OUTSIDE AIR CALCULATIONS

Ventilation Sizing Summary for OUTSIDE AIR

Project Name: 2023-0091 Firebirds Liberty OH
Prepared by: Barrett, Woodyard & Associates, Inc.
03/12/2024
01:05PM

1. Summary

Ventilation Sizing Method ..... **ASHRAE Std 62.1-2016**
Design Condition ..... **Heating operation**
Occupant Diversity (D) **1.000**
Uncorrected Outdoor Air Intake (Vou) ..... **1862** CFM
System Ventilation Efficiency (Ev) **0.664**
Outdoor Air Intake (Vot) ..... **2804** CFM

2. Space Ventilation Analysis

Zone Name / Space Name	Mult.	Supply Air (CFM) (Vpz)	Space Floor Area (ft²) (Az)	Area Outdoor Air Rate (CFM/ft²) (Ra)	Time Averaged Occupancy (Occupants) (Pz)	People Outdoor Air Rate (CFM/person) (Rp)	Air Distribution Effectiveness (Ez)	Space Outdoor Air (CFM) (Voz)	Breathing Zone Outdoor Air (CFM) (Vbz)	Space Ventilation Efficiency (Evz)
Zone 1										
01 - VESTIBULE	1	384	85.0	0.18	0.0	7.50	0.8	**19**	15	1.125
02 - HOSTESS	1	219	101.0	0.18	2.0	7.50	0.8	**41**	33	0.985
03 - LOUNGE	1	265	300.0	0.18	7.0	7.50	0.8	**133**	107	0.672
04 - MAIN DINING W	1	1413	1025.0	0.18	52.0	7.50	0.8	**718**	575	0.666
05 - BAR	1	533	300.0	0.18	5.0	7.50	0.8	**114**	92	0.960
06 - TO-GO	1	154	75.0	0.18	1.0	7.50	0.8	**26**	21	1.004
08 - CORRIDOR	1	28	50.0	0.06	0.0	0.00	0.8	**4**	3	1.040
10 - WOMEN	1	92	142.0	0.00	0.0	0.00	0.8	**0**	0	1.174
09 - MEN	1	60	128.0	0.00	0.0	0.00	0.8	**0**	0	1.174
15 - DATA	1	27	28.0	0.00	0.0	0.00	0.8	**0**	0	1.174
11 - COOKLINE	1	2536	456.0	0.12	4.0	7.50	0.8	**106**	85	1.133
12 - BEVERAGE	1	115	125.0	0.18	3.0	7.50	0.8	**56**	45	0.686
13 - DISH	1	787	455.0	0.18	3.0	7.50	0.8	**131**	104	1.009
16 - PREP	1	2195	385.0	0.12	4.0	7.50	0.8	**95**	76	1.131
14 - STORAGE	1	110	135.0	0.12	1.0	5.00	0.8	**27**	21	0.933
17 - OFFICE	1	42	82.0	0.06	1.0	5.00	0.8	**12**	10	0.880
23 - RISER	1	83	81.0	0.12	0.0	5.00	0.8	**12**	10	1.027
04 - MAIN DINING E	1	1631	950.0	0.18	66.0	7.50	0.8	**833**	666	0.664
Totals (incl. Space Multipliers)		**10673**							**1862**	**0.664**

Hourly Analysis Program 5.11
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LEGEND

	12"X12" SUPPLY AIR CEILING DIFFUSER
	24"X24" SUPPLY AIR CEILING DIFFUSER
	24"X24" RETURN AIR GRILLE
	24"X24" EXHAUST AIR GRILLE
	SUPPLY AIR SIDE-WALL OR DUCT MOUNTED REGISTER
MD	**MANUAL VOLUME DAMPER**
T	**THERMOSTAT**
S	**TEMPERATURE SENSOR**

GENERAL NOTES

1. THESE DRAWINGS ARE SCHEMATIC IN NATURE AND ARE NOT INTENDED TO SHOW ALL POSSIBLE CONDITIONS. IT IS INTENDED THAT A COMPLETE TENANT MECHANICAL SYSTEM BE PROVIDED WITH ALL NECESSARY EQUIPMENT, ACCESSORIES, OPTIONS AND CONTROLS, COMPLETELY COORDINATED WITH ALL DISCIPLINES. ALL ITEMS AND LABOR REQUIRED FOR A COMPLETE TENANT MECHANICAL SYSTEM IN ACCORDANCE WITH ALL APPLICABLE CODES, STANDARDS AND THE BASE BUILDING CONTRACT DOCUMENTS SHALL BE FURNISHED WITHOUT INCURRING ADDITIONS TO THE CONTRACT.

2. REFER TO THE ARCHITECTURAL DRAWINGS FOR EXACT PARTITION LAYOUTS, REFLECTED CEILING PLANS, DIMENSIONS, ETC.

3. WHEN ANY DUCTWORK OR AIR DISTRIBUTION DEVICE IS REMOVED, THE ASSOCIATED TRUNK DUCT SHALL BE SEALED AIRTIGHT WITH A SHEET METAL PATCH OR CAP.

4. VISIT SITE AND CAREFULLY EXAMINE EXISTING CONDITIONS PRIOR TO SUBMITTING BID. THE EXISTING CONDITIONS SHOWN ARE BASED ON DOCUMENTS PROVIDED BY OTHERS AND HAVE NOT BEEN VERIFIED BY THE ENGINEER. IF EXISTING CONDITIONS DIFFER FROM DRAWINGS IN SUCH A MANNER THAT WILL AFFECT PRICING, (I.E., DUCTWORK, VAV OR PIU ARE NOT IN THE SHOWN LOCATION) CONTRACTOR WILL NOTIFY OWNER SO THAT A RESOLUTION CAN BE MADE PRIOR TO SUBMITTING BIDS. NO ALLOWANCE WILL BE MADE FOR LACK OF KNOWLEDGE OF EXISTING CONDITIONS.

5. REFER TO THE ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF ALL CEILING MOUNTED AIR DISTRIBUTION DEVICES IF FIELD CONDITIONS VARY, NOTIFY ARCHITECT OF ANY DISCREPANCIES.

6. ALL ROUND AND FLEXIBLE DUCTWORK EXTENDING TO DIFFUSERS SHALL BE SIZED FULL SIZE OF DISTRIBUTION DEVICE INLET, AND TAPS TO THE EXISTING LOW-PRESSURE DUCTWORK SHALL BE MADE WITH SPIN-IN FITTINGS HAVING INTEGRAL SCOOPS AND VOLUME DAMPERS. ALL NEW RECTANGULAR DUCTWORK TAPS SHALL BE MADE WITH SPLITTERS OR EXTRACTORS. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH SMACNA DUCT STANDARDS. (NEW LOW PRESSURE SPIN-IN FITTINGS AND TAPS SHALL NOT BE MADE WITHIN 5'-0" OF OUTLET OF HEAT PUMP. NEW LOW PRESSURE SPIN-IN FITTINGS SHALL BE MADE NO CLOSER THAN 2'-6" ON CENTERS.)

7. ALL KITCHEN CEILING SUPPLY DIFFUSERS SHALL BE AS NOTED IN THE MECHANICAL SPECIFICATION SECTION 23 37 13. FACE AREA SHALL BE APPROXIMATELY 24" x 24" EXCEPT AS OTHERWISE NOTED. FINISH SHALL BE BAKED ENAMEL IN A COLOR TO MATCH THE CEILING GRID. FRAME SHALL BE SUITABLE FOR THE CEILING TYPE IN WHICH IT IS INSTALLED. NECK SIZE SHALL BE SHOWN OTHERWISE ON DRAWINGS.

8. RETURN AIR GRILLES (R.A.G.) SHALL BE AS NOTED IN MECHANICAL SPECIFICATION SECTION 23 37 13. FACE AREA SHALL BE APPROXIMATELY 24" x 24'. FINISH SHALL BE BAKED ENAMEL IN A COLOR TO MATCH CEILING GRID. FRAME SHALL BE SUITABLE FOR THE CEILING TYPE IN WHICH IT IS INSTALLED.

9. FLEXIBLE DUCTS SHALL BE INSTALLED FREE OF SAGS AND KINKS; SUPPORT AT NOT MORE THAN 48" O.C.

10. TEST AND BALANCE ALL DIFFUSERS, BOXES, FANS, ETC. TO THE AIRFLOW'S AND CONDITIONS INDICATED. ALL EXISTING DIFFUSERS, BOXES, FANS, ETC. WHICH ARE NOT NOTED OTHERWISE SHALL BE BALANCED TO THEIR PRIOR DESIGN AIRFLOW'S; REFERENCE THE EXISTING RECORD DRAWING AVAILABLE FROM THE OWNER. TESTING AND BALANCING OF HVAC SYSTEM SHALL BE PERFORMED IN ACCORDANCE WITH THE STANDARDS OF AABC AND SHALL BE PERFORMED UNDER THE DIRECT SUPERVISION OF AN AABC CERTIFIED TEST AND BALANCE ENGINEER. SUBMIT 4 COPIES OF THE REPORT TO THE OWNER. NEBB AGENCIES ARE NOT ACCEPTABLE AND ARE CAUSE FOR REJECTION.

11. ALL CONTROL WIRING AND TUBING INSTALLED ABOVE THE CEILING SHALL BE LOCATED AS HIGH ABOVE THE CEILING AS POSSIBLE AND SHALL NOT FOLLOW THE DESIGNATED GENERAL ROUTING OF THE DUCTWORK. DO NOT HANG WIRING OR TUBING FROM DUCTWORK; RATHER, SUSPEND FROM THE STRUCTURE.

12. TEMPERATURE SENSORS SHALL BE LOCATED IN EACH ZONE AS SHOWN. THE EXACT LOCATION ON THE WALL INDICATED SHALL BE AS DIRECTED BY THE ARCHITECT. NEW THERMOSTATS SHALL BE SELECTED TO MATCH THE EXISTING BASE BUILDING THERMOSTATS AND SHALL BE COMPATIBLE WITH THE EQUIPMENT SERVED. LOCATE THERMOSTATS PER ACCESSIBILITY REQUIREMENTS. VERIFY HEIGHT AND LOCATION W/INSPECTOR. THERMOSTATS TO BE LOCATED IN OFFICE.

13. ADJUST ALL DIFFUSERS IN CORRIDORS OR WITHIN 3 FEET OF A WALL TO PROVIDE 2-WAY OR 3-WAY BLOW AWAY FROM OR PARALLEL TO WALLS. ALL LAY-IN DIFFUSERS SHALL HAVE 4-WAY BLOW UNLESS NOTED OTHERWISE.

14. PORTIONS OF DUCTWORK VISIBLE THROUGH GRILLES AND REGISTERS IN FINISHED AREA SHALL BE PAINTED FLAT BLACK.

15. SINGLE WALL SHEET METAL SUPPLY DUCTWORK IN CONCEALED SPACES SHALL BE INSULATED WITH 2" THICK FIBERGLASS DUCT INSULATION WITH FOIL VAPOR BARRIER U/L LISTED. ALL EXPOSED SPIRAL DUCTWORK SHALL BE DOUBLE-WALL INSULATED DUCT. EXHAUST DUCTWORK SHALL NOT BE INSULATED UNLESS OTHERWISE NOTED.

16. LOW PRESSURE DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA DUCT CONSTRICTION STANDARD.

17. ALL MECHANICAL EQUIPMENT SHALL BE LABELED WITH LAMINATE NAMEPLATE SECURELY AFFIXED TO THE EQUIPMENT. THE NAMEPLATE SHALL SHOW THE EQUIPMENT TAG USED ON THESE DRAWINGS.

18. CONTRACTOR SHALL SUPPLY AN EXTRA SET OF OEM FILTERS FOR ALL EXHAUST HOODS.

19. REFER TO SHEET G3.01 FOR HVAC RESPONSIBILITIES.

20. CONTRACTOR TO FURNISH & INSTALL COMPLETE MECHANICAL SYSTEM WITH ALL REQUIRED CONNECTIONS TO FIRE ALARM.

PACKAGED ROOFTOP UNIT SCHEDULE

I.D. TAG	MINIMUM TOTAL CAP.	MINIMUM SENSIBLE CAP.	AMBIENT TEMP. (°F)	EAT D.B.	EAT W.B.	AIRFLOW	EXT. S.P. (1)	MAX H.P.	HEAT TYPE	GAS HEAT INPUT	GAS HEAT OUTPUT	VOLTAGE	PHASE	MCA	MOCP	BASIS OF DESIGN	IEER	WEIGHT	REMARKS
RTU-1	220.3 MBH	112.2 MBH	82.5°F	78.7°F	70.0°F	3700 CFM	0.5 IN-WG	5	GAS	360 MBH	292 MBH	208	3	88.1	100	CAPTIVEAIRE CASRTU3-I.400-18-20T	18.2	2689 LBS	2, 3, 4, 5, 6, 7, 8
RTU-2	173.8 MBH	75.0 MBH	82.5°F	80.4°F	73.3°F	2500 CFM	0.5 IN-WG	2	GAS	251 MBH	203 MBH	208	3	62.5	70	CAPTIVEAIRE CASRTU3-I.300-18-15T	18.8	2518 LBS	2, 3, 4, 5, 6, 7, 8

1. EXT. SP. DOES NOT INCLUDE COIL, CASING, FILTER OR HEATER LOSES.
2. FANS SHALL RUN CONTINUOUSLY WHILE BUILDING IS IN OCCUPIED MODE.
3. PROVIDE RTU WITH COMPARATIVE ENTHALPY ECONOMIZER WITH BAROMETRIC RELIEF.
4. PROVIDE SMOKE DETECTION ON SUPPLY & RETURN OF UNIT. UPON DETECTION OF SMOKE, SIGNAL SHALL BE SENT TO FIRE ALARM PANEL. PROVIDE AUDIO VISUAL ALARMS IF FIRE ALARM PANEL IS NOT AVAILABLE, PER CODE.
5. WEIGHT DOES NOT INCLUDE CURB WEIGHT.
6. PROVIDE UNIT WITH MODULATING HOT GAS REHEAT, & HUMIDITY CONTROLS.
7. REFER TO AIR BALANCE SCHEDULE FOR OUTSIDE AIR CFM.
8. PROVIDE UNIT WITH HAIL GUARD.

DEDICATED OUTDOOR AIR SYSTEM SCHEDULE

I.D. TAG	MINIMUM TOTAL CAP.	MINIMUM SENSIBLE CAP.	AMBIENT TEMP. (°F)	EAT D.B.	EAT W.B.	AIRFLOW	EXT. S.P. (1)	MAX H.P.	HEAT TYPE	GAS HEAT INPUT	GAS HEAT OUTPUT	VOLTAGE	PHASE	MCA	MOCP	BASIS OF DESIGN	IEER	WEIGHT	REMARKS
DOAS-1	359.4 MBH	140.0 MBH	82.5°F	82.5°F	77.7°F	4,300 CFM	0.5 IN-WG	5.0	GAS	450 MBH	364 MBH	208	3	141.6	150	CAPTIVEAIRE CASRTU3-I.500-24-30T	14.9	3206 LBS	2, 3

1. EXT. SP. DOES NOT INCLUDE COIL, CASING, FILTER OR HEATER LOSES.
2. FANS SHALL RUN CONTINUOUSLY WITH OUTSIDE AIR DAMPER 100% OPEN AND RETURN DAMPER 100% CLOSED WHILE BUILDING IS IN OCCUPIED MODE AND HOODS ARE OPERATIONAL.
3. UNIT OUTSIDE AIR DAMPER SHALL SHUT AND UNIT SHALL RECIRCULATE AIR WHEN BUILDING IS UNOCCIPED TO PROVIDE FREEZE PROTECTION.

SPLIT SYSTEM SCHEDULE

I.D. TAG	BOD TOTAL CAPACITY (MBH)	BOD SENSIBLE CAPACITY (MBH)	FAN COIL UNIT DATA: AIRFLOW (CFM)	EXT. SP (IN. WC) (1)	MAX HP	COIL EAT °F db	COIL EAT °F wb	VOLTS/ PHASE	HEATING SECTION TYPE	HEATING SECTION CAPACITY (3)	FAN COIL UNIT DATA: WEIGHT (LBS)	CONDENSING UNIT DATA: AMBIENT TEMP. (°F)	CONDENSING UNIT DATA: VOLTS/ PHASE	CONDENSING UNIT DATA: MIN. SEER	CONDENSING UNIT DATA: MIN. HSPF	CONDENSING UNIT DATA: WEIGHT (LBS)	BASIS OF DESIGN	REMARKS
AHU/CU-1	36.0	23.1	705-920	--	F	80.0	67.0	208/1	HP	38.0	46	95.0	208/1	18.7	9.0	261	TRANE TPKA0A0361KA70A / TRUZH0361KA00NA	5, 6
AHU/CU-2	36.0	23.1	705-920	--	F	80.0	67.0	208/1	HP	38.0	46	95.0	208/1	18.7	9.0	261	TRANE TPKA0A0361KA70A / TRUZH0361KA00NA	5, 6

(1) THIS IS THE S.P. EXTERNAL TO THE ENTIRE FAN COIL UNIT ASSEMBLY (WET COIL, CASING, CLEAN FILTERS, AND FURNACE LOSSES ARE NOT INCLUDED IN THIS EXT. SP).
(2) B = BELT DRIVE, D = DIRECT DRIVE.
(3) THIS IS THE MINIMUM OUTPUT CAPACITY (MBH FOR HEAT PUMP). HP RATING AT 17°F UON.
(4) PROVIDE THE FOLLOWING ACCESSORIES FOR THE FAN COIL UNIT: ACCESSORY CONDENSATE PUMP POWERED BY INDOOR UNIT AND PROGRAMMABLE ELECTRONIC THERMOSTAT.
(5) INDOOR UNIT SHALL BE POWERED BY THE OUTDOOR UNIT.
(6) PIPE CONDENSATE LINE TO WALK IN COOLER CONDENSATE DRAIN LOCATED IN KITCHEN.

GENERAL SPLIT SYSTEM NOTES:
1. CONTRACTOR SHALL COORDINATE THE REQUIRED SIZING OF ALL REFRIGERANT LINE SETS WITH THE HVAC UNIT MFR. PROVIDE WITH ALL ACCESSORIES, FITTINGS, ETC., AS NEEDED FOR A FULL AND COMPLETE SYSTEM BASED ON THE SPECIFIC INSTALLATION AND LINE LENGTHS.

FAN SCHEDULE

I.D. TAG	CFM	S.P.	MOTOR H.P	DRIVE	VOLTAGE	PHASE	TYPE	BASIS OF DESIGN	REMARKS	WEIGHT
TEF-1	400 CFM	0.5 in-wg	---	D	120	1	CENTRIFUGAL EXHAUST	GREENHECK G-090	1,2,3	29 LBS
AIR-1	1379 CFM	---	1/2	D	115	1	AIR CURTAIN	MARS QP1036	4	60 LBS

1. PROVIDE FAN WITH TIME CLOCK TO RUN DURING OCCUPIED HOURS.
2. PROVIDE FAN WITH BACKDRAFT DAMPER.
3. PROVIDE WITH SOLID STATE SPEED CONTROL.
4. PROVIDE WITH DOOR LIMIT SWITCH.

ELECTRIC HEATER SCHEDULE

I.D. TAG	DESCRIPTION	CAPACITY KW	MIN CFM	FAN H.P	S.P. (IN. WG)	VOLTS/PHASE	BASIS OF DESIGN	REMARKS
EWH-A	WALL HEATER	4.0	-	-	-	208/3	MARLEY CWH34083F	1,2

1. PROVIDE HEATER WITH UNIT MOUNTED THERMOSTAT AND INTEGRAL DISCONNECT.
2. PROVIDE HEATER WITH UNIVERSAL WALL/CEILING MOUNTING BRACKET.

SEQUENCE OF OPERATION: RTU (ELEC/GAS)

GAS HEATING/ELECTRIC COOLING ROOFTOP UNIT SEQUENCE OF OPERATION:

DAY CYCLE - COOLING:

1. SUPPLY AIR FAN SHALL RUN CONTINUOUSLY
2. RESTROOM EXHAUST FAN SHALL BE ENERGIZED.
3. THERMOSTAT SHALL CYCLE COMPRESSORS TO MAINTAIN ROOM SET TEMPERATURE.

DAY CYCLE - HEATING:

1. SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
2. RESTROOM EXHAUST FAN SHALL BE ENERGIZED.
3. THERMOSTAT SHALL CYCLE GAS HEATER TO ACHIEVE ROOM TEMPERATURE SETPOINT.

DAY CYCLE - DEHUMIDIFICATION:

1. SUPPLY AIR FANS SHALL RUN CONTINUOUSLY.
2. RESTROOM EXHAUST FAN SHALL BE ENERGIZED.
3. HUMIDISTAT SHALL CYCLE COOLING COIL STAGES TO MAINTAIN SET POINT HUMIDITY.
4. HOT GAS REHEAT COIL SHALL MODULATE TO REHEAT THE AIR AS REQUIRED TO MEET SPACE TEMPERATURE REQUIREMENTS.

MORNING WARM-UP CYCLE:

1. SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
2. OUTSIDE AIR DAMPER SHALL MODULATE TO HAVE NO OR REDUCED OUTSIDE AIR.
3. THERMOSTAT SHALL CYCLE RTU TO REACH ROOM TEMPERATURE SET POINT.
4. WHEN SET TEMPERATURE IS REACHED, COOLING OR HEATING CYCLE SHALL COMMENCE.

NIGHT SETBACK:

1. ALL KITCHEN HOODS AND EXHAUST FANS SHALL BE DE-ENERGIZED.
2. OUTSIDE AIR DAMPER SHALL MODULATE TO HAVE NO OR REDUCED OUTSIDE AIR.
3. THERMOSTAT SHALL CYCLE EITHER COOLING OR HEATING AND SUPPLY AIR FAN TO MAINTAIN ROOM SET POINT TEMPERATURE.

SMOKE DETECTOR:

1. WHEN SMOKE DETECTOR IS ACTIVATED, SUPPLY AIR FAN SHALL SHUTDOWN.
2. FIRE ALARM SHALL BE SIGNALED.
3. SUPPLY AIR FAN SHALL BE MANUALLY RESET.

SEQUENCE OF OPERATION: DOAS (ELEC/GAS)

GAS HEATING/ELECTRIC COOLING DOAS UNIT SEQUENCE OF OPERATION:

DAY CYCLE - COOLING:

1. SUPPLY AIR FAN SHALL RUN CONTINUOUSLY
2. RESTROOM EXHAUST FAN SHALL BE ENERGIZED.
3. THERMOSTAT SHALL CYCLE COMPRESSORS TO MAINTAIN ROOM SET TEMPERATURE.

DAY CYCLE - HEATING:

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2. RESTROOM EXHAUST FAN SHALL BE ENERGIZED.
3. HUMIDISTAT SHALL CYCLE COOLING COIL STAGES TO MAINTAIN SET POINT HUMIDITY.
4. HOT GAS REHEAT COIL SHALL MODULATE TO REHEAT THE AIR AS REQUIRED TO MEET SPACE TEMPERATURE REQUIREMENTS.
5. REHEAT PLUS FUNCTIONALITY SHALL UTILIZE MODULATING FURNACE AS SECOND STAGE OF REHEAT IF HOT GAS REHEAT COIL CANNOT REHEAT THE AIR SUFFICIENTLY TO MEET SPACE TEMPERATURE REQUIREMENTS DURING DEHUMIDIFICATION MODE

MORNING WARM-UP CYCLE:

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2. OUTSIDE AIR DAMPER SHALL MODULATE TO HAVE NO OR REDUCED OUTSIDE AIR.
3. THERMOSTAT SHALL CYCLE RTU TO REACH ROOM TEMPERATURE SET POINT.
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SMOKE DETECTOR:

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2. FIRE ALARM SHALL BE SIGNALED.
3. SUPPLY AIR FAN SHALL BE MANUALLY RESET.

BUILDING PRESSURE:

1. SUPPLY AIR FAN SHALL RUN CONTINUOUSLY.
2. A DIFFERENTIAL PRESSURE SENSOR SHALL BE INSTALLED TO MEASURE THE DIFFERENCE BETWEEN BUILDING PRESSURE AND AMBIENT PRESSURE.
3. CONTROLS INTERNAL TO THE DOAS UNIT SHALL MODULATE RA/OA DAMPER AS WELL AS THE SPEED OF THE SUPPLY FAN TO MAINTAIN A SLIGHTLY POSITIVE PRESSURIZED BUILDING.

Design Condition - Hoods at 100% Exhaust CFM and DOAS OA at 100%.

Building Air Balance

Unit	Exhaust	OA	
Hood 1	2300	0	CFM
Hood 2	2300	0	CFM
Hood 3	3200	0	CFM
Hood 4	2200	0	CFM
Dish	800	0	CFM
MUA-1	0	4000	CFM
DOAS-1	0	4300	CFM
RTU-1	0	1800	CFM
RTU-2	0	1800	CFM
TEF-1	400	0	CFM
Total	11200	11900	CFM
Net Pressure	(+) 700		CFM

Dining to Kitchen Air Balance

Kitchen

Unit	Exhaust	OA	
Hood 1	2300	0	CFM
Hood 2	2300	0	CFM
Hood 3	3200	0	CFM
Hood 4	2200	0	CFM
Dish	800	0	CFM
MUA-1	0	4000	CFM
DOAS-1	0	4000	CFM
RTU-2	0	200	CFM
Total	10800	8200	CFM
Net		-2600	CFM (3)
Net (if Dish is not Running)		-1800	CFM (3)

Transfer Air to Kitchen

Transfer Air =	-2600	CFM
Transfer Grille Nominal Area=	20	sq.ft.
Transfer Grille Free Area=	18.32	sq.ft. (1)
Pass Through Free Area =	24	sq.ft. (2)
Total Free Area =	42.32	sq.ft.
Transfer Air Velocity =	61.4	FPM

Remarks:
(1) Provide louvered face return grilles over architectural opening into dining room as well as into kitchen. Basis of design is Titus 350FL utilizing six 36x12 sections and one 24x12 section along the length of the architectural opening. Each 36x12 section shall provide at least 2.75 sq.ft. unobstructed free area. Each 24x12 section shall provide at least 1.82 sq.ft. unobstructed free area. The overall length of the active section of the architectural opening is 20'-0" x 1'-0".
(2) The pass through free area accounts for the pass through being partially obstructed. Calculations assume 1'-6" of unobstructed height and 16'-0" of unobstructed width. Overall height is appoximately 2'-8" and Overall width is approximately 16'-4-1/4".
(3) Net air balance between the dining area and the kitchen. Negative value indicates the kitchen is at a negative pressure relative to the dining room requiring air to passively transfer from the dining room into the kitchen through permanent openings which will help to contain odors inside the kitchen. Make-up CFM values account for forced air systems supplying air into the kitchen and may be a combination of outside air and return air from the dining room.

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FIREBIRDS WOOD FIRED GRILL

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BWA JOB # 2023-0091

designers

CONSTRUCTION DOCUMENTS
10/17/2023

job status

No.	Description	Date
1	Permit Comments MEP	03/12/2024
3	Hood Updates & General Construction	04/09/2024

revisions

STATE OF OHIO — BRAD RABINOWITZ E-80445 — REGISTERED PROFESSIONAL ENGINEER
04/09/24

seal

3
LEGEND & SCHEDULES - MECHANICAL
M0.01

sheet number | title

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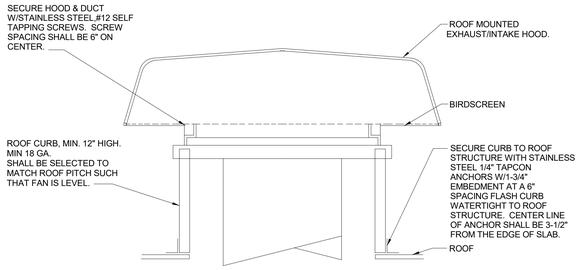
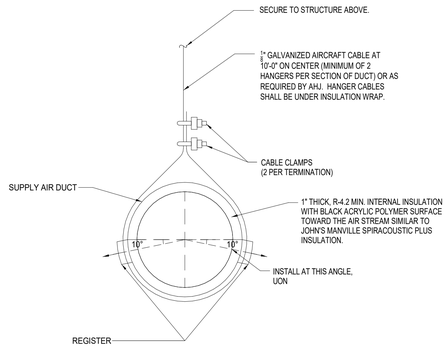


6 ROOF MOUNTED EXHAUST HOOD DETAIL
M0.02 NO SCALE

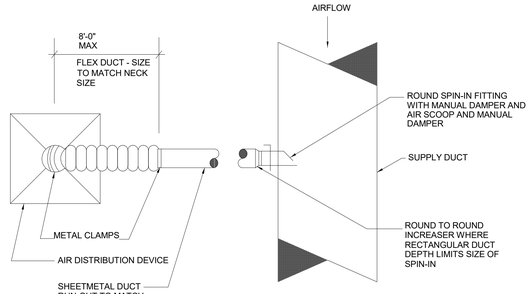


NOTES:
1) DUCTWORK SHALL BE INSTALLED LEVEL
2) SUPPLY DUCT WORK SHALL BE SPIRAL DUCTWORK WITH A PAINT GRIP FINISH
3) REGISTERS SHALL BE FLUSH MOUNTED

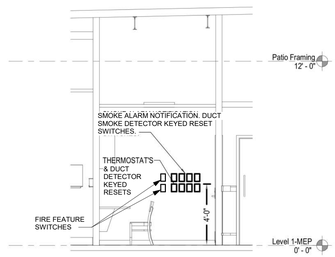
3 SPIRAL DUCT DETAIL
M0.02 NO SCALE

MINIMUM HANGER SIZES FOR ROUND DUCT

Dia.	Maximum Spacing	Wire Dia.	Rod	Strap
10" dn. 250 mm dn.	12' 3.7 m	One 12 ga. One 2.75 mm	1/4" 6.4 mm	1" × 22 ga. 25.4 × 0.85 mm
11-18"	12'	Two 12 ga. or One 8 ga.	1/4"	1" × 22 ga.
460 mm	3.7 m	One 4.27 mm	6.4 mm	25.4 × 0.85 mm
19-24" 610 mm	12' 3.7 m	Two 10 ga. Two 3.51 mm	1/4" 6.4 mm	1" × 22 ga. 25.4 × 0.85 mm
25-36" 900 mm	12' 3.7 m	Two 8 ga. Two 2.7 mm	3/8" 9.5 mm	1" × 20 ga. 25.4 × 1.00 mm
37-50" 1270 mm	12' 3.7 m	→	Two 3/8" Two 9.5 mm	Two 1" × 20 ga. (2) 25.4 × 1.00 mm
51-60" 1520 mm	12' 3.7 m	→	Two 3/8" Two 9.5 mm	Two 1" × 18 ga. (2) 25.4 × 1.31 mm
61-84" 2130 mm	12' 3.7 m	→	Two 3/8" Two 9.5 mm	Two 1" × 16 ga. (2) 25.4 × 1.61 mm

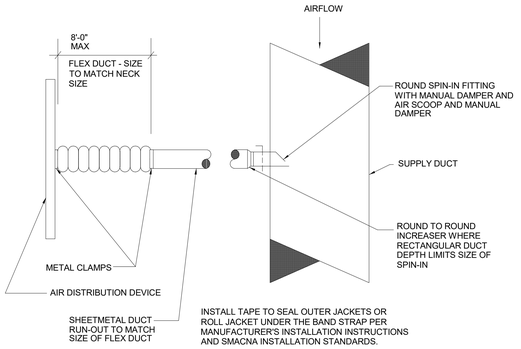


1 DIFFUSER CONNECTION DETAIL
M0.02 NO SCALE

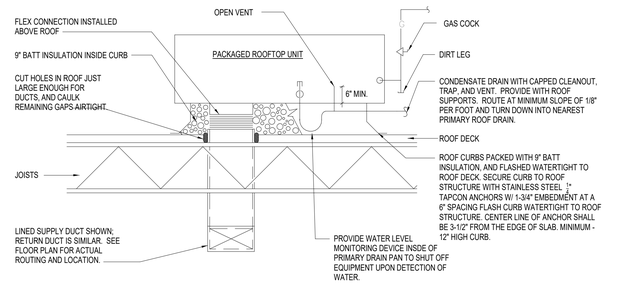


NOTES:
1. THERMOSTATS SHALL BE EQUAL TO TRANE MODEL XR402. FOR RTUS.
2. SENSORS SHALL BE EQUAL TO TRANE 2ZSENSA0400AA.

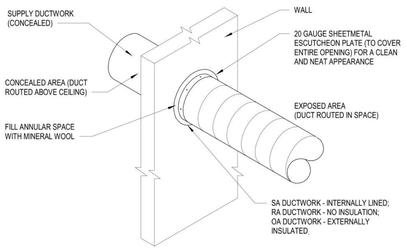
8 THERMOSTAT ELEVATION DETAIL AT OFFICE
M0.02 NO SCALE



5 SLOT DIFFUSER CONNECTION DETAIL
M0.02 NO SCALE

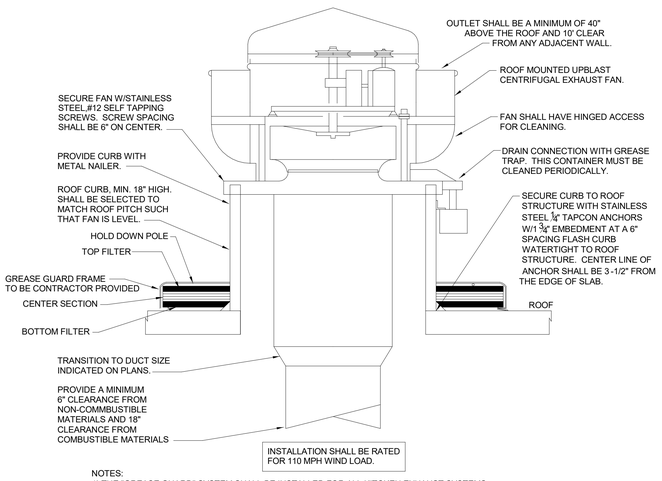


2 ROOFTOP UNIT DETAIL
M0.02 NO SCALE



NOTES:
1. WHEN SPECIFIED TO BE PAINTED, ALL EXPOSED SHEETMETAL SURFACES INCLUDING HANGER STRAPS
SHALL HAVE A "PAINT GRIP" FINISH FOR FIELD PAINTING. AS AN OPTION, MILL PHOSPHATIZED STEEL DUCTWORK MAY BE USED.
2. PAINT COLOR SHALL BE SELECTED BY ARCHITECT.
3. PAINTING BY OTHERS. COORDINATE WITH ARCHITECTURAL DWGS.
4. SECURE ESCUTCHEON TO DUCT WITH SHEETMETAL SCREWS AT 6" OC.

9 SPIRAL DUCT THRU WALL DETAIL
M0.02 NO SCALE

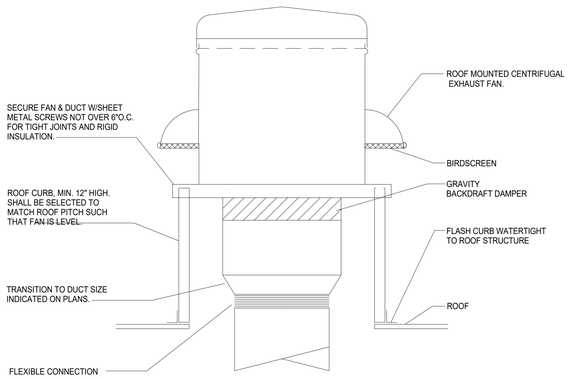


NOTES:
1) THE "GREASE GUARD" SYSTEM SHALL BE INSTALLED FOR ALL KITCKEN EXHAUST SYSTEMS.

2) GREASE CONTAINMENT SYSTEM IS TO BE SIZED, ENGINEERED, INSTALLED AND MANUFACTURED SPECIFICALLY BY GREASE GUARD INC. (800-284-8273). PAD SHALL COVER A MINIMUM OF 15" ON ALL SIDES OF HOOD.

3) ALL FANS EXHAUSTING GREASE CONTAMINANTS ON ROOF SHALL INCLUDE A GREASE CONTAINMENT SYSTEM, SPECIFICALLY "GREASE GUARD" AS MANUFACTURED BY FACILITEC CORPORATION OR APPROVED EQUAL.

7 KITCHEN EXHAUST FAN DETAIL
M0.02 NO SCALE



4 TOILET EXHAUST FAN DETAIL
M0.02 NO SCALE

FIREBIRDS
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BWA JOB # 2023-0531

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DETAILS - MECHANICAL

sheet number | title

M0.02

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COMcheck Software Version COMcheckWeb

Mechanical Compliance Certificate

Project Information

Energy Code:	2021 IECC
Project Title:	Firebirds Liberty, OH - Hood Revision
Location:	New Albany (Franklin), Ohio
Climate Zone:	4a
Project Type:	New Construction

Construction Site: Owner/Agent: Designer/Contractor:

Additional Efficiency Package(s)

Credits: 10.0 Required 0.0 Proposed

Mechanical Systems List

Quantity **System Type & Description**

1 DOAS-1 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 450 kBtu/h
Proposed Efficiency = 81.00% Et, Required Efficiency: 81.00 % Et
Cooling: 1 each - DX DOAS (Dehumidification), Capacity = 359 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 6.00 ISMRE, Required Efficiency = 4.00 ISMRE
Proposed Part Load Efficiency = 0.00 , Required Part Load Efficiency = 0.00
Fan System: DOAS-1 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 1 Supply, Constant Volume, 4300 CFM, 5.0 motor nameplate hp, 0.00 fan energy index , fan exception: 3rd party air/energy performance certified

1 RTU-1 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 360 kBtu/h
Proposed Efficiency = 81.00% Et, Required Efficiency: 81.00 % Et
Cooling: 1 each - Single Package DX Unit, Capacity = 220 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 11.10 EER, Required Efficiency = 10.80 EER
Proposed Part Load Efficiency = 18.20 IEER, Required Part Load Efficiency = 14.00 IEER
Fan System: RTU-1 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 2 Supply, Constant Volume, 4200 CFM, 5.0 motor nameplate hp, 0.00 fan energy index , fan exception: 3rd party air/energy performance certified

1 RTU-2 (Single Zone):
Heating: 1 each - Central Furnace, Gas, Capacity = 251 kBtu/h
Proposed Efficiency = 81.00% Et, Required Efficiency: 81.00 % Et
Cooling: 1 each - Single Package DX Unit, Capacity = 173 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 12.00 EER, Required Efficiency = 10.80 EER
Proposed Part Load Efficiency = 18.80 IEER, Required Part Load Efficiency = 14.00 IEER
Fan System: RTU-2 -- Compliance (Motor nameplate HP and fan efficiency method) : Passes

Fans:
FAN 3 Supply, Constant Volume, 2500 CFM, 2.0 motor nameplate hp, 0.00 fan energy index , fan exception: 3rd party air/energy performance certified

2 WHG-1/2:
Gas Storage Water Heater, Capacity: 100 gallons, Input Rating: 199 kBtu/h w/ Circulation Pump
Proposed Efficiency: 97.00 % Et, Required Efficiency: 80.00 % Et

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2021 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Brad Rabinowitz, P.E.	Sheet is signed	4/9/24
Name - Title	Signature	Date

project address | name

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RWA JOB # 2023-0591

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3	Hood Updates & General Construction	04/09/2024

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04/09/24

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3

COMCHECK - MECHANICAL

M0.03

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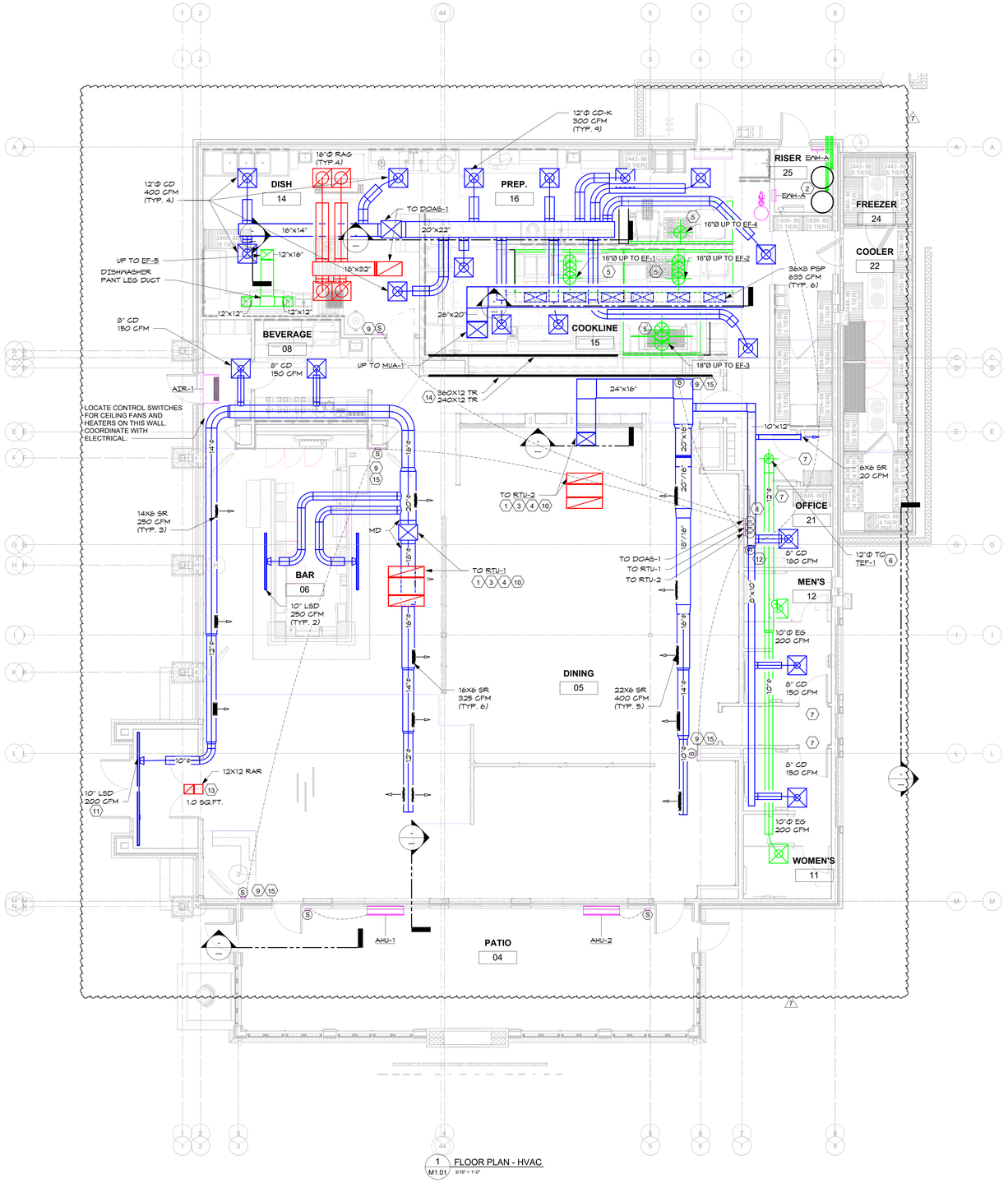

1 FLOOR PLAN - HVAC
M1.01 3/16" = 1'-0"

GENERAL NOTES

1. CONTRACTOR TO IDENTIFY EXISTING FIRE SPRINKLER SYSTEM, MAINS, HEAD LOCATIONS, ETC. PRIOR TO SUBMITTING BIDS

2. IT IS THE FIRE PROTECTION CONTRACTOR'S RESPONSIBILITY TO INSTALL, RELOCATE, AND REMOVE SPRINKLER HEADS AS REQUIRED TO MEET CODE. SEE SPECIFICATIONS FOR FURTHER INFORMATION

3. FIRE PROTECTION CONTRACTOR TO PROVIDE MATERIALS AND INSTALLATION TO MODIFY EXISTING FIRE SUPPRESSION SYSTEM TO COMPLY WITH MUNICIPAL CODES AND GUIDELINES. PROVIDE REQUIRED DOCUMENTATION INCLUDING HYDRAULIC CALCULATIONS AND ENGINEER CERTIFIED DOCUMENTATION.

4. FIRE SUPPRESSION LINES SHALL BE MOUNTED TO PROVIDE CLEARANCE FOR CEILING MOUNTED LIGHT FIXTURES, MECHANICAL EQUIPMENT, ETC.

5. FIRE PROTECTION SHALL COMPLY WITH NFPA 13 AND MANUFACTURER'S LISTING.

6. SPRINKLER HEADS SHALL BE CENTERED IN CEILING TILE AND TYPE, STYLE, AND FINISH TO MATCH EXISTING UNO IN THE CASE OF A PLENUM OBSTRUCTION, CONTRACTOR TO CONTACT/COORDINATE A SOLUTION WITH THE ARCHITECT
PRIOR TO INSTALLATION.

7. PROVIDE TYPICALLY TURNED UP BRONZE HEADS IN SPACES EXPOSED TO STRUCTURE ABOVE. SEMI-RECESSED TURNED DOWN HEADS IN KITCHEN AND SERVICE AREAS, WHITE CONCEALED FULLY RECESSED HEADS IN GWB CEILING AND ACT CEILINGS IN FRONT OF HOUSE UNO.

8. BOTTOM OF NEW SPIRAL DUCTWORK SHALL MATCH THE ELEVATION OF THE EXISTING SPIRAL DUCT IT IS CONNECTING TO. COORDINATE WITH LIGHTS AND ARCHITECT.

9. COORDINATE SUPPLY REGISTERS LOCATION/DEFLECTION TO AVOID LIGHT FIXTURE MOVEMENT.

10. COORDINATE EXACT LOCATIONS OF THERMOSTATS WITH OWNER PRIOR TO INSTALLATION.

11. ALL MATERIALS LOCATED IN RETURN AIR PLENUM SHALL BE PLENUM RATED AND MEET THE 25/50 FLAME AND SMOKE INDEX IN ACCORDANCE WITH ASTM E 84.

12. ALL EXPOSED SPIRAL DUCT TO BE PAINTED GALVANIZED. COORDINATE WITH ARCHITECT.

13. PROVIDE ESCUTCHEON AROUND ALL DUCTWORK PASSING THROUGH WALLS.

14. ALL ROUND SPIRAL DUCTWORK SHALL BE DOUBLE WALL INSULATED DUCT. DUCT SIZES SHOWN ARE INTERNAL DIMENSIONS.

15. CONTRACTOR TO VERIFY THE CURVATURE OF THE SIDEWALL SUPPLY DIFFUSERS SO THAT THEY SHALL MATCH THE DIAMETER OF THE DUCT THEY ARE BEING INSTALLED INTO.

16. CONTRACTOR TO PROVIDE AN EXTRA SET OF OEM FILTERS FOR ALL GRILL HOODS.

KEY NOTES:
(APPLY THIS SHEET ONLY)

1. CONTRACTOR TO PROVIDE FULL SIZE LINED RETURN AIR DUCT FOR ROOF TOP UNIT. TERMINATE RETURN DUCT THROUGH SOFFIT WITH FULL SIZE RETURN AIR REGISTER. COORDINATE FINISH WITH ARCHITECT.
2. PROVIDE GAS WATER HEATER INTAKE AND FLUE. PROVIDE REQUIRED PIPING FOR WHG-1 AND WHG-2. REFER TO WATER HEATER DETAIL ON SHEET P0.03
3. DUCT SHALL BE INSTALLED AS TIGHT TO BOTTOM OF TRUSSES AS POSSIBLE AND COORDINATED WITH ALL OTHER TRADES AND DISCIPLINES.
4. DUCT SHALL BE INSTALLED BETWEEN TRUSSES AS HIGH AS POSSIBLE AND COORDINATED WITH ALL OTHER TRADES AND DISCIPLINES.
5. ALL KITCHEN HOOD EXHAUST DUCTS SHALL BE INSPECTED AND TESTED PRIOR TO THE INSTALLATION OF THE PROPOSED FIRE MASTER FAST WRAP. VERIFY AND COORDINATE LOCATIONS OF ALL GREASE DUCT CLEANOUTS AND PROVIDE ADEQUATE CLEARANCE FOR REMOVAL AND MAINTENANCE FROM ALL TRADES. MAINTAIN A MINIMUM 24" CLEARANCE IN ALL DIRECTIONS OF GREASE DUCT CLEANOUT OPENINGS.
6. ROUTE 12"Ø EXHAUST DUCT UP TO TEF-1. REFER TO SCHEDULE SHEET M0.01 FOR EXHAUST FAN SIZING AND DATA.
7. DOORS SHALL BE UNDERCUT 0'-1" FOR EXHAUST AIR FLOW.
8. COORDINATE LOCATION OF THERMOSTATS AND DUCT DETECTOR KEYED RESETS NOTIFICATION LIGHTS WITH OWNER. REFER TO DETAIL 8/M0.02
9. MOUNT TEMPERATURE AND HUMIDITY SENSORS AT 84" A.F.F. FOR RTU-1 AND RTU-2. PROVIDE CONDUIT FOR CONTROL WIRE AND STUB UP INTO STRUCTURE. RUN UP CLOSEST WALL. FIELD VERIFY ALL REQUIREMENTS AND COORDINATE WITH OWNERS AND ARCHITECT.
10. REFER TO STRUCTURAL FOR DUCT DROP JOIST MODIFICATIONS.
11. CONTRACTOR SHALL COORDINATE WITH FINAL ARCHITECTURAL RCP PRIOR TO ORDERING SLOT DIFFUSERS. LINEAR SLOT DIFFUSER LENGTH SHALL MATCH LONGER DIMENSION OF CEILING TILE.
12. PROVIDE LOW TEMPERATURE ALARM SYSTEM WITH ADJUSTABLE SETPOINT. INSTALL CONTROLLER AND ALARM INSIDE OFFICE, ON THE WALL NEXT TO THE THERMOSTATS. INSTALL SENSOR INSIDE THE RISER ROOM. SUPCO TA2 OR EQUAL.
13. PROVIDE LINED RETURN AIR BOOT ABOVE CEILING WITH INDICATED FREE AREA. REFER TO DETAIL 10/M0.02.
14. PROVIDE 360X12 TRANSFER GRILLE INSTALLED IN SOFFIT ON DINING ROOM SIDE OF THE PASS THROUGH. PROVIDE ADDITIONAL 252X12 TRANSFER GRILLE INSTALLED IN THE KITCHEN SIDE OF THE PASS THROUGH. BLANK OFF AREA BEHIND THE SOLID FUEL HOOD ON THE KITCHEN SIDE OF THE SOFFIT. ALL LOUVERED GRILL BLADES SHALL BE ANGLED UPWARDS TO PREVENT SIGHT LINES AND GRILLES SHALL BE PAINTED TO MATCH THE WALL FINISH. REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION. BASIS OF DESIGN IS TITUS 350FL. GRILLES SHALL BE SHIPPED IN MULTIPLE SECTIONS WITH JOINING STRIPS TO PROVIDE THE OVERALL SIZES INDICATED. FREE AREA CALCULATIONS ARE BASED ON 36X12 MODULES, HOWEVER ALTERNATE CONFIGURATIONS MEETING OR EXCEEDING THE TOTAL FREE AREA (CORE AREA) ARE ACCEPTABLE.
15. PROVIDE REMOTE TEMPERATURE/HUMIDITY SENSOR IN THIS LOCATION CONFIGURED FOR AVERAGING THE MEASUREMENTS OF THE TWO REMOTE SENSORS IN THE DINING ROOM AS SHOWN. THE SENSOR SHALL BE CONFIGURED SO THAT IT IS NOT ADJUSTABLE BY THE BUILDING OCCUPANTS AND SO THAT THE BACKLIGHT IS DISABLED.

LEGEND

	12"X12" SUPPLY AIR CEILING DIFFUSER
	24"X24" SUPPLY AIR CEILING DIFFUSER
	24"X24" RETURN AIR GRILLE
	24"X24" EXHAUST AIR GRILLE
	ROUND DIFFUSER
	SUPPLY AIR SIDE-WALL OR DUCT MOUNTED REGISTER
MD	MANUAL VOLUME DAMPER
T	THERMOSTAT
S	TEMPERATURE SENSOR

project address | name

FIREBIRDS
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BWA JOB # 2023-0521

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CONSTRUCTION DOCUMENTS
10/17/2023

revisions

No.	Description	Date
3	Hood Updates & General Construction	04/09/2024
7	Electrical Revision	11/15/2024

seal

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BRAD RABINOWITZ
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11/15/24

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3

FLOOR PLAN - MECHANICAL

M1.01

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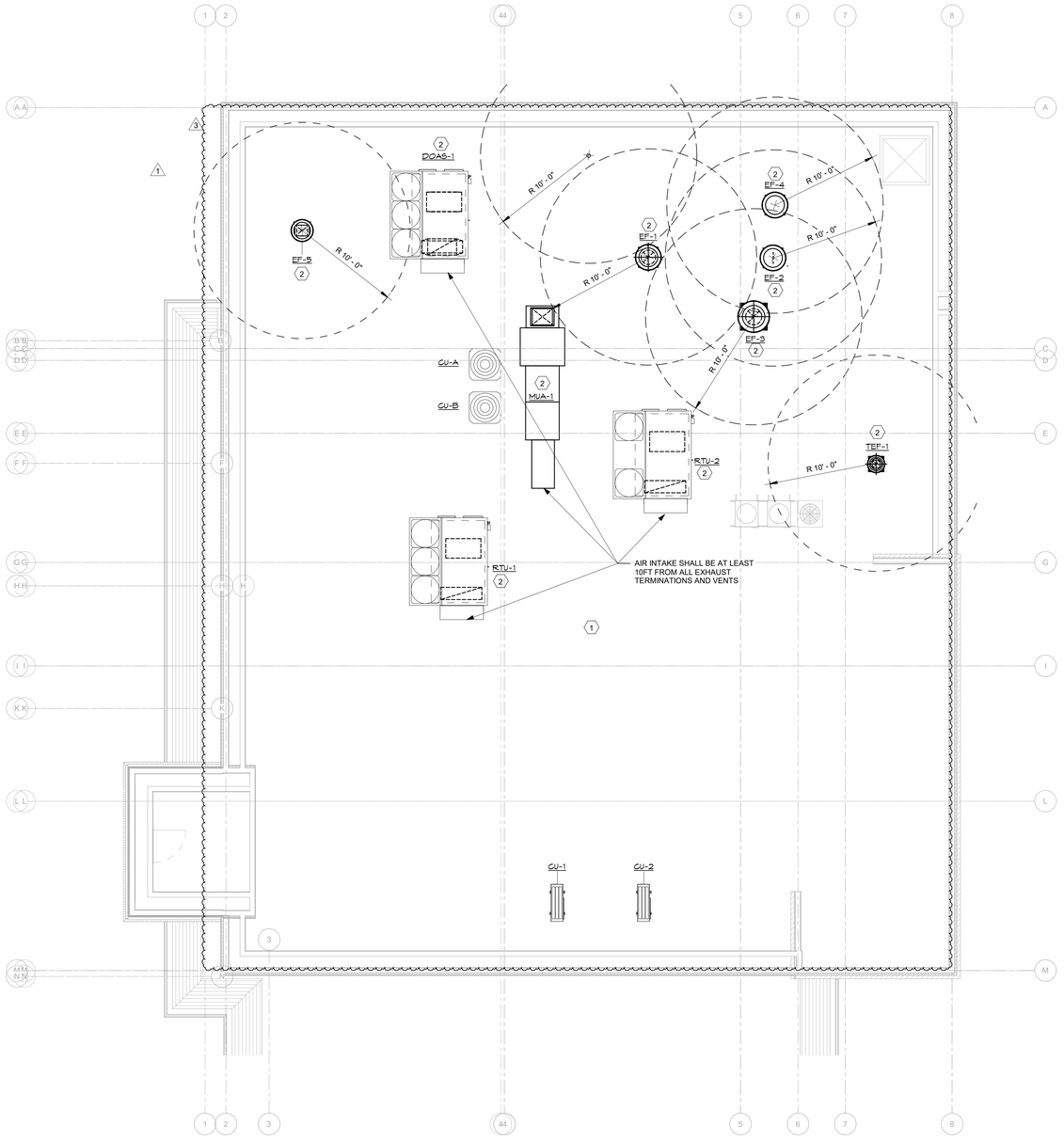

1 M1.02 ROOF PLAN - HVAC
3/16" = 1'-0"

GENERAL NOTES

1. INTAKES AND EXHAUST SHALL BE A MINIMUM OF 10 FEET APART.
2. DUCT TYPE I HOOD FANS TERMINATIONS SHALL BE MIN 40" ABOVE FINISHED ROOF. TERMINATION SHALL CONFORM TO 2015 IMC SECTION 506.3.13
3. ALL MECHANICAL EQUIPMENT SHALL BE LABELED WITH LAMINATE NAMEPLATE SECURELY AFFIXED TO THE EQUIPMENT. THE NAMEPLATE SHALL SHOW THE EQUIPMENT TAG USED ON THESE DRAWINGS.
4. REFER TO SHEET P1.04 FOR CONDENSATE LINE ROUTING.

LEGEND NOTES

(APPLY TO THIS SHEET ONLY)

(1) ALL EXTERNAL SERVICES (I.E. ELECTRICAL CONDUITS, GAS LINES, METERS, ETC.) ARE TO BE PAINTED TO MATCH THE BUILDING. ALSO, CONDUIT RUNS, SERVICE LINES, AND REFRIGERANT LINE SETS SHOULD BE GROUPED TOGETHER IN A NEAT AND ORDERLY MANNER. SERVICE LINES SHOULD PENETRATE THE WALL AT THE LOWEST POINT AND ARE NOT TO BE RUN OVER THE TOP OF THE PARAPET.

(2) REFER TO STRUCTURAL DRAWINGS FOR TYPICAL DETAILS FOR STEEL ANGLES AT CURB INSTALLATIONS, DUCTWORK PENETRATIONS AND PIPING AND DUCT SUPPORTS INSTALLATION TO ROOF DECKING.

project address | name

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FIREBIRDS WOOD FIRED GRILL

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BWA JOB # 2023-0531

job status

CONSTRUCTION DOCUMENTS
10/17/2023

revisions

No.	Description	Date
1	Permit Comments MEP	03/12/2024
3	Hood Updates & General Construction	04/09/2024

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ROOF PLAN - MECHANICAL

M1.02

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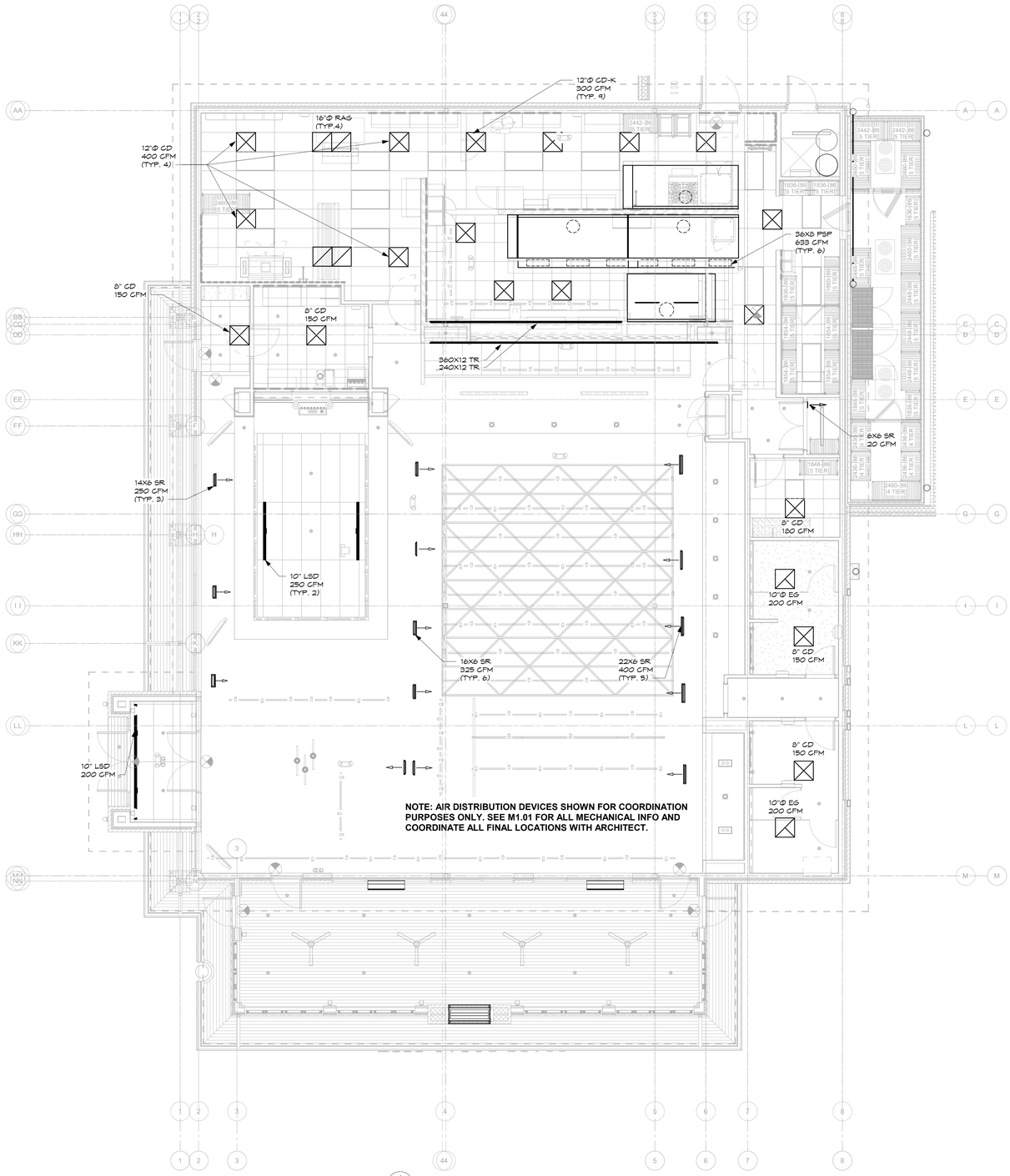

1 M2.01 CEILING PLAN - HVAC
3/16" = 1'-0"

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REFLECTED CEILING PLAN - MECHANICAL

M2.01

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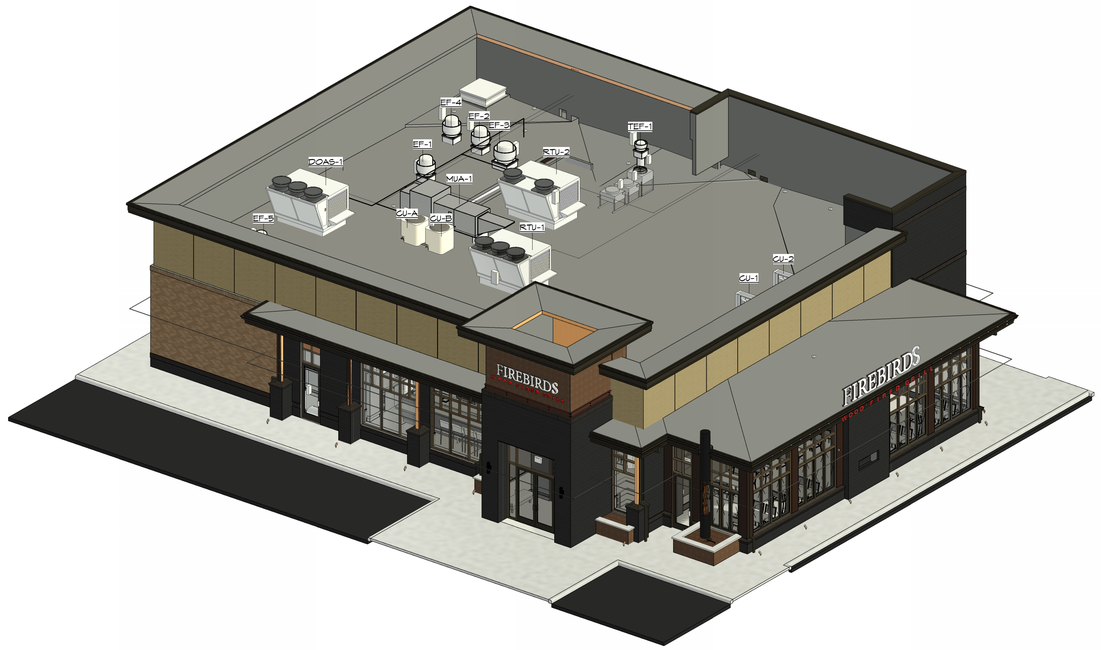

1 M3.01 MECHANICAL ISOMETRIC

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3	Hood Updates & General Construction	04/09/2024

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MECHANICAL ISOMETRIC
M3.01

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HOOD INFORMATION – JOB#6679945

HOOD NO	TAG	MODEL	MANUFACTURER	LENGTH	MAX COOKING TEMP	TYPE	APPLIANCE DUTY	DESIGN CFM/FT	TOTAL EXH CFM	EXHAUST PLENUM RISER(S) WIDTH	LENG	HEIGHT	DIA	CFM	VEL	SP	TOTAL SUPPLY CFM	HOOD CONSTRUCTION	HOOD CONFIG END TO END	ROW
1	HD-33 MAIN L	5424 ND-2-PSP-F	CAPTIVEAIRE	11' 6"	600 DEG	I	HEAVY	200	2300			4"	16"	2300	1647	-0.753"	1900	430 SS WHERE EXPOSED	LEFT	ALONE
2	HD-33 MAIN R	5424 ND-2-PSP-F	CAPTIVEAIRE	11' 6"	600 DEG	I	HEAVY	200	2300			4"	16"	2300	1647	-0.753"	1900	430 SS WHERE EXPOSED	RIGHT	ALONE
3	HD-38 GRILL	6030 ND-2	CAPTIVEAIRE	8' 2"	700 DEG	I	EXTRA-HEAVY	392	3200			4"	18"	3200	1811	-1.356"	0	430 SS 100%	ALONE	ALONE
4	HD-70 PREP	6024 ND-2	CAPTIVEAIRE	11' 0"	600 DEG	I	HEAVY	200	2200			4"	16"	2200	1576	-0.689"	0	430 SS WHERE EXPOSED	ALONE	ALONE

HOOD INFORMATION

HOOD NO	TAG	FILTER(S) TYPE	QTY	HEIGHT	LENGTH	EFFICIENCY @ 7 MICRONS	LIGHT(S) QTY	TYPE	WIRE GUARD	UTILITY CABINET(S) LOCATION	SIZE	FIRE SYSTEM TYPE	FIRE SYSTEM SIZE	ELECTRICAL MODEL #	SWITCHES QUANTITY	FIRE SYSTEM PIPING	HOOD HANGING WEIGHT
1	HD-33 MAIN L	CAPTRATE SOLO FILTER	8	20"	16"	85% SEE FILTER SPEC	7	L55 SERIES E26	NO	LEFT	12"x54"x24"	TANK FS	4.0/4.0/4.0			YES	1071 LBS
2	HD-33 MAIN R	CAPTRATE SOLO FILTER	8	20"	16"	85% SEE FILTER SPEC	7	L55 SERIES E26	NO							YES	644 LBS
3	HD-38 GRILL	CAPTRATE SOLO FILTER	6	20"	16"	85% SEE FILTER SPEC	7	L55 SERIES E26	NO	LEFT	12"x60"x30"	CORE PROTECTION	0	SC-342110MA	1 LIGHT 1 FAN	YES	904 LBS
4	HD-70 PREP	CAPTRATE SOLO FILTER	8	20"	16"	85% SEE FILTER SPEC	7	L55 SERIES E26	NO	RIGHT	12"x60"x24"	TANK FS	4.0/4.0	SC-342110MA	1 LIGHT 1 FAN	YES	937 LBS

HOOD OPTIONS

HOOD NO	TAG	OPTION
1	HD-33 MAIN L	FIELD WRAPPER 17.00" HIGH FRONT, LEFT.
		LEFT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.
2	HD-33 MAIN R	FIELD WRAPPER 17.00" HIGH FRONT, RIGHT.
		RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
3	HD-38 GRILL	FIELD WRAPPER 11.00" HIGH FRONT, LEFT, RIGHT.
		LEFT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		INSULATION FOR TOP OF HOOD.
		INSULATION FOR BACK OF HOOD.
		RISER SENSOR INSTALL 6IN PLEN.
		WC-CORE PROTECTION.
		RIGHT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.
4	HD-70 PREP	FIELD WRAPPER 17.00" HIGH FRONT, LEFT, RIGHT.
		BACKSPLASH 122.00" HIGH X 162.00" LONG 430 SS VERTICAL.
		BACKSPLASH - OUTSIDE CORNER 80.00" HIGH X 2.00" LEG LENGTH 430 SS VERTICAL.
		RIGHT QUARTER END PANEL 23" TOP WIDTH, 0" BOTTOM WIDTH, 23" HIGH 430 SS.
		LEFT VERTICAL END PANEL 27" TOP WIDTH, 21" BOTTOM WIDTH, 80" HIGH INSULATED 430 SS.
		SENSOR-CV.

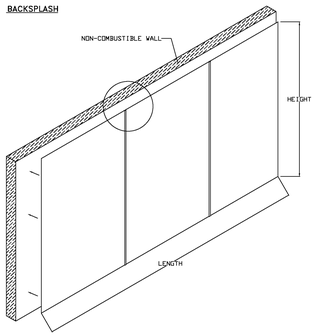
PERFORATED SUPPLY PLENUM(S)

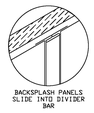
HOOD NO	TAG	POS	LENGTH	WIDTH	HEIGHT	TYPE	RISER(S) WIDTH	LENG	DIA	CFM	SP
1	HD-33 MAIN L	Front	150"	16"	6"	MUA	8"	36"		633	0.179"
						MUA	8"	36"		633	0.179"
						MUA	8"	36"		633	0.179"
2	HD-33 MAIN R	Front	138"	16"	6"	MUA	8"	36"		633	0.179"
						MUA	8"	36"		633	0.179"
						MUA	8"	36"		633	0.179"

FIRE SYSTEM INFORMATION – JOB#6679945

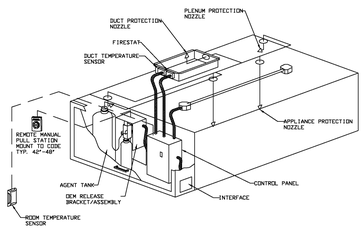
FIRE SYSTEM NO	TAG	TYPE	SIZE	MAX FP	DESIGN FP	INSTALLATION SYSTEM	INSTALLATION LOCATION ON HOOD
1	FS-MAIN	TANK FS	4.0/4.0/4.0	60	46	FIRE CABINET LEFT	LEFT, HOOD 1
2	FS-GRILL	CORE PROTECTION	0	0	0	FIRE CABINET LEFT	LEFT, HOOD 3
3	FS-BACK	TANK FS	4.0/4.0	40	30	FIRE CABINET RIGHT	RIGHT, HOOD 4

BACKSPLASH





- BACKSPLASH IS NOT INSULATED AND IS UNSUITABLE FOR INSTALL AGAINST COMBUSTIBLE WALLS



TYPICAL TANK SYSTEM LAYOUT

SPECIFICATIONS:

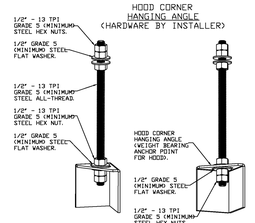
THE RESTAURANT FIRE SUPPRESSION SYSTEM SHALL BE THE PRE-ENGINEERED TYPE WITH A FIXED NOZZLE AGENT DISTRIBUTION NETWORK. IT SHALL BE LISTED WITH UNDERWRITERS LABORATORIES, INC (UL).

THE SYSTEM CONTROLS SHALL PROVIDE ALL NECESSARY MONITORING, TIMING AND SUPERVISION FUNCTIONS REQUIRED FOR THE RELIABLE OPERATION OF THE WET CHEMICAL FIRE SUPPRESSION SYSTEM. ALL DEVICES THAT ARE CRITICAL TO SYSTEM OPERATION SHALL BE SUPERVISED. THE SYSTEM SHALL INCLUDE A BATTERY BACK-UP SYSTEM IN THE EVENT OF A LOSS OF POWER TO THE BUILDING. THE BACKUP SYSTEM SHALL POWER ALL SYSTEMS NECESSARY FOR PROPER OPERATION.

THE SYSTEM SHALL BE CAPABLE OF AUTOMATIC DETECTION AND ACTUATION WITH LOCAL OR REMOTE MANUAL ACTUATION. THE DETECTION PORTION OF THE FIRE SUPPRESSION SYSTEM ALLOWS FOR AUTOMATIC DETECTION BY MEANS OF AN ELECTRIC THERMAL DETECTOR(S) LOCATED IN THE HOOD DUCT CONNECTION(S).

NOTE: GRILL HOOD USES A CORE FIRE SUPPRESSION SYSTEM THAT REQUIRES A SPRINKLER LINE, HOT WATER LINE, AND DRAINS.

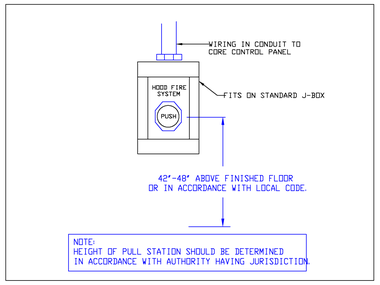
HOOD CORNER HANGING ANGLE (HARDWARE BY INSTALLER)



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.

TANK PULL STATION DETAIL



FOR QUESTIONS, CALL THE CHARLOTTE, NORTH CAROLINA OFFICE
EVAN ZIPPERER
PHONE: 919-719-7636
EMAIL: reg30@captiveaire.com

CAPTIVE-AIRE HOODS ARE ETL LISTED AND LABELED IN COMPLIANCE WITH

NFPA #96
NSF
UL 710 & ULC710 STANDARDS
E.T.L. LISTED 3054804-001

REVISIONS

	DESCRIPTION	DATE
1	Added economizers etc	3-18-24
2		
3		
4		

CAPTIVE-AIRE
Charlotte|Piedmont
6303 Carnel Road Suite 105, Charlotte, NC, 28226 PHONE: (704) 844 - 9088 FAX: 9192275952 EMAIL: reg30@captiveaire.com
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Fireбirds - Liberty, OH
MIDDLETOWN, OH, 45044

DATE: 3/15/2024
DWG.#: 6679945
DRAWN BY: evan.zipper
SCALE: 3/4" = 1'-0"
MASTER DRAWING
SHEET NO. 1

project address | name

FIREBIRDS
Liberty, OH

7685 Blake Street
Liberty Township, OH 45069

client

FIREBIRDS® WOOD FIRED GRILL

designers

starr design branded environments
Starr Design, PLLC
2459 Wilkinson Blvd, Suite 310
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RWA JOB # 2023-0931

job status

CONSTRUCTION DOCUMENTS
10/17/2023

revisions

No.	Description	Date
3	Hood Updates & General Construction	04/09/2024

seal

STATE OF OHIO
BRAD RABINOWITZ
E-80445
REGISTERED
PROFESSIONAL ENGINEER

04/09/24

sheet number | title

3

CAPTIVEAIRE DRAWINGS - MECHANICAL

M4.01

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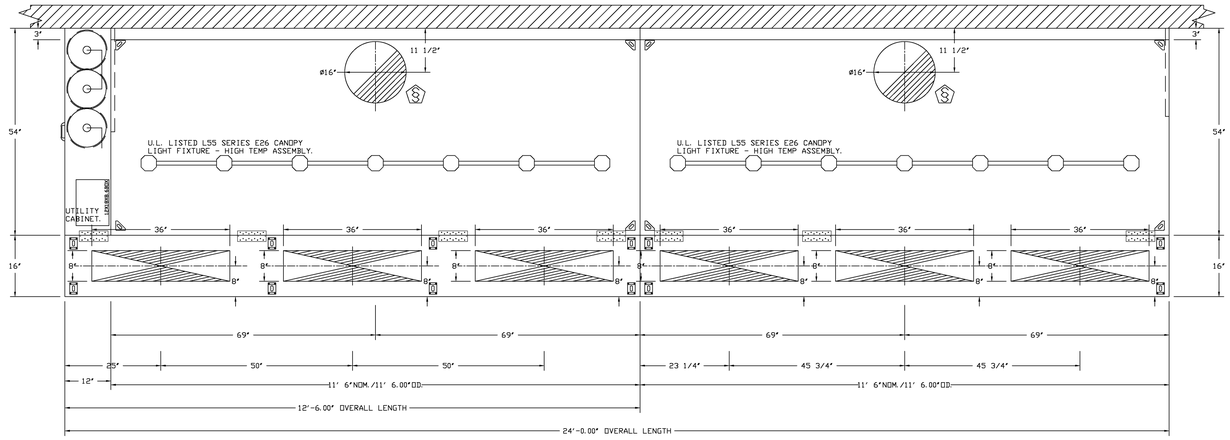
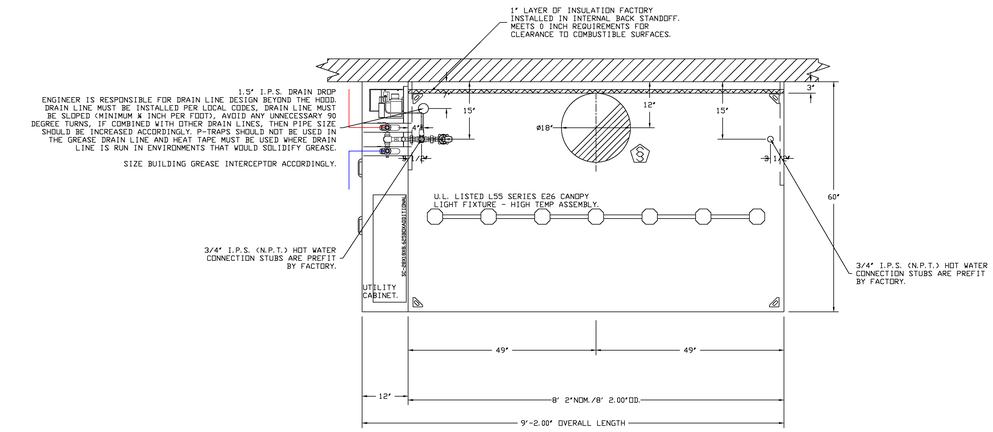
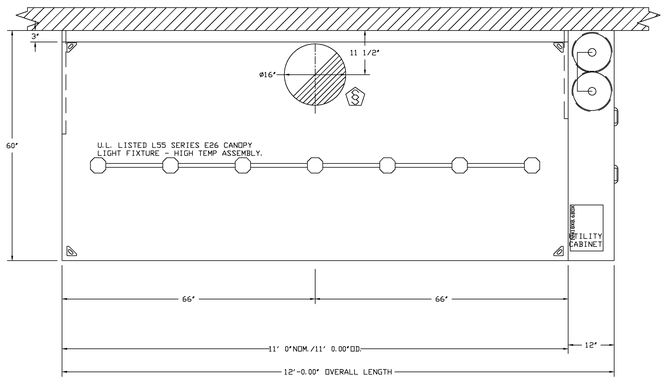


PLAN VIEW – HOOD #1 (HD-33 MAIN L)
11' 6.00" LONG 5424ND-2-PSP-F

PLAN VIEW – HOOD #2 (HD-33 MAIN R)
11' 6.00" LONG 5424ND-2-PSP-F



PLAN VIEW – HOOD #3 (HD-38 GRILL)
8' 2.00" LONG 6030ND-2



PLAN VIEW – HOOD #4 (HD-70 PREP)
11' 0.00" LONG 6024ND-2

REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
4		

CAPTIVEAIRE
Charlotte/Piedmont
6303 Carmel Road Suite 105, Charlotte, NC, 28226 PHONE: (704) 844 - 9088 FAX: 9192275952 EMAIL: rej30@captiveaire.com
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Firebirds - Liberty, OH
MIDDLETOWN, OH, 45044

DATE: 3/15/2024

DWG.#: 6679945

DRAWN BY: evan.zipper

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

MASTER DRAWING

SHEET NO. 2

FIREBIRDS
Liberty, OH

7685 Blake Street
Liberty Township, OH 45069

project address | name

FIREBIRDS WOOD FIRED GRILL

client

starr design
branded environments
Starr Design, PLLC
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Charlotte, NC 28208
V. 704 377 5200
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designers

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BWA JOB # 2023-0591

job status

CONSTRUCTION DOCUMENTS
10/17/2023

revisions

No.	Description	Date
3	Hood Updates & General Construction	04/09/2024

seal

STATE OF OHIO
BRAD RABINOWITZ
E-80445
REGISTERED PROFESSIONAL ENGINEER
04/09/24

sheet number | title

3
CAPTIVEAIRE DRAWINGS - MECHANICAL
M4.02

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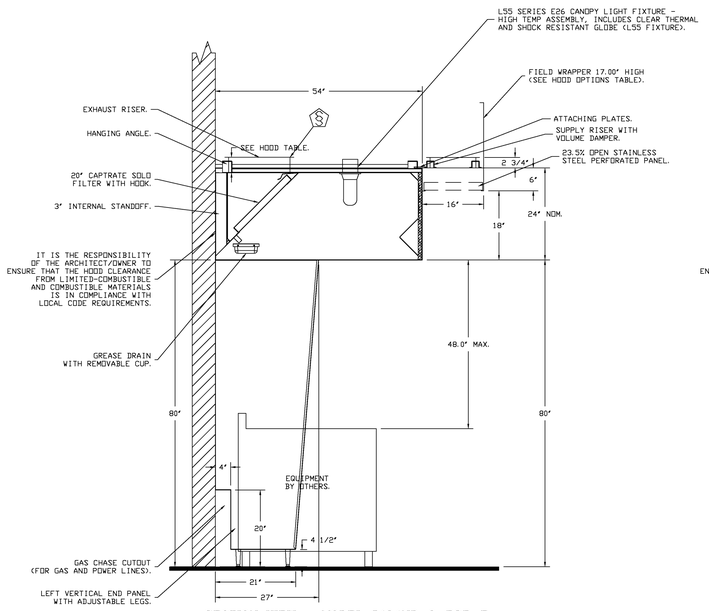
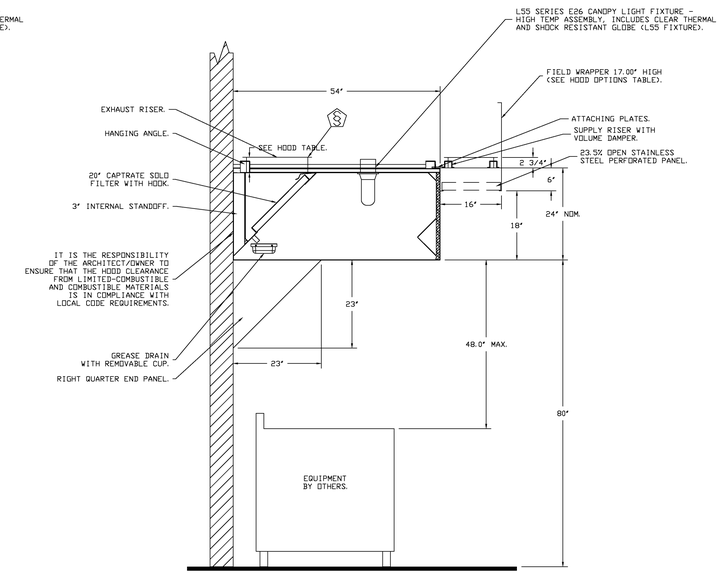
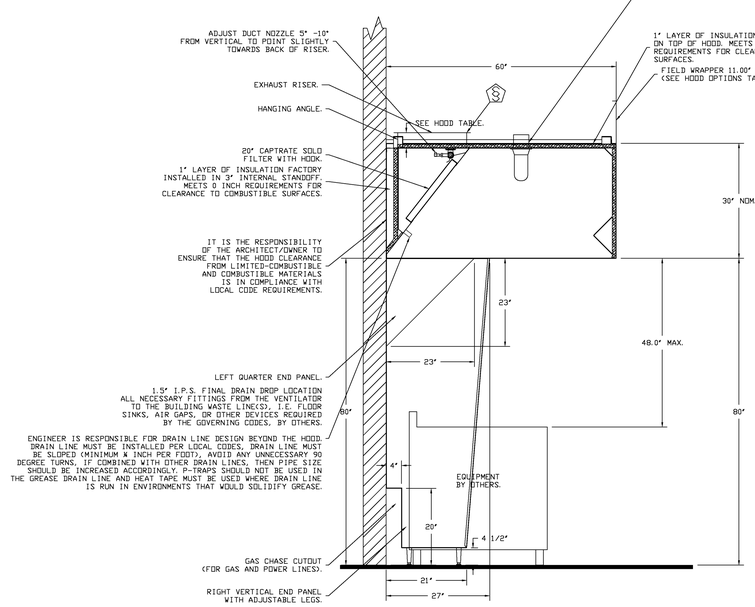


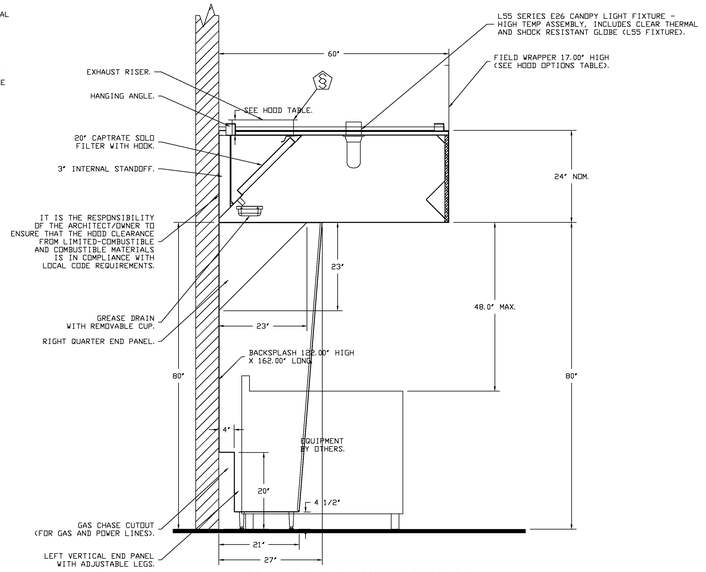
SECTION VIEW - MODEL 5424ND-2-PSP-F
HOOD - #1 (HD-33 MAIN L)



SECTION VIEW - MODEL 5424ND-2-PSP-F
HOOD - #2 (HD-33 MAIN R)



SECTION VIEW - MODEL 6030ND-2
HOOD - #3 (HD-38 GRILL)



SECTION VIEW - MODEL 6024ND-2
HOOD - #4 (HD-70 PREP)

REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
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Firebirds - Liberty, OH
MIDDLETOWN, OH, 45044

DATE: 3/15/2024

DWG.#: 6679945

DRAWN BY: evan.zipper

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

MASTER DRAWING

SHEET NO. 3

FIREBIRDS
Liberty, OH

7685 Blake Street
Liberty Township, OH 45069

project address | name

FIREBIRDS® WOOD FIRED GRILL

client

starr design branded environments

Starr Design, PLLC
2459 Wilkinson Blvd, Suite 310
Charlotte, NC 28208
V. 704 377 5200
www.starrdesignteam.com

designers

CONSTRUCTION DOCUMENTS
10/17/2023

job status

No.	Description	Date
3	Hood Updates & General Construction	04/09/2024

revisions

04/09/24

seal

3

CAPTIVEAIRE DRAWINGS - MECHANICAL

M4.03

sheet number | title

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RWA JOB # 2023-0531

EXHAUST FAN INFORMATION – JOB#6679945

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	MANUFACTURER	CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	DISCHARGE VELOCITY	WEIGHT (LBS)	SONES
1	KEF-1 (33 LEFT)	1	DU180HFA	CAPTIVEAIRE	2300	1.500	1212	ODP,PREMIUM	2.000	1.1980	3	208	8.3	531 FPM	184	16.1
2	KEF-2 (33 RIGHT)	1	DU180HFA	CAPTIVEAIRE	2300	1.500	1212	ODP,PREMIUM	2.000	1.1980	3	208	8.3	531 FPM	184	16.1
3	KEF-4 (PREP)	1	DU180HFA	CAPTIVEAIRE	2200	1.400	1129	ODP,PREMIUM	2.000	1.0660	3	208	8.3	508 FPM	184	12.9
4	EF-DISH	1	DU33HFA	CAPTIVEAIRE	800	0.500	1386	ODP	0.333	0.1770	1	115	5.6	396 FPM	75	13.3

CONDENSER DETAILS

FAN UNIT NO	TAG	FAN UNIT MODEL #	CONDENSER NO	TONNAGE	VOLTAGE	PHASE	FREQUENCY	MCA	RLA	MAX FUSE SIZE	MIN WIRE SIZE	SEER
5	MUA-1	A2-D.500-20D-MPU	1	5	208-230	3 PHASE	60 HZ	21.4 AMPS	17.4 AMPS	30 AMPS	10 AWG	14
			2	5	208-230	3 PHASE	60 HZ	21.4 AMPS	17.4 AMPS	30 AMPS	10 AWG	14

MUA FAN INFORMATION – JOB#6679945

FAN UNIT NO	TAG	QTY	FAN UNIT MODEL #	BLOWER	HOUSING	MIN CFM	DESIGN CFM	ESP	RPM	MOTOR ENCL	HP	BHP	PHASE	VOLT	FLA	MCA	MOCP	WEIGHT (LBS)	SONES
5	MUA-1	1	A2-D.500-20D-MPU	20MF-2-MOD	A2-D.500	3600	3800	0.750	1660	ODP,PREMIUM	5.000	2.5350	3	208	15.0	18.8A	30A	1622	17.3

COILS – JOB#6679945

FAN UNIT NO	TAG	COIL TYPE	DESIGN CFM	COOLING										HEATING								
				ENTERING DB TEMP	ENTERING WB TEMP	LEAVING DB TEMP	LEAVING WB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	TOTAL CAPACITY	SENSIBLE CAPACITY	LATENT CAPACITY	ENTERING DB TEMP	LEAVING DB TEMP	ENTERING FLUID TEMP	LEAVING FLUID TEMP	FLUID FLOW RATE	PERCENT GLYCOL	STEAM PRESSURE	TOTAL CAPACITY	SENSIBLE CAPACITY
5	MUA-1	DX	3800	90.0°F	74.0°F	73.7°F	67.0°F	---	---	---	---	95.8 MBH	64.0 MBH	31.8 MBH	---	---	---	---	---	---	---	---	---

GAS FIRED MAKE-UP AIR UNIT(S)

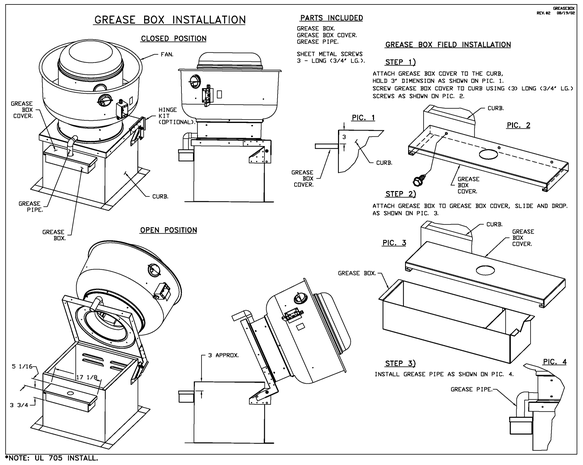
FAN UNIT NO	TAG	INPUT BTUs	OUTPUT BTUs	TEMP RISE	REQUIRED INPUT GAS PRESSURE	GAS TYPE	BURNER EFFICIENCY(%)
5	MUA-1	303855	279547	70°F	7 IN. W.C. - 14 IN. W.C.	NATURAL	92

FAN ACCESSORIES

FAN UNIT NO	TAG	EXHAUST			SUPPLY			
		GREASE CUP	GRAVITY DAMPER	WALL MOUNT	SIDE DISCHARGE	GRAVITY DAMPER	MOTORIZED DAMPER	WALL MOUNT
1	KEF-1 (33 LEFT)	YES						
2	KEF-2 (33 RIGHT)	YES						
3	KEF-4 (PREP)	YES						
4	EF-DISH	YES						
5	MUA-1						YES	

CURB ASSEMBLIES

NO	ON FAN	TAG	WEIGHT	ITEM	SIZE
1	# 1	KEF-1 (33 LEFT)	34 LBS	CURB	26.500"W X 26.500"L X 26.000"H VENTED HINGED.
2	# 2	KEF-2 (33 RIGHT)	34 LBS	CURB	26.500"W X 26.500"L X 26.000"H VENTED HINGED.
3	# 3	KEF-4 (PREP)	34 LBS	CURB	26.500"W X 26.500"L X 26.000"H VENTED HINGED.
4	# 4	EF-DISH	30 LBS	CURB	19.500"W X 19.500"L X 24.000"H VENTED.
5	# 5	MUA-1	96 LBS	CURB	31.000"W X 79.000"L X 16.000"H INSULATED.
	# 5			RAIL	6.000"W X 31.000"L X 16.000"H.
6	# 6	DOAS-1 (KITCHEN)	112 LBS	CURB	59.500"W X 91.000"L X 16.000"H INSULATED.
7	# 7	RTU-1	112 LBS	CURB	59.500"W X 91.000"L X 16.000"H INSULATED.
8	# 8	RTU-2	112 LBS	CURB	59.500"W X 91.000"L X 16.000"H INSULATED.
9			85 LBS	CURB	28.000"W X 28.000"L X 36.000"H.



*NOTE: UL 705 INSTALL.

FAN OPTIONS

FAN UNIT NO	TAG	QTY	DESCRIPTION
1	KEF-1 (33 LEFT)	1	GREASE BOX
		1	FAN BASE CERAMIC SEAL - DU/DR180HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
		1	2 YEAR PARTS WARRANTY
2	KEF-2 (33 RIGHT)	1	GREASE BOX
		1	FAN BASE CERAMIC SEAL - DU/DR180HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
		1	2 YEAR PARTS WARRANTY
3	KEF-4 (PREP)	1	GREASE BOX
		1	FAN BASE CERAMIC SEAL - DU/DR180HFA - INSTALLED AT PLANT - FOR GREASE DUCTS
		1	2 YEAR PARTS WARRANTY
4	EF-DISH	1	GREASE BOX
		1	2 YEAR PARTS WARRANTY
5	MUA-1	1	INLET PRESSURE GAUGE, 0-35"
		1	MANIFOLD PRESSURE GAUGE, -5 TO 15" WC
		1	BUTTERFLY MOD VALVE OPTION FOR MOD SIZE 2 (1" MOD VALVE)
		1	SHIP LOOSE GAS STRAINER 1"
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	MOTORIZED BACKDRAFT DAMPER FOR A2-D HOUSING - MEETS AMCA CLASS 1A RATING
		1	10 TON 2 CIRCUIT (5/5) MODULAR PACKAGED COOLING OPTION FOR SIZE 2 DF/CH MUA (3,600 TO 5,000 CFM), 208V/230V, 3 PHASE. COOLING THERMOSTAT OR PROGRAMMABLE STAT REQUIRED FOR PROPER OPERATION
		1	DOWNTURN PLENUM FOR SIZE 2 DX COIL MODULE
		1	SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) - THREE PHASE ONLY
		1	SIZE 2 DIRECT FIRED HEATER LOW CFM PROFILE PACKAGE - USED ON HEATERS UNDER 2500 CFM
		1	SHIP CONDENSERS LOOSE - TWO CONDENSERS, THREE PHASE - CONDENSER DISCONNECTS SHIPPED LOOSE. ALL PIPING AND WIRING BETWEEN INDOOR AND OUTDOOR UNITS BY OTHERS
		1	2 YEAR PARTS WARRANTY
6	DOAS-1 (KITCHEN)	1	INLET PRESSURE GAUGE, 0-35"
		1	RTU TOTAL CFM MONITORING
		1	INTAKE FIRESTAT SET TO 135°F
		1	FREEZESTAT
		1	DISCHARGE FIRESTAT SET TO 240°F
		1	SHIP LOOSE GAS STRAINER 1"
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU. 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	RTU3 DOWN DISCHARGE, 400, 500 MBH
		1	2" MERV 13 FILTERS FOR RTU3 (QTY. 4)
		1	2" MERV 8 FILTERS FOR RTU3 (QTY. 4)
		1	OVERHEAT STAT
		1	30 TON MODULATING COOLING OPTION, 208/230V. SIZE 3 CABINET, R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS
		1	30 TON MODULATING REHEAT OPTION FOR SIZE 3 CABINET - SPACE DEWPOINT CONTROL
		1	OCCUPIED SCHEDULING
		1	REMOTE TEMPERATURE AND HUMIDITY SPACE SENSOR
		1	RTU3 DOWN RETURN
		1	RTU3 CURB DUCT HANGER
		1	120V FIRE INPUT
		1	RTU RETURN MOUNTED SMOKE DETECTOR AND SAMPLING TUBE - FACTORY INSTALLED
		1	HIGH TURNDOWN OPTION FOR DOAS UNITS
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 2 FURNACES
		1	AUXILIARY REHEAT - IBT
		1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI
		1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL VIA HMI
		1	UNIT MOUNTED VFD CONFIGURED FOR DCV
		1	RTU3 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)
7	RTU-1	1	INLET PRESSURE GAUGE, 0-35"
		1	RTU TOTAL CFM MONITORING
		1	INTAKE FIRESTAT SET TO 135°F
		1	FREEZESTAT
		1	DISCHARGE FIRESTAT SET TO 240°F

FAN UNIT NO	TAG	QTY	DESCRIPTION
		1	SHIP LOOSE GAS STRAINER 1"
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU. 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	RTU3 DOWN DISCHARGE, 400, 500 MBH
		1	2" MERV 13 FILTERS FOR RTU3 (QTY. 4)
		1	2" MERV 8 FILTERS FOR RTU3 (QTY. 4)
		1	OVERHEAT STAT
		1	VFD FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBULE
		1	20 TON MODULATING COOLING OPTION, 208/230V. R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS
		1	20 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL
		1	OCCUPIED SCHEDULING
		1	REMOTE TEMPERATURE AND HUMIDITY SPACE SENSOR
		1	VAV PACKAGE W/ MANUAL/DDC CONTROL (571 VFD INCLUDED)
		1	RTU3 DOWN RETURN
		1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI
		1	AUXILIARY REHEAT - IBT
		1	HIGH TURNDOWN OPTION FOR DOAS UNITS
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 2 FURNACES
		1	RTU RETURN MOUNTED SMOKE DETECTOR AND SAMPLING TUBE - FACTORY INSTALLED
		1	24VAC FIRE INPUT
		1	RTU3 CURB DUCT HANGER
		1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL VIA HMI
		1	LOW AMBIENT COOLING OPERATION - DOWN TO 0F AMBIENT
		1	RTU3 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)
8	RTU-2	1	INLET PRESSURE GAUGE, 0-35"
		1	RTU TOTAL CFM MONITORING
		1	INTAKE FIRESTAT SET TO 135°F
		1	FREEZESTAT
		1	DISCHARGE FIRESTAT SET TO 240°F
		1	SHIP LOOSE GAS STRAINER 1"
		1	SINGLE POINT ELECTRICAL CONNECTION FOR RTU. 750VA TRANSFORMER USED. IF A NON-DCV PREWIRE CONTROLS THIS UNIT, THE #28, #47, "MA", OR "E2" PREWIRE OPTION MUST BE SELECTED. DOES NOT PROVIDE SUPPLY STARTER IN PREWIRE
		1	CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED
		1	RTU3 DOWN DISCHARGE
		1	2" MERV 13 FILTERS FOR RTU3 (QTY. 4)
		1	2" MERV 8 FILTERS FOR RTU3 (QTY. 4)
		1	OVERHEAT STAT
		1	VFD FACTORY MOUNTED AND WIRED IN RTU COMMERCIAL CONTROL VESTIBULE
		1	15 TON MODULATING COOLING OPTION, 208/230V. R410A REFRIGERANT, VARIABLE SPEED COMPRESSOR, ECM CONDENSING FANS
		1	15 TON MODULATING REHEAT OPTION - SPACE DEWPOINT CONTROL
		1	REMOTE TEMPERATURE AND HUMIDITY SPACE SENSOR
		1	RTU3 DOWN RETURN
		1	OCCUPIED SCHEDULING
		1	24VAC FIRE INPUT
		1	RTU RETURN MOUNTED SMOKE DETECTOR AND SAMPLING TUBE - FACTORY INSTALLED
		1	AUXILIARY REHEAT - IBT
		1	LOW AMBIENT COOLING OPERATION - DOWN TO 0F AMBIENT
		1	CLOGGED FILTER SWITCH - NOTIFICATION ON HMI
		1	RTU INTAKE/RETURN DAMPER - MANUAL CONTROL VIA HMI
		1	VAV PACKAGE W/ MANUAL/DDC CONTROL (571 VFD INCLUDED)
		1	HIGH TURNDOWN OPTION FOR DOAS UNITS
		1	MANIFOLD PRESSURE GAUGE, 0 TO 10" WC, 2 FURNACES
		1	RTU3 CURB DUCT HANGER
		1	RTU3 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:
1		
2		
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Firebirds - Liberty, OH
MIDDLETOWN, OH, 45044

DATE: 3/15/2024

DWG.#: 6679945

DRAWN BY: evan.zipper

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

MASTER DRAWING

SHEET NO. 4

FIREBIRDS
Liberty, OH

7685 Blake Street
Liberty Township, OH 45069

project address | name

FIREBIRDS WOOD FIRED GRILL

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RWA JOB # 2023-0931

designers

CONSTRUCTION DOCUMENTS
10/17/2023

job status

No.	Description	Date
3	Hood Updates & General Construction	04/09/2024

revisions

BRAD RABINOWITZ E-80445 REGISTERED PROFESSIONAL ENGINEER STATE OF OHIO

04/09/24

seal

3
CAPTIVEAIRE DRAWINGS - MECHANICAL
M4.04

sheet number | title

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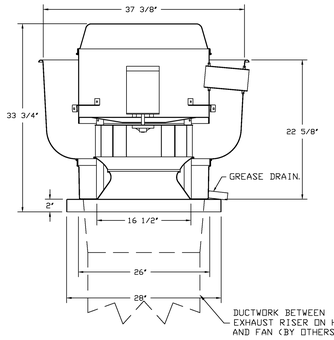
FANS #1 (KEF-1 (33 LEFT)), #2 (KEF-2 (33 RIGHT)), #3 (KEF-4 (PREP)) - DU180HFA EXHAUST FAN



FEATURES:

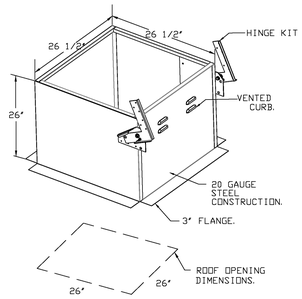
- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS).
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S645
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

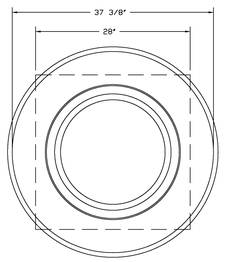
NORMAL TEMPERATURE TEST
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

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

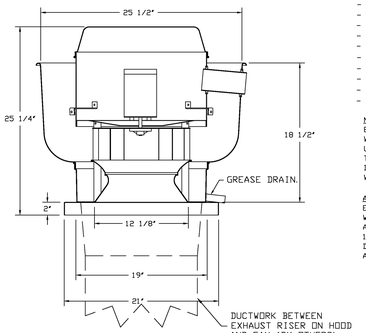
- GREASE BOX.
- FAN BASE CERAMIC SEAL - DU/DR180HFA - INSTALLED AT PLANT - FOR GREASE DUCTS.
- 2 YEAR PARTS WARRANTY.





TOP VIEW

FAN #4 DU33HFA - EXHAUST FAN (EF-DISH)



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).
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ABNORMAL FLARE-UP TEST
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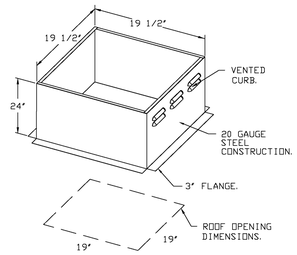
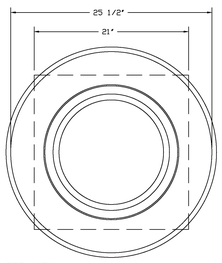
OPTIONS

- GREASE BOX.
- 2 YEAR PARTS WARRANTY.

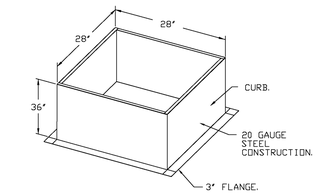




TOP VIEW

CURB #9 HRE28X36E

OPTIONS:
- FULL BOTTOM CORNERS.



REVISIONS

	DESCRIPTION	DATE:
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Firebirds - Liberty, OH
MIDDLETOWN, OH, 45044

DATE: 3/15/2024

DWG.#: 6679945

DRAWN BY: evan.zipper

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

MASTER DRAWING

SHEET NO. 5

project address | name

FIREBIRDS
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FIREBIRDS WOOD FIRED GRILL

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RWA JOB # 2023-0531

job status

CONSTRUCTION DOCUMENTS
10/17/2023

revisions

No.	Description	Date
3	Hood Updates & General Construction	04/09/2024

seal

STATE OF OHIO
BRAD RABINOWITZ
E-80445
REGISTERED
PROFESSIONAL ENGINEER

04/09/24

sheet number | title

CAPTIVEAIRE DRAWINGS - MECHANICAL

M4.05

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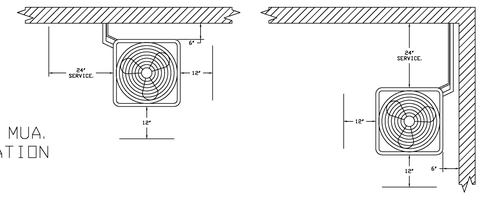
FAN #5 A2-D,500-20D-MPU - HEATER (MUA-1)
1. DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 20" MIXED FLOW DIRECT DRIVE FAN.
2. INTAKE HOOD WITH EZ FILTERS.
3. DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT.
4. GAS PRESSURE GAUGE, 0-35", 2.5" DIAMETER, 1/4" THREAD SIZE.
5. GAS PRESSURE GAUGE, -5 TO +15 INCHES WC, 2.5" DIAMETER, 1/4" THREAD SIZE.
6. BUTTERFLY MOD VALVE OPTION FOR MOD SIZE 2 (1" MOD VALVE).
7. SHIP LOOSE GAS STRAINER. TO BE INSTALLED UPSTREAM OF UNIT CONNECTION. 1" CONNECTION.
8. CASLINK BUILDING MONITORING SYSTEM COMMUNICATIONS MODULE. REQUIRES INTERNET & FIELD WIRED ETHERNET CONNECTION OR 3G CELLULAR SERVICE. INCLUDES REV 3 COMM MODULE, RJ45 TO MODBUS CONVERTER, 3 FT CAT5 CABLE, AND 1 FT OF SHIELDED TWISTED PAIR.
9. MOTORIZED BACK DRAFT DAMPER 22.75" X 24" FOR SIZE 2 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, LF120S ACTUATOR INCLUDED.
10. 10 TON, DUAL CIRCUIT CS/S3 MODULAR PACKAGED COOLING OPTION FOR SIZE 2 DF/EH MODULAR PACKAGED UNIT. INCLUDES CONDENSER, DX COIL, FILTER/DRYER KIT, THERMAL EXPANSION VALVE. (3,600 TO 5,000 CFM) WHEN ORDERED WITH OPPOSITE AIRFLOW CONDENSERS ACCESS AND COIL PIPING WILL REMAIN IN STANDARD POSITION. DRAIN AND SLEDS WILL MOVE TO THE OPPOSITE SIDE. ANY OTHER CHANGE WILL REQUIRE CLI. CONDENSERS REQUIRE SEPARATE 208V, 3 PHASE POWER SUPPLY UNLESS ORDERED WITH SINGLE POINT CONNECTION. COIL = 3E208028.
11. DOWNTURN PLENUM FOR SIZE 2 COOLING COIL MODULE - REQUIRED FOR DOWN DISCHARGE COOLING COIL APPLICATIONS.
12. SHIP CONDENSERS LOOSE. THE REFRIGERATION LINES WILL NEED TO BE STUBBED OUT 12 INCHES. THE SUCTION LINES NEEDS TO BE INSULATED INSIDE THE COIL MODULE. ROTARY DISCONNECT SHOULD NOT BE INSTALLED ON THE POST, BLANK POST SHOULD BE USED IN PLACE. ALL PIPING AND WIRING BETWEEN INDOOR AND OUTDOOR UNITS BY OTHERS.
13. SEPARATE 120VAC WIRING PACKAGE FOR MAKE-UP AIR UNITS. OPTION MUST BE SELECTED WHEN MOUNTING VFD IN PREWIRE PANEL OR WITH DCV PACKAGE. PROVIDES SEPARATE 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM DCV TO MUA SWITCH.
14. PROFILE PLATE CONFIGURATION FOR SIZE 2 DIRECT FIRED UNIT FOR LOW CFM APPLICATIONS.
15. HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/BLOWER/MPU SECTION).
16. 2 YEAR PARTS WARRANTY.

*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 20" x 20".

**NOTE: CONDENSERS SHIPPED LOOSE FOR REMOTE MOUNTING. ALL WIRING AND PIPING BETWEEN INDOOR AND OUTDOOR UNIT TO BE COMPLETED BY OTHERS.

TWO 5T CONDENSERS TO SHIP LOOSE WITH MUA. ELECTRICAL, MOUNTING RAILS, REFRIGERATION LINE SETS BY OTHERS.

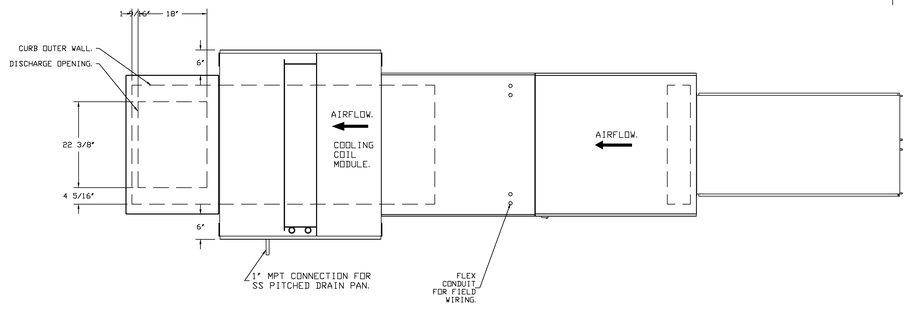


CONDENSER CLEARANCES

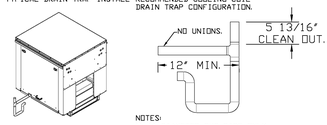
48" CLEARANCE REQUIRED ABOVE CONDENSERS.
(NOTE: **CONDENSERS SHOWN HERE ARE NOT DRAWN AT SCALE).

SUPPLY SIDE HEATER INFORMATION:

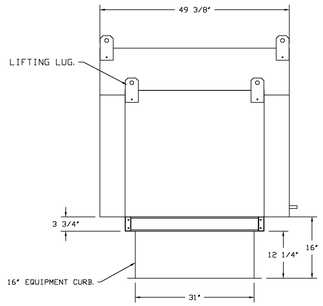
WINTER TEMPERATURE = 12°F. TEMP. RISE = 57°F.
BTUs CALCULATED OFF ACTUAL AIR DENSITY.
OUTPUT BTUs AT ALTITUDE OF 0.0 FT. = 234029.
INPUT BTUs AT ALTITUDE OF 0.0 FT. = 254379.
OUTPUT BTUs AT ALTITUDE OF 243 FT. = 231981.
INPUT BTUs AT ALTITUDE OF 243 FT. = 252153.

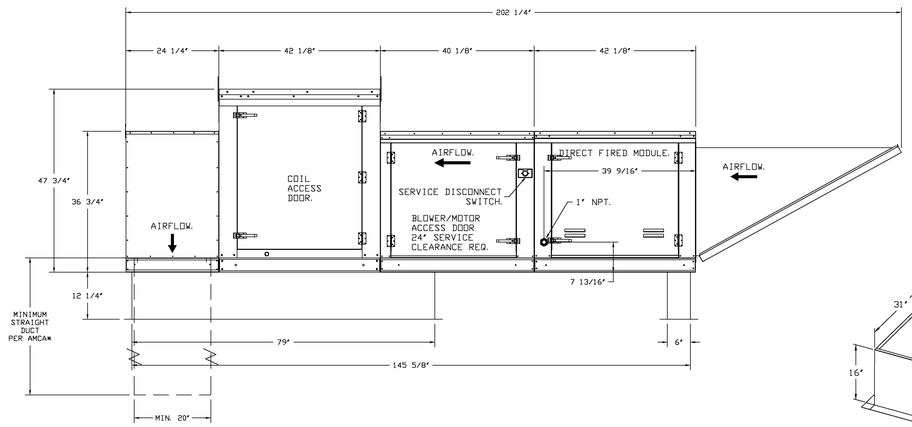


TYPICAL DRAIN TRAP INSTALL RECOMMENDED COOLING COIL DRAIN TRAP CONFIGURATION.

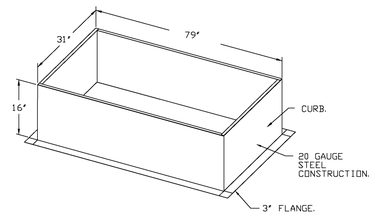


NOTES:
1) 1" DIAMETER PVC PIPE ONLY.
2) USE ONLY LOW PROFILE COUPLINGS.
3) ADD CLEAN OUT AS SHOWN.





OPTIONS:
- FULL BOTTOM CORNERS.



REVISIONS

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DRAWN BY: evan.zipper
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MASTER DRAWING

SHEET NO. 6

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project address | name

FIREBIRDS WOOD FIRED GRILL
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job status
CONSTRUCTION DOCUMENTS
10/17/2023

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STATE OF OHIO
BRAD RABINOWITZ
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REGISTERED PROFESSIONAL ENGINEER
04/09/24

sheet number | title
3
CAPTIVEAIRE DRAWINGS - MECHANICAL
M4.06

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GRILL HOOD CORE REQUIREMENTS BY TRADE

JOB NO 6679945 | MODEL NUMBER SC-342110MA | JOB NAME Firebirds - Liberty, OH | DRAWN BY | DATE 3/15/2024 | SCHEMATIC TYPE INSTALL | ENG NO ECP #1-7 | DESCRIPTION OF OPERATION: Fire System #2 CORE PROTECTION VTS-GRILL1-

CORE TOTAL FLOOD PROTECTION SPRINKLER DETAIL

10/01/2023 Rev. 15

FS-2: MASTER

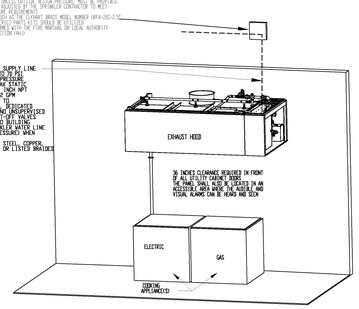
BUILDING SPRINKLER CONTRACTOR:
1. CONNECT CORE WATER LINE TO BUILDING WET SPRINKLER SYSTEM. STAINLESS STEEL, COPPER, STEEL PIPE OR LISTED BRAIDED HOSE ONLY

SPRINKLER CONTRACTOR REQUIREMENT					
ITEM	CONNECTION	OPERATING PRESSURE	K-FACTOR	FLOW RATE	COMMENTS
CORE WATER SUPPLY LINE	1 INCH NPT	30.00 PSI TO 70 PSI	2.7	12.2 GPM (1.5 GPM PER FOOT OF HOOD)	WATER LINE MUST BE SUPERVISED AND HAVE NO UNSUPERVISED MANUAL SHUT-OFF VALVES. MINIMUM PRESSURE AND FLOWRATE DEPENDENT ON LENGTH OF HOOD SYSTEM

PRESSURE REGULATOR VALVE (PRV)
- PRV INCLUDED WITH PRESSURE DESIGN PRESSURE, MUST BE PROVIDED, INSTALLED, AND ADJUSTED BY THE SPRINKLER CONTRACTOR TO MEET ENGINEERING PRESSURE REQUIREMENTS.
- A REGULATOR SUCH AS THE LEONARD BRASS MODEL NUMBER LBFA-050-0-SC OR EQUAL MAY BE USED. THE REGULATOR SELECTED MUST BE CERTIFIED AND MUST BE CONSISTENT WITH THE FIRE MARSHAL OR LOCAL AUTHORITY HAVING JURISDICTION (AHJ)

MINIMUM OPERATING PRESSURE REQUIREMENTS			
LENGTH OF HOOD (FT)	MINIMUM INLET WATER PRESSURE FOR HOT WATER (PSI)	MINIMUM INLET WATER PRESSURE FOR CORE PROTECTION (PSI)	DISCHARGE COEFFICIENTS (K-FACTOR)
4	30	30	1.3
8	30	30	2.6
12	30	30	4.0
16	30	30	5.4
20	30	30	6.7
24	32	36	8.1
28	31	33	9.0
32	33	35	10.0
36	35	45	10.1
40	42	50	10.7
44	43	55	11.3
48	45	60	11.9

TOTAL FLOWRATE = K FACTOR x PRESSURE$^{0.44}$



NOZZLE HEIGHTS ABOVE HAZARD		
NOZZLE PART NUMBER	NOZZLE ABOVE HAZARD	
	MIN	MAX
CL-F	30"	155"

NOZZLES FOR CORE PROTECTION			
DESCRIPTION	PART NUMBER	MACOLA	FLOW RATE
RISER NOZZLE	CR-M	A0001784	2.6 GPM @ 30 PSI
SPRAY BAR NOZZLE	CPL-M	A0001566	0.7 GPM @ 30 PSI

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

JOB NO 6679945 | MODEL NUMBER SC-342110MA | JOB NAME Firebirds - Liberty, OH | DRAWN BY | DATE 3/15/2024 | SCHEMATIC TYPE INSTALL | ENG NO ECP #1-6 | DESCRIPTION OF OPERATION: Fire System #2 CORE PROTECTION VTS-GRILL1-

CORE TOTAL FLOOD PROTECTION PLUMBING DETAIL

10/01/2023 Rev. 17

FS-2: MASTER

PLUMBER:
1. CONNECT HOT WATER LINE, ¾NPT, COPPER, STAINLESS STEEL PIPE OR LISTED BRAIDED HOSE ONLY
2. CONNECT HOOD DRAINOUTS TO STAINLESS STEEL, COPPER OR STEEL PIPE ONLY.
3. CONNECT 1-1/2-INCH OR 2-INCH HOOD DRAIN LINE CONNECTIONS (PLUMBING IS FIELD SUPPLIED FOR TWO) FULL PLUMBING MUST NOT EXCEED HEIGHT OF VACUUM BREAKER IN MAIN UTILITY CABINET
4. CONNECT BACK-TO-BACK HOODS TO BACK HOOD WITH ¾" STAINLESS STEEL, COPPER, STEEL PIPE OR LISTED BRAIDED HOSE ONLY
5. INSTALL FLOOR DRAIN
6. INSTALL BACKFLOW PREVENTER IF CODE REQUIRES

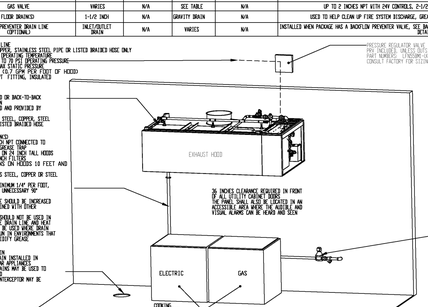
PLUMBING CONTRACTOR REQUIREMENT					
ITEM	CONNECTION	TEMPERATURE	PRESSURE	FLOW RATE	COMMENTS
HOT WATER LINE	1 INCH NPT	140 to 170°F	30.00 PSI TO 70 PSI	5.7 GPM (0.7 GPM PER FOOT OF HOOD)	INSULATE HOT WATER PIPE, MINIMUM PRESSURE DEPENDENT ON LENGTH AND CONFIGURATION OF HOOD SYSTEM
HOOD DRAINED	1-1/2 INCH NPT	N/A	GRAVITY DRAIN	SEE ABOVE	2 DRAINS ON 24 INCH TALL HOODS WITH 20 INCH TALL FILTERS AND HOODS 16 FEET AND LONGER
END-TO-END CORE CONNECTION	VARIES	N/A	N/A	N/A	CONNECT WITH NPT PIPE, SEAL ALL THREADS. HOOD CONNECTION PROVIDED
BACK-TO-BACK CORE CONNECTION	VARIES	N/A	N/A	N/A	CONNECT WITH NPT PIPE, SEAL ALL THREADS. HOOD CONNECTION PROVIDED
GAS VALVE	VARIES	N/A	SEE TABLE	N/A	UP TO 2 INCHES NPT WITH 24V CONTROLL 2-1/2 AND 3 INCH ICE 10V CONTROL
FLOOR DRAINED	1-1/2 INCH	N/A	GRAVITY DRAIN	N/A	USED TO HELP CLEAN UP FIRE SYSTEM DISCHARGE, GREASE INTERCEPTOR MAY BE REQUIRED
BACKFLOW PREVENTER DRAIN LINE (OPTIONAL)	INLET/OUTLET DRAIN	N/A	VARIES	N/A	INSTALLED WHEN PACKAGE HAS A BACKFLOW PREVENTER VALVE. SEE BACKFLOW PREVENTER VALVE MANUAL FOR DETAILS

HOT WATER LINE
- ¾NPT, COPPER, STAINLESS STEEL PIPE OR LISTED BRAIDED HOSE ONLY
- 140-170°F OPERATING TEMPERATURE
- 30 PSI TO 70 PSI OPERATING PRESSURE
- 125 PSI MAX STATIC PRESSURE
- 5.7 GPM MIN FLOWRATE (0.7 GPM PER FOOT OF HOOD)
- ¾ INCH NPT FITTING, INSULATED

END-TO-END OR BACK-TO-BACK CONNECTION
- INSTALLED AND PROVIDED BY CAPTIVEAIRE
- STAINLESS STEEL, COPPER, STEEL PIPE OR LISTED BRAIDED HOSE ONLY

HOOD DRAINOUTS
- 1-1/2" DRAIN TO BE CONNECTED TO BUILDING GREASE TRAP
- 2" DRAINS ON 24 INCH TALL HOODS WITH 20" FILTERS
- 2" DRAINS ON HOODS 16 FEET AND LONGER
- STAINLESS STEEL, COPPER OR STEEL PIPE ONLY
- 1/4" (6.4MM) MINIMUM 1/4" PER FOOT, GREATER RECOMMENDED WHERE POSSIBLE
- PIPE SIZE SHOULD BE INCREASED WHEN COMBINED WITH OTHER DRAINS
- STRAINERS SHOULD NOT BE USED IN THE GREASE DRAIN LINE, AND HEAT TAPE MUST BE USED WHERE DRAIN LINE IS RUN IN ENVIRONMENTS THAT WOULD SOLIDIFY GREASE

FLOOR DRAIN
- FLOOR DRAIN INSTALLED IN FLOOR NEAR APPLIANCE
- FLOOR DRAINS MAY BE USED TO DRAIN HOOD
- GREASE INTERCEPTOR MAY BE REQUIRED



PRESSURE REGULATOR VALVE
- PRV INCLUDED IF INLET OUTLOOK DESIGN PRESSURE
- PART NUMBERS: LFH2DMR-1(3/4"), LFH2DMR-1(1"), OR LFH2DBR1-1-(1")
- CONSULT FACTORY FOR SIZING

1" MANIFOLD MINIMUM OPERATING PRESSURE REQUIREMENTS

LENGTH OF HOOD (FT)	MINIMUM INLET WATER PRESSURE FOR HOT WATER (PSI)	DISCHARGE COEFFICIENTS (K-FACTOR)
4	30	0.6
8	30	1.3
12	30	1.9
16	30	2.5
20	30	3.1
24	30	3.8
28	31	4.3
32	33	4.8
36	35	5.3
40	42	5.4
44	43	5.9
48	45	6.3

TOTAL FLOWRATE = K FACTOR x PRESSURE$^{0.44}$

GAS VALVE
- ONE-WAY WET CONNECTION
- SEE TABLE BELOW FOR MAX PRESSURE
- DETAILED INSTALLED SPECIFICATION OF VALVE

SIZE	MAX INLET PRESSURE (PSI)	VOLTAGE	BTU/HR
3/4"	5	24VDC	593,098
1"		24VDC	1,132,280
1-1/4"		24VDC	1,905,080
1-1/2"		24VDC	2,406,880
2"		24VDC	2,946,280
2-1/2"		120VAC	5,667,880
3"		120VAC	5,660,780

NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS
ⁿNPYC PIPING CANNOT BE WITHIN 16 FT OF HOOD. CONNECTIONS TO THE MANIFOLD MUST BE HARD PIPED WITH COPPER, OR STAINLESS STEEL.

JOB NO 6679945 | MODEL NUMBER SC-342110MA | JOB NAME Firebirds - Liberty, OH | DRAWN BY | DATE 3/15/2024 | SCHEMATIC TYPE INSTALL | ENG NO ECP #1-3 | DESCRIPTION OF OPERATION: Fire System #2 CORE PROTECTION VTS-GRILL1-

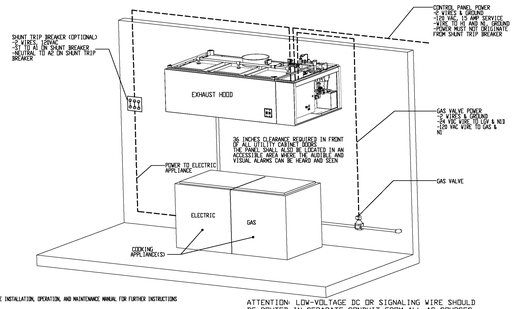
CORE TOTAL FLOOD PROTECTION ELECTRICAL DETAIL

04/04/2024 Rev. 10

FS-2: MASTER

ELECTRICIAN:
1. VIFE MAIN CONTROL PANEL PER INCLUDED SCHEMATIC
2. VIFE SHUNT TRIP BREAKER (OPTIONAL)
3. VIFE SHUNT TRIP BREAKER (OPTIONAL)
4. VIFE LOCAL APPLIANCE KILL SWITCH, IF EQUIPPED (OPTIONAL)
5. VIFE GAS VALVE

ELECTRICAL CONTRACTOR REQUIREMENT					
ITEM	CONNECTION IN PANEL	CONNECTION IN DEVICE	VOLTAGE	AMPERAGE	COMMENTS
SHUNT TRIP BREAKER (OPTIONAL)	57 & 90	BREAKER COIL (A1 & A2)	120 VAC	< 4 AMPS	EST TO A1 ON SHUNT BREAKER COIL, AND NEUTRAL TO A2 ON SHUNT TRIP BREAKER COIL
CONTROL PANEL POWER	HI & NO + GROUND	CIRCUIT BREAKER	120 VAC	15 AMPS	CONTROL PANEL POWER MUST NOT BE RUN THROUGH SHUNT TRIP BREAKER
LOS APPLIANCE KILL SWITCH (OPTIONAL)	KTS & N1	KTS & N1	120 VAC	< 4 AMPS	KILL SWITCH TERMINALS MUST BE IN SERIES WITH OTHER KILL SWITCHES
REMOTE ANSUL AUTOMAN (OPTIONAL)	AUI, AU2	SOLENOID	120 VAC	< 6 AMPS	120V TO AU1, AU2 TO ANSUL ELECTRIC AUTOMAN, ANSUL SOLENOID TO NEUTRAL
GAS VALVE	124 & N01 (IF 24 VDC) GAS & N2 (IF 120 VAC)	RED/RED/GREEN	24 VDC OR 120 VAC	< 1.0 AMPS	IF 24 VDC - 3 WIRES & GROUND, N01 TO RED, 24V TO RED, AND GREEN TO GROUND IF 120 VAC - 3 WIRES & GROUND GAS TO RED, N2 TO RED, AND SWITCH TO GROUND



NOTE: SEE INSTALLATION, OPERATION, AND MAINTENANCE MANUAL FOR FURTHER INSTRUCTIONS

ATTENTION: LOW-VOLTAGE DC OR SIGNALING WIRE SHOULD BE ROUTED IN SEPARATE CONDUIT FROM ALL AC SOURCES.

JOB NO 6679945 | MODEL NUMBER SC-342110MA | JOB NAME Firebirds - Liberty, OH | DRAWN BY | DATE 3/15/2024 | SCHEMATIC TYPE INSTALL | ENG NO ECP #1-4 | DESCRIPTION OF OPERATION: Fire System #2 CORE PROTECTION VTS-GRILL1-

CORE TOTAL FLOOD PROTECTION LOW-VOLTAGE DETAIL

10/01/23 Rev. 13

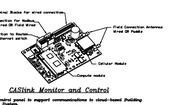
FS-2: MASTER

ALARM CONTRACTOR:
1. VIFE MANUAL ACTUATION DEVICE(S), REMOTE FIRESTAT(S), CORE INTERLOCK(S), FIRE SENSORS AND FIRE ALARM CONTACTS
2. COMPLETE FINAL HOOKUP OF SYSTEM
3. PERFORM FINAL FIRE SYSTEM TEST
4. FILL SUPPLEMENT TANK

ALARM CONTRACTOR REQUIREMENT					
ITEM	CONNECTION IN PANEL	CONNECTION IN DEVICE	VOLTAGE	AMPERAGE	COMMENTS
MANUAL ACTUATION DEVICES	110 AND 104, 102 AND 103	1 & 2	24 VDC	< 1.0 AMPS	VIFE MANUAL ACTUATION DEVICE TERMINAL 1 BETWEEN CORE PANEL TERMINALS 102 AND 103 VIFE MANUAL ACTUATION DEVICE TERMINAL 2 BETWEEN CORE PANEL TERMINALS 110 AND 104 JUMPER 108 TO 104 AND 108 TO 102 IF NO MANUAL ACTUATION DEVICES ARE INSTALLED
MANUAL ACTUATION DEVICE COVER	N/A	N/A	N/A	N/A	MANUAL ACTUATION DEVICE COVER MUST BE INSTALLED SUBASSY, MONITOR, MANUAL PULL STATION, DUAL-ACTION
REMOTE FIRESTAT SENSORS	212 AND 214, 213 AND 215	BLACK AND WHITE	24 VDC	< 1.0 AMPS	VIFE CORE SENSOR BLACK WIRE BETWEEN HOOD CORE PANEL TERMINALS 212 AND 213 VIFE CORE SENSOR BLACK WIRE BETWEEN HOOD CORE PANEL TERMINALS 214 AND 215 HIGH TEMP (360°F) 84082451/451 (WITH A 84082451/452 FIRESTAT) OR 84082451/453 (WITH A 84082451/454 FIRESTAT) OR 84082451/455 (WITH A 84082451/456 FIRESTAT) OR 84082451/457 (WITH A 84082451/458 FIRESTAT) OR 84082451/459 (WITH A 84082451/460 FIRESTAT) OR 84082451/461 (WITH A 84082451/462 FIRESTAT) OR

ELECTRICAL PACKAGE – JOB6679945

NO	TAG	PACKAGE #	LOCATION	SWITCHES		OPTION	FANS CONTROLLED				
				LOCATION	QUANTITY		FAN TAG	TYPE	#	HP	VOLT/PH	FLA
1		SC-342110MA	UTILITY CABINET LEFT	UTILITY CABINET LEFT	1 LIGHT	SMART CONTROLS THERMOSTATIC CONTROL W/ RELAY ON/OFF WITH SUPPLY	KEF-1 (33 LEFT)	EXHAUST	3	2.000	208	8.3
							KEF-2 (33 RIGHT)	EXHAUST	3	2.000	208	8.3
				HOOD # 3	1 FAN		KEF-4 (Prep)	EXHAUST	3	2.000	208	8.3
							MUA-1	SUPPLY	3	5.000	208	15.0
							DOAS-1 (Kitchen)	SUPPLY	3	5.000	208	15.0
								EXHAUST	3	2.000	208	7.3



CASLink Monitor and Control

1) *Each cooking panel to support communications to cloud-based Building Management System to monitor and control the following parameters outlined in ASHRAE 90.1a for points list.*
2) *Each Control Panel to allow cloud-based Building Management System to monitor and control the following parameters outlined in ASHRAE 90.1a.*
3) *Each Cooking Panel to allow cloud-based Building Management System to implement SYSTEM DISCONNECTED remotely anticipation for fully Integrated Building Management.*

MONITORING AND CONTROL POINTS LIST

	Function
RAT Packages	
Room Temperature	*monitoring*
Duct Temperature(s)	*monitoring*
VAV Discharge Temperature	*monitoring*
Kitchen ATC Discharge Temperature	*monitoring*
Fan Speed	*monitoring*
Fan Diagnostic	*monitoring*
Fan Power	*monitoring*
VFD Faults	*monitoring*
Controller Faults	*monitoring*
Fan Faults	*monitoring*
Fan Status	*monitoring*
VFD Faults	*monitoring*
VFD Filter Clog Percentage	*monitoring*
Fire Contactor	*monitoring*
UL300 Fire System	*monitoring*
Building Pressure	*monitoring*
Prep Fans Status	*monitoring*
Fans Button	*monitoring & starting*
Lights Button	*monitoring & starting*
Fans Button	*monitoring & starting*

	Function
RF Packages	
Room Temperature(s)	*monitoring*
Duct Temperature(s)	*monitoring*
VAV Discharge Temperature	*monitoring*
Kitchen ATC Discharge Temperature	*monitoring*
Controller Faults	*monitoring*
Fan Faults	*monitoring*
Fan Status	*monitoring*
VFD Faults	*monitoring*
VFD Filter Clog Percentage	*monitoring*
Fire Contactor	*monitoring*
UL300 Fire System	*monitoring*
Building Pressure	*monitoring*
Fans Status(s)	*monitoring & starting*
Lights Status(s)	*monitoring & starting*
Fans Button	*monitoring & starting*

JOB NO 6679945 | MODEL NUMBER SC-342110MA | DRAWN BY | SCHEMATIC TYPE INSTALL
JOB NAME Firebirds – Liberty, OH | DATE 3/15/2024 | ENG NO ECP #1-2

DESCRIPTION OF OPERATION:
3 Phase AC control for 4 Exhaust Fans, 2 Supply Fan, Exhaust on in Fire, Lights out in Fire, Relay On/Off with Supply Fan, Fire Alarm Contactor, Fire System Interface, Temperature sensor shipped loose for field installation. INVERTER DUTY 3 PHASE MOTOR REQUIRED FOR USE WITH VFD.

BREAKER PANEL TO PRIMARY CONTROL PANEL
Responsibility: Electrician
BREAKER SIZE SHOWN IS THE MAXIMUM ALLOWED

BREAKER PANEL TO ADDITIONAL CONTROL PANEL
Responsibility: Electrician
BREAKER SIZE SHOWN IS THE MAXIMUM ALLOWED

BREAKER PANEL TO FANS
Responsibility: Electrician

CONTROL PANEL TO FANS
Responsibility: Electrician

CONTROL PANEL TO FANS
Responsibility: Electrician

PRIMARY PANEL TO ADDITIONAL PANEL
Responsibility: Electrician

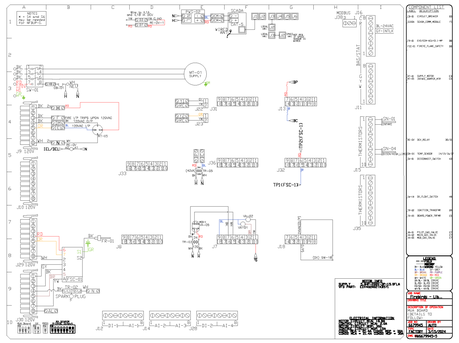
CONTROL PANEL TO ACCESSORY ITEMS
Responsibility: Electrician

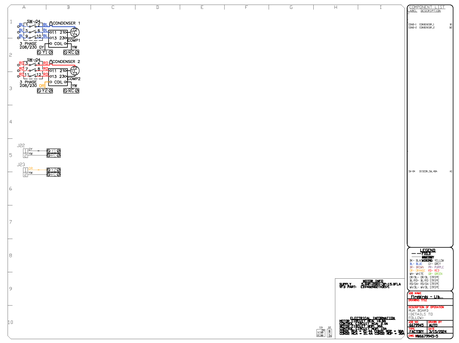
JOB NO 6679945 | MODEL NUMBER SC-342110MA | DRAWN BY | SCHEMATIC TYPE INSTALL
JOB NAME Firebirds – Liberty, OH | DATE 3/15/2024 | ENG NO ECP #1-2

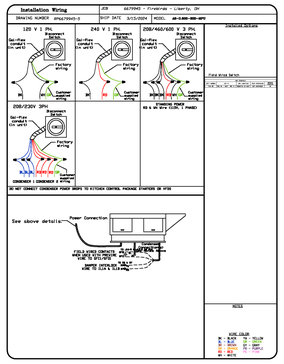
DESCRIPTION OF OPERATION:
3 Phase AC control for 4 Exhaust Fans, 2 Supply Fan, Exhaust on in Fire, Lights out in Fire, Relay On/Off with Supply Fan, Fire Alarm Contactor, Fire System Interface, Temperature sensor shipped loose for field installation. INVERTER DUTY 3 PHASE MOTOR REQUIRED FOR USE WITH VFD.

CONTROL PANEL TO FIRE SYSTEM
Responsibility: ALARM CONTRACTOR

CONTROL PANEL TO FIRE SYSTEM
Responsibility: CERTIFIED INSTALLER







REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
4		

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Charlotte/Piedmont
6303 Carmel Road Suite 105, Charlotte, NC, 28226 PHONE: (704) 944 - 9088 FAX: 9192275952 EMAIL: reg30@captiveaire.com
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Firebirds – Liberty, OH
MIDDLETOWN, OH, 45044

DATE: 3/15/2024
DWG.#: 6679945
DRAWN BY: evan.zipper
SCALE: 1/2" = 1'–0"
MASTER DRAWING
SHEET NO. 8

FIREBIRDS
Liberty, OH
7685 Blake Street
Liberty Township, OH 45069
project address | name

FIREBIRDS WOOD FIRED GRILL
client

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RWA JOB # 2023-0591

designers

CONSTRUCTION DOCUMENTS
10/17/2023
job status

No.	Description	Date
3	Hood Updates & General Construction	04/09/2024

revisions

04/09/24
seal

3
CAPTIVEAIRE DRAWINGS - MECHANICAL
M4.08
sheet number | title

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DOAS/RTU FAN SCHEDULE - JOB#6679945

FAN UNIT NO	TAG	QTY	DOAS/RTU MODEL #	MANUFACTURER	BLOWER	RETURN AIR CFM	MAX OUTSIDE AIR CFM	TOTAL CFM	WEIGHT (LBS)	ESP	ELECTRICAL INFORMATION HP	PHASE	VOLT	MCA	MOCP	COOLING INFORMATION OUTSIDE AIR DB	OUTSIDE AIR WB	MIXED AIR DB	MIXED AIR WB	LEAVING AIR DB	LEAVING AIR WB	LEAVING AIR DP	CAPACITY TOTAL	CAPACITY SENS.	IEER	ISMRE	REHEAT INFORMATION DISCHARGE DB	DISCHARGE WB	CAPACITY DESIRED	CAPACITY MAX	MOISTURE REMOVAL RATE	GAS HEAT INFORMATION GAS TYPE	INPUT BTUH	OUTPUT BTUH	TEMP RISE	REQUIRED INPUT GAS PRESSURE	NOTES
6	DOAS-1 (KITCHEN)	1	CASRTU3-1.500-24-30T	CAPTIVEAIRE	24P-3	0	4300	4300	3206	0.500	5.00	3	208	141.6A	150A	82.5°F	77.0°F	82.5°F	77.0°F	52.6°F	52.5°F	58.5°F	359.0 MBH	240.0 MBH	14.9	6.0	70.0°F	59.3°F	82.3 MBH	204.6 MBH	191.7 LBS/HR	NATURAL	449873	364397	70°F	7 IN. W.C. - 14 IN. W.C.	1,2,3,4,5,6,7,8,9,10,11,13,14,15,16
7	RTU-1	1	CASRTU3-I.400-18-20T	CAPTIVEAIRE	18P-3	1900	1800	3700	2689	0.500	5.00	3	208	88.1A	100A	82.5°F	77.0°F	78.7°F	70.0°F	49.9°F	49.9°F	50.0°F	220.3 MBH	112.2 MBH	16.2	6.0	70.0°F	58.0°F	82.2 MBH	229.6 MBH	99.9 LBS/HR	NATURAL	359984	291587	70°F	7 IN. W.C. - 14 IN. W.C.	1,2,3,4,5,6,7,8,9,10,11,13,14,15,16,17
8	RTU-2	1	CASRTU3-I.300-18-15T	CAPTIVEAIRE	18P-3	700	1800	2500	2518	0.500	2.00	3	208	62.5A	70A	82.5°F	77.0°F	80.4°F	73.3°F	52.0°F	51.0°F	50.3°F	173.8 MBH	75.0 MBH	18.8	5.7	70.0°F	58.3°F	49.5 MBH	129.6 MBH	89.5 LBS/HR	NATURAL	251194	203467	70°F	7 IN. W.C. - 14 IN. W.C.	1,2,3,4,5,6,7,8,9,10,12,13,14,15,16,17

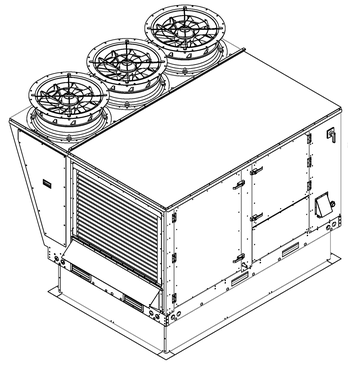
NOTES:
1. INVERTER SCROLL COMPRESSOR WITH INTEGRATED OIL SENSOR. DIGITAL OR STAGED SCROLL NOT AN APPROVED EQUAL
2. DIRECT DRIVE PLENUM BLOWER. BELT DRIVEN BLOWERS ARE NOT ACCEPTABLE
3. INTEGRATED MONITORING VIA CELLULAR CONNECTION BY MANUFACTURER
4. REFRIGERATION PRESSURE MONITORING ON HIGH AND LOW PRESSURE SIDE OF SYSTEM INCLUDED THROUGH DIGITAL INTERFACE
5. EC MOTOR CONDENSING FANS
6. ELECTRONIC EXPANSION VALVE. TXV NOT ACCEPTABLE
7. SUCTION LINE ACCUMULATOR
8. FACTORY COMMISSIONING WITH 5 YEAR PARTS WARRANTY, 25 YEAR WARRANTY ON STAINLESS STEEL HEAT EXCHANGER
9. AVERAGING INTAKE, EVAP AND DISCHARGE TEMPERATURE SENSORS (DISCHARGE SENSOR TO BE FACTORY MOUNTED WITHIN UNIT)
10. 2" EXTERIOR DUAL-WALL CONSTRUCTION W/ R-13 INSULATION-MINIMUM 20GA EXTERIOR W/ 14GA BASE
11. 81% EFFICIENT FURNACE, WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 15:1 TURNDOWN WITH NG AND 12:1 TURNDOWN WITH LP
12. 81% EFFICIENT FURNACE, WITH MODULATING INDUCER TO MAINTAIN CONSTANT COMBUSTION EFFICIENCY ACROSS FIRING RANGE. 14:1 TURNDOWN WITH NG AND 12:1 TURNDOWN WITH LP
13. SUPPLY CFM MONITORING INTEGRAL TO UNIT WITH CFM MEASUREMENT INCLUDED THROUGH DIGITAL INTERFACE
14. FULLY MODULATING HOT GAS REHEAT
15. BARDY ELECTRIC RELEASE ACTUATOR
16. DOWN SIDE DISCHARGE CONFIGURATION
17. 15 DEGREE LOW AMBIENT OPERATION

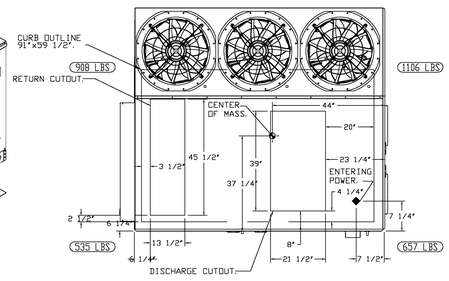
HMI SCHEDULE				
UNIT NUMBER	HMI #	HMI LOCATION	TEMP AVERAGING	MODBUS ADDRESS
FAN #5	HMI #1 - UNIT HMI # 1	MOUNTED IN UNIT	NOT AVERAGED	55
FAN #6	HMI #1 - UNIT HMI # 1	MOUNTED IN UNIT	NOT AVERAGED	55
FAN #6	HMI #2 - SPACE HMI # 1	MGR OFFICE	NOT AVERAGED	56
FAN #7	HMI #1 - UNIT HMI # 1	MOUNTED IN UNIT	NOT AVERAGED	55
FAN #7	HMI #2 - SPACE HMI # 1	MGR OFFICE	NOT AVERAGED	56
FAN #8	HMI #1 - UNIT HMI # 1	MOUNTED IN UNIT	NOT AVERAGED	55
FAN #8	HMI #2 - SPACE HMI # 1	MGR OFFICE	NOT AVERAGED	56

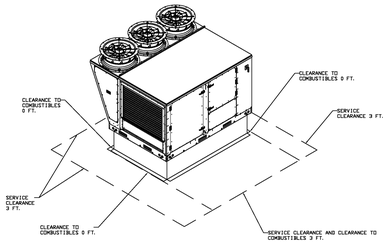
FAN #6 CASRTU3-I.500-24-30T - HEATER (DOAS-1 (KITCHEN))

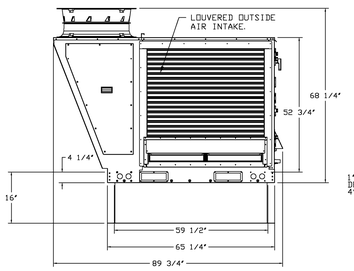
NOTES:
1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
2. ( ) DENOTES CORNER WEIGHT.
3. ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
4. CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.

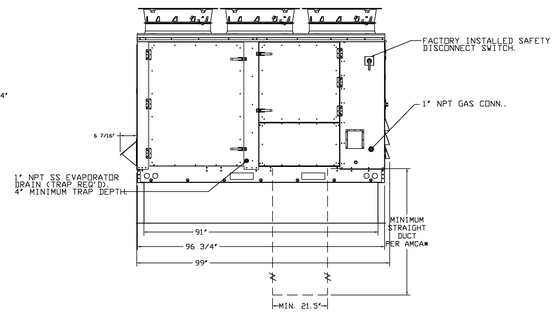
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE 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".

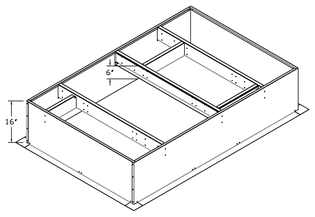


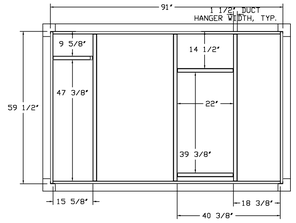












REVISIONS

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Fireblrds - Liberty, OH
MIDDLETOWN, OH, 45044

DATE: 3/15/2024
DWG.#: 6679945
DRAWN BY: evan.zipper
SCALE: 1/2" = 1'-0"
MASTER DRAWING

SHEET NO. 9

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FIREBIRDS WOOD FIRED GRILL
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RWA JOB # 2023-0931

CONSTRUCTION DOCUMENTS
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job status

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3	Hood Updates & General Construction	04/09/2024

revisions

STATE OF OHIO
BRAD RABINOWITZ
E-80445
REGISTERED
PROFESSIONAL ENGINEER
04/09/24
seal

3
CAPTIVEAIRE DRAWINGS - MECHANICAL
M4.09
sheet number | title

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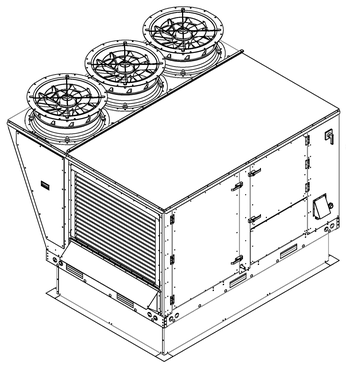
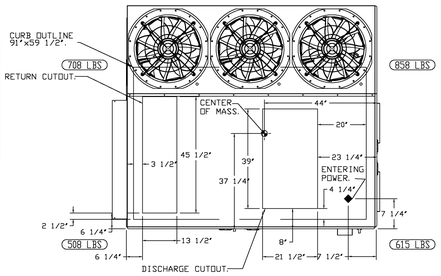
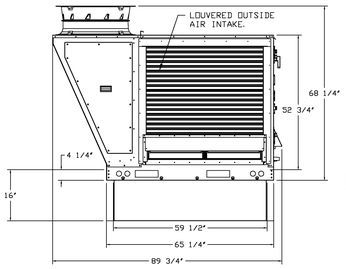
FAN #7 CASRTU3-I.400-18-20T - HEATER (RTU-1)

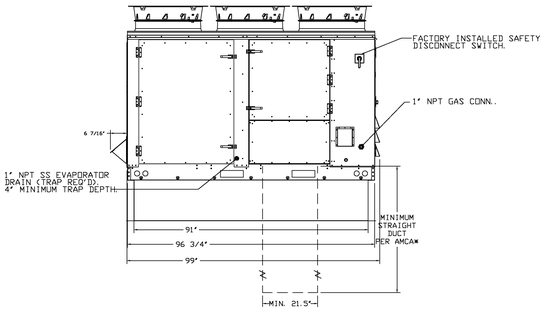
NOTES:
1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
2. ( ) DENOTES CORNER WEIGHT.
3. ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
4. CONNECTION FROM BREAKER TO UNITS SAFETY DISCONNECT SWITCH TO BE COPPER WIRE ONLY.

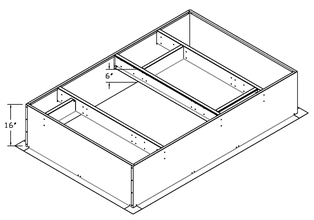
*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE 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".

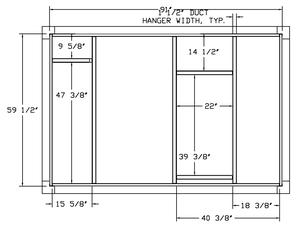












FAN #8 CASRTU3-I.300-18-15T - HEATER (RTU-2)

NOTES:
1. DO NOT OBSTRUCT OUTSIDE AIR INLET, OUTSIDE AIR COIL OR OUTSIDE AIR FAN.
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3. ROOF OPENING MUST BE 2" SMALLER THAN CURB DIMENSIONS IN BOTH DIRECTIONS.
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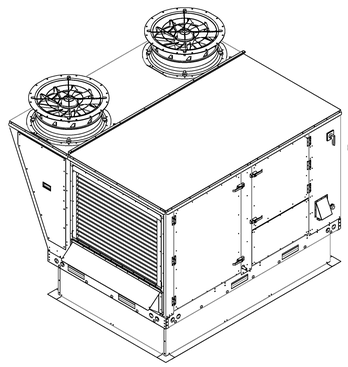

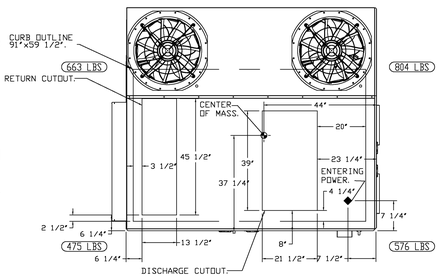

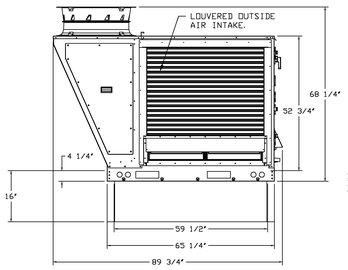

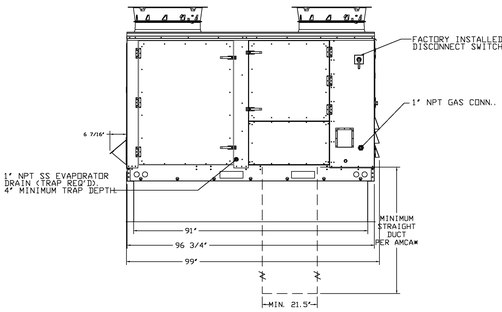

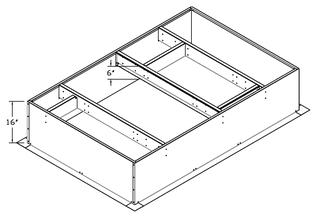

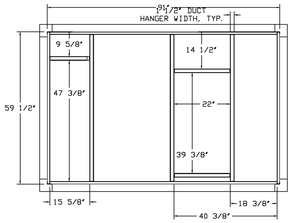

REVISIONS

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1		
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Firebirds - Liberty, OH
MIDDLETOWN, OH, 45044

DATE: 3/15/2024

DWG.#: 6679945

DRAWN BY: evan.zipper

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

MASTER DRAWING

SHEET NO. 10

project address | name

FIREBIRDS
Liberty, OH

7685 Blake Street
Liberty Township, OH 45069

client

FIREBIRDS
WOOD FIRED GRILL

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branded environments
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BWA JOB # 2023-0531

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CONSTRUCTION DOCUMENTS
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No.	Description	Date
3	Hood Updates & General Construction	04/09/2024

seal

STATE OF OHIO
BRAD RABINOWITZ
E-80445
REGISTERED
PROFESSIONAL ENGINEER

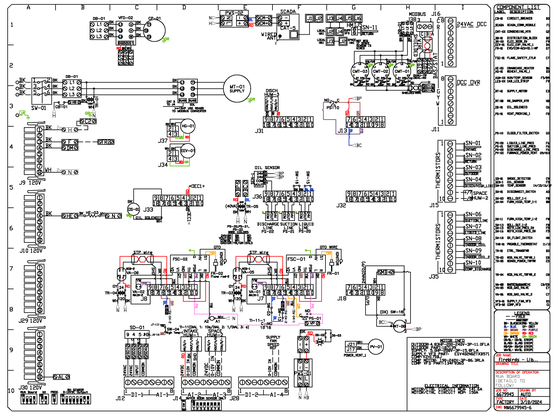
04/09/24

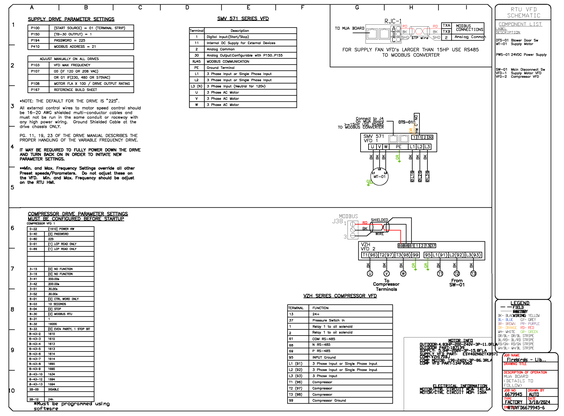
sheet number | title

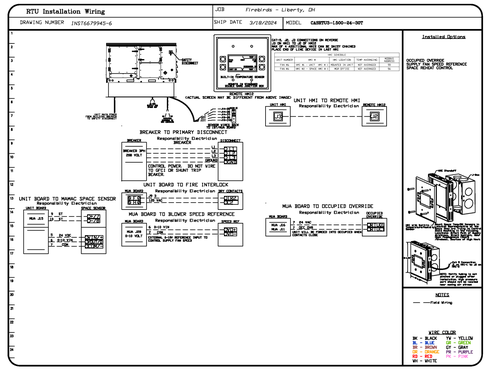
3

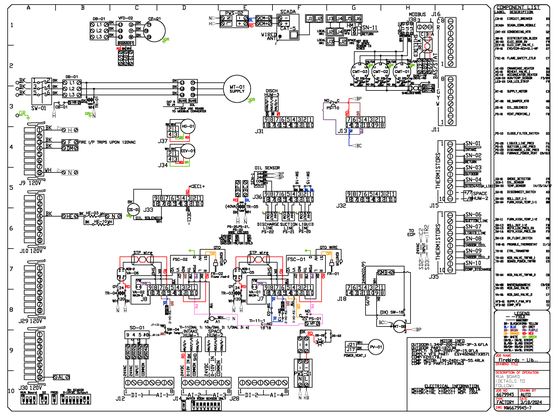
CAPTIVEAIRE DRAWINGS - MECHANICAL

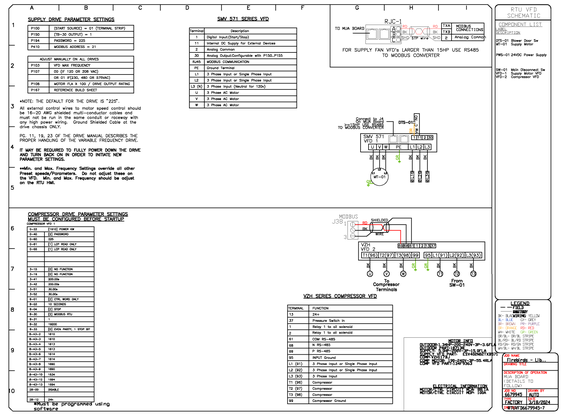
M4.10

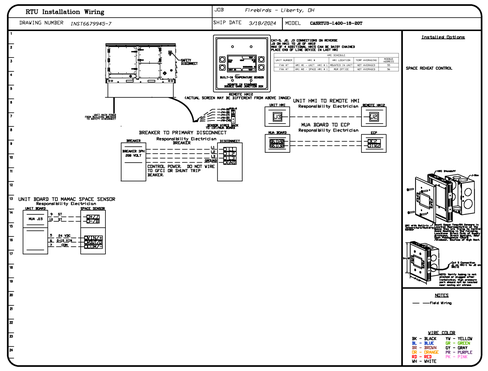


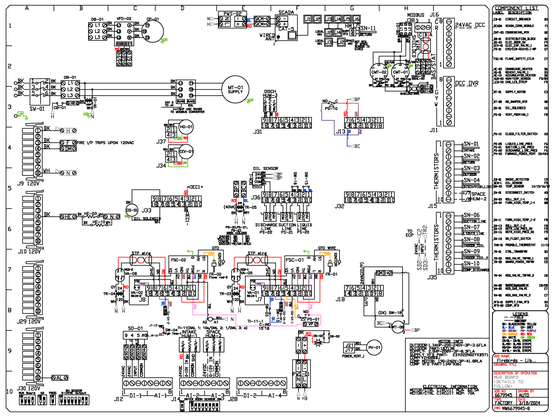


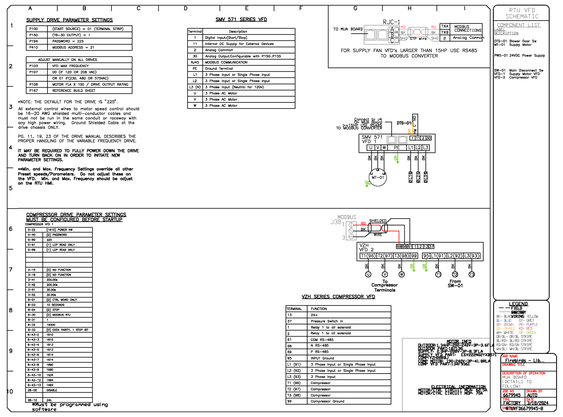


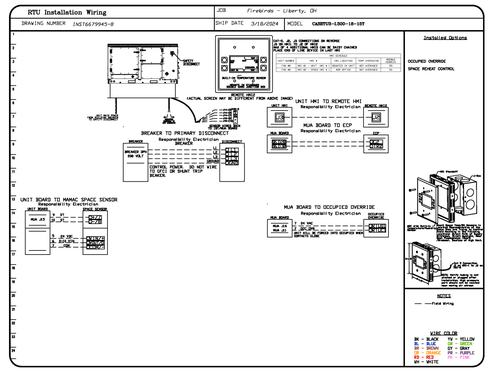












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Firebirds - Liberty, OH
MIDDLETOWN, OH, 45044

DATE: 3/15/2024

DWG.#: 6679945

DRAWN BY: evan.zipper

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

MASTER DRAWING

SHEET NO. 11

FIREBIRDS
Liberty, OH

7685 Blake Street
Liberty Township, OH 45069

project address | name

FIREBIRDS® WOOD FIRED GRILL

client

starr design branded environments

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www.starrdesignteam.com

designers

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BWA JOB # 2023-0931

job status

CONSTRUCTION DOCUMENTS
10/17/2023

No.	Description	Date
3	Hood Updates & General Construction	04/09/2024

revisions

BRAD RABINOWITZ E-80445 REGISTERED PROFESSIONAL ENGINEER STATE OF OHIO

04/09/24

seal

3

CAPTIVEAIRE DRAWINGS - MECHANICAL

M4.11

sheet number | title

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DUCTWORK #1 PARTS – JOB#6679945 DOUBLE WALL HD-38 GRILL DUCT

TAG	PART #	CFM	GPM	ZONE	COVEREDBY	SP	WEIGHT	VELOCITY	QTY	DESCRIPTION
P1	DW1847DWLT-3Z-S						94.70		1	DOUBLE WALL DUCT - 18" INNER DUCT, 47" LONG - 3 LAYERS ZERO CLEARANCE - 24" STAINLESS STEEL OUTER SHELL.
P2	DW1847DWLT-3Z-S						94.70		1	DOUBLE WALL DUCT - 18" INNER DUCT, 47" LONG - 3 LAYERS ZERO CLEARANCE - 24" STAINLESS STEEL OUTER SHELL.
P3 ASSEMBLED W/P4	DW1847DWAJDTP-3Z-S						131.92		1	DOUBLE WALL ADJUSTABLE DUCT TRANSITION PLATE - 18" INNER DUCT - 3 LAYERS ZERO CLEARANCE - 24" 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.
P4 ASSEMBLED W/P3 O=B	DW2818TP						12.00		1	DUCT TO CURB TRANSITION, 28" CURB TO 18" DUCT, 16 GA ALUMINIZED. MISC. NON-STANDARD TRANSITION PLATE.
	3M-2000PLUS						0.80		1	DUCT - 3M FIRE BARRIER 2000 PLUS SILICONE - USED AS SEALANT TO SEAL DUCT JOINTS.
	DW18DWCLASY-3Z-S						7.85		2	DUCT - 18" DUCT - 24" DOUBLE "V" CLAMP - 3Z INSULATION & SINGLE "V" CLAMP INCLUDED - ZERO CLEARANCE.
TOTAL WEIGHT							349.82			

SINGLE 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 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.

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

DOUBLE WALL FACTORY BUILT DUCTWORK

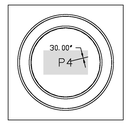
- ALL DUCTWORK IS REQUIRED TO BE INSTALLED WITH THE MAXIMUM SUPPORT SPACING LISTED BELOW.
- FOR A COMPLETE LIST OF APPROVED SUPPORT METHODS, SEE THE ENTIRE INSTALLATION AND OPERATION MANUAL
- DUCTWORK SHALL SLOPE NOT LESS THAN 1/16" PER LINEAR FOOT TOWARDS THE HOOD OR AN APPROVED GREASE COLLECTION RESERVOIR.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

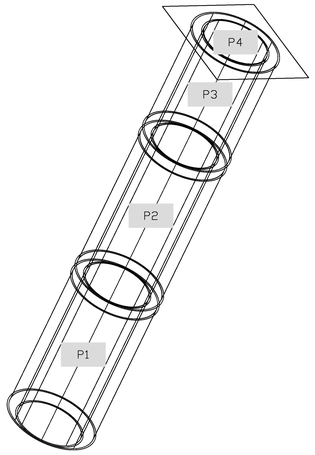
VERTICAL			
TYPE	WALL SUPPORT (FT)	CURB SUPPORT (FT)	FLOOR SUPPORT (FT)
2R & 2R HT (5'-16')	20'	24'	24'
2R (18')	18'	24'	24'
3R & 3Z (5'-24')	10'	24'	24'
3Z (26' -36')	10'	20'	20'

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

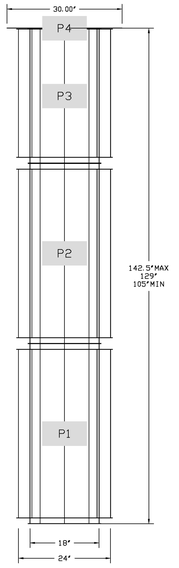
DUCTWORK #1 TOP VIEW
HD-38 GRILL DUCT



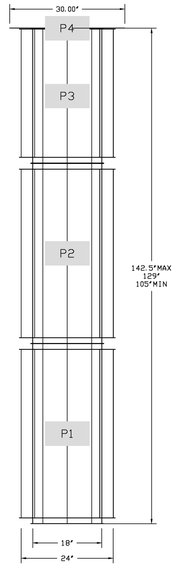
DUCTWORK #1 SE VIEW
HD-38 GRILL DUCT



DUCTWORK #1 FRONT VIEW
HD-38 GRILL DUCT



DUCTWORK #1 SIDE VIEW
HD-38 GRILL DUCT



REVISIONS

	DESCRIPTION	DATE:
1		
2		
3		
4		

CAPTIVEAIRE
www.captiveaire.com
Charlotte/Piedmont
6303 Carmel Road Suite 105, Charlotte, NC. 28226 PHONE: (704) 944 - 9088 FAX: 9192275952 EMAIL: reg30@captiveaire.com

Firebirds - Liberty, OH
MIDDLETOWN, OH, 45044

DATE: 3/15/2024

DWG.#: 6679945

DRAWN BY: evan.zipper

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

MASTER DRAWING

SHEET NO. 12

FIREBIRDS
Liberty, OH

7685 Blake Street
Liberty Township, OH 45069

project address | name

FIREBIRDS WOOD FIRED GRILL

client

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branded environments

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RWA JOB # 2023-0531

designers

CONSTRUCTION DOCUMENTS
10/17/2023

job status

No.	Description	Date
3	Hood Updates & General Construction	04/09/2024

revisions

STATE OF OHIO
BRAD RABINOWITZ
E-80445
REGISTERED PROFESSIONAL ENGINEER

04/09/24

seal

3

CAPTIVEAIRE DRAWINGS - MECHANICAL

M4.12

sheet number | title

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