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SD SET	07.12.2024
PERMIT	08/10/24
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IFC	01/03/25

MECHANICAL GENERAL NOTES, SYMBOLS & LEGEND

SHEET:

M000



**MECHANICAL SYMBOLS LEGEND**

**ABBREVIATIONS:**

AFF	ABOVE FINISHED FLOOR
BOD	BOTTOM OF DUCT
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
DB	DRY BULB
EAT	ENTERING AIR TEMPERATURE
ESP	EXTERNAL STATIC PRESSURE
FOB	FLAT ON BOTTOM
HZ	FREQUENCY
NC	NOISE CRITERIA
PSF	POUNDS PER SQUARE INCH
RTU	ROOFTOP UNIT
TYP	TYPICAL
WC	WATER COLUMN
WB	WET BULB

**EQUIPMENT:**

	ROOF MOUNTED EXHAUST FAN
	CEILING MOUNTED EXHAUST FAN
	ROOFTOP UNIT
	MAKE-UP AIR UNIT
	TEMPERATURE SENSOR - ELECTRIC
	THERMOSTAT
	CARBON DIOXIDE SENSOR
	DUCT SMOKE DETECTOR
	HUMIDITY SENSOR
	ALDO/VISUAL REMOTE SMOKE DETECTOR ANNUNCIATOR

**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

**GENERAL REFERENCES/NOTATIONS:**

	CONNECT TO EXISTING
	NOTE DESIGNATION
	REVISION DESIGNATION
	MECHANICAL EQUIPMENT DESIGNATION
	TAS/CFM DIFFUSER DESIGNATION AND CFM

**SYMBOLS LEGEND NOTES:**

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

**SEQUENCE OF OPERATION**

- PROVIDE STAND ALONE OR APPLICATION SPECIFIC CONTROLLERS AS REQUIRED TO PERFORM THE FOLLOWING SEQUENCES OF OPERATIONS.
- PACKAGED ROOFTOP UNITS
  - UNIT SHALL CONSIST OF SUPPLY AIR FAN FILTERS, 20 COOLING COIL, GAS-FIRED HEAT SECTION, AND A 4-WAY PROGRAMMABLE THERMOSTAT.
  - PROVIDE AN OVERRIDE SWITCH TO OPERATE THE UNIT DURING UNOCCUPIED HOURS. THE SWITCH SHALL BE PART OF THE PROGRAMMABLE THERMOSTAT. OVERRIDE SWITCH ALLOWS THE UNIT TO OPERATE FOR TWO HOURS ADJUSTABLE.
  - OCCUPIED MODE. BASED ON THE ROOFTOP UNITS HOURS OF OCCUPANCY, START THE UNIT AT THE BEGINNING OF OCCUPANCY AND SHUT DOWN THE UNIT AT THE END OF OCCUPANCY (NOTE: OUTSIDE AIR DAMPER REMAINS THE RTU SHALL OPEN AND THEN THE RTU SHALL START). THE UNIT SHALL START EARLIER AS DETERMINED BY THE PROGRAM FOR EARLY WARMUP OR COOL DOWN. ON A SYSTEM STARTUP, THE RTU FAN SHALL START AND RUN CONTINUOUSLY AND THE INTERNAL FACTORY CONTROLS SHALL BE ENABLED. BASED ON THE SPACE TEMPERATURE SENSOR, THE UNIT SHALL CYCLE THE HEATING/COOLING TO MAINTAIN THE SPACE TEMPERATURE SETPOINT (COOLING TO DEGREE F, HEATING TO DEGREE F).
  - ECONOMIZER MODE. WHEN ENTHALPY OF OA IS BELOW 28 BTU/LB, ECONOMIZER MODE SHALL BE ENABLED. ECONOMIZER MODE SHALL BEARLY MODULATE OUTDOOR AIR CFM TO MINIMUM ON CFM TO 100% BASED ON ENTHALPY READINGS.
  - HUMIDITY CONTROL (WHEN NEEDED BASED ON CLIMATE). UPON DETECTION OF RELATIVE HUMIDITY ABOVE 55%, THE UNIT SHALL CYCLE INTO DEHUMIDIFICATION MODE IF NOT ALREADY IN COOLING.
  - UNOCCUPIED MODE. THE RTU INTERNAL OA DAMPERS SHALL REMAIN CLOSED WHEN THE BUILDING IS NOT OCCUPIED. THE RTU SHALL STOP HEATING/COOLING AND THE FAN SHALL STOP. IF THE SPACE TEMPERATURE FALLS BELOW 50 DEGREE F (ADJUSTABLE), THE UNIT SHALL START AND HEAT UNTIL THE SPACE TEMPERATURE IS 50 DEGREE F (ADJUSTABLE) AND THEN SHUTDOWN. IF THE SPACE TEMPERATURE RISES ABOVE 65 DEGREE F (ADJUSTABLE), THE UNIT SHALL START AND COOL UNTIL THE SPACE TEMPERATURE IS 60 DEGREE F (ADJUSTABLE) AND THEN SHUTDOWN.
  - UPON DETECTION OF SMOKE BY UNIT SMOKE DETECTOR BOTH RISERS SHALL SHUT DOWN AND ALARMS SHALL BE SENT TO THE FIRE ALARM CONTROL PANEL (WHERE APPLICABLE), LOCAL REMOTE ANNUNCIATORS SHALL ALSO BE ACTIVATED.
- KITCHEN HOOD EXHAUST FAN (K-F)
  - THE KITCHEN HOOD EXHAUST FAN SHALL BE ENABLED WHEN ANY COOKING APPLIANCE LOGS TO UNLESS ITS RESPECTIVE HOOD IS IN USE.
- MAKE UP AIR UNIT
  - THE MAKE UP AIR UNIT SHALL BE ENABLED WHEN THE KITCHEN HOOD EXHAUST FAN (K-F) IS ENABLED. THE INTERNAL MOTORIZED DAMPER WITHIN WITH SHALL OPEN AND THE FAN SHALL RUN. IF CABLES LESS THAN 60' (ADD), THE MAKE GAS-FIRED HEAT SECTION SHALL BE ENABLED TO MAINTAIN A MINIMUM OF 55°.
  - WHEN K-F IS OFF, MAKE-UP SHALL BE DEENERGIZED AND THE INTERNAL MOTORIZED DAMPER SHALL CLOSE.
- ANSUL SYSTEM ACTIVATION
  - UPON ACTIVATION OF ANSUL SYSTEM, SHUT DOWN MAKE-UP AND RTUS. PROVIDE RELAYS CONTACTS, INTERLOCKS, TRANSFORMERS AND ALL ASSOCIATED WIRING TO ACCORDING SEQUENCE. MAKE-UP IS ALREADY PREPARED TO SHUT DOWN IN HOOD CONTROL PANEL. MECHANICAL CONTRACTOR SHALL INTERLOCK RISERS TO ALSO SHUT DOWN.

**GENERAL NOTES**

- 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.
- 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 PASSES AND DROPS AS REQUIRED FOR FIELD INSTALLATION AND TRIZE COORDINATION. NOTIFY ARCHITECT OF ANY DISCREPANCIES.
- DRAWINGS FOR HVAC WORK ARE DIAGNOSTIC, 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 MANUFACTURERS STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS, PROVIDE DUCTWORK, CONNECTIONS, ACCESSORIES, OFF SETS, AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.
- 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.
- INSTALL EQUIPMENT PER MANUFACTURERS INSTRUCTIONS AND MAINTAIN MANUFACTURERS RECOMMENDED CLEARANCE.
- CONTACT LANDLORD APPROVED ROOFING CONTRACTOR TO FLASH AND SEAL RELATED ROOF PENETRATIONS TO MAINTAIN ROOFING WARRANTY.
- INSTALL EXHAUST FAN A MINIMUM OF 10 FT FROM INTAKE AIR OPENINGS.

**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' 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 DEMPAT 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 REINFORCED GASKETS, MASTICS, UNTERPUTS, OR IDENTIFIABLE SYSTEMS OR TAPES. TAPES AND MASTICS SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181 OR UL 188. 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.

**ENERGY NOTES**

- MOTORIZED DAMPERS SHALL BE INSTALLED ON ALL INTAKES AND EXHAUST OPENINGS UNLESS NOTED OTHERWISE.
- MINIMUM FAN NAMEPLATE HORSEPOWER SHALL NOT EXCEED 1.1 HP/MINUTE.
- LOAD CALCULATIONS WERE BASED ON ASHRAE 2001 FUNDAMENTALS.
- ALL PROGRAMMABLE THERMOSTATS SHALL HAVE A DEGREE DEADBAND AND SHALL HAVE 24VW CLOCK, 24 HOUR MANUAL OVERRIDE, 10 HOUR BACKUP AND SETBACK CAPABLE OF 50 DEGREES HEATING AND 45 DEGREES COOLING (EXCEPT CONTINUOUS OPERATING ZONES).
- DUCT INSULATION AS SPECIFIED WITH MINIMUM VALUES AS FOLLOWS:  
 a. R-4 SUPPLY AND RETURN DUCT INSULATION IN UNCONDITIONED SPACES.  
 b. R-2 SUPPLY AND RETURN DUCT INSULATION FOR EXTERIOR DUCTS.  
 c. R-6 SUPPLY AND RETURN DUCT INSULATION UNDERGROUND.  
 d. 1" INTERNAL LINER ON DUCTS WITH INDIRECTLY CONDITIONED PLENUM SPACES.
- ALL DUCTWORK SHALL BE SEALED PRESSURE SENSITIVE TAPE IS NOT USED AS THE PRIMARY SEALANT. LONGITUDINAL AND TRANSVERSE SEAMS FOR DUCT IN UNCONDITIONED SPACES AND WALL PENETRATIONS, TRANSVERSE SEAMS ON BURIED DUCTS.
- ALL MOTORS SHALL MEET THE REQUIREMENTS OF IECC CLASS 1.
- PROVIDE COMMISSIONING PERIECC CR18.

**APPLICABLE CODES**

AS ADOPTED BY THE CITY OF BEVERLY, MASSACHUSETTS  
 015 INTERNATIONAL MECHANICAL CODE  
 015 INTERNATIONAL PLUMBING CODE  
 015 INTERNATIONAL BUILDING CODE  
 015 INTERNATIONAL FIRE CODE  
 201 INTERNATIONAL ENERGY CONSERVATION CODE WITH STATE AMENDMENTS  
 MA BUILDING CODE 780:03R

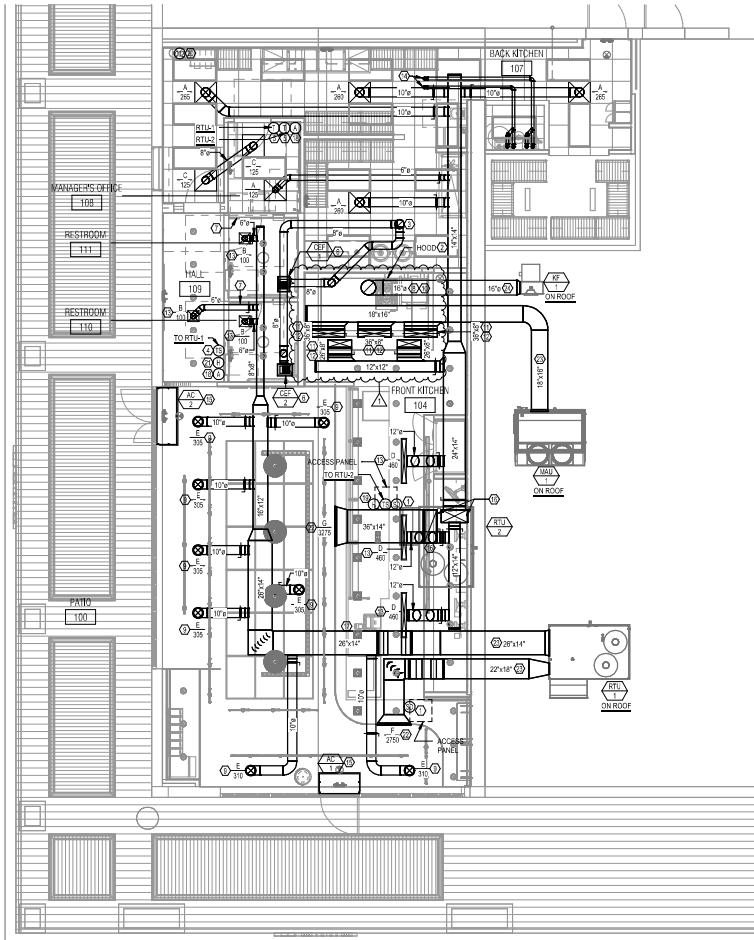
**DESIGN CRITERIA**

BASED ON ASHRAE HANDBOOK - 2021 FUNDAMENTALS

BEVERLY, MA
OUTDOOR DESIGN CONDITION
1% COOLING: 86.7/75.2°F DB/WB
99.9% HEATING: 3.9°F DB
(INDOOR DESIGN CONDITION (ADJUSTABLE))
SUMMER: 75°F DB/50% RH
WINTER: 70°F DB

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 MECHANICAL PLAN  
SCALE: 3/16" = 1'-0"



**KEYED NOTES**

- ① DUCT MOUNTED SMOKE DETECTOR FURNISHED BY FIRE ALARM CONTRACTOR AND INSTALLED BY MECHANICAL CONTRACTOR. INTERLOCK WIRING BETWEEN FIRE ALARM SYSTEM RELAY AND ROOFTOP UNIT SHUT-DOWN CONTACT SHALL BE PROVIDED BY MECHANICAL CONTRACTOR. ALL OTHER WIRING BY FIRE ALARM CONTRACTOR. UPON DETECTION OF SMOKE, ROOFTOP UNIT SHALL SHUT DOWN UPON SIGNAL FROM FIRE ALARM SYSTEM. COORDINATE INSTALLATION LOCATION WITH ACCESS REQUIREMENTS. PROVIDE 18"x18" ACCESS PANEL AS REQUIRED. COORDINATE ACCESS PANELS FINISH WITH ARCHITECT.
- ② INSTALL OWNER FURNISHED TYPE I GREASE EXHAUST HOOD. SUPPORT HOOD PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. PROVIDE TRAPeze HANGERS AND MOUNTING BRACKETS FOR ALL THREADED 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 10"Ø EXHAUST DUCT VTR.
- ④ PROVIDE REMOTE TEMPERATURE SENSOR COMPATIBLE WITH THERMOSTAT. MOUNT SENSOR 48" ABOVE FINISHED FLOOR. COORDINATE EXACT LOCATION WITH OWNER.
- ⑤ CARRIER CONNECT (M41 LC4) PROGRAMMABLE THERMOSTAT WITH AUTO-CHANGEOVER AND AUTOMATIC START CAPABILITY. MOUNT THERMOSTAT 48" ABOVE FINISHED FLOOR. COORDINATE FINAL INSTALLATION LOCATION OF THERMOSTAT WITH OWNER'S REPRESENTATIVE.
- ⑥ PROVIDE CEILING MOUNTED EXHAUST FAN TRANSITION FROM FAN DISCHARGE TO DUCT SIZE SHOWN AND EXTEND UP THROUGH ROOF.
- ⑦ UNDERCUT RESTROOM DOOR 1" FOR TRANSFER AIR.
- ⑧ DUCT UP TO EQUIPMENT ON ROOF. REFER TO SHEET M201 FOR EQUIPMENT LOCATION.
- ⑨ INSTALL BOTTOM OF ROUND SUPPLY DIFFUSER TO MATCH HEIGHT OF CEILING CLOUD (11'-5").
- ⑩ PROVIDE UL-221 LISTED DOUBLE-WALL GREASE DUCT EQUAL TO CAPTIVEWEAR SYSTEMS MODEL DWNR OR 32 ROUND 20 GAUGE 430 STAINLESS STEEL DUCT INSULATED WITH 1/2" 20 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 CLEANOUT. COORDINATE ROUTING OF DUCTWORK WITH OWNER'S CAPTIVEWEAR REPRESENTATIVE.
- ⑪ REFER TO HOOD DRAWINGS FOR BALANCE OF MAKEUP AIR AND CONDITIONED SUPPLY AIR.
- ⑫ PROVIDE YOUNG REGULATOR MODEL 8304DC RECTANGULAR CABLE CONTROLLED OPPOSED BLADE BALANCING DAMPER, MODEL 270-20-HEZ BROWNE CABLE CONTROL KIT, AND BOW CONTROL WIRE AND CABLES. COORDINATE INSTALLATION LOCATION WITH ARCHITECT AND MOUNT CABLE CONTROLLER IN CEILING IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ⑬ PROVIDE CABLE OPERATED BALANCING DAMPER, TYPICAL FOR BALANCING DAMPERS IN HARD CEILING APPLICATIONS.
- ⑭ EXTEND 2" COMBUSTION AIR AND FLUE IN CEILING SPACE. FIELD VERIFY EXACT ROUTING. EXTEND 2" COMBUSTION AIR AND FLUE UP TO CONCENTRIC VENT THROUGH ROOF ABOVE. COORDINATE FINAL LOCATION/HEIGHTS WITH ACTUAL SITE CONDITIONS.
- ⑮ PROVIDE AIR CURTAIN ABOVE ENTRANCE DOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- ⑯ ROUTE SUPPLY AND RETURN AIR DUCT UP THRU ROOF ABOVE AND CONNECT TO ROOFTOP UNIT. REFER TO SHEET M201 FOR CONTRIBUTION SEAL WEATHER TIGHT.
- ⑰ MOUNT DUCT TIGHT TO BOTTOM OF STRUCTURE.
- ⑱ PROVIDE AUDIO/ALARM REMOTE SMOKE DETECTOR ANNUNCIATOR WITH REMOTE KEY OPERATED RESET FOR SMOKE DETECTOR MOUNTED AT 48" AFF. ALARM ANNUNCIATOR WITH THERMOSTAT SENSOR WHERE APPLICABLE.
- ⑲ PROVIDE TEMPERATURE AND HUMIDITY SENSORS MOUNTED WITHIN RETURN DUCT FOR RTU-2. WIRE BACK TO THERMOSTAT AT MANAGERS DESK.
- ⑳ PROVIDE CO2 MEASUREMENT SPECIALISTS RAC401024 REMOTE CO2 STORAGE SAFETY ALARM OR EQUAL LISTED PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE FINAL LOCATION WITH OWNER'S REPRESENTATIVE.
- ㉑ PROVIDE REMOTE HUMIDITY SENSOR COMPATIBLE WITH THERMOSTAT. MOUNT SENSOR 48" ABOVE FINISHED FLOOR.
- ㉒ COORDINATE FINAL MOUNTING HEIGHT WITH ARCHITECT.
- ㉓ EXTERIOR DUCTWORK ROUTED ON ROOF TO HAVE A MINIMUM OF 2" INSULATION WITH WEATHER PROOF COVERING ASSEMBLY. REFER TO SPECIFICATIONS AND DETAILS FOR MORE INFORMATION. PROVIDE ROOF STRUCTURAL SUPPORTS EVERY 48" OR PER MANUFACTURER'S RECOMMENDATIONS.
- ㉔ PROVIDE CAPTIVEWEAR DOUBLE WALL GREASE DUCT RATED FOR THE OUTDOORS. INSTALL AND PROVIDE SUPPORT PER MANUFACTURER'S RECOMMENDATIONS.

**GENERAL NOTES**

- 1. CONTRACTOR SHALL PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOR AS REQUIRED TO INSTALL A COMPLETE AND OPERABLE HVAC SYSTEM THAT MEETS THE MECHANICAL SYSTEM AND AS COMPLY WITH THE SPECIFICATIONS, DETAILS, THE 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 OFFERS ARE CLEAR HEIGHT 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 INTRENCH EXHAUST HOODS OR DUCTWORK WITH ANY TYPE OF FASTENING ASSEMBLY (I.E. SCREWS, NAILS).
- 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 PAINT/POUR. SEE MECHANICAL SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- 15. COORDINATE ACCESS PANEL LOCATIONS WITH ARCHITECTURAL SHEETS.
- 16. PROVIDE GUARDS FOR ANY MECHANICAL EQUIPMENT THAT REQUIRES SERVICE ON ROOF THAT IS LOCATED WITHIN 15'-0" OF A ROOF EDGE. THE TOP OF THE GUARD SHALL BE LOCATED TO NOT LESS THAN 42" ABOVE THE ELEVATED SURFACE ADJACENT TO THE GUARD.

**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 NOT LIMITED TO CALIBRATIONS AND ECONOMIZER CONTROLS.
  - 4. CONDITIONS UNDER WHICH TESTS WILL BE PERFORMED, AT MINIMUM TESTS SHALL APPEAR 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 C407.2 OF THE INTERNATIONAL 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.

**DEMOLITION NOTES**

REMOVE ALL EXISTING MECHANICAL EQUIPMENT, DUCTWORK, HANGERS, SUPPORTS, PIPING, AND ACCESSORIES ONLY SERVING THE SPACE AND NOT INDICATED TO REMAIN ON UNSEAL ROOF. CURB CAPS WITH 18 GAUGE GALVANIZED SHEET METAL CAP, INSULATE CURB CAPS WITH 2" THICK PCF DENSITY DUCT LINER, AND SEAL WATER TIGHT. FIELD VERIFY EXISTING CONDITIONS PRIOR TO BID.

**REMODEL NOTES**

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

**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% Licensed Professional Engineer (MECHANICAL) License No. 000100

**CAVA**

CAVA #010540  
47 Dodge St.  
Beverly, MA 01915  
FOR  
CAVA  
14 Ridge Square NW #500, WASHINGTON, DC 20018

AOR PROJECT NUMBER:  
CAV058

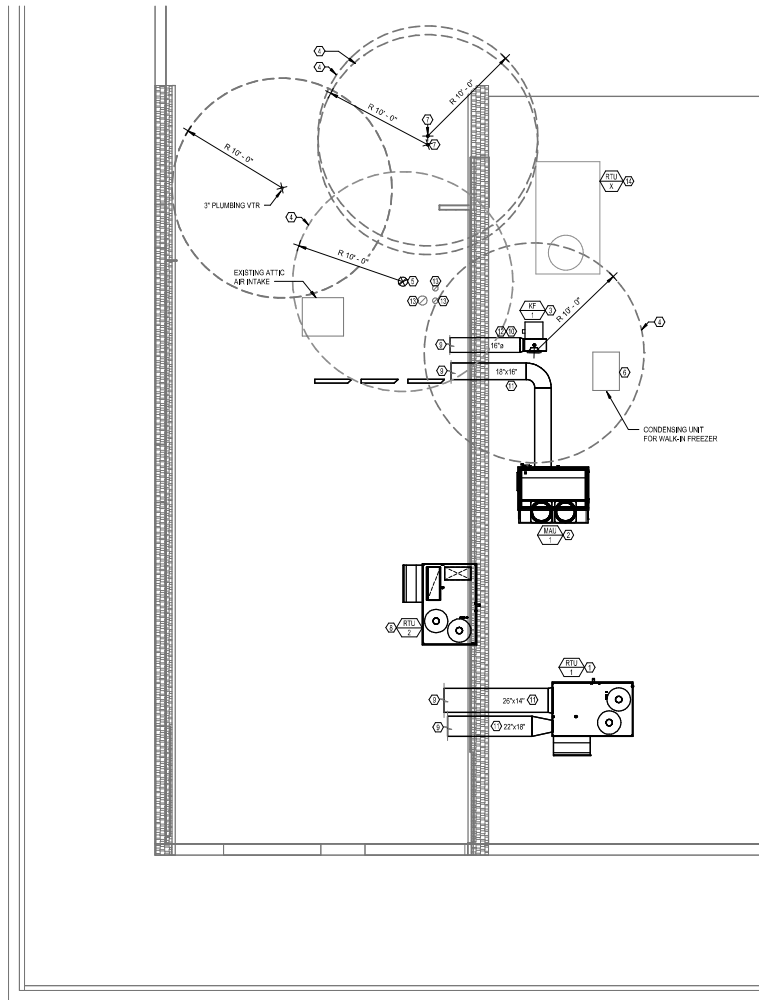
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MECHANICAL PLAN

SHEET:



**M101**



**GENERAL NOTES**

1. ALL ROOFTOP EQUIPMENT LOCATIONS SHALL BE COORDINATED WITH ROOF DRAINING. 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 RIPS 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" MINIMUM FROM ANY AIR INTAKE. EXTEND TERMINATION HEIGHT TO PROVIDE 10'-0" CROSS SECTION CLEARANCE WHERE NEEDED.
6. ANY PENETRATION THROUGH THE ROOF SHALL BE COORDINATED WITH THE ROOFING CONTRACTOR.
7. ALL STRUCTURAL DUCT OPENINGS SHALL BE APPROVED BY THE STRUCTURAL ENGINEER. PRIOR TO CUTTING, INDICATE ON 1/8" SHOP DRAWINGS EXACT LOCATION OF OPENINGS COORDINATED WITH STRUCTURAL TRACES. 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 IF PARAPET IS LOWER THAN 4" PER CODE.
9. ACCESS TO MECHANICAL APPLIANCES INSTALLED IN UNDERFLOOR 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 12" FROM A PROPERTY LINE, 10'-0" FROM A FORCED AIR INLET, AND 3'-0" FROM OPENINGS INTO BUILDINGS.
11. CONTRACTOR TO PROVIDE SIGNED AND SEALED WIND LOAD CALCULATION (AS APPLICABLE) PRIOR TO INSTALLATION OF ALL ROOF MOUNTED EQUIPMENT AND DUCTWORK.
12. PROVIDE ENGINEERED ROOF CURBS AS NEEDED. PROVIDE MINIMUM WIND LOAD CALCULATIONS WITH RECOMMENDATIONS (AS APPLICABLE).
13. PROVIDE GUARDS FOR ANY MECHANICAL EQUIPMENT THAT REQUIRES SERVICE ON ROOF THAT IS LOCATED WITHIN 10'-0" OF A ROOF EDGE. THE TOP OF THE GUARD SHALL BE LOCATED NOT LESS THAN 4'-0" ABOVE THE ELEVATED SURFACE ADJACENT TO THE GUARD.

**KEYED NOTES**

1. INSTALL OWNER FURNISHED ROOFTOP UNIT ON ENGINEERED CURB. COORDINATE WITH STRUCTURE, 3-IN UNIT AND CURB LEVEL. FOR PROPER CONDENSATE DRAINAGE, PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AND RETURN AIR DUCT CONNECTIONS.
2. INSTALL OWNER FURNISHED MAKEUP AIR UNIT AND 100% CURB. 3-IN UNIT AND CURB LEVEL. PROVIDE FLEXIBLE CONNECTORS ON THE SUPPLY AIR DUCT CONNECTION. TRANSITION TO DUCT SIZE.
3. INSTALL OWNER FURNISHED ROOF MOUNTED EXHAUST FAN AND CURB. PROVIDE CLEAN/F. ACCESS ON ANY FLOOR WHERE FITCHEN EXHAUST DUCT PASSES THROUGH. PRESTOP ALL PENETRATIONS TO MAINTAIN THE FIRE RATING OF THE ENVELOPE.
4. MAINTAIN A MINIMUM 10'-0" CLEARANCE FROM EXHAUST DISCHARGE TO OUTSIDE AIR INTAKES.
5. EXTEND 10" EXHAUST DUCT UP THROUGH ROOF. PROVIDE A ROOF JACK, STORM COLLAR, AND ALL-WEATHER CAP.
6. PROVIDE ROOF MOUNTED EQUIPMENT SUPPORT RAILS AND INSTALL OWNER FURNISHED REMOTE CONDENSING UNIT FOR MINIMUM COOLER. INSTALL REFRIGERANT LINE SET, THERMOSTATIC EXPANSION VALVE, SOLENOIDED VALVE, TEMPERATURE CONTROL, SEAT GLASS, FILTER DRIER, PRESSURE CONTROL, CRANKCASE HEATER, LOW AMBIENT CONTROL, AND WEATHER PROOF HOODING. PROVIDE ROOF RAILS TO SUPPORT CONDENSING UNIT ON ROOF. TRAP AND SLOPE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE PIPE CURB ASSEMBLY FOR ROOF PENETRATIONS. SEAL PIPING PENETRATIONS THROUGH COOLER ROOF.
7. PROVIDE WITH 1/4" MIN. GSKX000057 CONCENTRIC VENT AT TERMINATION.
8. INSTALL OWNER FURNISHED ROOFTOP UNIT ON ENGINEERED ADAPTIVE CURB. COORDINATE WITH STRUCTURE, 3-IN UNIT AND CURB LEVEL. FOR PROPER CONDENSATE DRAINAGE, PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AND RETURN AIR DUCT CONNECTIONS.
9. DUCT CONTINUATION INTO THE BUILDING. SEE M101 SHEET FOR CONTINUATION.
10. PROVIDE AND INSTALL 16" CAPTIVE-ARE DOUBLE-WALL GREASE DUCT TO FIT CHEN HOOD. INSTALL EXHAUST DUCT PER MANUFACTURER'S INSTRUCTIONS. PROVIDE CLEARANCES AT EVERY CHANGE OF DIRECTION IN THE DUCT AND/OR EVERY 10 FEET WITH A MINIMUM OF 3 FEET OF CLEARANCE IN FRONT OF CLEARANCE. COORDINATE ROUTING OF OUTDOORS WITH OWNERS CAPTIVE-ARE REPRESENTATIVE.
11. EXTERIOR DUCTWORK ROUTED ON ROOF TO HAVE A MINIMUM 2" OF INSULATION WITH WEATHER PROOF COVERING ASSEMBLY. REFER TO SPECIFICATIONS AND DETAILS FOR MORE INFORMATION. PROVIDE ROOF STRUCTURAL SUPPORTS EVERY 48" OR PER MANUFACTURER'S RECOMMENDATIONS.
12. PROVIDE CAPTIVE-ARE DOUBLE WALL GREASE DUCT RATED FOR THE OUTDOORS. INSTALL AND PROVIDE SUPPORT PER MANUFACTURER'S RECOMMENDATIONS.
13. EXISTING VENTS TO BE CAPPED.
14. EXISTING ADJACENT TENANT ROOFTOP UNIT TO REMAIN. ALL NEW EXHAUST TO MAINTAIN 10' AWAY FROM EXISTING UNIT FRESH AIR INTAKE.

**EQUIPMENT CLEARANCE NOTE**

VERIFY ALL EXISTING EXHAUST OUTLETS WITHIN 10'-0" OF OUTDOOR AIR INTAKES ARE MINIMUM 5'-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.

**ROOFTOP UNIT NOTE**

CONTRACTOR TO INSTALL OWNER FURNISHED ROOFTOP UNITS. RTU-1 TO BE 7.5 TON HORIZONTAL UNIT. CONTRACTOR TO FIELD CONVERT TO HORIZONTAL AIRFLOW AS NEEDED AND INSTALL CORRECT ECONOMIZER & POWER EXHAUST FOR THE UNIT.  
RTU-2 TO BE 10.0 TON VERTICAL UNIT. CONTRACTOR TO FIELD CONVERT TO DOWNFLOW AIRFLOW AS NEEDED AND INSTALL CORRECT ECONOMIZER & POWER EXHAUST FOR THE UNIT.

**MECHANICAL ROOF PLAN**  
SCALE: 3/16" = 1'-0"

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**ferris+sloane**  
1001 Massachusetts Ave. #1000 Boston, MA 02115

**CAVA**

CAVA #010540  
47 Dodge St.  
Beverly, MA 01915  
FOR  
CAVA  
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER:  
CAV058

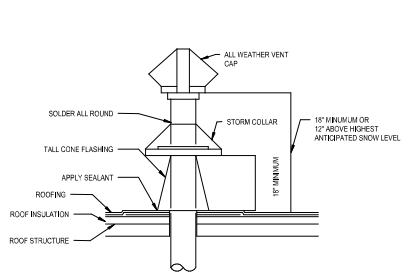
ISSUE	DATE
SD SET	07.12.2024
PERMIT	08.10.24
REB	10.04.24
IFC	01.03.25

MECHANICAL ROOF PLAN

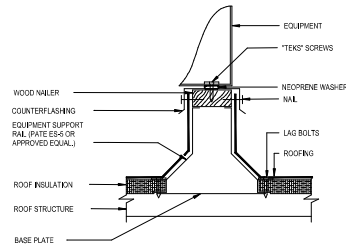
SHEET:



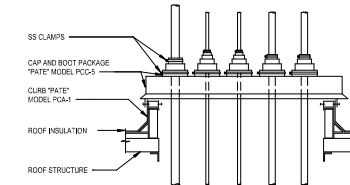
**M201**



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

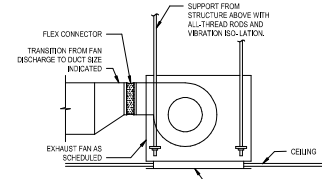


2 EQUIPMENT SUPPORT RAIL DETAIL  
SCALE: N.T.S.

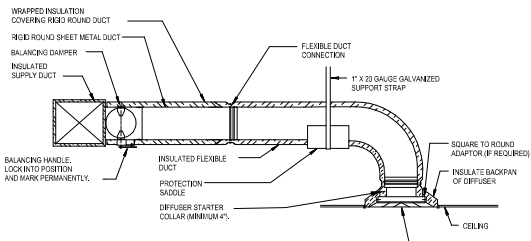


NOTES:  
1. USE SINGLE ROOF PENETRATION FOR ALL CONTROL WIRING, POWER WIRING, AND REFRIGERANT LINES.  
2. INSULATE REFRIGERANT LINES PER MANUFACTURER'S RECOMMENDATIONS.

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

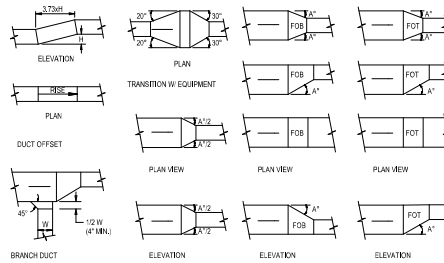


4 TYPICAL CABINET EXHAUST FAN DETAIL  
SCALE: N.T.S.



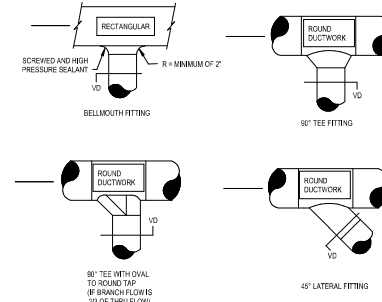
NOTES:  
1. PROVIDE AT FLEXIBLE DUCT CONNECTION METAL OR 'PANOUT' DRAWBAND ON THE INTERIOR FLEXIBLE DUCT HELIX. SECURE THE INSULATION OVER THE DRAW BAND WITH AN ADDITIONAL DRAWBAND.  
2. PROVIDE BANDING ON ROUND METAL DUCT 1/2\"/>

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

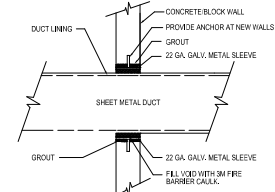


NOTES:  
1. ANGLE A = 30\"/>

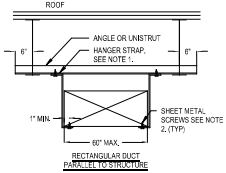
6 LOW VELOCITY DUCT FITTINGS DETAIL  
SCALE: N.T.S.



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

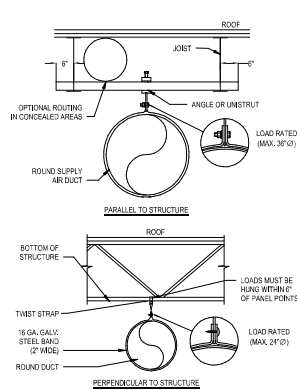


8 DUCT PASSING THROUGH WALL DETAIL  
SCALE: N.T.S.



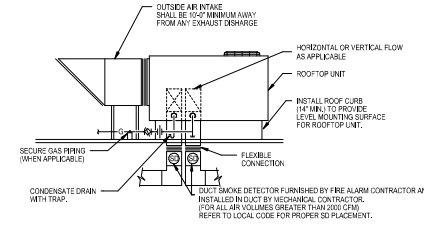
NOTE:  
1. USE THREADED ROD FOR ALL DUCTS LARGER THAN 6\"/>

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

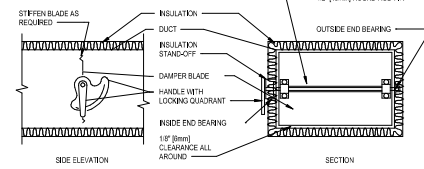


NOTE:  
1. FOR DUCTS LARGER THAN 36\"/>

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

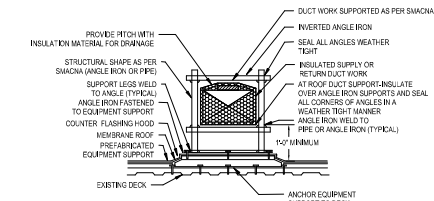


11 ROOF TOP UNIT DETAIL  
SCALE: N.T.S.

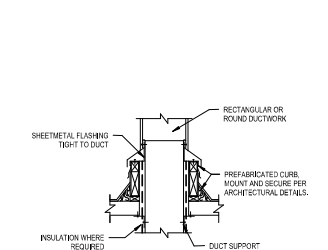


NOTE:  
1. DELETE INSULATION STAND-OFF ON DUCTWORK WITHOUT EXTERIOR INSULATION.  
2. DETAIL SHOWS SINGLE BLADE DAMPER. DAMPER INSTALLATION SHALL BE SIMILAR FOR MULTIBLADE DAMPERS & ROUND DAMPERS.

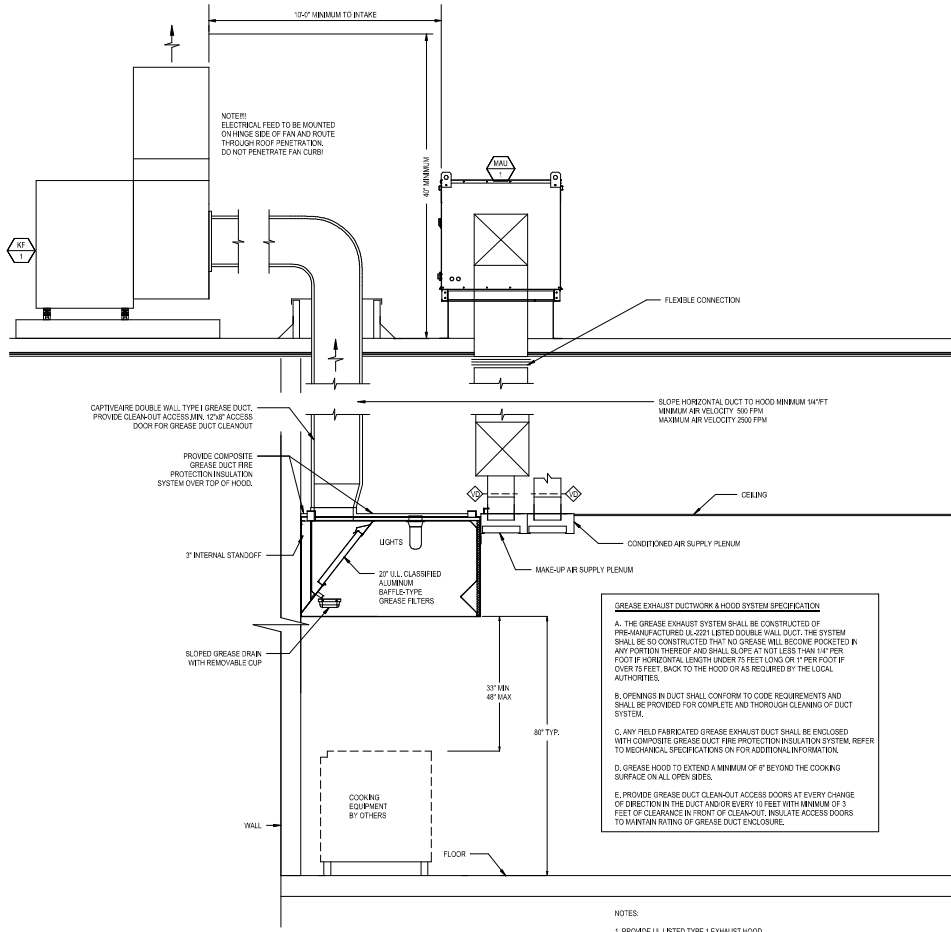
12 VOLUME DAMPER DETAIL  
SCALE: N.T.S.



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



14 DUCT PENETRATION THRU ROOF DETAIL  
SCALE: N.T.S.



NOTE:  
ELECTRICAL FEED TO BE MOUNTED  
ON HINGE SIDE OF FAN AND ROUTE  
THROUGH ROOF PENETRATION.  
DO NOT PENETRATE FAN CURB!

SLOPE HORIZONTAL DUCT TO HOOD MINIMUM 1/4" FT  
MINIMUM AIR VELOCITY 500 FPM  
MAXIMUM AIR VELOCITY 2500 FPM

**GREASE EXHAUST DUCTWORK & HOOD SYSTEM SPECIFICATION**

A. THE GREASE EXHAUST SYSTEM SHALL BE CONSTRUCTED OF PRE-MANUFACTURED UL-2211 LISTED DOUBLE WALL DUCT. THE SYSTEM SHALL BE SO CONSTRUCTED THAT NO GREASE WILL BECOME PROTECTED 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.

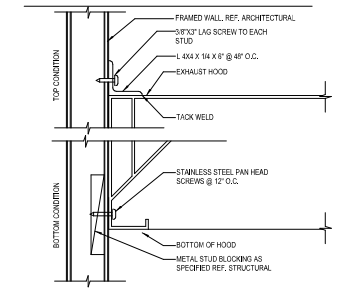
C. ANY FIELD FABRICATED GREASE EXHAUST DUCT SHALL BE ENCLOSED WITH COMPOSITE GREASE DUCT FIRE PROTECTION INSULATION SYSTEM, REFER TO MECHANICAL SPECIFICATIONS ON FOR ADDITIONAL INFORMATION.

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

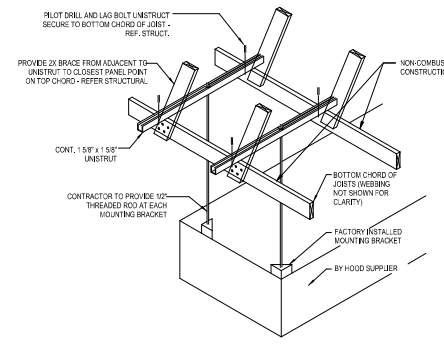
E. PROVIDE GREASE DUCT CLEANOUT ACCESS DOORS AT EVERY CHANGE OF DIRECTION IN THE DUCT AND EVERY 10 FEET WITH MINIMUM OF 3 FEET OF CLEARANCE IN FRONT OF CLEANOUT. INSULATE ACCESS DOORS TO MAINTAIN RATING OF GREASE DUCT ENCLOSURE.

- NOTES:
1. PROVIDE UL LISTED TYPE I EXHAUST HOOD.
  2. THE GREASE HOOD SHALL MEET THE REQUIREMENTS OF THE MECHANICAL CODE, NFPA AND NFPA FOR A TYPE 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.

① KITCHEN HOOD SCHEMATIC: HORIZONTAL DISCHARGE  
SCALE: N.T.S.



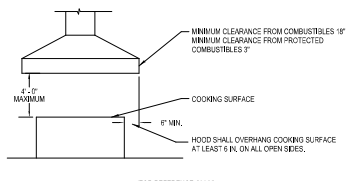
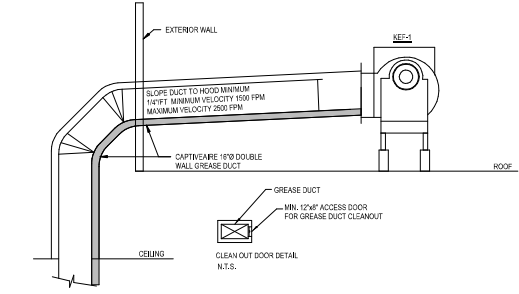
② TYPICAL HOOD CLIP AT WALL  
SCALE: N.T.S.



③ TYPICAL HOOD SUPPORT AT TRUSS  
SCALE: N.T.S.

- INFORMATIONAL GUIDE FOR COMMERCIAL COOKING HOODS
1. STAINLESS STEEL, TO BE NO. 18 U.S. GAGE.
  2. WHEN OUTLETS ARE PROVIDED THEY SHALL DRAIN TO A COLLECTING PAN WHICH IS READILY ACCESSIBLE FOR CLEANING.
  3. SEE TABLE 907.2.8 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. 10 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.



④ TYPICAL HOOD VENTILATION AND SECTION  
SCALE: N.T.S.

AOR PROJECT NUMBER: CAV058	
ISSUE	DATE
SD SET	07.12.2024
PERMIT	08.10.24
REB	10.04.24
IFC	01.03.25

MECHANICAL DETAILS

SHEET:



FOR QUESTIONS, CALL THE  
Maryland Mechanical  
REVISIONS  
PHONE (800) 900 0801  
EMAIL: md76@capvair.com

PATENT NUMBERS  
AG-PSP (UNITED STATES) - US PATENT 7963830 B2  
AG-PSP WALL (CANADA) - CA PATENT 2320200  
AG-PSP ISLAND (CANADA) - CA PATENT E260326

HOOD INFORMATION - JOB#7145305										CHIMNEY FLOOR (STAINLESS)										LICE CODE	
HOOD NO.	TAG	MODEL	MANUFACTURER	LENGTH	MAX. OPENING TEMP.	TYPE	APPLIANCE IDTY	DESIGN (1-4/1-1)	TOTAL FAN CFM	WIDTH	ENG.	HEIGHT	DIA.	CFM	VEL.	SP.	HPA CFM	AG CFM	FACE CLASSIFICATION	END TO END	HTW
1	33	8333	NO-2-CAPV-AIR	CAPTIVEAIRE	1' 7"	600	1	HEAVY	200	2317		4"	16"	2317	1659	-0.765"	1854	939	430 SS	ALONE	ALONE

HOOD INFORMATION										UTILITY CABINETS									
HOOD NO.	TAG	TYPE	QTY	LENGTH	EFFICIENCY @ 7 MINS	QTY	TYPE	WIRE GAUGE	LOCATION	SIZE	TYPE	SIZE	ELECTRICAL	SWITCHES	FIRE SYSTEM	HOOD			
1	33	CAPTRATE SOLID FILTER	8	26"	16"	85% SEE FILTER SPEC	6	LOSS SERIES E86	NO	RIGHT	12"x60"x30"	TANK FS	40/4-0	100V-111V	1 LIGHT 1 FAN	YES	1154 LBS		

HOOD OPTIONS																	
HOOD NO.	TAG	TYPE	QTY	LENGTH	EFFICIENCY @ 7 MINS	QTY	TYPE	WIRE GAUGE	LOCATION	SIZE	TYPE	SIZE	ELECTRICAL	SWITCHES	FIRE SYSTEM	HOOD	
1	33	CAPTRATE SOLID FILTER	8	26"	16"	85% SEE FILTER SPEC	6	LOSS SERIES E86	NO	RIGHT	12"x60"x30"	TANK FS	40/4-0	100V-111V	1 LIGHT 1 FAN	YES	1154 LBS

PREPARED SUPPLY FLENUMS																	
HOOD NO.	TAG	TYPE	QTY	LENGTH	EFFICIENCY @ 7 MINS	QTY	TYPE	WIRE GAUGE	LOCATION	SIZE	TYPE	SIZE	ELECTRICAL	SWITCHES	FIRE SYSTEM	HOOD	
1	33	CAPTRATE SOLID FILTER	8	26"	16"	85% SEE FILTER SPEC	6	LOSS SERIES E86	NO	RIGHT	12"x60"x30"	TANK FS	40/4-0	100V-111V	1 LIGHT 1 FAN	YES	1154 LBS

CLEARANCE TO COMBUSTIBLES		
HEIGHT	TYPE	MINIMUM CLEARANCE
10"	TOP	18"
6"	FRONT	6"
6"	BACK	6"
6"	LEFT	6"
6"	RIGHT	6"

\* 6" (3/4") MINIMUM CLEARANCE TO COMBUSTIBLES FOR EXTERIOR TO UL 181 STANDARD.  
\* HOOD MOUNTED UTILITY CABINETS REQUIRE 36" SPACING CLEARANCE.

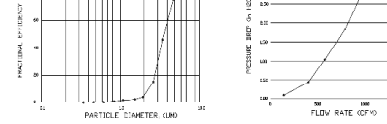
**SPECIFICATION: CAPTRATE™ GREASE-STOP® SOLID FILTER**

THE CAPTRATE GREASE STOP SOLID FILTER IS A SINGLE STAGE FILTER FEATURING A LARGE 5-BUFFLE DESIGN IN CONJUNCTION WITH A SLOTTED REAR BUFFLE DESIGN, 11 1/2" VOR-EXCEPTIONS - 11 1/2" HATI IN EFFICIENCY.

FOR USE IN STAINLESS STEEL CONSTRUCTION, AND STAY IN FULL 100% STANDARD 2-INCH DEEP HOOD CHANNELS.

UNITS SMALL (INCLUDING STAINLESS STEEL PANELS AND A FASTENING DEVICE, 1) SECURE THE UNIT COMPONENTS WITH ASSEMBLY.

DESIGN IS IDEAL FOR SPHERICAL PARTICLES 1000 MICRONS AT LEAST AND IS IDEAL FOR GREASE PARTICLES FIVE MICRONS IN SIZE AND LARGER, WITH A CORRESPONDING PRESSURE DROP NOT TO EXCEED 10 INCHES 3" WATER GAUGE. THE CAPTRATE GREASE STOP IS TESTED TO ASTM STANDARD ASTM F200-05. MANUFACTURER APPROVED FOR USE IN SOLID FUEL APPLICATIONS AS A SMOKE ARRESTER.



CAPTRATE FILTERS ARE BUILT IN COMPLIANCE WITH:  
NSF  
UL STANDARD NO. 181  
UL STANDARD NO. 181C  
INT. MECH. CODE (IMC)  
UL-C-554/49



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

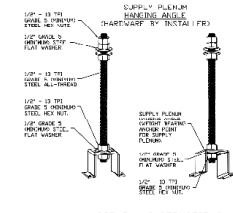
IF THE DUCT OR CHIMNEY IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 OR UL-103 HT LISTED DOUBLE WALL GREASE DUCT OR DOUBLE WALL CHIMNEY (QUA) TO CAPTIVEAIRE SYSTEMS MODEL "DW" PER PER TYPE HT, 3R, OR 3" ROUND PD GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER 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

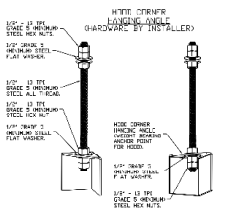
**HVAC DISTRIBUTION NOTE**  
HIGH VELOCITY DIFFUSERS OR HVAC RETURNS SHOULD NOT BE PLACED WITHIN TEN (10) FEET OF THE EXHAUST HOOD. PERFORMED DIFFUSERS ARE RECOMMENDED.

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

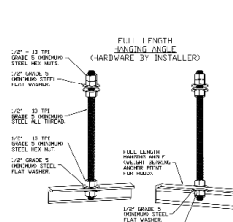
**CUSTOMER APPROVAL TO MANUFACTURE:**  
APPROVED AS NOTED   
APPROVED WITH NO EXCEPTION TAKEN   
REVISE AND RESUBMIT   
SIGNATURE \_\_\_\_\_  
YOUR TITLE \_\_\_\_\_ DATE \_\_\_\_\_



**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 PSP HANGING ANGLES. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.



**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.



**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.

**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**

NO.	DESCRIPTION	DATE
1		
2		
3		

**CAPTIVEAIRE**

Maryland Mechanical  
800 (888) 900-0801 FAX: (410) 225-2252  
100 Woodmont Avenue, Suite 200, Beltsville, MD, 20814  
www.capvair.com  
info@capvair.com

Cava, Beverly, MA R1  
47 Dodge Street,  
Beverly, MA, 01915

DATE: 11/19/2024  
DWG.#: 7145305  
DRAWN BY: JPH - 76  
SCALE: 3/4" = 1'-0"  
MASTER DRAWING

SHEET NO. 1

**ferris+sloane**

**CAVA**

CAVA #010540  
47 Dodge St.  
Beverly, MA 01915  
FOR CAVA  
14 Ridge Square NW #500, WASHINGTON, DC 20016

MECHANICAL HOOD DETAIL PLAN

SHEET: **M601**

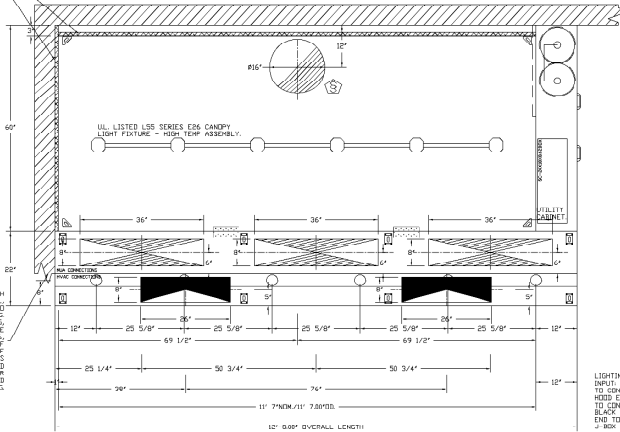
**rtm**  
engineering consultants  
200 11th St. NW, Suite 1100, Washington, DC 20004  
202-462-1100

1/3/2025 5:56:03 PM

1" LAYER OF INSULATION FACTORY  
INSTALLED IN INTERNAL SHOCK STANDOFF.  
MEETS 0 INCH REQUIREMENTS FOR  
CLEARANCE TO COMBUSTIBLE SURFACES.

1" LAYER OF INSULATION  
FACTORY INSTALLED IN  
100" END STANDOFF MEETS  
0" REQUIREMENTS CLEARANCE  
TO COMBUSTIBLE SURFACE.

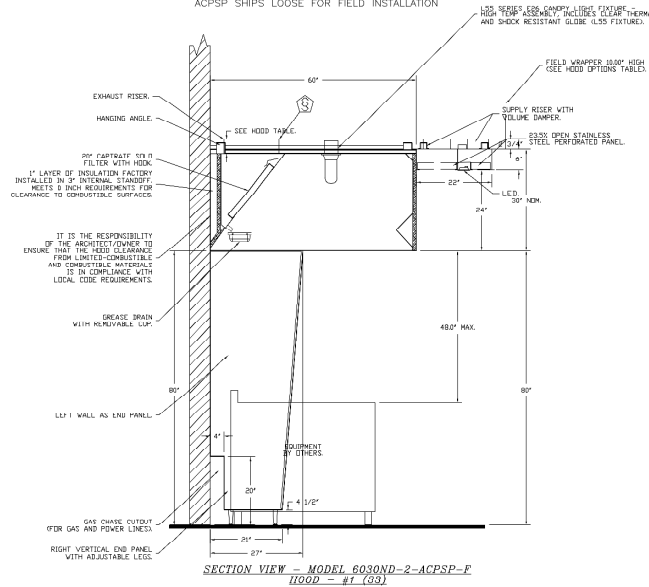
INSTALLER MUST CONFIRM HOOD IS INSTALLED SUCH  
THAT THE SPECIFIED WALL ACTING AS AN END PANEL  
IS MAILED TO THE CORNER END OF HOOD TO  
ACHIEVE A REDUCED MINIMUM EXHAUST CFM LISTING  
NON-COMPLIANCE WILL NULLIFY THE ETL LISTING.  
VOID THE MANUFACTURER'S WARRANTY, AND HOLD THE  
CONTRACTOR LIABLE FOR ANY AND ALL LOSSES, COSTS,  
AND EXPENSES RELATED TO THE NON-COMPLIANCE OF  
THE MANUFACTURER'S SUPPORTER. INTERFERE THE  
WALL ACTING AS AN END PANEL MUST EXTEND NO LESS  
THAN 20" FROM THE INTERSECTING WALL ON WHICH HOOD  
IS MOUNTED AND MUST EXTEND NO LESS THAN 25" UNDER  
BOTTOM OF HOOD TO BE CLEAR FOR REDUCED  
MINIMUM EXHAUST CFM LISTING.



LIGHTING FOR ACPSP JOB # 7145305 - HOOD #  
INPUT: 200V AC, 1 PHASE, 50/60HZ, 325 WATTS PER LIGHT.  
TO CONTROL LIGHTS WITH HOOD LIGHT SWITCH, WIRE FOR  
HOOD ELECTRICAL CONTROL PANEL SCHEMATIC  
TO CONTROL LIGHTS WITH BUILDING LIGHT SWITCH, WIRE  
BLACK AND WHITE WIRE TO A COMMON RETURN  
END TO END ACPSPS REQUIRE JOYING FIELD WIRING FROM  
A BOX TO A BOX REPLACE LIGHTS WITH LIGHTS ONLY.

PLAN VIEW - HX100 #1 (S.S.)  
11' 7.00" LONG 6030ND-2-ACPSP-F

ACPSP SHIPS LOOSE FOR FIELD INSTALLATION



SECTION VIEW - MODEL 6030ND-2-ACPSP-F  
1190D - #1 (S.S.)

**DETAIL GENERAL NOTE**  
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REFERENCE ONLY. FINAL EQUIPMENT  
MOUNTING AND EQUIPMENT STANDS ARE TO  
BE PROVIDED BY THE EQUIPMENT VENDOR OR  
CONTRACTOR.

REVISIONS

NO.	DESCRIPTION	DATE
1		
2		
3		
4		

**CAPTIVE WIRE**  
Maryland Mechanical  
810 Woodmont Avenue, Suite 120, Bethesda, MD, 20814 PHONE: (800) 886-0811 FAX: 3012725952 EMAIL: mjm@captivewire.com  
www.captivewire.com

Cava - Beverly, MA\_R1  
47 Dodge Street,  
Beverly, MA, 01915

DATE: 11/19/2024  
DWG.#: 7145305  
DRAWN BY: JPH - 76  
SCALE: 3/4" = 1'-0"  
MASTER DRAWING  
SHEET NO. 2

ferris+sloane  
1076 Lyndon Drive, Suite 400, Lowell, MA 01850

**CAVA**

CAVA #010540  
47 Dodge St.  
Beverly, MA 01915  
FOR CAVA  
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER: CAV058

ISSUE	DATE
SD SET	07.12.2024
PERMIT	08.10.24
REV	10/04/24
IFC	01/03/25

MECHANICAL HOOD DETAIL PLAN  
SHEET:  
**M602**



**FIRE SYSTEM INFORMATION - JOB#7145305**

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

**FIRE SYSTEM PARTS LIST KEY**

FIRE SYSTEM NO	TAG	KEY NUMBER - PART DESCRIPTION	QTY BY FACTORY	QTY BY DIST
0	-	TANK FIRE SUPPRESSION POST-DISCHARGE PROCEDURE UTILITY CABINET LABEL SHEET.	1	0
0	-	TANK FIRE SUPPRESSION MAINTENANCE GUIDE UTILITY CABINET LABEL SHEET.	1	0
0	-	12-F28091-32144-DT-340 DUCT FIRE THERMOSTAT WITH 12 FOOT WIRE LEADS - NO. CLOSE ON TEMP RISE AT 360°F. 6A0034300.	1	0
0	-	30" HOOD QUICK SEAL - 1/2" HOSS.	1	0
0	-	44E9K153 1/2" MALE NPT TO 1/2" FEMALE NPT ELBOW, BRASS.	2	0
0	-	44E9K422 1/2" X 1/4" BRASS REDUCING BUSHING.	1	0
0	-	79525 1/2" X 90 FWD PRESS. CLOSURE WITH 3/16" NPT FEMALE CONNECTION, VIEGA.	1	0
0	-	79590 1/2" X 1/2" FWD PRESS. TEE X 1/2" NPT FEMALE CONNECTION, VIEGA.	2	0
0	-	87-180042-001 SECONDARY ACTUATOR VALVE (SVA) - SINGLE ACTUATOR, REQUIRES PRIMARY RELEASE ACTUATOR, TANK FIRE SUPPRESSION.	1	0
0	-	87-180045-001 HOSE, SECONDARY ACTUATOR HOSE, 75' BRAIDED STAINLESS STEEL, TANK FIRE SUPPRESSION.	1	0
0	-	87-300001-001 TANK - PRESSURIZED TANK USED FOR TANK FIRE SUPPRESSION.	2	0
0	-	87-300030-001 PRIMARY ACTUATOR KIT (PAK) - ACTUATOR AND RELEASE SOLENOID ASSEMBLY, ONE REQUIRED PER FIRE SYSTEM, SUPERVISED, TANK FIRE SUPPRESSION.	1	0
0	-	87-300152-001 HARDWARE, SVA BOLTS, TANK FIRE SUPPRESSION.	8	0
0	-	90554590C PRD PRESS 1/2" PRESS X PRESS 90 ELBOW L.D.	6	0
0	-	40R720000 PRD PRESS 1/2" PRESS TEE 1.0	7	0
0	-	88694415 HARDWARE, INSTANTLOCK LOCKING BRACKET SQUARE NUTS 5/16" ZINC, TANK FIRE SUPPRESSION.	4	0
0	-	A0234232 JUNCTION BOX FOR MANUAL PULL STATION 1.5" DEEP BLACK BOX, RED COLOR.	1	0
0	-	R1484 1/4" NPT SCHWABER VALVE AND CAP, JB INDUSTRIES 1/4" FLARE X 1/4" NPT HALF UNION, USED ON TANK SERVICE PORT.	1	0
0	-	B1145 3/8" BLACK IRON 90 ELL.	3	0
0	-	DATANALOG DISCHARGE ADAPTER TANK LOCKING PLATE FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	2	0
0	-	TANK STRAP TANK STRAP - USED FOR TANK FIRE SUPPRESSION.	6	0
0	-	TFS-OUTWATERCLOSET TANK BRACKET FOR FIRE SYSTEM TANK INSTALLATION IN UTILITY CABINETS, TANK FIRE SUPPRESSION.	2	0
0	-	WK-283952-000 DISCHARGE ADAPTER, TANK FIRE SUPPRESSION.	2	0
16	-	16 - 16 - 79810 1/2" X 3/8" NPT MALE ADAPTER, VIEGA.	8	0
16	-	16 - 16 - DL-F NOZZLE APPLANCE PROTECTION APPLANCE COVERAGE NOZZLE (INCLUDES METAL BLOW OFF CAP, LANYARD, USED WITH CHROME PLATED PIPING).	8	0
26	-	26 - 26 - 02A-3/8 QUICK SEAL - 3/8" OUL.	8	0
34	-	34 - 34 - A003432Z OAVIC, 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, SINKHANDERS, 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 4" ABOVE THE TOP OF THE HOOD.
- APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.
- THIS FIRE SYSTEM COMPLIES WITH UL 300 REQUIREMENTS.
- DL-F NOZZLE PART NUMBER REPLACES 3070-2/9H-10-SS

IDR #: 7145305  
JOB NAME: CAVA - BEVERLY, MA\_R1

SYSTEM SIZE: TANK-SP-2 DESIGN FP: 37, MAXIMUM FP: 40  
HOOD # 1 11' 7/8" LONG x 60" WIDE x 30" HIGH  
RISER # 1 SIZE: 16" DIA  
HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.

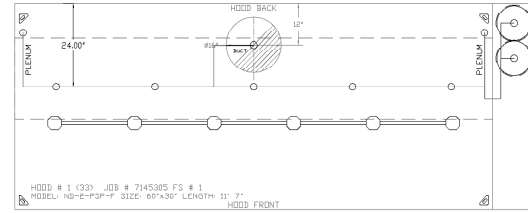
- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

AGENT DISTRIBUTION PIPING LIMITATIONS	
PIPE SECTION	MAX PIPE LENGTH (FT)
MAX SUPPLY LINE TO FIRST OVERLAPPING NOZZLE	48
OVERLAPPING NOZZLE APPLIANCE BRANCH	10
DEDICATED NOZZLE APPLIANCE BRANCH	10

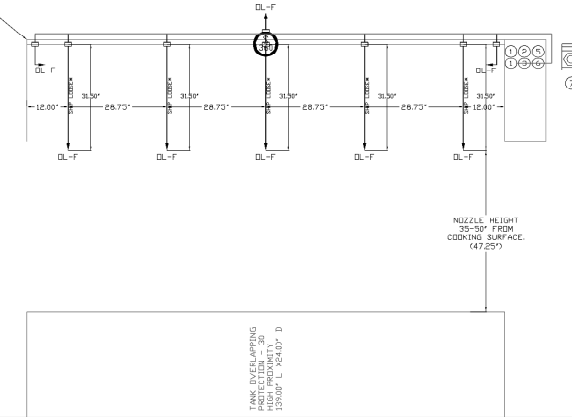
**LEGEND - FIRE CABINET TANK SYSTEM**

- 1 4 GALLON TANK.
- 2 PRIMARY ACTUATOR RELEASE.
- 3 SECONDARY ACTUATOR RELEASE.
- 4 PROFESSIONAL SUPPLY SYSTEM 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 1/2" HOUBIT, AND SYSTEM TEST. EXCLUDES UNION LABOR & PREVAILING WAGE (LABOR & WAGES WILL BE ADDED BY APPLICABLE GAS VALVE INSTALLATION), ELECTRICAL WIRING AND CONNECTIONS, HANGING OF FIRE CABINET, SHUNT TRIP, HANDHELD EXTINGUISHER(S), ON-SITE RE-PIPING DUE TO EQUIPMENT LAYOUT CHANGES.



FACTORY PIPING EXTENDS A MAXIMUM OF 4" ABOVE THE TOP OF THE HOOD.



THIS SYSTEM REQUIRES A MINIMUM OF 7 FT OF EQUIVALENT PIPE LENGTH BETWEEN THE HOOD NEAREST APPLIANCE NOZZLE FOR MOST APPLIANCES. EACH 90 DEGREE ELBOW ADDS 10 FT OF EQUIVALENT LENGTH. SEE MANUAL FOR DETAILS.

REVISIONS		
NO.	DESCRIPTION	DATE

**CAPTIVE FIRE**  
Maryland Mechanical  
815 Woodmont Avenue, Suite 201, Bethesda, MD 20814-1406 (410) 885-1881 FAX: 301-222-7255 EMAIL: mmp@captivemechanical.com

Cava - Beverly, MA\_R1  
47 Dodge Street,  
Beverly, MA, 01915

DATE: 11/19/2024  
DWG.#: 7145305

DRAWN BY: JPH - 76  
SCALE: 3/4" = 1'-0"

MASTER DRAWING

SHEET NO. 3

**DETAIL GENERAL NOTE**  
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**rtm**  
engineering consultants  
200 10th Ave, Suite 1100, New York, NY 10007  
212.693.8800

**ferris+sloane**  
10th Avenue Drive, Suite 400, Downingtown, PA 19340

**CAVA**

CAVA #010540  
47 Dodge St.  
Beverly, MA 01915  
FOR CAVA  
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER: CAV058

ISSUE	DATE
SD SET	07.12.2024
PERMIT	08.10.2024
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MECHANICAL HOOD DETAIL PLAN

SHEET: **M603**

**EXHAUST FAN INFORMATION - JOB#7145305**

FAN UNIT NO.	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	NOTES ENCL.	HP	3HP	PHASE	VOLTS	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SOLES
1	MEV-1	1	US318T1-8W	CAPTIVEAIR	2317	2100	1303	QSP PREMIUM	1.500	12420	3	288	6.6	1188 FPM	416	201

**ROAS/RTU FAN SCHEDULE - JOB#7145305**

FAN UNIT NO.	TAG	QTY	ROAS/RTU MODEL #	MANUFACTURER	BLOWER	RETURN AIR CFM	MAX. FILTERED AIR CFM	TOTAL CFM	WEIGHT (LBS)	ELECTRICAL INFORMATION										BUILDING INFORMATION										GAS FAN INFORMATION			NOTES			
										ESP	HP	PHASE	VOLTS	NCA	MOCP	DIS	WR	BR	WR	BR	WR	SP	11114	SP.A.S.	ICER	ISMRE	GAS TYPE	INPUT BTU/S	OUTPUT BTU/S	TEMP RISE	REQUIRED INPUT GAS PRESSURE	ROOM AREA (SQ FT)		AIRFLOW (CFM)	HEIGHT (FT)	
2	MJA-1	1	CA2TU-1200-15-01-MFU	CCON-AIR	15P-1	0	1054	1054	101	0.750	2.00	3	200	24.5A	20A	95.4"V	75.7"V	95.4"V	75.7"V	75.5"V	70.4"V	68.1"V	28.4 MB	28.3 MB	17.9	6.1	NATURAL	160000	136750	62°F	7 IN. W.C.	- 14 IN. W.C.	235	423	7.2	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14

**FAN NOTES:**

1. INLETTER SCROLL COMPRESSOR WITH INTEGRATED OIL SERVICE. DIGITAL 3M STABLE SCROLL NOT AN APPROVED EQUAL.
2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE.
3. INTEGRATED MONITORING AND CELLULAR CONNECTION BY MANUFACTURER.
4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE.
5. EC MOTOR CONDENSING FANS.
6. ELECTRICAL INFORMATION SUBJECT TO APPROVAL.
7. X/V NOT ACCEPTABLE.
8. Suction PUMP ACCUMULATOR.
9. FACTORY COMPRESSION WITH 5 YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER.
10. AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT).
11. 80% EFFICIENT FURNACE WITH REGULATING VALVES TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS Firing RANGE. S1 TURNDOWN WITH NG AND S4 TURNDOWN WITH LP.
12. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE.
13. 1" EXTERIOR DRAINAGE CONSTRUCTION WITH INSULATION-MODIFIED EXTERIOR WITH 3/8" BORE.
14. S1 DISCHARGE/NET RETURN.
15. WALKWAY CLEARANCE ASSUMED 7/2" SUPPLY EXHAUST HEIGHT ARE IS CALCULATED PER UL60555-2-40 4 M L.S. VALUES BASED ON FACTORY LABEL. ACTUAL SILENCE MAY BE 1-2".

**FAN OPTIONS**

FAN UNIT NO.	TAG	QTY	DESCRIPTION
1	MEV-1	1	1. BIR - INLET SERVICE BUILT CONNECTION USED TO CONNECT TO STANDARD 20" GREASE DUCT OR FIELD WELDED DUCT. INCLUDES (4) 7" RISERS BELTED TO STANDARD INLET RISER.
			1. UTILITY GFT GREASE FIB
			1. BIR - 2" DISCHARGE EXHAUSTION
			2. BIR - DISCHARGE EXHAUSTION VERTICAL UPPER LEFT - CW INLET SIDE.
			1. BIR - INLET CONNECTION STANDARD 20" FLANGE DISCHARGE BUILT.
			1. UTILITY SET - SPRING VIBRATION ISOLATORS - BIR / EQUIVALENT SIZED UTILITY SET INSTALLED UNDER USE.
			1. 5 YEAR PARTS WARRANTY.
			1. INLET PRESSURE GAUGE, 0-25"
			1. MONITORED PRESSURE GAUGE, 0 TO 20" W.C. 1 FURNACE.
			1. TOTAL CFM MONITORING.
2	MJA-1	1	1. INTAKE FIRESTAT SET TO 155°F
			1. FREEZER/STAT
			1. DISCHARGE FIRESTAT SET TO 240°F
			1. SHIP LITERS GAS S. WALKWAY 3/4"
			1. GASLINE BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED.
			1. 2" MEV-13 FILTERS FOR RTU (QTY: 4)
			1. 2" MEV-13 FILTERS FOR RTU (QTY: 4)
			1. RTU CLEW DUCT HANGERS
			1. RTU SIB DISCHARGE
			1. RTU NE RETURN - 100% DA - PFC.
2	MJA-1	1	1. R454B - 3 TON MODULATING COILING OPTION, R454B REFRIGERANT, VARIABLE SPEED COMPRESSOR, BL COIL CONDENSING FAN.
			1. KINGS LEAK DETECTOR OPTION - IN UNIT.
			1. SIZE 1 VIBRATION ISOLATOR FOR SIZE 1, 3 TON RTU NO REHEAT.
			1. SINGLE POINT ELECTRICAL CONNECTION FOR RTU, 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROL THIS UNIT, THE #28, #47, #48, OR #22 PREWIRE OPTION MUST BE SELECTED. Wires NOT PROVIDED SUPPLY STARTER BY PREWIRE.
			1. UNIT MOUNTED VFD CONFIGURED TO 30 DCV.
			1. LEAD REACTOR MOUNTED IN FAN.
			1. HEAVY FRAME INPUT.
			1. COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK - ALARM SUPPLIED BY OTHERS.
			1. 5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAREFREE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY, 5 YEAR REFRIGERANT, 25 YEARS.
			1. EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH GLECK SEAL AND ANTI-RETATION BRACKET.

**FAN ACCESSORIES**

FAN UNIT NO.	TAG	EXHAUST		SUPPLY						
		GREASE CUP	GRAVITY LAMP	WALL MOUNT	SIDE DISCHARGE	GRAVITY LAMP	PETORIZED DAMPER	WALL MOUNT		
1	MEV-1	1	1							

**CURB ASSEMBLIES**

NO.	IN FAN	TAG	WEIGHT	ITCH	SIZE
1	#1	MEV-1	50 LBS	RAL	4500" W X 4000" L X 2300" H COMES AS A SET 3" D.
2	#2	MJA-1	103 LBS	CLR	4100" W X 7000" L X 2800" H INSULATED.

**HPI SCHEDULE**

UNIT NUMBER	HPI #	HPI LOCATION	TEMP AVERAGING	MIDRISK
FAN #2	HPI #1 - UNIT	IN UNIT	NET AVERAGED	SS

REVISIONS	
NO.	DATE

**CAPTIVEAIR**  
 www.captiveair.com  
 Maryland Mechanical  
 8120 Woodmont Avenue, Suite 120, Bethesda, MD, 20814 PHONE: (400) 588-0881 FAX: (301) 270-8551 EMAIL: mmp@mmmechanical.com

Captive, MA R1  
 47 Dodge Street,  
 Beverly, MA, 01915

DATE: 11/19/2024  
 DWG.#: P1453305  
 DRAWN BY: PH - 76  
 SCALE: 3/4" = 1'-0"  
 MASTER DRAWING

AOR PROJECT NUMBER: CAV058  
 SHEET NO. 4

**ferris+sloane**  
 1000 Woodmont Drive, Suite 4000, Bethesda, MD 20814

**CAVA**

CAVA #010540  
 47 Dodge St.  
 Beverly, MA 01915  
 FOR CAVA  
 14 Ridge Square NW #500, WASHINGTON, DC 20016

ISSUE	DATE
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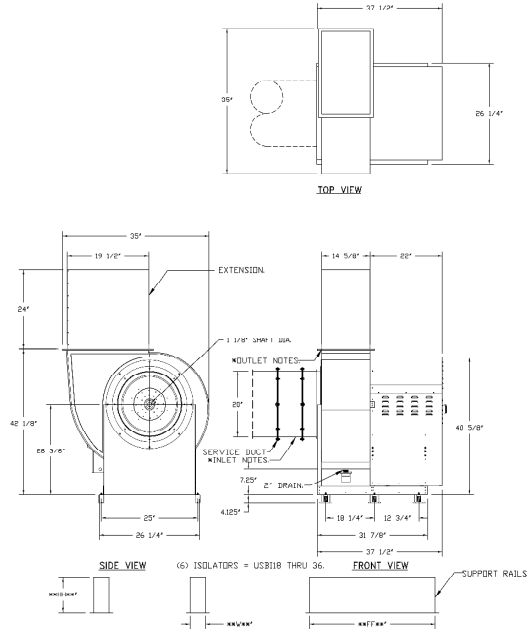
MECHANICAL HODD DETAIL PLAN  
 SHEET: M604

**DETAIL GENERAL NOTE**  
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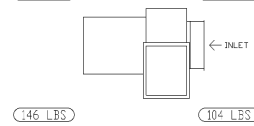
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CAN #1.43831000.01 CHUWGHT FAN SPEC 11



\* 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:



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.

**FEATURES:**

- ROOF MOUNTED FANS.
- UL705.
- UL752 AND UL-C-5645 (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**

- R118 - INLET SERVICE DUCT EXTENSION, USED TO TRANSIT TO STANDARD BY GREASE DUCT OR FIELD WELDED DUCT, INCLUDES 2" RISES.
- R119 - 10" INCHES INLET DUCT.
- UTILITY SET GREASE CUP.
- R117 - 2" AIR DISCHARGE EXTENSION.
- R1 - DISCHARGE ORIENTATION VERTICAL.
- R118 - INLET CONNECTION STANDARD 60° FLANGED GREASE DUCT.
- UTILITY SET - SPRING VIBRATION ISOLATING - R117 / EQUIVALENT SIZED UTILITY SET - INDOOR/OUTDOOR USE.
- 2" CORE PARTS WARRANTY.

REVISIONS	
REVISION	DATE

**CAPTIVE AIRFLOW**  
Maryland Mechanical  
www.captiveairflow.com  
8120 Woodmont Avenue, Suite 200, Bethesda, MD 20814 PHONE: (301) 588-7742 FAX: 719-222-5522 EMAIL: info@captivemech.com

Cava - Beverly, MA\_R1  
47 Dodge Street,  
Beverly, MA, 01915

DATE: 11/19/2024  
DWG.#: 7145305  
DRAWN BY: JPH - 76  
SCALE: 3/4" = 1'-0"  
MASTER DRAWING

SHEET NO. 5

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**ferris+sloane**  
1001 K Street, N.W., Suite 400, Washington, DC 20004

**CAVA**  
14 Ridge Square NW #500, WASHINGTON, DC 20016

CAVA #010540  
47 Dodge St.  
Beverly, MA 01915  
FOR CAVA

AOR PROJECT NUMBER: CA0558


ISSUE	DATE
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MECHANICAL HOOD DETAIL PLAN

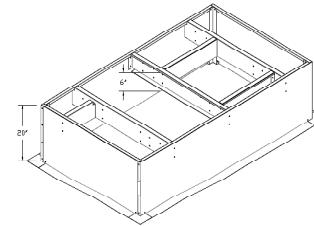
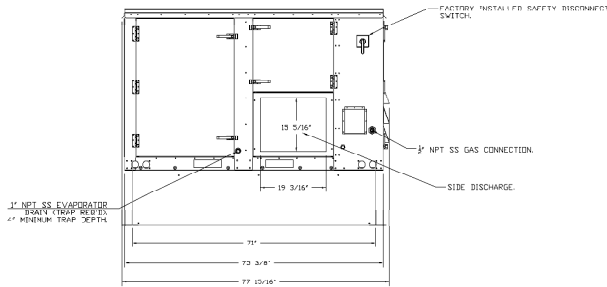
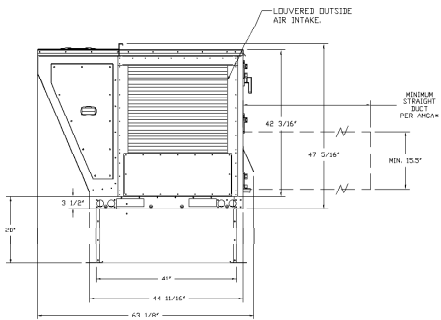
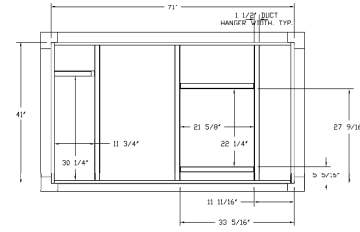
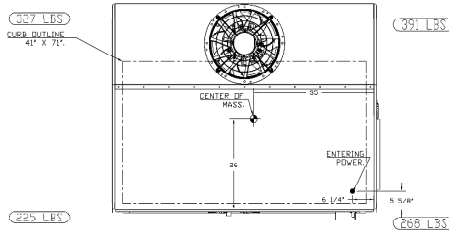
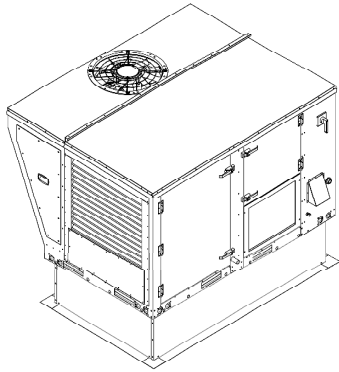
SHEET: **M605**

FAN #2 FARTU1-1,200-15-3T-MPU - HEATER (MJA-1)

NOTES:

1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
2.  DENOTES CORNER WEIGHT.
3. ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
4. CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.
5. EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET.

\*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 APCA PUBLICATION 601. 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 DRAMATICALLY 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 15" x 14.5".



REVISIONS	DESCRIPTION	DATE

**CAPTIVE**

Maryland Mechanical  
www.captiveaire.com

8111 Woodner Avenue, Suite 300, Bethesda, MD, 20814 PHONE: (301) 585-8851 FAX: 2102272861 EMAIL: info@captiveaire.com

Cava - Beverly, MA\_R1  
47 Dodge Street,  
Beverly, MA, 01915

DATE: 11/19/2024  
DWG.#: 7145000  
DRAWN BY: JPH - 76  
SCALE: 3/4" = 1'-0"  
MASTER DRAWING

SHEET NO. 6

ferris+sloane

CAVA

CAVA #010540  
47 Dodge St.  
Beverly, MA 01915  
FOR CAVA  
14 Ridge Square NW #500, WASHINGTON, DC 20016

ISSUE	DATE
SD SET	07.12.2024
PERMIT	08.10.24
REB	10.04.24
IFC	01.03.25

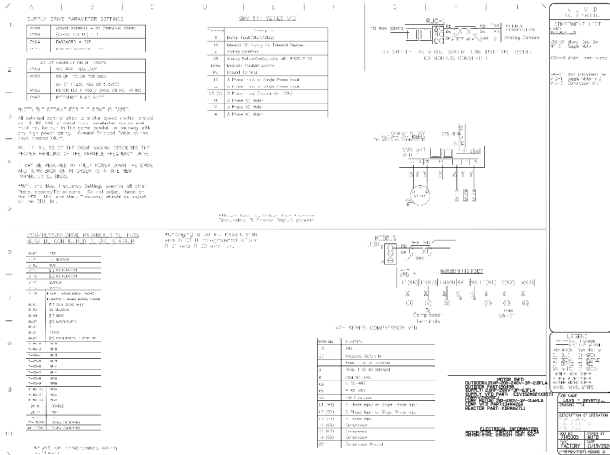
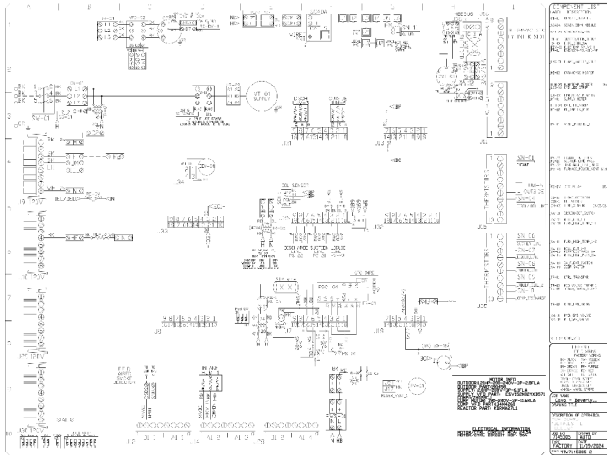
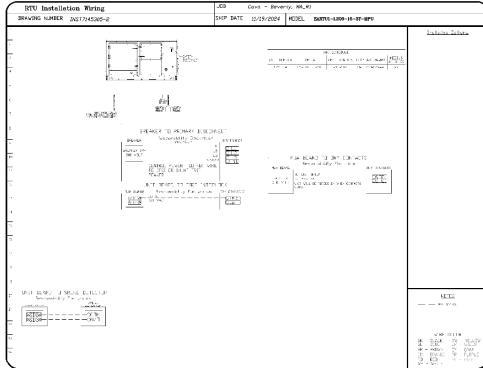
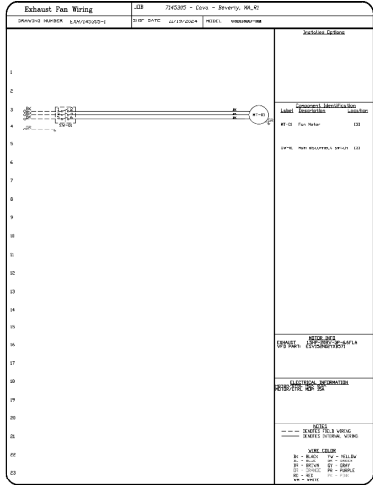
MECHANICAL HODD DETAIL PLAN

SHEET:  
M606

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.



1/3/2025 5:56:32 PM



REVISIONS	DESCRIPTION	DATE



Cava - Beverly, MA, RI  
 47 Dodge Street,  
 Beverly, MA, 01915

DATE: 11/19/2024

DWG.#: 7145305

DRAWN BY: MPH - 76

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

MASTER DRAWING

SHEET NO. 7

**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.



ferris+sloane  
1001 K Street, N.W., Suite 400, Washington, DC 20004

CAVA

CAVA #010540  
47 Dodge St.  
Beverly, MA 01915  
FOR CAVA  
14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER: CAV058

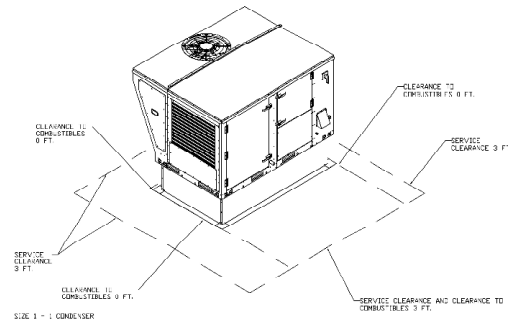
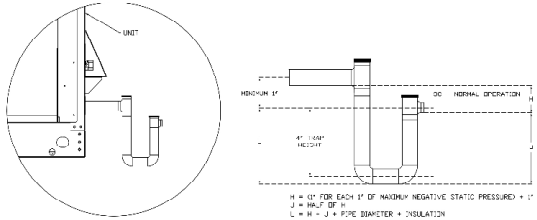
ISSUE	DATE
SD SET	07.12.2024
PERMIT	08.10.24
RED	10.04.24
IFC	01.03.25

MECHANICAL HODD DETAIL PLAN

SHEET:

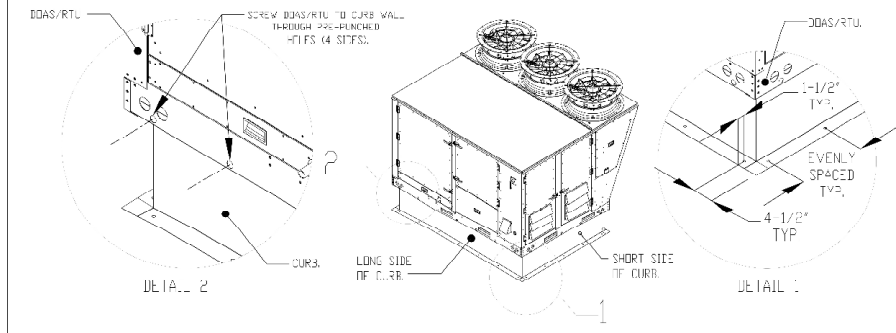
M607

RTU CONDENSATE DRAIN TRAP DETAIL



TYPICAL DDAS/RTU ROOF MOUNTING INSTALLATION INSTRUCTIONS

1. SECURE THE CURB TO THE ROOF FRAMING MEMBERS BY DRILLING 1/4" PILDOT HOLES IN THE CURB FLANGES AT LOCATIONS SHOWN IN THE DIAGRAM BELOW USING 3/8" X 2" ZINC PLATED STEEL LAG BOLTS, AND ZINC PLATED WASHERS. SCREW THROUGH THE CURB FLANGES AND INTO THE ROOF FRAMING MEMBERS. A MINIMUM OF (5) LAG BOLTS ON EACH SIDE OF CURB, AND (2) LAG BOLTS ON EACH LONG SIDE IS REQUIRED.
2. SECURE THE UNIT BASE TO THE SIDE WALLS OF THE CURB USING (2) 1/4" X 2" SELF-DRILLING, STEEL ZINC PLATED SCREWS. PRE-PUNCHED HOLES HAVE BEEN PROVIDED FOR EACH SCREW LOCATION.



**REVISIONS**

NO.	DESCRIPTION	DATE

**CAPTIVE WIRE**  
 Maryland Mechanical  
 www.captivewire.com  
 1070 Woodmont Avenue, Suite 250, Bethesda, MD 20814 PHONE: (301) 588-1881 FAX: (301) 588-1881 EMAIL: mmp@captivewire.com

Cava, Beverly, MA R1  
 47 Dodge Street,  
 Beverly, MA 01915

DATE: 11/19/2024  
 DWG.#: 7145030  
 DRAWN BY: PH - 76  
 SCALE: 3/4" = 1'-0"  
 MASTER DRAWING

SHEET NO. 8

**DETAIL GENERAL NOTE**  
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**ferris+sloane**  
 1070 Woodmont Drive, Suite 400, Bethesda, MD 20814

**CAVA**

CAVA #010540  
 47 Dodge St.  
 Beverly, MA 01915  
 FOR CAVA  
 14 Ridge Square NW #500, WASHINGTON, DC 20016

AOR PROJECT NUMBER: CAV058

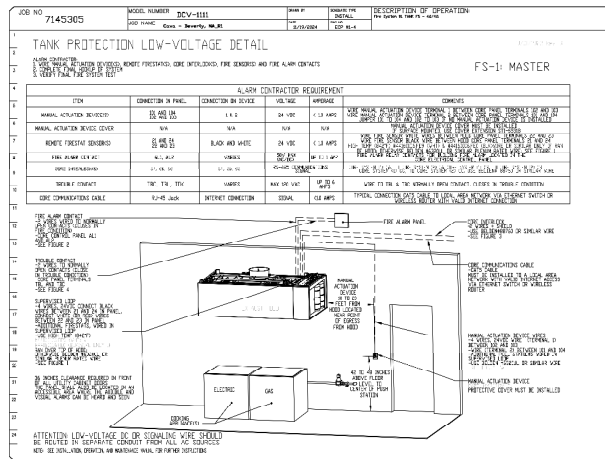
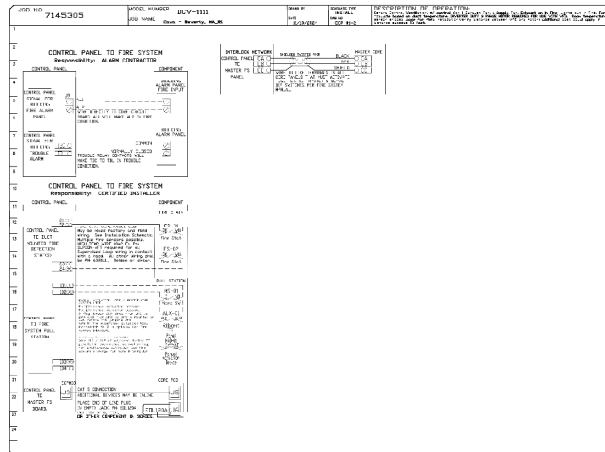
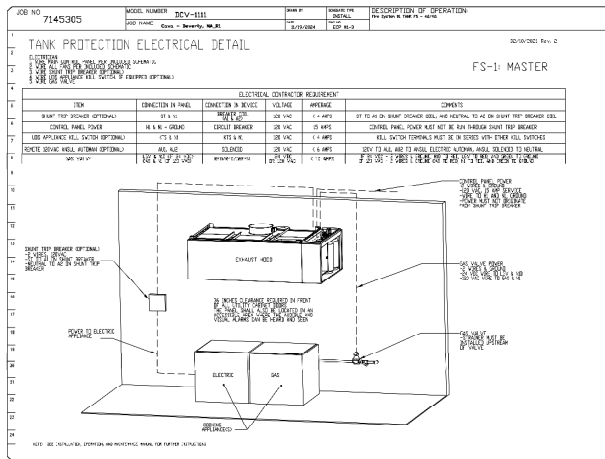
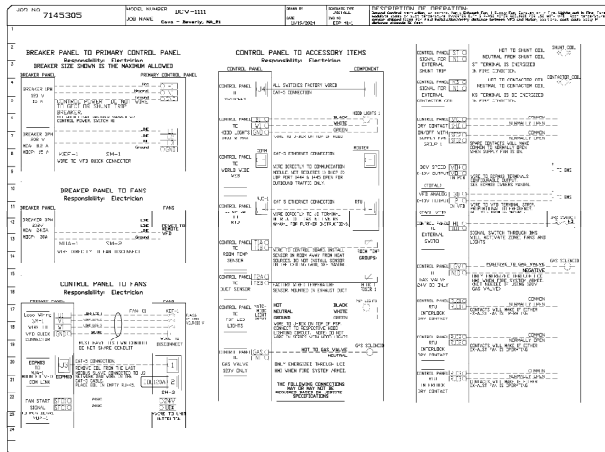
ISSUE	DATE
SD SET	07.12.2024
PERMIT	08.10.24
REVISION	10.04.24
IFC	01.03.25

MECHANICAL HOOD DETAIL PLAN

SHEET: **M608**

**ELECTRICAL PACKAGES - JOB#7143305**

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED		
				LOCATION	QUANTITY		FAN TAG	TYPE	# HP [VOLT] FLA
1		DCV-1111	UTILITY CABINET RIGHT SIDE	HOOD # 1	1 LIGHT	SMART CONTROLS DEV	KFP-1	EXHAUST	3 1500 208 6.6
							MMA-1	SUPPLY	3 2000 208 6.1



**REVISIONS**

NO.	DESCRIPTION	DATE
1		
2		
3		

**CAPTIVE**

Maryland Mechanical  
 819 Woodmont Avenue, Suite 200, Bethesda, MD, 20814  
 (301) 488-1881 FAX: 301-227-9561 EMAIL: mjm@captiveme.com

Cava - Beverly, MA, R1  
 47 Dodge Street,  
 Beverly, MA, 01915

DATE: 11/19/2024  
 DWG.#: 7145305  
 DRAWN BY: JPH - 76  
 SCALE: 3/4" = 1'-0"  
 MASTER DRAWING

SHEET NO. 9

**DETAIL GENERAL NOTE**

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**rtm**  
 engineering consultants  
 200 HOPKINS STREET, SUITE 1100, BOSTON, MA 02118  
 (617) 552-1100

**ferris+sloane**

**CAVA**

CAVA #010540  
 47 Dodge St.  
 Beverly, MA 01915  
 FOR CAVA  
 14 Ridge Square NW #500, WASHINGTON, DC 20016

Mechanical Hood Detail Plan

**M609**