



# Submittal

## Clinton County Jail Controls

Date: 06/10/2025

Project Name: Clinton County Jail Controls

Project Location: 1645 Davids Dr, Wilmington, OH 45177

**Prepared For:**

Clinton County  
46 S South Street STE 213  
Wilmington, OH, 54177

**Trane Sales Office:**

Cincinnati  
10300 Springfield Pike  
Cincinnati, OH 45215

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**Trane Contracting Team:**

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Project Manager: Eric Hillaker  
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# Submittal Contents

The following is a list of documents included in this submittal in the order that they appear.

Cover Page  
Submittal Contents  
Control Drawings

# Clinton County Jail Controls

## 1645 Davids Dr

### Wilmington, OH 45177

#### Customer Contact

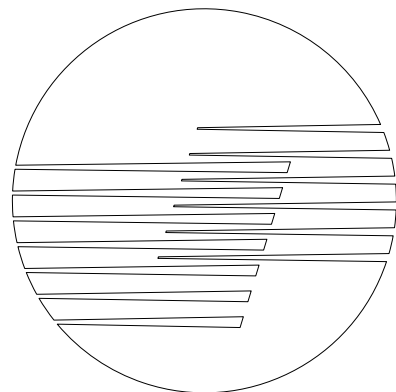
Clinton County  
 46 S South Street STE 213  
 Wilmington, OH, 54177

#### TRANE PROJECT TEAM

**SALESPERSON:**  
 David Savage

**PROJECT MANAGER:**  
 Eric Hillaker

**DESIGNED BY:**  
 Raúl Araya



# TRANE®

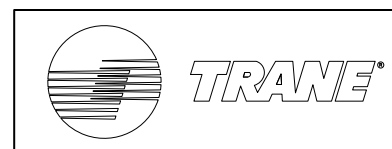
THIS DRAWING SET IS THE PROPERTY OF TRANE. DESIGN INFORMATION, DRAWINGS, DETAILS OR SPECIFICATION DATA MAY NOT BE REPRODUCED OR DUPLICATED NOR MAY ANY WORK BE EXECUTED HERE FROM WITHOUT THE WRITTEN AUTHORIZATION OF TRANE.

TITLE				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 1 OF 43			

INDEX OF CONTROL SYSTEM DRAWINGS (1 of 2)				
DWG #	DRAWING TITLE	REVISION LEVEL	REVISION DATE	COMMENTS
1	TITLE	1	6/10/2025	
2	DRAWING INDEX	1	6/10/2025	
3	LEGEND	1	6/10/2025	
4	WIRING NOTES	1	6/10/2025	
5	SYSTEM COMMUNICATION RISER	1	6/10/2025	
6	ADDRESS SCHEDULE (1)	1	6/10/2025	
7	ADDRESS SCHEDULE (2)	1	6/10/2025	
8	HVAC CONTROL SYSTEM SC WIRING DETAIL	1	6/10/2025	
9	CHILLED WATER SYSTEM PIPING FLOW DIAGRAM	1	6/10/2025	
10	CHILLED WATER SYSTEM SEQUENCE OF OPERATION	1	6/10/2025	
11	CHILLED WATER SYSTEM S500 WIRING DETAIL	1	6/10/2025	
12	CHILLED WATER SYSTEM CH - 1 S800 WIRING DETAIL	1	6/10/2025	
13	HOT WATER SYSTEM PIPING FLOW DIAGRAM	1	6/10/2025	
14	HOT WATER SYSTEM SEQUENCE OF OPERATION	1	6/10/2025	
15	HOT WATER SYSTEM S500 WIRING DETAIL	1	6/10/2025	
16	HOT WATER SYSTEM XM30 - 1 WIRING DETAIL	1	6/10/2025	
17	HOT WATER SYSTEM XM30 - 2 WIRING DETAIL	1	6/10/2025	
18	AHU - 1 AIRFLOW DIAGRAM	1	6/10/2025	
19	EF - 3 ~ 6, 11, 14, 28 AIRFLOW DIAGRAM	1	6/10/2025	
20	AHU - 1 SEQUENCE OF OPERATION	1	6/10/2025	
21	AHU - 1 S500 WIRING DETAIL	1	6/10/2025	
22	AHU - 1 XM90 WIRING DETAIL	1	6/10/2025	
23	AHU - 2 AIRFLOW DIAGRAM	1	6/10/2025	
24	AHU - 2 SEQUENCE OF OPERATION	1	6/10/2025	
25	AHU - 2 S500 WIRING DETAIL	1	6/10/2025	
26	AHU - 2 XM90 WIRING DETAIL	1	6/10/2025	
27	AHU - 3 AIRFLOW DIAGRAM	1	6/10/2025	
28	EF - 18 ~ 21, 32 AIRFLOW DIAGRAM	1	6/10/2025	
29	AHU - 3 SEQUENCE OF OPERATION	1	6/10/2025	
30	AHU - 3 S500 WIRING DETAIL	1	6/10/2025	
31	AHU - 3 XM90 - 3 CONTROLLER	1	6/10/2025	
32	C - 1 ~ 53 AIRFLOW DIAGRAM	1	6/10/2025	
33	C - 1 ~ 53 SEQUENCE OF OPERATION	1	6/10/2025	
34	C - 1 ~ 53 S210 WIRING DETAIL	1	6/10/2025	
35	FINTUBES AND STANDALONE HEATERS	1	6/10/2025	
36	DETAIL SHEET 1	1	6/10/2025	
37	DETAIL SHEET 2	1	6/10/2025	
38	VAV EQUIPMENT SCHEDULE (1)	1	6/10/2025	

INDEX OF CONTROL SYSTEM DRAWINGS (2 of 2)				
DWG #	DRAWING TITLE	REVISION LEVEL	REVISION DATE	COMMENTS
39	VAV EQUIPMENT SCHEDULE (2)	1	6/10/2025	
40	WATER VALVE SCHEDULE (1)	1	6/10/2025	
41	WATER VALVE SCHEDULE (2)	1	6/10/2025	
42	WATER VALVE SCHEDULE (3)	1	6/10/2025	
43	BILL OF MATERIALS	1	6/10/2025	

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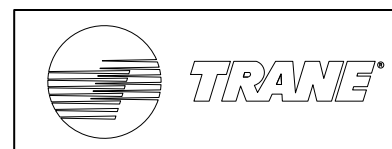


# TYPICAL FLOW SHAPE SYMBOLS

The symbols are arranged in a grid and labeled as follows:

- AIR FILTER
- FAN CFM SENSOR
- FIX PLATE HEAT-X
- COIL
- DUCT DIVIDER
- FUEL FIRED HEAT-X
- ELECTRIC HEATER
- ALARM
- CURRENT SENSOR
- POWER METER
- ACTUATOR
- DAMPER
- ROUND DAMPER
- TRAQ DAMPER
- OUTDOOR UNIT
- OUTDOOR UNIT
- FAN
- PLENUM FAN
- PLENUM FAN ARRAY (TYPICAL FOR 4)
- PROPELLOR FAN
- EXHAUST FAN
- SUPPLY FAN
- LIQUID FLOW SENSOR
- FLOAT SWITCH
- FLOW SWITCH
- ULTRASONIC SENSOR
- OVERFLOW ALARM
- INDOOR AIR QUALITY
- SMOKE DETECTOR
- HUMIDISTAT
- HUMIDITY SENSOR
- TEMP/HUMID SENSOR
- WALL HEATER
- OCCUPANCY SENSOR
- VARIABLE FREQ DRIVE
- MOTOR STARTER
- DISCONNECT
- SENSOR MTG CLIP
- SPACE TEMP SENSOR
- WIRELESS SPACE TEMP SENSOR
- AVERAGING TEMPERATURE SENSOR
- TEMPERATURE SENSOR
- FROSTSTAT
- THERMOWELL
- THERMAL PASTE
- WALL THERMOSTAT
- SEQUENCER
- DC POWER SUPPLY
- TRANSFORMER
- INDUSTRIAL BOILER
- BOILER
- CENTRAVAC
- INTELLIPAK CHILLER
- COAXIAL COIL
- REVERSING VALVE
- COOLING TOWER
- GLYCOL MAKEUP
- ICE STORAGE
- HEAT EXCHANGER
- HW CONVERTER
- DIFFERENTIAL PRESSURE
- DUCT STATIC
- STATIC TIP
- DUCT PRESS PORTAL
- FLUID PRESS SENSOR
- ID PRESS PORTAL
- OD PRESS PORTAL
- PRESSURE GAUGE
- PRESS TRANSDUCER
- SYPHON LOOP
- INLINE PUMP
- PUMP
- CABLE RELAY
- SOCKET RELAY
- UNIVERSAL POINT
- CURRENT SENS W/CMD
- WALL SWITCH
- COIL VALVE
- BALL / GLOBE VALVE
- BUTTERFLY VALVE
- DUCT HUMIDIFIER
- 1/3 - 2/3 STEAM VALVE

LEGEND				
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# WIRING NOTES

## ELECTRICAL CONTRACTOR FOR TRANE:

- REFER TO DEVICE INSTALLATION MANUALS FOR SPECIFIC WIRING REQUIREMENTS.
- FIELD WIRING MUST BE IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE, STATE AND LOCAL BUILDING CODES, AND APPLICABLE SECTIONS OF PROJECT SPECIFICATION.
- TAG ALL CONTROL WIRING AT EACH END OF THE CABLE OR WIRE PER TAGS SHOWN IN ATTACHED DRAWINGS.
- AVOID OVER TIGHTENING CABLE TIES AND OTHER FORMS OF CABLE WRAPS. THIS CAN DAMAGE THE WIRES INSIDE THE CABLES.
- DO NOT CABLE TIE TO INSULATED WATER, STEAM OR OTHER LINES.
- IN OPEN PLENUMS, DO NOT RUN NEAR LIGHTING BALLASTS.
- ALL PANELS AND FIELD DEVICES LISTED IN THIS DOCUMENT ARE TO BE INSTALLED BY CONTROL ELECTRICAL SUBCONTRACTOR UNLESS OTHERWISE NOTED ON DRAWINGS.
- MOUNT ALL ROOM SENSORS AND SWITCHES AS SHOWN ON THE CONSTRUCTION DOCUMENTS, UNLESS OTHERWISE DIRECTED IN WRITING BY THE OWNER AND/OR ENGINEER. IF NO DIRECTION IS PROVIDED IN THE CONSTRUCTION DOCUMENTS, THEN MOUNT AT 4FT (1.2M) ABOVE FINISHED FLOOR.
- FLEXIBLE CONDUIT IS NOT TO EXCEED 24" IN LENGTH.
- CONTROL PANELS ARE NOT TO BE USED AS JUNCTION BOXES OR RACEWAYS. WIRING THAT DOES NOT TERMINATE IN A CONTROL PANEL IS NOT TO BE RUN WITHIN THE PANEL.
- BINARY INPUT LIMITS: 1000 FT (300 M).
- 0~10 VDC ANALOG INPUT LIMITS: 300 FT (100 M).
- 0~20 MA ANALOG INPUT LIMITS: 1000 FT (300 M).
- VARIABLE RESISTANCE ANALOG INPUT LIMITS: 300 FT (100 M).
- ANALOG OUTPUT LIMITS: 1000 FT (300 M).
- BINARY OUTPUT LIMITS: 1000 FT (300 M).
- WIRING POWER FROM THE AC OUT TERMINALS TO POWER ANALOG INPUT DEVICES WILL CAUSE IMMEDIATE CONTROLLER FAILURE IF INPUT DEVICE USES HALF-WAVE RECTIFICATION. WHEN UNSURE, USE A SEPARATE SUPPLY FOR DEVICE.

## GENERAL COMMUNICATION GUIDE:

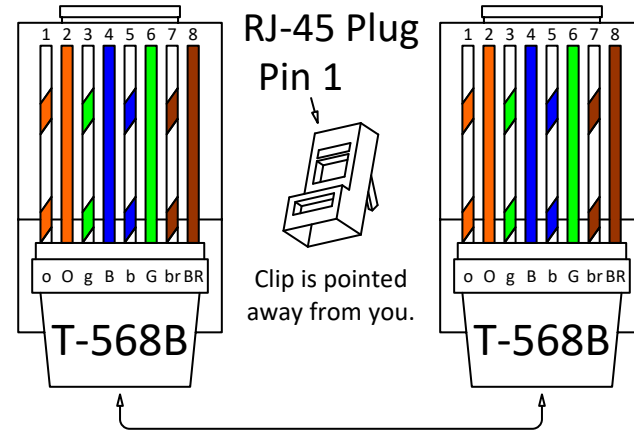
- DO NOT RUN COMMUNICATION LINK WIRING IN THE SAME CONDUIT OR WIRE BUNDLE WITH AC-POWER WIRES (INCLUDING CONDUCTORS RUNNING FROM TRIAC-TYPE OUTPUTS). KEEP POLARITY CONSISTENT THROUGHOUT THE SITE. MAKE SURE THAT THE 24 VAC POWER SUPPLIES ARE CONSISTENT IN HOW THEY ARE GROUNDED.  
AVOID SHARING 24 VAC BETWEEN CONTROLLERS. USE ONLY ONE TYPE OF COMMUNICATION CABLE; DO NOT MIX CABLE. IF AN EXISTING JOB USED ALTERNATE CABLE, CONTINUE USING THE SAME CABLE AFTER APPROVAL FROM THE PROJECT MANAGER.
- BACNET MS/TP COMMUNICATION CABLE MUST BE SHIELDED TWISTED PAIR, 18 AWG MINIMUM, STRANDED, TINNED COPPER CONDUCTORS. SHIELD MUST BE CONTINUOUS THROUGHOUT, ISOLATED FROM OTHER CONDUCTORS OR GROUND, AND GROUNDED AT THE SYSTEM CONTROLLER ONLY. MAXIMUM CAPACITANCE BETWEEN CONDUCTORS IS 24 PICOFARADS PER FOOT. MAXIMUM DISTANCE IS 4000 FT (1372 M).  
MAXIMUM OF 60 TRANE DEVICES PER LINK BUT LESS WHEN COMBINED WITH NON-TRANE DEVICES. A TRACER BACNET TERMINATOR IS REQUIRED AT EACH END OF THE COMMUNICATION LINK. EACH TERMINATOR REQUIRES 24 VDC POWER. EXPANSION MODULE LINK LIMIT IS 656 FT (200 M). TOPOLOGY MUST BE DAISY CHAINED.
- LONTALK (COMM 5) COMMUNICATION CABLE MUST BE LEVEL 4 UNSHIELDED, 22 AWG WITH MAXIMUM CAPACITANCE BETWEEN CONDUCTORS OF 17 PICOFARADS PER FOOT. MAXIMUM DISTANCE IS 4500 FT (1400 M). MAXIMUM DEVICES IS 60 DEVICES WITHOUT REPEATER AND 120 WITH REPEATER. ONE REPEATER PER LINK CAN BE USED FOR AN ADDITIONAL 4500 FT (1400 M), 60 DEVICES.  
CCP III LINK LIMIT IS 3500 FT (1090 M). 105 OHMS, 1%, 1/4 WATT TERMINATION RESISTORS ARE REQUIRED AT EACH END FOR LEVEL 4 WIRE AND 82 OHMS, 1%, 1/4 WATT AT EACH END FOR 18 AWG SHIELDED (PURPLE) WIRE. EX2 LINK LIMIT IS 1000 FT (300 M). TOPOLOGY MUST BE DAISY CHAINED.
- COMM 3 AND COMM 4 COMMUNICATION CABLE MUST BE SHIELDED TWISTED PAIR, 18 AWG MINIMUM, STRANDED, TINNED COPPER CONDUCTORS. SHIELD MUST BE CONTINUOUS THROUGHOUT, ISOLATED FROM OTHER CONDUCTORS OR GROUND, AND GROUNDED AT BCU ONLY.  
MAXIMUM CAPACITANCE BETWEEN CONDUCTORS IS 24 PICOFARADS PER FOOT. MAXIMUM DISTANCE IS 5000 FT (1715 M). UNDER CERTAIN CONDITIONS, TERMINATION RESISTORS ARE REQUIRED ON A COMM 3 COMMUNICATION LINK.
- ETHERNET LAN COMMUNICATION CABLE MAXIMUM DISTANCE IS 295 FT (90 M) PLUS 33 FT (10 M) FOR PATCH CABLES.
- TRANE WIRELESS COMMUNICATION TYPICAL WCI TO WCI DISTANCE IS UP TO 200 FT (60 M) WITH COMMON BUILDING OBSTRUCTIONS. WCI IS POWERED BY 24 VDC OR 24 VAC. EACH NETWORK REQUIRES 1 WCI AS A NETWORK COORDINATOR AND SUPPORTS UP TO 30 TRANE BACNET CONTROLLERS EQUIPPED WITH WCI. TRACER SC SUPPORTS UP TO 8 NETWORK COORDINATORS AND UP TO 120 TRANE BACNET CONTROLLERS. TRACER SC NETWORK COORDINATORS MAY HAVE A COMBINED IMC WIRING LENGTH OF 656 FT (200 M). REFER TO IOM FOR DETAILS.

- MODBUS. REFER TO MANUFACTURER DOCUMENTATION FOR SPECIFIC WIRING REQUIREMENTS, TERMINATION RESISTORS, AND THE MAXIMUM NUMBER OF DEVICES SUPPORTED PER LINK. IF THIRD-PARTY PRODUCT LITERATURE IS NOT AVAILABLE, GENERAL LOW-DATA RATE GUIDELINES ARE AS FOLLOWS:  
COMMUNICATION CABLE MUST BE 2-WIRE EIA/TIA-485 BRAID OR FOIL SHIELD TWISTED PAIR WIRE, 18 AWG, AND MAXIMUM CAPACITANCE BETWEEN CONDUCTIONS OF 24 PF/FT. MAXIMUM DISTANCE IS 4000FT (1200M). MAXIMUM DEVICES IS 30 DEVICES PER LINK. WIRING MUST BE ASSEMBLED IN A DAISY-CHAIN CONFIGURATION AND 1/2 WATT 120 OHM TERMINATION RESISTOR OR TRACER BACNET TERMINATOR MAY BE USED AT EACH END OF THE COMMUNICATION LINK.
- M-NET COMMUNICATION CABLE MUST BE PLENUM RATED, SHIELDED TWISTED PAIR, 16 AWG MINIMUM, STRANDED, TINNED COPPER CONDUCTORS. SHIELD MUST BE CONTINUOUS THROUGHOUT, ISOLATED FROM OTHER CONDUCTORS OR GROUND AND 2 IN. OR MORE FROM ANY POWER SOURCE WIRING. MAXIMUM CAPACITANCE BETWEEN CONDUCTORS IS 59 PICOFARADS PER FOOT. MAXIMUM DISTANCE FOR OUTDOOR UNITS IS 1640 FT (500 M). MAXIMUM DISTANCE FOR INDOOR UNITS IS 656 FT (200 M). MAXIMUM DISTANCE FOR REMOTE CONTROLLERS IS 32 FT (10 M). TOPOLOGY MUST BE DAISY CHANGED.

## MECHANICAL CONTRACTOR:

- DAMPERS ARE TO BE INSTALLED BY SHEET METAL CONTRACTOR UNLESS OTHERWISE NOTED.
- CONTROL VALVES AND ACCESSORIES INSTALLED DIRECTLY INTO PIPING (SENSOR WELLS, THREADOLETS, ETC.) ARE TO BE INSTALLED BY MECHANICAL CONTRACTOR.
- FLOW DIAGRAMS SHALL NOT BE A GUIDE FOR PIPE AND VALVE INSTALLATION. REFER TO THE VALVE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR INSTALLATION GUIDANCE.

## ETHERNET CAT6 T-568B WIRING DETAIL



## FLAG POINT SYMBOLS

- ◻ FLAG. FOR GENERAL NOTES.
- ▲ TRIANGLE. FOR REVISIONS.
- ◇ DIAMOND. FOR RETROFIT NOTES.
- ◻ SQUARE. MISCELLANEOUS NOTE.
- ⊠ OCTAGON. MISCELLANEOUS NOTE.
- ⬠ PENTAGON. MISCELLANEOUS NOTE.

CABLE MATRIX			
KEY	PART NO*	DESCRIPTION	WIRE COLORS
A	052003-S	18/2 TWIST SHLD VIOLET PLENUM CABLE	WHT, BLK
B	N/A	FACTORY PROVIDED CABLE	
C	105500	22/2 TWIST NON-SHLD BLUE COMM PLENUM CABLE	WHT, BLU/BLU
D	002320-S	18/2 TWIST SHLD WHITE PLENUM CABLE	WHT, BLK
E	002330-S	18/3 TWIST SHLD WHITE PLENUM CABLE	WHT, BLK, RED
F	002340-S	18/4 TWIST SHLD WHITE PLENUM CABLE	WHT, BLK, RED, GRN
G	002351	18/6 TWIST SHLD WHITE PLENUM CABLE	WHT, BLK, RED, GRN, BLU, BRN
H	6200FH	BELDEN 16/2 TWIST SHLD PLENUM CABLE	RED, BLK
J	N/A	1 PAIR #14 THHN STRANDED IN CONDUIT	
L	N/A	ETHERNET RG58 THNNET PLENUM CABLE	
M	555619-S	ETHERNET CAT-5 PLENUM CABLE	WHT, BLK, RED, GRN, BLU, YEL, ORN, BRN
O	002352-S	18/8 TWIST SHLD WHITE PLENUM CABLE	WHT, BLK, RED, GRN, BLU, YEL, ORN, BRN
P	106502-S	22/2 TWIST SHLD ORANGE COMM PLENUM CABLE	BLK, RED
Q	761360-S	16/2 SOLID RED SMOKE DETECTOR PLENUM CABLE	WHT, RED
2C	N/A	18/2 SOLID THERMOSTAT PLENUM CABLE	WHT, RED
3C	N/A	18/3 SOLID THERMOSTAT PLENUM CABLE	WHT, RED, GRN
5C	510005-S	18/5 SOLID THERMOSTAT PLENUM CABLE	WHT, RED, GRN, YEL, BLU
8C	510007-S	18/8 SOLID THERMOSTAT PLENUM CABLE	WHT, RED, GRN, YEL, BLU, ORN, BLK, BRN
10C	N/A	18/10 SOLID THERMOSTAT PLENUM CABLE	WHT, RED, GRN, YEL, BLU, ORN, BLK, BRN, PNK, GRY
12C	N/A	18/12 SOLID THERMOSTAT PLENUM CABLE	WHT, RED, GRN, YEL, BLU, ORN, BLK, BRN, PNK, GRY, PUR, TAN

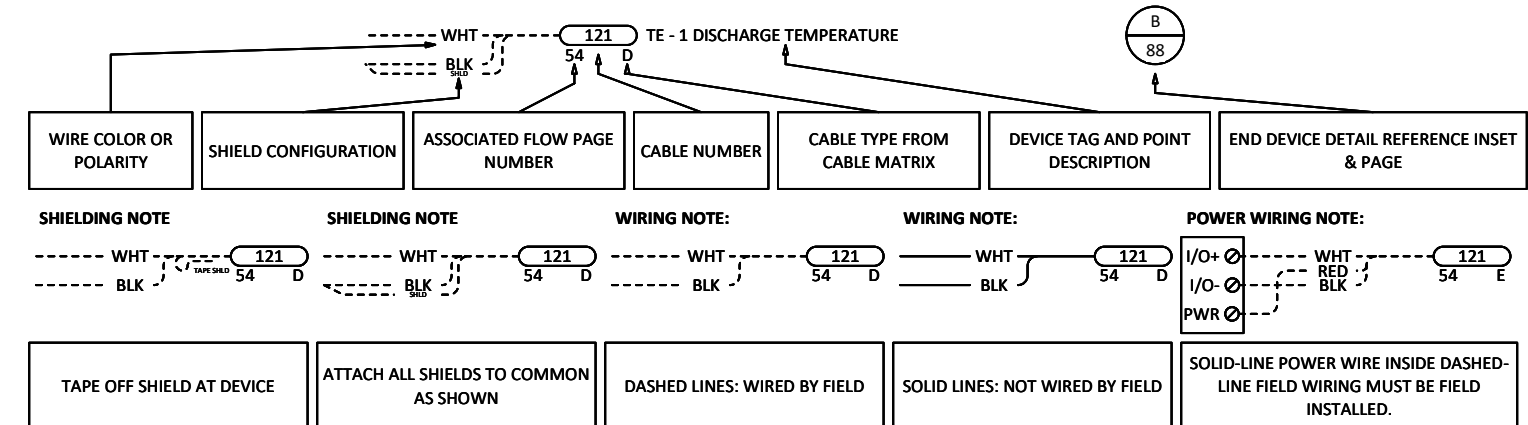
\* TRANE APPROVED WINDY CITY PART NUMBERS. WHEN ORDERING CABLE SPECIFY JACKET COLOR. PART NUMBERS ARE SUBJECT TO CHANGE WITHOUT NOTICE.

## CABLE MATRIX NOTES

ALL CABLE WIRING METHODS MUST BE TRANE RECOMMENDED. CONTACT TRANE FOR RECOMMENDED CABLES AND SPECIFICATIONS

## CABLE INFORMATION SHAPE (CIS)

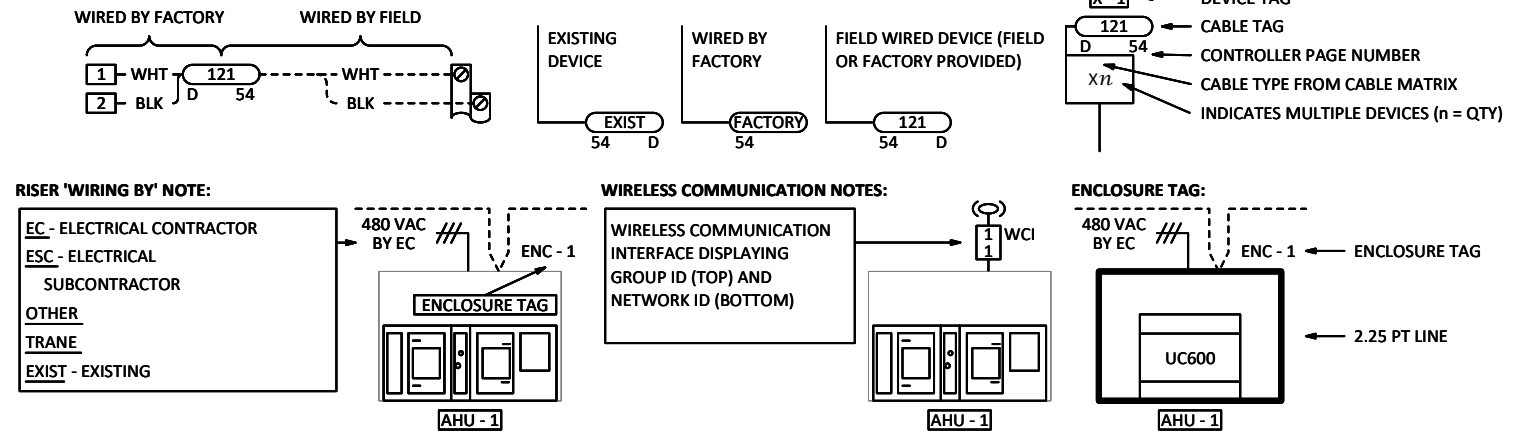
EACH CABLE CONNECTION HAS A CIS WHICH PROVIDES SOME OR ALL OF THE INFORMATION INDICATED BELOW



## FACTORY MOUNTED DEVICE WITH FIELD MOUNTED CONTROLLER:

## FIELD, FACTORY AND EXISTING DEVICE NOTES:

## FLOW SHAPE NOTES:



## INTERCONNECT WIRING DETAIL REFERENCE:

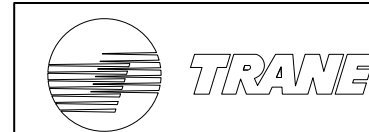
- Ⓜ INTERCONNECT WIRING DETAIL REFERENCE INSET LETTER (TOP), PAGE NUMBER (BOTTOM)

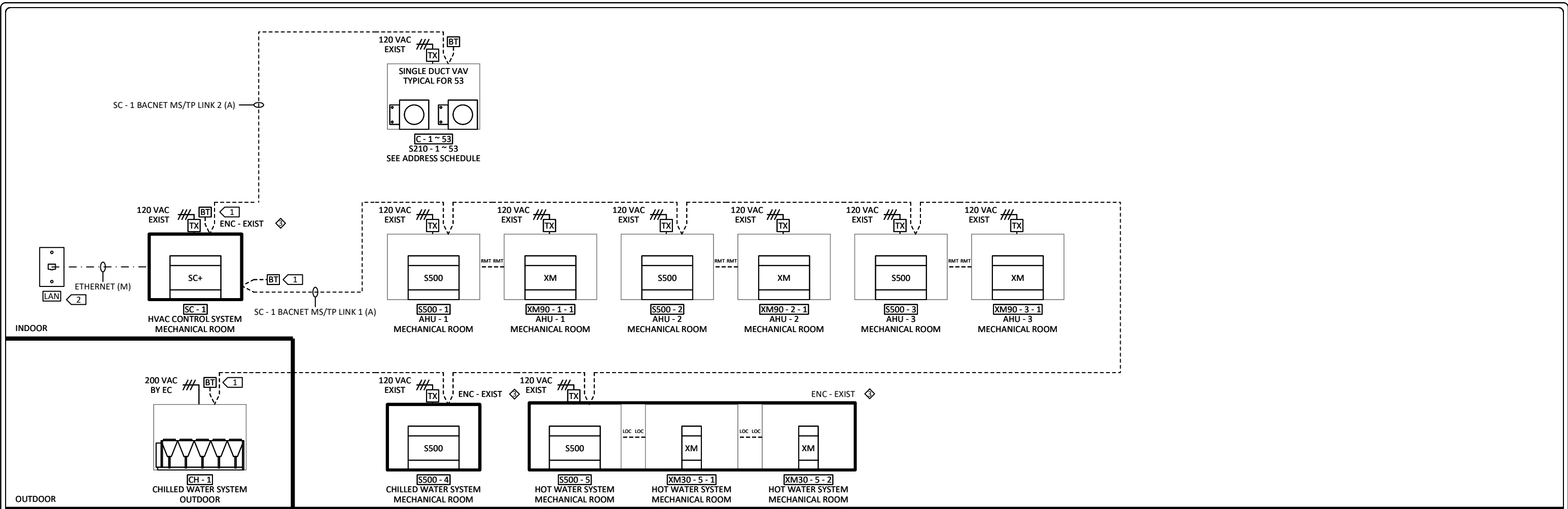
## RISER TERMINATION DEVICES

- Ⓜ BACNET TERMINATOR
- Ⓜ TERMINATION RESISTOR

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- ◆ REUSE EXISTING ENCLOSURE.
- 2 OWNER TO PROVIDE NETWORK. CONNECT SC+ BEHIND FIREWALL. FIREWALL PROVIDED BY OTHERS. BAS CONTRACTOR SHALL USE OWNER NETWORK FOR REMOTE CONNECTIVITY.
- 1 INSTALL BACNET TERMINATOR AT THE BEGINNING AND THE END OF EACH BACNET LINK.

**NOTE:**  
 COMM LINK ROUTING SHOWING IS ONLY A SUGGESTION. ORDER OF CONNECTION OF DEVICES IS NOT CRITICAL. ROUTE COMM LINKS IN THE MOST LOGICAL & EXPEDITIOUS MANNER. PLEASE DOCUMENT ALL DEVIATIONS FOR RECORD DRAWINGS.



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**ADDRESS SCHEDULE (1 of 2)**

ITEM	LINK TYPE	LINK	RISER TAG	CONTROLLER/SYSTEM	LOCATION	AREA SERVED	GRP.	NET.	ADD.	WIRELESS SENSOR ADDRESS	IP ADDRESS	SUBNET MASK	GATEWAY	NOTE
1	BACnet	SC - 1 BACNET LINK 1	AHU - 1	S500 - 1	MECHANICAL ROOM	COMPARTMENT A, INTAKE AREAS			001					
2	BACnet	SC - 1 BACNET LINK 1	AHU - 2	S500 - 2	MECHANICAL ROOM	COMPARTMENT B, ADMINISTRATION AREAS			002					
3	BACnet	SC - 1 BACNET LINK 1	AHU - 3	S500 - 3	MECHANICAL ROOM	COMPARTMENT C, CENTRAL CONTROL, DORMS, CELL PODS			003					
4	BACnet	SC - 1 BACNET LINK 1	CH - 1	CH - 1	OUTDOOR	CHILLED WATER SYSTEM			006					
5	BACnet	SC - 1 BACNET LINK 1	CHILLED WATER SYSTEM	S500 - 4	MECHANICAL ROOM	CHWS			004					
6	BACnet	SC - 1 BACNET LINK 1	HOT WATER SYSTEM	S500 - 5	MECHANICAL ROOM	HWS			005					
7	BACnet	SC - 1 BACNET LINK 2	C - 1	C - 1 ~ 53	FIELD VERIFY	B123			001					
8	BACnet	SC - 1 BACNET LINK 2	C - 2	C - 1 ~ 53	FIELD VERIFY	B118			002					
9	BACnet	SC - 1 BACNET LINK 2	C - 3	C - 1 ~ 53	FIELD VERIFY	B122			003					
10	BACnet	SC - 1 BACNET LINK 2	C - 4	C - 1 ~ 53	FIELD VERIFY	B104			004					
11	BACnet	SC - 1 BACNET LINK 2	C - 5	C - 1 ~ 53	FIELD VERIFY	B108			005					
12	BACnet	SC - 1 BACNET LINK 2	C - 6	C - 1 ~ 53	FIELD VERIFY	B107			006					
13	BACnet	SC - 1 BACNET LINK 2	C - 7	C - 1 ~ 53	FIELD VERIFY	B112			007					
14	BACnet	SC - 1 BACNET LINK 2	C - 8	C - 1 ~ 53	FIELD VERIFY	A103			008					
15	BACnet	SC - 1 BACNET LINK 2	C - 9	C - 1 ~ 53	FIELD VERIFY	A105			009					
16	BACnet	SC - 1 BACNET LINK 2	C - 10	C - 1 ~ 53	FIELD VERIFY	B114			010					
17	BACnet	SC - 1 BACNET LINK 2	C - 11	C - 1 ~ 53	FIELD VERIFY	B115			011					
18	BACnet	SC - 1 BACNET LINK 2	C - 12	C - 1 ~ 53	FIELD VERIFY	A109			012					
19	BACnet	SC - 1 BACNET LINK 2	C - 13	C - 1 ~ 53	FIELD VERIFY	A110			013					
20	BACnet	SC - 1 BACNET LINK 2	C - 14	C - 1 ~ 53	FIELD VERIFY	A111			014					
21	BACnet	SC - 1 BACNET LINK 2	C - 15	C - 1 ~ 53	FIELD VERIFY	A134			015					
22	BACnet	SC - 1 BACNET LINK 2	C - 16	C - 1 ~ 53	FIELD VERIFY	A135			016					
23	BACnet	SC - 1 BACNET LINK 2	C - 17	C - 1 ~ 53	FIELD VERIFY	A137			017					
24	BACnet	SC - 1 BACNET LINK 2	C - 18	C - 1 ~ 53	FIELD VERIFY	A139			018					
25	BACnet	SC - 1 BACNET LINK 2	C - 19	C - 1 ~ 53	FIELD VERIFY	A140			019					
26	BACnet	SC - 1 BACNET LINK 2	C - 20	C - 1 ~ 53	FIELD VERIFY	A131			020					
27	BACnet	SC - 1 BACNET LINK 2	C - 21	C - 1 ~ 53	FIELD VERIFY	A129			021					
28	BACnet	SC - 1 BACNET LINK 2	C - 22	C - 1 ~ 53	FIELD VERIFY	A115			022					
29	BACnet	SC - 1 BACNET LINK 2	C - 23	C - 1 ~ 53	FIELD VERIFY	A106			023					
30	BACnet	SC - 1 BACNET LINK 2	C - 24	C - 1 ~ 53	FIELD VERIFY	A123			024					
31	BACnet	SC - 1 BACNET LINK 2	C - 25	C - 1 ~ 53	FIELD VERIFY	A117			025					
32	BACnet	SC - 1 BACNET LINK 2	C - 26	C - 1 ~ 53	FIELD VERIFY	A158			026					
33	BACnet	SC - 1 BACNET LINK 2	C - 27	C - 1 ~ 53	FIELD VERIFY	B166			027					
34	BACnet	SC - 1 BACNET LINK 2	C - 28	C - 1 ~ 53	FIELD VERIFY	B167			028					
35	BACnet	SC - 1 BACNET LINK 2	C - 29	C - 1 ~ 53	FIELD VERIFY	A170			029					
36	BACnet	SC - 1 BACNET LINK 2	C - 30	C - 1 ~ 53	FIELD VERIFY	B171			030					
37	BACnet	SC - 1 BACNET LINK 2	C - 31	C - 1 ~ 53	FIELD VERIFY	B128			031					
38	BACnet	SC - 1 BACNET LINK 2	C - 32	C - 1 ~ 53	FIELD VERIFY	B126			032					
39	BACnet	SC - 1 BACNET LINK 2	C - 33	C - 1 ~ 53	FIELD VERIFY	B129			033					
40	BACnet	SC - 1 BACNET LINK 2	C - 34	C - 1 ~ 53	FIELD VERIFY	B176			034					
41	BACnet	SC - 1 BACNET LINK 2	C - 35	C - 1 ~ 53	FIELD VERIFY	B174			035					
42	BACnet	SC - 1 BACNET LINK 2	C - 36	C - 1 ~ 53	FIELD VERIFY	B161			036					

**ADDRESS SCHEDULE**

CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls			
	1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 6 OF 43			



**ADDRESS SCHEDULE (2 of 2)**

ITEM	LINK TYPE	LINK	RISER TAG	CONTROLLER/SYSTEM	LOCATION	AREA SERVED	GRP.	NET.	ADD.	WIRELESS SENSOR ADDRESS	IP ADDRESS	SUBNET MASK	GATEWAY	NOTE
43	BACnet	SC - 1 BACNET LINK 2	C - 37	C - 1 ~ 53	FIELD VERIFY	B153			037					
44	BACnet	SC - 1 BACNET LINK 2	C - 38	C - 1 ~ 53	FIELD VERIFY	B211			038					
45	BACnet	SC - 1 BACNET LINK 2	C - 39	C - 1 ~ 53	FIELD VERIFY	B148			039					
46	BACnet	SC - 1 BACNET LINK 2	C - 40	C - 1 ~ 53	FIELD VERIFY	B213			040					
47	BACnet	SC - 1 BACNET LINK 2	C - 41	C - 1 ~ 53	FIELD VERIFY	B150			041					
48	BACnet	SC - 1 BACNET LINK 2	C - 42	C - 1 ~ 53	FIELD VERIFY	B145			042					
49	BACnet	SC - 1 BACNET LINK 2	C - 43	C - 1 ~ 53	FIELD VERIFY	B145			043					
50	BACnet	SC - 1 BACNET LINK 2	C - 44	C - 1 ~ 53	FIELD VERIFY	B143			044					
51	BACnet	SC - 1 BACNET LINK 2	C - 45	C - 1 ~ 53	FIELD VERIFY	B143			045					
52	BACnet	SC - 1 BACNET LINK 2	C - 46	C - 1 ~ 53	FIELD VERIFY	B210			046					
53	BACnet	SC - 1 BACNET LINK 2	C - 47	C - 1 ~ 53	FIELD VERIFY	B142			047					
54	BACnet	SC - 1 BACNET LINK 2	C - 48	C - 1 ~ 53	FIELD VERIFY	B221			048					
55	BACnet	SC - 1 BACNET LINK 2	C - 49	C - 1 ~ 53	FIELD VERIFY	B225			049					
56	BACnet	SC - 1 BACNET LINK 2	C - 50	C - 1 ~ 53	FIELD VERIFY	B135			050					
57	BACnet	SC - 1 BACNET LINK 2	C - 51	C - 1 ~ 53	FIELD VERIFY	B227			051					
58	BACnet	SC - 1 BACNET LINK 2	C - 52	C - 1 ~ 53	FIELD VERIFY	B133			052					
59	BACnet	SC - 1 BACNET LINK 2	C - 53	C - 1 ~ 53	FIELD VERIFY	B154			053					
60	ETHERNET	ETHERNET	SC - 1	SC - 1	FIELD VERIFY	BUILDING			1					
61	IMC	S500 - 1 IMC	AHU - 1	XM90 - 1 - 1	MECHANICAL ROOM	COMPARTMENT A, INTAKE AREAS			01					
62	IMC	S500 - 2 IMC	AHU - 2	XM90 - 2 - 1	MECHANICAL ROOM	COMPARTMENT B, ADMINISTRATION AREAS			01					
63	IMC	S500 - 3 IMC	AHU - 3	XM90 - 3 - 1	MECHANICAL ROOM	COMPARTMENT C, CENTRAL CONTROL, DORMS, CELL PODS			01					
64	IMC	S500 - 5 IMC	HOT WATER SYSTEM	XM30 - 5 - 1	MECHANICAL ROOM	HWS			01					
65	IMC	S500 - 5 IMC	HOT WATER SYSTEM	XM30 - 5 - 2	MECHANICAL ROOM	HWS			02					

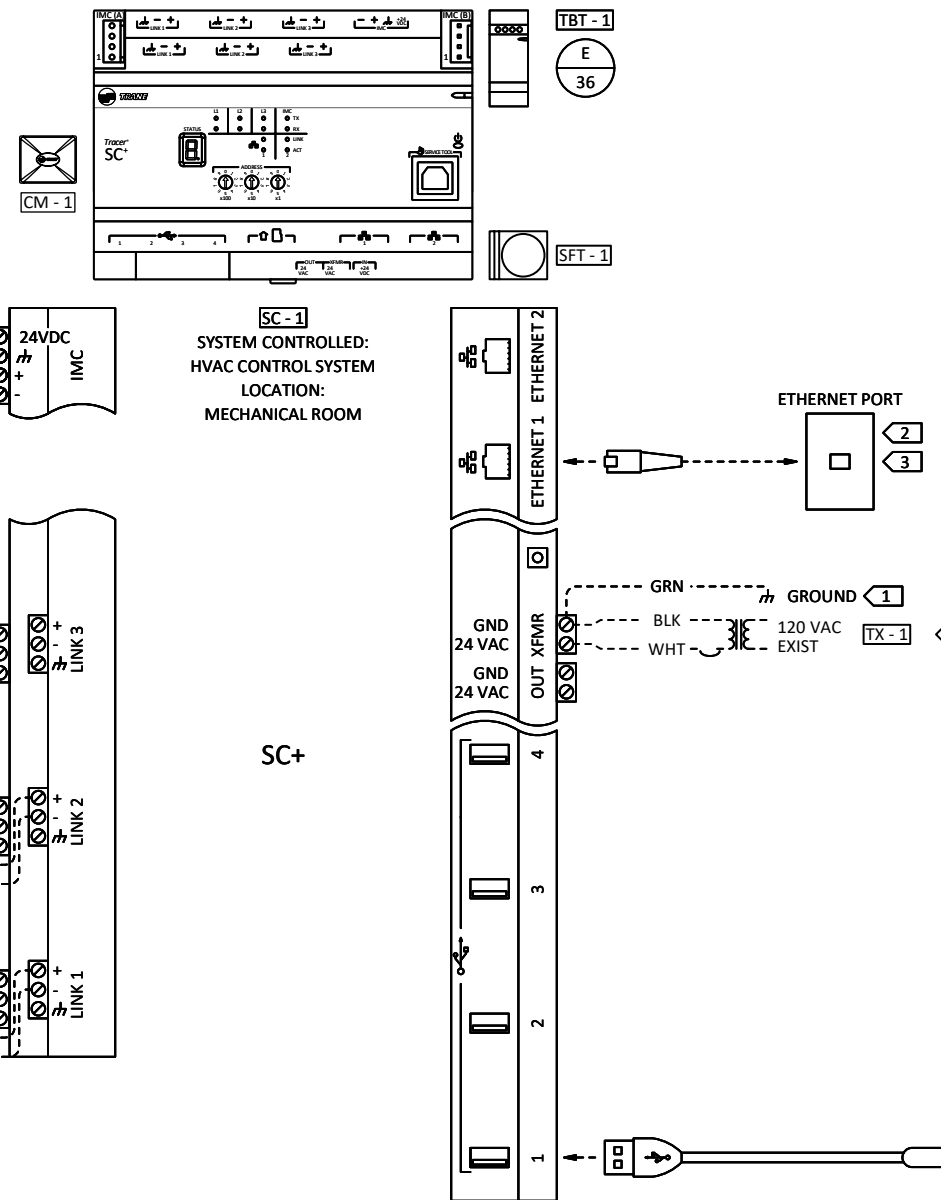
**ADDRESS SCHEDULE (2)**

CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 7 OF 43			

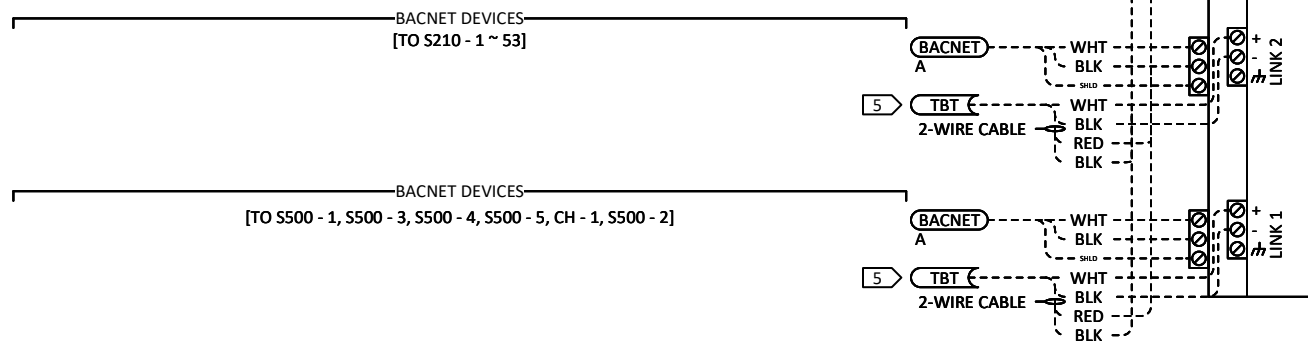


# (HVAC CONTROL SYSTEM)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
SFT - 1	4	TRANE	BMCF000AAA0DB00	TRACER SC 15 LICENSE
CM - 1	1	TRANE	BMCL100USB290000	USB CELLULAR MODULE, MODEM, 2.9M CABLE, 18GB
TBT - 1	2	TRANE	X13651524-01	BACNET TERMINATOR (2 PACK)
SC - 1	1	TRANE	X13651695001	TRACER SC+ CONTROLLER



SC PORT CONFIGURATION	
BACNET DEVICE NAME	
ROTARY ADDRESS	
IP PORT - 1	_____
SUBNET MASK - 1	_____
DEFAULT GATEWAY - 1	_____
IP PORT - 2	_____
SUBNET MASK - 2	_____
DEFAULT GATEWAY - 2	_____
PREFERRED DNS SERVER	_____
ALTERNATE DNS SERVER	_____
UDP PORT (47808 DEFAULT)	
NETWORK NUMBER	
BBMD (1 PER NETWORK)	ENABLED \ DISABLED
MSTP 1 (76800 BPS DEFAULT)	
MSTP 2 (76800 BPS DEFAULT)	
MSTP 3 (76800 BPS DEFAULT)	
BACNET TIME SYNC	DISABLED



### Building Control Unit (Tracer SC)

#### User Interface:

The web-based Tracer SC system is the user interface used for this facility. The Tracer SC system building control unit is the centralized DDC control which communicates with the owner's interface (PC) and with all of the Trane HVAC controllers. Utilizing a web browser to access it, the controller allows the user to view custom floor plan graphics, individual unit graphics, control the units through schedules, monitor space conditions, create and monitor alarms and create trends to capture historical data.

The SC controller will send the controller Occupied, Unoccupied, Night Heat/Cool, and Timed Override commands. The BAS may also send a Heat/Cool mode, space temperature and/or space temperature set point.

#### Time of Day Scheduling:

The time of day function in user interface is utilized to schedule the occupied and unoccupied time for the building's HVAC systems.

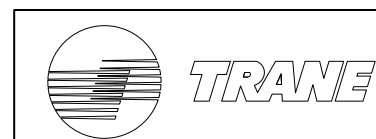
#### Area Control:

Area Control is the function in the user interface which monitors the temperature in the building unoccupied periods. The HVAC equipment will automatically start in a night heat/cool mode should the temperature in the space decrease below 60 deg. F or rise above 85 deg. F.

- ◆ REUSE EXISTING TRANSFORMER.
- 5 INSTALL BACNET TERMINATOR AT THE BEGINNING AND THE END OF EACH BACNET LINK.
- 4 TO BE COMPLETED DURING INSTALLATION AND INCLUDED IN RECORD DRAWINGS.
- 3 FOR THE CUSTOMER TO REMOTELY CONNECT TO THE SC, A SECURE NETWORK BEHIND A FIREWALL AND VPN ACCESS IS REQUIRED.
- 2 CUSTOMER TO SUPPLY NETWORK COMM ACCESS POINT.
- 1 DEVICE MUST BE GROUNDED WITH FACTORY PROVIDED GROUND WIRE AS DETAILED IN THE DEVICE INSTALLATION LITERATURE.

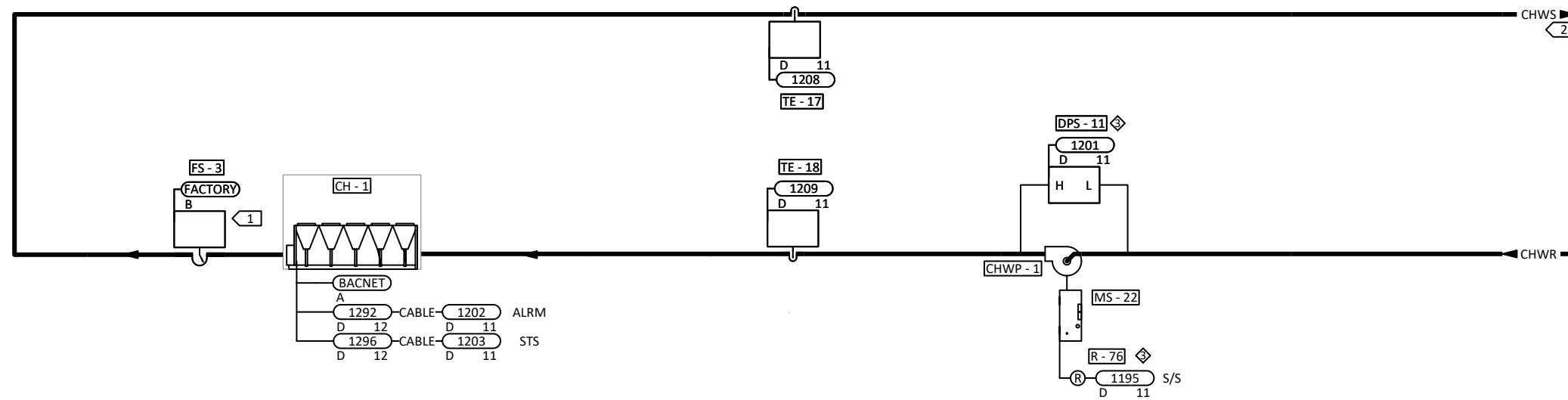
### HVAC CONTROL SYSTEM SC WIRING DETAIL

CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 8 OF 43			



(CHILLED WATER SYSTEM)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
TE - 17, TE - 18	2	ACI	A/CP-I-4"-GD	TEMP SENS, IMM, THERM, 4 IN



- ◇ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.
- 2 SCHEMATIC CONTROL FLOW DIAGRAM ONLY. SEE MECHANICAL DRAWINGS FOR PIPING DETAILS.
- 1 WIRE SAFETY DEVICES TO CHILLER CONTROL PANEL.

**CHILLED WATER SYSTEM PIPING FLOW DIAGRAM**

CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 9 OF 43			



**Sequence of Operation**

**General:**

The chilled water system consists of:

- An air-cooled chiller
- A chilled water pump

**System Start-Up:**

A "HAND-OFF-AUTO" switch at the chilled water pump starter permits manual or automatic operation of the pump.

- In the "AUTO" position, the pump is started and stopped by the DDC system.
- In the "HAND" position, the pump runs continuously regardless of the command from the DDC system.

The DDC system starts the chilled water pump whenever the outside air temperature is above 55°F and an air handling unit (AHU-1, AHU-2, or AHU-3) is operating in its occupied or pre-occupancy cool-down mode, or if a unit is operating in its unoccupied mode due to its night high limit being exceeded.

If the chilled water pump fails to operate, the DDC system generates an alarm. Once the chilled water pump is operating under the above conditions, chiller operation is enabled.

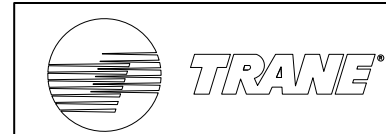
**System Shutdown:**

Whenever operation of the chilled water system is disabled, the DDC system disables operation of the chiller and, after a five-minute time delay, stops the chilled water pump.

**Temperature Control:**

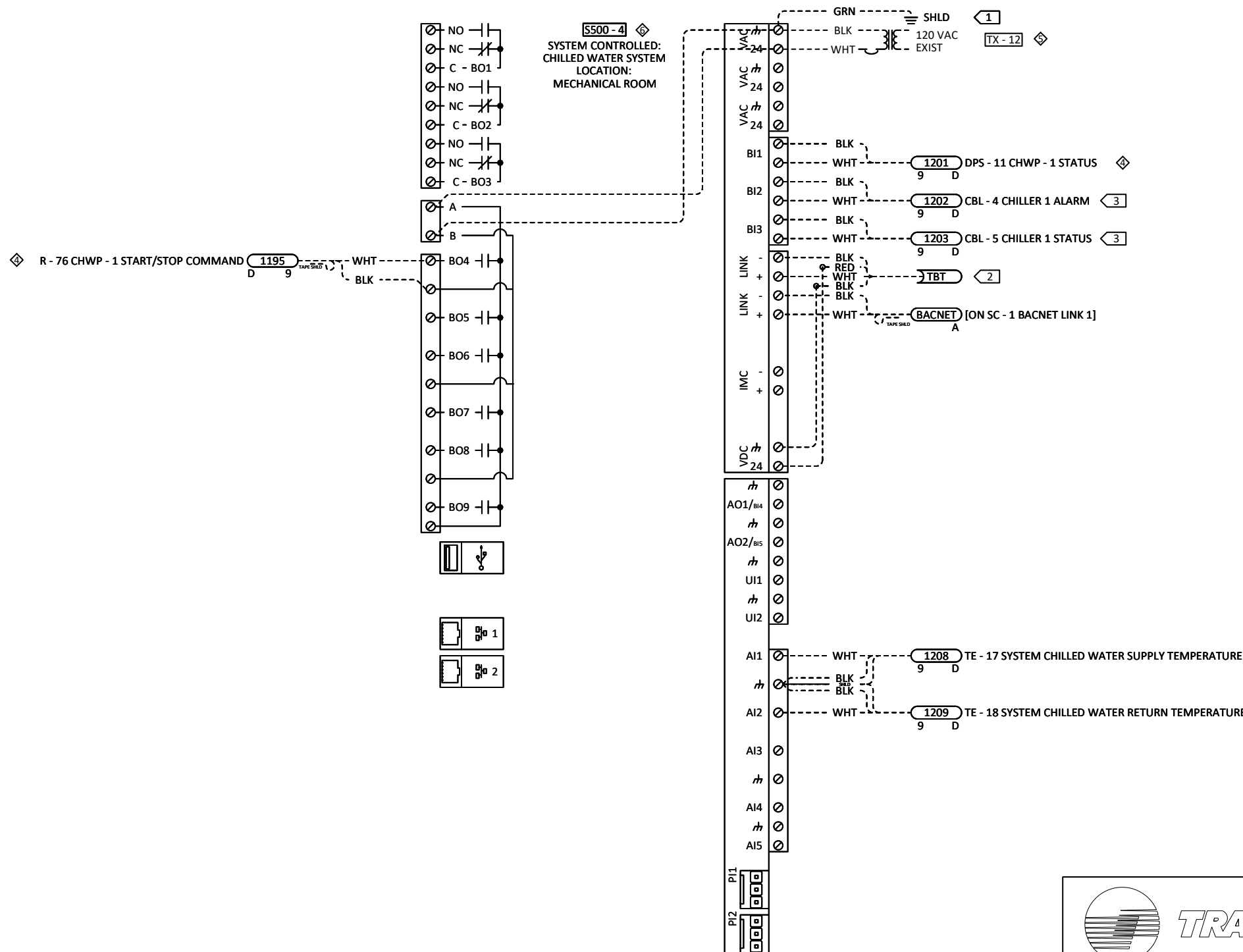
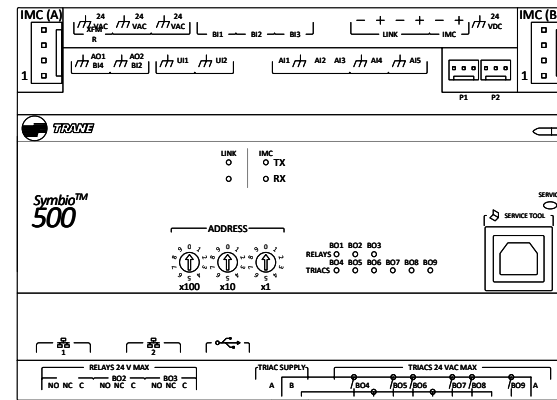
Once enabled for operation, and once chilled water flow is proven by the chilled water flow switch, the chiller starts/stops and loads/unloads through its integral control system to maintain its leaving chilled water temperature at setpoint. Refer to the documentation furnished with the chiller for more information.

CHILLED WATER SYSTEM SEQUENCE OF OPERATION				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd				DWG 10 OF 43



(CHILLED WATER SYSTEM)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
S500 - 4	1	TRANE	BMSY500AAA0100011	SYMBIO 500 CONTROLLER



- ◊ REUSE EXISTING ENCLOSURE.
- ◊ REUSE EXISTING TRANSFORMER.
- ◊ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.
- 3 REFER TO PAGE 12 FOR END OF CABLE LOCATION.
- 2 INSTALL BACNET TERMINATOR AT THE BEGINNING AND THE END OF EACH BACNET LINK.
- 1 DEVICE MUST BE GROUNDED WITH FACTORY PROVIDED GROUND WIRE AS DETAILED IN THE DEVICE INSTALLATION LITERATURE.

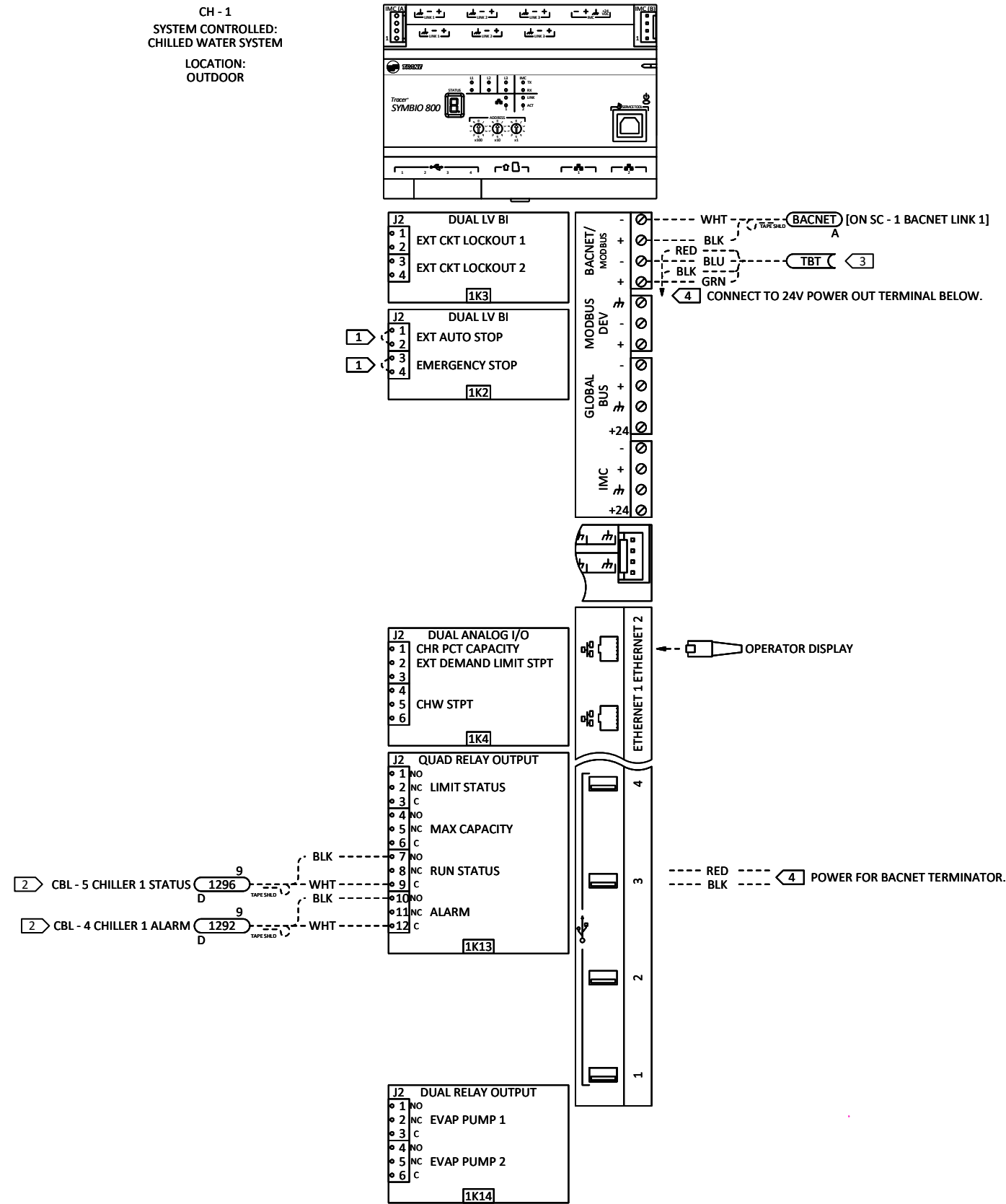
CHILLED WATER SYSTEM S500 WIRING DETAIL				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 11 OF 43			



(CHILLED WATER SYSTEM)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION

CH - 1  
SYSTEM CONTROLLED:  
CHILLED WATER SYSTEM  
LOCATION:  
OUTDOOR



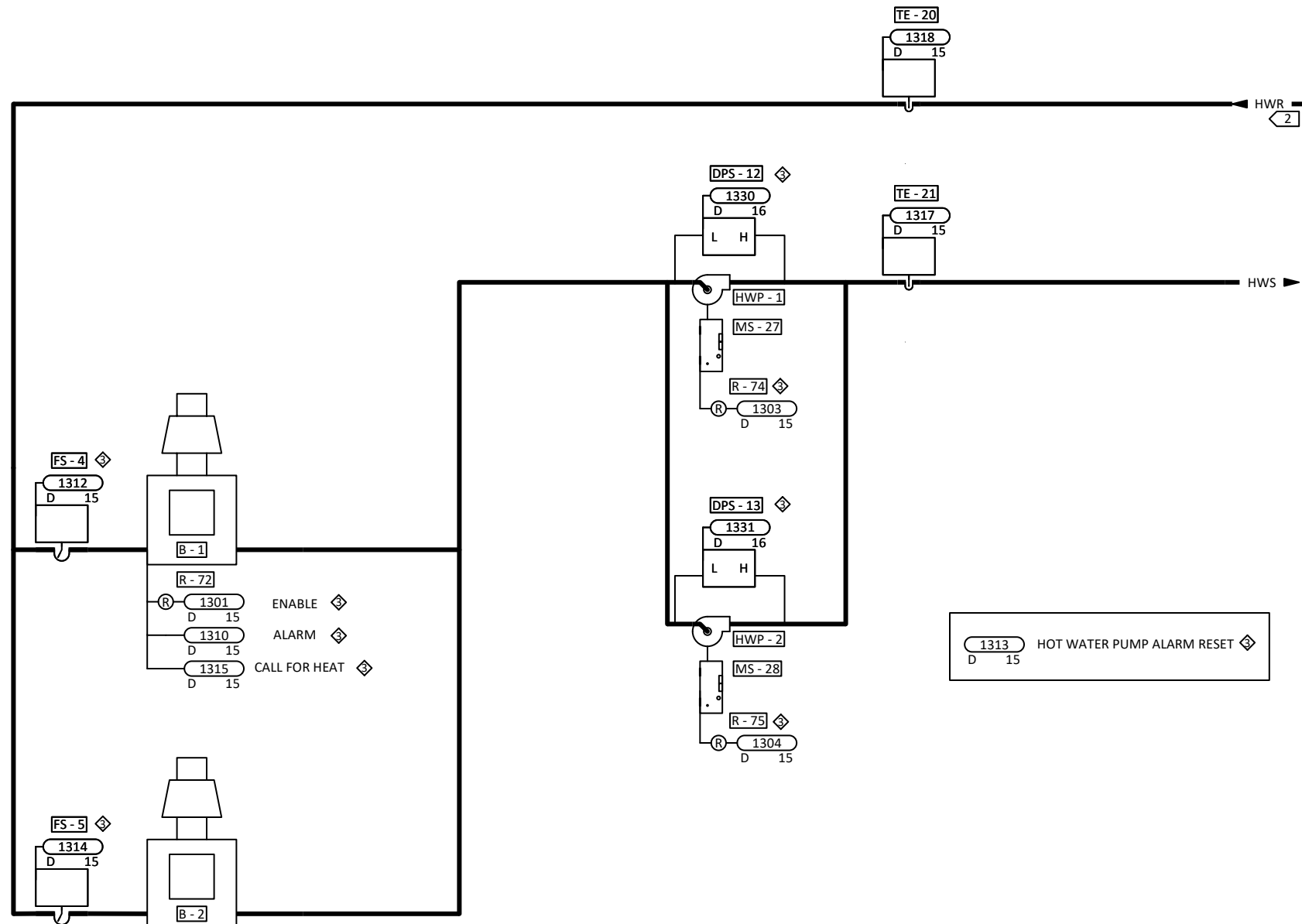
- 3 INSTALL BACNET TERMINATOR AT THE BEGINNING AND THE END OF EACH BACNET LINK.
- 2 REFER TO PAGE 11 FOR END OF CABLE LOCATION.
- 1 INSTALL JUMPER FOR NORMAL OPERATION.

CHILLED WATER SYSTEM CH - 1 S800 WIRING DETAIL				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 12 OF 43			

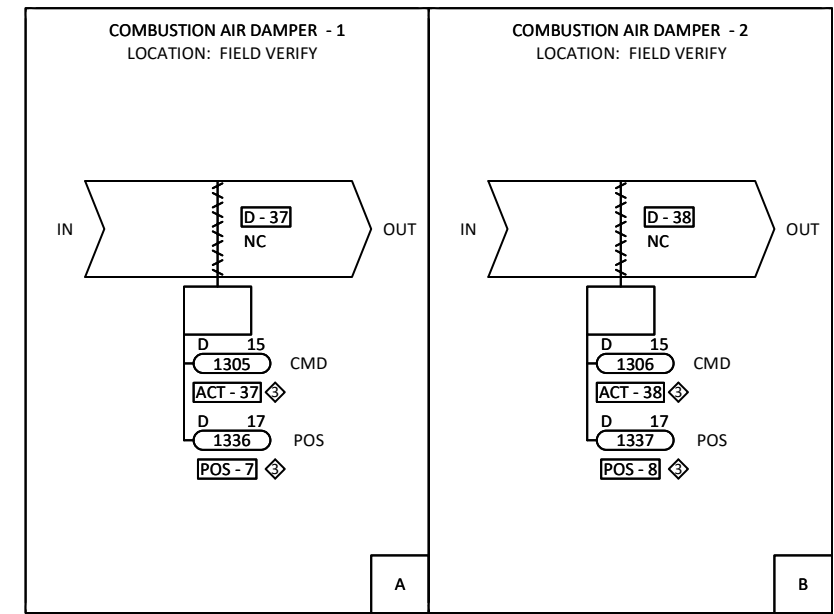
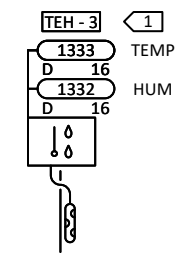


# (HOT WATER SYSTEM)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
TE - 20, TE - 21	2	ACI	A/CP-I-4"-GD	TEMP SENS, IMM, THERM, 4 IN
TEH - 3	1	ACI	A/RH3-CP-O	HUMIDITY SENS, OA, 3%, TEMP



### OUTDOOR TEMPERATURE SENSOR



- ◆ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.
- 2 FLOW DIAGRAM IS FOR ILLUSTRATION PURPOSES ONLY. FOR DETAILED INFORMATION REFER TO MECHANICAL PRINTS.
- 1 MOUNT OUTDOOR AIR TEMP SENSOR ON NORTHERN EXPOSURE USING A NON-CONDENSATING CONDUIT CONNECTION. MOUNT AWAY FROM EXHAUST VENTS AND OTHER HEAT SOURCES. CONSULT WITH PROJECT MANAGER BEFORE MOUNTING.

HOT WATER SYSTEM PIPING FLOW DIAGRAM				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 13 OF 43			



**Sequence of Operation**

**General:**

The heating hot water system consists of:

- Two hot water boilers
- Two hot water pumps

The two hot water pumps are designed for lead/standby operation. Lead/standby selection is performed manually by the direct digital control (DDC) system operator. The two boilers are designed for lead/lag operation. Lead/lag selection is also performed manually by the DDC system operator. It is intended that the heating hot water system run continuously.

**System Start-Up:**

A "HAND-OFF-AUTO" switch at each hot water pump starter permits manual or automatic operation of that pump.

- In the "AUTO" position, the pump is started and stopped by the DDC system.
- In the "HAND" position, the pump runs continuously regardless of the command from the DDC system.

If the lead hot water pump fails to operate, the DDC system starts the standby hot water pump and generates an alarm.

- Once the lead hot water pump fails to operate, the DDC system commands the pump off. The pump remains off until the "Hot Water Pump Alarm Reset" pushbutton on the face of the control panel is pressed, or until the software hot water alarm reset point is toggled.

Whenever a hot water pump is operating, the DDC system enables operation of the lead boiler.

The DDC system enables operation of the lag boiler if either of the following conditions occur:

- The lead boiler goes into alarm.
- The building hot water return temperature falls below the lag boiler enable setpoint. The lag boiler enable setpoint is reset based on the outside air temperature, in accordance with the reset schedule shown on the drawing.

The lag boiler remains enabled for operation for a minimum time period of one hour once it is enabled.

**Temperature Control:**

Whenever the DDC system enables operation of the lead or lag boiler, and as long as hot water flow is proven through the boiler by its flow switch, the boiler operates through its integral control package to maintain the temperature of the hot water leaving the boiler at setpoint.

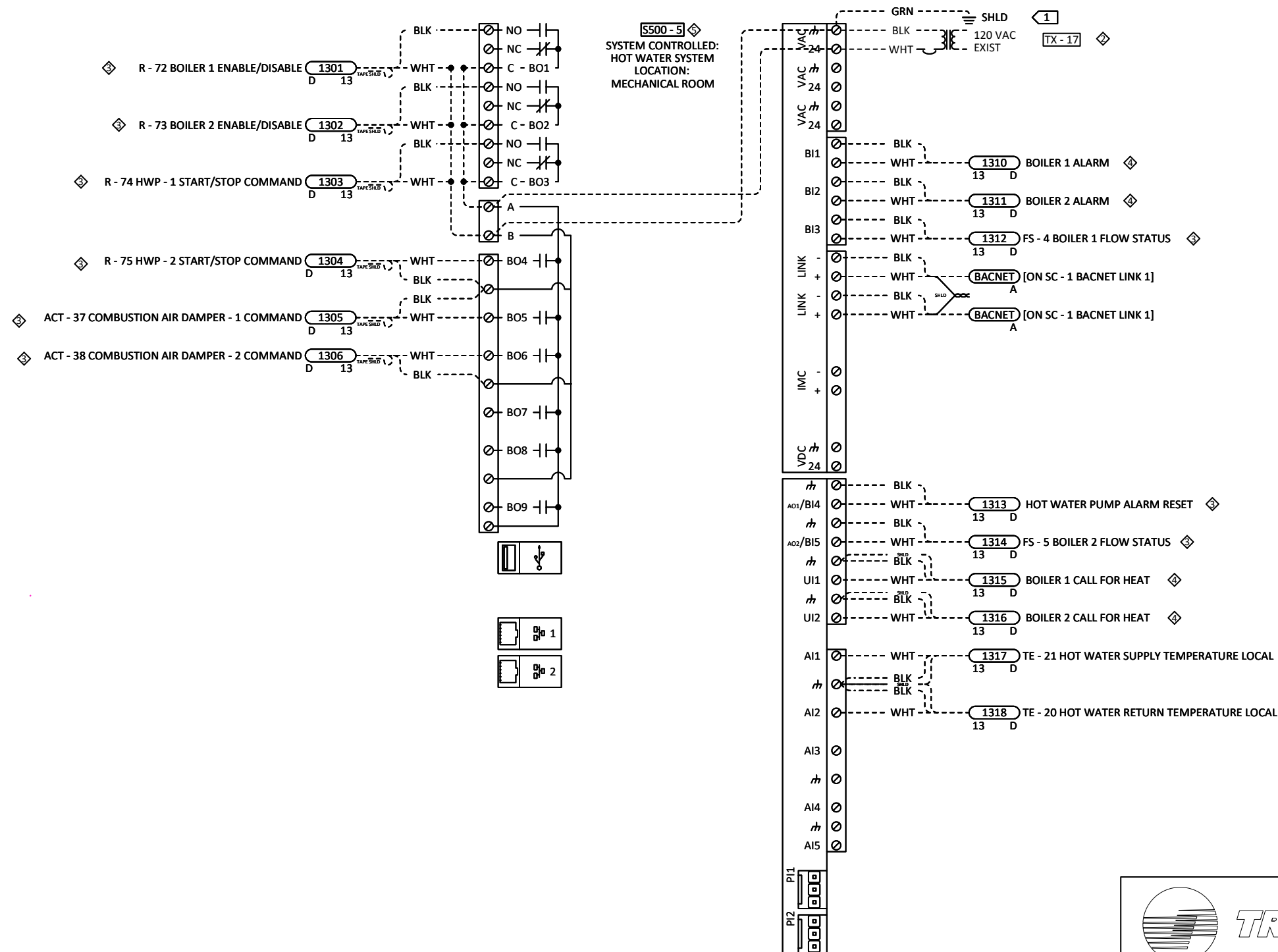
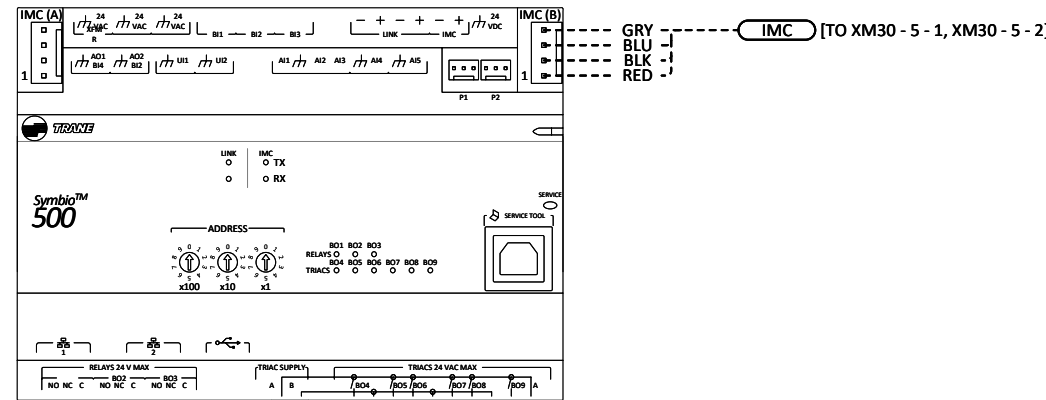
Whenever a boiler is enabled and calls for heat, it opens its respective combustion air damper. Once its combustion air damper is proven open by the combustion air damper limit switch, the boiler completes its firing sequence.



HOT WATER SYSTEM SEQUENCE OF OPERATION				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd				DWG 14 OF 43

(HOT WATER SYSTEM)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
S500 - 5	1	TRANE	BMSY500AAA0100011	SYMBIO 500 CONTROLLER



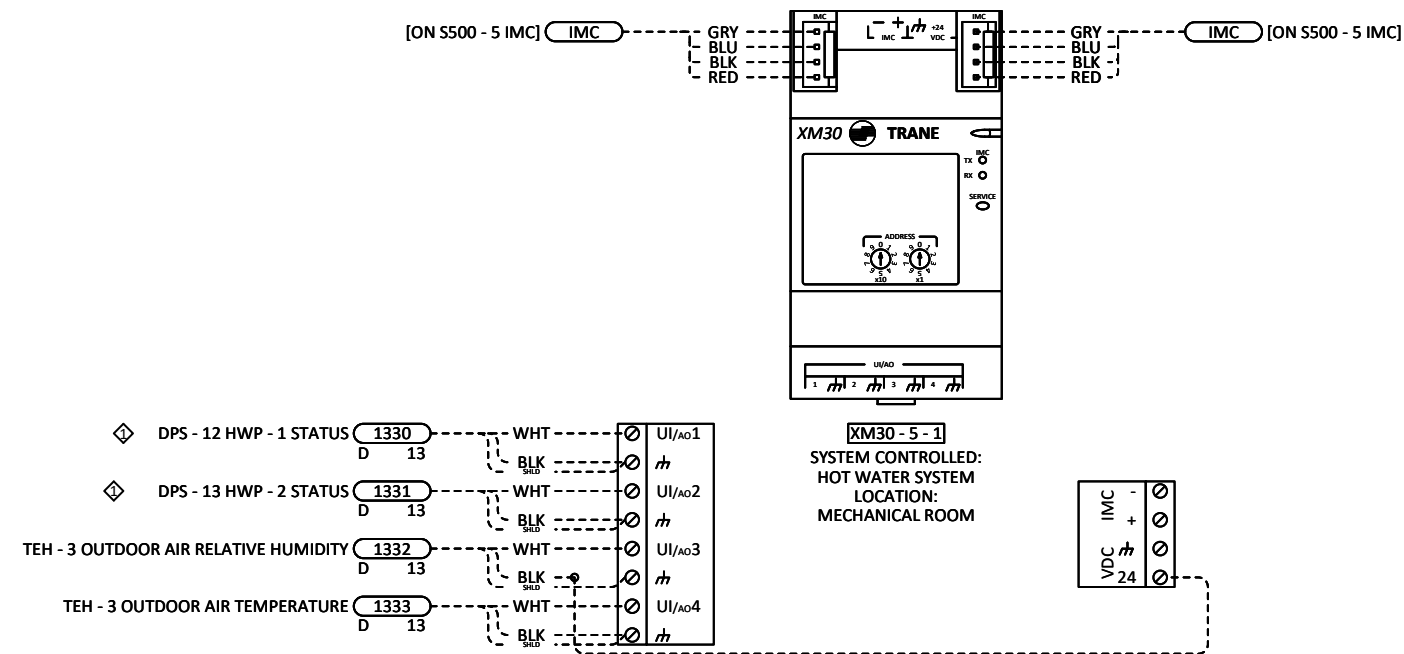
- ⬠ REUSE EXISTING ENCLOSURE.
- ⬠ EXISTING BOILER, FIELD VERIFY FINAL TERMINATIONS.
- ⬠ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.
- ⬠ REUSE EXISTING TRANSFORMER.
- 1 DEVICE MUST BE GROUNDED WITH FACTORY PROVIDED GROUND WIRE AS DETAILED IN THE DEVICE INSTALLATION LITERATURE.

HOT WATER SYSTEM S500 WIRING DETAIL				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 15 OF 43			



(HOT WATER SYSTEM)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
XM30 - 5 - 1	1	TRANE	X13651537010	XM30, 4 POINT UI/AO EXPANSION MODULE



D  
36

D  
36

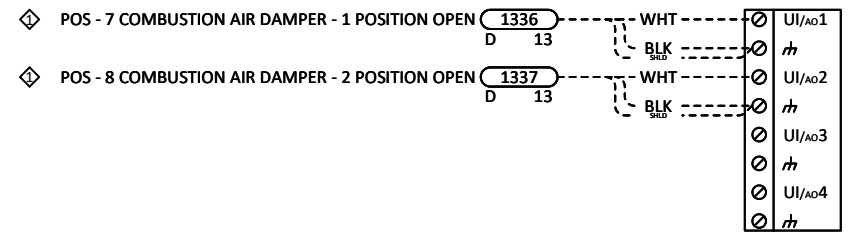
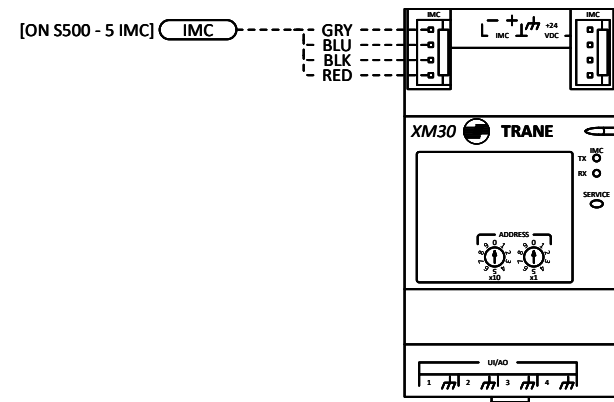
◇ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.

HOT WATER SYSTEM XM30 - 1 WIRING DETAIL				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884 FILE: Clinton County Jail Controls.vsd	PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177			

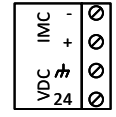


(HOT WATER SYSTEM)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
XM30 - 5 - 2	1	TRANE	X13651537010	XM30, 4 POINT UI/AO EXPANSION MODULE



XM30 - 5 - 2  
 SYSTEM CONTROLLED:  
 HOT WATER SYSTEM  
 LOCATION:  
 MECHANICAL ROOM

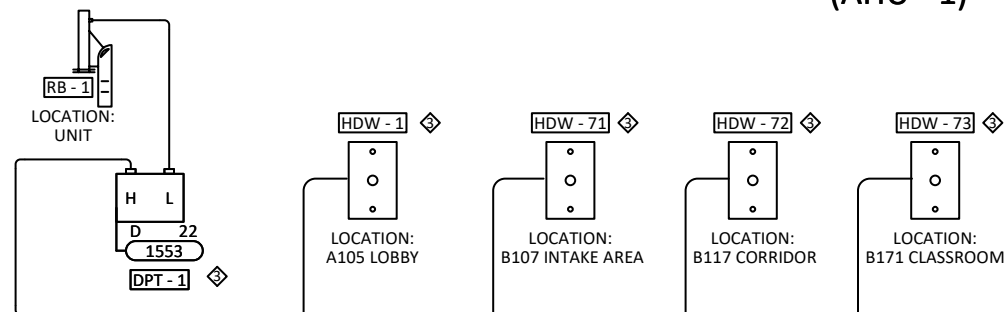


EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.

HOT WATER SYSTEM XM30 - 2 WIRING DETAIL				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 17 OF 43			

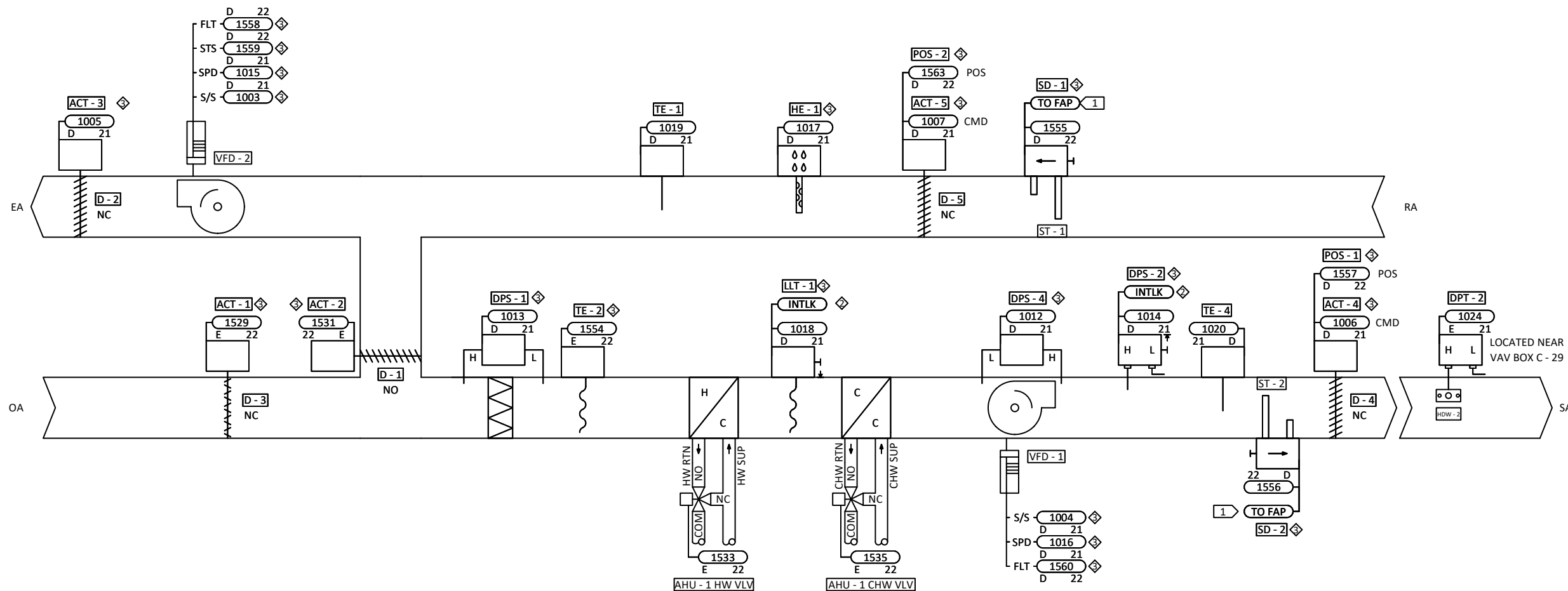


BUILDING PRESSURE SENSOR



(AHU - 1)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
DPT - 2	1	TRANE	4020-1159	DIFF PRESS XMTR, AIR, 0-5 IN WC, 0-5 VDC
TE - 1, TE - 4	2	ACI	A/CP-1-6"-GD	TEMP SENS, DUCT, THERM 6 IN
HDW - 2	1	KELE	A-3245K	STATIC PRESS TIP / MOUNT, A-302-K WITH A-345-K.
VALVES / ACT	*	*	*	*SEE WATER VALVE SCHEDULE

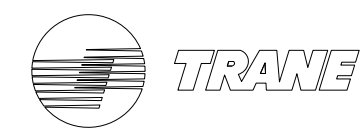


FIRE ALARM PANEL

- INTLK FIRE ALARM RELAY
- 1561 FIRE ALARM SMOKE REMOVAL
- D 22 1562 FIRE ALARM SMOKE AREA PRESSURIZATION

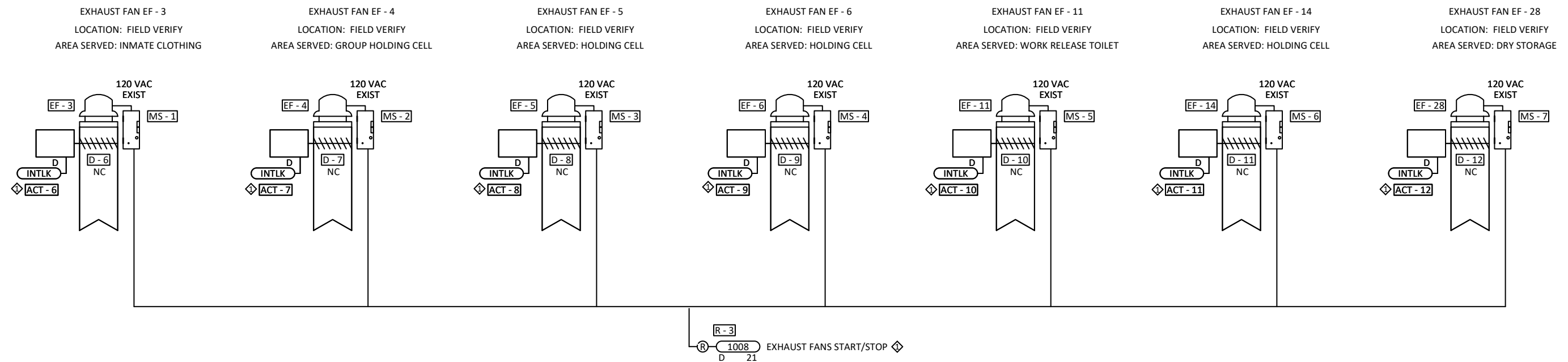
- ◇ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.
- ◇ EXISTING DEVICE INTERLOCK FOR SHUTDOWN OPERATION TO REMAIN.
- 1 SMOKE DETECTOR PROVIDED, INSTALLED AND WIRED TO FAP BY OTHERS.

AHU - 1 AIRFLOW DIAGRAM				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884		PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177		
FILE: Clinton County Jail Controls.vsd				DWG 18 OF 43



(EF - 3 ~ 6, 11, 14, 28 )

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION



◇ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.

EF - 3 ~ 6, 11, 14, 28 AIRFLOW DIAGRAM				
CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 19 OF 43			



**Sequence of Operation**

**General:**

The unit is a variable air volume (VAV) system comprised of:

- A supply fan with a variable speed drive
- A relief fan with a variable speed drive
- A hot water heating coil
- A chilled water cooling coil
- Outside and return air economizer dampers
- A two-position exhaust air damper

Exhaust fans EF-3, EF-4, EF-5, EF-6, EF-11, EF-14, and EF-28 provide exhaust for areas served by the unit and are interlocked with its operation. The unit is started and stopped by the direct digital control (DDC) system operator. It is intended that the unit run continuously.

**System Start-Up:**

A "HAND-OFF-AUTO" switch at the supply fan speed drive permits manual or automatic operation of the fan.

- In the "AUTO" position, operation of the speed drive is enabled and disabled by the DDC system.
- In the "HAND" position, the speed drive is enabled for operation regardless of the command from the DDC system; however, the DDC system still operates the unit's temperature control devices in an occupied mode of operation. Indexing the speed drive "HAND-OFF-AUTO" switch to the "HAND" position does not index the unit to its occupied mode of operation. The unit's occupied mode of operation remains under control of the DDC system when the speed drive is operating from its "HAND" position. A "HAND-OFF-AUTO" switch at the relief fan speed drive permits manual or automatic operation of the fan.

- In the "AUTO" position, operation of the speed drive is enabled and disabled by the DDC system.

- In the "HAND" position, the speed drive is enabled for operation regardless of the command from the DDC system.

System safeties, as described below, prevent operation of the supply and relief fan speed drives whenever a safety device is activated. Whenever a safety device is activated, the speed drives are disabled whether the speed drives' "HAND-OFF-AUTO" switches are in their "HAND" position or in their "AUTO" position.

**System Safeties:**

Low temperature cutout located on the entering side of the cooling coil operates the unit as follows whenever the temperature of the air entering the cooling coil falls below its setpoint:

- An alarm is generated at the DDC system.
- Operation of the supply fan speed drive is disabled.
- Operation of the relief fan speed drive is disabled.
- The outside and exhaust air dampers are closed, and the return air damper is opened.
- The heating coil control valve is positioned to full flow through the coil.

Once activated, low temperature cutout must be manually reset before the unit can resume normal operation.

High static pressure switch sensing the supply fan discharge static pressure operates the unit as follows whenever the supply fan discharge static pressure exceeds its setpoint:

- An alarm is generated at the DDC system.
- Operation of the supply fan speed drive is disabled.
- Operation of the relief fan speed drive is disabled.

Once activated, high static pressure switch must be reset before the unit can resume normal operation.

**System Shutdown and Supply Fan Interlocks:**

Differential pressure switch sensing the pressure differential across the supply fan provides indication to the DDC system that the supply fan is off:

- The outside and exhaust air dampers are closed, and the return air damper is opened.
- The DDC system closes the cooling coil control valve.

- The DDC system closes the heating coil control valve if the outside air temperature is above 40°F. If the outside air temperature is below 40°F, the DDC system operates the heating coil control valve to maintain the temperature of the mixed air plenum at 70°F.

If the speed drive run status is on, but the supply fan doesn't generate enough static pressure to cause DPS to close its contact, the outside, return, and exhaust dampers, cooling coil control valve, and heating coil control valve will remain as described above even though the supply fan speed drive run status is on.

**System Run Mode of Operation:**

Whenever the unit is indexed to run, its supply fan runs continuously and its outside air damper opens to its minimum position. Exhaust fans EF-3, EF-4, EF-5, EF-6, EF-11, EF-14, and EF-28 are started.

A mixed air temperature control loop modulates the outside and return air economizer dampers to maintain the mixed air temperature at setpoint. If the outside air temperature is greater than 68°F, and as long as chilled water is available, operation of the outside and return air economizer dampers is disabled. The relief fan is stopped, the relief damper is closed, the return air damper opens, and the outside air damper returns to its minimum position.

Whenever the outside and return air economizer dampers are enabled for operation, the DDC system opens the unit's two-position exhaust air damper and enables the operation of the relief air fan:

- A space static pressure control loop varies the speed of the relief fan to maintain the space static pressure, relative to the outside air, at setpoint.

If the outside air temperature is below 50°F, the cooling coil control valve is closed and operation of the heating coil control valve is enabled. A heating supply air temperature control loop then modulates the heating coil control valve to maintain a minimum supply air temperature of 52°F.

If the outside air temperature is above 55°F, the heating coil control valve is closed and operation of the cooling coil control valve is enabled. A cooling supply air temperature control loop then modulates the cooling coil control valve to maintain the supply air temperature at its cooling setpoint.

Both the mixed air temperature control loop setpoint and the cooling supply air temperature control loop setpoint (utilized when the outside air temperature is above 55°F) are reset based on the unit's return air temperature. The setpoints are 55°F when the return air temperature is 76°F and 65°F when the return air temperature is 72°F.

Whenever the supply fan speed drive is operating, a supply air static pressure control loop modulates the speed drive to maintain the supply duct static pressure at setpoint.

The DDC system indexes the VAV boxes served by the unit to their occupied mode of operation. Refer to the description of operation for the VAV boxes for information regarding their operation during the unit's occupied mode of operation.

**Warm-Up Mode of Operation:**

The DDC system indexes the unit to its warm-up mode of operation if the unit is operating due to the room temperature low limit setpoint being exceeded:

- The outside and return air economizer dampers are positioned to 100% return air.
- Exhaust fans EF-3, EF-4, EF-5, EF-6, EF-11, EF-14, and EF-28 are stopped.
- Operation of the cooling coil control valve is disabled.

- The supply air static pressure control loop modulates the supply fan speed drive to maintain the supply duct static pressure at setpoint.

- The heating supply air temperature control loop modulates the heating coil control valve to maintain the supply air temperature at 95°F.

- The DDC system indexes the VAV boxes served by the unit to their warm-up mode of operation. Refer to the description of operation for the VAV boxes for additional information regarding their operation during the unit's warm-up mode.

**Cool-Down Mode of Operation:**

The unit operates in its cool-down mode whenever it is indexed off by the DDC system operator and is operating due to the room temperature high limit being exceeded. During cool-down mode, the unit provides cooling to its areas similarly to the occupied mode, except for the operation of the outside and return air economizer dampers:

- If economizer operation of the outside and return air dampers is disabled, the outside air damper is closed completely. Minimum outside air is not used, and the unit operates on 100% return air with cooling provided by the cooling coil. Exhaust fans EF-3, EF-4, EF-5, EF-6, EF-11, EF-14, and EF-28 are stopped.

- If economizer operation is enabled, the outside, return, and exhaust air economizer dampers are enabled for operation, and the unit operates similarly to its normal occupied mode. The unit provides cooling through the use of outside air or a combination of outside air and the cooling coil. Exhaust fans EF-3, EF-4, EF-5, EF-6, EF-11, EF-14, and EF-28 are started.

**System Stop Mode of Operation:**

Whenever the unit is indexed off by the DDC system operator, operation of its supply and relief fan speed drives is disabled. The unit remains off unless one of its VAV box space temperature sensors senses a temperature below 60°F or above 82°F. If any VAV box space temperature sensor senses a space temperature outside these limits, the unit restarts and operates in its warm-up or cool-down mode until all VAV box space temperatures are between 63°F and 79°F, at which point the unit stops again.

**Smoke Control:**

The unit serves compartment "A" in the building. The building fire alarm system indexes the unit to its pressurization (non-fire area) mode or its smoke removal (fire area) mode, depending on which compartment the fire alarm system has sensed smoke in. Refer to the documentation furnished with the building fire alarm system regarding its operation.

**Pressurization (Non-Fire Area) Mode of Operation:**

Whenever the building fire alarm system indexes the unit to its pressurization mode:

- An alarm is generated at the DDC system.
- Exhaust fans EF-3, EF-4, EF-5, EF-6, EF-11, and EF-14 are stopped.
- Operation of the relief fan speed drive is disabled.
- The supply air smoke dampers are opened, and the return and exhaust air smoke dampers are closed.
- The VAV boxes served by the unit are indexed to 100% open.
- The outside air economizer damper is opened.
- The return and exhaust air dampers are closed.
- The supply fan is commanded to 100% speed.

The unit operates on 100% outside air to provide ventilation to the areas it serves. Since the pressurization mode is a life safety function, it overrides the unit's low temperature cutout and high static pressure safety functions, which are equipment safety functions only.

**Smoke Removal (Fire Area) Mode of Operation:**

Whenever the building fire alarm system indexes the unit to its smoke removal mode:

- An alarm is generated at the DDC system.
- Exhaust fans EF-3, EF-4, EF-5, EF-6, EF-11, and EF-14 are started.
- Operation of the supply fan speed drive is disabled.
- The supply air smoke dampers are closed, and the return and exhaust air smoke dampers are opened.
- The VAV boxes served by the unit are indexed to closed.
- The outside and return air economizer dampers are closed.
- The exhaust air economizer damper is opened.
- The relief air fan is commanded to 100% speed.

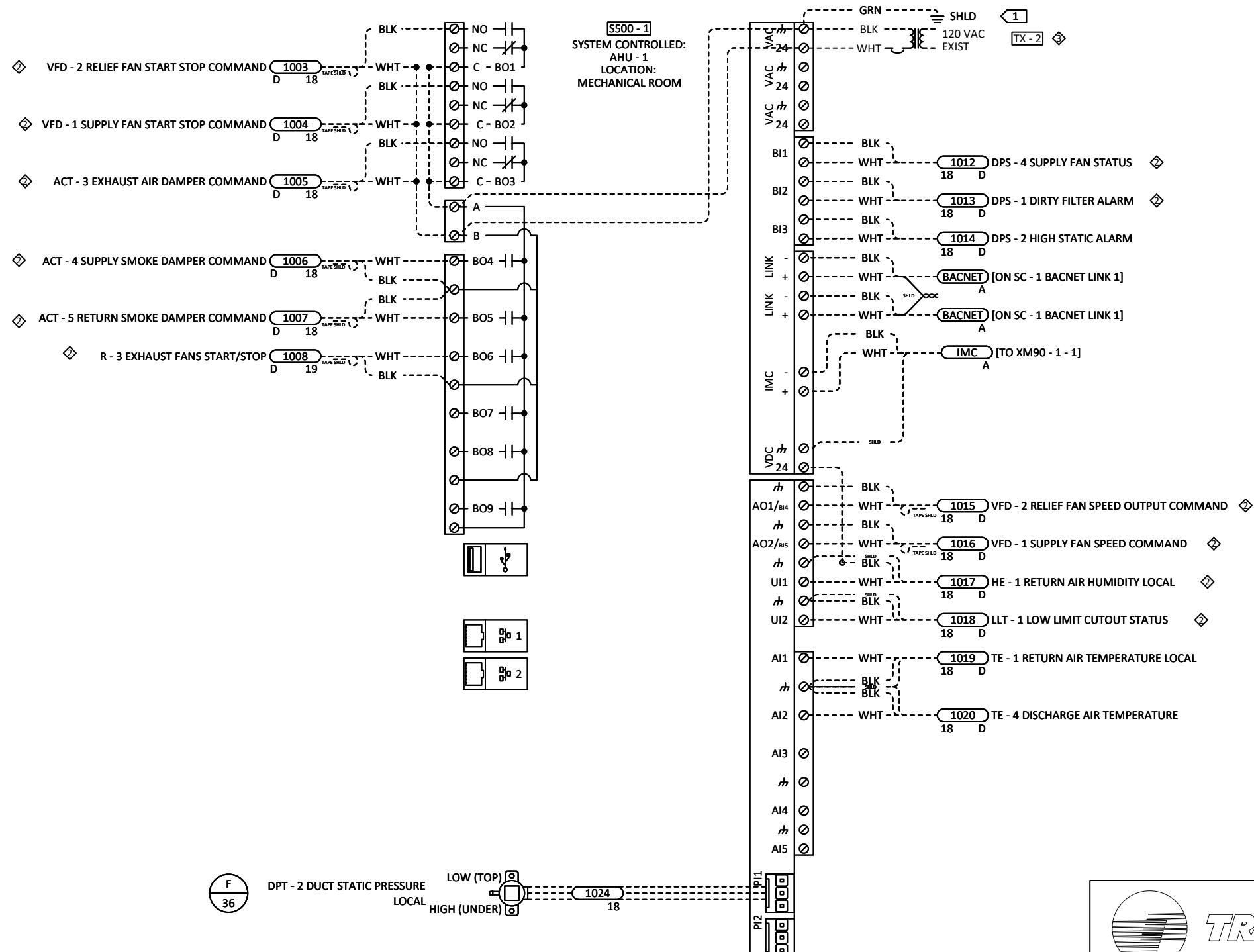
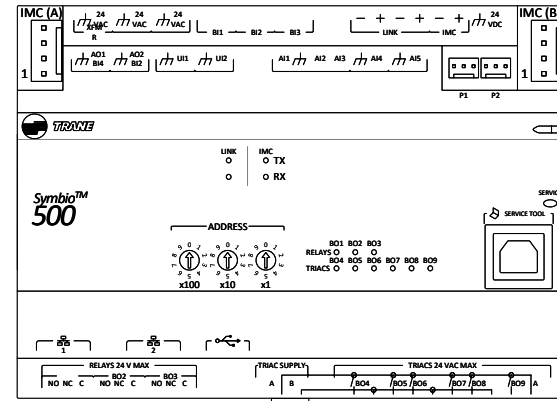
The unit operates on 100% exhaust air to remove smoke from the areas it serves.

AHU - 1 SEQUENCE OF OPERATION				
CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 20 OF 43			



(AHU - 1)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
S500 - 1	1	TRANE	BMSY500AAA0100011	SYMBIO 500 CONTROLLER



(A)  
37

(B)  
37

(B)  
37

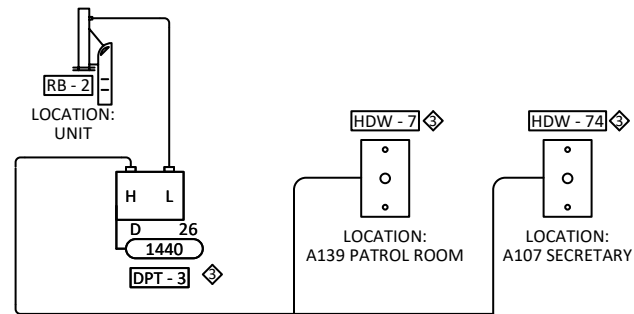
- ◊ REUSE EXISTING TRANSFORMER.
- ◊ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.
- 1 DEVICE MUST BE GROUNDED WITH FACTORY PROVIDED GROUND WIRE AS DETAILED IN THE DEVICE INSTALLATION LITERATURE.

AHU - 1 S500 WIRING DETAIL				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 21 OF 43			



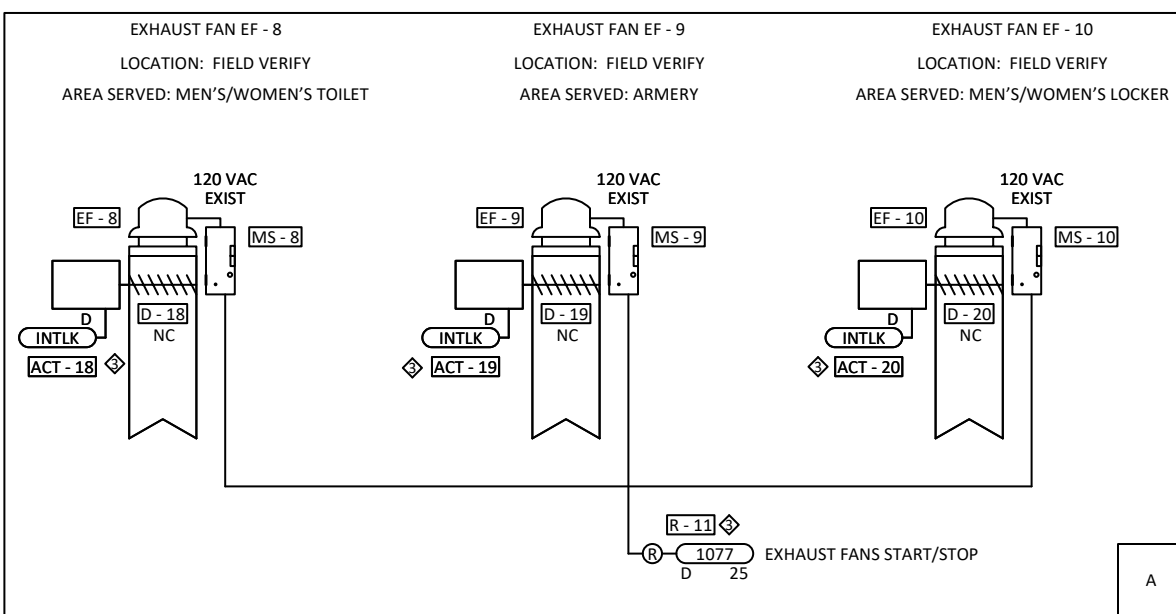
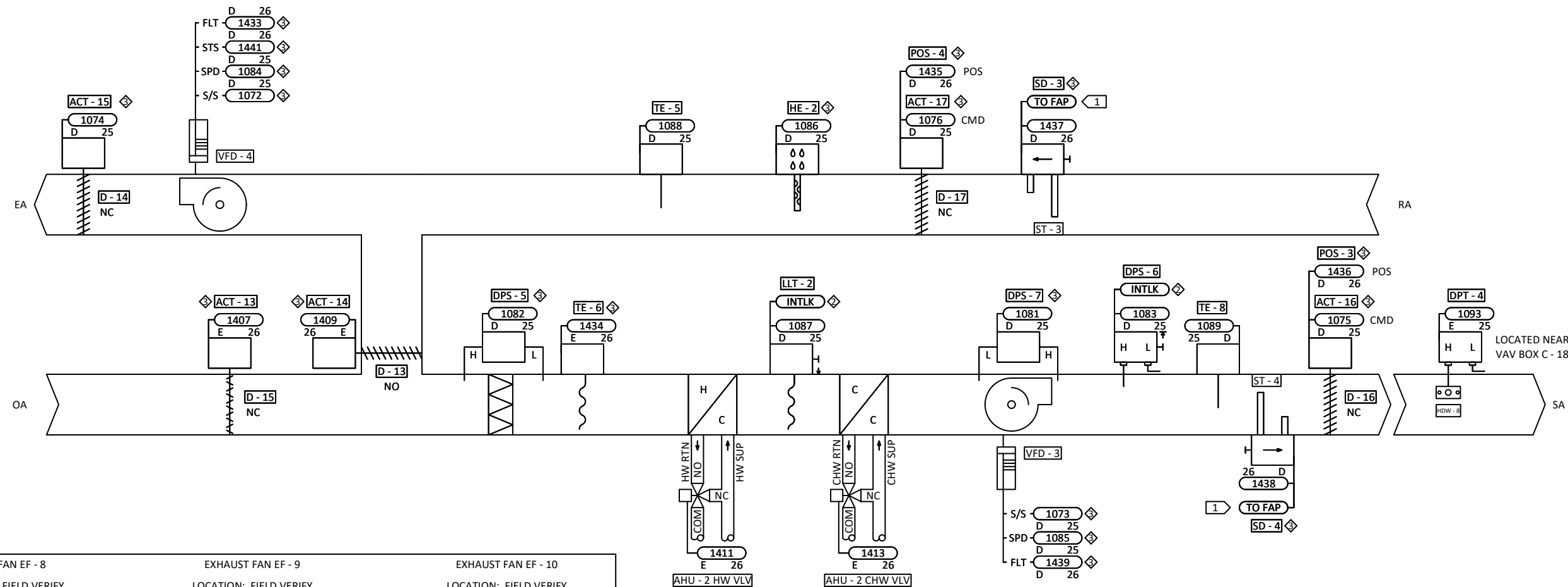


BUILDING PRESSURE SENSOR



(AHU - 2)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
DPT - 4	1	TRANE	4020-1159	DIFF PRESS XMTR, AIR, 0-5 IN WC, 0-5 VDC
TE - 5, TE - 8	2	ACI	A/CP-1-6"-GD	TEMP SENS, DUCT, THERM 6 IN
HDW - 8	1	KELE	A-3245K	STATIC PRESS TIP / MOUNT, A-302-K WITH A-345-K.
VALVES / ACT	*	*	*	*SEE WATER VALVE SCHEDULE



- ◆ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.
- ◆ EXISTING DEVICE INTERLOCK FOR SHUTDOWN OPERATION TO REMAIN.
- 1 SMOKE DETECTOR PROVIDED, INSTALLED AND WIRED TO FAP BY OTHERS.

AHU - 2 AIRFLOW DIAGRAM				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884		PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177		
FILE: Clinton County Jail Controls.vsd		DWG 23 OF 43		



**Sequence of Operation**

**General:**

The unit is a variable air volume (VAV) system consisting of:

- A supply fan with a variable speed drive
- A relief fan with a variable speed drive
- A hot water heating coil
- A chilled water cooling coil
- Outside and return air economizer dampers
- A two-position exhaust air damper

Exhaust fans EF-8, EF-9, and EF-10 provide exhaust for areas served by the unit and are interlocked with its operation. The direct digital control (DDC) system determines the time period (occupied, unoccupied, or pre-occupancy) and operates the unit in occupied, warm-up, or cool-down modes once the unit is running.

**Time Period Determination:**

An optimal start/stop (OSS) algorithm determines the occupied, unoccupied, or pre-occupancy time period. The OSS algorithm uses the time-of-day, outside air dry bulb temperature, and the average space temperatures of the VAV boxes served by the unit to change the time period from unoccupied to pre-occupancy. The OSS algorithm calculates the time needed to achieve the desired space temperature before the scheduled occupancy time and indexes the time period to pre-occupancy accordingly. During pre-occupancy, the unit warms or cools its spaces to occupied temperatures based on the average VAV box space temperatures. Once the time-of-day reaches the OSS algorithm's begin occupancy time, the time period is indexed to occupied.

A time-of-day, day-of-week schedule function allows the user to override the normal OSS occupied time period determination to index the unit to the occupied time period for selected hours. This function provides an easy method to schedule the unit for occupancy outside of regular hours.

Holiday programming overrides normal OSS time period determination and keeps the unit in its unoccupied time period on designated holidays. Holiday programming does not override the time-of-day, day-of-week schedule function or the space temperature sensor unoccupied time period override pushbutton.

**System Start-Up:**

A "HAND-OFF-AUTO" switch at the supply fan speed drive permits manual or automatic operation of the fan.

- In the "AUTO" position, operation of the speed drive is enabled and disabled by the DDC system.
- In the "HAND" position, the speed drive is enabled for operation regardless of the DDC system command; however, the DDC system still operates the unit's temperature control devices in occupied, unoccupied, or pre-occupancy modes. Indexing the speed drive "HAND-OFF-AUTO" switch to the "HAND" position does not index the unit to its occupied mode of operation. The unit's occupied mode remains under DDC system control when the speed drive is operating from its "HAND" position.

A "HAND-OFF-AUTO" switch at the relief fan speed drive permits manual or automatic operation of the fan.

- In the "AUTO" position, operation of the speed drive is enabled and disabled by the DDC system.
- In the "HAND" position, the speed drive is enabled for operation regardless of the DDC system command.

System safeties prevent operation of the supply and relief fan speed drives whenever a safety device is activated. When a safety device is activated, the speed drives are disabled whether the "HAND-OFF-AUTO" switches are in their "HAND" or "AUTO" positions.

**System Safeties:**

Low temperature cutout located on the entering side of the cooling coil operates the unit as follows whenever the air temperature entering the cooling coil falls below its setpoint:

- An alarm is generated at the DDC system.
- Operation of the supply fan speed drive is disabled.
- Operation of the relief fan speed drive is disabled.
- The outside and exhaust air dampers are closed, and the return air damper is opened.
- The heating coil control valve is positioned to full flow through the coil.

Once activated, LLT must be manually reset before the unit can resume normal operation.

High static pressure switch sensing the supply fan discharge static pressure operates the unit as follows whenever the supply fan discharge static pressure exceeds its setpoint:

- An alarm is generated at the DDC system.
- Operation of the supply fan speed drive is disabled.
- Operation of the relief fan speed drive is disabled.

Once activated, HPS must be reset before the unit can resume normal operation.

**System Shutdown and Supply Fan Interlocks:**

Differential pressure switch sensing the pressure differential across the supply fan provides indication to the DDC system that the supply fan is off:

- The outside and exhaust air dampers are closed, and the return air damper is opened.
- The DDC system closes the cooling coil control valve.

• The DDC system closes the heating coil control valve if the outside air temperature is above 40°F. If the outside air temperature is below 40°F, the DDC system operates the heating coil control valve to maintain the mixed air plenum temperature at 70°F.

If the speed drive run status is on, but the supply fan doesn't generate enough static pressure to close DPS, the outside, return, and exhaust dampers, cooling coil control valve, and heating coil control valve will remain as described above even though the supply fan speed drive run status is on.

**Occupied Mode of Operation:**

Whenever the unit is indexed to its occupied mode of operation:

- The supply fan runs continuously, and the outside air damper opens to its minimum position.
- Exhaust fans EF-8, EF-9, and EF-10 are started.

• A mixed air temperature control loop modulates the outside and return air economizer dampers to maintain the mixed air temperature at setpoint.

If the outside air temperature is greater than 68°F and chilled water is available, operation of the outside, return, and exhaust air economizer dampers is disabled. The relief fan is stopped, the relief damper is closed, the return air damper opens, and the outside air damper returns to its minimum position.

Whenever the outside and return air economizer dampers are enabled for operation, the DDC system opens the unit's two-position exhaust air damper and enables the operation of the relief air fan:

- A space static pressure control loop varies the speed of the relief fan to maintain the space static pressure relative to the outside air at setpoint.

If the outside air temperature is below 50°F, the cooling coil control valve is closed, and operation of the heating coil control valve is enabled. A heating supply air temperature control loop modulates the heating coil control valve to maintain a minimum supply air temperature of 52°F.

If the outside air temperature is above 55°F, the heating coil control valve is closed, and operation of the cooling coil control valve is enabled. A cooling supply air temperature control loop modulates the cooling coil control valve to maintain the supply air temperature at its cooling setpoint.

Both the mixed air temperature control loop setpoint and the cooling supply air temperature control loop setpoint (utilized when the outside air temperature is above 55°F) are reset based on the unit's return air temperature. The setpoints are 55°F when the return air temperature is 76°F and 65°F when the return air temperature is 72°F.

Whenever the supply fan speed drive is operating, a supply air static pressure control loop modulates the speed drive to maintain the supply duct static pressure at setpoint.

The DDC system indexes the VAV boxes served by the unit to their occupied mode of operation. Refer to the description of operation for the VAV boxes for information regarding their operation during the unit's occupied mode of operation.

**Warm-Up Mode of Operation:**

The DDC system indexes the unit to its warm-up mode of operation if the unit is in its pre-occupancy time period and was started to heat the areas it serves, or if the unit is operating during its unoccupied mode due to the night low limit being exceeded:

- The outside and return air economizer dampers are positioned to 100% return air.
- Exhaust fans EF-8, EF-9, and EF-10 are stopped.
- Operation of the cooling coil control valve is disabled.

• The supply air static pressure control loop modulates the supply fan speed drive to maintain the supply duct static pressure at setpoint.

• The heating supply air temperature control loop modulates the heating coil control valve to maintain the supply air temperature at 95°F.

• The DDC system indexes the VAV boxes served by the unit to their warm-up mode of operation. Refer to the description of operation for the VAV boxes for additional information regarding their operation during the unit's warm-up mode.

**Cool-Down Mode of Operation:**

The unit operates in its cool-down mode whenever it is in its pre-occupancy time period and was started to cool the areas it serves, or if it is operating in its unoccupied mode due to the night high limit being exceeded. During cool-down mode, the unit provides cooling to its areas similarly to the occupied mode, except for the operation of the outside and return air economizer dampers:

- If economizer operation of the outside and return air dampers is disabled, the outside air damper is closed completely. Minimum outside air is not used, and the unit operates on 100% return air with cooling provided by the cooling coil.
  - Exhaust fans EF-8, EF-9, and EF-10 are stopped.
- If economizer operation is enabled, the outside and return air economizer dampers are enabled for operation, and the unit operates similarly to its normal occupied mode. The unit provides cooling through the use of outside air or a combination of outside air and the cooling coil.
  - Exhaust fans EF-8, EF-9, and EF-10 are started.

**Unoccupied Mode of Operation:**

Whenever the unit is indexed to its unoccupied mode, operation of its supply and relief fan speed drives is disabled. The unit remains off unless one of its VAV box space temperature sensors senses a temperature below 60°F or above 82°F. If any VAV box space temperature sensor senses a space temperature outside these limits, the unit restarts and operates in its warm-up or cool-down mode until all VAV box space temperatures are between 63°F and 79°F, at which point the unit stops again.

**Smoke Control:**

The unit serves compartment "B" in the building. The building fire alarm system indexes the unit to its pressurization (non-fire area) mode or its smoke removal (fire area) mode, depending on which compartment the fire alarm system has sensed smoke in. Refer to the documentation furnished with the building fire alarm system regarding its operation.

**Pressurization (Non-Fire Area) Mode of Operation:**

Whenever the building fire alarm system indexes the unit to its pressurization mode:

- An alarm is generated at the DDC system.
- Exhaust fans EF-8, EF-9, and EF-10 are stopped.
- Operation of the relief fan speed drive is disabled.
- The supply air smoke dampers are opened, and the return air smoke dampers are closed.
- The VAV boxes served by the unit are indexed to 100% open.
- The outside air economizer damper is opened.
- The return and exhaust air economizer dampers are closed.
- The supply fan is commanded to 100% speed.

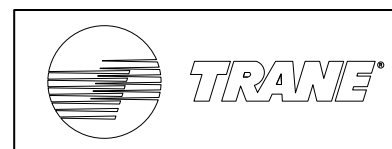
The unit operates on 100% outside air to provide ventilation to the areas it serves. Since the pressurization mode is a life safety function, it overrides the unit's low temperature cutout and high static pressure safety functions, which are equipment safety functions only.

**Smoke Removal (Fire Area) Mode of Operation:**

Whenever the building fire alarm system indexes the unit to its smoke removal mode:

- An alarm is generated at the DDC system.
- Exhaust fans EF-8, EF-9, and EF-10 are started.
- Operation of the supply fan speed drive is disabled.
- The supply air smoke dampers are closed, and the return air smoke dampers are opened.
- The VAV boxes served by the unit are indexed to closed.
- The outside and return air economizer dampers are closed.
- The exhaust air economizer damper is opened.
- The relief air fan is commanded to 100% speed.

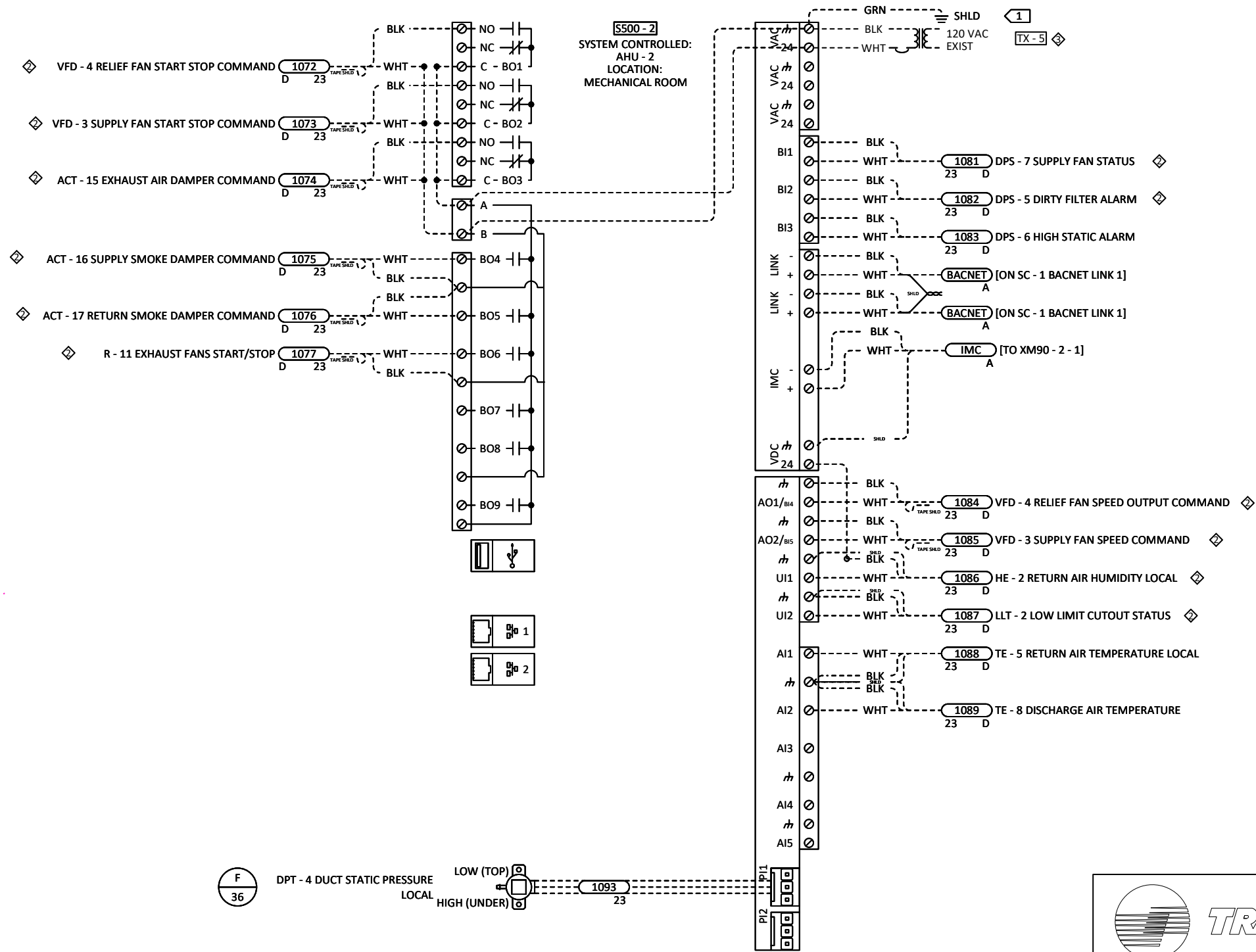
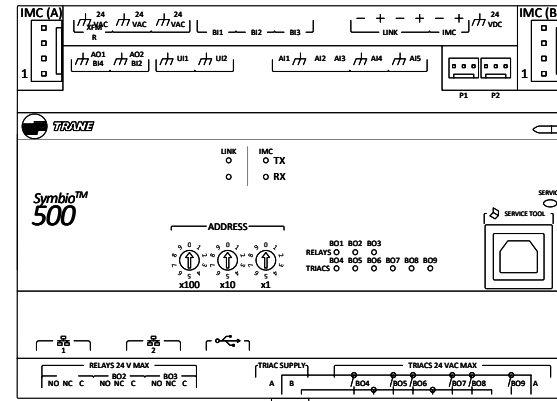
The unit operates on 100% exhaust air to remove smoke from the areas it serves.



AHU - 2 SEQUENCE OF OPERATION				
CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls			
	1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsdh				DWG 24 OF 43

(AHU - 2)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
S500 - 2	1	TRANE	BMSY500AAA0100011	SYMBIO 500 CONTROLLER



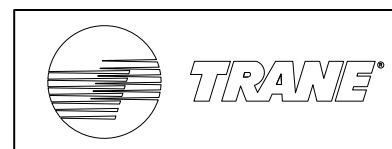
A  
37

B  
37

B  
37

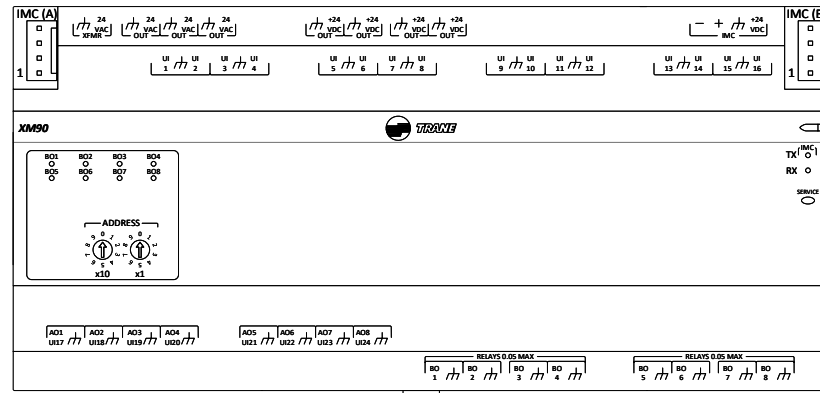
- ◊ REUSE EXISTING TRANSFORMER.
- ◊ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.
- 1 DEVICE MUST BE GROUNDED WITH FACTORY PROVIDED GROUND WIRE AS DETAILED IN THE DEVICE INSTALLATION LITERATURE.

F  
36



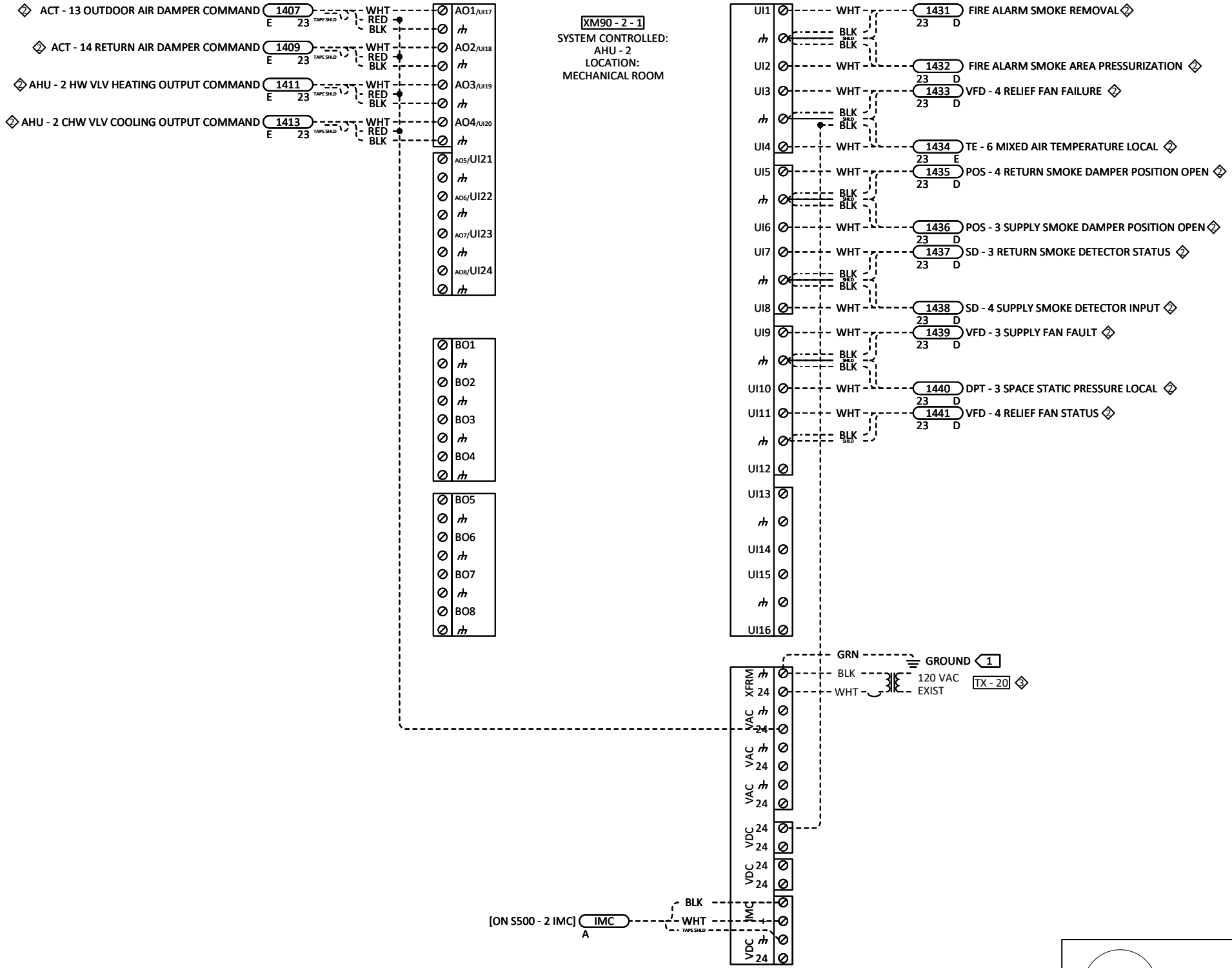
AHU - 2 S500 WIRING DETAIL				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 25 OF 43			

(AHU - 2)



BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
XM90 - 2 - 1	1	TRANE	X13651701001	XM90, 32 POINT EXPANSION MODULE

A  
36  
B  
36



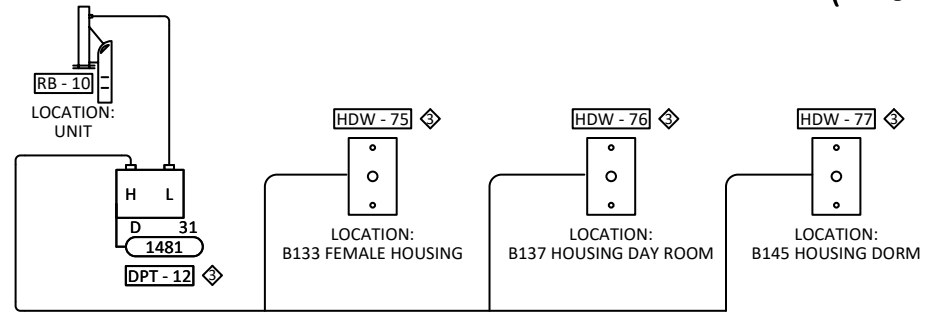
XM90 - 2 - 1  
SYSTEM CONTROLLED:  
AHU - 2  
LOCATION:  
MECHANICAL ROOM

- ◆ REUSE EXISTING TRANSFORMER.
- ◆ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.
- ◻ 1 DEVICE MUST BE GROUNDED WITH FACTORY PROVIDED GROUND WIRE AS DETAILED IN THE DEVICE INSTALLATION LITERATURE.

AHU - 2 XM90 WIRING DETAIL				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 26 OF 43			

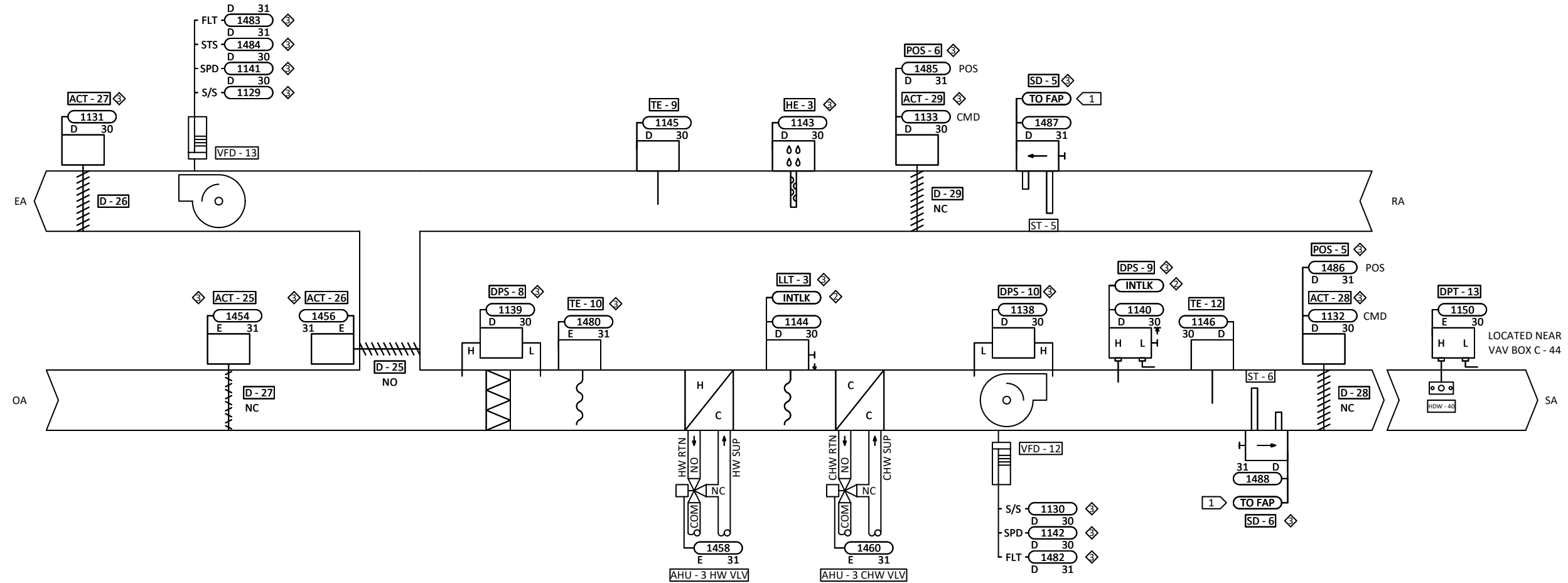


BUILDING PRESSURE SENSOR



(AHU - 3)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
DPT - 13	1	TRANE	4020-1159	DIFF PRESS XMTR, AIR, 0-5 IN WC, 0-5 VDC
TE - 12, TE - 9	2	ACI	A/CP-I-6"-GD	TEMP SENS, DUCT, THERM 6 IN
HDW - 40	1	KELE	A-3245K	STATIC PRESS TIP / MOUNT, A-302-K WITH A-345-K.
VALVES / ACT	*	*	*	*SEE WATER VALVE SCHEDULE

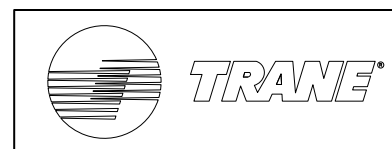


FIRE ALARM PANEL

- INTLK FIRE ALARM RELAY
- 1478 FIRE ALARM SMOKE REMOVAL
- 1479 FIRE ALARM SMOKE AREA PRESSURIZATION

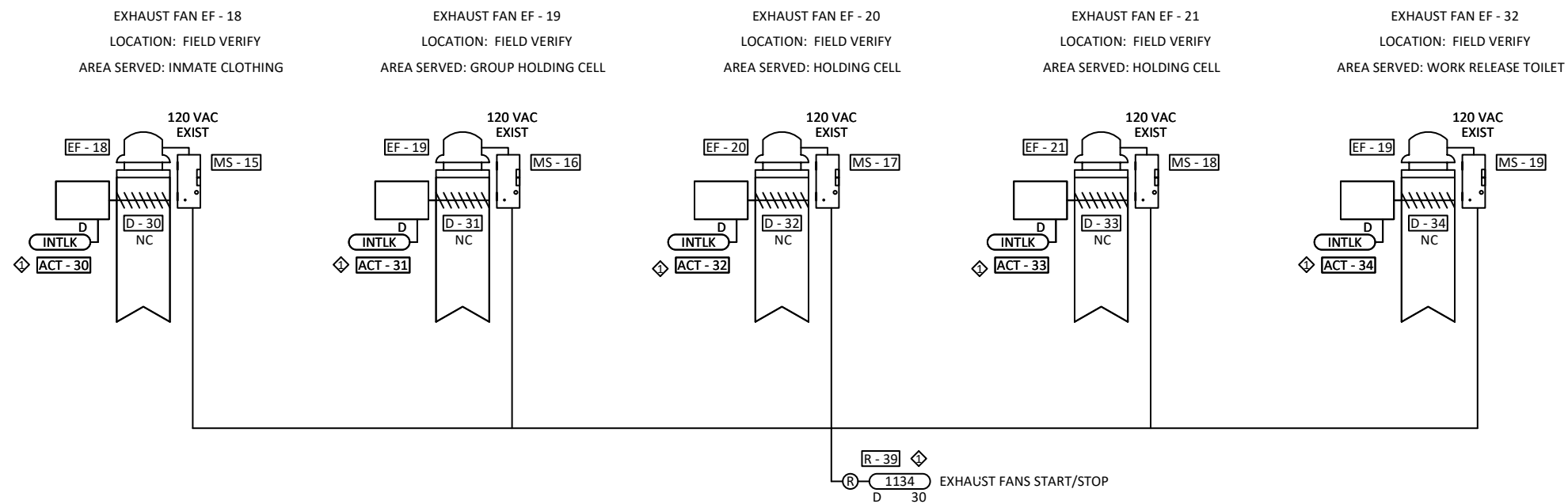
- ◇ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILT'S PURPOSES.
- ◇ EXISTING DEVICE INTERLOCK FOR SHUTDOWN OPERATION TO REMAIN.
- 1 SMOKE DETECTOR PROVIDED, INSTALLED AND WIRED TO FAP BY OTHERS.

AHU - 3 AIRFLOW DIAGRAM				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 27 OF 43			

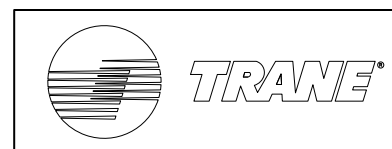


(EF - 18 ~ 21, 32)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION



NOTE:  
ALL DEVICES NOT LISTED ON BOM ARE EXISTING AND WILL BE REUSE.



EF - 18 ~ 21, 32 AIRFLOW DIAGRAM				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 28 OF 43			

**Sequence of Operation**

**General:**

The unit is a variable air volume (VAV) system comprised of:

- A supply fan with a variable speed drive
- A relief fan with a variable speed drive
- A hot water heating coil
- A chilled water cooling coil
- Outside and return air economizer dampers
- A two-position exhaust air damper

Exhaust fans EF-18, EF-19, EF-20, EF-21, and EF-32 provide exhaust for areas served by the unit and are interlocked with its operation. The unit is started and stopped by the direct digital control (DDC) system operator. It is intended that the unit run continuously.

**System Start-Up:**

A "HAND-OFF-AUTO" switch at the supply fan speed drive permits manual or automatic operation of the fan.

- In the "AUTO" position, operation of the speed drive is enabled and disabled by the DDC system.
- In the "HAND" position, the speed drive is enabled for operation regardless of the command from the DDC system; however, the DDC system still operates the unit's temperature control devices in an occupied mode of operation. Indexing the speed drive "HAND-OFF-AUTO" switch to the "HAND" position does not index the unit to its occupied mode of operation. The unit's occupied mode of operation remains under control of the DDC system when the speed drive is operating from its "HAND" position. A "HAND-OFF-AUTO" switch at the relief fan speed drive permits manual or automatic operation of the fan.
- In the "AUTO" position, operation of the speed drive is enabled and disabled by the DDC system.
- In the "HAND" position, the speed drive is enabled for operation regardless of the command from the DDC system.

System safeties, as described below, prevent operation of the supply and relief fan speed drives whenever a safety device is activated. Whenever a safety device is activated, the speed drives are disabled whether the speed drives' "HAND-OFF-AUTO" switches are in their "HAND" position or in their "AUTO" position.

**System Safeties:**

Low temperature cutout located on the entering side of the cooling coil operates the unit as follows whenever the temperature of the air entering the cooling coil falls below its setpoint:

- An alarm is generated at the DDC system.
- Operation of the supply fan speed drive is disabled.
- Operation of the relief fan speed drive is disabled.
- The outside and exhaust air dampers are closed, and the return air damper is opened.
- The heating coil control valve is positioned to full flow through the coil.

Once activated, low temperature cutout must be manually reset before the unit can resume normal operation.

High static pressure switch sensing the supply fan discharge static pressure operates the unit as follows whenever the supply fan discharge static pressure exceeds its setpoint:

- An alarm is generated at the DDC system.
- Operation of the supply fan speed drive is disabled.
- Operation of the relief fan speed drive is disabled.

Once activated, high static pressure switch must be reset before the unit can resume normal operation.

**System Shutdown and Supply Fan Interlocks:**

Differential pressure switch sensing the pressure differential across the supply fan provides indication to the DDC system that the supply fan is off:

- The outside and exhaust air dampers are closed, and the return air damper is opened.
- The DDC system closes the cooling coil control valve.
- The DDC system closes the heating coil control valve if the outside air temperature is above 40°F. If the outside air temperature is below 40°F, the DDC system operates the heating coil control valve to maintain the temperature of the mixed air plenum at 70°F. If the speed drive run status is on, but the supply fan doesn't generate enough static pressure to cause DPS to close its contact, the outside, return, and exhaust dampers, cooling coil control valve, and heating coil control valve will remain as described above even though the supply fan speed drive run status is on.

**System Run Mode of Operation:**

Whenever the unit is indexed to run, its supply fan runs continuously and its outside air damper opens to its minimum position. Exhaust fans EF-18, EF-19, EF-20, EF-21, and EF-32 are started.

A mixed air temperature control loop modulates the outside and return air economizer dampers to maintain the mixed air temperature at setpoint. If the outside air temperature is greater than 68°F, and as long as chilled water is available, operation of the outside and return air economizer dampers is disabled. The relief fan is stopped, the relief damper is closed, the return air damper opens, and the outside air damper returns to its minimum position.

Whenever the outside and return air economizer dampers are enabled for operation, the DDC system opens the unit's two-position exhaust air damper and enables the operation of the relief air fan:

- A space static pressure control loop varies the speed of the relief fan to maintain the space static pressure, relative to the outside air, at setpoint. If the outside air temperature is below 50°F, the cooling coil control valve is closed and operation of the heating coil control valve is enabled. A heating supply air temperature control loop then modulates the heating coil control valve to maintain a minimum supply air temperature of 52°F.

If the outside air temperature is above 55°F, the heating coil control valve is closed and operation of the cooling coil control valve is enabled. A cooling supply air temperature control loop then modulates the cooling coil control valve to maintain the supply air temperature at its cooling setpoint.

Both the mixed air temperature control loop setpoint and the cooling supply air temperature control loop setpoint (utilized when the outside air temperature is above 55°F) are reset based on the unit's return air temperature. The setpoints are 55°F when the return air temperature is 76°F and 65°F when the return air temperature is 72°F.

Whenever the supply fan speed drive is operating, a supply air static pressure control loop modulates the speed drive to maintain the supply duct static pressure at setpoint.

The DDC system indexes the VAV boxes served by the unit to their occupied mode of operation. Refer to the description of operation for the VAV boxes for information regarding their operation during the unit's occupied mode of operation.

**Warm-Up Mode of Operation:**

The DDC system indexes the unit to its warm-up mode of operation if the unit is operating due to the room temperature low limit setpoint being exceeded:

- The outside and return air economizer dampers are positioned to 100% return air.
- Exhaust fans EF-18, EF-19, EF-20, EF-21, and EF-32 are stopped.
- Operation of the cooling coil control valve is disabled.
- The supply air static pressure control loop modulates the supply fan speed drive to maintain the supply duct static pressure at setpoint.
- The heating supply air temperature control loop modulates the heating coil control valve to maintain the supply air temperature at 95°F.
- The DDC system indexes the VAV boxes served by the unit to their warm-up mode of operation. Refer to the description of operation for the VAV boxes for additional information regarding their operation during the unit's warm-up mode.

**Cool-Down Mode of Operation:**

The unit operates in its cool-down mode whenever it is indexed off by the DDC system operator and is operating due to the room temperature high limit being exceeded. During cool-down mode, the unit provides cooling to its areas similarly to the occupied mode, except for the operation of the outside and return air economizer dampers:

- If economizer operation of the outside and return air dampers is disabled, the outside air damper is closed completely. Minimum outside air is not used, and the unit operates on 100% return air with cooling provided by the cooling coil. Exhaust fans EF-18, EF-19, EF-20, EF-21, and EF-32 are stopped.
- If economizer operation is enabled, the outside and return air economizer dampers are enabled for operation, and the unit operates similarly to its normal occupied mode. The unit provides cooling through the use of outside air or a combination of outside air and the cooling coil. Exhaust fans EF-18, EF-19, EF-20, EF-21, and EF-32 are started.

**System Stop Mode of Operation:**

Whenever the unit is indexed off by the DDC system operator, operation of its supply and relief fan speed drives is disabled. The unit remains off unless one of its VAV box space temperature sensors senses a temperature below 60°F or above 82°F. If any VAV box space temperature sensor senses a space temperature outside these limits, the unit restarts and operates in its warm-up or cool-down mode until all VAV box space temperatures are between 63°F and 79°F, at which point the unit stops again.

**Smoke Control:**

The unit serves compartment "C" in the building. The building fire alarm system indexes the unit to its pressurization (non-fire area) mode or its smoke removal (fire area) mode, depending on which compartment the fire alarm system has sensed smoke in. Refer to the documentation furnished with the building fire alarm system regarding its operation.

**Pressurization (Non-Fire Area) Mode of Operation:**

Whenever the building fire alarm system indexes the unit to its pressurization mode:

- An alarm is generated at the DDC system.
- Exhaust fans EF-18, EF-19, EF-20, EF-21, and EF-32 are stopped.
- Operation of the relief fan speed drive is disabled.
- The variable air volume (VAV) boxes served by the unit are indexed to 100% open.
- The outside air economizer damper is opened.
- The return and exhaust air dampers are closed.
- The supply fan is commanded to 100% speed.

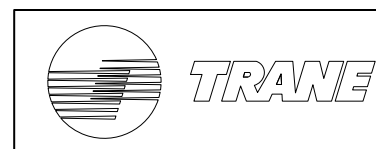
The unit operates on 100% outside air to provide ventilation to the areas it serves. Since the pressurization mode is a life safety function, it overrides the unit's low temperature cutout and high static pressure safety functions, which are equipment safety functions only.

**Smoke Removal (Fire Area) Mode of Operation:**

Whenever the building fire alarm system indexes the unit to its smoke removal mode:

- An alarm is generated at the DDC system.
- Exhaust fans EF-18, EF-19, EF-20, EF-21, and EF-32 are started.
- Operation of the supply fan speed drive is disabled.
- The variable air volume (VAV) boxes served by the unit are indexed to closed.
- The outside and return air economizer dampers are closed.
- The exhaust air economizer damper is opened.
- The relief air fan is commanded to 100% speed.

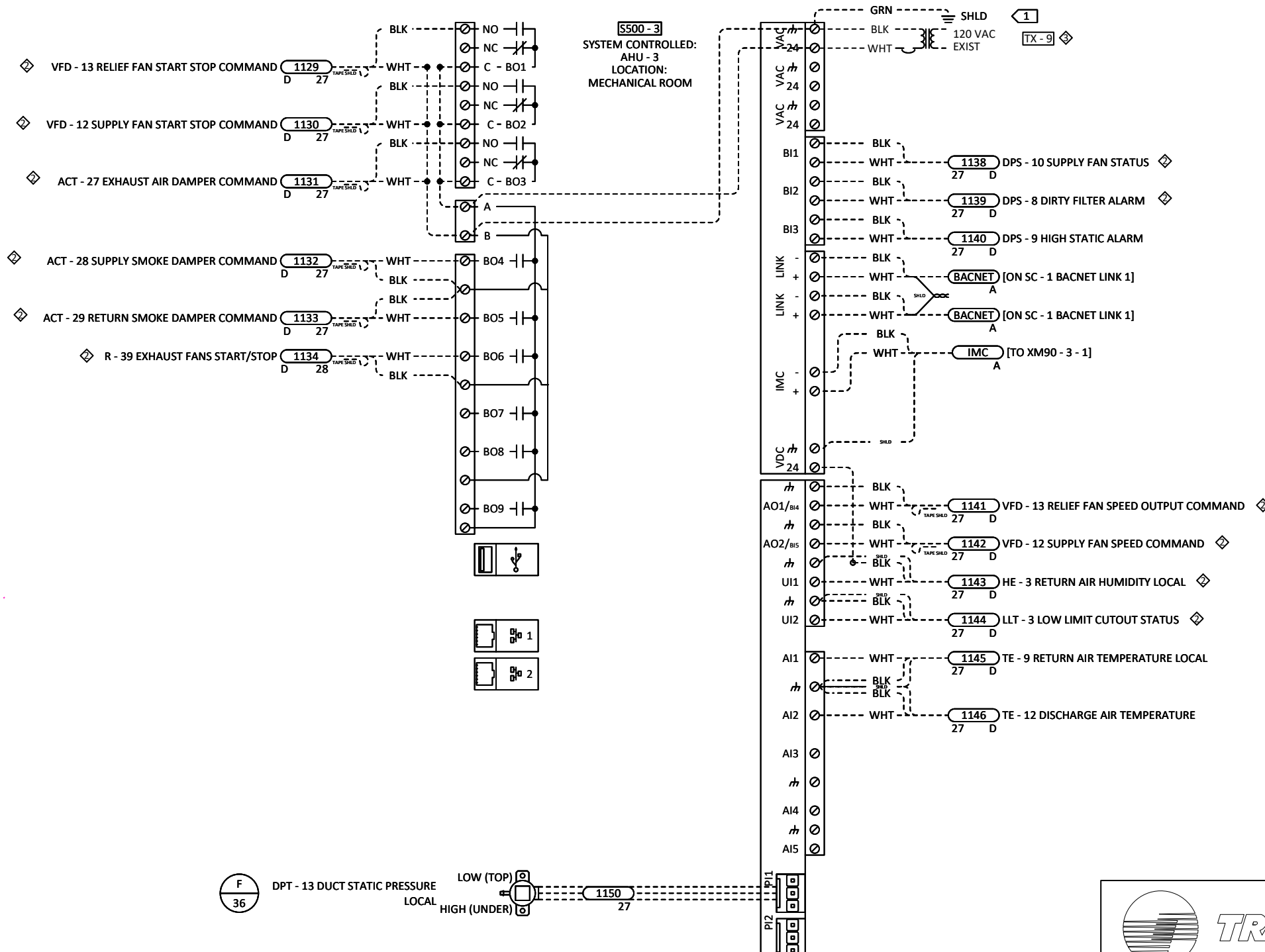
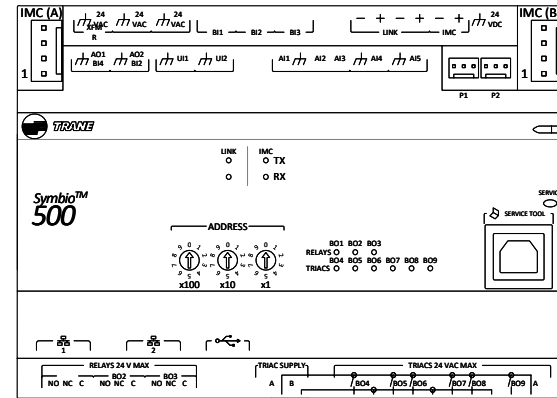
The unit operates on 100% exhaust air to remove smoke from the areas it serves.



AHU - 3 SEQUENCE OF OPERATION				
CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 29 OF 43			

(AHU - 3)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
S500 - 3	1	TRANE	BMSY500AAA0100011	SYMBIO 500 CONTROLLER



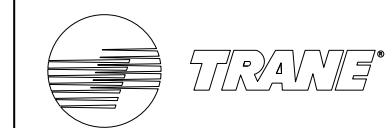
(A)  
37

(B)  
37

(B)  
37

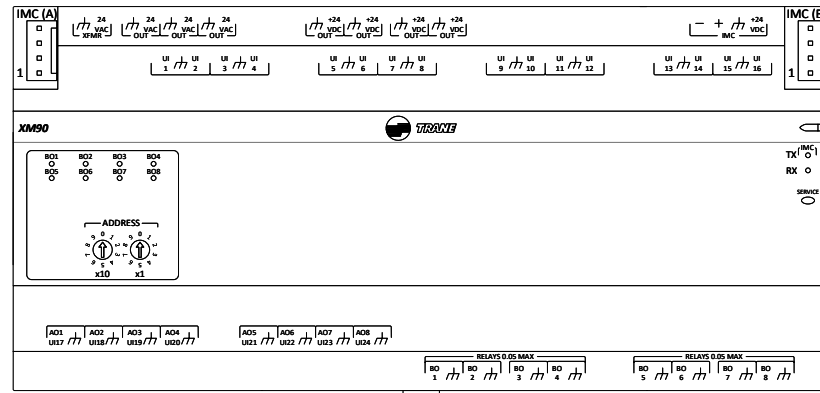
- ◊ REUSE EXISTING TRANSFORMER.
- ◊ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.
- 1 DEVICE MUST BE GROUNDED WITH FACTORY PROVIDED GROUND WIRE AS DETAILED IN THE DEVICE INSTALLATION LITERATURE.

(F)  
36



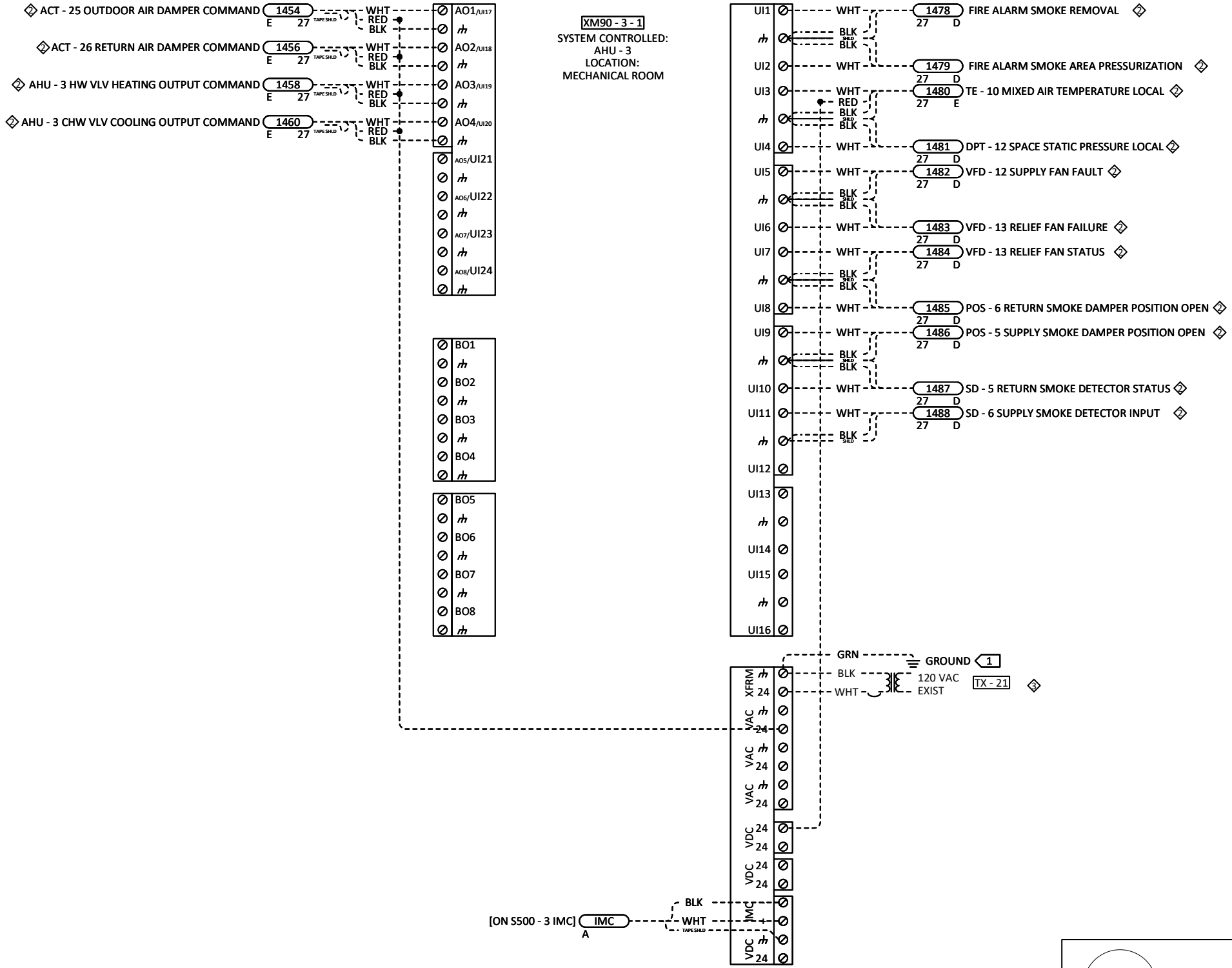
AHU - 3 S500 WIRING DETAIL				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 30 OF 43			

(AHU - 3)



BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
XM90 - 3 - 1	1	TRANE	X13651701001	XM90, 32 POINT EXPANSION MODULE

A  
36  
B  
36



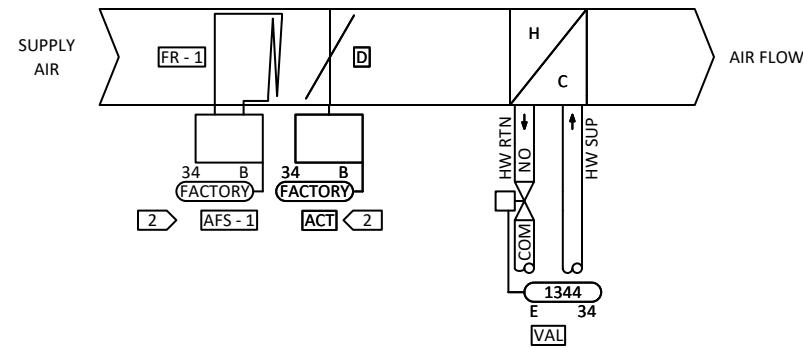
- ◇ REUSE EXISTING TRANSFORMER.
- ◇ EXISTING DEVICE TO BE TERMINATED TO NEW TRANE CONTROLLER. FIELD VERIFY SIGNAL AND WIRING, RECORD ANY CHANGES FOR AS BUILTS PURPOSES.
- ◁ 1 DEVICE MUST BE GROUNDED WITH FACTORY PROVIDED GROUND WIRE AS DETAILED IN THE DEVICE INSTALLATION LITERATURE.

AHU - 3 XM90 - 3 CONTROLLER				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 31 OF 43			

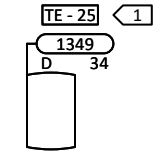


TYPICAL FOR 53  
(C - 1 ~ 53)

BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
TE - 25	53	TRANE	4190-7016	TEMP SENS, WALL PLATE S/S THERM
VALVES / ACT	*	*	*	*SEE WATER VALVE SCHEDULE



SPACE TEMPERATURE SENSOR



LOCATION: SEE VAV SCHEDULE

- 2 INCLUDED WITH VAV CONTROLLER KIT.
- 1 MOUNT SENSOR IN CONTROLLED SPACE.

**C - 1 ~ 53 AIRFLOW DIAGRAM**

CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd				DWG 32 OF 43



**Sequence of Operation**

Reheat VAV boxes operate in occupied, unoccupied, or pre-occupancy modes. The mode of operation of the VAV boxes is linked to the mode of operation of their air handling unit. Refer to the description of operation for the air handling units for additional information on the conditions that determine their occupied, unoccupied, or pre-occupancy modes.

**Occupied Mode of Operation:**

Whenever the air handling unit is indexed to its occupied mode of operation, the controller for each box varies the CFM output between the box's deadband minimum and primary maximum CFM values to maintain the room's space temperature at its occupied cooling setpoint.

- As the room temperature increases above the controller's occupied cooling setpoint, the controller increases the amount of cool primary air to the space.
- If the room temperature decreases, the controller reduces the amount of cool primary air to the space.
- If the room temperature continues to decrease below the controller's occupied heating setpoint, the controller operates the box's reheat coil control valve to provide heat to the space.
- If hot water is not available (i.e., the hot water supply temperature is below 90°F or the hot water pumps are off), the reheat coil control valve remains closed, and the controller keeps the amount of cool primary air to the space at its deadband minimum CFM setpoint, even if the room temperature falls below the controller's occupied heating setpoint.

**Unoccupied Mode of Operation (Low Space Temperature):**

Whenever the air handling unit is indexed to its unoccupied mode of operation and is started due to a low space temperature, the controller for each box varies the CFM output between 0 CFM and the box's heating CFM setpoint, and operates the box's reheat coil control valve to maintain the room's space temperature at its lower unoccupied heating setpoint.

- As the room temperature decreases below the controller's unoccupied heating setpoint, the controller increases the amount of primary air to the space and opens the box's reheat coil control valve.
- As the room temperature increases above the controller's unoccupied heating setpoint, the controller decreases the amount of primary air to the space and closes the box's reheat coil control valve.

**Unoccupied Mode of Operation (High Space Temperature):**

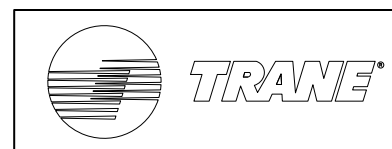
Whenever the air handling unit is indexed to its unoccupied mode of operation and is started due to a high space temperature, the controller for each box varies the CFM output between 0 CFM and the box's primary maximum CFM setpoint to maintain the room's space temperature at its higher unoccupied cooling setpoint.

- As the room temperature increases above the controller's unoccupied cooling setpoint, the controller increases the amount of cool primary air to the space.
- As the room temperature decreases below the controller's unoccupied cooling setpoint, the controller decreases the amount of cool primary air to the space.

**Pre-Occupancy Mode of Operation:**

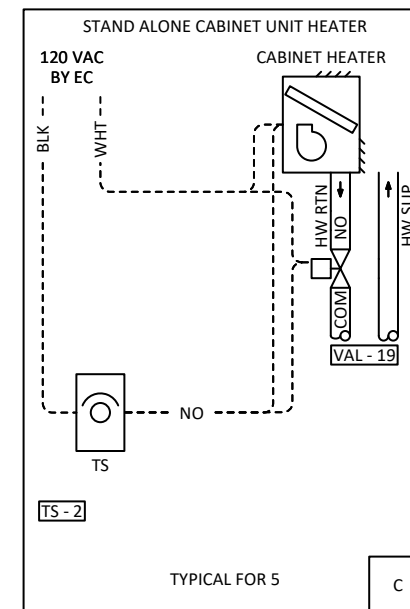
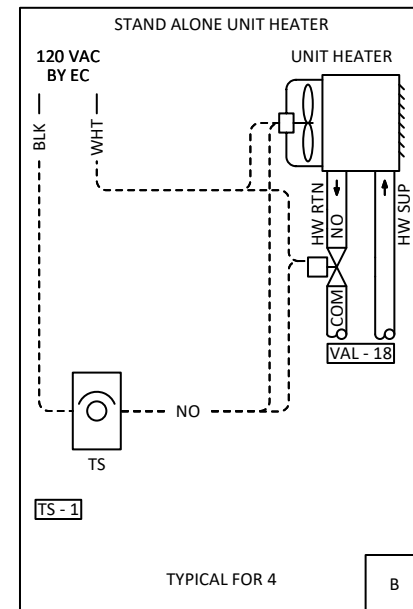
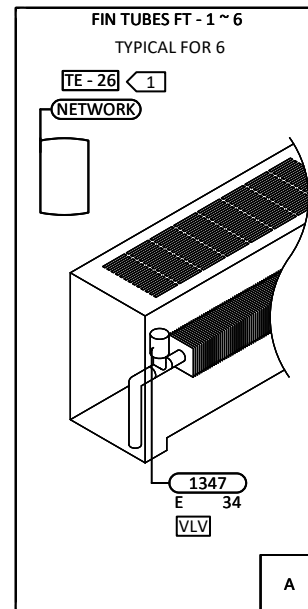
Whenever the air handling unit indexes to its pre-occupancy mode of operation, the controller for each box operates similarly to its unoccupied mode of operation, except that the controller now varies the box's CFM to maintain its occupied heating setpoint or its occupied cooling setpoint.

C - 1 ~ 53 SEQUENCE OF OPERATION				
CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd				DWG 33 OF 43





BILL OF MATERIAL				
TAG	QTY	VENDOR	PART NO	DESCRIPTION
VALVES / ACT	*	*	*	*SEE WATER VALVE SCHEDULE



**NOTE:**  
THE FIN-TUBE VALVE WILL BE CONTROLLED FROM VAV CONTROLLER THAT ORIGINALLY CONTROLLED IT. NO INFORMATION REGARDING WHICH VAV IS ASSOCIATED WITH EACH FIN-TUBE. FIELD VERIFY AND RECORD FOR AS-BUILT PURPOSES.

**Fin-Tube Sequence of Operations**

Self-contained control valve will vary the hot water flow through its fin-tube coil to maintain the space temperature at setpoint.

**Unit & Cabinet Heater Sequence of Operations**

Room thermostat will energize its respective unit heater or cabinet unit heater fan and will open its respective hot water coil control valve upon sensing room temperatures below its setpoint.

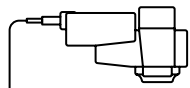
1 SPACE TEMPERATURE SENSOR TIE TO VAV CONTROLLER. REFER TO PAGE 32 FOR SENSOR LOCATION.

FINTUBES AND STANDALONE HEATERS				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 35 OF 43			



ACT, PROP, 24 VAC/VDC, 337 LBF, NSR

BELIMO  
SVKB24-SR

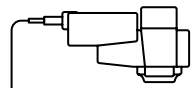


HOT (2) — RED — 24 VAC  
COM (1) — BLK — COMMON  
INPUT (3) — WHT — 2-10 VDC SIGNAL  
OUTPUT (5) — NOT USED (CAP OFF)

A

ACT, PROP, 24 VAC/VDC, 562 LBF, NSR

BELIMO  
EVB24-SR



HOT (2) — RED — 24 VAC  
COM (1) — BLK — COMMON  
INPUT (3) — WHT — 2-10 VDC SIGNAL  
OUTPUT (5) — NOT USED (CAP OFF)

B

VALVE ACTUATOR FLTG PT, 24VAC/DC

BELIMO  
TR24-3 US

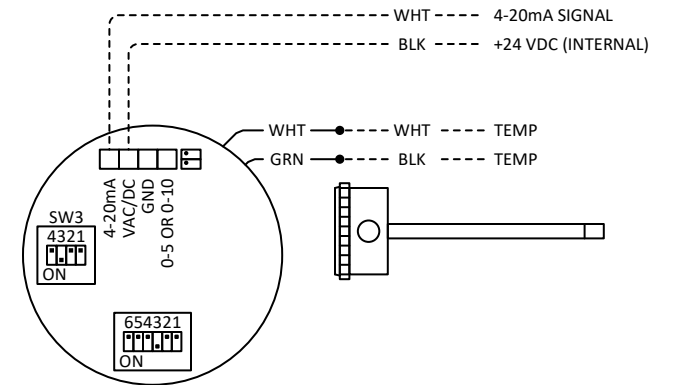


(1) BLK — COMMON  
(2) RED — DRIVE CW (24 VAC)  
(3) WHT — DRIVE CCW (24 VAC)

C

RH 3% XMITTER DUCT, W/TEMP

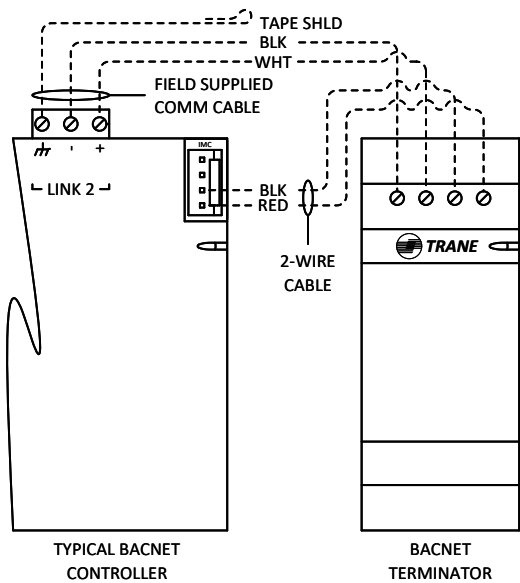
ACI  
A/RH3-CP-O



D

TRACER BACNET TERMINATOR (2/PKG)

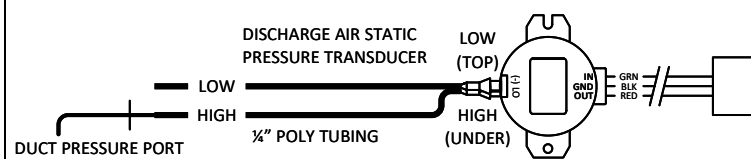
TRANE  
X13651524-01



E

DIFF PRESS XMTR, AIR, 0-5 IN WC, 0-5 VDC

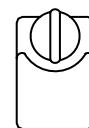
TRANE  
4020-1159



F

VALVE ACTUATOR MOD, 24VAC/DC

BELIMO  
TR24-SR US

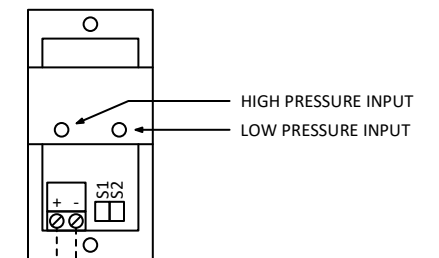


HOT (2) — RED — 24 VAC  
COM (1) — BLK — COMMON  
INPUT (3) — WHT — 2-10 VDC SIGNAL  
OUTPUT (5) — NOT USED (CAP OFF)

G

SENSOR BUILDING PRESSURE DIFF. SELECTABLE

TRANE  
4190-5050



TRANSDUCER CONFIGURATIONS (SET SWITCH AS SHOWN IN CIRCLED DIAGRAM)

UNI-DIRECTIONAL	0.0 TO 1.0"WC	0.0 TO 0.5"WC	0.0 TO 0.25"WC
BI-DIRECTIONAL	-0.5 TO 0.5"WC	-0.25 TO 0.25"WC	-0.125 TO 0.125"WC

H

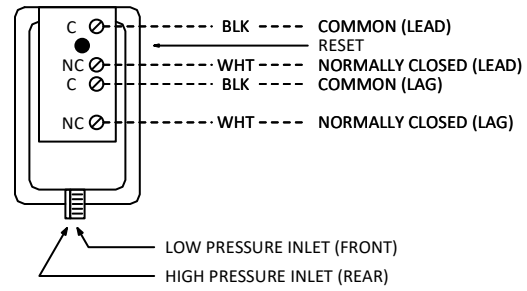
DETAIL SHEET

CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls 1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 36 OF 43			



SWITCH AIR DP AFS-460-DSS MAN RESET .4"-12"

KELE  
AFS-460-DSS



A

SENSOR TEMP 8" IMMERSION 10K OHM THERM

ACI  
A/CP-I-6"-GD



B

SENSOR TEMP 4" IMMERSION 10K OHM THERM

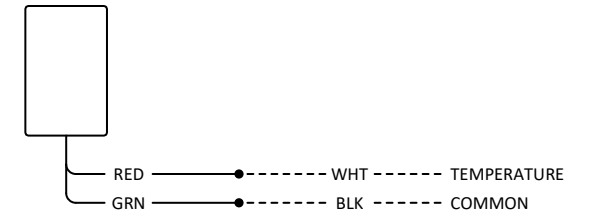
ACI  
A/CP-I-4"-GD



C

SENSOR TEMP WALL PLATE S/S THERM W/O LOGO

TRANE  
4190-7016



D

DETAIL SHEET 2

CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls			
	1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 37 OF 43			



VAV EQUIPMENT SCHEDULE (1 of 2)

ITEM	TAG	AREA SERVED DESC	AHU OR RTU	BUILDING CONTROLLER	LINK	UNIT CONTROLLER	MIN HEAT (CFM)	MIN COOL (CFM)	MAX FLOW (CFM)	VALVE SIZE (CV)	NOTES
1	C - 1	B123	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	525	525	525	0.30	CVR
2	C - 2	B118	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	530	530	530	0.30	CVR
3	C - 3	B122	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	300	300	300	0.30	CVR
4	C - 4	B104	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	170	170	170	0.30	CVR
5	C - 5	B108	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	380	380	380	0.30	CVR
6	C - 6	B107	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	1100	1100	1100	0.30	CVR
7	C - 7	B112	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	320	320	320	0.30	CVR
8	C - 8	A103	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	200	200	200	0.30	CVR
9	C - 9	A105	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	425	425	850	0.30	VVR
10	C - 10	B114	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	200	200	400	0.30	VVR
11	C - 11	B115	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	100	100	200	0.30	VVR
12	C - 12	A109	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	300	300	600	0.30	VVR
13	C - 13	A110	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	200	200	400	0.30	VVR
14	C - 14	A111	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	250	250	500	0.30	VVR
15	C - 15	A134	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	125	125	250	0.30	VVR
16	C - 16	A135	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	550	550	1100	0.30	VVR
17	C - 17	A137	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	200	200	375	0.30	VVR
18	C - 18	A139	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	750	750	1500	0.30	VVR
19	C - 19	A140	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	600	600	600	0.30	CVR
20	C - 20	A131	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	280	280	560	0.30	VVR
21	C - 21	A129	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	315	315	630	0.30	VVR
22	C - 22	A115	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	100	100	200	0.30	VVR
23	C - 23	A106	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	475	475	950	0.30	VVR
24	C - 24	A123	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	680	680	680	0.30	CVR
25	C - 25	A117	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	700	700	700	0.30	CVR
26	C - 26	A158	AHU - 2	SC - 1	BACNET LINK 2	Symbio 210 VAV	800	800	1600	0.30	VVR
27	C - 27	B166	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	250	250	500	0.30	VVR
28	C - 28	B167	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	175	175	350	0.30	VVR
29	C - 29	A170	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	375	375	750	0.30	VVR
30	C - 30	B171	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	660	660	1320	0.30	VVR

VAV EQUIPMENT SCHEDULE

CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 38 OF 43			



VAV EQUIPMENT SCHEDULE (2 of 2)

ITEM	TAG	AREA SERVED DESC	AHU OR RTU	BUILDING CONTROLLER	LINK	UNIT CONTROLLER	MIN HEAT (CFM)	MIN COOL (CFM)	MAX FLOW (CFM)	VALVE SIZE (CV)	NOTES
31	C - 31	B128	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	210	210	420	0.30	VVR
32	C - 32	B126	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	100	100	125	0.30	VVR
33	C - 33	B129	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	315	315	625	0.30	VVR
34	C - 34	B176	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	350	350	700	0.30	VVR
35	C - 35	B174	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	130	130	130	0.30	CVR
36	C - 36	B161	AHU - 1	SC - 1	BACNET LINK 2	Symbio 210 VAV	450	450	900	0.30	VVR
37	C - 37	B153	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	615	615	615	0.30	CVR
38	C - 38	B211	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	260	260	260	0.30	CVR
39	C - 39	B148	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	260	260	260	0.30	CVR
40	C - 40	B213	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	250	250	250	0.30	CVR
41	C - 41	B150	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	250	250	250	0.30	CVR
42	C - 42	B145	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	1830	1830	1830	0.30	CVR
43	C - 43	B145	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	1080	1080	1080	0.30	CVR
44	C - 44	B143	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	920	920	920	0.30	CVR
45	C - 45	B143	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	1660	1660	1660	0.30	CVR
46	C - 46	B210	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	600	600	600	0.30	CVR
47	C - 47	B142	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	520	520	520	0.30	CVR
48	C - 48	B221	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	1360	1360	1360	0.30	CVR
49	C - 49	B225	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	1120	1120	1120	0.30	CVR
50	C - 50	B135	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	2045	2045	2045	0.30	CVR
51	C - 51	B227	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	600	600	600	0.30	CVR
52	C - 52	B133	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	1060	1060	1060	0.30	CVR
53	C - 53	B154	AHU - 3	SC - 1	BACNET LINK 2	Symbio 210 VAV	1210	1210	1210	0.30	VVR

VAV EQUIPMENT SCHEDULE (2)

CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 39 OF 43			



**WATER VALVE SCHEDULE (1 of 3)**

ITEM	TAG	SYSTEM	SERVICE	LINE SIZE (IN)	FLOW RATE (GPM)	DESIGN ΔP (PSI)	TARGET Cv	NOMINAL VALVE Cv	ACTUAL ΔP (PSI)	VALVE SIZE (IN)	TOTAL P PRESS (PSI)	MAX. VAL. CLS-OFF (PSI)	FAIL CONFIG	CONTROL SIGNAL	VALVE TYPE	CONNECT	FLOW PATTERN	SUPPLY POWER	VENDOR	BODY + ACTUATOR PART NUMBER	NOTES
1	AHU - 1 CHW VLV	AHU - 1	COOLING					68		2.50		94	LAST	PROP	GLOBE	FLANGE	3-WAY	24 VAC/VDC	BELIMO	G765 + EVB24-SR	
2	AHU - 1 HW VLV	AHU - 1	HEATING					14		1		250	LAST	PROP	GLOBE	NPT	3-WAY	24 VAC/VDC	BELIMO	G325B-L + SVKB24-SR	
3	AHU - 2 CHW VLV	AHU - 2	COOLING					68		2.50		94	LAST	PROP	GLOBE	FLANGE	3-WAY	24 VAC/VDC	BELIMO	G765 + EVB24-SR	
4	AHU - 2 HW VLV	AHU - 2	HEATING					14		1		250	LAST	PROP	GLOBE	NPT	3-WAY	24 VAC/VDC	BELIMO	G325B-L + SVKB24-SR	
5	AHU - 3 CHW VLV	AHU - 3	COOLING					85		3		63	LAST	PROP	GLOBE	FLANGE	3-WAY	24 VAC/VDC	BELIMO	G780 + EVB24-SR	
6	AHU - 3 HW VLV	AHU - 3	HEATING					20		1.25		250	LAST	PROP	GLOBE	NPT	3-WAY	24 VAC/VDC	BELIMO	G332B-M + SVKB24-SR	
7	C - 1 HW VLV	C - 1	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
8	C - 2 HW VLV	C - 2	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
9	C - 3 HW VLV	C - 3	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
10	C - 4 HW VLV	C - 4	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
11	C - 5 HW VLV	C - 5	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
12	C - 6 HW VLV	C - 6	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
13	C - 7 HW VLV	C - 7	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
14	C - 8 HW VLV	C - 8	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
15	C - 9 HW VLV	C - 9	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
16	C - 10 HW VLV	C - 10	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
17	C - 11 HW VLV	C - 11	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
18	C - 12 HW VLV	C - 12	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
19	C - 13 HW VLV	C - 13	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
20	C - 14 HW VLV	C - 14	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
21	C - 15 HW VLV	C - 15	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
22	C - 16 HW VLV	C - 16	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
23	C - 17 HW VLV	C - 17	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
24	C - 18 HW VLV	C - 18	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
25	C - 19 HW VLV	C - 19	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
26	C - 20 HW VLV	C - 20	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
27	C - 21 HW VLV	C - 21	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
28	C - 22 HW VLV	C - 22	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
29	C - 23 HW VLV	C - 23	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
30	C - 24 HW VLV	C - 24	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	

**NOTE:**

LINE SIZES AND GPMS WERE NOT PROVIDED DURING CONTROL SUBMITTAL PROCESS. VALVES IN THIS SCHEDULE WERE SELECTED FOLLOWING THE ESTIMATE EXCEL SHEET.



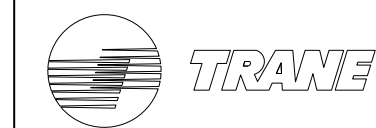
**WATER VALVE SCHEDULE**

CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsdX	DWG 40 OF 43			

**WATER VALVE SCHEDULE (2 of 3)**

ITEM	TAG	SYSTEM	SERVICE	LINE SIZE (IN)	FLOW RATE (GPM)	DESIGN ΔP (PSI)	TARGET Cv	NOMINAL VALVE Cv	ACTUAL ΔP (PSI)	VALVE SIZE (IN)	TOTAL P PRESS (PSI)	MAX. VAL. CLS-OFF (PSI)	FAIL CONFIG	CONTROL SIGNAL	VALVE TYPE	CONNECT	FLOW PATTERN	SUPPLY POWER	VENDOR	BODY + ACTUATOR PART NUMBER	NOTES
31	C - 25 HW VLV	C - 25	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
32	C - 26 HW VLV	C - 26	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
33	C - 27 HW VLV	C - 27	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
34	C - 28 HW VLV	C - 28	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
35	C - 29 HW VLV	C - 29	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
36	C - 30 HW VLV	C - 30	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
37	C - 31 HW VLV	C - 31	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
38	C - 32 HW VLV	C - 32	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
39	C - 33 HW VLV	C - 33	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
40	C - 34 HW VLV	C - 34	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
41	C - 35 HW VLV	C - 35	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
42	C - 36 HW VLV	C - 36	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
43	C - 37 HW VLV	C - 37	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
44	C - 38 HW VLV	C - 38	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
45	C - 39 HW VLV	C - 39	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
46	C - 40 HW VLV	C - 40	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
47	C - 41 HW VLV	C - 41	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
48	C - 42 HW VLV	C - 42	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
49	C - 43 HW VLV	C - 43	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
50	C - 44 HW VLV	C - 44	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
51	C - 45 HW VLV	C - 45	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
52	C - 46 HW VLV	C - 46	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
53	C - 47 HW VLV	C - 47	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
54	C - 48 HW VLV	C - 48	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
55	C - 49 HW VLV	C - 49	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
56	C - 50 HW VLV	C - 50	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
57	C - 51 HW VLV	C - 51	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
58	C - 52 HW VLV	C - 52	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	
59	C - 53 HW VLV	C - 53	HEATING				0.3	0.3		0.50		200	LAST	ON-OFF/FLT	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-3 US	

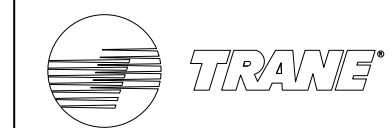
WATER VALVE SCHEDULE (2)				
CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls			
	1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 41 OF 43			



**WATER VALVE SCHEDULE (3 of 3)**

ITEM	TAG	SYSTEM	SERVICE	LINE SIZE (IN)	FLOW RATE (GPM)	DESIGN ΔP (PSI)	TARGET Cv	NOMINAL VALVE Cv	ACTUAL ΔP (PSI)	VALVE SIZE (IN)	TOTAL P PRESS (PSI)	MAX. VAL. CLS-OFF (PSI)	FAIL CONFIG	CONTROL SIGNAL	VALVE TYPE	CONNECT	FLOW PATTERN	SUPPLY POWER	VENDOR	BODY + ACTUATOR PART NUMBER	NOTES
60	FT - 1 VLV	FINTUBES AND STANDALONE UNIT HEATERS-1	HEATING					0.3		0.50		200	LAST	PROP	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-SR US	PLEASE APPROVE MODULATING ACTUATOR. IT WAS SELECTED TO MEET VAV CONTROLLER SPARE POINT CAPATITY.
61	FT - 2 VLV	FINTUBES AND STANDALONE UNIT HEATERS-1	HEATING					0.3		0.50		200	LAST	PROP	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-SR US	PLEASE APPROVE MODULATING ACTUATOR. IT WAS SELECTED TO MEET VAV CONTROLLER SPARE POINT CAPATITY.
62	FT - 3 VLV	FINTUBES AND STANDALONE UNIT HEATERS-1	HEATING					0.3		0.50		200	LAST	PROP	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-SR US	PLEASE APPROVE MODULATING ACTUATOR. IT WAS SELECTED TO MEET VAV CONTROLLER SPARE POINT CAPATITY.
63	FT - 4 VLV	FINTUBES AND STANDALONE UNIT HEATERS-1	HEATING					0.3		0.50		200	LAST	PROP	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-SR US	PLEASE APPROVE MODULATING ACTUATOR. IT WAS SELECTED TO MEET VAV CONTROLLER SPARE POINT CAPATITY.
64	FT - 5 VLV	FINTUBES AND STANDALONE UNIT HEATERS-1	HEATING					0.3		0.50		200	LAST	PROP	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-SR US	PLEASE APPROVE MODULATING ACTUATOR. IT WAS SELECTED TO MEET VAV CONTROLLER SPARE POINT CAPATITY.
65	FT - 6 VLV	FINTUBES AND STANDALONE UNIT HEATERS-1	HEATING					0.3		0.50		200	LAST	PROP	CCV/BALL	NPT	2-WAY	24 VAC/VDC	BELIMO	B207 + TR24-SR US	PLEASE APPROVE MODULATING ACTUATOR. IT WAS SELECTED TO MEET VAV CONTROLLER SPARE POINT CAPATITY.

WATER VALVE SCHEDULE (3)				
CID: 127446	NUM.	REVISION	DATE:	BY:
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
DESIGNED BY: R Araya				
CHECKED BY: A Vanaparti	1	Submittal	6/10/2025	RAP
Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
FILE: Clinton County Jail Controls.vsd	DWG 42 OF 43			



BILL OF MATERIAL				
TAG PREFIX	QTY	VENDOR	PART NO	DESCRIPTION
DPT	3	TRANE	4020-1159	DIFF PRESS XMTR, AIR, 0-5 IN WC, 0-5 VDC
TE	53	TRANE	4190-7016	TEMP SENS, WALL PLATE S/S THERM
SFT	4	TRANE	BMCF000AAA0DB00	TRACER SC 15 LICENSE
CM	1	TRANE	BMCL100USB290000	USB CELLULAR MODULE, MODEM, 2.9M CABLE, 18GB
S210	53	TRANE	BMSY210AAA0T00011	S210 MS/TP VAV, TRANE ACT
S500	5	TRANE	BMSY500AAA0100011	SYMBIO 500 CONTROLLER
TBT	2	TRANE	X13651524-01	BACNET TERMINATOR (2 PACK)
XM30	2	TRANE	X13651537010	XM30, 4 POINT UI/AO EXPANSION MODULE
SC	1	TRANE	X13651695001	TRACER SC+ CONTROLLER
XM90	3	TRANE	X13651701001	XM90, 32 POINT EXPANSION MODULE
TE	4	ACI	A/CP-I-4"-GD	TEMP SENS, IMM, THERM, 4 IN
TE	6	ACI	A/CP-I-6"-GD	TEMP SENS, DUCT, THERM 6 IN
TEH	1	ACI	A/RH3-CP-O	HUMIDITY SENS, OA, 3%, TEMP
HDW	3	KELE	A-3245K	STATIC PRESS TIP / MOUNT, A-302-K WITH A-345-K.
VALVES / ACT	*	*	*	*SEE WATER VALVE SCHEDULE

BILL OF MATERIALS				
CID:	NUM.	REVISION	DATE:	BY:
127446				
PID: 138433				
PROJECT: 225186				
SALESPERSON: D Savage				
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Cincinnati 10300 Springfield Pike Cincinnati, OH 45215 513-771-8884	PROJECT: Clinton County Jail Controls  1645 Davids Dr Wilmington OH 45177			
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