



Quality People. Building Solutions.

Comfort Systems USA (Arkansas), Inc.
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LittleRock, AR 72231
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Date: 7/28/2026

Return Request: 8/5/2026

Project: Hot Springs National Park – Rehabilitate Bathhouses – Libbey Bathhouse

Supplier: Powers of Arkansas

Manufacturer: Siemens

Submittal: Controls (Re-Submittal #2)

Submittal Number: 230900.001

Spec Section: 230900

Drawing # and Installation Location: M1.1

ARCHITECT

Quinn Evans Architects
219-1/2 N. Main Street
Ann Arbor, Michigan 48104
(734)663-5888

GENERAL CONTRACTOR

Tepa, LLC
2345 Grand Blvd, Suite 700
Kansas City, Missouri 64108
(816)708-1110

ENGINEER

IMEG Corp.
1600 Baltimore Street, Suite 300
Kansas City, Missouri 64108
(816)842-8437

MECHANICAL SUBCONTRACTOR

Comfort Systems USA (Arkansas), Inc.
9924 Landers Road
North Little Rock, Arkansas 72117
(501)834-3320

Comments:

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CSUSA PROJECT NO.

25-7065

joe@comfortar.com

9924 Landers Road
No. LittleRock, AR 72117



Specification Section Comment Response

Project: Renovation of Bathhouses
Libbey Bathhouse
Hot Springs, AR

Subject: Siemens Building Technologies
HVAC Direct Digital Control System
Wiring Diagrams Comments

Date: 07-29-2026

Powers of Arkansas Contract No. 25CNEB0018

Submitted By: Matt Conrad

matt.conrad@powers-hvac.com

➤ **See response below for each line item:**

1. Revise and Resubmit:

a. Coordinate with Trane to provide field installed control components as required to meet the design controls schematics and sequences.
numbers. (Noted. Added additional installation note on controls diagram sheet 001 to further indicate the intent.)

b. What types of control wiring are being provided. (Revised text on riser diagram sheet 000 to more clearly indicate the wire type. Also including wire data sheets for further clarification.)

2. Approved as Noted:

a. Provide Controls Shop Drawing Resubmittal. (See attached Control Shop Drawings with changes made and marked.)

b. There is no emergency power on this project. (Noted. The previous submittal comment was as follows "Identification of all control components connected to emergency power." Our response was that that is determined by the electrical contract and design. We are responding now for acknowledgment, and this comment will be dis-regarded as Emergency power does not apply to this project.)

c. Control sequence shall be revised so that the motorized OA damper opens when the AHU is indexed to Run. (Noted. This has been added to the sequence of operation. This will need to be shared with the equipment provider as well.)

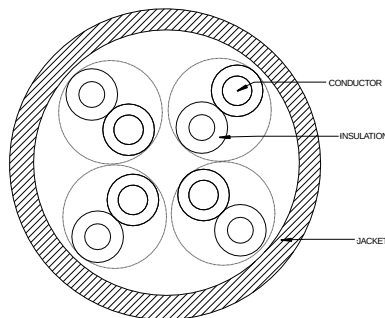
TABLE OF CONTENTS

I. CONTROL WIRING DATA SHEETS

II. CONTROL DRAWINGS

COM-Link®

Category 5e Plenum



1. Construction:

- 1.1. Conductors: 24 AWG Solid Bare Copper
- 1.2. Insulation: Fluoropolymer 0.033" Nominal Diameter
- 1.3. Insulation: FR-Polyolefin 0.034" Nominal Diameter
- 1.4. Pair Assembly: Conductors Twisted to Varying Lays
- 1.5. Cable Assembly: 4 Pairs Cabled Together
- 1.6. Jacket: Plenum PVC 0.180" Nominal Diameter
- 1.7. Ripcord: Pulled in Under Jacket

1.8. Jacket Print:

COMTRAN COM-Link® CAT5e 350 MHZ 24 AWG
CMP C(UL)US ETL VERIFIED TO ANSI/TIA-568-C.2 CAT 5e
ROHS (01-12345) XXXXXX

(01-12345) = Traceability Code
XXXXXX = Sequential Footage every Two Feet

2. Physical Characteristics:

- 2.1. Nominal Cable Weight: 20lbs./1,000 ft.
- 2.2. Installation Temperature Rating: 0°C to +60°C
- 2.3. Operation Temperature Rating: -20°C to +75°C

3. Compliance:

- 3.1. UL Subject 444 Communications Cables
- 3.2. UL Listed Type CMP
- 3.3. NFPA 262, UL 910
- 3.4. NEC Article 800
- 3.5. c(UL) Type CMP
- 3.6. ICEA S-90-661
- 3.7. California State Fire Marshal
- 3.8. RoHS Compliant

4. Category Electrical Performance:

- 4.1. Voltage Rating: 300V
- 4.2. Max. DC Resistance: 9.38Ω/100m
- 4.3. Max DC Resistance Unbalance: 5.0%
- 4.4. Nominal Velocity of Propagation: 68%
- 4.5. Max Propagation Delay Skew: 45 ns/100m
- 4.6. ETL Verified to ANSI/TIA-568-C.2

TITLE:			DESCRIPTION	Comtran 330A Turner Street South Attleboro, MA 02703 Phone: 508-399-7004 Fax: 508-399-8839		 COMTRAN Innovative Systems. Engineered Solutions.  A Marmon Wire & Cable/Berkshire Hathaway Company
CAT 5E PLENUM			4 Pair 24 AWG Solid Bare Copper COM-Link® Category 5e Plenum			
Rev	Date	Detail			Eng.	App.
16	5/13/19	Rebranding			KB	PB
15	2/7/17	Added Pink			BAL	RN
14	6/28/16	New Format			BAL	RN

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COM-Link[®]

Category 5e Plenum

Category 5e Electricals

(Per ANSI/TIA 568-C.2)

Freq.	Return Loss	Attenuation	NEXT	PSNEXT	ACRF	PSACRF
(MHz.)	(dB)	(dB/100m)	(dB/100m)	(dB/100m)	(dB/100m)	(dB/100m)
1	20.0	2	65.3	62.3	63.8	60.8
4	23.0	4.1	56.3	53.3	51.7	48.7
8	24.5	5.8	51.8	48.8	45.7	42.7
10	25.0	6.5	50.3	47.3	43.8	40.8
16	25.0	8.2	47.2	44.3	39.7	36.7
20	25.0	9.3	45.8	42.8	37.7	34.7
25	24.3	10.4	44.3	41.3	35.8	32.8
31.25	23.6	11.7	42.9	39.9	33.9	30.9
62.5	21.5	17	38.4	35.4	27.8	24.8
100	20.1	22	35.3	32.3	23.8	20.8
200	18.0	32.4	30.8	27.8	20	14.7
350	16.3	44.8	27.5	24.2	17	9.9

Values above 100 MHz are for Engineering Information Only

Category Color Code

Color Code	
Pair 1	Blue-White/Blue
Pair 2	Orange-White/Orange
Pair 3	Green-White/Green
Pair 4	Brown-White/Brown

Part	Color
32539	Green
32567	Blue
32568	Orange
32644	Gray
32820	Yellow
35799	Black
32347	White
36313	Pink

TITLE:		DESCRIPTION		Comtran 330A Turner Street South Attleboro, MA 02703 Phone: 508-399-7004 Fax: 508-399-8839		 COMTRAN Innovative Systems. Engineered Solutions.  A Marmon Wire & Cable/ Berkshire Hathaway Company	
CAT 5E PLENUM		4 Pair 24 AWG Solid Bare Copper COM-Link® Category 5e Plenum					
Rev	Date	Detail		Eng.	App.		
16	5/13/19	Rebranding		KB	PB		
15	2/7/17	Added Pink		BAL	RN		
14	6/28/16	New Format		BAL	RN		

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Specification Sheet

Lake Cable Part #: P182C-98/00K1

24vac Power wiring
typ. Can be used for
signal wire that does
not require a shield

Description: 18 AWG 2 conductors 7 strands bare copper wire with plenum rated PVC insulation, unshielded, and an overall plenum rated PVC jacket

1. Conductor

- 1.1. AWG Size & Stranding: 18 AWG 7 Strands Class B
- 1.2. Material: Annealed Bare Copper
- 1.3. Conductor Count: 2 Conductors

2. Insulation

- 2.1. Material: Plenum Rated Polyvinylchloride
- 2.2. Wall Thickness: 0.007"
- 2.3. Diameter: 0.059" $\pm$ 0.002"
- 2.4. Color Code: Black, White

3. Cable Assembly

- 3.1. Lay Length: 3.00" LHL, Nominal

4. Jacket

- 4.1. Material: Plenum Rated Polyvinylchloride
- 4.2. Wall Thickness: 0.015"
- 4.3. Diameter: 0.148" $\pm$ 0.010"
- 4.4. Color: Natural/Black
- 4.5. Ripcord: Yes
- 4.6. Weight: 17 Lbs/Mft

5. Markings

- 5.1. Type: Cable permanently identified via surface inkjet print
- 5.2. Legend: LAKE CABLE E171202 18AWG 2C 75C (UL) CL3P OR FPLP OR C(UL)US CMP FT-6
"ROHS COMPLIANT" MADE IN USA
- 5.3. Footage Markers: Yes

6. Standards

- 6.1. Cable suitable for installation under NEC (NFPA 70) articles 800, 725 and 760 guidelines
- 6.2. Cable suitable for installation in Canada under Section 60 of CEC, Part I
- 6.3. C(UL)US listed as CMP per UL standard 444 and per CSA C22.2 No. 214-17
- 6.4. UL listed as CL3P per UL standard 13 or FPLP per UL standard 1424
- 6.5. Cable meets NFPA 262 (Steiner tunnel) flame test
- 6.6. Operating Voltage: 300V RMS
- 6.7. Cable meets RoHS 2002/95/EC Directive, RoHS 2 2011/65/EU Directive, RoHS 3 2015/863/EU Directive
- 6.8. Cable is REACH compliant per Regulation (EC) No 1907/2006 (197) Updated January 15, 2019
- 6.9. Made in the USA
- 6.10. ⚠️ WARNING: This product may contain chemicals, such as Vinyl Chloride, known to the state of California to cause cancer. For more information, go to www.P65Warnings.ca.gov. Wash hands after handling

Your signature constitutes that you have read and agreed to this specification sheet and upon confirmation of your order; this item may be non-cancelable and non-returnable.

Signature

Company

Date

ALL SPECIFIED PARAMETERS WITHOUT A TOLERANCE ARE NOMINAL AND SUBJECT TO VERIFICATION



Specification Sheet

Lake Cable Part #: P182CS-04K1

Signal cable requiring a shield

Description: 18 AWG 2 conductors 7 strands bare copper wire, plenum rated PVC insulation, shielded, and an overall plenum rated PVC jacket

1. Conductor

- 1.1. AWG Size & Stranding: 18 AWG 7 Strands Class B
- 1.2. Material: Annealed Bare Copper
- 1.3. Conductor Count: 2 Conductors

2. Insulation

- 2.1. Material: Plenum Rated Polyvinylchloride
- 2.2. Wall Thickness: 0.007"
- 2.3. Diameter: 0.059" $\pm$ 0.002"
- 2.4. Color Code: Black, White

3. Cable Assembly

- 3.1. Nominal Lay Length: 1.75" LHL (6.86 tw/ft)
- 3.2. Shield: Aluminum/Mylar Tape - 100% Coverage
- 3.3. Drain Wire: 24 AWG 7 Strands Tinned Copper

4. Jacket

- 4.1. Material: Plenum Rated Polyvinylchloride
- 4.2. Wall Thickness: 0.015"
- 4.3. Diameter: 0.150" $\pm$ 0.010"
- 4.4. Color: Yellow
- 4.5. Ripcord: Yes
- 4.6. Weight: 19 Lbs/Mft

5. Markings

- 5.1. Type: Cable permanently identified via surface inkjet print
- 5.2. Print Legend: LAKE CABLE E171202 18AWG 2C SHIELDED 75C (UL) CL3P OR FPLP OR C(UL)US
CMP FT6 "ROHS COMPLIANT" MADE IN USA
- 5.3. Footage Markers: Yes

6. Electricals

- 6.1. Impedance: 33 Ω $\pm$ 10%
- 6.2. Capacitance: 57 pF/ft. $\pm$ 10%
- 6.3. DC Resistance: 6.60 Ω /Mft. @ 20°C

7. Standards

- 7.1. Cable suitable for installation under NEC (NFPA 70) articles 800, 725 and 760 guidelines
- 7.2. Cable suitable for installation in Canada under Section 60 of CEC, Part I
- 7.3. C(UL)US listed as CMP per UL standard 444 and per CSA C22.2 No. 214-17
- 7.4. UL listed as CL3P per UL standard 13 or FPLP per UL standard 1424
- 7.5. Cable meets NFPA 262 (Steiner tunnel) flame test
- 7.6. Cable meets RoHS 2002/95/EC Directive, RoHS 2 2011/65/EU Directive, RoHS 3 2015/863/EU Directive
- 7.7. Cable is REACH compliant per Regulation (EC) No 1907/2006 (197) Updated January 15, 2019
- 7.8. Operating Voltage: 300V RMS
- 7.9. Made in the USA
- 7.10. ⚠️ WARNING: This product may contain chemicals, such as Vinyl Chloride, known to the state of California to cause cancer. For more information, go to www.P65Warnings.ca.gov. Wash hands after handling

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Signature

Company

Date



Specification Sheet

Lake Cable Part #: P188C

Thermostat Cable

Description: 18 AWG 8 conductors 7 strands bare copper wire, plenum rated PVC insulation, unshielded, with an overall plenum rated PVC jacket

1. Conductor

- 1.1. AWG Size & Stranding: 18 AWG 7 Strands Class B
- 1.2. Material: Annealed Bare Copper
- 1.3. Conductor Count: 8 Conductors

2. Insulation

- 2.1. Material: Plenum Rated Polyvinylchloride
- 2.2. Wall Thickness: 0.007"
- 2.3. Nom Diameter: 0.059" $\pm$ 0.002"
- 2.4. Color Code: Black, Red, White, Green, Brown, Blue, Orange, Yellow

3. Assembly

- 3.1. Nominal Lay Length: 3.00" LHL (4.0 tw/ft)

4. Jacket

- 4.1. Material: Plenum Rated Polyvinylchloride
- 4.2. Wall Thickness: 0.015"
- 4.3. Diameter: 0.225" $\pm$ 0.015"
- 4.4. Color: Natural
- 4.5. Ripcord: Yes
- 4.6. Weight: 57 Lbs/Mft

5. Markings

- 5.1. Type: Cable permanently identified via surface inkjet print
- 5.2. Legend: LAKE CABLE E171202 18AWG 8C 75°C (UL) CL3P OR FPLP OR C(UL)US CMP FT-6 "ROHS COMPLIANT" MADE IN USA
- 5.3. Footage Markers: Yes

6. Electrical Characteristics

- 6.1. Impedance: 60 $\Omega \pm 3 \Omega$
- 6.2. Capacitance: 32 pF/ft
- 6.3. DC Resistance: 6.6 Ω /Mft @ 20°C

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Signature

Company

Date



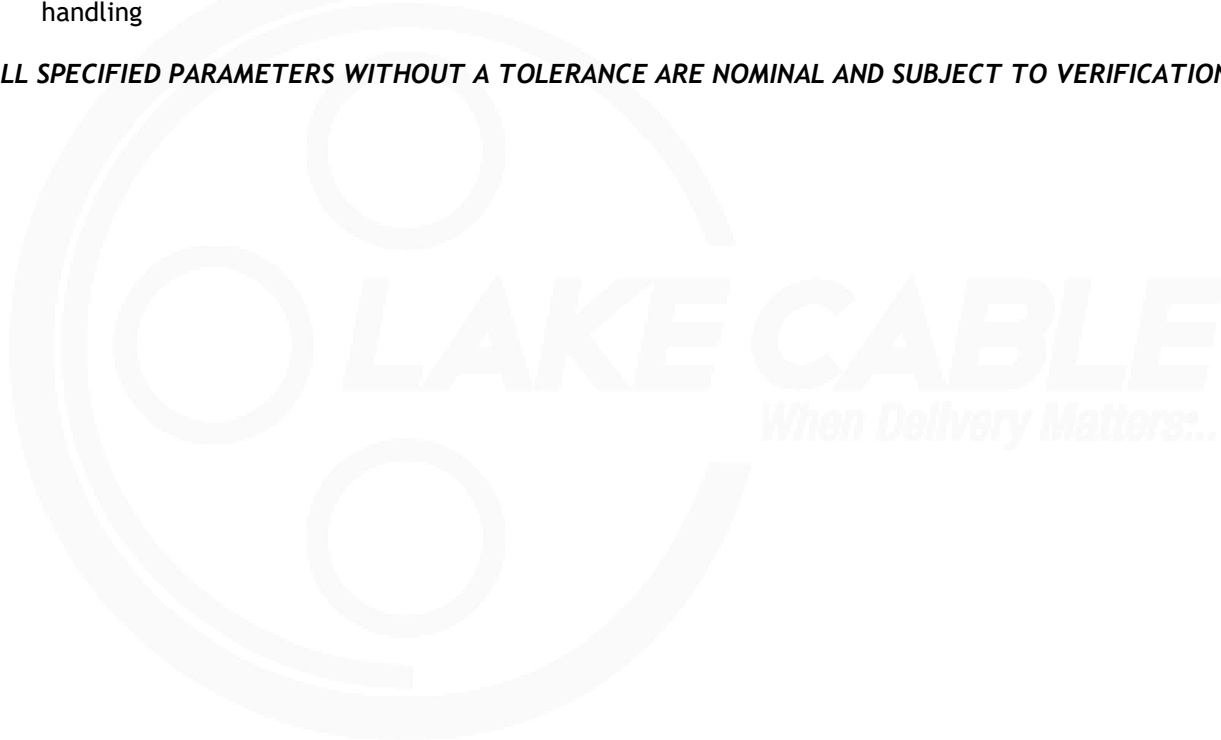
Specification Sheet

Lake Cable Part #: P188C

7. Standards

- 7.1. Cable suitable for installation under NEC (NFPA 70) articles 800, 725 and 760 guidelines
- 7.2. Cable suitable for installation in Canada under Section 60 of CEC, Part I
- 7.3. C(UL)US listed as CMP per UL standard 444 and per CSA C22.2 No. 214-17
- 7.4. UL listed as CL3P per UL standard 13 or FPLP per UL standard 1424
- 7.5. Cable meets NFPA 262 (Steiner tunnel) flame test
- 7.6. Cable meets RoHS 2002/95/EC Directive, RoHS 2 2011/65/EU Directive, RoHS 3 2015/863/EU Directive
- 7.7. Cable is REACH compliant per Regulation (EC) No 1907/2006 (197) Updated January 15, 2019
- 7.8. Made in the USA
- 7.9.  **WARNING:** This product may contain chemicals, such as Vinyl Chloride, known to the state of California to cause cancer. For more information, go to www.P65Warnings.ca.gov. Wash hands after handling

ALL SPECIFIED PARAMETERS WITHOUT A TOLERANCE ARE NOMINAL AND SUBJECT TO VERIFICATION





Specification Sheet

Lake Cable Part #: PFF242CST-03

RS-485
Communication wiring
that does not require
the ground

Description: 24 AWG 2 conductors 7 strands tinned copper wire, Foam FEP insulation, an aluminum/mylar shield, a stranded tinned copper drain wire and an overall plenum rated PVC jacket

1. Conductor

- 1.1. AWG Size & Stranding: 24 AWG 7 Strands Class B
- 1.2. Material: Annealed Tinned Copper
- 1.3. Conductor Count: 2 Conductors

2. Insulation

- 2.1. Material: Foam Fluorinated Ethylene Propylene
- 2.2. Wall Thickness: 0.016"
- 2.3. Diameter: 0.055" $\pm$ 0.002"
- 2.4. Color Code: Black, White

3. Assembly

- 3.1. Nominal Lay Length: 1.75" LHL (6.86 tw/ft)
- 3.2. Shield: Aluminum/Mylar Tape - 100% Coverage
- 3.3. Drain Wire: 24 AWG 7 Strands Tinned Copper

4. Jacket

- 4.1. Material: Plenum Rated Polyvinylchloride
- 4.2. Wall Thickness: 0.015"
- 4.3. Diameter: 0.142" $\pm$ 0.015"
- 4.4. Color: Orange
- 4.5. Ripcord: Yes
- 4.6. Weight: 12 Lbs/Mft

5. Markings

- 5.1. Type: Cable permanently identified via surface inkjet print
- 5.2. Legend: LAKE CABLE ECHELON LO-CAP E171202 24AWG 2C SHIELDED 75C (UL) CL3P OR FPLP OR C(UL)US CMP FT6 "ROHS COMPLIANT" MADE IN USA
- 5.3. Footage Markers: Yes

6. Electricals

- 6.1. Impedance: 100 Ω $\pm$ 10%
- 6.2. Capacitance: 12.5 pF/ft
- 6.3. DC Resistance: 23.4 Ω /Mft @ 20°C

7. Standards

- 7.1. Cable suitable for installation under NEC (NFPA 70) articles 800, 725 and 760 guidelines
- 7.2. Cable suitable for installation in Canada under Section 60 of CEC, Part I
- 7.3. C(UL)US listed as CMP per UL standard 444 and per CSA C22.2 No. 214-17
- 7.4. UL listed as CL3P per UL standard 13 or FPLP per UL standard 1424
- 7.5. Cable meets NFPA 262 (Steiner tunnel) flame test
- 7.6. Cable meets RoHS 2002/95/EC Directive, RoHS 2 2011/65/EU Directive, RoHS 3 2015/863/EU Directive
- 7.7. Cable is REACH compliant per Regulation (EC) No 1907/2006 (197) Updated January 15, 2019
- 7.8. Operating Voltage: 300V RMS
- 7.9. Made in the USA
- 7.10.  **WARNING:** This product may contain chemicals, such as Vinyl Chloride, known to the state of California to cause cancer. For more information, go to www.P65Warnings.ca.gov. Wash hands after handling

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Signature

Company

Date



Specification Sheet

Lake Cable Part #: SPFF243CST-03/06

BACnet MSTP cable
typical

Description: 24AWG 1 conductor, and 24AWG 1 pair 7 strand tinned copper wire, plenum rated Foam FEP insulation, shielded, with an overall plenum rated PVC jacket

1. Conductor

- 1.1. AWG Size & Stranding: 24AWG 7 Strands Class B
- 1.2. Material: Annealed Tinned Copper
- 1.3. Conductor Count: 1 Conductor + 1 Pair

2. Insulation

- 2.1. Material: Plenum rated Foam FEP
- 2.2. Wall Thickness: 0.020"
- 2.3. Diameter: 0.061" $\pm$ 0.002"
- 2.4. Color Code: Yellow + Black x White

3. Assembly

- 3.1. Pair Lay Length: 2.00" LHL (6.0 Tw/Ft)
- 3.2. Shield: Aluminum Mylar Tape - 100% Coverage
- 3.3. Drain Wire: 24 AWG 7 Strand Tinned Copper
- 3.4. Nominal Lay Length: 3.00" LHL (4.0 Tw/Ft)

4. Jacket

- 4.1. Material: Plenum Rated Polyvinylchloride
- 4.2. Wall Thickness: 0.015"
- 4.3. Diameter: 0.184" $\pm$ 0.015"
- 4.4. Color: Orange/Blue
- 4.5. Ripcord: Yes
- 4.6. Weight: 18 Lbs/Mft

5. Markings

- 5.1. Type: Cable shall be permanently identified via surface inkjet print
- 5.2. Legend: BAS/BLN/FLN E171202 24AWG 1PR + 1C SHIELDED 75°C (UL) CL3P OR FPLP OR C(UL)US CMP FT-6 "ROHS COMPLIANT" MADE IN USA
- 5.3. Footage Markers: Yes

6. Electricals

- 6.1. Impedance: 120 Ω $\pm$ 3 Ω
- 6.2. Capacitance: 11.0 pF/ft.
- 6.3. DC Resistance: 23.15 Ω /Mft. @ 20°C

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Signature

Company

Date



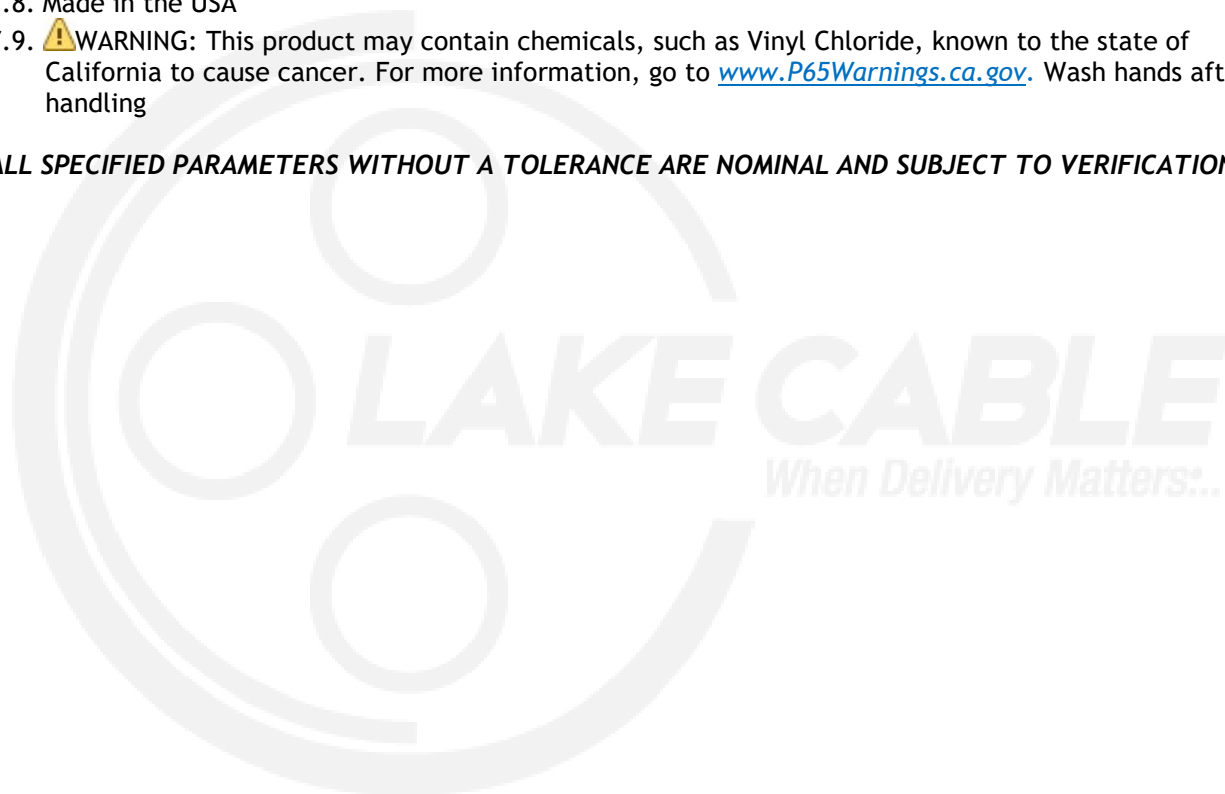
Specification Sheet

Lake Cable Part #: SPFF243CST-03/06

7. Standards

- 7.1. Cable suitable for installation under NEC (NFPA 70) articles 800, 725 and 760 guidelines
- 7.2. Cable suitable for installation in Canada under Section 60 of CEC, Part I
- 7.3. C(UL)US listed as CMP per UL standard 444 and per CSA C22.2 No. 214-17
- 7.4. UL listed as CL3P per UL standard 13 or FPLP per UL standard 1424
- 7.5. Cable meets NFPA 262 (Steiner tunnel) flame test
- 7.6. Cable meets RoHS 2002/95/EC Directive, RoHS 2 2011/65/EU Directive, RoHS 3 2015/863/EU Directive
- 7.7. Cable is REACH compliant per Regulation (EC) No 1907/2006 (197) Updated January 15, 2019
- 7.8. Made in the USA
- 7.9.  **WARNING:** This product may contain chemicals, such as Vinyl Chloride, known to the state of California to cause cancer. For more information, go to www.P65Warnings.ca.gov. Wash hands after handling

ALL SPECIFIED PARAMETERS WITHOUT A TOLERANCE ARE NOMINAL AND SUBJECT TO VERIFICATION



LIBBEY BATHHOUSE CONTROLS

HOT SPRINGS, AR

ENGINEERING FIRM:
IMEG CORP

MECHANICAL CONTRACTOR:
COMFORT SYSTEMS USA



DWG	DESCRIPTION
	GENERAL
000	Cover Sheet
LEG	Riser Diagram
	Legend & Abbreviations
	CONTROL DRAWINGS
001	AHU SYSTEM
003	JACE PANEL

REVISION HISTORY				SIEMENS 5440 Northshore DR N Little Rock, AR 72118 POWERS OF ARKANSAS Controls	5440 Northshore DR N Little Rock, AR 72118 Phone: Fax:	LibbeyBathhouseControls Hot Springs, AR					25CNEB0018
4	7/29/2026	MHC	RE-SUBMITTAL								
3	6/5/2026	MHC	REVISED RISER DIAGRAM PER ENGINEER COMMENTS.								
2	5/13/2026	MHC	REVISED DRAWINGS PER ENGINEER COMMENTS								
1	10/7/2025	MAP	SUMBITTAL								
						ENGINEER MAP	DRAFTER MAP	CHECKED BY JAD	INITIAL RELEASE 09/28/25	LAST EDIT DATE 07/29/26	Cvrsheet

CONTROL SYMBOL	CONTROL SYMBOL DESCRIPTION	CONTROL SYMBOL	CONTROL SYMBOL DESCRIPTION	CONTROL SYMBOL	CONTROL SYMBOL DESCRIPTION
AC	AIR COMPRESSOR	HHC	HAND—HELD OPERATOR’S TERMINAL	RCU	REMOTE CONTROL UNIT
AD	AIR DRYER	HL	HIGH LIMIT	RE	RELAY ELECTRIC
ADXR	ACTUATOR DXR	HMI	GAMMA TOUCH PANEL	RP	RELAY PNEUMATIC
AE	ACTUATOR ELECTRIC	HOA	HAND—OFF—AUTO SWITCH	RS	RESTRICTOR
AEM	APOGEE ETHERNET MICROSERVER	HORN	HORN	RV	RELIEF VALVE
AF	AIR FILTER	HPC	HEAT PUMP CONTROLLER	S/W	SOFTWARE
AFS	AIR FLOW STATION	HTD	HIGH TEMPERATURE DETECTOR	SA	SHADE ACTUATOR
AOP	ANALOG OUTPUT, PNEUMATIC	HTE	HUMIDITY TRANSMITTER ELECTRIC	SC	STEP CONTROLLER
AP	ACTUATOR PNEUMATIC	HTP	HUMIDITY TRANSMITTER PNEUMATIC	SCU	STAND ALONE CONTROL UNIT
APS	AUX. POWER SUPPLY	INT	INTERCOM	SD	SMOKE DETECTOR
AT	AUTOMATIC TRAP	KWM	ELECTRIC KILOWATT METER	SE	SWITCH ELECTRIC
ATD	AUTO TANK DRAIN	LA	LIGHT ACTUATOR	SIO	SLX IO MODULES
ATEC	ACTUATOR TEC	LC	LIMIT CONTROLLER (LIMITEM)	SLX	APOGEE SLX CONTROLLER
AZM	AUTOZERO MODULE	LLS	LIQUID LEVEL SWITCH	SPKR	SPEAKER
BCU	BUS COUPLING UNIT	LLT	LIQUID LEVEL TRANS.	SPP	STATIC PRESSURE PROBE
BELL	BELL	LPR	POWER SUPPLY 24VAC/24VDC	SPR	STATIC PRESSURE REGULATOR
BIM	BUS INTERFACE MODULE	LTDE	LOW TEMP. DETECTOR ELECTRIC	SV	SOLENOID VALVE
BOIL	BOILER	LTDP	LOW TEMP. DETECTOR PNEUMATIC	SW	SWITCH PNEUMATIC
BRT	BRIGHTNESS	LUI	LOCAL USER INTERFACE	T	ROOM THERMOSTAT, PNEUMATIC
BRTT	BRIGHTNESS AND TEMPERATURE	MBC	MODULAR BUILDING CONTROLLER	TBC	TERMINAL BOX CONTROLLER
BTN	BUTTON	MDM	MODEM	TC	TEMPERATURE CONTROLLER(S200)
CBL	CABLES	ME	ELECTRONIC ACTUATOR	TCU	TERMINAL CONTROL UNIT
CKV	CHECK VALVE	MEC	MODULAR EQUIPMENT CONTROLLER	TDR	TIME DELAY RELAY
CM	CONSTRUCTION MATERIALS	MG	MAGNEHELIC GAUGE	TE	THERMOSTAT, ELECTRIC
CP	COMPONENT PANEL	MPU	MULTI—POINT UNIT	TEC	TERMINAL EQUIPMENT CONTROLLER
CPU	CENTRAL PROCESSING UNIT	MS	MOTOR STARTER	TH	THERMOMETER
CRT	CATHODE RAY TUBE	OCC	OCCUPANCY	TI	TRUNK INTERFACE
CS	CURRENT SWITCH	OCCB	OCCUPANCY AND BRIGHTNESS	TIE	TRUNK ISOLATOR EXTENDER
CT	CURRENT TRANSDUCER	OBS	OBSOLETE	TIU	TELCOM INTERFACE UNIT
CTTE	CO2 TEMP TRANSMITTER ELEC	ODP	OPERATOR DATA PANEL	TMR	TIMER, TIME CLOCK
CVC	CONSTANT VOLUME CONTROLLER	P	PUMP	TTE	TEMPERATURE TRANSMITTER ELECTRIC
D	DAMPER	PA	PULSE ACCUMULATOR	TTP	TEMPERATURE TRANSMITTER PNEUMATIC
DDC	DUAL DUCT CONTROLLER	PCT	PROGRAMMABLE CLOCK TIMER	TXIO	TX—I/O FAMILY CONTROLLER MODULES
DEM	DEMAND ENERGY MONITOR	PE	PRESSURE ELECTRIC SWITCH	UC	UNITARY CONTROLLER
DP	DEW POINT TRANSMITTER	PL	PILOT LIGHT	UCC	UNIT CONDITIONER CONTROLLER
DPR	DIFFERENTIAL PRESS. REGULATOR	PM	POWER MONITOR	UVC	UNIT VENT CONTROLLER
DPS	DIFFERENTIAL PRESSURE SWITCH	PNL	PANEL	V	VALVE
DPTE	DIFF. PRESS. TRANSMITTER ELEC.	PPM	POINT PICKUP MODULE	V*	VALVE SERVICE PARTS
DPTP	DIFFERENTIAL PRESSURE PNEUMATIC	PRC	PRESSURE REG. CONTROLLER	VA	TEC VALVE ACTUATOR
DPU	DIGITAL POINT UNIT	PRV	PRESSURE REDUCING VALVE	VAC	VARIABLE AIR VOLUME CONTROLLER
DXR	TERMINAL EQUIPMENT CONTROLLER	PS	POSITIONING SWITCH	VB	VIBRATION ISOLATOR
EC	ENTHALPY COMPARATOR	PSE	POSITION SENSOR ELECTRIC	VTE	VELOCITY TRANSMITTER ELECTRICAL
EP	ELECTRO—PNEUMATIC VALVE	PST	PULL STATION	W	WELL
ES	END SWITCH	PT	PITOT TUBE	WST	WEATHER STATION
ET	ENTHALPY TRANSMITTER	PTE	PRESSURE TRANSMITTER ELECTRIC	XDR	TRANSDUCER
EXP	EXPANSION PANEL	PTP	PRESSURE TRANSMITTER PNEUMATIC	XFMR	TRANSFORMER
FAN	FAN	PTR	PRINTER		
FHC	FUME HOOD CONTROLLER	PV	PILOT VALVE		
FM	FLOW MTR. (FLOW METER STATION)	PXCC	PX COMPACT CONTROLLER		
FMS	FIRE MGMT. SYSTEM	PXCM	PXC—MODULAR CONTROLLER		
FS	FLOW SWITCH	PXG3	BACNET ROUTER ETHERNETIP—MS/TP		
FTP	FLOW TRANSMITTER PNEU.	RBC	REMOTE BUILDING CONTROLLER		
G	GAUGE	RC	RECEIVER CONTROLLER		
GD	GAS DETECTOR				
H	HYGROSTATS				
HE	HUMIDIFIER ELECTRIC				

DDC ELECTRICAL POINT

PTNAME
010010100100

TRUNK NUMBER

CABINET NUMBER

LAN TRUNK

DROP NUMBER

POINT NUMBER

DDC PNEUMATIC POINT

PTNAME
010010100100

TRUNK NUMBER

CABINET NUMBER

LAN TRUNK

DROP NUMBER

POINT NUMBER

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AOP

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TO CONTROL DEVICE

□

ELECTRICAL TERMINATION

○

PNEUMATIC TERMINATION

DETAIL XX

STANDARD DDC TERMINATION

△

NOTE OR REVISION

DETAIL XX

PAGE REFERENCE

APOGEE: PII — EXAMPLE

LOGICAL POINT NAME — AH1LTD

0.10.3.10.27

DETAIL 5A

DETAIL MC

BLN NUMBER

CABINET NUMBER

FLN TRUNK

DROP NUMBER

POINT NUMBER

READ AS " SEE PAGE 5A FOR MORE DETAIL "

DIGITAL INPUT

APOGEE: ETHERNET — EXAMPLE

LOGICAL POINT NAME — AH1LTD

0001:3.10.27

DETAIL 5A

DETAIL MC

REFERENCE NUMBER

NODE NUMBER

FLN TRUNK

DROP NUMBER

POINT NUMBER

READ AS " SEE PAGE 5A FOR MORE DETAIL "

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REVISION HISTORY

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5440 Northshore DR
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PHONE:
FAX:

LibbeyBathhouseControls

Hot Springs, AR

ENGINEER	DRAFTER	CHECKED BY	INITIAL RELEASE	LAST EDIT DATE
MAP	MAP	JAD		10/07/25

Legend & Abbreviations

25CNEB0018

LEG

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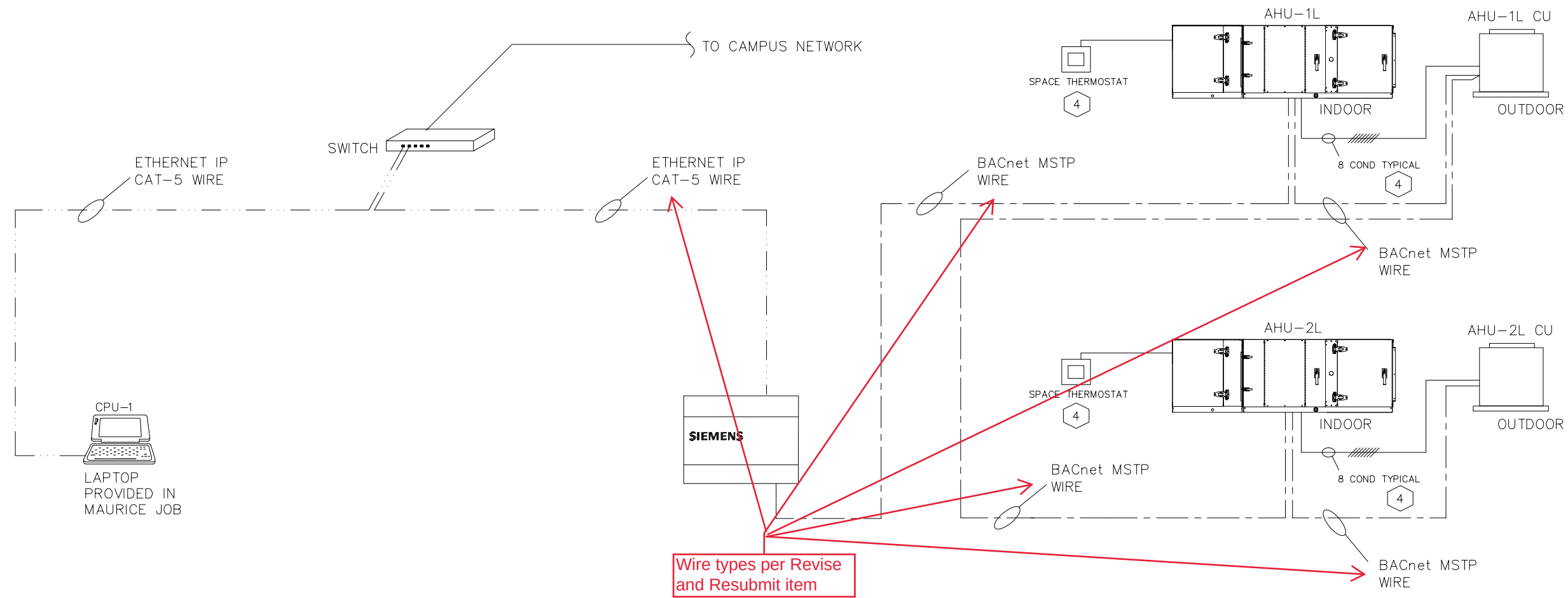
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		<table><tr><th>DWG</th><th>DESCRIPTION</th></tr><tr><td></td><td>GENERAL</td></tr><tr><td>000</td><td>Cover Sheet</td></tr><tr><td>LEG</td><td>Riser Diagram</td></tr><tr><td></td><td>Legend & Abbreviations</td></tr><tr><td></td><td>CONTROL DRAWINGS</td></tr><tr><td>001</td><td>AHU SYSTEM</td></tr><tr><td>003</td><td>JACE PANEL</td></tr></table>		DWG	DESCRIPTION		GENERAL	000	Cover Sheet	LEG	Riser Diagram		Legend & Abbreviations		CONTROL DRAWINGS	001	AHU SYSTEM	003	JACE PANEL
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ENGINEER	DRAFTER	CHECKED BY	INITIAL RELEASE	LAST EDIT DATE															
MAP	MAP	JAD		06/05/26															

Control Device	Qty	Product Number	Manufacturer	Document Number	Description
Field Mounted Devices					
CPU	1	1	DELL LAPTOP PER QUOTE	DELL MARKETING LP	LAPTOP
					DELL LAPTOP PER QUOTE

INSTALLATION NOTES:

- 1 DIAGRAM IS A GRAPHICAL REPRESENTATION AND IS FOR REFERENCE ONLY. FINAL LAYOUT TO BE DETERMINED IN THE FIELD AND SHOWN ON AS-BUILTS.
- 2 ETHERNET CONNECTIONS TO NEW DEVICES SHALL BE COORDINATED WITH THE DATA CONTRACTOR.
- 3 ALL FIELD LEVEL DEVICES ARE TO BE DAISY CHAIN CONFIGURATION AT THE COMMUNICATION TRUNK.
- 4 CONTROLS CONTRACTOR TO REFER TO MANUFACTURERS INSTALLATION DATA FOR WIRING SPECIFICS AND TERMINATIONS.



1 NETWORK DIAGRAM
000 FOR REFERENCE ONLY. ACTUAL LAYOUT DETERMINED IN THE FIELD AND SHOWN ON AS-BUILT DRAWING

REVISION HISTORY

1	6/5/2026	MHC	REVISED DIAGRAM PER ENGINEER COMMENTS REGARDING WIRING
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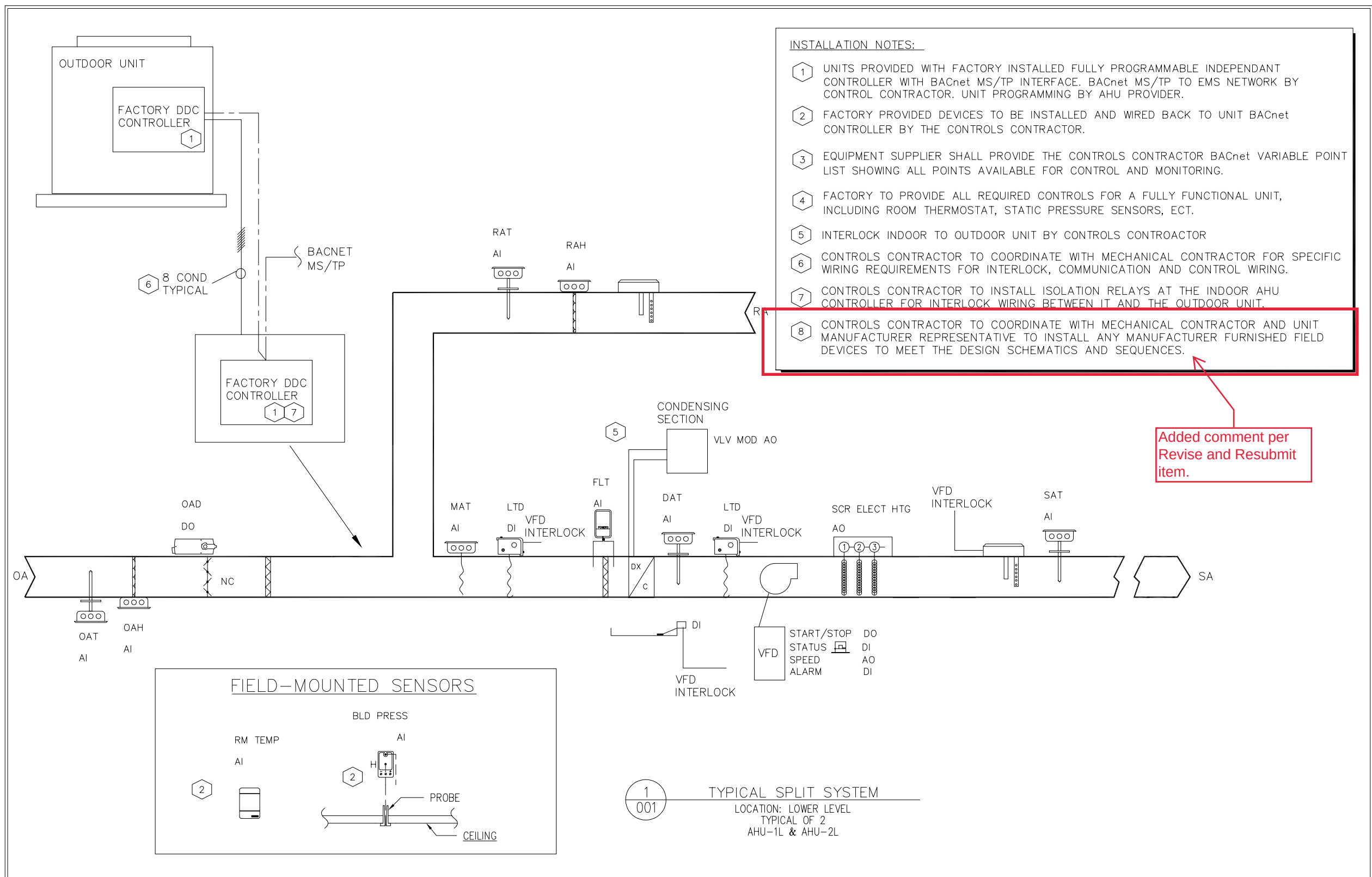
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Hot Springs, AR

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Riser Diagram

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		www.powersar.com		Fax:		AHU SYSTEM						

Control Device	Qty	Product Number	Manufacturer	Document Number	Description
Panel Mounted Devices					
RE 1	2	VMD1B-F24A	VERIS	vmd1b	Veris Mini Relay,SPDT,Blade,Full,24VAC
	2	VBD1B-F	VERIS	N/A	Veris Socket,SPDT,Blade,Full
RE 2	2	VMD1B-F24A	VERIS	vmd1b	Veris Mini Relay,SPDT,Blade,Full,24VAC
	2	VBD1B-F	VERIS	N/A	Veris Socket,SPDT,Blade,Full
RE 3	2	VMD1B-F24A	VERIS	vmd1b	Veris Mini Relay,SPDT,Blade,Full,24VAC
	2	VBD1B-F	VERIS	N/A	Veris Socket,SPDT,Blade,Full

THE FOLLOWING SEQUENCE TO BE ACCOMPLISHED BY THE UNIT MANUFACTURER INSTALLED CONTROLLER

SEQUENCE OF OPERATION:

WHEN AHU IS INDEXED TO RUN THE FOLLOWING SHALL OCCUR:

THE MOTORIZED OUTSIDE AIR DAMPER SHALL OPEN AND THE SUPPLY FAN SHALL BE ENABLED TO RUN.

SUPPLY AIR TEMPERATURE CONTROL:

- THE SUPPLY AIR TEMPERATURE WILL BE CONTROLLED TO MAINTAIN THE SPACE COOLING SETPOINT OF 80DEG F (ADJ) AND HEATING SETPOINT OF 65DEG F (ADJ). THE DX COOLING COIL & ELECTIC HEATING COIL SCR IN SEQUENCE SO THAT SIMULTANEOUS COOLING & HEAT ARE NOT POSSIBLE EXEPT IN DEHUMIDIFICATION MODE.
- THE MAXIMUM ALLOWABLE RETURN AIR HUMIDITY SETPOINT SHALL BE 60% (ADJ). IF THE RETUR AIR HUMIDITY IS GREATER THAN SETPOINT, RESET DISCHARGE AIR TEMPERATURE TO 52DEG F UNTIL RETURN AIR HUMIDITY IS 5% LESS THAN MAXIMUM SETPOINT FOR 10 MINUTES (ADJ).

COOLING COIL OPERATION

BAS SHALL MODULATE THERMAL EXPANSION VALVE AS REQUIRED TO MAINTAIN THE COOLING TEMPERATURE SET POINT.

HEATING COIL OPERATION:

THE SCR CONTROLLER WILL BE MODULATED TO MAINTAIN THE SPACE HEATING SETPOINT.

ALARMS, INTERLOCKS, AND SAFETIES:

WHEN FIRE ALARM CONTROL PANEL INDICATES AN ALARM CONDITION, AHU SHALL BE SHUT DOWN.

THE FOLLOWING CONDITIONS SHALL SHUT DOWN THE AHU AND SHALL INDICATE AN ALARM CONDITION AT THE BAS WORKSTATION:

- SHOULD ANY ONE FOOT SECTION OF THE MANUAL RESET LOW LIMIT TEMPERATURE SWITCH #1 SENSE AIR TEMP <34°F (ADJ.), IF MULTIPLE FREEZE STATS ARE REQUIRED, WIRE ALL TO A COMMON RESET SWITCH.
- WHEN THE DRAIN PAN OVERFLOW FLOAT SWITCH IS ACTIVATED.

THE FOLLOWING CONDITIONS SHALL INDICATE AN ALARM AT THE FMCS, HOWEVER AHU SHALL CONTINUE TO OPERATE:

- AN ALARM IS INDICATED AT ANY SUPPLY FAN VFD

- DIFFERENTIAL PRESSURE TRANSDUCER ACROSS FILTER BANK EXCEEDS 1.5 INCHES W.G. (ADJ.)
- SHOULD ANY ONE FOOT SECTION OF THE AUTO RESET LOW LIMIT TEMPERATURE SWITCH #2 SENSE AIR TEMPERATURE <38°F (ADJ.) THE FOLLOWING SHALL OCCUR:
 - THE RETURN AIR DAMPER SHALL FULLY OPEN
 - THE OUTSIDE AIR DAMPER SHALL FULLY CLOSE
 - THIS ACTION SHALL OCCUR INDEPENDENT OF THE BAS AHU CONTROLLER. ONCE THE LOW LIMIT TEMPERATURE SWITCH #2 AIR TEMPERATURE RISES ABOVE SET POINT, OPERATION OF THE OUTSIDE AIR, RELIEF AIR, AND RETURN AIR DAMPERS SHALL BE RESTORED. HOWEVER, THE ALARM SHALL CONTINUE UNTIL ACKNOWLEDGED AND MANUALLY RESET BY THE BAS OPERATOR
- SEND AN ALARM TO THE BAS OPERATOR INTERFACE IF THE DISCHARGE AIR TEMPERATURE IS MORE THAN 5°F (ADJ.) ABOVE OR BELOW SETPOINT.

WHENEVER AHU IS SHUT DOWN THE FOLLOWING SHALL OCCUR:

- THE OUTSIDE AIR DAMPER SHALL FULLY CLOSE.
- SUPPLY FAN VFD SHALL BE DE-ENERGIZED.

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AHU SYSTEM

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