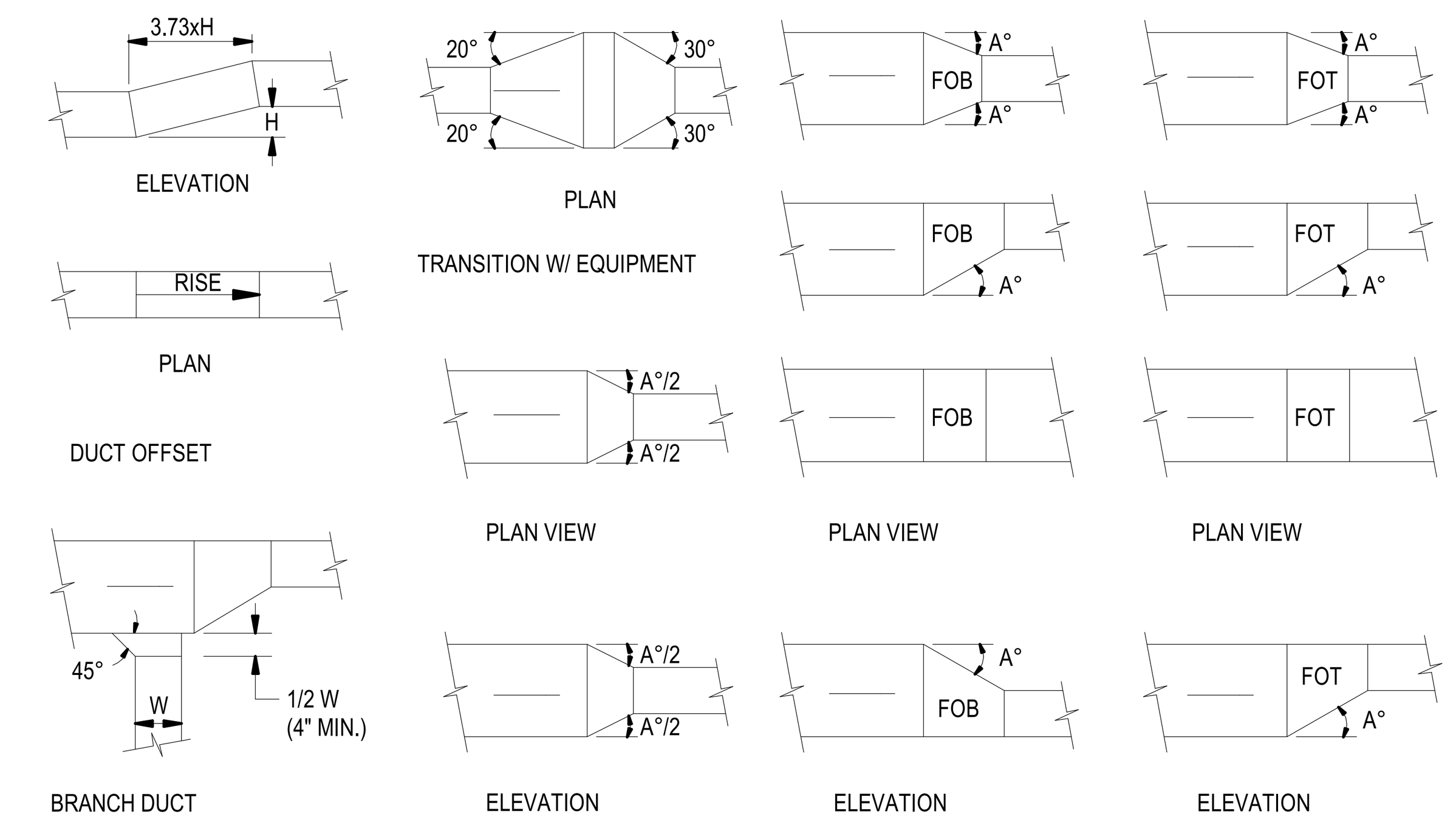
2 EQUIPMENT SUPPORT RAIL DETAIL
SCALE: N.T.S.



NOTES:

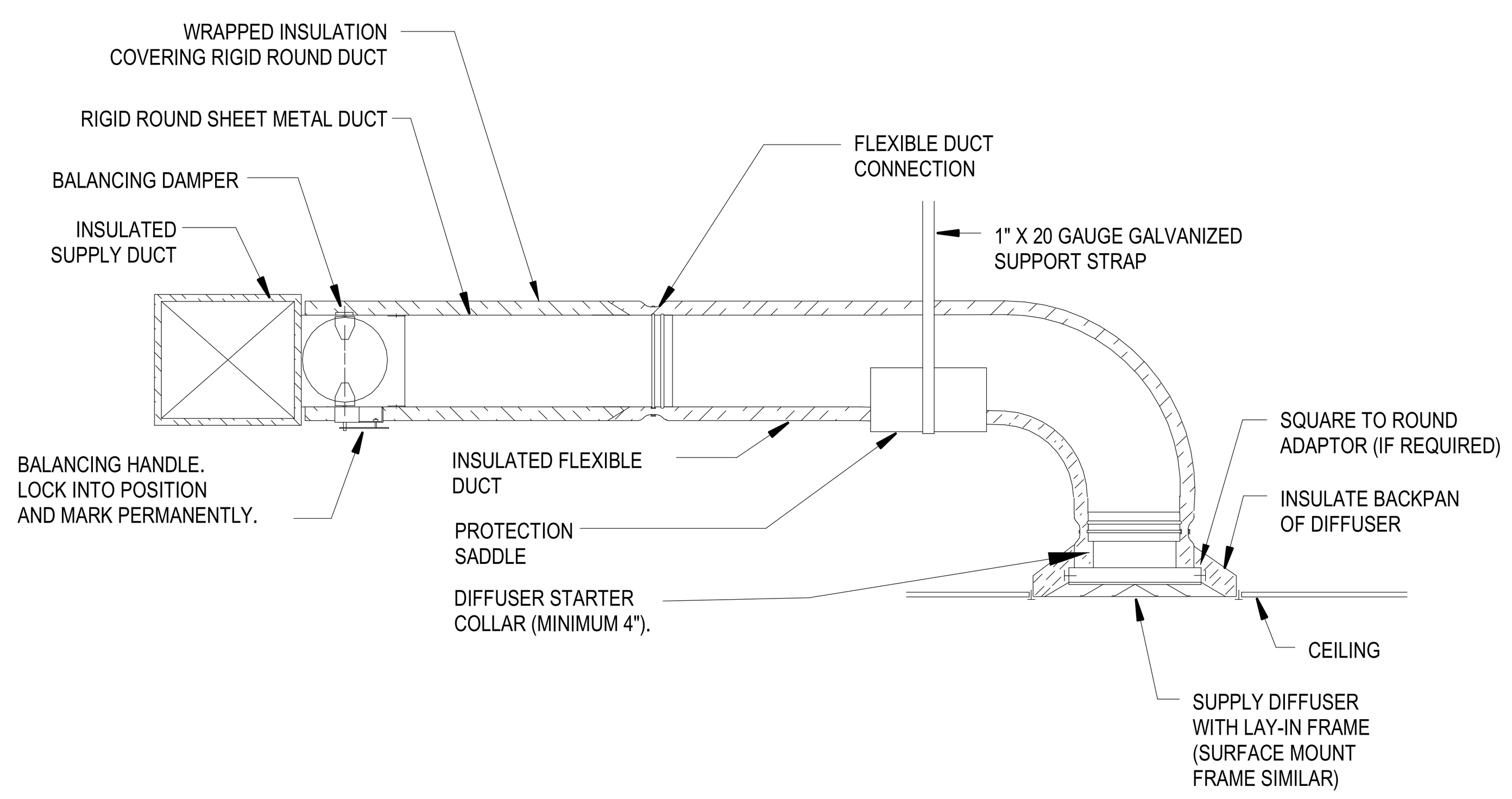
1. USE SINGLE ROOF PENETRATION FOR ALL CONTROL WIRING, POWER WIRING, AND REFRIGERANT LINES.
2. INSULATE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS.

3 PIPE ROOF PENETRATION DETAIL
SCALE: N.T.S.



NOTES: 1) ANGLE A = 30° WHEN AIR FLOWS IN DIRECTION OF ARROW (SUPPLY AIR).
2) ANGLE A = 20° WHEN AIR FLOWS IN OPPOSITE DIRECTION OF ARROW (RETURN OR EXHAUST).

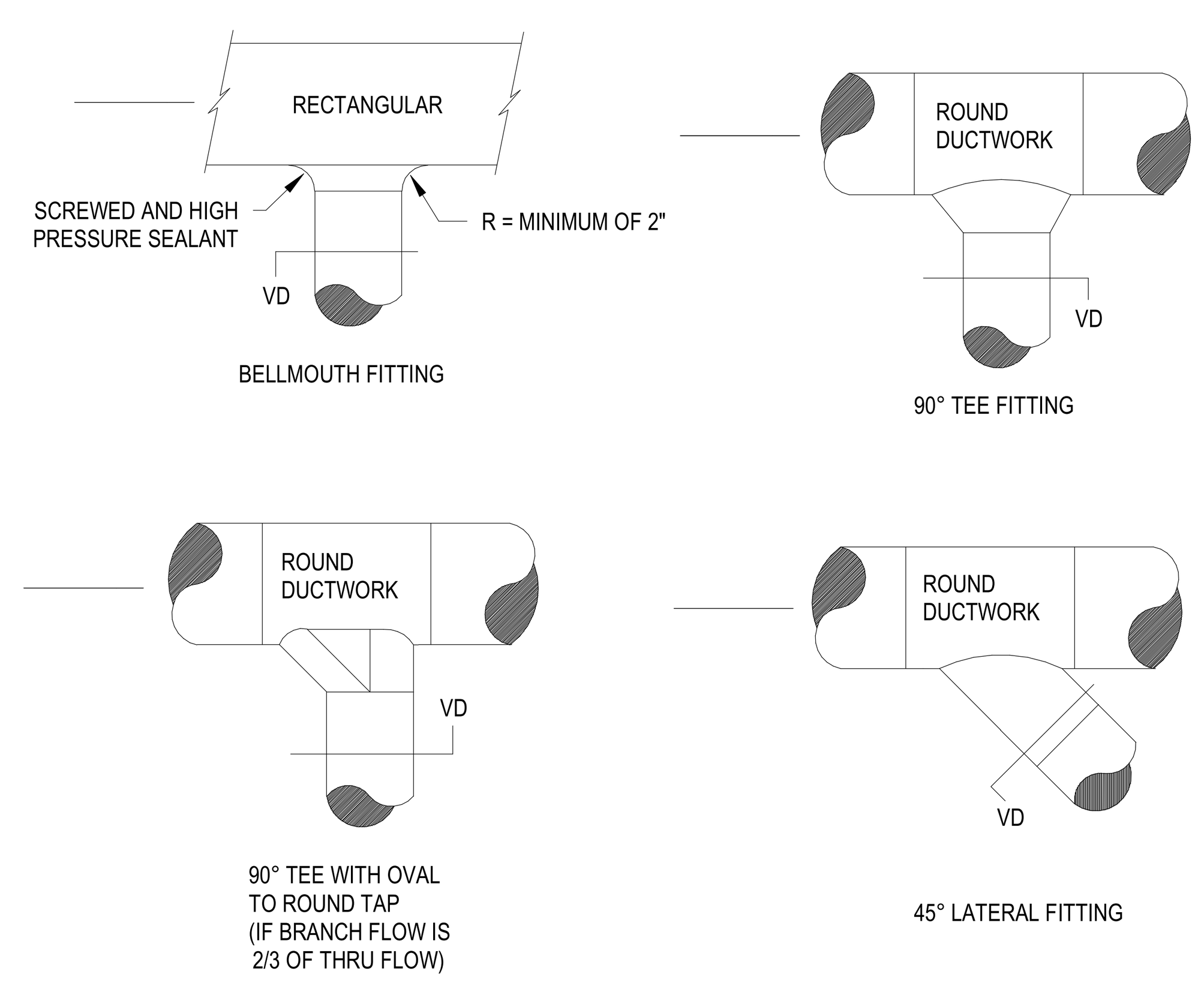
4 LOW VELOCITY DUCT FITTINGS DETAIL
SCALE: N.T.S.



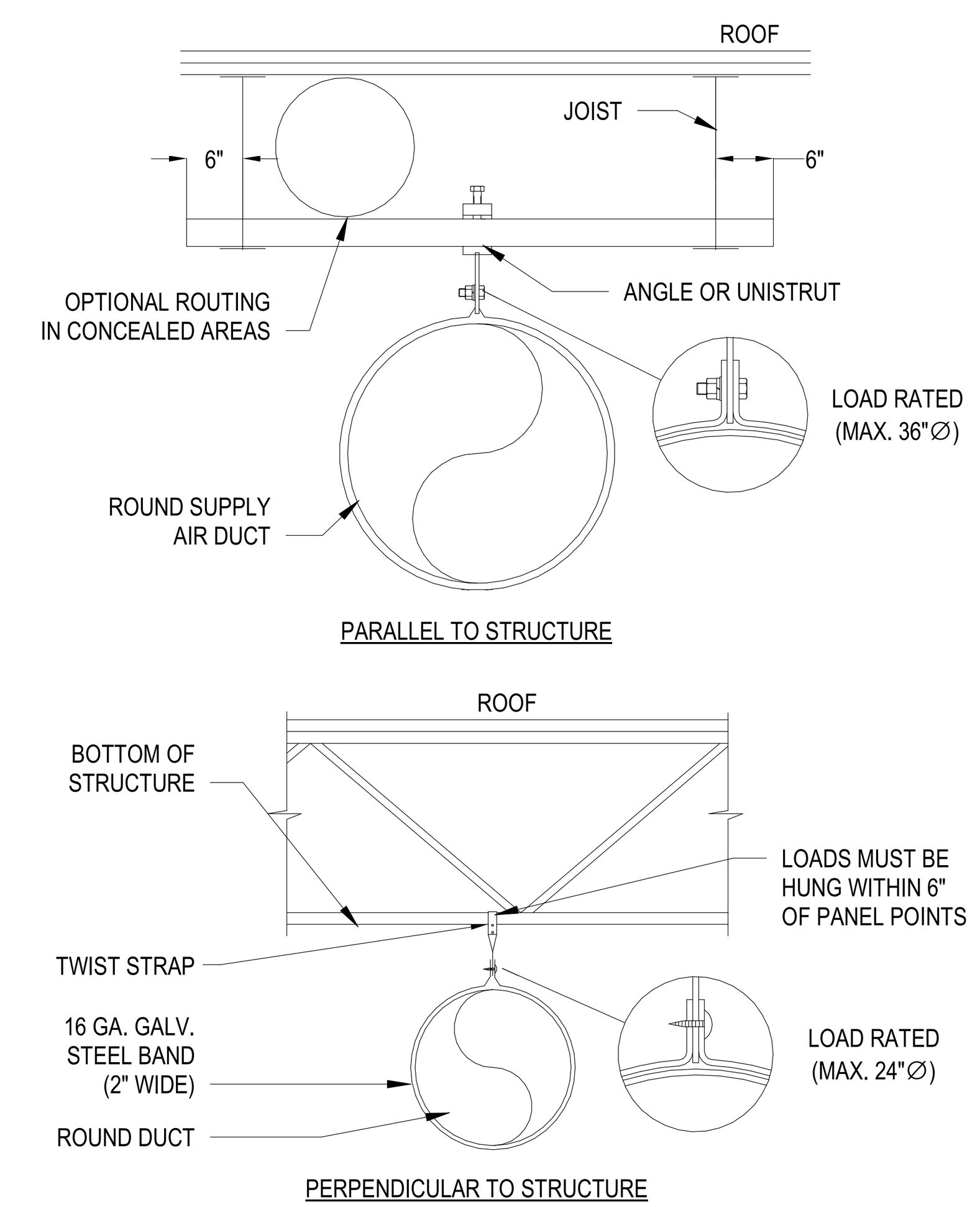
NOTES:

1) PROVIDE AT FLEXIBLE DUCT CONNECTION METAL OR "PANDUIT" DRAWBAND ON THE INTERIOR FLEXIBLE DUCT HELIX. SECURE THE INSULATION OVER THE DRAW BAND WITH AN ADDITIONAL DRAWBAND.
2) PROVIDE BEADING ON ROUND METAL DUCT 12" OR LARGER IN DIAMETER.
3) PROVIDE MINIMUM 4" COLLARS FOR ATTACHMENT OF THE FLEXIBLE DUCT TO ROUND DUCT, DAMPERS AND DIFFUSERS.
4) BAND RIGID ROUND DUCT INSULATION TO DUCT AND PROVIDE TAPE FOR INSULATION OVERLAP.

5 DIFFUSER CONNECTION DETAIL
SCALE: N.T.S.



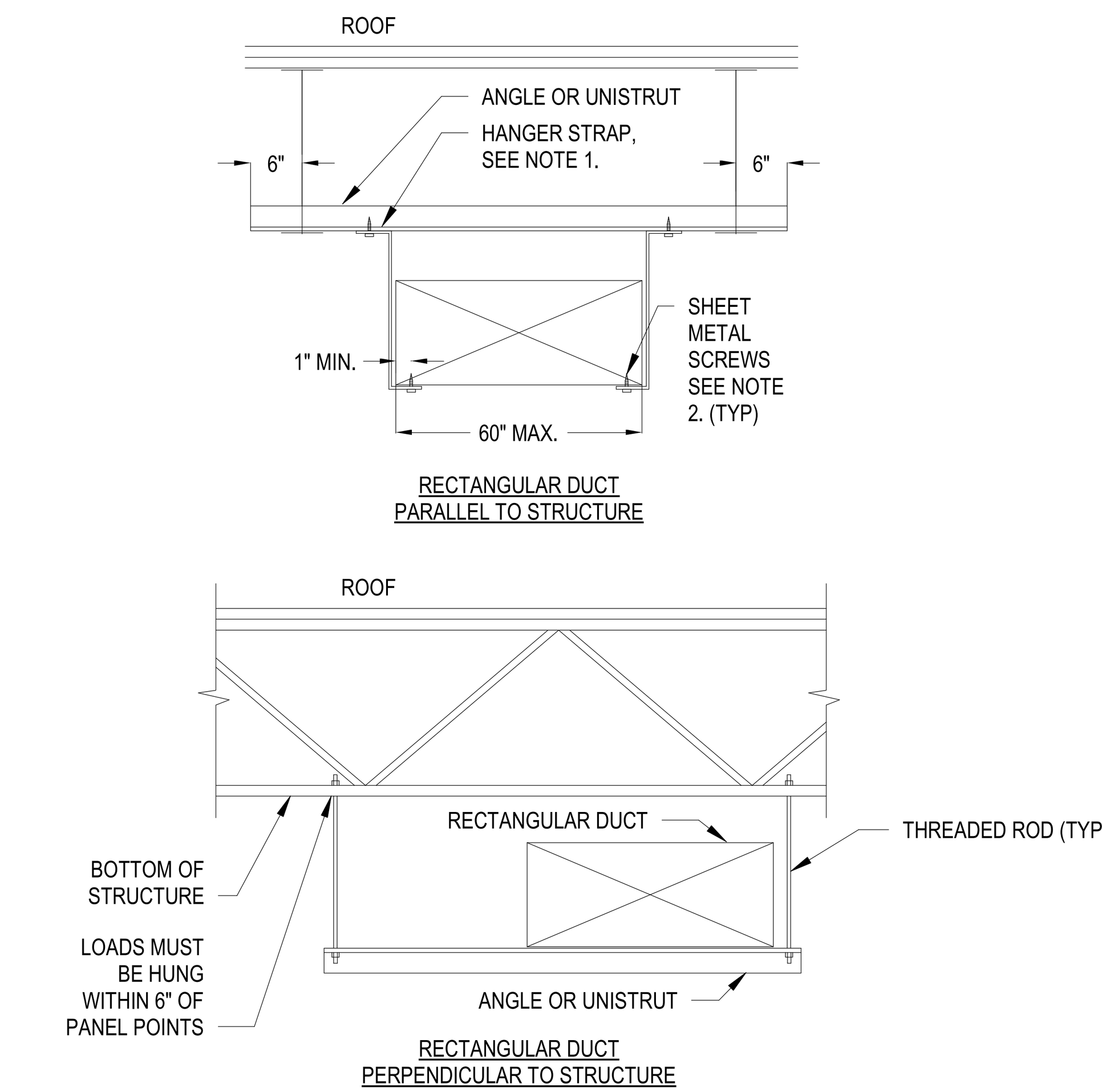
6 ROUND DUCTWORK FITTINGS
SCALE: N.T.S.



NOTE:

1. FOR DUCTS LARGER THAN 36"∅, USE TWO HANGER RODS, WIRES OR STRAPS TO SUPPORT DUCT FROM EACH SIDE.

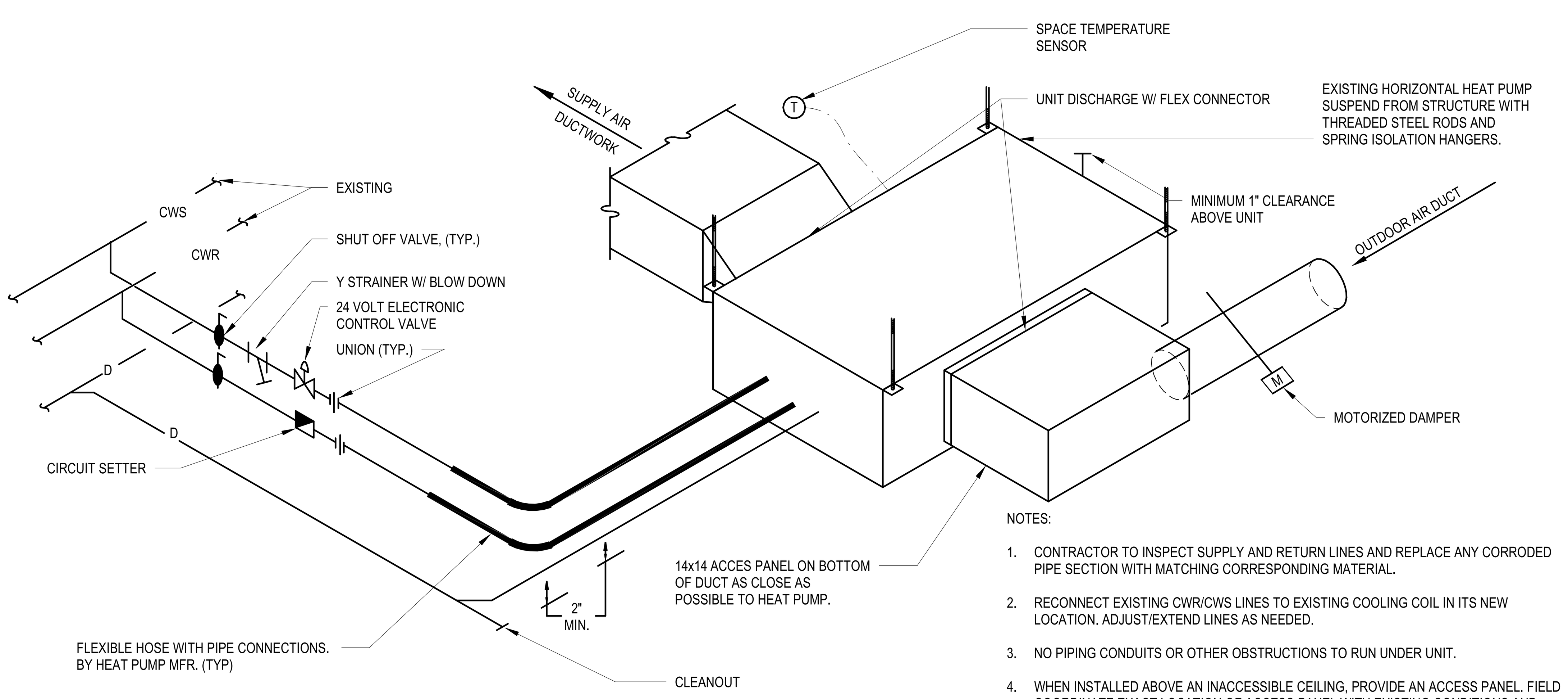
7 ROUND DUCT SUPPORT DETAIL
SCALE: N.T.S.



NOTE:

1. USE THREADED ROD FOR ALL DUCTS LARGER THAN 60" WIDE.
2. SHEET METAL SCREWS MAY BE OMITTED IF HANGER STRAP IS CONTINUOUS AND LOOPS UNDER ENTIRE DUCT.

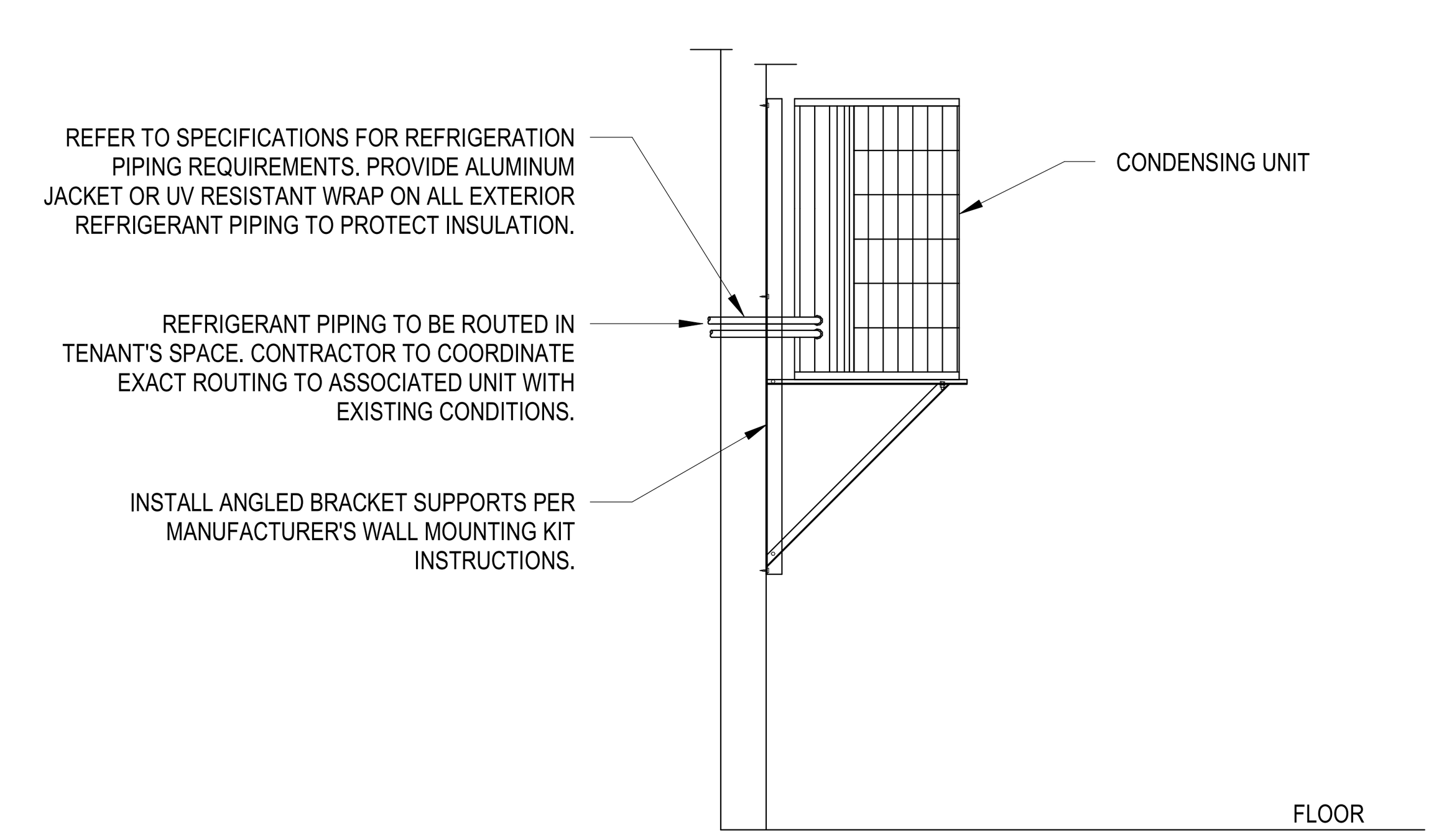
8 RECTANGULAR DUCT SUPPORT FROM CEILING STRUCTURE/JOISTS DETAIL
SCALE: N.T.S.



NOTES:

1. CONTRACTOR TO INSPECT SUPPLY AND RETURN LINES AND REPLACE ANY CORRODED PIPE SECTION WITH MATCHING CORRESPONDING MATERIAL.
2. RECONNECT EXISTING CWR/CWS LINES TO EXISTING COOLING COIL IN ITS NEW LOCATION. ADJUST/EXTEND LINES AS NEEDED.
3. NO PIPING CONDUITS OR OTHER OBSTRUCTIONS TO RUN UNDER UNIT.
4. WHEN INSTALLED ABOVE AN INACCESSIBLE CEILING, PROVIDE AN ACCESS PANEL. FIELD COORDINATE EXACT LOCATION OF ACCESS PANEL WITH EXISTING CONDITIONS AND ARCHITECT.
5. FAN & COMPRESSOR ACCESS PANELS SHALL HAVE A CLEARANCE MINIMUM OF 30"Wx40"H. REFER TO MASS. ELEC. CODE REQUIREMENTS.

9 WATER SOURCE HEAT PUMP DETAIL
SCALE: N.T.S.



NOTE:

1. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES.
2. CONTRACTOR TO COORDINATE EXACT LOCATION OF REMOTE CONDENSING UNIT PRIOR TO INSTALLATION.
3. MOUNT AS HIGH AS POSSIBLE ON PARKING GARAGE WALL.
4. MAINTAIN CLEARANCE REQUIREMENTS IN FRONT OF DISCONNECT SWITCH PER NATIONAL ELECTRIC CODE.

10 CONDENSING UNIT DETAIL
SCALE: N.T.S.

ferris+sloane
100 N. Howard Street, Suite 4563 Spokane, WA 99201

rtm engineering consultants

CAVA
CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

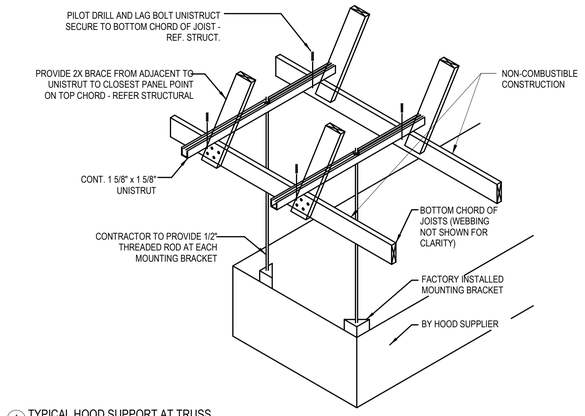
AOR PROJECT NUMBER:
CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

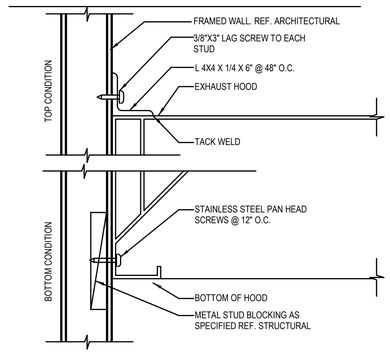
MECHANICAL DETAILS

SHEET:
M401

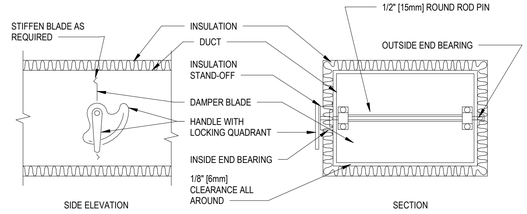
2/24/2025 11:17:03 AM



1 TYPICAL HOOD SUPPORT AT TRUSS
SCALE: N.T.S.



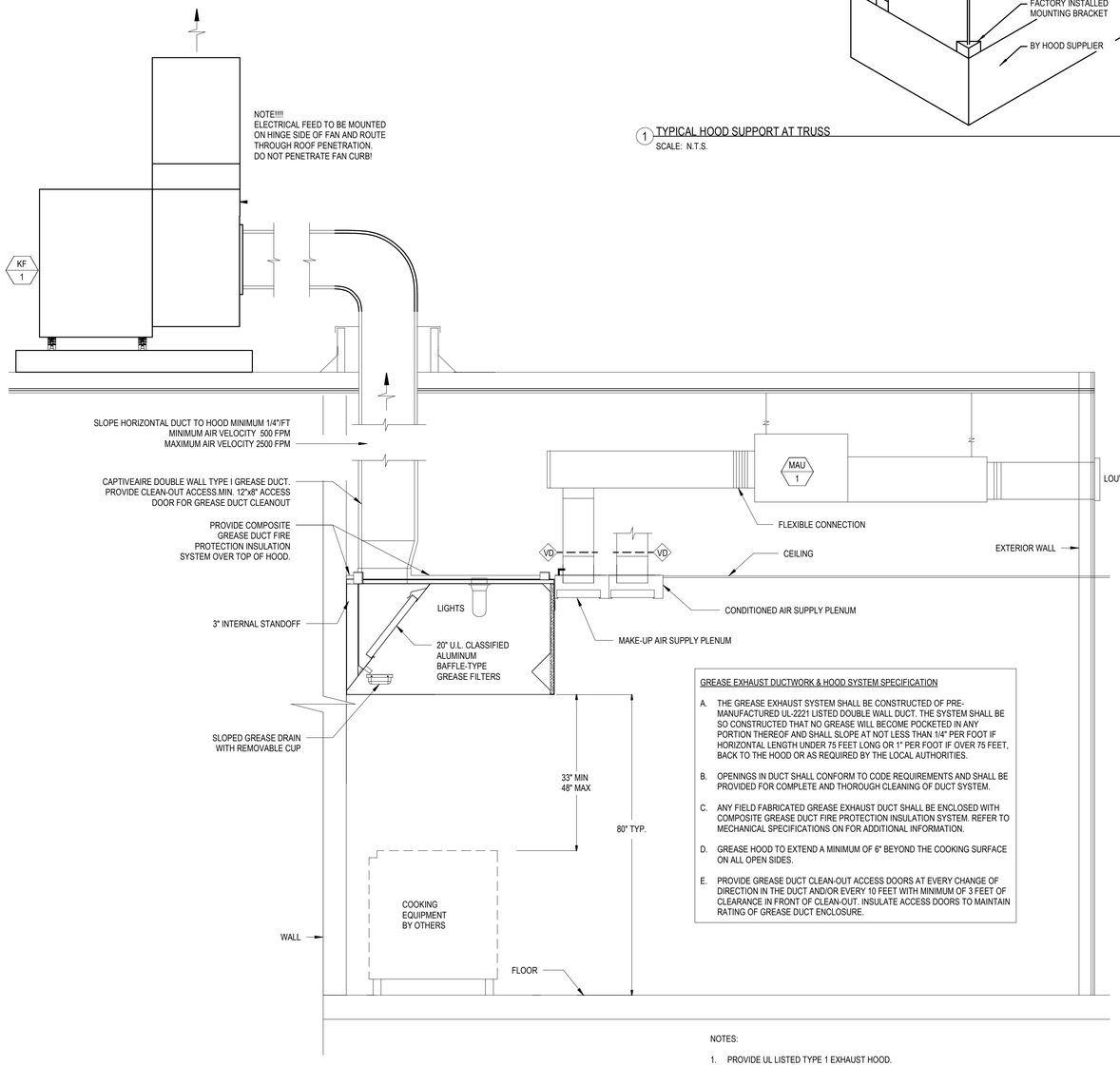
2 TYPICAL HOOD CLIP AT WALL
SCALE: N.T.S.



NOTE:

1. REMOVE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTI-BLADE DAMPERS & ROUND DAMPERS.

3 VOLUME DAMPER DETAIL
SCALE: N.T.S.



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 THOROUGH CLEANING OF DUCT SYSTEM.

C. ANY FIELD FABRICATED GREASE EXHAUST DUCT SHALL BE ENCLOSED WITH COMPOSITE GREASE DUCT FIRE PROTECTION INSULATION SYSTEM. REFER TO MECHANICAL SPECIFICATIONS ON FOR ADDITIONAL INFORMATION.

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

E. 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 OF CLEARANCE IN FRONT OF CLEAN-OUT. INSULATE ACCESS DOORS TO MAINTAIN RATING OF GREASE DUCT ENCLOSURE.

NOTES:

1. PROVIDE 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. PROVIDE CHEMICAL FIRE SUPPRESSION SYSTEM AS REQUIRED BY NFPA 17A.
5. PERFORM SMOKE TEST ON GREASE EXHAUST DUCTWORK AFTER DUCTWORK INSTALLATION IS COMPLETE BUT PRIOR TO DUCTWORK CONCEALMENT PER REQUIREMENTS OF LOCAL CODE AUTHORITIES.

4 KITCHEN HOOD SCHEMATIC HORIZONTAL DISCHARGE
SCALE: N.T.S.

INFORMATIONAL GUIDE FOR COMMERCIAL COOKING HOODS

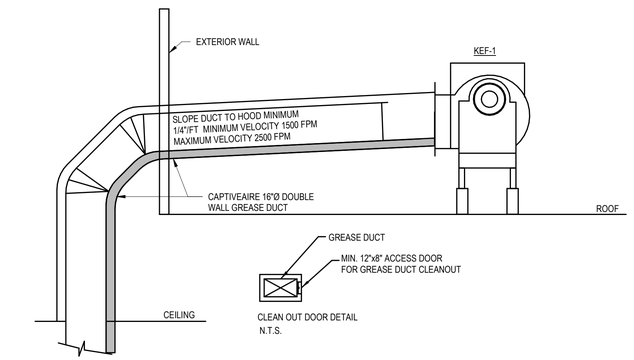
1. STAINLESS STEEL TO BE NO. 18 U.S. GAGE.
2. WHEN GUTTERS ARE PROVIDED THEY SHALL DRAIN TO A COLLECTING PAN WHICH IS READILY ACCESSIBLE FOR CLEANING
3. SEE TABLE 507.2.8 FOR MINIMUM DISTANCE BETWEEN LOWER EDGE OF GREASE FILTER AND THE COOKING OR HEATING SURFACE.
4. GREASE FILTERS SHALL BE OF STEEL CONSTRUCTION AND READILY ACCESSIBLE FOR CLEANING.
5. ALL JOINTS AND SEAMS SHALL BE GREASE TIGHT.
6. HOODS SHALL BE SECURELY FASTENED IN PLACE BY INCOMBUSTIBLE SUPPORTS.

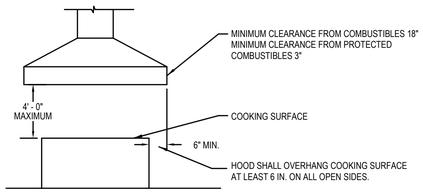
NOTES

1. PROVIDE ADEQUATE CLEANOUT OPENINGS FOR THOROUGH CLEANING OF DUCT SYSTEM.
2. PROVIDE ADEQUATE MAKE-UP AIR FOR PROPER OPERATION.
3. PROVIDE A SEPARATE DUCT SYSTEM FOR EACH HOOD.
4. THICKNESS OF DUCTS SHALL BE:

DUCT AREA	U.S. GAGE STEEL
UP TO 4 SQ. FT.	16 GA
OVER 4 SQ. FT.	14 GA

5. SUPPORT THE DUCTS AS REQUIRED. DO NOT PENETRATE DUCT WALLS WITH SCREWS, NAILS, ETC.
6. SECTIONS OF DUCT SHALL NOT CONTAIN GREASE POCKETS.





(FOR REFERENCE ONLY)

5 TYPICAL HOOD VENTILATION AND SECTION
SCALE: N.T.S.

ferris+sloane
100 N. Howard Street, Suite 4500 Spokane, WA 99201

COMMONWEALTH OF MASSACHUSETTS
KATHRYN E. BUTSCHEVERRY
ARCHITECT
No. 51710
REGISTERED PROFESSIONAL ENGINEER

CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER:
CAV065

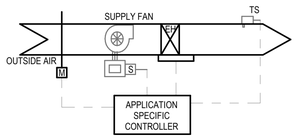
ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL DETAILS

SHEET:
M402

rtm engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180 www.rtmec.com

2/24/2025 11:17:20 AM



APPLICATION TABLE
OUTDOOR AIR SUPPLY FAN
EXIST. SF / EHC-1X

EXISTING SUPPLY FAN SEQUENCE OF OPERATION

THE SUPPLY FAN AND ELECTRIC HEATER COIL SHALL BE OPERATED THROUGH THE APPLICATION SPECIFIC CONTROLLER. THE SEQUENCE LISTED BELOW IS REVERSIBLE UNLESS OTHERWISE NOTED.

CONTROL:

THE SUPPLY FAN SHALL BE CONTROLLED VIA 24/7 PROGRAMMABLE TIME CLOCK.

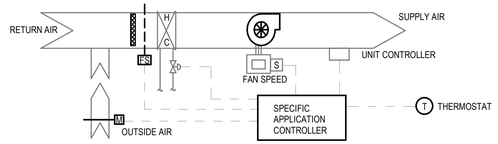
OCCUPIED CONTROL:

DURING OCCUPIED HOURS (PROGRAMMED PER OWNER'S APPROVED OCCUPANCY SCHEDULE), FAN SHALL ENERGIZE AND RUN CONTINUOUSLY. PRIOR TO ENERGIZING, ASSOCIATED END SWITCH AT INTAKE LOUVER SHALL PROVE OPEN.

UNOCCUPIED CONTROL:

FAN SHALL BE OFF, ASSOCIATED DAMPER CLOSED. HEATING: THE ELECTRIC HEATING COIL SHALL OPERATE TO MAINTAIN A DISCHARGE TEMPERATURE SET POINT OF 40°F (ADJUSTABLE)

(FOR REFERENCE ONLY)



APPLICATION TABLE
WATER SOURCE HEAT PUMPS
WSHP-1X,2X,3X,4X

EXISTING WATER SOURCE HEAT PUMP SEQUENCE OF OPERATION

THE WATER SOURCE HEAT PUMP SHALL BE CONTROLLED THRU THE UNITARY CONTROLLER AND THE SPACE THERMOSTAT. THE SEQUENCE LISTED BELOW IS REVERSIBLE UNLESS NOTED OTHERWISE.

OCCUPIED COOLING MODE:

IN THE OCCUPIED MODE THE SUPPLY FAN SHALL BE ENERGIZED AT LOW SPEED, OPERATE CONTINUOUSLY, AND THE OUTSIDE AIR DAMPER SHALL OPEN.

UPON A CALL FOR COOLING, THE CONTROL VALVE SHALL MODULATE TO THE COOLING MODE AND THE COMPRESSOR SHALL ENERGIZE AND OPERATE TO MAINTAIN THE SPACE TEMPERATURE SET POINT.

UPON A FURTHER CALL FOR COOLING, THE UNIT SHALL OPERATE AT HIGH SPEED.

OCCUPIED HEATING MODE:

IN THE OCCUPIED MODE, THE SUPPLY FAN SHALL BE ENERGIZED AT LOW SPEED AND OPERATE CONTINUOUSLY.

UPON A CALL FOR HEATING, THE TWO WAY CONTROL VALVE SHALL OPEN AND THE UNIT COMPRESSOR SHALL OPERATE AS REQUIRED TO MAINTAIN THE SPACE TEMPERATE SET POINT.

UNOCCUPIED HOURS:

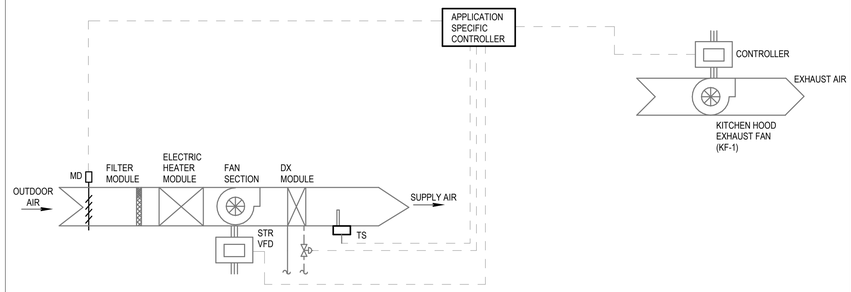
IN THE UNOCCUPIED MODE, THE SUPPLY FAN SHALL BE DE-ENERGIZED AND THE TWO WAY CONTROL VALVE SHALL BE CLOSED

UPON A CALL FOR HEATING FROM THE SPACE THERMOSTAT, THE FAN SHALL BE ENERGIZED TO HIGH SPEED, THE HOT WATER TWO WAY CONTROL VALVE SHALL OPEN TO MAINTAIN THE SET POINT, 55° (ADJ). COOLING SHALL BE LOCKED OUT DURING UNOCCUPIED HOURS

UPON AN OVERFLOW CONDITION SENSED BY THE SECONDARY DRAIN OVERFLOW SWITCH, THE HEAT PUMP SHALL DE-ENERGIZE AND CONDENSER WATER VALVES SHALL MODULATE CLOSED,

TEMPERATURE SENSOR: ON A SENSE OF COLD TEMPERATURE, THE SUPPLY FAN AND OUTDOOR AIR DAMPER SHALL CLOSE.

(FOR REFERENCE ONLY)



APPLICATION TABLE	
MAKEUP AIR UNIT	HOOD EXHAUST FAN
MUA-1	KF-1

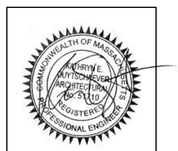
KITCHEN HOOD MAKE UP AIR UNIT & EXHAUST FANS SEQUENCES OF OPERATION

THE MAKE UP AIR UNIT SHALL BE ENABLED WHEN THE KITCHEN HOOD EXHAUST FAN (KF-1) IS ENERGIZED. THE INTERNAL MOTORIZED DAMPER WITHIN WITH MAU-1 SHALL OPEN AND THE FAN SHALL RUN. THE MAU-1 ELECTRIC HEATER SECTION OR COOLING CYCLE SHALL BE ENABLED TO MAINTAIN A DISCHARGE AIR TEMPERATURE AT 65°F (ADJ.)

WHEN KF-1 IS OFF, MAU-1 SHALL BE DE-ENERGIZED AND THE INTERNAL MOTORIZED DAMPED SHALL CLOSE.

1 EXISTING HVAC CONTROLS
SCALE: N.T.S.

ferris+sloane
100 N. Howard Street, Suite 4-500 Spokane, WA 99201



CAVA

DC 20016

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER:
CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL CONTROLS

SHEET:
M403

rtm engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180 www.rtmec.com

2/24/2025 11:19:23 AM

AIR BALANCE SCHEDULE

	WSHP-1X	WSHP-2X	WSHP-3X	WSHP-4X	MAU-1	KEF-1	BASE BUILDING EXHAUST	TOTAL
OUTSIDE AIR FLOW (CFM)	300	300	300	300	1854	0	0	3054
RETURN AIR FLOW (CFM)	1500	1500	1500	1500	0	0	0	6000
SUPPLY AIR FLOW (CFM)	1800	1800	1800	1800	1854	0	0	9054
EXHAUST AIR FLOW (CFM)	0	0	0	0	0	2317	300	2617
BUILDING PRESSURE (CFM)	300	300	300	300	1854	-2317	-300	437
RESULTING BUILDING PRESSURIZATION (CFM)								437

AIR DEVICE SCHEDULE

TAG	TYPE	MAKE / MODEL	AIR STREAM	MOUNTING TYPE	NECK SIZE	SIZE	REMARKS
A	SQUARE CONE DIFFUSER	TITUS / PAS	SUPPLY	LAY IN	SEE PLAN	24"X24"	1-4,7
B	SQUARE CONE DIFFUSER	TITUS / OMNI	SUPPLY	SURFACE	SEE PLAN	12"X12"	1-4,7
C	LOUVERED RETURN GRILLE	TITUS / 350RL	RETURN	LAY IN	SEE PLAN	24"X24"	1-4,7
D	LINEAR DIFFUSER	TITUS / FL-20-22	SUPPLY	SURFACE	SEE PLAN	48"X4.75"	2-6,7
E	LOUVERED EXHAUST GRILLE	TITUS / 355FL	RETURN/EXHAUST	LAY IN	SEE PLAN	12"X12"	1-4,7

REMARKS:
1. PROVIDE WITH INTEGRAL OPPOSED BLADE BALANCING DAMPER FOR DIFFUSERS MOUNTED IN HARD/INACCESSIBLE CEILINGS UNLESS NOTED OTHERWISE.
2. PROVIDE WITH SURFACE MOUNTING FRAME WHERE APPLICABLE.
3. COORDINATE FINISH AND LOCATION WITH ARCHITECT.
4. SEE PLAN FOR INLET SIZE.
5. 1 SLOT, 2.5" SLOT WIDTH, 10" DIA. INLET. PROVIDE WITH 1" INSULATED DIFFUSER PLENUM.
6. PROVIDE DIFFUSER WITH REMOTE CABLE OPERATED BALACING DAMPER.
7. SUPPLY DIFFUSER TO BE INSULATED VIA FACTORY SYSTEM.

KITCHEN HOOD SCHEDULE - OWNER FURNISHED

ITEM TAG	MANUFACTURER	MODEL	HOOD LENGTH	MAX COOKING TEMP (°F)	TOTAL EXHAUST CFM	LIGHTS		MISC.		REMARKS
						QTY.	TYPE	FIRE SUPP. SYSTEM	HANGING WEIGHT (LB)	
HOOD-1	CAPTIVEAIRE	6030 ND-2-ACPSP-F	11'-7"	600	2317	6	L55 SERIES E26	YES	1155	ALL

REMARKS:
1. REFER TO CAPTIVEAIRE DRAWINGS FOR ACCESSORY INFORMATION.

KITCHEN EXHAUST FAN SCHEDULE - OWNER FURNISHED

ITEM TAG	MANUFACTURER	MODEL	TYPE	AIR FLOW (CFM)	EXTERNAL STATIC (IN W.C)	ELECTRICAL		SERVICE	WEIGHT (LBS)	REMARKS
						V/PH/HZ	FAN MOTOR HP			
KF-1	CAPTIVEAIRE	USBI18DD-RM	UTILITY SET	2317	2.25	460/3/60	2	KITCHEN HOOD	423	ALL

REMARKS:
1. EXISTING ROOF CURB TO REMAIN AND BE RE-USED.
2. FAN SHALL BE INTERLOCKED WITH HOOD CONTROLS, REFER TO CAPTIVEAIRE DRAWINGS FOR ADDITIONAL INFORMATION.
3. PROVIDE FAN WITH ENVIROMATIC VIROGUARD HOOD EXHAUST FAN ROOFTOP CONTAINMENT SYSTEM.
4. PROVIDE UNIT WITH CORROSIION COATING.

EXISTING ELECTRIC HEATING COIL SCHEDULE

TAG NO	LOCATION(S) SERVED	MANUFACTURER (AS STANDARD)	MODEL NO. (AS STANDARD)	WIDTH X HEIGHT	CFM	KW	MBH	DELTA T (°F)	ELECTRICAL DATA			REMARKS
									VOLT	PHASE	HZ	
EHC-1	SEE PLANS	INDEECO	QUZ	22"X18"	1200	15.5	52.1	40	480	3	60	1. MECHANICAL CONTRACTOR TO NOTIFY ENGINEER ON RECORD OF ANY DISCREPANCIES. 2. CONTRACTOR SHALL FULLY INSPEC AND SERVICE THE UNIT.

MAKE-UP AIR UNIT SCHEDULE - OWNER FURNISHED

ITEM TAG	MANUFACTURER	MODEL	CONFIGURATION	DRIVE	AIR FLOW (CFM)	EXTERNAL STATIC (IN W.C.)	DX COOLING		ELECTRIC HEATING					ELECTRICAL				WEIGHT (LB)	REMARKS
							TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	KW	HEATING CAPACITY (MBH)	DELTA T (°F)	AMPERAGE	V/PH/HZ	V/PH/HZ	HP	MCA	MOCP		
MAU-1	CAPTIVEAIRE	A1-E.354-15D	CEILING HUNG	DIRECT	1854	0.75	35.3	32.5	30	119.5	51.0	42.1	460/3/60	460/3/60	2	3.9	15	899	ALL

REMARKS:
1. PROVIDE FACTORY MOUNTED AND WIRED DISCONNECT SWITCH.
2. PROVIDE MOTORIZED BACKDRAFT DAMPER FOR A1-D HOUSING. MEET AMCA CLASS 1A RATING.
3. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE.
4. INSULATION OPTION FOR VBANK FILTER SECTION.
5. DF 2 INDOOR HANGING OPTION - INCLUDES 2 HSA125 HANGING SPRING ISOLATORS PER UNI-STRUT.
6. LOAD REACTOR MOUNTED IN FAN.
7. SEPARATE 120V WIRING PACKAGE FOR UNIT MOUNTED VFD FOR USE WITH ECPM03 - THREE PHASE ONLY.
8. 2 YEAR PARTS WARRANTY.
9. SIZE 1 ELECTRIC HEATED WITH MUA CONTROLS SHEET METAL. COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL ELECTRICAL REQUIREMENTS FOR SEPARATE POWER CONNECTIONS.
10. INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER.
11. DX COIL MODULE - 1,000 TO 3,250 CFM (3 TON 1 CIRCUIT COIL) CUSTOM COIL.
12. DXM 1-1 REFRIGERATION PARTS KIT - R410A.
13. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE.
14 AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT).
15. REFER TO CONDENSING UNIT SCHEDULE FOR ADDITIONAL INFORMATION.
16. REFER TO CAPTIVEAIRE DRAWINGS FOR ADDITIONAL INFORMATION.

EXISTING WATER SOURCE HEAT PUMP SCHEDULE

TAG NO	LOCATION(S) SERVED	MANUFACTURER	MODEL NO	TYPE	HP COOLING DATA					HP HEATING DATA				GPM	AIR HANDLING DATA				ELECTRICAL DATA					WEIGHT (LBS)	REMARKS
					EWT °F	EAT °F	LAT °F	TOTAL (MBH)	SEN (MBH)	EWT °F	EAT °F	LAT °F	TOTAL (MBH)		TOTAL CFM	O.A.	H.P.	ESP(IN)	VOLTS	PHASE	HZ	MCA	MOCP		
WSHP-1X	KITCHEN	CARRIER	50PCH060	HORIZONTAL	85	76.3/63.1	56/55	53.0	41.9	85	64	97	53.0	7.1	1800	300	1.0	0.75"	460	3	60	12.45	20	398	ALL
WSHP-2X	DINNING	CARRIER	50PCH060	HORIZONTAL	85	76.3/63.1	56/55	53.0	41.9	85	64	97	53.0	7.1	1800	300	1.0	0.75"	460	3	60	12.45	20	398	ALL
WSHP-3X	DINNING	CARRIER	50PCH060	HORIZONTAL	85	76.3/63.1	56/55	53.0	41.9	85	64	97	53.0	7.1	1800	300	1.0	0.75"	460	3	60	12.45	20	398	ALL
WSHP-4X	KITCHEN	CARRIER	50PCH060	HORIZONTAL	85	76.3/63.1	56/55	53.0	41.9	85	64	97	53.0	7.1	1800	300	1.0	0.75"	460	3	60	12.45	20	398	ALL

NOTES:
1. MECHANICAL CONTRACTOR TO NOFITY ENGINEER ON RECORD OF ANY DISCREPANCIES.
2. EXISTING UNIT SHALL BE BALANCED AS PER SCHEDULE. CONTRACTOR SHALL FULLY INSPECT AND SERVICE THE UNIT. PROVIDE ROUTINE MAINTENANCE INCLUDING BUT NOT LIMITED TO CHANGING FILTERS & BELTS, REPLACING VALVES, ETC.
3. EXISTING THERMOSTAT TO BE DEMOLISHED. PROVIDE NEW THERMOSTAT AND TEMPERATURE SENSOR COMPATIBLE WITH EXISTING WATER SOURCE HEAT PUMP. REFER TO SHEET M-101 FOR NEW LOCATIONS.
4. EXISTING CONDENSATE PUMP AND DRAIN PAN TO REMAIN AND BE RE-USED. DRAIN PIPING TO BE RE-ROUTED BY PLUMBING CONTRACTOR. REFER TO PLUMBING SHEETS FOR MORE INFORMATION.

VENTILATION SCHEDULE

ROOM NUMBER	ROOM NAME	OCCUPANCY CLASSIFICATION	ZONE FLOOR AREA	ZONE POPULATION	2021 INTERNATIONAL MECHANICAL CODE						ACTUAL			EQUIPMENT	
					PEOPLE OUTDOOR AIR RATE	AREA OUTDOOR AIR RATE	BREATHING ZONE OUTDOOR AIRFLOW	Ez	REQUIRED OUTDOOR AIRFLOW	E.A. CFM	MAX SUPPLY CFM	OA CFM	EXHAUST CFM	SUPPLY FAN	EXHAUST FAN
101	DINING	DINNING	550	39	7.5	0.18	388	0.8	485	-	3350	558	-	WSHP-2X, WSHP-3X	-
102	QUEUEING	CORRIDOR	480	0	0.0	0.06	29	0.8	36	-	250	42	-	WSHP-3X	-
104	FRONT KITCHEN	KITCHEN (COOKING)	405	8	7.5	0.12	109	0.8	137	284	1800	300	2317	WSHP-1X	KF-1
106	BACK KITCHEN	KITCHEN (COOKING)	400	8	7.5	0.12	108	0.8	135	280	1200	200		WSHP-4X	KF-1
107	MANAGER OFFICE	OFFICE SPACES	45	1	5.0	0.06	8	0.8	10	-	100	17	-	WSHP-4X	-
108	ACC RESTROOM	PUBLIC BATHROOM	50	1	0.0	0.00	0	0.8	0	70	50	8	100	WSHP-4X	BASE BUILDING EXHAUST
109	WOMEN'S RESTROOM	PUBLIC BATHROOM	25	1	0.0	0.00	0	0.8	0	70	50	8	100	WSHP-4X	BASE BUILDING EXHAUST
110	MEN'S RESTROOM	PUBLIC BATHROOM	25	1	0.0	0.00	0	0.8	0	70	50	8	100	WSHP-4X	BASE BUILDING EXHAUST
111	HALLWAY	CORRIDOR	195	0	0.0	0.06	12	0.8	15	-	200	33	-	WSHP-4X	-
112	UTILITY ROOM	STORAGE	115	0	0.0	0.12	14	0.8	17	-	150	25	-	WSHP-4X	-
TOTAL			2290	59	-	-	667		834	774	7200	1200	2617	-	-

CONDENSER UNIT SCHEDULE - OWNER FURNISHED

TAG	MANUFACTURER / MODEL	AREA SERVED	REFRIGERANT	TOTAL COOLING CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	SEER / EER	ELECTRICAL			WEIGHT (LBS)	REMARKS
							MCA	MOCP	V/PH/HZ		
CU-1	CARRIER / 24AHA436A006	MAU-1	REMARK 8	38.59	29.7	15 / 13	7.6	15	460/3/60	184	ALL

REMARKS:
1. CONTRACTOR TO PROVIDE SERVICE DISCONNECT SWITCH.
2. PROVIDE FACTORY START UP AND COMPLETE WRITTEN REPORT.
3. PROVIDE ROOF MOUNTED EQUIPMENT SUPPORT RAILS. MOUNT OUTDOOR UNIT PER MANUFACTURER'S INSTRUCTIONS.
4. MAINTAIN MANUFACTURER'S MINIMUM INSTALLATION CLEARANCES.
5. CONTROL WIRING PER MANUFACTURER'S INSTRUCTIONS.
6. PROVIDE DX LIQUID AND SUCTION REFRIGERANT PIPING SIZED FOR ACTUAL FIELD CONDITIONS AND MANUFACTURER'S RECOMMENDATIONS. TRAP AND SLOPE REFRIGERANT LINES PER MANUFACTURURER'S RECOMMEDATIONS.
7. PROVIDE LONG LINE REFRIGERANT SET, THERMOSTATIC EXPANSION VALVE, SOLENOID VALVE, TEMPERATURE CONTROL, SIGHT GLASS, FILTER DRIER, PRESSURE CONTROL, CRANK CASE HEATER, LOW AMBIENT CONTROLS, AND WEATHER PROOF HOURING.
8. PROVIDE R-410A REFRIGERANT IF INSTALLED BEFORE JANUARY 1ST, 2025. PROVIDE A2L REFRIGERANT IF INSTALLED AFTER JANUARY 1ST, 2025.

ferris+sloane
100 N. Howard Street, Suite 450 Spokane, WA 99201

COMMONWEALTH OF MASSACHUSETTS
KATHRYN E. DUYTSCHAEVER
ARCHITECTURAL
No. 51710
REGISTERED
PROFESSIONAL ENGINEER

rtm engineering consultants

CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER:
CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL SCHEDULES

SHEET:
M501

2/24/2025 11:16:55 AM

FOR QUESTIONS, CALL THE
Maryland Mechanical
REGION 76
PHONE: (800) 988 - 0881
EMAIL: reg76@captiveaire.com

PATENT NUMBERS

AC-PSP (UNITED STATES) - US PATENT 7963830 B2.
AC-PSP WALL (CANADA) - CA PATENT 2820509.
AC-PSP ISLAND (CANADA) - CA PATENT 2520330.

HOOD INFORMATION - JOB#7114832

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	MUA CFM	AC CFM	HOOD CONSTRUCTION	HOOD CONFIG END TO END	ROW
1		6030 ND-2-ACPSP-F	CAPTIVEAIRE	11' 7"	600 DEG	I	HEAVY	200	2317			4"	16"	2317	1659	-0.765"	1854	714	430 SS WHERE EXPOSED	ALONE	ALONE

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	UTILITY CABINET(S) LOCATION	SIZE	FIRE SYSTEM TYPE	FIRE SYSTEM SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1		CAPTRATE SOLO FILTER	8	20"	16"	85% SEE FILTER SPEC	6	L55 SERIES E26	NO	RIGHT	12"x60"x30"	TANK FS	4.0/4.0	DCV-1111	1 LIGHT 1 FAN	YES	1155 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1		FIELD WRAPPER 10.00" HIGH FRONT, RIGHT.
		LEFT END STANDOFF (FINISHED) 1" WIDE 60" LONG INSULATED.
		INSULATION FOR BACK OF HOOD.
		RIGHT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.
		LEFT WALL AS END PANEL.

PERFORATED SUPPLY PLENUM(S)

HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S) WIDTH	LENG	DIA	CFM	SP
1		Front	152"	22"	6"	MUA	8"	36"		618	0.171"
						MUA	8"	36"		618	0.171"
						MUA	8"	36"		618	0.171"
						AC	6"	28"		357	0.086"
						AC	6"	28"		357	0.086"

GREASE DUCT & CHIMNEY SPECIFICATIONS:
PROVIDE GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW" ROUND 20 GAUGE 430 STAINLESS STEEL DUCTWORK. MODEL "DW" IS LISTED TO UL-1978 AND IS INSTALLED USING "V" CLAMP LOCKING CONNECTIONS SEALED WITH 3M FIRE BARRIER 2000 PLUS. MODEL "DW" DOES NOT REQUIRE WELDING PROVIDING IT HAS BEEN INSTALLED PER THE MANUFACTURES INSTALLATION GUIDE.
PROVIDE RATED ACCESS DOORS AT EVERY CHANGE IN DIRECTION AND EVERY 12' ON CENTER. PER MANUFACTURES LISTING MODEL "DW" HORIZONTAL RUNS LESS THAN 75 FT. CAN BE SLOPED 1/16" PER 12", HORIZONTAL RUNS MORE THAN 75 FT. CAN BE SLOPED 3/16" PER 12". DUCT SHOULD BE SLOPED AS MUCH AS POSSIBLE TO REDUCE THE CHANCE OF GREASE ACCUMULATION IN HORIZONTAL RUNS.

IF THE DUCT OR CHIMNEY IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 OR UL-103 HT LISTED DOUBLE WALL GREASE DUCT OR DOUBLE WALL CHIMNEY EQUAL TO CAPTIVEAIRE SYSTEMS MODEL "DW- 2R, 2R TYPE HT, 3R, OR 3Z" ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.

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

HVAC DISTRIBUTION NOTE

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

VERIFY CEILING HEIGHT

___' - ___"

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

CUSTOMER APPROVAL TO MANUFACTURE:

APPROVED AS NOTED ☐
APPROVED WITH NO EXCEPTION TAKEN ☐
REVISE AND RESUBMIT ☐
SIGNATURE _____
YOUR TITLE _____ DATE _____

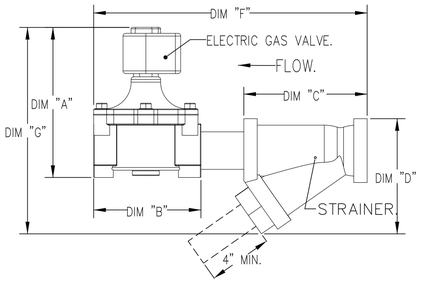
GAS VALVES AND STRAINERS

	GAS VALVE SIZING TYPE	SIZE	VOLTAGE	MIN. INLET PRESSURE	MAX. INLET PRESSURE	FLOW AT 1 IN.W.C. DROP NATURAL GAS	FLOW AT 1 IN.W.C. DROP PROPANE	GAS VALVE DIMENSIONS DIM "A"	DIM "B"	DIM "C"	DIM "D"	DIM "F"	DIM "G"	INSTALLATION MOUNTING ORIENTATION	PART NUMBERS GAS VALVE PART NUMBER	STRAINER PART NUMBER	GAS VALVE/STRAINER KIT
GAS VALVE FOR FS#1 →	ELECTRICAL	2"	120 VAC	0 PSI (0 IN.W.C.)	5 PSI (138 IN.W.C.)	2,940,500 BTU/HR	1,908,048 BTU/HR	7-5/8"	6-3/8"	7-1/4"	7-13-16"	15-5/8"	13-15/16"	HORIZONTAL	8214280	4417K68	(SC)EGVA2

ELECTRIC GAS VALVES ONLY:
3/4"-2" 120VAC GAS VALVES CAN BE MOUNTED WITH THE SOLENOID IN ANY POSITION ABOVE HORIZONTAL.
2 1/2"-3" 120VAC GAS VALVES MUST BE MOUNTED WITH THE SOLENOID VERTICAL AND UPRIGHT.
24VDC GAS VALVES MUST BE MOUNTED WITH THE SOLENOID VERTICAL AND UPRIGHT.

ALL GAS VALVES/STRAINERS
PROPER CLEARANCE MUST BE PROVIDED IN ORDER TO SERVICE THE STRAINERS A MINIMUM OF 4" CLEARANCE DISTANCE MUST BE PROVIDED AT THE BASE OF THE STRAINER CUSTOMER MUST VERIFY BTU CONSUMPTION AS WELL AS PRESSURE RATING SPECIFIC GRAVITY OF NATURAL GAS = 0.64, SPECIFIC GRAVITY OF LP = 1.52.

CALCULATIONS
TO CALCULATE GAS FLOW FOR OTHER THAN 1 IN.W.C. PRESSURE DROP
NEW BTU/HR = (BTU/HR AT 1 IN.W.C. PRESSURE DROP) X NEW PRESSURE DROP$^{0.5}$
TO CALCULATE GAS FLOW FOR OTHER THAN 0.64 SPECIFIC GRAVITY
NEW BTU/HR = (BTU/HR AT 0.64) X (0.64 / NEW SPECIFIC GRAVITY)$^{0.5}$.



SPECIFICATION: CAPTRATE® GREASE-STOP® SOLO FILTER

THE CAPTRATE GREASE-STOP SOLO FILTER IS A SINGLE-STAGE FILTER FEATURING A UNIQUE S-BAFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BAFFLE DESIGN, TO DELIVER EXCEPTIONAL FILTRATION EFFICIENCY.

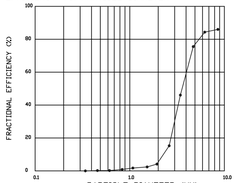
FILTER IS STAINLESS STEEL CONSTRUCTION, AND SIZED TO FIT INTO STANDARD 2-INCH DEEP HOOD CHANNEL(S).

UNITS SHALL INCLUDE STAINLESS STEEL HANDLES AND A FASTENING DEVICE TO SECURE THE TWO COMPONENTS WHEN ASSEMBLED.

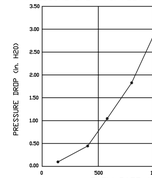
GREASE EXTRACTION EFFICIENCY PERFORMANCE SHALL REMOVE AT LEAST 75% OF GREASE PARTICLES FIVE MICRONS IN SIZE, AND 85% GREASE PARTICLES SEVEN MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 1.0 INCHES OF WATER GAUGE.

THE CAPTRATE GREASE-STOP SOLO WAS TESTED TO ASTM STANDARD ASTM F2519-05.
MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SPARK ARRESTER.

EFFICIENCY VS. PARTICLE DIAMETER



PRESSURE DROP VS. FLOW RATE



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

DETAIL GENERAL NOTE

DETAILS PROVIDED ON THE PLAN ARE FOR REFERENCE ONLY. FINAL EQUIPMENT MOUNTING AND EQUIPMENT STANDS ARE TO BE PROVIDED BY THE EQUIPMENT VENDOR OR CONTRACTOR.

rtm engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180 www.rtmec.com

REVISIONS

	DESCRIPTION	DATE:
△		
△		
△		
△		

CAPTIVEAIRE
www.captiveaire.com
Maryland Mechanical
8120 Woodmont Avenue, Suite 730, Bethesda, MD, 20814 PHONE: (800) 988 - 0881 FAX: 9192275931 EMAIL: reg76@captiveaire.com

Cava - Medford, MA_Water Coil_R3
330 Foley Street,
Somerville, MA, 02145

DATE: 10/23/2024
DWG.#: 7114832
DRAWN BY: ABS-76
SCALE: NTS
MASTER DRAWING
SHEET NO. 1

ferris+sloane
100 N. Howard Street, Suite 4563 Spokane, WA 99201

COMMONWEALTH OF MASSACHUSETTS
ANDREW E. DUTSCHEVER
ARCHITECTURAL
No. 51110
REGISTERED
PROFESSIONAL ENGINEER

CAVA
DC 20016

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

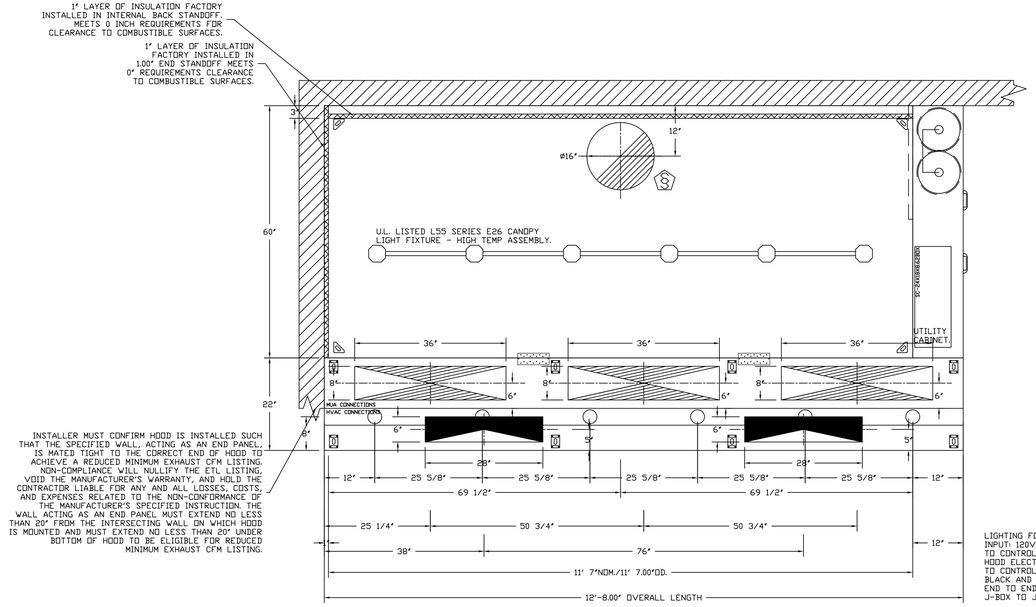
AOR PROJECT NUMBER: CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL HOOD DETAIL PLAN

SHEET: **M601**

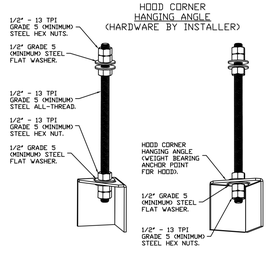
2/24/2025 11:17:28 AM



LIGHTING FOR ACPSP JOB # 7114832 - HOOD #1
INPUT: 120V AC, 1 PHASE, 50/60HZ, 35 WATTS PER LIGHT.
TO CONTROL LIGHTS WITH HOOD LIGHT SWITCH, WIRE PER HOOD ELECTRICAL CONTROL PANEL SCHEMATIC.
TO CONTROL LIGHTS WITH BUILDING LIGHT SWITCH, WIRE BLACK AND WHITE WIRE TO A 120VAC SERVICE.
END TO END ACPSPS REQUIRE 120VAC FIELD WIRING FROM J-BOX TO J-BOX. REPLACE LIGHTS WITH LED LIGHTS ONLY.

PLAN VIEW - HOOD #1
11' 7.00" LONG 6030ND-2-ACPSP-F

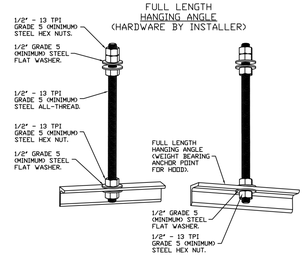
HOOD CORNER
HANGING ANGLE
(HARDWARE BY INSTALLER)



ASSEMBLY INSTRUCTIONS

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

FULL LENGTH
HANGING ANGLE
(HARDWARE BY INSTALLER)

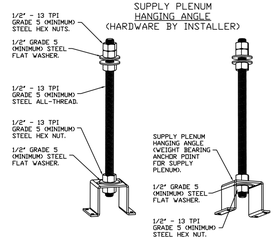


ASSEMBLY INSTRUCTIONS

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

ACPSP SHIPS LOOSE FOR FIELD INSTALLATION

SUPPLY PLENUM
HANGING ANGLE
(HARDWARE BY INSTALLER)



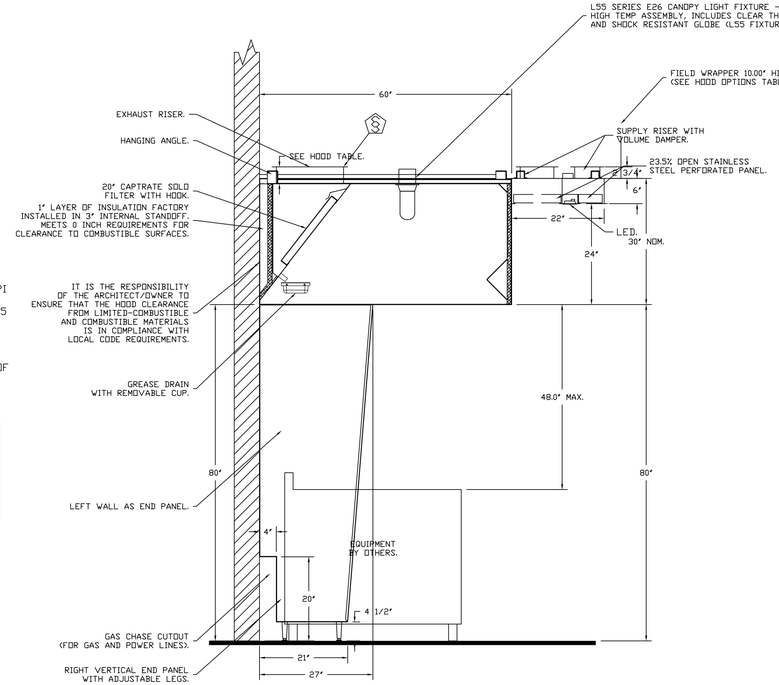
ASSEMBLY INSTRUCTIONS

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

CLEARANCE TO COMBUSTIBLES

HOODS #	SURFACE	*CLEARANCE
1	TOP	18"
	FRONT	0"
	BACK	0"
	LEFT	0"
	RIGHT	0"

- *0" CLEARANCE TO COMBUSTIBLES CONFORMS TO UL710 STANDARD.
- HOOD MOUNTED UTILITY CABINETS REQUIRE 36" SERVICE CLEARANCE.



SECTION VIEW - MODEL 6030ND-2-ACPSP-F HOOD - #1

DETAIL GENERAL NOTE

DETAILS PROVIDED ON THE PLAN ARE FOR REFERENCE ONLY. FINAL EQUIPMENT MOUNTING AND EQUIPMENT STANDS ARE TO BE PROVIDED BY THE EQUIPMENT VENDOR OR CONTRACTOR.

REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
4		

CAPTIVE-AIRE
www.captiveaire.com
Maryland Mechanical
8120 Woodmont Avenue, Suite 720, Bethesda, MD, 20814 PHONE: (800) 988 - 0881 FAX: 9192275931 EMAIL: reg76@captiveaire.com

Cava - Medford, MA_Water Coil_R3
330 Foley Street,
Somerville, MA, 02145

DATE: 10/23/2024

DWG.#: 7114832

DRAWN BY: ABS-76

SCALE: NTS

MASTER DRAWING

SHEET NO. 2

ferris+sloane
100 N. Howard Street, Suite 4563 Spokane, WA 99201

COMMONWEALTH OF MASSACHUSETTS
ANDREW E. BUTSCHEVER
ARCHITECTURAL
No. 51110
REGISTERED
PROFESSIONAL ENGINEER

CAVA
DC 20016

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER: CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL HOOD DETAIL PLAN

SHEET: **M602**

rtm engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180 www.rtmec.com

2/24/2025 11:17:39 AM

FIRE SYSTEM INFORMATION – JOB#7114832

FIRE SYSTEM NO	TAG	TYPE	SIZE	MAX FP	DESIGN FP	INSTALLATION	
						SYSTEM	LOCATION ON HOOD
1		TANK FS	4.0/4.0	40	37	FIRE CABINET RIGHT	RIGHT, HOOD 1

GAS VALVE(S)

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

FIRE SYSTEM PARTS LIST KEY

FIRE SYSTEM NO	TAG	KEY NUMBER - PART DESCRIPTION	QTY BY FACTORY	QTY BY DIST
1		0 - 0 - TANK FIRE SUPPRESSION POST-DISCHARGE PROCEDURE UTILITY CABINET LABEL SHEET.	1	0
		0 - 0 - TANK FIRE SUPPRESSION MAINTENANCE GUIDE UTILITY CABINET LABEL SHEET.	1	0
		0 - 0 - 12-F28021-32144-OT-360 DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS. NO, CLOSE ON TEMP RISE AT 360°F. (A0034310).	1	0
		0 - 0 - 32-00002 QUIK SEAL - 1/2" (UL).	1	0
		0 - 0 - 4429K153 1/2" MALE NPT TO 1/2" FEMALE NPT ELBOW, BRASS.	2	0
		0 - 0 - 4429K422 1/2" X 1/4" BRASS REDUCING BUSHING.	1	0
		0 - 0 - 79525 1/2" 90 PRO-PRESS ELBOW WITH 1/2" NPT FEMALE CONNECTION, VIEGA.	1	0
		0 - 0 - 79580 1/2" X 1/2" PRO-PRESS TEE X 1/2" NPT FEMALE CONNECTION, VIEGA.	2	0
		0 - 0 - 87-120042-001 SECONDARY ACTUATOR VALVE (SVA) - SINGLE ACTUATOR, REQUIRES PRIMARY RELEASE ACTUATOR, TANK FIRE SUPPRESSION.	1	0
		0 - 0 - 87-120045-001 HOSE, SECONDARY ACTUATOR HOSE, 7.5" BRAIDED STAINLESS STEEL, TANK FIRE SUPPRESSION.	1	0
		0 - 0 - 87-300001-001 TANK - PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	2	0
		0 - 0 - 87-300030-001 PRIMARY ACTUATOR KIT (PAK) - ACTUATOR AND RELEASE SOLENOID ASSEMBLY, ONE NEEDED PER FIRE SYSTEM, SUPERVISED, TANK FIRE SUPPRESSION.	1	0
		0 - 0 - 87-300152-001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION.	8	0
		0 - 0 - 9055455PC PRO PRESS 1/2 PRESS X PRESS 90 ELBOW LD.	6	0
		0 - 0 - 9097200PC PRO PRESS PC611 1/2 PRESS TEE LD.	7	0
		0 - 0 - 98694A115 HARDWARE, DATANKLOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION.	4	0
		0 - 0 - A0034332 JUNCTION BOX FOR MANUAL PULL STATION. 1.5" DEEP BACK BOX, RED COLOR.	1	0
		0 - 0 - A31484 1/4" NPT SCHRADER VALVE AND CAP, JB INDUSTRIES. 1/4" FLARE X 1/4" MPT HALF UNION. USED ON TANK SERVICE PORT.	1	0
		0 - 0 - BI145 3/8" BLACK IRON 90 ELL.	3	0
		0 - 0 - DATANKLOCK DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - TANK STRAP TANK STRAP - USED FOR TANK FIRE SUPPRESSION.	6	0
		0 - 0 - TFS-UCTANKBRACKET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	2	0
		0 - 0 - WK-283952-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	2	0
		16 - 16 - 79210 1/2" X 3/8" NPT MALE ADAPTER, VIEGA.	8	0
		16 - 16 - OL-F NOZZLE - TANK PROTECTION APPLIANCE COVERAGE NOZZLE (INCLUDES METAL BLOW OFF CAP, LANYARD, USED WITH CHROME-PLATED PIPE).	8	0
		26 - 26 - QSA-3/8 QUIK SEAL - 3/8" (UL).	8	0
		34 - 34 - A0034331 24VDC SINGLE ACTION MANUAL ACTUATION DEVICE (PUSH/PULL STATION) WITH PROTECTIVE COVER, ONE (1) NORMALLY OPEN CONTACT. RED COLOR.	1	0

NOTES
- FIELD PIPE DROPS AS SHOWN
  PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
- FIELD INSTALLED DROP: FACTORY WILL PROVIDE QTY 2 60IN LONG PIECES OF CHROME PLATED PIPING SHIPPED LOOSE TO BE FIELD-INSTALLED.
- SHIP LOOSE DROP: FACTORY WILL PROVIDE THE EXACT CHROME PIPE LENGTH NEEDED SHIPPED LOOSE TO BE FIELD-INSTALLED.
- RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
- OVERLAPPING COVERAGE SHALL NOT BE USED ON ANY APPLIANCE WITH AN OBSTRUCTION.
- IF APPLICABLE, EXTENDED PRE-PIPED DROPS ARE SHIPPED LOOSE.
- FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.

- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.

- THIS FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS.

- OL-F NOZZLE PART NUMBER REPLACES 3070-3/8H-10-SS

JOB #: 7114832.
JOB NAME: CAVA - MEDFORD, MA_WATER COIL_R3.

SYSTEM SIZE: TANK-SP-2 DESIGN FP: 37. MAXIMUM FP: 40.
HOOD # 1 11' 7.00" LONG x 60" WIDE x 30" HIGH.
RISER # 1 SIZE: 16" DIA.
HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.

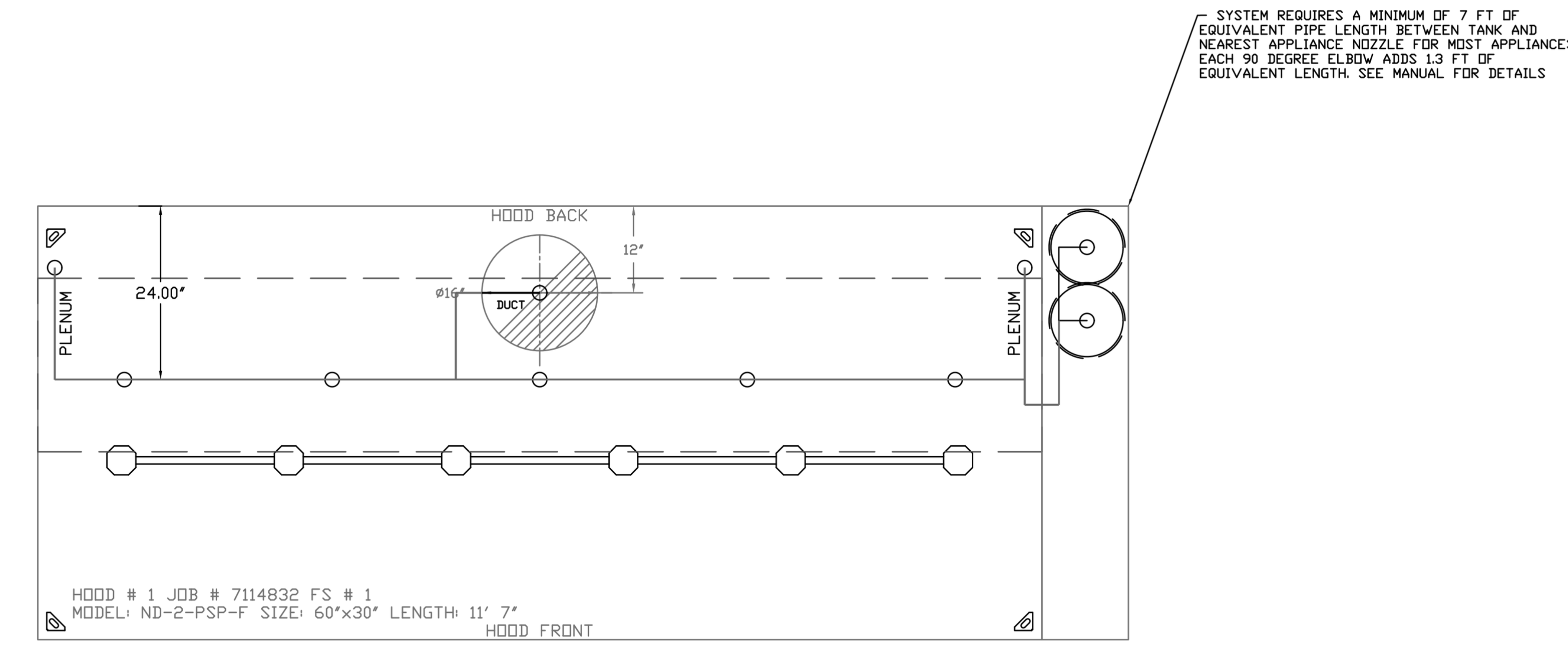
- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

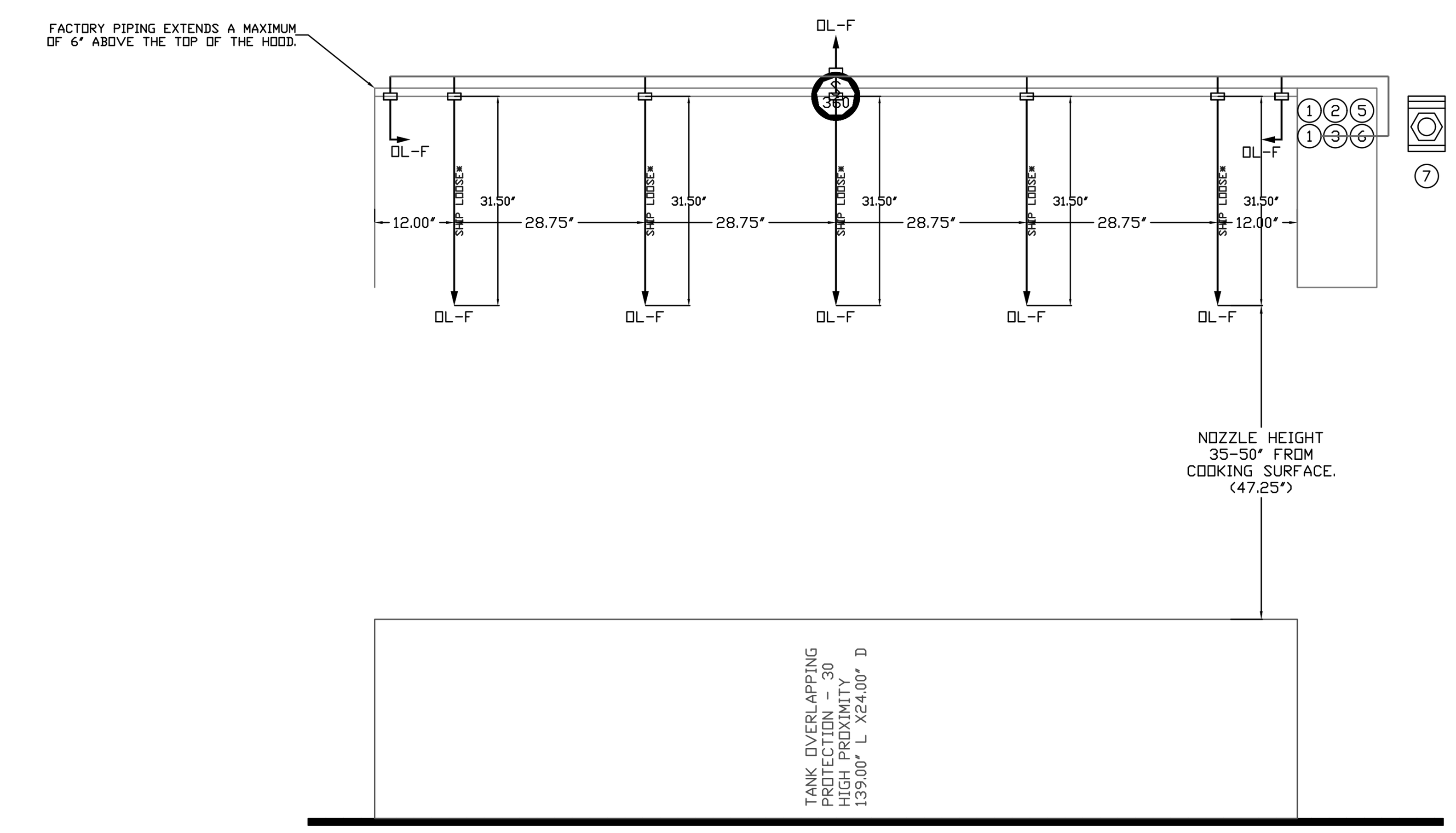
AGENT DISTRIBUTION PIPING LIMITATIONS	
PIPE SECTION	MAX PIPE LENGTH (FT)
MAX SUPPLY LINE TO FIRST OVERLAPPING NOZZLE	42
OVERLAPPING NOZZLE APPLIANCE BRANCH	10
DEDICATED NOZZLE APPLIANCE BRANCH	10

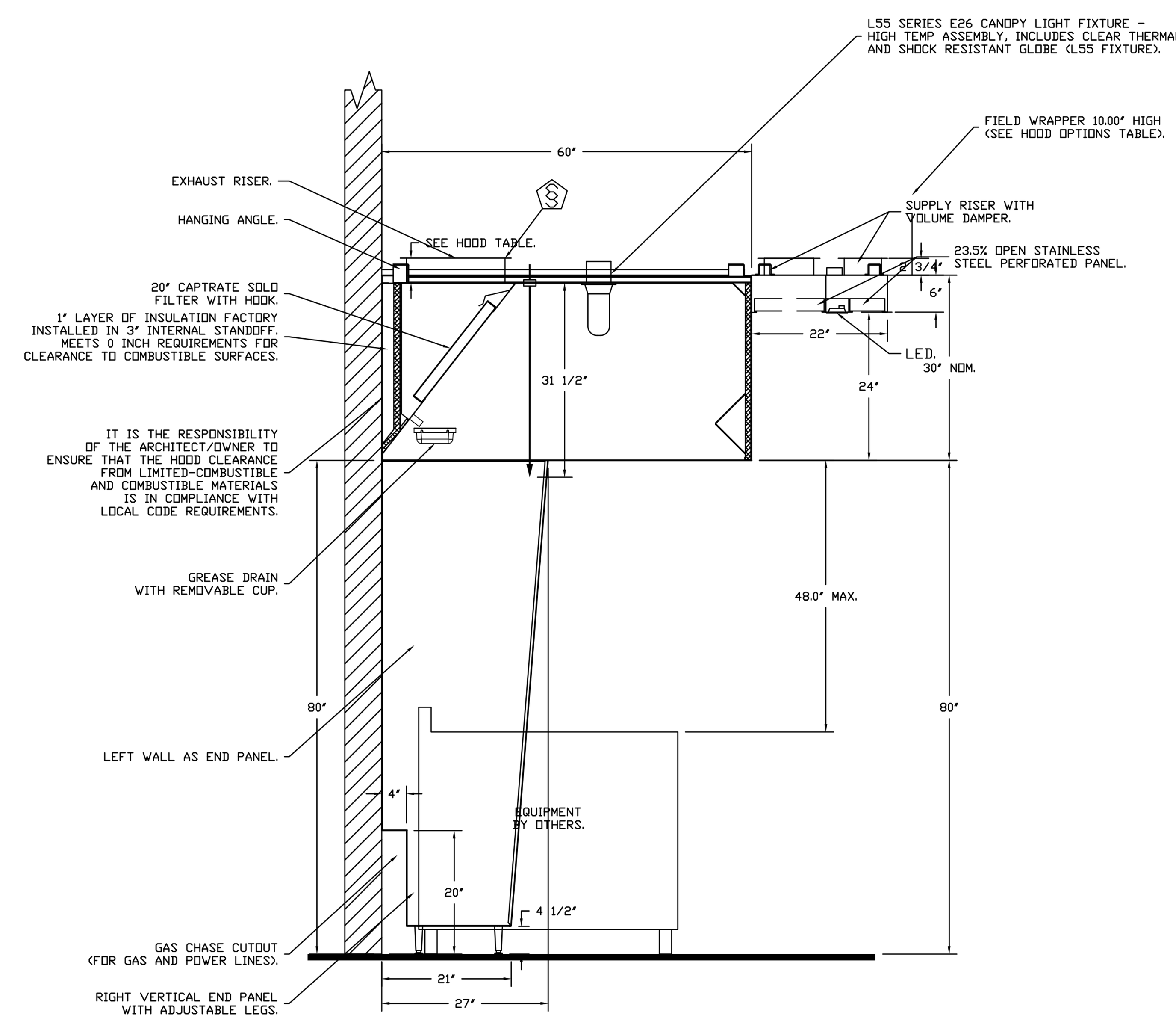
LEGEND – FIRE CABINET TANK SYSTEM

1 4 GALLON TANK.
2 PRIMARY ACTUATOR RELEASE.
3 SECONDARY ACTUATOR RELEASE.
4 PRESSURE SUPERVISION SWITCH.
5 PRIMARY HOSE ASSEMBLY.
6 SECONDARY HOSE ASSEMBLY.
7 REMOTE MANUAL ACTUATION DEVICE.

INCLUDES: FIELD INSTALLATION AND HOOKUP DURING NORMAL BUSINESS HOURS BY CERTIFIED INSTALLERS ONLY IN THE LOCATION NOTED ABOVE, TWO SITE VISITS ONLY (ONE VISIT TO SET PULL STATION & SYSTEM HOOKUP AND ONE VISIT FOR ONE TEST; ADDITIONAL VISITS WILL RESULT IN ADDITIONAL CHARGES), ONE MECHANICAL OR ELECTRICAL GAS VALVE PER SYSTEM AT A MAXIMUM SIZE OF 2", PERMIT, AND SYSTEM TEST.
EXCLUDES: UNION LABOR & PREVAILING WAGE (LABOR & WAGES WILL BE ADDED IF APPLICABLE), GAS VALVE INSTALLATION, ELECTRICAL HOOKUP AND CONNECTIONS, HANGING OF FIRE CABINET, SHUNT TRIP, HANDHELD EXTINGUISHER(S), ON-SITE RE-PIPING DUE TO EQUIPMENT LAYOUT CHANGES.







SECTION VIEW – MODEL 6030ND-2-ACPSP-F
HOOD – #1

REVISIONS	
DESCRIPTION	DATE:
△	
△	
△	
△	

CAPTIVEAIRE
www.captiveaire.com
Maryland Mechanical
8120 Woodmont Avenue, Suite 720, Bethesda, MD, 20814 PHONE: (800) 988 - 0881 FAX: 9192275931 EMAIL: reg76@captiveaire.com

Cava - Medford, MA_Water Coil_R3
330 Foley Street,
Somerville, MA, 02145

DATE: 10/23/2024

DWG.#: 7114832

DRAWN BY: ABS-76

SCALE: NTS

MASTER DRAWING

SHEET NO. 3

ferris+sloane
100 N. Howard Street, Suite 4563 Spokane, WA 99201

COMMONWEALTH OF MASSACHUSETTS
KATHRYN E. DUYTSCHAEVER
ARCHITECTURAL
No. 51710
REGISTERED PROFESSIONAL ENGINEER

CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER:
CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL HOOD DETAIL PLAN

SHEET:
M603

DETAIL GENERAL NOTE

DETAILS PROVIDED ON THE PLAN ARE FOR REFERENCE ONLY. FINAL EQUIPMENT MOUNTING AND EQUIPMENT STANDS ARE TO BE PROVIDED BY THE EQUIPMENT VENDOR OR CONTRACTOR.

rtm
engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180: www.rtmec.com

2/24/2025 11:17:50 AM

EXHAUST FAN INFORMATION – JOB#7114832

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1		1	USBI18DD-RM	CAPTIVEAIRE	2317	2.250	1362	ODP,PREMIUM	2.000	1.4080	3	460	3.8	1188 FPM	423	21.9

MUA FAN INFORMATION – JOB#7114832

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MOCP	WEIGHT (LBS)	SONES
2		1	A1-E.354-15D	15MF-1-MOD	A1-E.354	1000	1854	0.750	1998	ODP,PREMIUM	2.000	1.2940	3	460	2.7	3.9A	15A	931	19.1

COILS – JOB#7114832

FAN UNIT NO	TAG	COIL TYPE	DESIGN CFM	COOLING											HEATING								
				ENTERING DB TEMP	ENTERING WB TEMP	LEAVING DB TEMP	LEAVING WB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY	ENTERING DB TEMP	LEAVING DB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	STEAM PRESSURE	TOTAL CAPACITY	SENSIBLE CAPACITY
2		DX	1854	88.0°F	72.0°F	71.2°F	66.6°F	---	---	---	---	35.3 MBH	32.5 MBH	2.9 MBH	---	---	---	---	---	---	---	---	---

ELECTRIC MAKE-UP AIR UNIT(S)

FAN UNIT NO	TAG	DSGN KW'S	MAX KW'S	PHASE	VOLTS	AMPERAGE	TEMP RISE	OUTPUT BTUs
2		30	35	3	460	42.1	51 °F	119455

FAN OPTIONS

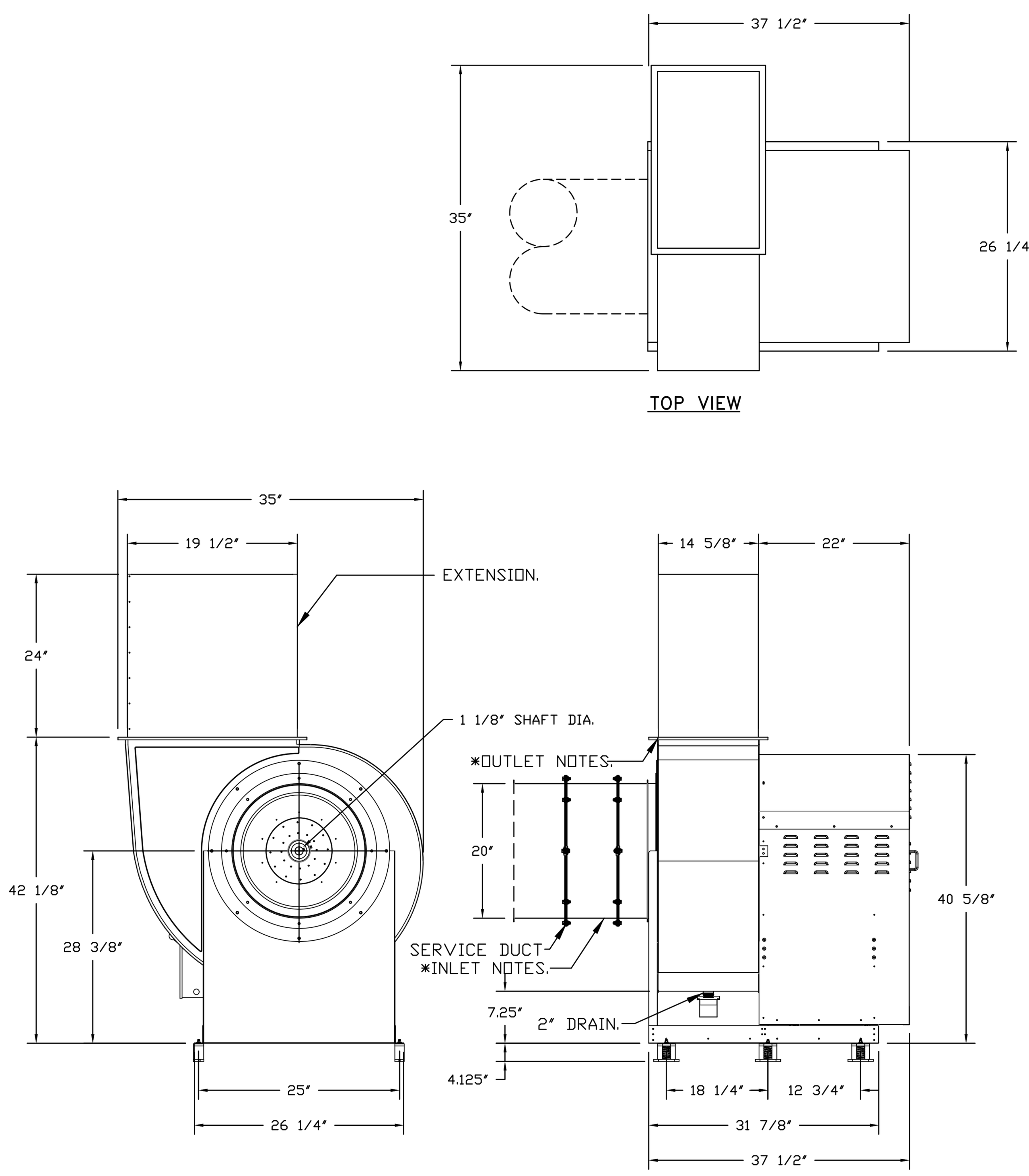
FAN UNIT NO	TAG	QTY	DESCRIPTION
1		1	BI18 - INLET SERVICE DUCT CONNECTION. USED TO CONNECT TO STANDARD 20" GREASE DUCT OR FIELD WELDED DUCT. INCLUDES (2) 7" RISERS BOLTED TO STANDARD INLET RISER
		1	UTILITY SET GREASE CUP
		1	BI18 - 24" DISCHARGE EXTENSION
		1	BI - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE
		1	BI18 - INLET CONNECTION STANDARD 20" FLANGED GREASE DUCT
		1	LOAD REACTOR MOUNTED IN FAN
		1	LINE REACTOR MOUNTING BRACKET FOR DIRECT DRIVE FANS (UP TO 25 HP)
		1	UTILITY SET - SPRING VIBRATION ISOLATORS - BI18 / EQUIVALENT SIZED UTILITY SET - INDOOR/OUTDOOR USE
		1	2 YEAR PARTS WARRANTY
2		1	EH 1 MUA CONTROLS SHEET METAL
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	MOTORIZED BACKDRAFT DAMPER FOR A1-D HOUSING - MEETS AMCA CLASS 1A RATING
		1	TOTAL CFM MONITORING
		1	INSULATION OPTION FOR VBANK FILTER SECTION
		1	DX COIL MODULE -1,000 TO 3,250 CFM (3 TON 1 CIRCUIT COIL) CUSTOM COIL
		1	DXM 1-1 REFRIGERATION PARTS KIT - R410A
		1	LOAD REACTOR MOUNTED IN FAN
		1	UNIT MOUNTED VFD FOR USE WITH ECPM03
		1	SIZE 1 ELECTRIC HEATER INDOOR HANGING OPTION. INCLUDES 2 HSA125 HANGING SPRING ISOLATORS PER UNI-STRUT
		1	2 YEAR PARTS WARRANTY

FAN ACCESSORIES

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

HMI SCHEDULE				
UNIT NUMBER	HMI #	HMI LOCATION	TEMP AVERAGING	MODBUS ADDRESS
FAN #2	HMI #1 - UNIT	IN UNIT	NOT AVERAGED	55

FAN #1 USBI18DD-RM - EXHAUST FAN



TOP VIEW

SIDE VIEW (6) ISOLATORS = USBI18 THRU 36. FRONT VIEW

FEATURES:

- ROOF MOUNTED FANS.
- UL705.
- UL762 AND ULC-S645 (RESTAURANT MODEL).
- HIGH HEAT OPERATION DIRECT DRIVE 350°F (176°C).
- HEAT SLINGER.
- NEMA 3R SAFETY DISCONNECT SWITCH.
- GREASE CLASSIFICATION TESTING.
- 2" DRAIN.
- MOTOR WEATHER COVER.
- FULLY SEALED SCROLL HOUSING.
- SCROLL ACCESS DOOR.
- FLANGE 1 1/4".

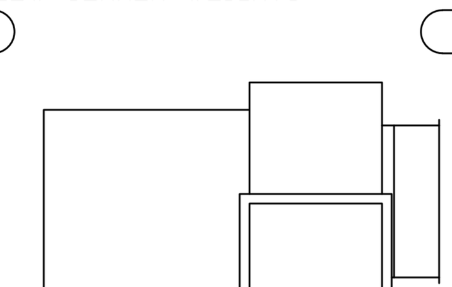
OPTIONS

- BI18 - INLET SERVICE DUCT CONNECTION. USED TO CONNECT TO STANDARD 20" GREASE DUCT OR FIELD WELDED DUCT. INCLUDES (2) 7" RISERS BOLTED TO STANDARD INLET RISER.
- UTILITY SET GREASE CUP.
- BI18 - 24" DISCHARGE EXTENSION.
- BI - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE.
- BI18 - INLET CONNECTION STANDARD 20" FLANGED GREASE DUCT.
- LOAD REACTOR MOUNTED IN FAN.
- LINE REACTOR MOUNTING BRACKET FOR DIRECT DRIVE FANS (UP TO 25 HP).
- UTILITY SET - SPRING VIBRATION ISOLATORS - BI18 / EQUIVALENT SIZED UTILITY SET - INDOOR/OUTDOOR USE.
- 2 YEAR PARTS WARRANTY.

* INLET/OUTLET NOTES:
LENGTH OF THE STRAIGHT DUCT ON THE INLET AND OUTLET TO BE 3 TIMES THE EQUIVALENT DUCT DIAMETER BEFORE CONNECTING TO ANY FITTINGS SUCH AS ELBOWS TO AVOID SYSTEM EFFECT.

UNIT PLAN VIEW CORNER WEIGHTS:

93 LBS 76 LBS



148 LBS 106 LBS

CORNER WEIGHTS ARE CALCULATED BASED ON VERTICAL DISCHARGE. SUPPORT DUCT PROPERLY BEFORE FAN TO ENSURE CORNER WEIGHTS ARE NOT AFFECTED.

NORMAL TEMPERATURE TEST DIRECT DRIVE
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 350°F (176°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

DETAIL GENERAL NOTE

DETAILS PROVIDED ON THE PLAN ARE FOR REFERENCE ONLY. FINAL EQUIPMENT MOUNTING AND EQUIPMENT STANDS ARE TO BE PROVIDED BY THE EQUIPMENT VENDOR OR CONTRACTOR.

REVISIONS	
DESCRIPTION	DATE:

CAPTIVEAIRE
www.captiveaire.com
Maryland Mechanical
8120 Woodmont Avenue, Suite 720, Bethesda, MD, 20814 PHONE: (800) 988 - 0881 FAX: 9192275931 EMAIL: reg76@captiveaire.com

Cava - Medford, MA_Water Coil_R3
330 Foley Street,
Somerville, MA, 02145

DATE: 10/23/2024

DWG.#: 7114832

DRAWN BY: ABS-76

SCALE: NTS

MASTER DRAWING

SHEET NO. 4

rtm
engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180 www.rtmec.com

ferris+sloane
100 N. Howard Street, Suite 4563 Spokane, WA 99201

COMMONWEALTH OF MASSACHUSETTS
KATHRYN E. DUYTSCHAEVER
ARCHITECTURAL
No. 51710
REGISTERED PROFESSIONAL ENGINEER

CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER:
CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL HOOD DETAIL PLAN

SHEET:

M604

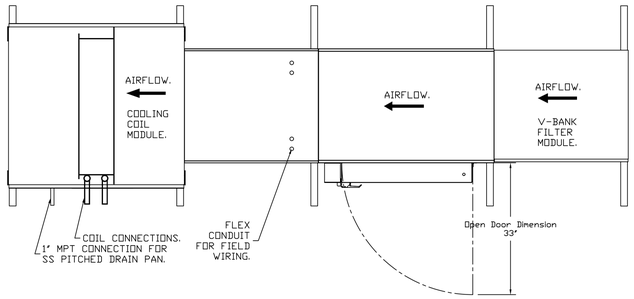
2/24/2025 11:18:01 AM

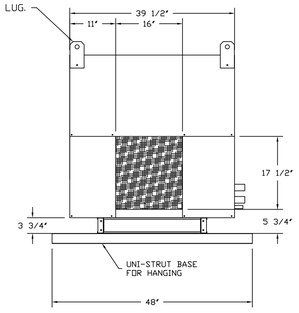
FAN #2 A1-E.354-15D - HEATER
1. ELECTRIC HEATED MAKE UP AIR UNIT WITH 15" MIXED FLOW DIRECT DRIVE FAN AND A 2 STAGE TOTAL, 1 MODULATING, 35KW 480 - 3 COIL.
2. V-BANK EZ FILTERS - INDOOR.
3. SIDE DISCHARGE - AIR FLOW RIGHT -> LEFT.
4. SIZE 1 ELECTRIC HEATER WITH MUA CONTROLS SHEET METAL.
5. CASLINK BUILDING MONITORING SYSTEM COMMUNICATIONS MODULE. REQUIRES INTERNET & FIELD WIRED ETHERNET CONNECTION OR 3G CELLULAR SERVICE. INCLUDES REV 3 COMM MODULE, RJ45 TO MODBUS CONVERTER, 3 FT CAT5 CABLE, AND 1 FT OF SHIELDED TWISTED PAIR.
6. MOTORIZED BACK DRAFT DAMPER 16" X 18" FOR SIZE 1 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, TF1810S ACTUATOR INCLUDED.
7. CFM MONITORING FOR MUA UNITS. USES RIVET NUTS, 1/4" AIRFLOW TUBING AND PUSH TO CONNECT FITTINGS.
8. "INSULATION" FOR V-BANK INTAKE OPTION.
9. DX COIL MODULE FOR SIZE 1 MODULAR FANS - 1,000 THRU 3,250 CFM (5EN1202A-31.5X27.0) NOT BUILT WITH OPPOSITE SIDE CONTROLS. DXM1-1
CONDENSER AND CONDENSER DISCONNECT (UNLESS PROVIDED ON QUOTE) WILL BE INSTALLED, STARTED AND WARRANTED BY OTHERS. REFRIGERANT AND PIPING BY OTHERS. ENSURE DX-KIT IS ORDERED FOR FILTER DRIER, SIGHT GLASS, THERMAL EXPANSION VALVE. (OLD HEATCRAFT COIL # 5EN0603B-31.5X27.0).
10. DX 1-1 KIT R410A. SINGLE CIRCUIT, 3 TON. INCLUDES FILTER DRIER, SIGHT GLASS, AND THERMAL EXPANSION VALVE FOR DX UNITS. INSTALLATION BY OTHERS. INCLUDES R410A TXV.
INSTALLATION BY OTHERS. INCLUDES R410A TXV.
11. MOUNT LOAD REACTOR IN FAN.
12. UNIT MOUNTED VFD FOR USE WITH ECPM03.
13. INDOOR HANGING CRADLE FOR THE SIZE 1 ELECTRIC HEATER. 2 HSA125 HANGING ISOLATORS PER UNI-STRUT INCLUDED.
14. EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET.
15. 2 YEAR PARTS WARRANTY.

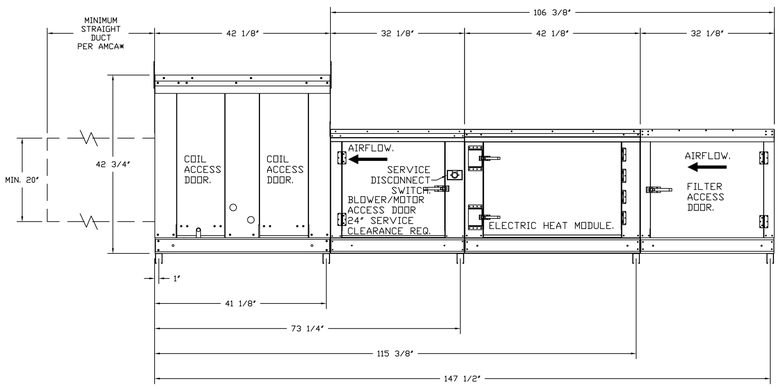
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT.
SUGGESTED STRAIGHT DUCT SIZE IS 20" x 20".

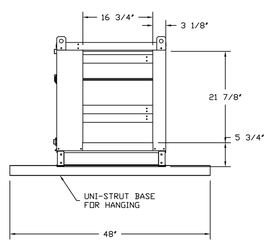
SUPPLY SIDE HEATER INFORMATION:

WINTER TEMPERATURE = 12°F. TEMP. RISE = 51°F.
KWs CALCULATED OFF ACTUAL AIR DENSITY.
KWs AT ALTITUDE OF 0.0 FT. = 30.
KWs AT ALTITUDE OF 26 FT. = 30.

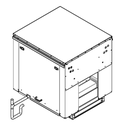




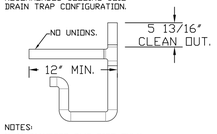




TYPICAL DRAIN TRAP INSTALL



RECOMMENDED COOLING COIL DRAIN TRAP CONFIGURATION.



NOTES:
1) 1" DIAMETER PVC PIPE ONLY.
2) USE ONLY LOW PROFILE COUPLINGS.
3) ADD CLEAN OUT AS SHOWN.

REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
4		

CAPTIVEAIRE
www.captiveaire.com
Maryland Mechanical
8120 Woodmont Avenue, Suite 720, Bethesda, MD, 20814 PHONE: (800) 988 - 0881 FAX: 9192275931 EMAIL: reg76@captiveaire.com

Cava - Medford, MA_Water Coil_R3
330 Foley Street,
Somerville, MA, 02145

DATE: 10/23/2024

DWG.#: 7114832

DRAWN BY: ABS-76

SCALE: NTS

MASTER DRAWING

SHEET NO. 5

ferris+sloane
100 N. Howard Street, Suite 4560 Spokane, WA 99201

COMMONWEALTH OF MASSACHUSETTS
ANDREW E. MUTSCHLECHNER
ARCHITECTURAL
No. 51110
REGISTERED
PROFESSIONAL ENGINEER

CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER: CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL HOOD DETAIL PLAN

SHEET: **M605**

DETAIL GENERAL NOTE

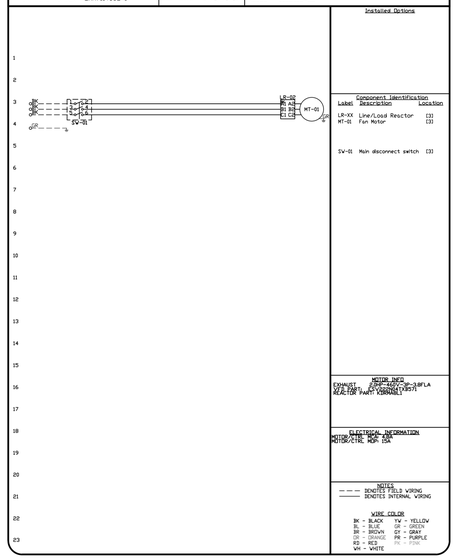
DETAILS PROVIDED ON THE PLAN ARE FOR REFERENCE ONLY. FINAL EQUIPMENT MOUNTING AND EQUIPMENT STANDS ARE TO BE PROVIDED BY THE EQUIPMENT VENDOR OR CONTRACTOR.

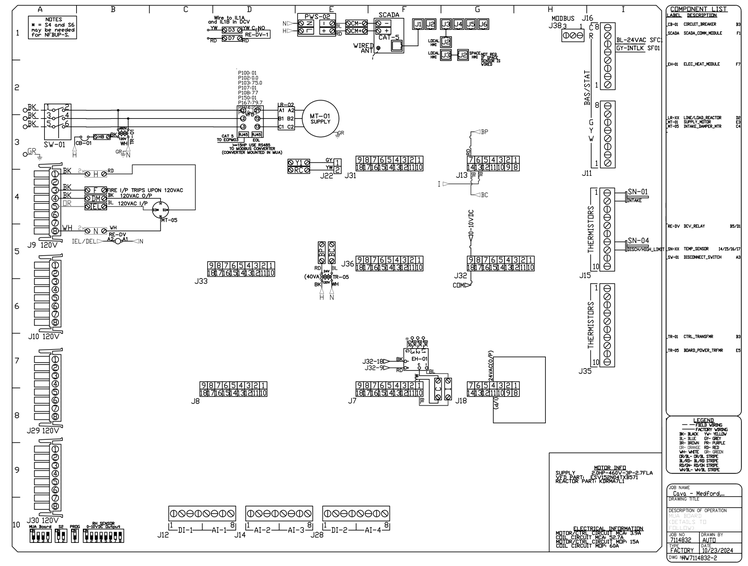
rtm engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180 www.rtmec.com

2/24/2025 11:18:13 AM

Exhaust Fan Wiring

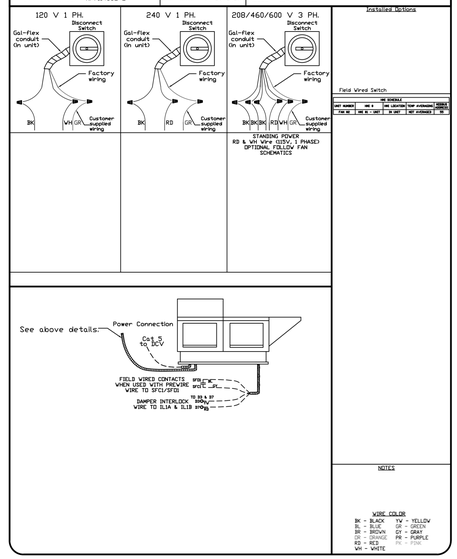
DRAWING NUMBER	EXH7114832-1
JOB	7114832 - Cava - Medford, MA_Water Coil...
SHOP DATE	10/23/2024
MODEL	U3B0180D-RM





Installation Wiring

DRAWING NUMBER	RP7114832-2
JOB	7114832 - Cava - Medford, MA_Water Coil...
SHOP DATE	10/23/2024
MODEL	AI-E364-15D



DETAIL GENERAL NOTE

DETAILS PROVIDED ON THE PLAN ARE FOR REFERENCE ONLY. FINAL EQUIPMENT MOUNTING AND EQUIPMENT STANDS ARE TO BE PROVIDED BY THE EQUIPMENT VENDOR OR CONTRACTOR.

rtm engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180 www.rtmec.com

REVISIONS

	DESCRIPTION	DATE:
△		
△		
△		
△		

CAPTIVEAIRE
Maryland Mechanical
8120 Woodmont Avenue, Suite 720, Bethesda, MD, 20814 PHONE: (800) 988 - 0881 FAX: 9192275931 EMAIL: reg76@captiveaire.com
www.captiveaire.com

Cava - Medford, MA_Water Coil_R3
330 Foley Street,
Somerville, MA, 02145

DATE: 10/23/2024

DWG.#: 7114832

DRAWN BY: ABS-76

SCALE: NTS

MASTER DRAWING

SHEET NO. 6

ferris+sloane
100 N. Howard Street, Suite 4563 Spokane, WA 99201

ANDREW S. BUTSCHEVER
ARCHITECT
No. 51110
REGISTERED
COMMONWEALTH OF MASSACHUSETTS
PROFESSIONAL ENGINEER

CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER: CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

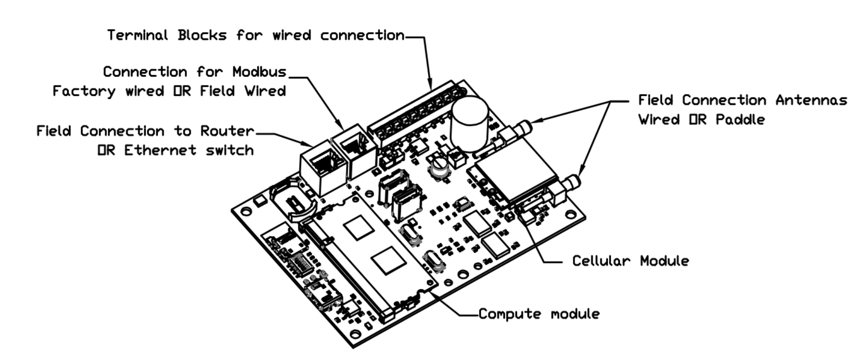
MECHANICAL HOOD DETAIL PLAN

SHEET: **M606**

2/24/2025 11:18:25 AM

ELECTRICAL PACKAGE – JOB#7114832

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED				
				LOCATION	QUANTITY		TYPE	ϕ	HP	VOLT	FLA
1		DCV-1111	UTILITY CABINET RIGHT	UTILITY CABINET RIGHT	1 LIGHT	SMART CONTROLS DCV	EXHAUST	3	2.000	460	3.8
				HOOD # 1	1 FAN		SUPPLY	3	2.000	460	2.7



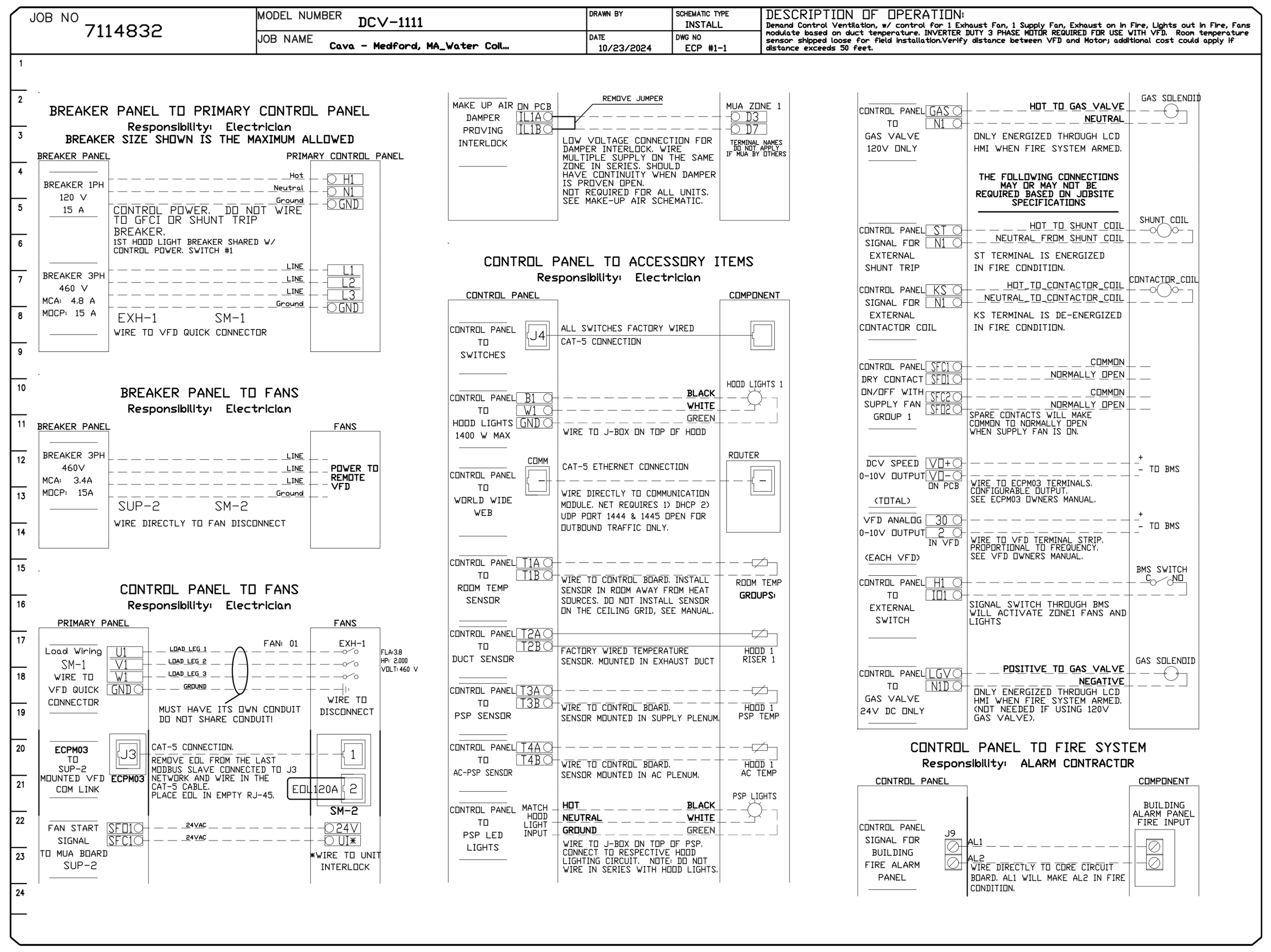
CASlink Monitor and Control

- Hood control panel to support communications to cloud-based Building Management System.
- Hood Control Panel to allow cloud-based Building Management System to monitor real time parameters outlined as MONITOR in the points list.
- Hood Control Panel to allow cloud-based Building Management System to control parameters outlined as CONTROL in the points list.
- Hood Control Panel to allow cloud-based Building Management System to implement SYSTEM ECONOMIZER control strategies for fully integrated Building Management.

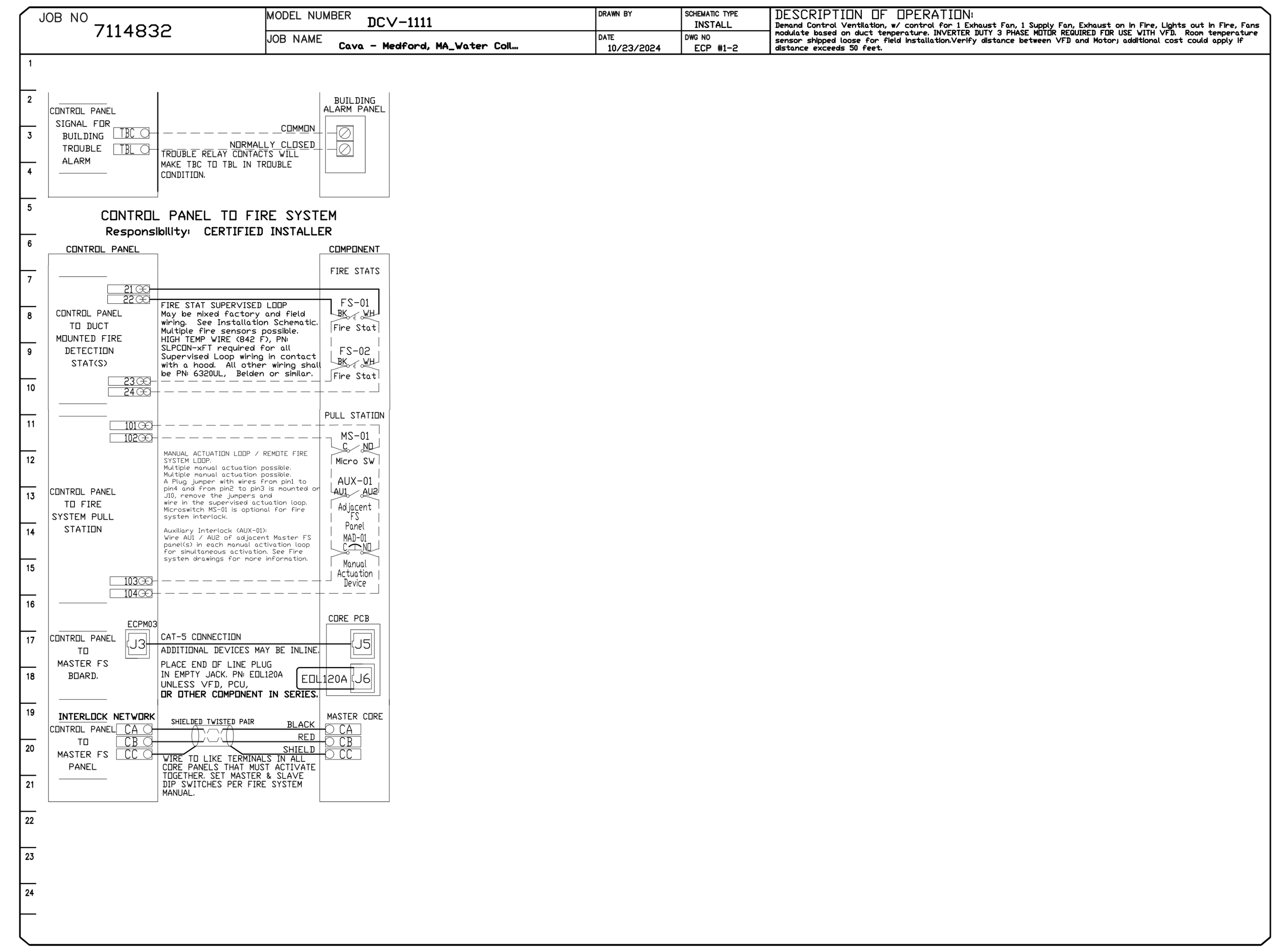
MONITORING AND CONTROL POINTS LIST

DCV Packages	Function
Room Temperature	MONITOR
Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR
Fan Speed	MONITOR
Fan Amperage	MONITOR
Fan Power	MONITOR
VFD Faults	MONITOR
Controller Faults	MONITOR
Fan Faults	MONITOR
Fan Status	MONITOR
PCU Faults	MONITOR
PCU Filter Clog Percentages	MONITOR
Fire Condition	MONITOR
CORE Fire System	MONITOR
Building Pressures	MONITOR
Prep Time Button	MONITOR & CONTROL
Fans Button	MONITOR & CONTROL
Lights Button	MONITOR & CONTROL
Wash Button	MONITOR & CONTROL

SC Packages	Function
Room Temperature(s)	MONITOR
Duct Temperature(s)	MONITOR
MUA DIscharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR
Controller Faults	MONITOR
Fan Faults	MONITOR
Fan Status	MONITOR
PCU Faults	MONITOR
PCU Filter Clog Percentages	MONITOR
Fire Condition	MONITOR
CORE Fire System	MONITOR
Building Pressures	MONITOR
Fans Button(s)	MONITOR & CONTROL
Lights Button(s)	MONITOR & CONTROL
Wash Button	MONITOR & CONTROL



JOB NO 7114832
MODEL NUMBER DCV-1111
JOB NAME Cava - Medford, MA_Water Coil...
SCHEMATIC TYPE INSTALL
DATE 10/23/2024
DWG NO ECP #1-1
DESCRIPTION OF OPERATION:
BREAKER PANEL TO PRIMARY CONTROL PANEL
Responsibility: Electrician
BREAKER SIZE SHOWN IS THE MAXIMUM ALLOWED
BREAKER PANEL TO FANS
Responsibility: Electrician
CONTROL PANEL TO FANS
Responsibility: Electrician
CONTROL PANEL TO ACCESSORY ITEMS
Responsibility: Electrician
CONTROL PANEL TO FIRE SYSTEM
Responsibility: ALARM CONTRACTOR



JOB NO 7114832 | MODEL NUMBER DCV-1111 | JOB NAME Cava - Medford, MA_Water Coil... | SCHEMATIC TYPE INSTALL | DATE 10/23/2024 | DWG NO ECP #1-3

DESCRIPTION OF OPERATION: Fire System #1 TANK FS - 4.0/4.0.

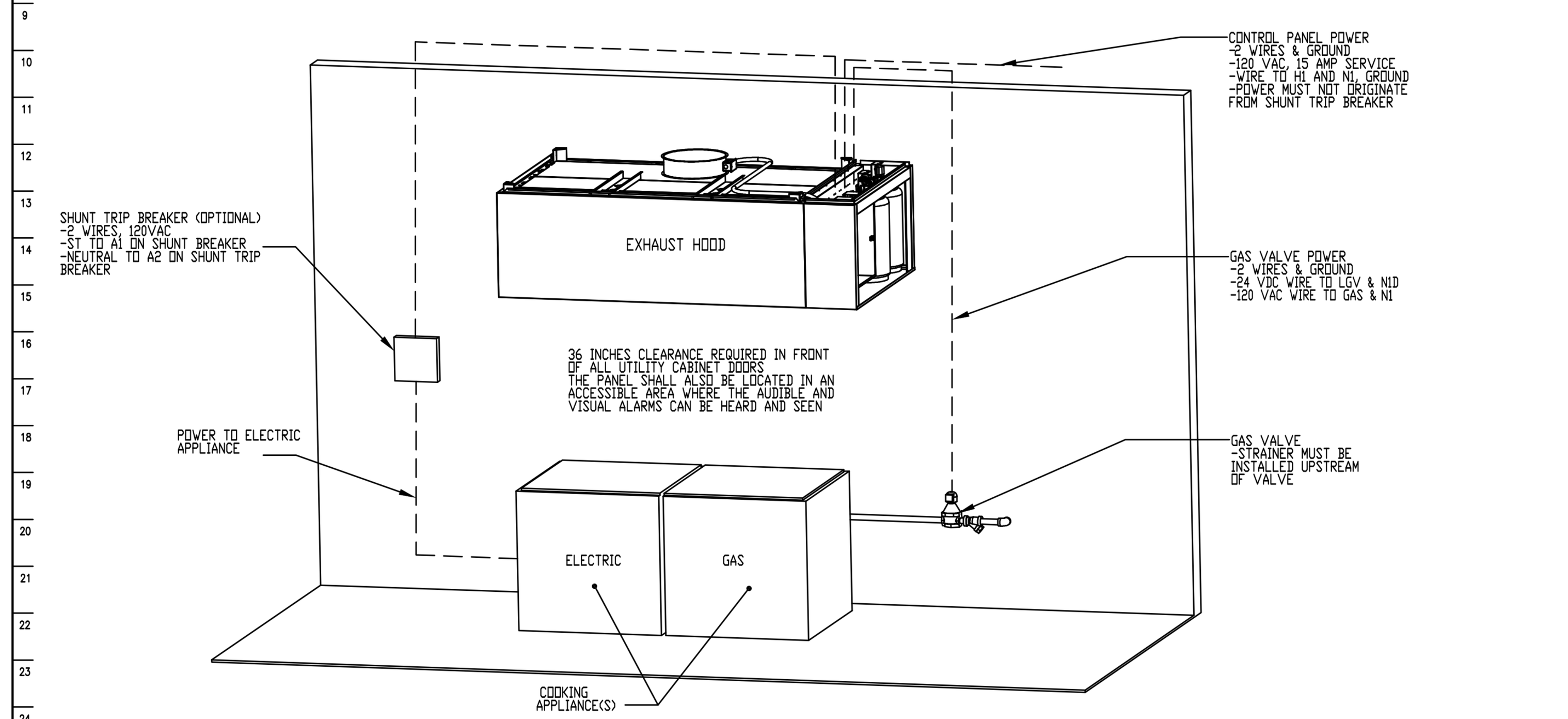
TANK PROTECTION ELECTRICAL DETAIL

02/10/2021 Rev. 2

FS-1: MASTER

ELECTRICIAN:
1. WIRE MAIN CONTROL PANEL PER INCLUDED SCHEMATIC
2. WIRE ALL FANS PER INCLUDED SCHEMATIC
3. WIRE SHUNT TRIP BREAKER (OPTIONAL)
4. WIRE UDS APPLIANCE KILL SWITCH, IF EQUIPPED (OPTIONAL)
5. WIRE GAS VALVE

ELECTRICAL CONTRACTOR REQUIREMENT					
ITEM	CONNECTION IN PANEL	CONNECTION IN DEVICE	VOLTAGE	AMPERAGE	COMMENTS
SHUNT TRIP BREAKER (OPTIONAL)	ST & N1	BREAKER COIL (A1 & A2)	120 VAC	< 4 AMPS	ST TO A1 ON SHUNT BREAKER COIL, AND NEUTRAL TO A2 ON SHUNT TRIP BREAKER COIL
CONTROL PANEL POWER	H1 & N1 + GROUND	CIRCUIT BREAKER	120 VAC	15 AMPS	CONTROL PANEL POWER MUST NOT BE RUN THROUGH SHUNT TRIP BREAKER
UDS APPLIANCE KILL SWITCH (OPTIONAL)	KTS & N1	KTS & N1	120 VAC	< 4 AMPS	KILL SWITCH TERMINALS MUST BE IN SERIES WITH OTHER KILL SWITCHES
REMOTE 120VAC ANSUL AUTOMAN (OPTIONAL)	AU1, AU2	SOLENOID	120 VAC	< 6 AMPS	120V TO AU1, AU2 TO ANSUL ELECTRIC AUTOMAN, ANSUL SOLENOID TO NEUTRAL
GAS VALVE	LGV & N1D (IF 24 VDC) GAS & N1 (IF 120 VAC)	RED/RED/GREEN	24 VDC OR 120 VAC	< 1.0 AMPS	IF 24 VDC - 2 WIRES & GROUND, N1D TO RED, LGV TO RED, AND GREEN TO GROUND IF 120 VAC - 2 WIRES & GROUND GAS TO RED, N1 TO RED, AND GREEN TO GROUND



CONTROL PANEL POWER
-2 WIRES & GROUND
-120 VAC, 15 AMP SERVICE
-WIRE TO H1 AND N1, GROUND
-POWER MUST NOT ORIGINATE FROM SHUNT TRIP BREAKER
SHUNT TRIP BREAKER (OPTIONAL)
EXHAUST HOOD
GAS VALVE POWER
36 INCHES CLEARANCE REQUIRED IN FRONT OF ALL UTILITY CABINET DOORS
POWER TO ELECTRIC APPLIANCE
GAS VALVE
ELECTRIC
GAS
COOKING APPLIANCE(S)

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

JOB NO 7114832 | MODEL NUMBER DCV-1111 | JOB NAME Cava - Medford, MA_Water Coil... | SCHEMATIC TYPE INSTALL | DATE 10/23/2024 | DWG NO ECP #1-4

DESCRIPTION OF OPERATION: Fire System #1 TANK FS - 4.0/4.0.

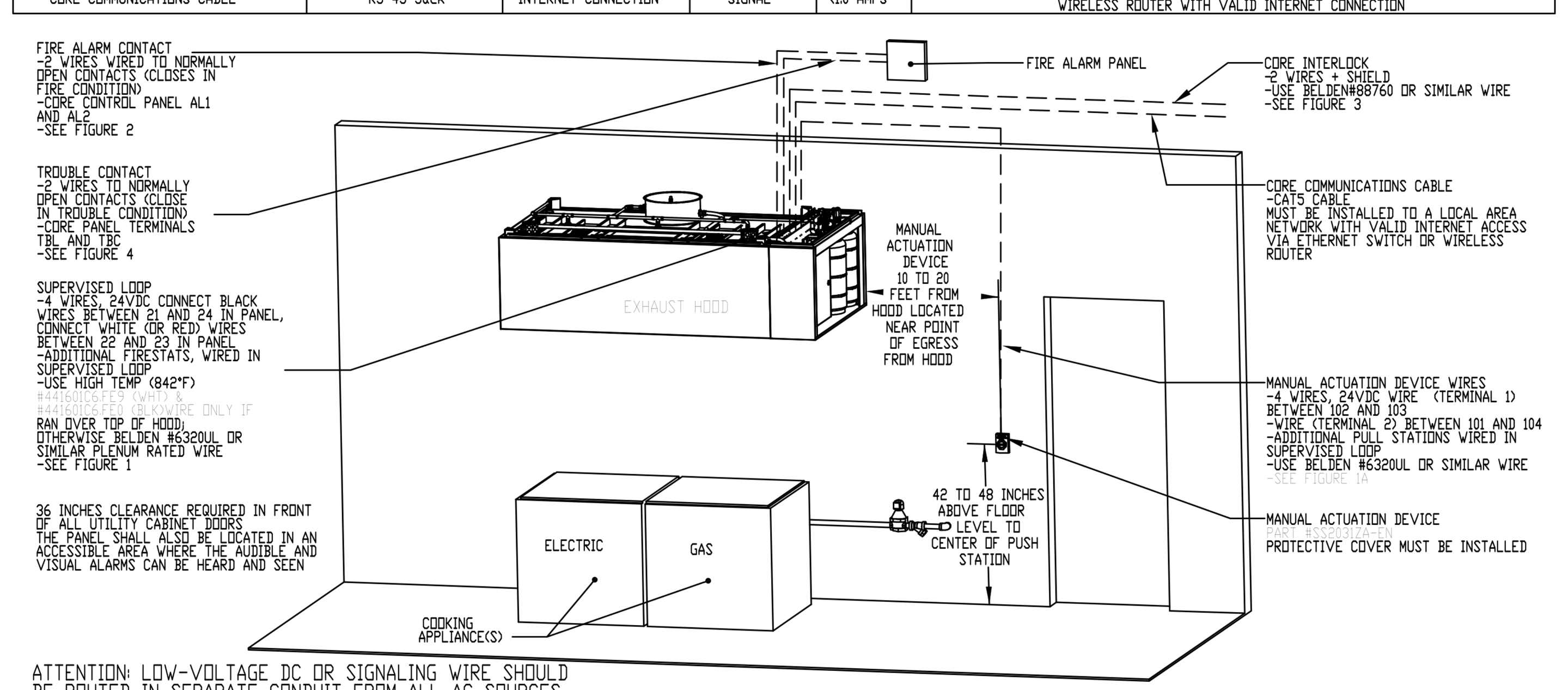
TANK PROTECTION LOW-VOLTAGE DETAIL

10/01/2023 Rev. 3

FS-1: MASTER

ALARM CONTRACTOR:
1. WIRE MANUAL ACTUATION DEVICE(S), REMOTE FIRESTAT(S), CORE INTERLOCK(S), FIRE SENSOR(S) AND FIRE ALARM CONTACTS
2. COMPLETE FINAL HOOKUP OF SYSTEM
3. VERIFY FINAL FIRE SYSTEM TEST

ALARM CONTRACTOR REQUIREMENT					
ITEM	CONNECTION IN PANEL	CONNECTION ON DEVICE	VOLTAGE	AMPERAGE	COMMENTS
MANUAL ACTUATION DEVICE(S)	101 AND 104 102 AND 103	1 & 2	24 VDC	< 1.0 AMPS	WIRE MANUAL ACTUATION DEVICE TERMINAL 1 BETWEEN CORE PANEL TERMINALS 102 AND 103 WIRE MANUAL ACTUATION DEVICE TERMINAL 2 BETWEEN CORE PANEL TERMINALS 101 AND 104 JUMPER 101 TO 104 AND 102 TO 103 IF NO MANUAL ACTUATION DEVICE IS INSTALLED
MANUAL ACTUATION DEVICE COVER	N/A	N/A	N/A	N/A	MANUAL ACTUATION DEVICE COVER MUST BE INSTALLED IF SURFACE MOUNTED, USE COVER EXTENSION STI-6531B
REMOTE FIRESTAT SENSOR(S)	21 AND 24 22 AND 23	BLACK AND WHITE	24 VDC	< 1.0 AMPS	WIRE FIRE SENSOR WHITE WIRES BETWEEN HOOD CORE PANEL TERMINALS 22 AND 23 WIRE FIRE SENSOR BLACK WIRE BETWEEN HOOD CORE PANEL TERMINALS 21 AND 24 HIGH TEMP (842°F) #441601C6.FE9 (WHT) & #441601C6.FE0 (BLK)WIRE OR SIMILAR ONLY IF RAN OF HOOD; OTHERWISE BELDEN #6320UL OR SIMILAR PLENUM RATED WIRE; SEE FIGURE 1
FIRE ALARM CONTACT	AL1, AL2	VARIES	50V MAX (AC/DC)	UP TO 1 AMP	FIRE ALARM RELAY CONTACTS FOR BUILDING FIRE ALARM LOCATED IN THE CORE ELECTRICAL CONTROL PANEL
CORE INTERLOCK(S)	CA, CB, CC	CA, CB, CC	RS-485 COMMUNICATIONS SIGNAL		CORE SYSTEM (1) CA, TO CORE SYSTEM (2) CA, CORE SYSTEM (1) CB, TO CORE SYSTEM (2) CB, CORE SYSTEM (1) CC, TO CORE SYSTEM (2) CC. USE BELDEN# 88760 OR SIMILAR WIRE
TROUBLE CONTACT	TBC, TBL, TOK	VARIES	MAX 120 VAC	UP TO 6 AMPS	WIRE TO TBL & TBC NORMALLY OPEN CONTACT, CLOSES IN TROUBLE CONDITION
CORE COMMUNICATIONS CABLE	RJ-45 Jack	INTERNET CONNECTION	SIGNAL	<1.0 AMPS	TYPICAL CONNECTION CAT5 CABLE TO LOCAL AREA NETWORK VIA ETHERNET SWITCH OR WIRELESS ROUTER WITH VALID INTERNET CONNECTION



FIRE ALARM CONTACT
-2 WIRES WIRED TO NORMALLY OPEN CONTACTS (CLOSES IN FIRE CONDITION)
-CORE CONTROL PANEL AL1 AND AL2
-SEE FIGURE 2
FIRE ALARM PANEL
CORE INTERLOCK
-2 WIRES + SHIELD
-USE BELDEN#88760 OR SIMILAR WIRE
-SEE FIGURE 3
TROUBLE CONTACT
-2 WIRES TO NORMALLY OPEN CONTACTS (CLOSE
CORE COMMUNICATIONS CABLE
-CAT5 CABLE
SUPERVISED LOOP
EXHAUST HOOD
MANUAL ACTUATION DEVICE
MANUAL ACTUATION DEVICE WIRES
MANUAL ACTUATION DEVICE
PROTECTIVE COVER MUST BE INSTALLED
ELECTRIC
GAS
COOKING APPLIANCE(S)
42 TO 48 INCHES ABOVE FLOOR LEVEL TO CENTER OF PUSH STATION

ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

REVISIONS

	DESCRIPTION	DATE
△		
△		
△		
△		

CAPTIVEAIRE www.captiveaire.com
Maryland Mechanical
8120 Woodmont Avenue, Suite 720, Bethesda, MD, 20814 PHONE: (800) 988 - 0881 FAX: 9192275931 EMAIL: reg76@captiveaire.com

Cava - Medford, MA_Water Coil_R3
330 Foley Street, Somerville, MA, 02145

DATE: 10/23/2024

DWG.#: 7114832

DRAWN BY: ABS-76

SCALE: NTS

MASTER DRAWING

SHEET NO. 7

ferris+sloane
100 N. Howard Street, Suite 4563 Spokane, WA 99201

CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER: CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL HOOD DETAIL PLAN

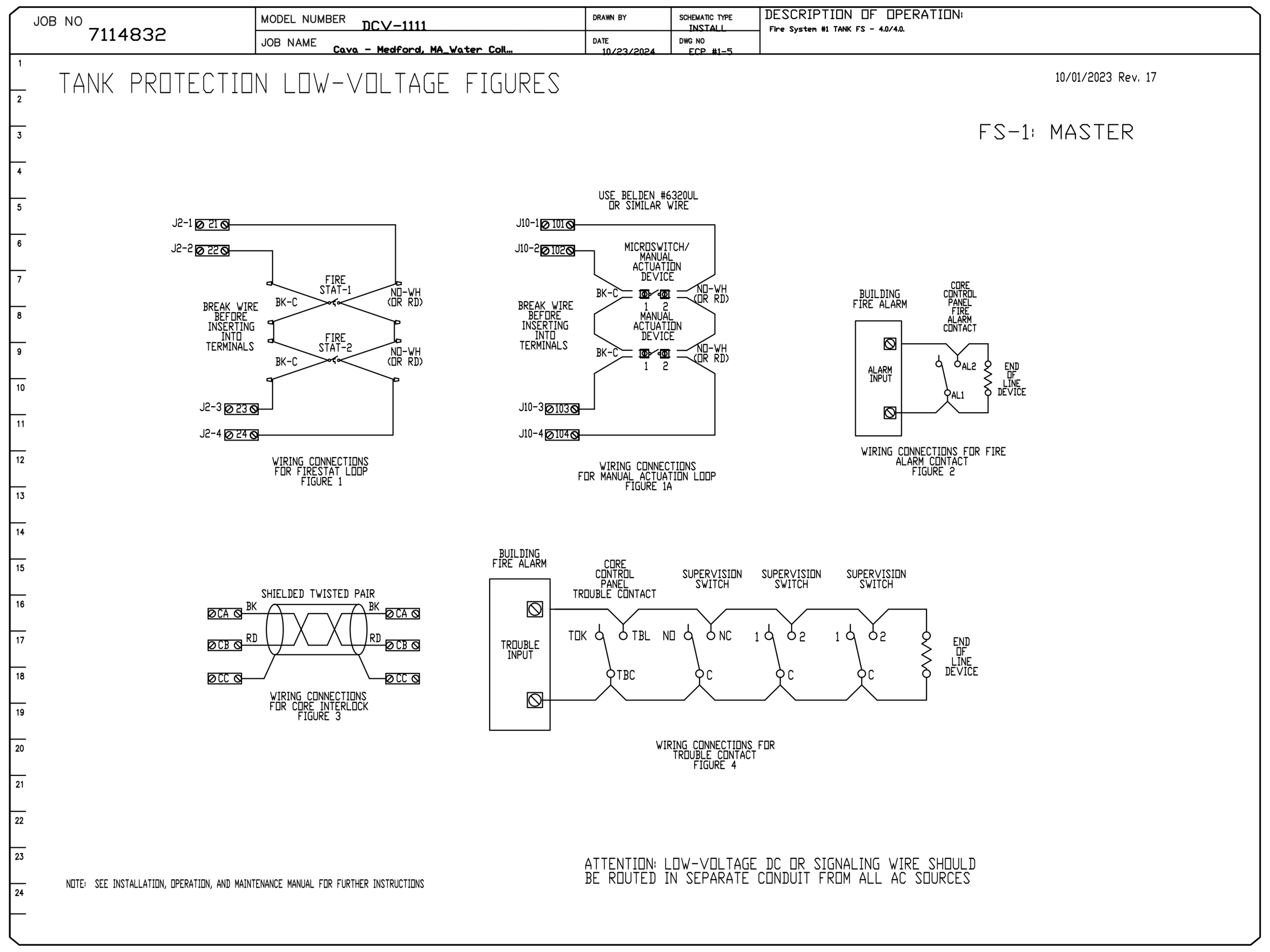
SHEET: M607

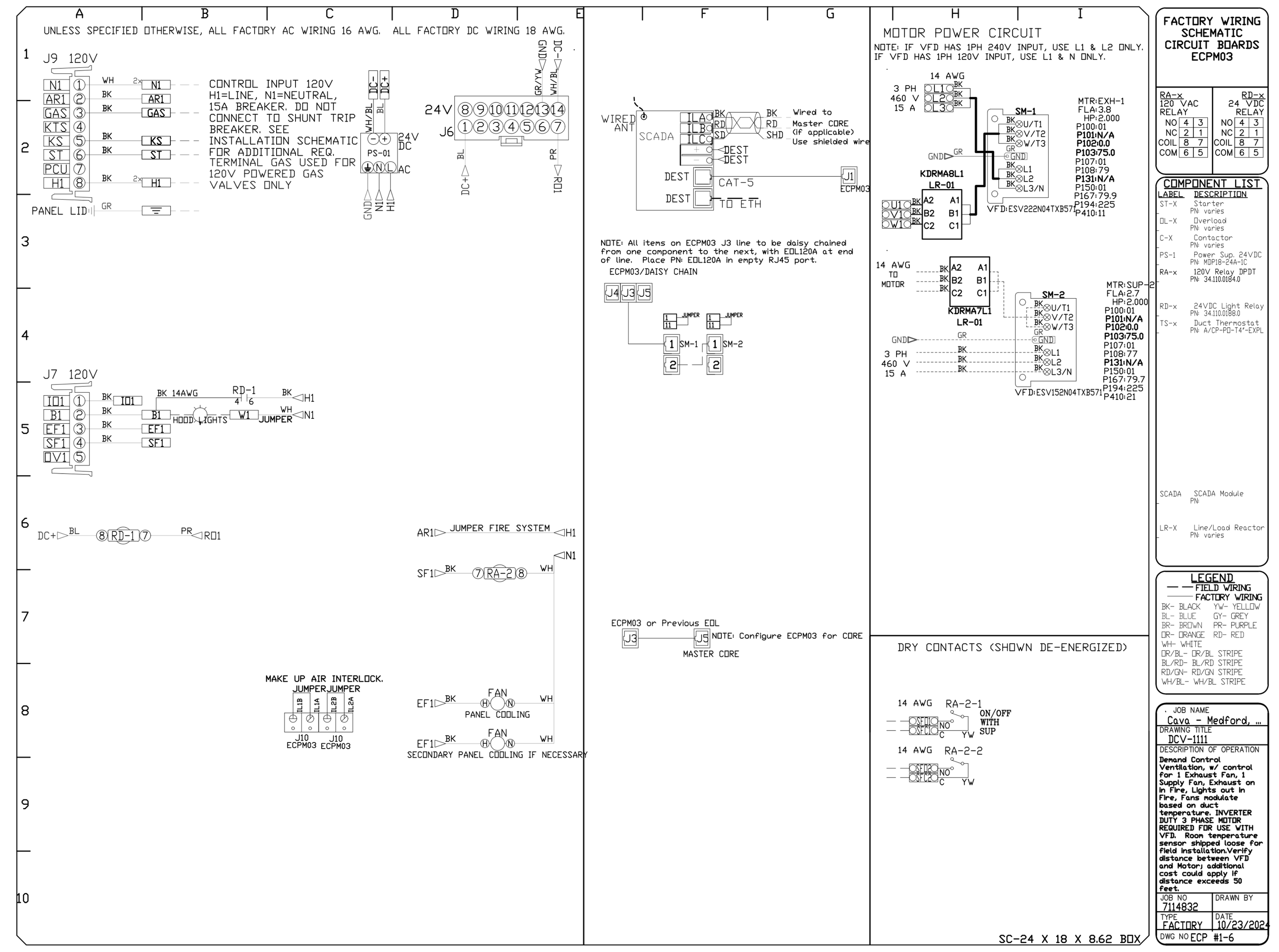
DETAIL GENERAL NOTE

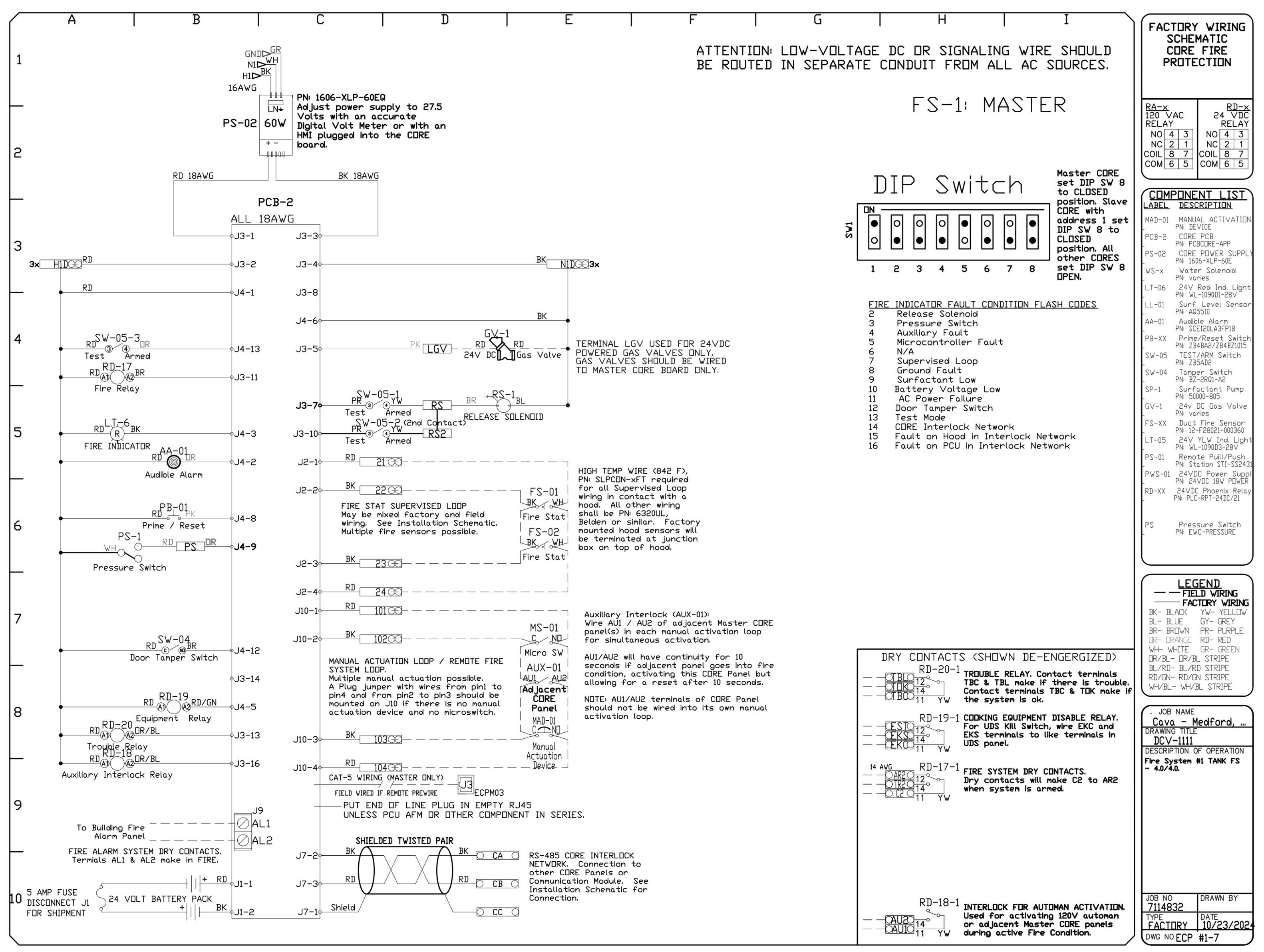
DETAILS PROVIDED ON THE PLAN ARE FOR REFERENCE ONLY. FINAL EQUIPMENT MOUNTING AND EQUIPMENT STANDS ARE TO BE PROVIDED BY THE EQUIPMENT VENDOR OR CONTRACTOR.

rtm engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180 www.rtmec.com

2/24/2025 11:18:37 AM







REVISIONS

DESCRIPTION	DATE

CAPTIVEAIRE

www.captiveaire.com

Maryland Mechanical

8120 Woodmont Avenue, Suite 720, Bethesda, MD, 20814 PHONE: (800) 988 - 0881 FAX: 9192275931 EMAIL: reg76@captiveaire.com

Cava - Medford, MA_Water Coil_R3

330 Foley Street,

Somerville, MA, 02145

DATE: 10/23/2024

DWG.#: 7114832

DRAWN BY: ABS-76

SCALE: NTS

MASTER DRAWING

SHEET NO. 8

ferris+sloane

100 N. Howard Street, Suite 4563 Spokane, WA 99201

CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER: CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL HOOD DETAIL PLAN

SHEET: **M608**

DETAIL GENERAL NOTE

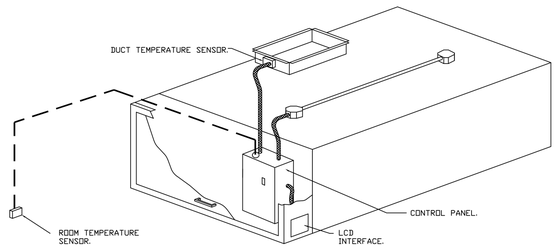
DETAILS PROVIDED ON THE PLAN ARE FOR REFERENCE ONLY. FINAL EQUIPMENT MOUNTING AND EQUIPMENT STANDS ARE TO BE PROVIDED BY THE EQUIPMENT VENDOR OR CONTRACTOR.

rtm engineering consultants

2/24/2025 11:19:43 AM

DEMAND CONTROL VENTILATION HOOD CONTROL PANEL SPECIFICATIONS:

- CONTROLS SHALL BE LISTED BY ETL (UL 508A) AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.7.5 (2021).
- THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.
- TEMPERATURE PROBE(S) LOCATED IN THE EXHAUST DUCT RISER(S) SHALL BE CONSTRUCTED OF STAINLESS STEEL.
- A DIGITAL CONTROLLER SHALL BE PROVIDED TO ACTIVATE THE HOOD EXHAUST FANS DYNAMICALLY BASED ON A FIXED DIFFERENTIAL BETWEEN THE AMBIENT AND DUCT TEMPERATURES SENSORS. THIS FUNCTION SHALL MEET THE REQUIREMENTS OF IMC 507.1.1.
- A DIGITAL CONTROLLER SHALL PROVIDE ADJUSTABLE HYSTERESIS SETTINGS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND/OR THE HEAT IN THE EXHAUST SYSTEM IS REDUCED.
- A DIGITAL CONTROLLER SHALL PROVIDE AN ADJUSTABLE MINIMUM FAN RUN-TIME SETTING TO PREVENT FAN CYCLING.
- VARIABLE FREQUENCY DRIVES (VFDS) SHALL BE PROVIDED FOR FANS AS REQUIRED. THE DIGITAL CONTROLLER SHALL MODULATE THE VFDS BETWEEN A MINIMUM SETPOINT AND A MAXIMUM SETPOINT ON DEMAND. THE DUCT TEMPERATURE SENSOR INPUT(S) TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.
- THE VFD SPEED RANGE OF OPERATION SHALL BE FROM 0% TO 100% FOR THE SYSTEM, WITH THE ACTUAL MINIMUM SPEED SET AS REQUIRED TO MEET MINIMUM VENTILATION REQUIREMENTS.
- AN INTERNAL ALGORITHM TO THE DIGITAL CONTROLLER SHALL MODULATE SUPPLY FAN VFD SPEED PROPORTIONAL TO ALL EXHAUST FANS THAT ARE LOCATED IN THE SAME FAN GROUP AS THE SUPPLY FAN.
- THE SYSTEM SHALL OPERATE IN PREP MODE DURING LIGHT COOKING LOAD OR COOL DOWN MODE WHEN SUFFICIENT HEAT REMAINS UNDERNEATH THE HOOD SYSTEM AFTER COOKING OPERATIONS HAVE COMPLETED. OPERATION DURING EITHER OF THESE PERIODS WILL DISABLE THE SUPPLY FANS AND PROVIDE AN EXHAUST FAN SPEED THAT IS EQUAL TO THE MINIMUM VENTILATION REQUIREMENT.
- A DIGITAL CONTROLLER SHALL DISABLE THE SUPPLY FAN(S), ACTIVATE THE EXHAUST FAN(S), ACTIVATE THE APPLIANCE SHUNT TRIP, AND DISABLE AN ELECTRIC GAS VALVE AUTOMATICALLY WHEN FIRE CONDITION IS DETECTED ON A COVERED HOOD.
- A DIGITAL CONTROLLER SHALL ALLOW FOR EXTERNAL BMS FAN CONTROL VIA DRY CONTACT (EXTERNAL CONTROL SHALL NOT OVERRIDE FAN OPERATION LOGIC AS REQUIRED BY CODE).
- AN LCD INTERFACE SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:
  A. ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
  B. INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES (NO RESET RELAY REQUIRED).
  C. VFD FAULT DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  D. DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  E. MIS-WIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  F. A SINGLE LOW VOLTAGE CAT-5 RJ45 WIRING CONNECTION.
  G. AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED KWH FROM THE VFDS.



TYPICAL HOOD CONTROL PANEL INSTALLATION

SEQUENCE OF OPERATIONS:

THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:

- AUTOMATIC: THE SYSTEM OPERATES BASED ON THE DIFFERENTIAL BETWEEN ROOM TEMPERATURE AND THE TEMPERATURE AT THE HOOD CAVITY OR EXHAUST DUCT COLLAR. FANS ACTIVATE AT A CONFIGURABLE TEMPERATURE DIFFERENTIAL THRESHOLD. DEPENDING ON THE JOB CONFIGURATION EACH FAN ZONE CAN BE CONFIGURED AS STATIC OR DYNAMIC. THESE TERMS REFER TO WHETHER A VARIABLE MOTOR (SUCH AS EC MOTORS OR VFD DRIVEN MOTORS) MODULATE WITH TEMPERATURE. IF THE PANEL IS EQUIPPED WITH VARIABLE SPEED FANS AND THE ZONE IS DEFINED AS 'DYNAMIC', THESE WILL MODULATE WITHIN A USER-DEFINED RANGE BASED ON THE TEMPERATURE DIFFERENTIAL. PANELS EQUIPPED WITH VARIABLE SPEED FANS AND A FAN ZONE DEFINED AS 'STATIC', FANS WILL RUN AT A SET SPEED CALCULATED FOR THE DRIVE. DEMAND CONTROL VENTILATION SYSTEMS ARE CAPABLE OF MODULATING EXHAUST AND MAKE UP AIR FAN SPEEDS PER THE REQUIREMENTS OUTLINED IN IECC 403.7.5 (2021).
- MANUAL: THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.
- SCHEDULE: A WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT MODULATION MODE AND FOLLOW THE FAN PROCEDURE ALGORITHM BASED ON TEMPERATURE DURING THIS TIME. DURING UNOCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
- OTHER: THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (DDC, BMS OR HARD-WIRED INTERLOCK).
- FIRE: UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICIAN. FUEL GAS WILL SHUT OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTUATED BY THE HOOD FIRE SUPPRESSION SYSTEM.

SYSTEM DESIGN VERIFICATION (SDV)

IF ORDERED, CAS SERVICE WILL PERFORM A SYSTEM DESIGN VERIFICATION (SDV) ONCE ALL EQUIPMENT HAS HAD A COMPLETE START UP PER THE OPERATION AND INSTALLATION MANUAL. TYPICALLY, THE SDV WILL BE PERFORMED AFTER ALL INSPECTIONS ARE COMPLETE.

ANY FIELD RELATED DISCREPANCIES THAT ARE DISCOVERED DURING THE SDV WILL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR AND CORRESPONDING TRADES ON SITE. THESE ISSUES WILL BE DOCUMENTED AND FORWARDED TO THE APPROPRIATE SALES OFFICE. IF CAS SERVICE HAS TO RESOLVE A DISCREPANCY THAT IS A FIELD ISSUE, THE GENERAL CONTRACTOR WILL BE NOTIFIED AND BILLED FOR THE WORK. SHOULD A RETURN TRIP BE REQUIRED DUE TO ANY FIELD RELATED DISCREPANCY THAT CANNOT BE RESOLVED DURING THE SDV, THERE WILL BE ADDITIONAL TRIP CHARGES.

DURING THE SDV, CAS SERVICE WILL ADDRESS ANY DISCREPANCY THAT IS THE FAULT OF THE MANUFACTURER. SHOULD A RETURN TRIP BE REQUIRED, THE GENERAL CONTRACTOR AND APPROPRIATE SALES OFFICE WILL BE NOTIFIED. THERE WILL BE NO ADDITIONAL CHARGES FOR MANUFACTURER DISCREPANCIES.

DETAIL GENERAL NOTE

DETAILS PROVIDED ON THE PLAN ARE FOR REFERENCE ONLY. FINAL EQUIPMENT MOUNTING AND EQUIPMENT STANDS ARE TO BE PROVIDED BY THE EQUIPMENT VENDOR OR CONTRACTOR.

rtm engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180 www.rtmec.com

REVISIONS

	DESCRIPTION	DATE:
△		
△		
△		
△		

CAPTIVEAIRE
www.captiveaire.com
Maryland Mechanical
8120 Woodmont Avenue, Suite 720, Bethesda, MD, 20814 PHONE: (800) 988 - 0881 FAX: 9192275931 EMAIL: reg76@captiveaire.com

Cava - Medford, MA_Water Coil_R3
330 Foley Street,
Somerville, MA, 02145

DATE: 10/23/2024

DWG.#: 7114832

DRAWN BY: ABS-76

SCALE: NTS

MASTER DRAWING

SHEET NO. 9

ferris+sloane
100 N. Howard Street, Suite 4560 Spokane, WA 99201

COMMONWEALTH OF MASSACHUSETTS
ANDREW E. BUTSCHEVERCA
ARCHITECT
No. 51110
REGISTERED
PROFESSIONAL ENGINEER

CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER: CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL HOOD DETAIL PLAN

SHEET: **M609**

2/24/2025 11:19:57 AM

SPECIFICATIONS - DIVISION 23 - HVAC

SECTION 230500 - GENERAL MECHANICAL REQUIREMENTS:

HVAC SUBCONTRACTOR SHALL PROVIDE A BID OF PREVENTATIVE MAINTENANCE SERVICES FOR ONE YEAR AT TIME OF BID.

FURNISH TO THE OWNER ALL OPERATING & MAINTENANCE MANUALS, RECORD DRAWINGS, TEST & BALANCE REPORT. CONTRACTOR SHALL COORDINATE WITH MANUFACTURER REPRESENTATIVES FOR EMPLOYEE TRAINING REQUIREMENTS FOR ALL EQUIPMENT.

MECHANICAL CONTRACTOR SHALL SUBMIT COMPLIANCE CHECKLIST TO BUILDING OFFICIAL UPON SUBSTANTIAL COMPLETION OF PROJECT.
PROVIDE EQUIPMENT INDICATED ON THE DRAWINGS, AND AS REQUIRED FOR A COMPLETE FUNCTIONING SYSTEM.

DEFINITIONS:
FURNISH MEANS TO SUPPLY AND DELIVER TO PROJECT SITE, READY FOR INSTALLATION.
INSTALL MEANS TO PLACE IN POSITION AND MAKE CONNECTIONS FOR SERVICE OR USE.
PROVIDE MEANS TO FURNISH AND INSTALL, COMPLETE AND READY FOR INTENDED USE.

WARRANTY:
PROVIDE LABOR AND MATERIALS TO REPAIR OR REPLACE DEFECTIVE PARTS AND MATERIALS AS REQUIRED FOR ONE YEAR AFTER SUBSTANTIAL COMPLETION OR OWNER ACCEPTANCE OF THE COMPLETED PROJECT. PROVIDE A SEPARATE LINE ITEM DEDUCT AMOUNT ON THE PROPOSAL FORM TO DELETE WARRANTY SERVICE, AT THE OWNER'S OPTION. CONTRACTOR SHALL INCLUDE ONE YEAR WARRANTY ON OWNER FURNISHED EQUIPMENT. CONTRACTOR SHALL INCLUDE COSTS FOR RECEIVING, HANDLING, STORAGE, AND HOISTING OF OWNER FURNISHED EQUIPMENT.

COORDINATION:
COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER, AND WITH THE CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.

DUCT DIMENSIONS:
UNLESS OTHERWISE NOTED, DUCT DIMENSIONS ON THE DRAWINGS ARE INSIDE CLEAR DIMENSIONS.

MAKE-UP AIR UNIT:
UNIT SHALL HAVE AN INTEGRAL DISCHARGE THERMOSTAT LINKED TO THE INTERNAL CONTROLS. THE HEATER SHALL BE SET TO MAINTAIN DUCT SUPPLY TEMPERATURE AT NO LESS THAN 65 DEG. F. (ADJ.).
HIGH LIMIT SWITCH SET TO 180 DEG. F.
INTAKE AIR SENSOR SET TO 10 DEG. F. (ADJ.) LOWER THAN DISCHARGE AIR SENSOR.

TEMPERATURE CONTROLS:
PROVIDE PROGRAMMABLE THERMOSTATS WITH REMOTE TEMPERATURE SENSORS AND REMOTE HUMIDISTATS COMPATIBLE WITH ROOFTOP UNIT. CONTROL WIRING SHALL BE INSTALLED IN CONDUIT. THERMOSTAT SHALL MEET SETPOINT ADJUSTMENT FOR UNOCCUPIED MODE: HEATING DOWN TO 55 DEGREES AND COOLING UP TO 85 DEGREES. PROVIDE INTERLOCK CONTROL WIRING BETWEEN HOOD EXHAUST FANS AND ROOFTOP UNITS.

END OF SECTION

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. SUBMITTALS:

1. CERTIFIED TAB REPORTS.

B. TAB FIRM QUALIFICATIONS: NBC CERTIFIED.

C. TAB REPORT FORMS: STANDARD TAB CONTRACTOR'S FORMS APPROVED BY ARCHITECT.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 EXAMINATION

A. EXAMINE THE CONTRACT DOCUMENTS TO BECOME FAMILIAR WITH PROJECT REQUIREMENTS AND TO DISCOVER CONDITIONS IN SYSTEMS' DESIGNS THAT MAY PRECLUDE PROPER TAB OF SYSTEMS AND EQUIPMENT.

B. EXAMINE THE APPROVED SUBMITTALS FOR HVAC SYSTEMS AND EQUIPMENT.

C. EXAMINE SYSTEMS FOR INSTALLED BALANCING DEVICES, SUCH AS TEST PORTS, GAGE COCKS, THERMOMETER WELLS, FLOW-CONTROL DEVICES, BALANCING VALVES AND FITTINGS, AND MANUAL VOLUME DAMPERS. VERIFY THAT LOCATIONS OF THESE BALANCING DEVICES ARE ACCESSIBLE.

D. EXAMINE SYSTEM AND EQUIPMENT INSTALLATIONS AND VERIFY THAT FIELD QUALITY-CONTROL TESTING, CLEANING, AND ADJUSTING SPECIFIED IN INDIVIDUAL SECTIONS HAVE BEEN PERFORMED.

E. EXAMINE HVAC EQUIPMENT AND FILTERS AND VERIFY THAT BEARINGS ARE GREASED, BELTS ARE ALIGNED AND TIGHT, AND EQUIPMENT WITH FUNCTIONING CONTROLS IS READY FOR OPERATION.

F. EXAMINE TERMINAL UNITS, SUCH AS VARIABLE-AIR-VOLUME BOXES, AND VERIFY THAT THEY ARE ACCESSIBLE AND THEIR CONTROLS ARE CONNECTED AND FUNCTIONING.

G. EXAMINE AUTOMATIC TEMPERATURE SYSTEM COMPONENTS TO VERIFY THE FOLLOWING:

1. DAMPERS, VALVES, AND OTHER CONTROLLED DEVICES ARE OPERATED BY THE INTENDED CONTROLLER.

2. DAMPERS AND VALVES ARE IN THE POSITION INDICATED BY THE CONTROLLER.

3. INTEGRITY OF DAMPERS AND VALVES FOR FREE AND FULL OPERATION AND FOR TIGHTNESS OF FULLY CLOSED AND FULLY OPEN POSITIONS. THIS INCLUDES DAMPERS IN MULTIZONE UNITS, MIXING BOXES, AND VARIABLE-AIR-VOLUME TERMINALS.

4. AUTOMATIC MODULATING AND SHUTOFF VALVES, INCLUDING TWO-WAY VALVES AND THREE-WAY MIXING AND DIVERTING VALVES, ARE PROPERLY CONNECTED.

5. THERMOSTATS AND HUMIDISTATS ARE LOCATED TO AVOID ADVERSE EFFECTS OF SUNLIGHT, DRAFTS, AND COLD WALLS.

6. SENSORS ARE LOCATED TO SENSE ONLY THE INTENDED CONDITIONS.

7. SEQUENCE OF OPERATION FOR CONTROL MODES IS ACCORDING TO THE CONTRACT DOCUMENTS.

8. CONTROLLER SET POINTS ARE SET AT INDICATED VALUES.

9. INTERLOCKED SYSTEMS ARE OPERATING.

10. CHANGEOVER FROM HEATING TO COOLING MODE OCCURS ACCORDING TO INDICATED VALUES.

H. REPORT DEFICIENCIES DISCOVERED BEFORE AND DURING PERFORMANCE OF TEST AND BALANCE PROCEDURES.

3.2 GENERAL PROCEDURES FOR TESTING AND BALANCING

A. PERFORM TESTING AND BALANCING PROCEDURES ON EACH SYSTEM ACCORDING TO THE PROCEDURES CONTAINED IN AABC'S "NATIONAL STANDARDS FOR TOTAL SYSTEM BALANCE", NBC, ASHRAE 111, NEBB'S "PROCEDURAL STANDARDS FOR TESTING, ADJUSTING, AND BALANCING OF ENVIRONMENTAL SYSTEMS" OR SMACNA'S "HVAC SYSTEMS - TESTING, ADJUSTING, AND BALANCING" AND IN THIS SECTION.

B. CUT INSULATION, DUCTS, PIPES, AND EQUIPMENT CABINETS FOR INSTALLATION OF TEST PROBES TO THE MINIMUM EXTENT NECESSARY FOR TAB PROCEDURES. AFTER TESTING AND BALANCING, PATCH PROBE HOLES IN DUCTS WITH SAME MATERIAL AND THICKNESS AS USED TO CONSTRUCT DUCTS. INSTALL AND JOIN NEW INSULATION THAT MATCHES REMOVED MATERIALS. RESTORE INSULATION, COVERINGS, VAPOR BARRIER, AND FINISH.

C. MARK EQUIPMENT AND BALANCING DEVICES, INCLUDING DAMPER-CONTROL POSITIONS, VALVE POSITION INDICATORS, FAN-SPEED-CONTROL LEVERS, AND SIMILAR CONTROLS AND DEVICES, WITH PAINT OR OTHER SUITABLE, PERMANENT IDENTIFICATION MATERIAL TO SHOW FINAL SETTINGS.

3.3 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

A. PREPARE SCHEMATIC DIAGRAMS OF SYSTEMS' "AS-BUILT" DUCT LAYOUTS.

B. FOR VARIABLE-AIR-VOLUME SYSTEMS, DEVELOP A PLAN TO SIMULATE DIVERSITY.

C. DETERMINE THE BEST LOCATIONS IN MAIN AND BRANCH DUCTS FOR ACCURATE DUCT AIRFLOW MEASUREMENTS.

D. VERIFY THAT MOTOR STARTERS ARE EQUIPPED WITH PROPERLY SIZED THERMAL PROTECTION.

E. CHECK FOR AIRFLOW BLOCKAGES.

F. CHECK CONDENSATE DRAINS FOR PROPER CONNECTIONS AND FUNCTIONING.

G. CHECK FOR PROPER SEALING OF AIR-HANDLING UNIT COMPONENTS.

H. CHECK FOR PROPER SEALING OF AIR DUCT SYSTEM.

3.4 TOLERANCES

A. SET HVAC SYSTEM AIRFLOW AND WATER FLOW RATES WITHIN THE FOLLOWING TOLERANCES:

1. SUPPLY, RETURN, AND EXHAUST FANS AND EQUIPMENT WITH FANS: PLUS OR MINUS 5 PERCENT.
2. AIR OUTLETS AND INLETS: PLUS OR MINUS 10 PERCENT.

END OF SECTION

SECTION 230700 - HVAC INSULATION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. QUALITY ASSURANCE: LABELED WITH MAXIMUM FLAME-SPREAD INDEX OF 25 AND MAXIMUM SMOKE-DEVELOPED INDEX OF 50 ACCORDING TO ASTM E 84.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. SURFACE-BURNING CHARACTERISTICS:

1. INDOOR INSULATION AND RELATED MATERIALS: TO BE FACTORY LABELED DESIGNATING MAXIMUM FLAME-SPREAD INDEX OF 25 OR LESS, AND SMOKE-DEVELOPED INDEX OF 50 OR LESS ACCORDING TO ASTM E 84.

2.2 INSULATION MATERIALS

A. FLEXIBLE ELASTOMERIC: CLOSED-CELL, SPONGE- OR EXPANDED-RUBBER MATERIALS. COMPLY WITH ASTM C 534, TYPE I FOR TUBULAR MATERIALS AND TYPE II FOR SHEET MATERIALS.

B. MINERAL-FIBER BLANKET INSULATION: COMPLY WITH ASTM C 553, TYPE II AND ASTM C 1290, TYPE I.

1. FSK JACKET: ALUMINUM-FOIL, FIBERGLASS-REINFORCED SCRIM WITH KRAFT-PAPER BACKING; COMPLYING WITH ASTM C 1136, TYPE II.

2. FSK TAPE: FOIL-FACE, VAPOR-RETARDER TAPE MATCHING FACTORY-APPLIED JACKET WITH ACRYLIC ADHESIVE; COMPLYING WITH ASTM C 1136.

C. MINERAL-FIBER, PIPE AND TANK INSULATION: COMPLYING WITH ASTM C 1393, TYPE II OR TYPE IIIA CATEGORY 2, OR WITH PROPERTIES SIMILAR TO ASTM C 612, TYPE IB; AND HAVING FACTORY-APPLIED ASJ JACKET. NOMINAL DENSITY IS 2.5 LB/CU. FT. OR MORE. THERMAL CONDUCTIVITY (K-VALUE) AT 100 DEG F IS 0.29 BTU X IN./H X SQ. FT. X DEG F OR LESS.

1. ASJ: WHITE, KRAFT-PAPER, FIBERGLASS-REINFORCED SCRIM WITH ALUMINUM-FOIL BACKING; COMPLYING WITH ASTM C 1136, TYPE I.

2. ASJ TAPE: WHITE VAPOR-RETARDER TAPE MATCHING FACTORY-APPLIED JACKET WITH ACRYLIC ADHESIVE, COMPLYING WITH ASTM C 1136.

D. FLEXIBLE ELASTOMERIC ADHESIVE: COMPLY WITH MIL-A-24179A, TYPE II, CLASS I.

E. MINERAL-FIBER ADHESIVE: COMPLY WITH MIL-A-3316C, CLASS 2, GRADE A.

F. VAPOR-BARRIER MASTIC: WATER BASED; SUITABLE FOR INDOOR AND OUTDOOR USE ON BELOW AMBIENT SERVICES; COMPLY WITH MIL-PRF-19565C, TYPE II.

PART 3 - EXECUTION

3.1 INSULATION INSTALLATION

A. COMPLY WITH REQUIREMENTS OF THE MIDWEST INSULATION CONTRACTORS ASSOCIATION'S "NATIONAL COMMERCIAL & INDUSTRIAL INSULATION STANDARDS" FOR INSULATION INSTALLATION ON PIPES AND EQUIPMENT.

B. INSULATION INSTALLATION AT INTERIOR WALL AND PARTITION PENETRATIONS (THAT ARE NOT FIRE RATED): INSTALL INSULATION CONTINUOUSLY THROUGH WALLS AND PARTITIONS.

C. INSULATION INSTALLATION AT FIRE-RATED WALL, PARTITION, AND FLOOR PENETRATIONS: INSTALL INSULATION CONTINUOUSLY THROUGH PENETRATIONS. SEAL PENETRATIONS. COMPLY WITH REQUIREMENTS IN SECTION 078400.

D. FLEXIBLE ELASTOMERIC INSULATION INSTALLATION:

1. SEAL LONGITUDINAL SEAMS AND END JOINTS WITH ADHESIVE TO ELIMINATE OPENINGS IN INSULATION THAT ALLOW PASSAGE OF AIR TO SURFACE BEING INSULATED.

2. INSULATION INSTALLATION ON PIPE FITTINGS AND ELBOWS: INSTALL MITERED SECTIONS OF PIPE INSULATION. SECURE INSULATION MATERIALS AND SEAL SEAMS WITH ADHESIVE TO ELIMINATE OPENINGS IN INSULATION THAT ALLOW PASSAGE OF AIR TO SURFACE BEING INSULATED.

E. MINERAL-FIBER INSULATION INSTALLATION:

1. INSULATION INSTALLATION ON STRAIGHT PIPES AND TUBES: WHERE VAPOR BARRIERS ARE INDICATED, SEAL LONGITUDINAL SEAMS, END JOINTS, AND PROTRUSIONS WITH VAPOR-BARRIER MASTIC AND JOINT SEALANT.

2. FOR INSULATION WITH FACTORY-APPLIED JACKETS ON ABOVE AMBIENT SURFACES, SECURE LAPS WITH OUTWARD CLINCHED STAPLES AT 6 INCHES O.C.

3. FOR INSULATION WITH FACTORY-APPLIED JACKETS ON BELOW AMBIENT SURFACES, DO NOT STAPLE LONGITUDINAL TABS BUT SECURE TABS WITH ADDITIONAL ADHESIVE AS RECOMMENDED BY INSULATION MATERIAL MANUFACTURER AND SEAL WITH VAPOR-BARRIER MASTIC AND FLASHING SEALANT.

4. BLANKET INSULATION INSTALLATION ON DUCTS AND PLENUMS: SECURE WITH ADHESIVE AND INSULATION PINS.

5. FOR DUCTS AND PLENUMS WITH SURFACE TEMPERATURES BELOW AMBIENT, INSTALL A CONTINUOUS UNBROKEN VAPOR BARRIER.

F. PLENUMS AND DUCTS REQUIRING INSULATION:

1. CONCEALED SUPPLY AIR.

2. CONCEALED AND EXPOSED OUTDOOR AIR.

3. CONCEALED AND EXPOSED RETURN AIR LOCATED IN NONCONDITIONED SPACE.

4. EXPOSED EXHAUST AIR.

3.2 DUCT AND PLENUM INSULATION SCHEDULE
RETAIN " ONE OF" OPTION IN PARAGRAPHS IN THIS ARTICLE TO ALLOW CONTRACTOR TO SELECT PIPING MATERIALS FROM THOSE RETAINED.

A. CONCEALED DUCT INSULATION SHALL BE 1-1/2" THICK MINERAL-FIBER BLANKET WITH A 1.5-LB/CU. FT. NOMINAL DENSITY.

3.3 HVAC PIPING INSULATION SCHEDULE

A. CONDENSATE PIPING: INSULATION SHALL BE 1" THICK FLEXIBLE ELASTOMERIC.

B. REFRIGERANT PIPING: INSULATION SHALL BE 1" THICK FLEXIBLE ELASTOMERIC.

END OF SECTION

SECTION 232300 - REFRIGERANT PIPING

PART 2 - PRODUCTS

2.1 TUBES AND FITTINGS

A. COPPER TUBE: ASTM B 88, TYPE K OR TYPE L, ANNEALED OR DRAWN-TEMPER TUBING AND WROUGHT-COPPER FITTINGS WITH BRAZED OR SOLDERED JOINTS.

B. WROUGHT-COPPER FITTINGS AND UNIONS: ASME B16.22.

C. SOLDER FILLER METALS: ASTM B 32. USE 95-5 TIN ANTIMONY OR ALLOY HB SOLDER TO JOIN COPPER SOCKET FITTINGS ON COPPER PIPE.

D. BRAZING FILLER METALS: AWS A5.8.

2.2 VALVES AND SPECIALTIES

A. AS REQUIRED BY THE KITCHEN EQUIPMENT MANUFACTURER.

PART 3 - EXECUTION

3.1 INSTALLATION

A. INSTALL REFRIGERANT PIPING AND CHARGE WITH REFRIGERANT ACCORDING TO ASHRAE 15.

B. INSTALL REFRIGERANT PIPING AS REQUIRED BY THE KITCHEN EQUIPMENT MANUFACTURER.

END OF SECTION

SECTION 233100 - HVAC DUCTS AND CASINGS

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."

B. STRUCTURAL PERFORMANCE: DUCT HANGERS AND SUPPORTS SHALL WITHSTAND THE EFFECTS OF GRAVITY LOADS AND STRESSES WITHIN LIMITS AND UNDER CONDITIONS DESCRIBED IN SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE".

C. COMPLY WITH NFPA 96 FOR DUCTS CONNECTED TO COMMERCIAL KITCHEN HOODS.

2.2 DUCTS

A. ELECTROGALVANIZED-STEEL SHEET: ASTM A 879

1. PAINTLOK/PAINTLOCK OR EQUAL.

B. GENERAL DUCTWORK SHALL BE GALVANIZED STEEL, ASTM A653/A635M, CONSTRUCTED TO THE GAUGE AND CORRESPONDING REINFORCING SCHEDULE AS INDICATED IN THE LATEST EDITION OF SMACNA.

C. TYPE 1 KITCHEN EXHAUST DUCTWORK

1. FACTORY-BUILT COMMERCIAL KITCHEN GREASE DUCT:

a. ALL REDUCED CLEARANCE, ROUND, DOUBLE-WALL GREASE DUCT AS SPECIFIED MEETING UL 1978 REQUIREMENTS. REFER TO KITCHEN EQUIPMENT SUPPLIER DRAWINGS FOR REQUIREMENTS.

b. DUCTWORKS AND FITTINGS FURNISHED BY OWNER FOR INSTALLATION BY THIS CONTRACTOR.

c. NO FIRE WRAP SHALL BE REQUIRED FOR THIS INSTALLATION.

D. TYPE 2 KITCHEN EXHAUST DUCTWORK: 18 GAUGE ALUMINUM OR STAINLESS STEEL. SEAMS SHALL BE CONTINUOUSLY WELDED LIQUID TIGHT.

E. JOINT AND SEAM TAPE, AND SEALANT: COMPLY WITH UL 181A. PROVIDE POLYMERIC RUBBER TYPE SEALANT FOR USE ON BOTH INTERIOR LOCATED DUCTWORK AND DUCTWORK EXPOSED TO OUTDOOR CONDITIONS. SEALER SHALL HAVE HIGH BONDING STRENGTH FOR SURE, FIRST TIME SEALING OF JOINTS IN LOW, MEDIUM, AND HIGH PRESSURE DUCT SYSTEMS. SEALER SHALL BE HIGH IN SOLID CONTENT. PROVIDE A TWO PART TAPE SEALING SYSTEM, CONSISTING OF WOVEN FIBER TAPE IMPREGNATED WITH A GYPSUM MINERAL COMPOUND, AND A MODIFIED ACRYLIC/SILICONE ACTIVATOR THAT REACTS EXOTHERMICALLY WITH THE TAPE. TWO PART TAPE SEALING SYSTEM MUST BE RATED FOR BOTH INDOOR AND OUTDOOR APPLICATION. TAPE SHALL NOT CONTAIN ASBESTOS.

F. METAL DUCT FABRICATION: COMPLY WITH SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE."

2.3 ACCESSORIES

A. VOLUME DAMPERS AND CONTROL DAMPERS: SINGLE-BLADE AND MULTIPLE OPPOSED-BLADE DAMPERS, STANDARD LEAKAGE RATING, HEAVY DUTY, AND SUITABLE FOR HORIZONTAL OR VERTICAL APPLICATIONS; FACTORY FABRICATED AND COMPLETE WITH REQUIRED HARDWARE AND ACCESSORIES.

2. ROUND VOLUME DAMPERS: PROVIDE MINIMUM 20 GAUGE GALVANIZED STEEL FRAME AND BLADES, MINIMUM 3/8" SQUARE STEEL AXLE, MOLDED SYNTHETIC BEARINGS, WITH LOCKING POSITION REGULATOR. REGULATOR SHALL BE POSITIONED WITH SHEET METAL BRACKET BEYOND DUCT COVERING. WHERE POSITIONING REGULATOR IS NOT ACCESSIBLE, PROVIDE COUPLING AND EXTENSION ROD WITH REGULATOR FOR CEILING OR WALL INSTALLATION, AS REQUIRED.

3. RECTANGULAR VOLUME DAMPERS: PROVIDE MINIMUM 16 GAUGE GALVANIZED STEEL CHANNEL FRAME, 16 GAUGE GALVANIZED STEEL BLADES, MINIMUM ½" HEXAGONAL AXLE, BOLDED SYNTHETIC BEARINGS, WITH 3/8" SQUARE PLATED STEEL CONTROL SHAFT. LINKAGES SHALL BE CONCEALED IN THE FRAME. OPERATING SHAFT SHALL EXTEND BEYOND FRAME AND DUCT TO A LOCKING QUADRANT WITH ADJUSTABLE LEVER. MAXIMUM BLADE WIDTH SHALL NOT EXCEED 6".

B. FLEXIBLE DUCT CONNECTORS: FLAME-RETARDED OR NONCOMBUSTIBLE FABRICS, COATINGS, AND ADHESIVES COMPLYING WITH UL 181, CLASS 1. CONNECTOR TO BE 30 OUNCE, NEOPRENE COATED, FIBERGLASS FABRIC.

C. FLEXIBLE DUCTS: FACTORY ASSEMBLED, UL 181, CLASS 1, WITH 1-1/2-INCH THICK (R-5 MIN.), 1 PCF FIBERGLASS INSULATION AND REINFORCED OUTER PROTECTIVE COVER/VAPOR BARRIER. FLEXIBLE DUCT SHALL MEET NFPA 90A WITH FLAME SPREAD UNDER 25, SMOKE DEVELOPED UNDER 50, AND SHALL BE RATED FOR MINIMUM 2-INCH WG PRESSURE AND 0 TO 250ºF TEMPERATURE. PROVIDE SCREW-OPERATED METAL ADJUSTABLE CLAMPING DEVICES. USE TWIST-LOCK CONICAL TAP COLLARS AT CONNECTIONS INTO SHEET METAL DUCTWORK. MAXIMUM EXTENDED LENGTH OF FLEXIBLE DUCT SHALL NOT EXCEED 5 FEET.

D. TURNING VANES: PROVIDE FABRICATED TURNING VANES AND VANE RUNNERS, CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS". PROVIDE TURNING VANES CONSTRUCTED OF CURVED BLADES, SUPPORTED WITH BARS PERPENDICULAR TO BLADES, AND SET INTO SIDE STRIPS SUITABLE FOR MOUNTING IN DUCTWORK. FOLLOW SMACNA GUIDELINES FOR SPACING SUPPORT, AND CONSTRUCTION. ALL BLADES SHALL BE DOUBLE THICKNESS AIRFOIL TYPE.

E. BIRD SCREENS AND FRAMES: PROVIDE BIRD SCREENS THAT CONFORM TO ASTM E 2016, NO. 2 MESH, ALUMINUM OR STAINLESS STEEL. PROVIDE "MEDIUM-LIGHT" RATED ALUMINUM SCREENS. PROVIDE "LIGHT" RATES STAINLESS STEEL SCREENS.

F. DUCT-MOUNTED ACCESS DOORS: FABRICATE ACCESS PANELS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE"; FIGURES 2-10, "DUCT ACCESS DOORS AND PANELS," AND 2-11, "ACCESS PANELS - ROUND DUCT."

PART 3 - EXECUTION

3.1 INSTALLATION

A. INSTALL DUCTWORK, ACCESSORIES, AND SUPPORTS ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE" UNLESS OTHERWISE INDICATED.

B. SEAL DUCTS TO THE FOLLOWING SEAL CLASSES ACCORDING TO SMACNA'S "HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE": 1-INCH WG, SEAL CLASS A.

C. AVOID PASSING THROUGH OR ABOVE ELECTRICAL EQUIPMENT SPACES AND ENCLOSURES.

D. CLEAN DUCT SYSTEMS BEFORE TESTING, ADJUSTING, AND BALANCING.

3.2 DUCTWORK SCHEDULE

A. EXPOSED DUCTWORK IN ARCHITECTURALLY FINISHED SPACES- ELECTRO-GALVANIZED STEEL SHEET.

B. CONCEALED DUCTWORK AND DUCTWORK IN UNFINISHED ARCHITECTURAL SPACES- GALVANIZED STEEL.

END OF SECTION

SECTION 233423 - HVAC EXHAUST FANS

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. PRODUCTS SHALL BE LICENSED TO USE THE AMCA-CERTIFIED RATINGS SEAL.

B. EXHAUST FANS SHALL COMPLY WITH UL 705. TYPE 1 FANS SHALL ALSO COMPLY WITH UL 762.

C. TYPE 1 FANS TO BE DESIGNED FOR HIGH HEAT OPERATION AT 300°F.

D. ELECTRICAL COMPONENTS, DEVICES, AND ACCESSORIES: LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND APPLICATION.

2.2 CENTRIFUGAL VENTILATORS

A. HOUSING: REMOVABLE, SPUN-ALUMINUM, DOME TOP AND OUTLET BAFFLE; SQUARE, ONE-PIECE, ALUMINUM BASE WITH VENTURI INLET CONE.

1. UPBLAST UNITS: ALUMINUM DISCHARGE BAFFLE TO DIRECT DISCHARGE AIR UPWARD, WITH RAIN AND SNOW DRAINS.

B. FAN WHEELS: ALUMINUM HUB AND WHEEL WITH BACKWARD-INCLINED BLADES.

C. BELT-DRIVEN DRIVE ASSEMBLY: RESILIENTLY MOUNTED TO HOUSING.

1. FAN SHAFT: TURNED, GROUND, AND POLISHED STEEL; KEYED TO WHEEL HUB.

2. SHAFT BEARINGS: PERMANENTLY LUBRICATED, PERMANENTLY SEALED, SELF-ALIGNING BALL BEARINGS.

3. PULLEYS: CAST-IRON, ADJUSTABLE-PITCH MOTOR PULLEY.

4. FAN AND MOTOR ISOLATED FROM EXHAUST AIRSTREAM.

D. ACCESSORIES:

1. DISCONNECT SWITCH: NON-FUSIBLE TYPE, WITH THERMAL-OVERLOAD PROTECTION, FACTORY WIRED THROUGH AN INTERNAL ALUMINUM CONDUIT.

2. BIRD SCREENS: REMOVABLE, 1/2-INCH MESH, ALUMINUM OR BRASS WIRE.

3. DAMPERS: COUNTERBALANCED, PARALLEL-BLADE, BACKDRAFT DAMPERS MOUNTED IN CURB BASE; FACTORY SET TO CLOSE WHEN FAN STOPS.

4. MOTORIZED DAMPERS: PARALLEL-BLADE DAMPERS MOUNTED IN CURB BASE WITH ELECTRIC ACTUATOR; WIRED TO CLOSE WHEN FAN STOPS.

E. ROOF CURBS: 20 GAUGE GALVANIZED STEEL; MITERED AND WELDED CORNERS; 1-1/2-INCH THICK, RIGID, FIBERGLASS INSULATION ADHERED TO INSIDE WALLS; AND 1-1/2-INCH WOOD NAILER. SIZE AS REQUIRED TO SUIT ROOF OPENING AND FAN BASE.

1. CONFIGURATION: SELF-FLASHING WITHOUT A CANT STRIP, WITH MOUNTING FLANGE.

2. OVERALL HEIGHT: 12 INCHES FOR GENERAL EXHAUST FANS; 20 INCHES FOR KITCHEN EXHAUST FANS.

3. PITCH MOUNTING: MANUFACTURE CURB FOR ROOF SLOPE.

4. MOUNTING PEDESTAL: GALVANIZED STEEL WITH REMOVABLE ACCESS PANEL.

5. TYPE 1 ROOF CURBS TO BE VENTED TYPE.

6. TYPE 1 AND TYPE 2 ROOF CURBS TO BE HINGED TYPE.

F. CAPACITIES AND CHARACTERISTICS:

1. SEE SCHEDULE.

G. MOTORS

1. COMPLY WITH NEMA DESIGNATION, TEMPERATURE RATING, SERVICE FACTOR, ENCLOSURE TYPE, AND EFFICIENCY REQUIREMENTS FOR MOTORS.

2. MOTOR SIZES: MINIMUM SIZE AS INDICATED. IF NOT INDICATED, LARGE ENOUGH SO DRIVEN LOAD WILL NOT REQUIRE MOTOR TO OPERATE IN SERVICE FACTOR RANGE ABOVE 1.0.

3. ENCLOSURE TYPE: TOTALLY ENCLOSED, FAN COOLED.

PART 3 - EXECUTION

3.1 INSTALLATION

A. INSTALL UNITS WITH CLEARANCES FOR SERVICE AND MAINTENANCE.

B. ROOF-MOUNTED UNITS: INSTALL ROOF CURB ON ROOF STRUCTURE, ACCORDING TO ARI GUIDELINE B. INSTALL AND SECURE ROOF-MOUNTED FANS ON CURBS, AND COORDINATE ROOF PENETRATIONS AND FLASHING WITH ROOF CONSTRUCTION.

END OF SECTION

SECTION 233713 - DIFFUSERS, REGISTERS, AND GRILLES

PART 1 - GENERAL

PART 2 - PRODUCTS

2.1 DIFFUSERS, REGISTERS, AND GRILLES:

A. REFER TO SCHEDULES FOR FINISH TYPE, COLOR, MATERIAL, AND MOUNTING.

PART 3 - EXECUTION

3.1 INSTALLATION

A. INSTALL DIFFUSERS, REGISTERS, AND GRILLES LEVEL AND PLUMB.

B. CEILING-MOUNTED OUTLETS AND INLETS: DRAWINGS INDICATE GENERAL ARRANGEMENT OF DUCTS, FITTINGS, AND ACCESSORIES. MAKE FINAL LOCATIONS WHERE INDICATED, AS MUCH AS PRACTICAL. FOR UNITS INSTALLED IN LAY-IN CEILING PANELS, LOCATE UNITS IN THE CENTER OF PANEL UNLESS OTHERWISE INDICATED. WHERE ARCHITECTURAL FEATURES OR OTHER ITEMS CONFLICT WITH INSTALLATION, NOTIFY ARCHITECT FOR A DETERMINATION OF FINAL LOCATION.

C. AFTER INSTALLATION, ADJUST DIFFUSERS, REGISTERS, AND GRILLES TO AIR PATTERNS INDICATED, OR AS DIRECTED, BEFORE STARTING AIR BALANCING.

END OF SECTION

ferris+sloane

rtm engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180: www.rtmec.com

CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER:
CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL SPECIFICATIONS

SHEET:
M701

2/24/2025 11:18:51 AM

SPECIFICATIONS - DIVISION 23 - HVAC (CONTINUED)

SECTION 237339 - ELECTRIC HEATED MAKE-UP AIR UNIT

PART 2 - PRODUCTS

2.1 PACKAGED UNITS

A. FACTORY-ASSEMBLED, PREWIRED, SELF-CONTAINED UNIT CONSISTING OF CABINET, SUPPLY FAN, CONTROLS, FILTERS, AND ELECTRIC HEATER TO BE CEILING HUNG.

2.2 CABINET

A. CABINET: GALVANIZED-STEEL PANELS WITH LIFTING LUGS. HEAT-RESISTANT, BAKED-ENAMEL FINISH.

B. OUTDOOR-AIR INTAKE: EXISTING 48"X36" LOUVER WITH PLENUM BOX.

C. FILTERS: COMPLY WITH NFPA 90A; 1 INCH THICK.

2.3 SUPPLY-AIR FAN

A. FAN: CENTRIFUGAL, RATED ACCORDING TO AMCA 210; STATICALLY AND DYNAMICALLY BALANCED, GALVANIZED STEEL; MOUNTED ON SOLID-STEEL SHAFT.

B. MOTOR: TOTALLY ENCLOSED, SINGLE SPEED MOTOR.

C. DRIVE: 15" MIXED FLOW DIRECT DRIVE WITH MATCHING FAN PULLEY AND ADJUSTABLE MOTOR SHEAVES AND BELT ASSEMBLY.

2.4 ELECTRIC HEATER

A. DESCRIPTION: FACTORY ASSEMBLED AND WIRED, 460 V, 42.1 AMPERAGE, 51 F TEMPERATURE RISE, 119,455 MBH TOTAL OUTPUT HEATING CAPACITY.

B. SAFETY CONTROLS: AIRFLOW PROVING SWITCH; HIGH-TEMPERATURE LIMIT.

2.5 CONTROLS

A. FACTORY-WIRED, FUSE-PROTECTED CONTROL TRANSFORMER, CONNECTION FOR POWER SUPPLY AND FIELD-WIRED UNIT TO REMOTE CONTROL PANEL.

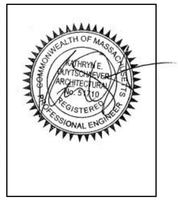
1. FAN CONTROL: INTERLOCK FAN TO START WITH EXHAUST FAN(S) AND WITH WSHP COOLING CYCLE.
2. OUTDOOR-AIR DAMPER CONTROL: OUTDOOR-AIR DAMPER OPENS WHEN SUPPLY FAN STARTS, AND CLOSES WHEN FAN STOPS.
3. TEMPERATURE CONTROL: OPERATES ELECTRIC HEATER CONTROLLER TO MAINTAIN SUPPLY-AIR TEMPERATURE.

2.6 INSTALLATION

A. DRAWINGS INDICATE THE GENERAL ARRANGEMENT OF DUCTS. CONNECT SUPPLY DUCTS TO MAU WITH FLEXIBLE DUCT CONNECTORS; FLEXIBLE DUCT CONNECTORS ARE SPECIFIED IN SECTION 233100 "HVAC DUCTS AND CASINGS."

END OF SECTION

ferris+sloane
100 N. Howard Street, Suite 4-560 Spokane, WA 99201



CAVA

CAVA #010545
330 Foley St.
Somerville, MA 02145
FOR
CAVA
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER:
CAV065

ISSUE	DATE
PERMIT	12/06/2024
IFC	02/24/2025

MECHANICAL SPECIFICATIONS

SHEET:
M702

rtm engineering consultants
2800 156th Ave SE | Suite 115 |Bellevue, WA 98007
T: 847.756.4180 www.rtmec.com

2/24/2025 11:19:00 AM