

November 26, 2025

ADDENDUM NO. 3

Modifications described herein shall be incorporated into the Project Manual and the Drawings. All other Work described in the Project Manual and Drawings shall remain unchanged. Acknowledge receipt of this Addendum by inserting its number on the Bid Form. This Addendum is a part of the Contract Documents.

ATTACHMENTS

1. This Addendum Includes the following attached Documents:
 - a. Siemens Drawings
2. This Addendum includes the attached changes to the Specifications:
 - a. None
3. This Addendum includes the attached changes to the Drawings:
 - a. E 600 – ELECTRICAL SCHEDULES

REVISIONS TO PREVIOUS ADDENDA

1. None.

REVISIONS TO THE PROJECT MANUAL TABLE OF CONTENTS

1. DIVISION 00 – BIDDING AND CONTRACT REQUIREMENTS
 - a. Add "SECTION 00 91 13.03 ADDENDUM NO. 3"

CHANGES TO SPECIFICATIONS

1. SECTION 00 91 13.03 ADDENDUM NO.3
 - a. Add "SECTION 00 91 13.03 ADDENDUM NO. 3" (this document) in its entirety.
2. SECTION 01 11 00 – SUMMARY OF WORK
 - a. Revise paragraph 1.1.D. to read "Project scope: Includes architectural, mechanical, electrical, plumbing remodeling and new fire protection, and access control."
3. SECTION 23 34 23 – FANS AND VENTILATORS
 - a. Add as 2.1 A 5.:
"Loren Cook Company"
4. SECTION 23 82 39 – IN-ROOM TERMINAL EQUIPMENT
 - a. Add as 2.1 A 1 f.:
"Titus"

CHANGES TO DRAWINGS

- A. M001 – MECHANICAL SYMBOLS & ABBREVIATIONS
 - 1. MECHANICAL PROJECT GENERAL NOTES
 - a. Add as No. 28:
“REFER TO SIEMENS CONTROLS DRAWINGS FOR ALL CONTROLS RELATED SCOPE OF WORK.”
- B. M401 – MECHANICAL SCHEDULES
 - 1. MECHANICAL – AIR TERMINAL SCHEDULE
 - a. Modify G-1 model to:
“RECG”
- C. M801 – MECHANICAL CONTROLS
 - 1. Remove in its entirety.
- D. E600 – ELECTRICAL SCHEDULES
 - 1. Add alternate approved lighting fixture manufacturers.

QUESTIONS AND ANSWERS

- 1. Please confirm that the intent of the documents are that the Contractor is to have NO asbestos remediation, only a duty to notify the Owner of any potential Asbestos containing materials.
 - a. Contractor to assume that Asbestos removal will be the responsibility of the Owner—Contractor will have duty to report any suspicious materials.
- 2. Based on item 15 of the Supplementary Project Site Requirements, it is our understanding that any air monitoring or surface sampling will be performed by the Owner at their discretion. Please confirm.
 - a. Yes, the Owner will provide testing at their discretion.
- 3. Please clarify if the Contractor is required to maintain negative pressure in the construction area during construction. If so, please clarify what requirements the Window replacement contractor will have regarding keeping the envelope sealed during their work.
 - a. Window contractor to coordinate with First Floor Renovation Contractor on need for negative pressure in the renovation project limits.
- 4. The pebble linoleum in Room 129 was noted in the asbestos report as ACM. The linoleum is still in place. Please verify that this will be removed prior to construction start.
 - a. Removal by Owner will need to be coordinated with the Contractor’s schedule, and may or may not be removed prior to the start of construction.
- 5. The asbestos report mentions several locations of black mastic as being an ACM. Please clarify how these areas are to be treated (removed by owner, encapsulated, etc). Removal will be handled by the Owner.
 - a. As noted, the Contractor’s duty is to notify the Owner of any suspicious materials.

6. Sheet A401 – Please provide additional information regarding the concrete mix design required for the restroom area as well as the cement-based flowable patching compound.
 - a. All concrete shall conform to the latest issue of “Building Core Requirements for Reinforced Concrete,” ACI 318 and “Specifications for Structural Concrete for Buildings” ACI 301. Design 28-Day concrete shall be minimum 4000 psi regular weight.
 - b. The flowable patching compound shall be a self-leveling hydraulic cement that can be feathered at edges to match adjacent floor elevations: Basis of Design is ARDEX SD-T Self-Drying or comparable by one of the following: BASF Corp, Bonsal American, Dayton Superior, Laticrete Supercap. Cement shall meet ASTM C150M or a blended hydraulic cement as defined by ASTM C219. The compressive strength shall not be less than 6,000 psi. Include Primer (product of underlayment manufacturer recommended in writing for substrate, conditions, and application indicated) and Surface Sealer (Designed to reduce porosity as recommended by manufacturer for type of floor covering to be applied to underlayment).
7. Sheet A401 – Slab Plan Note #2 refers to the S-Series drawings for additional information regarding the new concrete structural slab. No S-Series drawings have been issued. Please clarify.
 - a. There are no structural drawings on this project.
8. Sheet A101, Note 10 states that existing 8x8 ceiling tile adhered to bottom of plaster ceiling are to remain. Note 10 appears in the corridors. Addendum #1, question #1 refers to 1’ x 1’ tile glued directly to the concrete deck. We only observed one size of existing tile on site. Please clarify the intent.
 - a. All 1x1 and 8x8 tiles are to be treated as follows: tiles in the corridors indicated to remain may remain in place. All tiles in rooms other than the corridor shall be removed.
9. I have an RFI regarding the IU Indy Ball Hall First Floor renovation project. The summary of work spec section calls out for elevator work, but I do not see anything calling out what elevator work there is in the drawings. Could you please confirm if there is elevator work and where to find it?
 - a. There is no elevator as part of this scope.
10. In the div 28 spec, it calls for us to use the existing FA manufacturer. However, it doesn’t specify the exact name of this manufacturer. Would you happen to know what is the existing FA system for this residence hall?
 - a. It is assumed that Siemens Industries, Inc. did the last project. To verify with them, the last project being referenced is IU #20180441 IN028 Ball Residence Interior Renovation and Exterior Repairs, arcDESIGN project #18130.
11. With the bid date being extended, what is the new updated start and finish date?
 - a. There are no changes to the completion date, it is anticipated for the contractor to start as soon as reasonably possible to maintain the completion date.

END OF SECTION 00 91 13.03

ADDENDUM No. 3

SIEMENS

SIEMENS INDUSTRY INC.
SMART INFRASTRUCTURE DIVISION

3502 WOODVIEW TRACE
SUITE 240
INDIANAPOLIS, IN 46268
UNITED STATES

PHONE: 317-293-8880
FAX: 317-293-0374

06/06/25

FOR INFORMATION CONTACT
KENNETH ROOKS

ENGINEERING DATA FOR
IU BALL HALL FIRST FLR RENO
1226 WEST MICHIGAN STREET
INDIANAPOLIS
IU PROJECT #20222802, IN
USA

44OP-399591

ARC DESIGN
ARCHITECT

ENGINEER

INDIANA UNIVERSITY
CONTRACTOR

DWG	DESCRIPTION
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	GENERAL
CVRST	COVER SHEET
RVH	REVISION HISTORY
CIC	C.I.C CONTRACTOR NOTES
ABAC	ANIXTER BLDG AUTO. CABLES
DWIR1	DXR Wiring Specification
DWIR2	DXR Wiring Specification2
MSTP	MSTP COMMUNICATION
	SCHEDULE
VLV	CONTROL VALVE SCHEDULE
	CONTROL DRAWINGS
R01	NETWORK RISER
R01A	NETWORK RISER BOM
400	EF-1 CONTROL
400B	EF-1 CONTROL BOM & SOO
410	FCU 4PIPE W/ HTG AND CLG
410A	FCU CONTROL BOM & SOO
420	CONV CONTROL
420A	CONV CONTROL BOM & SOO

REVISION HISTORY				SIEMENS SIEMENS INDUSTRY INC. SMART INFRASTRUCTURE DIVISION	3502 WOODVIEW TRACE SUITE 240 INDIANAPOLIS, IN 46268 UNITED STATES PHONE: 317-293-8880 FAX: 317-293-0374	IU BALL HALL FIRST FLR RENO IU PROJECT #20222802, IN					440P-399591 0 TOCA
00	6/6/2025	HB	SUBMITTAL SET			ENGINEER HB	DRAFTER HB	CHECKED BY KR	INITIAL RELEASE 06/06/25	LAST EDIT DATE 06/06/25	
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GENERAL NOTES FOR CONTROLS INSTALLATION CONTRACTOR (CIC)

1. All work shall be performed in accordance with the contract documents and all applicable codes and standards.
2. Provide and install all wiring, conduit, circuit breakers, etc., and any needed mounting hardware to install control devices/panels (brackets, extensions, stands, etc.) for a complete installation.
3. Mount, wire and pipe (control pneumatics) all devices including panels, sensors, relays, actuators, switches, sensor covers/guards, etc. for a complete installation.
4. All installation of the energy management system and components is by the CIC unless noted otherwise.
5. IU, IUI, IUK, IUE. , through Siemens Building Technologies, Inc., will provide all system controllers, relays, transformers, sensors, prefabricated auxiliary panels and switches unless otherwise noted. The CIC will provide all installation materials necessary to mount, install, and wire all controls devices.
6. All devices to be installed according to manufacturer's recommendations and the contract documents. Field verify exact locations of all devices/equipment. Coordinate with Siemens.
7. All routings for electrical installation are to be verified by the CIC.
8. C.I.C. shall be responsible for interlock wiring between VFDs and local disconnect switches, where applicable.
9. C.I.C. shall coordinate their work with Siemens, the Contractor, other Subcontractors, and the Owner.
10. All control devices and panels that require 120V power that are not powered by the division 26 contractor shall require a dedicated circuit from its own breaker. Provide circuit breakers and power wiring where required.
11. Mount panels on racks when wall space is not available. The engineer shows panel locations on HVAC drawings. Actual panel locations are to be coordinated with the contractors and owner.
12. All line voltage wiring shall be installed in conduit.
13. All wiring must be pulled in one length. Splicing is not allowed. All Control wiring shall be continuous.
14. All wiring in mechanical rooms, concealed and inaccessible places and/or where required by project plans and specifications shall be installed in conduit.
15. Any conductor carrying voltage greater than 24VAC shall not occupy the same conduit as low voltage wiring.
16. Conduits installed outdoors or encased in concrete shall be in rigid conduit.
17. Open cable shall be installed only where space is accessible and allowed by the project plans and specifications. In these cases, cable shall be rated for space they occupy. Provide plenum rated materials as required.
18. See specifications and IU PPA Control Design Standard document for conduit use & installation requirements.
19. Provide as-built record drawings of installation of the system.
20. Record drawings shall include routing and sizing of communications wiring, sensor wiring, power trunk wiring, transformer locations, field device locations, etc.
21. C.I.C. shall receive, handle, and store, as needed, all material to be installed under their contract. Subcontractor shall be responsible for verification of quantity received. The CIC will be responsible for verifying all received material. Discrepancies must be immediately documented with the shipping company prior to their leaving the delivery site and shall be reported in writing to Siemens Building Technologies, Inc. within 48 hours. The CIC is responsible for the security of all materials received and stored. The CIC will replace, at his expense, any materials missing or damaged.
22. Provide and install all tags and labels per plans and specifications for all control devices. Coordinate tag and label text, size and type with Siemens. Tag wiring at the field panel with the full point name. Tag wiring at the field device with the full point address.
23. Terminate all wiring. If necessary, CIC will make all cutover terminations under the supervision of Siemens Building Technologies at startup, unless otherwise directed by Siemens.
24. CIC is responsible for participating in the commissioning process to the extent that it involves their installation work.
25. For wire runs to devices that require 24 VAC such as electric valve actuators, electric damper actuators, sensing devices, etc., CIC shall use the following wiring arrangement:
 - a. For devices that use a three-wire arrangement per the control drawings for carrying the 24VAC power and signal to the device, install cable type 18-gauge 3 conductor (18-3C) unless otherwise noted on control wiring diagrams. Neutral is tied together at the auxiliary panel.
 - b. For devices that use a four-wire arrangement per the control drawings for carrying the 24VAC power and signal to the device, use the following cable types unless otherwise noted on control wiring diagrams.
 - i. Install cable type 14-gauge 2 conductor (14-2C) for the 24VAC powering the device.
 - ii. Install cable type 18-gauge 2 conductor (18-2C) for the signal controlling the device.
 - iii. Tie neutrals together at the device.
 - c. QPA and Q series sensors may be landed to the RTS port on the BACnet TEC controller and will have a pre-terminated wire in either 50- or 100-foot length. See individual drawing details for further information.
26. C.I.C. shall use control wire according to the following schedule. Purchase wire manufactured by one of the following three vendors or approved equal. If wire size is not specified coordinate with Siemens and plan on using 12 gauge.
27. Minimum conduit size: 3/4".
28. Control wiring concealed in walls will be in EMT conduit. Existing wall will be 3/4" flex if inaccessible.
29. Wire size for terminal equipment devices will be either 18 AWG – 2 conductor or 18 AWG – 3 conductor wire unless otherwise noted or providing power to the TEC.

Anixter

Description	Part Number	Application
ETHERNET 23AWG, CAT6	CMP-00424AVA-7-06	Ethernet Network Communication cabling (verify type/color)
24-1p (STR) SHD Cable-Plenum	H-B-TSP24LC-CMP	BLN trunks
24-1p (STR) SDH Cable-Plenum	H-F-TSP24LC-CMP	FLN trunks
24-1.5p (STR) FT-6 Cable-Plenum	H-F-1.5TSP24LC-CMP	MSTP FLN BACnet trunks
20-2c (Solid) Cable-Plenum	KNX-TSP20LC-CMP	KNX Cable for DXR
18-2c (STR) Cable-Plenum	H-TP18-CMP	Point/low voltage wiring
18-3c (STR) Cable-Plenum	H-3C18-CMP	DXR/TEC actuators, transducers
18-6c (STR) Cable-Plenum	1806C-2-2N-01	Point/low voltage wiring
14-2c (STR) Cable-Plenum	H-2C14-CL3P	24VAC power trunk/power for devices

Anixter Contact: Gina Menolascino, Siemens Industry Account Manager
888-479-3830
2301 Patriot Blvd. Glenview, IL, 60026
sbt@anixter.com

Belden

Description	Part Number	Application
ETHERNET 23AWG, CAT6	2413F D151000	Ethernet Network Communication cabling (verify type/color)
24-1p (STR) SHD Cable-Plenum	YR48881 0031000 (CMP)	BLN trunks
24-1p (STR) SDH Cable-Plenum	YR49243 2121000 (CMP)	FLN trunks
24-1.5p (STR) FT-6 Cable-Plenum	SPECIAL ORDER WIRE	MSTP FLN BACnet trunks
20-2c (Solid) Cable-Plenum	SPECIAL ORDER WIRE	KNX Cable for DXR
18-2c (STR) Cable-Plenum	YM48514 0061000	Point/low voltage wiring
18-3c (STR) Cable-Plenum	YM48447 0061000	DXR/TEC actuators, transducers
18-6c (STR) Cable-Plenum	SPECIAL ORDER WIRE	Point/low voltage wiring
14-2c (STR) Cable-Plenum	YM48515 0131000	24VAC power trunk/power for devices

Belden Contact: Communications Supply Corporation
317-266-1600
1560 Indiana Avenue, Indianapolis, IN 46202
buybelden@gocsc.com

The Cable Company

Description	Part Number	Application
ETHERNET 23AWG, CAT6	5652P66CMP1000	Ethernet Network Communication cabling (verify type/color)
24-1p (STR) SHD Cable-Plenum	5200BLN	BLN trunks
24-1p (STR) SDH Cable-Plenum	5200FLN	FLN trunks
24-1.5p (STR) FT-6 Cable-Plenum	5201P67FLN1000	MSTP FLN BACnet trunks
20-2c (Solid) Cable-Plenum	5212-P47KNX1003	KNX Cable for DXR
18-2c (STR) Cable-Plenum	5041SBT	Point/low voltage wiring
18-3c (STR) Cable-Plenum	5043SBT	DXR/TEC actuators, transducers
18-6c (STR) Cable-Plenum	5046P33CMP	Point/low voltage wiring
14-2c (STR) Cable-Plenum	5061SBT	24VAC power trunk/power for devices

TCC Contact: Caitlin/Bart
800-677-9473
498 Bonnie Lane, Elk Grove Village, IL 60007
ilsales@tccwire.com

30. CIC shall create and keep an up to date list of DXR Bar Codes in a binder that is accessible to Siemens. CIC will create a list of terminal equipment that is controlled by DXR Controllers. CIC will remove the Bar Code from the DXR Controllers at the time of controls installation for each DXR and affix the Bar Code next to the associated Terminal Equipment Name in the DXR Bar Code Binder. CIC will scan the information and transmit in .pdf format to Siemens upon request.
31. CIC installation verification list. CIC shall create and keep an up to date list of the status of Mechanical System and Terminal Equipment controls installation in a binder that is accessible to Siemens. CIC will update Siemens weekly with the status of controls installation for each Mechanical System and each piece of Terminal Equipment.

Anixter Building Automation Cables		
Non-Plenum		
SBT Part Number	Description	Print Legend
H-TP20-CM	20AWG,STR,1TP,CM,BLUE JACKET	NORTHFLEX ® H-TP20-CM “DI, DO, AI, AO” (Mfg E#) 20AWG 1P 75°C CM (UL) C(UL)
H-3C20-CM	20AWG,STR,3COND,CM,BLUE JACKET	NORTHFLEX ® H-3C20-CM “TEC V/D” (Mfg E#) 20 AWG 3C 75°C CM (UL) C(UL)
H-TP18-CMR	18AWG,STR,1TP,CMR,BLUE JACKET	NORTHFLEX ® H-TP18-CMR “DI, DO, AI, AO” (Mfg E#) 18AWG 1P 75°C CMR (UL) C(UL)
H-3C18-CMR	18AWG,STR,3COND,CMR,BLUE JACKET	NORTHFLEX ® H-3C18-CMR “TEC V/D” (Mfg E#) 18 AWG 3C 75°C CMR (UL) C(UL)
H-2C14-CL3R	14AWG,STR,2COND,CL3R,DARK BLUE JACKET	H-2C14-CL3R “LV POWER” (Mfg E#) 14 AWG 2C 75°C CL3R (UL) C(UL)
H-B-TSP24LC-CM	BLN24AWG,STR,TSP,LOCAP,CM,ORANGE JACKET	H-B-TSP24LC-CM “BLN” (Mfg E#) 24 AWG 1P 75°C CM (UL) C(UL)
H-F-TSP24LC-CM	FLN24AWG,STR,TSP,LOCAP,CM,ORANGE JACKET W/ BLUE STRIPE	NORTHFLEX ® H-F-TSP24LC-CM “FLN” (Mfg E#) 24 AWG 1P 75°C CM (UL) C(UL)
H-3P24-CMR	24AWG,SOL,3P,CMR,BLUE JACKET	NORTHFLEX ® H-3P24-CMR “TEC STAT” (Mfg E#) 24 AWG 3P 75°C CMR (UL) C(UL)
LON-1PS22-CM	22AWG,STR,1PAIR,OAS,CM,ORANGE JACKET W/ WHITE STRIPE	NORTHFLEX ® LON-1PS22-CM “LON FLN” (Mfg E#) 22AWG 1P 75O C CM (UL) C(UL)
LON-2PS22-CM	22AWG,STR,2PAIR,OAS,CM,ORANGE JACKET W/ WHITE STRIPE	NORTHFLEX ® LON-2PS22-CM “LON FLN” (Mfg E#) 22AWG 2P 75O C CM (UL) C(UL)
E-4TP24CAT5-CM	24AWG,SOL,4TP,CAT5,CM	NORTHFLEX ® E-4TP24CAT5-CM “ETHERNET” (Mfg E#) 24AWG 4P 75O C CM (UL C(UL)
H-A-1.5TSP24LC-CM	ALN485, 24AWG, STR, TP+1C, OAS, LOCAP, CM	NORTHFLEX ® H-A-1.5TSP24LC-CM “ALN485” 24 AWG 1P+1C 75°C CM (UL) C(UL) (Mfg E#)
H-F-1.5TSP24LC-CM	FLN485, 24AWG, STR, TP+1C, OAS, LOCAP, CM	NORTHFLEX ® H-A-1.5TSP24LC-CM “FLN485” 24 AWG 1P+1C 75°C CM (UL) C(UL) (Mfg E#)
Plenum		
SBT Part Number	Description	Print Legend
H-TP20-CMP	20AWG,STR,1TP,CMP,BLUE JACKET	NORTHFLEX ® H-TP20-CMP “DI, DO, AI, AO” (Mfg E#) 20 AWG 2C 75°C CMP (UL) C(UL)
H-3C20-CMP	20AWG,STR,3COND,CMP,BLUE JACKET	NORTHFLEX ® H-3C20-CMP “TEC V/D” (Mfg E#) 20 AWG 3C 75°C CMP (UL) C(UL)
H-TP18-CMP	18AWG,STR,1TP,CMP,BLUE JACKET	NORTHFLEX ® H-TP18-CMP “DI, DO, AI, AO” (Mfg E#) 18 AWG 2C 75°C CMP (UL) C(UL)
H-3C18-CMP	18AWG,STR,3COND,CMP,BLUE JACKET	NORTHFLEX ® H-3C18-CMP “TEC V/D” (Mfg E#) 18 AWG 3C 75°C CMP (UL) C(UL)
H-2C14-CL3P	14AWG,STR,2COND,CL3P,DARK BLUE JACKET	NORTHFLEX ® H-2C14-CL3P “LV POWER” (Mfg E#) 14 AWG 2C 75°C CL3P (UL) C(UL)
H-B-TSP24LC-CMP	BLN24AWG,STR,TSP,LOCAP,CMP,ORANGE JACKET	NORTHFLEX ® H-B-TSP24LC-CMP “BLN” (Mfg E#) 24 AWG TSP 75°C CMP (UL) C(UL)
H-F-TSP24LC-CMP	FLN24AWG,STR,TSP,LOCAP,CMP,ORANGE JACKET W/ BLUE STRIPE	NORTHFLEX ® H-F-TSP24LC-CMP “FLN” (Mfg E#) 24 AWG TSP 75°C CMP (UL) C(UL)
H-3P24-CMP	24AWG,SOL,3PAIR,CMP,BLUE JACKET	NORTHFLEX ® H-3P24-CMP “TEC STAT” (Mfg E#) 24 AWG 3P 75°C CMP (UL) C(UL)
KNX-TSP20LC-CMP	20AWG,SOL,1TSP,CMP,ORNGE/GRN STRIPE	NORTHFLEX ® KNX-TSP20LC-CMP “KNX PL-LINK” 20AWG SOL 1TSP 75° C CM (UL) C(UL) E179333
LON-1P22-CMP	22AWG,STR,1PAIR,CMP,ORANGE JACKET W/ WHITE STRIPE	NORTHFLEX ® LON-1P22-CMP “LON FLN” (Mfg E#) 22AWG 1P 75O C CMP (UL) C(UL)
LON-2P22-CMP	22AWG,STR,2PAIR,CMP,ORANGE JACKET W/ WHITE STRIPE	NORTHFLEX ® LON-2P22-CMP “LON FLN” (Mfg E#) 22AWG 2P 75O C CMP (UL) C(UL)
LON-1PS22-CMP	22AWG,STR,1PAIR,OAS,CMP,ORANGE JACKET W/ WHITE STRIPE	NORTHFLEX ® LON-1PS22-CMP “LON FLN” (Mfg E#) 22AWG 1P 75O C CMP (UL) C(UL)
LON-2PS22-CMP	22AWG,STR,2PAIR,OAS,CMP,ORANGE JACKET W/ WHITE STRIPE	NORTHFLEX ® LON-2PS22-CMP “LON FLN” (Mfg E#) 22AWG 2P 75O C CMP (UL) C(UL)
E-4TP24CAT5-CMP	24AWG,SOL,4TP,CAT5,CMP	NORTHFLEX ® E-4TP24CAT5-CMP “ETHERNET” (Mfg E#) 24AWG 4P 75O C CMP (UL
H-A-1.5TSP24LC-CMP	ALN485, 24AWG, STR, TP+1C, OAS, LOCAP, CMP	NORTHFLEX ® H-A-1.5TSP24LC-CM “ALN485” 24 AWG 1P+1C 75°C CM (UL) C(UL) (Mfg E#)
H-F-1.5TSP24LC-CMP	FLN485, 24AWG, STR, TP+1C, OAS, LOCAP, CMP	NORTHFLEX ® H-A-1.5TSP24LC-CM “FLN485” 24 AWG 1P+1C 75°C CM (UL) C(UL) (Mfg E#)
Assemblies		
Part Number	Description	Print Legend
550-827	CABLE ASSEMBLY TEC TO SSB 3 POS 10 FT	N
550-828	CABLE ASSEMBLY TEC TO SSC 3 POS 10 FT	N

REVISION HISTORY

00	6/6/2025	HB	SUBMITTAL SET
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SIEMENS

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IU BALL HALL FIRST FLR RENO
IU PROJECT #20222802, IN

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Anixter Building Auto. Cables

440P-399591
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ABAC

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Important Safety Information
System-specific:
The electrical safety for building automation and control systems by Siemens Building Technologies is essentially based on safely separating low voltage from mains voltage.
Application as per SELV or PELV pursuant to HD 384 "Electrical installation of buildings" depending on the grounding (24V AC) of the low voltage:
Ungrounded = Safety Extra-Low Voltage (SELV).
Grounded = Protection by Extra Low Voltage (PELV).
Device-related safety is guaranteed, among others, by:

- Low-voltage power supply 24V AC per SELV or PELV
- Comply with specific regulations for electrical wiring per the following sections.
- Observe the following points when grounding 24V AC (system neutral):
- Operating voltage of 24V AC is permitted in principle for both grounded as well as non-grounded system neutral. Local regulations and customers apply accordingly.
- Grounding may be required or not allowed for functional reasons.
- 24V AC systems are generally grounded unless disadvised by the manufacturer.
- In order to avoid ground loops, connect systems with PELV to the ground at one location only (especially for transformers), if no other indication exists.

Mains and operating voltage:

Operating voltage 24V AC:
1. It must meet requirements for SELV or PELV. Permitted deviation for nominal voltage 24V AC on the device: -10 +/– 20%.

Transformer specification 24V AC:
1. Use safety insulating transformers as per EN 61558 with double insulation designed for 100% duty to supply SELV or PELV circuits..
2. Power taken from the transformer should be at least 50% of nominal load for efficiency reasons (effectiveness).
3. Transformer nominal power should be at least 25VA. For smaller transformers, the ratio of open circuit voltage to full load is unfavorable (> + 20%).

Operational voltage fuse 24V AC:
Transformers on the secondary side correspond to the actual load of all connected devices as per transformer sizing:
1. 24V AC line (system potential) must always be fused.
2. There required, also line (system neutral).

Mains filter:

Spikes and high-frequency interference may occur in areas with high levels of interference. The disturbances not only impact the transformer on the primary side, but may also influence secondary connected components.
A mains filter should be attached on the primary transformer if such interference is anticipated. Mains filters should be installed as close to the network transformer as possible and grounded.

Device-specific :

Devices using different power circuits:
Devices must have the required insulation of the power circuits from each other to be able to connect them directly without additional insulation.

Interfaces for different voltage circuits :
Connections via interfaces increase the risk of distributing dangerous voltage through the building. Ensure that the required insulation is available at all times and installed per applicable regulations.

DXR2 with 24V AC supply:
1. A class 2 transformer or an external T4 A fuse is compulsory.
2. Max. 100VA per transformer / per fuse circuit.

Installation:

Mounting position:
Recommended:
1. Wall, horizontal from left to right or from right to left.
2. Wall, vertical from bottom to top.
3. Ambient temperature 23 to 122°F (–5 to 50 °C)

AC 24V power lines:

1. DXR2 room automation stations with 24V AC supply are limited to a consumption of 4A/100VA.
2. Supply: Class 2 transformer OR external 4A fuse OR transformer >100VA for more than one DXR2. (In this case a separate 4A fuse is required for every 100VA).
3. DXR2 room automation stations with 24V AC supply can only be wired in star topology.
4. An external power supply of field devices should be fused separately for secure operation.

24V AC Transformer :

Operating voltage :
1. The operating voltage is 24V AC. It must comply with SELV or PELV to HD 60364–4–41 (2007–01–01) requirements.
2. The acceptable deviation of the 24V AC nominal voltage connected to the transformer is +20%/–10%. This means that after taking account of the cable and contact resistances, a tolerance of +/-20% for the field device supply can be guaranteed in the field devices.

Specification for 24V AC transformers:
1. Double-insulated safety transformers to EN 61558, designed for continuous operation, to supply SELV or PELV circuits.
2. The rated transformer output must be at least 50VA. In smaller transformers the ratio of no-load voltage to full-load voltage is unfavorable (> +20%).
3. For reasons of power efficiency the rated transformer output should not exceed 200 % of the maximum load.

Wiring DXR2:
The 24V AC can only be wired in star distribution for the DXR2 room automation stations. 24V AC must be fused with max. 4A (or Class 2 transformer).

Power consumption DXR2 24V AC:
Max. permissible input current 24V AC (through terminals 5 and 6) = Total max. 4A.

Base load (without loading by field devices)
DXR2.M11, DXR2.x12P 9VA
DXR2.M18 11VA
DXR2.E18 13VA
KNX PL–Link supply 5VA/3W
29V DC / Max. 50 mA
The bus supply can be switched off manually via tool if not used. Transit power 24V AC
Field supply 24V AC Max. 6VA
Field supply 24V DC (DXR2.E18 only)Max. 2.4W
Digital output (triac active) 6VA (250mA)
Note: Certain applications ensure that only one triac at a time is active: No simultaneous heating and cooling. Two heating outputs are alternatively on 50% of the time, the same with two cooling outputs. This can be considered in the transformer sizing.
Unconfigured triac 6VA (250mA)

Cable lengths 24V AC

The permissible voltage drop of 0.6 V on the power wire between the transformer and the most distant power point (room automation station, power module, bus interface module) is the basis for calculations.

Permissible load [VA]		Cable length for 24V AC (Si)				
Cable X-section	2.5m	5.0m	10m	20m	50m	
AWG16	200VA	100VA	50VA	25VA	10VA	
AWG14	320VA	160VA	80VA	40VA	16VA	
		Cable length for 24V AC (US)				
Cable X-section	8.2ft	16.4ft	32.8ft	65.6ft	164ft	
AWG16	200VA	100VA	50VA	25VA	10VA	
AWG14	320VA	160VA	80VA	40VA	16VA	

Notes :
1. The supply wire (24V AC) and return lines can each have the indicated lengths.
2. Power is added together for multiple back-to-back looped PXC3 or DXR2 ("daisy chain") which reduces the cable length accordingly.
3. Each supply point (room automation stations/power module/bus interface module) is either connected separately to the transformer's terminal block (star wiring) or looped via the room automation station.
4. Cables may be wired in parallel to increase the cross section.

Wiring of field devices (without bus)
As a rule, comply with local regulations for electrical installations. These take precedence over any notes in this document.

Wiring for Triac outputs 24V AC.
The following applies for wiring to actuating devices such as valves, damper actuators or protection connected to the Triac outputs:
1. Use stranded, 2 or multiple core round cables, screened (standard off-the-shelf installation cable).
2. Single wires may not be used.
3. Wiring may be laid together with power lines (230V AC). They must be isolated from the power lines per regulations. Isolation must meet PELV requirements.
4. Wiring can not be led in the same cable as the power lines.
5. See table below for maximum single cable lengths. However, the length must not exceed 984ft (300m) (EM interference). DXR2: 262ft (80m).

DXR2 room automation stations with 24V AC supply:

Use cable cross section suited for 4A according to local regulations (T 4A fuse external / Class 2 transformer). Cable cross section >= AWG18. Triacs are not protected and are destroyed if overloaded.
2. Cable length <= 262ft (80m)

Signal wiring
The following applies in common for signal wiring of field devices such as temperature sensors, window switches, presence detectors, dew point sensors or electrical buttons:

- Use stranded, 2 or multiple core round cables, without screen (standard off-the-shelf installation cable).
- Single wires or ribbon cables may not be used.
- Signal wiring may be laid together with power lines (230V AC). They must be isolated from the power lines per regulations. Isolation must meet PELV requirements.
- Signal wiring can not be led in the same cable as the power lines.
- The length must not exceed the following value (measuring errors, EM interference): DXR2: 262ft (80m).
- All system neutral terminals of a device are interconnected. TX–I/O: The connection is not in the terminal base but in the plug-in module. When this unit is unplugged there is no connection.
- The system neutral of a digital input can be connected to any signal neutral terminal of the device.
- It is also permissible to combine the system neutral conductors of several digital inputs in order to save wire. TX–I/O: However, system ground must be connected at least once per module.
- With analog inputs and outputs, the measuring neutral must always be connected to the terminal associated with that specific I/O point to avoid possible measurement errors.
- 0 to 10V DC actuators with 0 to 10V DC feedback: System neutral of output and feedback may be in the same conductor due to the small current of the U10 and Y10 signals. However, output and feedback must be on the same device and there is no 24V DC supply current admissible on the system neutral conductor.

Relay outputs

- External fuse of max. 10A for protection of the PCB tracks.
- Relays have volt–free relay contacts. The mains voltage / switching voltage (230V AC / 24V AC/DC) must be supplied as an external voltage to the terminals.
- The maximum load of the relay contracts must be observed (see data sheets for the corresponding devices)
- The sizing and fusing of the power lines are oriented to overall connected load and local regulations.
- The fused electrical values must therefore be reviewed in the data sheets for the corresponding devices.
- The lines must be secured on the device with strain relief.
- Cable length: as per load and local regulations.
- The maximum current of the relays is limited to 4 (3)A.

Inputs and Outputs

Digital inputs

Cable length
The permissible length of the cables connected to the status contacts, regardless of the thickness of the wire (min. diameter 0.024in / 0.6mm) is restricted to 262ft (80m).

Common conductor with multiple contacts:
When several status or counter contacts are to be connected, a common conductor may be used. This saves wiring. However, system ground must be connected at least once per module. Digital inputs are not electrically isolated from the system electronics. Mechanical contacts must be volt–free. Electronic switches must comply with SELV or PELV standards.

Analog inputs

Cable length:
The maximum permissible cable length for passive resistance sensors and transmitters depends on the permissible measuring error due to the line resistance. The maximum cable length for DXR2 is 262ft (80m).

Active sensors 0 – 10V DC

Cable length:
The maximum cable length for DXR2 is 262ft (80m). The permissible length of 10V DC cables for measured signals, and of the cables to supply the sensors from the TRA device, have to be calculated on the following basis for each active sensor.
1. Max. 7% voltage drop (1.68V) on the cables due to the sensor supply current. Reason: to ensure sufficient voltage for the sensor supply.
2. Measuring error of max. 0.5% of the measuring range due to line resistance on the measuring conductor (not critical, as the measuring current is only 0.1mA)
3. Longer cables are permissible provided larger measuring errors are acceptable.
4. If the active sensor is supplied locally from a transformer, the sensor cable can be up to 984ft (300m) long (DXR2: 262ft (80m)) with a wire diameter of greater than or equal to 0.024in (0.6mm). The local transformer MUST NOT be earthed (earth loop)!
5. In case of active sensors with 24V AC supply, use cable cross section suited for 10A according to local regulations .
6. Digital outputs (relays, triacs)

Cable length:
The cable between the switching outputs and the equipment to be switched may be up to 262ft (80m) for DXR2.
The permissible lengths of the cables between the relay outputs / triacs and the actuators depend on the type of actuator in use and are calculated as follows:
Relays: Voltage drop of max. 7% (1.68V) on the 24V AC operating voltage for the actuator.
Triacs: Voltage drop of max. 3% (0.72V) on the 24V AC operating voltage for the actuator (the triac itself has already 4% voltage drop).

Analog outputs

Cable length
The permissible cable lengths for 0 – 10V DC control signals and for the 24V AC operating voltage are given in the data sheets of the individual actuators.
Where the actuators are supplied locally with 24V AC, the control signal cable may be up to 984ft (300m) long (DXR2: 262ft (80m)) with a diameter of greater than or equal to 0.024in (0.6mm).
The local transformer MUST NOT be earthed (earth loop)!
0 – 10V DC actuators with 0 – 10V DC feedback: System neutral of output and feedback may be in the same conductor due to the small current. However, output and feedback must be on the same device.

REVISION HISTORY

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ENGINEER	DRAFTER	CHECKED BY	INITIAL RELEASE	LAST EDIT DATE
HB	HB	KR	06/06/25	06/06/25

DXR Wiring Specification

440P-399591
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DWIR1

Ethernet network:

Network topologies

- Star topology (general).
- Line topology (for room automation).
- DXR2 and PXC3 can be mixed.
- The number of room automation stations is limited to 20 for a line topology (daisy chain).
- The next device has no 24V AC power when a room automation station is removed. The connection exists only on the board, but not on the terminal block.
- The Ethernet switch is inactive when a room automation station has no 24V AC power. The next devices, if in line topology, are disconnected from the network. For secure operation of the system it is recommended to supply each room automation station separately with 24V AC.

Cables – Room automation stations are connected to one another via switches and Ethernet cables with RJ45 connectors. The following conditions must be met:

- Standard Ethernet cable min. category 5
- Shielded or unshielded STP (Shielded Twisted Pair) or UTP (Unshielded Twisted Pair).
- Length between switch and Room automation station max. 328ft (100m).
- Length between Room automation stations Max. 328ft (100m).
- Number of devices under a line topology max. 20.
- Standard IT product at 100MB or 1GB.

Power over Ethernet (PoE) – Power over Ethernet (PoE) is a simple solution to supply power to room operator units consuming only little power. This saves a power cable and associated installation costs. PoE allows for installing Ethernet devices also in hard-to-access locations or areas where too many cables are an issue. In PoE, power sourcing equipment (PSE) supplies power to powered devices (PD, here: end devices). Voltage is supplied via the RJ45 plugs and a twisted-pair cable (TP) to the devices either:

- Via data transmission lines
- Or via unused lines of the RJ45 connection.

PoE requires a star topology. Standard PoE switches have between 4 and 16 outputs. In large plants (e.g. different rooms in a hotel) require use of multiple switches in a line topology.

Specifications:

Standard Ethernet cable min category 5
Screened or unshielded STP / UTP
STP (Shielded Twisted Pair)
or UTP (Unshielded Twisted Pair)
Distance between switch and station = max 328ft (100m).
Distance between switch and end unit = max 328ft (100m).

MS/TP networks:

Network topologies – MS/TP networks for Desigo TRA can only be wired in line topology. The network distance for a fully or partially loaded network is 4000ft (1220m) at a maximum network speed of 76,800 bps. Lower speeds do not mean longer network sections are possible. DXR2 controller support up to 115,200 bps. Network repeaters can be used to extend this distance.

To determine how many devices can be on a network section, add up all the loading numbers and do not exceed 32. Many third-party devices have full load interfaces. Check the manufacturer's literature for network loading information. The RS-485 specification allows 32 full load devices on a section of network cable before a repeater is required. Desigo TRA devices are 1/8 load devices, so, in theory, you could place 256 on a network section.

Response times normally limit the maximum number of devices on a network to lower values of around 96 devices.

- Two 1200hm ½W resistors between + and – at BOTH ends of the network section.
- OneSpecial PTC thermistor between Reference () and earth at ONE end of the network section. This prevents the cable from being damaged by high ground currents that may occur if the reference wire is accidentally grounded to earth ground at a second location.

Technical data BACnet MS/TP – Inter-node protocol communications on BACnet MS/TP networks take place over RS-485 physical media.

Desigo TRA devices use the 3-wire interface.

- By providing the RS-485 ground signal of the interface to the network termination plug, all node communication ports can be referenced together providing a high degree of noise immunity.
- The RS-485 common reference wire is terminated at one point (and only one point) to earth ground.
- An overall foil shield and drain wire provide additional noise protection.
- The decision to use the orange jacket cable or orange jacket with blue stripe cable is up to the user/customer. The only difference in the cables is the addition of the blue stripe, which can be useful to indicate a different protocol usage (e.g. Automatic level vs. floor level network).



Cable Specifications

Transmission medium 1.5-Pair (1 TP & 1 conductor) (bus cable) with overall Shield and drain wire
Gauge (pair) 24 AWG (0.25 mm2) stranded
Capacitance conductor to conductor 12.5 pF/foot (41 pF/m)
conductor to shield 24 pF/foot (79 pF/m)
Impedance 120 Ohm
Twists min. 4 per foot (13 per m)
Reference wire 24 AWG (0.25 mm2) stranded, 3 inch lay with twisted pair
Shield 100% overall foil with drain wire
NEC class UL listed, CM, CMP (167°F (75°C or higher)
CEC class FT4, FT6 (167°F (75°C) or higher)

KNX PL-Link room bus:

- The KNX PL-Link bus must be conducted inside the building. The cables must never leave the building.
- The KNX PL-Link bus facilities communications from the PXC3 room automation station to a maximum 64 devices on the KNX bus devices for various manufacturers.
- Note: The number of devices is also limited by the number of data points and the available bus power. Data points and bus power are incremented during engineering with the ABT tool.
- The KNX PL-Link bus basic version comprises one cable and two stranded bus wires.
- The PXC3 has one internal bus power supply of 160mA.
- The DXR2 has one internal bus power supply of 50mA.
- The PXC3 also includes an 24V AC / 2A output for devices with increased power consumption that is supplied via 24V AC rather than via the KNX PL-Link bus.
- The KNX PL-Link is physically based on the KNX bus (Konnex).
- In KNX networks area/line couplers and IP routers are not admitted.

- Interconnection of room automation stations via KNX PL-Link is not admissible; the connection is done exclusively via Ethernet switches (Section 9).
- The polarity of the KNX PL-Link bus conductors must be respected (KNX terminals + and –).

Bus power supply – A bus power supply is required for bus communications. Throttled voltage 29V DC is used.

Internal KNX PL-Link Power Supply:

The room automation stations have an internal bus power supply, which is switched on by default. If an external supply is used, the internal supply must be switched off manually in the ABT (KNX PL-Link rail properties), as parallel operation is not permitted. Bus power and the KNX bus are electrically isolated from device electronics for devices with bus power. Parallel operation of the internal KNX PL-Link bus supply with an external bus power supply is not permitted. The internal bus power supply must be switched off in the tool when an external bus power supply is used.

External bus supply:

An external bus power supply unit (PSU) is required when the 160mA of the PXC3 / the 50mA of the DXR2 is insufficient to cover the power demand of the connected devices. Power supply units for 160, 320 and 640mA available in specialty stores. The total power supply for the devices must be calculated to determine the appropriate size. Comply with the corresponding details in the datasheet. A 640mA power supply unit suffices for a line featuring 64 devices on the KNX bus with an average power demand of 10mA each.

(Parallel operation)

- In principle, parallel operation of external bus supplies among themselves is possible. However, check if the specific PSU is allowed to be operated in parallel with other PSUs. Refer to the technical specifications. The below mentioned Siemens devices are not submitted to this restriction.
- A minimum cable distance is required between two PSU.

Bus topologies – Up to 64 devices with KNX PL-Link can be installed on one line (main line as well). No restrictions apply to the type mix.

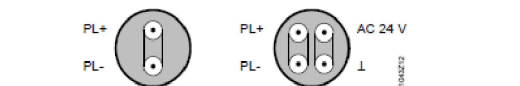
Note:

- There is no need to calculate the bus load number E for up to 64 devices.
- A maximum of 64 devices may be installed even if devices requiring less power are used.

Permissible bus topologies are: Tree, line, and star topologies. These topologies can be mixed as needed. However, ring topologies are not allowed. The tree topology is advantageous if a large network must be created.

Cables

The bus lines (= wired pair) are connected via PL+ (red) and PL- (black).



24V AC can be provided in the same (2 x 2 stands) or in a separate cable.

Bus cable screening : In TRA plants, bus cables without screen are permitted. The screens available for bus cables do not need to be connected. If interference is expected on the KNX bus, use a cable with screen. Connect the screen as per standard installation rules.

Network with internal power supply: Comply with the following distances for a KNX network with the internal power supply from the room automation station:

- Distance between device and internal supply, max 262ft (80m).
- Distance between devices, max 262ft (80m).
- Total length of all lines on one line, max 262ft (80m).

Network with external power supply: Comply with the following distances for a KNX network with external bus power supply (PSU)

- Distance PSU to PXC3 with switched off internal supply, Min. 0ft (0m).
- Distance device to next PSU, Max. 1148ft (350m).
- Distance between two PSU operated in parallel Min. 656ft (200m), (Min. 0ft (0m) for the new Siemens power supply modules.).
- Distance between devices, Max. 2297ft (700m).
- Total length of all lines on one line, Max. 3281ft (1000m).

Polarity: Important – The bus conductors must NOT be inverted. (KNX terminals + and –).

Permissible load [VA] :

Cable length for 24V AC					
AWG	32.8ft	65.6ft	164ft	328ft	656ft
AWG20	48VA	30VA	12VA	6VA	3VA
AWG18	48VA	48VA	20VA	10VA	5VA
AWG16	48VA	48VA	32VA	16VA	8VA
AWG14	48VA	48VA	48VA	24VA	12VA

Permissible load [VA] (SI):

Cable length for AC 24V					
AWG	10m	20m	50m	100m	200m
AWG20	48VA	30VA	12VA	6VA	3VA
AWG18	48VA	48VA	20VA	10VA	5VA
AWG16	48VA	48VA	32VA	16VA	8VA
AWG14	48VA	48VA	48VA	24VA	12VA

KNX PL-Link Technical data

KNX bus :

- Transmission medium (bus cable),TP (twisted pair)
- Baud rate, 9.6 kbps (fixed for TP)
- Bus line polarity, PL+, PL- (not interchangeable)
- Bus terminating resistor, Not required.

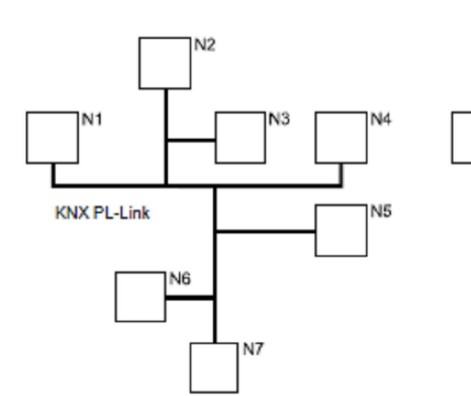
KNX bus cable:

- Cable type, 20AWG two conductor, solid, communication cable (Anixter KNX-TSP20LC-CMP or similar).
- Wire diameter, Min. 0.8 mm (AWG20), Max. 1.0 mm (AWG18).
- Line resistance, 20 to 75 Ω/km.
- Specific capacity, 10 to 100 nF/km at 10 kHz.
- Specific inductivity, 450 to 850 μH/km at 10 kHz.
- Screens, Not required.

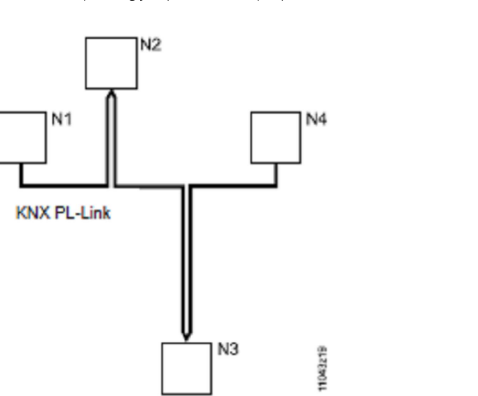
Bus power supply: DXR2 is 30V DC, 50mA for max. 5 KNX devices with 10mA each .

Max. number of devices: 64 devices in a KNX PL-Link network.

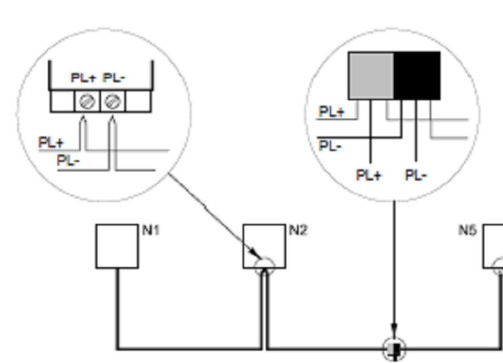
Tree Topology(with stub lines)



Line Topology (with loops)

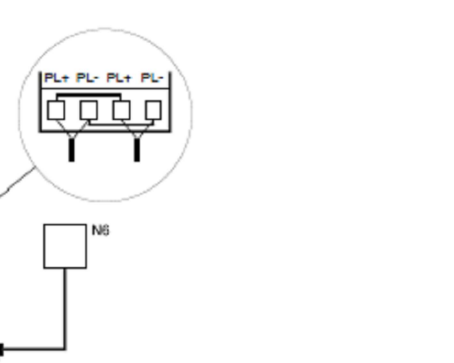


Device with screw terminals



T branch with bus terminals

Device with spring cage terminals



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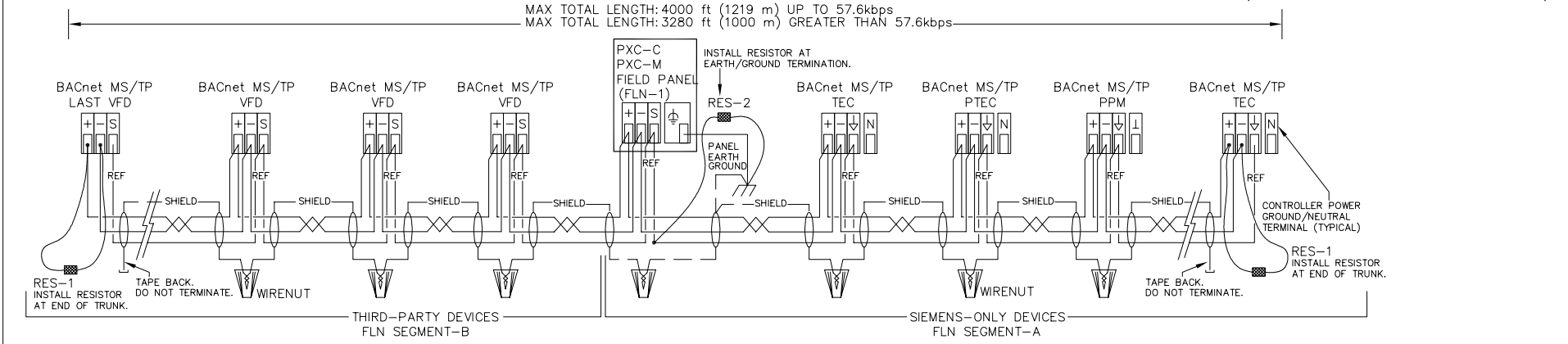
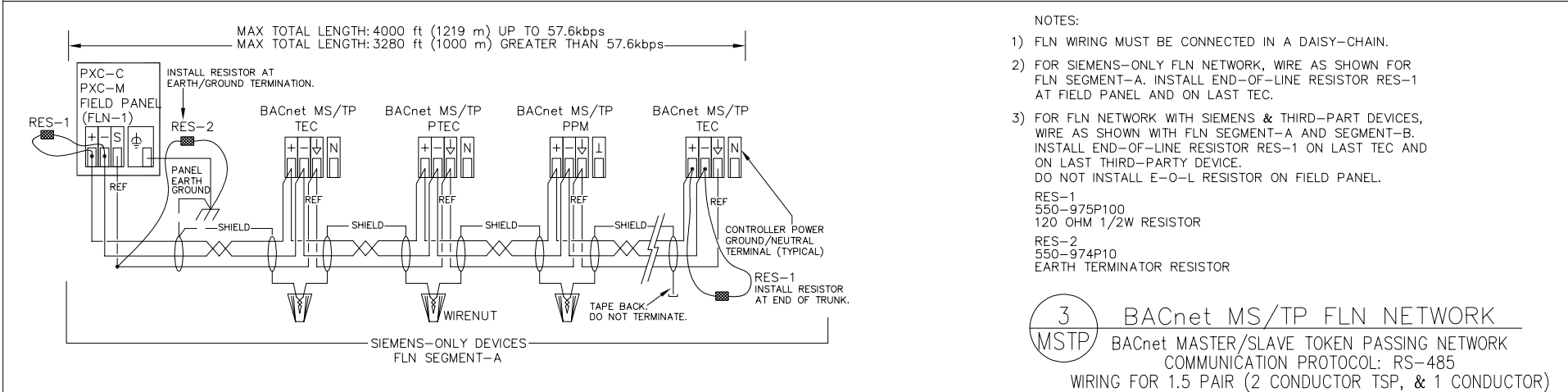
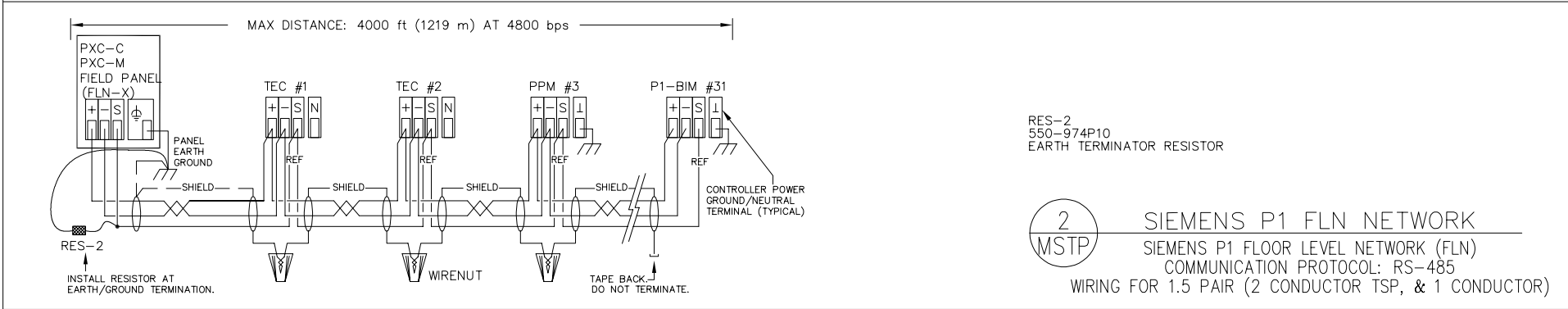
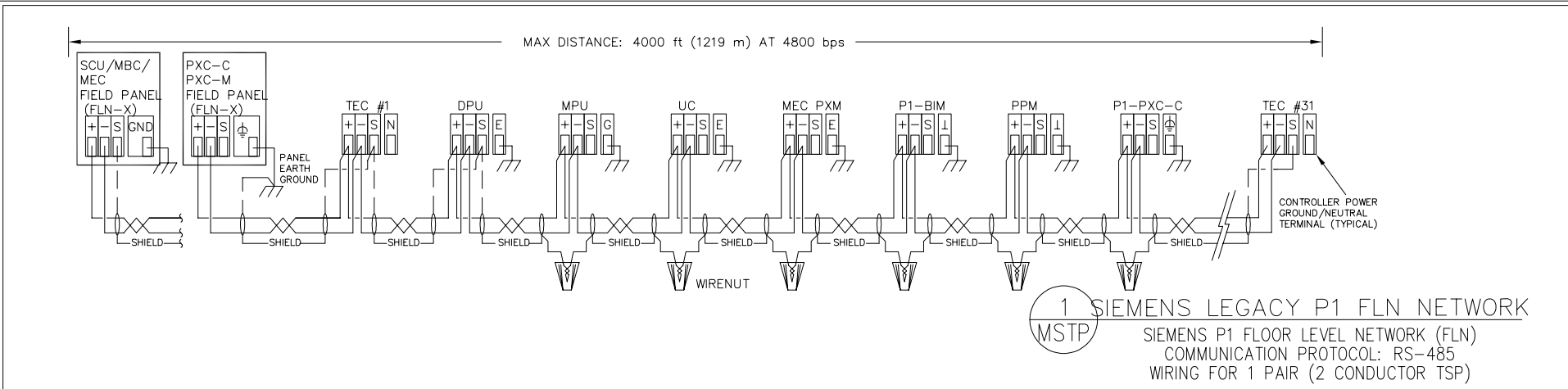
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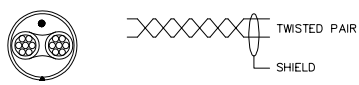
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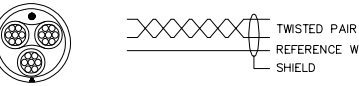
DXR Wiring Specification2

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DWIR2



FLN TSP CABLE SPECIFICATIONS

TWISTED PAIR 24 AWG (STRANDED) 12 PICOFARAD/FT CAPACITANCE OR LESS 4 TWISTS PER FOOT.
SHIELD 100% OVERALL FOIL
PART NUMBERS
ANNIXTER PART NUMBER: H-AF-TSP24LC-CMPBX-P DESCRIPTION: ALN/FLN24AWG,STR,TSP,LOCAP,CMP (FT-6)

FLN 1.5 PAIR CABLE SPECIFICATIONS

TWISTED PAIR 24 AWG (STRANDED) 11 PICOFARAD/FT CAPACITANCE CONDUCTOR TO CONDUCTOR. 24 PICOFARAD/FT CAPACITANCE CONDUCTOR TO SHIELD. 4 TWISTS PER FOOT.
REFERENCE WIRE 24 AWG (STRANDED), 3 INCH LAY WITH TWISTED PAIR
SHIELD 100% OVERALL FOIL WITH DRAIN WIRE
PART NUMBERS
ANNIXTER PART NUMBER: H-A-1.5TSP24LC-CMP-Y DESCRIPTION: 24-1.5PR STR TC FFEP FT6 SHD YEL (FT-6)
CERCO PART NUMBER: 8304R DESCRIPTION: 22AWG 3C STR FT6 ORG (FT-6)

NOTES:

NEVER RUN NETWORK CABLING CLOSER THAN 5 FEET TO A VARIABLE FREQUENCY DRIVE (VFD) EXCEPT AT THE POINT WHERE THE NETWORK MUST CONNECT TO THE VFD. NETWORK ENTRY INTO A VFD MUST BE THROUGH A SEPERATE CONDUIT AND ALL NETWORK WIRING MUST BE KEPT AS FAR AS POSSIBLE FROM HIGH POWER CABLING IN THE DRIVE.

NEVER RUN NETWORK CABLE CLOSER THAN 5 FEET FROM CONDUITS CARRYING 100KVA OR GREATER. ALWAYS CROSS HIGH POWER CABLES (AT A DISTANCE OF 5 FEET) AT A 90° ANGLE.

NETWORK RUN IN OPEN CABLE TRAYS WITH CIRCUITS CARRYING 20 AMPS SHOULD BE NO CLOSER THAN 26 INCHES TO THE HIGHER POWER CABLES.

NETWORK RUN IN ENCLOSED TRAYS WITH CONDUITS CARRYING OVER 20 AMPS SHOULD BE NO CLOSER THAN 18 INCHES TO THE HIGHER POWER CABLES.

REVISION HISTORY			
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MSTP COMMUNICATION				

440P-399591 0 MSTP

Siemens Industry, Inc.									Valve Schedule										
Job Name: IU BALL HALL FIRST FLR RENO																			
Job Number: 44OP-399591																			
Revision: 00																			
Date: 6/6/2025																			
System: FCUs																			
Number	Unit ID	Valve Tag	Q'ty	Product Number	Line Sizes (in.)	Valve Sizes (in.)	Configuration	Body Style	Calculated Cv	Actual Cv	Failsafe	Flow (GPM)	Design P.D	Actual P.D	Close-Off (psi)	Control Signal	Voltage	Document Number	Comment
1	FCU-A.1-1	FCU-A.1-1 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
2	FCU-A.1-1	FCU-A.1-1 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
3	FCU-A.1-2	FCU-A.1-2 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
4	FCU-A.1-2	FCU-A.1-2 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
5	FCU-A.1-3	FCU-A.1-3 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
6	FCU-A.1-3	FCU-A.1-3 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
7	FCU-A.1-4	FCU-A.1-4 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
8	FCU-A.1-4	FCU-A.1-4 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
9	FCU-A.1-5	FCU-A.1-5 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
10	FCU-A.1-5	FCU-A.1-5 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
11	FCU-A.1-6	FCU-A.1-6 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
12	FCU-A.1-6	FCU-A.1-6 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
13	FCU-A.1-7	FCU-A.1-7 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
14	FCU-A.1-7	FCU-A.1-7 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
15	FCU-A.1-8	FCU-A.1-8 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
16	FCU-A.1-8	FCU-A.1-8 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
17	FCU-A.1-9	FCU-A.1-9 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
18	FCU-A.1-9	FCU-A.1-9 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
19	FCU-A.1-10	FCU-A.1-10 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
20	FCU-A.1-10	FCU-A.1-10 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
21	FCU-A.1-11	FCU-A.1-11 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
22	FCU-A.1-11	FCU-A.1-11 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
23	FCU-A.1-12	FCU-A.1-12 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
24	FCU-A.1-12	FCU-A.1-12 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
25	FCU-A.1-13	FCU-A.1-13 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
26	FCU-A.1-13	FCU-A.1-13 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
27	FCU-A.1-14	FCU-A.1-14 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
28	FCU-A.1-14	FCU-A.1-14 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
29	FCU-A.1-15	FCU-A.1-15 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
30	FCU-A.1-15	FCU-A.1-15 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
31	FCU-A.1-16	FCU-A.1-16 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
32	FCU-A.1-16	FCU-A.1-16 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
33	FCU-A.1-17	FCU-A.1-17 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
34	FCU-A.1-17	FCU-A.1-17 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
35	FCU-A.1-18	FCU-A.1-18 HCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.31	0.40	NO-NSR	0.70	5.00	3.06	120	Floating	24 VAC	155-306P25	Heating Coil Valve
36	FCU-A.1-18	FCU-A.1-18 CCV	1	259-02030	0.75	0.50	2W/Sng	Globe	0.36	0.40	NO-NSR	0.80	5.00	4.00	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
37	FCU-B.1-1	FCU-B.1-1 HCV	1	259-02032	0.75	0.50	2W/Sng	Globe	0.45	0.63	NO-NSR	1.00	5.00	2.52	120	Floating	24 VAC	155-306P25	Heating Coil Valve
38	FCU-B.1-1	FCU-B.1-1 CCV	1	259-02032	0.75	0.50	2W/Sng	Globe	0.49	0.63	NO-NSR	1.10	5.00	3.05	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
39	FCU-B.1-2	FCU-B.1-2 HCV	1	259-02032	0.75	0.50	2W/Sng	Globe	0.45	0.63	NO-NSR	1.00	5.00	2.52	120	Floating	24 VAC	155-306P25	Heating Coil Valve
40	FCU-B.1-2	FCU-B.1-2 CCV	1	259-02032	0.75	0.50	2W/Sng	Globe	0.49	0.63	NO-NSR	1.10	5.00	3.05	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
41	FCU-B.1-3	FCU-B.1-3 HCV	1	259-02032	0.75	0.50	2W/Sng	Globe	0.45	0.63	NO-NSR	1.00	5.00	2.52	120	Floating	24 VAC	155-306P25	Heating Coil Valve
42	FCU-B.1-3	FCU-B.1-3 CCV	1	259-02032	0.75	0.50	2W/Sng	Globe	0.49	0.63	NO-NSR	1.10	5.00	3.05	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
43	FCU-B.1-4	FCU-B.1-4 HCV	1	259-02032	0.75	0.50	2W/Sng	Globe	0.45	0.63	NO-NSR	1.00	5.00	2.52	120	Floating	24 VAC	155-306P25	Heating Coil Valve
44	FCU-B.1-4	FCU-B.1-4 CCV	1	259-02032	0.75	0.50	2W/Sng	Globe	0.49	0.63	NO-NSR	1.10	5.00	3.05	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
45	FCU-G.1-1	FCU-G.1-1 HCV	1	259-02034	0.75	0.50	2W/Sng	Globe	0.67	1.00	NO-NSR	1.50	5.00	2.25	120	Floating	24 VAC	155-306P25	Heating Coil Valve
46	FCU-G.1-1	FCU-G.1-1 CCV	1	259-02032	0.75	0.50	2W/Sng	Globe	0.58	0.63	NO-NSR	1.30	5.00	4.26	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
47	FCU-G.1-2	FCU-G.1-2 HCV	1	259-02034	0.75	0.50	2W/Sng	Globe	0.67	1.00	NO-NSR	1.50	5.00	2.25	120	Floating	24 VAC	155-306P25	Heating Coil Valve
48	FCU-G.1-2	FCU-G.1-2 CCV	1	259-02032	0.75	0.50	2W/Sng	Globe	0.58	0.63	NO-NSR	1.30	5.00	4.26	120	Floating	24 VAC	155-306P25	Cooling Coil Valve
49	FCU-N.1-1	FCU-N.1-1 HCV	1	259-02034	0.75	0.50	2W/Sng	Globe	0.67	1.00	NO-NSR	1.50	5.00	2.25	120	Floating	24 VAC	155-306P25	Heating Coil Valve
50	FCU-N.1-1	FCU-N.1-1 CCV	1	259-02034	0.75	0.50	2W/Sng	Globe	0.72	1.00	NO-NSR	1.60	5.00	2.56	120	Floating	24 VAC	155-306P25	Cooling Coil Valve

System: FCUs																			
Number	Unit ID	Valve Tag	Q'ty	Product Number	Line Sizes (in.)	Valve Sizes (in.)	Configuration	Body Style	Calculated Cv	Actual Cv	Failsafe	Flow (GPM)	Design P.D	Actual P.D	Close-Off (psi)	Control Signal	Voltage	Document Number	Comment

Notes: All control valves and wells shall be installed by the mechanical contractor

For FCU Humidifier Steam Isolation Valves - Install temperature control valves with the valve stem at 45° above the horizontal center line of the pipe.

For all valves with electronic actuators – Do not rotate valve actuator. Install valve with the actuator in the original factory position.

Flow units are in GPM (Water) lbs/hr (Steam)

Failsafe Notation: NSR = Non-Spring Return, SR = Spring Return, FS = Failsafe

Valve Configuration Notation: 2W = 2-Way, 3W = 3-Way

Seating Notation: Sng = Single Seated, Dbl = Double Seated

Siemens Industry, Inc. Valve Schedule Job Name: IU BALL HALL FIRST FLR RENO Job Number: 44OP-399591 Revision: 0 Date: 6/6/2025																			
System: Convector																			
Number	Unit ID	Valve Tag	Q'ty	Product Number	Line Sizes (in.)	Valve Sizes (in.)	Configuration	Body Style	Calculated Cv	Actual Cv	Failsafe	Flow (GPM)	Design P.D	Actual P.D	Close-Off (psi)	Control Signal	Voltage	Document Number	Comment
1	CONV-1	CONV-1 VLV	1	171H-10302	0.75	0.50	2W/Sng	Ball	0.89	1.00	NO-SR	2.00	5.00	4.00	200	Floating	24 VAC	155-704P25	
2	CONV-2	CONV-2 VLV	1	171H-10301	0.75	0.50	2W/Sng	Ball	0.45	0.63	NO-SR	1.00	5.00	2.52	200	Floating	24 VAC	155-704P25	

- Notes:
- All control valves and wells shall be installed by the mechanical contractor

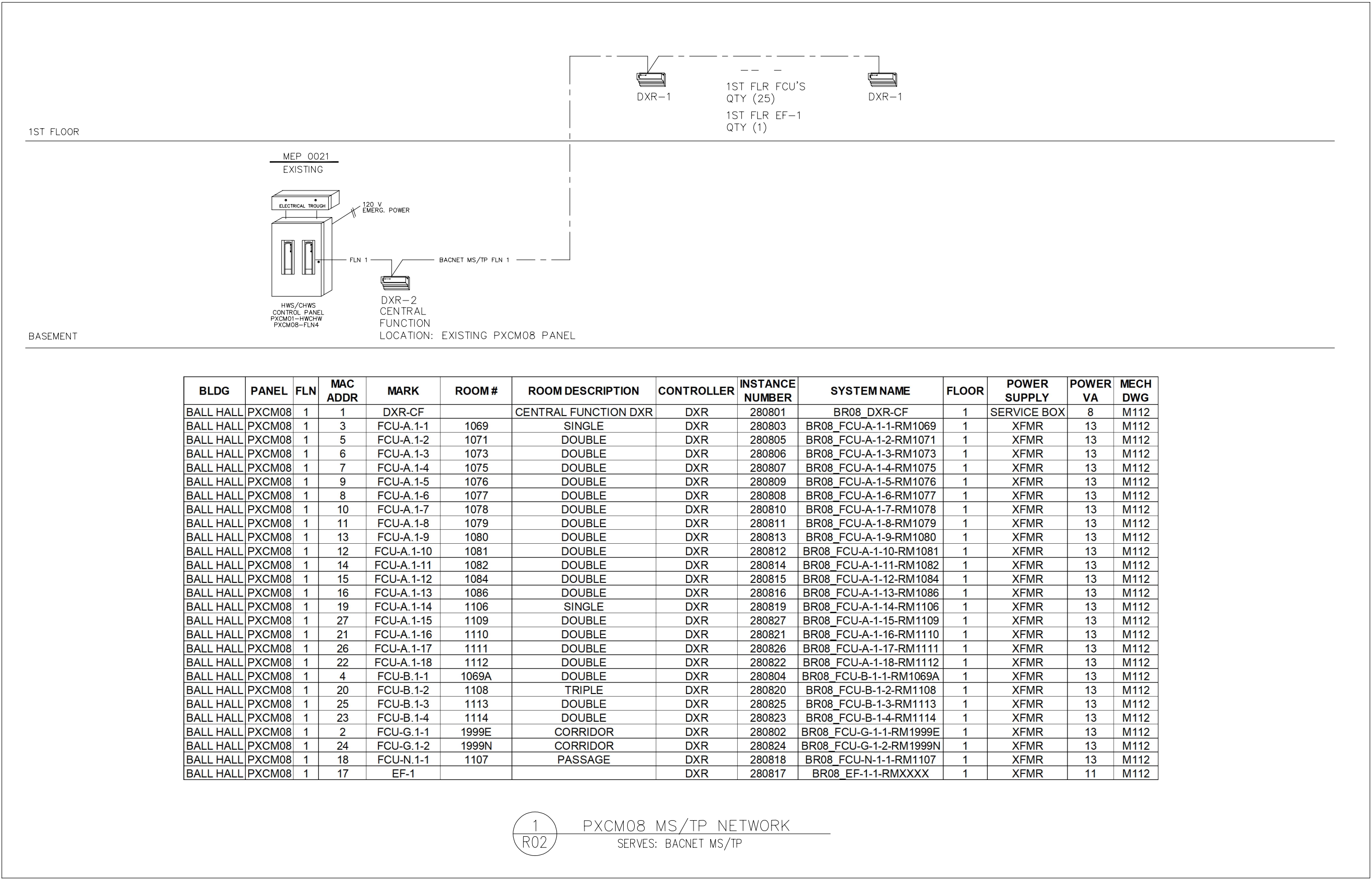
For all valves with electronic actuators – Do not rotate valve actuator. Install valve with the actuator in the original factory position.

Flow units are in GPM (Water) lbs/hr (Steam)

Failsafe Notation: NSR = Non-Spring Return, SR = Spring Return, FS = Failsafe

Valve Configuration Notation: 2W = 2-Way, 3W = 3-Way

Seating Notation: Sng = Single Seated, Dbl = Double Seated



REVISION HISTORY				SIEMENS SIEMENS INDUSTRY INC. SMART INFRASTRUCTURE DIVISION	3502 WOODVIEW TRACE SUITE 240 INDIANAPOLIS, IN 46268 UNITED STATES PHONE: 317-293-8880 FAX: 317-293-0374	IU BALL HALL FIRST FLR RENO IU PROJECT #20222802, IN					440P-399591 0 R01
00	6/6/2025	HB	SUBMITTAL SET			ENGINEER HB	DRAFTER HB	CHECKED BY KR	INITIAL RELEASE 06/06/25	LAST EDIT DATE 06/06/25	
						NETWORK RISER					

Control Device	Qty	Product Number	Manufacturer	Document Number	Description
Field Mounted Devices					
DXR 2	1	DXR2.M18-101B	SIEMENS	A6V10502840	DXR2.M18 Room Automation Station

REVISION HISTORY			
00	6/6/2025	HB	SUBMITTAL SET

SIEMENS

SIEMENS INDUSTRY INC.
SMART INFRASTRUCTURE DIVISION

3502 WOODVIEW TRACE
SUITE 240
INDIANAPOLIS, IN 46268
UNITED STATES
Phone: 317-293-8880
Fax: 317-293-0374

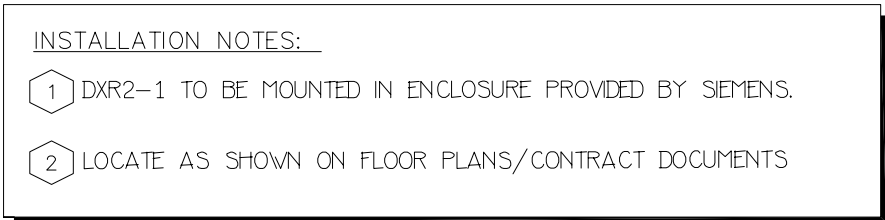
IU BALL HALL FIRST FLR RENO
IU PROJECT #20222802, IN

ENGINEER	DRAFTER	CHECKED BY	INITIAL RELEASE	LAST EDIT DATE
HB	HB	KR	06/06/25	06/06/25

NETWORK RISER BOM

440P-399591
0

R01A



EF-1 CONTROL
TYPICAL OF Q'TY: (1)
BASE APPLICATION 14051

440P-399591
0
400

Control Device	Qty	Product Number	Manufacturer	Document Number	Description
Field Mounted Devices					
CS1	1	C-2320-L ECM	SENVA		ECM CURRENT SWITCH
PNL1	1	550-002	SIEMENS		ENCLOSURE ASSY,TEC
RE1	1	RIBU1C	FUNCTIONAL DEVICES	1208cut013	RIB 120VAC 24VAC/DC SPDT
TTE1	1	QMX3.P30	SIEMENS	A6V10394781	QMX3 ROOM TEMP ONLY
XFMR1	1	TR100VA001	FUNCTIONAL	TR100VA001	Xfrmr 100VA,120-24V,single hub,ClassII U
Panel Mounted Devices					
DXR1	1	DXR2.M18-101B	SIEMENS	A6V10502840	DXR2.M18 Room Automation Station

EXHAUST FAN SEQUENCING AND POINTS TO TIE INTO EXISTING/NEW BAS INFRASTRUCTURE

EXHAUST FAN SEQUENCE OF OPERATION:

MODE OF OPERATION:

THE EXHAUST FAN SHALL BE OCCUPIED UNLESS COMMANDED OFF BY AN OPERATOR MANUAL OVERRIDE FROM THE BAS.

THE SPACE TEMPERATURE SETPOINT SHALL BE ADJUSTABLE AT THE

BAS

~~SPACE THERMOSTAT~~ BETWEEN A MINIMUM OF 80F AND A MAXIMUM OF 90F.

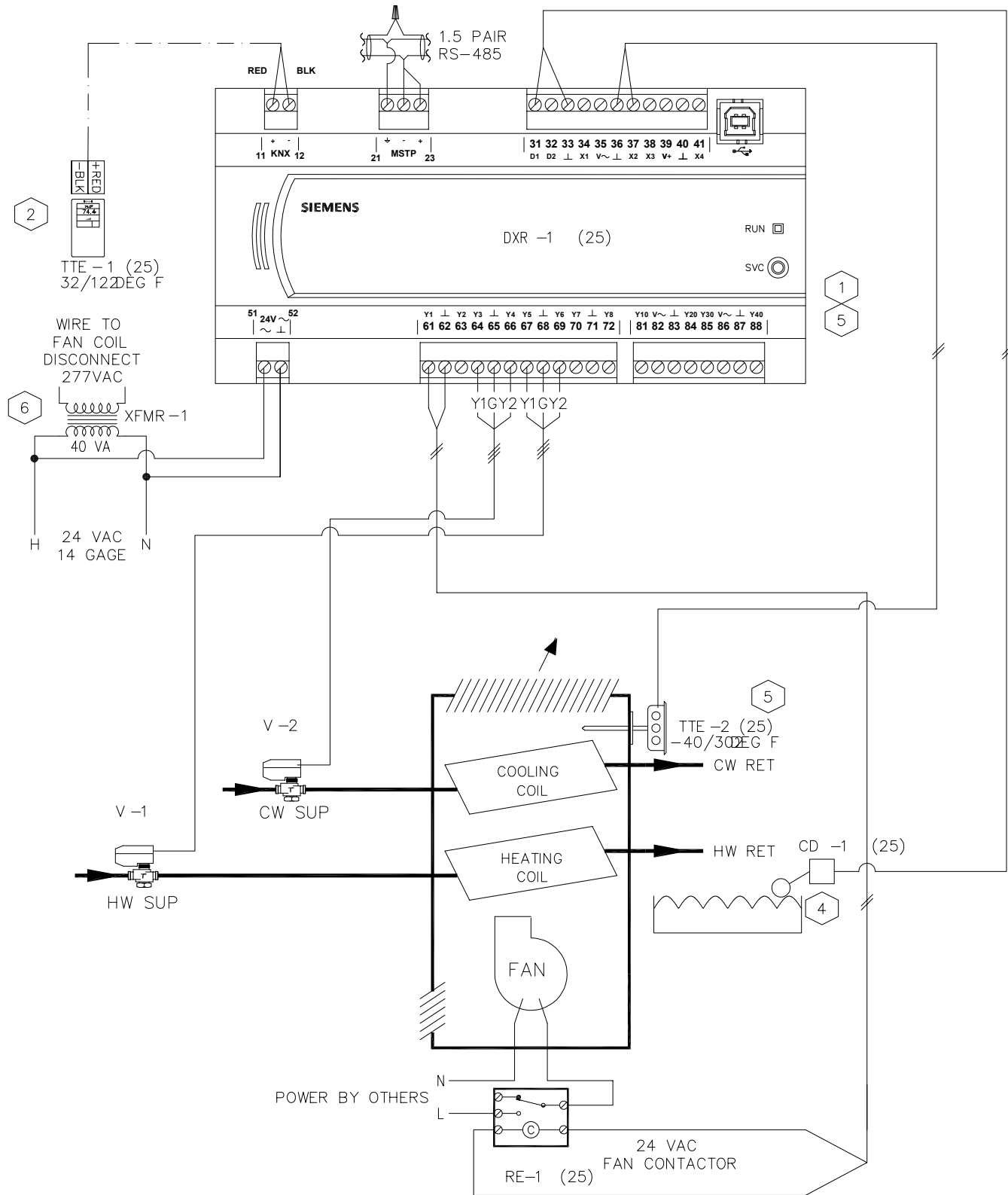
ON A CALL FOR COOLING, THE EXHAUST FAN SHALL CYCLE TO MAINTAIN SPACE TEMPERATURE AT SETPOINT

ALARM MONITORING:

AN ALARM WILL BE GENERATED AT THE BAS PC WORKSTATION IF ANY OF THE FOLLOWING OCCUR:

- 1. SPACE HIGH TEMPERATURE ALARM
- 2. FAN FAILURE ALARM

REVISION HISTORY				SIEMENS SIEMENS INDUSTRY INC. SMART INFRASTRUCTURE DIVISION	3502 WOODVIEW TRACE SUITE 240 INDIANAPOLIS, IN 46268 UNITED STATES PHONE: 317-293-8880 FAX: 317-293-0374	IU BALL HALL FIRST FLR RENO IU PROJECT #20222802, IN					440P-399591 0 400B
00	6/6/2025	HB	SUBMITTAL SET			ENGINEER	DRAFTER	CHECKED BY	INITIAL RELEASE	LAST EDIT DATE	
						HB	HB	KR	06/06/25	06/06/25	
						EF-1 CONTROL BOM & SOO					



INSTALLATION NOTES:

- 1 DXR2-1 TO BE MOUNTED IN MANUFACTURER SUPPLIED CONTROLLER ENCLOSURE
- 2 LOCATE AS SHOWN ON FLOOR PLANS/CONTRACT DOCUMENTS
- 3 SEE RISER FOR PSH TRUNK DETAIL
- 4 CONDENSATE PAN SENSOR PROVIDED BY UNIT MANUFACTURER WITH SET OF DRY CONTACTS FOR DXR CONTROLLER.
- 5 FACTORY MOUNTING OF SIEMENS CONTROLLER AND DISCHARGE AIR TEMPERATURE SENSOR CONTROLLER AND SENSOR PROVIDED BY SIEMENS, INSTALLED BY MFR.
- 6 PROVIDE FACTORY MOUNTED 40VA TRANSFORMER WIRED TO SIEMENS CONTROLLER TRANSFORMER PROVIDED AND INSTALLED BY MANUFACTURER.

M-MOUNTED
W-WIRED

DEVICE	SIEMENS		MANUFACTURER	DIVISION 16	DIVISION 15
	FITTER	ELEC.			
TTE-1		M,W			
TTE-2			M,W		
DXR-1			M,W		
V-1/2		W			M
RE-1			M,W		
MSTP TRUNK		W			
POWER (24VAC)		W			
XFMR-1			M,W		

1
410 FAN COIL 4-PIPE CW & HW
TYPICAL OF Q'TY: (25)
LOCATION: SEE THE FLN DEVICE ROOM SCHEDULE
SERVES: SEE THE FLN DEVICE ROOM SCHEDULE
BASE APPLICATION 14051

REVISION HISTORY

00	6/6/2025	HB	SUBMITTAL SET
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SIEMENS

SIEMENS INDUSTRY INC.
SMART INFRASTRUCTURE DIVISION

3502 WOODVIEW TRACE
SUITE 240
INDIANAPOLIS, IN 46268
UNITED STATES
PHONE: 317-293-8880
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IU BALL HALL FIRST FLR RENO
IU PROJECT #20222802, IN

ENGINEER	DRAFTER	CHECKED BY	INITIAL RELEASE	LAST EDIT DATE
HB	HB	KR	06/06/25	06/06/25

FCU 4PIPE W/ HTG AND CLG

440P-399591
0

410

Control Device	Qty	Product Number	Manufacturer	Document Number	Description
Field Mounted Devices					
CD 1	25	FBO			FURNISHED BY OTHERS
DXR 1	25	DXR2.M18-101B	SIEMENS	A6V10502840	DXR2.M18 Room Automation Station
RE 1	25	FBUM			FURNISHED BY UNIT MANUFACTURER
TTE 1	25	QMX3.P34	SIEMENS	A6V10394781	QMX ROOM OPERATOR, LCD, KNX
TTE 2	25	A/AN-DO-4"-6'CL2P	ACI		DUCT POINT TEMP, 10K OHM, 4"
V					SEE VALVE SUBMITTAL

SEQUENCE OF OPERATION: FAN COIL UNITS

A. FAN COIL UNITS SHALL BE UNDER THE CONTROL OF THE BMS.

B. THE FAN COIL UNIT SUPPLY FAN SHALL CYCLE ON/OFF ON A CALL FOR HEATING OR COOLING. (FAN CYCLES ON WHEN VALVES OPEN TO PREDETERMINED MINIMUM POSITION)

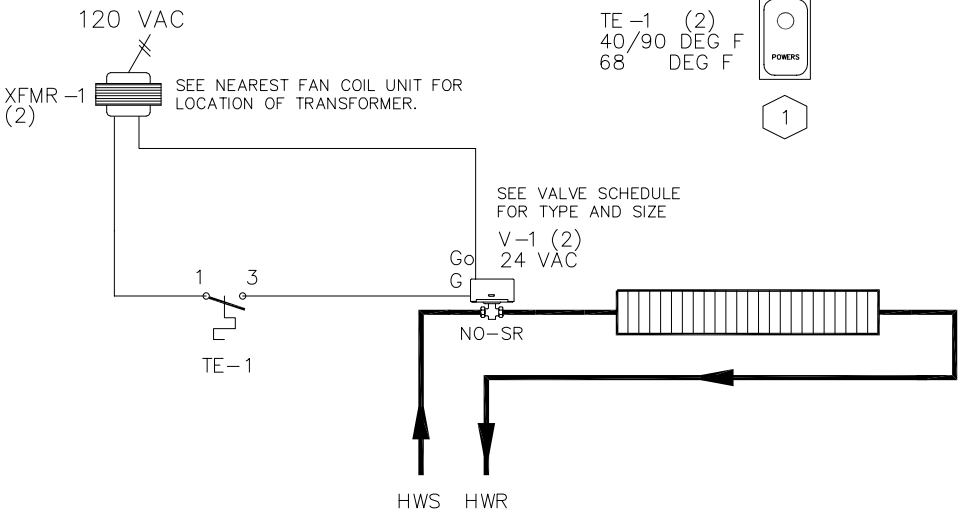
C. COOLING SEASON: THE UNIT'S TWO-WAY CONTROL VALVE SHALL MODULATE TO MAINTAIN THE SPACE TEMPERATURE SET POINT.

D. HEATING SEASON: THE UNIT'S TWO-WAY CONTROL VALVE SHALL MODULATE TO MAINTAIN THE SPACE TEMPERATURE SET POINT.

REVISION HISTORY				SIEMENS SIEMENS INDUSTRY INC. SMART INFRASTRUCTURE DIVISION	3502 WOODVIEW TRACE SUITE 240 INDIANAPOLIS, IN 46268 UNITED STATES PHONE: 317-293-8880 FAX: 317-293-0374	IU BALL HALL FIRST FLR RENO IU PROJECT #20222802, IN					440P-399591 0 410A
00	6/6/2025	HB	SUBMITTAL SET			ENGINEER HB	DRAFTER HB	CHECKED BY KR	INITIAL RELEASE 06/06/25	LAST EDIT DATE 06/06/25	
						FCU CONTROL BOM & SOO					

INSTALLATION NOTES:

1 LOCATE AS SHOWN ON FLOOR PLANS/CONTRACT DOCUMENTS.



1
420

CONVECTOR CONTROL SYSTEM

TYPICAL OF Q'TY: (2)
SEE VALVE SCHEDULE

REVISION HISTORY

REV	DATE	BY	DESCRIPTION
00	6/6/2025	HB	SUBMITTAL SET

SIEMENS

SIEMENS INDUSTRY INC.
SMART INFRASTRUCTURE DIVISION

3502 WOODVIEW TRACE
SUITE 240
INDIANAPOLIS, IN 46268
UNITED STATES
PHONE: 317-293-8880
FAX: 317-293-0374

IU BALL HALL FIRST FLR RENO
IU PROJECT #20222802, IN

ENGINEER	DRAFTER	CHECKED BY	INITIAL RELEASE	LAST EDIT DATE
HB	HB	KR	06/06/25	06/06/25

CONV CONTROL

440P-399591
0

420

Control Device	Qty	Product Number	Manufacturer	Document Number	Description
Field Mounted Devices					
TE 1	2	134-1084	SIEMENS	155 017	T'STAT,H/C,LINE VOLT CON/EXP
V					SEE VALVE SUBMITTAL
XFMR 1	2	TR100VA001	FUNCTIONAL	TR100VA001	Xfrmr 100VA,120-24V,single hub,ClassII U

SEQUENCE OF OPERATION : CONVECTORS (ALL)

- A. CYCLE TWO WAY CONTROL VALVE TO MAINTAIN SPACE TEMPERATURE.SETPOINT 68 DEGF (ADJ.)
B. DO NOT TIE INTO BMS SYSTEM. USE 24V STAT, PROVIDED BY SIEMENS.

REVISION HISTORY				SIEMENS SIEMENS INDUSTRY INC. SMART INFRASTRUCTURE DIVISION	3502 WOODVIEW TRACE SUITE 240 INDIANAPOLIS, IN 46268 UNITED STATES PHONE: 317-293-8880 FAX: 317-293-0374	IU BALL HALL FIRST FLR RENO IU PROJECT #20222802, IN					440P-399591 0 420A
00	6/6/2025	HB	SUBMITTAL SET			ENGINEER HB	DRAFTER HB	CHECKED BY KR	INITIAL RELEASE 06/06/25	LAST EDIT DATE 06/06/25	
						CONV CONTROL BOM & SOO					

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LIGHT FIXTURE SCHEDULE																																											
MOUNTING: CEILING MOUNTING: REC - RECESSED SUR - SURFACE SEMI - SEMI RECESSED STR - STRUT SUSPENDED MOUNTING: AC-# - AIRCRAFT CABLE CH-# - CHAIN HUNG RP-# - ROD PENDANT CP-# - CONDUIT PENDANT (#FT) - DISTANCE FROM CEILING (#AFF) - ABOVE FINISH FLOOR				EXTERIOR MOUNTING: W - WALL P - POLE BP - BOLLARD TOP IG - IN-GRADE EXTERIOR POLE: AL - ALUMINUM ST - STEEL R - ROUND SQ - SQUARE SA - STRAIGHT TA - TAPERED (#FT) - POLE HEIGHT (#IN) - DIAMETER POLE				CEILING TYPE: ACT - ACOUSTIC CEILING TILE GYP - GYPSUM BOARD CEILING EXP - EXPOSED EXAMPLE: REC-GYP RECESSED GYPSUM BOARD CEILING				LISTING: #FR - FIRE RATED # - HOURS IC - INSULATED CONTACT CR - CHICAGO RATED DAMP OR WET EXAMPLE: IC-1.5FR INSULATED CONTACT WITH FIRE RATED FOR 90 MINUTES.				LENS TYPE / COLOR: #P - POLY LENS #T - TEMPERED GLASS #AC - ACYLIC OPTIONS: # - 0.125, 0.156, ETC				TRIM TYPE / COLOR: SG - SINGLE GASKET DG - DOUBLE GASKET IP - INGRESS PROTECTION AM - ANTIMICROBIAL				TEMPERATURE (K): K - KELVIN RGB WT (#K-#K) - WHITE TUNING (#K-#K) COLOR RANGE				COLOR RENDER INDEX (CRI): 80+ MIN TM-30 (CHROMATICITY): (Rf / Rg / Rth1 / Rcsht) Rf - FIDELITY INDEX Rg - RELATIVE GAMUT INDEX Rth1 - FIDELITY INDEX, HUE-BIM Rcsht - CHROMA SHIFT, HUE-BIM				VOLTAGE: UNV - 100V TO 277V 120V 208V 277V 480V				CONTROL: NA - ON / OFF STEP (0%, 50%, 100%) DIMMING: W - WIRELESS 0-10V DMX DALI PC - PHASE CONTROL (#%) - MIN DIMMING				EMERGENCY CONTROL: # WATT (90 MINUTES) UL 924 UL 1008			

EQUIPMENT DATA SCHEDULE - ELECTRICAL																												
NOTES: 1. CONTROL PANEL PROVIDED BY MANUFACTURER. 2. MOUNT DISCONNECT SWITCH ON CEILING ADJACENT TO EQUIPMENT 3. MOUNT DISCONNECT SWITCH ON WALL ADJACENT TO EQUIPMENT				BRANCH CIRCUIT: REFER TO FEEDER SCHEDULE WHEN THIS COLUMN CONTAINS A FEED DESIGNATION INSTEAD OF CONDUCTOR SIZE.				DISCONNECT SWITCH TYPE: NF - NON FUSED F - FUSED TOG - TOGGLE REG - DUPLEX RECEPTACLE				STARTER TYPE: COMB1 - COMBINATION FULL VOLTAGE NON-REVERSING MAGNETIC STARTER WITH FUSED DISCONNECT SWITCH COMB2 - COMBINATION FULL VOLTAGE NON-REVERSING MAGNETIC STARTER WITH UNFUSED DISCONNECT SWITCH COMB3 - COMBINATION FULL VOLTAGE NON-REVERSING MAGNETIC STARTER WITH THERMAL MAGNETIC MOLDED CASE CIRCUIT BREAKER DISCONNECT COMB4 - COMBINATION FULL VOLTAGE NON-REVERSING MAGNETIC STARTER WITH MAGNETIC ONLY MOLDED CASE CIRCUIT BREAKER DISCONNECT FVNR - FULL VOLTAGE NON-REVERSING MAGNETIC STARTER WITHOUT DISCONNECT MAN - MANUAL MOTOR STARTER WITH DISCONNECT SWITCH AND REPLACEABLE THERMAL OVERLOAD CONTACTS SDS - STAR DELTA STARTER...								STARTER ACCESSORIES: HOAP - HOA WITH PILOT LIGHT... SPECIFICATION DIVISION NUMBER: DIVISION 14 - CONVEYING EQUIPMENT DIVISION 21 - FIRE PROTECTION DIVISION 22 - PLUMBING DIVISION 23 - MECHANICAL DIVISION 26 - ELECTRICAL								
MARK		EQUIPMENT	LOCATION	FURN. BY	MOTOR OR EQUIPMENT DATA								FED FROM	BRANCH CIRCUIT	DISCONNECT SWITCH AT EQUIPMENT						STARTER							NOTES
ID	#				AMPS	KW	HP	VOLTS	PHAS E	MIN SCCR	INST. BY	CONN. BY			TYPE	NEMA ENCLOS. TYPE	SWITCH/ FUSE SIZE	FURN. BY	INST. BY	CONN. BY	NEMA SIZE	NEMA ENCLOS. TYPE	TYPE	BREAKER/ TRIP	ACCES.	FURN. BY	CONN. BY	
EF	1	INLINE EXHAUST FAN	EXISTING IDF CLOSET	DIV. 23	2		0.17	120	1		DIV. 23	DIV. 26	REFER TO PLAN	REFER TO PLAN	TOG	NEMA 1 W/ METAL LOCKABLE GUARD	20A	DIV. 26	DIV. 26	DIV. 26				DIV. 23	DIV. 23		1,3	
FCU	A	HORIZONTAL EXPOSED FCU	MULTIPLE LOCATIONS REFER TO PLANS	DIV. 23	1.6		1/4	277	1		DIV. 23	DIV. 26	REFER TO PLAN	REFER TO PLAN	TOG	NEMA 1 W/ METAL LOCKABLE GUARD	20A	DIV. 26	DIV. 26	DIV. 26				DIV. 23	DIV. 23		1,2	
FCU	B	HORIZONTAL EXPOSED FCU	MULTIPLE LOCATIONS REFER TO PLANS	DIV. 23	1.6		1/4	277	1		DIV. 23	DIV. 26	REFER TO PLAN	REFER TO PLAN	TOG	NEMA 1 W/ METAL LOCKABLE GUARD	20A	DIV. 26	DIV. 26	DIV. 26				DIV. 23	DIV. 23		1,2	
FCU	G	VERTICAL FLOOR MOUNTED FCU	CORRIDOR 1999N	DIV. 23			0.30	277	1		DIV. 23	DIV. 26	REFER TO PLAN	REFER TO PLAN	TOG	NEMA 1 W/ METAL LOCKABLE GUARD	20A	DIV. 26	DIV. 26	DIV. 26				DIV. 23	DIV. 23		1,3	
FCU	N	HORIZONTAL CONCEALED FCU	PASSAGE 1107	DIV. 23	1.6		1/4	277	1		DIV. 23	DIV. 26	REFER TO PLAN	REFER TO PLAN	TOG	NEMA 1 W/ METAL LOCKABLE GUARD	20A	DIV. 26	DIV. 26	DIV. 26				DIV. 23	DIV. 23		1,2	

