DUCTWORK APPLICATION SCHEDULE

AIR HANDLING SYSTEM	AIRSTREAM	DUCTWORK LOCATION (ALL DUCT CONCEALED UNLESS NOTED OTHERWISE)	SYSTEM TYPE (CONSTANT VOLUME OR VAV OR BOTH)	MAX PRESSURE CLASS (IN. W.C.)	DUCTWORK MATERIAL	SINGLE OR DOUBLE WALL	DUCT SHAPE RECT / ROUND	INSULATION APPLICATION THICKNESS (IN.)	INSULATION APPLICATION TYPE	INSULATION APPLICATION LINER OR WRAP	NOTES
AIR HANDLING UNITS ROOFTOP UNITS	SUPPLY AIR	OUTDOOR EXPOSED	BOTH	CLASS B	GALVANIZED SHEET METAL	DOUBLE WITH PERFORATED INNER LINER	RECT / ROUND	2"	C	LINER	A,B,C,F
	SUPPLY AIR	FAN TO TERMINAL AIR BOX	VARIABLE AIR VOLUME	CLASS B	GALVANIZED SHEET METAL	SINGLE	RECT / ROUND	1"	C OR D	LINER	A,B,C
								1-1/2"	A	WRAP	A,B,C
	SUPPLY AIR	INDOOR EXPOSED	BOTH	CLASS B	GALVANIZED SHEET METAL	SINGLE	RECT / ROUND	1"	C OR D	LINER	A,B,C,D
	SUPPLY AIR	FAN TO AIR OUTLET	CONSTANT VOLUME	CLASS B	GALVANIZED SHEET METAL	SINGLE	RECT / ROUND	1"	C OR D	LINER	A,B,C
								1-1/2"	A	WRAP	A,B,C
	SUPPLY AIR	TERMINAL AIR BOX TO OUTLET	VARIABLE AIR VOLUME	CLASS B	GALVANIZED SHEET METAL	SINGLE	RECT / ROUND	1"	C OR D	LINER	A,B,C
								1-1/2"	A	WRAP	A,B,C
AIR HANDLING UNITS ROOFTOP UNITS	RETURN AIR	AIR INLET TO RTU	BOTH	CLASS B	GALVANIZED SHEET METAL	SINGLE	RECT / ROUND	1"	C OR D	LINER	A,B,C
								1-1/2"	A	WRAP	A,B,C
	RETURN AIR	INDOOR EXPOSED	BOTH	CLASS B	GALVANIZED SHEET METAL	SINGLE	RECT / ROUND	1"	C OR D	LINER	A,B,C,D
	RETURN AIR	OUTDOOR EXPOSED	BOTH	CLASS B	GALVANIZED SHEET METAL	DOUBLE WITH PERFORATED INNER LINER	RECT / ROUND	2"	C	LINER	A,B,C,F
MAKE-UP AIR UNITS	SUPPLY AIR	OUTDOOR EXPOSED	BOTH	CLASS B	GALVANIZED SHEET METAL	DOUBLE WITH PERFORATED INNER LINER	RECT / ROUND	2"	C	LINER	A,B,C,F
	SUPPLY AIR	FAN TO AIR OUTLET	CONSTANT VOLUME	CLASS B	GALVANIZED SHEET METAL	SINGLE	RECT / ROUND	1-1/2"	A	WRAP	A,B,C
MAKE-UP AIR UNITS	RETURN AIR	INDOOR EXPOSED	BOTH	CLASS B	GALVANIZED SHEET METAL	SINGLE	RECT / ROUND	1"	C OR D	LINER	A,B,C,D
GENERAL EXHAUST	EXHAUST AIR	INLET TO EXHAUST FAN	CONSTANT VOLUME	CLASS C	GALVANIZED SHEET METAL	SINGLE	RECT / ROUND	-	-	-	A,B,C
	EXHAUST AIR	FIRST 10'-0" UPSTREAM OF EXHAUST FAN	CONSTANT VOLUME	CLASS C	GALVANIZED SHEET METAL	SINGLE	RECT	1"	C	LINER	A,B,C
KITCHEN GREASE TYPE I HOODS	EXHAUST AIR	EXHAUST AIR	KITCHEN EXHAUST HOODS	-	STAINLESS STEEL / BLACK IRON	SINGLE	RECT / ROUND	2"	F	WRAP	A,B,C,E,G
						DOUBLE	ROUND	2"	F	LINER	A,B,C,E,G
TYPE II HOODS (DISHWASHER)	EXHAUST AIR	DISHWASHER / CONDENSATE HOOD / INLET TO EXHAUST FAN	CONSTANT VOLUME	CLASS B	ALUMINUM / STAINLESS STEEL	SINGLE	RECT / ROUND	NONE	-	-	A,B,C
TYPE II HOODS (EXCEPT DISHWASHER)	EXHAUST AIR	TYPE II HOODS / INLET TO EXHAUST FAN	CONSTANT VOLUME	CLASS C	STAINLESS STEEL / BLACK IRON / ALUMINUM	SINGLE	RECT / ROUND	NONE	-	-	A,B,C

NOTES:
A. DUCT DIMENSIONS SHOWN ON PLAN ARE CLEAR INSIDE DIMENSIONS AND DO NOT INCLUDE INSULATION.
B. ALL EXPOSED DUCTWORK SHALL BE PAINT GRIP, COLOR SHALL BE SELECTED BY ARCHITECT.
C. DUCT SEAL CLASS SHALL BE BASED ON PRESSURE CLASS AS NOTED BELOW:
   CLASS A: +10" W.C. THRU -4" W.C.
   CLASS B: -3" W.C.
   CLASS C: -2" W.C. THRU +2" W.C.
   CLASS B: +3" W.C.
   CLASS A: +4" W.C. THRU -10" W.C.
D. LINER ONLY REQUIRED IN EXPOSED DUCT INSTALLED IN BACK OF HOUSE, CASUAL DINING, AND MARKET GRILLE UNLESS OTHERWISE NOTED ON PLAN.
E. GREASE DUCT INSULATION SHALL MEET ASTM E2336.
F. OUTDOOR DUCTWORK INSULATION SHALL HAVE A MINIMUM R-VALUE OF R-8.
G. GREASE EXHAUST DUCT SHALL BE FULLY WELDED.

INSULATION TYPES:
TYPE A: FLEXIBLE FIBERGLASS - OUTSIDE WRAP
TYPE B: SEMI-RIGID FIBERGLASS BOARD WRAP
TYPE C: FLEXIBLE FIBERGLASS LINER
TYPE D: PREFORATED RIGID FIBERGLASS ACCOUSTICAL LINER (ROUND DUCT)
TYPE E: FIBERGLASS WITH TEDLAR LINER
TYPE F: FLEXIBLE MINERAL FIBER DUCT WRAP

MECHANICAL GENERAL NOTES:

1. PRIOR TO SUBMITTING BID, VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE PROJECT. REVIEW THE GENERAL NOTES, SPECIFICATIONS AND OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
2. COORDINATE THE INSTALLATION OF THE MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. INSTALL DUCTWORK AND PIPING AS TIGHT TO STRUCTURE AS POSSIBLE. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS. COORDINATE INSTALLATION OF DUCTWORK AND PIPING TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC. ANY MODIFICATIONS REQUIRED DUE TO LACK OF COORDINATION WILL BE THE RESPONSIBILITY OF THE CONTRACTOR AT NO EXTRA COST TO THE OWNER.
3. DURING INSTALLATION OF NEW WORK, AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT TO REMAIN. REPAIR DAMAGE CAUSED DURING CONSTRUCTION AT NO EXTRA COST TO THE OWNER.
4. ALL MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED.
5. NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING ARE SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. VERIFY THAT FINAL EQUIPMENT LOCATIONS MEET MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND EQUIPMENT.
6. REFER TO ARCHITECTURAL DRAWINGS FOR RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. VERIFY CHASES AND PENETRATIONS SHOWN ON ARCHITECTURAL DRAWINGS THAT ARE INTENDED FOR DUCTWORK AND PIPING MEET REQUIREMENTS.
7. COORDINATE LOCATION OF ROOF MOUNTED HVAC EQUIPMENT AND ROOF PENETRATIONS WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS.
8. INDOOR AIR QUALITY MEASURES: PROTECT INSIDE OF (INSTALLED AND DELIVERED) DUCTWORK AND HVAC UNITS FROM EXPOSURE TO DUST, DIRT, PAINT AND MOISTURE. REPLACE INSULATION THAT HAS GOTTEN WET AT ANY TIME DURING CONSTRUCTION, DRYING THE INSULATION IS NOT ACCEPTABLE. SEAL ANY TEARS OR JOINTS OF INTERNAL FIBERGLASS INSULATION. REMOVE DEBRIS FROM CEILING/RETURN AIR PLENUM INCLUDING DUST. AN INDEPENDENT, PROFESSIONAL DUCT CLEANING COMPANY SHALL VACUUM CLEAN ANY DUCTWORK CONNECTED TO HVAC UNITS THAT WERE OPERATED DURING THE CONSTRUCTION PERIOD AFTER NEW FILTERS ARE INSTALLED AND PRIOR TO TURNING SYSTEM OVER TO THE OWNER. THE INTERNAL SURFACES AND ASSOCIATED COILS OF ANY HVAC UNITS THAT WERE OPERATED SHALL ALSO BE CLEANED.
9. INSTALL DUCTWORK AND PIPING PARALLEL TO BUILDING COLUMN LINES UNLESS OTHERWISE SHOWN OR NOTED.
10. OVERHEAD HANGERS AND SUPPORTS FOR EQUIPMENT, DUCTWORK AND PIPING SHALL BE FASTENED TO BUILDING JOISTS OR BEAMS. DO NOT ATTACH HANGERS AND SUPPORTS TO THE ABOVE FLOOR SLAB OR ROOF EXCEPT WHERE CONCRETE INSERTS IN CONCRETE SLABS ARE ALLOWED BY THE SPECIFICATIONS.
11. COORDINATE LOCATION OF EQUIPMENT SUPPORTS WITH LOCATION OF EQUIPMENT ACCESS PANELS/DOORS TO ENABLE SERVICE OF EQUIPMENT AND/OR FILTER REPLACEMENT.
12. SEAL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. FIREPROOF PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
13. COORDINATE THE EXACT MOUNTING SIZE AND FRAME TYPE OF DIFFUSERS, REGISTERS AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL AND DUCT INSTALLATION REQUIREMENTS.
14. ADJUST LOCATION OF CEILING DIFFUSERS, REGISTERS AND GRILLES AS REQUIRED TO ACCOMMODATE FINAL CEILING GRID AND LIGHTING LOCATIONS.
15. LOCATE AND SET THERMOSTATS AND HUMIDISTATS AT LOCATIONS SHOWN ON PLANS. VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION. PROVIDE INSULATED BACKING FOR THERMOSTATS MOUNTED ON EXTERIOR BUILDING WALLS. INSTALL WIRING IN CONDUIT PROVIDED BY DIVISION 26. AT A MINIMUM, PROVIDE CONDUIT IN THE WALL FROM THE JUNCTION BOX TO 6" ABOVE THE CEILING.
16. COORDINATE THE LOCATION AND ELEVATION OF WALL-MOUNTED DEVICES WITH PRESENTATION BOARDS, DISPLAY CABINETS, SHELVES OR OTHER COMPONENTS SHOWN ON THE ARCHITECTURAL DRAWINGS THAT ARE TO BE INSTALLED UNDER OTHER DIVISIONS. CONTRACTOR WILL NOT BE REIMBURSED FOR RELOCATION OF WALL-MOUNTED DEVICES CAUSED BY A LACK OF COORDINATION.
17. PROVIDE A MANUAL BALANCING DAMPER IN EACH BRANCH DUCT TAKEOFF FROM MAIN SUPPLY, RETURN, OUTDOOR AND EXHAUST AIR DUCTS.
18. PROVIDE A PREFABRICATED 45 DEGREE, HIGH EFFICIENCY, RECTANGULAR/ROUND BRANCH DUCT TAKEOFF FITTING WITH MANUAL BALANCING DAMPER AND LOCKING QUADRANT FOR BRANCH DUCT CONNECTIONS AND TAKE-OFFS TO INDIVIDUAL DIFFUSERS, REGISTERS AND GRILLES.
19. BRANCH DUCTWORK TO AIR OUTLETS SHALL BE SAME SIZE AS OUTLET NECK SIZE UNLESS OTHERWISE NOTED.
20. REFER TO SPECIFICATIONS FOR DUCTWORK AND PIPING INSULATION REQUIREMENTS. DUCT SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE AIRFLOW DIMENSIONS, INCREASE SHEET METAL SIZES ACCORDINGLY TO ACCOUNT FOR THICKNESS OF DUCT LINER.
21. FLEXIBLE DUCTWORK SHALL NOT EXCEED 5'-0" IN LENGTH AND SHALL BE INSTALLED AND SUPPORTED TO AVOID SHARP BENDS AND SAGGING. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
22. PROVIDE EQUIPMENT VENTS AND FLUES PER EQUIPMENT MANUFACTURERS RECOMMENDATIONS AND EQUIPMENT SPECIFICATIONS. KEEP PENETRATIONS THROUGH ROOF A MINIMUM OF 10'-0" FROM HVAC EQUIPMENT FRESH AIR INLETS AND 2'-0" FROM ROOF PARAPETS.
23. PROVIDE A NEW SET OF AIR FILTERS IN UNITS PRIOR TO TESTING, ADJUSTING AND BALANCING AND BEFORE TURNING SYSTEM(S) OVER TO OWNER.
24. TEST & BALANCE SCOPE IS UNDER A SEPARATE CONTRACT.

MECHANICAL SYMBOLS

THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS OR ABBREVIATIONS ARE USED. V2.00

HVAC EQUIPMENT & DUCTWORK

NOTE: ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE DIMENSIONS. SEE DUCTWORK SECTION OF THE SPECIFICATION FOR DUCTWORK TO RECEIVE INSULATION OR LINER.

- DUCTWORK/EQUIPMENT TO BE REMOVED OR RELOCATED
- EXISTING DUCTWORK/EQUIPMENT TO REMAIN
- LINEAR SLOT DIFFUSER
- INSULATED FLEXIBLE DUCT (MAX. 5'-0" LONG)
- BRANCH DUCT WITH 45° RECTANGLE-ROUND BRANCH FITTING AND MANUAL VOLUME DAMPER
- ELBOW WITH TURNING VANES
- BRANCH DUCT WITH BELL-MOUTH FITTING & MANUAL VOLUME CONTROL DAMPER
- RETURN, EXHAUST, OR OUTSIDE AIR DUCT UP
- RETURN, EXHAUST, OR OUTSIDE AIR DUCT DOWN
- SUPPLY AIR DUCT UP
- SUPPLY AIR DUCT DOWN
- EQUIPMENT WITH FLEXIBLE DUCT CONNECTION
- 10" CSD-1 300 CFM — NECK SIZE, TYPE, CFM OF SUPPLY DIFFUSER OR REGISTER
- 24x24 CEG-1 800 CFM — SIZE, TYPE, CFM OF EXHAUST GRILLE
- MANUAL VOLUME DAMPER
- SQUARE TO ROUND TRANSITION
- RD — DUCT MOUNTED SMOKE DETECTOR (SD=SUPPLY/RD=RETURN)
- (R) RISER DESIGNATION
- (FD) FIRE DAMPER
- (FSD) FIRE SMOKE DAMPER
- (SD) SMOKE DAMPER
- (VD) VOLUME DAMPER
- (MD) MOTORIZED DAMPER
- (BD) BACKDRAFT DAMPER
- (H) HUMIDISTAT
- (T) THERMOSTAT
- CO — CARBON MONOXIDE SENSOR
- CO2 — CARBON DIOXIDE SENSOR
- DP — DIFFERENTIAL PRESSURE SENSOR
- FS — FLOW SWITCH
- HS — HUMIDITY SENSOR
- PS — PULL STATION
- SP — STATIC PRESSURE PORT
- TS — TEMPERATURE SENSOR

PIPING

- CD — CONDENSATE DRAIN (CD)
- ACD — AUXILIARY CONDENSATE DRAIN (ACD)
- RL — REFRIGERANT LIQUID (RL)
- RD — REFRIGERANT DISCHARGE (HOT GAS) (RD)
- RS — REFRIGERANT SUCTION (RS)
- EXISTING PIPING TO BE REMOVED
- EXISTING PIPING TO REMAIN
- DIRECTION OF FLOW
- BALL VALVE
- CONTROL VALVE
- THREE-WAY CONTROL VALVE
- SHUTOFF VALVE
- CHECK VALVE
- BALANCING VALVE WITH PRESSURE PORTS
- TRIPLE DUTY VALVE WITH PRESSURE PORTS
- WATER METER
- STRAINER
- SOLENOID VALVE
- PRESSURE GAUGE
- THERMOMETER
- PRESSURE AND TEMPERATURE TEST PLUG
- UNION
- FLANGE CONNECTION
- ELBOW UP
- ELBOW DOWN
- TEE UP
- TEE DOWN
- REDUCER

ANNOTATION

- 1 — MECHANICAL OR FIRE PROTECTION PLAN CALLOUT
- CU 1 — MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)
- 1 — CONNECTION POINT OF NEW WORK TO EXISTING
- 1 / M1 — DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER
- 1 / M1 — SECTION CUT DESIGNATION

STANDARD MOUNTING HEIGHTS

MECHANICAL (AFF, AFG, UNLESS NOTED OTHERWISE)

THERMOSTATS (USER ADJUSTABLE)(TOP OF DEVICE)	48"
CONTROLS (TOP OF DEVICE)	48"

ABBREVIATIONS

A/C	AIR CONDITIONING
AFC	ABOVE FINISHED CEILING
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AP	ACCESS PANEL
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
BD	BACKDRAFT DAMPER
BFC	BELOW FINISHED CEILING
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BI	BINARY INPUT
BO	BINARY OUTPUT
BOD	BOTTOM OF DUCT
BOS	BOTTOM OF STRUCTURE
BTU	BRITISH THERMAL UNIT
CFM	CUBIC FEET PER MINUTE
CP	CONDENSATE PUMP
CPT	CONTROL POWER TRANSFORMER
CV	CONTROL VALVE
CU	CONDENSING UNIT
DB	DECIBELS
DBA	DECIBELS AVERAGE
DDC	DIRECT DIGITAL CONTROL
DI	DIGITAL INPUT
DN	DOWN
DX	DIRECT EXPANSION
(E)	EXISTING
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
ED	EXHAUST DUCT
EF	EXHAUST FAN
EMS	ENERGY MANAGEMENT SYSTEM
ETR	EXISTING TO REMAIN
EWT	ENTERING WATER TEMPERATURE
FCU	FAN COIL UNIT
FFA	FROM FLOOR ABOVE
FFB	FROM FLOOR BELOW
FF	FINISHED FLOOR
FPM	FEET PER MINUTE
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
IN WC	INCHES OF WATER COLUMN
L	LOUVER
LAT	LEAVING AIR TEMPERATURE
LWT	LEAVING WATER TEMPERATURE
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	1000 BTU PER HOUR
MD	MOTORIZED DAMPER
MFR	MANUFACTURER
MIN	MINIMUM
N/A	NOT APPLICABLE
N/C	NORMALLY CLOSED
N/O	NORMALLY OPEN
NC	NOISE CRITERIA
NF	NON-FUSED
N/C	NOT IN CONTRACT
OA	OUTSIDE AIR
QTY	QUANTITY
RA	RETURN AIR
RC	ROOM CRITERIA
RD	RETURN DUCT
RE²	RELIEF AIR
REV	REVISION
RH	RELATIVE HUMIDITY
RH	ROOF HOOD
RPM	REVOLUTIONS PER MINUTE
RTU	ROOFTOP UNIT
SA	SUPPLY AIR
SD	SMOKE DUCT DETECTOR
SD	SUPPLY DUCT
SOW	SCOPE OF WORK
SP	STATIC PRESSURE
TBD	TO BE DETERMINED
TFA	TO FLOOR ABOVE
TFB	TO FLOOR BELOW
TT	TEMPERATURE TRANSMITTER
TYP	TYPICAL
U/F	UNDERFLOOR
U/G	UNDERGROUND
U/S	UNDERSLAB
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
VRF	VARIABLE REFRIGERANT FLOW
VRV	VARIABLE REFRIGERANT VOLUME
W/	WITH
W/O	WITHOUT
WB	WET BULB
WC	WATER COLUMN

REVISION	DATE BY

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EXPIRES 12/31/2020

PROFESSIONAL SEAL

STATE OF MISSOURI
JOSHUA N. HOVER
NUMBER PE-2017008503
PROFESSIONAL ENGINEER

Oct 23 2020
JOSHUA N. HOVER
LICENSE # PE-2017008503

LOCATION
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TELEPHONE: (515) 267-2800
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hyvee® EMPLOYEE OWNED

NORTH PLAN NORTH

HVAC NOTES AND SYMBOLS

PROJECT MANAGER: SL	CHECKED BY: Checker
DRAWN BY: Author	DATE: 10/19/2020
SCALE: AS NOTED	JOB NUMBER: 62930547

SHEET: H0.0

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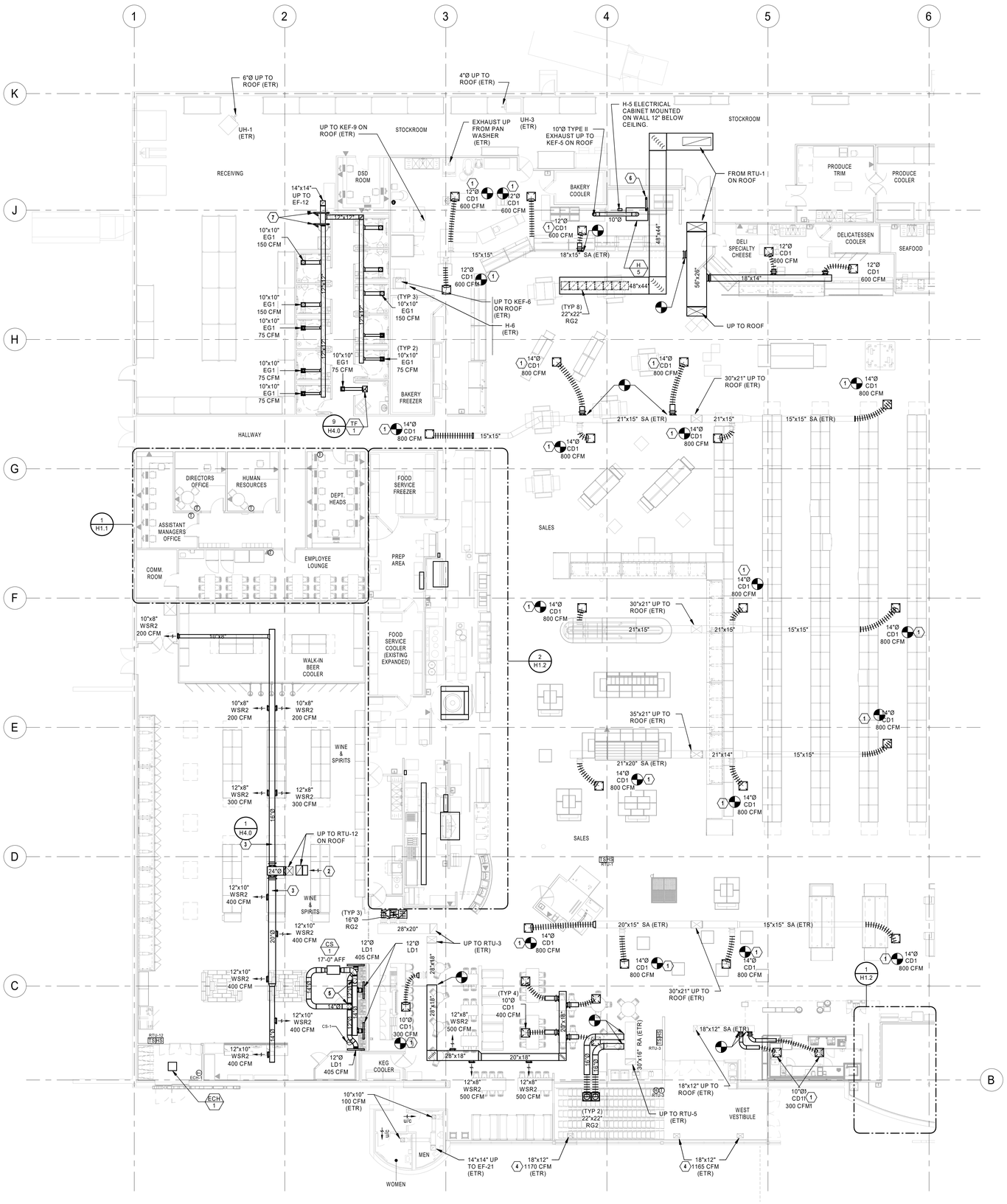
JOSHUA N. HOVER



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

GENERAL NOTES:

1. TRANSITION VERTICAL DUCTWORK AS REQUIRED TO MATCH RTU CONNECTION SIZES.
2. TRANSITION VERTICAL DUCTWORK AS REQUIRED TO MATCH EXHAUST FAN CONNECTION SIZES.
3. ROUTE EXPOSED DUCTWORK TIGHT TO STRUCTURE EXCEPT WHERE NOTED ON PLAN. COORDINATE INSTALLATION HEIGHT WITH ARCHITECT PRIOR TO INSTALLATION.
4. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION OF ANY WORK.
5. INSTALLED LINED RETURN AIR BOOT ON TRANSFER AIR GRILLES LOCATED IN PUBLIC VIEW. BOOT SHALL BE FULL SIZE OF GRILLE OPENING.
6. NO DUCTWORK MAY BE SUPPORTED FROM THE ROOF DECK. REFER TO SPECIFICATIONS FOR HANGER REQUIREMENTS.
7. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES AND ELEVATIONS.
8. REFER TO H4.0 FOR ALL DETAILS.

MECHANICAL PLAN NOTES

1. PROVIDE NEW DIFFUSER COORDINATED IN NEW CEILING GRID. CONNECT DIFFUSER TO EXISTING DUCTWORK
2. PROVIDE FULL SIZE RETURN DUCT DOWN AND ELBOW 36" HORIZONTAL FROM UNIT TIGHT TO STRUCTURE WITH DUCT LINER FOR SOUND ATTENUATION AND 3/4" WIRE MESH SCREEN ON INLET.
3. ROUTE DUCT LEVEL AND TIGHT TO STRUCTURE.
4. BALANCE EXISTING REGISTER TO NEW CFM SHOWN.
5. ROUTE DUCT DOWN TIGHT TO CEILING BELOW.
6. PROVIDE 3" STAINLESS STEEL STEAM VENT, DISCHARGE UNDER HOOD.
7. PROVIDE COMBINATION CONCENTRIC INTAKE VENT AND EXHAUST FLUE FROM UNIT UP THROUGH ROOF AND TERMINATE WITH SAME MANUFACTURER'S TERMINATION KIT IN COMPLIANCE WITH LOCAL CODE AND MINIMUM 10'-0" SEPARATION FROM ALL AIR INTAKES. REFER TO SPECIFICATIONS AND MFR. REQUIREMENTS FOR APPROVED FLUE AND INTAKE MATERIALS FOR UNIT OPERATING TEMPERATURE.

NOTE:
ALL DUCTWORK/DAMPERS/TAPS SHOWN ON SALES FLOOR ARE EXISTING TO REMAIN. REPLACE EXISTING DIFFUSERS IN NEW CEILING GRID. DUCT SIZES SHOWN ARE MINIMUM, CONTRACTOR SHALL FIELD VERIFY SIZES AND NOTIFY ENGINEER IF INSUFFICIENT.

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hyvee® EMPLOYEE OWNED

NORTH PLAN NORTH

HVAC FLOOR PLAN - PART A

PROJECT MANAGER	CHECKED BY:
SL	Checker
DRAWN BY:	DATE:
MLJ	10/19/2020
SCALE:	JOB NUMBER:
AS NOTED	62930547

SHEET:
H1.0A

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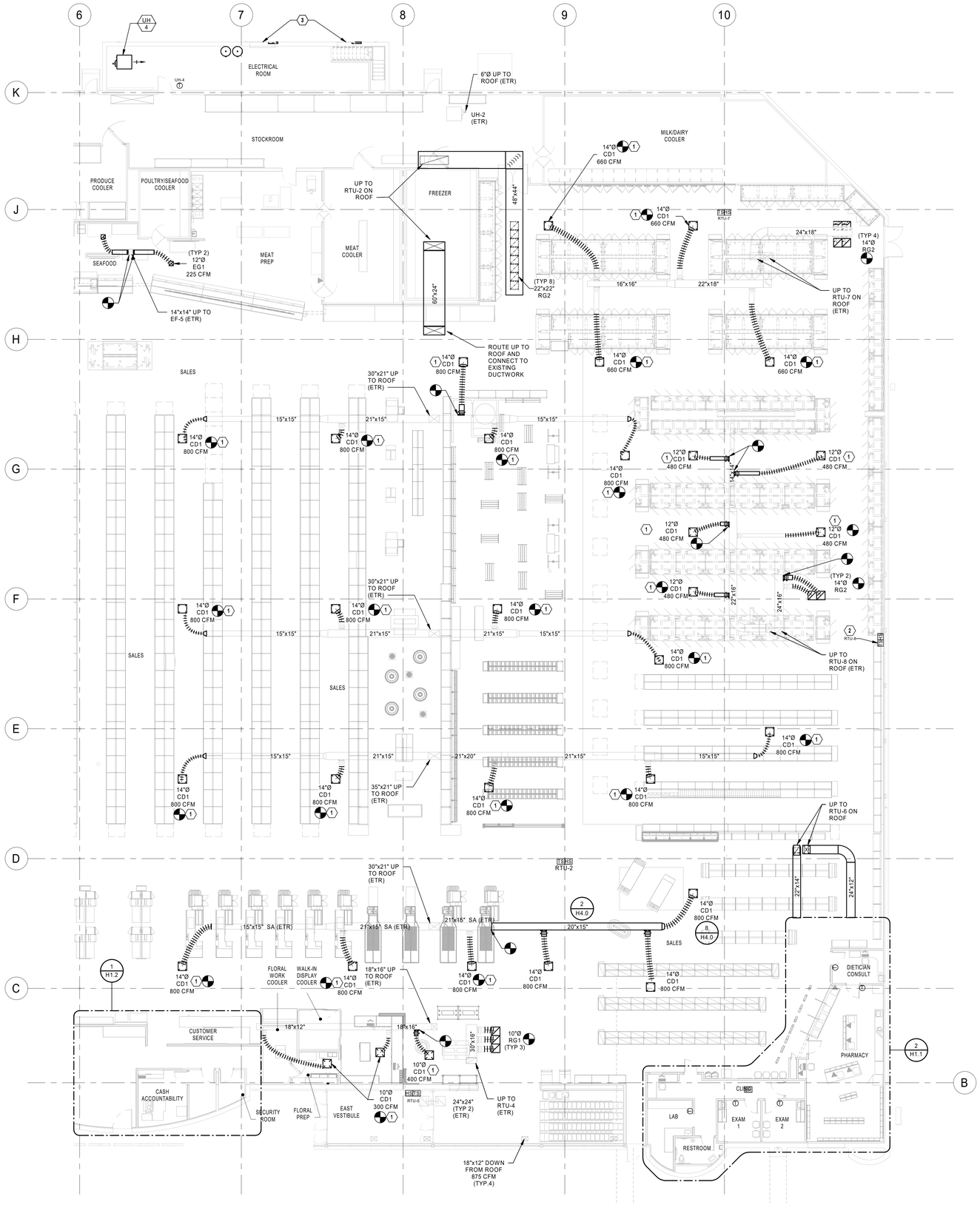
JOSHUA N. HOVER



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

GENERAL NOTES:

1. TRANSITION VERTICAL DUCTWORK AS REQUIRED TO MATCH RTU CONNECTION SIZES.
2. TRANSITION VERTICAL DUCTWORK AS REQUIRED TO MATCH EXHAUST FAN CONNECTION SIZES.
3. ROUTE EXPOSED DUCTWORK TIGHT TO STRUCTURE EXCEPT WHERE NOTED ON PLAN. COORDINATE INSTALLATION HEIGHT WITH ARCHITECT PRIOR TO INSTALLATION.
4. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION OF ANY WORK.
5. INSTALLED LINED RETURN AIR BOOT ON TRANSFER AIR GRILLES LOCATED IN PUBLIC VIEW. BOOT SHALL BE FULL SIZE OF GRILLE OPENING.
6. NO DUCTWORK MAY BE SUPPORTED FROM THE ROOF DECK. REFER TO SPECIFICATIONS FOR HANGER REQUIREMENTS.
7. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES AND ELEVATIONS.
8. REFER TO H4.0 FOR ALL DETAILS.

MECHANICAL PLAN NOTES

1. PROVIDE NEW DIFFUSER COORDINATED IN NEW CEILING GRID. CONNECT DIFFUSER TO EXISTING DUCTWORK
2. PROVIDE INSULATION BACKING ON THERMOSTAT MOUNTED ON EXTERIOR WALL.
3. CAP/INFILL EXISTING LOUVERS WEATHER TIGHT.

NOTE:
ALL DUCTWORK/DAMPERS/TAPS SHOWN ON SALES FLOOR ARE EXISTING TO REMAIN. REPLACE EXISTING DIFFUSERS IN NEW CEILING GRID. DUCT SIZES SHOWN ARE MINIMUM. CONTRACTOR SHALL FIELD VERIFY SIZES AND NOTIFY ENGINEER IF INSUFFICIENT.

REVISION	DATE BY

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hyvee® EMPLOYEE OWNED

NORTH PLAN NORTH

HVAC FLOOR PLAN - PART B

PROJECT MANAGER: SL	CHECKED BY: Checker
DRAWN BY: Author	DATE: 10/19/2020
SCALE: AS NOTED	JOB NUMBER: 62930547

SHEET:
H1.0B

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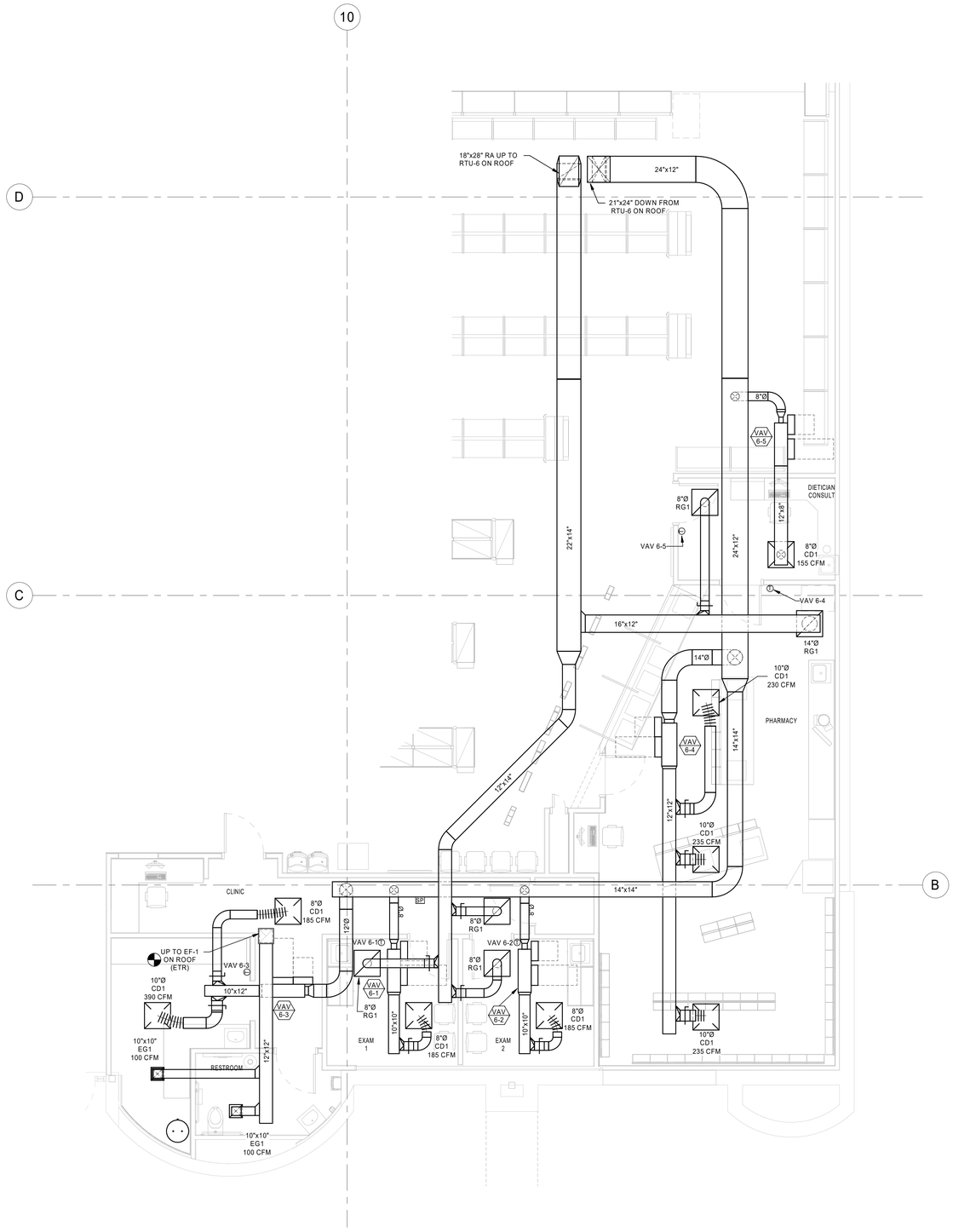
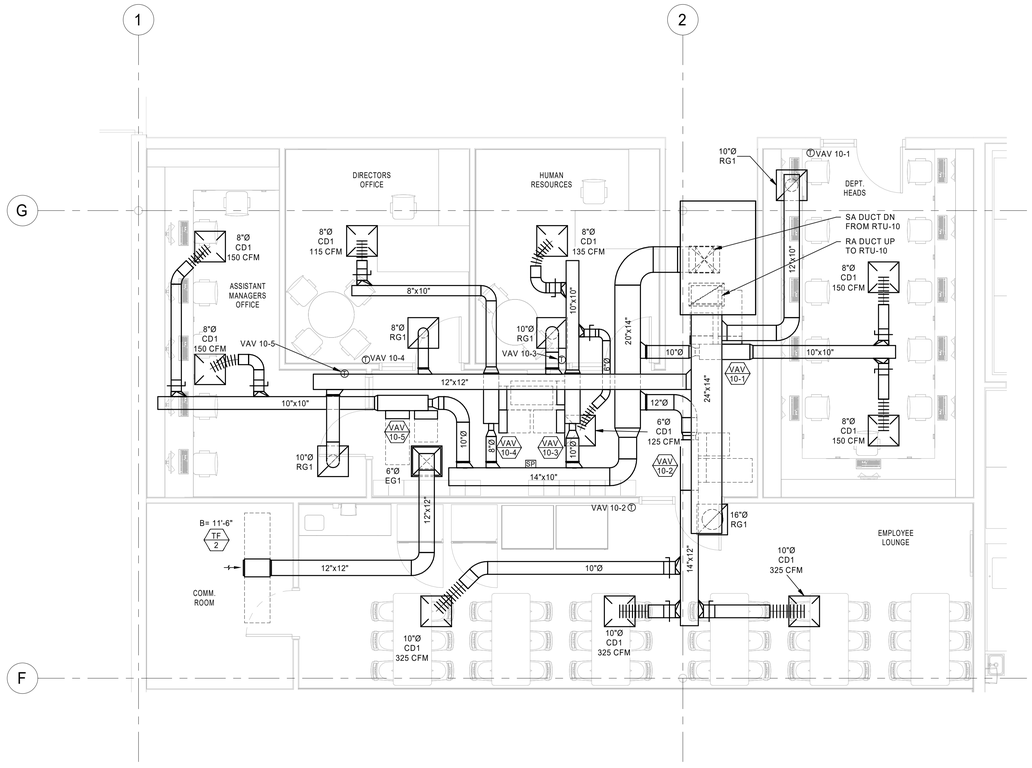
JOSHUA N. HOVER

GENERAL NOTES:

1. TRANSITION VERTICAL DUCTWORK AS REQUIRED TO MATCH RTU CONNECTION SIZES.
2. TRANSITION VERTICAL DUCTWORK AS REQUIRED TO MATCH EXHAUST FAN CONNECTION SIZES.
3. ROUTE EXPOSED DUCTWORK TIGHT TO STRUCTURE EXCEPT WHERE NOTED ON PLAN. COORDINATE INSTALLATION HEIGHT WITH ARCHITECT PRIOR TO INSTALLATION.
4. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION OF ANY WORK.
5. INSTALLED LINED RETURN AIR BOOT ON TRANSFER AIR GRILLES LOCATED IN PUBLIC VIEW. BOOT SHALL BE FULL SIZE OF GRILLE OPENING.
6. NO DUCTWORK MAY BE SUPPORTED FROM THE ROOF DECK. REFER TO SPECIFICATIONS FOR HANGER REQUIREMENTS.
7. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES AND ELEVATIONS.
8. REFER TO H4.0 FOR ALL DETAILS.



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



1 HVAC ENLARGED OFFICE PLAN
1/4" = 1'-0"

REVISION	DATE BY

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
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WWW.HENDERSONENGINEERS.COM
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MO. CORPORATE NO: E-556D
EXPIRES 12/31/2020

PROFESSIONAL SEAL

STATE OF MISSOURI
JOSHUA N. HOVER
NUMBER PE-2017008503
PROFESSIONAL ENGINEER

Oct 23 2020
JOSHUA N. HOVER
LICENSE # PE-2017008503

LOCATION:
LEE'S SUMMIT, MO #2
310 SW WARD RD

HY-VEE, INC.
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TELEPHONE: (515) 267-2800
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Hy-Vee® EMPLOYEE OWNED

NORTH PLAN NORTH

HVAC ENLARGED PLANS

PROJECT MANAGER: SL	CHECKED BY: Checker
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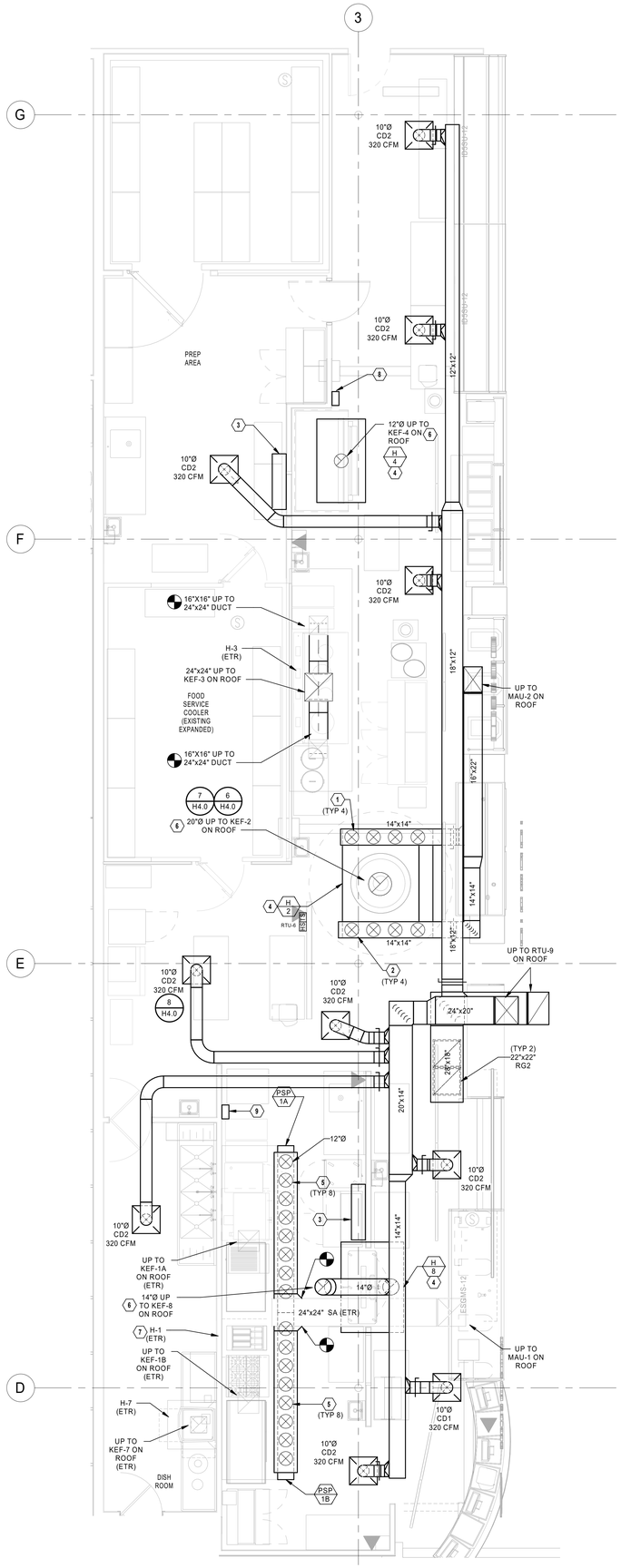
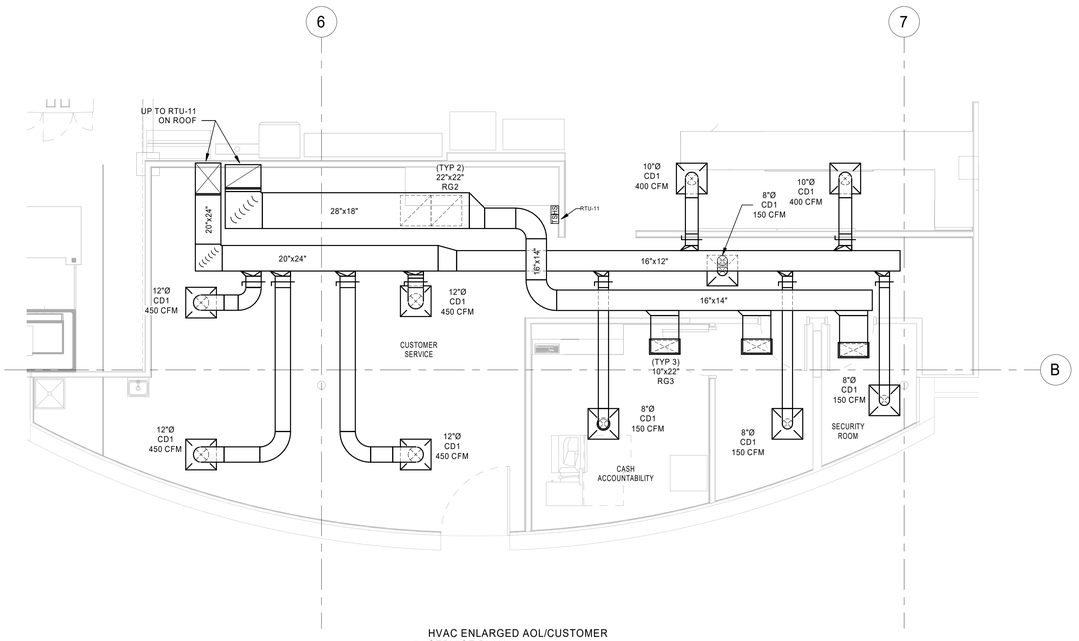


2 HVAC ENLARGED KITCHEN PLAN
1/4" = 1'-0"



1 HVAC ENLARGED AOL/CUSTOMER SERVICE PLAN
1/4" = 1'-0"

GENERAL NOTES:

1. TRANSITION VERTICAL DUCTWORK AS REQUIRED TO MATCH RTU CONNECTION SIZES.
2. TRANSITION VERTICAL DUCTWORK AS REQUIRED TO MATCH EXHAUST FAN CONNECTION SIZES.
3. ROUTE EXPOSED DUCTWORK TIGHT TO STRUCTURE EXCEPT WHERE NOTED ON PLAN. COORDINATE INSTALLATION HEIGHT WITH ARCHITECT PRIOR TO INSTALLATION.
4. COORDINATE ALL WORK WITH OTHER TRADES PRIOR TO INSTALLATION OF ANY WORK.
5. INSTALLED LINED RETURN AIR BOOT ON TRANSFER AIR GRILLES LOCATED IN PUBLIC VIEW. BOOT SHALL BE FULL SIZE OF GRILLE OPENING.
6. NO DUCTWORK MAY BE SUPPORTED FROM THE ROOF DECK. REFER TO SPECIFICATIONS FOR HANGER REQUIREMENTS.
7. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES AND ELEVATIONS.
8. REFER TO H4.0 FOR ALL DETAILS.

MECHANICAL PLAN NOTES

1. 12"Ø MAKEUP AIR COLLAR. OFFSET AS REQUIRED TO TAP INTO MAKEUP AIR DUCT ROUTING ABOVE. CAPTIVE AIRE TO BALANCE EACH TAP AT 226 CFM DURING STARTUP.
2. 12"Ø MAKEUP AIR COLLAR. OFFSET AS REQUIRED TO TAP INTO MAKEUP AIR DUCT ROUTING ABOVE. CAPTIVE AIRE TO BALANCE EACH TAP AT 282 CFM DURING STARTUP.
3. MOUNT FIRE SUPPRESSION AND CONTROLS CABINET HIGH ON WALL, TIGHT TO CEILING.
4. PROVIDE EXHAUST HOOD AND FAN WITH INTERNAL FILTERS, LIGHTS, AND FIRE SUPPRESSION SYSTEM AND CABINET AND PULL STATION AS APPLICABLE TO CODE AND AS NOTED IN MECHANICAL SCHEDULES.
5. 12"Ø MAKEUP AIR COLLAR. OFFSET AS REQUIRED TO TAP INTO MAKEUP AIR DUCT ROUTING ABOVE. CAPTIVE AIRE TO BALANCE EACH TAP AT 255CFM DURING STARTUP.
6. PROVIDE TYPE I PREFABRICATED GREASE DUCT WITH CLEANOUTS.
7. COORDINATE EXISTING CONTROLS WITH CAPTIVE AIRE. REPLACE EXISTING SWITCHES WITH NEW HMI & PROVIDE WITHIN DOUBLE GANG ELECTRICAL BOX.
8. PIZZA OVEN HMI IN DOUBLE GANG BOX AT 60" AFF.
9. NEW HMI FOR EXISTING MAIN COOKLINE HOODS IN DOUBLE GANG BOX AT 60" AFF.

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Hy-Vee EMPLOYEE OWNED

NORTH PLAN NORTH

HVAC ENLARGED PLANS

PROJECT MANAGER	CHECKED BY:
SL	Checker
DRAWN BY:	DATE:
Author	10/19/2020
SCALE:	JOB NUMBER:
AS NOTED	62930547

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H1.2

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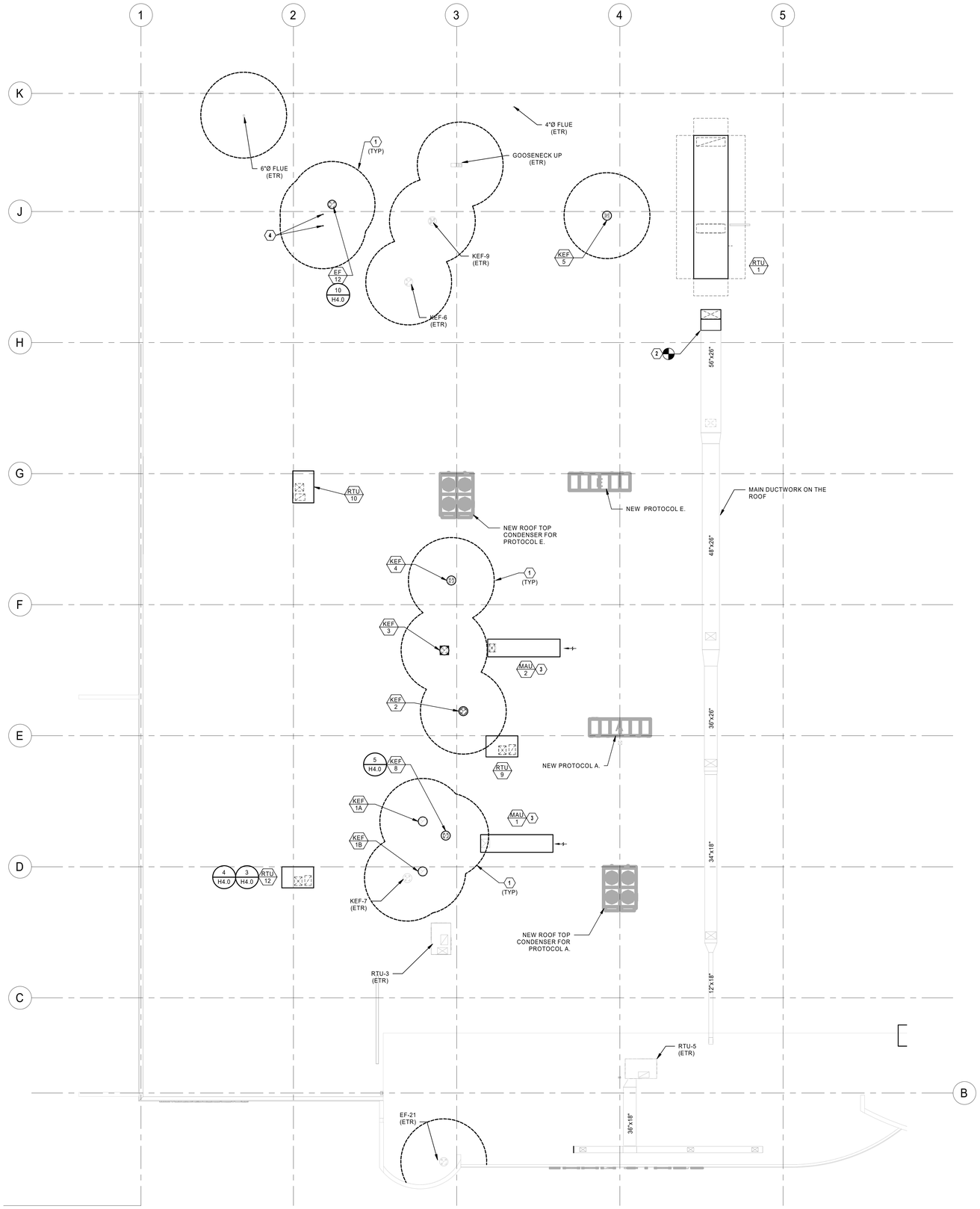
JOSHUA N. HOVER



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

GENERAL NOTES:

1. ALL SERVICEABLE EQUIPMENT SHALL BE INSTALLED A MINIMUM OF 10'-0" FROM THE ROOF EDGE IN LOCATIONS WHERE THE PARAPET WALL IS LESS THAN 42" TALL.
2. COORDINATE EQUIPMENT CURB PLACEMENT WITH EXISTING STRUCTURE.

MECHANICAL PLAN NOTES

1 ALL EXHAUST TERMINATIONS SHALL BE INSTALLED A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES.
2 PENETRATE NEW DUCTWORK THRU ROOF AND CONNECT NEW SUPPLY DUCT TO EXISTING DUCTWORK ON ROOF.
3 PROVIDE NEW EQUIPMENT ON EXISTING CURB, COORDINATE ADAPTOR AS REQUIRED. CONNECT TO EXISTING DUCTWORK.
4 PROVIDE COMBINATION CONCENTRIC INTAKE VENT AND EXHAUST FLUE FROM UNIT UP THROUGH ROOF AND TERMINATE WITH SAME MANUFACTURER'S TERMINATION KIT IN COMPLIANCE WITH LOCAL CODE AND MINIMUM 10'-0" SEPARATION FROM ALL AIR INTAKES. REFER TO SPECIFICATIONS AND MFR. REQUIREMENTS FOR APPROVED FLUE AND INTAKE MATERIALS FOR UNIT OPERATING TEMPERATURE.

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hyvee® EMPLOYEE OWNED

NORTH PLAN NORTH

HVAC ROOF PLAN - PART A

PROJECT MANAGER: SL	CHECKED BY: Checker
DRAWN BY: MLJ	DATE: 10/19/2020
SCALE: AS NOTED	JOB NUMBER: 62930547

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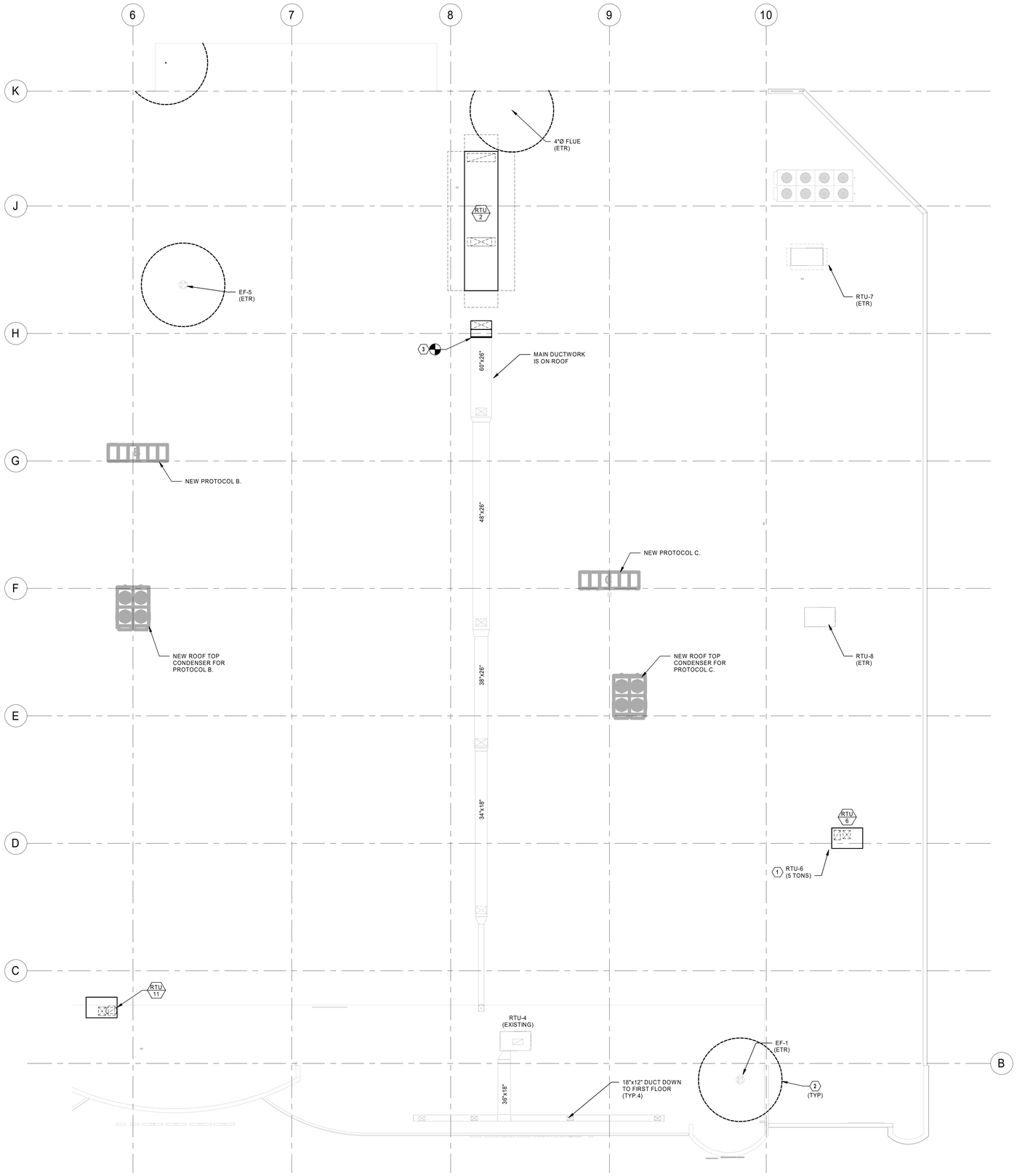

1 HVAC ROOF PLAN - B
3/32" = 1'-0"

GENERAL NOTES:

1. ALL SERVICEABLE EQUIPMENT SHALL BE INSTALLED A MINIMUM OF 10'-0" FROM THE ROOF EDGE IN LOCATIONS WHERE THE PARAPET WALL IS LESS THAN 42" TALL.
2. COORDINATE EQUIPMENT CURB PLACEMENT WITH EXISTING STRUCTURE.

MECHANICAL PLAN NOTES

1. PROVIDE NEW EQUIPMENT ON EXISTING CURB. COORDINATE ADAPTOR AS REQUIRED. CONNECT TO EXISTING DUCTWORK.
2. ALL EXHAUST TERMINATIONS SHALL BE INSTALLED A MINIMUM OF 10'-0" FROM ALL OUTSIDE AIR INTAKES.
3. PENETRATE NEW DUCTWORK THRU ROOF AND CONNECT NEW SUPPLY DUCT TO EXISTING DUCTWORK ON ROOF.

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hyvee EMPLOYEE OWNED

NORTH PLAN NORTH

HVAC ROOF PLAN
- PART B

PROJECT MANAGER: SL	CHECKED BY: Checker
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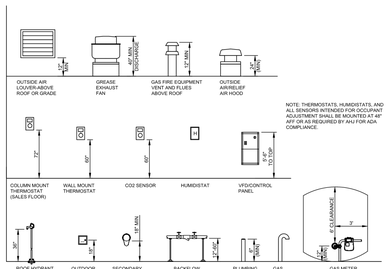
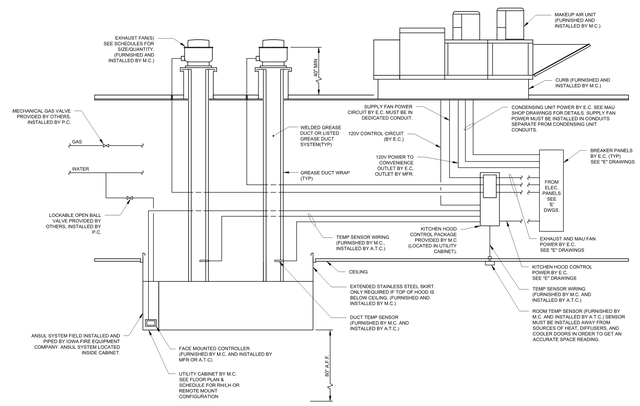


12 TYPICAL MOUNTING HEIGHTS

SCALE: N.T.S.

GENERAL NOTES:

1. REFER TO ARCHITECTURAL PLANS FOR MOUNTING HEIGHTS. IF NOT SHOWN, REFER TO THESE DEFAULT ELEVATIONS. IN ALL INSTANCES, HEIGHTS MUST MEET MINIMUM AND MAXIMUM HEIGHTS AS DETERMINED BY CODE AND AHJ.
2. ALL EQUIPMENT SHALL BE MOUNTED AT ADA REQUIRED HEIGHTS WHEN DIRECTED BY AHJ.

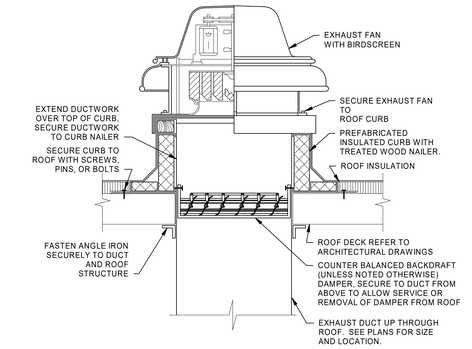


11 TYPICAL HOOD DETAIL

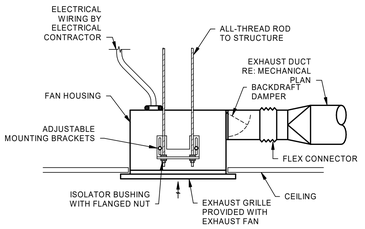
SCALE: N.T.S.

GENERAL NOTES:

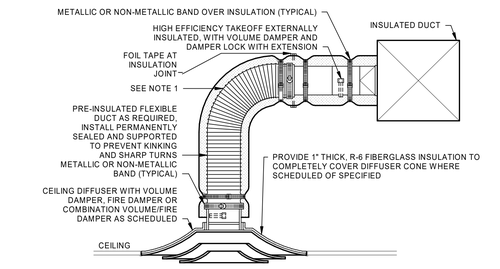
1. THIS DETAIL IS SCHEMATIC IN NATURE AND INTENDED TO DEFINE SCOPE. CONSULT HOOD AND MAU MANUFACTURER FOR ADDITIONAL REQUIREMENTS.
2. SEE MECHANICAL SCHEDULES AND DRAWINGS FOR ADDITIONAL EQUIPMENT AND ACCESSORY INFORMATION.
3. HOOD FIRE SUPPRESSION FURNISHED AND INSTALLED BY IOWA FIRE EQUIPMENT COMPANY.
4. CHECK HOOD SCHEDULE TO CONFIRM LOCATION OF HOOD CONTROL PANEL.



10 DOWNBLAST EXHAUST FAN DETAIL
NTS

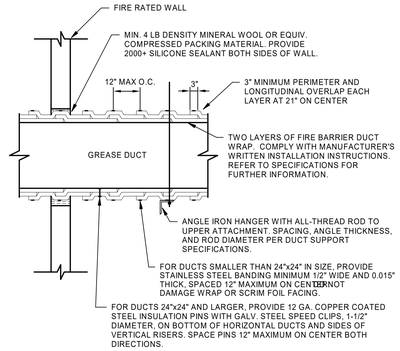


9 CEILING MOUNTED TRANSFER FAN
NTS



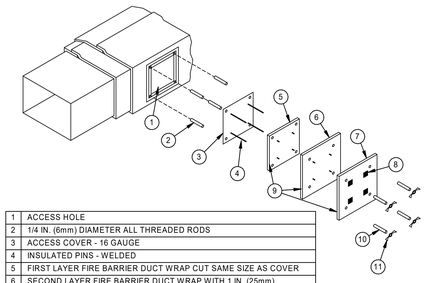
NOTES:
1. EXTEND RIGID METAL DUCT SO THAT MAXIMUM FLEXIBLE DUCT LENGTH DOES NOT EXCEED 5'-0". PROVIDE RIGID 90° ELBOW WHERE REQUIRED TO KEEP FLEXIBLE DUCT WITHIN 5'-0" LENGTH LIMITATION.

8 LAY-IN CEILING DIFFUSER DETAIL
NTS



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

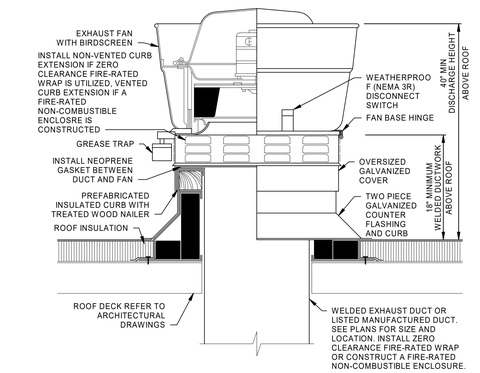
7 GREASE DUCT FIRE WRAP INSULATION INSTALLATION DETAIL
NTS



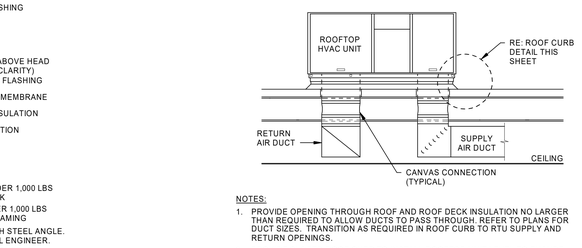
1	ACCESS HOLE
2	1/4 IN. (6mm) DIAMETER ALL THREADED RODS
3	ACCESS COVER - 16 GAUGE
4	INSULATED PINS - WELDED
5	FIRST LAYER FIRE BARRIER DUCT WRAP CUT SAME SIZE AS COVER
6	SECOND LAYER FIRE BARRIER DUCT WRAP WITH 1 IN. (25mm) OVERLAP ON ALL SIDES
7	THIRD LAYER FIRE BARRIER DUCT WRAP WITH 1 IN. (25mm) OVERLAP ON ALL SIDES OF PREVIOUS LAYER
8	SPEED CLIPS
9	ALUMINUM TAPE COVERING ALL EXPOSED EDGES
10	SPOOL PIECES FOR THREADED RODS
11	1/4 IN. (6mm) DIAMETER WING NUTS

FOR REFERENCE ONLY. INSTALL PER MANUFACTURERS RECOMMENDATIONS.

6 GREASE DUCT CLEANOUT ACCESS DOOR
NTS



5 UPBLAST GREASE EXHAUST FAN DETAIL
NTS

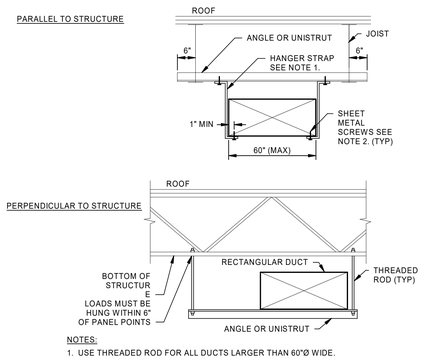


NOTES:
1. CUT METAL DECKING TO ALLOW CURB INSTALLATION ON STEEL FRAMING. AFTER CURB IS SET IN PLACE, TRIM REMAINING METAL DECKING AND INSTALL WITHIN CURB. TACK WELD DECKING TO SUPPORT STEEL. DO NOT WELD INTERIOR DECKING TO ROOF CURB. PROVIDE ADDITIONAL CROSS FRAMING TO SUPPORT INTERIOR DECKING AND FILL MATERIAL AS REQUIRED.

4 ROOF CURB DETAIL
NTS

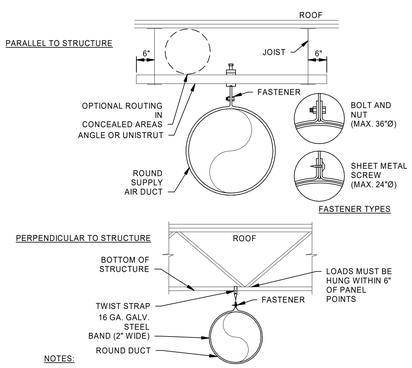
NOTES:
1. PROVIDE OPENING THROUGH ROOF AND ROOF DECK INSULATION NO LARGER THAN REQUIRED TO ALLOW DUCTS TO PASS THROUGH. REFER TO PLANS FOR DUCT SIZES. TRANSITION AS REQUIRED IN ROOF CURB TO RTU SUPPLY AND RETURN OPENINGS.
2. PROVIDE SLOPED ROOF CURB TO INSTALL ROOFTOP UNIT LEVEL TO ENSURE PROPER DRAINAGE. COORDINATE ROOF SLOPE WITH ARCHITECTURAL. FLASH AND COUNTER FLASH ROOF PENETRATIONS, ETC. TO ENSURE WEATHER TIGHT INSTALLATION.

3 ROOFTOP UNIT WITH DUCTWORK DETAIL
NTS



NOTES:
1. USE THREADED ROD FOR ALL DUCTS LARGER THAN 60"Ø WIDE.
2. SHEET METAL SCREWS MAY BE OMITTED IF HANGER STRAP IS CONTINUOUS AND LOOPS UNDER ENTIRE DUCT.

2 RECTANGULAR DUCT SUPPORT DETAIL
NTS



NOTES:
1. FOR DUCTS LARGER THAN 36"Ø, USE TWO HANGER RODS, WIRES OR STRAPS TO SUPPORT DUCT FROM EACH SIDE.

1 ROUND DUCT SUPPORT DETAIL
NTS

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NORTH PLAN NORTH

HVAC DETAILS

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JOSHUA N. HOVER
10/23/2020 11:34:29 AM

GRILLE, REGISTER AND DIFFUSER SCHEDULE

MARK	MANUFACTURER	MODEL	STYLE	BORDER	INLET SIZE (IN)	FACE SIZE (IN)	DAMPER NEEDED	MATERIAL	COLOR	NOTES
CD1	TITUS	TMS	LOUVERED	LAY-IN	SEE DWGS.	24"x24"	NO	STEEL	SEE NOTE	A-E
CD2	TITUS	PAR	PERFORATED FACE	LAY-IN	SEE DWGS.	24"x24"	NO	ALUMINUM	WHITE	A,B,D,E
EG1	TITUS	PAR	PERFORATED FACE	LAY-IN	SEE DWGS.	12"x12"	NO	ALUMINUM	WHITE	A,D,E
LD-1	TITUS	ML	LINEAR	-	SEE DWGS.	-	NO	STEEL	SEE NOTE	A,B,D,F
RG1	TITUS	TMS	LOUVERED	LAY-IN	SEE DWGS.	24"x24"	NO	STEEL	SEE NOTE	A,C,D,E
RG2	TITUS	50F	LOUVERED	LAY-IN	SEE DWGS.	24"x24"	NO	STEEL	SEE NOTE	A,C,D,E
RG3	TITUS	TMS	LOUVERED	LAY-IN	SEE DWGS.	24"x12"	NO	STEEL	SEE NOTE	A,C,D,E

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

NOTES:

A. CONTRACTOR TO DETERMINE PROPER BORDER STYLE TO MATCH CEILING/WALL TYPE. COORDINATE WITH ARCHITECTURAL RELECTED CEILING/WALL PLAN.
B. BRANCH DUCT TO DIFFUSERS SHALL BE AT THE SAME SIZE AS THE DIFFUSER NECK, UNLESS SHOWN OTHERWISE.
C. DIFFUSERS IN THE MARKET GRILLE AND CASUAL DINING ARE TO BE COLOR MATCHED TO THE CEILING ELEMENT.
D. PROVIDE DIFFUSERS, REGISTERS, AND GRILLES WITH NO EXPOSED MOUNTING SCREWS.
E. CONTRACTOR SHALL PROVIDE REMOTE CABLE OPERATING VOLUME DAMPER WHERE HARD CEILING RESTRICTS ACCESS TO DAMPER.
F. PROVIDE LINEAR DIFFUSER WITH (2) 1" SLOTS, 5' TOTAL WIDTH, AND 4'-0" TOTAL LENGTH. PROVIDE WITH INSULATED PLENUM TO MATCH.

ROOFTOP UNIT SCHEDULE (DX COOLING, NATURAL GAS HEAT)

MARK	MANUFACTURER	MODEL	SERVICE	NOMINAL TONS	SUPPLY FAN CFM	SUPPLY FAN ESP (IN)	SUPPLY FAN NOM HP	COOLING COIL TH (MBH)	COOLING COIL SH (MBH)	COOLING COIL EAT (°F DB)	COOLING COIL EAT (°F WB)	COOLING COIL LAT (°F DB)	COOLING COIL LAT (°F WB)	REFR TYPE	MIN EFF (EER)	HEAT EXCHANGER MIN OUT (MBH)	HEAT EXCHANGER NOM INPUT (MBH)	HEAT EXCHANGER EAT (°F DB)	HEAT EXCHANGER LAT (°F DB)	MIN O/A CFM	ELECTRICAL V/PH	ELECTRICAL MCA	ELECTRICAL MOCP	ELECTRICAL DISC TYPE	WEIGHT (LBS)	NOTES
RTU-1	SEASONS 4	VA065 / 1HJI33-0676-TN10..-17HG	SALES SOUTH	65	17,000	1.0	15	813.93	407.208	78.9	67.6	56.9	51.9	410A	10.7	800	1000	48.5	90	6000	208/3	354	400	MFR	12100	A-N
RTU-2	SEASONS 4	VA065 / 1HJI33-0676-TN10..-17HG	SALES NORTH	65	17,000	1.0	15	813.93	407.208	78.9	67.6	56.9	51.9	410A	10.7	800	1000	48.5	90	6000	208/3	354	400	MFR	12100	A-N, P
RTU-6	YORK	ZJ070S12E2B6HCD2E2	PHARMACY	6.5	1,800	0.6	1.5	68.8	45.5	80.0	67.0	56.6	54.6	410A	13.9	96	120	62.7	101	250	208/3	44.6	50	MFR	1225	A-M, Q, R, S
RTU-9	YORK	ZJ120S18P2A6HCA2E1	KITCHEN	10	3,200	0.6	2	114.3	80.2	80.0	67.0	56.8	55.6	410A	12.7	144	180	70	111.5	0	208/3	58.9	70	MFR	1305	A-J, L-M, Q, S
RTU-10	YORK	ZJ070S12E2B6HCD2E2	OFFICES	6.5	1,950	0.6	1.5	70.5	47.8	80.0	67.0	57.3	55.4	410A	13.9	96	120	60.9	102.3	200	208/3	44.6	50	MFR	1225	A-M, Q, R, S
RTU-11	YORK	ZR120S18P2A6HCA2E1	AOL/CUSTOMER SERVICE	10	3,200	0.6	2	102.5	75.5	75.4	63.3	54.0	52.3	410A	12.7	144	180	67.6	109.1	125	208/3	44.6	50	MFR	1225	A-M, O-Q, S
RTU-12	YORK	ZR120S18P2A6HCA2E1	WINE & SPIRIT	10	3,200	0.6	2	114.3	80.2	80.0	67.0	56.8	55.6	410A	12.7	144	180	70	111.5	0	208/3	58.9	70	MFR	1305	A-J, L-M, O, P, S

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

NOTES:

A. PROVIDE WITH UNIT MOUNTED CONTROLLER WITH BACNET INTERFACE.
B. SUPPLY AIR EXTERNAL PRESSURE INCLUDES AN ALLOWANCE FOR DIRTY FILTERS.
C. EQUIPMENT SIZED AT 100F AMBIENT TEMPERATURE.
D. PROVIDE DOWNFLOW DISCHARGE UNIT.
E. PROVIDE GUARDS TO PROTECT CONDENSER COIL FROM HAIL OR OTHER DAMAGE.
F. PROVIDE UNIT WITH FACTORY MOUNTED RETURN AIR SMOKE DETECTOR.
G. PROVIDE FACTORY MOUNTED DISCONNECT INSTALLED ON SERVICE SIDE OF UNIT.
H. STARTERS FOR ALL MOTORS SHALL BE FURNISHED INTEGRAL WITH UNIT.
J. PROVIDE UNIT WITH POWERED CONVENIENCE OUTLET.
K. PROVIED MOTOR OPERATED OUTSIDE AIR DAMPER.
L. PROVIDE STAINLESS STEEL DRAIN PAN WITH UNIT.
M. PROVIDE STAINLESS STEEL HEAT EXCHANGER WITH UNIT.
N. PROVIDE UNIT WITH MODULATING NATURAL GAS FURNACE.
P. PROVIDE HOT GAS REHEAT WITH UNIT.
Q. PROVIDE UNIT WITH SINGLE ENTHALPY ECONOMIZER AND BARAMETRIC RELIEF WITH UNIT.
R. UNIT SHALL HAVE VAV CONTROLLER WITH VFD.
S. PROVIDE UNIT WITH S CLIPS FOR TIE-DOWN.

ELECTRIC CEILING HEATER SCHEDULE

MARK	SERVICE	MANUFACTURER	MODEL	AIRFLOW (CFM)	SIZE (L" x W")	ELECTRICAL INPUT (W)	ELECTRICAL VOLTS	ELECTRICAL MOTOR PH	ELECTRICAL DISCONNECT BY	NOTES
ECH-1	WINE & SPIRIT	GRAINGER	2YU39	300	23.75" x 23.75"	4000	208	1	MFR	A-C

NOTES:
A. PROVIDE WITH WALL MOUNTED LINE VOLTAGE THERMOSTAT AND LOCKABLE COVER.
B. PROVIDE NECESSARY MOUNTING BRACKET AND ACCESSORIES AND INSTALL PER MANUFACTURER REQUIREMENTS.
C. COLOR SHALL BE WHITE.

KITCHEN EXHAUST HOOD SCHEDULE

MARK	MANUFACTURER	MODEL	HOOD CLASSIFICATION	SERVICE	HOOD DIMENSIONS (IN) (L x W x H)	EXHAUST RISER QTY	EXHAUST RISER CONNECTION SIZE	EXHAUST RISER CFM	EXHAUST RISER APD (IN W.C.)	FRONT MAKE-UP AIR PLENUM QTY	FRONT MAKE-UP AIR PLENUM OVERALL LENGTH (IN)	FRONT MAKE-UP AIR PLENUM WIDTH (IN)	FRONT MAKE-UP AIR PLENUM CONNECTION SIZE (EA.)	FRONT MAKE-UP AIR PLENUM CFM	FRONT MAKE-UP AIR PLENUM APD (IN W.C.)	FILTERS QTY	FILTERS HEIGHT (IN)	FILTERS LENGTH (IN)	FILTERS TYPE	LIGHTS QTY	LIGHTS TYPE	FIRE SUPPRESSION	UTILITY CABINET LOCATION	WEIGHT (LBS)	COOKING TEMP (°F)	STAINLESS STEEL BACKSPLASH	NOTES
PSP-1A	CAPTIVE AIRE	146 MISC-PSP	SUPPLY PLENUM	KITCHEN	-	-	-	-	-	8	126	14	12" DIA	257	0.084	-	-	-	-	-	-	-	-	90	300	M.C.	J
PSP-1B	CAPTIVE AIRE	146 MISC-PSP	SUPPLY PLENUM	KITCHEN	-	-	-	-	-	8	126	14	12" DIA	256	0.084	-	-	-	-	-	-	-	-	90	300	M.C.	J
H-2	CAPTIVE AIRE	6630 NDI-PSP-FB	TYPE I - GREASE	BBQ	66" x 66" x 30"	1	20" DIA	3025	0.831	8	66"	14	12" DIA	226 / 282	0.066 / 0.1	8	20	16	CAPTRATE SOLO	6	RECESSED	YES	RIGHT	857	400	M.C.	A-H
H-4	CAPTIVE AIRE	4218 SND-2	TYPE I - GREASE	PIZZA	60" x 42" x 18"	1	12" DIA	1050	0.514	-	-	-	-	-	-	4	16	16	CAPTRATE SOLO	2	RECESSED	YES	RIGHT	252	450	M.C.	A-H
H-5	CAPTIVE AIRE	3624 VHB-ND	TYPE II - HEAT	BAKERY DECK OVEN	62" x 36" x 24"	1	10" DIA	600	0.073	-	-	-	-	-	-	-	-	-	CAPTRATE SOLO	2	RECESSED	NO	WALL	217	700	M.C.	C
H-8	CAPTIVE AIRE	5430 ND-2WI	TYPE I - GREASE	ROTISSERIE	66" x 54" x 30"	1	14" DIA	1788	0.843	-	-	-	-	-	-	4	20	16	CAPTRATE SOLO	2	RECESSED	YES	WALL	383	450	M.C.	A-H

NOTES:

A. UTILITY CABINET SHALL BE BY HOOD MANUFACTURER. SUPPRESSION SYSTEM SHALL BE FURNISHED AND INSTALLED BY IOWA FIRE EQUIPMENT COMPANY.
B. HOOD SUPPLIER SHALL FURNISH HOOD WITH UL LISTED BAFFLE-TYPE GREASE FILTERS, GREASE DRAIN WITH REMOVABLE CUP, AND UL LISTED LED LIGHT FIXTURES.
C. HOOD SUPPLIER SHALL FURNISH STAINLESS STEEL ENCLOSURE PANELS FROM TOP OF HOOD TO FINISH CEILING AND 3 INCH STANDOFF FROM WALL AS REQUIRED.
D. HOOD SUPPLIER SHALL FACTORY INSTALL THE HOOD CONTROL PACKAGE IN THE HOOD UTILITY CABINET.
E. PROVIDE INTERLOCK KIT WITH ONE TEMPERATURE SENSOR PER GREASE EXHAUST COLLAR TO MEET IMC REQUIREMENTS.
F. MOUNT BOTTOM OF HOOD AT 6'-8" ABOVE FINISHED FLOOR.
G. IOWA FIRE EQUIPMENT COMPANY SHALL FURNISH AUTOMATIC SOLENOID GAS SHUT-OFF VALVE TO BE INSTALLED BY PLUMBING CONTRACTOR.
H. PROVIDE COMPLETE CAPTIVE AIRE THERMOSTATIC ELECTRICAL PACKAGE TO CONTROL FAN WITH DUCT TEMPERATURE SENSOR. RECESSED HMI, AND ENCLOSURE.
J. HOOD IS EXISTING TO REMAIN. HOOD SUPPLIER IS TO PROVIDE NEW MAKEUP AIR PLENUM FOR FRONT OF EXISTING HOOD.

MAKEUP AIR UNIT SCHEDULE (DX COOLING, NATURAL GAS HEAT)

MARK	MANUFACTURER	MODEL	SERVICE	SUPPLY FAN CFM	SUPPLY FAN ESP (IN)	SUPPLY FAN NOM HP	DX COOLING COIL TH (MBH)	DX COOLING COIL SH (MBH)	DX COOLING COIL EAT (°F DB)	DX COOLING COIL EAT (°F WB)	DX COOLING COIL LAT (°F DB)	DX COOLING COIL LAT (°F WB)	REFR TYPE	GAS HEAT EXCHANGER MIN OUT (MBH)	GAS HEAT EXCHANGER NOM INPUT (MBH)	GAS HEAT EXCHANGER MIN EFF (%)	GAS HEAT EXCHANGER TEMP RISE (°F)	ELECTRICAL V/PH	ELECTRICAL DISC BY	ELECTRICAL STARTER BY	WEIGHT (LBS)	NOTES
MAU-1	CAPTIVE AIRE	A2-D.500-20D-MPU	MAIN COOKLINE	4080	0.5	5	120	71.2	95	78	77.8	70.4	R-410A	327.4	355.9	92	80	208/3	MFR	MFR	1672	A-H
MAU-2	CAPTIVE AIRE	A2-D.250-20D-MPU	BBQ	2269	0.5	1.5	90	40.7	95	78	77.3	67.5	R-410A	182	197	92	80	208/3	MRF	MRF	1560	A-H

NOTES:

A. UNIT SHALL INCLUDE PACKAGED CONTROLS.
B. PROVIDE UNIT WITH VERTICAL SUPPLY AIR DUCT DISCHARGE THRU UNIT CURB.
C. PROVIDE UNIT WITH GFCI CONVENIENCE OUTLET FOR FIELD WIRING.
D. PROVIDE INLET HOOD WITH CLEANABLE ALUMINUM MESH FILTERS.
E. PROVIDE UNIT WTH MOTORIZED INTAKE DAMPERS.
F. PROVIDE FREEZESTAT IN THE SUPPLY AIR DUCT TO SHUT DOWN THE SUPPLY FAN AND CLOSE THE OUTDOOR AIR DAMPER IF TEMPERATURE IN THE SUPPLY DUCT DROPS BELOW 40 DEGREES FAHRENHEIT.
G. PROVIDE WITH DISCHARGE DUCT SENSOR WITH MODULATING OR STAGED COOLING AND HEATING CAPABILITIES AS REQUIRED FOR OPERATION OF CONTROLS.
H. PROVIDE WITH FULL PERIMETER CURB & TIE DOWN CLIPS.

UNIT HEATER SCHEDULE (EXISTING TO REMAIN)

MARK	MANUFACTURER	MODEL	SERVICE	HEATING INPUT (MBH)	ELECTRICAL VOLTS	ELECTRICAL PHASE	NOTES
UH 1	MODINE	PV250A-63	DOCK AREA	250	115	1	A
UH 2	MODINE	PV125A-30	BACKROOM	125	115	1	A
UH 3	MODINE	PV125A-30	BACKROOM	125	115	1	A

NOTES:
A. SCHEDULED EQUIPMENT IS EXISTING TO REMAIN AND SHOWN FOR REFERENCE ONLY.

FAN SCHEDULE

MARK	SERVICE DESCRIPTION	MANUFACTURER	MODEL	TYPE	CFM	ESP (IN)	BHP	NOM HP	FAN RPM	DRIVE (BELT/DIRECT)	BACKDRAFT DAMPER	CURB	CONTROLS	ELECTRICAL VOLTS	ELECTRICAL PH	ELECTRICAL DISC BY	ELECTRICAL START BY	WEIGHT (LBS)	NOTES
KEF-1A	MAIN COOKLINE	CAPTIVE AIRE	DU180HFA	UPBLAST	2625	1.0	0.7070	2	1144	DIRECT	NO	MFR 24"	BY HOOD MFR	208	3	MFR	MFR	178	B,C
KEF-1B	MAIN COOKLINE	CAPTIVE AIRE	DU180HFA	UPBLAST	1835	1.0	0.4750	1	1017	DIRECT	NO	MFR 24"	BY HOOD MFR	208	3	MFR	MFR	170	B,C
KEF-2	BBQ	CAPTIVE AIRE	DU180HFA	UPBLAST	3025	1.0	0.8940	1.5	1198	DIRECT	NO	MFR 24"	BY HOOD MFR	208	3	MFR	MFR	196	B,C
KEF-3	WOK	CAPTIVE AIRE	DU240HFA	UPBLAST	2850	1.0	0.9770	2.00	715	DIRECT	NO	MFR 24"	BY HOOD MFR	208	3	MFR	MFR	353	B,C
KEF-4	PIZZA	CAPTIVE AIRE	DU50HFA	UPBLAST	1050	0.75	0.276	0.50	1362	DIRECT	NO	MFR 24"	BY HOOD MFR	115	1	MFR	MFR	86	B,C
KEF-5	BAKERY DECK OVEN	CAPTIVE AIRE	DU33HFA	UPBLAST	600	0.375	0.119	0.33	1220	DIRECT	NO	MFR 24"	BY HOOD MFR	115	1	MFR	MFR	67	D,E
KEF-8	ROTISSERIE	CAPTIVE AIRE	DU180HFA	UPBLAST	1788	1.00	0.464	1.00	1011	DIRECT	NO	MFR 24"	BY HOOD MFR	208	3	MFR	MFR	158	B,C
EF-12	REAR RESTROOMS	GREENHECK	G-123-VG	DOWNBLAST	1125	1.00	0.3	0.50	1492	DIRECT	YES	MFR 24"	BREAKER BY EC	115	1	MFR	MFR	46	F,G,H
TF 1	MOTHERS	GREENHECK	SP-B90	CEILING TRANSFER	75	0.25	-	-	700	DIRECT	NO	MFR 12"	BREAKER BY EC	120	1	MFR	MFR	80	F,G,H
TF 2	COMM RM	GREENHECK	BCF-106	INLINE TRANSFER	450	0.3	-	-	1475	BELT	NO	-	THERMOSTAT BY MC	120	1	MFR	MFR	80	F,G,H

NOTES:

A. PROVIDE MOTORIZED BACKDRAFT DAMPER WIRED TO OPEN WHEN FAN OPERATES. FAN SHALL HAVE A SINGLE POWER CONNECTION FOR FAN AND DAMPER.
B. PROVIDE HINGED ROOF CURB.
C. PROVIDE GREASE COLLECTION SYSTEM.
D. PROVIDE GRAVITY BACKDRAFT DAMPER.
E. PROVIDE BIRDSCREEN.
F. FAN SHALL BE CONTROLLED VIA THERMOSTAT LOCATED IN SPACE SERVED.
G. INSTALL FAN AT SERVICEABLE HEIGHT.
H. SUSPEND FAN USING SPRIGN VIBRATION ISOLATION SUPPORT.

VARIABLE AIR VOLUME TERMINAL SCHEDULE (ELECTRIC HEAT)

MARK	SERVED FROM	ZONE SERVED	MANUFACTURER	MODEL	INLET SIZE (IN)	PRIMARY CFM	MIN PRIM CFM	MIN HEAT CFM	MAX HEAT CFM	HEATING COIL EAT	HEATING COIL LAT	HEATING COIL MBH	HEATING COIL KW	HEATING COIL STEPS	ELECTRICAL V	ELECTRICAL PH	NOTES
VAV 10-1	RTU-10	Dept Heads	TITUS	DESV	6	300	105	110	N/A	55	98.1	5.1	1.5	1	208	1	A-F
VAV 10-2	RTU-10	Employee Lounge	TITUS	DESV	10	975	245	300	N/A	55	91.9	11.9	3.5	2	208	1	A-F
VAV 10-3	RTU-10	Human Resources / Employee Hall	TITUS	DESV	5	235	155	155	N/A	55	95.8	6.8	2.0	2	208	1	A-F
VAV 10-4	RTU-10	Directors Office	TITUS	DESV	4	115	60	110	N/A	55	98.1	5.1	1.5	1	208	1	A-F
VAV 10-5	RTU-10	Asst Mgrs Office	TITUS	DESV	6	300	75	145	180	55	90.1	6.8	2.0	2	208	1	A-F
VAV 6-1	RTU-6	Exam 1	TITUS	DESV	5	185	60	110	N/A	55	98.1	5.1	1.5	1	208	1	A-F
VAV 6-2	RTU-6	Exam 2	TITUS	DESV	5	185	60	110	N/A	55	98.1	5.1	1.5	1	208	1	A-F
VAV 6-3	RTU-6	Clinic reception / Lab and Hall / RR	TITUS	DESV	8	575	115	190	N/A	55	96.6	8.5	2.5	2	208	1	A-F
VAV 6-4	RTU-6	Pharmacy	TITUS	DESV	9	700	420	420	N/A	55	92.6	17.1	5.0	2	208	1	A-F
VAV 6-5	RTU-6	Dietician	TITUS	DESV	4	155	55	110	N/A	55	98.1	5.1	1.5	1	208	1	A-F

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

NOTES:
A. CONTROLS SHALL BE FIELD MOUNTED BY ATC.
B. RADIATED AND DISCHARGE NOISE LEVELS SHALL NOT EXCEED AN NC OF 35 AT A PRESSURE DROP OF 1.0" W.C. PER ARI STANDARD 880.
C. TOTAL TERMINAL UNIT AIR PRESSURE DROP SHALL NOT EXCEED 0.5" W.C. AT PEAK COOLING AIRFLOW.
D. INSTALL FLEXIBLE DUCT CONNECTOR AT INLET CONNECTION.
E. PROVIDED FACTORY INSTALLED CONTROL POWER (CP) TRANSFORMER.COORDINATE PRIMARY POWER WITH ELECTRICAL DRAWINGS.
F. INLET SIZE SHOWN IS THE MINIMUM ALLOWABLE INLET SIZE. NO SMALLER SIZES SHALL BE ACCEPTED.

CELLAR SYSTEM SCHEDULE

MARK	SERVICE DESCRIPTION	MANUFACTURER	MODEL	CONFIGURATION	NOMINAL CAPACITY (MBH)	INDOOR UNIT AIRFLOW (CFM)	INDOOR UNIT TSP (IN W.C.)	ELECTRICAL MCA	ELECTRICAL VOLTS	ELECTRICAL PH	ELECTRICAL DISCONNECT BY	NOTES
CS-1	WINE CELLAR	US CELLAR SYSTEMS	HS-87	HORIZONTAL	12	810	1.00	2.1	120	1	E.C.	A-D

NOTES:

A. UNIT WILL BE FURNISHED BY OWNER AND INSTALLED BY REFRIGERATION CONTRACTOR. SHEET METAL PROVIDED BY M.C. AND CONTROLS BY T.C.
B. UNIT WILL BE FURNISHED WITH 10" ROUND DUCT COLLARS ON THE INLET AND OUTLET OF UNIT.
C. UNIT WILL BE FURNISHED WITH AUTOMATIC EXPANSION VALVE.
D. REFRIGERATION CONTRACTOR TO PROVIDE R-448A REFRIGERANT FOR CS-1 CAPACITY.

FAN SCHEDULE (EXISTING TO REMAIN)

MARK	SERVICE DESCRIPTION	MANUFACTURER	MOUNTING	MODEL	TYPE	CFM	ESP (IN)	NOM HP	FAN RPM	DRIVE (BELT/DIRECT)	ELECTRICAL V/PH	NOTES
EF-1	CLINIC RESTROOMS	COOK	ROOF	100ACEH	DOWNBLAST	200	-	0.125	1550	ETR	115/1	A, B
EF-5	SEAFOOD	COOK	ROOF	135VCR	UPBLAST	450	0.6	0.333	1725	ETR	115/1	A
EF-21	DINING RESTROOMS	COOK	ROOF	70ACE70C2B	DOWNBLAST	200	0.4	0.167	1725	ETR	115/1	A

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

NOTES:

A. SCHEDULED EQUIPMENT IS EXISTING TO REMAIN AND SHOWN FOR REFERENCE ONLY.
B. SET FAN TO CFM AT LOWEST STABLE CONDITION.

ROOFTOP UNIT SCHEDULE (EXISTING TO REMAIN)

MARK	MANUFACTURER	MODEL	SERVICE	NOMINAL TONS	SUPPLY FAN CFM	COOLING COIL TC (MBH)	COOLING COIL REFR TYPE	HEAT EXCHANGER MIN OUT (MBH)	HEAT EXCHANGER NOM INPUT (MBH)	MIN O/A CFM	ELECTRICAL V/PH	ELECTRICAL MCA	ELECTRICAL MOCP	NOTES
RTU-3	LENNOX	LGH102	DINING	8.5	3,400	ETR	R-410	ETR	180	0	208/3	ETR	ETR	A-D
RTU-4	YORK	ZR120	EXIT VESTIBULE	10	3,500	ETR	R-410	ETR	240	0	208/3	ETR	ETR	A-D
RTU-5	YORK	ZR120	ENTRY VESTIBULE	10	3,500	ETR	R-410	ETR	240	0	208/3	ETR	ETR	A-D
RTU-7	LENNOX	LGA090	DAIRY	7.5	2,640	ETR	R-410	ETR	235	0	208/3	ETR	ETR	A-D
RTU-8	LENNOX	KGA092	FROZEN	7.5	2,400	ETR	R-410	ETR	180	0	208/3	ETR	ETR	A-D

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

NOTES:

A. REFER TO ROOFTOP UNIT CONTROL MATRIX FOR CONTROL FEATURES, MODULES, AND ACCESSORIES THAT SHALL BE PROVIDED WITH THE EQUIPMENT.
B. PROVIDE NEW FILTERS FOR EXISTING AIR HANDLING EQUIPMENT PRIOR TO STARTUP OF EQUIPMENT. NEW FILTERS SHALL BE COMPATIBLE WITH THE EXISTING EQUIPMENT AND EQUAL IN PERFORMANCE TO THE EXISTING FILTERS AT NEW CONDITION UNLESS OTHERWISE NOTED.
C. CONTRACTOR SHALL FIELD VERIFY THAT THE EXISTING UNIT INCLUDING ITS ACCESSORIES BEING RESUSED IS NOT DAMAGED AND IS IN GOOD WORKING ORDER. REPORT ANY DEFICIENCIES TO THE OWNER OR ARCHITECT. CONTRACTOR SHALL SUBMIT TO THE OWNER AND ARCHITECT A WRITTEN REPORT DESCRIBING TESTS PERFORMED TO VERIFY OPERATION AND RESULTS OF THE TESTS.
D. CONTRACTOR SHALL VERIFY EXISTENCE OF SMOKE DETECTORS IN RETURN AIR DUCT. REPAIR OR REPLACE SMOKE DETECTORS IF NOT FUNCTIONAL SUCH THAT UNIT SHUTS DOWN UPON DETECTION OF SMOKE.

UNIT HEATER SCHEDULE (NATURAL GAS)

MARK	MANUFACTURER	MODEL	SERVICE	CFM	HEATING INPUT (MBH)	HEATING OUTPUT (MBH)	HEATING MIN EFF (%)	HEATING GAS PRESSURE (IN W.C.)	ELECTRICAL VOLTS	ELECTRICAL PHASE	ELECTRICAL DISCONNECT BY	ELECTRICAL STARTER BY	NOTES
UH-4	MODINE	PDP-175	ELECTRICAL ROOM	2550	175	143.5	82	7-14"	115	1	MFR	N/A	A-C

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

NOTES:

A. DDC THERMOSTAT PROVIDED BY ATC.
B. INSTALL THERMOSTAT IN AN ACCESSIBLE LOCATION.
C. PROVIDE NECESSARY MOUNTING AND ACCESSORIES AND INSTALL PER MANUFACTURER REQUIREMENTS.

BUILDING AIR BALANCE SCHEDULE

EXHAUST:	SERVES			EXHAUST (CFM)	TOTALS (CFM)
KEF-1A	H-1	MAIN COOKLINE		2625	
KEF-1B	H-1	MAIN COOKLINE		1835	
KEF-2	H-2	BBQ		3025	
KEF-3	H-3	WOK		2850	
KEF-4	H-4	PIZZA		1050	
KEF-5	H-5	BAKERY DECK OVEN*		600	
KEF-6 (ETR)	H-6	DONUT FRYER*		675	
KEF-7 (ETR)	H-7	DISHWASHER		1050	
KEF-8	H-8	ROTISSERIE		1788	
KEF-9 (ETR)		BAKERY RACK OVEN		900	
EF-1 (ETR)		CLINIC RESTROOMS		200	
EF-5 (ETR)		SEAFOOD DEPARTMENT		450	
EF-12		REAR RESTROOMS		1125	
EF-21 (ETR)		DINING RESTROOMS		200	
TOTAL EXHAUST					17,098

MAKEUP AIR:	SUPPLY AIR (CFM)	SERVES	DESIGN OA (CFM)	PERCENT OA/SA	TOTALS (CFM)
MAU-1	4080	MAIN COOKLINE	4080	100%	
MAU-2	2269	WOK/BBQ	2269	100%	
RTU-1	17000	SALES SOUTH	6000	35%	
RTU-2	17000	SALES NORTH	6000	35%	
RTU-3 (ETR)	4000	DINING	0	0%	
RTU-4 (ETR)	3,500	EXIT VESTIBULE	0	0%	
RTU-5 (ETR)	3,500	ENTRY VESTIBULE	0	0%	
RTU-6	1,800	PHARMACY	250	14%	
RTU-7 (ETR)	2,640	DAIRY	0	0%	
RTU-8 (ETR)	2,400	FROZEN	0	0%	
RTU-9	3,200	KITCHEN	0	0%	
RTU-10	1,950	OFFICES	200	10%	
RTU-11	3,000	AOL / CS	125	4%	
RTU-12	3,200	WINE & SPIRIT	0	0%	
TOTAL OUTSIDE AIR		18,924			18,924
			TOTAL POSITIVE AIR FLOW		1,826
			PERCENT POSITIVE AIR FLOW		10%

* = DIVERSITY OF EQUIPMENT DURING OCCUPIED HOURS. EQUIPMENT WILL NOT BE ON AT THE SAME TIME AS KITCHEN.

REVISION	DATE BY

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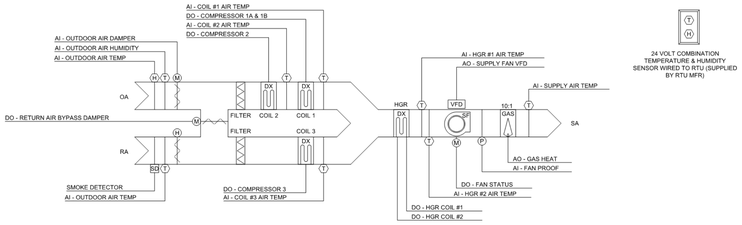
EXPIRES 12/31/2020

PROFESSIONAL SEAL

STATE OF MISSOUR

SYMBOLS LIST	
SYMBOL NAME	**SYMBOL**
PIPE BREAK	
CONTROL VALVE (TWO-WAY)	
CONTROL VALVE (THREE-WAY)	
PRESSURE SWITCH	P
PUMP	
TEMPERATURE SENSOR	T
LEVEL SENSOR	LC
DRY CONTACTS	DC
CURRENT TRANSDUCER	CT
ANALOG OUTPUT	AO
BINARY OUTPUT	BO
ANALOG INPUT	AI
BINARY INPUT	BI
DDC SENSOR	X
AIRFLOW STATION	AS
VARIABLE FREQUENCY DRIVE	VFD
MOTOR	M
AUTOMATED TEMPERATURE CONTROL	ATC
ELECTRICAL CONTRACTOR	EC
MECHANICAL CONTRACTOR	MC
REFRIGERATION CONTRACTOR	RC



1 DUAL PATH ROOFTOP UNIT CONTROLS (RTU-1 & 2)

N.T.S.

RUN CONDITIONS - SCHEDULED
- THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE (ADJ.).

ALARMS:
THE UNITS CONTROLLER SHALL PROVIDE THE BAS WITH THE FOLLOWING ALARMS AS DIGITAL OUTPUTS:
- SUPPLY FAN FAULT ALARM. IF THE SUPPLY FAN COMMAND DOES NOT MATCH STATUS OF AIR FLOW PROOF SWITCH INPUT.
- COMPRESSOR FAULT ALARM. IF ANY COMPRESSOR COMMAND DOES NOT MATCH ITS CURRENT STATUS SWITCH.
- SMOKE DETECTOR ALARM.
- DRAIN PAN OVERFLOW ALARM.

SUPPLY FAN:
THE SUPPLY FAN SHALL OPERATE CONTINUOUSLY AT 100% OF DESIGN AIRFLOW DURING SCHEDULED OCCUPIED PERIODS. THE SUPPLY FAN SHALL OPERATE AT 50% (ADJ.) DURING UNOCCUPIED TIMES WHILE THERE IS NO CALL FOR COOLING, HEATING, OR DEHUMIDIFICATION.

ZONE SETPOINT ADJUST:
ZONE COOLING SETPOINT: THE OCCUPANT SHALL ADJUST THE ZONE TEMPERATURE COOLING SETPOINT IN THE SPACE ±2 DEGREES (ADJ.) ON A THERMOSTAT PROVIDED BY THE RTU MANUFACTURER. THE ZONE COOLING SETPOINT SHALL BE DISCOVERABLE AND ADJUSTABLE FROM THE BAS. UPON LOSS OF COMMUNICATION, THE UNIT SHALL REVERT TO THE LAST ZONE COOLING SETPOINT BEFORE COMMUNICATION WAS LOST.

ZONE HEATING SETPOINT: THE UNIT'S CONTROLLER SHALL USE A 2 DEGREE (ADJ.) OFFSET TO DETERMINE THE ZONE HEATING SETPOINT. THE OFFSET SHALL BE DISCOVERABLE AND ADJUSTABLE BY THE BAS.

ZONE DEWPOINT SETPOINT: THE DEW POINT SETPOINT SHALL BE 50 DEGREES (ADJ.) AND DISCOVERABLE AND ADJUSTABLE BY THE BAS.

TEMPERATURE CONTROL (DRY BULB CONTROL):
HEATING MODE:
UPON A CALL FOR HEATING, THE UNIT'S CONTROLLER SHALL MODULATE THE FURNACE TO HOLD A 95 DEGREE (ADJ.) SUPPLY AIR TEMPERATURE WHILE ENERGIZED ON.

THE HEATING SHALL BE ENABLED WHENEVER:
- THE ZONE TEMPERATURE IS BELOW THE ZONE TEMPERATURE HEATING SET POINT.
- THE SUPPLY FAN STATUS IS ON
- THE UNIT IS NOT IN DEHUMIDIFICATION MODE

COOLING MODE:
UPON A CALL FOR COOLING, THE UNIT'S CONTROLLER SHALL STAGE COOLING CIRCUITS 1 & 2 IN FIVE MINUTE INTERVALS TO MAINTAIN A COIL LEAVING TEMPERATURE OF 48 DEGREES. IF THE SPACE COOLING DEMAND CAN NOT BE MET AFTER A TIME DELAY OF 5 MINUTES (ADJ.), THE CONTROLLER SHALL STAGE ON COOLING CIRCUIT 3 TO MEET ZONE SET POINT.

THE COOLING SHALL BE ENABLED WHENEVER:
- THE ZONE TEMPERATURE IS ABOVE THE ZONE TEMPERATURE COOLING SETPOINT
- THE SUPPLY FAN STATUS IS ON
- THE UNIT IS NOT IN DEHUMIDIFICATION MODE
- THE OUTDOOR AIR DAMPER STATUS IS GREATER THAN 20% OR THE NIGHT SET BACK DAMPER (RETURN AIR BYPASS DAMPER STATUS) IS GREATER THAN 90%

HUMIDITY CONTROL:
THE BAS SHALL MAKE THE ZONE DEW POINT SETPOINT AVAILABLE TO THE UNIT'S CONTROLLER. THE UNIT'S CONTROLLER SHALL ENABLE DEHUMIDIFICATION MODE WHEN EITHER OF THE FOLLOWING IS TRUE:
1. ZONE DEWPOINT EXCEEDS ZONE DEWPOINT SETPOINT AND THE OUTDOOR AIR DAMPER POSITION EXCEEDS 20% OR THE NIGHT SET BACK DAMPER POSITION EXCEEDS 90%.
2. OUTDOOR AIR DEWPOINT EXCEEDS 51 DEGREES (ADJ.) DEWPOINT AND THE UNIT'S OUTDOOR AIR DAMPER POSITION EXCEEDS 20%.

DEHUMIDIFICATION MODE #1:
IF ZONE DEWPOINT EXCEEDS ZONE DEWPOINT SETPOINT. ALL THREE COOLING STAGES SHALL BE AVAILABLE TO OPERATE. COOLING CIRCUITS 1 & 2 SHALL STAGE ON TO MAINTAIN A LEAVING COIL TEMPERATURE OF 48 DEGREES. IF THE ZONE HUMIDITY SET POINT IS NOT MET AFTER 5 MINUTES (ADJ.), COOLING CIRCUIT 3 SHALL STAGE ON.

DEHUMIDIFICATION MODE #2:
IF ZONE DEWPOINT IS LESS THAN ZONE DEWPOINT SETPOINT AND THE OUTDOOR AIR DEWPOINT EXCEEDS 51 DEGREES (ADJ.) DEWPOINT, THEN ONLY COOLING CIRCUITS 1 AND 2 WILL BE AVAILABLE TO OPERATE. COOLING CIRCUITS 1 & 2 SHALL STAGE ON TO MAINTAIN A LEAVING COIL TEMPERATURE OF 48 DEGREES. COOLING CIRCUIT 3 SHALL REMAIN DISABLED.

REHEAT MODE:
THE HOT GAS REHEAT COILS SHALL BE AVAILABLE TO OPERATE DURING BOTH DEHUMIDIFICATION MODES TO PREVENT OVER-COOLING OF THE SPACE. IF THE ZONE TEMPERATURE IS 2 DEGREES (ADJ.) BELOW THE ZONE TEMPERATURE COOLING SETPOINT, THE HOT GAS REHEAT COILS SHALL BE ACTIVATED. IF THE ZONE TEMPERATURE IS 3 DEGREES (ADJ.) BELOW THE ZONE TEMPERATURE COOLING SETPOINT, THE AUXILIARY HEATER SHALL ENERGIZE ON AND MODULATE TO ACHIEVE A SUPPLY AIR TEMPERATURE SET POINT OF 75 DEGREES (ADJ.) REHEAT SHALL BE DISABLED ONCE ZONE TEMPERATURE IS 1 DEGREE (ADJ.) BELOW ZONE COOLING SETPOINT.

DUCT MOUNTED RETURN AIR SMOKE DETECTORS:
THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A RETURN DUCT SMOKE DETECTOR ALARM STATUS.

DRAIN PAN OVERFLOW SENSOR:
THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A DRAIN PAN OVERFLOW STATUS. WHEN ALARM CLEARS AND 10 MINUTES LAPSE, THE UNIT SHALL RESUME OPERATION.

OUTDOOR AIR DAMPER CONTROLS:
OCCUPIED MODE:
THE BAS SHALL PROVIDE THE UNIT'S CONTROLLER WITH A DAMPER POSITION AND THE UNIT'S CONTROLLER SHALL CLOSE THE RETURN AIR BYPASS DAMPER. THE UNIT'S CONTROLLER SHALL HAVE A MINIMUM DAMPER POSITION LOCKOUT.
UNOCCUPIED MODE:
THE UNIT SHALL CLOSE THE OUTDOOR AIR DAMPER AND OPEN THE RETURN AIR BYPASS DAMPER.

HOFFMAN CONTROLS CONDENSER FAN CONTROL STRATEGY:
- CONDENSER FAN #1 WILL COME ON IF REFRIGERANT LIQUID TEMPERATURE OF COMPRESSOR #1A/B, #2A/2B, OR #3 IS GREATER THAN 60°
- CONDENSER FAN #1 WILL COME ON IF REFRIGERANT LIQUID TEMPERATURE OF COMPRESSOR #1A/B, #2A/2B, OR #3 IS GREATER THAN 71°
- CONDENSER FAN #1 WILL COME ON IF REFRIGERANT LIQUID TEMPERATURE OF COMPRESSOR #1A/B, #2A/2B, OR #3 IS GREATER THAN 82°
- CONDENSER FAN #1 WILL COME ON IF REFRIGERANT LIQUID TEMPERATURE OF COMPRESSOR #1A/B, #2A/2B, OR #3 IS GREATER THAN 86°
- CONDENSER FAN #1 WILL COME ON IF REFRIGERANT LIQUID TEMPERATURE OF COMPRESSOR #1A/B, #2A/2B, OR #3 IS GREATER THAN 90°
- CONDENSER FAN #1 WILL COME ON IF REFRIGERANT LIQUID TEMPERATURE OF COMPRESSOR #1A/B, #2A/2B, OR #3 IS GREATER THAN 94°

POINTS LIST:
THE FOLLOWING POINTS SHALL BE PROVIDED TO THE UNIT'S CONTROLLER BY THE BAS:
- ZONE DEWPOINT SETPOINT
- ZONE TEMPERATURE COOLING SETPOINT
- OUTDOOR AIR DAMPER POSITION
- OCCUPANCY STATUS

THE FOLLOWING POINTS SHALL BE MADE AVAILABLE TO THE BAS BY THE UNIT'S CONTROLLER:

INPUTS TO UNIT'S CONTROLLER:
- STORE SPACE TEMPERATURE
- STORE TEMPERATURE OFFSET VALUE FROM STORE SENSOR
- STORE HEATING SETPOINT
- OUTDOOR AIR HUMIDITY
- OUTDOOR AIR TEMPERATURE
- RETURN AIR TEMPERATURE
- COIL 1 LEAVING AIR TEMPERATURE
- COIL 2 LEAVING AIR TEMPERATURE
- COIL 3 LEAVING AIR TEMPERATURE
- HGR 1 LEAVING AIR TEMPERATURE
- HGR 2 LEAVING AIR TEMPERATURE
- SUPPLY LEAVING AIR TEMPERATURE
- SUPPLY FAN STATUS
- SUPPLY AIR PROOF STATUS
- GAS FURNACE STATUS
- COMPRESSOR 1A RUN PROOF
- COMPRESSOR 1B RUN PROOF
- COMPRESSOR 2A RUN PROOF
- COMPRESSOR 2B RUN PROOF
- COMPRESSOR 3 RUN PROOF
- RETURN AIR SMOKE DETECTOR INPUT
- OUTDOOR AIR DAMPER POSITION FEEDBACK (0-100%)
- NIGHT SET BACK DAMPER (RETURN AIR BYPASS DAMPER) POSITION FEEDBACK (0-100%)
- DRAIN PAN FLOAT SWITCH STATUS

DIGITAL OUTPUTS FROM UNIT'S CONTROLLER
- SUPPLY FAN ON/OFF
- COMPRESSOR 1A ON/OFF
- COMPRESSOR 1B ON/OFF
- COMPRESSOR 2A ON/OFF
- COMPRESSOR 2B ON/OFF
- COMPRESSOR 3 ON/OFF
- HOT GAS REHEAT COIL/VALVE #1 ON/OFF
- HOT GAS REHEAT COIL/VALVE #2 ON/OFF
- AUXILIARY FURNACE ENABLE ON/OFF
- NIGHT SET BACK (RETURN AIR BYPASS) DAMPER ON/OFF

ANALOG OUTPUTS FROM UNIT'S CONTROLLER:
- DIGITAL COMPRESSOR 1A PERCENTAGE
- MODULATING FURNACE PERCENTAGE
- OUTDOOR AIR DAMPER POSITION PERCENTAGE
- SUPPLY FAN VFD PERCENTAGE

GRAPHICS:
THE BAS GRAPHICS SHALL DISPLAY VALUES OR STATUS OF POINTS LISTED IN THE PREVIOUS SECTION.

SAFETIES:
FREEZESTAT (BY JOHNSON CONTROLS A421)
COOLING IS DISABLED IF THE COIL LAT DROPS BELOW 36 DEGREES (ADJ.). COOLING WILL REACTIVATE ONCE THE FREEZESTAT DOWNSTREAM OF THE EVAPORATOR COIL IS SATISFIED BY A 10 DEGREE TEMPERATURE RISE COIL LEAVING CONDITION. THERE SHALL BE A FIVE MINUTE ANTI SHORT CYCLE TIME DELAY INITIATED UPON COMPRESSOR SHUT DOWN. FREEZESTAT SHALL ONLY BE INITIATED DURING A CALL FOR COOLING.
- SHUT DOWN COMPRESSOR #1A/1B IF COOLING COIL #1 LAT DROPS BELOW 36 DEGREES.
- SHUT DOWN COMPRESSOR #2A/2B IF COOLING COIL #2 LAT DROPS BELOW 36 DEGREES.
- SHUT DOWN COMPRESSOR #3 IF COOLING COIL #3 LAT DROPS BELOW 36 DEGREES.

MECHANICAL SEQUENCES HARDWIRED AT FACTORY:
- EACH COMPRESSOR SHALL BE WIRED TO OPERATE WITH A PUMPDOWN CYCLE. EACH COOLING CIRCUIT SHALL HAVE A LIQUID LINE SOLENOID VALVE THAT IS ENERGIZED TO OPEN ON A CALL FOR COMPRESSOR OPERATION.
- EACH HGR CIRCUIT SHALL HAVE 3 VALVES. ONE VALVE OPENS TO DIVERT HOT DISCHARGE REFRIGERANT INTO THE HOT GAS REHEAT COIL. THE SECOND VALVE CLOSES TO DIVERT REFRIGERANT FROM HALF OF THE CONDENSER COIL, AND THE THIRD VALVE OPENS TO ALLOW REFRIGERANT TO BLEED FROM THE DEAD CONDENSER COIL DURING HOT GAS REHEAT MODE.

MECHANICAL / HARDWIRED SAFETIES:
- PHASE MONITOR - AUTO RESET
- COMPRESSOR HIGH PRESSURE SWITCHES - MANUAL RESET
- COMPRESSOR LOW PRESSURE SWITCHES - AUTO RESET
- COPELAND MOTOR PROTECTOR - AUTO RESET
- BLOWER MOTOR OVERLOAD - MANUAL RESET
- RETURN AIR SMOKE DETECTOR - MANUAL RESET
- ANTI SHORT CYCLE COMPRESSOR TIME DELAYS (5 MINUTES) - AUTO RESET
- FURNACE HIGH LIMIT - "SOFT RESET" AUTOSET - "HARD RESET REQUIRES POWER ON/OFF CYCLE
- TANDEM COMPRESSORS HARD WIRED SUCH THAT LAG (E.G. 1B) COMPRESSOR WILL NOT ENERGIZE ON IF THE LEAD (E.G. 1A) COMPRESSOR IS ENERGIZED OFF

SPECIAL INFORMATION:
- COMPRESSORS LOCKOUT AT 45 DEGREE AMBIENT CONDITIONS
- TANDEM COMPRESSOR SETS WITH DIGITAL SCROLLS ARE SUBJECT TO A CONTROL STRATEGY THAT LIMITS THE DIGITAL COMPRESSOR'S MINIMUM CAPACITY TO 30% IF BOTH COMPRESSORS ARE OPERATING AND 67% IF ONLY ONE DIGITAL COMPRESSOR IS OPERATION.
- ALL SETPOINTS, DEAD BANDS, AND TIME DELAYS ARE ADJUSTABLE FOR OPTIMIZING UNIT PERFORMANCE ONCE EQUIPMENT IS INSTALLED. VALUES LISTED HEREIN ARE FACTORY SETTINGS.

HVAC Alarms		
Item	**Alarm**	**Alarm Recipients**
Sales Floor	High Humidity	Store Director, HyVee Maintenance, 3rd party service provider
Market Grille	High Humidity	Store Director, HyVee Maintenance, 3rd party service provider
Market Grille	High Temperature	Store Director, HyVee Maintenance, 3rd party service provider
Main Comm. Room	High Temperature	Store Director, HyVee Maintenance, 3rd party service provider
Entry Vestibule	Low Temperature	Store Director, HyVee Maintenance, 3rd party service provider
Seasons 4	Equipment Failure	Store Director, HyVee Maintenance, 3rd party service provider

Notes: Confirm alarm recipients with owner prior to programming. Parties listed are recommendations.

Allowable Temperature Ranges						
Location	**Cooling**		**Heating**		**Unoccupied**	
	Low Temp	**High Temp**	**Low Temp**	**High Temp**	**Cooling**	**Heating**
Sales Floor	70	75	67	72	-	-
Wine and Spirits	70	75	67	72	-	-
Market Grille	70	75	67	72	75	60
Offices	70	76	66	74	75	60
Backroom	60	85	50	60	-	-
Kitchen / Prep Areas	72	78	65	72	80	60
Vestibules	75	85	55	65	-	-
Pharmacy	70	78	66	74	75	60
Clinic	70	78	66	74	75	60

Matrix of Responsibility		
Item	Provided by	Installed by
Sensors referenced in the controls documents	ATC	ATC
Pressure and temperature wells	MC	MC
Control valves	ATC	MC
Control dampers	MC	MC
Damper and valve actuators	ATC	ATC
Refrigerant leak detection system	ATC	RC
Temperature control wiring and conduit	EC	EC
BACNET Interface from packaged equipment controllers to DDC	MFR	MFR or MC
Variable Speed Drives	ATC	EC
Tstats for standalone equipment	MC	EC
Tstats for DDC controlled equipment	ATC	ATC

BUILDING AUTOMATION SYSTEM (BAS):
- BUILDING HVAC AND REFRIGERATION CONTROLS ARE TO BE PROVIDED AND INSTALLED BY HUSSMANN.
- THE E.C. SHALL PROVIDE ONE 20 AMP CIRCUIT TO HVAC PANEL (PANEL PROVIDED BY CONTROLS CONTRACTOR).
- M.C. TO VERIFY CONTROL PROTOCOL WITH HUSSMANN PRIOR TO ORDERING ANY EQUIPMENT.
- THE HVAC SYSTEM SHALL BE PROGRAMMED TO UTILIZE OCCUPIED AND UNOCCUPIED SCHEDULES. VERIFY STORE SCHEDULING REQUIREMENTS WITH OWNER. IF STORE IS TO BE OPEN FULL TIME, SYSTEM SHALL STILL BE PROGRAMMED WITH THE SCHEDULING FEATURE FOR EASE OF FUTURE IMPLEMENTATION.
- SMOKE DETECTORS SHALL BE PROVIDED AND INSTALLED BY M.C. WIRING AND SYSTEM INTEGRATION WILL BE PROVIDED AND INSTALLED BY A+ COMMUNICATIONS & SECURITY. COORDINATE SMOKE DETECTOR AND CONTROLLER TYPE AND QUANTITY WITH A+ PRIOR TO ORDERING. REFER TO DRAWING E4.1A.

2 GENERAL CONTROLS REQUIREMENTS

N.T.S.

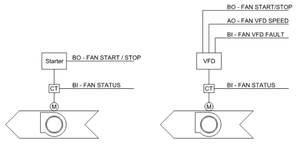
4 ZONE TEMP CONDITIONS

N.T.S.

CONTROL SEQUENCE:

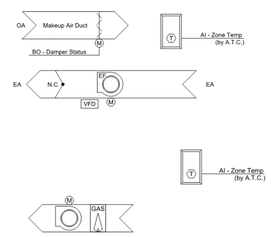
ROOM AIR CONDITIONS:

THE CONTROLLER SHALL MONITOR THE ROOM AIR TEMPERATURE. THE CONTROLLER SHALL MONITOR ROOM AIR HUMIDITY IF THE UNIT HAS DEHUMIDIFICATION CAPABILITIES. THESE VALUES SHALL BE MADE AVAILABLE TO THE SYSTEM AT ALL TIMES.



6 TYPICAL FAN CONTROL REQUIREMENTS

N.T.S.



8 UNIT HEATER CONTROL DIAGRAM (UH-1)

N.T.S.

CONTROL SEQUENCE:

RUN CONDITIONS:

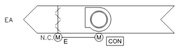
UNIT HEATER SHALL BE ENABLED WHEN OUTSIDE AIR TEMPERATURE IS BELOW 60°F (ADJ). UNIT SHALL RUN TO MAINTAIN SPACE SET POINT. SPACE TEMPERATURE SHALL BE MADE AVAILABLE TO THE SYSTEM AT ALL TIMES. REFER TO TABLE FOR ALLOWABLE USER SET POINT RANGE.

EQUIPMENT REQUIREMENTS

DRAWING SYMBOL

3 TYPICAL DAMPER DETAILS

N.T.S.



5 EXHAUST FAN - SCHEDULED ON/OFF CONTROL DIAGRAM (EF-5, 12, 21, TF-1)

N.T.S.

CONTROL SEQUENCE:

RUN CONDITIONS - SCHEDULED:

THE FAN SHALL RUN ACCORDING TO A USER DEFINABLE SCHEDULE.

FAN:

THE FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

EXHAUST AIR DAMPER:

THE EXHAUST AIR DAMPER SHALL BE PROVIDED WITH THE EXHAUST FAN AND OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE ANYTIME THE UNIT STOPS. THE EXHAUST AIR DAMPER END SWITCH S HALL SIGNAL EXHAUST FAN TO ENABLE/DISABLE.

7 EXHAUST FAN - SWITCH CONTROL (EF-1)

N.T.S.

CONTROL SEQUENCE:

RUN CONDITIONS - SCHEDULED:

THE FAN SHALL RUN BASED ON A WALL SWITCH. COORDINATE LOCATION OF SWITCH WITH ARCHITECT.

EXHAUST AIR DAMPER:

THE EXHAUST AIR DAMPER SHALL BE PROVIDED WITH THE EXHAUST FAN AND OPEN ANYTIME THE UNIT RUNS AND SHALL CLOSE ANYTIME THE UNIT STOPS. THE EXHAUST AIR DAMPER END SWITCH S HALL SIGNAL EXHAUST FAN TO ENABLE/DISABLE.

9 EXHAUST FAN - TEMPERATURE ON/OFF CONTROL DIAGRAM (TF-2)

N.T.S.

CONTROL SEQUENCE:

RUN CONDITIONS - SCHEDULED:

THE FAN SHALL RUN BASED ON A SPACE TEMPERATURE COOLING SETPOINT OF 80° F (ADJ.).

REVISION	DATE BY

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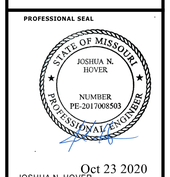

Oct 23 2020
JOSHUA N. HOVER
LICENSE # PE-2017008503

LOCATION
LEE'S SUMMIT, MO #2
310 SW WARD RD

HY-VEE INC.
5820 WESTOWN PARKWAY
WEST DES MOINES, IOWA 50266
TELEPHONE: (515) 267-2800
FAX: (515) 267-2930

hyvee® EMPLOYEE OWNED

NORTH PLAN NORTH

HVAC CONTROL DIAGRAMS

PROJECT MANAGER	CHECKED BY:
SL	Checker
DRAWN BY:	DATE:
Author	10/19/2020
SCALE:	JOB NUMBER:
AS NOTED	62930547

SHEET:

H5.1

JOSHUA N. HOVER

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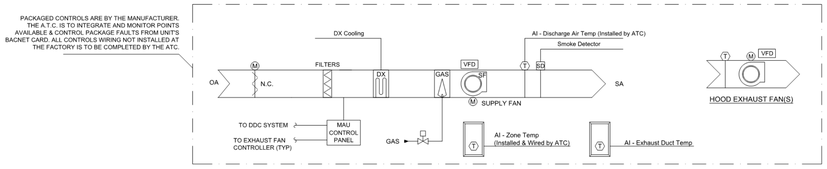


3 KITCHEN MAKEUP AIR UNIT CONTROLS

N.T.S.

CONTROL SEQUENCE - VARIABLE VOLUME UNITS
- M.C. TO PROVIDE UNIT WITH PACKAGED CONTROLS TO INTERFACE WITH A CENTRAL BUILDING AUTOMATION SYSTEM (BAS). COORDINATE PROTOCOL WITH ATC PRIOR TO ORDERING MAKEUP AIR UNIT. PACKAGED CONTROLS SHALL CONTROL MAKEUP AIR UNIT AND KITCHEN HOOD EXHAUST FANS ASSOCIATED WITH THE SYSTEM. POINTS LISTED ARE TO BE USED FOR MONITORING AND TROUBLESHOOTING.

RUN CONDITIONS:

THE UNIT SHALL RUN BASED UPON A TEMPERATURE DIFFERENTIAL CALCULATED BETWEEN THE SENSOR LOCATED AT THE KITCHEN CEILING AND THE SENSOR LOCATED IN THE NECK OF THE EXHAUST HOOD DUCTWORK. THE SYSTEM SHALL TURN ON IN PREP MODE AT A DIFFERENTIAL TEMPERATURE OF 7.5°F (ADJ.). THE SYSTEM SHALL TURN ON LOW SPEED AT A DIFFERENTIAL TEMPERATURE OF OF 15°F (ADJ.) AND MODULATE TO MAINTAIN SETTING. UPON FALLING BELOW THE DIFFERENTIAL, THE SYSTEM SHALL SHUT DOWN AUTOMATICALLY.

THE UNIT SHALL
- STAGE COOLING BASED ON OA TEMPERATURE
- MAINTAIN DISCHARGE AIR TEMPERATURE IN HEATING MODE.

OVERRIDE CONTROL:

A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE AUTOMATIC CONTROLS AND PLACE THE UNIT INTO OPERATION FOR 1 HOUR (ADJ.). AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL REVERT BACK TO THE AUTOMATIC MODE. THE SYSTEM SHALL AUTOMATICALLY SHUT DOWN IF THE SPACE DIFFERENTIAL TEMPERATURE FALLS BELOW THE SETPOINT.

SUPPLY FAN:

THE SUPPLY FAN SHALL MODULATE BASED ON THE CALCULATED DIFFERENTIAL TEMPERATURE. AS DIFFERENTIAL TEMPERATURE INCREASES, THE SUPPLY FAN SHALL MODULATE OR STAGE OFF BASED ON THE MANUFACTURER'S CONTROL SETTINGS.

EXHAUST FAN(S):

THE EXHAUST FAN(S) SHALL MODULATE IN UNISON WITH THE MAKEUP AIR UNIT. IF HOOD IS ENABLED VIA SWITCH, EXHAUST FAN SHALL GO INTO PREP-MODE AND EXHAUST ONLY TRANSFER AIR UNTIL HEAT IS GENERATED AT THE COOKING APPLIANCES.

SUPPLY AIR TEMPERATURE:

THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE VIA A SENSOR LOCATED IN THE PSP PLENUM.

COOLING STAGES:

THE CONTROLLER SHALL MEASURE THE OUTSIDE AIR TEMPERATURE AND STAGE COOLING TO MAINTAIN ITS COOLING SETPOINT.

THE COOLING SHALL BE ENABLED WHENEVER:
- STAGE 1 COOLING SHALL BE ENABLED WHEN OUTSIDE AIR TEMPERATURE IS 85°F (ADJ.).
- STAGE 2 COOLING (IF AVAILABLE) SHALL BE ENABLED WHEN OUTSIDE AIR TEMPERATURE IS 90°F (ADJ.).
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE HEATING IS NOT ACTIVE.

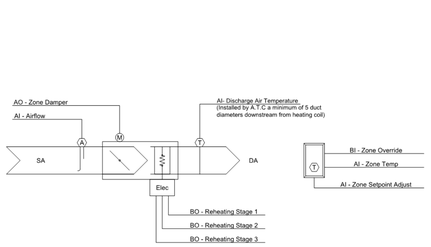
GAS HEATING:

THE CONTROLLER SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND MODULATE THE HEATING TO MAINTAIN ITS HEATING SETPOINT OF 55°F (ADJ.).

THE HEATING SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).
- AND THE SUPPLY FAN STATUS IS ON.

POINTS LIST:

THE FOLLOWING POINTS SHALL APPEAR IN THE CONTROL SYSTEM GRAPHICS FOR SYSTEMS EQUIPPED WITH DEMAND CONTROL VENTILATION:
- ROOM TEMPERATURE
- EXHAUST TEMPERATURE (EACH FAN, QUANTITY VARIES)
- MAU DISCHARGE AIR TEMPERATURE
- FAN SPEED
- FAN AMPERAGE
- FAN POWER
- FAN FAULTS
- FAN STATUS
- VFD FAULTS
- CONTROLLER FAULTS
- FILTER CLOG PERCENTAGES



6 TERMINAL AIR BOX CONTROL DIAGRAM

N.T.S.

CONTROL SEQUENCE:

RUN CONDITIONS - SCHEDULED:

THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE.

ZONE SETPOINT ADJUST:

THE OCCUPANT SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINTS AT THE ZONE SENSOR.

ZONE UNOCCUPIED OVERRIDE:

A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE PERIOD OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.

REVERSING VARIABLE VOLUME TERMINAL UNIT - FLOW CONTROL:

THE UNIT SHALL MAINTAIN ZONE SETPOINTS BY CONTROLLING THE AIRFLOW THROUGH ONE OF THE FOLLOWING:

OCCUPIED:
- WHEN ZONE TEMPERATURE IS GREATER THAN ITS COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM OCCUPIED AIRFLOW (ADJ.) AND THE MAXIMUM COOLING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.
- WHEN THE ZONE TEMPERATURE IS BETWEEN THE COOLING SETPOINT AND THE HEATING SETPOINT, THE ZONE DAMPER SHALL MAINTAIN THE MINIMUM REQUIRED ZONE VENTILATION (ADJ.).
- WHEN ZONE TEMPERATURE IS LESS THAN ITS HEATING SETPOINT, THE CONTROLLER SHALL ENABLE HEATING TO MAINTAIN THE ZONE TEMPERATURE AT ITS HEATING SETPOINT.

UNOCCUPIED:
- WHEN THE ZONE IS UNOCCUPIED THE ZONE DAMPER SHALL CONTROL TO ITS MINIMUM UNOCCUPIED AIRFLOW (ADJ.).
- WHEN THE ZONE TEMPERATURE IS GREATER THAN ITS UNOCCUPIED COOLING SETPOINT, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM UNOCCUPIED AIRFLOW (ADJ.) AND THE MAXIMUM COOLING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.
- WHEN ZONE TEMPERATURE IS LESS THAN ITS UNOCCUPIED HEATING SETPOINT, THE CONTROLLER SHALL ENABLE HEATING TO MAINTAIN THE ZONE TEMPERATURE AT THE SETPOINT. ADDITIONALLY, IF WARM AIR IS AVAILABLE FROM THE AHU, THE ZONE DAMPER SHALL MODULATE BETWEEN THE MINIMUM UNOCCUPIED AIRFLOW (ADJ.) AND THE AUXILIARY HEATING AIRFLOW (ADJ.) UNTIL THE ZONE IS SATISFIED.

REHEATING COIL:

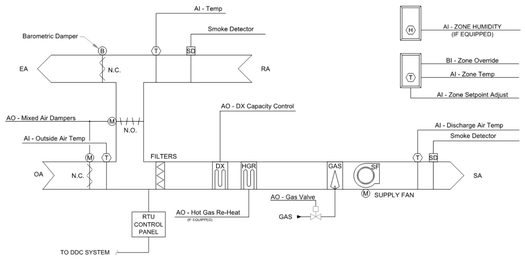
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND STAGE THE REHEATING COIL STAGES IF THE FAN IS RUNNING TO MAINTAIN ITS HEATING SETPOINT. VERIFY NUMBER OF REHEATING STAGES AVAILABLE WITH TERMINAL AIR BOX SCHEDULE.

DISCHARGE AIR TEMPERATURE:

THE CONTROLLER SHALL MONITOR THE DISCHARGE AIR TEMPERATURE.

REHEATING - HIGH DISCHARGE AIR TEMPERATURE LIMIT:

THE CONTROLLER SHALL MEASURE THE DISCHARGE AIR TEMPERATURE AND LIMIT REHEATING IF THE DISCHARGE AIR TEMPERATURE IS MORE THAN 15°F (ADJ.) ABOVE THE ZONE TEMPERATURE.



2 ROOFTOP UNIT CONTROLS (SINGLE ZONE)

N.T.S.

CONTROL SEQUENCE: CONSTANT VOLUME UNITS
- M.C. TO PROVIDE UNIT WITH PACKAGED CONTROLS TO INTERFACE WITH A CENTRAL BUILDING AUTOMATION SYSTEM (BAS). COORDINATE PROTOCOL WITH ATC PRIOR TO ORDERING ROOFTOP UNITS.
- ATC SHALL CONNECT TO INTERFACE PROVIDED WITH ROOFTOP UNIT.
- POINTS SHOWN ABOVE ARE RECOMMENDED POINTS AVAILABLE THROUGH PACKAGED CONTROLLER. IF POINTS ARE UNAVAILABLE THROUGH THE PACKAGED CONTROLLER, POINTS SHALL BE ADDED BY THE CONTROLS CONTRACTOR.

RUN CONDITIONS - SCHEDULED:

THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES:

OCCUPIED MODE:
- OUTSIDE AIR DAMPER SHALL OPEN TO MINIMUM POSITION
- UNIT SHALL MAINTAIN SET POINT BASED UPON TEMPERATURE MATRIX ON H5.0

UNOCCUPIED MODE (WHEN APPLICABLE):
- OUTSIDE AIR DAMPER SHALL SHUT
- UNIT SHALL MAINTAIN SET POINT BASED UPON TEMPERATURE MATRIX ON H5.0

RETURN AIR SMOKE DETECTION (BY M.C.):

THE UNIT SHALL SHUT DOWN UPON RECEIVING A RETURN AIR SMOKE DETECTOR STATUS.

ZONE UNOCCUPIED OVERRIDE:

A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE AMOUNT OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE. OVERRIDE CONTROL NOT REQUIRED ON SALES FLOOR UNITS.

SUPPLY FAN:

THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS IN OCCUPIED MODE, UNLESS SHUTDOWN ON SAFETIES.

SUPPLY AIR TEMPERATURE:

THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE.

COOLING STAGES:

THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND STAGE COOLING TO MAINTAIN ITS COOLING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

THE COOLING SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS GREATER THAN 60°F (ADJ.).
- AND THE ECONOMIZER IS DISABLED.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE HEATING IS NOT ACTIVE.
- AND THE ZONE TEMPERATURE IS ABOVE COOLING SETPOINT.

GAS HEATING:

THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND STAGE/MODULATE THE HEATING TO MAINTAIN ITS HEATING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

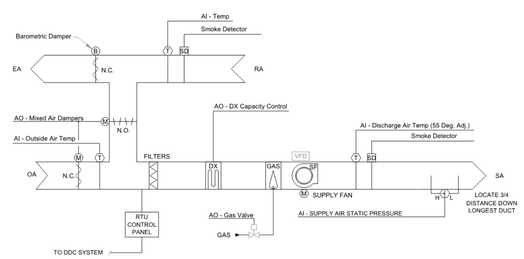
THE HEATING SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
- AND THE SPACE TEMPERATURE IS BELOW HEATING SETPOINT.
- AND THE SUPPLY FAN STATUS IS ON.

ECONOMIZER:

THE CONTROLS CONTRACTOR SHALL CONTACT THE ENGINEER TO CLARIFY WHICH UNITS WILL HAVE THE ECONOMIZER FUNCTION ENABLED. ALL UNITS ARE PROVIDED WITH ECONOMIZING FUNCTIONS, BUT SOME MUST BE DISABLED. THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE ECONOMIZER DAMPERS IN SEQUENCE TO MAINTAIN A SETPOINT 2°F (ADJ.) LESS THAN THE ZONE TEMPERATURE SETPOINT.

THE ECONOMIZER SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
- AND THE OUTSIDE AIR ENTHALPY IS LESS THAN THE RETURN AIR ENTHALPY.
- AND THE SUPPLY FAN STATUS IS ON.

THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN WHEN THE UNIT IS OFF.



1 ROOFTOP UNIT CONTROLS (VAV BY VFD)

N.T.S.

CONTROL SEQUENCE: VARIABLE VOLUME UNITS
- M.C. TO PROVIDE UNIT WITH PACKAGED CONTROLS TO INTERFACE WITH A CENTRAL BUILDING AUTOMATION SYSTEM (BAS). COORDINATE PROTOCOL WITH ATC PRIOR TO ORDERING ROOFTOP UNITS.
- ATC SHALL CONNECT TO INTERFACE PROVIDED WITH ROOFTOP UNIT. POINTS SHOWN ABOVE ARE RECOMMENDED POINTS AVAILABLE THROUGH PACKAGED CONTROLLER. IF POINTS ARE UNAVAILABLE THROUGH THE PACKAGED CONTROLLER, POINTS SHALL BE ADDED BY THE CONTROLS CONTRACTOR.

RUN CONDITIONS - SCHEDULED:

THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES:

OCCUPIED MODE:
- OUTSIDE AIR DAMPER SHALL OPEN TO MINIMUM POSITION
- UNIT SHALL MAINTAIN SET POINT BASED UPON TEMPERATURE MATRIX ON H5.0.

UNOCCUPIED MODE (WHEN APPLICABLE):
- OUTSIDE AIR DAMPER SHALL SHUT
- UNIT SHALL MAINTAIN SET POINT BASED UPON TEMPERATURE MATRIX ON H5.0

RETURN AIR SMOKE DETECTION (BY M.C.):

THE UNIT SHALL SHUT DOWN UPON RECEIVING A RETURN AIR SMOKE DETECTOR STATUS.

ZONE UNOCCUPIED OVERRIDE:

A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE AMOUNT OF TIME. AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.

SUPPLY FAN:

THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS IN OCCUPIED MODE, UNLESS SHUTDOWN ON SAFETIES.

SUPPLY AIR DUCT STATIC PRESSURE CONTROL:

THE CONTROLLER SHALL MEASURE DUCT STATIC PRESSURE AND MODULATE THE SUPPLY FAN VFD TO MAINTAIN A DUCT STATIC PRESSURE SETPOINT.
- THE INITIAL DUCT STATIC PRESSURE SETPOINT SHALL BE 1 IN H2O (ADJ.).
- AS COOLING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 1.75 IN H2O (ADJ.). THE CONTROL SYSTEM SHALL DETERMINE THE ZONE REQUIRING THE MOST STATIC PRESSURE AND OPEN THAT ZONE DAMPER TO APPROXIMATELY 90%. THE FAN SPEED SHALL ADJUST UNTIL THIS ZONE IS SATISFIED.
- AS COOLING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF .5 IN H2O (ADJ.).

SUPPLY AIR TEMPERATURE:

THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE.

COOLING STAGES:

THE CONTROLLER SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND STAGE COOLING TO MAINTAIN ITS COOLING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

THE COOLING SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS GREATER THAN 60°F (ADJ.).
- AND THE ECONOMIZER IS DISABLED.
- AND THE SUPPLY FAN STATUS IS ON,
- AND THE HEATING IS NOT ACTIVE.
- AND THE ZONE TEMPERATURE IS ABOVE COOLING SETPOINT.

GAS HEATING:

THE CONTROLLER SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND STAGE/MODULATE THE HEATING TO MAINTAIN ITS HEATING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

THE HEATING SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
- AND THE SUPPLY AIR TEMPERATURE IS BELOW HEATING SETPOINT.
- AND THE SUPPLY FAN STATUS IS ON.

ECONOMIZER:

THE CONTROLLER SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND MODULATE THE ECONOMIZER DAMPERS IN SEQUENCE TO MAINTAIN A SETPOINT 2°F (ADJ.) LESS THAN THE SUPPLY AIR TEMPERATURE SETPOINT.

THE ECONOMIZER SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
- AND THE OUTSIDE AIR ENTHALPY IS LESS THAN THE RETURN AIR ENTHALPY.
- AND THE SUPPLY FAN STATUS IS ON.

THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN WHEN THE UNIT IS OFF.

REVISION	DATE BY

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MO. CORPORATE NO: E-556D
EXPIRES 12/31/2020

PROFESSIONAL SEAL

Oct 23 2020
JOSHUA N. HOVER
LICENSE # PE-2017008503

LOCATION
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310 SW WARD RD

HY-VEE INC.
5820 WESTOWN PARKWAY
WEST DES MOINES, IOWA 50266
TELEPHONE: (515) 267-2800
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hyvee® EMPLOYEE OWNED

NORTH PLAN NORTH

HVAC CONTROL DIAGRAMS

PROJECT MANAGER	CHECKED BY:
SL	Checker
DRAWN BY:	DATE:
Author	10/19/2020
SCALE:	JOB NUMBER:
AS NOTED	62930547

SHEET:

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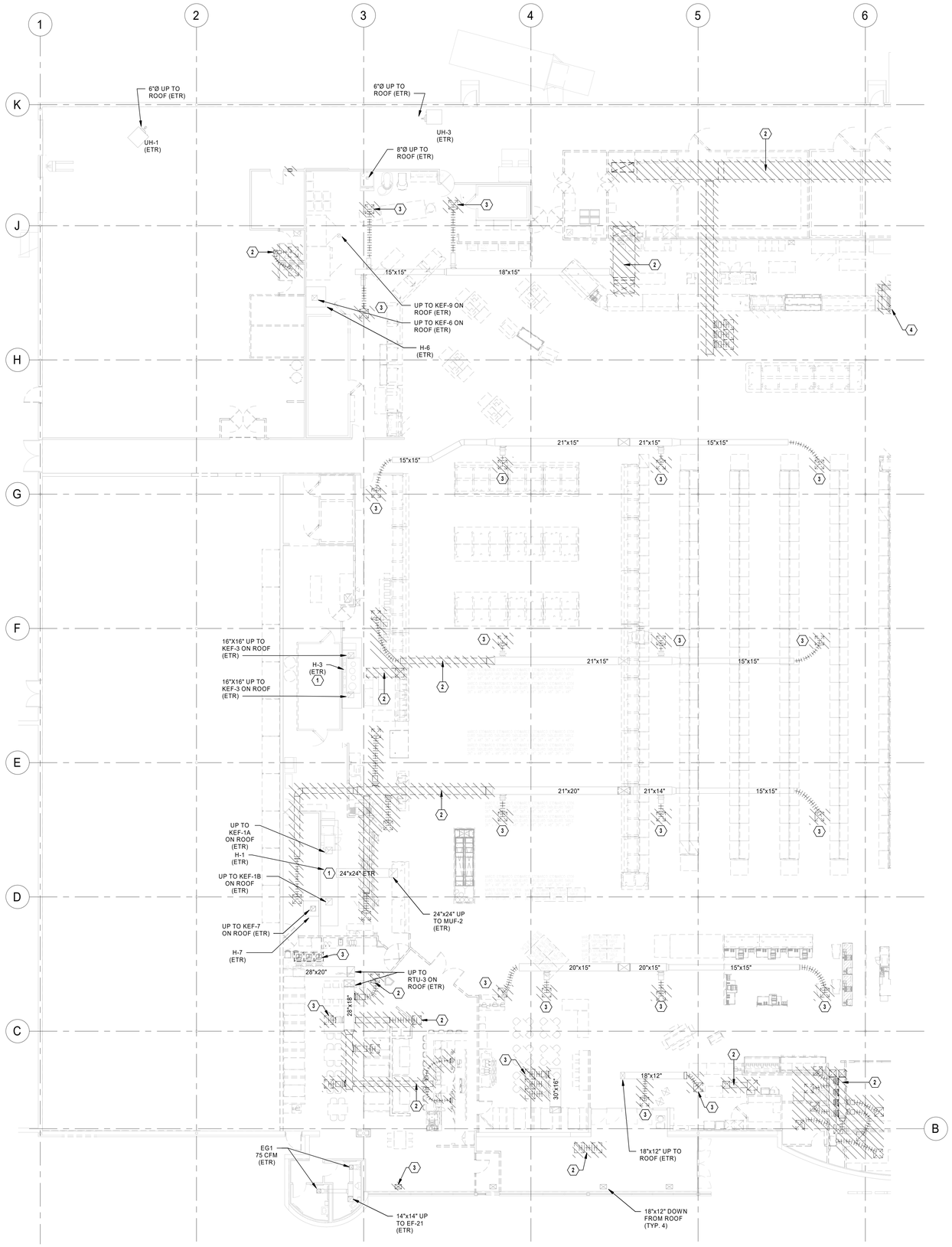

1 HVAC DEMO FLOOR PLAN - PART A
3/32" = 1'-0"

MECHANICAL PLAN NOTES

1. EXISTING HOOD TO REMAIN. COORDINATE EXISTING CONTROLS WITH CAPTIVE AIRE.
2. REMOVE EXISTING DUCTWORK AS SHOWN. PROVIDE WEATHER TIGHT INSULATED CAP OVER DUCT OPENINGS AS REQUIRED.
3. REMOVE EXISTING AIR DEVICE AS SHOWN. PROVIDE PERMANENT CAP OVER DUCT OPENINGS WHEN NOT BEING USED UNDER NEW WORK. PROVIDE TEMPORARY CAP WHEN DUCT OPENING IS BEING USED UNDER NEW WORK.
4. REMOVE EXISTING HOOD AND ALL ASSOCIATED DUCTWORK, ANSUL PULL STATIONS, AND ALL ASSOCIATED COMPONENTS.

REVISION	DATE BY

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STATE OF MISSOURI · JOSHUA N. HOVER · NUMBER PE-2017008503 · PROFESSIONAL ENGINEER

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HVAC DEMOLITION FLOOR PLAN - PART A

PROJECT MANAGER: SL	CHECKED BY: Checker
DRAWN BY: Author	DATE: 10/19/2020
SCALE: AS NOTED	JOB NUMBER: 62930547

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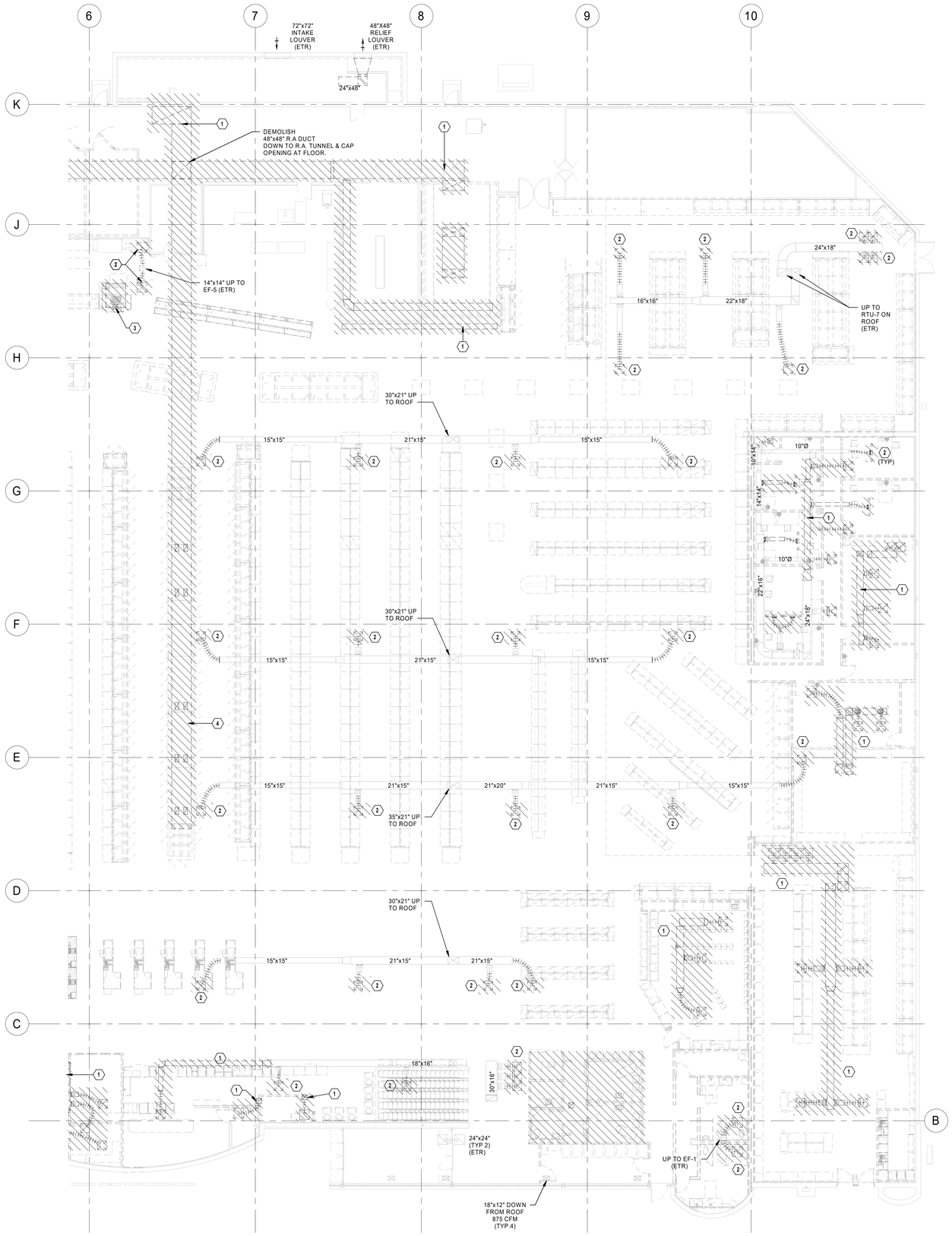

1 HVAC DEMO FLOOR PLAN - PART B
3/32" = 1'-0"

MECHANICAL PLAN NOTES

1. REMOVE EXISTING DUCTWORK AS SHOWN. PROVIDE WEATHER TIGHT INSULATED CAP OVER DUCT OPENINGS AS REQUIRED.
2. REMOVE EXISTING AIR DEVICE AS SHOWN. PROVIDE PERMANENT CAP OVER DUCT OPENINGS WHEN NOT BEING USED UNDER NEW WORK. PROVIDE TEMPORARY CAP WHEN DUCT OPENING IS BEING USED UNDER NEW WORK.
3. REMOVE EXISTING HOOD AND ALL ASSOCIATED DUCTWORK, ANSUL PULL STATIONS, AND ALL ASSOCIATED COMPONENTS.
4. CAP AND ABANDON UNDERFLOOR DUCTWORK. CAP RETURN OPENINGS IN FLOOR AND SEAL WATER TIGHT.

REVISION	DATE BY

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HVAC DEMOLITION FLOOR PLAN - PART B

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SL	Checker
DRAWN BY:	DATE:
Author	10/19/2020
SCALE:	JOB NUMBER:
AS NOTED	62930547

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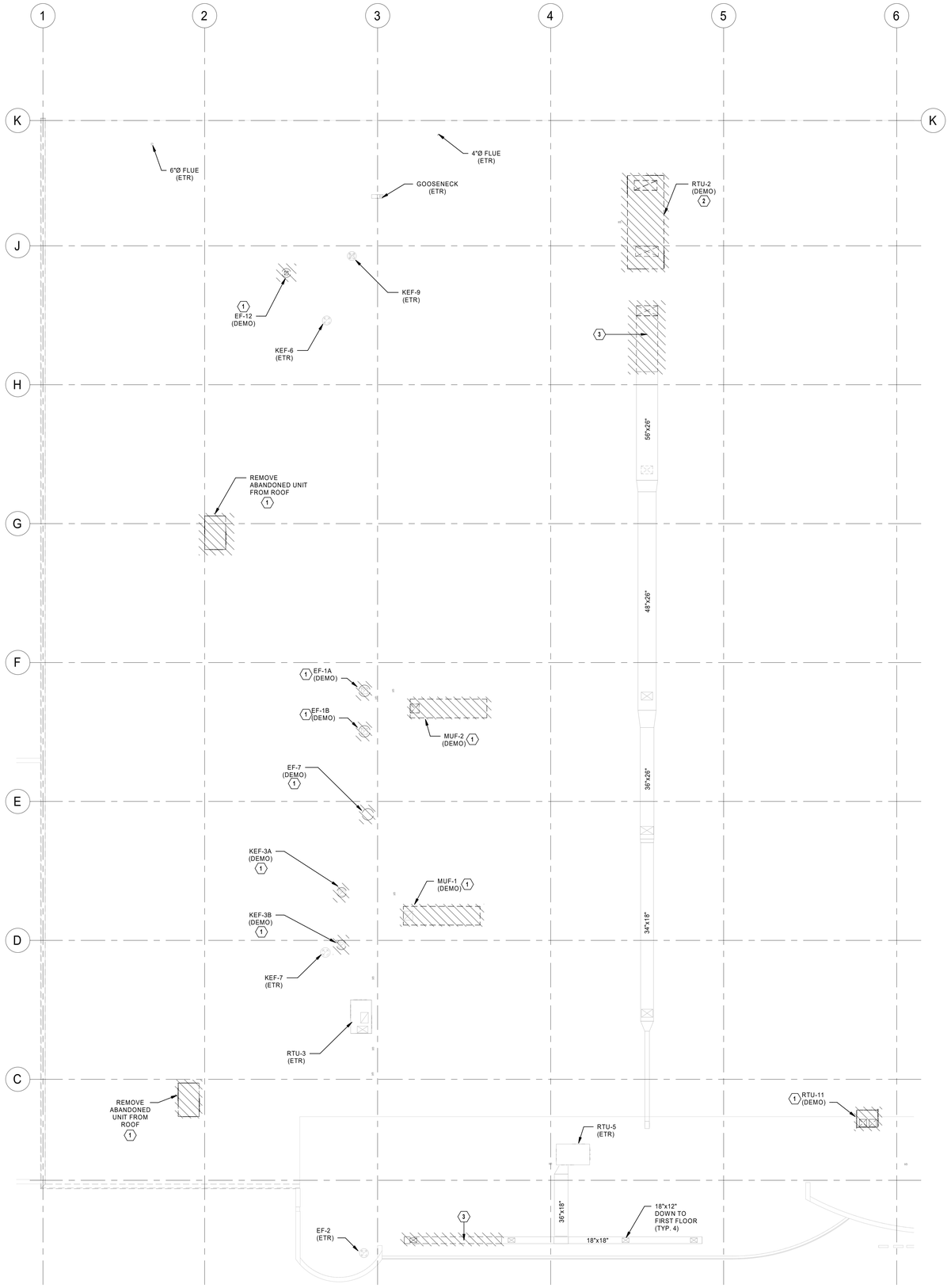

1 HVAC DEMO ROOF PLAN - A
3/32" = 1'-0"

MECHANICAL PLAN NOTES

1. REMOVE EXISTING MECHANICAL EQUIPMENT SHOWN CROSSHATCHED AND PROVIDE WEATHER TIGHT INSULATED CAP OVER ROOF OPENINGS.
2. REMOVE EXISTING ROOFTOP UNIT SHOWN CROSSHATCHED. CAP CURB WATER TIGHT FOR REUSE IN NEW WORK.
3. REMOVE EXISTING DUCTWORK AS SHOWN. PROVIDE WEATHER TIGHT INSULATED CAP OVER DUCT OPENINGS AS REQUIRED.

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HVAC DEMOLITION ROOF PLAN - PART A

PROJECT MANAGER	CHECKED BY:
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Author	10/19/2020
SCALE:	JOB NUMBER:
AS NOTED	62930547

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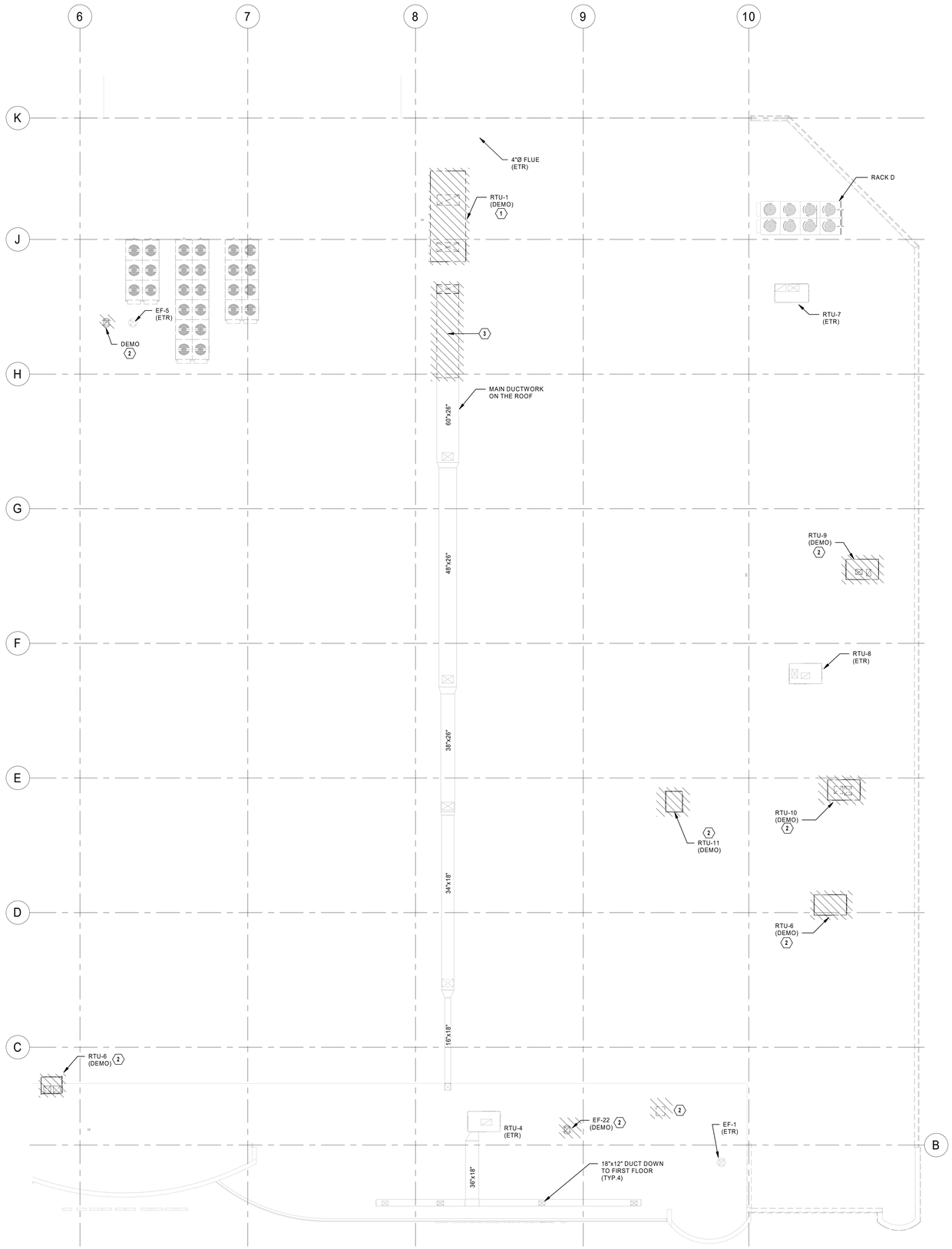

1 HVAC DEMO ROOF PLAN - B
3/32" = 1'-0"

MECHANICAL PLAN NOTES

1. REMOVE EXISTING ROOFTOP UNIT SHOWN CROSSHATCHED. CAP CURB WATER TIGHT FOR REUSE IN NEW WORK.
2. REMOVE EXISTING MECHANICAL EQUIPMENT SHOWN CROSSHATCHED AND PROVIDE WEATHER TIGHT INSULATED CAP OVER ROOF OPENINGS.
3. REMOVE EXISTING DUCTWORK AS SHOWN. PROVIDE WEATHER TIGHT INSULATED CAP OVER DUCT OPENINGS AS REQUIRED.

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HVAC DEMOLITION ROOF PLAN - PART B

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Author	10/19/2020
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