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RESPONSIBILITY MATRIX

DESCRIPTION	FURNISHED		INSTALLED		REMARKS
	GC	OWNER	GC	OWNER	
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PIPING SYSTEM IDENTIFICATION	•		•		
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OUTSIDE AIR DUCTWORK	•		•		
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SUBMITTAL MATRIX

SUBMITTAL DESCRIPTION	Required Review Time (Business Days)	Architect of Record	Shake Shack	Physical Sample Required	Submittal for Record	Submittal for Record Only
Diffusers, Grills & Registers	5	X			X	
Ductwork Layout (if there are significant changes in field)	5	X			X	
HVAC Equipment (If Captive Air - Submitted by Owner Vendor directly to Owner/AOR prior to construction)	5	X			X	
MEP Tests, Start-Up, and Programming Reports	5	X			X	

GENERAL REMARKS:

- PRIOR TO SUBMITTING BID, VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE PROJECT. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
- EXISTING CONDITIONS WERE TAKEN FROM ORIGINAL DRAWINGS AND SITE VISITS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. FIELD VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. COORDINATE NEW WORK AND DEMOLITION WITH OTHER DISCIPLINES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
- COORDINATE THE INSTALLATION OF THE MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. ANY MODIFICATIONS REQUIRED DUE TO LACK OF COORDINATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.
- WHERE SHUTDOWN OF EXISTING SYSTEMS IS REQUIRED DURING NEW WORK, COORDINATE SHUTDOWN TIME AND DURATION WITH THE OWNER TO MINIMIZE DOWNTIME. NOTIFY OWNER SEVEN (7) DAYS PRIOR TO INTERRUPTION OF SERVICE.
- DURING INSTALLATION OF NEW WORK, AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN. REPAIR DAMAGE CAUSED DURING CONSTRUCTION AT NO EXTRA COST TO THE OWNER.
- PROVIDE TEMPORARY BARRIERS TO CONTAIN DUST AND DEBRIS RESULTING FROM THE PERFORMANCE OF THE WORK TO THE AREA WHERE WORK IS BEING PERFORMED.
- ALL MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY DIVISION 23 UNLESS OTHERWISE NOTED.
- NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND EQUIPMENT.
- REFER TO ARCHITECTURAL DRAWINGS FOR RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. VERIFY CHASES AND PENETRATIONS SHOWN ON ARCHITECTURAL DRAWINGS THAT ARE INTENDED FOR DUCTWORK AND PIPING MEET REQUIREMENTS.
- COORDINATE LOCATION OF ROOF MOUNTED HVAC EQUIPMENT AND PIPING PENETRATIONS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
- INDOOR AIR QUALITY MEASURES: PROTECT INSIDE OF (INSTALLED AND DELIVERED) DUCTWORK AND HVAC UNITS FROM EXPOSURE TO DUST, DIRT, PAINT AND MOISTURE. REPLACE INSULATION THAT HAS BECOME WET AT ANY TIME DURING CONSTRUCTION. DRYING THE INSULATION IS NOT ACCEPTABLE. SEAL ANY TEARS OR JOINTS OF INTERNAL FIBERGLASS INSULATION. REMOVE DEBRIS FROM CEILING/RETURN AIR PLENUM INCLUDING DUST. AN INDEPENDENT PROFESSIONAL DUCT CLEANING COMPANY SHALL VACUUM CLEAN ANY DUCTWORK CONNECTED TO HVAC UNITS THAT WERE OPERATED DURING THE CONSTRUCTION PERIOD AFTER NEW FILTERS ARE INSTALLED AND PRIOR TO TURNING SYSTEM OVER TO THE OWNER. THE INTERNAL SURFACES AND ASSOCIATED COILS OF ANY HVAC UNITS THAT WERE OPERATED SHALL ALSO BE CLEANED.
- INSTALL DUCTWORK AND PIPING PARALLEL TO BUILDING COLUMN LINES UNLESS OTHERWISE SHOWN OR NOTED.
- OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF EXCEPT WHERE CONCRETE INSERTS IN CONCRETE SLABS ARE ALLOWED BY THE SPECIFICATIONS.
- COORDINATE LOCATION OF EQUIPMENT SUPPORTS WITH LOCATION OF EQUIPMENT ACCESS PANELS/DOORS TO ENABLE SERVICE OF EQUIPMENT AND/OR FILTER REPLACEMENT.
- SEAL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. FIREPROOF PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
- COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL AND DUCT INSTALLATION REQUIREMENTS.
- ADJUST LOCATION OF CEILING DIFFUSERS, REGISTERS AND GRILLES AS REQUIRED TO ACCOMMODATE FINAL CEILING GRID AND LIGHTING LOCATIONS.
- PAINT PORTIONS OF DUCTWORK AND INSULATION THAT ARE EXPOSED TO VIEW BY THE INSTALLATION OF DIFFUSERS, REGISTERS, AND GRILLES IN CEILINGS OR WALLS FLAT BLACK. PORTIONS INCLUDE BOTH THE INTERIOR OF UNLINED DUCTWORK AND THE EXTERIOR OF DUCTWORK AND INSULATION.
- DUCTWORK CROSSING FIRE RATED WALLS OR OTHER FIRE RATED ASSEMBLIES SHALL BE MINIMUM 26 GAUGE SHEET METAL.
- PROVIDE FIRE OR FIRE/SMOKE DAMPERS, AS APPLICABLE, IN DUCTWORK AT CEILINGS AND WALLS AT LOCATIONS SHOWN ON THE PLANS. FIRE AND FIRE/SMOKE DAMPERS SHALL CONFORM TO NFPA AS APPLICABLE. COORDINATE SLEEVE LENGTH WITH REQUIREMENTS OF INSTALLED LOCATION.
- PROVIDE WALL OR DUCT ACCESS PANELS OR DOORS FOR ACCESS TO FIRE AND FIRE/SMOKE DAMPERS. ACCESS PANEL OR DOOR SHALL BE MINIMUM SIZE OF 10" BY 10" AND SHALL BE INSTALLED WITHIN 12" OF DAMPER. PROVIDE A REMOVABLE DUCT SECTION WHERE DUCT SIZE IS TOO SMALL FOR A 10" BY 10" ACCESS DOOR.
- LOCATE AND SET THERMOSTATS AND HUMIDISTATS AT LOCATIONS SHOWN ON PLANS. VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION. DEVICE MOUNTING HEIGHT SHALL MEET ADA REQUIREMENTS UNLESS OTHERWISE NOTED ON PLANS. PROVIDE INSULATED BACKING FOR THERMOSTATS MOUNTED ON EXTERIOR BUILDING WALLS. INSTALL WIRING IN CONDUIT PROVIDED BY DIVISION 26 AT A MINIMUM, PROVIDE CONDUIT IN THE WALL FROM THE JUNCTION BOX TO 6" ABOVE THE CEILING.
- COORDINATE THE LOCATION AND ELEVATION OF WALL MOUNTED DEVICES WITH PRESENTATION BOARDS, DISPLAY CABINETS, SHELVES OR OTHER COMPONENTS SHOWN ON THE ARCHITECTURAL DRAWINGS THAT ARE TO BE INSTALLED UNDER OTHER DIVISIONS. CONTRACTOR WILL NOT BE REIMBURSED FOR RELOCATION OF WALL-MOUNTED DEVICES CAUSED BY A LACK OF COORDINATION.
- PROVIDE A MANUAL BALANCING DAMPER IN EACH DUCT TAKEOFF FROM SUPPLY, RETURN, OUTDOOR AND EXHAUST AIR DUCTS.
- PROVIDE A PREFABRICATED 45 DEGREE, HIGH EFFICIENCY, RECTANGULAR/ROUND BRANCH DUCT TAKEOFF FITTING FOR BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS AND GRILLES. PROVIDE WITH INTEGRAL MANUAL BALANCING DAMPER AND LOCKING QUADRANT WHERE INDICATED ON PLANS.
- BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.
- REFER TO SPECIFICATIONS FOR DUCTWORK AND PIPING INSULATION REQUIREMENTS. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE AIRFLOW DIMENSIONS. INCREASE SHEET METAL SIZES ACCORDINGLY TO ACCOUNT FOR THICKNESS OF DUCT LINER.
- FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH AND SHALL BE INSTALLED AND SUPPORTED TO AVOID SHARP BENDS AND SAGGING. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- PROVIDE EQUIPMENT VENTS AND FLUES PER EQUIPMENT MANUFACTURERS RECOMMENDATIONS AND EQUIPMENT SPECIFICATIONS. KEEP PENETRATIONS THROUGH ROOF A MINIMUM OF 10'-0" FROM HVAC EQUIPMENT FRESH AIR INLETS AND 2'-0" FROM ROOF PARAPETS.
- PROVIDE A NEW SET OF AIR FILTERS IN UNITS PRIOR TO TESTING, ADJUSTING AND BALANCING AND BEFORE TURNING SYSTEMS OVER TO OWNER.
- TEMPORARY INSTALLATIONS OF INFECTION CONTROL MEASURES DURING CONSTRUCTION SHALL BE COORDINATED WITH THE FACILITY'S INFECTION CONTROL STAFF. PRIOR TO CONSTRUCTION PROVIDE ALL REQUIRED TEMPORARY INSTALLATIONS, INCLUDING DETAILS OF THE INFECTION CONTROL MEASURES SUCH AS TEMPORARY BARRIERS AND MEMBRANES, PORTABLE EXHAUST FANS AND TEMPORARY DUCTWORK. TEMPORARY INSTALLATIONS MUST NOT HAVE A NEGATIVE IMPACT ON EXISTING SYSTEMS NOR CAUSE UNSAFE CONDITIONS. TEMPORARY INSTALLATIONS SHALL MAINTAIN ADEQUATE EGRESS AND SHALL NOT OBSTRUCT EXISTING EXITS. CREATE A FIRE HAZARD OR REDUCE REQUIRED FIRE RESISTANCE. TEMPORARY VENTILATION SYSTEMS SHALL NOT CAUSE THE AIR BALANCE OF ADJACENT ROOMS OR SPACES TO BE IMPACTED OR ALTER THE PERFORMANCE OF PERMANENT BUILDING VENTILATION SYSTEMS. AIRFLOW MEASUREMENTS SHALL BE TAKEN TO VERIFY ADJACENT ROOMS OR SPACES ARE NOT IMPACTED.

MECHANICAL SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED.

STANDARD MOUNTING HEIGHT

HVAC DUCTWORK AND ACCESSORIES

PIPING SYMBOLS

V3.02

THERMOSTATS (USER ADJUSTABLE) (TOP OF DEVICE) 46"
CONTROLS (TOP OF DEVICE) 46"

INSTALL DEVICES AT THE MOUNTING HEIGHTS SHOWN ABOVE UNO IN THE CONSTRUCTION DOCUMENTS. MOUNTING HEIGHTS LISTED ABOVE OR ELSEWHERE IN THE CONSTRUCTION DOCUMENTS ARE AFF OR AFG TO TOP OF THE DEVICE UNO. ALL DEVICES SHALL BE INSTALLED IN COMPLIANCE WITH CURRENT ADA AND LOCAL REQUIREMENTS.

ANNOTATION

MECHANICAL PLAN NOTE CALLOUT

MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)

CONNECTION POINT OF NEW WORK TO EXISTING

DETAIL REFERENCE. UPPER NUMBER INDICATES DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER

SECTION CUT DESIGNATION

DEDICATED EQUIPMENT ACCESS TILE

ACCESS PANEL

ABBREVIATIONS

A/C	AIR CONDITIONING	HWP	HEATING WATER PUMP
ACC	AIR COOLED CHILLER	IN WC	INCHES OF WATER COLUMN
ACCU	AIR COOLED CONDENSING UNIT	L	LEAVING AIR TEMPERATURE
AFD	ABOVE FINISHED FLOOR	LDB	LEAVING DRY BULB TEMPERATURE
AHU	AUTHORITY HAVING JURISDICTION	LP	LOW PRESSURE LEAVING WATER TEMPERATURE
AHU	AIR HANDLING UNIT	LWB	LEAVING WET BULB TEMPERATURE
AI	ANALOG INPUT	LWT	LEAVING WATER TEMPERATURE
AO	ANALOG OUTPUT	MAU	MAKE-UP AIR UNIT
AP	ACCESS PANEL	MAX	MAXIMUM
APD	AIR PRESSURE DROP	MBH	1000 BTU PER HOUR
AWG	AMERICAN WIRE GAUGE	MD	MOTORIZED DAMPER
B	BOLTER	MFR	MANUFACTURER
BAS	BUILDING AUTOMATION SYSTEM	MIN	MINIMUM
BB	BACKSLOPE	N/A	NOT APPLICABLE
BD	BACKDRAFT DAMPER	N/C	NORMALLY CLOSED
BD	BLOWDOWN	N/O	NORMALLY OPEN
BFC	BELOW FINISHED CEILING	NOM	NOMINAL
BFF	BELOW FINISHED FLOOR	NF	NON-FUSED
BFG	BELOW FINISHED GRADE	NIC	NOT IN CONTRACT
BFP	BOLTER FEED PUMP	OC	OUTSIDE AIR
BHP	BRAKE HORSEPOWER	PCV	PRESSURE INDEP. CONTROL VALVE
BI	BINARY INPUT	PROV	PROVIDE/FURNISH AND INSTALL
BOD	BOTTOM OF DUCT	QTY	QUANTITY
BOS	BOTTOM OF STRUCTURE	RA	RETURN AIR
BTU	BRITISH THERMAL UNIT	RC	ROOM CRITERIA
CFM	CUBIC FEET PER MINUTE	RD	RETURN DUCT
CH	CHILLER	REA	RELIEF AIR
CLG	COOLING	RF	REFRIGERANT
CP	CONDENSATE PUMP	RFR	REFRIGERANT
CPT	CONTROL POWER TRANSFORMER	RH	RELATIVE HUMIDITY
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT	RH	ROOF HOOD
CRU	COOLING TOWER	RM	REVOLUTIONS PER MINUTE
CV	CONTROL VALVE	RTU	ROOFTOP UNIT
CWP	CONDENSER WATER PUMP	SA	SUPPLY AIR
CU	CONDENSING UNIT	SCP	STEAM CONDENSATE PUMP
CHWP	CHILLED WATER PUMP	SD	SMOKE DUCT DETECTOR
DB	DECIBELS	SD	SUPPLY DUCT
DBA	DECIBEL AVERAGE	SF	SUPPLY FAN
DDC	DIRECT DIGITAL CONTROL	SH	SENSIBLE HEAT CAPACITY
DISC	DISCONNECT	SOW	SCOPE OF WORK
DN	DOWN	SP	STATIC PRESSURE
DS	DUCT SILENCER	ST	STEAM TRAP
DX	DIRECT EXPANSION	STM	STEAM
E	EXISTING	TBD	TO BE DETERMINED
EA	EXHAUST AIR	TC/C	TEMPERATURE CONTROLS
EAT	ENTERING AIR TEMPERATURE	TC/P	TEMPERATURE CONTROL PANEL
ED	EXHAUST DUCT	TF	TRANSFER FAN
EDB	ENTERING DRY BULB EXHAUST FAN	TFA	TO FLOOR ABOVE
EF	EFFICIENCY	TFB	TO FLOOR BELOW
EMS	ENERGY MANAGEMENT SYSTEM	TH	TOTAL HEAT CAPACITY
ESP	EXTERNAL STATIC PRESSURE	TSP	TOTAL STATIC PRESSURE
ETR	ENTERING TO REMAIN	TT	TEMPERATURE TRANSMITTAL
EWB	ENTERING WET BULB EXHAUST FAN	U/I	UNDERFLOOR UNDERSLAB
EWT	ENTERING WATER TEMPERATURE	UH	UNIT HEATER
FCU	FAN COIL UNIT	UNO	UNLESS NOTED OTHERWISE
FFA	FROM FLOOR ABOVE	VAV	VARIABLE AIR VOLUME
FFB	FROM FLOOR BELOW	VEL	VELOCITY
FF	FINISHED FLOOR	VFD	VARIABLE FREQUENCY DRIVE
FPI	FEET PER INCH	VRF	VARIABLE REFRIGERANT FLOW
FM	FEET PER MINUTE	VRV	VARIABLE REFRIGERANT VOLUME
GC	GENERAL CONTRACTOR	W	WITH
GEA	GREASE EXHAUST AIR	W/O	WITHOUT
GPM	GALLONS PER MINUTE	WB	WET BULB
HOA	HAND-OFF-AUTOMATIC HORSEPOWER	WC	WATER COLUMN
HP	HORSEPOWER	WPD	WATER PRESSURE DROP
HTG	HEATING	XP	EXPLOSION PROOF

DUCTWORK/EQUIPMENT TO BE REMOVED OR RELOCATED

EXISTING DUCTWORK/EQUIPMENT TO REMAIN

LINEAR SLOT DIFFUSER

INSULATED FLEXIBLE DUCT (MAX. 5'-0" LONG)

BRANCH DUCT WITH 45° RECTANGLE-ROUND BRANCH FITTING AND MANUAL VOLUME DAMPER

ELBOW WITH TURNING VANES

BRANCH DUCT WITH BELL-MOUTH FITTING & MANUAL VOLUME CONTROL DAMPER

DUCT UP

DUCT DOWN

EXHAUST AIR

EXHAUST AIR - GREASE

OUTSIDE AIR

RELIEF AIR

RETURN AIR

SPECIAL EXHAUST

SUPPLY AIR

EQUIPMENT WITH FLEXIBLE DUCT CONNECTION

10" (NECK SIZE) CSD-1 (TYPE) 300 CFM (CFM OF SUPPLY DIFFUSER OR REGISTER)

24x24 (NECK SIZE) CEG-1 (TYPE) 800 CFM (CFM OF EXHAUST GRILLE)

EQUIPMENT ACCESS TILE (IN ACT CEILINGS)

ACCESS PANEL (IN GYPSUM)

MANUAL VOLUME DAMPER

SQUARE TO ROUND TRANSITION

DUCT MOUNTED SMOKE DETECTOR (SD-SUPPLY/RD-RETURN)

ROUND DUCT TAG INDICATING DIAMETER

RECTANGULAR DUCT TAG INDICATING INTERNAL DUCT DIMENSIONS.

FLAT OVAL DUCT TAG INDICATING INTERNAL DUCT DIMENSIONS

RISER DESIGNATION

FIRE DAMPER

FIRE SMOKE DAMPER

SMOKE DAMPER

VOLUME DAMPER

MOTORIZED DAMPER

BACKDRAFT DAMPER

ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE DIMENSIONS. REFER TO DUCTWORK SPECIFICATIONS FOR DUCTWORK INSULATION AND LINER INFORMATION.

HVAC CONTROL DEVICES

HUMIDISTAT

THERMOSTAT

CARBON MONOXIDE SENSOR

CARBON DIOXIDE SENSOR

DIFFERENTIAL PRESSURE SENSOR

FLOW SWITCH

HUMIDITY SENSOR

PULL STATION

REMOTE TESTING STATION WITH INDICATING LIGHT

STATIC PRESSURE

TEMPERATURE SENSOR

DIRECTION OF FLOW

CONTROL VALVE

THREE-WAY CONTROL VALVE

SHUTOFF VALVE

CHECK VALVE

BALANCING VALVE WITH PRESSURE PORTS

TRIPLE DUTY VALVE WITH PRESSURE PORTS

STRAINER

STRAINER WITH BLOWOFF

RELIEF / SAFETY VALVE

SOLENOID VALVE

PRESSURE REDUCING VALVE

GAS PRESSURE REGULATOR

THERMOSTATIC MIXING VALVE

PIPE ANCHOR

EXPANSION JOINT

PIPE GUIDE

PIPING SUPPORT

F & T TRAP

BUCKET TRAP

THERMOSTATIC TRAP

BACKFLOW PREVENTER

PRESSURE GAUGE

THERMOMETER

PRESSURE AND TEMPERATURE TEST PLUG

FLANGE CONNECTION

VACUUM RELIEF VALVE

AUTOMATIC AIR VENT

MANUAL AIR VENT

PRESSURE / VACUUM SWITCH

CLEANOUT

CAP

ELBOW UP

ELBOW DOWN

TEE UP

TEE DOWN

ELBOW UP WITH SHUT-OFF VALVE (SOV)

ELBOW DOWN WITH SHUT-OFF VALVE (SOV)

TEE UP WITH SHUT-OFF VALVE (SOV)

TEE DOWN WITH SHUT-OFF VALVE (SOV)

REDUCER

RECIRCULATION PUMP

P-TRAP

GAS COCK

TOP BEAM CLAMP

TRAPEZE HANGER

FLEXIBLE CONNECTION

EXISTING PIPING TO BE REMOVED OR RELOCATED

EXISTING PIPING TO REMAIN

CONDENSATE DRAIN (CD)

HEATING HOT WATER SUPPLY (HWS)

HEATING HOT WATER RETURN (HWR)

CHILLED WATER SUPPLY (CHWS)

CHILLED WATER RETURN (CHWR)

HOT / CHILLED WATER SUPPLY (HCS)

HOT / CHILLED WATER RETURN (HCR)

CONDENSER WATER SUPPLY (CWS)

CONDENSER WATER RETURN (CWR)

REFRIGERANT LIQUID (RL)

REFRIGERANT DISCHARGE (HOT GAS) (RD)

REFRIGERANT SUCTION (RS)

REFRIGERANT DISCHARGE BYPASS (RDB)

REFRIGERANT VENT (RV)

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY COY M. MACY ON THE DATE LISTED BELOW USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

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EXPIRES 2/28/2026

SEAL/SIGNATURE:

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LICENSE # 86606

STATE OF FLORIDA
PROFESSIONAL ENGINEER

04/04/2025

NO.	BY	DATE	DESCRIPTION
2	HEI	2025-04-07	IFC SET
A	HEI	2025-03-14	ADDENDUM A
1	HEI	2025-02-19	BID PERMIT SET
1	HEI	2025-02-03	100% LANDLORD SET

SHAKE SHACK

SHAKE SHACK SOUTH BEACH REGIONAL

3956 S THIRD STREET
JACKSONVILLE BEACH, FL 32250
SHACK #1689

IFC SET

MECHANICAL GENERAL INFORMATION

DRAWN BY:	Author
CHECKED BY:	Checker
JOB NO:	20240363.00

M-001

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REFRIGERANT PIPING FOR HVAC EQUIPMENT	•		•		
VALVES AND ACCESSORIES (E.G. AIR VENTS)	•		•		
23.5 HVAC EQUIPMENT					
RESTROOM EXHAUST FAN	•		•		
KITCHEN EXHAUST FAN WITH CURB EXTENSION	•		•		
DUCTED AND NON-DUCTED HEATING AND COOLING UNITS	•		•		
OFFICE FAN COIL AND CONDENSING UNITS	•		•		
WALK-IN COOLER AND FREEZER CONDENSING UNITS	•		•		A
23.6 KITCHEN EXHAUST WITH FIRE SUPPRESSION SYSTEM					
HOOD CONTROL PANEL	•		•		
REMOTE HOOD SWITCHES IN OFFICE	•		•		
KITCHEN EXHAUST HOOD	•		•		
STRUCTURAL SUPPORT	•		•		
ELECTRICAL AND CONTROL WIRING	•		•		
TANK SYSTEM	•		•		B
TANK SYSTEM WIRING AND UTILITIES CONNECTION	•		•		
TANK SYSTEM GAS VALVE	•		•		
PULL STATION	•		•		
23.7 MECHANICAL SAFETY SENSORS					
CO2 MONITOR	•		•		
23.8 COMMISSIONING ACTIVITIES					
GREASE EXHAUST WATER LEAKAGE TEST	•		•		
TEST AND BALANCE (TAB) REPORT	•		•		

SUBMITTAL MATRIX

SUBMITTAL DESCRIPTION	Required Review Time (Business Days)	Architect of Record	Shake Shack	Physical Sample Required	Submittal for Record	Submittal for Record Only
Diffusers, Grills & Registers	5	X			X	
Ductwork Layout (if there are significant changes in field)	5	X			X	
HVAC Equipment (If Captive Air - Submitted by Owner Vendor directly to Owner/AOR prior to construction)	5	X			X	
MEP Tests, Start-Up, and Programming Reports	5	X			X	

- GENERAL REMARKS:**
- PRIOR TO SUBMITTING BID, VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE PROJECT. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
 - EXISTING CONDITIONS WERE TAKEN FROM ORIGINAL DRAWINGS AND SITE VISITS AND MAY NOT REFLECT EXACT "AS-BUILT" CONDITIONS. FIELD VERIFY EXISTING CONDITIONS PRIOR TO SUBMITTING FINAL BIDS. COORDINATE NEW WORK AND DEMOLITION WITH OTHER DISCIPLINES AND EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
 - COORDINATE THE INSTALLATION OF THE MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. ANY MODIFICATIONS REQUIRED DUE TO LACK OF COORDINATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.
 - WHERE SHUTDOWN OF EXISTING SYSTEMS IS REQUIRED DURING NEW WORK, COORDINATE SHUTDOWN TIME AND DURATION WITH THE OWNER TO MINIMIZE DOWNTIME. NOTIFY OWNER SEVEN (7) DAYS PRIOR TO INTERRUPTION OF SERVICE.
 - DURING INSTALLATION OF NEW WORK, AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN. REPAIR DAMAGE CAUSED DURING CONSTRUCTION AT NO EXTRA COST TO THE OWNER.
 - PROVIDE TEMPORARY BARRIERS TO CONTAIN DUST AND DEBRIS RESULTING FROM THE PERFORMANCE OF THE WORK TO THE AREA WHERE WORK IS BEING PERFORMED.
 - ALL MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY DIVISION 23 UNLESS OTHERWISE NOTED.
 - NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND EQUIPMENT.
 - REFER TO ARCHITECTURAL DRAWINGS FOR RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. VERIFY CHASES AND PENETRATIONS SHOWN ON ARCHITECTURAL DRAWINGS THAT ARE INTENDED FOR DUCTWORK AND PIPING MEET REQUIREMENTS.
 - COORDINATE LOCATION OF ROOF MOUNTED HVAC EQUIPMENT AND PIPING PENETRATIONS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
 - INDOOR AIR QUALITY MEASURES: PROTECT INSIDE OF (INSTALLED AND DELIVERED) DUCTWORK AND HVAC UNITS FROM EXPOSURE TO DUST, DIRT, PAINT AND MOISTURE. REPLACE INSULATION THAT HAS BECOME WET AT ANY TIME DURING CONSTRUCTION. DRYING THE INSULATION IS NOT ACCEPTABLE. SEAL ANY TEARS OR JOINTS OF INTERNAL FIBERGLASS INSULATION. REMOVE DEBRIS FROM CEILING/RETURN AIR PLENUM INCLUDING DUST. AN INDEPENDENT PROFESSIONAL DUCT CLEANING COMPANY SHALL VACUUM CLEAN ANY DUCTWORK CONNECTED TO HVAC UNITS THAT WERE OPERATED DURING THE CONSTRUCTION PERIOD AFTER NEW FILTERS ARE INSTALLED AND PRIOR TO TURNING SYSTEM OVER TO THE OWNER. THE INTERNAL SURFACES AND ASSOCIATED COILS OF ANY HVAC UNITS THAT WERE OPERATED SHALL ALSO BE CLEANED.
 - INSTALL DUCTWORK AND PIPING PARALLEL TO BUILDING COLUMN LINES UNLESS OTHERWISE SHOWN OR NOTED.
 - OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF EXCEPT WHERE CONCRETE INSERTS IN CONCRETE SLABS ARE ALLOWED BY THE SPECIFICATIONS.
 - COORDINATE LOCATION OF EQUIPMENT SUPPORTS WITH LOCATION OF EQUIPMENT ACCESS PANELS/DOORS TO ENABLE SERVICE OF EQUIPMENT AND/OR FILTER REPLACEMENT.
 - SEAL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. FIREPROOF PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
 - COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL AND DUCT INSTALLATION REQUIREMENTS.
 - ADJUST LOCATION OF CEILING DIFFUSERS, REGISTERS AND GRILLES AS REQUIRED TO ACCOMMODATE FINAL CEILING GRID AND LIGHTING LOCATIONS.
 - PAINT PORTIONS OF DUCTWORK AND INSULATION THAT ARE EXPOSED TO VIEW BY THE INSTALLATION OF DIFFUSERS, REGISTERS, AND GRILLES IN CEILINGS OR WALLS FLAT BLACK. PORTIONS INCLUDE BOTH THE INTERIOR OF UNLINED DUCTWORK AND THE EXTERIOR OF DUCTWORK AND INSULATION.
 - DUCTWORK CROSSING FIRE RATED WALLS OR OTHER FIRE RATED ASSEMBLIES SHALL BE MINIMUM 26 GAUGE SHEET METAL.
 - PROVIDE FIRE OR FIRE/SMOKE DAMPERS, AS APPLICABLE, IN DUCTWORK AT CEILINGS AND WALLS AT LOCATIONS SHOWN ON THE PLANS. FIRE AND FIRE/SMOKE DAMPERS SHALL CONFORM TO NFPA AS APPLICABLE. COORDINATE SLEEVE LENGTH WITH REQUIREMENTS OF INSTALLED LOCATION.
 - PROVIDE WALL OR DUCT ACCESS PANELS OR DOORS FOR ACCESS TO FIRE AND FIRE/SMOKE DAMPERS. ACCESS PANEL OR DOOR SHALL BE MINIMUM SIZE OF 10" BY 10" AND SHALL BE INSTALLED WITHIN 12" OF DAMPER. PROVIDE A REMOVABLE DUCT SECTION WHERE DUCT SIZE IS TOO SMALL FOR A 10" BY 10" ACCESS DOOR.
 - LOCATE AND SET THERMOSTATS AND HUMIDISTATS AT LOCATIONS SHOWN ON PLANS. VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION. DEVICE MOUNTING HEIGHT SHALL MEET ADA REQUIREMENTS UNLESS OTHERWISE NOTED ON PLANS. PROVIDE INSULATED BACKING FOR THERMOSTATS MOUNTED ON EXTERIOR BUILDING WALLS. INSTALL WIRING IN CONDUIT PROVIDED BY DIVISION 26 AT A MINIMUM, PROVIDE CONDUIT IN THE WALL FROM THE JUNCTION BOX TO 6" ABOVE THE CEILING.
 - COORDINATE THE LOCATION AND ELEVATION OF WALL MOUNTED DEVICES WITH PRESENTATION BOARDS, DISPLAY CABINETS, SHELVES OR OTHER COMPONENTS SHOWN ON THE ARCHITECTURAL DRAWINGS THAT ARE TO BE INSTALLED UNDER OTHER DIVISIONS. CONTRACTOR WILL NOT BE REIMBURSED FOR RELOCATION OF WALL-MOUNTED DEVICES CAUSED BY A LACK OF COORDINATION.
 - PROVIDE A MANUAL BALANCING DAMPER IN EACH DUCT TAKEOFF FROM SUPPLY, RETURN, OUTDOOR AND EXHAUST AIR DUCTS.
 - PROVIDE A PREFABRICATED 45 DEGREE, HIGH EFFICIENCY, RECTANGULAR/ROUND BRANCH DUCT TAKEOFF FITTING FOR BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS AND GRILLES. PROVIDE WITH INTEGRAL MANUAL BALANCING DAMPER AND LOCKING QUADRANT WHERE INDICATED ON PLANS.
 - BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.
 - REFER TO SPECIFICATIONS FOR DUCTWORK AND PIPING INSULATION REQUIREMENTS. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE AIRFLOW DIMENSIONS. INCREASE SHEET METAL SIZES ACCORDINGLY TO ACCOUNT FOR THICKNESS OF DUCT LINER.
 - FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH AND SHALL BE INSTALLED AND SUPPORTED TO AVOID SHARP BENDS AND SAGGING. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
 - PROVIDE EQUIPMENT VENTS AND FLUES PER EQUIPMENT MANUFACTURERS RECOMMENDATIONS AND EQUIPMENT SPECIFICATIONS. KEEP PENETRATIONS THROUGH ROOF A MINIMUM OF 10'-0" FROM HVAC EQUIPMENT FRESH AIR INLETS AND 2'-0" FROM ROOF PARAPETS.
 - PROVIDE A NEW SET OF AIR FILTERS IN UNITS PRIOR TO TESTING, ADJUSTING AND BALANCING AND BEFORE TURNING SYSTEM(S) OVER TO OWNER.
 - TEMPORARY INSTALLATIONS OF INFECTION CONTROL MEASURES DURING CONSTRUCTION SHALL BE COORDINATED WITH THE FACILITY'S INFECTION CONTROL STAFF. PRIOR TO CONSTRUCTION PROVIDE ALL REQUIRED TEMPORARY INSTALLATIONS. INCLUDING DETAILS OF THE INFECTION CONTROL MEASURES SUCH AS TEMPORARY BARRIERS AND MEMBRANES, PORTABLE EXHAUST FANS AND TEMPORARY DUCTWORK. TEMPORARY INSTALLATIONS MUST NOT HAVE A NEGATIVE IMPACT ON EXISTING SYSTEMS NOR CAUSE UNSAFE CONDITIONS. TEMPORARY INSTALLATIONS SHALL MAINTAIN ADEQUATE EGRESS AND SHALL NOT OBSTRUCT EXISTING EXITS. CREATE A FIRE HAZARD OR REDUCE REQUIRED FIRE RESISTANCE. TEMPORARY VENTILATION SYSTEMS SHALL NOT CAUSE THE AIR BALANCE OF ADJACENT ROOMS OR SPACES TO BE IMPACTED OR ALTER THE PERFORMANCE OF PERMANENT BUILDING VENTILATION SYSTEMS. AIRFLOW MEASUREMENTS SHALL BE TAKEN TO VERIFY ADJACENT ROOMS OR SPACES ARE NOT IMPACTED.

MECHANICAL SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED.

STANDARD MOUNTING HEIGHT

HVAC DUCTWORK AND ACCESSORIES

PIPING SYMBOLS

ANNOTATION

ABBREVIATIONS

HVAC CONTROL DEVICES

PIPING LINETYPES

ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE DIMENSIONS. REFER TO DUCTWORK SPECIFICATIONS FOR DUCTWORK INSULATION AND LINER INFORMATION.

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1	HEI	2025-02-19	BID PERMIT SET
1	HEI	2025-02-03	100% LANDLORD SET

SHAKE SHACK

SHAKE SHACK SOUTH BEACH REGIONAL

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SHACK #1689

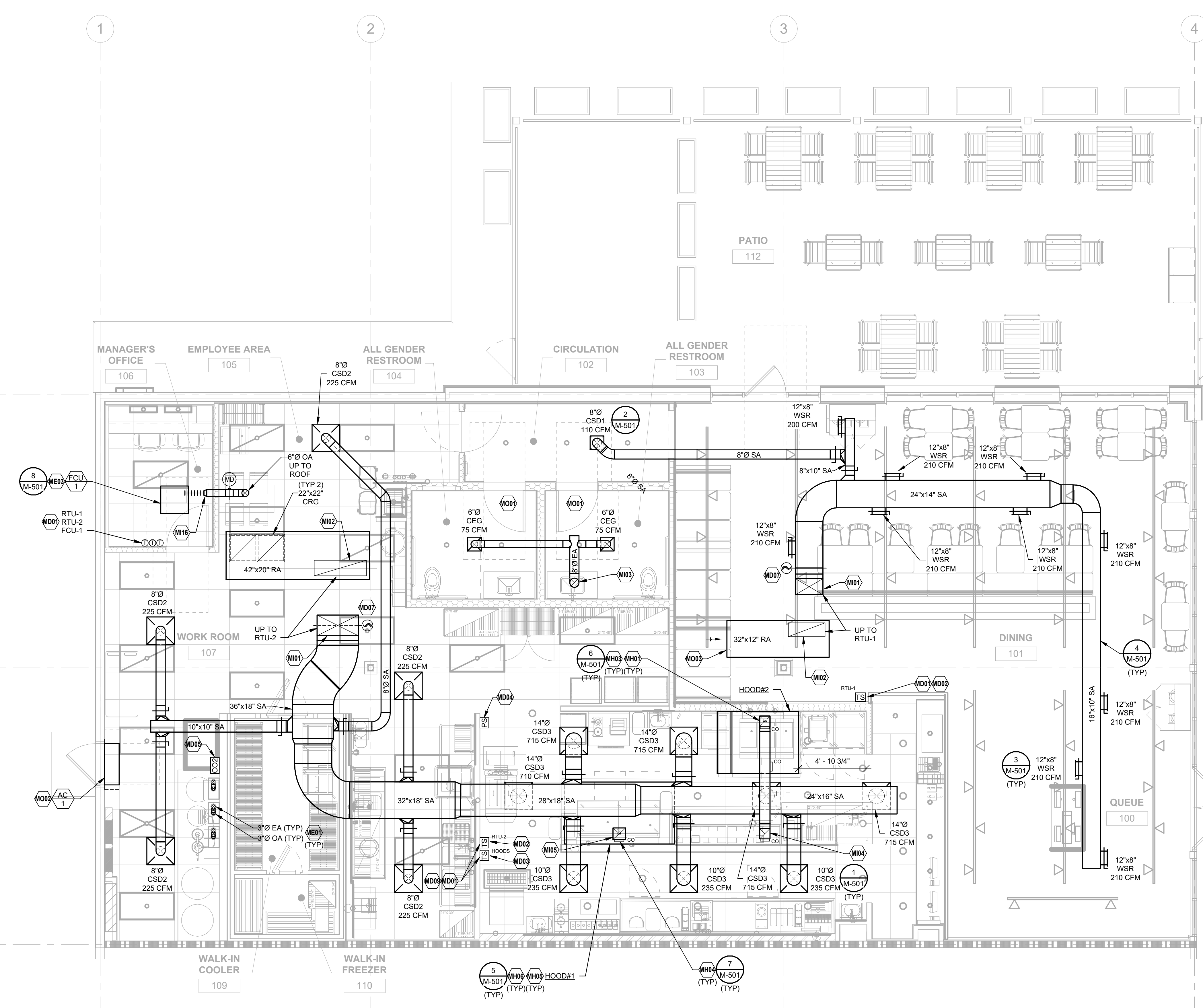
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MECHANICAL GENERAL INFORMATION

DRAWN BY:	Author
CHECKED BY:	Checker
JOB NO:	20240363.00

M-001

- MECHANICAL PLAN NOTES:**
- MD01 MOUNT THERMOSTATS, HUMIDITY SENSORS, AND TEMPERATURE SENSORS ON WALL. THERMOSTATS AND SENSORS SHALL BE LABELED TO MATCH THE UNIT TAG AND CORRESPOND TO THE ELECTRICAL LEGEND IN THE ELECTRICAL PANELBOARD SERVING THE EQUIPMENT. COORDINATE COLOR WITH ARCHITECT.
 - MD02 COMBINATION TEMPERATURE SENSOR AND HUMIDITY SENSOR.
 - MD03 MOUNT TEMPERATURE SENSOR PROVIDED WITH KITCHEN EXHAUST HOODS ON WALL.
 - MD04 INSTALL HOOD FIRE SUPPRESSION MANUAL PULL STATION. COORDINATE EXACT LOCATION AND REQUIREMENTS WITH FIRE SUPPRESSION SYSTEM INSTALLER AND THE AUTHORITY HAVING JURISDICTION.
 - MD05 CARBON DIOXIDE SENSOR WITH REMOTE ALARM REPEATER FURNISHED BY OWNER'S CO2 VENDOR AND LOCATED AT 12' AFF. THE SENSOR SHALL BE EQUIPPED WITH A LOCAL AUDIBLE AND VISUAL ALARM. THE LOW-LEVEL ALARM SHALL ACTIVATE THE LOCAL AUDIBLE AND VISUAL ALARM. IF THE BUILDING HAS A FIRE ALARM, PROVIDE THE APPROPRIATE FIRE ALARM INTERFACE MODULE TO INTERLOCK WITH THE BUILDING FIRE ALARM SYSTEM. THE HIGH-LEVEL CO2 ALARM SHALL SIGNAL BUILDING FIRE ALARM WHEN EQUIPPED. LOW LEVEL ALARM - 0.5% = 5,000 PPM, HIGH LEVEL ALARM - 3.0% = 30,000 PPM.
 - MD07 INSTALL DUCT SMOKE DETECTOR IN SUPPLY AIR PLENUM. DETECTOR SHALL BE PLACED DOWN STREAM OF THE SUPPLY SIDE AIR FILTERS AND BEFORE THE FIRST BRANCH.
 - MD09 PROVIDE CLEAR PROTECTION COVER OVER TEMPERATURE SENSORS IN THE KITCHEN AREA.
 - ME01 PROVIDE COMBUSTION AIR AND EXHAUST PIPE AND ROUTE TO CONCENTRIC VENT THROUGH ROOF.
 - ME03 REFRIGERANT PIPING UP TO CU-1 ON ROOF, REF 1M150.
 - MH01 TYPE I GREASE HOOD EXHAUST DUCTWORK SHALL BE MINIMUM 16 GAUGE STEEL OR MINIMUM 18 GAUGE STAINLESS STEEL WITH LIQUID TIGHT WELDS.
 - MH03 INSTALL ACCESS PANELS FOR CLEANING AS REQUIRED BY NFPA 96 AND LOCAL CODES. TRANSITION GREASE DUCTWORK AS REQUIRED TO HOOD AND FAN CONNECTIONS. PROVIDE 45° MAX OFFSETS AS REQUIRED TO COORDINATE WITH STRUCTURE. PROVIDE RADIUS ELBOWS WITHOUT TURNING VANES. SLOPE HORIZONTAL GREASE DUCT BACK TOWARDS HOOD AT MINIMUM OF 1/4" PER LINEAL FOOT. GREASE DUCTS SHALL BE CONTAINED IN ALL APPROVED GREASE DUCT SYSTEMS.
 - MH04 INSTALL "DUCTMATE ULTIMATE DOORS" ON GREASE DUCT FOR CLEANING IN LOCATION(S) SHOWN AT A MINIMUM AND AS REQUIRED BY NFPA 96 AND LOCAL CODES.
 - MH05 TYPE I HOODS SHALL BE INSTALLED COMPLETE WITH INTERNALLY PIPED FIRE SUPPRESSION SYSTEM AND EXTERNAL FOAM SUPPLY BOTTLES WITH REMOTE PULL CONTROLS AND IN COMPLIANCE WITH NFPA 96, DIVISION 23 SHALL COORDINATE COMPLETE INSTALLATION WITH FIRE PROTECTION CONTRACTOR TO MEET APPROVAL OF LOCAL INSPECTOR AND CODE COMPLIANCE INCLUDING TESTING.
 - MH06 HOOD OVERLAP SHALL EXTEND MINIMUM 6" BEYOND COOKING SURFACES ON ALL OPEN SIDES PER IMC 507.2.6.
 - M001 PROVIDE SA DUCT THROUGH ROOF. FULL SIZE OF UNIT OPENING, AND CONNECT TO UNIT WITH FLEXIBLE CONNECTOR. TRANSITION 45 DEGREES THROUGH ROOF CURB.
 - M002 PROVIDE RA DUCT THROUGH ROOF. FULL SIZE OF UNIT OPENING, AND CONNECT TO UNIT WITH FLEXIBLE CONNECTOR. TRANSITION 45 DEGREES THROUGH ROOF CURB.
 - M003 PROVIDE EA DUCT THROUGH ROOF. TRANSITION TO EXHAUST FAN INLET SIZE WITHIN CURB.
 - M004 10"x11" GREASE EXHAUST DUCT UP TO KEF-1 ON ROOF.
 - M005 9"x9" GREASE EXHAUST DUCT UP TO KEF-2 ON ROOF.
 - M016 TRANSITION 6" OUTDOOR AIR DUCT TO 4" FLEXIBLE DUCTWORK AND CONNECT TO UNIT.
 - MO01 CONTRACTOR TO COORDINATE 1" UNDERCUT ON DOOR FOR EXHAUST AIR PATH.
 - MO02 AIR CURTAIN MOUNTED ABOVE DOOR. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
 - MO03 PROVIDE 14" GALVANIZED CONSTRUCTION HARDWARE CLOTH SCREEN OVER OPEN END OF RETURN DUCT. PROVIDE DUCT LINER IN BOOT. RETURN AIR DUCT SHALL BE MINIMUM 36" HORIZONTAL EXTENSION FOR SOUND ATTENUATION.



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

THE BUILDINGS HVAC SYSTEMS SHALL BE BALANCED BY NATIONAL TAB (NO EXCEPTIONS) AND CONTRACTED BY THE GENERAL CONTRACTOR.

CONTACT:
 WILL TURNBOUGH
 will@natortab.com
 855-682-6822 ext704

ALL GREASE DUCT TO BE WATER TESTED BY ENVIROMATIC AT MECHANICAL CONTRACTOR'S EXPENSE. CONTACT OWNER'S NATIONAL ACCOUNT VENDOR:

ENVIROMATIC
 DON PFLEDERER
 1.800.325.8476
 inspections@enviromatic.com

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HEI		2025-02-03	100% LANDLORD SET



SHAKE SHACK SOUTH BEACH REGIONAL

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IFC SET

MECHANICAL FLOOR PLAN

DRAWN BY: *Author*
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M-101

MECHANICAL PLAN NOTES:

- ME02 PROVIDE WATER HEATER CONCENTRIC VENT KIT SPECIFIED IN THE WATER HEATER INSTALLATION MANUAL.
- ME04 MAINTAIN ALL OUTSIDE AIR INTAKES A MINIMUM OF 10'-0" RADIUS FROM EXHAUST.
- ME05 CONTRACTOR SHALL VERIFY WITH EQUIPMENT SUPPLIER EXACT ROUTING AND SIZE OF INSULATED REFRIGERANT PIPING. SINGLE LINESET SHOWN FOR CLARITY. INSTALL PER MANUFACTURER'S RECOMMENDATIONS.
- ME06 TURN DOWN #9 INTAKE AND END OPEN OVER ROOF (MIN. 24") WITH INSECT SCREEN.
- ME07 CONTRACTOR SHALL COORDINATE WITH NATIONAL TAB TO PROVIDE UV-PHI INDOOR AIR PURIFICATION SYSTEM, MODEL PHI-PKG-24V. INSTALL IN UNIT BLOWER COMPARTMENT PER MANUFACTURER'S INSTRUCTIONS.
- MO04 AREA RESERVED FOR REFRIGERATION CONDENSER(S) PROVIDED BY KITCHEN EQUIPMENT CONTRACTOR. COORDINATE EQUIPMENT LOCATION AND CONDENSER INSTALLATION WITH KITCHEN EQUIPMENT CONTRACTOR.
- MO05 REFERENCE PLUMBING DRAWINGS FOR CONDENSATE DRAIN ROUTING AND TERMINATION REQUIREMENTS.

BAI Architecture

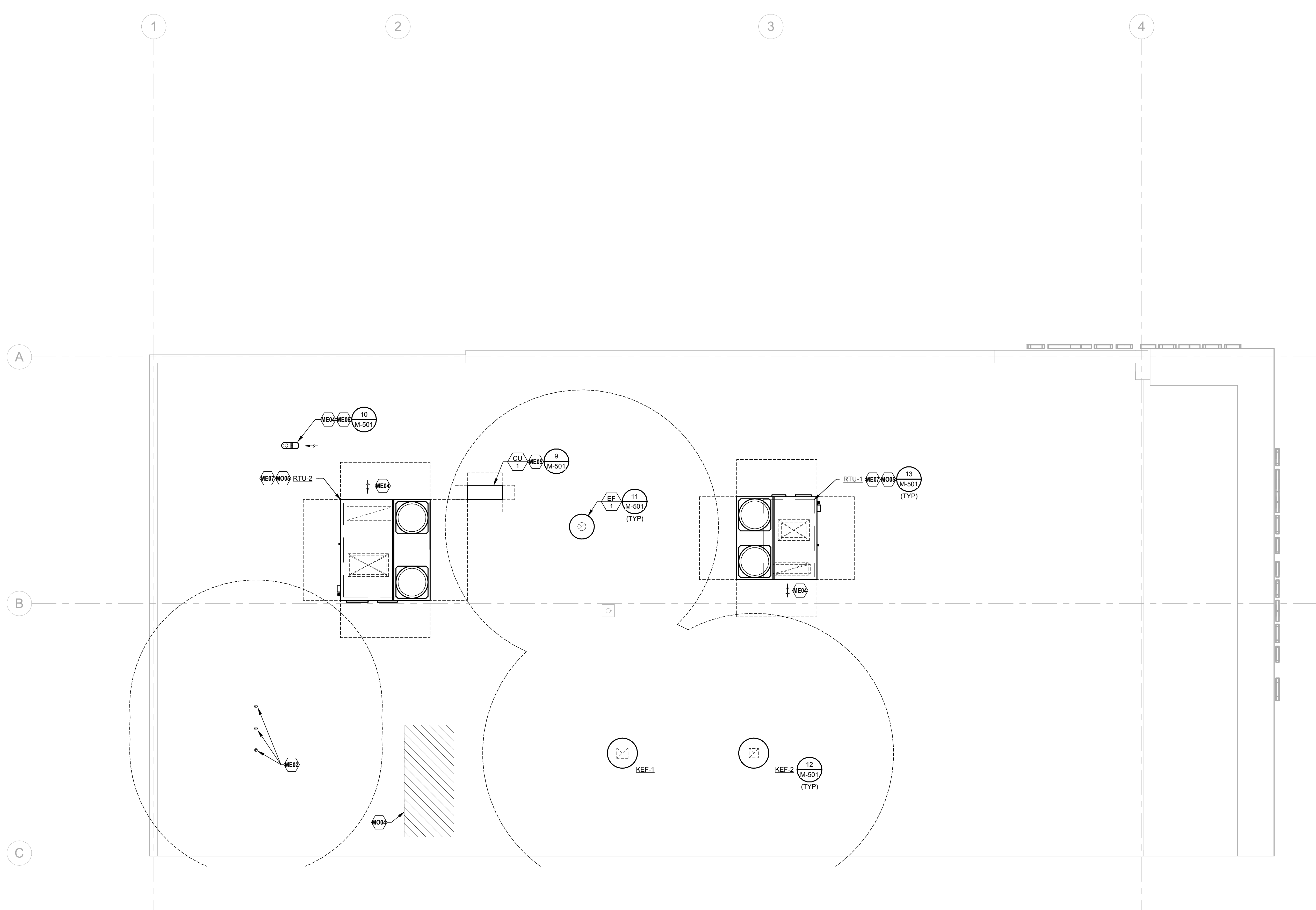
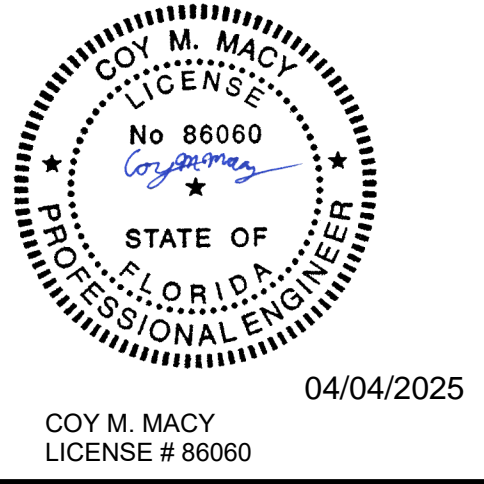
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1 MECHANICAL ROOF PLAN
 1/4" = 1'-0"

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SHAKE SHACK SOUTH BEACH REGIONAL

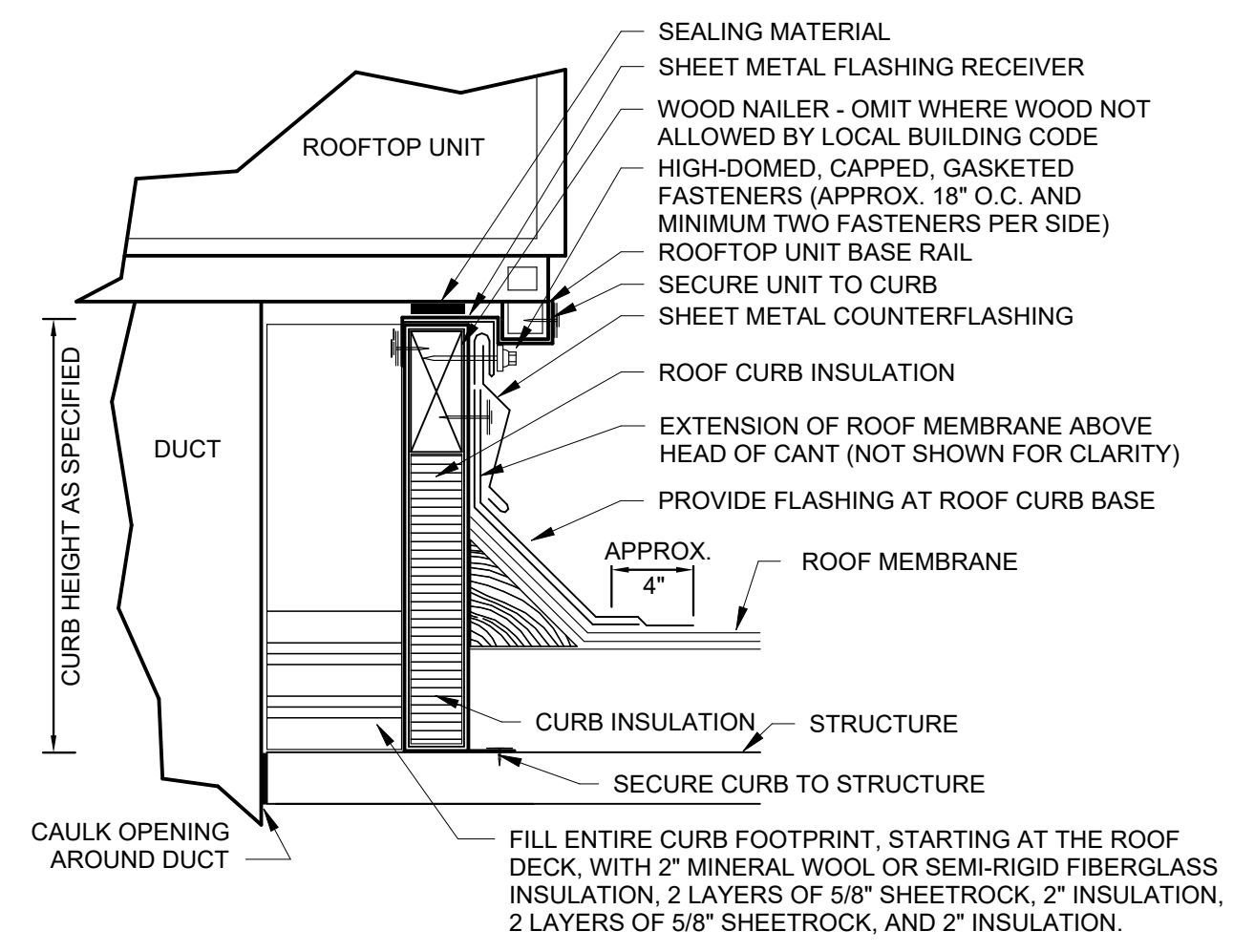
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MECHANICAL ROOF PLAN

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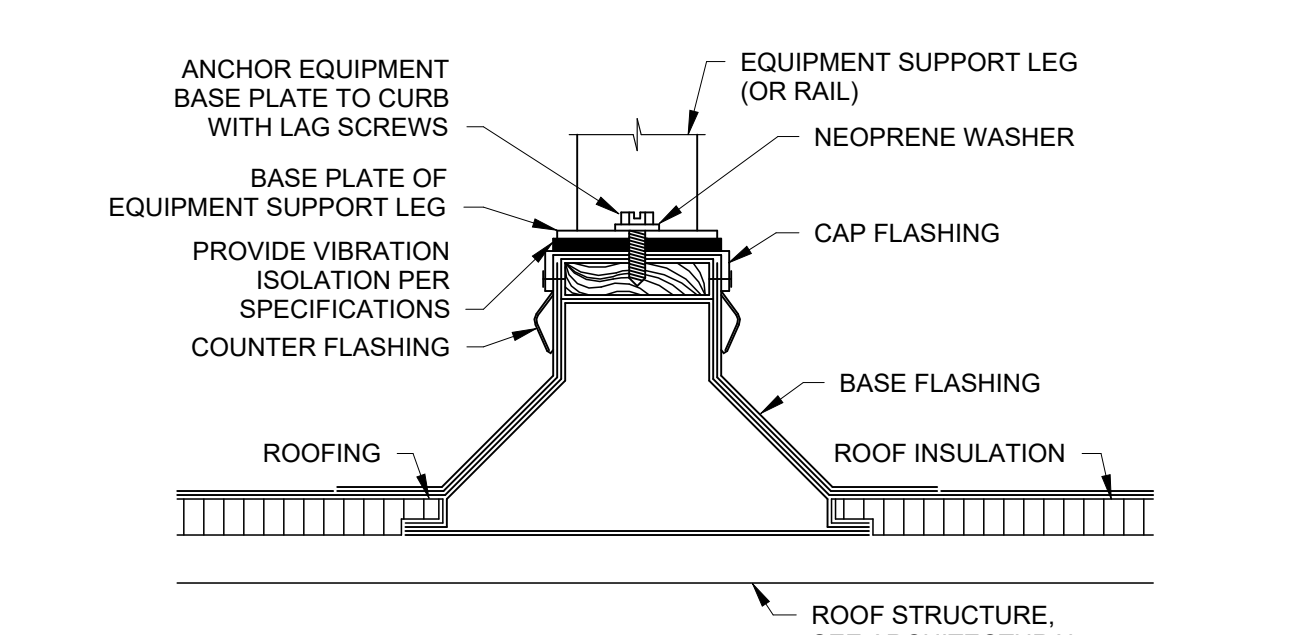
M-150



NOTES:

- CUT METAL DECKING TO ALLOW CURB INSTALLATION ON STEEL FRAMING. AFTER CURB IS SET IN PLACE, TRIM REMAINING METAL DECKING AND INSTALL WITH CURB. TACK WELD DECKING TO SUPPORT STEEL. DO NOT WELD INTERIOR DECKING TO ROOF CURB. PROVIDE ADDITIONAL CROSS FRAMING TO SUPPORT INTERIOR DECKING AND FILL MATERIAL AS REQUIRED.
- REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR ROOF CURBS, ANCHORING AND SEISMIC/WIND RESISTANCE.

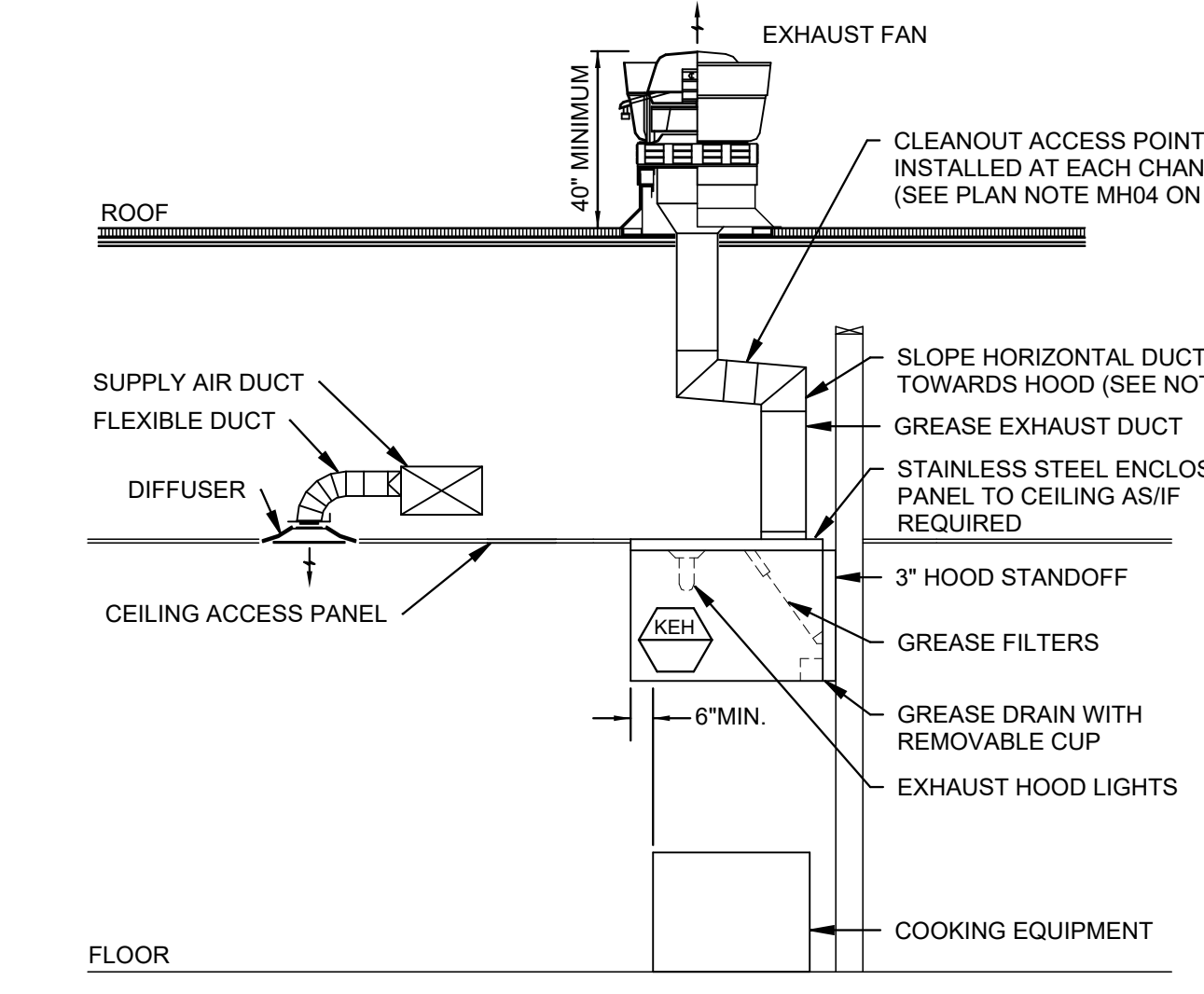
13 ROOF CURB DETAIL NTS



NOTES:

- REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR EQUIPMENT SUPPORTS, ANCHORING AND SEISMIC/WIND RESISTANCE.

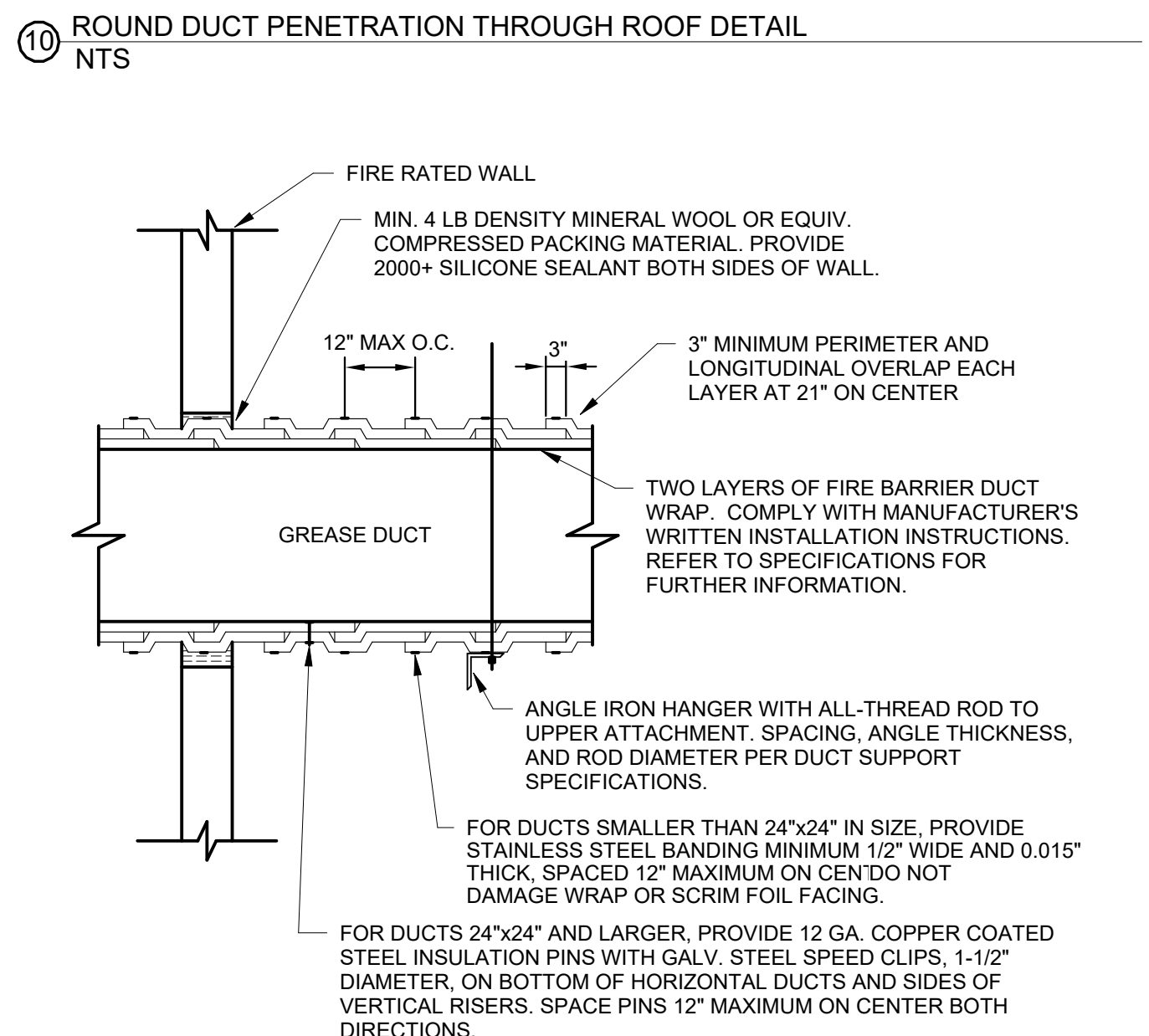
9 ROOF EQUIPMENT SUPPORT RAIL DETAIL NTS



NOTES:

- SUBMIT SHOP DRAWINGS OF ALL HOOD SYSTEMS TO CITY FOR APPROVAL PRIOR TO INSTALLATION.
- TOTAL HOOD SYSTEM TO BE IN COMPLETE CONFORMANCE WITH NFPA, AND ALL LOCAL CODES AND REGULATIONS.
- COORDINATE ALL FIRE PROTECTION SYSTEMS WITH FIRE PROTECTION CONTRACTOR WHO SHALL ALSO BE RESPONSIBLE FOR ALL PERMITS AND TESTING REQUIRED.
- PROVIDE WRAP SYSTEM WHERE APPROVED BY LOCAL CODES IN LIEU OF RATED ENCLOSURE.
- PROVIDE ACCESS PANELS AS REQUIRED BY LOCAL CODE AND PER PLAN.
- HOODS SHALL EXTEND MINIMUM 6\"/>

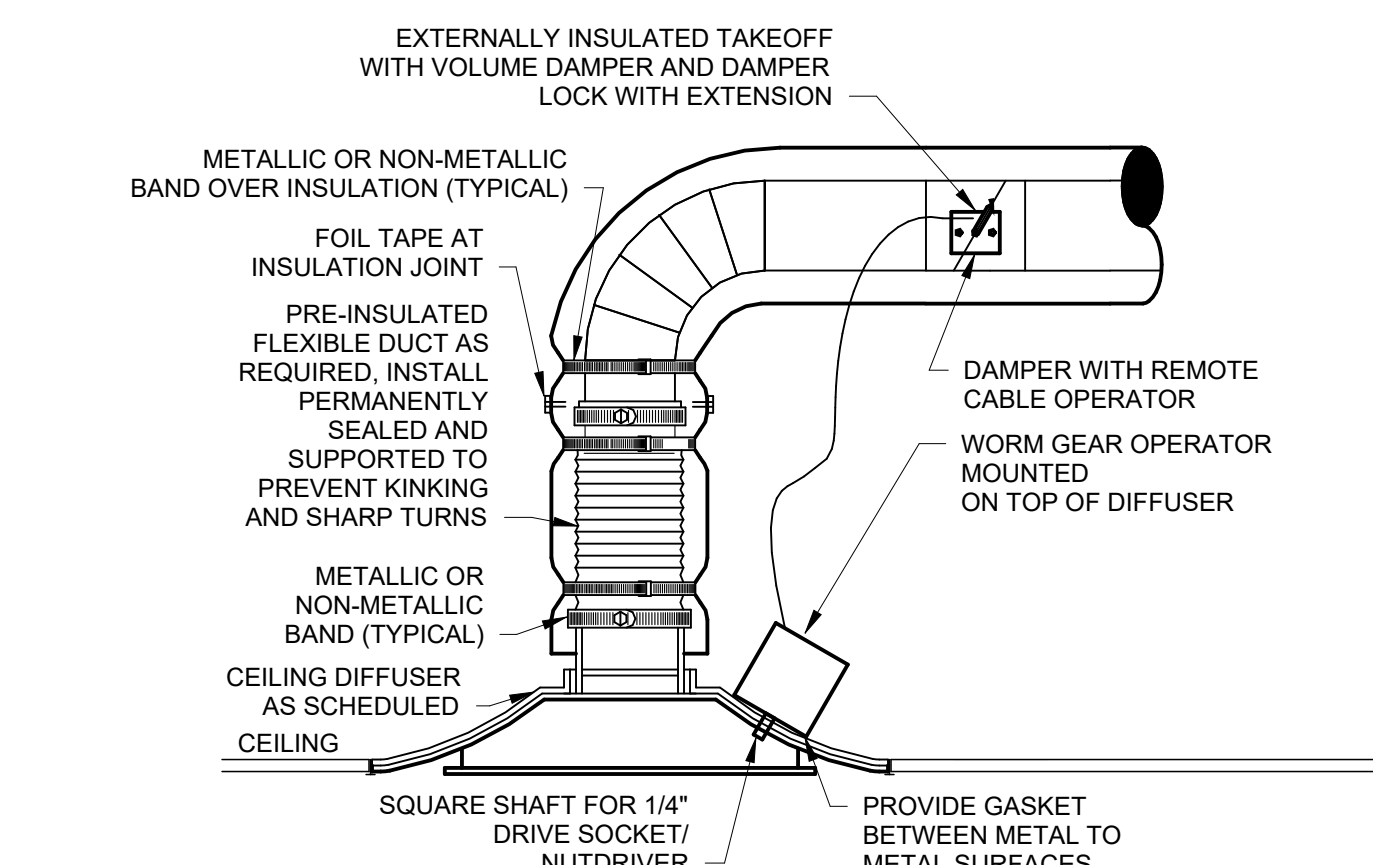
5 KITCHEN EXHAUST HOOD ELEVATION DETAIL NTS



NOTES:

- INSTALL GREASE EXHAUST AND FIRE RATED DUCT WRAP IN ACCORDANCE WITH THE MANUFACTURER'S APPROVED INSTRUCTIONS AND UL LISTED INSTALLATION DETAILS. TECHNIQUES THAT DIFFER FROM THE ABOVE METHOD ARE ACCEPTABLE IF THEY ARE UL TESTED AND APPROVED.

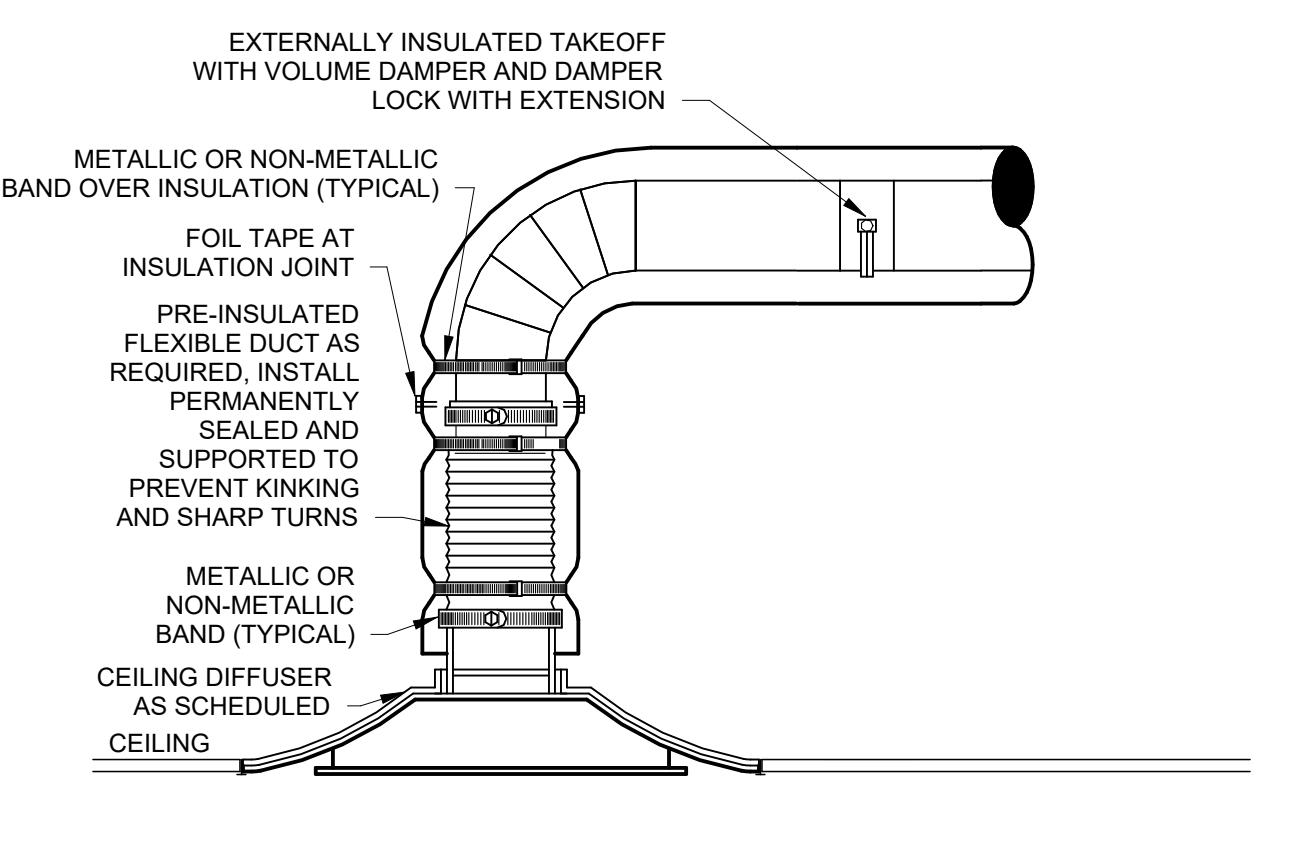
6 GREASE DUCT FIRE WRAP INSULATION INSTALLATION DETAIL NTS



NOTES:

- FLEXIBLE DUCT LENGTH MAY NOT EXCEED 5'-0\"/>

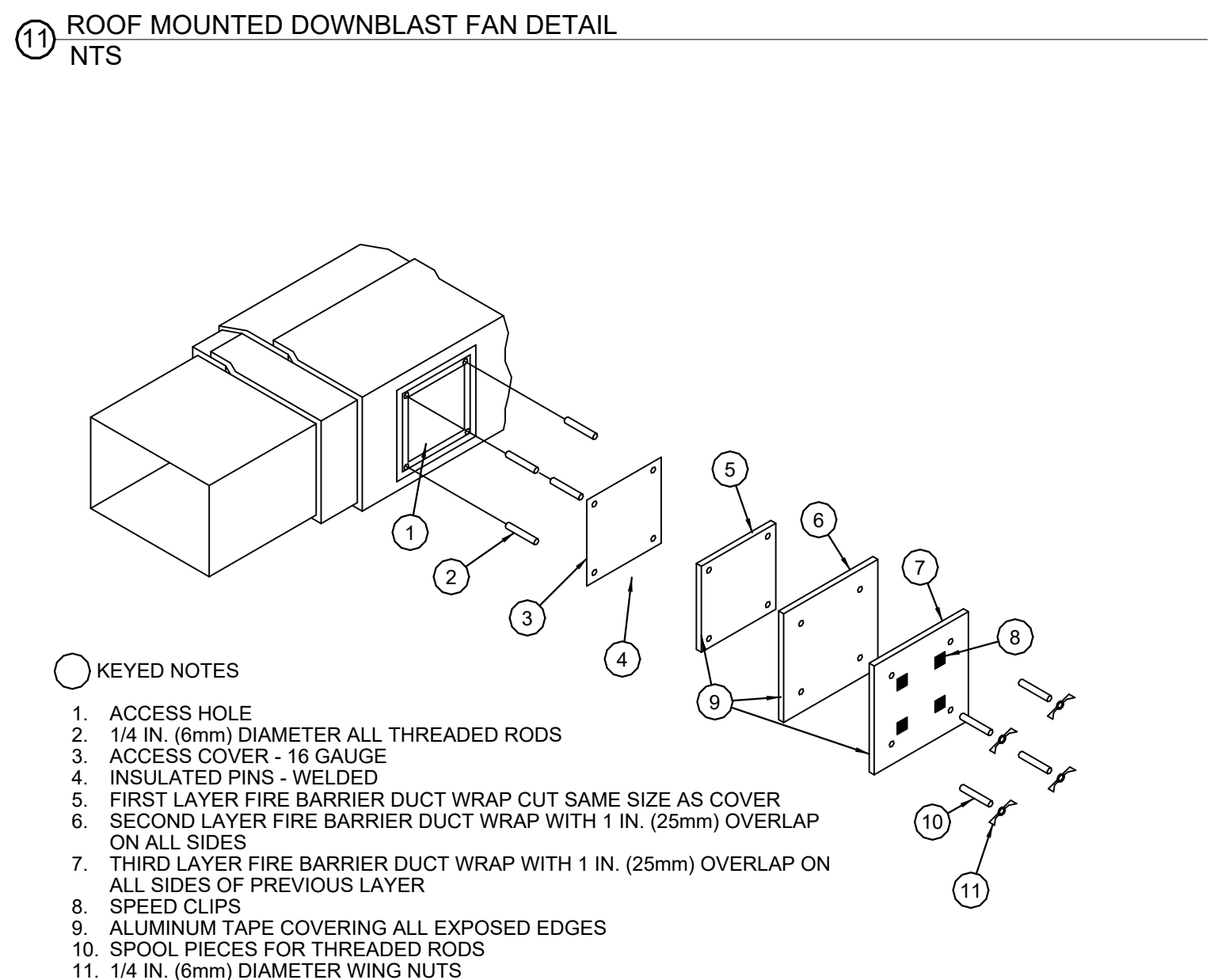
2 CEILING DIFFUSER DETAIL - HARD CEILING NTS



NOTES:

- FLEXIBLE DUCT LENGTH MAY NOT EXCEED 5'-0\"/>

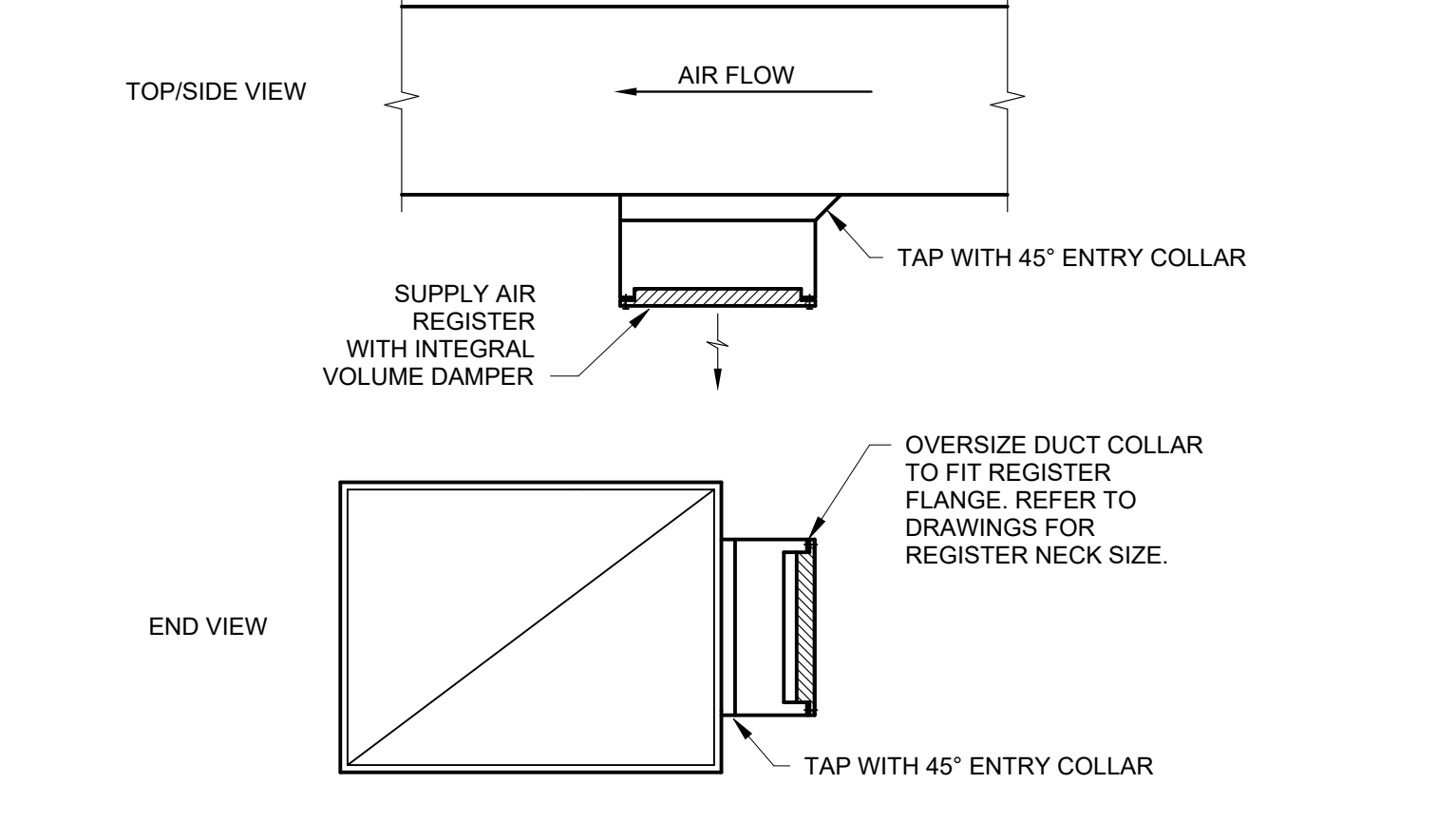
1 CEILING DIFFUSER DETAIL - LAY-IN CEILING NTS



NOTES:

- ARRANGEMENT SHOWN IS SCHEMATIC, ADJUST TO SUIT FIELD CONDITIONS AND MEET LOCAL CODE.
- IF DAMPER IS SPECIFIED IN EQUIPMENT SCHEDULE, INSTALL DAMPER AT BASE OF CURB AND SECURE FROM ABOVE TO ALLOW SERVICE THROUGH TOP OF CURB.
- PRE-FABRICATED INSULATED ROOF CURB WITH TREATED WOOD NAILER, CANT, AND STEP AS REQUIRED TO ACCOMMODATE ROOF INSULATION, FRAME AND SECURE CURB TO ROOF WITH METHOD CONSISTENT WITH ROOF CONSTRUCTION. ROOF CURB SHALL BEAR ON ROOF STRUCTURE. REFER TO ARCHITECTURAL DRAWINGS AND CURB MANUFACTURER'S DETAILS FOR MORE INFORMATION.
- FOR SLOPED ROOFS, PROVIDE CURB WITH DIMENSIONS CAPABLE OF COMPENSATING ROOF SLOPE TO ENSURE FAN IS INSTALLED LEVEL.

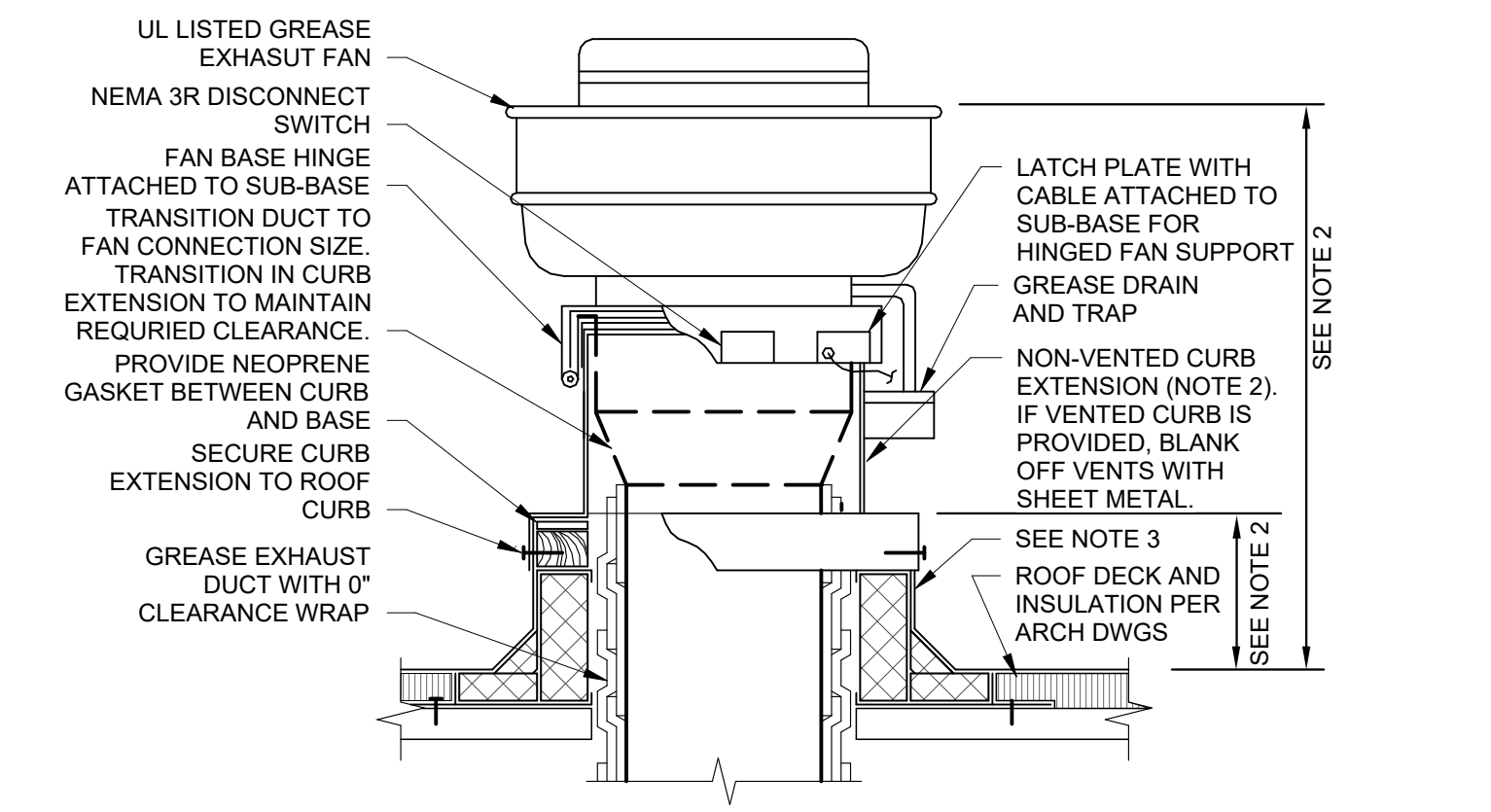
11 ROOF MOUNTED DOWNBLAST FAN DETAIL NTS



NOTES:

- POSITION ADJUSTABLE LOUVERS DURING TESTING AND BALANCING FOR OCCUPANT COMFORT AND TO DECREASE DRAFTS IN THE SPACE.

3 REGISTER MOUNTING TO RECTANGULAR DUCT DETAIL NTS

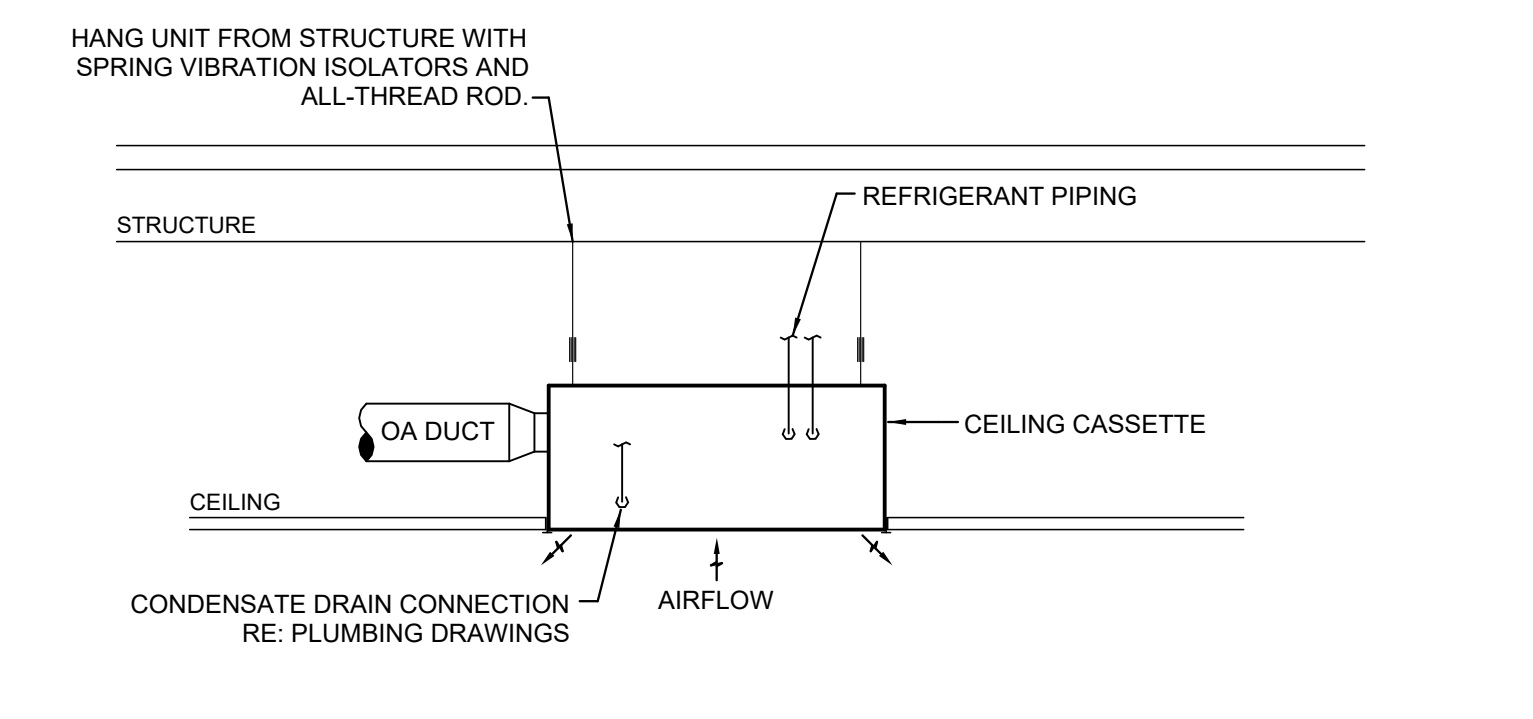


NOTES:

- ARRANGEMENT SHOWN IS SCHEMATIC, ADJUST TO SUIT FIELD CONDITIONS AND MEET LOCAL CODE.
- PROVIDE CURB EXTENSION MADE FROM NON-COMBUSTIBLE MATERIAL OF HEIGHT REQUIRED TO MOUNT FAN BASE A MINIMUM 18 INCHES ABOVE COMBUSTIBLE CURB MATERIAL AND DISCHARGE GREASE OUTLET A MINIMUM OF 40 INCHES ABOVE ROOF SURFACE OR ANY ADJACENT BUILDING STRUCTURE WITHIN 10 FEET OF OUTLET, WHICHEVER IS HIGHER.
- PRE-FABRICATED INSULATED ROOF CURB WITH TREATED WOOD NAILER, CANT, AND STEP AS REQUIRED TO ACCOMMODATE ROOF INSULATION, FRAME AND SECURE CURB TO ROOF WITH METHOD CONSISTENT WITH ROOF CONSTRUCTION. ROOF CURB SHALL BEAR ON ROOF STRUCTURE. FOR SLOPED ROOFS, PROVIDE CURB WITH DIMENSIONS CAPABLE OF COMPENSATING ROOF SLOPE TO ENSURE FAN IS INSTALLED LEVEL. REFER TO ARCHITECTURAL DRAWINGS AND CURB MANUFACTURER'S DETAILS FOR MORE INFORMATION.

HIGH WIND STRAPPING: PROVIDE STAINLESS STEEL STRAPS OF LENGTH, WIDTH, THICKNESS, AND SPACING SUFFICIENT TO SECURE FAN TO CURB TO WITHSTAND WIND SPEED REQUIREMENTS PER LOCAL CODE. WRAP STRAPS OVER FAN AND SECURELY ATTACH TO OPPOSITE SIDE OF THE CURB.

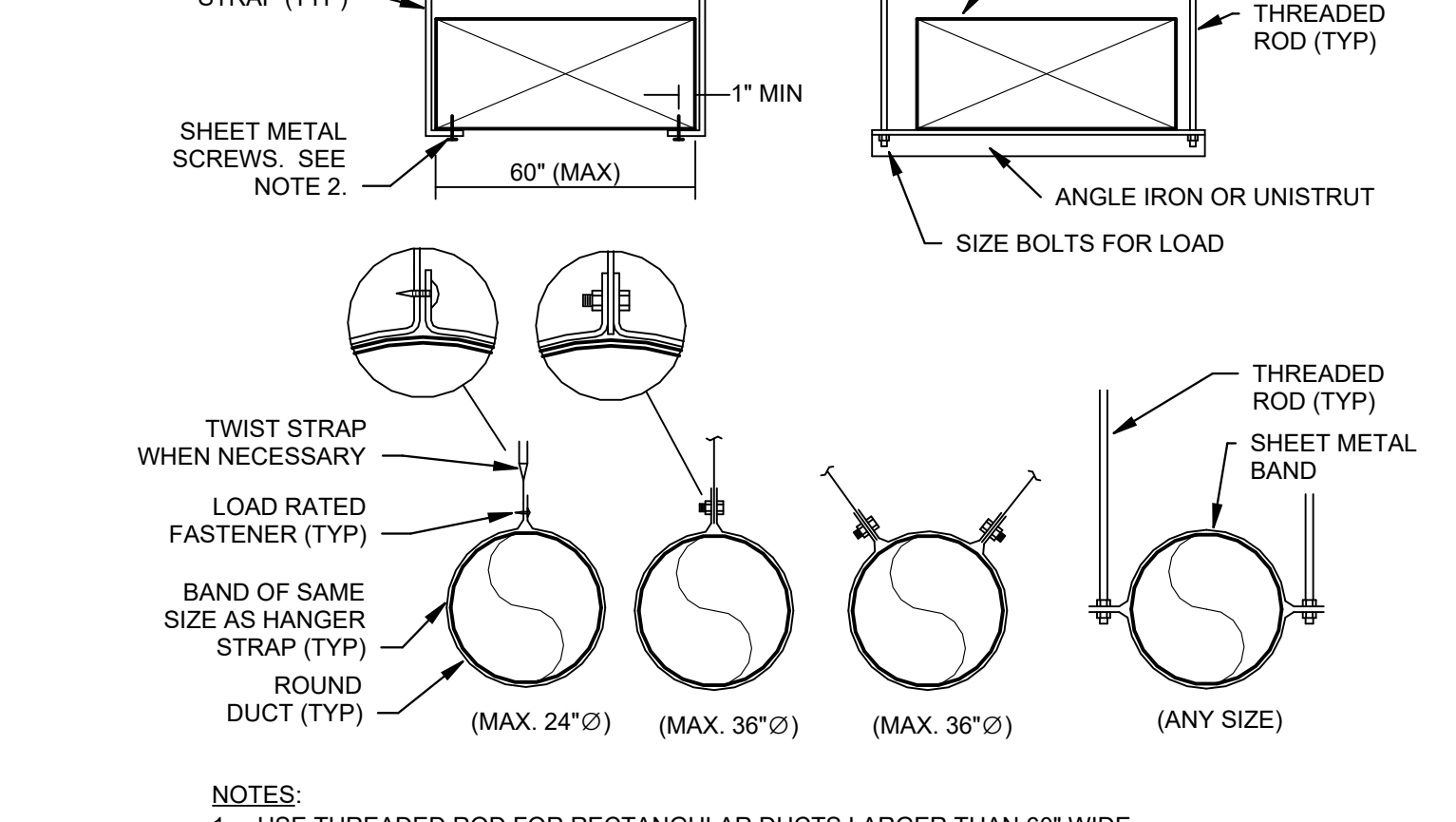
12 UPBLAST GREASE EXHAUST FAN DETAIL NTS



NOTES:

- ARRANGEMENT SHOWN IS SCHEMATIC, ADJUST TO SUIT FIELD CONDITIONS AND MEET LOCAL CODE REQUIREMENTS.

8 CEILING CASSETTE DETAIL NTS



NOTES:

- USE THREADED ROD FOR RECTANGULAR DUCTS LARGER THAN 60\"/>

4 DUCT HANGER LOWER ATTACHMENT DETAILS NTS

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY COY M. MACY ON THE DATE LISTED BELOW USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

NO.	BY	DATE	DESCRIPTION
2	HEI	2025-04-07	IFC SET
1	HEI	2025-03-14	ADDENDUM A
1	HEI	2025-02-19	BID PERMIT SET
1	HEI	2025-02-03	100% LANDLORD SET



SHAKE SHACK SOUTH BEACH REGIONAL

3956 S THIRD STREET
 JACKSONVILLE BEACH, FL 32250
 SHACK #1689

IFC SET

MECHANICAL DETAILS

DRAWN BY: Author
 CHECKED BY: Checker
 JOB NO: 20240363.00

M-501

Division 23: HEATING, VENTILATING, AND AIR CONDITIONING

1. GENERAL INSTRUCTIONS

A. GENERAL REQUIREMENTS

All requirements under Division 01 and the general and supplementary conditions of these specifications apply to this section and Division. Where the requirements of this section and division exceed those of Division 01, this section and division take precedence. Become thoroughly familiar with all contents as to requirements that affect this division, section, or both. Work required under this division includes all material, equipment, appliances, transportation, services, and labor required to complete the entire system as required by the drawings and specifications, or reasonably inferred to be necessary to facilitate the function of each system as implied by the design and the equipment specified.

The specifications and drawings for the project are complementary, and any portion of work described in one shall be provided as if described in both. In the event of discrepancies, notify the Engineer and request clarification prior to proceeding with the work involved.

Drawings are graphic representations of the work upon which the contract is based. They show the materials and their relationship to one another, including sizes, shapes, locations, and connections. They convey the intended and intended arrangement of the systems without showing all of the exact details as to elevations, offsets, control lines, and other installation requirements. Use the drawings as a guide when laying out the work and to verify that materials and equipment will fit into the designated spaces, and which when installed per manufacturers' requirements, will ensure a complete, coordinated, satisfactory, and properly operating system.

B. DEFINITIONS

Division: References contained in this specification follow the numbering system defined in the Construction Specifications Institute (CSI) MasterFormat 2004 Edition. Specification Divisions 01 through 13 provided with this project may reference the CSI MasterFormat 1995 Edition. The corresponding division references between the 2004 Edition and 1995 Edition are as follows:

2004 Edition	1995 Edition
1. Division 21 – Fire Suppression	Division 15
2. Division 22 – Plumbing	Division 15
3. Division 23 – HVAC	Division 15
4. Division 24 – Electrical	Division 16
5. Division 27 – Communications	Division 16
6. Division 28 – Electronic Safety and Security	Division 16

Furnish: "to supply and deliver to the project site, ready for unloading, unpacking, assembly, installation and similar operations."

Install: "to perform all operations at the project site including, but not limited to, the actual unloading, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, testing, commissioning, starting up and similar operations, complete, and ready for the intended use."

Provide: "to furnish and install."

Furnished by Owner (or Owner-Furnished) or Furnished by Others: "an item furnished by the Owner or under other divisions or contracts, and installed under the requirements of this division, complete and ready for intended use, including all items and services incidental to the work necessary for proper installation and operation. Include the installation under the warranty required by this division."

Engineer: Where referenced in this division, "Engineer" is the Engineer of Record and the Design Professional for the work under this division, and is a consultant to, and an authorized representative of the Architect, as defined in the General and/or Supplementary Conditions. When used in this division, Engineer means increased involvement by and obligations to the Engineer, in addition to involvement by and obligations to the Architect.

AJH: The local code and/or inspection agency (Authority) Having Jurisdiction over the work.

NRTL: Nationally recognized testing laboratory, as defined and listed by OSHA in 29 CFR 1910.7 (e.g., UL, ETL, CSA), and acceptable to the AHJ over this project. Nationally recognized testing laboratories and standards listed are used only to represent the characteristics required and are not intended to restrict the use of other NRTLs that are acceptable to the AHJ and standards that meet the specified criteria.

Substitution: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor. Substitutions include Value Engineering proposals.

- Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, unavailability of materials, or unavailability of labor.
- Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

The terms "approved equal," "equivalent," or "equal" are used synonymously and shall mean "accepted by or acceptable to the Engineer as equivalent to the item or manufacturer specified." The term "approved" shall mean labeled, listed, or both, by an NRTL, and acceptable to the AHJ over this project.

C. PREBID SITE VISIT

Prior to submitting bid, visit the site of the proposed work and become fully informed as to the conditions under which the work is to be done. Failure to comply with this requirement shall not be considered sufficient justification to request or obtain extra compensation over and above the contract price.

D. MATERIAL AND WORKMANSHIP

Provide new material, equipment, and apparatus under this contract unless otherwise stated herein, of best quality normally used for the purpose in good commercial practice, and free from defects. Install material and equipment in accordance with the manufacturer's installation instructions in the specifications or shown on the drawings are not necessarily intended to designate the required trim, written descriptions of the trim govern model numbers.

Pipe, pipe fittings, pipe specialties and valves shall be manufactured in plants located in the United States or certified to meet the specified ASTM and ANSI standards.

Work performed under this contract shall provide a neat and "workmanlike" appearance when completed, to the satisfaction of the Architect and Engineer. Workmanship shall be the best possible by experienced mechanics. Installations shall comply with applicable codes and laws.

The complete installation shall function as designed and intended with respect to efficiency, capacity, noise level, etc. Abnormal noise caused by rattling equipment, piping, ducts, air devices, and squeaks in rotating components shall not be acceptable. Materials and equipment shall be of commercial specification grade in quality. Light duty and residential grade equipment shall not be accepted unless otherwise indicated.

Remove from the premises waste material present as a result of work, including cartons, crates, paper, stickers, and/or excavation material not used in backfilling, etc. Clean equipment installed under this contract to prevent a neat and clean installation at the termination of the work.

Repair or replace public and private property damaged as a result of work performed under this contract to the satisfaction of authorities and regulations having jurisdiction. Provide all safety lights, guards, and warning signs required for the performance of the work and for the safety of the public.

E. MANUFACTURERS

In other articles where lists of manufacturers are introduced, subject to compliance with requirements, provide products by one of the manufacturers specified.

Where a list is provided, manufacturers are listed alphabetically and not in accordance with any ranking or preference.

Where manufacturers are not listed, provide products subject to compliance with requirements from manufacturers that have been actively involved in manufacturing the specified product for no less than 5 years.

F. COORDINATION

Coordinate work with that of other trades so that the various components of the systems are installed at the proper time, will fit the available spaces, and will allow proper access to those lines requiring maintenance. Components which are installed without the right to the above shall be relocated at no additional cost to the Owner.

Unless otherwise indicated, the General Contractor shall provide chases and openings in building construction required for installation of the systems specified herein. Contractor shall furnish the General Contractor with information where chases and openings are required. Contractor shall keep informed as to the work of other trades engaged in the construction of the project and shall execute work in a manner as to not interfere with or delay the work of other trades.

Figured dimensions shall be taken in preference to scale dimensions. Contractor shall take his own measurements at the building, as variations may occur. Contractor shall be held responsible for errors that could have been avoided by proper checking and inspection.

Provide materials with trim that will properly fit the types of ceiling, wall, or floor finishes actually installed. Model numbers listed in the specifications or shown on the drawings are not intended to designate the required trim.

G. ORDINANCES AND CODES

Work performed under this contract shall, at a minimum, be in conformance with applicable national, state and local codes having jurisdiction. Equipment furnished and associated installation work performed under this contract shall be in strict compliance with current applicable codes adopted by the local AHJ, including any amendments and standards as set forth by the following:

- National Electrical Code (NEC)
- Underwriters Laboratories (UL)
- Occupational Safety and Health Administration (OSHA)
- American Society of Mechanical Engineers (ASME)
- American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE)
- American National Standards Institute (ANSI)
- American Society of Testing and Materials (ASTM)
- Other national standards and codes where applicable.

Where the contract documents exceed the requirements of the referenced codes, standards, etc., the contract documents shall take precedence. Where conflicts between various codes, ordinances, rules, and regulations exist, comply with the most stringent. Promptly bring all conflicts observed between codes, ordinances, rules, regulations, referenced standards, and these documents to the attention of the Architect and Engineer for final resolution. Contractor will be held responsible for any violation of the law.

Procure and pay for permits and licenses required for the accomplishment of the work herein described. Where required, obtain, pay for, and obtain certificates of inspection to Owner.

H. PROTECTION OF EQUIPMENT AND MATERIALS

Store and protect from damage equipment and materials delivered to job site. For materials and equipment susceptible to changing weather conditions, dampness, or temperature variations, store inside in conditioned spaces. For materials and equipment not susceptible to these conditions, cover with waterproof, tear-resistant, heavy tarp or polyethylene plastic as required to protect from plaster, dust, dirt, paint, water, or physical damage. Replace insulation that has become wet at any time during construction. Drying the insulation is not acceptable. Seal any tears or joints of internal fiberglass insulation. Equipment and material damaged by construction activities shall be replaced and contractor shall furnish new equipment and material of the like kind at his own expense. Keep premises broom clean of foreign material created during work performed under this contract. Piping, equipment, etc. shall have a neat and clean appearance at the termination of the work. Remove debris from ceilings and floors, including dust.

Plug, seal, or cap open ends of ductwork and piping systems while stored and installed during construction when not in use to prevent the entrance of debris into the systems. Remove temporary protection prior to starting equipment and turning the system over to the Owner.

I. SUBSTITUTIONS

Materials, products, equipment, and systems described in the Bidding Documents establish a standard of required function, dimension, appearance and quality to be met by the proposed substitution. The base bid shall include only the products from manufacturers specifically named in the drawings and specifications. To request a substitution, request the Substitution Request Form from the Architect or Engineer. Complete and send the Substitution Request Form for each material, product, equipment, or system that is proposed to be substituted. The burden of proof of the merit of the proposed substitution is upon the proposer.

Unless stated otherwise in writing to the Engineer by the Contractor, Contractor warrants to the Engineer, Architect, and Owner the following:

- Proposed substitution has been fully investigated and determined to meet or exceed the specified Work in all respects unless stated otherwise in the substitution request.
 - Proposed substitution is consistent with the Contract Documents and will produce indicated results, including functional clearances, maintenance service, and sourcing of replacement parts.
 - Proposed substitution has received necessary approvals of authorities having jurisdiction.
 - Same warranty will be furnished for proposed substitution as for specified Work.
 - If an installed substitution is not accepted as required, Contractor shall replace substitute material or system with that originally specified and bear costs incurred thereby.
6. Coordination, installation and changes in the Work as necessary for accepted substitution will be complete in all respects.

No substitutions will be considered unless the Substitution Request Form is completed and attached with the appropriate substitution documentation. No substitution will be considered prior to receipt of bids unless written request for approval to bid has been received by the Engineer at least ten (10) calendar days prior to the date for receipt of bids.

If the proposed substitution is approved prior to receipt of bids, such approval will be stated in an addendum. Bidders shall not rely upon approvals made in any other way. Verbal approval will not be given. No substitutions will be considered after the contract is awarded unless specifically provided in the contract documents.

Assemble and submit for review shop drawings, material lists, manufacturer product literature for equipment to be furnished, and items requiring coordination between contractors under this contract. Provide submittals in sufficient detail so as to demonstrate compliance with these contract documents and the design concept. Prior to transmitting submittals, verify that the equipment submitted is mutually compatible and suitable for the intended use, will fit the available space, and maintain manufacturer recommended service clearances. If the size of equipment furnished makes necessary any change in location or configuration, submit a shop drawing showing the proposed layout.

Transmit submittals as early as required to support the project schedule. Allow for two weeks Engineer review time, plus to/from mailing time via the Architect, plus a duplication of this time for resubmittal, if required. Only resubmit those sections requested for resubmittal.

Submittals shall contain the project name, applicable specification section, submittal date, equipment identification acronym as used on the drawings, and the Contractor's stamp. The stamp shall certify that the submittal has been checked by the Contractor, complies with the drawings and specifications, and is coordinated with other trades. Manufacturer product literature shall include shop drawings, product data, performance sheets, samples and other submittals required by this division. Highlight, mark, list, or indicate the materials, performance criteria, and accessories that are being proposed. General product catalog data not specifically noted to be part of the specified product will be rejected and returned without review.

Submittals and shop drawings shall not contain the firm name, logo, seal, or signature of the Engineer. They shall not be copies of the work product of the Engineer. If the Contractor desires to use elements of such product, refer to paragraph "Electronic Drawing Files" for procedures to be used.

Separate submittals according to individual specification sections. Illegible submittals will be rejected and returned without review. Catalog data shall be properly identified, indexed and tabbed. A hard copy format or a single PDF file for each specification section is acceptable. Each item or model number shall be clearly marked and accessories indicated. Label the catalog data with the equipment identification acronym and number as used on the drawings and include performance curves, capacities, sizes, weights, materials, finishes, wiring diagrams, electrical requirements and deviations from specified equipment or materials. For equipment with motor starters or VFDs, include short circuit current ratings. Mark out inapplicable items. Shop drawings will be returned without review if the above mentioned requirements are not met.

Provide the quantity of submittals required by Division 01. If not indicated and hard-copy sets are provided, submit a minimum of six (6) copies. Refer to Division 01 for acceptance of electronic submittals for this project. For electronic submittals, Contractor shall submit the documents in accordance with the procedures specified in Division 01. Contractor shall notify the Architect and Engineer that the submittals have been posted. If electronic submittal procedures are not defined in Division 01, Contractor shall include the website, user name, and password information needed to access the submittals. For submittals sent by e-mail, Contractor shall copy the designated representatives of the Architect and Engineer. Contractor shall allow for the Engineer review time as specified above in the construction schedule. Contractor shall submit only the documents required to purchase the materials and/or equipment in the electronic submittal criteria.

The checking and subsequent acceptance of submittals by the Engineer and/or Architect shall not relieve the Contractor from responsibility for deviations from the drawings and specifications, errors in dimensions, details, size of members, or quantities, omissions, and omissions, and omissions or errors in the drawings and specifications, errors in dimensions, details, size of members, or quantities, omissions, and omissions, and omissions or errors in the drawings and specifications, errors in dimensions, details, size of members, or quantities, omissions, and omissions.

Proceed with the procurement and installation of equipment only after receiving approved shop drawings relative to each item.

K. ELECTRONIC DRAWING FILES

In preparation of shop drawings or record drawings, Contractor may, at his option, obtain electronic drawing files in AutoCAD or DXF format on CD-ROM and DVD (or flash drive or direct download, as desired, from the Engineer for a shipping and handling fee of \$200 for a drawing set up to 12 sheets and \$15 per sheet for each additional sheet. Contact the Architect for written authorization and Engineer for the necessary release agreement form and to specify shipping method and drawing format. In addition to payment, the written authorization from the Architect and release agreement form from the Engineer must be received before electronic drawing files will be sent.

L. RECORD DRAWINGS (AS-BUILT DRAWINGS)

During progress of the work in this division, Contractor shall maintain an accurate record of all changes made during the installation of the work. Upon completion of the work, accurately transfer all record information to three identical sets of the approved shop drawings. Insert one set into each copy of the manual described below.

See Division 01 and General Conditions for additional information.

M. OPERATION AND MAINTENANCE INSTRUCTIONS

During the course of construction, collect and compile a complete brochure of equipment furnished and installed on this project. Include operational and maintenance instructions, manufacturer's catalog sheets, wiring diagrams, parts lists, approved submittals and shop drawings, warranties, and accessories furnished with the equipment. Include an inside cover sheet that lists the project name, date, Owner, Architect, Engineer, General Contractor, Sub-Contractor, and an index of contents.

Submit three copies of literature bound in approved binders with index and tabs separating equipment types to the Architect, for the Engineer's review, at the termination of the work. Paper clips, staples, rubber bands, loose-leaf binding, and mailing envelopes are not considered approved binders. Final approval of systems installed under this contract shall be withheld until this equipment brochure is received and deemed complete by the Architect and Engineer. Instruct workmen to save related literature shipped with the equipment itself for inclusion in this brochure.

Include Record Drawings as described above.

Refer to Division 01 for acceptance of electronic manuals for this project. For electronic manuals, refer to paragraph "Submittals" for requirements.

N. FLAMMABLE REFRIGERANTS

Equipment with refrigeration systems using Group A2L refrigerants shall meet all requirements of ASHRAE Std 15 and this section.

Listing and Installation Requirements:

- Listed in accordance with UL 484 or UL 60335-2-40/CSA C22.2 No. 60335-2-40.
- The nameplate shall include a symbol indicating that a flammable refrigerant is used, as specified by the product listing.
- A label indicating a flammable refrigerant is used shall be placed adjacent to service ports and other locations where service involving components containing refrigerant is performed, as specified by the product listing.

Refrigeration systems shall have an integral refrigerant detection system that meets the following requirements as documented in ASHRAE Std 15:

- Utilize a set point, nonadjustable in the field, to generate an output signal to initiate mitigation actions.
- Field recalibration of refrigerant detection system shall not be permitted.
- Be capable of detecting the presence of a specified refrigerant corresponding to the refrigerant designation of the refrigerant contained in the refrigeration system.
- Have access for replacement of refrigerant detection system components.
- Have self-diagnostics to determine operational status of the sensing element.
- Generate an circulation fans of the equipment upon failure of a self-diagnostic check.
- Generate an output signal in not more than 30 seconds when exposed to a refrigerant concentration of 25% LFL (+0%, -1%).

Manufacturer's integral refrigerant mitigation action system shall be completed in not more than 15 seconds after the initiation of the output signal of the equipment's integral refrigerant detection system and shall be maintained for at least 5 minutes after the output signal has ceased.

O. SPARE PARTS

Furnish to Owner, with receipt, the following spare parts for the equipment furnished for this project:

- One set of spare filters of each type required for each unit. In addition to the spare set of filters, install new filters prior to testing, adjusting, and balancing work and before turning system over to Owner.
- Furnish one complete set of belts for each fan.
- Furnish three operating keys for each type of air outlet and inlet that require them.

P. TRAINING

At a time mutually agreed upon between the Owner and Contractor, provide the services of a factory trained and authorized representative to train Owner's designated personnel on the operation and maintenance of the equipment provided for this project. Provide training to include, but not be limited to, an overview of the system and/or equipment as it relates to the facility as a whole; operation and maintenance procedures and schedules related to startup and shutdown, troubleshooting, servicing, preventive maintenance and appropriate operator intervention; and review of data included in the operation and maintenance manuals.

Submit a certification letter to the Architect stating that the Owner's designated representative has been trained as specified herein. Letter shall include date, time, attendees and subject of training. The Contractor and the Owner's representative shall sign the certification letter indicating agreement that the training has been provided.

Schedule training with Owner with at least 7 days advance notice.

Q. WARRANTIES

Warrant each system and each element thereof against all defects due to faulty workmanship, design, or material for a period of 12 months from date of Substantial Completion, unless specific items are noted to carry a longer warranty in the construction documents or manufacturer's standard warranty exceeds 12 months. Remedy all defects, occurring within the warranty period(s), as stated in the General Conditions and Division 01.

Warranties shall include labor and material, including travel expenses. Make repairs or replacements without any additional costs to the Owner, and to the satisfaction of the Owner, Architect, and Engineer.

Perform the remedial work promptly, upon written notice from the Engineer or Owner.

At the time of Substantial Completion, deliver to the Owner all warranties, in writing and properly executed, including term limits for warranties extending beyond the one year period and any actions the Owner must take in order to maintain warranty status. Each warranty instrument shall be addressed to the Owner and state the commencement date and term.

2. GENERAL MATERIALS AND INSTALLATION

A. BUILDING OPERATION

Comply with the schedule of operations as outlined in the architectural portions of this specification. Accomplish work requiring interruption of building operation at a time when the building is not in operation and only with written approval of building Owner and tenant. Coordinate interruption of building operation with the Owner and/or tenant a minimum of seven (7) days in advance of work.

B. EXISTING EQUIPMENT REUSE AND REMOVAL

Remove all unused equipment, ductwork, piping, and associated supports. Cap ductwork and piping at mains and seal air and water tight.

Provide items of HVAC systems modification required because of building remodeling, as noted on the drawings or necessary for proper operation. Match existing materials and construction techniques when modifying existing systems unless otherwise specified. Coordinate additional requirements with General Contractor and Architect.

Seal airtight existing ductwork required to be abandoned in place or not in use at the termination of the work.

Cap and seal weathering required roof curbs and roof openings to be abandoned in place as a result of equipment removal.

Clean and rebalance existing ductwork, diffusers, registers, and grilles intended for reuse as required or as indicated on drawings.

Clean and refurbish existing HVAC equipment intended for reuse as required for proper operation including replacement of filters, belts, motors, remote controls, and safety interlocks.

C. COINCIDENTAL DAMAGE

Repair streets, sidewalks, drives, paving, walls, finishes, and other facilities damaged in the course of the work. Repair materials shall match existing construction. Repair work shall meet all requirements of the Owner, local authorities having jurisdiction, and meet the satisfaction of the Architect.

D. CUTTING AND PATCHING

Conform to the requirements in Division 01. Cut walls, floors, ceilings, and other portions of the facility as required to install work under this division. Obtain permission from the Architect prior to cutting. Do not cut or disturb structural members without prior approval from the Architect and Structural Engineer. For post-tensioned slabs, x-ray slab and closely coordinate all core drill locations with Architect and Structural Engineer prior to performing any work. Obtain approval from Architect and Structural Engineer for all core drills and penetrators at least four days prior to performing work. Penetrations shall be made as small as possible while maintaining required clearances between the building element penetrated and the system component. Patch around openings to match the adjacent construction including fire ratings. Repair and refinish areas disturbed by work to the condition of adjoining surfaces in a manner satisfactory to the Architect.

E. ROUGH-IN

Coordinate without delay all roughing-in with other divisions. Conceal piping, conduit, and rough-in except in unfinished areas and where otherwise shown.

F. STRUCTURALSUPPORT SYSTEMS

Structural steel used for support of equipment, ductwork and piping shall be new, clean, and conform to ASTM Designation A-36.

Support mechanical components from the building structure. Do not support mechanical components from ceilings, other mechanical or electrical components, and other non-structural elements.

G. PRE-ENGINEERED ROOF EQUIPMENT SUPPORTS AND CURBS

Provide prefabricated equipment support rails and roof curbs manufactured by AES Industries, Custom Curb, Inc., Pace Company, Thybar or approved equal. Provide with fully mitered raised cut and step to match roof insulation thickness, welded, minimum 19 gauge galvanized steel rail, internally reinforced to load bearing factors of equipment being supported, minimum 1-1/2 inch thick, 3 pound rigid insulation internal to rail to maintain continuous roof insulation where required, factory installed wood stair, and minimum 3/4 inch gage jacket with counterflashing where equipment does not fully cover the equipment support. Provide sloped roof equipment supports to enable level installation. Provide rigid backing material behind cant to maintain cant slope. Provide multiple support rails to uniformly support the equipment. Attach to roof structure according to manufacturer's installation instructions.

Attach equipment directly to pre-engineered roof equipment support using one of the following methods:

- Hold-Down Brackets: Coordinate with the curb manufacturer to determine the quantity and size of hold-down brackets and fasteners, with installation instructions for each unit to meet a Building Design Risk Category of II and a Design Wind Speed of 120 mph.

H. ACCESS PANELS AND DOORS

Refer to Architectural documents for specification of access panels and doors.

I. PENETRATIONS

Provide sleeves for pipes passing through above grade concrete or masonry walls, concrete floor or roof slabs. Sleeves are not required for core drilled holes in existing masonry walls, concrete floors or roofs. Provide 10 gauge galvanized steel sleeves for sleeves 6 inches and smaller. Provide galvanized steel metal sleeves for larger than 6 inches. Schedule 40 PVC sleeves are acceptable for installation in areas without return air plenums.

Seal elevated floor, exterior wall and roof penetrations watertight and weathertight with non-shrink, non-hardening commercial sealant. Pack with mineral wool and seal both ends with minimum of 1/2 inch of sealant.

Seal around penetrations of fire rated assemblies. Coordinate fire ratings and locations with the architectural drawings. Refer to architectural specifications for fire stoppings. Provide a product schedule for UL listing, location, wall or floor rating and installation drawing for each penetration fire stop system.

Extend pipe insulation for insulated pipe through floor, wall and roof penetrations, including fire rated walls and floors. The vapor barrier shall be maintained. Size sleeve for a minimum of 1 inch annular clear space between inside of sleeve and outside of insulation.

Provide prefabricated roof curbs where pipes and ductwork penetrate elevated slabs or the roof of the exterior. Provide cover over curb of weather-resistant material and seal out or pipe penetrations through the cover. Provide pipe collar of weather-resistant material with stainless steel pipe clamps for piping penetrations.

Provide box frames for rectangular openings welded 12 gauge galvanized steel attached to forms and of a maximum dimension established by the Architect. Notify the General Contractor or Architect before installing any box openings not shown on the Architectural or Structural drawings.

Seal concrete or masonry exterior wall penetrations below grade with "wall pipes" and mechanical sleeve seals. Provide cast iron "wall pipes" with integral water-ring manufactured by Jay R. Smith, Josam, Wade, Watts or Zum. Provide modular mechanical sleeve seals, manufactured by Calpico, Metraflex, or Thunderride / Link Seal.

Seal elevated concrete slab with water proof membrane penetrations with "wall pipes" and water proof sealant. Secure waterproof membrane flashing between "wall pipe" clamping ledge and clamping ring. Provide cast iron "wall pipes" with integral water-ring manufactured by Jay R. Smith, Josam, Wade, Watts or Zum.

Provide sleeves for horizontal pipe passing through or under foundation. Sleeves shall be cast iron soil pipe two nominal pipe sizes larger than the pipe served and two pipe sizes larger than pipe served for ductile iron slab with restraining rails. Seal water-tight with silicone caulk.

Provide Schedule 40 PVC pipe sleeves for vertical pressure pipe passing through concrete slab on grade. Sleeves shall be one nominal pipe size larger than the pipe served and two pipe sizes larger than pipe served for ductile iron slab with restraining rails. Seal water-tight with silicone caulk.

J. FIRESTOPPING

Sealants and accessories shall have fire-resistance ratings indicated, as established by testing identical assemblies in accordance with UL 2079 or ASTM E 814, or other NRTL acceptable to AHJ.

Manufacturers: Hill, RectolSeal, Specified Technologies Inc., United States Gypsum Company, or 3M corp.

Through and Membrane Penetration Firestopping Systems Product Schedule: Provide UL listing, location, wall or floor rating, and installation drawing for each penetration fire stop system.

Where project conditions require modification to qualified testing and inspecting agency's illustrations for a particular firestopping condition, submit illustration, with modifications marked, approved by penetration firestopping manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly. Include qualifications data for testing agency.

K. MOTORS AND STARTERS

Provide motors and starting equipment where not furnished with the equipment package. Motors shall have copper windings, Class B insulation, and standard squirrel cage with starting torque characteristics suitable for the equipment served. Motors controlled by variable frequency drives shall be rated for voltage, amp line times in accordance with NEMA MG1, Part 31. Motors 5 horsepower and larger controlled by variable frequency drives shall be provided with a shaft grounding system equal to Aegis SGR Bearing Protection Ring, Inpro/Seal Current Diverter Ring (CDR) or approved equal. Motors for air handling equipment shall be selected for quiet operation. Each motor shall be checked for proper rotation after electrical connection has been completed. Provide drip-proof enclosure for locations protected from weather and not in air stream of fan, and totally enclosed fan cooled enclosure for motors exposed to weather. Motors shall be manufactured by Century, General Electric, Louis Allis, Westinghouse, or approved equal.

Provide every motor, except fractional horsepower single phase motors with an approved type of "built-in" thermal overload protection, with a motor starter. Each starter shall be provided with overload heaters sized to the motor rating, and every three phase motor starter shall have overload heaters in each phase. Ambient compensated heaters shall be installed wherever necessary. Unless noted otherwise, motor starters shall be furnished by the Division 23 Contractor for installation and connection by the Division 26 Contractor. Starters shall be Allen-Bradley, Clark, Furnas, Square D, or approved equal.

L. ELECTRICAL WIRING

High voltage wiring is defined as 50 Volts or higher. Low voltage wiring is defined as less than 50 Volts. Line voltage shall be provided by Division 26. Line voltage control and interlock wiring for mechanical systems shall also be provided by Division 26. Low voltage control wiring shall be provided by Division 23. Furnish wiring diagrams to Division 26 as required for proper equipment hookup. Coordinate with Division 26 the actual wire sizing amps for mechanical equipment (from the equipment nameplate) to ensure proper installation.

Provide power and communication wiring with transient protection in accordance with IEEE C62.41.2. All control and interlock wiring shall comply with the NEC. Control wiring shall be sized to accommodate the voltage drop associated with the distance between the control device and the controller. Control wiring not installed in conduit shall be UL rated for plenum installation. All NEC Class 1 (line voltage) wiring shall be UL listed in approved raceway according to the NEC and Division 26 requirements. Maximum allowable voltage for control wiring shall be 120 V. All low-voltage wiring shall meet NEC Class 2 requirements. Low-voltage power circuit shall be sub-fused when required to meet Class 2 current limit.

Conduit for Control Wiring: EMT with compression fittings, cold rolled steel, zinc coated or zinc-coated rigid steel with threaded connections.

Pull and Junction Boxes: Size according to number, size, and position of entering raceway as required by National Electrical Codes. Enclosure type shall be suited to location.

Install wiring parallel to building lines wherever possible. Conceal all control wiring in finished rooms. Do not install Class 2 wiring in raceway containing Class 1 wiring. Boxes and panels containing high voltage wiring and equipment may not be used for low-voltage wiring except for the purposes of interfacing the two wires (e.g., relays and transformers). All wire-to-device and wire-to-wire connections shall be made at a terminal block or terminal strip. All runs of communication wiring shall be unspliced length when that length is commercially available. Verify the integrity of the entire network following the cable installation. Use appropriate test measures for each particular cable. Label all wiring and cabling at each end within 2 inches of termination with the controller termination number. Label control devices used in the system with permanent labels using the identifiers that match the record documents.

M. EQUIPMENT FURNISHED BY OTHERS

Provide necessary equipment and accessories that are not provided by the equipment supplier or Owner to complete installation of equipment furnished by others in locations as indicated on the drawings, specified herein, or both. Equipment and accessories not provided by the equipment supplier may include, but not be limited to, fuses, vents, intakes, associated roof gables and caps to outdoors, dampers, in-line fans, roof fans, and control interlocks, etc. as required for proper operation of the complete system in accordance with the manufacturer's instructions.

Contractor shall be responsible for correct rough-in dimensions and shall verify them with Architect and/or equipment supplier prior to service installations.

N. SYSTEM TESTING, ADJUSTING, AND BALANCING

Upon completion of each phase of the installation, test each system in conformance with local code requirements and as noted below. Furnish labor and equipment required to test each system installed under this contract. Assume all costs involved in making the tests and repairing and/or replacing any damages resulting therefrom.

Final system testing, balancing and adjustments (TAB) shall be performed by a Contractor certified by the National Environmental Balancing Bureau (NEBB), Associated Air Balance Council (AABC),

ROOFTOP UNIT CONTROL MATRIX

CONTROL FEATURE	UNITS	RTU-1		NOTES
		SETPOINT OR Y/N	SETPOINT OR Y/N	
SETPOINTS				
COOLING - OCCUPIED SETPOINT	"F	75	75	
COOLING - UNOCCUPIED SETPOINT	"F	80	80	
DEAD BAND - MINIMUM HEATING AND COOLING TEMPERATURE SETPOINT DIFFERENCE	"F	5	5	
HEATING - OCCUPIED SETPOINT	"F	70	70	
HEATING - UNOCCUPIED SETPOINT	"F	60	60	
DEHUMIDIFICATION SETPOINT - HUMIDITY SENSOR FEEDBACK	% RH	50%	50%	B
PROGRAMMED CONTROL FEATURES				
HVAC SYSTEM OCCUPIED/UNOCCUPIED MODE - PROGRAMMABLE THERMOSTAT		Y	Y	B
REMOTE COMBINATION TEMPERATURE AND HUMIDITY SENSOR		Y	Y	
EQUIPMENT ACCESSORIES AND CONTROL MODULES				
OUTSIDE AIR DAMPER - MOTOR OPERATED (MODULATING)		Y	Y	L
OUTSIDE AIR FLOW MONITORING STATION		Y	Y	F
INTEGRATED ECONOMIZER - DIFFERENTIAL ENTHALPY ENABLE (OA ENTHALPY < RA ENTHALPY)	BTU/LB	Y	Y	E
ECONOMIZER FAULT DETECTION AND DIAGNOSTICS (FDD) SYSTEM		Y	Y	F, G
RELIEF - BAROMETRIC DAMPER		Y	N	
RELIEF - VARIABLE VOLUME POWERED EXHAUST FAN	IN, W.C.	N	Y	H
COOLING COIL (DX - VARIABLE SPEED)		Y	Y	M
DEHUMIDIFICATION - HOT GAS REHEAT		Y	Y	O
HEATING COIL (NATURAL GAS)		Y	Y	M
SUPPLY FAN CONTROL METHODS				
ON DURING OCCUPIED HOURS		Y	Y	
CYCLE WITH LOADS DURING UNOCCUPIED HOURS		Y	Y	
OPTIMUM START SEQUENCE		Y	Y	T
VARIABLE VOLUME - STAGED FAN CONTROL IN RESPONSE TO ACTIVE COOLING COIL STAGES		Y	Y	M, Q
SAFETIES, INTERLOCKS, AND ALARMS				
GAS VALVE SAFETY		Y	Y	F
RETURN AIR SMOKE DETECTOR - SAFETY SHUTDOWN		Y	Y	B
LOW LIMIT FREEZE STAT - FREEZE PROTECTION SAFETY SHUTDOWN		Y	Y	F
DIFFERENTIAL PRESSURE SWITCH - FILTER CHANGE ALARM		Y	Y	F
FIRE ALARM CONTROL PANEL - SAFETY SHUTDOWN INTERLOCK		Y	Y	
KITCHEN EXHAUST SYSTEM INTERLOCK		Y	Y	S

DIV. 23 CONTRACTOR SHALL PROVIDE CONTROL PANEL(S), WIRING, THERMOSTAT(S), TEMPERATURE SENSOR(S), HUMIDISTAT(S), AND/OR CO2 SENSOR(S) AS SHOWN ON THE DRAWINGS AND AS REQUIRED TO FACILITATE THE SCHEDULED CONTROL MODULES AND SEQUENCES OF OPERATION. EACH UNIT SHALL CONTROL, BASED ON ITS OWN INTERNAL SAFETIES, TIME DELAYS, AND SEQUENCES UNLESS NOTED OTHERWISE. COORDINATE WITH OWNER FINAL BUILDING AND EQUIPMENT SCHEDULES DURING STARTUP. REFERENCE DIVISION SPECIFICATIONS FOR INDIVIDUAL DEVICE REQUIREMENTS.

- NOTES:
- D. DIVISION 23 CONTRACTOR SHALL PROVIDE DEVICE.
 - E. IF SETPOINT VALUE IS LISTED, IT INDICATES ECONOMIZER HIGH-LIMIT SHUTOFF. UNIT SHALL BE IN ECONOMIZER IF CONDITIONS ARE LESS THAN SETPOINT. THE FOLLOWING SENSORS SHALL DETERMINE ECONOMIZER ON POINT: OUTSIDE AIR TEMPERATURE, DIVISION 23 PROVIDED AS PART OF ECONOMIZER CONTROL MODULE. RETURN AIR TEMPERATURE, DIVISION 23 PROVIDED AS PART OF ECONOMIZER CONTROL MODULE. OUTSIDE AIR HUMIDITY, DIVISION 23 PROVIDED AS PART OF ECONOMIZER CONTROL MODULE. RETURN AIR HUMIDITY, DIVISION 23 PROVIDED AS PART OF ECONOMIZER CONTROL MODULE.
 - F. DEVICE SHALL BE FACTORY MOUNTED AND PRE-WIRED FOR OPERATION SUBJECT TO THE ONBOARD CONTROLLER.
 - G. PROVIDE UNIT WITH AN FDD SYSTEM CONSISTING OF PERMANENTLY INSTALLED OUTSIDE AIR, SUPPLY AIR, AND RETURN AIR TEMPERATURE SENSORS. THE UNIT CONTROLLER SHALL AT A MINIMUM BE CAPABLE OF PROVIDING SYSTEM STATUS OF ECONOMIZER, COMPRESSOR, HEATING, MIXED AIR LOW LIMIT ALARM, AND SENSOR VALUES. EACH OPERATING MODE SHALL BE CAPABLE OF INDEPENDENTLY OPERATING FOR TESTING. THE SYSTEM SHALL REPORT FAULTS TO AN APPLICATION ACCESSIBLE BY SERVICE PERSONNEL. THE FOLLOWING FAULTS SHALL BE DETECTED: AIR TEMPERATURE SENSOR FAILURE; ECONOMIZER ENABLE/DISABLE WHEN ECONOMIZER SHOULD BE OFF/ON, RESPECTIVELY; DAMPER NOT MODULATING, AND EXCESS OUTSIDE AIR.
 - H. POWERED EXHAUST FAN SHALL STAGE ON AND OFF ACCORDING TO DAMPER POSITION.
 - I. EQUIPMENT MANUFACTURER SHALL PROVIDE MODULATING DAMPER AND CONTROLS CAPABLE OF ADJUSTING THE DAMPER POSITION TO MAINTAIN THE SCHEDULED OUTSIDE AIR ON THE DRAWINGS ACROSS ALL FAN SPEEDS. DIV. 23 CONTRACTOR SHALL PROGRAM MULTIPLE DAMPER POSITION SETPOINTS IN THE FIELD DURING TESTING AND BALANCING TO MAINTAIN MINIMUM VENTILATION WHEN NOT IN ECONOMIZER. DAMPER SHALL BE CLOSED DURING UNOCCUPIED HOURS.
 - M. UNITARY CONTROLLER SHALL MODULATE AND/OR CYCLE SUPPLY FAN SPEED SETTING AND COIL CAPACITY STAGES SUBJECT TO THE INTERNAL SAFETIES AND SEQUENCES TO MAINTAIN SCHEDULED SETPOINTS.
 - O. DEHUMIDIFICATION SEQUENCE SHALL BE BASED ON RETURN AIR HUMIDITY.
 - S. INTERLOCK RTU WITH KITCHEN EXHAUST HOOD SYSTEM(S) TO SHUT DOWN UPON SIGNAL FROM HOOD FIRE EXTINGUISHING SYSTEM. INTERLOCK RTU WITH KITCHEN EXHAUST FAN TO ENERGIZE WHEN HOOD SYSTEM IS ENERGIZED FOR PRESSURIZATION.

GRILLE, REGISTER AND DIFFUSER SCHEDULE

MARK	MANUFACTURER	SERVICE	MODEL	CONSTRUCTION TYPE	FACE TYPE	MOUNTING LOCATION	FACE SIZE (IN)	MAX NC	MAX PRESS DROP (IN W.C.)	NOTES
CEG	E.H. PRICE	EXHAUST GRILLE W/ DAMPER	80D	STEEL	EGGCRATE	SURFACE	12"x12"	30	0.06	A C D G H I
CRG	E.H. PRICE	RETURN GRILLE	80	STEEL	EGGCRATE	LAY-IN	24"x24"	30	0.06	A C D G I
CSD1	E.H. PRICE	SUPPLY DIFFUSER	SCD	STEEL	SQUARE CONE	SURFACE	12"x12"	30	0.08	A B C D G I J
CSD2	E.H. PRICE	SUPPLY DIFFUSER	SCD	STEEL	SQUARE CONE	LAY-IN	24"x24"	30	0.08	A B C D G I
CSD3	E.H. PRICE	SUPPLY DIFFUSER	PDDR	STEEL	PERFORATED	LAY-IN	24"x24"	30	0.08	A C D G I
WSR	E.H. PRICE	<varies>	520D	STEEL	LOUVERED FACE	WALL OR DUCT	<varies>	30	0.08	A C D E F G I

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

- NOTES:
- A. EQUIPMENT FURNISHED AND INSTALLED PER THE EQUIPMENT RESPONSIBILITY SCHEDULE.
 - B. 4-WAY THROW PATTERN UNLESS OTHERWISE INDICATED BY FLOW ARROWS ON DRAWINGS.
 - C. NECK SIZE SHOWN ON DRAWINGS. PROVIDE BRANCH DUCT TO MATCH NECK SIZE UNLESS OTHERWISE SHOWN ON DRAWINGS.
 - D. BAKED ENAMEL FINISH. WHITE TO MATCH CEILING COLOR.
 - E. FRONT BLADES PARALLEL TO LONG DIMENSION.
 - F. DOUBLE DEFLECTION BARS SHALL BE ADJUSTABLE.
 - G. FRAME TYPE TO MATCH CEILING WALL CONSTRUCTION. COORDINATE WITH ARCHITECTURAL REFLECTED CEILING/WALL PLAN.
 - H. PROVIDE OPPOSED BLADE DAMPER ADJUSTABLE FROM FACE OF DEVICE.
 - I. PROVIDE DIFFUSERS, LINEAR SLOTS, AND GRILLES WITH NO EXPOSED MOUNTING SCREWS.
 - J. PROVIDE WITH RAPID MOUNT FRAMING OPTION FOR LAY-IN TYPE DIFFUSERS INSTALLED IN A HARD CEILING.

PROJECT DESIGN CONDITIONS

CLIMATE CONDITIONS		WEATHER STATION		REFERENCE		BUILDING OPERATING HOURS:	
WEATHER STATION:	JACKSONVILLE CRAIG, FL, USA					MONDAY - FRIDAY	TBD BY OWNER
CLIMATE ZONE:	2A					SATURDAY	TBD BY OWNER
ASHRAE HEATING:	99.6%	32.9	"F DB			SUNDAY	TBD BY OWNER
ASHRAE COOLING:	0.4%	94.4	"F DB	78.8	"F WB		
DEHUMIDIFICATION:	1.0%	77.1	"F DP	141.3	grlb		

SPACE / UNIT DESCRIPTION	SET POINTS												NOTES				
	COOLING / DE-HUMIDIFICATION				HEATING				HUMIDIFICATION					ZONE VENTILATION RESET			
	OCC	UNOCC	MAX	MIN	OCC	UNOCC	MIN	MAX	CONTROL METHOD	BASE PPM	MAXIMUM PPM	M-F		SAT	SUN		
DINING AREAS	75	80	50%	NA	70	60	NA	NA	NA	NA	NA	TBD	TBD	TBD	A-C		
OFFICES	75	80	50%	NA	70	60	NA	NA	NA	NA	NA	TBD	TBD	TBD	A-C		
MECHANICAL ROOM	NA	NA	NA	NA	70	60	NA	NA	NA	NA	NA	TBD	TBD	TBD	A-C		
KITCHEN/BOH	75	80	50%	NA	70	60	NA	NA	NA	NA	NA	TBD	TBD	TBD	A-C		

- NOTES:
- A. ZONE LEVEL SET POINT CONDITIONS SHALL BE AS SCHEDULED UNLESS OTHERWISE SCHEDULED OR NOTED ON THE DRAWINGS FOR ROOM SPECIFIC SPACE CONDITIONS.
 - B. ZONE LEVEL OCCUPANCY HOUR SCHEDULE SHALL BE PER BUILDING OPERATING HOURS UNLESS OTHERWISE SCHEDULED.
 - C. ZONE LEVEL CONTROLS SHALL BE CAPABLE OF OPERATING WITH INDEPENDENT OCCUPANCY SCHEDULES.

SEQUENCE OF OPERATION

- A. FAN COIL UNIT CONTROL.
During occupied hours, operate fan coil unit supply fan continuously and open outdoor air damper to maintain minimum ventilation. Cycle stage(s) of DX cooling and electric heating to maintain room thermostat set point. Duct mounted smoke detectors shall shutdown unit upon alarm.
During unoccupied hours, cycle the fan coil unit supply fan and cooling or heating system to maintain unoccupied setback temperature set points. Outdoor motorized air damper shall be closed during unoccupied hours.
Connect the Outdoor motorized air damper to the same time clock as the restroom exhaust.
- B. KITCHEN EXHAUST FAN CONTROL.
Kitchen exhaust fan shall be energized through on-off switches at the associated exhaust hoods or cooking equipment or through a master kitchen ventilation control panel as indicated on the drawings. Kitchen fans shall be interlocked to operate with cooking appliances, make-up air and other air-handling equipment providing fresh air to the kitchen area as noted or scheduled on the drawings.
- C. ROOFTOP UNIT CONTROL.
Refer to ROOFTOP CONTROL MATRIX on Sheet M601 for required rooftop unit control options.
- D. RESTROOM EXHAUST FAN (EF-1) CONTROL.
Operate exhaust fans continuously during occupied hours and shut down during unoccupied hours. Provide a 7-day timeclock to switch each system between occupied and unoccupied operation.
- E. AIR CURTAIN CONTROL.
Interlock air curtain with door limit switch to energize when the door opens. Units scheduled with heating coils shall cycle the stages of heat to maintain room temperature setpoint.

ROOFTOP UNIT SCHEDULE (DX COOLING, NATURAL GAS HEAT)

MARK	MANUFACTURER	MODEL	NOMINAL TONS	UNIT TYPE	SUPPLY FAN										COOLING COIL										GAS FIRED HEAT EXCHANGER										ELECTRICAL					WEIGHT (LBS)	NOTES
					CFM	ESP (IN)	NOM HP (Y/N)	VFD (Y/N)	TH (MBH)	SH (MBH)	EAT (°F WB)	LAT (°F DB)	REFR TYPE	MIN EFF (EER)	(IEER)	MIN NO STAGES	MIN OUT (MBH)	NOM INPUT (MBH)	MIN EFF (%)	EAT (°F DB)	LAT (°F DB)	STAGES	MIN OA (CFM)	V/PH	MCA	MOCP	DISC TYPE														
RTU 1	CAPTIVEAIRE	CAS-HVAC2-1150-18-10T	10.0	SINGLE ZONE	2200	0.8	2.00	Yes	132.6	78.1	85.9	69.9	51.7	50.3	R454	11	18.6	3	83.6	103.2	81	53.1	88.3	2	1000	208/1.3	57	60	NF	1958	A-Q										
RTU 2	CAPTIVEAIRE	CAS-HVAC3-1250-24-20T	20.0	SINGLE ZONE	5400	0.8	7.50	Yes	222.7	149.7	80.8	67.2	59.6	53.9	R454	11	18.2	3	151.6	197.2	81	59.0	85.0	2	1600	208/1.3	95	110	NF	2757	A-Q										

EQUIPMENT FURNISHED AND INSTALLED PER THE RESPONSIBILITY SCHEDULE, REF ARCHITECTURAL DRAWINGS. EQUIPMENT SHALL BE OBTAINED THROUGH SHAKE SHACK NATIONAL ACCOUNT. REFER TO T.12 / VENDOR LIST FOR MORE INFORMATION.
MODEL NUMBERS AND NOMINAL TONS LISTED SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER, MODEL NUMBERS, OR NOMINAL TONS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

- A. REFER TO ROOFTOP UNIT CONTROL MATRIX FOR ADDITIONAL UNIT FEATURES, COMPONENTS, MODULES, ACCESSORIES, AND CONTROLS THAT SHALL BE PROVIDED WITH THE EQUIPMENT.
- B. EQUIPMENT SIZED FOR 100°F AMBIENT TEMPERATURE.
- C. PROVIDE 2" MERV 13, EFFICIENT PLEATED THROWAWAY AIR FILTERS.
- D. PROVIDE FACTORY MOUNTED DISCONNECT INSTALLED ON SERVICE SIDE OF UNIT.
- E. STARTERS FOR ALL MOTORS SHALL BE FURNISHED INTEGRAL WITH UNIT.
- F. PROVIDE FACTORY MOUNTED VARIABLE FREQUENCY DRIVE TO FACILITATE MODULATING FAN SPEED CONTROL.
- G. COORDINATE SIZE OF CONDUCTOR TERMINATION LUGS WITH CONDUCTOR SIZES SHOWN ON ELECTRICAL DRAWINGS.
- H. PROVIDE 125 VAC, 20 AMP DUPLEX CONVENIENCE RECEPTACLE MOUNTED TO UNIT READY FOR FIELD WIRING WITH A COVER UL LISTED FOR WET AND DAMPER LOCATIONS WHEN IN USE.
- I. SPECIFIED FAN ESP ACCOUNTS FOR DUCT LOSSES EXTERNAL TO UNIT.
- J. PROVIDE MOTOR HORSEPOWER TO OVERCOME INTERNAL UNIT STATIC PRESSURE DROP PLUS SPECIFIED EXTERNAL STATIC PRESSURE DROP. NOMINAL MOTOR HP SHALL BE NO LARGER THAN THE FIRST AVAILABLE NOMINAL MOTOR SIZE GREATER THAN THE REQUIRED BHP.
- K. PROVIDE INSULATED ROOF CURB WITH MINIMUM HEIGHT REQUIRED TO MAINTAIN BOTTOM OF EQUIPMENT A MINIMUM OF 8 INCHES ABOVE FINISHED ROOF SURFACE. PROVIDE SLOPED CURB IF NEEDED TO MATCH ROOF SLOPE. COORDINATE WITH ROOF INSULATION THICKNESS AND ROOF TAPER AT INSTALLED LOCATION. COORDINATE CURB TYPE WITH DRAWINGS.
- L. SCHEDULED WEIGHT IS THE MAXIMUM ALLOWABLE OPERATING WEIGHT OF THE EQUIPMENT AND CURB.
- M. COOLING COIL LAT IS LEAVING AIR TEMPERATURE OF COIL.
- N. PROVIDE GUARDS TO PROTECT CONDENSER COIL FROM HAIL OR OTHER DAMAGE.
- O. PROVIDE HEATER TO MEET OR EXCEED SCHEDULED MINIMUM MBH OUTPUT. NOMINAL KW IS BASED ON LISTED MANUFACTURER'S STANDARD PRODUCT. COORDINATE EQUIPMENT POWER SUPPLY WITH ELECTRICAL CONTRACTOR IF DIFFERENT FROM THAT SCHEDULED.
- P. SELECT EQUIPMENT FOR ELEVATION OF 0 FEET ABOVE SEA LEVEL.
- Q. PROVIDE A FACTORY APPLIED COIL CORROSION COATING TO HOT GAS REHEAT, EVAPORATOR, AND CONDENSER COIL WHICH IS CAPABLE OF WITHSTANDING GREATER THAN 6,000 HOURS OF THE ASTM B117 SALT SPRAY TEST.

FAN COIL UNIT SCHEDULE (HEAT PUMP)

MARK	MANUFACTURER	MODEL	SUPPLY FAN					COOLING COIL					HEAT PUMP HEATING COIL					ELECTRICAL					WEIGHT (LBS)	NOTES	
			CFM	ESP (IN)	HP	TH (MBH)	SH (MBH)	EAT (°F WB)	LAT (°F DB)	REFR TYPE	TOTAL HTG CAP (MBH)	MIN OUT AMBIENT (°F DB)	EAT (°F DB)	LAT (°F DB)	MIN OA (CFM)	V/PH	MCA	MOCP	TYPE						
FCU 1	CARRIER	40MBC018	420	0.03	0.06	11.4	9.0	76.6	64.4	57.0	55.5	41.0A	7800.0	7.8	46	68	85	40	208/1.1	N/A	N/A	NF	N/A	45	A-H

EQUIPMENT SHALL BE OBTAINED THROUGH SHAKE SHACK NATIONAL ACCOUNT. REFER TO T002 / VENDOR LIST FOR MORE INFORMATION.
MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

- A. EQUIPMENT FURNISHED AND INSTALLED PER THE RESPONSIBILITY SCHEDULE, REF ARCHITECTURAL DRAWINGS.
- B. ASSOCIATED CONDENSING UNIT SHALL BE BY THE SAME MANUFACTURER.
- C. FOR COOLING, EQUIPMENT SIZED FOR 100°F AMBIENT TEMPERATURE. HEAT PUMP HEATING CAPACITY BASED ON AMBIENT TEMPERATURE LISTED.
- D. PROVIDE UNIT WITH CLEANABLE AIR FILTERS.
- E. PROVIDE WITH 7-DAY PROGRAMMABLE THERMOSTAT WITH STAGED HEATING AND COOLING CAPABILITY AS REQUIRED FOR OPERATION OF AUXILIARY HEATING AND COOLING CONTROLS.
- F. DISCONNECT SWITCH PROVIDED BY DIVISION 26 CONTRACTOR.
- G. PROVIDE SINGLE POINT POWER CONNECTION.
- H. INDOOR UNIT POWERED THROUGH OUTDOOR UNIT. WIRING BETWEEN INDOOR AND OUTDOOR UNITS PROVIDED BY DIVISION 26 CONTRACTOR. COORDINATE CONDUCTOR QUANTITY WITH MANUFACTURER'S REQUIREMENTS.

CONDENSING UNIT SCHEDULE (HEAT PUMP)

MARK	SERVICE	MANUFACTURER	MODEL	COOLING CAPACITY					HEATING CAPACITY					ELECTRICAL					WEIGHT (LBS)	NOTES
				REFR TYPE	TH (MBH)	SH (MBH)	EAT (°F WB)	LAT (°F DB)	REFR TYPE	MIN EFF (EER)	(SEER)	CAP (MBH)	AMBIENT (DB °F)	COP 47°F	(HSPF)	MCA	MOCP	V/PH		
CU 1	FCU 1	CARRIER	38MAR0218AA3	R410A	10.6	12.5	20	9.2	46.1	34.3	10.5	18	25	208/1.1	N/A	N/A	NF	118	A-J	

EQUIPMENT SHALL BE OBTAINED THROUGH SHAKE SHACK NATIONAL ACCOUNT. REFER TO T002 / VENDOR LIST FOR MORE INFORMATION.
MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

- A. EQUIPMENT FURNISHED AND INSTALLED PER THE RESPONSIBILITY SCHEDULE, REF ARCHITECTURAL DRAWINGS.
- B. EQUIPMENT CAPACITY SCHEDULED IS MINIMUM CAPACITY THAT MUST BE PROVIDED AT AMBIENT TEMPERATURE INDICATED.
- C. CONTRACTOR SHALL VERIFY WITH EQUIPMENT SUPPLIER EXACT QUANTITY AND SIZE OF REFRIGERANT PIPING.
- D. PROVIDE LIQUID LINE FILTER DRYER AND SIGHT GLASS.
- E. PROVIDE PRE-ENGINEERED ROOF EQUIPMENT SUPPORTS WITH MINIMUM HEIGHT REQUIRED TO MAINTAIN BOTTOM OF EQUIPMENT A MINIMUM OF 16 INCHES ABOVE FINISHED ROOF SURFACE. COORDINATE WITH ROOF INSULATION THICKNESS AND ROOF TAPER AT INSTALLED LOCATION.
- F. DISCONNECT SWITCH PROVIDED BY DIVISION 26 CONTRACTOR.
- G. STARTERS FOR ALL MOTORS SHALL BE PROVIDED INTEGRAL WITH UNIT.
- H. COORDINATE SIZE OF CONDUCTOR TERMINATION LUGS WITH CONDUCTOR SIZES SHOWN ON ELECTRICAL DRAWINGS.
- I. EQUIPMENT SIZED FOR 100°F AMBIENT TEMPERATURE.

AIR CURTAIN SCHEDULE (ELECTRIC HEAT)

MARK	AREA SERVED	SERVED ENTRY	MANUFACTURER	MODEL	COOLING CAPACITY		HEATING CAPACITY		ELECTRICAL					NOTES
					LENGTH (IN)	MAX AIRFLOW (CFM)	MIN EFF	MIN EFF	FAN QUANTITY	MOTOR HP	V/PH	DISC TYPE		
AC 1	SERVED ENTRY	MARS	STD2	36"	1379	0.0	0.0	1	0.50	120/1	NF	N/A	120/1	A-H

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

- A. EQUIPMENT FURNISHED AND INSTALLED PER THE RESPONSIBILITY SCHEDULE, REF ARCHITECTURAL DRAWINGS.
- B. MOUNT UNIT PER MANUFACTURER'S RECOMMENDATIONS TO FACE OF WALL AND SUPPORT VERTICALLY.
- C. PROVIDE INTEGRAL STARTER AND DISCONNECT SWITCH.
- D. REFER TO SEQUENCE OF OPERATION FOR UNIT CONTROLS.
- E. PROVIDE AIR CURTAIN WITH MAGNETIC NORMALLY CLOSED DOOR LIMIT SWITCH FOR INSTALLATION ON DOOR.
- F. PROVIDE WITH INTEGRAL THERMOSTAT.
- G. PROVIDE WITH TIME DELAY MICROSWITCH WITH ADJUSTABLE DELAY TIMERS PRE MOUNTED IN THE AIR CURTAIN CONTROL PANEL.
- H. PROVIDE WITH POWDER COATED, COLOR AS SELECTED BY THE ARCHITECT FINISH.

FAN SCHEDULE

MARK	SERVICE DESCRIPTION	MANUFACTURER	MOUNTING	MODEL	CFM	ESP			FAN RPM	DRIVE (BELT/DIRECT)	VFD (Y/N)	ELECTRICAL		WEIGHT (LBS)	NOTES	
						(IN)	BHP	(Y/N)				DISC TYPE	STARTER TYPE			
EF 1	TOILET	GREENHECK	ROOF	G-907-VG	150	0.5	0.05	0.25	1236	DIRECT	No	120/1	NF	N/A	38	A-F

MODEL NUMBERS SHALL NOT BE CONSIDERED COMPLETE AND MATERIAL SHALL NOT BE ORDERED BY MANUFACTURER AND MODEL NUMBERS ONLY. REVIEW THE COMPLETE DESCRIPTION, NOTES AND SPECIFICATIONS TO DETERMINE THE EXACT MATERIAL AND ACCESSORIES TO BE ORDERED. THE MANUFACTURERS LISTED ARE THE BASIS FOR THE DESIGN.

NOTES:

- A. PROVIDE INSULATED ROOF CURB WITH MINIMUM HEIGHT REQUIRED TO MAINTAIN BOTTOM OF EQUIPMENT A MINIMUM OF 16 INCHES ABOVE FINISHED ROOF SURFACE. PROVIDE SLOPED CURB IF NEEDED TO MATCH ROOF SLOPE. COORDINATE WITH ROOF INSULATION THICKNESS AND ROOF TAPER AT INSTALLED LOCATION. COORDINATE CURB TYPE WITH DRAWINGS.
- B. PROVIDE BIOSCREEN AND GRAVITY BACKDRAFT DAMPER.
- C. PROVIDE FACTORY MOUNTED DISCONNECT SWITCH.
- D. PROVIDE WITH MANUFACTURER'S FAN SPEED CONTROLLER FOR BALANCING PURPOSES.
- E. PROVIDE WITH MANUFACTURER'S ELECTRONICALLY COMMUTATED (EC) MOTOR.
- F. NOMINAL MOTOR HP SHALL BE NO LARGER THAN THE FIRST AVAILABLE NOMINAL MOTOR SIZE GREATER THAN THE BHP.

OUTSIDE AIR REQUIREMENTS, 2023 FBC - MECHANICAL

SYSTEM DESIGNATION	SYSTEM TAB NAME OR LIST 'SINGLE'	SINGLE-ZONE SYSTEMS ONLY		MULTI-ZONE SYSTEMS ONLY		FLOOR AREA SERVED BY SYSTEM [sq]	SYSTEM AVERAGED AREA-BASED OUTDOOR AIR RATE (CFM/SF)	SYSTEM POPULATION [PEOPLE]	SYSTEM PEOPLE-BASED OUTDOOR AIR RATE (CFM/PP)	REQUIRED OA INTAKE FLOW [vof] (CFM)	REQUIRED DCV OA INTAKE FLOW [vof] (CFM)	DESIGN OA INTAKE FLOW [vof] (CFM)
		SINGLE-ZONE WORST CASE ZONE AIR DISTRIBUTION EFFECTIVENESS [Ez]	ASSOCIATED VENTILATION ZONE	SYSTEM VENTILATION EFFICIENCY [Ev]								
RTU 1	MULTIZONE (NAME)	-	-	0.93		1,422	0.159	52	7.50	661	N/A	1,000
RTU 2	SINGLE ZONE	KITCHEN	0.80		1,477	0.120	29.54	7.50	499	N/A	1,800	1,800
FCU 1	SINGLE ZONE	OFFICE	0.80		92	0.060	2	5.00</				

COMcheck Software Version COMcheckWeb Mechanical Compliance Certificate

Project Information

Energy Code: 90.1 (2019) Standard
Project Title: Shake Shack - South Beach Regional
Location: Jacksonville Beach, Florida
Climate Zone: 2a
Project Type: New Construction

Construction Site: 3RD STS Jacksonville Beach, Florida 32250
Owner/Agent: SHAKE SHACK
Designer/Contractor: HENDERSON ENGINEERS 8345 LENEKA DRIVE, SUITE 300 LENEKA, KANSAS 66214 913.742.5000 WWW.HENDERSONENGINEERS.COM

Mechanical Systems List Quantity System Type & Description

- RTU-1 (Single Zone): Heating: 1 each - Central Furnace, Gas, Capacity = 85 kBtu/h. Proposed Efficiency = 81.00% Et, Required Efficiency: 80.00 % Et (or 80% AFUE). Cooling: 1 each - Single Package DX Unit, Capacity = 139 kBtu/h, Air-Cooled Condenser, Air Economizer. Proposed Efficiency = 13.00 IER, Required Efficiency = 10.80 IER. Proposed Part Load Efficiency = 18.60 IER, Required Part Load Efficiency = 14.00 IER. Fan System: RTU-1 -- Compliance (Motor nameplate HP and fan efficiency method) - Passes.
Fans: RTU-1 Supply, Single-Zone VAV, 2200 CFM, 2.0 motor nameplate hp, 0.00 fan energy index , fan exception: Part of code listed equipment.
- RTU-2 (Single Zone): Heating: 1 each - Central Furnace, Gas, Capacity = 160 kBtu/h. Proposed Efficiency = 81.00% Et, Required Efficiency: 80.00 % Et (or 80% AFUE). Cooling: 1 each - Single Package DX Unit, Capacity = 255 kBtu/h, Air-Cooled Condenser, Air Economizer. Proposed Efficiency = 11.00 IER, Required Efficiency = 9.80 IER. Proposed Part Load Efficiency = 18.20 IER, Required Part Load Efficiency = 13.00 IER. Fan System: RTU-2 -- Compliance (Brake HP and fan efficiency method) - Passes.
Fans: RTU-2 Supply, Single-Zone VAV, 5400 CFM, 7.5 motor nameplate hp, 5.0 design brake hp (5.0 max. BHP), 0.00 fan energy index , fan exception: Part of code listed equipment.
- FCU-1 (Single Zone): Split System Heat Pump Heating Mode, Capacity = 18 kBtu/h. Proposed Efficiency = 10.30 HSPF2, Required Efficiency = 7.50 HSPF2. Cooling Mode, Capacity = 16 kBtu/h. Proposed Efficiency = 20.00 SEER2, Required Efficiency = 14.30 SEER2. Proposed Part Load Efficiency = 0.00, Required Part Load Efficiency = 0.00. Fan System: FCU-1 -- Compliance (Motor nameplate HP and fan efficiency method) - Passes.
Fans: FCU-1 Supply, Constant Volume, 420 CFM, 0.1 motor nameplate hp, 0.00 fan energy index , fan exception: Single fan < 1 HP or < 0.89 kW.
- Water Heater: Gas Instantaneous Water Heater, Capacity: 0 gallons, Input Rating: 199 kBtu/h. No minimum efficiency requirement applies.

Project Title: Shake Shack - South Beach Regional Report date: 04/02/25
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Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2019) Standard requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

COY MACY - EOR
Name - Title Signature Date 04/01/2025

Project Title: Shake Shack - South Beach Regional Report date: 04/02/25
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COMcheck Software Version COMcheckWeb Inspection Checklist

Requirements: 100.0% were addressed directly in the COMcheck software
Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
4.2.2, 6.4.4.2.1, 6.7.2 (PR2)	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and hardbooks.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
4.2.2, 7.7.1, 10.4.2 (PR3)	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the service water heating systems and equipment and document where exceptions to the standard are claimed. Hot water system sized per manufacturer's sizing guide.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
4.2.2, 8.4.1.1, 8.4.1.2, 8.7 (PR4)	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the electrical systems and equipment and document where exceptions are claimed. Feeder connectors sized in accordance with approved plans and branch circuits sized for maximum drop of 3%.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
4.2.5.2 (PR5)	Commissioning shall be performed as stated in Sections 5.9.2, 6.9.2, 7.9.2, 8.9.2, 9.9.2, 10.9.2, 11.2(d), and C1.2.1(c). Commissioning must utilize ASHRAE/IES Standard 202 or other generally accepted engineering standards acceptable to the building official. PFT and verification requirements for commissioning are as stated in Section 4.2.5.1. Commissioning shall document compliance of the building systems, controls, and building envelope with required provisions of this standard. Commissioning requirements shall be incorporated into the construction documents.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:
1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: Shake Shack - South Beach Regional Report date: 04/02/25
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Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
6.4.3.7 (FO9)	Freeze protection and snow/ice melting system sensors for future connection to controls.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.

Additional Comments/Assumptions:
Project Title: Shake Shack - South Beach Regional Report date: 04/02/25
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Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.4.1.4, 6.4.1.5 (ME1)	HVAC equipment efficiency verified. Non-NACCA HVAC equipment labeled as meeting 90.1.	Efficiency: _____	Efficiency: _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Mechanical Systems list for values.
6.4.3.4.1 (ME3)	Stair and elevator shaft vents have motorized dampers that automatically close.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.4.3.4.5 (ME3)	Enclosed parking garage ventilation has automatic contaminant detection and capacity to stage or modulate fans to 50% or less of design capacity.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.4.3.4.4 (ME3)	Ventilation fans > 0.75 hp have automatic controls to shut off fan when not required.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.8 (ME6)	Demand control ventilation provided for spaces > 500 ft2 and > 25 people/1000 ft2 occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow > 3,000 cfm.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Spaces where 75 percent of the supply outdoor airflow is required for makeup air that is exhausted from the space or transfer air required for makeup air that is exhausted from the space(s).
6.5.3.2.1 (ME40)	DX cooling systems >= 75 kBtu/h (>= 85 kBtu/h effective 1/2016) and chilled-water and evaporative cooling fan motor hp >= 1/2 designed to vary supply fan airflow as a function of load and comply with operational requirements.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	See the Mechanical Systems list for values.
6.4.4.1.1 (ME7)	Insulation exposed to weather protected from damage. Insulation outside of the conditioned space and associated with cooling systems is vapor retardant.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.4.1.2 (ME8)	HVAC ducts and plenums insulated per Table 6.8.2. Where ducts or plenums are installed in or under a slab, verification may need to occur during Foundation Inspection.	R: _____	R: _____	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.4.1.3 (ME9)	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	_____ in.	_____ in.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.4.1.4 (ME11)	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.4.2.1 (ME10)	Ducts and plenums having pressure class ratings are Seal Class A construction.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: Shake Shack - South Beach Regional Report date: 04/02/25
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Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.8.1.15, 6.8.1.16 (ME10)	Electrically operated DX/DOAS units meet requirements per Tables 6.8.1-15 or 6.8.1-16.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.4.2.2 (ME11)	Ductwork operating > 3 in. water column requires air leakage testing.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.1.5 (ME15)	Economizer operation will not increase heating energy use during normal operation.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.2.3 (ME19)	Dehumidification controls provided to prevent reheating, recooling, mixing of hot and cold airstreams or concurrent heating and cooling of the same airstream.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.2.4.1 (ME68)	Humidifiers with airstream mounted preheating jackets have preheat auto-shutoff value set to activate when humidification is not required.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.5.2.4.2 (ME69)	Humidification system dispersion tube hot surfaces in the airstreams of ducts or air-handling units insulated >= R-0.5.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.5.2.5 (ME70)	Preheat coils controlled to stop heat output whenever mechanical cooling, including economizer operation, is active.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.2.6 (ME106)	Units that provide ventilation air to multiple zones and operate in conjunction with zone heating and cooling systems are prevented from using heating or heat recovery to warm supply air above 60°F when representative building loads or outdoor air temperature indicate that most zones demand cooling.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.3.1.3 (ME74)	Fans have efficiency grade (FEG) >= 67. The total efficiency of the fan at the design point of operation <= 15% of maximum total efficiency of the fan.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Fans integral to equipment listed under Section 6.4.1.1.
6.5.3.6 (ME72)	Motors for fans >= 1/2 hp and < 1 hp are electronically-commutated motors or have a minimum motor efficiency of 70%. These motors are also speed adjustable for either balancing or remote control.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: Shake Shack - South Beach Regional Report date: 04/02/25
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Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.5.3.4 (ME108)	Parallel-flow fan-powered VAV air terminals have automatic controls to turn off the terminal fan except when space heating is required or if required for ventilation; b) turn on the terminal fan at the first stage of heating before the heating coil is activated; and c) during heating for warmup or setback temperature control, either operate the terminal fan and heating coil without primary air or reverse the terminal damper logic and provide heating from the central air handler through primary air.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.5.3.7 (ME109)	Required minimum outdoor air rate is the larger of minimum outdoor air rate or minimum exhaust air rate required by Standard 62.1, Standard 170, or applicable codes or accreditation standards. Outdoor air ventilation systems shall comply with one of the following: a) design minimum outdoor air provided < 1.25% of the required minimum outdoor air rate; b) dampers, ductwork, and controls allow the system to supply <= the required minimum outdoor air rate with a single set-point adjustment; or c) system includes exhaust air energy recovery complying with Section 6.5.4.1.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.3.3 (ME42)	Multiple zone VAV systems with DDC of individual zone boxes have static pressure setpoint reset controls.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply. See the Mechanical Systems list for values.
6.5.4.2 (ME25)	HVAC pumping systems with >= 3 control valves designed for variable fluid flow (see section details).			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.7.1 (ME100)	Conditioned supply air to space with mechanical exhaust <= the greater of criteria of supply flow, required ventilation rate, exhaust flow minus the available transfer air (see section details).			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.7.2.1 (ME32)	Kitchen hoods > 5,000 cfm have make up air >= 30% of exhaust air volume.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.
6.5.7.2.4 (ME49)	Approved field test used to evaluate design air flow rates and demonstrate proper capture and containment of kitchen exhaust systems.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: Shake Shack - South Beach Regional Report date: 04/02/25
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Section # & Req.ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
6.5.8.1 (ME34)	Unenclosed spaces that are heated use only radiant heat.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.9 (ME35)	Hot gas bypass limited to: <= 240 kBtu/h = 15% > 240 kBtu/h = 10%.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
7.4.2 (ME36)	Service water heating equipment meets efficiency requirements.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.9 (ME63)	Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating system when outdoor air temperatures > 45F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60F and cooling setpoint >= 80F.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.5.10 (ME73)	Doors separating conditioned space from the outdoors have controls that disable/reset heating and cooling system when open.			<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Building entrances have automatic closing devices.

Additional Comments/Assumptions:
1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)
Project Title: Shake Shack - South Beach Regional Report date: 04/02/25
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SEAL/SIGNATURE:

COY M. MACY
LICENSE # 86060
04/04/2025

NO.	BY	DATE	DESCRIPTION
2	HEI	2025-04-10	IFC SET
1	HEI	2025-03-14	ADDENDUM A
1	HEI	2025-02-19	BID PERMIT SET
1	HEI	2025-02-03	100% LANDLORD SET

SHAKE SHACK
SHAKE SHACK SOUTH BEACH REGIONAL
3956 S THIRD STREET
JACKSONVILLE BEACH, FL 32250
SHACK #1689
IFC SET

MECHANICAL ENERGY CODE COMPLIANCE
DRAWN BY: Author
CHECKED BY: Checker
JOB NO: 20240363.00
M-630

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED BY COY M. MACY ON THE DATE LISTED BELOW USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

Section # & Req. ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
8.4.2 [EL10]	At least 50% of all 125 volt 15- and 20-Amp receptacles are controlled by an automatic control device.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
8.4.3 [EL11]	New buildings have electrical energy use measurement devices installed. Where tenant spaces exist, each tenant is monitored separately. In buildings with a digital control system the energy use is transmitted to control system and displayed graphically.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	
10.4.1 [EL9]	Electric motors meet requirements where applicable.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Shake Shack - South Beach Regional Report date: 04/02/25
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Section # & Req. ID	Final Inspection	Complies?	Comments/Assumptions
6.4.3.1.2 [F13]	Thermostatic controls have a 5 °F deadband.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.2 [F120]	Temperature controls have setpoint overlap restrictions.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.3.1 [F121]	HVAC systems equipped with at least one automatic shutdown control.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.3.2 [F122]	Setback controls allow automatic restart and temporary operation as required for maintenance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.5 [F15]	Heat pump controls prevent supplemental electric resistance heat from coming on when not needed.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.12 [F1200]	Air economizer has a fault detection and diagnostics (FDD) system (see details for configuration and operational requirements).	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.4.3.6 [F16]	When humidification and dehumidification are provided to a zone, simultaneous operation is prohibited. Humidity control prohibits the use of fossil fuel or electricity to produce RH > 30% in the warmest zone humidified and RH < 60% in the coldest zone dehumidified.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.7.2.1 [F17]	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.7.2.2 [F18]	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
6.7.2.3 [F19]	An air and/or hydronic system balancing report is provided for HVAC systems serving zones >5,000 ft ² of conditioned area.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
7.4.4.3 [F111]	Public lavatory faucet water temperature <= 110°F.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.
10.4.3 [F124]	Elevators are designed with the proper lighting, ventilation power, and standby mode.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Exception: Requirement does not apply.

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Shake Shack - South Beach Regional Report date: 04/02/25
Data filename: Page 10 of 11

Section # & Req. ID	Final Inspection	Complies?	Comments/Assumptions
7.4.3 [F145]	First 8 ft of outlet piping in nonrecirculating storage system, or branch piping connected to recirculated, heat traced, or impedance heated piping is insulated.	<input type="checkbox"/> Complies <input type="checkbox"/> Does Not <input type="checkbox"/> Not Observable <input type="checkbox"/> Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

Project Title: Shake Shack - South Beach Regional Report date: 04/02/25
Data filename: Page 11 of 11

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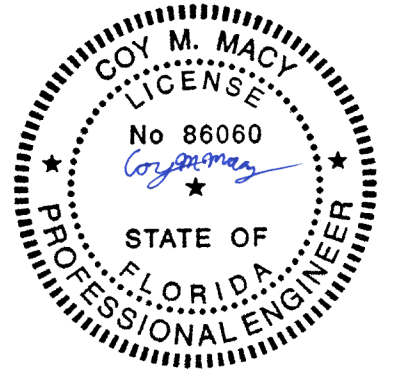
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FL REGISTRY NO. EB 7606
EXPIRES 2/28/2026

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04/04/2025

COY M. MACY
LICENSE # 86060

NO.	BY	DATE	DESCRIPTION
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A	HEI	2025-03-14	ADDENDUM A
1	HEI	2025-02-19	BID PERMIT SET
	HEI	2025-02-03	100% LANDLORD SET



SHAKE SHACK SOUTH BEACH REGIONAL

3956 S THIRD STREET
JACKSONVILLE BEACH, FL 32250
SHACK #1689

IFC SET

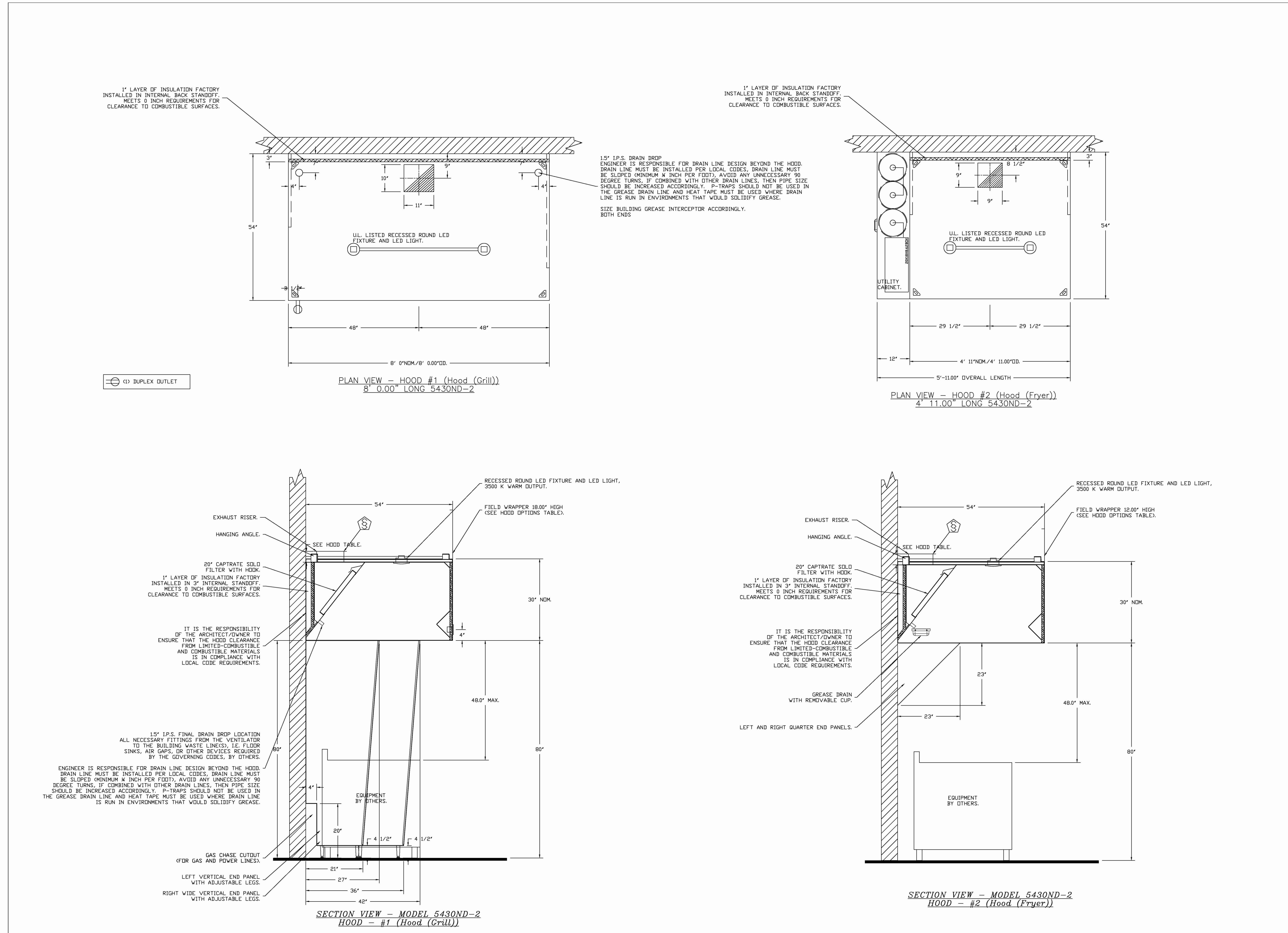
MECHANICAL ENERGY CODE COMPLIANCE

DRAWN BY: Author

CHECKED BY: Checker

JOB NO: 20240363.00

M-631



REVISIONS	
DESCRIPTION	DATE

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Shack Shack-1689-South Beach Regional, FL (Kitchen)
JACKSONVILLE BEACH, FL, 32250

DATE: 1/15/2025
DWG.#: 7275477
DRAWN BY: Joe.shilba
SCALE: 3/4" = 1'-0"
MASTER DRAWING

SHEET NO.
2

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1	HEI	2025-02-03	100% LANDLORD SET

SHAKE SHACK

SHAKE SHACK SOUTH BEACH REGIONAL

3956 S THIRD STREET
JACKSONVILLE BEACH, FL 32250
SHACK #1689

IFC SET

CAPTIVEAIRE DRAWINGS

DRAWN BY:	Author
CHECKED BY:	Checker
JOB NO:	20240363.00

M-702

FIRE SYSTEM INFORMATION - JOB#7275477

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

CAS. VALVE(S)

FIRE SYSTEM NO	TAG	TYPE	SIZE	SUPPLIED BY
1		SC ELECTRICAL	REFER TO P-120	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 #: 7275477
 JOB NAME: SHAKE SHACK-1689-SOUTH BEACH REGIONAL, FL(CHVAC)

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

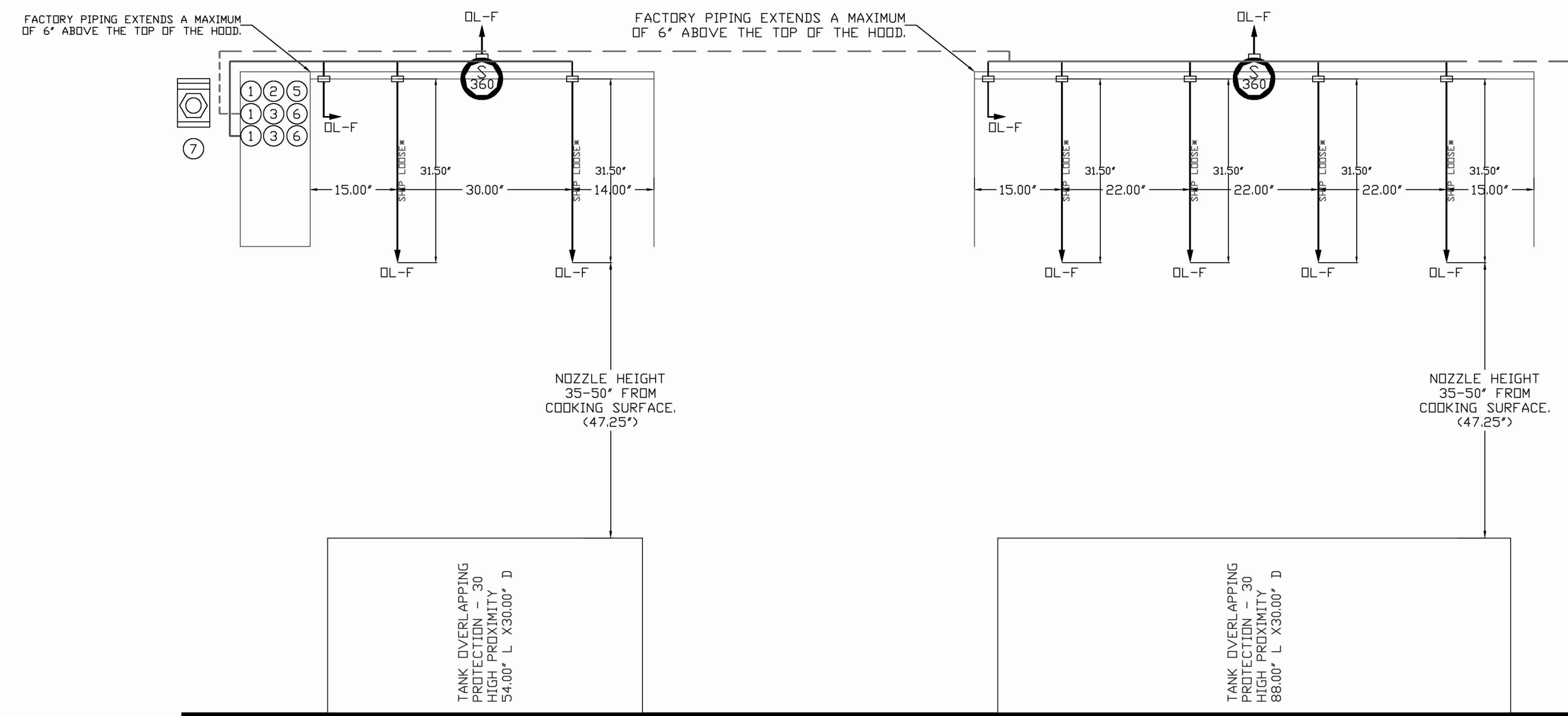
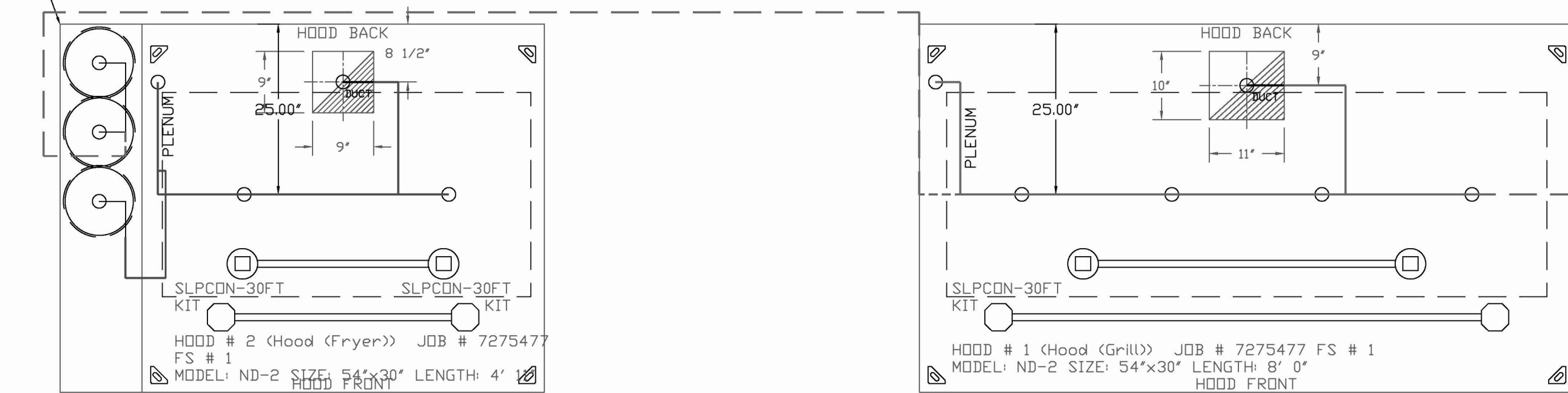
- HEAVY-DUTY APPLIANCES (RATED 600°F) WILL REQUIRE AN ADDITIONAL DOWNSTREAM FIRESTAT IN THE EVENT THAT THE DUCTWORK CONTAINS ANY HORIZONTAL RUNS OVER 25 FT IN LENGTH.
- MEDIUM TO LIGHT-DUTY APPLIANCES (RATED 450°F) WILL NOT REQUIRE ANY ADDITIONAL DOWNSTREAM DETECTION.

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

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Shake Shack-1689-South Beach Regional, FL (Kitchen)
 JACKSONVILLE BEACH, FL, 32250

DATE: 1/15/2025
DWG.#: 7275477
DRAWN BY: Joe.shilba
SCALE: 3/4" = 1'-0"
MASTER DRAWING

SHEET NO.
3

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SHAKE SHACK

SHAKE SHACK SOUTH BEACH REGIONAL

3956 S THIRD STREET
 JACKSONVILLE BEACH, FL 32250
 SHACK #1689

IFC SET

CAPTIVEAIRE DRAWINGS

DRAWN BY: Author
 CHECKED BY: Checker
 JOB NO: 20240363.00

M-703

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EXHAUST FAN INFORMATION - JOB#7275477

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

FAN OPTIONS

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

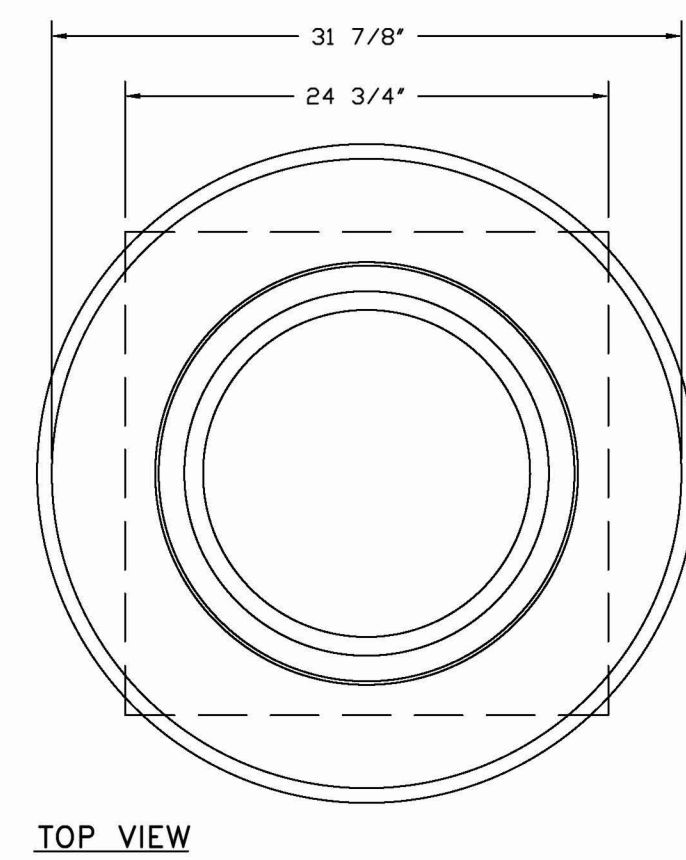
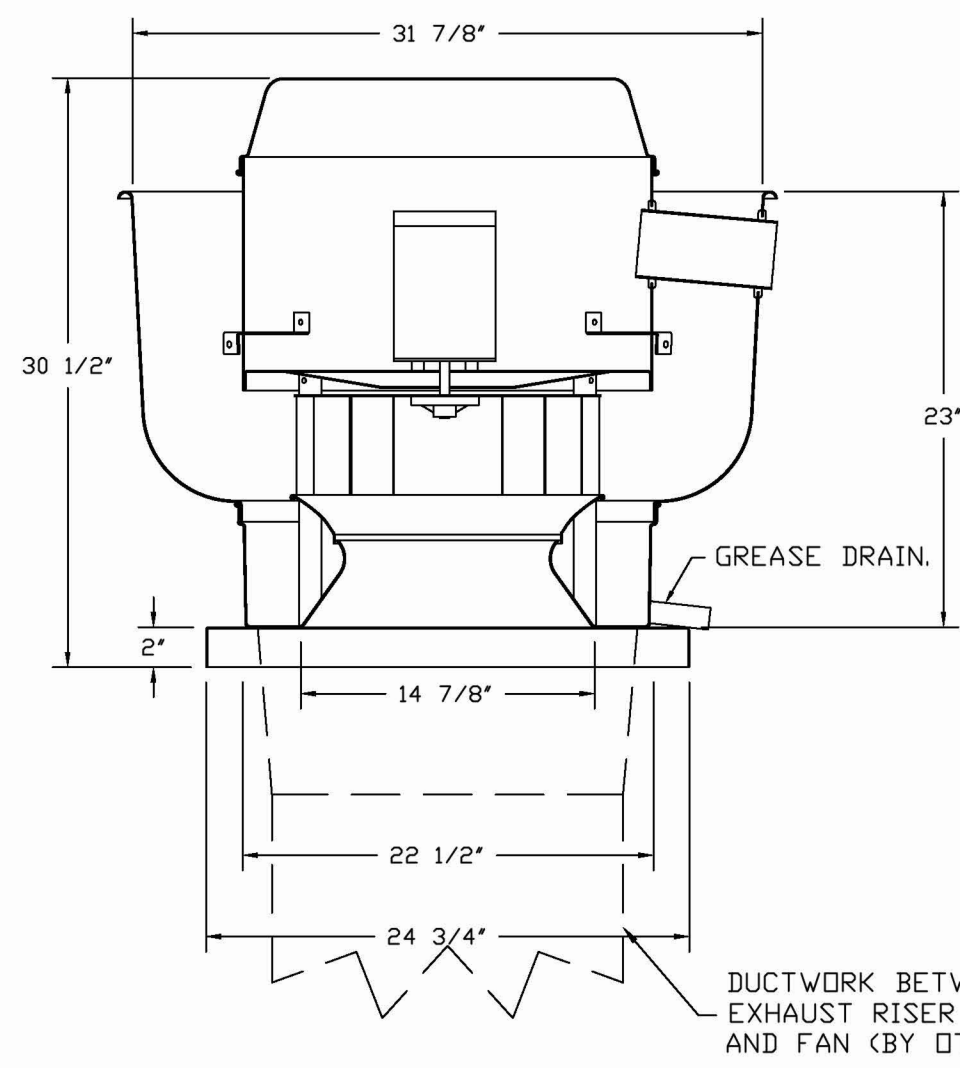
FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST			SUPPLY		
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	KEF(GRILL)	YES					
2	KEF(FRYER)	YES					

CURB ASSEMBLIES

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

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



FEATURES:

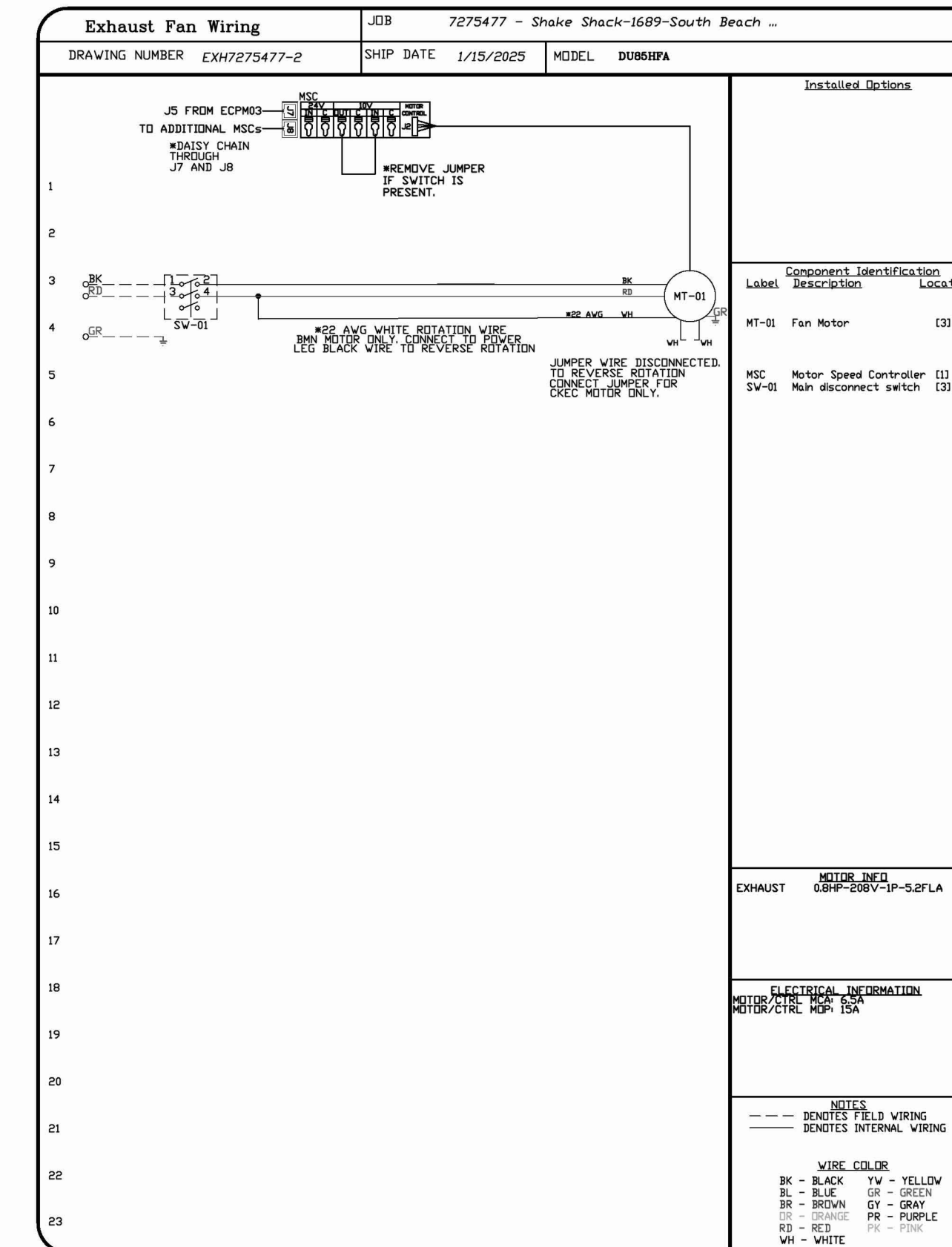
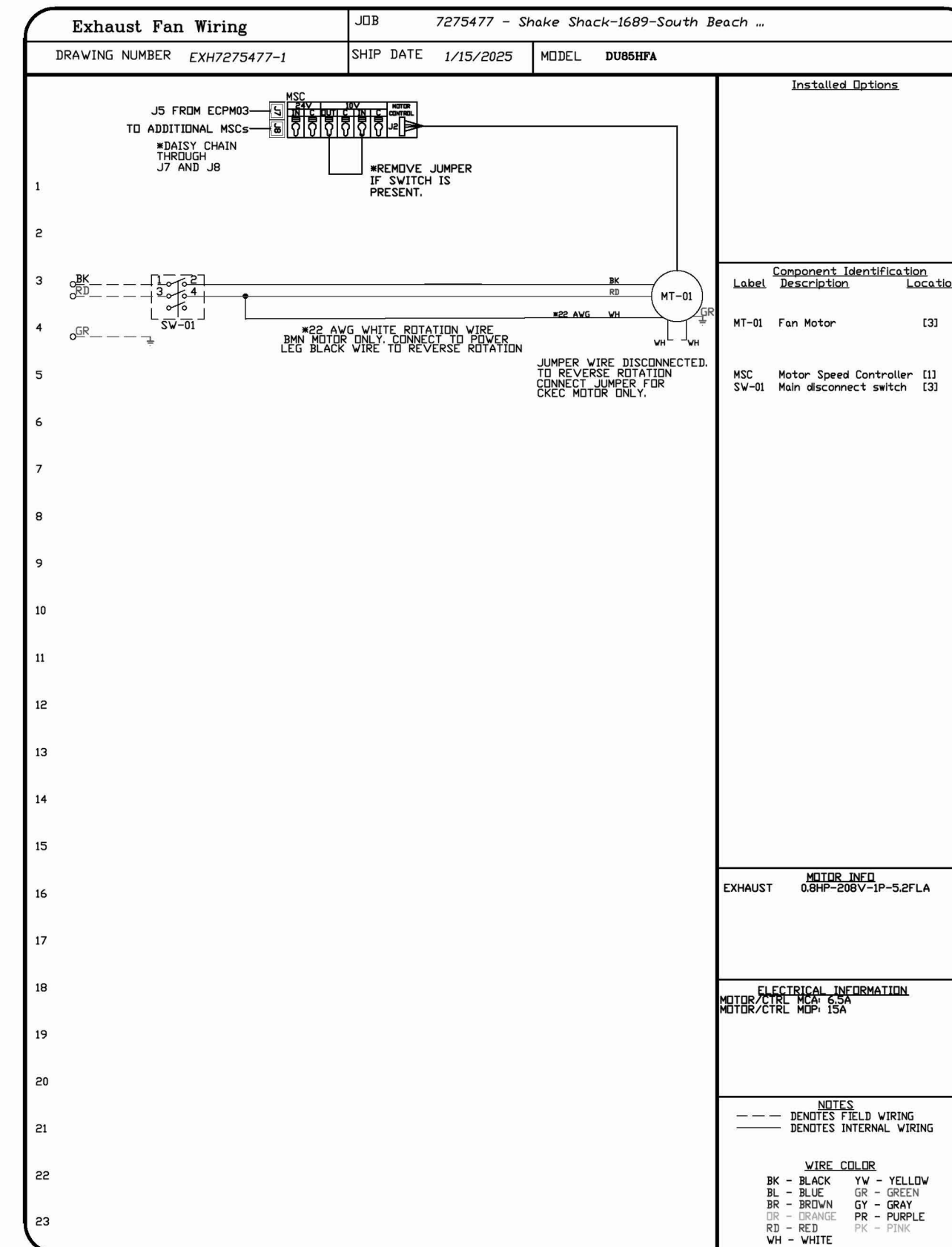
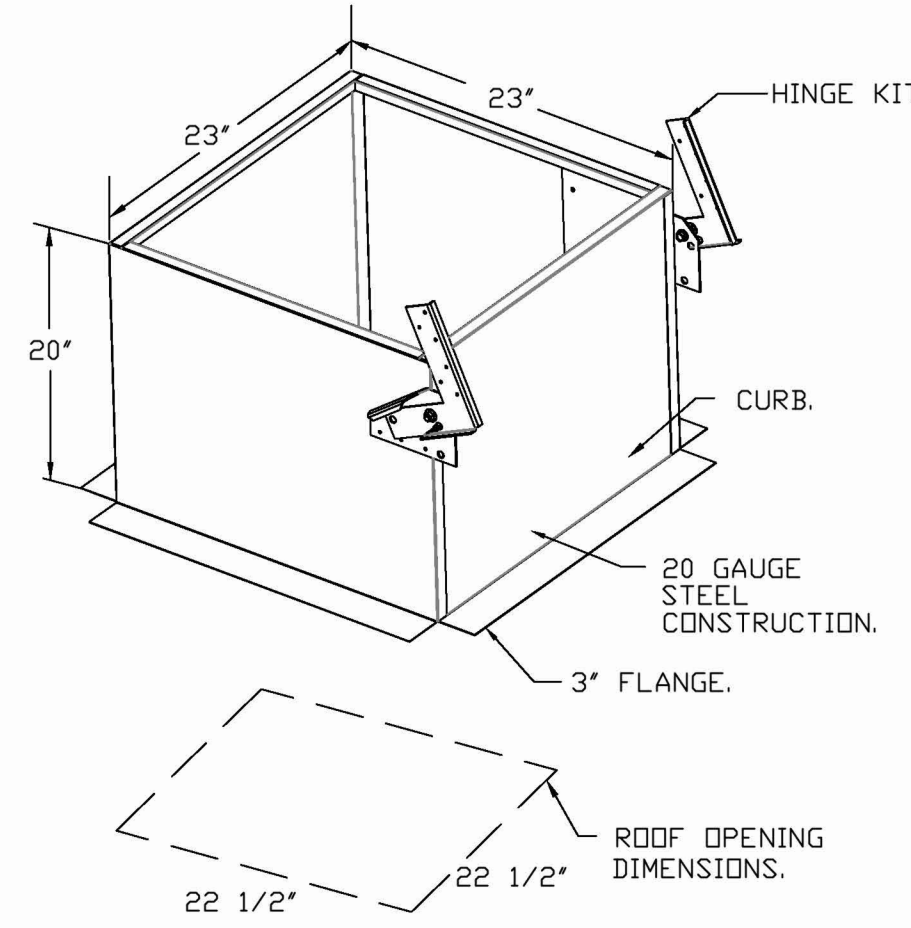
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND UL-C-5645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT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

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

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

OPTIONS

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



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Shake Shack-1689-South Beach Regional, FL (Kitchen)
JACKSONVILLE BEACH, FL, 32250

DATE: 1/15/2025
DWG.#: 7275477
DRAWN BY: Joe Shilba
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 4

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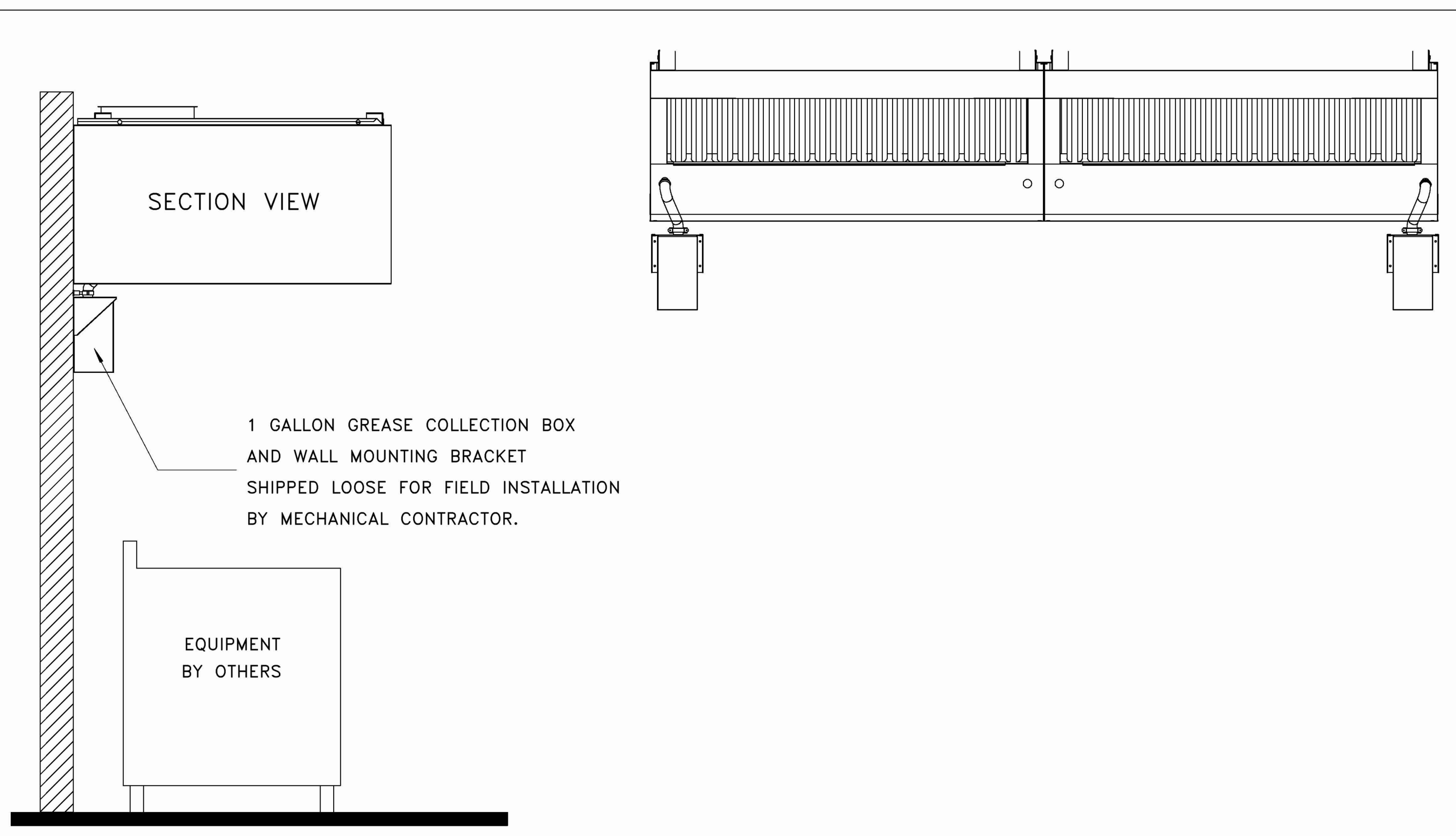
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SHAKE SHACK
SHAKE SHACK SOUTH BEACH REGIONAL
3956 S THIRD STREET
JACKSONVILLE BEACH, FL 32250
SHACK #1689
IFC SET
CAPTIVEAIRE DRAWINGS

DRAWN BY: Author
CHECKED BY: Checker
JOB NO: 20240363.00

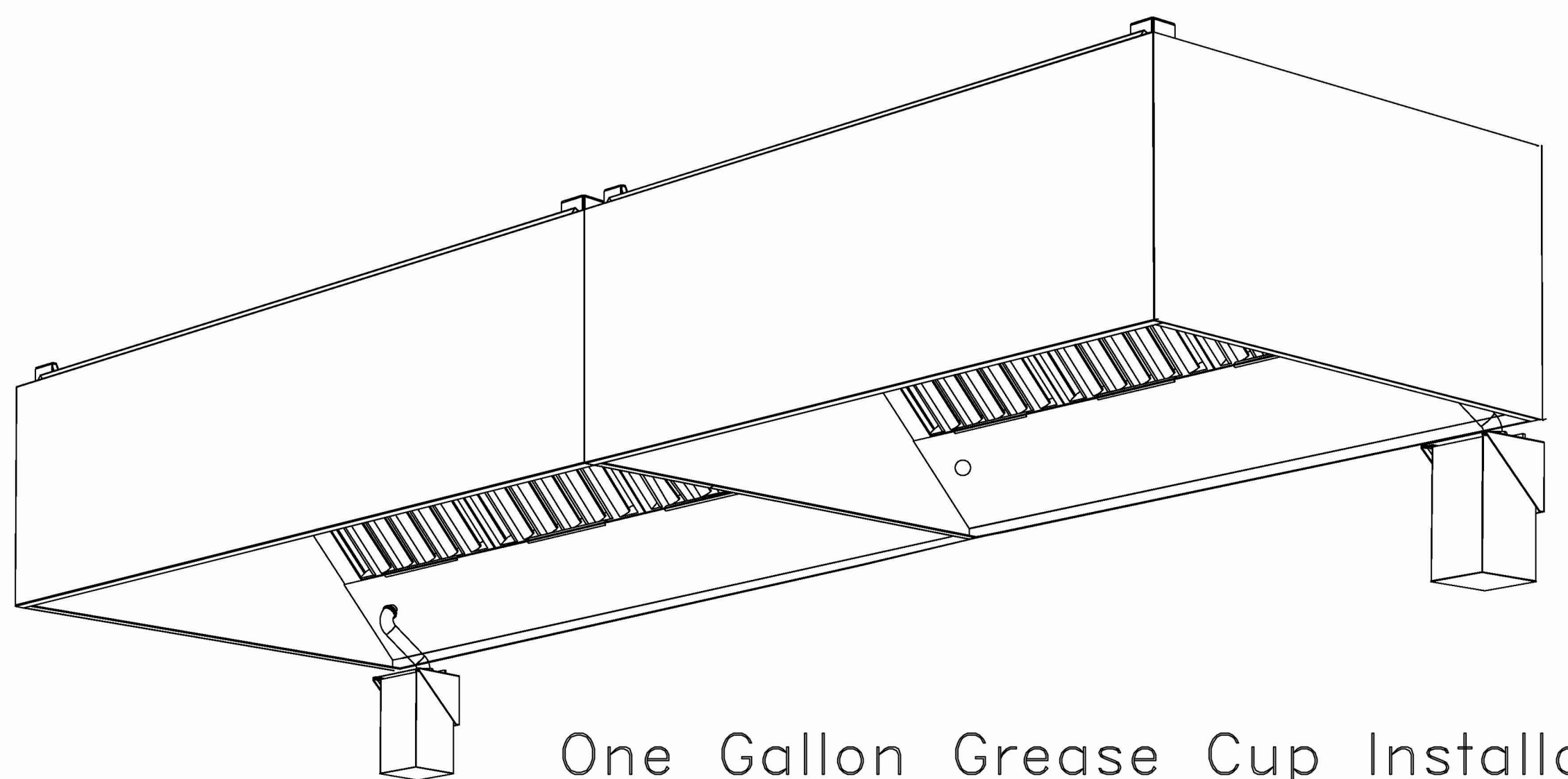
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1 GALLON GREASE COLLECTION BOX AND WALL MOUNTING BRACKET SHIPPED LOOSE FOR FIELD INSTALLATION BY MECHANICAL CONTRACTOR.

EQUIPMENT BY OTHERS

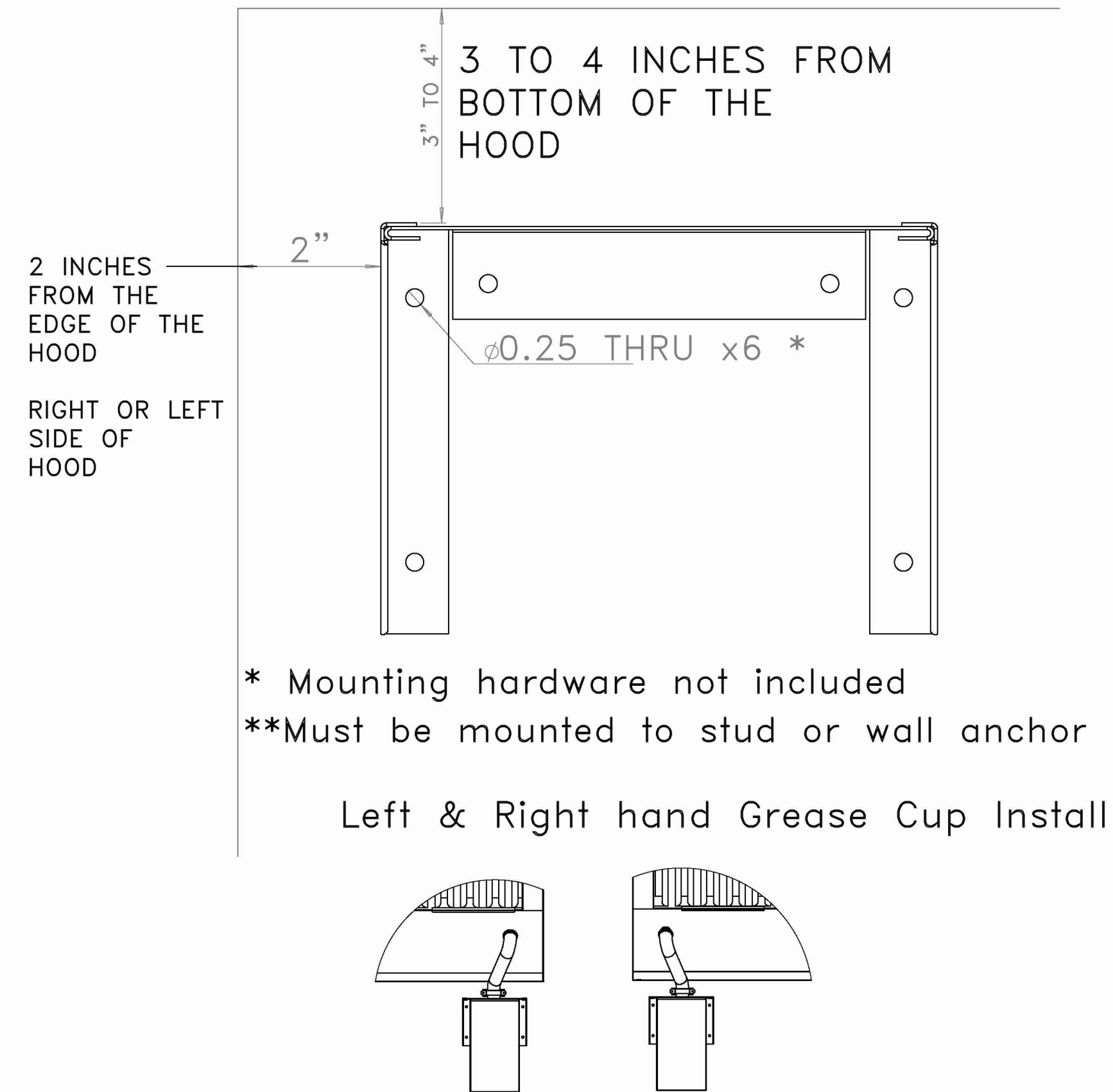


One Gallon Grease Cup Installation

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

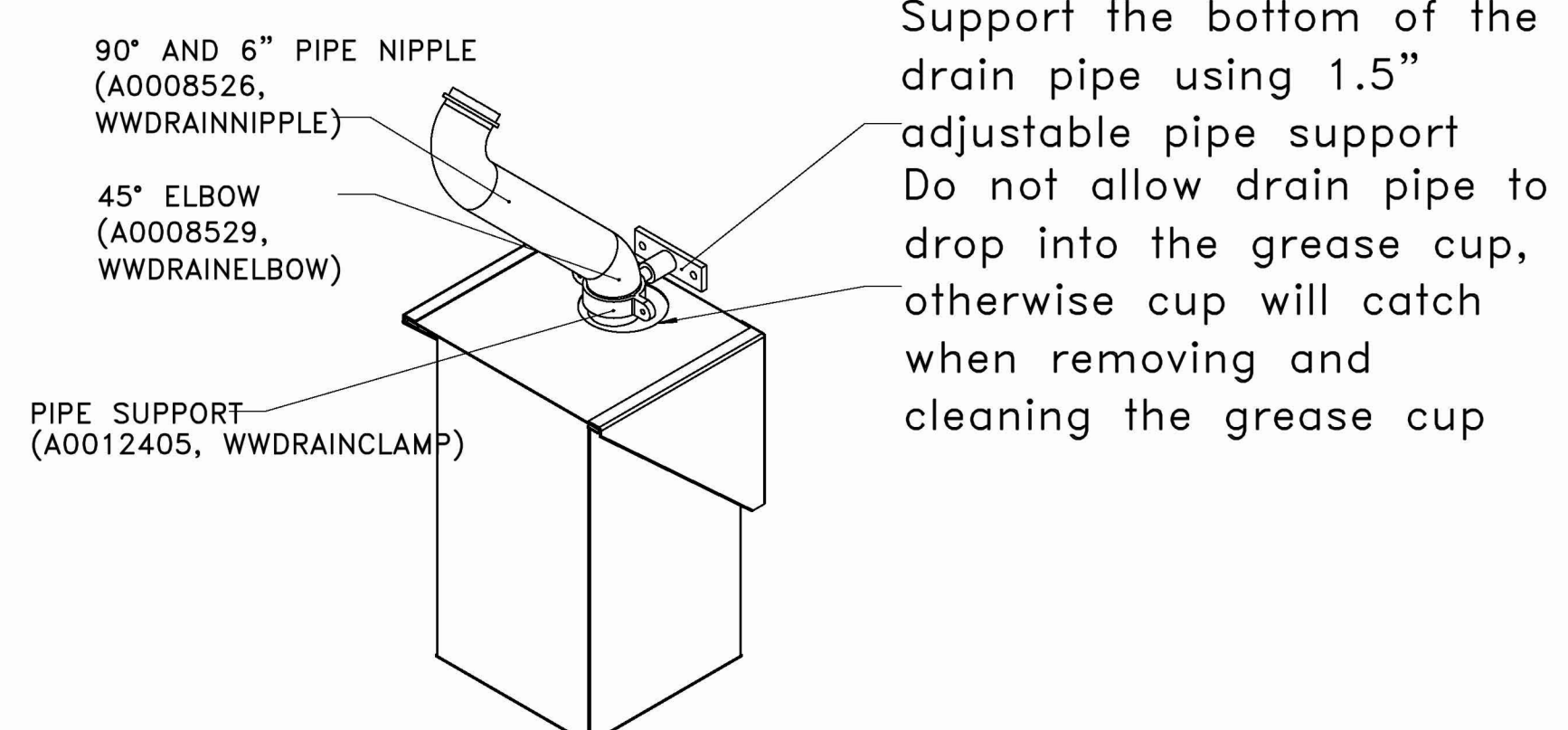
The one gallon grease cup comes as an assembly of stainless steel wall mounting bracket and one gallon cup. The mounting bracket should be installed 2" from the edge of the containment plenum and 3"-4" below the bottom of the hood.

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.

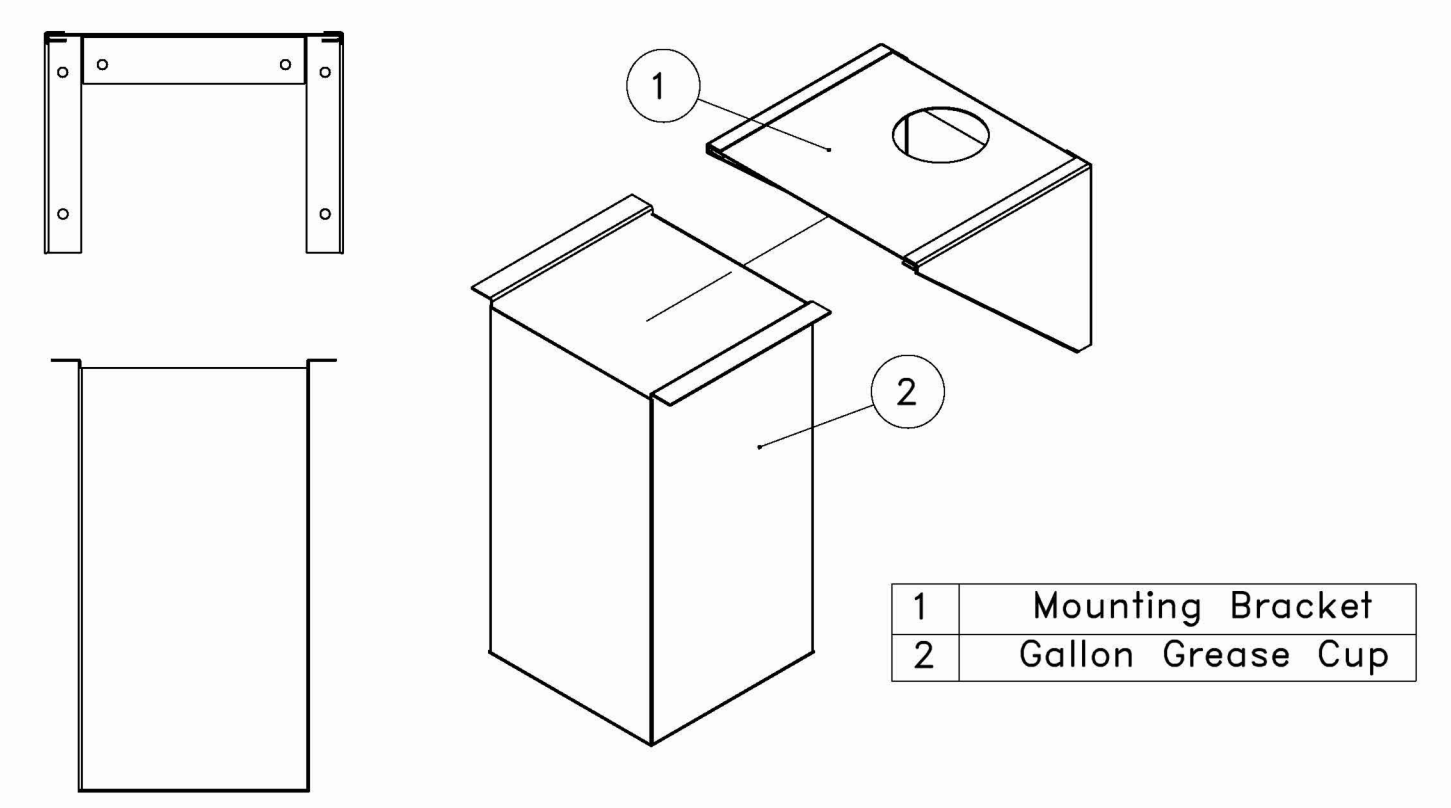


* Mounting hardware not included
**Must be mounted to stud or wall anchor

Left & Right hand Grease Cup Install



Gallon Grease Cup Assembly



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

1	Mounting Bracket
2	Gallon Grease Cup

REVISIONS	
DESCRIPTION	DATE

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DRAWN BY: Joe.shilba
SCALE: 3/4" = 1'-0"
MASTER DRAWING

SHEET NO. 6

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SHAKE SHACK

SHAKE SHACK SOUTH BEACH REGIONAL

3956 S THIRD STREET
JACKSONVILLE BEACH, FL 32250
SHACK #1689

IFC SET

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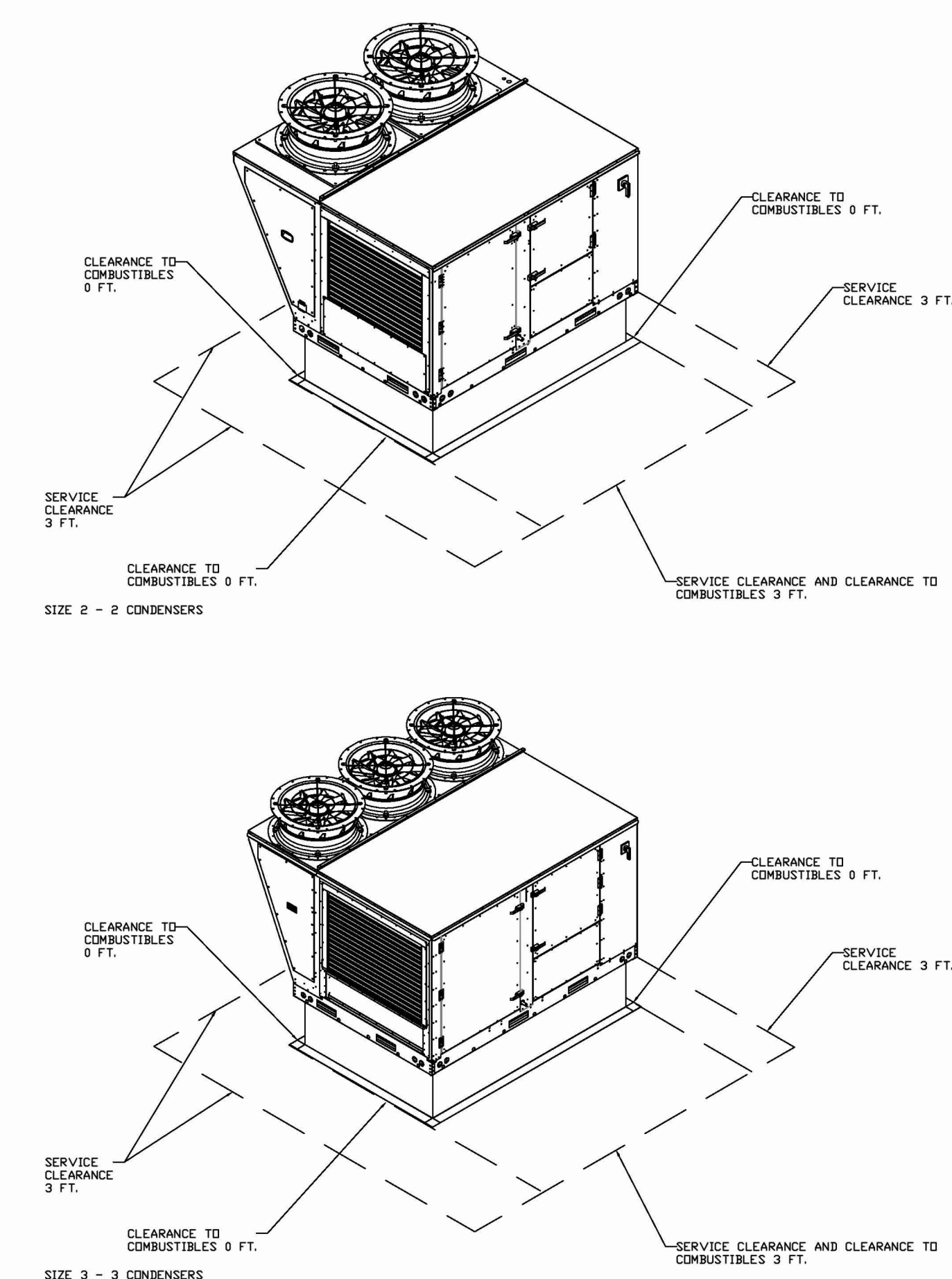
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M-706

DOAS/RTU FAN SCHEDULE - JOB#7275475										FAN INFORMATION										ELECTRICAL INFORMATION										COOLING INFORMATION										REHEAT INFORMATION										GAS HEAT INFORMATION										APL MINIMUM ROOM VOLUME										NOTES									
FAN UNIT NO	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	WEIGHT (LBS)	ESP	HP	PHASE	VOLT	HCA	MDCP	OUTSIDE AIR DB	MIXED AIR DB	LEAVING AIR DB	W/B	DP	TOTAL CAPACITY	SEER	ESMR	DISCHARGE DB	W/B	CAPACITY DESIRED	MAX	MOISTURE REMOVAL RATE	GAS TYPE	INPUT BTUS	OUTPUT BTUS	TEMP RISE	REQUIRED INPUT GAS PRESSURE	ROOM AREA (FT ²)	AIRFLOW (CFM)	HEIGHT (FT)																																											
1	RTU-1	1	CAS-HVAC2-1150-18-10T	CAPTIVEAIRE	18M-2-RTU	1200	1000	2200	1958	0.800	2.00	3	208	56.7A	60A	94.4°F	76.8°F	63.9°F	69.9°F	48.7°F	48.6°F	48.6°F	139.3 MBH	84.2 MBH	18.6	4.3	70.0°F	60.7°F	53.1 MBH	96 MBH	49.2 LBS/HR	NATURAL	103833	85725	35°F	7 IN. W.C. - 14 IN. W.C.	440.6	793	7.2	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19																																							
2	RTU-2	1	CAS-HVAC3-1250-24-20T	CAPTIVEAIRE	24M-3-RTU	3800	1600	5400	2757	0.800	7.50	3	208	95.7A	110A	94.4°F	76.8°F	60.9°F	67.2°F	51.2°F	51.2°F	51.3°F	255.4 MBH	173.8 MBH	18.2	6.0	70.0°F	59.6°F	14.7 MBH	29.6 MBH	72.6 LBS/HR	NATURAL	198540	160817	27°F	7 IN. W.C. - 14 IN. W.C.	587.4	1057	7.2	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19																																							

- NOTES:**
- INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL.
 - DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE.
 - INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER.
 - REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE.
 - EC MOTOR CONDENSING FANS.
 - ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE.
 - SUCTION LINE ACCUMULATOR.
 - FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER.
 - AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT).
 - 2" EXTERIOR BURN-WALL CONSTRUCTION W/ 2-13 INSULATION-MINIMUM RIGID EXTERIOR W/ 1/4" GASKET.
 - 81% EFFICIENT FURNACE, WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 64 TURNDOWN WITH NG AND 5:1 TURNDOWN WITH LP.
 - SUPPLY CFM MONITORING INTERNAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE.
 - FULLY MODULATING HOT GAS REHEAT.
 - DO BLOWER LOW AMBIENT COOLING COIL.
 - E-COATED CONDENSING COIL.
 - E-COATED REHEAT COIL.
 18. HAIL GUARD FOR CONDENSING COIL.
 19. RTU ECONOMIZER WITH DIFFERENTIAL ENTHALPY CONTROL.
 20. BAROMETRIC RELIEF DAMPER.
 21. DOWN DISCHARGE/DRAIN RETURN.
 22. MINIMUM ROOM AREA ASSUMED 7.2' SUPPLY DIFFUSER HEIGHT AND IS CALCULATED PER UL60335-2-40 4TH ED. VALUES BASED ON FACTORY CHARGE. ACTUAL SITE CHARGE MAY DIFFER.

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	RTU-1	1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE
		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 #00, #47, #M4, OR #2V PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE.
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	RTU BLOWER DOOR SWITCH
		1	RTU2 DOWN DISCHARGE
		1	2" MERV 13 FILTERS FOR RTU2 (QTY: 4)
		1	2" MERV 8 FILTERS FOR RTU2 (QTY: 4)
		1	OVERHEAT STAT
		1	TOTAL CFM MONITORING
		1	VFD FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBULE
		1	LOW AMBIENT COOLING OPERATION - DOWN TO 0° AMBIENT
		1	OCCUPIED SCHEDULING
		1	INTAKE FIRESTAT SET TO 135°F
		1	FREESTAT
		1	DISCHARGE FIRESTAT SET TO 240°F
		1	RTU2 CURB DUCT HANGER
		1	120V FIRE INPUT
		1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK - ALARM SUPPLIED BY OTHERS
		1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI
		1	RTU3 CONVENIENCE OUTLET (GFCD), 15 AMP - REQUIRES SEPARATE 120V CONNECTION. INCLUDES RECEPTACLE, COVER AND J-BOX
		1	RTU ECONOMIZER - DIFFERENTIAL ENTHALPY CONTROL
		1	RTU3 ECONOMIZER BAROMETRIC RELIEF
		1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL VIA HMI
1	RTU2 HAIL GUARD		
1	RTU2 DOWN RETURN		
1	VAV PACKAGE W/ MANUAL/DC CONTROL (57) VFD INCLUDED		
1	LOAD REACTOR MOUNTED IN FAN		
1	10 TON MODULATING COOLING OPTION, 208/230V, R454B REFRIGERANT, VARIABLE SPEED COMPRESSOR, 1CM CONDENSING FANS		
1	R454B LEAK DETECTOR OPTION FOR RTU2		
1	10 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL - R454B		
1	ECCOATING FOR RTU2 10T CONDENSER COIL		
1	ECCOATING FOR RTU2 10T EVAP COIL		
1	ECCOATING FOR RTU2 10T REHEAT COIL		
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		
2	RTU-2	1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE
		1	SHIP LOOSE GAS STRAINER 1"
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU 750VA TRANSFORMER USED, IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #00, #47, #M4, OR #2V PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE.
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	CONSTRUCTION MODE - MODIFIES START-UP SETTINGS TO ALLOW TEMPERING A BUILDING STILL UNDER CONSTRUCTION
		1	RTU BLOWER DOOR SWITCH
		1	RTU3 DOWN DISCHARGE
		1	2" MERV 13 FILTERS FOR RTU3 (QTY: 4)
		1	2" MERV 8 FILTERS FOR RTU3 (QTY: 4)
		1	OVERHEAT STAT
		1	TOTAL CFM MONITORING
		1	VFD FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBULE
		1	10 TON MODULATING COOLING OPTION, 208/230V, R454B REFRIGERANT, VARIABLE SPEED COMPRESSOR, 1CM CONDENSING FANS
		1	R454B LEAK DETECTOR OPTION FOR RTU2
		1	LOW AMBIENT COOLING OPERATION - DOWN TO 0° AMBIENT
		1	OCCUPIED SCHEDULING
		1	INTAKE FIRESTAT SET TO 135°F
		1	FREESTAT
		1	DISCHARGE FIRESTAT SET TO 240°F
		1	20 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL - R454B
		1	RTU3 CURB DUCT HANGER
		1	120V FIRE INPUT
		1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK - ALARM SUPPLIED BY OTHERS
		1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI
1	RTU3 CONVENIENCE OUTLET (GFCD), 15 AMP - REQUIRES SEPARATE 120V CONNECTION. INCLUDES RECEPTACLE, COVER AND J-BOX		
1	RTU ECONOMIZER - DIFFERENTIAL ENTHALPY CONTROL		
1	RTU3 ECONOMIZER BAROMETRIC RELIEF		
1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL VIA HMI		
1	RTU3 HAIL GUARD		
1	RTU3 DOWN RETURN		
1	VAV PACKAGE W/ MANUAL/DC CONTROL (57) VFD INCLUDED		
1	LOAD REACTOR MOUNTED IN FAN		
1	ECCOATING FOR RTU3 20T CONDENSER COIL		
1	ECCOATING FOR RTU3 20T EVAP COIL		
1	ECCOATING FOR RTU3 20T REHEAT COIL		
1	5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS)		
1	EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET		



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

UNIT NUMBER	HMI #	HMI LOCATION	TEMP AVERAGING	MODBUS ADDRESS
FAN #1	HMI #1 - UNIT	IN UNIT	NDT AVERAGED	55
FAN #1	HMI #2 - SPACE	DINING ROOM	AVERAGED	56
FAN #1	HMI #3 - SPACE	MANAGERS OFFICE	NDT AVERAGED	57
FAN #2	HMI #1 - UNIT	IN UNIT	NDT AVERAGED	55
FAN #2	HMI #2 - SPACE	KITCHEN	AVERAGED	56
FAN #2	HMI #3 - SPACE	MANAGERS OFFICE	NDT AVERAGED	57

REVISIONS

DESCRIPTION	DATE

CAPTIVEAIRE
www.captiveaire.com

Eastern PA Mechanical
225 E City Line Avenue, Suite #103, Bala Cynwyd, PA 19004 PHONE: (267) 904-4126 EMAIL: reg106@captiveaire.com

Shake Shack-1689-South Beach Regional(LHVAC)
JACKSONVILLE BEACH, FL, 32250

DATE: 1/15/2025
DWG.#: 7275475
DRAWN BY: joe.shilba
SCALE: 1/2" = 1'-0"
MASTER DRAWING

SHEET NO.
1

THE DOCUMENTATION CONTAINED ON THIS SHEET WAS NOT PREPARED BY HENDERSON ENGINEERS AND IS INCLUDED IN THIS SET FOR REFERENCE ONLY. HENDERSON ENGINEERS REVIEWED THE DOCUMENTATION ON THIS SHEET FOR GENERAL COMPLIANCE WITH DESIGN INTENT. SUPPLIER IS RESPONSIBLE THAT ALL FURNISHED EQUIPMENT ON THIS SHEET COMPLIES WITH APPLICABLE LOCAL, STATE, AND FEDERAL LAWS, CODES, AND REGULATIONS.

BAI Architecture

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875 N High St.
Boston, MA 02210
380.900.8887

LA
300 E 2nd Street
Los Angeles, CA 90012
213.337.1030

CONSULTANTS:

SEAL/SIGNATURE:

FOR REFERENCE ONLY

NO.	BY	DATE	DESCRIPTION
2	HEI	2025-04-07	IFC SET
A	HEI	2025-03-14	ADDENDUM A
1	HEI	2025-02-19	BID PERMIT SET
1	HEI	2025-02-03	100% LANDLORD SET

SHAKE SHACK

SHAKE SHACK SOUTH BEACH REGIONAL

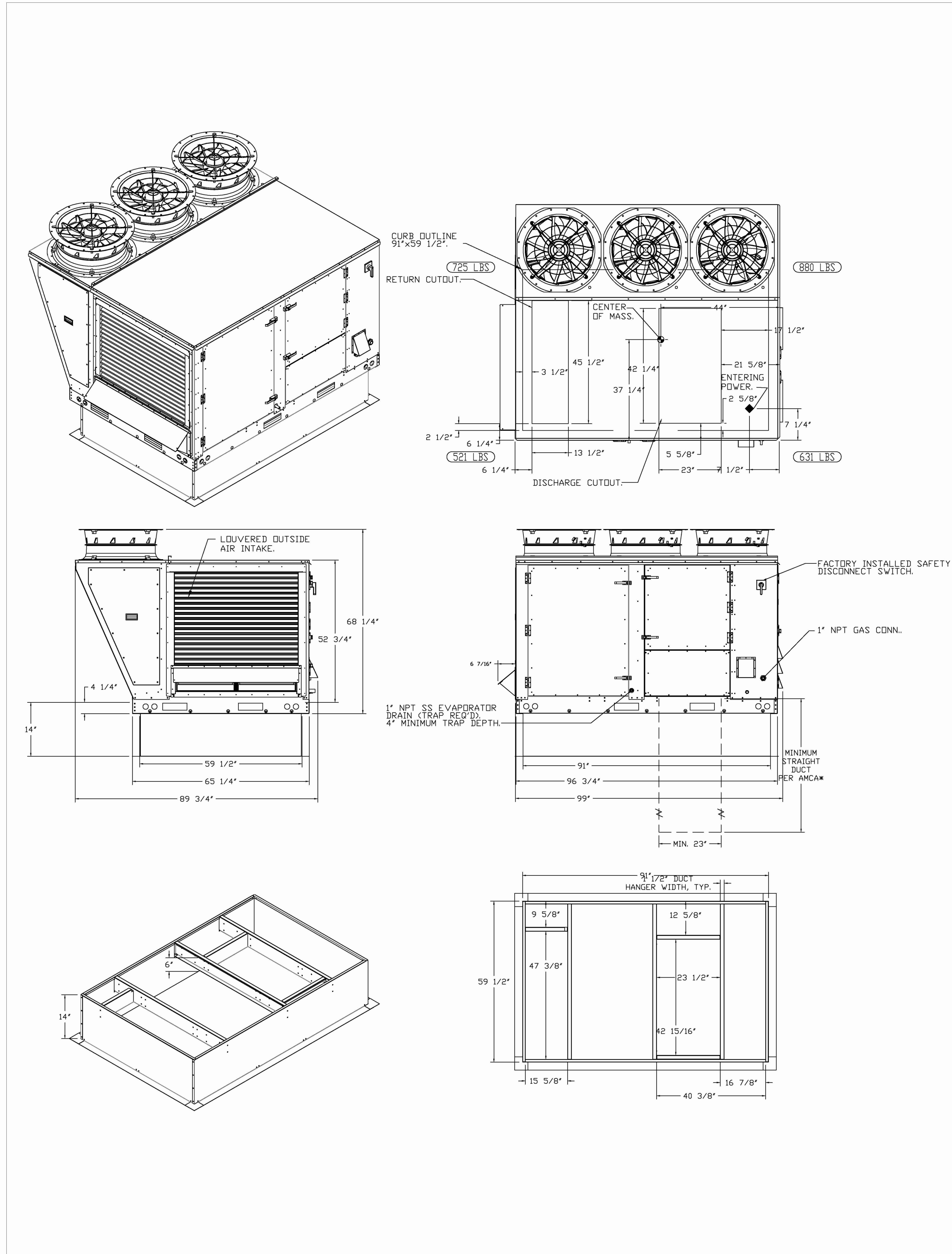
3956 S THIRD STREET
JACKSONVILLE BEACH, FL 32250
SHACK #1689

IFC SET

CAPTIVEAIRE DRAWINGS

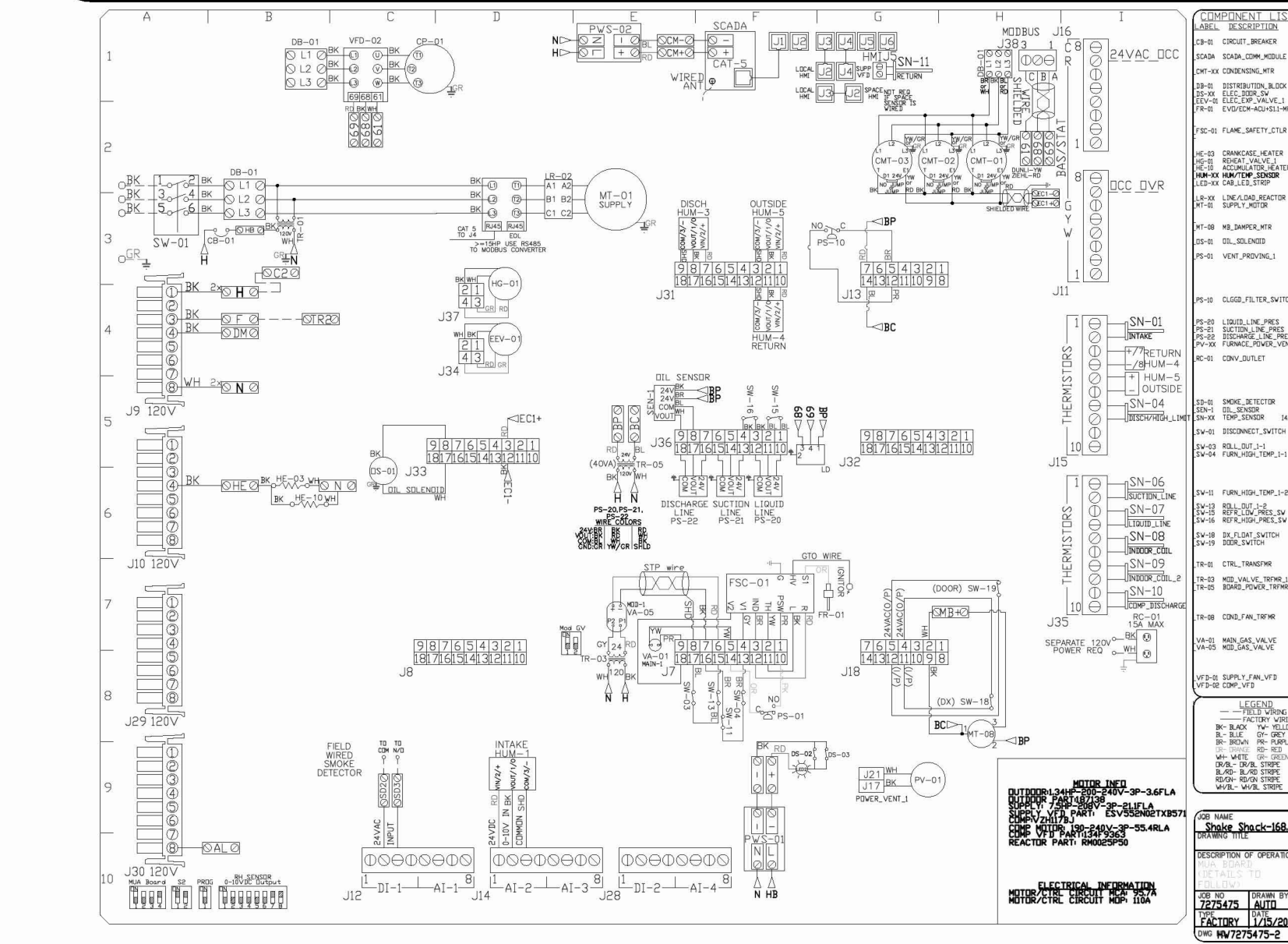
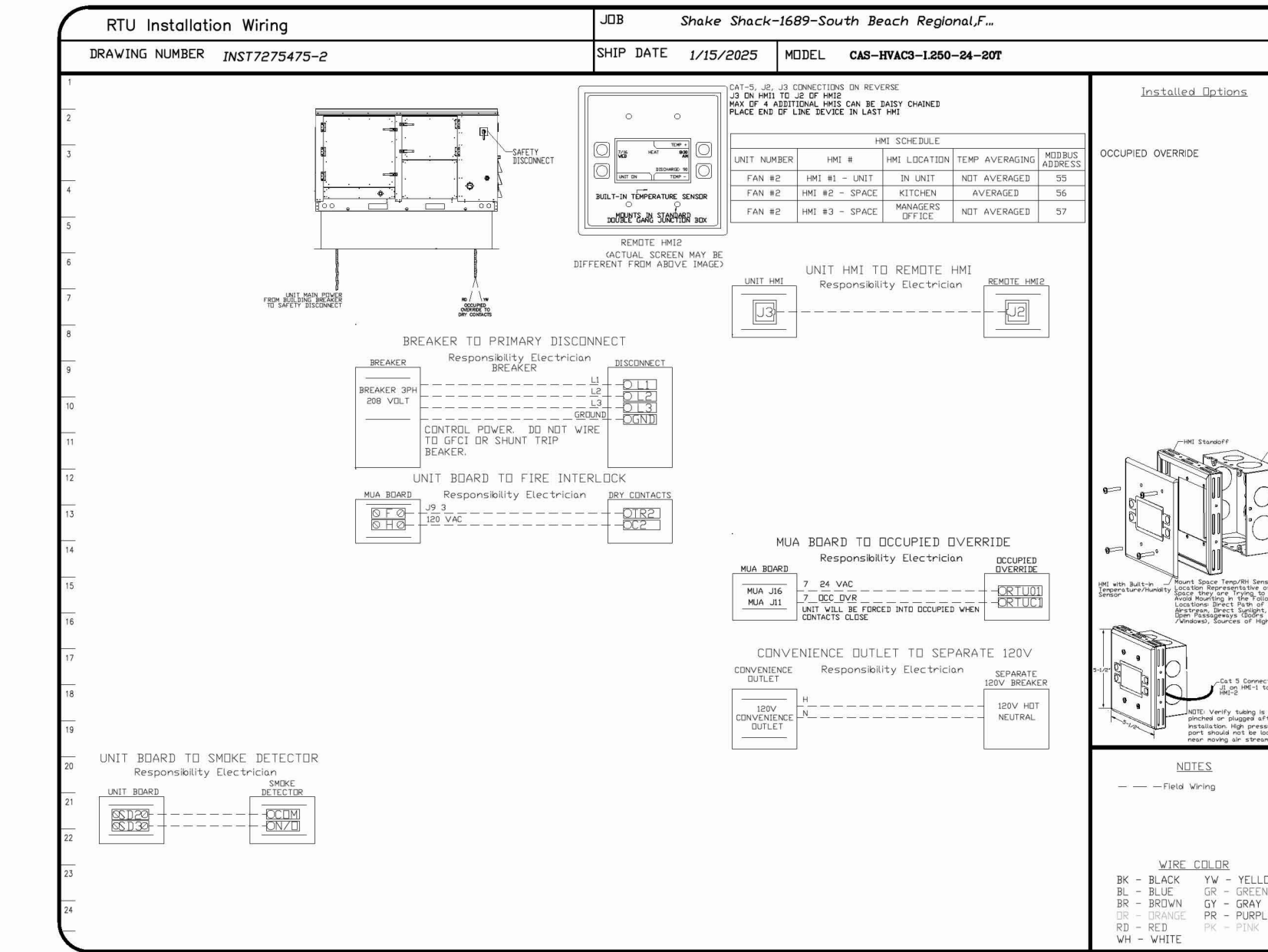
DRAWN BY: Author
CHECKED BY: Checker
JOB NO: 20240363.00

M-707



FAN #2 CAS-HVAC3-I.250-24MF-20T - HEATER (RTU-2)

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



REVISIONS	
DESCRIPTION	DATE

CAPTIVE
Eastern PA Mechanical
225 E City Line Avenue, Suite #103, Bala Cynwyd, PA 19004 PHONE: (267) 904-4126 EMAIL: reg106@captiveaire.com

Shake Shack-South Beach Regional(LHVAC)
JACKSONVILLE BEACH, FL, 32250

DATE: 1/15/2025
DWG.#: 7275475
DRAWN BY: joe.shilba
SCALE: 1/2" = 1'-0"
MASTER DRAWING

SHEET NO. 3

BAI Architecture

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875 N. High St.
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390 E 2nd Street
Los Angeles, CA 90012
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www.baigney.com

CONSULTANTS:

SEAL/SIGNATURE:

FOR REFERENCE ONLY

2	HEI	2025-04-07	IFC SET
A	HEI	2025-03-14	ADDENDUM A
1	HEI	2025-02-19	BID PERMIT SET
1	HEI	2025-02-03	100% LANDLORD SET

NO. BY DATE DESCRIPTION

SHAKE SHACK

SHAKE SHACK SOUTH BEACH REGIONAL

3956 S THIRD STREET
JACKSONVILLE BEACH, FL 32250
SHACK #1689

IFC SET

CAPTIVEAIR DRAWINGS

DRAWN BY: Author
CHECKED BY: Checker
JOB NO: 20240363.00

M-709

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