

SHEET NUMBER	SHEET NAME
M001	MECHANICAL ABBREVIATIONS & SYMBOLS
M101	MECHANICAL FLOOR PLAN
M102	MECHANICAL REFRIGERATION PIPING AND LAYOUT PLAN
M150	MECHANICAL ROOF PLAN
M501	MECHANICAL DETAILS
M502	MECHANICAL DETAILS
M590	MECHANICAL SPECIFICATIONS
M591	MECHANICAL SPECIFICATIONS
M592	MECHANICAL SPECIFICATIONS
M601	MECHANICAL SCHEDULES
M701	CAPTIVEAIRE DRAWINGS
M702	CAPTIVEAIRE DRAWINGS
M703	CAPTIVEAIRE DRAWINGS
M704	CAPTIVEAIRE DRAWINGS
M705	CAPTIVEAIRE DRAWINGS
M706	CAPTIVEAIRE DRAWINGS
M707	CAPTIVEAIRE DRAWINGS

### RESPONSIBILITY MATRIX

DESCRIPTION	FURNISHED			INSTALLED			REMARKS
	GENERAL CONTRACTOR	OWNER	LANDLORD	GENERAL CONTRACTOR	OWNER	LANDLORD	
<b>DIVISION 23: HEATING, VENTILATING, AND AIR CONDITIONING</b>							
<b>23.1 HVAC DUCTWORK AND PIPING IDENTIFICATION</b>							
23.1.1 HVAC DUCTWORK SYSTEM IDENTIFICATION	X			X			
23.1.2 PIPING SYSTEM IDENTIFICATION	X			X			
23.1.3 UTILITY SHUT OFF IDENTIFICATION IN KITCHEN	X			X			
23.1.4 VALVE TAGS AND CHART	X			X			
23.1.5 HVAC DAMPER IDENTIFICATION	X			X			
<b>23.2 ROOF CURBS</b>							
23.2.1 EXHAUST FAN CURBS	X			X			GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE RIGGING, CURBS, AND ACCESSORIES
23.2.2 ROOFTOP UNIT CURBS	X			X			GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE RIGGING, CURBS, AND ACCESSORIES
23.2.3 CONDENSING UNIT CURBS	X			X			GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE RIGGING, CURBS, AND ACCESSORIES
23.2.4 MAKE UP AIR AND DOAS UNIT CURBS		X		X			GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE RIGGING, CURBS, AND ACCESSORIES
23.2.5 KITCHEN EXHAUST FAN CURBS	X			X			GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE RIGGING, CURBS, AND ACCESSORIES
<b>23.3 HVAC DUCTWORK SYSTEM COMPONENTS</b>							
23.3.1 HVAC DUCTWORK	X			X			
23.3.2 INSULATION AND FIRE WRAP	X			X			GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE TENANT FIT OUT FROM LANDLORD POINT OF CONNECTION
23.3.3 DAMPERS	X			X			
23.3.4 SMOKE DETECTORS	X			X			
23.3.5 SUPPLY, RETURN, AND EXHAUST GRILLS AND REGISTERS	X			X			
<b>23.4 MECHANICAL PIPING SYSTEM COMPONENTS</b>							
23.4.1 WALK-IN COOLER AND FREEZER REFRIGERATION		X			X		WALK-IN COOLER AND FREEZER SUPPLIED BY VENDOR NO. 103 GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE PIPING INSTALLATION AND FINAL CONNECTION
23.4.2 REFRIGERATION FOR OTHER HVAC EQUIPMENT		X			X		
23.4.3 CHILLED WATER			X			X	
23.4.4 CONDENSER WATER			X			X	
23.4.5 HEATING HOT WATER			X			X	
23.4.6 VALVES AND ACCESSORIES (E.G. AIR VENTS)	X			X			
<b>23.5 HVAC EQUIPMENT</b>							
23.5.1 SUPPLY FAN	X			X			GENERAL CONTRACTOR SCOPE OF WORK TO INCLUDE RIGGING FOR ALL ROOFTOP EQUIPMENT
23.5.2 TOILET EXHAUST FAN	X			X			
23.5.3 KITCHEN EXHAUST FAN	X	X		X			SUPPLIED BY VENDOR NO. 102
23.5.4 DUCTED AND NON-DUCTED HEATING AND COOLING UNITS	X			X			
23.5.5 MAKE UP AIR AND DOAS UNITS		X		X			SUPPLIED BY VENDOR NO. 102
23.5.6 ELECTRIC PATIO HEATERS	X			X			
23.5.7 HVAC CONDENSING UNITS	X			X			
23.5.8 REFRIGERATION CONDENSING UNITS		X		X			
23.5.9 RGF PHI SYSTEM	X			X			GENERAL CONTRACTOR TO PURCHASE FROM VENDOR NO. 7 VENDOR SUBSTITUTION IS NOT PERMITTED
<b>23.6 KITCHEN EXHAUST WITH FIRE SUPPRESSION SYSTEM</b>							
23.6.1 HOOD CONTROL PANEL		X		X			SUPPLIED BY VENDOR NO. 102
23.6.2 KITCHEN EXHAUST HOOD		X		X			SUPPLIED BY VENDOR NO. 102
23.6.3 STRUCTURAL SUPPORT	X			X			
23.6.4 ELECTRICAL AND CONTROL WIRING	X			X			
23.6.5 ANSUL OR TANK FIRE SUPPRESSION SYSTEM		X		X			SUPPLIED BY VENDOR NO. 102 GENERAL CONTRACTOR TO COORDINATE AND FACILITATE SYSTEM SIGN-OFF
23.6.6 ANSUL OR TANK WIRING AND UTILITIES CONNECTION	X			X			
23.6.7 ANSUL OR TANK GAS VALVE		X		X			SUPPLIED BY VENDOR NO. 102
<b>23.7 COMMISSIONING ACTIVITIES</b>							
23.7.1 GREASE EXHAUST WATER LEAKAGE TEST	X			X			GENERAL CONTRACTOR TO PURCHASE FROM VENDOR NO. 6 VENDOR SUBSTITUTION IS NOT PERMITTED
23.7.2 TESTING AIR BALANCE (TAB) REPORT	X			X			GENERAL CONTRACTOR TO PURCHASE FROM VENDOR NO. 7 VENDOR SUBSTITUTION IS NOT PERMITTED

### SYMBOLS

#### HEATING - VENTILATING - AIR CONDITIONING

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	STEAM (LOW PRESSURE)		AUTOMATIC CONTROL VALVE		SUPPLY OR FRESH AIR DUCT
	STEAM (MEDIUM PRESSURE)		PRESSURE REGULATING VALVE (PRV)		RETURN OR EXHAUST DUCT
	STEAM (HIGH PRESSURE)		SAFETY RELIEF VALVE		FAN OR EA
	CONDENSATE (LOW PRESSURE)		BLOW OFF VALVE		SOUND TRAP
	CONDENSATE (MEDIUM PRESSURE)		P AND T TRAP (LWP, #/RR)		SUPPLY REGISTER OR GRILLE (R OR G)
	CONDENSATE (HIGH PRESSURE)		THERMOSTATIC TRAP		RETURN REGISTER OR GRILLE (R OR G)
	HOT WATER SUPPLY (HEATING)		STATIC PRESSURE		FRESH AIR INTAKE (FA)
	HOT WATER RETURN (HEATING)		CIRCUIT SETTER FLOW CONTROL VALVE		ROUND CEILING DIFFUSER (SUPPLY)
	ETHYLENE GLYCOL SUPPLY		AIR RELEASER VALVE (RADIANT PANEL)		ROUND CEILING DIFFUSER (SUPPLY AND RETURN)
	ETHYLENE GLYCOL RETURN		AIR ELIMINATOR		SQUARE CEILING DIFFUSER (SUPPLY)
	CHILLED WATER SUPPLY		AUTOMATIC BALANCING VALVE		SQUARE CEILING DIFFUSER (SUPPLY AND RETURN)
	CHILLED WATER RETURN		SOLENOID VALVE (REFRIGERANT)		SQUARE CEILING DIFFUSER (THREE WAY THROW)
	CONDENSATE TO ROOM DRAIN DISCHARGE		THERMOSTATIC EXPANSION VALVE (TEV)		ROUND DUCT REGISTER
	HUMIDIFICATION LINE		FAN COIL UNIT AND MARK		UNIT HEATER-PROPELLER TYPE & MARK
	FUEL OIL SUPPLY		CABINET UNIT HEATER & MARK		FIRE TUBE, MARK, AND CAPACITY
	FUEL OIL RETURN		FIRE DAMPER		UNIT VENTILATOR AND MARK
	GAS LINE		FIRE AND SMOKE DAMPER		ELECTRICAL AP DUCT
	REFRIGERANT LIQUID LINE		BASEBOARD DIFFUSER		ROUND DUCT
	REFRIGERANT SUCTION LINE		HEATING RISER NUMBER		CONVAIR CONNECTION
	CONDENSER WATER		EXHAUST FAN RISER NUMBER		VOLUME DAMPER (ELEV AND PLAN)
	BOILER BLOW OFF		TURNING VANES		EXTRACTOR
	EXHAUST STEAM		THERMOSTAT		
	CONCENTRIC REDUCER				
	ECCENTRIC REDUCER				
	UNIONS				
	STRAINERS				
	EXPANSION JOINT				
	THERMOMETER				
	PRESSURE GAGE				

NOT ALL ITEMS SHOWN WITHIN THE SYMBOLS LEGENDS ARE USED WITHIN THE DRAWINGS.

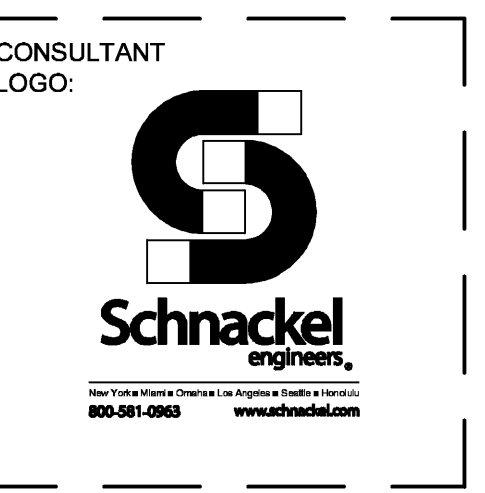
### SUBMITTAL MATRIX

GENERAL CONTRACTORS TO ALSO REVIEW ARCHITECTURAL SPECIFICATIONS AS NOTED IN PLANS IN PLAN SECTION 700 OF THE ARCHITECTURAL PACKAGE FOR REQUIRED SUBMITTALS THAT MIGHT NOT BE LISTED BELOW.

SUBMITTAL DESCRIPTION	Required Review Time (Business Days)	Product of Project	Shake Shack	Physical Sample Required	Submitted for Record
Anchor Bolts Shops	5	X			X
ATAS-Detailed Shop DWGS (Submitted by Owner Vendor to Owner/AOR prior to const.)	5	X			X
Concrete Mix Design	5	X			X
Construction Prefunctional Checklists	5	X			X
Decorative Metal Shop Drawings	5	X			X
Diffusers, Grills & Registers	5	X			X
Doors, Frames & Hardware	7	X			X
Ductwork Layout (if there are significant changes in field)	5	X			X
Electrical Distribution Equipment	5	X			X
Elevator & Vertical Transportation Shop Drawings	5	X			X
Epoxy Floor	5	X			X
Fire Alarm Shop Drawings & Device Cut Sheets	5	X			X
Fire Sprinkler Shop Drawings, Hydraulic Calculations & Device Cut Sheets	5	X			X
HVAC Equipment (if Carrier - Submitted by Owner Vendor to Owner/AOR prior to const.)	5	X			X
Light Fixtures (Submitted by Owner Vendor to Owner/AOR prior to construction)	5	X			X
M&P Tests, Start-Up, and Programming Reports	5	X			X
Millwork - Material Submittals (if differs from spec)	5	X	X	X	
Millwork - Shop Drawings (custom items & design features only)	5	X			
Restroom Partitions	5	X			X
Plumbing Fixtures	5	X			X
Rolling Shop Drawings	5	X			X
Rebar	5	X			X
Stair Shop Drawings	5	X			X
Structural Steel Shop Drawings	7	X			X
Storefront - product data Submittal (if different from specified)	5	X			
Storefront - Shop Drawings	5	X			
Tile (if differs from spec)	5	X			X
Window Film	5	X			



ZEBRA ARCHITECTURE, PLLC  
14614 N KIERLAND BLVD., SUITE N300  
SCOTTSDALE, ARIZONA 85254  
PHONE: 480.912.1169 zbrglobal



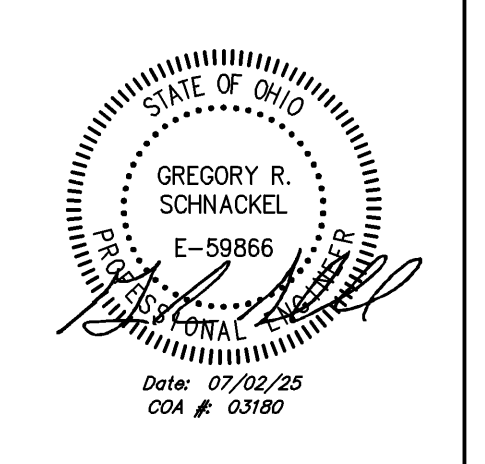
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**OH #1723**

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PERRYSBURG, OH 43051

### REVISIONS

NO.	DATE	DESCRIPTION
A	05/21/25	REVISION A
B	06/02/25	REVISION B
C	06/25/25	REVISION C
D	07/02/25	REVISION D

STATUS: IFC SET



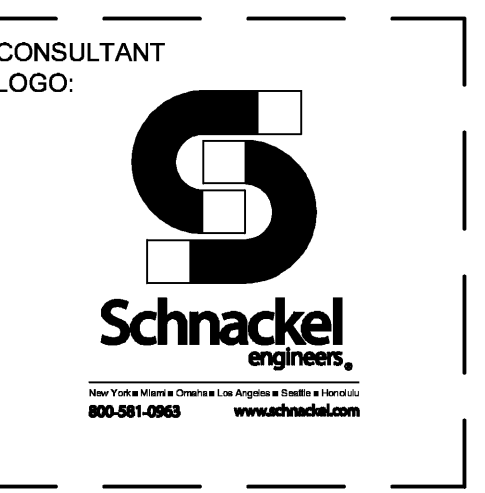
FIELD VERIFICATION:  
The Contractor shall verify all physical dimensions and conditions on the project site and notify Zebra Architecture, PLLC of any discrepancies immediately. Discrepancies shall be resolved before beginning or fabricating any work. Do not scale from drawings.

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### SHEET NAME: MECHANICAL ABBREVIATIONS AND SYMBOL LEGEND

DATE: 04/03/2025	PROJECT NO: 40091
DRAWN: S&MS	SCALE:

SHEET NO:  
**M001**



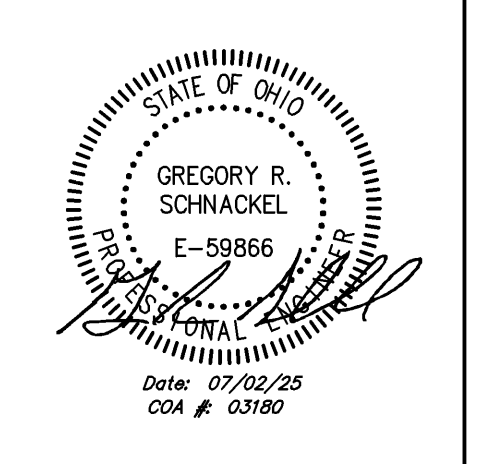
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NO.	DATE	DESCRIPTION
A	05/21/25	REVISION A
B	06/26/25	REVISION B
C	06/26/25	REVISION C
D	07/03/25	REVISION D

STATUS: IFC SET



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SHEET NAME:  
**MECHANICAL FLOOR PLAN**

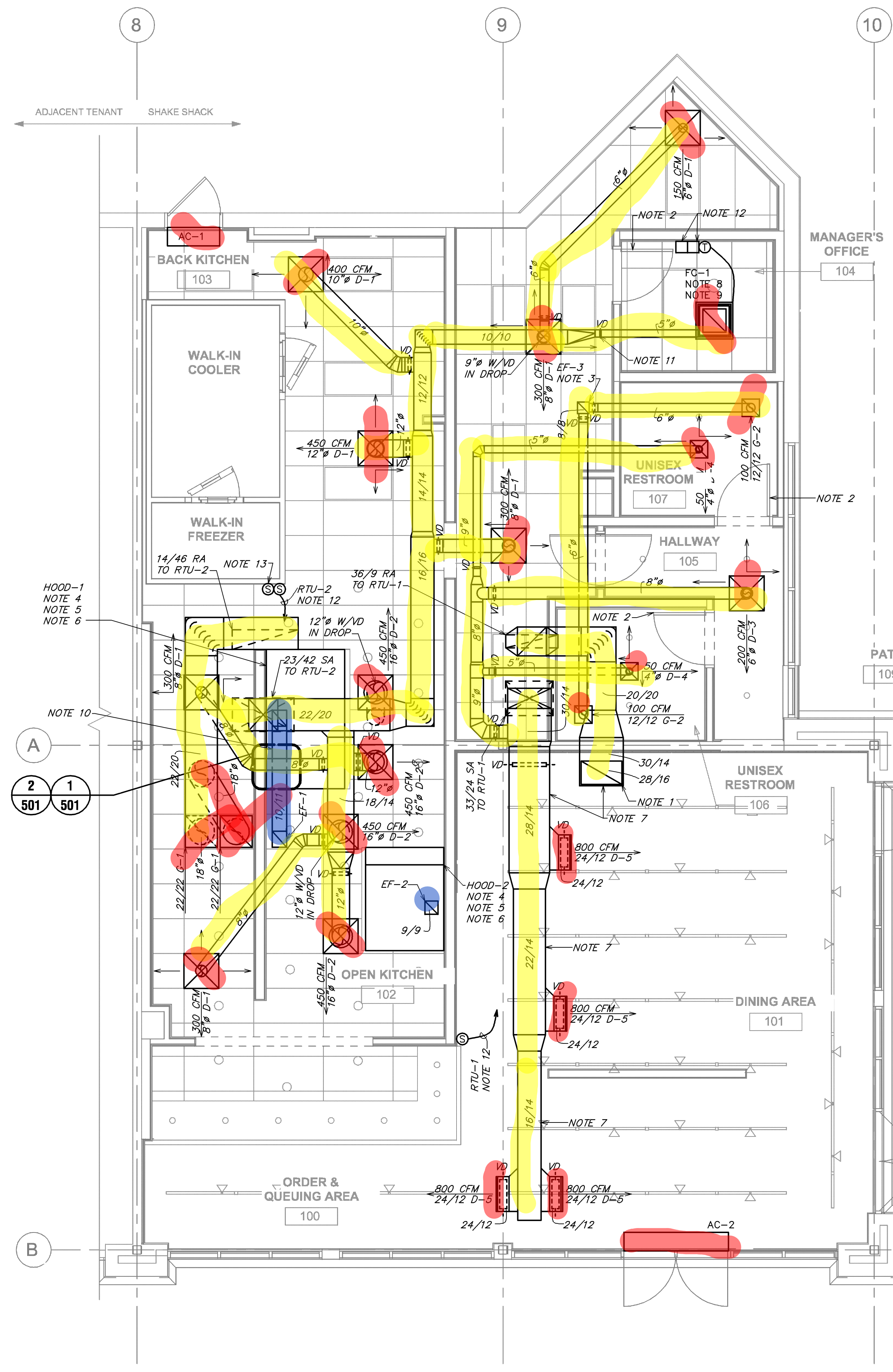
DATE: 04/03/2025 PROJECT NO: 40091

DRAWN: S/M/S SCALE:

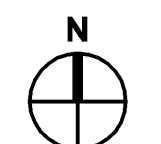
SHEET NO.: **M101**

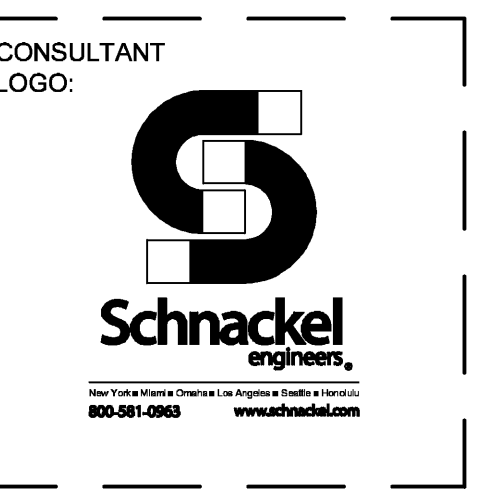
- GENERAL NOTES:**
- EXISTING CONDITIONS ARE BASED ON RECORD DRAWINGS PROVIDED BY THE OWNER. CONTRACTOR SHALL ADJUST TO ACTUAL FIELD CONDITIONS AT NO ADDITIONAL EXPENSE TO THE PROJECT.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO SUBMITTING THE BID. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR ANY EXTRAS DUE TO THE CONTRACTOR'S FAILURE TO VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER FOR RESOLUTION.
  - ALL CONTRACTORS SHALL REVIEW A COMPLETE SET OF CONSTRUCTION DOCUMENTS. CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH DEMOLITION WORK PRIOR TO BIDDING AND START OF WORK. CONTRACTOR IS RESPONSIBLE TO DEMOLISH ALL EXISTING AS REQUIRED FOR INSTALLATION/CONSTRUCTION OF NEW WORK.
  - ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE GOVERNMENT AND LOCAL CODES.
  - MECHANICAL CONTRACTOR SHALL FIELD COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL POWER REQUIREMENTS.
  - ALL CONTRACTORS SHALL REVIEW A COMPLETE SET OF CONSTRUCTION DOCUMENTS AND COOPERATE WITH THE OTHER TRADES SO THAT THE INSTALLATION OF ALL EQUIPMENT MAY BE PROPERLY COORDINATED.
  - ALL EQUIPMENT FURNISHED SHALL FIT THE SPACE AVAILABLE WITH CONNECTIONS IN THE REQUIRED LOCATIONS AND WITH ADEQUATE SPACE FOR OPERATING AND SERVICING. THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATE THE INTENT OF THE INSTALLATION WHILE THE SPECIFICATIONS AND EQUIPMENT LIST DENOTE THE TYPE AND QUALITY OF MATERIAL AND WORKMANSHIP TO BE USED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE HIGHER AND/OR MORE COSTLY STANDARD WILL APPLY. THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER WHOSE DECISION SHALL BE FINAL. NO ALLOWANCE WILL BE MADE SUBSEQUENTLY IN THIS REGARD ON BEHALF OF THE CONTRACTOR AFTER AWARD OF THE CONTRACT.
  - COORDINATE DUCT ROUTING AND HEIGHTS WITH GENERAL CONTRACTOR. VERIFY ALL CLEARANCES BEFORE STARTING WORK.
  - THE CONTRACTOR SHALL INSTALL ALL PIPING, DUCTWORK AND EQUIPMENT AS REQUIRED TO CONFORM TO THE STRUCTURE. AVOID OBSTRUCTIONS. PRESERVE CEILING HEIGHTS AND HEADROOM AND MAKE ALL EQUIPMENT REQUIRING MAINTENANCE OR REPAIR ACCESSIBLE.
  - ALL DUCT CONNECTIONS TO HVAC EQUIPMENT MUST BE MADE WITH FLEXIBLE CONNECTORS.
  - DO NOT ATTACH ANYTHING TO DECK ABOVE. ATTACH TO STRUCTURE (I.e., BEAMS, JOISTS) ONLY. DUCT HANGERS SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODE. ALL CONNECTIONS TO JOISTS SHALL BE MADE AT THE TOP CORNER.
  - ALL DUCT DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS. ALL SUPPLY AND UNTEMPERED OUTDOOR AIR DUCTWORK SHALL BE LINED WITH 1" ACOUSTICAL DUCT LINER OR WRAPPED WITH 1-1/2" THICK FIRE RETARDANT FIBERGLASS WITH A REINFORCED ALUMINUM FOIL JACKET AND SHALL BE APPROVED FOR USE BY SMOGON AND NAIMA. RETURN AIR TRANSFER DUCTS AND RETURN DUCTWORK WITHIN 10 FEET OF THE UNIT FAN SHALL BE LINED WITH 1" ACOUSTICAL DUCT LINER. ALL SUPPLY AND UNTEMPERED OUTDOOR AIR DUCTWORK VISIBLE TO THE PUBLIC SHALL BE INTERNALLY LINED AND PAINTED TO MATCH THE SURROUNDING AREA. DUCT WRAP INSULATION IS NOT PERMITTED IN THESE AREAS.
  - ALL EXPOSED DUCTWORK SHALL BE INSTALLED TIGHT TO THE BOTTOM OF THE STRUCTURE, THRU JOIST SPACE.
  - REFRIGERATION PIPING SHALL BE SIZED PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL ACCESSORIES AS REQUIRED BY MANUFACTURER FOR COMPLETE WORKING SYSTEM, INCLUDING ANY ACCESSORIES ASSOCIATED WITH LONG LENGTH APPLICATIONS WHERE APPLICABLE.
  - TENANT'S CONTRACTOR SHALL BE RESPONSIBLE FOR THE FIELD VERIFICATION OF ALL UTILITY RUNS AND/OR OTHER IMPROVEMENTS LOCATED ON THE PREMISES PRIOR TO BIDDING. TENANT'S CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ALL COSTS RELATING TO THE RELOCATION OF, DAMAGE TO, REPAIR OF ANY EXISTING UTILITY RUNS AND/OR IMPROVEMENTS WHICH ARE DAMAGED AS A RESULT OF TENANT'S WORK IN OR AROUND THE PREMISES.
  - ALL ROOFING WORK SHALL BE PERFORMED BY LANDLORD'S APPROVED ROOFING CONTRACTOR AT TENANT'S EXPENSE, IF REQUIRED IN LEASE OR TENANT CRITERIA MANUAL.
  - ROOF MOUNTED EQUIPMENT SHALL BE LABELED WITH THE TENANT NAME AND SPACE NUMBER WITH 3" HIGH WEATHER PROOF LETTERS.
  - ALL GREASE EXHAUST DUCTWORK SHALL BE PROVIDED WITH 3" FOIL FACED THERMAL-CERAMIC INSULATION FOR GREASE DUCTS. INSULATION SHALL MEET NFPA 96 AND ASTM E 2336 REQUIREMENTS.
  - GREASE DUCT LEAKAGE TESTING MUST BE PERFORMED PRIOR TO CONCEALMENT OF THE DUCTWORK.
  - MECHANICAL CONTRACTOR SHALL PROVIDE TENANT WITH A WRITTEN ONE (1) YEAR MANUFACTURER'S WARRANTY ON ALL HVAC EQUIPMENT PROVIDED AND 1 OR 2 INSTALLED. THE WARRANTY SHALL BE LISTED BELOW. IF APPROVED, THE BALANCING SHALL BE COMPLETED BY NATION TAB. CONTACT WILL TURNBOUR AT WILLIAMS@NATIONTAB.COM OR 314-954-6244.
  - PARTS OF THE BASE BUILDING SYSTEMS THAT FALL INTO LEASE LINE SHALL REMAIN UNDISTURBED UNLESS NOTED OTHERWISE.
  - PROVIDE ALL NECESSARY WIRING, RELAYS, DETECTORS, COMPONENTS, ETC., FOR FIRE ALARM CONTROL SYSTEM INTERLOCK IF APPLICABLE. VERIFY WITH BUILDING PERSONNEL BEFORE BID.

- HVAC NOTES:**
- TOP OPEN RETURN AIR DUCT. PROVIDE OPENING WITH 1/4" MESH GALVANIZED SCREEN.
  - CONTRACTOR SHALL UNDERCUT DOOR 3/4".
  - PROVIDE 6" EXHAUST AIR DUCT UP TO EF-3 ON ROOF.
  - NEW CAPTIVEAIRE GREASE EXHAUST HOOD TO BE FURNISHED BY OWNER FOR INSTALLATION BY THE MECHANICAL CONTRACTOR. SEE CAPTIVEAIRE SHEETS FOR ADDITIONAL INFORMATION. BALANCE HOOD EXHAUST AS NOTED ON CAPTIVEAIRE SHEETS. VERIFY ALL MANUFACTURER AND CODE REQUIRED CLEARANCES ARE MAINTAINED. NOTIFY ARCHITECT IF ANY CONFLICTS OCCUR.
  - TRANSITION FROM HOOD EXHAUST AND EXTEND KITCHEN HOOD GREASE EXHAUST DUCTWORK COLLAR AS INDICATED ON PLANS UP TO CORRESPONDING GREASE EXHAUST FAN ON ROOF. SEE SHEET M150 FOR CONTINUATION. GREASE DUCT SHALL BE WRAPPED WITH TWO (2) LAYERS OF THERMAL CERAMIC FIBER WRAP, 1 1/2" THICK WITH 3" PERIMETER AND LONGITUDINAL OVERLAPS OR EQUIVALENT U.L. LISTED GREASE DUCT WRAP FOR ZERO CLEARANCE TO COMBUSTIBLES. REFER TO SHEET M501, DETAIL 1, FOR ADDITIONAL INFORMATION. TYPICAL.
  - HOOD MANUFACTURER TO PROVIDE A "KIT" TO FASTEN THE BOTTOM FLANGE OF THE HOOD TO THE WALL, WITH ONE FASTENER PER STUD WALL. SIL-BOND RTV 4500 ALUMINUM SILICONE SEALANT OR APPROVED SIMILAR, TO BE APPLIED BY GENERAL CONTRACTOR (HOOD INSTALLER FOR ANY REMAINING SMALL GAPS. HOOD FASTENING "KIT" DETAIL TO BE INCLUDED IN MANUFACTURER DRAWINGS. REFERENCE SHEET M501, DETAIL 9, FOR ADDITIONAL INFORMATION.
  - DUCTWORK TO BE TO BE INSTALLED AS HIGH AS CONDITIONS ALLOW. COORDINATE ROUTING AND MOUNTING HEIGHT WITH LIGHTING FIXTURES. NOTIFY THE ARCHITECT OF ANY CONFLICTS AND COORDINATE WITH THE CONSTRUCTION MANAGER.
  - PROVIDE NEW FC UNIT AS NOTED ON PLANS AND AS SCHEDULED ON SHEET M601.
  - PROVIDE REFRIGERANT LINES FROM ASHP-1 ON ROOF TO FC-1 IN KITCHEN OFFICE. LINES SHALL BE SIZED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. PROVIDE ALL ACCESSORIES AS REQUIRED BY MANUFACTURER FOR COMPLETE WORKING SYSTEM, INCLUDING ANY ACCESSORIES ASSOCIATED WITH LONG LENGTH APPLICATIONS WHERE APPLICABLE.
  - PROVIDE CLEANOUTS ON GREASE DUCTWORK AS REQUIRED BY CODE. REFERENCE SHEET M501, DETAIL 2 FOR ADDITIONAL INFORMATION. TYPICAL OF GREASE EXHAUST DUCTWORK.
  - BALANCE THE DAMPER TO PROVIDE A MAXIMUM OF 50 CFM OF OUTDOOR AIR. COORDINATE WITH CAPTIVEAIRE ON REMOTE SENSORS AND COMFORT CONTROLS PACKAGE THAT IS TO BE INSTALLED IN THE OFFICE. VERIFY CONTROLS ARE A FULLY DIGITAL 7 DAY PROGRAMMABLE TYPE THERMOSTAT WITH REMOTE SENSING CAPABILITIES, AUTO CHANGE OVER AND AUTO SET BACK. MOUNT SENSOR AND CONTROLS AT 48" ABOVE FINISHED FLOOR. UNITS SERVING THE SAME TEMPERATURE ZONE SHALL BE INTERLOCKED TO PREVENT SIMULTANEOUS HEATING AND COOLING. LOCATE REMOTE TEMPERATURE SENSORS AS INDICATED ON PLAN. COORDINATE LOCATION WITH CONSTRUCTION MANAGER AND WALL GRAPHICS LAYOUT. REFERENCE CAPTIVEAIRE SHEETS FOR ADDITIONAL INFORMATION.
  - MOUNT TEMPERATURE CAPTIVEAIRE ROOM TEMPERATURE SENSOR FURNISHED WITH KITCHEN HOODS ON WALL AS INDICATED ON THE PLANS AND AS SPECIFIED BY THE MANUFACTURER.



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



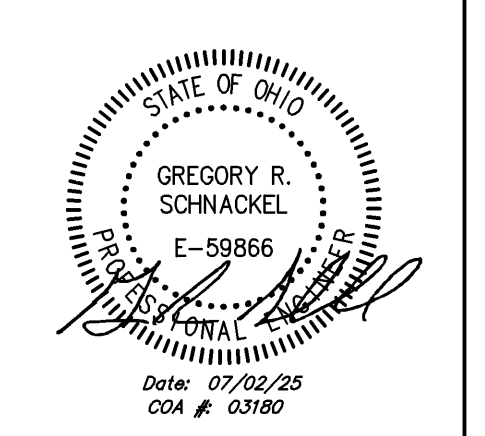


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REVISIONS	
NO.	DESCRIPTION
A	05/21/25 REVISION A
B	06/26/25 REVISION B
C	06/26/25 REVISION C
D	07/02/25 REVISION D

STATUS:  
IFC SET



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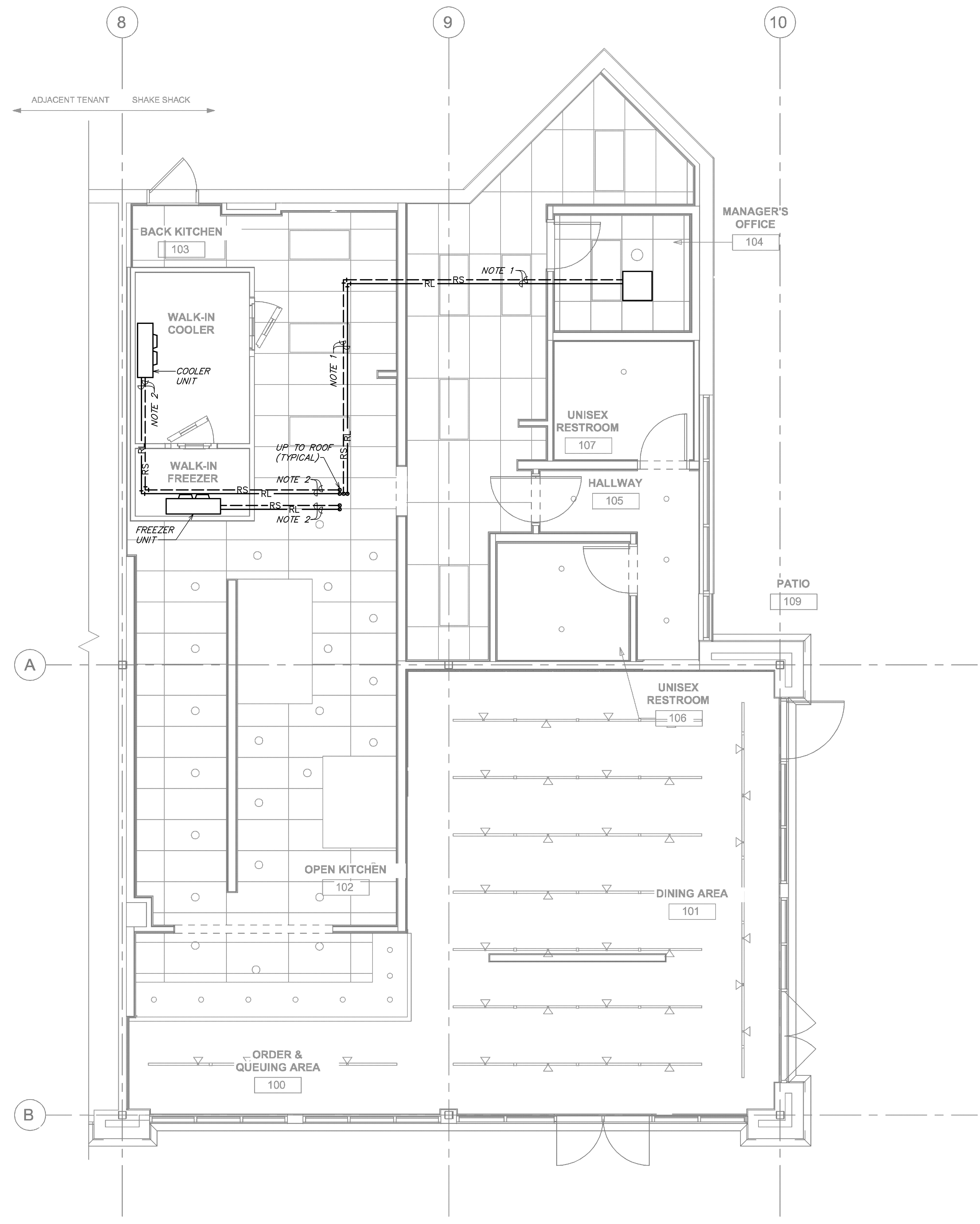
SHEET NAME:  
**MECHANICAL REFRIGERATION PIPING AND LAYOUT PLAN**

DATE: 04/03/2025 PROJECT NO: 40091  
DRAWN: S/M/S SCALE:

SHEET NO:  
**M102**

- GENERAL NOTES:**
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  - ALL EQUIPMENT FURNISHED SHALL FIT THE SPACE AVAILABLE WITH CONNECTIONS IN THE REQUIRED LOCATIONS AND WITH ADEQUATE SPACE FOR OPERATING AND SERVICING. THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND INDICATE THE INTENT OF THE INSTALLATION WHILE THE SPECIFICATIONS AND EQUIPMENT LIST DENOTE THE TYPE AND QUALITY OF MATERIAL AND WORKMANSHIP TO BE USED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE HIGHER AND/OR MORE COSTLY STANDARD WILL APPLY. THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER WHOSE DECISION SHALL BE FINAL. NO ALLOWANCE WILL BE MADE SUBSEQUENTLY IN THIS REGARD ON BEHALF OF THE CONTRACTOR AFTER AWARD OF THE CONTRACT.
  - COORDINATE DUCT ROUTING AND HEIGHTS WITH GENERAL CONTRACTOR. VERIFY ALL CLEARANCES BEFORE STARTING WORK.
  - THE CONTRACTOR SHALL INSTALL ALL PIPING, DUCTWORK AND EQUIPMENT AS REQUIRED TO CONFORM TO THE STRUCTURE. AVOID OBSTRUCTIONS. PRESERVE CEILING HEIGHTS AND HEADROOM AND MAKE ALL EQUIPMENT REQUIRING MAINTENANCE OR REPAIR ACCESSIBLE.
  - ALL DUCT CONNECTIONS TO HVAC EQUIPMENT MUST BE MADE WITH FLEXIBLE CONNECTORS.
  - DO NOT ATTACH ANYTHING TO DECK ABOVE. ATTACH TO STRUCTURE (i.e., BEAMS, JOISTS) ONLY. DUCT HANGERS SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODE. ALL CONNECTIONS TO JOISTS SHALL BE MADE AT THE TOP CORNER.
  - ALL DUCT DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS. ALL SUPPLY AND UNTEMPERED OUTDOOR AIR DUCTWORK SHALL BE LINED WITH 1" ACOUSTICAL DUCT LINER OR WRAPPED WITH 1-1/2" THICK FIRE RETARDANT FIBERGLASS WITH A REINFORCED ALUMINUM FOIL JACKET AND SHALL BE APPROVED FOR USE BY SMOGON AND NAIMA. RETURN AIR TRANSFER DUCTS AND RETURN DUCTWORK WITHIN 10 FEET OF THE UNIT FAN SHALL BE LINED WITH 1" ACOUSTICAL DUCT LINER.
  - ALL SUPPLY AND UNTEMPERED OUTDOOR AIR DUCTWORK VISIBLE TO THE PUBLIC SHALL BE INTERNALLY LINED AND PAINTED TO MATCH THE SURROUNDING AREA. DUCT WRAP INSULATION IS NOT PERMITTED IN THESE AREAS.
  - ALL EXPOSED DUCTWORK SHALL BE INSTALLED TIGHT TO THE BOTTOM OF THE STRUCTURE, THRU JOIST SPACE.
  - REFRIGERATION PIPING SHALL BE SIZED PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE ALL ACCESSORIES AS REQUIRED BY MANUFACTURER FOR COMPLETE WORKING SYSTEM, INCLUDING ANY ACCESSORIES ASSOCIATED WITH LONG LENGTH APPLICATIONS WHERE APPLICABLE.
  - TENANT'S CONTRACTOR SHALL BE RESPONSIBLE FOR THE FIELD VERIFICATION OF ALL UTILITY RUNS AND/OR OTHER IMPROVEMENTS LOCATED ON THE PREMISES PRIOR TO BIDDING. TENANT'S CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ALL COSTS RELATING TO THE RELOCATION OF, DAMAGE TO, REPAIR OF ANY EXISTING UTILITY RUNS AND/OR IMPROVEMENTS WHICH ARE DAMAGED AS A RESULT OF TENANT'S WORK IN OR AROUND THE PREMISES.
  - ALL ROOFING WORK SHALL BE PERFORMED BY LANDLORD'S APPROVED ROOFING CONTRACTOR AT TENANT'S EXPENSE, IF REQUIRED IN LEASE OR TENANT CRITERIA MANUAL.
  - ROOF MOUNTED EQUIPMENT SHALL BE LABELED WITH THE TENANT NAME AND SPACE NUMBER WITH 3" HIGH WEATHER PROOF LETTERS.
  - ALL GREASE EXHAUST DUCTWORK SHALL BE PROVIDED WITH 3" FOIL FACED FIBERGLASS INSULATION FOR GREASE DUCTS. INSULATION SHALL MEET NFPA 96 AND ASTM E 2336 REQUIREMENTS.
  - GREASE DUCT LEAKAGE TESTING MUST BE PERFORMED PRIOR TO CONCEALMENT OF THE DUCTWORK.
  - MECHANICAL CONTRACTOR SHALL PROVIDE TENANT WITH A WRITTEN ONE (1) YEAR MANUFACTURER'S WARRANTY ON ALL HVAC EQUIPMENT PROVIDED AND / OR INSTALLED. THE WARRANTY SHALL INCLUDE ALL LABOR, MATERIALS AND THREE (3) ROUTINE SERVICES INCLUDING FILTER CHANGES DURING A ONE (1) YEAR PERIOD.
  - AT THE COMPLETION OF CONSTRUCTION AN NEER, AABC OR TABB CERTIFIED AIR BALANCE REPORT SHALL BE SUBMITTED TO THE ENGINEER AND LANDLORD. PRIOR TO SCHEDULING BALANCING, COORDINATE WITH LANDLORD'S FIELD REPRESENTATIVE FOR THE VENDOR LISTED BELOW. IF APPROVED, THE BALANCING SHALL BE COMPLETED BY NATION TAB. CONTACT WILL TURNBOURH AT WILLIAMS@NATIONTAB.COM OR 314-954-6244.
  - PARTS OF THE BASE BUILDING SYSTEMS THAT FALL INTO LEASE LINE SHALL REMAIN UNDISTURBED UNLESS NOTED OTHERWISE.
  - PROVIDE ALL NECESSARY WIRING, RELAYS, DETECTORS, COMPONENTS, ETC., FOR FIRE ALARM OR CONTROL SYSTEM INTERLOCK IF APPLICABLE. VERIFY WITH BUILDING PERSONNEL BEFORE BID.

- HVAC NOTES:**
- PROVIDE REFRIGERANT LINES FROM ASHP-1 ON ROOF TO FC-1 IN KITCHEN OFFICE AS NOTED ON PLANS. LINES SHALL BE SIZED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. PROVIDE ALL ACCESSORIES AS REQUIRED BY MANUFACTURER FOR COMPLETE WORKING SYSTEM, INCLUDING ANY ACCESSORIES ASSOCIATED WITH LONG LENGTH APPLICATIONS WHERE APPLICABLE. ADJUST ROUTING AS NECESSARY IN FIELD FOR ANY OBSTACLES. COORDINATE EXACT LOCATION AND ROUTING WITH CONSTRUCTION MANAGER.
  - KITCHEN EQUIPMENT CONTRACTOR TO PROVIDE REFRIGERANT LINES FROM CONDENSING UNIT ON ROOF TO KITCHEN EQUIPMENT AS NOTED ON PLANS. LINES SHALL BE SIZED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. PROVIDE ALL ACCESSORIES AS REQUIRED BY MANUFACTURER FOR COMPLETE WORKING SYSTEM, INCLUDING ANY ACCESSORIES ASSOCIATED WITH LONG LENGTH APPLICATIONS WHERE APPLICABLE. ADJUST ROUTING AS NECESSARY IN FIELD FOR ANY OBSTACLES. COORDINATE EXACT LOCATION AND ROUTING WITH CONSTRUCTION MANAGER.

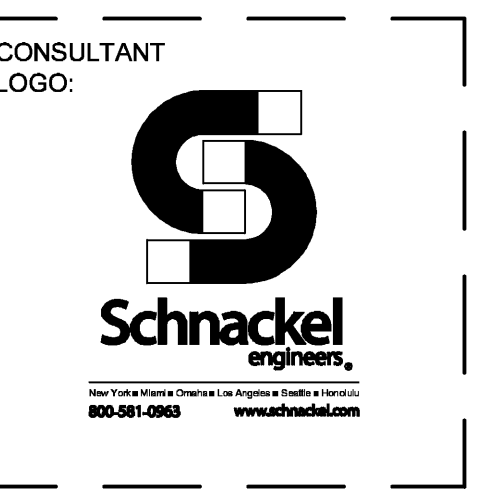


**1 MECHANICAL REFRIGERATION PIPING AND LAYOUT PLAN**  
SCALE: 1/4" = 1'-0"

E  
D  
C  
B  
A

6 5 4 3 2 1

6 5 4 3 2 1



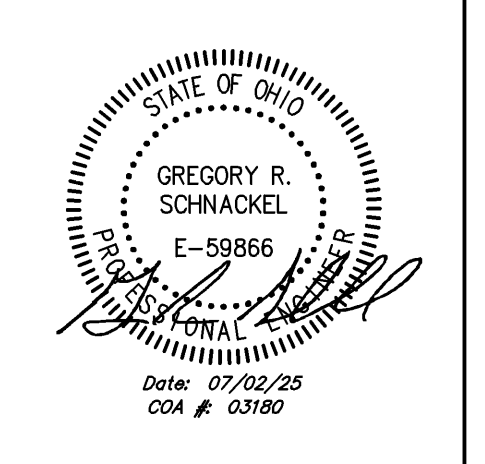
STORE NO:  
**OH #1723**

**SHAKE SHACK**  
LEVIS COMMONS BLVD.  
PERRYSBURG, OH 43051

**REVISIONS**

NO.	DATE	DESCRIPTION
A	05/21/25	REVISION A
B	06/26/25	REVISION B
C	06/26/25	REVISION C
D	07/03/25	REVISION D

STATUS:  
IFC SET



**FIELD VERIFICATION:**  
The Contractor shall verify all field dimensions and conditions at the project site and notify Zebra Architecture, PLLC in writing immediately upon completion or discrepancy before beginning or fabricating any work. Do not scale from drawings.

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SHEET NAME:  
**MECHANICAL ROOF PLAN**

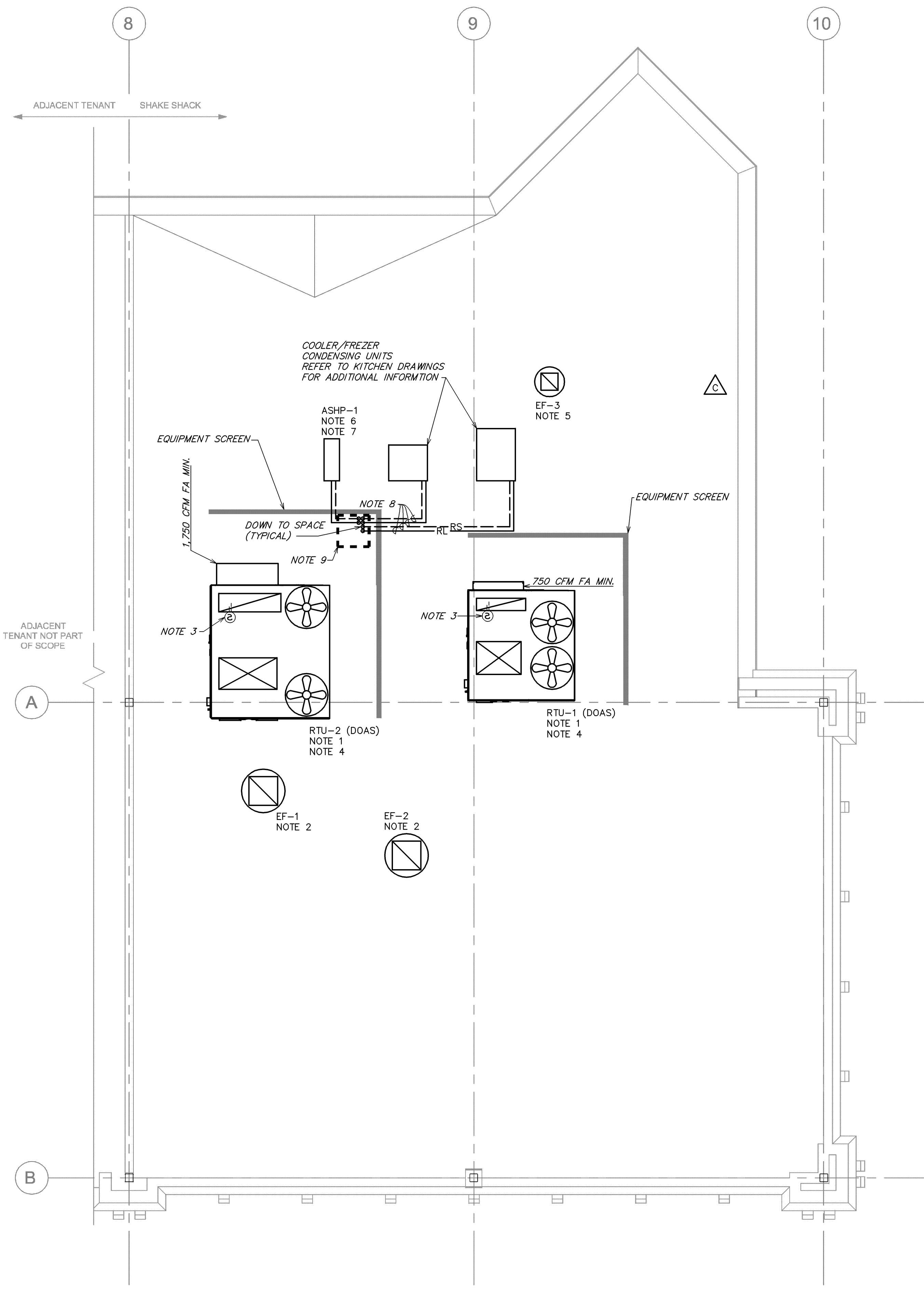
DATE: 04/03/2025 PROJECT NO: 40091

DRAWN: S/M/S SCALE:

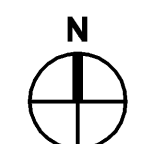
SHEET NO:  
**M150**

- GENERAL NOTES:**
- EXISTING CONDITIONS ARE BASED ON RECORD DRAWINGS PROVIDED BY THE OWNER. CONTRACTOR SHALL ADJUST TO ACTUAL FIELD CONDITIONS AT NO ADDITIONAL EXPENSE TO THE PROJECT.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFICATION OF ALL EXISTING CONDITIONS PRIOR TO SUBMITTING THE BID. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR ANY EXTRAS DUE TO THE CONTRACTOR'S FAILURE TO VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID. ANY DISCREPANCIES SHALL BE IMMEDIATELY REPORTED TO THE ENGINEER FOR RESOLUTION.
  - ALL CONTRACTORS SHALL REVIEW A COMPLETE SET OF CONSTRUCTION DOCUMENTS. CONTRACTORS SHALL FAMILIARIZE THEMSELVES WITH DEMOLITION WORK PRIOR TO BIDDING AND START OF WORK. CONTRACTOR IS RESPONSIBLE TO DEMOLISH ALL EXISTING AS REQUIRED FOR INSTALLATION/CONSTRUCTION OF NEW WORK. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH ALL APPLICABLE GOVERNMENT AND LOCAL CODES.
  - MECHANICAL CONTRACTOR SHALL FIELD COORDINATE WITH ELECTRICAL CONTRACTOR FOR ALL POWER REQUIREMENTS.
  - ALL CONTRACTORS SHALL REVIEW A COMPLETE SET OF CONSTRUCTION DOCUMENTS AND COOPERATE WITH THE OTHER TRADES SO THAT THE INSTALLATION OF ALL EQUIPMENT MAY BE PROPERLY COORDINATED.
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  - THE CONTRACTOR SHALL INSTALL ALL PIPING, DUCTWORK AND EQUIPMENT AS REQUIRED TO CONFORM TO THE STRUCTURE. AVOID OBSTRUCTIONS. PRESERVE CEILING HEIGHTS AND HEADROOM AND MAKE ALL EQUIPMENT REQUIRING MAINTENANCE OR REPAIR ACCESSIBLE.
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- HVAC NOTES:**
- NEW CAPTIVEAIRE RTU TO BE FURNISHED BY OWNER FOR INSTALLATION BY MECHANICAL CONTRACTOR. SEE CAPTIVEAIRE SHEETS FOR ADDITIONAL INFORMATION. FIELD VERIFY EXACT LOCATION.
  - NEW CAPTIVEAIRE GREASE EXHAUST FAN TO BE FURNISHED BY OWNER FOR INSTALLATION BY MECHANICAL CONTRACTOR. SEE CAPTIVEAIRE SHEETS FOR ADDITIONAL INFORMATION. CONTRACTOR SHALL FIELD VERIFY THAT THE LOCATION SHOWN IS A MINIMUM OF 10'-0" FROM ANY OUTDOOR AIR INTAKE. CURB AND OPENING TO BE PROVIDED BY LANDLORD.
  - DUCT SMOKE DETECTOR ON RETURN SIDE DUCT AND SHUTDOWN RELAY SHALL BE FURNISHED BY THE ELECTRICAL CONTRACTOR FOR INSTALLATION BY THE MECHANICAL CONTRACTOR. ALL WIRING SHALL BE BY THE ELECTRICAL CONTRACTOR.
  - PTO ENVIRONMENTAL GROUP, INC. AIR PURIFICATION SYSTEM TO BE PROVIDED BY INTAB. REFER TO RESPONSIBILITY MATRIX ON SHEET M001 FOR ADDITIONAL INFORMATION. SHEET M601 FOR SCHEDULE, AND SHEET M692 FOR SPECIFICATIONS.
  - PROVIDE NEW EXHAUST FAN AS NOTED ON PLANS AND SCHEDULED ON SHEET M601. THE CONTRACTOR SHALL FIELD VERIFY THAT THE LOCATION SHOWN IS A MINIMUM OF 10'-0" FROM ANY OUTDOOR AIR INTAKE. CURB AND OPENING TO BE PROVIDED BY LANDLORD.
  - PROVIDE ASHP AS NOTED ON PLANS AND SCHEDULED ON SHEET M601.
  - PROVIDE REFRIGERANT LINES FROM ASHP-1 ON ROOF TO FC-1 IN KITCHEN OFFICE. LINES SHALL BE SIZED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. PROVIDE ALL ACCESSORIES AS REQUIRED BY MANUFACTURER FOR COMPLETE WORKING SYSTEM, INCLUDING ANY ACCESSORIES ASSOCIATED WITH LONG LENGTH APPLICATIONS WHERE APPLICABLE.
  - KITCHEN EQUIPMENT CONTRACTOR TO PROVIDE REFRIGERANT LINES FROM CONDENSING UNIT ON ROOF TO KITCHEN EQUIPMENT AS NOTED ON PLANS. LINES SHALL BE SIZED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. PROVIDE ALL ACCESSORIES AS REQUIRED BY MANUFACTURER FOR COMPLETE WORKING SYSTEM, INCLUDING ANY ACCESSORIES ASSOCIATED WITH LONG LENGTH APPLICATIONS WHERE APPLICABLE. ADJUST ROUTING AS NECESSARY IN FIELD FOR ANY OBSTACLES. COORDINATE EXACT LOCATION AND ROUTING WITH CONSTRUCTION MANAGER AND LANDLORD.
  - APPROXIMATE LOCATION OF ROOF OPENING FROM MAKE-UP AIR UNIT. OPENING TO BE REUSED FOR REFRIGERATION LINE ROUTING. FIELD VERIFY EXACT LOCATION.



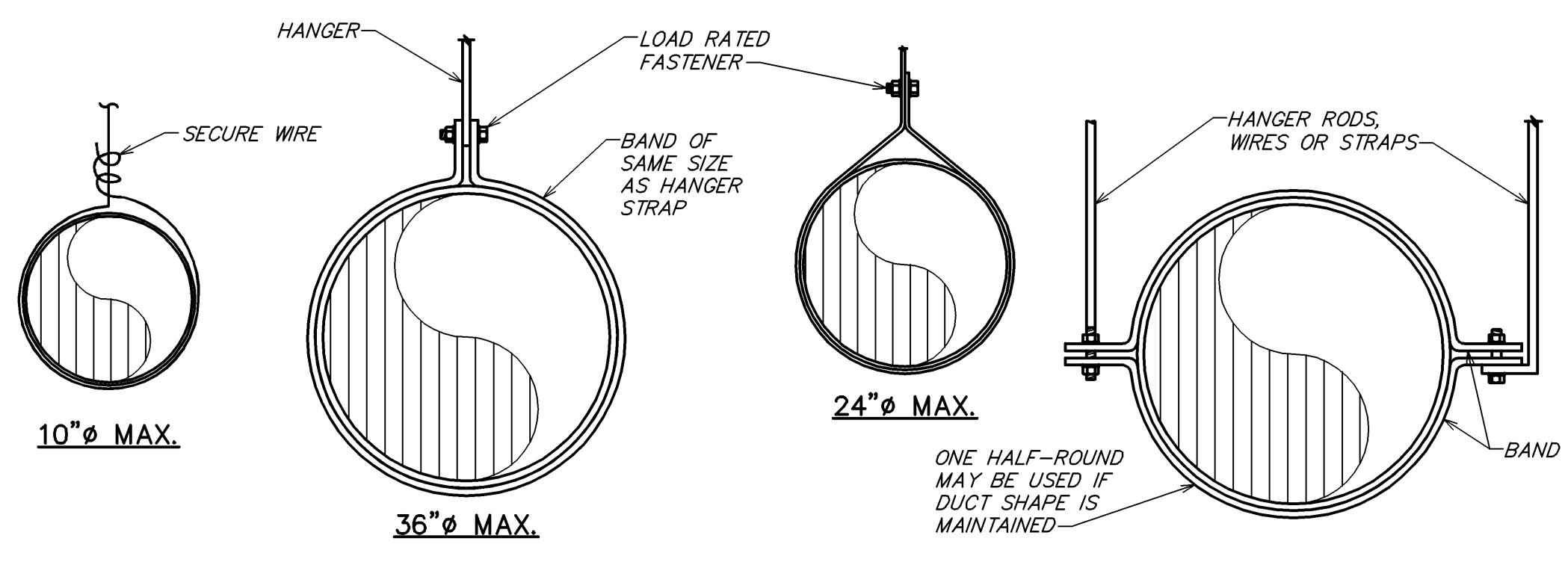
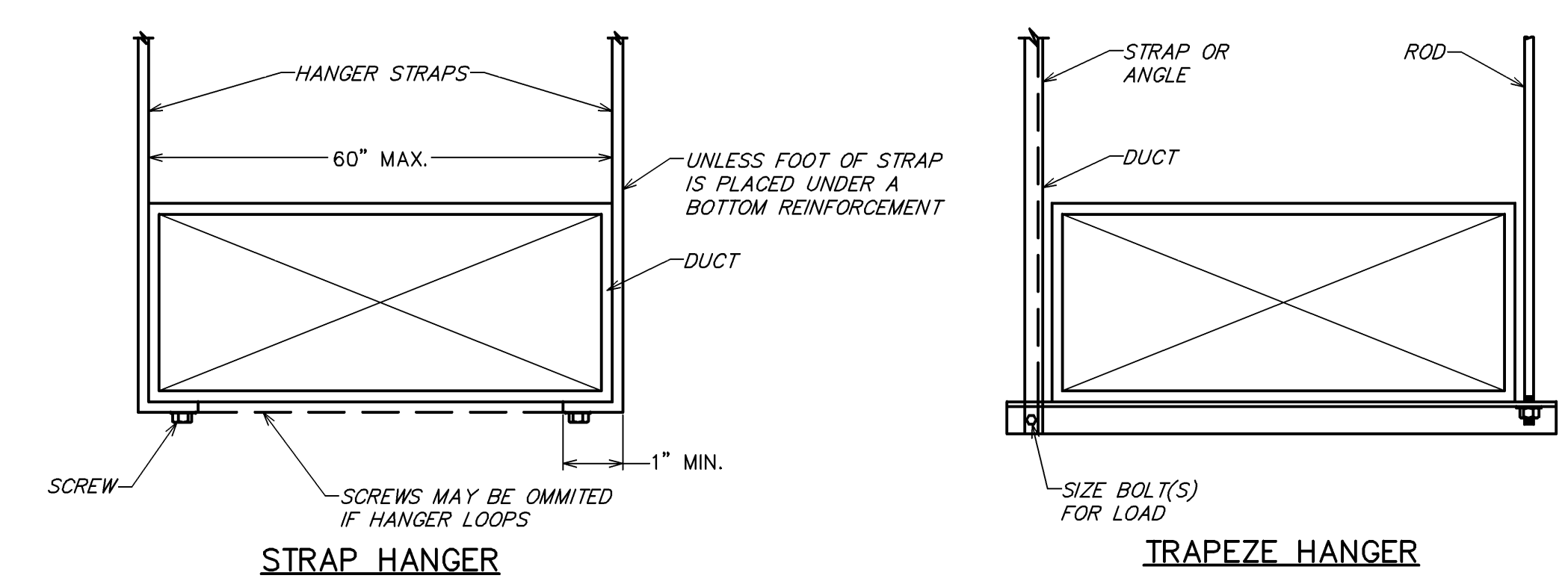
**1 MECHANICAL ROOF PLAN**  
SCALE: 1/4" = 1'-0"



MAXIMUM HALF OF DUCT PERIMETER	PAIR AT 10 FT. SPACING		PAIR AT 8 FT. SPACING		PAIR AT 5 FT. SPACING		PAIR AT 4 FT. SPACING	
	STRAP	WIRE/ROD	STRAP	WIRE/ROD	STRAP	WIRE/ROD	STRAP	WIRE/ROD
P/2 = 30"	1" x 22 GA.	10 GA. (.135")	1" x 22 GA.	10 GA. (.135")	1" x 22 GA.	12 GA. (.106")	1" x 22 GA.	12 GA. (.106")
P/2 = 72"	1" x 18 GA.	3/8"	1" x 20 GA.	1/4"	1" x 22 GA.	1/4"	1" x 22 GA.	1/4"
P/2 = 96"	1" x 16 GA.	3/8"	1" x 18 GA.	3/8"	1" x 20 GA.	3/8"	1" x 22 GA.	1/4"
P/2 = 120"	1 1/2" x 16 GA.	1/2"	1" x 16 GA.	3/8"	1" x 18 GA.	3/8"	1" x 20 GA.	1/4"
P/2 = 168"	1 1/2" x 16 GA.	1/2"	1 1/2" x 16 GA.	1/2"	1" x 16 GA.	3/8"	1" x 18 GA.	3/8"
P/2 = 192"	---	1/2"	1 1/2" x 16 GA.	1/2"	1" x 16 GA.	3/8"	1" x 16 GA.	3/8"
P/2 = 193" UP	SPECIAL ANALYSIS REQUIRED							

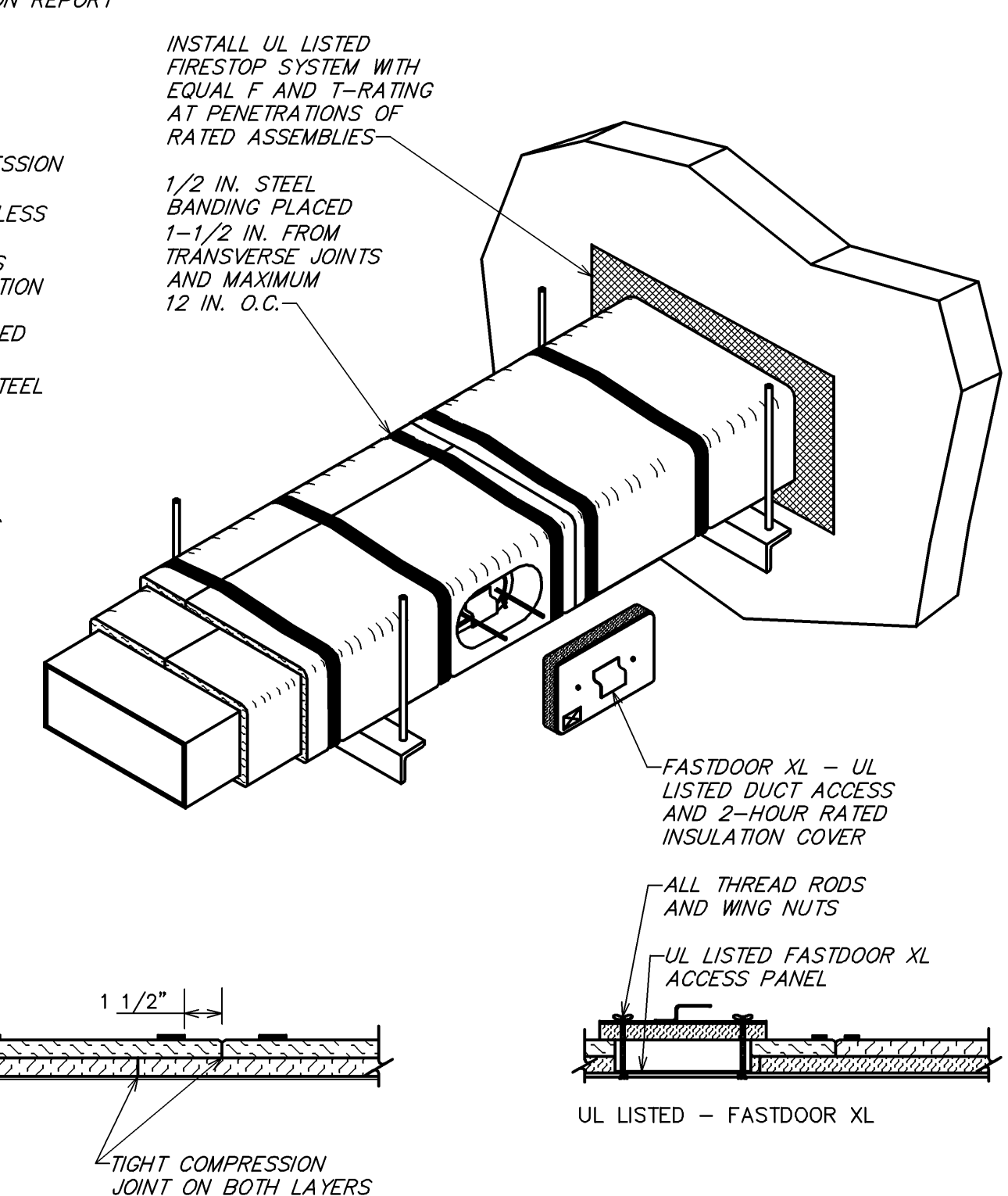
WHEN STRAPS ARE LAP JOINED USE THESE MINIMUM FASTENERS:	SINGLE HANGER MAXIMUM ALLOWABLE LOAD	
	STRAP	WIRE OR ROD (DIA.)
1" x 18, 20, 22 GA. - TWO #10 OR ONE 1/4" BOLT	1" x 22 GA. - 260 LBS.	0.106" - 80 LBS.
1" x 16 GA. - TWO 3/8" DIA.	1" x 20 GA. - 320 LBS.	0.135" - 120 LBS.
PLACE FASTENERS IN SERIES, NOT SIDE BY SIDE.	1" x 18 GA. - 420 LBS.	0.162" - 160 LBS.
	1" x 16 GA. - 700 LBS.	1/4" - 270 LBS.
	1 1/2" x 16 GA. - 1100 LBS.	3/8" - 680 LBS.
		1/2" - 1250 LBS.
		5/8" - 2000 LBS.
		3/4" - 3000 LBS.

- NOTES:
- DIMENSIONS OTHER THAN GAUGE ARE IN INCHES.
  - TABLES ALLOW FOR DUCT WEIGHT, 1 LB./SF INSULATION WEIGHT AND NORMAL REINFORCEMENT AND TRAPEZE WEIGHT, BUT NO EXTERNAL LOADS.
  - STRAPS ARE GALVANIZED STEEL; OTHER MATERIALS ARE UNCOATED STEEL.
  - ALLOWABLE LOADS FOR P/2 ASSUME THAT DUCTS ARE 16 GA. MAXIMUM, EXCEPT THAT WHEN MAXIMUM DUCT DIMENSION (W) IS OVER 60" THEN P/2 MAXIMUM IS 1.25 W.
  - 12, 10 OR 8 GA. WIRE IS STEEL OF BLACK ANNEALED, BRIGHT BASIC OR GALVANIZED TYPE.
  - DUCTS SHALL BE SUPPORTED AT INTERVALS NOT EXCEEDING 10 FEET.



NOTE: HANGERS MUST NOT DEFORM DUCT SHAPE

- NOTES:
- THERMAL CERAMICS FIREMASTER FASTWRAP XL IS TESTED TO ASTM E2336 AND UL LISTED PER HNTK.G16 TO PROVIDE ZERO CLEARANCE TO COMBUSTIBLES AND TO PROVIDE A 1 OR 2 HOUR EXPOSURE. THROUGH PENETRATIONS FIRESTOP SYSTEMS ARE TESTED IN ACCORDANCE WITH ASTM E 814 (UL 1479). UL EVALUATION REPORT UL ERI4229-01.
  - COMPLIANT TO THE FOLLOWING CODES:
    - NFPA 96
    - INTERNATIONAL MECHANICAL CODES
    - CALIFORNIA MECHANICAL CODE
  - INSULATION APPLIED IN TWO LAYERS WITH TIGHT COMPRESSION JOINT ON BOTH LAYERS AT ALL JOINTS.
  - MINIMUM 16 GAUGE CARBON STEEL (OR 18 GAUGE STAINLESS STEEL) RECTANGULAR OR ROUND GREASE EXHAUST DUCT.
  - INSTALL UL LISTED AND LIQUID TIGHT THERMAL CERAMICS FASTDOOR XL ACCESS DOORS AT ALL CHANGES IN DIRECTION AND AT MINIMUM EVERY 20 FT ON HORIZONTAL RUNS.
  - SUPPORT HANGER SYSTEMS DO NOT NEED TO BE WRAPPED PROVIDED THE HANGER RODS ARE MINIMUM OF 3/8" IN. DIAMETER AND SUPPORTS ARE MINIMUM 2 X 1/8" IN. STEEL ANGLE OR SMAWMA EQUIVALENT SUPPORT SYSTEM.
  - THERMAL CERAMICS DUCT WRAP SHALL BE INSTALLED DIRECTLY ONTO THE DUCT AND APPLIED FROM THE HOOD CONNECTION TO THE CONNECTION OF THE FAN.
  - THERMAL CERAMICS DUCT ENCLOSURE SYSTEM SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND UL LISTINGS.

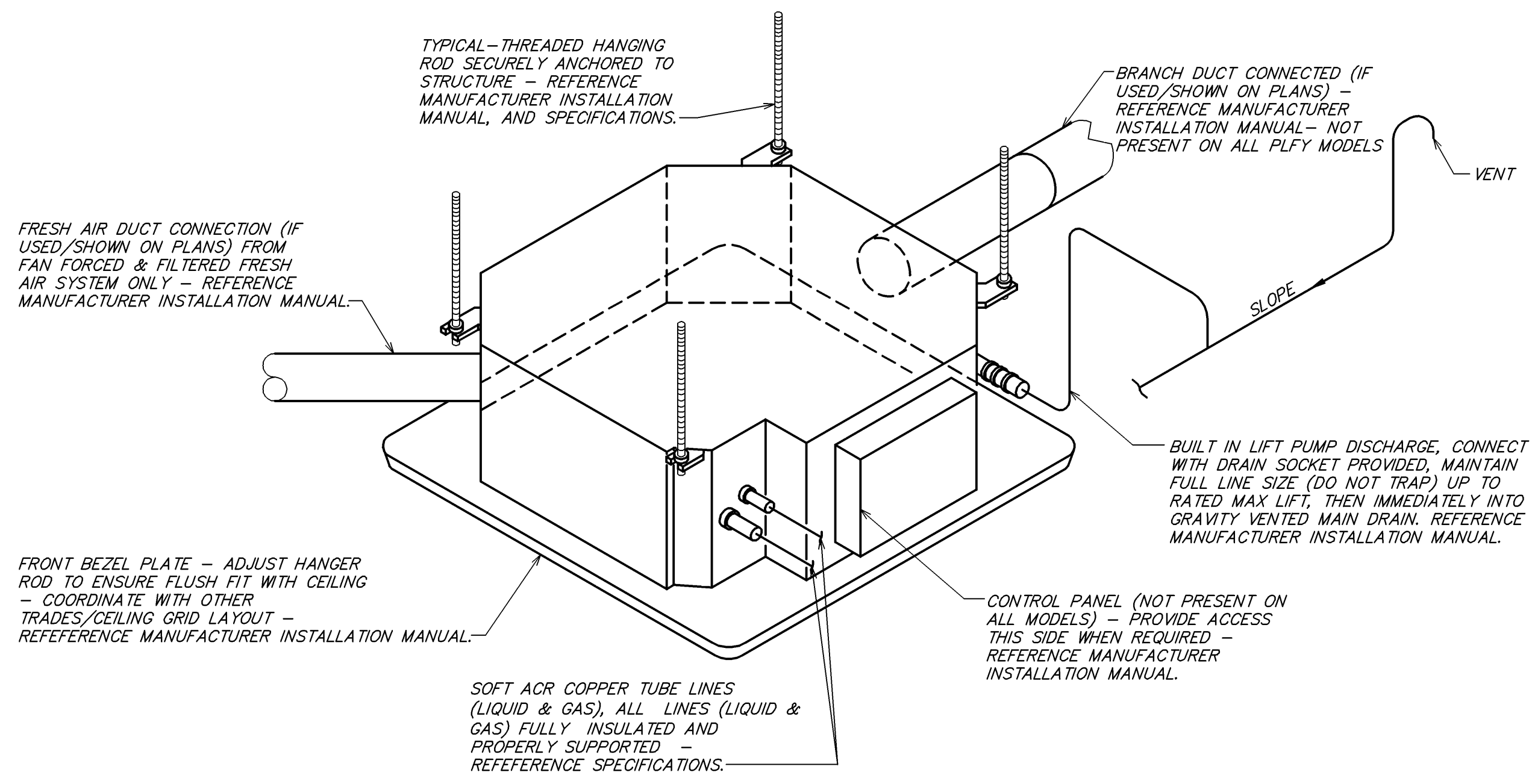


\*\* DETAIL COURTESY OF MORGAN THERMAL CERAMICS.

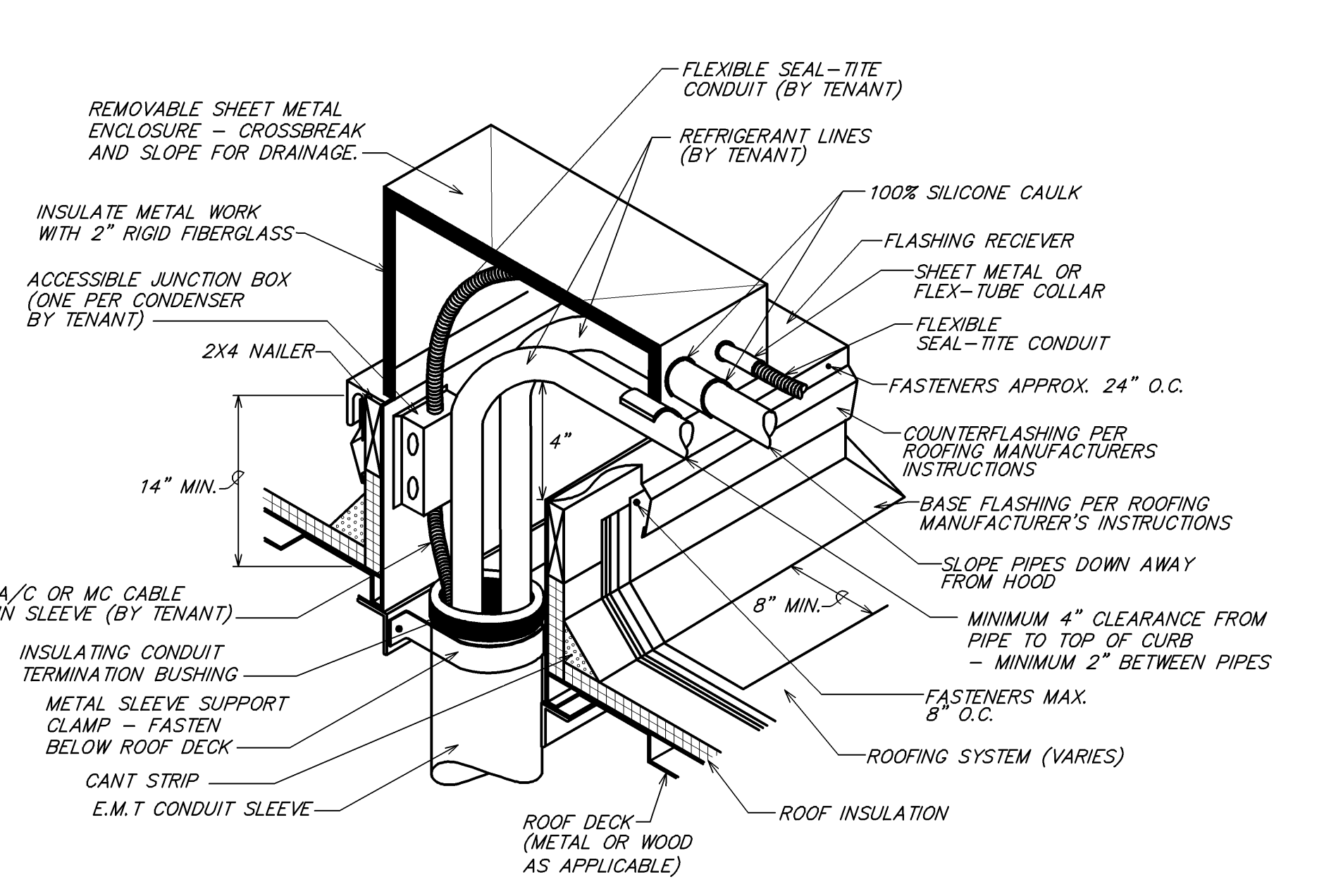
7 RECTANGULAR DUCT HANGER TABLE  
NOT TO SCALE

4 DUCT HANGER DETAIL  
NOT TO SCALE

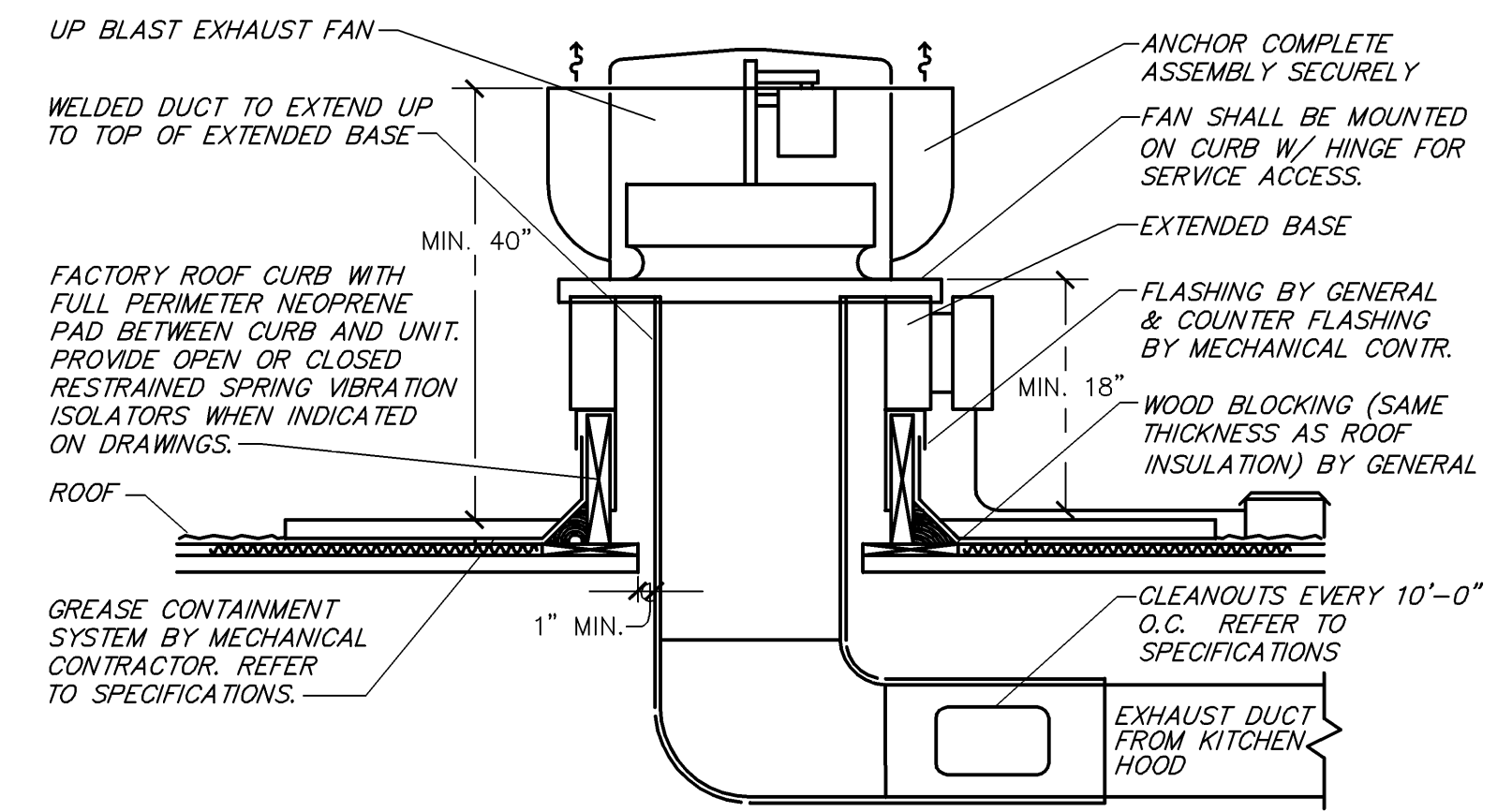
1 FIREMASTER FASTWRAP XL DETAIL  
NOT TO SCALE



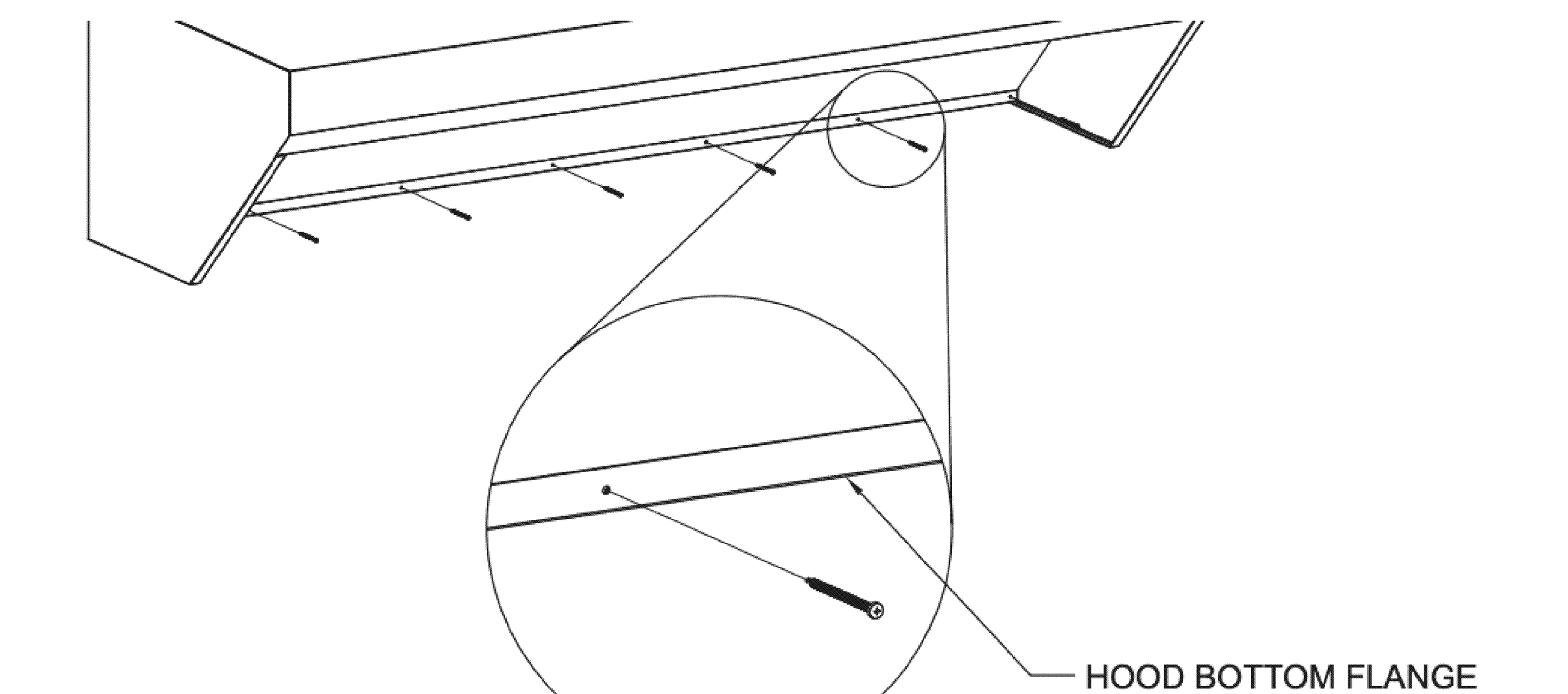
8 VRF CASSETTE UNIT  
NOT TO SCALE



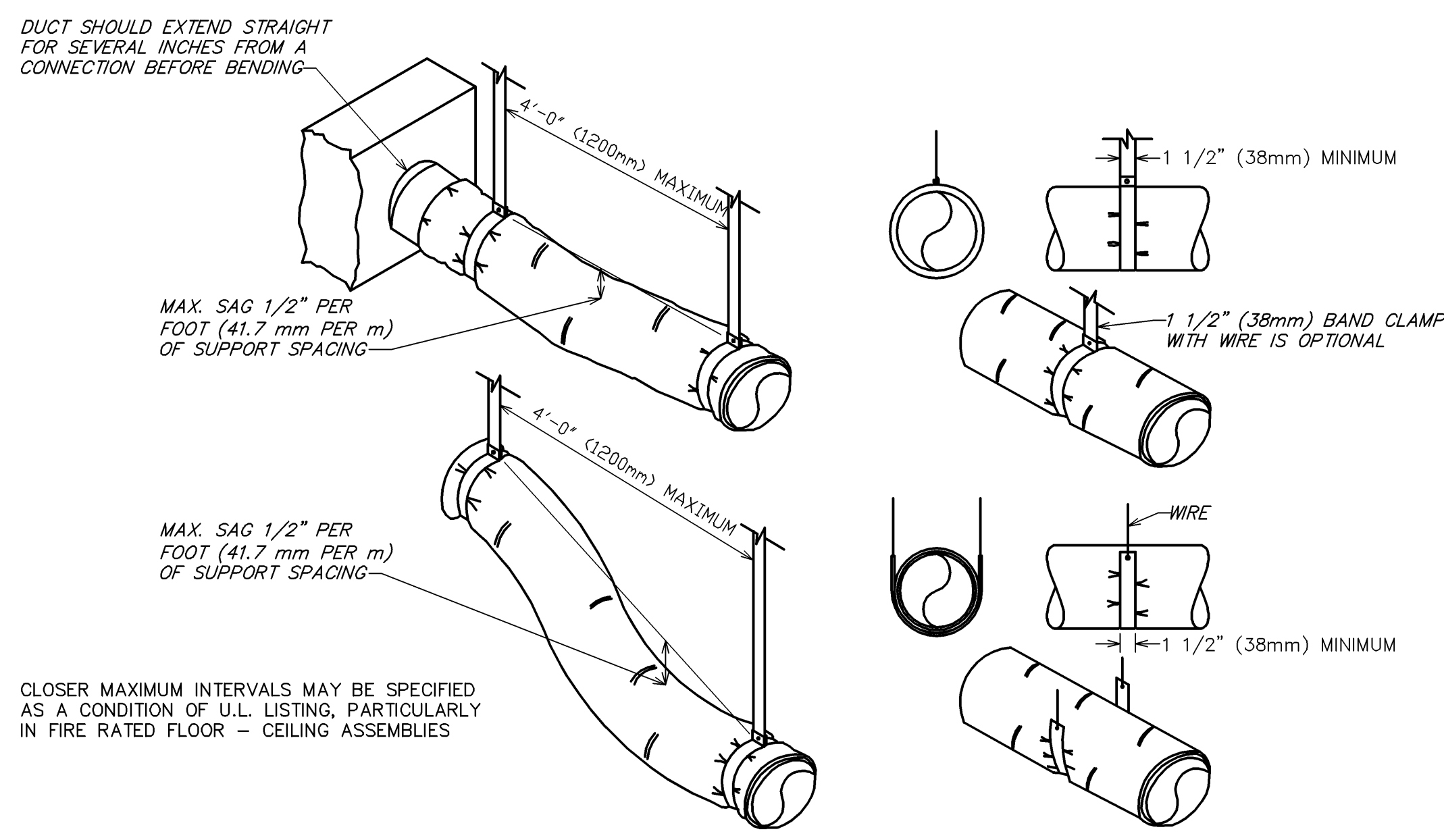
5 CONDENSER REFRIGERANT LINE PIPING AND POWER THROUGH ROOF DECK  
NOT TO SCALE



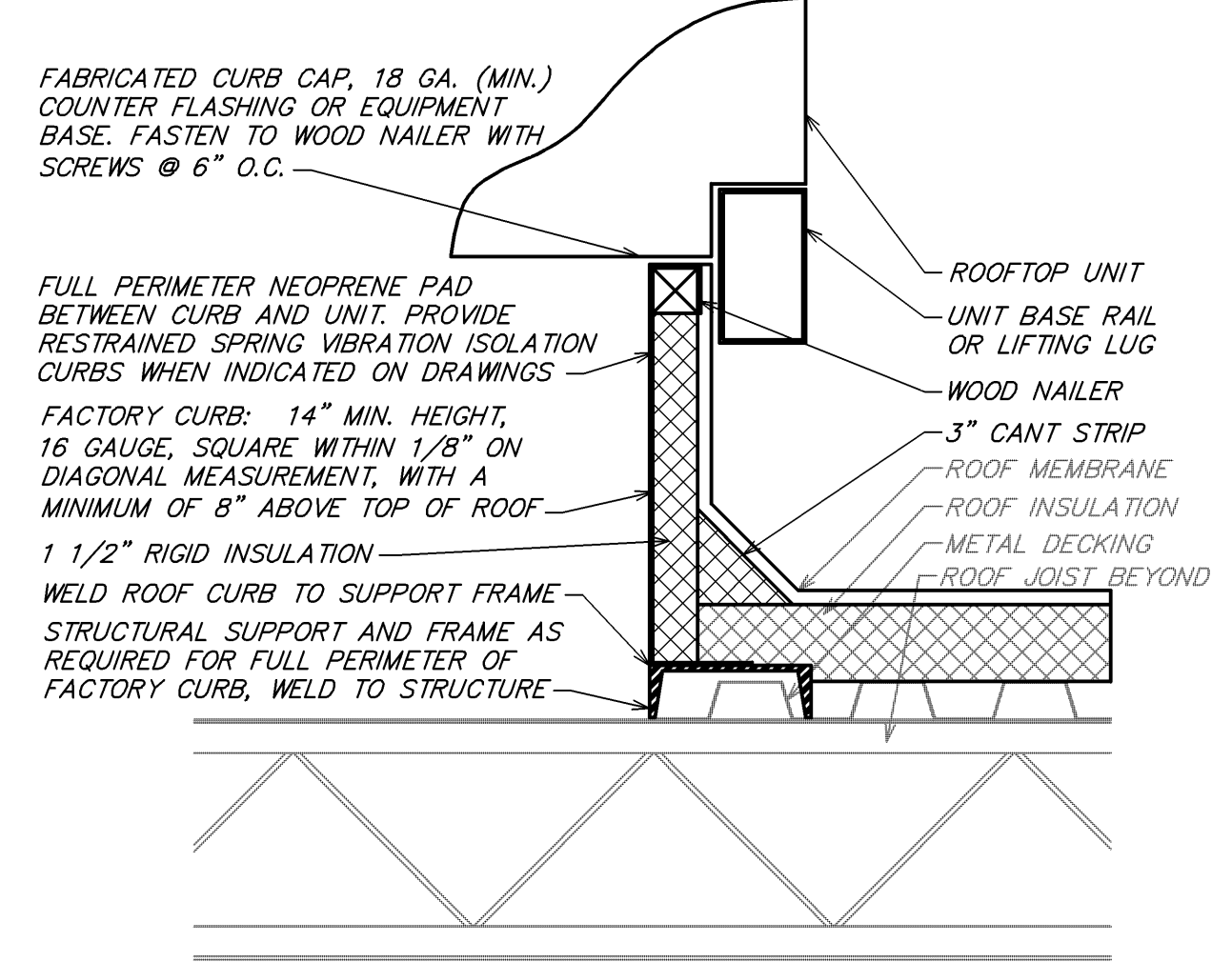
2 KITCHEN HOOD EXHAUST FAN  
NOT TO SCALE



9 HOOD FASTENING DETAIL  
NOT TO SCALE



6 FLEXIBLE DUCT SUPPORTS  
NOT TO SCALE



3 ROOF CURB DETAIL  
NOT TO SCALE

- NOTES:
- CUT AND PATCH EXISTING ROOFING AS REQUIRED FOR NEW CURB INSTALLATION.
  - CURB SHALL BE SHIMMED LEVEL. PROVIDE TAPERED ROOF CURB IF REQUIRED.
  - SECURELY INSTALL CURB TO ROOF STRUCTURE; USE FASTENERS AS REQUIRED BY ROOF CONSTRUCTION.

**zebra**  
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1464 N KIERLAND BLVD., SUITE N300  
SCOTTSDALE, ARIZONA 85254  
PHONE: 480.912.1169 zbrglobal

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PLANNERS  
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STORE NO:  
**OH #1723**

**SHAKE SHACK**  
LEVIS COMMONS BLVD.  
4115 LEVIS COMMONS BLVD.  
PERRYSBURG, OH 43951

**REVISIONS**

NO.	DATE	DESCRIPTION
A	05/21/25	REVISION A
B	06/02/25	REVISION B
C	06/25/25	REVISION C
D	07/03/25	REVISION D

STATUS: IFC SET

PROFESSIONAL SEAL OF GREGORY R. SCHNACKEL, E-59866, dated 07/02/25, COA # 0380.

FIELD VERIFICATION:  
This Contractor shall verify all field dimensions and conditions at the project site and notify Zebra Architecture, PLLC of any discrepancies, omissions, or discrepancies before beginning or fabricating any work. Do not scale from drawings.

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SHEET NAME:  
**MECHANICAL DETAILS**

DATE: 04/03/2025 PROJECT NO: 40091

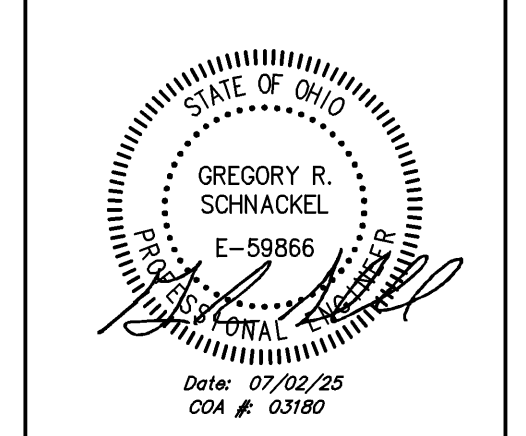
DRAWN: S/M/S SCALE:

SHEET NO.:  
**M501**

**REVISIONS**

NO.	DATE	DESCRIPTION
A	05/21/25	REVISION A
B	06/05/25	REVISION B
C	06/26/25	REVISION C
D	07/03/25	REVISION D

STATUS:  
IFC SET



**FIELD VERIFICATION:**  
The Contractor shall verify all field dimensions and conditions on the project site and notify Zebra Architecture, PLLC of any discrepancies immediately. Discrepancies shall be resolved before beginning or fabricating any work. Do not scale from drawings.

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SHEET NAME:  
**MECHANICAL DETAILS**

DATE: 04/03/2025 PROJECT NO: 40091

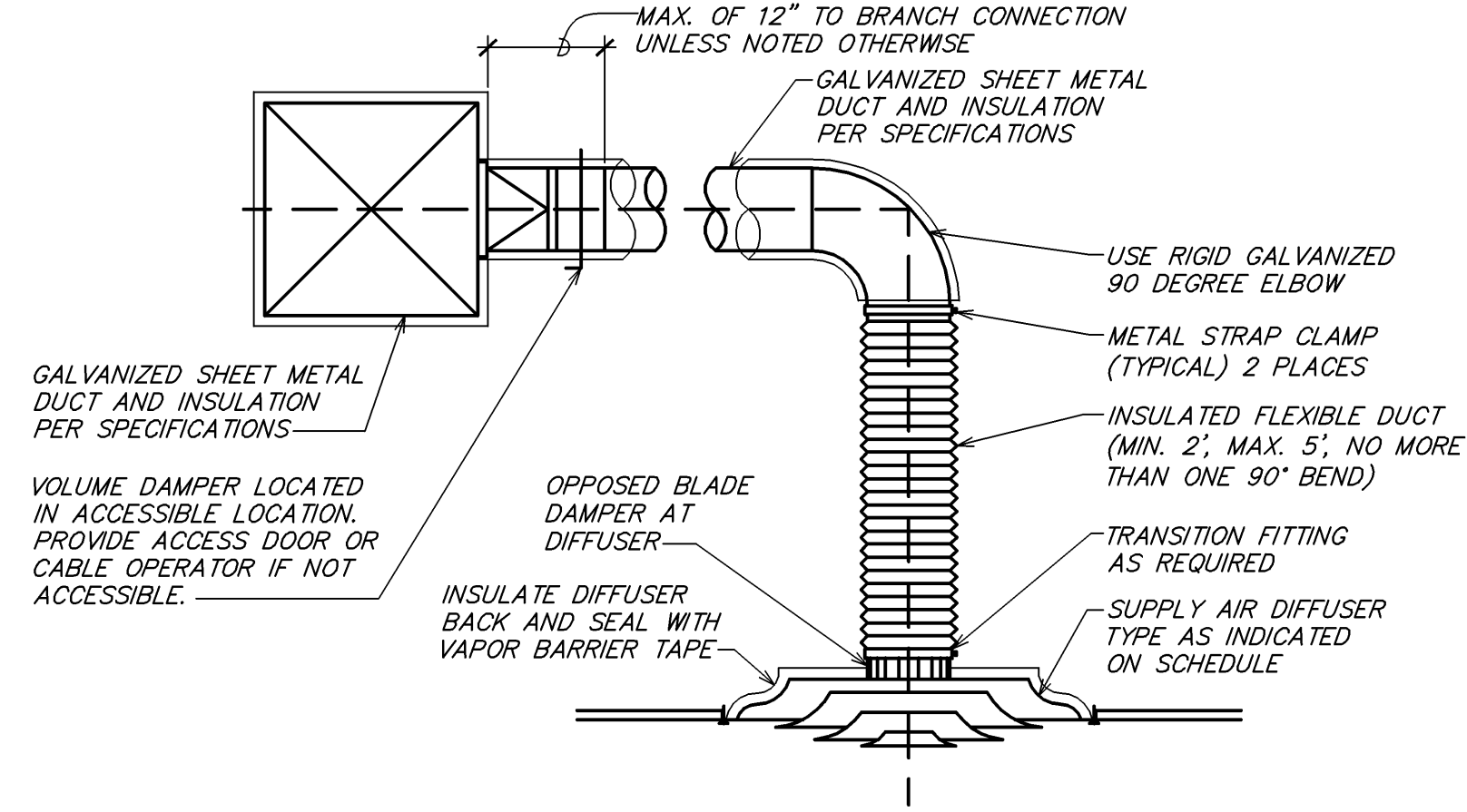
DRAWN: S/M/S SCALE:

SHEET NO:  
**M502**

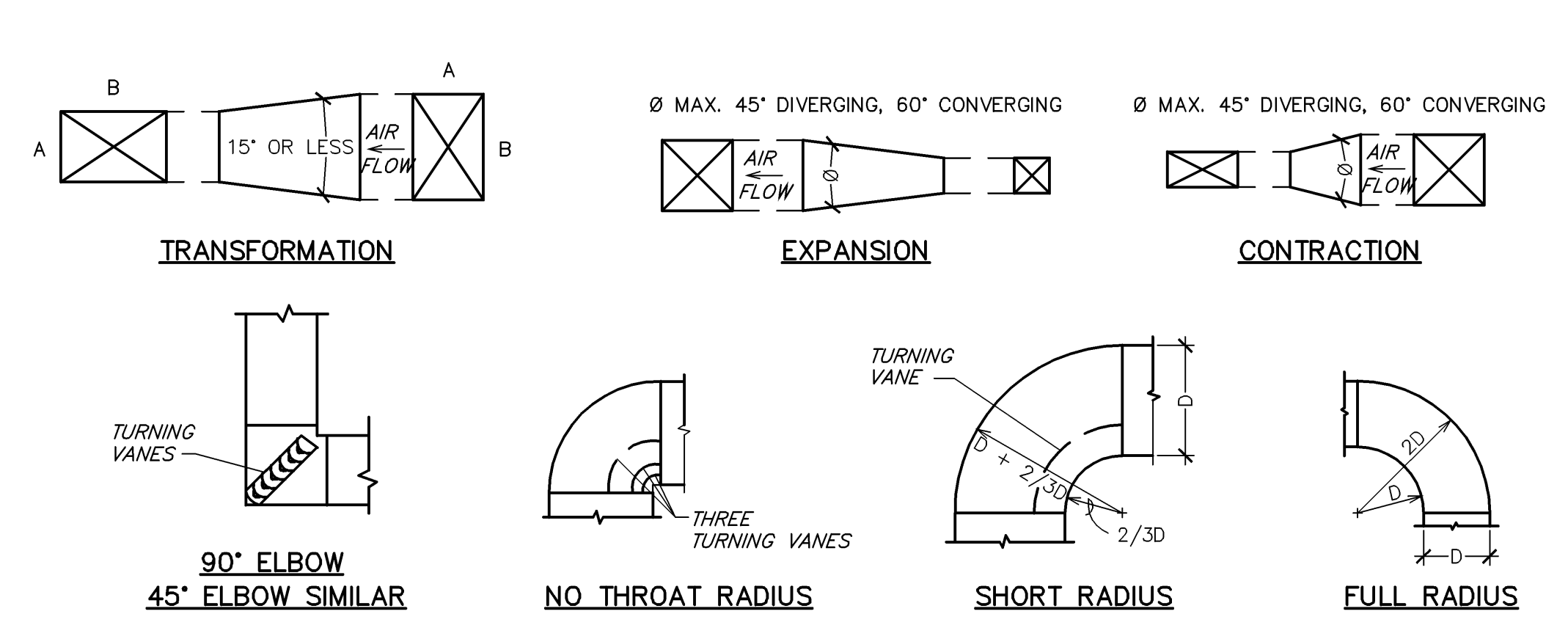
DIA.	WIRE DIA.	ROD	STRAP
10" DN	ONE 12 GA.	1/4"	1" x 22 GA.
11-18"	TWO 12 GA. OR ONE 8 GA.	1/4"	1" x 22 GA.
19-24"	TWO 10 GA.	1/4"	1" x 22 GA.
25-36"	TWO 8 GA.	3/8"	1" x 20 GA.
37-50"	-	TWO 3/8"	TWO 1" x 20 GA.
51-60"	-	TWO 3/8"	TWO 1" x 18 GA.
61-84"	-	TWO 3/8"	TWO 1" x 16 GA.
85-96"	-	TWO 1/2"	TWO 1 1/2" x 16 GA.

**NOTES:**  
1. STRAPS ARE GALVANIZED STEEL; RODS ARE UNCOATED OR GALVANIZED STEEL; WIRE IS BLACK ANNEALED, BRIGHT BASIC OR GALVANIZED STEEL. ALL ARE ALTERNATIVES.  
2. TABLE ALLOWS FOR CONVENTIONAL WALL THICKNESS, AND JOINT SYSTEMS PLUS ONE LB/SF OF INSULATION WEIGHT. IF HEAVIER DUCTS ARE TO BE INSTALLED, ADJUST HANGER SIZES TO BE WITHIN THEIR LOAD LIMITS.

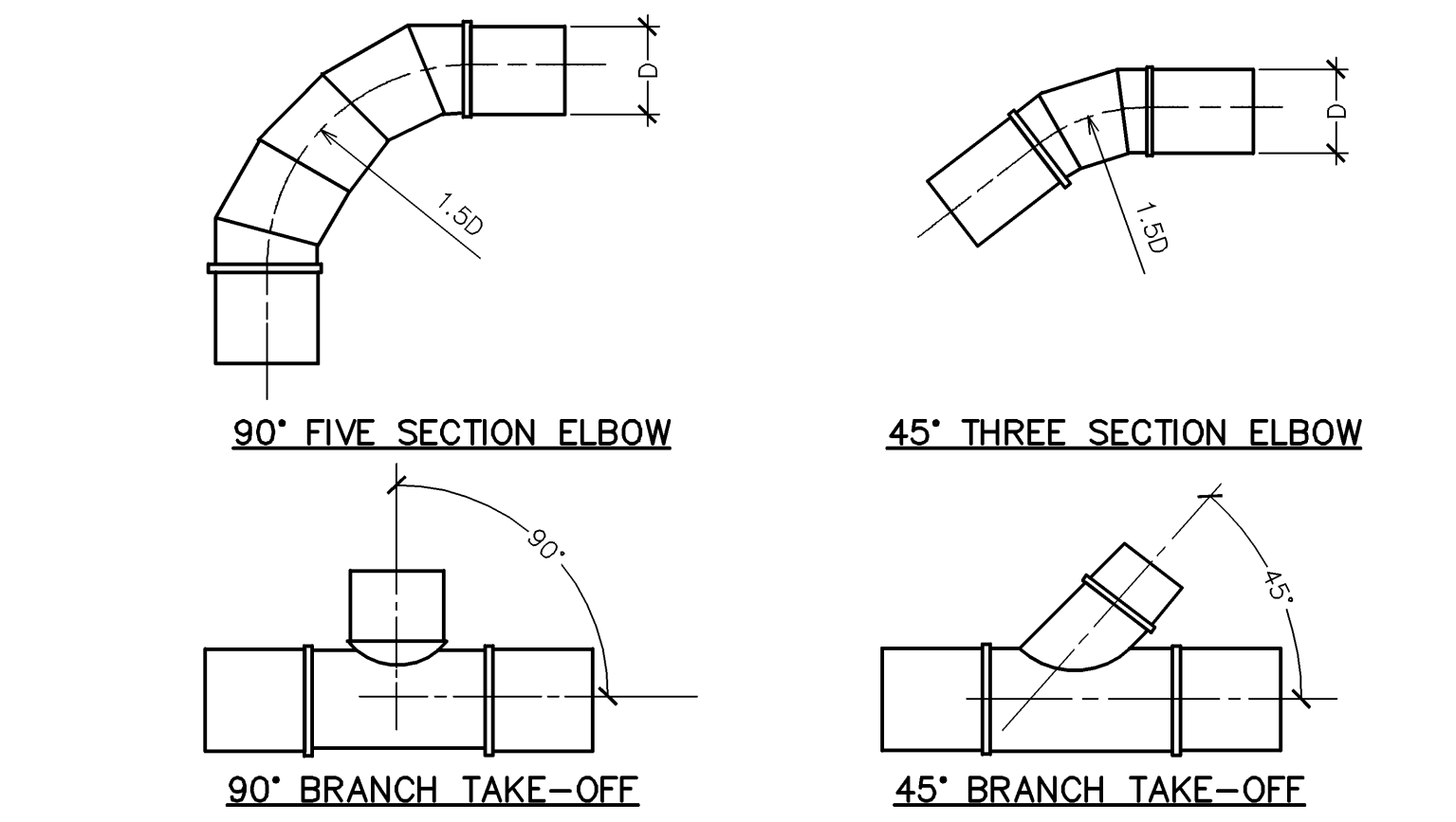
**10** ROUND DUCT HANGER TABLE  
NOT TO SCALE



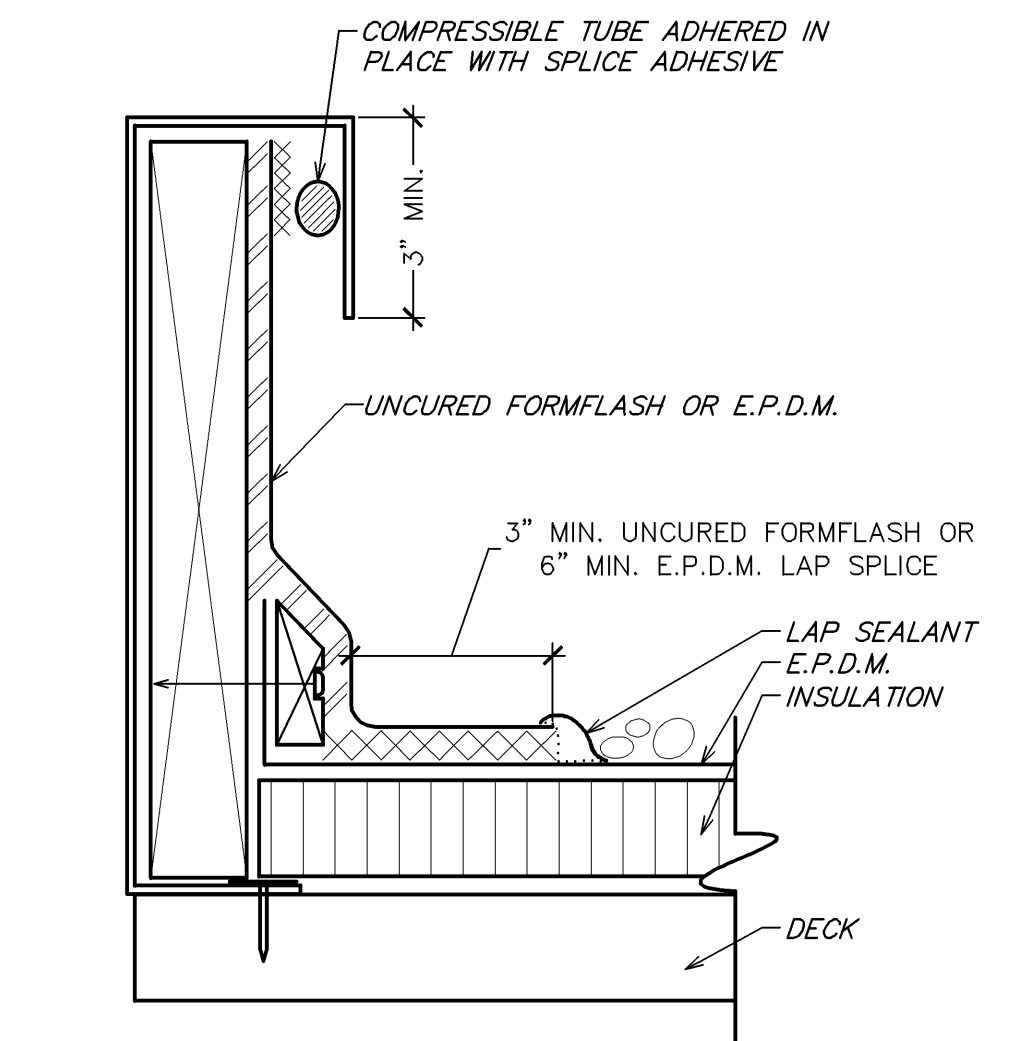
**8** TYPICAL DIFFUSER CONNECTION  
NOT TO SCALE



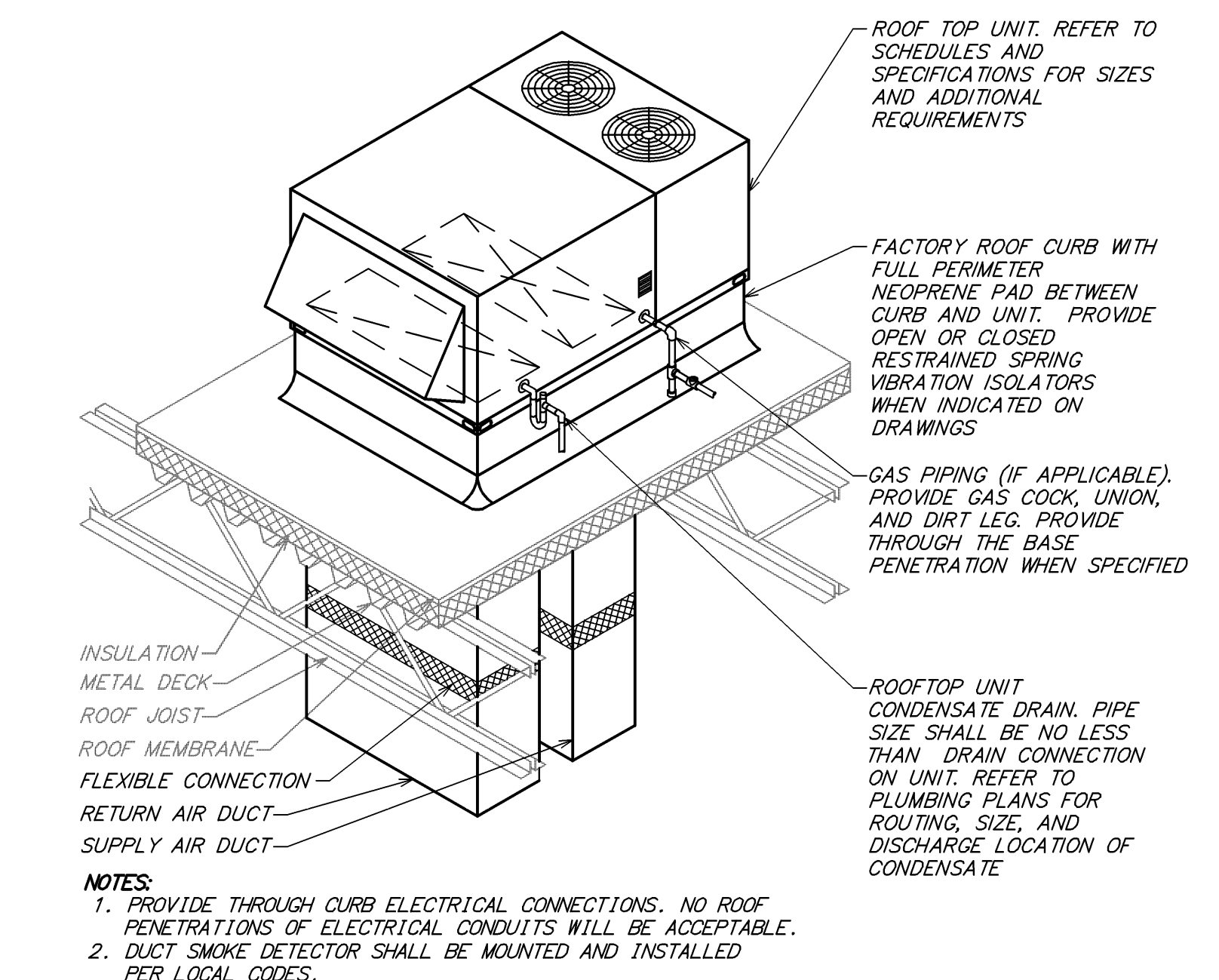
**5** DUCTWORK DETAILS  
NOT TO SCALE



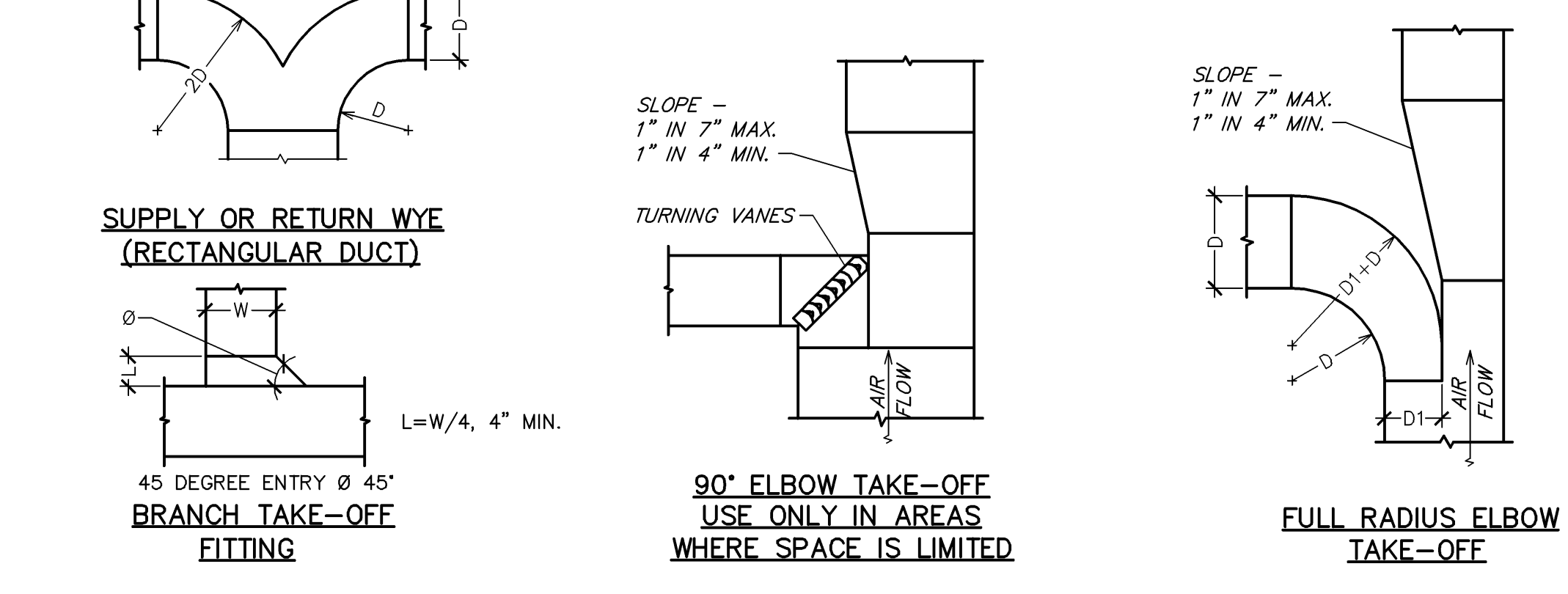
**1** TYPICAL ROUND DUCT FITTINGS  
NOT TO SCALE



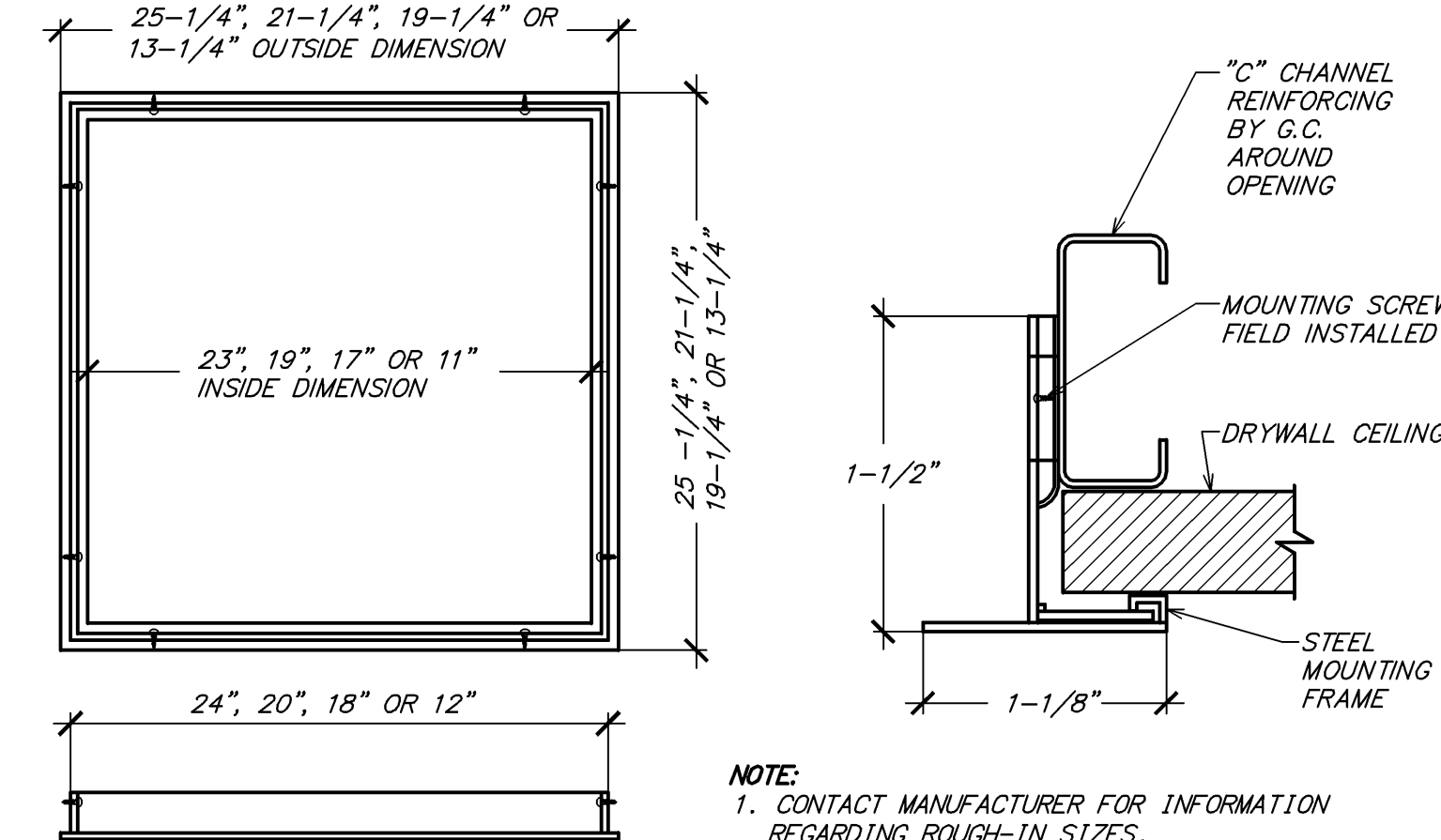
**11** CURB FLASHING DETAIL  
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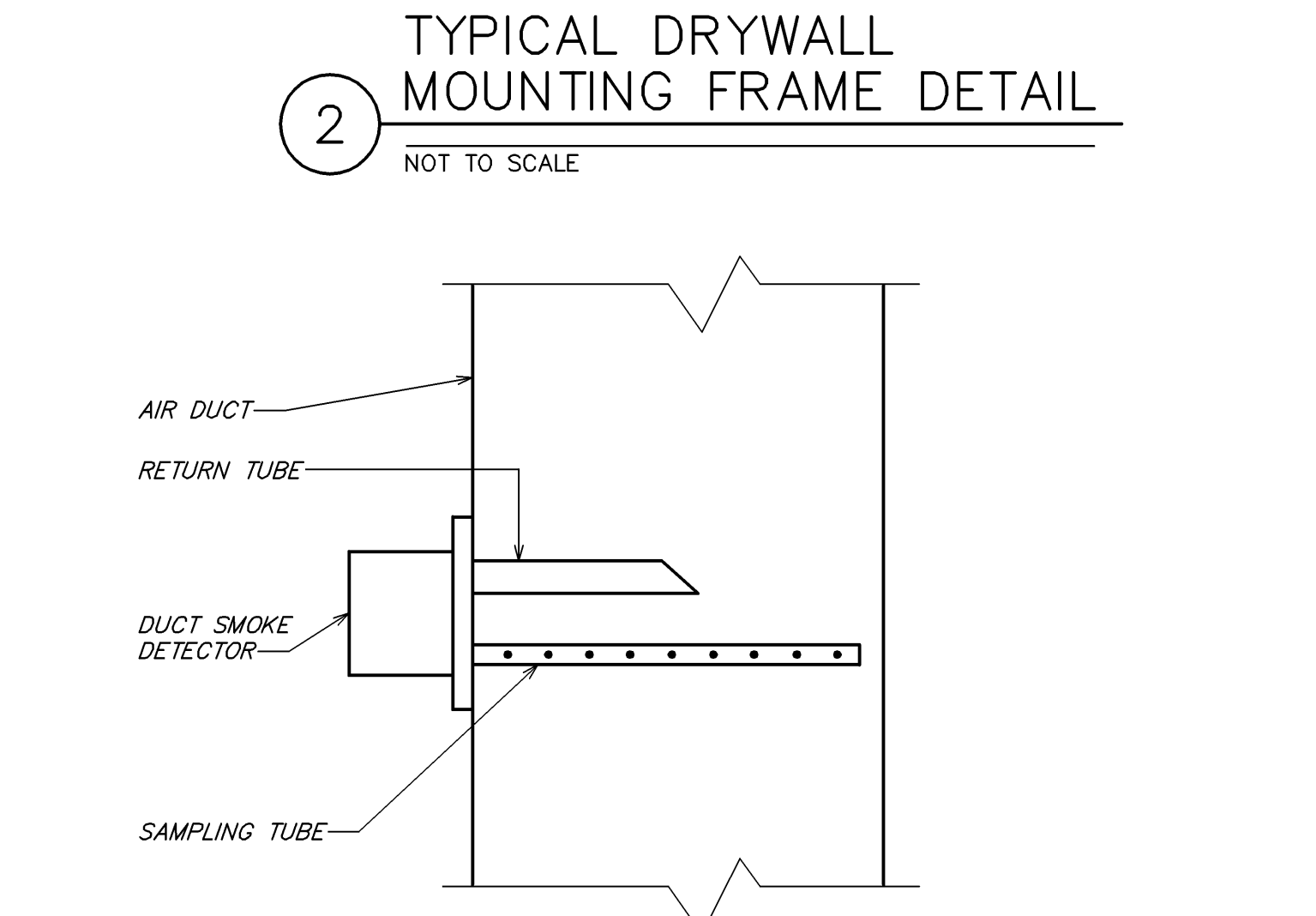
**9** TYPICAL ROOF TOP UNIT DETAIL  
NOT TO SCALE



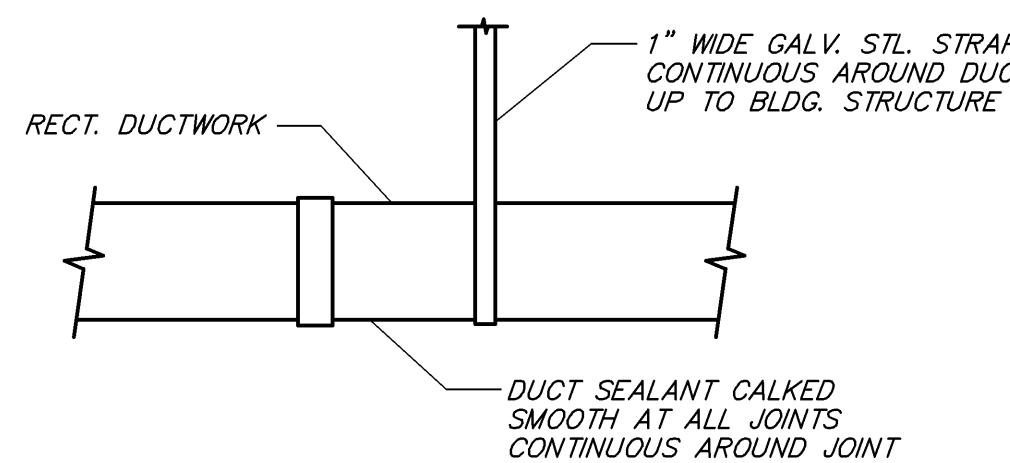
**7** CONDENSING UNIT SUPPORT DETAIL  
NOT TO SCALE



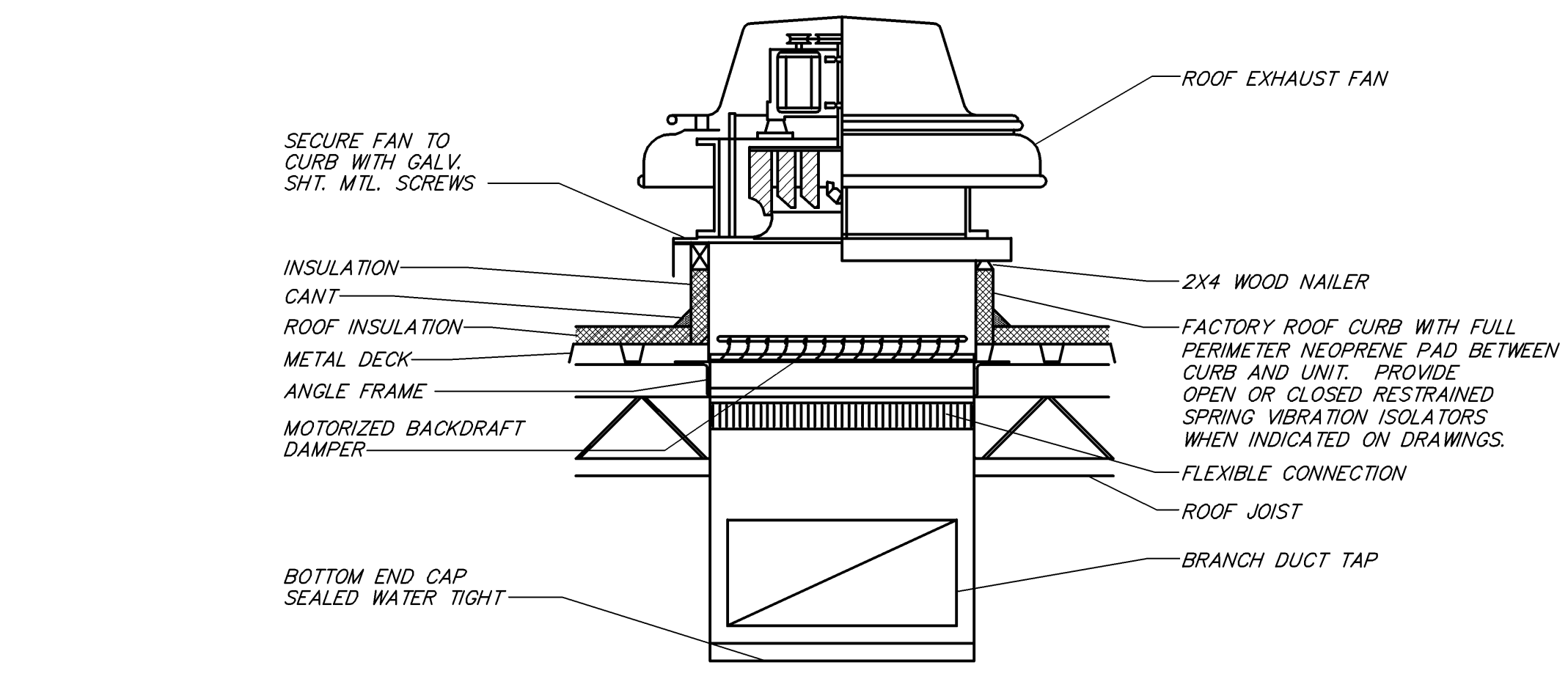
**1** TYPICAL ROUND DUCT FITTINGS  
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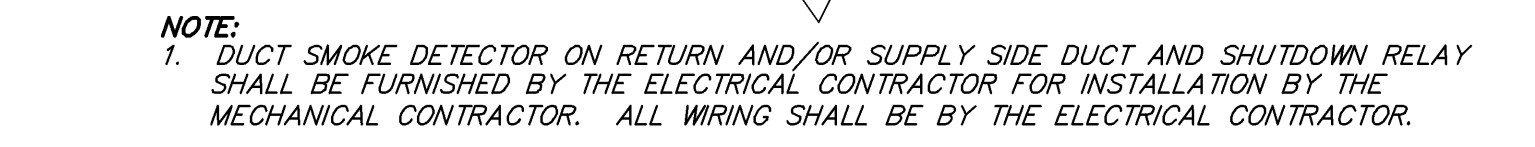
**2** TYPICAL DRYWALL MOUNTING FRAME DETAIL  
NOT TO SCALE



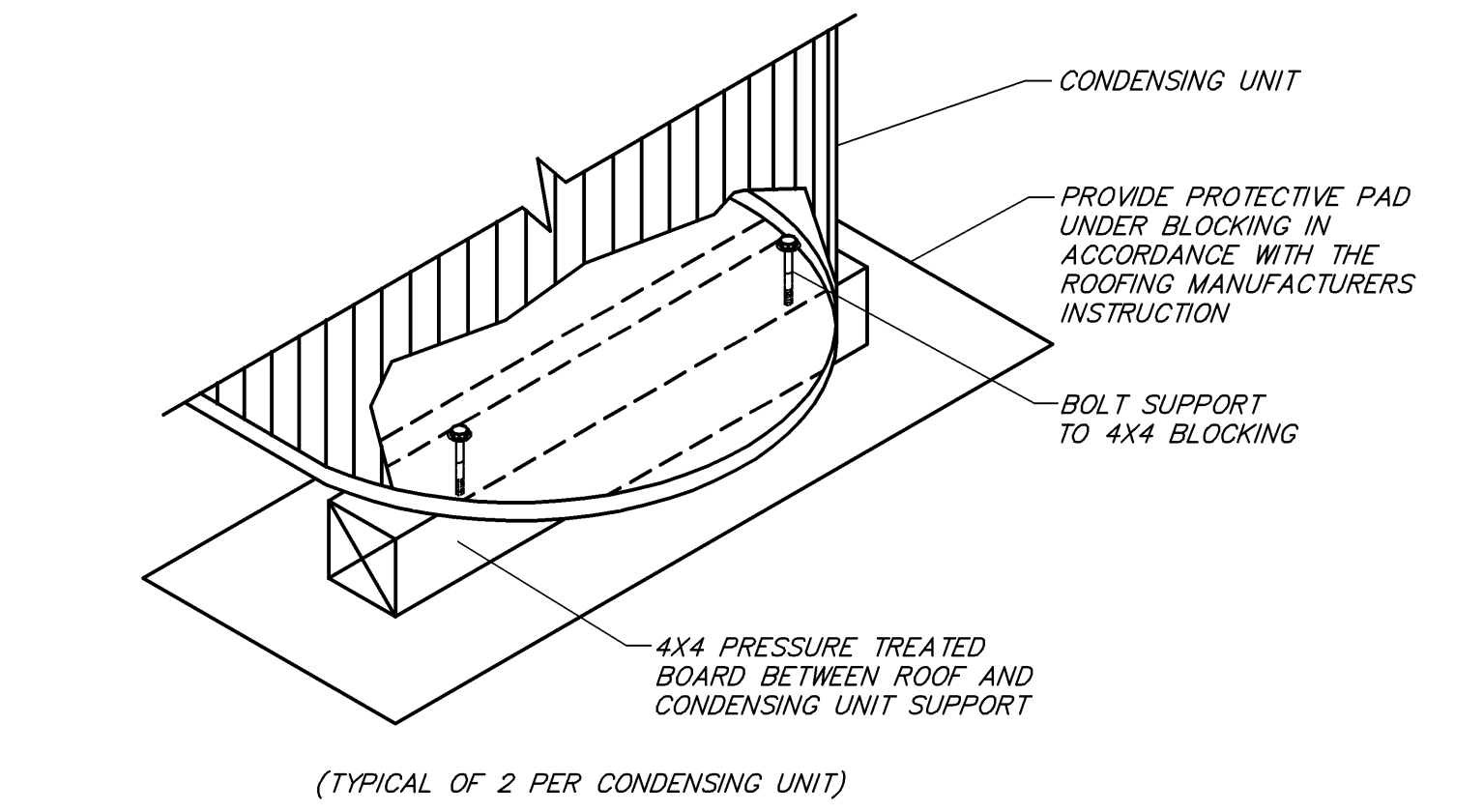
**12** EXPOSED RECTANGULAR DUCT SUPPORT DETAIL  
NOT TO SCALE



**6** ROOF EXHAUST FAN DETAIL  
NOT TO SCALE



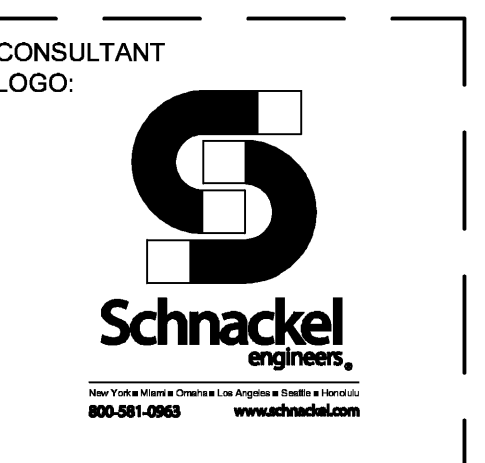
**3** DUCT SMOKE DETECTOR DETAIL  
NOT TO SCALE



**4** CONDENSING UNIT SUPPORT DETAIL  
NOT TO SCALE







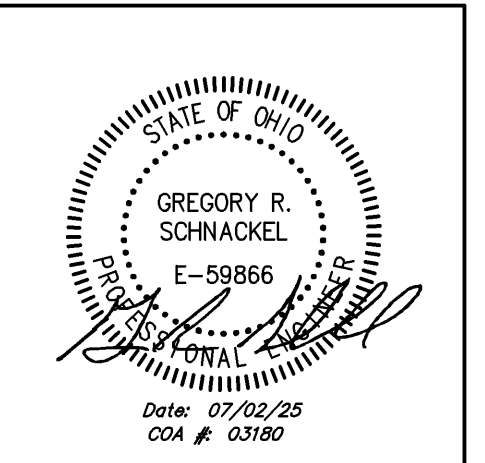
STORE NO.:  
**OH #1723**

**SHAKE SHACK**  
LEVIS COMMONS  
4115 LEVISTOWN BLVD.  
PERRYSBURG, OH 43051

REVISIONS

NO.	DATE	DESCRIPTION
A	03/27/25	REVISION A
B	03/27/25	REVISION B
C	06/26/25	REVISION C
D	07/02/25	REVISION D

STATUS: IFC SET



FIELD VERIFICATION:  
The Contractor shall verify all proposed dimensions and conditions on the project site and notify Zebra Architecture, PLLC of any discrepancies before beginning any work. No work shall be done without field verification.

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SHEET NAME:  
**MECHANICAL SPECIFICATIONS**

DATE: 04/03/2025 PROJECT NO.: 40091

DRAWN: SBMS SCALE:

SHEET NO.:  
**M592**

2.10 MISC AIR CONTROLS: Maintain selected supply air temperature and return dampers to minimum position on call for heating and above 75 degrees F ambient, or when ambient air temperature exceeds return air temperature.

2.09 INTEGRATED ECONOMIZERS:  
A. Economizer shall be furnished and installed complete with outside air and relief dampers and controls.  
B. Provide low-leakage, opposed blade dampers  
C. Meet all leakage requirements of applicable energy code.  
D. Economizer shall be capable of introducing up to 100% outdoor air for minimum ventilation as well as free cooling.  
E. Damper actuator shall be electronic, fully modulating design.  
F. Economizer outdoor hood shall be pre-painted and fully integrated with the unit.  
G. Dry Bulb Control: Provide dry bulb sensor capable of measuring temperature of outdoor air and controlling economizer cut-in point at the most economical level. High level cutoff shall be per applicable energy code.  
H. Provide economizer Fault Detection and Diagnostics (FDD).

2.11 POWER EXHAUST:  
A. Package shall include exhaust fan(s) and damper for units with economizer to control over-pressurization of building including integral pressure controller.

2.12 WATER LEVEL MONITORING DEVICE:  
A. A water-level monitoring device shall be installed inside the primary drain pan. This device shall shut off the equipment served in the event that the primary drain becomes restricted. Devices installed in the drain line shall not be permitted.

2.13 OPERATING CONTROLS:  
A. Provide low voltage, adjustable thermostat to control heater stages in sequence with delay between stages; compressor and condenser fan, and supply fan to maintain temperature setting.  
1. Include system selector switch (heat-off-cool) and fan control switch (auto-on).  
2. The Mechanical Contractor shall provide all control wiring between thermostat and unit control panel and any required remote sensors.  
3. Locate thermostat in room as shown.  
4. Electric solid state microcomputer based room thermostat, located as indicated. Provide remote sensors when indicated on the Drawings.  
a. Room thermostat shall incorporate:  
1. Automatic switching from heating to cooling.  
2. Preferential rate control to minimize overshoot and deviation from setpoint.  
3. Automatic Start Capabilities: Controls shall be capable of automatically adjusting the daily start time of the HVAC system in order to bring each space to the desired occupied temperature immediately prior to scheduled occupancy.  
4. Set-up for four separate temperatures per day.  
5. Instant override of setpoint for continuous or timed period from one hour to 31 days.  
6. Short cycle protection.  
7. Programming based on every day of the week.  
8. Selection features including imperial or metric display, 12 or 24 hour clock, keyboard disable, remote sensor, fan on-off.  
b. Room thermostat display shall include:  
1. Time of day.  
2. Actual room temperature.  
3. Programmed temperature.  
4. Day of week.  
5. System mode indication: heating, cooling, auto, off, fan auto, fan on-off.  
6. Slope (heating or cooling) operation.

SECTION 233700 - AIR OUTLETS AND INLETS

PART 1 GENERAL  
1.01 SECTION INCLUDES  
A. Rectangular ceiling diffusers.  
B. Perforated face ceiling diffusers.  
C. Grid core exhaust and return grilles.  
D. Wall registers and grilles.  
1.02 SUBMITTALS  
A. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing type, size, location, application, accessories, and noise level.  
1.03 QUALITY ASSURANCE  
A. Test and rate air outlet and inlet performance in accordance with ASHRAE Std 70.  
B. Test and rate lower performance in accordance with AMCA 500-1.  
C. Code requirements shall supersede any conflicting requirements of this Section.  
1.04 QUALIFICATIONS  
A. Manufacturer Qualifications: Company specializing in manufacturing the type of products specified in this Section, with minimum five years of documented experience.

PART 2 PRODUCTS  
2.01 MANUFACTURERS  
A. Tlax: Knueger; Price Industries; Nalor Industries Inc.; Hart & Cooley, Ruskin, Greenheck.  
2.02 RECTANGULAR CEILING DIFFUSERS  
A. Type: Square, adjustable pattern, stamped, multi-core, or architectural plaque diffuser to discharge air in 360 degree pattern with sectorizing baffles where indicated.  
B. Frame: Inverted T-bar type. In plaster ceilings, provide plaster frame and ceiling frame. (To allow lift-out removal of the diffuser without removal of the plaster frame.)  
C. Fabrication: Steel with baked enamel off-white finish.  
D. Accessories: Opposed blade damper and multi-lobed equalizing grid with damper adjustable from diffuser face.  
2.03 PERFORATED FACE CEILING DIFFUSERS  
A. Type: Perforated face with removable face.  
B. Frame: Inverted T-bar type. In plaster ceilings, provide plaster frame and ceiling frame. (To allow lift-out removal of the diffuser without removal of the plaster frame.)  
C. Fabrication: Steel with steel frame and baked enamel off-white finish.  
D. Accessories: Opposed blade damper and multi-lobed equalizing grid with damper adjustable from diffuser face.  
2.04 GRID CORE EXHAUST AND RETURN GRILLES  
A. Type: Corrie Corporation; Trane Inc.; YORK; Lennox Industries.  
B. Fabrication: Aluminum with factory-off-white enamel finish.  
C. Frame: 1-1/4 inch margin with countersunk screw mounting.  
D. Accessory: Chrome lay-in frame for suspended grid ceilings where face size exceeds 18 x 18 inch.  
E. Damper (if specified on drawings): Integral, gang-operated, opposed blade type with removable key operator, operable from face.  
2.05 WALL SUPPLY/REGISTERS/GRILLES  
A. Type: Streamlined and individually adjustable blades, 3/4 inch minimum depth, 3/4 inch maximum spacing with spring or other device to set blades, horizontal face, double deflector.  
B. Frame: 1-1/4 inch margin with countersunk screw mounting and gasket.  
C. Fabrication: Steel with 20 gage minimum frame and 22 gage minimum blades, steel and aluminum with 20 gage minimum frame, or aluminum extrusions, with factory off-white enamel finish.  
D. Damper: Integral, gang-operated opposed blade type with removable key operator, operable from face.  
E. Rough Service: Provide front pivoted or welded in place blades, securely fastened to be immobile.

SECTION 23127 - SMALL SPLIT-SYSTEM HEATING AND COOLING

PART 1 GENERAL  
1.01 SECTION INCLUDES  
A. Indoor Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, supply fan, evaporator coil, and controls; wired for single power connection with control transformer.  
B. Evaporator Coils: Copper tube aluminum fin assembly, galvanized or polymer drain pan sloped in all directions to drain, drain connector, refrigerant piping connections, restricted distributor or thermostatic expansion valve.  
1. Construction and Ratings: In accordance with ARI 210/240 and UL listed.  
2.04 OUTDOOR UNITS  
A. Outdoor Units: Self-contained, packaged, factory assembled, pre-wired unit consisting of cabinet, with compressor and condenser.  
1. Cabinet: Steel with baked enamel finish, easily removed and secured access doors with safety interlock switches, gage glass insulation with reflective adhesive foam insulation.  
2. Construction and Ratings: In accordance with ARI 210/240 with testing in accordance with ASHRAE Std 23 and ARI 210/240.  
B. Compressor: ARI 520; hermetic, 3600 rpm, (multi-speed when indicated on the drawings) resiliently mounted integral with condenser, with positive lubrication, crankcase heater, high pressure control, motor overload protection, service valves and drier. Provide time delay control to prevent short cycling.  
C. Air Cooled Condenser: ARI 520; aluminum fin and copper tube coil, with direct drive axial propeller fan resiliently mounted, galvanized fan guard.  
D. Accessories: Filter drier, high pressure switch (manual reset), low pressure switch (automatic reset), service valves and gage ports, thermometer well (in liquid line).  
1. Provide thermostatic expansion valves.  
2. Provide heat pump reversing valves on all heat pump units.  
E. Operating Controls:  
1. Control by room thermostat to maintain room temperature setting.  
2. Low Ambient Kit: On all systems not provided with economizer controls, provide refrigerant pressure switch to cycle condenser fan on when condenser refrigerant pressure is above 285 psig and off when pressure drops below 140 psig for operation to 0 degrees F.  
F. Mounting Pad: Poured in place concrete, precast concrete or resin composite pad, minimum 4 inches thick, square.  
1. Provide thermostatic expansion valves.  
2. Provide heat pump reversing valves on all heat pump units.  
G. Operating Controls:  
1. Control by room thermostat to maintain room temperature setting.  
2. Automatic switching from heating to cooling.  
3. Preferential rate control to minimize overshoot and deviation from setpoint.  
4. Automatic Start Capabilities: Controls shall be capable of automatically adjusting the daily start time of the HVAC system in order to bring each space to the desired occupied temperature immediately prior to scheduled occupancy.  
5. Set-up for four separate temperatures per day.  
6. Instant override of setpoint for continuous or timed period from one hour to 31 days.  
7. Short cycle protection.  
8. Thermostat display.  
9. Selection features including degree F or degree C display, 12 or 24 hour clock, keyboard disable, remote sensor, fan on-off.  
10. Battery replacement without program loss.  
11. Room thermostat shall include:  
a. Time of day.  
b. Actual room temperature.  
c. Programmed temperature.  
d. Day of week.  
e. System mode indication: heating, cooling, fan auto, off, and on, auto or on, off.

SECTION 23143 - PACKAGED OUTDOOR ROOF TOP UNITS - GAS FUELED

PART 1 GENERAL  
1.01 SECTION INCLUDES  
A. Packaged roof top units.  
B. Thermostat controls.  
C. Roof mounting curb and base.  
D. Economizer.  
E. Power exhaust.  
PART 2 PRODUCTS  
2.01 MANUFACTURERS  
A. Carrier Corporation; Trane Inc.; Lennox Industries; York; AAOB Incorporated.  
2.02 A. General: Roof mounted units having gas burner and electric refrigeration. Description: Self-contained, packaged, factory assembled and pre-wired, consisting of cabinet and frame, supply fan, heat exchanger and burner, controls, air filters, refrigerant cooling coil and compressor, dry bulb economizer and power exhaust fan where indicated on the Drawings, condenser coil and condenser fan. Electrical Characteristics: As scheduled on the Drawings.  
B. Disconnect Switches: Factory mount disconnect switch on equipment.

K. Connect diffusers to low pressure ducts directly or with 5 feet maximum length of flexible duct held in place with strap or clamp. Longer duct lengths are acceptable if depicted on the design drawings and allowed per local code. A maximum of one (0) degree bend or equivalent will be allowed in flexible duct runs.  
L. During construction provide temporary closures of metal or taped polyethylene on open ductwork to prevent construction dust from entering ductwork system.  
M. All exposed ducts in finished areas must be completely free from all dents or imperfections in the continuously coating and shall be sealed CAREFULLY AND NEATLY with duct sealer completely contained within the joint. Duct wrap will not be permitted in exposed locations.  
N. Kitchen hood exhaust, Type 1: Use stainless steel for ductwork exposed to view and backdraft dampers. Kitchen hood exhaust ducts where concealed.  
O. For all hood systems, perform all required regulatory duct leakage and weld tests in the presence of the code official, including but not limited to light tests and smoke tests, to demonstrate the integrity of the duct construction prior to the installation of any insulation that prevents visual inspection of the ductwork on all sides.  
P. Provide residue traps in kitchen hood exhaust ducts at base of vertical risers with provisions for clean out.  
Q. All roofing penetrations shall be flashed and weather sealed by the roofing manufacturer's authorized roofing contractor at this Contractor's expense. This Contractor shall contract with the factory authorized roofing contractor for the specific roofing system applicable to this Project. The use of an unauthorized roofing contractor may result in removal and replacement of the penetration systems at this Contractor's expense.

3.03 CLEANING  
A. Clean duct system and force air at high velocity through duct to remove accumulated dust or clean with high power vacuum machines. To clean sufficient air, clean half the system at a time. Protect equipment which may be harmed by excessive dirt with temporary filters, or bypass during cleaning.  
3.04 SCHEDULES  
A. Ductwork Material:  
1. The Contractor may use any of the following ductwork materials, at his option, provided the selected material meets with the approval of all State, local, authorities and utility company requirements. Verification of compliance of the selected piping material is the sole responsibility of the installing Contractor.  
1. Low Velocity Supply (Heating Systems): Galvanized Steel, Aluminum.  
2. Low Velocity Supply (Systems with Cooling Coils): Galvanized Steel, Aluminum.  
3. Return and Relief: Galvanized Steel, Aluminum.  
4. General Exhaust: Galvanized Steel, Aluminum.  
5. Outside Air Intake: Galvanized Steel.  
6. Kitchen Hood Exhaust, Type 1: Carbon Steel, Stainless Steel, Constructed per NFPA 96.  
C. Ductwork Pressure Class:  
1. Low Velocity Supply (Heating Systems): Scheduled System ESP+0.25", round up to next higher pressure class.  
2. Low Velocity Supply (Systems with Cooling): Scheduled System ESP +0.5", round up to next higher pressure class.  
3. Return and Relief: 1 inch.  
4. General Exhaust: Scheduled System ESP +1.0", round up to next higher pressure class.  
5. Outside Air Intake: 1 inch.  
6. Kitchen Hood Exhaust: See drawings for maximum fan static pressure plus 50% additional.  
END OF SECTION

SECTION 233000 - AIR DUCT ACCESSORIES

PART 1 GENERAL  
1.01 SECTION INCLUDES  
A. Air turning devices/extractors.  
B. Volume control dampers.  
C. Flexible duct connections.  
D. Duct access doors.  
PART 2 PRODUCTS  
2.01 AIR TURNING DEVICES/EXTRACTORS  
A. Manufacturers: Knueger; Ruskin Company; Tlax.  
B. Multi-bladed device with blades in short dimension; steel or aluminum construction, with individually adjustable blades, mounting straps.  
2.02 VOLUME CONTROL DAMPERS

SECTION 233300 - AIR DUCT ACCESSORIES

PART 3 EXECUTION  
3.01 INSTALLATION  
A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and follow SMACNA HVAC Duct Construction Standards - Metal and Flexible. Duct construction and pressure class.  
B. Provide duct access doors for inspection and cleaning before and after filters, coils, fans, automatic dampers, air filters, combination fire and smoke dampers, and elsewhere as indicated. Provide minimum 8 x 8 inch size for hand access, 18 x 18 inch size for shoulder access, and as indicated. Provide 4 x 4 inch for balancing dampers only. Review locations prior to fabrication.  
C. Locate all dampers and control elements in accessible areas wherever possible to avoid access doors. Provide ceiling access doors for access to all dampers and control elements located above inaccessible ceiling areas. Provide minimum 12 x 12 inch size for hand access, 18 x 18 inch size for shoulder access, and as indicated. Provide 4 x 4 inch for balancing dampers only. Review locations prior to fabrication.  
D. Provide balancing dampers at points on supply, return, and exhaust systems where branches are taken from larger ducts as required for air balancing. Install minimum 2 duct widths from duct take-off.  
E. Provide balancing dampers on duct take-off to diffusers, grilles, and registers, regardless of whether dampers are specified as part of the diffuser, grille, or register assembly. Do not locate dampers closer than 5 feet or 10 duct diameters from the air terminal device, whichever is greater.  
F. If fans and motorized equipment associated with ducts, provide flexible duct connections immediately adjacent to the equipment.  
G. If equipment supported by vibration isolators, provide flexible duct connections immediately adjacent to the equipment.

AIR PURIFICATION DEVICES

Model: PHI-PRGI4-24V Specifications  
LISTING: UL 1598-2008 (3rd Edition)  
FACTORY UV-CELL  
INSTALLATION: RTU PACKAGED UNIT / BLOWER CABINET  
PART 1 GENERAL  
1.01 SUMMARY  
A. This section includes hydro-peroxide, Super-Oxide Ions, & Hydroxide Ion's delivered via PHI technology through packaged heating and cooling units capable of supplying 3,000 to 8,000 CFM of supply air to the indoor space.  
1.02 QUALITY ASSURANCE  
A. All models shall be UL listed and comply with safety standards UL 1598:2008 (3rd Edition) and CSA Standard C22.2 No. 250.0:2008.  
1.03 WARRANTY  
A. All units shall be provided with the following standard warranties:  
1. 2-year or 18,000 hour initial startup. National TAB provided service plan. The phi cell & UV light replacement 18,000 hour replacements are provided/installed at no cost if National TAB is providing Renew-Cx Service after initial installation.  
B. This warranty shall not apply if:  
1. The equipment is not installed by a qualified installer per the manufacturer's installation instructions shipped with the product.  
2. The equipment is misused or not maintained per the manufacturer's maintenance instructions.  
3. The equipment is not operated within its published capacity.  
4. The invoice is not paid within the terms of the sales agreement.  
PART 2 PRODUCTS  
2.01 GENERAL  
A. MULTI-ZONE one piece packaged PHI Unit-Air Purification System.  
2.02 HOUSING  
A. Unit(s) shall be constructed of aluminum structural pop-rivets. All metal shall be CNC bent for precise assembly.  
B. Kitchen range hood exhausters.  
1. UV-C bulb  
2. Electronic Enclosure (24VAC input power Jack)  
4. Magnetic mounting for easy placement and installation in the Blower Cabinet.  
END OF SECTION

SECTION 233423 - HVAC POWER VENTILATORS

PART 1 GENERAL  
1.01 SECTION INCLUDES  
A. Roof exhausters.  
B. Kitchen range hood exhausters.  
PART 2 PRODUCTS  
2.01 MANUFACTURERS  
A. Veehede; Loren Cook Company; PemBarry; Cortiva/Aire.  
2.02 POWER VENTILATORS - GENERAL  
A. Performance Ratings: Determined in accordance with AMCA 210 and bearing the AMCA Certified Rating Seal.

6 5 4 3 2 1

CODE: 2021 INTERNATIONAL MECHANICAL CODE

SYSTEM 1 BLOCK LOAD

ROOM #	NAME	Az AREA (FT <sup>2</sup> )	TABLE 403.3.1.1 OCCUPANCY CATEGORY	Rp PEOPLE DA (CFM/PERSON)	Ra AREA DA (CFM/MT <sup>2</sup> )	TABLE 403.3.1.1 OCCUPANT DENSITY (#/1000 FT <sup>2</sup> )	Pz (#)	Ra/Pz	Ra/Pz	Voz (CFM)	TABLE 403.3.1.1.2 E <sub>v</sub>	Voz (CFM)	Vpz MAX SUPPLY (CFM)	Vpzm MIN SUPPLY (CFM)	Zo	TABLE 403.3.1.2.3.2 E <sub>v</sub>
101	DINING AREA	888	DINING ROOMS	7.5	0.18	20	63	473	162	834	0.80	793	3100	3100	0.258	0.85
102	HOT LINE	249	KITCHEN (COOKING)	7.5	0.12	20	5	38	30	87	0.80	84	1128	1128	0.675	1.00
103	BACK KITCHEN	409	KITCHEN (COOKING)	7.5	0.12	20	5	88	49	117	0.80	146	1178	1178	0.124	1.00
104	MANAGER'S OFFICE	87	OFFICE SPACES	9.0	0.08	3	2	10	4	14	0.80	18	350	350	0.050	1.00
105	HALLWAY	76	NO LISTING	0.0	0.00	0	0	0	0	0	0.80	0	200	200	0.000	1.00
106	UNISEX RESTROOM	65	NO LISTING	0.0	0.00	0	0	0	0	0	0.80	0	50	50	0.000	1.00
107	UNISEX RESTROOM	68	NO LISTING	0.0	0.00	0	0	0	0	0	0.80	0	50	50	0.000	1.00
108	COLD LINE	148	KITCHEN (COOKING)	7.5	0.12	20	4	30	18	48	0.80	80	630	630	0.096	1.00
109	DISH	228	KITCHEN (COOKING)	7.5	0.12	20	5	38	27	66	0.80	81	1056	1056	0.077	1.00
110	MECHANICAL	71	KITCHEN (COOKING)	7.5	0.12	20	2	15	9	24	0.80	20	120	120	0.248	0.91
		2,273					90	670	288	968		1210	7855	7855	0.256	0.85

OUTDOOR AIR CALCULATIONS PER EQUATION 4-1:

SYMBOL VALUE DESCRIPTION

P<sub>z</sub> = 90 SYSTEM POPULATION

SP<sub>z</sub> = 90 ZONE POPULATION

D = 1,000 OCCUPANT DENSITY

V<sub>oz</sub> = 868 UNCORRECTED OUTDOOR AIR INTAKE

Z<sub>o</sub> (ft max) = 0.256 ZONE PRIMARY OUTDOOR AIR FRACTION (MAXIMUM)

E<sub>v</sub> = 0.88 SYSTEM VENTILATION EFFICIENCY

S<sub>1</sub> = 7850 ZONE PRIMARY AIRFLOW

V<sub>ot</sub> = 1,083 CODE REQUIRED OUTDOOR AIRFLOW RATE, CFM

V<sub>in</sub> = 2,500 DESIGN OUTDOOR AIRFLOW RATE, CFM

1 OUTSIDE AIR CALCULATIONS

RTU/ACU CONTROL MATRIX

SETPOINT/CONTROL	RTU-1 DINING	RTU-2 KITCHEN	FC-1 OFFICE
*SETPOINTS*			
COOLING - OCCUPIED SETPOINT	75 F	75 F	75 F
COOLING - UNOCCUPIED SETPOINT	80 F	80 F	80 F
HEATING - OCCUPIED SETPOINT	70 F	70 F	70 F
HEATING - UNOCCUPIED SETPOINT	60 F	60 F	60 F
ECONOMIZER UPPER LIMIT SETPOINT	70 F	70 F	NA
*ACCESSORIES*			
HVAC SYSTEM OCCUPIED/UNOCCUPIED MODE - PROGRAMMABLE THERMOSTAT	YES	YES	YES
REMOTE TEMPERATURE SENSOR	YES	YES	NO
MOTORIZED OUTDOOR AIR DAMPER	YES	YES	YES
INTEGRATED ECONOMIZER	YES	YES	NO
ECONOMIZER FAULT DETECTION	YES	YES	NO
BAROMETRIC RELIEF	YES	NO	NO
POWERED EXHAUST RELIEF	NO	YES	NO
DEHUMIDIFICATION (HOT GAS REHEAT)	YES	YES	NO
*SUPPLY FAN*			
ON DURING OCCUPIED MODE	YES	YES	YES
VARIABLE VOLUME - MODULATE FAN SPEED	YES	YES	YES
*SAFETIES AND INTERLOCKS*			
RETURN AIR SMOKE DETECTOR	YES	YES	NO
LOW LIMIT FREEZE/STAT	YES	YES	YES
FIRE ALARM CONTROL PANEL INTERLOCK	YES	YES	YES
KITCHEN EXHAUST SYSTEM INTERLOCK	YES	YES	YES

AIR BALANCE SCHEDULE

EQUIPMENT TAG	SUPPLY AIRFLOW (CFM)	OUTDOOR AIRFLOW (CFM)	RETURN AIRFLOW (CFM)	EXHAUST AIRFLOW (CFM)	OA/SA (%)	REMARKS
RTU-1	3,500	750	2,750		21%	FOH
RTU-2	4,000	1,750	2,250		44%	DINING
FC-1	350	0	350		0%	OFFICE
EF-1				1,200		HOOD-1
EF-2				860		HOOD-2
EF-3				200		RESTROOMS
TOTAL =	7,850	2,500	5,350	2,260		
RESULTING BUILDING PRESSURIZATION = 240 CFM						
PRESSURIZATION PERCENTAGE = 3.1 %						

CARRIER EQUIPMENT SHALL BE OBTAINED THROUGH SHAKE SHACK NATIONAL ACCOUNT. CONTACT CARRIER CORPORATION FOR PROPOSALS:  
KEN REVILLA  
CARRIER RETAIL STRATEGIC ACCOUNTS  
EMAIL: KEN.REVILLA@CARRIER.COM  
PHONE: (954) 218-0070

ROOF TOP UNITS

MARK	COOLING			HEATING		SUPPLY AIR (CFM)	EXT. S.P. (IN)	ELECTRICAL				WEIGHT (LBS)	SEER	EER	IEER	REFRIG TYPE	CAPTIVEAIRE MODEL	REMARKS
	SEN (MBH)	TOT (MBH)	COOL (TON)	IN (MBH)	OUT (MBH)			FAN BHP	VOLT	PH	MCA							
RTU-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,2
RTU-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,2

CAPTIVEAIRE IS THE BASIS OF DESIGN. NO EXCEPTIONS.  
COOLING CAPACITIES ARE BASED ON AHRF STANDARD 210/240 OR 340/360: 80F DB/ 67F WB INDOOR ENTERING AIR TEMPERATURE, 95F DB AIR ENTERING OUTDOOR FAN. SCHEDULED UNIT MAY DIFFER FROM AHRF STANDARD CFM.  
1. PROVIDE EQUIPMENT WITH SCOR GREATER THAN THE AVAILABLE FAULT CURRENT AT THE EQUIPMENT OR UPSTREAM PANELBOARD. REFER TO THE ELECTRICAL ONE LINE DIAGRAM AND PANEL SCHEDULES FOR AVAILABLE FAULT CURRENT AT UPSTREAM PANELBOARD.  
2. REFERENCE CAPTIVEAIRE DRAWINGS FOR ADDITIONAL INFORMATION.

EXHAUST FANS

MARK	LOCATION	SERVICE	AIRFLOW (CFM)	EXTERNAL STATIC (IN H2O)	MOTOR DATA				FEI	MANUFACTURER	MODEL NUMBER	REMARKS	
					SONES	FAN (HP)	VOLT	PH					RPM
EF-1	ROOF	HOOD-1	-	-	-	-	-	-	-	-	-	CAPTIVEAIRE	4
EF-2	ROOF	HOOD-2	-	-	-	-	-	-	-	-	-	CAPTIVEAIRE	4
EF-3	ROOF	RESTROOMS	200	0.50	7.0	1/8	115	1	1,550	NA	GREENHECK	G-095-D	1-3

REMARKS:  
1. PROVIDE SOLID STATE SPEED CONTROL.  
2. PROVIDE MOTORIZED BACKDRAFT DAMPER.  
3. PROVIDE MINIMUM 12 INCH HEIGHT ROOF CURB.  
4. REFERENCE CAPTIVEAIRE DRAWINGS FOR ADDITIONAL INFORMATION.

AIR SOURCE HEAT PUMPS

MARK	LOCATION	SERVES	NOMINAL (TONS)	HEATING AT 47F (MBH)	ELECTRICAL				SEER2	HSPF2	MANUFACTURER	MODEL NUMBER	REMARKS
					VOLT	PH	MCA	MOCP					
ASHP-1	ROOF	FC-1	3/4	9.8	208	1	15.0	15	20.5	10.3	CARRIER	38MARB009	[1,2]

REMARKS:  
1. PROVIDE EQUIPMENT WITH SCOR GREATER THAN THE AVAILABLE FAULT CURRENT AT THE EQUIPMENT OR UPSTREAM PANELBOARD. REFER TO THE ELECTRICAL ONE LINE DIAGRAM AND PANEL SCHEDULES FOR AVAILABLE FAULT CURRENT AT UPSTREAM PANELBOARD.  
2. PROVIDE WITH LOW AMBIENT CONTROL.

DUCTLESS SPLIT SYSTEMS

MARK	NOMINAL (TONS)	COOLING			HEATING		SUPPLY AIR (CFM)	FAN (WATT)	ELECTRICAL				SEER2	CARRIER MODEL NUMBER	REMARKS
		TOT (MBH)	SEN (MBH)	OUT (MBH)	IN (MBH)	VOLT			PH	MCA	MOCP				
FC-1	3/4	11.73	8.79	9.80	350	45	208	1	0.2	N/A	20.5	40MBC009	[1,2]		

REMARKS:  
1. INDOOR UNIT POWER PROVIDED FROM OUTDOOR UNIT.  
2. PROVIDE NEW, WIRED, FULLY DIGITAL, 7 DAY PROGRAMMABLE TYPE THERMOSTAT WITH AUTO CHANGE OVER AND AUTO SET BACK.

DIFFUSERS, GRILLES AND REGISTERS

MARK	SERVICE	LOCATION	CEILING TYPE	MOUNTING TYPE	MANUFACTURER	MODEL NUMBER	REMARKS
D-1	SUPPLY	CEILING	AC TILE	LAY-IN	TITUS	TMS XX 24x24 3 26	[1,2,6]
D-2	SUPPLY	CEILING	AC TILE	LAY-IN	TITUS	PAR XX 24x24 3 26	[1,2,6]
D-3	SUPPLY	CEILING	AC TILE	LAY-IN	TITUS	OMNI XX 24x24 3 26	[1,2,4,5,7]
D-4	SUPPLY	CEILING	AC TILE	LAY-IN	TITUS	OMNI XX 12x12 3 26	[1,2,4,6,7]
D-5	SUPPLY	DUCT	NA	SURFACE	TITUS	300RL X X 1 26	[1,5,6]
G-1	RETURN	CEILING	AC TILE	LAY-IN	TITUS	50F X X 3 26	[1,3,5,6]
G-2	EXHAUST	CEILING	GYP. BOARD	SURFACE	TITUS	50F X X 1 26	[1,3-7]

REMARKS:  
1. TITUS IS THE BASE OF DESIGN. KRUEGER, PRICE, NAILOR, CARNES ARE EQUAL. NO EXCEPTIONS.  
2. SEE PLAN FOR NECK SIZE.  
3. PROVIDE 1/2" X 1/2" X 1" CORE.  
4. PROVIDE WITH MODEL TRM FRAME.  
5. SEE PLAN FOR SIZE.  
6. DIFFUSERS/GRILLES SHALL BE FINISHED TO MATCH CEILING/WALL/EXPOSED DUCT COLOR. COORDINATE WITH ARCHITECT.  
7. PROVIDE DIFFUSERS AND GRILLES WITH NO EXPOSED MOUNTING SCREWS.

AIR CURTAINS

MARK	LENGTH (IN)	AIRFLOW (CFM)	HEATER		FANS		ELECTRICAL			MANUFACTURER	MODEL NUMBER	REMARKS	
			IN (KW)	OUT (MBH)	TEMP RISE (F)	QTY	HP	CIRCUIT (QTY)	VOLT				PH
AC-1	36.0	1,379	NA	NA	NA	1	1/2	1	115	1	MARS	STD236	[1-4]
AC-2	72.0	2,080	24.0	81.9	36.3	2	1/2	1	208	3	MARS	STD272	[1-4]

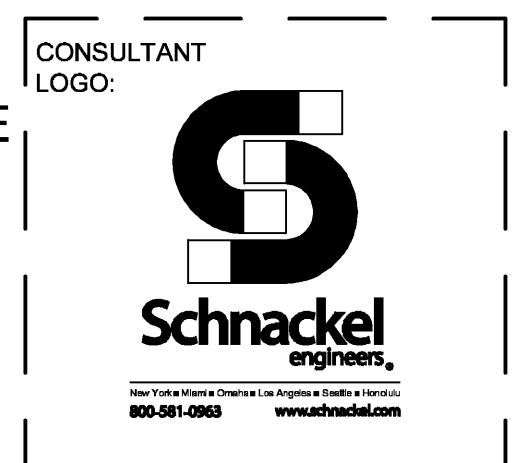
REMARKS:  
1. PROVIDE AUTOMATIC DOOR SWITCH.  
2. PROVIDE UNIT MOUNTED CONTROL PANEL.  
3. VERIFY FINAL COLOR/FINISH WITH ARCHITECT.  
4. FIELD VERIFY AND PROVIDE MOUNTING BRACKETS AS REQUIRED.

UV SYSTEMS

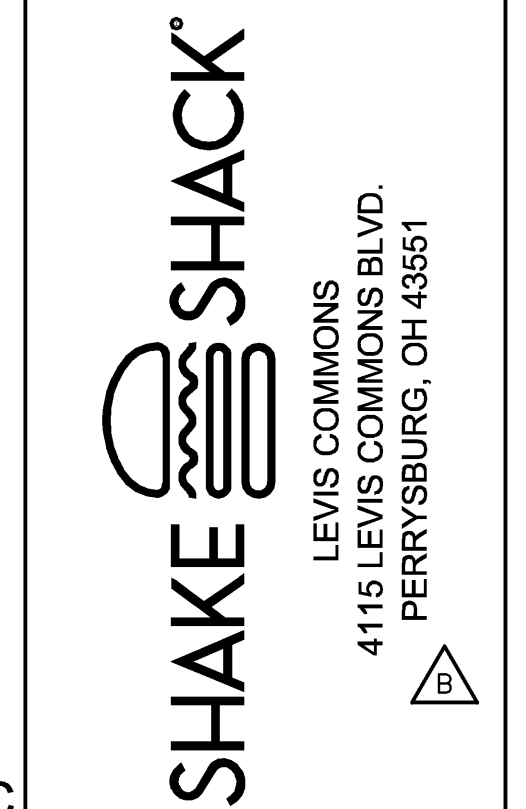
UNIT NO.	PLACEMENT	PHI CELL MODEL #	UV/CELL SIZE	RANGE	INDOOR PPM TARGET	SIZE	TRANSFORMER	POWER	IN-VOLT	OUT-VOLT	MCA	WEIGHT (LBS.)
RTU-1	BLOWER CABINET	PHI-PKG14-24V	14"	3,000-8000 CFM	< 0.02 PPM	2.25"W x 19.5"L x 1.75"D	SHIP LOOSE	11W	115 VAC	24 VAC	0.50A	2 LBS
RTU-2	BLOWER CABINET	PHI-PKG14-24V	14"	3,000-8000 CFM	< 0.02 PPM	2.25"W x 19.5"L x 1.75"D	SHIP LOOSE	11W	115 VAC	24 VAC	0.50A	2 LBS



ZEBRA ARCHITECTURE, PLLC  
1464 N KIERLAND BLVD., SUITE N300  
SCOTTSDALE, ARIZONA 85254  
PHONE: 480.912.1169 zbrglobal



STORE NO:  
OH #1723

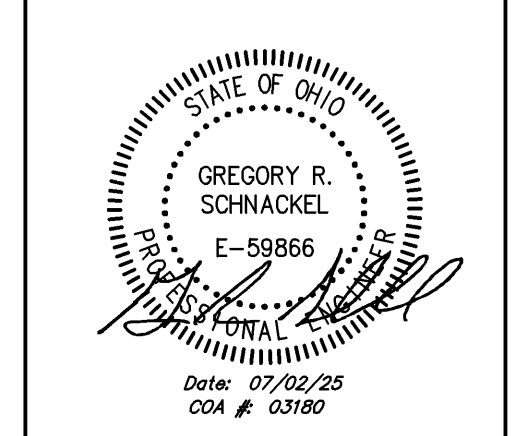


LEVIS COMMONS BLVD.  
PERRYSBURG, OH 43051

REVISIONS

NO.	DATE	DESCRIPTION
A	05/12/25	REVISION A
B	06/02/25	REVISION B
C	06/25/25	REVISION C
D	07/02/25	REVISION D

STATUS:  
IFC SET



FIELD VERIFICATION:  
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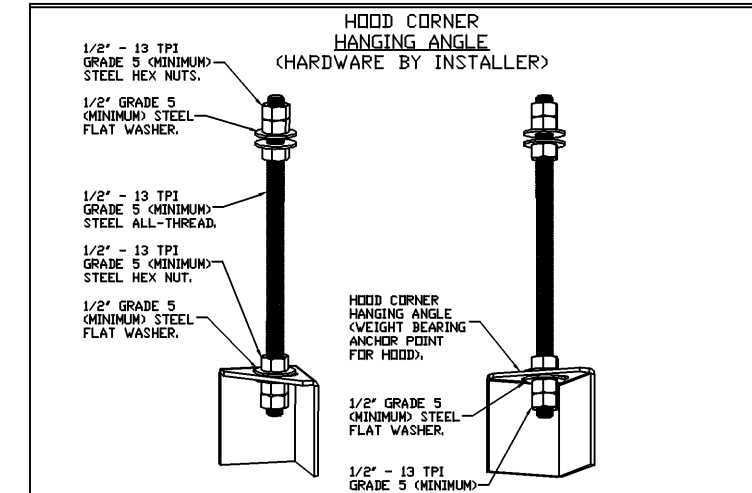
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SHEET NAME:  
MECHANICAL SCHEDULES

DATE: 04/03/2025 PROJECT NO: 40091

DRAWN: SBMS SCALE:

SHEET NO:  
M601



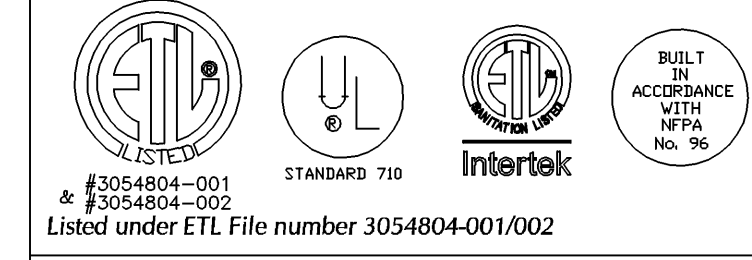
HANGING ANGLE DETAILS

Table with columns for Hood Style / Model, 450 Degrees, 600 Degrees, 700 Degrees. Rows include Canopy ND-2, Sloped SMD-2, Island ND-ZWI, and Island ND-ZI.

ETL HOOD LISTING DETAIL

EXHAUST CFM = LENGTH OF HOOD X CFM/INCH. LOAD
SUPPLY CFM = EXHAUST CFM X PERCENTAGE REQUIRED
TOTAL DUCT AREA (sq. in.) = 144 X CFM^2 / (FM)^3

CALCULATIONS UTILIZED



BUILDING CODES

Table showing building codes for Captive-Aire hoods, including material, clearance, and combustibility requirements.

CLEARANCE TO COMBUSTIBLES

INSTALLATION

- 1. ALL ELECTRICAL 'FIELD' CONNECTIONS AND RELATED INTERCONNECTIONS BY ELECTRICAL CONTRACTORS.
2. ALL PLUMBING 'FIELD' CONNECTIONS AND RELATED INTERCONNECTIONS BY PLUMBING CONTRACTORS.

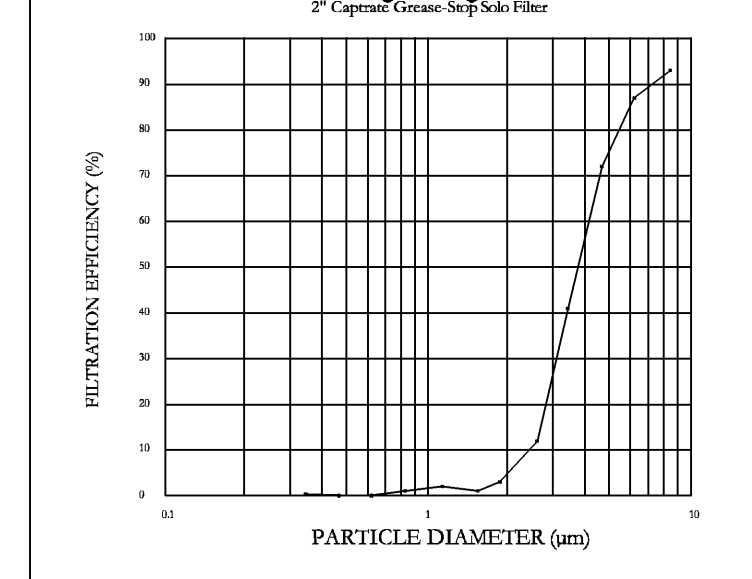
BALANCE

- 11. KITCHEN HOODS MUST BE BALANCED WITH KITCHEN.
12. KITCHEN SHALL BE NEGATIVE WITH RESPECT TO DINING AREA.

ADDITIONAL

- 14. WRITTEN HOOD DIMENSIONS HAVE PRECEDENCE OVER SCALE.
15. SIGNED AND 'APPROVED' COPIES OF THIS DOCUMENT MUST BE RECEIVED BY THE FACTORY PRIOR TO COMMENCEMENT OF FABRICATION.

GENERAL NOTES



FILTER DETAIL

FOR QUESTIONS, CALL THE Eastern PA Mechanical REGION 108 PHONE: (267) 504 - 4126 EMAIL: rreg108@captiveaire.com

HOOD INFORMATION - JOB#7398938

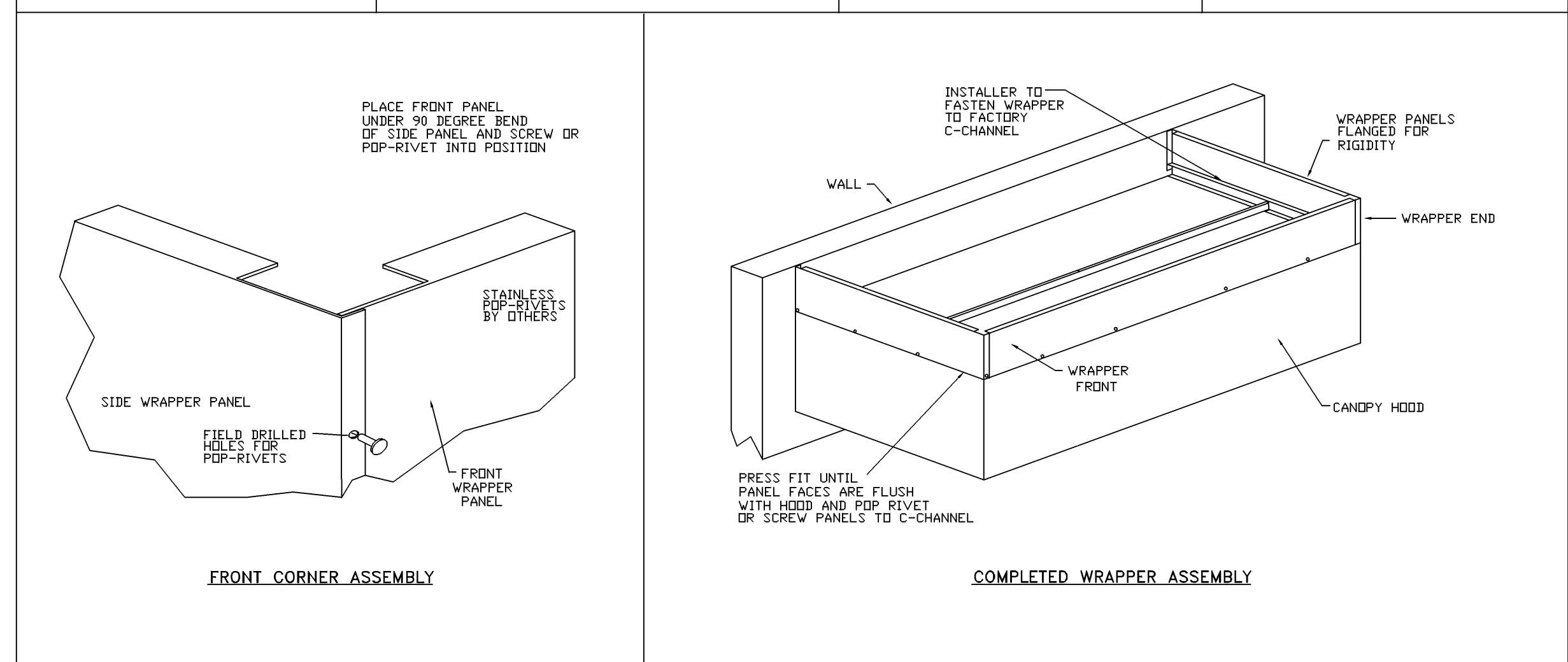
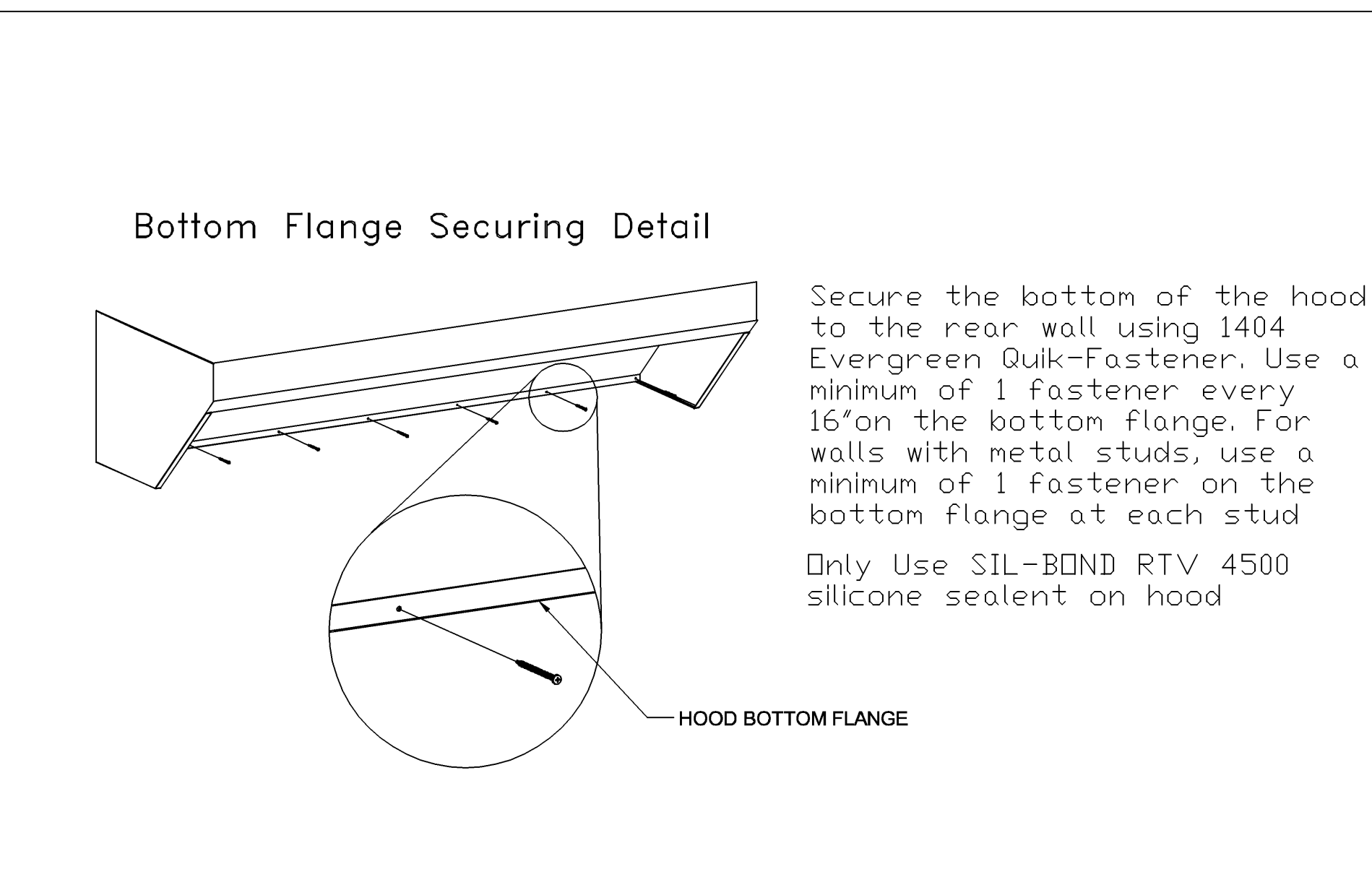
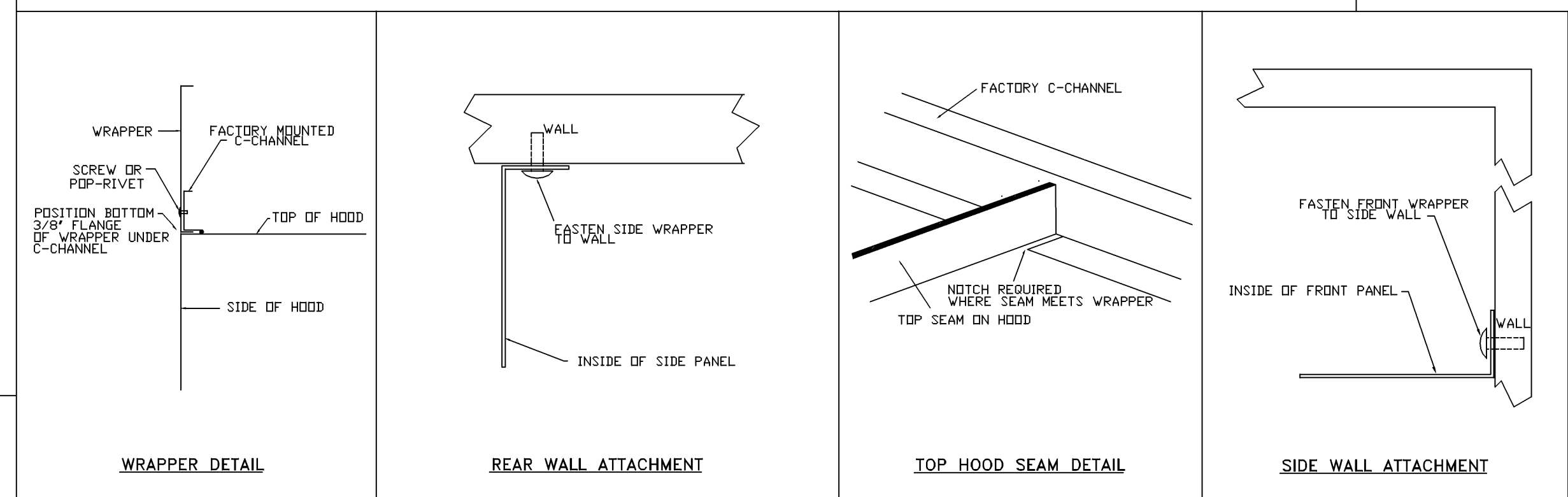
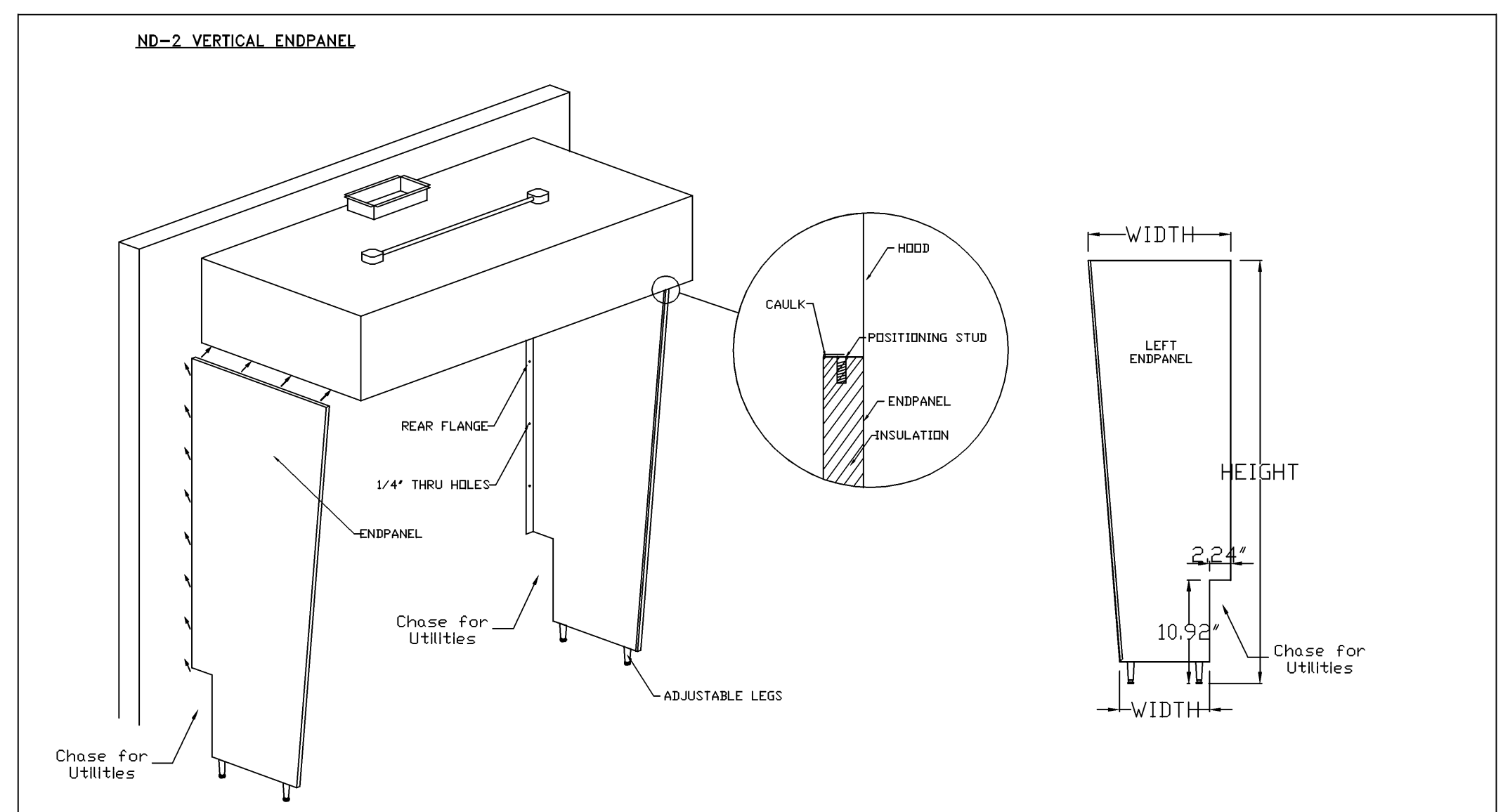
Table with columns: HOOD NO, TAG, MODEL, MANUFACTURER, LENGTH, MAX COOKING TEMP, TYPE, APPLIANCE DUTY, DESIGN CFM/FT, TOTAL EXH. CFM, EXHAUST PLENUM RISER(S), HOOD CONFIG.

HOOD INFORMATION

Table with columns: HOOD NO, TAG, TYPE, FILTER(S), LIGHT(S), UTILITY CABINET(S), FIRE SYSTEM, HOOD HANGING WEIGHT.

HOOD OPTIONS

Table with columns: HOOD NO, TAG, OPTION. Lists options like Field Wrapper, Insulation, Risers, and End Panels for Hood (Grill) and Hood (Fryer).



REVISIONS table, CAPTIVE logo, Eastern PA Mechanical contact info, and Shake Shack logo.

zebra logo, Zebra Architecture, PLLC contact info, and consultant logo for Schnackel Engineers.

Shake Shack-1723 - Levis Commons, PERRYSSBURG, OH, 43551

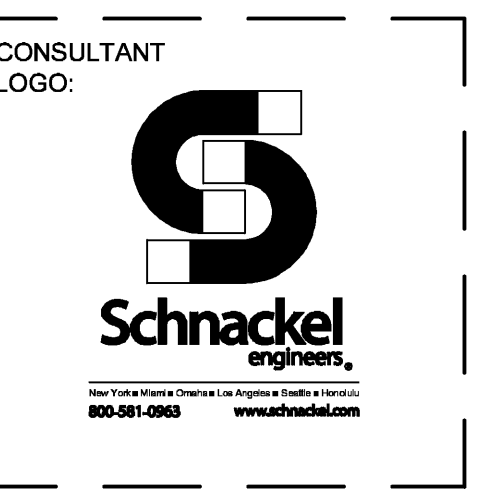
SHAKE SHACK logo and address: 4115 LEVIS COMMONS BLVD. PERRYSSBURG, OH 43551

REVISIONS table with columns: DATE, DESCRIPTION, REVISION A, B, C, D.

STATUS: IFC SET, SHEET NO. 1, and a circular seal for Gregory R. Schnackel.

FIELD VERIFICATION: The contractor shall verify all final dimensions and conditions at the project site and notify Zebra Architecture, PLLC.

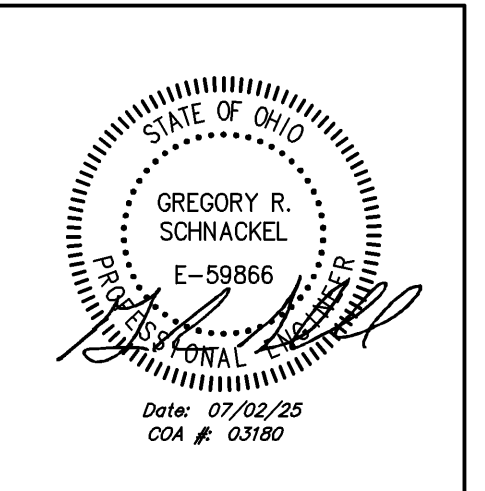
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STORE NO:  
**OH #1723**

**SHAKE SHACK**  
LEVIS COMMONS  
4115 LEVIS COMMONS BLVD.  
PERRYSBURG, OH 43051

REVISIONS	
DATE	DESCRIPTION
05/12/25	REVISION A
06/02/25	REVISION B
06/25/25	REVISION C
07/02/25	REVISION D



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SHEET NAME:  
**CAPTIVEAIRE DRAWINGS**

DATE: 04/03/2025	PROJECT NO: 40091
DRAWN: SMBAS	SCALE:

SHEET NO:  
**M702**

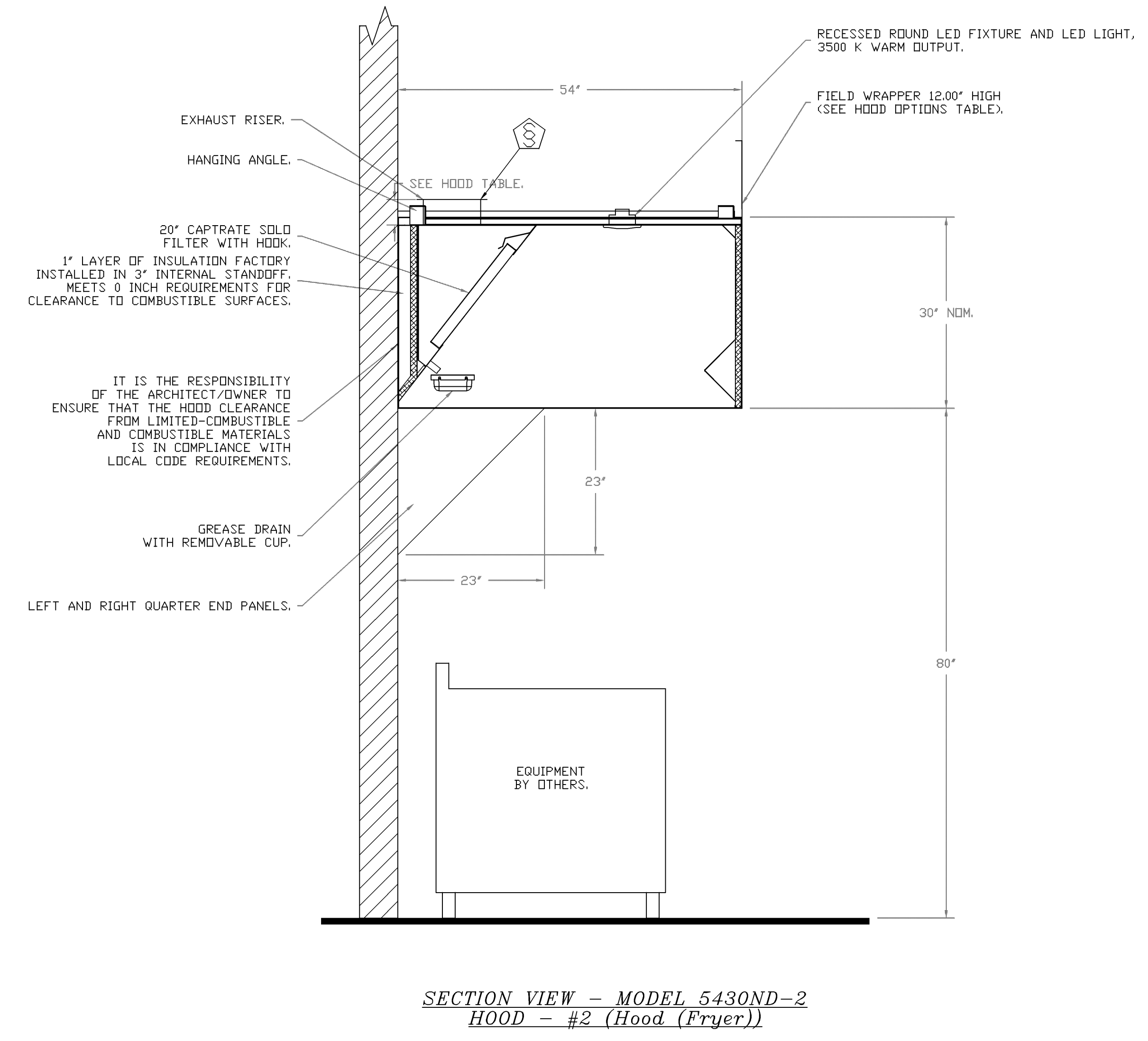
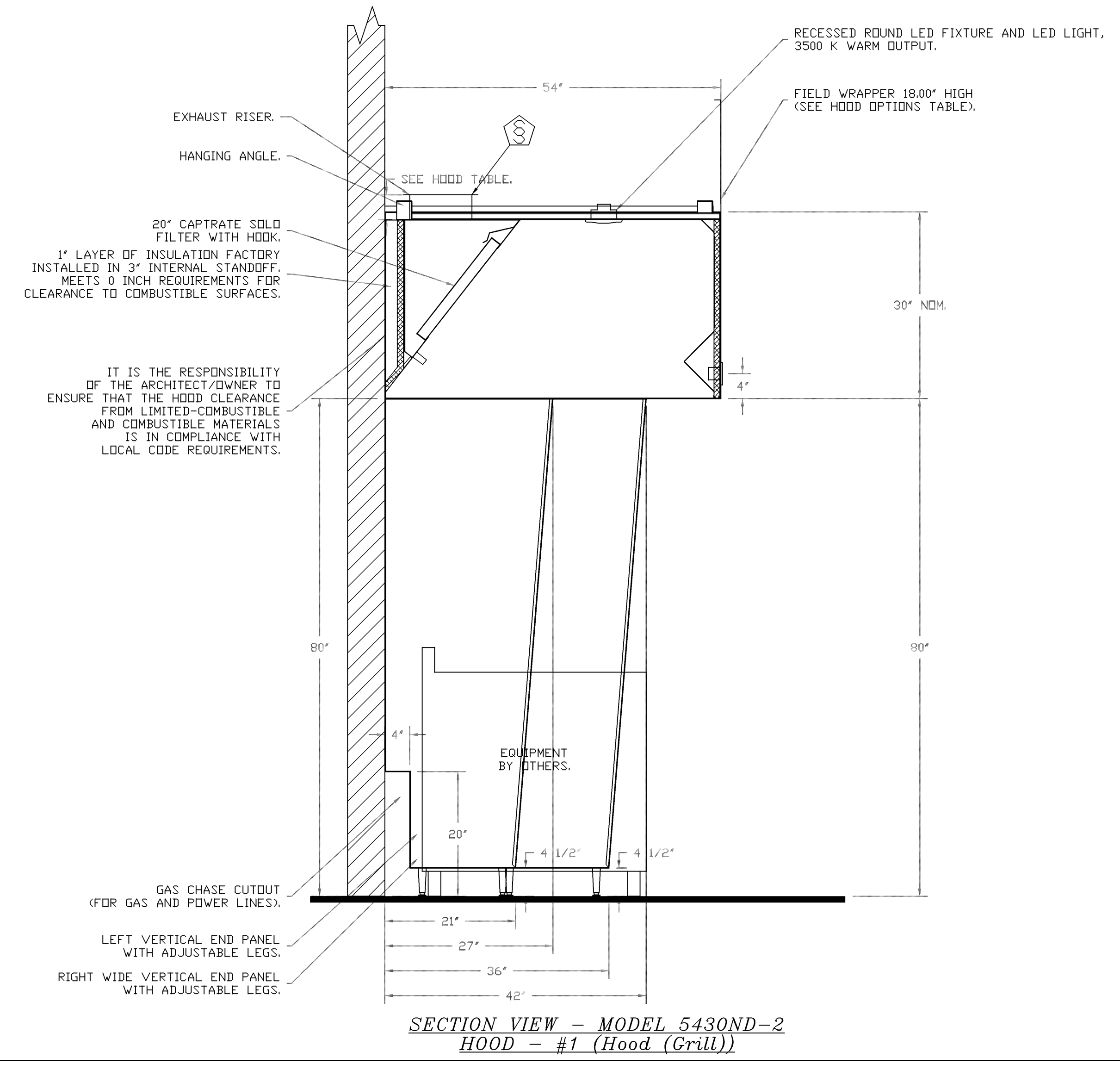
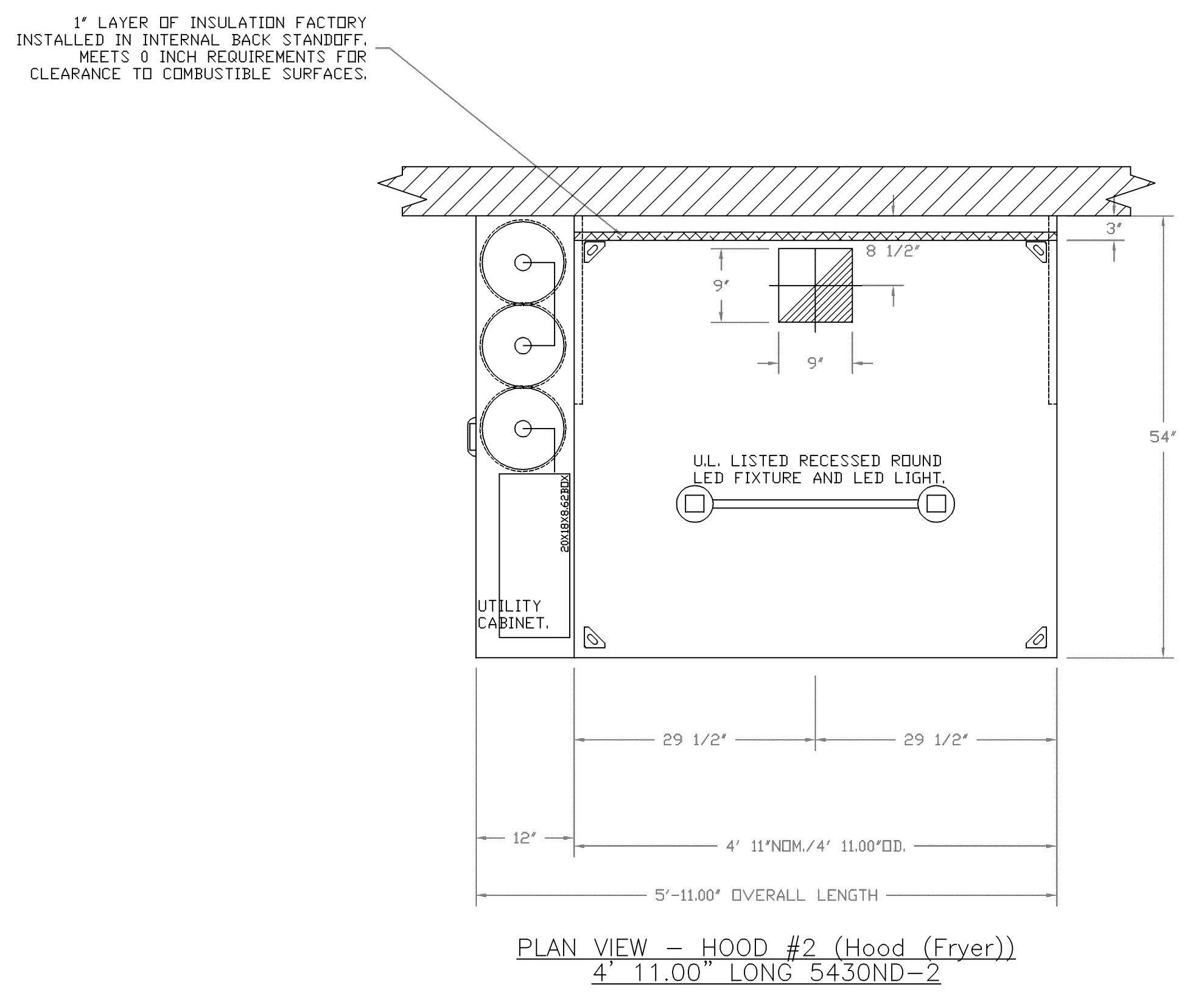
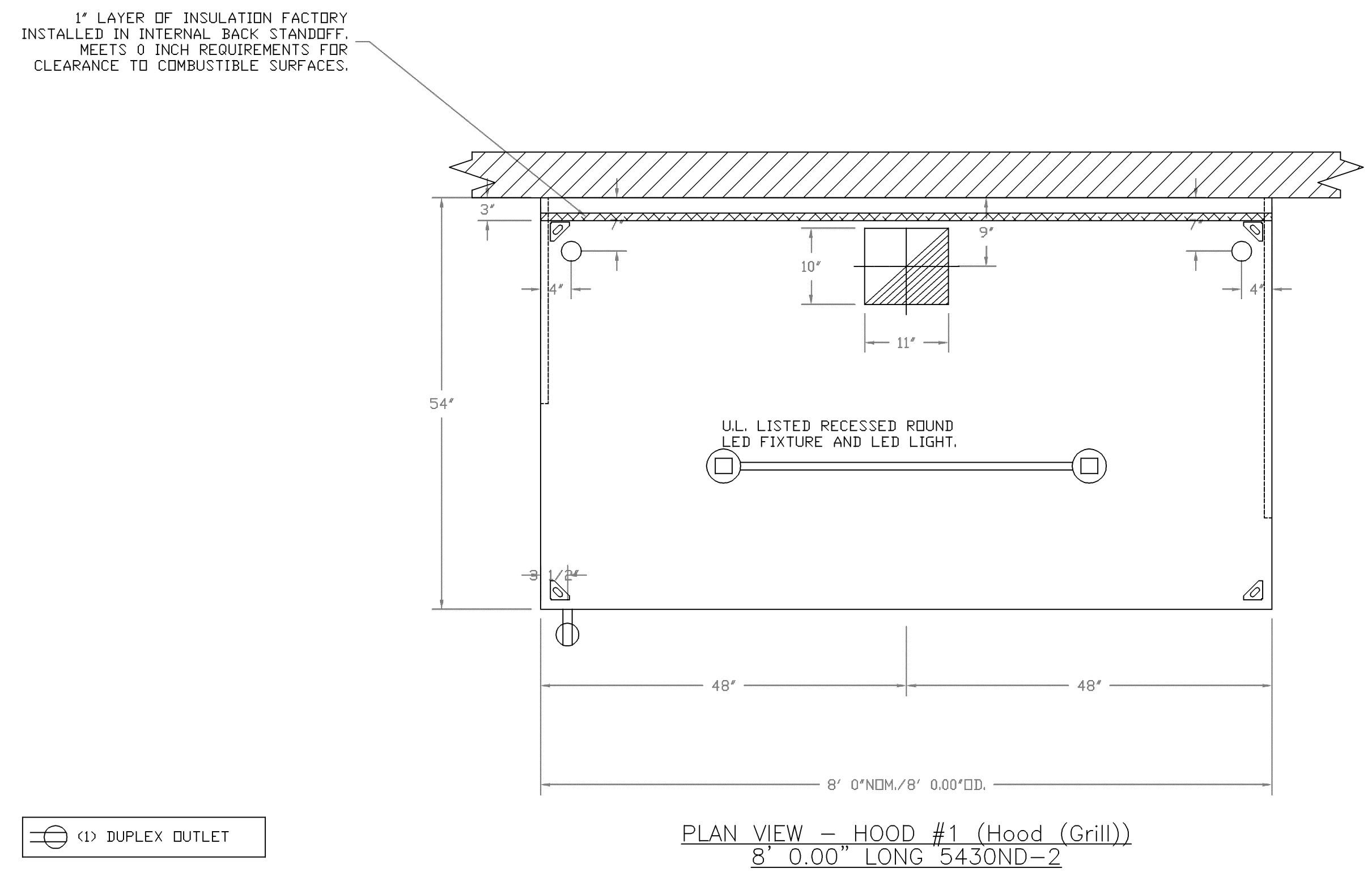
**CAPTIVEAIRE**

Eastern PA Mechanical  
225 E City Line Avenue, Suite #103, Balla Cynwyd, PA, 19004 PHONE: (267) 504-4128 EMAIL: reg19@captivaire.com

Shake Shack-1723- Levis Commons (Kitchen)-R1  
PERRYSBURG, OH, 43051

DATE: 3/12/2025  
DWG.#: 7398938  
DRAWN BY: Joe Shilbo  
SCALE: 3/4" = 1'-0"  
MASTER DRAWING

SHEET NO.  
2



E  
D  
C  
B  
A

**FIRE SYSTEM INFORMATION - JOB#7398938**

FIRE SYSTEM NO	TAG	TYPE	SIZE	MAX FP	DESIGN FP	INSTALLATION	
						SYSTEM	LOCATION ON HOOD
1		TANK FS	4.0/4.0/4.0	60	46	FIRE CABINET LEFT	LEFT, HOOD 2

**GAS VALVE(S)**

FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1		SC ELECTRICAL	1.000	CAPTIVEAIRE SYSTEMS

- 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 PRE-ENGINEERED FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS.

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

JOB #: 7398938.  
JOB NAME: SHAKE SHACK-1723- LEVIS COMMONS, OH(KITCHEN)-R1.

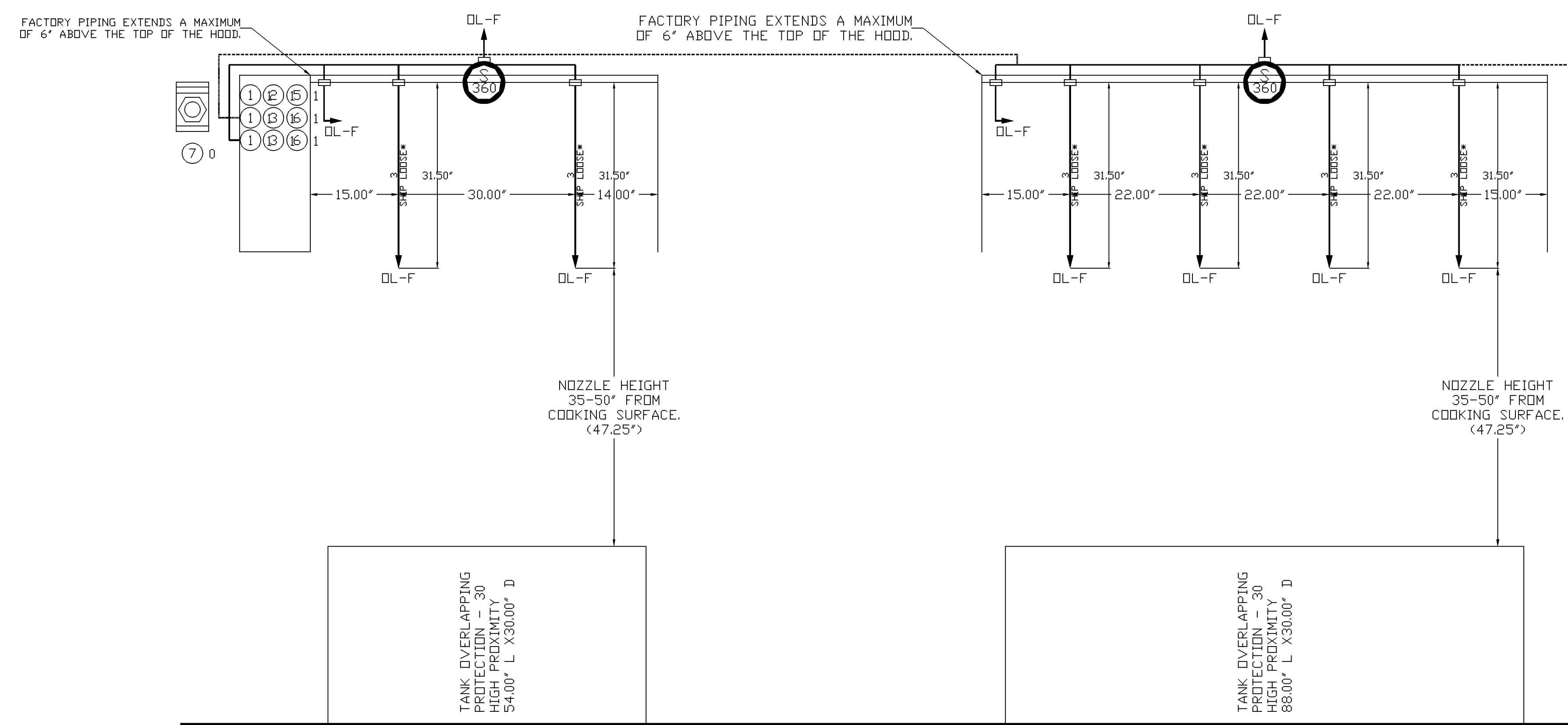
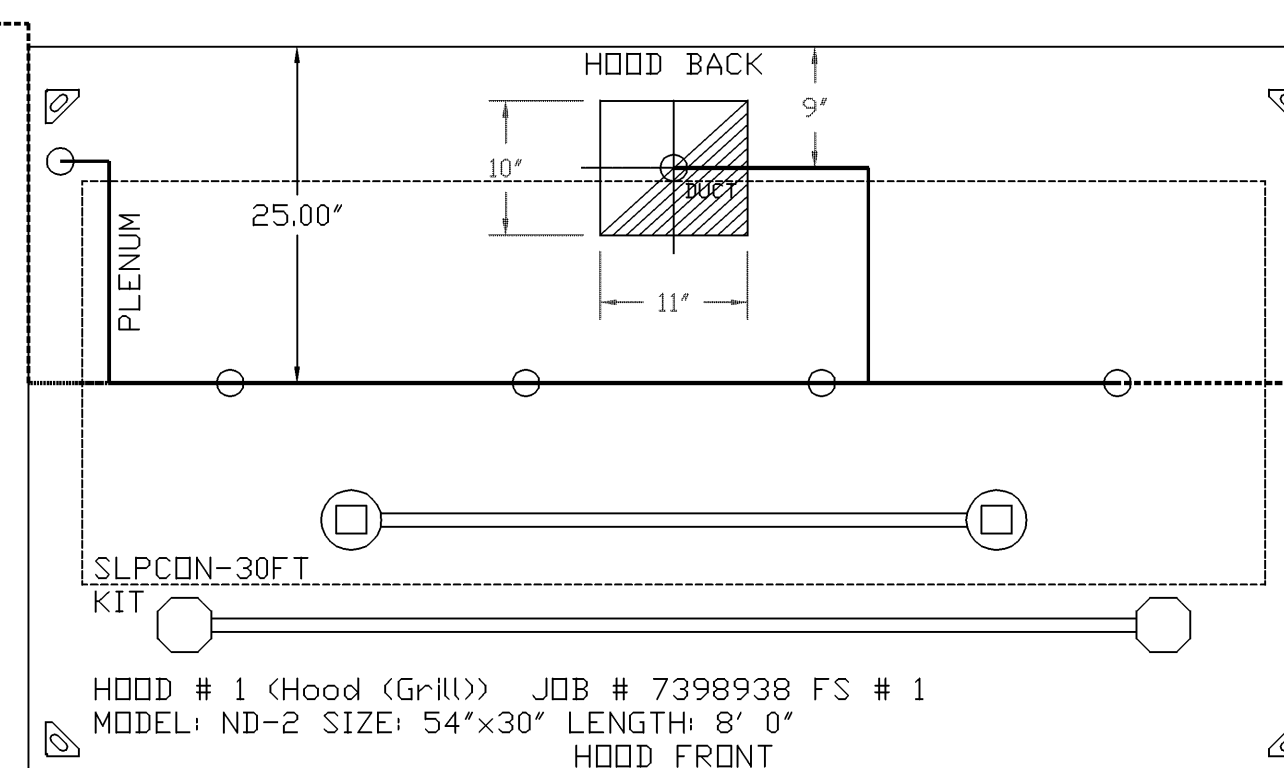
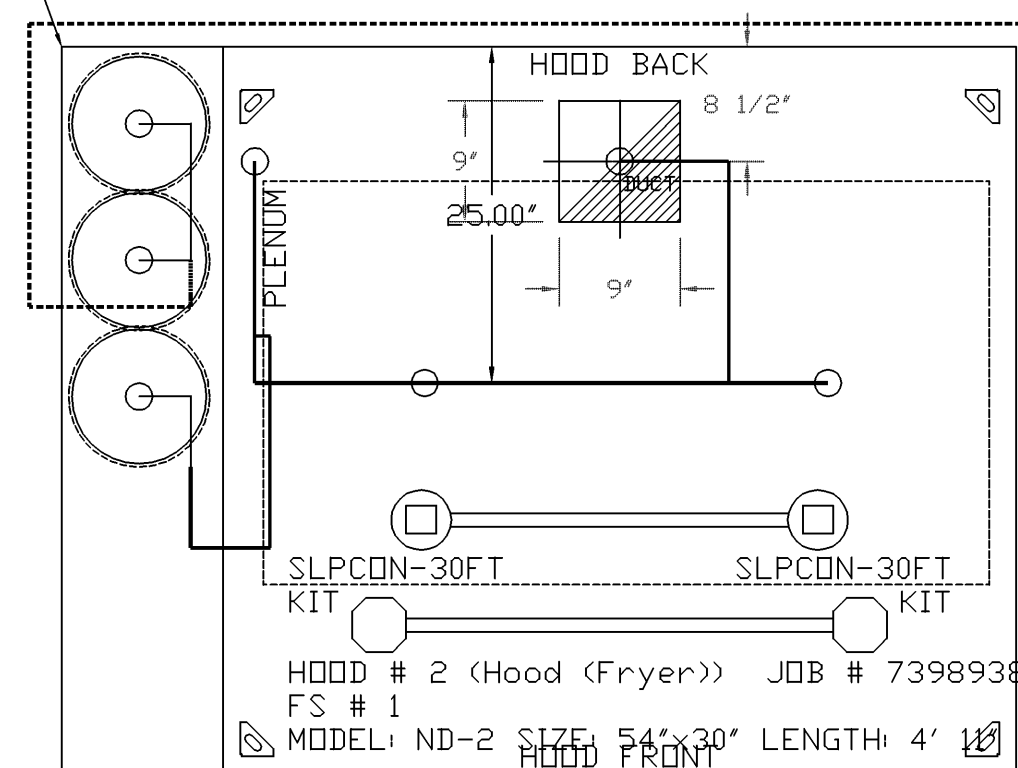
SYSTEM SIZE: TANK-SP-3 DESIGN FP: 46, MAXIMUM FP: 60.  
HOOD # 1 8' 0.00" LONG x 54" WIDE x 30" HIGH.  
RISER # 1 SIZE: 10" x 11".  
HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.  
HOOD # 2 4' 11.00" LONG x 54" WIDE x 30" HIGH.  
RISER # 1 SIZE: 9" x 9".  
HOOD # 2 METAL BLOW-OFF CAPS INCLUDED.

- 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.

- SYSTEM REQUIRES A MINIMUM OF 7 FT OF EQUIVALENT PIPE LENGTH BETWEEN TANK AND NEAREST APPLIANCE NOZZLE FOR MOST APPLIANCES. EACH 90 DEGREE ELBOW ADDS 1.5 FT OF EQUIVALENT LENGTH. SEE MANUAL FOR DETAILS

**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. |



**CAPTIVEAIRE**  
 Eastern PA Mechanical  
 225 E City Line Avenue, Suite #103, Bala Cynwyd, PA, 19004 PHONE: (267) 504-4128 EMAIL: reg19@captivaire.com  
 www.captivaire.com

Shake Shack-1723- Levis Commons, OH(Kitchen)-R1  
 PERRYSBURG, OH, 43551

DATE: 3/12/2025

DWG.#: 7398938

DRAWN BY: Joe Shilba

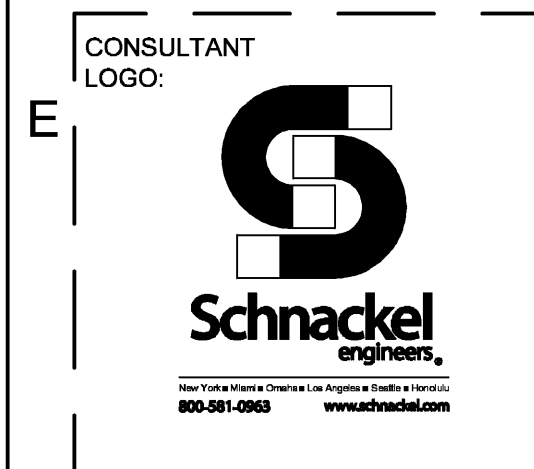
SCALE: 3/4" = 1'-0"

MASTER DRAWING

SHEET NO. 3



ZEBRA ARCHITECTURE, PLLC  
14614 N KIERLAND BLVD., SUITE N300  
SCOTTSDALE, ARIZONA 85254  
PHONE: 480.912.1169 zbrglobal



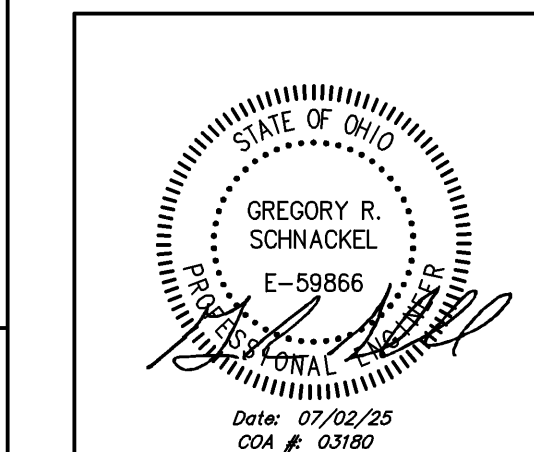
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**REVISIONS**

NO	DATE	DESCRIPTION
A	05/12/25	REVISION A
B	06/25/25	REVISION B
C	06/25/25	REVISION C
D	07/02/25	REVISION D

STATUS: IFC SET



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SHEET NAME:  
**CAPTIVEAIRE DRAWINGS**

DATE: 04/03/2025 PROJECT NO: 40091

DRAWN: S/M/S SCALE:

SHEET NO:  
**M703**

EXHAUST FAN INFORMATION - JOB#7398938

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SDNES
1	KEF<GRILL>	1	DUB5HFA	CAPTIVEAIRE	1188	1.500	1424	TEAD-ECM	0.750	0.4970	1	208	5.2	376 FPM	90	12.7
2	KEF<FRYER>	1	DUB5HFA	CAPTIVEAIRE	860	1.500	1354	TEAD-ECM	0.750	0.4270	1	208	5.2	272 FPM	90	11.4

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	KEF<GRILL>	1	GREASE BOX
		1	FAN BASE CERAMIC SEAL - DU/DR85HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
		1	ECM WIRING PACKAGE - EXHAUST - MODBUS CONTROL -MSC- (TELCD), CCW ROTATION
		1	2 YEAR PARTS WARRANTY
2	KEF<FRYER>	1	GREASE BOX
		1	ECM WIRING PACKAGE - EXHAUST - MODBUS CONTROL -MSC- (TELCD), CCW ROTATION
		1	FAN BASE CERAMIC SEAL - DU/DR85HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
		1	2 YEAR PARTS WARRANTY

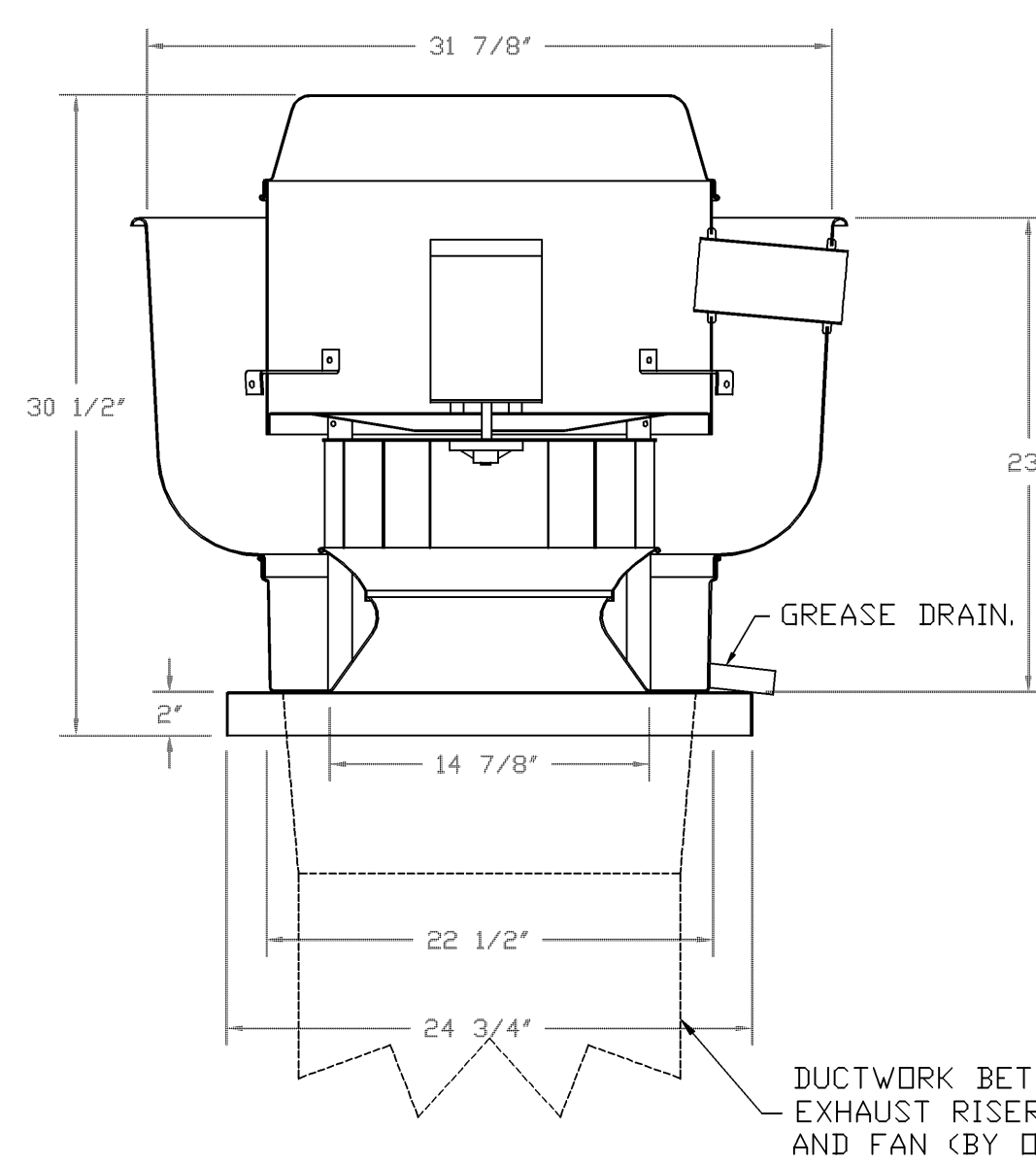
FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST				SUPPLY		
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	KEF<GRILL>	YES						
2	KEF<FRYER>	YES						

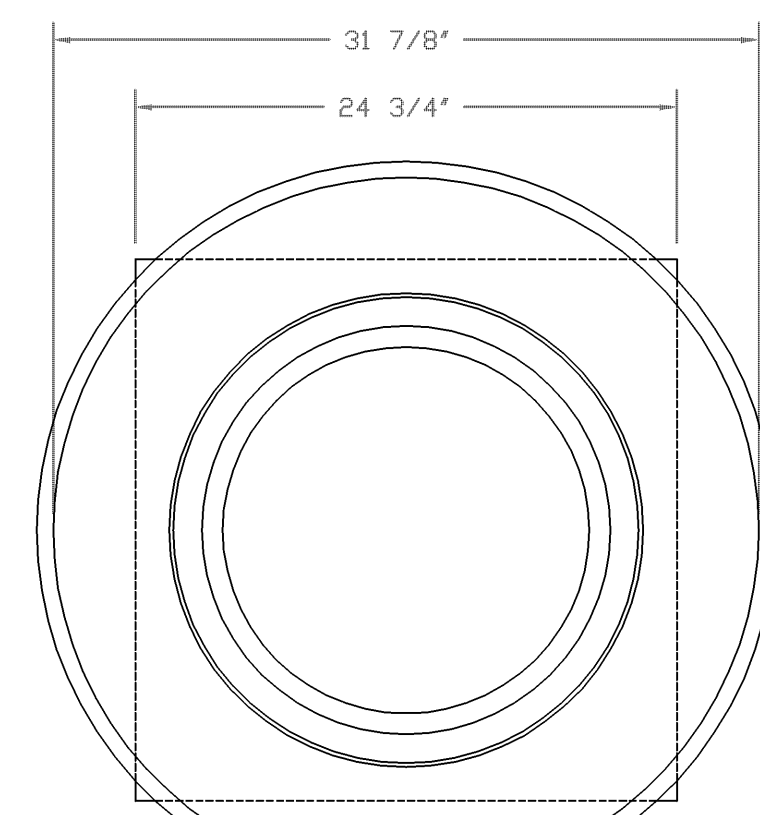
CURB ASSEMBLIES

NO	DN FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	KEF-1	36 LBS	CURB	23.000"W X 23.000"L X 20.000"H HINGED.
2	# 2	KEF<FRYER>	36 LBS	CURB	23.000"W X 23.000"L X 20.000"H HINGED.

FANS #1 (KEF<GRILL>), #2 (KEF<FRYER>) - DUB5HFA EXHAUST FAN



DUCTWORK BETWEEN EXHAUST RISER ON HOOD AND FAN (BY OTHERS).



TOP VIEW

FEATURES:

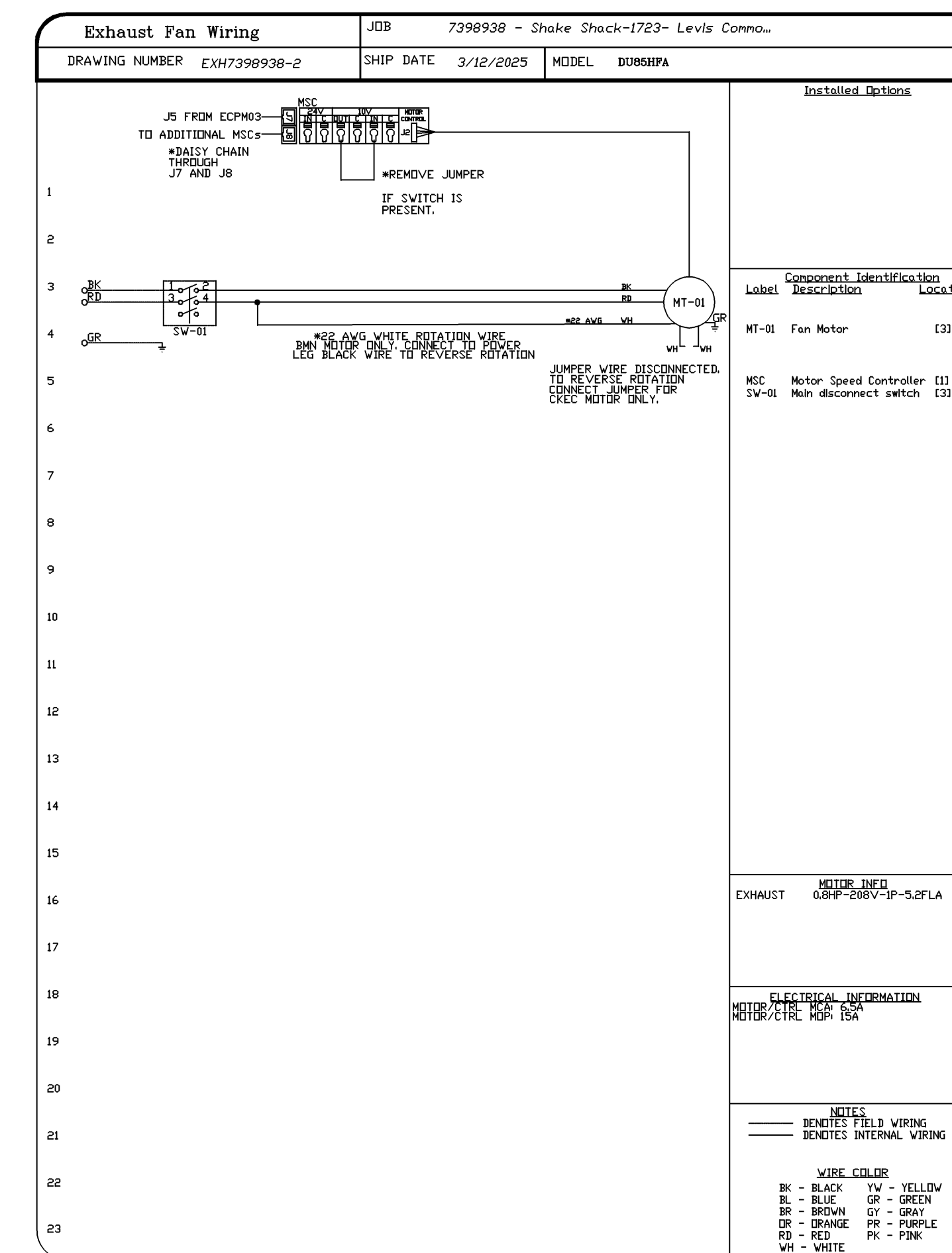
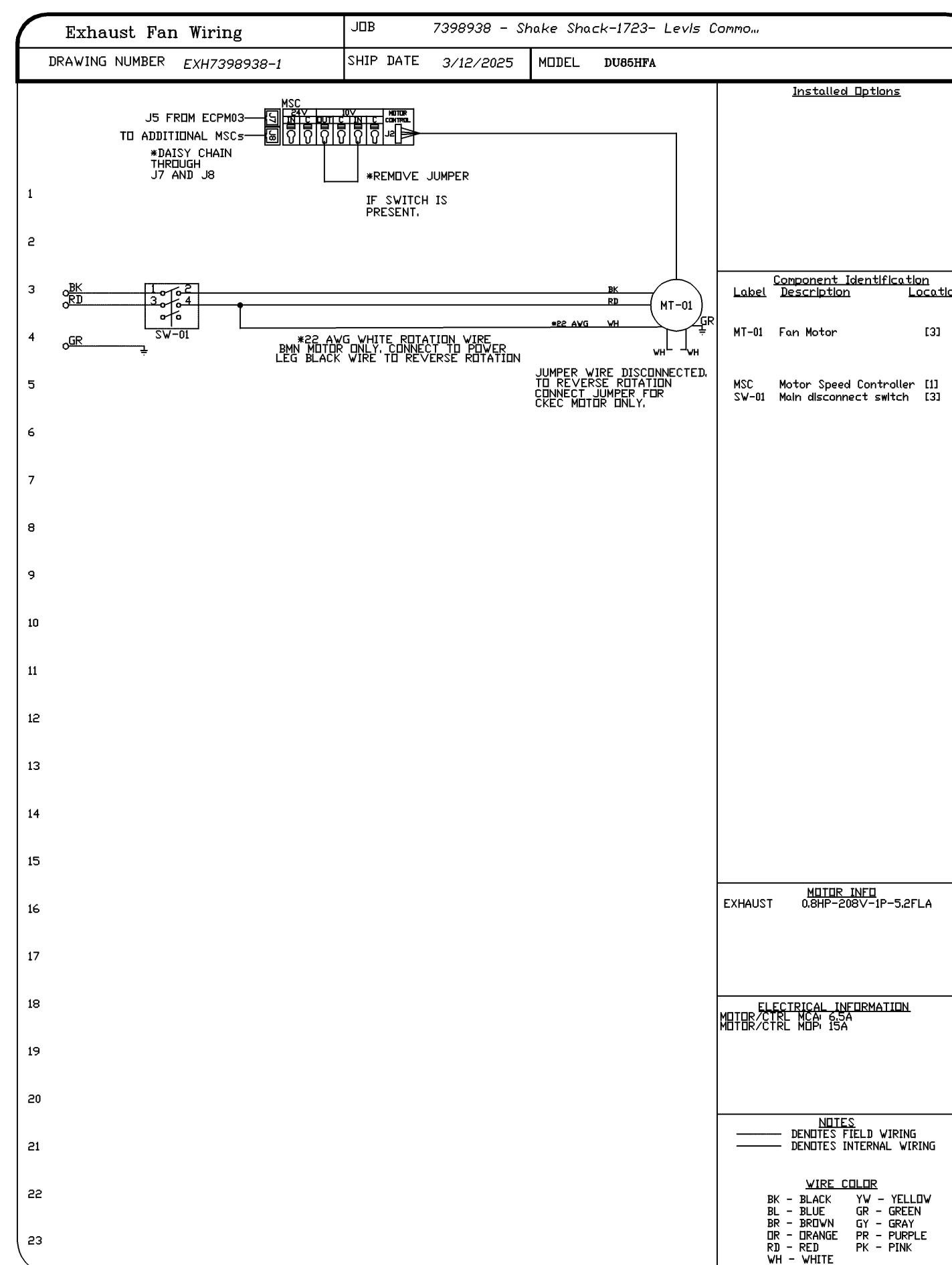
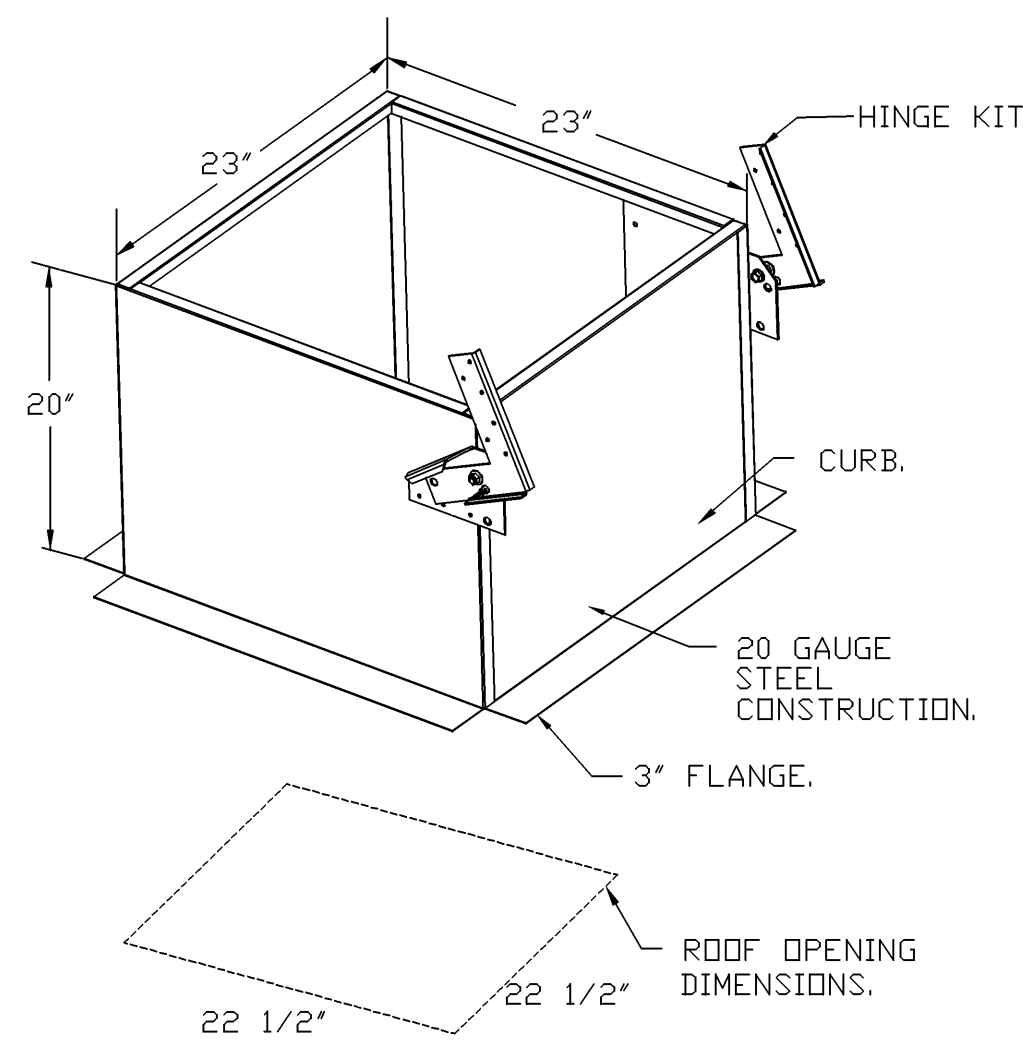
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-5645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

**NORMAL TEMPERATURE TEST**  
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

**ABNORMAL FLARE-UP TEST**  
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

- GREASE BOX.
- FAN BASE CERAMIC SEAL - DU/DR85HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
- ECM WIRING PACKAGE - EXHAUST - MODBUS CONTROL -MSC- (TELCD), CCW ROTATION.
- 2 YEAR PARTS WARRANTY.



REVISIONS

NO	DATE	DESCRIPTION
A	05/12/25	REVISION A
B	06/02/25	REVISION B
C	06/25/25	REVISION C
D	07/02/25	REVISION D

DATE: 3/12/2025  
DWG.#: 7398938  
DRAWN BY: Joe Shilba  
SCALE: 3/4" = 1'-0"  
MASTER DRAWING  
SHEET NO. 4

Shake Shack-1723- Levis Commons (Kitchen)-R1  
PERRYSBURG, OH, 43551

**zebra**

ZEBRA ARCHITECTURE, PLLC  
14614 N KIERLAND BLVD., SUITE N300  
SCOTTSDALE, ARIZONA 85254  
PHONE: 480.912.1169 zbrglobal

CONSULTANT LOGO:  
**Schnackel**  
Engineers

STORE NO:  
**OH #1723**

**SHAKE SHACK**  
LEVIS COMMONS  
4115 LEVIS COMMONS BLVD.  
PERRYSBURG, OH 43551

**REVISIONS**

NO	DATE	DESCRIPTION
A	05/12/25	REVISION A
B	06/02/25	REVISION B
C	06/25/25	REVISION C
D	07/02/25	REVISION D

STATUS: IFC SET

FIELD VERIFICATION:  
The Contractor shall verify all field dimensions and conditions at the project site and notify Zebra Architecture, PLLC of any discrepancies, errors, omissions or discrepancies before beginning or fabricating any work. Do not scale from drawings.

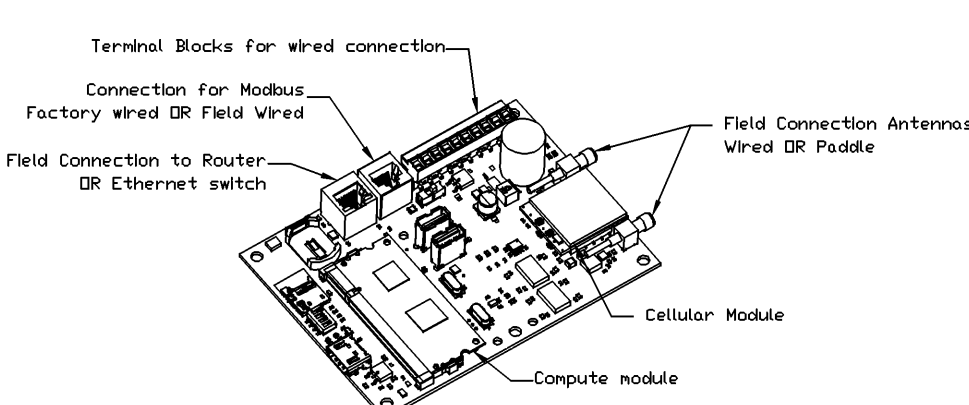
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SHEET NAME:  
**CAPTIVEAIRE DRAWINGS**

DATE: 04/03/2025 PROJECT NO: 40091  
DRAWN: S/M/S SCALE:  
SHEET NO.: **M704**

ELECTRICAL PACKAGE - JOB#7398938

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	HP	VOLTS	FLA	
1		SC-320110MA	UTILITY CABINET LEFT	UTILITY CABINET LEFT HOOD # 2	1 LIGHT 1 FAN	SMART CONTROL'S THERMOSTATIC CONTROL W/ RELAY ON/OFF WITH SUPPLY	KEF(G)HU	EXHAUST	1	0.750	208	5.2
							KEF(F)ryer	EXHAUST	1	0.750	208	5.2

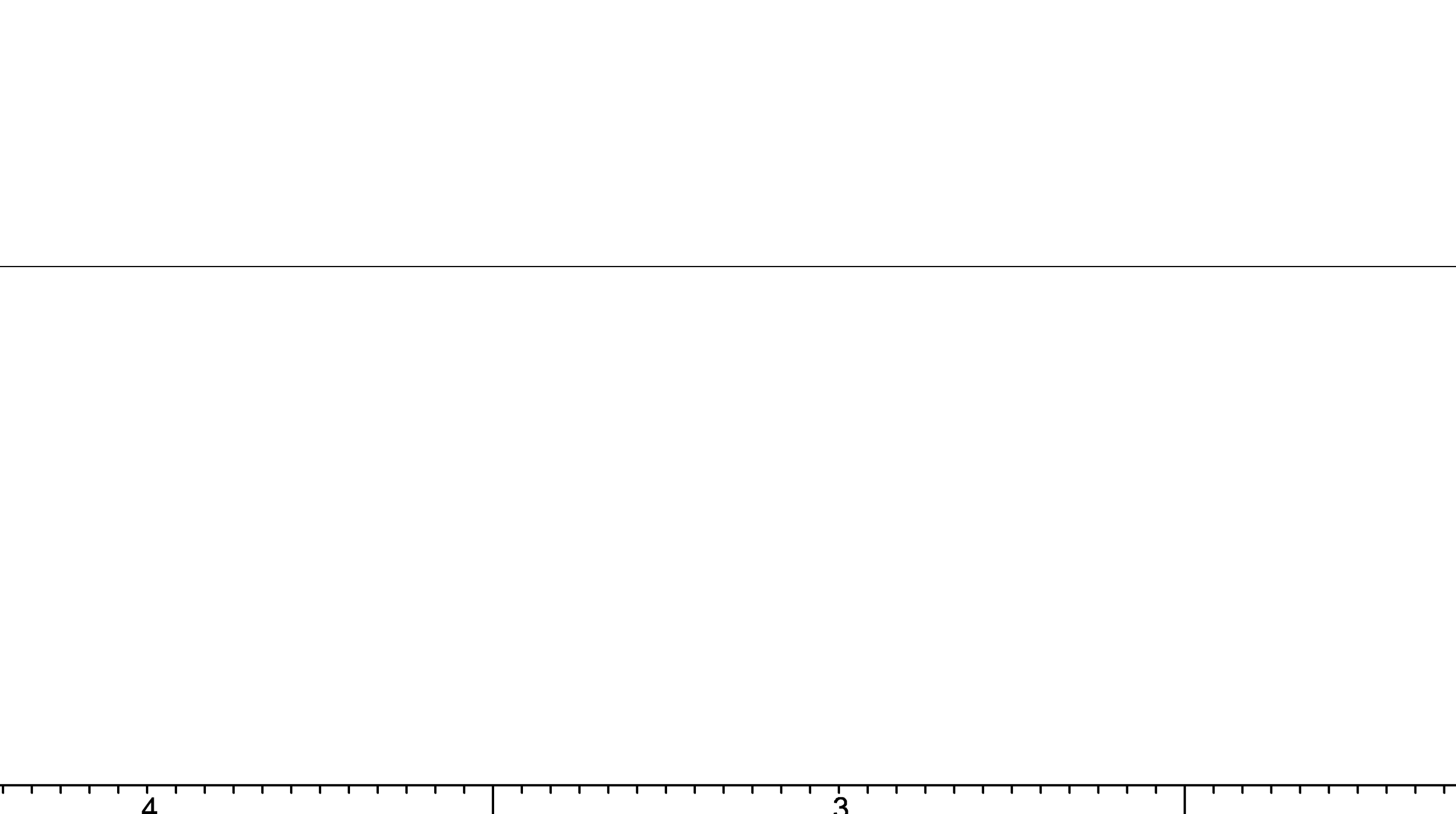
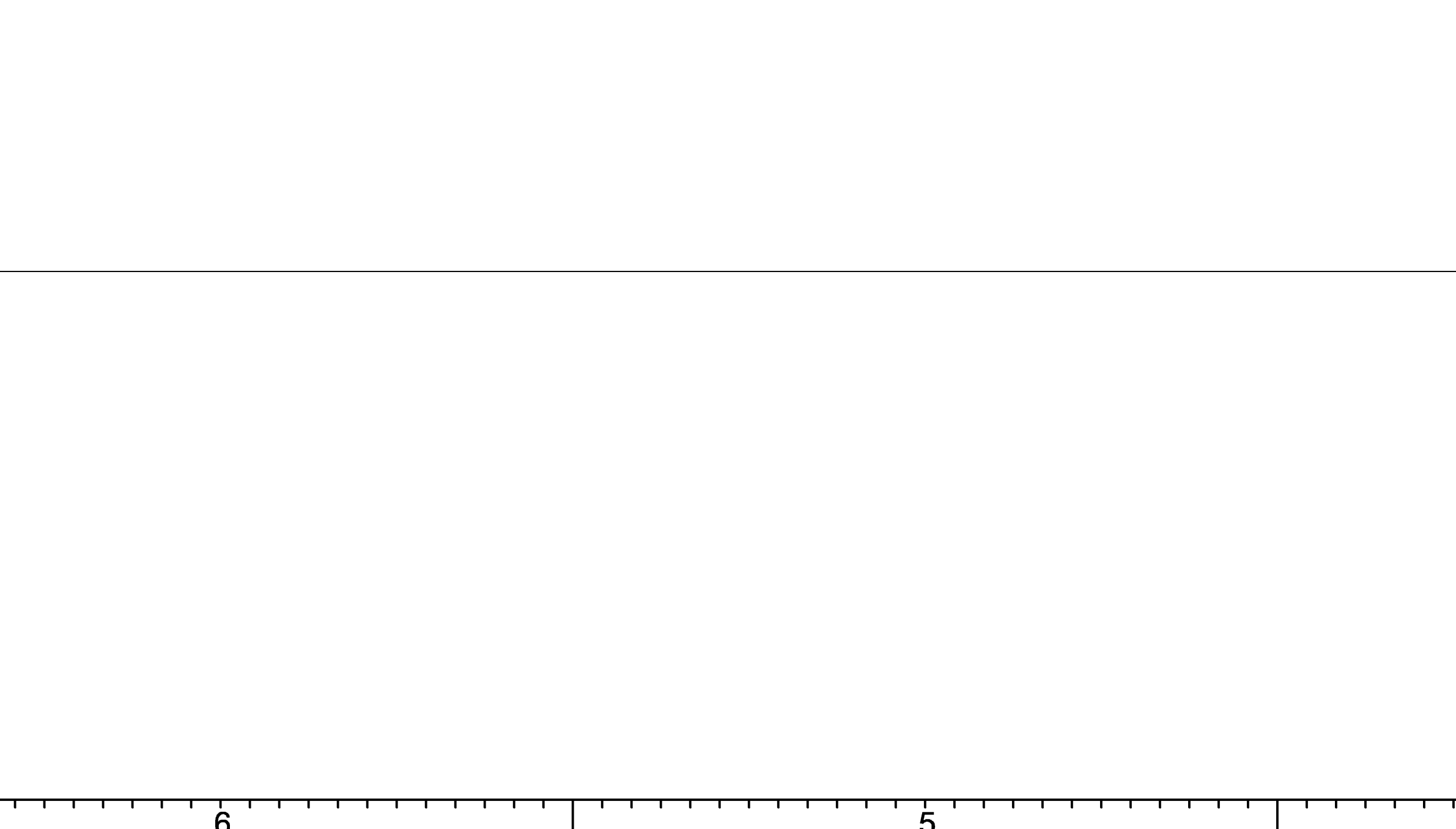
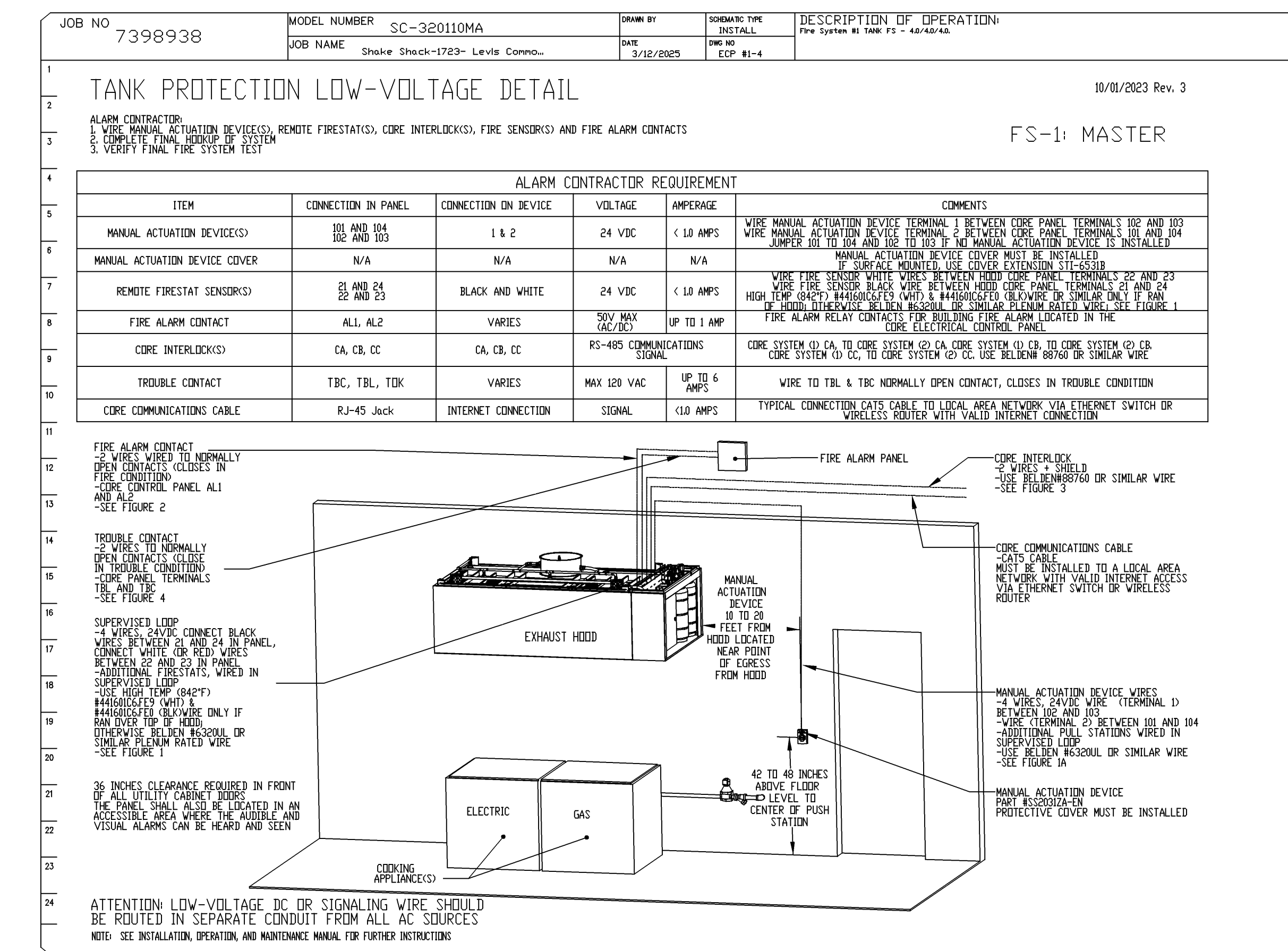
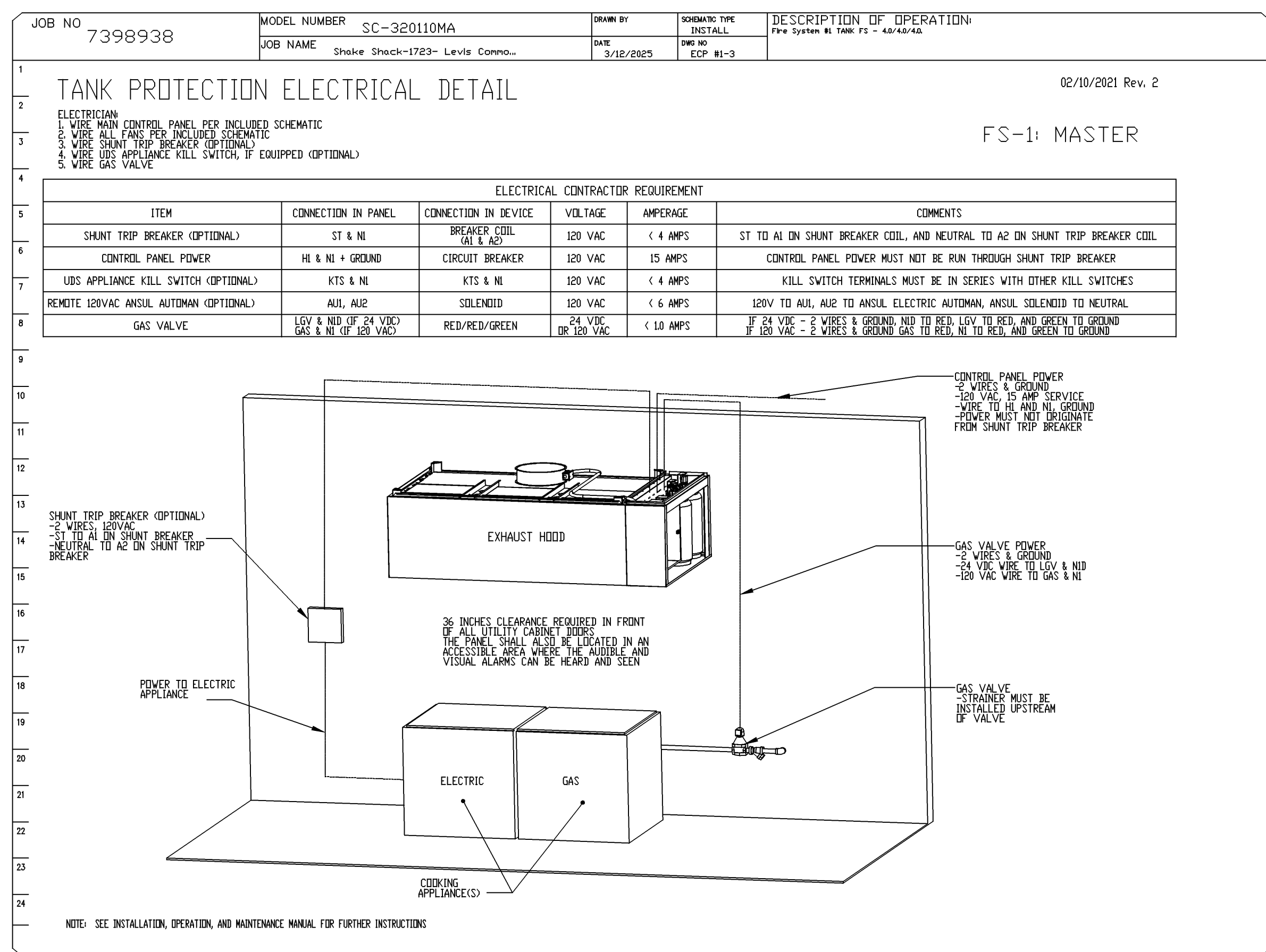
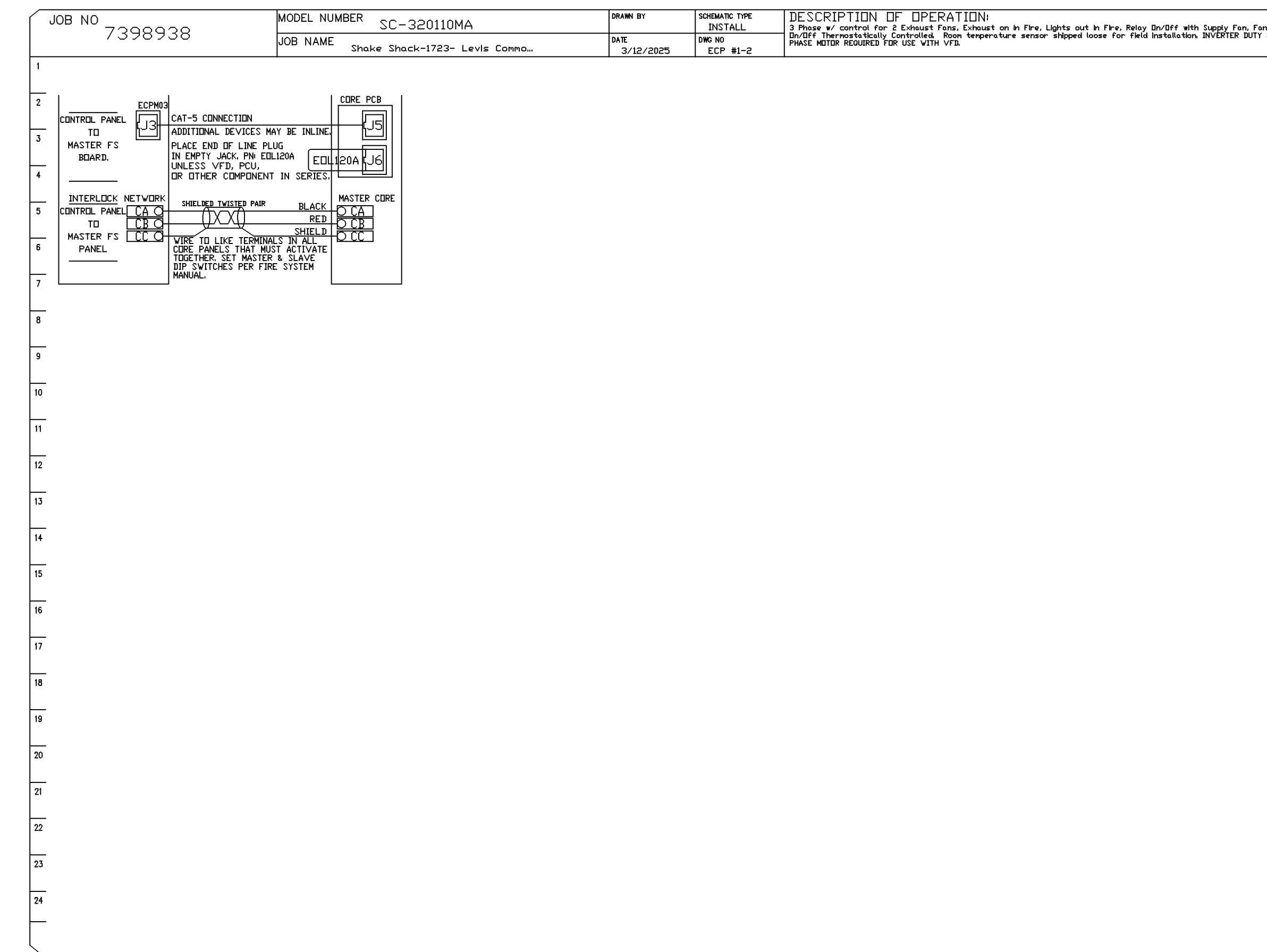
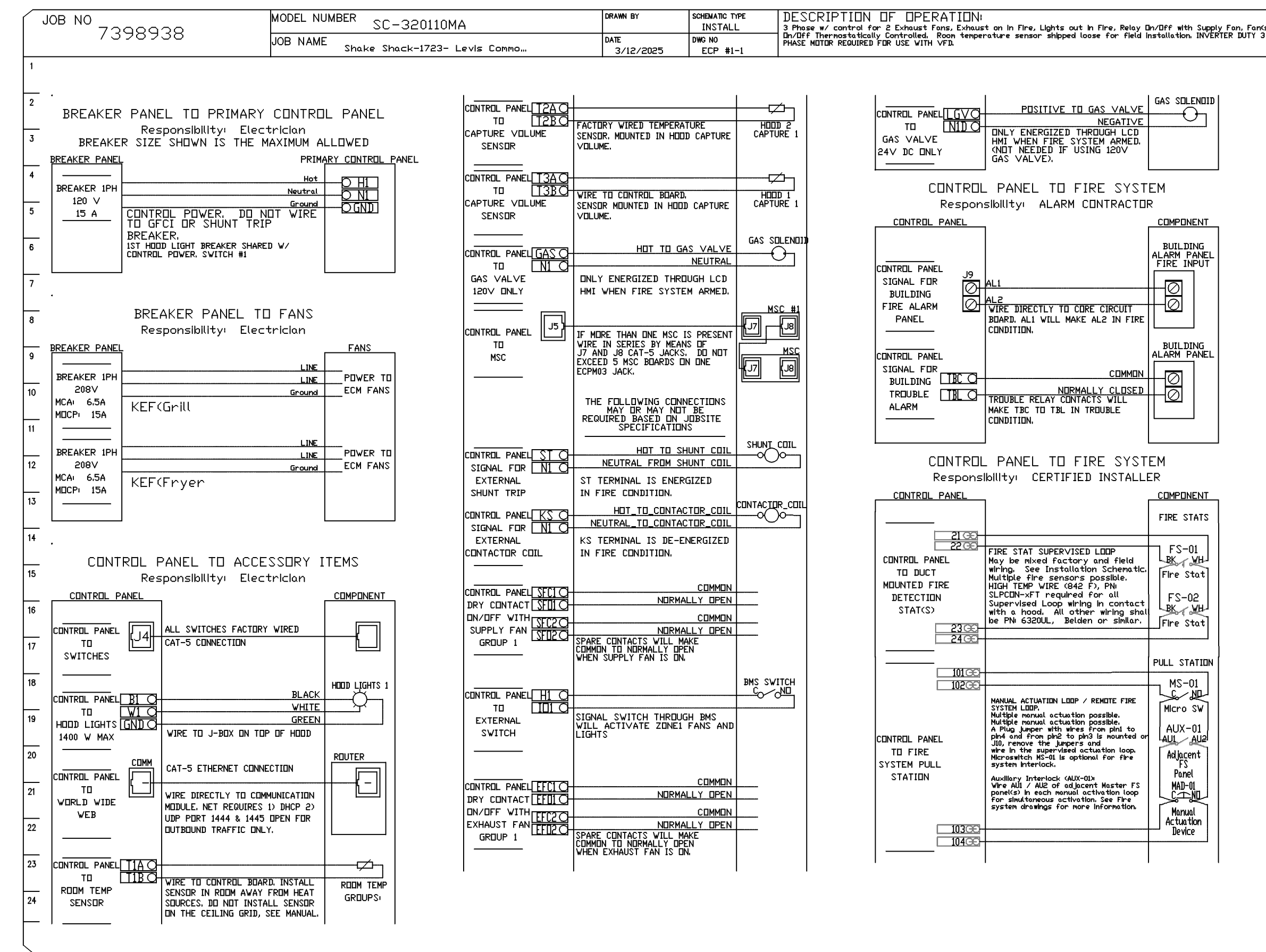


**CASlink Monitor and Control**

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 on the points list.  
Hood Control Panel to allow cloud-based Building Management System to control parameters outlined as CONTROL on 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 Package	Function	DC Package	Function
Room Temperature	MONITOR	Room Temperature(s)	MONITOR
Duct Temperature(s)	MONITOR	Duct Temperature(s)	MONITOR
MHA Discharge Temperature	MONITOR	MHA Discharge Temperature	MONITOR
Ablation RTU Discharge Temperature	MONITOR	Ablation RTU Discharge Temperature	MONITOR
Fan Speed	MONITOR	Control Panel	MONITOR
Fan Amperage	MONITOR	Fan Faults	MONITOR & CONTROL
Fan Power	MONITOR	Fan Status	MONITOR
VFD Faults	MONITOR	PCV Filter Clap Percentages	MONITOR
Control Panel	MONITOR	Fire Condition	MONITOR
Fan Status	MONITOR	CORE Fire System	MONITOR
PCV Faults	MONITOR	Building Presence	MONITOR
PCV Filter Clap Percentages	MONITOR	Fans (Status)	MONITOR & CONTROL
Fire Condition	MONITOR	Lights (Status)	MONITOR & CONTROL
CORE Fire System	MONITOR	Wash Button	MONITOR & CONTROL
Building Presence	MONITOR		
Prop Time Status	MONITOR & CONTROL		
Fan Status	MONITOR & CONTROL		
Lights Status	MONITOR & CONTROL		
Wash Button	MONITOR & CONTROL		



REVISIONS

NO	DESCRIPTION	DATE
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Eastern, PA, Mechanical

225 E City Line Avenue, Suite #103, Bala Cynwyd, PA, 19004 PHONE: (267) 504-4126 EMAIL: reg108@captiveaire.com

zebra

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SCOTTSDALE, ARIZONA 85254  
PHONE: 480.912.1169 zbrglobal

CONSULTANT LOGO:  
Schnackel  
engineers

STORE NO:  
OH #1723

SHAKE SHACK  
LEVIS COMMONS  
4115 LEVIS COMMONS BLVD.  
PERRYSBURG, OH 43051

Shake Shack-1723- Levis Commons (Kittchen)-R1  
PERRYSBURG, OH, 43051

DATE: 3/12/2025

DWG.#:  
7398938

DRAWN By: Joe.shilba

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

MASTER DRAWING

SHEET NO.  
5

REVISIONS

NO	DATE	DESCRIPTION
A	03/12/25	REVISION A
B	03/12/25	REVISION B
C	03/12/25	REVISION C
D	03/12/25	REVISION D

STATUS:  
IFC SET

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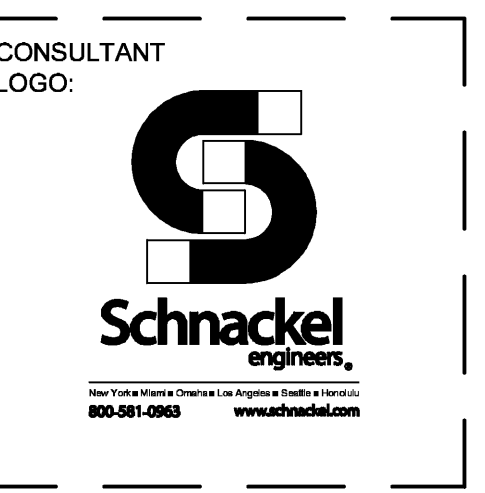
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SHEET NAME:  
CAPTIVEAIRE DRAWINGS

DATE: 04/03/2025 PROJECT NO: 40091

DRAWN: S/M/S SCALE:

SHEET NO.: M705



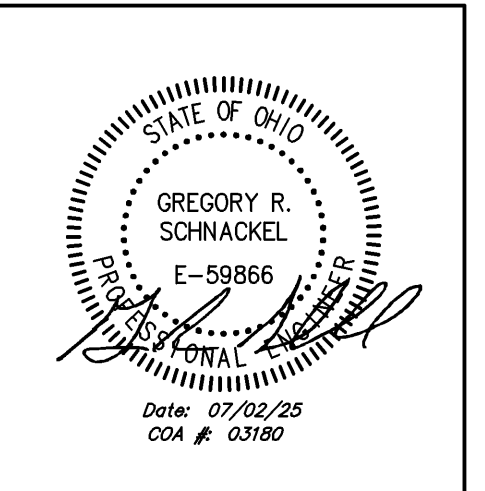
CONSULTANT LOGO:  
**OH #1723**

SHAKE SHACK  
LEVIS COMMONS  
4115 LEVIS COMMONS BLVD.  
PERRYSBURG, OH 43051

Shake Shack-1723- Levis Commons (Kitchen)-R1  
PERRYSBURG, OH, 43051

REVISIONS	
DATE	DESCRIPTION
05/21/25	REVISION A
06/02/25	REVISION B
06/25/25	REVISION C
07/02/25	REVISION D

STATUS: IFC SET



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SHEET NAME:  
**CAPTIVEAIRE DRAWINGS**

DATE: 04/03/2025 PROJECT NO.: 40091

DRAWN: S/M/S SCALE:

SHEET NO.: **M706**

REVISIONS

DATE: 3/12/2025

DWG.#: 7398938

DRAWN BY: Joe.shilba

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

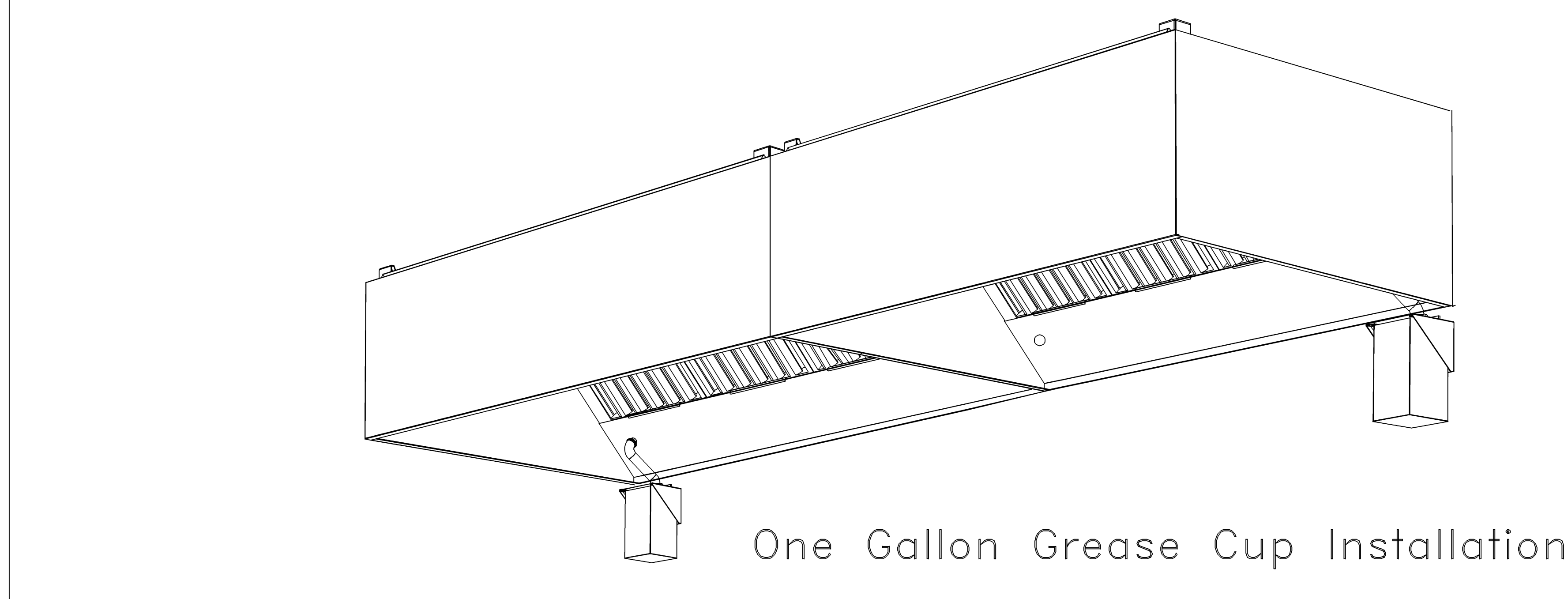
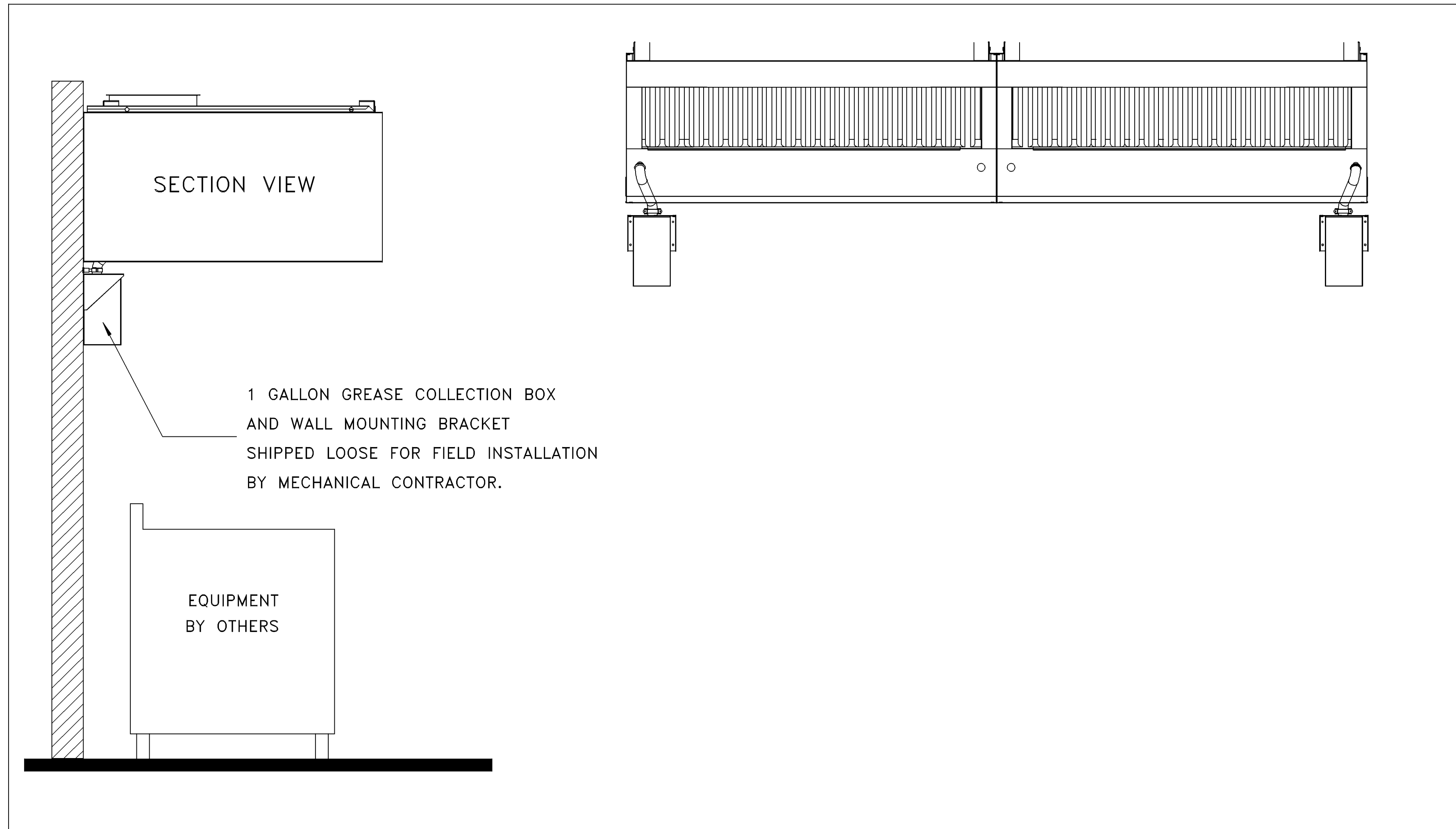
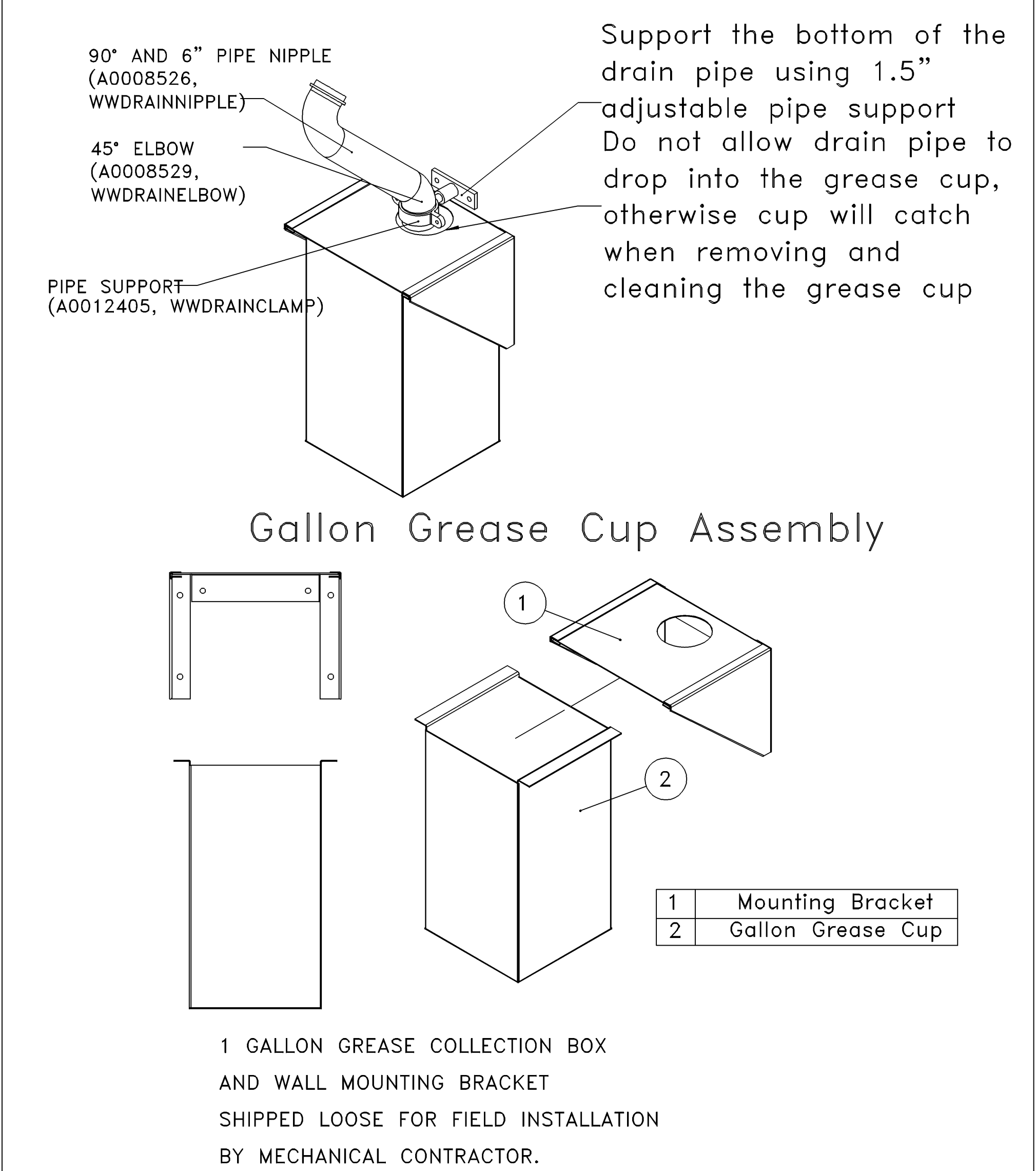
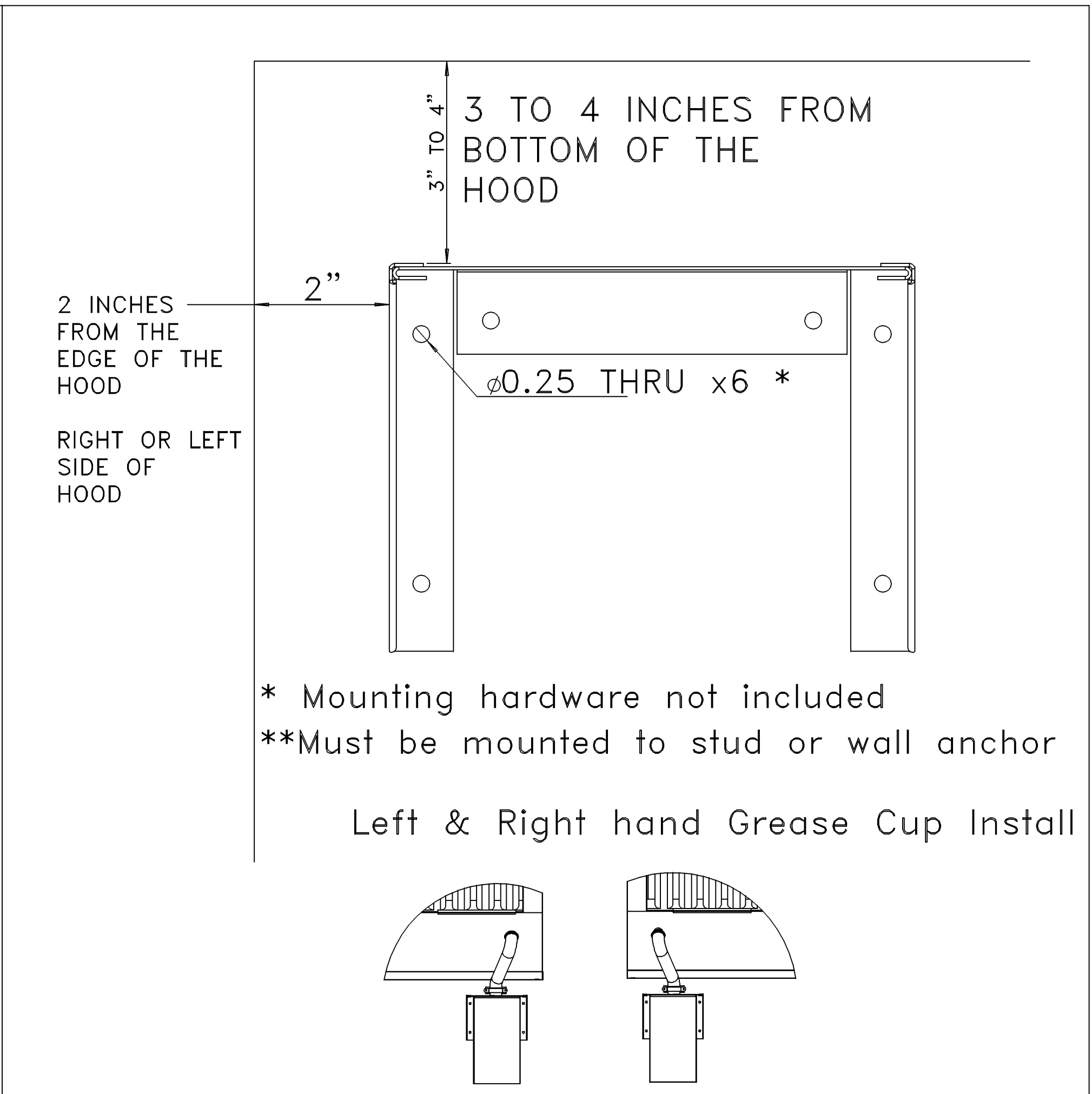
MASTER DRAWING

SHEET NO. 6

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Eastern, PA, Mechanical  
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**CAPTIVEAIRE**



Instructions below outline single, or dual, one gallon grease cup installation for ND-2 hood models.

The one gallon grease cup comes as an assembly of stainless steel wall mounting bracket and one gallon cup. The mounting bracket should be installed 2" from the edge of the containment plenum and 3"-4" below the bottom of the hood.

Piping from the hood grease drain should route to the opening of the grease cup, but not into the cup, otherwise the cup will not be able to be removed and emptied.

E  
D  
C  
B  
A

6 5 4 3 2 1

6 5 4 3 2 1

DOAS/RTU FAN SCHEDULE - JOB#7361751

FAN UNIT NO.	TAG	QTY	DOAS/RTU MODEL #	FAN INFORMATION										ELECTRICAL INFORMATION										COOLING INFORMATION										REHEAT INFORMATION										GAS HEAT INFORMATION										ASL MINIMUM ROOM VOLUME			NOTES
				MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	WEIGHT (LBS)	ESP	HP	PHASE	VOLTS	MCA	MDCP	OUTSIDE AIR DB	OUTSIDE AIR WB	MIXED AIR DB	MIXED AIR WB	LEAVING AIR DB	LEAVING AIR WB	TOTAL CAPACITY	DESIRED CAPACITY	REHEAT CAPACITY	DISCHARGE DB	DISCHARGE WB	MOISTURE RATIO	GAS TYPE	INPUT BTUS	OUTPUT BTUS	TEMP RISE	REQUIRED INPUT GAS PRESSURE	ROOM AREA (FT <sup>2</sup> )	AIRFLOW (CFM)	HEIGHT (FT)																						
1	RTU-1 (DINING)	1	CAS-HVAC2-1200-18-10T	CAPTIVEAIRE	18MF-2-RTU	2750	750	3500	2019	1.000	5.50	3	208	67.8A	80A	89.0°F	73.0°F	81.2°F	67.2°F	50.1°F	50.0°F	203.9 MBH	135.1 MBH	18.6	4.3	70.0°F	58.6°F	73.4 MBH	96 MBH	32.1 LBS/HR	NATURAL	241879	195922	44°F	7 IN. W.C. - 14 IN. W.C.	455.2	819	7.2	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19																		
2	RTU-2(KITCHEN)	1	CAS-HVAC3-1250-24-15T	CAPTIVEAIRE	24MF-3-RTU	2250	1750	4000	2707	1.000	5.60	3	208	75.2A	90A	89.0°F	73.0°F	81.2°F	67.2°F	50.1°F	50.0°F	203.9 MBH	135.1 MBH	18.6	4.3	70.0°F	58.6°F	73.4 MBH	96 MBH	32.1 LBS/HR	NATURAL	241879	195922	44°F	7 IN. W.C. - 14 IN. W.C.	602.1	1084	7.2	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19																		

FOR QUESTIONS, CALL THE Eastern PA Mechanical REGION JOB PHONE (267) 504 - 4126 EMAIL: reg108@captivaire.com

FAN OPTIONS

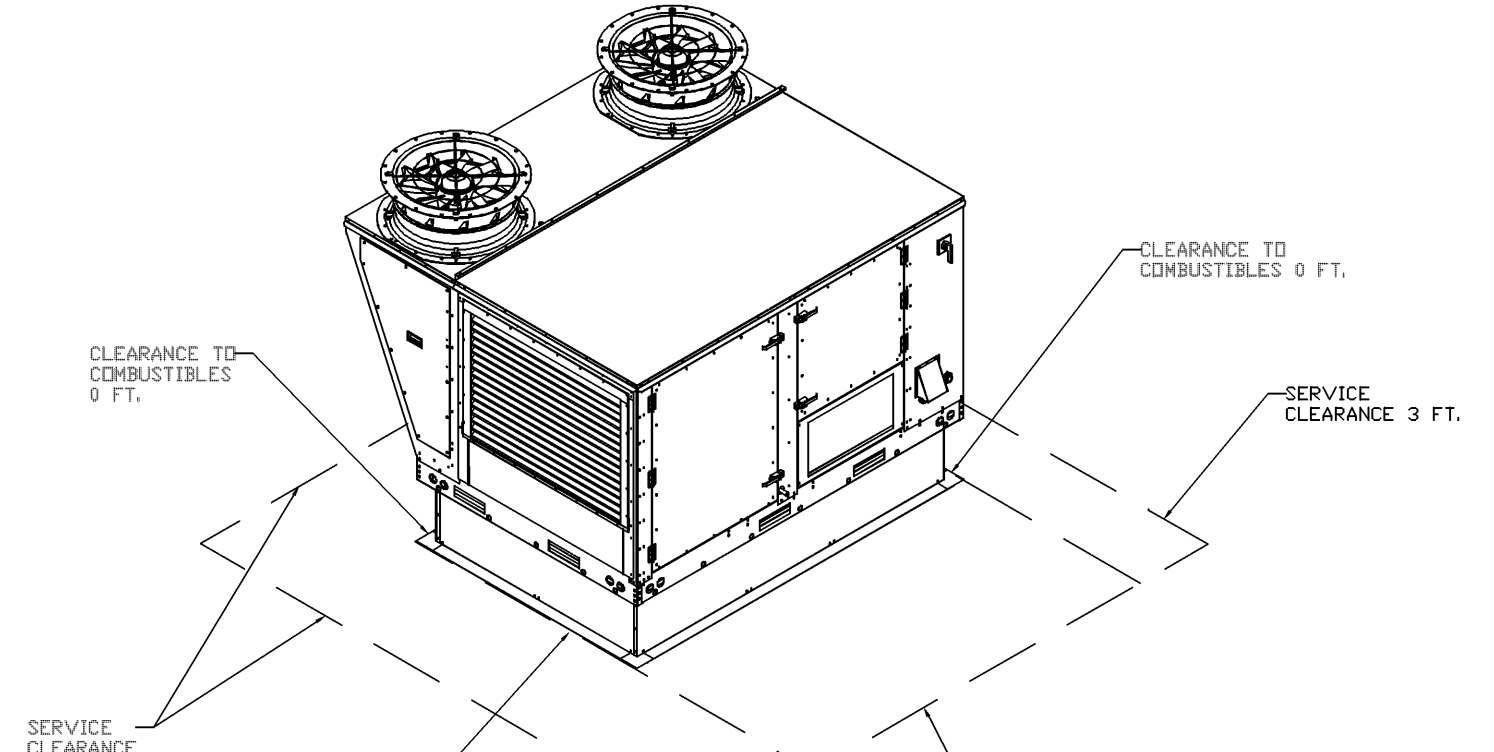
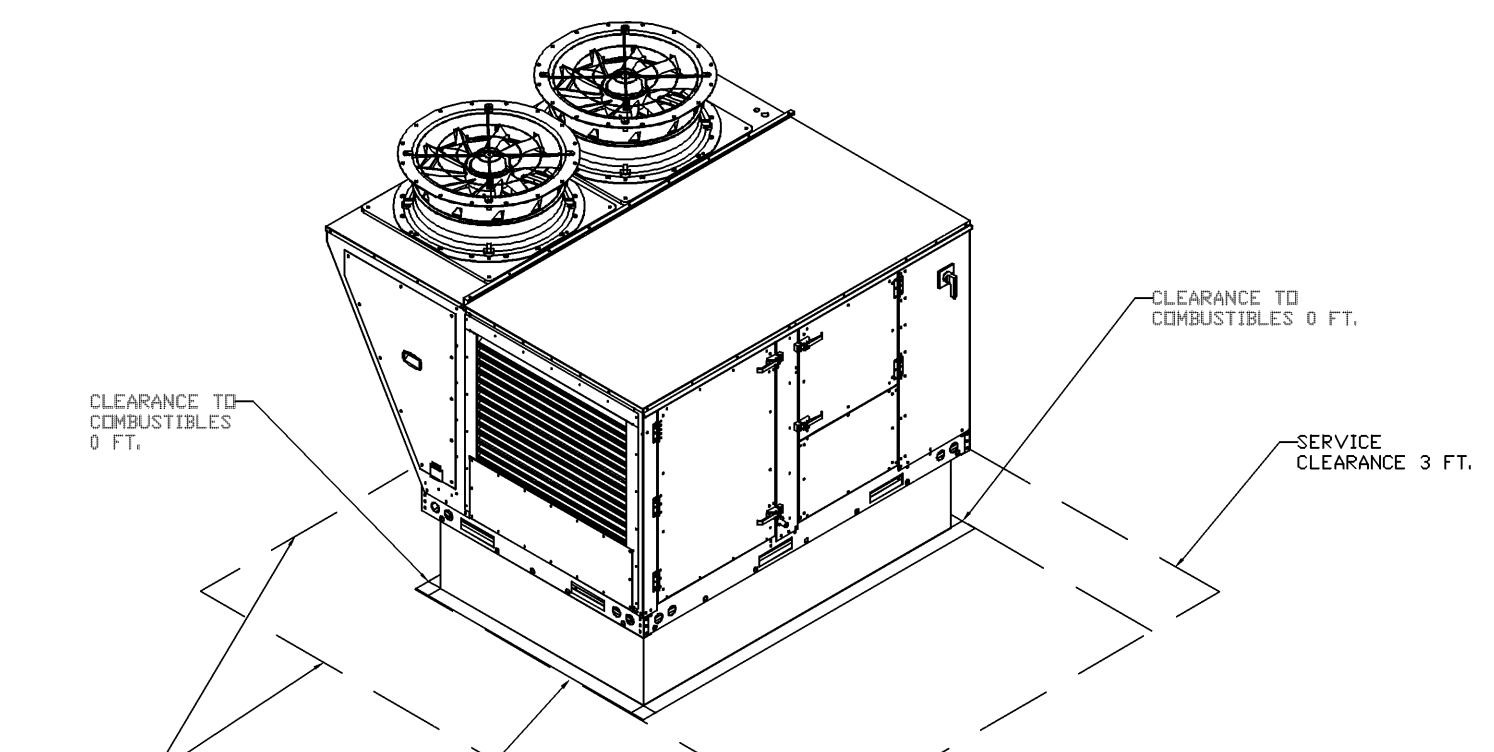
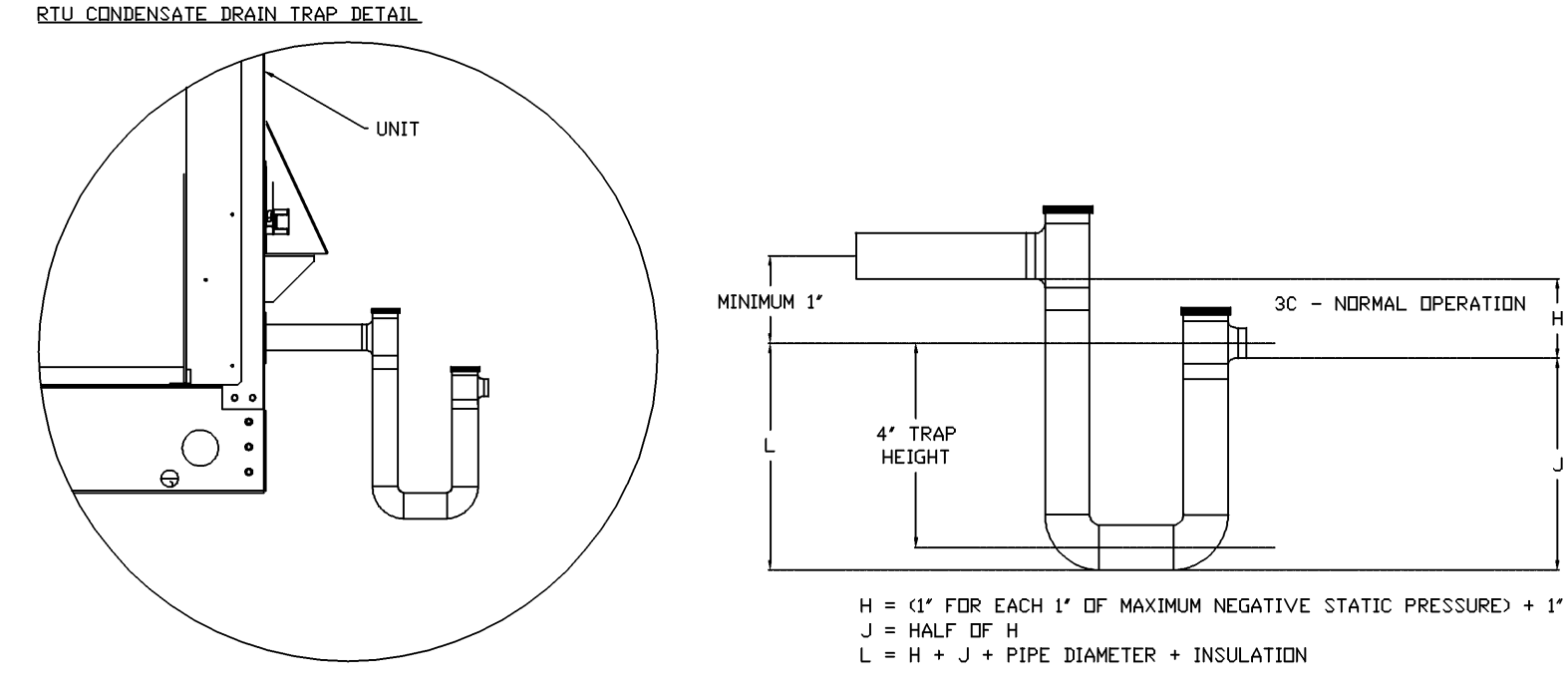
FAN UNIT NO.	TAG	QTY	DESCRIPTION
1	RTU-1 (DINING)	1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" W.C. 1 FURNACE
		1	COOLING OVERRIDE
		1	SHIP LOOSE GAS STRAINER 3/4"
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU. 750VA TRANSFORMER USED. IF A NON-DCV PREWIRED CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" PREWIRED OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRED
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	RTU BLOWER BEEP SWITCH
		1	RTU2 DOWN DISCHARGE
		1	2" MERV 13 FILTERS FOR RTU2 (QTY. 4)
		1	2" MERV 8 FILTERS FOR RTU2 (QTY. 4)
		1	OVERHEAT STAT
		1	TOTAL CFM MONITORING
		1	VFD FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBULE
		1	10 TON MODULATING COOLING OPTION, 208/230V, R454B REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS
		1	LDW AMBIENT COOLING OPERATION - DOWN TO OF AMBIENT
		1	R454B LEAK DETECTOR OPTION FOR RTU2
		1	OCCUPIED SCHEDULING
		1	INTAKE FIRESTAT SET TO 135°F
		1	FREESTAT
		2	RTU-2(KITCHEN)
1	10 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL - R454B		
1	RTU2 CURB DUCT HANGER		
1	120V FIRE INPUT		
1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK - ALARM SUPPLIED BY OTHERS		
1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI		
1	RTU2 CONVENIENCE OUTLET (GFCI), 15 AMP - REQUIRES SEPARATE 120V CONNECTION. INCLUDES RECEPTACLE, COVER AND J-BOX		
1	RTU2 ECONOMIZER - DIFFERENTIAL ENTHALPY CONTROL		
1	RTU2 ECONOMIZER BAROMETRIC RELIEF		
1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL VIA HMI		
1	RTU2 HAIL GUARD		
1	RTU2 DOWN RETURN		
1	VAV PACKAGE 1/2" MANUAL/BDC CONTROL (S71 VFD INCLUDED)		
1	LDAD REACTOR MOUNTED IN FAN		
1	5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS)		
1	EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET		
1	INLET PRESSURE GAUGE, 0-35"		
1	MANIFOLD PRESSURE GAUGE, 0 TO 10" W.C. 1 FURNACE		
1	COOLING OVERRIDE		
1	SHIP LOOSE GAS STRAINER 1"		
1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU. 750VA TRANSFORMER USED. IF A NON-DCV PREWIRED CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" PREWIRED OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRED		
1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED		
1	CONSTRUCTION MODE - MODIFIES START-UP SETTINGS TO ALLOW TEMPERING A BUILDING STILL UNDER CONSTRUCTION		
1	RTU3 BLOWER BEEP SWITCH		
1	RTU3 DOWN DISCHARGE		
1	2" MERV 13 FILTERS FOR RTU3 (QTY. 4)		
1	2" MERV 8 FILTERS FOR RTU3 (QTY. 4)		
1	OVERHEAT STAT		
1	TOTAL CFM MONITORING		
1	VFD FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBULE		
1	OCCUPIED SCHEDULING		
1	INTAKE FIRESTAT SET TO 135°F		
1	FREESTAT		
1	DISCHARGE FIRESTAT SET TO 240°F		
1	RTU3 CURB DUCT HANGER		
1	120V FIRE INPUT		
1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK - ALARM SUPPLIED BY OTHERS		
1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI		
1	RTU3 CONVENIENCE OUTLET (GFCI), 15 AMP - REQUIRES SEPARATE 120V CONNECTION. INCLUDES RECEPTACLE, COVER AND J-BOX		
1	15 TON MODULATING COOLING OPTION, 208/230V, R454B REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS		
1	LDW AMBIENT COOLING OPERATION - DOWN TO OF AMBIENT		
1	R454B LEAK DETECTOR OPTION FOR RTU3		
1	15 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL - R454B		
1	RTU3 ECONOMIZER - DIFFERENTIAL ENTHALPY CONTROL		
1	RTU3 ECONOMIZER BAROMETRIC RELIEF		
1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL VIA HMI		
1	RTU3 HAIL GUARD		
1	ZIEHL POWERED EXHAUST FOR RTU3 - MANUAL CONTROL, 3000 CFM MAX AT 0"		
1	RTU3 DOWN RETURN		
1	VAV PACKAGE 1/2" MANUAL/BDC CONTROL (S71 VFD INCLUDED)		
1	LDAD REACTOR MOUNTED IN FAN		
1	5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS)		
1	EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET		

CURB ASSEMBLIES

ID	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	RTU-1 (DINING)	90 LBS	CURB	49.500"W X 75.000"L X 14.000"H INSULATED.
2	# 2	RTU-2(KITCHEN)	104 LBS	CURB	59.500"W X 91.000"L X 14.000"H INSULATED.

HMI SCHEDULE

UNIT NUMBER	HMI #	HMI LOCATION	TEMP AVERAGING	MODBUS ADDRESS
FAN #1	HMI #1 - UNIT	IN UNIT	NOT AVERAGED	55
FAN #1	HMI #2 - SPACE	DINING ROOM	AVERAGED	56
FAN #1	HMI #3 - SPACE	MANAGERS OFFICE	NOT AVERAGED	57
FAN #2	HMI #1 - UNIT	IN UNIT	NOT AVERAGED	55
FAN #2	HMI #2 - SPACE	KITCHEN	AVERAGED	56
FAN #2	HMI #3 - SPACE	MANAGERS OFFICE	NOT AVERAGED	57



REVISIONS

NO.	DESCRIPTION	DATE



Shake Shack-1723 - Levis Commons OH (HVAC)  
PERRYSBURG, OH, 43551

DATE: 2/24/2025  
DWG.#: 7361751  
DRAWN BY: Joe.shilba  
SCALE: 1/2" = 1'-0"  
MASTER DRAWING  
SHEET NO. 1



ZEBRA ARCHITECTURE, PLLC  
1464 N KIERLAND BLVD., SUITE N300  
SCOTTSDALE, ARIZONA 85254  
PHONE: 480.912.1169  
zbrglobal

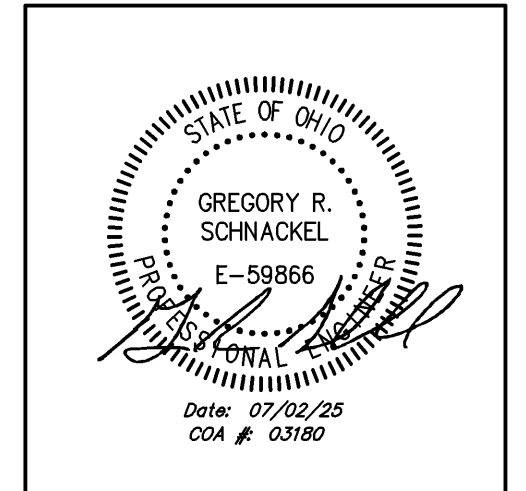
CONSULTANT LOGO:  
Schackel Engineers

STORE NO.: OH #1723  
SHAKE SHACK  
LEVIS COMMONS  
4115 LEVIS COMMONS BLVD.  
PERRYSBURG, OH 43051

REVISIONS

NO.	DATE	DESCRIPTION
A	05/21/25	REVISION A
B	06/26/25	REVISION B
C	06/26/25	REVISION C
D	07/03/25	REVISION D

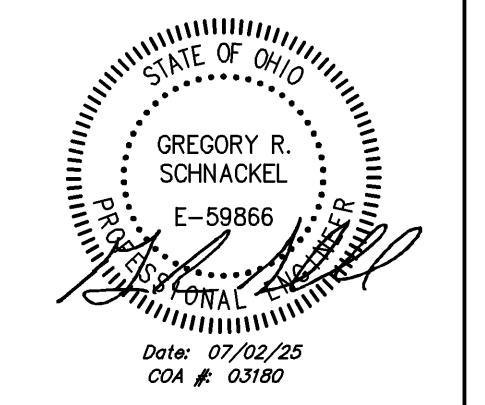
STATUS: IFC SET



FIELD VERIFICATION:  
The Contractor shall verify all physical dimensions and conditions at the project site and notify Zebra Architecture, PLLC of any discrepancies or omissions of information before beginning or fabricating any work. Do not scale from drawings.  
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SHEET NAME: CAPTIVEAIRE DRAWINGS  
DATE: 04/03/2025 PROJECT NO.: 40091  
DRAWN: S/M/S SCALE:  
SHEET NO.: M707

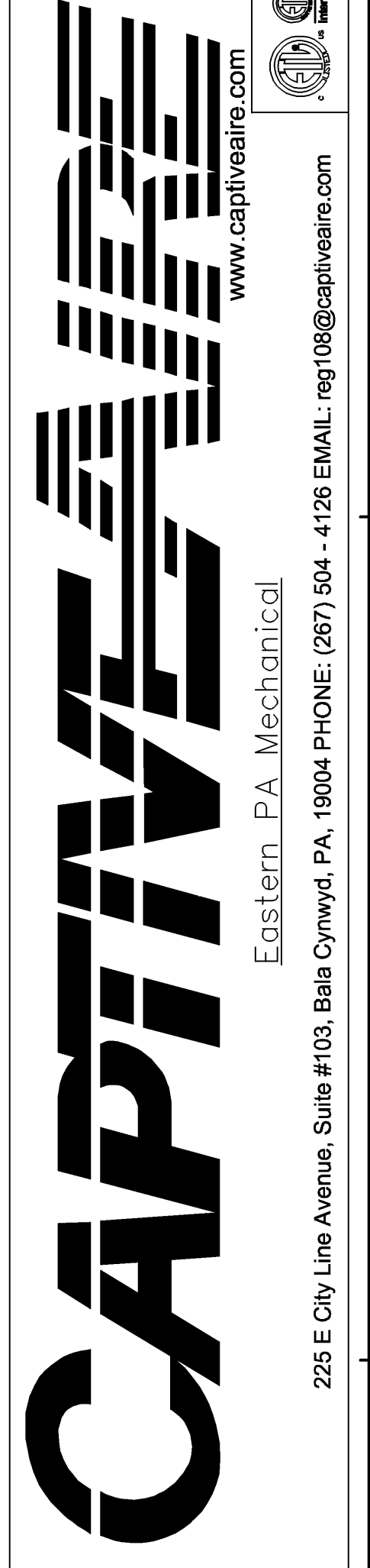
NO.	DATE	DESCRIPTION
A	05/21/25	REVISION A
B	06/02/25	REVISION B
C	06/25/25	REVISION C
D	07/02/25	REVISION D



FIELD VERIFICATION:  
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NO.	DATE	DESCRIPTION
A	05/21/25	REVISION A
B	06/02/25	REVISION B
C	06/25/25	REVISION C
D	07/02/25	REVISION D



Shake Shack-1723- Levis Commons OH (HVAC)  
PERRYSBURG, OH, 43551

DATE: 2/24/2025

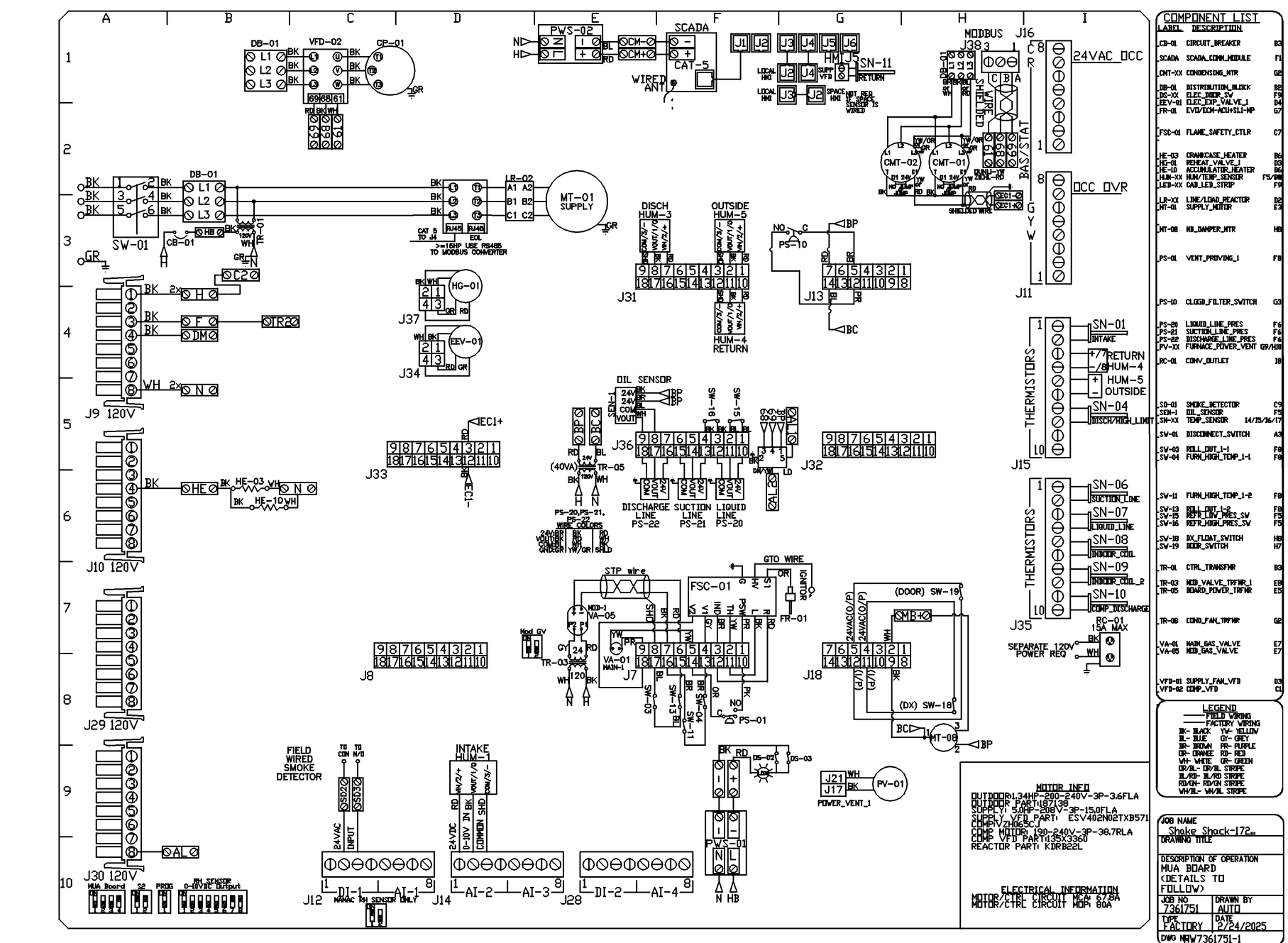
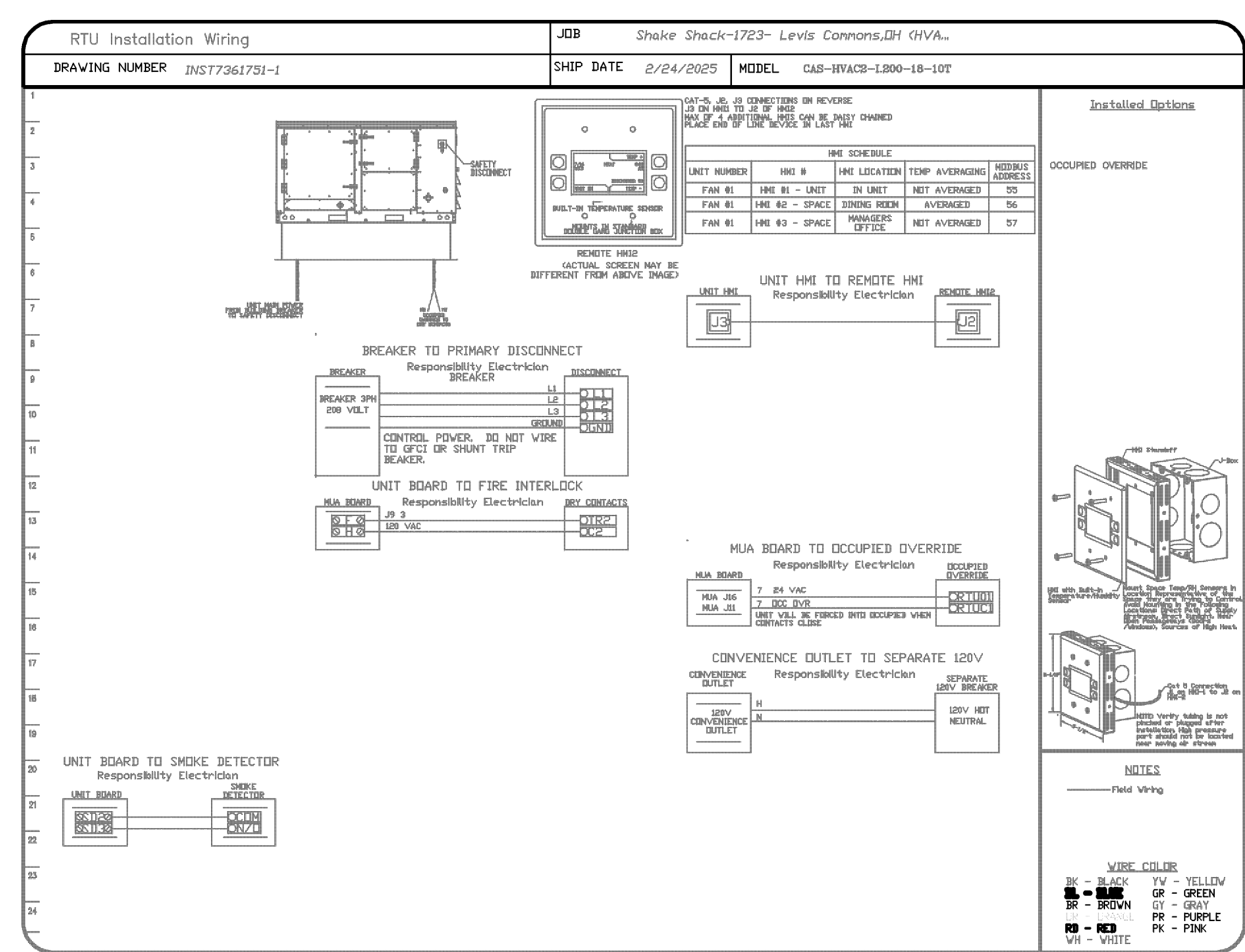
DWG.#:  
7361751

DRAWN BY: Joe.shilba

SCALE:  
1/2" = 1'-0"

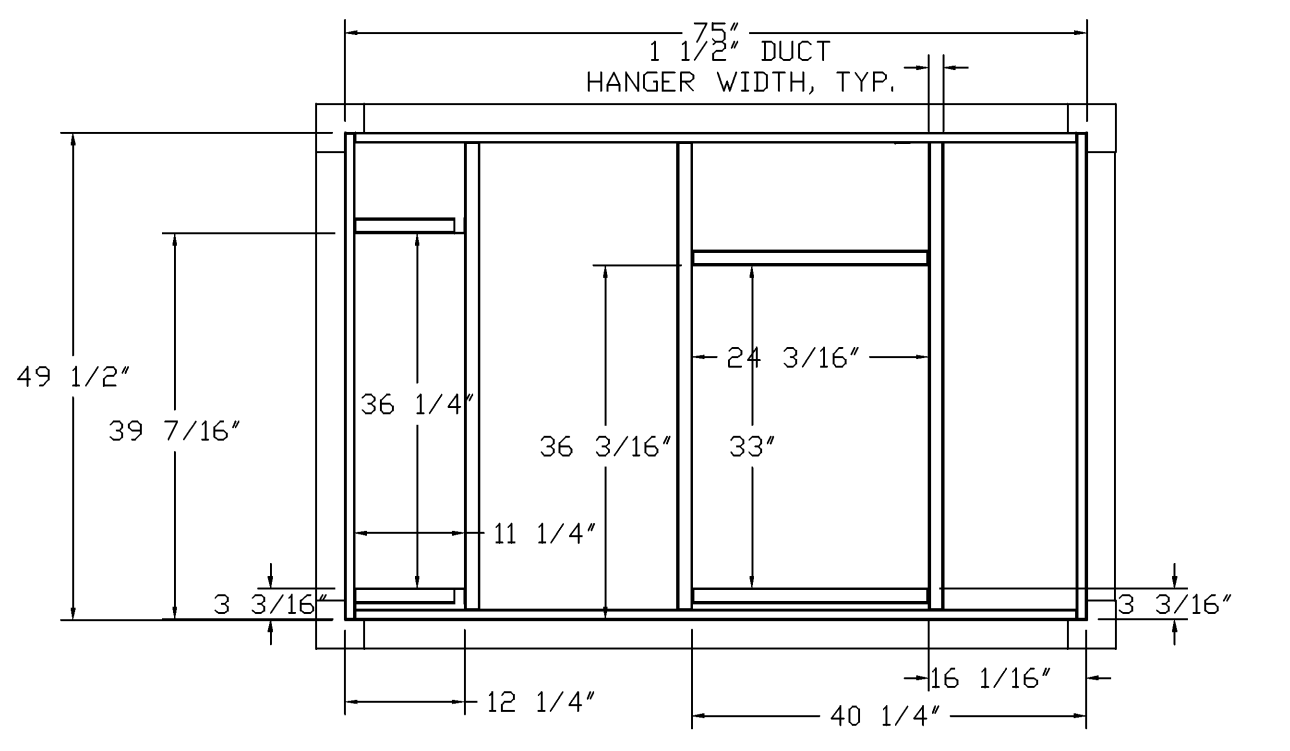
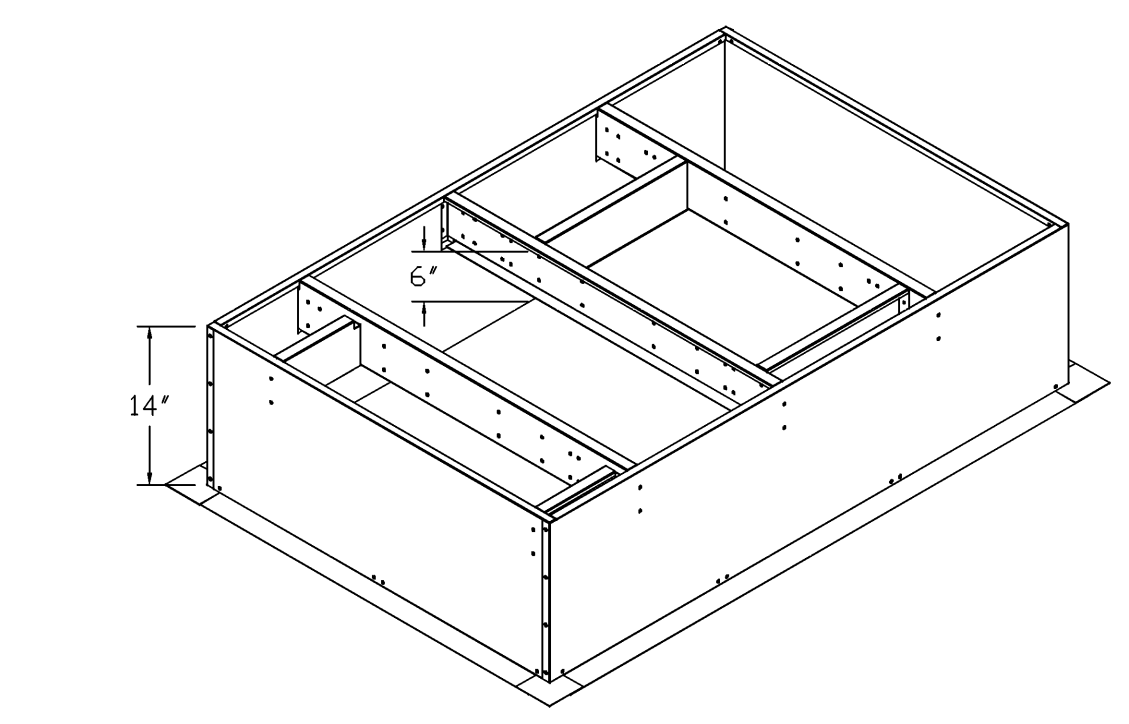
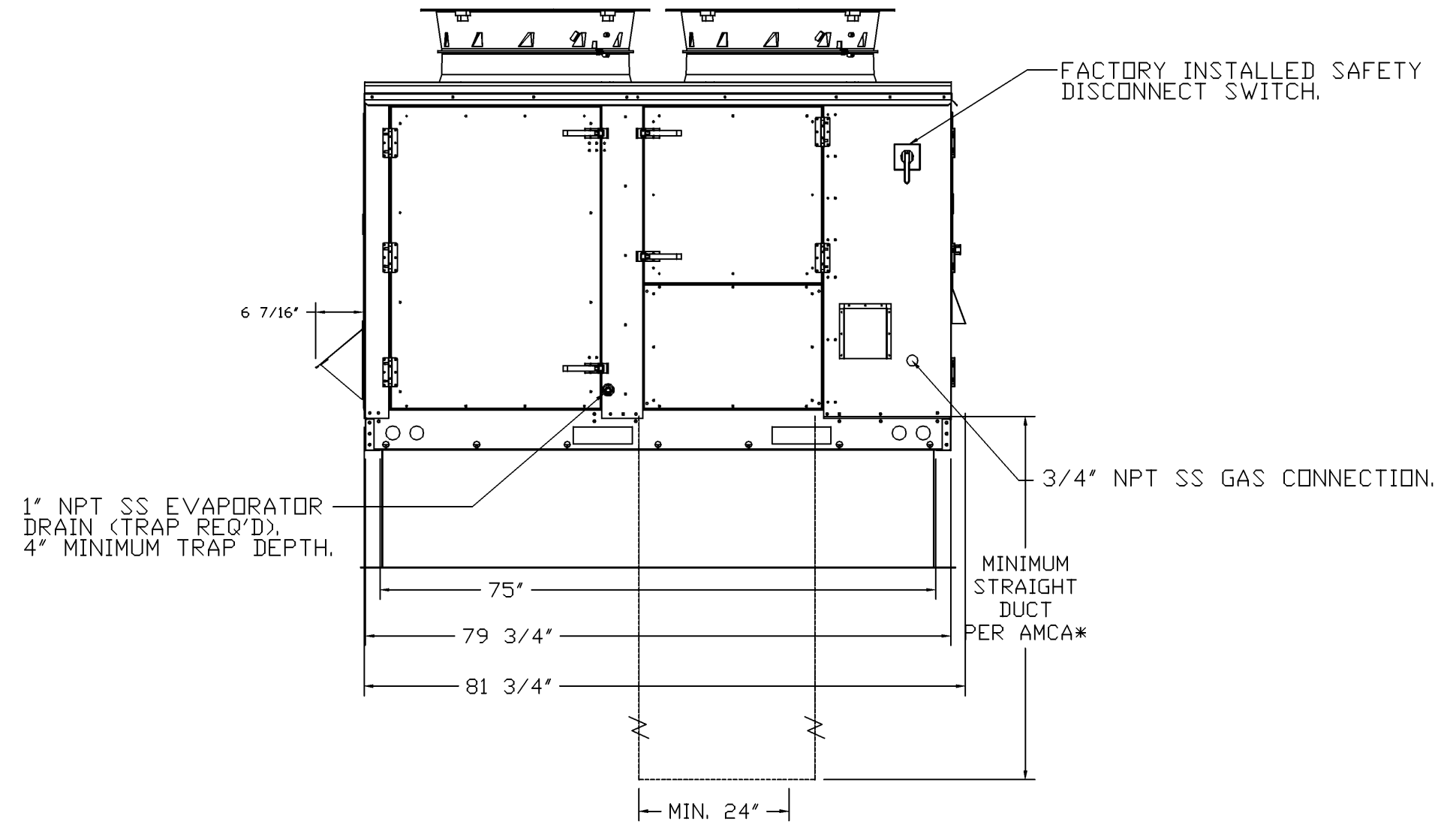
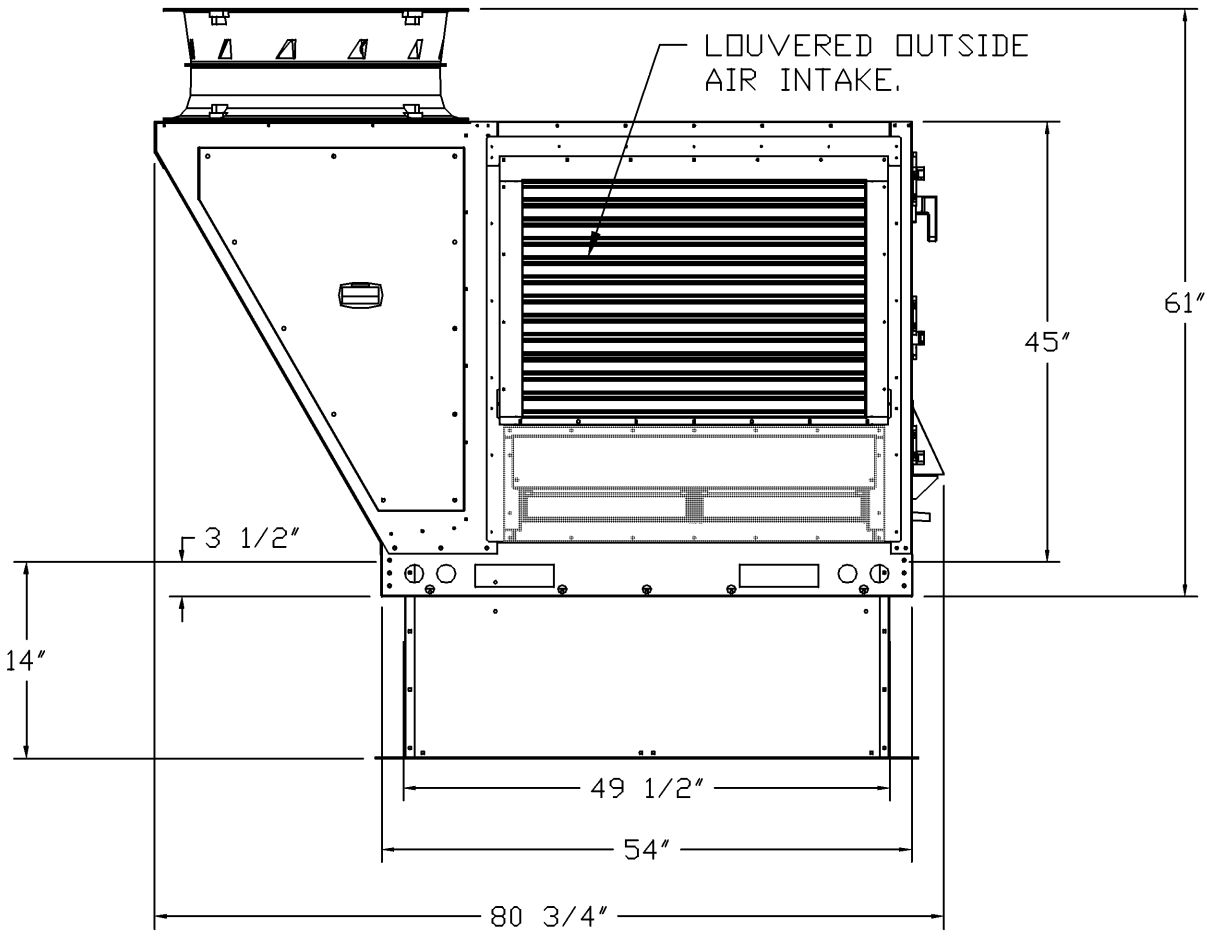
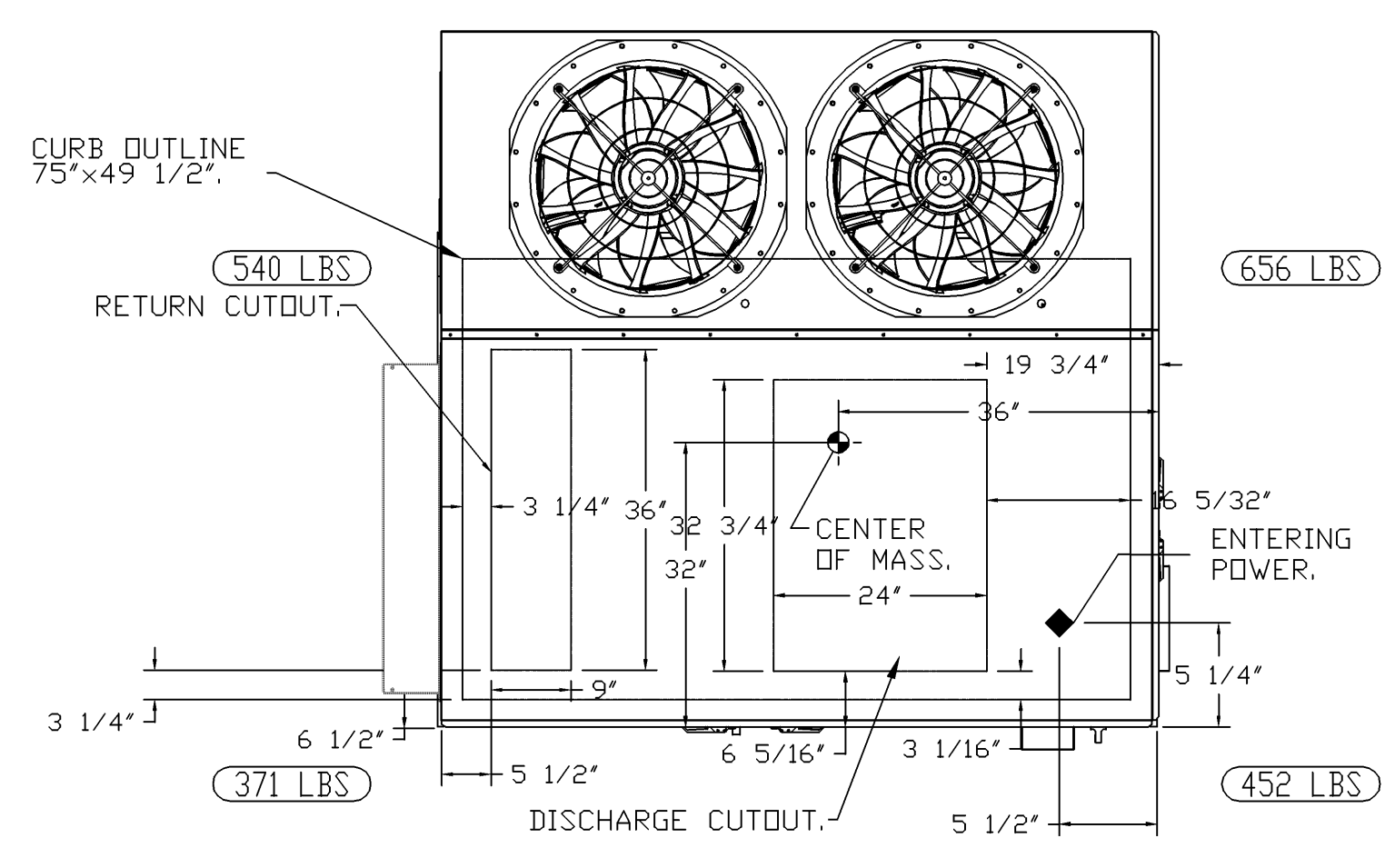
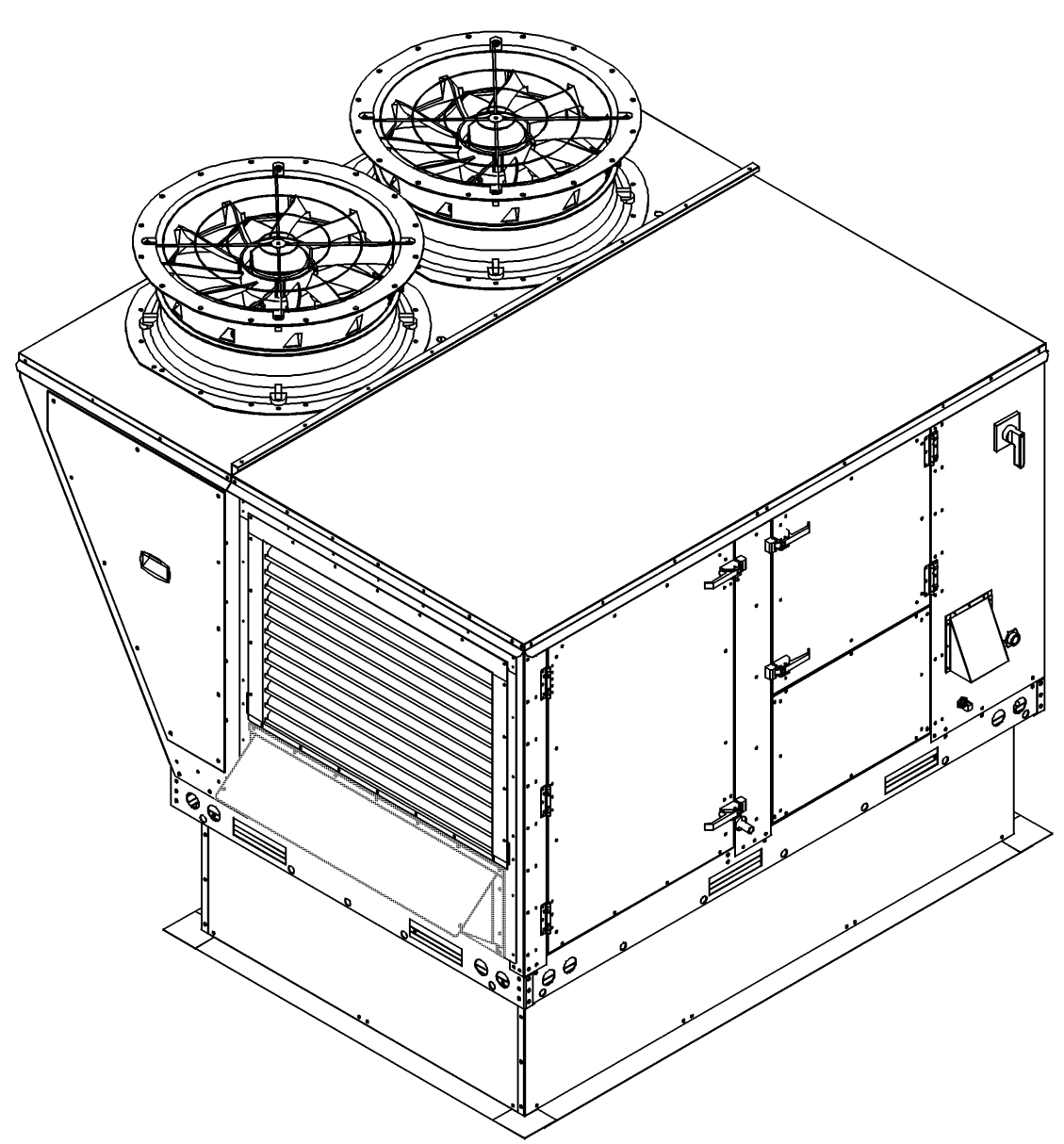
MASTER DRAWING

SHEET NO.  
2



FAN #1 CAS-HVAC2-I.200-18FM-10T - HEATER (RTU-1 (DINING))

- NOTES:
- DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
  - ( ) DENOTES CORNER WEIGHT.
  - ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
  - CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.
  - EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET.
- \*NOTE: INTEGRAL CO2 MONITORING AND CONTROL CAPABILITIES FOR ALL SPACE MOUNTED THERMOSTATS.



E

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C

B

A

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3

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1

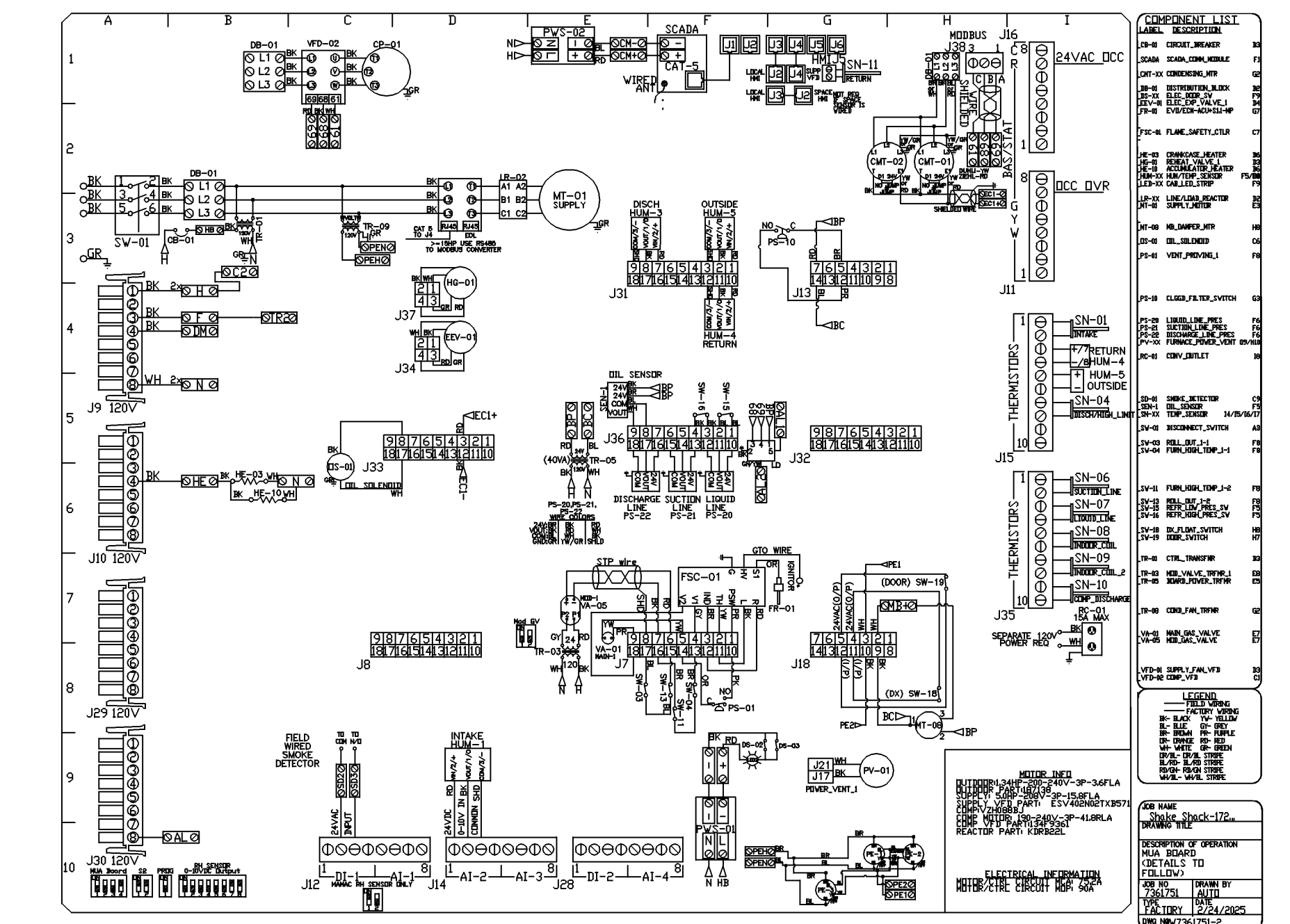
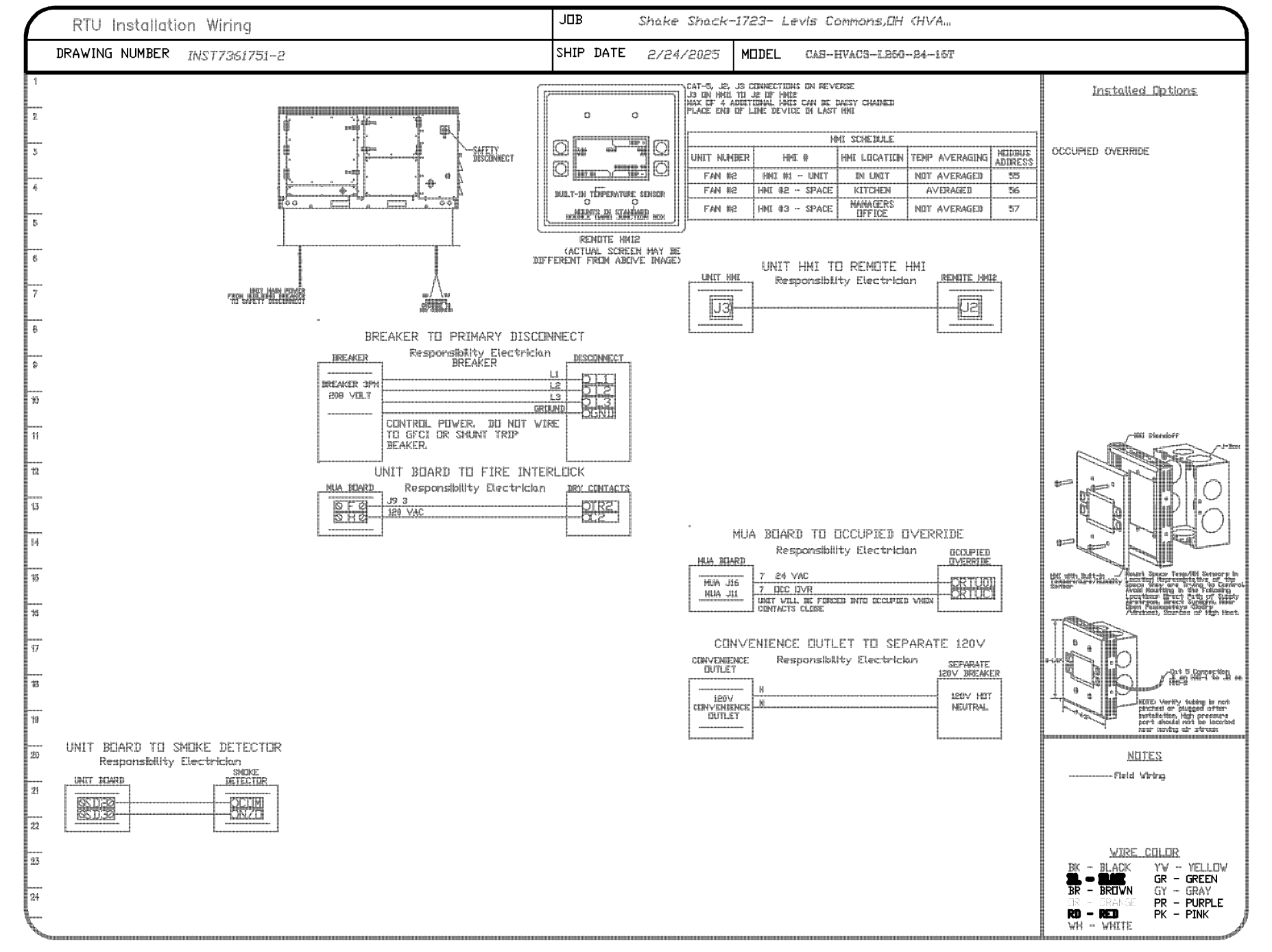
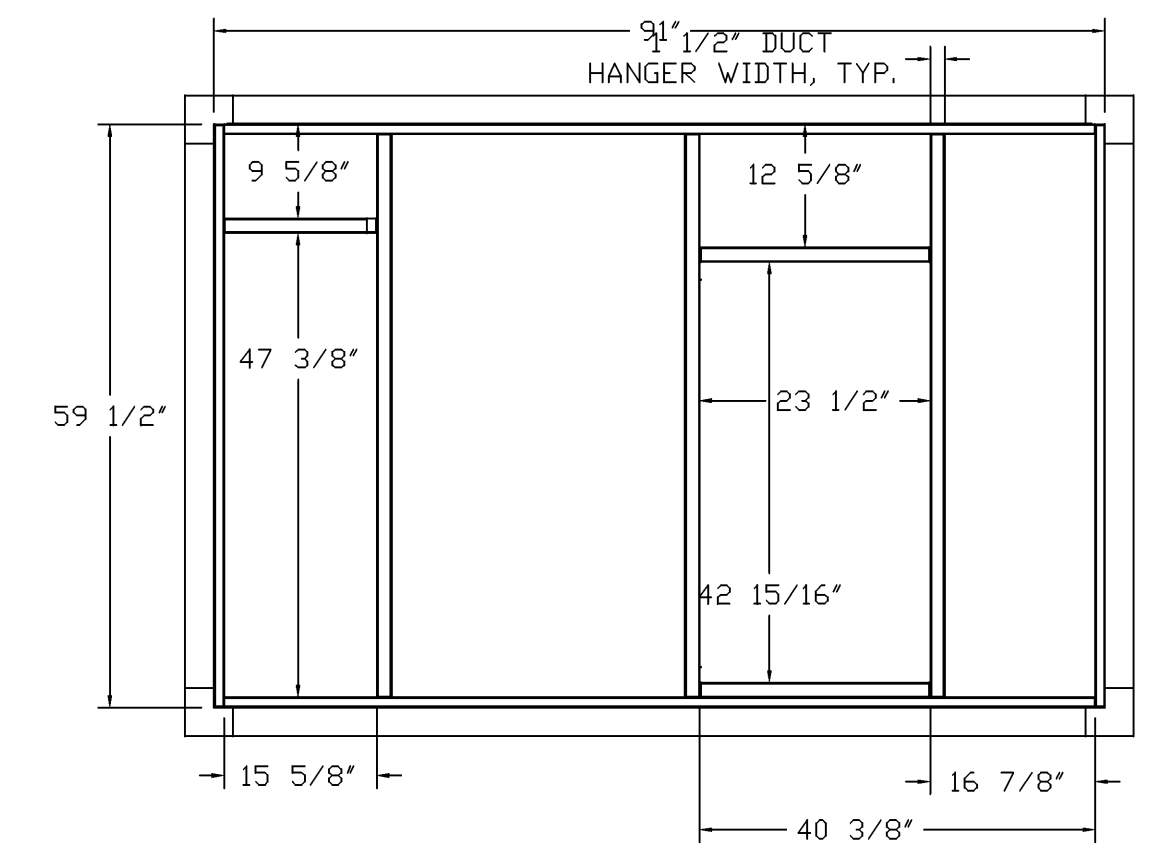
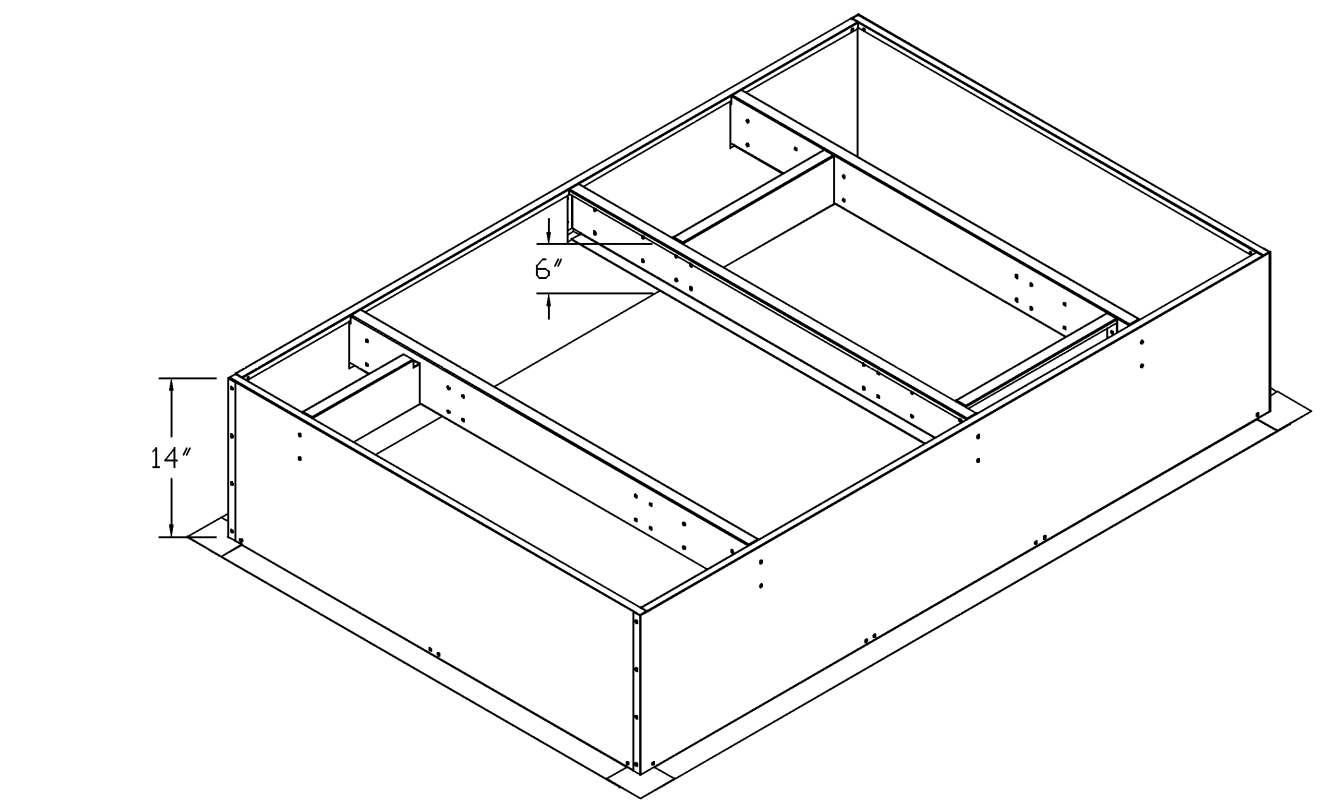
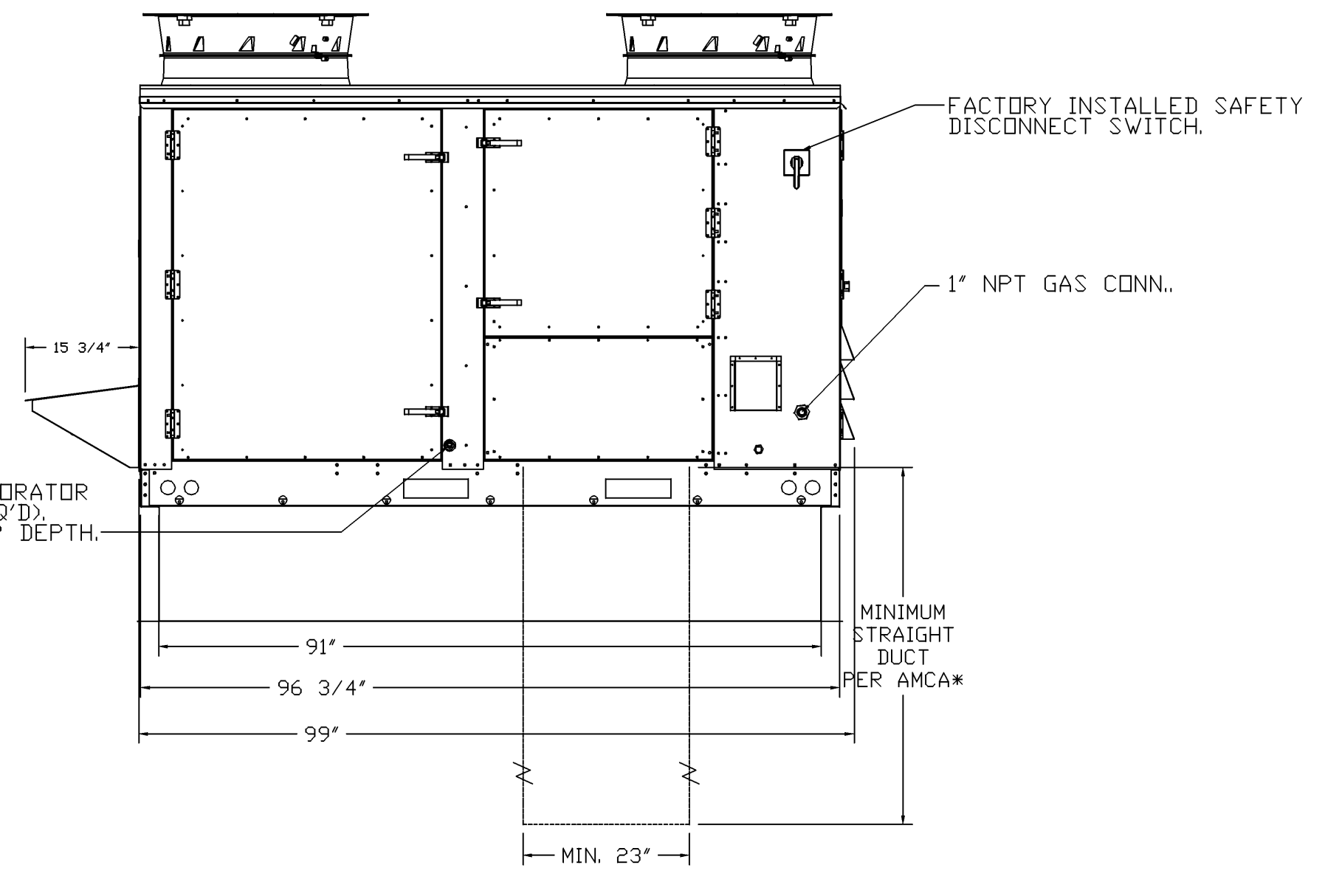
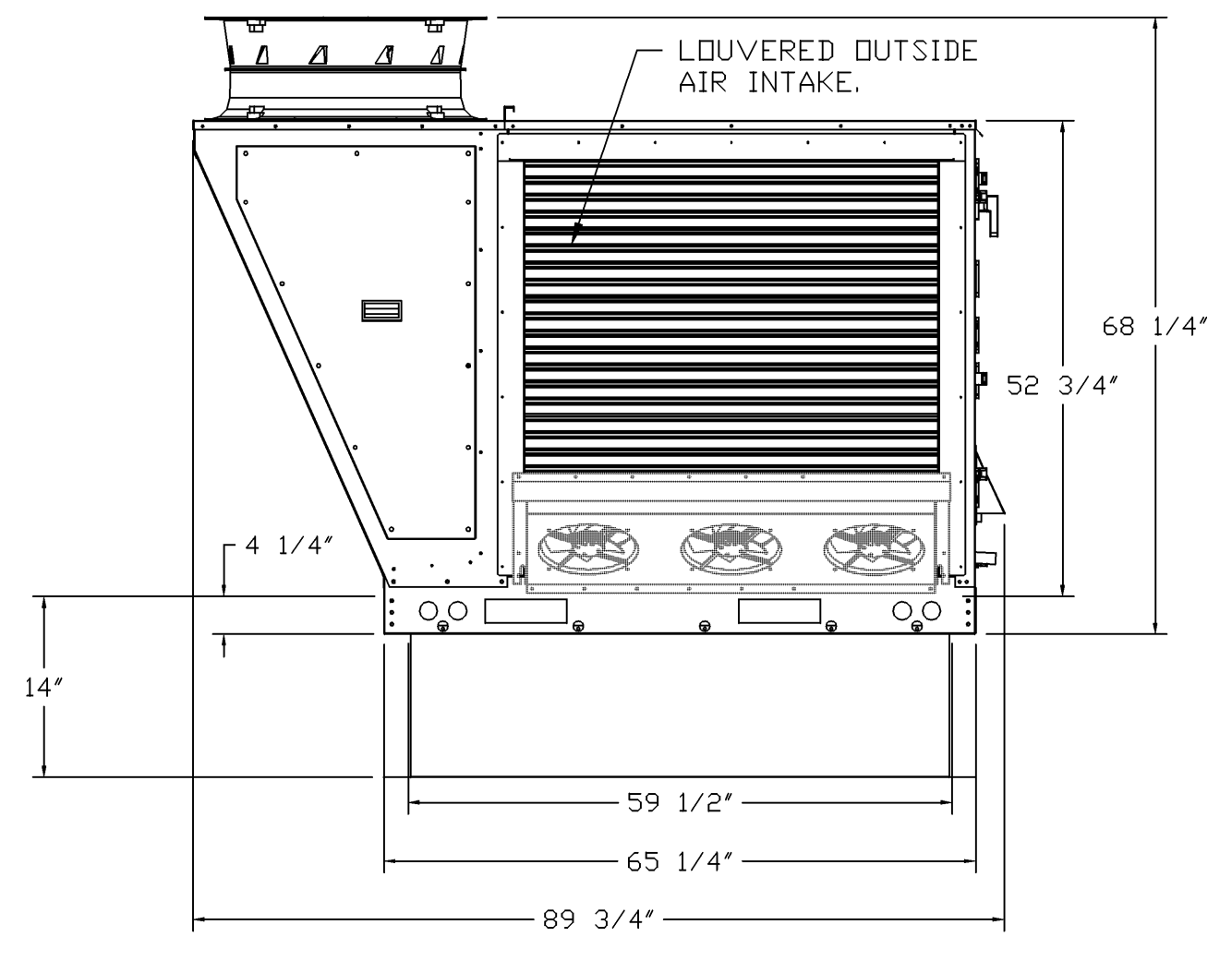
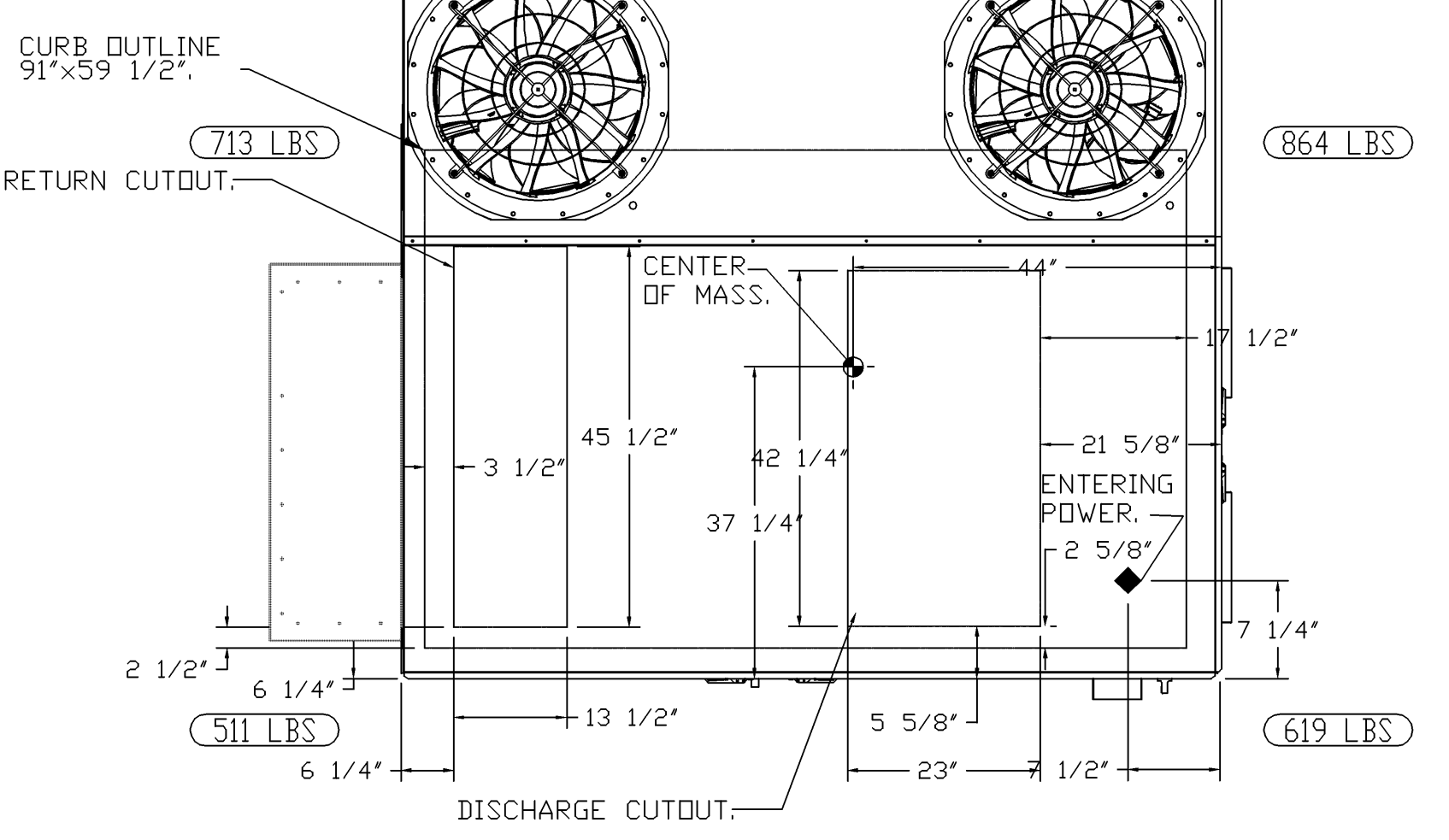
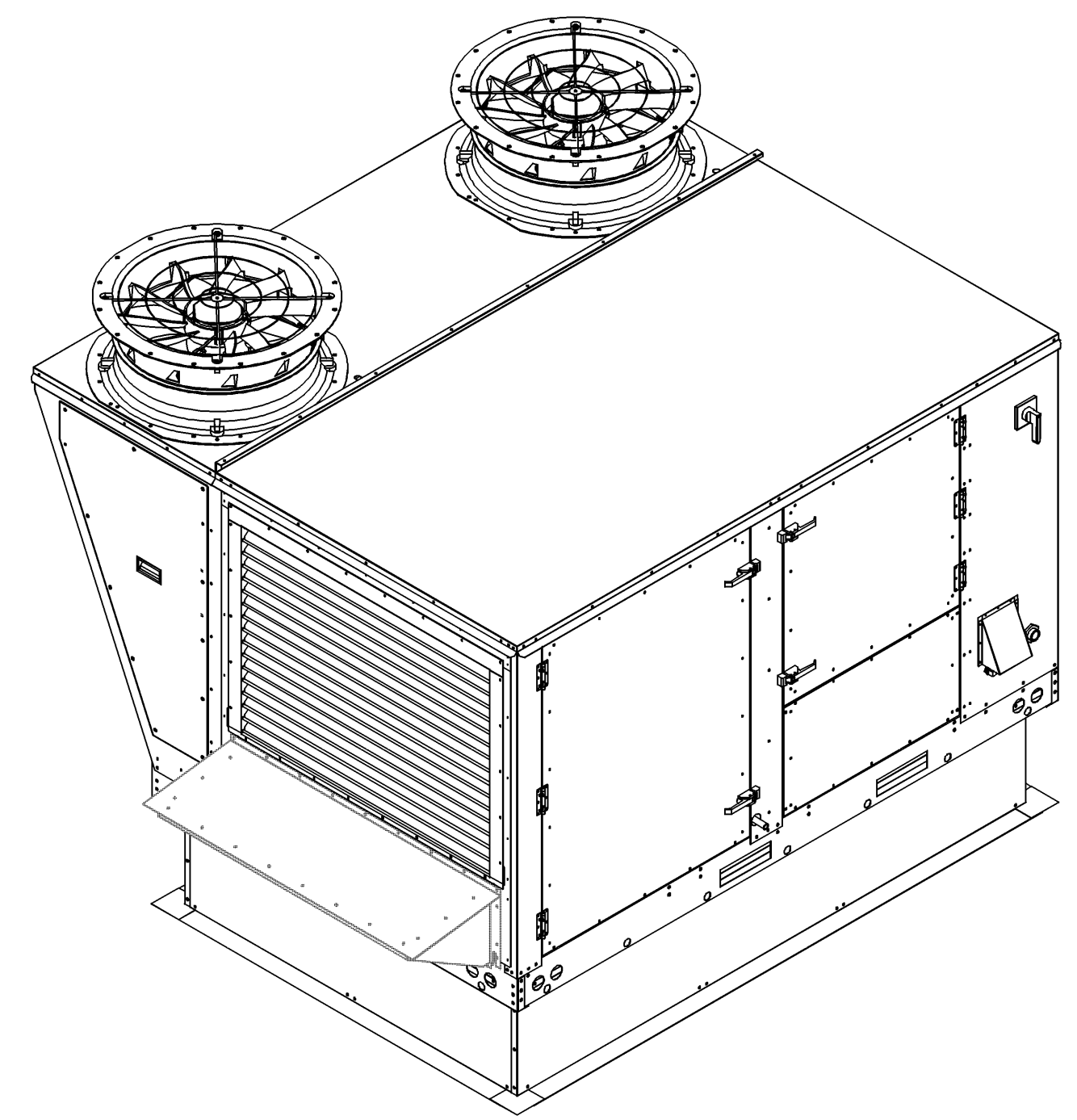
E

D

C

B

A



**REVISIONS**

NO.	DATE	DESCRIPTION

**CAPTIVE**

Eastern PA Mechanical  
225 E City Line Avenue, Suite #103, Bala Cynwyd, PA, 19004 PHONE: (267) 504-4126 EMAIL: reg106@captivaire.com

Shake Shack-1723- Levis Commons, OH (HVAC)  
PERRYSBURG, OH, 43551

DATE: 2/24/2025  
DWG.#: 7361751  
DRAWN BY: Joe.shilba  
SCALE: 1/2" = 1'-0"  
MASTER DRAWING

SHEET NO. 3

**zebra**

ZEBRA ARCHITECTURE, PLLC  
14614 N KIERLAND BLVD., SUITE N300  
SCOTTSDALE, ARIZONA 85254  
PHONE: 480.912.1169 zbrglobal

CONSULTANT LOGO:  
**Schnackel**  
Engineers

STORE NO:  
**OH #1723**

**SHAKE SHACK**

LEVIS COMMONS  
4115 LEVIS COMMONS BLVD.  
PERRYSBURG, OH 43551

**REVISIONS**

NO.	DATE	DESCRIPTION
A	05/21/25	REVISION A
B	06/02/25	REVISION B
C	06/25/25	REVISION C
D	07/02/25	REVISION D

STATUS:  
IFC SET

PROFESSIONAL SEAL

GREGORY R. SCHNACKEL  
E-59866  
Date: 07/02/25  
COA # 03180

FIELD VERIFICATION:  
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SHEET NAME:  
CAPTIVEAIRE DRAWINGS

DATE: 04/03/2025 PROJECT NO.: 40091

DRAWN: S/M/S SCALE:

SHEET NO.:  
**M709**

FAN #2 CAS-HVAC3-I,250-24MF-15T - HEATER (RTU-2(KITCHEN))

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: INTEGRAL CO2 MONITORING AND CONTROL CAPABILITIES FOR ALL SPACE MOUNTED THERMOSTATS.