

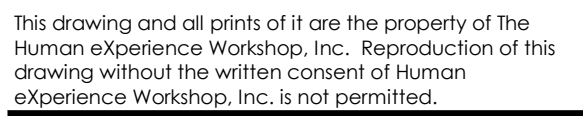
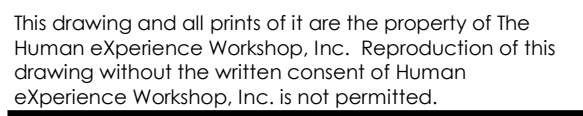
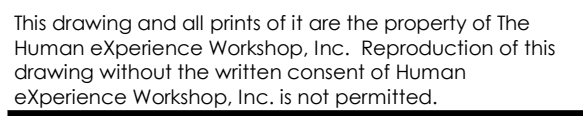
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Construction Site:
Charlotte, North Carolina

Owner/Agent:

Designer/Contractor:

Additional Efficiency Package(s)
Credits: 1.0 Required 1.0 Proposed
Reduced Lighting Power 1.0 credit

Mechanical Systems List

[illegible]

- Project Title: Cabarrus Report date: 04/24/24
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Additional Comments/Assumptions:[illegible]

efficiency grade, 70.0 total fan efficiency, 70.0 design fan efficiency
 Energy recovery device, other than Coil Runaround Loop, 0.9818 credit
 Efficiency grade, 70.0 total fan efficiency, 70.0 design fan efficiency
 Fan System AHU-3 – Compliance Based Air and Fan efficiency method : Passes
 66 Supply, Multi-Zone VAV, 3200 CFM, 7.5 motor nameplate hp, 4.0 design brake hp (8.0 max. BHP), 70.0 fan efficiency grade, 70.0 total fan efficiency, 70.0 design fan efficiency
 65 Supply, Multi-Zone VAV, 3200 CFM, 7.5 motor nameplate hp, 4.0 design brake hp (8.0 max. BHP), 70.0 fan efficiency grade, 70.0 total fan efficiency, 70.0 design fan efficiency
 Pressure Drop Credits:
 Fully ducted return over exhaust air systems, 2.3118 credit
 Return and/or exhaust airflow control devices, 2.3118 credit
 Sound attenuation section, 0.6935 credit
 Energy recovery device, other than Coil Runaround Loop, 0.9818 credit

AHU-3 (Multiple-Zone)

Cooling - 1 each - Hydronic Coil, Capacity = 191 kBtu/h, Air Economizer
 No minimum efficiency requirement as per ASHRAE 90.1-2010
 Fan System AHU-3 – Compliance Based Air and Fan efficiency method : Passes

- Project Title: Cabarrus Report date: 04/24/24
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Additional Comments/Assumptions:

Additional Comments/Assumptions:

Quantity System Type & Description

FAN 30 Supply, Constant Volume, 850 CFM, 0.5 motor nameplate hp, 70.0 fan efficiency grade, 70.0 total fan efficiency, 70.0 design fan efficiency, fan exception: Single fan <= 5HP
SYSTEM COMPLIANCE FAILS: PROPOSED EFFICIENCY FAILS TO MEET CODE REQUIREMENTS.

- | | | | |
|----------------|----------|--------------|----------|
| Project Title: | Cabarrus | Report date: | 04/24/24 |
| Data filename: | | Page | 3 of 14 |

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)
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Project Title: Cabarrus
Report date: 04/24/24

Data filename:
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COMcheck Software Version COMcheckWeb

Requirements: 100.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Project Title: Cabarrus Report date: 04/24/24
 Data filename: Page 4 of 14

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Project Title:	Cabarrus	Report date:	04/24/24
Data filename:		Page	8 of 14



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Richardson, Texas 75081
P: 972-423-8489
www.cmta.com
Project Number: D22-2545



Cabarrus County
Regional
Behavioral Health
Center

DHSR Number: MHL-5188

Section & Req ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.5.3 [ME126]	Return, exhaust/relief and outdoor air dampers used in economizers have motorized dampers that automatically shut when not in use and meet maximum leakage rates. Reference Section C403.7.7 for details.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.4.1 1 [ME75]	Hydronic and multizone HVAC system controls are VAV fans driven by mechanical or electrical variable speed per Table C403.4.1.1.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.4.1 2 [ME67]	VAV fans have static pressure sensors located so controller setting <=1.2 w.e.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.4.1 [ME24]	Reset static pressure setpoint for DDC controlled VAV boxes reporting to central controller based on the zones requiring the most pressure.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.4.1 [ME59]	The heating of fluids in hydronic systems that have been previously mechanically cooled, and the cooling of fluids that have been previously mechanically heated are limited in accordance with Sections C403.4.3.1 - C403.4.3.3. Single boiler systems >500,000 Btu/h have multistaged or modulating burner.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.4.3 [ME50]	Three-pipe hydronic systems using a common return for hot and chilled water are not used.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.4.3 [ME58]	Hydronic systems greater than 300,000 Btu/h designed for variable fluid flow. See section language for full details.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.4.3 [ME61]	System shutdown requirement met through multiple single-input boilers, one or more modulating boilers, or a combination of single-input and modulating boilers. Boiler input between 1.0 MBtu/h and 5 MBtu/h has 3:1 turnaround ratio, boiler input between 5.0 MBtu/h and 10 MBtu/h has 4:1 turnaround ratio, boiler input > 10.0 MBtu/h has 5:1 turnaround ratio.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met. See the Mechanical Systems list for values.
C403.4.5 [ME26]	Chilled water plants with multiple chillers have capability to reduce flow automatically through the chiller plant when a chiller is shut down. Boiler plants with multiple boilers have the capability to reduce flow automatically through the boiler plant when a boiler is shut down.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.6.1 [ME130]	Supply air systems serving multiple VAV systems with controls configured to reduce the volume of air that is reheated, recircled or mixed in each zone. See section for details.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Project Title: Cabarrus Report date: 04/24/24
 Data filename: Page 9 of 14

Section # & Req. ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.6 [EL26] 1	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	
C405.7 [EL27] 1	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	
C405.8.2 [EL28] 1	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	
C405.9 [EL29] 1	Total voltage drop across the combination of feeders and branch circuits <= 3%.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	

Additional Comments/Assumptions:

1	High Impact (Tier 1)	2	Medium Impact (Tier 2)	3	Low Impact (Tier 3)
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Project Title: Cabarrus

Report date: 04/24/24

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Section & Req. ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.6.2 [ME131]	Single-duct VAV systems use terminal devices configured to reduce the supply of primary supply air before reheating or recouling takes place.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.6.3 [ME132]	Systems that have 1 warm air duct and 1 cool air duct use terminal devices configured to reduce the flow from one duct to a minimum before mixing of air from the other duct takes place.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Exception: Requirement does not apply.
C403.6.4 [ME133]	Individual dual-duct or mixing heating and cooling systems with a single fan and with total capacities = 90,000 Btu/h not equipped with air economizers.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Exception: Requirement does not apply.
C403.6.5 [ME134]	Multiple zone HVAC systems have supply air temperature reset controls.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.6.7 [ME136]	Parallel flow fan-powered VAV air terminals have automatic controls configured to 1) turn off the terminal fan except when space heating is required or where required for ventilation; 2) turn on the terminal fan as the first stage of heating before the heating coil is activated; and 3) during heating for warmup or setback temperature control, either operate the terminal fan and heating coil without primary air or, reverse the terminal damper logic and provide heating from the central air handler by primary air.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Exception: Requirement does not apply.
C403.6.8 [ME137]	Systems with DDC of individual zones reporting to the central control panel configured to reset the static pressure setpoint based on zone requiring the most pressure. The DDC is capable of monitoring zone damper positions or have an alternative method of indicating the need for static pressure. See section for details.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.6.9 [ME138]	Static pressure sensors used to control VAV fans located such that the controller setpoint is ≤ 1.2 inches w.c. Where this results in one or more sensors being located downstream of major duct splits, not less than one sensor located on each major branch.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.6.6 [ME135]	Multiple zone VAV systems with DDC of individual zone boxes have static pressure reset control.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met. See the <i>Mechanical Systems list</i> for values.

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)
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Project Title: Cabarrus
Report date: 04/24/24

Data filename:
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Section # & Req. ID	Final Inspection	Complies?	Comments/Assumptions
C403.3 C408.2.3 (F18)	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.2.2 (F127)	HVAC systems and equipment capacity does not exceed calculated loads.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.2.4 (F147)	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.4.1.2 (F138)	Thermostatic controls have a 5 °F deadband.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.2.4.1.3 (F120)	Temperature controls have setpoint overlap restrictions.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.2.4 (F139)	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.2.4.2.1, C403.2.4.2.2 (F140)	Automatic Controls: Setback to 55°F (heat) and 85°F (cool), 7-day clock, 2-hour occupant override, 10-hour backup	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C403.2.4.2.3 (F141)	Systems include optimum start controls.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C404.3 (F113)	Heat traps installed on supply and discharge piping of non-circulating systems.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Exception: Requirement does not apply.
C404.4 (F125)	All piping insulated in accordance with section details and Table C403.11.3.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C404.6.1 (F112)	Controls are installed that limit the operation of a recirculation pump installed to maintain temperature of a storage tank. System return pipe is a dedicated return pipe or a cold water supply pipe.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.

1 High Impact (Tier 1)
2 Medium Impact (Tier 2)
3 Low Impact (Tier 3)

Project Title: Cabarrus Report date: 04/24/24
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Section # & Req. ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
CA03.4.1.4 [ME3]¹	Heating for vestibules and air curtains with integral heating include automatic controls that shut off the heating when outdoor air temperatures > 43°F. Vestibule heating and cooling systems controlled by a thermostat in the vestibule with heating setpoint <= 60°F and cooling setpoint >= 80°F.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Exception: Requirement does not apply.
CA03.9.5 [ME3]¹	Condenser heat recovery system that can heat water to 85 °F or provide 60% of peak heat rejection is installed for preheating of service hot water.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
CA03.3.3 [ME3]¹	Hot gas bypass limited to: <=240 kBtu/h - 50% >240 kBtu/h - 25%	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
CA08.2.2.1 [ME3]¹	Air outlets and zone terminal devices have means for air balancing.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
CA08.2.2.2 [ME4]¹	HVAC hydronic heating and cooling coils have means to balance and have pressure test connections.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
CA03.5.2 CA03.5.1 CA03.5.2 [ME12]³	Refrigerated display cases, walk-in coolers or walk-in freezers served by remote compressors and remote condensers not located in a condensing unit, have fan-powered condensers that comply with Sections CA03.5.1 and refrigeration compressor systems that comply with CA03.5.2.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)
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Project Title: Cabarrus
Report date: 04/24/24

Data filename:
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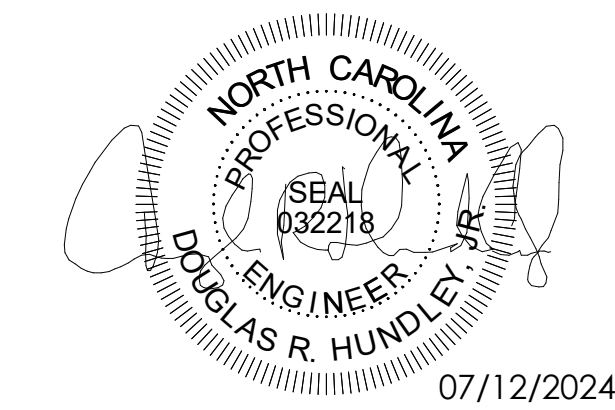
Section # & Req. ID	Final Inspection	Complies?	Comments/Assumptions
C408.1.1 [F157]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	
C408.2.1 [F128]	Commissioning plan developed by registered design professional or approved agency.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C408.2.3 [F131]	HVAC equipment has been tested to ensure proper operation.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C408.2.3 [F110]	HVAC control systems have been tested to ensure proper operation calibration and adjustment of controls.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C408.2.3 [F132]	Economizers have been tested to ensure proper operation.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C408.2.4 [F129]	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C408.2.5 [F17]	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C408.2.5 [F143]	An air and/or hydronic system balancing report is provided for HVAC systems.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.
C408.2.5 [F130]	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐ Complies ☒ Does Not ☐ Not Observable ☐ Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

Project Title: Cabarrus Report date: 04/24/2023
 Data filename: Page 14 of 14



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ISSUE FOR CONSTRUCTION

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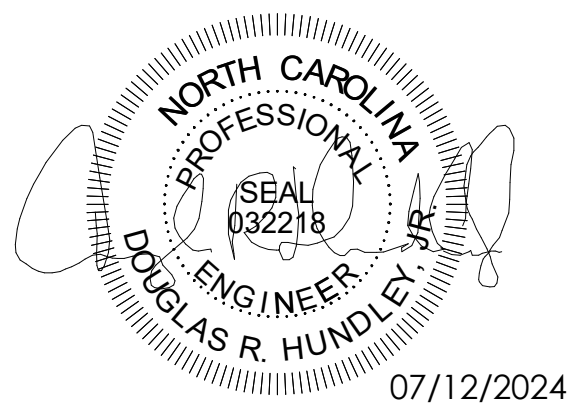
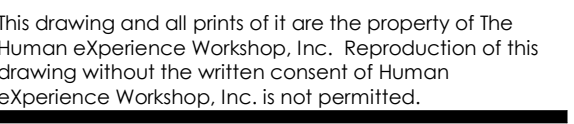
DHSR Number: MHL-5188

Bid Package 3

MECHANICAL
COMCHECK

DATE JULY 12, 2024 SHEET
SCALE
DRAWN RD / BES M003
PROJ. NO. 2022-A002.01

A. REFER TO GENERAL NOTES ON M001 FOR ADDITIONAL INFORMATION.

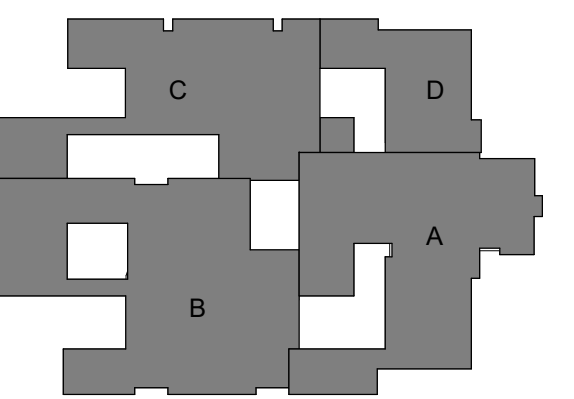


ISSUE FOR CONSTRUCTION

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Cabarrus County
Regional
Behavioral Health
Center

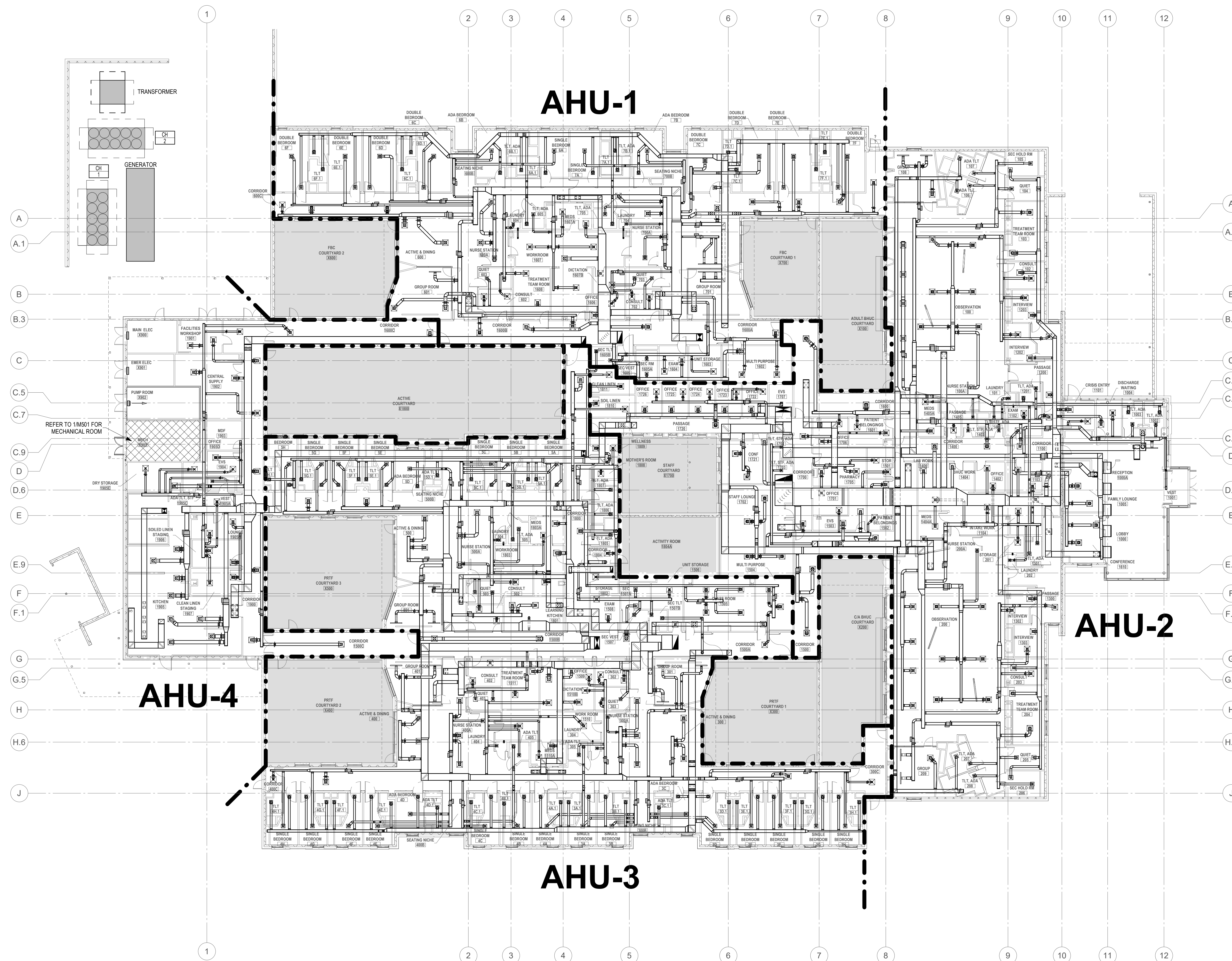
DHSR Number: MHL-5188



Bid Package 3

LEVEL 1 - HVAC

DATE JULY 12, 2024 SHEET
SCALE As indicated
DRAWN RD / BES **M200**
PROJ. NO. 2022-A002.01



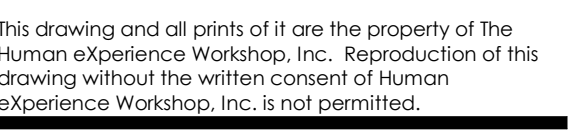
1 MECHANICAL FLOOR PLAN OVERALL - HVAC
1/16" = 1'-0"



A. REFER TO GENERAL NOTES ON M001 FOR ADDITIONAL INFORMATION.

SECURITY LEVEL 5: SECURITY DIFFUSERS / GRILLES (S1, R1, E1)

MH01	EXHAUST DUCT UP TO FLOOR ABOVE. REFER TO M202.3 FOR CONTINUATION.
MH02	SUPPLY DUCT DOWN FROM FLOOR ABOVE. REFER TO M202.3 FOR CONTINUATION.
MH03	RETURN DUCT UP TO FLOOR ABOVE. REFER TO M202.3 FOR CONTINUATION.
MH29	PROVIDE AND INSTALL LINT TRAP COMPARABLE TO CONTINENTAL FAN LT100 ABOVE CEILING PER MANUFACTURERS INSTRUCTIONS. ENSURE ADEQUATE ACCESS FROM BELOW IN ADJACENT ROOM AND LABEL ACCESS ON CEILING.



ISSUE FOR CONSTRUCTION

Cabarrus County
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Center

DHSR Number: MHL-5188

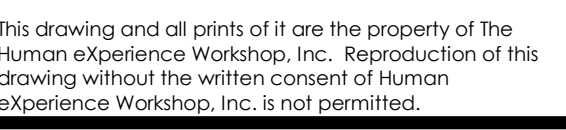


LEVEL 1 -
AREA C -
HVAC

DATE JULY 12, 2024 SHEET
SCALE As indicated
DRAWN RD / BES **M201C**
PROJ. NO. 2022-A002.01



A. REFER TO GENERAL NOTES ON M001 FOR ADDITIONAL INFORMATION.

[illegible]

DHSR Number: MHL-5188



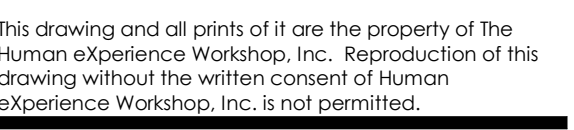
DATE JULY 12, 2024 SHEET
SCALE As indicated
DRAWN RD / BES **M300**
PROJ. NO. 2022-A002.01





A. REFER TO GENERAL NOTES ON M001 FOR ADDITIONAL INFORMATION.

MP01	PROVIDE 3-WAY CONTROL VALVE ON THIS VAV BOX.
MP02	PIPING UP TOWARD FROM FLOOR ABOVE. REFER TO M202 FOR CONTINUATION.
MP03	PROVIDE END OF MAIN BYPASS WITH SHUT-OFF VALVES. REFER TO 8/M803 FOR DETAIL.
MP05	PIPING CONTINUES INTO MECHANICAL ROOM. REFER TO 1/M501 FOR CONTINUATION.
MP06	7/8" SECTION AND 3/8" LIQUID REFRIGERANT PIPING FROM INDOOR UNIT UP THROUGH ROOF. REFER TO 1/M501 FOR ADDITIONAL INFORMATION.
MP08	ROUTE CONDENSATE TO OPEN RECEPTACLE AT THIS LOCATION. COORDINATE WITH PLUMBING PIPERS FOR EXACT LOCATION.
MP10	PROVIDE BALL VALVES FOR LOOP ISOLATION. ENSURE THAT THERE IS ADEQUATE ACCESSIBILITY.
MP13	VAV BRANCH PIPING TO BE 3/4" UNLESS NOTED OTHERWISE ON THE DRAWINGS.

[illegible]

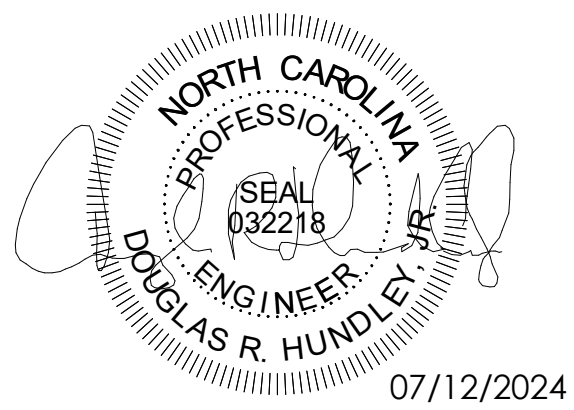
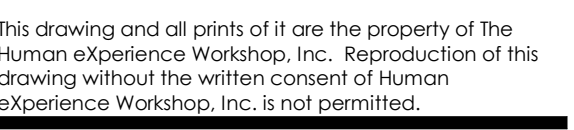
LEVEL 1 -
AREA B -
PIPING

DATE JULY 12, 2024 SHEET
SCALE As indicated
DRAWN RD / BES **M301B**
PROJ. NO. 2022-A002.01



A. REFER TO GENERAL NOTES ON M001 FOR ADDITIONAL INFORMATION.

MP01	PROVIDE 3-WAY CONTROL VALVE ON THIS WAY BOX.
MP03	PROVIDE END OF MAIN BYPASS WITH SHUT-OFF VALVES. REFER TO 8/M803 FOR DETAIL.
MP05	PIPING CONTINUES INTO MECHANICAL ROOM. REFER TO 1/M501 FOR CONTINUATION.
MP06	7/8" SUCTION AND 3/8" LIQUID REFRIGERANT PIPING FROM INDOOR UNIT UP THROUGH ROOF. REFER TO 15/M501 FOR ADDITIONAL INFORMATION.
MP08	ROUTE CONDENSATE TO OPEN RECEPTACLE AT THIS LOCATION. COORDINATE WITH PLUMBING PLANS FOR EXACT LOCATION.
MP10	PROVIDE BALL VALVES FOR LOOP ISOLATION. ENSURE THAT THERE IS ADEQUATE ACCESSIBILITY.
MP13	W/AV BRANCH PIPING TO BE 3/4" UNLESS NOTED OTHERWISE ON THE DRAWINGS.

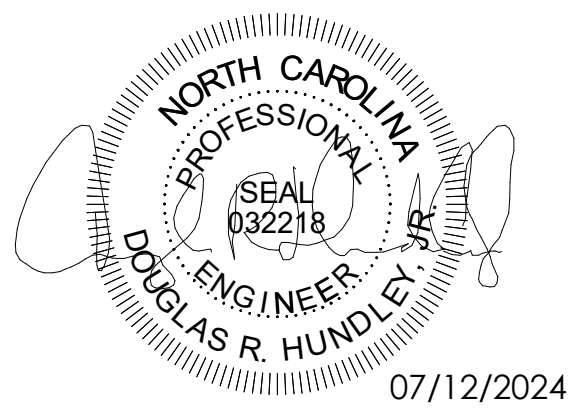
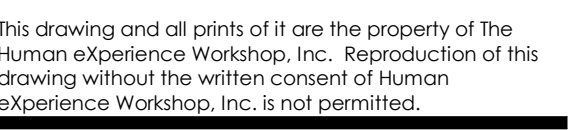
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DATE JULY 12, 2024 SHEET
SCALE As indicated
DRAWN RD / BES **M301C**
PROJ. NO. 2022-A002.01



A. REFER TO GENERAL NOTES ON M001 FOR ADDITIONAL INFORMATION.

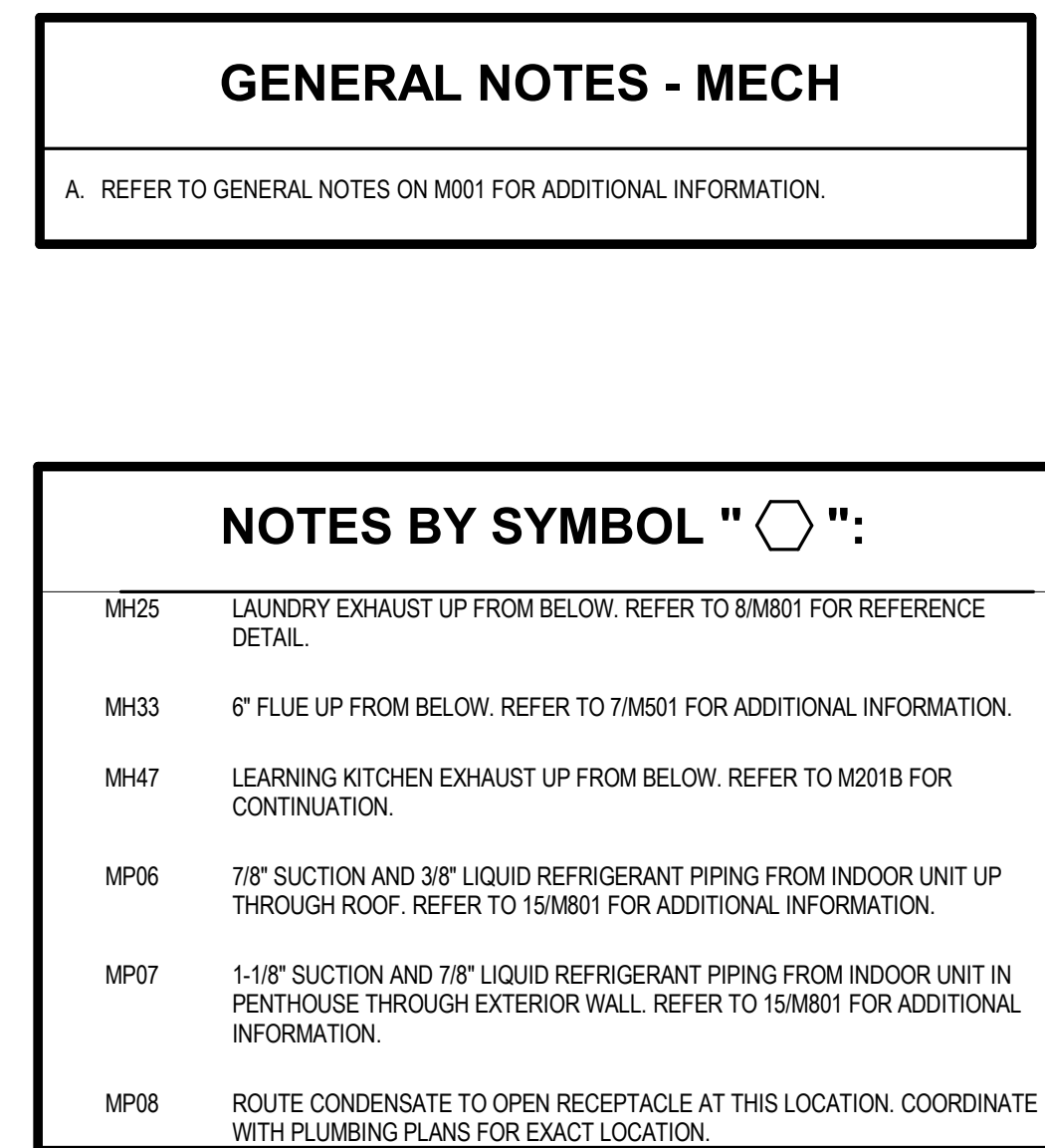
MP01	PROVIDE 3-WAY CONTROL VALVE ON THIS VAV BOX.
MP03	PROVIDE END OF MAIN BYPASS WITH SHUT-OFF VALVES. REFER TO 810M03 FOR DETAIL.
MP10	PROVIDE BALL VALVES FOR LOOP ISOLATION. ENSURE THAT THERE IS ADEQUATE ACCESSIBILITY.
MP13	VAV BRANCH PIPING TO BE 3/4" UNLESS NOTED OTHERWISE ON THE DRAWINGS

[illegible]

A floor plan diagram showing four rooms labeled A, B, C, and D. Room A is at the bottom right, B is at the bottom left, C is at the top left, and D is at the top right. Room D is shaded gray.

LEVEL 1 -
AREA D -
PIPING

DATE JULY 12, 2024 SHEET
SCALE As indicated
DRAWN RD / BES **M301D**
PROJ. NO. 2022-A002.01

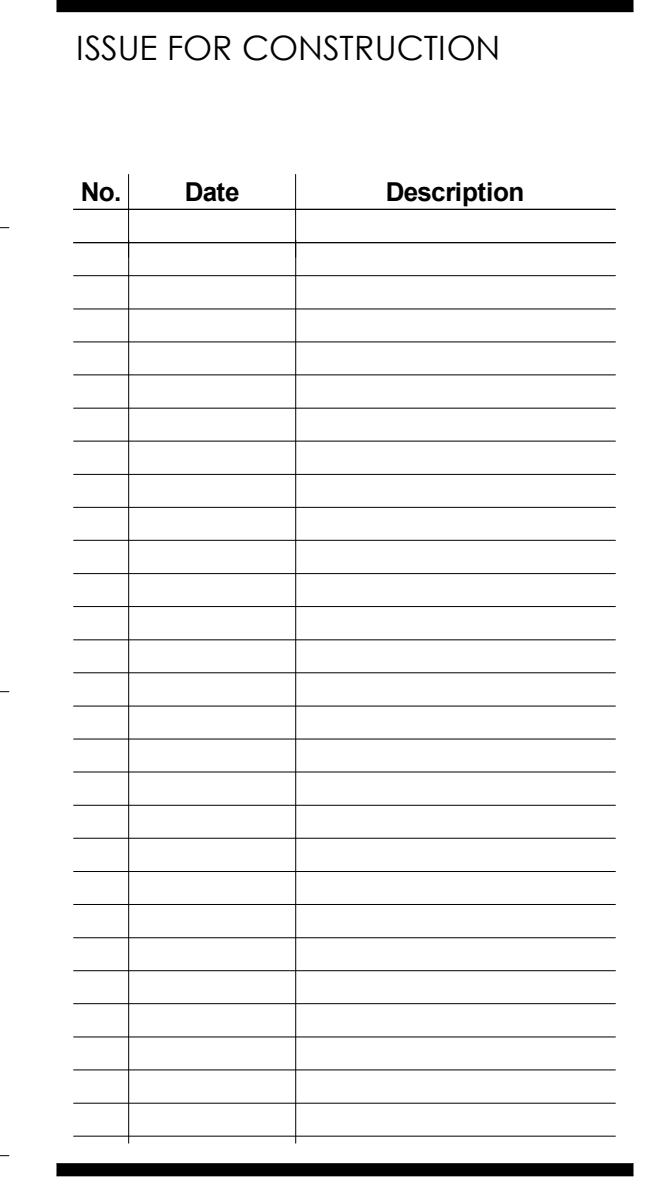


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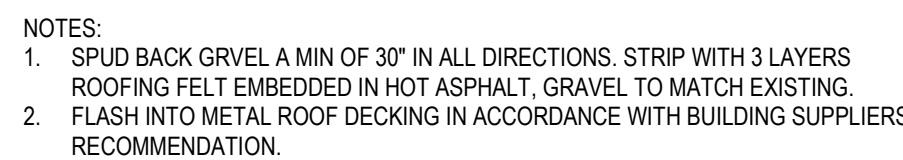


DATE JULY 12, 2024 SHEET

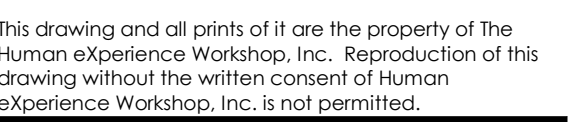
SCALE As indicated

DRAWN RD / BES M401

PROJ. NO. 2022-A002-01



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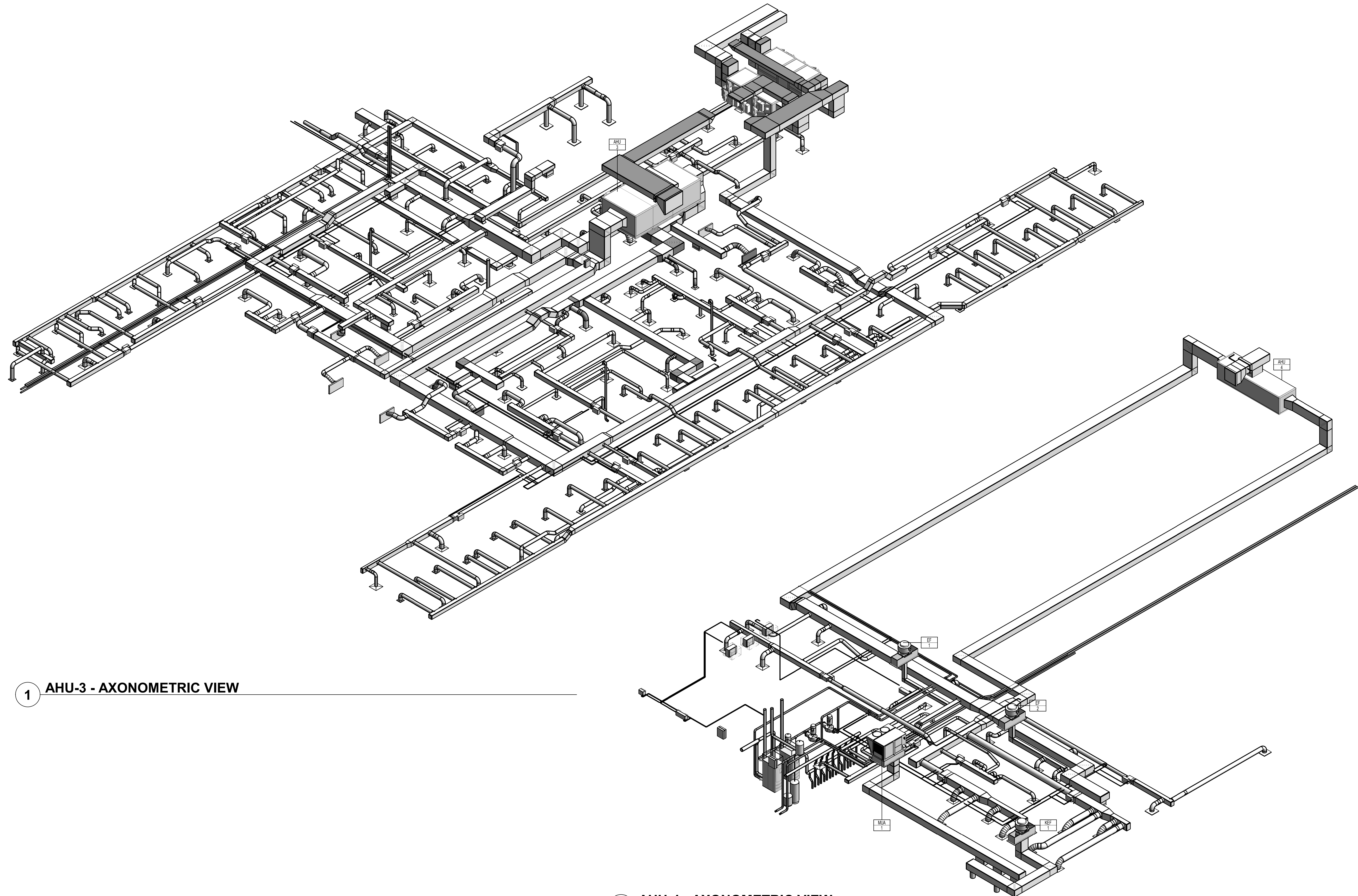
Cabarrus County
Regional
Behavioral Health
Center

DHSR Number: MHL-5188

Bid Package 3

AXONOMETRIC VIEWS - MECHANICAL

DATE JULY 12, 2024 SHEET
SCALE 12" = 1'-0"
DRAWN TN / BES
PROJ. NO. 2022-A002.01



1 AHU-3 - AXONOMETRIC VIEW

2 AHU-4 - AXONOMETRIC VIEW

AIR HANDLING UNIT SCHEDULE				
MARK	AHU-1	AHU-2	AHU-3	AHU-4
LOCATION	PENTHOUSE	PENTHOUSE	PENTHOUSE	PENTHOUSE
OUTSIDE AIR DESIGN TEMP. (SUM.) (DB / WB) (°F)	94.2 / 74.6	94.2 / 74.6	94.2 / 74.6	94.2 / 74.6
OUTSIDE AIR DESIGN TEMP. (WIN.) (DB) (°F)	21.0	21.0	21.0	21.0
OUTSIDE AIR CFM (MIN. / MAX.)	3,600	3,900	5,800	1,300
TOTAL CFM	10,900	19,100	17,300	6,500
SUPPLY FAN				
TYPE	SWSI	SWSI	SWSI	SWSI
# OF FANS	2	6	6	2
E.S.P. (IN. W.G.)	2	2.5	3	2
INDOOR FAN (BHP)	7.31	5	4.47	3.31
DRIVE TYPE	DIRECT	3.809	DIRECT	3.063
FAN RPM	1,948	3,500	3,185	3,063
TOTAL CFM	7,300	15,500	11,500	6,200
RETURN FAN				
TYPE	SWSI	SWSI	SWSI	SWSI
# OF FANS	2	6	3	2
E.S.P. (IN. W.G.)	2	1.5	2	1.5
INDOOR FAN (BHP)	3.59	1.76	3.64	2.14
DRIVE TYPE	DIRECT	DIRECT	DIRECT	DIRECT
FAN RPM	1,986	1,925	2,098	3,161
TYPE	MERV 8	MERV 8	MERV 8	MERV 8
EFFICIENCY	30%	30%	30%	30%
AIR P. (IN. W.G.) CLEANDIRTY	0.1 / 2.0	0.1 / 2.0	0.1 / 2.0	0.1 / 2.0
MAX. FACE VELOCITY (FPM)	440	488	465	443
QUANTITY / SIZE	6 - 20" x 20", 2 - 20" x 24"	15 - 20" x 20"	10 - 16" x 20", 5 - 20" x 20"	4 - 20" x 16", 2 - 20" x 20"
TYPE	COOLING	COOLING	COOLING	COOLING
FLUID	NOTE 17	NOTE 17	NOTE 17	NOTE 17
MAX. FACE VELOCITY (FPM)	440	488	465	443
MAX. AIR PRESSURE DROP (IN. W.G.)	0.43	0.62	0.74	0.62
E.A.T. DB (°F)	79.3	76.5	79.4	76.4
E.A.T. WB (°F)	64.8	63	64.9	62.9
L.A.T. DB / WB (°F)	53	53	53	53
TOTAL CAPACITY (MBH)	387	553	614	188
SENSIBLE CAPACITY (MBH)	310	485	494	165
MIN. ROWS / MAX. F.P.I.	6 / 9	6 / 8	5 / 11	6 / 10
MAX. WATER PRESSURE DROP (FT H2O.)	19.2	13.4	18.0	6
E.W.T. (°F)	42	42	42	42
L.W.T. (°F)	56.0	56.9	57	57
GPM	58.1	75.3	87	26.3
MCA - CIRCUIT #1 - RETURN FAN ARRAY	15	19	81	13
MOC - CIRCUIT #1 - RETURN FAN ARRAY	20	20	40	15
VOLTS / PHASE - CIRCUIT #1 - RETURN FAN ARRAY	460 / 3	460 / 3	460 / 3	460 / 3
MCA - CIRCUIT #2 - SUPPLY FAN ARRAY	40	56	56	20
MOC - CIRCUIT #2 - SUPPLY FAN ARRAY	50	60	60	25
VOLTS / PHASE - CIRCUIT #2 - SUPPLY FAN ARRAY	460 / 3	460 / 3	460 / 3	460 / 3
MAX. WEIGHT (LBS.)	7,852	10,591	9,882	3,956
MAX. DIMENSIONS (L" x W" x H")	280" x 110" x 60"	240" x 110" x 75"	225" x 110" x 70"	215" x 75" x 50"
MANUFACTURER	YORK	YORK	YORK	YORK
MODEL NO.	XTI-51s96	XTI-69x111	XTI-66x108	XTI-51s63
NOTES	1-19	1-19	1-19	1-19

GENERAL NOTES:

- A. COORDINATE FINAL LOCATION OF AHU WITH STRUCTURE AND SUPPORT AS REQUIRED. FINAL LOCATION MUST BE APPROVED BY ARCHITECT AND STRUCTURAL ENGINEER.
- B. PROVIDE NEW FILTERS AT CONSTRUCTION COMPLETION. DO NOT OPERATE UNITS WITHOUT FILTERS DURING CONSTRUCTION.
- C. UNIT SHALL BE SHUT DOWN UPON DETECTION OF SMOKE. DUCT SMOKE DETECTORS REQUIRE A REMOTE LED INDICATOR THROUGH THE CEILING LEVEL PER NFPA 72 3.8.4.2 AND 2.10.5.8.
- D. MAINTAIN MINIMUM CLEARANCES REQUIRED FOR SERVICE, MAINTENANCE, AND INSPECTION.
- E. FAN MOTOR SHALL BE NON ECM TYPE & HAVE AN EFFICIENCY GREATER THAN 70% PER IECC.

- NOTES:
1. E.S.P. DOES NOT INCLUDE DIRTY FILTER PRESSURE DROP. USE DIRTY FILTER PRESSURE DROP TO CALCULATE UNIT T.S.P.
2. PROVIDE SUPPLY FANS WITH BACKDRIFT PROTECTION.
3. FUSED DISCONNECT TO BE PROVIDED BY DIVISION 26.
4. PROVIDE UNIT WITH A 3-WAY VALVE.
5. PROVIDE THIRD CIRCUIT FOR SERVICE LIGHTS, ACTUATORS, AND MISCELLANEOUS POWER.
6. PROVIDE UNIT INTERNAL SERVICE LIGHT AT EACH ACCESS DOOR.
7. HORIZONTAL DRAW THROUGH UNIT.
8. PROVIDE CONSTRUCTION SET OF FILTERS. 2" PLEATED AIR FILTERS, MERV 9.
9. PROVIDE COIL REMOVAL ACCESS PANEL.
10. PROVIDE WITH ECONOMIZER WITH ENTHALPHY CONTROL.
11. VARIABLE AIR VOLUME UNIT.
12. UNIT SHALL HAVE A LEAVING AIR TEMPERATURE OF 55 DEGREES.
13. PROVIDE STAINLESS STEEL DRAIN PANS AND COIL CASINGS.
14. PROVIDE DOUBLE WALL CONSTRUCTION.
15. UNIT SHALL NOT EXCEED A HEIGHT OF 7'5" DUE TO HEIGHT CONSTRAINTS.
16. PROVIDE SMOKE DETECTOR IN THE RETURN AND SUPPLY. FURNISHED AND WIRED BY DIVISION 28 AND INSTALLED IN DUCTWORK BY DIVISION 23.
17. FLUID SHALL BE WATER WITH 25% PROPYLENE GLYCOL.
18. PROVIDE EACH FAN ARRAY WITH 2 VFD, ONE TO CONTROL DURING NORMAL OPERATION AND ONE REDUNDANT VFD TO ENGAGE IF THE FIRST FAILS.
19. APPROVED MANUFACTURERS: YORK, DAIKIN, TRANE.

ENERGY RECOVERY VENTILATOR SCHEDULE																							
MARK	SERVICE	OUTSIDE AIR				EXHAUST AIR				EFFECTIVENESS						VOLTS / PHASE	FLA	MCA	MOCP	DIMENSIONS (W" X H" X D")	WEIGHT (LBS.)	MANUFACTURER / MODEL NO.	NOTES
		CFM	(QUANTITY) FAN HP	ESP. (IN. WG.)	E.A.T. (DB / WB)	CFM	(QUANTITY) FAN HP	ESP. (IN. WG.)	E.A.T. (DB / WB)	SUMMER			WINTER										
										SENSIBLE	TOTAL	EFFECTIVENESS	SENSIBLE	TOTAL	EFFECTIVENESS								
ERV-1	AHU-1	3,600	(1) 5	1.5	94.2 / 74.6	3,260	(1) 4	2.0	73.0 / 62.0	58.42	92.87	60.90%	105.50	163.76	61.80%	480 / 3	10	12	15	6" 6" X 27" X 172"	1,480	AAON / H3-ORB	1-9, 11, 12
ERV-2	AHU-2	3,900	(2) 2	1.5	94.2 / 74.6	3,535	(2) 2,3	2.0	73.0 / 62.0	76.36	121.67	73.90%	136.29	212.72	74.80%	480 / 3	10	11	15	8" 8" X 27" X 153"	2,100	AAON / H3-DRB	1-9, 11, 12
ERV-3	AHU-3	5,800	(2) 3	1.5	94.2 / 74.6	5,255	(2) 4	2.0	73.0 / 62.0	105.96	168.87	70.40%	189.61	295.78	70.70%	480 / 3	18	19	20	10" X 27" X 172"	2,300	AAON / H3-ERB	1-9, 11, 12
ERV-4	AHU-4	1300 (2300)	(1) 2	1.5	94.2 / 74.6	1,180	(1) 2,3	2.0	73.0 / 62.0	25.87	41.21	74.50%	46.15	72.02	74.00%	480 / 3	3	6	15	6" 17" X 27" X 172"	1,500	AAON / H3-BRB	1-12

NOTES:

1. MAINTAIN MINIMUM CLEARANCES REQUIRED FOR SERVICE, MAINTENANCE, AND INSPECTION.
2. PROVIDE UNIT WITH DOUBLE WALL CONSTRUCTION.
3. CABINET TO INCLUDE HINGED ACCESS DOOR WITH LOCKABLE HANDLES FOR FAN SECTIONS, FILTER SECTION, AND ERV HEAT WHEEL SECTION.
4. ALL FANS TO BE DIRECT DRIVE PLENUM TYPE FANS WITH BACKWARD INCLINED BLADES (NO BELTS).
5. ALL FANS MUST BE TESTED WITH INTEGRAL FACTORY MOUNTED AND WIRED VFD FOR BALANCING.
6. ALL ERVS OVER 3,000 CFM SHALL INCLUDE TWO (2) SUPPLY FANS AND TWO (2) EXHAUST FANS FOR REDUNDANCY.
7. ERV'S TO INCLUDE TOTAL ENERGY RECOVERY WHEEL FOR BOTH SENSIBLE AND LATENT HEAT AND REDUNDANCY REMOVAL.
8. ALL ERVS TO INCLUDE INTERNAL FACTORY MOUNTED AND WIRE CONTROL PANEL WITH LED SERVICE LIGHTS.
9. 2" MERV 8 FILTERS UPSTREAM OF ALL SUPPLY AND EXHAUST SIDES OF ERV WHEEL.
10. ERV TO HAVE TWO OUTSIDE AIR CFM SETPOINTS AND TO BE INTERLOCKED WITH KITCHEN HOOD, 1300 CFM DURING NORMAL OPERATION WITH KITCHEN HOOD OFF, AND 2300 CFM WHEN KITCHEN HOOD IS ON.
11. PROVIDE SMOKE DETECTOR IN SUPPLY DUCTWORK. FURNISHED AND WIRED BY DIVISION 28 AND INSTALLED IN DUCTWORK BY DIVISION 23.
12. APPROVED MANUFACTURERS: AAO, TRANE, DAIKIN.

AIR-COOLED CHILLER SCHEDULE																				
MARK	TYPE	CAPACITY (TONS)	EER	EVAPORATOR					CONDENSER			COMPRESSORS		ELECTRICAL			DIMENSIONS (W"xH"xD)	OPERATING WEIGHT (LBS.)	MANUFACTURER / MODEL NO.	NOTES
				FLUID	FOULING FACTOR	GPM (MIN)	E.W.T. / L.W.T.	MAX. P.D. (FT.)	NO. OF FANS	AMBIENT TEMP. (°F.)	NO. OF CIRCUITS	COMPRESSORS / CIRCUIT	VOLTS / PHASE	MCA	MOCP					
CH-1	AIR-COOLED	160	8.87	NOTE 2	0.0001	247 (150)	57 / 42	7.5	5	100	2	3	460 / 3	381	400	90" x 95" x 230"	8070	YORK YLAA0175HJ46XF	1-12	
CH-2	AIR-COOLED	160	8.87	NOTE 2	0.0001	247 (150)	57 / 42	7.5	5	100	2	3	460 / 3	381	400	90" x 95" x 230"	8070	YORK YLAA0175HJ46XF	1-12	

NOTES:

1. MAINTAIN MINIMUM CLEARANCES REQUIRED FOR SERVICE, MAINTENANCE, AND INSPECTION.
2. FLUID 25% PROPYLENE GLYCOL.
3. SCROLL COMPRESSORS.
4. LOW AND HIGH AMBIENT KIT.
5. PACKAGED STAND-ALONE CONTROLLER WITH BACNET AUTOMATION INTERFACE.
6. PROVIDE UNIT WITH SINGLE POINT CONNECTION POWER TO CHILLER AND DUPLEX PUMP PACKAGE.
7. CONDENSER RAIL GUARDS.
8. COMPRESSOR SHUT-DOWN/CHARGE ISOLATION VALVE.
9. DIFFERENTIAL PRESSURE SWITCH.
10. PUMPS ARE INTEGRAL PACKAGE TO THE CHILLER.
11. FUSED DISCONNECT TO BE PROVIDED BY DIVISION 26.
12. APPROVED MANUFACTURERS: YORK, TRANE, DAKIN.

CHILLED WATER PUMP SCHEDULE												
MARK	SERVICE	TYPE	PUMP IMPELLER				MOTOR			WEIGHT (LBS.)	MANUFACTURER / MODEL NO.	NOTES
			GPM	HEAD (FT. H2O)	NPSHA (FT. H2O)	RPM	HP	VOLTS / PHASE	RPM			
CHWP-1A	CHILLED WATER DISTRIBUTION	VERTICAL IN-LINE TANDEM	247	79.1	8.65	3,600	7.5	460 / 3	2,859	600	ARMSTRONG / SERIES 4392	1-6
CHWP-1B	CHILLED WATER DISTRIBUTION	VERTICAL IN-LINE TANDEM	247	79.1	8.65	3,600	7.5	460 / 3	2,859	600	ARMSTRONG / SERIES 4392	1-6
CHWP-2A	CHILLED WATER DISTRIBUTION	VERTICAL IN-LINE TANDEM	247	79.1	8.65	3,600	7.5	460 / 3	2,859	600	ARMSTRONG / SERIES 4392	1-6
CHWP-2B	CHILLED WATER DISTRIBUTION	VERTICAL IN-LINE TANDEM	247	79.1	8.65	3,600	7.5	460 / 3	2,859	600	ARMSTRONG / SERIES 4392	1-6

NOTES:

1. PROVIDE VFD DUTY MOTOR.
2. PROVIDE PRESSURE TAPS ON INLET / OUTLET FLANGES.
3. MAINTAIN MINIMUM CLEARANCES REQUIRED FOR SERVICE, MAINTENANCE, AND INSPECTION.
4. LEAD / LAG CONTROL PANEL WITH SINGLE POINT ELECTRICAL CONNECTION.
5. PUMP INTEGRAL TO SKID MOUNTED PACKAGE.
 - A. DUPLEX PUMPS ARE POWER BY THE CHILLER.
 - B. PACKAGE INCLUDES INLINE PUMPS, MOTOR LINE REACTORS, ISOLATION VALVES, Y-STRAINERS, TRIPLE DUTY VALVE AND SUCTION DIFFUSER.
 - C. PACKAGE INCLUDES INSULATION FOR ALL COLD SURFACES.
 - D. PACKAGE INCLUDES WITH PRESSURE GAUGES.
 - D. PACKAGE INCLUDES WITH PRESSURE GAUGES.
6. APPROVED MANUFACTURERS: ARMSTRONG, BELL & GOSSETT, PACO.



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07/12/2024

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Cabarrus County
Regional
Behavioral Health
Center

DHSR Number: MHL-5188

Bid Package 3

SCHEDULES - MECHANICAL

DATE JULY 12, 2024 SHEET
SCALE
DRAWN RD / BES **M701.3**
PROJ. NO. 2022-A002.01

7/10/2024 4:44:11 PM

AIR DEVICE SCHEDULE

MARK	DESCRIPTION	FACE SIZE	NECK SIZE	THROW	MATERIAL	MAX. A.P.D. (IN. W.G.)	MAX. NC	MANUFACTURER / MODEL NO.	NOTES
S-1	STEEL CONSTRUCTION PERFORATED SUICIDE DETERRENT	(NECK + 6") x (NECK + 6")	NOTE A	4-WAY	STEEL	0.10	30	KEES SDMP3	1,2
S-2	ALUMINUM LINEAR SLOT DIFFUSER	(3) 3/4" x 48"	NOTE A	1-WAY	ALUMINUM	0.10	30	TITUS ML-38	1,4
S-3	STEEL CONSTRUCTION PERFORATED	24" x 24"	NOTE A	4-WAY	STEEL	0.10	30	TITUS PAS	1,2
S-4	STEEL CONSTRUCTION PERFORATED	12" x 12"	NOTE A	4-WAY	STEEL	0.10	30	TITUS PAS	1,2
S-5	STEEL CONSTRUCTION DOUBLE DEFLECTION	6" x 12"	NOTE A	4-WAY	STEEL	0.10	30	TITUS 272RL	1,2,4
R-1 / E-1	STEEL CONSTRUCTION PERFORATED SUICIDE DETERRENT	NECK + 2"	NOTE A	--	STEEL	0.10	30	KEES SEG-4P3	2
R-2 / E-2	STEEL CONSTRUCTED PERFORATED	24" x 24"	NOTE A	--	STEEL	0.10	30	TITUS PAR	--
R-3 / E-3	STEEL CONSTRUCTED PERFORATED	12" x 24"	NOTE A	--	STEEL	0.10	30	TITUS PAR	--
R-4 / E-4	STEEL CONSTRUCTED PERFORATED	12" x 12"	NOTE A	--	STEEL	0.10	30	TITUS PAR	--
R-5 / E-5	STEEL SIDEWALL	NECK + 2"	NOTE A	--	STEEL	0.10	30	TITUS 23 RL	--
R-6 / E-6	ALUMINUM LINEAR SLOT DIFFUSER	(3) 3/4" x 48"	NOTE A	--	ALUMINUM	0.10	30	TITUS MLR-38	--

GENERAL NOTES:

A. NECK SIZES SHALL BE AS FOLLOWS (I.N.O.):

6"Ø: 0 - 100 CFM

8"Ø: 101 - 210 CFM

10"Ø: 211 - 390 CFM

12"Ø: 391 - 600 CFM

14"Ø: 601 - 900 CFM

FOR OVER 900 CFM, EXTEND NECK TO FULL SIZE OF DIFFUSER

B. MANUAL VOLUME DAMPER SHALL BE INSTALLED IN BRANCH DUCT AT TRUNK CONNECTION UNLESS SHOWN ELSEWHERE ON DRAWINGS FOR ACCESSIBLE CEILINGS. WHERE BRANCH DUCTWORK IS NOT ACCESSIBLE, INTEGRAL VOLUME DAMPERS SHALL BE PROVIDED WITH THE AIR DEVICE.

C. COORDINATE FRAME MOUNTING BORDER WITH CEILING OR WALL TYPE. PROVIDE MOUNTING FRAMES FOR ALL AIR DEVICES MOUNTED IN GYPBOARD CEILINGS, EQUAL TO TITUS TRIM. REFER ARCHITECTURAL REFLECTED CEILING PLANS.

D. COORDINATE COLOR AND FINISH WITH OWNER / ARCHITECT. PLASTER FRAMES SHALL BE FACTORY PRIMED FOR FIELD PAINTING.

E. MAXIMUM NC LEVEL OF 30 FOR ALL DIFFUSERS (ROOM ABSORPTION OF 10dB, RE 101-12 WATTS).

F. APPROVED MANUFACTURERS: TITUS, PRICE, NAILOR, TUTTLE & BAILEY, ANEMOSTAT.

NOTES:

1. PROVIDE MOLDED INSULATION BLANKET OR FIELD INSULATE THE BACKSIDE OF DIFFUSER PAN FOR ALL SUPPLY APPLICATIONS. SECURELY FASTEN INSULATION TO BACKPAN.

2. PROVIDE SCREW OPERATED, SINGLE BLADE DAMPER ACCESSIBLE FROM FACE OF DEVICE.

3. PROVIDE WITH INSULATED PLENUMS AS SHOWN ON DRAWINGS. NECK SIZES TO BE PER NOTE A, EQUAL TO TITUS MPJ-38.

4. PROVIDE WITH BLACK FINISH.

FAN SCHEDULE

MARK	SERVICE	FAN				MOTOR				MAX. SONES	MAX. WEIGHT (LBS)	MANUFACTURER / MODEL	NOTES	
		CFM	ESP (IN. W.G.)	RPM	TS (FPM)	DRIVE	FLA	HP	BHP					VOLTS / PHASE
EF-1	EVS (1904), ADA TLT (1905C)	260	0.30	1,622	667	DIRECT	1.3	1/15	.02	115/1	5.1	25	GREENHECK CUE-070-VG	1-6, 9
EF-2	SOILED LINEN STAGING (1906) CLEAN LINEN STAGING (1907)	375	0.30	1,194	536	DIRECT	1.5	1/10	.03	115/1	4.9	30	GREENHECK CUE-090-VG	1-6, 9
KEF-1	KITCHEN (1905)	3,900	2.00	962	886	DIRECT	15.8	5	2.7	208/3	18.4	350	CAPTIVEAIR DU240HFA	1-5, 7-9

NOTES:

1. DIVISION 26 TO PROVIDE DISCONNECT.

2. PROVIDE BIRD SCREEN.

3. PROVIDE GRAVITY BACKDRAFT DAMPER

4. PROVIDE INSULATED ROOF CURB WITH WOOD NAILER AND DAMPER TRAY TO MATCH ROOF TYPE AND SLOPE.

5. PROVIDE WITH FAN SPEED CONTROLLER FOR BALANCING.

6. FAN TO RUN CONTINUOUSLY. START/STOP THRU BMS.

7. KITCHEN EXHAUST FAN TO BE CONTROLLED BY HOOD CONTROL PACKAGE.

8. PROVIDE FAN WITH GREASE CUP.

9. APPROVED MANUFACTURERS: GREENHECK, LOREN COOK, TWIN CITY FAN.

UNIT HEATER SCHEDULE

MARK	SERVICE	MOTOR				HOT WATER COIL				ELECTRIC HEAT		WEIGHT (LBS.)	MANUFACTURER / MODEL NO.	NOTES
		CFM	HP (W)	VOLTS / PHASE	RPM	GPM	E.W.T. / L.W.T. ("F)	MAX. P.D. (FT. H2O)	E.A.T. ("F)	INPUT (KW)	MOCP			
UH-1	PUMP ROOM	460	(25)	120 / 1	1,350	2.50	180 / 160	2.2	60.00	--	--	25	TRANE S-A25	1-8
UH-2	MECHANICAL ROOM	460	(25)	120 / 1	1,350	2.50	180 / 160	2.2	60.00	--	--	25	TRANE S-A25	1-8
UH-3,4,5,6	PENTHOUSE	400	(25)	277 / 1	1,350	--	--	--	--	5.00	25.00	25	TRANE UHEC	1-8

NOTES:

1. PROVIDE WITH MOUNTING HARDWARE.

2. PROVIDE DISCONNECT SWITCH.

3. PROVIDE WITH UNIT MOUNTED THERMOSTAT.

4. THERMOSTAT SHALL BE SET AT 50°F.

5. INSTALL PER MANUFACTURER'S INSTRUCTIONS. COORDINATE COLOR AND FINISH WITH OWNER / ARCHITECT.

6. PROVIDE WITH POWDER COATED FINISH ON HEAVY GAUGE STEEL HOUSING.

7. UNIT SHALL BE HEATING ONLY.

8. APPROVED MANUFACTURERS: TRANE, QMARK, CARRIER.

DUCTLESS MINISPLIT SYSTEM

SYMBOL	SS-1 / CU-1	SS-2 / CU-2	SS-3 / CU-3	SS-4 / CU-4
MANUFACTURER	DAIKIN	DAIKIN	DAIKIN	DAIKIN
INDOOR UNIT MODEL	FTXS36H/UJ	FTXS24H/UJ	FTXS24H/UJ	FTXS24H/UJ
OUTDOOR UNIT MODEL	RXS36H/UJ	RXS24H/UJ	RXS24H/UJ	RXS24H/UJ
ARE SERVED	MAIN ELEC (X900)	EMER ELEC (X901)	MDF (1903)	IDF (3732)
CONFIGURATION	WALL MOUNTED	WALL MOUNTED	WALL MOUNTED	WALL MOUNTED
MAX. SUPPLY AIR CFM	650	530	650	530
INDOOR UNIT VOLTS / PHASE / HZ	208V / 1 / 60	208V / 1 / 60	208V / 1 / 60	208V / 1 / 60
INDOOR UNIT MCA / MOCP	WIRED THRU CU-1	WIRED THRU CU-2	WIRED THRU CU-3	WIRED THRU CU-4
OUTDOOR UNIT VOLTS / PHASE / HZ	208V / 1 / 60	208V / 1 / 60	208V / 1 / 60	208V / 1 / 60
OUTDOOR UNIT MCA/MOCP	19.5 / 20	15.8 / 20	15.8 / 20	15.8 / 20
REMARKS	1-11	1-11	1-11	1-11
TOTAL HEATING CAPACITY @ 24 DEG F (MBH)	36	24	24	24
COP @ DESIGN CONDITIONS	2.65	2.65	2.65	2.65
TOTAL COOLING CAPACITY (MBH)	35.0 / 22.85	22.0 / 14.1	22.0 / 14.1	22.0 / 14.1
MAX. OUTDOOR TEMPERATURE (DB)	95	95	95	95
SEER @ DESIGN CONDITIONS	16	16	16	16

REMARKS:

1. ALL UNITS SHALL MEET OR EXCEED ASHRAE 90.1 REQUIREMENTS.

2. PROVIDE WITH INTEGRAL CONDENSATE PUMP AND SAFETY OVERFLOW SWITCH.

3. INTERLOCK WITH THE TEMPERATURE SENSOR IN THE ROOM.

4. PROVIDE SINGLE POINT CONNECTION FOR THE INDOOR UNIT.

5. UNIT SHALL BE UL LISTED.

6. PROVIDE WITH SIGHT GLASS, EXPANSION DEVICE, LINE DRIER, SIZE LINES AND PROVIDE INTERMEDIATE TRAPS PER MANUFACTURER'S INSTRUCTIONS. SUBMIT DETAILED PIPING SCHEMATIC WITH SHOP DRAWINGS.

7. PROVIDE WITH LOW AMBIENT CONTROL. INCLUDE A CRANKCASE HEATER AND WIND BAFFLE TO ALLOW FOR OPERATION TO 0°F AMBIENT TEMPERATURE (FACTORY...

8. PROVIDE WITH CONDENSATE PUMP.

9. PROVIDE FACTORY STARTUP FOR EQUIPMENT. SUBMIT STARTUP REPORTS WITH O&Ms.

10. PROVIDE WITH A WALL MOUNTED DDC TEMPERATURE SENSOR TO TIE INTO THE BMS.

11. APPROVED MANUFACTURERS: DAIKIN, CARRIER, TRANE.

MAKEUP AIR HANDLING UNIT SCHEDULE

MARK	MUA-1	
LOCATION	ROOF	
SERVICE	KITCHEN HOOD	
PRE-FILTER	TYPE	2" THROW AWAY
	EFFICIENCY	30%
	A.P.D (IN W.G.) CLEANDIRTY	.1 / .25
COOLING DATA	MAX. FACE VELOCITY (FPM)	500
	TYPE	DX
	COIL POSITION	DRAW THROUGH
HEATING DATA	E.A.T. DBWB (°F)	94.2 / 74.6
	L.A.T. DBWB (°F)	63.2 / 63.0
	TOTAL (MBH)	102.0
SUPPLY FAN	SENSIBLE (MBH)	81.0
	TYPE	GAS
	COIL POSITION	REHEAT
ELECTRICAL	E.A.T. / L.A.T. (°F)	21 / 79
	INPUT (MBH)	200
	OUTPUT (MBH)	162.0
GENERAL	TYPE	CENTRIFUGAL
	CFM	2,400
	E.S.P. (IN. W.G.)	1.25
ELECTRICAL	VOLTS / PHASE	208 / 3
	HP	2.5
	DRIVE TYPE	DIRECT
ELECTRICAL	MCA	35
	MOCP	40
	VOLTS / PHASE	208 / 3
GENERAL	MAX. WEIGHT (LBS.)	1350
	MAX DIMENSIONS (L" x W" x H")	78" x 64" x 48"
	MANUFACTURER	CAPTIVEAIRE
GENERAL	MODEL NO.	CASRTU1-200-16-7.5T-MPU
	NOTES	1-15

GENERAL NOTES:

A. MAINTAIN MINIMUM CLEARANCES REQUIRED FOR SERVICE, MAINTENANCE, AND INSPECTION.

B. APPROVED MANUFACTURERS: CAPTIVEAIRE, GREENHECK, TRANE.

NOTES:

1. E.S.P. DOES NOT INCLUDE DIRTY FILTER PRESSURE DROP. USE DIRTY FILTER PRESSURE DROP TO CALCULATE UNIT T.S.P.

2. PROVIDE CONSTRUCTION SET OF FILTERS.

3. PROVIDE INTEGRAL DISCONNECT.

4. PROVIDE WITH BIRDSCREEN WEATHERHOOD.

5. 100% OUTDOOR AIR UNIT.

6. PROVIDE 14" INSULATED ROOF CURB.

7. 6:1 BURNER TURN DOWN.

8. HORIZONTAL DRAW-THRU UNIT.

9. PROVIDE 1" THICK, FOIL-FACED INSULATION.

10. INTERLOCK WITH KITCHEN EXHAUST FAN, KEF-1.

11. DOWN BLAST.

12. INTAKE DAMPERS.

13. DIRTY FILTER SWITCH.

14. FREEZE PROTECTION.

15. SERVICE RECEPTACLE.

LOUVER SCHEDULE

MARK	TYPE	SERVICE	CFM	MAX. PRESS. DROP (IN. W.G.)	FREE AREA (SF)	DIMENSIONS (W" x H" x D")	MANUFACTURER / MODEL	NOTES
L-1	INTAKE	AHU-1	5,120	0.08	58%	42"x36"x6"	POTTORFF / EFD-635	1,2
L-2	INTAKE	AHU-2	11,380	0.08	63%	60"x54"x6"	POTTORFF / EFD-635	1,2
L-3	INTAKE	AHU-3	8,040	0.07	62%	60"x42"x6"	POTTORFF / EFD-635	1,2
L-4	INTAKE	AHU-4	3,900	0.08	57%	36"x36"x6"	POTTORFF / EFD-635	1,2
L-5	INTAKE	ERV-1 / 4	9,700	0.08	58%	42"x36"x6"	POTTORFF / EFD-635	1,2
L-6	INTAKE	ERV-2 / 3	3,600	0.08	62%	66"x42"x6"	POTTORFF / EFD-635	1,2

NOTES:

1. PROVIDE BIRD SCREEN.

2. COORDINATE EXACT LOCATION, MOUNTING HEIGHT AND FINISH WITH ARCHITECT.

HOOD SCHEDULE

MARK	TYPE	SERVICE	CFM	SP (IN. W.G.)	THROAT SIZE (IN.)	MAX. WEIGHT (LBS)	MANFACTURER / MODEL	NOTES
EH-1	EXHAUST	ERV - 2	3,535	0.08	24" x 30"	70	GREENHECK - FGR	1-4
EH-2	EXHAUST	ERV - 3	5,255	0.08	24" x 48"	100	GREENHECK - FGR	1-4
EH-3	EXHAUST	ERV - 1 / 4	4,440	0.08	24" x 42"	100	GREENHECK - FGR	1-4
R-1,2,3	RELIEF	PENTHOUSE	15,000	0.10	48" x 60"	220	GREENHECK - FGR	1-4

NOTES:

1. PROVIDE BIRD SCREEN.

2. PROVIDE WITH 2 INCH ALUMINUM FILTER.

3. PROVIDE GRAVITY BACKDRAFT DAMPER.

4. PROVIDE HOOD WITH FACTORY APPLIED FIBERGLASS INSULATION.

AIR BALANCE

MARK	REQUIRED (Vbz)	OUTSIDE AIR PROVIDED	EXHAUST REQUIRED	EXHAUST PROVIDED	BALANCE
AHU-1	2,689	3,600	1,203	3,269	340
AHU-2	2,179	3,900	1,543	3,535	365
AHU-3	4,547	5,800	2,711	5,255	545
AHU-4	273	495	525	740	-245
TOTAL	9688	13795	5982	12790	1005



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07/12/2024

ISSUE FOR CONSTRUCTION

No. Date Description

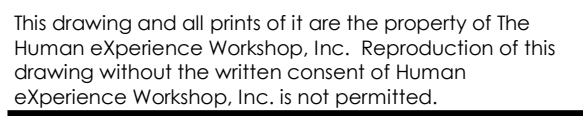
Cabarrus County
Regional
Behavioral Health
Center

DHSR Number: MHL-5188

Bid Package 3

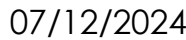
SCHEDULES -
MECHANICAL

DATE JULY 12, 2024 SHEET
SCALE
DRAWN RD / BES
PROJ. NO. 2022-A002.01
M702



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Cabarrus County
Regional
Behavioral Health
Center

DHSR Number: MHL-5188

Bid Package 3

SCHEDULES - MECHANICAL

DATE JULY 12, 2024 SHEET
SCALE
DRAWN RD / BES M703
PROJ. NO. 2022-A002.01

NOTES:

1. ALL PIPING SHALL BE CAPABLE OF OPERATING UNDER THE DESIGN SERVICE PRESSURE, UNLESS NOTED OTHERWISE.
2. BRANCH TAKE-OFFS FOR WELDED FITTINGS FROM LINES 2 1/2" AND LARGER, WHERE THE SIZE OF THE TAKE-OFF DOES NOT EXCEED 2/3 OF THE NOMINAL PIPE DIAMETER BEING TAPPED, MAY BE MADE WITH SHAPED NIPPLES, WELDOLETS OR THREADOLETS.

NOTES:

1. 160 PSI PRESSURE RATING.
2. 20:1 TURNDOWN ON NATURAL GAS BURNER.
3. 9 PPM NOX EMISSION CONTROLS FOR NATURAL GAS BURNER.
4. MAINTAIN MINIMUM CLEARANCES REQUIRED FOR SERVICE, MAINTENANCE, AND INSPECTION.
5. PROVIDE AND INSTALL COMBINED NATURAL GAS AND CARBON MONOXIDE MONITOR AGS-MIN MERLIN OR APPROVED EQUAL.
6. ACCEPTABLE MANUFACTURERS: AERCO, BOSCH, SUPERIOR.

NOTES:

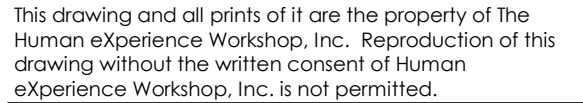
1. CLOSED, DIAPHRAGM TANK.
2. ASME RATED AT 125 PSIG.
3. SIMULTANEOUS RATING OF 100°F FOR CHILLED WATER OR 240°F FOR HEATING WATER
4. FIELD REPLACEABLE DIAPHRAGM.
5. INITIAL FILL TEMP: 50°F
6. PROVIDE WITH FACTORY PRECHARGE.
7. LIFTING LUGS.

NOTES:

1. PROVIDE INVERTER DUTY MOTOR.	7. PROVIDE PUMP WITH VARIABLE FREQUENCY DRIVE.
2. PROVIDE SUCTION DIFFUSER.	8. PUMP TO HAVE A NON-OVERLOADING MOTOR.
3. PROVIDE PRESSURE TAPS ON INLET/OUTLET FLANGES.	9. PUMP INTEGRAL TO SKID MOUNTED PACKAGE.
4. PROVIDE STEEL BASE PLATE.	10. STARTER/DISCONNECT BY DIVISION 26.
5. MAINTAIN MINIMUM CLEARANCES REQUIRED FOR SERVICE, MAINTENANCE, AND INSPECTION.	11. ACCEPTABLE MANUFACTURERS: ARMSTRONG, BELL & GOSSETT, PACO.
6. LEAD/LAG CONTROL PANEL WITH SINGLE POINT ELECTRICAL CONNECTION.	

NOTES:

1. RATED FOR 125 PSIG AT 200°F.
2. INTEGRAL SEPARATOR AND AIR VENT.
3. MANUAL BLOWDOWN VALVE.
4. MAINTAIN MINIMUM CLEARANCES REQUIRED FOR SERVICE, MAINTENANCE, AND INSPECTION



DHSR Number: MHL-5188

DATE JULY 12, 2024 SHEET
SCALE
DRAWN RD / BES **M704**
PROJ. NO. 2022-A002.01

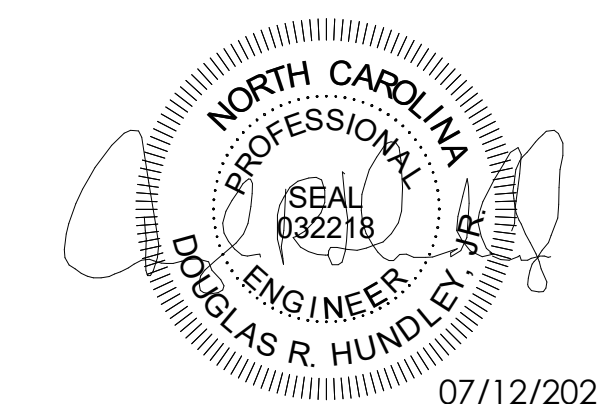
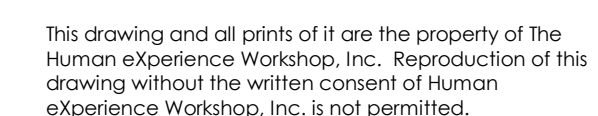
AHU-1 VENTILATION TABLE																	
ROOM INFORMATION					DESIGN								CODE REQUIREMENTS				
Room Number	Room Name	Area SF	Ceiling Height	Room Volume	RA CFM	SA CFM2	EA CFM3	OA %	OA CFM4	SA ACH	EA ACH5	OA ACH6	Code Air Relationship	Code SA ACH	Code SA CFM	Code EA ACH	Code EA CFM
600	ACTIVE & DINING	313	10	3130	600	800	0	33	264	15	0	5	0	6	313	0	0
700	ACTIVE DINING	330	10	3300	600	780	0	33	257	14	0	5	0	6	330	0	0
6B	ADA BEDROOM	167	10	1670	0	180	80	33	59	6	3	2	0	6	167	0	0
7B	ADA BEDROOM	167	10	1670	0	170	70	33	56	6	3	2	0	6	167	0	0
605	ADA TLT	55	10	550	0	60	105	33	20	7	11	2	10	0	0	10	92
6B1	ADA TLT	61	10	610	0	0	105	33	0	0	10	0	10	0	0	10	102
705	ADA TLT	51	10	510	0	60	105	33	20	7	12	2	10	0	0	10	85
7B1	ADA TLT	61	10	610	0	0	105	33	0	0	10	0	10	0	0	10	102
602	CONSULT	119	10	1190	80	80	0	33	26	4	0	1	0	4	79	0	0
702	CONSULT	123	10	1230	90	90	0	33	30	4	0	1	0	4	82	0	0
1	CORRIDOR	500	10	5000	0	720	0	33	238	9	0	3	0	0	0	0	2
2	CORRIDOR	680	10	6800	1500	700	0	33	231	6	0	2	0	0	0	0	2
3	CORRIDOR	680	10	6800	1500	900	0	33	297	8	0	3	0	0	0	0	2
4	CORRIDOR	470	10	4700	0	480	400	33	158	6	5	2	0	0	0	0	2
5	CORRIDOR	180	10	1800	0	190	0	33	63	6	0	2	0	0	0	0	2
6	CORRIDOR	716	10	7160	800	730	0	33	241	6	0	2	0	0	0	0	2
1607B	DICTATION	96	10	960	70	70	0	33	23	4	0	1	0	4	64	0	0
6C	DOUBLE BEDROOM	247	10	2470	0	250	150	33	83	6	4	2	0	6	247	0	0
6D	DOUBLE BEDROOM	242	10	2420	0	250	150	33	83	6	4	2	0	6	242	0	0
6E	DOUBLE BEDROOM	243	10	2430	0	250	150	33	83	6	4	2	0	6	243	0	0
6F	DOUBLE BEDROOM	245	10	2450	0	250	150	33	83	6	4	2	0	6	245	0	0
7D	DOUBLE BEDROOM	242	10	2420	0	250	150	33	83	6	4	2	0	6	242	0	0
7F	DOUBLE BEDROOM	245	10	2450	0	270	170	33	89	7	4	2	0	6	245	0	0
7C	DOUBLE BEDROOM	246	10	2460	0	250	150	33	83	6	4	2	0	6	246	0	0
7E	DOUBLE BEDROOM	243	10	2430	0	250	150	33	83	6	4	2	0	6	243	0	0
1604	EXAM	119	10	1190	120	120	0	33	40	6	0	2	0	6	119	0	0
701	GROUP ROOM	339	10	3390	600	600	0	33	198	11	0	4	0	6	339	0	0
601	GROUP ROOM	365	10	3650	520	520	0	33	172	9	0	3	0	6	365	0	0
1607A	MED	140	10	1400	100	100	0	33	33	4	0	1	0	4	83	0	0
1602	MULTI PURPOSE	401	10	4010	410	410	0	33	135	6	0	2	0	6	401	0	0
600A	NURSE STATION	200	10	2000	0	140	0	33	46	4	0	1	0	4	133	0	0
700A	NURSE STATION	187	10	1870	0	140	0	33	46	4	0	1	0	4	125	0	0
1606	OFFICE	106	10	1060	70	70	0	33	23	4	0	1	0	0	0	0	9
700C	PASSAGE	185	10	1850	0	140	0	33	46	5	0	1	0	2	62	0	0
603	QUIET	85	10	850	90	90	0	33	30	6	0	2	0	6	85	0	0
703	QUIET	83	10	830	90	90	0	33	30	7	0	2	0	6	83	0	0
600B	SEATING NICHE	85	10	850	0	0	0	33	0	0	0	0	0	2	28	0	0
700B	SEATING NICHE	88	10	880	0	0	0	33	0	0	0	0	0	2	29	0	0
1605A	SEC RM	77	10	770	90	90	0	33	30	7	0	2	0	6	77	0	0
1605B	SEC TLT	62	10	620	0	75	105	33	25	7	10	2	10	0	0	103	0
1605	SEC VEST	76	10	760	0	50	0	33	17	4	0	1	0	0	0	0	0
6A	SINGLE BEDROOM	164	10	1640	0	170	70	33	56	6	3	2	0	6	164	0	0
7A	SINGLE BEDROOM	164	10	1640	0	170	70	33	56	6	3	2	0	6	164	0	0
1808	STORAGE	59	10	590	0	0	0	33	0	0	0	0	0	0	0	0	7
6A1	TLT	45	10	450	0	0	85	33	0	0	11	0	10	0	0	10	75
6C1	TLT	43	10	430	0	0	85	33	0	0	12	0	10	0	0	10	72
6D1	TLT	43	10	430	0	0	85	33	0	0	12	0	10	0	0	10	72
6E1	TLT	43	10	430	0	0	85	33	0	0	12	0	10	0	0	10	72
6F1	TLT	43	10	430	0	0	85	33	0	0	12	0	10	0	0	10	72
7A1	TLT	44	10	440	0	0	85	33	0	0	12	0	10	0	0	10	73
7C1	TLT	43	10	430	0	0	85	33	0	0	12	0	10	0	0	10	72
7D1	TLT	44	10	440	0	0	85	33	0	0	12	0	10	0	0	10	73
7E1	TLT	42	10	420	0	0	85	33	0	0	12	0	10	0	0	10	70
7F1	TLT	42	10	420	0	0	85	33	0	0	12	0	10	0	0	10	70
1608	TREATMENT TEAM ROOM	223	10	2230	200	200	0	33	66	5	0	2	0	0	0	0	0
1603	UNIT STORAGE	146	10	1460	0	70	0	33	23	3	0	1	0	0	0	0	0
600C	CORRIDOR	43	10	430	0	70	0	33	23	10	0	3	0	0	0	0	2
1607	WORKROOM	740	10	7400	660	660	0	33	218	5	0	2	0	4	493	0	0

AHU-2 VENTILATION TABLE																	
ROOM INFORMATION					DESIGN								CODE REQUIREMENTS				
Room Number	Room Name	Area SF	Ceiling Height	Room Volume	RA CFM	SA CFM2	EA CFM3	OA %	OA CFM4	SA ACH	EA ACH5	OA ACH6	Code Air Relationship	Code SA ACH	Code SA CFM	Code EA ACH	Code EA CFM
1002	ADA TLT	56	10	560	0	70	110	20	14	8	12	2	10	0	0	10	93
1003	ADA TLT	53	10	530	0	70	100	20	14	8	11	2	10	0	0	10	88
106	ADA TLT	70	10	700	0	90	120	20	18	8	10	2	10	0	0	10	117
107	ADA TLT	70	10	700	0	90	120	20	18	8	10	2	10	0	0	10	117
1201	ADA TLT	66	10	660	0	80	110	20	16	7	10	1	10	0	0	10	110
1301	ADA TLT	55	10	550	0	70	110	20	14	8	12	2	10	0	0	10	92
207	ADA TLT	54	10	540	0	90	110	20	18	10	12	2	10	0	0	10	90
208	ADA TLT	70	10	700	0	130	150	20	26	11	13	2	10	0	0	10	117
1401	ADA TLT STF	47	10	470	0	80	110	20	16	10	14	2	10	0	0	10	78
1403	ADA TLT STF	49	10	490	0	80	110	20	16	10	13	2	10	0	0	10	82
1404	BHUS WORK	365	10	3650	330	330	0	20	66	5	0	1	0	4	257	0	0
1704	ADA TLT	56	9	504	0	0	90	20	0	0	11	0	10	0	0	10	84
1721	CONF	212	10	2120	500	500	0	20	100	14	0	3	0	0	0	0	0
1006	CONFERENCE	363	10	3630	730	730	0	20	146	11	0	2	0	0	0	0	0
102	CONSULT	122	10	1220	160	160	0	20	32	8	0	2	0	4	81	0	0
203	CONSULT	120	10	1200	150	150	0	20	30	8	0	2	0	4	80	0	0
13	CORRIDOR	294	10	2940	0	590	590	20	118	12	12	2	0	0	0	0	2
14	CORRIDOR	567	10	5670	1000	1000	0	20	200	11	0	2	0	0	0	0	2
15	CORRIDOR	307	10	3070	520	520	0	20	104	10	0	2	0	0	0	0	2
16	CORRIDOR	856	10	8560	1000	1440	440	20	288	10	3	2	0	0	0	0	2
22	CORRIDOR	352	10	3520	600	600	0	20	120	10	0	2	0	0	0	0	2
1101	CRISIS ENTRY	114	10	1140	60	90	0	20	18	5	0	1	0	0	0	0	0
1004	DISCHARGE WAITING	107	10	1070	120	120	0	20	24	7	0	1	0	4	71	0	0
1503	EVS	147	10	1470	0	250	250	20	50	10	10	2	10	0	0	10	245
1707	EVS	87	10	870	0	0	150	20	0	0	10	0	10	0	10	145	0
1102	EXAM	121	10	1210	125	125	0	20	25	6	0	1	0	6	121	0	0
1103	EXAM	125	10	1250	125	125	0	20	25	6	0	1	0	6	125	0	0
1005	FAMILY LOUNGE	226	10	2260	670	670	0	20	134	18	0	4	0	0	0	0	0
108	GROUP	297	10	2970	0	500	500	20	100	10	10	2	0	6	297	0	0
209	GROUP	320	10	3200	0	550	550	20	110	10	10	2	0	6	320	0	0

AHU-3 VENTILATION TABLE																			
ROOM INFORMATION					DESIGN									CODE REQUIREMENTS					
Room Number	Room Name	Area SF	Ceiling Height	Room Volume	RA CFM	SA CFM2	EA CFM3	OA %	OA CFM4	SA ACH	EA ACH5	OA ACH6	Code Air Relationship	Code SA ACH	Code SA CFM	Code EA ACH	Code EA CFM	Code OA ACH	Code OA CFM
300	ACTIVE & DINING	402	10	4020	1000	560	0	33	185	8	0	3	0	6	402	0	0	2	134
400	ACTIVE & DINING	330	10	3300	1000	490	0	33	162	9	0	3	0	6	330	0	0	2	110
500	ACTIVE & DINING	358	10	3580	1000	600	0	33	198	10	0	3	0	6	358	0	0	2	119
1804A	ACTIVITY ROOM	715	18	12870	1300	1300	0	33	429	6	0	2	0	6	1287	0	0	2	429
3C	ADA BEDROOM	135	10	1350	0	140	40	33	46	6	2	2	0	6	135	0	0	2	45
4D	ADA BEDROOM	137	10	1370	0	140	40	33	46	6	2	2	0	6	137	0	0	2	46
5D	ADA BEDROOM	126	10	1260	0	140	40	33	46	7	2	2	0	6	126	0	0	2	42
305	ADA TLT	46	10	460	0	60	90	33	20	8	12	3	10	0	0	10	77	0	0
3C1	ADA TLT	44	10	440	0	0	90	33	0	0	12	0	10	0	0	10	73	0	0
405	ADA TLT	48	10	480	0	60	90	33	20	8	11	2	10	0	0	10	80	0	0
4D1	ADA TLT	44	10	440	0	0	90	33	0	0	12	0	10	0	0	10	73	0	0
505	ADA TLT	54	10	540	0	60	100	33	20	7	11	2	10	0	0	10	90	0	0
5D1	ADA TLT	45	10	450	0	0	90	33	0	0	12	0	10	0	0	10	75	0	0
1505	CLASSROOM	439	10	4390	0	640	640	33	211	9	9	3	0	0	0	0	0	0	206
302	CONSULT	114	10	1140	80	80	0	33	26	4	0	1	0	4	76	0	0	0	0
402	CONSULT	113	10	1130	80	80	0	33	26	4	0	1	0	4	75	0	0	0	0
502	CONSULT	112	10	1120	80	80	0	33	26	4	0	1	0	4	75	0	0	0	0
10	CORRIDOR	782	10	7820	800	800	0	33	264	6	0	2	0	0	0	0	0	2	261
11	CORRIDOR	700	10	7000	1000	900	0	33	297	8	0	3	0	0	0	0	0	2	233
12	CORRIDOR	790	10	7900	1000	800	0	33	264	6	0	2	0	0	0	0	0	2	263
17	CORRIDOR	197	10	1970	0	200	0	33	66	6	0	2	0	0	0	0	0	2	66
18	CORRIDOR	594	10	5940	1000	900	0	33	297	9	0	3	0	0	0	0	0	2	198
19	CORRIDOR	597	10	5970	0	280	0	33	92	3	0	1	0	0	0	0	0	2	199
20	CORRIDOR	593	10	5930	1000	900	0	33	297	9	0	3	0	0	0	0	0	2	198
21	CORRIDOR	445	10	4450	0	280	0	33	92	4	0	1	0	0	0	0	0	2	148
23	CORRIDOR	505	10	5050	0	520	0	33	172	6	0	2	0	0	0	0	0	2	168
1510B	DICTATION	87	10	870	80	80	0	33	26	6	0	2	0	4	58	0	0	0	0
1508	EXAM	126	10	1260	130	130	0	33	43	6	0	2	0	6	126	0	0	0	0
301	GROUP ROOM	294	10	2940	410	410	0	33	135	8	0	3	0	6	294	0	0	2	98
401	GROUP ROOM	287	10	2870	440	440	0	33	145	9	0	3	0	6	287	0	0	2	96
501	GROUP ROOM	286	10	2860	440	440	0	33	145	9	0	3	0	6	286	0	0	2	95
1801	LEARNING KITCHEN	782	10	7820	0	650	700	33	215	5	5	2	0	0	0	0	547	0	211
1510A	MEDS	103	10	1030	80	80	0	33	26	5	0	2	0	4	69	0	0	0	0
1803A	MEDS	110	10	1100	80	80	0	33	26	4	0	1	0	4	73	0	0	0	0
1808	MOTHERS ROOM	82	10	820	0	90	90	33	30	7	7	2	0	6	82	0	0	2	27
1504	MULTI PURPOSE	236	10	2360	200	300	0	33	99	8	0	3	0	6	236	0	0	2	79
300A	NURSE STATION	162	10	1620	0	110	0	33	36	4	0	1	0	4	108	0	0	0	0
400A	NURSE STATION	174	10	1740	0	120	0	33	40	4	0	1	0	4	116	0	0	0	0
500A	NURSE STATION	382	10	3820	0	130	0	33	43	2	0	1	0	4	255	0	0	0	0
1509	OFFICE	89	10	890	80	80	0	33	26	5	0	2	0	0	0	0	0	0	8
1804	VEST	63	10	630	0	50	0	33	17	5	0	2	0	0	0	0	0	0	0
303	QUIET	95	10	950	100	100	0	33	33	6	0	2	0	6	95	0	0	2	32
403	QUIET	94	10	940	100	100	0	33	33	6	0	2	0	6	94	0	0	2	31
503	QUIET	86	10	860	100	100	0	33	33	7	0	2	0	6	86	0	0	2	29
300B	SEATING NICHE	115	10	1150	0	0	0	33	0	0	0	0	0	2	38	0	0	0	0
400B	SEATING NICHE	118	10	1180	0	0	0	33	0	0	0	0	0	2	39	0	0	0	0
500B	SEATING NICHE	120	10	1200	0	0	0	33	0	0	0	0	0	2	40	0	0	0	0
1507A	SEC	96	10	960	100	100	0	33	33	6	0	2	0	6	96	0	0	2	32
1507B	SEC TLT	38	10	380	0	50	85	33	17	8	13	3	10	0	0	10	63	0	0
1507	SEC VEST	70	10	700	0	30	0	33	10	3	0	1	0	0	0	0	0	0	0
3A	SINGLE BEDROOM	125	10	1250	0	170	70	33	56	8	3	3	0	6	125	0	0	2	42
3B	SINGLE BEDROOM	125	10	1250	0	170	70	33	56	8	3	3	0	6	125	0	0	2	42
3D	SINGLE BEDROOM	125	10	1250	0	170	70	33	56	8	3	3	0	6	125	0	0	2	42
3E	SINGLE BEDROOM	125	10	1250	0	170	70	33	56	8	3	3	0	6	125	0	0	2	42
3F	SINGLE BEDROOM	125	10	1250	0	170	70	33	56	8	3	3	0	6	125	0	0	2	42
3G	SINGLE BEDROOM	125	10	1250	0	170	70	33	56	8	3	3	0	6	125	0	0	2	42
3H	SINGLE BEDROOM	125	10	1250	0	180	80	33	59	9	4	3	0	6	125	0	0	2	42
4A	SINGLE BEDROOM	125	10	1250	0	170	70	33	56	8	3	3	0	6	125	0	0	2	42
4B	SINGLE BEDROOM	125	10	1250	0	170	70	33	56	8	3	3	0	6	125	0	0	2	42
4C	SINGLE BEDROOM	125	10	1250	0	170	70	33	56	8	3	3	0	6	125	0	0	2	42
4E	SINGLE BEDROOM	125	10	1250	0	170	70	33	56	8	3	3	0	6	125	0	0	2	42
4F	SINGLE BEDROOM	125	10	1250	0	170	70	33	56	8	3	3	0	6	125	0	0	2	42
4G	SINGLE BEDROOM	125	10	1250	0	170	70	33	56	8	3	3	0	6	125	0	0	2	42
4H	SINGLE BEDROOM	125	10	1250	0	170	70	33	56	8	3	3	0	6	125	0	0	2	42
5A	SINGLE BEDROOM	126	10	1260	0	170	70	33	56	8	3	3	0	6	126	0	0	2	42
5B	SINGLE BEDROOM	126	10	1260	0	170	70	33	56	8	3	3	0	6	126	0	0	2	42
5C	SINGLE BEDROOM	126	10	1260	0	170	70	33	56	8	3	3	0	6	126	0	0	2	42
5E	SINGLE BEDROOM	126	10	1260	0	170	70	33	56	8	3	3	0	6	126	0	0	2	42
5F	SINGLE BEDROOM	128	10	1280	0	170	70	33	56	8	3	3	0	6	128	0	0	2	43
5G	SINGLE BEDROOM	126	10	1260	0	170	70	33	56	8	3	3	0	6	126	0	0	2	42
9H	SINGLE BEDROOM	133	10	1330	0	170	70	33	56	8	3	3	0	6	133	0	0	2	44
3A1	TLT	37	10	370	0	0	80	33	0	0	13	0	10	0	0	10	62	0	0
3B1	TLT	37	10	370	0	0	80	33	0	0	13	0	10	0	0	10	62	0	0
3D1	TLT	37	10	370	0	0	80	33	0	0	13	0	10	0	0	10	62	0	0
3E1	TLT	37	10	370	0	0	80	33	0	0	13	0	10	0	0	10	62	0	0
3F1	TLT	37	10	370	0	0	80	33	0	0	13	0	10						



- 13 DUCT PENETRATION FOR 1-HR RATING WITHOUT FIRE DAMPER**
NOT TO SCALE



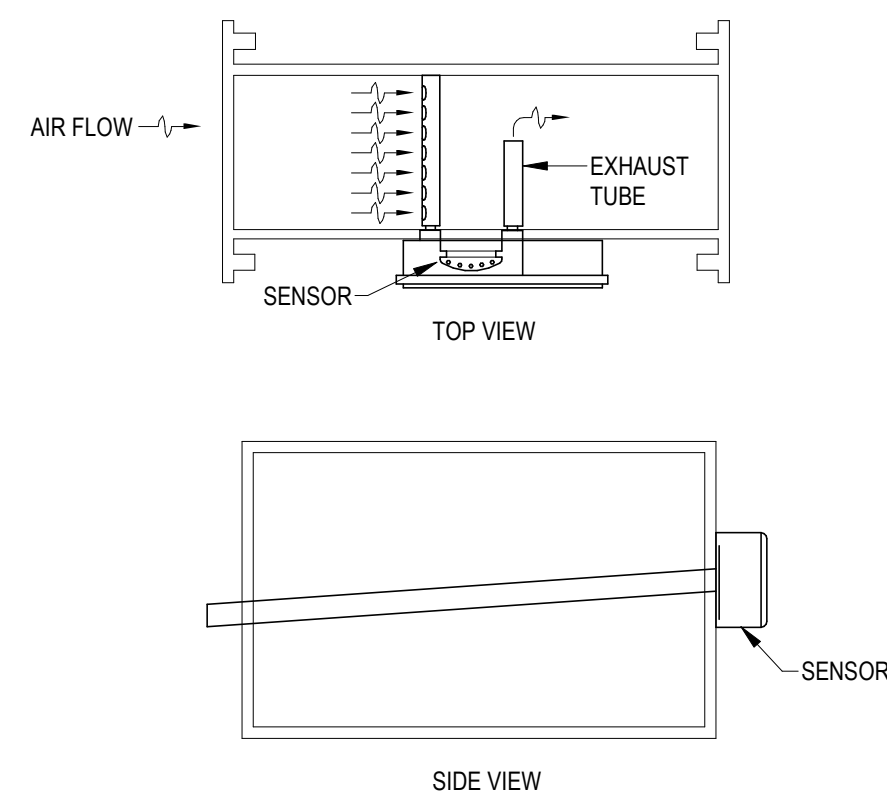
Cabarrus County
Regional
Behavioral Health
Center

DHSR Number: MHL-5188

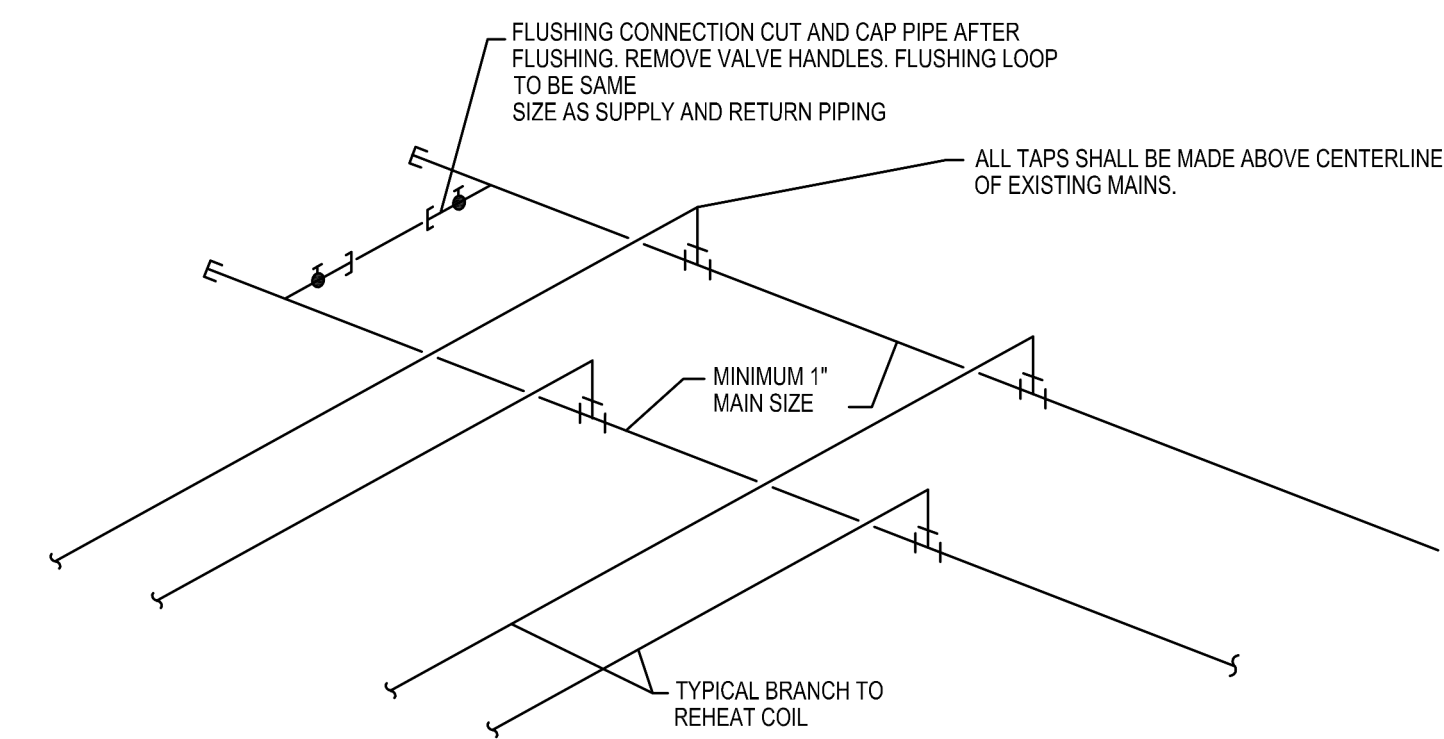
Bid Package 3

DETAILS - MECHANICAL

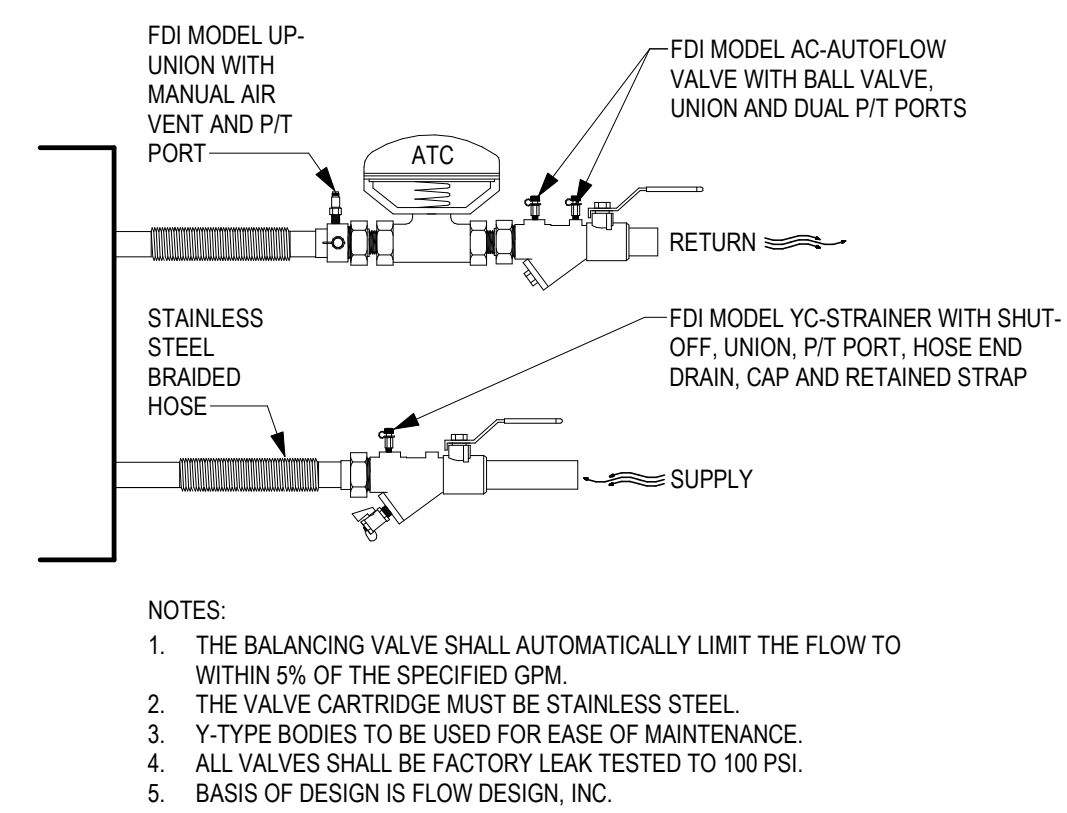
DATE JULY 12, 2024 SHEET
SCALE As indicated
DRAWN RD / BES
PROJ. NO. 2022-A002.01



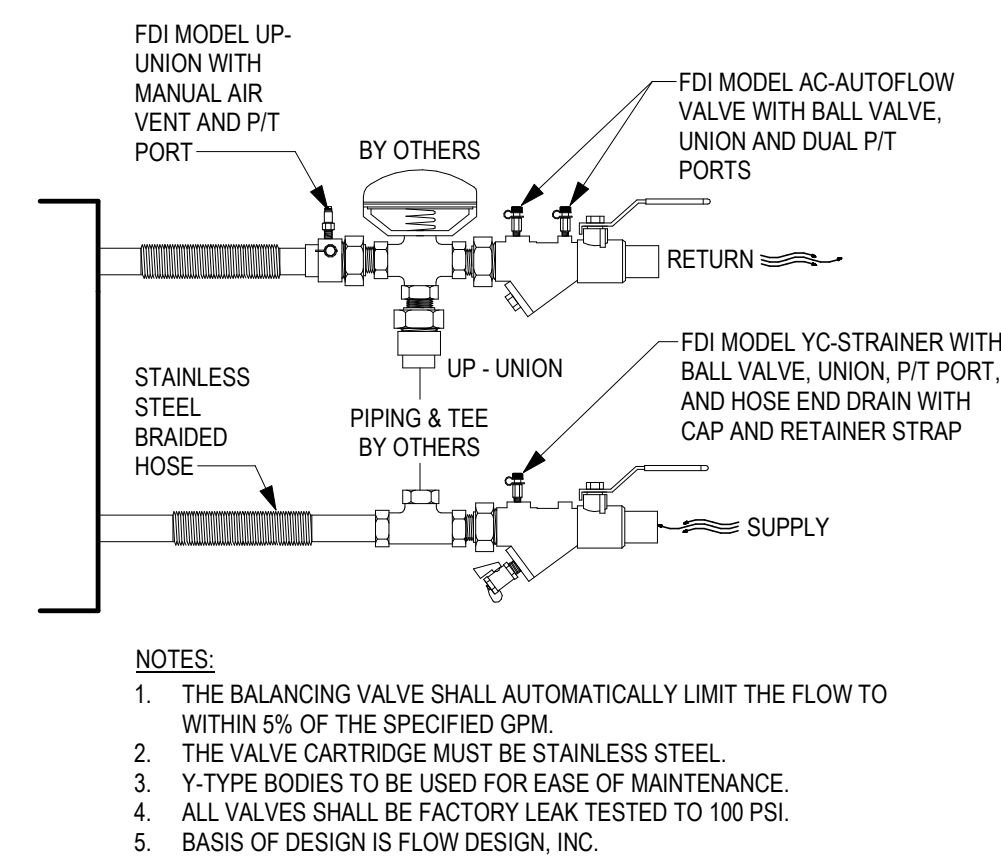
9 DUCT MOUNTED SMOKE DETECTOR
NOT TO SCALE



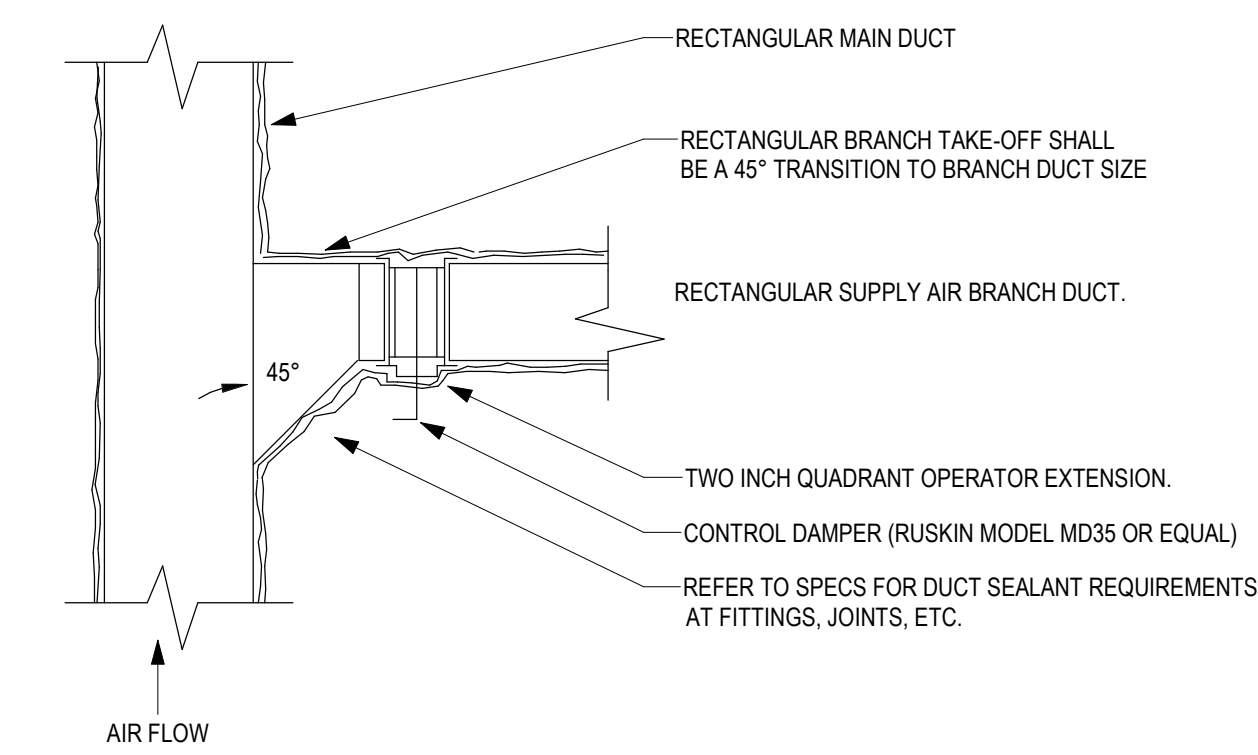
HVAC REHEAT
HOT WATER END OF MAIN FLUSHING
NOT TO SCALE



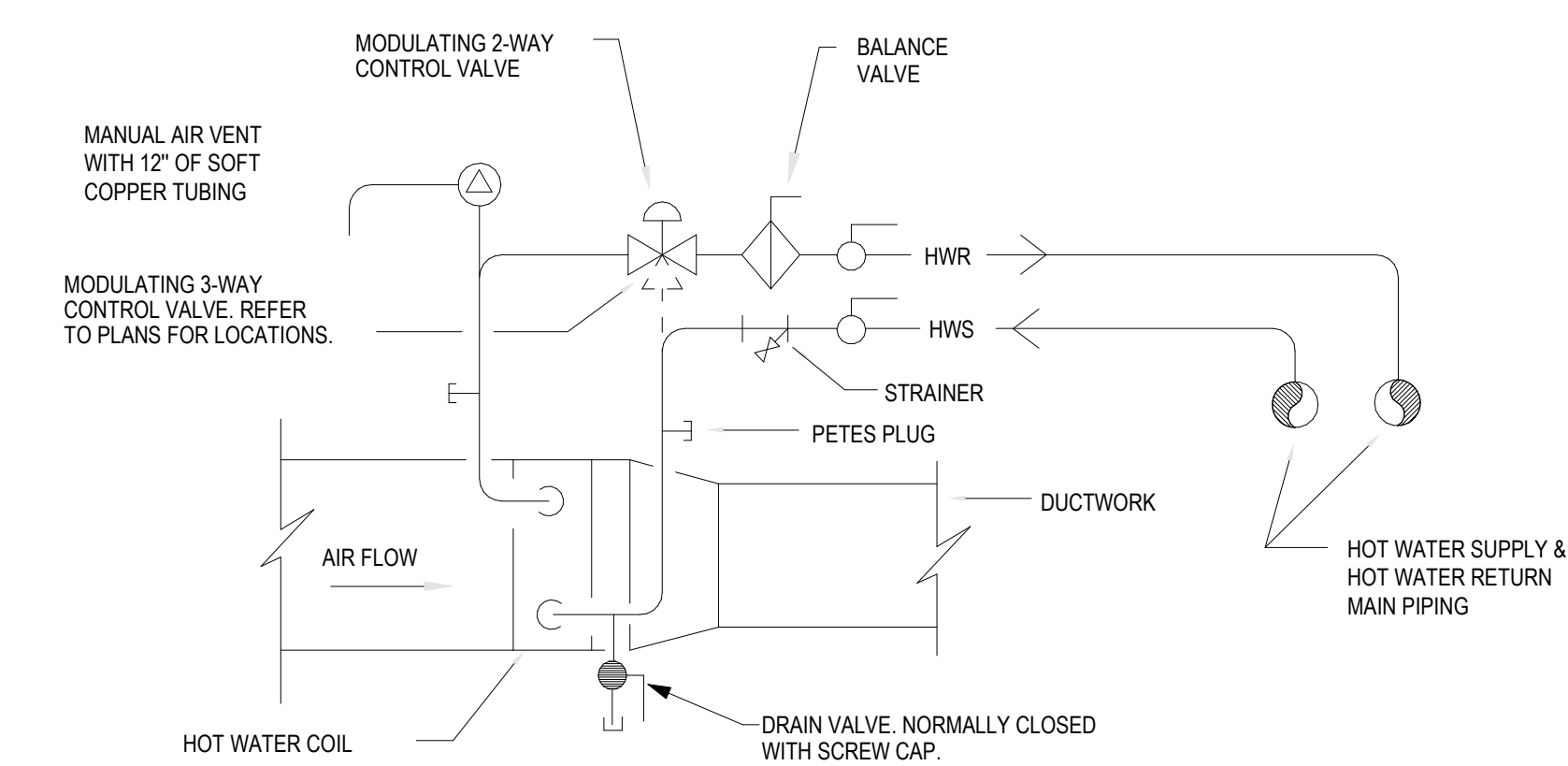
6 HYDRONIC COIL HOOK UP WITH TWO-WAY VALVE



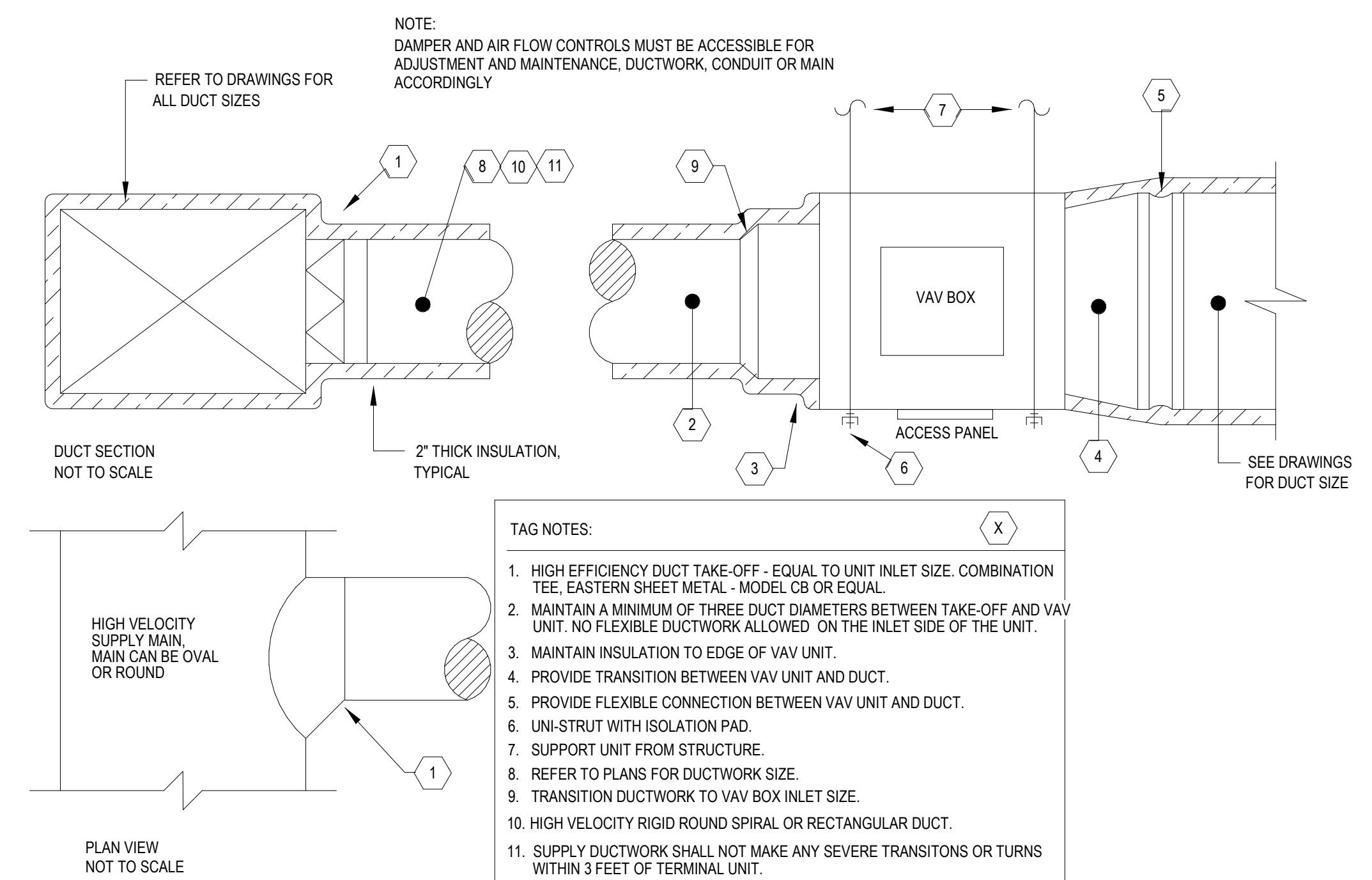
5 HYDRONIC COIL HOOK UP WITH THREE-WAY VALVE



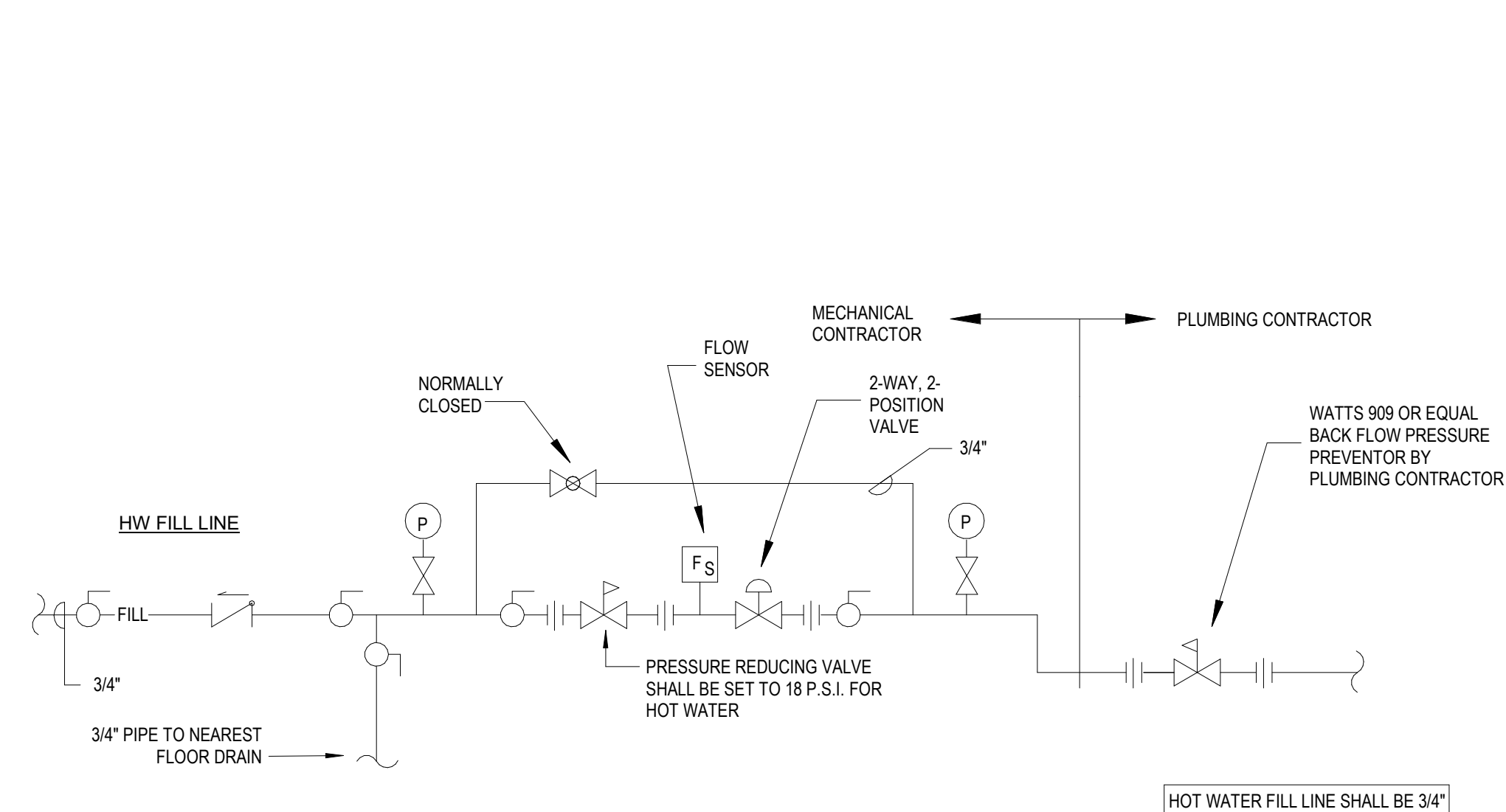
3 TYPICAL RECTANGULAR SUPPLY, RETURN, & EXHAUST DUCT
TAKE-OFF
NOT TO SCALE



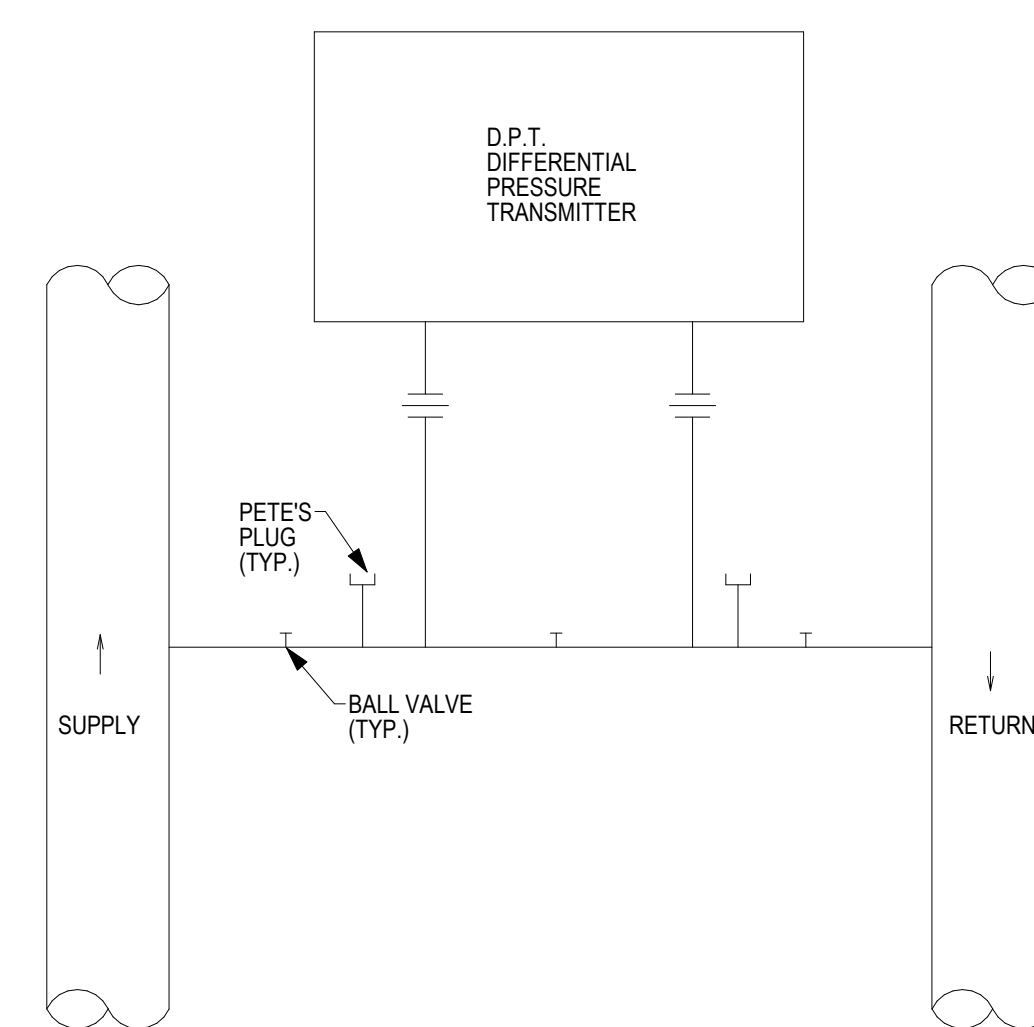
2 VAV BOX REHEAT COIL PIPING SCHEMATIC



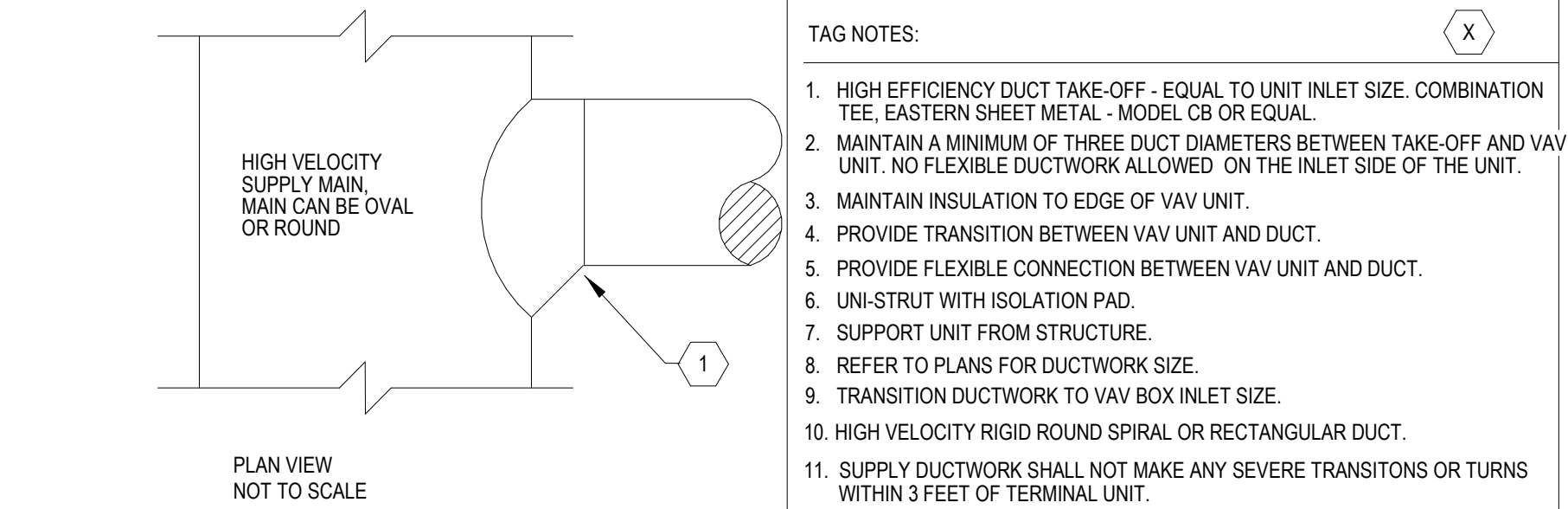
IN PATIENT CARE AREAS WITH DRYWALL CEILINGS, PROVIDE AND INSTALL A "SECURITY ARCHITECTURAL ACCESS DOOR" PER SHEETMETAL SPECIFICATIONS TO ACCESS DAMPER.



7 HYDRONIC FILL STATION PIPING



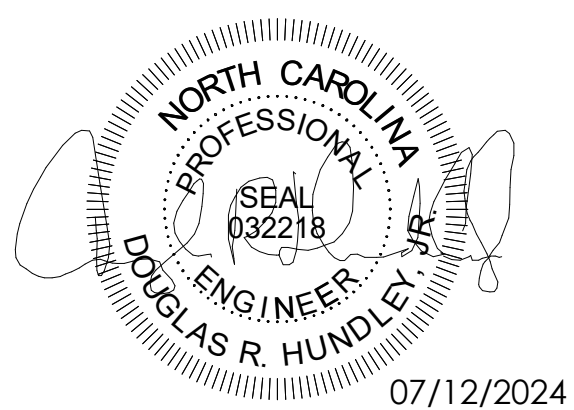
4 DIFFERENTIAL PRESSURE SENSOR INSTALLATION



1 VAV BRANCH DUCT CONNECTION



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ISSUE FOR CONSTRUCTION

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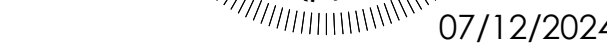
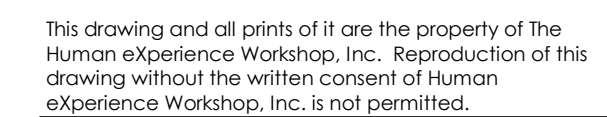
Cabarrus County
Regional
Behavioral Health
Center

DHSR Number: MHL-5188

Bid Package 3

DETAILS - MECHANICAL

DATE	JULY 12, 2024	SHEET
SCALE	As indicated	M803
DRAWN	RD / BES	
PROJ. NO.	2022-A002.01	



No.	Date	Description
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No.	Date	Description
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DHSR Number: MHL-5188

MECHANICAL CONTROLS

SCALE 12" = 1'-0"
DRAWN TN / BES
PROJ. NO. 2022-A002.01



RUN CONDITIONS - SCHEDULED:
THE UNIT WILL RUN BASED UPON AN OPERATOR ADJUSTABLE SCHEDULE.

SUPPLY FAN:
THE SUPPLY FAN WILL RUN ANYTIME THE UNIT IS COMMAND TO RUN, UNLESS SHUTDOWN ON SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY WILL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

ALARM WILL BE PROVIDED AS FOLLOWS:

- 1- SUPPLY FAN FAILURE: COMMAND ON, BUT THE STATUS IS OFF.
- 2- SUPPLY FAN IN HAND: COMMAND OFF, BUT THE STATUS IS ON.

SUPPLY AIR DUCT STATIC PRESSURE CONTROL:

THE CONTROLLER WILL MEASURE DUCT STATIC PRESSURE AND MODULATE THE SUPPLY FAN VFD SPEED TO MAINTAIN A DUCT STATIC PRESSURE SET POINT. THE SPEED WILL NOT DROP BELOW 40 % (ADJ.). THE STATIC PRESSURE SET POINT WILL BE RESET BASED ON COOLING REQUIREMENTS.

1. THE INITIAL DUCT STATIC PRESSURE SET POINT WILL BE 1.3IN H2O (ADJ.)
2. AS COOLING DEMAND INCREASES, THE SET POINT WILL INCREMENTALLY RESET UP TO A MAXIMUM OF 1.8IN H2O (ADJ.)
3. AS COOLING DEMAND DECREASES, THE SET POINT WILL INCREMENTALLY RESET DOWN TO A MINIMUM OF 1.3IN H2O (ADJ.)

ALARM WILL BE PROVIDED AS FOLLOWS:

1. HIGH SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY PRESSURE IS 25% (ADJ.) GREATER THAN MAXIMUM SET POINT.
2. LOW SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY PRESSURE IS 25% (ADJ.) LESS THAN MINIMUM SET POINT.
3. SUPPLY FAN VFD FAULT.

RETURN FAN:
THE RETURN FAN WILL RUN WHENEVER THE SUPPLY FAN RUNS.

1. RETURN FAN FAILURE: COMMAND ON, BUT THE STATUS IS OFF.
2. RETURN FAN IN HAND: COMMAND OFF, BUT THE STATUS IS ON.
3. RETURN FAN VFD FAULT.

RETURN AIRFLOW:

THE RETURN FAN VFD WILL MODULATE IN UNISON WITH THE SUPPLY FAN VFD. RETURN AIRFLOW SET POINT WILL BE 100% (ADJ.) OF THE SUPPLY AIRFLOW MINUS THE EXHAUST AIRFLOW FROM THE ROOMS BEING SUPPLIED BY THE AIR HANDLING UNIT *0.75. THE AIRFLOW WILL BE MEASURED BY FLOW STATIONS MOUNTED AT THE FAN INLET. THE RETURN FAN VFD SPEED WILL NOT DROP BELOW 25% (ADJ.).

ALARM WILL BE PROVIDED AS FOLLOWS:

1. HIGH RETURN AIRFLOW: IF THE RETURN AIRFLOW IS AN ADJUSTABLE PERCENTAGE GREATER THAN SET POINT.
2. LOW RETURN AIRFLOW: IF THE RETURN AIRFLOW IS AN ADJUSTABLE PERCENTAGE LESS THAN SET POINT.

SUPPLY AIR TEMPERATURE SET POINT - OPTIMIZED:
THE CONTROLLER WILL MONITOR THE SUPPLY AIR TEMPERATURE AND WILL MAINTAIN A SUPPLY AIR TEMPERATURE SET POINT RESET BASED ON ZONE COOLING AND HEATING REQUIREMENTS.

SUPPLY AIR TEMPERATURE SET POINT WILL RESET FOR COOLING BASED ON ZONE COOLING REQUIREMENT AS FOLLOWS:

1. THE INITIAL SUPPLY AIR TEMPERATURE SET POINT WILL BE 55 DEGREE F (ADJ.).
2. AS COOLING DEMAND INCREASES, THE SET POINT WILL INCREMENTALLY RESET DOWN TO A MINIMUM OF 53 DEGREE F (ADJ.).
3. AS COOLING DEMAND DECREASES, THE SET POINT WILL INCREMENTALLY RESET UP TO A MAXIMUM OF 57 DEGREE F (ADJ.).

COOLING COIL VALVE:
THE CONTROLLER WILL MEASURE THE SUPPLY AIR TEMPERATURE AND MODULE THE COOLING COIL VALVE TO MAINTAIN ITS COOLING SET POINT.

COOLING COIL WILL BE ENABLED WHENEVER:

1. OUTSIDE AIR TEMPERATURE IS GREATER THAN 60 DEGREE F (ADJ.)
2. AND THE ECONOMIZER (IF PRESENT) IS DISABLED OR FULLY OPEN.
3. AND THE SUPPLY FAN STATUS IS ON.
4. AND THE HEATING (IF PRESENT) IS NOT ACTIVE

COOLING COIL VALVE WILL OPEN TO 50% (ADJ.) WHENEVER THE FREEZE STAT (IF PRESENT) IS ON

1. HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS 5 DEGREE F (ADJ.) GREATER THAN SET POINT

ECONOMIZER:
THE CONTROLLER WILL MEASURE THE MIXED AIR TEMPERATURE AND MODULE THE ECONOMIZER DAMPERS IN SEQUENCE TO MAINTAIN SET POINT 2 DEGREE F (ADJ.) LESS THAN SUPPLY TEMPERATURE SET POINT. DURING ECONOMIZER MODE THE OUTSIDE AIR DAMPER WILL

THE ECONOMIZER WILL BE ENABLED WHENEVER

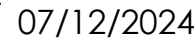
1. OUTSIDE AIR TEMPERATURE IS LESS THAN 65 DEGREE F (ADJ.).
2. AND THE OUTSIDE AIR ENTHALPY IS LESS THAN 22BTU/LB (ADJ.).
3. AND THE OUTSIDE AIR TEMPERATURE IS LESS THAN RETURN AIR TEMPERATURE
4. AND THE OUTSIDE AIR ENTHALPY IS LESS THAN RETURN AIR ENTHAPY.
5. AND THE SUPPLY FAN STATUS IS ON.

THE ECONOMIZER WILL CLOSE WHENEVER:

1. MIXED AIR TEMPERATURE DROPS BELOW 45 DEGREE F (ADJ.).
2. OR THE FREEZE STAT (IF PRESENT) IS ON.
3. OR ON LOSS OF SUPPLY FAN STATUS.

THE ECONOMIZER WILL CLOSE WHENEVER:

1. MIXED AIR TEMPERATURE DROPS BELOW 45 DEGREE F(ADJ.).
2. OR THE FREEZE STAT (IF PRESENT) IS ON.
3. OR ON LOSS OF SUPPLY FAN STATUS.



No.	Date	Description
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DHSR Number: MHL-5188

MECHANICAL CONTROLS

SCALE _____
DRAWN _____ TN / BES
PROJ. NO. 2022-A002.01

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