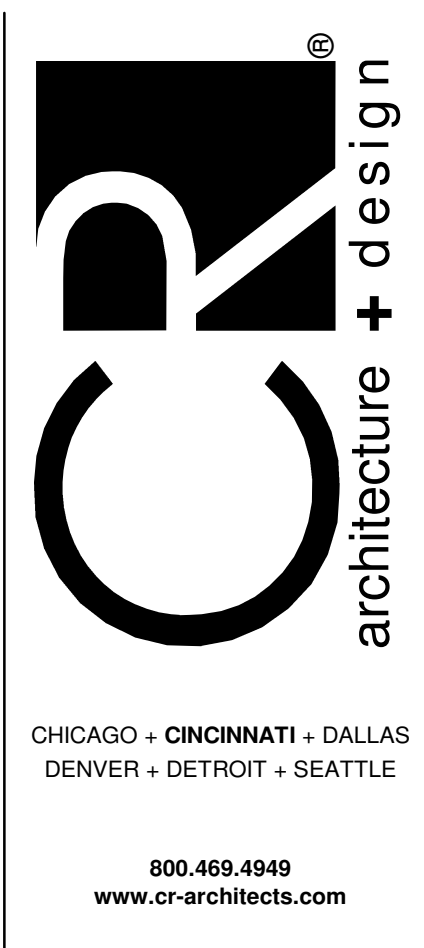


MECHANICAL LEGEND	
SYMBOL	DESCRIPTION
DRAWING SET APPEARANCE	
<p>TO BETTER COMMUNICATE SCOPE TO PERMIT AGENCIES AND CONTRACTORS, EACH DRAWING IN THIS DRAWING SET HAS BEEN CREATED IN BOTH "COLOR" AND "BLACK AND WHITE". THERE EXISTS A COLOR LAYER WITHIN EACH DRAWING WHERE VISIBILITY IS CONTROLLED THROUGH 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.KUHENGERS.COM - CONTRACTOR RESOURCES (RIGHT HAND SIDE OF PAGE).</p>	
PIPING LINE TYPES	
	REFRIGERANT LIQUID
	REFRIGERANT SUCTION
	CONDENSATE DRAIN
	SUPPLY MAIN OR BRANCH
	RETURN MAIN OR BRANCH
MECHANICAL AIR DEVICES	
	SUPPLY REGISTER
	RETURN REGISTER
	EXHAUST REGISTER
	RETURN GRILLE
	CEILING DIFFUSER
	2'x2' SQUARE CEILING DIFFUSER WITH 10" NECK
	ROUND CEILING DIFFUSER
MECHANICAL DUCTWORK	
	SUPPLY DUCT WITH ELBOW TURNED UP
	SUPPLY DUCT WITH ELBOW TURNED DOWN
	RETURN DUCT WITH ELBOW TURNED UP
	RETURN DUCT WITH ELBOW TURNED DOWN
	EXHAUST DUCT WITH ELBOW TURNED UP
	EXHAUST DUCT WITH ELBOW TURNED DOWN
	SUPPLY DUCT
	RETURN DUCT
	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
	DUCT MOUNTED SMOKE DETECTOR (HARD WIRE INTERLOCK TO FAN MOTOR BY E.C.) FURNISHED BY E.C., INSTALLED BY M.C.
MECHANICAL STATS & SENSORS	
	TEMPERATURE SENSOR
	LOW VOLTAGE THERMOSTAT
	REVERSE ACTING THERMOSTAT
	HUMIDITY SENSOR
	CARBON DIOXIDE SENSOR
MECHANICAL MISCELLANEOUS	
	ANSUL PULL STATION

- GENERAL NOTES**
- REFER TO HEATING, VENTILATING & AIR CONDITIONING SPECIFICATIONS AND GENERAL CONDITIONS FOR ADDITIONAL REQUIREMENTS.
 - ALL DIFFUSERS AND CEILING GRILLES SHALL BE COORDINATED WITH LAY-IN CEILING GRID AND PROVIDED BY MECHANICAL CONTRACTOR. REFER TO DETAILS 230713.00.21 AND 230713.00.04 ON SHEET MS.2 FOR INSTALLATION INFORMATION.
 - 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 230300.00.01 ON SHEET MS.2 FOR ADDITIONAL INFORMATION.
 - 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.
 - ALL HVAC DUCT SMOKE DETECTORS ARE TO BE PROVIDED BY HVAC CONTRACTOR.
 - PROVIDE BACKDRAFT DAMPERS FOR NON-KITCHEN EXHAUST FANS.
 - SUPPLY AND RETURN DUCTWORK FROM ROOFTOP UNITS TO BE INTERNALLY INSULATED A MINIMUM OF TEN FEET FOR SOUND ATTENUATION.
 - PROVIDE TURNING VANES IN ALL RECTANGULAR MITERED ELBOWS.
 - ALL DIFFUSERS ARE 4-WAY UNLESS OTHERWISE INDICATED. RUNOUTS TO CEILING DIFFUSERS ARE THE SAME SIZE AS THE DIFFUSER NECK UNLESS NOTED OTHERWISE.
 - 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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PROJECT TITLE
**KING SOOPERS
KS154**

HWY 52 & COLORADO BLVD
FREDERICK, CO 80643

COMMISSION NO. **522401**

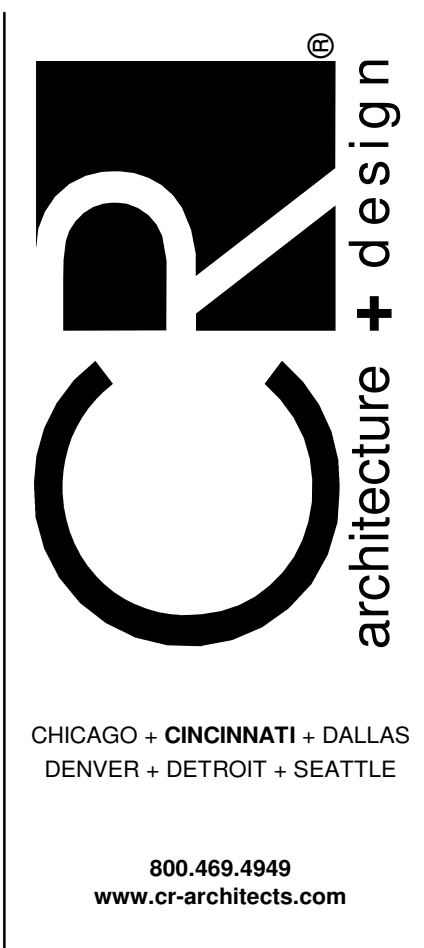
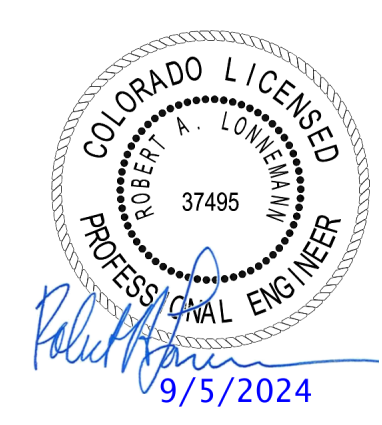
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SHEET TITLE
**MECHANICAL
ABBREVIATIONS,
SYMBOLS, AND
GENERAL NOTES**

SHEET NO.
MO.1

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3/2/2024	ADDENDUM NO. 5
7/08/2024	BULLETIN NO. 5

PROJECT TITLE
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HWY 52 & COLORADO BLVD
FREDERICK, CO 80643

COMMISSION NO. 522401
ISSUE DATE 10/17/23
SHEET TITLE
HVAC FLOOR PLAN - LEFT

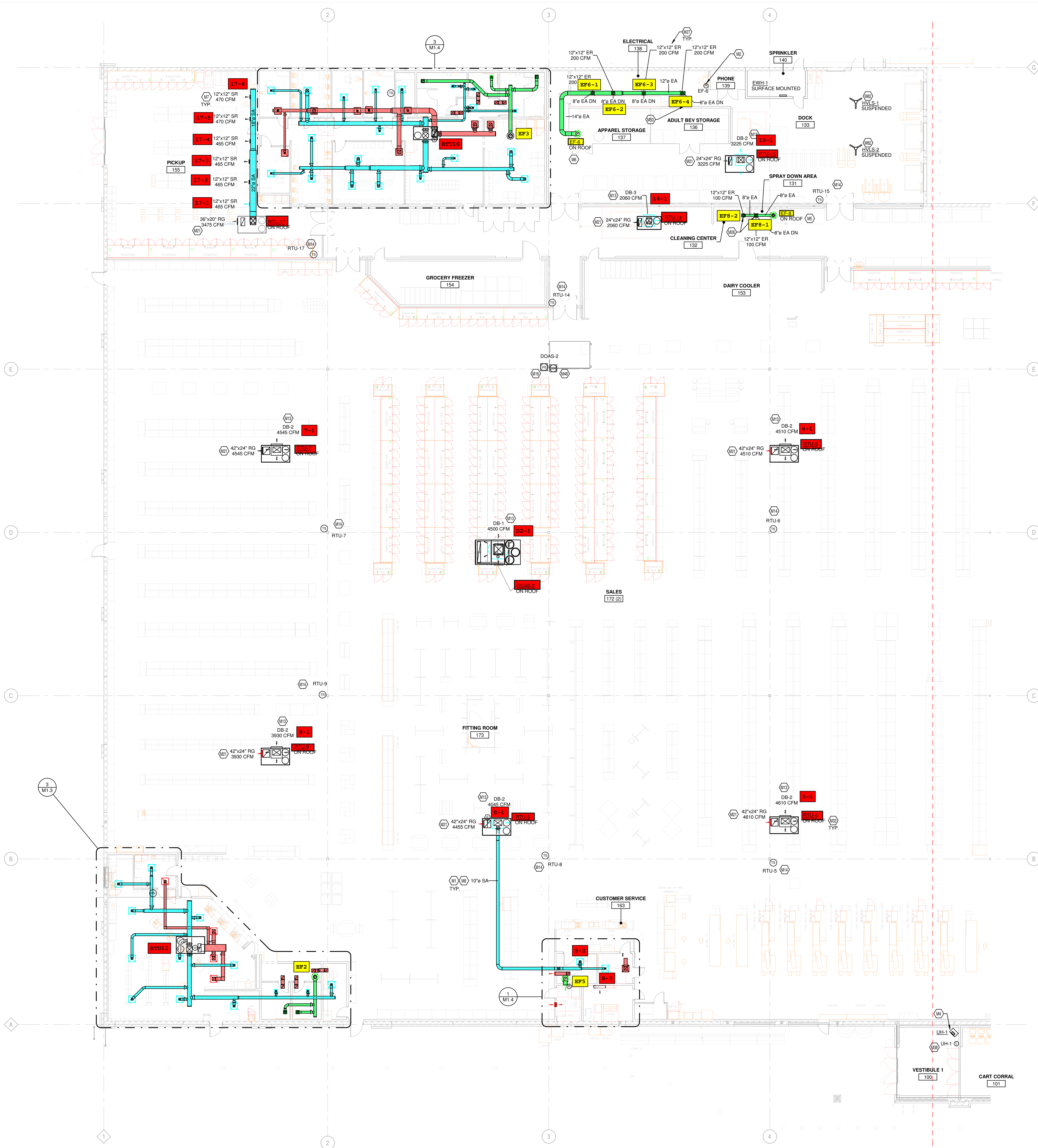
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M1.1a

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KEYED NOTES

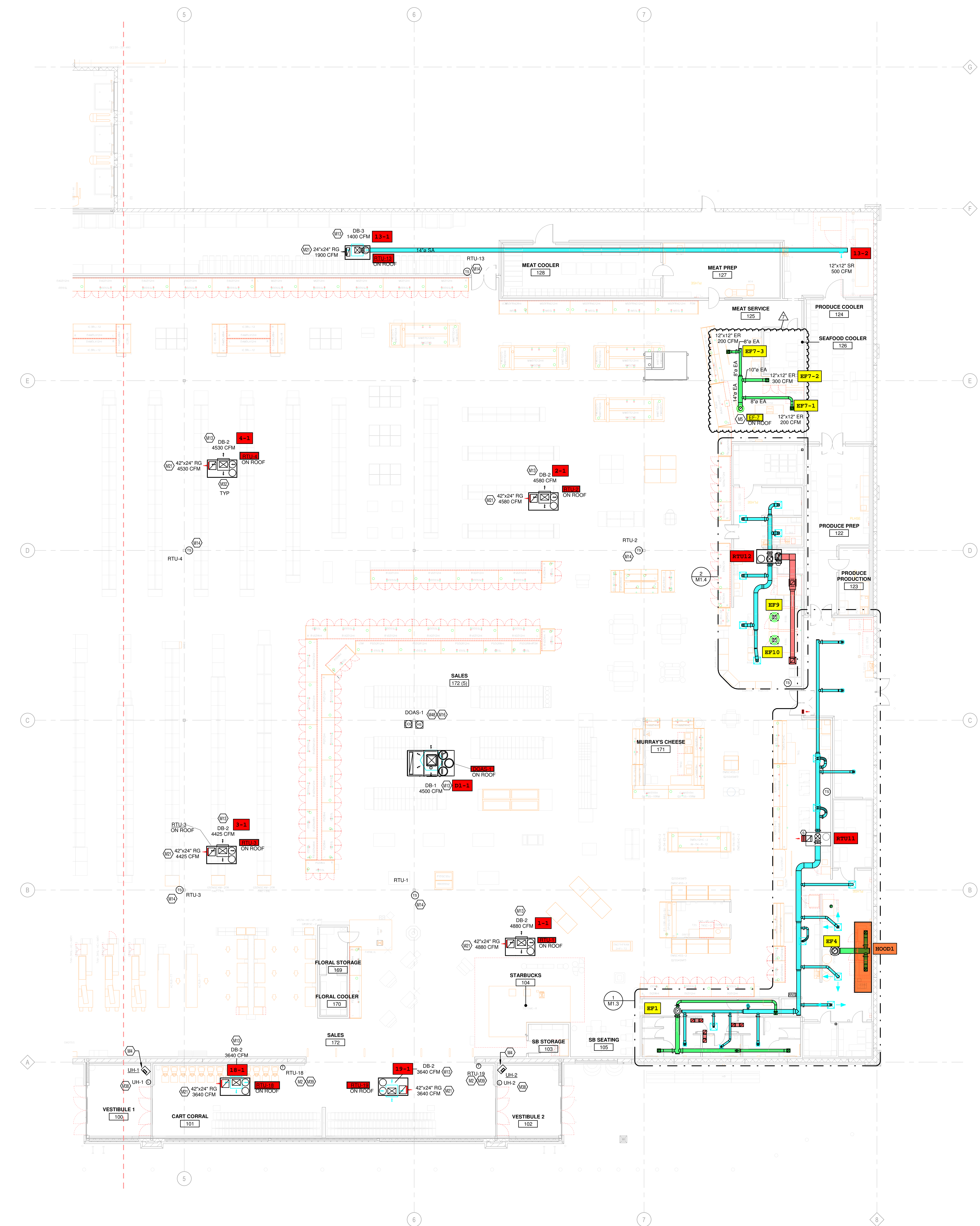
- M1 CONTRACTOR TO REFER TO HSD-3 FOR DUCTWORK INSTALLATION INFORMATION.
- M2 THERMOSTAT TO BE MOUNTED AT 4'0" AFF. PROVIDE LOCKABLE PROTECTIVE COVER OVER DEVICE.
- M4 SUSPENDED ELECTRIC HEATER USING THREADED ROD TO UNISTRUIT CHANNEL OR APPROVED EQUAL. MOUNT 18" AFF TO BOTTOM OF UNIT. VERIFY LOCATION AND REQUIREMENTS TO OWNER PRIOR TO INSTALLATION. REFER TO 238289.00-01 ON M5.2 AND M6.1 FOR MORE INFORMATION.
- M5 DUCT UP TO OPENING THROUGH ROOF CAPPED WITH CURB AND KROGER FURNISHED EXHAUST FAN.
- 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 M5.2 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'-8" 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" AFF.
- M27 MOUNT GRILLE/REGISTER 10" AFF.
- M28 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 EMS PANEL.
- M62 FAN PROVIDED BY CONTRACTOR AND CONTROLLED BY LOCAL SWITCH. MOUNT FAN PER MANUFACTURERS RECOMMENDATIONS.

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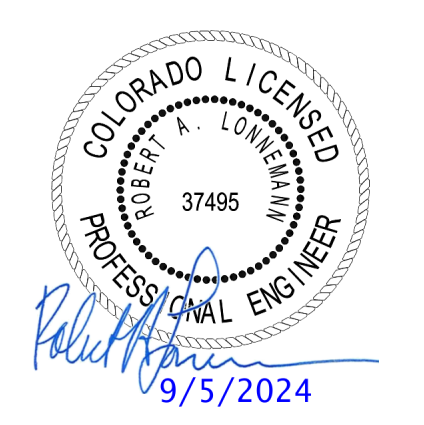
2 HVAC FLOOR PLAN - LEFT
3/32" = 1'-0"

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KEYED NOTES

- M2 THERMOSTAT TO BE MOUNTED AT 4" AFF. PROVIDE LOCKABLE PROTECTIVE COVER OVER DEVICE.
- M4 SUSPENDED ELECTRIC HEATER USING THREADED ROD TO UNISTRUT CHANNEL OR APPROVED EQUAL. MOUNT 16" 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.
- 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.
- M39 THERMOSTAT TO BE CONFIGURED WITH AUTOMATIC CONTROLS TO LIMIT HEATING TO A 60 DEG F MAXIMUM AND COOLING TO AN 80 DEG F MINIMUM.
- M48 PROVIDE CO2 SENSOR WHERE SHOWN. ROUTE CONTROL WIRING TO BUILDING CONTROL PANEL.



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1 01/11/2024	ADDENDUM NO. 2
7 08/23/2024	BULLETIN NO. 5

PROJECT TITLE
**KING SOOPERS
KS154**

HWY 52 & COLORADO BLVD
FREDERICK, CO 80643
COMMISSION NO. 522401
ISSUE DATE 10/17/23
SHEET TITLE
**HVAC FLOOR PLAN -
RIGHT**

SHEET NO.
M1.1b
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1 HVAC FLOOR PLAN - RIGHT
3/32" = 1'-0"

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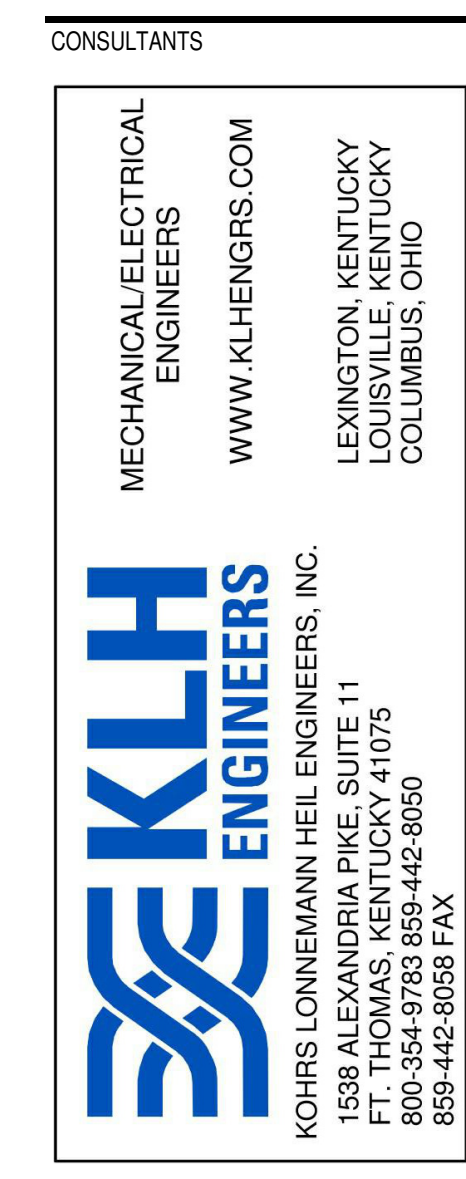
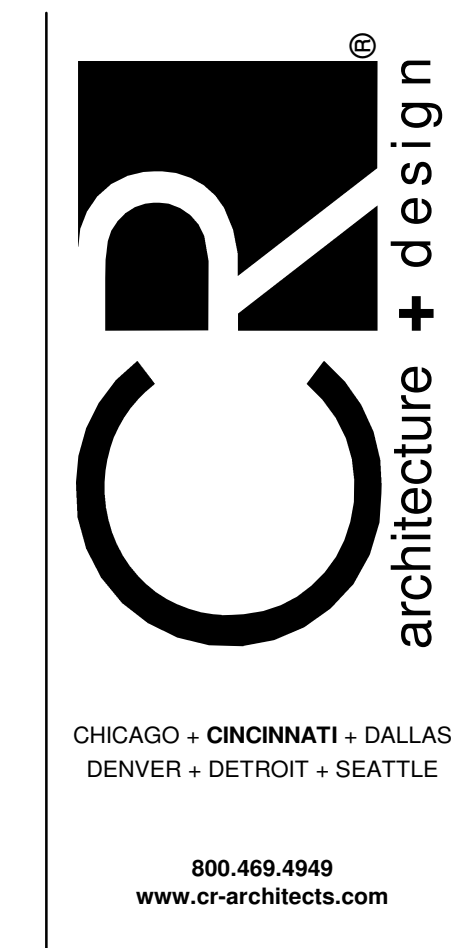
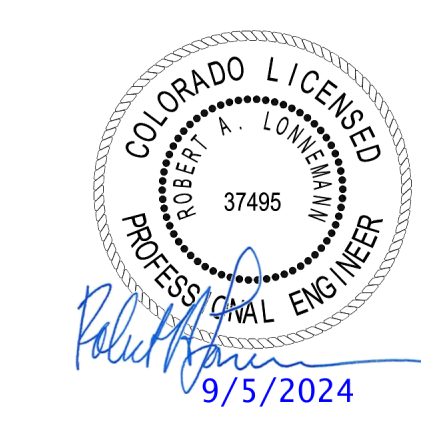


- KEYED NOTES**
- M3 REFER TO SHEETS M3.1.8 AND M3.1.9 FOR DETAILED INFORMATION REGARDING DOAS UNITS.
 - M20 ROOF HATCH
 - M23 KROGER FURNISHED SPLIT SYSTEM PROVIDED WITH LOW AMBIENT KIT AND WIND BAFFLES. MOUNT PER MANUFACTURER'S RECOMMENDATIONS. INDOOR UNIT IS: TO BE MOUNTED A MINIMUM OF 7'-0" AFF TO BOTTOM OF UNIT. 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 LINES 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.
 - M42 ROOF MOUNTED REFRIGERATION CONDENSER SHOWN FOR COORDINATION PURPOSES.

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

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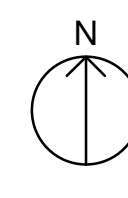
PROJECT TITLE
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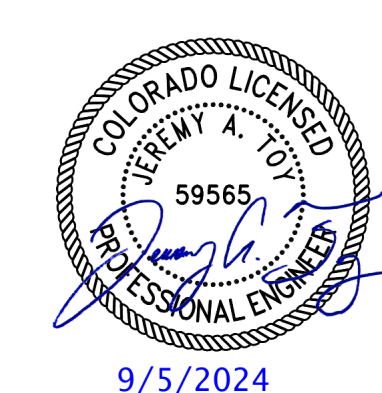
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COMMISSION NO. 522401
ISSUE DATE 10/17/23
SHEET TITLE
HVAC ROOF PLAN - LEFT

SHEET NO.
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6 07/31/2024	BULLETIN NO. 4
7 08/23/2024	BULLETIN NO. 5

PROJECT TITLE
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HWY 52 & COLORADO BLVD
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COMMISSION NO. 522401
ISSUE DATE 10/17/23

SHEET TITLE
PREMISE ALARM -
RIGHT

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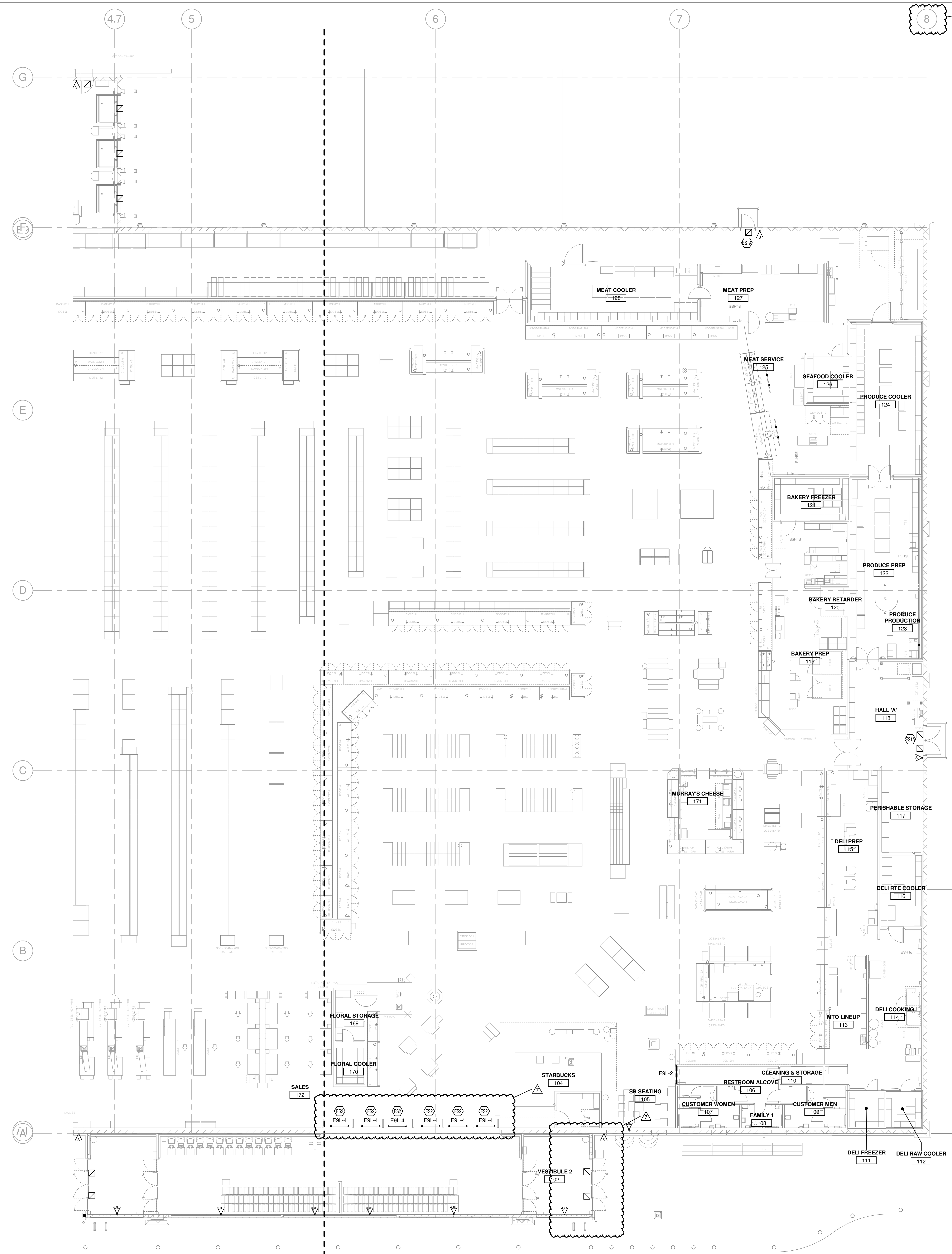
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KEYED NOTES

- ES1A PROVIDE JUNCTION BOX FOR PREMISE ALARM AT ALARMED EXIT DOOR AS INDICATED ON DETAIL ESD-22 ON ES-SERIES DRAWINGS. PROVIDE (1) 1/2" EMPTY CONDUIT FROM JUNCTION BOX UP TO 4" X 4" JUNCTION BOX IN JOIST SPACE. COORDINATE LOCATION WITH DECOR ELEMENTS AT ALL DOORS IN SALES & VESTIBULE AREAS. PROVIDE CONNECTION TO AUTOMATICALLY UNLATCH THE LOCK INSTANTLY IN THE EVENT OF A FIRE EMERGENCY OR LOSS OF POWER. SEE FIRE ALARM AND SECURITY SPEC SECTION FOR MORE DETAIL. REFER TO DETAILS 12, ESD-22 (ES.1.2), 12_ESD-22A.
- ES2 PROVIDE (1) 1" EMPTY CONDUIT BENEATH FLOOR SLAB FOR INTERCONNECTION OF THEIR DETECTION SECURITY EQUIPMENT COMPONENTS. PROVIDE (1) 3/4" EMPTY CONDUIT FROM FIRST (WALL) LOCATION (LOCAL CONTROLLER UP TO JOIST SPACE. PROVIDE (1) 1/2" EMPTY CONDUIT FROM WALL MOUNTED CONTROLLER TO LOCAL FLUSH WALL MOUNTED CONTROL INTERFACE KEYPAD. PROVIDE (1) 3/4" CONDUIT FROM CONTROLLER TO FIRST PEDESTAL AND (1) 1/2" EMPTY CONDUIT FROM FIRST PEDESTAL TO SECOND PEDESTAL. INSTALL CONDUITS BELOW SLAB WHERE APPLICABLE FOR CONCRETEMENT. LOCAL CONTROLLER SHALL BE INSTALLED ON VESTIBULE SIDE OF WALL (ABOVE CEILING AT LOCATIONS WITH ACCESSIBLE ACOUSTICAL TILE CEILINGS), OR AT 68" AT LOCATIONS WHERE THERE IS NO FINISHED CEILING. PROVIDE FLUSH WALL MOUNTED BACK BOXES FOR ALL APPLICABLE EQUIPMENT OUTLETS. FIELD COORDINATE ALL LOCATIONS AND SPECIFICS. SEE DETAIL ESD-52 AND ESD-52A ON ES-SERIES DRAWINGS. COORDINATE WORK WITH DECOR ELEMENTS AT ALL DOORS IN SALES & VESTIBULE AREAS.

TECHNOLOGY LEGEND

SYMBOL	DESCRIPTION
SECURITY SYSTEMS	
	CEILING MOTION SENSOR
	WALL INTRUSION DETECTION SYSTEM SIREN
	DOOR STATUS SENSOR
ABBREVIATIONS	
(R)	RELOCATE FIXTURE, EQUIPMENT OR DEVICE
42"	DISTANCE ABOVE FINISHED FLOOR / GRADE / PAVEMENT
ACC	ADMINISTRATIVE CONTROL CONSOLE
ADA	AMERICANS WITH DISABILITIES ACT
AFP	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AVR	AUDIO VISUAL SYSTEM EQUIPMENT RACK
BAS	BUILDING AUTOMATION SYSTEM
BFC	BELOW FINISHED CEILING
C	CONDUIT
CH	COUNTER HEIGHT OR SPECIAL HEIGHT DEVICE
DCL	DOUBLE FACE CLOCK
DS	DIGITAL STORAGE
DVR	DIGITAL VIDEO RECORDER
EC	ELECTRICAL CONTRACTOR
EF	ENTRANCE FACILITY
ELEV	ELEVATOR
EMR	ELECTRONIC MEDICAL RECORDS
EQR	EQUIPMENT RACK
ER	EQUIPMENT ROOM
ETR	EXISTING TO REMAIN
EX	EXISTING
FACP	FIRE ALARM CONTROL PANEL
OFI	OWNER FURNISHED EQUIPMENT
OPCI	OWNER FURNISHED CONTRACTOR INSTALLED
PBB	PRIMARY GROUNDING BUSBAR
PED	PEDESTAL
PLY	PLYWOOD BACKBOARD
PM	PATIENT MONITOR
PS	PATIENT STATUS
R	ROUGH-IN ONLY
SBB	SECONDARY GROUNDING BUSBAR
SCL	SINGLE FACE CLOCK
SEC	SECURITY SYSTEM EQUIPMENT RACK
SER	STRUCTURED MEDIA ENCLOSURE
SME	SOUND SYSTEM EQUIPMENT RACK
TAAC	TO ABOVE ACCESSIBLE CEILING
TAHC	TO ABOVE ACCESSIBLE HALLWAY CEILING
TR	TELECOMMUNICATIONS ROOM
WP	WEATHERPROOF
WG	WIRE GUARD
PLAN-VIEW LINE TYPES	
WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK (UNLESS INDICATED OTHERWISE)	
WORK SHOWN FADED INDICATES EXISTING WORK TO REMAIN OR NEW WORK BY OTHERS AS APPLICABLE (UNLESS INDICATED OTHERWISE)	

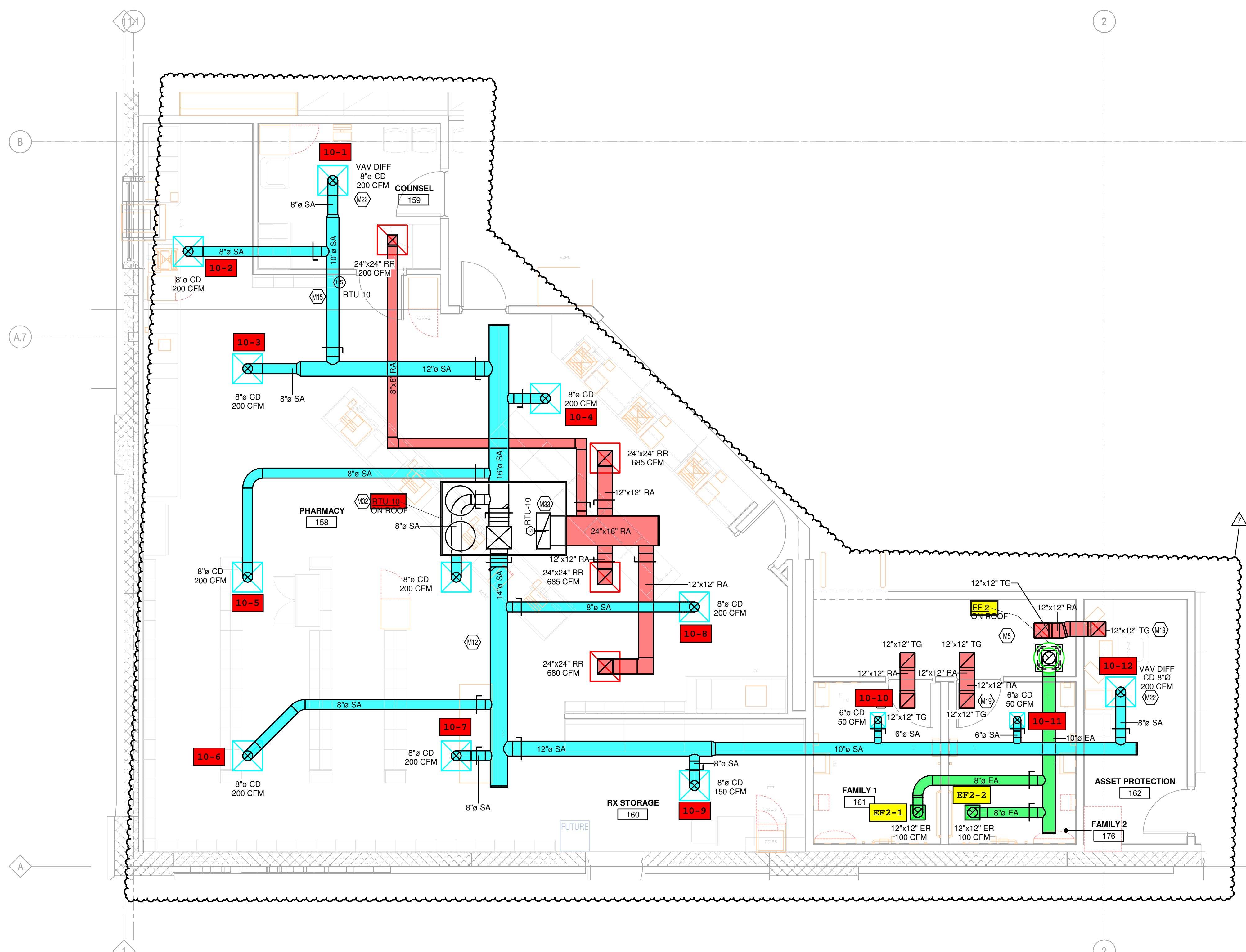


1 PREMISE ALARM - RIGHT
3/32" = 1'-0"

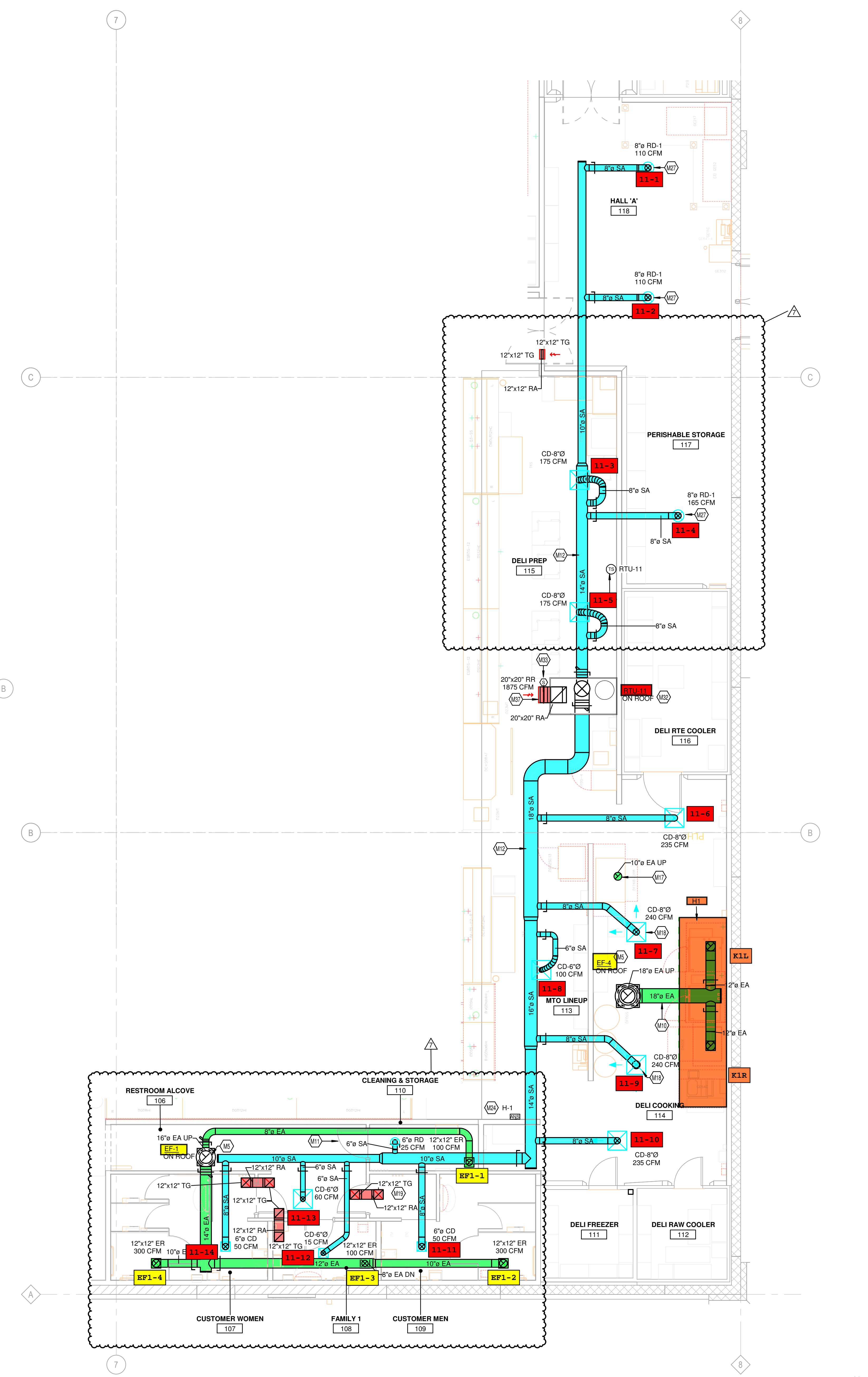
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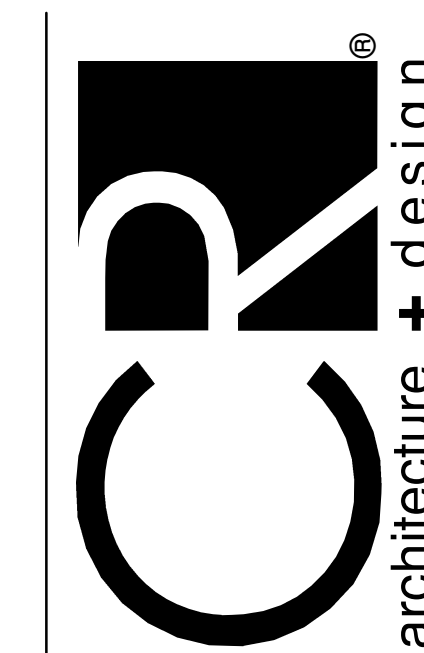
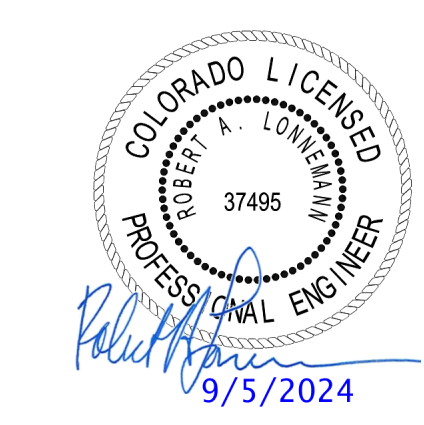
- M5 DUCT UP TO OPENING THROUGH ROOF CAPPED WITH CURB AND KROGER FURNISHED EXHAUST FAN.
- M10 GREASE DUCT FROM EXHAUST HOOD TO OPENING THROUGH ROOF PER NFPA 96. MECHANICAL CONTRACTOR TO INSTALL PROVIDED HINGE KIT. DUCTWRAP IS TO RUN THE ENTIRE LENGTH OF GREASE DUCT FROM CEILING PENETRATION TO FAN. REFER 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 20" 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 LW-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" 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 TUBES 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" 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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PROJECT TITLE
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KS154**

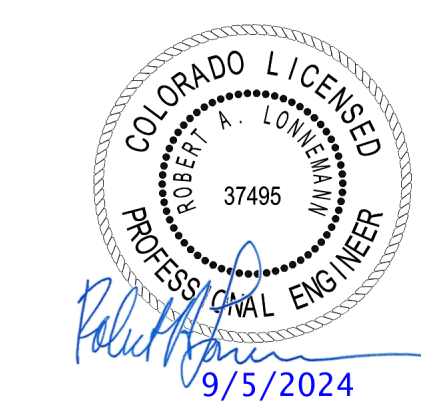
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COMMISSION NO. 522401
ISSUE DATE 10/17/23

SHEET TITLE
**HVAC ENLARGED
PLANS**

SHEET NO.
M1.3

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, ACCUTERM THERMA-FUSE MODEL TF-HC OR APPROVED EQUAL.
- M23 KROGER FURNISHED SPRIT SYSTEM PROVIDED WITH LOW AMBIENT KIT AND WIND BAFFLES. MOUNT PER MANUFACTURER'S RECOMMENDATIONS. INDOOR UNIT DS-1 TO BE MOUNTED A MINIMUM OF 7'-0" AFF TO BOTTOM OF UNIT. 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 LINES 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 TUBES AND DETECTOR HOUSING IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. DETECTOR, FAN SHUTDOWN WIRING, AND CONTROLS BY OTHERS.



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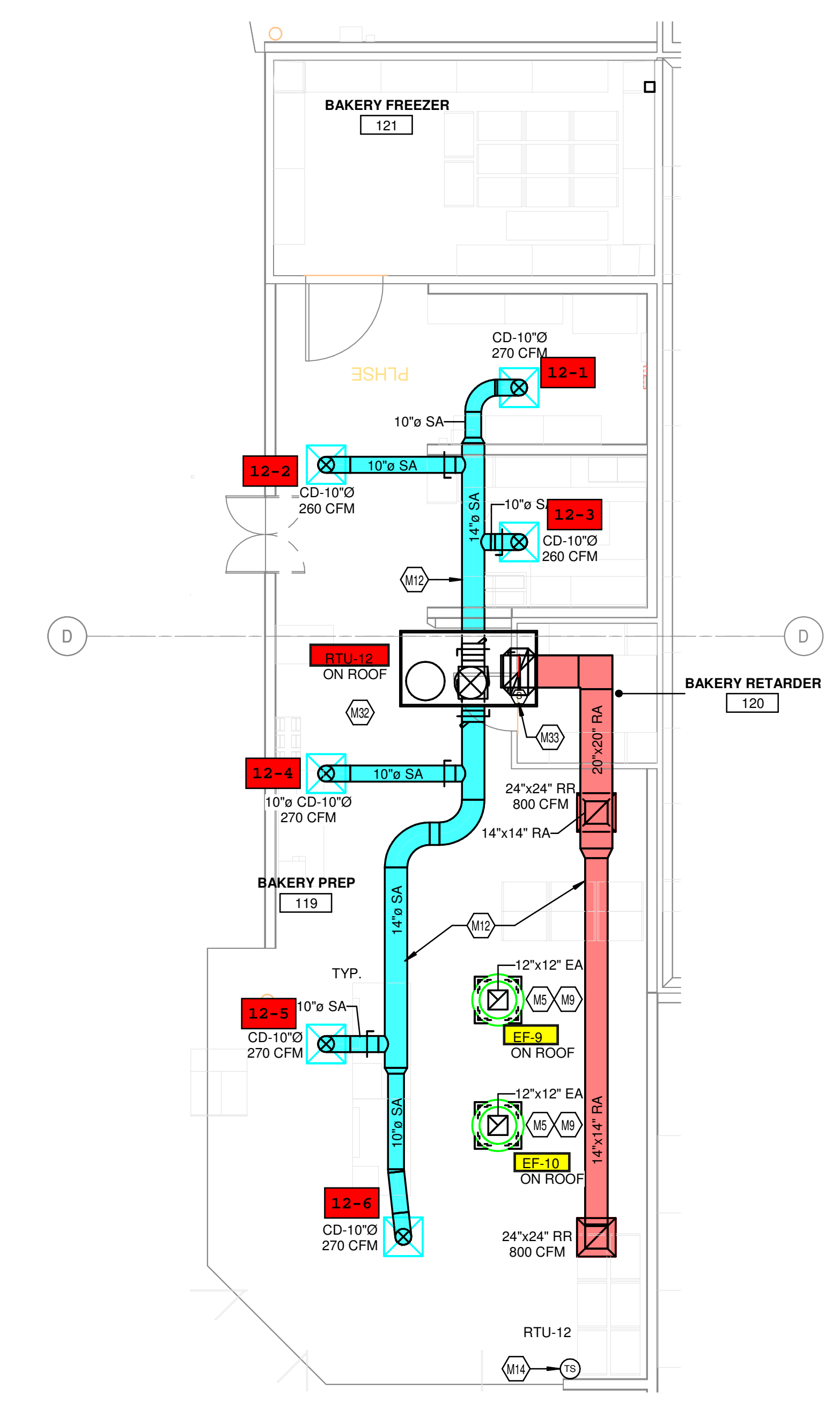
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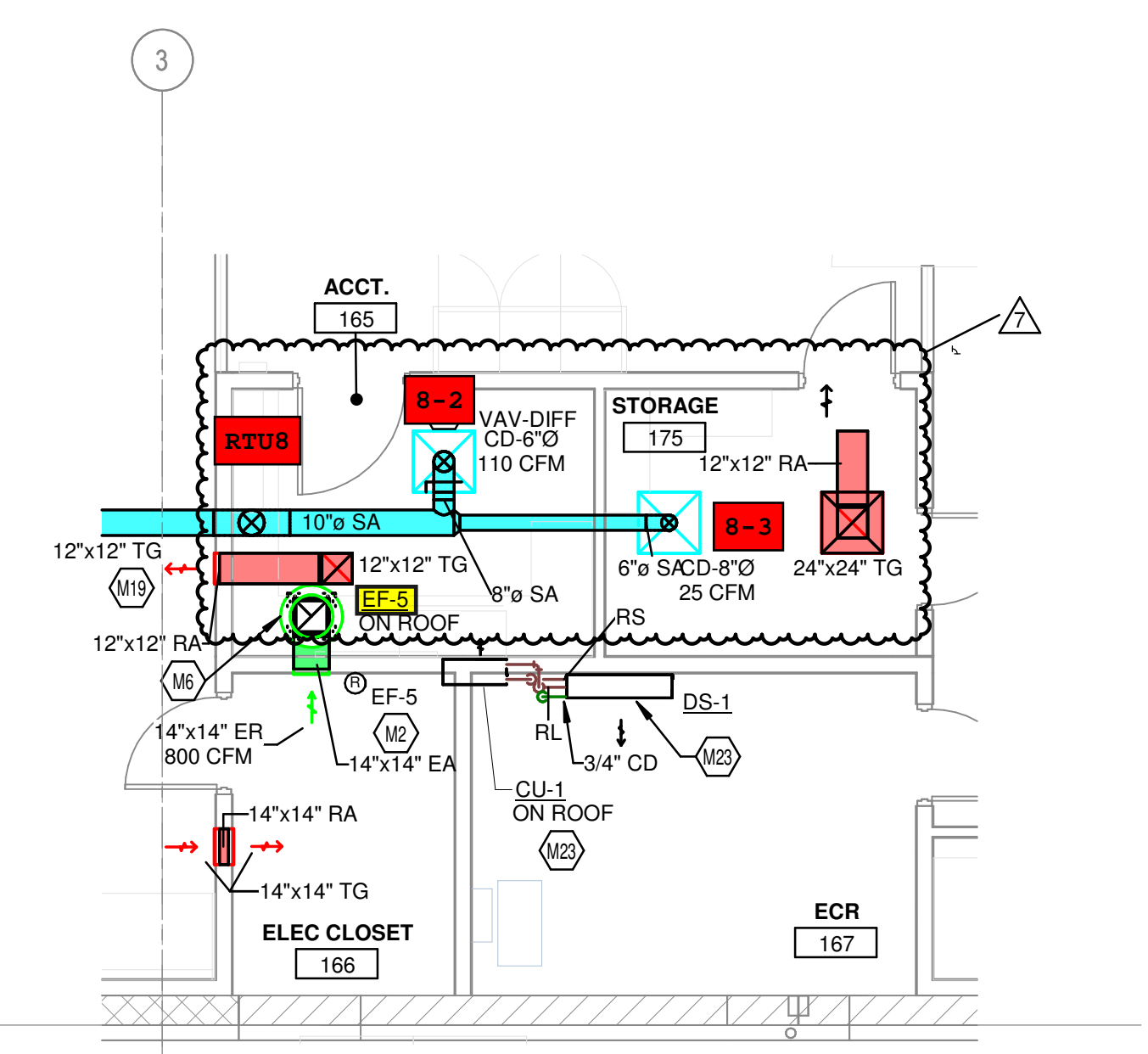


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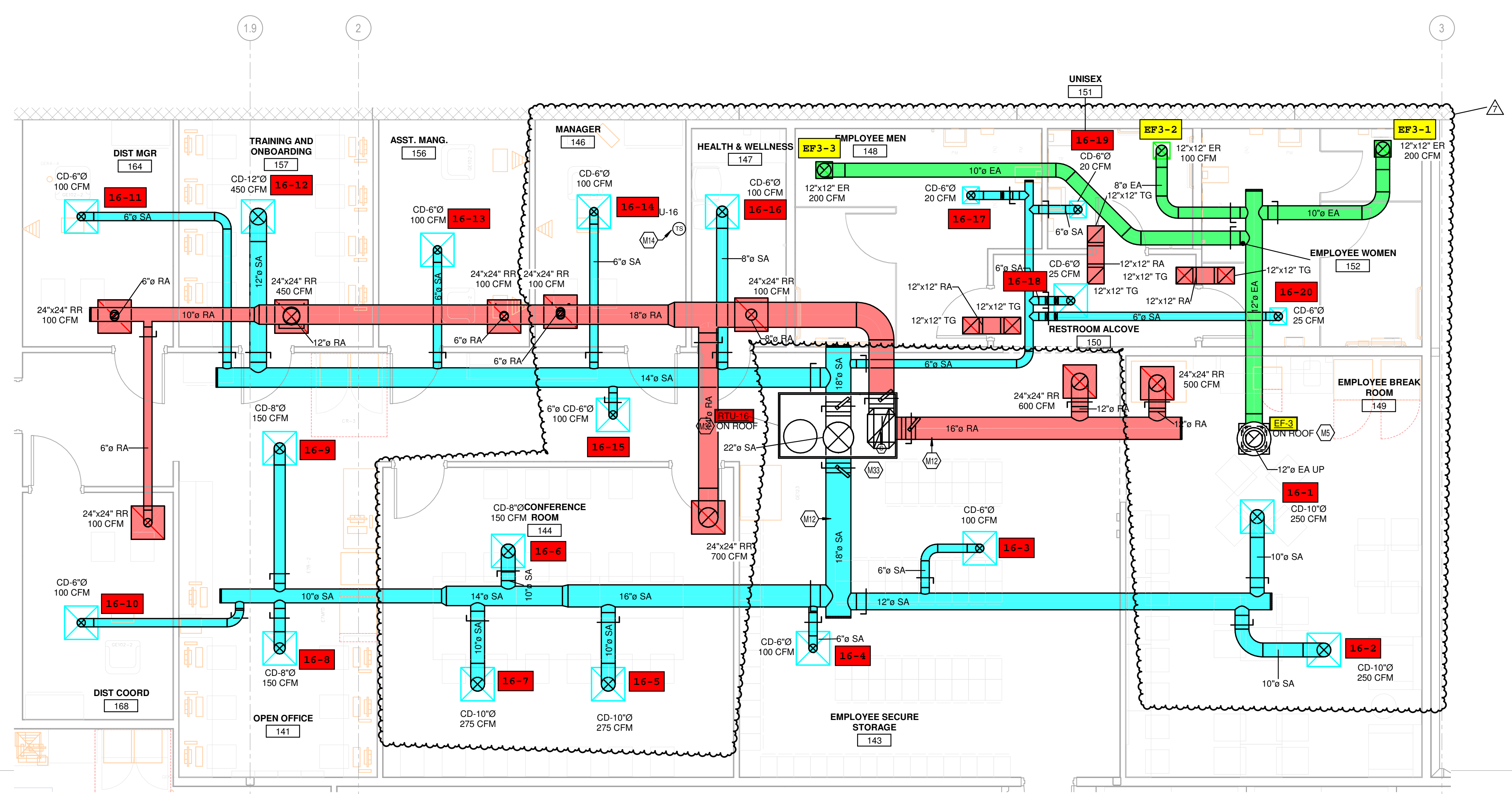
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7 08/23/2024	BULLETIN NO. 5



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



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



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

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PROJECT TITLE
**KING SHOOPERS
KS154**

HWY 52 & COLORADO BLVD
FREDERICK, CO 80643
COMMISSION NO. 522401
ISSUE DATE 10/17/23

SHEET TITLE
**HVAC ENLARGED
PLANS**

SHEET NO.
M1.4

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HOOD INFORMATION - JOB#6181964

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST FLENUM (RISERS)				HOOD CONSTRUCTION	HOOD CONFIG			
										WIDTH	LENG	HEIGHT	DIA		CFM	VEL	SP	END TO END
1	KIL - 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	ALINE
2	KIR - 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	ALINE

HOOD INFORMATION

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

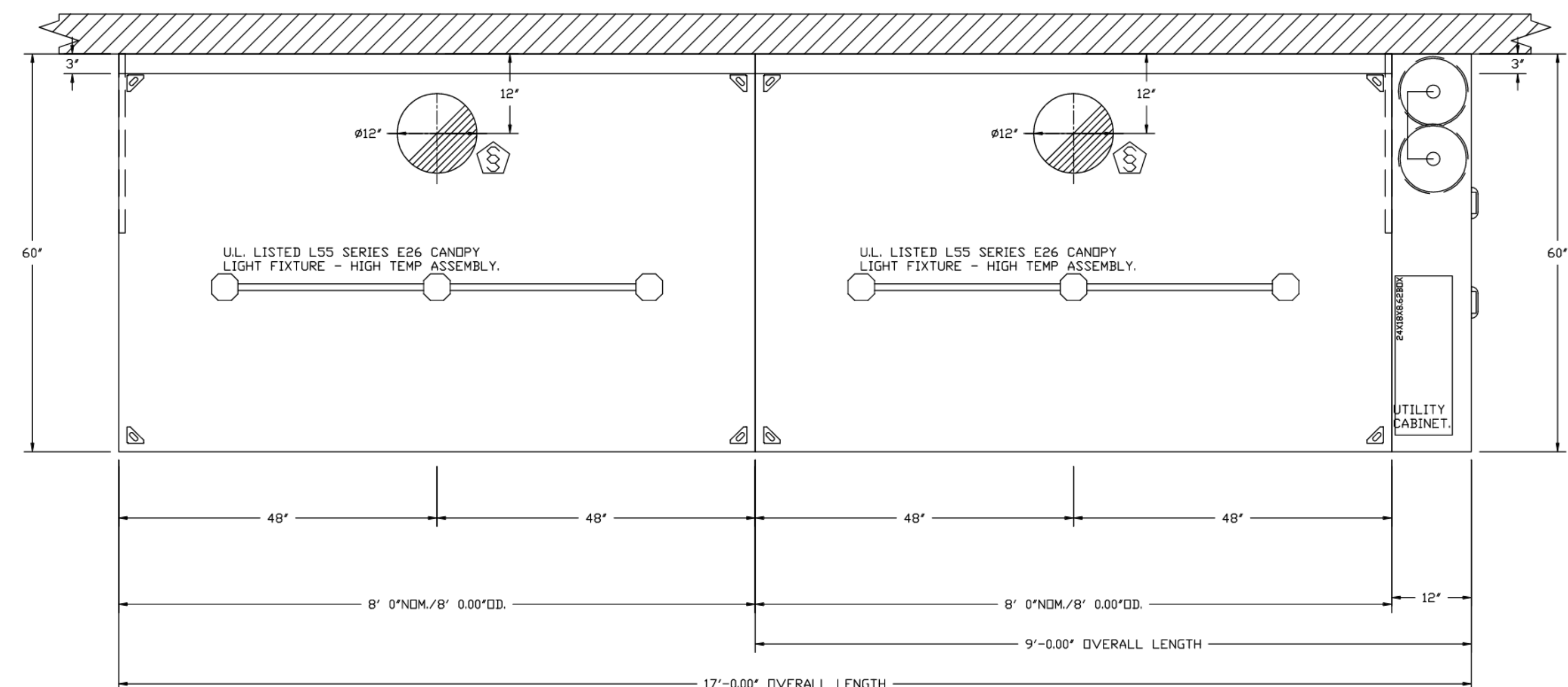
HOOD OPTIONS

HOOD NO	TAG	OPTION
1	KIL - 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	KIR - 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:

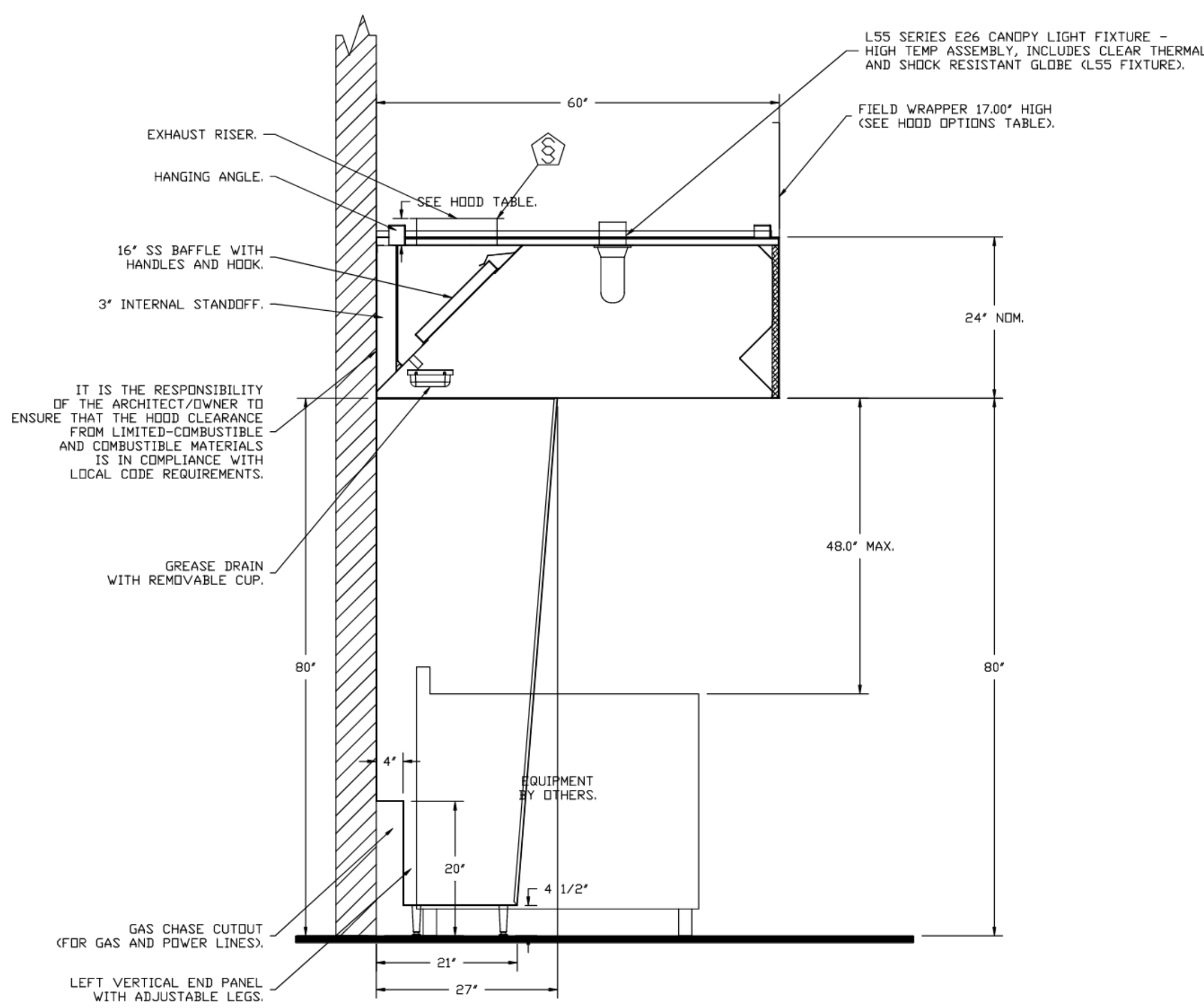
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HVAC DISTRIBUTION NOTE
IT IS RECOMMENDED NOT TO INSTALL HIGH VELOCITY DIFFUSERS OR HVAC RETURNS WITHIN TEN (10) FEET OF THE EXHAUST HOOD. PERFORATED DIFFUSERS ARE RECOMMENDED.

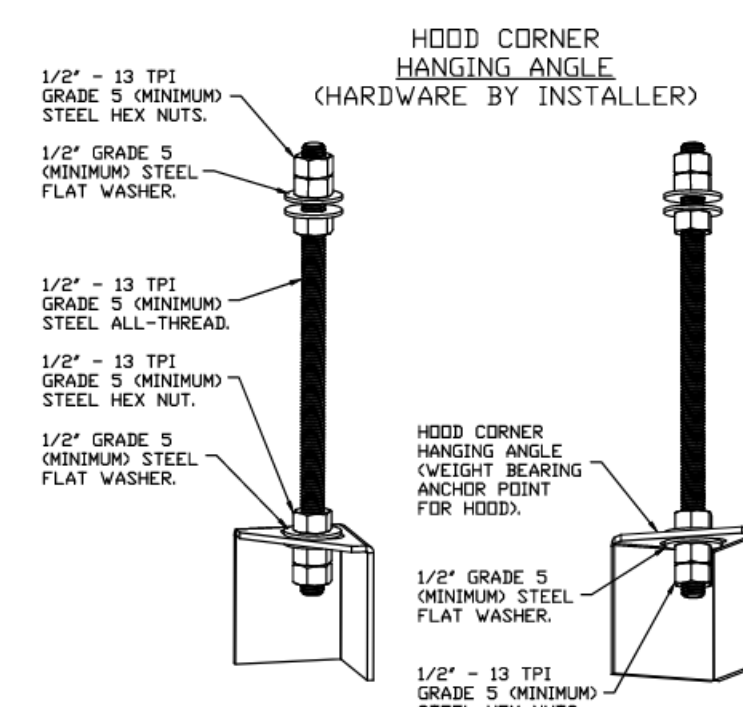


PLAN VIEW - HOOD #1 (KIL - K-0002317)
8' 0.00\"/>

PLAN VIEW - HOOD #2 (KIR - K-0002317)
8' 0.00\"/>



SECTION VIEW - MODEL 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.

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FREDERICK, CO, 80220

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HVAC SECTIONS
AND DETAILS

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FIRE SYSTEM INFORMATION - JOB#6181964

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

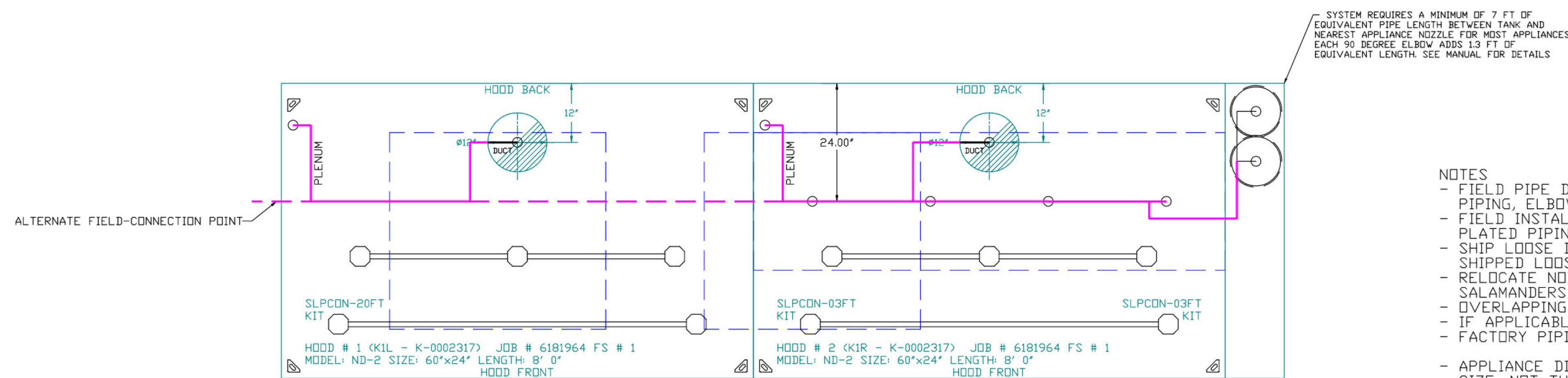
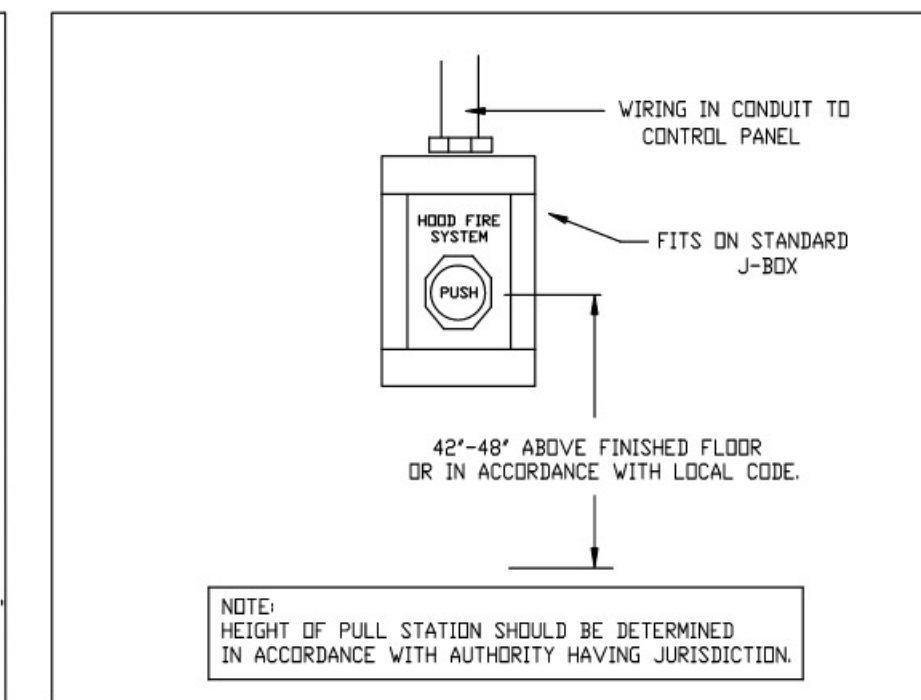
THE TANK WET CHEMICAL FIRE SUPPRESSION SYSTEM IS UL & ULC LISTED IN ACCORDANCE WITH UL300, UL1254, ULCORD-C1254.6 UNDER FILE# EX27953, ETL LISTED UNDER REPORT 10456027SSAT-003.

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 CDA #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 EXTENDED 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 UL 300 REQUIREMENTS.

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

JOB #: 6181964.

JOB NAME: KING SOOPERS 154 - FREDERICK, CO.

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 # 2 8' 0.00" LONG x 60" WIDE x 24" HIGH.

RISER # 1 SIZE: 12" DIA.

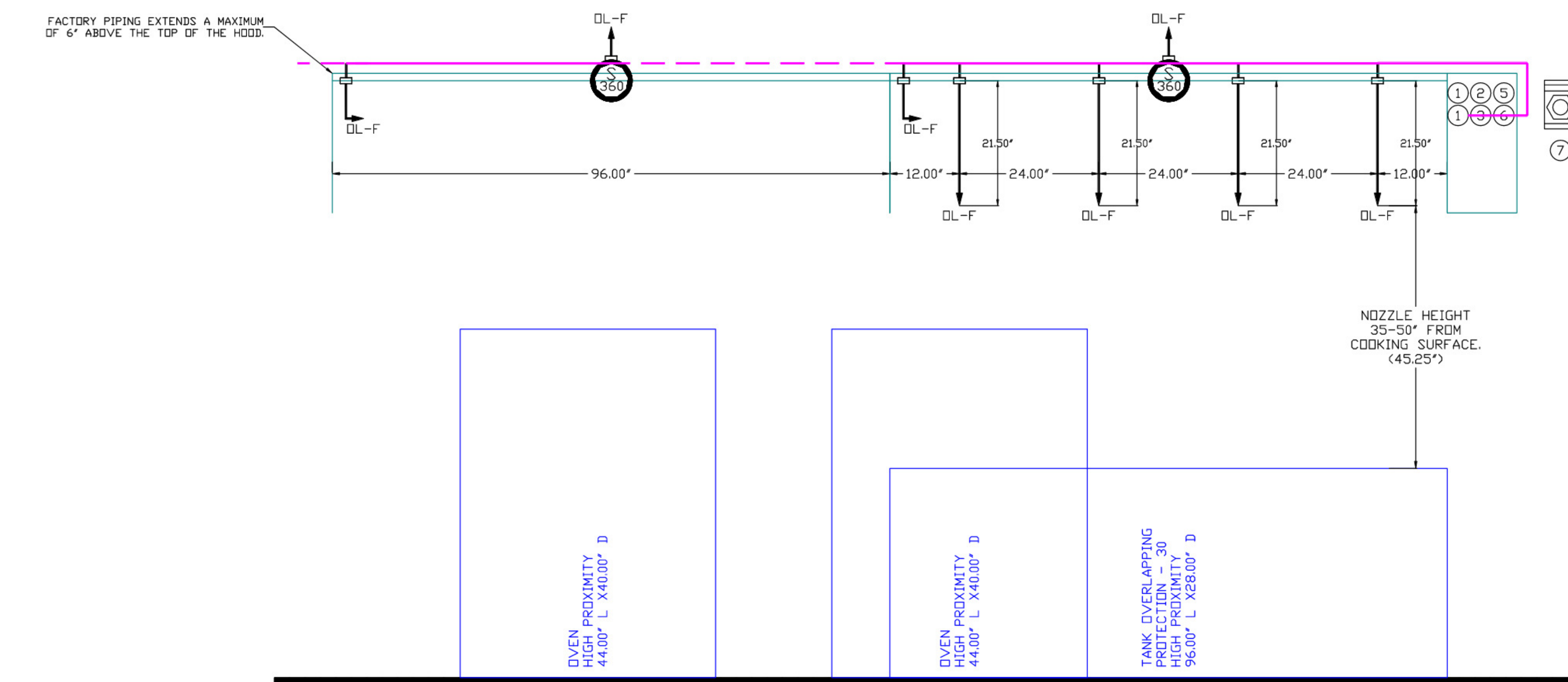
HOOD # 2 METAL BLOW-OFF CAPS INCLUDED.

- 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

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



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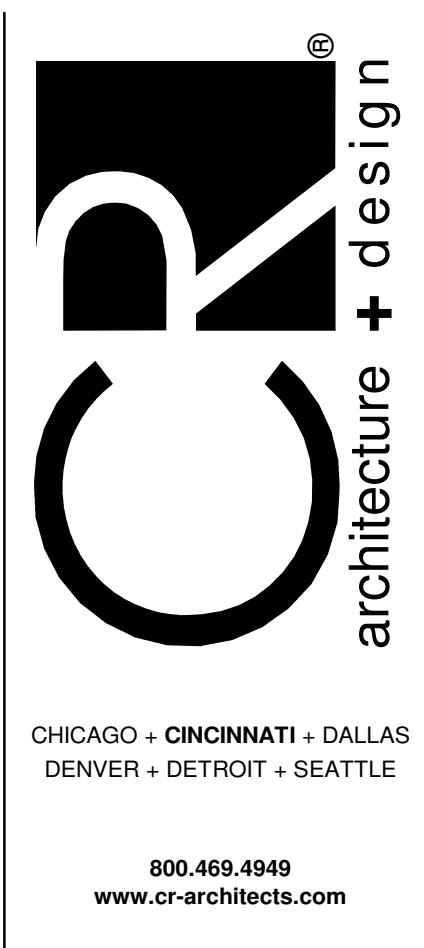
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EXHAUST FAN INFORMATION - JOB#6181964

FAN UNIT NO.	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL.	HP	BHP	PHASE	VOLTS	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	EF-1 K-0002355	1	DR30HFA	CAPTIVEAIRE	700	0.500	1452	DDP	0.250	0.1460	1	115	3.8		64	10.1
2	EF-2 PNET42845	1	DR12HFA	CAPTIVEAIRE	200	0.400	1190	TEAD-ECM	0.250	0.0620	1	115	2.9		55	5.1
3	EF-3 K-0002355	1	DR30HFA	CAPTIVEAIRE	500	0.500	1253	DDP	0.250	0.0940	1	115	3.8		64	7.6
4	EF-4 K-0069365	1	DU180HFA	CAPTIVEAIRE	2400	1.250	1179	DDP,PREMIUM	2.000	1.0360	3	208	6.1	554 FPM	164	14.5
5	EF-5 K-0002372	1	DR33HFA	CAPTIVEAIRE	800	0.400	1547	TEAD-ECM	0.333	0.2100	1	115	4.3	396 FPM	62	12.6
6	EF-6 K-0002357	1	DR12HFA	CAPTIVEAIRE	400	0.400	1394	DDP	0.180	0.0990	1	115	1.9		54	7.3
7	EF-7 K-0002355	1	DR30HFA	CAPTIVEAIRE	700	0.400	1378	DDP	0.250	0.1250	1	115	3.8		64	9.1
8	EF-8 K-0002358	1	DR10HFA	CAPTIVEAIRE	200	0.300	1342	DDP	0.060	0.0390	1	115	1.1		48	4.2
9	EF-9 K-0002372	1	DU33HFA	CAPTIVEAIRE	600	0.500	1322	DDP	0.333	0.1180	1	115	5.6	297 FPM	79	12.1
10	EF-10 K-0002372	1	DU33HFA	CAPTIVEAIRE	600	0.500	1322	DDP	0.333	0.1180	1	115	5.6	297 FPM	79	12.1

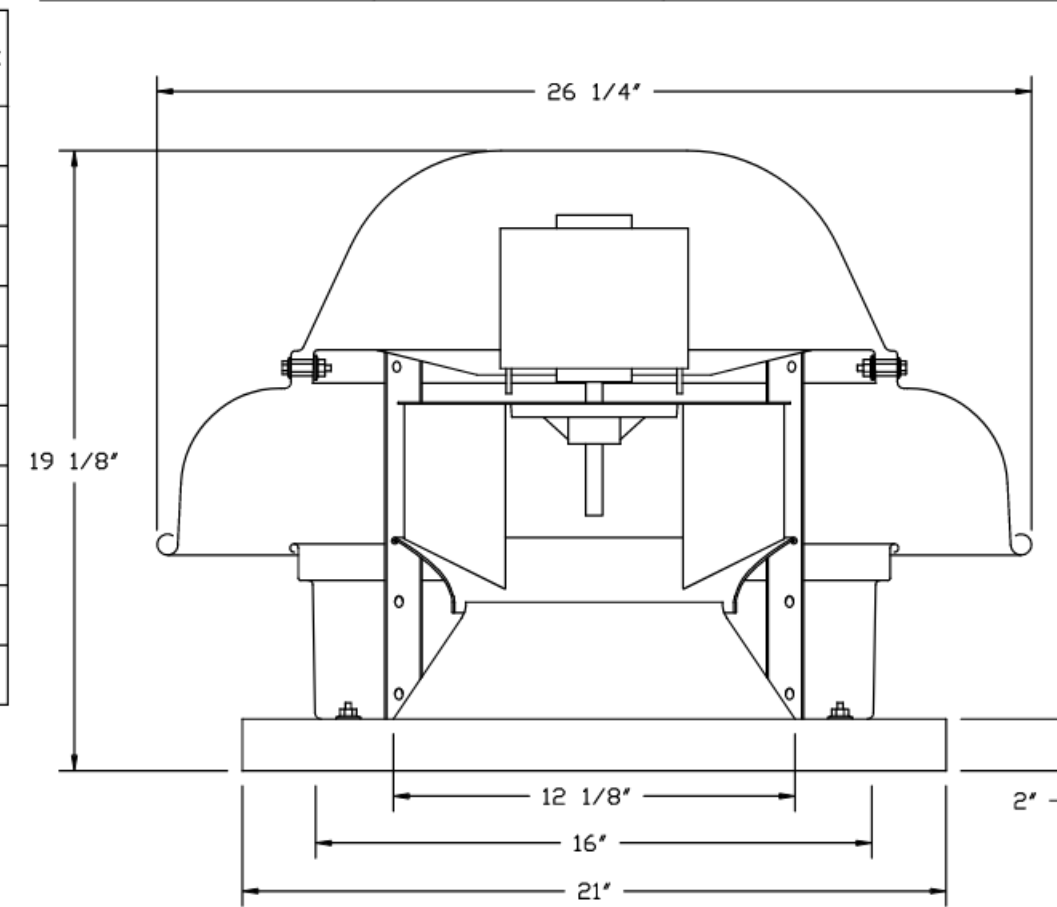
FAN OPTIONS

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



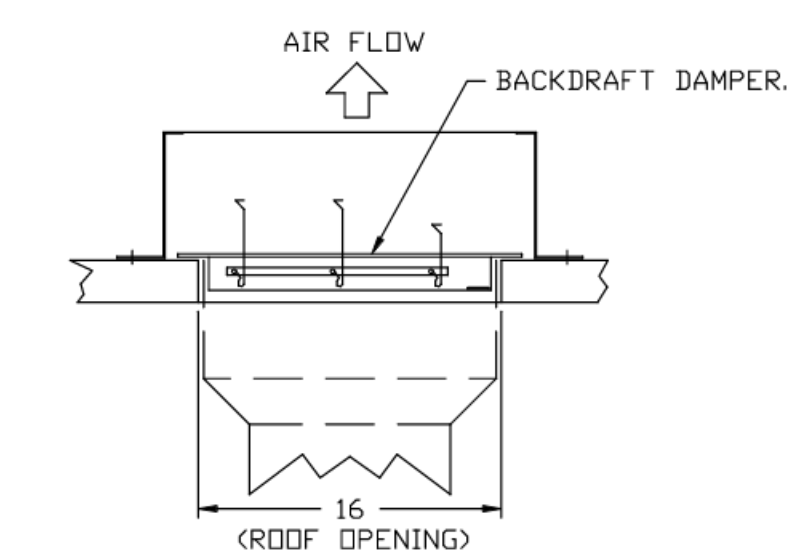
FEATURES:

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

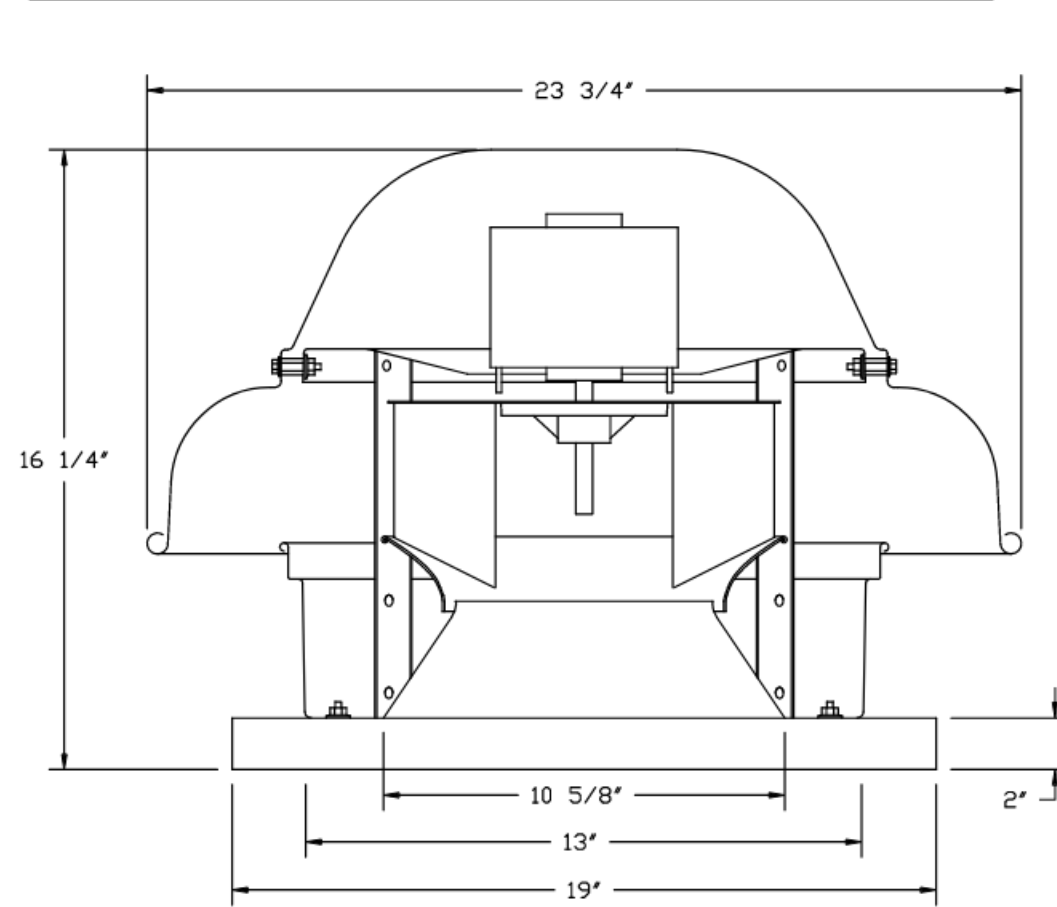
OPTIONS

- HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
- 1 15-BDD DAMPER.
- 2 YEAR PARTS WARRANTY.

BACKDRAFT DAMPER INSTALLATION



FANS #2 (EF-2 PNET42845), #6 (EF-6 K-0002357) - DR12HFA EXHAUST FAN



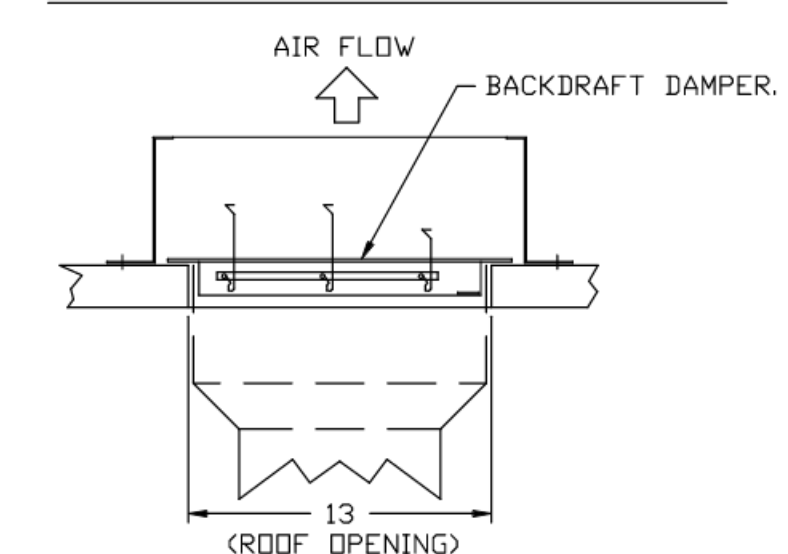
FEATURES:

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

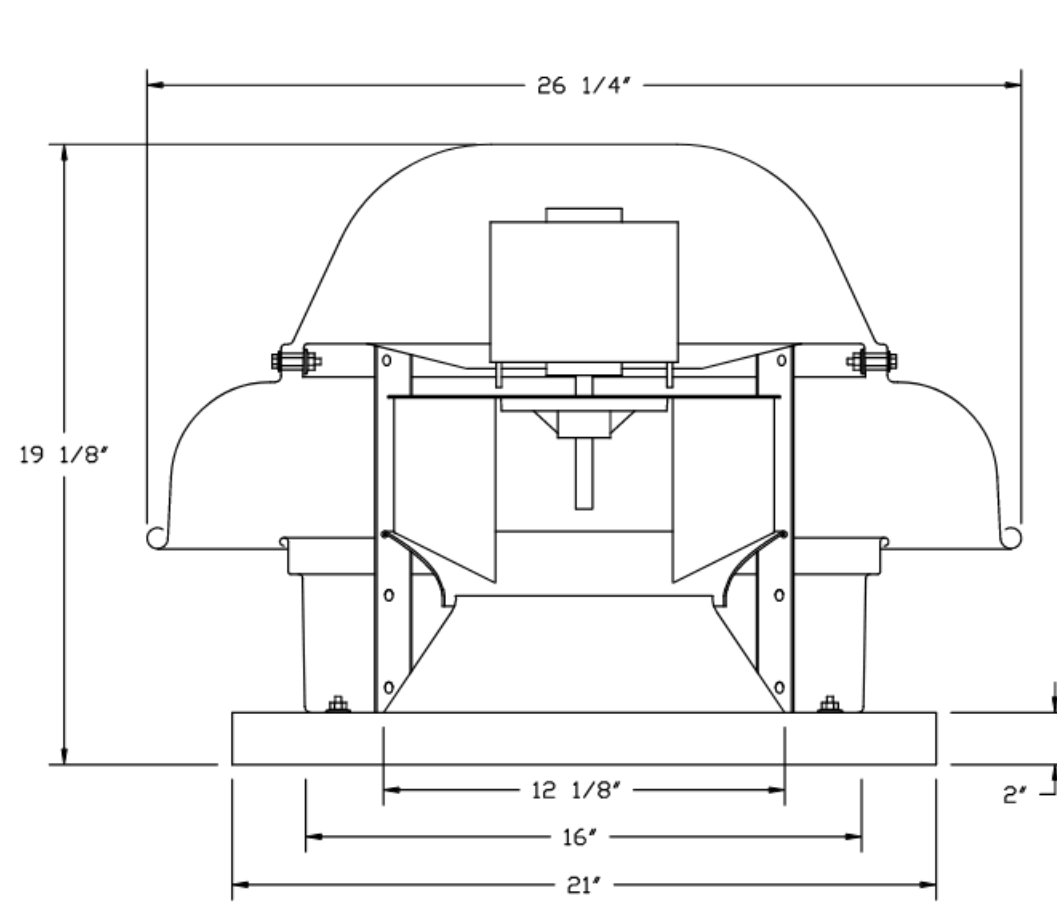
OPTIONS

- 1 12-BDD DAMPER
- HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
- ECM WIRING PACKAGE - MANUAL OR 0-10VDC REFERENCE SPEED CONTROL -RTC- (TELCD MOTOR), CCW ROTATION.
- 2 YEAR PARTS WARRANTY.

BACKDRAFT DAMPER INSTALLATION



FAN #5 (DU33HFA) - EXHAUST FAN (EF-5 K-0002372)



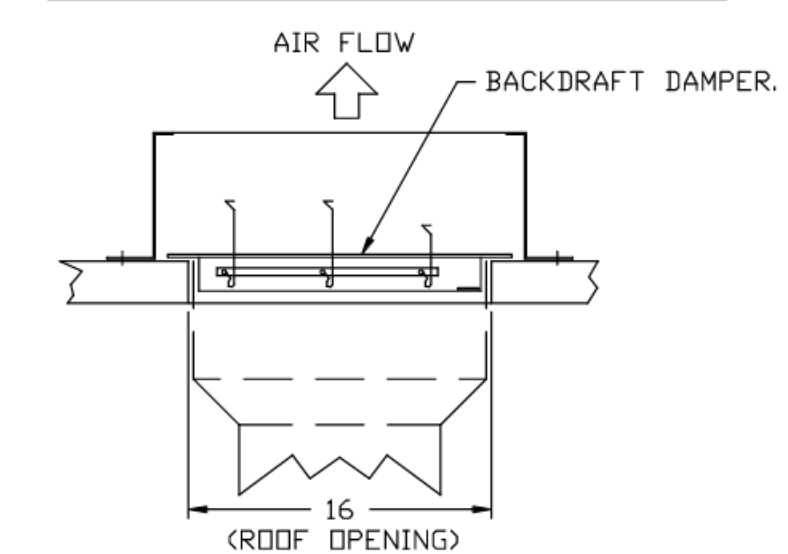
FEATURES:

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

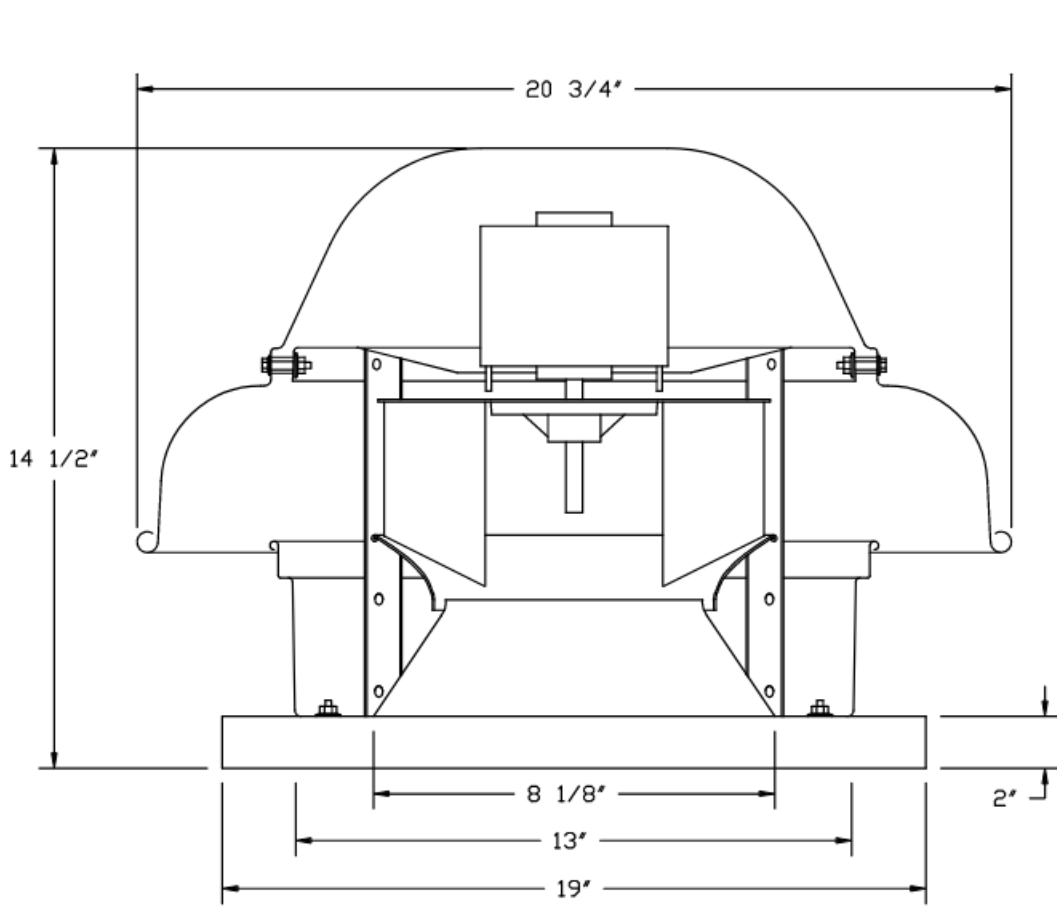
OPTIONS

- ECM WIRING PACKAGE - EXHAUST - MANUAL OR 0-10VDC REFERENCE SPEED CONTROL -MSC- (TELCD), CCW ROTATION
- 1 15-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)



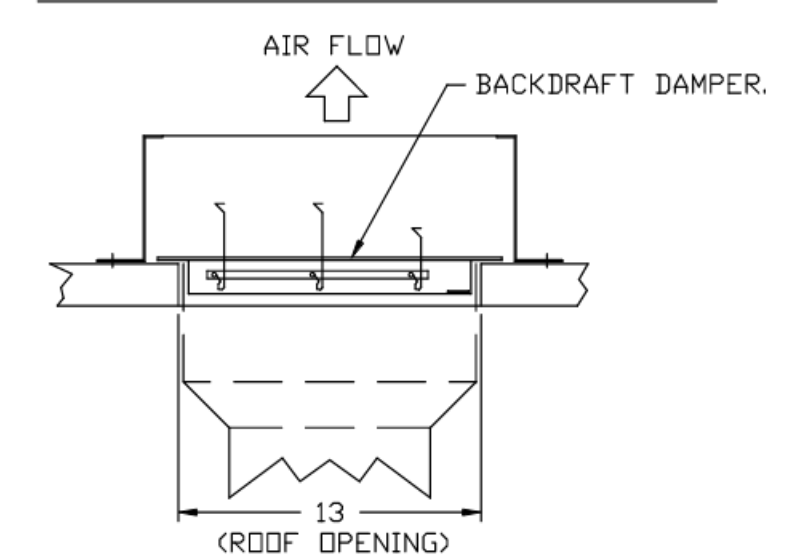
FEATURES:

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

OPTIONS

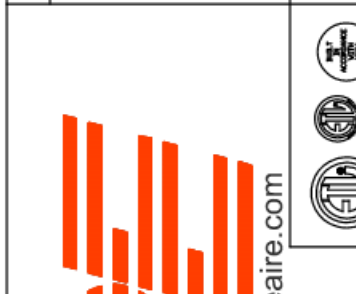
- 1 12-BDD DAMPER
- HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
- 2 YEAR PARTS WARRANTY.

BACKDRAFT DAMPER INSTALLATION



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NO.	DESCRIPTION	DATE



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DATE: 8/23/2023

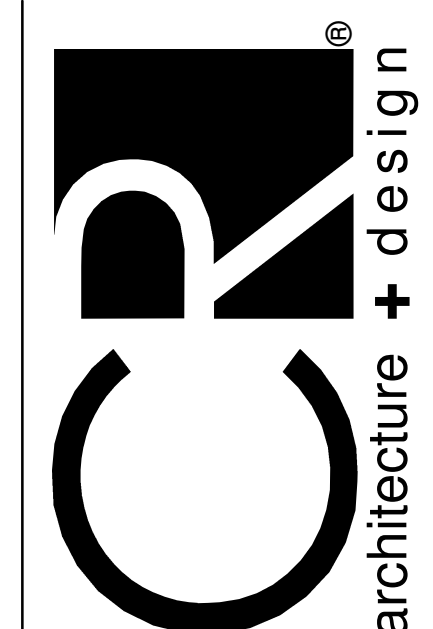
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SCALE:
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PROJECT TITLE
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KS154

HWY 52 & COLORADO BLVD
FREDERICK, CO 80643

COMMISSION NO. 522401

ISSUE DATE 10/17/23

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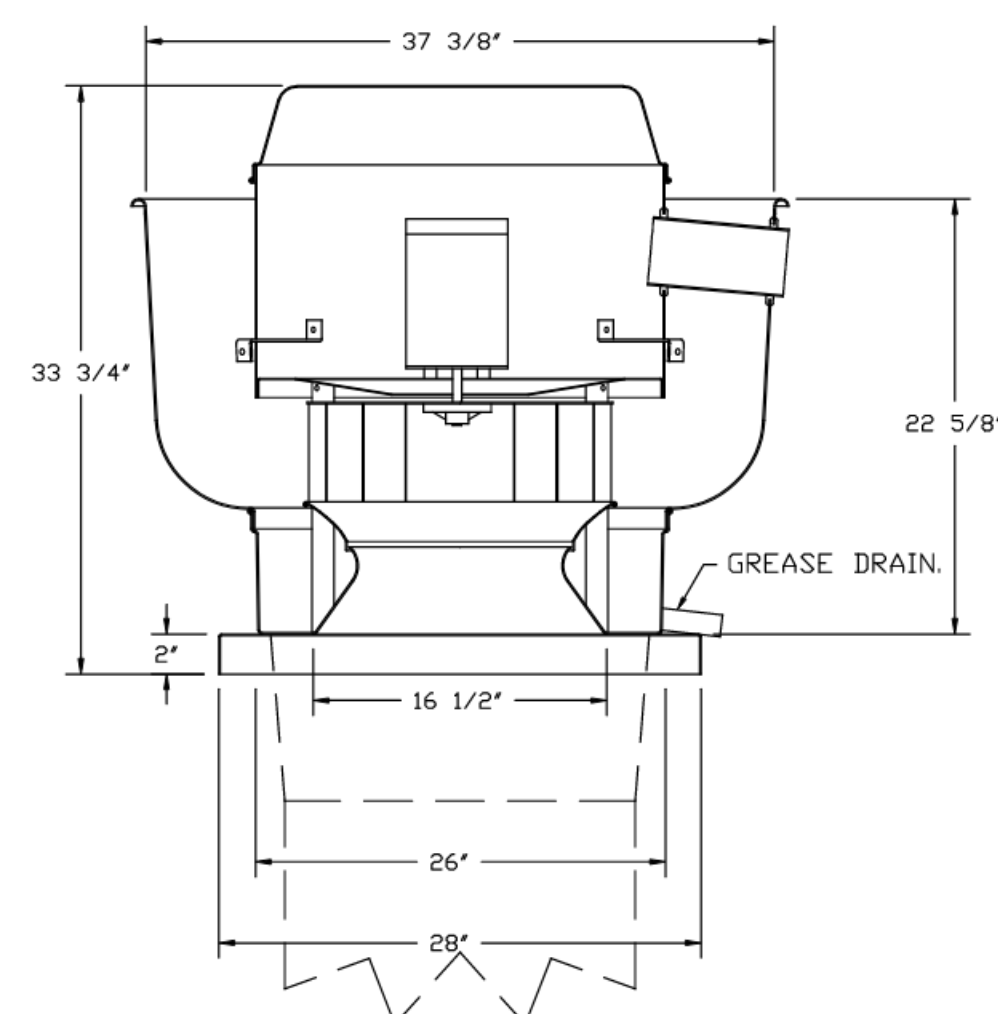
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FAN #4 BU33HFA - EXHAUST FAN (EF-4 K-2069262)



FEATURES:

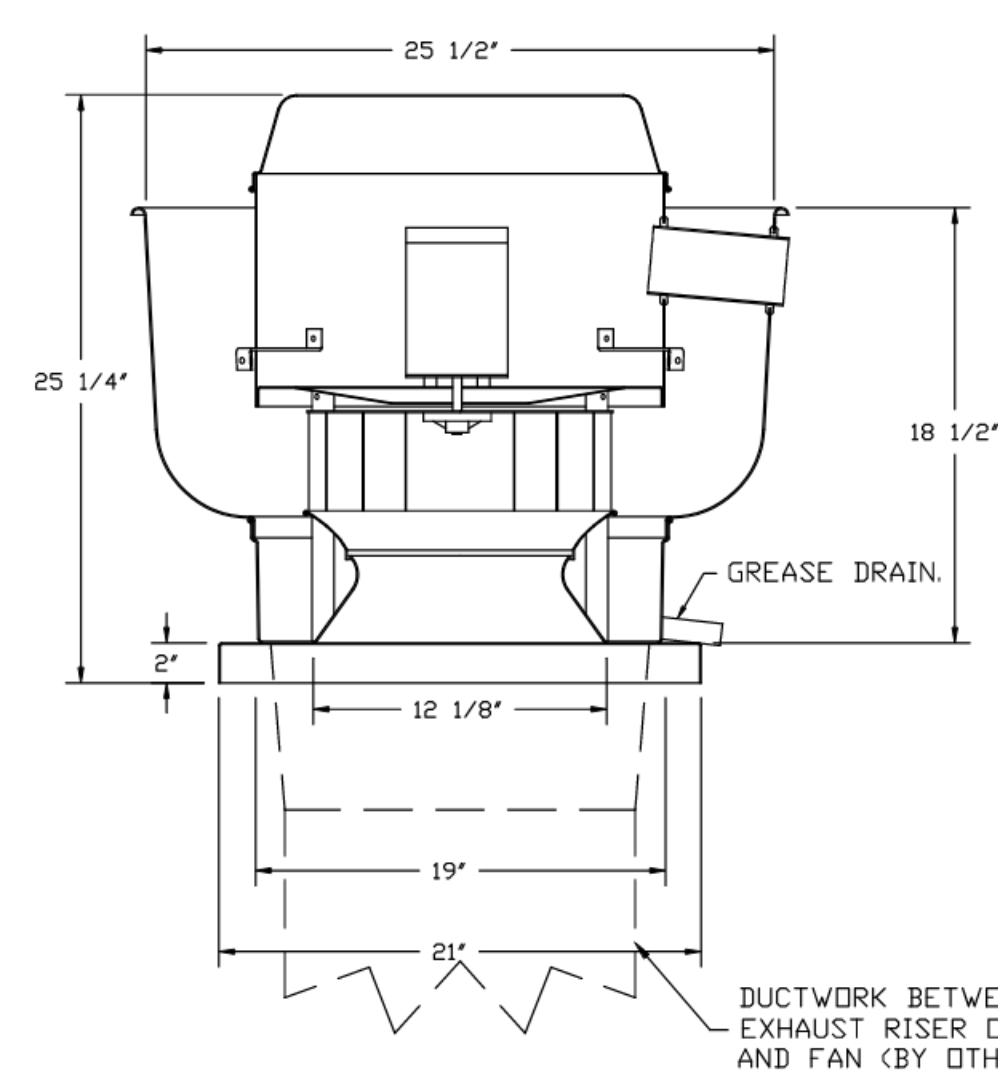
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL768 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING 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 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 OPERATION.

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

FANS #9 (EF-9 K-5002372), #10 (EF-10 K-5002372) - BU33HFA EXHAUST FAN



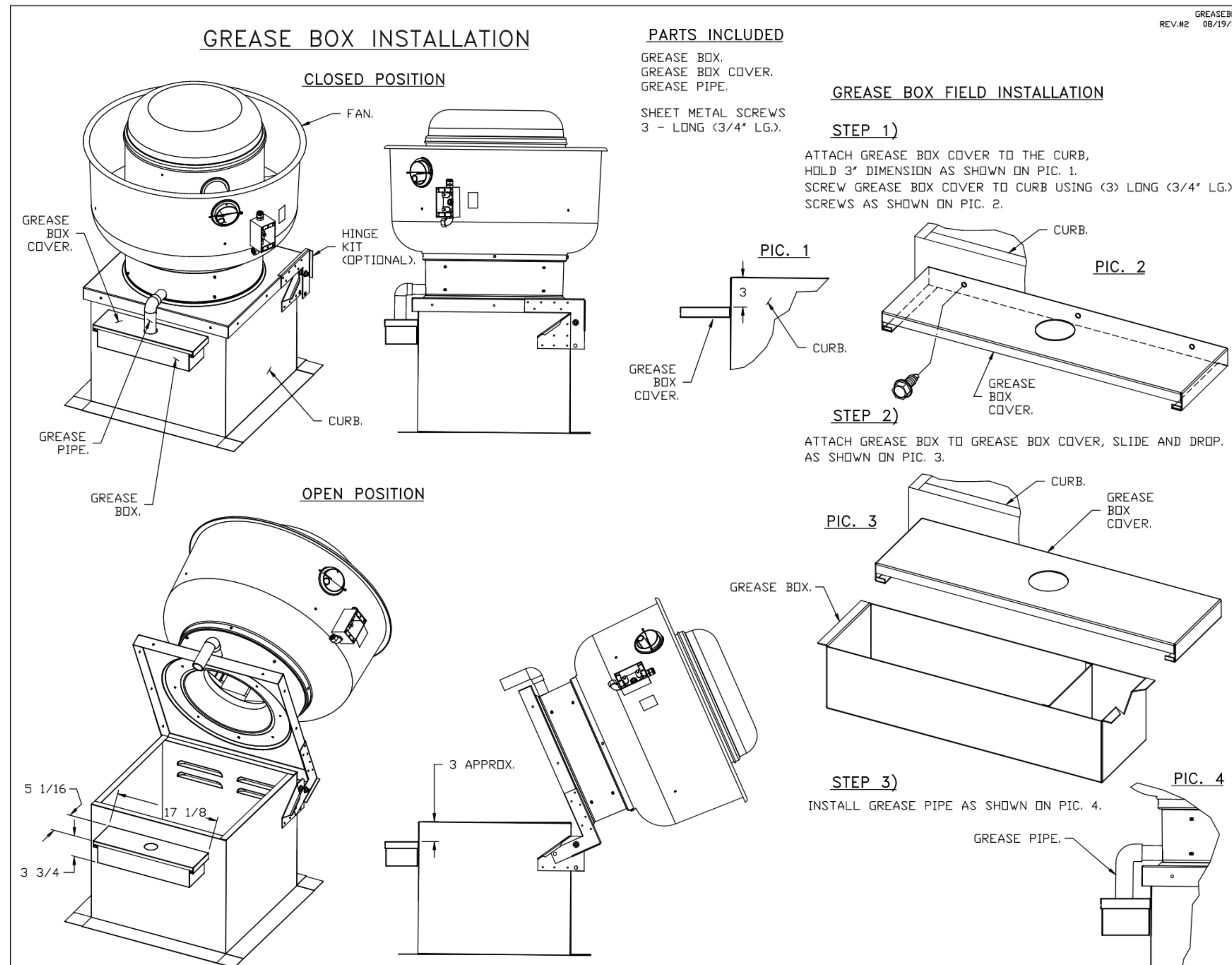
FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL768 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 OPERATION.

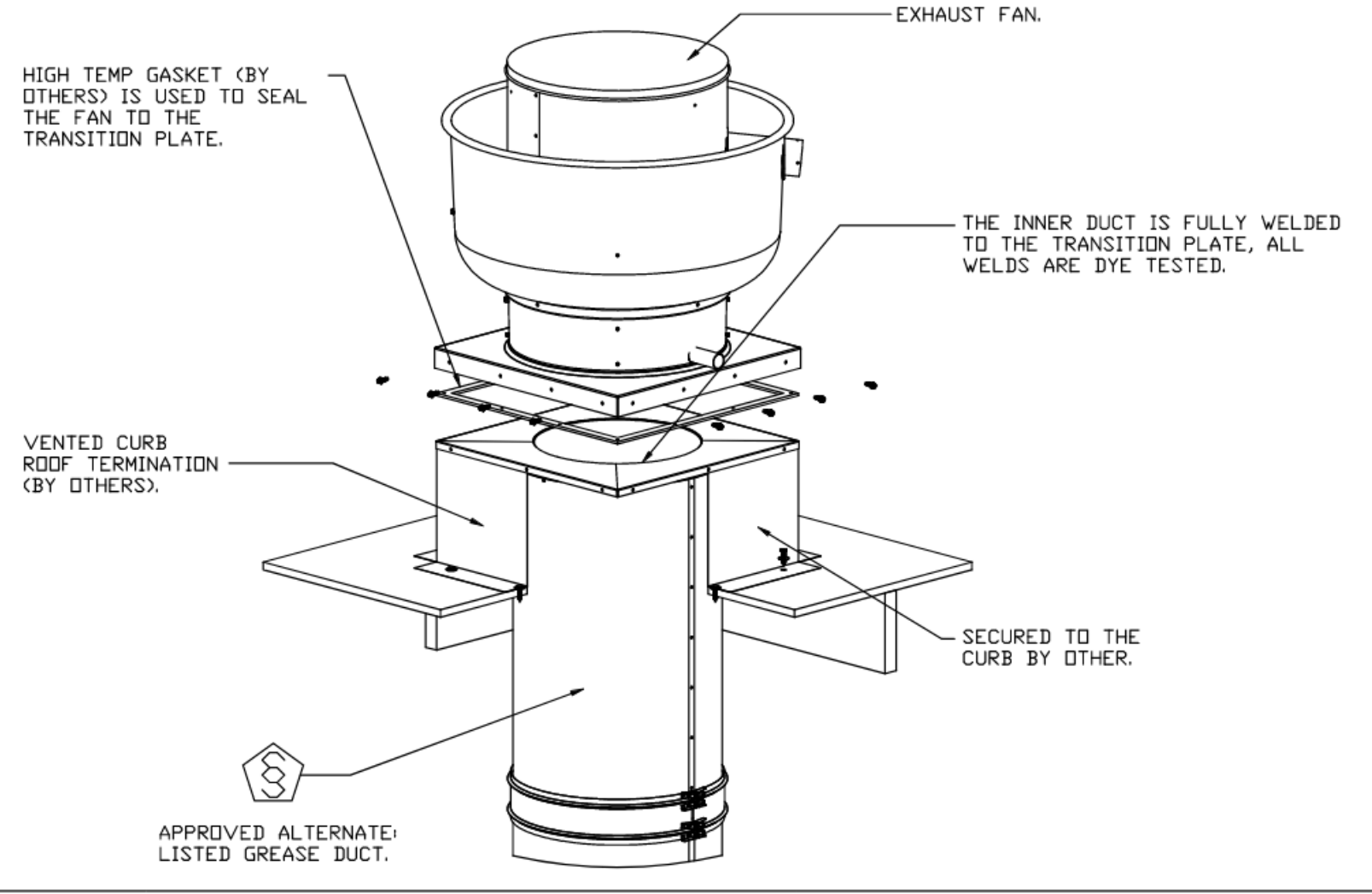
- OPTIONS**
- GREASE BOX.
 - HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
 - 2 YEAR PARTS WARRANTY.



*NOTE: UL 705 INSTALL.

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

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 MANUFACTURER'S INSTALLATION GUIDE.
PROVIDE RATED ACCESS DOORS AT EVERY CHANGE IN DIRECTION AND EVERY 12' ON CENTER. PER MANUFACTURER'S 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 3Z" ROUND 20 GAUGE 430 STAINLESS INNER DUCT INSULATED WITH A 24 GAUGE 430 STAINLESS OUTER SHELL.



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PROJECT TITLE
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KS154

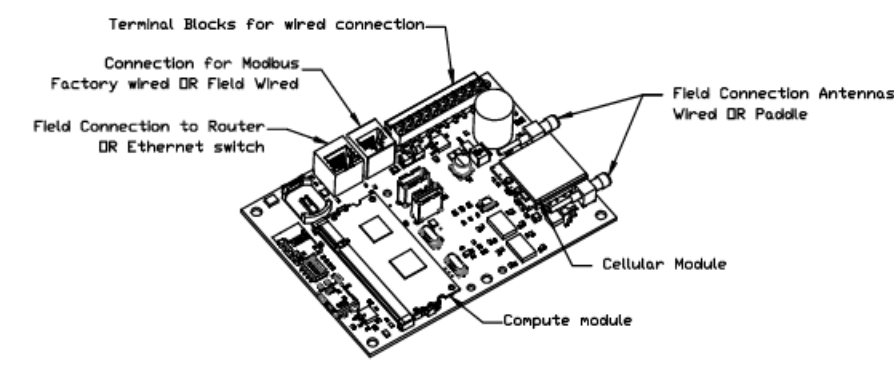
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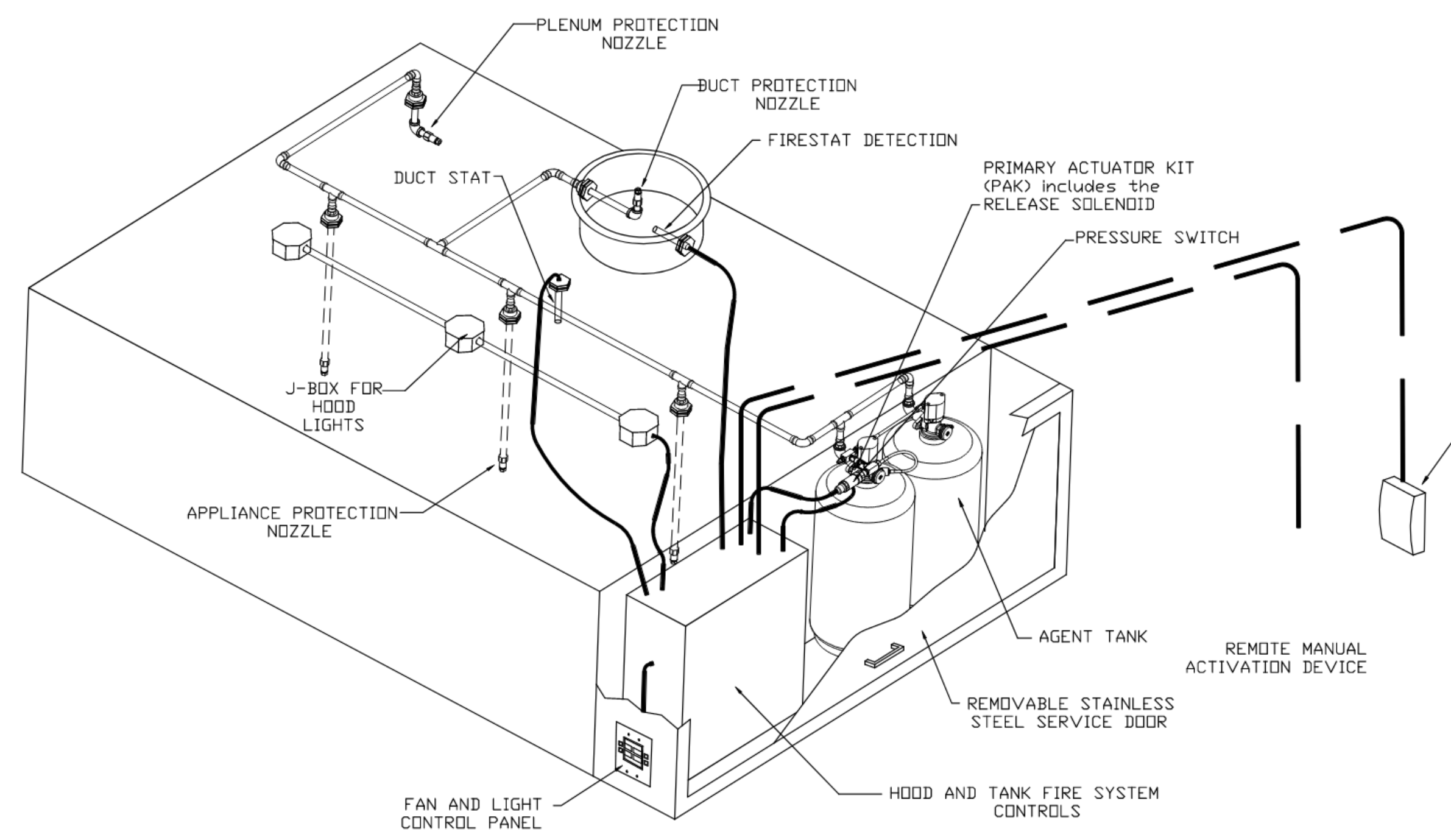


CASlink Monitor and Control

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

MONITORING AND CONTROL POINTS LIST

IC Package	Function	IC Package	Function
Room Temperature	#000708	Room Temperature(s)	#000708
Duct Temperature(s)	#000708	Duct Temperature(s)	#000708
WCU Discharge Temperature	#000708	WCU Discharge Temperature	#000708
Blower WCU Discharge Temperature	#000708	Blower WCU Discharge Temperature	#000708
Fan Speed	#000708	Coil-Header Pressure	#000708
Fan Amperage	#000708	Fan Fault	#000708
Fan Power	#000708	Fan Status	#000708
WCU Faults	#000708	WCU Fault	#000708
Coil-Header Faults	#000708	WCU Filter Clog Percentage	#000708
Fan Fault	#000708	Fan Condition	#000708
Fan Status	#000708	CO2 Fan System	#000708
WCU Fault	#000708	Building Pressure	#000708
WCU Filter Clog Percentage	#000708	Fan Status(s)	#000708 & CONTROL
Fan Condition	#000708	Light Bulb(s)	#000708 & CONTROL
CO2 Fan System	#000708	Wash Button	#000708 & CONTROL
Building Pressure	#000708		
Prop Flow Button	#000708 & CONTROL		
Fan Button	#000708 & CONTROL		
Light Bulb(s)	#000708 & CONTROL		
Wash Button	#000708 & 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.

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DUCTWORK #1 PARTS - JOB#6181964 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	DW1216DWRNDADPECC2ASY17-2R-S	1200				-0.045	28.71	1527.89	1	DOUBLE WALL DUCT ECCENTRIC - 12" X 16" RNDRND 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	DW1216DWRNDADPECC2ASY17-2R-S	1200				-0.045	28.71	1527.89	1	DOUBLE WALL DUCT ECCENTRIC - 12" X 16" RNDRND 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	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	DW12DWVACCDORCDV-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	58.26	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" DD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2024SAD, & HARDWARE BAG 4.
P14	DW2024SADKIT						8.01		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 20" DD - 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" DD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2024SAD, & HARDWARE BAG 4.
P18	DW2024SADKIT						8.01		1	DUCT - HORIZONTAL SADDLE SUPPORT KIT, USED WITH 20" DD - INCLUDES UNI-STRUT CUT TO LENGTH, DW2024SAD, & HARDWARE BAG 4.
P19	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.
P20	DW16DWVACCDORCDV-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.
P21	DW16DWVACCDORCDV-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.
P22	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.
P23	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.
P24	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.
P25	DW164550DWLTP-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.
P26	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 / NCA18HPFA & NCA18FA / NCA18HPFA. TRANSITION PLATE DD IS 27.00" DESIGNED FOR USE WITH EXHAUST FAN. NON-STANDARD PART.
	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							959.32			

DOUBLE WALL FACTORY BUILT DUCTWORK

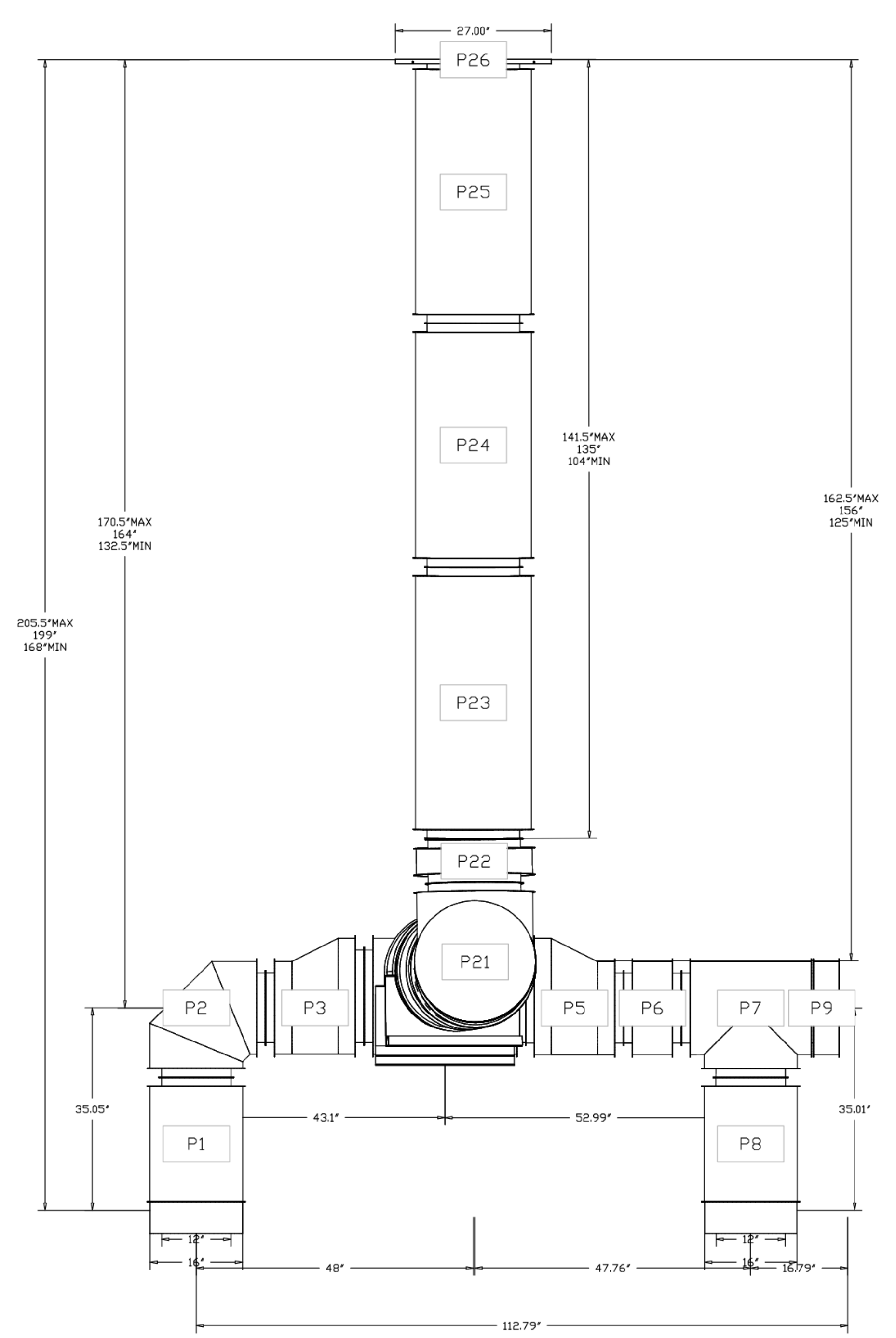
- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE ENTIRE INSTALLATION AND OPERATION MANUAL.
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.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

DESCRIPTION	DATE

CAPTIVEAIRE
www.captiveaire.com

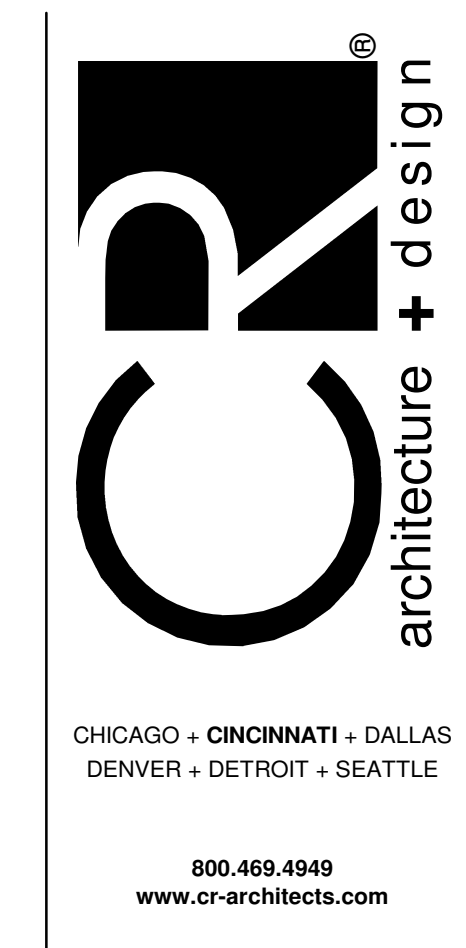
4641 Farnham Park Rd., Raleigh, NC 27616 PHONE: (919) 852-2410 FAX: 9192275948 EMAIL: rtp15@captiveaire.com

KING SOOPERS #154 - FREDERICK, CO
13TH + COLORADO BLVD,
FREDERICK, CO, 80220

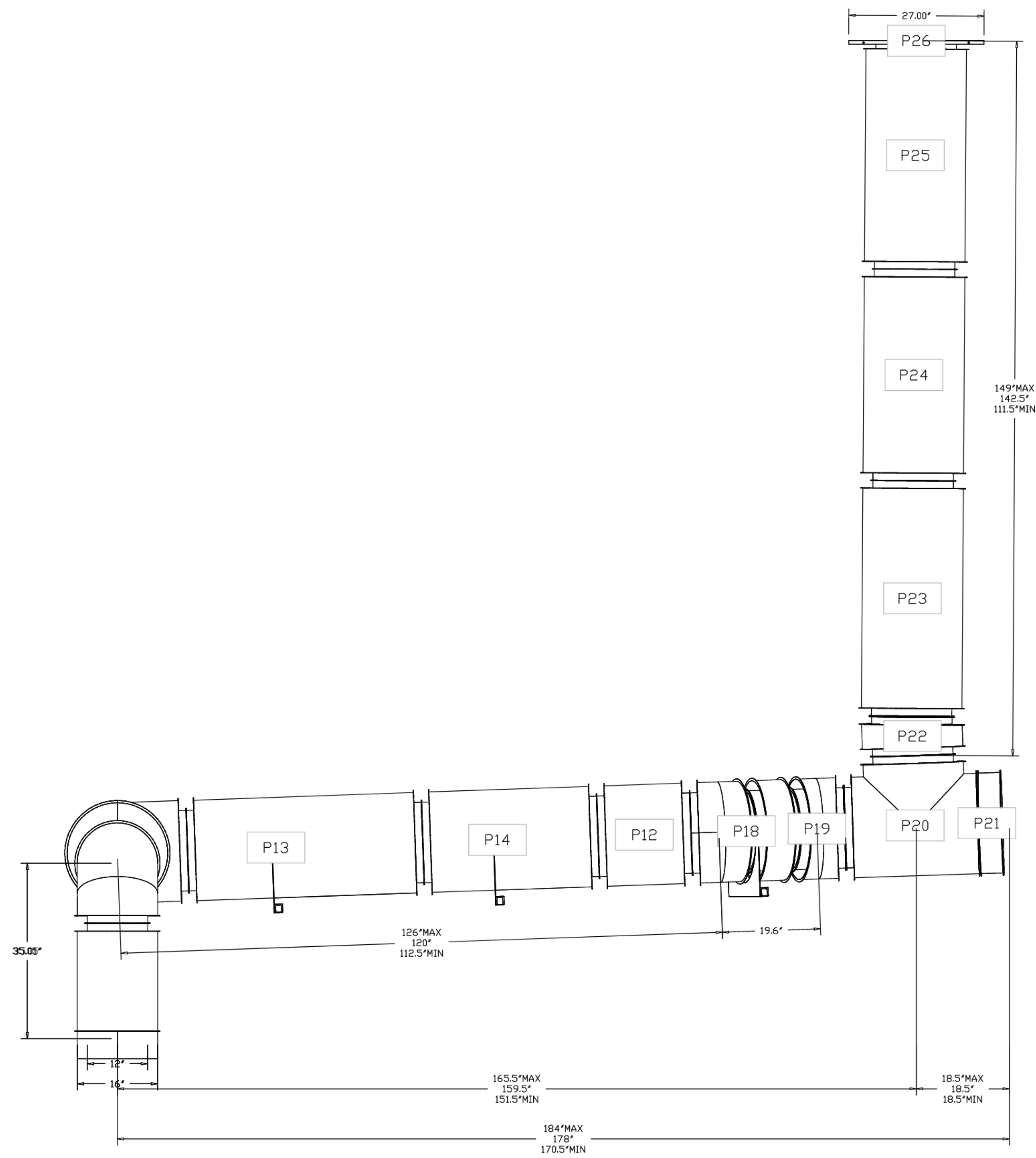
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SCALE: 3/4" = 1'-0"
MASTER DRAWING

SHEET NO.
7

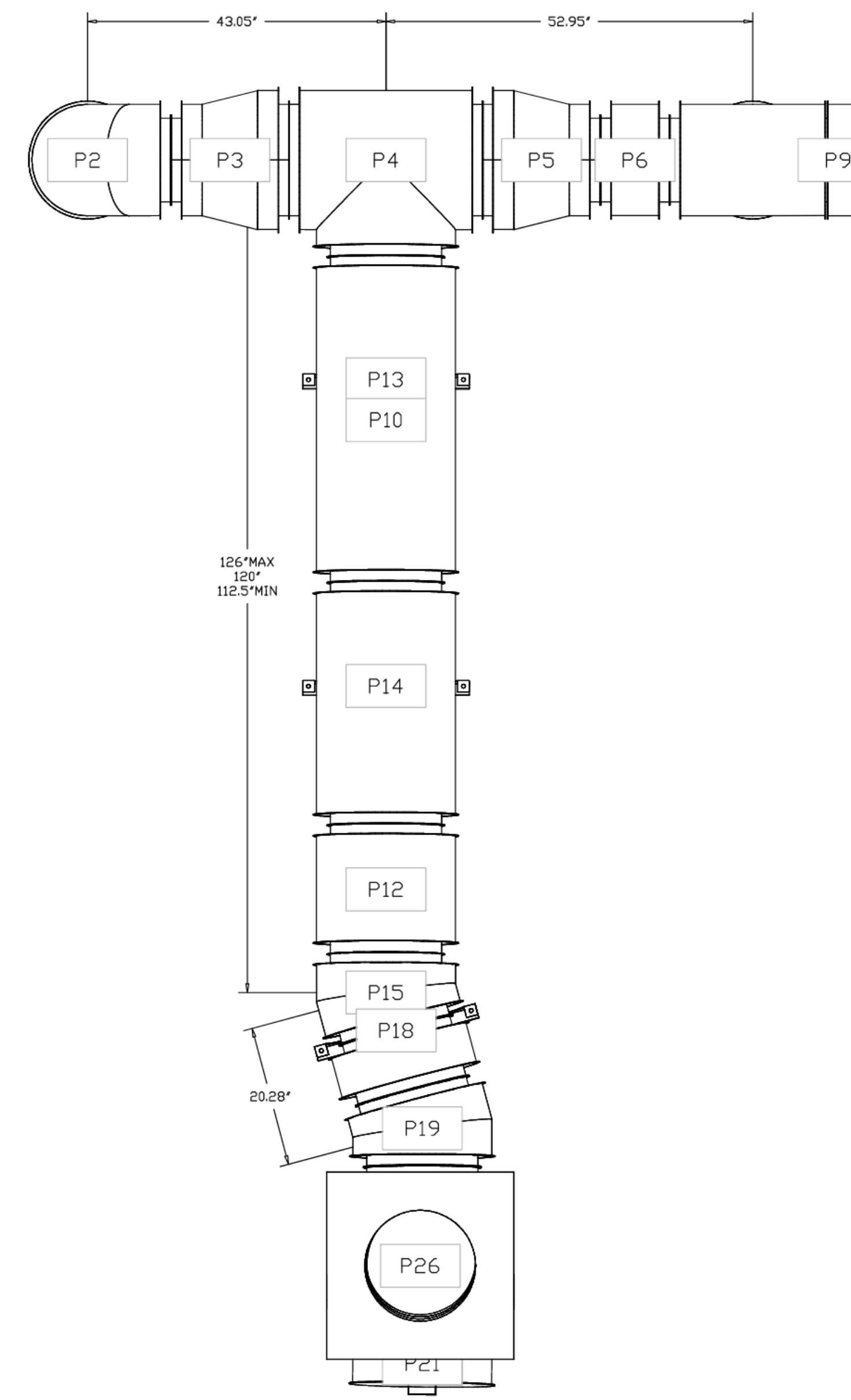
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DUCTWORK #1 SIDE VIEW



DUCTWORK #1 TOP VIEW



REVISION	DATE	DESCRIPTION
1		
2		
3		

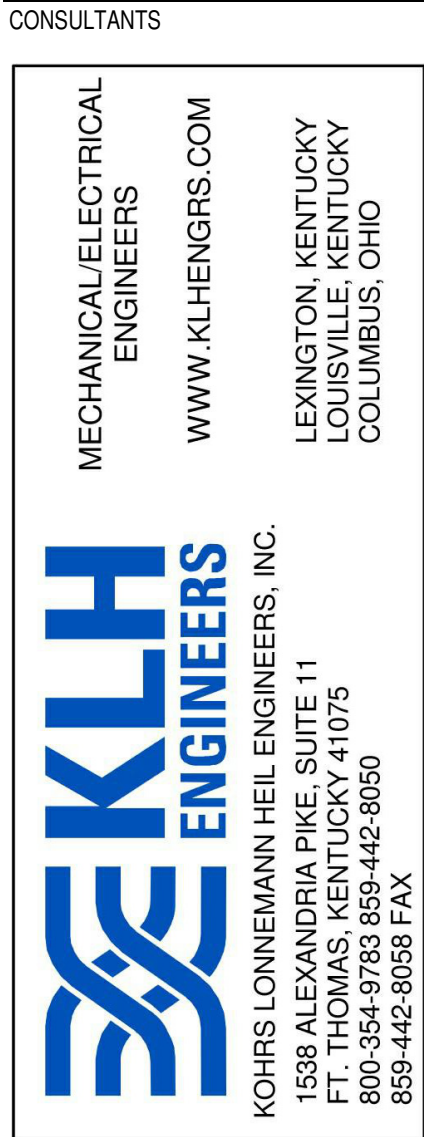
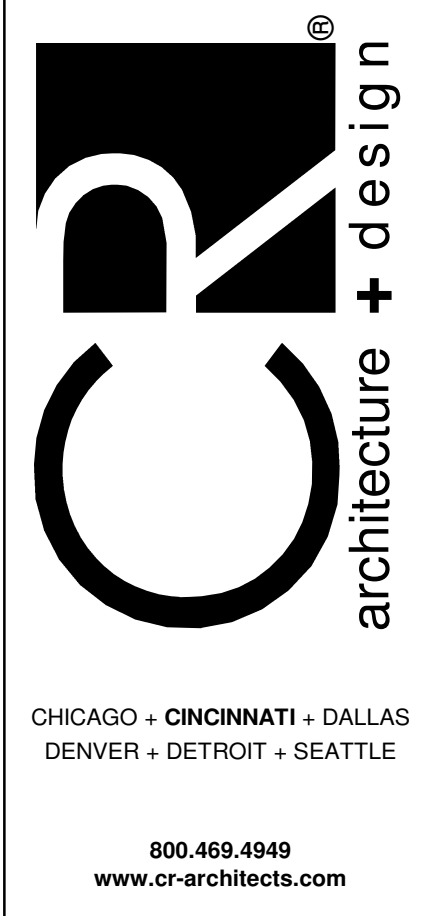
CAPTIVE
MECHANICAL ENGINEERS
www.captiveire.com
4641 Paragon Park Rd., Raleigh, NC 27616 PHONE: (919) 852-2410 FAX: 9192275948 EMAIL: mpt1@captiveire.com

KING SOOPERS #154 - FREDERICK, CO
13TH + COLORADO BLVD,
FREDERICK, CO, 80220

DATE: 8/23/2023
DRAWN BY: 6181964
SCALE: 3/4" = 1'-0"
MASTER DRAWING

SHEET NO. 8

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 PROJECT NO. 2022011001-001-001



ISSUE/REVISION	DATE	DESCRIPTION
08/31/2023	90% OWNER REVIEW	
10/17/2023	BID/PERMIT ISSUE	

PROJECT TITLE
KING SOOPERS
KS154

HWY 52 & COLORADO BLVD
FREDERICK, CO 80643

COMMISSION NO. 522401
ISSUE DATE 10/17/23
SHEET TITLE
HVAC SECTIONS
AND DETAILS

SHEET NO.
M3.1.8
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DOAS/RTU FAN SCHEDULE - JOB#6182760

FAN UNIT NO.	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	BLOWER	RETURN AIR CFM	MAX TOTAL AIR CFM	TOTAL WEIGHT (LBS)	ESP	HP	PHASE	ELECTRICAL INFORMATION										DISCHARGE				MOISTURE REMOVAL RATE		GAS TYPE		GAS HEAT INFORMATION		NOTES											
												VOLTS	HCA	NOISE DB	OUTSIDE AIR DB	MIXED AIR DB	LEAVING AIR DB	IP	TOTAL	SEER	ZONE	DISCHARGE RATE	DISCHARGE CAPACITY	MOISTURE REMOVAL RATE	INPUT BTU/H	OUTPUT BTU/H	TEMP RISE	REQUIRED INPUT GAS PRESSURE															
1	DOAS-1	1	CARTU-1800-24-02T	CAPTIVEAIR	24P-4	0	6050	4266	0.500	5.00	3	460	438A	584V	60.97	60.97	60.97	41.77	39.97	37.47	2760	MM	0760	MM	381	51	70.97	57.97	36.4	MM	260	MM	0	LBS/HR	NATURAL	609973	494076	BOF	7	IN. W.C.	14	IN. W.C.	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17
2	DOAS-2	1	CARTU-1800-24-02T	CAPTIVEAIR	24P-4	0	6050	4267	0.500	5.00	3	460	438A	584V	60.97	60.97	60.97	41.77	39.97	37.47	2760	MM	0760	MM	381	51	70.97	57.97	36.4	MM	260	MM	0	LBS/HR	NATURAL	609973	494076	BOF	7	IN. W.C.	14	IN. W.C.	2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17

NOTES:

- INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL. NOT AN APPROVED EQUAL DIRECT DRIVE PLAIN BLOWER. ALL BLOWER BLOWERS ARE NOT ACCEPTABLE.
- INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER.
- REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE.
- 4.0 EC MOTOR CONDENSING FAN.
- ELECTRICAL EXPANSION VALVE. TRV NOT ACCEPTABLE.
- 3.0 TON LTR. ACCUMULATOR.
- FACTORY CONSTRUCTION WITH 5 YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER.
- 4.0 INCHING INTAKE EXHAUST AND DISCHARGE TEMPERATURE SENSORS DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT.
- 8.0 FT EXTERIOR DUAL-WALL CONSTRUCTION W/ R-12 INSULATION-MINIMUM 60GA EXTERIOR W/ 14GA BASE.
- 10.0 SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE.
- 12.0 FULLY MODULATING HOT GAS REHEAT.
- 13.0 FULLY MODULATING HOT GAS REHEAT.
- 14.0 FULLY MODULATING HOT GAS REHEAT.
- 15.0 RTU ECONOMIZER WITH DIFFERENTIAL ENTHALPY CONTROL.
- 16.0 MODIFIED REJECT DAMPER.
- 17.0 DOWN DISCHARGE/DOON RETURN.

FAN OPTIONS

FAN UNIT NO.	TAG	QTY	DESCRIPTION
DOAS-1 DOAS-2	1	1	INLET PRESSURE GAUGE, 0-30"
	1	1	INLET PRESSURE GAUGE, 0 TO 30" W.C., 2 FURANCES
	1	1	RTU TOTAL CFM MONITORING
	1	1	SNP LOSS GAS STANDER 1"
	1	1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU 170VA TRANSFORMER USED IF A NON-DCV PREWIRE CONTROL IS NOT THE BULB MAT. 40" PREWIRE OPTION MUST BE SELECTED DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE.
	1	1	DOAS/RTU CONTROL
	1	1	CASLOW BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
	1	1	RTU DOWN EXCHANGE
	1	1	8" HEAVY B FILTERS FOR RTU (QTY: 12)
	1	1	OVERHEAT STAT
	1	1	VFB FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBLE
	1	1	SPECIAL SHIFTERS FOR 3" HEATERS ABOVE 2300"
	1	1	32 TON MODULATING COILING OPTION, 440/480V, 30FS, 9450A REFRIGERANT, VARIABLE
	1	1	REMOTE TEMPERATURE AND HUMIDITY SPACE SENSOR
	1	1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK - ALARM SUPPLIED BY OTHERS
	1	1	100 WTR BACKET RESET UNIT MONITORING - ALLOWS FOR REMOTE BSC OCCUPIED DIVERSITY AND SETPOINT CHANGES
	1	1	ACCESSORY KIT
1	1	OCCUPIED SCHEDULING	
1	1	RTU CONVENIENCE DUCTILE (QTY: 12) 1/2" 30" - REQUIRES SEPARATE 10V CONNECTION	
1	1	INCLUDES RECEPTACLE, COVER AND J-BOX	
1	1	RTU MAIL ROOMS	
1	1	PRELUBRICATION	
1	1	VAV PACKAGE W/ MANUAL BSC CONTROL, (QTY: VFB INCLUDED)	
1	1	LOAD REACTOR HEATER 100V - RECOMMENDED FOR WINTER DESIGN TEMPERATURES LESS THAN 40"	
1	1	CONTROL PANEL ENCLOSURE HEATER 100V - RECOMMENDED FOR WINTER DESIGN TEMPERATURES LESS THAN 40"	
1	1	RTU HEATES FURNACE CONDENSATE DRAIN KIT - REQUIRED FOR WINTER DESIGN TEMP OF 2 DEGREE F AND LOWER	
1	1	RTU INTAKE/RETURN DAMPER - ON PERCENTAGE CONTROL	
1	1	RTU DOWN RETURN	
1	1	RTU ECONOMIZER - DIFFERENTIAL ENTHALPY CONTROL	
1	1	RTU ECONOMIZER BAKEMATIC MELT	
1	1	DAMPER CONTROL - CO2 MINIMUM DIVERSITY SETPOINT	
1	1	32 TON MODULATING REHEAT OPTION - SPACE SETPOINT CONTROL	
1	1	5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIR SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS)	

DOAS/RTU BACNET Points List - JOB#6182760

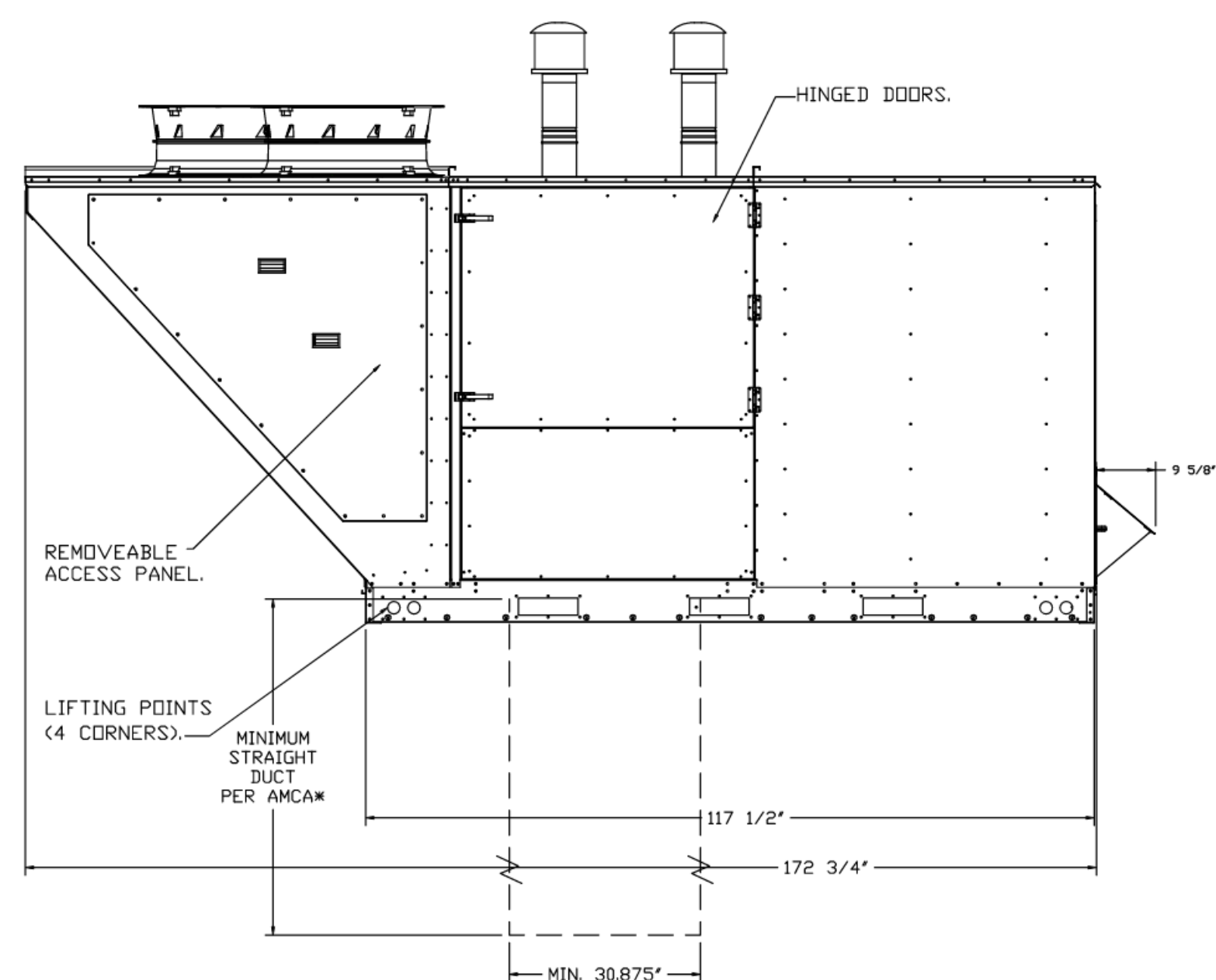
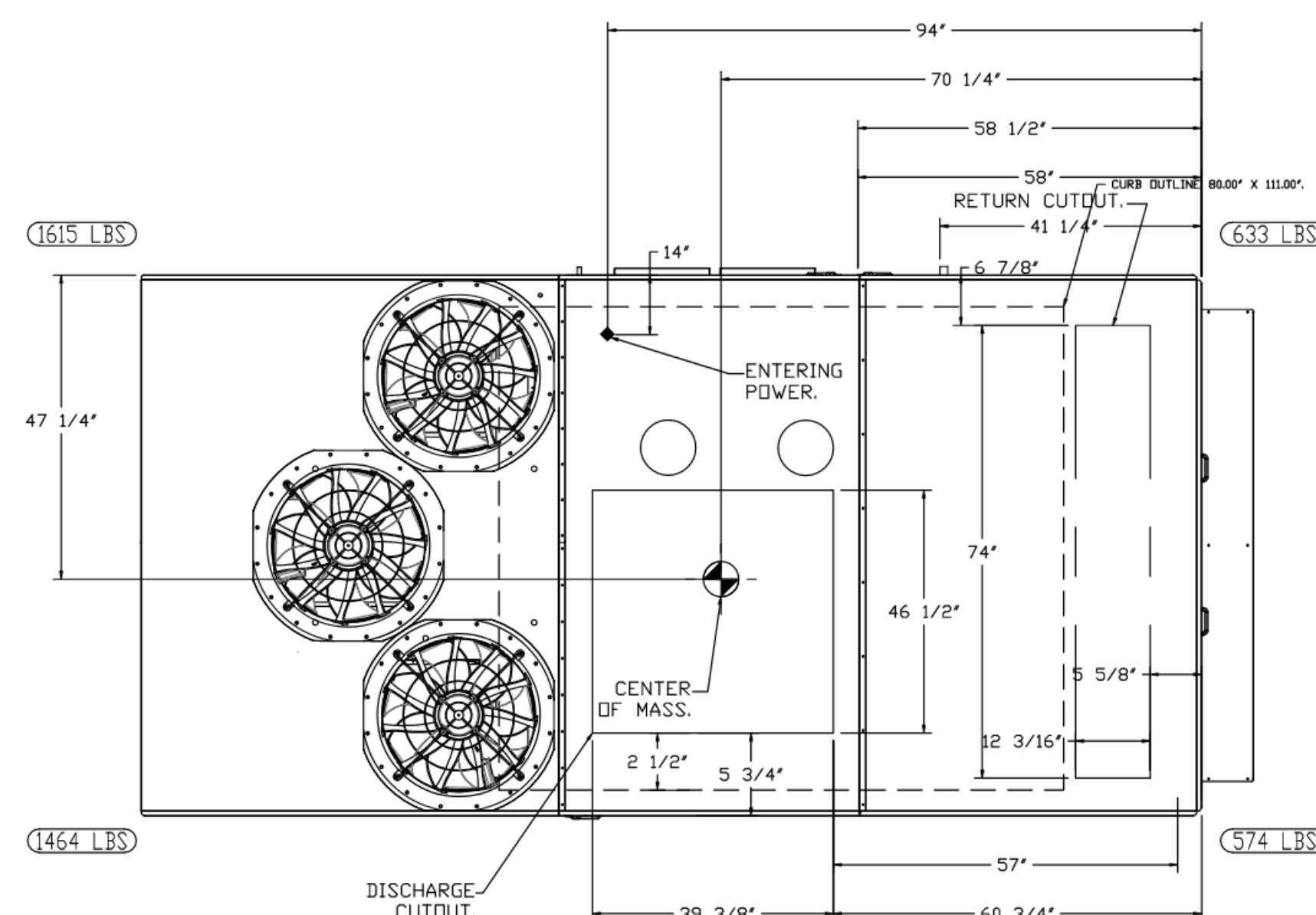
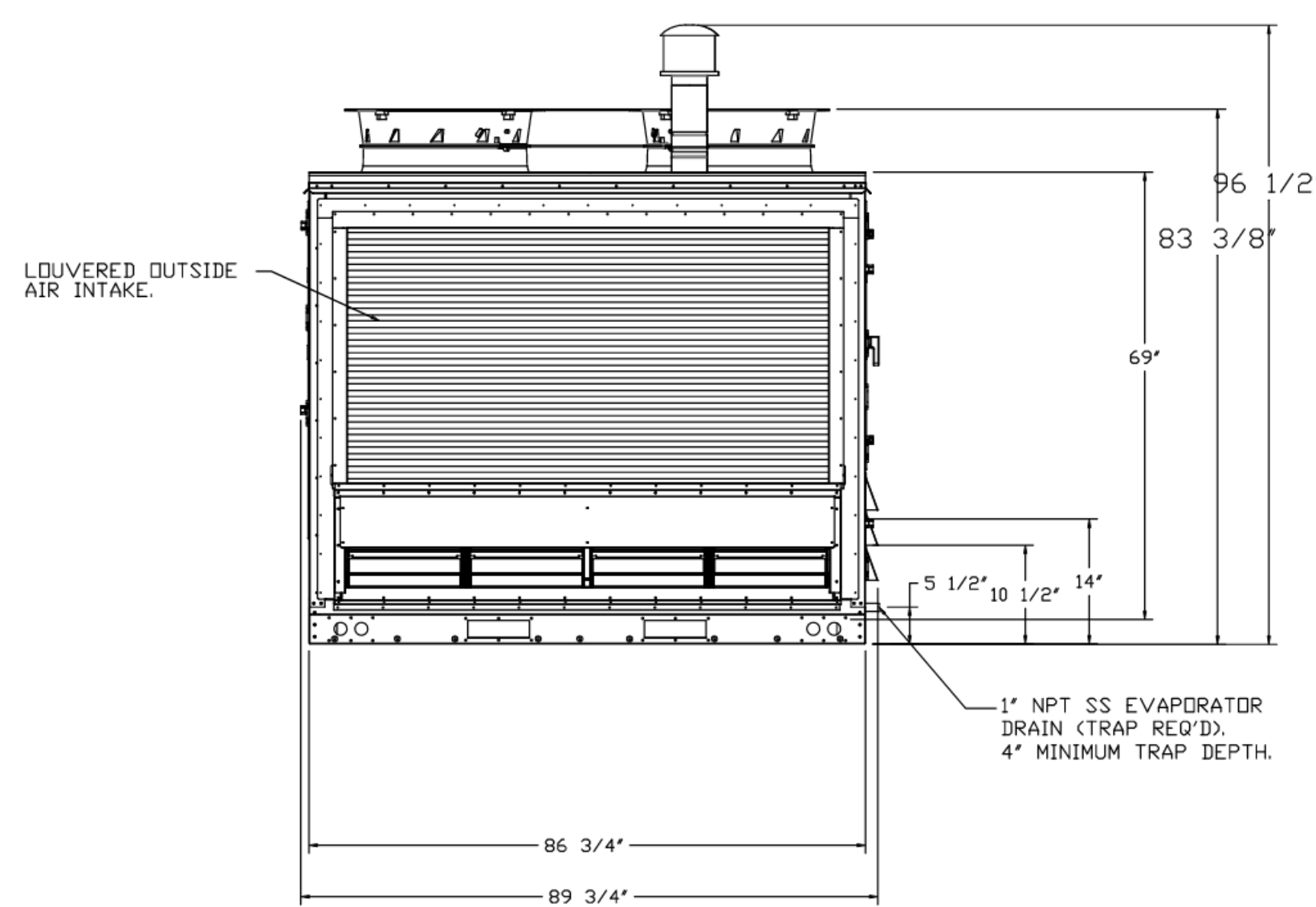
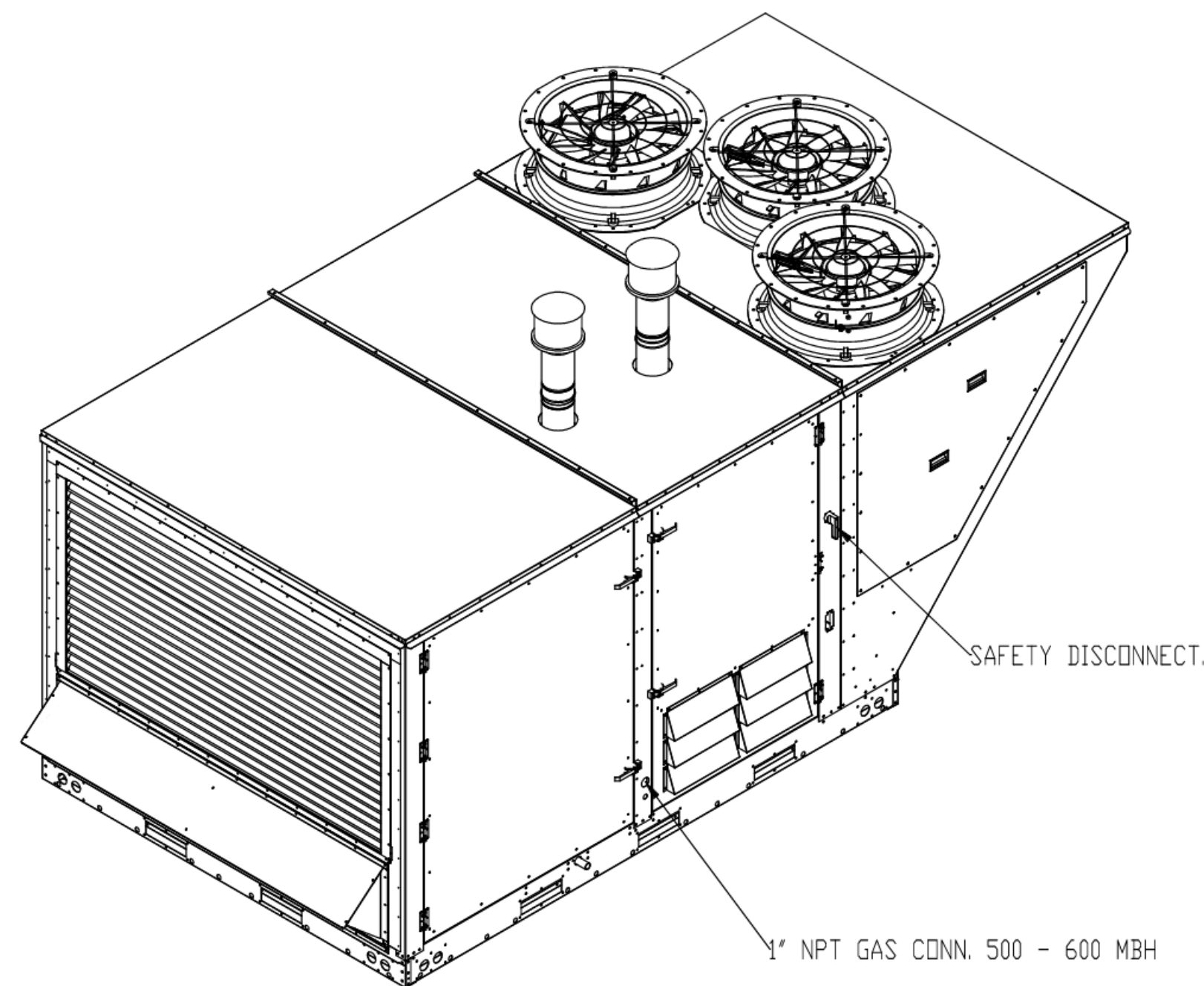
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DOASBoosterStatus	AV	82	nvDOASBoosterStat	Control/Monitor	ByronicSPDiffPart	AV	211	nvByronicSPDiffPart	Control/Monitor
DOASBoosterStatus	AV	83	nvDOASBoosterStat	Control/Monitor	ByronicSPDiffPart	AV	212	nvByronicSPDiffPart	Control/Monitor
DOASBoosterStatus	AV	84	nvDOASBoosterStat	Control/Monitor	ByronicSPDiffPart	AV	213	nvByronicSPDiffPart	Control/Monitor
DOASBoosterStatus	AV	85	nvDOASBoosterStat	Control/Monitor	ByronicSPDiffPart	AV	214	nvByronicSPDiffPart	Control/Monitor
DOASBoosterStatus	AV	86	nvDOASBoosterStat	Control/Monitor	ByronicSPDiffPart	AV	215	nvByronicSPDiffPart	Control/Monitor
DOAS									

FAN #1 (DDAS-1), FAN #2 (DDAS-2) CASRTU4-1800-24-22T - HEATER

NOTES:

- DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
- DENOTES CORNER WEIGHT.

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".



REVISIONS

NO.	DESCRIPTION	DATE
1		
2		
3		
4		

CAPTIVE
National Accounts
4641 Paragon Park Rd., Raleigh, NC 27616 PHONE: (919) 852-2410 FAX: 9192275948 EMAIL: nrg15@captivair.com

KING SOOPERS #154 - FREDERICK, CO - DDAS
13TH + COLORADO BLVD,
FREDERICK, CO, 80220

DATE: 8/24/2023

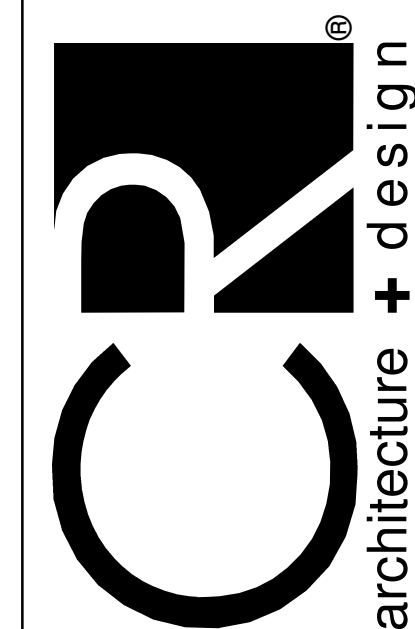
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6182760

DRAWN BY:

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

MASTER DRAWING

SHEET NO.
2



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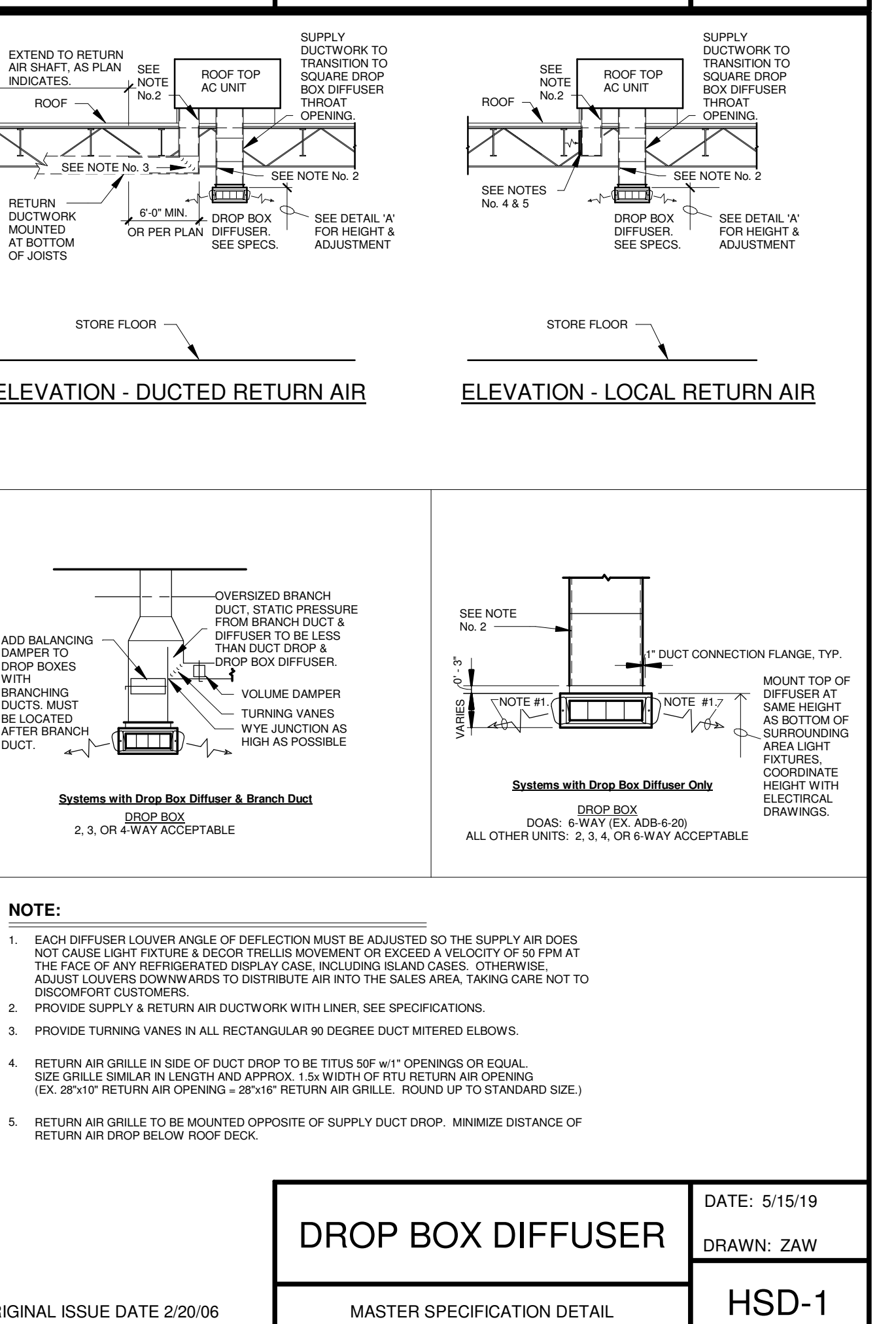
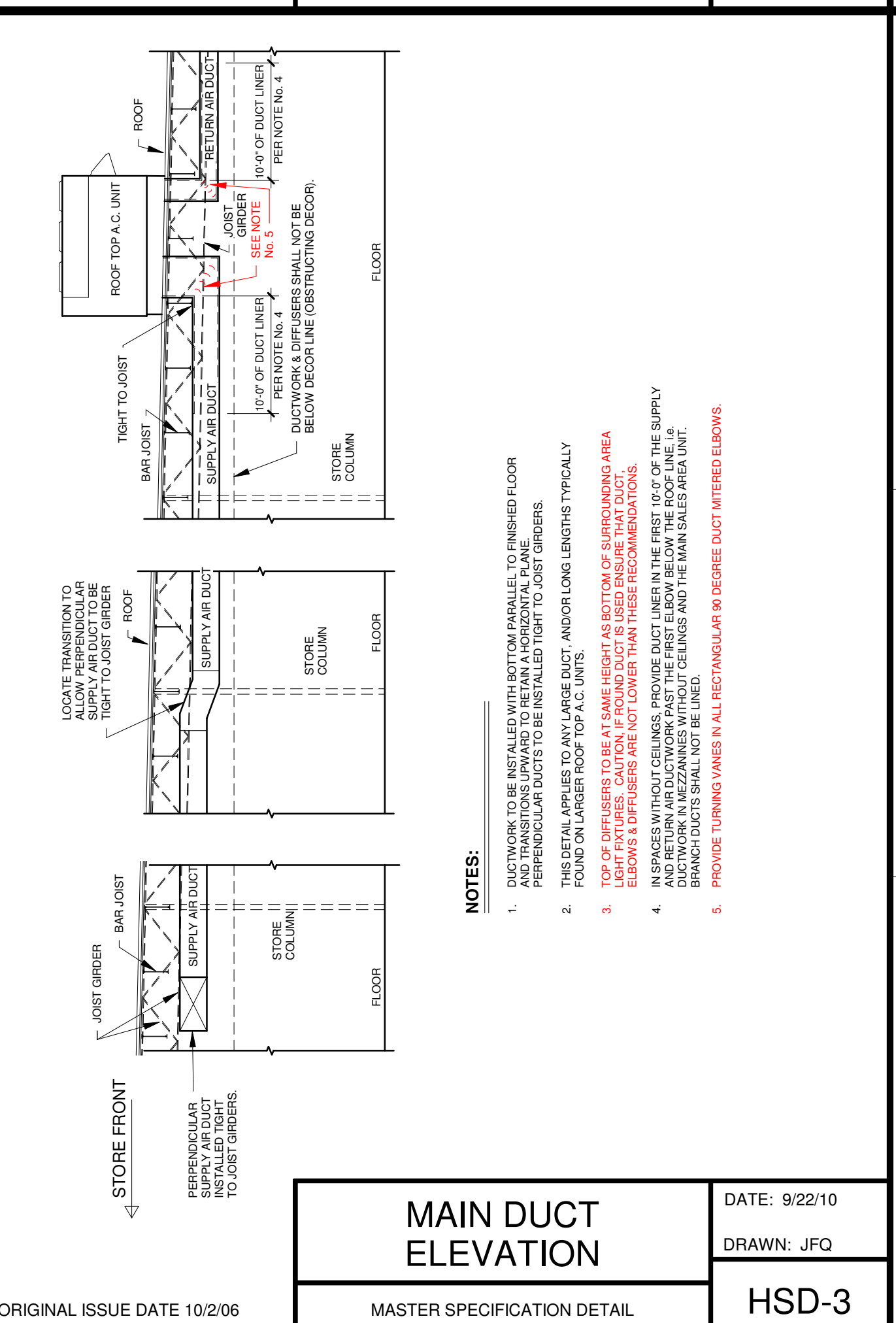
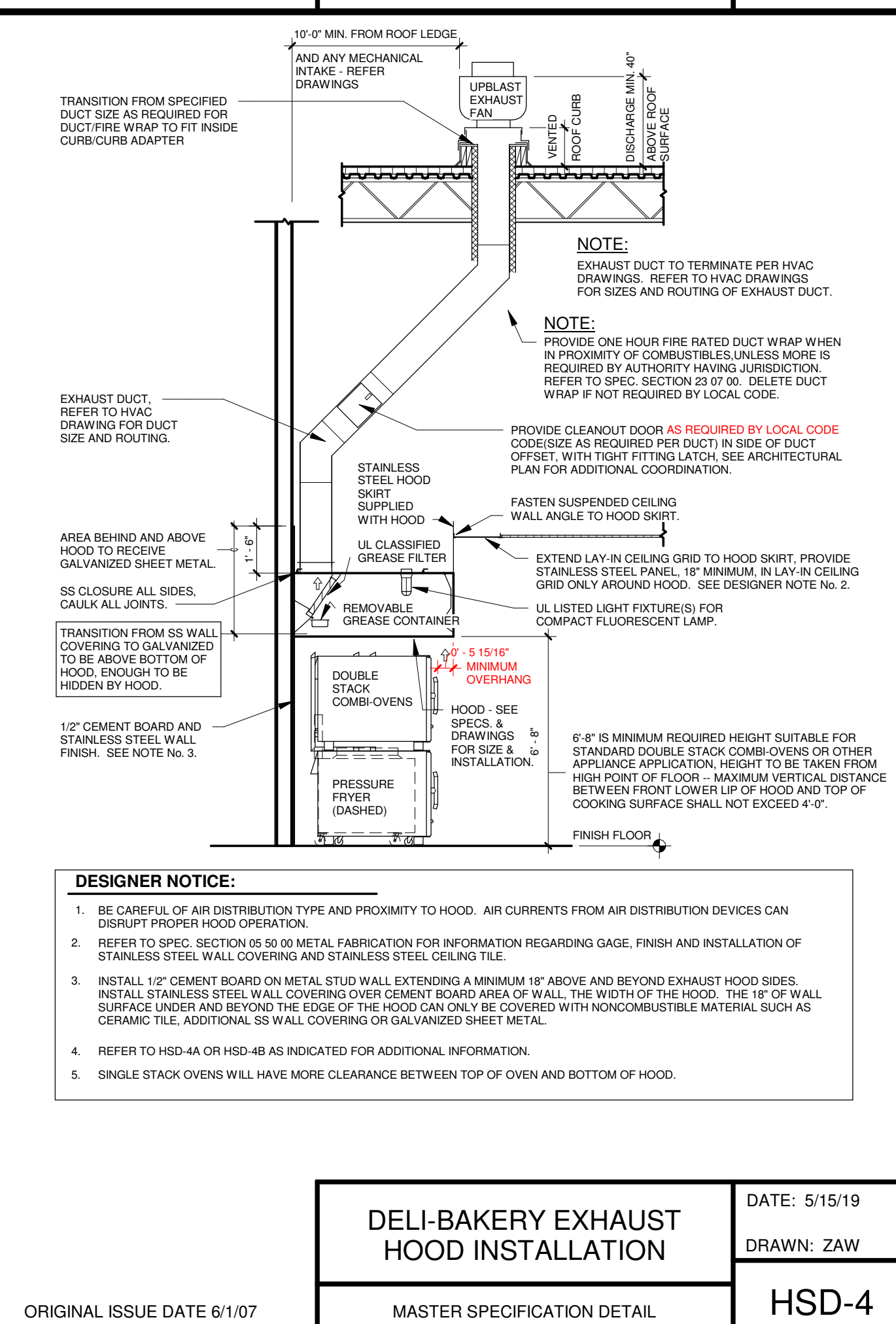
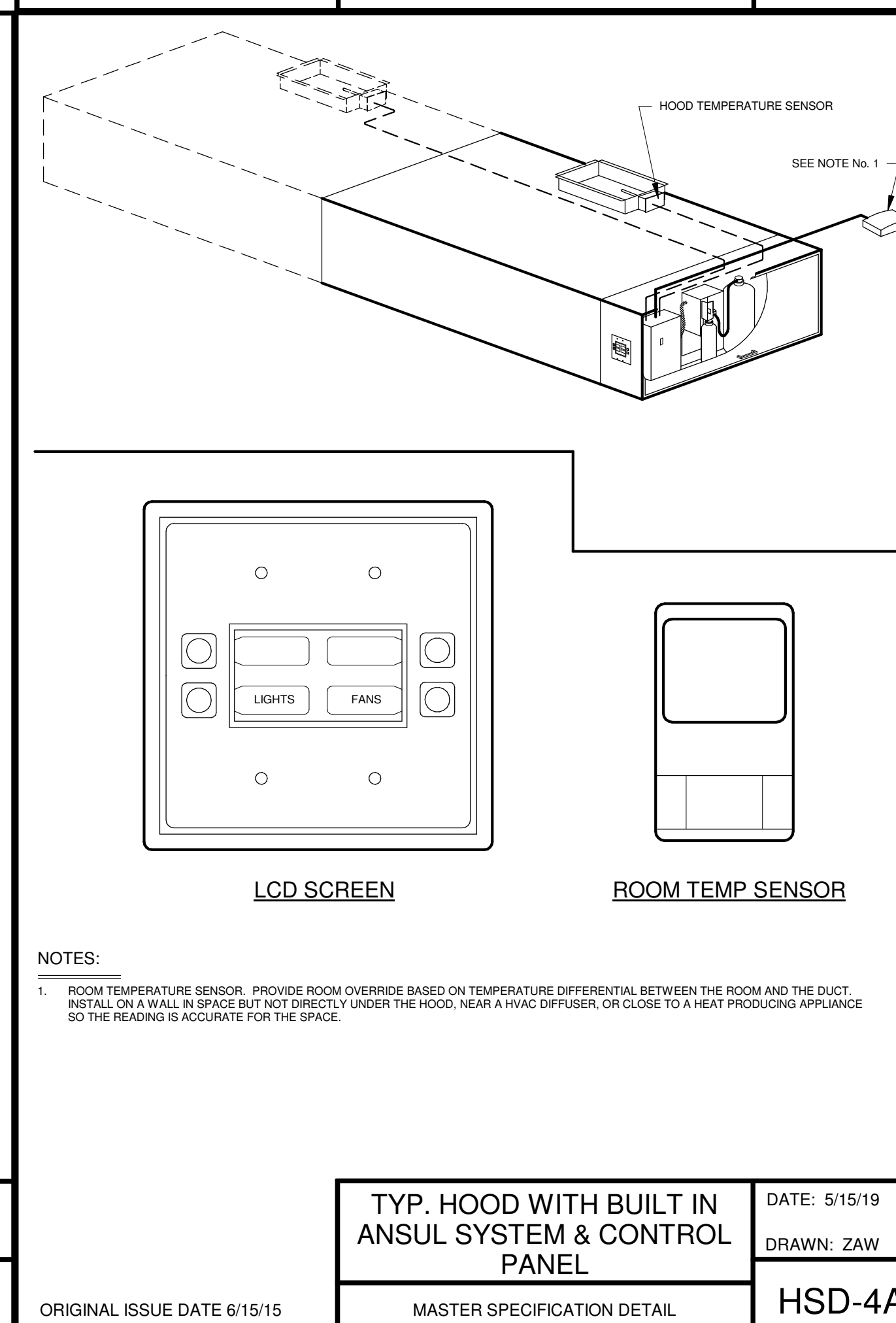
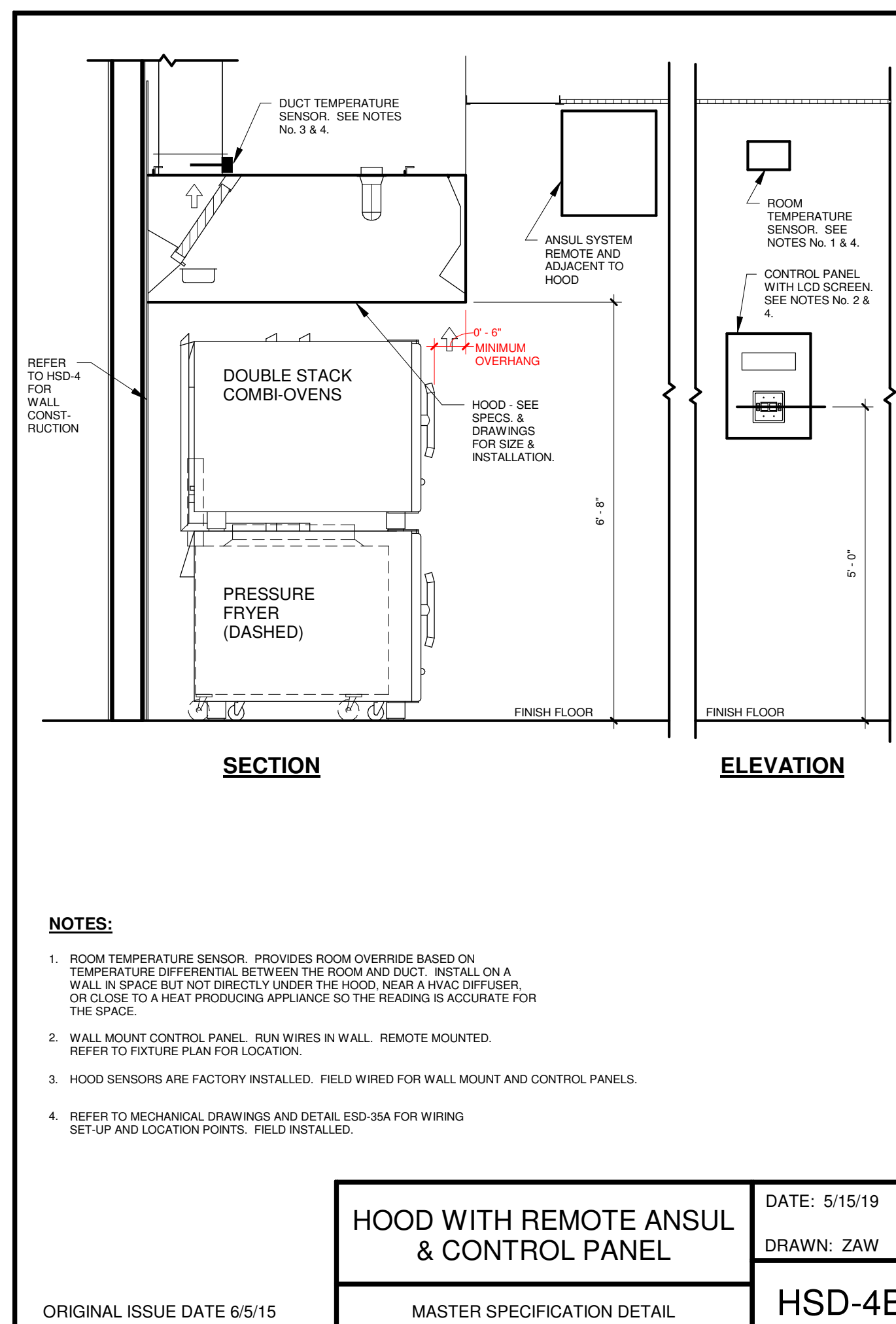
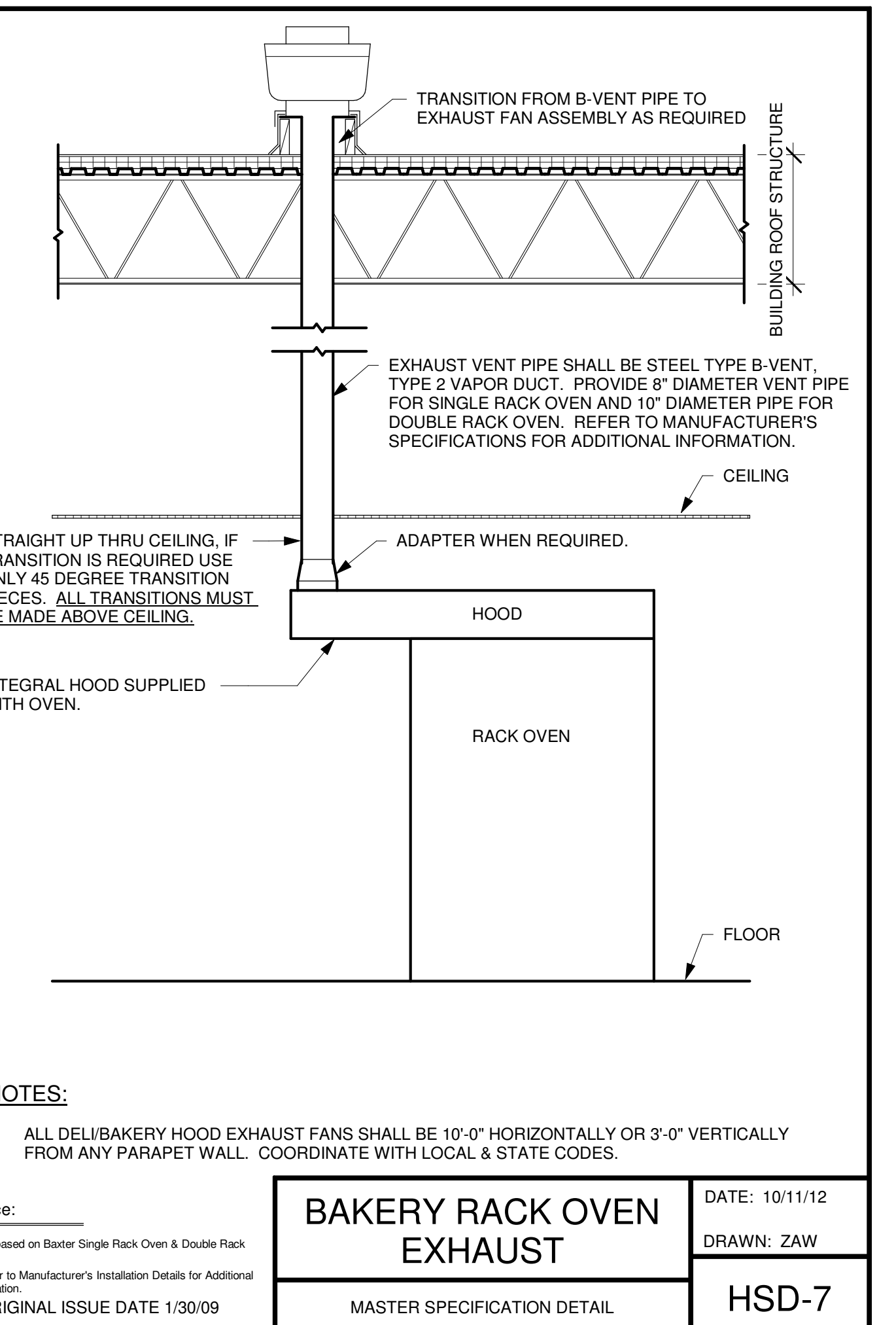
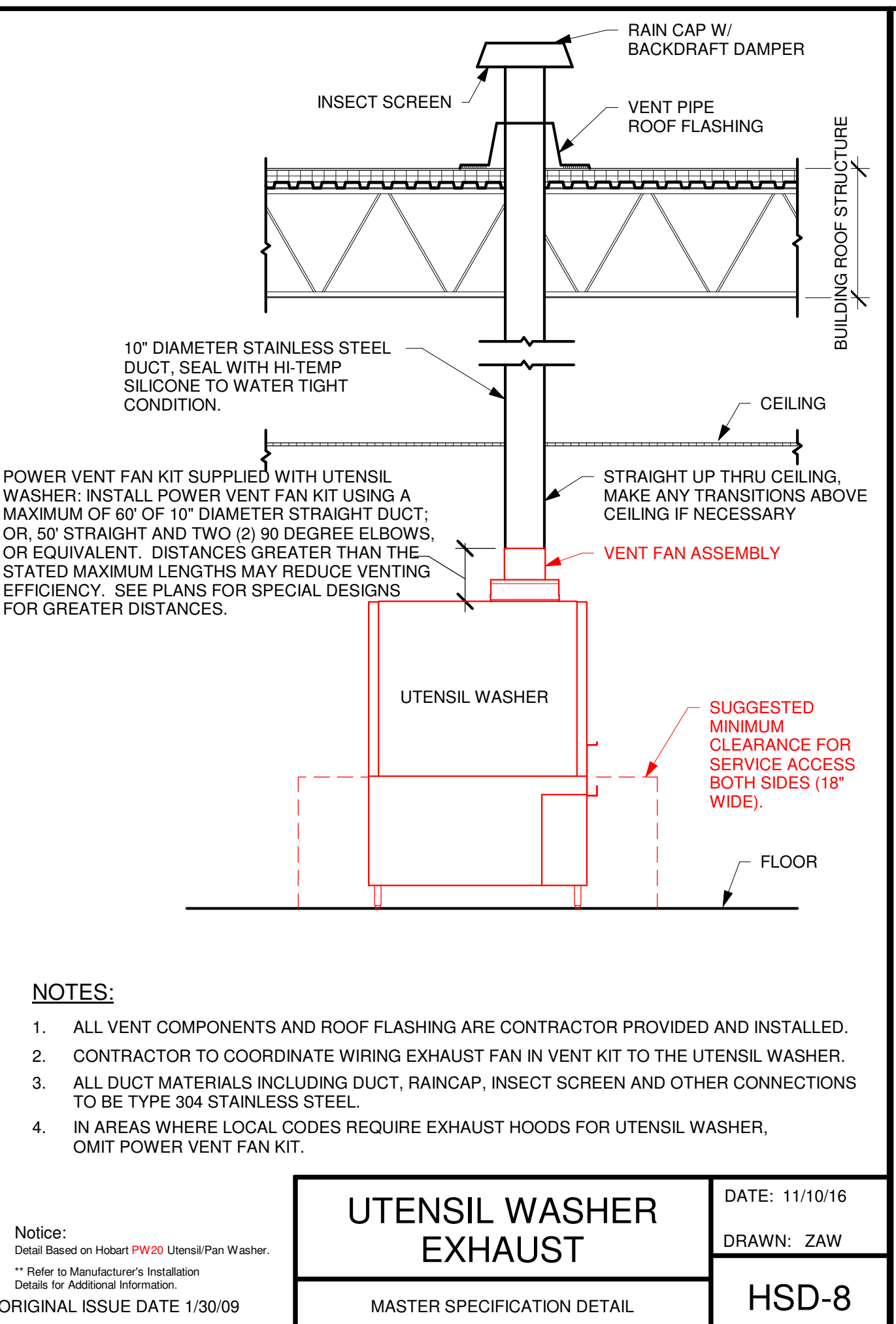
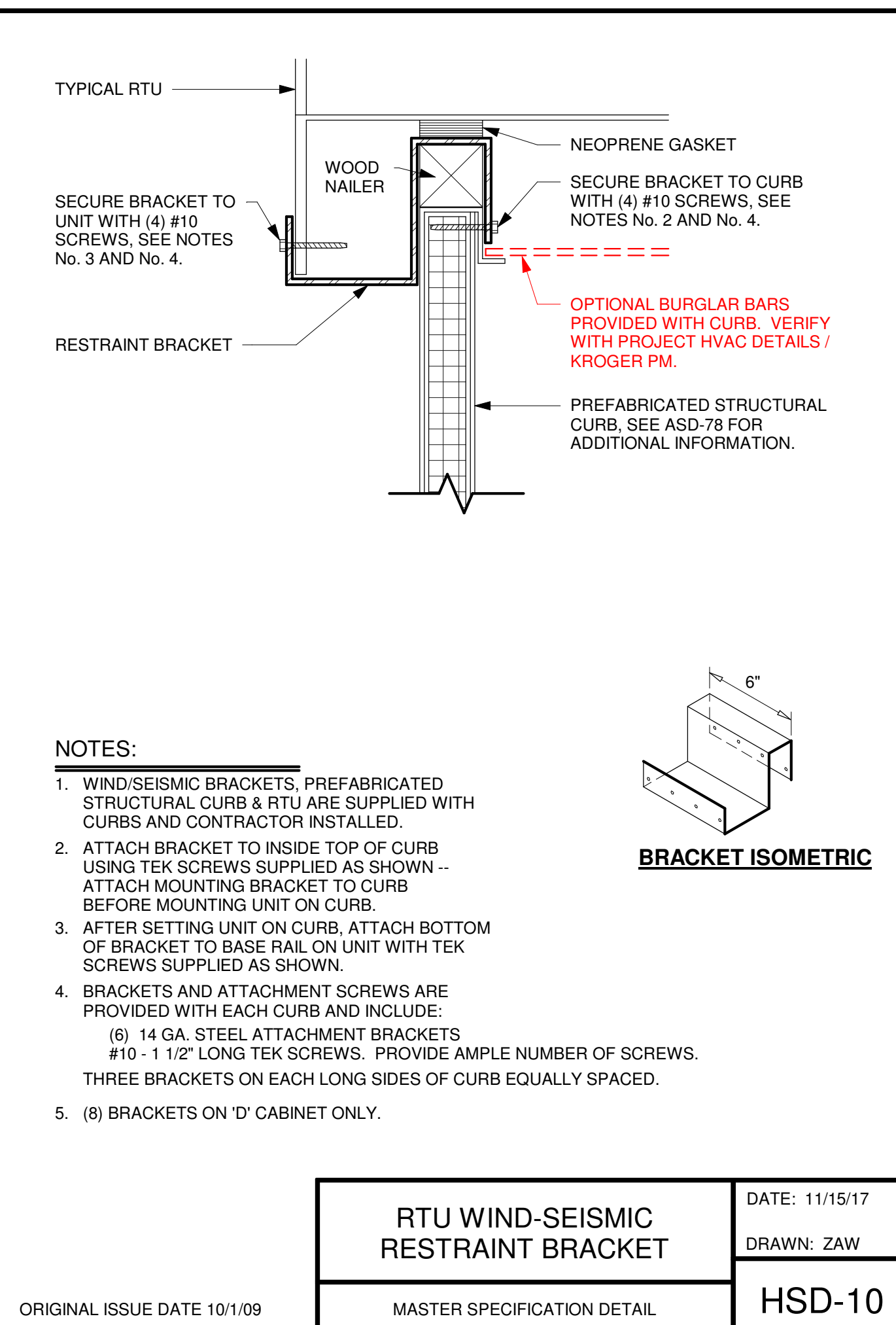
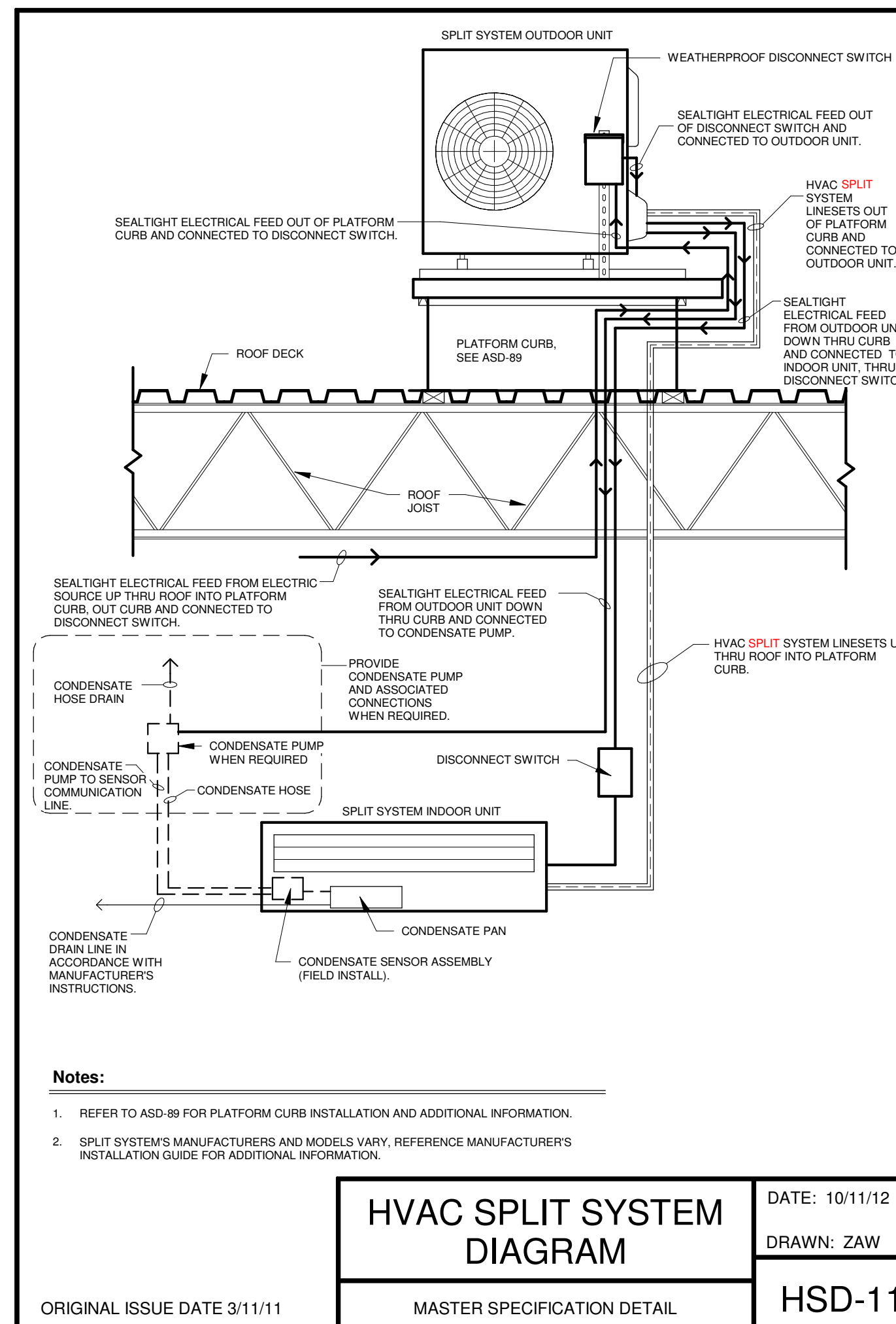
DATE	DESCRIPTION
08/31/2023	90% OWNER REVIEW
10/17/2023	BID/PERMIT ISSUE

PROJECT TITLE
KING SOOPERS
KS154

HWY 52 & COLORADO BLVD
FREDERICK, CO 80643
COMMISSION NO. 522401
ISSUE DATE 10/17/23
SHEET TITLE
HVAC SECTIONS
AND DETAILS

SHEET NO.
M3.1.10

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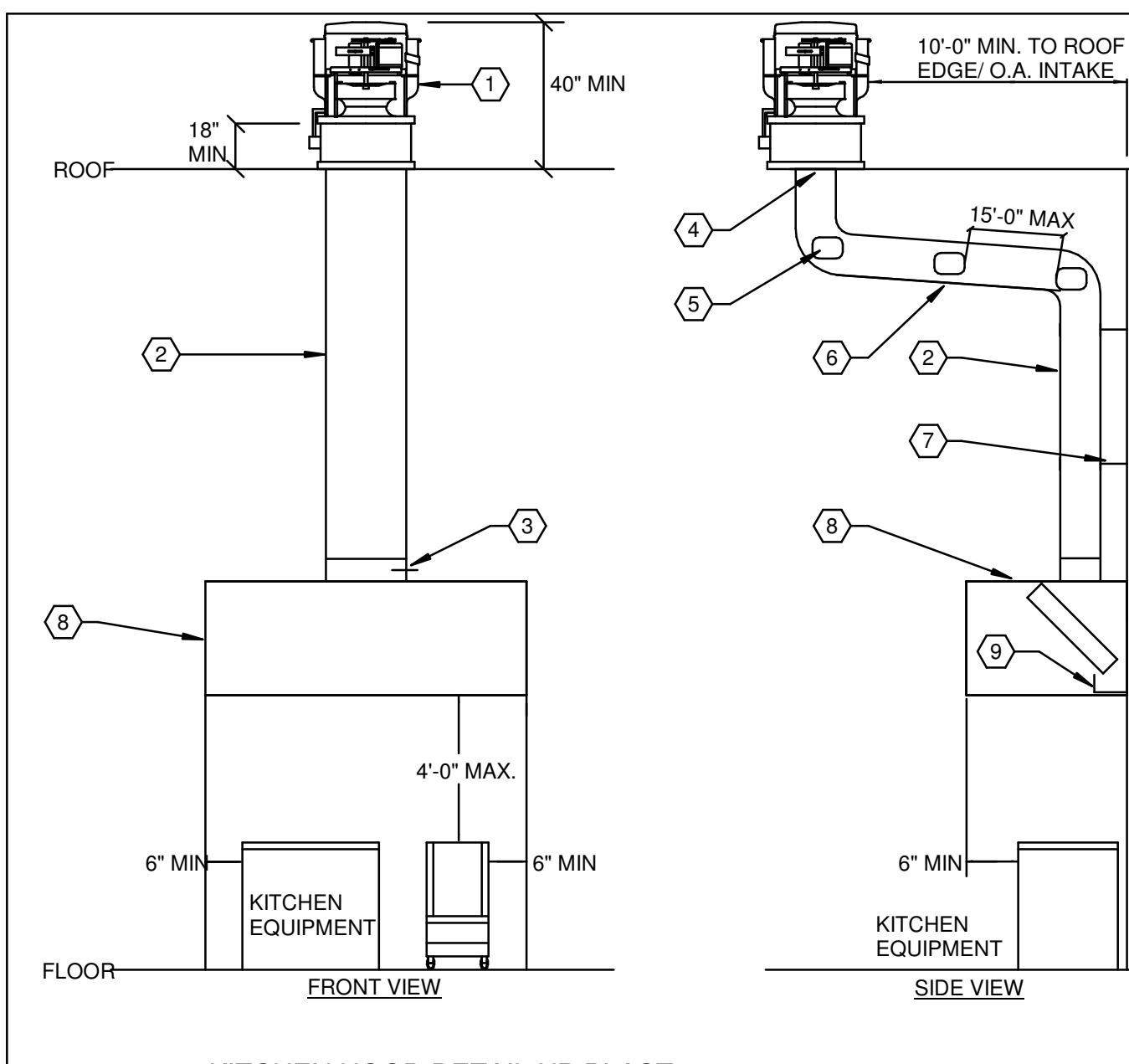
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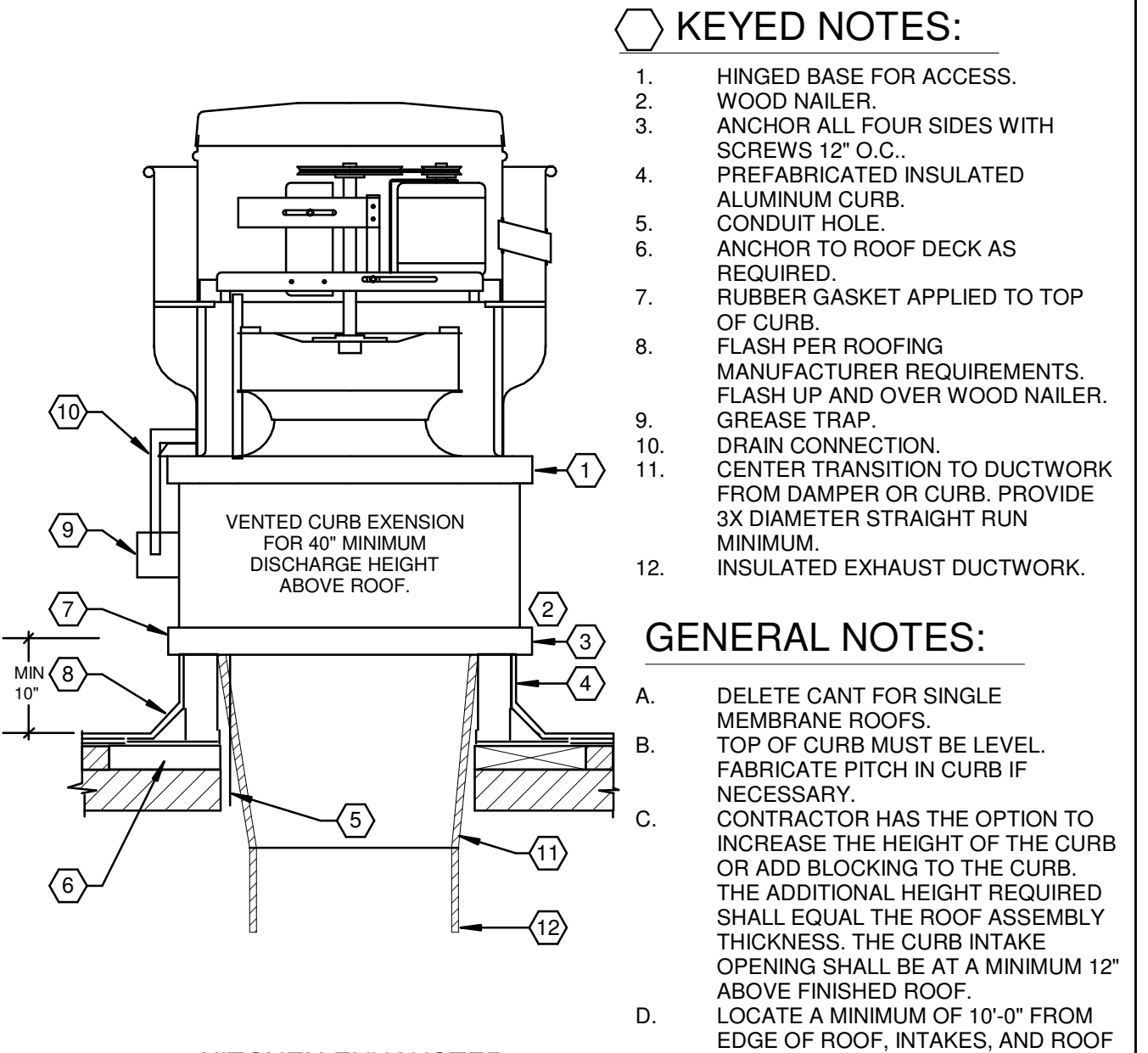
ISSUE/REVISION

DATE	DESCRIPTION
08/31/2023	90% OWNER REVIEW
10/17/2023	BID/PERMIT ISSUE

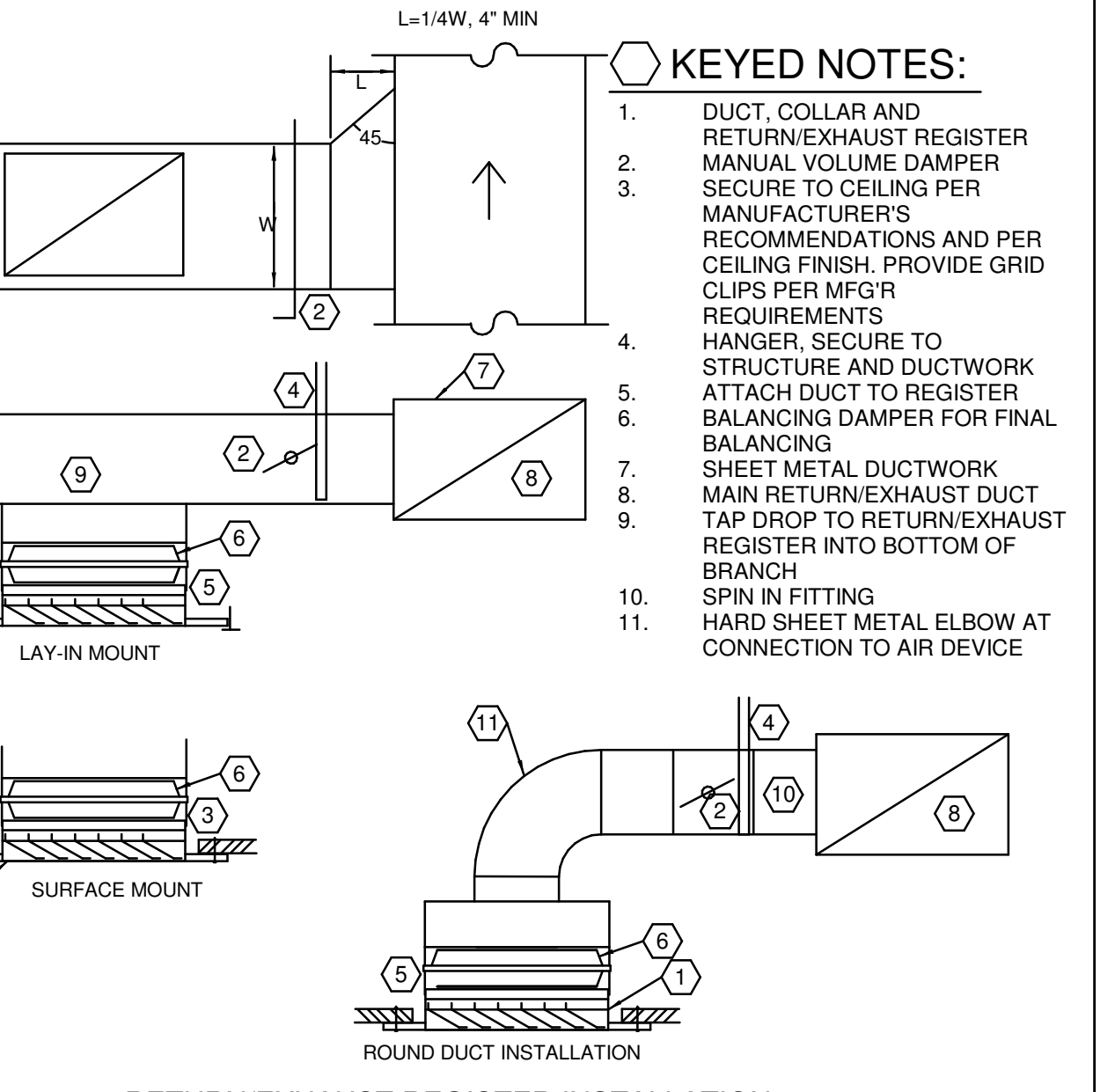


233813.00-04 - KITCHEN HOOD DETAIL UP BLAST
SCALE: NONE

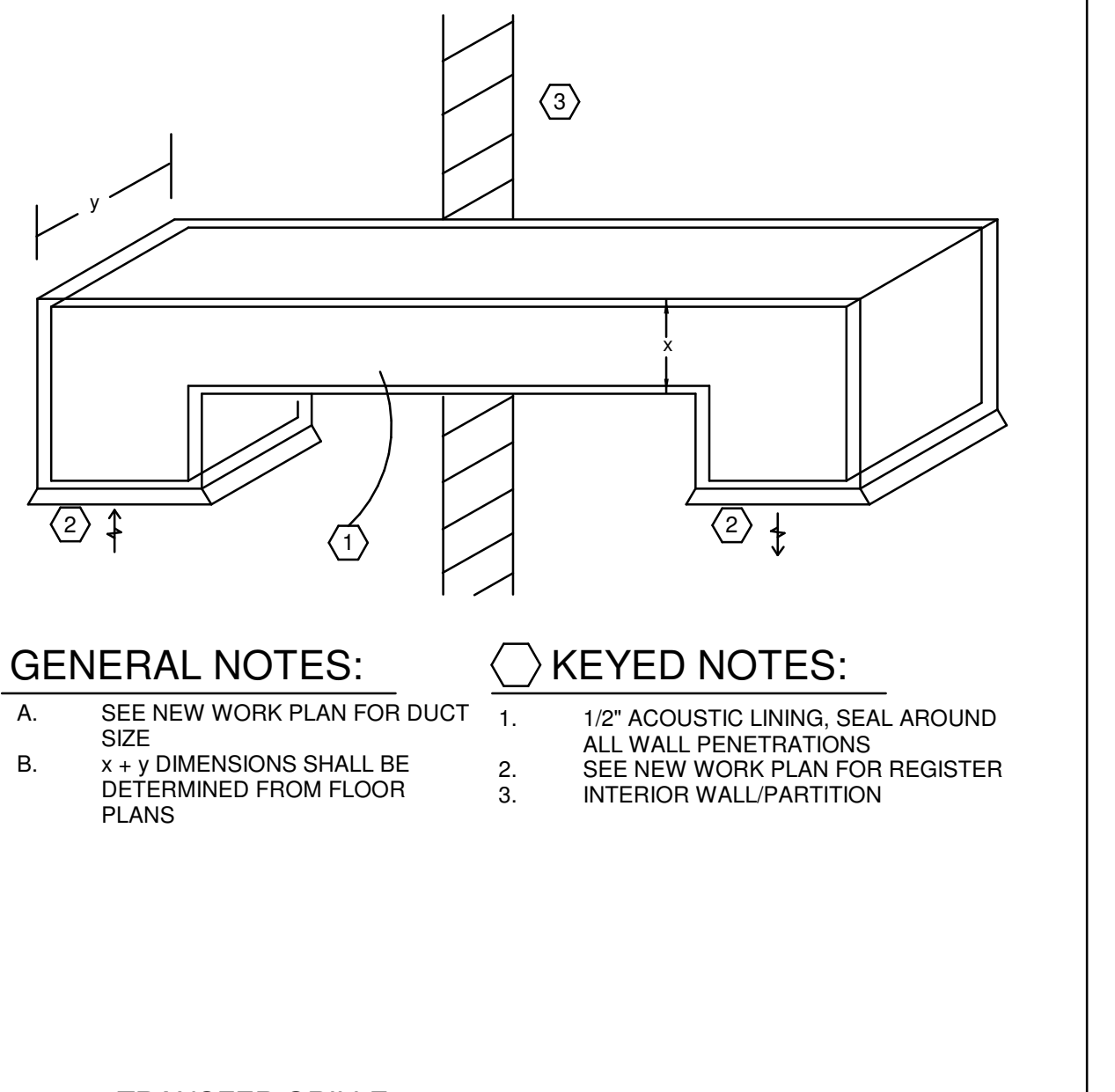
- KEYED NOTES:**
- KITCHEN EXHAUST FAN U.L. LISTED FOR GREASE (SEE KITCHEN EXHAUSTER DETAIL). FAN MOTOR SHALL BE OUT OF AIRSTREAM. PROVIDE GREASE CUP AND DRAIN.
 - 18 GAUGE INSULATED WELDED BLACK IRON OR 18 GAUGE INSULATED WELDED STAINLESS STEEL. DUCTWORK WRAPPED WITH 2 LAYERS OF ZERO CLEARANCE DUCT WRAP (TYPICAL).
 - HEAT SENSOR IN EACH COLLAR INTERLOCKED TO VENTILATION SYSTEM. FLANGED & GASKETED DUCT TO EXHAUST FAN CONNECTION.
 - CLEANOUT DOOR/LATCH (12"x12" MIN.) MADE OF 16 GAUGE WELDED BLACK IRON OR 18 GAUGE WELDED STAINLESS STEEL (TYPICAL).
 - MINIMUM 2% SLOPE TOWARD HOOD WITH CLEANOUTS A MINIMUM OF EVERY 15 FEET AND CHANGE IN DIRECTION. GREASE DUCT SUPPORT IS TO BE SIZED, SPACED, AND INSTALLED BY CODE.
 - HOOD WITH ANSUL SYSTEM. MAINTAIN 1" CLEARANCE TO COMBUSTIBLES.
 - GREASE DRIP TRAY.
- GENERAL NOTES:**
- TYPE HOOD SHALL BE STAINLESS STEEL, 18 GAUGE, WITH WELDED SEAMS AND UL 710 LISTED EXHAUST DUCT SHALL BE 18 GA. BLACK IRON OR 18 GA. STAINLESS STEEL, FINISH #3, WITH CONTINUOUS LIQUID TIGHT WELDED JOINTS AND SEAMS.
 - AIR VELOCITY SHALL BE PER CODE AND AHJ.
 - PROVIDE INSULATION WRAP EQUAL TO 3M FIBRE MASTER DUCT WRAP WITH UL LISTINGS OF 723, 1978, AND 1479.
 - INSULATION SHALL BE A LIGHTWEIGHT, NON-ASBESTOS, HIGH TEMPERATURE, INORGANIC, CERAMIC FIBER BLANKET TOTALLY ENCAPSULATED IN FOLIOSCRIM HAVING A SERVICE TEMPERATURE RANGE UP TO 2300 DEGREE 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.
 - 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.
 - PROVIDE STAINLESS STEEL ENCLOSURE PANEL BETWEEN TOP OF KITCHEN HOOD AND CEILING, PER LOCAL CODE REQUIREMENTS.



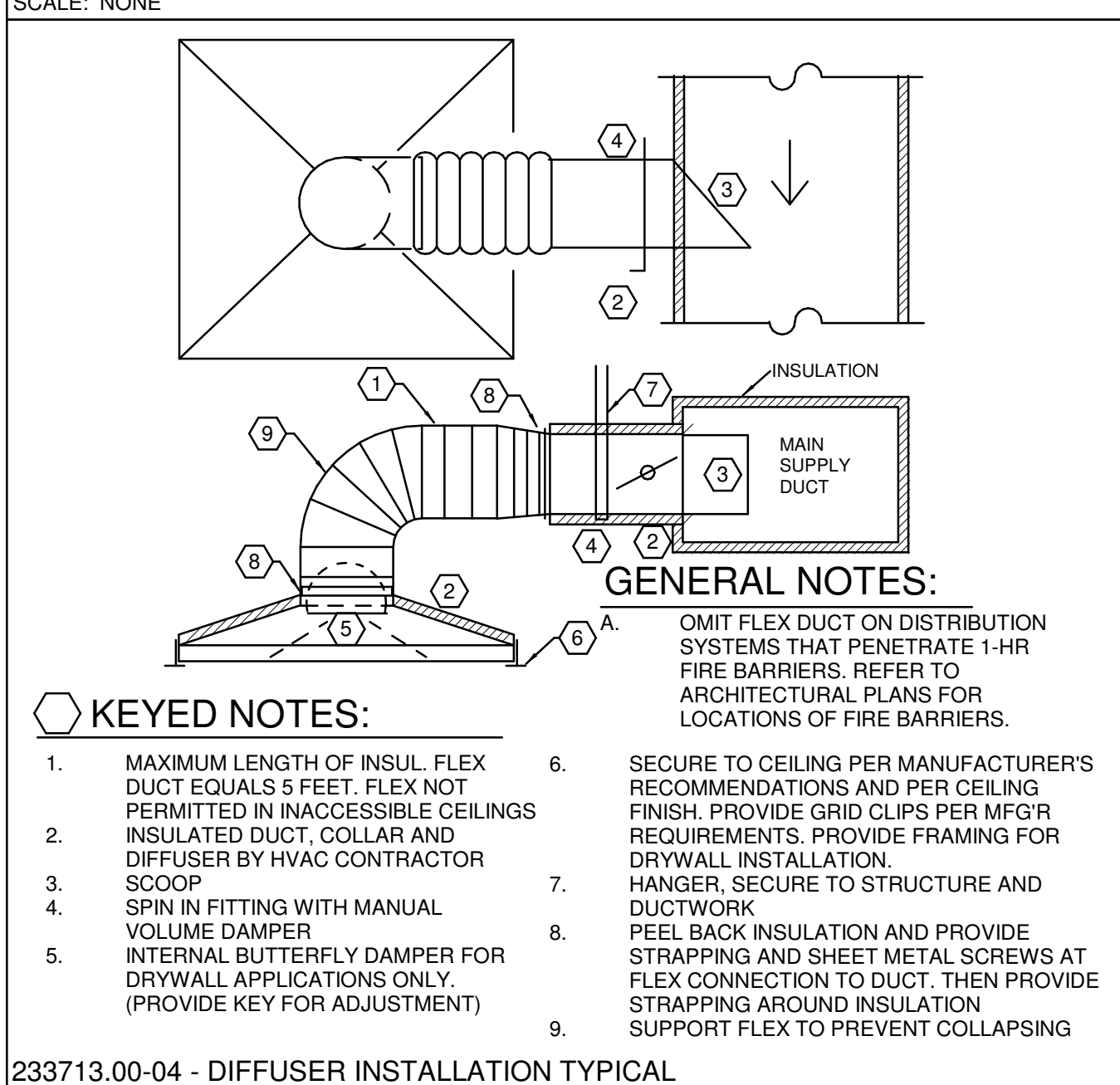
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SCALE: NONE



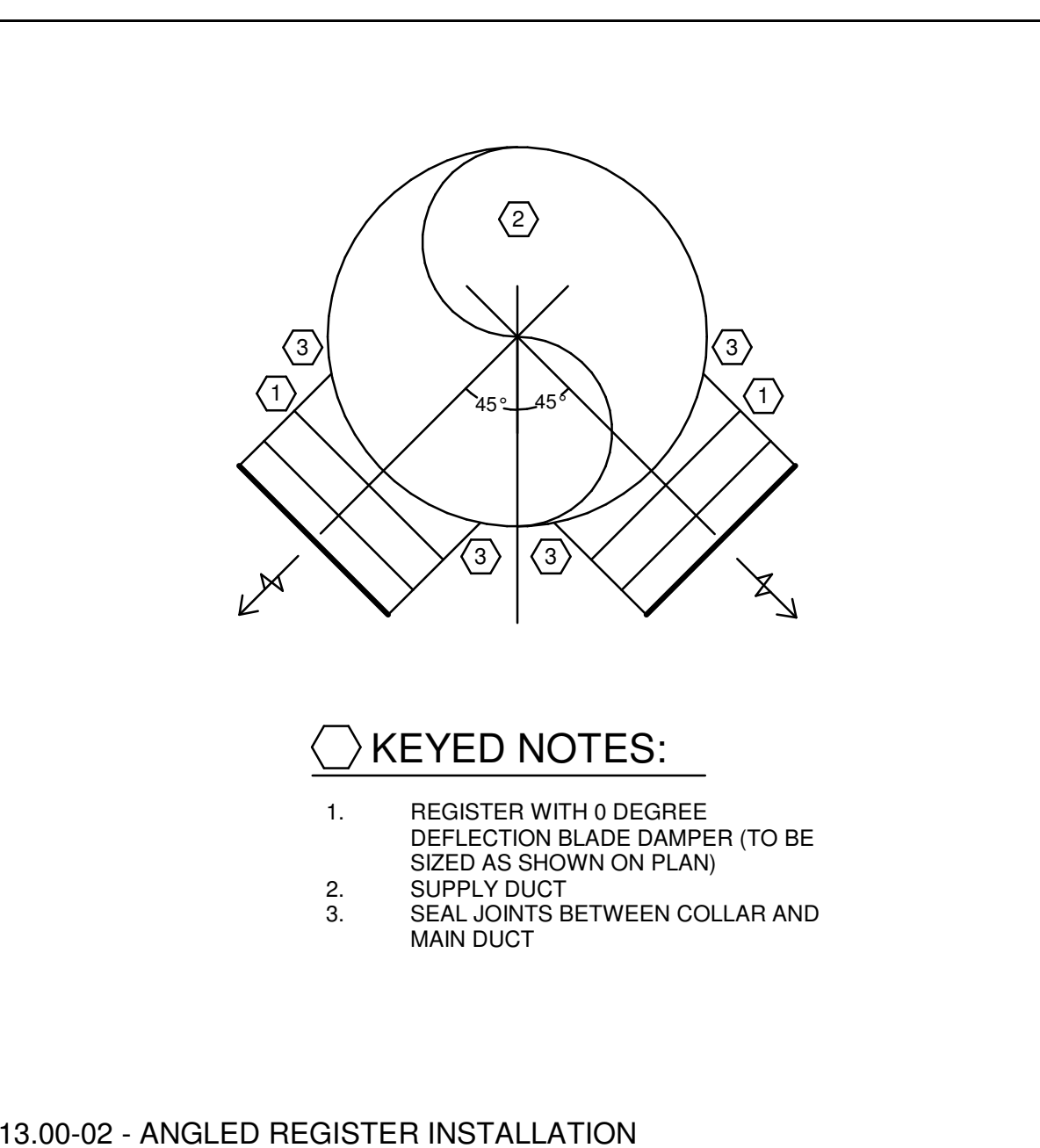
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SCALE: NONE



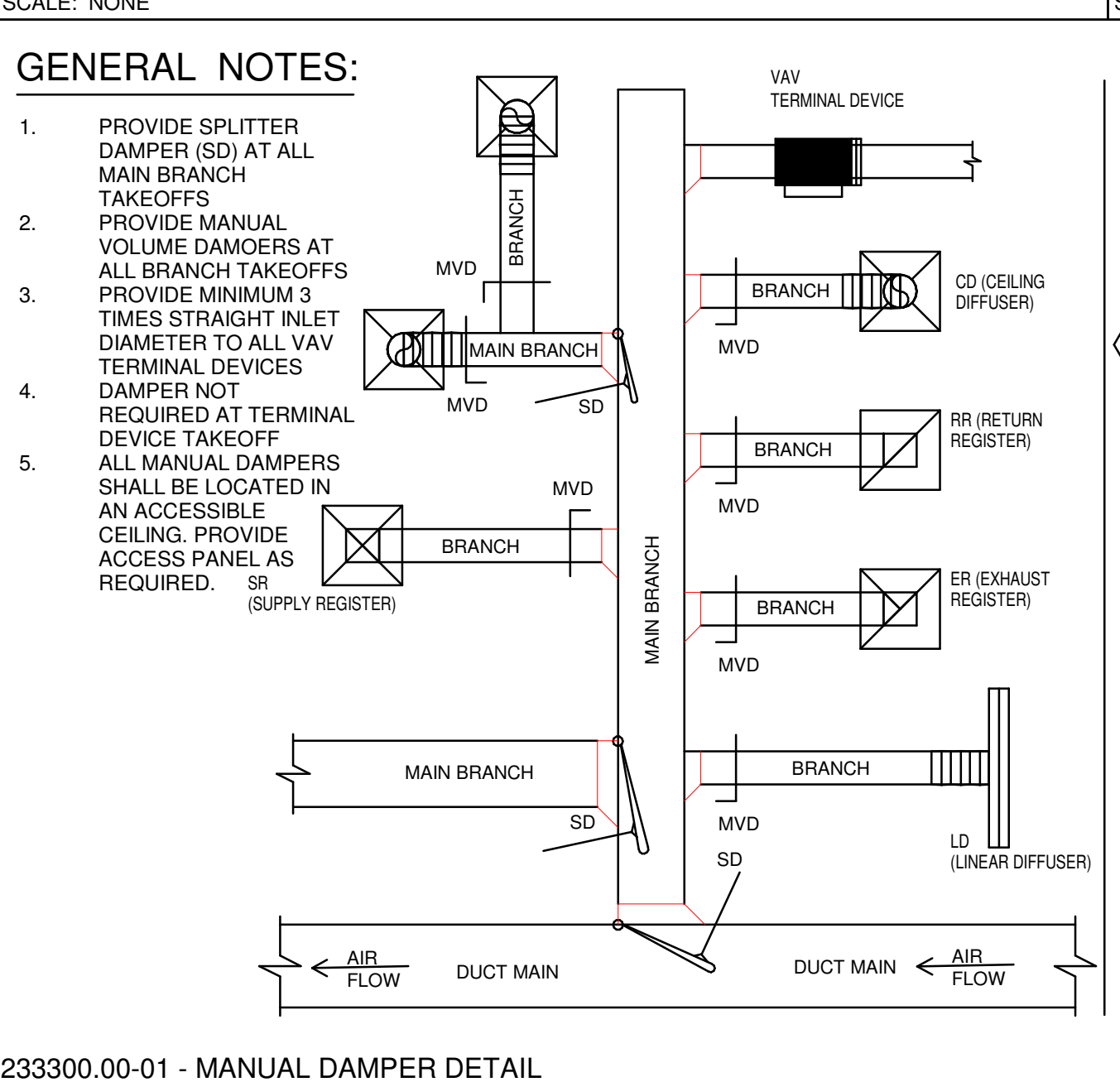
233713.00-19 - TRANSFER GRILLE
SCALE: NONE



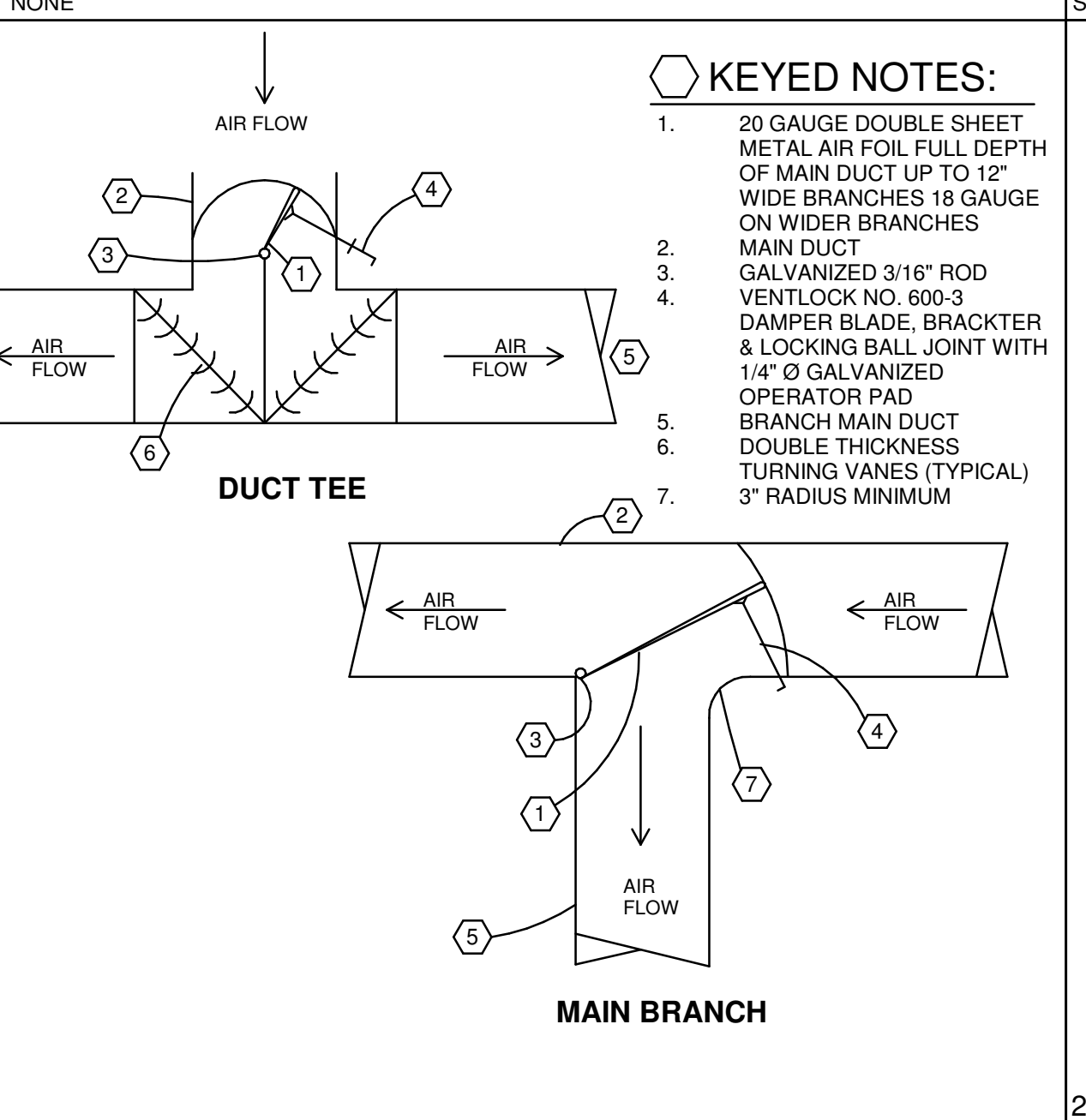
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SCALE: NONE



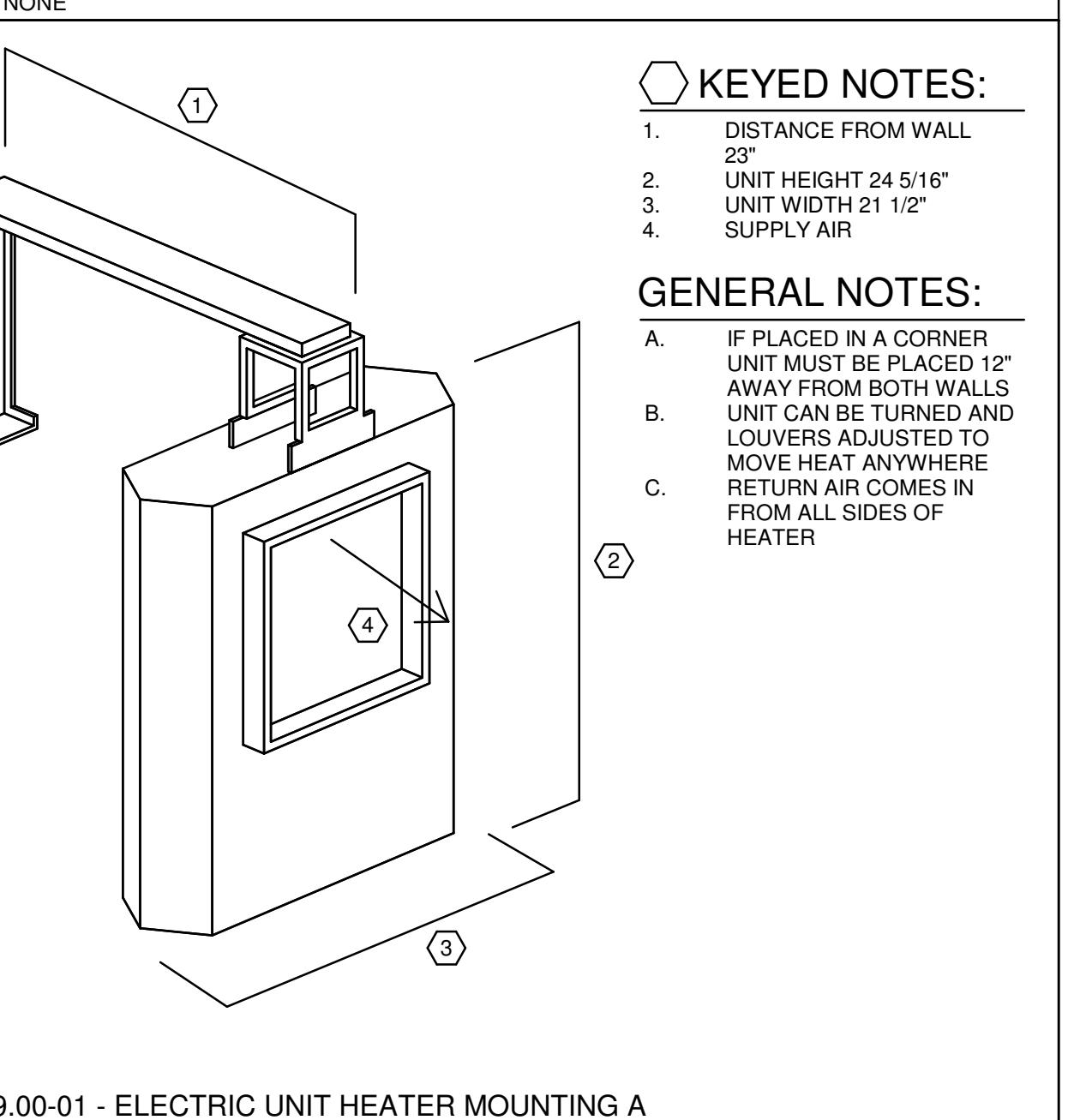
233713.00-02 - ANGLED REGISTER INSTALLATION
SCALE: NONE



233300.00-01 - MANUAL DAMPER DETAIL
SCALE: NONE



233300.00-01 - MANUAL DAMPER DETAIL
SCALE: NONE



238239.00-01 - ELECTRIC UNIT HEATER MOUNTING A
SCALE: NONE

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PROJECT TITLE
**KING SOOPERS
KS154**

HWY 52 & COLORADO BLVD
FREDERICK, CO 80643
COMMISSION NO. 522401
ISSUE DATE 10/17/23
SHEET TITLE

HVAC PROJECT-
SPECIFIC DETAILS

SHEET NO.
M5.2
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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 EFF	CFM (cfm)	ESP (in WC)	OCFM (cfm)	NOMINAL TONS	MAT CLG DB (Deg F)	MAT CLG WB (Deg F)	CLG MSH (in/h)	CLG SENS (in/h)	LAT DB (Deg F)	MAT HTG WB (Deg F)	HTG MSH (in/h)	MIN HTG AFUE	GAS HTG IN (in/h)	GAS HTG OUT (in/h)	MIN GAS PRESSURE (in WC)	MAX GAS PRESSURE (in WC)	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT	ACCESSORIES		
RTU1	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LG0104UE	12.2	4395	0.5	0	12.5	76	64	109	91	55	54	70	60	80	130	104	7	14	NO	RTU1-480V/3PH, 29 MCA, 3SA OCP	1469	3.4,10	
RTU2	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LG0104UE	12.2	4395	0.5	0	12.5	76	64	109	91	55	54	70	60	80	130	104	7	14	NO	RTU2-480V/3PH, 29 MCA, 3SA OCP	1469	3.4,10	
RTU3	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LG0104UE	12.2	4395	0.5	0	12.5	76	64	109	91	55	54	70	60	80	130	104	7	14	NO	RTU3-480V/3PH, 29 MCA, 3SA OCP	1469	3.4,10	
RTU4	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LG0104UE	12.2	4395	0.5	0	12.5	76	64	109	91	55	54	70	60	80	130	104	7	14	NO	RTU4-480V/3PH, 29 MCA, 3SA OCP	1469	3.4,10	
RTU5	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LG0104UE	12.2	4395	0.5	0	12.5	76	64	109	91	55	54	70	60	80	130	104	7	14	NO	RTU5-480V/3PH, 29 MCA, 3SA OCP	1469	3.4,10	
RTU6	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LG0104UE	12.2	4395	0.5	0	12.5	76	64	109	91	55	54	70	60	80	130	104	7	14	NO	RTU6-480V/3PH, 29 MCA, 3SA OCP	1469	3.4,10	
RTU7	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LG0104UE	12.2	4395	0.5	0	12.5	76	64	109	91	55	54	70	60	80	130	104	7	14	NO	RTU7-480V/3PH, 29 MCA, 3SA OCP	1469	3.4,10	
RTU8	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LG0104UE	12.2	4395	0.5	0	12.5	76	64	109	91	55	54	70	60	80	130	104	7	14	NO	RTU8-480V/3PH, 29 MCA, 3SA OCP	1469	3.4,10	
RTU9	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LG0104UE	12.2	4395	0.5	0	12.5	76	64	109	91	55	54	70	60	80	130	104	7	14	NO	RTU9-480V/3PH, 29 MCA, 3SA OCP	1469	3.4,10	
RTU10	PACKAGED ROOFTOP UNIT, GAS HEAT	PHARMACY	NEW	1319	LENNOX	LG0104UE	12.5	4100	0.5	0	12.5	76	64	111	96	55	54	81	103	80	130	104	7	14	NO	RTU10-480V/3PH, 24 MCA, 3SA OCP	1016	3.4,10	
RTU11	PACKAGED ROOFTOP UNIT, GAS HEAT	SALES	NEW	1363	LENNOX	LG0104UE	12.2	4395	0.5	0	12.5	76	64	109	91	55	54	70	60	80	130	104	7	14	NO	RTU11-480V/3PH, 29 MCA, 3SA OCP	1469	3.4,10	
RTU12	PACKAGED ROOFTOP UNIT, GAS HEAT	BAKERY	NEW	997	LENNOX	LG0104UE	12.5	3700	0.5	0	12.5	76	64	111	96	55	54	81	103	80	130	104	7	14	NO	RTU12-480V/3PH, 13 MCA, 3SA OCP	413	2.3,4,10,22,24	
RTU13	PACKAGED ROOFTOP UNIT, GAS HEAT	BACKROOM	NEW	1319	LENNOX	LG0104UE	12.5	4100	0.5	0	12.5	76	64	111	96	55	54	81	103	80	130	104	7	14	NO	RTU13-480V/3PH, 24 MCA, 3SA OCP	1016	3.4,10	
RTU14	PACKAGED ROOFTOP UNIT, GAS HEAT	BACKROOM	NEW	1319	LENNOX	LG0104UE	12.5	4100	0.5	0	12.5	76	64	111	96	55	54	81	103	80	130	104	7	14	NO	RTU14-480V/3PH, 24 MCA, 3SA OCP	1016	3.4,10	
RTU15	PACKAGED ROOFTOP UNIT, GAS HEAT	DOCK	NEW	1363	LENNOX	LG0104UE	12.5	4100	0.5	0	12.5	76	64	111	96	55	54	81	103	80	130	104	7	14	NO	RTU15-480V/3PH, 24 MCA, 3SA OCP	1016	3.4,10	
RTU16	PACKAGED ROOFTOP UNIT, GAS HEAT	OFFICES	NEW	1363	LENNOX	LG0104UE	12.5	4100	0.5	0	12.5	76	64	111	96	55	54	81	103	80	130	104	7	14	NO	RTU16-480V/3PH, 24 MCA, 3SA OCP	1016	3.4,10	
RTU17	PACKAGED ROOFTOP UNIT, GAS HEAT	OFFICES	NEW	1386	LENNOX	LG0104UE	12.5	4100	0.5	0	12.5	76	64	111	96	55	54	81	103	80	130	104	7	14	NO	RTU17-480V/3PH, 24 MCA, 3SA OCP	1016	3.4,10	
RTU18	PACKAGED ROOFTOP UNIT, GAS HEAT	VESTIBULE	NEW	1386	LENNOX	LG0104UE	12.5	4100	0.5	0	12.5	76	64	111	96	55	54	81	103	80	130	104	7	14	NO	RTU18-480V/3PH, 24 MCA, 3SA OCP	1016	3.4,10	
RTU19	PACKAGED ROOFTOP UNIT, GAS HEAT	VESTIBULE	NEW	1386	LENNOX	LG0104UE	12.5	4100	0.5	0	12.5	76	64	111	96	55	54	81	103	80	130	104	7	14	NO	RTU19-480V/3PH, 24 MCA, 3SA OCP	1016	3.4,10	

HVAC ACCESSORIES

- ACCESSORIES:
- MOTOR DAMPER
 - ECONOMIZER
 - ROOF CURB
 - HAIL GUARDS
 - INTAKE HOOD
 - VIBRATION ISOLATION
 - FLAT FILTER
 - FLITERMIXING BOX
 - ACCESS DOOR
 - FLEX CONNECTIONS
 - FLAT FILTER
 - FLATERMIXING BOX
 - FACE BYPASS DAMPER
 - CONDENSATE PUMP
 - MOUNTING COLLAR
 - GAS BYPASS
 - DUCT FLANGES
 - ECON BAROMETRIC RELIEF
 - HUMIDITROL
 - CO2 SENSORS
 - ECON POWERED EXHAUST
 - ECON BAROMETRIC RELIEF
 - HOT GAS REHEAT COIL
 - DUCT SMOKE DETECTOR

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	EIA CFM	ESP (in WC)	FAN RPM (rpm)	BSP (hp)	HP (hp)	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
EF-1	CENTRIFUGAL ROOF VENTILATOR	CUSTOMER PRRS	NEW	54	CAPTIVE AIRE	DRSHFA	NO	700	0.5	154	0.25	0.25	EF-1-120V/1PH, 0.25HP, 3.8A FLA, 250	2117
EF-2	CENTRIFUGAL ROOF VENTILATOR	TLC	NEW	53	CAPTIVE AIRE	DRSHFA	NO	800	0.4	1174	0.07	0.18	EF-2-120V/1PH, 0.18HP, 3.8A FLA, 813	813
EF-3	CENTRIFUGAL ROOF VENTILATOR	EMPLOYEE PRRS	NEW	64	CAPTIVE AIRE	DRSHFA	NO	500	0.5	1278	0.13	0.25	EF-3-120V/1PH, 0.25HP, 3.8A FLA, 993	993
EF-4	UPBLAST PROPELLER ROOF FAN	DELI/DOCK	NEW	164	CAPTIVE AIRE	DRSHFA	NO	2400	1.25	1194	1.04	1.04	EF-4-208V/3PH, 2.9HP, 6.6A FLA, 1588	1588
EF-5	CENTRIFUGAL ROOF VENTILATOR	ELECTRICAL	NEW	64	CAPTIVE AIRE	DRSHFA	NO	800	0.4	1426	0.17	0.18	EF-5-120V/1PH, 0.25HP, 3.8A FLA, 1534	1534
EF-6	CENTRIFUGAL ROOF VENTILATOR	ELECTRICAL	NEW	64	CAPTIVE AIRE	DRSHFA	NO	800	0.4	1426	0.17	0.18	EF-6-120V/1PH, 0.25HP, 3.8A FLA, 1534	1534
EF-7	CENTRIFUGAL ROOF VENTILATOR	SEAFOOD	NEW	64	CAPTIVE AIRE	DRSHFA	NO	700	0.4	1311	0.13	0.25	EF-7-120V/1PH, 0.25HP, 3.8A FLA, 1534	1534
EF-8	CENTRIFUGAL ROOF VENTILATOR	CLEANING CENTER	NEW	47	CAPTIVE AIRE	DRSHFA	NO	200	0.3	1290	0.04	0.06	EF-8-120V/1PH, 0.06HP, 3.1A FLA, 1078	1078
EF-9	UPBLAST PROPELLER ROOF FAN	BAKERY OVEN	NEW	79	CAPTIVE AIRE	DUSHFA	NO	600	0.5	1282	1.19	0.31	EF-9-120V/1PH, 0.31HP, 5.6A FLA, 1022	1022
EF-10	UPBLAST PROPELLER ROOF FAN	BAKERY OVEN	NEW	79	CAPTIVE AIRE	DUSHFA	NO	600	0.5	1282	1.19	0.33	EF-10-120V/1PH, 0.33HP, 5.6A FLA, 1022	1022
HVLS-1	HIGH VOLUME LOW SPEED FAN	DOCK	NEW	20	CANARAM	CP48	NO	7370	0	0	0	0	HVLS-1-120V/1PH, 0.6A FLA, 625	625
HVLS-2	HIGH VOLUME LOW SPEED FAN	DOCK	NEW	20	CANARAM	CP48	NO	7370	0	0	0	0	HVLS-2-120V/1PH, 0.6A FLA, 625	625

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 MSH (in/h)	CLG SENS (in/h)	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
DS-1	DUCTLESS SPLIT INDOOR UNIT	EQR	NEW	CU-1	51	MITSUBISHI	TRPA006	755	0.5	3	15	15	NO	DS-1-208V/1PH, 1 MCA	2117

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 MSH (in/h)	CLG SENS (in/h)	EMERGENCY	ELECTRIC CONNECTION SUMMARY	AVAILABLE FAULT CURRENT
CU-1	AIR SOURCE OUTDOOR CONDENSING UNIT	NEW	198	21.2	MITSUBISHI	TRU0406	18.8	3	15	15	NO	CU-1-208V/1PH, 25 MCA, 3SA OCP	2117

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	MUH04-4	NO	UH-1-480V/3PH, 7.5 KW RTLS, BA FLA, 1189	1189
UH-2	ELECTRIC UNIT HEATER	VESTIBULE 2	NEW	40	QMARK	MUH04-4	NO	UH-2-480V/3PH, 7.5 KW RTLS, BA FLA, 688	688

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

EQUIPMENT MARK	CROOF	CWALL	CPART	CGLASS	CSOLAR	CLIGHTS	CEQUIP	CPSENS	CSSENS	CFAN	COAS	CTSENS	CPCLAT	COAL	CTLAT	CTOT	PROOF	HVALL	HPART	HGLASS	HSLAB	HSPACE	HQA	HTOT	
CU-1	0.2	1.1	0	0	0	0.5	17	2.1	0.1	2.1	0.1	2.1	0.1	2.1	0.1	2.1	0.1	2.1	0.1	2.1	0.1	2.1	0.1	2.1	
DS-1	0.2	1.1	0	0	0	0.5	17	2.2	0.1	2.2	0.1	2.2	0.1	2.2	0.1	2.2	0.1	2.2	0.1	2.2	0.1	2.2	0.1	2.2	
RTU-1	21.4	0.6	0	0	0	46.1	3	29.6	99.9	5	0	99.7	28.6	0	23.4	123.1	34.1	1.7	0	0	0	13.6	49.5	0	49.5
RTU-2	21.1	0	0	0	0	44.6	0.8	29.5	86.2	4.6	0	86.3	20.7	0	19.3	103.3	24.7	0	0	0	0	16.7	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	0	8.8	31.5	0	31.5
RTU-4	19.4	0	0	0	0	32.6	0.8	21.5	70.6	3.7	0	74.4	20.7	0	20.7	95.1	22.7	0	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	0	9.2	33.3	0	33.3
RTU-6	16.2	0	0	0	0	34.2	0.8	21.5	73	3.9	0	76.9	20.7	0	20.7	97.6	25.9	0	0	0	0	10	35.9	0	35.9
RTU-7	17.2	0	0																						