

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
M708	CAPTIVEAIRE DRAWINGS
M709	CAPTIVEAIRE DRAWINGS
M710	CAPTIVEAIRE DRAWINGS
M711	CAPTIVEAIRE DRAWINGS

DESCRIPTION	FURNISHED			INSTALLED			REMARKS
	GENERAL CONTRACTOR	OWNER	LANDLORD	GENERAL CONTRACTOR	OWNER	LANDLORD	
DIVISION 23: HEATING, VENTILATING, AND AIR CONDITIONING							
23.1 HVAC DUCTWORK AND PIPING IDENTIFICATION							
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			
23.2 ROOF CURBS							
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
23.3 HVAC DUCTWORK SYSTEM COMPONENTS							
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			
23.4 MECHANICAL PIPING SYSTEM COMPONENTS							
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			
23.5 HVAC EQUIPMENT							
23.5.1 SUPPLY FAN	X			X			
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
23.6 KITCHEN EXHAUST WITH FIRE SUPPRESSION SYSTEM							
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
23.7 COMMISSIONING ACTIVITIES							
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

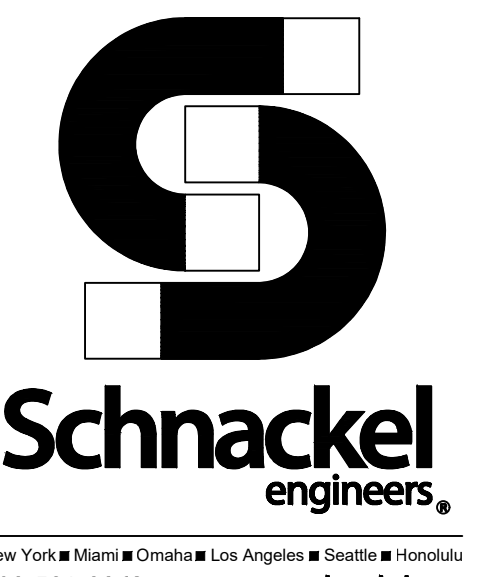
HEATING - VENTILATING - AIR CONDITIONING SYMBOLS			
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	STEAM (LOW PRESSURE)		AUTOMATIC CONTROL VALVE
	STEAM (MEDIUM PRESSURE)		PRESSURE REGULATING VALVE (PRV)
	STEAM (HIGH PRESSURE)		SAFETY RELIEF VALVE
	CONDENSATE (LOW PRESSURE)		BLOW OFF VALVE
	CONDENSATE (MEDIUM PRESSURE)		T AND T TRAP (CAP. #/RR)
	CONDENSATE (HIGH PRESSURE)		THERMOSTATIC TRAP
	HOT WATER SUPPLY (HEATING)		STATIC PRESSURE
	HOT WATER RETURN (HEATING)		CIRCUIT SETTER FLOW CONTROL VALVE
	ETHYLENE GLYCOL SUPPLY		AIR BLEEDER VALVE (RADIANT PANEL)
	ETHYLENE GLYCOL RETURN		AIR ELIMINATOR
	CHILLED WATER SUPPLY		AUTOMATIC BALANCING VALVE
	CHILLED WATER RETURN		SOLENOID VALVE (REFRIGERANT)
	CONDENSATE OF WINDOW		THERMOSTATIC EXPANSION VALVE (REFR)
	HUMIDIFICATION LINE		BACK PRESSURE VALVE
	FUEL OIL SUPPLY		SIGHT GLASS
	FUEL OIL RETURN		ROUND DUCT RISER
	FUEL OIL VENT		FAN COOL UNIT AND MARK
	GAS LINE		UNIT HEATER-PROPELLER TYPE & MARK
	REFRIGERANT LIQUID LINE		CABINET UNIT HEATER & MARK
	REFRIGERANT SUCTION LINE		FIN TUBE, MARK AND CAPACITY
	REFRIGERANT HOT GAS DISCHARGE LINE		CONNECTOR AND MARK
	CONDENSER WATER		UNIT VENTILATOR AND MARK
	CONDENSER WATER RETURN		RECTANGULAR BODY FIRST PIPING TO SIDE SHOWN
	BOILER BLOW OFF		SOUND DUCT
	EXHAUST STEAM		CANVAS CONNECTION
	CONCENTRIC REDUCER		HEATING RISER NUMBER
	ECCENTRIC REDUCER		EXHAUST FAN RISER NUMBER
	UNION		TURNING VANES
	STRAINER		REMOTE SENSOR
	EXPANSION JOINT		THERMOSTAT
	THERMOMETER		
	PRESSURE GAGE		
			EXTRACTOR

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)	Number of Record	Shop Drawings	Physical Sample Required	Submitted for Submittal for Record Only
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			X
Restroom Partitions	5	X			X
Plumbing Fixtures	5	X			X
Railing 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			X
Storefront - Shop Drawings	5	X			X
Tile (if differs from spec)	5	X			X
Window Film	5	X			X

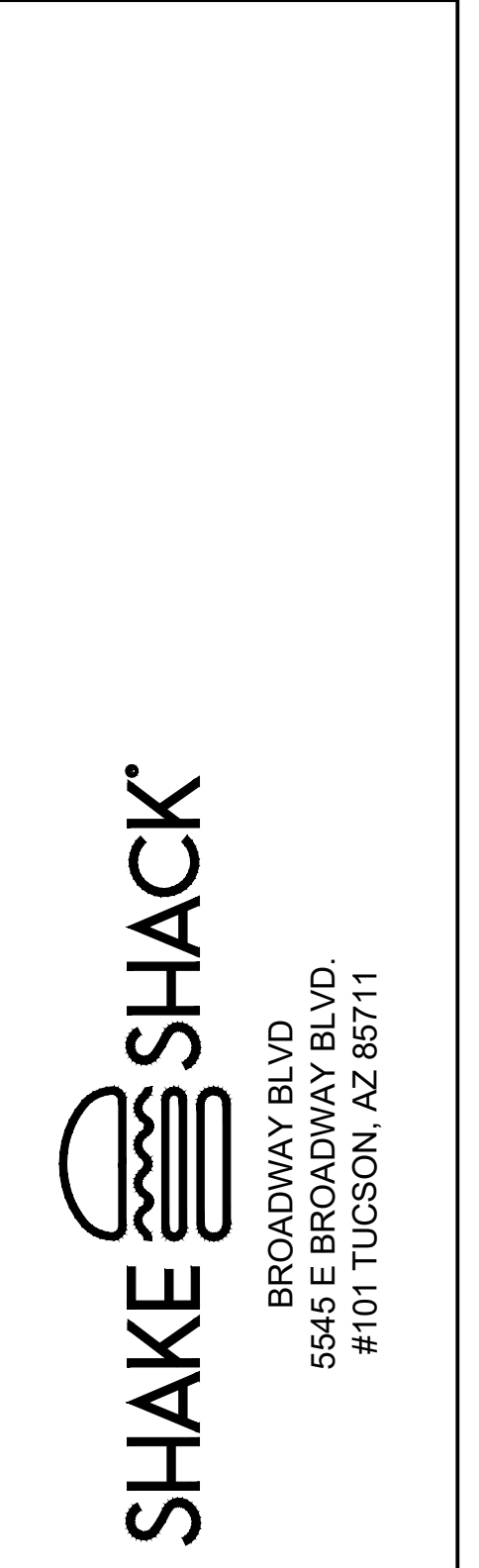


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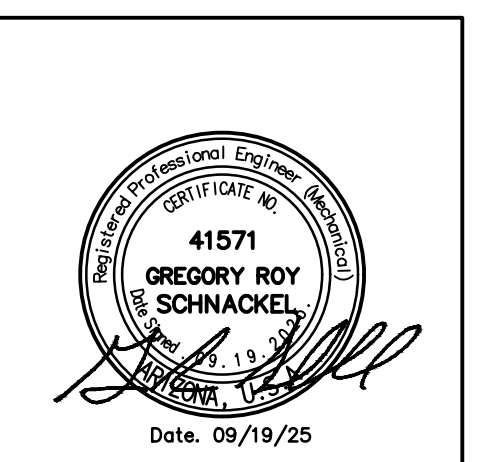
STORE NO:
AZ #1708



REVISIONS

NO.	DATE	DESCRIPTION
1	08/22/25	REVISION 1

STATUS: IFC SET



FIELD VERIFICATION:
The Contractor shall verify all figured dimensions and conditions as the project site and verify Zebra Projects, INC of any dimensional errors, omissions or discrepancies before beginning or fabricating any work. Do not scale these drawings.
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**SHEET NAME:
MECHANICAL ABBREVIATIONS AND SYMBOL LEGEND**

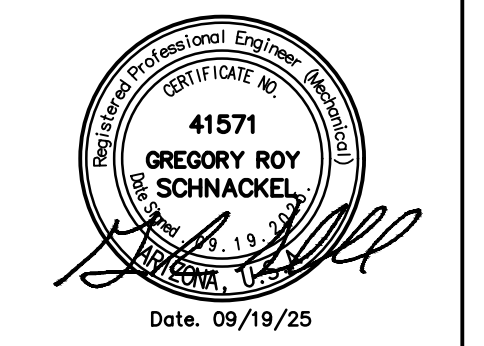
DATE: 08/05/2025 PROJECT NO.: 40202
DRAWN: RAS SCALE: AS NOTED

SHEET NO.:
M001

REVISIONS

NO.	DATE	DESCRIPTION
1	08/22/25	REVISION 1

STATUS: IFC SET



FIELD VERIFICATION:
The Contractor shall verify all figured dimensions and conditions on the project site and notify Zebra Projects, Inc. of any dimensional errors, omissions or discrepancies within 10 days of beginning of installation of any work. Do not scale these drawings.

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SHEET NAME:
MECHANICAL FLOOR PLAN

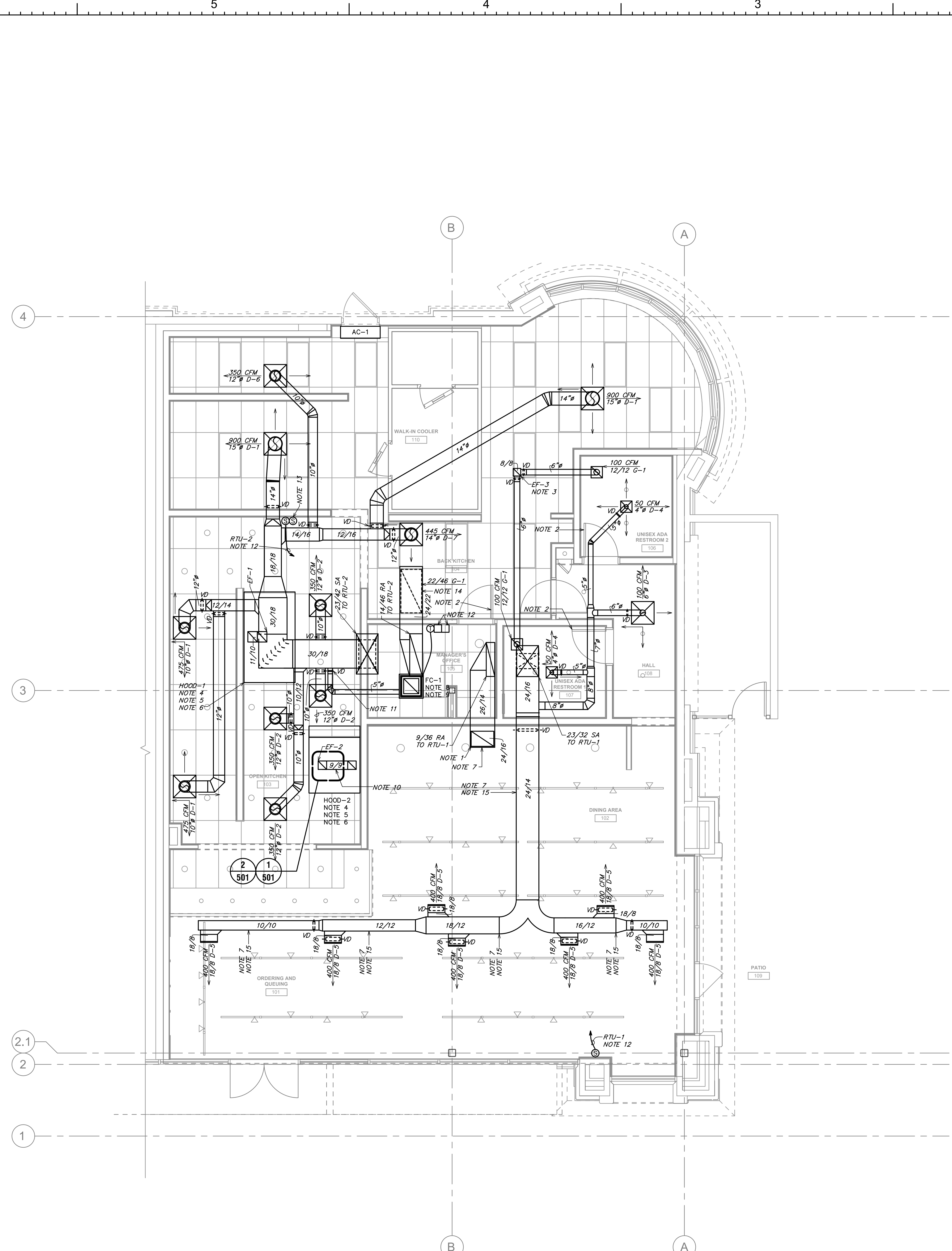
DATE: 08/05/2025 PROJECT NO.: 40202

DRAWN: RAS SCALE: AS NOTED

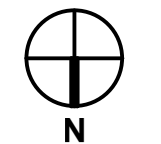
SHEET NO.: **M101**

- GENERAL NOTES:**
- EXISTING CONDITIONS ARE BASED ON RECORD DRAWINGS PROVIDED BY THE OWNER AND/OR LIMITED FIELD VERIFICATION BY OTHERS. CONTRACTOR SHALL ADJUST TO ACTUAL FIELD CONDITIONS AT NO ADDITIONAL EXPENSE TO 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 DETERMINE 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 CODES. ALL CONNECTIONS TO JOISTS SHALL BE MADE AT THE TOP.
 - ALL DUCT DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS. ALL SUPPLY AND UNTEMPERED OUTDOOR AIR DUCTWORK SHALL BE LINED WITH 1" ACOUSTICAL DUCT LINER OR INSULATED WITH 1" ACOUSTICAL 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.
 - PROVIDE VENTILATION DAMPER CONTROL MANUFACTURED BY YOUNG REGULATOR OR UNITED ENERTECH FOR DAMPERS LOCATED ABOVE INACCESSIBLE CEILINGS. LOCATE CONTROLLER ABOVE ACCESSIBLE CEILING LOCATION.
 - REFRIGERANT 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 BE RESPONSIBLE FOR ALL COSTS RELATING TO THE 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 ROOF 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 / OR INSTALLED. THE WARRANTY SHALL INCLUDE ALL LABOR, MATERIALS AND THREE (3) ROUTINE SERVICE VISITS INCLUDING FILTER CHANGES DURING 4 (1) YEAR PERIOD.
 - AT THE COMPLETION OF CONSTRUCTION AN NEBB, AABC OR TABS CERTIFIED AIR BALANCE SUBMITTAL SHALL BE PROVIDED 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 WITHIN 14 DAYS OF CONTACT WILL TURNROUR AT WILL@NATIONALTAB.COM OR 314-954-6244.
 - PARTS OF THE BASE BUILDING SYSTEMS THAT FALL INTO LEASE LINE SHALL REMAIN UNTOUCHED UNLESS NOTED OTHERWISE. NOTIFY ARCHITECT OF ANY CONFLICTS AND COORDINATE WITH THE CONSTRUCTION MANAGER.
 - 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:**
- TOP OPEN RETURN AIR DUCT. PROVIDE OPENING WITH 1/4" MESH GALVANIZED SCREEN.
 - CONTRACTOR SHALL UNDERCUT DOOR 3/4".
 - PROVIDE 8/8 EXHAUST AIR DUCT UP TO 5'-4" ON ROOF.
 - NEW CAPTURED 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 CERAMICS FAST WRAP XL, 1 1/2" THICK WITH 3" FASTENER AND LONGITUDINAL OVERLAPS OR EQUIVALENT U.L.L. LISTED GREASE DUCT WRAP FOR ZERO CLEARANCE TO COMBUSTIBLES. REFER TO SHEET M501, DETAIL 1, FOR ADDITIONAL INFORMATION. TYPICAL OF GREASE 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 M501.
 - PROVIDE REFRIGERANT LINES FROM ASP-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 55 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 PLANS. COORDINATE LOCATION WITH CONSTRUCTION MANAGER AND WALL GRAPHICS LAYOUT. REFERENCE CAPTIVEAIRE SHEETS FOR ADDITIONAL INFORMATION.
 - MOUNT TEMPERATURE CAPTIVEAIRE REMOTE TEMPERATURE SENSOR FURNISHED WITH KITCHEN HOODS ON WALL AS INDICATED ON THE PLANS AND AS SPECIFIED BY THE MANUFACTURER.
 - PROVIDE FULL SIZE CONNECTION FROM RETURN GRILLE TO RETURN DUCTWORK. DUCTWORK TO BE A MINIMUM OF 14 FEET ABOVE FINISHED FLOOR BUT AS HIGH AS CONDITIONS ALLOW IN DINING ROOM AREA. NOTIFY ARCHITECT AND ENGINEER IF CONFLICT OCCURS.

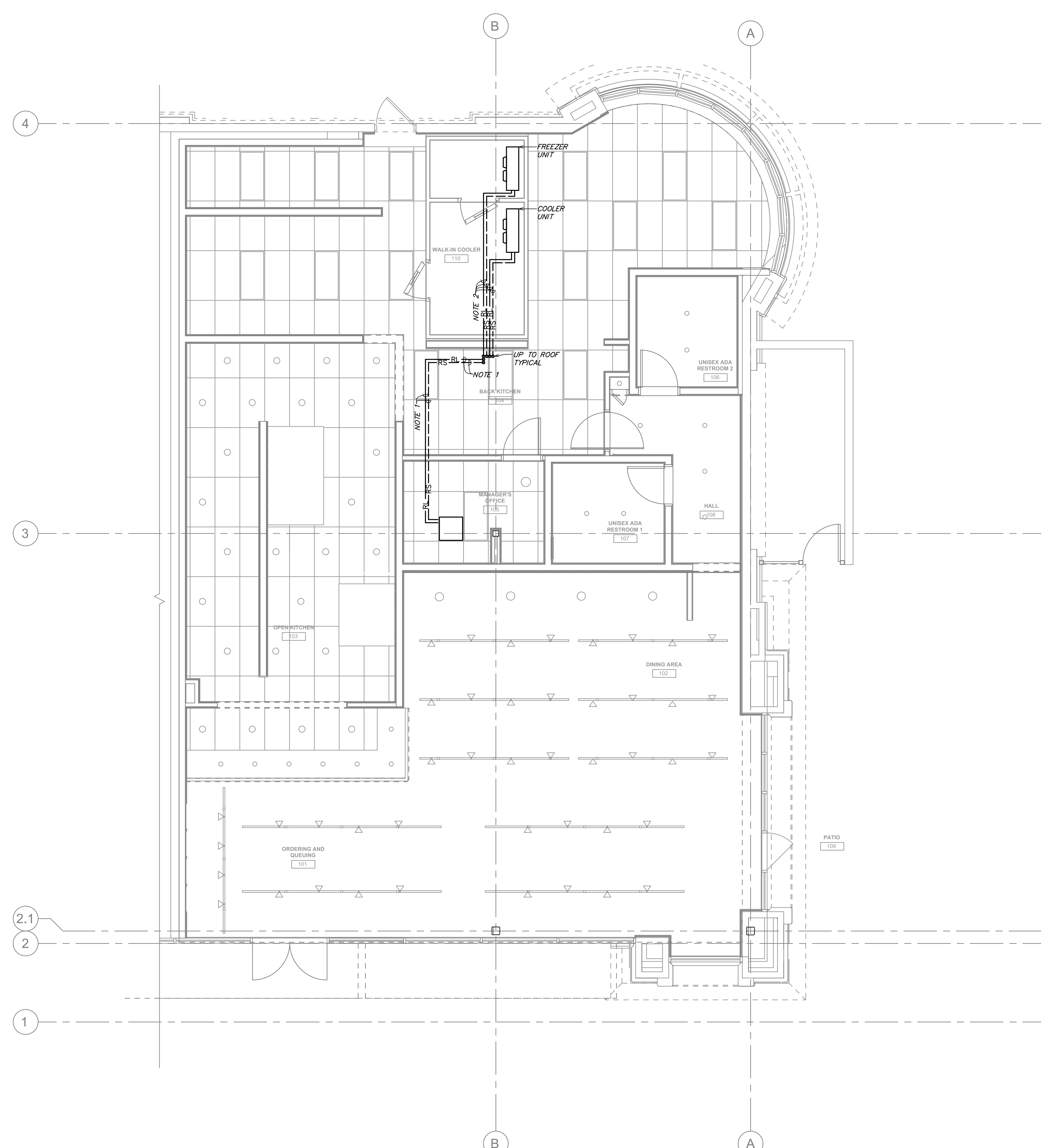


1 MECHANICAL FLOOR PLAN
SCALE: 1/4" = 1'-0"



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 - 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 CODES. ALL CONNECTIONS TO JOISTS SHALL BE MADE AT THE TOP OF JOIST.
 - 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" THERMAL CERAMIC FIBERGLASS WITH A REINFORCED ALUMINUM FOIL JACKET AND SHALL BE APPROVED FOR USE BY SMOGON AND NAJMA. 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.
 - PROVIDE RETICTE VOLUME DAMPER CONTROL MANUFACTURED BY YOUNG REGULATOR OR UNITED ENERTECH FOR DAMPERS LOCATED ABOVE INACCESSIBLE CEILINGS. LOCATE CONTROLLER ABOVE ACCESSIBLE CEILING LOCATION.
 - REFRIGERANT 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 / 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 NEBB, AABC OR TABS 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 WATSON TAB. CONTACT WILL TURNBOURN AT WILL@NATIONALTAB.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.

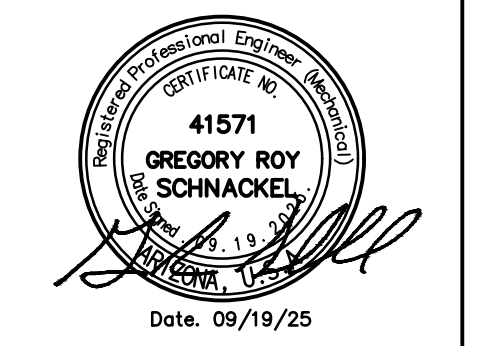


1 MECHANICAL REFRIGERATION PIPING AND LAYOUT PLAN
SCALE: 1/4" = 1'-0"

REVISIONS

NO.	DATE	DESCRIPTION
1	08/25/25	REVISION 1

STATUS:
IFC SET



FIELD VERIFICATION:
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SHEET NAME:
MECHANICAL REFRIGERATION PIPING AND LAYOUT PLAN

DATE: 08/05/2025 PROJECT NO.: 40202

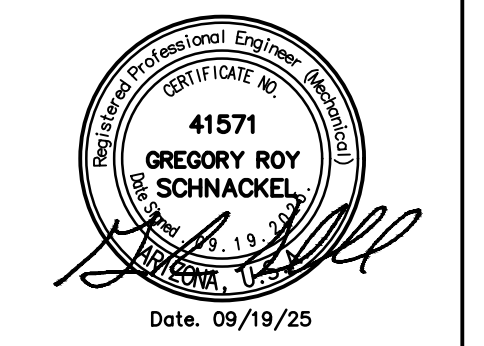
DRAWN: RAS SCALE: AS NOTED

SHEET NO.:
M102

REVISIONS

NO.	DATE	DESCRIPTION
1	08/22/25	REVISION 1

STATUS:
IFC SET



FIELD VERIFICATION:
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SHEET NAME:
MECHANICAL ROOF PLAN

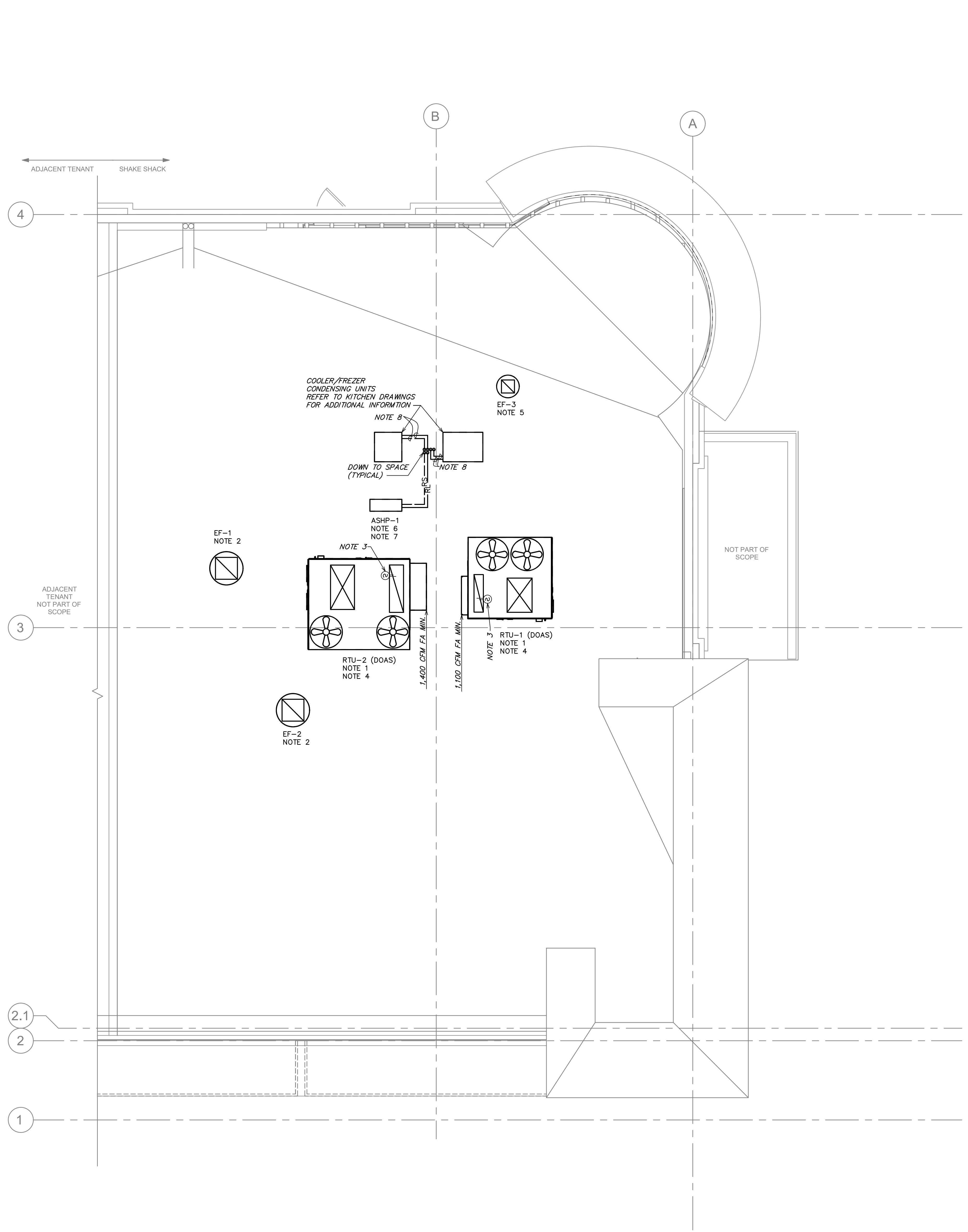
DATE: 08/05/2025 PROJECT NO.: 40202

DRAWN: RAS SCALE: AS NOTED

SHEET NO.:
M150

- GENERAL NOTES:**
- EXISTING CONDITIONS ARE BASED ON RECORD DRAWINGS PROVIDED BY THE OWNER AND/OR LIMITED FIELD VERIFICATION BY OTHERS. 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 DETERMINE 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 CODES. ALL CONNECTIONS TO JOISTS SHALL BE MADE AT THE TOP.
 - 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.
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 - REFRIGERANT 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.
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 - 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:**
- 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.
 - RFQ ENVIRONMENTAL GROUP, INC., AIR PURIFICATION SYSTEM TO BE PROVIDED BY NTAB. REFER TO RESPONSIBILITY MATRIX ON SHEET M001 FOR ADDITIONAL INFORMATION. SHEET M001 FOR SCHEDULE, AND SHEET M092 FOR SPECIFICATIONS. PROVIDE NEW EXHAUST FAN AS NOTED ON PLANS AND SCHEDULED ON SHEET M001. THE CONTRACTOR SHALL FIELD VERIFY THAT THE LOCATION SHOWN IS A MINIMUM OF 10'-0" FROM ANY OUTDOOR AIR INTAKE.
 - PROVIDE ASHP AS NOTED ON PLANS AND SCHEDULED ON SHEET M001.
 - 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.
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E
D
C
B
A

6 5 4 3 2 1

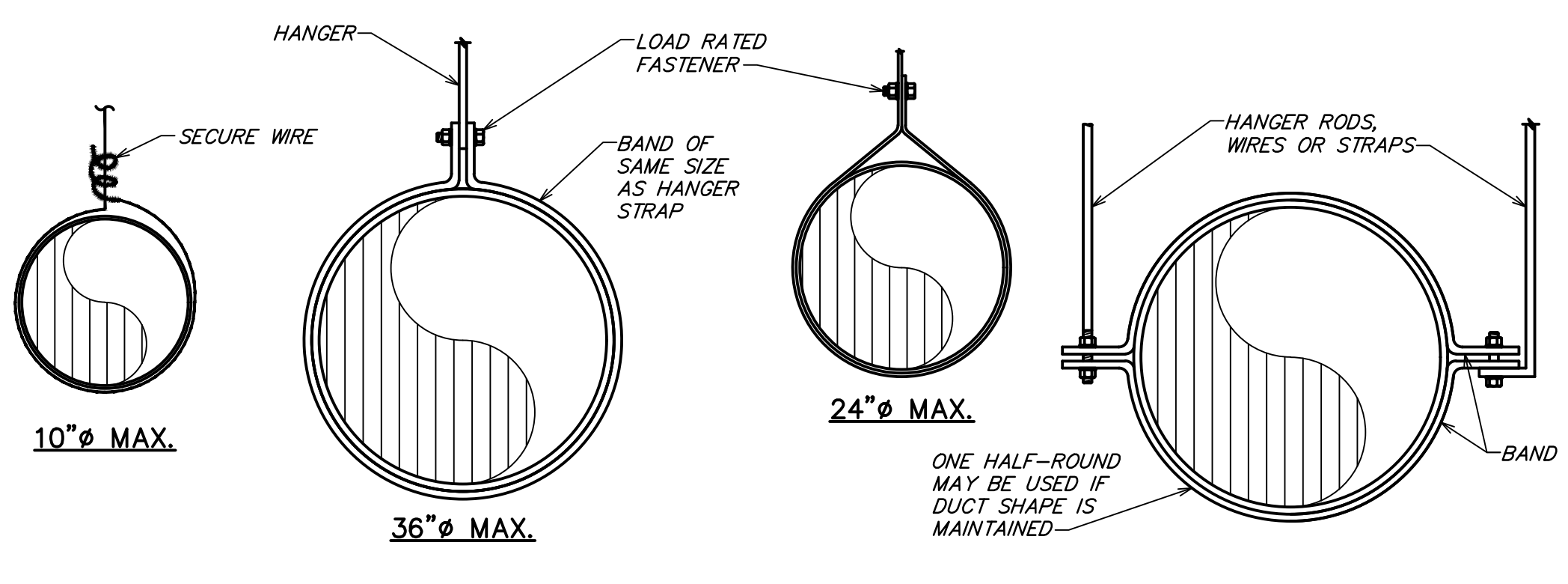
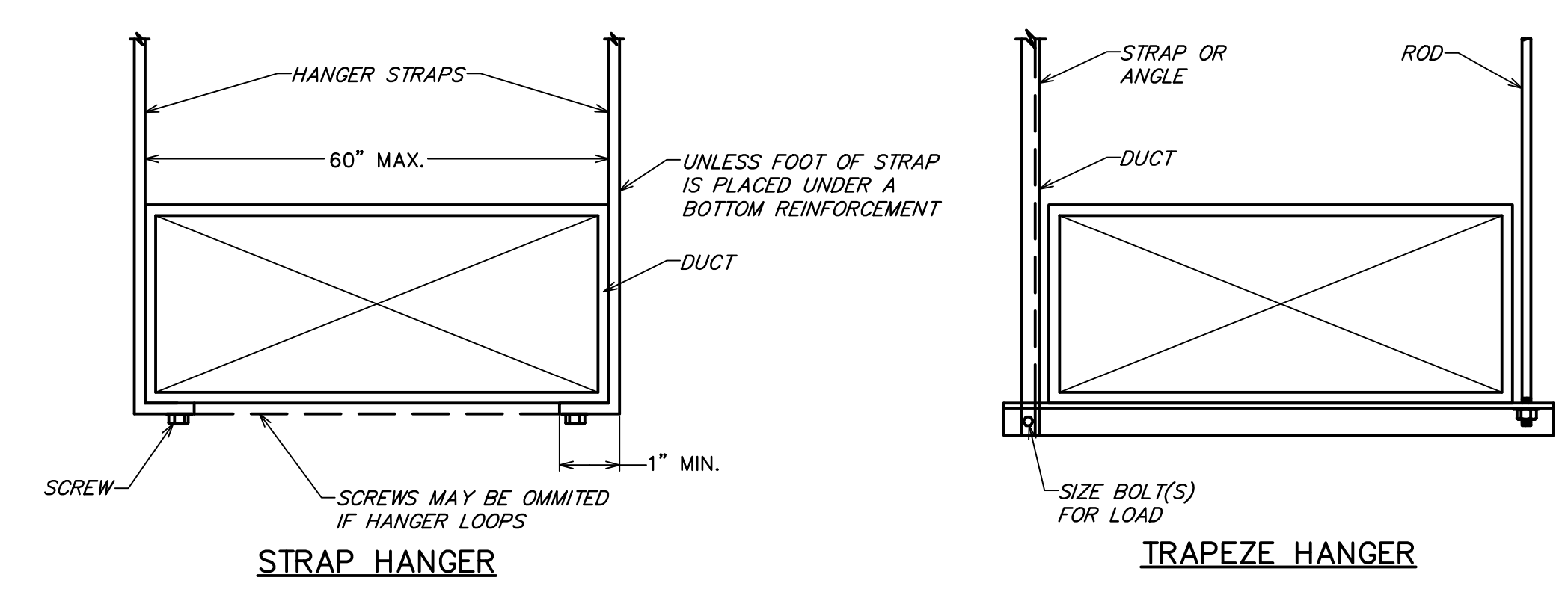
6 5 4 3 2 1

SE 08/06/2025

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							

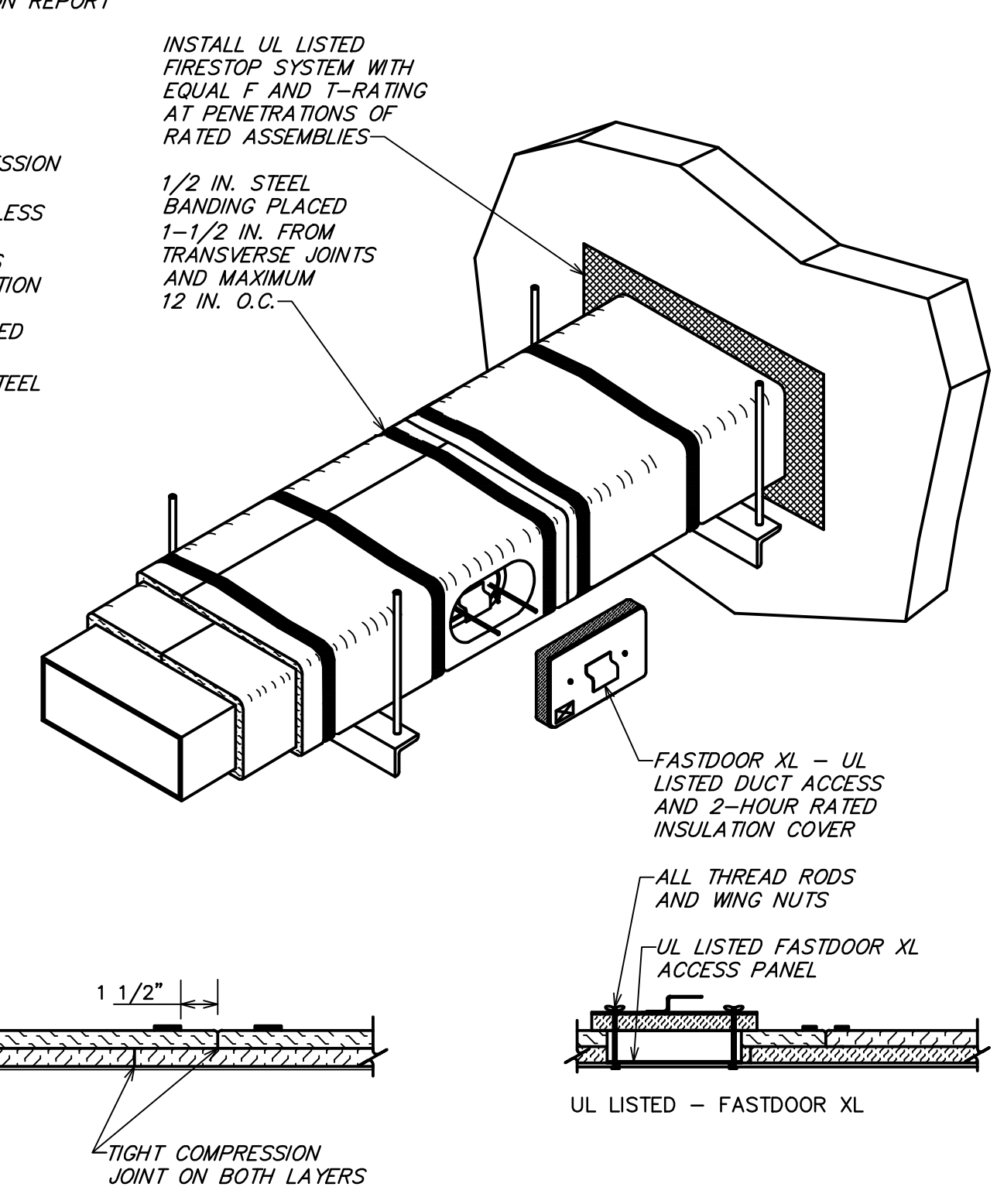
WHEN STRAPS ARE LAP JOINED USE THESE MINIMUM FASTENERS:	SINGLE HANGER MAXIMUM ALLOWABLE LOAD	
	STRAP	WIRE OR ROD (DIA.)
1" x 18, 20, 22 GA. - TWO #10 OR ONE 1/4" BOLT	1" x 22 GA. - 260 LBS.	0.106" - 80 LBS.
1" x 16 GA. - TWO 3/8" DIA.	1" x 20 GA. - 320 LBS.	0.135" - 120 LBS.
1" x 16 GA. - TWO 3/8" DIA. 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:
 1. DIMENSIONS OTHER THAN GAUGE ARE IN INCHES.
 2. TABLES ALLOW FOR DUCT WEIGHT, 1 LB./SF INSULATION WEIGHT AND NORMAL REINFORCEMENT AND TRAPEZE WEIGHT, BUT NO EXTERNAL LOADS.
 3. STRAPS ARE GALVANIZED STEEL. OTHER MATERIALS ARE UNCOATED STEEL.
 4. 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.
 5. 12, 10 OR 8 GA. WIRE IS STEEL OR BLACK ANNEALED, BRIGHT BASIC OR GALVANIZED TYPE.
 6. DUCTS SHALL BE SUPPORTED AT INTERVALS NOT EXCEEDING 10 FEET.



NOTE: HANGERS MUST NOT DEFORM DUCT SHAPE

NOTES:
 1. THERMAL CERAMICS FIREMASTER FASTWRAP XL IS TESTED TO ASTM E2336 AND UL LISTED PER HNT.618 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.
 2. COMPLIANT TO THE FOLLOWING CODES:
 NFPA 96
 INTERNATIONAL MECHANICAL CODES
 UNIFORM MECHANICAL CODE
 CALIFORNIA MECHANICAL CODE
 3. INSULATION APPLIED IN TWO LAYERS WITH TIGHT COMPRESSION JOINT ON BOTH LAYERS AT ALL JOINTS.
 4. MINIMUM 16 GAUGE CARBON STEEL (OR 18 GAUGE STAINLESS STEEL) RECTANGULAR OR ROUND GREASE EXHAUST DUCT.
 5. 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.
 6. 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 SMAWIA EQUIVALENT SUPPORT SYSTEM.
 7. THERMAL CERAMICS DUCT WRAP SHALL BE INSTALLED DIRECTLY ONTO THE DUCT AND APPLIED FROM THE HOOD CONNECTION TO THE CONNECTION OF THE FAN.
 8. THERMAL CERAMICS DUCT ENCLOSURE SYSTEM SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND UL LISTINGS.

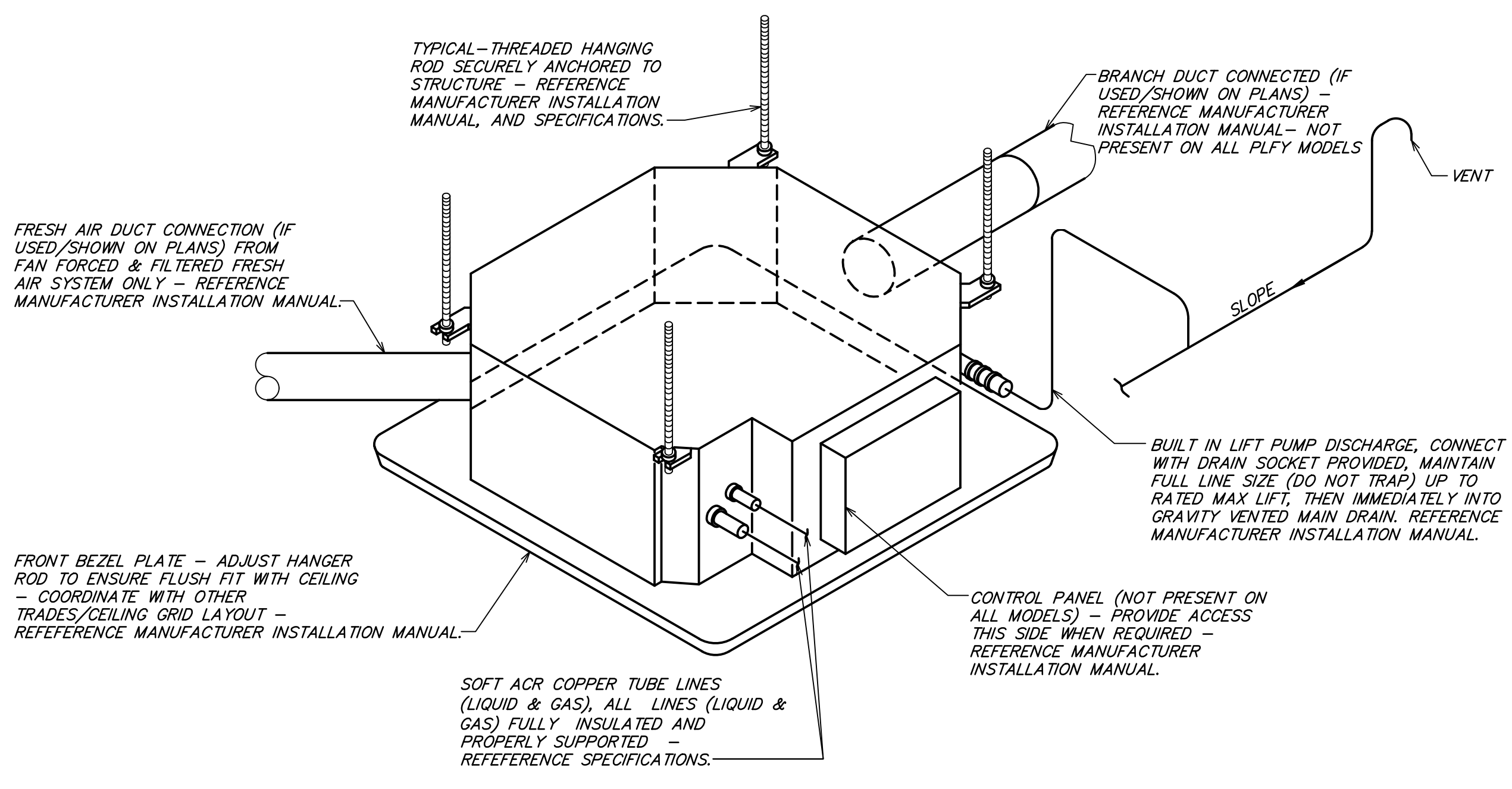


** DETAIL COURTESY OF MORGAN THERMAL CERAMICS.

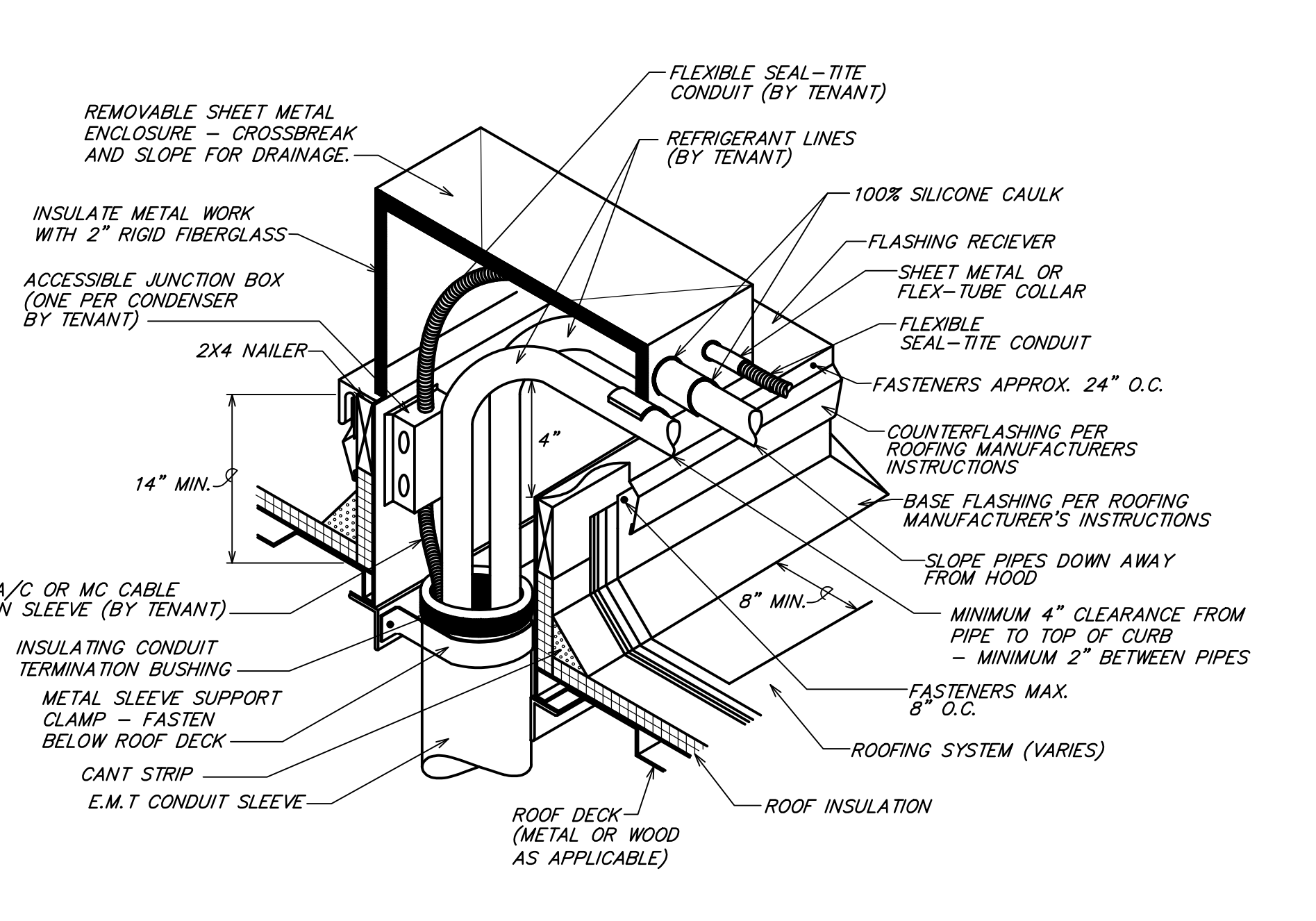
7 RECTANGULAR DUCT HANGER TABLE
 NOT TO SCALE

4 DUCT HANGER DETAIL
 NOT TO SCALE

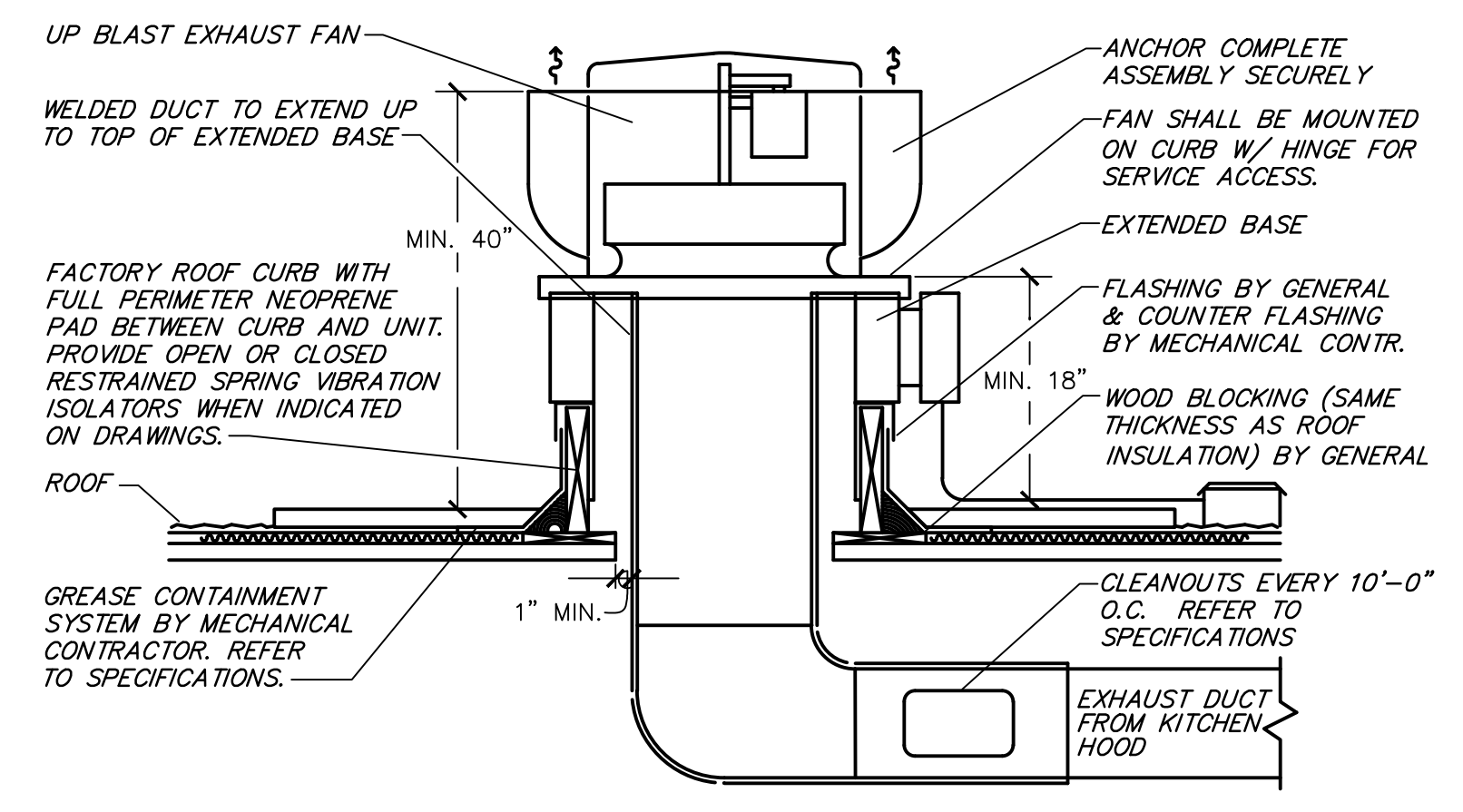
1 FIREMASTER FASTWRAP XL DETAIL
 NOT TO SCALE



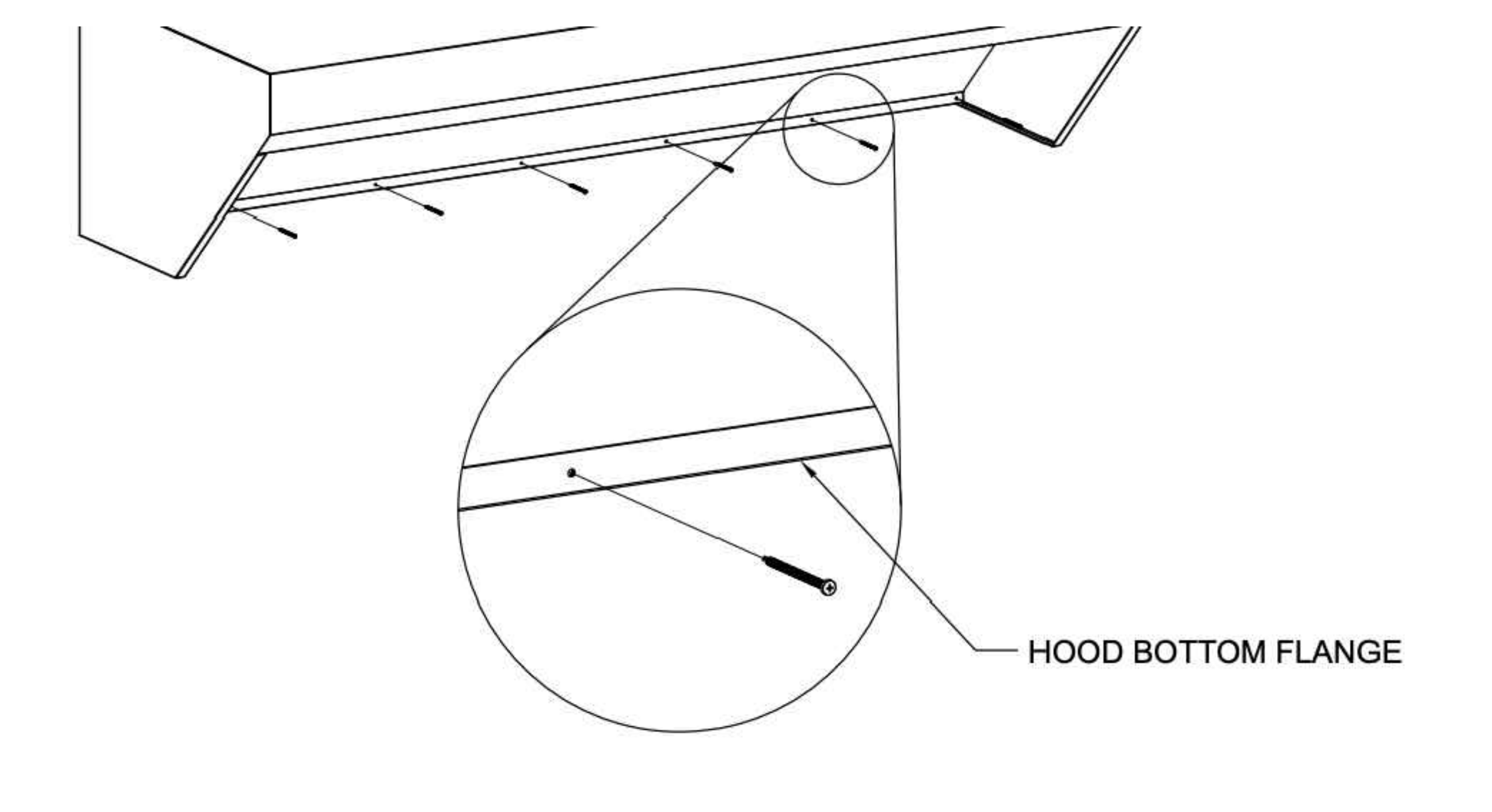
8 CASSETTE UNIT
 NOT TO SCALE



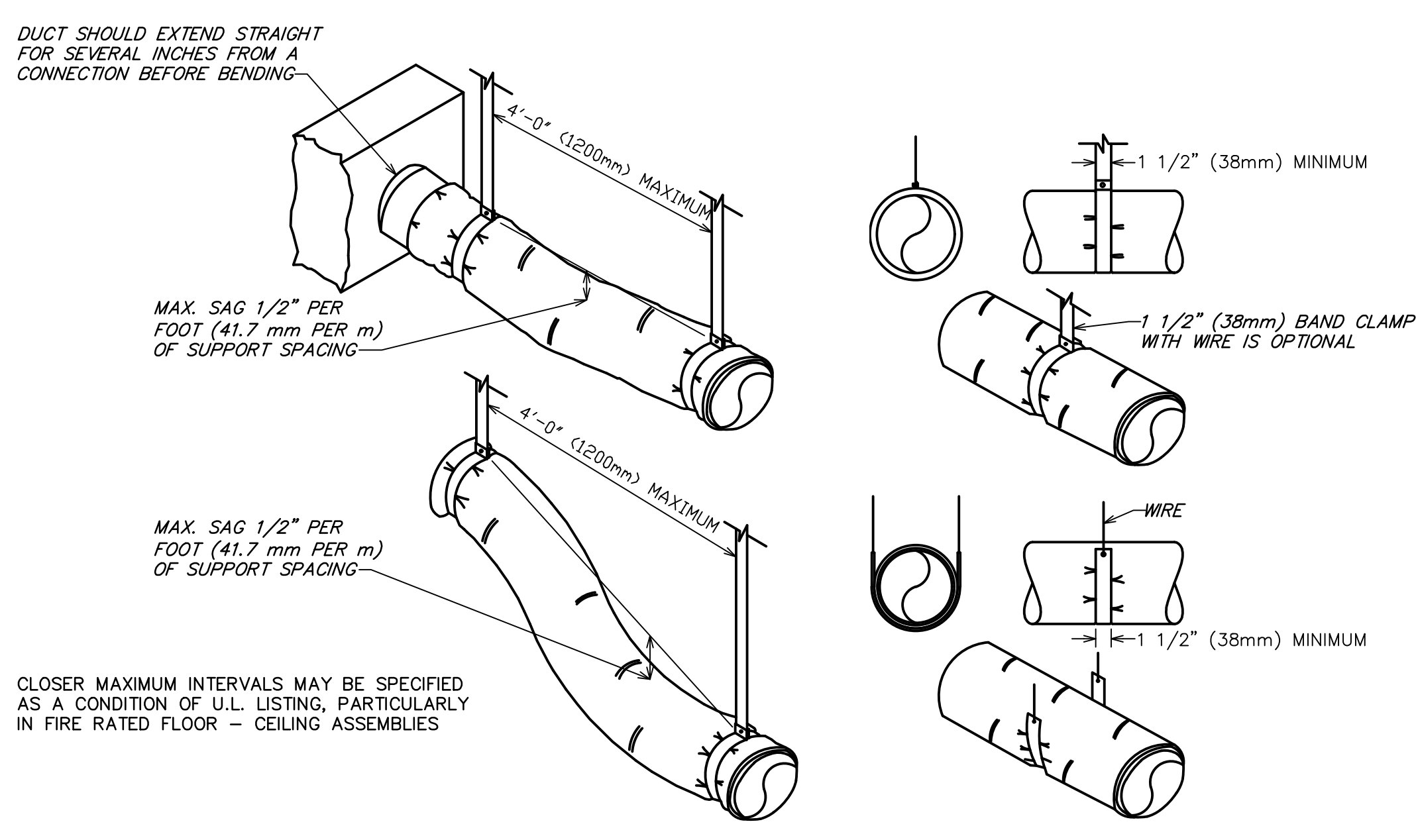
5 CONDENSER REFRIGERANT LINE PIPING AND POWER THROUGH ROOF DECK
 NOT TO SCALE



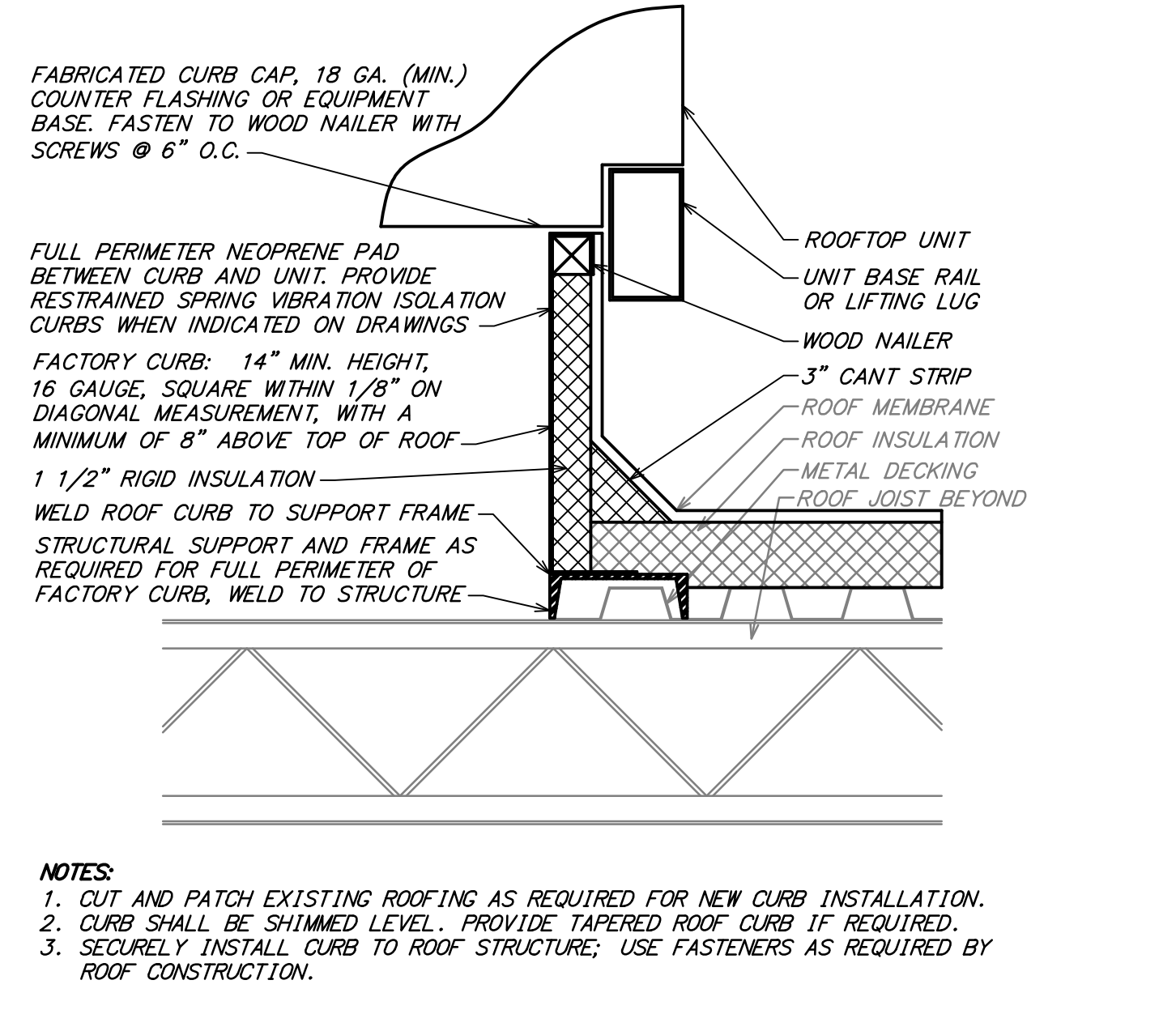
2 KITCHEN HOOD EXHAUST FAN
 NOT TO SCALE



9 HOOD FASTENING DETAIL
 NOT TO SCALE



6 FLEXIBLE DUCT SUPPORTS
 NOT TO SCALE



3 ROOF CURB DETAIL
 NOT TO SCALE

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

STORE NO:
AZ #1708

SHAKE SHACK
 BROADWAY BLVD.
 #545 E BROADWAY BLVD.
 #101 TUCSON, AZ 85711

REVISIONS

DATE	DESCRIPTION
08/05/2025	REVISION 1

STATUS:
 IFC SET

Professional Engineer
 41571
GREGORY ROY SCHNACKEL
 08/19/25
 Date: 08/19/25

FIELD VERIFICATION:
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SHEET NAME:
MECHANICAL DETAILS

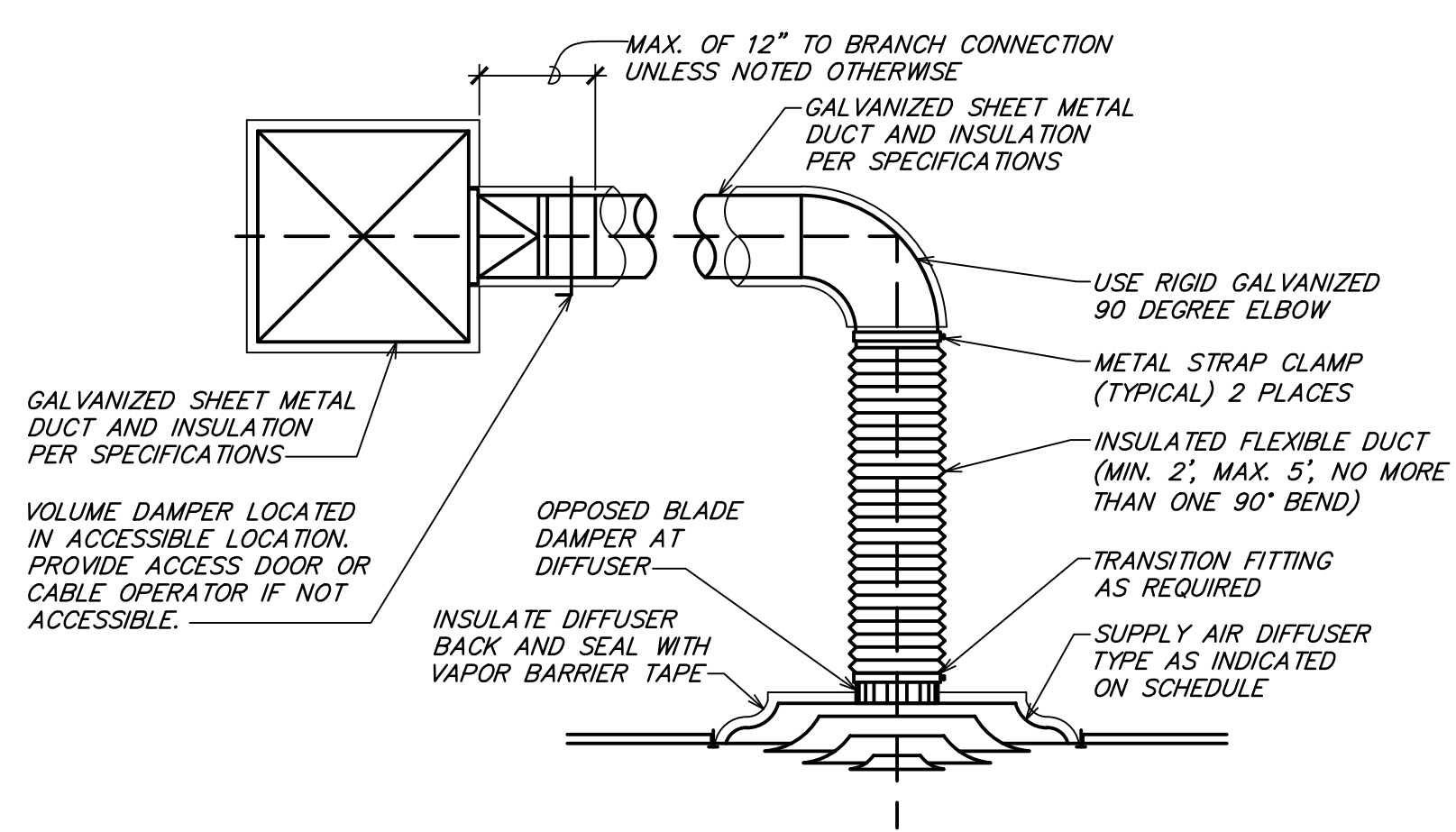
DATE: 08/05/2025 PROJECT NO.: 40202
 DRAWN: RAS SCALE: AS NOTED

SHEET NO.:
M501

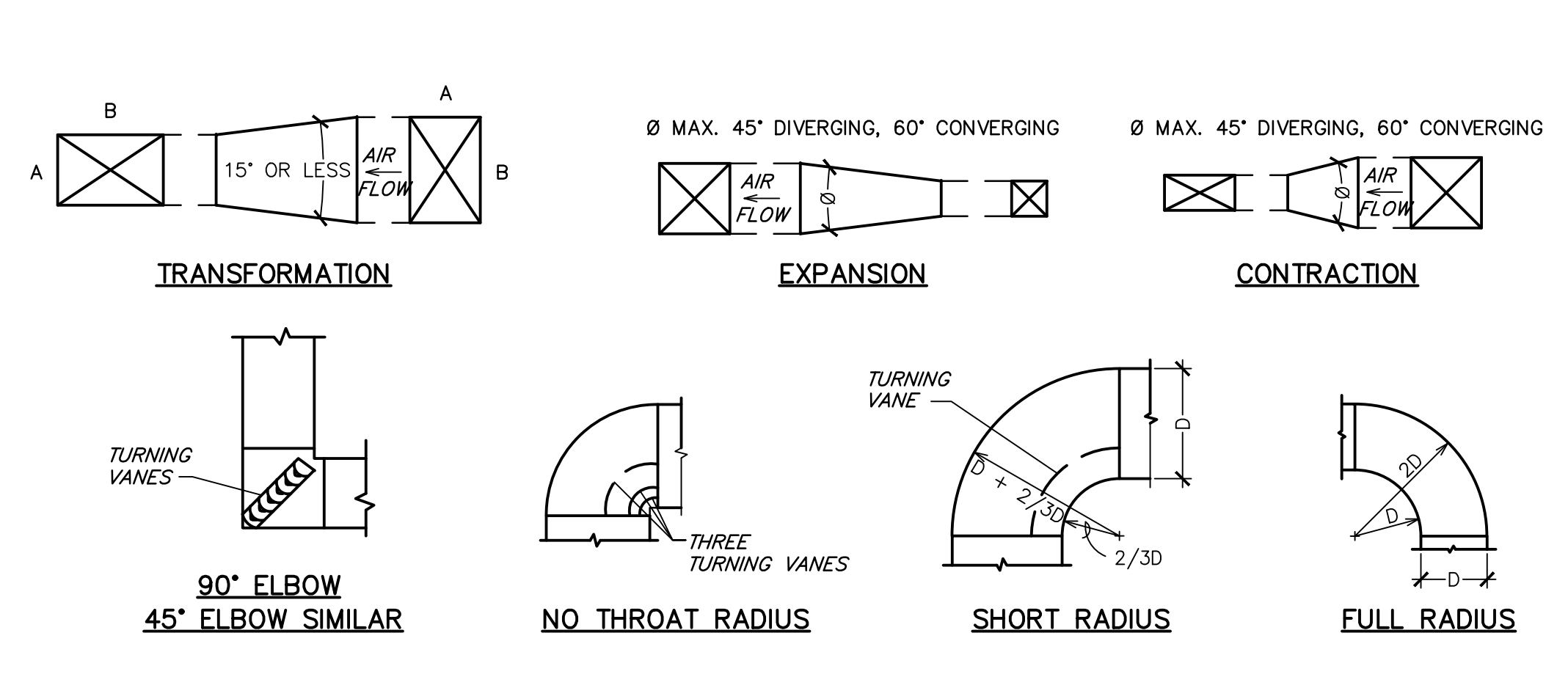
DIA.	WIRE DIA.	ROD	STRAP
10" DN	ONE 12 GA.	1/4"	1" x 22 GA.
11-18"	TWO 12 GA. OR ONE 8 GA.	1/4"	1" x 22 GA.
19-24"	TWO 10 GA.	1/4"	1" x 22 GA.
25-36"	TWO 8 GA.	3/8"	1" x 20 GA.
37-50"	-	TWO 3/8"	TWO 1" x 20 GA.
51-60"	-	TWO 3/8"	TWO 1" x 18 GA.
61-84"	-	TWO 3/8"	TWO 1" x 16 GA.
85-96"	-	TWO 1/2"	TWO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

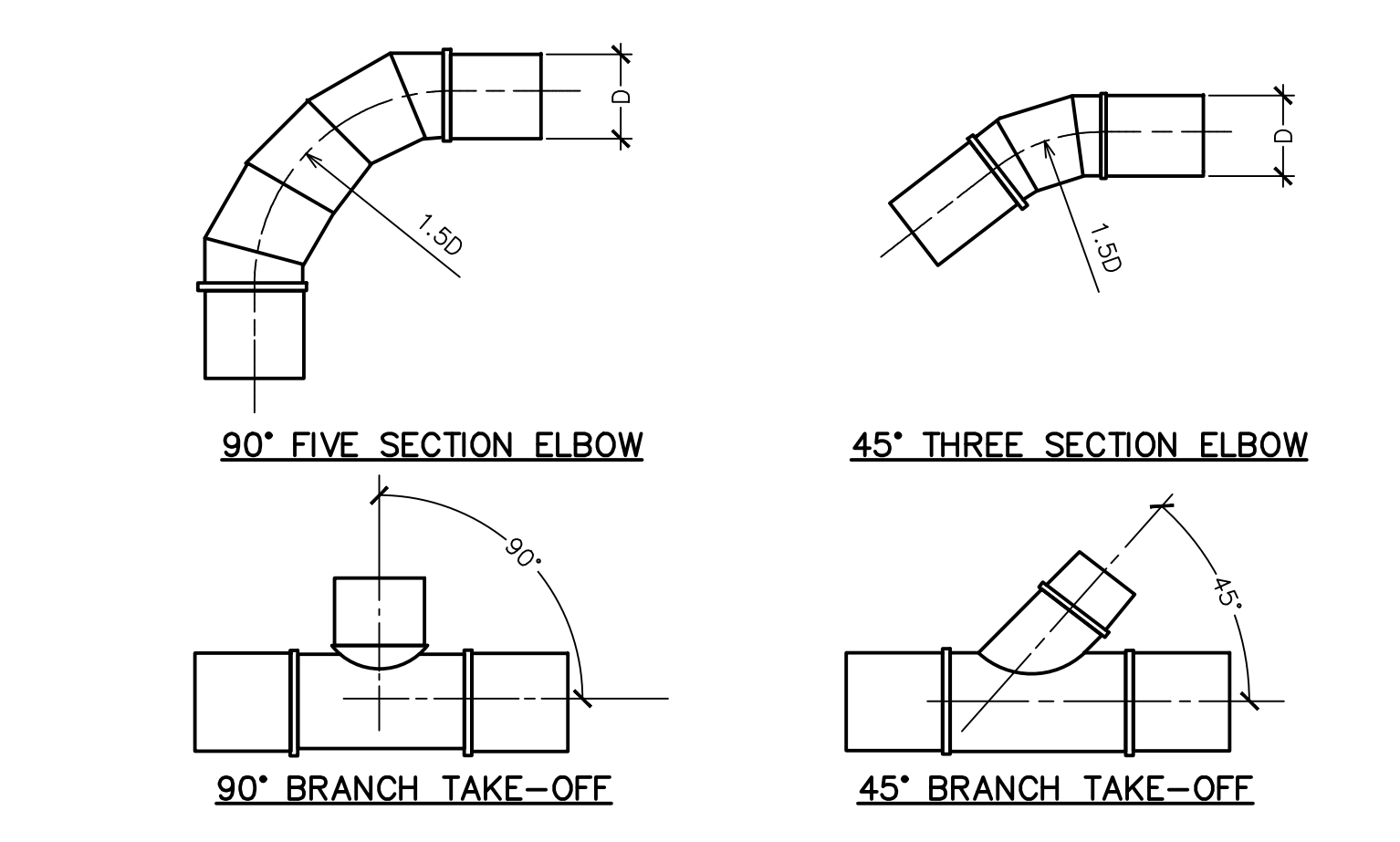
10 ROUND DUCT HANGER TABLE
NOT TO SCALE



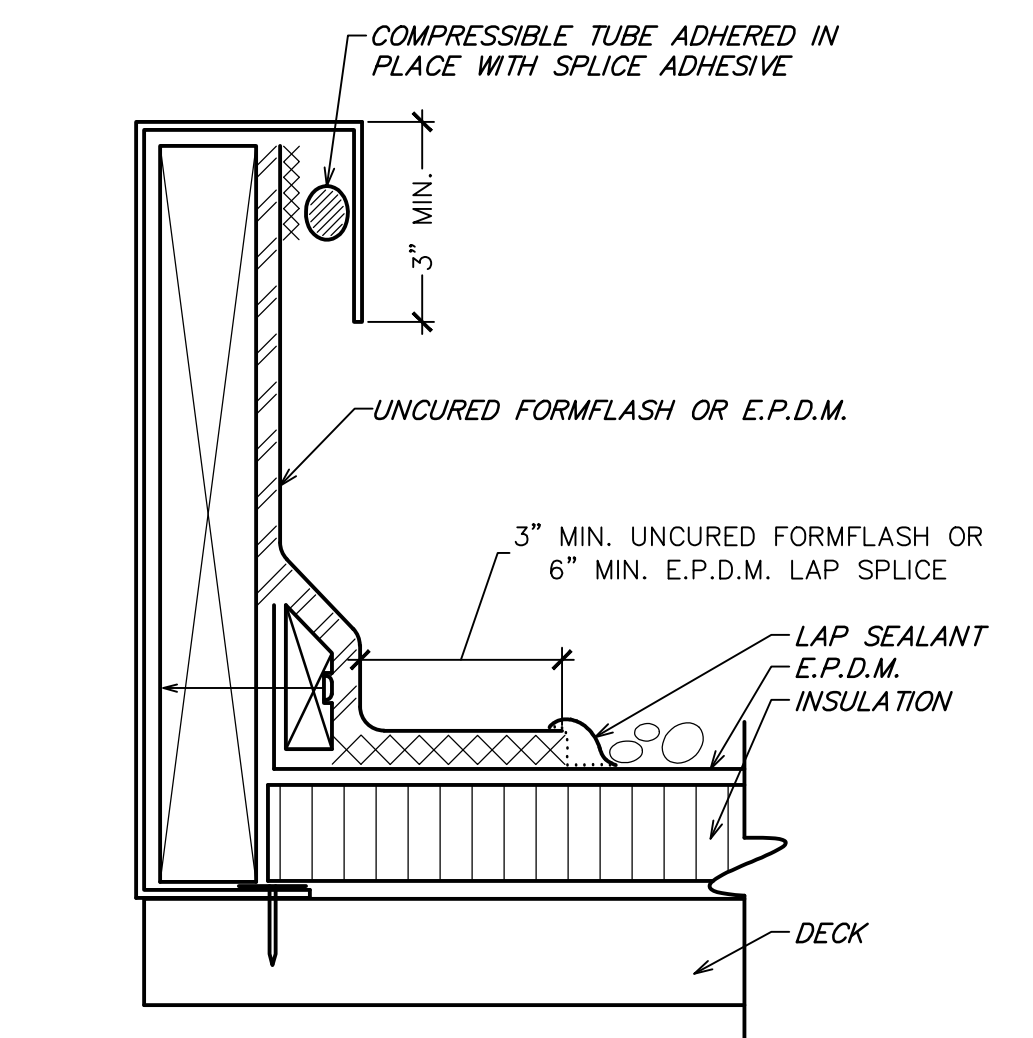
8 TYPICAL DIFFUSER CONNECTION
NOT TO SCALE



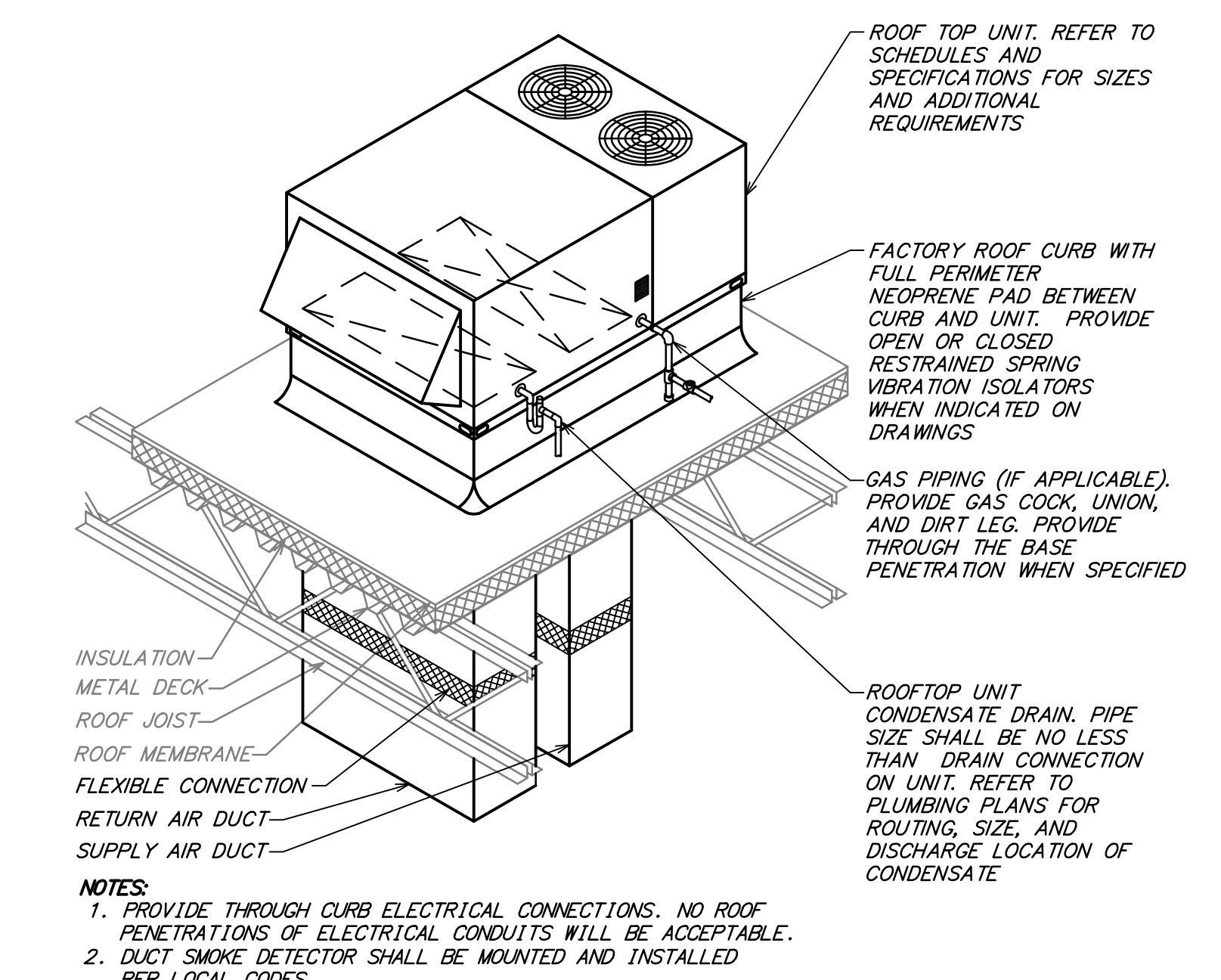
5 DUCTWORK DETAILS
NOT TO SCALE



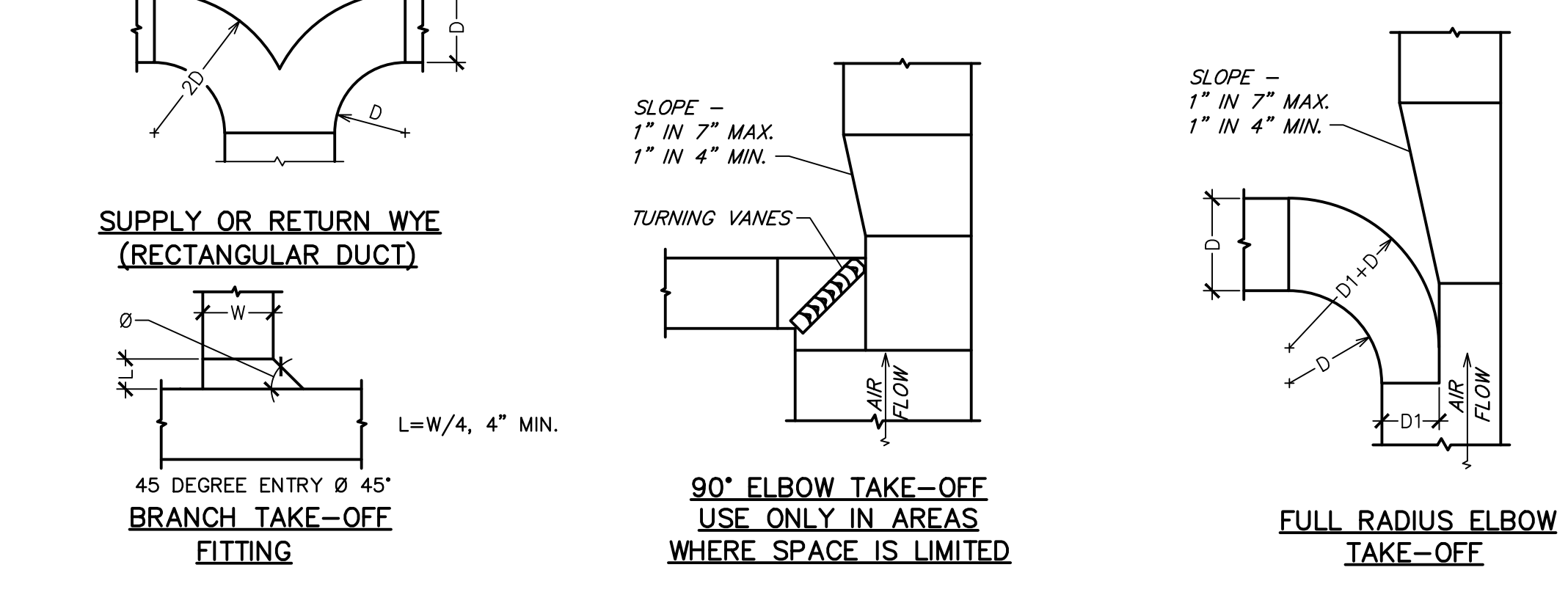
1 TYPICAL ROUND DUCT FITTINGS
NOT TO SCALE



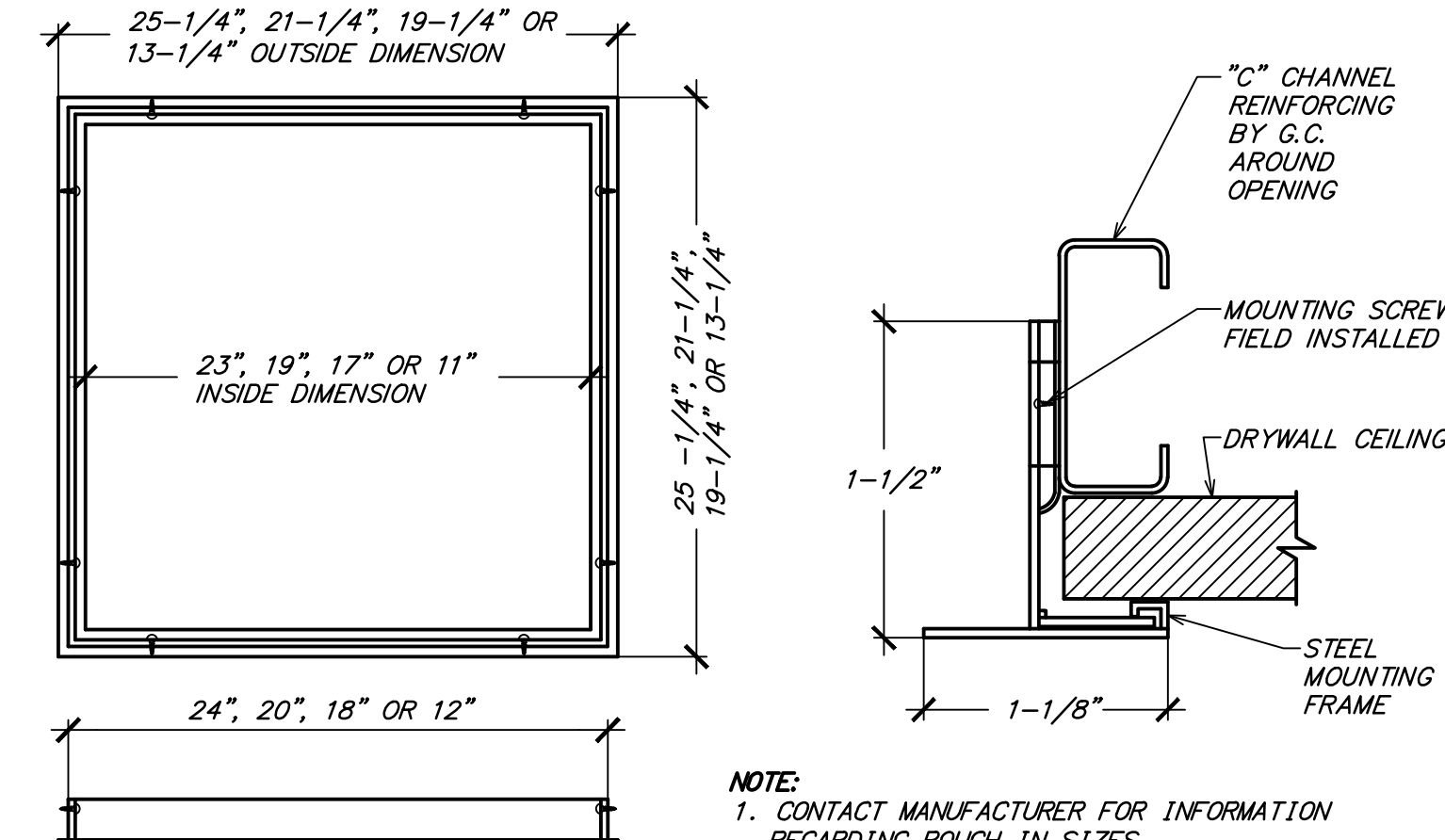
11 CURB FLASHING DETAIL
NOT TO SCALE



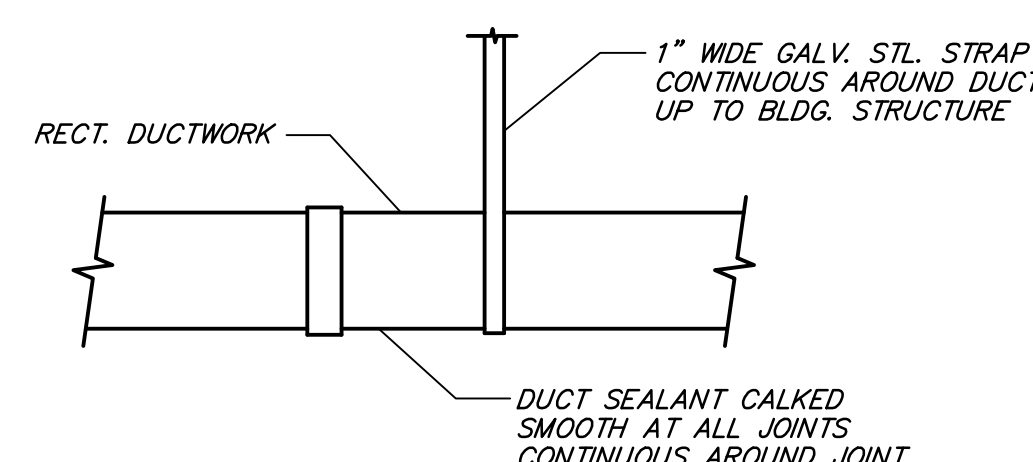
9 TYPICAL ROOF TOP UNIT DETAIL
NOT TO SCALE



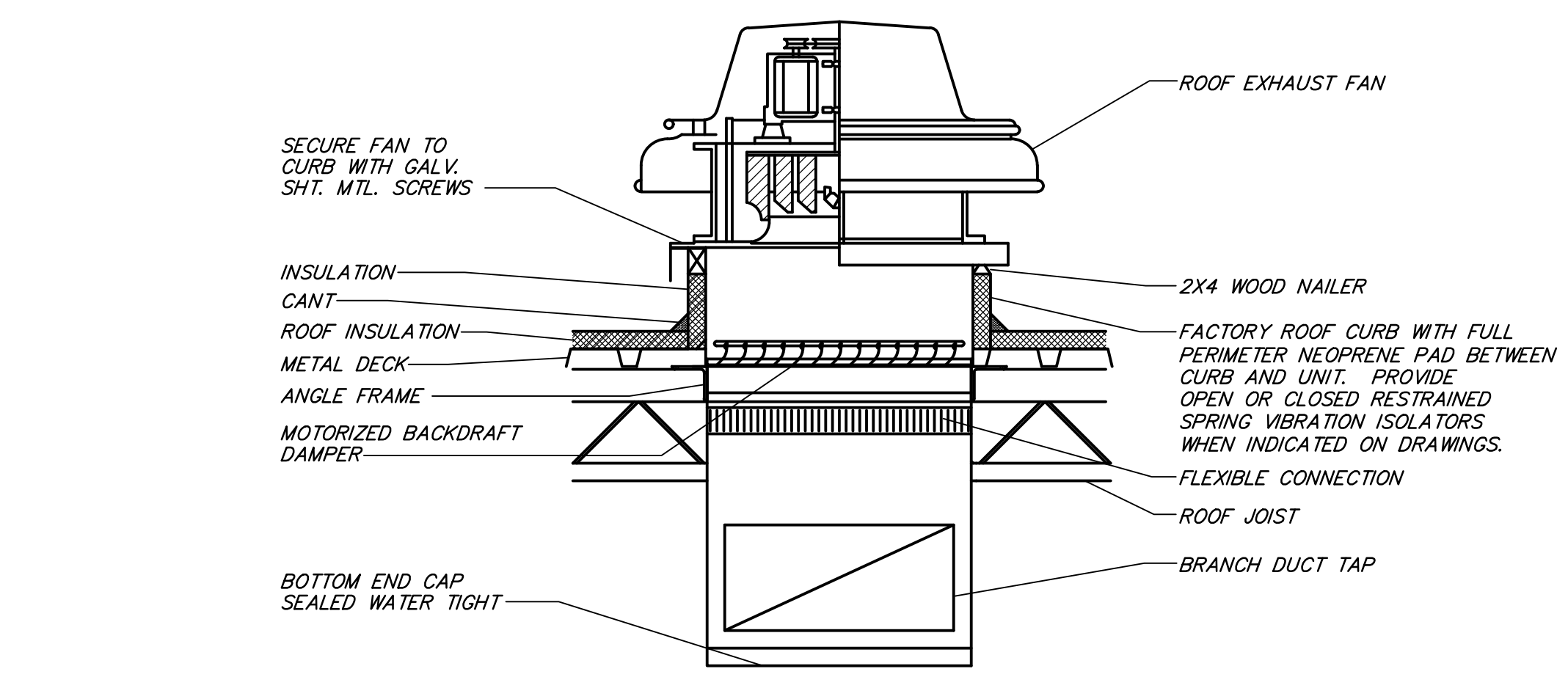
6 ROOF EXHAUST FAN DETAIL
NOT TO SCALE



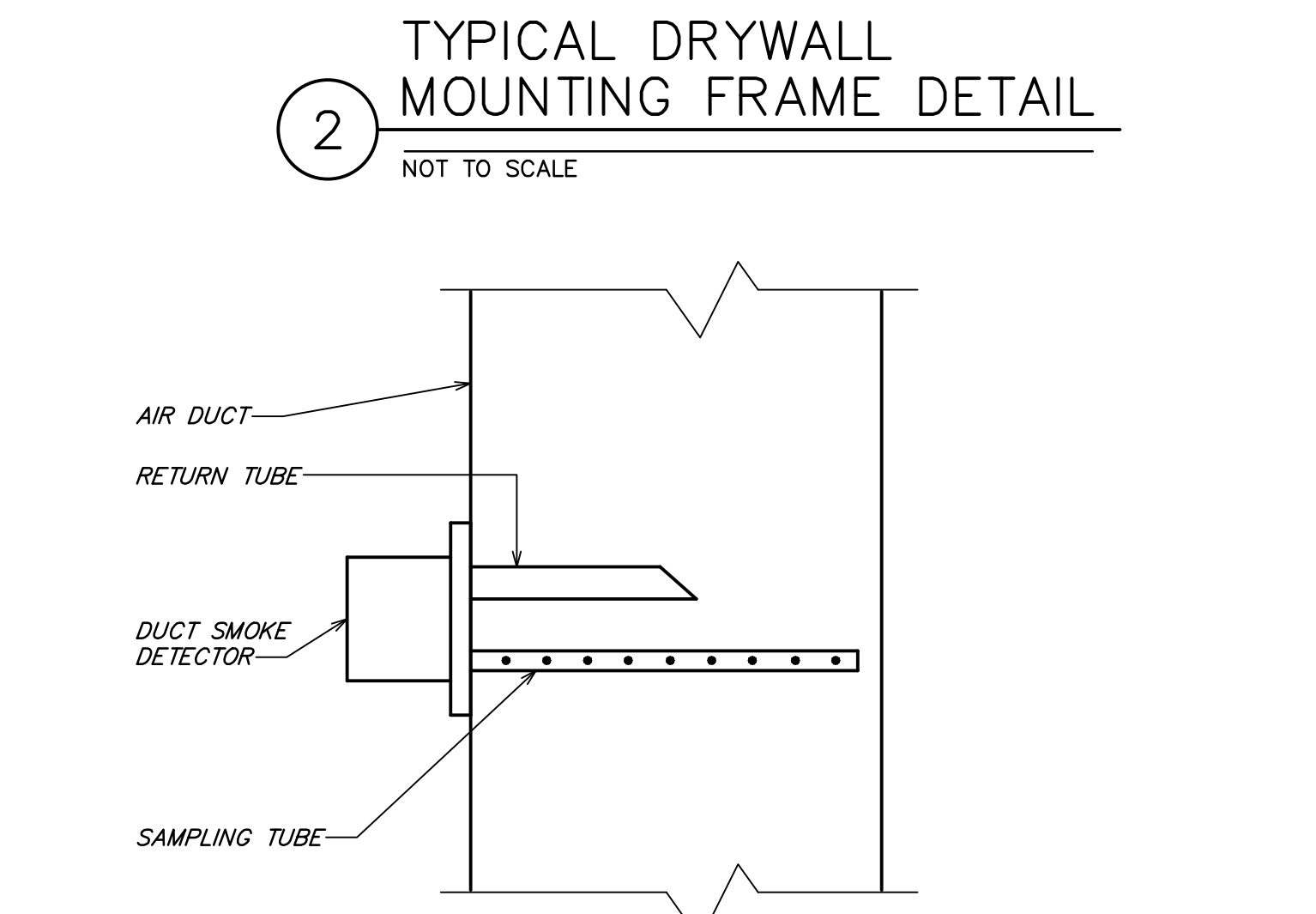
2 TYPICAL DRYWALL MOUNTING FRAME DETAIL
NOT TO SCALE



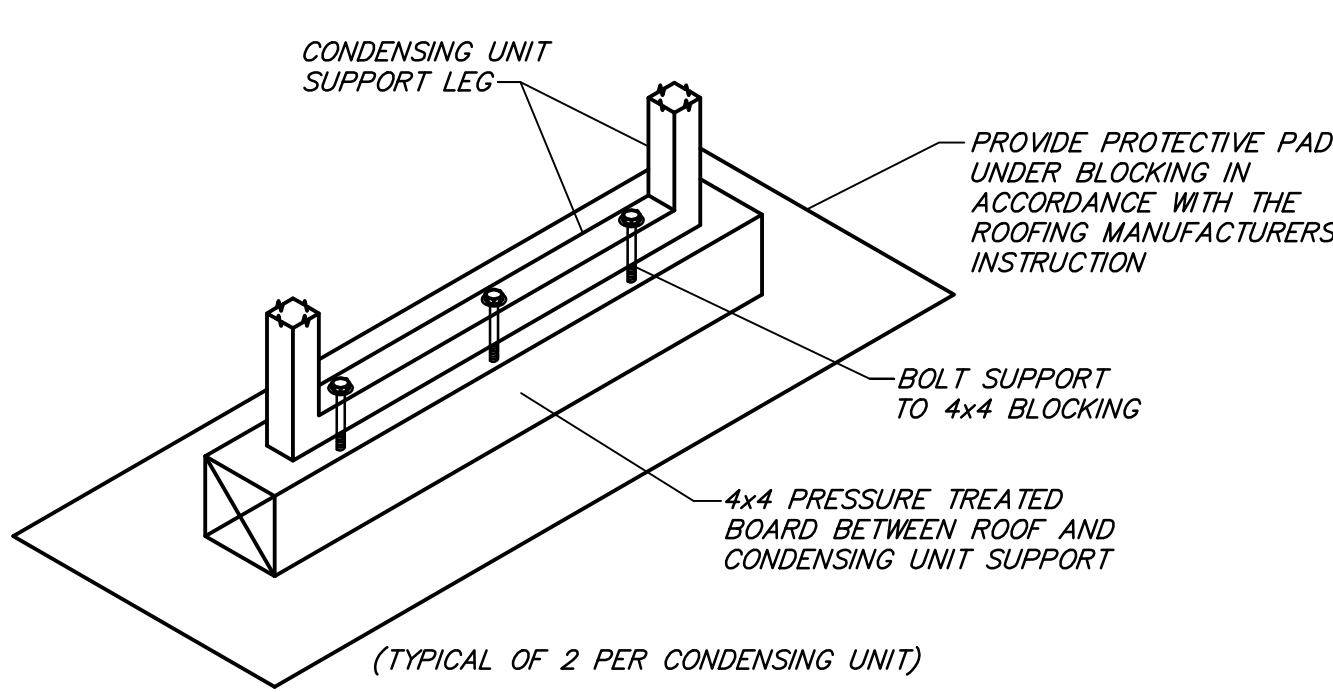
12 EXPOSED RECTANGULAR DUCT SUPPORT DETAIL
NOT TO SCALE



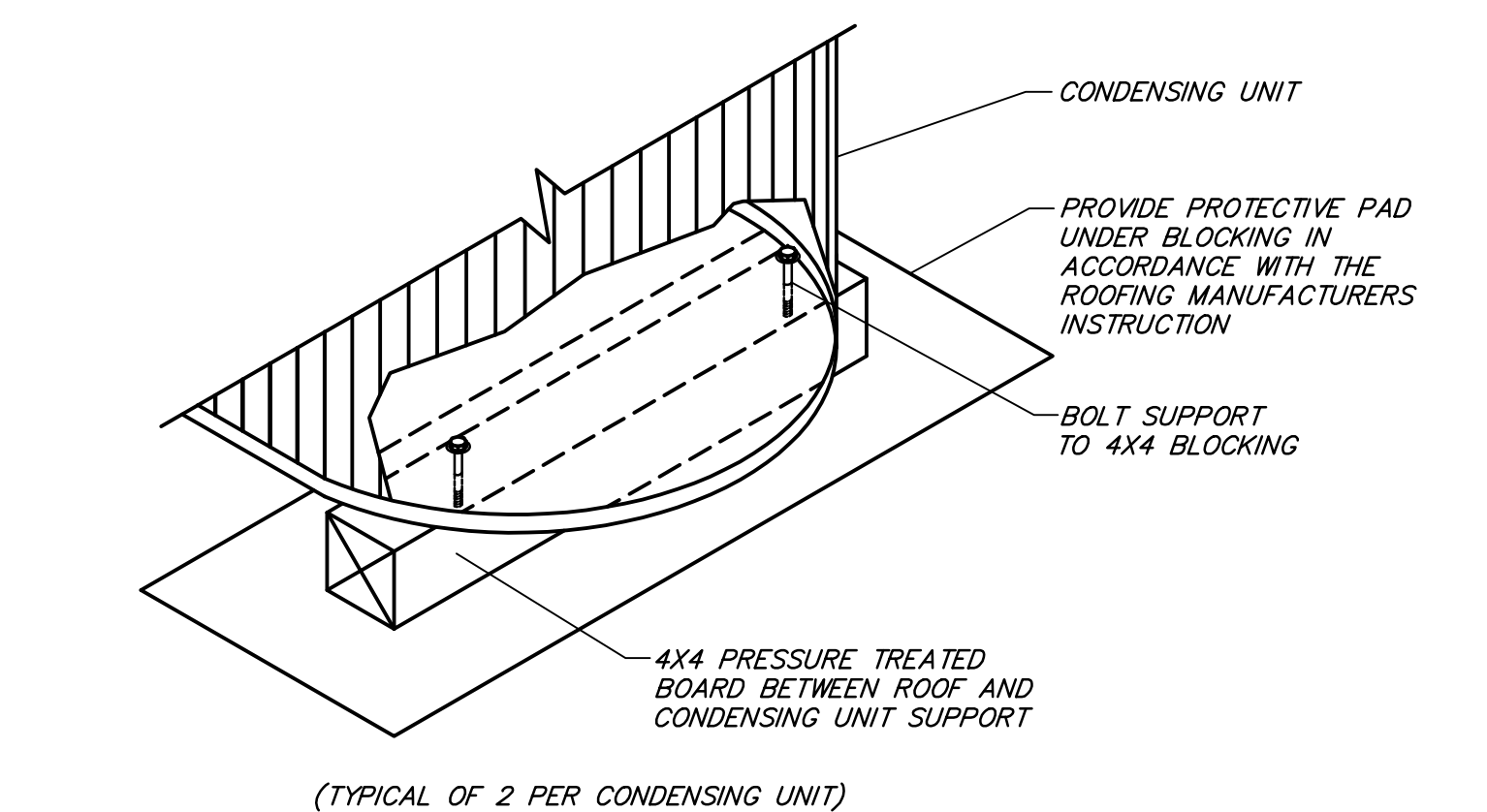
7 CONDENSING UNIT SUPPORT DETAIL
NOT TO SCALE



3 DUCT SMOKE DETECTOR DETAIL
NOT TO SCALE



4 CONDENSING UNIT SUPPORT DETAIL
NOT TO SCALE



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STORE NO.:
AZ #1708

SHAKE SHACK
 BROADWAY BLVD.
 6545 E BROADWAY BLVD.
 #101 TUCSON, AZ 85711

REVISIONS

NO.	DATE	DESCRIPTION
1	08/22/25	REVISION 1

STATUS: IFC SET

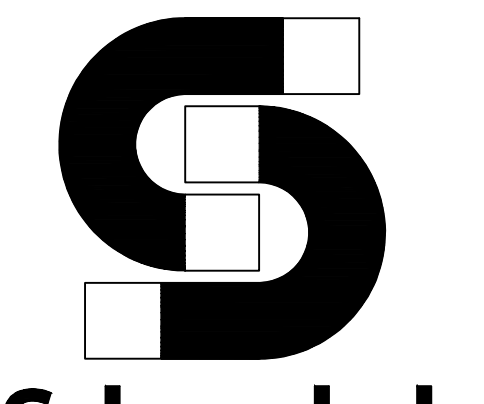
Professional Engineer
 41571
GREGORY ROY SCHNACKEL
 09/19/25
 Date: 09/19/25

FIELD VERIFICATION:
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SHEET NAME:
MECHANICAL DETAILS

DATE: 08/05/2025 PROJECT NO.: 40202
 DRAWN: RAS SCALE: AS NOTED

SHEET NO.:
M502



STORE NO:
AZ #1708

SHAKE SHACK
BROADWAY BLVD
#101 TUCSON, AZ 85711

REVISIONS

NO.	DATE	DESCRIPTION
1	08/20/2025	REVISION 1

STATUS: IFC SET

Gregory Roy Schnackel
41571
Date: 09/19/25

FIELD VERIFICATION:
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SHEET NAME:
MECHANICAL SPECIFICATIONS

DATE: 08/20/2025 PROJECT NO.: 42022
DRAWN: RAS SCALE: AS NOTED

SHEET NO.:
M592

K. Connect diffusers to low pressure ducts directly or with 5 feet maximum length of flexible duct held in place with straps or clamps. Longer duct lengths are acceptable if depicted on the design drawings and allowed per local code. A maximum of one 90 degree elbow 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 galvanized 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 stainless ducts where concealed.
O. For all hood systems, perform oil 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 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 obtain 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:
B. 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): 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 233300 - AIR DUCT ACCESSORIES
PART 1 GENERAL
1.01 SECTION INCLUDES
A. Air turning devices/extractors.
B. Volume control dampers.
C. Duct access doors.
PART 2 PRODUCTS
2.01 AIR TURNING DEVICES/EXTRACTORS
A. Manufacturers: Krueger; Ruskin Company; Titus.
B. Multi-blade device with blades aligned in short dimension; steel or aluminum construction, with individually adjustable blades, mounting straps.
2.02 VOLUME CONTROL DAMPERS
A. Manufacturers: Louvers & Dampers, Inc.; Nalor Industries Inc.; Ruskin Company; Prefco Inc.
B. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated.
C. Single Blade Dampers: Fabricate for duct sizes up to 6 x 30 inch.
D. Multi-Blade Dampers: Fabricate with maximum blade sizes 8 x 72 inch. Assemble center and edge crimped blades in prime coated or galvanized channel frame with suitable hardware.
E. End Bearings: Except in round ducts 12 inches and smaller, provide end bearings. On multiple blade dampers, provide oil-impregnated nylon or sintered bronze bearings.
F. The contractor shall provide either a mechanical or electrical cable operated system wherever dampers are located in non-accessible areas.
1. Mechanical cable operator system shall be similar and equal to Young Regulator Company, "Power Balance Control" system including damper, flexible cable with casing and concealed ceiling regulator control.
2. Electrically operated dampers shall be similar and equal to United Erectech Corporation, "Power Balance" system including motor operated damper, RJ-11 plenum rated cable and flush ceiling or wall mounted RJ-11 jack in remote plate, include one hand held battery pack operator pack to be delivered to the Owner upon completion of the balancing.
2.03 FLEXIBLE DUCT CONNECTIONS
A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated.
B. Flexible Duct Connections: Fabric crimped into metal edging strip.
1. Fabric: UL listed fire-retardant neoprene coated woven glass fiber fabric to NFPA 285A, minimum thickness 0.005 inch per sq. ft.
a. Net Fabric Width: Approximately 2 inches wide.
2. Metal: 3 inches wide, 24 gage thick galvanized steel.
2.04 DUCT ACCESS DOORS
A. Manufacturers: Acador Products Inc.; Nalor Industries Inc.; Ruskin Company; SEMCO Incorporated.
B. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated.
C. Fabrication: Rigid and close-fitting of galvanized steel with sealing gaskets and gasket fastening leading device. For insulated ducts, install minimum 1 inch thick insulation with sheet metal cover.
1. Less than 12 inches Square: Secure with sash locks.
2. Up to 18 inches Square: Provide two hinges and two sash locks.
D. Access doors with sheet metal screw fasteners are not acceptable.
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, at fire dampers, 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 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. Review locations for balancing dampers 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. Review locations for balancing dampers 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. All fans and motorized equipment associated with ducts, provide flexible duct connections immediately adjacent to the equipment.
G. All equipment supported by vibration isolators, provide flexible duct connections immediately adjacent to the equipment.
AIR PURIFICATION DEVICES
Model: PHI-PKG14-24V Specifications
LISTING: UL 1598:2008 (3rd Edition)
FACTORY UV-V CELL
INSTALLATION: RTU PACKAGED UNIT / BLOWER CABINET
PART 1 GENERAL
1.01 SUMMARY
A. This section includes hydro-peroxide, Super-Oxide Ions, & Hydroxide Ions 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 hours from initial startup. National TAB provided service plan. The psi 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.
2. 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 neglected, 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.
1. Quod Metallic Target
2. Electronic Enclosure (24VAC input power Jack)
3. Magnetic mounting feet 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. Greenheck; Loren Cook Company; PennBarry; CaptiveAir.
2.02 POWER VENTILATORS - GENERAL
A. Performance Ratings: Determined in accordance with AMCA 210 and bearing the AMCA Certified Rating Seal.
B. Sound Rating: AMCA 301, tested to bearing AMCA Certified Sound Rating Seal.
C. Fabrication: Conform to AMCA 99.

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 and 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-L.
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. Titus; Krueger; 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.
Accessories: Opposed blade damper and multi-louvered 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.
Accessories: Opposed blade damper and multi-louvered equalizing grid with damper adjustable from diffuser face.
2.04 GRID CORE EXHAUST AND RETURN GRILLES
A. Type: Fined grilles of 1/2 x 1/2 x 1 inch louvers.
B. Fabrication: Aluminum with factory off-white enamel finish.
C. Frame: 1-1/4 inch margin with countersunk screw mounting.
D. Frame: Chrome lay-in frame for suspended grid ceilings where face size exceeds 18 x 18 inch.
E. Damper (if specified on drawings): Integral, gage-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 deflection.
B. Frame: 1-1/4 inch margin with countersunk screw mounting and gasket.
C. Fabrication: Steel with 20 gage minimum frames 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, gage-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.
PART 3 EXECUTION
3.01 INSTALLATION
A. Install in accordance with manufacturer's instructions.
B. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement.
C. Install diffusers to ductwork with air tight connection.
D. Provide balancing dampers on duct take-off to diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.
E. Paint ductwork visible behind air outlets and inlets matte black.
END OF SECTION

SECTION 237413 - PACKAGED OUTDOOR ROOF TOP UNITS - GAS FIRED
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 AIR CONDITIONING UNITS
A. General: Roof mounted units having gas burner and electric refrigeration.
Description: Self-contained, packaged, factory assembled and prewired, 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.
C. Electrical Characteristics: As scheduled on the Drawings.
D. Disconnect Switch: Factory mounted disconnect switch on equipment.
2.03 FABRICATION
A. Cabinet: Steel with baked enamel finish, including access panels with screwdriver operated flush cam type fasteners or doors with piano hinges with locking handles. Structural members shall be minimum 18 gage, with access doors or panels of minimum 20 gage.
B. Insulation: One inch thick neoprene coated glass fiber with edges protected from erosion.
C. Heat Exchangers: Aluminized steel or stainless steel where indicated on the Drawings.
D. Supply Fan: Forward curved centrifugal type, resiliently mounted with V-belt drive, adjustable variable pitch motor pulley, and rubber isolated hinge mounted motor or direct drive as indicated. Isolate complete fan assembly.
1. Fans for units with a mechanical cooling capacity greater than or equal to 65,000 Btu/h shall have not fewer than two stages of fan control.
E. Air Filters: 2 inch thick disposable media in metal frames.
F. Roof Mounting Curb: Galvanized steel, channel frame, insulated with gaskets, and rain collar. Provide curb of adequate height to provide a unit mounting height of 12" or greater above the top of the roof surface with the curb mounted to the building structure. Roof curb height must compensate for the roof insulation thickness to meet this requirement.
G. Vibration Isolation Curb: Only when indicated on the Drawings.
2.04 BURNER
A. Gas Burner: Induced draft or forced draft type burner with adjustable combustion air supply pressure regulator, gas valves, manual shut-off, intermittent spark or glow coil ignition, flame sensing device, and automatic 100 percent shut-off pilot.
B. Gas Burner Safety Controls: Energize ignition, limit time for establishment of flame, prevent opening of gas valve until pilot flame is proven, stop gas flow on ignition failure, energize blower motor, and other air flow proven and safety related, allow gas valve to open.
C. High Limit Control: Temperature sensor with fixed stop at maximum permissible setting, de-energize burner on excessive bonnet temperature and energize burner when temperature drops to lower safe value.
D. Supply Fan Control: Temperature sensor sensing bonnet temperatures and independent of burner controls, with provisions for continuous fan operation.
2.05 EVAPORATOR COIL
A. Provide copper tube aluminum fin coil assembly with galvanized drain pan and connection.
B. Provide capillary tubes or thermostatic expansion valves for units of 6 tons capacity and less, and thermostatic expansion valves and alternate row circulating for units 7.5 tons cooling capacity and larger.
2.06 COMPRESSOR
A. Provide hermetic or semi-hermetic compressors, 3600 rpm maximum, resiliently mounted with positive lubrication, crankcase heater, high and low pressure safety controls, motor overload protection, suction and discharge service valves and gage ports, and filter drier.
B. Five minute time off circuit to delay compressor start.
C. Outdoor thermostat to energize compressor above 35 degrees F ambient.
2.07 CONDENSER COIL
A. Provide copper tube aluminum fin coil assembly with subcooling rows and coil guard.
B. Provide direct drive propeller fans, resiliently mounted with fan guard, motor overload protection, wind to operate with compressor.
2.08 MIXED AIR CASING
A. Dampers: Provide outside, return, and relief dampers with damper operator and control package to automatically vary outside air quantity. Outside air damper to fall to closed position. Relief dampers may be gravity louvered.
B. Gaskets: Provide light fitting dampers with edge gaskets maximum leakage 5 percent at 2 inches pressure differential.
C. Damper Operator: 24 volt with gear train sealed in oil.
D. Damper Operator, Units 7.5 Ton Cooling Capacity and Larger: 24 volt with gear train sealed in oil with spring return on.

UL Compliance: UL listed and labeled, designed, manufactured, and tested as suitable for the purpose specified and indicated.
2.03 ROOF EXHAUSTERS AND VENTILATORS
A. Fan Units: V-belt or direct driven as indicated, with spun aluminum housing; resiliently mounted motor; 1/2 inch mesh, 0.62 inch thick aluminum wire birdscreen; dampers and controls.
B. Roof Curb: 20 inch high above the finished roof surface (compensate for roof insulation thickness at fan location) self-flashing of galvanized steel or aluminum construction with continuously welded seams, built-in cont. strips, insulation and curb bottom, and factory installed nailer strip.
C. Disconnect Switch: Factory wired, non-fusible, in housing for thermal overload protected motor.
D. Motor: Motor actuated (or gravity driven if depicted on design drawings), aluminum multiple blade construction, felt edged with offset hinge pin, nylon bearings, blades linked, and line voltage motor drive, power open, spring return.
E. Sheaves: Cast iron or steel, dynamically balanced, bored to fit shafts and keyed; variable and adjustable pitch motor sheaves selected so required rpm is obtained with sheaves set at mid-position; fan shaft with self-aligning pre-lubricated ball bearings.
F. Kitchen hood exhausters shall be upblast with gross tray, ventilated double wall curb and hinge curb adapter base for cleaning. Hood exhausters shall comply with requirements of NFPA 96.
PART 3 EXECUTION
3.01 INSTALLATION
A. Install in accordance with manufacturer's instructions.
B. Provide sheaves required for final air balance at no additional expense to the project.
C. Secure roof and wall exhausters with cadmium plated steel lag screws to roof curb or structure.
D. Exhaust ducts to roof and wall exhausters into roof curb or wall structure.
E. Install backdraft dampers (gravity or motorized as depicted on design drawings) on inlet to roof and wall exhausters.
F. Automatic switching shall be flashed and weather sealed by the roofing manufacturer's authorized roofing contractor at this Contractor's expense. This Contractor shall contract with 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.
END OF SECTION

SECTION 238127 - SMALL SPLIT-SYSTEM HEATING AND COOLING
PART 1 GENERAL
1.01 SECTION INCLUDES
A. Air-source heat pumps.
B. Indoor ductless fan & coil units.
C. Controls.
D. Room thermostats.
PART 2 PRODUCTS
2.01 MANUFACTURERS
A. Carrier Corporation; Trane Inc.; YORK; Lennox Industries.
2.02 SYSTEM DESIGN
A. Split-System Heating and Cooling Units: Self-contained, packaged, matched factory-engineered and assembled, pre-wired indoor and outdoor units. UL listed.
1. Provide refrigerant lines internal to units and between indoor and outdoor units, factory cleated, dried, pressurized and sealed with insulated suction lines. Size as recommended by the manufacturer. All refrigerant line sizes indicated on the Drawings are approximate and shall be adjusted as required based on the actual equipment selected to meet the manufacturer's recommended line sizing at no additional expense.
B. Performance Requirements:
1. Equipment performance, efficiency and accessories shall be as scheduled on the Drawings and specified herein. Include in both locations if not a prerequisite to inclusion in the Contract. Equipment and accessories specified in either location shall be included in the Contract. Provide all necessary accessories and connections as required for a complete, functional system. Efficiency shall not be less than requirements of the units specified, or indicated on the Drawings, or the applicable local energy code (where applicable).
2.03 INDOOR UNITS FOR DUCTLESS SYSTEMS
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 Coil: Copper tube aluminum fin assembly, galvanized or polymer drain pan sloped in all directions to drain, drain connection, 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 fan assembly and secured access doors with safety interlock switches, glass fiber insulation with reflective insulation.
2. Construction and Ratings: in accordance with ARI 210/240 with testing in accordance with ASHRAE Std 23 and UL listed.
B. Compressor: ARI 520; hermetic, 3600 rpm, (multi-speed when indicated on the Drawings) resiliently mounted integral with condenser, with positive lubrication, crankcase heater, pressure relief valve, motor overload protection, service valves and drier. Provide time delay control to prevent short cycling.
C. Coiled Condenser: ARI 520; Aluminum fin and copper tube coil, with direct drive coil 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 wet (in liquid line).
E. Provide thermostatic expansion valves.
2. Provide heat pump reversing valves on all heat pump units.
F. Operating Controls:
1. Control by room thermostat to maintain room temperature setting.
2. Low Ambient Kill: 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.
2.05 ACCESSORY EQUIPMENT
A. Room Thermostat: Wall-mounted, electric solid state microcomputer based room thermostat with remote sensor to maintain temperature setting; low-voltage; with following features:
1. System selector switch (heat-off-cool) and fan control switch (auto-on).
2. Automatic switching from heating to cooling.
3. Preferential ratio 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. Programming based on every day of the week.
9. Selection features including degree F or degree C display, 12 or 24 hour clock, keyboard display, remote sensor, fan on-auto.
10. Battery replacement without program loss.
11. Thermostat adjuster:
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 238127 - SMALL SPLIT-SYSTEM HEATING AND COOLING
PART 3 EXECUTION
3.01 INSTALLATION
A. Install in accordance with manufacturer's instructions and NFPA 90A.
B. Mount units on factory built roof mounting curb providing watertight enclosure to protect ductwork and utility services. Install mounting curb level. Install roof mounting curb so that it bears on the building structure, not on top of the roof deck or roofing materials. Provide restraints where required by local code.
C. Provide cooling condenser drain piping (and overflow piping if required) to approved location. Condensate piping shall be Schedule 40 galvanized steel pipe, Type L copper tube, or PVC. Contractor shall verify 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. Condensate piping located within the building shall be insulated with 1/2 inch thick glass fiber or flexible elastomeric cellular foam insulation.
2. Only metallic piping systems will be allowed in return air plenum ceiling space.
END OF SECTION

SECTION 239200 - WATER LEVEL MONITORING DEVICES
PART 1 GENERAL
1.01 SECTION INCLUDES
A. Water-level monitoring device shall be installed inside the primary drain pan. This device shall shut off the equipment seaward in the event that the drain pan becomes restricted. Devices installed in the drain line will not be permitted.
PART 3 EXECUTION
3.01 INSTALLATION
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 (off-heat-auto-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. Preferential ratio control to minimize overshoot and deviation from setpoint.
2. 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.
3. Set-up for four separate temperatures per day.
4. Instant override of setpoint for continuous or timed period from one hour to 31 days.
5. Short cycle protection.
6. Programming based on weekdays, Saturday and Sunday.
7. Selection features including imperial or metric display, 12 or 24 hour clock, keyboard display, remote sensor, fan on-auto.
8. Switch selection features including damper, remote sensor, fan on-auto.
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.
6. Stage (heating or cooling) operation.
PART 3 EXECUTION
3.01 INSTALLATION
A. Install in accordance with manufacturer's instructions and NFPA 90A.
B. Mount units on factory built roof mounting curb providing watertight enclosure to protect ductwork and utility services. Install mounting curb level. Install roof mounting curb so that it bears on the building structure, not on top of the roof deck or roofing materials. Provide restraints where required by local code.
C. Provide cooling condenser drain piping (and overflow piping if required) to approved location. Condensate piping shall be Schedule 40 galvanized steel pipe, Type L copper tube, or PVC. Contractor shall verify 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. Condensate piping located within the building shall be insulated with 1/2 inch thick glass fiber or flexible elastomeric cellular foam insulation.
2. Only metallic piping systems will be allowed in return air plenum ceiling space.
END OF SECTION

E
D
C
B
A

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HOOD INFORMATION - JOB#7464227

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S)						HOOD CONSTRUCTION	HOOD CONFIG	
										WIDTH	LENG	HEIGHT	DIA	CFM	VEL		SP	END TO END
1	90 (Grill)	5430 ND-2	CAPTIVEAIRE	7' 11"	450 DEG	1	MEDIUM	150	1188	10"	11"	4"	1188	1555	-0.462"	430 SS WHERE EXPOSED	ALONE	ALONE
2	90 (Fryer)	5430 ND-2	CAPTIVEAIRE	5' 0"	600 DEG	1	HEAVY	175	875	9"	9"	4"	875	1556	-0.405"	430 SS WHERE EXPOSED	ALONE	ALONE

HOOD INFORMATION

HOOD NO	TAG	FILTER(S)				LIGHT(S)				UTILITY CABINET(S)				FIRE SYSTEM PIPING	HOOD HANGING WEIGHT		
		TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	SIZE	FIRE SYSTEM TYPE	SIZE			ELECTRICAL MODEL #	SWITCHES QUANTITY
1	90 (Grill)	CAPTRATE SOLO FILTER	5	20"	16"	85% SEE FILTER SPEC	3	RECESSED ROUND	ND						YES	515 LBS	
2	90 (Fryer)	CAPTRATE SOLO FILTER	3	20"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	ND	LEFT	12"x54"x30"	TANK FS	4.0/4.0/4.0	SC-220110MA	1 LIGHT 1 FAN	YES	761 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	90 (Grill)	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT.
		RIGHT END STANDOFF (FINISHED) 1" WIDE 54" LONG INSULATED.
		INSULATION FOR BACK OF HOOD.
		RISER SENSOR INSTALL 6IN PLEN.
2	90 (Fryer)	LEFT WIDE VERTICAL END PANEL 42" TOP WIDTH, 36" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.
		RIGHT WALL AS END PANEL.
		FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT.
		RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.		
INSULATION FOR BACK OF HOOD.		
RISER SENSOR INSTALL 6IN PLEN.		

HVAC DISTRIBUTION NOTE

SUPPLY DIFFUSERS WITHIN TEN (10) FEET OF THE EXHAUST HOOD SHOULD BE LOW-VELOCITY / NON-DIRECTIONAL

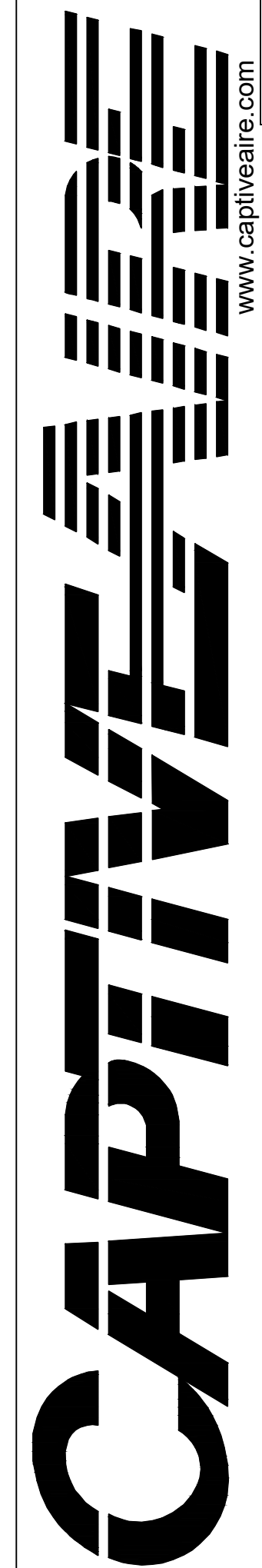
CLEARANCE TO COMBUSTIBLES

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

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

REVISIONS

NO	DESCRIPTION	DATE
1		



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TUCSON, AZ, 85711

DATE: 4/10/2025

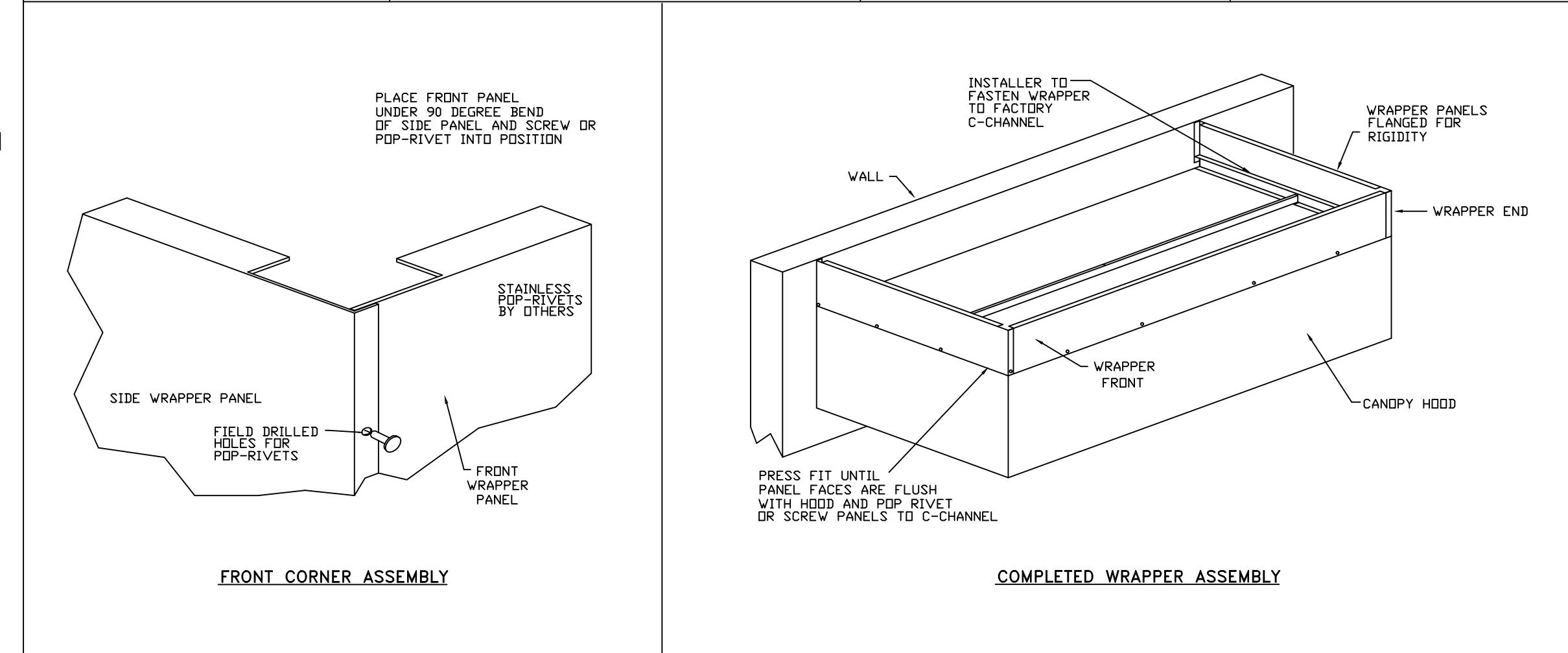
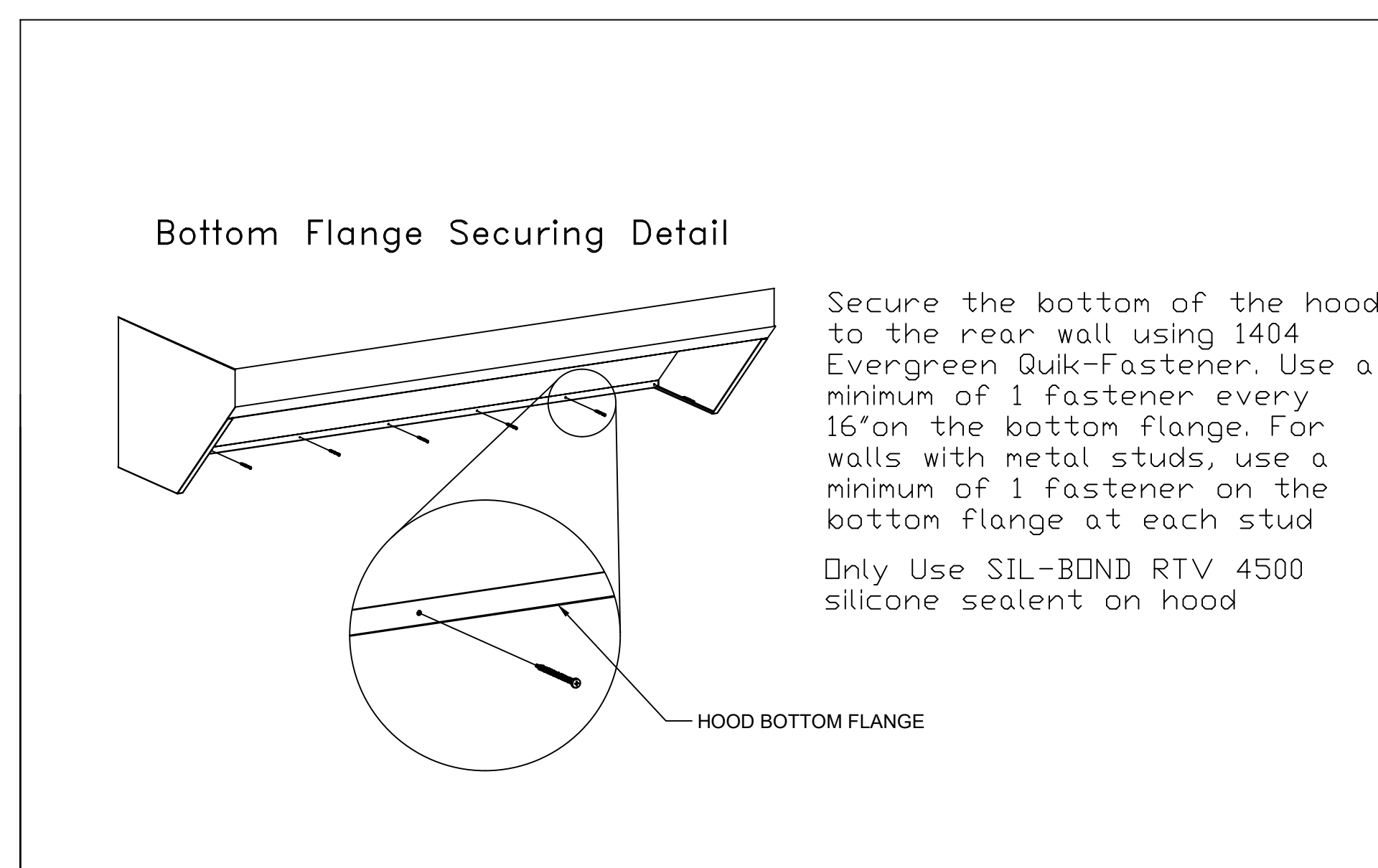
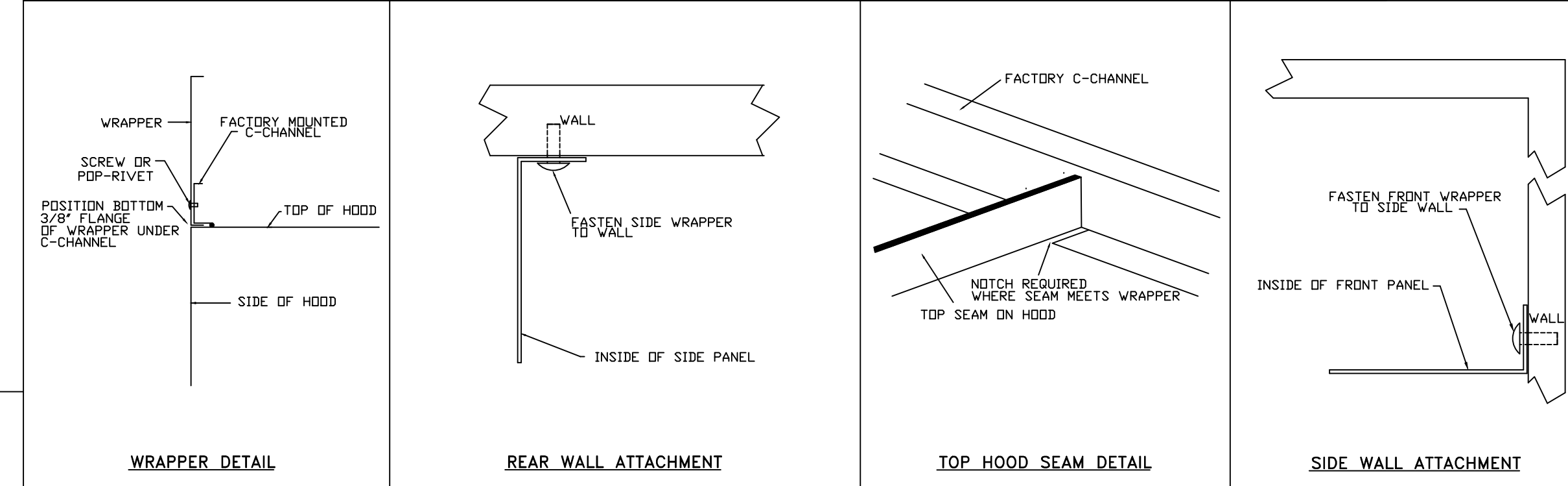
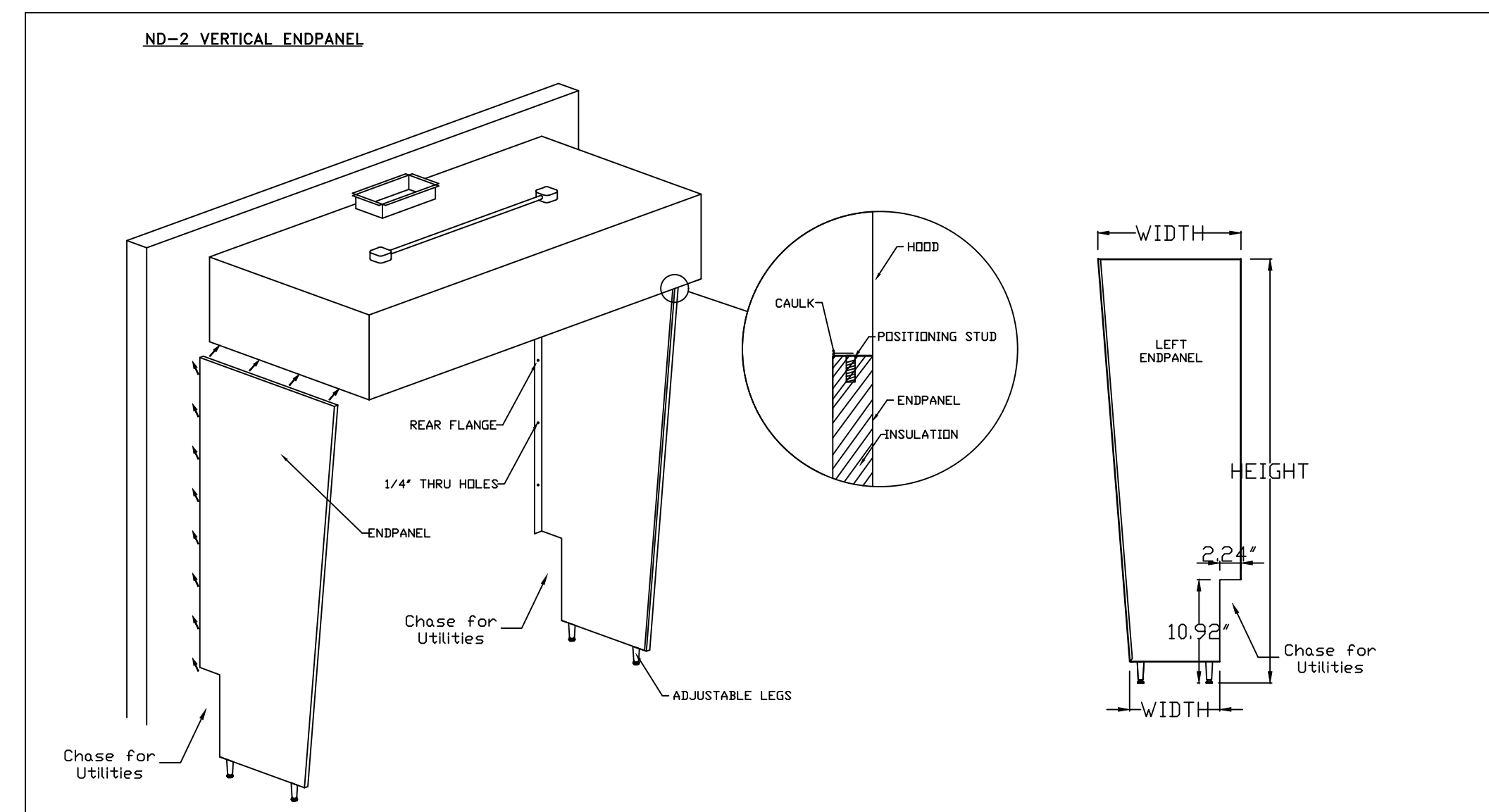
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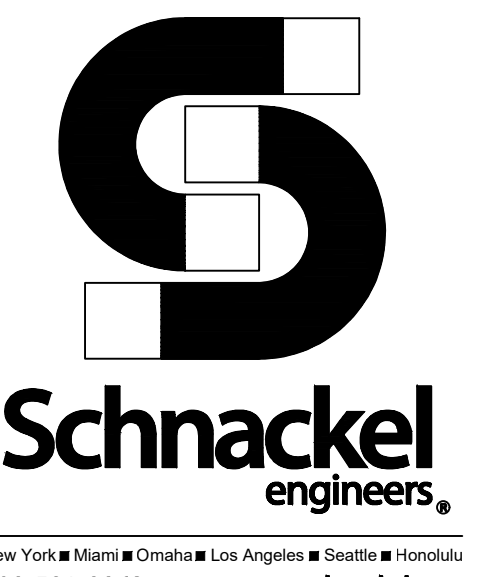
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MASTER DRAWING

SHEET NO. 1

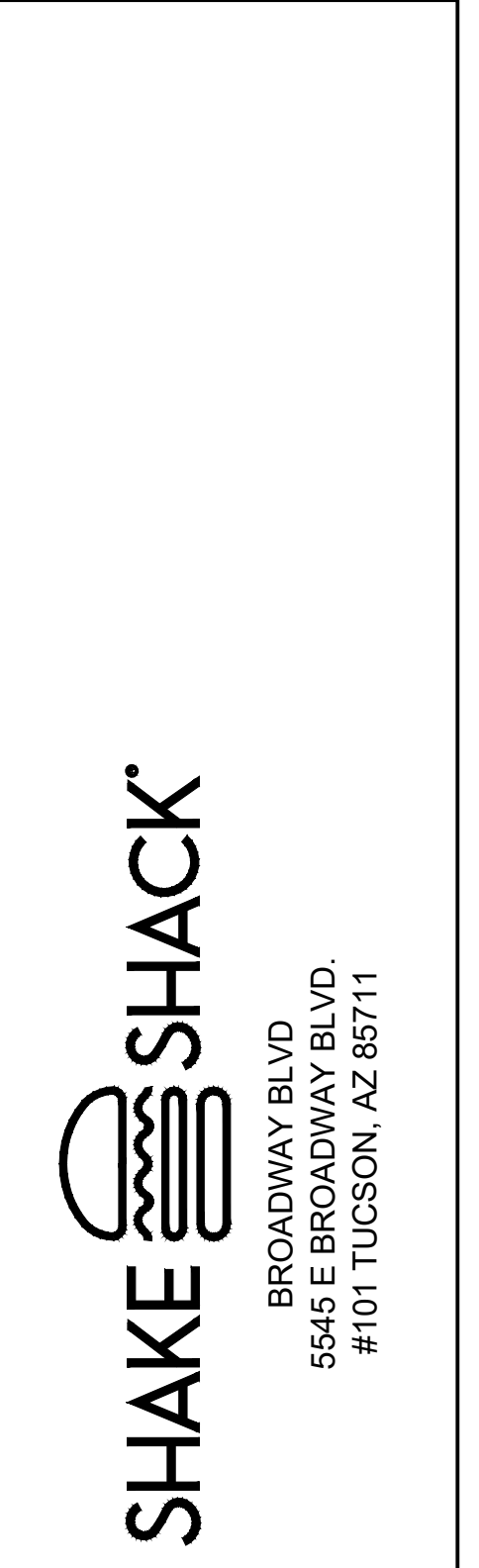


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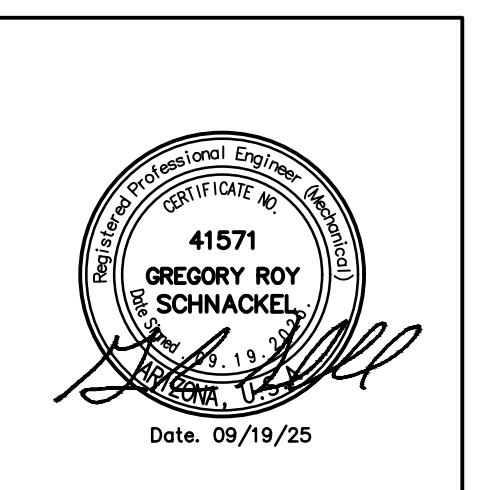
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REVISIONS

NO	DATE	DESCRIPTION
1	09/22/25	REVISION 1

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SHEET NAME:
CAPTIVEAIRE DRAWINGS

DATE: 08/05/2025 PROJECT NO.: 40202

DRAWN: RAS SCALE: AS NOTED

SHEET NO.: M701

6

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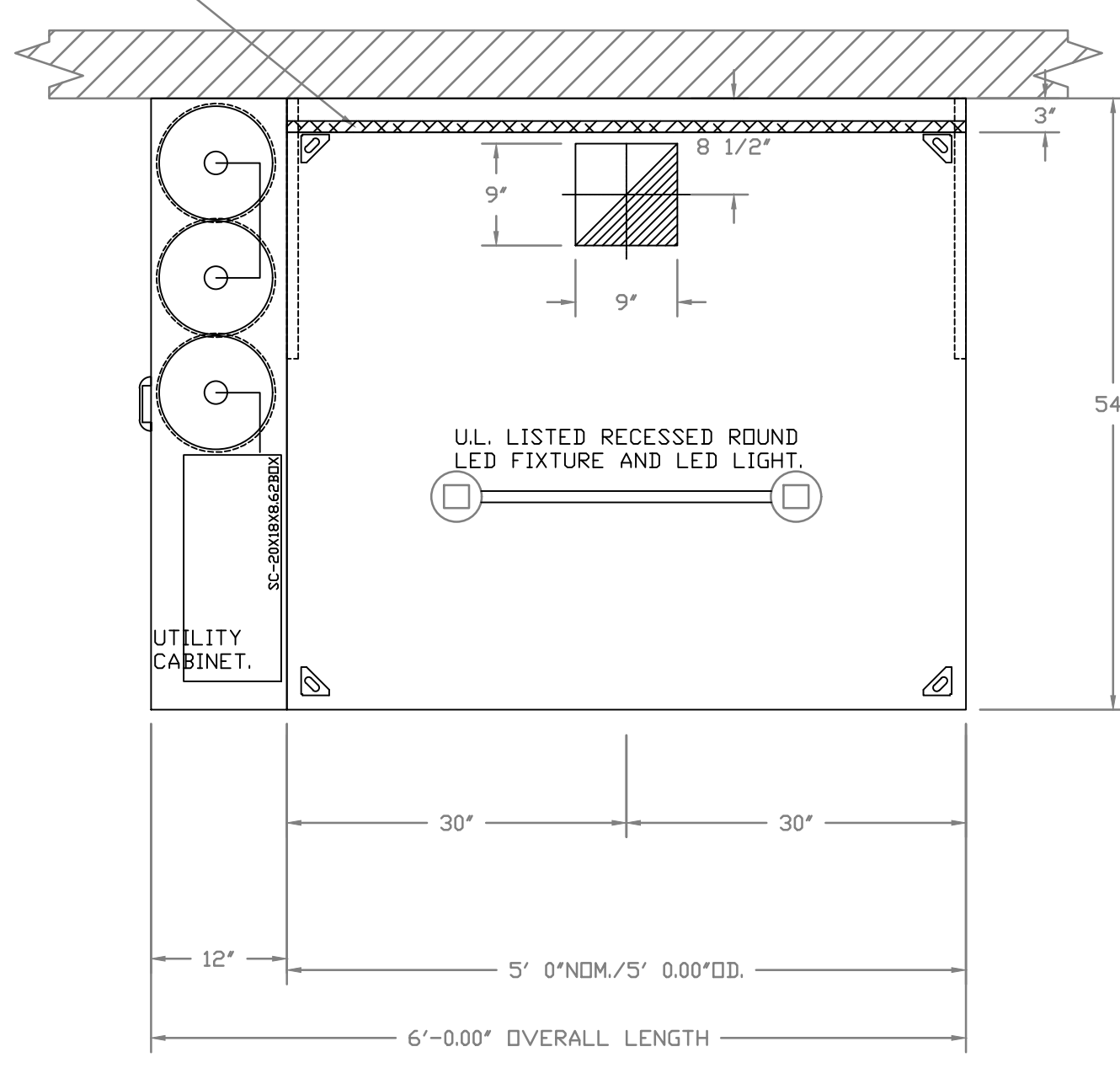
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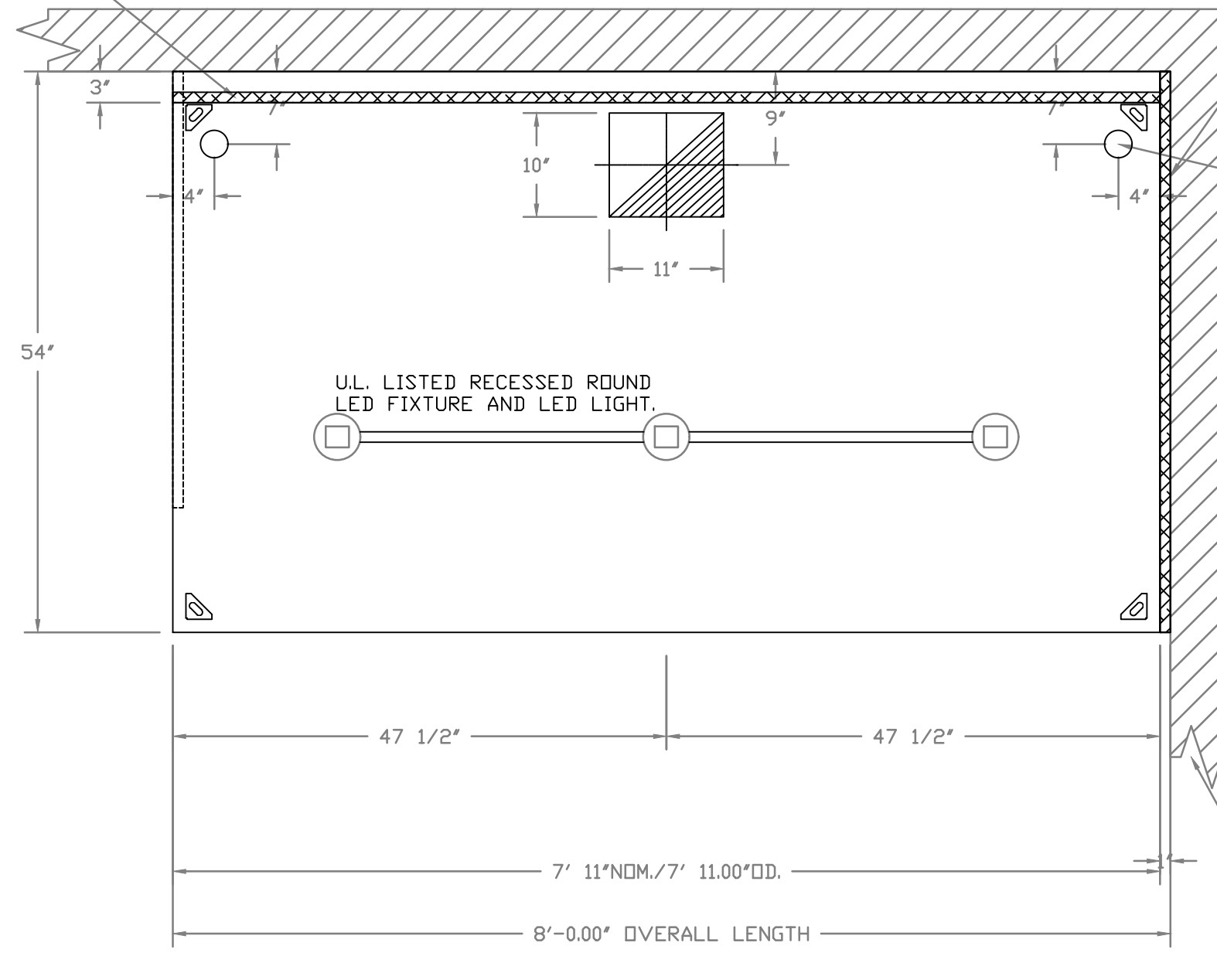
1" LAYER OF INSULATION FACTORY INSTALLED IN INTERNAL BACK STANDOFF. MEETS 0 INCH REQUIREMENTS FOR CLEARANCE TO COMBUSTIBLE SURFACES.

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

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



PLAN VIEW - HOOD #2 (90 Fryer)
5' 0.00" LONG 5430ND-2



PLAN VIEW - HOOD #1 (90 Grill)
7' 11.00" LONG 5430ND-2

15' I.P.S. DRAIN DROP ENGINEER IS RESPONSIBLE FOR DRAIN LINE DESIGN BEYOND THE HOOD. DRAIN LINE MUST BE INSTALLED PER LOCAL CODES. DRAIN LINE MUST BE SLOPED (MINIMUM 1/8\"/>

INSTALLER MUST CONFIRM HOOD IS INSTALLED SUCH THAT THE SPECIFIED WALL, ACTING AS AN END PANEL, IS MATED TIGHT TO THE CORRECT END OF HOOD TO ACHIEVE A REDUCED MINIMUM EXHAUST CFM LISTING. NON-COMPLIANCE WILL NULLIFY THE ETL LISTING. VOID THE MANUFACTURER'S WARRANTY, AND HOLD THE CONTRACTOR LIABLE FOR ANY AND ALL LOSSES, COSTS, AND EXPENSES RELATED TO THE NON-COMFORMANCE OF THE MANUFACTURER'S SPECIFIED INSTRUCTION. THE WALL ACTING AS AN END PANEL MUST EXTEND NO LESS THAN 20\"/>

*6" CLEARANCE ABOVE HOOD REQUIRED FOR FIRE SYSTEM PIPING.

*24" CLEARANCE ABOVE HOOD RECOMMENDED FOR SERVICEABILITY.

RECESSED ROUND LED FIXTURE AND LED LIGHT, 3500 K WARM OUTPUT.

FIELD WRAPPER 18.00" HIGH (SEE HOOD OPTIONS TABLE).

EXHAUST RISER.
HANGING ANGLE.
20" CAPTRATE SOLID FILTER WITH HOOK.
1" LAYER OF INSULATION FACTORY INSTALLED IN 3" INTERNAL STANDOFF. MEETS 0 INCH REQUIREMENTS FOR CLEARANCE TO COMBUSTIBLE SURFACES.

IT IS THE RESPONSIBILITY OF THE ARCHITECT/OWNER TO ENSURE THAT THE HOOD CLEARANCE FROM LIMITED-COMBUSTIBLE AND COMBUSTIBLE MATERIALS IS IN COMPLIANCE WITH LOCAL CODE REQUIREMENTS.

15' I.P.S. FINAL DRAIN DROP LOCATION ALL NECESSARY FITTINGS FROM THE VENTILATOR TO THE BUILDING WASTE LINE(S), I.E. FLOOR SINKS, AIR GAPS, OR OTHER DEVICES REQUIRED BY THE GOVERNING CODES, BY OTHERS.
ENGINEER IS RESPONSIBLE FOR DRAIN LINE DESIGN BEYOND THE HOOD. DRAIN LINE MUST BE INSTALLED PER LOCAL CODES. DRAIN LINE MUST BE SLOPED (MINIMUM 1/8\"/>

GAS CHASE CUTOFF (FOR GAS AND POWER LINES).
LEFT WIDE VERTICAL END PANEL WITH ADJUSTABLE LEGS.

SECTION VIEW - MODEL 5430ND-2
HOOD - #1 (90 Grill)

*6" CLEARANCE ABOVE HOOD REQUIRED FOR FIRE SYSTEM PIPING.

*24" CLEARANCE ABOVE HOOD RECOMMENDED FOR SERVICEABILITY.

RECESSED ROUND LED FIXTURE AND LED LIGHT, 3500 K WARM OUTPUT.

FIELD WRAPPER 18.00" HIGH (SEE HOOD OPTIONS TABLE).

EXHAUST RISER.
HANGING ANGLE.
20" CAPTRATE SOLID FILTER WITH HOOK.
1" LAYER OF INSULATION FACTORY INSTALLED IN 3" INTERNAL STANDOFF. MEETS 0 INCH REQUIREMENTS FOR CLEARANCE TO COMBUSTIBLE SURFACES.

IT IS THE RESPONSIBILITY OF THE ARCHITECT/OWNER TO ENSURE THAT THE HOOD CLEARANCE FROM LIMITED-COMBUSTIBLE AND COMBUSTIBLE MATERIALS IS IN COMPLIANCE WITH LOCAL CODE REQUIREMENTS.

GREASE DRAIN WITH REMOVABLE CUP.
LEFT AND RIGHT QUARTER END PANELS.

SECTION VIEW - MODEL 5430ND-2
HOOD - #2 (90 Fryer)

REVISIONS

NO.	DESCRIPTION	DATE
1		
2		
3		

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DATE: 4/10/2025
DWG.#: 7464227

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

MASTER DRAWING

SHEET NO. 2

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STATUS: IFC SET

Professional Engineer
41571
GREGORY ROY SCHNACKEL
Date: 09/19/25

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SHEET NAME: CAPTIVEAIRE DRAWINGS

DATE: 08/05/2025 PROJECT NO.: 40202
DRAWN: RAS SCALE: AS NOTED

SHEET NO.: M702

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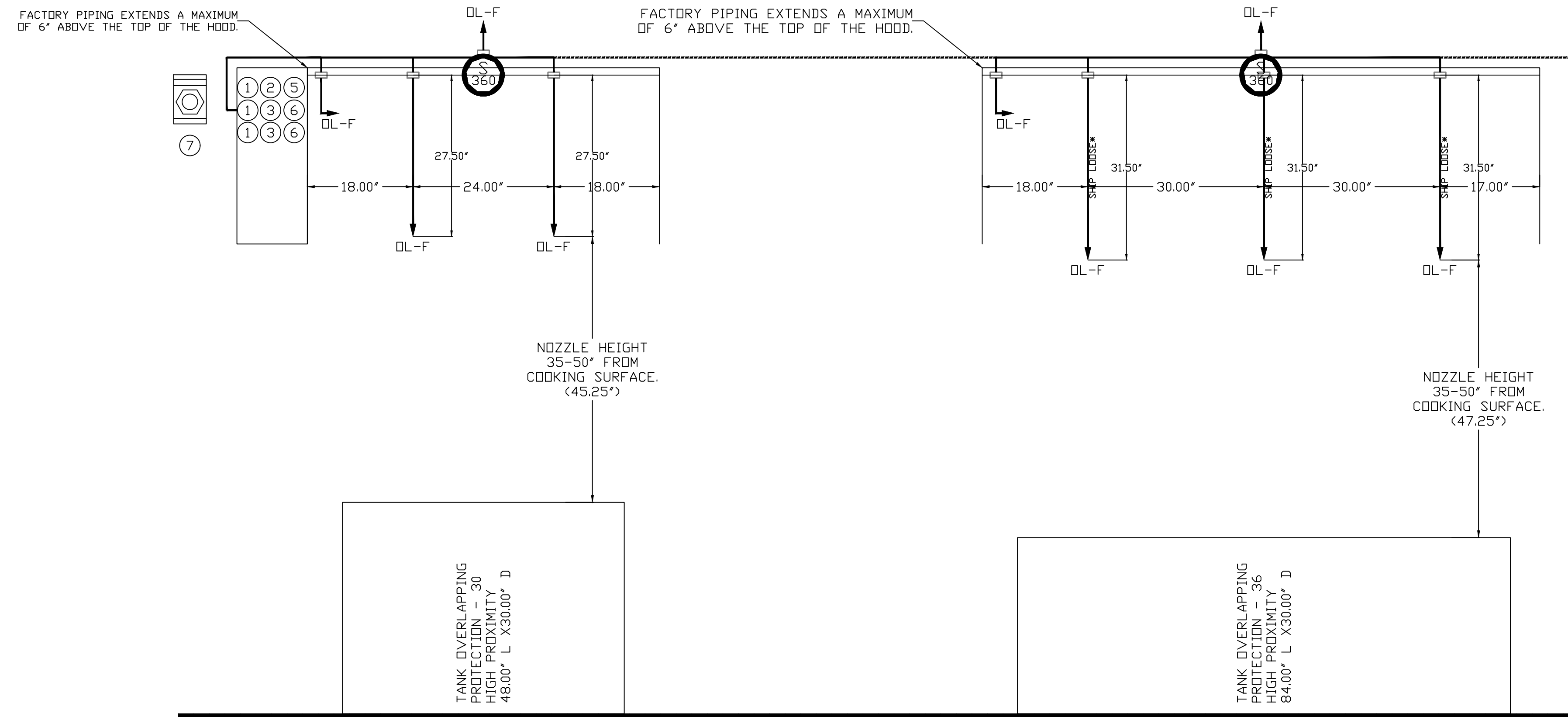
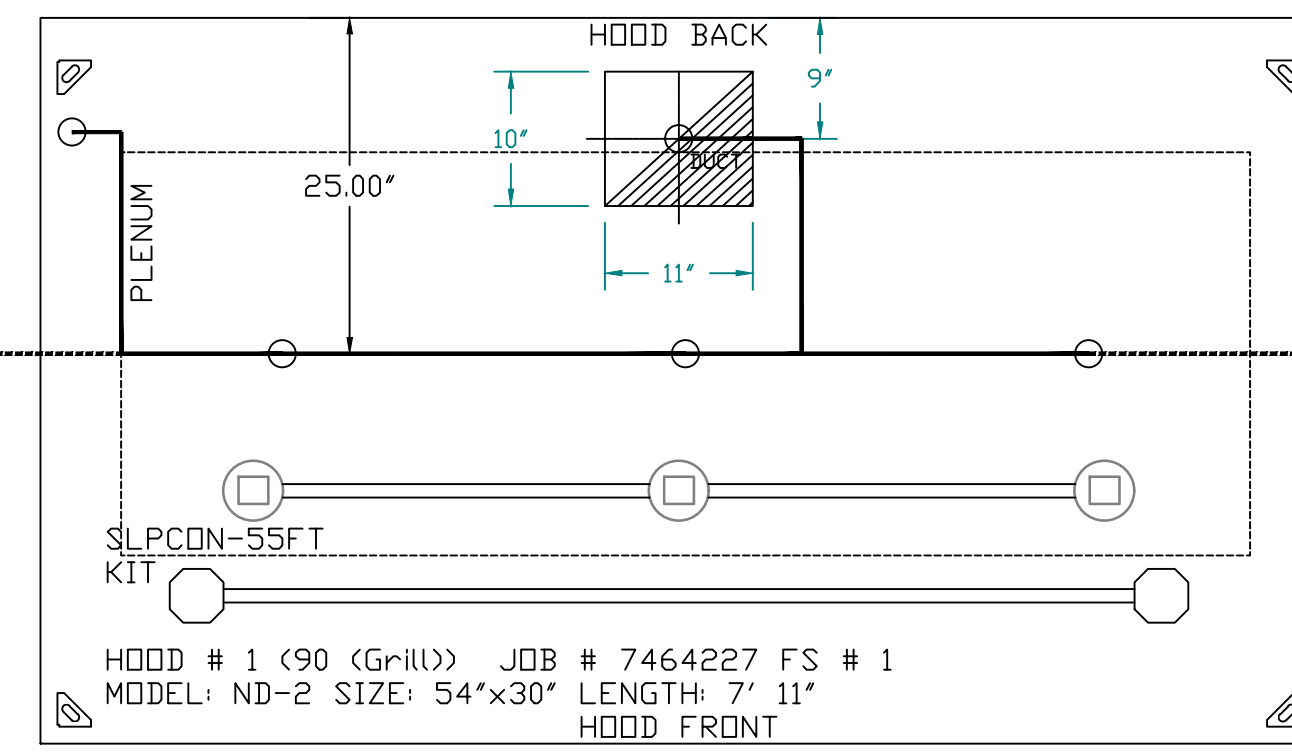
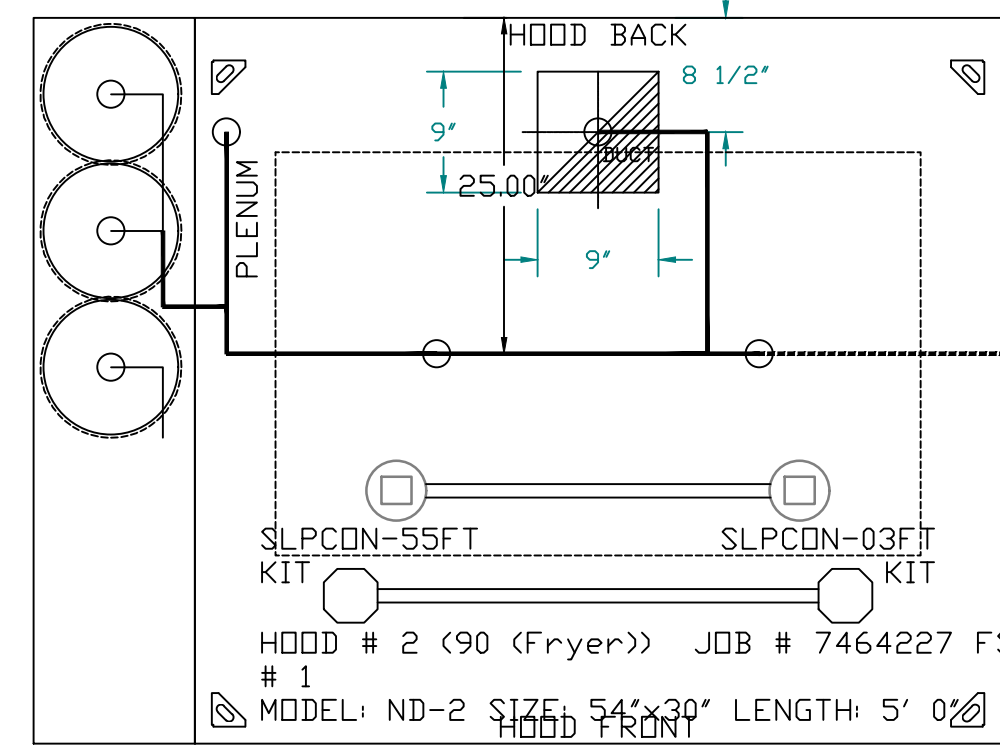
SE 08/05/2025

FIRE SYSTEM INFORMATION – JOB#7464227

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	38	FIRE CABINET LEFT	LEFT, HOOD 2

CAS VALVE(S)

FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1		SC ELECTRICAL		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 #: 7464227
 JOB NAME: SHAKE SHACK-1708-BROADWAY BLVD, AZ (KITCHEN).

SYSTEM SIZE: TANK-SP-3 DESIGN FP: 38, MAXIMUM FP: 60.
 HOOD # 1 7' 11.00" LONG x 54" WIDE x 30" HIGH.
 RISER # 1 SIZE: 10" x 11".
 HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.
 HOOD # 2 5' 0.00" 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.

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

LEGEND – FIRE CABINET TANK SYSTEM

- 4 GALLON TANK.
- PRIMARY ACTUATOR RELEASE.
- SECONDARY ACTUATOR RELEASE.
- PRESSURE SUPERVISION SWITCH.
- PRIMARY HOSE ASSEMBLY.
- SECONDARY HOSE ASSEMBLY.
- REMOTE MANUAL ACTUATION DEVICE.

REVISIONS	
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DATE: 4/10/2025
 DWG.#: 7464227
 DRAWN BY: EB
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 MASTER DRAWING

SHEET NO. 3

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REVISIONS	
NO.	DESCRIPTION
1	08/22/25 REVISION 1

STATUS:
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Professional Engineer
 41571
GREGORY ROY SCHNACKEL
 Date: 08/19/25

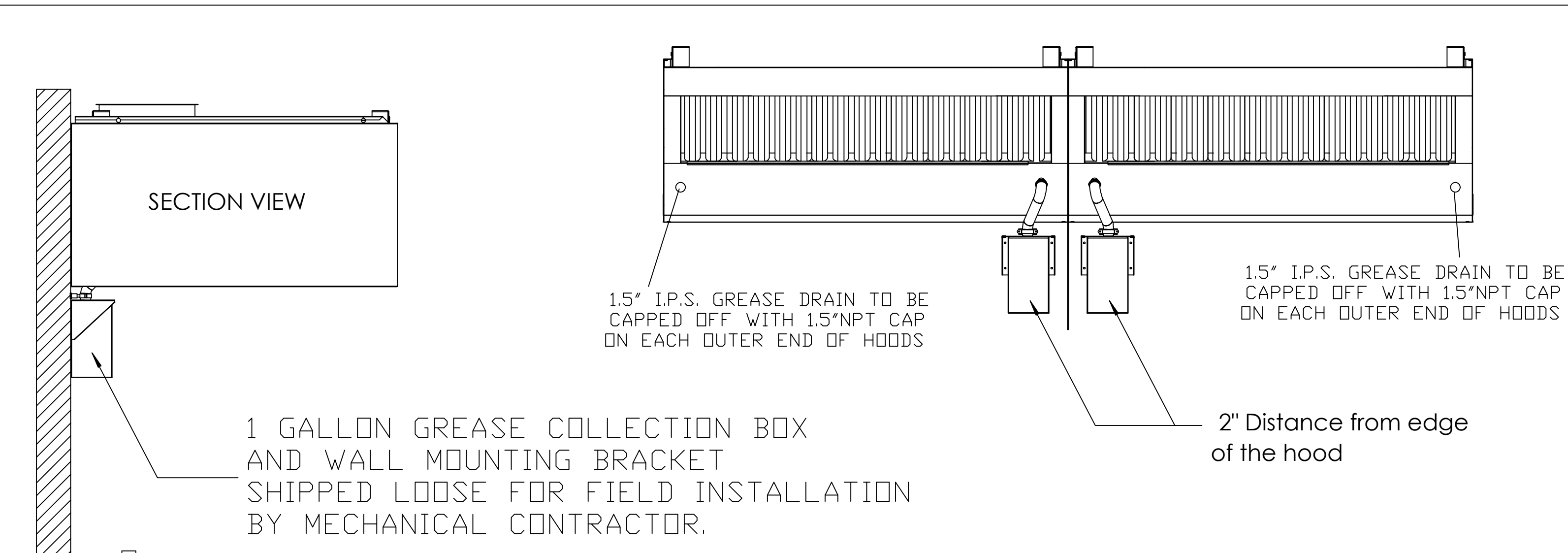
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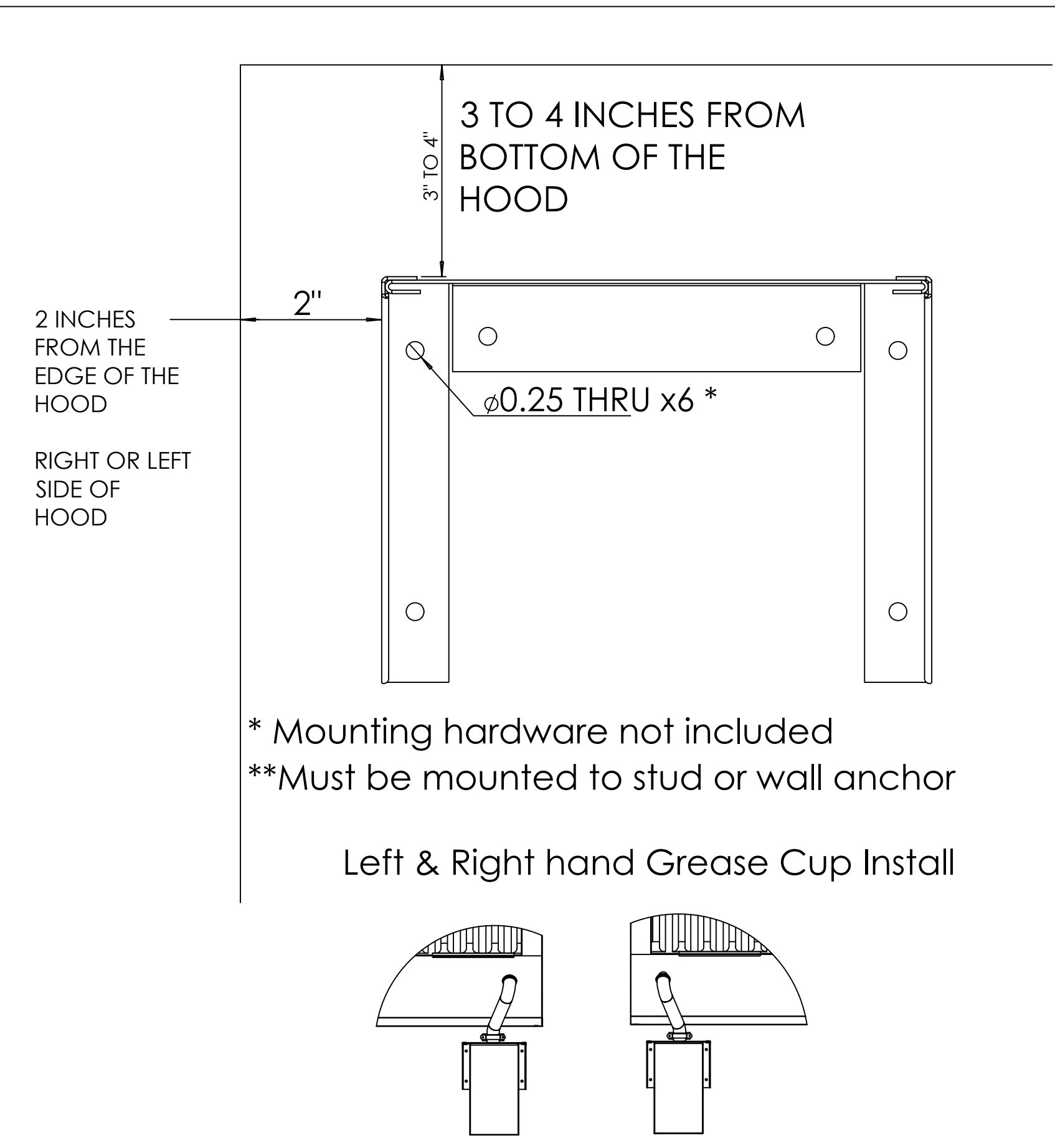
DATE: 08/05/2025 PROJECT NO.: 40202
 DRAWN: RAS SCALE: AS NOTED

SHEET NO.:
M703

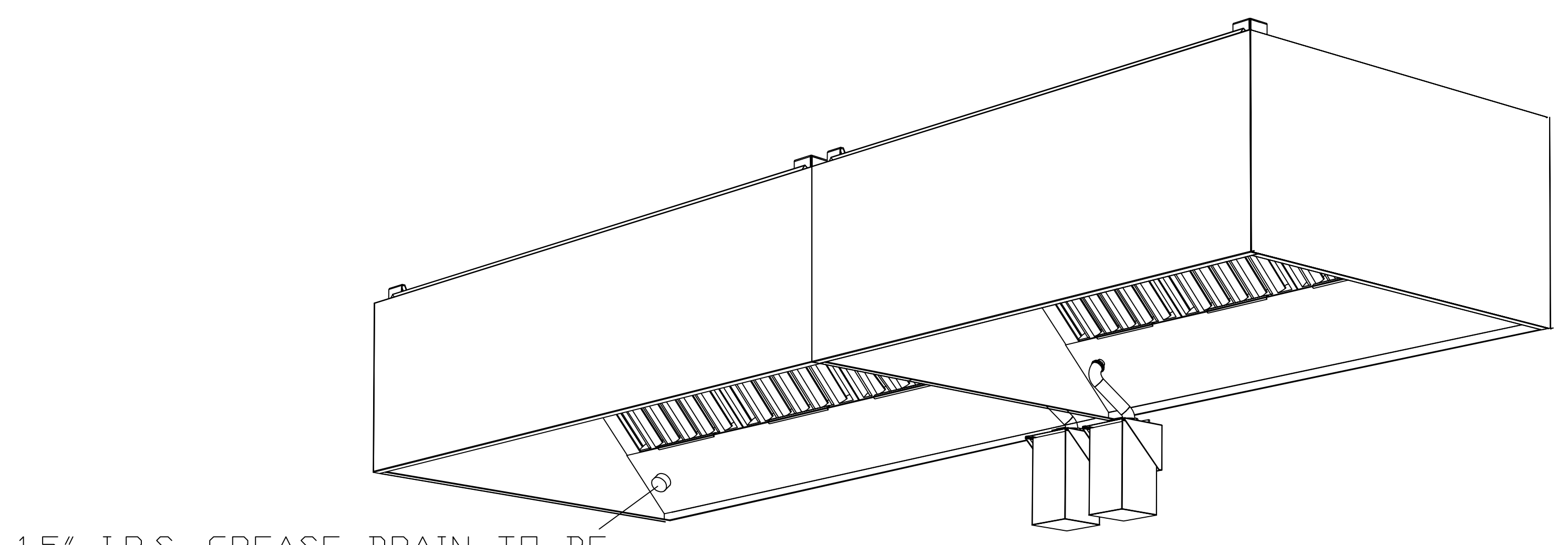


1 GALLON GREASE COLLECTION BOX AND WALL MOUNTING BRACKET SHIPPED LOOSE FOR FIELD INSTALLATION BY MECHANICAL CONTRACTOR.

EQUIPMENT BY OTHERS



Left & Right hand Grease Cup Install



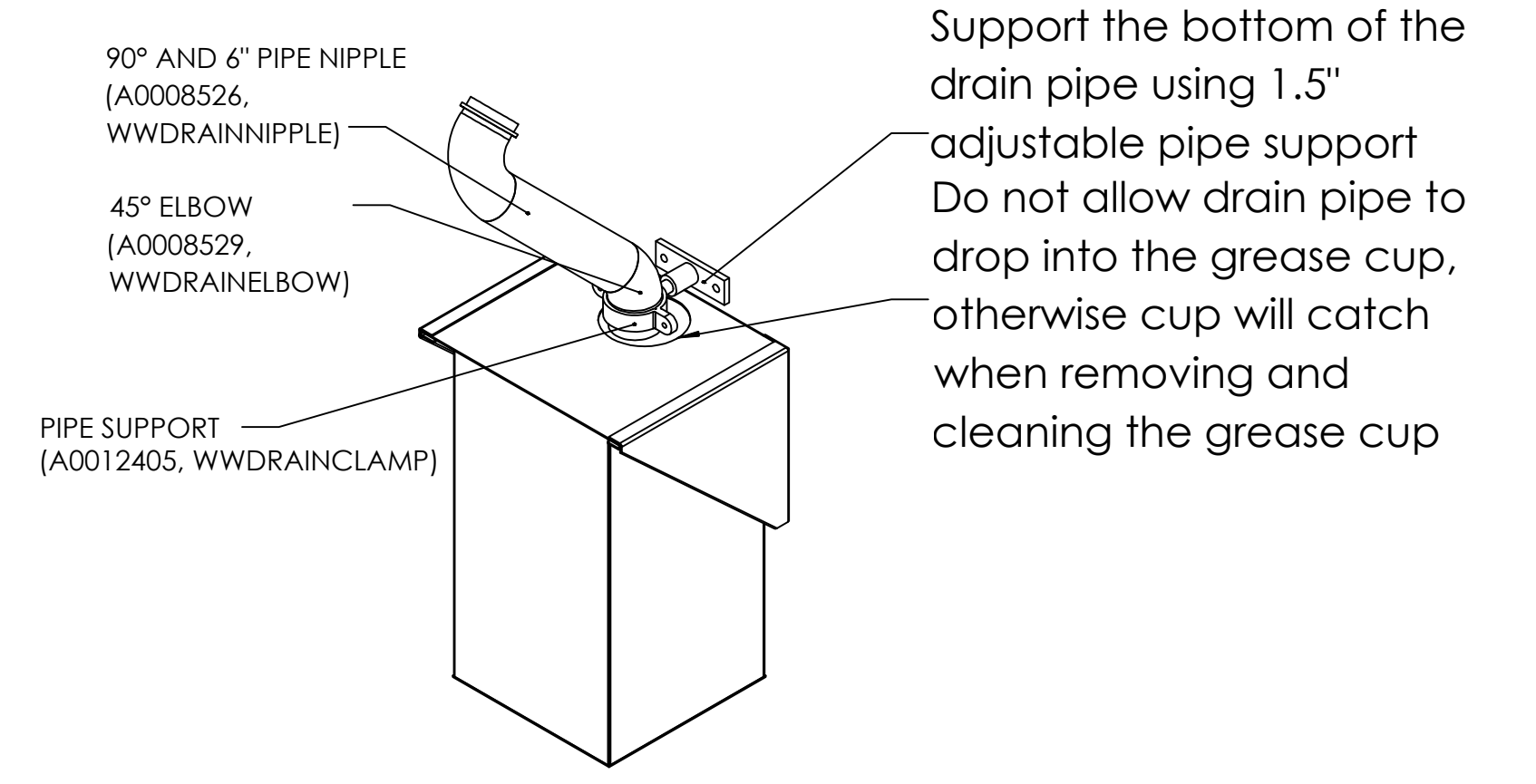
One Gallon Grease Cup Installation

1.5" I.P.S. GREASE DRAIN TO BE CAPPED OFF WITH 1.5"NPT CAP ON EACH OUTER END OF HOODS

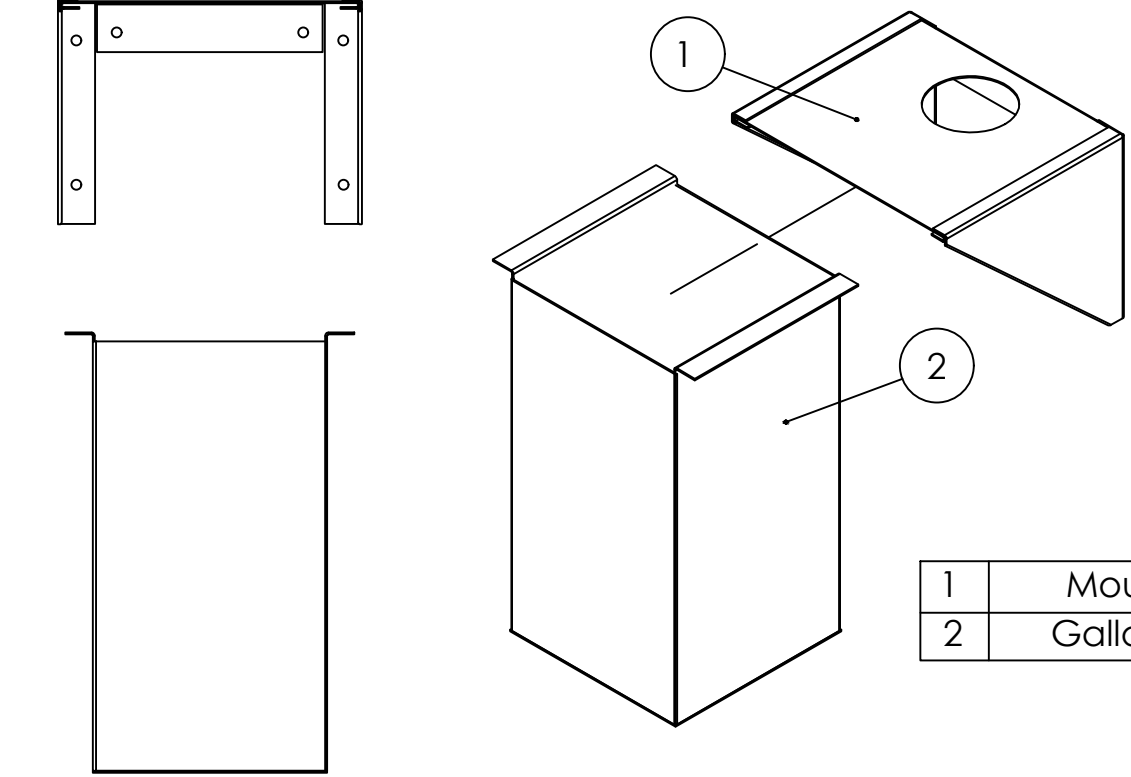
Instructions below outline single, or dual, one gallon grease cup installation for ND-2 hood models.

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.



Gallon Grease Cup Assembly



- 1 Mounting Bracket
- 2 Gallon Grease Cup

1 GALLON GREASE COLLECTION BOX AND WALL MOUNTING BRACKET SHIPPED LOOSE FOR FIELD INSTALLATION BY MECHANICAL CONTRACTOR.

REVISIONS	
DESCRIPTION	DATE

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TUCSON, AZ, 85711

DATE: 4/10/2025

DWG #: 7464227

DRAWN BY: EB

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

MASTER DRAWING

SHEET NO. 4

REVISIONS	
DATE	DESCRIPTION
09/22/25	REVISION 1

STATUS: IFC SET

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GREGORY ROY SCHNACKEL
Date: 09/19/25

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DATE: 08/05/2025 PROJECT NO.: 40202

DRAWN: RAS SCALE: AS NOTED

SHEET NO.: M704

EXHAUST FAN INFORMATION - JOB#7464227

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	DUBSHFA	CAPTIVEAIRE	1188	1.700	1474	TEAD-ECM	0.750	0.5750	1	208	5.2	376 FPM	90	13.6
2	KEF (FRYER)	1	DUBSHFA	CAPTIVEAIRE	875	1.700	1407	TEAD-ECM	0.750	0.5000	1	208	5.2	277 FPM	90	12.3

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	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

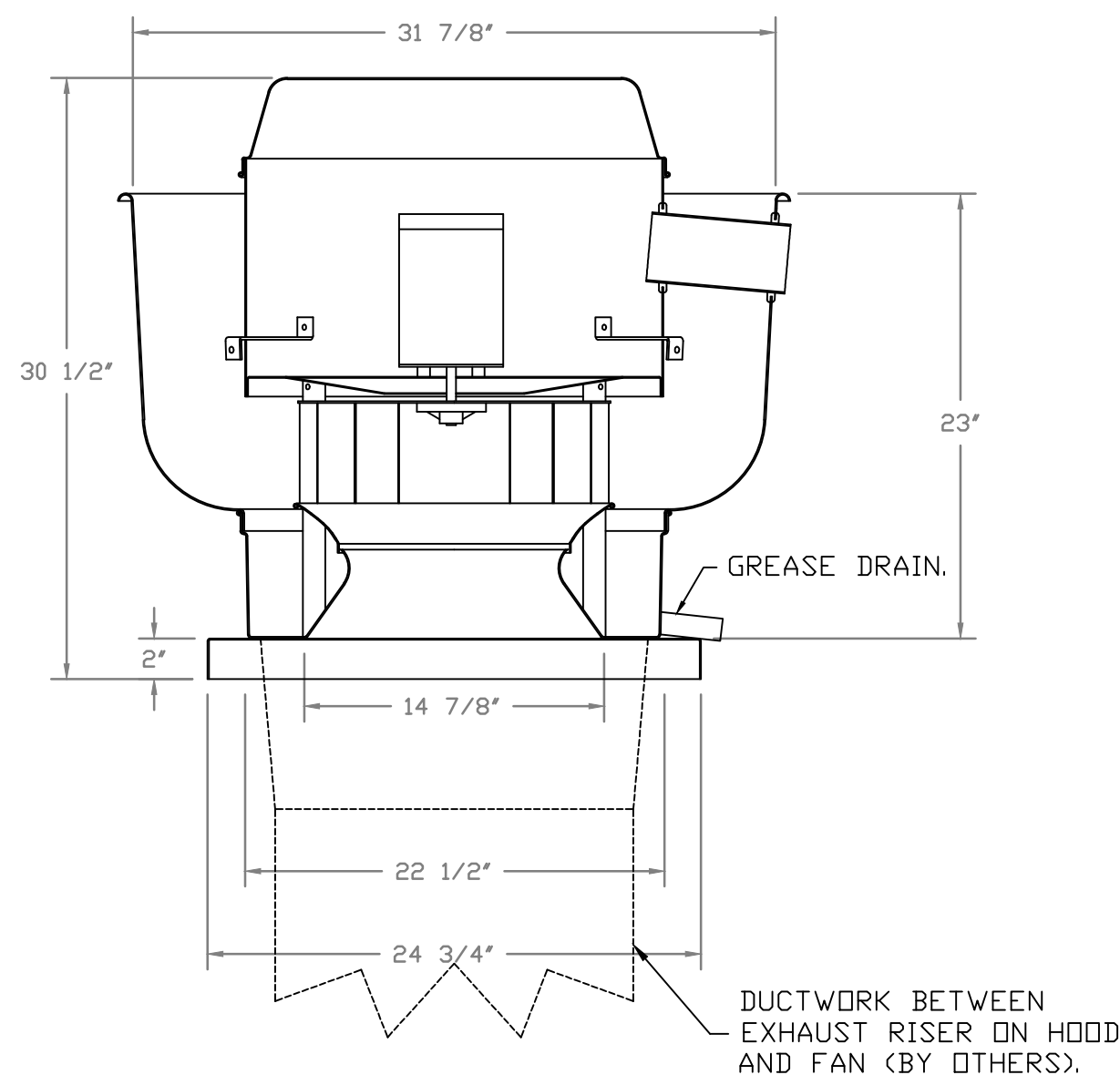
FAN ACCESSORIES

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 (GRILL)	41 LBS	CURB	23.000"W X 23.000"L X 24.000"H VENTED HINGED.
2	# 2	KEF (FRYER)	41 LBS	CURB	23.000"W X 23.000"L X 24.000"H VENTED HINGED.

FANS #1 (KEF (GRILL)), #2 (KEF (FRYER)) - DUBSHFA EXHAUST FAN



TOP VIEW

FEATURES:

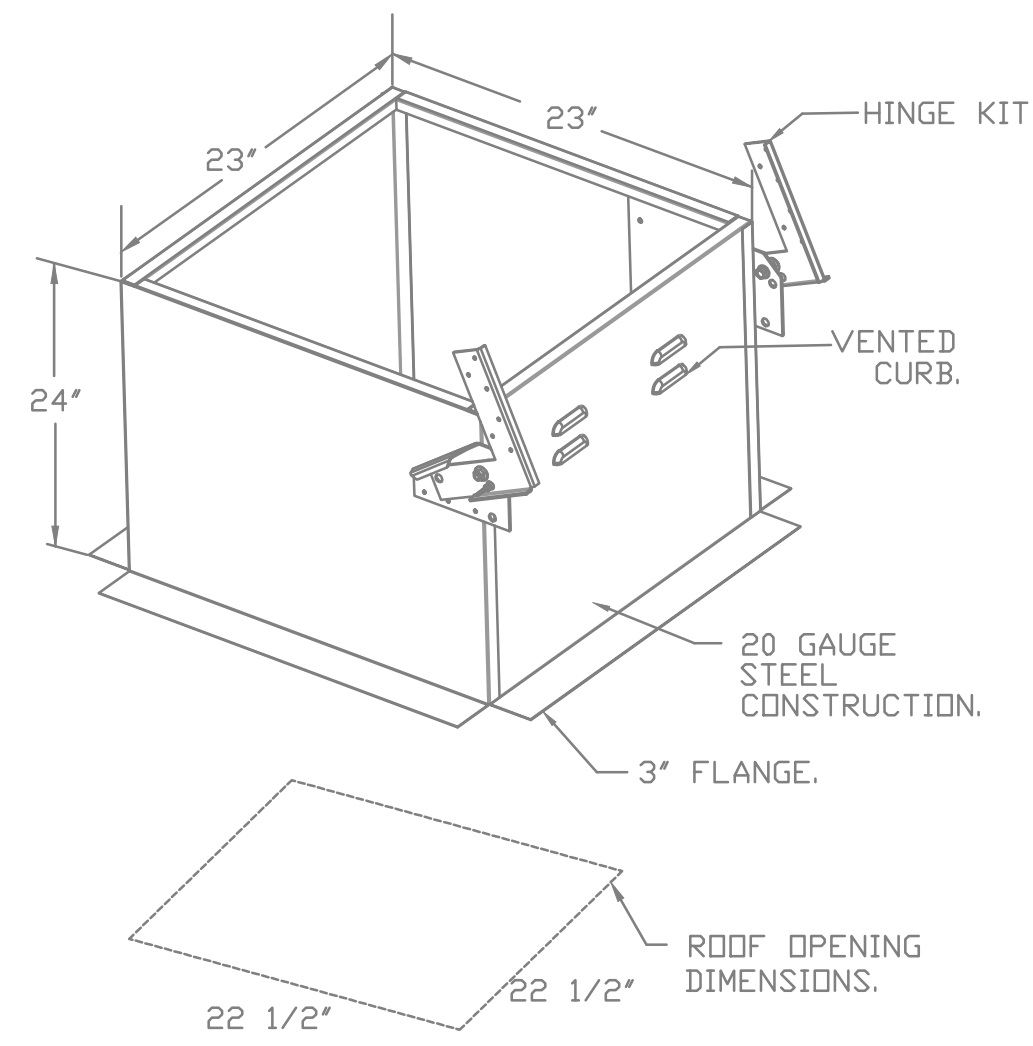
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND UL-C-5645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT 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
1	09/22/25	REVISION 1

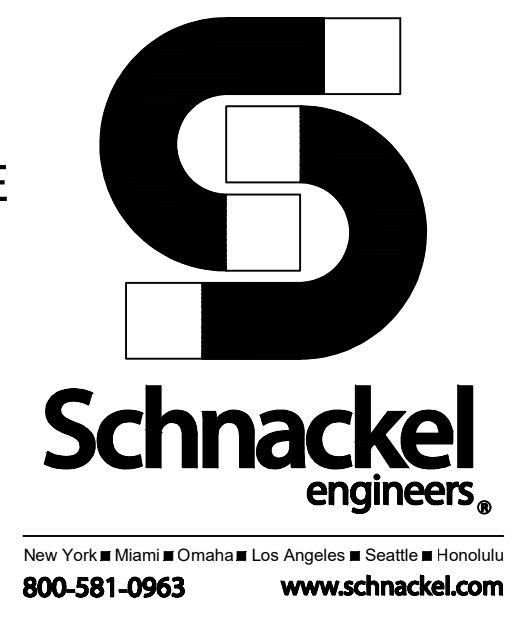
CAPTIVE
 Eastern, P.A. Mechanical
 225 E City Line Avenue, Suite #103, Bala Cynwyd, PA 19004 PHONE: (267) 504-4126 EMAIL: reg.08@captivemechanical.com
 www.captiveaire.com

Shake Shack-1708-Broadway Blvd, AZ (Kitchen)
 TUCSON, AZ, 85711

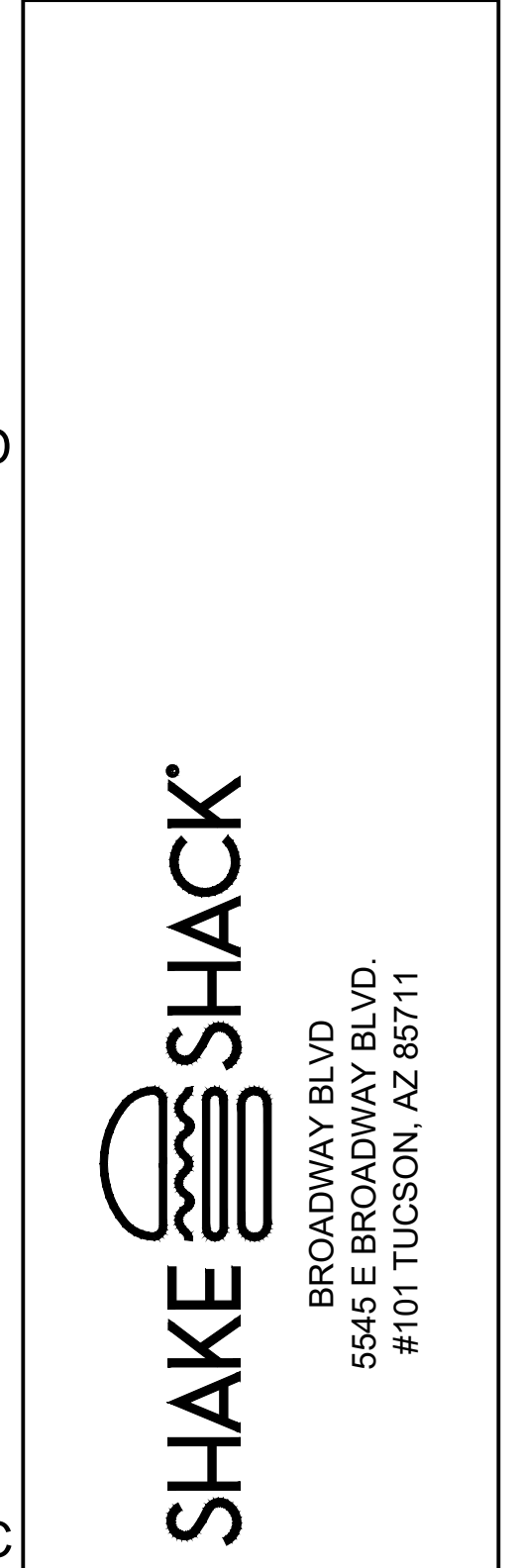
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 DWG.#: 7464227
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 SCALE: 3/4" = 1'-0"
 MASTER DRAWING
 SHEET NO. 5



ZEBRA PROJECTS, INC
 14614 N KIERLAND BLVD, SUITE N300
 SCOTTSDALE, ARIZONA 85254
 PHONE: 480.912.1169 zbr.global



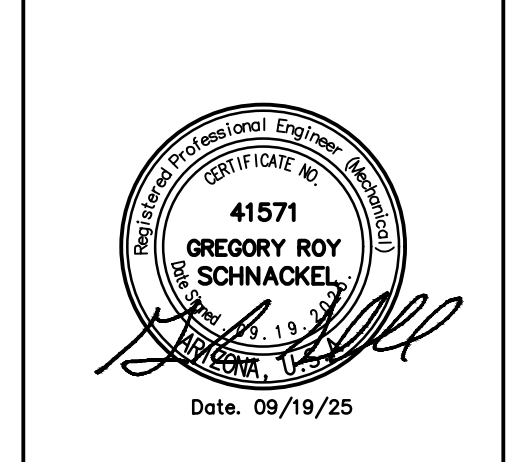
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AZ #1708



REVISIONS

NO	DATE	DESCRIPTION
1	09/22/25	REVISION 1

STATUS:
 IFC SET



FIELD VERIFICATION:
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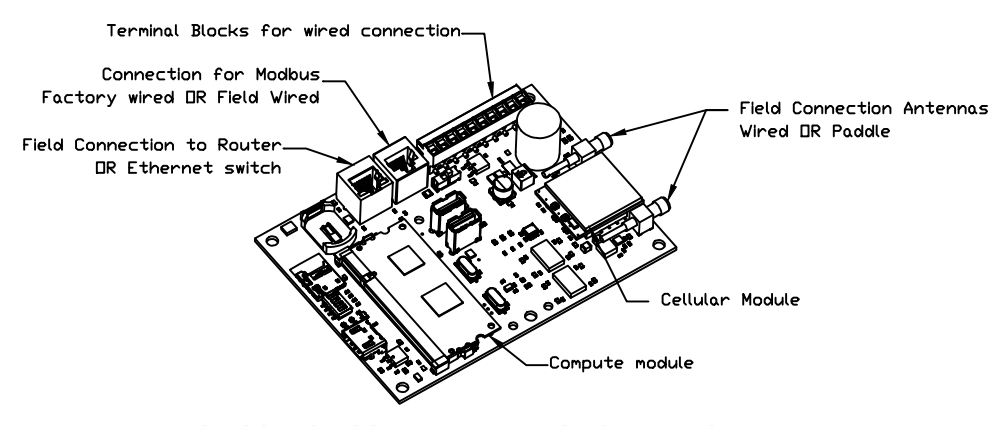
SHEET NAME:
CAPTIVEAIRE DRAWINGS

DATE: 08/05/2025 PROJECT NO.: 40202
 DRAWN: RAS SCALE: AS NOTED

SHEET NO.:
M705

ELECTRICAL PACKAGE - JOB#7464227

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	? HP	VOLTS	FLA	
1		SC-220110MA	UTILITY CABINET LEFT	UTILITY CABINET LEFT	1 LIGHT 1 FAN	SMART CONTROLS THERMOSTATIC CONTROL W/ RELAY IN/OVF WITH SUPPLY	KEF (GH)	EXHAUST	1	0.750	208	5.2
				HDD # 2			KEF (Fryer)	EXHAUST	1	0.750	208	5.2

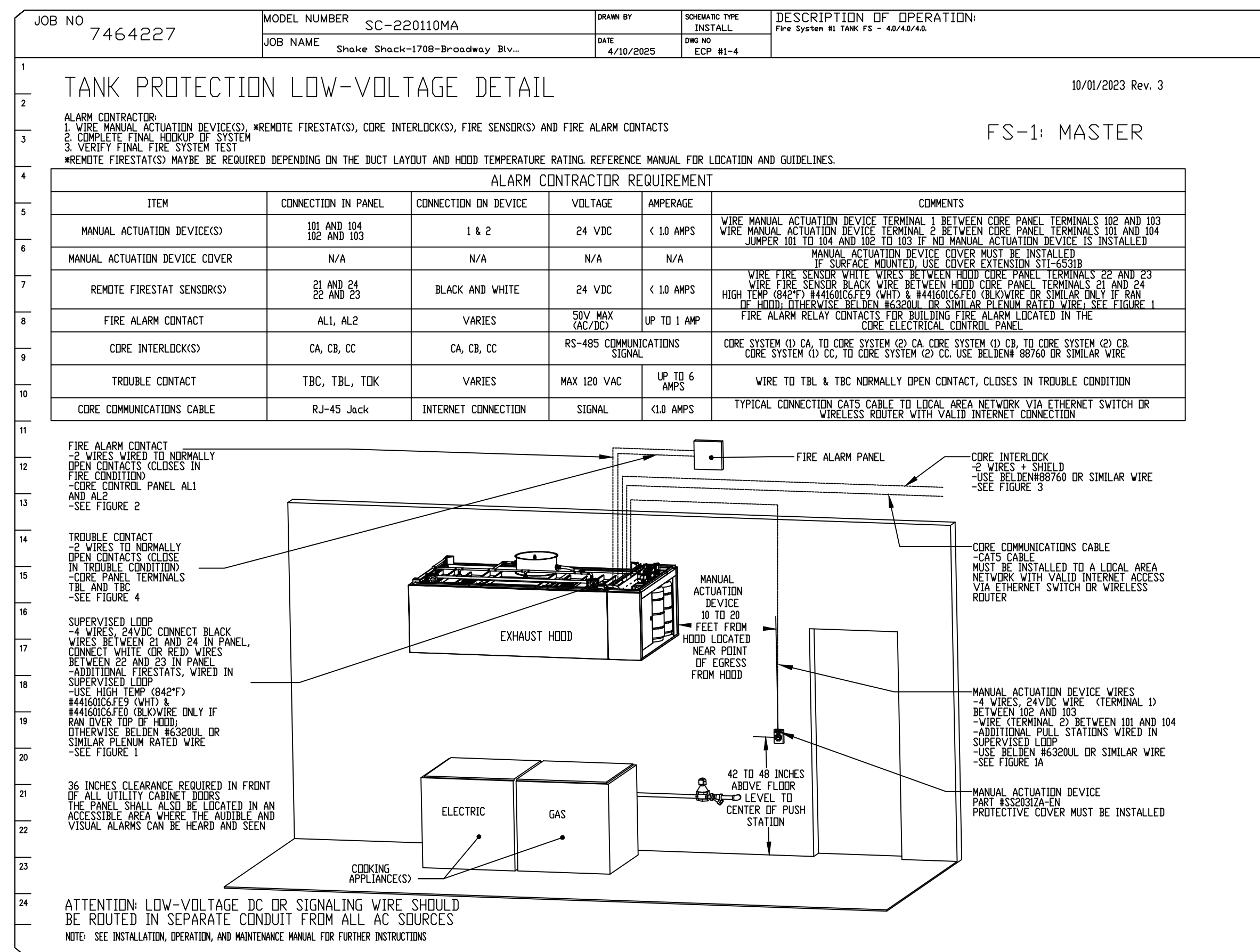
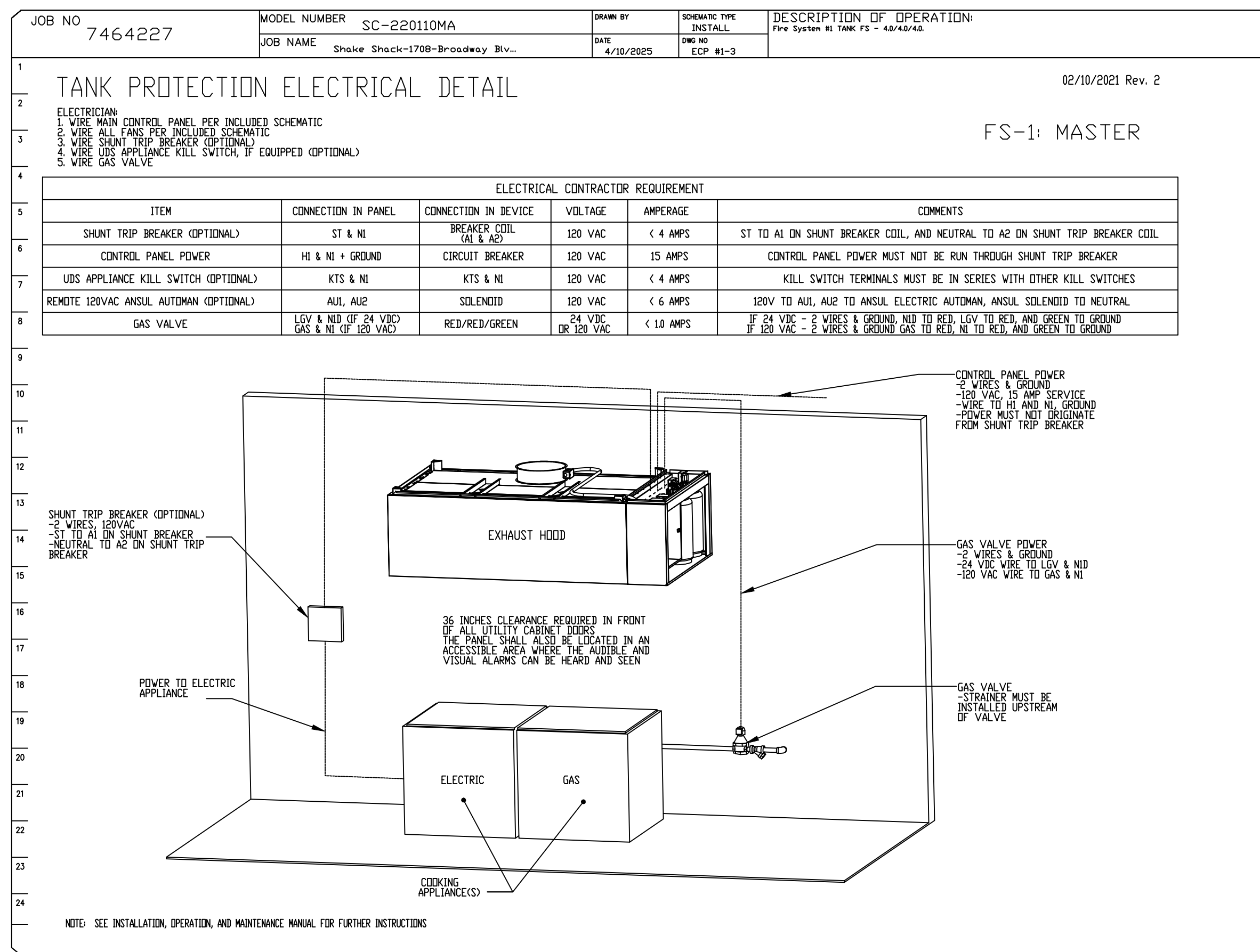
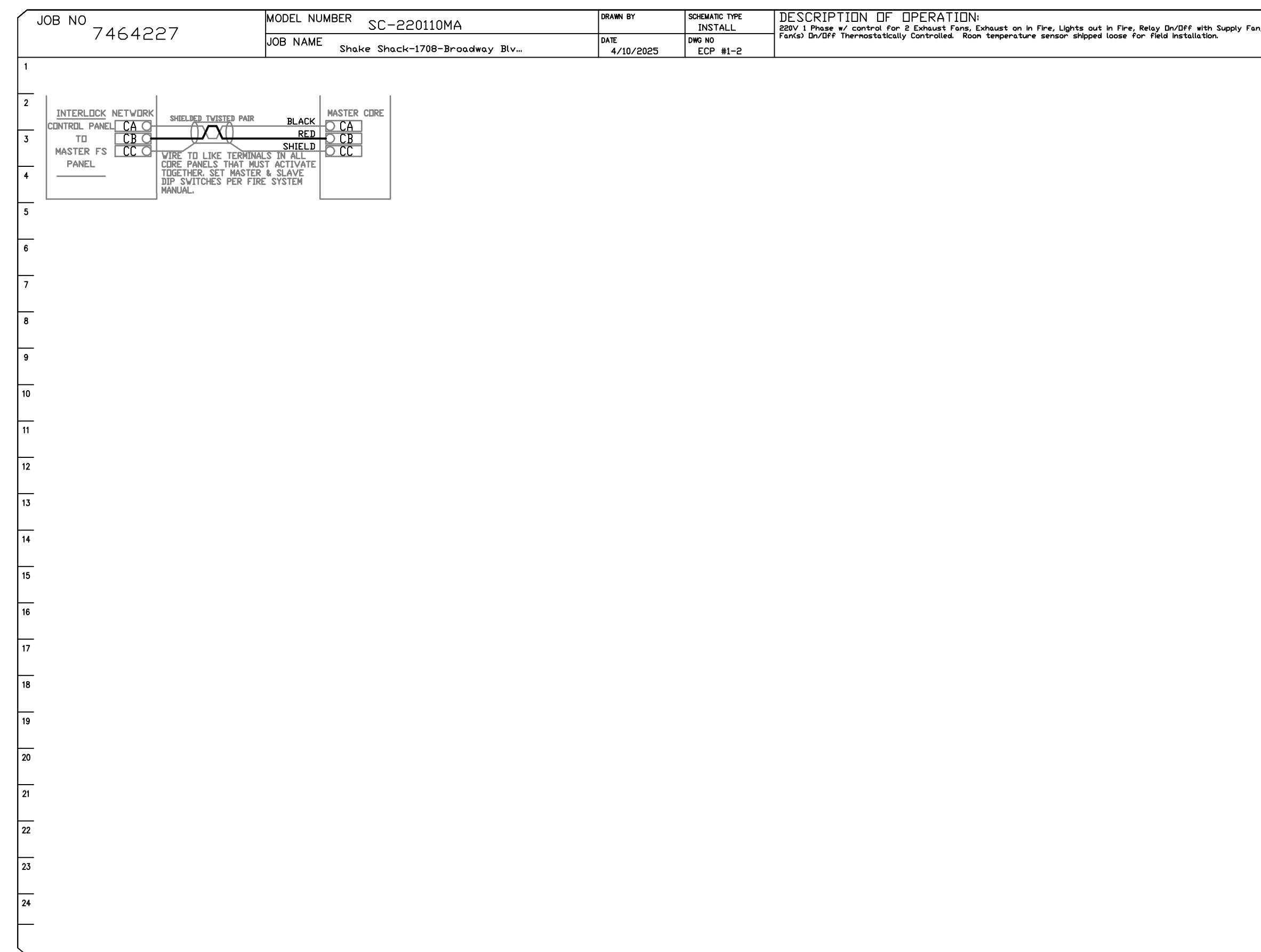
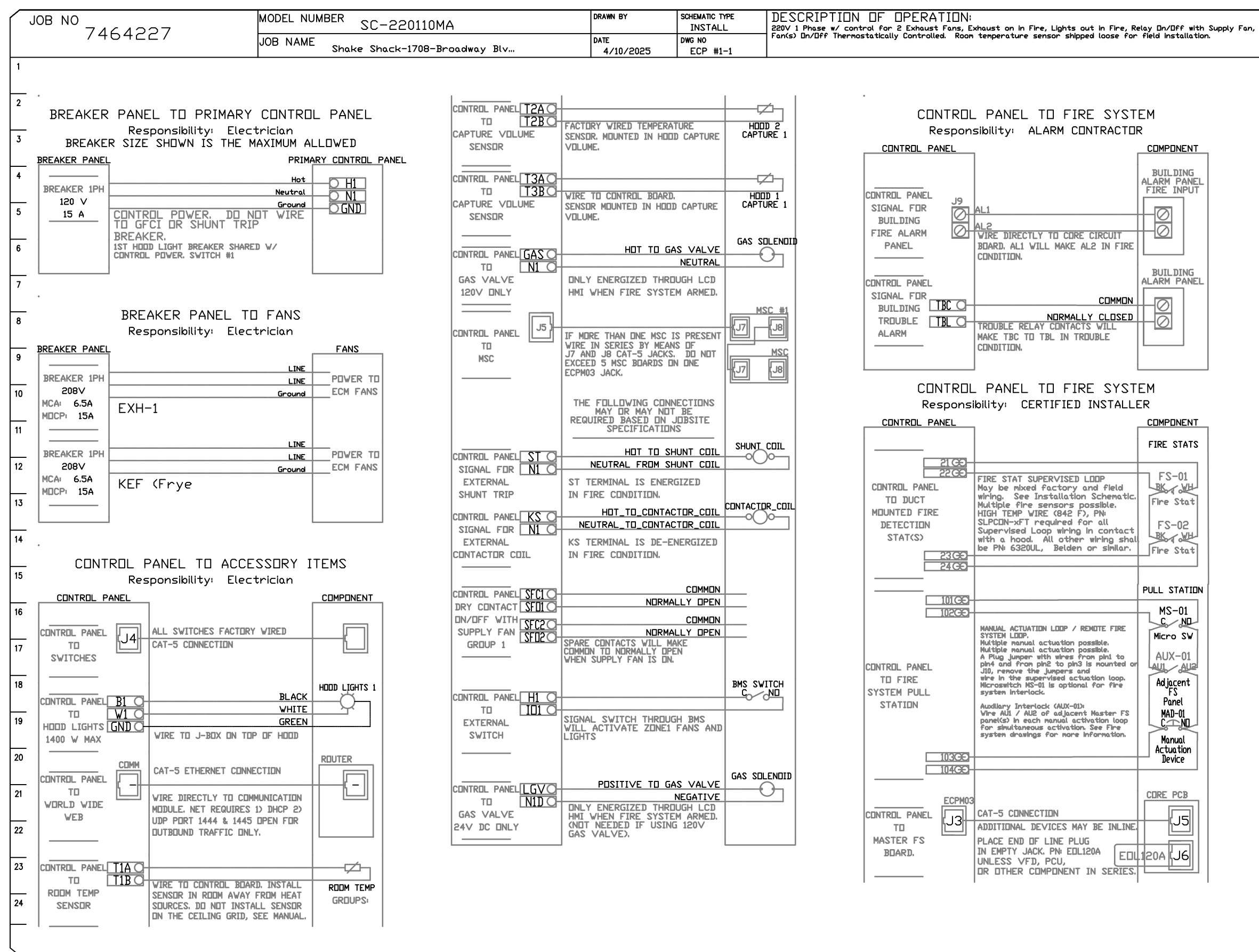


CASink Monitor and Control

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 on MONITOR in the points list.
Hood Control Panel to allow cloud-based Building Management System to control parameters outlined on CONTROL in the points list.
Hood Control Panel to allow cloud-based Building Management System to implement SYSTEM ECONOMIZER control strategies for fully integrated Building Management.

MONITORING AND CONTROL POINTS LIST

DC Packages	Function	DC Packages	Function
Room Temperature	MONITOR	Room Temperature(s)	MONITOR
Duct Temperature(s)	MONITOR	Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR	MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR	Kitchen RTU Discharge Temperature	MONITOR
Fan Speed	MONITOR	Control Panel	MONITOR
Fan Ampage	MONITOR	Fan Faults	MONITOR
Fan Pressure	MONITOR	Fan Status	MONITOR
YFD Faults	MONITOR	PCU Faults	MONITOR
Control Panel	MONITOR	PCU Filter Clog Percentage	MONITOR
Fan Faults	MONITOR	Fan Condition	MONITOR
Fan Status	MONITOR	CORE Fire System	MONITOR
PCU Filter Clog Percentage	MONITOR	Building Presence	MONITOR
Fan Condition	MONITOR	Fan Status(s)	MONITOR & CONTROL
Fan Status	MONITOR	Lights Status(s)	MONITOR & CONTROL
PCU Filter Clog Percentage	MONITOR	Push Button	MONITOR & CONTROL
Fan Condition	MONITOR		
CORE Fire System	MONITOR		
Building Presence	MONITOR		
Prep Time Button	MONITOR & CONTROL		
Fans Button	MONITOR & CONTROL		
Lights Button	MONITOR & CONTROL		
Push Button	MONITOR & CONTROL		



REVISIONS

NO.	DESCRIPTION	DATE
1		

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Eastern, PA. Mechanical

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Shake Shack-1708-Broadway Blvd, AZ (Kitchen)

TUCSON, AZ, 85711

DATE: 4/10/2025

DWG #: 7464227

DRAWN BY: EB

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

MASTER DRAWING

SHEET NO. 6

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SHAKE SHACK

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REVISIONS

NO.	DATE	DESCRIPTION
1	08/22/25	REVISION 1

STATUS: IFC SET

41571
GREGORY ROY SCHNACKEL
DATE: 09/19/25

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SHEET NAME: CAPTIVEAIR DRAWINGS

DATE: 08/05/2025 PROJECT NO.: 40202

DRAWN: RAS SCALE: AS NOTED

SHEET NO.: M706

DOAS/RTU FAN SCHEDULE - JOB#7421400										ELECTRICAL INFORMATION										COOLING INFORMATION										REHEAT INFORMATION										GAS HEAT INFORMATION										ASL MINIMUM ROOM VOLUME										NOTES									
FAN UNIT NO.	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	WEIGHT (LBS)	ESP	HP	PHASE	VOLTS	HVAC	NOCP	OUTSIDE AIR DB	OUTSIDE AIR WB	MIXED AIR DB	MIXED AIR WB	LEAVING AIR DB	LEAVING AIR WB	DP	TOTAL	SENS.	EEER	ISHRE	DISCHARGE DB	DISCHARGE WB	DESIRED CAPACITY	MAX CAPACITY	MOISTURE REMOVAL RATE	GAS TYPE	INPUT BTUS	OUTPUT BTUS	TEMP RISE	REQUIRED INPUT GAS PRESSURE	ROOM AREA (F ²)	AIRFLOW (CFM)	HEIGHT (FT)																														
1	RTU-FDH	1	CAS-HVAC2-150-18-10T	CAPTIVEAIRE	18MF-2-RTU	1900	1100	3000	2053	1.200	3.00	3	208	75.7A	80A	103.9F	65.9F	65.4F	63.1F	54.2F	51.9F	50.4F	90.2	90.2	MBH	18.6	4.3	70.0F	57.9F	48.5	MBH	96	MBH	0	LBS/HR	NATURAL	111995	90716	30F	7	IN. W.C. - 14	IN. W.C.	388.6	648	7.2	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19																							
2	RTU-BDH	1	CAS-HVAC3-1250-24-18T	CAPTIVEAIRE	24MF-3-RTU	3600	1400	5000	2761	0.700	7.50	3	208	96.6A	110A	103.9F	65.9F	65.4F	62.9F	51.7F	51.6F	51.6F	151.1	151.1	MBH	18.8	5.7	70.0F	58.6F	94.1	MBH	129.6	MBH	0	LBS/HR	NATURAL	185543	150290	30F	7	IN. W.C. - 14	IN. W.C.	602.7	1004	7.2	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19																							

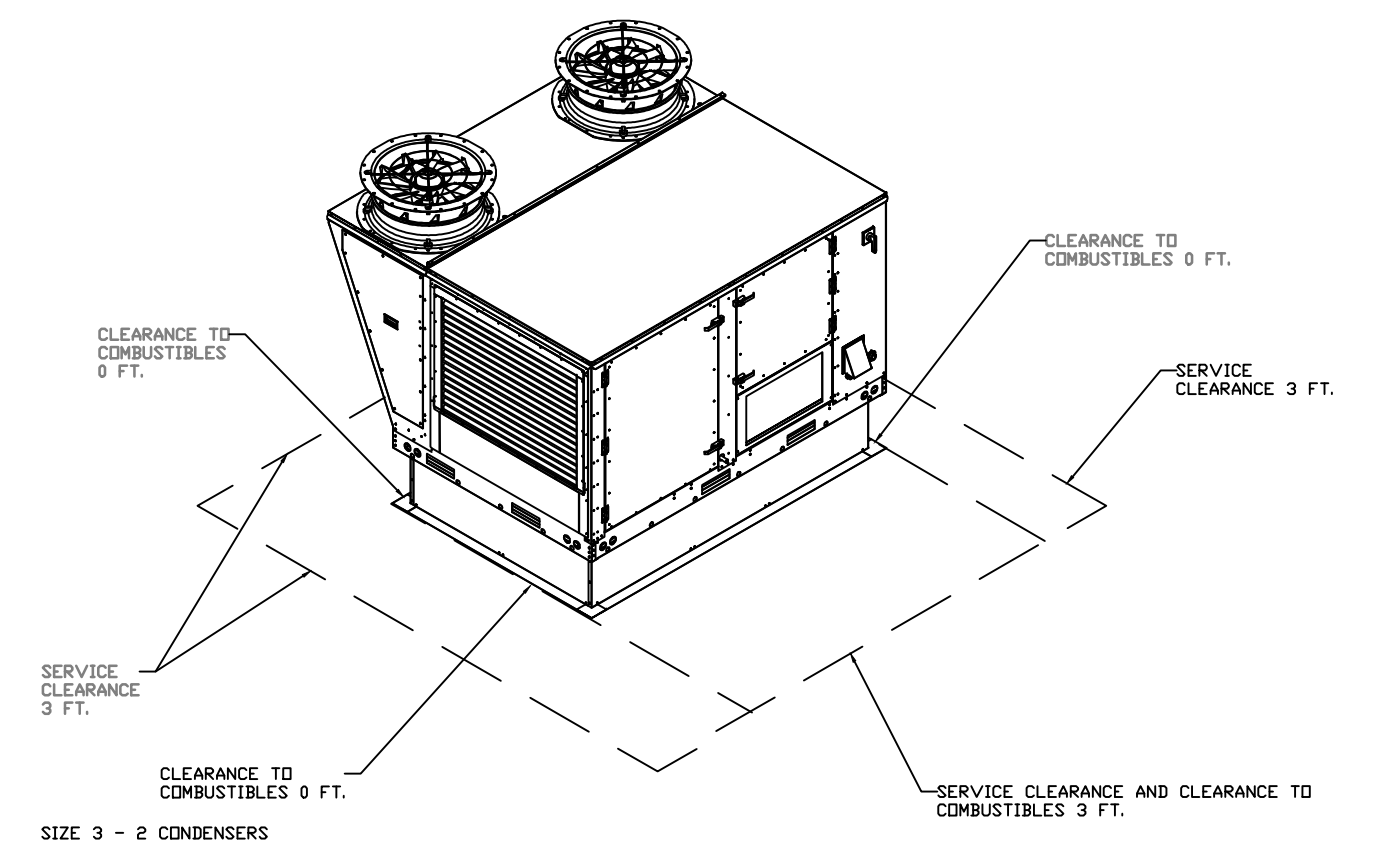
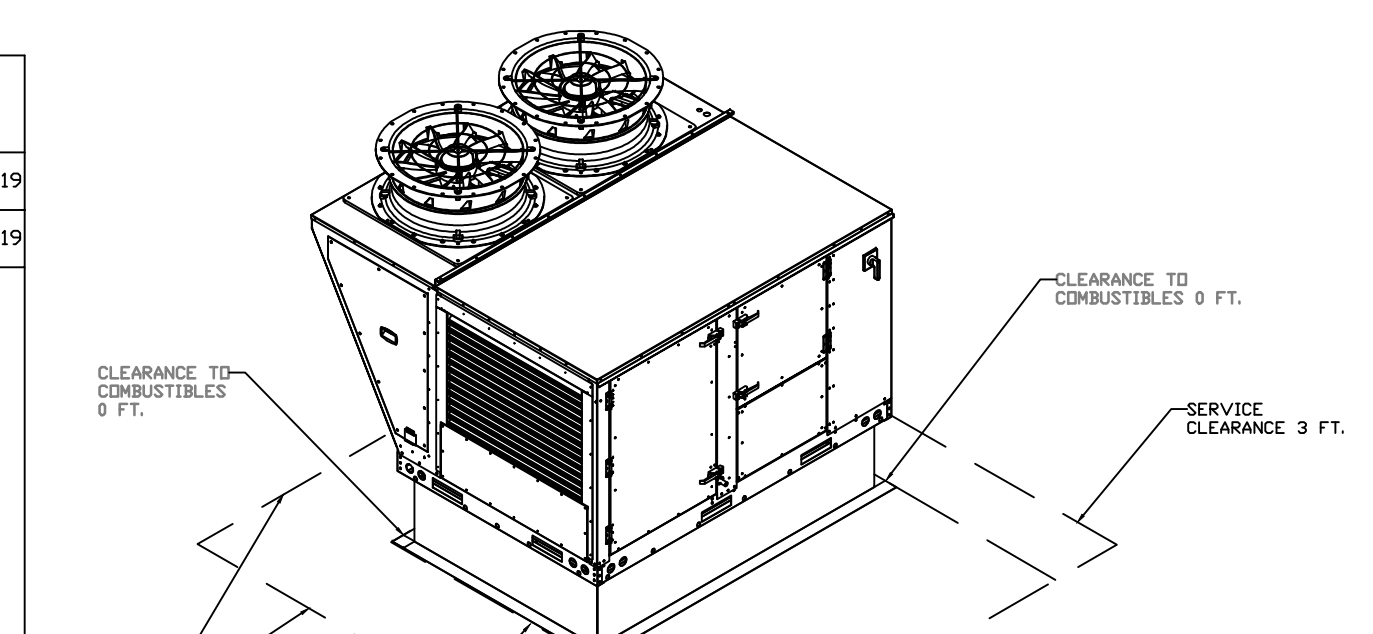
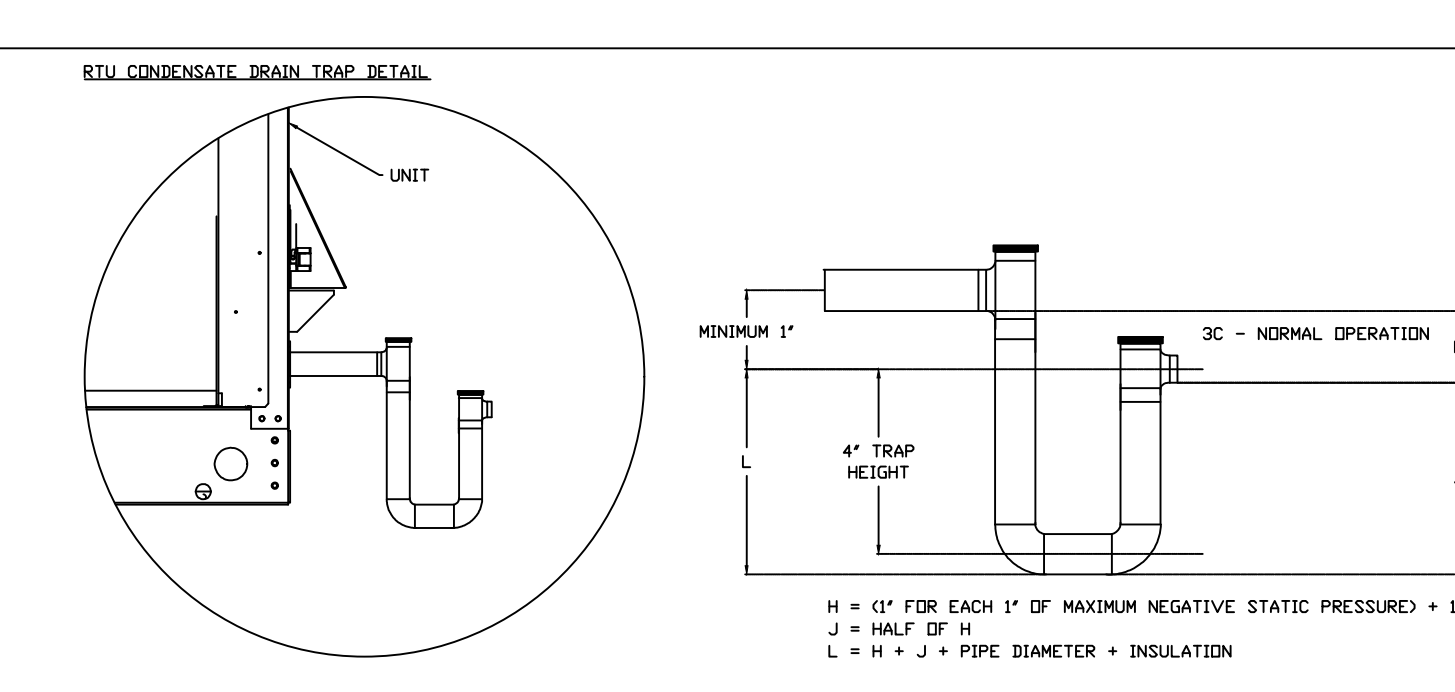
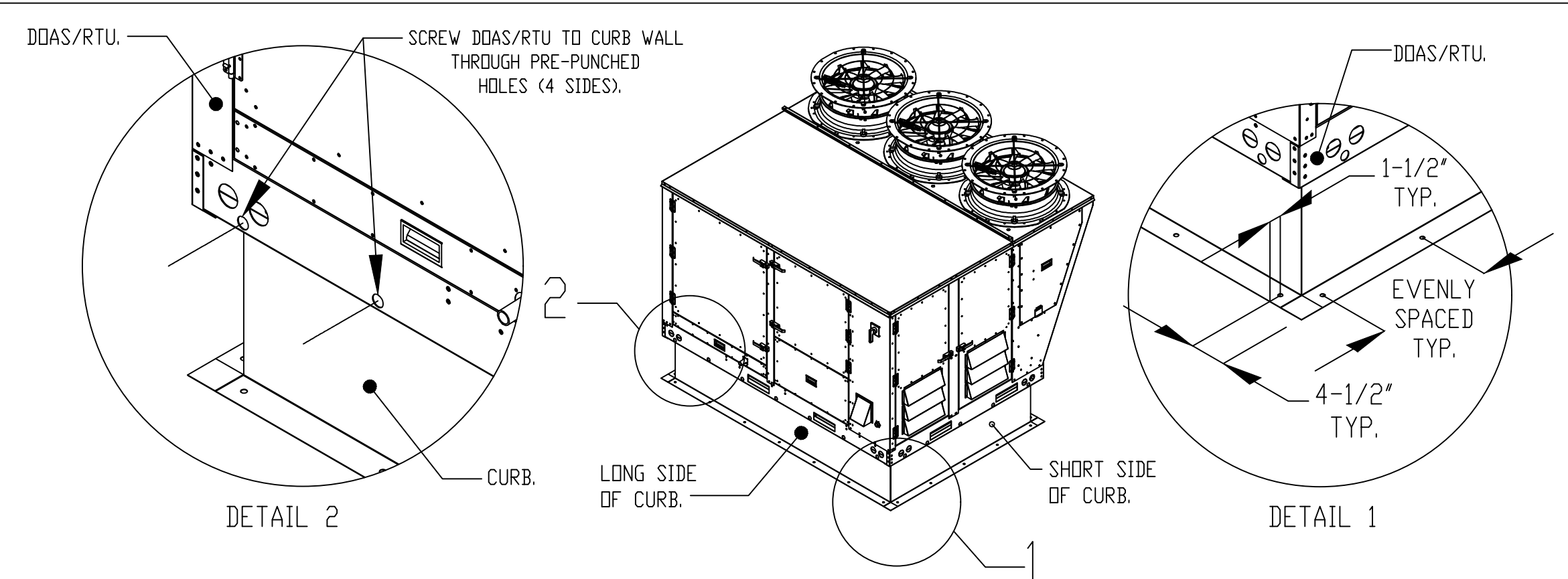
FOR QUESTIONS, CALL THE Eastern PA Mechanical REGION 180 PHONE: (607) 504 - 4126 EMAIL: reg180@captivaire.com

FAN UNIT NO.	TAG	QTY	DESCRIPTION
1	RTU-FDH	1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" W.C., 1 FURNACE
		1	COILING OVERRIDE
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU 750VA TRANSFORMER USED, IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #20, #47, #48, OR #12 PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE
		1	RTU BLOWER DOOR SWITCH
		1	RTU DOWN DISCHARGE
		1	2" MERV 13 FILTERS FOR RTU3 (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	SPECIAL DRIFTERS FOR IF HEATERS ABOVE 2,000"
		1	OCCUPIED SCHEDULING
		1	INTAKE FIRESTAT SET TO 130°F
		1	FREEZESTAT
		1	DISCHARGE FIRESTAT SET TO 240°F
		1	GASLINE BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	RTU3 CURB DUCT HANGER
		1	24VAC FIRE INPUT
		2	RTU-BDH
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	HIGH AMBIENT - 15 TON MODULATING COOLING OPTION, 208/230V, R454B REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS, USED FOR SUMMER CONDITIONS ABOVE 100° DEGREES		
1	LOW AMBIENT COOLING OPERATION - DOWN TO OF AMBIENT		
1	R454B LEAK DETECTOR OPTION FOR RTU3		
1	15 TON MODULATING REHEAT OPTION - SPACE SETPOINT CONTROL - R454B		
1	RTU ECONOMIZER - DIFFERENTIAL ENTHALPY CONTROL		
1	RTU3 ECONOMIZER BARMETRIC RELIEF		
1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL, VIA HMI		
1	RTU3 HAIL GUARD		
1	RTU3 DOWN RETURN		
1	2" METAL MESH FILTERS FOR RTU3 OUTDOOR INTAKE		
1	VAV PACKAGE W/ MANUAL/DCV CONTROL (S7) VFD INCLUDED		
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	COILING OVERRIDE		
1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU 750VA TRANSFORMER USED, IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #20, #47, #48, OR #12 PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE		
1	RTU BLOWER DOOR SWITCH		
1	RTU3 DOWN DISCHARGE		
1	2" MERV 13 FILTERS FOR RTU3 (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	SPECIAL DRIFTERS FOR IF HEATERS ABOVE 2,000"		
1	OCCUPIED SCHEDULING		
1	INTAKE FIRESTAT SET TO 130°F		
1	FREEZESTAT		
1	DISCHARGE FIRESTAT SET TO 240°F		
1	GASLINE BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED		
1	RTU3 CURB DUCT HANGER		
1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK - ALARM SUPPLIED BY OTHERS		
1	24VAC FIRE INPUT		
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	HIGH AMBIENT - 15 TON MODULATING COOLING OPTION, 208/230V, R454B REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS, USED FOR SUMMER CONDITIONS ABOVE 100° DEGREES		
1	LOW AMBIENT COOLING OPERATION - DOWN TO OF AMBIENT		
1	R454B LEAK DETECTOR OPTION FOR RTU3		
1	15 TON MODULATING REHEAT OPTION - SPACE SETPOINT CONTROL - R454B		
1	RTU ECONOMIZER - DIFFERENTIAL ENTHALPY CONTROL		
1	RTU3 ECONOMIZER BARMETRIC RELIEF		
1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL, VIA HMI		
1	RTU3 HAIL GUARD		
1	RTU3 DOWN RETURN		
1	2" METAL MESH FILTERS FOR RTU3 OUTDOOR INTAKE		
1	VAV PACKAGE W/ MANUAL/DCV CONTROL (S7) VFD INCLUDED		
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		

NO.	IN FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	RTU-FDH	90 LBS	CURB	49.500"V X 75.000"L X 14.000"H INSULATED.
2	# 2	RTU-BDH	104 LBS	CURB	59.500"V X 91.000"L X 14.000"H INSULATED.

TYPICAL DOAS/RTU ROOF MOUNTING INSTALLATION INSTRUCTIONS

1. SECURE THE CURB TO THE ROOF FRAMING MEMBERS BY DRILLING 1/4" PILET HOLES IN THE CURB FLANGES AT LOCATIONS SHOWN IN THE DIAGRAM BELOW, USING 3/8" X 2" ZINC PLATED STEEL LAG BOLTS, AND ZINC PLATED WASHERS, SCREW THROUGH THE CURB FLANGES AND INTO THE ROOF FRAMING MEMBERS. A MINIMUM OF (5) LAG BOLTS IN EACH SHORT SIDE, AND (7) LAG BOLTS ON EACH LONG SIDE IS REQUIRED.
2. SECURE THE UNIT BASE TO THE SIDE WALLS OF THE CURB USING (24) 1/4"-14 X 2" SELF-DRILLING, STEEL ZINC PLATED SCREWS. PRE-PUNCHED HOLES HAVE BEEN PROVIDED FOR EACH SCREW LOCATION.



REVISIONS	
DESCRIPTION	DATE

CAPTIVEAIRE
Eastern PA Mechanical
225 E. City Line Avenue, Suite #103, Bala Cynwyd, PA, 19004 PHONE: (607) 504 - 4126 EMAIL: reg180@captivaire.com

Shake Shack-1708-Broadway Blvd, AZ (HVAC)
TUCCSON, AZ, 85711

DATE: 4/12/2025
DWG.#: 7421400
DRAWN BY: EB
SCALE: 1/2" = 1'-0"
MASTER DRAWING
SHEET NO. 1

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ZEBRA PROJECTS, INC
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STORE NO.: AZ #1708

SHAKE SHACK
BROADWAY BLVD
5545 E BROADWAY BLVD.
#101 TUCSON, AZ 85711

REVISIONS		
NO.	DATE	DESCRIPTION
1	08/22/25	REVISION 1

STATUS: IFC SET

Professional Engineer
41571
GREGORY ROY SCHNACKEL
Date: 08/19/25

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SHEET NAME: CAPTIVEAIRE DRAWINGS

DATE: 08/05/2025 PROJECT NO.: 40202
DRAWN: RAS SCALE: AS NOTED

SHEET NO.: M707

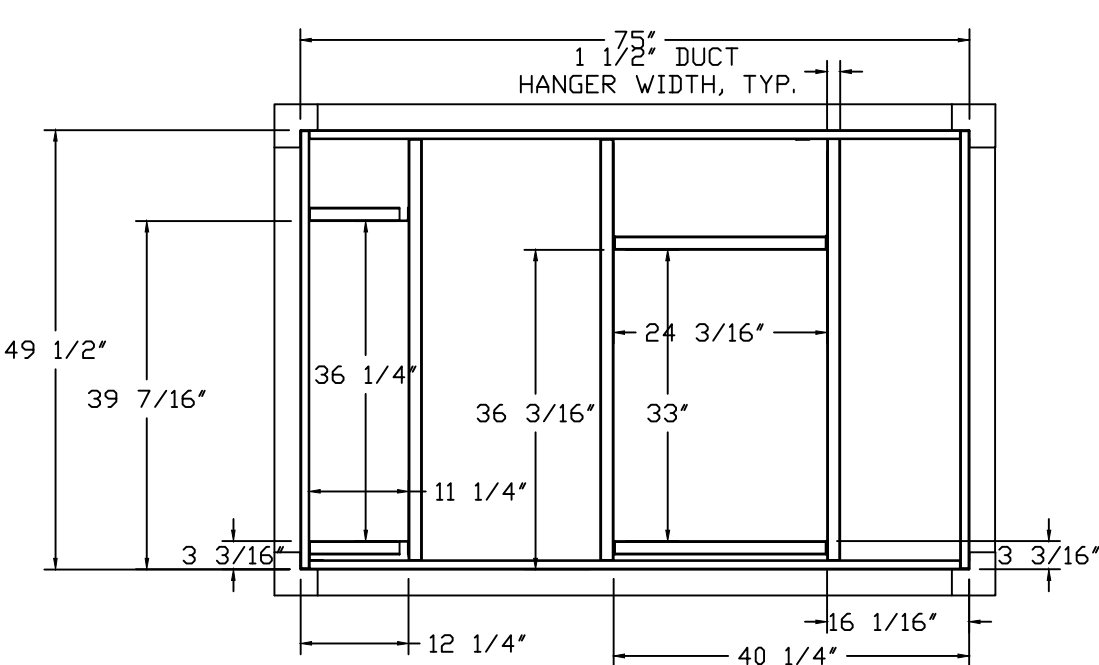
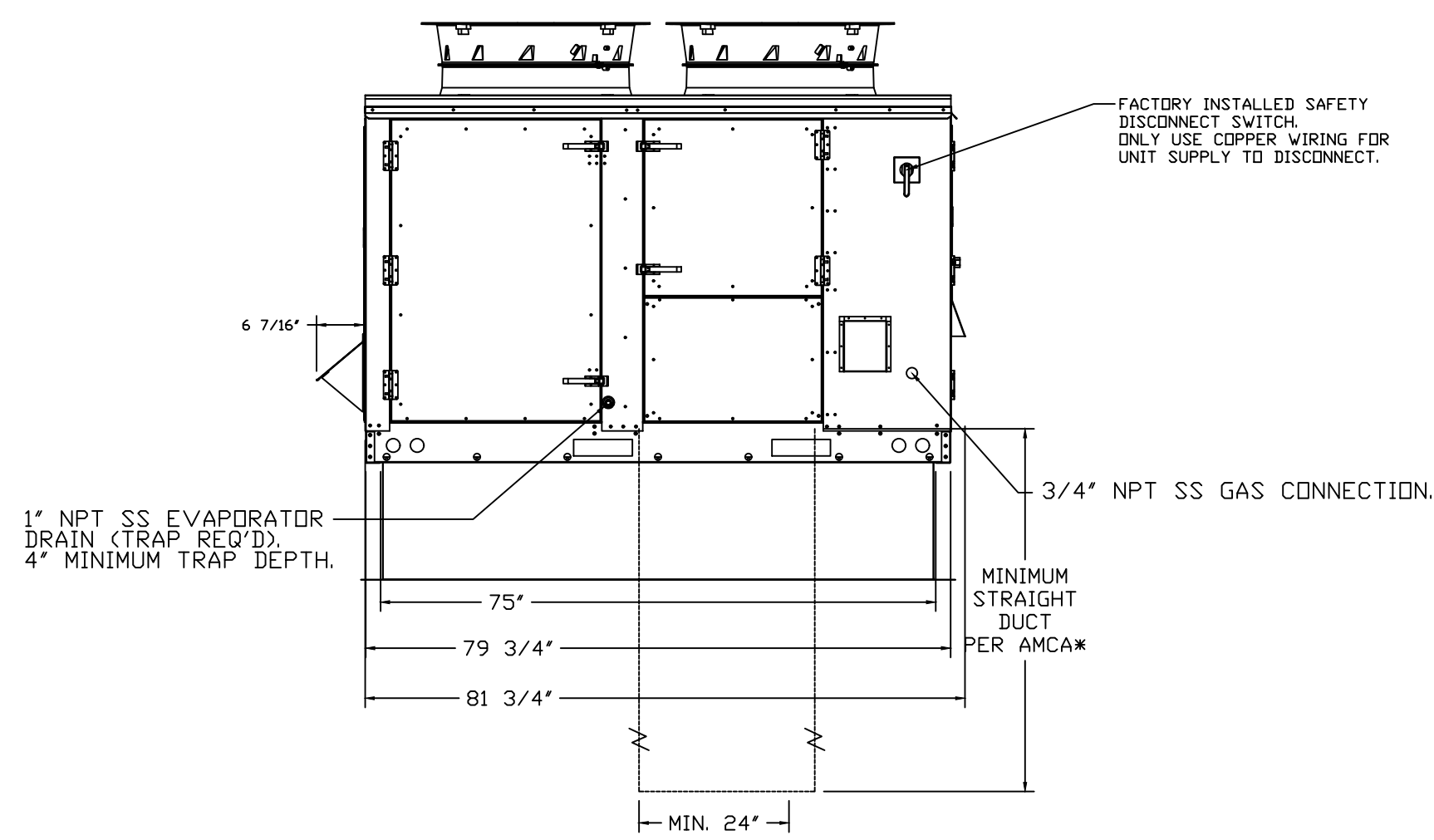
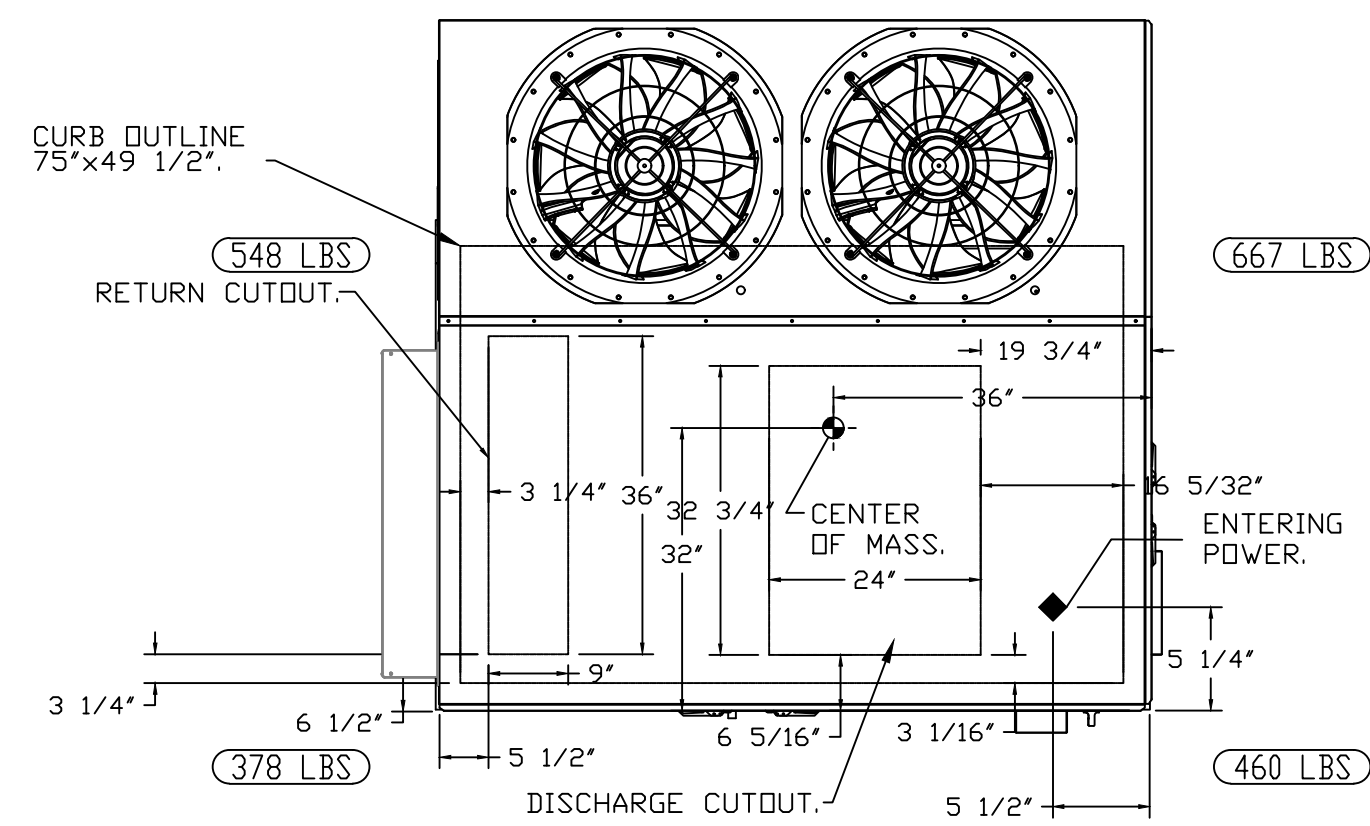
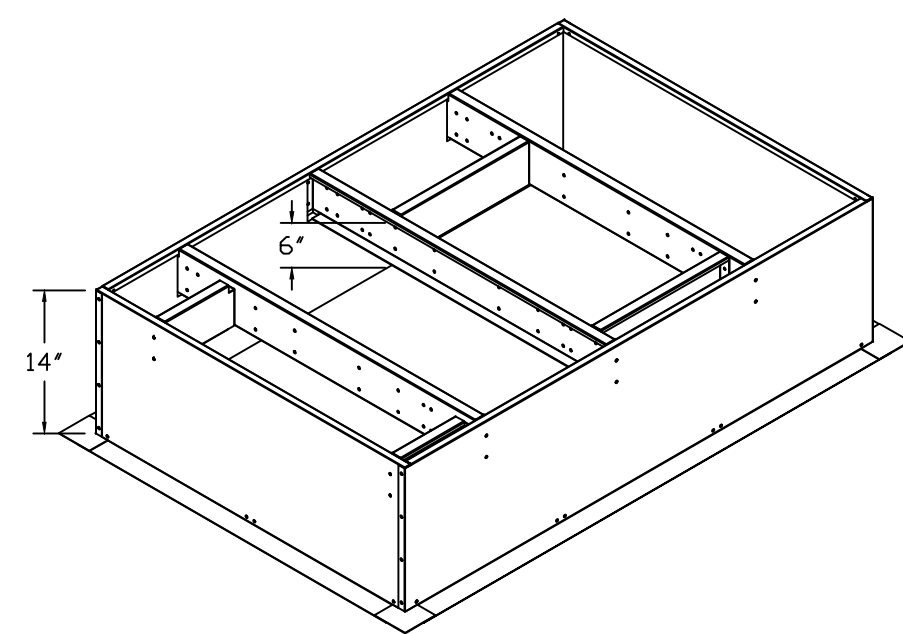
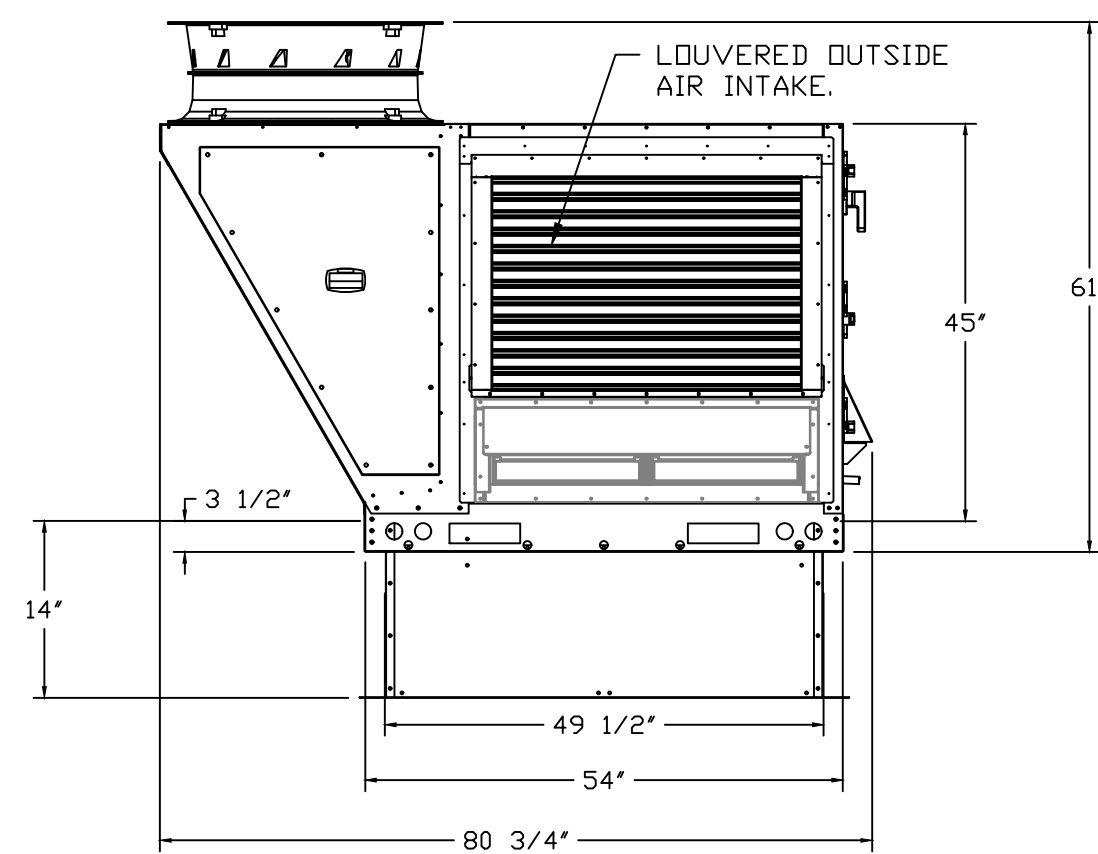
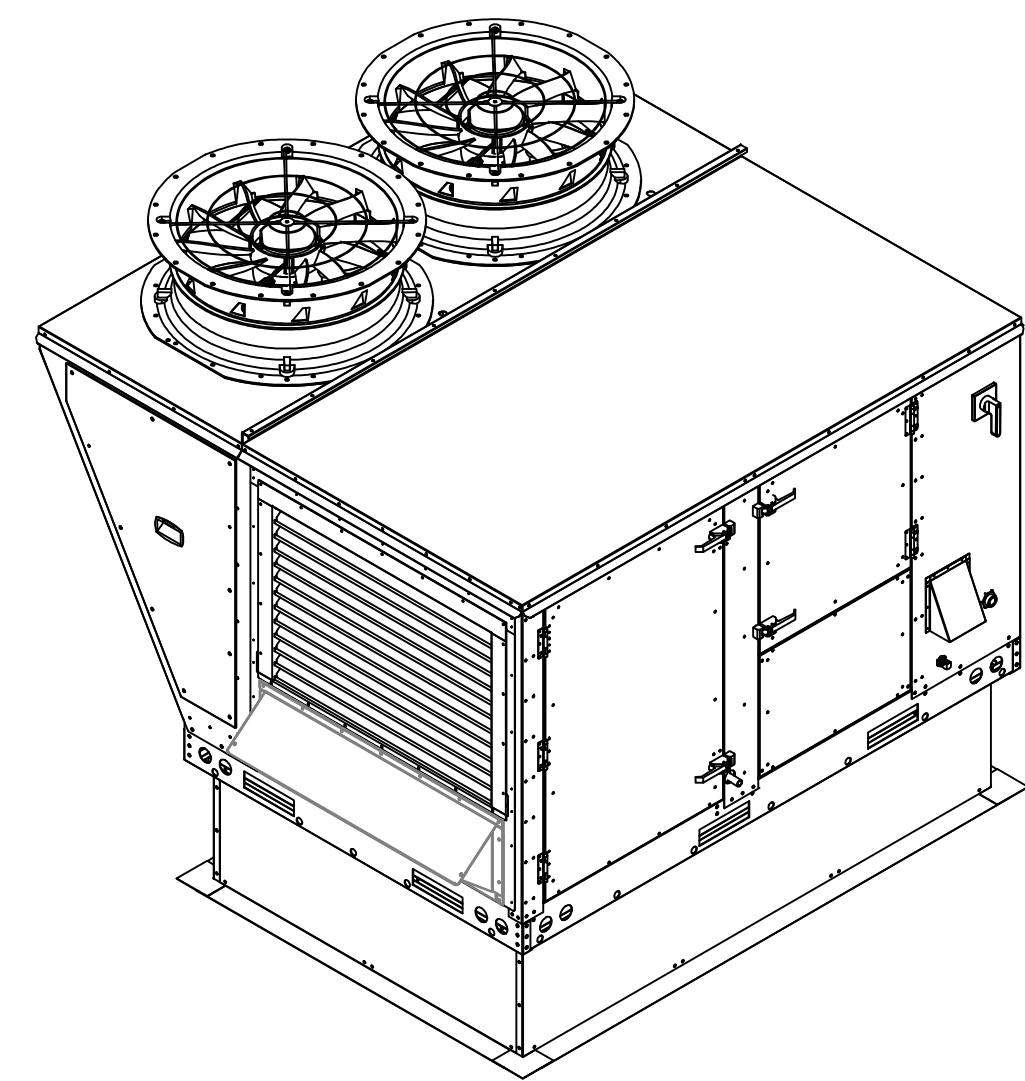
FAN #1 CAS-HVAC2-1150-18MF-10T - HEATER (RTU-FDH)

NOTES:

- DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
- Ø 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.

*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 24" x 30.25".



REVISIONS

NO.	DESCRIPTION	DATE
1		
2		
3		
4		

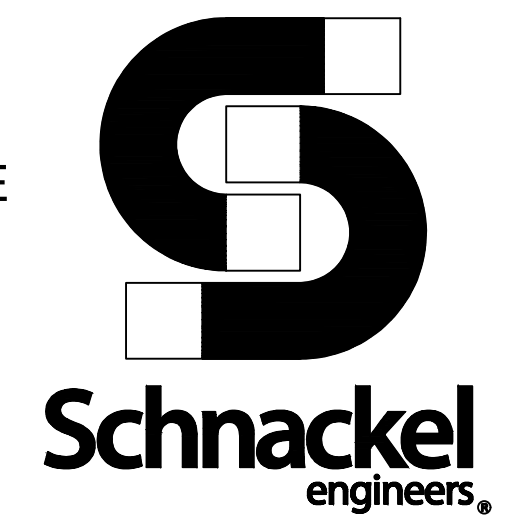
CAPTIVE
 Eastern PA Mechanical
 225 E City Line Avenue, Suite #103, Bala Cynwyd, PA, 19004 PHONE: (267) 504-4126 EMAIL: reg10@captiveme.com

Shake Shack-1708-Broadway Blvd, AZ (HVAC)
 TUCSON, AZ, 85711

DATE: 4/12/2025
 DWG.#: 7421400
 DRAWN BY: EB
 SCALE: 1/2" = 1'-0"
 MASTER DRAWING
 SHEET NO. 2

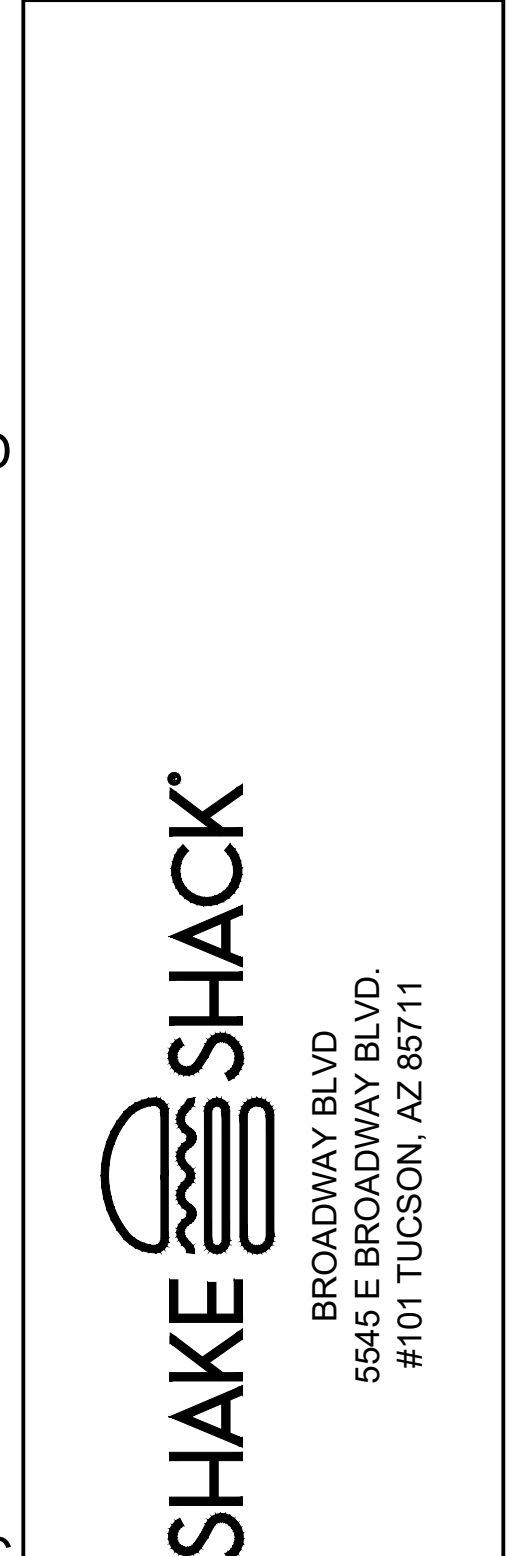


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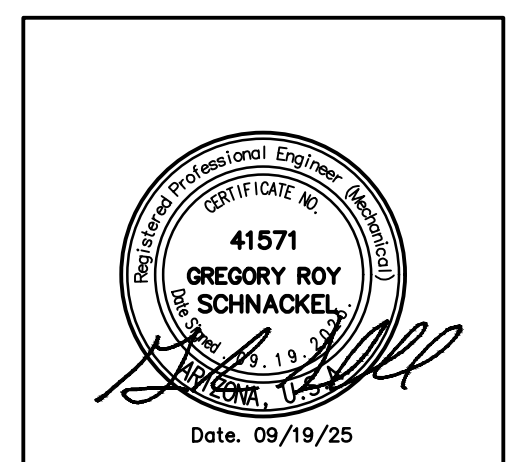
STORE NO.: AZ #1708



REVISIONS

NO.	DATE	DESCRIPTION
1	09/22/25	REVISION 1

STATUS: IFC SET



FIELD VERIFICATION:
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SHEET NAME: CAPTIVEAIR DRAWINGS

DATE: 08/05/2025 PROJECT NO.: 40202

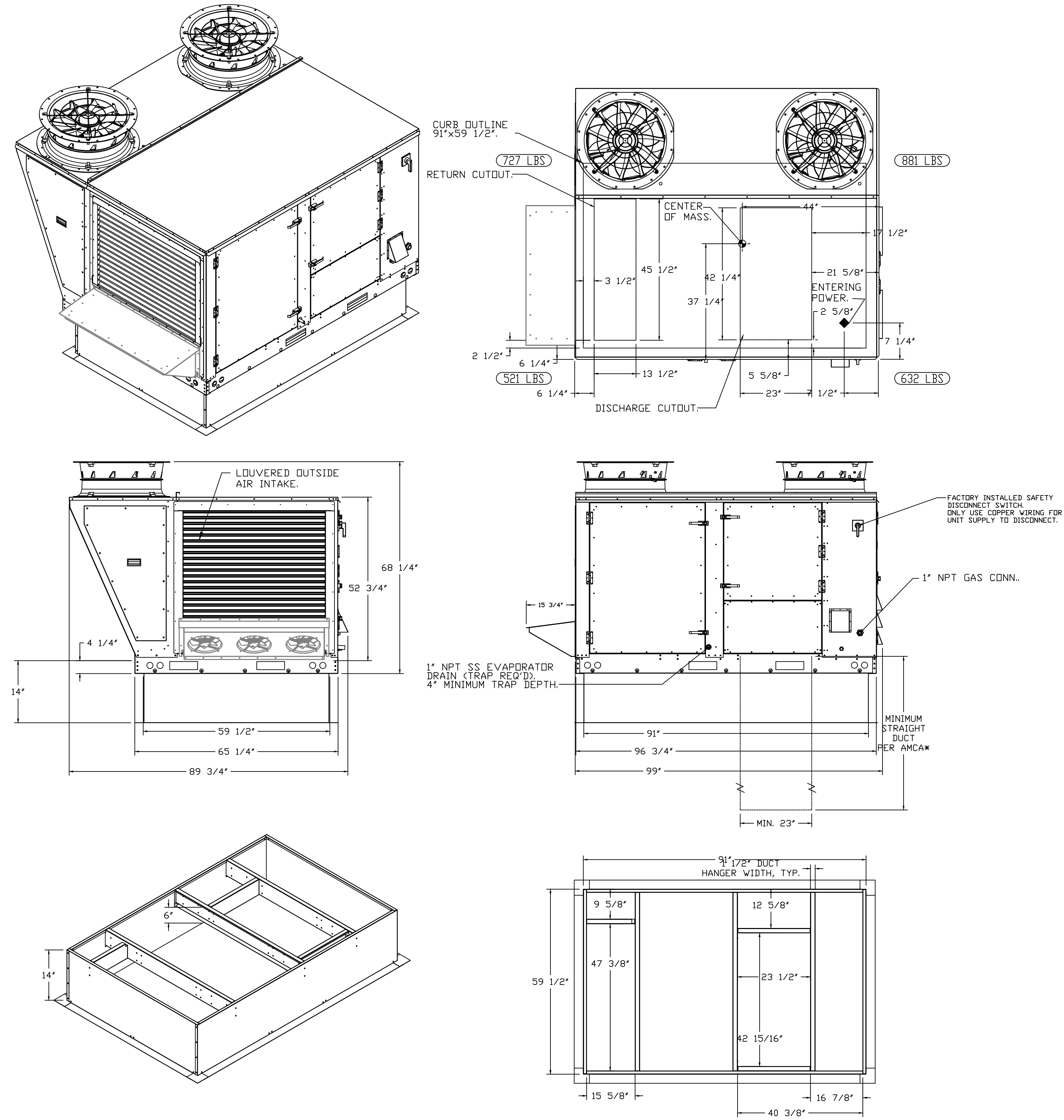
DRAWN: RAS SCALE: AS NOTED

SHEET NO.: M708

FAN #2 CAS-HVAC3-1.250-24MF-15T - HEATER (RTU-BDH)

- 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.

*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 23" x 39".



REVISIONS

REVISION	DESCRIPTION	DATE
1		
2		
3		
4		

CAPTIVE

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

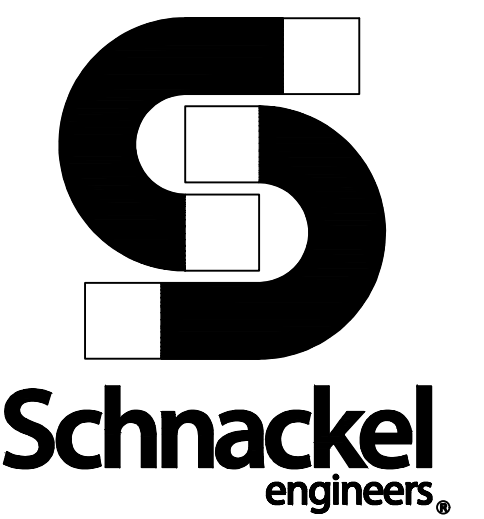
Shake Shack-1708-Broadway Blvd, AZ (HVAC)
TUCSON, AZ, 85711

DATE: 4/12/2025
DWG.#: 7421400
DRAWN BY: EB
SCALE: 1/2" = 1'-0"
MASTER DRAWING

SHEET NO. 3

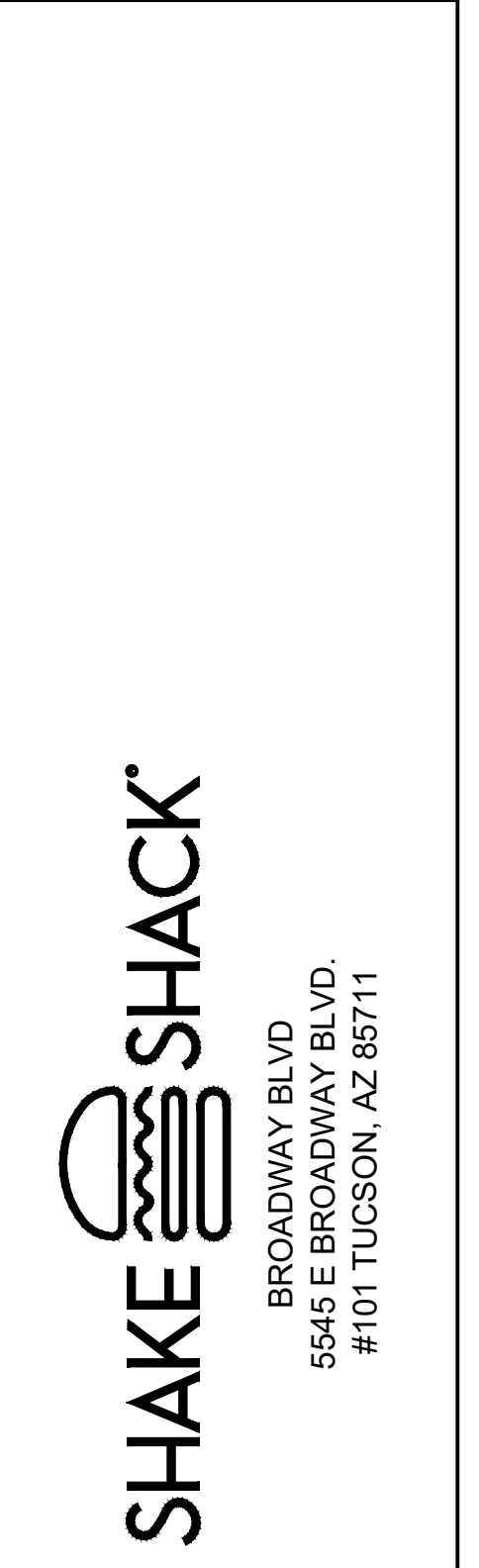


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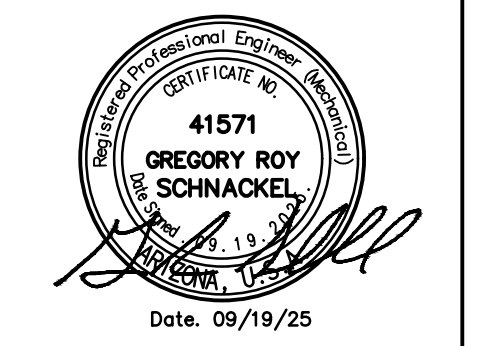
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AZ #1708



REVISIONS

DATE	DESCRIPTION
09/22/25	REVISION 1

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SHEET NAME:
CAPTIVEAIRE DRAWINGS

DATE: 08/05/2025 PROJECT NO.: 40202

DRAWN: RAS SCALE: AS NOTED

SHEET NO.: M709

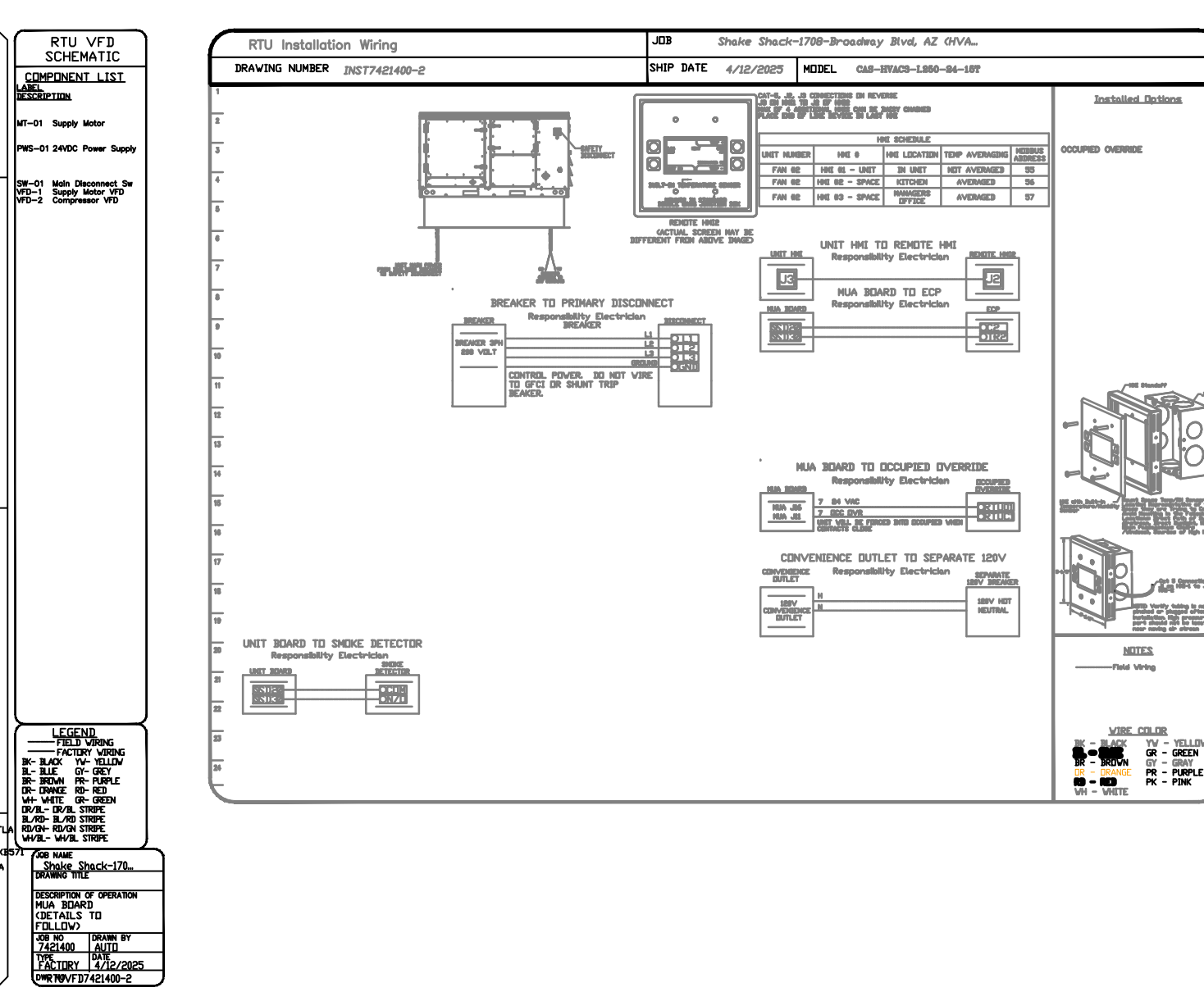
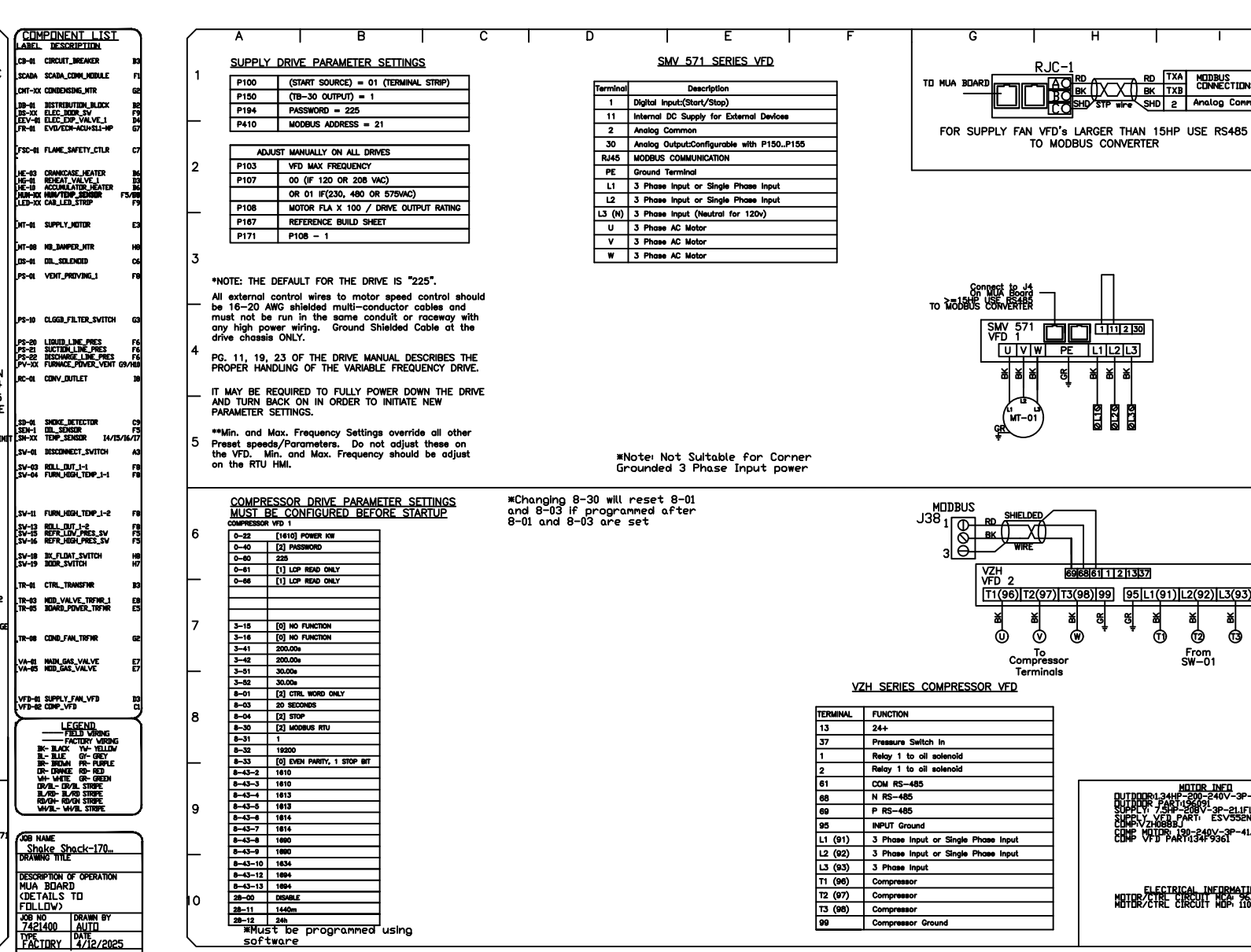
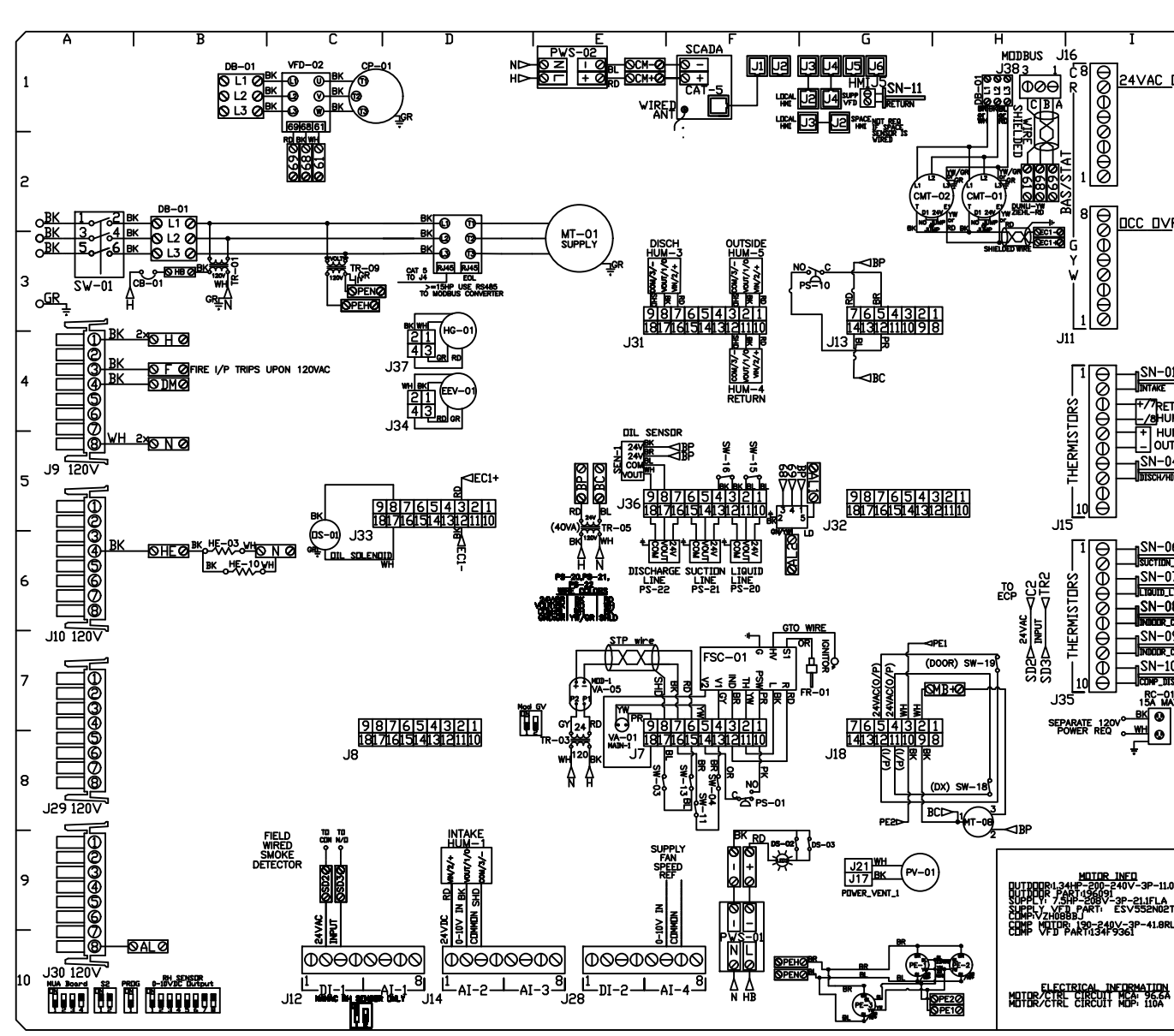
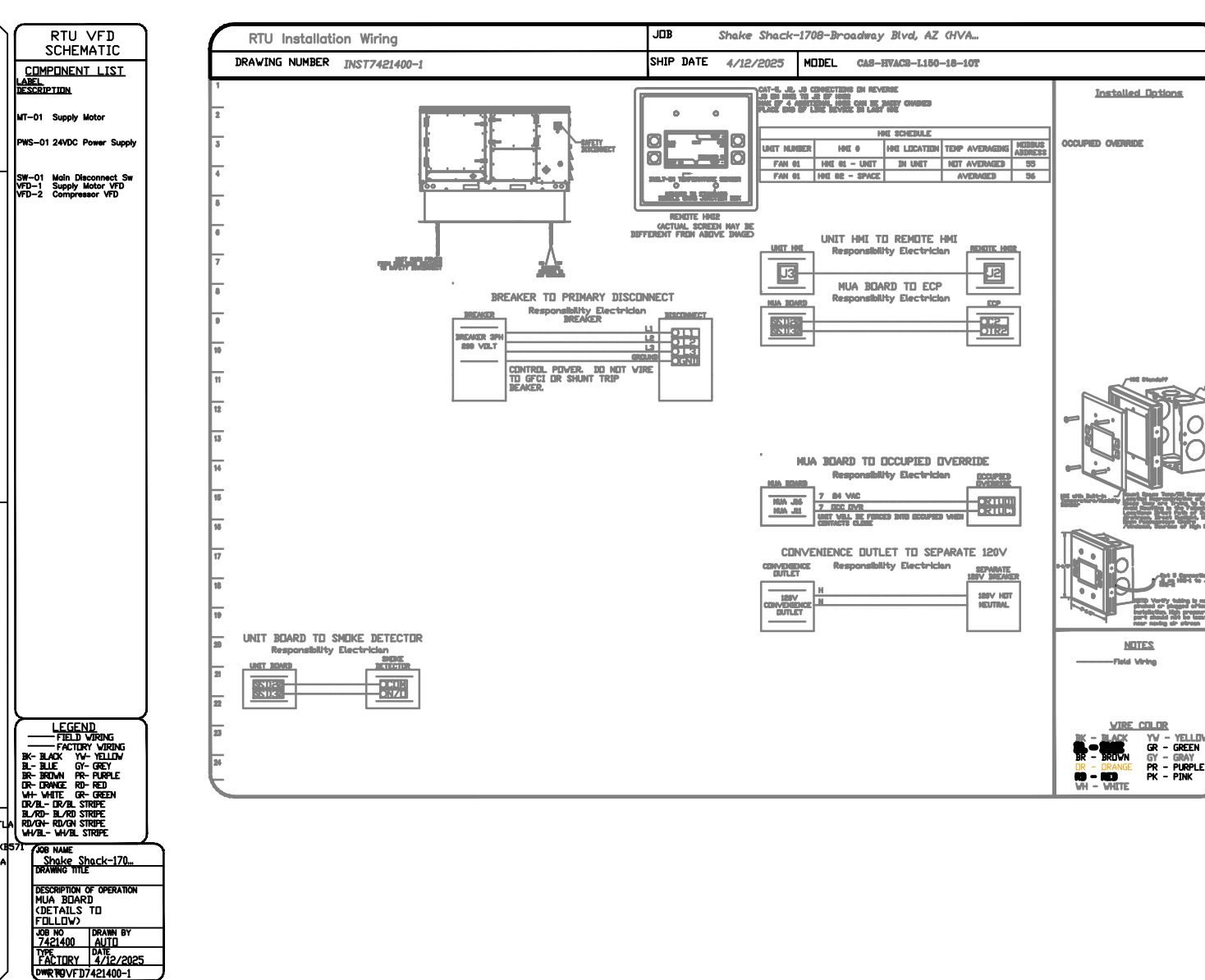
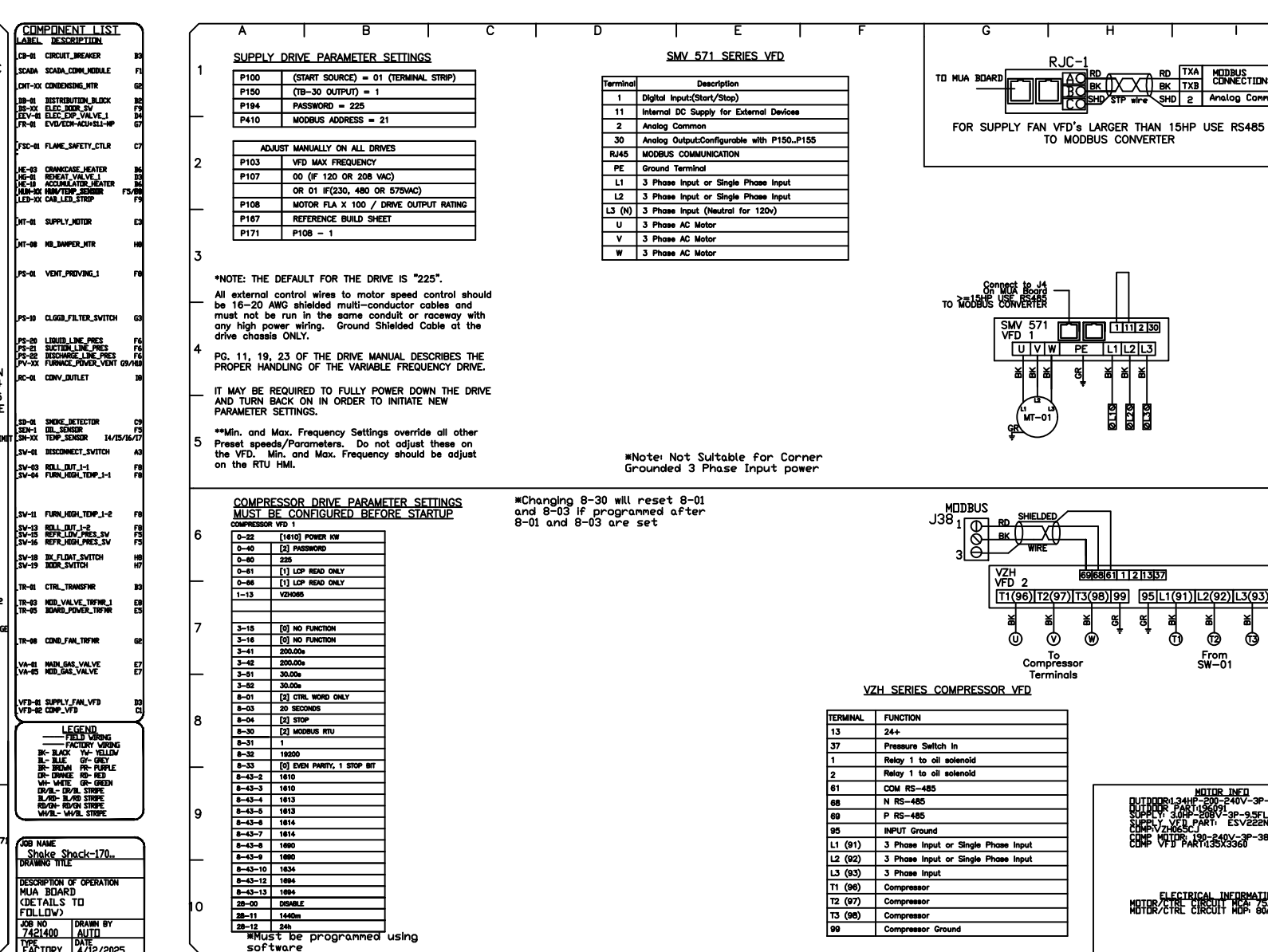
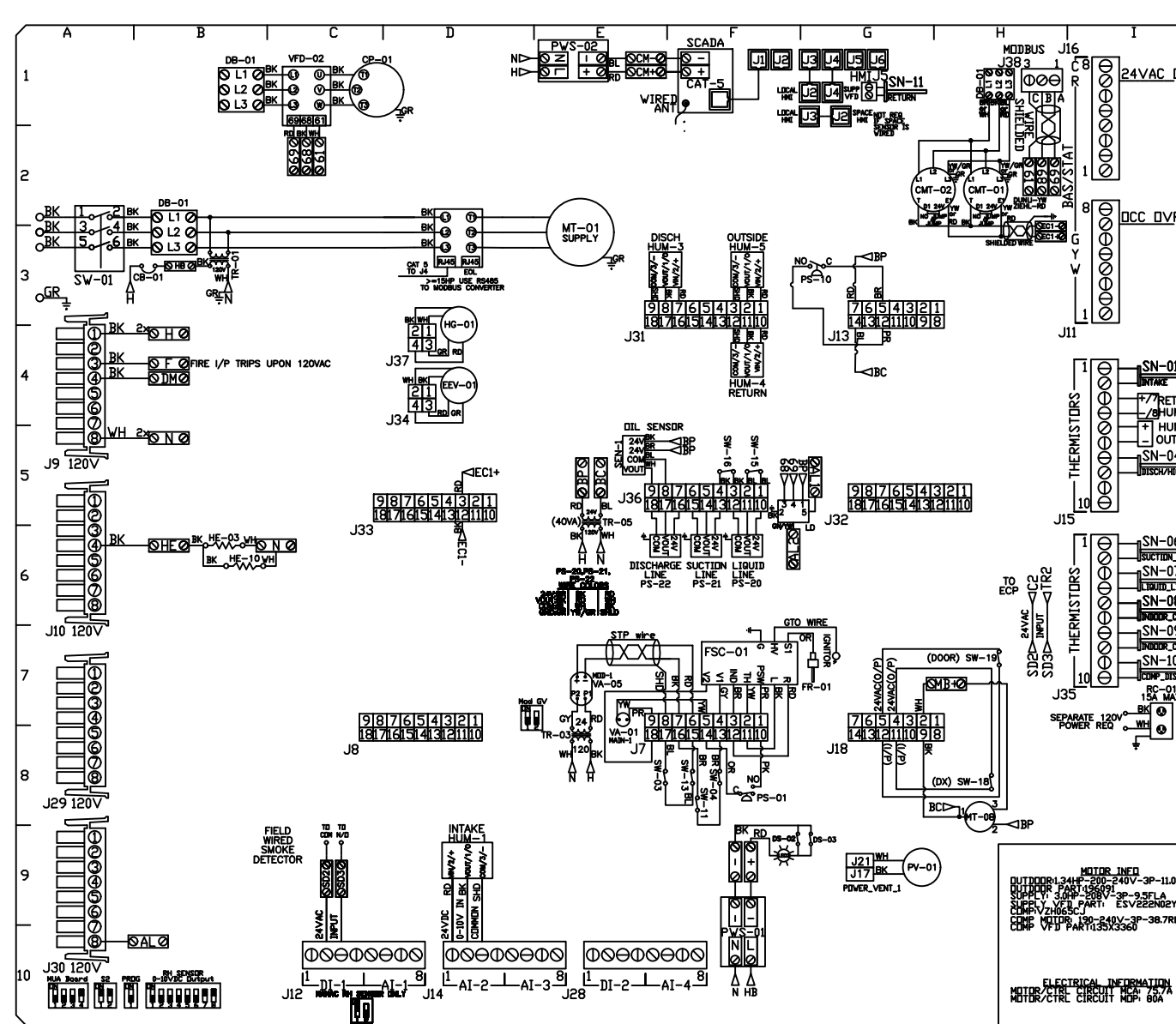
F

D

C

B

A



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 Eastern, PA Mechanical
 225 E. City Line Avenue, Suite #103, Bala Cynwyd, PA 19004
 PHONE: (267) 504-4126 | EMAIL: rgi108@captiveaire.com

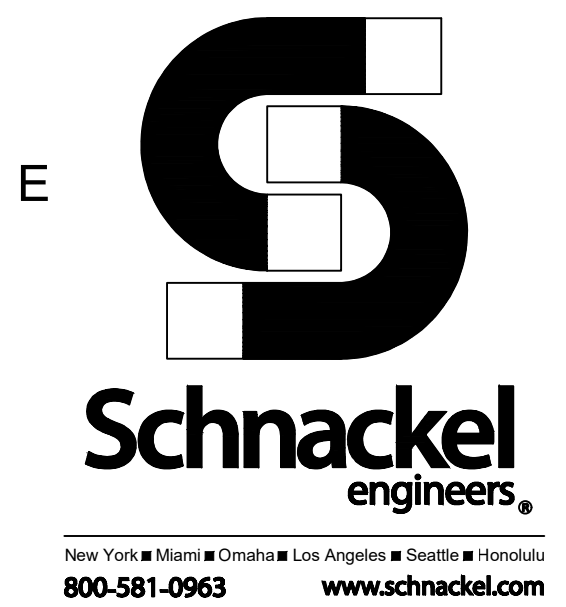
Shake Shack-1708-Broadway Blvd, AZ (HVAC)
 TUCSON, AZ, 85711

DATE: 4/12/2025
 DWG.#: 7421400
 DRAWN BY: EB
 SCALE: 1/2" = 1'-0"
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SHEET NO. 4



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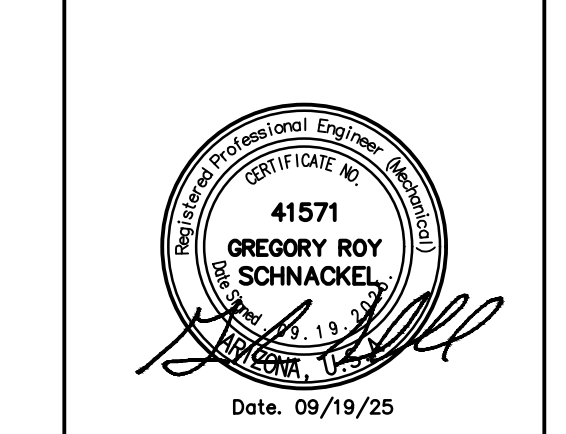


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 AZ #1708



REVISIONS	
DATE	DESCRIPTION
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SHEET NAME:
 CAPTIVEAIRE DRAWINGS

DATE: 08/05/2025 PROJECT NO.: 40202
 DRAWN: RAS SCALE: AS NOTED

SHEET NO.:
M710

SYSTEM DESIGN VERIFICATION (SDV)

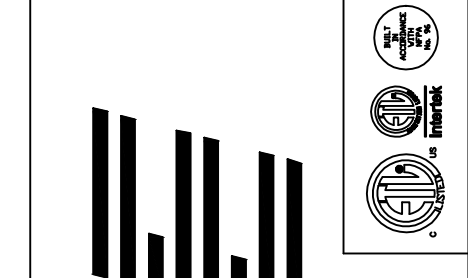
IF ORDERED, CAS SERVICE WILL PERFORM A SYSTEM DESIGN VERIFICATION (SDV) ONCE ALL EQUIPMENT HAS HAD A COMPLETE START UP PER THE OPERATION AND INSTALLATION MANUAL. TYPICALLY, THE SDV WILL BE PERFORMED AFTER ALL INSPECTIONS ARE COMPLETE.

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

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

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Shake Shack-1708-Broadway Blvd, AZ (HVAC)
 TUCSON, AZ, 85711

DATE: 4/12/2025

DWG.#:
7421400

DRAWN BY: E.B

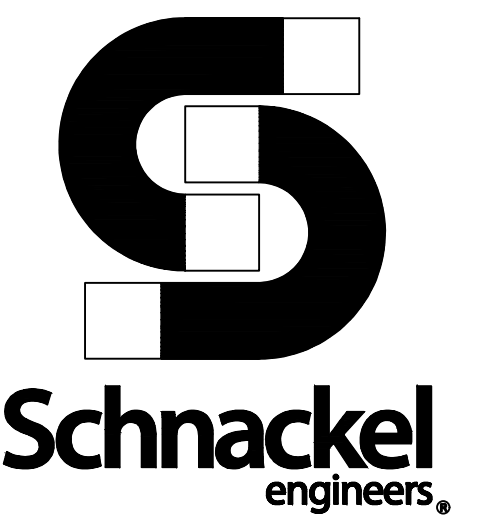
SCALE:
3/4" = 1'-0"

MASTER DRAWING

SHEET NO.
5

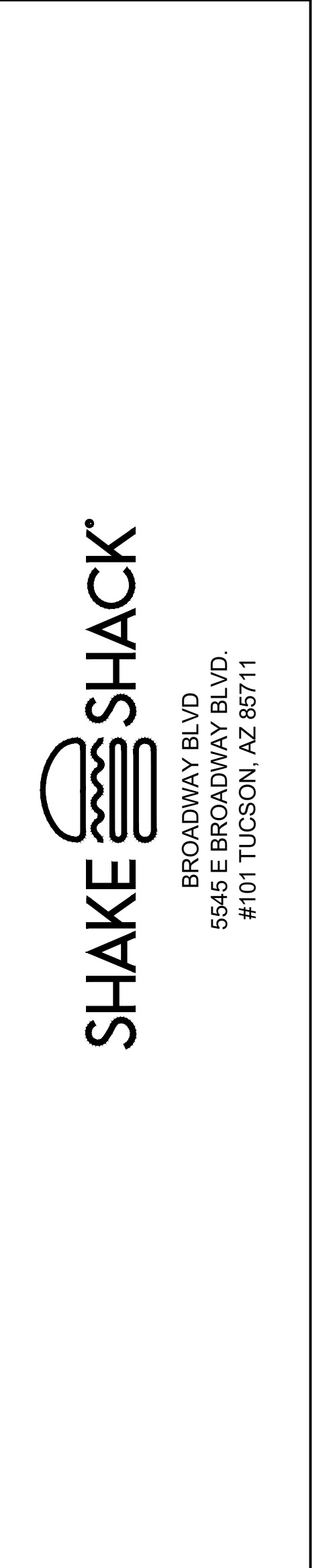


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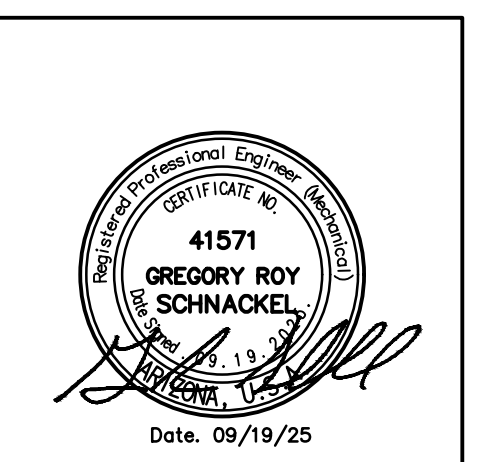
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DATE	DESCRIPTION
09/22/25	REVISION 1

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SHEET NAME:
CAPTIVEAIRE DRAWINGS

DATE:
08/05/2025 PROJECT NO.:
40202

DRAWN:
RAS SCALE:
AS NOTED

SHEET NO.:
M711

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