MECHANICAL LEGEND

SYMBOL	DESCRIPTION
DRAWING SET APPEARANCE	
TO BETTER COMMUNICATE SCOPE TO PERMIT AGENCIES AND CONTRACTORS, EACH DRAWING IN THIS DRAWING SET HAS BEEN CREATED IN BOTH "COLOR" AND "BLACK AND WHITE". THERE EXISTS A COLOR LAYER WITHIN EACH DRAWING WHERE VISIBILITY IS CONTROLLED THROUGH THE PDF LAYER MANAGER. THIS LAYER VISIBILITY CAN BE TOGGLED DISPLAYING EITHER "COLOR" OR "BLACK AND WHITE". TO MAINTAIN SCOPE BASED SHADING WHEN PRINTING TO PAPER, BLACK AND WHITE NEEDS TO BE VISIBLE. FOR FURTHER INSTRUCTIONS, REFER TO CONTRACTOR RESOURCES ON OUR WEBSITE AND DOWNLOAD "DRAWING COLOR INSTRUCTIONS". WWW.KLHENGRS.COM - CONTRACTOR RESOURCES (RIGHT HAND SIDE OF PAGE).	
PIPING LINE TYPES	
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
CD	CONDENSATE DRAIN
	SUPPLY MAIN OR BRANCH
	RETURN MAIN OR BRANCH
MECHANICAL AIR DEVICES	
SR	SUPPLY REGISTER
RR	RETURN REGISTER
ER	EXHAUST REGISTER
RG	RETURN GRILLE
CD	CEILING DIFFUSER
CD-10"Ø	2'x2' SQUARE CEILING DIFFUSER WITH 10" NECK
RCD	ROUND CEILING DIFFUSER
MECHANICAL DUCTWORK	
UP	SUPPLY DUCT WITH ELBOW TURNED UP
DN	SUPPLY DUCT WITH ELBOW TURNED DOWN
UP	RETURN DUCT WITH ELBOW TURNED UP
DN	RETURN DUCT WITH ELBOW TURNED DOWN
UP	EXHAUST DUCT WITH ELBOW TURNED UP
DN	EXHAUST DUCT WITH ELBOW TURNED DOWN
24X12 SA	SUPPLY DUCT
24X12 RA	RETURN DUCT
24X12 EA	EXHAUST DUCT
	FLEXIBLE DUCTWORK CONNECTION
	BRANCH TAKEOFF
	REDUCER, CONCENTRIC
	REDUCER, NONCONCENTRIC
MECHANICAL DUCTWORK ACCESSORIES	
	DUCT WITH MANUAL VOLUME DAMPER
	ROUND ELBOW WITH TURNING VANES
	ELBOW WITH TURNING VANES
S	DUCT MOUNTED SMOKE DETECTOR (HARD WIRE INTERLOCK TO FAN MOTOR BY E.C.) FURNISHED BY E.C., INSTALLED BY M.C.
MECHANICAL STATS & SENSORS	
TS	TEMPERATURE SENSOR
T	LOW VOLTAGE THERMOSTAT
R	REVERSE ACTING THERMOSTAT
HS	HUMIDITY SENSOR
CO2	CARBON DIOXIDE SENSOR
MECHANICAL MISCELLANOUS	
ANS	ANSUL PULL STATION

GENERAL NOTES

A. REFER TO HEATING, VENTILATING & AIR CONDITIONING SPECIFICATIONS AND GENERAL CONDITIONS FOR ADDITIONAL REQUIREMENTS.
B. ALL DIFFUSERS AND CEILING GRILLES SHALL BE COORDINATED WITH LAY-IN CEILING GRID AND PROVIDED BY MECHANICAL CONTRACTOR. REFER TO DETAILS 233713.00-21 AND 233713.00-04 ON SHEET M5.2 FOR INSTALLATION INFORMATION.
C. PROVIDE BALANCING DAMPERS FOR EACH DIFFUSER, REGISTER AND GRILLE AT POINTS ON SUPPLY, RETURN, AND EXHAUST SYSTEMS WHERE BRANCHES LEAD OFF FROM LARGER DUCTS OR IN DIFFUSERS AS REQUIRED FOR AIR BALANCING. INSTALL AT A MINIMUM OF TWO DUCT WIDTHS FROM BRANCH TAKEOFF WHERE PRACTICAL. REFER TO DETAIL 233300.00-01 ON SHEET M5.2 FOR ADDITIONAL INFORMATION.
D. ALL NEW EXHAUST FANS AND RTUs SPECIFIED ARE INCLUDED IN KROGER'S DIRECT BUY PROGRAM, AND SHALL BE FURNISHED BY KROGER AND INSTALLED BY HVAC CONTRACTOR, UNLESS OTHERWISE NOTED.
E. ALL HVAC DUCT SMOKE DETECTORS ARE TO BE PROVIDED BY HVAC CONTRACTOR.
F. PROVIDE BACKDRAFT DAMPERS FOR NON-KITCHEN EXHAUST FANS.
G. SUPPLY AND RETURN DUCTWORK FROM ROOFTOP UNITS TO BE INTERNALLY INSULATED A MINIMUM OF TEN FEET FOR SOUND ATTENUATION.
H. PROVIDE TURNING VANES IN ALL RECTANGULAR MITERED ELBOWS.
I. ALL DIFFUSERS ARE 4-WAY UNLESS OTHERWISE INDICATED.
J. RUNOUTS TO CEILING DIFFUSERS ARE THE SAME SIZE AS THE DIFFUSER NECK UNLESS NOTED OTHERWISE.
K. SUPPLY, RETURN AND OUTSIDE AIR DUCT TO BE EXTERNALLY INSULATED WHERE LOCATED ABOVE CEILING SPACE. REFER TO SPECIFICATION 230700.

DESIGN AMBIENT TEMP'S:

SUMMER: 102 DEG DRY BULB
75 DEG WET BULB
WINTER: 22 DEG DRY BULB

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1	04/20/2023	90% OWNER REVIEW
2	05/24/2023	100%/BID/PERMIT

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REVIEWED BY: MCD

PROJECT TITLE
KROGER STORE
DAL541

FORT WORTH, TX

COMMISSION NO. 522316
ISSUE DATE 05/24/23

SHEET TITLE
MECHANICAL ABBREVIATIONS, SYMBOLS, AND GENERAL NOTES

SHEET NO.
M0.1

PLOTTED: 5/30/2023 10:25:51 AM FILE LOCATION: C:\Users\kslee\Documents\Revit\20258\24\24EP-Kroger DAL541 Fort Worth, TX - 2023 New_slslee.rvt

KEYED NOTES

M1	CONTRACTOR TO REFER TO HSD-3 FOR DUCTWORK INSTALLATION INFORMATION.
M2	THERMOSTAT TO BE MOUNTED AT 4'0" AFF. PROVIDE LOCKABLE PROTECTIVE COVER OVER DEVICE.
M4	SUSPENDED ELECTRIC HEATER USING THREADED ROD TO UNISTRUT CHANNEL OR APPROVED EQUAL. MOUNT 18'0" AFF TO BOTTOM OF UNIT. VERIFY LOCATION AND REQUIREMENTS TO OWNER PRIOR TO INSTALLATION. REFER TO 238239.00-01 ON MS.2 AND M6.1 FOR MORE INFORMATION.
M5	DUCT UP TO OPENING THROUGH ROOF CAPPED WITH CURB AND KROGER FURNISHED EXHAUST FAN.
M6	DUCT UP TO OPENING THRU ROOF. CONTRACTOR TO PROVIDE REVERSE ACTING THERMOSTAT FOR FAN. FAN TO ENERGIZE WHEN ROOM REACHES 80 DEG F.
M7	SIDEWALL DIFFUSERS TO BE INSTALLED AT 45 DEGREES DOWNWARD. REFER TO 233713.00-02 ON MS.2 FOR INSTALLATION INFORMATION.
M8	DUCTWORK TO BE HELD TIGHT TO STRUCTURE.
M13	DROP BOX DIFFUSER SYSTEM. REFER TO DIFFUSER SCHEDULE FOR AES MODEL NUMBERS AND QUANTITIES. REFER TO FLOOR PLANS FOR THROW DIRECTIONS AND AIRFLOW. REFER TO DETAIL HSD-1 FOR INSTALLATION.
M14	TEMPERATURE SENSOR FOR RTU FURNISHED BY ORIGINAL EQUIPMENT MANUFACTURER. ROUTE CONTROL WIRING THROUGH RTU AND BACK TO BUILDING CONTROL PANEL.
M16	HUMIDITY/TEMPERATURE SENSOR FURNISHED BY ORIGINAL EQUIPMENT MANUFACTURER. INSTALL PROBE AT 7'-6" AFF ON COLUMN. REFER TO EM SERIES OF DRAWINGS FOR FURTHER INFORMATION.
M21	RETURN AIR GRILLE IN SIDE OF DUCT DROP, TITUS 50F WITH 1 INCH OPENINGS OR APPROVED EQUAL.
M26	MOUNT GRILLE/REGISTER 8'0" AFF.
M27	MOUNT GRILLE/REGISTER 10'0" AFF.
M32	ROOFTOP UNIT FURNISHED BY KROGER AND INSTALLED BY MECHANICAL CONTRACTOR. BALANCE TO SCHEDULED AIRFLOW. REFER TO ARCHITECTURAL ROOF PLAN FOR HVAC ROOFTOP DIMENSIONAL INFORMATION. REFER TO STRUCTURAL DRAWINGS FOR JOIST AND BEAM LOCATIONS AND DIMENSIONAL INFORMATION. REFER TO HSD-10 FOR INFORMATION REGARDING BRACING FOR WIND RESISTANCE.
M38	THERMOSTAT TO BE CONFIGURED WITH AUTOMATIC HEATING SHUTOFF ACTIVATING WHEN OUTDOOR AIR TEMPERATURE REACHES 45 DEG F.
M48	PROVIDE CO2 SENSOR WHERE SHOWN. ROUTE CONTROL WIRING TO BUILDING CONTROL PANEL.
M53	LOCATION OF FAN PANEL.
M74	AIR CURTAIN TO BE FURNISHED BY OWNER AND TO BE INSTALLED BY MECHANICAL CONTRACTOR ABOVE DOORWAY PER MANUFACTURER'S RECOMMENDATIONS. DOOR LIMIT SWITCH IS TO BE INCLUDED WITH ORDERING OF AIR CURTAIN. CONTRACTOR SHALL PROVIDE MOUNTING HARDWARE AND INTERLOCK SWITCH FOR AUTOMATIC ON/OFF CONTROL WHEN DOOR IS OPEN/CLOSED. AIR CURTAIN TO BE CONNECTED TO BUILDING PWR.
M82	6-BLADE FAN PROVIDED BY CONTRACTOR AND CONTROLLED BY LOCAL SWITCH INCLUDED WITH UNIT. MOUNT FAN PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. MOUNT FAN ABOVE LIGHTS. CONFIRM FINAL MOUNTING HEIGHT AND LOCATION (OF FAN AND SWITCH) WITH OWNER AND ARCHITECT.
M92	PROVIDE MANUAL DAMPER IN BRANCH DUCT SERVING ACCOUNTING AREA.

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6	10/29/2024	BULLETIN NO. 6
10	03/17/2025	BULLETIN NO. 10

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SHEET TITLE
HVAC FLOOR PLAN - LEFT

SHEET NO.
M1.1a

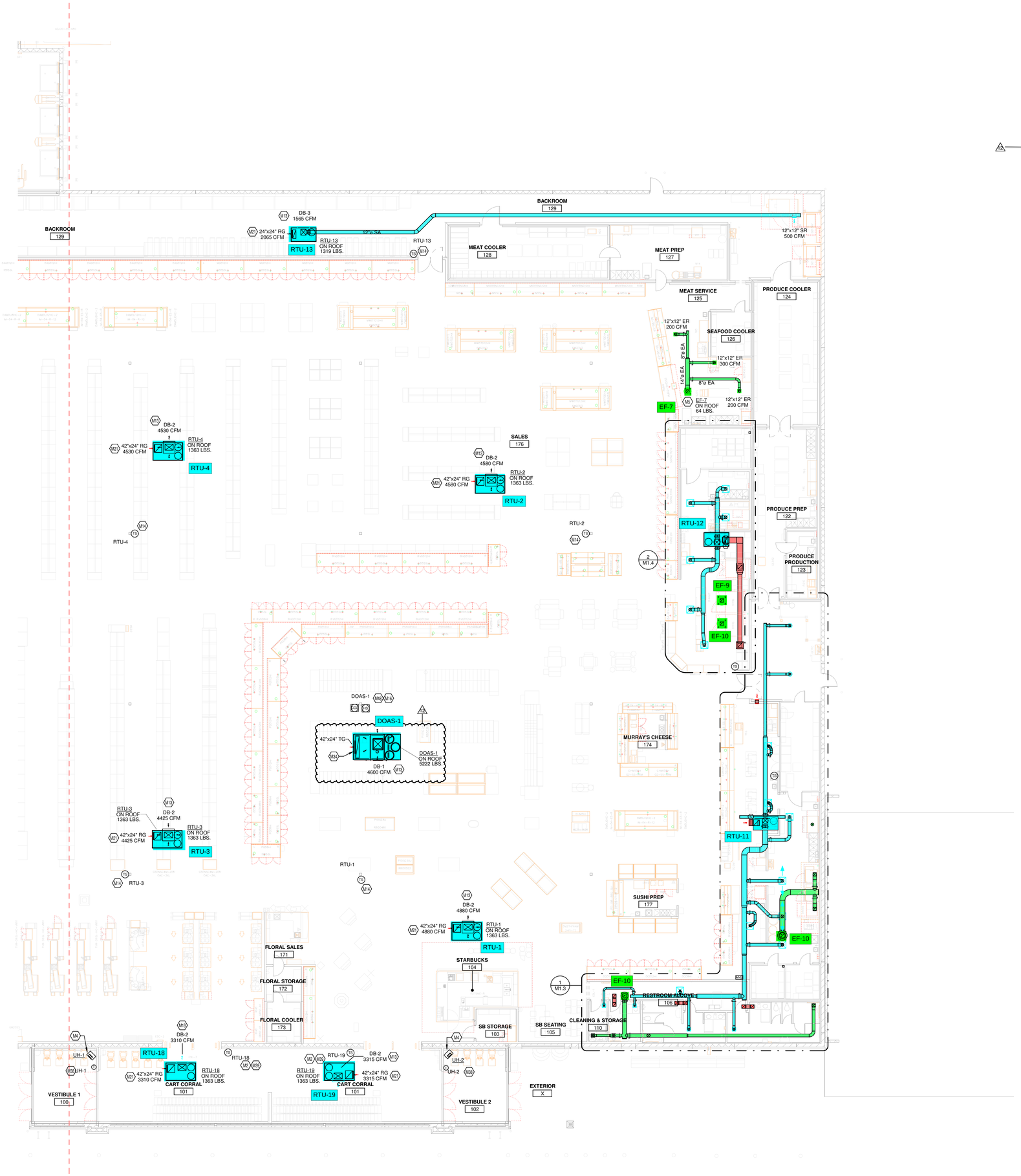
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2 HVAC FLOOR PLAN - LEFT
3/32" = 1'-0"

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KEYED NOTES

M2	THERMOSTAT TO BE MOUNTED AT 4'0" AFF. PROVIDE LOCKABLE PROTECTIVE COVER OVER DEVICE.
M4	SUSPENDED ELECTRIC HEATER USING THREADED ROD TO UNISTRUT CHANNEL OR APPROVED EQUAL. MOUNT 16'0" AFF TO BOTTOM OF UNIT. VERIFY LOCATION AND REQUIREMENTS TO OWNER PRIOR TO INSTALLATION. REFER TO 238239.00-01 ON M5.2 AND M6.1 FOR MORE INFORMATION.
M5	DUCT UP TO OPENING THROUGH ROOF CAPPED WITH CURB AND KROGER FURNISHED EXHAUST FAN.
M13	DROP BOX DIFFUSER SYSTEM. REFER TO DIFFUSER SCHEDULE FOR AES MODEL NUMBERS AND QUANTITIES. REFER TO FLOOR PLANS FOR THROW DIRECTIONS AND AIRFLOW. REFER TO DETAIL HSD-1 FOR INSTALLATION.
M14	TEMPERATURE SENSOR FOR RTU FURNISHED BY ORIGINAL EQUIPMENT MANUFACTURER. ROUTE CONTROL WIRING THROUGH RTU AND BACK TO BUILDING CONTROL PANEL.
M16	HUMIDITY/TEMPERATURE SENSOR FURNISHED BY ORIGINAL EQUIPMENT MANUFACTURER. INSTALL PROBE AT 7'-6" AFF ON COLUMN. REFER TO EM SERIES OF DRAWINGS FOR FURTHER INFORMATION.
M21	RETURN AIR GRILLE IN SIDE OF DUCT DROP, TITUS 50F WITH 1 INCH OPENINGS OR APPROVED EQUAL.
M34	RETURN AIR GRILLE TO BE INSTALLED ON VERTICAL FACE OF RETURN DUCT DROP. OPPOSITE 6-WAY DROPBOX DIFFUSER. BASIS OF DESIGN TITUS 50F WITH 1" OPENINGS OR APPROVED EQUAL.
M38	THERMOSTAT TO BE CONFIGURED WITH AUTOMATIC HEATING SHUTOFF ACTIVATING WHEN OUTDOOR AIR TEMPERATURE REACHES 45 DEG F.
M39	THERMOSTAT TO BE CONFIGURED WITH AUTOMATIC CONTROLS TO LIMIT HEATING TO A 60 DEG F MAXIMUM AND COOLING TO AN 85 DEG F MINIMUM.
M48	PROVIDE CO2 SENSOR WHERE SHOWN. ROUTE CONTROL WIRING TO BUILDING CONTROL PANEL.



1 HVAC FLOOR PLAN - RIGHT
3/32" = 1'-0"

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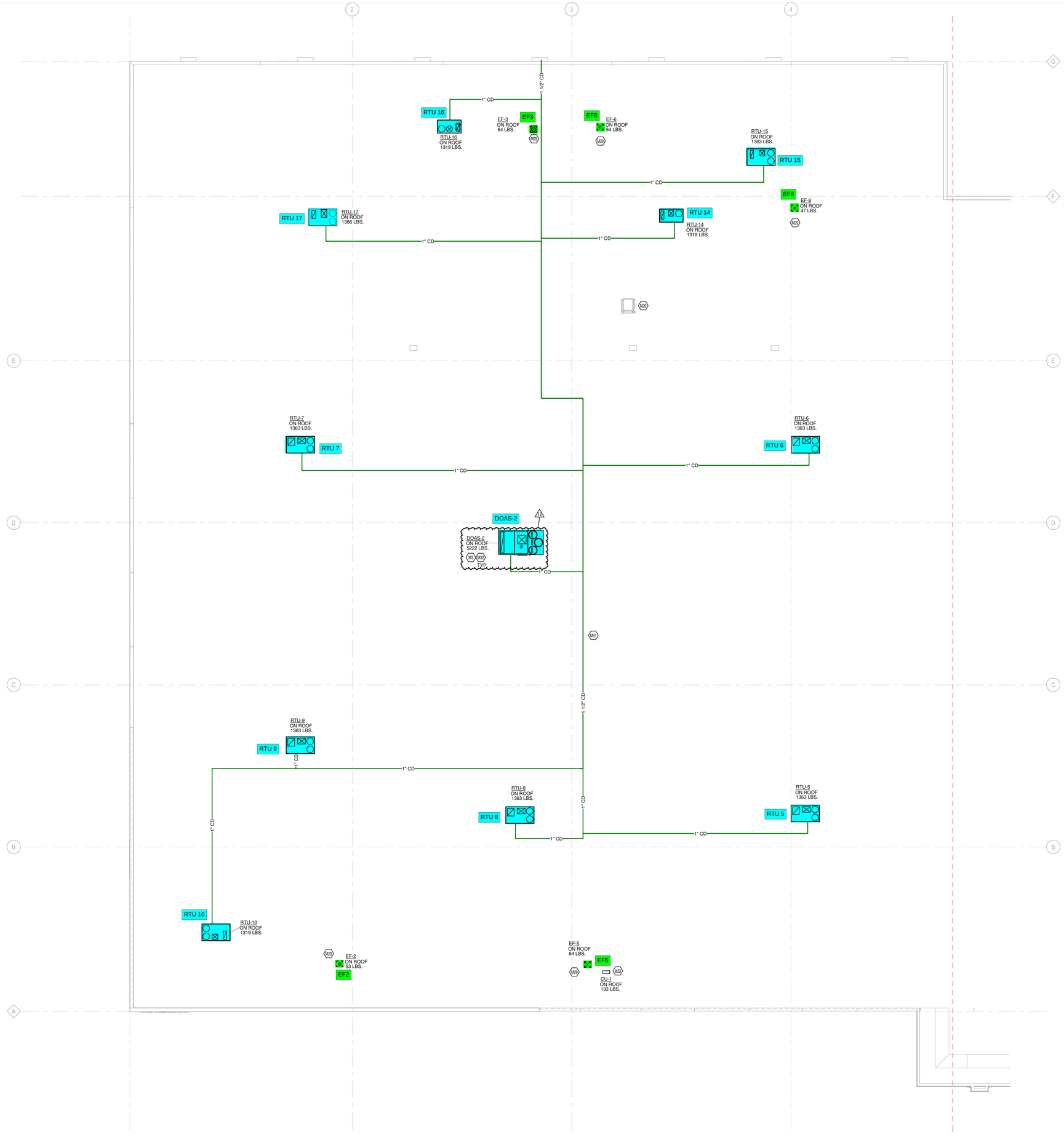
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SHEET TITLE
HVAC FLOOR PLAN - RIGHT

SHEET NO.
M1.1b

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1 HVAC ROOF PLAN - LEFT
3/32" = 1'-0"

KEYED NOTES

M3	REFER TO SHEETS M3.1.8 - M3.1.10 FOR INFORMATION REGARDING DOAS UNITS AND INSTALL PER MANUFACTURER'S INSTALLATION DETAILS AND INSTRUCTIONS.
M20	ROOF HATCH.
M23	INSTALL MINIMUM 7'-0" AFF KROGER FURNISHED SPLIT SYSTEM PROVIDED WITH LOW AMBIENT KIT AND WIND BAFFLES. MOUNT PER MANUFACTURER'S RECOMMENDATIONS. ROUTE REFRIGERANT LINES THROUGH ROOF TO CONDENSING UNIT PER MANUFACTURER'S GUIDELINES. ROUTE INSULATED 3/4" CONDENSATE TO HUB DRAIN IN AREA. COORDINATE ORDERING OF REFRIGERANT LINESET WITH OWNER'S PROJECT MANAGER. REFERENCE HSD-11 FOR ADDITIONAL INFORMATION.
M29	INSTALL FLUES AND EXHAUST FANS A MINIMUM OF 10 FEET FROM OUTSIDE AIR INTAKE OF ROOFTOP UNITS.
M32	ROOFTOP UNIT FURNISHED BY KROGER AND INSTALLED BY MECHANICAL CONTRACTOR. BALANCE TO SCHEDULED AIRFLOW. REFER TO ARCHITECTURAL ROOF PLAN FOR HVAC ROOFTOP DIMENSIONAL INFORMATION. REFER TO STRUCTURAL DRAWINGS FOR JOIST AND BEAM LOCATIONS AND DIMENSIONAL INFORMATION. REFER TO HSD-10 FOR INFORMATION REGARDING BRACING FOR WIND RESISTANCE.
M91	COORDINATE CONDENSATE LINE LOCATIONS WITH GAS PIPING ON ROOF.

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SHEET TITLE
HVAC ROOF PLAN - LEFT

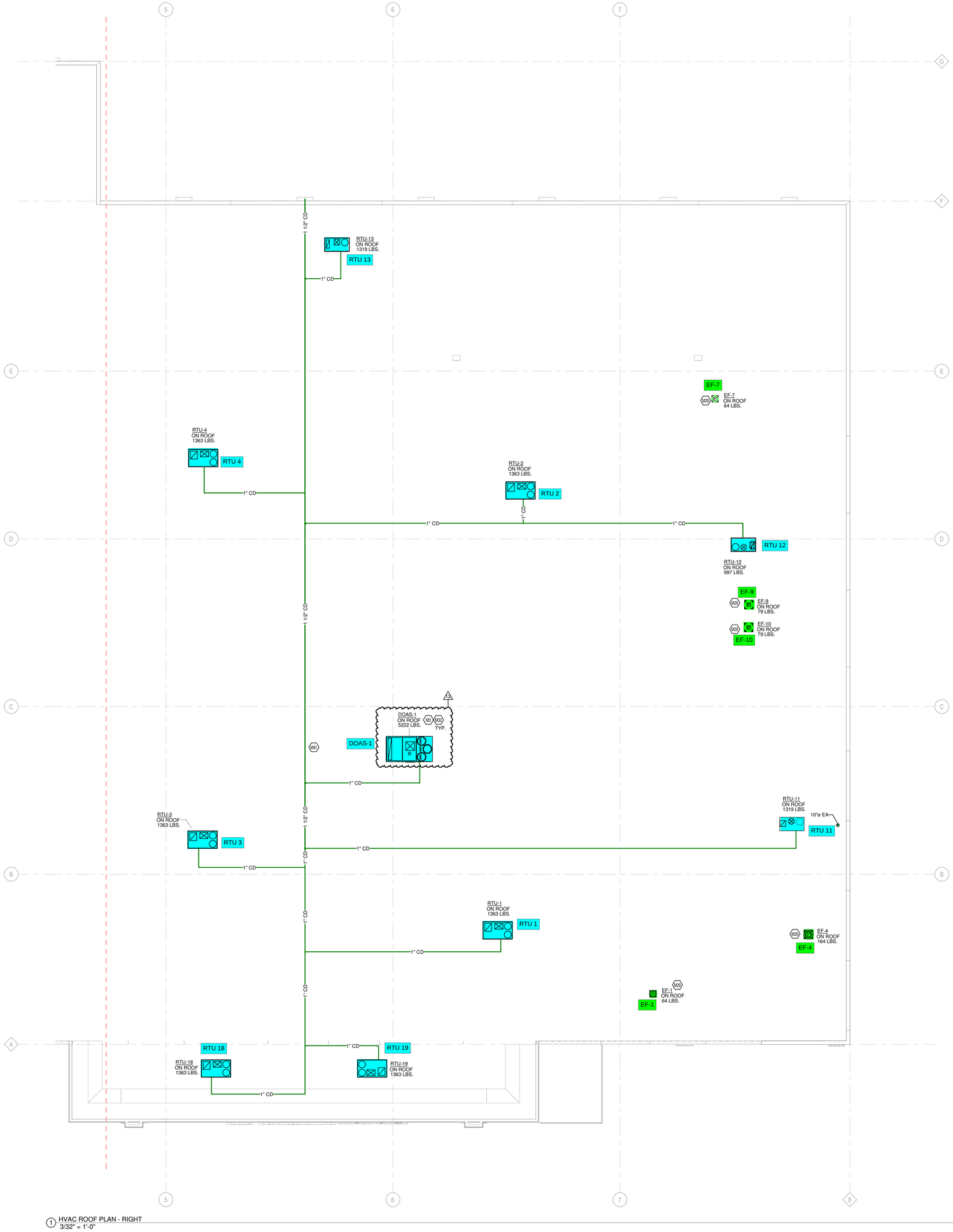
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M1.2a

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KEYED NOTES

M3	REFER TO SHEETS M3.1.5 - M3.1.16 FOR INFORMATION REGARDING DOAS UNITS AND INSTALL PER MANUFACTURER'S INSTALLATION DETAILS AND INSTRUCTIONS.
M29	INSTALL FLUES AND EXHAUST FANS A MINIMUM OF 10 FEET FROM OUTSIDE AIR INTAKE OF ROOFTOP UNITS.
M32	ROOFTOP UNIT FURNISHED BY KROGER AND INSTALLED BY MECHANICAL CONTRACTOR. BALANCE TO SCHEDULED AIRFLOW. REFER TO ARCHITECTURAL ROOF PLAN FOR HVAC ROOFTOP DIMENSIONAL INFORMATION. REFER TO STRUCTURAL DRAWINGS FOR JOIST AND BEAM LOCATIONS AND DIMENSIONAL INFORMATION. REFER TO HSD-10 FOR INFORMATION REGARDING BRACING FOR WIND RESISTANCE.
M91	COORDINATE CONDENSATE LINE LOCATIONS WITH GAS PIPING ON ROOF.



1 HVAC ROOF PLAN - RIGHT
3/32" = 1'-0"

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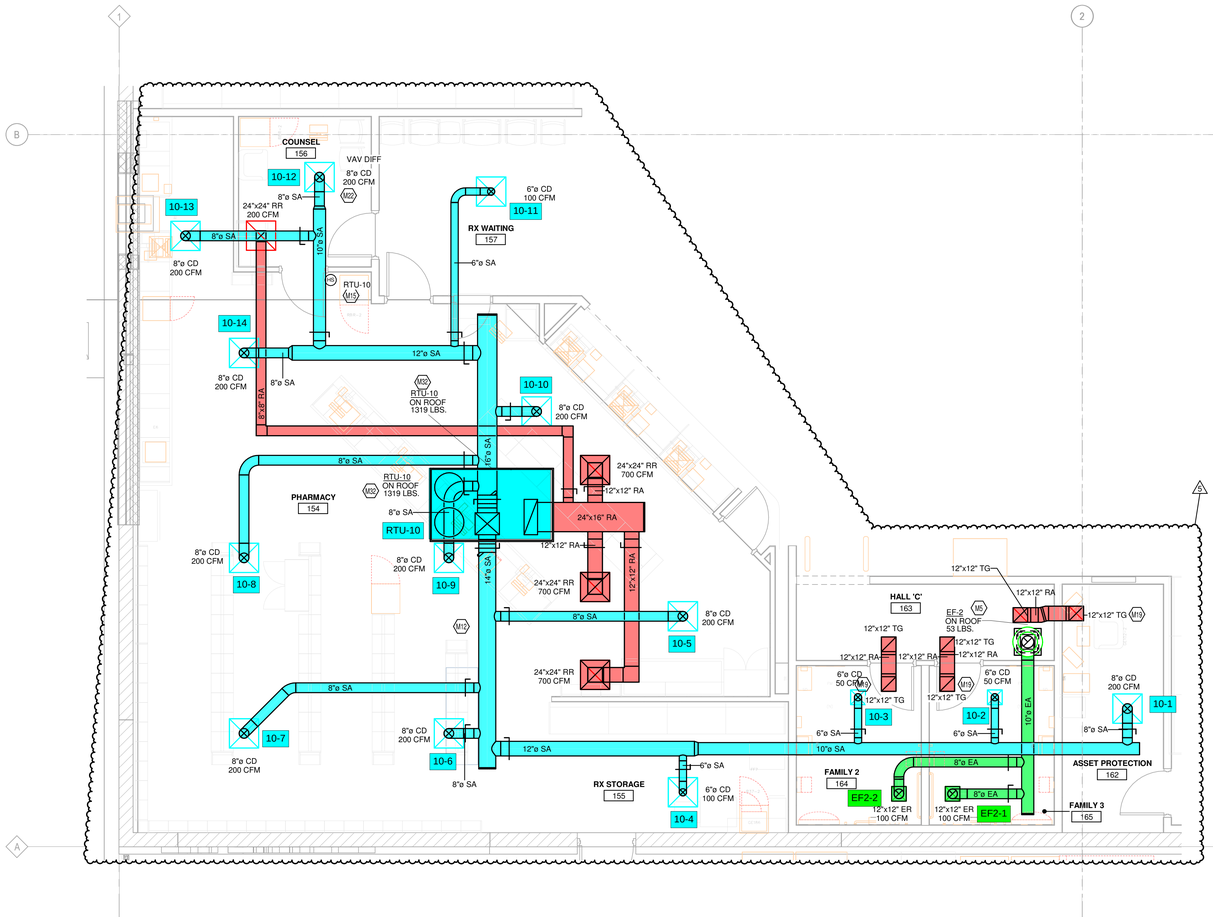
SHEET TITLE
HVAC ROOF PLAN - RIGHT

SHEET NO.
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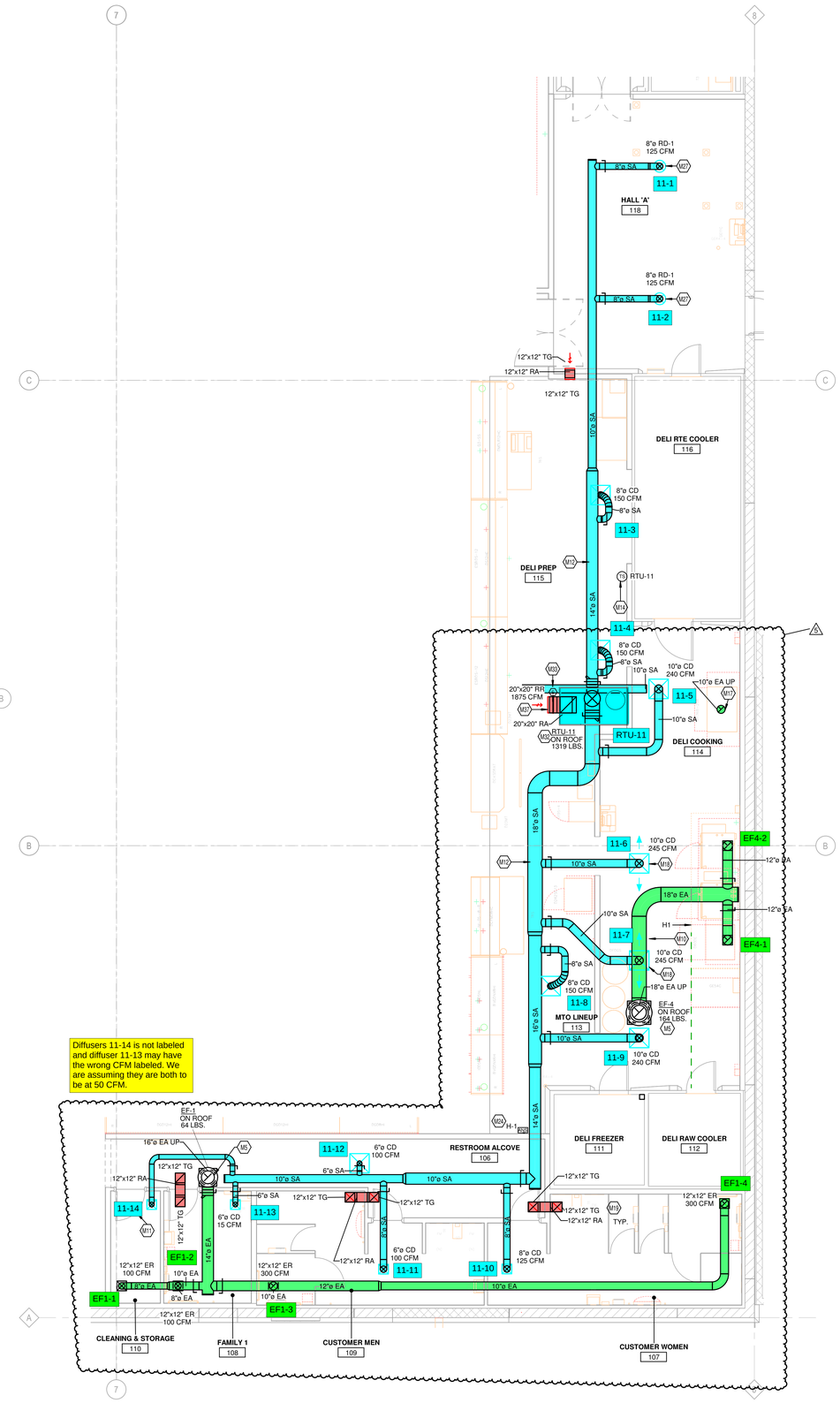
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KEYED NOTES

M5	DUCT UP TO OPENING THROUGH ROOF CAPPED WITH CURB AND KROGER FURNISHED EXHAUST FAN.
M10	GREASE DUCT FROM EXHAUST HOOD TO OPENING THROUGH ROOF PER NFPA 96. MECHANICAL CONTRACTOR TO INSTALL PROVIDED HINGE KIT. DUCTWRAP IS TO RUN THE ENTIRE LENGTH OF GREASE DUCT FROM CEILING PENETRATION TO FAN. REFER TO HSD-4 AND HSD-4B ON M5.1, AND BOTH 233813.00-04 AND 233813.00-02 ON M5.2 FOR ADDITIONAL INFORMATION.
M11	UNDERCUT DOOR 1" TO ALLOW FOR RETURN AIRFLOW.
M12	ROUTE SUPPLY AND RETURN DUCTWORK ROUGHLY 2'0" ABOVE THE CEILING FOR EASE OF FUTURE ACCESS. CONFIRM FINAL HEIGHT WITH OWNER.
M14	TEMPERATURE SENSOR FOR RTU FURNISHED BY ORIGINAL EQUIPMENT MANUFACTURER. ROUTE CONTROL WIRING THROUGH RTU AND BACK TO BUILDING CONTROL PANEL.
M15	COMBINATION TEMPERATURE/RELATIVE HUMIDITY SENSOR FOR RTU FURNISHED BY ORIGINAL EQUIPMENT MANUFACTURER. ROUTE CONTROL WIRING THROUGH RTU AND BACK TO BUILDING CONTROL PANEL.
M17	UW-50 VENT KIT INCLUDED WITH UNIT AND SUPPLIED BY HOBART. VENT KIT AUTOMATICALLY REMOVES STEAM/CONDENSATION AT THE COMPLETION OF THE WAREWASH CYCLE. WAREWASH DOOR WILL NOT OPEN UNTIL THIS PROCESS IS COMPLETED. MECHANICAL CONTRACTOR TO CONNECT STAINLESS STEEL DUCT TO THE VENT KIT OPENING THROUGH ROOF. REFER TO HSD-8 FOR ADDITIONAL INFORMATION.
M18	DIFFUSER AROUND HOOD TO BE A 2-WAY DIFFUSER FACING AWAY FROM THE HOOD TO PREVENT INTERFERENCE WITH THE HOOD'S CONTAIN AND CAPTURE.
M19	INSTALL TRANSFER GRILLES IN WALL USING NOTES FROM DETAIL 233713.00-19 ON M5.2. CONFIRM FINAL LOCATION AND FINISH WITH ARCHITECT AND OWNER.
M22	MECHANICAL CONTRACTOR TO PROVIDE VAV DIFFUSER, ACCUTHERM THERMA-FUSE MODEL TF-HC OR APPROVED EQUAL.
M24	HOOD ANSUL PULL STATION LOCATION. COORDINATE FINAL LOCATION WITH ELECTRICAL PLANS. PROVIDE NAMEPLATE AT STATION WITH HOOD NUMBER AND LOCATIONS. REFERENCE HSD-4A FOR ADDITIONAL INFORMATION.
M27	MOUNT GRILLE/REGISTER 10'0" AFF.
M32	ROOFTOP UNIT FURNISHED BY KROGER AND INSTALLED BY MECHANICAL CONTRACTOR. BALANCE TO SCHEDULED AIRFLOW. REFER TO ARCHITECTURAL ROOF PLAN FOR HVAC ROOFTOP DIMENSIONAL INFORMATION. REFER TO STRUCTURAL DRAWINGS FOR JOIST AND BEAM LOCATIONS AND DIMENSIONAL INFORMATION. REFER TO HSD-10 FOR INFORMATION REGARDING BRACING FOR WIND RESISTANCE.
M33	DUCT MOUNTED SMOKE DETECTOR TO BE INSTALLED IN THE RETURN DUCTWORK, DOWNSTREAM OF FILTERS AND UPSTREAM OF ANY BRANCH CONNECTIONS. INSTALL SAMPLING TUBE(S) AND DETECTOR HOUSING IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. DETECTOR, FAN SHUTDOWN WIRING, AND CONTROLS BY OTHERS.
M37	INSTALL TOP OF RETURN GRILLE 15'-0" AFF IN SOFFIT. COORDINATE FINAL LOCATION WITH ARCHITECT AND WITH DECOR. LOCATION OF DECOR TAKES PRECEDENCE OVER LOCATION OF RETURN GRILLE.



3 HVAC ENLARGED PLAN - PHARMACY
1/4" = 1'-0"



1 HVAC ENLARGED PLAN - DELI
3/16" = 1'-0"

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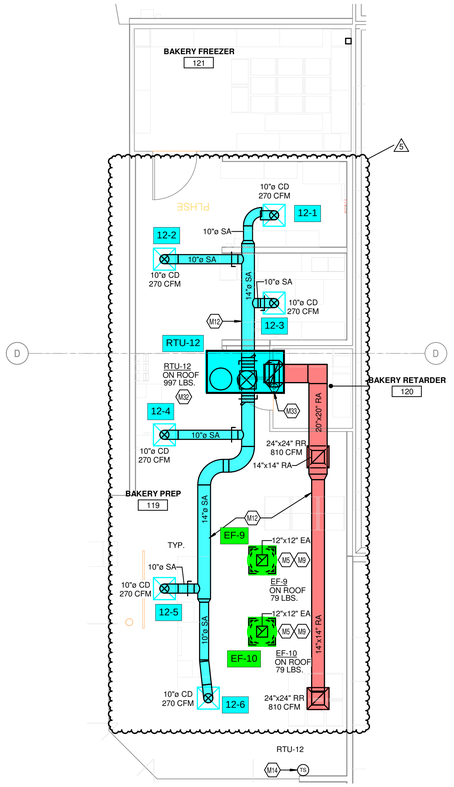
FORT WORTH, TX
COMMISSION NO. 522316
ISSUE DATE 05/24/23
SHEET TITLE
HVAC ENLARGED PLANS

SHEET NO.
M1.3

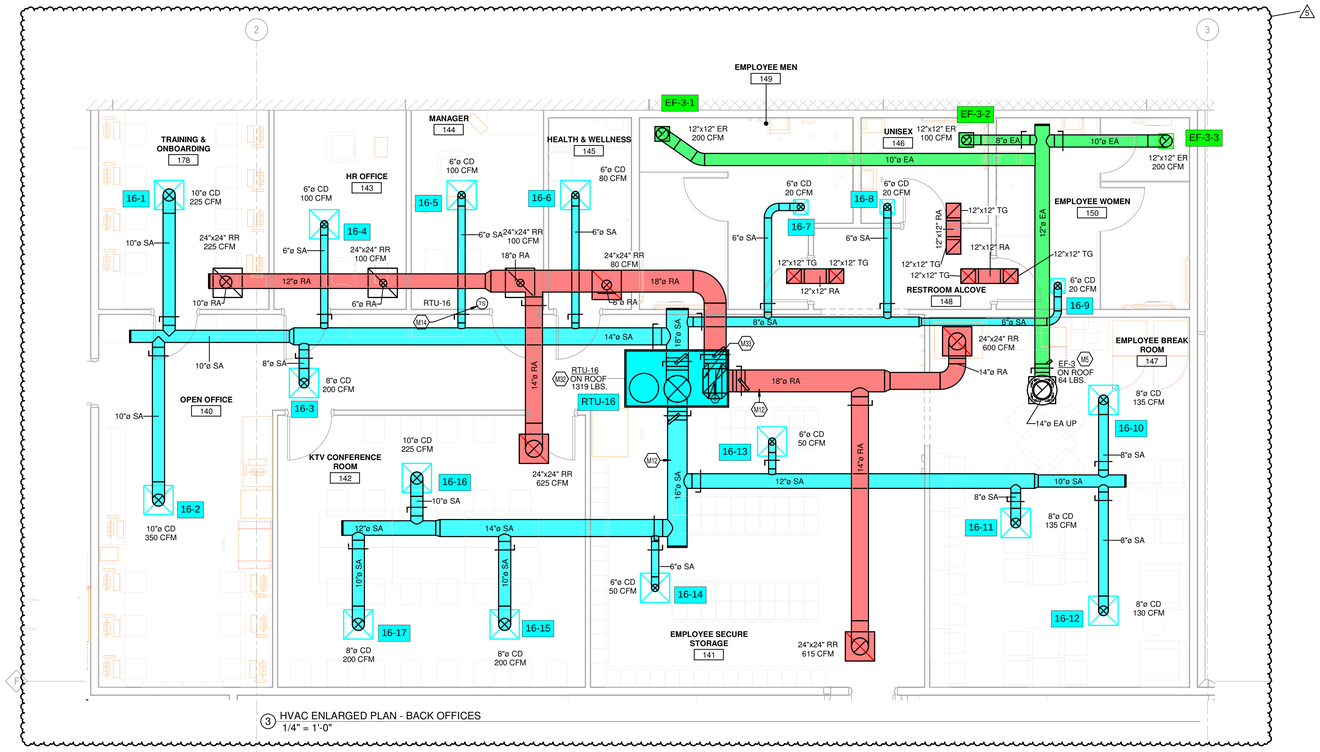
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PLOTTED: 6/19/2024 4:56:14 PM

KEYED NOTES

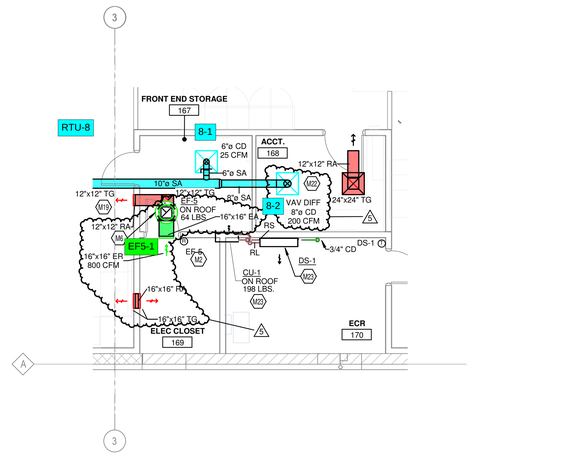
M2	THERMOSTAT TO BE MOUNTED AT 4'0" AFF. PROVIDE LOCKABLE PROTECTIVE COVER OVER DEVICE.
M5	DUCT UP TO OPENING THROUGH ROOF CAPPED WITH CURB AND KROGER FURNISHED EXHAUST FAN.
M6	DUCT UP TO OPENING THRU ROOF. CONTRACTOR TO PROVIDE REVERSE ACTING THERMOSTAT FOR FAN. FAN TO ENERGIZE WHEN ROOM REACHES 80 DEG F.
M9	B-VENT DUCT UP FROM RACK OVEN VENT COLLAR THROUGH ROOF. DUCTS ARE ONLY TO OFFSET ABOVE ACT TILES. DUCTS ARE TO BE RUN STRAIGHT AND VERTICAL WHEN VISIBLE TO SALES FLOOR. REFER TO DETAIL HSD-7 FOR ADDITIONAL INFORMATION.
M12	ROUTE SUPPLY AND RETURN DUCTWORK ROUGHLY 2'0" ABOVE THE CEILING FOR EASE OF FUTURE ACCESS. CONFIRM FINAL HEIGHT WITH OWNER.
M14	TEMPERATURE SENSOR FOR RTU FURNISHED BY ORIGINAL EQUIPMENT MANUFACTURER. ROUTE CONTROL WIRING THROUGH RTU AND BACK TO BUILDING CONTROL PANEL.
M19	INSTALL TRANSFER GRILLES IN WALL USING NOTES FROM DETAIL 233713.00-19 ON MS-2. CONFIRM FINAL LOCATION AND FINISH WITH ARCHITECT AND OWNER.
M22	MECHANICAL CONTRACTOR TO PROVIDE VAV DIFFUSER, ACCUTHERM THERMA-FUSE MODEL TF-HC OR APPROVED EQUAL.
M23	INSTALL MINIMUM 7'-0" AFF KROGER FURNISHED SPLIT SYSTEM PROVIDED WITH LOW AMBIENT KIT AND WIND BAFFLES. MOUNT PER MANUFACTURER'S RECOMMENDATIONS. ROUTE REFRIGERANT LINES THROUGH ROOF TO CONDENSING UNIT PER MANUFACTURER'S GUIDELINES. ROUTE INSULATED 3/4" CONDENSATE TO HUB DRAIN IN AREA. COORDINATE ORDERING OF REFRIGERANT LINESET WITH OWNER'S PROJECT MANAGER. REFERENCE HSD-11 FOR ADDITIONAL INFORMATION.
M32	ROOFTOP UNIT FURNISHED BY KROGER AND INSTALLED BY MECHANICAL CONTRACTOR. BALANCE TO SCHEDULED AIRFLOW. REFER TO ARCHITECTURAL ROOF PLAN FOR HVAC ROOFTOP DIMENSIONAL INFORMATION. REFER TO STRUCTURAL DRAWINGS FOR JOIST AND BEAM LOCATIONS AND DIMENSIONAL INFORMATION. REFER TO HSD-10 FOR INFORMATION REGARDING BRACING FOR WIND RESISTANCE.
M33	DUCT MOUNTED SMOKE DETECTOR TO BE INSTALLED IN THE RETURN DUCTWORK, DOWNSTREAM OF FILTERS AND UPSTREAM OF ANY BRANCH CONNECTIONS. INSTALL SAMPLING TUBE(S) AND DETECTOR HOUSING IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. DETECTOR, FAN SHUTDOWN WIRING, AND CONTROLS BY OTHERS.



2 HVAC ENLARGED PLAN - BAKERY
3/16" = 1'-0"



3 HVAC ENLARGED PLAN - BACK OFFICES
1/4" = 1'-0"



1 HVAC ENLARGED PLAN - CUSTOMER SERVICE
3/16" = 1'-0"

N

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OWNER
Kroger

ISSUE/REVISION

	DATE	DESCRIPTION
	04/20/2023	90% OWNER REVIEW
	05/24/2023	100%/BID/PERMIT
1	09/08/2023	ADDENDUM NO. 1
5	06/19/2024	BULLETIN NO. 4

EXECUTED BY: KSL
REVIEWED BY: MCD

PROJECT TITLE
KROGER STORE
DAL541

FORT WORTH, TX
COMMISSION NO. 522316
ISSUE DATE 05/24/23

SHEET TITLE
HVAC ENLARGED PLANS

SHEET NO.
M1.4

FILE LOCATION: C:\Users\steinmar\Documents\Revit\256419-01MEP-Kroger DAL541 Fort Worth, TX - 2023 New - Jsmtrx.rvt
PLOTTED: 6/19/2024 4:56:47 PM

HOOD INFORMATION – JOB#5967339

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	HOOD CONSTRUCTION	HOOD CONFIG END TO END	ROW
1	K1L – K-0002317	6024 ND-2	CAPTIVEAIRE	8' 0"	450 DEG	I	MEDIUM	150	1200			4"	12"	1200	1528	-0.294"	304 SS WHERE EXPOSED	LEFT	ALONE
2	K1R – K-0002317	6024 ND-2	CAPTIVEAIRE	8' 0"	450 DEG	I	MEDIUM	150	1200			4"	12"	1200	1528	-0.294"	304 SS WHERE EXPOSED	RIGHT	ALONE

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	UTILITY CABINET(S) LOCATION	SIZE	FIRE SYSTEM TYPE	FIRE SYSTEM SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1	K1L – K-0002317	SS BAFFLE WITH HANDLES	5	16"	16"	30%	3	L55 SERIES E26	NO							YES	418 LBS
2	K1R – K-0002317	SS BAFFLE WITH HANDLES	5	16"	16"	30%	3	L55 SERIES E26	NO	RIGHT	12"x60"x24"	TANK FS	4.0/4.0	SC-310110MA	1 LIGHT 1 FAN	YES	742 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	K1L – K-0002317	FIELD WRAPPER 17.00" HIGH FRONT, LEFT.
		LEFT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 304 SS.
		SENSOR-CV.
2	K1R – K-0002317	FIELD WRAPPER 17.00" HIGH FRONT, LEFT.
		RIGHT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 304 SS.
		SENSOR-CV.

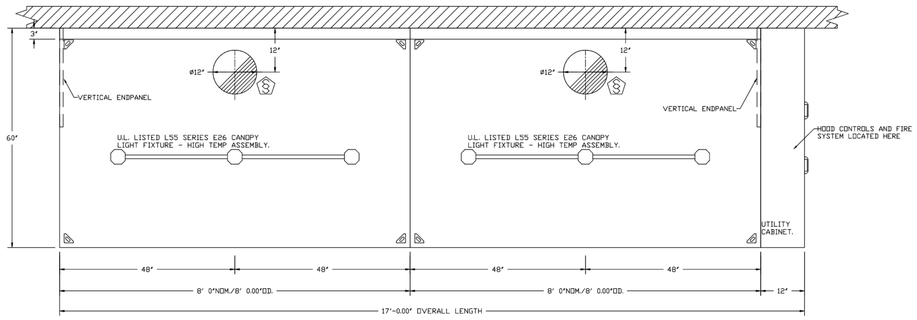
CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH UL 710 AND NFPA 96 AND ARE RECOGNIZED BY ONE OR MORE OF THE FOLLOWING:

ETL SANITATION LISTED

ETL LISTED
FILE# 102900319PRT-001

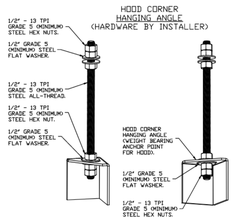
HVAC DISTRIBUTION NOTE

IT IS RECOMMENDED NOT TO INSTALL HIGH VELOCITY DIFFUSERS OR HVAC RETURNS WITHIN TEN (10) FEET OF THE EXHAUST HOOD. PERFORATED DIFFUSERS ARE RECOMMENDED.



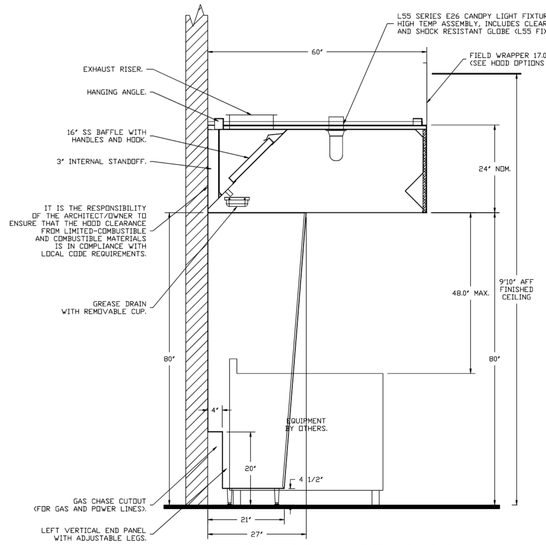
PLAN VIEW – HOOD #1 (K1L – K-0002317)
8' 0.00" LONG 6024ND-2

PLAN VIEW – HOOD #2 (K1R – K-0002317)
8' 0.00" LONG 6024ND-2



ASSEMBLY INSTRUCTIONS

HANGING ANGLE MUST BE SUPPORTED WITH 1/2" - 13 TPI GRADE 5 (MINIMUM) ALL-THREAD. SANDWICH HANGING ANGLES AND CEILING ANCHOR POINTS WITH 1/2" GRADE 5 (MINIMUM) STEEL FLAT WASHERS AND 1/2" - 13 TPI GRADE 5 (MINIMUM) HEX NUTS AS SHOWN. MUST USE DOUBLED HEX NUT CONFIGURATION BENEATH HOOD HANGING ANGLES AND ABOVE CEILING ANCHORS. MAINTAIN 1/4" OF EXPOSED THREADS BENEATH BOTTOM HEX NUT. TORQUE ALL HEX NUTS TO 57 FT-LBS.



SECTION VIEW – MODEL 6024ND-2

REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
4		

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KROGER 541 – FT WORTH, TX

FORT WORTH, TX, 76179

DATE: 4/24/2023

DWG.#: 5967339

DRAWN BY: JAC

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

MASTER DRAWING

SHEET NO. 1

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OWNER

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ISSUE/REVISION

	DATE	DESCRIPTION
1	04/20/2023	90% OWNER REVIEW
2	05/24/2023	100%BID/PERMIT

EXECUTED BY: KSL
REVIEWED BY: MCD

PROJECT TITLE
KROGER STORE DAL541

FORT WORTH, TX

COMMISSION NO. 522316

ISSUE DATE 05/24/23

SHEET TITLE
HVAC SECTIONS AND DETAILS

SHEET NO.
M3.1.1

PLOTTED: 5/3/2023 10:28:11 AM FILE LOCATION: C:\Users\klemke\Documents\Revit\20526-R20-DAL541 Kroger DAL541 Fort Worth, TX - 2023 New - Jkemke.rvt

FIRE SYSTEM INFORMATION – JOB#5967339

FIRE SYSTEM NO	TAG	TYPE	SIZE	FLOW POINTS	INSTALLATION	
					SYSTEM	LOCATION ON HOOD
1		TANK FS	4.0/4.0	36	FIRE CABINET RIGHT	RIGHT, HOOD 2

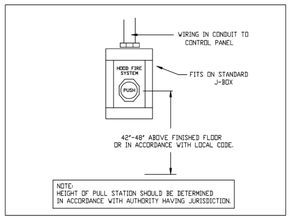
THE TANK WET CHEMICAL FIRE SUPPRESSION SYSTEM IS UL & ULC LISTED IN ACCORDANCE WITH UL300, UL1254, ULCORD-C1254.6 UNDER FILE# EX27953. ETL LISTED UNDER REPORT 10456027SAT-003.

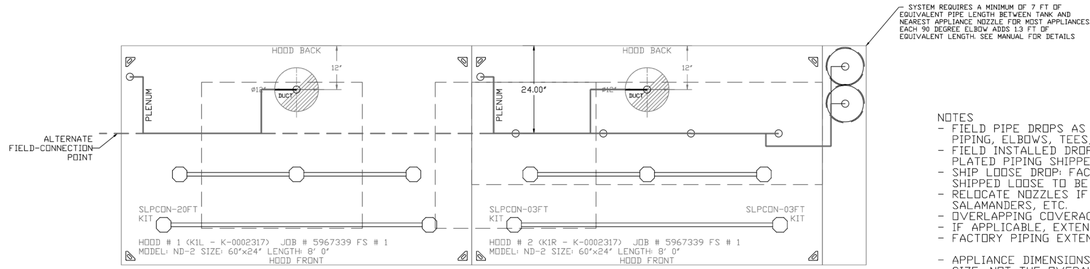
THE MICROPROCESSOR-BASED CONTROL BOARD IS ETL LISTED TO UL864 AND CAN/ULC-S527-11.

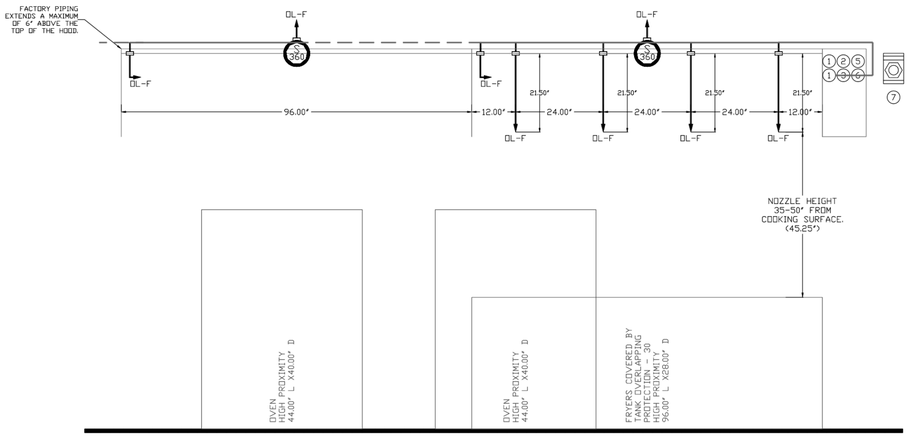
THE TANK WET CHEMICAL FIRE SUPPRESSION SYSTEM IS ACCEPTABLE FOR USE IN NEW YORK CITY, IS APPROVED PER FDNY COA #5870.

MEETS THE REQUIREMENTS OF NFPA 96 AND NFPA 17A.

TANK MANUAL ACTIVATION DETAIL







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.

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

JOB #: 5967339.
JOB NAME: KROGER 541 - FT WORTH, TX.

SYSTEM SIZE: TANK-SP-2 TOTAL FP REQUIRED: 36.
HOOD # 1 8' 0.00" LONG x 60" WIDE x 24" HIGH.
RISER # 1 SIZE: 12" DIA.
HOOD # 1 METAL BLOW-OFF CAPS INCLUDED.
HOOD # 2 8' 0.00" LONG x 60" WIDE x 24" HIGH.
RISER # 1 SIZE: 12" DIA.
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.

LEGEND – FIRE CABINET TANK SYSTEM

1 4 GALLON TANK.
2 PRIMARY ACTUATOR RELEASE.
3 SECONDARY ACTUATOR RELEASE.
4 PRESSURE SUPERVISION SWITCH.
5 PRIMARY HOSE ASSEMBLY.
6 SECONDARY HOSE ASSEMBLY.
7 REMOTE MANUAL ACTUATION DEVICE.

REVISIONS

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KROGER 541 - FT WORTH, TX
FORT WORTH, TX, 76179

DATE: 4/24/2023

DWG.#: 5967339

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KROGER STORE DAL541

FORT WORTH, TX
COMMISSION NO. 522316
ISSUE DATE 05/24/23

SHEET TITLE
HVAC SECTIONS AND DETAILS

SHEET NO.
M3.1.2

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EXHAUST FAN INFORMATION – JOB#5967339

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	EF-1 K-0002355	1	DR30HFA	CAPTIVEAIRE	700	0.500	1378	ODP	0.250	0.1470	1	115	3.8		64	9.1
2	EF-2 PNET42845	1	DR12HFA	CAPTIVEAIRE	200	0.400	1099	TEAO-ECM	0.250	0.0570	1	115	2.9		54	4.4
3	EF-3 K-0002355	1	DR30HFA	CAPTIVEAIRE	500	0.500	1176	ODP	0.250	0.0920	1	115	3.8		64	6.7
4	EF-4 K-0069365	1	DU180HFA	CAPTIVEAIRE	2400	1.250	1148	ODP,PREMIUM	2.000	1.0370	3	208	6.1	554 FPM	164	13.5
5	EF-5 K-0002357	1	DR12HFA	CAPTIVEAIRE	500	0.400	1449	ODP	0.180	0.1310	1	115	1.9		53	8
6	EF-6 K-0002357	1	DR12HFA	CAPTIVEAIRE	400	0.400	1303	ODP	0.180	0.0960	1	115	1.9		53	6.3
7	EF-7 K-0002355	1	DR30HFA	CAPTIVEAIRE	700	0.400	1313	ODP	0.250	0.1280	1	115	3.8		64	8.4
8	EF-8 K-0002358	1	DR10HFA	CAPTIVEAIRE	200	0.300	1258	ODP	0.060	0.0380	1	115	1.1		47	3.4
9	EF-9 K-0002372	1	DU33HFA	CAPTIVEAIRE	600	0.500	1253	ODP	0.333	0.1190	1	115	5.6	297 FPM	79	10.9
10	EF-10 K-0002372	1	DU33HFA	CAPTIVEAIRE	600	0.500	1253	ODP	0.333	0.1190	1	115	5.6	297 FPM	79	10.9

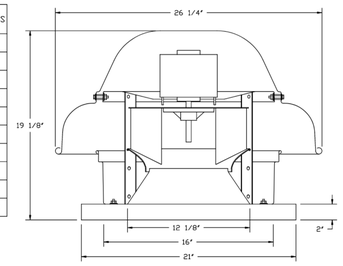
FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	EF-1 K-0002355	1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS
		1	I 15-BDD DAMPER
		1	2 YEAR PARTS WARRANTY
2	EF-2 PNET42845	1	I 12-BDD DAMPER
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS
		1	ECM WIRING PACKAGE - MANUAL DR 0-10VDC REFERENCE SPEED CONTROL -RTC- (TELCO MOTOR), CCW ROTATION
		1	2 YEAR PARTS WARRANTY
3	EF-3 K-0002355	1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS
		1	I 15-BDD DAMPER
		1	2 YEAR PARTS WARRANTY
4	EF-4 K-0069365	1	GREASE BOX
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS
		1	2 YEAR PARTS WARRANTY
5	EF-5 K-0002357	1	I 12-BDD DAMPER
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS
		1	2 YEAR PARTS WARRANTY
6	EF-6 K-0002357	1	I 12-BDD DAMPER
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS
		1	2 YEAR PARTS WARRANTY
7	EF-7 K-0002355	1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS
		1	I 15-BDD DAMPER
		1	2 YEAR PARTS WARRANTY
8	EF-8 K-0002358	1	I 12-BDD DAMPER
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS
		1	2 YEAR PARTS WARRANTY
9	EF-9 K-0002372	1	GREASE BOX
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS
		1	2 YEAR PARTS WARRANTY
10	EF-10 K-0002372	1	GREASE BOX
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS
		1	2 YEAR PARTS WARRANTY

FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	EF-1 K-0002355		YES					
2	EF-2 PNET42845		YES					
3	EF-3 K-0002355		YES					
4	EF-4 K-0069365	YES						
5	EF-5 K-0002357		YES					
6	EF-6 K-0002357		YES					
7	EF-7 K-0002355		YES					
8	EF-8 K-0002358		YES					
9	EF-9 K-0002372	YES						
10	EF-10 K-0002372	YES						

FANS #1 (EF-1 K-0002355), #3 (EF-3 K-0002355), #7 (EF-7 K-0002355) – DR30HFA EXHAUST FAN



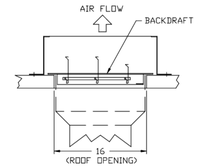
FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- UL705.
- SAFETY DISCONNECT.
- STANDARD BIRD SCREEN.
- SPEED CONTROL.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).

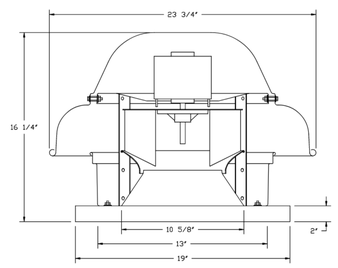
OPTIONS

- HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
- I 15-BDD DAMPER.
- 2 YEAR PARTS WARRANTY.

BACKDRAFT DAMPER INSTALLATION



FAN #2 DR12HFA – EXHAUST FAN (EF-2 PNET42845)



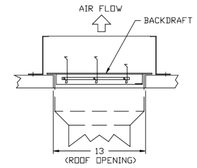
FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- UL705.
- SAFETY DISCONNECT.
- STANDARD BIRD SCREEN.
- SPEED CONTROL.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).

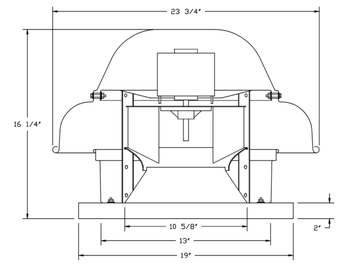
OPTIONS

- I 12-BDD DAMPER.
- HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
- ECM WIRING PACKAGE - MANUAL DR 0-10VDC REFERENCE SPEED CONTROL -RTC- (TELCO MOTOR), CCW ROTATION.
- 2 YEAR PARTS WARRANTY.

BACKDRAFT DAMPER INSTALLATION



FANS #5 (EF-5 K-0002357), #6 (EF-6 K-0002357) – DR12HFA EXHAUST FAN



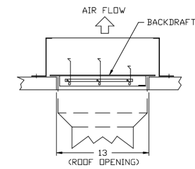
FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- UL705.
- SAFETY DISCONNECT.
- STANDARD BIRD SCREEN.
- SPEED CONTROL.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).

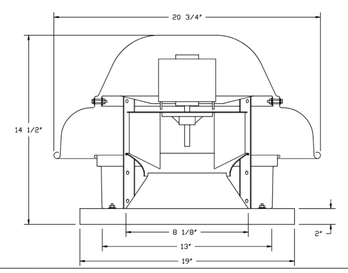
OPTIONS

- I 12-BDD DAMPER.
- HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
- 2 YEAR PARTS WARRANTY.

BACKDRAFT DAMPER INSTALLATION



FAN #8 DR10HFA – EXHAUST FAN (EF-8 K-0002358)



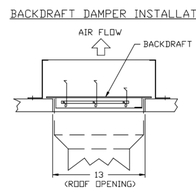
FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- UL705.
- SAFETY DISCONNECT.
- STANDARD BIRD SCREEN.
- SPEED CONTROL.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).

OPTIONS

- I 12-BDD DAMPER.
- HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
- 2 YEAR PARTS WARRANTY.

BACKDRAFT DAMPER INSTALLATION



REVISIONS

	DESCRIPTION	DATE
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KROGER 541 - FT WORTH, TX
FORT WORTH, TX, 76179

DATE: 4/24/2023

DWG.#: 5967339

DRAWN BY: JAC

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

MASTER DRAWING

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OWNER

Kroger

ISSUE/REVISION

	DATE	DESCRIPTION
2	04/20/2023	90% OWNER REVIEW
1	05/24/2023	100%BID/PERMIT

EXECUTED BY: Author
REVIEWED BY: Checker

PROJECT TITLE
KROGER STORE DAL541

FORT WORTH, TX

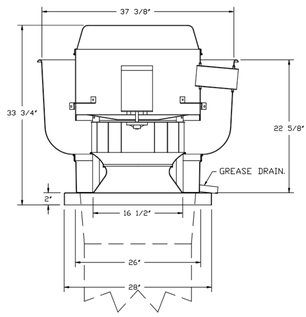
COMMISSION NO. 522316
ISSUE DATE 05/24/23

SHEET TITLE
HVAC SECTIONS AND DETAILS

SHEET NO.
M3.1.3

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FAN #4 DU180HFA - EXHAUST FAN (EF-4 K-0069365)



FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- 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.

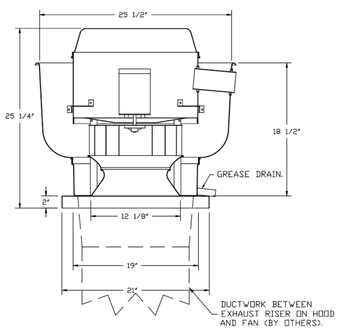
NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

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.
- HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
- 2 YEAR PARTS WARRANTY.

FANS #9 (EF-9 K-0002372), #10 (EF-10 K-0002372) - DU33HFA EXHAUST FAN



FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- 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.

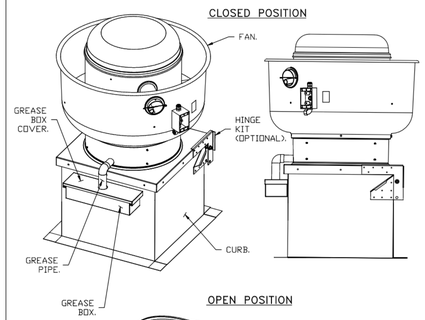
OPTIONS

- GREASE BOX.
- HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
- 2 YEAR PARTS WARRANTY.

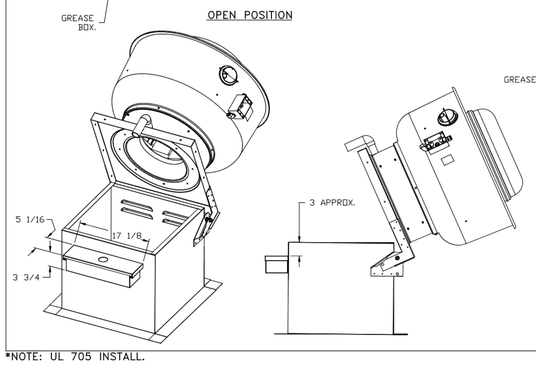
GREASE BOX INSTALLATION

GREASEBOX
REV.#2 08/19/02

CLOSED POSITION



OPEN POSITION



PARTS INCLUDED

GREASE BOX.
GREASE BOX COVER.
GREASE PIPE.

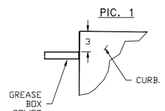
SHEET METAL SCREWS
3 - LONG (3/4" LG.).

GREASE BOX FIELD INSTALLATION

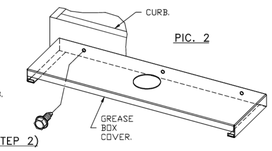
STEP 1)

ATTACH GREASE BOX COVER TO THE CURB, HOLD 3" DIMENSION AS SHOWN ON PIC. 1. SCREW GREASE BOX COVER TO CURB USING (3) LONG (3/4" LG.) SCREWS AS SHOWN ON PIC. 2.

PIC. 1



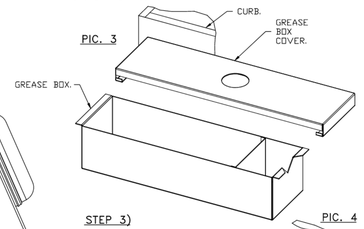
PIC. 2



STEP 2)

ATTACH GREASE BOX TO GREASE BOX COVER, SLIDE AND DROP. AS SHOWN ON PIC. 3.

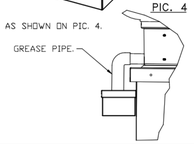
PIC. 3



STEP 3)

INSTALL GREASE PIPE AS SHOWN ON PIC. 4.

PIC. 4

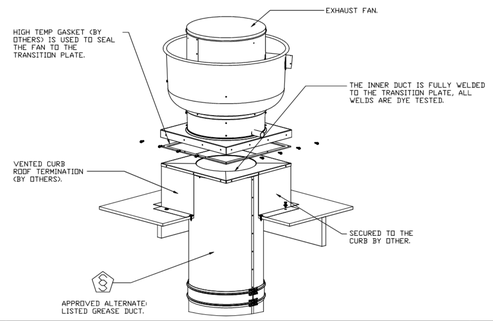


*NOTE: UL 705 INSTALL.

CAPTIVE AIRE UL LISTED DUCT IS APPROVED AS AN ALTERNATE - SPEC BELOW

(S) GREASE DUCT & CHIMNEY SPECIFICATIONS:
PROVIDE GREASE DUCT EQUAL TO CAPTIVEAIRE SYSTEMS MODEL 'DW' ROUND 20 GAUGE 430 STAINLESS STEEL DUCTWORK. MODEL 'DW' IS LISTED TO UL-1978 AND IS INSTALLED USING 'V' CLAMP LOCKING CONNECTIONS SEALED WITH 3M FIRE BARRIER 2000 PLUS. MODEL 'DW' DOES NOT REQUIRE WELDING PROVIDING IT HAS BEEN INSTALLED PER THE MANUFACTURES INSTALLATION GUIDE.
PROVIDE RATED ACCESS DOORS AT EVERY CHANGE IN DIRECTION AND EVERY 12' ON CENTER. PER MANUFACTURES LISTING MODEL 'DW' HORIZONTAL RUNS LESS THAN 75 FT. CAN BE SLOPED 1/16" PER 12", HORIZONTAL RUNS MORE THAN 75 FT. CAN BE SLOPED 3/16" PER 12". DUCT SHOULD BE SLOPED AS MUCH AS POSSIBLE TO REDUCE THE CHANCE OF GREASE ACCUMULATION IN HORIZONTAL RUNS.

IF THE DUCT OR CHIMNEY IS WITHIN 18 INCHES OF COMBUSTIBLE MATERIAL, PROVIDE UL-2221 OR UL-103 HT LISTED DOUBLE WALL GREASE DUCT OR DOUBLE WALL CHIMNEY EQUAL TO CAPTIVEAIRE SYSTEMS MODEL 'DW- 2R, 2R TYPE HT, 3R, OR 32" ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.



REVISIONS

	DESCRIPTION	DATE:
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DRAWN BY: JAC
SCALE: 3/4" = 1'-0"
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EXECUTED BY: Author
REVIEWED BY: Checker

PROJECT TITLE
KROGER STORE
DAL541

FORT WORTH, TX
COMMISSION NO. 522316
ISSUE DATE 05/24/23

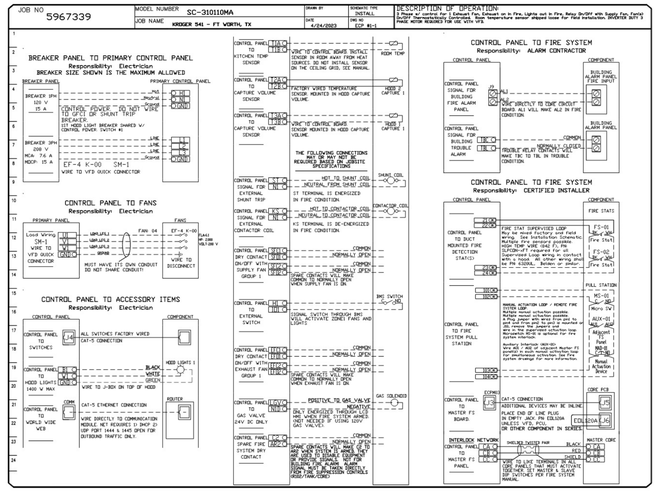
SHEET TITLE
HVAC SECTIONS AND DETAILS

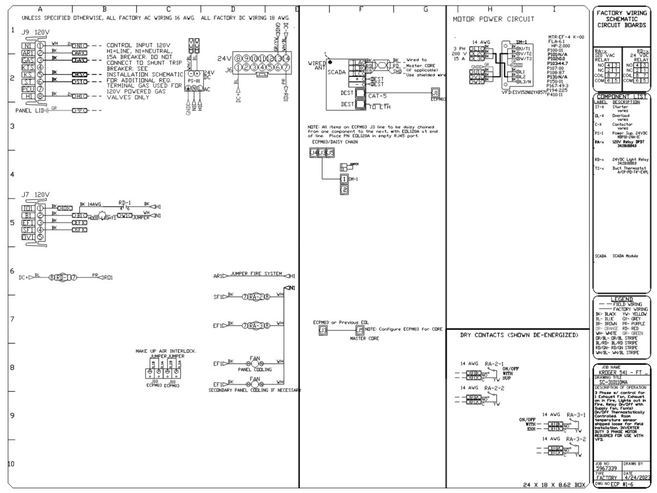
SHEET NO.
M3.1.4

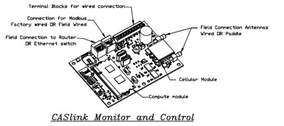
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ELECTRICAL PACKAGE – JOB#5967339

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED					
				LOCATION	QUANTITY		FAN TAG	TYPE	ϕ	HP	VOLT	FLA
1		SC-310110MA	UTILITY CABINET RIGHT	UTILITY CABINET RIGHT	1 LIGHT	SMART CONTROLS THERMOSTATIC CONTROL W/ RELAY ON/OFF WITH SUPPLY	EF-4 K-0069365	EXHAUST	3	2.000	208	6.1
				HOOD # 2	1 FAN							







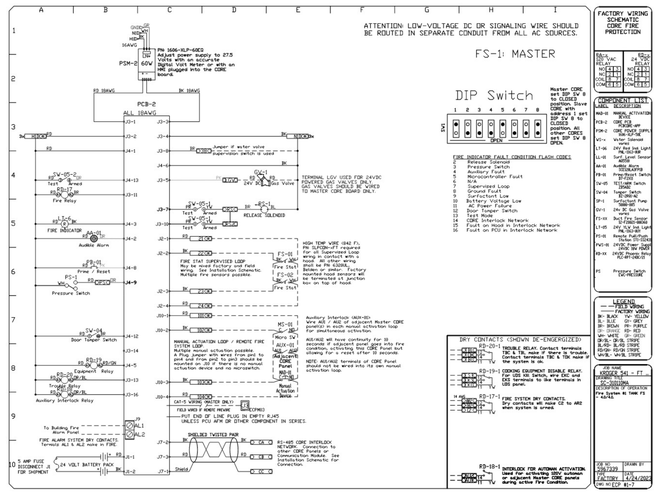
CASLink Monitor and Control

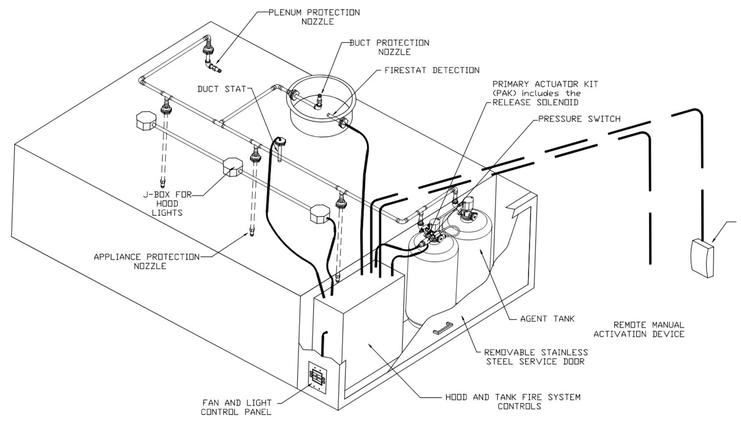
— Hood control panel to support communications to cloud-based Building Management System.
— Hood Control Panel to allow cloud-based Building Management System to monitor real time parameters outlined as MONITOR in the points list.
— Hood Control Panel to allow cloud-based Building Management System to control parameters outlined as CONTROL in the points list.
— Hood Control Panel to allow cloud-based Building Management System to implement SYSTEM ECONOMIZER control strategies for fully integrated Building Management.

MONITORING AND CONTROL POINTS LIST

DCV Packages	Function
Room Temperature	MONITOR
Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR
Fan Speed	MONITOR
Fan Amperage	MONITOR
Fan Power	MONITOR
VFD Faults	MONITOR
Controller Faults	MONITOR
Fan Faults	MONITOR
Fan Status	MONITOR
PCU Faults	MONITOR
PCU Filter Clog Percentages	MONITOR
Fire Condition	MONITOR
CORE Fire System	MONITOR
Building Pressures	MONITOR
Prep Time Button	MONITOR & CONTROL
Fans Button	MONITOR & CONTROL
Lights Button	MONITOR & CONTROL
Wash Button	MONITOR & CONTROL

DCV Packages	Function
Room Temperature(s)	MONITOR
Duct Temperature(s)	MONITOR
MUA Discharge Temperature	MONITOR
Kitchen RTU Discharge Temperature	MONITOR
Controller Faults	MONITOR
Fan Faults	MONITOR
Fan Status	MONITOR
PCU Faults	MONITOR
PCU Filter Clog Percentages	MONITOR
Fire Condition	MONITOR
CORE Fire System	MONITOR
Building Pressures	MONITOR
Fans Button(s)	MONITOR & CONTROL
Lights Button(s)	MONITOR & CONTROL
Wash Button	MONITOR & CONTROL





TYPICAL HOOD and TANK FIRE SYSTEM LAYOUT
THIS DETAIL IS GENERIC AND IS NOT INTENDED TO COVER ALL POSSIBLE, ACCEPTABLE SCENARIOS.
REFER TO PROJECT DRAWINGS/SCHEMATICS FOR DETAILS.

REVISIONS

DESCRIPTION	DATE:

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SHEET TITLE
HVAC SECTIONS AND DETAILS

SHEET NO.
M3.1.5

PLOTTED: 5/30/2023 11:25:20 AM FILE LOCATION: C:\Users\wsimon\Documents\Revit2020\20.0\M&P\Kroger DAL541 Fort Worth, TX_2020 New_Asimon.rvt

DUCTWORK #1 PARTS – JOB#5967339 DOUBLE WALL

TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DW1223DWLT-2R-S	1200				-0.009	27.05	1527.89	1	DOUBLE WALL DUCT - 12" INNER DUCT, 23" LONG - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P2	DW1290DWASY-2R-S	1200				-0.096	27.16	1527.89	1	DOUBLE WALL DUCT - 12" INNER 90 DUCT - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P3	DW1216DWRNDADPEC2ASY17-2R-S	1200				-0.045	28.71	1527.89	1	DOUBLE WALL DUCT ECCENTRIC - 12" X 16" RND2RND ADAPTER - 17" TALL - 2 LAYERS REDUCED CLEARANCE - 16" X 20" STAINLESS STEEL OUTER SHELL. STANDARD ADAPTER.
P4	DW16DWTEASY-2R-S	2400		1		-0.377	49.32	1718.87	1	DOUBLE WALL DUCT - 16" INNER TEE DUCT - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL.
P5	DW1216DWRNDADPEC2ASY17-2R-S	1200				-0.045	28.71	1527.89	1	DOUBLE WALL DUCT ECCENTRIC - 12" X 16" RND2RND ADAPTER - 17" TALL - 2 LAYERS REDUCED CLEARANCE - 16" X 20" STAINLESS STEEL OUTER SHELL. STANDARD ADAPTER.
P6	DW1210DWLT-2R-S	1200				-0.004	12.88	1527.89	1	DOUBLE WALL DUCT - 12" INNER DUCT, 10" LONG - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P7 ASSEMBLED W/P9	DW12DWTEASY-2R-S	1200		1		-0.096	34.13	1527.89	1	DOUBLE WALL DUCT - 12" INNER TEE DUCT - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P8	DW1223DWLT-2R-S	1200				-0.009	27.05	1527.89	1	DOUBLE WALL DUCT - 12" INNER DUCT, 23" LONG - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P9 ASSEMBLED W/P7 D=S	DW12DWACCDOORCDV-2R-S						18.57		1	DOUBLE WALL DUCT - 12" INNER ACCESS DOOR & 16" ACCESS DOOR COVER WITH CLAMPS - 2 LAYERS REDUCED CLEARANCE - 16" STAINLESS STEEL OUTER SHELL.
P10	DW1647DWLT-2R-S	2400				-0.0182	70.12	1718.87	1	DOUBLE WALL DUCT - 16" INNER DUCT, 47" LONG - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL.
P11	DW1635DWLT-2R-S	2400				-0.0136	52.26	1718.87	1	DOUBLE WALL DUCT - 16" INNER DUCT, 35" LONG - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL.
P12	DW1627DWAJD-2R-S	2400				-0.0072	58.31	1718.87	1	DOUBLE WALL ADJUSTABLE DUCT - 16" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 24.5" / ADJUSTMENT = 13.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL 'V' CLAMPS.
P13	DW2024SADKIT						8.01		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 20" OD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2024SAD, & HARDWARE BAG 4.
P14	DW2024SADKIT						8.01		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 20" OD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2024SAD, & HARDWARE BAG 4.
P15	DW1615DWASY-2R-S	2400				-0.0472	17.21	1718.87	1	DOUBLE WALL DUCT - 16" INNER 15 DUCT - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL.
P16	DW1609DWLT-2R-S	2400				-0.003	14.11	1718.87	1	DOUBLE WALL DUCT - 16" INNER DUCT, 9" LONG - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL.
P17	DW2024SADKIT						8.01		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 20" OD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2024SAD, & HARDWARE BAG 4.
P18	DW1615DWASY-2R-S	2400				-0.055	17.21	1718.87	1	DOUBLE WALL DUCT - 16" INNER 15 DUCT - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL.
P19 ASSEMBLED W/P20	DW16DWTEASY-2R-S	2400		1		-0.1705	49.32	1718.87	1	DOUBLE WALL DUCT - 16" INNER TEE DUCT - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL.
P20 ASSEMBLED W/P19 D=S	DW16DWACCDOORCDV-2R-S						21.48		1	DOUBLE WALL DUCT - 16" INNER ACCESS DOOR & 20" ACCESS DOOR COVER WITH CLAMPS - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL.
P21	DW1602DWOFFSETASY-2R-S	2400				-0.003	14.03	1718.87	1	DOUBLE WALL DUCT - 16" INNER DUCT RISER & 2 DEGREE OFFSET - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL.
P22	DW1647DWLT-2R-S	2400				-0.0179	70.12	1718.87	1	DOUBLE WALL DUCT - 16" INNER DUCT, 47" LONG - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL.
P23	DW1647DWAJD-2R-S	2400				-0.0161	103.34	1718.87	1	DOUBLE WALL ADJUSTABLE DUCT - 16" INNER DUCT - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL. MIN LENGTH = 11" / MAX LENGTH = 48.5" / ADJUSTMENT = 30.5" / ADJUSTABLE SECTION MAY NEED TO BE CUT. INCLUDES SINGLE AND DOUBLE WALL 'V' CLAMPS.
P24 ASSEMBLED W/P25	DW164550DWLTTP-2R-S	2400				-0.017	68.55	1718.87	1	DOUBLE WALL DUCT - 16" INNER DUCT, 45.5" LONG - 2 LAYERS REDUCED CLEARANCE - 20" STAINLESS STEEL OUTER SHELL - USED WITH TRANSITION PLATE.
P25 ASSEMBLED W/P24	DW2616TPDBEX	2400					9.00	1718.87	1	DUCT TO CURB TRANSITION 3/4" DOWN TURN, 26 1/2" CURB TO 16" DUCT, 16 GA ALUMINIZED. USED ON NCA16FA / NCA16HPFA & NCA18FA / NCA18HPFA. TRANSITION PLATE OD IS 27.00" DESIGNED FOR USE WITH EXHAUST FAN. NON-STANDARD PART.
SYSTEM AT P25						-1.1897	0.00			
	3M-2000PLUS						0.80		6	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
	DW12DWCLASY-2R-S						6.44		5	DUCT - 12" DUCT - 16" DOUBLE "V" CLAMP - 2R INSULATION & SINGLE "V" CLAMP INCLUDED - REDUCED CLEARANCE.
	DW16DWCLASY-2R-S						7.96		9	DUCT - 16" DUCT - 20" DOUBLE "V" CLAMP - 2R INSULATION & SINGLE "V" CLAMP INCLUDED - REDUCED CLEARANCE.
TOTAL WEIGHT							951.31			

DOUBLE WALL FACTORY BUILT DUCTWORK

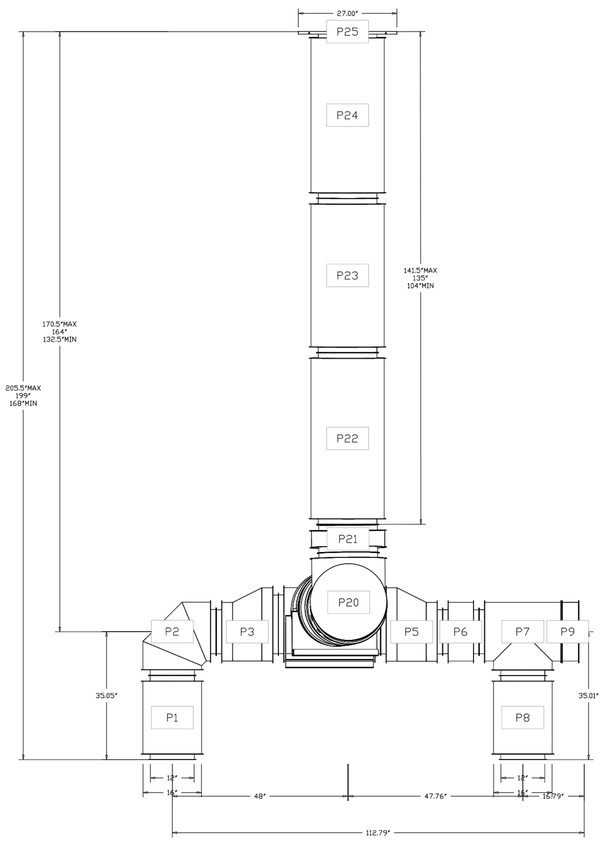
- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE ENTIRE INSTALLATION AND OPERATION MANUAL
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.
- WHERE HORIZONTAL DUCTS EXCEED 75 FEET IN LENGTH, THE SLOPE SHALL NOT BE LESS THAN 3/16" PER LINEAR FOOT.

HORIZONTAL	
DUCT DIAMETER	SUPPORT SPACING (FT)
5"	7'
6"	7'
7"	7'
8"	7'
10"	7'
12"	7'
14"	7'
16"	7'
18"	5'
20"	5'
22"	5'
24"	5'
26"	5'
28"	5'
30"	5'
32"	5'
34"	5'
36"	5'

VERTICAL			
TYPE	WALL SUPPORT (FT)	CURB SUPPORT (FT)	FLOOR SUPPORT (FT)
2R & 2R HT (5"-16")	20'	24'	24'
2R (18")	18'	24'	24'
3R & 3Z (5"-24")	10'	24'	24'
3Z (26" -36")	10'	20'	20'

DO NOT LEAK TEST USING SMOKE BOMBS CONTAINING CHLORINES/CHLORIDES. CONSULT WITH CAPTIVEAIRE FOR PROPER LEAK TESTING METHODS.

DUCTWORK #1 FRONT VIEW



DUCT DESIGN IS PRELIMINARY. THE FINAL DESIGN MUST BE CONFIRMED BY FIELD MEASUREMENTS PRIOR TO ORDERING.

REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
4		

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National Agencies
4541 Paragon Park Rd., Raleigh, NC, 27616 PHONE: (919) 882-2410 FAX: (919) 227-5948 EMAIL: reg16@captiveaire.com
www.captiveaire.com

KROGER 541 - FT WORTH, TX

FORT WORTH, TX, 76179

DATE: 4/24/2023

DWG.#: 5967339

DRAWN BY: JAC

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

MASTER DRAWING

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OWNER

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ISSUE/REVISION

#	DATE	DESCRIPTION
1	04/20/2023	90% OWNER REVIEW
2	05/24/2023	100%/BID/PERMIT

EXECUTED BY: Author
REVIEWED BY: Checker

PROJECT TITLE
KROGER STORE DAL541

FORT WORTH, TX

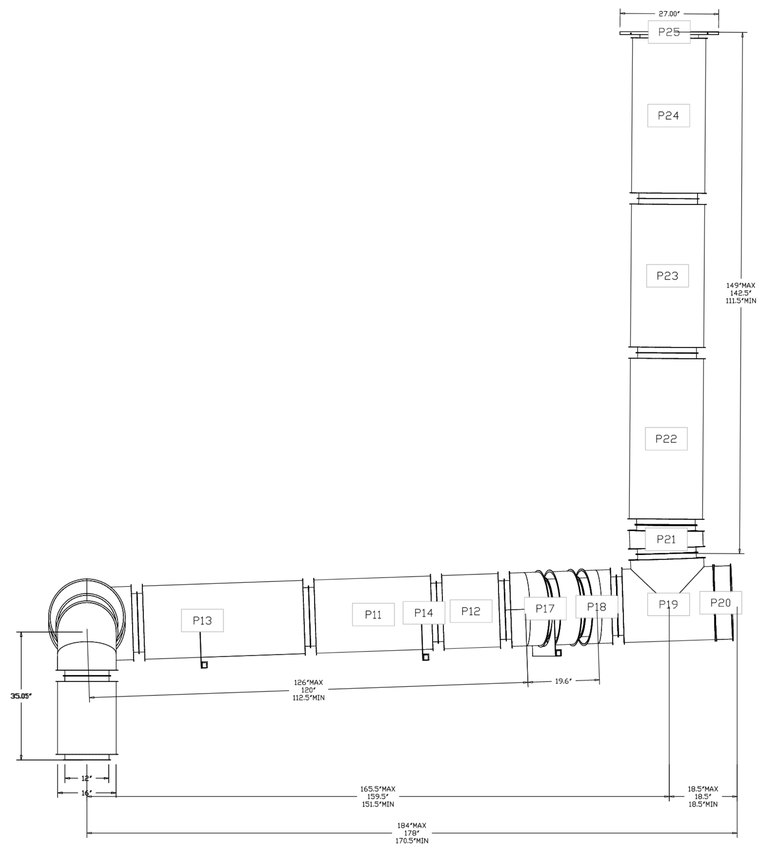
COMMISSION NO. 522316
ISSUE DATE 05/24/23

SHEET TITLE
HVAC SECTIONS AND DETAILS

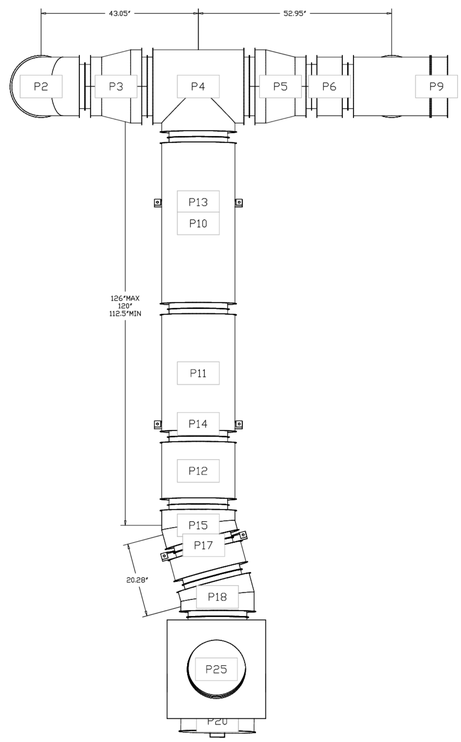
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DUCTWORK #1 SIDE VIEW



DUCTWORK #1 TOP VIEW



REVISIONS

	DESCRIPTION:	DATE:
1		
2		
3		
4		

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KROGER 541 - FT WORTH, TX

FORT WORTH, TX, 76179

DATE: 4/24/2023

DWG.#: 5967339

DRAWN BY: JAC

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

MASTER DRAWING

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#	DATE	DESCRIPTION
2	04/20/2023	90% OWNER REVIEW
	05/24/2023	100%/BID/PERMIT

EXECUTED BY: Author
REVIEWED BY: Checker

PROJECT TITLE
KROGER STORE
DAL541

FORT WORTH, TX

COMMISSION NO. 522316
ISSUE DATE 05/24/23

SHEET TITLE
HVAC SECTIONS AND DETAILS

SHEET NO.
M3.1.7

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DOAS/RTU FAN SCHEDULE – JOB#7318957

FAN UNIT NO.	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	WEIGHT (LBS)	ESP	ELECTRICAL INFORMATION: HP	PHASE	VOLT	MCA	MOCP
1	DOAS-1	1	CAS-HVAC4-1400-02-407-2	CAPTIVAIRE	222-4	0	4600	4600	5202	0.500	5.00	3	460	86.0A	90A
2	DOAS-1	1	CAS-HVAC4-1400-02-407-2	CAPTIVAIRE	222-4	0	4600	4600	5202	0.500	5.00	3	460	86.0A	90A

FAN UNIT NO.	COOLING INFORMATION: OUTSIDE AIR DB	MIXED AIR DB	MIXED AIR WB	LEAVING AIR DB	LEAVING AIR WB	CAPACITY: TOTAL	CAPACITY: SENS.	CAPACITY: EER	CAPACITY: COMP.	REHEAT INFORMATION: DISCHARGE DB	DISCHARGE DP	MOISTURE REMOVAL RATE	GAS HEAT INFORMATION: GAS TYPE	INPUT BTUH	OUTPUT BTUH	TEMP RISE	ADJ. MINIMUM ROOM VOLUME: REQUIRED INPUT GAS PRESSURE	ROOM AREA (FT2)	ASH LOW (CFM)	WEIGHT (FT)	NOTES
1	104.6°F	78.7°F	65.6°F	45.6°F	45.5°F	499.4 KBH	379.4 KBH	17.1	5.9	70.0°F	56.0°F	324.3 MBH	GAS	360.0 KBH	324.0 KBH	30.0°F	7.0in WC. - 14 in W.C.	12333	2220	7.2	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19
2	104.6°F	78.7°F	65.6°F	45.6°F	45.5°F	499.4 KBH	379.4 KBH	17.1	5.9	70.0°F	56.0°F	324.3 MBH	GAS	360.0 KBH	324.0 KBH	30.0°F	7.0in WC. - 14 in W.C.	12333	2220	7.2	1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19

NOTES:
1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL
2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE.
3. ECONOMIZER WITH DIFFERENTIAL ENTHALPY CONTROL. DRY BULB NOT ACCEPTABLE
4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE
5. EC MOTOR CONDENSING FANS
6. TXV REFRIGERANT FEED DEVICE. FIXTC NOT ACCEPTABLE
7. SUCTION LINE ACCUMULATOR
8. FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY. 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER
9. ALL REFRIGERANT COMPONENTS AND PIPING INSIDE UNIT CASING (EXCEPT FOR EXTERNAL CONDENSING UNITS MOUNTED WITHIN UNIT)
10. 2" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-13 INSULATION-MINIMUM DOUBLE EXTERIOR W/ SHEA BASE
11. ECO EFFICIENT FURNACE WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 6:1 TURNDOWN WITH NG AND 5:1 TURNDOWN WITH LP
12. ALL OUTDOOR AIR DELIVERED BY THE UNIT WITH OFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE
13. FULLY MODULATING HOT GAS REHEAT
14. HAIL GUARD FOR CONDENSING COIL
15. ECONOMIZER WITH DIFFERENTIAL ENTHALPY CONTROL
16. BAROMETRIC RELIEF DAMPER
17. DOWN DISCHARGE/DOWN RETURN
18. DIRECT DRIVE ECM PLENUM BLOWER. BELT DRIVEN AND NON-ECM BLOWERS ARE NOT ACCEPTABLE
19. MINIMUM ROOM AREA ASSUMES 7.2' SUPPLY DIFFUSER HEIGHT AND IS CALCULATED PER UL60335-2-40 4TH ED. VALUES BASED ON FACTORY CHARGE. ACTUAL SITE CHARGE MAY DIFFER.

FOR QUESTIONS, CALL THE
National Accounts
HELPDESK
PHONE: (919) 882 - 2410
EMAIL: ng1@captiveaire.com

FAN OPTIONS

FAN UNIT NO.	TAG	QTY	DESCRIPTION
1	DOAS-1	1	INLET PRESSURE GAUGE, 0-3"D"
		1	MANUFIL PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE
		1	TOTAL CFM MONITORING
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU, 750VA TRANSFORMER USED. IF A NON-DCV PREVIDE CONTROLS THIS UNIT, THE 408, #47, "MAV, DM "E2" PREVIDE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREVAIRE
		1	CAIOLINK BUILDING MONITORING SYSTEM – INTERNET OR CELLULAR CONNECTION REQUIRED
		1	RTUH DOWN DISCHARGE
		1	2" MERV 8 FILTERS FOR RTUH (QTY: 10)
		1	OVERHEAT STAT
		1	FREEZESTAT
		1	OCCUPIED SCHEDULING
		1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK – ALARM SUPPLIED BY OTHERS
		1	RTUH DOWN RETURN
		1	ECM WORING PACKAGE – SUPPLY FAN CONTROL RTU MUA BOARD
		1	DAMPER CONTROL – CO2 400/MAX OVERRIDE SETPOINT
		1	DDC MSTP RACNET REMOTE UNIT MONITORING
		1	RTUH CONVENIENCE OUTLET GFCI, 15 AMP – REQUIRES SEPARATE 120V CONNECTION. INCLUDES RECEPTACLE, COVER AND J-BOX
		1	RTU ECONOMIZER – DIFFERENTIAL ENTHALPY CONTROL
		1	RTUH ECONOMIZER BAROMETRIC RELIEF
		1	RTUH HAIL GUARD
		1	INTAKE FIRESTAT SET TO 135°F
		1	DISCHARGE FIRESTAT SET TO 240°F
		1	AUXILIARY REHEAT – 35°F
		1	RTU INTAKE/RETURN DAMPER – MANUAL CONTROL VIA HMI
		1	SHOP LOOSE GAS STRAINER 3"
		1	90 TON MODULATING COOLING OPTION, 460-480V, 60FS, R454B REFRIGERANT, 20 TON VARIABLE SPEED COMPRESSOR/20 TON VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS
		1	ECM FAN SIZE – 3 PHASE
		1	R454B LEAK DETECTOR OPTION FOR RTUS
		1	LOW AMBIENT COOLING OPERATION – 35DEG TO 0F AMBIENT – 2 CIRCUIT
		1	90 TON MODULATING REHEAT OPTION – DISCHARGE DEWPOINT CONTROL – R454B
		1	5 YEAR ENTIRE UNIT PARTS WARRANTY. 25 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVAIRE SERVICE CONTRACT. 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY. -ISEE ADDITIONAL DETAILS!
		1	EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET
2	DOAS-1	1	INLET PRESSURE GAUGE, 0-3"D"
		1	MANUFIL PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE
		1	TOTAL CFM MONITORING
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU, 750VA TRANSFORMER USED. IF A NON-DCV PREVIDE CONTROLS THIS UNIT, THE 408, #47, "MAV, DM "E2" PREVIDE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREVAIRE
		1	CAIOLINK BUILDING MONITORING SYSTEM – INTERNET OR CELLULAR CONNECTION REQUIRED
		1	RTUH DOWN DISCHARGE
		1	2" MERV 8 FILTERS FOR RTUH (QTY: 10)
		1	OVERHEAT STAT
		1	FREEZESTAT
		1	OCCUPIED SCHEDULING
		1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK – ALARM SUPPLIED BY OTHERS
		1	RTUH DOWN RETURN
		1	ECM WORING PACKAGE – SUPPLY FAN CONTROL RTU MUA BOARD
		1	DAMPER CONTROL – CO2 400/MAX OVERRIDE SETPOINT
		1	DDC MSTP RACNET REMOTE UNIT MONITORING
		1	RTUH CONVENIENCE OUTLET GFCI, 15 AMP – REQUIRES SEPARATE 120V CONNECTION. INCLUDES RECEPTACLE, COVER AND J-BOX
		1	RTU ECONOMIZER – DIFFERENTIAL ENTHALPY CONTROL
		1	RTUH ECONOMIZER BAROMETRIC RELIEF
		1	RTUH HAIL GUARD
		1	INTAKE FIRESTAT SET TO 135°F
		1	DISCHARGE FIRESTAT SET TO 240°F
		1	AUXILIARY REHEAT – 35°F
		1	RTU BLOWER DOOR SWITCH
		1	RTU INTAKE/RETURN DAMPER – MANUAL CONTROL VIA HMI
		1	SHOP LOOSE GAS STRAINER 3"
		1	90 TON MODULATING COOLING OPTION, 460-480V, 60FS, R454B REFRIGERANT, 20 TON VARIABLE SPEED COMPRESSOR/20 TON VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS
		1	ECM FAN SIZE – 3 PHASE
		1	R454B LEAK DETECTOR OPTION FOR RTUS
		1	LOW AMBIENT COOLING OPERATION – 35DEG TO 0F AMBIENT – 2 CIRCUIT
		1	90 TON MODULATING REHEAT OPTION – DISCHARGE DEWPOINT CONTROL – R454B
		1	5 YEAR ENTIRE UNIT PARTS WARRANTY. 25 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVAIRE SERVICE CONTRACT. 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY. -ISEE ADDITIONAL DETAILS!
		1	EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET

HMI SCHEDULE				
UNIT NUMBER	HMI #	HMI LOCATION	TEMP AVERAGING	MODBUS ADDRESS
FAN #1	HMI #1 - UNIT	IN UNIT	NOT AVERAGED	55
FAN #1	HMI #2 - SPACE	MANAGER'S OFFICE	NOT AVERAGED	56
FAN #2	HMI #1 - UNIT	IN UNIT	NOT AVERAGED	55
FAN #2	HMI #2 - SPACE	MANAGER'S OFFICE	NOT AVERAGED	56

DOAS/RTU BACNet Points List – JOB#7318957

BACNET POINTS AVAILABLE FOR FAN #1 (DOAS-1), #2 (DOAS-1)

BACNet Object	BACNet Type	BACNet ID	LON SNVT Name	Function
DDCHeatCommand	BV	1	nviDDCHeat	Control/Monitor
DDCCoolCommand	BV	2	nviDDCCool	Control/Monitor
DDCBlowerCommand	BV	3	nviDDCBlow	Control/Monitor
DDCModulation	AV	4	nviDDCModHeat	Control/Monitor
DDCOccupiedOverride	BV	5	nviDDCOccOvrrd	Control/Monitor
IntakeHeatOccSP	AV	6	nviInHeatOccSP	Control/Monitor
IntakeHeatUnoccSP	AV	7	nviInHeatUnocSP	Control/Monitor
SpaceHeatOccSP	AV	8	nviSpHeatOccSP	Control/Monitor
SpaceHeatUnoccSP	AV	9	nviSpHeatUnocSP	Control/Monitor
DischargeHeatOccSP	AV	12	nviDisHeatOccSP	Control/Monitor
DischargeHeatUnoccSP	AV	13	nviDisHeatUnocSP	Control/Monitor
IntakeCoolOccSP	AV	16	nviInCoolOccSP	Control/Monitor
IntakeCoolUnoccSP	AV	17	nviInCoolUnocSP	Control/Monitor
SpaceCoolOccSP	AV	18	nviSpCoolOccSP	Control/Monitor
SpaceCoolUnoccSP	AV	19	nviSpCoolUnocSP	Control/Monitor
DischargeCoolOccSP	AV	22	nviDisCoolOccSP	Control/Monitor
DischargeCoolUnoccSP	AV	23	nviDisCoolUnocSP	Control/Monitor
RoomOverrideOccSP	AV	26	nviRoomOvOccSP	Control/Monitor
RoomOverrideUnoccSP	AV	27	nviRoomOvUnocSP	Control/Monitor
FreezestatIntakeSP	AV	28	nviFreIntakeSP	Control/Monitor
FreezstatDischargeSP	AV	29	nviFreDischSP	Control/Monitor
FreezeststSP	AV	30	nviFreezeSP	Control/Monitor
OverheatDischargeSP	AV	31	nviOheatDisSP	Control/Monitor
CabinetHeatSP	AV	32	nviCabHeatSP	Control/Monitor
FurnaceDrainHeatSP	AV	33	nviFDrainHeatSP	Control/Monitor
IntakeRhOccSP	AV	34	nviInRhOccSP	Control/Monitor
IntakeRhUnocSP	AV	35	nviInRhUnocSP	Control/Monitor
SpaceRhOccSP	AV	36	nviSpRhOccSP	Control/Monitor
SpaceRhUnocSP	AV	37	nviSpRhUnocSP	Control/Monitor
DischargeRhOccSP	AV	38	nviDisRhOccSP	Control/Monitor
DischargeRhUnocSP	AV	39	nviDisRhUnocSP	Control/Monitor
IntakeDpOccSP	AV	40	nviInDpOccSP	Control/Monitor
IntakeDpUnocSP	AV	41	nviInDpUnocSP	Control/Monitor
SpaceDpOccSP	AV	42	nviSpDpOccSP	Control/Monitor
SpaceDpUnocSP	AV	43	nviSpDpUnocSP	Control/Monitor
DischargeDpOccSP	AV	44	nviDisDpOccSP	Control/Monitor
DischargeDpUnocSP	AV	45	nviDisDpUnocSP	Control/Monitor
ScheduleSundayAStart	AV	46	nviSundayAStart	Control/Monitor
ScheduleSundayAEnd	AV	47	nviSundayAEnd	Control/Monitor
ScheduleSundayBStart	AV	48	nviSundayBStart	Control/Monitor
ScheduleSundayBEnd	AV	49	nviSundayBEnd	Control/Monitor
ScheduleSundayCStart	AV	50	nviSundayCStart	Control/Monitor
ScheduleSundayCEnd	AV	51	nviSundayCEnd	Control/Monitor
ScheduleMondayAStart	AV	52	nviMondayAStart	Control/Monitor
ScheduleMondayAEnd	AV	53	nviMondayAEnd	Control/Monitor
ScheduleMondayBStart	AV	54	nviMondayBStart	Control/Monitor
ScheduleMondayBEnd	AV	55	nviMondayBEnd	Control/Monitor
ScheduleMondayCStart	AV	56	nviMondayCStart	Control/Monitor
ScheduleMondayCEnd	AV	57	nviMondayCEnd	Control/Monitor
ScheduleTuesdayAStart	AV	58	nviTuesdayAStart	Control/Monitor
ScheduleTuesdayAEnd	AV	59	nviTuesdayAEnd	Control/Monitor
ScheduleTuesdayBStart	AV	60	nviTuesdayBStart	Control/Monitor
ScheduleTuesdayBEnd	AV	61	nviTuesdayBEnd	Control/Monitor
ScheduleTuesdayCStart	AV	62	nviTuesdayCStart	Control/Monitor
ScheduleTuesdayCEnd	AV	63	nviTuesdayCEnd	Control/Monitor
ScheduleWednesdayAStart	AV	64	nviWedAStart	Control/Monitor
ScheduleWednesdayAEnd	AV	65	nviWedAEnd	Control/Monitor
ScheduleWednesdayBStart	AV	66	nviWedBStart	Control/Monitor
ScheduleWednesdayBEnd	AV	67	nviWedBEnd	Control/Monitor
ScheduleWednesdayCStart	AV	68	nviWedCStart	Control/Monitor
ScheduleWednesdayCEnd	AV	69	nviWedCEnd	Control/Monitor
ScheduleThursdayAStart	AV	70	nviThursAStart	Control/Monitor
ScheduleThursdayAEnd	AV	71	nviThursAEnd	Control/Monitor
ScheduleThursdayBStart	AV	72	nviThursBStart	Control/Monitor
ScheduleThursdayBEnd	AV	73	nviThursBEnd	Control/Monitor
ScheduleThursdayCStart	AV	74	nviThursCStart	Control/Monitor
ScheduleThursdayCEnd	AV	75	nviThursCEnd	Control/Monitor
ScheduleFridayAStart	AV	76	nviFridayAStart	Control/Monitor
ScheduleFridayAEnd	AV	77	nviFridayAEnd	Control/Monitor
ScheduleFridayBStart	AV	78	nviFridayBStart	Control/Monitor
ScheduleFridayBEnd	AV	79	nviFridayBEnd	Control/Monitor
ScheduleFridayCStart	AV	80	nviFridayCStart	Control/Monitor
ScheduleFridayCEnd	AV	81	nviFridayCEnd	Control/Monitor
ScheduleSaturdayAStart	AV	82	nviSatAStart	Control/Monitor
ScheduleSaturdayAEnd	AV	83	nviSatAEnd	Control/Monitor
ScheduleSaturdayBStart	AV	84	nviSatBStart	Control/Monitor
ScheduleSaturdayBEnd	AV	85	nviSatBEnd	Control/Monitor
ScheduleSaturdayCStart	AV	86	nviSatCStart	Control/Monitor
ScheduleSaturdayCEnd	AV	87	nviSatCEnd	Control/Monitor
BlowerManualPwmRateOcc	AV	90	nviBlowManPwmOc	Control/Monitor
BlowerManualPwmRateUnocc	AV	91	nviBlowManPwmUn	Control/Monitor
EconomizerTempSPOcc	AV	94	nviEcoTempSPOcc	Control/Monitor
EconomizerTempSPUnocc	AV	95	nviEcoTempSPUnocc	Control/Monitor
EconomizerTempBandOcc	AV	96	nviEcoTempBandOcc	Control/Monitor
EconomizerTempBandUnocc	AV	97	nviEcoTempBUnocc	Control/Monitor
EconomizerTotalBandOcc	AV	98	nviEcoTotBandOcc	Control/Monitor
EconomizerTotalBandUnocc	AV	99	nviEcoTotBUnocc	Control/Monitor
EconomizerRhSPOcc	AV	100	nviEcoRhSPOcc	Control/Monitor
EconomizerRhSPUnocc	AV	101	nviEcoRhSPUnocc	Control/Monitor

BACNET POINTS AVAILABLE FOR FAN #1 (DOAS-1), #2 (DOAS-1)

BACNet Object	BACNet Type	BACNet ID	LON SNVT Name	Function
MixingBoxManualVoltsOcc	AV	102	nviMixBoxManVOc	Control/Monitor
MixingBoxManualVoltsUnocc	AV	103	nviMixBoxManVUn	Control/Monitor
DynamicSpDiff	AV	120	nviDynSpDFF	Control/Monitor
DynamicSpDiffset	AV	121	nviDynSpDFFset	Control/Monitor
DynamicSpHeatDa	AV	122	nviDynSpHeatDa	Control/Monitor
DynamicSpCoolDa	AV	123	nviDynSpCoolDa	Control/Monitor
UnitStatus	AV	139	nvoCurrentState	Monitor Only
CurrentOccupiedStatus	AI	140	nvoOccStatus	Monitor Only
AverageSpaceTemp	AI	141	nvoAvgSpaceTemp	Monitor Only
AverageRH	AI	145	nvoAvgRh	Monitor Only
OutdoorTemp	AI	146	nvoOutdoorTemp	Monitor Only
ReturnTemp	AI	147	nvoReturnTemp	Monitor Only
DischargeTemp	AI	148	nvoDischargeTemp	Monitor Only
IntakeTemp	AI	149	nvoIntakeTemp	Monitor Only
SpaceTemp	AI	150	nvoSpaceTemp	Monitor Only
HMITemp	AI	151	nvoHmiTemp	Monitor Only
SuctionLineTemp	AI	156	nvoSucLineTemp	Monitor Only
LiquidLineTemp	AI	157	nvoLiqLineTemp	Monitor Only
EvapIndoorCoilTemp	AI	158	nvoEvapCoilTemp	Monitor Only
CondOutdoorCoilTemp	AI	159	nvoOutCoilTemp	Monitor Only
CompressorDischargeTemp	AI	160	nvoCompDisTemp	Monitor Only
IntakeRh	AI	161	nvoIntakeRh	Monitor Only
SpaceRh	AI	162	nvoSpaceRh	Monitor Only
OutdoorRh	AI	163	nvoOutdoorRh	Monitor Only
DischargeRh	AI	164	nvoDischargeRh	Monitor Only
ReturnRh	AI	165	nvoReturnRh	Monitor Only
SuctionLinePs	AI	166	nvoSucLinePs	Monitor Only
DischargeLinePs	AI	167	nvoDisLinePs	Monitor Only
LiquidLinePs	AI	168	nvoLiqLinePs	Monitor Only
HMIRh	AI	169	nvoHmiRh	Monitor Only
SupplyPwm	AI	174	nvoSupplyPwm	Monitor Only
CondFan1PwmRate	AI	176	nvoCond1PwmRate	Monitor Only
CondFan2PwmRate	AI	177	nvoCond2PwmRate	Monitor Only
ModulatingGasValveIDutput	AI	178	nvoMGV1Dutput	Monitor Only
AdjustableDamperOutput	AI	180	nvoDampOutput	Monitor Only
DIBoostActiveFlag	BI	182	nviDIBoostEN	Monitor Only
ReheatActiveFlag	BI	183	nviReheatEN	Monitor Only
DefrostActiveFlag	BI	184	nviDeFrostEN	Monitor Only
PumpdownDFFActiveFlag	BI	185	nviPumpDFFOn	Monitor Only
PumpdownOnActiveFlag	BI	186	nviPumpONOn	Monitor Only
ReheatValvePosition	AI	187	nvoReheatPos	Monitor Only
EevValvePosition	AI	188	nvoEevValvePos	Monitor Only
IntakeDpActual	AI	189	nvoInDpActual	Monitor Only
SpaceDpActual	AI	190	nvoSpDpActual	Monitor Only
CompressorPower	AI	191	nvoCompPower	Monitor Only
CompressorFrequency	AI	192	nvoCompFreq	Monitor Only
CompressorCurrent	AI	193	nvoCompAmps	Monitor Only
Subcool	AI	208	nvoSubcool	Monitor Only
Superheat	AI	209	nvoSuperheat	Monitor Only
ActiveFault1	AI	210	nvoActiveFault1	Monitor Only
ActiveFault2	AI	211	nvoActiveFault2	Monitor Only
ActiveFault3	AI	212	nvoActiveFault3	Monitor Only
ActiveFault4	AI	213	nvoActiveFault4	Monitor Only
ActiveFault5	AI	214	nvoActiveFault5	Monitor Only
ActiveFault6	AI	215	nvoActiveFault6	Monitor Only
SchedulingEnabledFlag	BV	216	nvoSchedEnabled	Control/Monitor
HeatTemperModeOcc	AV	217	nvoHeatModeOcc	Control/Monitor
HeatTemperModeUnocc	AV	218	nvoHeatModeUnocc	Control/Monitor
CoolTemperModeOcc	AV	219	nvoCoolModeOcc	Control/Monitor
CoolTemperModeUnocc	AV	220	nvoCoolModeUnocc	Control/Monitor
ActivateDnOcc	AV	221	nvoActivateOcc	Control/Monitor
ActivateDnUnocc	AV	222	nvoActivateUnocc	Control/Monitor
BlowerModeOcc	AV	223	nvoBlowModeOcc	Control/Monitor
BlowerModeUnocc	AV	224	nvoBlowModeUnocc	Control/Monitor
MixingBoxMode	AV	225	nvoMBMode	Control/Monitor
Reheat DP Adj Occ	AV	226	nvoDPAdjOcc	Control/Monitor
Reheat DP Adj Unocc	AV	227	nvoDPAdjUnocc	Control/Monitor
BlowerPwmMinRateOcc	AV	232	nvoPWMMnOcc	Control/Monitor
BlowerPwmMinRateUnocc	AV	233	nvoPWMMnUnocc	Control/Monitor
BlowerPwmMaxRateOcc	AV	234	nvoPWMMxOcc	Control/Monitor
BlowerPwmMaxRateUnocc	AV	235	nvoPWMMxUnocc	Control/Monitor
MixingBoxMinOAPercentOcc	AV	236	nvoMBMnOAPerOcc	Control/Monitor
MixingBoxMinOAPercentUnocc	AV	237	nvoMBMnOAPerUn	Control/Monitor
MixingBoxMaxOAPercentOcc	AV	238	nvoMBMxOAPerOcc	Control/Monitor
MixingBoxMaxOAPercentUnocc	AV	239	nvoMBMxOAPerUn	Control/Monitor
MixingBoxMinVoltsOcc	AV	240	nvoMBMnVoltsOcc	Control/Monitor
MixingBoxMinVoltsUnocc	AV	241	nvoMBMnVoltsUn	Control/Monitor
MixingBoxMaxVoltsOcc	AV	242	nvoMBMxVoltsOcc	Control/Monitor
MixingBoxMaxVoltsUnocc	AV	243	nvoMBMxVoltsUn	Control/Monitor
CFMReading	AI	244	nvoCFMReading	Read Only
StaticPressure	AI	245	nvoStaticPress	Read Only

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113 EAST BONDS RAND ROAD,TAG: P0#
FORT WORTH, TX, 76179

DATE: 2/4/2025
DWG.#: 7318957
DRAWN BY:
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1	04/20/2023	90% OWNER REVIEW
	05/24/2023	100%/BID/PERMIT
12	05/19/2025	BULLETIN NO. 12

EXECUTED BY: KSL
REVIEWED BY: MCD

PROJECT TITLE
KROGER STORE DAL541

FORT WORTH, TX
COMMISSION NO. 522316
ISSUE DATE 05/24/23

SHEET TITLE
HVAC SECTIONS AND DETAILS

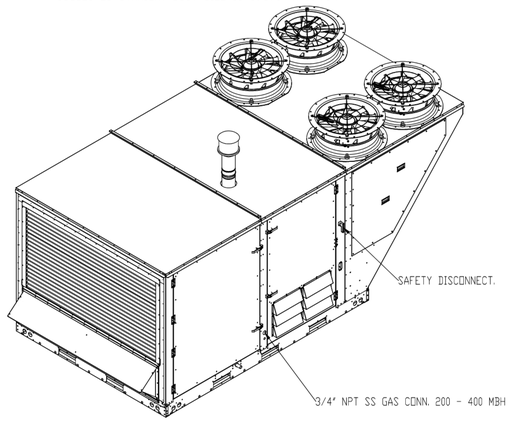
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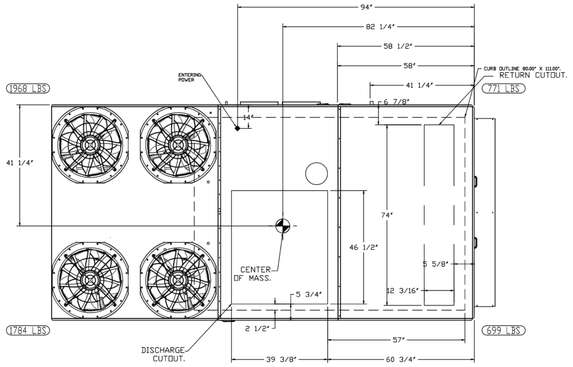
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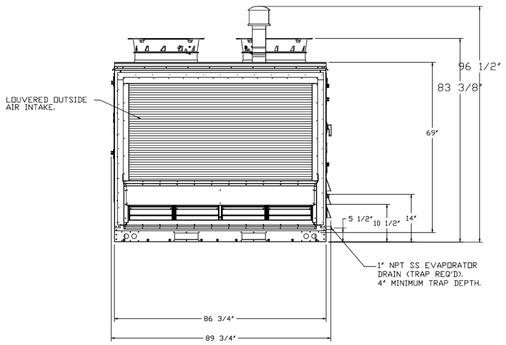
FAN #1 (DOAS-1), #2 (DOAS-1) - CAS-HVAC4-I.400-22-40T-2 HEATER

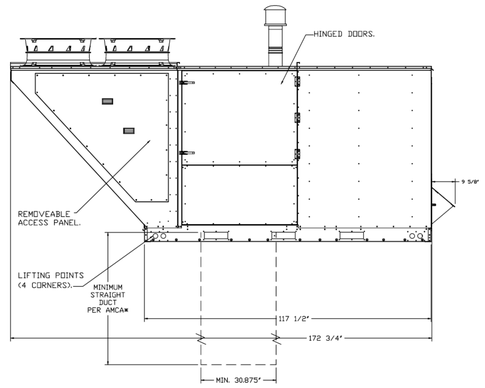
NOTES:
1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
2. ( ) DENOTES CORNER WEIGHT.
3. CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.
4. EXTERIOR GAS CONNECTION PROVIDED BY FACTORY WITH QUICK SEAL AND ANTI-ROTATION BRACKET.

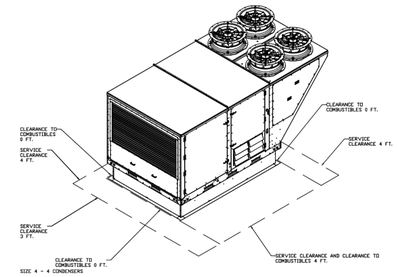
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL DRASTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT.
SUGGESTED STRAIGHT DUCT SIZE IS 30.875" x 39.75"



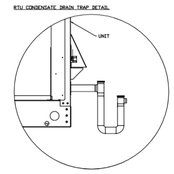


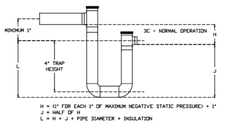






RTU CONDENSATE DRAIN TRAP DETAIL





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9	04/20/2023	90% OWNER REVIEW
	05/24/2023	100%/BID/PERMIT
12	05/19/2025	BULLETIN NO. 12

EXECUTED BY: KSL
REVIEWED BY: MCD

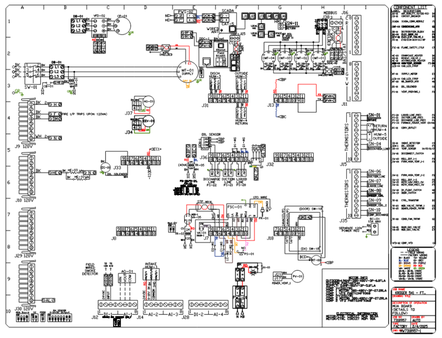
PROJECT TITLE
KROGER STORE
DAL541

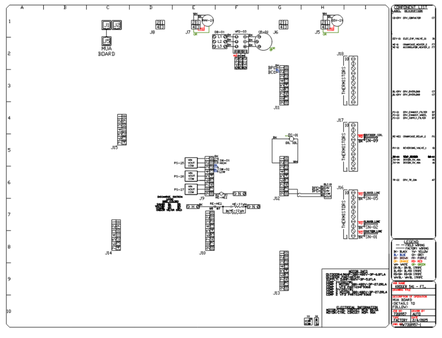
FORT WORTH, TX
COMMISSION NO. 522316
ISSUE DATE 05/24/23

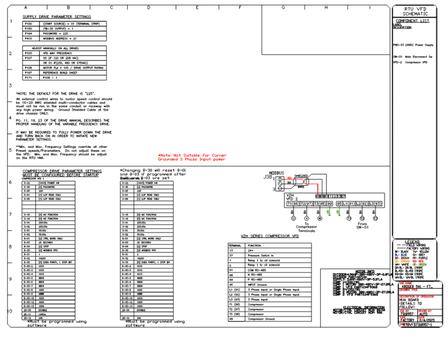
SHEET TITLE
HVAC SECTIONS AND DETAILS

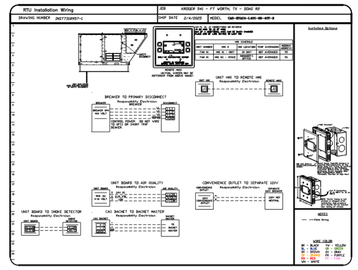
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M3.1.9

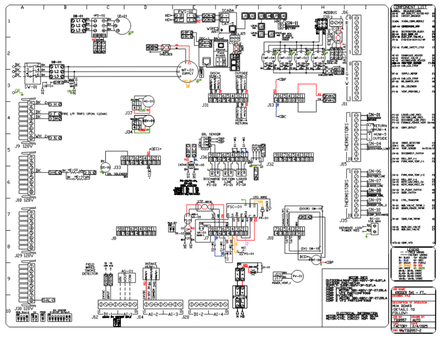
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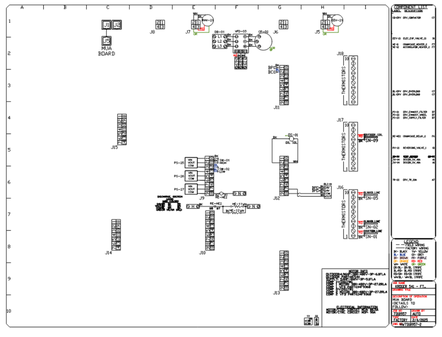


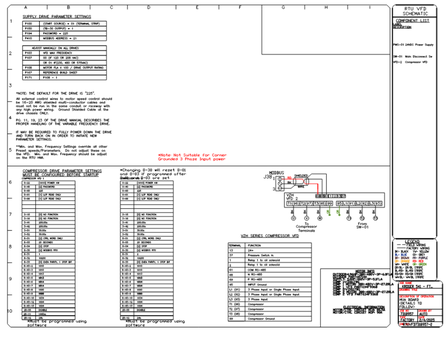


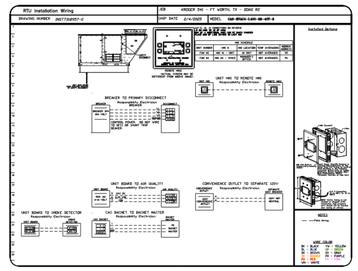












SYSTEM DESIGN VERIFICATION (SDV)

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

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

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

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113 EAST BONDS RAND ROAD,TAG: PCH
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DATE: 2/4/2025

DWG.#: 7318957

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

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12	05/19/2025	BULLETIN NO. 12

EXECUTED BY: KSL
REVIEWED BY: MCD

PROJECT TITLE
KROGER STORE DAL541

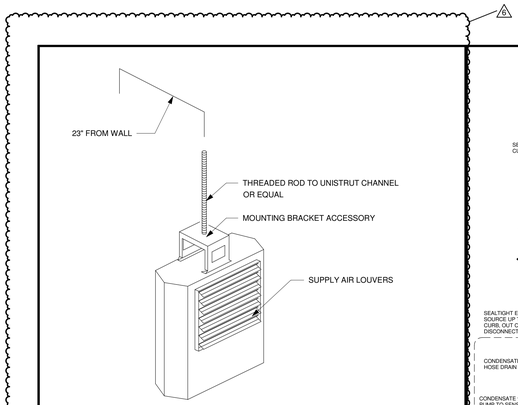
FORT WORTH, TX

COMMISSION NO. 522316
ISSUE DATE 05/24/23

SHEET TITLE
HVAC SECTIONS AND DETAILS

SHEET NO.
M3.1.10

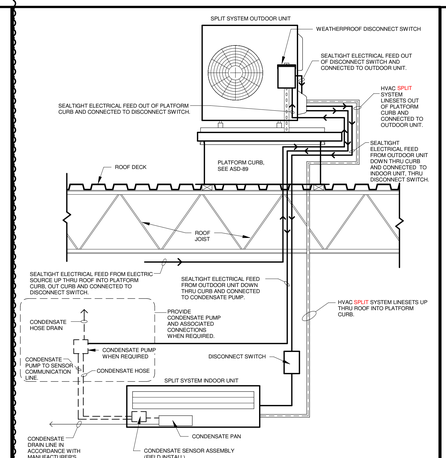
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NOTES

1. IF PLACED IN CORNER, HEATER MUST BE 12" FROM ALL WALLS
2. MOUNT UNIT HORIZONTALLY, SEE DRAWINGS FOR MOUNTING HEIGHT
3. UNIT TO BE CONTROLLED BY INTEGRAL THERMOSTAT TO MAINTAIN 45°F
4. SUPPLY AIR LOUVERS TO DIRECT AIR TOWARD OCCUPANTS
5. ELECTRIC UNIT HEATERS AND ACCESSORIES TO BE FURNISHED BY KROGER, INSTALLED BY HVAC CONTRACTOR
6. SEE SPECIFICATIONS FOR FURTHER INFORMATION

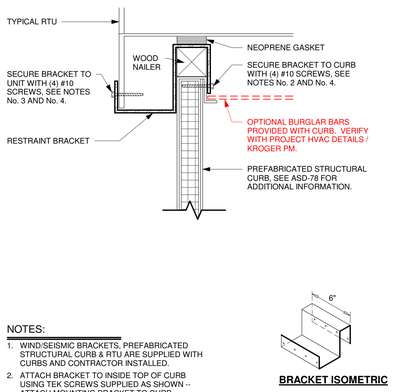
ELECTRIC UNIT HEATER	DATE: 2/22/24
MASTER SPECIFICATION DETAIL	DRAWN: CMR
ORIGINAL ISSUE DATE 2/22/24	HSD-16



Notes:

1. REFER TO ASD-89 FOR PLATFORM CURB INSTALLATION AND ADDITIONAL INFORMATION.
2. SPLIT SYSTEM'S MANUFACTURERS AND MODELS VARY, REFERENCE MANUFACTURER'S INSTALLATION GUIDE FOR ADDITIONAL INFORMATION.

HVAC SPLIT SYSTEM DIAGRAM	DATE: 10/11/12
MASTER SPECIFICATION DETAIL	DRAWN: ZAW
ORIGINAL ISSUE DATE 3/11/11	HSD-11

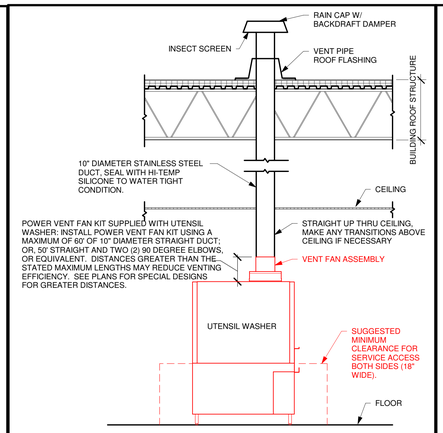


NOTES:

1. WIND/SEISMIC BRACKETS, PREFABRICATED STRUCTURAL CURB & RTU ARE SUPPLIED WITH CURBS AND CONTRACTOR INSTALLED.
2. ATTACH BRACKET TO INSIDE TOP OF CURB USING TEK SCREWS SUPPLIED AS SHOWN -- ATTACH MOUNTING BRACKET TO CURB BEFORE MOUNTING UNIT ON CURB.
3. AFTER SETTING UNIT ON CURB, ATTACH BOTTOM OF BRACKET TO BASE RAIL ON UNIT WITH TEK SCREWS SUPPLIED AS SHOWN.
4. BRACKETS AND ATTACHMENT SCREWS ARE PROVIDED WITH EACH CURB AND INCLUDE:
   (6) 14 GA. STEEL ATTACHMENT BRACKETS
   #10 - 1 1/2" LONG TEK SCREWS. PROVIDE AMPLE NUMBER OF SCREWS.
   THREE BRACKETS ON EACH LONG SIDES OF CURB EQUALLY SPACED.
5. (8) BRACKETS ON 'D' CABINET ONLY.

BRACKET ISOMETRIC

RTU WIND-SEISMIC RESTRAINT BRACKET	DATE: 11/15/17
MASTER SPECIFICATION DETAIL	DRAWN: ZAW
ORIGINAL ISSUE DATE 10/1/09	HSD-10

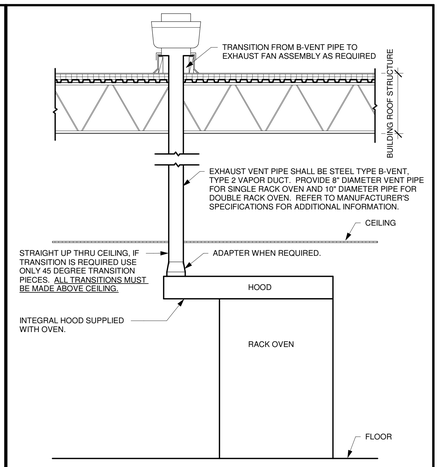


NOTES:

1. ALL VENT COMPONENTS AND ROOF FLASHING ARE CONTRACTOR PROVIDED AND INSTALLED.
2. CONTRACTOR TO COORDINATE WIRING EXHAUST FAN IN VENT KIT TO THE UTENSIL WASHER.
3. ALL DUCT MATERIALS INCLUDING DUCT, RAINCAP, INSECT SCREEN AND OTHER CONNECTIONS TO BE TYPE 304 STAINLESS STEEL.
4. IN AREAS WHERE LOCAL CODES REQUIRE EXHAUST HOODS FOR UTENSIL WASHER, OMIT POWER VENT FAN KIT.

Notice:
Detail based on Hobart PW20 Utensil Pan Washer.
** Refer to Manufacturer's Installation Details for Additional Information.

UTENSIL WASHER EXHAUST	DATE: 11/10/16
MASTER SPECIFICATION DETAIL	DRAWN: ZAW
ORIGINAL ISSUE DATE 1/30/09	HSD-8

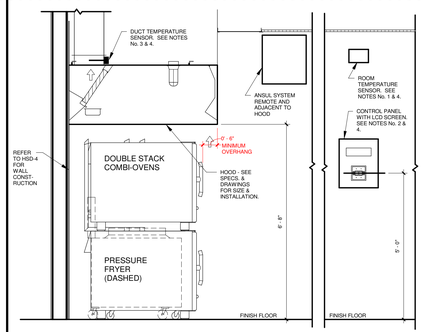


NOTES:

1. ALL DELI/BAKERY HOOD EXHAUST FANS SHALL BE 10'-0" HORIZONTALLY OR 3'-0" VERTICALLY FROM ANY PARAPET WALL. COORDINATE WITH LOCAL & STATE CODES.

Notice:
Detail based on Baxter Single Rack Oven & Double Rack Oven.
** Refer to Manufacturer's Installation Details for Additional Information.

BAKERY RACK OVEN EXHAUST	DATE: 10/11/12
MASTER SPECIFICATION DETAIL	DRAWN: ZAW
ORIGINAL ISSUE DATE 1/30/09	HSD-7

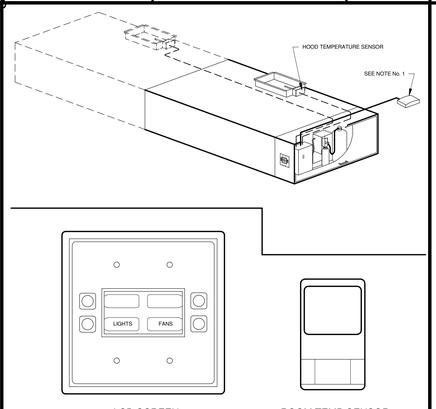


SECTION **ELEVATION**

NOTES:

1. ROOM TEMPERATURE SENSOR. PROVIDES ROOM OVERRIDE BASED ON TEMPERATURE DIFFERENTIAL BETWEEN THE ROOM AND DUCT. INSTALL ON A WALL IN SPACE BUT NOT DIRECTLY UNDER THE HOOD, NEAR A HVAC DIFFUSER, OR CLOSE TO A HEAT PRODUCING APPLIANCE SO THE READING IS ACCURATE FOR THE SPACE.
2. WALL MOUNT CONTROL PANEL. RUN WIRES IN WALL. REMOTE MOUNTED. REFER TO FIXTURE PLAN FOR LOCATION.
3. HOOD SENSORS ARE FACTORY INSTALLED. FIELD WIRED FOR WALL MOUNT AND CONTROL PANELS.
4. REFER TO MECHANICAL DRAWINGS AND DETAIL ESD-35A FOR WIRING SET-UP AND LOCATION POINTS. FIELD INSTALLED.

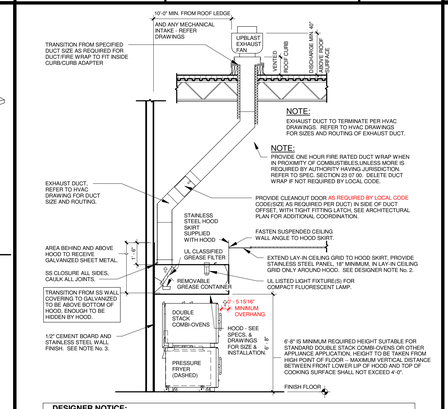
HOOD WITH REMOTE ANSUL & CONTROL PANEL	DATE: 5/15/19
MASTER SPECIFICATION DETAIL	DRAWN: ZAW
ORIGINAL ISSUE DATE 6/5/15	HSD-4B



NOTES:

1. ROOM TEMPERATURE SENSOR. PROVIDE ROOM OVERRIDE BASED ON TEMPERATURE DIFFERENTIAL BETWEEN THE ROOM AND THE DUCT. INSTALL ON A WALL IN SPACE BUT NOT DIRECTLY UNDER THE HOOD, NEAR A HVAC DIFFUSER, OR CLOSE TO A HEAT PRODUCING APPLIANCE SO THE READING IS ACCURATE FOR THE SPACE.

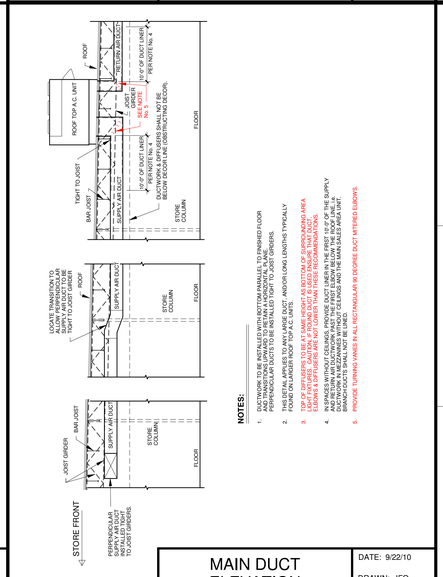
TYP. HOOD WITH BUILT IN ANSUL SYSTEM & CONTROL PANEL	DATE: 5/15/19
MASTER SPECIFICATION DETAIL	DRAWN: ZAW
ORIGINAL ISSUE DATE 6/15/15	HSD-4A



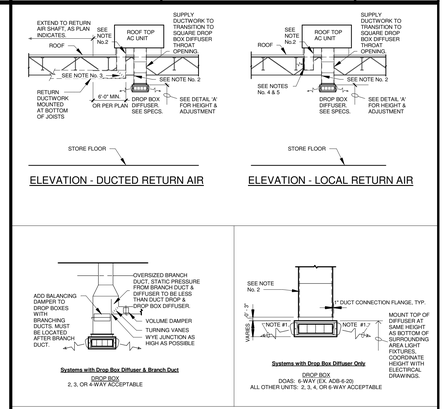
DESIGNER NOTICE:

1. BE CAREFUL OF AIR DISTRIBUTION TYPE AND PROXIMITY TO HOOD. AIR CURRENTS FROM AIR DISTRIBUTION DEVICES CAN DISRUPT PROPER HOOD OPERATION.
2. REFER TO SPEC. SECTION 05 50 00 METAL FABRICATION FOR INFORMATION REGARDING GAGE, FINISH AND INSTALLATION OF STAINLESS STEEL WALL COVERING AND STAINLESS STEEL CEILING TILE.
3. INSTALL 1/2" CEMENT BOARD ON METAL STUD WALL EXTENDING A MINIMUM 18" ABOVE AND BEYOND EXHAUST HOOD SIDES. INSTALL STAINLESS STEEL WALL COVERING OVER CEMENT BOARD AREA OF WALL. THE WIDTH OF THE HOOD. THE 18" OF WALL SURFACE UNDER AND BEYOND THE EDGE OF THE HOOD CAN ONLY BE COVERED WITH NONCOMBUSTIBLE MATERIAL SUCH AS CERAMIC TILE. ADDITIONAL SS WALL COVERING OR GALVANIZED SHEET METAL.
4. REFER TO HSD-4A OR HSD-4B AS INDICATED FOR ADDITIONAL INFORMATION.
5. SINGLE STACK OVENS WILL HAVE MORE CLEARANCE BETWEEN TOP OF OVEN AND BOTTOM OF HOOD.

DELI-BAKERY EXHAUST HOOD INSTALLATION	DATE: 5/15/19
MASTER SPECIFICATION DETAIL	DRAWN: ZAW
ORIGINAL ISSUE DATE 6/1/07	HSD-4



MAIN DUCT ELEVATION	DATE: 9/22/10
MASTER SPECIFICATION DETAIL	DRAWN: JFQ
ORIGINAL ISSUE DATE 10/2/06	HSD-3



NOTE:

1. EACH DIFFUSER LOUVER ANGLE OF DEFLECTION MUST BE ADJUSTED SO THE SUPPLY AIR DOES NOT CAUSE LIGHT FIXTURE & DECOR TRELLIS MOVEMENT OR EXCEED A VELOCITY OF 50 FPM AT THE FACE OF ANY REFRIGERATED DISPLAY CASE, INCLUDING ISLAND CASES. OTHERWISE, ADJUST LOUVERS DOWNWARDS TO DISTRIBUTE AIR INTO THE SALES AREA, TAKING CARE NOT TO DISCOMFORT CUSTOMERS.
2. PROVIDE SUPPLY & RETURN AIR DUCTWORK WITH LINER, SEE SPECIFICATIONS.
3. PROVIDE TURNING VANES IN ALL RECTANGULAR 90 DEGREE DUCT MITERED ELBOWS.
4. RETURN AIR GRILLE IN SIDE OF DUCT DROP TO BE TITUS 50F w/1" OPENINGS OR EQUAL. SIZE GRILLE SIMILAR IN LENGTH AND APPROX. 1.5x WIDTH OF RTU RETURN AIR OPENING (EX. 28"x10" RETURN AIR OPENING = 28"x16" RETURN AIR GRILLE. ROUND UP TO STANDARD SIZE.)
5. RETURN AIR GRILLE TO BE MOUNTED OPPOSITE OF SUPPLY DUCT DROP. MINIMIZE DISTANCE OF RETURN AIR DROP BELOW ROOF DECK.

DROP BOX DIFFUSER	DATE: 5/15/19
MASTER SPECIFICATION DETAIL	DRAWN: ZAW
ORIGINAL ISSUE DATE 2/20/06	HSD-1

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OWNER

Kroger

ISSUE/REVISION

	DATE	DESCRIPTION
A	04/20/2023	90% OWNER REVIEW
	05/24/2023	100%/BID/PERMIT
6	10/29/2024	BULLETIN NO. 6

EXECUTED BY: KSL
REVIEWED BY: MCD

PROJECT TITLE
KROGER STORE
DAL541

FORT WORTH, TX
COMMISSION NO. 522316
ISSUE DATE 05/24/23

SHEET TITLE
HVAC STANDARD DETAILS (HSD)

SHEET NO.
M5.1

PLOTTED: 10/29/2024 5:08:39 PM FILE LOCATION: C:\Users\kmiller\Documents\Revit\DB258-R19-24\MEP-Kroger DAL541 Fort Worth, TX_2023 New_kmiller.rvt

KEYED NOTES:

1. KITCHEN EXHAUST FAN U.L. LISTED FOR GREASE (SEE KITCHEN EXHAUSTER DETAIL). FAN MOTOR SHALL BE OUT OF AIRSTREAM. PROVIDE GREASE CUP AND DRAIN.
2. 16 GAUGE INSULATED WELDED BLACK IRON OR 18 GAUGE INSULATED WELDED STAINLESS STEEL. DUCTWORK WRAPPED WITH 2 LAYERS OF ZERO CLEARANCE DUCT WRAP (TYPICAL).
3. HEAT SENSOR IN EACH COLLAR INTERLOCKED TO VENTILATION SYSTEM.
4. FLANGED & GASKETED DUCT TO EXHAUST FAN CONNECTION.
5. CLEANOUT DOOR/LATCH (12"X12" MIN.) MADE OF 16 GAUGE WELDED BLACK IRON OR 18 GAUGE WELDED STAINLESS STEEL (TYPICAL).
6. MINIMUM 2% SLOPE TOWARD HOOD WITH CLEANOUTS A MINIMUM OF EVERY 15 FEET AND CHANGE IN DIRECTION.
7. GREASE DUCT SUPPORT IS TO BE SIZED, SPACED, AND INSTALLED BY CODE.
8. HOOD WITH ANSUL SYSTEM.
9. MAINTAIN 18" CLEARANCE TO COMBUSTIBLES.
10. GREASE DRIP TRAY.

GENERAL NOTES:

A. TYPE I HOOD SHALL BE STAINLESS STEEL, 18 GAUGE, WITH WELDED SEAMS AND UL 710 LISTED.
B. EXHAUST DUCT SHALL BE 16 GA. BLACK IRON OR 18 GA. STAINLESS STEEL, FINISH # 3, WITH CONTINUOUS LIQUID TIGHT WELDED JOINTS AND SEAMS.
C. AIR VELOCITY SHALL BE PER CODE AND AHJ.
D. PROVIDE INSULATION WRAP EQUAL TO 3M "FIRE MASTER DUCT WRAP" WITH UL LISTINGS OF 723, 1978, AND 1479.
E. INSULATION SHALL BE A LIGHTWEIGHT, NON-ASBESTOS, HIGH TEMPERATURE, INORGANIC, CERAMIC FIBER BLANKET TOTALLY ENCAPSULATED IN FOIL/SCRIM HAVING A SERVICE TEMPERATURE RANGE UP TO 2300 DEGREE F.
F. INSULATION SHALL BE A 2-HOUR FIRE RESISTIVE RATED GREASE AIR DUCT ENCLOSURE AS A SHAFT ALTERNATIVE AND A METHOD FOR PROVIDING ZERO INCH CLEARANCE AROUND COMMERCIAL KITCHEN GREASE DUCT EXHAUST SYSTEMS TO COMBUSTIBLE MATERIALS.
G. ALUMINUM GREASE FILTER WITH TROUGH, SHALL BE INSTALLED IN THE HOOD IN COMPLIANCE WITH CODE. FILTERS SHALL BE MOUNTED AT AN ANGLE OF 45 DEGREES MINIMUM.
H. PROVIDE STAINLESS STEEL ENCLOSURE PANEL BETWEEN TOP OF KITCHEN HOOD AND CEILING, PER LOCAL CODE REQUIREMENTS.

233813.00-04 - KITCHEN HOOD DETAIL UP BLAST

SCALE: NONE

KEYED NOTES:

1. HINGED BASE FOR ACCESS.
2. WOOD NAILER.
3. ANCHOR ALL FOUR SIDES WITH SCREWS 12" O.C.
4. PREFABRICATED INSULATED ALUMINUM CURB.
5. CONDUIT HOLE.
6. ANCHOR TO ROOF DECK AS REQUIRED.
7. RUBBER GASKET APPLIED TO TOP OF CURB.
8. FLASH PER ROOFING MANUFACTURER REQUIREMENTS. FLASH UP AND OVER WOOD NAILER.
9. GREASE TRAP.
10. DRAIN CONNECTION.
11. CENTER TRANSITION TO DUCTWORK FROM DAMPER OR CURB. PROVIDE 3X DIAMETER STRAIGHT RUN MINIMUM.
12. INSULATED EXHAUST DUCTWORK.

GENERAL NOTES:

A. DELETE CANT FOR SINGLE MEMBRANE ROOFS. TOP OF CURB MUST BE LEVEL. FABRICATE PITCH IN CURB IF NECESSARY.
B. CONTRACTOR HAS THE OPTION TO INCREASE THE HEIGHT OF THE CURB OR ADD BLOCKING TO THE CURB. THE ADDITIONAL HEIGHT REQUIRED SHALL EQUAL THE ROOF ASSEMBLY THICKNESS. THE CURB INTAKE OPENING SHALL BE AT A MINIMUM 12" ABOVE FINISHED ROOF.
C. LOCATE A MINIMUM OF 10'-0" FROM EDGE OF ROOF, INTAKES, AND ROOF HATCH.

233813.00-02 - KITCHEN EXHAUSTER

SCALE: NONE

KEYED NOTES:

1. DUCT, COLLAR AND RETURN/EXHAUST REGISTER
2. MANUAL VOLUME DAMPER
3. SECURE TO CEILING PER MANUFACTURER'S RECOMMENDATIONS AND PER CEILING FINISH. PROVIDE GRID CLIPS PER MFG'R REQUIREMENTS
4. HANGER, SECURE TO STRUCTURE AND DUCTWORK
5. ATTACH DUCT TO REGISTER
6. BALANCING DAMPER FOR FINAL BALANCING
7. SHEET METAL DUCTWORK.
8. MAIN RETURN/EXHAUST DUCT
9. TAP DROP TO RETURN/EXHAUST REGISTER INTO BOTTOM OF BRANCH
10. SPIN IN FITTING
11. HARD SHEET METAL ELBOW AT CONNECTION TO AIR DEVICE

233713.00-21 - RETURN/EXHAUST REGISTER INSTALLATION

SCALE: NONE

GENERAL NOTES:

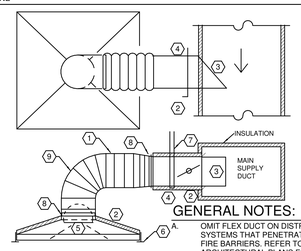
A. SEE NEW WORK PLAN FOR DUCT SIZE
B. x + y DIMENSIONS SHALL BE DETERMINED FROM FLOOR PLANS

KEYED NOTES:

1. 1/2" ACOUSTIC LINING, SEAL AROUND ALL WALL PENETRATIONS
2. SEE NEW WORK PLAN FOR REGISTER
3. INTERIOR WALL/PARTITION

233713.00-19 - TRANSFER GRILLE

SCALE: NONE



GENERAL NOTES:

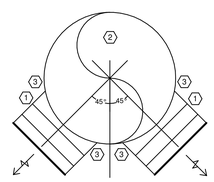
A. OMIT FLEX DUCT ON DISTRIBUTION SYSTEMS THAT PENETRATE 1-HR FIRE BARRIERS. REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF FIRE BARRIERS.

KEYED NOTES:

1. MAXIMUM LENGTH OF INSUL. FLEX DUCT EQUALS 5 FEET. FLEX NOT PERMITTED IN INACCESSIBLE CEILINGS
2. INSULATED DUCT, COLLAR AND DIFFUSER BY HVAC CONTRACTOR
3. SCOOP
4. SPIN IN FITTING WITH MANUAL VOLUME DAMPER
5. INTERNAL BUTTERFLY DAMPER FOR DRYWALL APPLICATIONS ONLY. (PROVIDE KEY FOR ADJUSTMENT)
6. SECURE TO CEILING PER MANUFACTURER'S RECOMMENDATIONS AND PER CEILING FINISH. PROVIDE GRID CLIPS PER MFG'R REQUIREMENTS. PROVIDE FRAMING FOR DRYWALL INSTALLATION.
7. HANGER, SECURE TO STRUCTURE AND DUCTWORK
8. PEEL BACK INSULATION AND PROVIDE STRAPPING AND SHEET METAL SCREWS AT FLEX CONNECTION TO DUCT. THEN PROVIDE STRAPPING AROUND INSULATION
9. SUPPORT FLEX TO PREVENT COLLAPSING

233713.00-04 - DIFFUSER INSTALLATION TYPICAL

SCALE: NONE



KEYED NOTES:

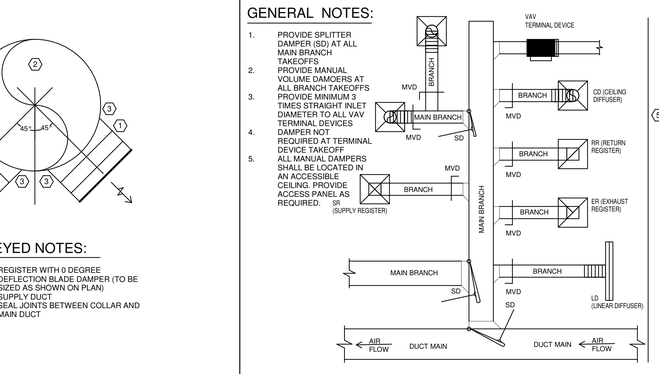
1. REGISTER WITH 0 DEGREE DEFLECTION BLADE DAMPER (TO BE SIZED AS SHOWN ON PLAN)
2. SUPPLY DUCT
3. SEAL JOINTS BETWEEN COLLAR AND MAIN DUCT

233713.00-02 - ANGLED REGISTER INSTALLATION

SCALE: NONE

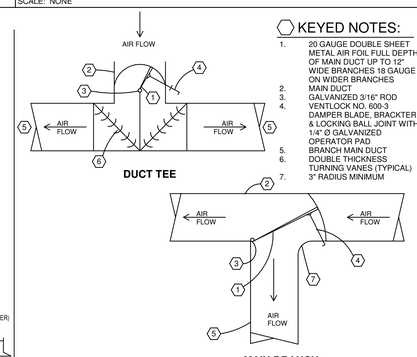
GENERAL NOTES:

1. PROVIDE SPLITTER DAMPER (SD) AT ALL MAIN BRANCH TAKEOFFS
2. PROVIDE MANUAL VOLUME DAMOERS AT ALL BRANCH TAKEOFFS
3. PROVIDE MINIMUM 3 TIMES STRAIGHT INLET DIAMETER TO ALL VAV TERMINAL DEVICES
4. DAMPER NOT REQUIRED AT TERMINAL DEVICE TAKEOFF
5. ALL MANUAL DAMPERS SHALL BE LOCATED IN AN ACCESSIBLE CEILING. PROVIDE ACCESS PANEL AS REQUIRED.



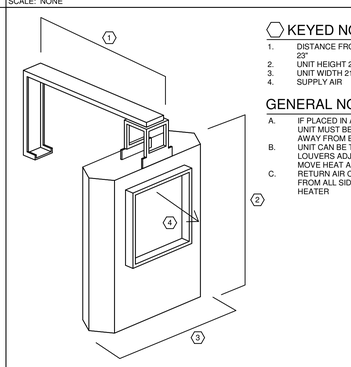
233300.00-01 - MANUAL DAMPER DETAIL

SCALE: NONE



KEYED NOTES:

1. 20 GAUGE DOUBLE SHEET METAL AIR FOIL FULL DEPTH OF MAIN DUCT UP TO 12" WIDE BRANCHES 18 GAUGE ON WIDER BRANCHES
2. MAIN DUCT
3. GALVANIZED 3/16" ROD
4. VENTLOCK NO. 600-3 DAMPER BLADE, BRACKTER & LOCKING BALL JOINT WITH 1/4" Ø GALVANIZED OPERATOR PAD
5. BRANCH MAIN DUCT
6. DOUBLE THICKNESS TURNING VANES (TYPICAL)
7. 3" RADIUS MINIMUM



KEYED NOTES:

1. DISTANCE FROM WALL 23"
2. UNIT HEIGHT 24 5/16"
3. UNIT WIDTH 21 1/2"
4. SUPPLY AIR

GENERAL NOTES:

A. IF PLACED IN A CORNER UNIT MUST BE PLACED 12" AWAY FROM BOTH WALLS
B. UNIT CAN BE TURNED AND LOUVERS ADJUSTED TO MOVE HEAT ANYWHERE
C. RETURN AIR COMES IN FROM ALL SIDES OF HEATER

238239.00-01 - ELECTRIC UNIT HEATER MOUNTING A

SCALE: NONE

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#	DATE	DESCRIPTION
	04/20/2023	90% OWNER REVIEW
	05/24/2023	100%/BID/PERMIT

EXECUTED BY: KSL
REVIEWED BY: MCD

PROJECT TITLE

KROGER STORE
DAL541

FORT WORTH, TX

COMMISSION NO. 522316
ISSUE DATE 05/24/23

SHEET TITLE

HVAC PROJECT-
SPECIFIC DETAILS

SHEET NO.

M5.2

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FILE LOCATION: C:\Users\ksmith\Documents\Revit\258049-20-24R1\Kroger DAL541 Fort Worth, TX - 2023 New - ksmith.rvt

RTU-12

HVAC ROOFTOP UNITS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	MIN EER	CFM (cfm)	ESP (in WC)	OACFM (cfm)	NOMINAL TONS	MAT CLG DB (Deg F)	MAT CLG WB (Deg F)	CLG MBH (mbh)	CLG SENS (mbh)	LAT DB (Deg F)	LAT CLG WB (Deg F)	MAT HTG (Deg F)	HTG MBH (mbh)	MIN HTG AFUE	GAS HTG IN (mbh)	GAS HTG OUT (mbh)	MIN GAS PRESSURE (in WC)	MAX GAS PRESSURE (in WC)	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT	ACCESSORIES
RTU-1	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150U4E	12.2	4880	0.5	0	12.5	76	64	129	101	55	54	70	37	80	130	104	7	14	NO	RTU-1 - 480V/3PH, 29 MCA, 35A OCP	1409	3,4,10
RTU-2	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150U4E	12.2	4580	0.5	0	12.5	76	64	112	95	55	54	70	29	80	130	104	7	14	NO	RTU-2 - 480V/3PH, 29 MCA, 35A OCP	1187	3,4,10
RTU-3	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150U4E	12.2	4425	0.5	0	12.5	76	64	108	92	55	54	70	28	80	130	104	7	14	NO	RTU-3 - 480V/3PH, 29 MCA, 35A OCP	1757	3,4,10
RTU-4	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150U4E	12.2	4530	0.5	0	12.5	76	64	111	94	55	54	70	29	80	130	104	7	14	NO	RTU-4 - 480V/3PH, 29 MCA, 35A OCP	1656	3,4,10
RTU-5	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150U4E	12.2	4610	0.5	0	12.5	76	64	107	90	55	54	70	57	80	130	104	7	14	NO	RTU-5 - 480V/3PH, 29 MCA, 35A OCP	2509	3,4,10
RTU-6	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150U4E	12.2	4510	0.5	0	12.5	76	64	115	94	55	54	70	27	80	130	104	7	14	NO	RTU-6 - 480V/3PH, 29 MCA, 35A OCP	2318	3,4,10
RTU-7	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150U4E	12.2	4545	0.5	0	12.5	76	64	110	94	55	54	70	54	80	130	104	7	14	NO	RTU-7 - 480V/3PH, 29 MCA, 35A OCP	1765	3,4,10
RTU-8	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150U4E	12.2	4455	0.5	0	12.5	76	64	108	92	55	54	70	47	80	130	104	7	14	NO	RTU-8 - 480V/3PH, 29 MCA, 35A OCP	3573	3,4,10
RTU-9	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM120U4E	12.2	3930	0.5	0	10	76	64	97	83	55	54	70	45	80	130	104	7	14	NO	RTU-9 - 480V/3PH, 24 MCA, 30A OCP	1375	3,4,10
RTU-10	PACKAGED ROOFTOP UNIT, GAS HEAT	PHARMACY	NEW	1319	LENNOX	LGM074U4E	12.5	2300	0.75	550	6	81	66	78	64	55	54	61	46	80	65	52	7	14	NO	RTU-10 - 480V/3PH, 15 MCA, 20A OCP	1067	2,3,4,10,19,22,24
RTU-11	PACKAGED ROOFTOP UNIT, GAS HEAT	DELI	NEW	1319	LENNOX	LGM060U4E	12.5	2095	0.75	87	5	77	64	47	45	55	54	68	42	80	65	52	7	14	NO	RTU-11 - 480V/3PH, 13 MCA, 15A OCP	413	2,3,4,10,24
RTU-12	PACKAGED ROOFTOP UNIT, GAS HEAT	BAKERY	NEW	997	LENNOX	LGM048U4E	13.7	1620	0.75	81	4	77	64	37	36	55	54	66	7	80	65	52	7	14	NO	RTU-12 - 480V/3PH, 12 MCA, 15A OCP	386	2,3,4,10
RTU-13	PACKAGED ROOFTOP UNIT, GAS HEAT	BACKROOM	NEW	1319	LENNOX	LGM060U4E	12.5	2065	0.5	180	5	78	65	51	48	55	54	66	42	80	65	52	7	14	NO	RTU-13 - 480V/3PH, 13 MCA, 15A OCP	739	2,3,4,10,22
RTU-14	PACKAGED ROOFTOP UNIT, GAS HEAT	BACKROOM	NEW	1319	LENNOX	LGM060U4E	12.5	1925	0.5	258	5	79	65	52	47	55	54	64	34	80	65	52	7	14	NO	RTU-14 - 480V/3PH, 13 MCA, 15A OCP	2446	2,3,4,10,22
RTU-15	PACKAGED ROOFTOP UNIT, GAS HEAT	DOCK	NEW	1363	LENNOX	LGM092U4E	12.5	3060	0.5	857	7.5	82	66	101	87	55	54	60	101	80	130	104	7	14	NO	RTU-15 - 480V/3PH, 20 MCA, 25A OCP	3464	2,3,4,10
RTU-16	PACKAGED ROOFTOP UNIT, GAS HEAT	OFFICES	NEW	1319	LENNOX	LGM074U4E	12.5	2345	0.5	673	6	82	66	87	67	55	54	59	47	80	65	52	7	14	NO	RTU-16 - 480V/3PH, 15 MCA, 20A OCP	1797	2,3,4,10,22,24
RTU-17	PACKAGED ROOFTOP UNIT, GAS HEAT	PICKUP	NEW	1386	LENNOX	LGM102U4E	12.5	3205	0.5	466	8.5	79	65	94	80	55	54	64	78	80	130	104	7	14	NO	RTU-17 - 480V/3PH, 21 MCA, 25A OCP	1695	2,3,4,10,22
RTU-18	PACKAGED ROOFTOP UNIT, GAS HEAT	VESTIBULE	NEW	1363	LENNOX	LGM092U4E	12.5	3320	0.5	146	7.5	77	64	78	73	55	54	68	30	80	104	84.5	7	14	NO	RTU-18 - 480V/3PH, 20 MCA, 25A OCP	1445	2,3,4,10,22
RTU-19	PACKAGED ROOFTOP UNIT, GAS HEAT	VESTIBULE	NEW	1363	LENNOX	LGM092U4E	12.5	3320	0.5	146	7.5	77	64	78	73	55	54	68	30	80	104	84.5	7	14	NO	RTU-19 - 480V/3PH, 20 MCA, 25A OCP	1157	2,3,4,10,22

HVAC ACCESSORIES

ACCESSORIES:

1. MOTOR DAMPER
2. ECONOMIZER
3. ROOF CURB
4. HAIL GUARDS
5. INTAKE HOOD
6. VIBRATION ISOLATION
7. FLAT FILTER
8. FILTER/MIXING BOX
9. ACCESS DOOR
10. FLEX CONNECTIONS
11. MOUNTING COLLAR
12. HOT GAS BYPASS
13. FACE/BYPASS DAMPER
14. CONDENSATE PUMP
15. MOTOR GUARD
16. GREASE TRAP
17. DUCT FLANGES
18. BASE RAIL
19. HUMIDITROL
20. CO2 SENSORS
21. ECON POWERED EXHAUST
22. ECON BAROMETRIC RELIEF
23. HOT GAS REHEAT COIL
24. DUCT SMOKE DETECTOR

HVAC AIR CURTAINS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs.)	MANUFACTURER	MODEL	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
AC-1	AIR CURTAIN W/NO HEAT	PICK-UP	NEW	184	POWERED AIRE	BCE-2-84	NO	AC-1 - 208V/1PH, 2 HP, 6A FLA	1081
AC-2	AIR CURTAIN W/NO HEAT	EXTERIOR X	NEW	113	POWERED AIRE	BCE-1-60	NO	AC-2 - 208V/1PH, 0.5 HP, 3A FLA	1434

HVAC EXHAUST FANS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	EMERGENCY	EA CFM	ESP (in WC)	FAN RPM (rpm)	BHP (hp)	HP (hp)	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
EF-1	CENTRIFUGAL ROOF VENTILATOR	CUSTOMER RRS	NEW	64	CAPTIVE AIRE	DR30HFA	NO	700	0.5	1548	0.2	0.25	EF-1 - 120V/1PH, 0.25 HP, 3.8A FLA	387
EF-2	CENTRIFUGAL ROOF VENTILATOR	TLC	NEW	53	CAPTIVE AIRE	DR10HFA	NO	200	0.4	1174	0.07	0.15	EF-2 - 120V/1PH, 0.18 HP, 1.9A FLA	613
EF-3	CENTRIFUGAL ROOF VENTILATOR	EMPLOYEE RRS	NEW	64	CAPTIVE AIRE	DR30HFA	NO	500	0.5	1278	0.13	0.25	EF-3 - 120V/1PH, 0.25 HP, 3.8A FLA	1018
EF-4	UPBLAST PROPELLER ROOF FAN	DELI HOOD	NEW	164	CAPTIVE AIRE	DU180HFA	NO	2400	1.25	1146	1.04	2.0	EF-4 - 208V/3PH, 2 HP, 6.1A FLA	559
EF-5	CENTRIFUGAL ROOF VENTILATOR	FRONT ELECTRICAL	NEW	64	CAPTIVE AIRE	DR30HFA	NO	800	0.4	1426	0.17	0.18	EF-5 - 120V/1PH, 3.8A FLA	1512
EF-6	CENTRIFUGAL ROOF VENTILATOR	ELECTRICAL	NEW	64	CAPTIVE AIRE	DR30HFA	NO	800	0.4	1426	0.17	0.25	EF-6 - 120V/1PH, 3.8A FLA	1428
EF-7	CENTRIFUGAL ROOF VENTILATOR	SEAFOOD	NEW	64	CAPTIVE AIRE	DR30HFA	NO	700	0.4	1311	0.13	0.25	EF-7 - 120V/1PH, 0.25 HP, 3.8A FLA	517
EF-8	CENTRIFUGAL ROOF VENTILATOR	CLEANING CENTER	NEW	47	CAPTIVE AIRE	DR10HFA	NO	200	0.3	1290	0.04	0.06	EF-8 - 120V/1PH, 0.06 HP, 1.1A FLA	662
EF-9	UPBLAST PROPELLER ROOF FAN	BAKERY OVEN	NEW	79	CAPTIVE AIRE	DU33HFA	NO	600	0.5	1282	119	0.33	EF-9 - 120V/1PH, 0.33 HP, 5.6A FLA	1026
EF-10	UPBLAST PROPELLER ROOF FAN	BAKERY OVEN	NEW	79	CAPTIVE AIRE	DU33HFA	NO	600	0.5	1282	119	0.33	EF-10 - 120V/1PH, 0.33 HP, 5.6A FLA	1131
HVLS-1	HIGH VOLUME LOW SPEED FAN	DOCK	NEW	520	CAPTIVE AIRE	CA-HVLS-8 (8-BLADE)	NO	41500	0	168	0		HVLS-1 - 208V/3PH, 1 HP, 3.2A FLA	

HVAC DUCTLESS SPLIT SYSTEMS (INDOOR UNITS) SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	FED FROM	WEIGHT (lbs)	MANUFACTURER	MODEL	CFM (cfm)	ESP (in WC)	NOMINAL TONS	CLG MBH (mbh)	CLG SENS (mbh)	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
DS-1	DUCTLESS SPLIT INDOOR UNIT	ECR	NEW	CU-1	38	DAIKIN	FTX36WVJU9	710	0.5	3	15	15		DS-1 - 208V/1PH, 1 MCA, 20A OCP	

HVAC AIR COOLED CONDENSING UNIT SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

Equipment Mark	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	SEER	NOMINAL TONS	CLG MBH (mbh)	CLG SENS (mbh)	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
CU-1	AIR SOURCE OUTDOOR CONDENSING UNIT		NEW	133	DAIKIN	RK36WMVJU9	18.8	3	15	15	NO	CU-1 - 208V/1PH, 18.6 MCA, 20A OCP	1714

HVAC UNIT HEATERS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
UH-1	ELECTRIC UNIT HEATER	VESTIBULE 1	NEW	40	QMARK	MUH-04-4	NO	UH-1 - 480V/3PH, 7.5KW HTG, 9A FLA	1189
UH-2	ELECTRIC UNIT HEATER	VESTIBULE 2	NEW	40	QMARK	MUH-04-4	NO	UH-2 - 480V/3PH, 7.5KW HTG, 9A FLA	698

HVAC ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS

DC	LOCAL DISCONNECT
MC	MOTOR CONTROL (POWER)
SD	DUCT SMOKE DETECTOR
CN	CONTROLS
TS	TOGGLE SWITCH
C/B	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)
FLA	OPERATING FULL LOAD AMPS
MCA	MINIMUM CIRCUIT AMPACITY
CP	CORD AND PLUG CONNECTION
[BLANK]	HARD WIRED (WHEN INDICATED FOR DC TYPE)

CONTRACTOR TYPE

EC	ELECTRICAL CONTRACTOR
EX	EXISTING
FC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR
HC	HVAC CONTRACTOR
MFR	MANUFACTURER
PC	PLUMBING CONTRACTOR
OR	OWNER OR OTHERS

MOTOR CONTROL TYPE

CS	COMBINATION STARTER
MCC	MOTOR CONTROL STARTER
MG	MAGNETIC STARTER OR CONTACT
MS	MANUAL STARTER
VFD	VARIABLE FREQUENCY DRIVE
MSR	MANUAL STARTER W/ CONTROL RELAY
OV	OVERCURRENT PROTECTION

CONTROL TYPE

TC	TIMECLOCK
CPT	CONTROL POWER TRANSFORMER
BAS	BUILDING AUTOMATION SYSTEM
LOW	LOW VOLTAGE CONTROLS
LINE	LINE VOLTAGE CONTROLS
RLINE	REVERSE ACTING LINE VOLTAGE THERMOSTAT
MAN	MANUAL
FA	FIRE ALARM
CO	CARBON MONOXIDE SENSOR
INT	INTEGRAL TO EQUIPMENT
ASD	AREA SMOKE DETECTOR
DSD	DUCT SMOKE DETECTOR

SHORT CIRCUIT RATING

WHERE SHORT CIRCUIT RATING CODE REQUIRED VALUE INDICATES "YES" APPLICABLE EQUIPMENT'S SHORT CIRCUIT RATING SHALL EXCEED THE AVAILABLE FAULT CURRENT VALUE INDICATED.

CONNECTION MARK	DESCRIPTION	VOLTAGE	PHASE	EMERGENCY	SWD	HP	WATTS	KW/KVA	FLA	MCA	OCP	FED FROM	DC EVER	DC INST	AC WIRE	MC TYPE	AC EVER	AC INST	AC WIRE	CN TYPE	CN EVER	CN INST	CN WIRE	SHORT CIRCUIT RATING CODE REQUIRED	AVAILABLE FAULT CURRENT (A)
AC-1	AIR CURTAIN W/NO HEAT	208 V	1	NO		2			6			EC	EC	EC	MG	MFR	MFR	MFR	MFR	INT	MFR	MFR	MFR	No	1081
AC-2	AIR CURTAIN W/NO HEAT	208 V	1	NO		0.5			3			EC	EC	EC	MG	MFR	MFR	MFR	MFR	INT	MFR	MFR	MFR	No	1434
CU-1	AIR SOURCE OUTDOOR CONDENSING UNIT	208 V	1	NO						16.6	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	EC	Yes	1714
DOAS-1	OUTDOOR MAKEUP AIR UNIT, DX COOLING AND GAS HEAT	480 V	3	NO		5				71.6	80		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	EC	Yes	3036
DOAS-2	OUTDOOR MAKEUP AIR UNIT, DX COOLING AND GAS HEAT	480 V	3	NO		5				71.6	80		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	EC	Yes	5250
DS-1	DUCTLESS SPLIT INDOOR UNIT	208 V	1	NO					1		20	CU-1	EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	
EF-1	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO		0.25			3.8				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	387
EF-2	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO		0.18			1.9				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	613
EF-3	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO		0.25			3.8				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	1018
EF-4	UPBLAST PROPELLER ROOF FAN	208 V	3	NO		2			6.1				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	559
EF-5	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO					3.8				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	1512
EF-6	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO					3.8				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	1428
EF-7	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO		0.25			3.8				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	517
EF-8	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO		0.06			1.1				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	662
EF-9	UPBLAST PROPELLER ROOF FAN	120 V	1	NO		0.33			5.6				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	1026
EF-10	UPBLAST PROPELLER ROOF FAN	120 V	1	NO		0.33			5.6				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	1131
HVLS-1	HIGH VOLUME LOW SPEED FAN	208 V	3	NO		1			3.2				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	756
HVLS-1	HIGH VOLUME LOW SPEED FAN	208 V	3	NO		1			3.2				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	
RTU-1	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1409
RTU-2	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1187
RTU-3	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1757
RTU-4	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1656
RTU-5	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	2509
RTU-6	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	2318
RTU-7	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1765
RTU-8	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	3573
RTU-9	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							30		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1375
RTU-10	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1067
RTU-11	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	413
RTU-12	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	386
RTU-13	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	739
RTU-14	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	2446
RTU-15	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							25		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	3464
RTU-16	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1797
RTU-17	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							25		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1695
RTU-18	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							25		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1445
RTU-19	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO							25		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1157
UH-1	ELECTRIC UNIT HEATER	480 V	3	NO					7.5	9			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	EC	No	1189
UH-2	ELECTRIC UNIT HEATER	480 V	3	NO					7.5	9			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	EC	No	698

HVAC LOAD SCHEDULE

THE HEATING AND COOLING LOAD CALCULATIONS ARE BASED ON THE RTS (RADIANT TIME SERIES) METHOD. ASSUMPTIONS AND EXECUTION OF THESE METHODS ARE PER ASHRAE 183-2007...

HVAC LOADS	COOLING LOAD BREAKDOWN				HEATING LOAD BREAKDOWN	
	CROOF	SENSIBLE HEAT GAIN FROM ROOF	CSSENS	TOTAL SENSIBLE HEAT GAIN TO SPACE	HROOF	HEAT LOSS FROM ROOF
	CWALL	SENSIBLE HEAT GAIN FROM EXTERIOR WALLS	CFAN	SENSIBLE HEAT GAIN FROM AIR HANDLER FAN	HWALL	HEAT LOSS FROM EXTERIOR WALLS
	CPART	SENSIBLE HEAT GAIN FROM PARITIONS	COAS	SENSIBLE HEAT GAIN FROM OUTDOOR VENTILATION AIR	HPART	HEAT LOSS FROM PARTITIONS
	CGLASS	SENSIBLE HEAT GAIN FROM GLAZING	CTSENS	TOTAL SENSIBLE HEAT GAIN	HGLASS	HEAT LOSS FROM GLAZING
	CSOLAR	SENSIBLE HEAT GAIN FROM SOLAR GAIN THROGH GLAZING	CPLAT	LATENT HEAT GAIN FROM PEOPLE	HSLAB	HEAT LOSS FROM SLAB
	CLIGHTS	SENSIBLE HEAT GAIN FROM INTERIOR LIGHTING	COAL	LATENT HEAT GAIN FROM OUTDOOR VENTILATION AIR	HSPACE	TOTAL HEAT LOSS FROM SPACE
	CEQUIP	SENSIBLE HEAT GAIN FROM PLUG LOADS, COMPUTERS,	CTLAT	TOTAL LATENT HEAT GAIN	HOA	HEAT LOSS FROM OUTDOOR VENTILATION AIR
	CPSENS	ETC. SENSIBLE HEAT GAIN FROM PEOPLE	CTOT	TOTAL HEAT GAIN (SENSIBLE + LATENT)	HTOT	TOTAL HEAT LOSS

EQUIPMENT MARK	CROOF	CWALL	CPART	CGLASS	CSOLAR	CLIGHTS	CEQUIP	CPSENS	CSSENS	CFAN	COAS	CTSENS	CPLAT	COAL	CTLAT	CTOT	HROOF	HWALL	HPART	HGLASS	HSLAB	HSPACE	HOA	HTOT
CU-1	0.2	1.1	0	0	0	0.5	17	2.2	21.2	0.7	0	21.9	2.1	0	2.1	24	0.3	2.8	0	0	0.8	4.1	0	4.1
DS-1	0.2	1.1	0	0	0	0.5	17	2.2	21.2	0.7	0	21.9	2.1	0	2.1	24	0.3	2.8	0	0	0.8	4.1	0	4.1
RTU-1	21.4	0.6	0	0	0	45.1	3	29.6	99.9	5	0	99.7	28.6	0	23.4	123.1	34.1	1.7	0	0	13.6	49.5	0	49.5
RTU-2	21.1	0	0	0	0	44.5	0.9	21.5	88.2	4.5	0	85.3	20.7	0	18	103.3	33.7	0	0	0	13	46.7	0	46.7
RTU-3	14.2	0	0	0	0	30	0.9	21.5	66.9	3.7	0	70.7	20.7	0	20.7	91.4	22.7	0	0	0	8.8	31.5	0	31.5
RTU-4	15.4	0	0	0	0	32.6	0.9	21.5	70.6	3.7	0	74.4	20.7	0	20.7	95.1	24.7	0	0	0	9.5	34.2	0	34.2
RTU-5	15	0	0	0	0	31.7	0.9	21.5	69.3	3.7	0	73	20.7	0	20.7	93.7	24	0	0	0	9.2	33.3	0	33.3
RTU-6	16.2	0	0	0	0	34.2	0.9	21.5	73	3.9	0	76.9	20.7	0	20.7	97.6	25.9	0	0	0	10	35.9	0	35.9
RTU-7	17.2	0	0	0	0	36.4	0.9	21.5	76.2	4.3	0	80.5	20.7	0	20.7	101.2	27.5	0	0	0	10.6	38.2	0	38.2
RTU-8	11.5	0.6	0	0	0	24.4	8.5	22.9	68	3.8	0	71.9	22.1	0	22.1	94	18.4	1.5	0	0	7.5	27.4	0	27.4
RTU-9	11.1	0	0	0	0	23.4	0.9	21.5	57.1	3	0	60.2	20.7	0	20.7	80.9	17.7	0	0	0	6.8	24.6	0	24.6
RTU-10	3.4	8.9	0	0.4	1.4	7.2	16.9	5.3	43.7	2.3	12.3	58.8	5.1	14.2	19.4	78.2	5.4	22.4	0	1.5	7.8	37.2	33.8	71.1
RTU-11	4.6	8.8	0	0	0	9.7	13.6	0	36.8	2	2	41.5	0	2.4	2.4	43.9	7.3	22.2	0	0	8.3	37.8	5.7	43.6
RTU-12	1.7	0	0	0	0	3.7	25.9	0	31.4	1.8	1.8	35.9	0	2.2	2.2	38.1	2.8	0	0	0	1.1	3.9	5.2	9.1
RTU-13	5.6

HVAC ROOFTOP UNITS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	MIN EER	CFM (cfm)	ESP (in WC)	OACFM (cfm)	NOMINAL TONS	MAT CLG DB (Deg F)	MAT CLG WB (Deg F)	CLG MBH (mbh)	CLG SENS (mbh)	LAT DB (Deg F)	LAT CLG WB (Deg F)	MAT HTG (Deg F)	HTG MBH (mbh)	MIN HTG AFUE	GAS HTG IN (mbh)	GAS HTG OUT (mbh)	MIN GAS PRESSURE (in WC)	MAX GAS PRESSURE (in WC)	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT	ACCESSORIES
DOAS1	OUTDOOR MAKEUP AIR UNIT, DX COOLING AND GAS HEAT	SALES	NEW	5222	CAPTIVE AIRE	CAS-HVAC4-1.400-22-40T-2	17.8	4600	0.5	4650	40	83	77	500	280	46	46	0	260	81	380	308	7	14	NO	DOAS-1 - 480V/3PH, 5 HP, 86.5 MCA, 90A OCP	5923	SEE SHEET M3.1.8
⚠1 DOAS-2	OUTDOOR MAKEUP AIR UNIT, DX COOLING AND GAS HEAT	SALES	NEW	5222	CAPTIVE AIRE	CAS-HVAC4-1.400-22-40T-2	17.8	4600	0.5	4600	40	83	77	500	280	46	46	0	260	81	380	308	7	14	NO	DOAS-2 - 480V/3PH, 5 HP, 86.5 MCA, 90A OCP	6492	SEE SHEET M3.1.8
RTU-1	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150UAE	12.2	4680	0.5	0	12.5	76	64	129	101	55	54	70	57	80	130	104	7	14	NO	RTU-1 - 480V/3PH, 29 MCA, 35A OCP	1409	3,4,10
RTU-2	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150UAE	12.2	4580	0.5	0	12.5	76	64	112	95	55	54	70	29	80	130	104	7	14	NO	RTU-2 - 480V/3PH, 29 MCA, 35A OCP	1187	3,4,10
RTU-3	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150UAE	12.2	4425	0.5	0	12.5	76	64	108	92	55	54	70	28	80	130	104	7	14	NO	RTU-3 - 480V/3PH, 29 MCA, 35A OCP	1757	3,4,10
RTU-4	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150UAE	12.2	4530	0.5	0	12.5	76	64	111	94	55	54	70	29	80	130	104	7	14	NO	RTU-4 - 480V/3PH, 29 MCA, 35A OCP	1656	3,4,10
RTU-5	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150UAE	12.2	4610	0.5	0	12.5	76	64	107	96	55	54	70	57	80	130	104	7	14	NO	RTU-5 - 480V/3PH, 29 MCA, 35A OCP	2509	3,4,10
RTU-6	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150UAE	12.2	4510	0.5	0	12.5	76	64	115	94	55	54	70	27	80	130	104	7	14	NO	RTU-6 - 480V/3PH, 29 MCA, 35A OCP	2318	3,4,10
RTU-7	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150UAE	12.2	4545	0.5	0	12.5	76	64	110	94	55	54	70	54	80	130	104	7	14	NO	RTU-7 - 480V/3PH, 29 MCA, 35A OCP	1765	3,4,10
RTU-8	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM150UAE	12.2	4455	0.5	0	12.5	76	64	108	92	55	54	70	47	80	130	104	7	14	NO	RTU-8 - 480V/3PH, 29 MCA, 35A OCP	3573	3,4,10
RTU-9	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LGM120U4E	12.2	3930	0.5	0	10	76	64	97	83	55	54	70	45	80	130	104	7	14	NO	RTU-9 - 480V/3PH, 24 MCA, 30A OCP	1375	3,4,10
RTU-10	PACKAGED ROOFTOP UNIT, GAS HEAT	PHARMACY	NEW	1319	LENNOX	LGM074UAE	12.5	2300	0.75	550	6	81	66	78	64	55	54	61	46	80	65	52	7	14	NO	RTU-10 - 480V/3PH, 15 MCA, 20A OCP	1067	2,3,4,10,19,22,24
RTU-11	PACKAGED ROOFTOP UNIT, GAS HEAT	DELI	NEW	1319	LENNOX	LGM060U4E	12.5	2095	0.75	87	5	77	64	47	45	55	54	68	42	80	65	52	7	14	NO	RTU-11 - 480V/3PH, 13 MCA, 15A OCP	413	2,3,4,10,24
RTU-13	PACKAGED ROOFTOP UNIT, GAS HEAT	BACKPOOM	NEW	1319	LENNOX	LGM060U4E	12.5	2065	0.5	180	5	79	65	51	48	55	54	66	42	80	65	52	7	14	NO	RTU-13 - 480V/3PH, 13 MCA, 15A OCP	739	2,3,4,10,22
RTU-14	PACKAGED ROOFTOP UNIT, GAS HEAT	BACKPROOM	NEW	1319	LENNOX	LGM060U4E	12.5	1925	0.5	258	5	79	65	52	47	55	54	64	34	80	65	52	7	14	NO	RTU-14 - 480V/3PH, 13 MCA, 15A OCP	2446	2,3,4,10,22
RTU-15	PACKAGED ROOFTOP UNIT, GAS HEAT	DOCK	NEW	1363	LENNOX	LGM092U4E	12.5	3060	0.5	857	7.5	82	66	101	87	55	54	60	101	80	130	104	7	14	NO	RTU-15 - 480V/3PH, 20 MCA, 25A OCP	3464	2,3,4,10
RTU-16	PACKAGED ROOFTOP UNIT, GAS HEAT	OFFICES	NEW	1319	LENNOX	LGM074U4E	12.5	2345	0.5	673	6	82	66	87	67	55	54	59	47	80	65	52	7	14	NO	RTU-16 - 480V/3PH, 15 MCA, 20A OCP	1797	2,3,4,10,22,24
RTU-17	PACKAGED ROOFTOP UNIT, GAS HEAT	PICKUP	NEW	1386	LENNOX	LGM102U4E	12.5	3205	0.5	466	8.5	79	65	94	80	55	54	64	78	80	130	104	7	14	NO	RTU-17 - 480V/3PH, 21 MCA, 25A OCP	1695	2,3,4,10,22
RTU-18	PACKAGED ROOFTOP UNIT, GAS HEAT	VESTIBULE	NEW	1363	LENNOX	LGM092U4E	12.5	3320	0.5	146	7.5	77	64	78	73	55	54	68	30	80	104	84.5	7	14	NO	RTU-18 - 480V/3PH, 20 MCA, 25A OCP	1445	2,3,4,10,22
RTU-19	PACKAGED ROOFTOP UNIT, GAS HEAT	VESTIBULE	NEW	1363	LENNOX	LGM092U4E	12.5	3320	0.5	146	7.5	77	64	78	73	55	54	68	30	80	104	84.5	7	14	NO	RTU-19 - 480V/3PH, 20 MCA, 25A OCP	1157	2,3,4,10,22

SEE SCHEDULE ON PAGE 20 FOR RTU-12 INFORMATION

HVAC ACCESSORIES

ACCESSORIES:

1. MOTOR DAMPER
2. ECONOMIZER
3. ROOF CURB
4. HAIL GUARDS
5. INTAKE HOOD
6. VIBRATION ISOLATION
7. FLAT FILTER
8. FILTER/MIXING BOX
9. ACCESS DOOR
10. FLEX CONNECTIONS
11. MOUNTING COLLAR
12. HOT GAS BYPASS
13. FACE/BYPASS DAMPER
14. CONDENSATE PUMP
15. MOTOR GUARD
16. GREASE TRAP
17. DUCT FLANGES
18. BASE RAIL
19. HUMIDITROL
20. CO2 SENSORS
21. ECON POWERED EXHAUST
22. ECON BAROMETRIC RELIEF
23. HOT GAS REHEAT COIL
24. DUCT SMOKE DETECTOR

HVAC AIR CURTAINS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs.)	MANUFACTURER	MODEL	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
AC-1	AIR CURTAIN W/NO HEAT	PICK-UP	NEW	184	POWERED AIRE	BCE-2-84	NO	AC-1 - 208V/1PH, 2 HP, 6A FLA	1081
AC-2	AIR CURTAIN W/NO HEAT	EXTERIOR X	NEW	113	POWERED AIRE	BCE-1-60	NO	AC-2 - 208V/1PH, 0.5 HP, 3A FLA	1434

HVAC EXHAUST FANS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	EMERGENCY	EA CFM	ESP (in WC)	FAN RPM (rpm)	BHP (hp)	HP (hp)	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
EF-1	CENTRIFUGAL ROOF VENTILATOR	CUSTOMER RRS	NEW	64	CAPTIVE AIRE	DR30HFA	NO	700	0.5	1548	0.2	0.25	EF-1 - 120V/1PH, 0.25 HP, 3.8A FLA	387
EF-2	CENTRIFUGAL ROOF VENTILATOR	TLC	NEW	53	CAPTIVE AIRE	DR10HFA	NO	200	0.4	1176	0.07	0.18	EF-2 - 120V/1PH, 0.18 HP, 1.5A FLA	613
EF-3	CENTRIFUGAL ROOF VENTILATOR	EMPLOYEE RRS	NEW	64	CAPTIVE AIRE	DR30HFA	NO	500	0.5	1278	0.13	0.25	EF-3 - 120V/1PH, 0.25 HP, 3.8A FLA	1018
EF-4	UPBLAST PROPELLER ROOF FAN	DELI HOOD	NEW	164	CAPTIVE AIRE	DU180HFA	NO	2400	1.25	1146	1.04	2.0	EF-4 - 208V/3PH, 2 HP, 6.1A FLA	559
EF-5	CENTRIFUGAL ROOF VENTILATOR	FRONT ELECTRICAL	NEW	64	CAPTIVE AIRE	DR30HFA	NO	800	0.4	1426	0.17	0.18	EF-5 - 120V/1PH, 3.8A FLA	1512
EF-6	CENTRIFUGAL ROOF VENTILATOR	ELECTRICAL	NEW	64	CAPTIVE AIRE	DR30HFA	NO	800	0.4	1426	0.17	0.25	EF-6 - 120V/1PH, 3.8A FLA	1428
EF-7	CENTRIFUGAL ROOF VENTILATOR	SEAFOOD	NEW	64	CAPTIVE AIRE	DR30HFA	NO	700	0.4	1311	0.13	0.25	EF-7 - 120V/1PH, 0.25 HP, 3.8A FLA	517
EF-8	CENTRIFUGAL ROOF VENTILATOR	CLEANING CENTER	NEW	47	CAPTIVE AIRE	DR19HFA	NO	200	0.3	1290	0.04	0.06	EF-8 - 120V/1PH, 0.06 HP, 1.1A FLA	662
EF-9	UPBLAST PROPELLER ROOF FAN	BAKERY OVEN	NEW	79	CAPTIVE AIRE	DU33HFA	NO	600	0.5	1282	119	0.33	EF-9 - 120V/1PH, 0.33 HP, 5.6A FLA	1026
EF-10	UPBLAST PROPELLER ROOF FAN	BAKERY OVEN	NEW	79	CAPTIVE AIRE	DU33HFA	NO	600	0.5	1282	119	0.33	EF-10 - 120V/1PH, 0.33 HP, 5.6A FLA	1131
HVLS-1	HIGH VOLUME LOW SPEED FAN	DOCK	NEW	520	CAPTIVE AIRE	CA-HVLS-8 (8-BLADE)	NO	41500	0	168	0		HVLS-1 - 208V/3PH, 1 HP, 3.2A FLA	

HVAC DUCTLESS SPLIT SYSTEMS (INDOOR UNITS) SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	FED FROM	WEIGHT (lbs)	MANUFACTURER	MODEL	CFM (cfm)	ESP (in WC)	NOMINAL TONS	CLG MBH (mbh)	CLG SENS (mbh)	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
DS-1	DUCTLESS SPLIT INDOOR UNIT	ECR	NEW	CU-1	38	DAIKIN	FTX36WVJU9	710	0.5	3	15	15	NO	DS-1 - 208V/1PH, 1 MCA, 20A OCP	

HVAC AIR COOLED CONDENSING UNIT SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

Equipment Mark	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	SEER	NOMINAL TONS	CLG MBH (mbh)	CLG SENS (mbh)	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
CU-1	AIR SOURCE OUTDOOR CONDENSING UNIT		NEW	133	DAIKIN	RK36WMVJU9	18.8	3	15	15	NO	CU-1 - 208V/1PH, 18.6 MCA, 20A OCP	1714

HVAC UNIT HEATERS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
UH-1	ELECTRIC UNIT HEATER	VESTIBULE 1	NEW	40	QMARK	MUH-04-4	NO	UH-1 - 480V/3PH, 7.5KW HTG, 9A FLA	1189
UH-2	ELECTRIC UNIT HEATER	VESTIBULE 2	NEW	40	QMARK	MUH-04-4	NO	UH-2 - 480V/3PH, 7.5KW HTG, 9A FLA	698

HVAC ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS

DC	LOCAL DISCONNECT
MC	MOTOR CONTROL (POWER)
SD	DUCT SMOKE DETECTOR
CN	CONTROLS
TS	TOGGLE SWITCH
C/B	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)
FLA	OPERATING FULL LOAD AMPS
MCA	MINIMUM CIRCUIT AMPACITY
CP	CORD AND PLUG CONNECTION
[BLANK]	HARD WIRED (WHEN INDICATED FOR DC TYPE)

CONTRACTOR TYPE

EC	ELECTRICAL CONTRACTOR
EX	EXISTING
FC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR
HC	HVAC CONTRACTOR
MFR	MANUFACTURER
PC	PLUMBING CONTRACTOR
OR	OWNER OR OTHERS

MOTOR CONTROL TYPE

CS	COMBINATION STARTER
MCC	MOTOR CONTROL STARTER
MG	MAGNETIC STARTER OR CONTACT
MS	MANUAL STARTER
VFD	VARIABLE FREQUENCY DRIVE
MSR	MANUAL STARTER W/ CONTROL RELAY
OV	OVERCURRENT PROTECTION

CONTROL TYPE

TC	TIMECLOCK
CPT	CONTROL POWER TRANSFORMER
BAS	BUILDING AUTOMATION SYSTEM
LOW	LOW VOLTAGE CONTROLS
LINE	LINE VOLTAGE CONTROLS
RLINE	REVERSE ACTING LINE VOLTAGE THERMOSTAT
MAN	MANUAL
FA	FIRE ALARM
CO	CARBON MONOXIDE SENSOR
INT	INTEGRAL TO EQUIPMENT
ASD	AREA SMOKE DETECTOR
DSD	DUCT SMOKE DETECTOR

SHORT CIRCUIT RATING

WHERE SHORT CIRCUIT RATING CODE REQUIRED VALUE INDICATES "YES" APPLICABLE EQUIPMENT'S SHORT CIRCUIT RATINGS SHALL EXCEED THE AVAILABLE FAULT CURRENT VALUE INDICATED.

CONNECTION MARK	DESCRIPTION	VOLTAGE	PHASE	EMERGENCY	BHP	HP	WATTS	HTG KW	FLA	MCA	OCP	FED FROM	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	SHORT CIRCUIT RATING CODE REQUIRED?	AVAILABLE FAULT CURRENT (A)
AC-1	AIR CURTAIN W/NO HEAT	208 V	1	NO		2			6				EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	No	1081
AC-2	AIR CURTAIN W/NO HEAT	208 V	1	NO		0.5			3				EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	No	1434
CU-1	AIR SOURCE OUTDOOR CONDENSING UNIT	208 V	1	NO						18.6	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	EC	Yes	1714
DOAS-1	OUTDOOR MAKEUP AIR UNIT, DX COOLING AND GAS HEAT	480 V	3	NO		5				86.5	90		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	EC	Yes	3823
DOAS-2	OUTDOOR MAKEUP AIR UNIT, DX COOLING AND GAS HEAT	480 V	3	NO		5				86.5	90		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	EC	Yes	6492
DS-1	DUCTLESS SPLIT INDOOR UNIT	208 V	1	NO							20	CU-1	EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	
EF-1	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO		0.25		3.8					EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	387
EF-2	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO		0.18		1.9					EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	613
EF-3	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO		0.25		3.8					EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	1018
EF-4	UPBLAST PROPELLER ROOF FAN	208 V	3	NO		2		6.1					EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	559
EF-5	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO				3.8					EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	1512
EF-6	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO				3.8					EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	1428
EF-7	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO		0.25		3.8					EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	517
EF-8	CENTRIFUGAL ROOF VENTILATOR	120 V	1	NO		0.06		1.1					EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	662
EF-9	UPBLAST PROPELLER ROOF FAN	120 V	1	NO		0.33		5.6					EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	1026
EF-10	UPBLAST PROPELLER ROOF FAN	120 V	1	NO		0.33		5.6					EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	1131
HVLS-1	HIGH VOLUME LOW SPEED FAN	208 V	3	NO		1		3.2					EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	756
HVLS-1	HIGH VOLUME LOW SPEED FAN	208 V	3	NO		1		3.2					EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC	No	
RTU-1	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						29	35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1409
RTU-2	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						29	35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1187
RTU-3	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						29	35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1757
RTU-4	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						29	35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1656
RTU-5	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						29	35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	2509
RTU-6	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						29	35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	2318
RTU-7	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						29	35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1765
RTU-8	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						29	35		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	3573
RTU-9	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						24	30		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1375
RTU-10	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						15	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1067
RTU-11	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						13	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	413
RTU-12	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						12	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	386
RTU-13	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						13	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	739
RTU-14	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						13	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	2446
RTU-15	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						20	25		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	3464
RTU-16	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						15	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1797
RTU-17	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						21	25		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1695
RTU-18	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						20	25		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1445
RTU-19	PACKAGED ROOFTOP UNIT, GAS HEAT	480 V	3	NO						20	25		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	Yes	1157
UH-1	ELECTRIC UNIT HEATER	480 V	3	NO				7.5	9				EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	EC	No	1189
UH-2	ELECTRIC UNIT HEATER	480 V	3	NO				7.5	9				EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	EC	No	698

HVAC LOAD SCHEDULE

THE HEATING AND COOLING LOAD CALCULATIONS ARE BASED ON THE RTS (RADIANT TIME SERIES) METHOD. ASSUMPTIONS AND EXECUTION OF THESE METHODS ARE PER ASHRAE 183-2007...

HVAC LOADS	COOLING LOAD BREAKDOWN				HEATING LOAD BREAKDOWN	
	CROOF	SENSIBLE HEAT GAIN FROM ROOF	CSSENS	TOTAL SENSIBLE HEAT GAIN TO SPACE	HROOF	HEAT LOSS FROM ROOF
	CWALL	SENSIBLE HEAT GAIN FROM EXTERIOR WALLS	CFAN	SENSIBLE HEAT GAIN FROM AIR HANDLER FAN	HWALL	HEAT LOSS FROM EXTERIOR WALLS
	CPART	SENSIBLE HEAT GAIN FROM PARTITIONS	COAS	SENSIBLE HEAT GAIN FROM OUTDOOR VENTILATION AIR	HPART	HEAT LOSS FROM PARTITIONS
	CGLASS	SENSIBLE HEAT GAIN FROM GLAZING	CTSENS	TOTAL SENSIBLE HEAT GAIN	HGLASS	HEAT LOSS FROM GLAZING
	CSOLAR	SENSIBLE HEAT GAIN FROM SOLAR GAIN THROGH GLAZING	CPLAT	LATENT HEAT GAIN FROM PEOPLE	HSLAB	HEAT LOSS FROM SLAB
	CLIGHTS	SENSIBLE HEAT GAIN FROM INTERIOR LIGHTING	COAL	LATENT HEAT GAIN FROM OUTDOOR VENTILATION AIR	HSPACE	TOTAL HEAT LOSS FROM SPACE
	CEQUIP	SENSIBLE HEAT GAIN FROM PLUG LOADS, COMPUTERS,	CTLAT	TOTAL LATENT HEAT GAIN	HOA	HEAT LOSS FROM OUTDOOR VENTILATION AIR
	CPSENS	ETC.	GTOT	TOTAL HEAT GAIN (SENSIBLE + LATENT)	HTOT	TOTAL HEAT LOSS
		SENSIBLE HEAT GAIN FROM PEOPLE				

EQUIPMENT MARK	CROOF	CWALL	CPART	CGLASS	CSOLAR	CLIGHTS	CEQUIP	CPSENS	CSSENS	CFAN	COAS	CTSENS	CPLAT	COAL	CTLAT	CTOT	HROOF	HWALL	HPART	HGLASS	HSLAB	HSPACE	HOA	HTOT
CU-1	0.2	1.1	0	0	0	0.5	17	2.2	21.2	0.7	0	21.9	2.1	0	2.1	24	0.3	2.8	0	0	0.8	4.1	0	4.1
DS-1	0.2	1.1	0	0	0	0.5	17	2.2	21.2	0.7	0	21.9	2.1	0	2.1	24	0.3	2.8	0	0	0.8	4.1	0	4.1
RTU-1	21.4	0.6	0	0	0	45.1	3	29.6	99.9	5	0	99.7	28.6	0	23.4	123.1	34.1	1.7	0	0	13.6	49.5	0	49.5
RTU-2	21.1	0	0	0	0	44.5	0.9	21.5	88.2	4.5	0	85.3	20.7	0	18	103.3	33.7	0	0	0	13	46.7	0	46.7
RTU-3	14.2	0	0	0	0	30	0.9	21.5	66.9	3.7	0	70.7	20.7	0	20.7	91.4	22.7	0	0	0	8.8	31.5	0	31.5
RTU-4	15.4	0	0	0	0	32.6	0.9	21.5	70.6	3.7	0	74.4	20.7	0	20.7	95.1	24.7	0	0	0	9.5	34.2	0	34.2
RTU-5	15	0	0	0	0	31.7	0.9	21.5	69.3	3.7	0	73	20.7	0	20.7	93.7	24	0	0	0	9.2	33.3	0	33.3
RTU-6	16.2	0	0	0	0	34.2	0.9	21.5	73	3.9	0	76.9	20.7	0	20.7	97.6	25.9	0	0	0	10	35.9	0	35.9
RTU-7	17.2	0	0	0	0	36.4	0.9	21.5	76.2	4.3	0	80.5	20.7	0	20.7	101.2	27.5	0	0	0	10.6	38.2	0	38.2
RTU-8	11.5	0.6	0	0	0	24.4	8.5	22.9	68	3.8	0	71.9	22.1	0	22.1	94	18.4	1.5	0	0	7.5	27.4	0	27.4
RTU-9	11.1	0	0	0	0	23.4	0.9	21.5	57.1	3	0	60.2	20.7	0	20.7	80.9	17.7	0	0	0	6.8	24.6	0	24.6
RTU-10	3.4	8.9	0	0	0.4	7.2	16.9	5.3	43.7