

# KING COLE BUILDING HOTEL

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## PROJECT

**KING COLE BUILDING HOTEL**  
1 N MERIDIAN ST  
INDIANAPOLIS, IN 46204

## OWNER

**INDY PROPCO LLC**  
300 N LASALLE ST  
SUITE 4900  
CHICAGO, IL 60654

## MECHANICAL ENGINEER


**CIRCLE DESIGN GROUP**  
9229 DELEGATES ROW  
SUITE 150  
INDIANAPOLIS, IN 46240  
  
PHONE: 317.781.6200

## MECHANICAL CONTRACTOR

































**MISSION MECHANICAL CORP**  
4437 BRAGDON ST  
INDIANAPOLIS, IN 46226  
  
PHONE: 317.733.8686





























## ARCHITECT





**RATIO**  
101 S PENNSYLVANIA ST  
INDIANAPOLIS, IN 46204  
  
PHONE: 317.633.4040


 <p>5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800</p> <p>PROJECT: KING COLE BUILDING INDIANAPOLIS, IN</p>	DRAWN BY: T BROWN	CHECKED BY:	DATE 12/11/25														
	DRAWING TITLE: TABLE OF CONTENTS																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="4" style="text-align: left;">REVISIONS</th> </tr> <tr> <th style="width: 5%;">No</th> <th style="width: 75%;">Description</th> <th style="width: 10%;">Date</th> <th style="width: 10%;">By</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	REVISIONS				No	Description	Date	By					<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">PROJECT NO. 25387</td> <td style="width: 50%;">SHEET 01</td> </tr> <tr> <td>FILE NAME 01KCBtoc</td> <td> </td> </tr> </table>	PROJECT NO. 25387	SHEET 01	FILE NAME 01KCBtoc	
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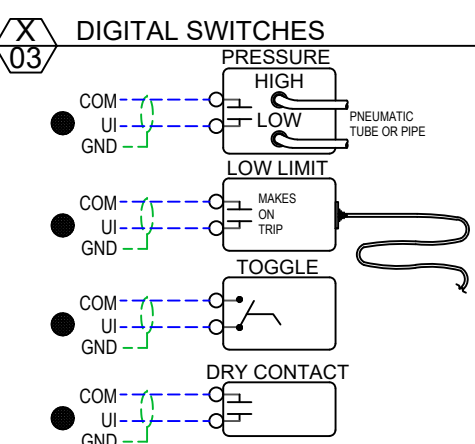
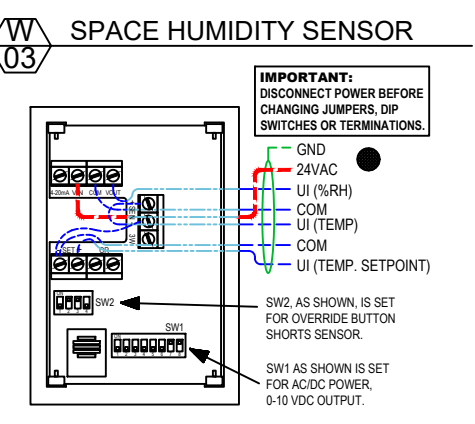
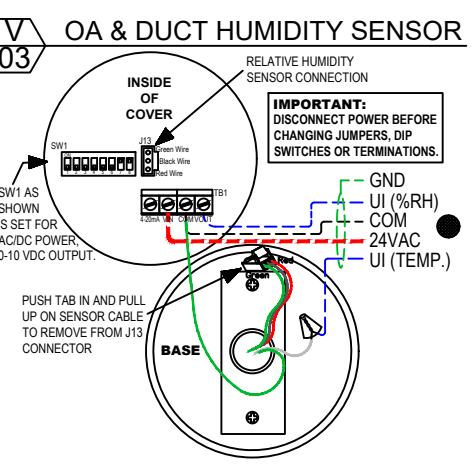
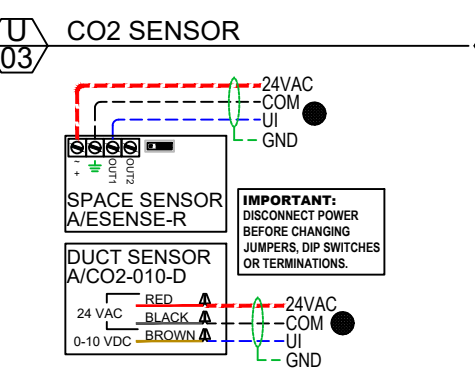
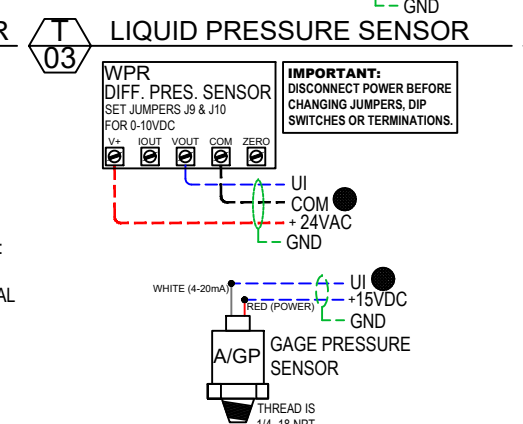
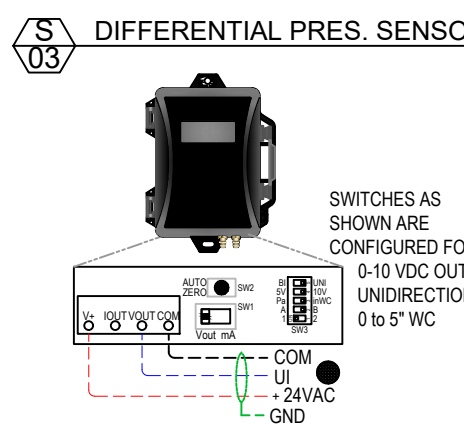
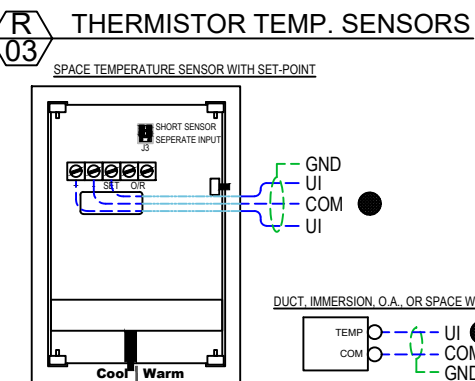
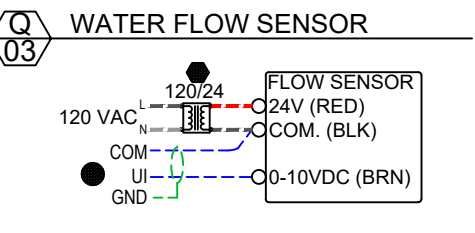
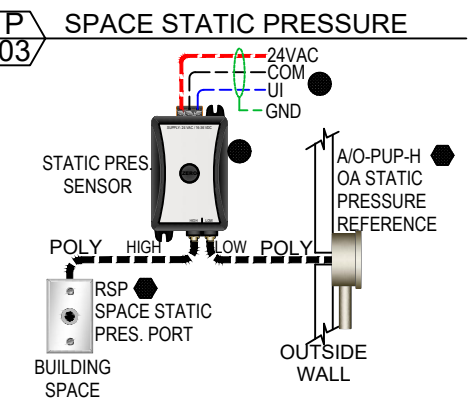
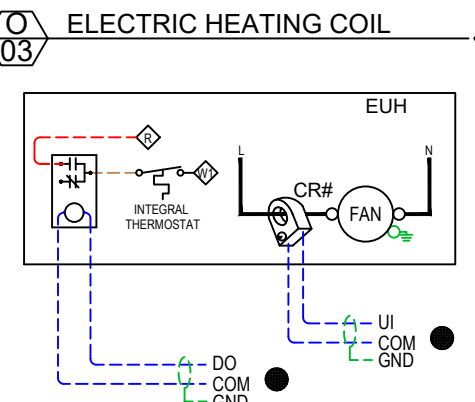
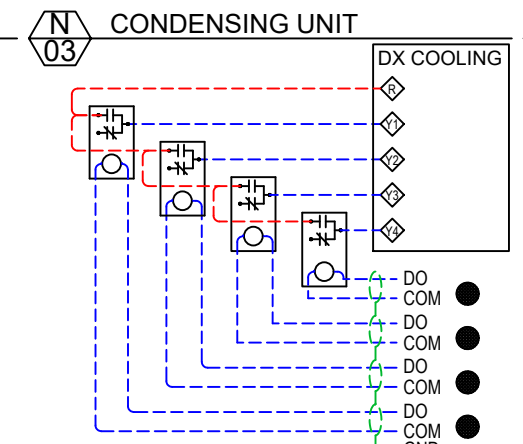
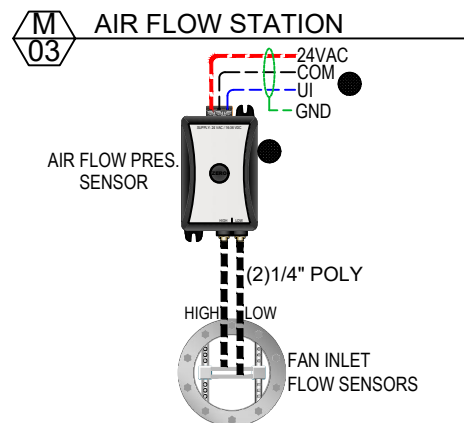
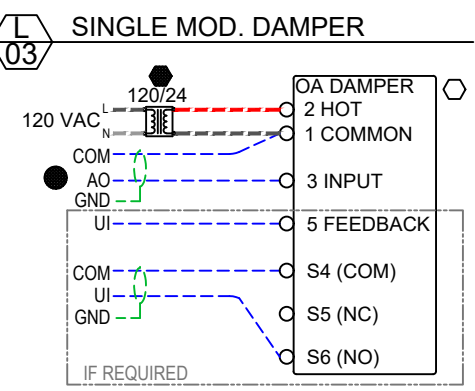
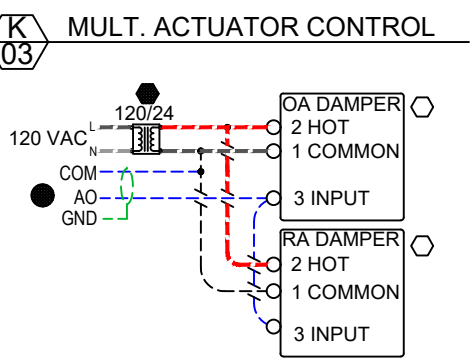
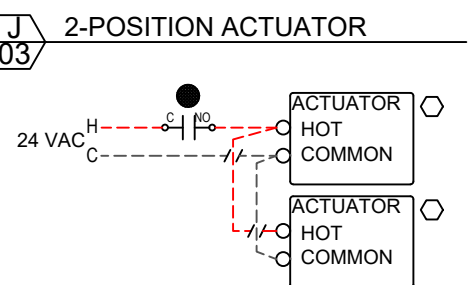
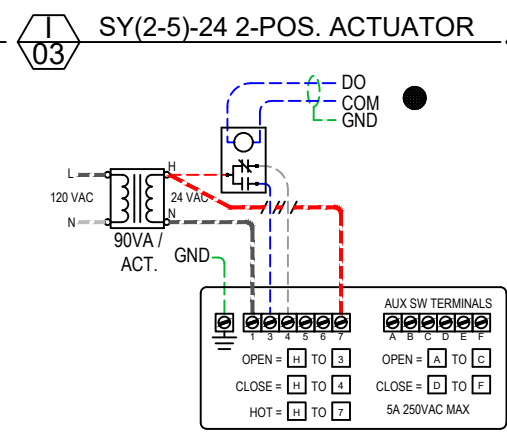
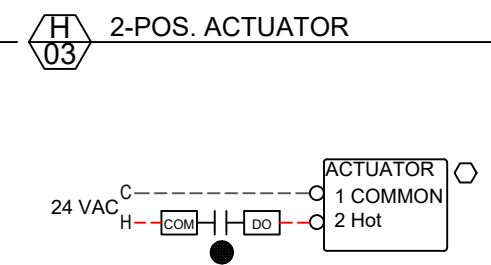
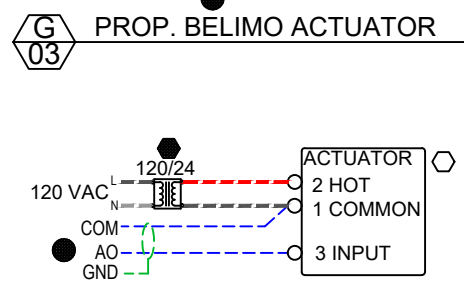
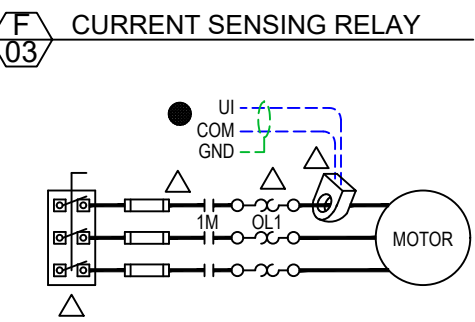
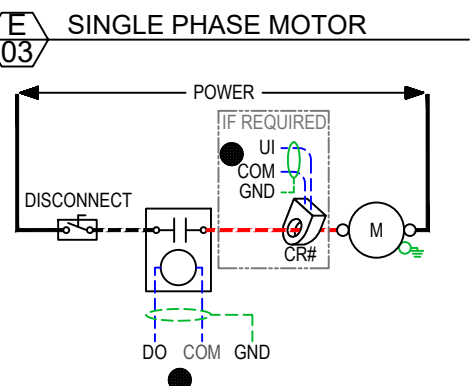
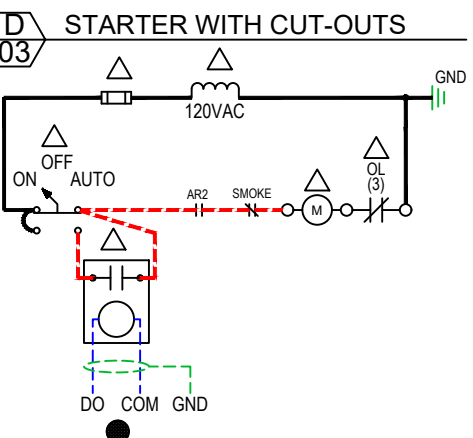
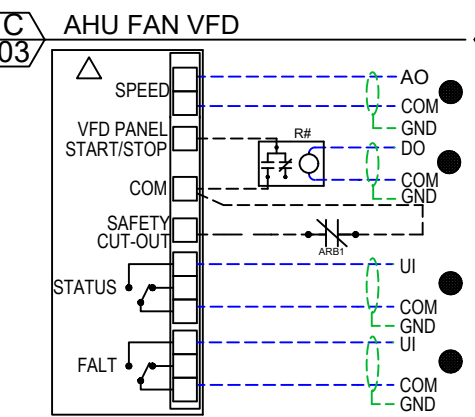
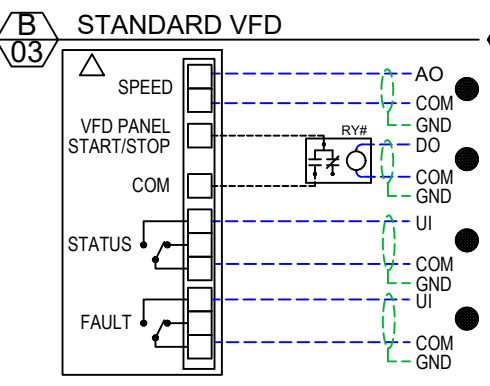
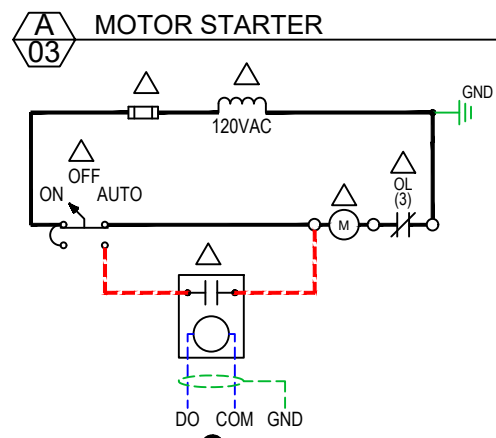
# SYMBOLS LEGEND

-  PUSH BUTTON
-  EQUIPMENT GROUND
-  GROUND
-  FUSE
-  LIGHT
-  RELAY OR CONTACTOR COIL
-  NORMALLY OPEN CONTACT
-  NORMALLY CLOSED CONTACT
-  MOTOR OR ACTUATOR
-  AUDIBLE ALARM
-  TRANSFORMER
-  TEMPERATURE CONTROL PANEL TERMINAL
-  THERMOSTAT (MAKES ON TEMPERATURE DROP)
-  THERMOSTAT (MAKES ON TEMPERATURE RISE)
-  MULTIPLE POSITION SWITCH
-  FLOW SWITCH (MAKE ON DECREASE IN FLOW)
-  FLOW SWITCH (MAKE ON INCREASE IN FLOW)
-  POWER OUTLET
-  TWO POSITION SWITCH
-  WIRE TWISTED PAIR
-  FACTORY WIRING
-  FIELD WIRING
-  OVERLOADS
-  JUNCTION BOX
-  SMOKE DETECTOR
-  DUCT MOUNTED LOW TEMP. DETECTOR
-  DUCT MOUNTED TEMP. SENSOR
-  SPACE TEMP. OR HUMIDITY SENSOR
-  SPACE TEMP. SENSOR - FLAT PLATE
-  SPACE TEMP. SENSOR W/ SETPOINT
-  SPACE TEMP. SENSOR W/ SETPOINT & OVERRIDE
-  SPACE TEMP. SENSOR W/ LCD, SETPOINT & OVERRIDE
-  HAZARDOUS LOCATION SPACE TEMP. SENSOR
-  PIPE IMMERSION TEMP. SENSOR
-  PIPE STRAP-ON TEMP. SENSOR
-  OUTSIDE AIR TEMP. OR HUMIDITY SENSOR
-  DIFFERENTIAL AIR PRESSURE SENSOR
-  DUCT STATIC AIR PRESSURE SENSOR

-  DIFFERENTIAL AIR PRESSURE SWITCH
-  DUCT CARBON DIOXIDE SENSOR
-  DUCT HUMIDITY SENSOR
-  LIQUID DIFFERENTIAL PRESSURE SENSORS
-  LIQUID SINGLE POINT PRESSURE SENSOR
-  OUTSIDE STATIC PRESSURE PORT
-  INSIDE STATIC PRESSURE PORT
-  DAMPER ACTUATOR
-  OPPOSED BLADE DAMPER
-  PARALLEL BLADE DAMPER
-  AIR FILTER
-  HYDRONIC HEATING COIL
-  HYDRONIC COOLING COIL
-  DX COOLING COIL
-  ELECTRIC HEATING COIL
-  CONTROL PANEL ENCLOSURE
-  FAN - CENTRIFUGAL BACKWARD INCLINED
-  FAN - CENTRIFUGAL (SQUIRREL CAGE)
-  ROOF CENTRIFUGAL EXHAUST FAN
-  WALL CENTRIFUGAL EXHAUST FAN
-  VARIABLE FREQUENCY DRIVE (VFD)
-  CENTRIFUGAL PUMP
-  IN-LINE PUMP
-  2-WAY CCV VALVE
-  3-WAY CCV VALVE
-  2-WAY BUTTERFLY VALVES
-  3-WAY BUTTERFLY VALVES
-  2-WAY EXISTING ELECTRONIC VALVE

-  3-WAY EXISTING ELECTRONIC VALVE
-  ZONE CONTROL VALVE
-  2-WAY PNEUMATIC VALVE
-  3-WAY PNEUMATIC VALVE
- AF** AIR FLOW SWITCH
- AR** ALARM RELAY
- AH** ALARM HORN
- C** CONTACTOR
- CD** DUCT CARBON DIOXIDE SENSOR
- CR** CURRENT SENSING RELAY
- CS** SPACE CARBON DIOXIDE SENSOR
- DPS** DIFFERENTIAL PRESSURE SWITCH
- DPT** DIFFERENTIAL PRESSURE TRANSDUCER
- ECD** EC-DISPLAY LCD DISPLAY AND KEYPAD
- ECF** CONFIGURABLE CONTROLLER
- ECB** PROGRAMMABLE CONTROLLER
- ECV** VAV BOX CONTROLLER
- ENC** PANEL ENCLOSURE
- HD** DUCT HUMIDITY SENSOR
- HS** SPACE HUMIDITY SENSOR
- HO** OUTSIDE AIR HUMIDITY SENSOR
- LA** AMBER INDICATING LIGHT
- LG** GREEN INDICATING LIGHT
- LR** RED INDICATING LIGHT
- LLT** LOW TEMPERATURE DETECTOR
- NP** CUSTOM NAMEPLATE
- OL** OVERLOAD
- PB** PUSH BUTTON
- PS** POWER SUPPLY
- R** RELAY
- RF** RELAY 4PDT
- RY** RELAY SPDT WITH 12VDC COIL
- SD** SMOKE DETECTOR
- SW** SWITCH
- T** IMMERSION TEMPERATURE SENSOR
- TA** DUCT AVERAGING TEMPERATURE SENSOR
- TB** TERMINAL BLOCK
- TD** DUCT TEMPERATURE SENSOR
- TO** OUTSIDE AIR TEMPERATURE SENSOR
- TS** SPACE TEMPERATURE SENSOR
- V** VALVE

 <b>JACKSON SYSTEMS</b> <small>Controls Done Right™</small>		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		DRAWN BY: T BROWN	CHECKED BY:	DATE 12/11/25	
		PROJECT: KING COLE BUILDING INDIANAPOLIS, IN			DRAWING TITLE: SYMBOLS LEGEND		
REVISIONS						PROJECT NO. 25387	
No	Description	Date	By	FILE NAME		SHEET	
				02KCBlegend		02	



## NOTES

1. DASHED LINES INDICATE FIELD WIRING. SOLID LINES INDICATE WIRING BY OTHERS.
2. ALL FIELD WIRING MUST MEET OR EXCEED THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), AND THE STATE AND LOCAL REQUIREMENTS.
3. FOR INPUTS & OUTPUTS, THE SHIELD WIRE IS GROUNDED AT THE CONTROLLER END ONLY.
4. WIRING FOR INPUTS & OUTPUTS IS 18 AWG, SHIELDED, TWISTED PAIR WITH STRANDED TINNED COPPER CONDUCTORS.
5. REFER TO MANUFACTURER SUPPLIED WIRING DETAIL BEFORE MOUNTING AND WIRING.
6. NOT ALL DETAILS ON THIS PAGE ARE APPLICABLE TO THIS PROJECT.

## SYMBOLS LEGEND

- TERMINATION POINT
- ◇ MECHANICAL EQUIPMENT TERMINAL
- ## DISTECH CONTROLLER TERMINAL
- WIRING BY OTHERS
- POWER WIRING OR WIRING > 30 V BY OTHERS
- - - SIGNAL, DC, OR CONTROLLER I/O WIRING
- - - AC POWER WIRING OR WIRING > 30 V
- AO ANALOG OUTPUT
- DO DIGITAL OUTPUT
- UI UNIVERSAL INPUT

## DEVICE LOCATION LEGEND

- AT DRIVEN EQUIPMENT
- REMOTE FROM STARTER OR DRIVE AND DRIVEN EQUIPMENT
- ▲ AT BOILER MANAGEMENT PANEL (BMS)
- AT TEMPERATURE CONTROL PANEL
- △ AT MOTOR STARTER

## WIRING DETAIL SYMBOLE

- W — WIRING DETAIL
- 03 — SHEET NUMBER

**JACKSON SYSTEMS**  
Controls Done Right™  
5418 ELMWOOD AVE.  
INDIANAPOLIS, IN 46203  
(317) 788-6800

**DRAWN BY:** T BROWN  
**CHECKED BY:**  
**DATE:** 12/11/25

**DRAWING TITLE:**  
TYPICAL WIRING DETAILS

**PROJECT:**  
KING COLE BUILDING  
INDIANAPOLIS, IN

REVISIONS			PROJECT NO.	
No	Description	Date	By	25387

**FILE NAME:** 03KCBwd

**SHEET:** 03

**SEQUENCE OF OPERATION**

**GENERAL**  
THE DISTECH CONTROLS BUILDING MANAGEMENT SYSTEM IS A COMPLETE SYSTEM DESIGNED FOR USE WITH THE ENTERPRISE IT SYSTEMS. THE DISTECH SYSTEM COLOR GRAPHICS ARE ACCESSED (WITH THE CORRECT PASSWORD) FROM ANY PC'S WEB BROWSER.

THE SERVER FOR THIS PROJECT IS THE EC-BOS-9 WHICH IS PART OF THE EC-NET SUITE OF CONTROLLER/SERVER PRODUCTS, SOFTWARE APPLICATIONS AND TOOLS. IT IS CAPABLE OF INTEGRATING A VARIETY OF DEVICES AND PROTOCOLS INTO THIS UNIFIED, DISTRIBUTED SYSTEM. SOME OF THE PROTOCOLS WHICH CAN BE INTEGRATED INTO THIS SYSTEM ARE LONWORKS, BACNET, AND MODBUS.

EC-NET PRODUCTS ARE POWERED BY THE NIAGARA FRAMEWORK. THIS SOFTWARE TECHNOLOGY NOT ONLY INTEGRATES DIVERSE SYSTEMS AND DEVICES INTO A SEAMLESS SYSTEM BUT INCLUDES INTEGRATED NETWORK MANAGEMENT TOOLS TO SUPPORT THE DESIGN, CONFIGURATION, INSTALLATION AND MAINTENANCE OF INTEROPERABLE NETWORKS.

ALL OF THE PROGRAMMABLE AND CONFIGURABLE CONTROLLERS ARE BACNET ENABLED DEVICES.

AT A MINIMUM, THE FOLLOWING INTEGRATED FEATURES, FUNCTIONS AND SERVICES ARE INCORPORATED INTO THE DISTECH BUILDING MANAGEMENT SYSTEM.

- OPERATOR INFORMATION, ALARM MANAGEMENT AND CONTROL FUNCTIONS.
- ENTERPRISE-LEVEL INFORMATION AND CONTROL ACCESS.
- INFORMATION MANAGEMENT INCLUDING MONITORING, TRANSMISSION, ARCHIVING, RETRIEVAL, AND REPORTING FUNCTIONS.
- DIAGNOSTIC MONITORING AND REPORTING OF BMS FUNCTIONS.
- OFFSITE MONITORING AND MANAGEMENT ACCESS.
- ENERGY MANAGEMENT.
- STANDARD APPLICATION FOR TERMINAL HVAC SYSTEMS.

**BUILDING AUTOMATION SYSTEM:** IT IS THE INTENTION OF THIS PROJECT TO PROVIDE DISTECH BACnet CONTROLLERS CAPABLE OF INTEGRATION INTO THE EXISTING DISTRICT-WIDE TRIDIUM NIAGARA SYSTEM. THE TEMPERATURE CONTROL SYSTEM ALLOWS FOR REMOTE SETPOINT ADJUSTMENT AND MONITORING FROM THE FRONT-END SYSTEM AT INDIANAPOLIS PULIC LIBRARY SERVICES CENTER (LSC). TCC COORDINATES WITH THE OWNER FOR ACCESS TO THE FRONT-END AS REQUIRED. TCC COORDINATES WITH OWNER FOR A SINGLE LAN CONNECTION ORIGINATING FROM ADJACENT I.T. ROOM 120.

THE FOLLOWING SYSTEMS ARE DISPLAYED AS COLOR GRAPHICS ON THE DISTECH BUILDING MANAGEMENT SYSTEM:

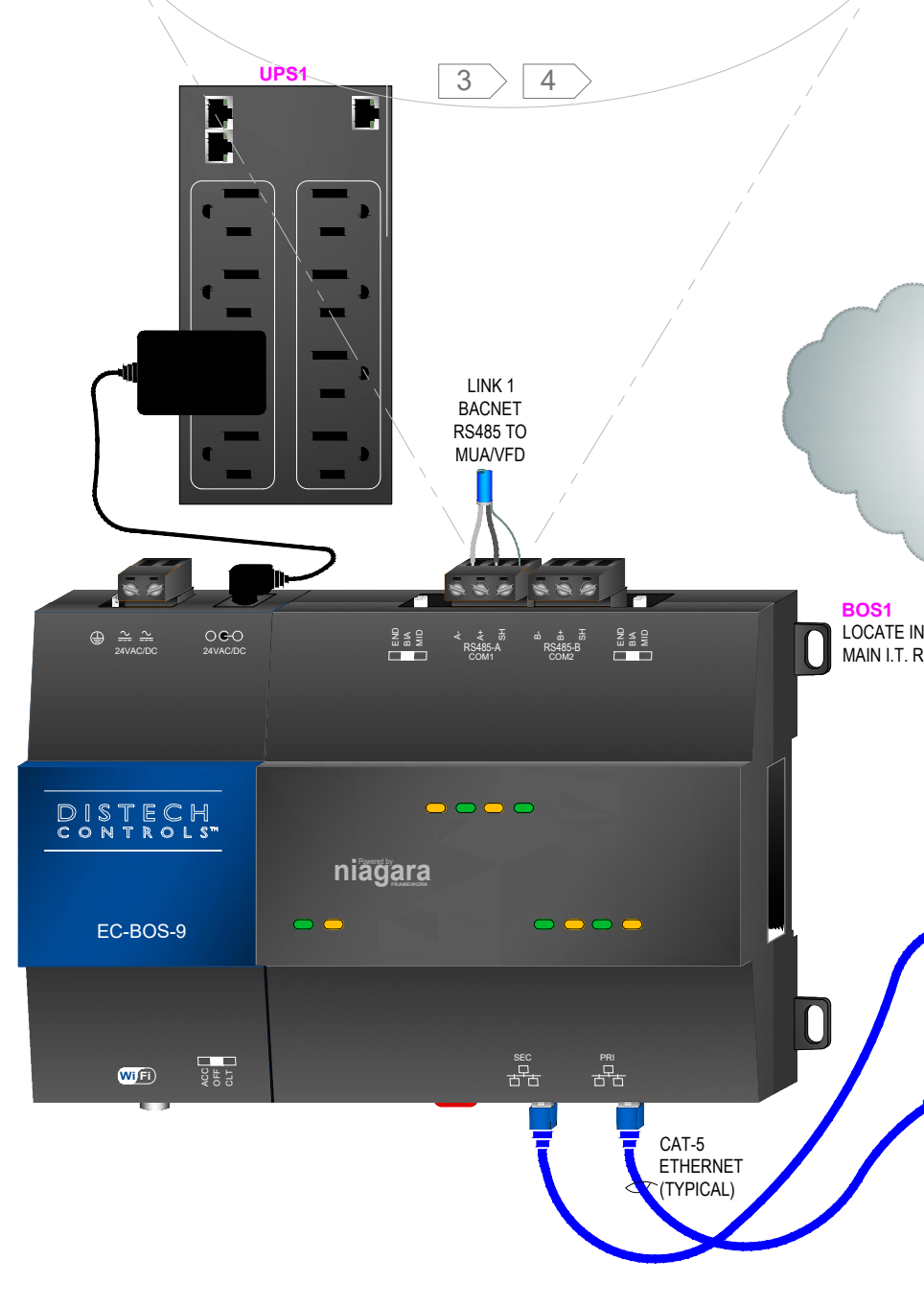
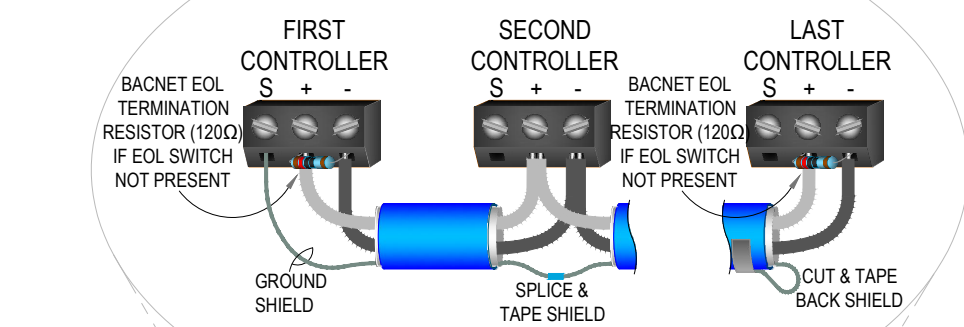
- DOMESTIC HOT WATER SYSTEM
- SOLAR HOT WATER SYSTEM
- POOL DEHUMIDIFICATION UNIT
- POOL WATER SYSTEM
- CENTRAL COOLING PLANT
- AIR HANDLING UNITS
- ENERGY RECOVERY UNITS
- VAV TERMINAL UNITS
- VRF SYSTEM
- CONVECTORS
- CABINET UNIT HEATERS
- EXHAUST FANS
- EXTERIOR LIGHTING
- UTILITIES
- FLOOR PLANS

**NOTES**

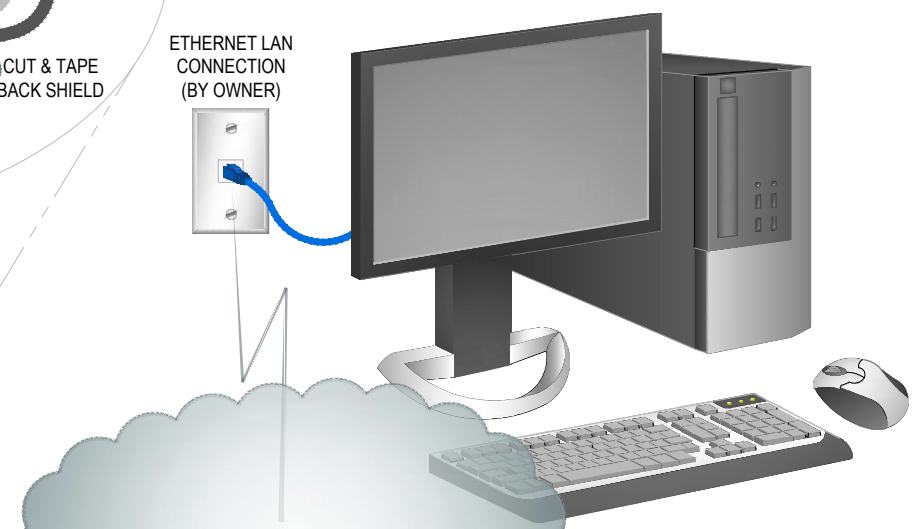
1. DASHED LINES INDICATE RECOMMENDED FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR FIELD WIRING BY OTHERS.
2. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS.
3. THE BACNET NETWORK MUST HAVE A 120Ω TERMINATION RESISTOR AT THE FIRST AND LAST DEVICE ON THE BACNET NETWORK. SET THE MAC ADDRESS AND DEVICE ID IN THE SAME ORDER AS THE BACNET DEVICES ARE PHYSICALLY CONNECTED TO THE NETWORK.

4. THE BACnet MS/TP NETWORK WIRE IS 24 AWG (0.65 mm) STRANDED, TWISTED SHIELDED PAIR (JACKSON SYSTEM PART #: 24/2 BACnet). THE BACnet MS/TP COMMUNICATION WIRE IS POLARITY SENSITIVE AND THE ONLY ACCEPTABLE TOPOLOGY IS TO DAISY-CHAIN THE CABLE FROM ONE CONTROLLER TO THE NEXT.
5. THIS IS A SCHEMATIC REPRESENTATION OF THE COMMUNICATION WIRING AND IS INTENDED TO SHOW THE DEVICES LOCATED ON THIS NETWORK. THE CONTROL DEVICES MAY NOT BE CONNECTED IN THIS EXACT ORDER.

**BACNET WIRING DETAIL**  
MAINTAIN POLARITY



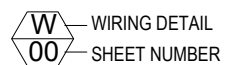
ANY PC WITH A WEB BROWSER AND WEB ACCESS (EXISTING OR PROVIDED BY OTHERS)



INTRANET

**ETHERNET LAN CONNECTION (BY OWNER)**  
LAN & IP CONNECTION DATA  
PUBLIC IP ADDRESS: \_\_\_\_\_  
IP ADDRESS: \_\_\_\_\_  
SUBNET MASK: \_\_\_\_\_  
DEFAULT GATEWAY: \_\_\_\_\_  
DNS HOST: \_\_\_\_\_  
OPEN PORTS: 80, 1911, 1913, 1930, 1931, 3011

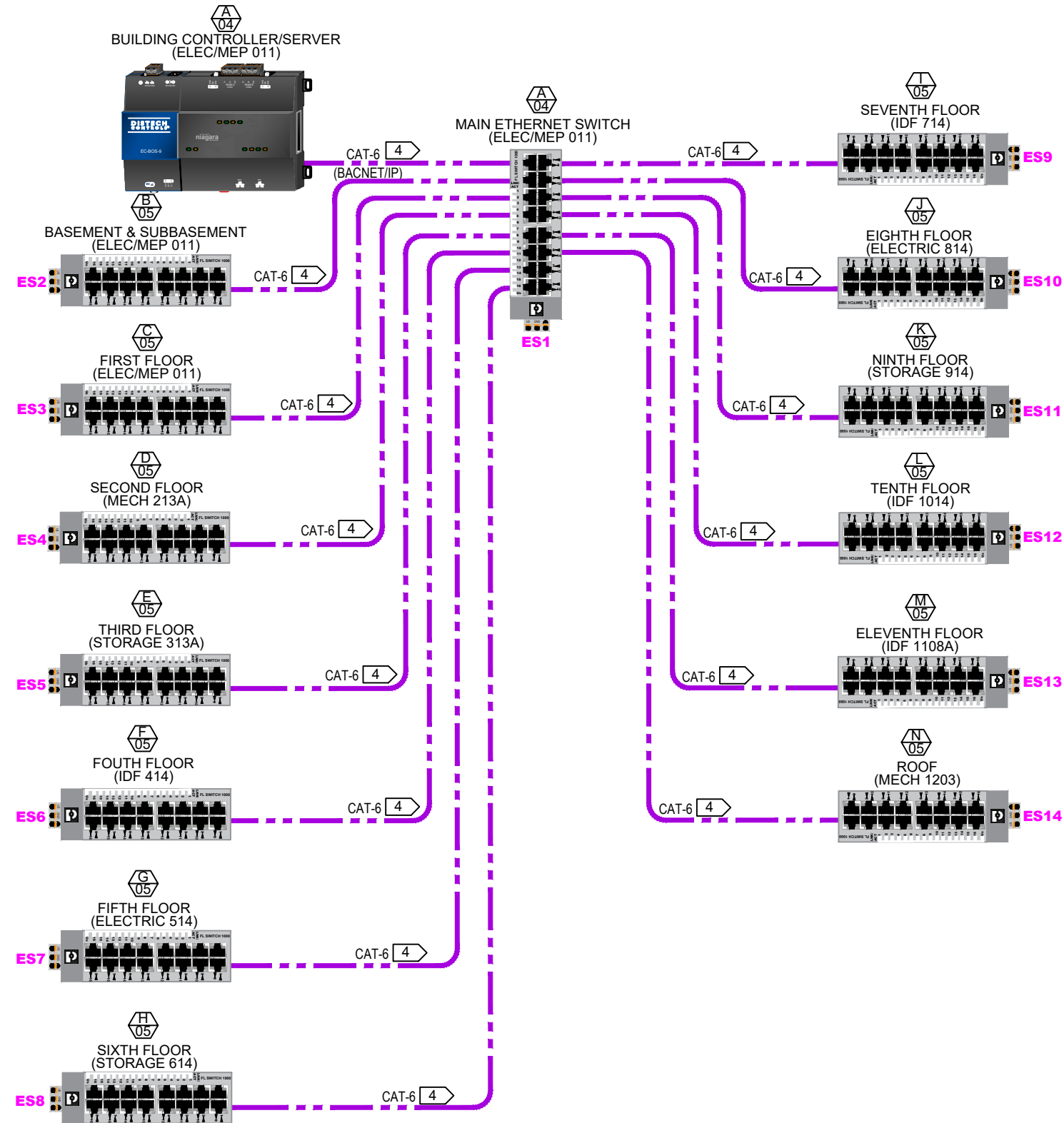
**WIRING DETAIL SYMBOL**



		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		DRAWN BY: D. MOOR	CHECKED BY:	DATE 03/11/25
PROJECT: WESTERN BOONE JR. / SR. HIGH SCHOOL 1205 IN-75, THORNTOWN, IN 46071				DRAWING TITLE: BUILDING OPERATION SYSTEM MAIN CONTROLLER / SERVER		
REVISIONS No Description Date By		PROJECT NO. 25114		FILE NAME 04KCBbos		SHEET 04

**MATERIAL LEGEND**

Symbol	Part Number	Qty	Description
ES	1085255	14	16 Port Ethernet Switch

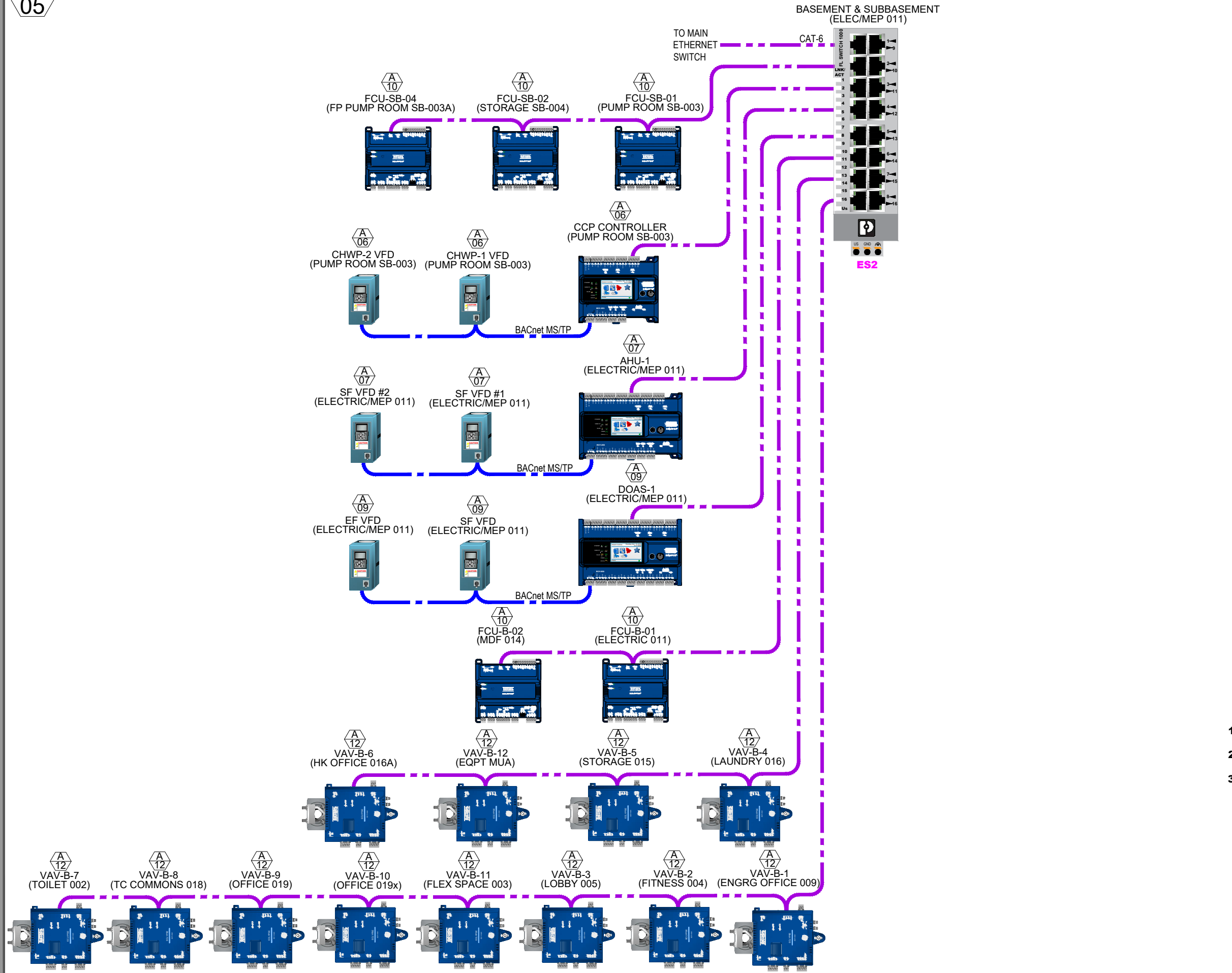


- NOTES**
- DASHED LINES INDICATE RECOMMENDED FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR FIELD WIRING BY OTHERS.
  - ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS.
  - THIS IS A SCHEMATIC REPRESENTATION OF THE COMMUNICATION WIRING AND IS INTENDED TO SHOW THE DEVICES LOCATED ON THIS NETWORK. THE CONTROL DEVICES MAY NOT BE CONNECTED IN THIS EXACT ORDER.
  - THE BACNET/IP CABLE IS CAT-6 ETHERNET CABLE. DO NOT EXCEED 300 FT. BETWEEN DEVICES.

- SYMBOLS LEGEND**
- Terminal by Others
  - BACNET/IP COMMUNICATION CAT-6 CABLE
  - BACNET MS/TP COMMUNICATION CABLE

- DETAIL SYMBOL**
- DETAIL
  - SHEET NUMBER

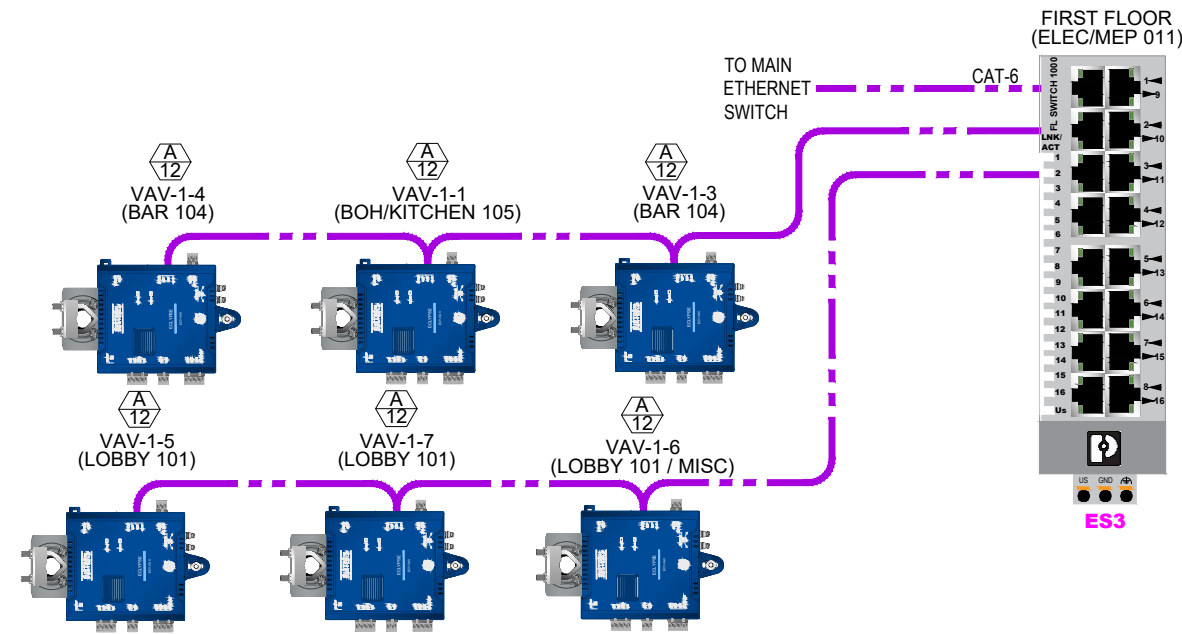
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<b>PROJECT:</b> KING COLE BUILDING INDIANAPOLIS, IN						
<b>DRAWING TITLE:</b> COMMUNICATION RISER ETHERNET SWITCHES						
<b>REVISIONS</b>			<b>PROJECT NO.:</b> 25387		<b>SHEET</b> 05A	
No	Description	Date	By	FILE NAME	05aKCBriser	



- NOTES**
1. DASHED LINES INDICATE RECOMMENDED FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR FIELD WIRING BY OTHERS.
  2. ALL FIELD WIRING MUST BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC), STATE AND LOCAL REQUIREMENTS.
  3. THIS IS A SCHEMATIC REPRESENTATION OF THE COMMUNICATION WIRING AND IS INTENDED TO SHOW THE DEVICES LOCATED ON THIS NETWORK. THE CONTROL DEVICES MAY NOT BE CONNECTED IN THIS EXACT ORDER.

- SYMBOLS LEGEND**
- ◻ TERMINAL BY OTHERS
  - BACNET/IP COMMUNICATION CAT-6 CABLE
  - BACNET MS/TP COMMUNICATION CABLE
- DETAIL SYMBOL**
- W-DETAIL
  - 00-SHEET NUMBER

		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		DRAWN BY: T BROWN	CHECKED BY:	DATE 1/6/26
PROJECT: KING COLE BUILDING INDIANAPOLIS, IN						
DRAWING TITLE: COMMUNICATION RISER SUBBASEMENT & BASEMENT						
<b>REVISIONS</b>			<b>PROJECT NO.</b> 25387		<b>SHEET</b> 05B	
No	Description	Date	By	FILE NAME		
				05bKCBriserB		



**NOTES**

1. DASHED LINES INDICATE RECOMMENDED FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR FIELD WIRING BY OTHERS.
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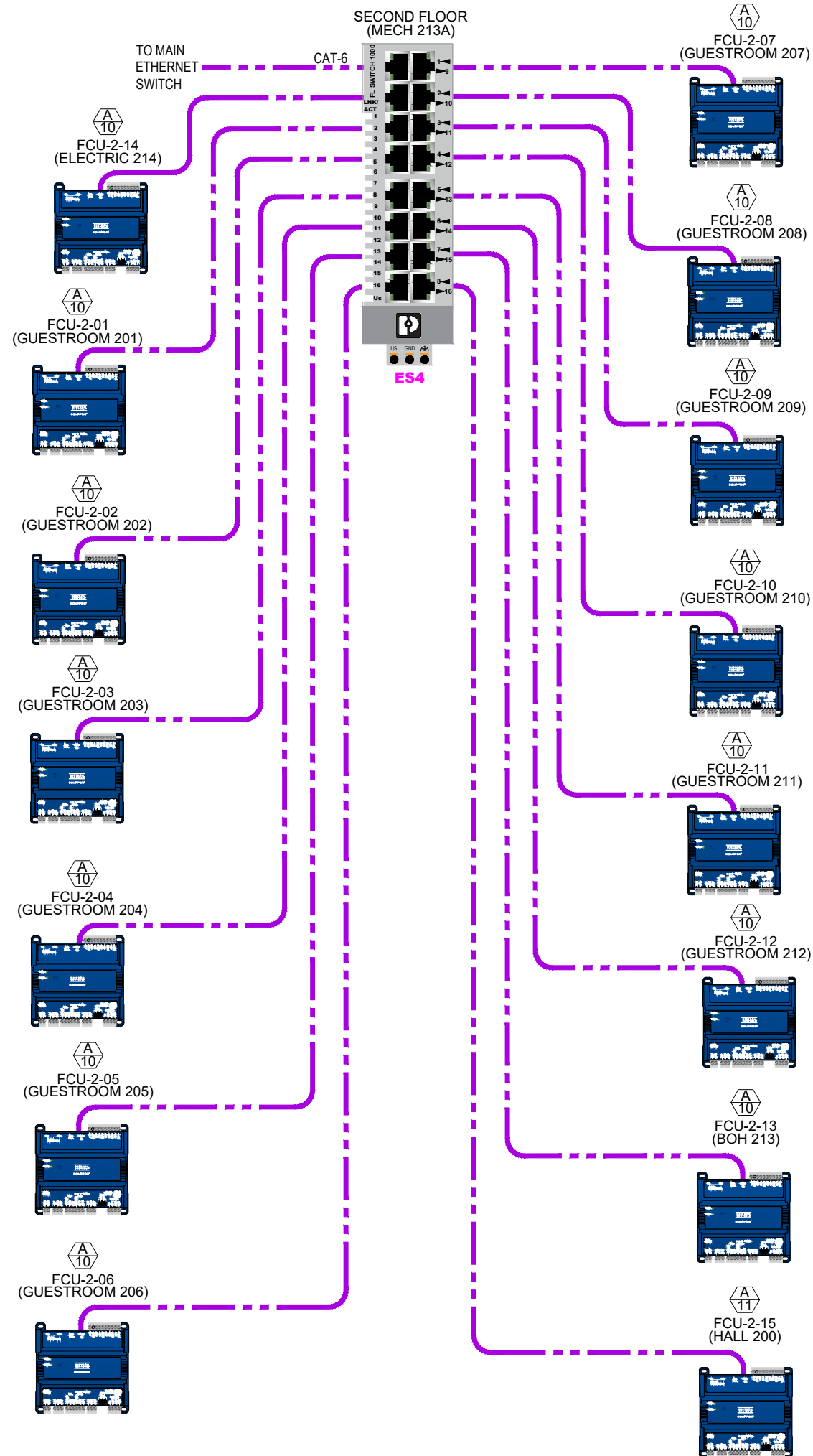
**SYMBOLS LEGEND**

- ◻ TERMINAL BY OTHERS
- BACNET/IP COMMUNICATION CAT-6 CABLE
- BACNET MS/TP COMMUNICATION CABLE

**DETAIL SYMBOL**

- W - DETAIL
- 00 - SHEET NUMBER

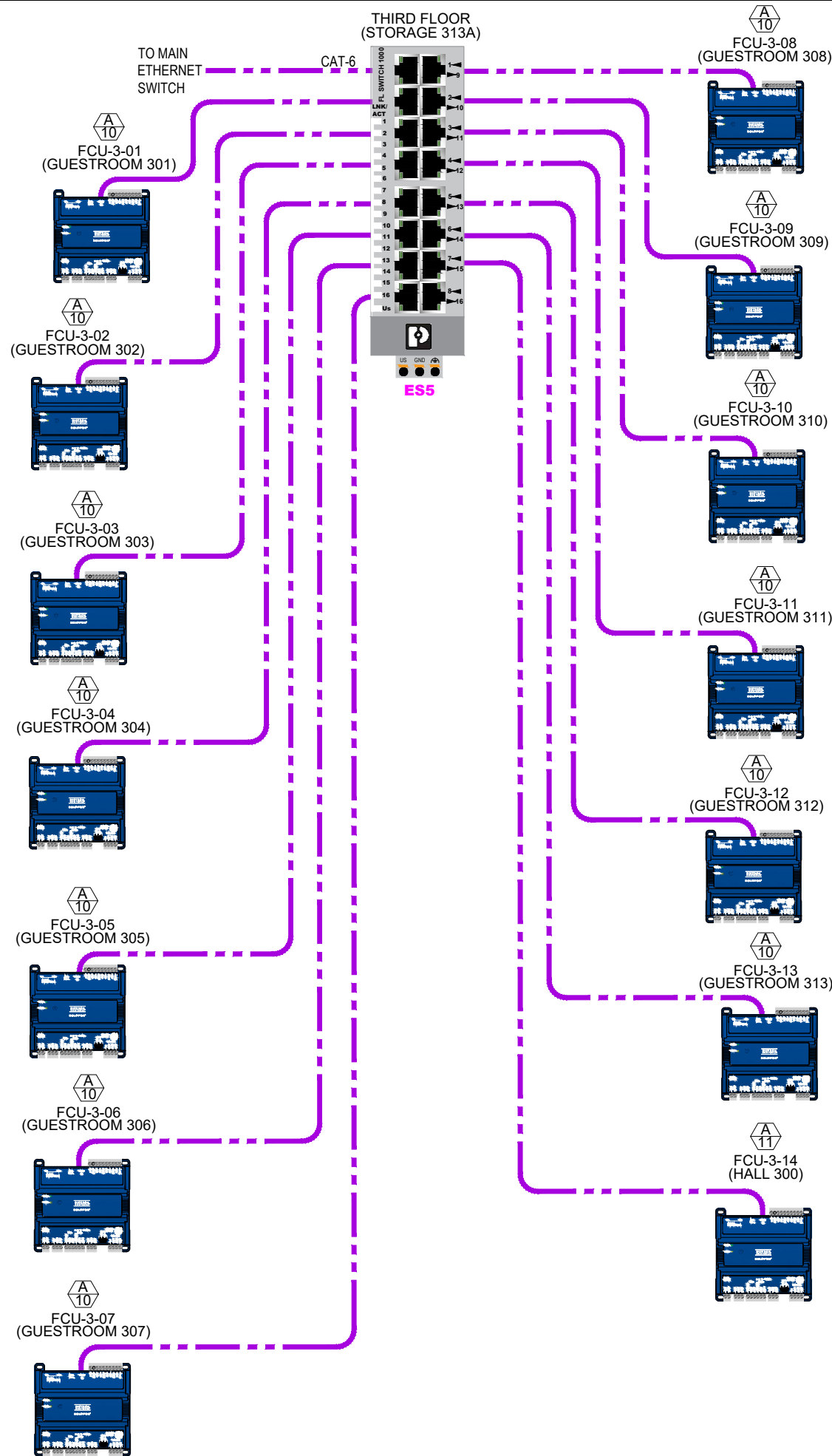
<b>JACKSON SYSTEMS</b> <small>Controls Done Right™</small> 5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		<b>DRAWN BY:</b> T BROWN	<b>CHECKED BY:</b> [ ]	<b>DATE</b> 1/6/26								
<b>PROJECT:</b> KING COLE BUILDING INDIANAPOLIS, IN		<b>DRAWING TITLE:</b> COMMUNICATION RISER FIRST FLOOR										
<b>REVISIONS</b> <table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Date</th> <th>By</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		No	Description	Date	By					<b>PROJECT NO.</b> 25387 <b>FILE NAME</b> 05cKCBriser1 <b>SHEET</b> 05C		
No	Description	Date	By									



- NOTES**
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SYMBOLS LEGEND		DETAIL SYMBOL	
	TERMINAL BY OTHERS		DETAIL
	BACNET/IP COMMUNICATION CAT-6 CABLE		SHEET NUMBER
	BACNET MS/TP COMMUNICATION CABLE		

		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		DRAWN BY: T BROWN	CHECKED BY:	DATE 1/6/26
PROJECT: KING COLE BUILDING INDIANAPOLIS, IN				DRAWING TITLE: COMMUNICATION RISER SECOND FLOOR		
<b>REVISIONS</b>		<b>PROJECT NO.</b> 25387		<b>FILE NAME</b> 05dKCBriser2		<b>SHEET</b> 05D
No	Description	Date	By			



**NOTES**

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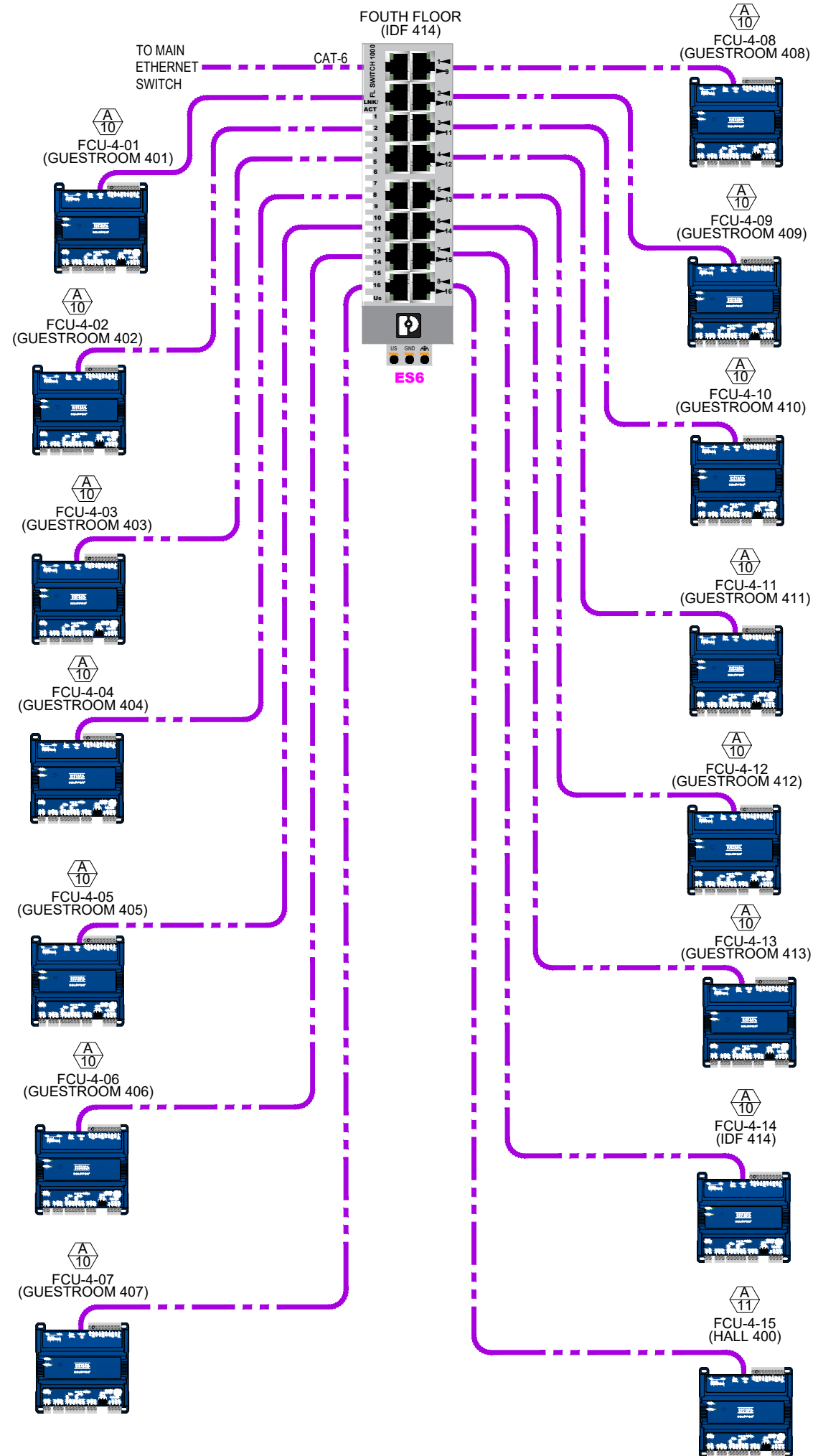
**SYMBOLS LEGEND**

- ⓑ TERMINAL BY OTHERS
- BACNET/IP COMMUNICATION CAT-6 CABLE
- BACNET MS/TP COMMUNICATION CABLE

**DETAIL SYMBOL**

- W-DETAIL
- 00-SHEET NUMBER

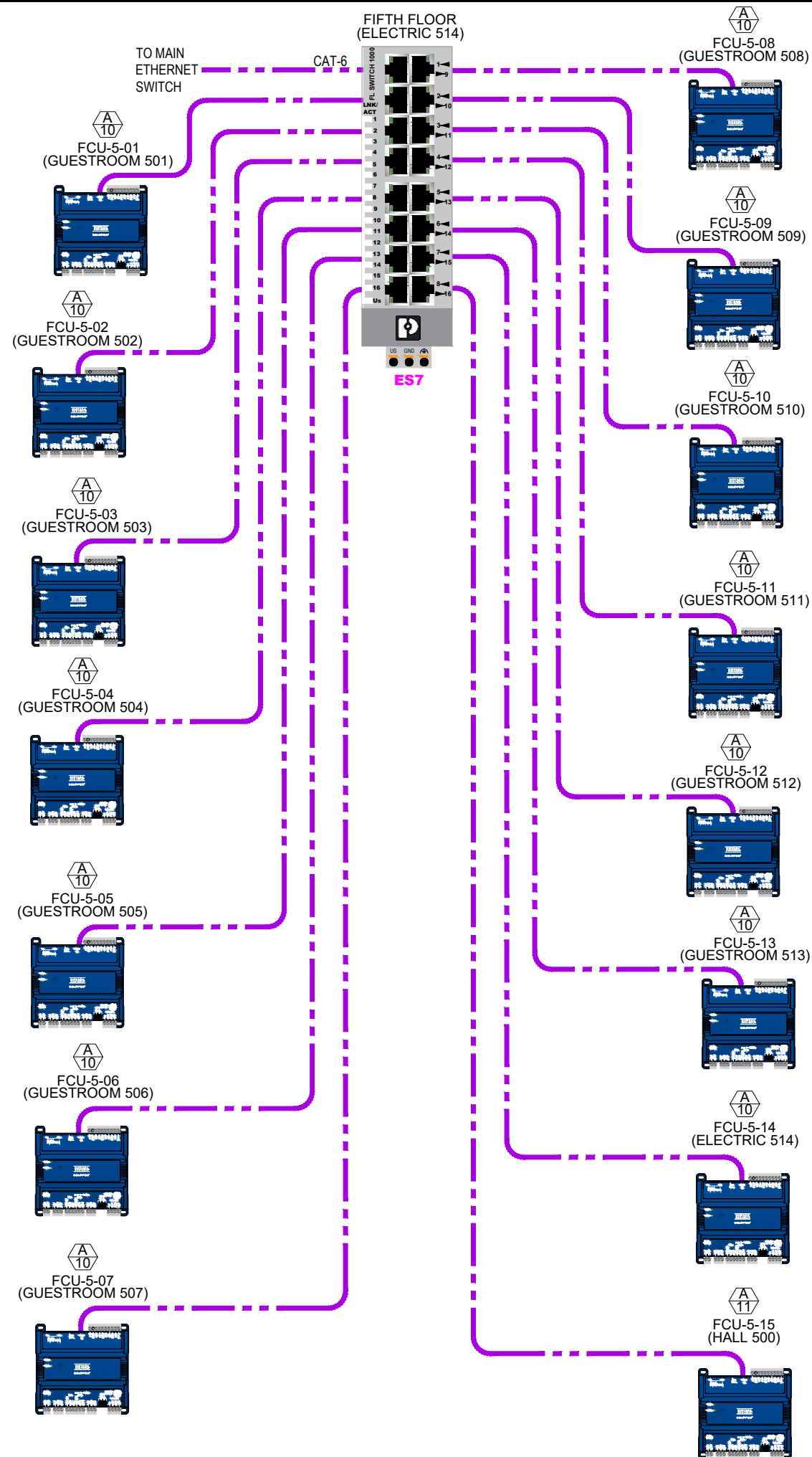
<b>JACKSON SYSTEMS</b> <small>Controls Done Right</small> 5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		DRAWN BY: T BROWN	CHECKED BY:	DATE 1/6/26								
PROJECT: KING COLE BUILDING INDIANAPOLIS, IN		DRAWING TITLE: COMMUNICATION RISER THIRD FLOOR										
<b>REVISIONS</b> <table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Date</th> <th>By</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		No	Description	Date	By					PROJECT NO. 25387 FILE NAME 05eKCBriser3		
No	Description	Date	By									
SHEET 05E		SHEET 05E										



- NOTES**
1. DASHED LINES INDICATE RECOMMENDED FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR FIELD WIRING BY OTHERS.
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SYMBOLS LEGEND		DETAIL SYMBOL	
	TERMINAL BY OTHERS		DETAIL
	BACNET/IP COMMUNICATION CAT-6 CABLE		SHEET NUMBER
	BACNET MS/TP COMMUNICATION CABLE		

<b>JACKSON SYSTEMS</b> Controls Done Right® 5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800	DRAWN BY: T BROWN	CHECKED BY:	DATE 1/6/26								
	PROJECT: KING COLE BUILDING INDIANAPOLIS, IN			DRAWING TITLE: COMMUNICATION RISER FOURTH FLOOR							
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No	Description	Date	By								
SHEET 05F			SHEET 05F								



**NOTES**

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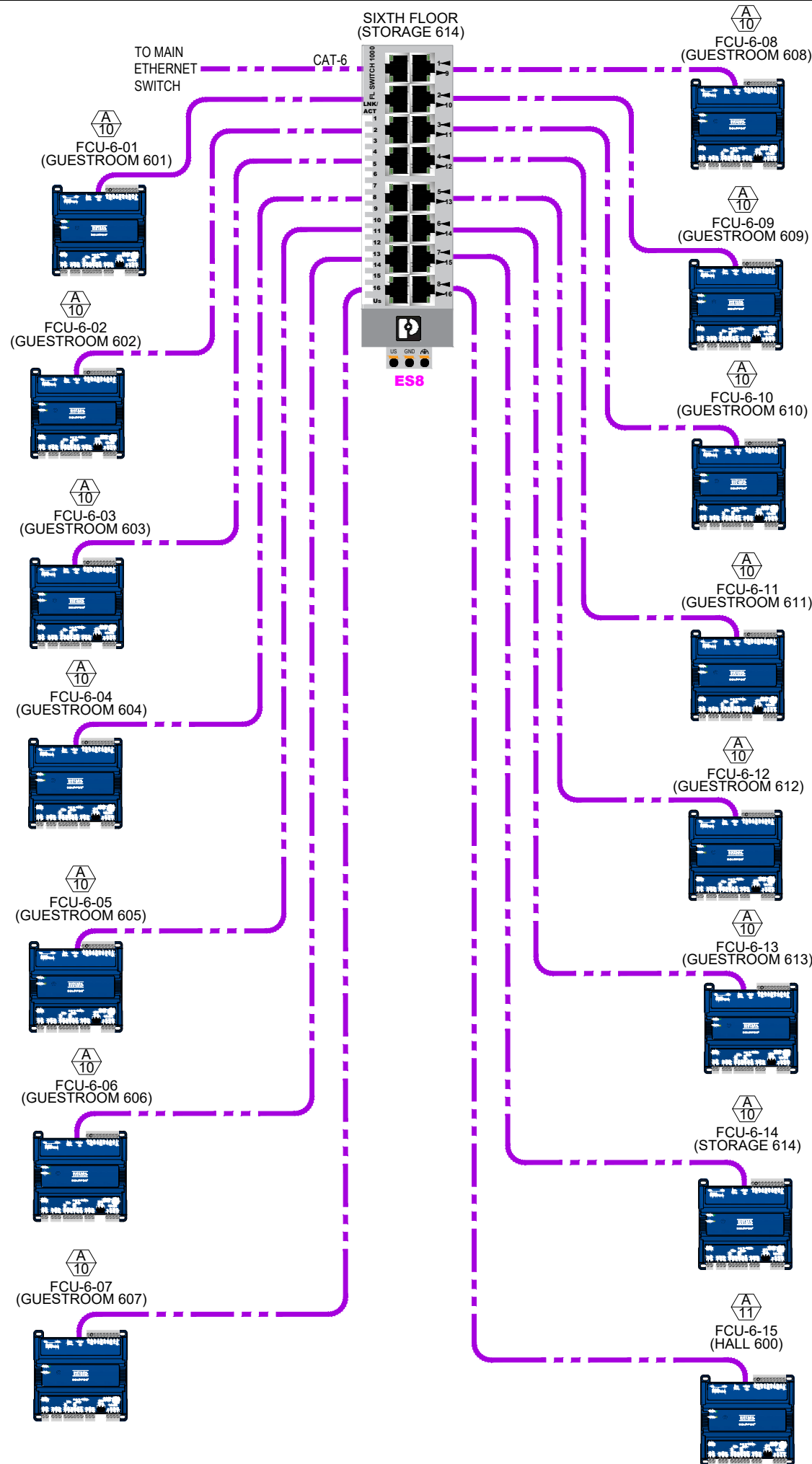
**SYMBOLS LEGEND**

- ⓑ TERMINAL BY OTHERS
- BACNET/IP COMMUNICATION CAT-6 CABLE
- BACNET MS/TP COMMUNICATION CABLE

**DETAIL SYMBOL**

- W-DETAIL
- 00-SHEET NUMBER

		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		<b>DRAWN BY:</b> T BROWN	<b>CHECKED BY:</b>	<b>DATE:</b> 1/6/26
<b>PROJECT:</b> KING COLE BUILDING INDIANAPOLIS, IN				<b>DRAWING TITLE:</b> COMMUNICATION RISER FIFTH FLOOR		
<b>REVISIONS</b>			<b>PROJECT NO.</b> 25387		<b>SHEET</b> 05G	
No	Description	Date	By	FILE NAME	05gKCBriser5	



**NOTES**

1. DASHED LINES INDICATE RECOMMENDED FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR FIELD WIRING BY OTHERS.
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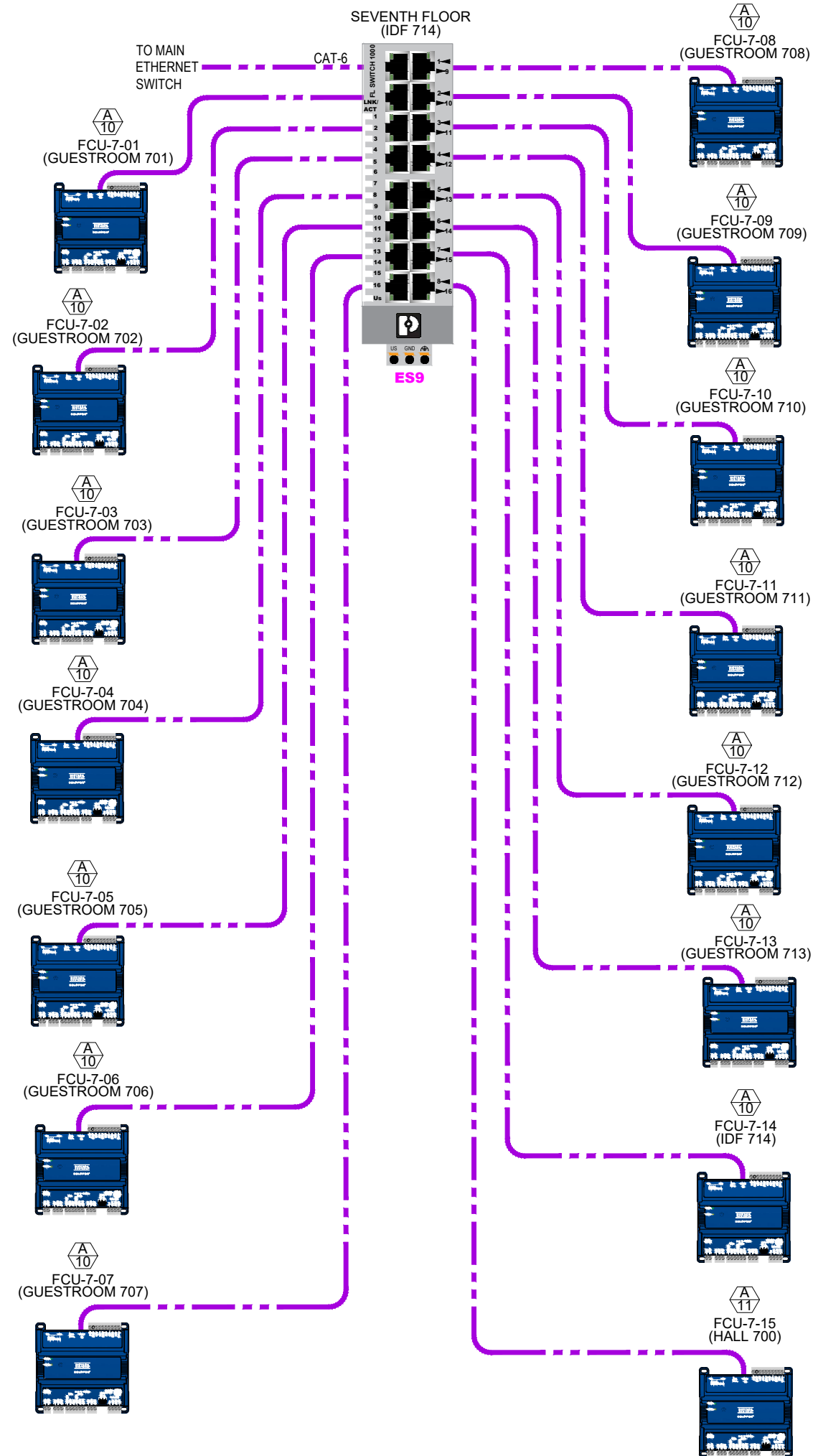
**SYMBOLS LEGEND**

- ⓑ TERMINAL BY OTHERS
- BACNET/IP COMMUNICATION CAT-6 CABLE
- BACNET MS/TP COMMUNICATION CABLE

**DETAIL SYMBOL**

- W-DETAIL
- 00-SHEET NUMBER

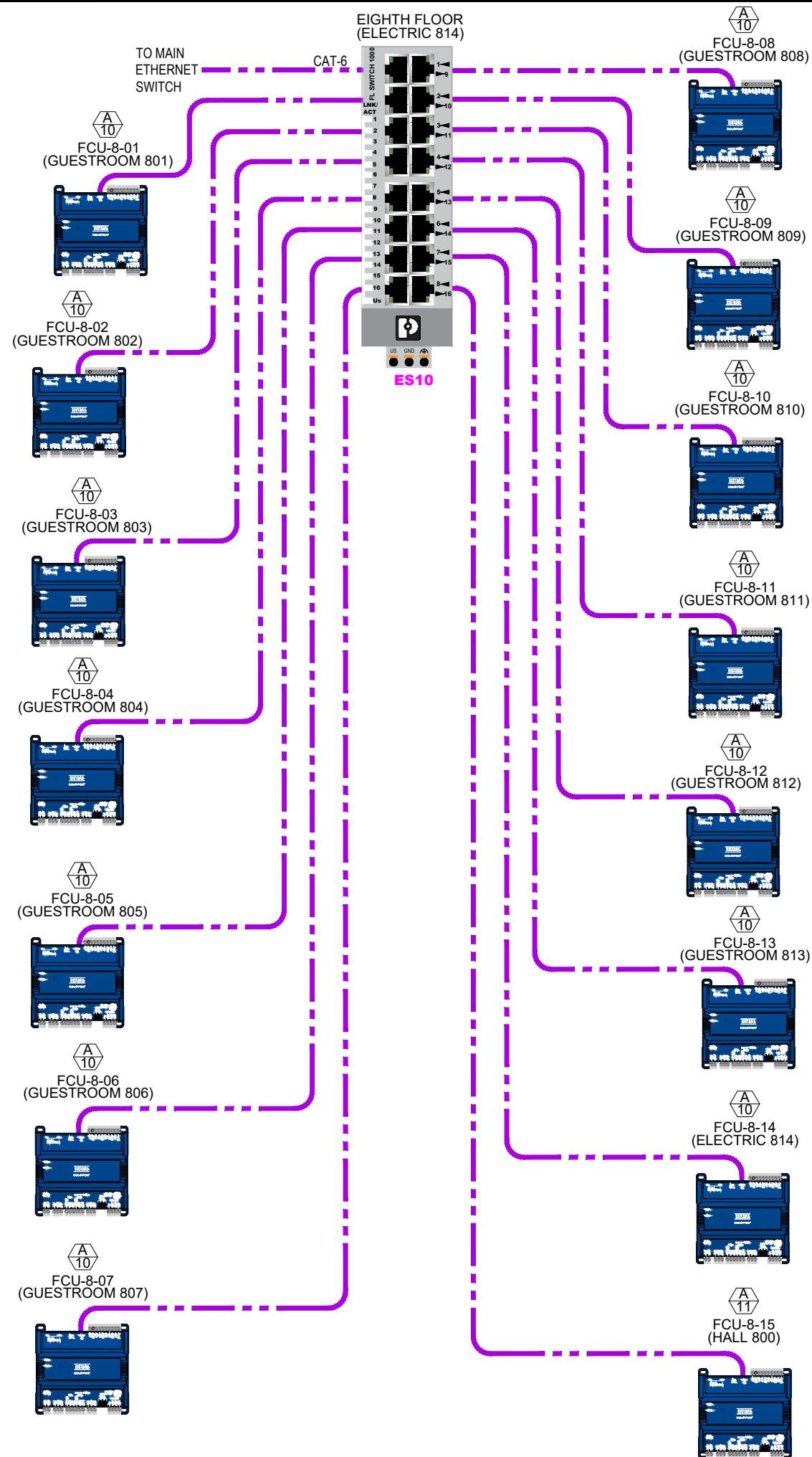
<b>JACKSON SYSTEMS</b> Controls Done Right® 5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		<b>DRAWN BY:</b> T BROWN <b>CHECKED BY:</b>  <b>DATE:</b> 1/6/26								
<b>PROJECT:</b> KING COLE BUILDING INDIANAPOLIS, IN		<b>DRAWING TITLE:</b> COMMUNICATION RISER SIXTH FLOOR								
<b>REVISIONS</b> <table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Date</th> <th>By</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		No	Description	Date	By					<b>PROJECT NO.:</b> 25387 <b>FILE NAME:</b> 05hKCBriser6 <b>SHEET:</b> 05H
No	Description	Date	By							



- NOTES**
- DASHED LINES INDICATE RECOMMENDED FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR FIELD WIRING BY OTHERS.
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SYMBOLS LEGEND		DETAIL SYMBOL	
	TERMINAL BY OTHERS		DETAIL
	BACNET/IP COMMUNICATION CAT-6 CABLE		SHEET NUMBER
	BACNET MS/TP COMMUNICATION CABLE		

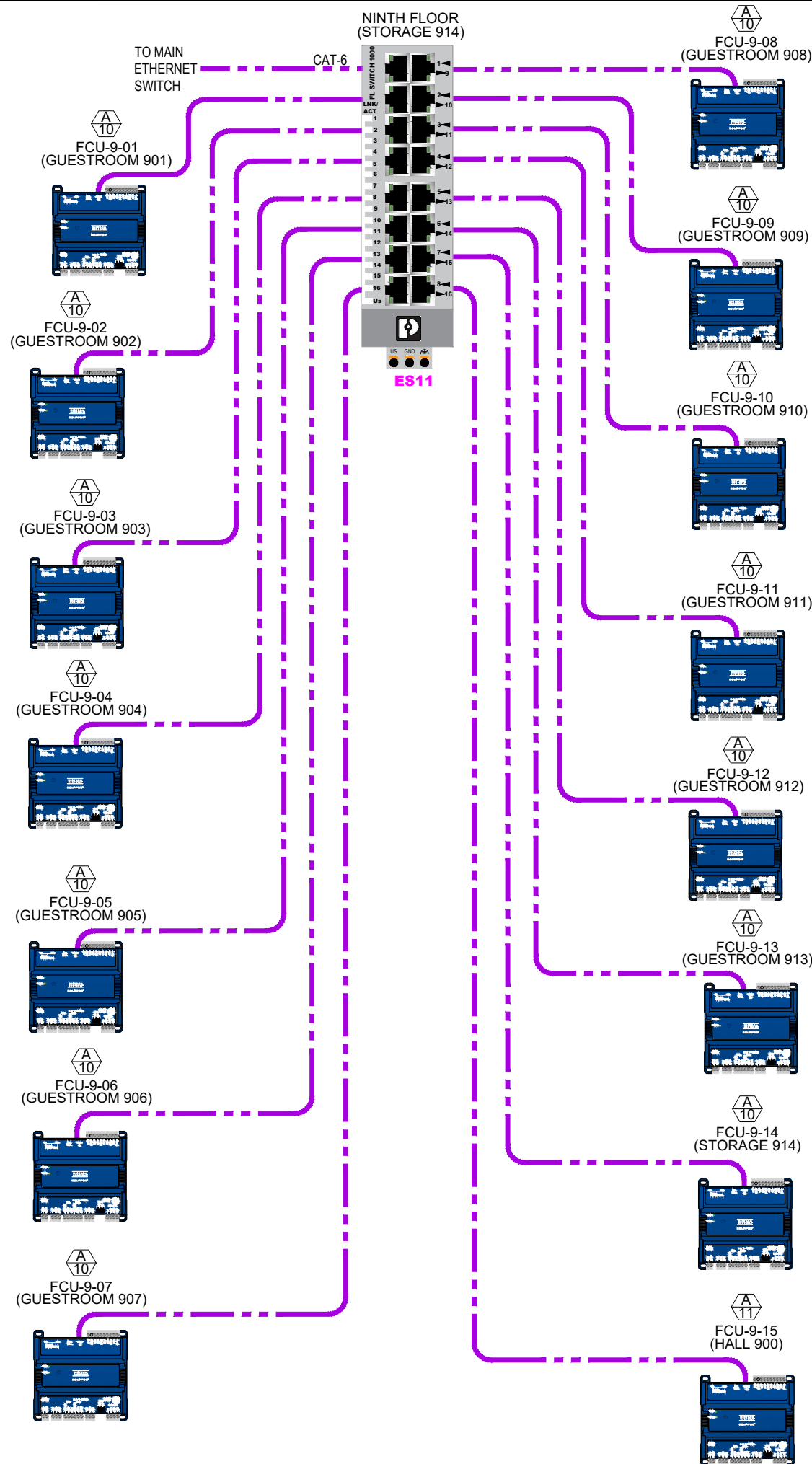
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PROJECT: KING COLE BUILDING INDIANAPOLIS, IN				DRAWING TITLE: COMMUNICATION RISER SEVENTH FLOOR		
<b>REVISIONS</b>		<b>PROJECT NO.</b>		<b>FILE NAME</b>		
No	Description	Date	By	25387	05iKCBriser7	SHEET 051



- NOTES**
1. DASHED LINES INDICATE RECOMMENDED FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR FIELD WIRING BY OTHERS.
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SYMBOLS LEGEND		DETAIL SYMBOL	
	TERMINAL BY OTHERS		DETAIL
	BACNET/IP COMMUNICATION CAT-6 CABLE		SHEET NUMBER
	BACNET MS/TP COMMUNICATION CABLE		

		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		DRAWN BY: T BROWN	CHECKED BY:	DATE 1/6/26
PROJECT: KING COLE BUILDING INDIANAPOLIS, IN				DRAWING TITLE: COMMUNICATION RISER EIGHTH FLOOR		
<b>REVISIONS</b>		<b>PROJECT NO.</b> 25387		<b>FILE NAME</b> 05jKCBriser8		<b>SHEET</b> 05J
No	Description	Date	By			



**NOTES**

1. DASHED LINES INDICATE RECOMMENDED FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR FIELD WIRING BY OTHERS.
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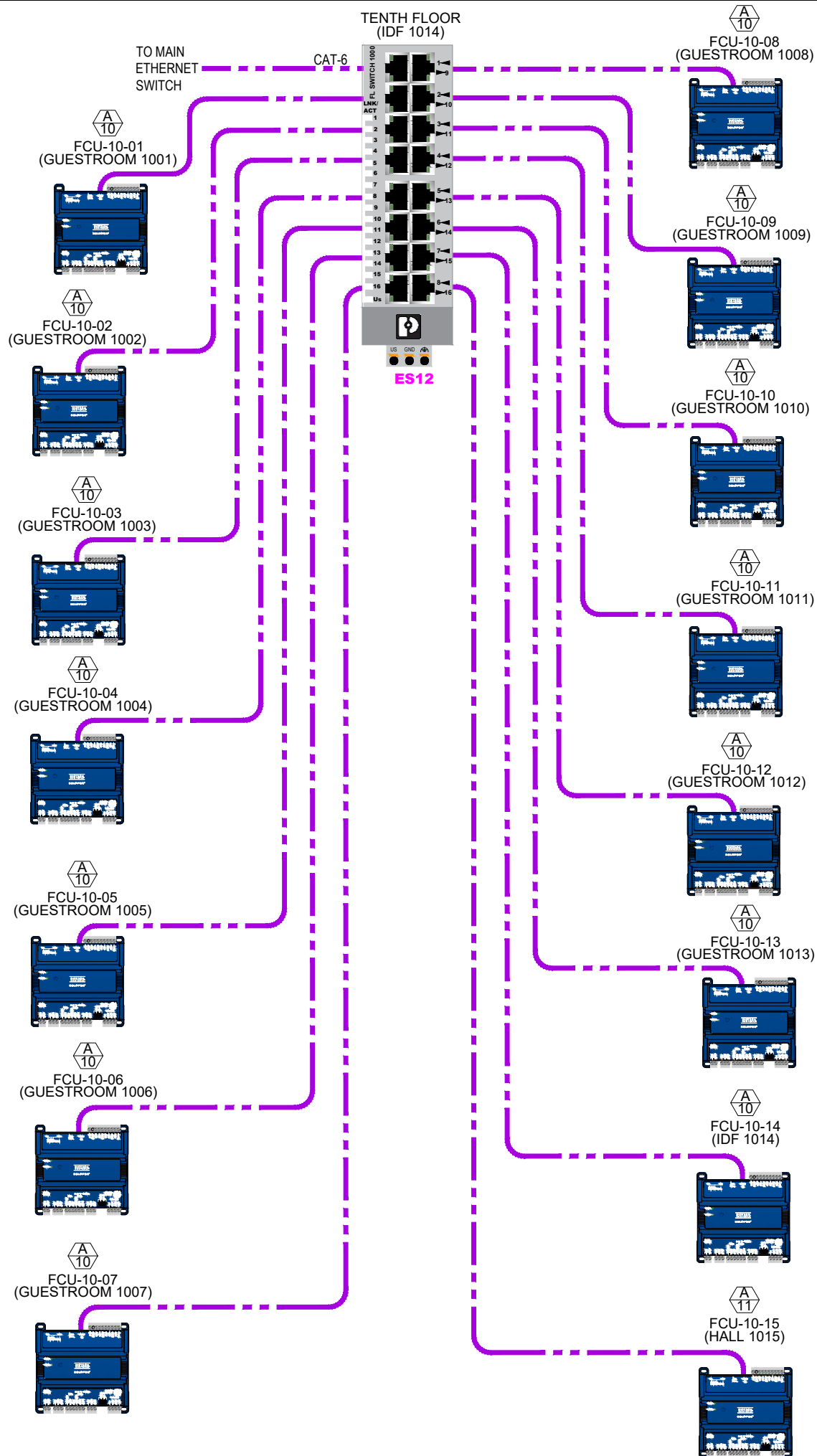
**SYMBOLS LEGEND**

- ⓑ TERMINAL BY OTHERS
- BACNET/IP COMMUNICATION CAT-6 CABLE
- BACNET MS/TP COMMUNICATION CABLE

**DETAIL SYMBOL**

- W-DETAIL
- 00-SHEET NUMBER

		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		DRAWN BY: T BROWN	CHECKED BY:	DATE 1/6/26
PROJECT: KING COLE BUILDING INDIANAPOLIS, IN				DRAWING TITLE: COMMUNICATION RISER NINTH FLOOR		
<b>REVISIONS</b>		<b>PROJECT NO.</b>		<b>FILE NAME</b>		
No	Description	Date	By	25387	05kKCBriser9	SHEET 05K



**NOTES**

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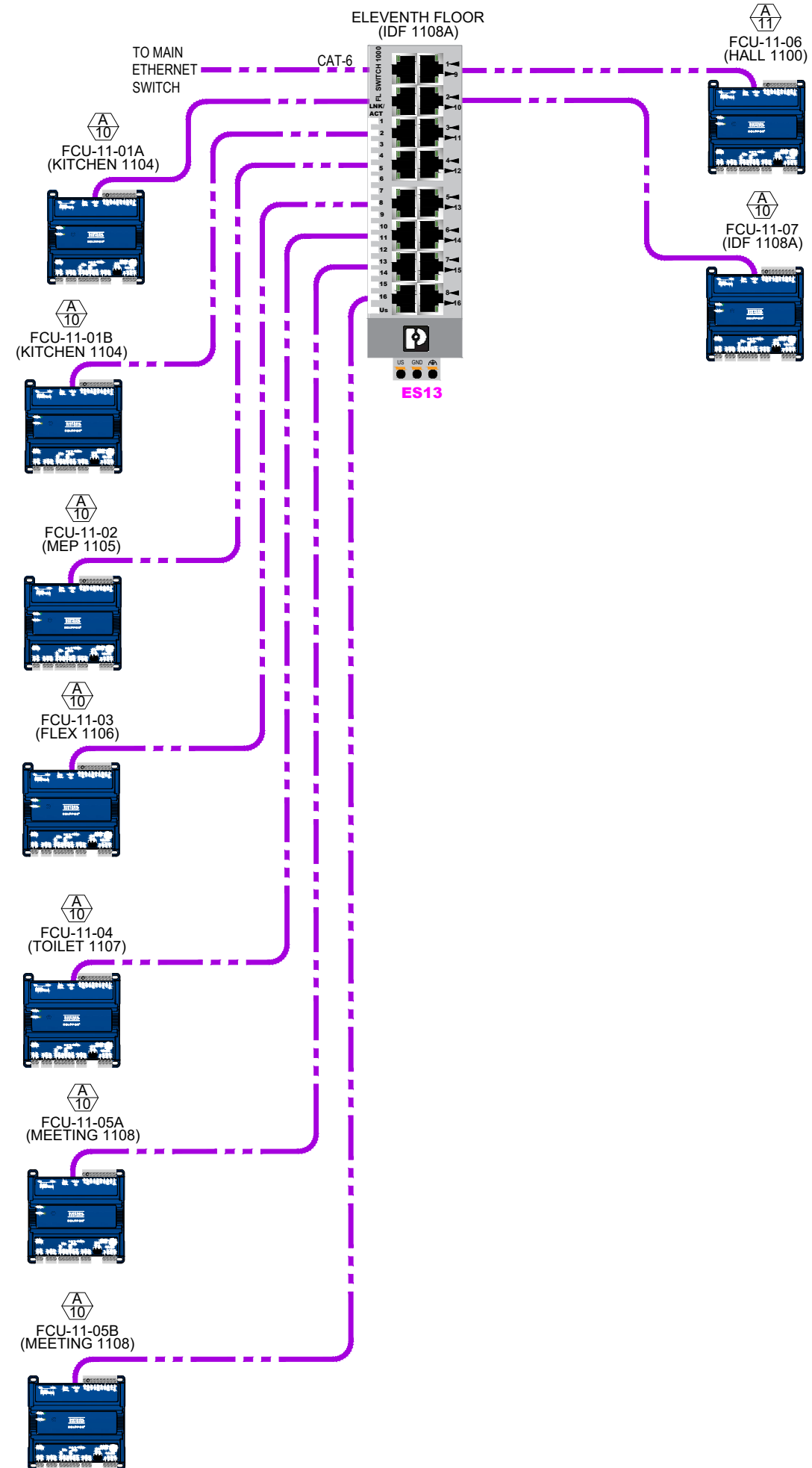
**SYMBOLS LEGEND**

- TERMINAL BY OTHERS
- BACNET/IP COMMUNICATION CAT-6 CABLE
- BACNET MS/TP COMMUNICATION CABLE

**DETAIL SYMBOL**

- DETAIL
- SHEET NUMBER

		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		<b>DRAWN BY:</b> T BROWN	<b>CHECKED BY:</b>	<b>DATE</b> 1/6/26
<b>PROJECT:</b> KING COLE BUILDING INDIANAPOLIS, IN				<b>DRAWING TITLE:</b> COMMUNICATION RISER TENTH FLOOR		
<b>REVISIONS</b>			<b>PROJECT NO.</b> 25387			
No	Description	Date	By	FILE NAME	SHEET	
				05IKCBriser10	05L	



**NOTES**

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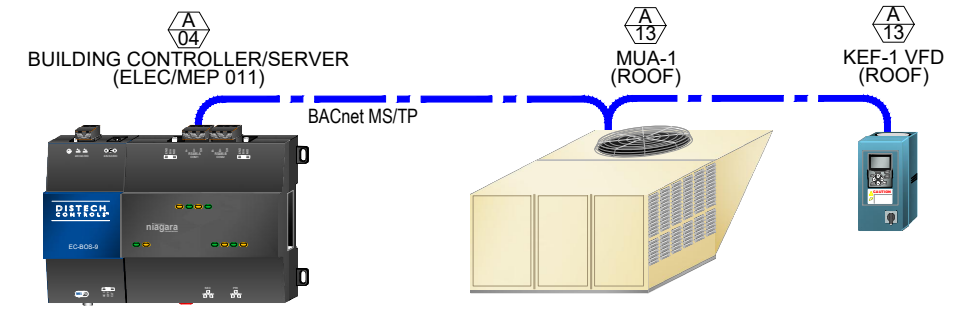
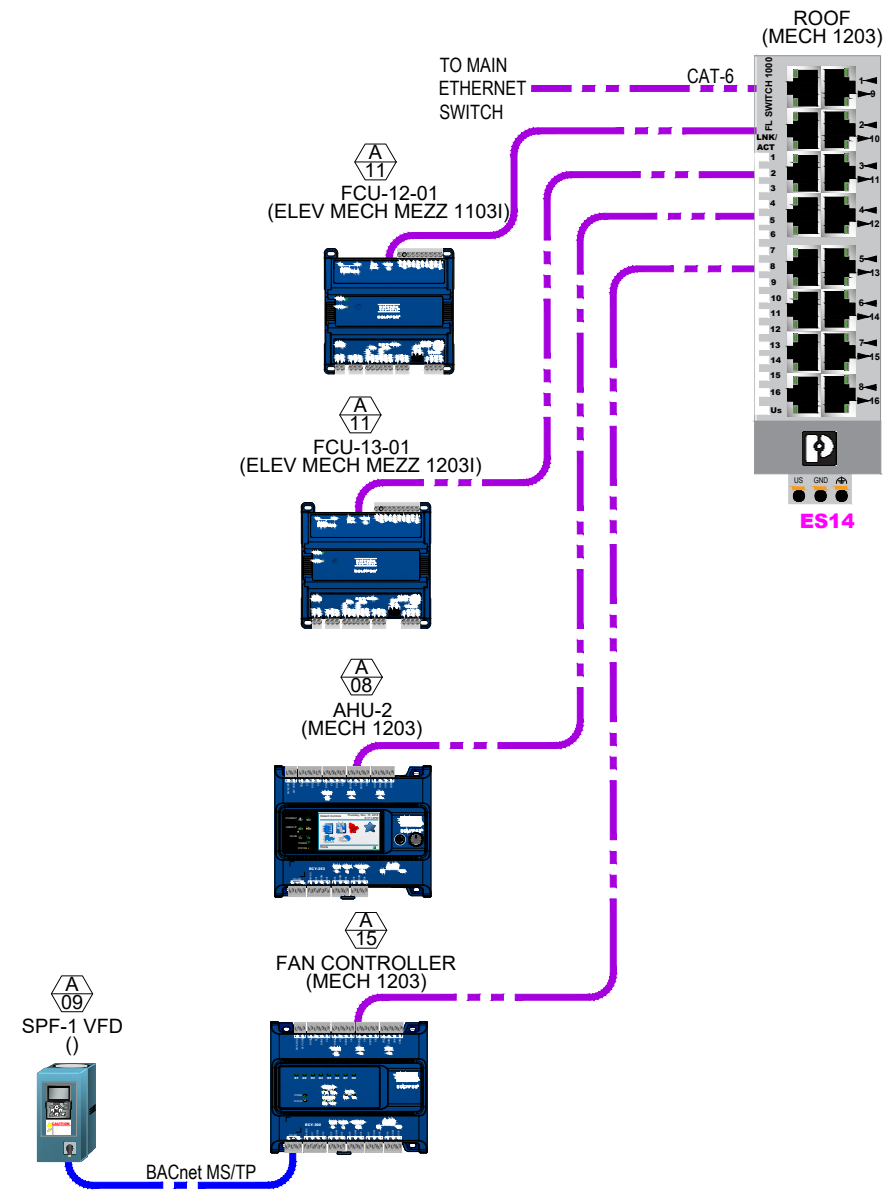
**SYMBOLS LEGEND**

- TERMINAL BY OTHERS
- BACNET/IP COMMUNICATION CAT-6 CABLE
- BACNET MS/TP COMMUNICATION CABLE

**DETAIL SYMBOL**

- DETAIL
- SHEET NUMBER

		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		<b>DRAWN BY:</b> T BROWN	<b>CHECKED BY:</b>	<b>DATE</b> 1/6/26
<b>PROJECT:</b> KING COLE BUILDING INDIANAPOLIS, IN				<b>DRAWING TITLE:</b> COMMUNICATION RISER ELEVENTH FLOOR		
<b>REVISIONS</b>			<b>PROJECT NO.</b> 25387			
<b>No</b>	<b>Description</b>	<b>Date</b>	<b>By</b>	<b>FILE NAME</b>	<b>SHEET</b>	
				05mKCBriser11	05M	



**NOTES**

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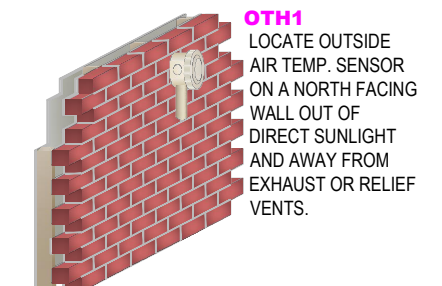
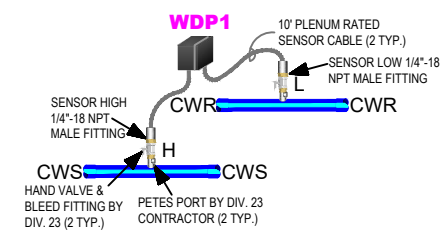
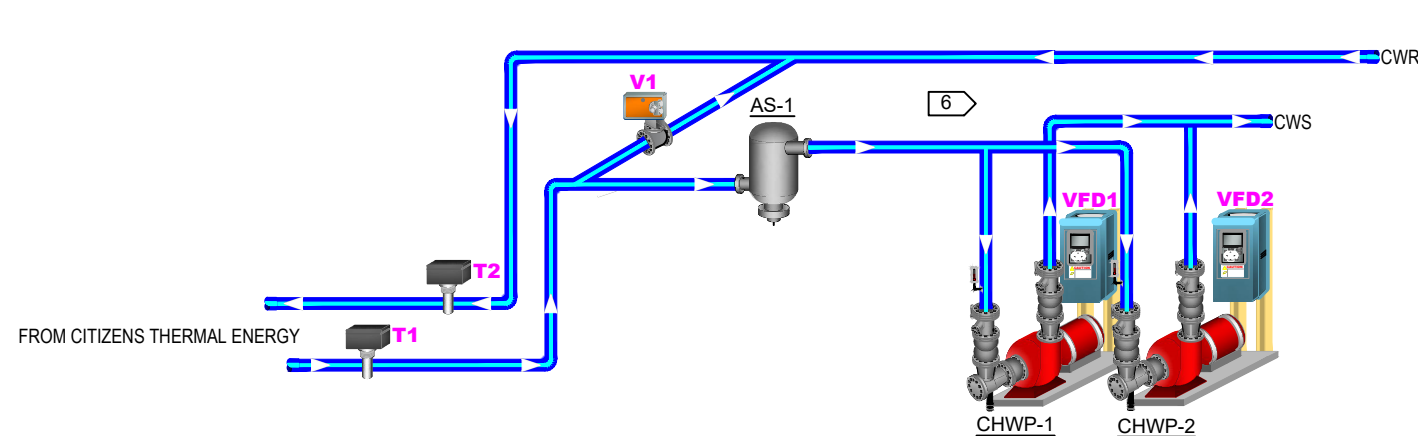
**SYMBOLS LEGEND**

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- BACNET/IP COMMUNICATION CAT-6 CABLE
- BACNET MS/TP COMMUNICATION CABLE

**DETAIL SYMBOL**

- W-DETAIL
- 00-SHEET NUMBER

		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		<b>DRAWN BY:</b> T BROWN	<b>CHECKED BY:</b>	<b>DATE</b> 1/6/26
<b>PROJECT:</b> KING COLE BUILDING INDIANAPOLIS, IN				<b>DRAWING TITLE:</b> COMMUNICATION RISER ROOF		
<b>REVISIONS</b>			<b>PROJECT NO.</b> 25387			
No	Description	Date	By	FILE NAME	SHEET	
				05nKCBriserR	05N	



**MATERIAL LEGEND**

Symbol	Part Number	Qty	Description
ECY	CDIY-350X-20	1	BACnet Programmable Controller
TX	TR75VA005	1	75VA Class 2 Transformer 120:24Vac w/Breaker
T	A/CP-I-4-PB	2	Immersion Temperature Sensor 10K Type 2
V	SEE VALVE SCHEDULE	1	CHW Bypass Valve
R	RV8H-L-D12	2	12Vdc Track Mount Control Relay
OTH	A/RH3-CP-O	1	Outdoor Temp/RH Sensor
VFD	SEE VFD SCHEDULE	2	CHW Pump VFD
WDP	A/WPR2-100-10'	1	Liquid Differential Pressure Transmitter

**NOTES:**

- DASHED LINES INDICATE NEW FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR EXISTING WIRING TO REMAIN.
- ALL FIELD WIRING MUST MEET OR EXCEED THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), AND THE STATE AND LOCAL REQUIREMENTS.
- FOR INPUTS & OUTPUTS, THE SHIELD WIRE IS GROUNDED AT THE CONTROLLER END ONLY.
- WIRING FOR INPUTS & OUTPUTS IS 18 AWG, SHIELDED, TWISTED PAIR WITH STRANDED TINNED COPPER CONDUCTORS.
- THE BACnet MS/TP NETWORK WIRE IS 24 AWG (0.65 mm) STRANDED, TWISTED SHIELDED PAIR (JACKSON SYSTEM PART #: 24/2 BACnet). THE BACnet MS/TP COMMUNICATION WIRE IS POLARITY SENSITIVE AND THE ONLY ACCEPTABLE TOPOLOGY IS TO DAISY-CHAIN THE CABLE FROM ONE CONTROLLER TO THE NEXT.
- THIS PIPING DETAIL IS A SCHEMATIC REPRESENTATION AND IS ONLY SHOWN FOR GENERAL REFERENCE. REFER TO PROJECT PLANS AND SPECIFICATIONS FOR PROPER PIPING LAYOUT AND METHODS.
- REFER TO THE CHILLER INSTALLATION DOCUMENTATION FOR WIRING DETAILS.
- DISCONNECT OUTPUTS TERMINALS BEFORE POWERING UNTIL ALL DUOs ARE CONFIGURED CORRECTLY

**SEQUENCE OF OPERATION**

- A. SYSTEM GENERAL DESCRIPTION: THE CHILLED WATER SYSTEM CONSISTS OF THE FOLLOWING:
- PRIMARY CITIZEN'S THERMAL CENTRAL DISTRICT CHILLED WATER UTILITY SERVICE WITH SECONDARY PUMPING DISTRIBUTION AND BUILDING LOOP TEMPERATURE CONTROL.
- THE BUILDING AUTOMATION SYSTEM (BAS) CONTROLLER PROVIDES STAND-ALONE CONTROL OR CONTROL FROM A HIGHER LEVEL BAS AND PROVIDES LEAD/LAG/STANDBY CONTROL FOR THE CHILLED WATER PUMPS AND CONTROLS THE CHILLED WATER RETURN VALVE TO MAINTAIN MINIMUM RETURN TEMPERATURE TO UTILITY.
- CHILLED WATER SYSTEM ENABLE/DISABLE: CHILLED WATER SYSTEM SHALL BE CONTINUOUSLY ENABLED.
  - CHILLED WATER PUMP START/STOP: THE BAS CONTROLLER SHALL START A CHILLED WATER PUMP THROUGH A CONTACT CLOSURE OF THE PUMPS VARIABLE FREQUENCY DRIVE (VFD) RUN-ENABLE CONTACTS.
  - CHILLED WATER PUMP STATUS: THE BAS CONTROLLER SHALL DETECT CHILLED WATER PUMP RUN STATUS BY A VFD CURRENT SWITCH.
  - CHILLED WATER PUMP LEAD/LAG: THE CHILLED WATER PUMP LEAD/LAG SEQUENCE SHALL BE ROTATED ON A WEEKLY SCHEDULE. THE SEQUENCE SHALL BE BASED ON CALCULATED RUN TIME WITH THE PUMP HAVING THE LEAST RUN TIME AS LEAD, THE PUMP WITH THE NEXT LOWEST RUN TIME WILL BE THE SECOND IN THE SEQUENCE AND SO ON. FROM THE BAS AN OPERATOR SHALL BE ABLE TO MANUALLY CHANGE THE LEAD/LAG SEQUENCE.
  - CHILLED WATER PUMP FAILURE: IF THE LEAD START/STOP RELAY IS ENABLED AND THE CURRENT SWITCH STATUS IS OFF FOR MORE THAN 30 SECONDS (ADJ.), THE BAS CONTROLLER SHALL ANNUNCIATE A CHILLED WATER PUMP FAILURE ALARM TO THE BAS AND START THE NEXT PUMP IN THE SEQUENCE. ONCE THE PROBLEM HAS BEEN CORRECTED, THE OPERATOR SHALL BE ABLE TO CLEAR THE ALARM FAILURE FROM THE BAS OR BY MANUALLY OVERRIDING THE PUMP ON MOMENTARILY. THIS SHALL RE-ENABLE THE LEAD/LAG SEQUENCE.
  - CHILLED WATER PUMP SPEED: THE BAS CONTROLLER SHALL MONITOR THE CHILLED WATER SYSTEM DIFFERENTIAL PRESSURE SENSOR. WHEN THE PUMP VARIABLE FREQUENCY DRIVE IS ENABLED, THE BAS CONTROLLER SHALL CONTROL THE ANALOG SPEED SIGNAL THAT IS SENT TO THE PUMP VARIABLE FREQUENCY DRIVE TO MAINTAIN A CHILLED WATER DIFFERENTIAL PRESSURE SETPOINT OF 15.0 PSIG (ADJ.).

**SYMBOLS LEGEND**

⊙	FIELD DEVICE TERMINAL	AO	ANALOG OUTPUT
⊠	MECHANICAL EQUIPMENT TERMINAL	DO	DIGITAL OUTPUT
— —	SHIELD	UI	UNIVERSAL INPUT
---	WIRING BY OTHERS	— —	BACnet COMM. WIRING
---	FIELD WIRING		

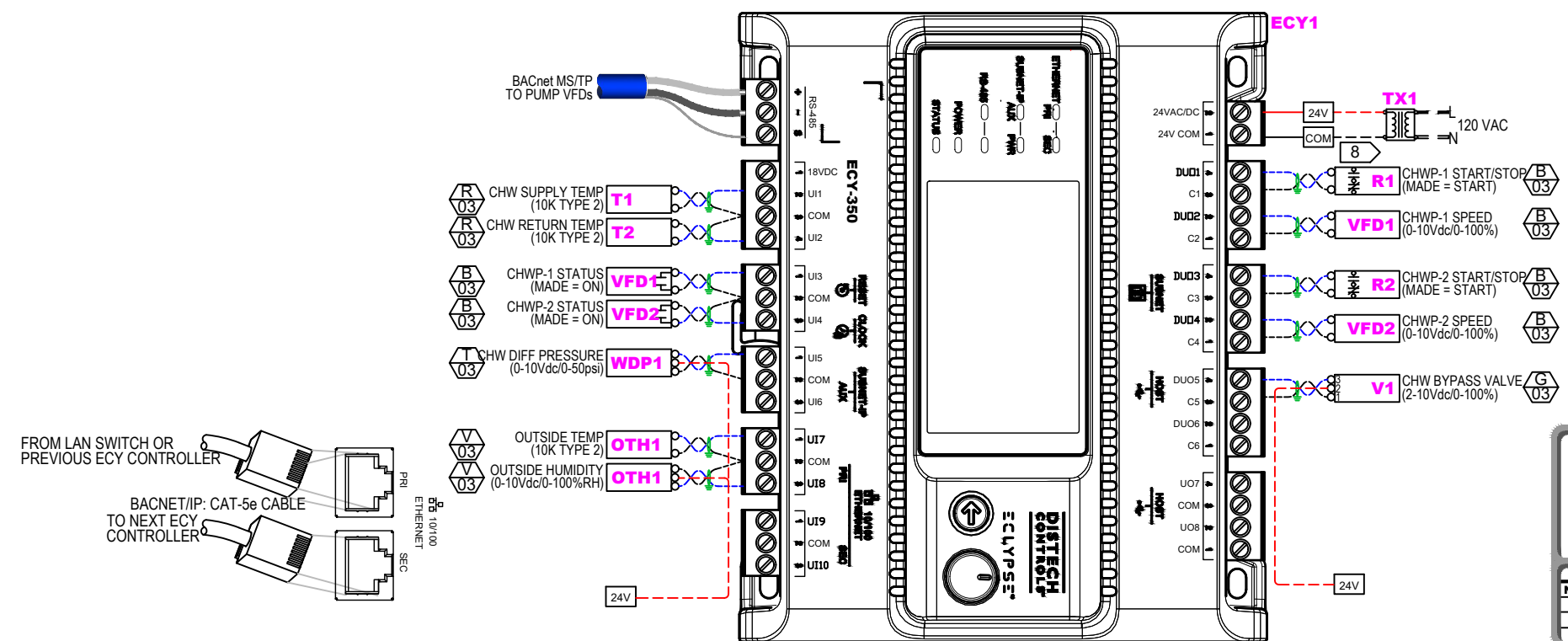
**DETAIL SYMBOL DEVICE LOCATION LEGEND**

⊙	WIRING DETAIL	⊙	AT DRIVEN EQUIPMENT
06	SHEET NUMBER	⬢	REMOTE FROM STARTER OR DRIVE AND DRIVEN EQUIPMENT
		▲	AT EQUIPMENT CONTROL PANEL
		●	AT TEMPERATURE CONTROL PANEL
		△	AT MOTOR STARTER

**⚠ WARNING**

**HAZARDOUS VOLTAGE!**

DISCONNECT ALL POWER SOURCES INCLUDING REMOTE DISCONNECTS BEFORE SERVICING. FAILURE TO DISCONNECT ALL POWER SOURCES BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.



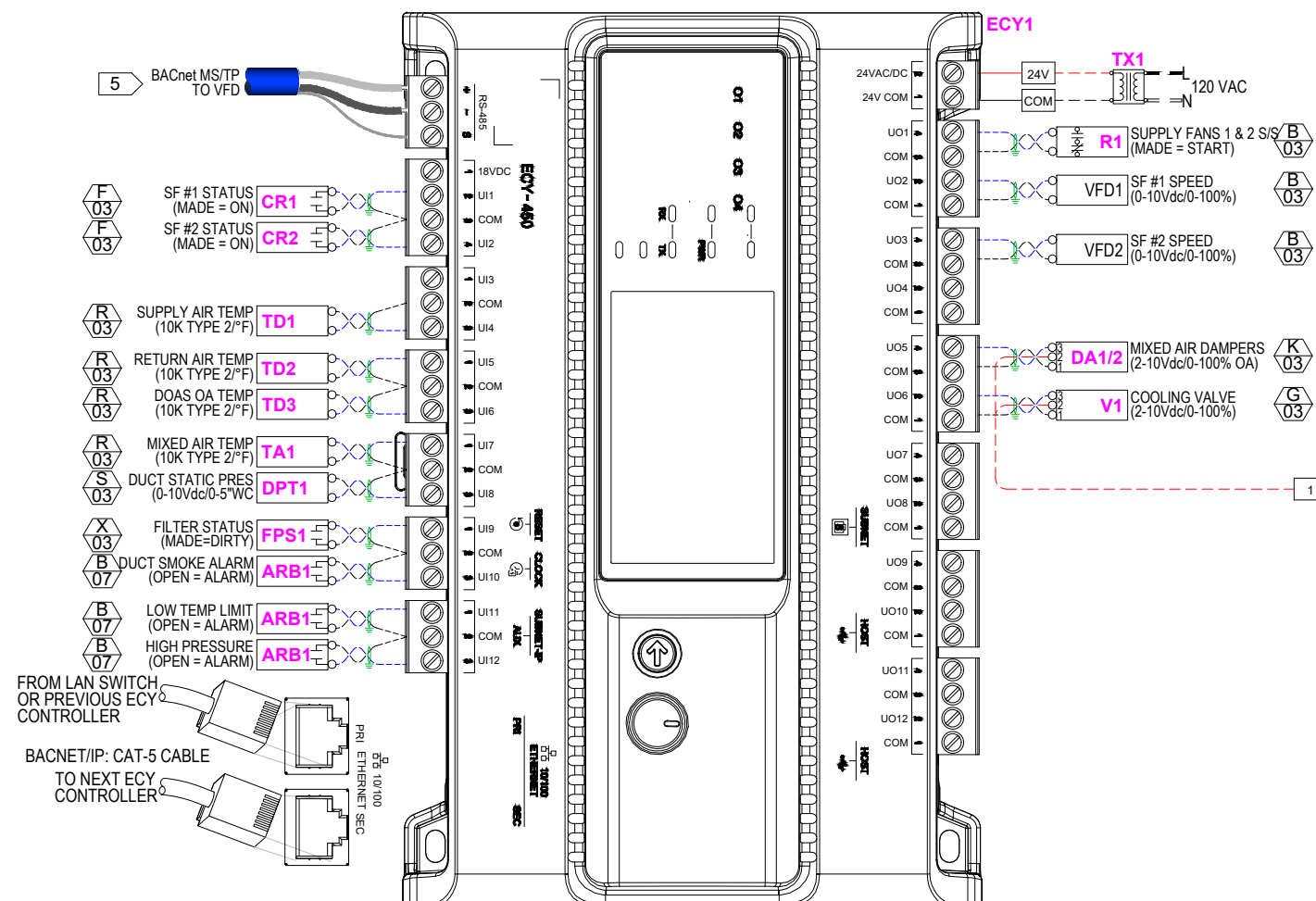
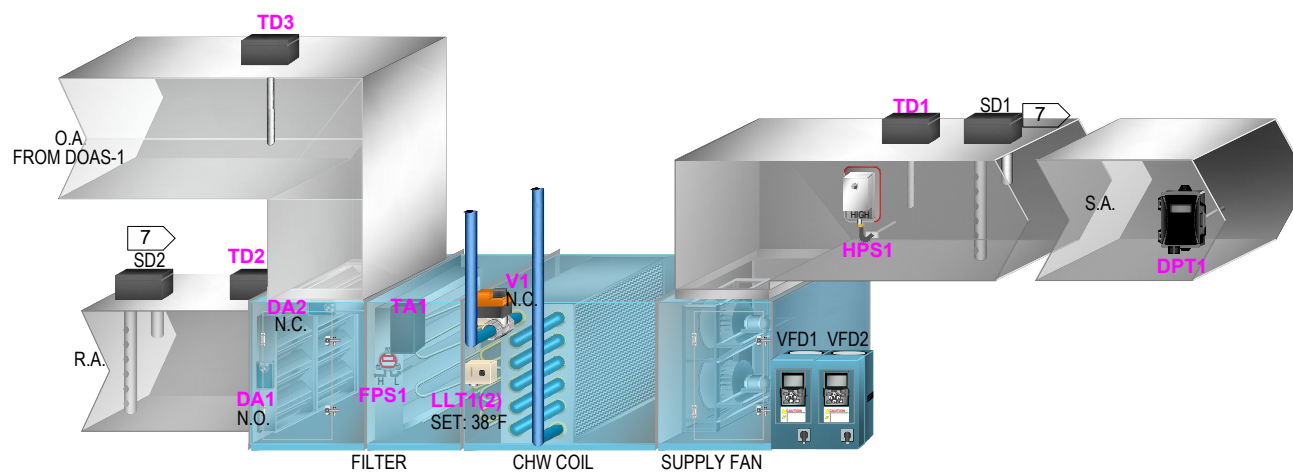
<b>JACKSON SYSTEMS</b> Controls Done Right™ PROJECT: KING COLE BUILDING INDIANAPOLIS, IN	5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800	<b>DRAWN BY:</b> T BROWN <b>CHECKED BY:</b>  <b>DATE:</b> 12/11/25							
	<b>DRAWING TITLE:</b> CENTRAL COOLING PLANT								
<b>REVISIONS</b> <table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Date</th> <th>By</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	No	Description	Date	By					<b>PROJECT NO.:</b> 25387 <b>FILE NAME:</b> 06KCBccp <b>SHEET:</b> 06
No	Description	Date	By						

# A VAV AIR HANDLING UNIT AHU-1

07 LOCATED ON BASEMENT FLOOR SERVING VAV BOXES

## SEQUENCE OF OPERATION

- BUILDING AUTOMATION SYSTEM INTERFACE:** THE BUILDING AUTOMATION SYSTEM (BAS) WILL SEND THE CONTROLLER OCCUPIED BYPASS, MORNING WARM-UP/PRE-COOL, OCCUPIED/UNOCCUPIED, AND HEAT/COOL MODES. THE BAS WILL ALSO SEND THE DISCHARGE AIR TEMPERATURE SETPOINT AND THE DUCT STATIC PRESSURE SETPOINT. IF A BAS IS NOT PRESENT, OR COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER WILL OPERATE USING DEFAULT MODES AND SETPOINTS.
- OCCUPIED MODE (AHU - 1, 2):** DURING OCCUPIED PERIODS, THE SUPPLY FAN WILL RUN CONTINUOUSLY AND THE OUTSIDE AIR DAMPER WILL OPEN TO MAINTAIN MINIMUM VENTILATION REQUIREMENTS. THE CHILLED WATER VALVE AND SCR CONTROLLED ELECTRIC HEAT (IF APPLICABLE) WILL MODULATE TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SETPOINT. IF THE DISCHARGE AIR TEMPERATURE SENSOR FAILS THE CHILLED WATER VALVE WILL CLOSE AND AN ALARM SHALL BE ANNUNCIATED AT THE BAS.
- UNOCCUPIED (AHU - 1, 2):**
  - WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 60°F (ADJ.) THE SUPPLY FAN WILL START AND THE ELECTRIC HEAT WILL BE ENABLED (IF APPLICABLE). WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 60°F (ADJ.) PLUS THE UNOCCUPIED DIFFERENTIAL OF 4°F (ADJ.) THE SUPPLY FAN WILL STOP AND THE ELECTRIC HEAT WILL BE DISABLED.
  - WHEN THE SPACE TEMPERATURE IS ABOVE THE UNOCCUPIED COOLING SETPOINT OF 80°F (ADJ.) THE SUPPLY FAN WILL START AND THE CHILLED WATER VALVE WILL OPEN. WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED COOLING SETPOINT OF 80°F (ADJ.) MINUS THE UNOCCUPIED DIFFERENTIAL OF 4°F (ADJ.) THE SUPPLY FAN WILL STOP AND THE CHILLED WATER VALVE WILL CLOSE.
- OPTIMAL START (AHU-1, 2):** THE BAS WILL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SPACE SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL START OCCURS.
- MORNING WARM-UP MODE (AHU-2):** DURING OPTIMAL START, IF THE AVERAGE SPACE TEMPERATURE IS BELOW THE OCCUPIED HEATING SETPOINT A MORNING WARM-UP MODE WILL BE ACTIVATED. WHEN MORNING WARM-UP IS INITIATED, THE UNIT WILL ENABLE THE HEATING AND SUPPLY FAN. WHEN THE SPACE TEMPERATURE REACHES THE OCCUPIED HEATING SETPOINT (ADJ.), THE UNIT WILL TRANSITION TO THE OCCUPIED MODE.
- PRE-COOL MODE:** DURING OPTIMAL START, IF THE AVERAGE SPACE TEMPERATURE IS ABOVE THE OCCUPIED COOLING SETPOINT, PRE-COOL MODE WILL BE ACTIVATED. WHEN PRE-COOL IS INITIATED, THE UNIT WILL ENABLE THE FAN AND COOLING. WHEN THE SPACE TEMPERATURE REACHES OCCUPIED COOLING SETPOINT (ADJ.), THE UNIT WILL TRANSITION TO THE OCCUPIED MODE.
- OPTIMAL STOP:** THE BAS WILL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL STOP OCCURS. WHEN THE OPTIMAL STOP MODE IS ACTIVE THE UNIT CONTROLLER WILL MAINTAIN THE SPACE TEMPERATURE TO THE SPACE TEMPERATURE OFFSET SETPOINT.
- OCCUPIED BYPASS:** THE BAS WILL MONITOR THE STATUS OF THE "ON" AND "CANCEL" BUTTONS OF THE SPACE TEMPERATURE SENSORS. WHEN AN OCCUPIED BYPASS REQUEST IS RECEIVED FROM A SPACE SENSOR, THE UNIT WILL TRANSITION FROM ITS CURRENT OCCUPANCY MODE TO OCCUPIED BYPASS MODE AND THE UNIT WILL MAINTAIN THE SPACE TEMPERATURE TO THE OCCUPIED SETPOINTS (ADJ.).
- SUPPLY AIR TEMPERATURE RESET CONTROL:** THE SUPPLY AIR TEMPERATURE SETPOINT WILL BE RESET TO THE OPTIMAL SETPOINT COMMUNICATED BY THE BAS. THE BAS WILL RESET THE SUPPLY AIR TEMPERATURE SETPOINT BASED ON THE CURRENT OUTSIDE AIR TEMPERATURE, BUT WILL OVERRIDE THIS RESET FUNCTION AND RETURN THE SUPPLY AIR TEMPERATURE SETPOINT TO 55°F (ADJ.) IF MORE THAN TWO (ADJ.) ZONES BEGIN TO OVERHEAT. ALSO, THE BAS WILL OVERRIDE THIS RESET FUNCTION WHENEVER OUTDOOR DEW POINT IS HIGHER THAN 60°F (ADJ.) OR INDOOR HUMIDITY IS HIGHER THAN 60% RH (ADJ.). IF THE SUPPLY AIR TEMPERATURE DROPS BELOW THE MINIMUM LIMIT, A LOW TEMPERATURE ALARM WILL BE ANNUNCIATED AND THE UNIT WILL SHUT DOWN. IF THE SUPPLY AIR TEMPERATURE RISES ABOVE THE MAXIMUM LIMIT, A HIGH TEMPERATURE ALARM WILL BE ANNUNCIATED. BAS WILL OVERRIDE SUPPLY AIR TEMPERATURE RESET WHEN AN EVENT IS SCHEDULED FOR THE FEINSTEIN CLUB OR BALLROOM. PROVIDE SCHEDULING OPTION FOR BUILDING OPERATOR TO SCHEDULE EVENTS AHEAD OF TIME.
- FREEZE PROTECTION:** A HARDWIRED, LOW LIMIT TEMPERATURE SWITCH WILL BE ELECTRICALLY INTERLOCKED WITH THE VARIABLE SPEED DRIVE. IF THE LOW LIMIT TEMPERATURE SWITCH IS TRIPPED 38°F (ADJ.), THE OUTSIDE AIR DAMPER WILL CLOSE, ALL VALVES SHALL OPEN TO 100% (ADJUST PER CLIMATE) AND AN ALARM WILL BE ANNUNCIATED AT THE BAS. A MANUAL RESET OF THE LOW LIMIT TEMPERATURE SWITCH WILL BE REQUIRED TO RESTART THE FAN.
- FILTER STATUS:** A DIFFERENTIAL PRESSURE SWITCH SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER WHEN THE FAN IS RUNNING. IF THE SWITCH CLOSURES DURING NORMAL OPERATION A DIRTY FILTER ALARM SHALL BE ANNUNCIATED AT THE BAS.



## MATERIAL LEGEND

Symbol	Part Number	Qty	Description
ECY	CDIY-450-00	1	BACnet Programmable Controller
TX	TR100VA001	1	100VA Transformer 120VAC:24VAC w/Breaker
R	RV8H-2L-D12	1	12Vdc Pilot Relay DPDT
TA	A/CP-A-24'-PB	1	Duct Averaging Temp. Sensor 10K Type 2
TD	A/CP-D-8-PB	3	Duct Temp. Sensor 10K Type 2
HPS	AFS-460	1	High Pressure Switch
DA	AFB24-SR	2	Spring Ret. Damper Act., 2-10Vdc
LLT	01DTS-505X	2	Manual Reset Low Temperature Detector 20' Cap.
ARB	RIBMNLB-4NO	1	Fan Safety Alarm Relay Board
IX	TR20VA003	1	Isolation Transformer 24Vac:24Vac
FPS	AFS-222	1	Filter Pressure Switch
V	SEE VALVE SCHEDULE	1	Temperature Control Valve
DPT	A/DLP-010-W-U-N-A-0	1	Duct Static Pressure Transmitter
CR	RIBXKTF	2	Current Sensing Relay

## NOTES:

- DASHED LINES INDICATE NEW FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR EXISTING WIRING TO REMAIN.
- ALL FIELD WIRING MUST MEET OR EXCEED THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), AND THE STATE AND LOCAL REQUIREMENTS.
- FOR INPUTS & OUTPUTS, THE SHIELD WIRE IS GROUNDED AT THE CONTROLLER END ONLY.
- WIRING FOR INPUTS & OUTPUTS IS 18 AWG, SHIELDED, TWISTED PAIR WITH STRANDED TINNED COPPER CONDUCTORS.
- THE BACnet MS/TP NETWORK WIRE IS 24 AWG (0.65 mm) STRANDED, TWISTED SHIELDED PAIR (JACKSON SYSTEM PART # 242 BACnet). THE BACnet MS/TP COMMUNICATION WIRE IS POLARITY SENSITIVE AND THE ONLY ACCEPTABLE TOPOLOGY IS TO DAISY-CHAIN THE CABLE FROM ONE CONTROLLER TO THE NEXT.
- THIS PIPING DETAIL IS A SCHEMATIC REPRESENTATION AND IS ONLY SHOWN FOR GENERAL REFERENCE. REFER TO PROJECT PLANS AND SPECIFICATIONS FOR PROPER PIPING LAYOUT AND METHODS.
- SMOKE DETECTORS BY OTHERS.
- MOUNT WALL MOUNTED SENSOR PER PROJECT PLANS AND SPECIFICATIONS. CONFIRM FINAL LOCATION WITH OWNER'S REPRESENTATIVE AND COORDINATE WITH OTHER TRADES.

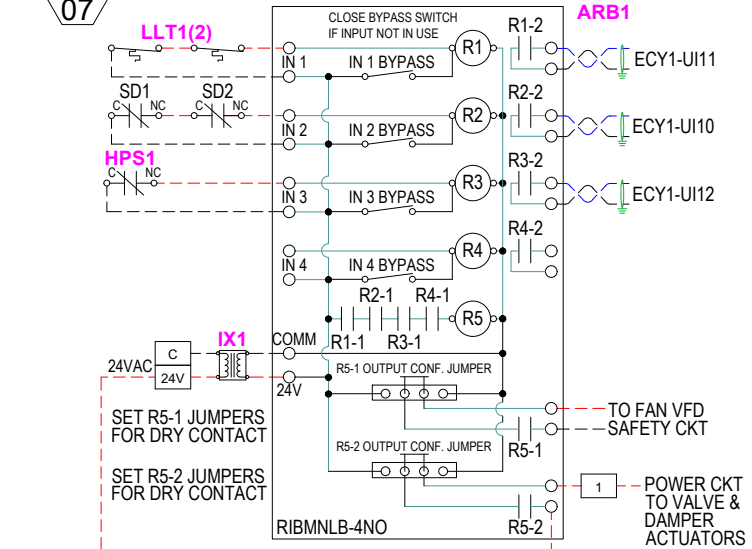
## SYMBOLS LEGEND

	FIELD DEVICE TERMINAL		AO ANALOG OUTPUT
	MECHANICAL EQUIPMENT TERMINAL		DO DIGITAL OUTPUT
	SHIELD		UI UNIVERSAL INPUT
	WIRING BY OTHERS		BACnet COMM. WIRING
	FIELD WIRING		

## DETAIL SYMBOL DEVICE LOCATION LEGEND

	WIRING DETAIL		AT DRIVEN EQUIPMENT
	SHEET NUMBER		REMOTE FROM STARTER OR DRIVE AND DRIVEN EQUIPMENT
			AT TEMPERATURE CONTROL PANEL
			AT MOTOR STARTER

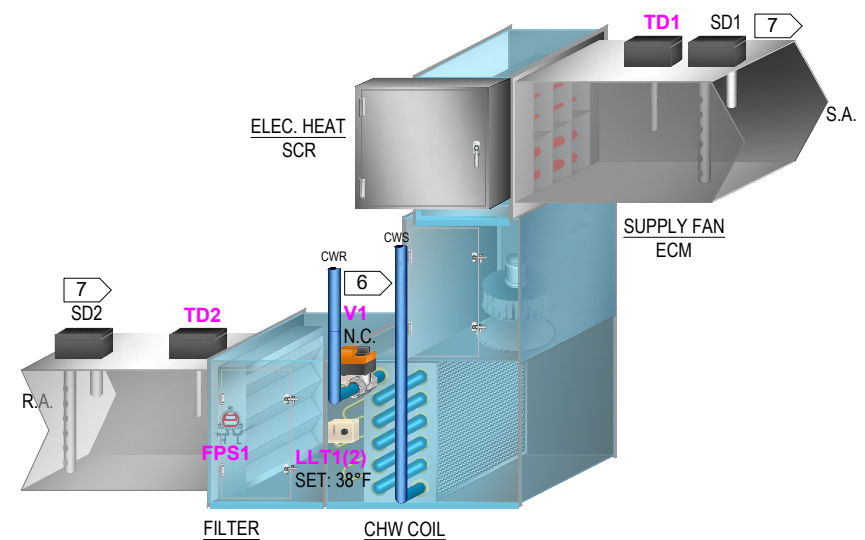
## SAFETIES INTERLOCK CIRCUIT



		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		DRAWN BY: T BROWN	CHECKED BY: DATE 12/12/25							
PROJECT: KING COLE BUILDING INDIANAPOLIS, IN		DRAWING TITLE: VAV AIR HANDLING UNIT AHU-1										
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No	Description	Date	By									
FILE NAME 07KCBahu1		PROJECT NO. 25387										

**SEQUENCE OF OPERATION**

- A. BUILDING AUTOMATION SYSTEM INTERFACE: THE BUILDING AUTOMATION SYSTEM (BAS) WILL SEND THE CONTROLLER OCCUPIED BYPASS, MORNING WARM-UP/PRE-COOL, OCCUPIED/UNOCCUPIED, AND HEAT/COOL MODES. THE BAS WILL ALSO SEND THE DISCHARGE AIR TEMPERATURE SETPOINT AND THE DUCT STATIC PRESSURE SETPOINT. IF A BAS IS NOT PRESENT, OR COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER WILL OPERATE USING DEFAULT MODES AND SETPOINTS.
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- C. UNOCCUPIED (AHU - 1, 2):
  - 1. WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 60°F (ADJ.) THE SUPPLY FAN WILL START AND THE ELECTRIC HEAT WILL BE ENABLED (IF APPLICABLE). WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 60°F (ADJ.) PLUS THE UNOCCUPIED DIFFERENTIAL OF 4°F (ADJ.) THE SUPPLY FAN WILL STOP AND THE ELECTRIC HEAT WILL BE DISABLED.
  - 2. WHEN THE SPACE TEMPERATURE IS ABOVE THE UNOCCUPIED COOLING SETPOINT OF 80°F (ADJ.) THE SUPPLY FAN WILL START AND THE CHILLED WATER VALVE WILL OPEN. WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED COOLING SETPOINT OF 80°F (ADJ.) MINUS THE UNOCCUPIED DIFFERENTIAL OF 4°F (ADJ.) THE SUPPLY FAN WILL STOP AND THE CHILLED WATER VALVE WILL CLOSE.
- D. OPTIMAL START (AHU-1, 2): THE BAS WILL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SPACE SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL START OCCURS.
- E. MORNING WARM-UP MODE (AHU-2): DURING OPTIMAL START, IF THE AVERAGE SPACE TEMPERATURE IS BELOW THE OCCUPIED HEATING SETPOINT A MORNING WARM-UP MODE WILL BE ACTIVATED. WHEN MORNING WARM-UP IS INITIATED, THE UNIT WILL ENABLE THE HEATING AND SUPPLY FAN. WHEN THE SPACE TEMPERATURE REACHES THE OCCUPIED HEATING SETPOINT (ADJ.), THE UNIT WILL TRANSITION TO THE OCCUPIED MODE.
- F. PRE-COOL MODE: DURING OPTIMAL START, IF THE AVERAGE SPACE TEMPERATURE IS ABOVE THE OCCUPIED COOLING SETPOINT, PRE-COOL MODE WILL BE ACTIVATED. WHEN PRE-COOL IS INITIATED, THE UNIT WILL ENABLE THE FAN AND COOLING. WHEN THE SPACE TEMPERATURE REACHES OCCUPIED COOLING SETPOINT (ADJ.), THE UNIT WILL TRANSITION TO THE OCCUPIED MODE.
- G. OPTIMAL STOP: THE BAS WILL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL STOP OCCURS. WHEN THE OPTIMAL STOP MODE IS ACTIVE THE UNIT CONTROLLER WILL MAINTAIN THE SPACE TEMPERATURE TO THE SPACE TEMPERATURE OFFSET SETPOINT.
- H. OCCUPIED BYPASS: THE BAS WILL MONITOR THE STATUS OF THE "ON" AND "CANCEL" BUTTONS OF THE SPACE TEMPERATURE SENSORS. WHEN AN OCCUPIED BYPASS REQUEST IS RECEIVED FROM A SPACE SENSOR, THE UNIT WILL TRANSITION FROM ITS CURRENT OCCUPANCY MODE TO OCCUPIED BYPASS MODE AND THE UNIT WILL MAINTAIN THE SPACE TEMPERATURE TO THE OCCUPIED SETPOINTS (ADJ.).
- I. SUPPLY AIR TEMPERATURE RESET CONTROL: THE SUPPLY AIR TEMPERATURE SETPOINT WILL BE RESET TO THE OPTIMAL SETPOINT COMMUNICATED BY THE BAS. THE BAS WILL RESET THE SUPPLY AIR TEMPERATURE SETPOINT BASED ON THE CURRENT OUTSIDE AIR TEMPERATURE, BUT WILL OVERRIDE THIS RESET FUNCTION AND RETURN THE SUPPLY AIR TEMPERATURE SETPOINT TO 55°F (ADJ.) IF MORE THAN TWO (ADJ.) ZONES BEGIN TO OVERHEAT. ALSO, THE BAS WILL OVERRIDE THIS RESET FUNCTION WHENEVER OUTDOOR DEW POINT IS HIGHER THAN 60°F (ADJ.) OR INDOOR HUMIDITY IS HIGHER THAN 60% RH (ADJ.). IF THE SUPPLY AIR TEMPERATURE DROPS BELOW THE MINIMUM LIMIT, A LOW TEMPERATURE ALARM WILL BE ANNUNCIATED AND THE UNIT WILL SHUT DOWN. IF THE SUPPLY AIR TEMPERATURE RISES ABOVE THE MAXIMUM LIMIT, A HIGH TEMPERATURE ALARM WILL BE ANNUNCIATED. BAS WILL OVERRIDE SUPPLY AIR TEMPERATURE RESET WHEN AN EVENT IS SCHEDULED FOR THE FEINSTEIN CLUB OR BALLROOM. PROVIDE SCHEDULING OPTION FOR BUILDING OPERATOR TO SCHEDULE EVENTS AHEAD OF TIME.
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- K. FILTER STATUS: A DIFFERENTIAL PRESSURE SWITCH SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER WHEN THE FAN IS RUNNING. IF THE SWITCH CLOSURES DURING NORMAL OPERATION A DIRTY FILTER ALARM SHALL BE ANNUNCIATED AT THE BAS.



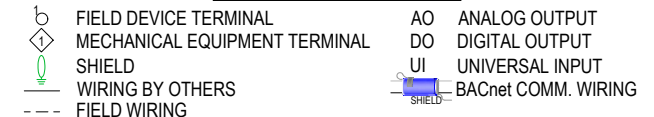
**MATERIAL LEGEND**

Symbol	Part Number	Qty	Description
ECY	CDIY-350-00	1	BACnet Programmable Controller
TX	TR100VA001	1	100VA Transformer 120VAC:24VAC w/Breaker
CR	RIBXGTA-ECM	1	Current Sensing Relay
FPS	AFS-222	1	Dirty Filter Pressure Switch
TD	A/CP-D-8-PB	2	Duct Temp. Sensor 10K Type 2
RU	RIBU1C	1	12Vdc Enclosed Relay SPDT
IX	TR20VA003	1	Isolation Transformer 24:24Vac
ARB	RIBMNLB-4NO	1	Alarm Relay Board
LLT	01DTS-505X	2	Low Temp. Detector - Manual Reset -20ft Cap.
V	SEE VALVE SCHEDULE	1	Temperature Control Valve
TS	PDIDI-RDISW-00	1	Comm Temp Sensor

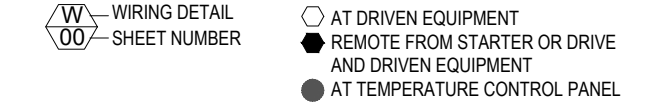
**NOTES:**

1. DASHED LINES INDICATE NEW FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR EXISTING WIRING TO REMAIN.
2. ALL FIELD WIRING MUST MEET OR EXCEED THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), AND THE STATE AND LOCAL REQUIREMENTS.
3. FOR INPUTS & OUTPUTS, THE SHIELD WIRE IS GROUNDED AT THE CONTROLLER END ONLY.
4. WIRING FOR INPUTS & OUTPUTS IS 18 AWG, SHIELDED, TWISTED PAIR WITH STRANDED TINNED COPPER CONDUCTORS.
5. THE BACnet MS/TP NETWORK WIRE IS 24 AWG (0.65 mm) STRANDED, TWISTED SHIELDED PAIR (JACKSON SYSTEM PART #. 24/2 BACnet). THE BACnet MS/TP COMMUNICATION WIRE IS POLARITY SENSITIVE AND THE ONLY ACCEPTABLE TOPOLOGY IS TO DAISY-CHAIN THE CABLE FROM ONE CONTROLLER TO THE NEXT.
6. THIS PIPING DETAIL IS A SCHEMATIC REPRESENTATION AND IS ONLY SHOWN FOR GENERAL REFERENCE. REFER TO PROJECT PLANS AND SPECIFICATIONS FOR PROPER PIPING LAYOUT AND METHODS.
7. SMOKE DETECTORS BY OTHERS.
8. MOUNT WALL MOUNTED SENSOR PER PROJECT PLANS AND SPECIFICATIONS. CONFIRM FINAL LOCATION WITH OWNER'S REPRESENTATIVE AND COORDINATE WITH OTHER TRADES.
9. DISCONNECT OUTPUTS TERMINALS BEFORE POWERING UNTIL ALL DUOs ARE CONFIGURED CORRECTLY

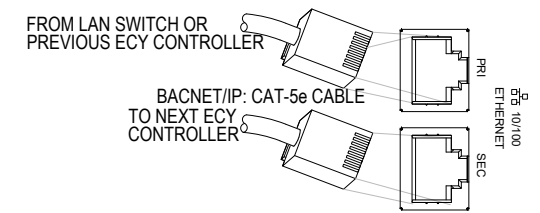
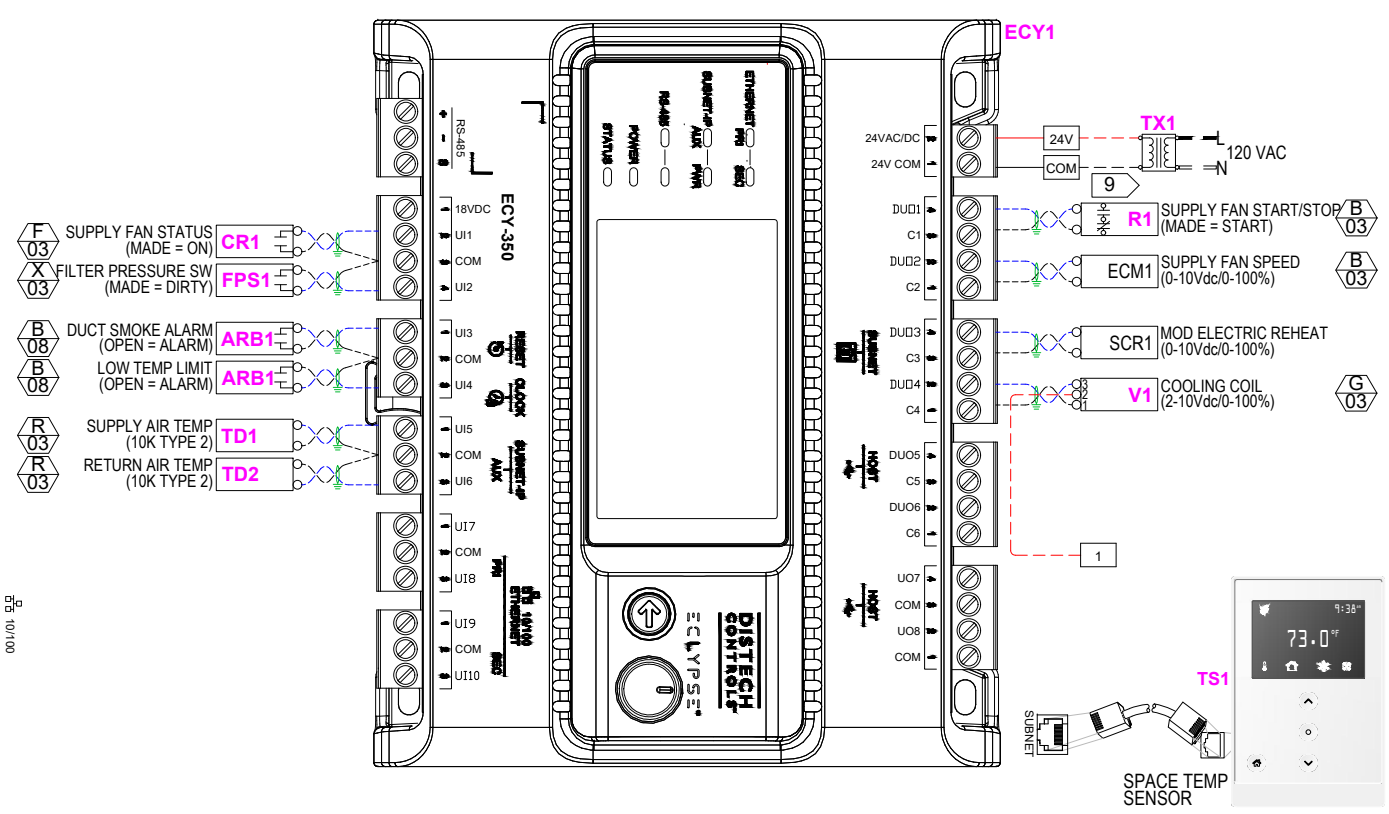
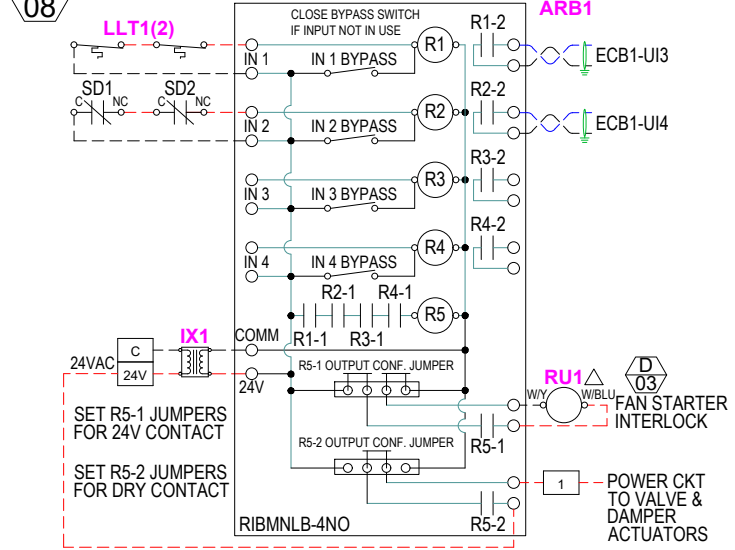
**SYMBOLS LEGEND**



**DETAIL SYMBOL**      **DEVICE LOCATION LEGEND**



**B 08 SAFETIES INTERLOCK CIRCUIT**



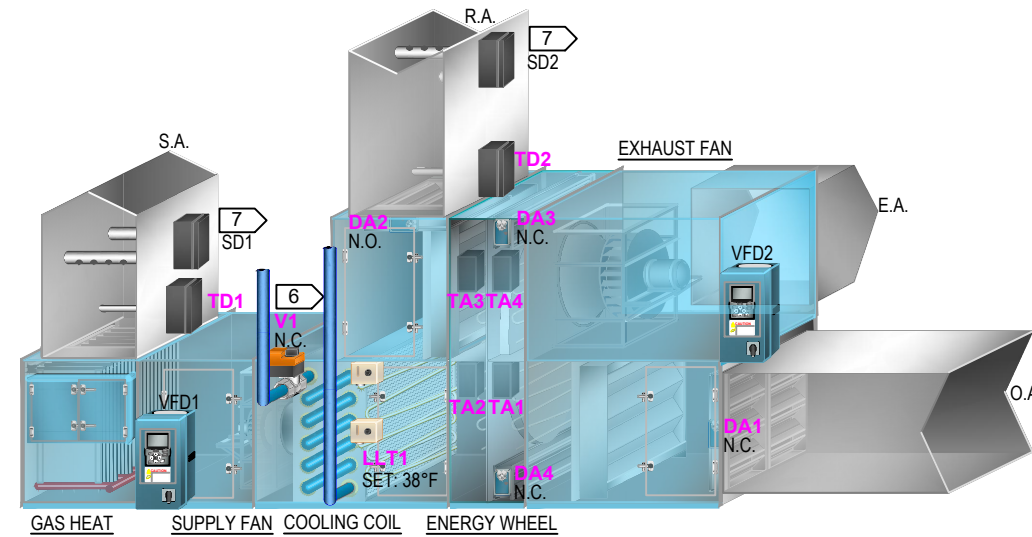
<b>JACKSON SYSTEMS</b> Controls Done Right® PROJECT: KING COLE BUILDING INDIANAPOLIS, IN		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		DRAWN BY: T BROWN	CHECKED BY: DATE 12/15/25								
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No	Description	Date	By										
PROJECT NO. 25387				FILE NAME 08KCBahu2	SHEET 08								

# A 09 DEDICATED OUTSIDE AIR UNIT DOAS-1

LOCATED ON BASEMENT FLOOR

## SEQUENCE OF OPERATION

- A. BUILDING AUTOMATION SYSTEM INTERFACE: THE BUILDING AUTOMATION SYSTEM (BAS) WILL SEND THE CONTROLLER OCCUPIED BYPASS, MORNING WARM-UP/PRE-COOL, OCCUPIED/UNOCCUPIED, AND HEAT/COOL MODES. THE BAS WILL ALSO SEND THE DISCHARGE AIR TEMPERATURE SETPOINT AND THE DUCT STATIC PRESSURE SETPOINT. IF A BAS IS NOT PRESENT, OR COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER WILL OPERATE USING DEFAULT MODES AND SETPOINTS.
- B. OCCUPIED MODE (AHU - 1, 2): DURING OCCUPIED PERIODS, THE SUPPLY FAN WILL RUN CONTINUOUSLY AND THE OUTSIDE AIR DAMPER WILL OPEN TO MAINTAIN MINIMUM VENTILATION REQUIREMENTS. THE CHILLED WATER VALVE AND SCR CONTROLLED ELECTRIC HEAT (IF APPLICABLE) WILL MODULATE TO MAINTAIN THE DISCHARGE AIR TEMPERATURE SETPOINT. IF THE DISCHARGE AIR TEMPERATURE SENSOR FAILS THE CHILLED WATER VALVE WILL CLOSE AND AN ALARM SHALL BE ANNUNCIATED AT THE BAS.
- C. UNOCCUPIED (AHU - 1, 2):
  1. WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 60°F (ADJ.) THE SUPPLY FAN WILL START AND THE ELECTRIC HEAT WILL BE ENABLED (IF APPLICABLE). WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 60°F (ADJ.) PLUS THE UNOCCUPIED DIFFERENTIAL OF 4°F (ADJ.) THE SUPPLY FAN WILL STOP AND THE ELECTRIC HEAT WILL BE DISABLED.
  2. WHEN THE SPACE TEMPERATURE IS ABOVE THE UNOCCUPIED COOLING SETPOINT OF 80°F (ADJ.) THE SUPPLY FAN WILL START AND THE CHILLED WATER VALVE WILL OPEN. WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED COOLING SETPOINT OF 80°F (ADJ.) MINUS THE UNOCCUPIED DIFFERENTIAL OF 4°F (ADJ.) THE SUPPLY FAN WILL STOP AND THE CHILLED WATER VALVE WILL CLOSE.
- D. OPTIMAL START (AHU-1, 2): THE BAS WILL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SPACE SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL START OCCURS.
- E. MORNING WARM-UP MODE (AHU-2): DURING OPTIMAL START, IF THE AVERAGE SPACE TEMPERATURE IS BELOW THE OCCUPIED HEATING SETPOINT A MORNING WARM-UP MODE WILL BE ACTIVATED. WHEN MORNING WARM-UP IS INITIATED, THE UNIT WILL ENABLE THE HEATING AND SUPPLY FAN. WHEN THE SPACE TEMPERATURE REACHES THE OCCUPIED HEATING SETPOINT (ADJ.), THE UNIT WILL TRANSITION TO THE OCCUPIED MODE.
- F. PRE-COOL MODE: DURING OPTIMAL START, IF THE AVERAGE SPACE TEMPERATURE IS ABOVE THE OCCUPIED COOLING SETPOINT, PRE-COOL MODE WILL BE ACTIVATED. WHEN PRE-COOL IS INITIATED, THE UNIT WILL ENABLE THE FAN AND COOLING. WHEN THE SPACE TEMPERATURE REACHES OCCUPIED COOLING SETPOINT (ADJ.), THE UNIT WILL TRANSITION TO THE OCCUPIED MODE.
- G. OPTIMAL STOP: THE BAS WILL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL STOP OCCURS. WHEN THE OPTIMAL STOP MODE IS ACTIVE THE UNIT CONTROLLER WILL MAINTAIN THE SPACE TEMPERATURE TO THE SPACE TEMPERATURE OFFSET SETPOINT.
- H. OCCUPIED BYPASS: THE BAS WILL MONITOR THE STATUS OF THE "ON" AND "CANCEL" BUTTONS OF THE SPACE TEMPERATURE SENSORS. WHEN AN OCCUPIED BYPASS REQUEST IS RECEIVED FROM A SPACE SENSOR, THE UNIT WILL TRANSITION FROM ITS CURRENT OCCUPANCY MODE TO OCCUPIED BYPASS MODE AND THE UNIT WILL MAINTAIN THE SPACE TEMPERATURE TO THE OCCUPIED SETPOINTS (ADJ.).
- I. SUPPLY AIR TEMPERATURE RESET CONTROL: THE SUPPLY AIR TEMPERATURE SETPOINT WILL BE RESET TO THE OPTIMAL SETPOINT COMMUNICATED BY THE BAS. THE BAS WILL RESET THE SUPPLY AIR TEMPERATURE SETPOINT BASED ON THE CURRENT OUTSIDE AIR TEMPERATURE, BUT WILL OVERRIDE THIS RESET FUNCTION AND RETURN THE SUPPLY AIR TEMPERATURE SETPOINT TO 55°F (ADJ.) IF MORE THAN TWO (ADJ.) ZONES BEGIN TO OVERHEAT. ALSO, THE BAS WILL OVERRIDE THIS RESET FUNCTION WHENEVER OUTDOOR DEW POINT IS HIGHER THAN 60°F (ADJ.) OR INDOOR HUMIDITY IS HIGHER THAN 60% RH (ADJ.). IF THE SUPPLY AIR TEMPERATURE DROPS BELOW THE MINIMUM LIMIT, A LOW TEMPERATURE ALARM WILL BE ANNUNCIATED AND THE UNIT WILL SHUT DOWN. IF THE SUPPLY AIR TEMPERATURE RISES ABOVE THE MAXIMUM LIMIT, A HIGH TEMPERATURE ALARM WILL BE ANNUNCIATED. BAS WILL OVERRIDE SUPPLY AIR TEMPERATURE RESET WHEN AN EVENT IS SCHEDULED FOR THE FEINSTEIN CLUB OR BALLROOM. PROVIDE SCHEDULING OPTION FOR BUILDING OPERATOR TO SCHEDULE EVENTS AHEAD OF TIME.
- J. FREEZE PROTECTION: A HARDWIRED, LOW LIMIT TEMPERATURE SWITCH WILL BE ELECTRICALLY INTERLOCKED WITH THE VARIABLE SPEED DRIVE. IF THE LOW LIMIT TEMPERATURE SWITCH IS TRIPPED 38°F (ADJ.), THE OUTSIDE AIR DAMPER WILL CLOSE, ALL VALVES SHALL OPEN TO 100% (ADJUST PER CLIMATE) AND AN ALARM WILL BE ANNUNCIATED AT THE BAS. A MANUAL RESET OF THE LOW LIMIT TEMPERATURE SWITCH WILL BE REQUIRED TO RESTART THE FAN.
- K. FILTER STATUS: A DIFFERENTIAL PRESSURE SWITCH SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FILTER WHEN THE FAN IS RUNNING. IF THE SWITCH CLOSURES DURING NORMAL OPERATION A DIRTY FILTER ALARM SHALL BE ANNUNCIATED AT THE BAS.



## MATERIAL LEGEND

Symbol	Part Number	Qty	Description
ECY	CDIY-650-00	1	BACnet Programmable Controller
TX	TR100VA001	1	100VA Transformer 120VAC:24VAC w/Breaker
R	RV8H-L-D12	2	12Vdc Pilot Relay SPDT
TA	A/CP-A-24'-PB	4	Duct Averaging Temp. Sensor 10K Type 2
TD	A/CP-D-8-PB	2	Duct Temp. Sensor 10K Type 2
BPT	A/MPL2-D10-W-B-A-C-0P	1	Building Differential Pressure Sensor
LLT	01DTS-505X	2	Manual Reset Low Temperature Detector 20' Cap.
ARB	RIBMNLB-4NO	1	Safety Circuit Board
RU	RIBU1C	1	12Vdc Enclosed Power Relay
CR	RIBXKTF	2	Current Sensing Relay
V	SEE VALVE SCHEDULE	1	Temp Control Valve
DA	NFB24-SR	4	Modulating Spring Ret. Damper Actuator

## NOTES:

1. DASHED LINES INDICATE NEW FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR EXISTING WIRING TO REMAIN.
2. ALL FIELD WIRING MUST MEET OR EXCEED THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), AND THE STATE AND LOCAL REQUIREMENTS.
3. FOR INPUTS & OUTPUTS, THE SHIELD WIRE IS GROUNDED AT THE CONTROLLER END ONLY.
4. WIRING FOR INPUTS & OUTPUTS IS 18 AWG, SHIELDED, TWISTED PAIR WITH STRANDED TINNED COPPER CONDUCTORS.
5. THE BACnet MS/TP NETWORK WIRE IS 24 AWG (0.65 mm) STRANDED, TWISTED SHIELDED PAIR (JACKSON SYSTEM PART # 24/2 BACnet). THE BACnet MS/TP COMMUNICATION WIRE IS POLARITY SENSITIVE AND THE ONLY ACCEPTABLE TOPOLOGY IS TO DAISY-CHAIN THE CABLE FROM ONE CONTROLLER TO THE NEXT.
6. THIS PIPING DETAIL IS A SCHEMATIC REPRESENTATION AND IS ONLY SHOWN FOR GENERAL REFERENCE. REFER TO PROJECT PLANS AND SPECIFICATIONS FOR PROPER PIPING LAYOUT AND METHODS.
7. SMOKE DETECTORS BY OTHERS.
8. LOCATE SPACE TEMPERATURE SENSOR PER PLANS AND SPECIFICATIONS. CONFIRM EXACT LOCATION WITH OWNERS REPRESENTATIVE. COORDINATE WITH OTHER TRADES.

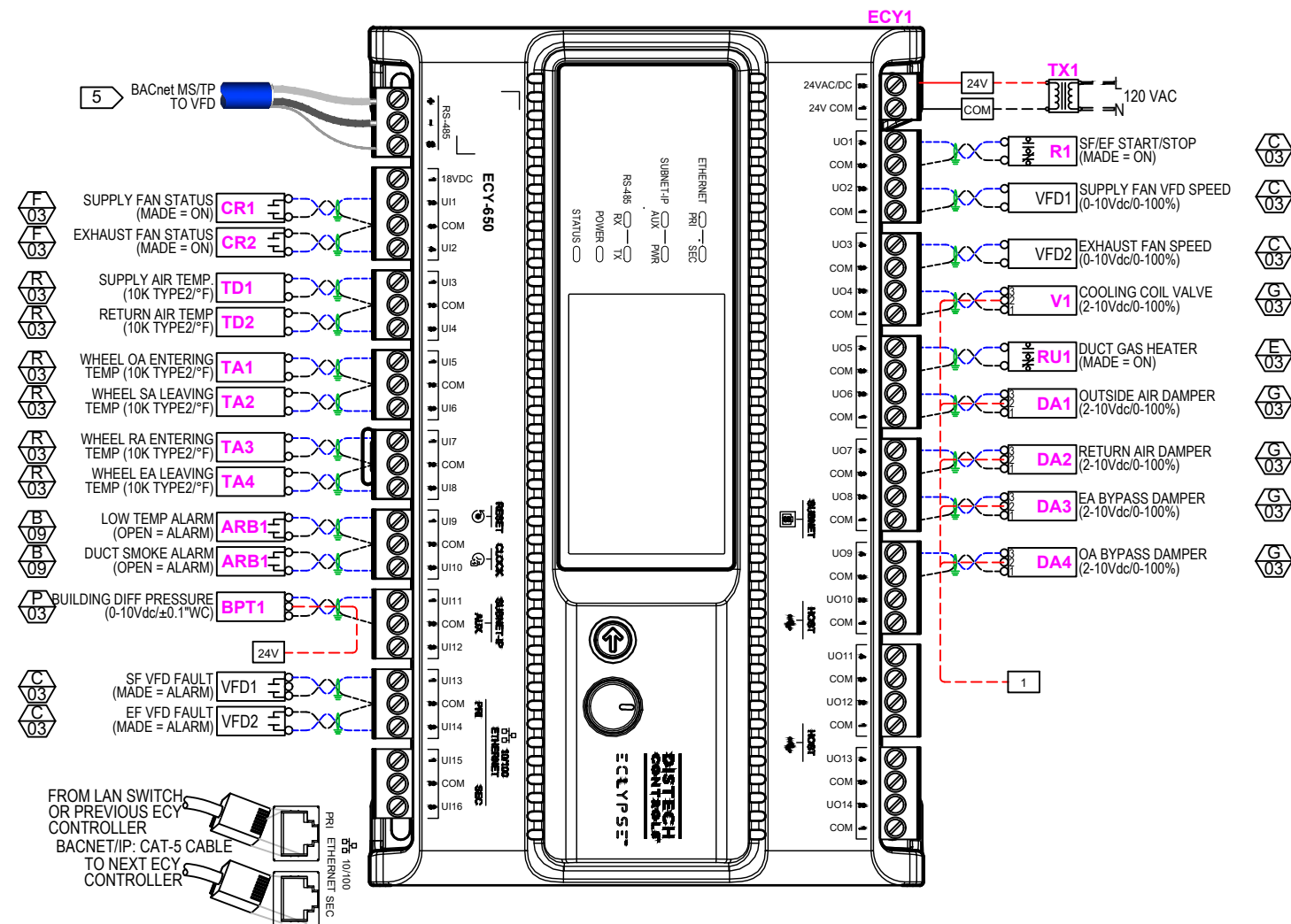
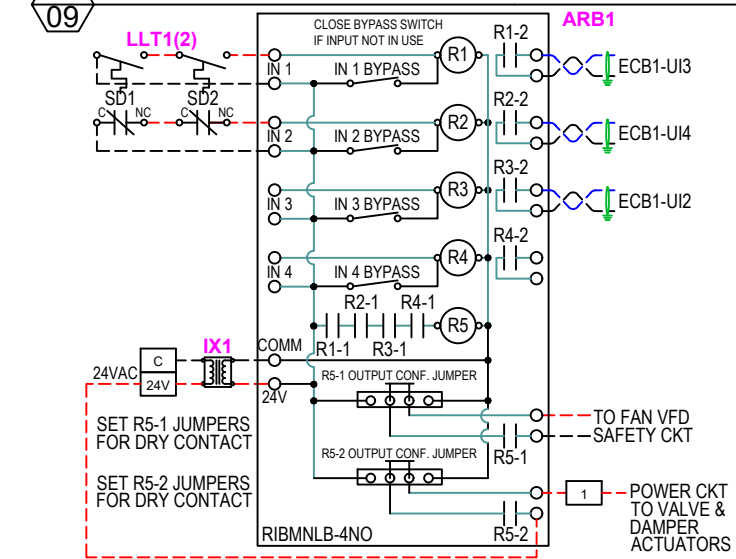
## SYMBOLS LEGEND

	FIELD DEVICE TERMINAL		AO ANALOG OUTPUT
	MECHANICAL EQUIPMENT TERMINAL		DO DIGITAL OUTPUT
	SHIELD		UI UNIVERSAL INPUT
	WIRING BY OTHERS		BACnet COMM. WIRING
	FIELD WIRING		

## DETAIL SYMBOL DEVICE LOCATION LEGEND

	WIRING DETAIL		AT DRIVEN EQUIPMENT
	SHEET NUMBER		REMOTE FROM STARTER OR DRIVE AND DRIVEN EQUIPMENT
			AT TEMPERATURE CONTROL PANEL
			AT MOTOR STARTER

## SAFETIES INTERLOCK CIRCUIT



**WARNING**  
HAZARDOUS VOLTAGE!  
DISCONNECT ALL POWER SOURCES INCLUDING  
REMOTE DISCONNECTS BEFORE SERVICING.  
FAILURE TO DISCONNECT ALL POWER SOURCES  
BEFORE SERVICING CAN CAUSE SEVERE  
PERSONAL INJURY OR DEATH.

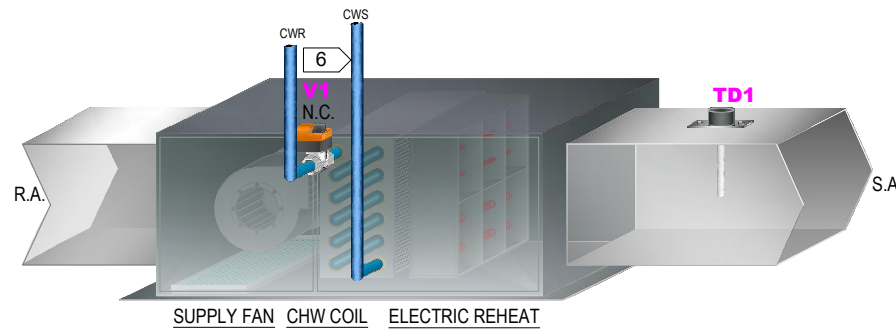
<b>JACKSON SYSTEMS</b> Controls Done Right® 5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		DRAWN BY: T BROWN	CHECKED BY: 	DATE: 12/18/25
PROJECT: KING COLE BUILDING INDIANAPOLIS, IN		DRAWING TITLE: DEDICATED OUTSIDE AIR UNIT		
REVISIONS No Description Date By		PROJECT NO. 25387		SHEET 09
FILE NAME 09KCBdoas1		SHEET 09		

# A 10 GUESTROOM FAN COIL UNITS WITH ELECTRIC HEAT

TYPICAL OF 138 LOCATED IN GUESTROOMS, COMMON SPACES, & EQUIPMENT ROOMS

## SEQUENCE OF OPERATION

- A. BUILDING AUTOMATION SYSTEM INTERFACE: THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER OCCUPIED AND UNOCCUPIED MODES. IF A BAS IS NOT PRESENT, OR COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER SHALL OPERATE USING DEFAULT MODES AND SETPOINTS. THE FRONT DESK SHALL BE ABLE TO CHANGE THE OCCUPIED/UNOCCUPIED MODE OF EACH ROOM AS TENANTS CHECK IN OR OUT. PROVIDE BAS INTERFACE AT CHECK-IN DESK THROUGH COMPUTER TERMINAL TO ADJUST ROOM FAN COIL UNIT SETPOINTS.
- B. OCCUPIED MODE:
- DURING OCCUPIED PERIODS THE SUPPLY FAN SHALL CYCLE ON DEMAND OR SHALL RUN CONTINUOUSLY IF THE SPACE SENSOR CALLS FOR IT. THE CHILLED WATER VALVE AND ELECTRIC REHEAT SHALL BE ENABLED TO MAINTAIN THE ACTIVE SPACE TEMPERATURE SETPOINT.
  - THE HALLWAY UNITS SHALL USE THE RETURN AIR TEMPERATURE SETPOINT INSTEAD OF THE SPACE TEMPERATURE SETPOINT.
- C. UNOCCUPIED MODE:
- WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 65°F (ADJ.), THE SUPPLY FAN SHALL START AND THE ELECTRIC HEATING COIL SHALL BE ENABLED AND MAINTAIN SPACE TEMPERATURE SETPOINT. WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 65°F (ADJ.) PLUS THE UNOCCUPIED DIFFERENTIAL OF 2°F (ADJ.) THE SUPPLY FAN SHALL STOP AND THE ELECTRIC HEATING COIL SHALL BE DISABLED.
  - WHEN THE SPACE TEMPERATURE IS ABOVE THE UNOCCUPIED COOLING SETPOINT OF 76°F (ADJ.), THE SUPPLY FAN SHALL START AND THE CHILLED WATER VALVE SHALL OPEN. WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED COOLING SETPOINT OF 76°F (ADJ.) MINUS THE UNOCCUPIED DIFFERENTIAL OF 2°F (ADJ.) THE SUPPLY FAN SHALL STOP, THE CHILLED WATER VALVE SHALL CLOSE.
  - THE HALLWAYS UNITS SHALL USE THE RETURN AIR TEMPERATURE SETPOINT INSTEAD OF THE SPACE TEMPERATURE SETPOINT.
- D. INSTEAD OF THE SPACE TEMPERATURE SETPOINT, SPACE TEMPERATURE CONTROL:
- THE SPACE TEMPERATURE SHALL BE MAINTAINED BETWEEN THE OCCUPIED COOLING SETPOINT OF 72°F (ADJ.) AND THE OCCUPIED HEATING SETPOINT OF 68°F (ADJ.). THE UNIT SHALL TRANSITION TO THE COOLING MODE WHEN THE SPACE TEMPERATURE RISES ONE DEGREE ABOVE THE OCCUPIED COOLING SETPOINT OF 72°F (ADJ.). THE UNIT SHALL TRANSITION TO THE HEATING MODE WHEN THE SPACE TEMPERATURE DROPS ONE DEGREE BELOW THE OCCUPIED HEATING SETPOINT OF 68°F (ADJ.). GUESTS SHALL HAVE THE ABILITY TO ADJUST ROOM SETPOINT BUT NO MORE THAN A 4°F DIFFERENTIAL FROM THE HEATING AND COOLING SETPOINTS LISTED ABOVE.
  - THE HALLWAYS UNITS SHALL USE THE RETURN AIR TEMPERATURE SETPOINT INSTEAD OF THE SPACE TEMPERATURE SETPOINT.
- E. SUPPLY FAN OPERATION: THE SUPPLY FAN SHALL CYCLE ON DEMAND DURING THE OCCUPIED OR UNOCCUPIED MODE. IF THE SPACE SENSOR HAS THE FAN ENABLED IN OCCUPIED MODE, THEN IT SHALL RUN CONTINUOUSLY.
- F. CONDENSATE OVERFLOW MONITORING: IF THE CONDENSATE LEVEL REACHES THE TRIP POINT, A CONDENSATE OVERFLOW DIAGNOSTIC SHALL BE ANNUNCIATED AT THE BAS. TO PREVENT THE CONDENSATE DRAIN PAN FROM OVERFLOWING AND CAUSING WATER DAMAGE TO THE BUILDING THE FAN SHALL BE DISABLED AND THE CHILLED WATER VALVE SHALL CLOSE.
- G. UNITS WITH TWO STAGE ELECTRIC REHEAT OVER 3kW WILL BE UPSTAGED AUTOMATICALLY BY THE FAN COIL UNIT.



## MATERIAL LEGEND (TYPICAL OF 138)

Symbol	Part Number	Qty	Description
ECY	CDIY-PTU203IMP-20	1	BACnet/IP Programmable Controller
TD	A/CP-D-8-PB	1	Discharge Air Temperature Sensor
TS	PDIDI-RDISW-00	1	Space Temp. Sensor Communicating w/Display
V	SEE VALVE SCHEDULE	1	CHW Control Valve
CR	RIBXGTA-ECM	1	Current Sensing Relay
CC	CC-1	1	Condensate Overflow Switch

## NOTES:

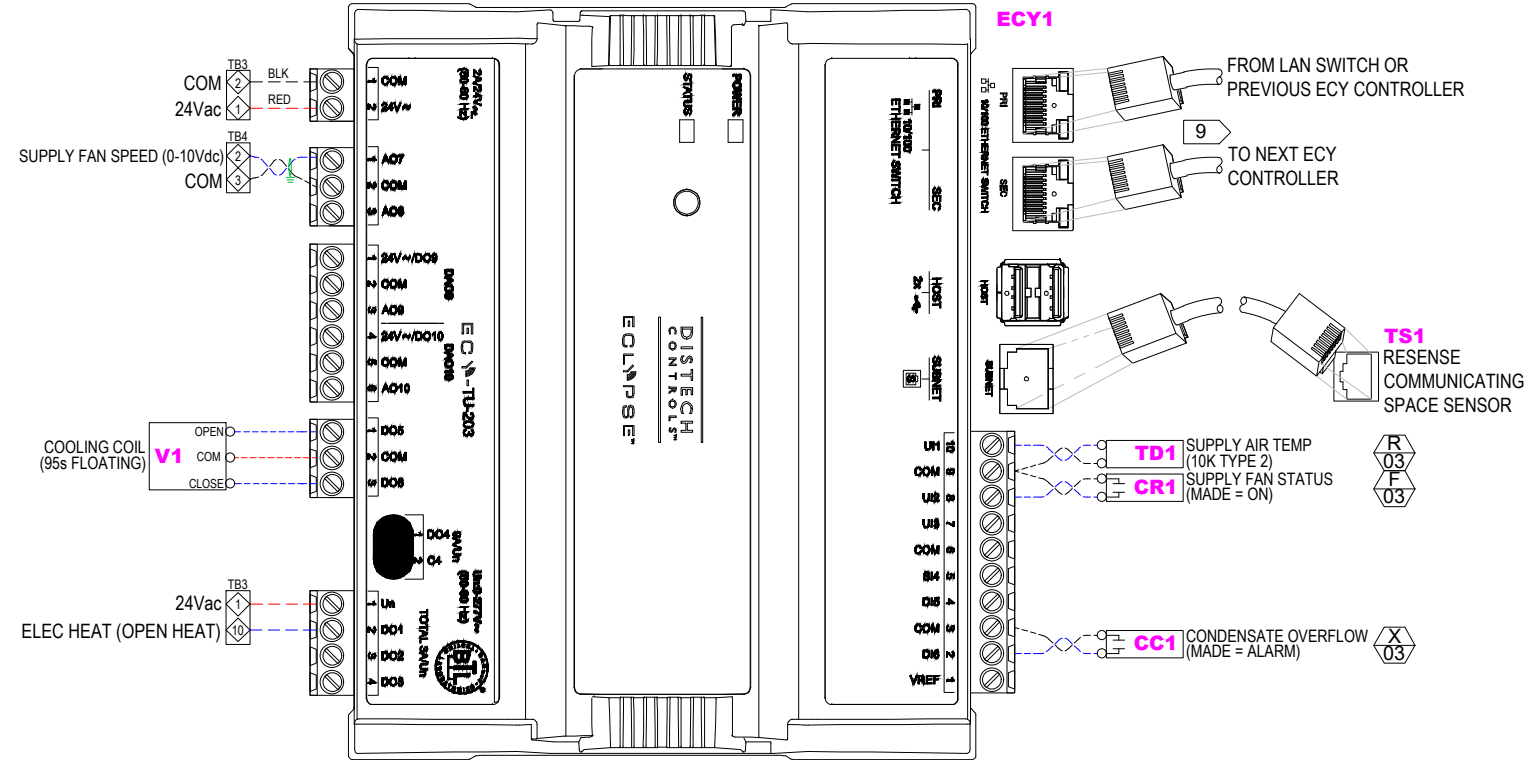
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- ALL FIELD WIRING MUST MEET OR EXCEED THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), AND THE STATE AND LOCAL REQUIREMENTS.
- FOR INPUTS & OUTPUTS, THE SHIELD WIRE IS GROUNDED AT THE CONTROLLER END ONLY.
- WIRING FOR INPUTS & OUTPUTS IS 18 AWG, SHIELDED, TWISTED PAIR WITH STRANDED TINNED COPPER CONDUCTORS.
- THE BACnet MS/TP NETWORK WIRE IS 24 AWG (0.65 mm) STRANDED, TWISTED SHIELDED PAIR (JACKSON SYSTEM PART #: 24/2 BACnet). THE BACnet MS/TP COMMUNICATION WIRE IS POLARITY SENSITIVE AND THE ONLY ACCEPTABLE TOPOLOGY IS TO DAISY-CHAIN THE CABLE FROM ONE CONTROLLER TO THE NEXT.
- SMOKE DETECTORS ARE PROVIDED AND INSTALLED BY OTHERS. JACKSON SYSTEMS TO WIRE AHU CUT-OUT. ALL OTHER SMOKE DETECTOR WIRING IS BY OTHERS.
- FIELD VERIFY LOCATION AND MOUNTING HEIGHT OF SPACE TEMPERATURE SENSOR WITH OWNERS REPRESENTATIVE. COORDINATE WITH OTHER TRADES.
- FIELD VERIFY CONTROL WIRING AND TERMINATIONS.
- THIS PIPING DETAIL IS A SCHEMATIC REPRESENTATION AND IS ONLY SHOWN FOR GENERAL REFERENCE. REFER TO PROJECT PLANS AND SPECIFICATIONS FOR PROPER PIPING LAYOUT AND METHODS.

## SYMBOLS LEGEND

	FIELD DEVICE TERMINAL	AO	ANALOG OUTPUT
	MECHANICAL EQUIPMENT TERMINAL	DO	DIGITAL OUTPUT
	SHIELD	UI	UNIVERSAL INPUT
	WIRING BY OTHERS		BACnet COMM. FIELD WIRING
	FIELD WIRING		

## DETAIL SYMBOL DEVICE LOCATION LEGEND

	WIRING DETAIL		AT DRIVEN EQUIPMENT
	SHEET NUMBER		REMOTE FROM STARTER OR DRIVE AND DRIVEN EQUIPMENT
			AT ROOF TOP UNIT
			AT TEMPERATURE CONTROL PANEL
			AT MOTOR STARTER



**WARNING**

HAZARDOUS VOLTAGE!

DISCONNECT ALL POWER SOURCES INCLUDING REMOTE DISCONNECTS BEFORE SERVICING. FAILURE TO DISCONNECT ALL POWER SOURCES BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.

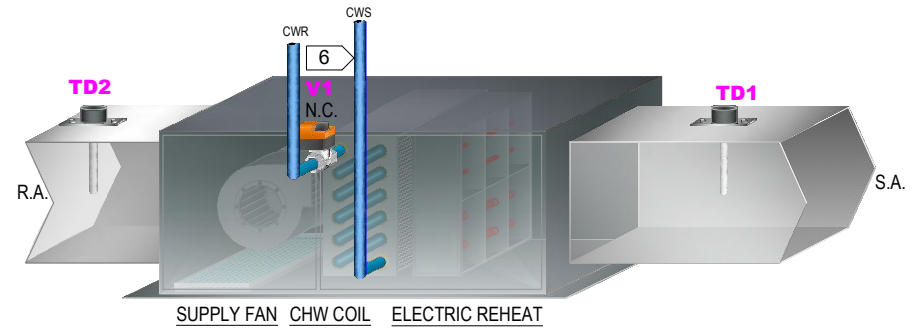
<b>JACKSON SYSTEMS</b> Controls Done Right™		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800	
<b>DRAWN BY:</b> T BROWN	<b>CHECKED BY:</b>	<b>DATE</b> 12/16/25	
<b>DRAWING TITLE:</b> ROOM FAN COIL UNITS WITH ELECTRIC REHEAT			
<b>PROJECT:</b> KING COLE BUILDING INDIANAPOLIS, IN			
<b>REVISIONS</b>		<b>PROJECT NO.</b>	
<b>No</b>	<b>Description</b>	<b>Date</b>	<b>By</b>
1	CORRECTED CHW VALVE WIRING	1/8/26	TKB
<b>FILE NAME</b> 10KCBfcu1		<b>SHEET</b> 10	

# A HALLWAY FAN COIL UNITS WITH ELECTRIC REHEAT

11 TYPICAL OF 12 LOCATED IN HALLWAYS TAGGED: FCU-2-15, 3-14, 4-15, 5-15, 6-15, 7-15, 8-15, 9-15, 10-15, 11-06, 12-01, & 13-01

## SEQUENCE OF OPERATION

- A. BUILDING AUTOMATION SYSTEM INTERFACE: THE BUILDING AUTOMATION SYSTEM(BAS) SHALL SEND THE CONTROLLER OCCUPIED AND UNOCCUPIED MODES. IF A BAS IS NOT PRESENT, OR COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER SHALL OPERATE USING DEFAULT MODES AND SETPOINTS. THE FRONT DESK SHALL BE ABLE TO CHANGE THE OCCUPIED/UNOCCUPIED MODE OF EACH ROOM AS TENANTS CHECK IN OR OUT. PROVIDE BAS INTERFACE AT CHECK-IN DESK THROUGH COMPUTER TERMINAL TO ADJUST ROOM FAN COIL UNIT SETPOINTS.
- B. OCCUPIED MODE:
1. DURING OCCUPIED PERIODS THE SUPPLY FAN SHALL CYCLE ON DEMAND OR SHALL RUN CONTINUOUSLY IF THE SPACE SENSOR CALLS FOR IT. THE CHILLED WATER VALVE AND ELECTRIC REHEAT SHALL BE ENABLED TO MAINTAIN THE ACTIVE SPACE TEMPERATURE SETPOINT.
  2. THE HALLWAY UNITS SHALL USE THE RETURN AIR TEMPERATURE SETPOINT INSTEAD OF THE SPACE TEMPERATURE SETPOINT.
- C. UNOCCUPIED MODE:
1. WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 65°F (ADJ.), THE SUPPLY FAN SHALL START AND THE ELECTRIC HEATING COIL SHALL BE ENABLED AND MAINTAIN SPACE TEMPERATURE SETPOINT. WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 65°F (ADJ.) PLUS THE UNOCCUPIED DIFFERENTIAL OF 2°F (ADJ.) THE SUPPLY FAN SHALL STOP AND THE ELECTRIC HEATING COIL SHALL BE DISABLED.
  2. WHEN THE SPACE TEMPERATURE IS ABOVE THE UNOCCUPIED COOLING SETPOINT OF 76°F (ADJ.), THE SUPPLY FAN SHALL START AND THE CHILLED WATER VALVE SHALL OPEN. WHEN THE SPACE TEMPERATURE FALLS BELOW THE UNOCCUPIED COOLING SETPOINT OF 76°F (ADJ.) MINUS THE UNOCCUPIED DIFFERENTIAL OF 2°F (ADJ.) THE SUPPLY FAN SHALL STOP, THE CHILLED WATER VALVE SHALL CLOSE.
  3. THE HALLWAYS UNITS SHALL USE THE RETURN AIR TEMPERATURE SETPOINT INSTEAD OF THE SPACE TEMPERATURE SETPOINT.
- D. INSTEAD OF THE SPACE TEMPERATURE SETPOINT, SPACE TEMPERATURE CONTROL:
1. THE SPACE TEMPERATURE SHALL BE MAINTAINED BETWEEN THE OCCUPIED COOLING SETPOINT OF 72°F (ADJ.) AND THE OCCUPIED HEATING SETPOINT OF 68°F (ADJ.). THE UNIT SHALL TRANSITION TO THE COOLING MODE WHEN THE SPACE TEMPERATURE RISES ONE DEGREE ABOVE THE OCCUPIED COOLING SETPOINT OF 72°F (ADJ.). THE UNIT SHALL TRANSITION TO THE HEATING MODE WHEN THE SPACE TEMPERATURE DROPS ONE DEGREE BELOW THE OCCUPIED HEATING SETPOINT OF 68°F (ADJ.). GUESTS SHALL HAVE THE ABILITY TO ADJUST ROOM SETPOINT BUT NO MORE THAN A 4°F DIFFERENTIAL FROM THE HEATING AND COOLING SETPOINTS LISTED ABOVE.
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- E. SUPPLY FAN OPERATION: THE SUPPLY FAN SHALL CYCLE ON DEMAND DURING THE OCCUPIED OR UNOCCUPIED MODE. IF THE SPACE SENSOR HAS THE FAN ENABLED IN OCCUPIED MODE, THEN IT SHALL RUN CONTINUOUSLY.
- F. CONDENSATE OVERFLOW MONITORING: IF THE CONDENSATE LEVEL REACHES THE TRIP POINT, A CONDENSATE OVERFLOW DIAGNOSTIC SHALL BE ANNUNCIATED AT THE BAS. TO PREVENT THE CONDENSATE DRAIN PAN FROM OVERFLOWING AND CAUSING WATER DAMAGE TO THE BUILDING THE FAN SHALL BE DISABLED AND THE CHILLED WATER VALVE SHALL CLOSE.



## MATERIAL LEGEND (TYPICAL OF 12)

Symbol	Part Number	Qty	Description
ECY	CDIY-PTU203IMP-20	1	BACnet/IP Programmable Controller
TD	A/CP-D-8-PB	2	Duct Air Temperature Sensor
V	SEE VALVE SCHEDULE	1	CHW Control Valve
CR	RIBXGTA-ECM	1	Current Sensing Relay
CC	CC-1	1	Condensate Overflow Switch

## NOTES:

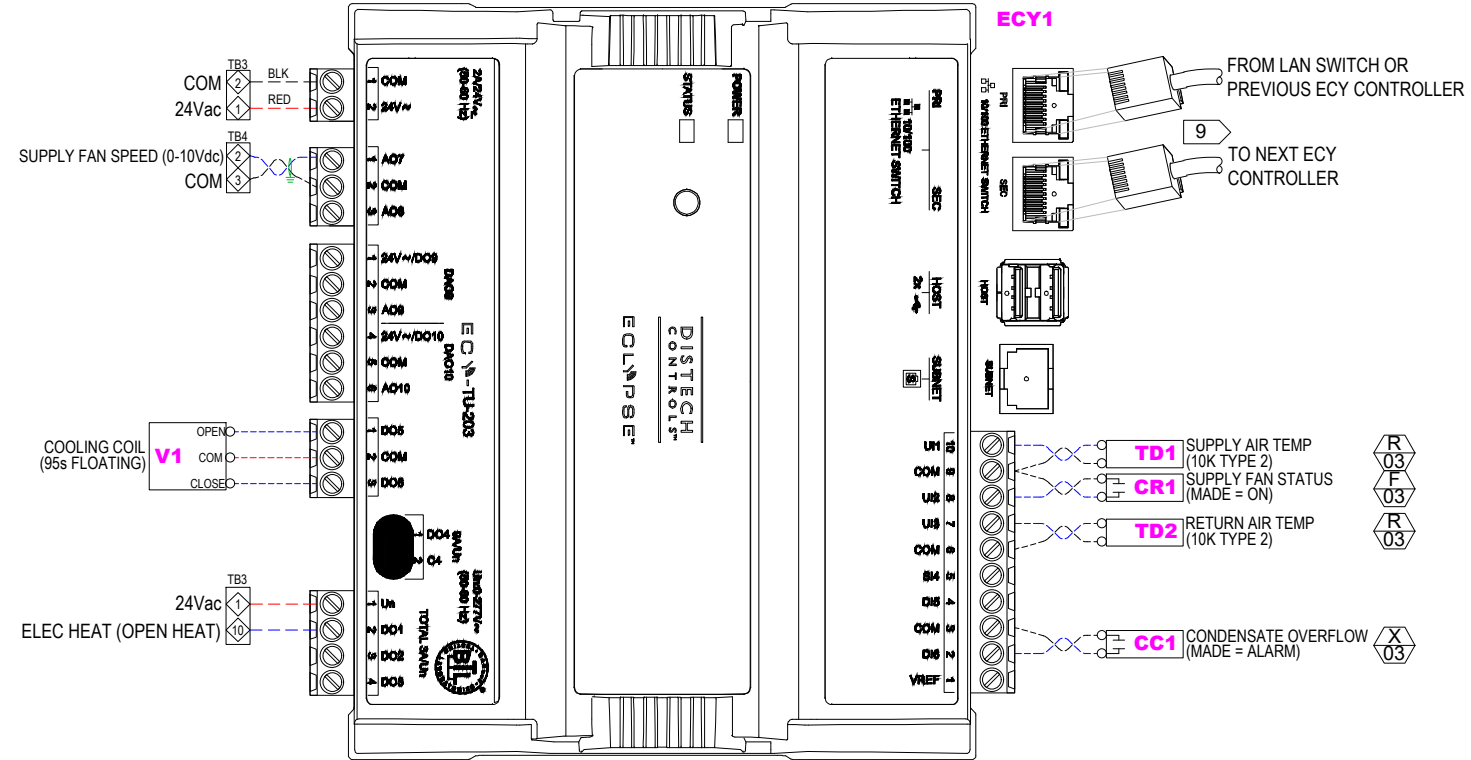
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2. ALL FIELD WIRING MUST MEET OR EXCEED THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), AND THE STATE AND LOCAL REQUIREMENTS.
3. FOR INPUTS & OUTPUTS, THE SHIELD WIRE IS GROUNDED AT THE CONTROLLER END ONLY.
4. WIRING FOR INPUTS & OUTPUTS IS 18 AWG, SHIELDED, TWISTED PAIR WITH STRANDED TINNED COPPER CONDUCTORS.
5. THE BACnet MS/TP NETWORK WIRE IS 24 AWG (0.65 mm) STRANDED, TWISTED SHIELDED PAIR (JACKSON SYSTEM PART #: 24/2 BACnet). THE BACnet MS/TP COMMUNICATION WIRE IS POLARITY SENSITIVE AND THE ONLY ACCEPTABLE TOPOLOGY IS TO DAISY-CHAIN THE CABLE FROM ONE CONTROLLER TO THE NEXT.
6. SMOKE DETECTORS ARE PROVIDED AND INSTALLED BY OTHERS. JACKSON SYSTEMS TO WIRE AHU CUT-OUT. ALL OTHER SMOKE DETECTOR WIRING IS BY OTHERS.
7. FIELD VERIFY LOCATION AND MOUNTING HEIGHT OF SPACE TEMPERATURE SENSOR WITH OWNERS REPRESENTATIVE. COORDINATE WITH OTHER TRADES.
8. FIELD VERIFY CONTROL WIRING AND TERMINATIONS.
9. THIS PIPING DETAIL IS A SCHEMATIC REPRESENTATION AND IS ONLY SHOWN FOR GENERAL REFERENCE. REFER TO PROJECT PLANS AND SPECIFICATIONS FOR PROPER PIPING LAYOUT AND METHODS.

## SYMBOLS LEGEND

	FIELD DEVICE TERMINAL	AO	ANALOG OUTPUT
	MECHANICAL EQUIPMENT TERMINAL	DO	DIGITAL OUTPUT
	SHIELD	UI	UNIVERSAL INPUT
	WIRING BY OTHERS		BACnet COMM. FIELD WIRING
	FIELD WIRING		

## DETAIL SYMBOL DEVICE LOCATION LEGEND

	WIRING DETAIL		AT DRIVEN EQUIPMENT
	SHEET NUMBER		REMOTE FROM STARTER OR DRIVE AND DRIVEN EQUIPMENT
			AT ROOF TOP UNIT
			AT TEMPERATURE CONTROL PANEL
			AT MOTOR STARTER



**WARNING**

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<b>JACKSON SYSTEMS</b> Controls Done Right® 5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		DRAWN BY: T BROWN	CHECKED BY:	DATE 12/17/25
		DRAWING TITLE: HALLWAY FAN COIL UNITS WITH SINGLE STAGE REHEAT & RETURN AIR TEMP CONTROL		
PROJECT: KING COLE BUILDING INDIANAPOLIS, IN		PROJECT NO. 25387		
REVISIONS No Description 1 CORRECTED CHW VALVE WIRING		Date 1/8/26	By TKB	FILE NAME 11KCBfcu2
				SHEET 11

# A 12 SHUT-OFF VAV TERMINAL UNIT WITH ELECTRIC REHEAT

TYPICAL FOR 18 TAGGED: VAV-1-1, VAV-1-3 thru VAV-1-7 & VAV-B-1 thru VAV-B-12

## SEQUENCE OF OPERATION

### GENERAL

THE VAV TERMINAL UNITS ARE CONTROLLED BY A DEDICATED VAV CONTROLLER. THE VAV CONTROLLER WITH DIFFERENTIAL PRESSURE SENSOR AND DAMPER MOTOR IS FURNISHED TO THE TERMINAL UNIT MANUFACTURER FOR FACTORY MOUNTING.

INDIVIDUAL ZONE SET POINT AND CONTROL LOGIC IS AT THE ZONE LEVEL, AND NOT DEPENDENT UPON THE BAS FOR CONTROL. ZONE TEMPERATURE SENSOR INCLUDES SETPOINT, AND TIMED OVERRIDE BUTTON. WHEN THE OVERRIDE BUTTON IS PRESSED THE TERMINAL UNIT AND ASSOCIATED AIR HANDLING UNIT INDEXES TO OCCUPIED MODE FOR AN ADJUSTABLE TIME PERIOD. ROOM SETPOINT RANGE IS LIMITED IN SOFTWARE.

THE DISTECH DDC VAV CONTROLLER AUTOMATICALLY RE-CALIBRATES ITS AIR FLOW SENSING AND AIR VALVE POSITION FEEDBACK SYSTEMS.

THE BAS PLACES THE VAV CONTROLLER IN EITHER THE OCCUPIED OR UNOCCUPIED MODE BASED ON OPTIMUM START-STOP PROGRAM ON TIME-SCHEDULING PROGRAM. SEPARATE HEATING & COOLING SETPOINTS EXIST FOR EACH MODE.

### OCCUPIED CYCLE

IN THE OCCUPIED MODE, AS THE SPACE TEMPERATURE RISES ABOVE THE COOLING SETPOINT, THE TERMINAL UNIT DAMPER MODULATES TO ITS MAXIMUM CFM. AS THE SPACE TEMPERATURE FALLS BELOW THE COOLING SETPOINT, THE TERMINAL UNIT DAMPER MODULATES TO ITS MINIMUM COOLING CFM. BEFORE HEATING IS INITIATED, THE VAV CONTROLLER ENTERS AN ADJUSTABLE NO-LOAD DEAD-BAND. AS THE SPACE TEMPERATURE CONTINUES TO FALL, THE TERMINAL UNIT'S ELECTRIC REHEAT COIL ENERGIZES TO MAINTAIN SPACE TEMPERATURE AT SETPOINT AND THE TERMINAL UNIT DAMPER MODULATES TO ITS MINIMUM HEATING CFM. THE HEATING IS STAGED ON AS FOLLOWS (DEPENDING ON TERMINAL UNIT):

FOR TERMINALS WITH MULTIPLE STAGES OF ELECTRIC REHEAT SCHEDULED:  
SLOW PULSE WIDTH MODULATED (SPWM) - AT HEATING SET POINT THE FIRST STAGE OF HEAT ENERGIZES. THE SECOND AND THIRD STAGES OF HEATING ENERGIZE BASED ON TIME AND TEMPERATURE DEVIATION FROM SETPOINT. THE STAGES ARE DUTY CYCLED ON A THREE-MINUTE WINDOW. STAGE 2 MODULATES FROM 0-50 PERCENT DEVIATION AND IS ON CONTINUOUSLY ABOVE 50 PERCENT. STAGE 3 MODULATES FROM 50-100 PERCENT DEVIATION.

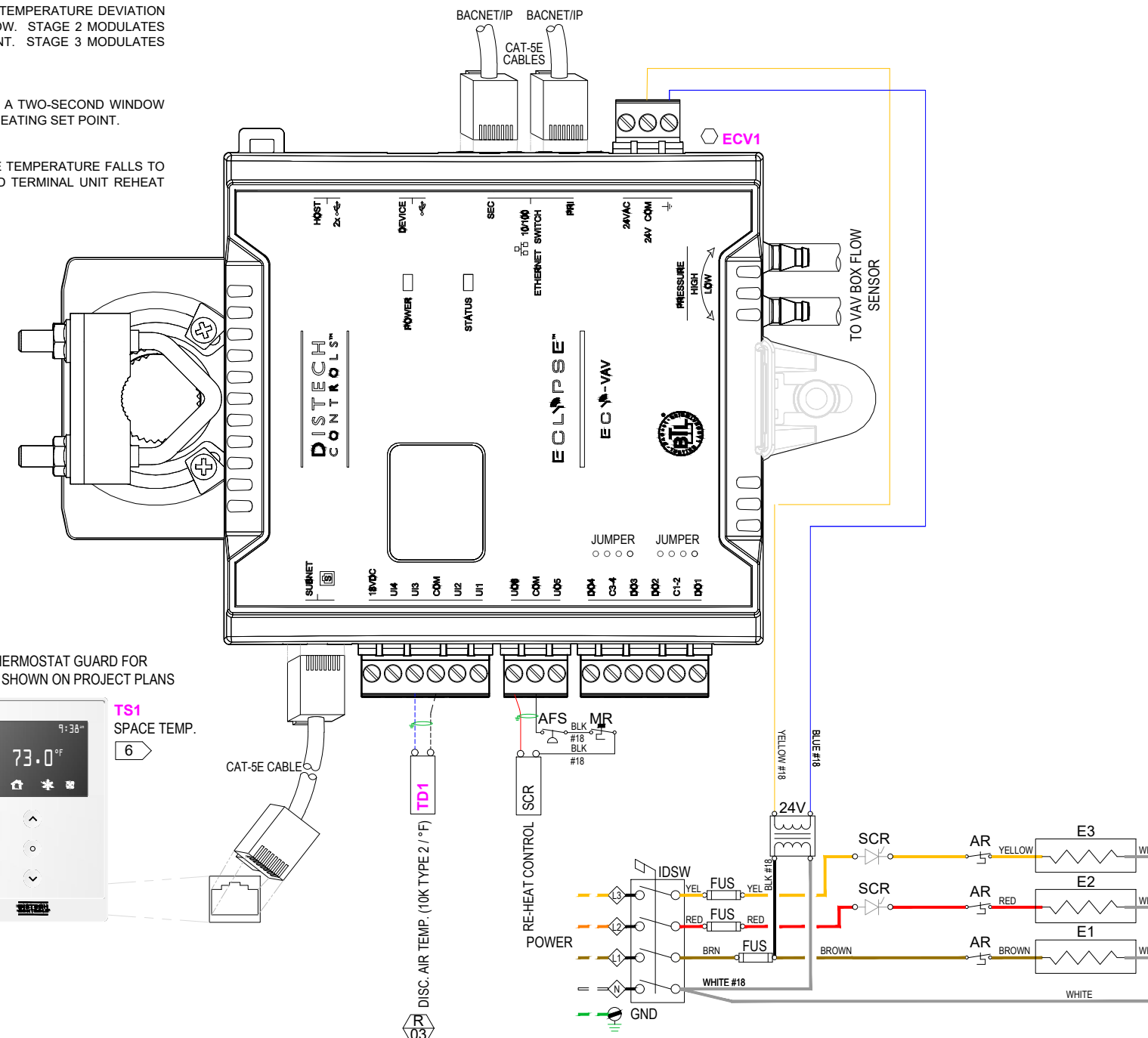
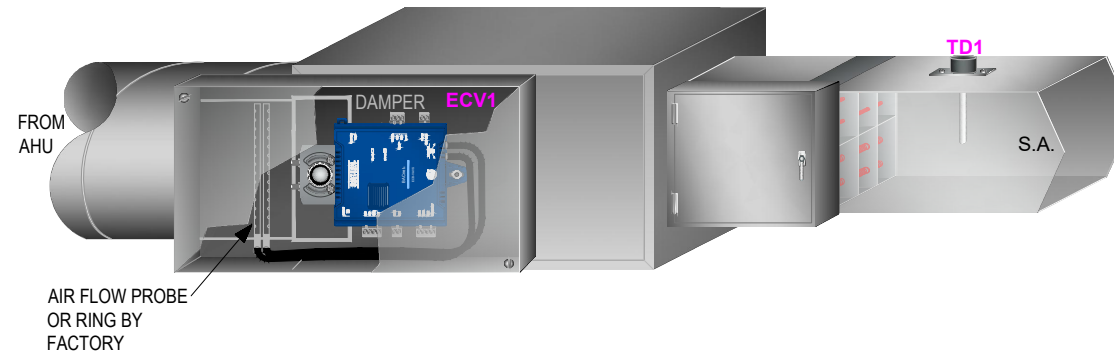
FOR TERMINALS WITH A SINGLE STAGE OF ELECTRIC REHEAT SCHEDULED:  
FAST PULSE WIDTH MODULATION - THE SINGLE STAGE OF HEAT CYCLES OVER A TWO-SECOND WINDOW WITH THE DUTY CYCLE BASED ON A TIME AND TEMPERATURE DEVIATION FROM HEATING SET POINT.

### UNOCCUPIED CYCLE

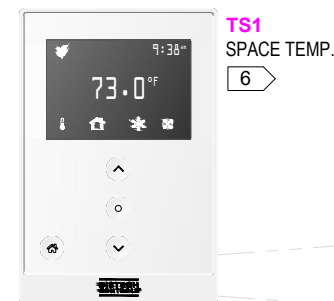
IN THE UNOCCUPIED MODE, THE PRIMARY AIR DAMPER FULLY CLOSES. AS THE SPACE TEMPERATURE FALLS TO THE UNOCCUPIED HEATING SETPOINT, THE ASSOCIATED AIR HANDLING UNIT FAN AND TERMINAL UNIT REHEAT CONTROL VALVE CYCLE TO MAINTAIN A REDUCED SPACE TEMPERATURE.

### THE FOLLOWING POINTS ARE PROVIDED FOR CONTROL AND MONITORING:

- PRIMARY AIR DAMPER
- ELECTRIC RE-HEAT
- DISCHARGE AIR TEMPERATURE
- SPACE TEMPERATURE
- SPACE TEMPERATURE SET POINT



PROVIDE THERMOSTAT GUARD FOR LOCATIONS SHOWN ON PROJECT PLANS



TS1 SPACE TEMP. 6

CAT-5E CABLE

DISC. AIR TEMP. (10K TYPE 2 / °F) TD1

## MATERIAL LEGEND (TYPICAL OF 18)

Symbol	Part Number	Qty	Description
ECV	ECY-VAV (IMP)	1	BACnet/IP Programmable VAV Controller
TD	TS-DXX004	1	Duct Temp. Sensor 10K Type 2
TS	PDIDI-RDISW-00	1	Communicating Space Temp. Sensor w/LCD

### NOTES:

- DASHED LINES INDICATE NEW FIELD WIRING. SOLID LINES INDICATE EXISTING WIRING TO REMAIN OR NEW FIELD WIRING BY OTHERS.
- ALL FIELD WIRING MUST MEET OR EXCEED THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), AND THE STATE AND LOCAL REQUIREMENTS.
- FOR INPUTS & OUTPUTS, THE SHIELD WIRE IS GROUNDED AT THE CONTROLLER END ONLY.
- WIRING FOR INPUTS & OUTPUTS IS 18 AWG, SHIELDED, TWISTED PAIR WITH STRANDED TINNED COPPER CONDUCTORS.
- THE BACnet IP NETWORK CABLE IS CAT 5e, 8 CONDUCTOR TWISTED PAIR.
- MOUNT SPACE TEMPERATURE SENSOR PER PROJECT PLANS AND SPECIFICATIONS. CONFIRM FINAL LOCATION WITH OWNER'S REPRESENTATIVE AND COORDINATE WITH OTHER TRADES.

## SYMBOLS LEGEND

⊖	FIELD DEVICE TERMINAL	AO	ANALOG OUTPUT
◇	MECHANICAL EQUIPMENT TERMINAL	DO	DIGITAL OUTPUT
— —	SHIELD	UI	UNIVERSAL INPUT
—	FACTORY WIRING < 24V	AFS	AIR FLOW SWITCH
---	FIELD WIRING < 24V	AR	AUTOMATIC RESET SWITCH
---	FIELD WIRING > 24V	C1,C2	24V CONTACTORS
—	FACTORY WIRING > 24V	CCF	CONTROL CKT. FUSE
— —	TWISTED PAIR CABLE	IDSW	DISCONNECT SWITCH
— —	BACNET MS/TP CABLE	E1-E3	ELECT. HTG. ELEM.
⊖	RELAY/CONTACTOR COIL	FAN	FAN MOTOR
⊖	NORMALLY OPEN CONTACT	FSC	FAN SPEED CONTROL
⊖	NORMALLY CLOSED CONTACT	FUS	MAIN LINE FUSE
⊖	PRESSURE SWITCH	L1-L3	LINE CONNECTIONS
⊖	TEMPERATURE SWITCH	MFUS	FAN MOTOR FUSE
⊖	MANUAL RESET SWITCH	MR	MANUAL RESET SWITCH
		R1	24 V RELAY

### DETAIL SYMBOL

W	WIRING DETAIL
00	SHEET NUMBER

### DEVICE LOCATION LEGEND

⊖	AT DRIVEN EQUIPMENT
●	REMOTE FROM STARTER OR DRIVE AND DRIVEN EQUIPMENT
●	AT HVAC CONTROL PANEL
△	AT MOTOR STARTER

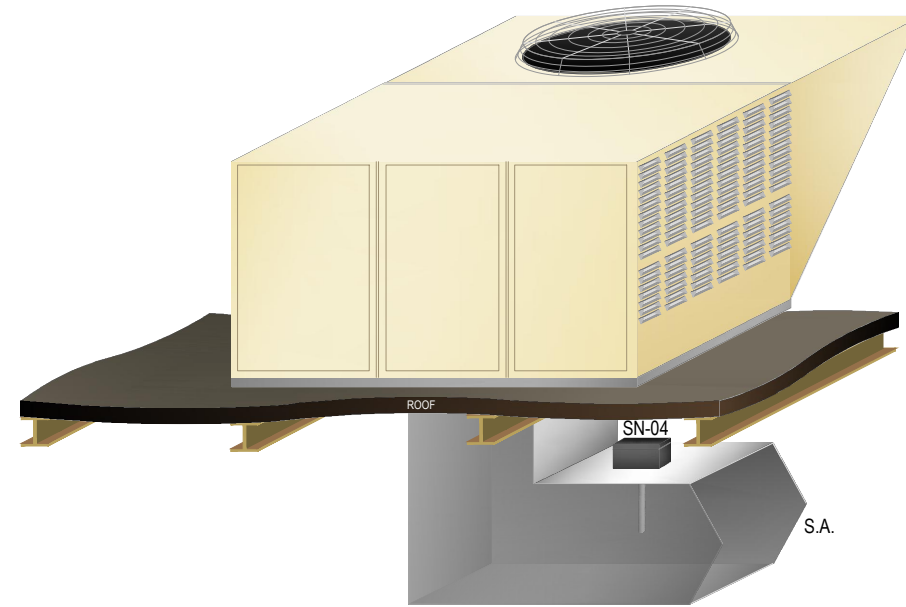
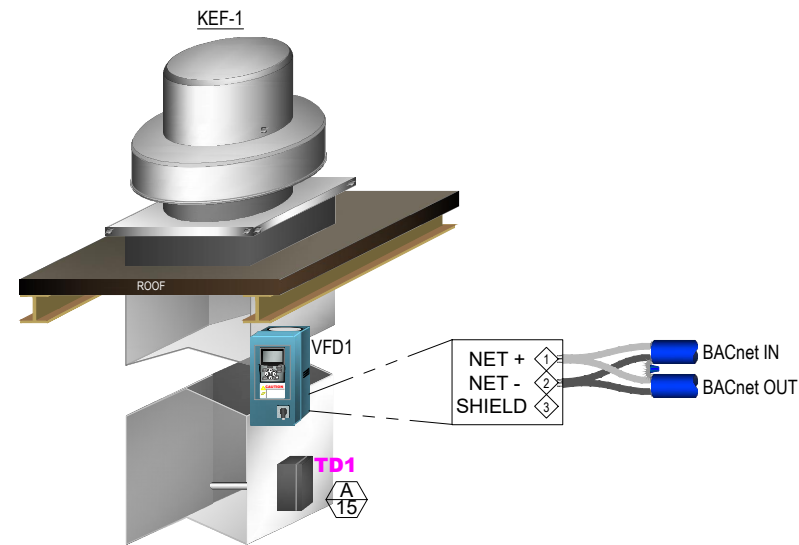
### ECY-VAV DO JUMPER LEGEND

⊖	Internal Power Supply
⊖	External Power Supply

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PROJECT: KING COLE BUILDING INDIANAPOLIS, IN		DRAWING TITLE: VAV TERMINAL UNITS	
REVISIONS No Description Date By		PROJECT NO. 25387	
FILE NAME 12KCBvav		SHEET 12	

### SEQUENCE OF OPERATION

KITCHEN HOOD EXHAUST FAN WILL START AND RUN FROM AN ON/OFF SWITCH NEAR THE HOOD AND INTERLOCKED WITH START AND RUN OF THE KITCHEN MAKEUP AIR UNIT MAU-1. MAU-1 WILL OPERATE ON A CALL FOR EXHAUST FAN TO START. MAU-1 WILL BE PROVIDED WITH FACTORY CONTROL PANEL TO CONTROL THE DISCHARGE AIR TEMPERATURE FOR HEAT. PROVIDE A DISCHARGE AIR TEMPERATURE SENSOR TO THE BMS FOR MONITOR. PROVIDE FAN START/STOP AND STATUS ON BMS.



- NOTES:**
- DASHED LINES INDICATE NEW FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR EXISTING WIRING TO REMAIN.
  - ALL FIELD WIRING MUST MEET OR EXCEED THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), AND THE STATE AND LOCAL REQUIREMENTS.
  - FOR INPUTS & OUTPUTS, THE SHIELD WIRE IS GROUNDED AT THE CONTROLLER END ONLY.
  - WIRING FOR INPUTS & OUTPUTS IS 18 AWG, SHIELDED, TWISTED PAIR WITH STRANDED TINNED COPPER CONDUCTORS.
  - THE BACnet MS/TP NETWORK WIRE IS 24 AWG (0.65 mm) STRANDED, TWISTED SHIELDED PAIR (JACKSON SYSTEM PART #: 24/2 BACnet). THE BACnet MS/TP COMMUNICATION WIRE IS POLARITY SENSITIVE AND THE ONLY ACCEPTABLE TOPOLOGY IS TO DAISY-CHAIN THE CABLE FROM ONE CONTROLLER TO THE NEXT.
  - SMOKE DETECTORS ARE PROVIDED AND INSTALLED BY OTHERS. JACKSON SYSTEMS TO WIRE AHU CUT-OUT. ALL OTHER SMOKE DETECTOR WIRING IS BY OTHERS.
  - MOUNT SPACE STATIC PRESSURE TRANSDUCER PER ROOFTOP UNIT MANUFACTURER'S RECOMMENDATIONS AND COORDINATE WITH OTHER TRADES.
  - MOUTH SUPPLY AIR STATIC PRESSURE PROBE PER ROOFTOP UNIT MANUFACTURER'S RECOMMENDATIONS AND COORDINATE WITH OTHER TRADES.
  - MOUNT SPACE STATIC PRESSURE SENSING PORT PER PROJECT PLANS AND SPECIFICATIONS. CONFIRM FINAL LOCATION WITH OWNER'S REPRESENTATIVE AND COORDINATE WITH OTHER TRADES.

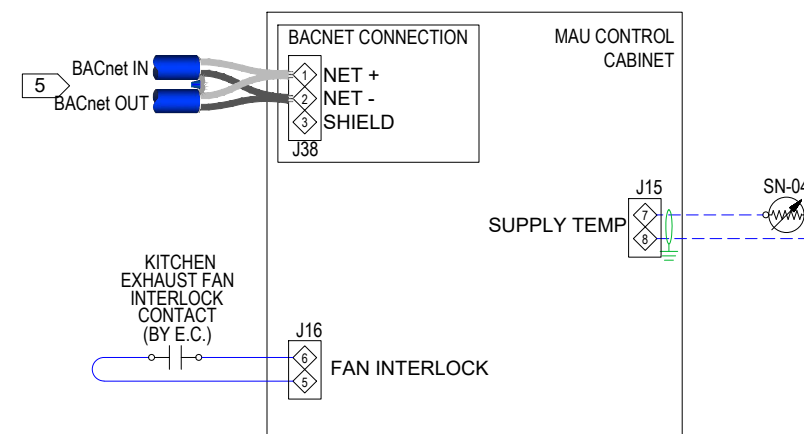
### SYMBOLS LEGEND

	FIELD DEVICE TERMINAL	AO	ANALOG OUTPUT
	MECHANICAL EQUIPMENT TERMINAL	DO	DIGITAL OUTPUT
	SHIELD	UI	UNIVERSAL INPUT
	WIRING BY OTHERS		BACnet COMM. WIRING
	SIGNAL OR CONTROLLER I/O WIRING		
	POWER WIRING OR WIRING >30 V		

### DETAIL SYMBOL DEVICE LOCATION LEGEND

	WIRING DETAIL		AT DRIVEN EQUIPMENT
	SHEET NUMBER		REMOTE FROM STARTER OR DRIVE AND DRIVEN EQUIPMENT
			AT ROOF TOP UNIT
			AT TEMPERATURE CONTROL PANEL
			AT MOTOR STARTER

### B 06 ROOF TOP UNIT CONTROLS FIELD WIRING



**WARNING**  
HAZARDOUS VOLTAGE!  
DISCONNECT ALL POWER SOURCES INCLUDING REMOTE DISCONNECTS BEFORE SERVICING. FAILURE TO DISCONNECT ALL POWER SOURCES BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.

<b>JACKSON SYSTEMS</b> Controls Done Right™		5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		<b>DRAWN BY:</b> T BROWN	<b>CHECKED BY:</b>	<b>DATE</b> 12/29/25
<b>PROJECT:</b> KING COLE BUILDING INDIANAPOLIS, IN				<b>DRAWING TITLE:</b> MAKE UP AIR UNIT MAU-1		
<b>REVISIONS</b>		<b>PROJECT NO.</b>		<b>FILE NAME</b>		
No	Description	Date	By	25387	13KCBmua1	SHEET 13

**DRYER FAN(S) SEQUENCE:**

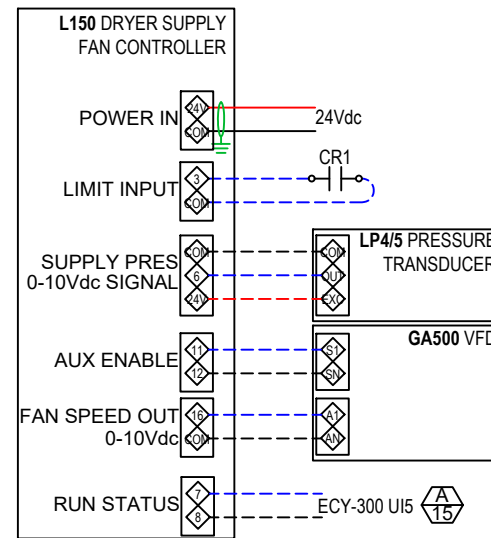
1. THE DRYER EXHAUST FANS WILL BE INTERLOCKED DIRECTLY INTO THE DRYER(S).
2. UPON AN ENABLE COMMAND, THE CONTROL UNIT WILL ACTIVATE THE SUPPLY FAN TO ESTABLISH REQUIRED PRESSURE. THE EXTERNAL MECHANICAL LIMIT IS MONITORED FOR SUPPLY FAN STATUS. ONCE ALL THESE CONDITIONS ARE MET THE CONTROL SYSTEM WILL ENTER RUN MODE.
3. AS THE SYSTEM LOAD INCREASES OR DECREASES THE CONTROL UNIT WILL ADJUST THE SUPPLY FAN OUTPUT TO MAINTAIN SET SYSTEM PRESSURE.
4. IF THE EXTERNAL MECHANICAL LIMIT OPENS BECAUSE OF MECHANICAL OR ELECTRICAL FAILURE, THE CONTROL UNIT WILL GO IN ALARM MODE AND ANNUNCIATE THE CONDITION. WHILE IN ALARM MODE, THE CONTROL CONSTANTLY MONITORS THE PRESSURE AND LIMIT INPUTS. IF THE FAILURE CORRECTS ITSELF OR IS CORRECTED VIA INTERVENTION, THE SYSTEM WILL RETURN TO NORMAL OPERATION AUTOMATICALLY.

**FLY FAN SEQUENCE:**

1. EACH HEATING APPLIANCE WILL BE INTERLOCKED WITH THE CONTROL PANEL. UPON A CALL FOR HEAT, THE CONTROL PANEL WILL ACTIVATE THE DRAFT INDUCER FAN TO ESTABLISH DRAFT IN THE CHIMNEY SYSTEM. ALL EXTERNAL MECHANICAL LIMITS ARE MONITORED FOR STATUS. ONCE ALL THESE CONDITIONS ARE MET THE CONTROL SYSTEM WILL RELEASE THE FLAME PROGRAMMER OR GAS VALVE OF THE APPLIANCE CALLING FOR HEAT. THE SEQUENCE IS REPEATED EVERY TIME AN INITIAL APPLIANCE CALLS FOR HEAT. EACH ADDITIONAL CALL FOR HEAT THE CONTROL WILL NOT DELAY THE SEQUENCING OF THE ADDITIONAL HEATING APPLIANCES.
2. WHEN APPLIANCES SHUT DOWN THE DRAFT INDUCER FAN WILL CONTINUE TO RUN IN POST-PURGE MODE FOR A SET PERIOD OF TIME TO REMOVE RESIDUAL FLUE GASES.
3. ONCE THE POST-PURGE CYCLE IS COMPLETED THE SYSTEM SECURES AND THE CONTROL PANEL ENTERS STAND-BY MODE.
4. IF PROPER DRAFT CANNOT BE MAINTAINED OR AN EXTERNAL MECHANICAL LIMIT OPENS BECAUSE OF MECHANICAL OR ELECTRICAL FAILURE, THE CONTROL WILL GO IN ALARM MODE AND THE INTEGRATED PROVEN DRAFT FUNCTION WILL SHUT DOWN ALL THE APPLIANCES WITHIN 15 SECONDS. WHILE IN ALARM MODE, THE CONTROL CONSTANTLY MONITORS THE DRAFT AND LIMIT INPUTS. IF THE FAILURE CORRECTS ITSELF OR IS CORRECTED VIA INTERVENTION, THE SYSTEM WILL RESTART AUTOMATICALLY. IF THE FAILURE IS NOT CORRECTED BEFORE THE ADJUSTABLE SYSTEM RELEASE FAULT TIMER EXPIRES, THE CONTROL WILL DISABLE AND LOCKOUT THE SYSTEM FOR FREEZE PROTECTION.
5. WHEN THE FAN TEST IS ENABLED, THE CONTROL PANEL WILL RUN A SELF DIAGNOSTIC ON THE STATUS OF THE VENT SYSTEM EACH HEATING CYCLE TO VERIFY THAT THE SYSTEM IS FUNCTIONING PROPERLY. IF THE FAN TEST FAILS, THE CONTROL PANEL WILL ALARM, LOCKOUT SYSTEM AND ANNUNCIATE THE TEST FAILURE.

**B**  
14 **DRYER FAN WIRING DETAIL**

ALL CONTROLS PROVIDED BY FAN MANUFACTURER



**NOTES:**

1. DASHED LINES INDICATE NEW FIELD WIRING. SOLID LINES INDICATE FACTORY WIRING OR EXISTING WIRING TO REMAIN.
2. ALL FIELD WIRING MUST MEET OR EXCEED THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC), AND THE STATE AND LOCAL REQUIREMENTS.
3. FOR INPUTS & OUTPUTS, THE SHIELD WIRE IS GROUNDED AT THE CONTROLLER END ONLY.
4. WIRING FOR INPUTS & OUTPUTS IS 18 AWG, SHIELDED, TWISTED PAIR WITH STRANDED TINNED COPPER CONDUCTORS.
5. THE BACnet IP NETWORK CABLE IS CAT 5e, 8 CONDUCTOR TWISTED PAIR.
6. MOUNT SPACE TEMPERATURE SENSOR PER PROJECT PLANS AND SPECIFICATIONS. FIELD VERIFY FINAL LOCATION OF WALL MOUNTED SENSING DEVICES WITH OWNER'S REPRESENTATIVE AND COORDINATE WITH OTHER TRADES.

**SYMBOLS LEGEND**

- FIELD DEVICE TERMINAL
- ◇ MECHANICAL EQUIPMENT TERMINAL
- ↓ SHIELD
- WIRING BY OTHERS
- - - FIELD WIRING
- UO UNIVERSAL OUTPUT
- UI UNIVERSAL INPUT
- SHIELD BACnet MS/TP COMM. WIRING

**DETAIL SYMBOL**

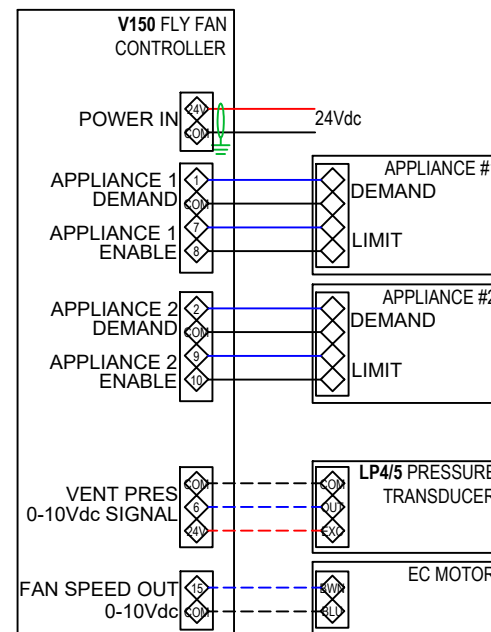
- W/WIRING DETAIL
- 00/SHEET NUMBER

**DEVICE LOCATION LEGEND**

- AT DRIVEN EQUIPMENT
- REMOTE FROM STARTER OR DRIVE AND DRIVEN EQUIPMENT
- ▲ AT EQUIPMENT CONTROL PANEL
- AT TEMPERATURE CONTROL PANEL
- △ AT MOTOR STARTER

**C**  
14 **FLY FAN WIRING DETAIL**

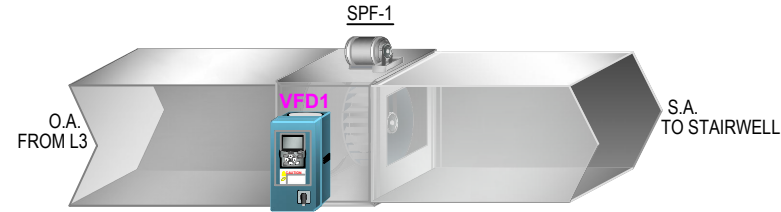
ALL CONTROLS PROVIDED BY FAN MANUFACTURER



<b>JACKSON SYSTEMS</b> <small>Controls Done Right™</small> 5418 ELMWOOD AVE. INDIANAPOLIS, IN 46203 (317) 788-6800		DRAWN BY: T BROWN	CHECKED BY:	DATE 1/5/26								
PROJECT: KING COLE BUILDING INDIANAPOLIS, IN		DRAWING TITLE: DRYER FANS AND FLY FAN CONTROL										
<b>REVISIONS</b> <table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Date</th> <th>By</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		No	Description	Date	By					PROJECT NO. 25387		SHEET 14
No	Description	Date	By									
FILE NAME 14KCBdf		PROJECT NO. 25387										

### SEQUENCE OF OPERATION

- KITCHEN EXHAUST FAN IS CONTROLLED BY A SWITCH AT THE KITCHEN HOODS. IT IS INTERLOCKED TO ENGAGE MUA-1 WHEN INDEXED 'ON'. THE BAS WILL MONITOR THE KEF-1 STATUS AND THE KITCHEN HOOD DUCT TEMPERATURE.
- THE DRYER FANS ARE INTERLOCKED TO RUN WITH THE DRYERS VIA MANUFACTURER SUPPLIED CONTROLS. THE BAS WILL MONITOR DSF-1 STATUS.
- THE STAIRWELL PRESSURIZATION FAN (SPF-1) WILL BE CONTROLLED VIA THE BAS. THE BAS WILL MODULATE SPF-1 TO MAINTAIN A POSITIVE PRESSURE SETPOINT (ADJ). THE STATUS OF SPF-1 WILL BE MONITORED.



### MATERIAL LEGEND

Symbol	Part Number	Qty	Description
ECY	CDIY-300-00	1	BACnet/IP Programmable Controller
TX	TR100VA001	1	100VA Class 2 Transformer 120:24Vac
R	RV8H-L-D12	1	12Vdc Track Mount Control Relay
CR	RIBXKTF	1	Current Sensing Relay
VFD	SEE VFD SCHEDULE	1	Variable Frequency Drive
BPT	A/MLP2-D10-W-B-A-C-0P	1	Building Pressure Transducer
TD	A/CP-D-8-PB	1	Duct Temp Sensor

### NOTES:

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- WIRING FOR INPUTS & OUTPUTS IS 18 AWG, SHIELDED, TWISTED PAIR WITH STRANDED TINNED COPPER CONDUCTORS.
- THE BACnet IP NETWORK CABLE IS CAT 5e, 8 CONDUCTOR TWISTED PAIR.
- MOUNT SPACE TEMPERATURE SENSOR PER PROJECT PLANS AND SPECIFICATIONS. FIELD VERIFY FINAL LOCATION OF WALL MOUNTED SENSING DEVICES WITH OWNER'S REPRESENTATIVE AND COORDINATE WITH OTHER TRADES.

### SYMBOLS LEGEND

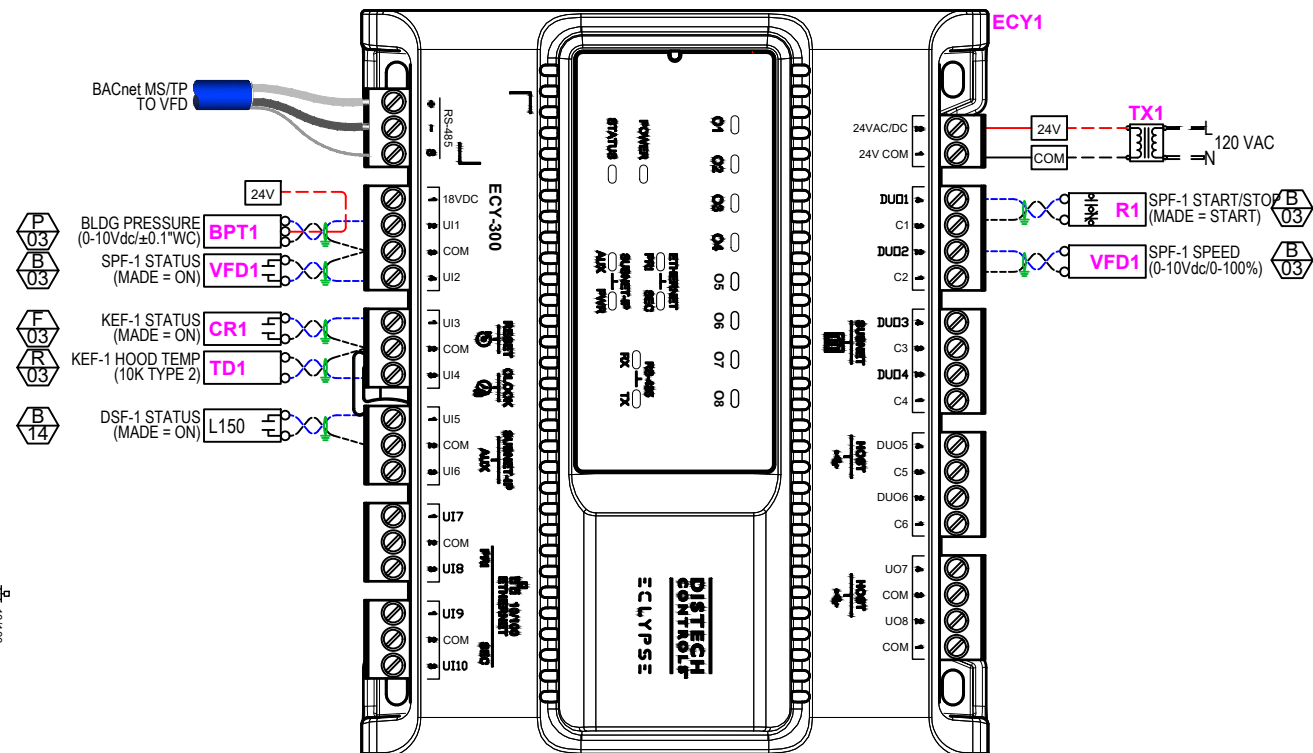
	FIELD DEVICE TERMINAL		UO UNIVERSAL OUTPUT
	MECHANICAL EQUIPMENT TERMINAL		UI UNIVERSAL INPUT
	SHIELD		BACnet MS/TP COMM. WIRING
	WIRING BY OTHERS		
	FIELD WIRING		

### DETAIL SYMBOL

	WIRING DETAIL
	SHEET NUMBER

### DEVICE LOCATION LEGEND

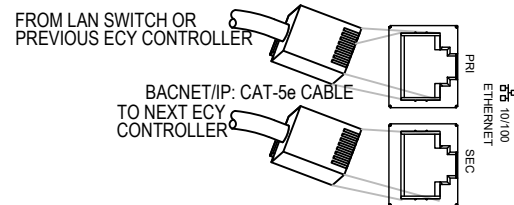
	AT DRIVEN EQUIPMENT
	REMOTE FROM STARTER OR DRIVE AND DRIVEN EQUIPMENT
	AT EQUIPMENT CONTROL PANEL
	AT TEMPERATURE CONTROL PANEL
	AT MOTOR STARTER



**WARNING**

HAZARDOUS VOLTAGE!

DISCONNECT ALL POWER SOURCES INCLUDING REMOTE DISCONNECTS BEFORE SERVICING. FAILURE TO DISCONNECT ALL POWER SOURCES BEFORE SERVICING CAN CAUSE SEVERE PERSONAL INJURY OR DEATH.



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PROJECT: KING COLE BUILDING INDIANAPOLIS, IN		DRAWING TITLE: STAIRWELL PRESSURIZATION FAN CONTROL AND EXHAUST FAN MONITORING										
REVISIONS <table border="1"> <thead> <tr> <th>No</th> <th>Description</th> <th>Date</th> <th>By</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>		No	Description	Date	By					PROJECT NO. 25387		SHEET 15
No	Description	Date	By									
FILE NAME 15KCBspf		DATE 1/5/26										