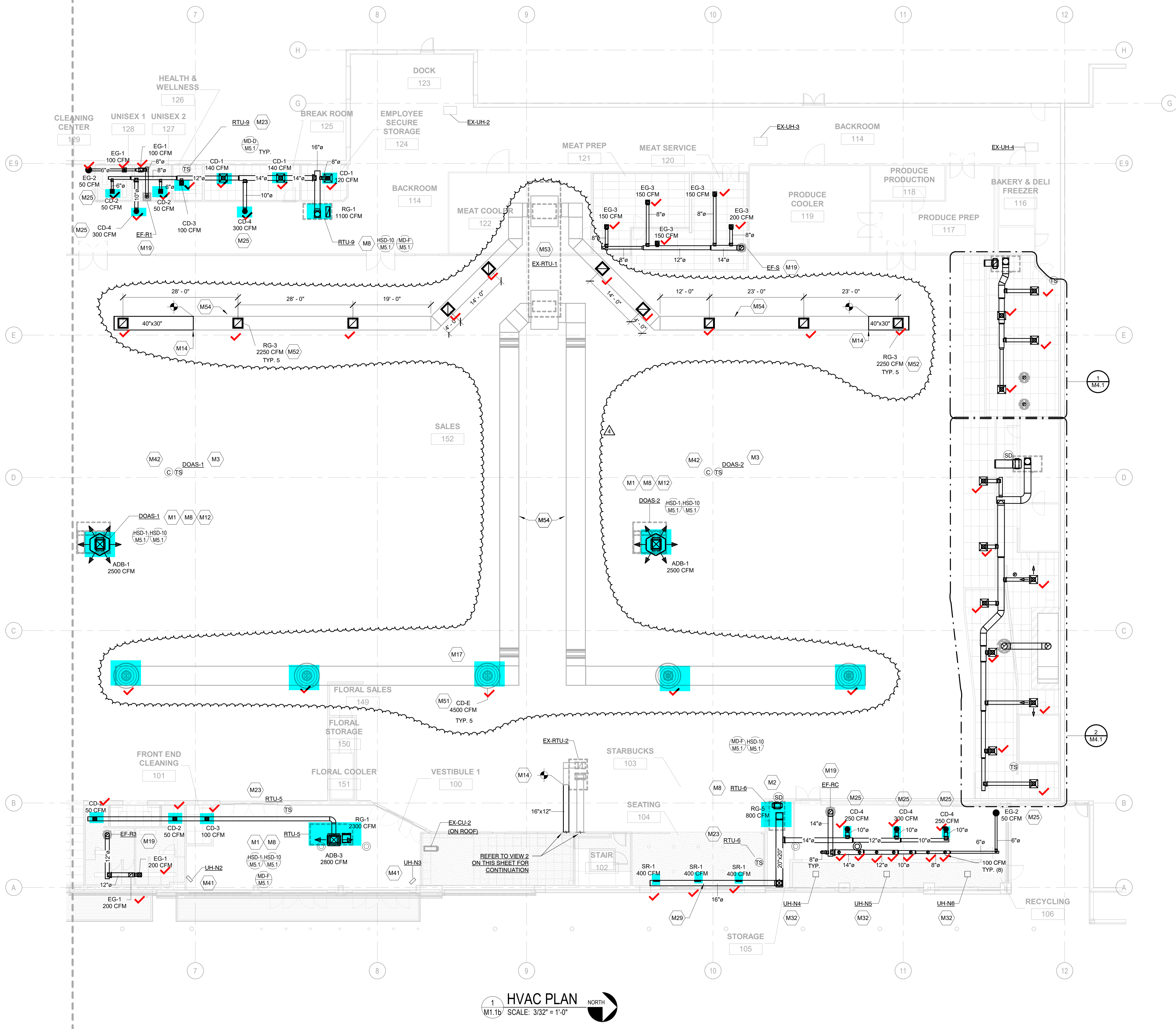
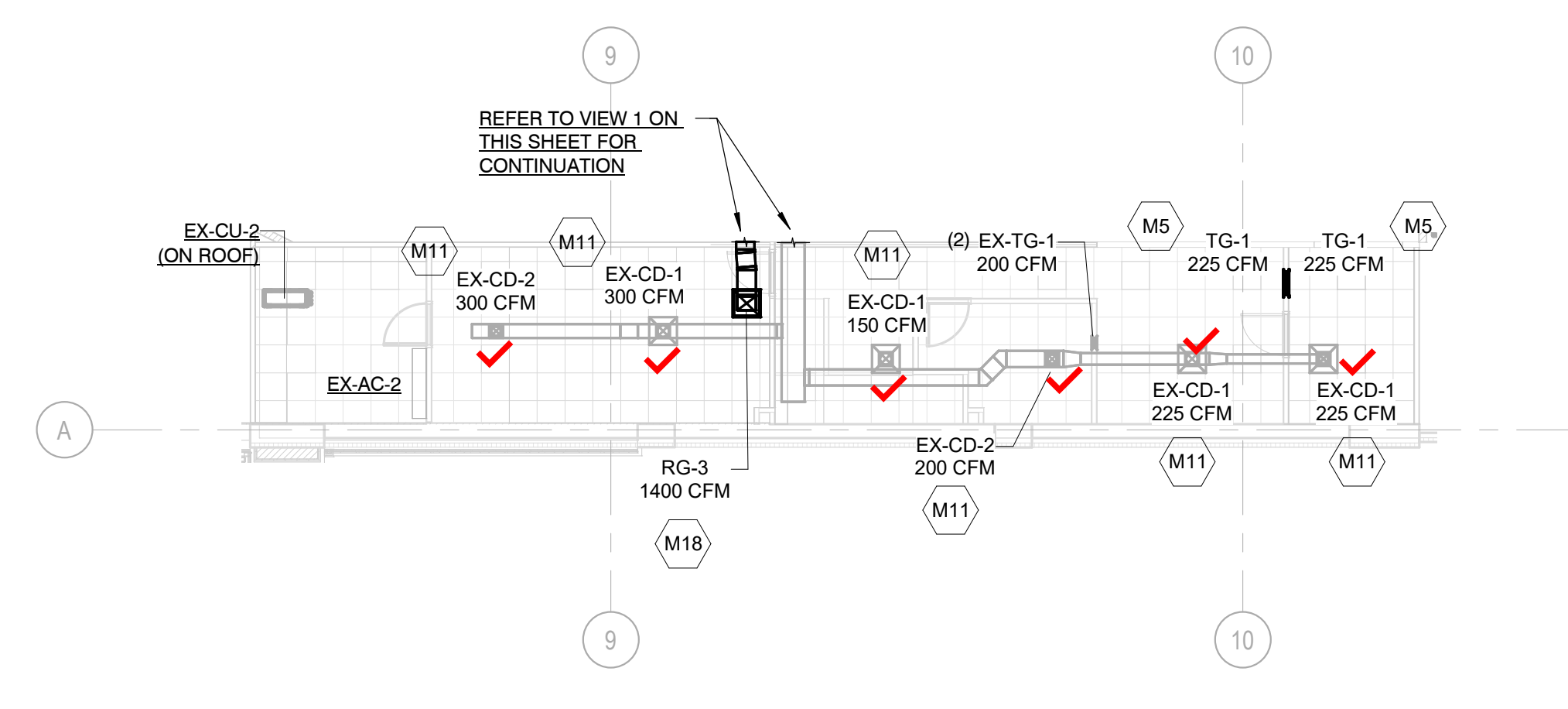


MATCHLINE  
M1.1a



1 HVAC PLAN  
M1.1b SCALE: 3/32" = 1'-0"



2 HVAC MEZZANINE PLAN  
M1.1b SCALE: 3/32" = 1'-0"

**KEYNOTE LEGEND**

NUMBER	KEYNOTE
M1	DROP BOX DIFFUSER SYSTEM. REFER TO DIFFUSER SCHEDULE FOR ASES MODEL NUMBERS AND QUANTITIES. REFER TO PLANS FOR THROW DIRECTIONS AND CFM.
M2	INSTALL SMOKE DETECTOR IN THE RETURN DUCTWORK DOWNSTREAM OF FILTERS AND UPSTREAM OF ANY BRANCH CONNECTIONS. TO BE INSTALLED PER MMC 606.3. INSTALL SAMPLING TUBES(S) AND DETECTOR HOUSING IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. DETECTOR/FAN SHUTDOWN WIRING AND CONTROLS BY OTHERS - PER MMC 606.12.3.4
M3	TEMPERATURE SENSOR FOR ROOF MOUNTED RTU FURNISHED BY CONTROL PROVIDER. ROUTE CONTROL WIRING THROUGH RTU AND BACK TO BUILDING CONTROL PANEL. MOUNT SENSOR 7'-6" AFF ON COLUMN. COORDINATE LOCATION WITH KROGER EQUIPMENT AND FURNISHINGS. PROVIDE LOCKABLE PROTECTIVE COVER OVER DEVICE.
M5	INSTALL TRANSFER GRILLE IN WALL. COORDINATE FINAL MOUNTING HEIGHTS WITH OWNER AND ARCHITECT.
M8	REFER TO ARCHITECTURAL ROOF PLAN FOR HVAC ROOFTOP DIMENSIONAL INFORMATION. REFER TO STRUCTURAL DRAWINGS FOR POST AND BEAM LOCATIONS AND DIMENSIONAL INFORMATION.
M11	LAY-IN EXISTING DIFFUSERS INTO NEW CEILING AS NECESSARY. CFM VALUES SHOWN ARE BASED ON EXISTING INFORMATION AT TIME OF DESIGN. CONTRACTOR TO VERIFY AND CONFIRM.
M12	REFER TO SHEETS M5.7 AND M5.8 FOR DETAILED INFORMATION REGARDING DOAS UNIT, INCLUDING SCHEDULES.
M14	CONNECT TO EXISTING DUCT AS INDICATED. MATCH EXISTING SIZE. SIZE SHOWN IS BASED ON EXISTING INFORMATION AVAILABLE AT TIME OF DESIGN. CONTRACTOR TO VERIFY AND CONFIRM. PROVIDE BALANCE DAMPER TRANSISTONS, ORSETS, ETC. FOR FULLY FUNCTIONAL, BALANCED SYSTEM.
M17	WIPE DOWN AND CLEAN ALL NEW AND EXISTING AIR DEVICES TO REMAIN. FIELD VERIFY EXACT QUANTITY. SCOPE OF WORK INCLUDES ALL AIR DEVICES IN FACILITY, INCLUDING AREAS NOTED AS EXISTING TO REMAIN OR NO SCOPE. NEW RETURN GRILLE TO SERVE ENTIRE MEZZANINE SPACE. CFM VALUE SHOWN IS BASED ON EXISTING INFORMATION AVAILABLE AT TIME OF DESIGN. BALANCE SYSTEM AND ADJUST AS NECESSARY.
M19	EXTEND FULL SIZE DUCTWORK (CURB SIZE) UP THROUGH ROOF AND SEAL OPENING AIRTIGHT. REFER TO SHEETS M5.4 AND M5.5 FOR DETAILED INFORMATION REGARDING EXHAUST FANS, INCLUDING SCHEDULES.
M23	TEMPERATURE SENSOR FOR ROOF MOUNTED RTU FURNISHED BY CONTROL PROVIDER. ROUTE CONTROL WIRING THROUGH RTU AND BACK TO BUILDING CONTROL PANEL. MOUNT SENSOR A MINIMUM OF 4'-0" AFF ON WALL. COORDINATE LOCATION WITH KROGER EQUIPMENT AND FURNISHINGS. PROVIDE LOCKABLE PROTECTIVE COVER OVER DEVICE.
M25	DIFFUSER/GRILLE TO BE INSTALLED 10" AFF.
M29	MODIFY EXISTING CHASE AS NECESSARY FOR NEW DUCT RUN AND SUPPLY DIFFUSERS.
M32	CEILING MOUNTED HEATER. VERIFY LOCATION AND REQUIREMENTS WITH OWNER. CONTRACTOR TO INSTALL PER MANUFACTURER'S SPECIFIC INSTALLATION INSTRUCTIONS. REFER TO SHEET M5.1 FOR MORE INFORMATION. SUSPENDED ELECTRIC HEATER USING THREADED ROD TO UNISTRUT CHANNEL OR APPROVED EQUAL. MOUNT 12'-0" AFF TO BOTTOM OF UNIT. VERIFY LOCATION AND REQUIREMENTS WITH OWNER. REFER TO M5.1 FOR MORE INFORMATION.
M41	DOOR SENSOR FOR SALES FLOOR TO BE MOUNTED 7'-6" AFF ON COLUMN.
M42	REBALANCE EXISTING SUPPLY DIFFUSER AS INDICATED.
M43	PROVIDE RETURN GRILLE MOUNT TO RETURN DUCT. REFER TO SCHEDULE.
M44	REBALANCE EXISTING ROOFTOP UNIT. REFER TO OUTSIDE AIR SCHEDULE AND BUILDING AIR BALANCE SCHEDULE.
M45	PAINT SUPPLY AND RETURN MAINS AND AIR DEVICES. COORDINATE WITH KROGER REPRESENTATIVE FOR FINISH REQUIREMENTS.

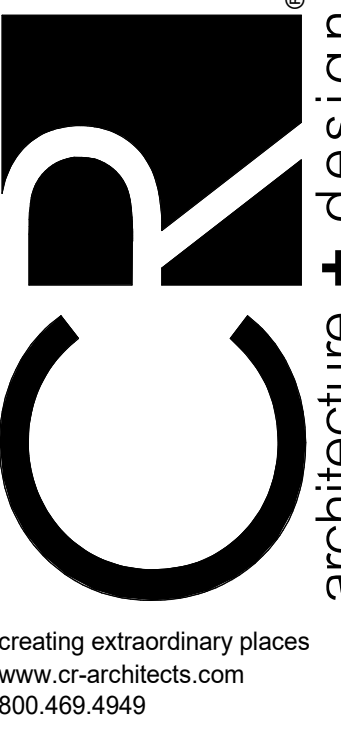
**GENERAL NOTES**

A.	REFER TO ABBREVIATIONS, SYMBOLS AND NOTES DRAWING M0.1 FOR HVAC GENERAL NOTES.
B.	WHERE SMOKE DETECTORS ARE INSTALLED MORE THAN 10 FEET ABOVE THE FINISHED FLOOR OR IN ARRANGEMENT WHERE THE DETECTOR'S ALARM OR SUPERVISORY INDICATOR IS NOT VISIBLE TO RESPONDING PERSONNEL, THE DETECTOR SHALL BE PROVIDED WITH REMOTE ALARM OR SUPERVISORY INDICATOR IN A LOCATION ACCEPTABLE TO AUTHORITY HAVING JURISDICTION. PROVIDE AN LED INDICATOR LIGHT ON CEILING BENEATH EACH HVAC UNIT THAT IS EQUIPPED WITH A SMOKE DETECTOR WHEN ACTIVATION LIGHT IS NOT VISIBLE FROM BELOW.
C.	COORDINATE ALL WORK WITH THE KROGER PROJECT MANAGER AND GENERAL CONTRACTOR FOR EXPANSION REMODEL PHASING. REFER TO THE KROGER PHASING PLAN ON G1.1 PROVIDED IN THE ARCHITECTURAL PLANS FOR ADDITIONAL REQUIREMENTS.

EXECUTED BY: TDS  
REVIEWED BY: JCL

PROJECT TITLE  
KROGER STORE  
D615

COMMISSION NO. 521342  
ISSUE DATE 10/27/2021  
SHEET TITLE HVAC PLAN



CONSULTANTS

OWNER



DATE ISSUE

DATE REVISION

1	12/07/2021	ADDENDUM NO. 2
2	01/03/2022	ADDENDUM NO. 4
3	01/04/2022	BALLETIN NO. 4
4	03/10/2023	BALLETIN NO. 6

PROJECT TITLE  
KROGER STORE  
D615

33523 Eight Mile Rd.  
Livonia, MI 48152

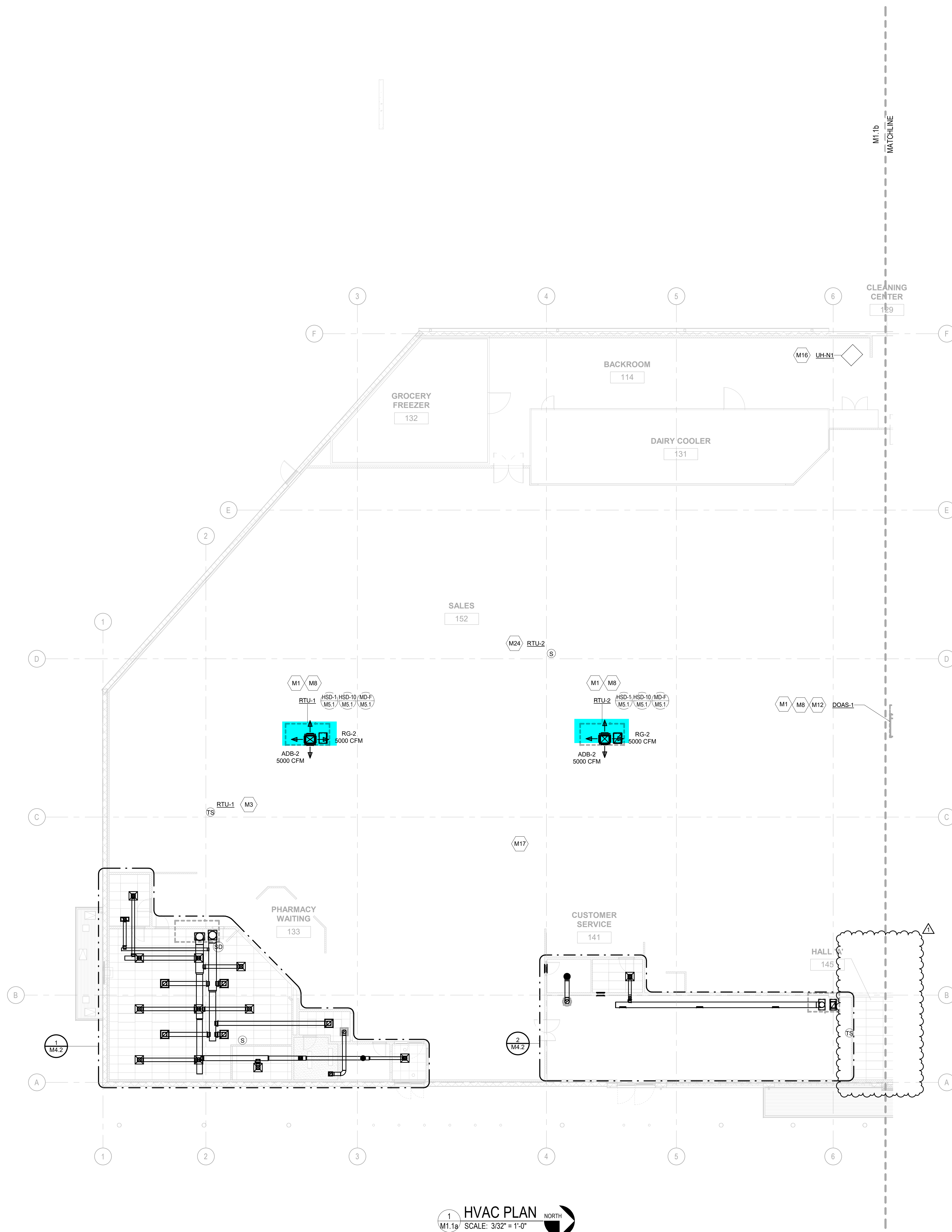
COMMISSION NO. 521342  
ISSUE DATE 10/27/2021  
SHEET TITLE HVAC PLAN

SHEET NO.

**M1.1b**

© 2021 Colliers Architectural, Inc.

THIS DOCUMENT IS THE PROPERTY OF COLLIERS ARCHITECTS, INC. NEITHER THE DOCUMENT NOR THE INFORMATION IT CONTAINS MAY BE COPIED OR USED FOR OTHER THAN THE SPECIFIC PROJECT FOR WHICH IT WAS PREPARED WITHOUT THE EXPRESS WRITTEN CONSENT OF COLLIERS ARCHITECTS, INC.  
3/20/23 1:52:23 PM



1 HVAC PLAN  
M1.1a SCALE: 3/32" = 1'-0" NORTH

KEYNOTE LEGEND	
NUMBER	KEYNOTE
M1	DROP BOX DIFFUSER SYSTEM. REFER TO DIFFUSER SCHEDULE FOR AES MODEL NUMBERS AND QUANTITIES. REFER TO PLANS FOR THROW DIRECTIONS AND CFM.
M3	TEMPERATURE SENSOR FOR ROOF MOUNTED RTU FURNISHED BY CONTROL PROVIDER. ROUTE CONTROL WIRING THROUGH RTU AND BACK TO BUILDING CONTROL PANEL. MOUNT SENSOR 7'-6" AFF ON COLUMN. COORDINATE LOCATION WITH KROGER EQUIPMENT AND FURNISHINGS. PROVIDE LOCKABLE PROTECTIVE COVER OVER DEVICE.
M8	REFER TO ARCHITECTURAL ROOF PLAN FOR HVAC ROOFTOP DIMENSIONAL INFORMATION. REFER TO STRUCTURAL DRAWINGS FOR JOIST AND BEAM LOCATIONS AND DIMENSIONAL INFORMATION.
M12	REFER TO SHEETS M5.7 AND M5.8 FOR DETAILED INFORMATION REGARDING DOAS UNIT, INCLUDING SCHEDULES.
M16	GAS FIRED UNIT HEATER. ROUTE CONTROL WIRING BACK TO BUILDING CONTROL PANEL. PROVIDE CONCENTRIC VENT UP THROUGH ROOF. MOUNT UNIT PER MANUFACTURER'S GUIDELINES. ROUTE CONDENSATE TO NEAREST HUB DRAIN. MAINTAIN ALL MANUFACTURER AND CODE REQUIRED CLEARANCES.
M17	WIFE DOWN AND CLEAN ALL NEW AND EXISTING AIR DEVICES TO REMAIN. FIELD VERIFY EXACT QUANTITY. SCOPE OF WORK INCLUDES ALL AIR DEVICES IN FACILITY, INCLUDING AREAS NOTED AS EXISTING TO REMAIN OR NO SCOPE.
M24	COMBINATION RELATIVE HUMIDITY/TEMPERATURE SENSOR TO BE MOUNTED 7'-6" AFF AND, IN THE CASE OF RTU-2, USED FOR CYCLING ANTI-SWEAT CASE HEATERS AND HVAC HUMIDITY CONTROL.

GENERAL NOTES	
A.	REFER TO ABBREVIATIONS, SYMBOLS AND NOTES DRAWING M0.1 FOR HVAC GENERAL NOTES.
B.	WHERE SMOKE DETECTORS ARE INSTALLED MORE THAN 10 FEET ABOVE THE FINISHED FLOOR OR IN ARRANGEMENT WHERE THE DETECTOR'S ALARM OR SUPERVISORY INDICATOR IS NOT VISIBLE TO RESPONDING PERSONNEL, THE DETECTOR SHALL BE PROVIDED WITH REMOTE ALARM OR SUPERVISORY INDICATOR IN A LOCATION ACCEPTABLE TO AUTHORITY HAVING JURISDICTION. PROVIDE AN LED INDICATOR LIGHT ON CEILING BENEATH EACH HVAC UNIT THAT IS EQUIPPED WITH A SMOKE DETECTOR WHEN ACTIVATION LIGHT IS NOT VISIBLE FROM BELOW.
C.	COORDINATE ALL WORK WITH THE KROGER PROJECT MANAGER AND GENERAL CONTRACTOR FOR EXPANSION/REMODEL PHASING. REFER TO THE KROGER PHASING PLAN ON G1.1 PROVIDED IN THE ARCHITECTURAL PLANS FOR ADDITIONAL REQUIREMENTS.

EXECUTED BY: TDS  
REVIEWED BY: JCL

TF 800.469.4949  
P 513.721.8080  
F 972.258.4675  
TF 800.469.4949  
TF 800.469.4949

CHICAGO  
CINCINNATI  
DALLAS  
DETROIT  
SEATTLE



creating extraordinary places  
www.cr-architects.com  
800.469.4949

CONSULTANTS

OWNER



DATE ISSUE

DATE REVISION

1 01/03/2022 ADDENDUM NO. 4

PROJECT TITLE

KROGER STORE  
D615

33523 Eight Mile Rd.  
Livonia, MI 48152

COMMISSION NO. 521342

ISSUE DATE 10/27/2021

SHEET TITLE

HVAC PLAN

SHEET NO.

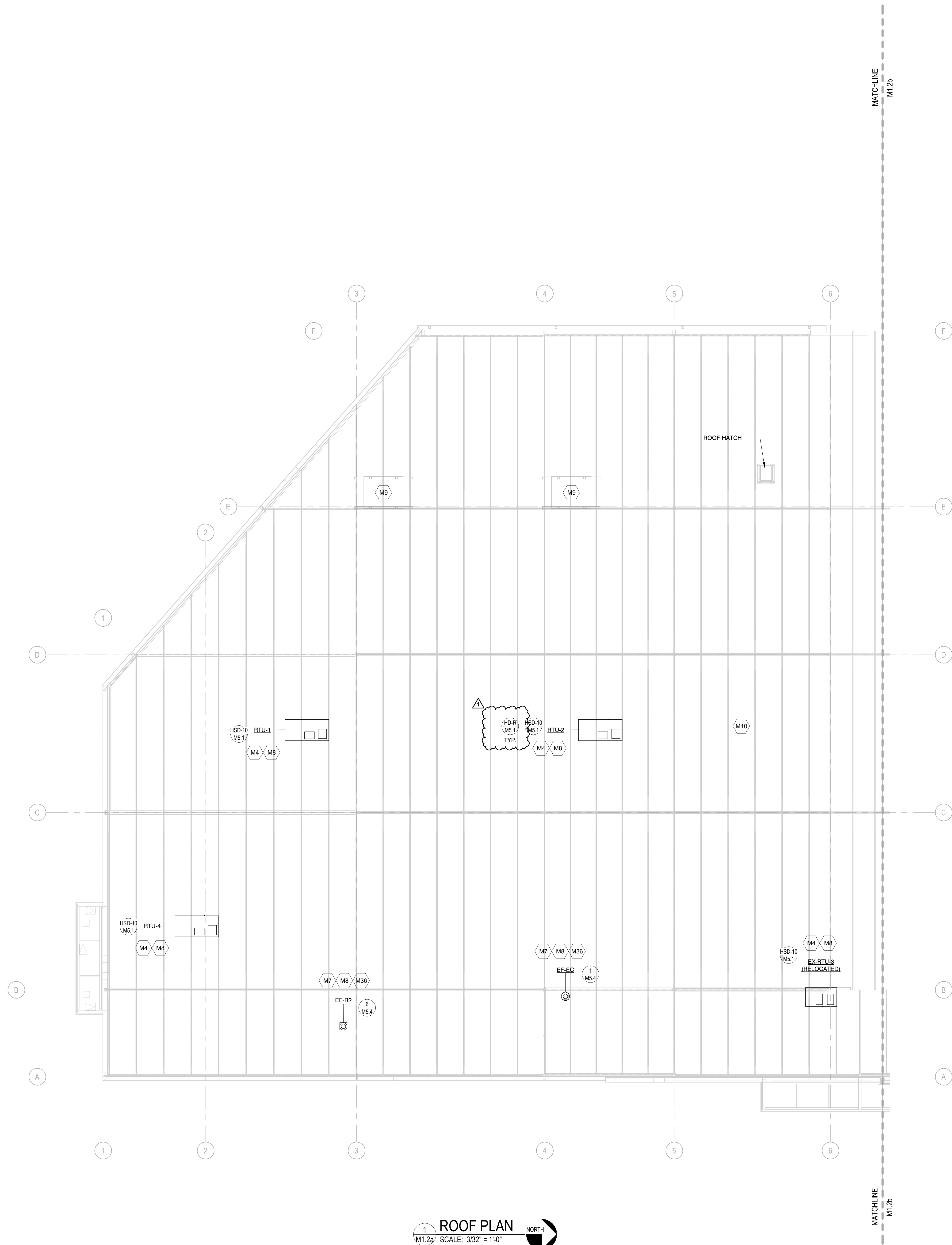
M1.1a

© 2021 Colliers-Russell Architects, Inc.

THIS DOCUMENT IS THE PRODUCT AND EXCLUSIVE PROPERTY OF COLLIERS-RUSSELL ARCHITECTS, INC. NEITHER THE DOCUMENT NOR THE INFORMATION IT CONTAINS MAY BE COPIED OR USED FOR OTHER THAN THE SPECIFIC PROJECT FOR WHICH IT WAS PREPARED WITHOUT THE EXPRESS WRITTEN CONSENT OF COLLIERS-RUSSELL ARCHITECTS, INC.  
10/2022 3:10:26 PM

THIS DOCUMENT IS THE PRODUCT AND EXCLUSIVE PROPERTY OF COLERUSSEL ARCHITECTS, INC. NEITHER THE DOCUMENT NOR THE INFORMATION IT CONTAINS MAY BE COPIED OR USED FOR OTHER THAN THE SPECIFIC PROJECT FOR WHICH IT WAS PREPARED WITHOUT THE EXPRESS WRITTEN CONSENT OF COLERUSSEL ARCHITECTS, INC.

12/27/2021 6:00:38 PM



**1** ROOF PLAN  
M1.2a SCALE: 3/32" = 1'-0" NORTH

KEYNOTE LEGEND	
NUMBER	KEYNOTE
M4	NEW PACKAGED ROOFTOP UNIT FURNISHED BY KROGER AND INSTALLED BY HC. REFER TO DRAWING M6.1 FOR UNIT REQUIREMENTS INCLUDING ROOF CURB INFORMATION. ROOF DUCTWORK PENETRATIONS TO BE FULL SIZE. SEAL AROUND OPENING AIR TIGHT. REFER TO PLUMBING DRAWINGS FOR NATURAL GAS REQUIREMENTS. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS.
M7	NEW ROOFTOP EXHAUST FAN FURNISHED BY KROGER AND INSTALLED BY HC. REFER TO HVAC DETAIL DRAWINGS AND DRAWING M6.1 FOR UNIT REQUIREMENTS. INCLUDING ROOF CURB INFORMATION. ROOF PENETRATION TO BE FULL SIZE. SEAL AROUND OPENING AIR TIGHT. REFER TO ELECTRICAL DRAWINGS FOR POWER REQUIREMENTS.
M8	REFER TO ARCHITECTURAL ROOF PLAN FOR HVAC ROOFTOP DIMENSIONAL INFORMATION. REFER TO STRUCTURAL DRAWINGS FOR JOIST AND BEAM LOCATIONS AND DIMENSIONAL INFORMATION.
M9	NEW ROOFTOP REFRIGERATION EQUIPMENT. REFER TO REFRIGERATION DRAWINGS FOR UNIT LOCATIONS AND PIPE ROUTINGS PRIOR TO ANY WORK.
M10	STRUCTURAL STEEL SHOWN FOR REFERENCE ONLY. REFER TO STRUCTURAL DRAWINGS FOR DETAILED INFORMATION.
M36	INSTALL FLUES AND EXHAUST FANS A MINIMUM OF 10 FEET FROM OUTSIDE AIR INTAKE OF ROOFTOP UNITS.

EXECUTED BY: TDS  
REVIEWED BY: JCL

CHICAGO  
CINCINNATI  
DALLAS  
DETROIT  
SEATTLE

TF 800.469.4949  
P 512.721.8080  
F 972.259.4675  
TF 800.469.4949  
TF 800.469.4949

creating extraordinary places  
www.cr-architects.com  
800.469.4949

CONSULTANTS

OWNER

DATE ISSUE

DATE	REVISION
1 12/07/2021	ADDENDUM NO. 2

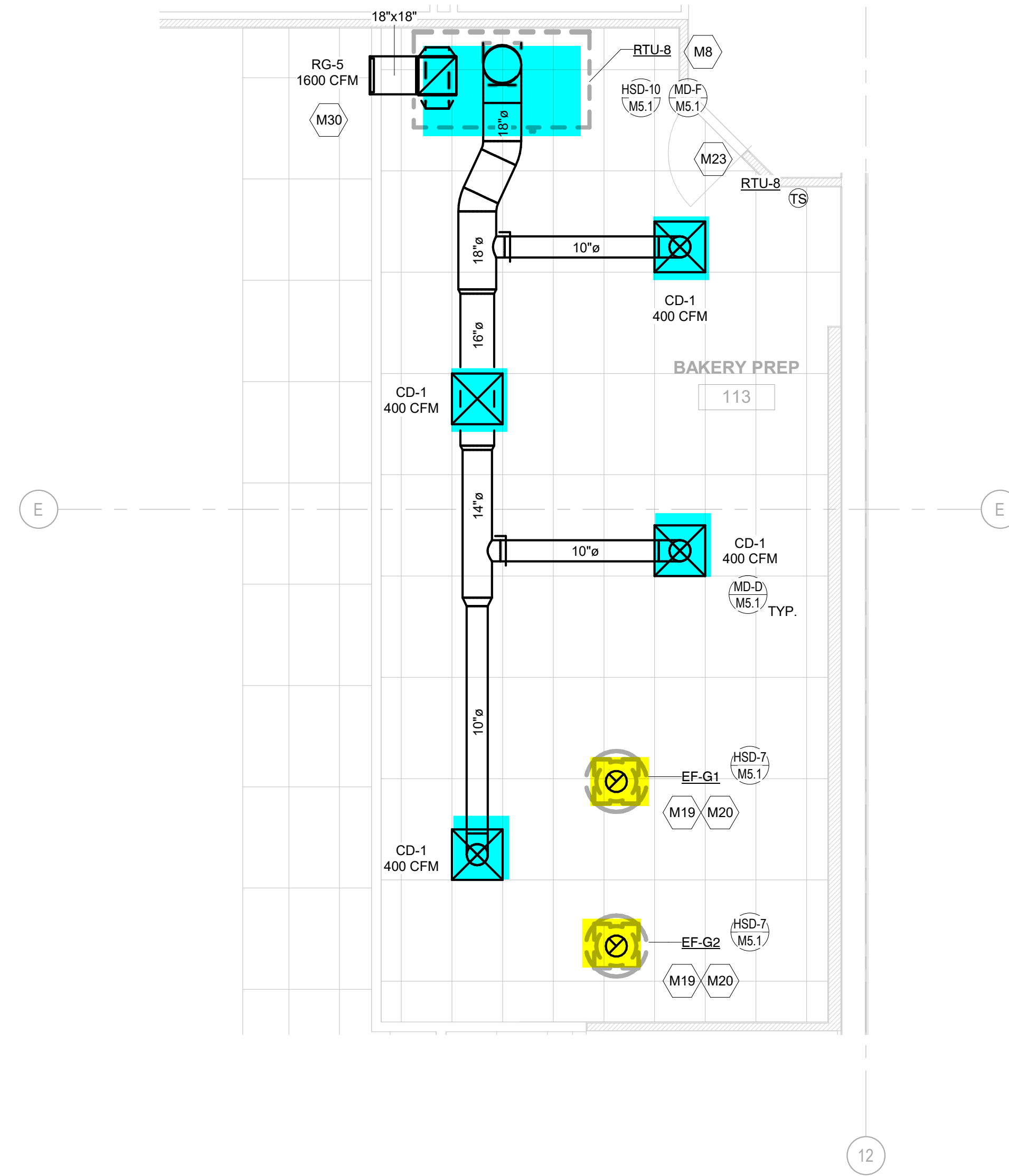
PROJECT TITLE  
**KROGER STORE D615**

33523 Eight Mile Rd.  
Livonia, MI 48152

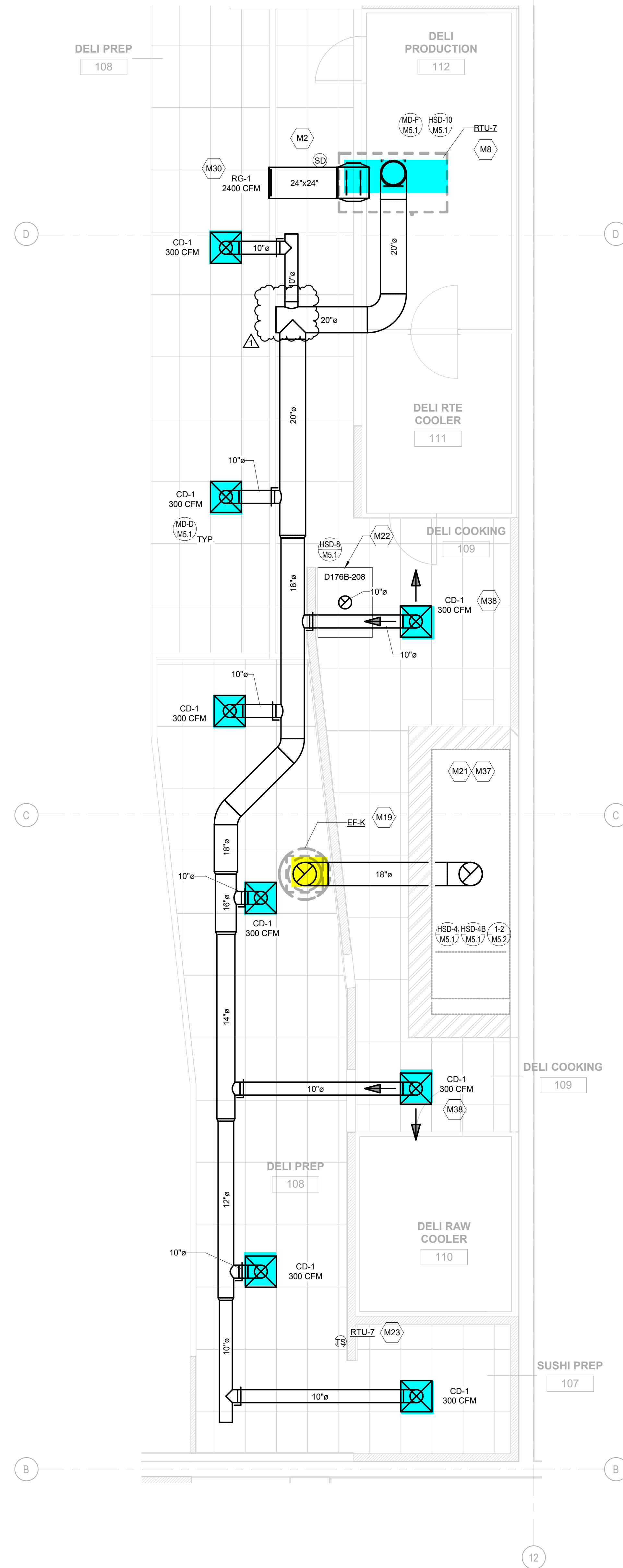
COMMISSION NO. 521342  
ISSUE DATE 10/27/2021  
SHEET TITLE  
**ROOF PLAN**

SHEET NO.  
**M1.2a**

© 2021 Colerussel Architects, Inc.



1  
M4.1  
HVAC ENLARGED PLAN  
SCALE: 1/4" = 1'-0"  
NORTH



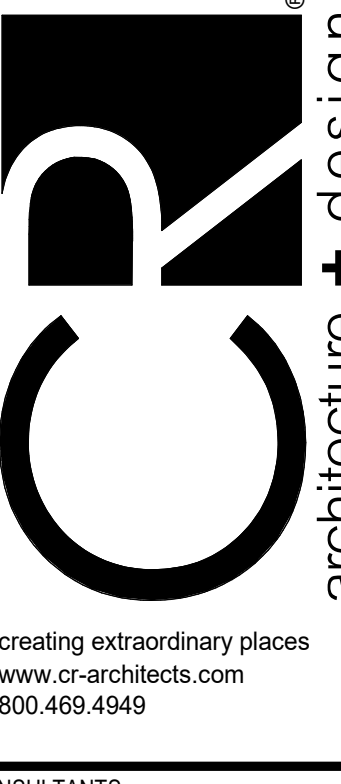
2  
M4.1  
HVAC ENLARGED PLAN  
SCALE: 1/4" = 1'-0"  
NORTH

KEYNOTE LEGEND	
NUMBER	KEYNOTE
M2	INSTALL SMOKE DETECTOR IN THE RETURN DUCTWORK DOWNSTREAM OF FILTERS AND UPSTREAM OF ANY BRANCH CONNECTIONS. TO BE INSTALLED PER IMC 606.3. INSTALL SAMPLING TUBES(S) AND DETECTOR HOUSING IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. DETECTOR FAN SHUTDOWN WIRING AND CONTROLS BY OTHERS - PER IMC 606.1.2.3.4
M8	REFER TO ARCHITECTURAL ROOF PLAN FOR HVAC ROOF TOP DIMENSIONAL INFORMATION. REFER TO STRUCTURAL DRAWINGS FOR JOIST AND BEAM LOCATIONS AND DIMENSIONAL INFORMATION.
M19	EXTEND FULL SIZE DUCTWORK (CURB SIZE) UP THROUGH ROOF AND SEAL OPENING AIRTIGHT. REFER TO SHEETS M6.4 AND M6.5 FOR DETAILED INFORMATION REGARDING EXHAUST FANS, INCLUDING SCHEDULES.
M20	VENT DUCT UP FROM OVER RACK VENT COLLAR THROUGH ROOF. DUCTS ARE ONLY TO BE OFFSET ABOVE CEILING T.I.E. DUCTS ARE TO BE STRAIGHT AND VERTICAL WHEN VISIBLE TO SALES FLOOR.
M21	GREASE DUCT FROM EXHAUST HOOD TO OPENING THROUGH ROOF PER NFPA 96. H.C. TO INSTALL PROVIDED HOME KIT. DUCTWRAP TO BE INSTALLED THE ENTIRE LENGTH OF GREASE DUCT FROM CEILING PENETRATION TO FAN.
M22	INSTALL LW-50 VENT KIT INCLUDED WITH UNIT AND SUPPLIED BY HOBART. H.C. TO CONNECT STAINLESS STEEL DUCT TO VENT KIT OPENING THROUGH ROOF.
M23	TEMPERATURE SENSOR FOR ROOF MOUNTED RTU FURNISHED BY CONTROL PROVIDER. ROUTE CONTROL WIRING THROUGH RTU AND BACK TO BUILDING CONTROL PANEL. MOUNT SENSOR A MINIMUM OF 4'-0" AFF ON WALL. COORDINATE LOCATION WITH KROGER EQUIPMENT AND FURNISHINGS. PROVIDE LOCKABLE PROTECTIVE COVER OVER DEVICE.
M30	INSTALL RETURN GRILLE 130" AFF. COORDINATE LOCATION WITH ARCHITECT AND WITH DECOR. LOCATION OF DECOR PAGES PRECEDENCE OVER LOCATION OF RETURN GRILLE.
M37	REMOTE MANUAL HOOD INSUL PULL STATION TO BE LOCATED IN THE MAIN PATH OF EGRESS. A MINIMUM OF 10 FEET AND A MAXIMUM OF 20 FEET FROM THE HOOD. MOUNTING HEIGHT SHOULD BE 42"-48" AFF. COORDINATE FINAL LOCATION WITH OWNER AND ARCHITECT. PROVIDE NAMEPLATE AT STATION WITH HOOD NUMBER AND LOCATION. REFER TO DETAIL SHEETS M2.3, M2.4, AND M2.5 FOR ADDITIONAL INFORMATION.
M38	DIFFUSER AROUND HOOD TO BE A 2-WAY DIFFUSER FACING AWAY FROM THE HOOD TO PREVENT INTERFERENCE WITH THE HOOD'S CONTAIN AND CAPTURE.

GENERAL NOTES	
A.	REFER TO ABBREVIATIONS, SYMBOLS AND NOTES DRAWING M0.1 FOR HVAC GENERAL NOTES.
B.	WHERE SMOKE DETECTORS ARE INSTALLED MORE THAN 10 FEET ABOVE THE FINISHED FLOOR OR IN ARRANGEMENT WHERE THE DETECTOR'S ALARM OR SUPERVISORY INDICATOR IS NOT VISIBLE TO RESPONDING PERSONNEL, THE DETECTOR SHALL BE PROVIDED WITH REMOTE ALARM OR SUPERVISORY INDICATOR IN A LOCATION ACCEPTABLE TO AUTHORITY HAVING JURISDICTION. PROVIDE AN LED INDICATOR LIGHT ON CEILING BENEATH EACH HVAC UNIT THAT IS EQUIPPED WITH A SMOKE DETECTOR WHEN ACTIVATION LIGHT IS NOT VISIBLE FROM BELOW.
C.	COORDINATE ALL WORK WITH THE KROGER PROJECT MANAGER AND GENERAL CONTRACTOR FOR EXPANSION REMODEL PHASING. REFER TO THE KROGER PHASING PLAN ON G1.1 PROVIDED IN THE ARCHITECTURAL PLANS FOR ADDITIONAL REQUIREMENTS.

EXECUTED BY: TDS  
REVIEWED BY: JCL

TEL: 800.469.4949  
P: 513.721.8080  
F: 972.258.4675  
T: 800.469.4949  
TF: 800.469.4949



CONSULTANTS

OWNER



DATE ISSUE

DATE REVISION

1 01/03/2022 ADDENDUM NO. 4

PROJECT TITLE  
KROGER STORE  
D615

33523 Eight Mile Rd.  
Livonia, MI 48152

COMMISSION NO. 521342

ISSUE DATE 10/27/2021

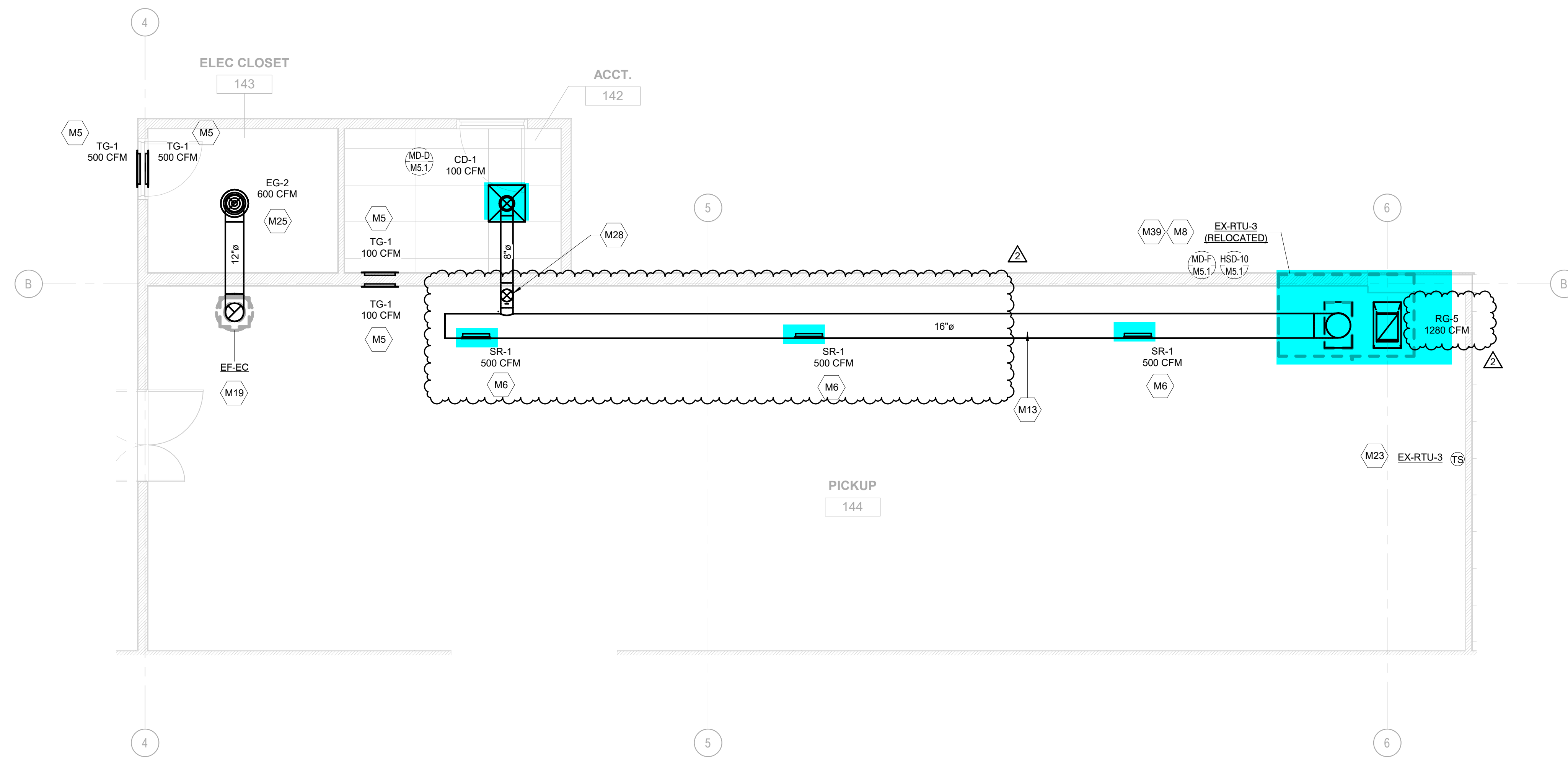
SHEET TITLE  
HVAC  
ENLARGED  
PLANS

SHEET NO.

M4.1

© 2021 Colliers Russell Architects, Inc.

THIS DOCUMENT IS THE PROPERTY OF COLLIERS RUSSELL ARCHITECTS, INC. NEITHER THE DOCUMENT NOR THE INFORMATION IT CONTAINS MAY BE COPIED OR USED FOR OTHER THAN THE SPECIFIC PROJECT FOR WHICH IT WAS PREPARED WITHOUT THE EXPRESS WRITTEN CONSENT OF COLLIERS RUSSELL ARCHITECTS, INC.  
10/2022 3:10:38 PM



2 HVAC ENLARGED PLAN  
M4.2 SCALE: 1/4" = 1'-0" NORTH

KEYNOTE LEGEND	
NUMBER	KEYNOTE
M2	INSTALL SMOKE DETECTOR IN THE RETURN DUCTWORK DOWNSTREAM OF FILTERS AND UPSTREAM OF ANY BRANCH CONNECTIONS. TO BE INSTALLED PER MMC 606.3. INSTALL SAMPLING TUBES(S) AND DETECTOR HOUSING IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. DETECTOR PAN SHUT/DOWN WIRING, AND CONTROLS BY OTHERS - PER MMC 606.1.2.3.4.
M5	INSTALL TRANSFER GRILLE IN WALL. COORDINATE FINAL MOUNTING HEIGHTS WITH OWNER AND ARCHITECT.
M6	SEER/WALL DIFFUSERS TO BE INSTALLED AT 45 DEGREES DOWNWARD.
M8	REFER TO ARCHITECTURAL ROOF PLAN FOR HVAC ROOFTOP DIMENSIONAL INFORMATION. REFER TO STRUCTURAL DRAWINGS FOR JOIST AND BEAM LOCATIONS AND DIMENSIONAL INFORMATION.
M13	DUCTWORK TO BE HELD TIGHT TO STRUCTURE.
M19	EXTEND FULL SIZE DUCTWORK (CURB SIZE) UP THROUGH ROOF AND SEAL OPENING AIRTIGHT. REFER TO SHEETS M5.4 AND M5.5 FOR DETAILED INFORMATION REGARDING EXHAUST FANS, INCLUDING SCHEDULES.
M23	TEMPERATURE SENSOR FOR ROOF MOUNTED RTU FURNISHED BY CONTROL PROVIDER. ROUTE CONTROL WIRING THROUGH RTU AND BACK TO BUILDING CONTROL PANEL. MOUNT SENSOR A MINIMUM OF 4'-0" AFF ON WALL. COORDINATE LOCATION WITH KROGER EQUIPMENT AND FURNISHINGS. PROVIDE LOCKABLE PROTECTIVE COVER OVER DEVICE.
M25	DIFFUSER/GRILLE TO BE INSTALLED 10'-0" AFF.
M28	DROP DUCT DOWN TO 11'-0" TO MINIMIZE VISIBILITY FROM THE SALES FLOOR.
M29	NEW LOCATION FOR RELOCATED ROOFTOP UNIT. COORDINATE NATURAL GAS AND ELECTRIC REQUIREMENTS WITH P.C. AND E.C. RESPECTIVELY. PROVIDE ADDITIONAL ROOF SUPPORT IF DIRECTED TO DO SO BY STRUCTURAL ENGINEER. ROOF DUCTWORK PENETRATIONS TO BE FULL SIZE. SEAL AROUND OPENING AIR TIGHT.
M43	PHARMACY TO RECEIVE COMBINATION RELATIVE HUMIDITY/TEMPERATURE SENSOR. ROUTE CONTROL WIRING THROUGH RTU AND BACK TO BUILDING CONTROL PANEL. MOUNT SENSOR A MINIMUM OF 4'-0" AFF ON WALL. COORDINATE LOCATION WITH KROGER EQUIPMENT AND FURNISHINGS. PROVIDE LOCKABLE PROTECTIVE COVER OVER DEVICE.

GENERAL NOTES	
A.	REFER TO ABBREVIATIONS, SYMBOLS AND NOTES DRAWING M0.1 FOR HVAC GENERAL NOTES.
B.	WHERE SMOKE DETECTORS ARE INSTALLED MORE THAN 10 FEET ABOVE THE FINISHED FLOOR OR IN ARRANGEMENT WHERE THE DETECTOR'S ALARM OR SUPERVISORY INDICATOR IS NOT VISIBLE TO RESPONDING PERSONNEL, THE DETECTOR SHALL BE PROVIDED WITH REMOTE ALARM OR SUPERVISORY INDICATOR IN A LOCATION ACCEPTABLE TO AUTHORITY HAVING JURISDICTION. PROVIDE AN LED INDICATOR LIGHT ON CEILING BENEATH EACH HVAC UNIT THAT IS EQUIPPED WITH A SMOKE DETECTOR WHEN ACTIVATION LIGHT IS NOT VISIBLE FROM BELOW.
C.	COORDINATE ALL WORK WITH THE KROGER PROJECT MANAGER AND GENERAL CONTRACTOR FOR EXPANSION REMODEL PHASING. REFER TO THE KROGER PHASING PLAN ON G1.1 PROVIDED IN THE ARCHITECTURAL PLANS FOR ADDITIONAL REQUIREMENTS.

EXECUTED BY: TDS  
REVIEWED BY: JCL

CHICAGO  
CINCINNATI  
DALLAS  
DETROIT  
SEATTLE

TF 800.469.4949  
P 512.721.8080  
F 972.259.4675  
TF 800.469.4949  
TF 800.469.4949

creating extraordinary places  
www.cr-architects.com  
800.469.4949

CONSULTANTS

OWNER

DATE ISSUE

DATE	REVISION
1 12/07/2021	ADDENDUM NO. 2
2 01/03/2022	ADDENDUM NO. 4

PROJECT TITLE

**KROGER STORE D615**

33523 Eight Mile Rd.  
Livonia, MI 48152

COMMISSION NO. 521342  
ISSUE DATE 10/27/2021

SHEET TITLE

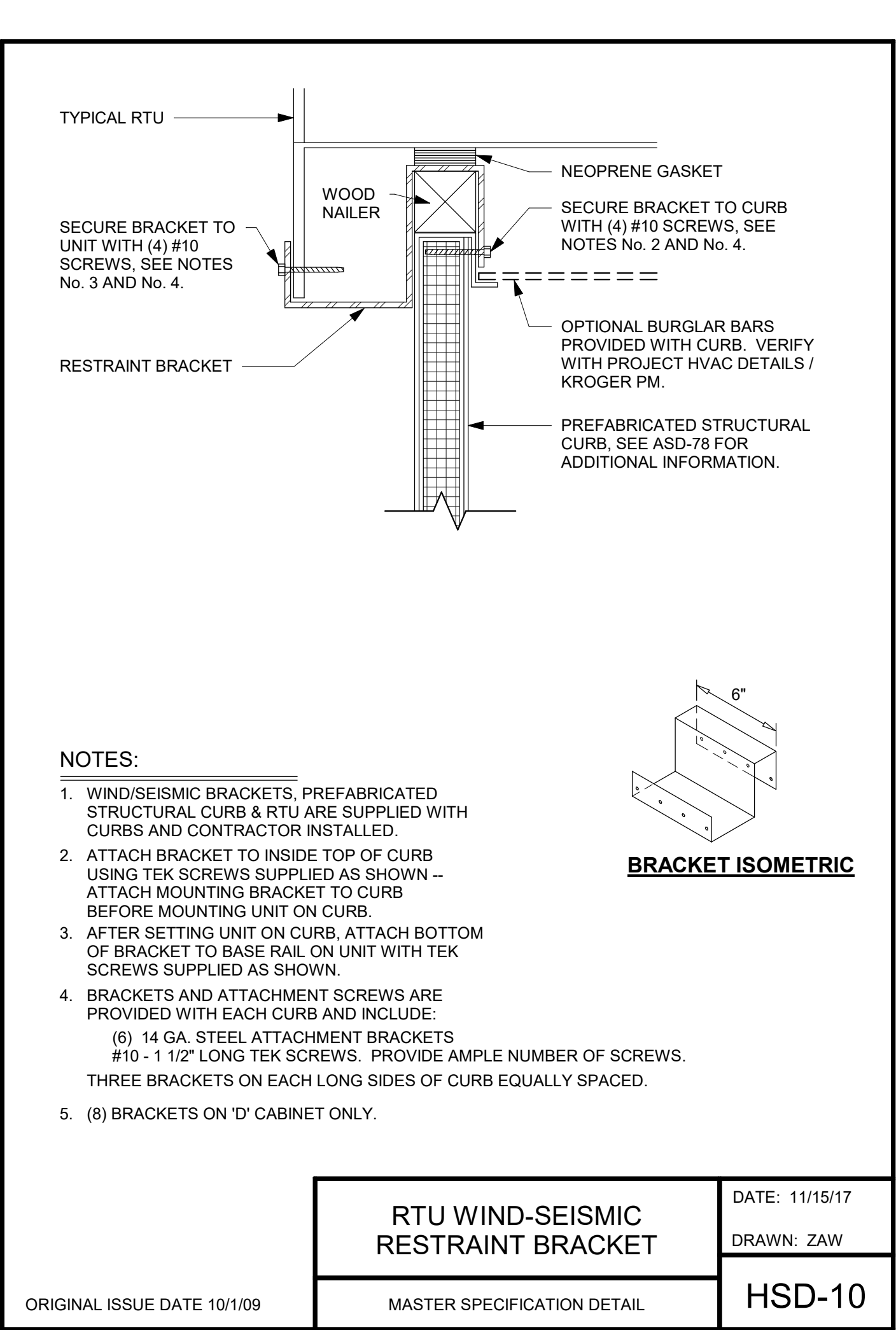
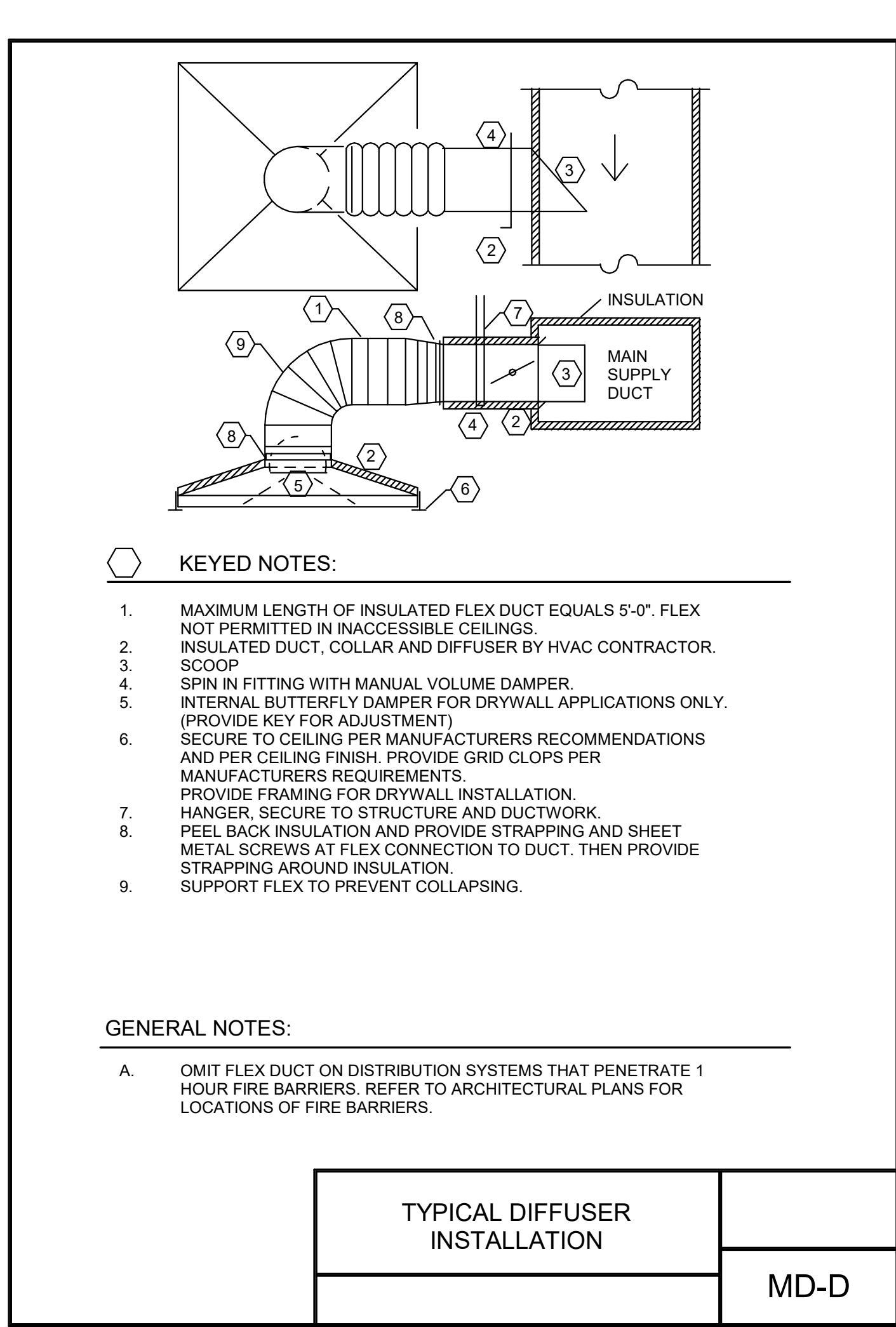
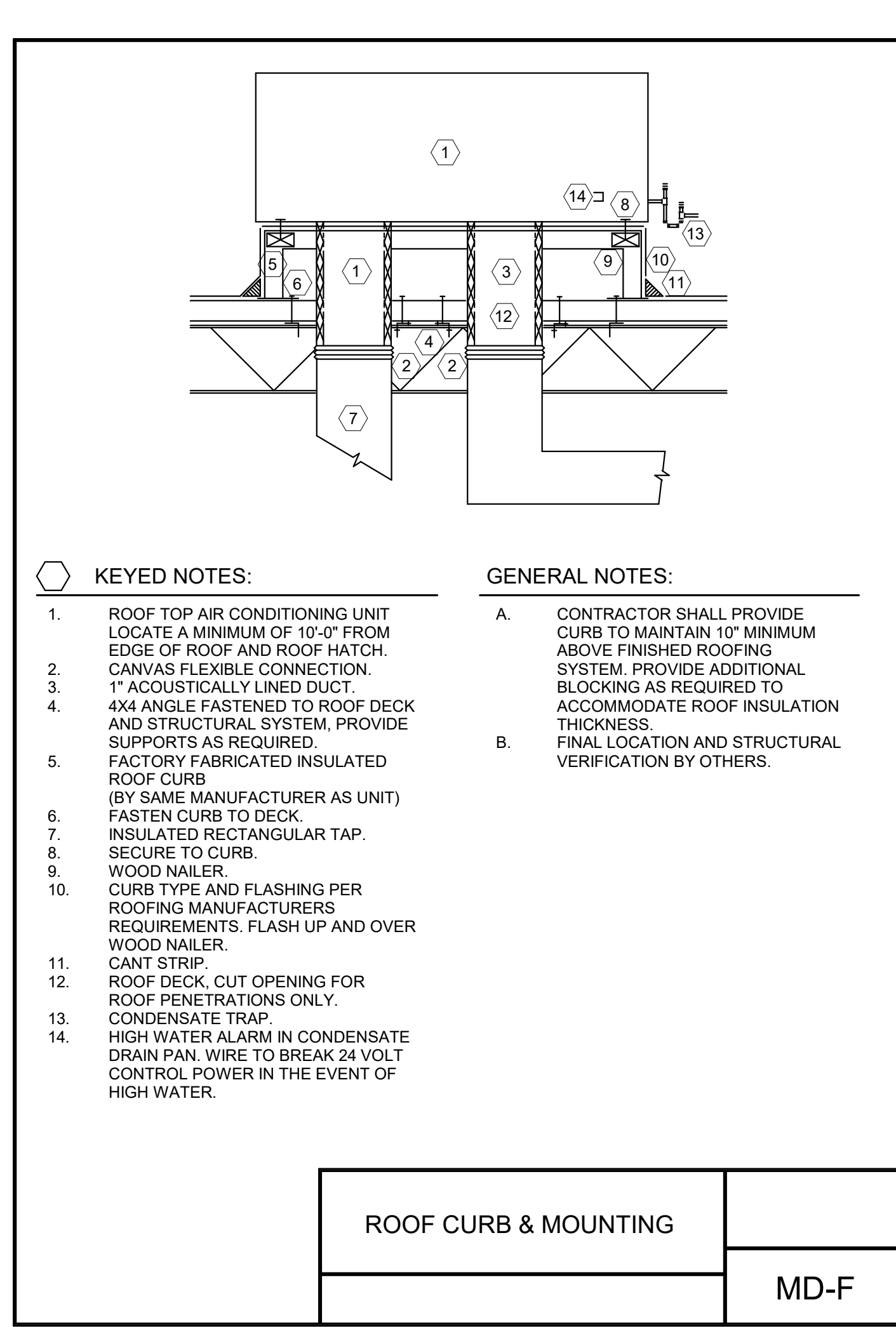
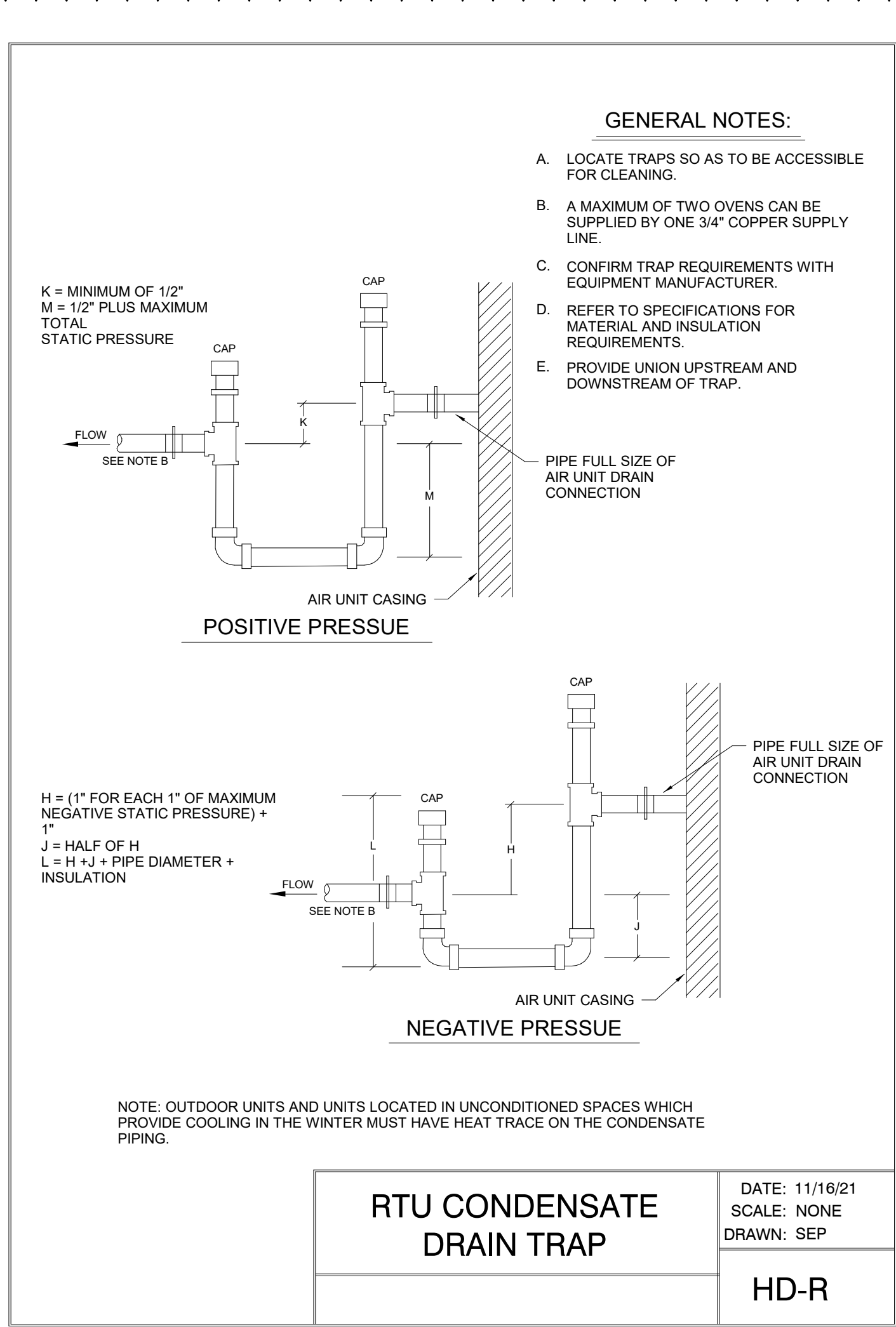
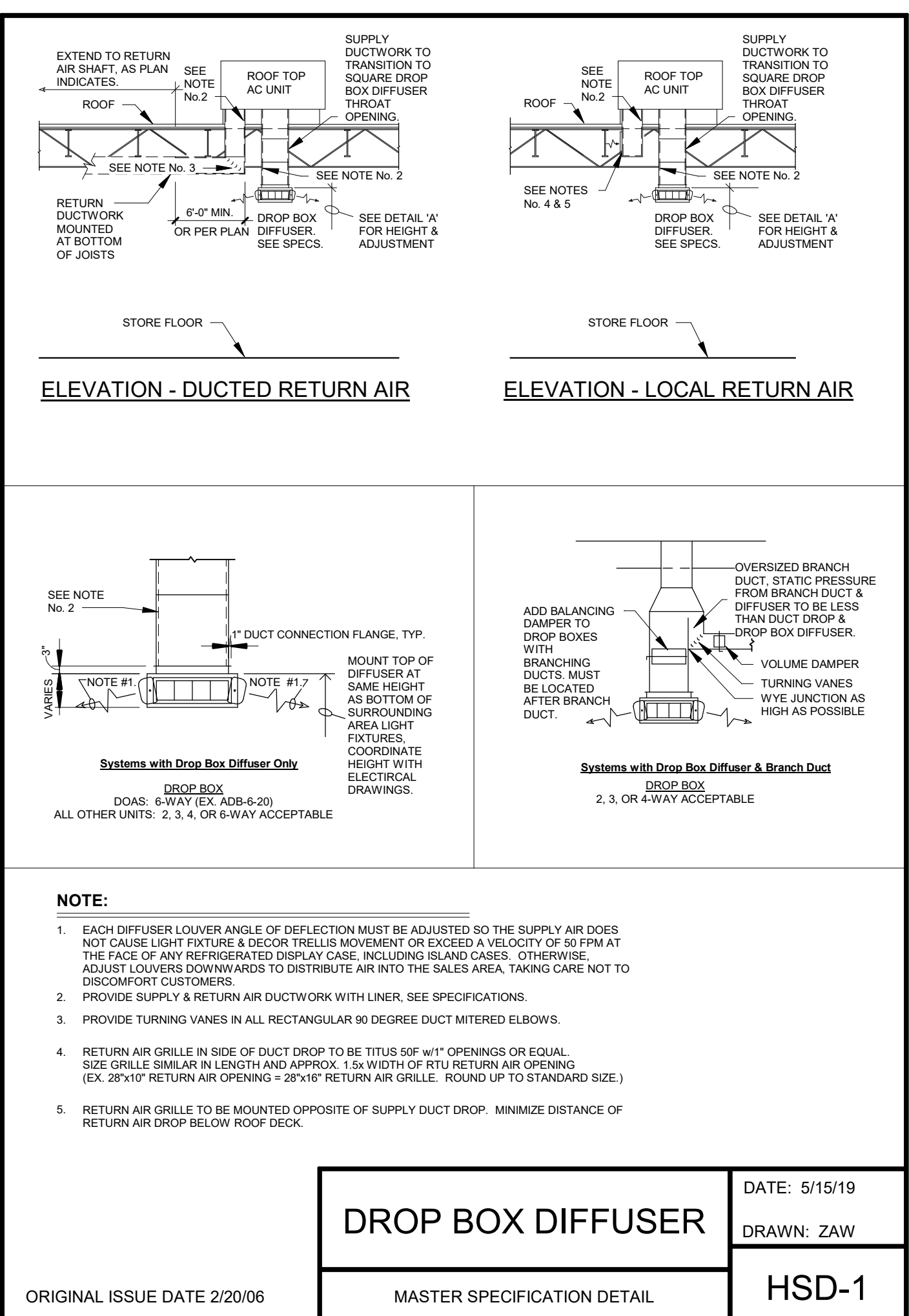
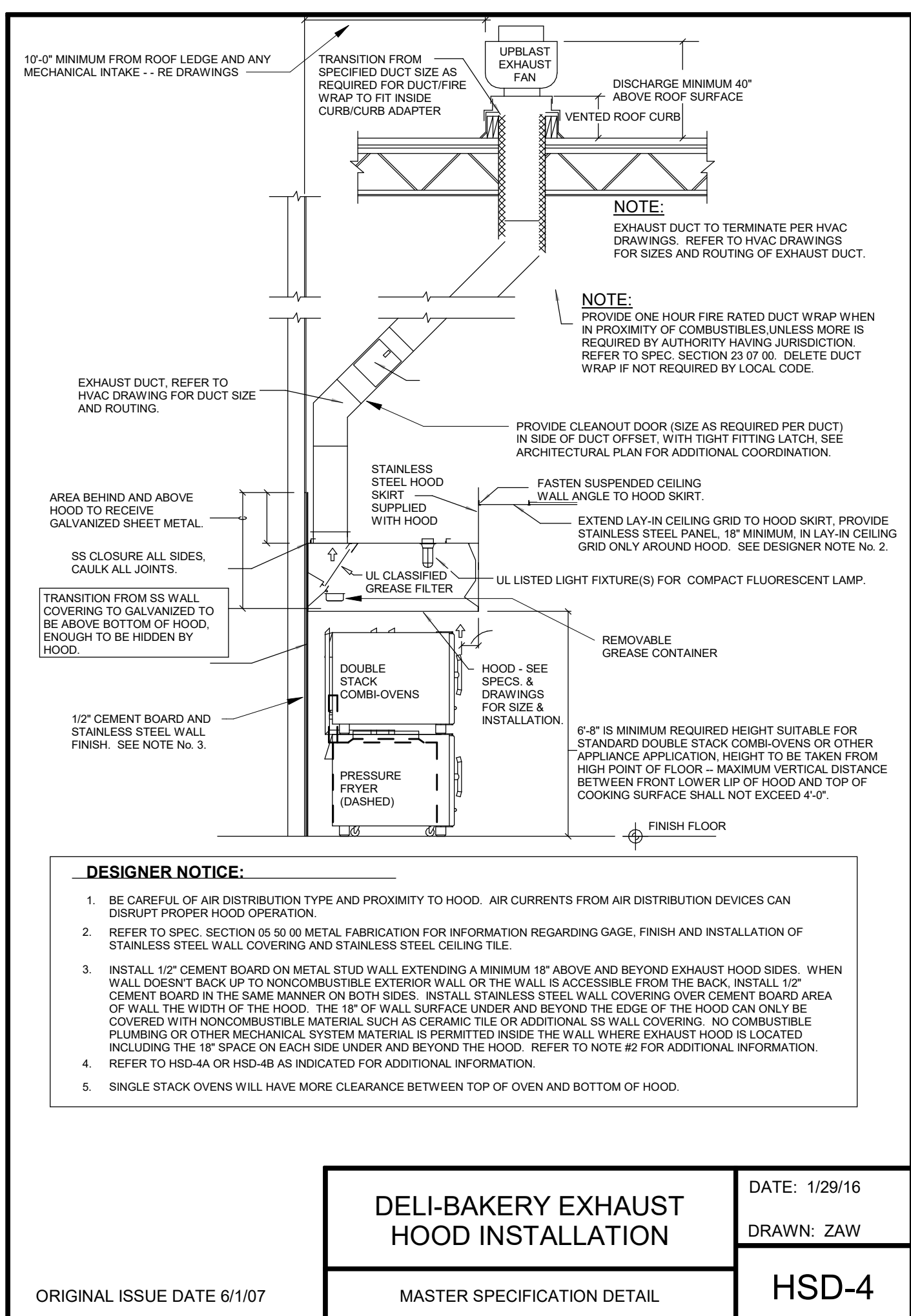
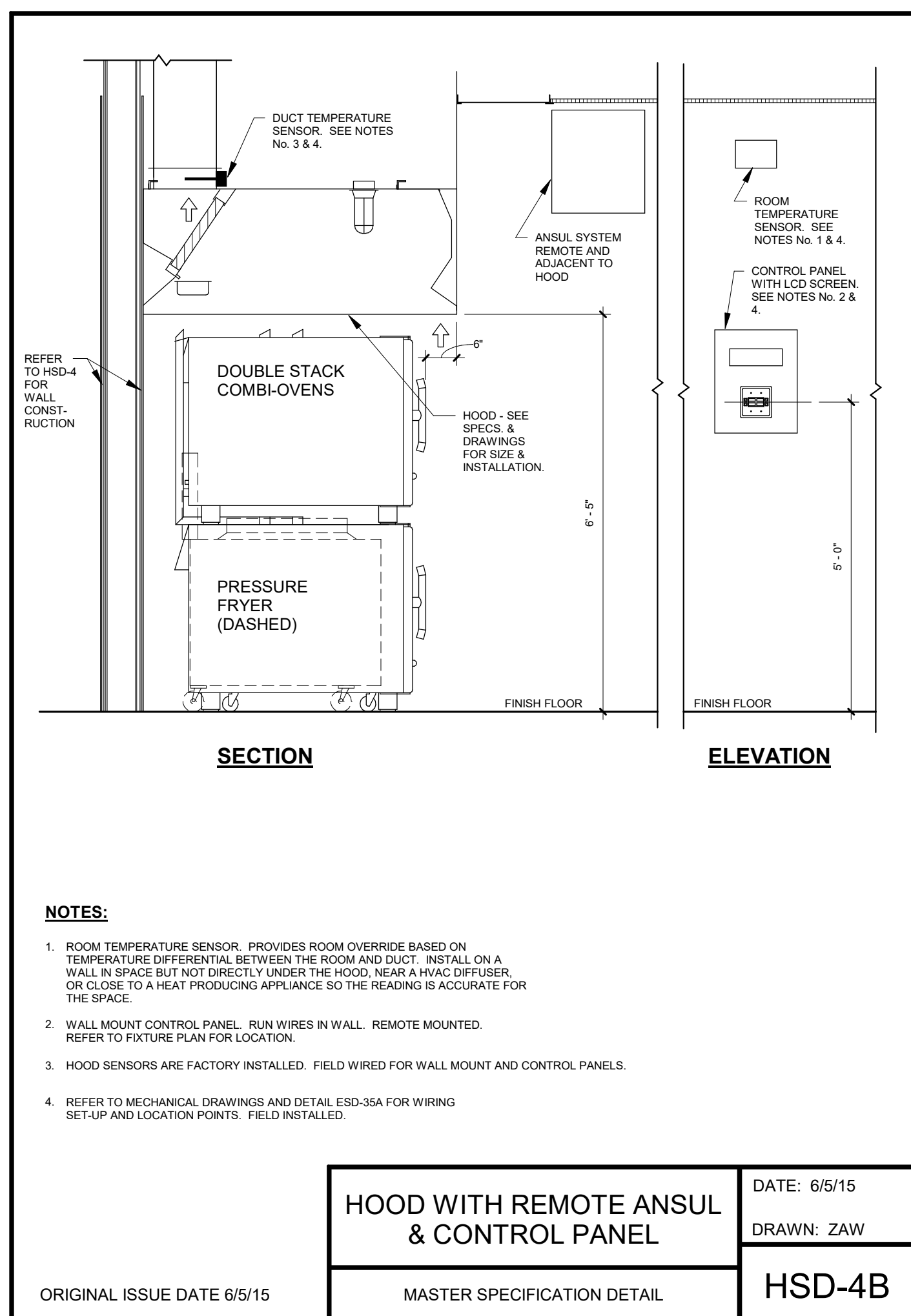
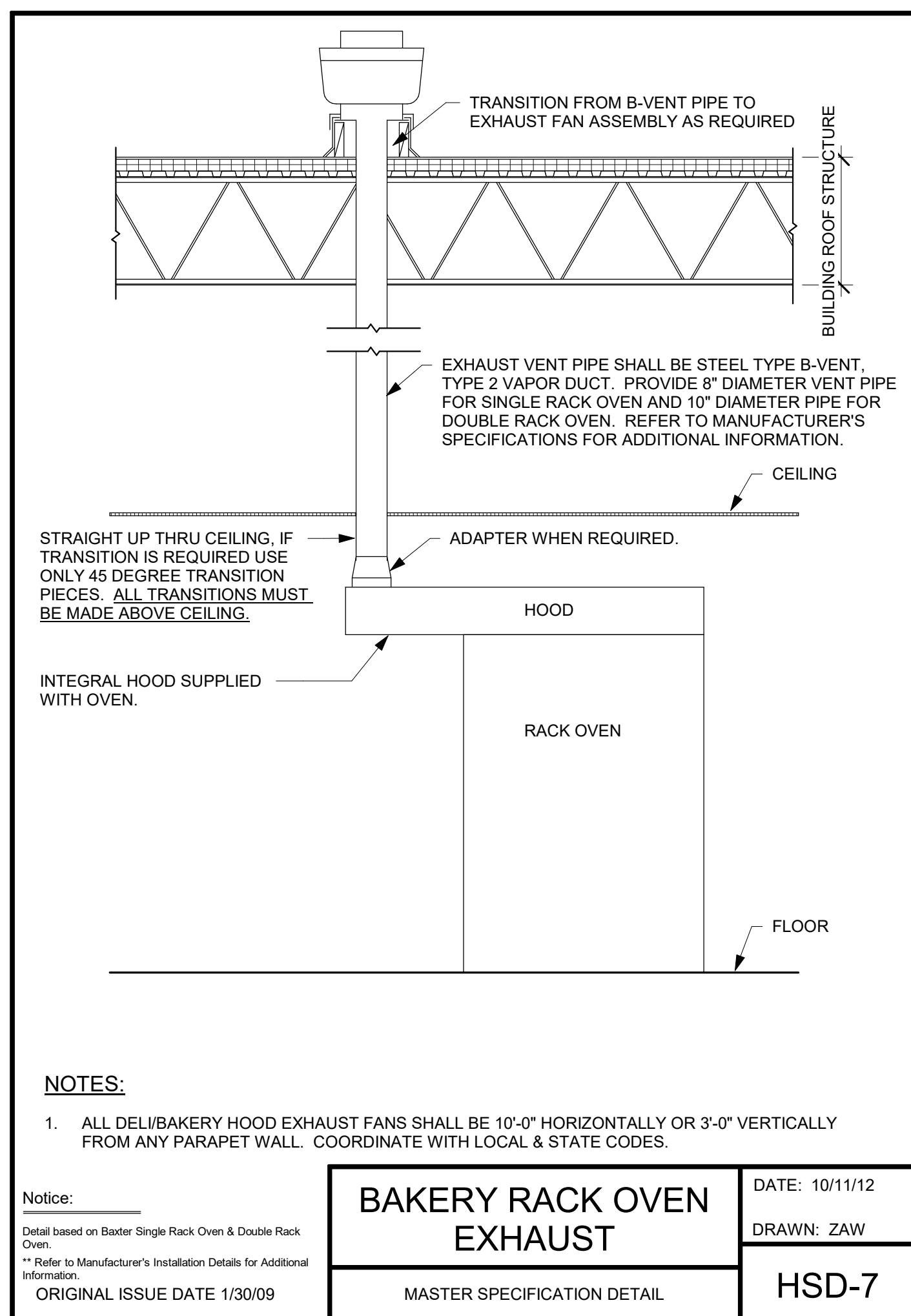
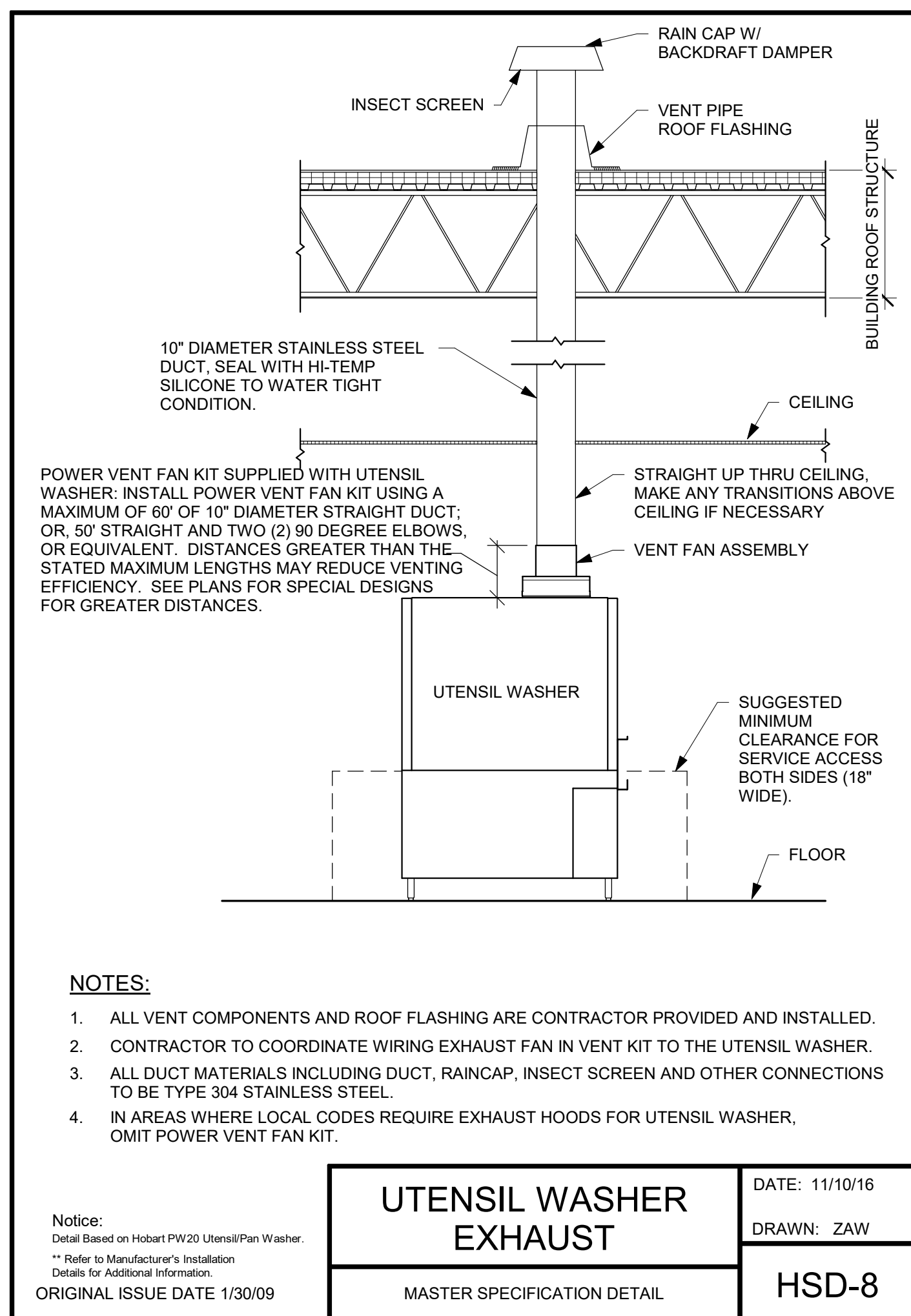
**HVAC ENLARGED PLANS**

SHEET NO.

**M4.2**

© 2021 Colliers-Russell Architects, Inc.

THIS DOCUMENT IS THE PROPERTY OF COLLIERS-RUSSELL ARCHITECTS, INC. NEITHER THE DOCUMENT NOR THE INFORMATION IT CONTAINS MAY BE COPIED OR USED FOR OTHER THAN THE SPECIFIC PROJECT FOR WHICH IT WAS PREPARED WITHOUT THE EXPRESS WRITTEN CONSENT OF COLLIERS-RUSSELL ARCHITECTS, INC. 10/2022 3:54:44 PM



EXECUTED BY: TDS  
REVIEWED BY: JOL

CHICAGO  
CINCINNATI  
DALLAS  
DENVER  
DETROIT  
SEATTLE

creating extraordinary places  
www.cr-architects.com  
800.469.4949

CONSULTANTS

OWNER  
Kroger

DATE: 12/27/2021  
REVISION: ADDENDUM NO. 2

PROJECT TITLE  
KROGER STORE D615

33523 Eight Mile Rd.  
Livonia, MI 48152

COMMISSION NO. 521342  
ISSUE DATE: 10/27/2021  
SHEET TITLE: DETAILS

SHEET NO. M5.1

© 2021 Croger Architect, Inc.

THIS DOCUMENT IS THE PROPERTY OF COLLETT ARCHITECTS, INC. NEITHER THE DOCUMENT NOR THE INFORMATION IT CONTAINS MAY BE COPIED OR USED FOR OTHER THAN THE SPECIFIC PROJECT FOR WHICH IT WAS PREPARED WITHOUT THE EXPRESS WRITTEN CONSENT OF COLLETT ARCHITECTS, INC.

THIS DOCUMENT IS THE PROPERTY OF COLLETT ARCHITECTS, INC. NEITHER THE DOCUMENT NOR THE INFORMATION IT CONTAINS MAY BE COPIED OR USED FOR OTHER THAN THE SPECIFIC PROJECT FOR WHICH IT WAS PREPARED WITHOUT THE EXPRESS WRITTEN CONSENT OF COLLETT ARCHITECTS, INC.

**HOOD INFORMATION - JOB#5110396**

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S)				HOOD CONSTRUCTION	HOOD CONFIG			
										WIDTH	LENG	HEIGHT	DIA		CFM	VEL	SP	END TO END
1	KL - K-0002317	6024 ND-2	CAPTIVEAIRE	8' 0"	450 DEG	I	MEDIUM	175	1400		4"	12"	1400	1783	-0.400'	304 SS WHERE EXPOSED	LEFT	ALONE
2	KR - K-0002317	6024 ND-2	CAPTIVEAIRE	8' 0"	450 DEG	I	MEDIUM	175	1400		4"	12"	1400	1783	-0.400'	304 SS WHERE EXPOSED	RIGHT	ALONE

**HOOD INFORMATION**

HOOD NO	TAG	TYPE	FILTER(S)			LIGHT(S)			UTILITY CABINET(S)			FIRE SYSTEM PIPING	HOOD HANGING WEIGHT				
			QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	QTY	TYPE	WIRE GUARD	LOCATION	SIZE			FIRE SYSTEM TYPE	SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY
1	KL - K-0002317	SS BAFFLE WITH HANDLES	5	16"	16"	30%	3	L55 SERIES E26	NO				YES	379 LBS			
2	KR - K-0002317	SS BAFFLE WITH HANDLES	5	16"	16"	30%	3	L55 SERIES E26	NO	RIGHT	12"x60"x24"	TANK F.S.	4.0/4.0	SC-310110MA	1 LIGHT 1 FAN	YES	703 LBS

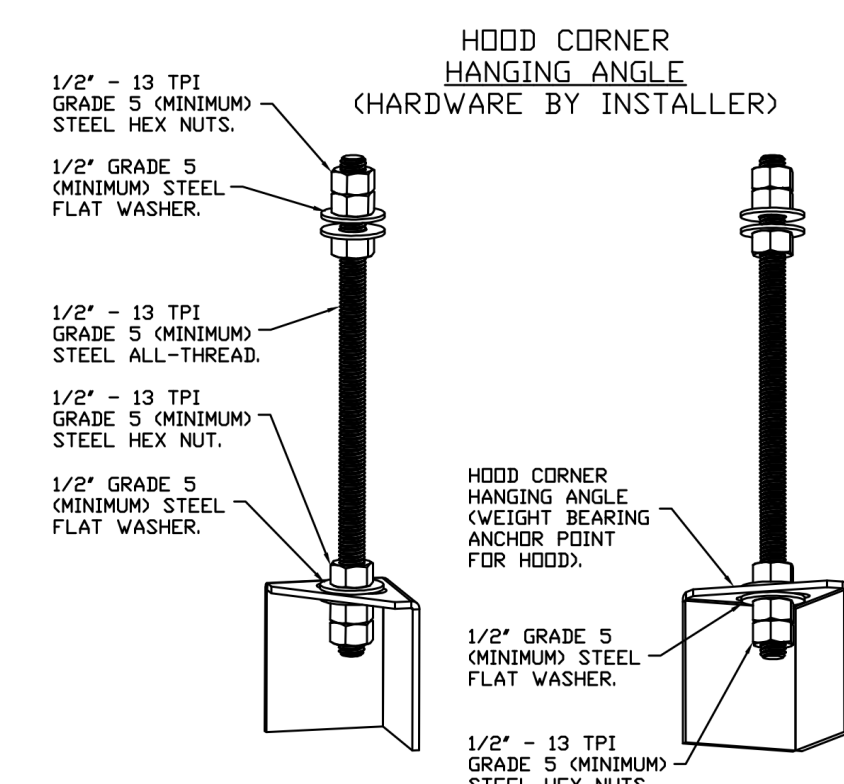
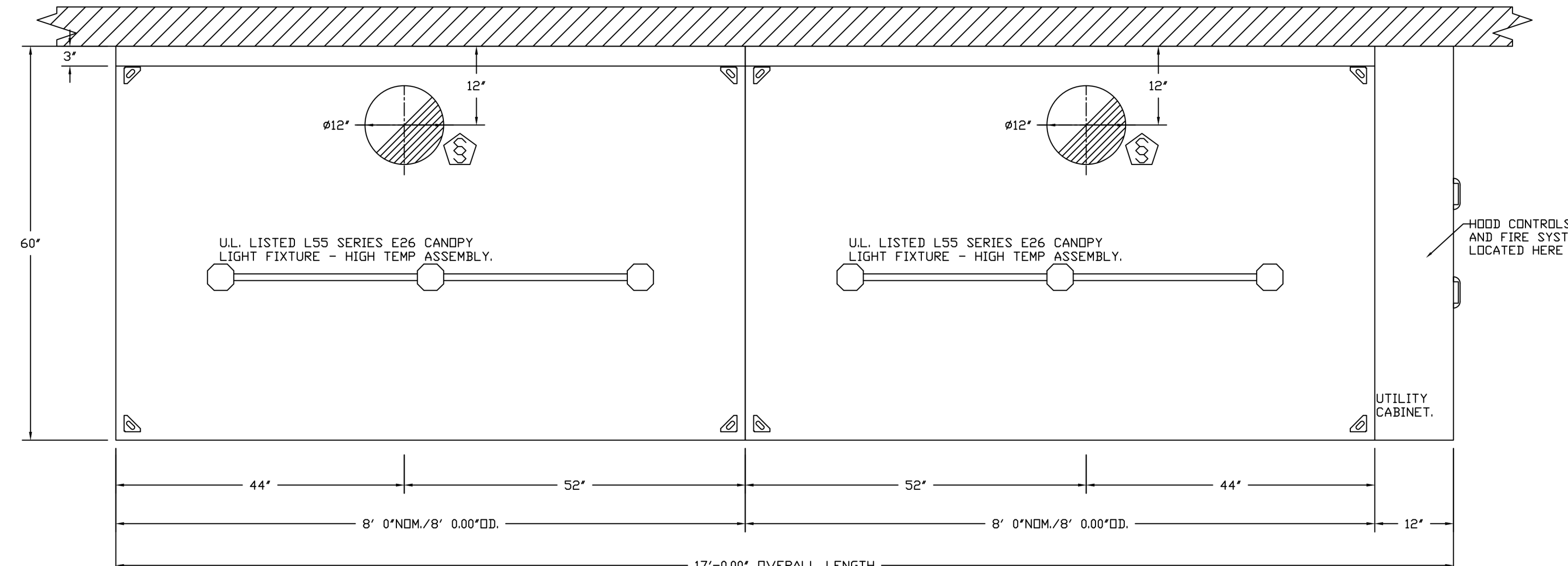
**HOOD OPTIONS**

HOOD NO	TAG	OPTION
1	KL - K-0002317	FIELD WRAPPER 17.00" HIGH FRONT, LEFT. SENSOR-CV.
2	KR - K-0002317	FIELD WRAPPER 17.00" HIGH FRONT, RIGHT. SENSOR-CV.

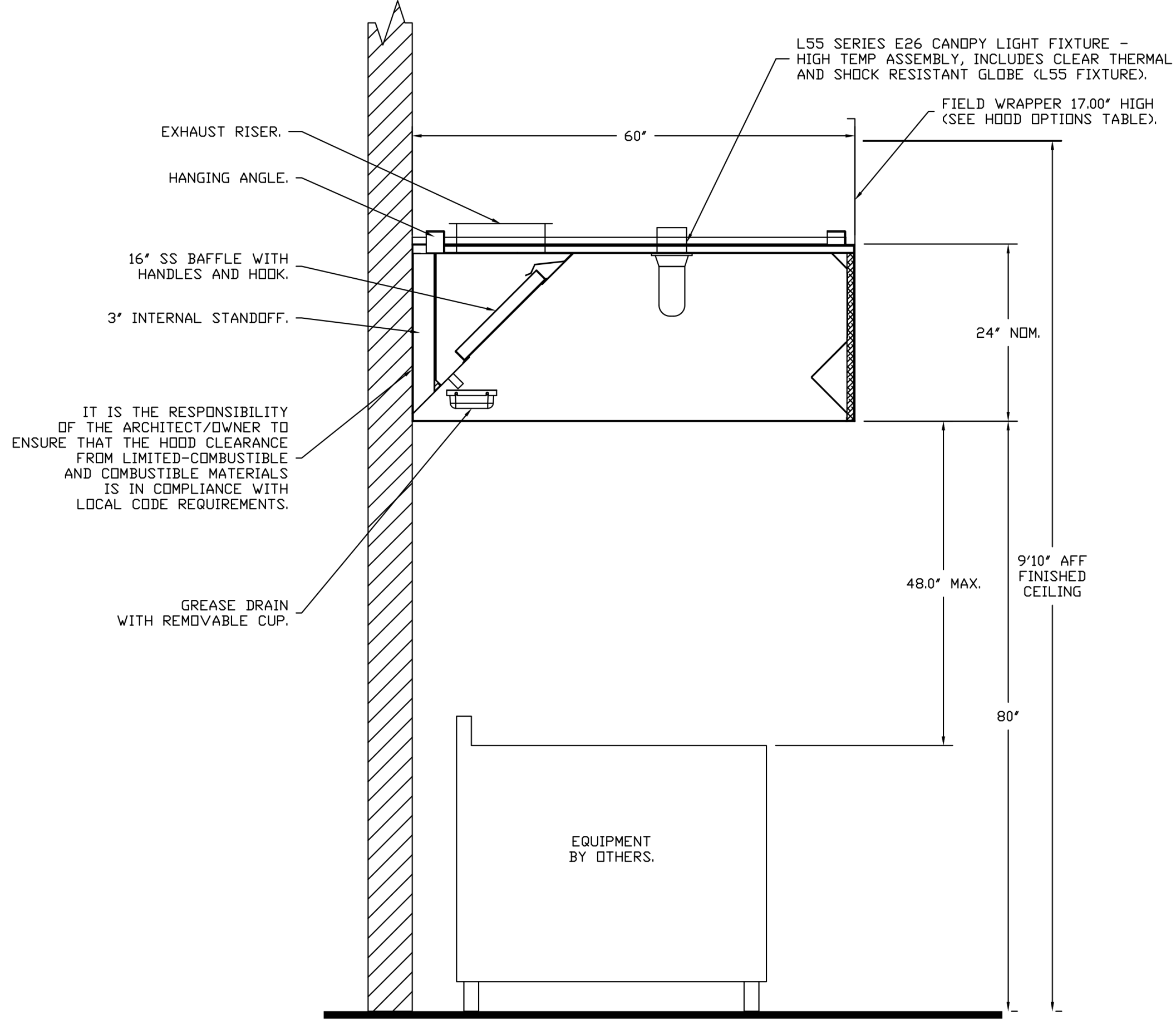
CAPTIVE-AIRE HOODS ARE BUILT IN COMPLIANCE WITH UL 710 AND NFPA 96 AND ARE RECOGNIZED BY ONE OR MORE OF THE FOLLOWING:

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.



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.



**REVISIONS**

NO.	DESCRIPTION	DATE

**CAPTIVEAIRE**  
www.captiveaire.com  
National Accounts  
4641 Paragon Park Rd., Raleigh, NC 27616 PHONE: (919) 882-2410 FAX: (919) 227-5946 EMAIL: reg15@captiveaire.com

KROGER #615 - LIVONIA, MI  
LIVONIA, MI, 48152

DATE: 9/28/2021  
DWG.#: 5110396  
DRAWN BY: JAC  
SCALE: 3/4" = 1'-0"  
MASTER DRAWING

SHEET NO. 1

EXECUTED BY: TDS  
REVIEWED BY: JCL

TF 800.469.4949  
P 513.722.8080  
F 972.258.4675  
TF 800.469.4949  
TF 800.469.4949

CHICAGO  
CINCINNATI  
DALLAS  
DENVER  
DETROIT  
SEATTLE

**CR**  
architecture + design  
creating extraordinary places  
www.cr-architects.com  
800.469.4949  
CONSULTANTS

OWNER

**Kroger**

DATE: 09/30/2021  
ISSUE: 90% OWNER REVIEW

DATE:      REVISION:

PROJECT TITLE  
**KROGER STORE D615**

33523 Eight Mile Rd.  
Livonia, MI 48152

COMMISSION NO. 521342  
ISSUE DATE 10/27/2021

SHEET TITLE  
**DETAILS**

SHEET NO.  
**M5.2**  
© 2021 Captive Air Systems, Inc.

**FIRE SYSTEM INFORMATION - JOB#5110396**

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

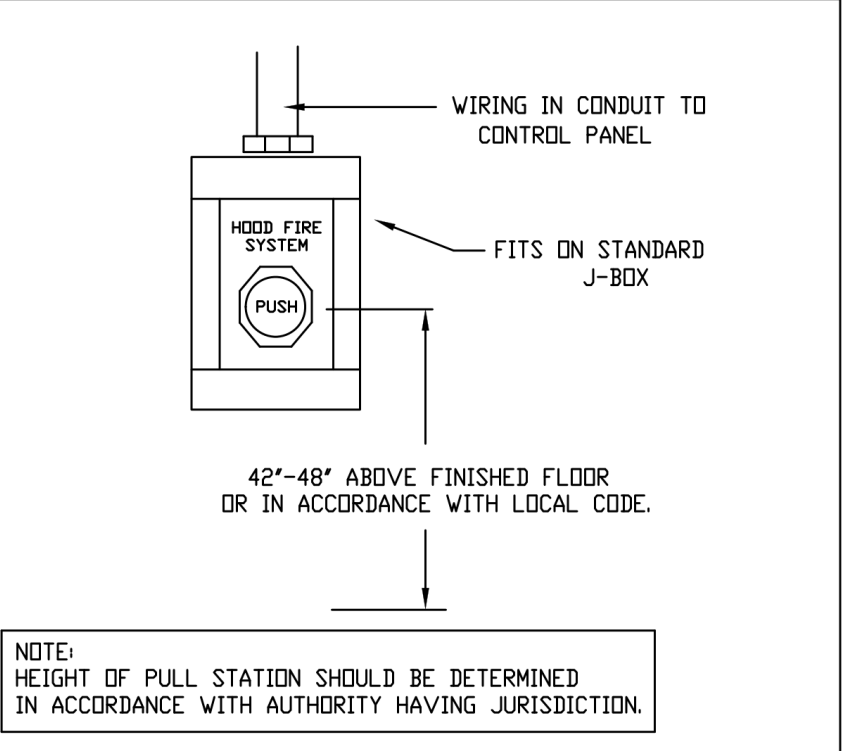
THE TANK WET CHEMICAL FIRE SUPPRESSION SYSTEM IS UL & ULC LISTED IN ACCORDANCE WITH UL300, UL1254, ULCDR0-C1254.6 UNDER FILE# EX27953. ETL LISTED UNDER REPORT 104560275SAT-003.

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

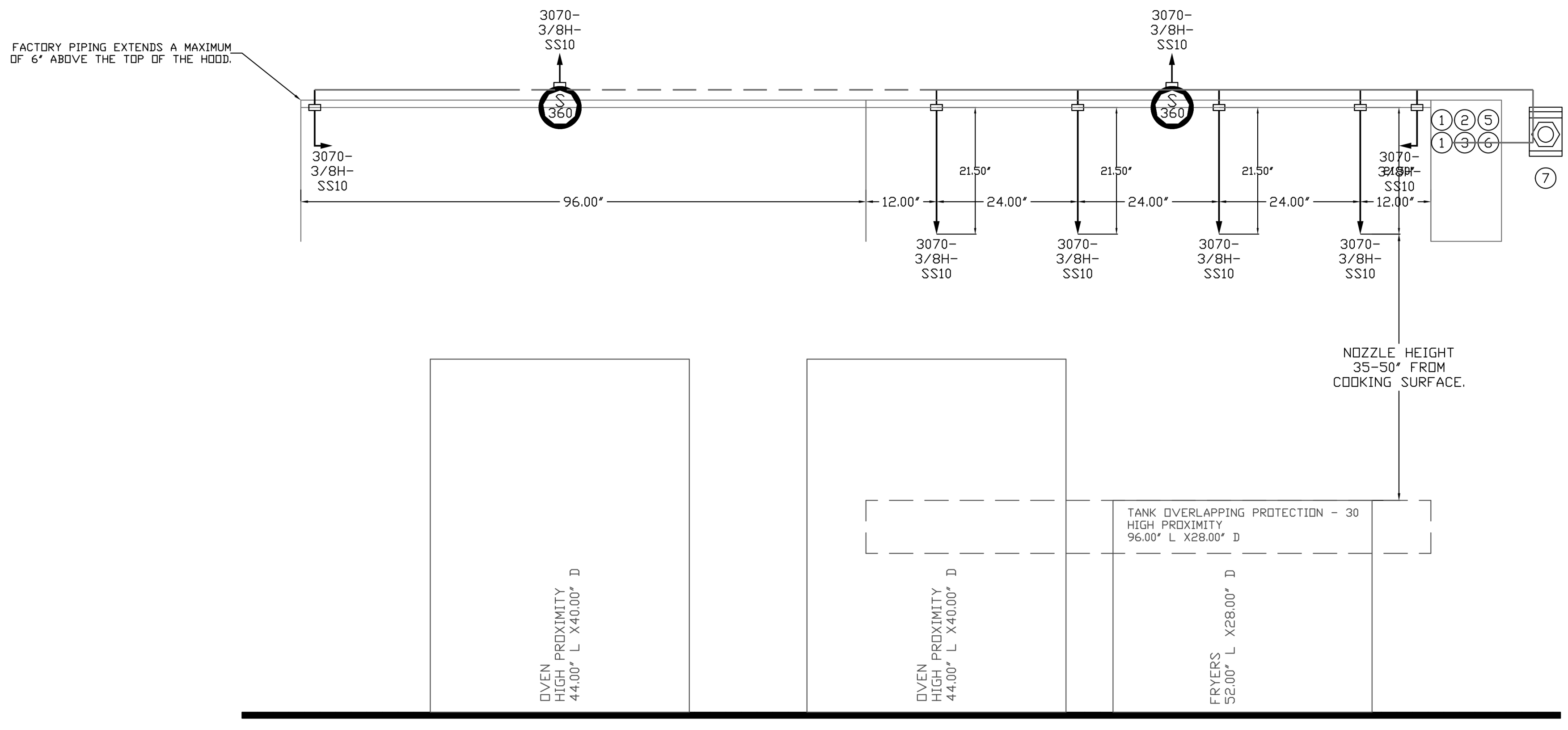
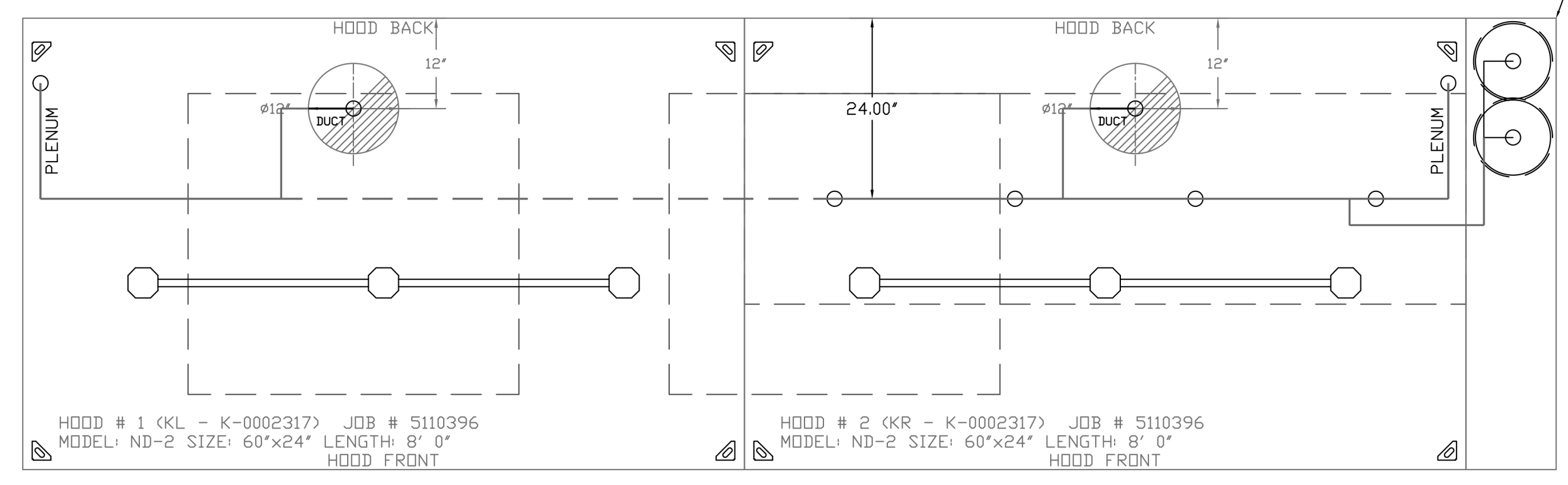
THE TANK WET CHEMICAL FIRE SUPPRESSION SYSTEM IS ACCEPTABLE FOR USE IN NEW YORK CITY, IS APPROVED PER FDNY CDA #5870.

MEETS THE REQUIREMENTS OF NFPA 96 AND NFPA 17A.

**TANK MANUAL ACTIVATION DETAIL**



SYSTEM REQUIRES A MINIMUM OF 7 FT OF EQUIVALENT PIPE LENGTH BETWEEN TANK AND NEAREST APPLIANCE NOZZLE FOR MOST APPLIANCES. EACH 90 DEGREE ELBOW ADDS 1.3 FT OF EQUIVALENT LENGTH. SEE MANUAL FOR DETAILS



**NOTES**

- FIELD PIPE DROPS AS SHOWN
- PIPING, ELBOWS, TEES, AND NOZZLES SUPPLIED BY CAS.
- 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.

JOB #: 5110396  
 JOB NAME: KROGER #615 - LIVONIA, MI.  
 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 6' 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	
DESCRIPTION	DATE

**CAPTIVE FIRE**  
 National Accounts  
 www.captivefire.com  
 4641 Paragon Park Rd., Raleigh, NC 27616 PHONE: (919) 227-5948 EMAIL: reg15@captivefire.com

KROGER #615 - LIVONIA, MI  
 LIVONIA, MI, 48152

DATE: 9/28/2021  
 DWG.#: 5110396  
 DRAWN BY: JAC  
 SCALE: 3/4" = 1'-0"  
 MASTER DRAWING

SHEET NO. 2

EXECUTED BY: TDS  
 REVIEWED BY: JCL

TF 600.469.4949  
 P 513.721.8080  
 F 972.258.4675  
 TX 817.469.4949  
 TF 600.469.4949

CHICAGO  
 CINCINNATI  
 DALLAS  
 DETROIT  
 SEATTLE

**CR**  
 architecture + design  
 creating extraordinary places  
 www.cr-architects.com  
 800.469.4949

CONSULTANTS

OWNER

**Kroger**

DATE: 09/30/2021  
 ISSUE: 90% OWNER REVIEW

DATE:      REVISION:

PROJECT TITLE  
**KROGER STORE D615**

33523 Eight Mile Rd.  
 Livonia, MI 48152

COMMISSION NO. 521342  
 ISSUE DATE 10/27/2021  
 SHEET TITLE  
**DETAILS**

SHEET NO.  
**M5.3**

© 2021 Captive Fire, Inc.

THIS DOCUMENT IS THE PROPERTY OF COLLETT ARCHITECTS, INC. NEITHER THE DOCUMENT NOR THE INFORMATION IT CONTAINS MAY BE COPIED OR USED FOR OTHER THAN THE SPECIFIC PROJECT FOR WHICH IT WAS PREPARED WITHOUT THE EXPRESS WRITTEN CONSENT OF COLLETT ARCHITECTS, INC.  
 10/27/2021 4:02:23 PM

THIS DOCUMENT IS THE PROPERTY OF COLLETT ARCHITECTS, INC. NEITHER THE DOCUMENT NOR THE INFORMATION IT CONTAINS MAY BE COPIED OR USED FOR OTHER THAN THE SPECIFIC PROJECT FOR WHICH IT WAS PREPARED WITHOUT THE EXPRESS WRITTEN CONSENT OF COLLETT ARCHITECTS, INC.  
10/27/2021 4:02:24 PM

**EXHAUST FAN INFORMATION - JOB#5110396**

FAN UNIT NO.	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL.	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SDNE'S
1	EF-EC K-0002356	1	DR12HFA	CAPTIVEAIRE	600	0.125	1379	DDP	0.180	0.1140	1	115	1.9		52	8.3
2	EF-G1 K-0048398	1	DU50HFA	CAPTIVEAIRE	900	1.100	1546	DDP	0.500	0.3730	1	115	8.4	342 FPM	88	16.8
3	EF-G2 K-0048398	1	DU50HFA	CAPTIVEAIRE	900	1.100	1546	DDP	0.500	0.3730	1	115	8.4	342 FPM	88	16.8
4	EF-K K-0069365	1	DUI80HFA	CAPTIVEAIRE	2800	1.250	1210	DDP, PREMIUM	1.500	1.2400	3	208	6.6	647 FPM	181	17.2
5	EF-R1 K-0002358	1	DR10HFA	CAPTIVEAIRE	250	0.125	1068	DDP	0.060	0.0240	1	115	1.1		46	2.7
6	EF-R2 K-0002358	1	DR10HFA	CAPTIVEAIRE	150	0.125	847	DDP	0.060	0.0120	1	115	1.1		46	1.1
7	EF-R3 K-0002356	1	DR12HFA	CAPTIVEAIRE	400	0.250	1230	DDP	0.180	0.0810	1	115	1.9		52	6.5
8	EF-RC K-0002354	1	DR30HFA	CAPTIVEAIRE	850	0.250	1233	DDP	0.250	0.1060	1	115	3.8		6.3	8
9	EF-S K-0002356	1	DR12HFA	CAPTIVEAIRE	600	0.125	1379	DDP	0.180	0.1140	1	115	1.9		52	8.3

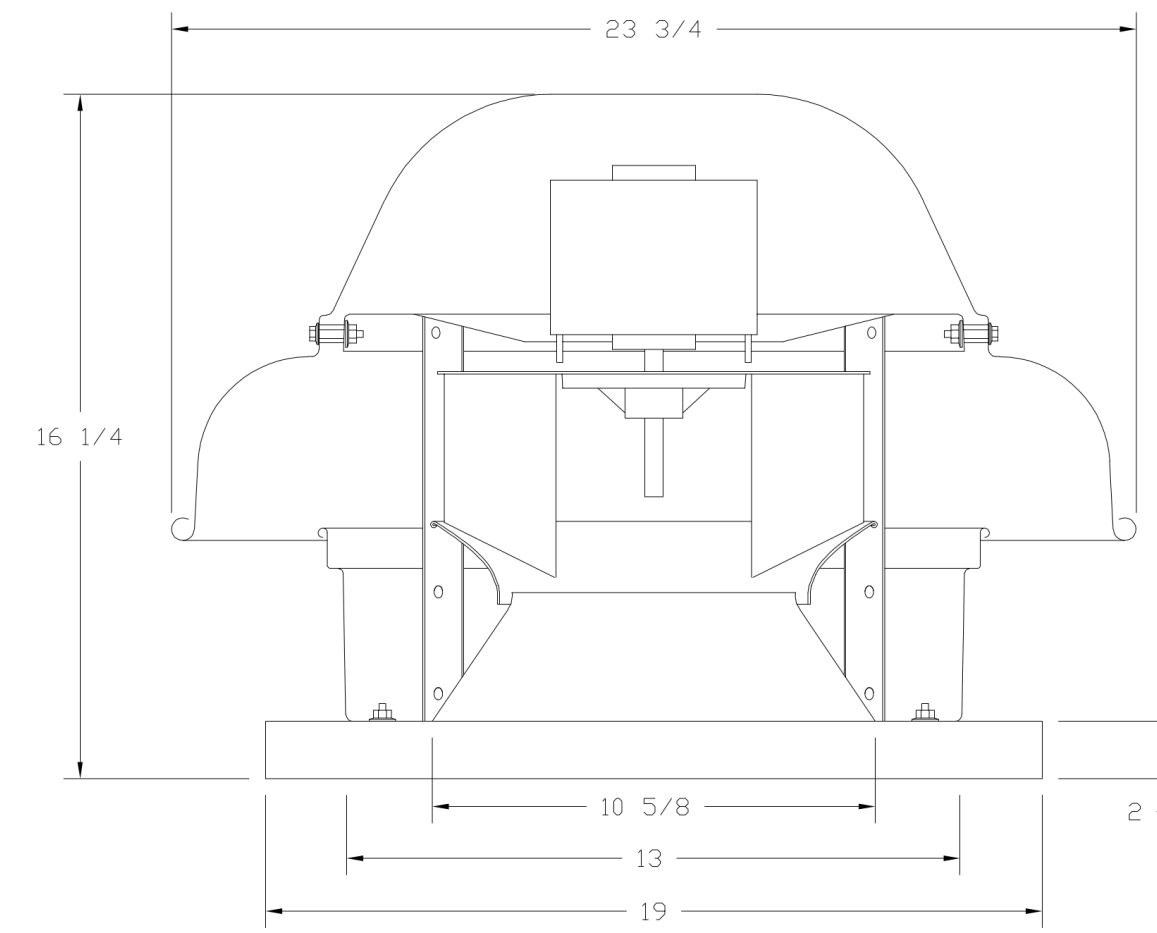
**FAN OPTIONS**

FAN UNIT NO.	TAG	QTY	DESCRIPTION
1	EF-EC K-0002356	1	1 12-BDD DAMPER.
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
		1	2 YEAR PARTS WARRANTY.
2	EF-G1 K-0048398	1	1 GREASE BOX.
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
		1	2 YEAR PARTS WARRANTY.
3	EF-G2 K-0048398	1	1 GREASE BOX.
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
		1	2 YEAR PARTS WARRANTY.
4	EF-K K-0069365	1	1 GREASE BOX.
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
		1	2 YEAR PARTS WARRANTY.
5	EF-R1 K-0002358	1	1 12-BDD DAMPER.
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
		1	2 YEAR PARTS WARRANTY.
6	EF-R2 K-0002358	1	1 12-BDD DAMPER.
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
		1	2 YEAR PARTS WARRANTY.
7	EF-R3 K-0002356	1	1 12-BDD DAMPER.
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
		1	2 YEAR PARTS WARRANTY.
8	EF-RC K-0002354	1	1 12-BDD DAMPER.
		1	HINGE KIT - SHIPS LOOSE FOR CURB SUPPLIED BY OTHERS.
		1	2 YEAR PARTS WARRANTY.
9	EF-S K-0002356	1	1 12-BDD DAMPER.
		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-EC K-0002356		YES					
2	EF-G1 K-0048398	YES						
3	EF-G2 K-0048398	YES						
4	EF-K K-0069365	YES						
5	EF-R1 K-0002358		YES					
6	EF-R2 K-0002358		YES					
7	EF-R3 K-0002356		YES					
8	EF-RC K-0002354		YES					
9	EF-S K-0002356		YES					

FANS #1 (EF-EC K-0002356), #7 (EF-R3 K-0002356), #9 (EF-S K-0002356) - DR12HFA EXHAUST FAN



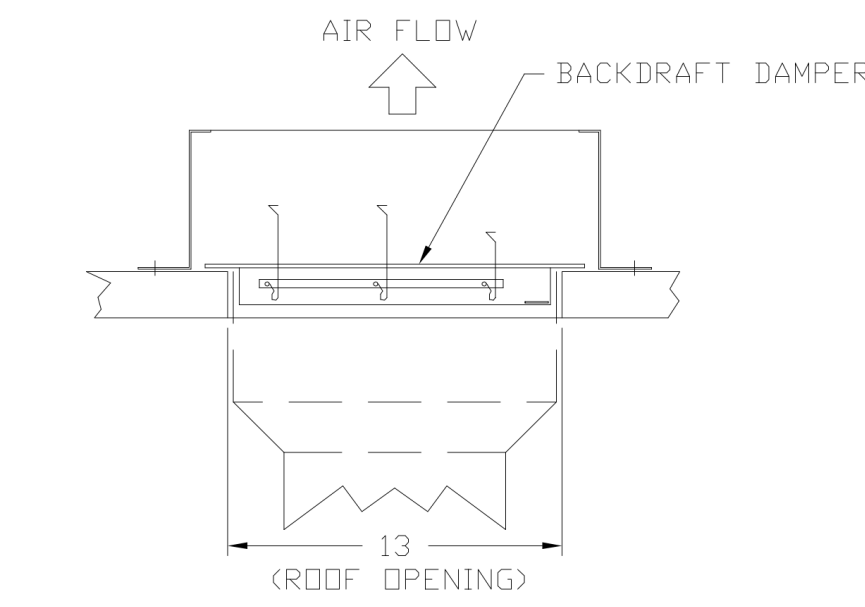
**FEATURES:**

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

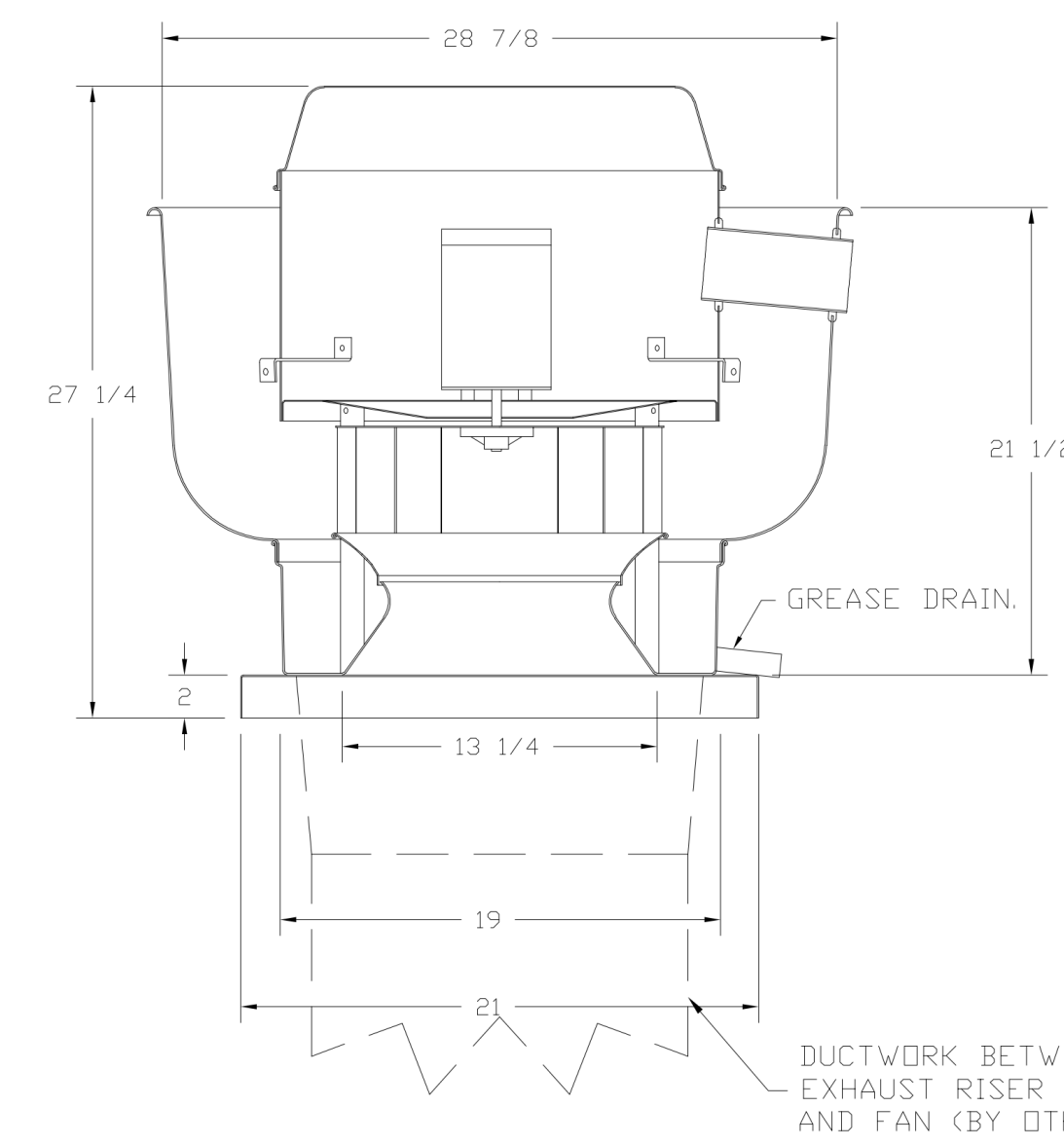
**OPTIONS**

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

**BACKDRAFT DAMPER INSTALLATION**



FANS #2 (EF-G1 K-0048398), #3 (EF-G2 K-0048398) - DU50HFA 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.

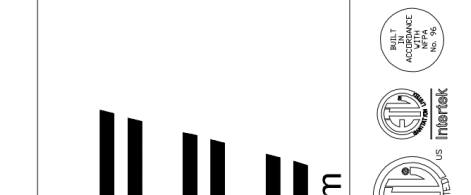
**OPTIONS**

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

DUCTWORK BETWEEN EXHAUST RISER ON HOOD AND FAN (BY OTHERS).

**REVISIONS**

NO.	DESCRIPTION	DATE



**CAPTIVE AIR**  
www.captiveaire.com

**National Accounts**  
4641 Pragon Park Rd., Raleigh, NC, 27616 PHONE: (919) 852-2510 FAX: (919) 227-5948 EMAIL: nrg1@captivair.com

**CAPTIVE AIR**

KROGER #615 - LIVONIA, MI  
LIVONIA, MI, 48152

DATE: 9/28/2021

DWG.#: 5110396

DRAWN BY: JAC

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

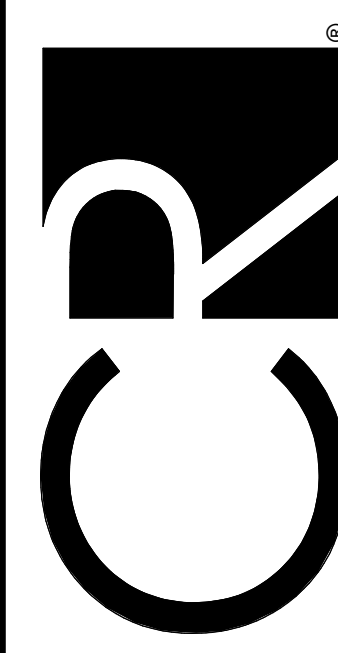
MASTER DRAWING

**SHEET NO.**  
3

EXECUTED BY: TDS  
REVIEWED BY: JCL

TF 800.469.4949  
P 513.721.8080  
F 972.258.4675  
M 313.487.8800  
TF 800.469.4949  
TF 800.469.4949

CHICAGO  
CINCINNATI  
DALLAS  
DENVER  
DETROIT  
SEATTLE



creating extraordinary places  
www.cr-architects.com  
800.469.4949

CONSULTANTS

OWNER



DATE: 09/30/2021  
ISSUE: 90% OWNER REVIEW

DATE:      REVISION:

PROJECT TITLE  
**KROGER STORE D615**

33523 Eight Mile Rd.  
Livonia, MI 48152

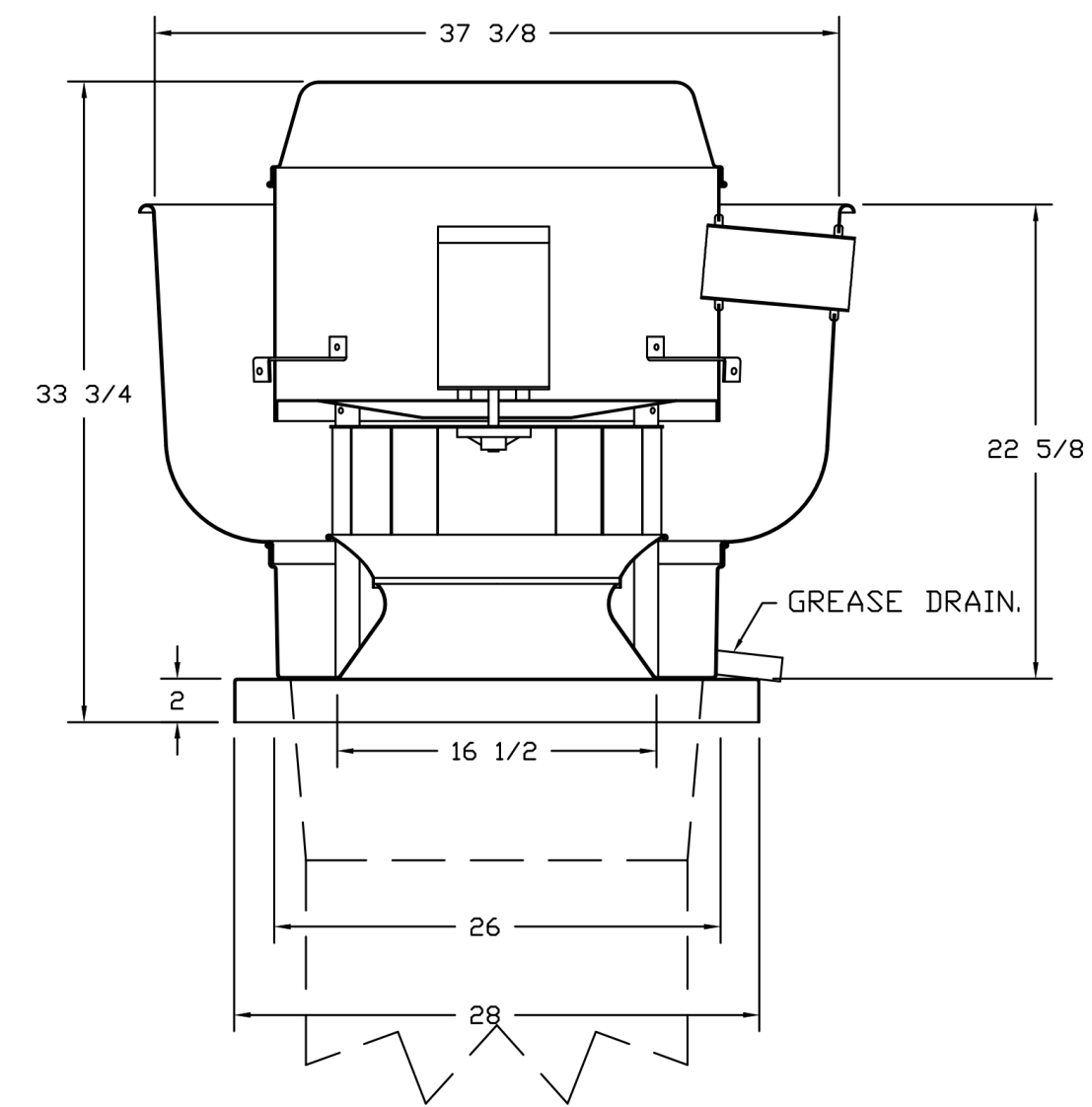
COMMISSION NO. 521342  
ISSUE DATE 10/27/2021

SHEET TITLE  
**DETAILS**

SHEET NO.  
**M5.4**

© 2021 Captive Air, Inc.

FAN #4 DJ180HFA - EXHAUST FAN (CF-K-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.

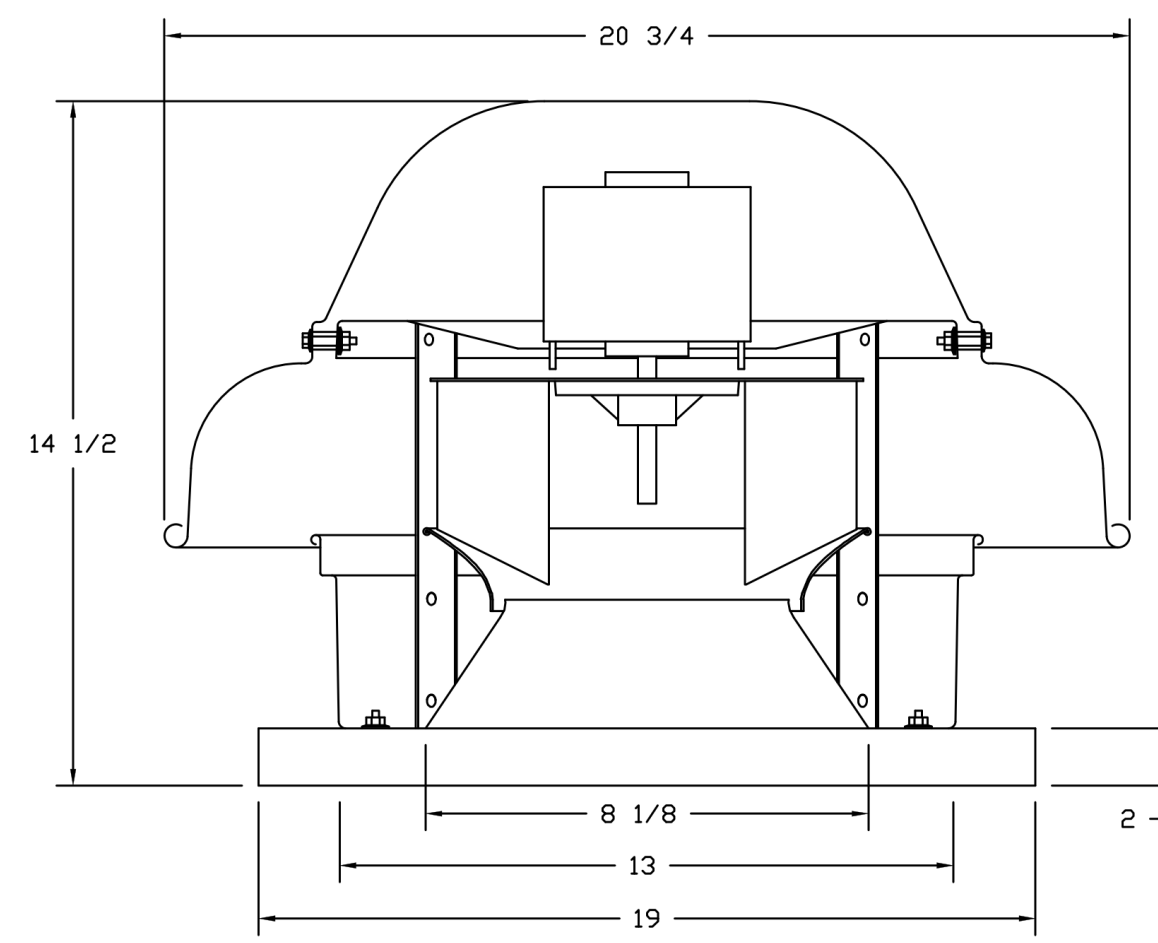
**ABNORMAL FLARE-UP TEST:**

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

FANS #5 (CF-R1 K-0002358), #6 (CF-R2 K-0002358) - DR10HFA EXHAUST FAN



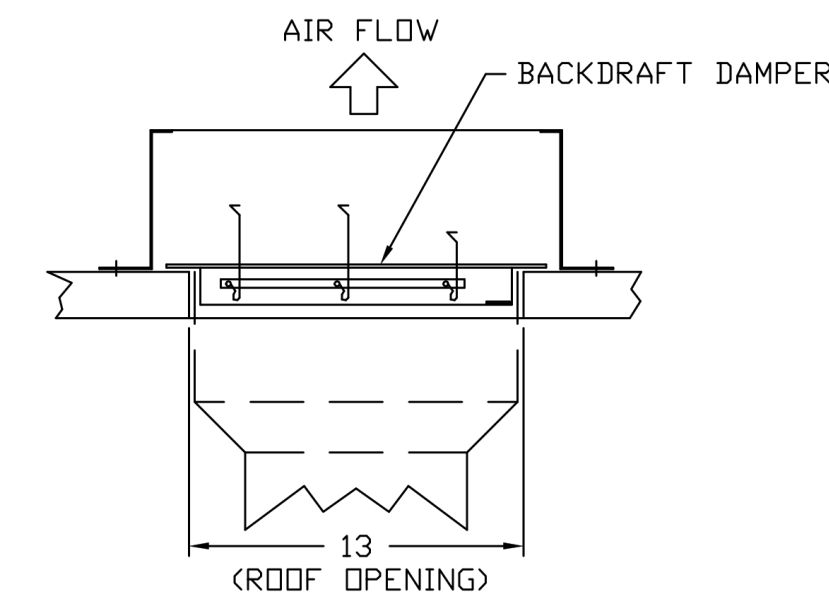
**FEATURES:**

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

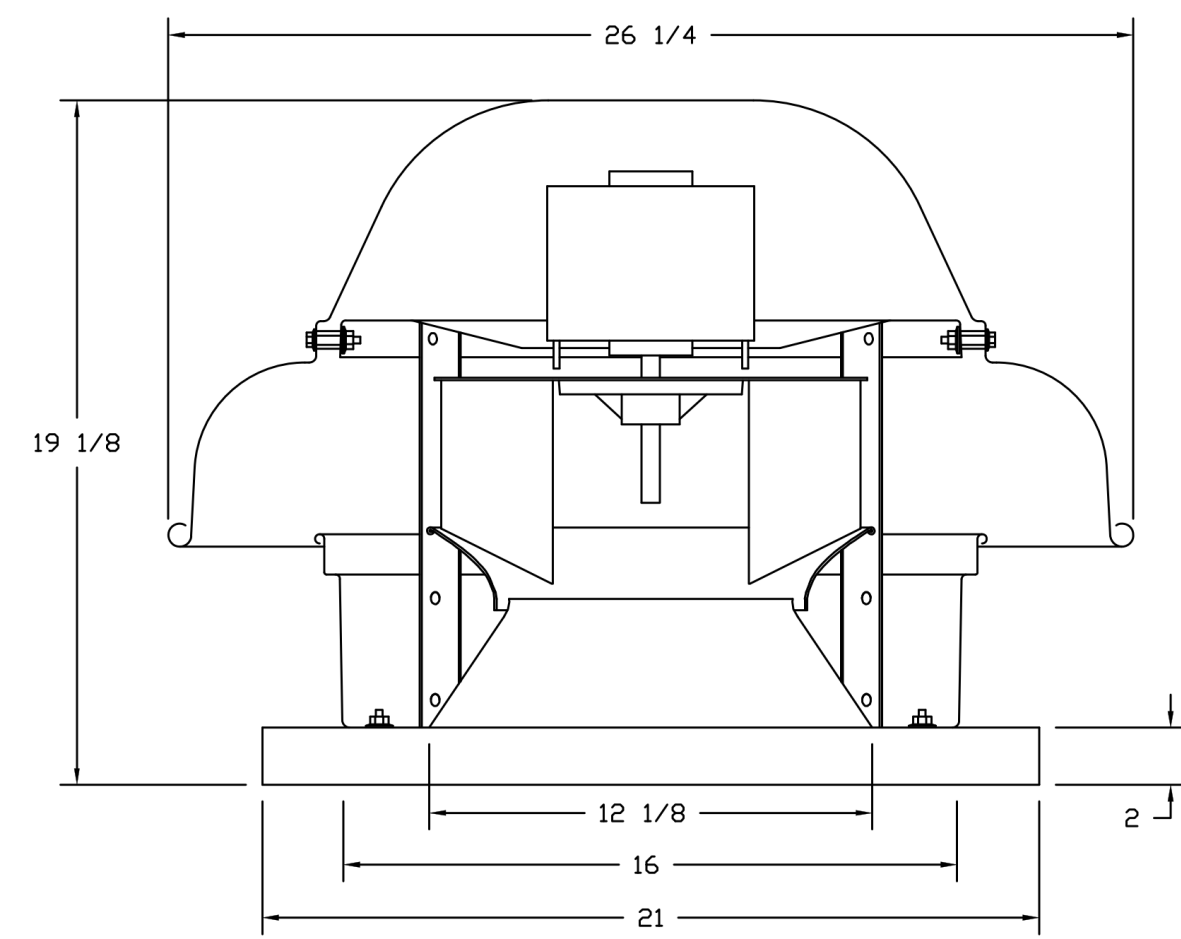
**OPTIONS:**

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

**BACKDRAFT DAMPER INSTALLATION**



FAN #8 DR30HFA - EXHAUST FAN (CF-RC-K-0002354)



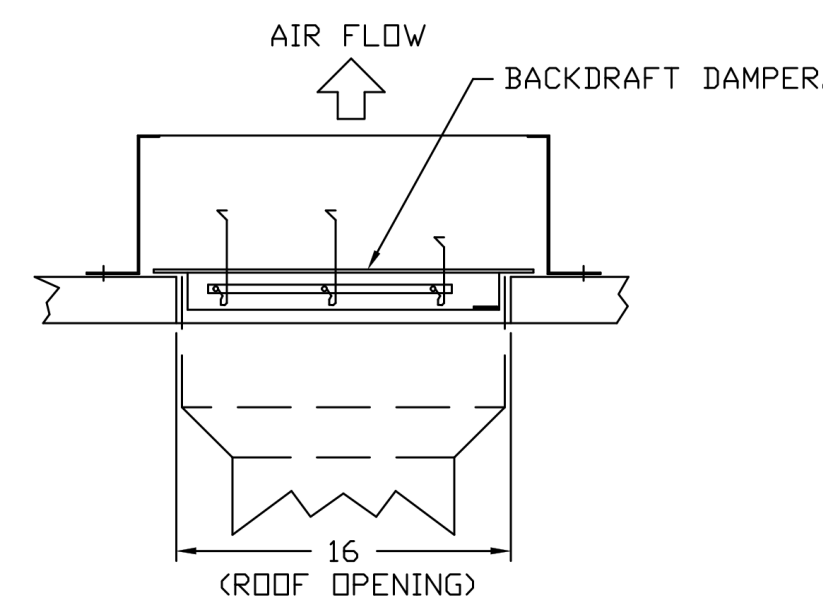
**FEATURES:**

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

**OPTIONS:**

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

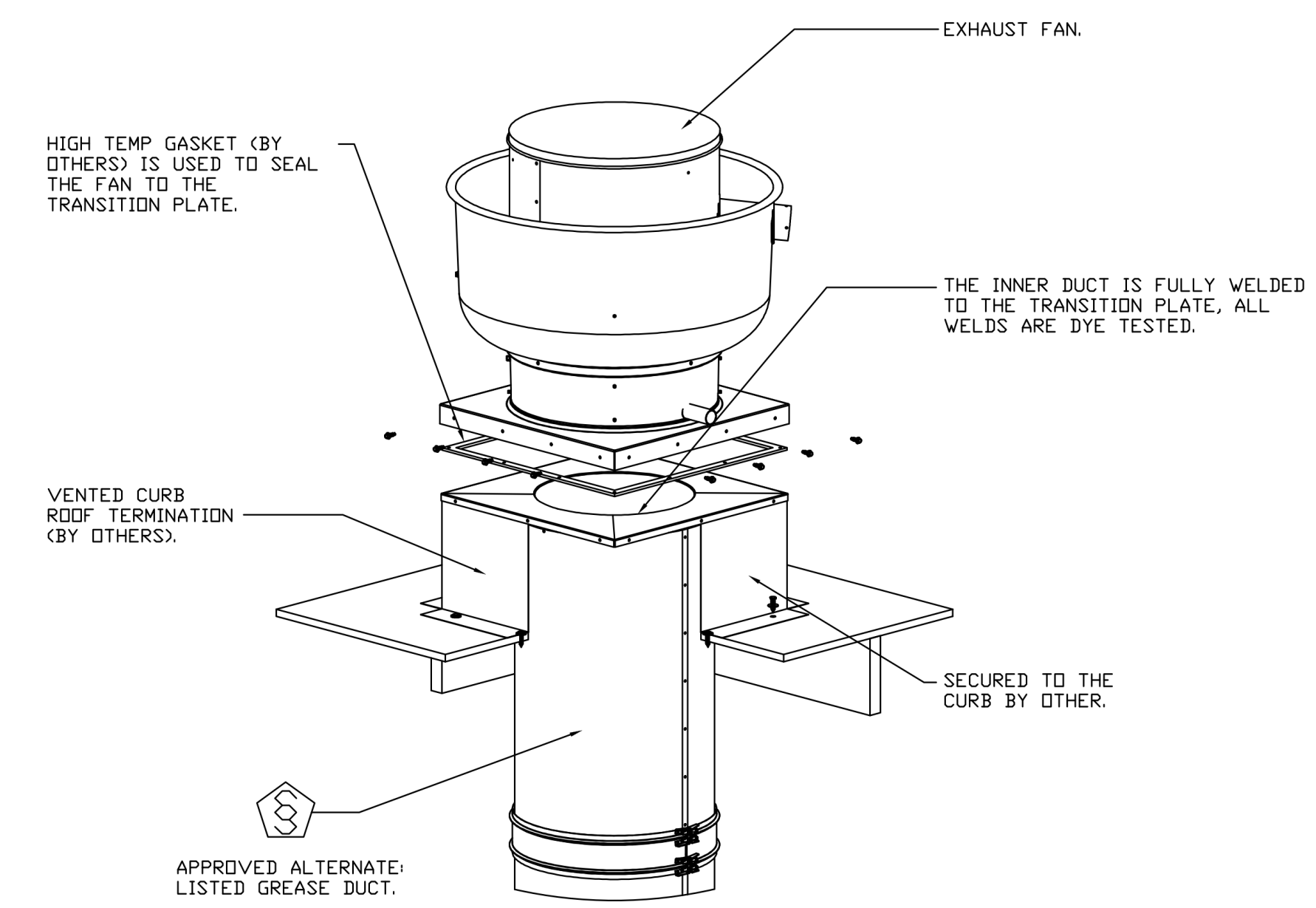
**BACKDRAFT DAMPER INSTALLATION**



**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.



REVISIONS	
DESCRIPTION	DATE

**CAPTIVEAIRE**  
www.captiveaire.com  
National Accounts  
4641 Paragon Park Rd., Raleigh, NC 27616 PHONE: (919) 862-2410 FAX: (919) 827-5848 EMAIL: nag1@captiveaire.com

KROGER #615 - LIVONIA, MI  
LIVONIA, MI, 48152

DATE: 9/28/2021

DWG.#: 5110396

DRAWN BY: JAC

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

MASTER DRAWING

SHEET NO. 4

EXECUTED BY: TDS  
REVIEWED BY: JCL

TF 800.469.4949  
P 513.721.8080  
F 972.258.4675  
R 404.469.4949  
TF 800.469.4949

CHICAGO  
CINCINNATI  
DALLAS  
DENVER  
DETROIT  
SEATTLE



creating extraordinary places  
www.cr-architects.com  
800.469.4949

CONSULTANTS

OWNER



DATE ISSUE

09/30/2021 90% OWNER REVIEW

DATE REVISION

PROJECT TITLE

KROGER STORE D615

33523 Eight Mile Rd.  
Livonia, MI 48152

COMMISSION NO. 521342

ISSUE DATE 10/27/2021

SHEET TITLE

DETAILS

SHEET NO.

M5.5

© 2021 Captive Air Systems, Inc.

THIS DOCUMENT IS THE PROPERTY OF COLLETT ARCHITECTS, INC. NEITHER THE DOCUMENT NOR THE INFORMATION CONTAINED HEREIN IS TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF COLLETT ARCHITECTS, INC.

**DOAS/RTU FAN SCHEDULE - JOB#5111559**

FAN UNIT NO	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	ESP	HP	BHP	PHASE	VOLT	MCA	MDCP	WEIGHT (LBS)
1	DDAS-1	1	CASRTU3-1300-22-1ST-DDAS	CAPTIVEAIRE	22Z-3	0	2500	2500	0.500	5.000	0.5930	3	460	31.2A	35A	2423
2	DDAS-2	1	CASRTU3-1300-22-1ST-DDAS	CAPTIVEAIRE	22Z-3	0	2500	2500	0.500	5.000	0.5930	3	460	31.2A	35A	2423

**DOAS/RTU COOLING SCHEDULE**

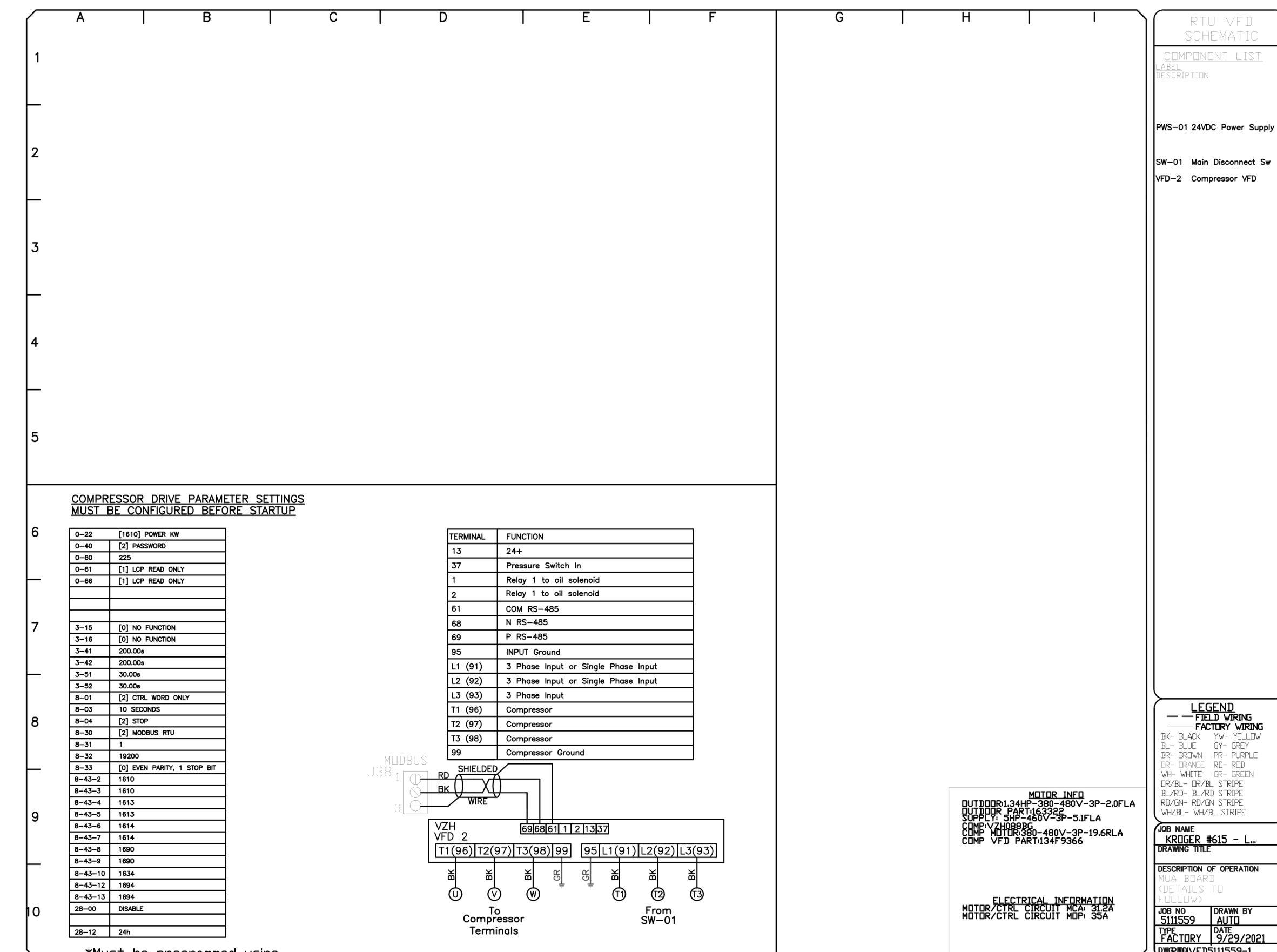
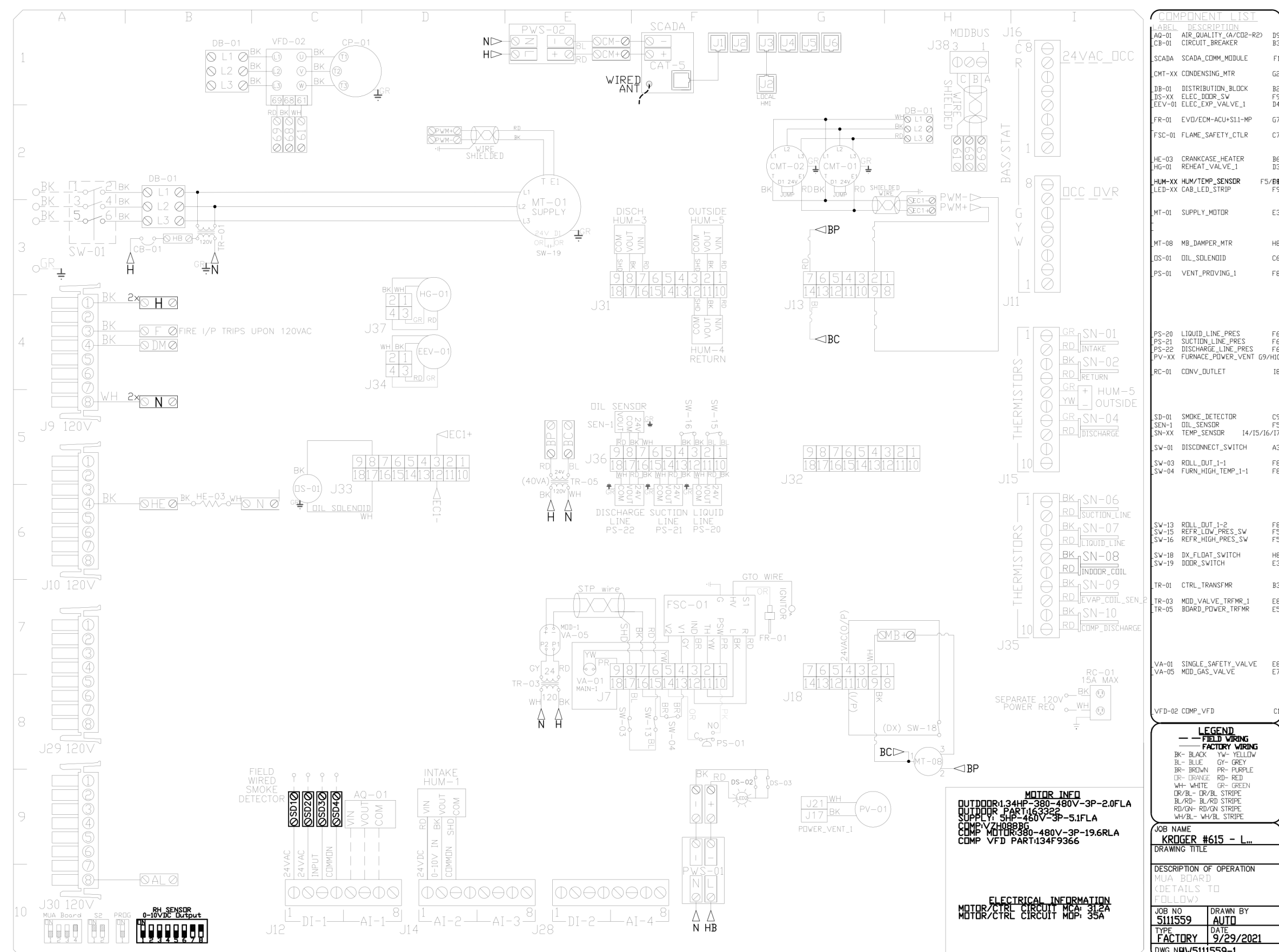
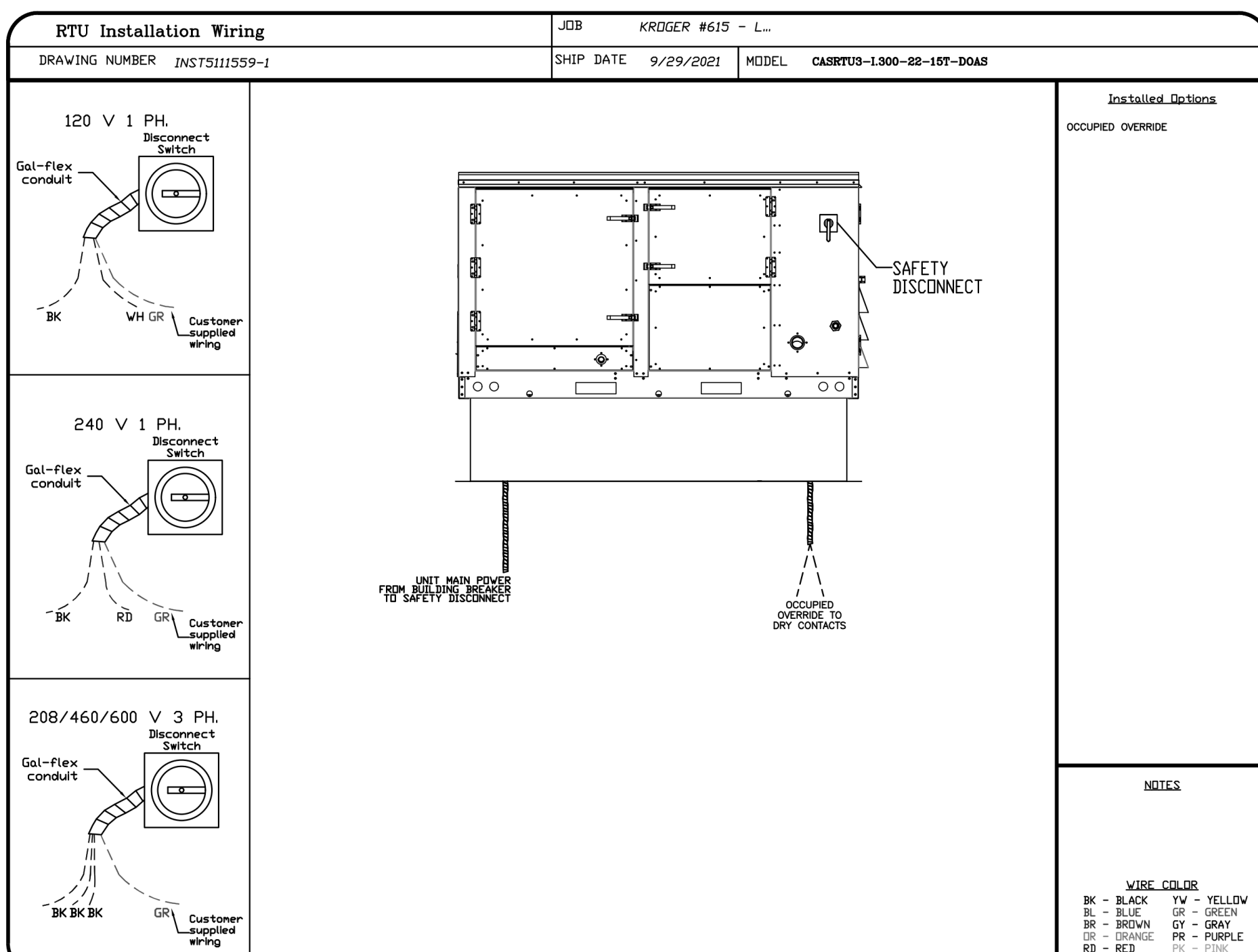
FAN UNIT NO	TAG	COMPRESSOR			OUTDOOR FAN			INDOOR COIL		OUTSIDE AIR DB TEMP	OUTSIDE AIR WB TEMP	MIXED AIR DB TEMP	MIXED AIR WB TEMP	LEAVING DB TEMP	LEAVING WB TEMP	LEAVING DP TEMP	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY	REHEAT LEAVING DB TEMP	REHEAT LEAVING WB TEMP	DESIRED REHEAT CAPACITY	MAX REHEAT CAPACITY	REHEAT RELATIVE HUMIDITY	MOISTURE REMOVAL RATE	IEER	
		TONNAGE	VOLTAG	PHASE	MOTOR VOLTAG	MOTOR Ø	MOTOR FREQUENCY	MOTOR QTY	ROWS																		FACE AREA
1	DDAS-1	15	380-480	3	380-480	3	60	2	6	11.9 SQFT	82.5°F	76.1°F	82.5°F	76.1°F	55.0°F	53.5°F	52.5°F	186.0 MBH	72.4 MBH	113.6 MBH	70.0°F	59.4°F	41.1 MBH	129.6 MBH	54	102.6 LBS/HR	18.8
2	DDAS-2	15	380-480	3	380-480	3	60	2	6	11.9 SQFT	82.5°F	76.1°F	82.5°F	76.1°F	55.0°F	53.5°F	52.5°F	186.0 MBH	72.4 MBH	113.6 MBH	70.0°F	59.4°F	41.1 MBH	129.6 MBH	54	102.6 LBS/HR	18.8

**DOAS/RTU HEATING SCHEDULE**

FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
1	DDAS-1	272454	217963	73°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	80
2	DDAS-2	272454	217963	73°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	80

**FAN OPTIONS**

FAN UNIT NO	TAG	QTY	DESCRIPTION
1 & 2	DDAS-1 & DDAS-2	1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE.
		1	TOTAL CFM MONITORING FOR DDAS.
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU. QNTY 1 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" OPTION PREWIRE MUST BE SELECTED. DO NOT PROVIDE SUPPLY STARTER IN PREWIRE.
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED.
		1	RTU SIZE 3 DOWN DISCHARGE.
		1	2" MERV 8 FILTERS FOR SIZE 3 RTU. QTY 4.
		1	OVERHEAT STAT.
		1	15 TON MODULATING COOLING OPTION, 460/480V. R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS.
		1	ECM FAN DDAS - 3 PHASE.
		1	15 TON MODULATING REHEAT OPTION, DISCHARGE DEWPOINT CONTROL.
		1	COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK (SUPPLIED BY OTHERS).
		1	ECM WIRING PACKAGE - SUPPLY FAN CONTROL RTU MUA BOARD.
		1	AUXILIARY REHEAT.
		1	OCCUPIED SCHEDULING.
		1	SIZE 3 RTU CONVENIENCE OUTLET (GFCI), 15 AMP - REQUIRES SEPARATE 120V CONNECTION. INCLUDES RECEPTACLE, COVER AND J BOX.
		1	RTU MANUAL INTAKE/RETURN DAMPER CONTROL VIA HMI.
		1	RTU SIZE 3 DOWN RETURN.
		1	FREEZE/STAT.
		1	DAMPER CONTROLLED CO2 OVERRIDE OPTION.
1	RTU ECONOMIZER WITH DIFFERENTIAL ENTHALPY CONTROL.		
1	RTU SIZE 3 ECONOMIZER BAROMETRIC RELIEF.		
1	5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS).		



**REVISIONS**

DESCRIPTION	DATE

**CAPTIVEAIRE**  
 www.captiveaire.com  
 National Accounts  
 4641 Paragon Park Rd., Raleigh, NC 27616 PHONE: (919) 882-2410 FAX: (919) 227-9948 EMAIL: reg15@captiveaire.com

KROGER #615 - LIVONIA, MI - DDAS  
 LIVONIA, MI, 48152

**DATE:** 9/29/2021  
**DWG.#:** 5111559  
**DRAWN BY:** JAC  
**SCALE:** 3/4" = 1'-0"  
**MASTER DRAWING**

**SHEET NO.**  
 1

EXECUTED BY: TDS  
 REVIEWED BY: JCL

CHICAGO  
 CINCINNATI  
 DALLAS  
 DENVER  
 DETROIT  
 SEATTLE

TF 800.469.4949  
 P 513.721.8080  
 F 972.259.4675  
 TF 800.469.4949  
 TF 800.469.4949

creating extraordinary places  
 www.cr-architects.com  
 800.469.4949

CONSULTANTS

OWNER  
**Kroger**

DATE: 09/30/2021  
 ISSUE: 90% OWNER REVIEW

PROJECT TITLE  
**KROGER STORE D615**

33523 Eight Mile Rd.  
 Livonia, MI 48152

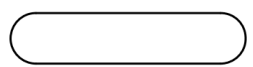
COMMISSION NO. 521342  
 ISSUE DATE 10/27/2021  
 SHEET TITLE  
**DETAILS**

SHEET NO.  
**M5.7**

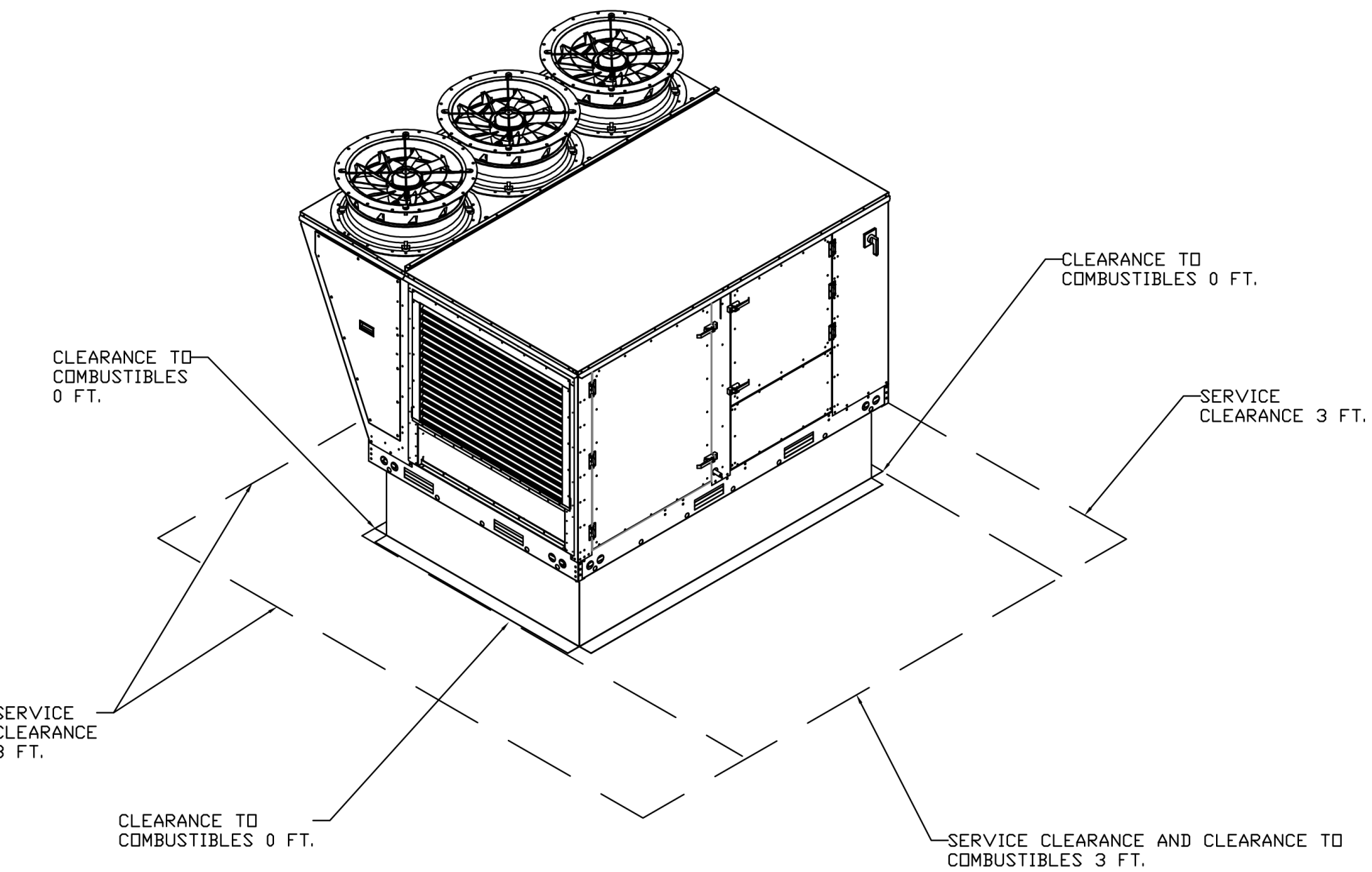
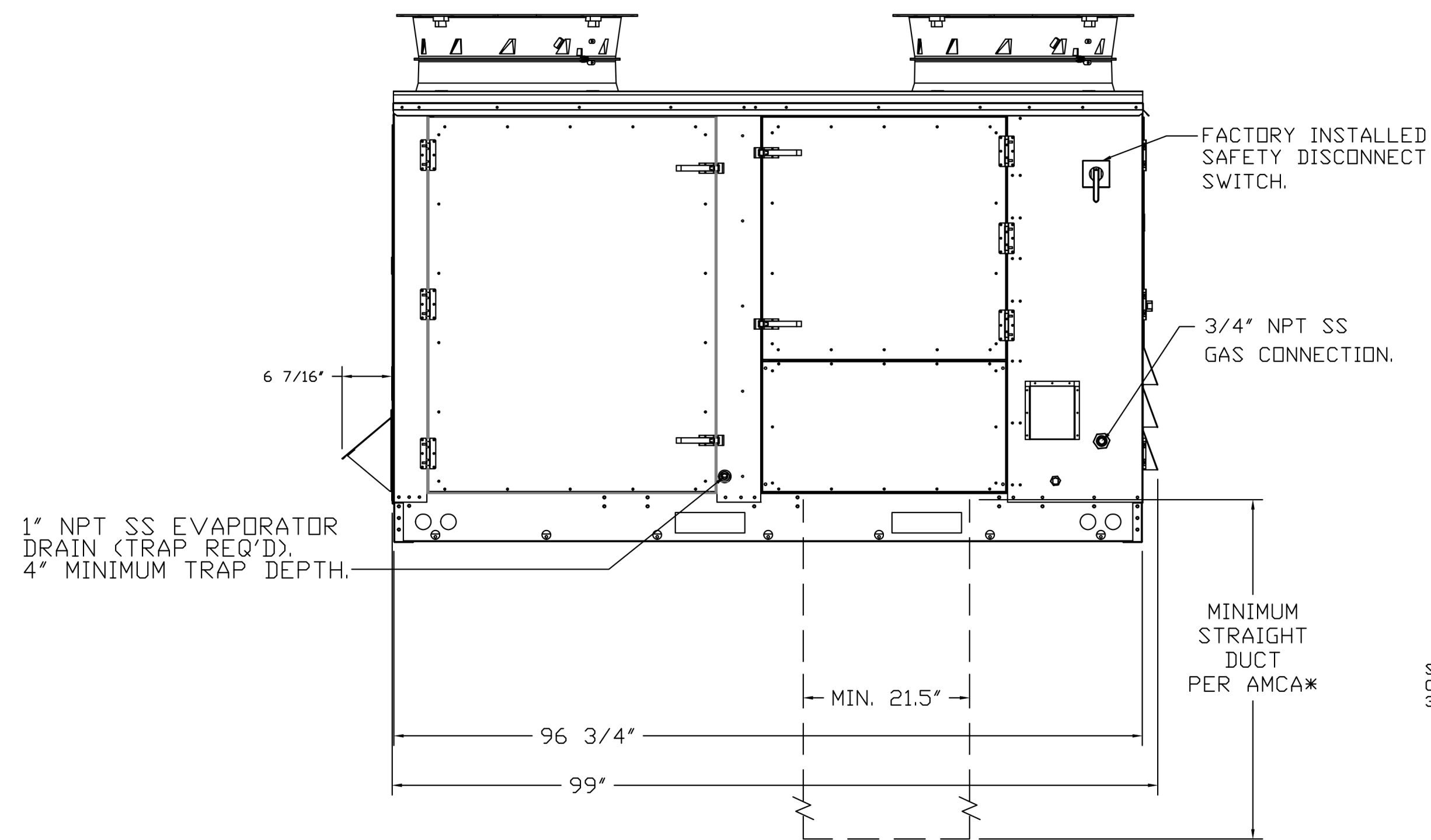
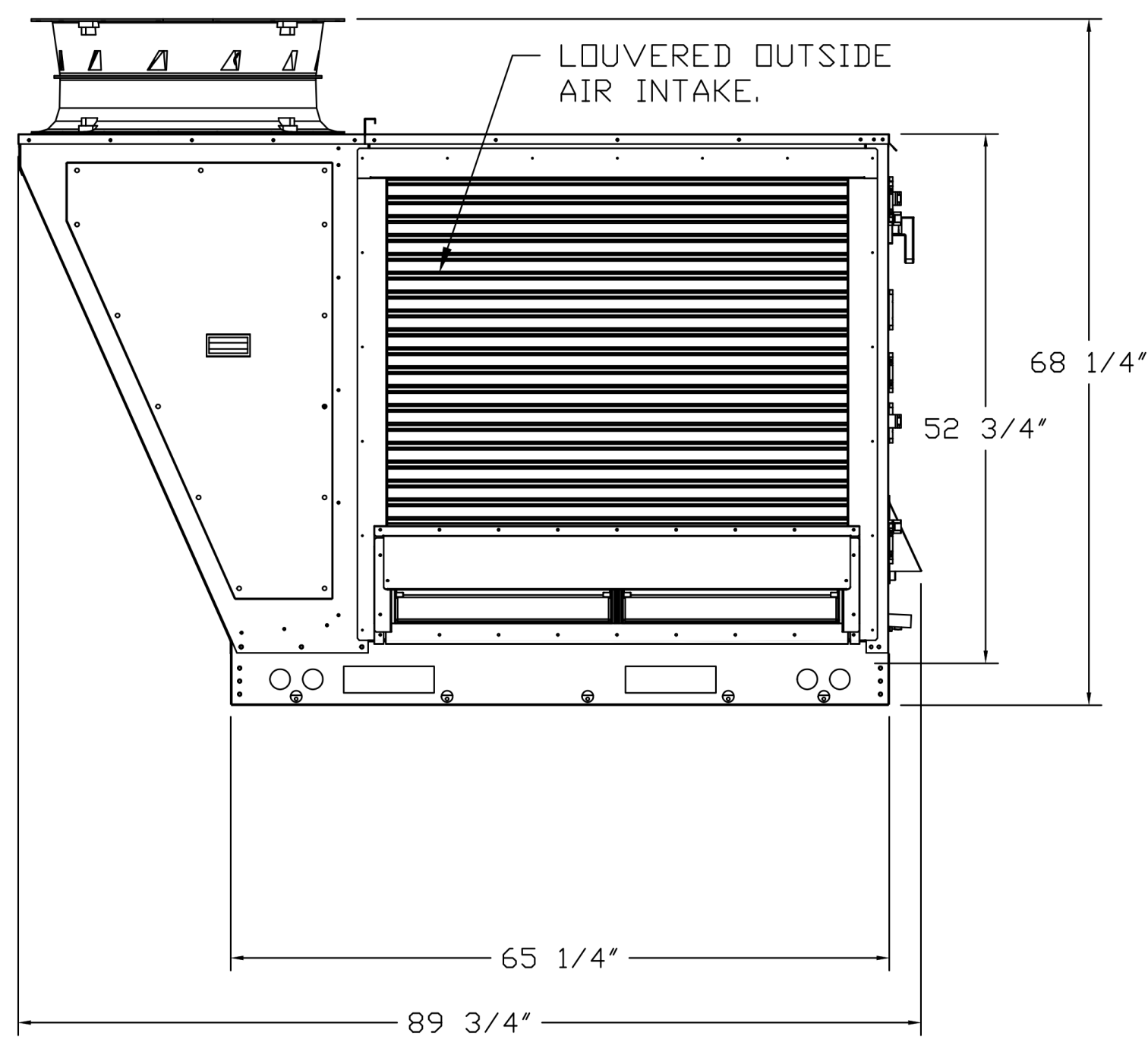
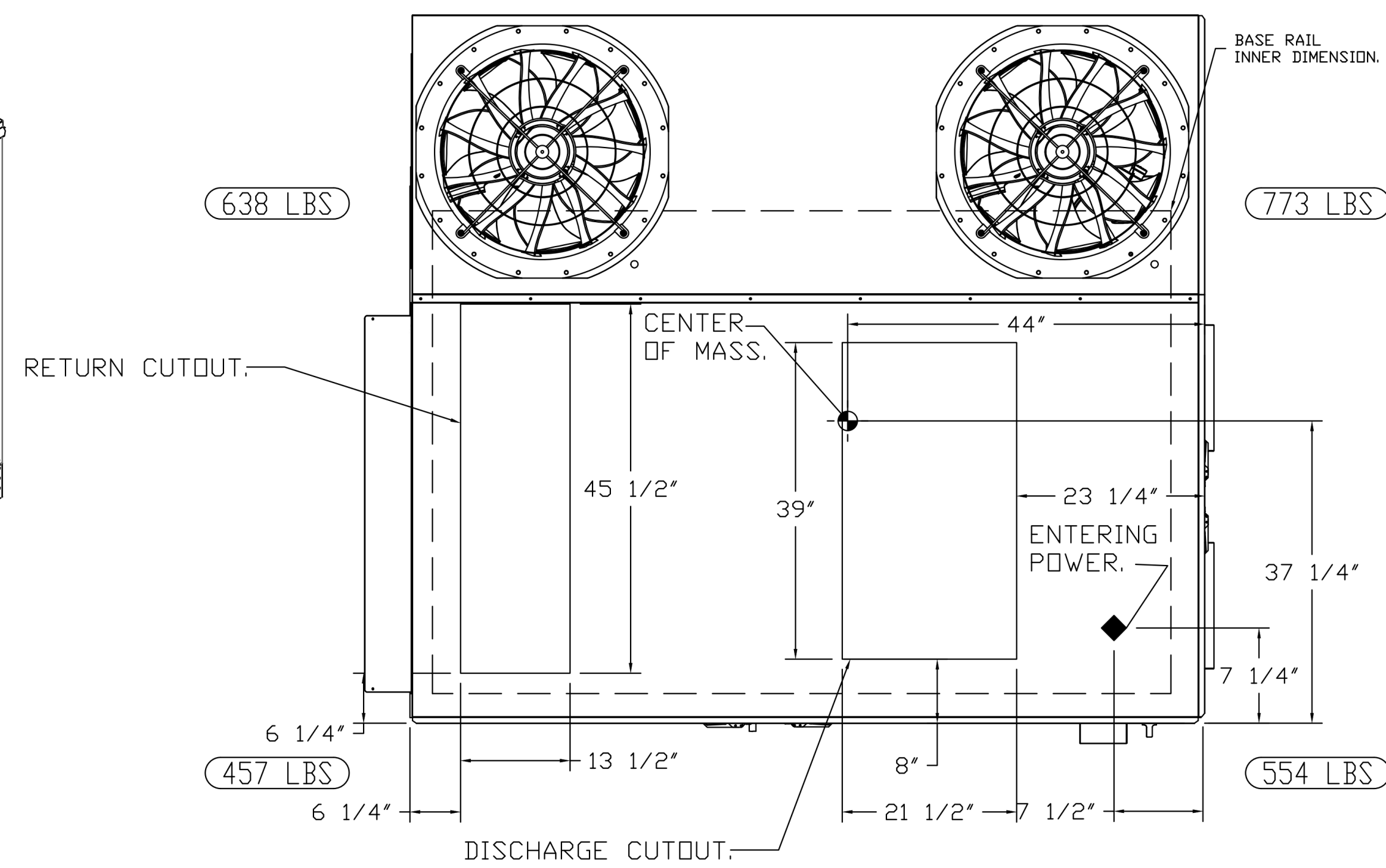
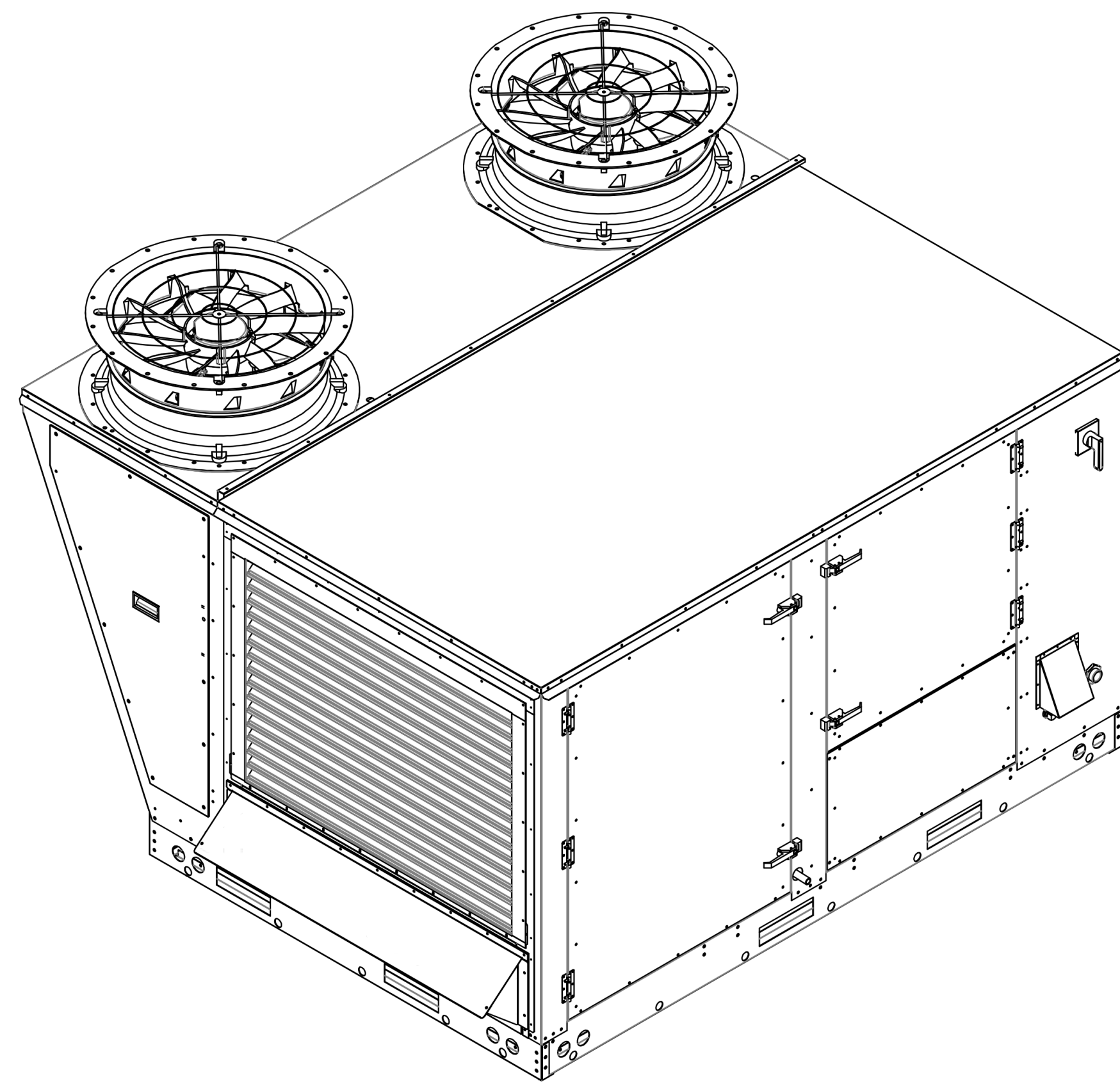
© 2021 Collett Architects, Inc.

FAN #1 (DOAS-1), #2 (DOAS-2) - CASRTU3-1.300-22-15T-DOAS 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 21.5" x 39".



OPTIONS

- INLET PRESSURE GAUGE, 0-35".
- MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE.
- TOTAL CFM MONITORING FOR DOAS.
- SINGLE POINT ELECTRICAL CONNECTION FOR RTU. QNTY 1 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" OPTION PREWIRE MUST BE SELECTED. DO NOT PROVIDE SUPPLY STARTER IN PREWIRE.
- CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED.
- RTU SIZE 3 DOWN DISCHARGE.
- 2" MERV 8 FILTERS FOR SIZE 3 RTU. QTY 4.
- OVERHEAT STAT.
- 15 TON MODULATING COOLING OPTION, 460/480V. R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FAN(S).
- ECM FAN DOAS - 3 PHASE.
- 15 TON MODULATING REHEAT OPTION. DISCHARGE DEWPOINT CONTROL.
- COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK (SUPPLIED BY OTHERS).
- ECM WIRING PACKAGE - SUPPLY FAN CONTROL RTU MUA BOARD.
- AUXILIARY REHEAT.
- OCCUPIED SCHEDULING.
- SIZE 3 RTU CONVENIENCE OUTLET (GFCI), 15 AMP - REQUIRES SEPARATE 120V CONNECTION. INCLUDES RECEPTACLE, COVER AND J BOX.
- RTU MANUAL INTAKE/RETURN DAMPER CONTROL VIA HMI.
- RTU 3 HAIL GUARD.
- RTU SIZE 3 DOWN RETURN.
- FREEZESTAT.
- DAMPER CONTROLLED CO2 OVERRIDE OPTION.
- RTU ECONOMIZER WITH DIFFERENTIAL ENTHALPY CONTROL.
- RTU SIZE 3 ECONOMIZER BAROMETRIC RELIEF.
- 5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS).

REVISIONS	DESCRIPTION	DATE
Δ		
Δ		
Δ		



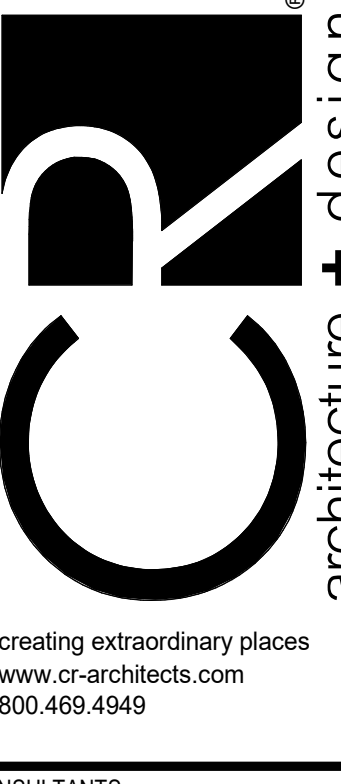
KROGER #615 - LIVONIA, MI - DOAS  
LIVONIA, MI, 48152

DATE:	9/29/2021
DWG.#:	5111559
DRAWN BY:	JAC
SCALE:	3/4" = 1'-0"
MASTER DRAWING	
SHEET NO.	2

EXECUTED BY: TDS  
REVIEWED BY: JCL

TF 800.469.4949  
P 513.721.8080  
F 972.253.4675  
R 404.469.4949  
TF 800.469.4949  
TF 800.469.4949

CHICAGO  
CINCINNATI  
DALLAS  
DENVER  
DETROIT  
SEATTLE



CONSULTANTS

OWNER



DATE: 09/30/2021  
ISSUE: 90% OWNER REVIEW

DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_

PROJECT TITLE  
KROGER STORE  
D615

33523 Eighth Mile Rd.  
Livonia, MI 48152

COMMISSION NO. 521342  
ISSUE DATE 10/27/2021

SHEET TITLE  
DETAILS

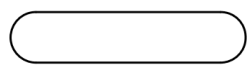
SHEET NO.  
M5.8

© 2021 Captive Air Systems, Inc.

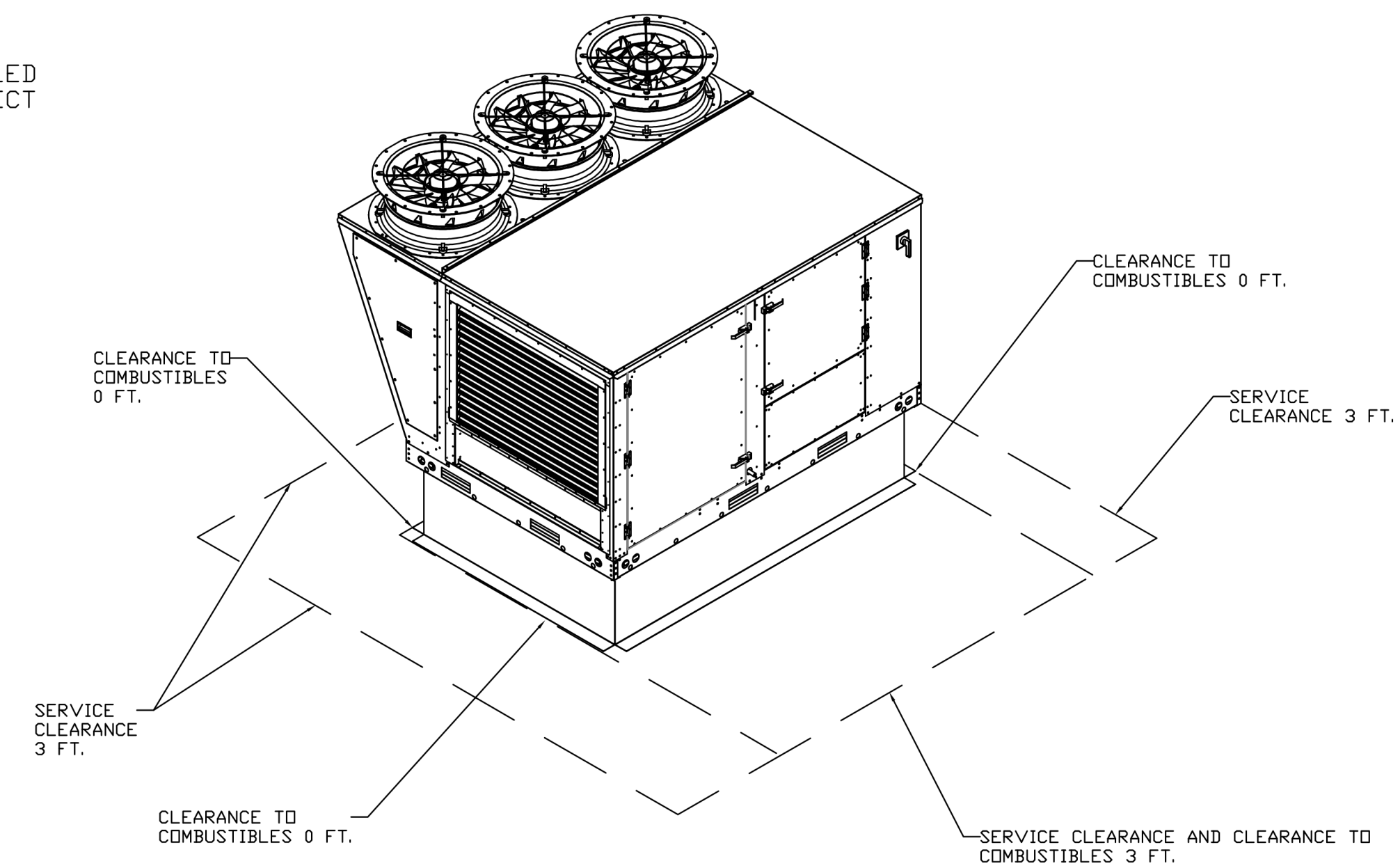
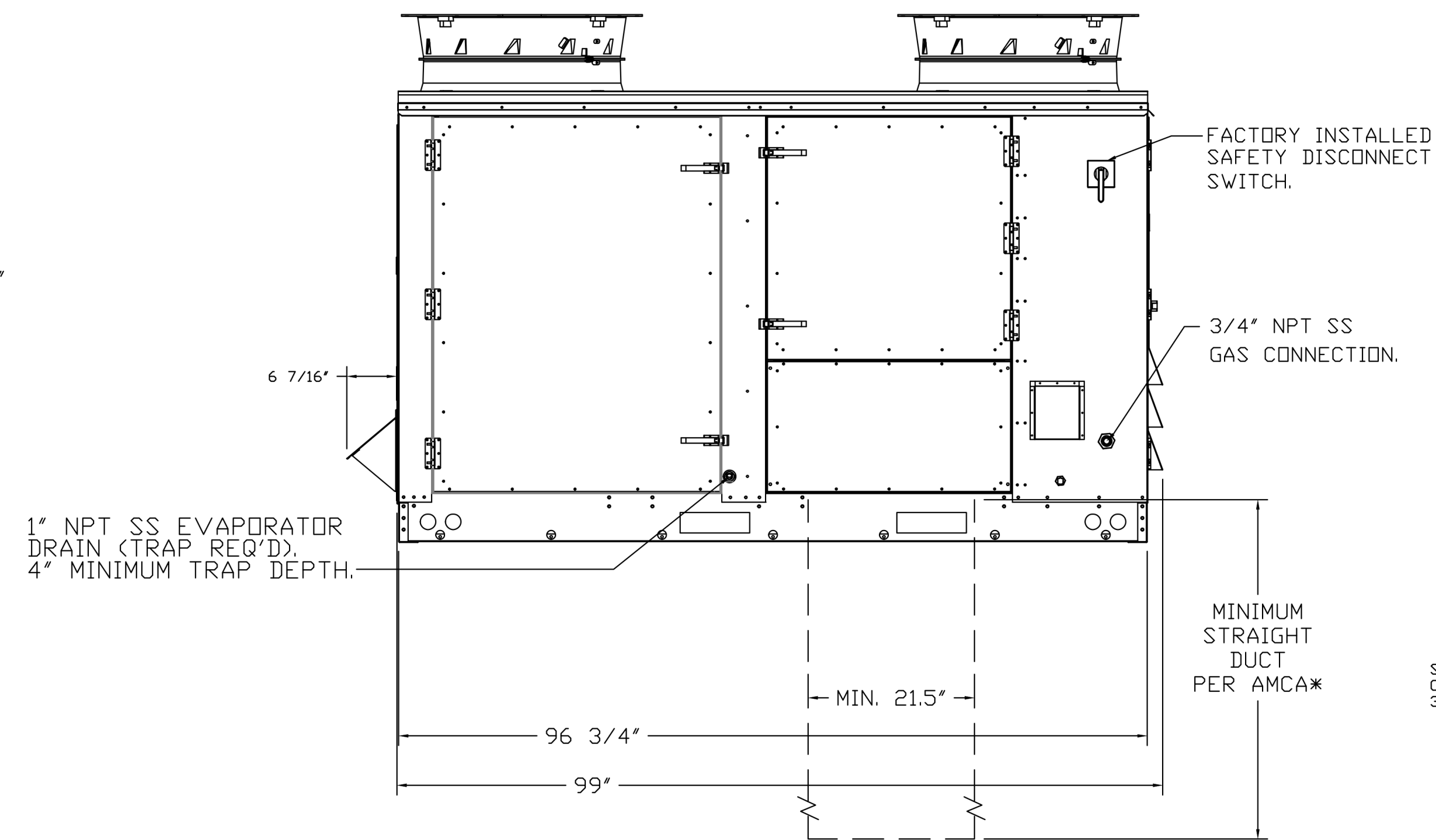
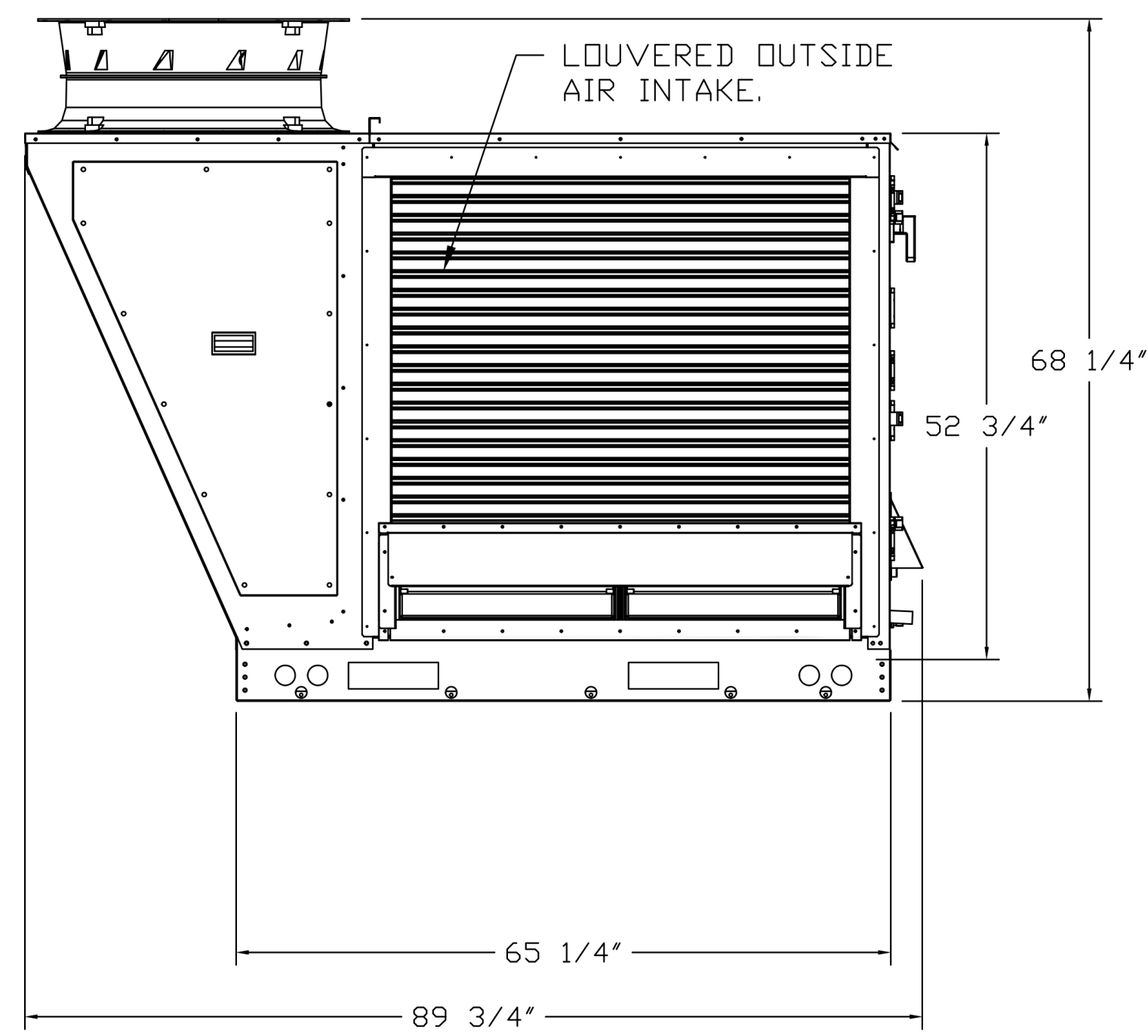
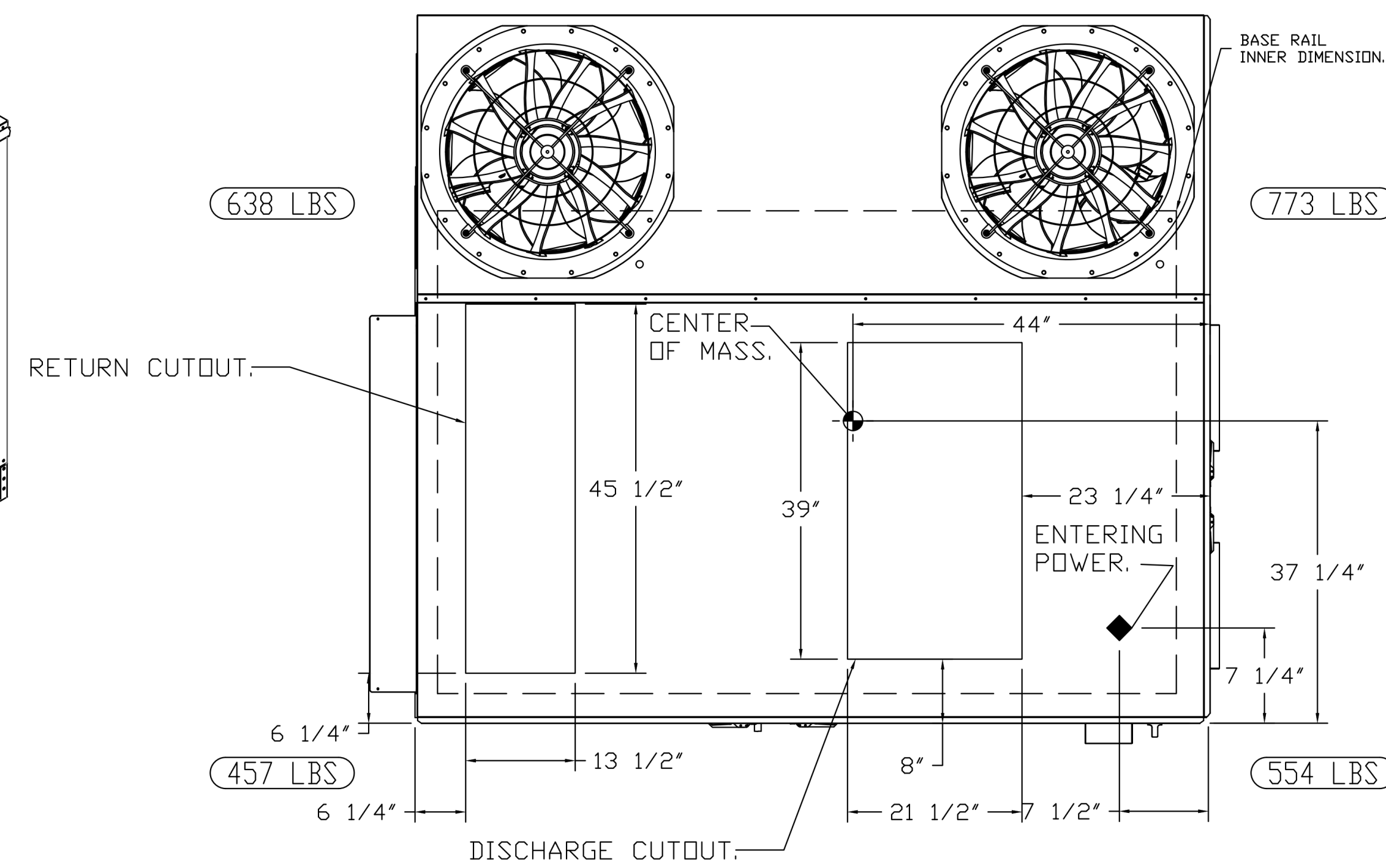
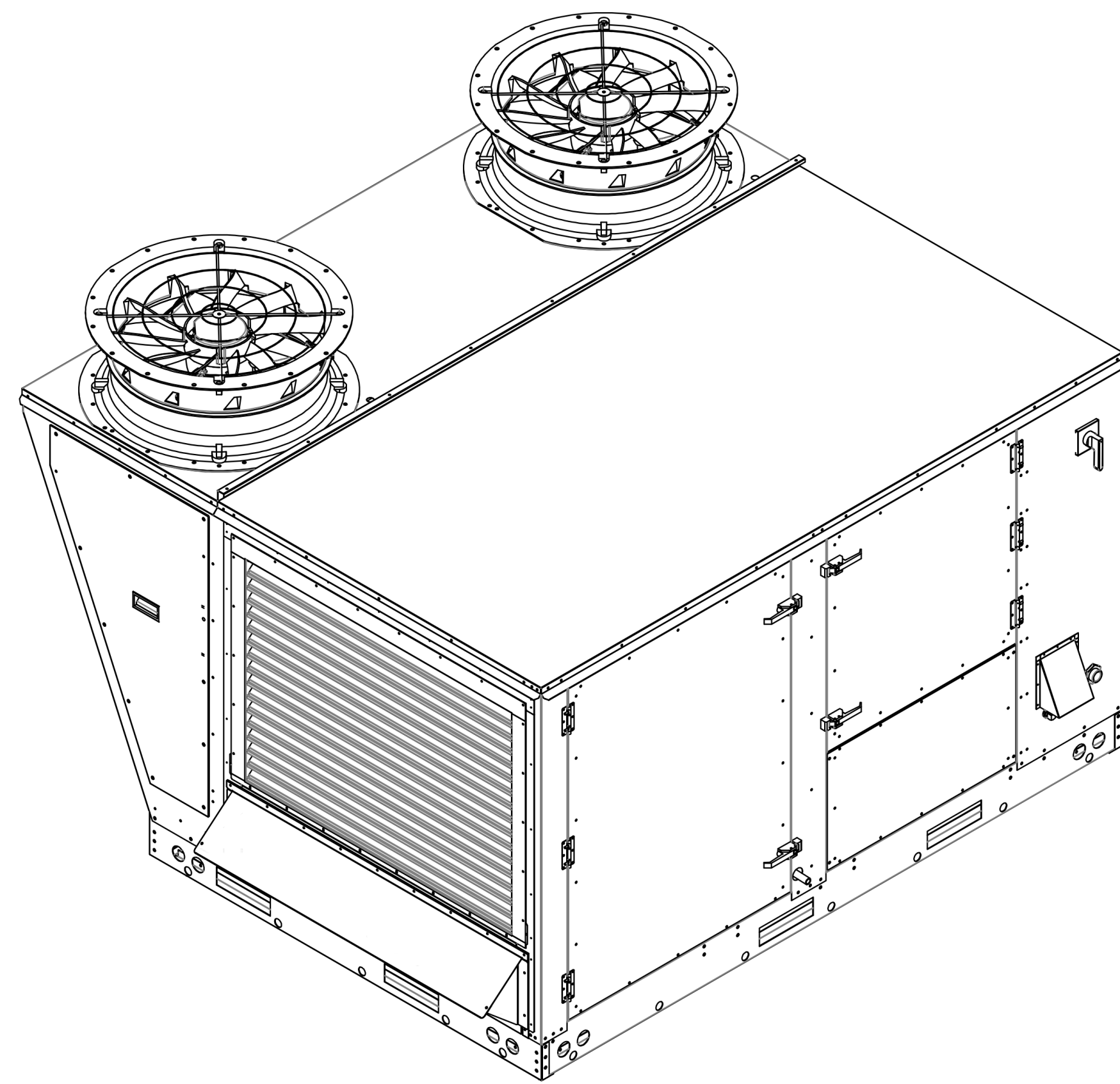
THIS DOCUMENT IS THE PROPERTY OF COLERUSSELL ARCHITECTS, INC. NEITHER THE DOCUMENT NOR THE INFORMATION IT CONTAINS MAY BE COPIED OR USED FOR OTHER THAN THE SPECIFIC PROJECT FOR WHICH IT WAS PREPARED WITHOUT THE EXPRESS WRITTEN CONSENT OF COLERUSSELL ARCHITECTS, INC.  
10/27/2021 4:03:41 PM

FAN #1 (DOAS-1), #2 (DOAS-2) - CASRTU3-1.300-22-15T-DOAS 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 21.5" x 39".



OPTIONS

- INLET PRESSURE GAUGE, 0-35".
- MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 1 FURNACE.
- TOTAL CFM MONITORING FOR DOAS.
- SINGLE POINT ELECTRICAL CONNECTION FOR RTU. QNTY 1 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" OPTION PREWIRE MUST BE SELECTED. DO NOT PROVIDE SUPPLY STARTER IN PREWIRE.
- CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED.
- RTU SIZE 3 DOWN DISCHARGE.
- 2" MERV 8 FILTERS FOR SIZE 3 RTU. QTY 4.
- OVERHEAT STAT.
- 15 TON MODULATING COOLING OPTION, 460/480V. R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FAN(S).
- ECM FAN DOAS - 3 PHASE.
- 15 TON MODULATING REHEAT OPTION. DISCHARGE DEWPOINT CONTROL.
- COMMERCIAL SMOKE DETECTOR/ALARM INTERLOCK (SUPPLIED BY OTHERS).
- ECM WIRING PACKAGE - SUPPLY FAN CONTROL RTU MUA BOARD.
- AUXILIARY REHEAT.
- OCCUPIED SCHEDULING.
- SIZE 3 RTU CONVENIENCE OUTLET (GFCI), 15 AMP - REQUIRES SEPARATE 120V CONNECTION. INCLUDES RECEPTACLE, COVER AND J BOX.
- RTU MANUAL INTAKE/RETURN DAMPER CONTROL VIA HMI.
- RTU 3 HAIL GUARD.
- RTU SIZE 3 DOWN RETURN.
- FREEZESTAT.
- DAMPER CONTROLLED CO2 OVERRIDE OPTION.
- RTU ECONOMIZER WITH DIFFERENTIAL ENTHALPY CONTROL.
- RTU SIZE 3 ECONOMIZER BAROMETRIC RELIEF.
- 5 YEAR ENTIRE UNIT PARTS WARRANTY, 10 YEAR ENTIRE UNIT PARTS WARRANTY WITH REMOTE MONITORING AND CAPTIVEAIRE SERVICE CONTRACT, 25 YEAR STAINLESS STEEL FURNACE PARTS WARRANTY (SEE ADDITIONAL DETAILS).

REVISIONS	DESCRIPTION	DATE
Δ		
Δ		
Δ		

**CAPTIVEAIRE**

www.captiveaire.com

National Accounts

4641 Paragon Park Rd., Raleigh, NC 27616 PHONE: (919) 852-2410 FAX: (919) 227-5948 EMAIL: neg15@captiveaire.com

KROGER #615 - LIVONIA, MI - DOAS  
LIVONIA, MI, 48152

DATE: 9/29/2021

DWG.#: 5111559

DRAWN BY: JAC

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

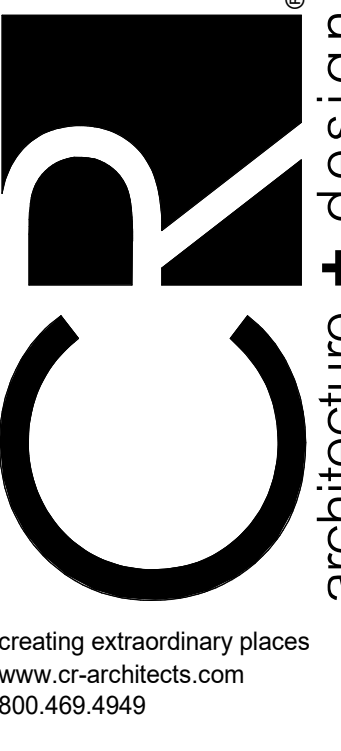
MASTER DRAWING

SHEET NO. 2

EXECUTED BY: TDS  
REVIEWED BY: JCL

TF 800.469.4949  
P 513.721.8080  
F 972.253.4675  
R 972.253.4675  
TF 800.469.4949  
TF 800.469.4949

CHICAGO  
CINCINNATI  
DALLAS  
DENVER  
DETROIT  
SEATTLE



CONSULTANTS

OWNER



DATE: 09/30/2021  
ISSUE: 90% OWNER REVIEW

DATE: \_\_\_\_\_  
REVISION: \_\_\_\_\_

PROJECT TITLE  
KROGER STORE  
D615

33523 Eighth Mile Rd.  
Livonia, MI 48152

COMMISSION NO. 521342

ISSUE DATE 10/27/2021

SHEET TITLE

DETAILS

SHEET NO.

M5.8

© 2021 Captive Air Systems, Inc.

THIS DOCUMENT IS THE PROPERTY OF COLERUSSELL ARCHITECTS, INC. NEITHER THE DOCUMENT NOR THE INFORMATION IT CONTAINS MAY BE COPIED OR USED FOR OTHER THAN THE SPECIFIC PROJECT FOR WHICH IT WAS PREPARED WITHOUT THE EXPRESS CONSENT OF COLERUSSELL ARCHITECTS, INC.  
10/27/2021 4:03:41 PM

ROOFTOP UNIT SCHEDULE																						
NAME	MANUFACTURER	MODEL	AES CURB	NOMINAL TONS	SUPPLY CFM	EXTERNAL STATIC PRESSURE	MOTOR HP	COOLING MBH	SENSIBLE COOLING	COOLING EAT	COOLING Q LAT	HEATING EAT	HEATING LAT	HEATING MBH IN	HEATING MBH OUT	MIN. GAS PRESSURE (IN E.C)	MCA	MOC	VOLTAGE	PHASE	NO. OF POLES	ACCESSORIES
RTU-1	LENNOX	LG1504UAE	K060-50025	12.5	5000 CFM	4	3.75	144	138	73	59	73	101	240	192	7	29 A	35 A	480 V	3	3	1,5,6,7,8,12
RTU-2	LENNOX	LG1504UAE	K060-50025	12.5	5000 CFM	4	3.75	144	138	73	59	73	101	240	192	7	29 A	35 A	480 V	3	3	1,5,6,7,8,12
RTU-4	LENNOX	LG1504UAE	K060-50025	7.5	3000 CFM	1.5	3.75	91	86	73	63	71	105	190	104	7	19 A	20 A	480 V	3	3	1,3,5,6,7,8,9,10,12,14,15
RTU-5	LENNOX	LG1504UAE	K060-50025	7.5	3000 CFM	1.5	3.75	91	86	73	63	71	105	190	104	7	19 A	20 A	480 V	3	3	1,3,5,6,7,8,9,12,14,15
RTU-6	LENNOX	LG1504UAE	K060-50024	5	2000 CFM	1.5	1	58.5	57	73	62	52	100	108	86	7	15 A	20 A	480 V	3	3	1,5,6,7,8,9,10,12
RTU-7	LENNOX	LG1504UAE	K060-50024	6	2400 CFM	1.5	1	71	69	73	62	52	100	108	87	7	15 A	20 A	480 V	3	3	1,3,5,6,7,8,9,10,12,14
RTU-8	LENNOX	LG1504UAE	K060-50024	4	1550 CFM	1.0	0.75	35.3	34.3	73	62	52	100	108	86	7	14 A	15 A	480 V	3	3	1,5,6,7,8,9,12
RTU-9	LENNOX	LG1504UAE	K060-50024	3	1200 CFM	1.5	0.5	34.6	34	73	62	52	100	69	92	7	11 A	15 A	480 V	3	3	1,5,6,7,8,9,12,14

ROOFTOP UNIT ACCESSORIES														
1.	ROOF CURB-ADJUSTABLE													
2.	2 POSITION AUTOMATIC OUTSIDE AIR DAMPER													
3.	ECONOMIZER													
4.	HEAT RECLAIM COILS													
5.	FACTORY CONTROLS PER KROGER STANDARDS													
6.	FACTORY GFCI RECEPTACLE													
7.	FACTORY DISCONNECT WITH FUSING (MANUFACTURER TO CONFIRM LOCAL AHJ REQUIREMENT)													
8.	CONDENSATION OVERFLOW SWITCH													
9.	CONSTANT VOLUME WITH VFD FOR BALANCING													
10.	RETURN AIR SMOKE DETECTOR BY OTHERS													
11.	PROVIDE CURB ADAPTOR - FIELD VERIFY EXACT SIZE													
12.	NO SUBSTITUTIONS													
13.	SEACOAST PROTECTION													
14.	VARIABLE POSITION OUTSIDE AIR DAMPER - CO2 CONTROL													
15.	MODULATING HOT GAS REHEAT													

HEATER SCHEDULE											
MARK	MANUFACTURER	MODEL NO.	POWER SOURCE	MBH IN	HEATING MBH OUT	KW	VOLTAGE	PHASE	MCA	MOC	ACCESSORIES
UH-N1	REZTOR	UEZ130	GAS	131	122	35.7	120 V	1	6 A	15 A	1,3
UH-N2	QMARK	MUH07-8	ELECTRIC	0	26	7.5	208 V	1	24 A	30 A	2,3
UH-N3	QMARK	MUH07-8	ELECTRIC	0	26	7.5	208 V	1	24 A	30 A	2,3
UH-N4	REZTOR	ECS-2-AK2	ELECTRIC	0	6.8	2	208 V	1	12 A	15 A	4,5,6
UH-N5	REZTOR	ECS-2-AK2	ELECTRIC	0	6.8	2	208 V	1	12 A	15 A	4,5,6
UH-N6	REZTOR	ECS-2-AK2	ELECTRIC	0	6.8	2	208 V	1	12 A	15 A	4,5,6

WALL HEATER ACCESSORIES														
1.	OPTIONAL THERMOSTAT													
2.	UHMT1 - SINGLE POLE INTERNAL THERMOSTAT													
3.	HANGING KIT													
4.	SURFACE MOUNT													
5.	IGIS - INTERNAL TAMPER-ROOF THERMOSTAT													

AIR DEVICE SCHEDULE				
MARK	MANUFACTURER	DESCRIPTION	MODEL	OPTIONS/ACCESSORIES
ADB-1	AES INDUSTRIES	DROP BOX 6-WAY	ADB-6-20	3,5
ADB-2	AES INDUSTRIES	DROP BOX 4-WAY	ADB-1-10-4	3,5
ADB-3	AES INDUSTRIES	DROP BOX 2-WAY	ADB-1-7-2	3,5
CD-1	TITUS	24" x 24" CEILING DIFFUSER	TDC	1,5
CD-2	TITUS	12" x 12" CEILING DIFFUSER	TDC	2,5
CD-3	TITUS	12" x 12" CEILING DIFFUSER	TDC	1,5
CD-4	TITUS	12" ROUND CEILING DIFFUSER	TDC	
CD-E	TITUS	12" ROUND CEILING DIFFUSER	TDC	2,5
EG-1	TITUS	12" x 12" EXHAUST GRILLE	350FL	2,5
EG-2	TITUS	18" ROUND SUSPENDED EXHAUST GRILLE	R-OMNI	3
EG-3	TITUS	12" x 12" EXHAUST GRILLE	350FL	1,5
RG-1	TITUS	24" x 24" SURFACE MOUNTED RETURN GRILLE	23RL	
RG-2	TITUS	30" x 30" SURFACE MOUNTED RETURN GRILLE	23RL	2,5
RG-3	TITUS	24" x 24" RETURN GRILLE	23RL	
RG-4	TITUS	12" x 24" RETURN GRILLE	23RL	1,5
RG-5	TITUS	18" x 18" SURFACE MOUNTED RETURN GRILLE	23RL	2,5
SR-1	TITUS	18"x12" CURVED SIDEWALL DIFFUSER	S300FS	2,5
TG-1	TITUS	12" x 24" TRANSFER GRILLE	23RL	2

AIR DEVICE OPTIONS/ACCESSORIES														
1.	LAY-IN MOUNTING													
2.	SURFACE MOUNTING													
3.	SUSPENDED MOUNTING													
4.	NO SUBSTITUTIONS ALLOWED													
5.	PROVIDE WITH BALANCE DAMPER IF NO BALANCE DAMPER IN BRANCH DUCT TAKE-OFF													
6.	FINISH TO MATCH ARCH AND DECOR IN AREA													

DUCTWORK SCHEDULE												
SERVICE	LOCATION	SERVES	MATERIAL	PRESSURE CLASS	INSULATION						COMMENTS	
					1	2	3	4	5	6		
SUPPLY	INSIDE	ROOF TOP UNITS	GALVANIZED	2" WC	X						X	
RETURN	INSIDE	ROOF TOP UNITS	GALVANIZED	2" WC	X						X	
EXHAUST	INSIDE	EXHAUST	GALVANIZED	2" WC							X	
HOOD	INSIDE	EXH HOOD SYSTEMS	16 GA BLACK IRON	WELDED			X					
OVEN	INSIDE	BAKERY OVENS	B-VENT	N/A								
TRANSFER	INSIDE	INTERIOR SPACES	GALVANIZED	2" WC	X						X	
FLUE	INSIDE	UNIT HEATERS	PVC	N/A								
COMBUSTION AIR	INSIDE	UNIT HEATERS	GALVANIZED	2" WC							X	
VENT	INSIDE	UTENSIL WASHER	STAINLESS STEEL	N/A								
VENT	INSIDE	WATER HEATER (GAS)	B-VENT	N/A								

DUCTWORK INSULATION														
1.	1" INTERNAL LINER													
2.	1.5" EXTERNALLY WRAPPED													
3.	FIRE WRAP													
4.	1" INTERNAL LINER FIRST 10 FEET FROM CONNECTION TO UNIT UNLESS OTHERWISE NOTED													
5.	1.5" EXTERNALLY WRAPPED FIRST 5 FEET FROM ROOF/EXTERIOR PENETRATION													
6.	ALL EXPOSED DUCTWORK TO BE PAINTGRIP - READY FOR PAINT BY OTHERS - WITH 1" INSULATION													

D615 AIR FLOW SUMMARY - BUILDING PRESSURE CALCULATION					
EQUIPMENT TAG	SERVES	VENTILATION DESIGN	HOODS ON CO2 SATISFIED	HOODS OFF OA MINIMUM	EXHAUST AIR
EX-RTU-1	EXISTING SALES	0	0	0	0
EX-RTU-2	MEZZANINE	320	320	320	0
RTU-1	NEW SALES	0	0	0	0
RTU-2	NEW SALES	0	0	0	0
RTU-3 (RELO)	PICKUP	320	320	320	0
RTU-4	PHARMACY	600	600	600	0
RTU-5	VESTIBULE	600	600	600	0
RTU-6	SEATING + RECYCLING	400	400	400	0
RTU-7	DELI	505	505	505	0
RTU-8	BAKERY	320	320	320	0
RTU-9	BACK OFFICES	120	120	120	0
DOAS-1	SALES OA	2,500	2,500	1,250	0
DOAS-2	SALES OA	2,500	2,500	1,250	0
EF-EC	ELEC CLOSET	0	0	0	-600
EF-G1	B109G OVEN	0	0	0	-900
EF-G2	B109G OVEN	0	0	0	-900
EF-K	DELI HOOD	0	0	0	-2800
EF-R1	ASSOCIATE RR + CC	0	0	0	-250
EF-R2	RX FAMILY RR	0	0	0	-150
EF-R3	CUSTOMER RR	0	0	0	-400
EF-RC	RECYCLING CENTER	0	0	0	-850
EF-S	SEAFOOD	0	0	0	-600
BUILDING TOTALS		8,195	8,195	5,685	-7,450
				<b>NET PRESSURE:</b>	<b>735</b>

DOAS SUPPLIED VENTILATION SCHEDULE										
SYSTEM	ROOM	SPACE CLASSIFICATION	AREA	OA PER AREA	NO. OF PEOPLE	OA PER PERSON	REQUIRED OA	SYSTEM PERCENTAGE	SUPPLIED OA (FROM DOAS)	
DOAS-1	CUSTOMER SERVICE	Supermarket Sales Area	153 SF	0.06 CFM/SF	1	7.5 CFM	17 CFM	100%	20 CFM	
DOAS-1	PHARMACY WAITING	Lobby	626 SF	0.06 CFM/SF	7	5.0 CFM	73 CFM	100%	80 CFM	
DOAS-1	SALES	Supermarket Sales Area	24175 SF	0.06 CFM/SF	121	7.5 CFM	2358 CFM	100%	2400 CFM	
			24954 SF				2447 CFM		2500 CFM	
DOAS-2	FLORAL STORAGE	Storage	51 SF	0.12 CFM/SF	0	5.0 CFM	6 CFM	100%	6 CFM	
DOAS-2	FLORAL SALES	Supermarket Sales Area	123 SF	0.06 CFM/SF	1	7.5 CFM	15 CFM	100%	15 CFM	
DOAS-2	SALES	Supermarket Sales Area	25345 SF	0.06 CFM/SF	127	7.5 CFM	2473 CFM	100%	2479 CFM	
			25520 SF				2494 CFM		2500 CFM	

OUTSIDE AIR BLANCE NOTE:  
 THE RTU SUPPLIED VENTILATION SCHEDULE AND DOAS SUPPLIED VENTILATION SCHEDULE SUMMARIZE THE OUTSIDE AIR AS REQUIRED BY MECHANICAL CODE. THE TOTAL OUTSIDE AIR AND SYSTEM BALANCES ARE SHOWN IN THE AIRFLOW SUMMARY TABLE. BALANCE EQUIPMENT OUTSIDE AIR VOLUMES VALUES.

RTU SUPPLIED VENTILATION SCHEDULE												
SYSTEM	ROOM	SPACE CLASSIFICATION	AREA	OA PER AREA	NO. OF PEOPLE	OA PER PERSON	SUPPLY AIRFLOW	RETURN AIRFLOW	EXHAUST AIRFLOW	REQUIRED OA	SYSTEM PERCENTAGE	SUPPLIED OA
EX-RTU-3	ACCT.	Office - Enclosed	92.17 SF	0.06 CFM/SF	1	5.0 CFM	100 CFM	100 CFM	0 CFM	11 CFM	20%	20 CFM
EX-RTU-3	PICKUP	Shipping/Receiving Area	1425.35 SF	0.12 CFM/SF	3	10.0 CFM	1500 CFM	1180 CFM	0 CFM	201 CFM	20%	300 CFM
							1600 CFM	1280 CFM	0 CFM	212 CFM		320 CFM
RTU-4	CBT	Office - Enclosed	98.18 SF	0.06 CFM/SF	1	5.0 CFM	200 CFM	200 CFM	0 CFM	11 CFM	20%	40 CFM
RTU-4	COUNSEL	Office - Enclosed	116.24 SF	0.06 CFM/SF	1	5.0 CFM	150 CFM	150 CFM	0 CFM	12 CFM	20%	30 CFM
RTU-4	FAMILY	Restrooms	99.86 SF	0.00 CFM/SF	1	0.0 CFM	50 CFM	0 CFM	150 CFM	0 CFM	20%	10 CFM
RTU-4	PHARMACY	Pharmacy - Hospital/Healthcare	1326.1									