

SHEET NUMBER	SHEET NAME
M001	MECHANICAL ABBREVIATIONS AND SYMBOLS
M101	MECHANICAL FLOOR PLAN
M102	MECHANICAL REFRIGERANT PIPING 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

RESPONSIBILITY MATRIX

THIS SCHEDULE IS PROVIDED FOR QUICK REFERENCE ONLY.
THE GENERAL CONTRACTOR IS RESPONSIBLE FOR ALL WORK DESCRIBED IN THE CONSTRUCTION DOCUMENTS.
CONFLICTS BETWEEN THIS SCHEDULE AND THE REST OF THE CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION PRIOR TO BEGINNING WORK.

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		SCOPE OF WORK TO INCLUDE RIGGING, CURBS, AND ACCESSORIES
23.2.2 ROOFTOP UNIT CURBS			X		X		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 UNIT CURBS			X		X		SCOPE OF WORK TO INCLUDE RIGGING, CURBS, AND ACCESSORIES
23.2.5 KITCHEN EXHAUST FAN CURBS			X		X		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			SUPPLIED BY VENDOR NO. 102
23.5.4 DUCTED AND NON-DUCTED HEATING AND COOLING UNITS			X		X		
23.5.5 MAKE UP AIR UNITS			X		X		SUPPLIED BY VENDOR NO. 102
23.5.6 ELECTRIC PATIO HEATERS	X			X			
23.5.7 CONDENSING UNITS			X		X		
23.5.8 RGF PFI 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 TANK SYSTEM			X		X		SUPPLIED BY VENDOR NO. 102 GENERAL CONTRACTOR TO COORDINATE AND FACILITATE SYSTEM SIGN-OFF
23.6.6 TANK WIRING AND UTILITIES CONNECTION	X			X			
23.6.7 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

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	Requested Before Time (Quarantee Day)	Architect of Record	Shake	Physical Sample Required	Submitted for Record	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	
MEP Tests, Start-Up, and Programming Reports	5	X			X	
Millwork - Material Submittals (if differs from spec)	5	X	X	X		
Millwork - Shop Drawings (custom items & design features only)	5	X				
Restroom Partitions	5	X			X	
Plumbing Fixtures	5	X			X	
Rolling Shop Drawings	5	X				X
Rebar	5	X			X	
Stair Shop Drawings	5	X				X
Structural Steel Shop Drawings	7	X			X	
Storefront - product data Submittal (if different from specified)	5	X				
Storefront - Shop Drawings	5	X				
Tile (if differs from spec)	5	X			X	
Window Film	5	X				

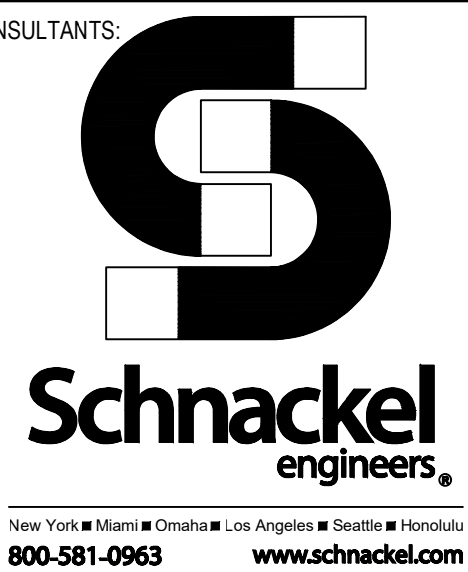
SYMBOLS

SYMBOL	DESCRIPTION
	THERMOSTAT
	REMOTE SENSOR
	SUPPLY DIFFUSER
	RETURN OR EXHAUST GRILLE
	SUPPLY OR FRESH AIR DUCT (SA OR FA)
	RETURN OR EXHAUST AIR DUCT (RA OR EA)
	RECTANGULAR DUCT FIRST FIGURE IS SIDE SHOWN
	ROUND DUCT
	VOLUME DAMPER (ELEV AND PLAN)
	TURNING VANES
	SUPPLY REGISTER OR GRILLE (R OR G)
	RETURN REGISTER OR GRILLE (R OR G)
	FRESH AIR INTAKE (FA)
	SQUARE CEILING DIFFUSER (SUPPLY)
	FAN COIL UNIT AND MARK
	MOTORIZED DAMPER
	REFRIGERANT LIQUID LINE
	REFRIGERANT SUCTION LINE

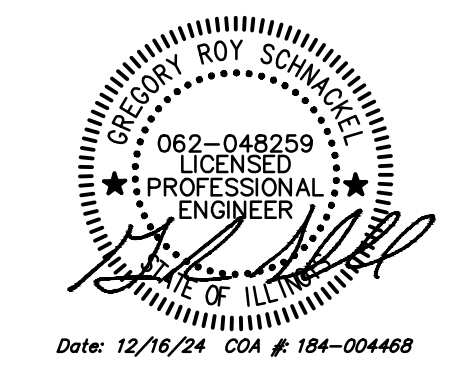
8310 E. HIGH STREET SUITE 350
 PHOENIX, AZ 85054
 T: 480.448.6250
 WWW.SARGARCH.COM



CONSULTANTS:



SEAL SIGNATURE:



NO.	BY	DATE	DESCRIPTION
	FN	2024-08-12	PERMIT / BID SET
	FN	2024-07-22	75% SET



SHAKE SHACK ELSTON & LOGAN

2700 NORTH ELSTON AVE, UNIT 100
 CHICAGO, IL 60647
 SHACK #1620

PERMIT SET

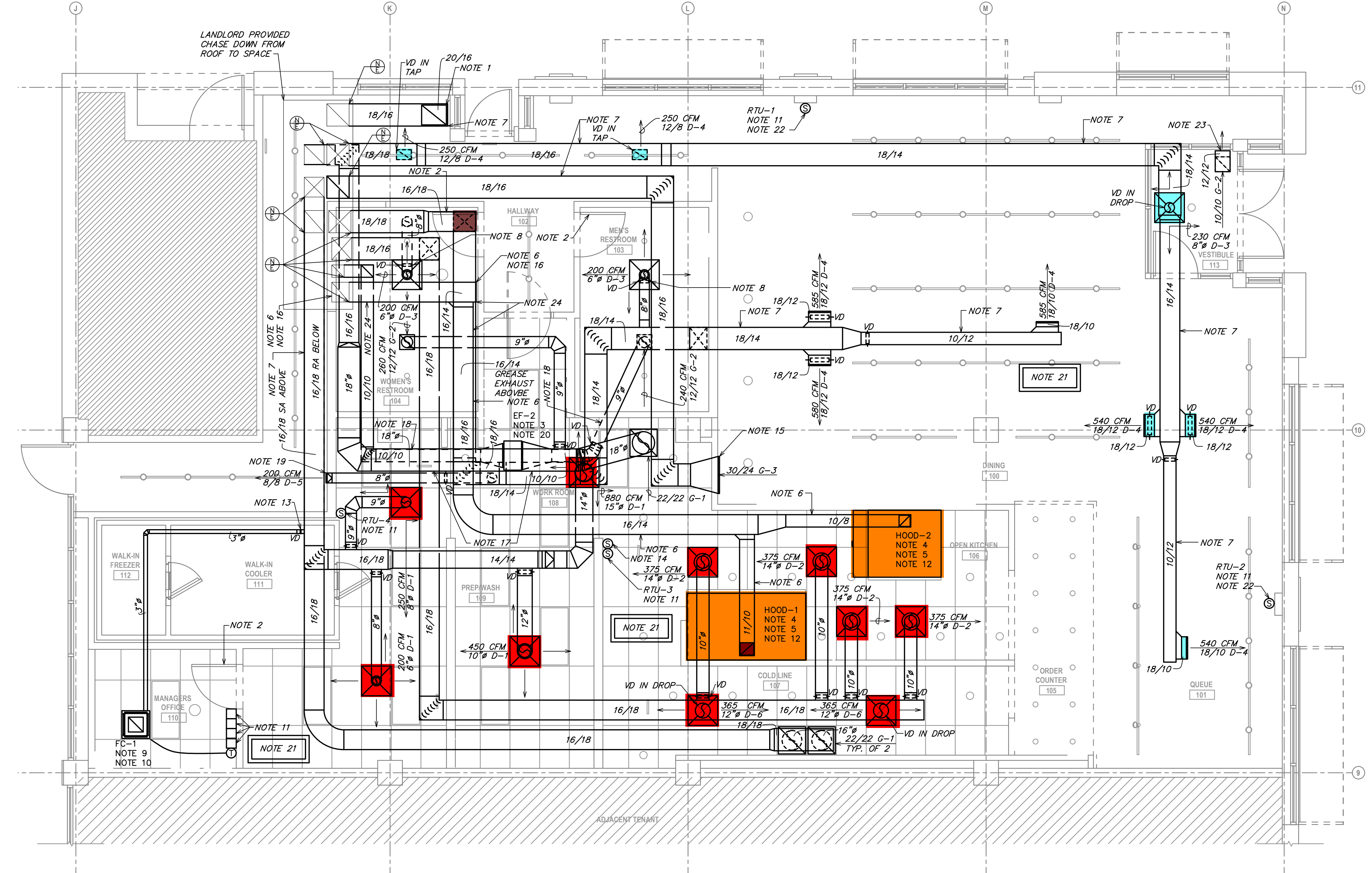
MECHANICAL ABBREVIATIONS & SYMBOLS

DRAWN BY:
 CHECKED BY: GRS
 PROJECT NO: 11160-24

M001

12/16/24

MECHANICAL FLOOR PLAN

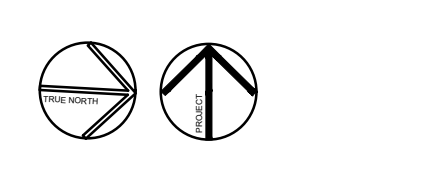


- INSTALL HEAT SENSORS AS REQUIRED BY IMC 507.2.1.1 FOR ALL TYPE I HOODS
 - PERFORMANCE TEST IS REQUIRED FOR ALL VENTILATION SYSTEMS SERVING COMMERCIAL COOKING APPLIANCES PER IMC 507.16
 - CAPTURE AND CONTAINMENT TEST IS REQUIRED ON TYPE I HOODS PER IMC 507.1.1

- 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 DENOTE THE TYPE AND QUALITY OF MATERIAL AND WORKMANSHIP TO BE USED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE HIGHER AND/OR MORE COSTLY STANDARD WILL APPLY. THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER WHOSE DECISION SHALL BE FINAL. NO ALLOWANCE WILL BE MADE SUBSEQUENTLY IN THIS REGARD ON BEHALF OF THE CONTRACTOR AFTER AWARD OF THE CONTRACT.
 - COORDINATE DUCT ROUTING AND HEIGHTS WITH GENERAL CONTRACTOR. VERIFY ALL CLEARANCES BEFORE STARTING WORK.
 - THE CONTRACTOR SHALL INSTALL ALL PIPING, DUCTWORK AND EQUIPMENT AS REQUIRED TO CONFORM TO THE STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE CEILING HEIGHTS AND HEADROOM AND MAKE ALL EQUIPMENT REQUIRING MAINTENANCE OR REPAIR ACCESSIBLE.
 - ALL DUCT CONNECTIONS TO HVAC EQUIPMENT MUST BE MADE WITH FLEXIBLE CONNECTORS.
 - DO NOT ATTACH ANYTHING TO DECK ABOVE. ATTACH TO STRUCTURE (I.E., BEAMS, JOISTS) ONLY. DUCT HANGERS SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODE. ALL CONNECTIONS TO JOISTS SHALL BE MADE AT THE TOP CORNER.
 - ALL DUCT DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS. ALL SUPPLY AND UNTEMPERED OUTDOOR AIR DUCTWORK SHALL BE LINED WITH 1" ACOUSTICAL DUCT LINER OR WRAPPED WITH 1-1/2" THICK FIRE RETARDANT FIBERGLASS WITH A REINFORCED ALUMINUM FOIL JACKET AND SHALL BE APPROVED FOR USE BY SMOGON AND NAIMA. RETURN AIR TRANSFER DUCTS AND RETURN DUCTWORK WITHIN 10 FEET OF THE UNIT FAN SHALL BE LINED WITH 1" ACOUSTICAL DUCT LINER.
 - ALL SUPPLY AND UNTEMPERED OUTDOOR AIR DUCTWORK VISIBLE TO THE PUBLIC SHALL BE INTERNALLY LINED AND PAINTED TO MATCH THE SURROUNDING AREA. DUCT WRAP INSULATION IS NOT PERMITTED IN THESE AREAS.
 - ALL EXPOSED DUCTWORK SHALL BE INSTALLED TIGHT TO THE BOTTOM OF THE STRUCTURE.
 - PROVIDE REMOTE VOLUME DAMPER CONTROL MANUFACTURED BY YOUNG REGULATOR OR UNITE ENERGY FOR DAMPERS LOCATED ABOVE INACCESSIBLE CEILING. 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 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 98 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 TABB CERTIFIED AIR BALANCE REPORT SHALL BE SUBMITTED TO THE ENGINEER AND LANDLORD. PRIOR TO SCHEDULING BALANCING, COORDINATE WITH LANDLORD'S FIELD REPRESENTATIVE FOR THE VENDOR LISTED BELOW. IF APPROVED, THE BALANCING SHALL BE COMPLETED BY THE VENDOR. CONTACT WILL TURNBOURNE AT WILLTURNBOURNE.COM OR 314-954-6244.
 - PARTS OF THE BASE BUILDING SYSTEMS THAT FALL INTO LEASE LINE SHALL REMAIN UNDISTURBED UNLESS NOTED OTHERWISE.
 - VERIFY ALL NECESSARY PERMITS, COMPONENTS, ETC., FOR FIRE ALARM OR CONTROL SYSTEM INTERLOCK IF APPLICABLE. VERIFY WITH BUILDING PERSONNEL BEFORE BID.

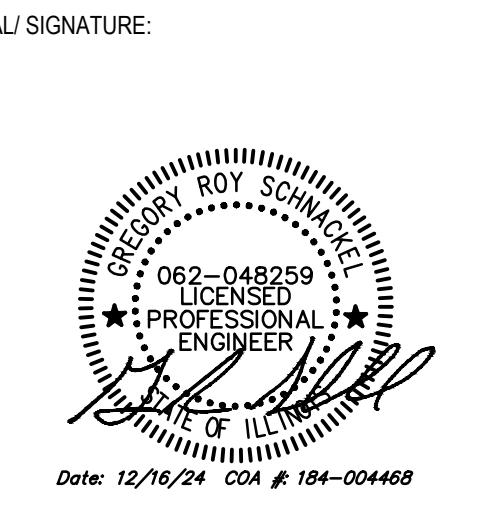
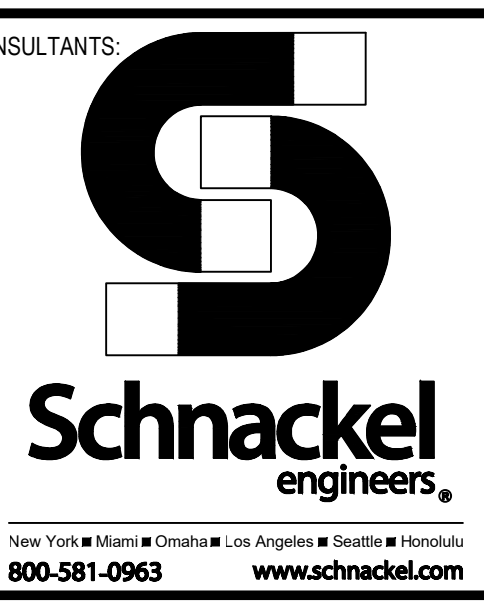
- HVAC NOTES:**
- TOP OPEN END RETURN AIR DUCT. PROVIDE OPENING WITH 1/4" MESH GALVANIZED SCREEN.
 - CONTRACTOR SHALL UNDERCUT DOOR 3/4".
 - PROVIDE NEW EXHAUST FAN AS NOTED ON THE PLANS AND AS SCHEDULED ON SHEET M601.
 - NEW CAPTIVE GREASE EXHAUST HOOD TO BE FURNISHED BY OWNER FOR INSTALLATION BY THE MECHANICAL CONTRACTOR. SEE CAPTIVE GREASE SHEETS ADDITIONAL INFORMATION BALANCE HOOD AS NOTED ON CAPTIVE GREASE SHEETS. VERIFY ALL MANUFACTURER AND CODE REQUIRED CLEARANCES ARE MAINTAINED. NOTIFY ARCHITECT IF ANY CONFLICTS OCCUR.
 - TRANSITION FROM HOOD EXHAUST COLLAR AS INDICATED ON PLANS AND EXTEND KITCHEN HOOD GREASE EXHAUST DUCTWORK TO LANDLORD PROVIDED GREASE EXHAUST STUB INTO SPACE. SEE SHEET M150 FOR CONTINUATION. GREASE DUCT SHALL BE WRAPPED WITH TWO (2) LAYERS OF THERMAL CERAMICS FAST WRAP ALL 1-1/2" THICK OVER EXHAUST DUCTWORK AND LONGER THAN THE HOOD AND U.L. LISTED GREASE DUCT WRAP FOR ZERO CLEARANCE TO COMBUSTIBLES. REFER TO SHEET M501, DETAIL 2, FOR ADDITIONAL INFORMATION. TYPICAL OF GREASE EXHAUST DUCTWORK.
 - PROVIDE CLEARANCES AS INDICATED BY CODE. REFERENCE SHEET M501, DETAIL 2 FOR ADDITIONAL INFORMATION. TYPICAL OF GREASE EXHAUST DUCTWORK.
 - DUCTWORK TO BE TO BE INSTALLED AS HIGH AS CONDITIONS ALLOW. COORDINATE ROUTING AND MOUNTING HEIGHT WITH LIGHTING FIXTURES AND ARCHITECT. NOTIFY THE ARCHITECT OF ANY CONFLICTS AND COORDINATE WITH THE CONSTRUCTION MANAGER. TYPICAL OF ALL EXPOSED DUCTWORK.
 - PROVIDE REMOTE VOLUME DAMPER AS INDICATED ON THE PLANS. REFERENCE SHEET M501, DETAIL 3, FOR ADDITIONAL INFORMATION. TYPICAL OF GREASE EXHAUST DUCTWORK.
 - DUCTWORK TO BE TO BE INSTALLED IN GYP. BOARD CEILING.
 - LANDLORD TO PROVIDE NEW FC UNIT AS NOTED ON PLANS AND AS SCHEDULED ON SHEET M601.
 - LANDLORD TO PROVIDE REFRIGERANT LINES FROM ASH-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.
 - COORDINATE WITH CAPTIVE GREASE SHEETS FOR REMOTE SENSORS AND COMFORT CONTROLS PACKAGE THAT IS TO BE INSTALLED IN THE OFFICE. MOUNT SENSOR AND CONTROLS AT 48" ABOVE FINISHED FLOOR AND AS INDICATED ON THE PLANS. COORDINATE LOCATION WITH CONSTRUCTION MANAGER AND WALL GRAPHICS LAYOUT. REFERENCE CAPTIVE GREASE SHEETS FOR ADDITIONAL INFORMATION.
 - 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 14, FOR ADDITIONAL INFORMATION.
 - BALANCE DAMPER TO PROVIDE 20 CFM.
 - MOUNT TEMPERATURE CAPTIVE GREASE ROOM TEMPERATURE SENSOR FURNISHED WITH KITCHEN HOODS ON WALL AS INDICATED ON THE PLANS AND AS SPECIFIED BY THE MANUFACTURER.
 - MEAT RETURN GRILLE AS HIGH AS CONDITIONS ALLOW. COORDINATE FINAL INSTALLATION LOCATION WITH ARCHITECT AND CONSTRUCTION MANAGER.
 - PROVIDE ACCESS PANEL FOR GREASE DUCTWORK CLEAN-OUT.
 - SUPPLY AIR DUCTWORK AT THE NOTED LOCATION TO BE ROUTED ABOVE ALL OTHER DUCTWORK.
 - RESTROOM EXHAUST AIR DUCTWORK AT THE NOTED LOCATION TO BE ROUTED BELOW ALL OTHER DUCTWORK.
 - DIFFUSER TO BE MOUNTED AS HIGH AS CONDITIONS ALLOW. COORDINATE ROUTING AND MOUNTING HEIGHT WITH LIGHTING FIXTURES AND ARCHITECT. NOTIFY THE ARCHITECT OF ANY CONFLICTS AND COORDINATE WITH THE CONSTRUCTION MANAGER.
 - CONTRACTOR TO PROVIDE 10/10 EXHAUST AIR DUCT TO LANDLORD STUB INTO SPACE.
 - CONFIRM ALL DUCT ROUTING AND SIZING PRIOR TO FABRICATION. TYPICAL THROUGHOUT SPACE.
 - OPEN END TRANSFER AIR DUCT. PROVIDE OPENING WITH 1/4" MESH GALVANIZED SCREEN.
 - OPEN END TRANSFER AIR DUCT. PROVIDE OPENING WITH 1/4" MESH GALVANIZED SCREEN.
 - CONTRACTOR TO AVOID INSTALLING ANY GREASE CLEANOUTS ABOVE THE RESTROOM SPACE. CLEAN OUT ACCESS FOR DUCTWORK ABOVE THE RESTROOMS IS TO BE FROM THE OPEN HALLWAY AREAS OR FROM THE KITCHEN CEILING SPACE. IF CONFLICT OCCURS, NOTIFY THE MECHANICAL ENGINEER AND ARCHITECT.

LEGEND
 LANDLORD WORK
 NEW WORK
 NEW TO LL CONNECTION



1/4" = 1'-0"
 1

5310 E. HIGH STREET SUITE 350
 PHOENIX, AZ 85054
 T 480.448.6250
 WWW.SARGARCH.COM



NO.	DATE	DESCRIPTION
FN	2024-08-12	PERMIT / BID SET
BY	2024-07-22	75% SET



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2700 NORTH ELSTON AVE. UNIT 100
 CHICAGO, IL 60647
 SHACK #1620

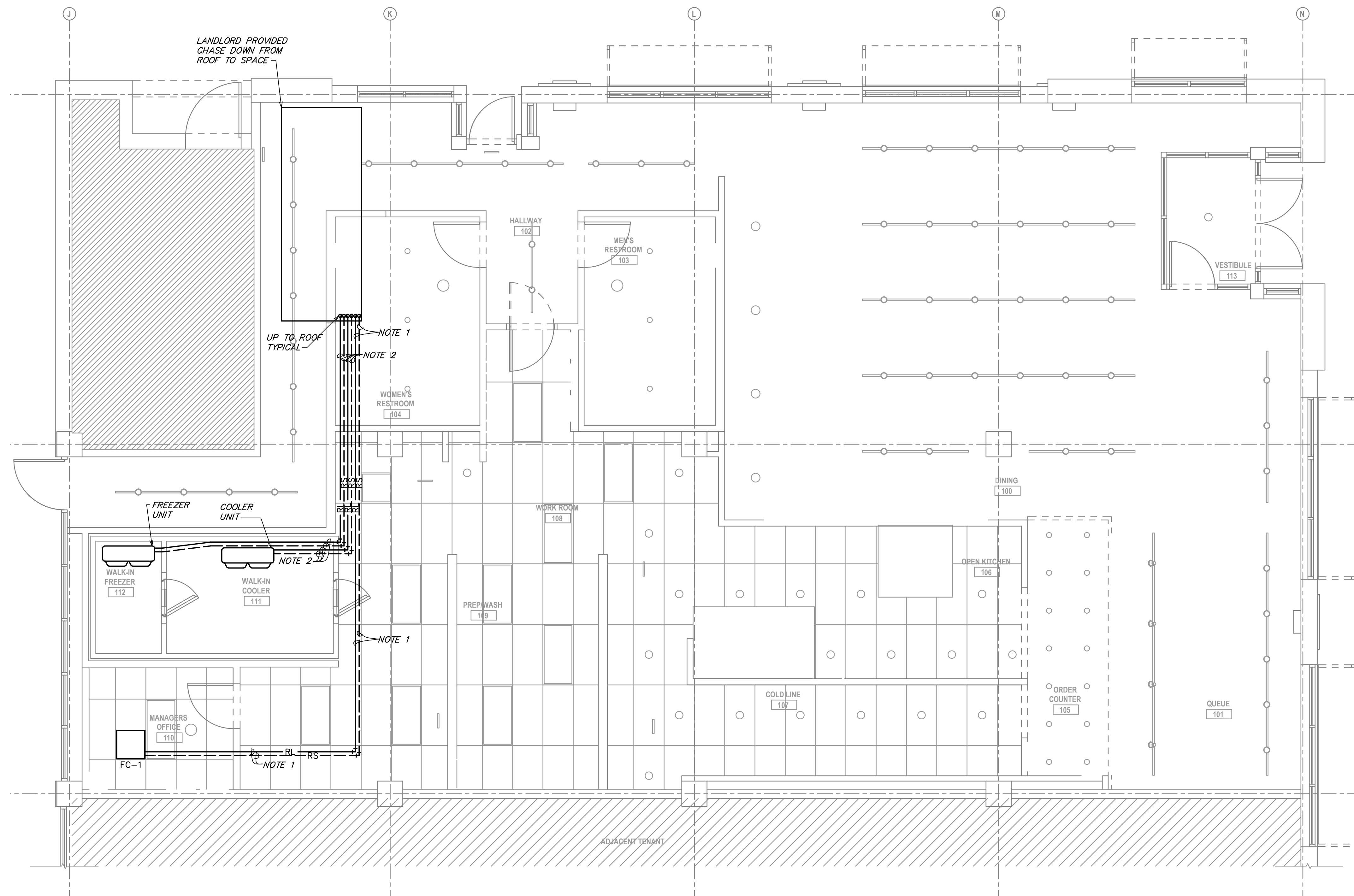
PERMIT SET

MECHANICAL FLOOR PLAN

DRAWN BY:
 CHECKED BY: GRS
 PROJECT NO: 11160-24

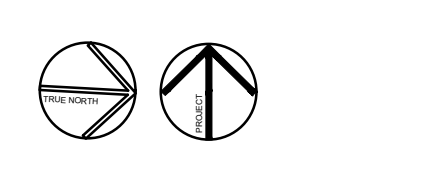
M101

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 - 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.
 - PROVIDE REMOTE VOLUME DAMPER CONTROL MANUFACTURED BY YOUNG REGULATOR OR UNITE ENERGY FOR DAMPERS LOCATED ABOVE INACCESSIBLE CEILING. 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.
 - RENTAL 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 TABB CERTIFIED AIR BALANCE REPORT SHALL BE SUBMITTED TO THE ENGINEER AND LANDLORD. PRIOR TO SCHEDULING BALANCING, COORDINATE WITH LANDLORD'S FIELD REPRESENTATIVE FOR THE VENDOR LISTED BELOW. IF APPROVED, THE BALANCING SHALL BE COMPLETED BY NATION TAB CONTACT WILL TURNBOURNE AT WILL@NATIONTAB.COM OR 314-954-6244.
 - PARTS OF THE BASE BUILDING SYSTEMS THAT FALL INTO LEASE LINE SHALL REMAIN UNDISTURBED UNLESS NOTED OTHERWISE.
 - PROVIDE ALL NECESSARY WIRING, RELAYS, DETECTORS, COMPONENTS, ETC., FOR FIRE ALARM OR CONTROL SYSTEM INTERLOCK IF APPLICABLE. VERIFY WITH BUILDING PERSONNEL BEFORE BID.
- HVAC NOTES:**
- LANDLORD TO 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 AND LANDLORD.



LEGEND

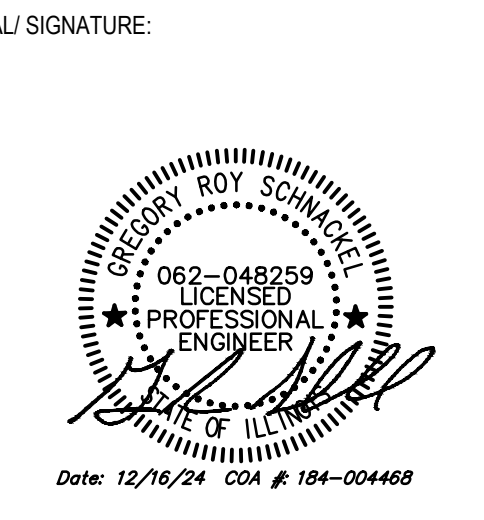
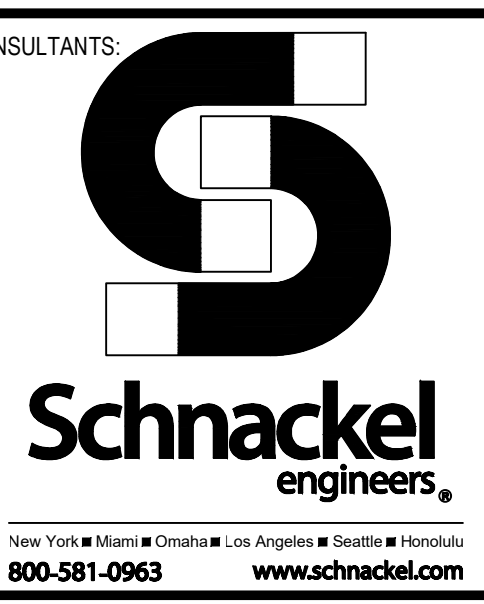
LANDLORD WORK
 NEW WORK
 NEW TO LL CONNECTION



1/4" = 1'-0"

MECHANICAL REFRIGERATION PIPING LAYOUT PLAN

5310 E. HIGH STREET SUITE 350
 PHOENIX, AZ 85054
 T 480.448.6250
 WWW.SARGARCH.COM



NO.	BY	DATE	DESCRIPTION
1	GRS	2024-08-12	PERMIT / BID SET
2	GRS	2024-07-22	75% SET



SHAKE SHACK ELSTON & LOGAN

2700 NORTH ELSTON AVE, UNIT 100
 CHICAGO, IL 60647
 SHACK #1620

PERMIT SET

MECHANICAL REFRIGERANT PIPING LAYOUT PLAN

DRAWN BY:
 CHECKED BY: GRS
 PROJECT NO: 11160-24

M102

- 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 DENOTE THE TYPE AND QUALITY OF MATERIAL AND WORKMANSHIP TO BE USED. THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENTS. WHERE A CONFLICT EXISTS BETWEEN THE DRAWINGS AND THE SPECIFICATIONS, THE HIGHER AND/OR MORE COSTLY STANDARD WILL APPLY. THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER WHOSE DECISION SHALL BE FINAL. NO ALLOWANCE WILL BE MADE SUBSEQUENTLY IN THIS REGARD ON BEHALF OF THE CONTRACTOR AFTER AWARD OF THE CONTRACT.
 - COORDINATE DUCT ROUTING AND HEIGHTS WITH GENERAL CONTRACTOR. VERIFY ALL CLEARANCES BEFORE STARTING WORK.
 - THE CONTRACTOR SHALL INSTALL ALL PIPING, DUCTWORK AND EQUIPMENT AS REQUIRED TO CONFORM TO THE STRUCTURE, AVOID OBSTRUCTIONS, PRESERVE CEILING HEIGHTS AND HEADROOM AND MAKE ALL EQUIPMENT REQUIRING MAINTENANCE OR REPAIR ACCESSIBLE.
 - ALL DUCT CONNECTIONS TO HVAC EQUIPMENT MUST BE MADE WITH FLEXIBLE CONNECTORS.
 - DO NOT ATTACH ANYTHING TO DECK ABOVE. ATTACH TO STRUCTURE (I.E., BEAMS, JOISTS) ONLY. DUCT HANGERS SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL CODE. ALL CONNECTIONS TO JOISTS SHALL BE MADE AT THE TOP CORNER.
 - ALL DUCT DIMENSIONS INDICATED ARE CLEAR INSIDE DIMENSIONS. ALL SUPPLY AND UNTEMPERED OUTDOOR AIR DUCTWORK SHALL BE LINED WITH 1" ACOUSTICAL DUCT LINER OR WRAPPED WITH 1-1/2" THICK FIRE RETARDANT FIBERGLASS WITH A REINFORCED ALUMINUM FOIL JACKET AND SHALL BE APPROVED FOR USE BY SMOGMA AND NAIMA. RETURN AIR TRANSFER DUCTS AND RETURN DUCTWORK WITHIN 10 FEET OF THE UNIT FAN SHALL BE LINED WITH 1" ACOUSTICAL DUCT LINER.
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 - ALL EXPOSED DUCTWORK SHALL BE INSTALLED TIGHT TO THE BOTTOM OF THE STRUCTURE.
 - PROVIDE REMOTE VOLUME DAMPER CONTROL MANUFACTURED BY YOUNG REGULATOR OR UNITE ENERGY FOR DAMPERS LOCATED ABOVE INACCESSIBLE CEILING LOCATIONS. 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.
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 - 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 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.
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 - PARTS OF THE BASE BUILDING SYSTEMS THAT FALL INTO LEASE LINE SHALL REMAIN UNDISTURBED UNLESS NOTED OTHERWISE.
 - PROVIDE ALL NECESSARY DETECTING, RELAY DETECTORS, COMPONENTS, ETC., FOR FIRE ALARM OR CONTROL SYSTEM INTERLOCK IF APPLICABLE. VERIFY WITH BUILDING PERSONNEL BEFORE BID.

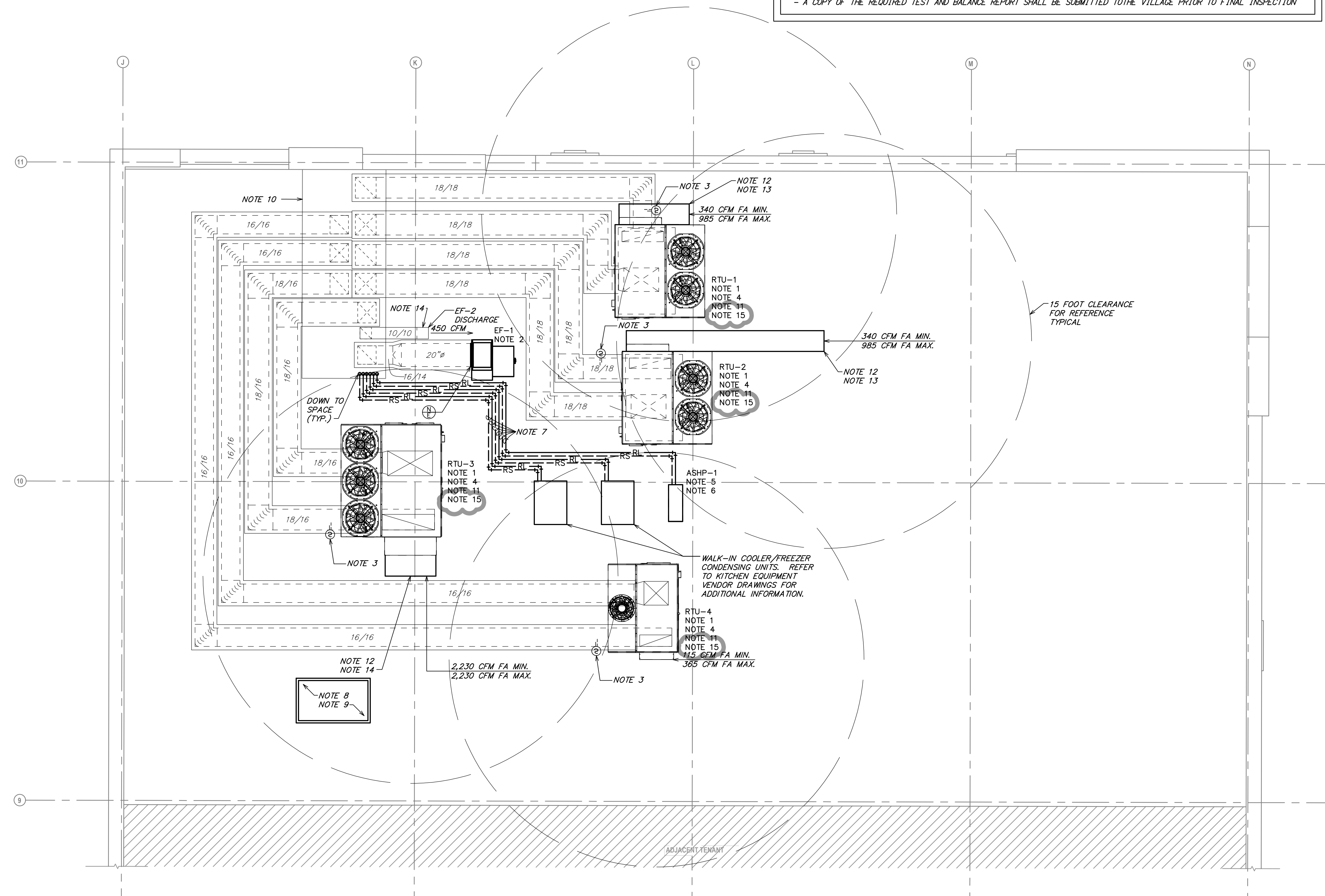
- HVAC NOTES:**
- NEW CAPTIVE/RTU TO BE PROVIDED BY LANDLORD. SEE CAPTIVE/RTU SHEETS FOR ADDITIONAL INFORMATION. FIELD VERIFY EXACT LOCATION. UNITS TO BE CONFIGURED AS DOWN DISCHARGE.
 - NEW CAPTIVE/RTU GREASE EXHAUST FAN TO BE FURNISHED BY OWNER FOR INSTALLATION BY MECHANICAL CONTRACTOR. SEE CAPTIVE/RTU 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 MOUNTING TO BE BY LANDLORD, COORDINATE AND FIELD VERIFY EXACT LOCATION.
 - 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.
 - RFG ENVIRONMENTAL GROUP, INC. AIR PURIFICATION SYSTEM TO BE PROVIDED BY ITAB. REFER TO SCHEDULING BALANCING MATRIX ON SHEET M601 FOR ADDITIONAL INFORMATION, SHEET M601 FOR SCHEDULE, AND SHEET M602 FOR SPECIFICATIONS.
 - PROVIDE ASHP AS NOTED ON PLANS AND SCHEDULED ON SHEET M601.
 - LANDLORD TO PROVIDE REFRIGERANT LINES FROM ASHP-1 ON ROOF TO FC-1 IN KITCHEN OFFICE. LINES SHALL BE SIZED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. PROVIDE ALL ACCESSORIES AS REQUIRED BY MANUFACTURER FOR COMPLETE WORKING SYSTEM, INCLUDING ANY ACCESSORIES ASSOCIATED WITH LONG LENGTH APPLICATIONS WHERE APPLICABLE.
 - KITCHEN EQUIPMENT CONTRACTOR TO PROVIDE REFRIGERANT LINES FROM CONDENSING UNIT TO KITCHEN EQUIPMENT AS NOTED ON PLANS. LINES SHALL BE SIZED ACCORDING TO MANUFACTURER'S SPECIFICATIONS. PROVIDE ALL ACCESSORIES AS REQUIRED BY MANUFACTURER FOR COMPLETE WORKING SYSTEM, INCLUDING ANY ACCESSORIES ASSOCIATED WITH LONG LENGTH APPLICATIONS WHERE APPLICABLE. ADJUST ROUTING AS NECESSARY IN FIELD FOR ANY OBSTACLES. COORDINATE EXACT LOCATION AND ROUTING WITH CONSTRUCTION MANAGER AND LANDLORD.
 - EXTERIOR DUCTWORK TO BE PROVIDED WITH ALL MOUNTING, FASTENERS, BRACKETS, ETC. AS REQUIRED BY CODE. REFERENCE SHEET M502 FOR ADDITIONAL INFORMATION. TYPICAL OF ALL EXTERIOR DUCTWORK.
 - LANDLORD TO PROVIDE ALL EXTERIOR DUCTWORK AS INDICATED ON THE PLANS AND AS NOTED WITHIN THE SPECIFICATIONS ON SHEETS M590 THROUGH M592. TYPICAL OF ALL EXTERIOR DUCTWORK.
 - LANDLORD TO PROVIDE DUCTWORK WITHIN DOGHOUSE, ON ROOF, AND STUBBED DOWN INTO SPACE.
 - LANDLORD TO PROVIDE RTUS WITH DUCT DISCHARGE THROUGH THE CURB. CURBS ARE TO BE INSTALLED ON BUILDING DUNNAGE. REFERENCE LANDLORD DRAWINGS FOR ADDITIONAL INFORMATION.
 - OUTDOOR INTAKE DUCTWORK TO BE A MINIMUM OF 15'-0" FROM ANY DISCHARGE OUTLET, EXHAUST FAN, PLUMBING VENT OR SIMILAR. DUCTWORK TO BE TERMINATED WITH BUG SCREEN.
 - DUCTWORK TO BE SIZED AT 18/18 OR EQUAL.
 - PROVIDE BESTROOM EXHAUST TERMINATION WITH TAPERED END AND BUG SCREEN.
 - DUCTWORK TO BE ROUTED THROUGH WALLS OF CURB. DUCT CONNECTIONS TO BE FIELD MODIFIED AS REQUIRED TO TRANSITION FROM RTU THROUGH SIDE OF CURB.

- ALL MECHANICAL EQUIPMENT IS REQUIRED TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS WHICH SHALL BE AVAILABLE AT THE JOB SITE. ALL THE MECHANICAL EQUIPMENT SHALL BEAR THE LABEL OF AN APPROVED AGENCY.

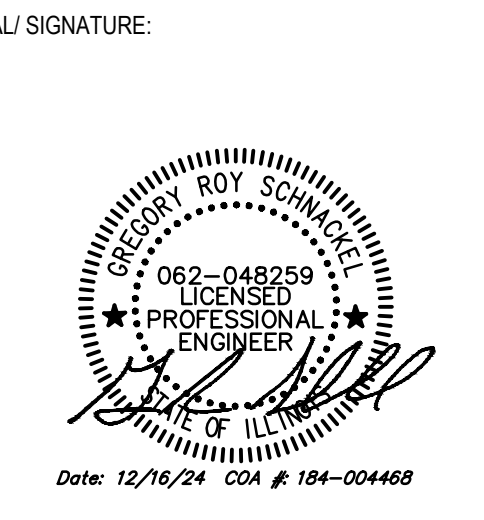
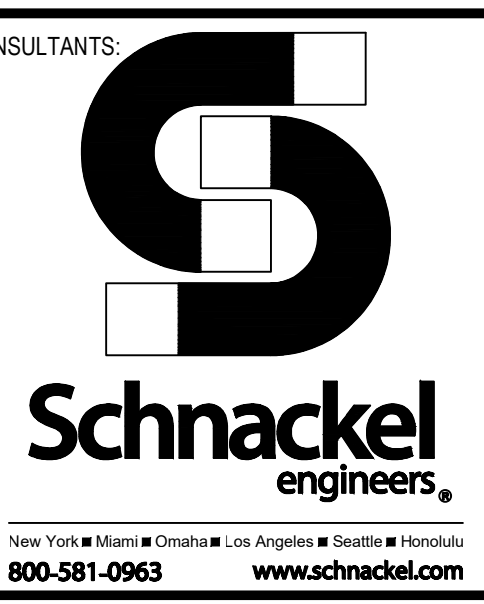
- THE EQUIPMENT AND COMPONENT PERFORMANCE INFORMATION FOR THE HEATING VENTILATING AND AIR CONDITIONING SYSTEMS ARE DESIGNED AND INSTALLED FOR THE EFFICIENT UTILIZATION OF ENERGY.

- VERIFY ALL MECHANICAL EQUIPMENT HAS BEEN TESTED TO THE APPROPRIATE ENERGY STANDARDS.

- A COPY OF THE REQUIRED TEST AND BALANCE REPORT SHALL BE SUBMITTED TO THE VILLAGE PRIOR TO FINAL INSPECTION



9310 E. HIGH STREET SUITE 350
PHOENIX, AZ 85054
TJ 480.448.6250
WWW.SARGARCH.COM



NO.	BY	DATE	DESCRIPTION
1	FN	2024-08-12	PERMIT / BID SET
2	FN	2024-07-22	75% SET



SHAKE SHACK ELSTON & LOGAN

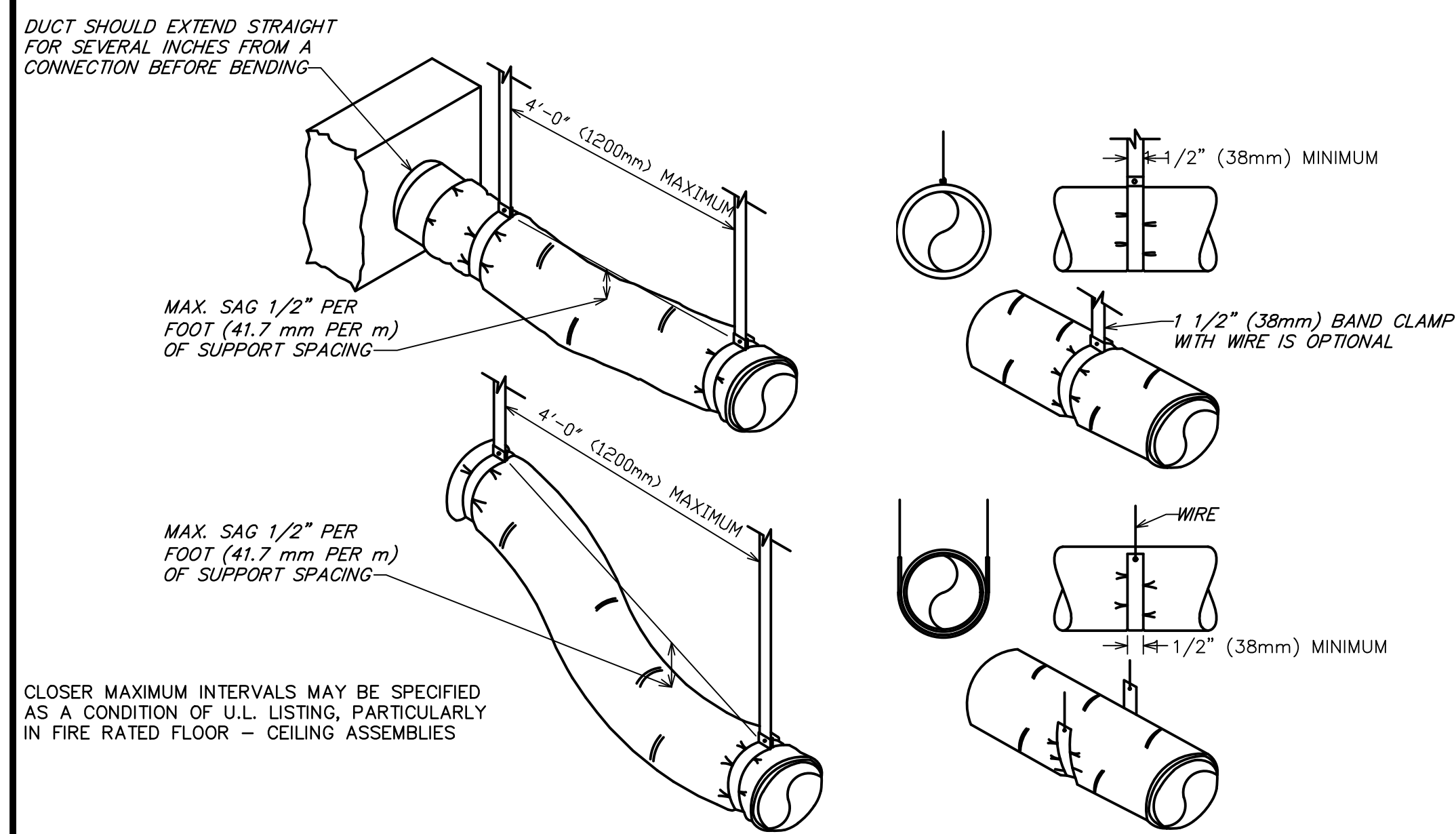
2700 NORTH ELSTON AVE, UNIT 100
CHICAGO, IL 60647
SHACK #1620

PERMIT SET

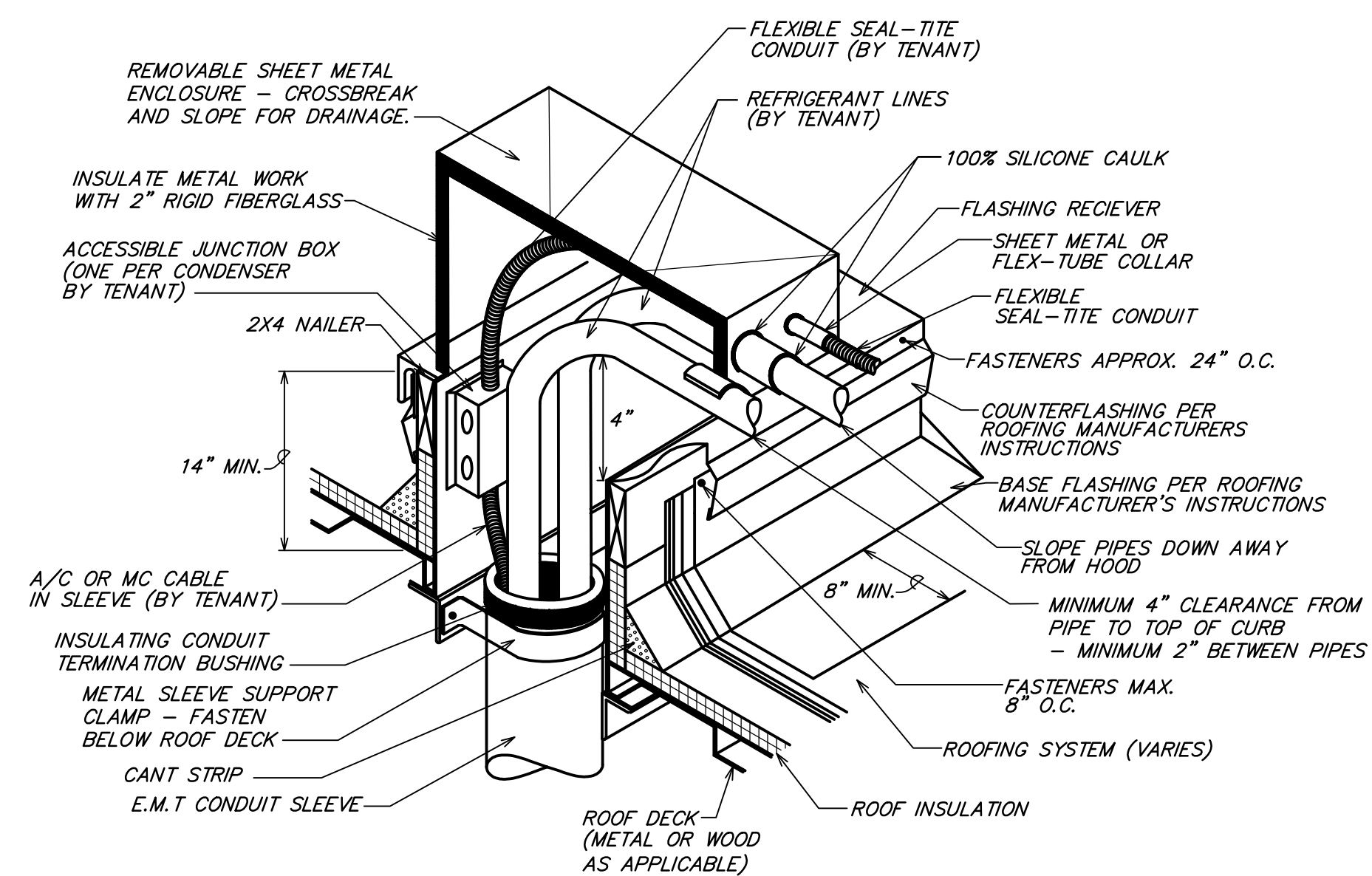
MECHANICAL ROOF PLAN

DRAWN BY:
CHECKED BY: GRS
PROJECT NO: 11160-24

M150

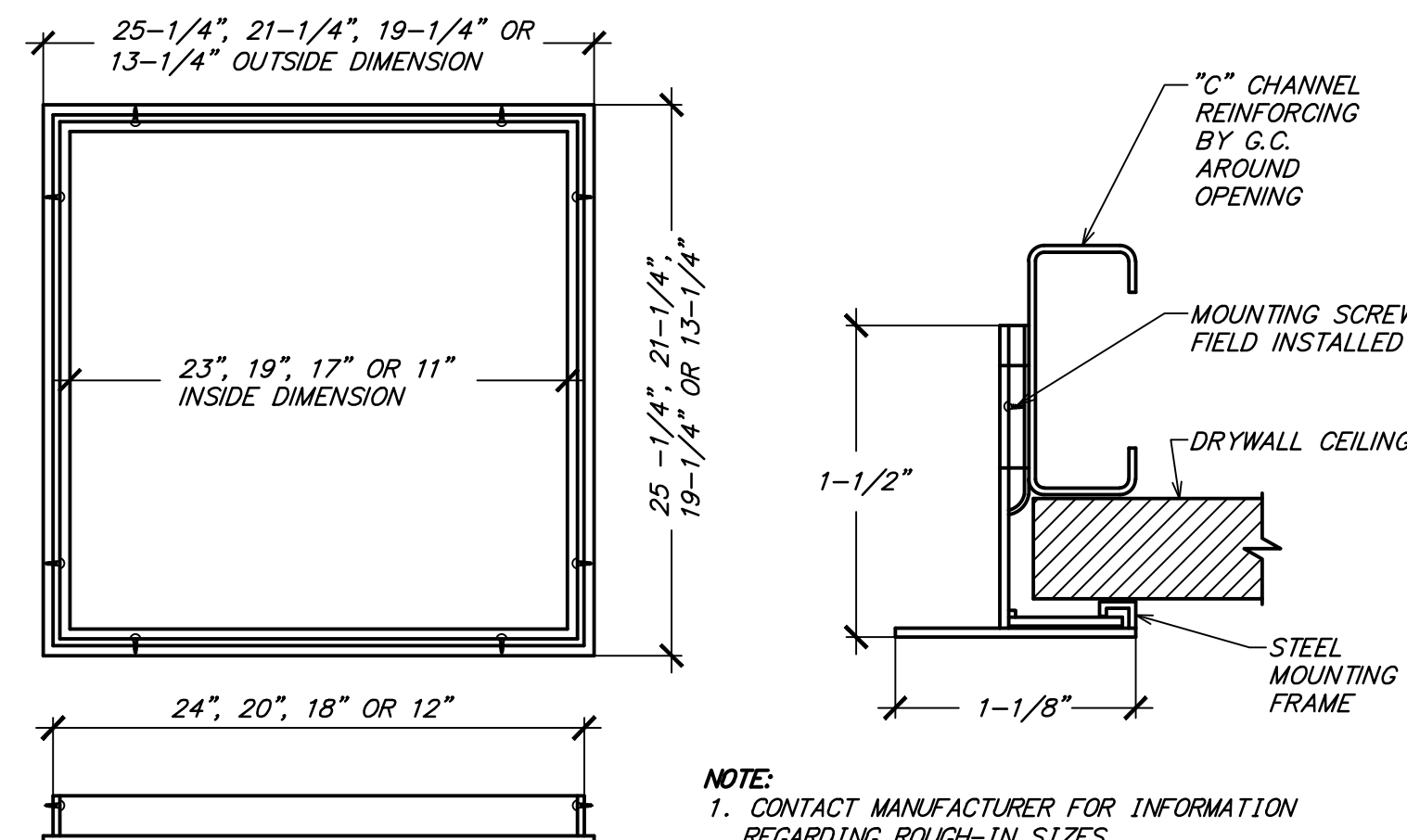


9 FLEXIBLE DUCT SUPPORTS
NOT TO SCALE



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

11 HOOD FASTENING DETAIL
NOT TO SCALE



7 TYPICAL DRYWALL MOUNTING FRAME DETAIL
NOT TO SCALE

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.

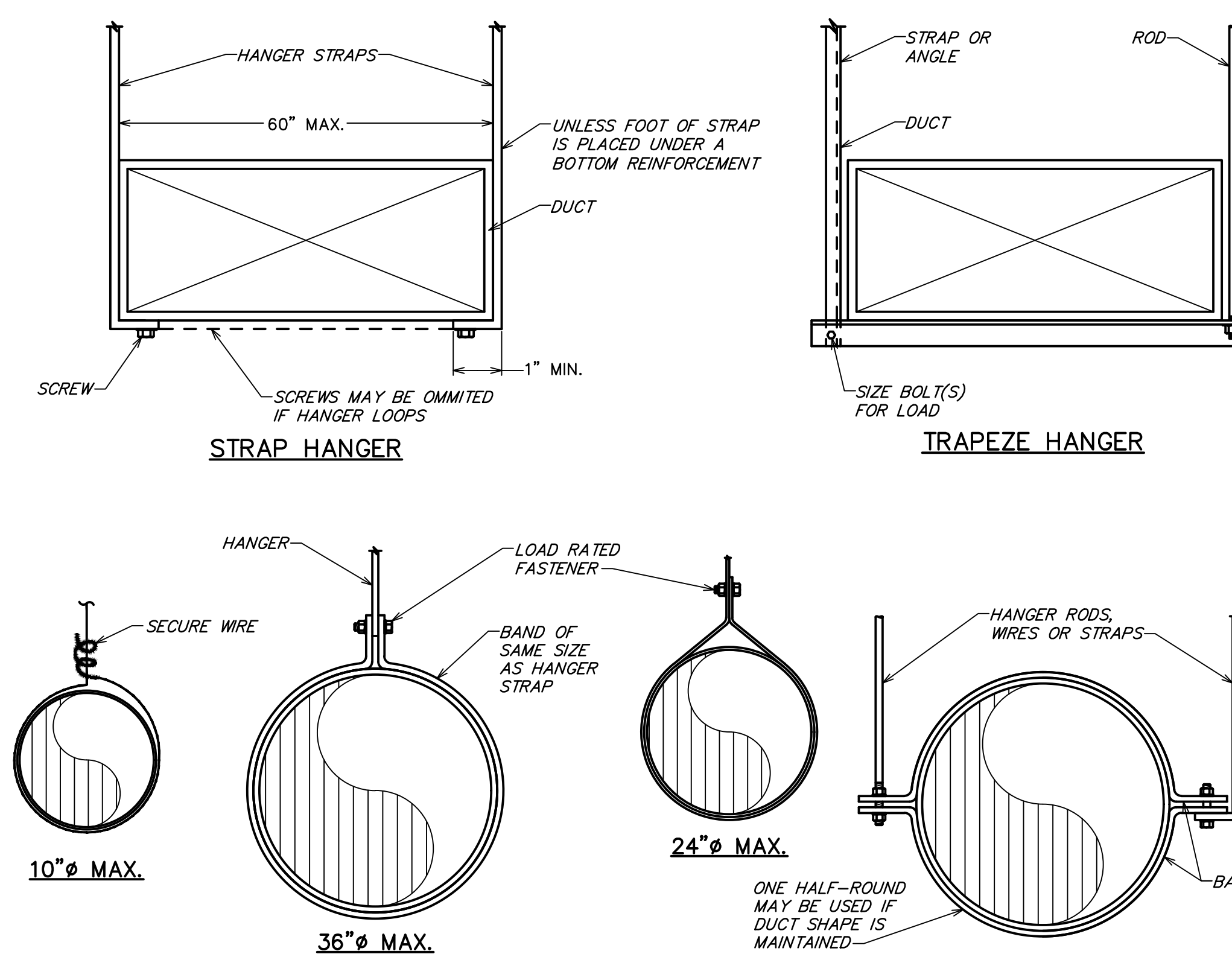
5 ROUND DUCT HANGER TABLE
NOT TO SCALE

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							

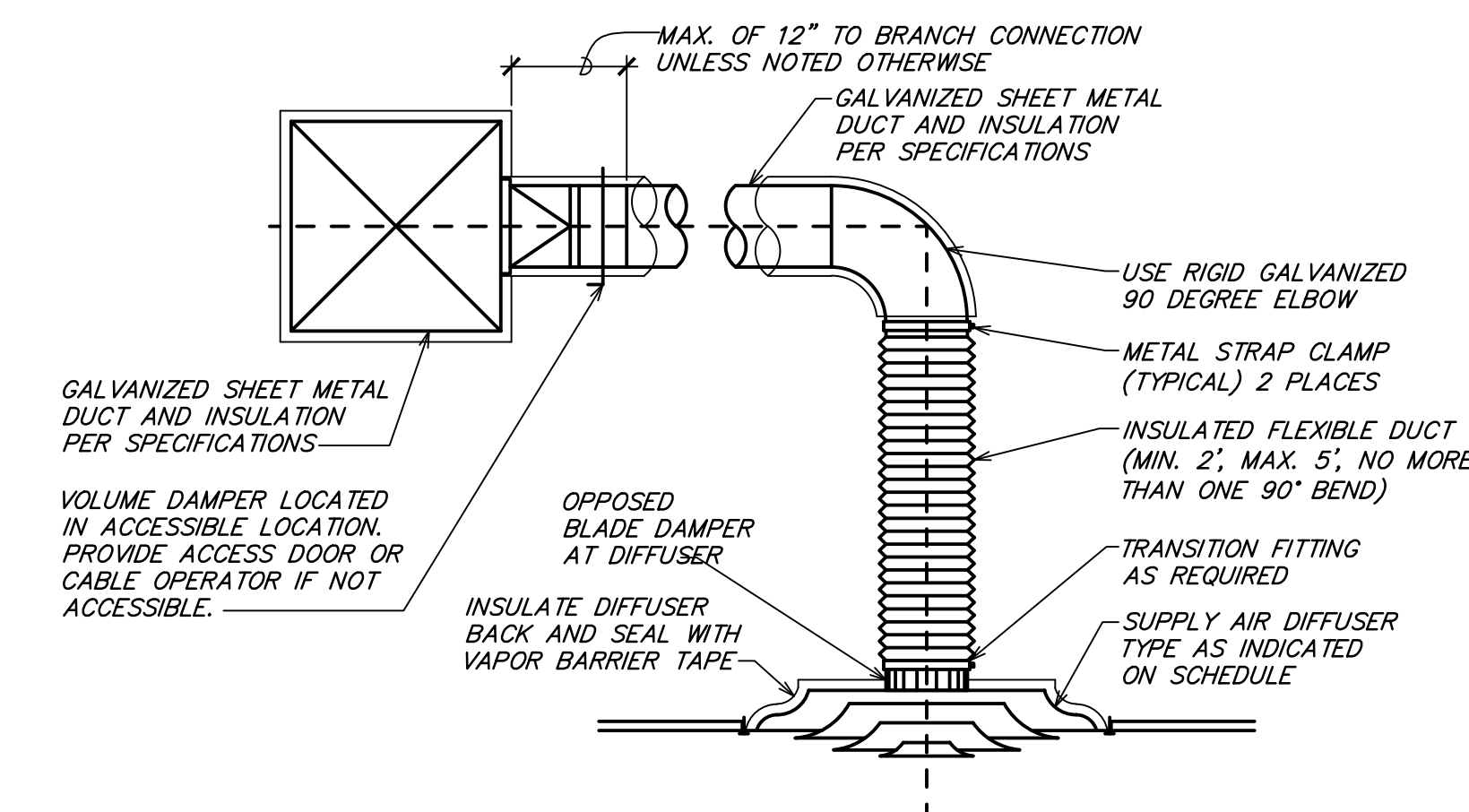
WHEN STRAPS ARE LAP JOINED USE THESE MINIMUM FASTENERS:	SINGLE HANGER MAXIMUM ALLOWABLE LOAD	
	STRAP	WIRE OR ROD (DIA.)
1" x 18, 20, 22 GA. - TWO #10 OR ONE 1/4" BOLT	1" x 22 GA. - 260 LBS.	0.106" - 80 LBS.
1" x 16 GA. - TWO 1/4" DIA.	1" x 20 GA. - 320 LBS.	0.135" - 120 LBS.
1" x 16 GA. - TWO 3/8" DIA.	1" x 18 GA. - 420 LBS.	0.162" - 160 LBS.
PLACE FASTENERS IN SERIES, NOT SIDE BY SIDE.	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 OF BLACK ANNEALED, BRIGHT BASIC OR GALVANIZED TYPE.
6. DUCTS SHALL BE SUPPORTED AT INTERVALS NOT EXCEEDING 10 FEET.

8 RECTANGULAR DUCT HANGER TABLE
NOT TO SCALE

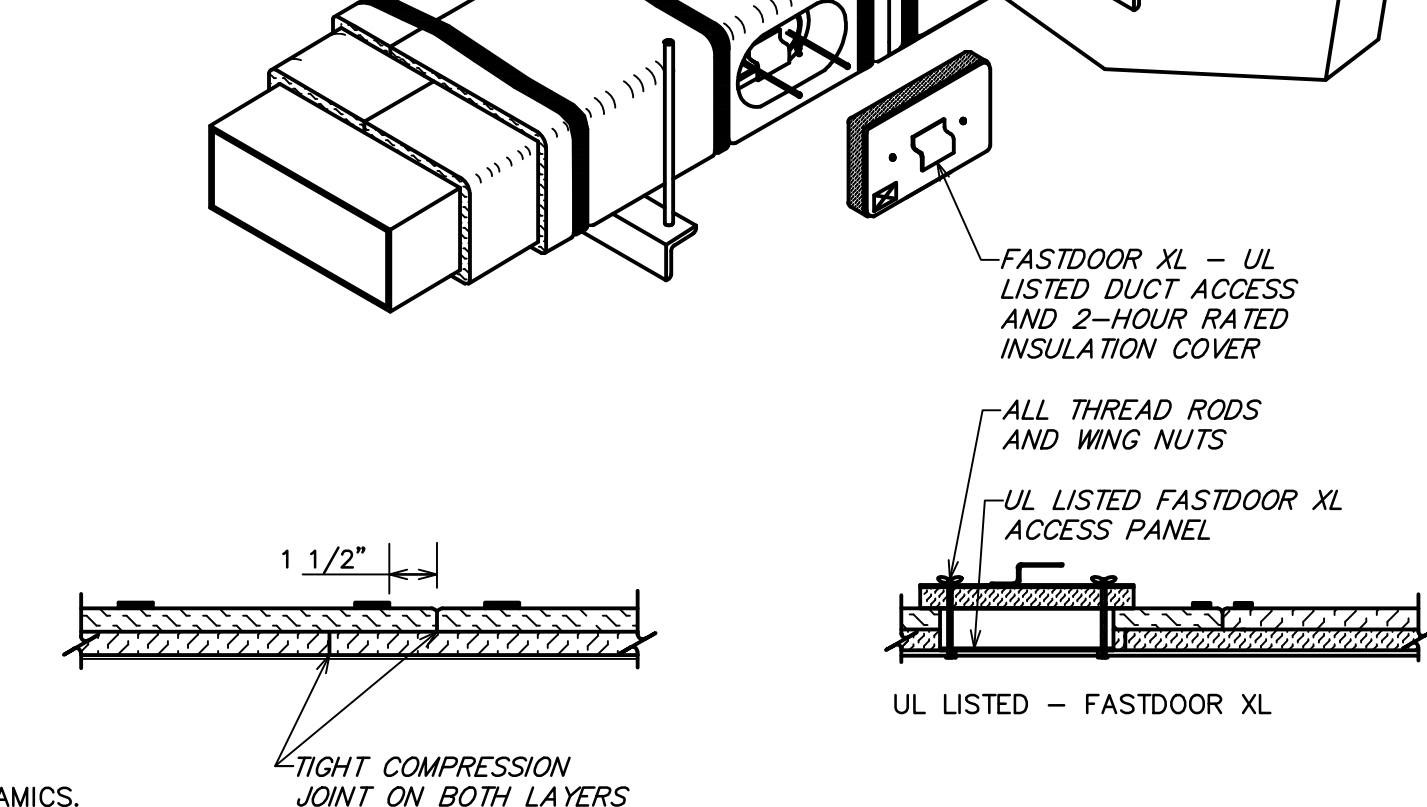


6 DUCT HANGER DETAIL
NOT TO SCALE

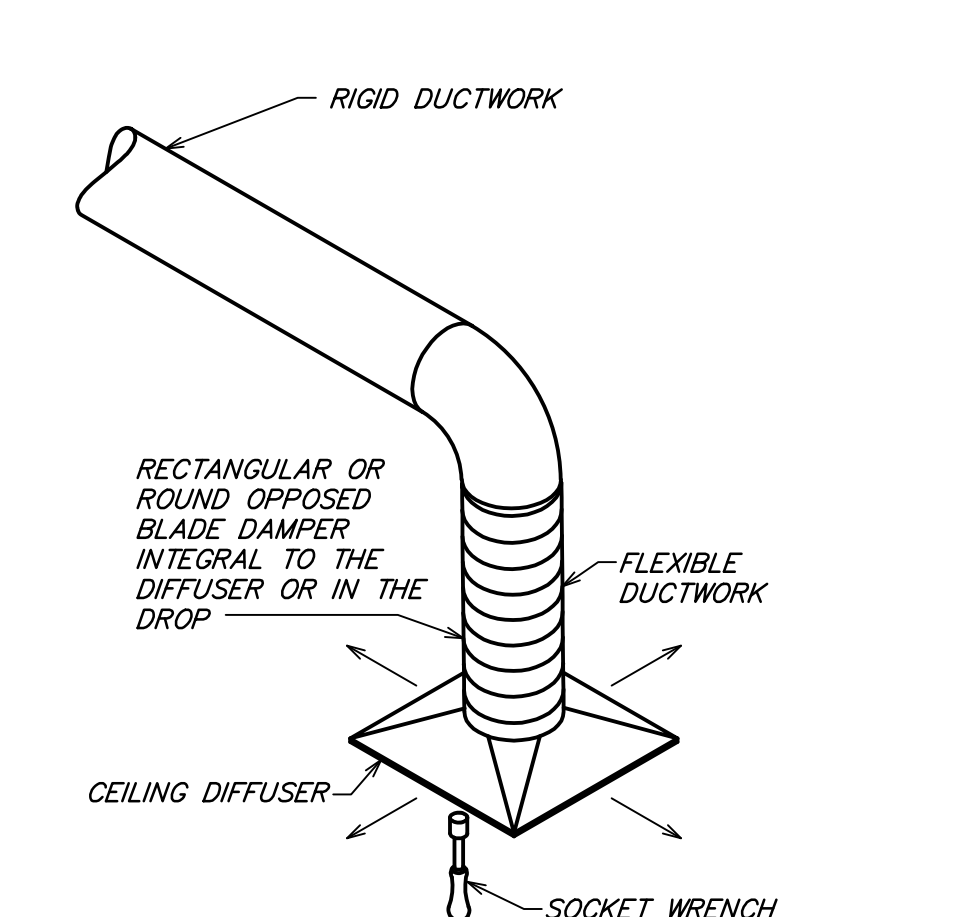


1 TYPICAL DIFFUSER CONNECTION
NOT TO SCALE

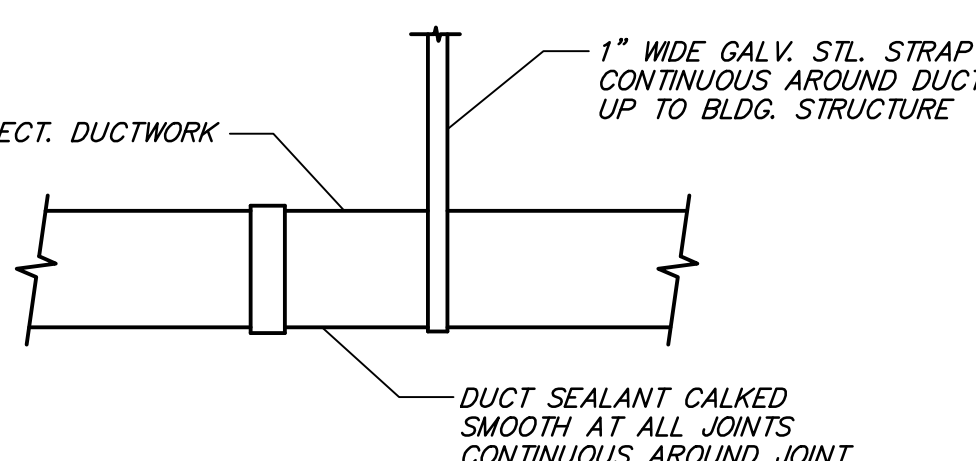
NOTES:
1. THERMAL CERAMICS FIREMASTER FASTWRAP XL IS TESTED TO ASTM E2336 AND UL LISTED PER HINT-016 TO PROVIDE ZERO CLEARANCE TO COMBUSTIBLES AND TO PROVIDE A 1 OR 2 HOUR EXPOSURE. THROUGH PENETRATIONS FIRESTOP SYSTEMS ARE TESTED IN ACCORDANCE WITH ASTM E 814 (UL 1479). ICC-ES APPROVAL PER REPORT ESR-2213 OR ESI 2835.
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 2 x 1/8 IN. STEEL ANGLE OR SMAWVA 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.



2 FIREMASTER FASTWRAP XL DETAIL
NOT TO SCALE

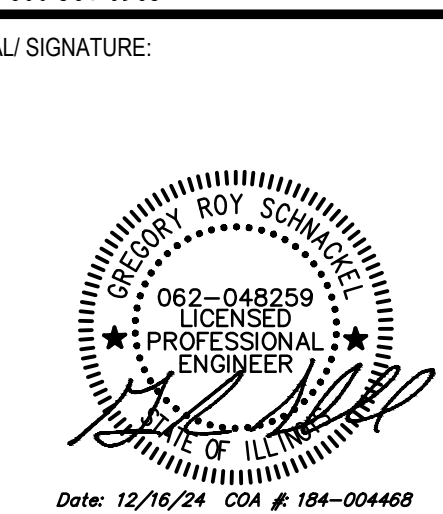
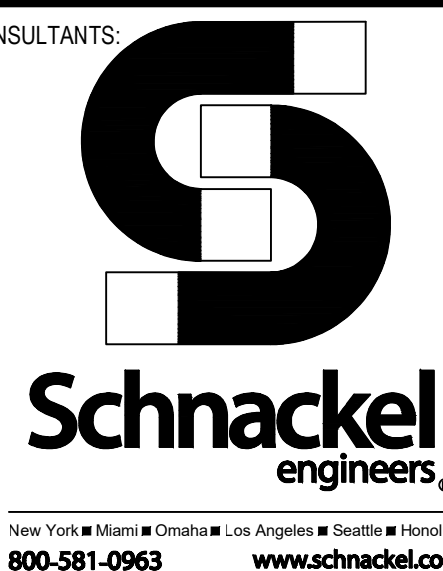


3 REMOTE VOLUME DAMPER CONTROLLER
NOT TO SCALE



4 EXPOSED RECTANGULAR DUCT SUPPORT DETAIL
NOT TO SCALE

8310 E. HIGH STREET SUITE 350
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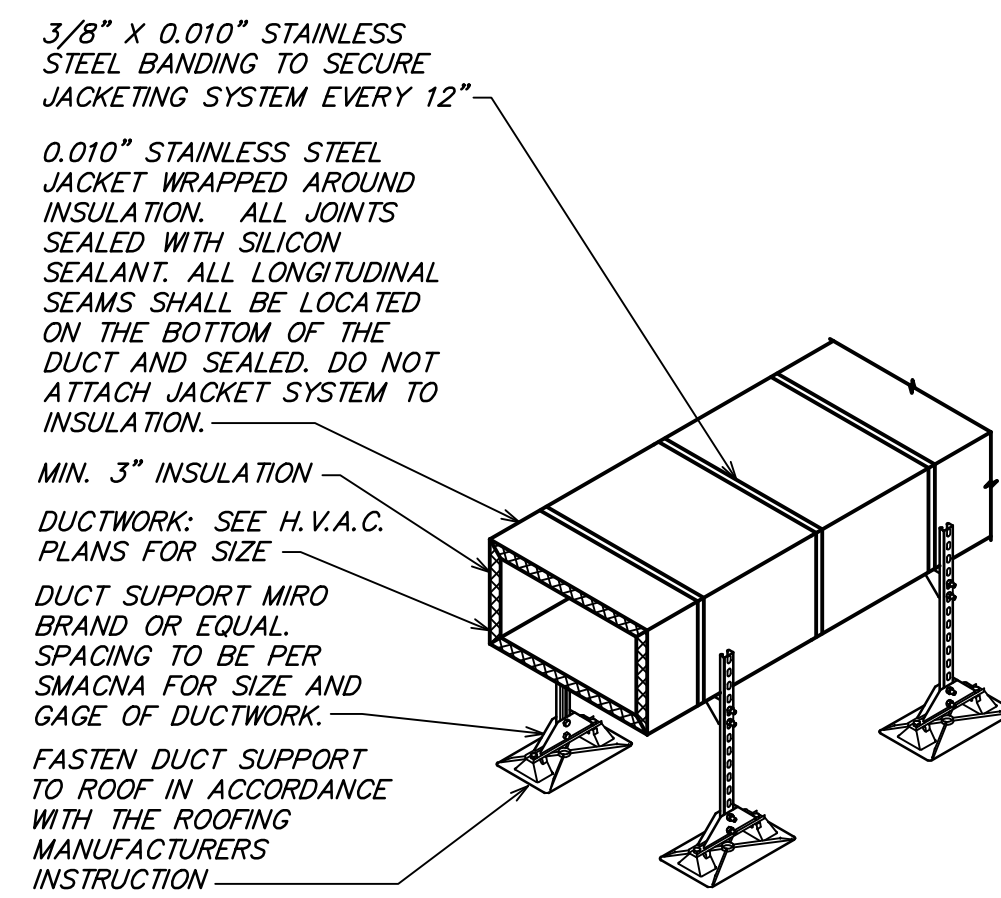
2700 NORTH ELSTON AVE, UNIT 100
CHICAGO, IL 60647
SHACK #1620

PERMIT SET

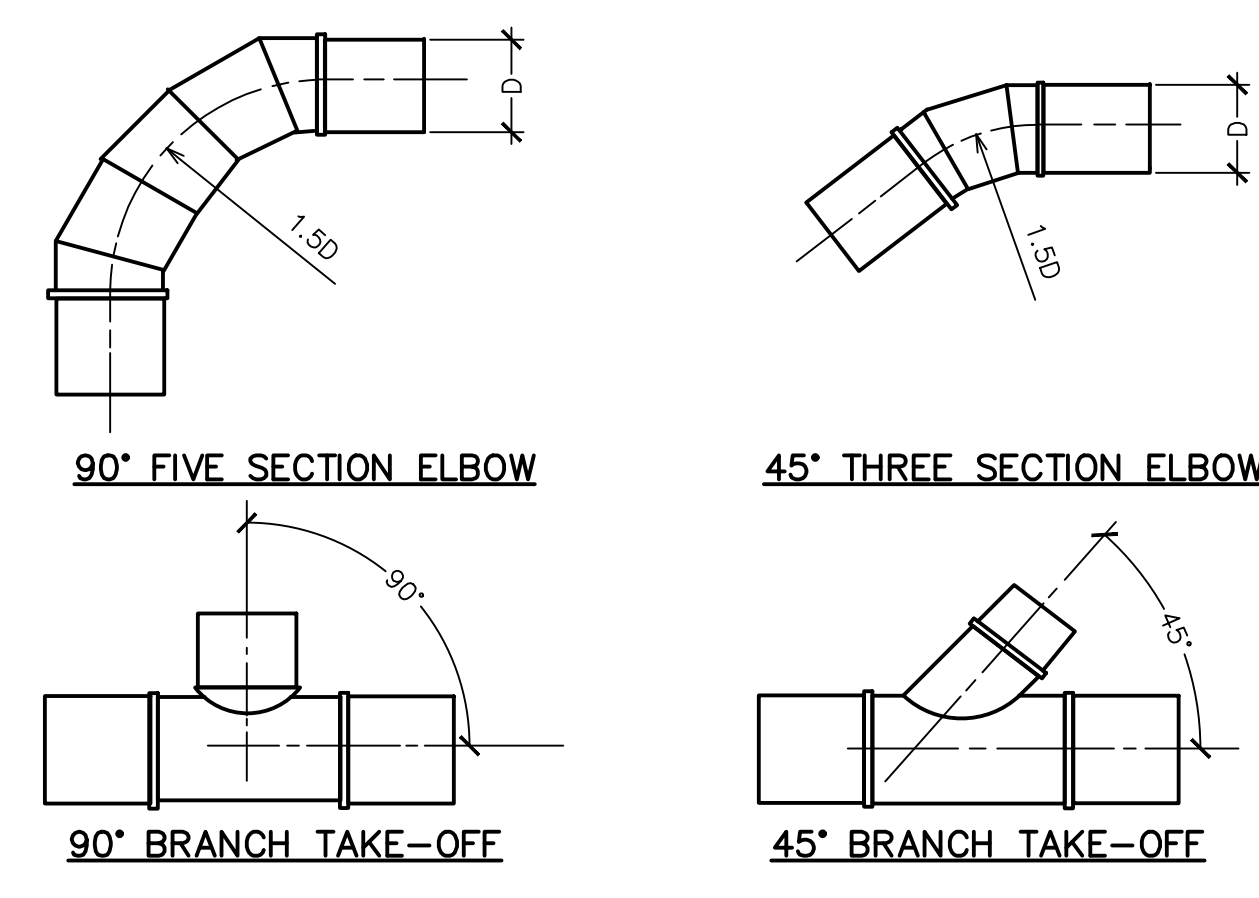
MECHANICAL DETAILS

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CHECKED BY:	GRS
PROJECT NO:	11160-24

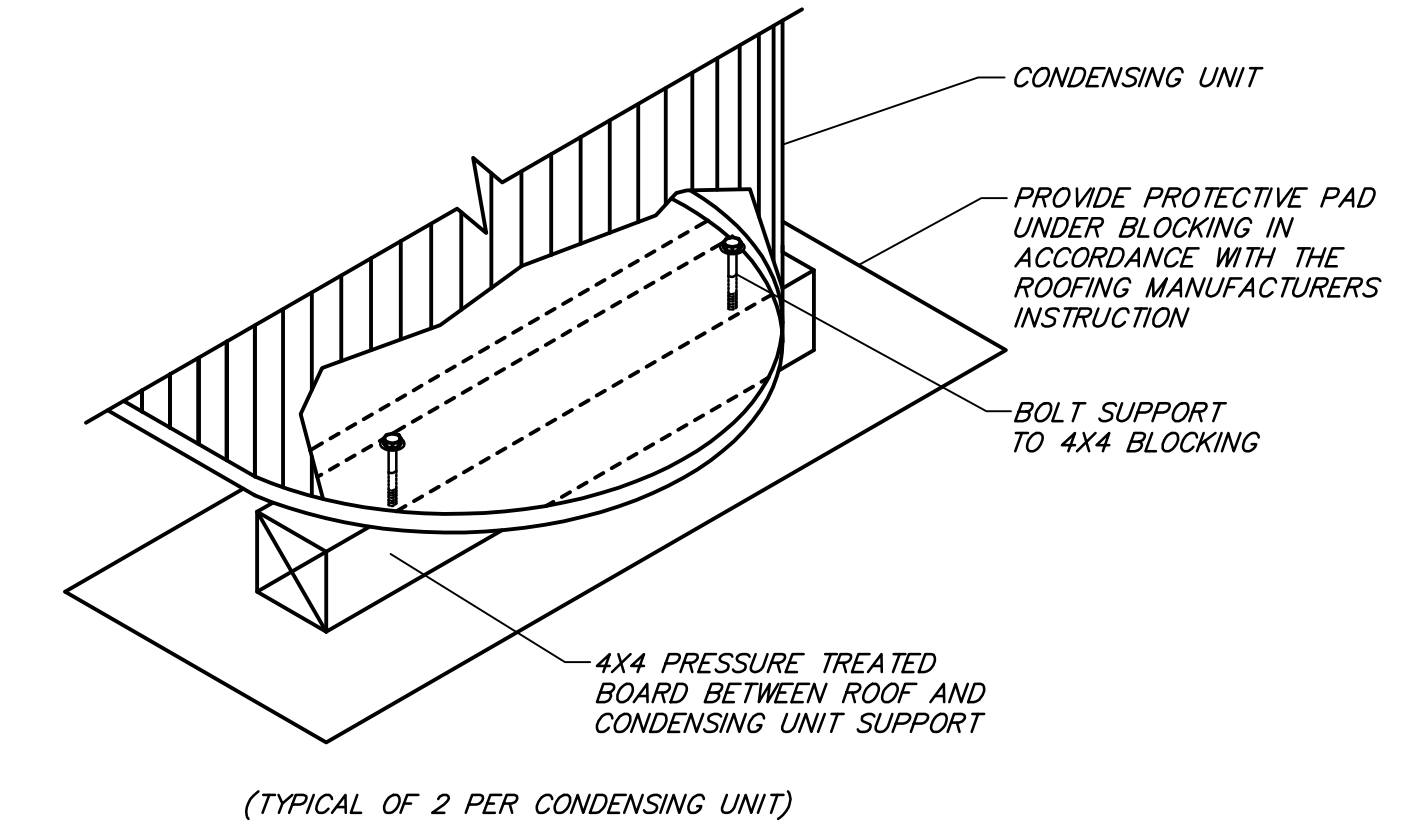
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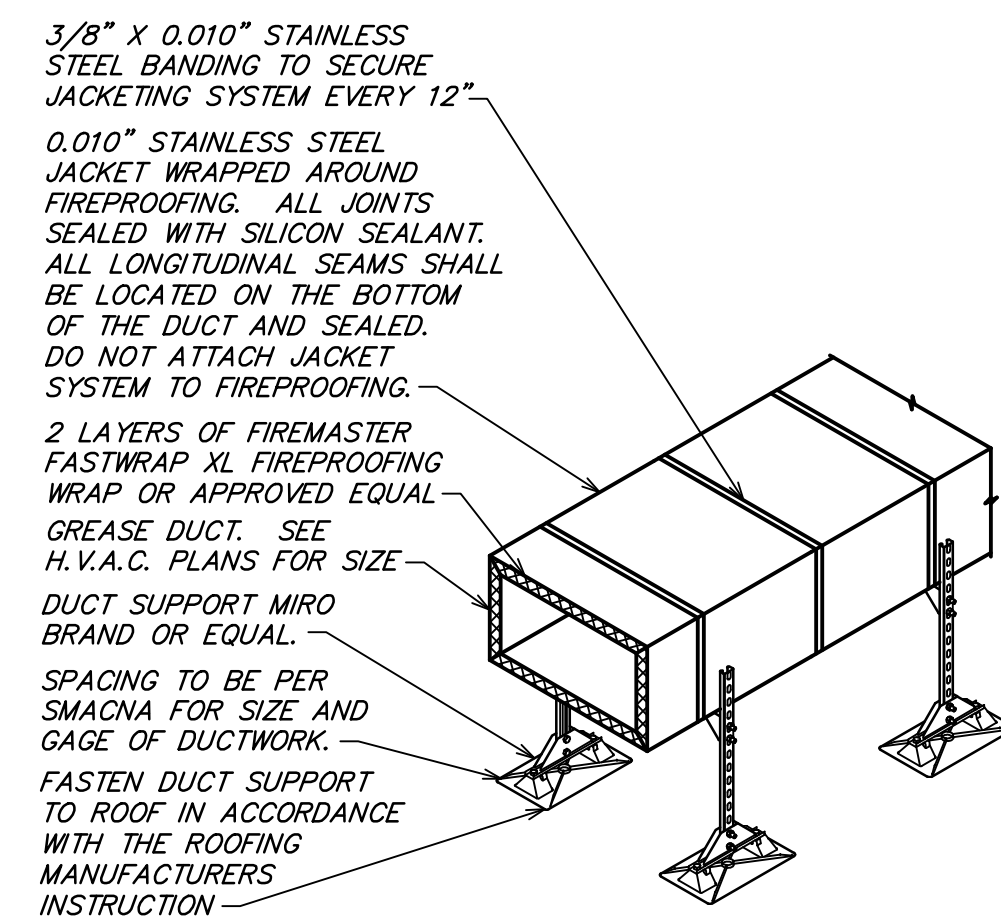
8 EXTERIOR DUCT SECTION
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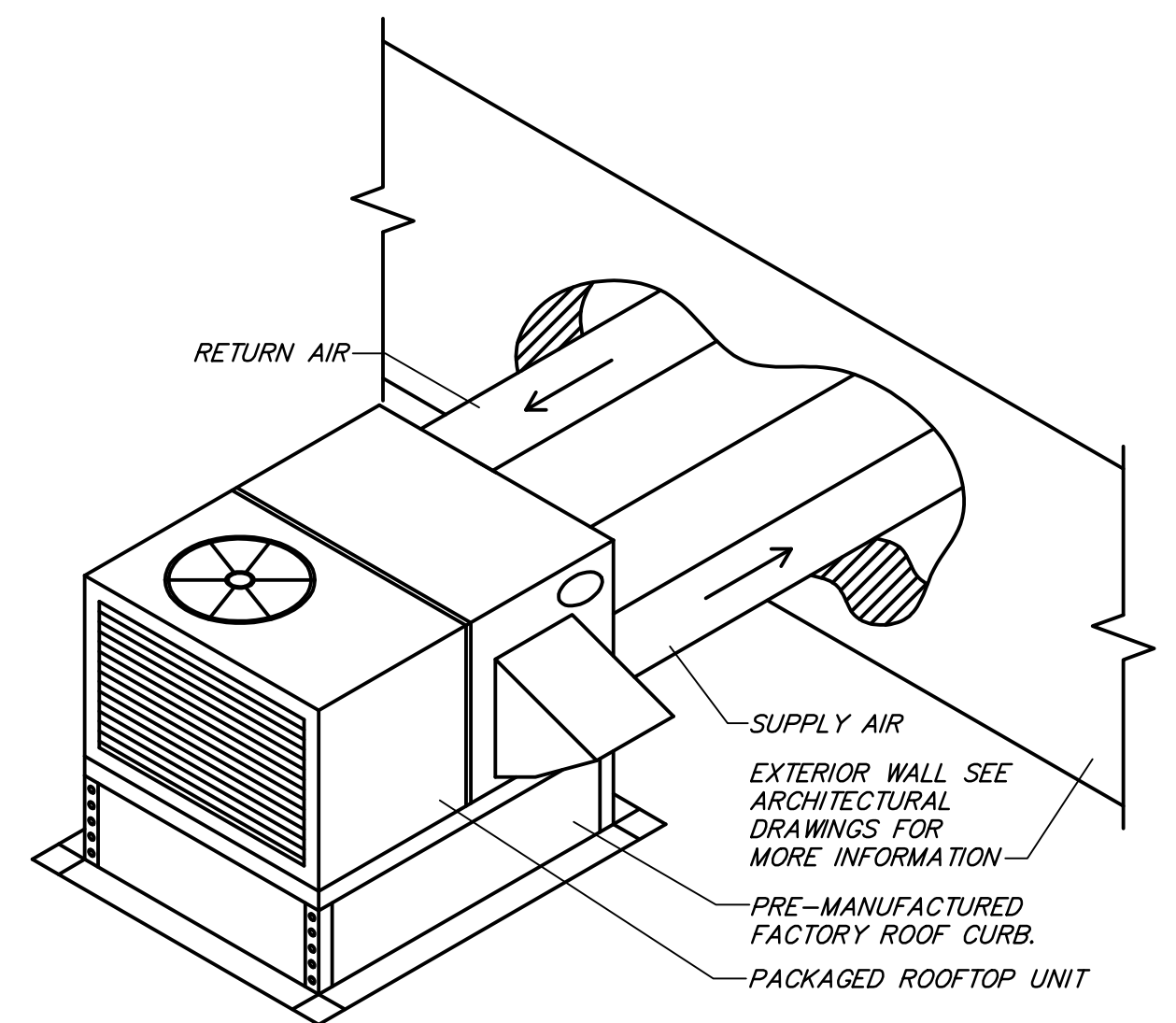
5 TYPICAL ROUND DUCT FITTINGS
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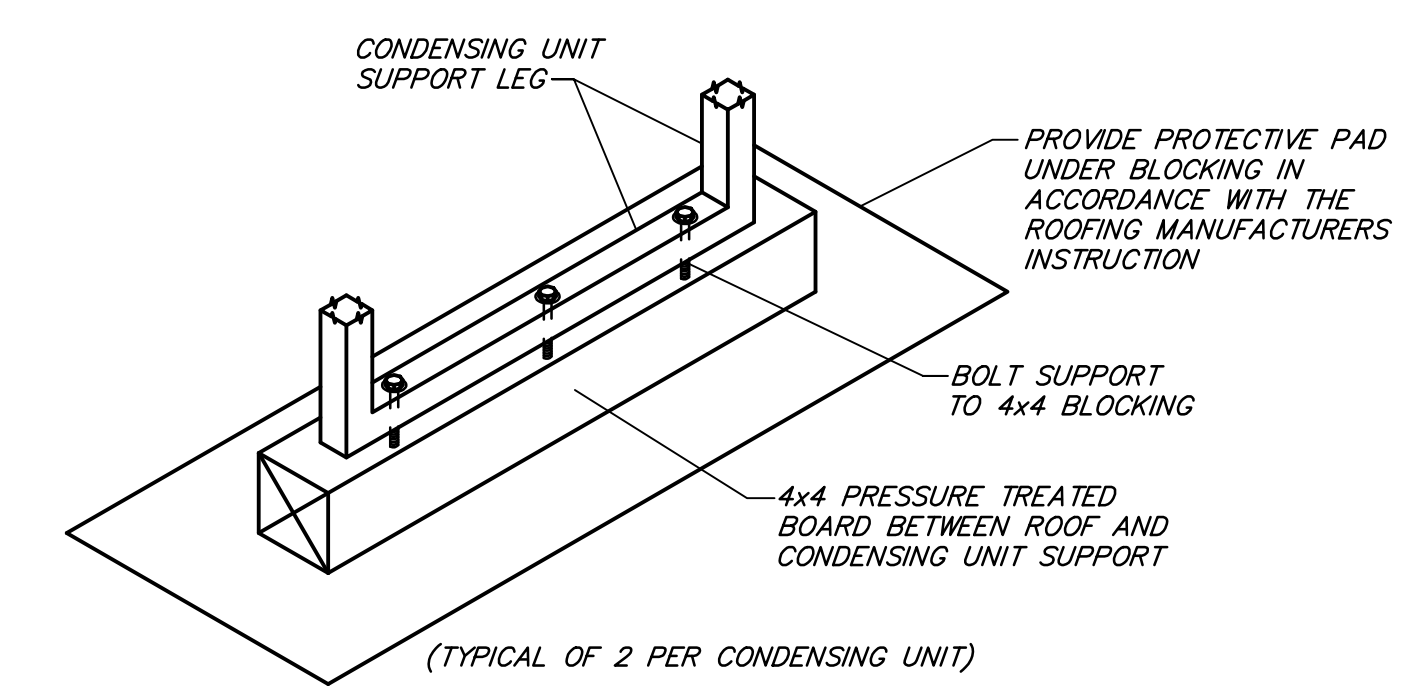
1 CONDENSING UNIT SUPPORT DETAIL
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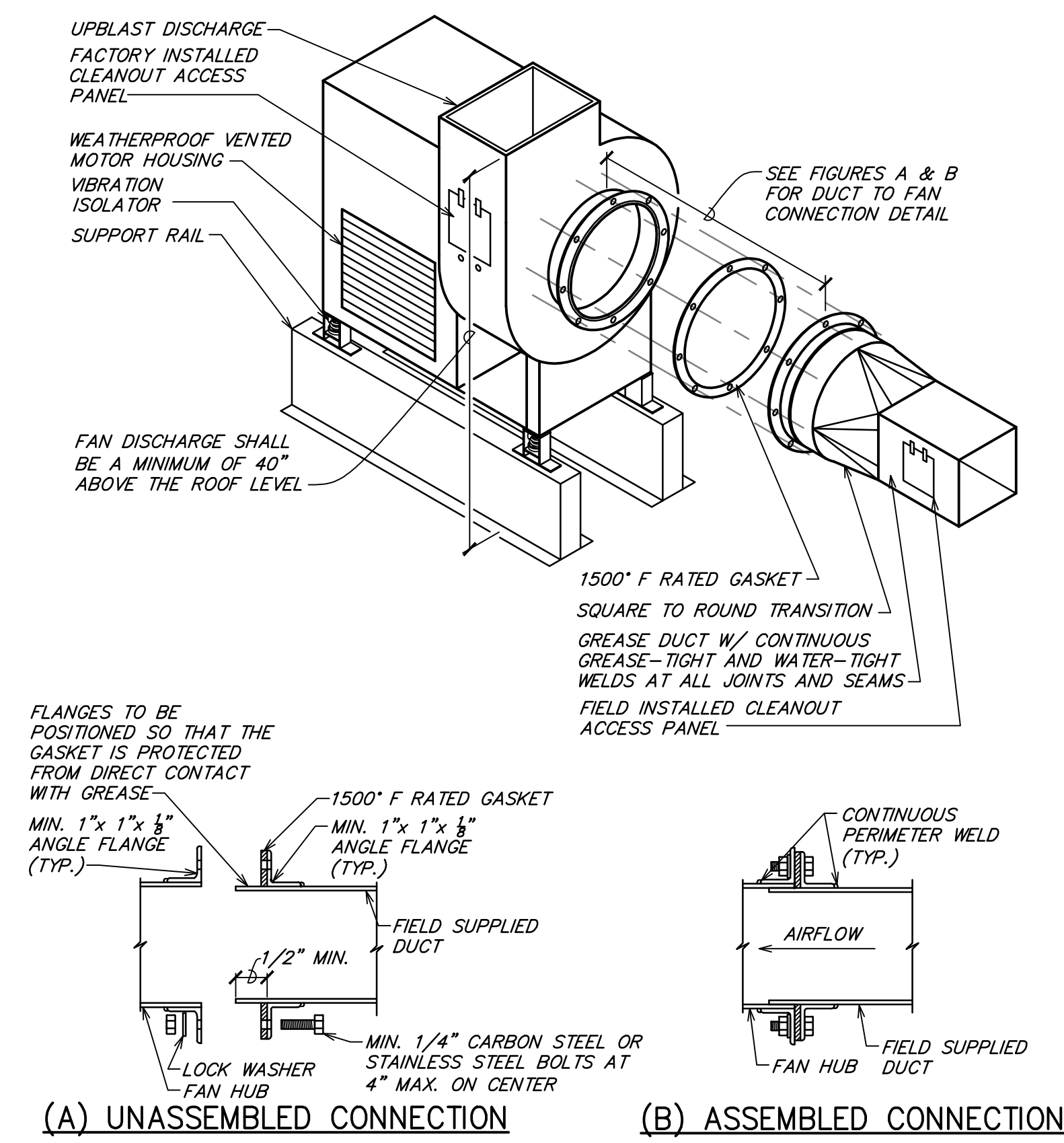
9 TYPICAL EXTERIOR GREASE DUCT SECTION
NOT TO SCALE



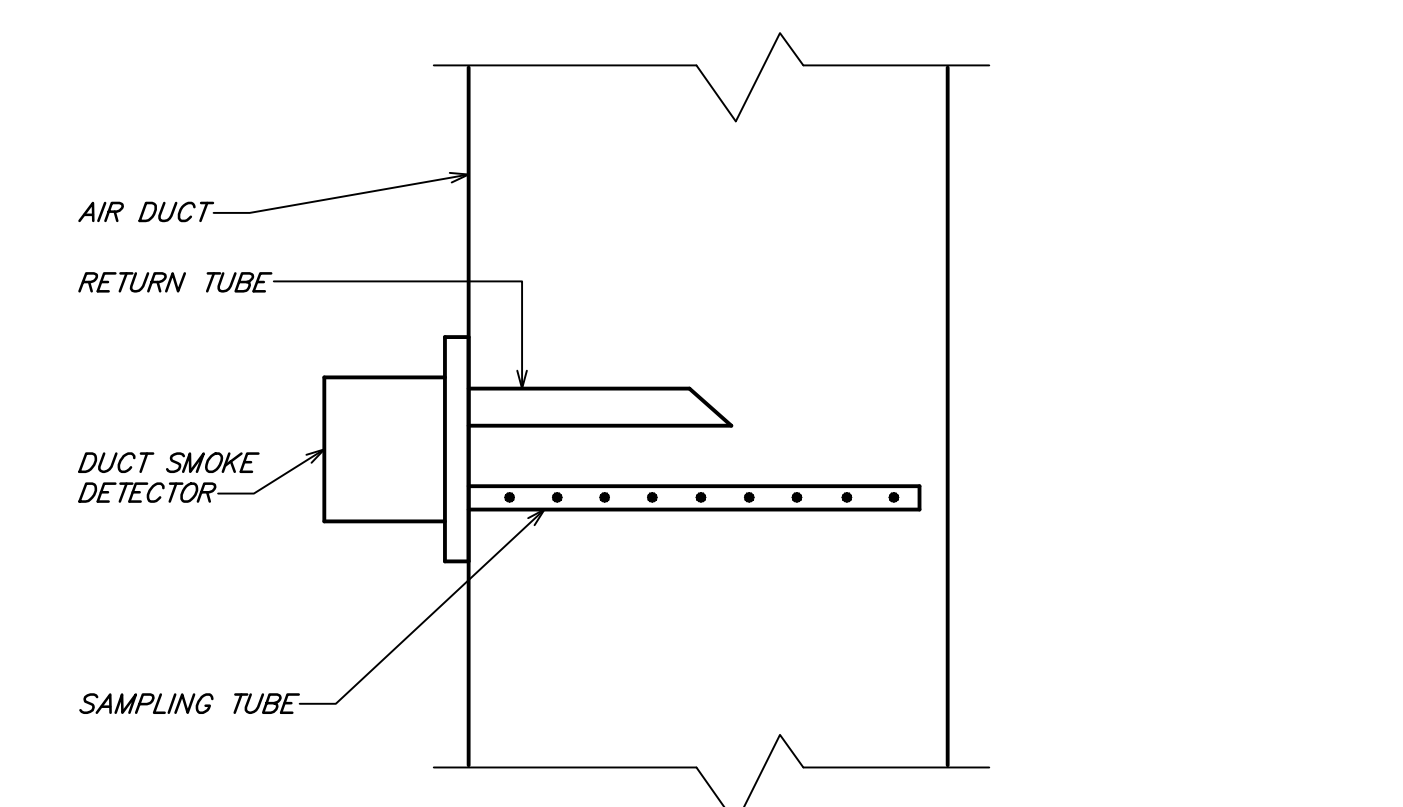
6 HORIZONTAL DISCHARGE DUCTING
NOT TO SCALE



2 CONDENSING UNIT SUPPORT DETAIL
NOT TO SCALE

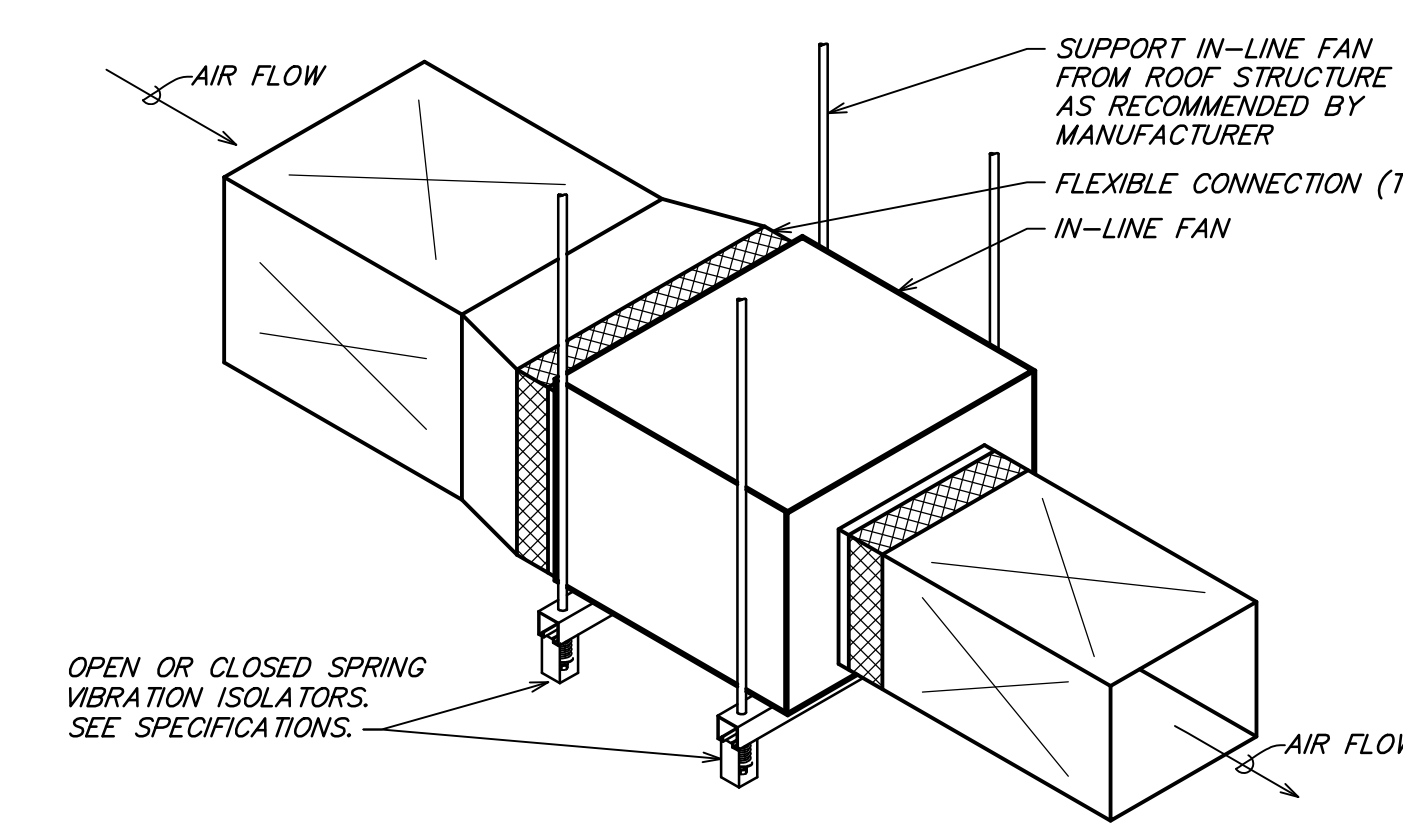


7 UTILITY SET GREASE EXHAUST FAN
NOT TO SCALE



NOTE:
1. DUCT SMOKE DETECTOR ON RETURN AND/OR SUPPLY 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.

3 DUCT SMOKE DETECTOR DETAIL
NOT TO SCALE

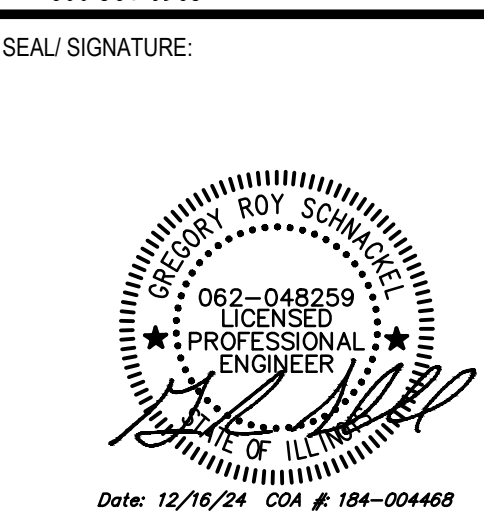


4 IN-LINE FAN DETAIL
NOT TO SCALE

5310 E. HIGH STREET SUITE 350
PHOENIX, AZ 85054
TJ 480.448.6250
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CONSULTANTS:
Schnackel engineers
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SHACK #1620

PERMIT SET

MECHANICAL DETAILS

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CHECKED BY: GRS
PROJECT NO: 11160-24

M502

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compliance of the selected material is the sole responsibility of the installing Contractor.

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Perform total system balance in accordance with one of the following:
1. AABC MN-1, AABC National Standards for Total System Balance.
2. ASHRAE Std 111, Practices for Measurement, Testing, Adjusting and Balancing of Building Heating, Ventilation, Air-Conditioning, and Refrigeration Systems.
3. NEBB Procedural Standards for Testing Adjusting Balancing of Environmental Systems.

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3810 E. HIGH STREET SUITE 350
PHOENIX, AZ 85054
TJ 480.448.6250
WWW.SARGARCH.COM

INTEGRATED
Schnackel
engineers

CONSULTANTS:
Schnackel
engineers

NEW YORK MIAMI CHICAGO LOS ANGELES HOUSTON PHOENIX
800-581-0963 www.schnackel.com

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SHAKE SHACK
SHAKE SHACK ELSTON & LOGAN

2700 NORTH ELSTON AVE, UNIT 100
CHICAGO, IL 60647
SHACK #1620

PERMIT SET

MECHANICAL SPECIFICATIONS

DRAWN BY:
CHECKED BY: GRS
PROJECT NO: 11160-24

M590

Identify on ductwork shop drawings any deviations in sizes or shapes made necessary by the obstructions of other trades.
B. Test Reports: Indicate pressure testing results, include date, section tested, test pressure, and leakage rate, following SMACNA (LEAK) - HVAC Air Duct Leakage Test Method.

1.04 REGULATORY REQUIREMENTS
A. Construct ductwork to NFPA 90A, NFPA 90B, and NFPA 96 standards.
B. Code or utility company requirements shall supersede any conflicting requirements of this Section.

1.05 FIELD CONDITIONS
A. Do not install duct sealants when temperatures are less than those recommended by sealant manufacturers.
B. Maintain temperatures within acceptable range during and after installation of duct sealants.

PART 2 PRODUCTS

2.01 MATERIALS
A. Galvanized Steel Ducts: Hot-dipped galvanized steel sheet, ASTM A 653/A 653M F5 Type B, with G90/Z275 coating.
B. Steel Ducts: ASTM A 1008/A 1009, Designation CS, cold-rolled commercial steel.
C. Aluminum Ducts: ASTM B 209 (ASTM B 209M), aluminum temp. alloy 3003-H14, Aluminum Connectors and Bar Stock: Alloy 6061-T651 or of equivalent strength.
D. Insulated Flexible Ducts:
1. The Contractor may use any of the following ductwork materials, at his option, provided the selected material meets with the approval of all State, local authorities and utility company requirements. Verification of compliance of the selected ductwork material is the sole responsibility of the installing Contractor.
2. Two ply vinyl film supported by helically wound spring steel wire; fiberglass insulation; aluminum vapor barrier film.
a. Pressure Rating: 10 inches WG positive and 1.0 inches WG negative.
b. Maximum Velocity: 4000 fpm.
c. Temperature Range: -10 degrees F to 160 degrees F.
d. Minimum R-Value: 4.2 or greater as required by the applicable energy codes.
3. Black polymer film supported by helically wound spring steel wire; fiberglass insulation; aluminum vapor barrier film.
a. Pressure Rating: 4 inches WG positive and 0.5 inches WG negative.
b. Maximum Velocity: 4000 fpm.
c. Temperature Range: -20 degrees F to 175 degrees F.
d. Minimum R-Value: 4.2 or greater as required by the applicable energy codes.
4. Multiple layers of aluminum laminate supported by helically wound spring steel wire; fiberglass insulation; aluminum vapor barrier film.
a. Pressure Rating: 10 inches WG positive and 1.0 inches negative.
b. Maximum Velocity: 4000 fpm.
c. Temperature Range: -20 degrees F to 210 degrees F.
d. Minimum R-Value: 4.2 or greater as required by the applicable energy codes.
5. UL 181, Class 1, aluminum laminate and polyester film with latex adhesive supported by helically wound spring steel wire.
a. Pressure Rating: 10 inches WG positive and 1.0 inches WG negative.
b. Maximum Velocity: 4000 fpm.
c. Temperature Range: -20 degrees F to 210 degrees F.
d. Minimum R-Value: 4.2 or greater as required by the applicable energy codes.

6. UL 181, Class 0, interlocking spiral of aluminum foil; fiberglass insulation; aluminum vapor barrier film.
a. Pressure Rating: 8 inches WG positive or negative.
b. Maximum Velocity: 5000 fpm.
c. Temperature Range: -20 degrees F to 250 degrees F.
d. Minimum R-Value: 4.2 or greater as required by the applicable energy codes.

E. Joint Sealers and Sealants: Non-hardening, water resistant, mildew and mold resistant.
1. Type: Heavy mastic or liquid used alone or with tape, suitable for joint configuration and compatible with substrates, and recommended by manufacturer for pressure class of ducts.
2. VOC Content: Not more than 250 g/L, excluding water.
3. Surface Burning Characteristics: Flame spread of zero, smoke developed of zero, when tested in accordance with ASTM E 84.
4. For Use With Flexible Ducts: UL labeled.
5. Ductwork Exposed to the Weather: Cast VersaDrip 102, (VG-102), UL 181-AM compliant duct joint sealer, as manufactured by Carlisle, with fiberglass scrim tape reinforcement on all seams and joints, lateral and longitudinal.

F. Hanger Rods: ASTM A 36/A 36M, steel; threaded both ends, threaded one end, or galvanized threaded.

2.02 DUCTWORK FABRICATION
A. Fabricate, support and seal in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.
B. Construct T, bends, and elbows with radius of not less than 1-1/2 times width of duct on centerline. Where not possible and where rectangular elbows must be used, provide turning vanes. Where indicated in accordance with SMACNA, use vanes of perforated metal with glass fiber insulation.
C. Increase duct sizes gradually, not exceeding 15 degrees divergence wherever possible; maximum 30 degrees divergence upstream of equipment and 45 degrees convergence downstream.
D. Fabricate continuously welded round and oval duct fittings two gages heavier than duct gages indicated in SMACNA Standards. Joints shall be minimum 4 inch cemented slip joint, brazed or electric resistance welded. Prime coat minimum 12 x 12 inch standard 45 degree lateral wye takeoffs unless otherwise indicated where 90 degree conical takeoffs are required.
E. Where ducts are connected to exterior wall louvers and duct inside is smaller than louver frame, provide blank-out panels sealing louver area around duct. Use same material as duct, painted to match exterior finish. Provide minimum 2 inch overlap exterior grade ductwork.
1. All supply and return ductwork installed on the exterior of the building (roofs, slab on grade, on exterior walls, etc.) shall be constructed as a water-tight, multi-layer assembly. Do not locate dampers closer than 5 feet or 10 duct diameters from the interior of the ductwork out.
a. 2" minimum thickness interior duct liner.
b. Galvanized steel metal duct, constructed and sealed per SMACNA requirements for the service class specified.
c. 7" minimum thickness fiberglass duct insulation with vapor barrier jacket.
d. Stainless steel outer jacket duct constructed in accordance with SMACNA requirements for low pressure duct. Seal all joints water tight utilizing approved caulking or welded joints. Cross break all top surfaces to facilitate drainage.

2. Provide insulation blocking spacers between the galvanized steel metal inner duct and the stainless steel outer jacket to prevent crushing of the insulation jacket. Locate spacers a maximum of 5'-0" on centers, hydrous calcium silicate insulation. Seal all joints with approved duct sealant. Sealant shall be used for all spacers.
3. Alternative construction methods for exterior mounted ductwork, which achieve a similar level of insulation protection and weather protection, may be submitted by the contractor prior to bidding. Acceptance of alternate construction methods for exterior mounted ductwork shall be at the sole discretion of the Engineer.

2.03 DUCT MANUFACTURERS
A. Metal-Fab, Inc.; SEMCO Incorporated; United McGill Corporation.

2.04 MANUFACTURED METAL DUCTWORK
A. Manufacture in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated. Provide duct material, gages, reinforcing, and sealing for operating pressures indicated.
B. Round Spiral Ducts: Machine made from round spiral lockseam duct with light reinforcing compound; fittings made from galvanized steel that match duct.
C. Double Wall Insulated Round Ducts: Round spiral lockseam duct with galvanized steel outer wall, 1 inch thick fiberglass insulation, perforated galvanized steel inner wall; fitting with solid inner wall.
D. Transverse Duct Connection System: SMACNA "E" rated rigid glass connection, interlocking angle and duct edge connection system with sealant, gasket, metal, and NFPA 96.

2.05 KITCHEN HOOD EXHAUST DUCTWORK, TYPE 1
A. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and NFPA 96.
B. Construct of 18 gage carbon steel or 18 gage stainless steel, using continuous external welded joints.

3.01 EXECUTION
A. Examine drawings for the Architectural, Structural, Electrical and all other trades prior to preparation of ductwork shop drawings and prior to the fabrication of any ductwork.
B. Resolve any conflicts encountered with the Engineer prior to fabrication.
C. Identify on ductwork shop drawings any deviations in sizes or shapes made necessary by the obstructions of other trades.

3.02 INSTALLATION
A. Install in accordance with manufacturer's instructions.
B. Duct sizes indicated are inside clear dimensions. For lined ducts, maintain sizes inside lining.
C. Install and seal metal and flexible ducts in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible.
D. Provide openings in ductwork where required to accommodate thermometers and controllers. Provide pilot tube openings where required for testing of systems, complete with metal can with spring device or screw to ensure airtight or leakage. Where openings are provided in insulated ductwork, install insulation material inside metal ring.
E. Locate ducts with sufficient space around equipment to allow normal operating and maintenance activities.
F. Use clamp nuts with or without band for joining round duct sizes 8 inch and smaller with crimp in direction of air flow.
G. Use double nuts and lock washers on threaded rod supports.
H. Connect flexible ducts to metal ducts with draw bands.
I. Support flexible duct runs every five feet in the horizontal direction to avoid sags and sags.
J. Connect terminal units to supply ducts with one foot maximum length of flexible duct. Do not use flexible duct for return air.
K. Connect diffusers to low pressure ducts directly or with 5 feet maximum length of flexible duct held in place with spring device, but not limited to light tests and acceptable if depicted on the design drawings and allowed per local code. A maximum of one 90 degree bend, or equivalent, will be allowed in flexible duct runs.
L. During construction provide temporary closures of metal or taped polyethylene over an 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 accordance with the manufacturer's instructions. NEATLY with duct sealer completely contained within the joint. Duct wrap will not be used.
N. Kitchen hood exhaust, Type 1: Use stainless steel for ductwork exposed to view and stainless steel or carbon steel for ducts where not visible.
O. For all hood systems, perform oil resistant regulatory duct leakage and weld tests in the presence of the manufacturer's representative. Insulate ducts with insulation and smoke tests, to demonstrate the integrity of the duct construction prior to the installation of any insulation that prevents visual inspection of the ductwork on all sides.
P. Provide residue traps in kitchen hood exhaust ducts at base of vertical risers with provisions for clean out.
Q. All roofing penetrations shall be flashed and weather sealed by the roofing manufacturer's authorized roofing contractor at this Contractor's expense. This Contractor shall contract with the factory authorized roofing contractor for the specific roofing system applicable to this project. The use of an unauthorized roofing contractor may result in removal and replacement of the penetration systems at this Contractor's expense.

3.03 CLEANING
A. Clean duct system and force air at high velocity through duct to remove accumulated dust or clean with high power vacuum machine. Clean duct surfaces, 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 (System with Cooling Coils): Galvanized Steel, Aluminum.
3. Return and Relief: Galvanized Steel, Aluminum.
4. General Exhaust: Galvanized Steel, Aluminum.
5. Outside Air Intake: Galvanized Steel.
6. Kitchen Hood Exhaust, Type 1: Carbon Steel, Stainless Steel, Constructed per 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. Flexible duct connections.
D. Duct access doors.

2.01 AIR TURNING DEVICES/EXTRACTORS
A. Manufacturers: Krueger; Ruskin Company; Triu.
B. Flexible, and as indicated.
C. Single Blade Damper: Fabricate for duct sizes up to 6 x 30 inch.
D. Multi-Blade Damper: Fabricate of opposed blade pattern with maximum blade sizes 8 x 72 inch. Assemble central blade 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 dilted 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 D. Regulator Company, "Bowden Cable Control" system including damper, flexible cable with coating and concealed cabling regulator control.
2. Electrically operated damper control system shall be similar and equal to United Gretech Corporation, "Power Balance" system including motor operated damper, Rn-11 plenum rated cabling and flush ceiling or wall mounted Rn-11 jack in remote plate. Include one end hold battery pack operator pack to be delivered to the Owner upon completion of the balancing.

2.02 VOLUME CONTROLS/DAMPERS
A. Manufacturers: Louvers & Dampers, Inc.; Nalor Industries Inc.; Ruskin Company; Prefico Inc.
B. Fabricate in accordance with SMACNA HVAC Duct Construction Standards - Metal and Flexible, and as indicated.
C. Single Blade Damper: Fabricate for duct sizes up to 6 x 30 inch.
D. Multi-Blade Damper: Fabricate of opposed blade pattern with maximum blade sizes 8 x 72 inch. Assemble central blade 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 dilted 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 D. Regulator Company, "Bowden Cable Control" system including damper, flexible cable with coating and concealed cabling regulator control.
2. Electrically operated damper control system shall be similar and equal to United Gretech Corporation, "Power Balance" system including motor operated damper, Rn-11 plenum rated cabling and flush ceiling or wall mounted Rn-11 jack in remote plate. Include one end hold 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 90A, minimum density 30 oz per sq yd.
2. Metal: 3 inches wide, 24 gage thick galvanized steel.
C. Manufacturers: Acador Products Inc.; Nalor Industries Inc.; Ruskin Company; SEMCO Incorporated.

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 close-fitting of galvanized steel with sealing gaskets and quick fastening locking devices. For insulated ducts, install minimum 1 inch thick insulation with sheet metal cover.
1. Less than 12 inches Square: Secure with wash locks.
2. Up to 18 inches Square: Provide two hinges and two wash locks.
D. Access doors with sheet metal screw fasteners are not acceptable.

3.01 EXECUTION
A. Install accessories in accordance with manufacturer's instructions, NFPA 90A, and SMACNA HVAC Duct Construction Standards - Metal and Flexible. Duct construction and pressure class.
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 ductwork off diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.
E. Point ductwork visible behind air outlets and inlets matte black.

END OF SECTION

SECTION 237413 - PACKAGED OUTDOOR ROOF TOP UNITS - GAS FIRED

1.01 SUMMARY
A. This section includes Hydro-Peroxide, Super-Dioxide ions, and Hydroxide ion's delivered through PH1 technology through packaged heating and cooling units capable of supplying 1,200 to 3,000 CFM of supply air to the indoor space.
B. All models shall be UL listed and comply with safety standards UL 198B:2008 (3rd Edition) and CSA Standard C22.2 No. 2500:2008.

1.02 QUALITY ASSURANCE
A. All units shall be provided with the following standard warranties:
1. 2-year or 18,000 hours from initial start-up. National TAB provided service plan. The pH cell and UV light replacement 18,000 hour replacements are provided at no cost if National TAB is providing Renew-Cx Service after initial installation.
2. This warranty shall not apply if:
a. General: Roof mounted units not installed per the manufacturer's installation instructions shipped with the product.
b. The equipment is not installed or not maintained per the manufacturer's maintenance instructions.
c. The unit is not used within its published capacity.
d. The invoice is not paid within the terms of the sales agreement.

2.01 MANUFACTURERS
A. Greenheck; Loren Cook Company; PennBravo; CaptivaAir.

2.02 POWER VENTILATORS
A. Performance Ratings: Determined in accordance with AMCA 210 and bearing the AMCA Certified Label.
B. Sound Ratings: AMCA 301, tested to AMCA 300, and bearing AMCA Certified Sound Rating Seal.
C. Fabrication: Conform to AMCA 99.
D. 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: Fan driven as designed, with spun aluminum housing; resilient mounted motor; 1/2 inch mesh, 0.62 inch thick gauge wire birescreen; square base to suit roof curb with curb cutters.
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 in the presence of continuously welded seams. Provide gaskets and tight gaskets curb bottom, and factory installed roller strip.
C. Electrical Characteristics: As scheduled on the drawings.
D. Disconnect Switch: Factory wired, non-faultie, in housing for thermal overload protected motor.
E. Backdraft Damper: Motor actuated (or gravity damper 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 on, spring return.
F. Shaves: Cast iron or steel, dynamically balanced, bored to fit shafts and keyed; variable and adjustable pitch motor shaves selected as required rpm is obtained with shaves set at mid-position; fan shaft with self-aligning pre-lubricated ball bearings.

2.04 CABINET AND CEILING FANS
A. Centrifugal Fan Units: V-belt or direct drive from galvanized steel housing lined with acoustic insulation, resilient mounted motor, gravity backdraft protected motor.
B. Disconnect Switch: Cord and plug in housing for thermal overload protected motor.

C. Grille: Aluminum with baked white enamel finish or molded white plastic as specified on the Drawings.
D. Backdraft Damper: Gravity actuated, aluminum blade construction, felt edged with offset hinge pin, nylon bearings, blades linked.
E. Shaves: Cast iron or steel, dynamically balanced, bored to fit shafts and keyed; variable and adjustable pitch motor shaves selected as required rpm is obtained with shaves set at mid-position; fan shaft with self-aligning pre-lubricated ball bearings.

PART 3 EXECUTION

3.01 INSTALLATION
A. Install in accordance with manufacturer's instructions.
B. Provide shaves required for final air balance at no additional expense to the Contractor.
C. Secure roof and wall exhausters with cadmium plated steel lag screws to roof curb or structure.
D. Extend ducts to roof and wall exhausters into roof curb or wall structure.
E. Counterflash duct to roof or wall opening.
F. Install backdraft dampers (gravity or motorized as depicted on design drawings) on inlet to roof and wall exhausters.
G. All roofing penetrations shall be flashed and weather sealed by the roofing manufacturer's authorized roofing contractor at this Contractor's expense. This Contractor shall contract with the factory authorized roofing contractor for the specific roofing system applicable to this project. The use of an unauthorized roofing contractor may result in removal and replacement of the penetration systems at this Contractor's expense.
H. Hung Cabinet Fans:
1. Install fans with resilient mountings and flexible electrical leads.
2. Install flexible connections specified between fan and ductwork. Ensure metal bands of connectors are parallel with minimum one inch flex between ductwork and fan while running.
I. Provide gravity backdraft dampers on outlet from cabinet and ceiling fans and as indicated.

3.02 EXECUTION
A. Check location of outlets and inlets and make necessary adjustments in position to conform with architectural features, symmetry, and lighting arrangement.
B. Install diffusers to ductwork with air tight connection.
C. Provide balancing dampers on ductwork off diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.
E. Point ductwork visible behind air outlets and inlets matte black.

END OF SECTION

SECTION 233700 - AIR OUTLETS AND INLETS

1.01 SECTION INCLUDES
A. Rectangular ceiling diffusers.
B. Diffuser Dampers: Fabricate for duct sizes up to 6 x 30 inch.
C. Grid core exhaust and return grilles.
D. Wall registers and grilles.
E. Product Data: Provide data for equipment required for this project. Review outlets and inlets as to size, finish, and type of mounting prior to submission. Submit schedule of outlets and inlets showing types, size, location, application, accessories, and noise level.

1.02 QUALITY ASSURANCE
A. Test and rate lower performance in accordance with ASHRAE Std 70.
B. 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.

2.01 MANUFACTURERS
A. Tirus; Krueger; Price Industries; Nalor Industries Inc.; Hart & Cooley; Ruskin.
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 blades where indicated.
B. Frame: Inverted T-bar type. In plaster ceilings, provide plaster frame and ceiling frame. (To allow lift-out removal of the diffuser without removal of the plaster frame).
C. Fabrication: Steel with baked enamel off-white finish.
D. Accessories: Opposed blade damper and multi-louvered equalizing grid with damper adjustable from diffuser face.

2.03 PERFORATED FAN CEILING DIFFUSERS
A. Type: Perforated metal with removable face.
B. Frame: Inverted T-bar type. In plaster ceilings, provide plaster frame and ceiling frame. (To allow lift-out removal of the diffuser without removal of the plaster frame).
C. Fabrication: Steel with steel frame and baked enamel off-white finish.
D. Accessories: Opposed blade damper and multi-louvered equalizing grid with damper adjustable from diffuser face.

2.04 GRID CORE EXHAUST AND RETURN GRILLES
A. Type: Fixed grilles of 1/2 x 1/2 x 1/2 inch louvers.
B. Fabrication: Aluminum with factory off-white enamel finish.
C. Frame: 1-1/4 inch margin with countersunk screw mounting.
D. Accessories: Channel iron frame for suspended grid ceilings where face size exceeds 18 x 18 inch.
E. Damper (as specified on drawings): Integral, ganged-operated, opposed blade type with removable key operator.

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.
B. Frame: 1-1/4 inch margin with countersunk screw mounting and gasket.
C. Fabrication: Steel with 20 gage minimum frame and 22 gage minimum blades, steel and aluminum with 20 gage minimum frame, or aluminum extrusions, with factory off-white enamel finish.
D. Provide balancing dampers on large 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 installed with ducts, provide flexible duct connections in the ductwork.
G. At equipment supported by vibration isolators, provide flexible duct connections immediately adjacent to the equipment.

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 ductwork off diffusers, and grilles and registers, despite whether dampers are specified as part of the diffuser, or grille and register assembly.
E. Point ductwork visible behind air outlets and inlets matte black.

END OF SECTION

SECTION 237413 - PACKAGED OUTDOOR ROOF TOP UNITS - GAS FIRED

1.01 SECTION INCLUDES
A. Packaged roof top units.
B. Thermostat controls.
C. Roof mounting curb and base.
D. Economizer.
E. Power exhaust.

2.01 MANUFACTURERS
A. Carrier Corporation; Trane Inc.; Lennox Industries; York; AAOB Incorporated.

2.02 AIR CONDITIONING UNITS
1. All equipment not installed by a qualified installer per the manufacturer's installation instructions shipped with the product.
2. The equipment is not installed or not maintained per the manufacturer's maintenance instructions.
3. The unit is not used within its published capacity.
4. The invoice is not paid within the terms of the sales agreement.

2.03 EXHAUSTOR
A. Cabinet: Steel with baked enamel finish, including access panels with screwdriver operated flush cam type fasteners or doors with piano hinges with locking mechanism. 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 abrasion.
C. Heat Exchangers: Aluminum steel or stainless steel where indicated on the Drawings, of welded construction.
D. Supply Fan: Forward curved centrifugal type, resiliently mounted with V-belt drive, adjustable variable pitch motor pulley, and rubber isolated hinges 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 125,000 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, roller strips. Provide roof 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. Backdraft Isolation Curt: 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 grillion failure, energize blower motor, and after air flow proven and slight delay, allow gas valve to open.
C. Flame Failure Control: Temperature sensor with fixed spot at maximum permissible setting, de-energize burner on excessive burner temperature and energize burner on return to normal.
D. Supply Fan Control: Temperature sensor sensing burner 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 of 2 inch capacity and less, and thermosatic expansion valves for units of 6 tons capacity and less, and thermosatic expansion valves and alternate row circuiting 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 timed 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, wired to operate with compressor.
2.08 MIXED AIR CASING
A. Control: 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 balanced.
B. Dampers: 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.
E. Mixed Air Controls: Maintain selected supply air temperature and return dampers in minimum position on call for heating and above 75 degrees F ambient, or when ambient air temperature exceeds return air temperature.

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

2.10 POWER EXHAUST:
A. Package shall include exhaust fan(s) and damper for units with economizer to control over-pressurization of building including integral pressure controls.
2.11 WATER LEVEL MONITORING DEVICES
A. A water-level monitoring device shall be installed inside the primary drain pan. This device shall shut off the equipment service in the event that the primary drain becomes restricted. Devices installed in the drain line shall not be permitted.

2.12 OPERATING CONTROLS
A. Provide low voltage, adjustable thermostat to control heater stages in sequence with delay between stages, compressor and condenser fan, and supply fan to maintain temperature setting.
1. Include system selector switch (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. Automatic switching from heating to cooling.
2. Preferential rate control to minimize overshoot and deviation from set point.
3. Automatic Start Capabilities: Controls shall be capable of automatic start-up by adjusting the duty start time of the HVAC system in order to bring each space to the desired occupied temperature immediately prior to scheduled occupancy.
4. Set-up for four separate temperatures per day.
5. Instant override of set point for continuous or timed period from one hour to 31 days.
6. Short cycle protection.
7. Programmable display, including hours, Saturday and Sunday.
8. Switch selection features including imperial or metric display, 12 or 24 hour clock, keypad disable, remote sensor, fan on-auto.
b. Room thermostat display shall include:
1. Actual room temperature.
2. Day of week.
3. System mode indication: heating, cooling, auto, off, fan auto, fan on.
6. Stage (heating or cooling) operation.

3.01 INSTALLATION
A. Install in accordance with manufacturer's instructions and NFPA 90A.
B. Mount indoor units on factory built or fabricated waterproof enclosure to protect ductwork and utility services. Install roof 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 restrictions where required by local codes.
C. Provide cooling condensate drain piping (and overflow piping if required) to the exterior. Use copper pipe or PVC pipe (non-pneum applications). Contractor shall verify the approval of all piping and utility company requirements. Verification of compliance of the selected piping material is the sole responsibility of the installing Contractor.
D. Condensate piping located inside the building shall be insulated with 1/2 inch thick glass fiber or flexible elastomeric cellular foam insulation. Only metallic piping systems will be allowed in return air plenum casing space.

END OF SECTION

SECTION 238127 - SMALL SPLIT-SYSTEM HEATING AND COOLING

1.01 SECTION INCLUDES
A. Air-source heat pumps.
B. Indoor ductwork and coil units.
C. Controls.
D. Room thermostats.

2.01 MANUFACTURERS
A. Carrier Corporation; Trane Inc.; YORK; Lennox Industries.

2.02 AIR CONDITIONING UNITS
A. Split-System Heating and Cooling Units: Self-contained, packaged, outdoor condensing units with indoor coil units and between indoor and outdoor units.
1. Provide refrigerant lines internal to units and between indoor and outdoor units. Factory cleaned, dried, pressurized and sealed, with insulated suction drive and discharge piping. Provide minimum 45 gpm rated steel pipe as indicated on the Drawings are approximate and shall be adjusted as required by the manufacturer's instructions and approved by the manufacturer's recommended line sizing at no additional expense.
2. Equipment performance, efficiency and accessories shall be as scheduled on the Drawings and specified herein. Include in both locations a note to pre-arrange for installation of the equipment. Equipment and accessories specified in either location shall be included in the Contract. Provide all necessary pressure and connections 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.
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 point connection to air control transformer.
B. Evaporator Coils: Copper tube aluminum fin assembly, galvanized or polymer drain pan, and safety interlock switches, glass fiber insulation with reflective connections, restricted distributor or thermostatic expansion valve.
C. 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 coils, and controls with reflective lining.
1. Cabinet: Steel with baked enamel finish, easily removed and secured access panels with safety interlock switches, glass fiber insulation with reflective lining.
2. Construction and Ratings: In accordance with ARI 210/240 with testing in accordance with ASHRAE Std 33 and UL listed.
B. Compressor: ARI 520; hermetic, 3600 rpm, (multi-speed when indicated on the drawings) resiliently mounted integral with condenser coils with positive lubrication, crankcase heater, high pressure control, motor overload protection, service valves factory installed at 45 degree angle to the piping.
C. Air Cooled Condenser: ARI 520; Aluminum fin and copper tube coil, with direct expansion refrigerant control valve and safety interlock switches and gage ports.
D. Accessories: Filter drier, high pressure switch (manual reset), low pressure switch (automatic reset), service valves and gage ports, thermometer wet (in thermosatic display).
1. Provide thermostatic expansion valves.
2. Provide room thermostat with controls for all heat pump units.
E. Operating Controls:
1. Provide room thermostat to maintain room temperature setting.
2. Low Ambient Kit: On all systems not provided with economizer controls, provide refrigerant pressure switch to cycle condenser fan on when condenser refrigerant pressure is above 285 psig and off when pressure drops below 140 psig for operation to 0 degrees F.
F. Mounting Feet: 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 rate control to minimize overshoot and deviation from setpoint.
4. Automatic Start Capabilities: Controls shall be capable of automatically adjusting the duty 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. Programmable display on every day of the week.
9. Selection features including degree F or degree C display, 12 or 24 hour clock, keypad disable, remote sensor, fan on-auto.
10. Battery replacement without program loss.
11. Terms of display:
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.

3.01 INSTALLATION
A. Install in accordance with manufacturer's instructions and requirements of local authorities having jurisdiction.
B. Install in accordance with NFPA 90A and NFPA 90B as applicable.
C. Provide cooling condensate drain piping (and overflow piping if required) to the exterior. Use copper pipe or PVC pipe (non-pneum applications). Contractor shall verify the approval of all piping and utility company requirements. Verification of compliance of the selected piping material is the sole responsibility of the installing Contractor. Only metallic piping systems will be allowed in return air plenum casing space.
D. Indoor refrigeration systems in accordance with ASHRAE Std 15. Provide filter drier, and safety interlock switches, glass fiber insulation with reflective lining, and expansion valve on indoor units.
E. Thermostatic expansion valve (required), damper interlock and other low voltage control wiring shall be installed by the Mechanical Contractor. The Electrical Contractor will furnish only the power system connections shown on the Electrical Drawings. All other control or interconnecting wiring is the responsibility of the Mechanical Contractor.

END OF SECTION

3310 E. HIGH STREET SUITE 350
PHOENIX, AZ 85054
TI 480.448.6250
WWW.SARGARCH.COM

CONSULTANTS:
SARGARCH

SEAL SIGNATURE:

Schnackel engineers

162-04826
LICENSED PROFESSIONAL ENGINEER
No. 127624, ISSN # 184-20469

SHAKE SHACK

SHAKE SHACK ELSTON & LOG

RTU/FC CONTROL MATRIX				
SETPOINT/CONTROL	RTU-1,-2 DINING	RTU-3 COOR_LINE	RTU-4 WORK_SPACE	FC-1 OFFICE
SETPOINTS				
COOLING - OCCUPIED SETPOINT	75 F	75 F	75 F	75 F
COOLING - UNOCCUPIED SETPOINT	80 F	80 F	80 F	80 F
HEATING - OCCUPIED SETPOINT	70 F	70 F	70 F	70 F
HEATING - UNOCCUPIED SETPOINT	60 F	60 F	60 F	60 F
ECONOMIZER UPPER LIMIT SETPOINT	70 F	70 F	70 F	NA
ACCESSORIES				
HVAC SYSTEM OCCUPIED/UNOCCUPIED MODE - PROGRAMMABLE THERMOSTAT	YES	YES	YES	YES
REMOTE TEMPERATURE SENSOR	YES	YES	YES	NO
MOTORIZED OUTDOOR AIR DAMPER	YES	YES	YES	YES
INTEGRATED ECONOMIZER	YES	YES	YES	NO
ECONOMIZER FAULT DETECTION	YES	YES	YES	NO
BAROMETRIC RELIEF	NO	NO	NO	NO
POWERED EXHAUST RELIEF	YES	YES	YES	NO
DEHUMIDIFICATION (HOT GAS REHEAT)	NO	NO	NO	NO
SUPPLY FAN				
ON DURING OCCUPIED MODE	YES	YES	YES	YES
VARIABLE VOLUME - MODULATE FAN SPEED	YES	YES	YES	YES
SAFETIES AND INTERLOCKS				
RETURN AIR SMOKE DETECTOR	YES	YES	YES	NO
LOW LIMIT FREEZE/STAT	YES	YES	YES	YES
FIRE ALARM CONTROL PANEL INTERLOCK	YES	YES	YES	YES
KITCHEN EXHAUST SYSTEM INTERLOCK	YES	YES	YES	YES

AIR BALANCE SCHEDULE						
EQUIPMENT TAG	SUPPLY AIRFLOW (CFM)	OUTDOOR AIRFLOW (CFM)	RETURN AIRFLOW (CFM)	EXHAUST AIRFLOW (CFM)	OA/SA (%)	REMARKS
RTU-1	2,350	340	2,010		14% FOH	
RTU-2	2,350	340	2,010		14% DINING	
RTU-3	2,230	2,230	0		100% COOKING	
RTU-4	1,800	115	1,685		6% BOH	
FC-1	350	0	350		0% OFFICE	
EF-1				2,350		HOOD-1,-2
EF-2				500		RESTROOMS
TOTAL	9,080	3,025	6,055	2,850		
RESULTING BUILDING PRESSURIZATION = 175 CFM						
PRESSURIZATION PERCENTAGE = 1.9 %						

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

ROOF TOP UNITS															
MARK	COOLING			HEATING			SUPPLY AIR (CFM)	EXT. S.P. (IN)	ELECTRICAL				SEER /EER	REMARKS	
	SEN (MBH)	TOT (MBH)	COOL (TON)	IN (MBH)	OUT (MBH)	FAN BHP			VOLT	PH	MCA	MOCP			
RTU-1	-	-	-	-	-	-	-	-	-	-	-	-	-	CAPTIVEAIRE	(1-2)
RTU-2	-	-	-	-	-	-	-	-	-	-	-	-	-	CAPTIVEAIRE	(1-2)
RTU-3	-	-	-	-	-	-	-	-	-	-	-	-	-	CAPTIVEAIRE	(1-2)
RTU-4	-	-	-	-	-	-	-	-	-	-	-	-	-	CAPTIVEAIRE	(1-2)

COOLING CAPACITIES ARE BASED ON AHRI STANDARD 210/240 OR 340/360: 80°F DB/ 67°F WB INDOOR ENTERING AIR TEMPERATURE, 95°F DB AIR ENTERING OUTDOOR FAN. SCHEDULED UNIT MAY DIFFER FROM AHRI STANDARD CFM.

REMARKS:
 1. PROVIDE EQUIPMENT WITH SCRR GREATER THAN THE AVAILABLE FAULT CURRENT AT THE EQUIPMENT OR UPSTREAM PANELBOARD. REFER TO THE ELECTRICAL ONE LINE DIAGRAM AND PANEL SCHEDULES FOR AVAILABLE FAULT CURRENT AT UPSTREAM PANELBOARD.
 2. REFERENCE CAPTIVEAIRE DRAWINGS FOR ADDITIONAL INFORMATION.

DUCTLESS SPLIT SYSTEMS													
MARK	NOMINAL (TONS)	COOLING		HEATING		SUPPLY AIR (CFM)	FAN (WATT)	ELECTRICAL				SEER /EER	REMARKS
		TOT (MBH)	SEN (MBH)	OUT (MBH)	IN (MBH)			VOLT	PH	MCA	MOCP		
FC-1	3/4	11.73	8.79	10.00	350	45	208	1	0.2	N/A	20.5/-	40MBC009	(1-3)

REMARKS:
 1. PROVIDE CONDENSATE PUMP IF NOT FACTORY INSTALLED.
 2. INDOOR UNIT POWER PROVIDED FROM OUTDOOR UNIT.
 3. PROVIDE NEW, WIRED, FULLY DIGITAL, 7 DAY PROGRAMMABLE TYPE THERMOSTAT WITH AUTO CHANGE OVER AND AUTO SET BACK.

AIR SOURCE HEAT PUMPS													
MARK	LOCATION	SERVES	NOMINAL COOL (TONS)	HEATING AT 47F (MBH)	ELECTRICAL				SEER /EER	HSPF /COEFF	MANUFACTURER	MODEL NUMBER	REMARKS
					VOLT	PH	MCA	MOCP					
ASHP-1	ROOF	FC-1	3/4	10.0	208	1	15.0	15	20.5/-	10.8/-	CARRIER	38MARB009	(1)

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

DIFFUSERS, GRILLES AND REGISTERS							
MARK	SERVICE	LOCATION	CEILING TYPE	MOUNTING TYPE	MANUFACTURER	MODEL NUMBER	REMARKS
D-1	SUPPLY	CEILING	AC TILE	LAY-IN	TITUS	TMS XX 24x24 3 26	(1,2,6)
D-2	SUPPLY	CEILING	AC TILE	LAY-IN	TITUS	PAR XX 24x24 3 26	(1,2,6)
D-3	SUPPLY	CEILING	AC TILE	LAY-IN	TITUS	OMNI XX 24x24 3 26	(1,2,4,6)
D-4	SUPPLY	DUCT	NA	SURFACE	TITUS	300RL X X 1 26	(1,5,6)
D-5	SUPPLY	WALL	NA	SURFACE	TITUS	300RL X X 1 26	(1,5,6)
D-6	SUPPLY	CEILING	AC TILE	LAY-IN	TITUS	TDC XX 3 24x24 3 26	(1,2,6)
G-1	RETURN	CEILING	AC TILE	LAY-IN	TITUS	50F X X 3 26	(1,3,5,6)
G-2	EXHAUST	CEILING	GYP. BOARD	SURFACE	TITUS	50F X X 1 26	(1,3-7)
G-3	RETURN	WALL	NA	SURFACE	TITUS	350RL X X 1 26	(1,5,6)

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

EXHAUST FANS													
MARK	LOCATION	SERVICE	AIRFLOW (CFM)	EXTERNAL STATIC (IN H2O)	SONES	MOTOR DATA			RPM	MANUFACTURER	MODEL NUMBER	REMARKS	
						FAN (W)	VOLT	PH					
EF-1	ROOF	HOOD-1,-2	-	-	-	-	-	-	-	-	-	CAPTIVEAIRE	(3)
EF-2	INLINE	RESTROOMS	500	0.70	2.5	368	115	1	980	GREENHECK	CSP-A700		(1,2)

REMARKS:
 1. PROVIDE SOLID STATE SPEED CONTROL.
 2. PROVIDE MOTORIZED BACKDRAFT DAMPER.
 3. REFERENCE CAPTIVEAIRE DRAWINGS FOR ADDITIONAL INFORMATION.

UV SYSTEMS													
UNIT NO.	PLACEMENT	PHI CELL MODEL #	UV/CELL SIZE	RANGE	INDOOR PPM TARGET	SIZE	TRANSFORMER	POWER	IN-VOLT	OUT-VOLT	MCA	WEIGHT (LBS.)	
RTU-1	BLOWER CABINET	PHI-PKG9-24V	14"	1,200-3,000 CFM	< 0.02 PPM	2.25"W x 13.5"L x 1.75"D	SHIP LOOSE	11W	115 VAC	24 VAC	0.70A	1 LBS	
RTU-2	BLOWER CABINET	PHI-PKG9-24V	14"	1,200-3,000 CFM	< 0.02 PPM	2.25"W x 13.5"L x 1.75"D	SHIP LOOSE	11W	115 VAC	24 VAC	0.70A	1 LBS	
RTU-3	BLOWER CABINET	PHI-PKG9-24V	14"	1,200-3,000 CFM	< 0.02 PPM	2.25"W x 13.5"L x 1.75"D	SHIP LOOSE	11W	115 VAC	24 VAC	0.70A	1 LBS	
RTU-4	BLOWER CABINET	PHI-PKG9-24V	14"	1,200-3,000 CFM	< 0.02 PPM	2.25"W x 13.5"L x 1.75"D	SHIP LOOSE	11W	115 VAC	24 VAC	0.70A	1 LBS	

BUILDING PRESSURIZATION TABLE		
Total Ordinance Required Outside Air (CFM)		3,121
Total Actual Continuous Exhaust (CFM)		3,635

HEAT LOSS SCHEDULE			
ROOM (#)	ROOM NAME	FLOOR AREA (FT2)	HEAT LOSS SENSIBLE (BTU/Hr)
101	DINING	1,310	47,200
102	HALLWAY	407	20,600
103	MEN'S RR	117	700
104	WOMEN'S RR	130	800
106	OPEN KITCHEN	459	2,700
108	WORK ROOM	676	4,000
110	MANAGER'S OFFICE	76	400
113	VESTIBULE	48	17,900
DUE TO VENTILATION (CFM):		3,635	307,630
TOTAL HEAT LOSS:			401,930
TOTAL HEATING CAP OF UNITS:			406,854

REFRIGERATION SCHEDULE													
MARK	NO. COMP.	COMP. TON	COMP. KW	REFRIGERANT	WT. REF.	REMOTE	SELF CONT.	LOCATION	AIR COOLED	WATER COOLED	SPECIAL		
RTU-1	1	6	7.2	R410A	20	NO	YES	ROOF	YES	NO	RELIEF VALVE		
RTU-2	1	6	7.2	R410A	20	NO	YES	ROOF	YES	NO	RELIEF VALVE		
RTU-3	1	15	16.3	R410A	41	NO	YES	ROOF	YES	NO	RELIEF VALVE		
RTU-4	1	5	6	R410A	17	NO	YES	ROOF	YES	NO	RELIEF VALVE		

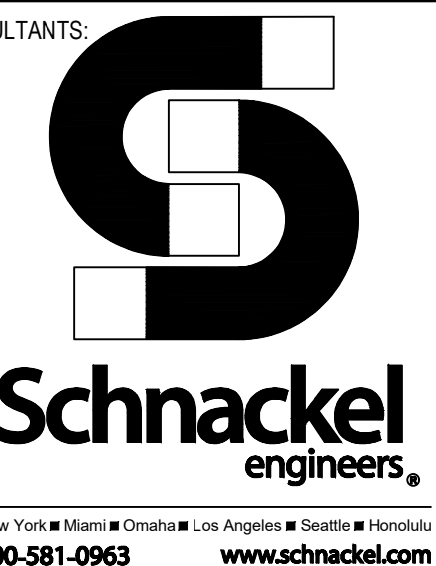
REMARKS:
 1. INSTALL PRESSURE RELIEF VALVE ON THE HIGH PRESSURE SIDE OF THE SYSTEM, UPSTREAM OF ANY INTERVENING VALVES.
 2. REMOVE EXPANSION VALVES, DEVICES AND CONNECTIONS FROM THE AIR STREAM.
 3. REFRIGERANT PIPING MUST BE TYPE K.
 4. ALL CONNECTIONS AND DEVICES MUST BE BRAZED.

VENTILATION DATA														
ROOM NUMBER	ROOM NAME	ROOM PURPOSE	FLOOR AREA (FT2)	ORDINANCE REQUIREMENTS				PLAN REQUIREMENTS				MECHANICAL VENTILATION		REMARKS
				SUPPLY AIR (CFM/FT2)	EXHAUST AIR (CFM/FT2)	SUPPLY AIR (CFM)	EXHAUST AIR (CFM)	SUPPLY AIR (CFM)	EXHAUST AIR (CFM)	SUPPLY UNIT	EXHAUST UNIT			
												RELIEF OR TRANSFERS		
101	DINING	PUBLIC DINING ROOMS - NO COOKING EQUIP	1,310	1.50	1.50	1,965	3,370	660	RTU-1,-2	EF-1,-2; RTU-1,-2				
102	HALLWAY	CORRIDORS	407	NR	NR	NR	NR	700	0	RTU-1,-2	NR			
103	MEN'S RR	TOILET ROOMS	117	NR	NR	234	200	240	RTU-2	EF-2		40 CFM TRANSFER FROM HALLWAY		
104	WOMEN'S RR	TOILET ROOMS	130	NR	NR	260	200	260	RTU-1	EF-2		60 CFM TRANSFER FROM HALLWAY		
106	OPEN KITCHEN	KITCHEN, PUBLIC	459	1.20	4.00	551	1,836	2,350	RTU-3	EF-1		20 CFM FROM WORK ROOM, 100 CFM FROM DINING		
108	WORK ROOM	STORAGE ACTIVE	676	0.50	0.50	338	1,780	115	RTU-4	RTU-4; EF-1		20 CFM TRANSFER TO OPEN KITCHEN		
110	MANAGER'S OFFICE	OFFICES AND COMPUTER ROOMS	76	0.60	0.30	46	23	20	10	RTU-4	RTU-4		10 CFM TRANSFER TO WORK ROOM	
113	VESTIBULE	NONE	48	0.00	0.00	0	0	230	0	RTU-1	NR		TRANSFER VIA GRILLE TO DINING	
TOTALS =				2,899	4,656	8,730	3,635							

CITY OF CHICAGO CODE COMPLIANCE NOTES:
 1. SOUND LEVEL OF EQUIPMENT SHALL NOT EXCEED 55 DB AT LOT LINE.
 2. FLEXIBLE DUCTWORK SHALL BE WIREMOLD TYPE WK OR CITY OF CHICAGO APPROVED INSULATED CONSTRUCTION.
 3. EACH FLEXIBLE DUCT CONNECTION SHALL NOT EXCEED 5 FEET IN LENGTH.
 4. ALL DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED SHEET METAL AND SHALL BE FABRICATED AND INSTALLED TO THE LATEST EDITIONS OF ASHRAE GUIDE AND SMACNA STANDARDS, AND CITY OF CHICAGO BUILDING CODE.
 5. ALL FRESH AIR INTAKES SHALL BE LOCATED 15 FEET MINIMUM AWAY FROM ALL EXHAUST, VENT, OUTLETS OR OTHER SOURCES OF CONTAMINATES. INTAKES SHALL BE 10 FEET FROM BOTTOM TO SURFACE OF ANY PUBLIC WAY.
 6. PROVIDE ALL PERMITS, TESTS AND INSPECTIONS AS REQUIRED TO COMPLY WITH CITY OF CHICAGO CODES.
 7. TRANSFER DUCTS MAY NOT EXCEED 5 FEET IN LENGTH.
 8. VOLUME DAMPERS OF LOCKING TYPE SHALL BE PLACED IN EACH FORCED WARM AIR RUN.
 9. NO PART OF THE FREE AREA OF ANY FLOOR REGISTER SHALL EXTEND INTO THE ROOM A DISTANCE GREATER THAN 9 INCHES FROM THE WALL.

CHICAGO CODE CALCULATIONS

8310 E. HIGH STREET SUITE 350
 PHOENIX, AZ 85054
 T: 480.448.6250
 WWW.SARGARCH.COM



NO.	BY	DATE	DESCRIPTION
FN		2024-08-12	PERMIT / BID SET
FN		2024-07-22	75% SET



SHAKE SHACK ELSTON & LOGAN

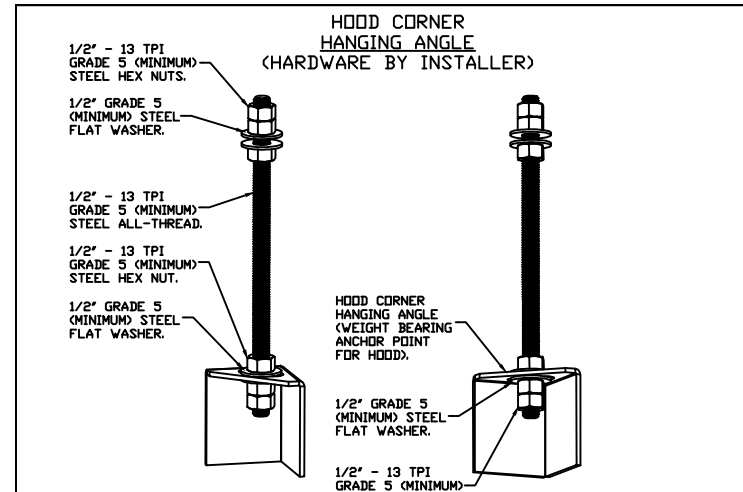
2700 NORTH ELSTON AVE, UNIT 100
 CHICAGO, IL 60647
 SHACK #1620

PERMIT SET

MECHANICAL SCHEDULES

DRAWN BY:
 CHECKED BY: GRS
 PROJECT NO: 11160-24

M601



HOOD STYLE / MODEL	450 DEGREES cfm/ft.	600 DEGREES cfm/ft.	700 DEGREES cfm/ft.
CANOPY ND-2	150	200	250
CANOPY ND-2 W/ END PANELS SLOPED	105	140	175
ISLAND ND-2W	228	294	-
ISLAND ND-2I	269	300	350

ETL HOOD LISTING DETAIL

EXHAUST CFM = LENGTH OF HOOD X CFM/LIN.FT. (LOAD)
 SUPPLY CFM = EXHAUST CFM X PERCENTAGE REQUIRED
 TOTAL DUCT AREA (sq. in.) = 144 X CFM (FM)²
 DUCT LENGTH = TOTAL DUCT AREA / DUCT WIDTH

* CAPTRATE VENTILATOR DUCT SIZES ARE CALCULATED USING AN EXHAUST VELOCITY OF 1500 FPM AND A SUPPLY VELOCITY OF 1000 FPM.

CALCULATIONS UTILIZED

CAPTIVE-AIRE HOODS BUILT IN COMPLIANCE WITH:

UL LISTED
 ETL LISTED
 IAPMO ETL LISTED
 IAPMO ETL LISTED

BUILDING CODES

CAPTIVE-AIRE HOODS HAVE OPTIONAL CLEARANCE REDUCTION SYSTEMS AVAILABLE AS FOLLOWS:

MATERIAL	CLEARANCE REDUCTION SYSTEM
NON-COMBUSTIBLE	NONE REQUIRED
LIMITED-COMBUSTIBLE	3" UNINSULATED STANDOFF
COMBUSTIBLE	1" INSULATED STANDOFF

CLEARANCE TO COMBUSTIBLES

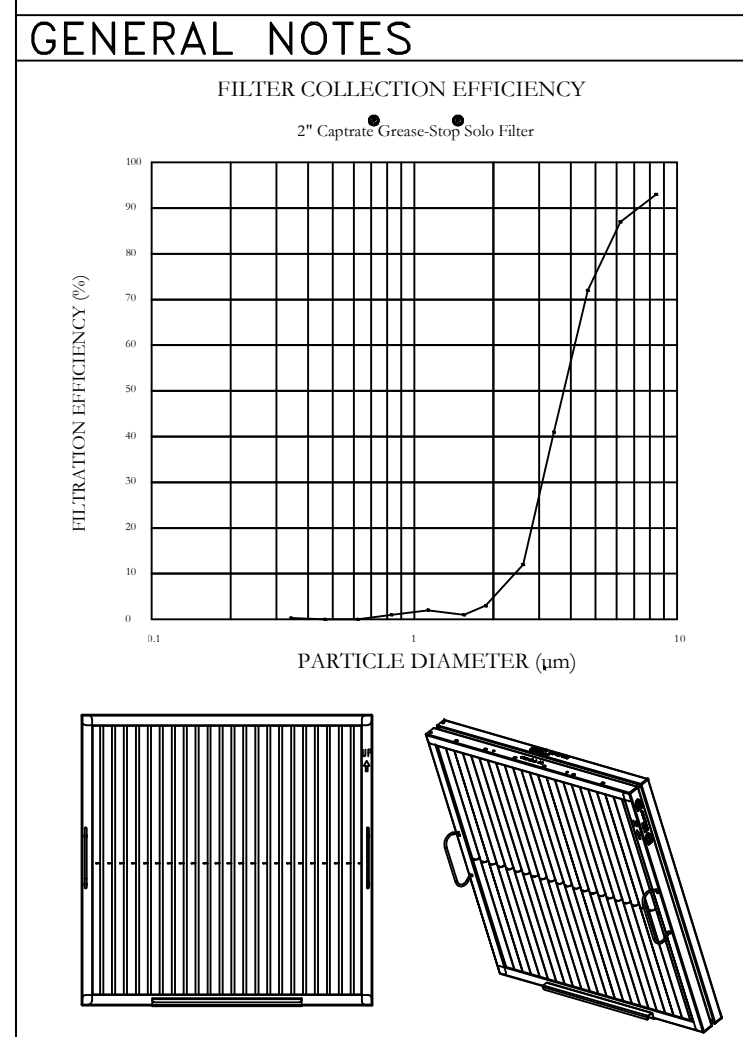
INSTALLATION

- ALL ELECTRICAL "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY ELECTRICAL CONTRACTORS.
- ALL PLUMBING "FIELD" CONNECTIONS AND RELATED INTERCONNECTIONS BY PLUMBING CONTRACTORS.
- HANGING BRACKETS LOCATED AND WELDED AS SHOWN ON PLANS. ALL OTHER HANGER MATERIALS PROVIDED BY INSTALLING CONTRACTORS.
- ALL CONNECTIONS FROM CAPTIVEAIRE HOOD PER MECHANICAL CONTRACTOR'S PLANS.
- COOKING EQUIPMENT TO SHUT OFF IN EVENT OF FIRE.
- EXHAUST FANS TO TURN ON IN EVENT OF FIRE.
- ALL LIGHT FIXTURES SHOWN INSTALLED BY CAPTIVEAIRE ARE FACTORY PREWIRED. INTERCONNECTIONS BETWEEN HOODS AND TO SWITCHES ARE BY ELECTRICAL CONTRACTOR.
- LAMPS FOR LIGHT FIXTURES BY INSTALLING CONTRACTORS.
- SEISMIC RESTRAINTS ARE RESPONSIBILITY OF INSTALLING CONTRACTOR.
- INSTALLING CONTRACTORS ASSUME ALL RELATED RESPONSIBILITY FOR VERIFICATION OF DIMENSIONAL DATA CONTAINED ON THESE DOCUMENTS FOR ACCURACY, INTEGRATION, AND ADMINISTRATION OF CODE REQUIREMENTS IN EFFECT PRIOR TO ANY RELEASE FOR PRODUCTION OF EQUIPMENT SHOWN.

GENERAL NOTES

14. WRITTEN HOOD DIMENSIONS HAVE PRECEDENCE OVER SCALE.

15. SIGNED AND "APPROVED" COPIES OF THIS DOCUMENT MUST BE RECEIVED BY THE FACTORY PRIOR TO COMMENCEMENT OF FABRICATION.



FILTER DETAIL

FOR QUESTIONS, CALL THE
 Eastern PA Mechanical
 REGION 108
 PHONE: (267) 504 - 4126
 EMAIL: reg108@captiveaire.com

HOOD INFORMATION - JOB#6924273

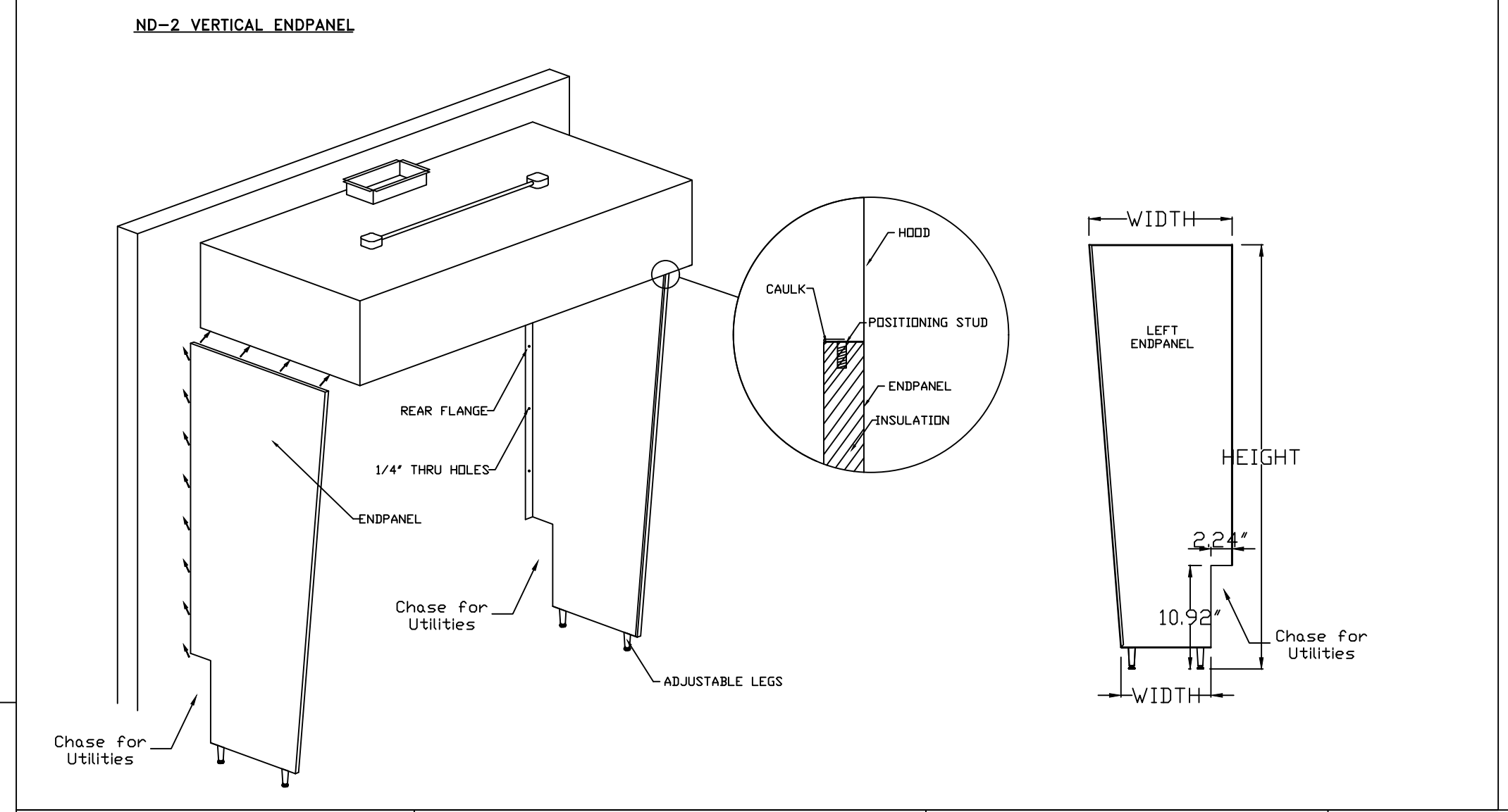
HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S)				HOOD CONSTRUCTION	HOOD CONFIG			
										WIDTH	LENG	HEIGHT	DIA		CFM	VEL	SP	END TO END
1	Hood (Grill)	5430 ND-2	CAPTIVEAIRE	7' 11"	450 DEG	I	MEDIUM	169	1338	10'	12'	4'	1338	1606	-0.533'	430 SS WHERE EXPOSED	ALONE	ALONE
2	Hood (Fryer)	5430 ND-2	CAPTIVEAIRE	4' 11"	600 DEG	I	HEAVY	205	1010	10'	9'	4'	1010	1616	-0.633'	430 SS WHERE EXPOSED	ALONE	ALONE

HOOD INFORMATION

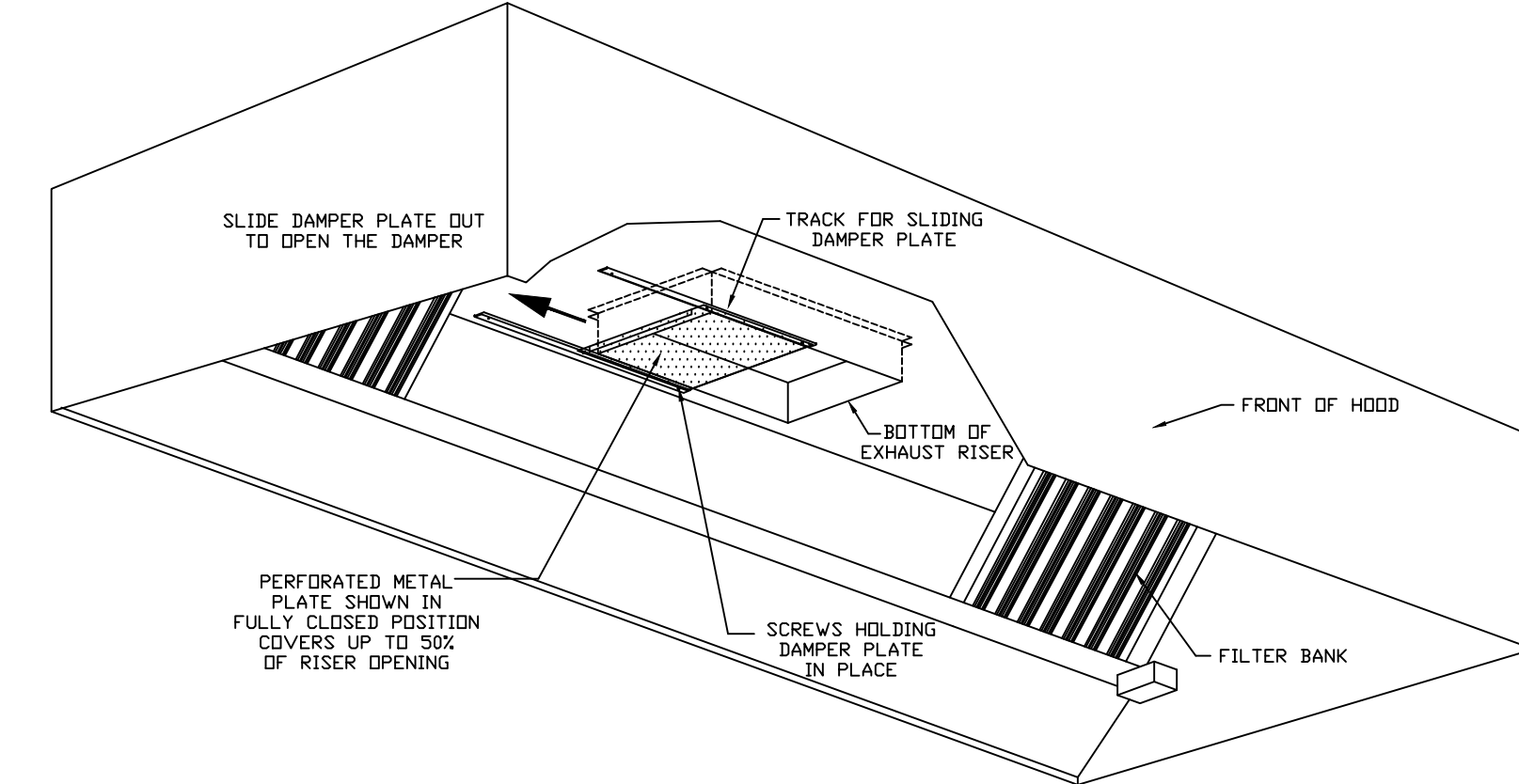
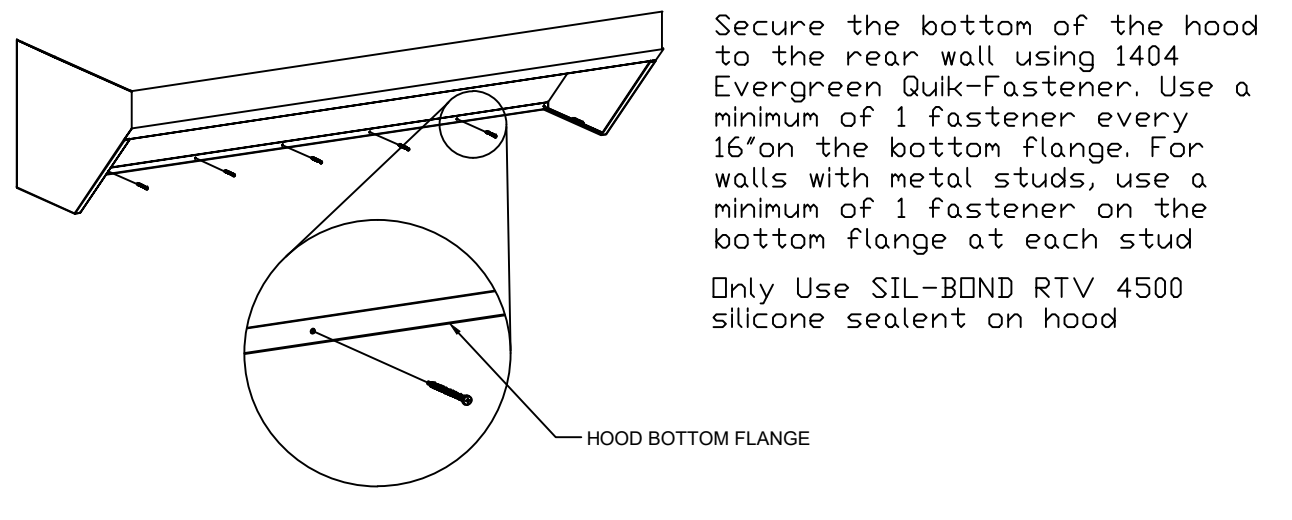
HOOD NO	TAG	TYPE	FILTER(S)			LIGHT(S)			UTILITY CABINET(S)			FIRE SYSTEM PIPING	HOOD HANGING WEIGHT		
			QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	SIZE			FIRE SYSTEM TYPE	SIZE
1	Hood (Grill)	CAPTRATE SOLD FILTER	5	20"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO				YES	496 LBS	
2	Hood (Fryer)	CAPTRATE SOLD FILTER	3	20"	16"	85% SEE FILTER SPEC	2	RECESSED ROUND	NO	LEFT	12"x54"x30"	TANK FS	4.0/4.0/4.0	YES	713 LBS

HOOD OPTIONS

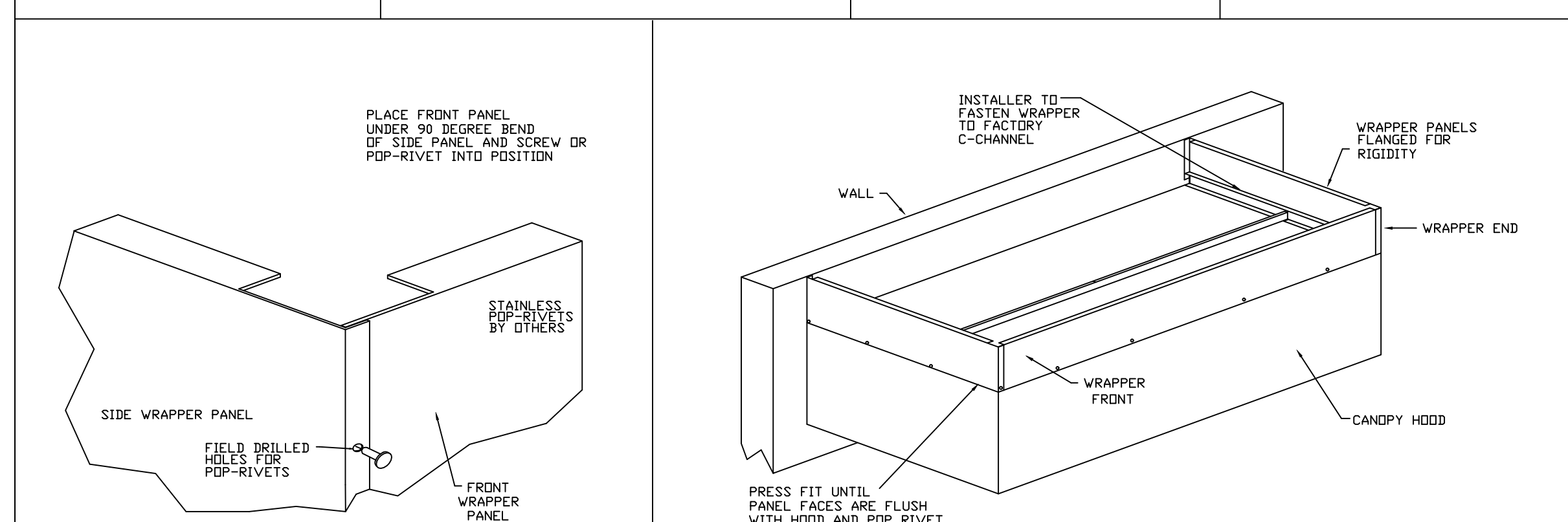
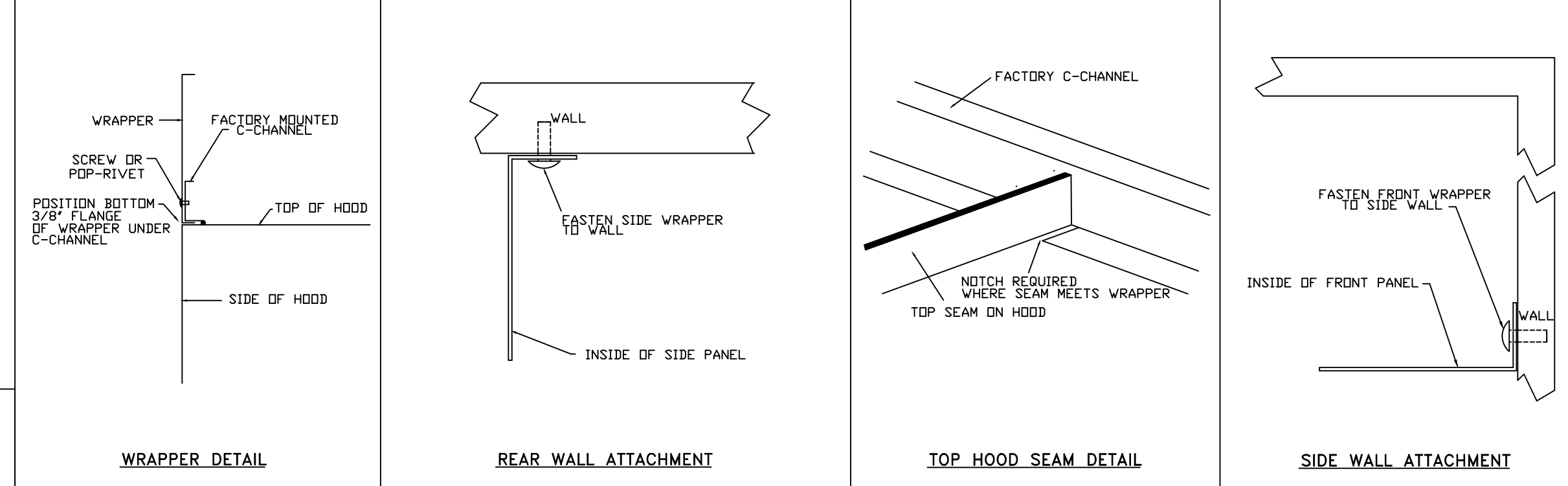
HOOD NO	TAG	OPTION
1	Hood (Grill)	FIELD WRAPPER 18.00" HIGH FRONT, LEFT, RIGHT. RIGHT END STANDOFF (FINISHED) 1" WIDE 54" LONG INSULATED. BALANCE DAMPERS. INSULATION FOR BACK OF HOOD. RISER SENSOR INSTALL 6IN PLEN. LEFT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS. GFCI DUPLEX OUTLET, 20A 125V - HOOD FRONT LEFT - HORIZONTAL - DIST FROM END: 3.50 DIST FROM BOTTOM: 4.00. RIGHT WALL AS END PANEL.
2	Hood (Fryer)	FIELD WRAPPER 12.00" 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. BALANCE DAMPERS. INSULATION FOR BACK OF HOOD. RISER SENSOR INSTALL 6IN PLEN.



Bottom Flange Securing Detail



BALANCING DAMPER DETAIL



FRONT CORNER ASSEMBLY

COMPLETED WRAPPER ASSEMBLY

REVISIONS

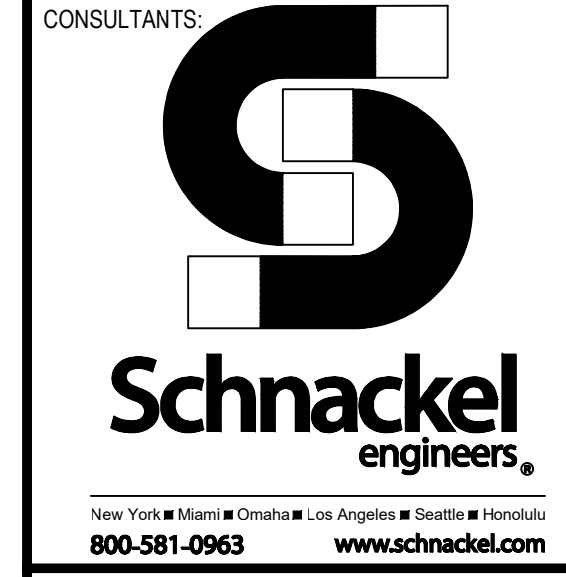
DESCRIPTION	DATE



Shake Shack-1620-Elston Logan (Kitchen)-R2
 CHICAGO, IL, 60647

DATE: 7/17/2024
 DWG.#: 6924273
 DRAWN BY: joe.shilba
 SCALE: 3/4" = 1'-0"
 MASTER DRAWING
 SHEET NO. 1

8310 E.HIGH STREET SUITE 350
 PHOENIX, AZ 85054
 T: 480.448.6250
 WWW.SARGARCH.COM



NO.	BY	DATE	DESCRIPTION

FN 2024-08-12 PERMIT / BID SET
 FN 2024-07-22 75% SET



SHAKE SHACK ELSTON & LOGAN

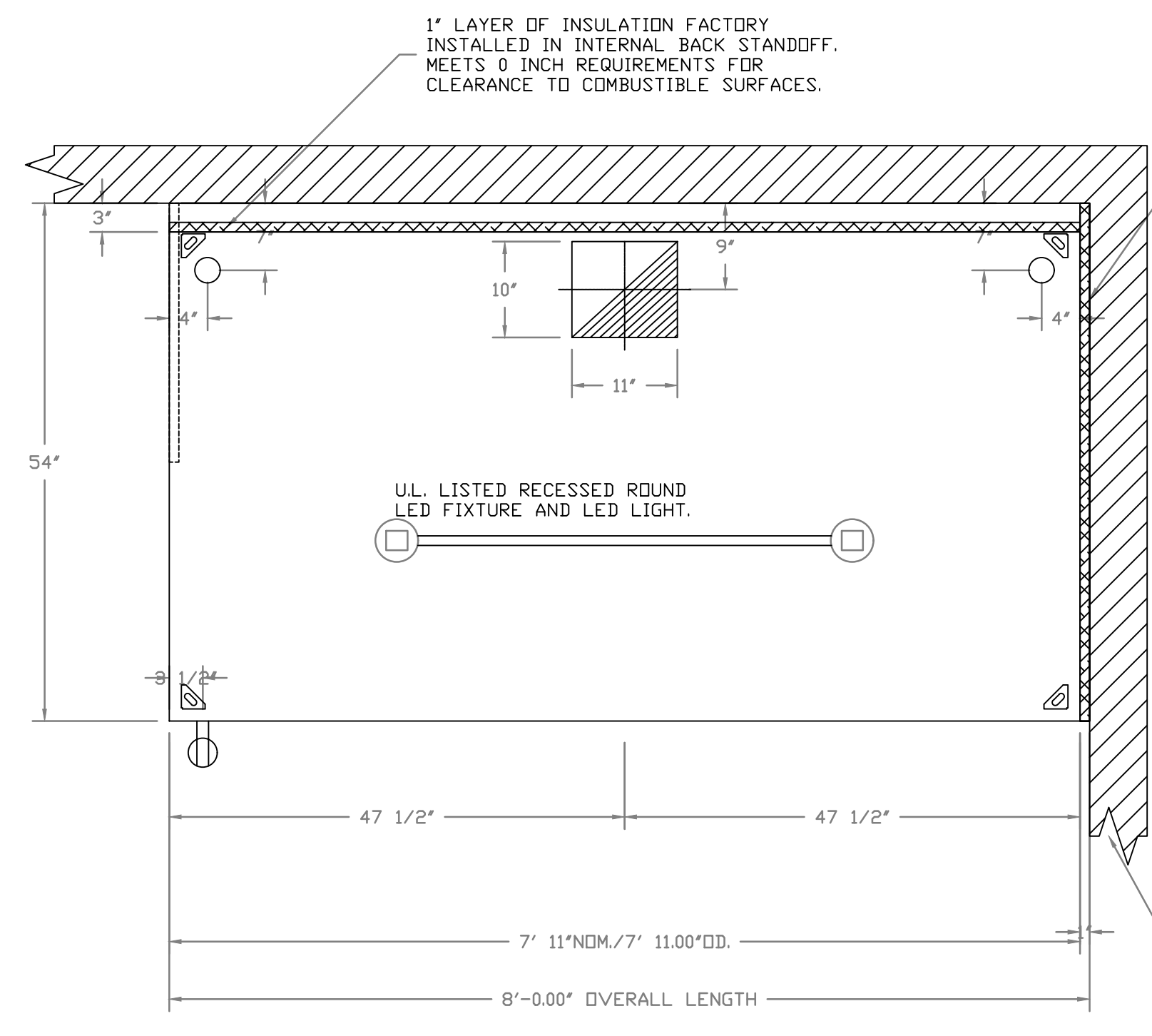
2700 NORTH ELSTON AVE, UNIT 100
 CHICAGO, IL 60647
 SHACK #1620

PERMIT SET

CAPTIVEAIRE DRAWINGS

DRAWN BY: GRS
 CHECKED BY: GRS
 PROJECT NO: 11160-24

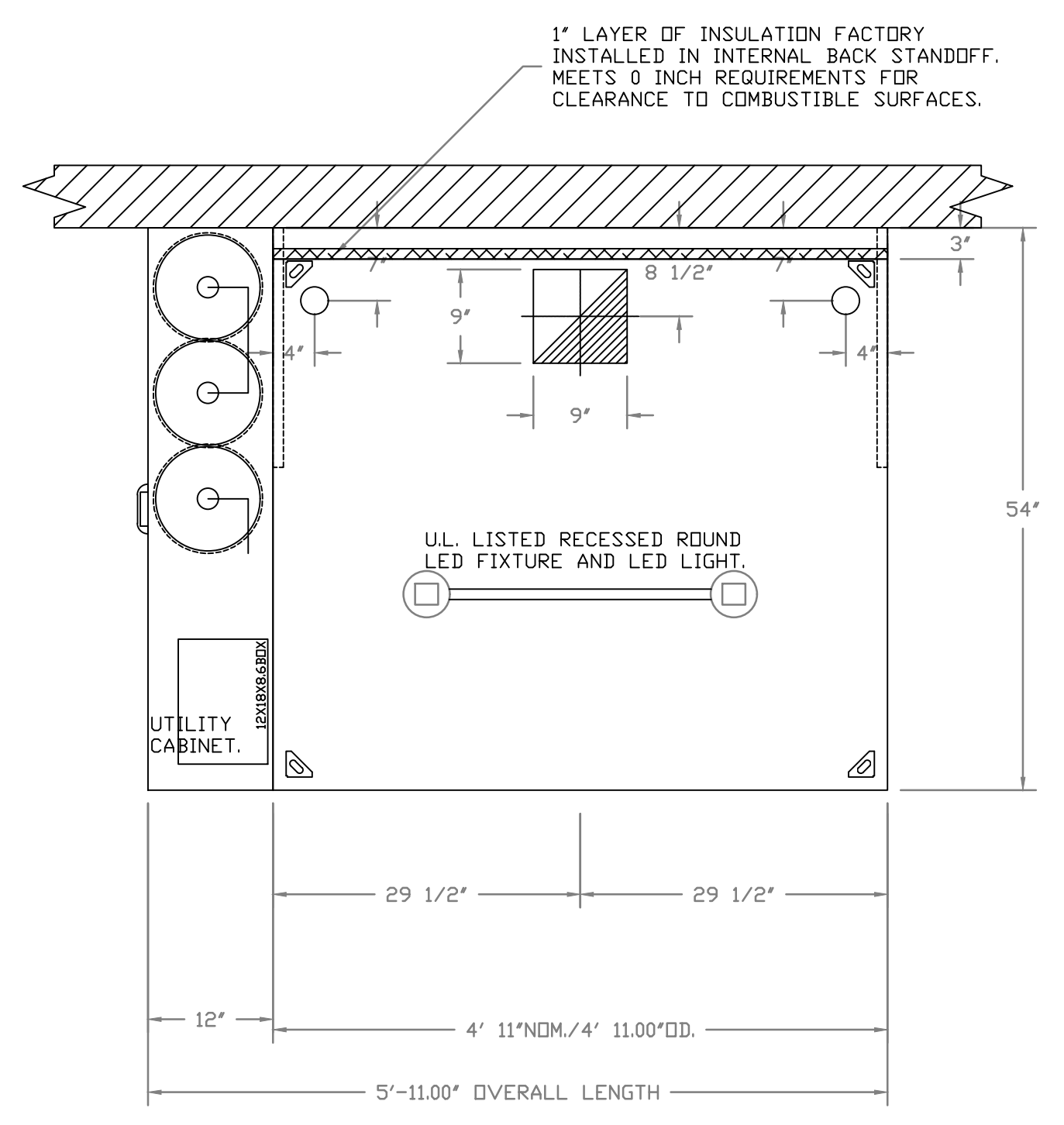
M701



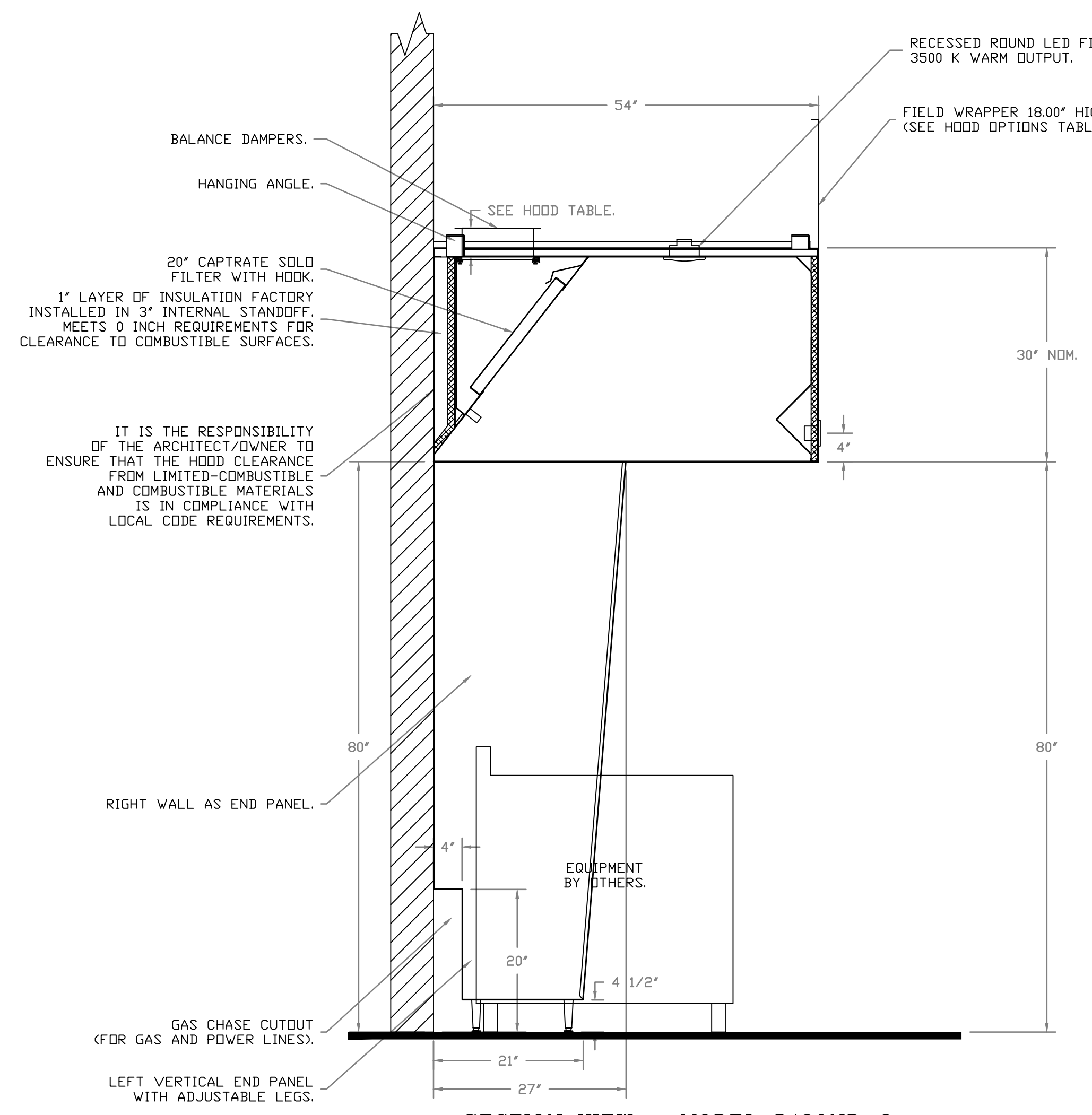
PLAN VIEW - HOOD #1 (Hood (Grill))
7' 11.00" LONG 54.30ND-2

1" LAYER OF INSULATION FACTORY INSTALLED IN 1.00' END STANDOFF MEETS 0" INCH REQUIREMENTS CLEARANCE TO COMBUSTIBLE SURFACES.

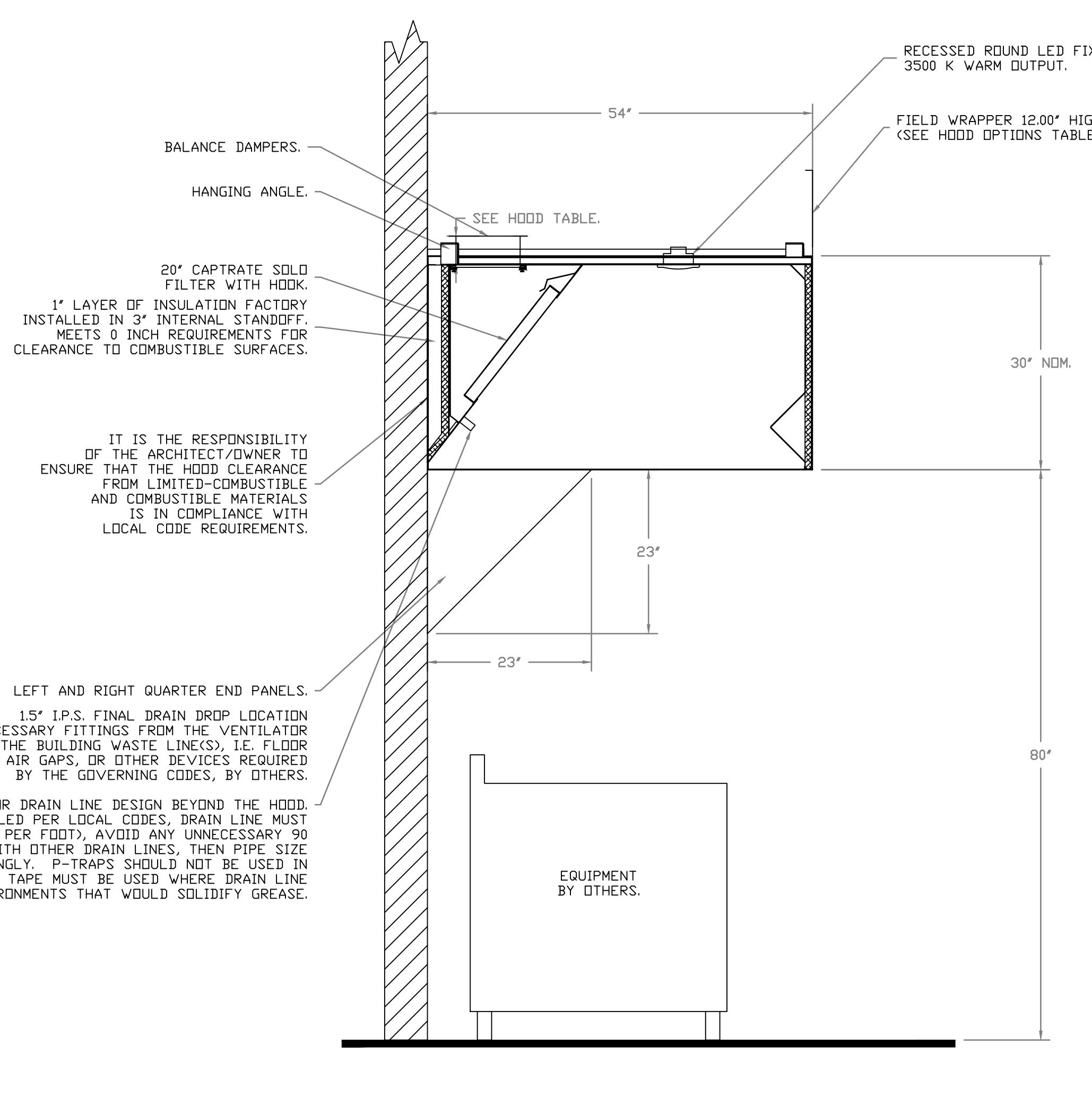
INSTALLER MUST CONFIRM HOOD IS INSTALLED SUCH THAT THE SPECIFIED WALL, ACTING AS AN END PANEL, IS MATED TIGHT TO THE CORRECT END OF HOOD TO ACHIEVE A REDUCED MINIMUM EXHAUST CFM LISTING. NON-COMPLIANCE WILL NULLIFY THE ETL LISTING, VOID THE MANUFACTURER'S WARRANTY, AND HOLD THE CONTRACTOR LIABLE FOR 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" FROM THE INTERSECTING WALL ON WHICH HOOD IS MOUNTED AND MUST EXTEND NO LESS THAN 20" UNDER BOTTOM OF HOOD TO BE ELIGIBLE FOR REDUCED MINIMUM EXHAUST CFM LISTING.



PLAN VIEW - HOOD #2 (Hood (Fryer))
4' 11.00" LONG 54.30ND-2



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



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

REVISIONS	
DESCRIPTION	DATE

CAPTIVE

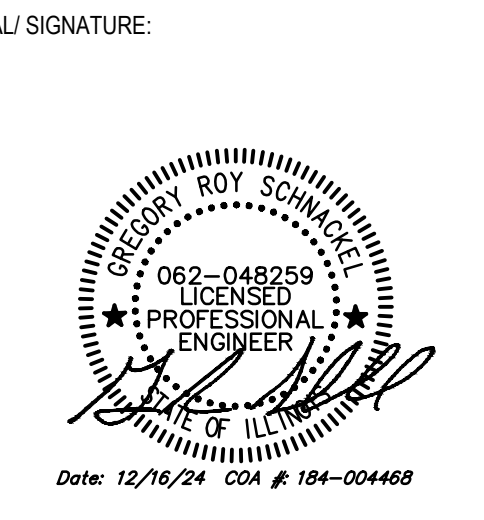
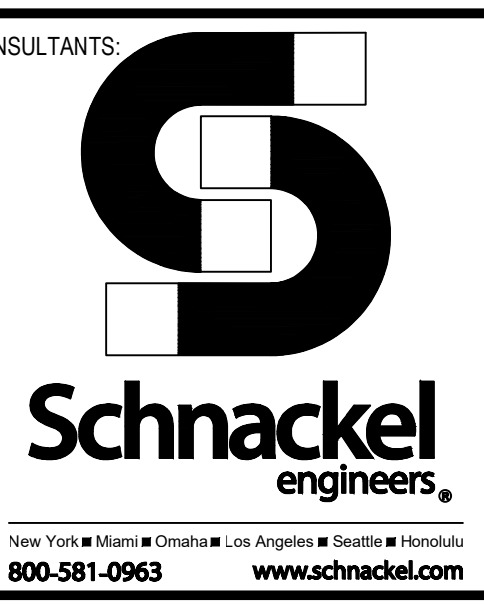
Eastern PA Mechanical
225 E City Line Avenue, Suite #103, Bala Cynwyd, PA 19004 PHONE: (267) 504-4126 EMAIL: reg10@captiveme.com

Shake Shack-1620-Elston Logan (Kitchen)-R2
CHICAGO, IL, 60647

DATE: 7/17/2024
DWG.#: 6924273
DRAWN BY: joe.shiiba
SCALE: 3/4" = 1'-0"
MASTER DRAWING

SHEET NO. 2

5310 E. HIGH STREET SUITE 350
PHOENIX, AZ 85054
TJ 480.448.6250
WWW.SARGARCH.COM



NO.	BY	DATE	DESCRIPTION



SHAKE SHACK ELSTON & LOGAN

2700 NORTH ELSTON AVE, UNIT 100
CHICAGO, IL 60647
SHACK #1620

PERMIT SET

CAPTIVEAIR DRAWINGS

DRAWN BY: GRS
CHECKED BY: GRS
PROJECT NO: 11160-24

M702

FIRE SYSTEM INFORMATION - JOB#6924273

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

GAS VALVE(S)				
FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1		SC ELECTRICAL	1.000	CAPTIVEAIRE SYSTEMS

- NOTES**
- FIELD PIPE DROPS AS SHOWN
 - PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
 - FIELD INSTALLED DROP: FACTORY WILL PROVIDE QTY 2 60IN LONG PIECES OF CHROME PLATED PIPING SHIPPED LOOSE TO BE FIELD-INSTALLED.
 - SHIP LOOSE DROP: FACTORY WILL PROVIDE THE EXACT CHROME PIPE LENGTH NEEDED SHIPPED LOOSE TO BE FIELD-INSTALLED.
 - RELOCATE NOZZLES IF FLOW PATTERN IS BLOCKED BY SHELVING, SALAMANDERS, ETC.
 - OVERLAPPING COVERAGE SHALL NOT BE USED ON ANY APPLIANCE WITH AN OBSTRUCTION.
 - IF APPLICABLE, EXTENDED PRE-PIPED DROPS ARE SHIPPED LOOSE.
 - FACTORY PIPING EXTENDS A MAXIMUM OF 6" ABOVE THE TOP OF THE HOOD.
 - APPLIANCE DIMENSIONS LISTED REPRESENT THE COOKING SURFACE SIZE, NOT THE OVERALL APPLIANCE SIZE.
 - THIS FIRE SYSTEM COMPLIES WITH U.L. 300 REQUIREMENTS.
 - DL-F NOZZLE PART NUMBER REPLACES 3070-3/8H-10-SS
 - JOB #: 6924273.
 - JOB NAME: SHAKE SHACK-1620-ELSTON LOGAN (KITCHEN)-R2.

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

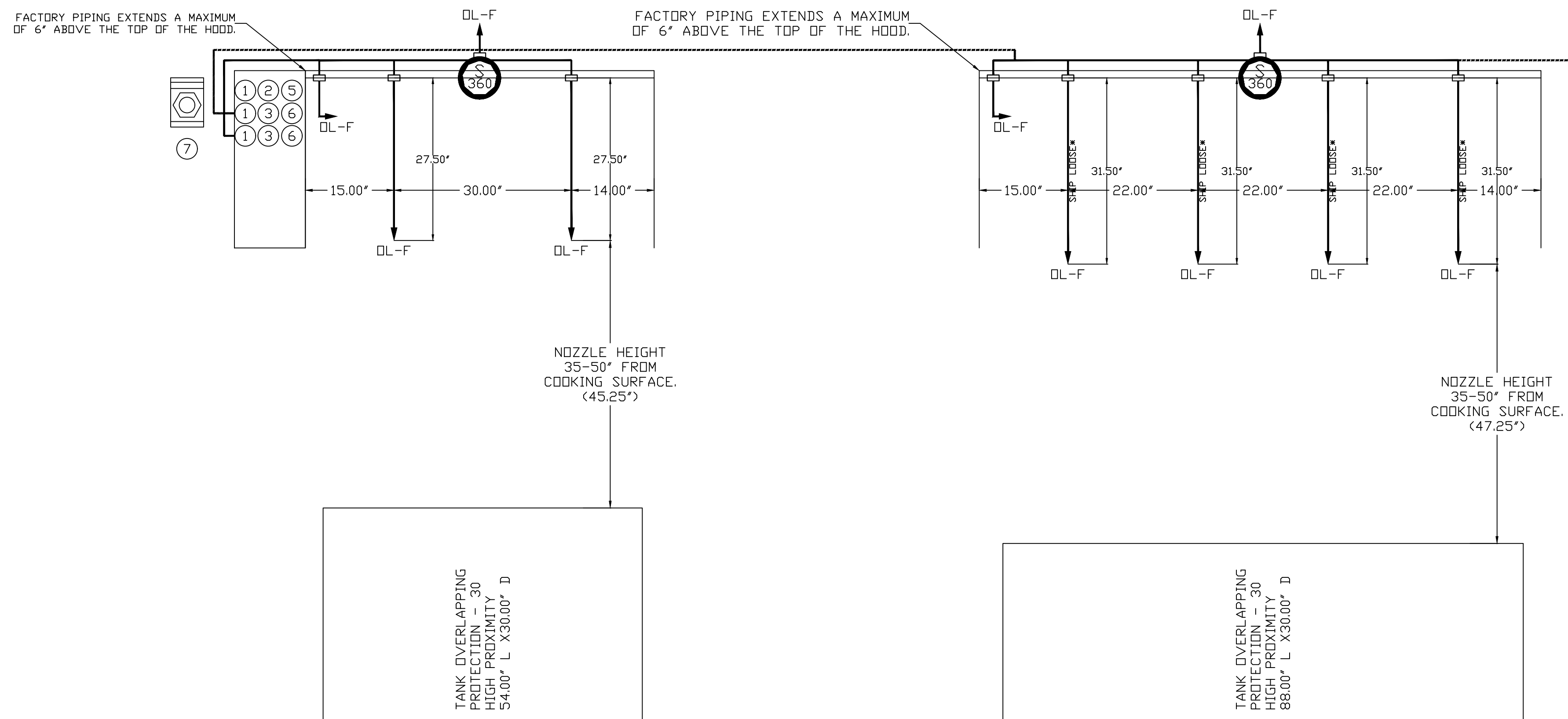
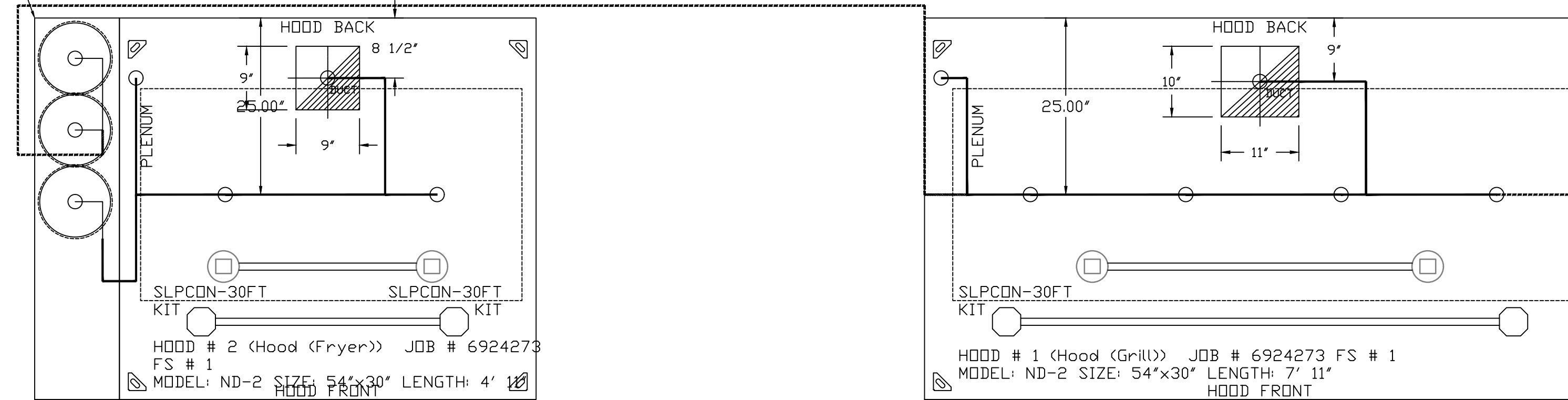
- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

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

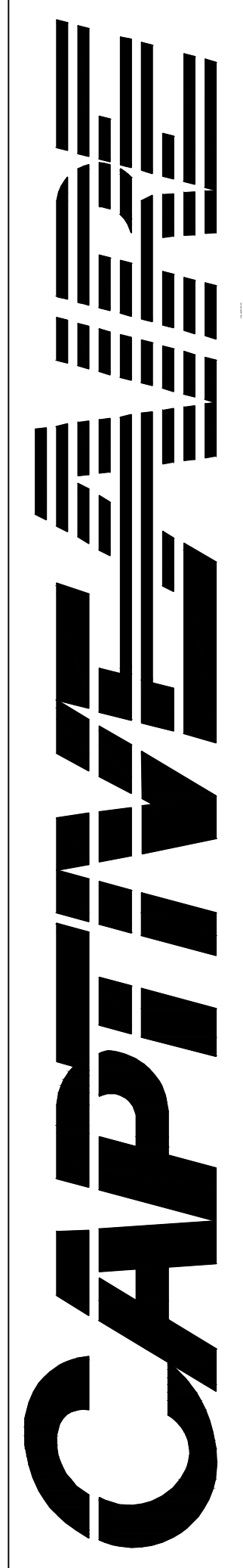
LEGEND - FIRE CABINET TANK SYSTEM

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

- SYSTEM REQUIRES A MINIMUM OF 7 FT OF EQUIVALENT PIPE LENGTH BETWEEN TANK AND NEAREST APPLIANCE NOZZLE FOR MOST APPLIANCES. EACH 90 DEGREE ELBOW ADDS 13 FT OF EQUIVALENT LENGTH. SEE MANUAL FOR DETAILS



REVISIONS	
DESCRIPTION	DATE



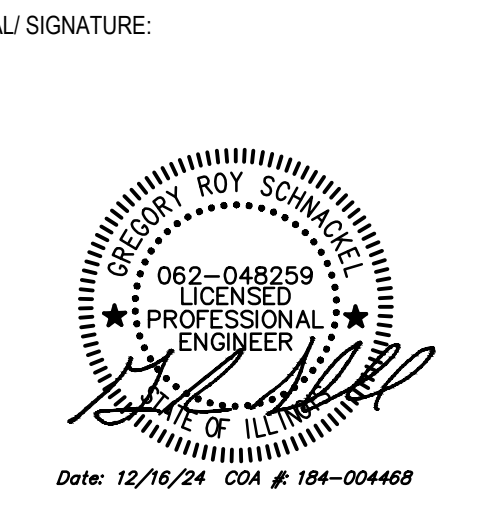
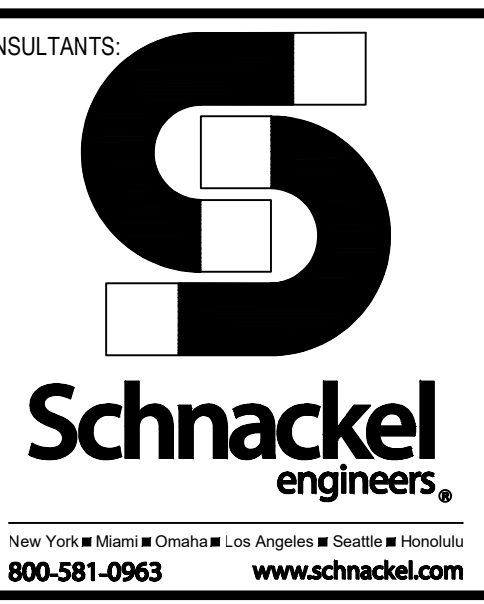
Eastern, PA Mechanical
 225 E City Line Avenue, Suite #103, Bensalem, PA 19004 PHONE: (267) 504-4126 EMAIL: reg108@captiveaire.com

Shake Shack-1620-Elston Logan (Kitchen)-R2
 CHICAGO, IL, 60647

DATE: 7/17/2024
 DWG.#: 6924273
 DRAWN BY: joe.shiiba
 SCALE: 3/4" = 1'-0"
 MASTER DRAWING

SHEET NO. 3

8310 E. HIGH STREET SUITE 350
 PHOENIX, AZ 85054
 T: 480.448.6250
 WWW.SARGARCH.COM



NO.	BY	DATE	DESCRIPTION
FN		2024-08-12	PERMIT / BID SET
FN		2024-07-22	75% SET



SHAKE SHACK ELSTON & LOGAN

2700 NORTH ELSTON AVE, UNIT 100
 CHICAGO, IL 60647
 SHACK #1620

PERMIT SET

CAPTIVEAIRE DRAWINGS

DRAWN BY: GRS
 CHECKED BY: GRS
 PROJECT NO: 11160-24

M703

EXHAUST FAN INFORMATION - JOB#6924273

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-1	1	USB118DD-RM	CAPTIVEAIRE	2348	3.000	1547	DDP, PREMIUM	3.000	1.9680	3	460	4.3	1204 FPM	423	27.5

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	KEF-1	1	B118 - INLET SERVICE DUCT CONNECTION. USED TO CONNECT TO STANDARD 20" GREASE DUCT OR FIELD WELDED DUCT. INCLUDES (2) 7" RISERS BOLTED TO STANDARD INLET RISER
		1	UTILITY SET GREASE CUP
		1	B118 - 24" DISCHARGE EXTENSION
		1	B1 - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE
		1	B118 - INLET CONNECTION STANDARD 20" FLANGED GREASE DUCT
		1	UTILITY SET - SPRING VIBRATION ISOLATORS - B118 / EQUIVALENT SIZED UTILITY SET - INDOOR/OUTDOOR USE
		1	LOAD REACTOR MOUNTED IN FAN

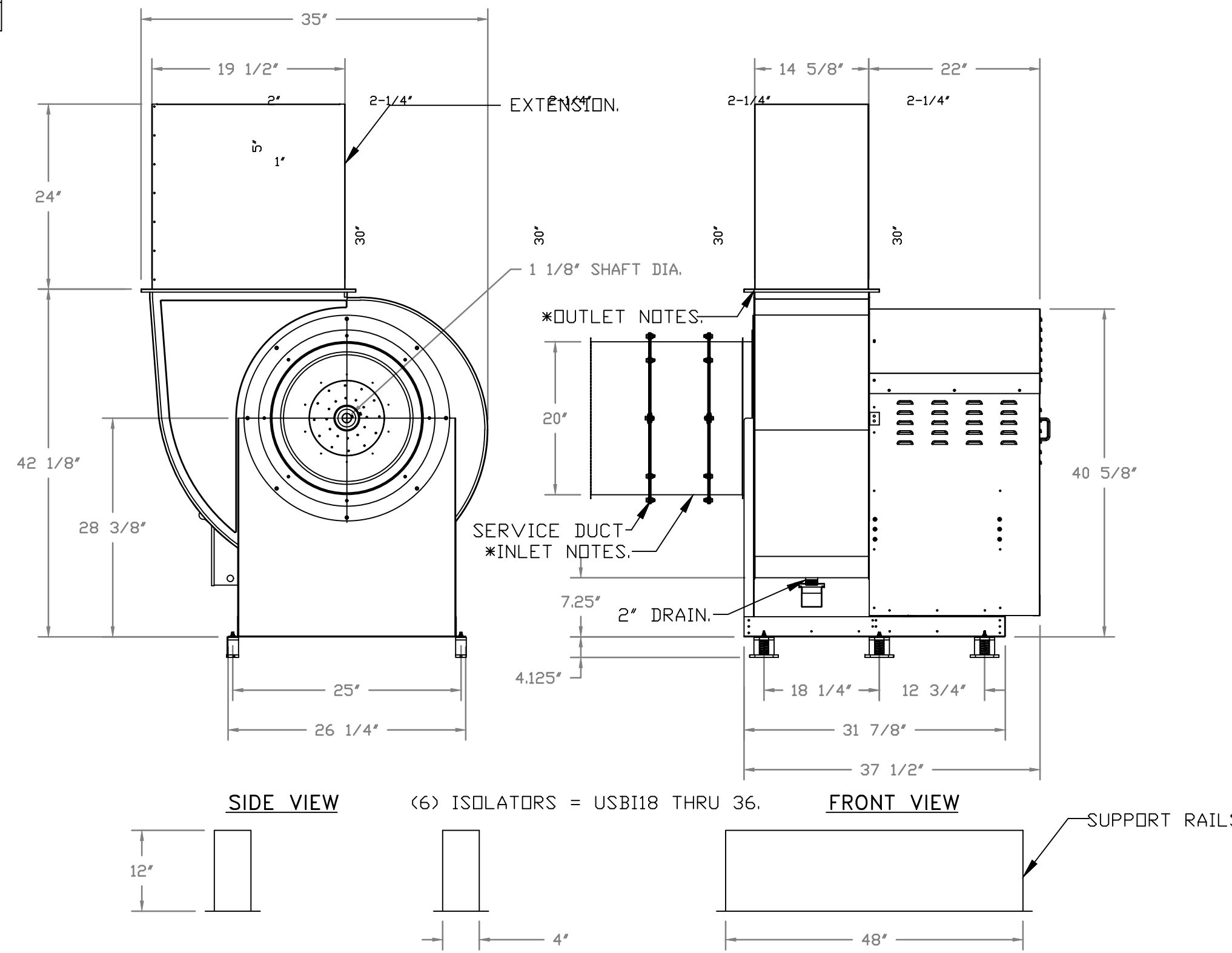
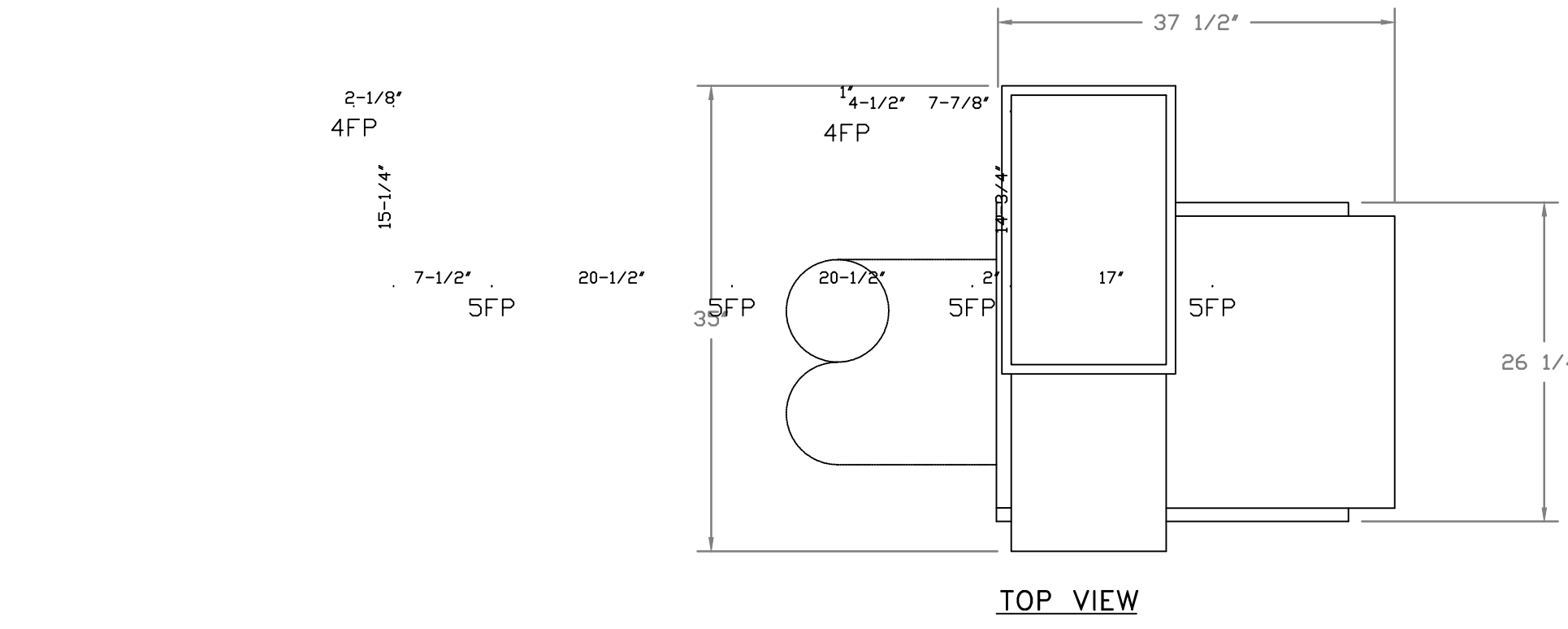
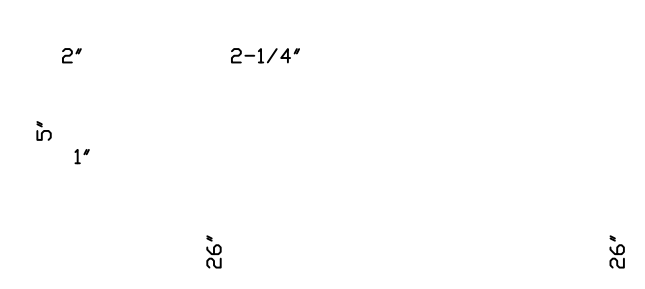
FAN #1 USB118DD-RM - EXHAUST FAN (KEF-1)

FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST	SUPPLY
1	KEF-1	YES	

CURB ASSEMBLIES

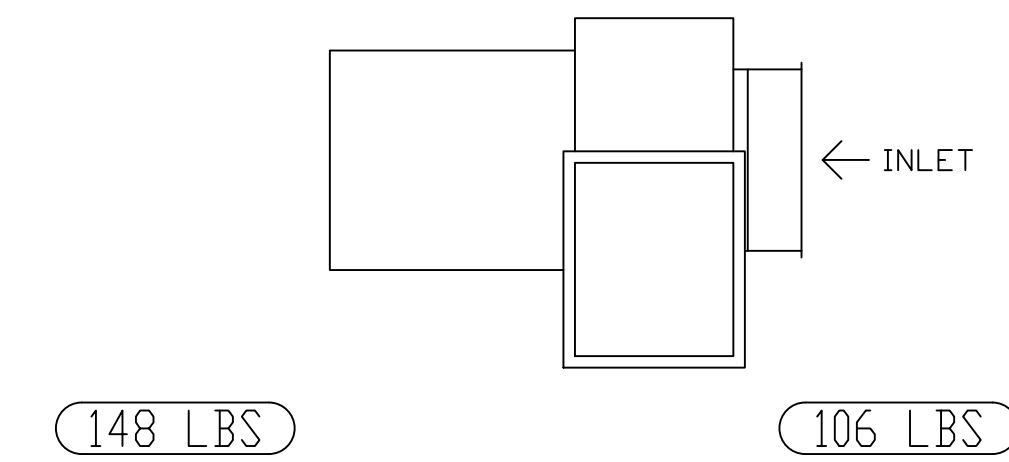
NO	DN FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	KEF-1	48 LBS	RAIL	4.000"W X 48.000"L X 12.000"H COMES AS A SET OF 2.



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

UNIT PLAN VIEW CORNER WEIGHTS:
93 LBS

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



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

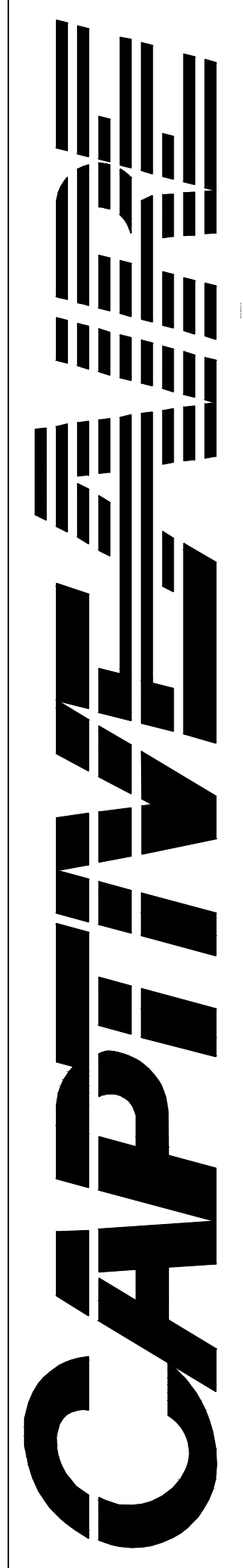
FEATURES:

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

OPTIONS

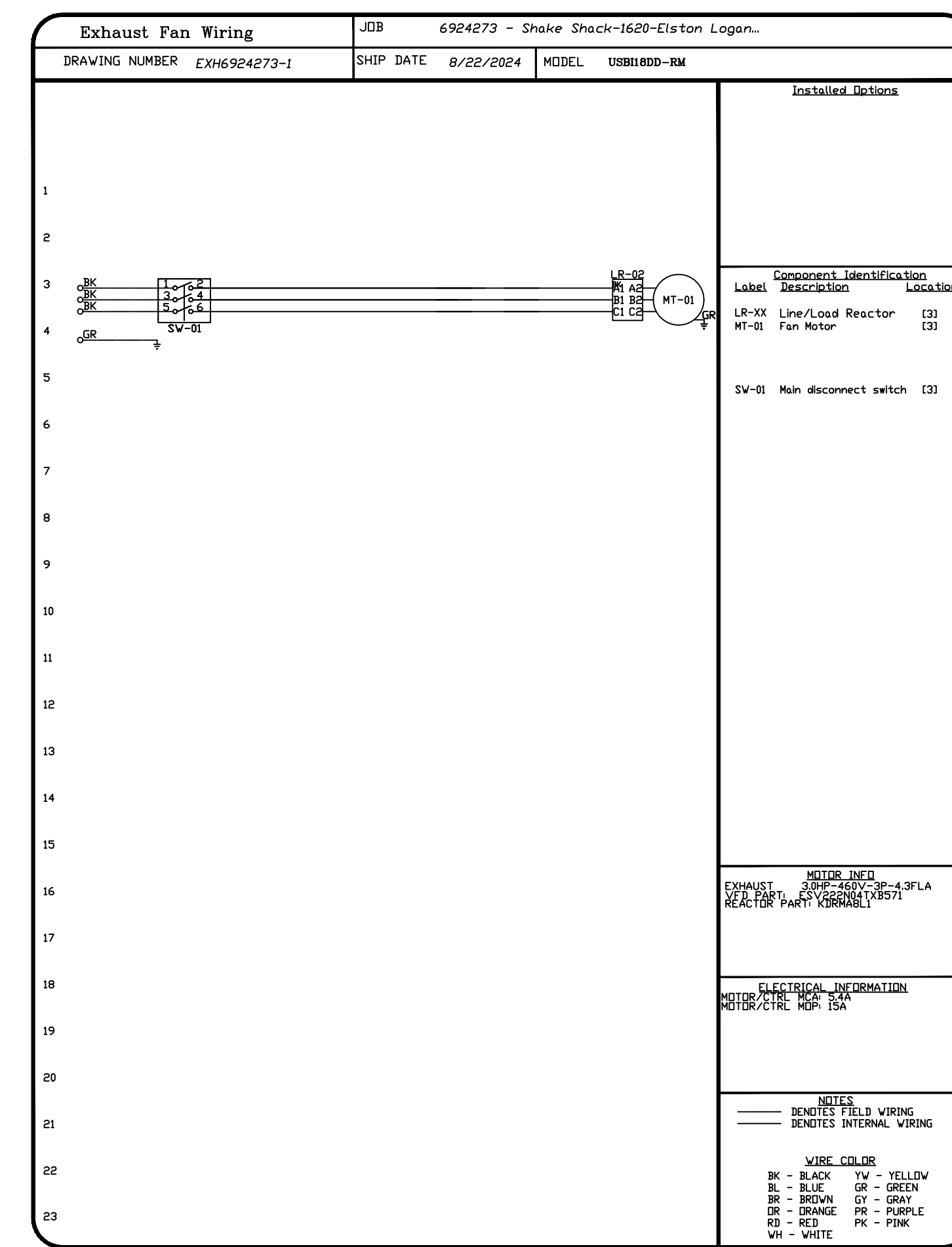
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- UTILITY SET GREASE CUP.
- B118 - 24" DISCHARGE EXTENSION.
- B1 - DISCHARGE ORIENTATION VERTICAL UPPER LEFT - CW INLET SIDE.
- B118 - INLET CONNECTION STANDARD 20" FLANGED GREASE DUCT.
- UTILITY SET - SPRING VIBRATION ISOLATORS - B118 / EQUIVALENT SIZED UTILITY SET - INDOOR/OUTDOOR USE.
- LOAD REACTOR MOUNTED IN FAN.
- 2 YEAR PARTS WARRANTY.

REVISIONS	
DESCRIPTION	DATE



Eastern, PA Mechanical
225 E City Line Avenue, Suite #103, Bala Cynwyd, PA 19004 PHONE: (677) 504-4126 EMAIL: reg10@captiveme.com

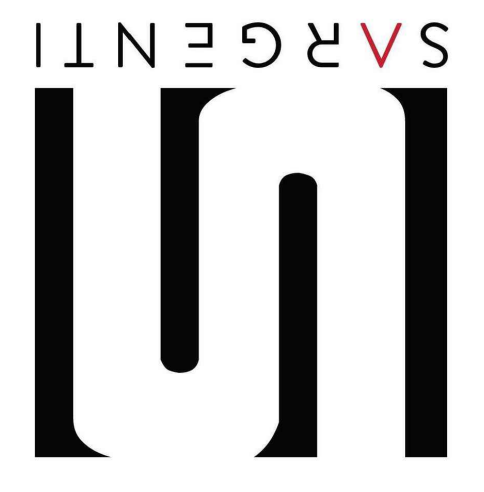
Shake Shack-1620-Elston Logan (Kitchen)-R2
CHICAGO, IL, 60647



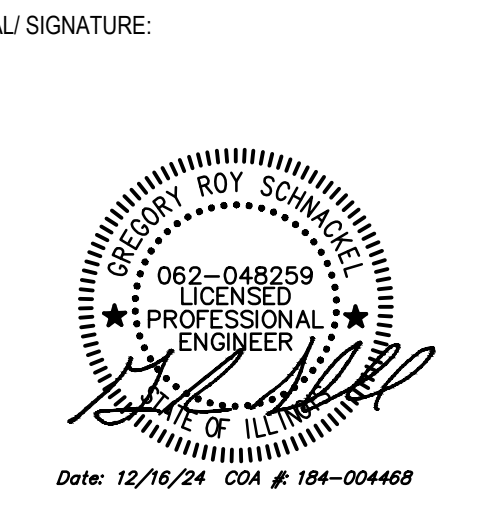
DATE: 7/17/2024
DWG.#: 6924273
DRAWN BY: joe.shiiba
SCALE: 3/4" = 1'-0"
MASTER DRAWING

SHEET NO. 4

5310 E. HIGH STREET SUITE 350
PHOENIX, AZ 85054
TJ 480.448.6250
WWW.SARGARCH.COM



CONSULTANTS:
Schnackel engineers.
New York • Miami • Chicago • Los Angeles • Seattle • Toronto
800-581-0963 www.schnackel.com



NO.	BY	DATE	DESCRIPTION
1	FN	2024-08-12	PERMIT / BID SET
2	FN	2024-07-22	75% SET



SHAKE SHACK ELSTON & LOGAN

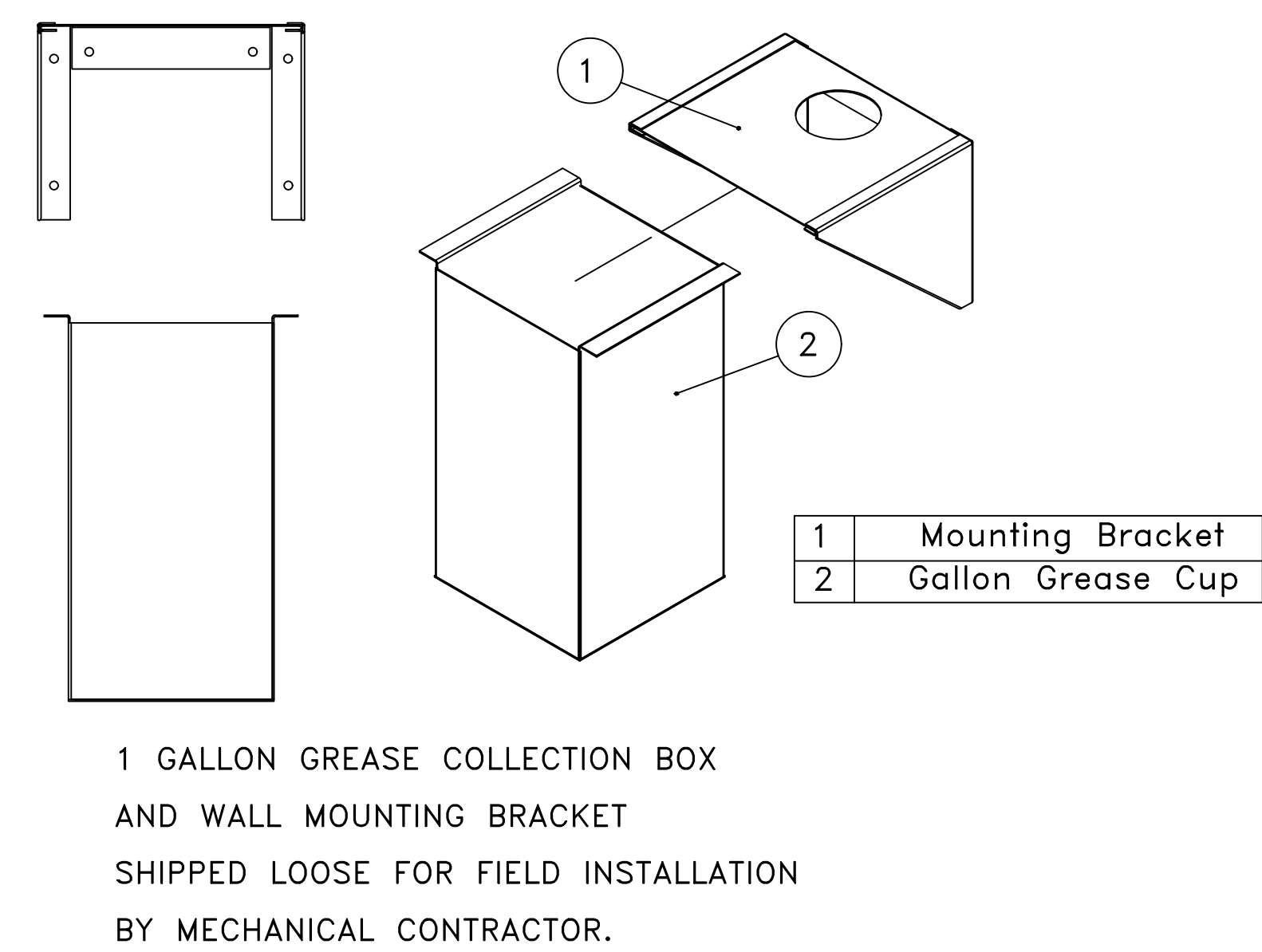
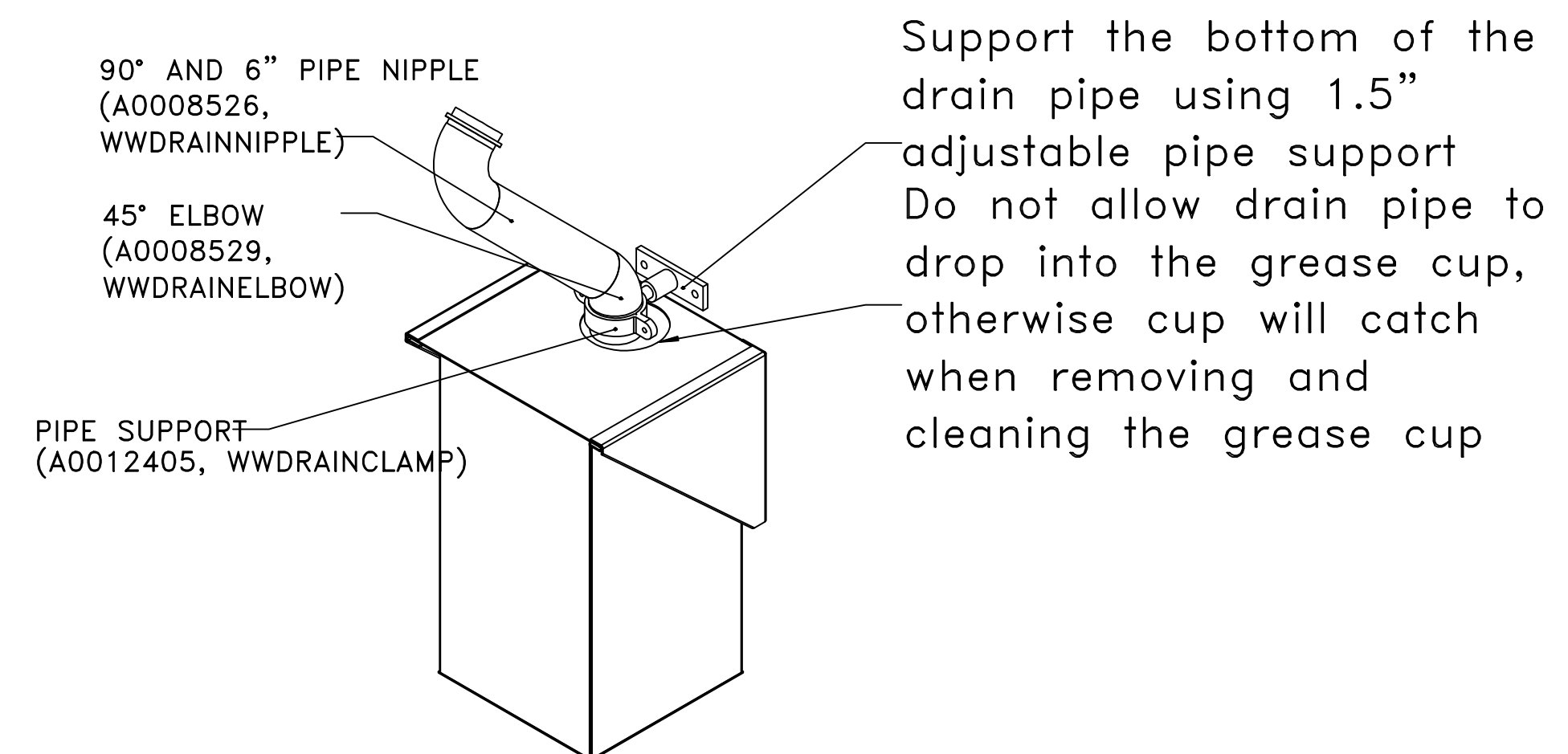
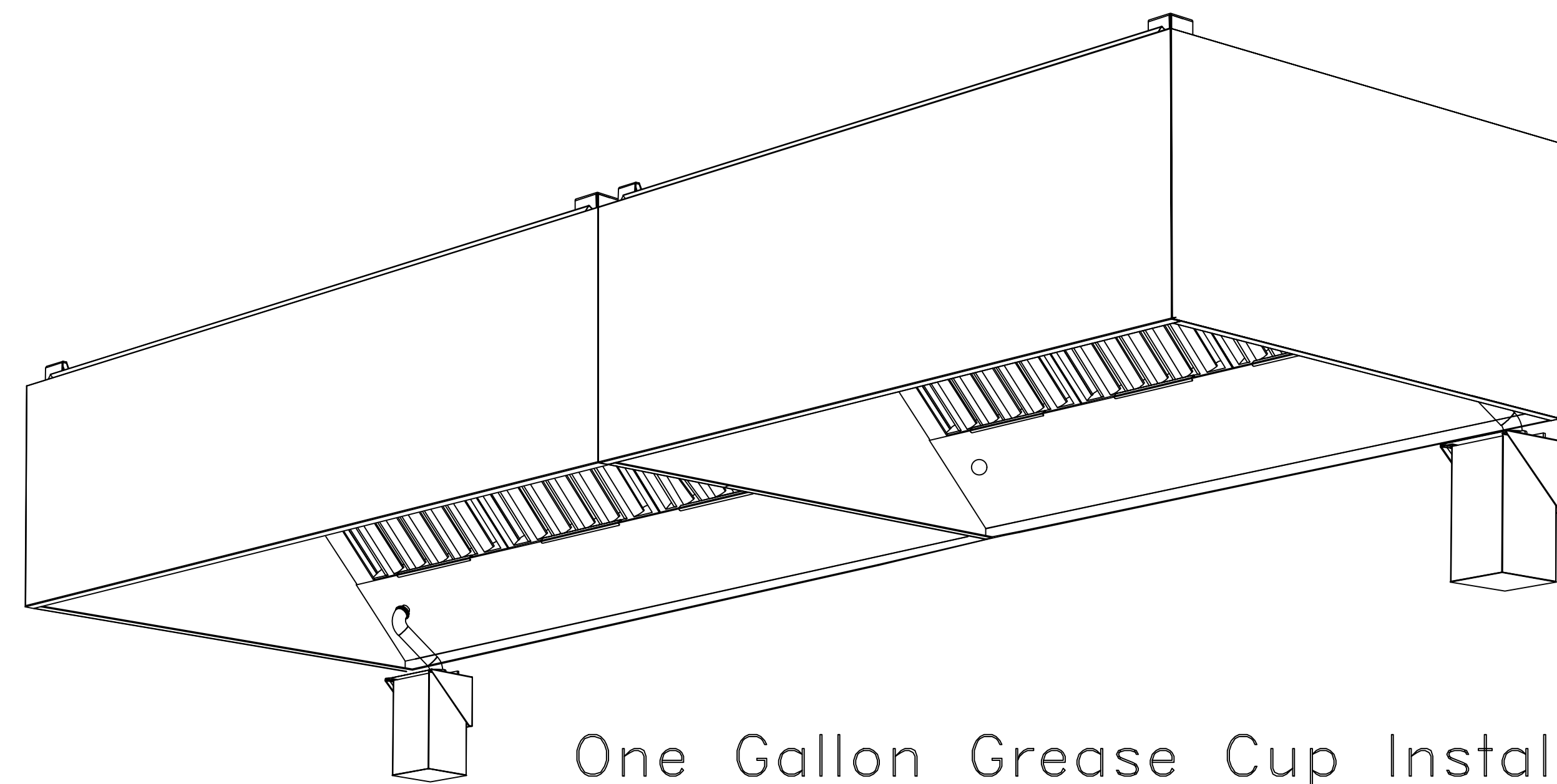
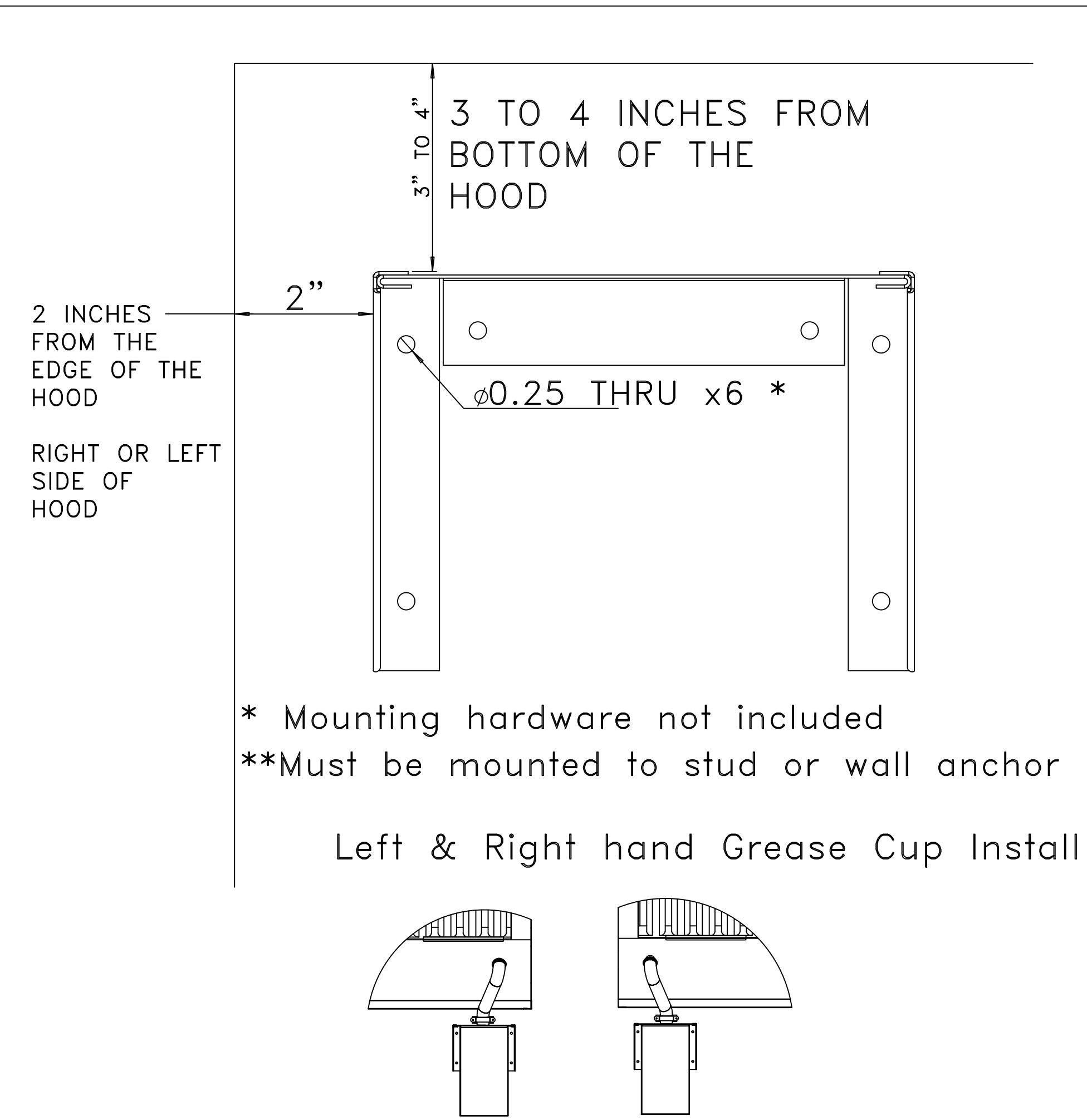
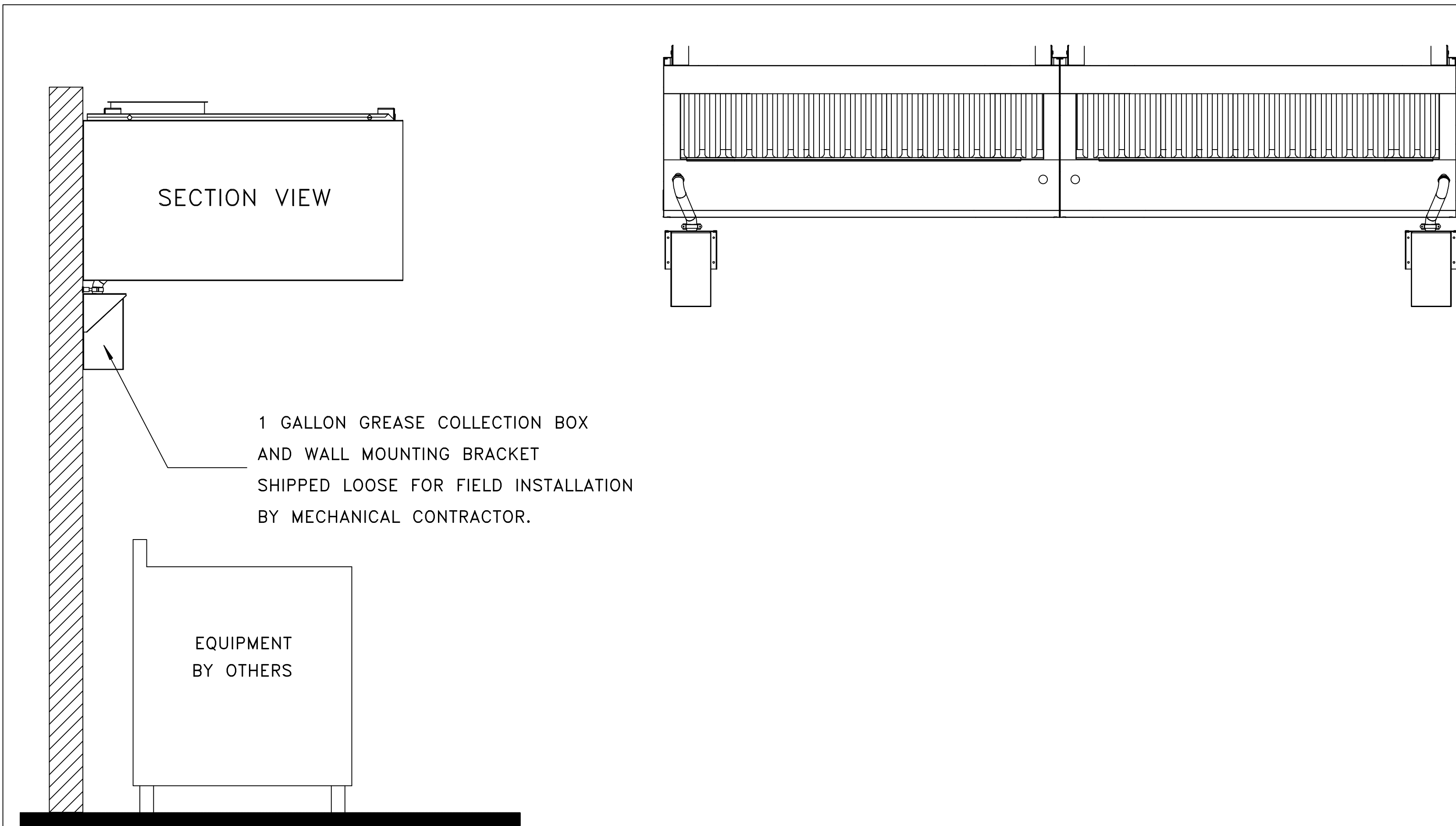
2700 NORTH ELSTON AVE, UNIT 100
CHICAGO, IL 60647
SHACK #1620

PERMIT SET

CAPTIVEAIRE DRAWINGS

DRAWN BY:
CHECKED BY: GRS
PROJECT NO: 11160-24

M704



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.

REVISIONS	
DESCRIPTION	DATE

CAPTIVE

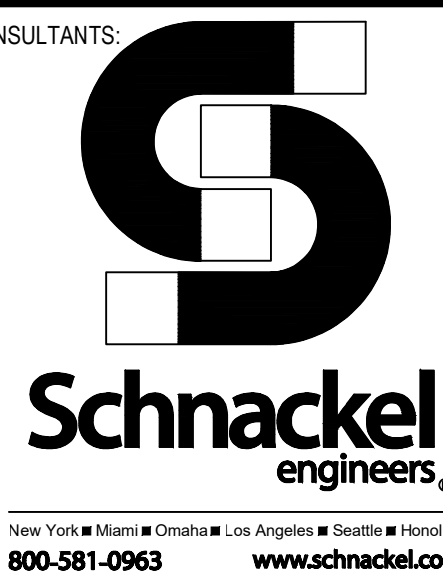
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Shake Shack-1620-Elston Logan (Kitchen)-R2
CHICAGO, IL, 60647

DATE: 7/17/2024
DWG.#: 6924273
DRAWN BY: joe.shiiba
SCALE: 3/4" = 1'-0"
MASTER DRAWING

SHEET NO. 6

5310 E. HIGH STREET SUITE 350
PHOENIX, AZ 85054
TJ 480.448.6250
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NO.	BY	DATE	DESCRIPTION



SHAKE SHACK ELSTON & LOGAN

2700 NORTH ELSTON AVE, UNIT 100
CHICAGO, IL 60647
SHACK #1620

PERMIT SET

CAPTIVEAIR DRAWINGS

DRAWN BY:	GRS
CHECKED BY:	GRS
PROJECT NO:	11160-24

M706

DOAS/RTU FAN SCHEDULE - JOB#7080257

FAN UNIT NO	TAG	QTY	DOAS/RTU MODEL #	FAN INFORMATION										ELECTRICAL INFORMATION										COOLING INFORMATION										REHEAT INFORMATION										GAS HEAT INFORMATION										NOTES
				MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	WEIGHT (LBS)	ESP	HP	PHASE	VOLTS	NCA	MOPC	DB	WB	DB	WB	DB	WB	DP	TOTAL	SENS.	TEER	ISMRE	DB	WB	DESIRED	MAX	MOISTURE REMOVAL RATE	GAS TYPE	INPUT BTU/H	OUTPUT TEMP	REQUIRED INPUT GAS PRESSURE																			
1	RTU-10DINDND	1	CAS-HVAC1-1100-16-6T	CAPTIVEAIRE	16Z-1	2035	315	2350	1294	1.000	3.40	3	460	181A	20A	90.0°F	75.0°F	77.0°F	63.9°F	51.0°F	51.6°F	51.9°F	84.0 MBH	64.3 MBH	19.5	9.2	73.0°F	66.7°F	55 MBH	56 MBH	17.5 LBS/HR	NATURAL	77932	63125	25°F	7 IN. W.C. - 14 IN. W.C.	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18																	
2	RTU-20DINDND	1	CAS-HVAC1-1100-16-6T	CAPTIVEAIRE	16Z-1	2035	315	2350	1294	1.000	3.40	3	460	181A	20A	90.0°F	75.0°F	77.0°F	63.9°F	51.0°F	51.6°F	51.9°F	84.0 MBH	64.3 MBH	19.5	9.2	73.0°F	66.7°F	55 MBH	56 MBH	17.5 LBS/HR	NATURAL	77932	63125	25°F	7 IN. W.C. - 14 IN. W.C.	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18																	
3	RTU-30KITCHEN	1	CAS-HVAC3-1300-15-1ST	CAPTIVEAIRE	15P-3	0	2230	2230	2541	1.000	3.00	3	460	316A	35A	90.0°F	75.0°F	75.0°F	49.2°F	49.2°F	49.3°F	185.7 MBH	98.9 MBH	18.8	5.7	75.0°F	62.5°F	63.8 MBH	29.6 MBH	74.5 LBS/HR	NATURAL	268954	21773	81°F	7 IN. W.C. - 14 IN. W.C.	1,2,3,4,5,6,7,8,9,10,11,12,13,15,17,19																		
4	RTU-40KITCHEN	1	CAS-HVAC1-1100-18-5T	CAPTIVEAIRE	18M-1-RTU	1350	450	1890	1293	1.000	3.00	3	460	15.9A	20A	90.0°F	75.0°F	78.8°F	65.6°F	53.6°F	53.5°F	53.5°F	65.8 MBH	49.3 MBH	17.9	6.1	75.0°F	62.5°F	42.4 MBH	53 MBH	14.5 LBS/HR	NATURAL	77569	62831	32°F	7 IN. W.C. - 14 IN. W.C.	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17																	

NOTES:
 1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL DR STAGED SCROLL NOT AN APPROVED EQUAL
 2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE
 3. INTEGRATED MONITORING VCM CELLULAR CONNECTION BY MANUFACTURER
 4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE
 5. EC MOTOR CONDENSING FANS
 6. ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE
 7. SUCTION LINE ACCUMULATOR
 8. FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER
 9. AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT
 10. 81% EFFICIENT FURNACE. WITH MODULATING INDOOR TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 61 TURNDOWN WITH NG AND 51 TURNDOWN WITH LP
 11. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE
 12. FULLY MODULATING HEAT GAS REHEAT
 13. HAIL GUARD FOR CONDENSING COIL
 14. RTU ECONOMIZER WITH DIFFERENTIAL ENTHALPY CONTROL
 15. BAROMETRIC RELIEF DAMPER
 16. 1" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-4.3 INSULATION-MINIMUM 24GA EXTERIOR W/ 18GA BASE
 17. DOWN DISCHARGE/DOWN RETURN

FOR QUESTIONS, CALL THE
 Eastern PA Mechanical
 REGION 108
 PHONE: (607) 504-4126
 EMAIL: reg108@captiveaire.com

FAN OPTIONS

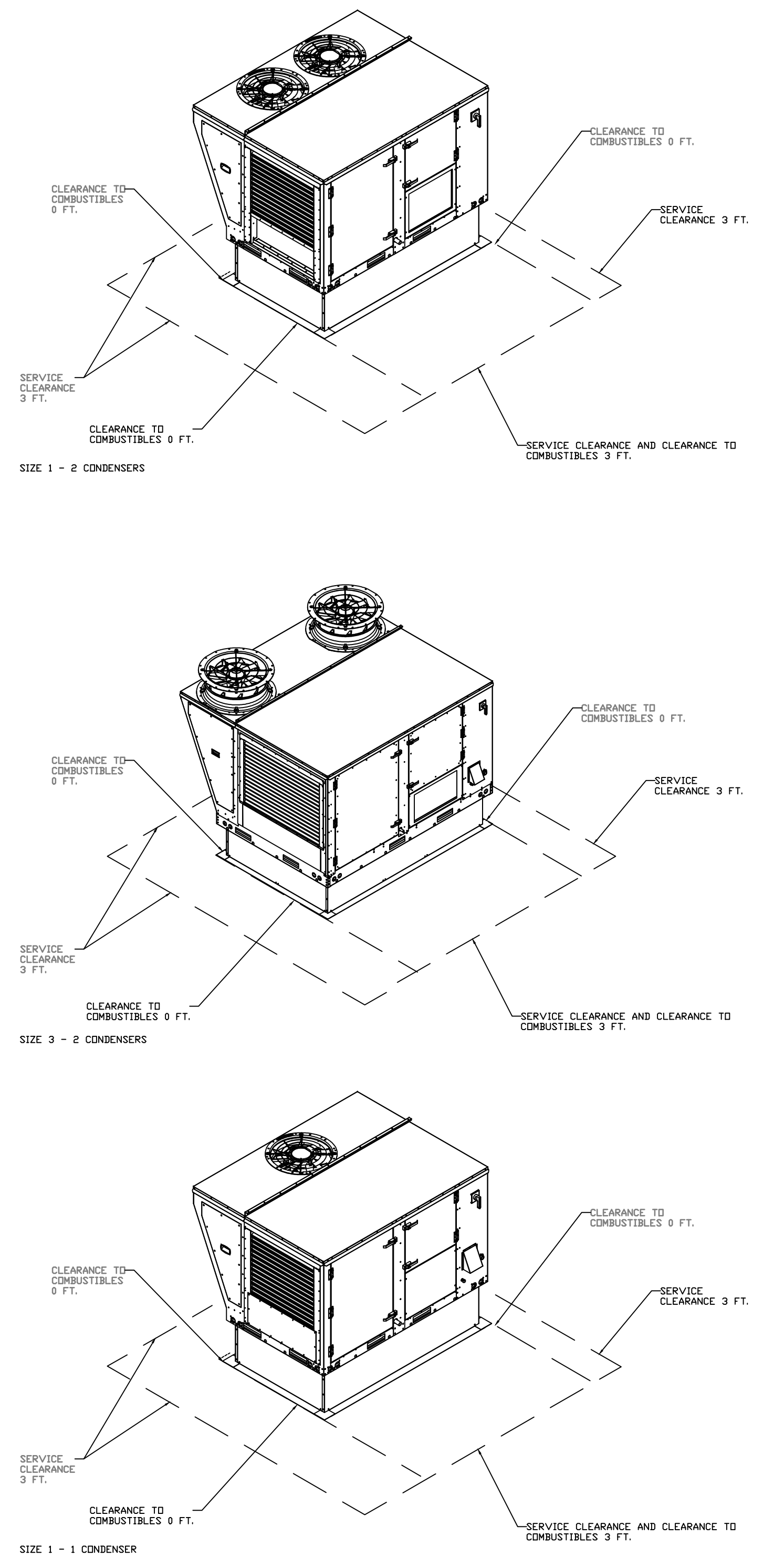
FAN UNIT NO	TAG	QTY	DESCRIPTION	FAN UNIT NO	TAG	QTY	DESCRIPTION
1	RTU-10DINDND	1	INLET PRESSURE GAUGE, 0-35"	4	RTU-40KITCHEN	1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE
		1	TOTAL CFM MONITORING			1	INTAKE FIRESTAT SET TO 135°F
		1	FREEZESTAT			1	DISCHARGE FIRESTAT SET TO 240°F
		1	SHIP LOOSE GAS STRAINER 3/4"			1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU, 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, #48, OR #28 PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE.
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED			1	2" MERV 13 FILTERS FOR RTU (QTY. 4)
		1	2" MERV 8 FILTERS FOR RTU (QTY. 4)			1	OVERHEAT STAT
		1	RTU DOWN DISCHARGE			1	6 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL - R410A
		1	RTU ECONOMIZER - DIFFERENTIAL ENTHALPY CONTROL			1	RTU ECONOMIZER BAROMETRIC RELIEF
		1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL VIA HMI			1	RTU HAIL GUARD
		1	ZIEHL POWERED EXHAUST FOR RTU - MANUAL CONTROL. 2000 CFM MAX AT 0"			1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK - ALARM SUPPLIED BY OTHERS
		1	RTU DOWN RETURN			1	ECM WIRING PACKAGE - SUPPLY FAN CONTROL RTU MUA BOARD
		1	RTU CONVENIENCE OUTLET (GFCI), 15 AMP - REQUIRES SEPARATE 120V CONNECTION. INCLUDES RECEPTACLE, COVER AND J BOX			1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI
		1	120V FIRE INPUT			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" WC, 1 FURNACE			1	TOTAL CFM MONITORING
		1	INTAKE FIRESTAT SET TO 135°F			1	FREEZESTAT
		1	DISCHARGE FIRESTAT SET TO 240°F			1	SHIP LOOSE GAS STRAINER 3/4"
1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU, 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, #48, OR #28 PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE.	1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED				
1	2" MERV 13 FILTERS FOR RTU (QTY. 4)	1	2" MERV 8 FILTERS FOR RTU (QTY. 4)				
1	OVERHEAT STAT	1	RTU DOWN DISCHARGE				
1	6 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL - R410A	1	RTU ECONOMIZER - DIFFERENTIAL ENTHALPY CONTROL				
1	RTU ECONOMIZER BAROMETRIC RELIEF	1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL VIA HMI				
1	RTU HAIL GUARD	1	ZIEHL POWERED EXHAUST FOR RTU - MANUAL CONTROL. 2000 CFM MAX AT 0"				
1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK - ALARM SUPPLIED BY OTHERS	1	RTU DOWN RETURN				
1	ECM WIRING PACKAGE - SUPPLY FAN CONTROL RTU MUA BOARD	1	RTU CONVENIENCE OUTLET (GFCI), 15 AMP - REQUIRES SEPARATE 120V CONNECTION. INCLUDES RECEPTACLE, COVER AND J BOX				
1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI	1	120V FIRE INPUT				
1	5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS)	1	EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET				

CURB ASSEMBLIES

NO	DM FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	RTU-10DINDND	118 LBS	CURB	41.000"W X 71.000"L X 30.000"H INSULATED.
2	# 2	RTU-20DINDND	197 LBS	CURB	41.000"W X 71.000"L X 30.000"H INSULATED 16 GAUGE.
3	# 3	RTU-30KITCHEN	172 LBS	CURB	59.500"W X 91.000"L X 30.000"H INSULATED.
4	# 4	RTU-40KITCHEN	118 LBS	CURB	41.000"W X 71.000"L X 30.000"H INSULATED.

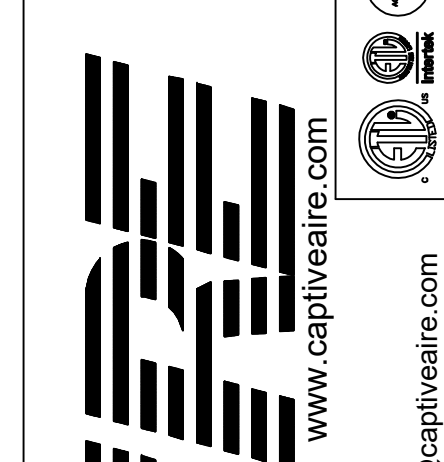
HMI SCHEDULE

UNIT NUMBER	HMI #	HMI LOCATION	TEMP AVERAGING	MODBUS ADDRESS
FAN #1	HMI #1 - UNIT	IN UNIT	NOT AVERAGED	55
FAN #1	HMI #2 - SPACE	AVERAGED	56	
FAN #2	HMI #1 - UNIT	IN UNIT	NOT AVERAGED	55
FAN #2	HMI #2 - SPACE	AVERAGED	56	
FAN #3	HMI #1 - UNIT	IN UNIT	NOT AVERAGED	55
FAN #3	HMI #2 - SPACE	AVERAGED	56	
FAN #4	HMI #1 - UNIT	IN UNIT	NOT AVERAGED	55
FAN #4	HMI #2 - SPACE	AVERAGED	56	



REVISIONS

NO.	DESCRIPTION	DATE



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

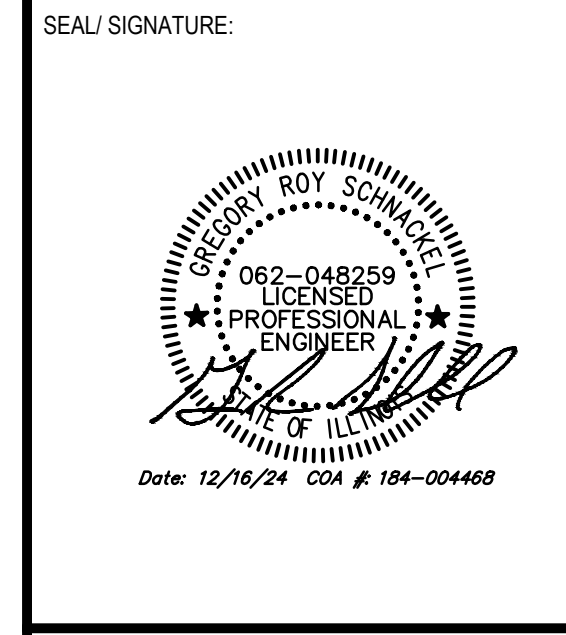
Shake Shack-1620-Elston Logan(HVAC)-R5
 CHICAGO, IL, 60647

DATE: 10/2/2024
 DWG #: 7080257
 DRAWN BY: Joe.shiiba
 SCALE: 1/2" = 1'-0"
 MASTER DRAWING
 SHEET NO. 1

8310 E HIGH STREET SUITE 350
 PHOENIX, AZ 85054
 T: 480.448.6250
 WWW.SARGARCH.COM



CONSULTANTS:
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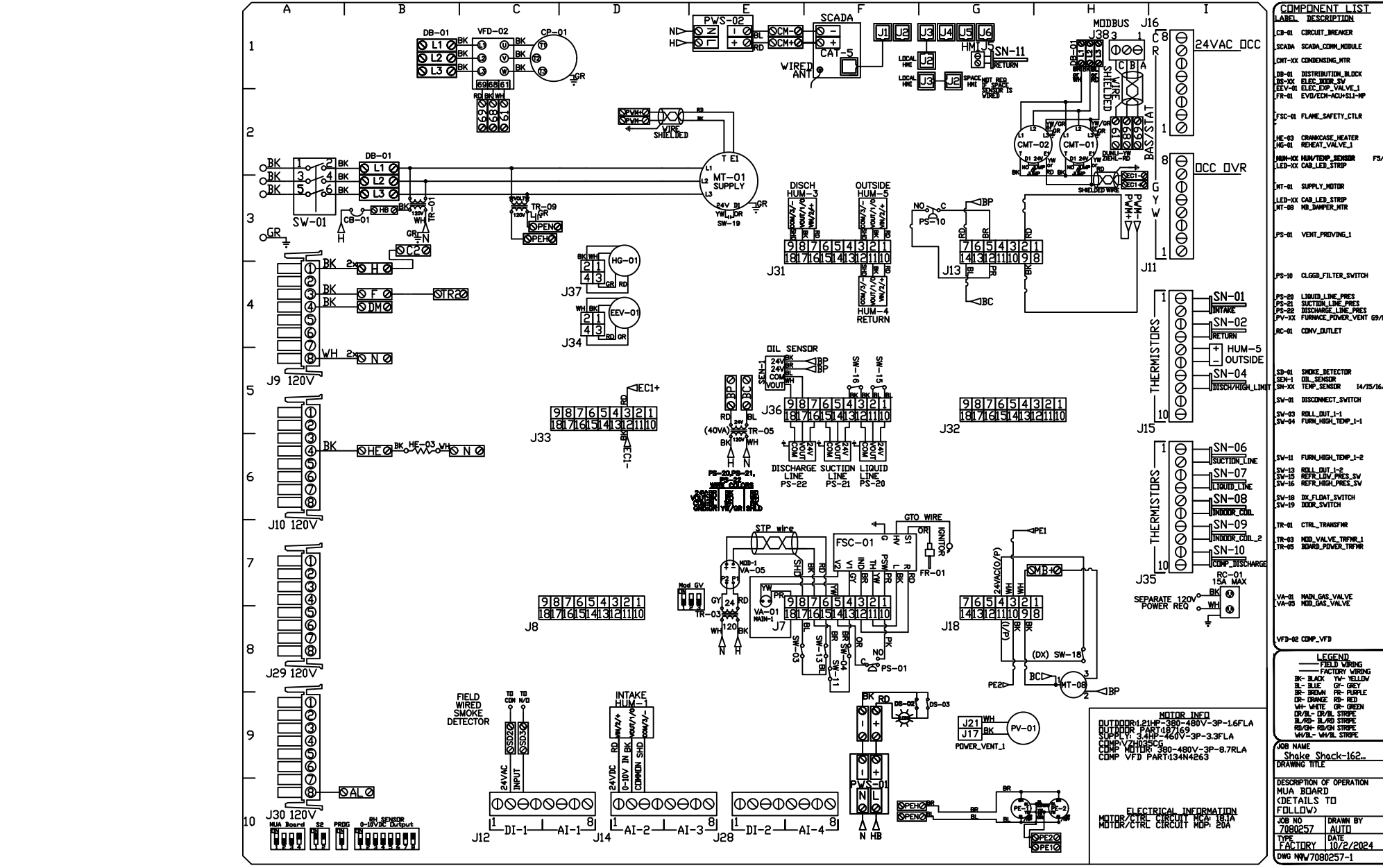
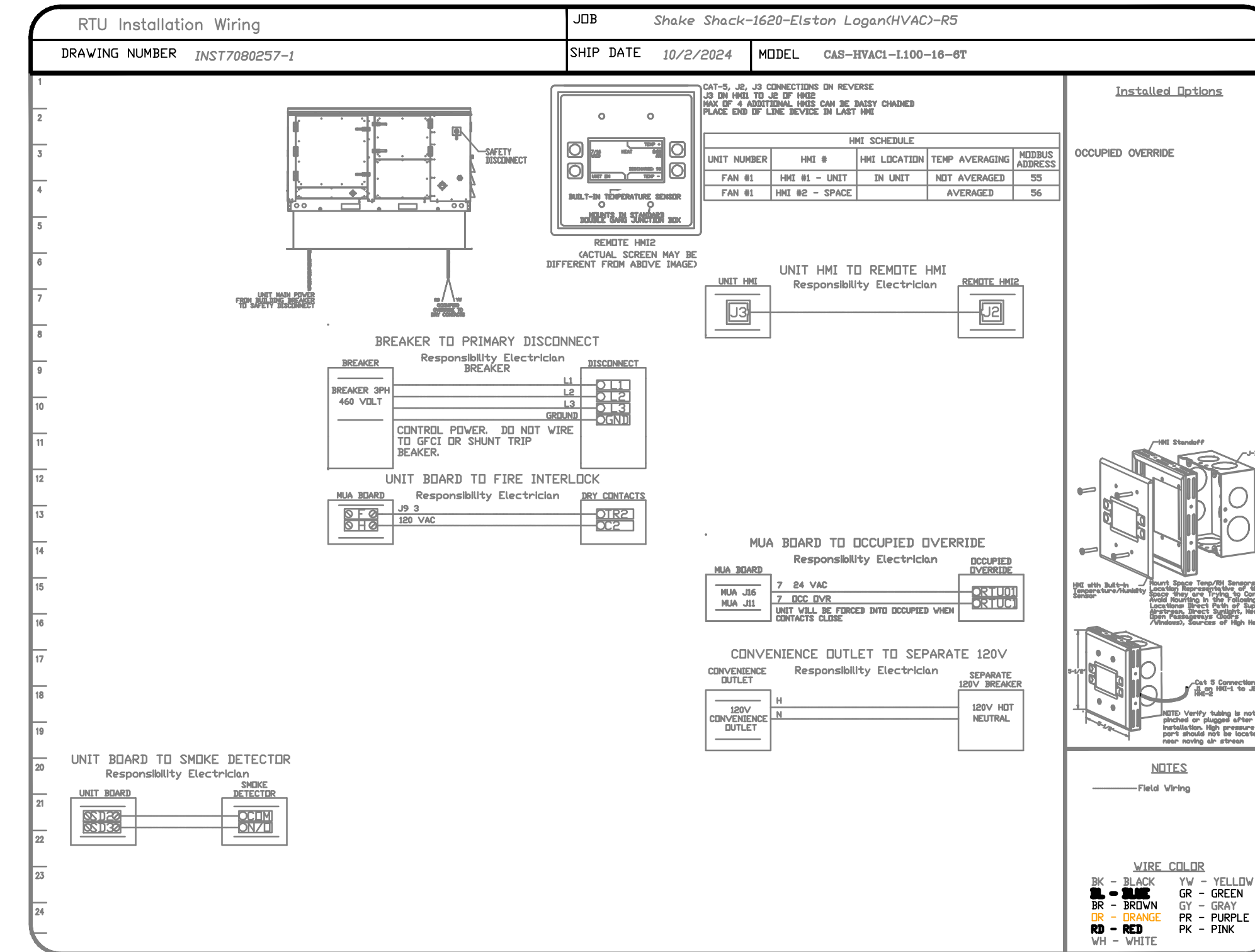
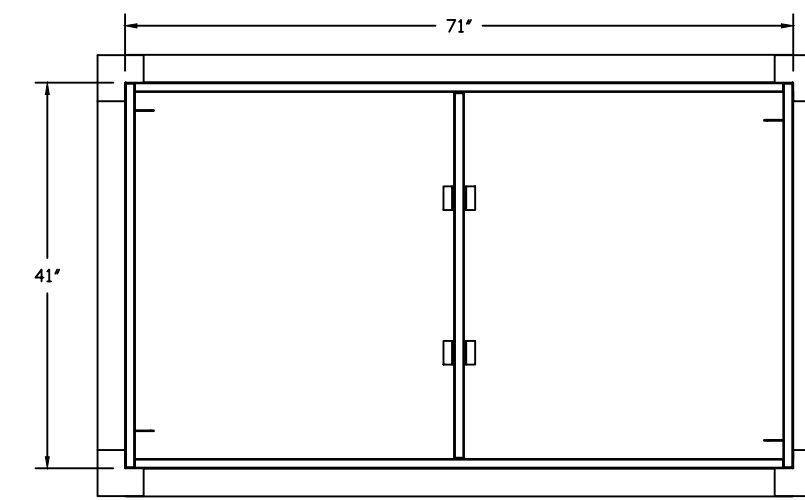
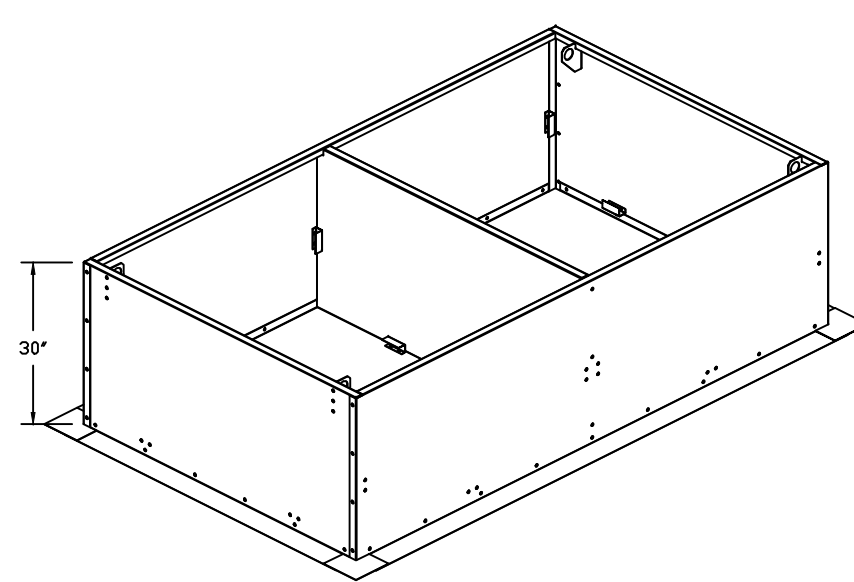
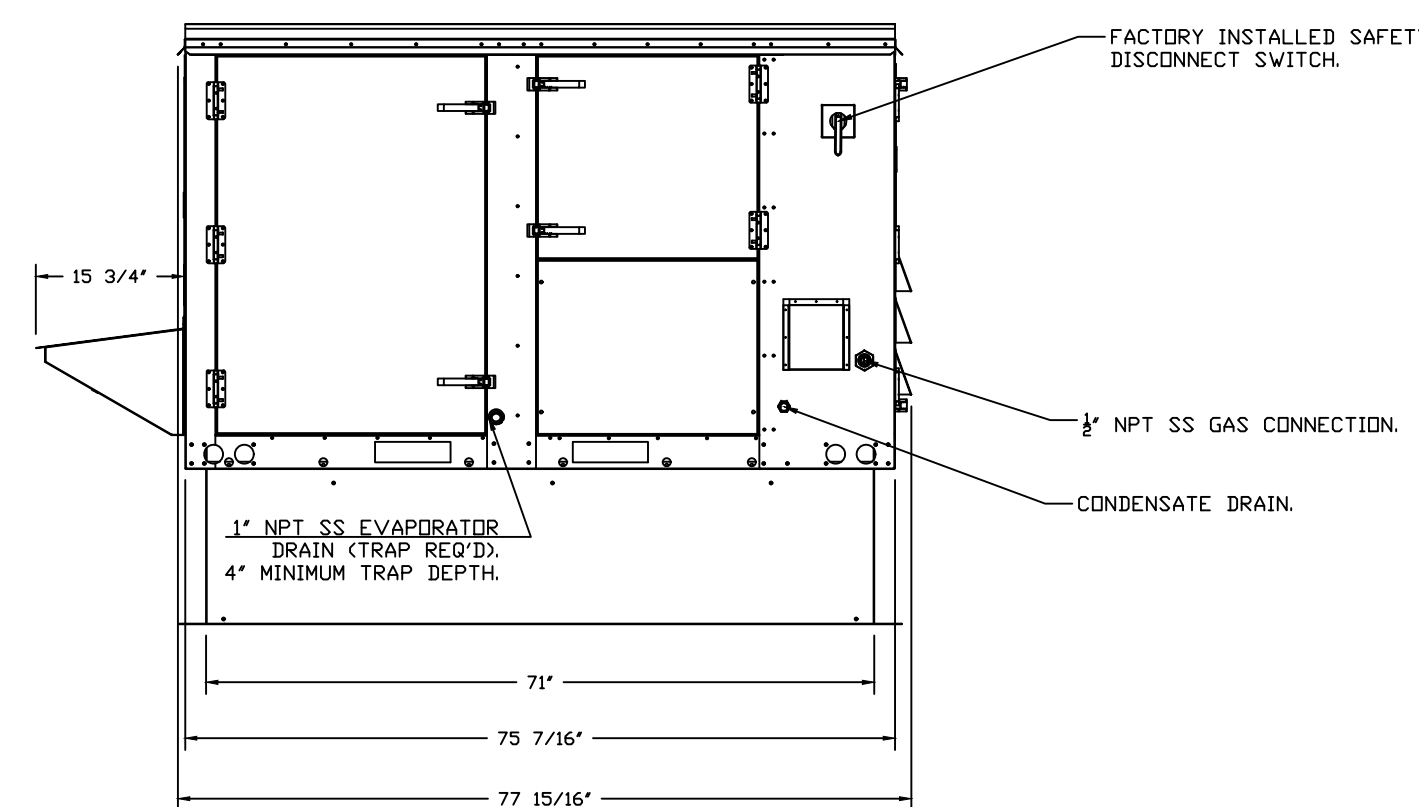
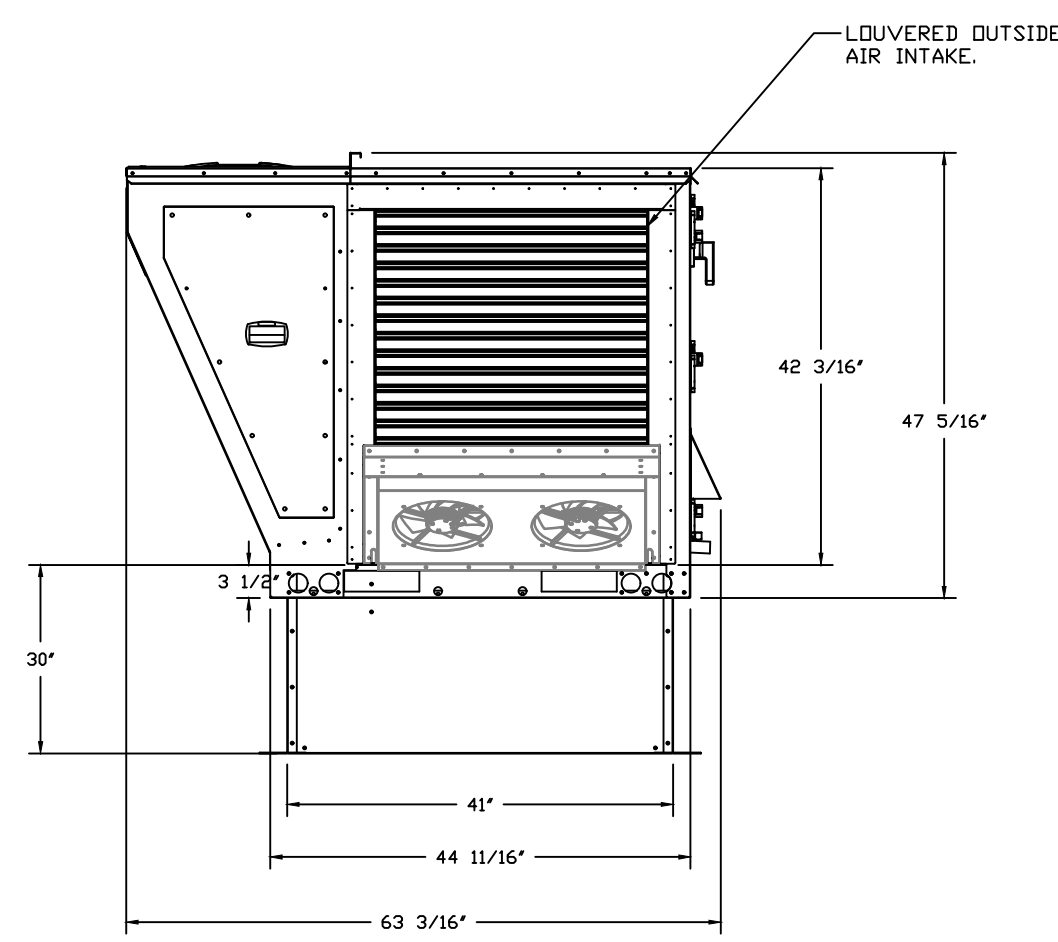
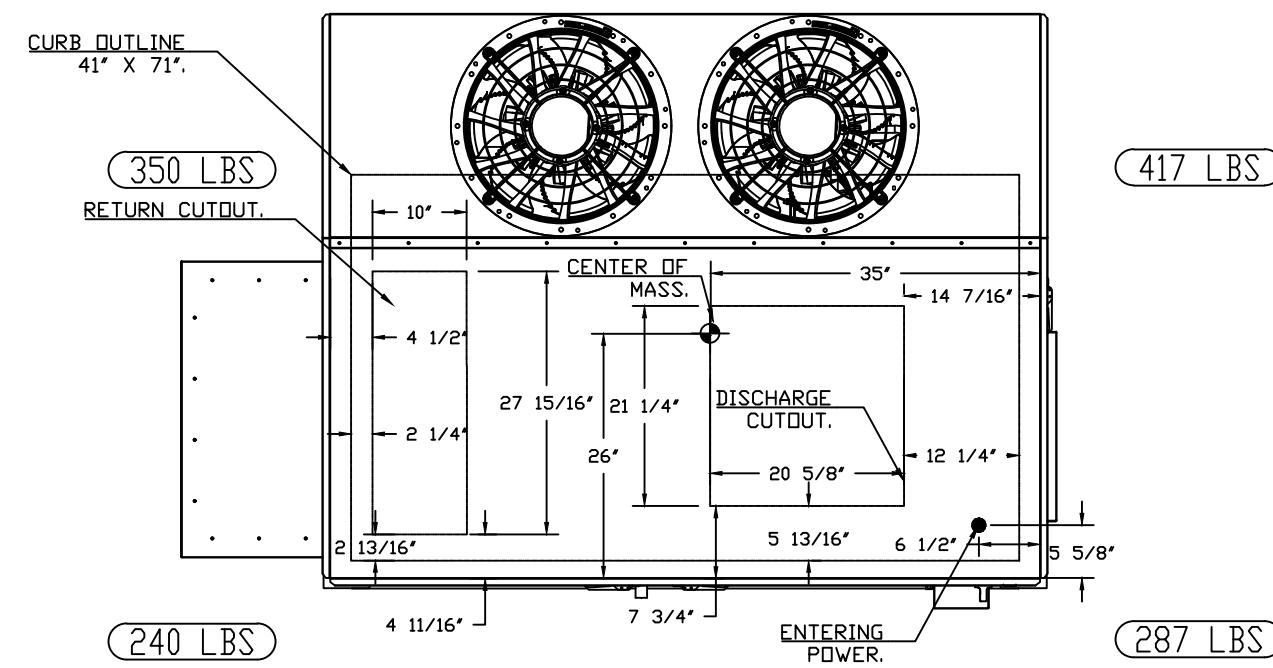
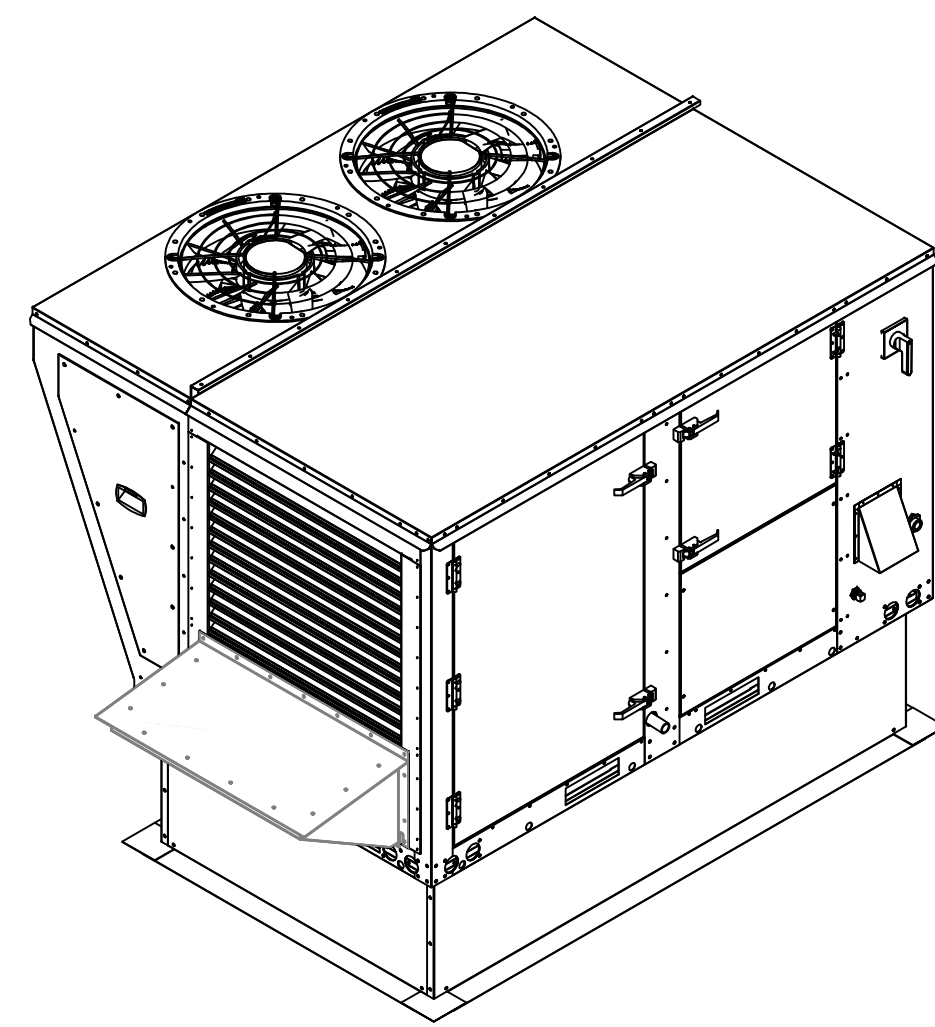
SHAKE SHACK ELSTON & LOGAN
 2700 NORTH ELSTON AVE, UNIT 100
 CHICAGO, IL 60647
 SHACK #1620

PERMIT SET

CAPTIVEAIRE DRAWINGS

DRAWN BY:
 CHECKED BY: GRS
 PROJECT NO: 11160-24

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DESCRIPTION	DATE

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Eastern, PA Mechanical

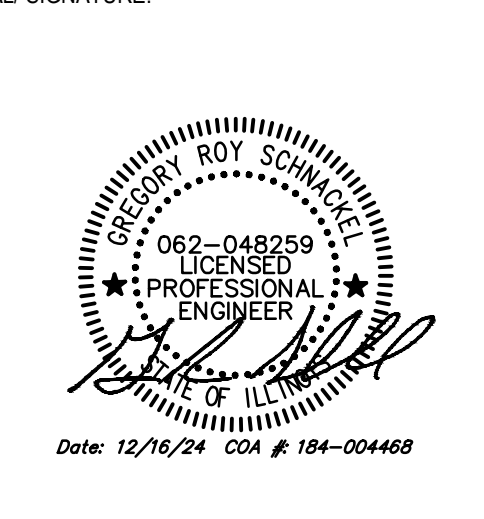
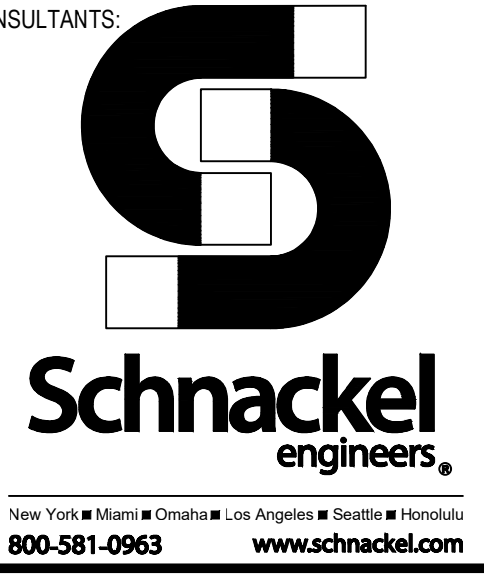
225 E City Line Avenue, Suite #103, Bala Cynwyd, PA 19004 PHONE: (267) 504-4120 EMAIL: reg106@captiveaire.com

Shake Shack-1620-Elston Logan(HVAC)-R5
CHICAGO, IL, 60647

DATE: 10/2/2024
DWG #: 7080257
DRAWN BY: Joe.shilka
SCALE: 1/2" = 1'-0"
MASTER DRAWING
SHEET NO. 2

- FAN #1 (RTU-1(DINING)), #2 (RTU-2(DINING)) - CAS-HVAC1-I.100-16-6T HEATER
- 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.

5310 E. HIGH STREET SUITE 350
PHOENIX, AZ 85054
TJ 480.448.6250
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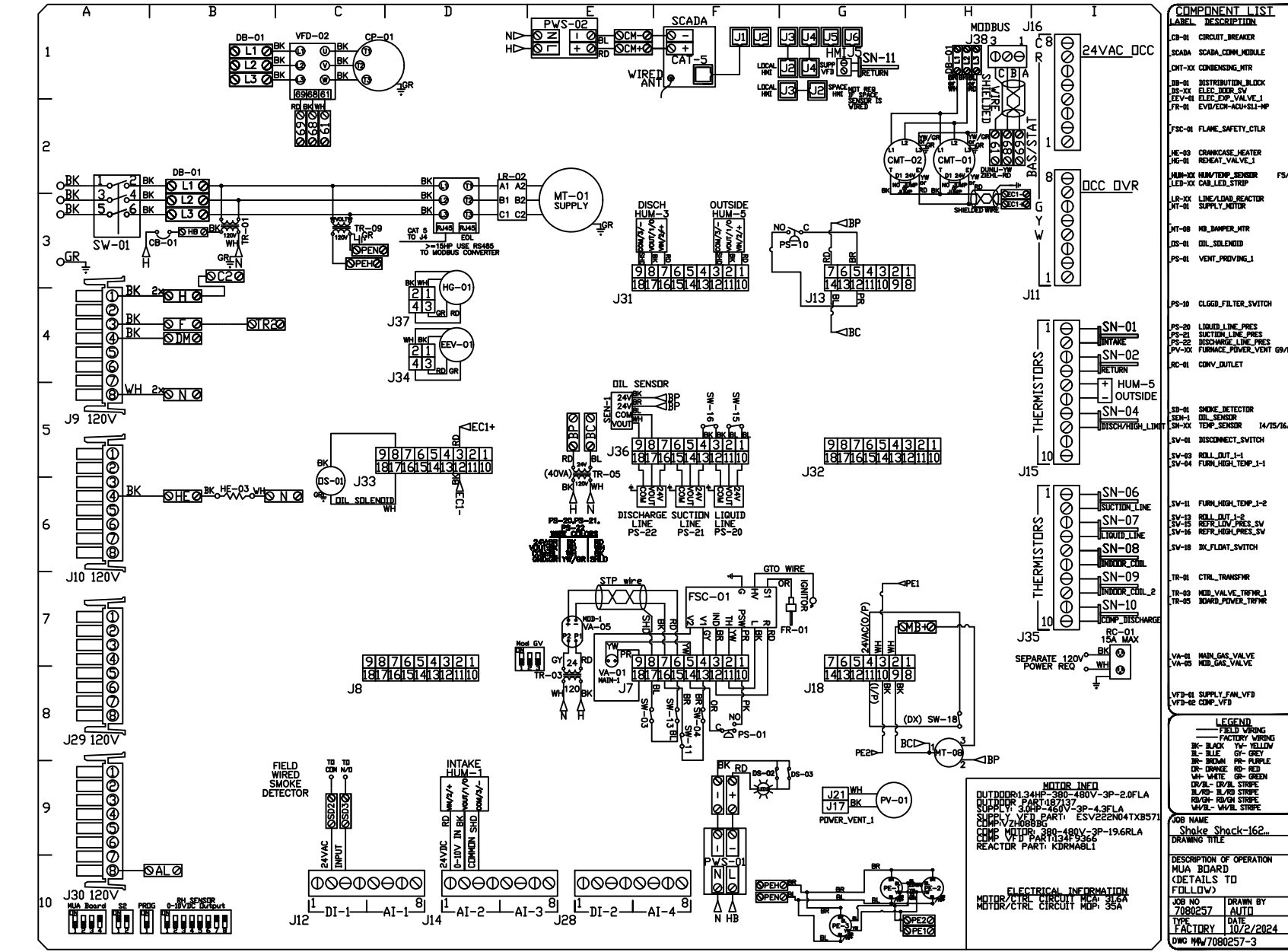
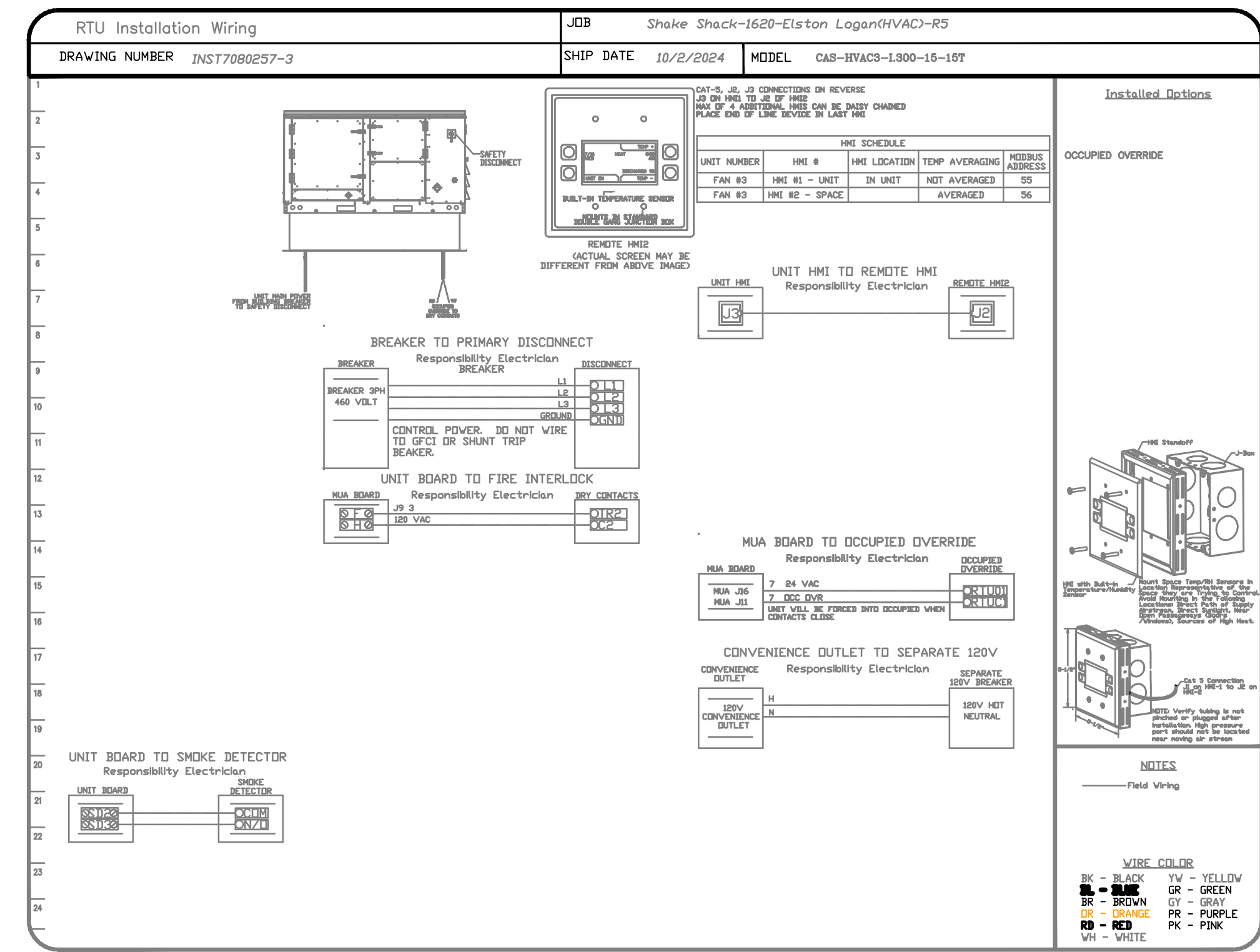
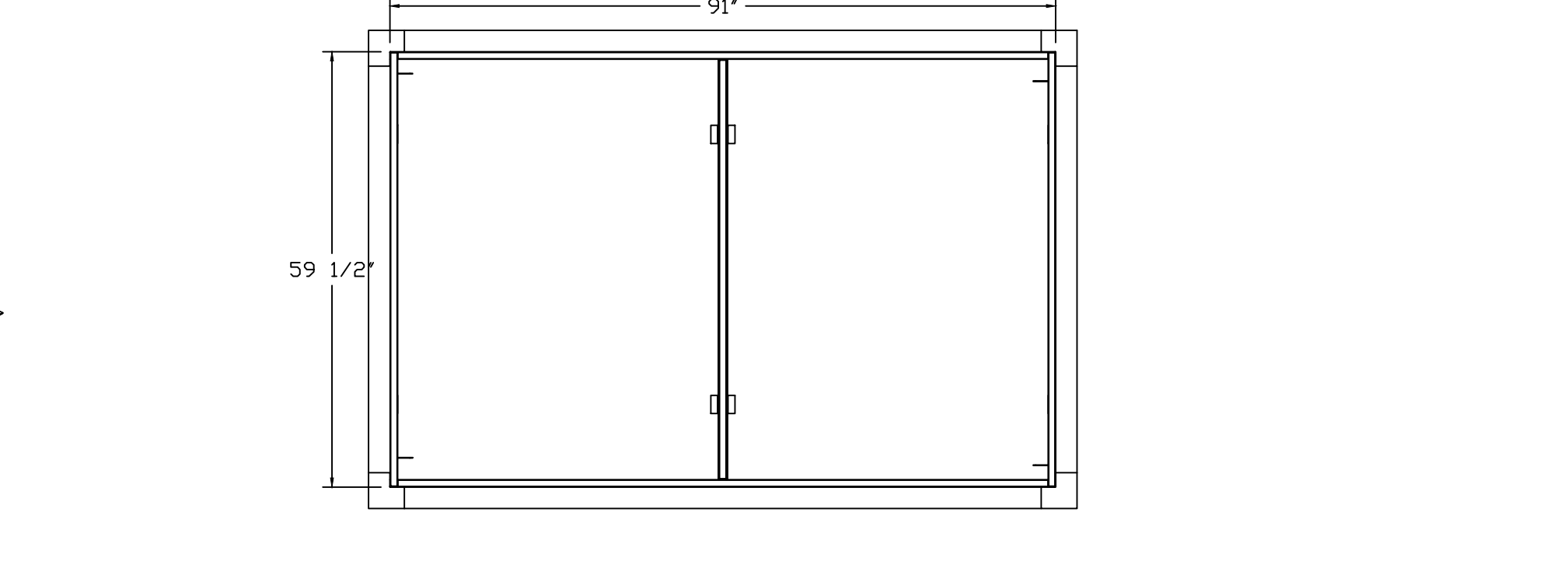
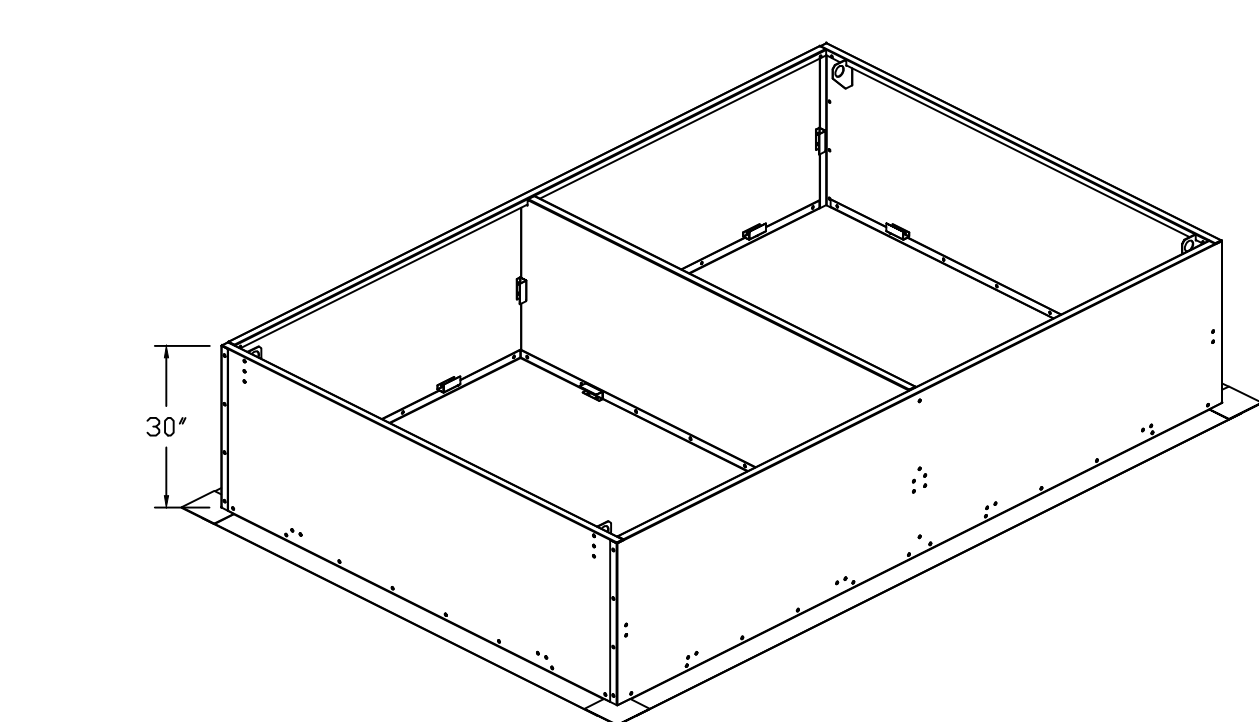
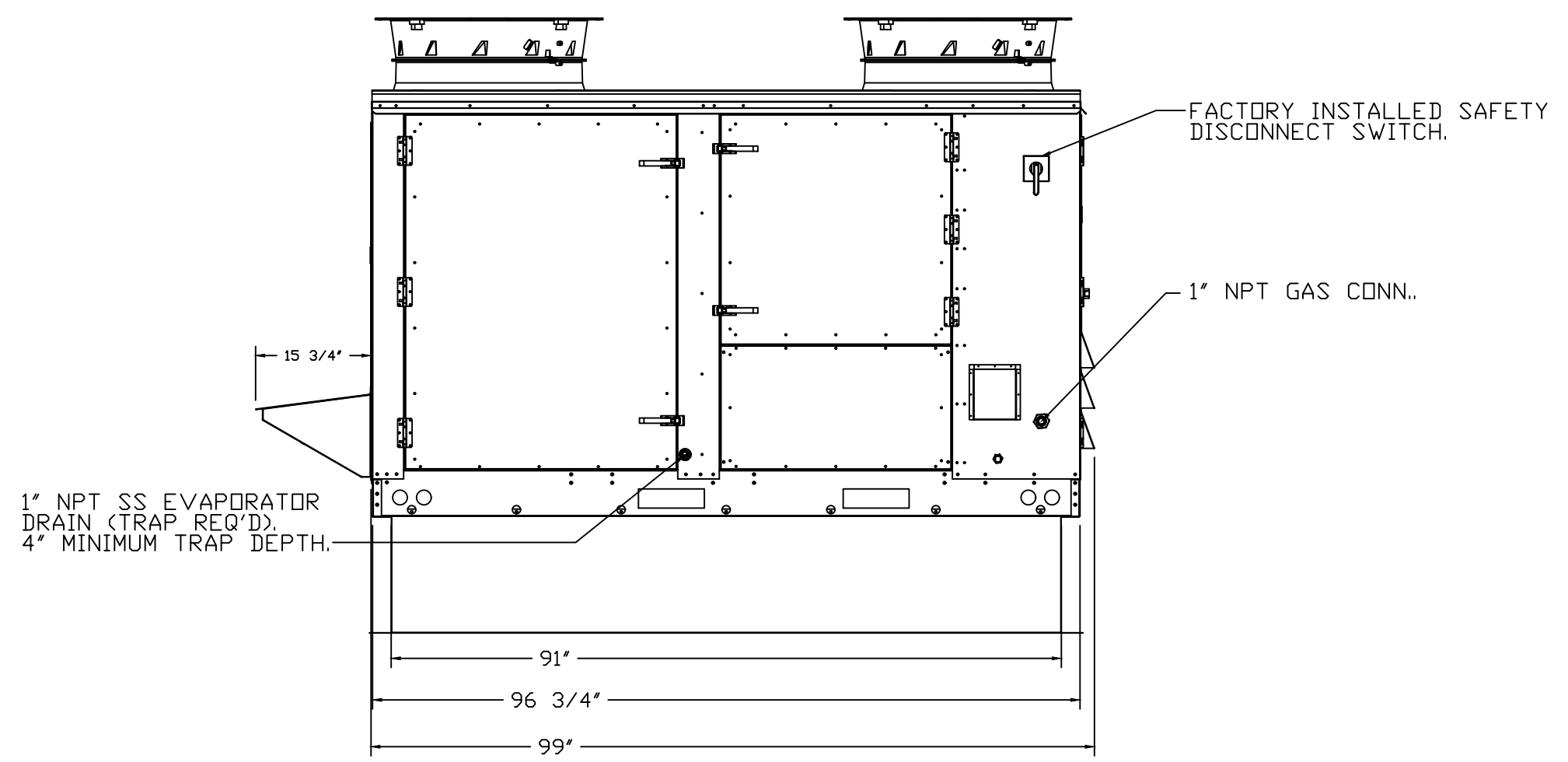
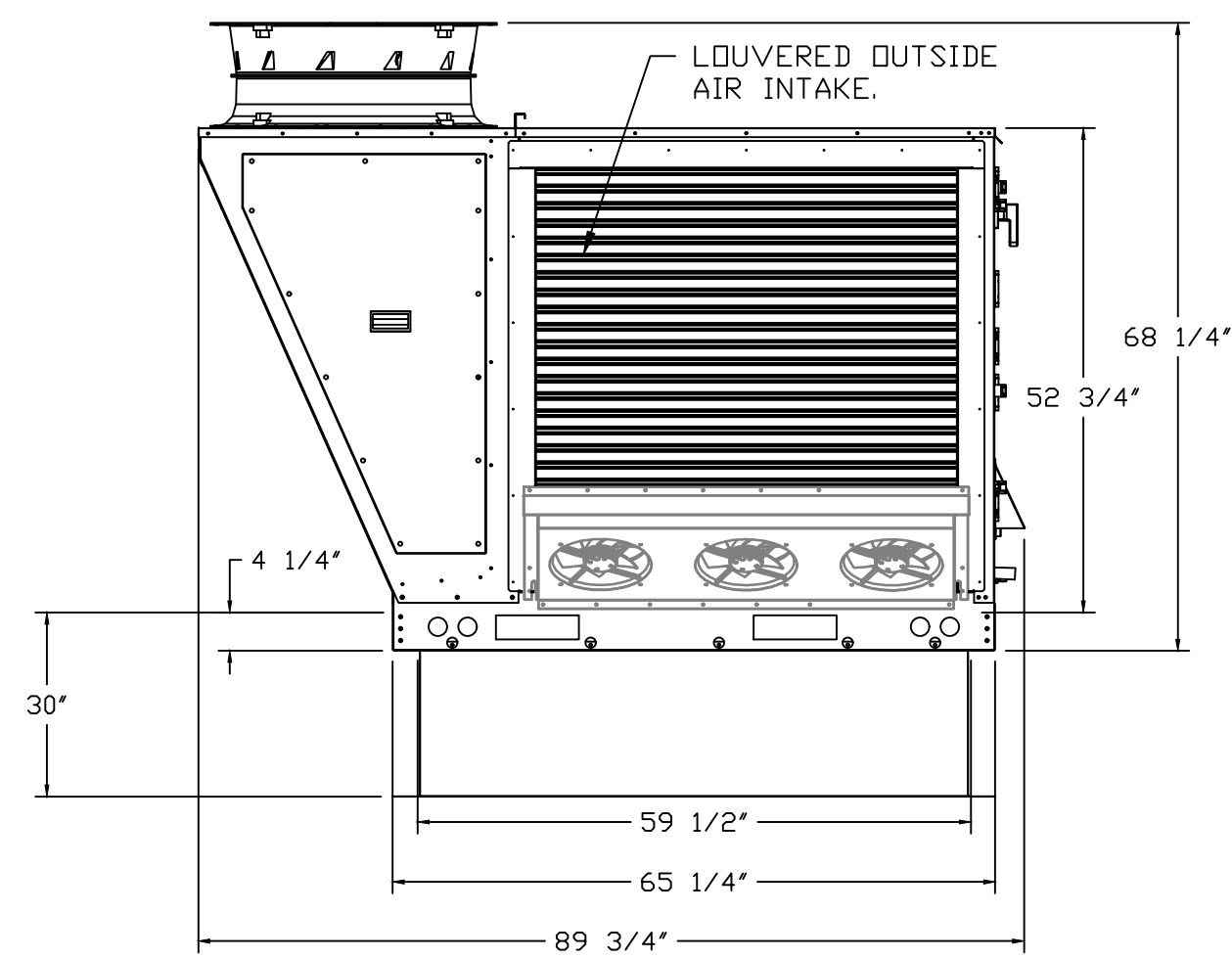
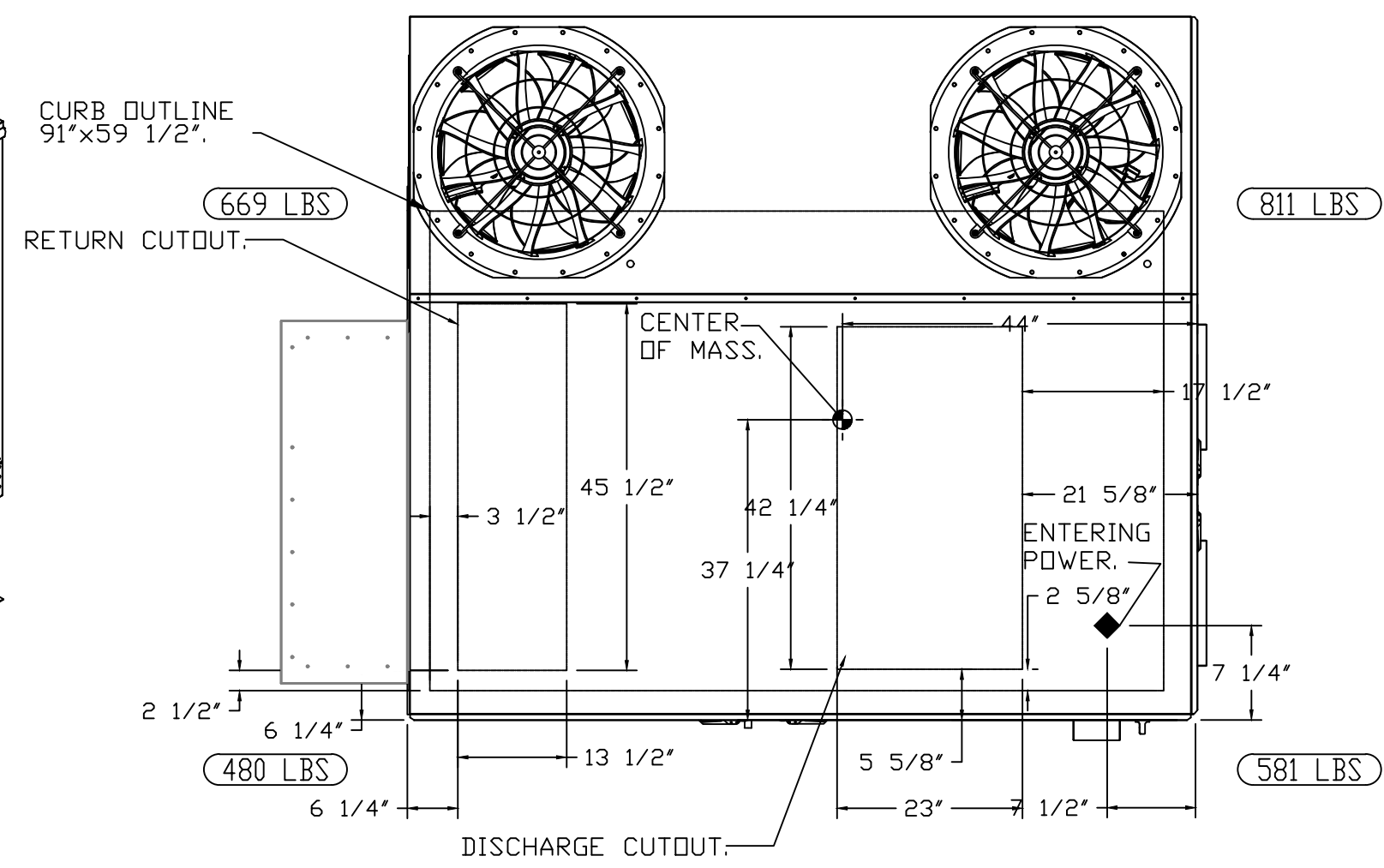
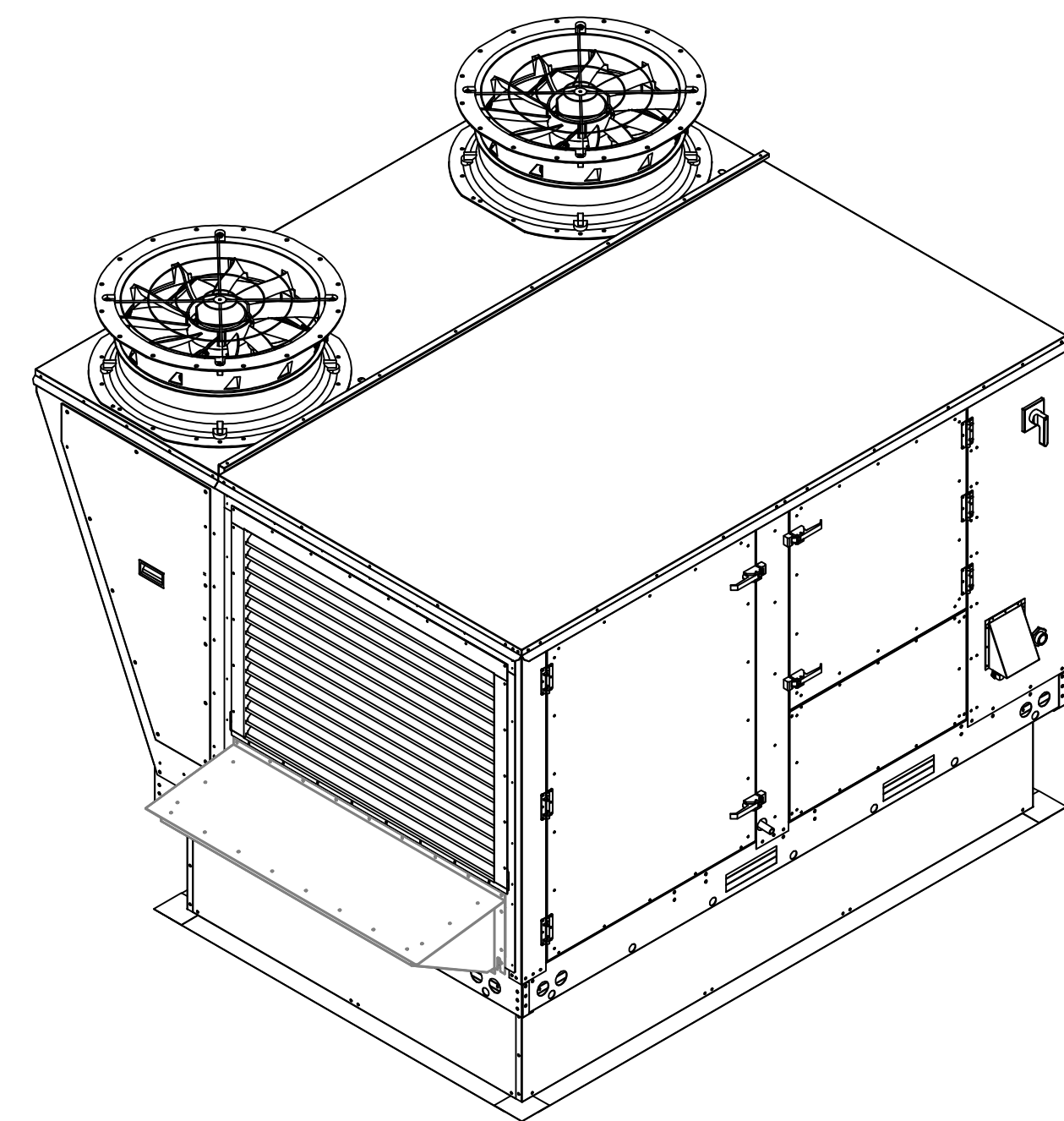
2700 NORTH ELSTON AVE, UNIT 100
CHICAGO, IL 60647
SHACK #1620

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DRAWN BY: GRS
CHECKED BY: GRS
PROJECT NO: 11160-24

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Shake Shack-1620-Elston Logan(HVAC)-R5

CHICAGO, IL, 60647

DATE: 10/2/2024

DWG.#: 7080257

DRAWN BY: Joe.shilba

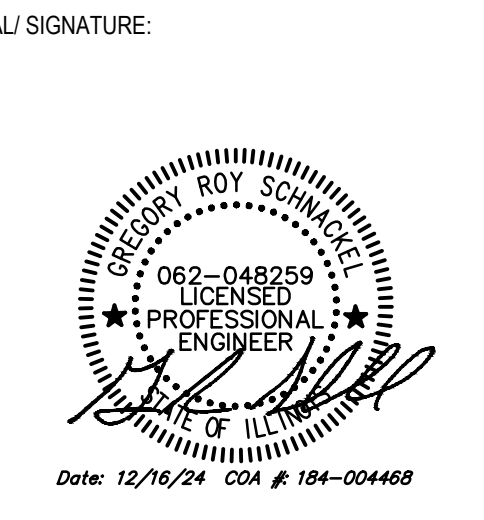
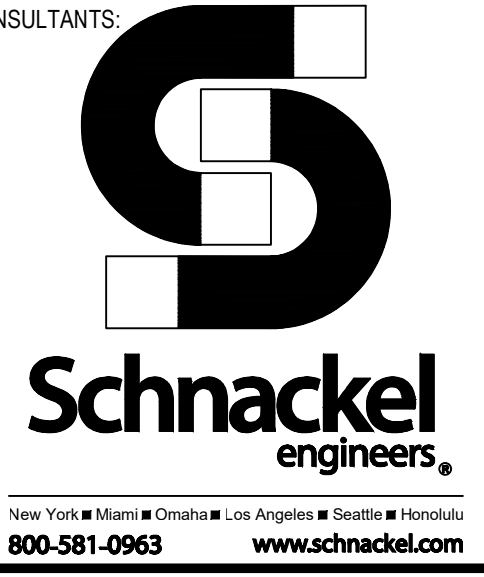
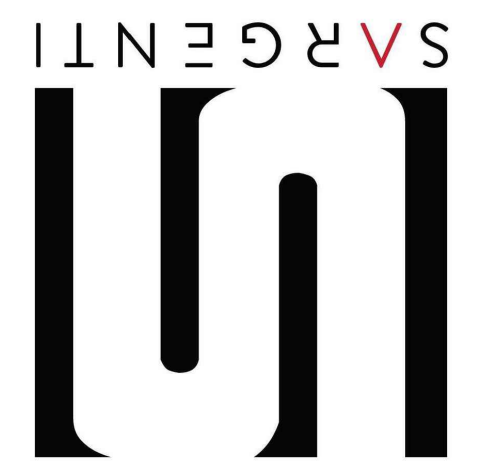
SCALE: 1/2" = 1'-0"

MASTER DRAWING

SHEET NO. 3

- FAN #3 CAS-HVAC3-1300-15-15T - HEATER (RTU-3(KITCHEN))
- 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.

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SHAKE SHACK ELSTON & LOGAN

2700 NORTH ELSTON AVE, UNIT 100
CHICAGO, IL 60647
SHACK #1620

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DRAWN BY: GRS
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PROJECT NO: 11160-24

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