Addendum Number Two
To The Drawings and Specifications for
EMS Post #1
RFB Bid Number: 26-0035, Sedgwick County, Kansas

Issued: September 2, 2026

HANNEY & ASSOCIATES ARCHITECTS
1726 South Hillside, Wichita, Kansas

NOTICE TO BIDDERS
You are hereby instructed to include in your bids the following changes and/or corrections to the Drawings and Specifications for the **Construction of the New EMS Post #1 – 3099 W. 13th Street North, Wichita, Kansas 67203.**

The additions and/or corrections shall be considered as a part of the Contract Documents as if incorporated therein. Where the following corrections and/or additions vary from the conditions of the Drawings and Specifications, such following changes or additions shall govern.

I. GENERAL CLARIFICATIONS:

1.1 The Bid Date and Time is unchanged and remains Tuesday, September 15, 2026 with bids being received no later than 1:45 p.m.

1.2 Construction Completion
The Bid Form for this project has a line for the bidder is to write-in the consecutive calendar day from the Notice to Proceed to reach Substantial Completion. There is a second line for the number of consecutive calendar days to reach Final Completion from the date of Substantial Completion.

1.3 Approved Equals
Company's approved equals to the original specified suppliers are required to meet all requirements of the plans, specifications, standards of performance and construction as established by the first named originally specified manufacturer's product.

1.4 Fire Alarm System
There is no fire alarm system required for this building.

1.5 Kitchen Exhaust Hood
The owner would like to change the kitchen exhaust hood to be equal to a Broan-NuTone Mantra AVSC1 Series , 36-inch with a Guardian Fire Suppression system.with a ANSUL fire suppression system.

1.6 Low Voltage
The low voltage wiring and termination shall be included in the Base Bid. Specifications for this work are being added with this addendum.

II. CHANGES TO THE SPECIFICATIONS:

2.1 Section 042200 – Concrete Unit Masonry
Where the concrete masonry is visible, the units shall be scored to look like an 8"x 8" laid in a stake bond. The blocks will actually be laid in a running bond. Grout the scored joint so it looks like a regular head joint.

2.2 Section 081113 – Hollow Metal Doors and Frames

a. Paragraph 12. – Hollow Metal Doors for Storm Shelters shall be changed to add sub-paragraph 12.1.4.

12.1.4 Manufacturers Basis of Design:

1. CECO Door Products (C) – StormPro Series
2. Curries Company

b. Paragraph 14 shall be deleted (it repeats information in Paragraph 12).

2.3 Section 087100 – Door Hardware
This hardware schedule has been revised and is reissued with this addendum.

2.4 Section 113100 – Appliances

a. Paragraph 8 – Range Hood
The range hood was changed in Addendum 1 and shall again be changed in Addendum 2. The hood shall be compliant with Residential Guardian III Hood requirements. The Range Exhaust Hood shall be equal to a Broan-NuTone Mantra AVSC1 Series , 36-inch with a Guardian Fire Suppression system.with a ANSUL fire suppression system.

2.5 Section 115000 – Range Top Fire Extinguishing System

a. This section was deleted in Addendum 1. Addendum 2 shall restore this specification section, the range hood will have a fire extinguishing system. The General Contractor shall still providing a 2A 10BC Dry Chemical portable fire extinguisher as specified in Addendum 1, item 2.6.

2.6 Section 131210 – Pre-Engineered Buildings

a. Design Loads

1. The roof load is not reducible.
Wichita Sedgwick Cooounty Unified Building and Trade Code, Article 2, Section 2.2.1090.

2. This structure is in the Risk IV per IBC, Section 1604.5

3. Colateral Load (psf) - 5.0

b. Part 2 – Products, Section 13 – Wall Systems

1. Paragraph 13.1.1, Item B. shall be deleted, there are no bid alternates for the metal panel.

2. Wall Panel shall be equal to MBCI PBC corrigated panel, 24-ga., 7/8" panel height, 32" minimum panel width, smooth finish. The color shall be equal to MBCI – "Tundra Grey". Metal Sales 7/8" corrigated panel is an approved equal.

3. Liner Panel shall be equal to MBCI "R" Panel, 24-ga, color to be "SnowWhite". This panel will be installed in "reversed", so the finish shall be on the back side. The panels shall be a total of 36-inches wide by 1-1/4" deep, with (2) beaads occurring between the major ribs with a net coverage of 12" between the ribs. Installation will be vertical. Metal Sales PBR- panel is an approved equal.

4. Soffit Panel shall be equal to the "V" groove design soffit panels as manufactured by Metal Sales (MS),. The soffit panels shall be 12-inches wide with 1-inch panel depth, tongue and groove sidelap, 24 ga., concealed fasteners. The color shall be equal to "Snow White". MBCI Artisan, two bead panel is an approved equal.

5. Gutters and down spouts – color shall be equal to MBCI – Tundra Grey.

6. Rake, Trim and Flashing – color shall be equal to MBCI – Tundra Grey.

7. Wall Vents and Lourvers – color shall be equal to MBCI – Tundra Grey.

8. Roof Panel shall be equal to Ultra Dek with 2-1/2" deep rib, 18" wide, 24-ga. panel. Color to be equal to MBCI – Tundra – Grey (matching the wall panels). The standing seam shall be mechanically seamed.

2.7 The following new Specification Sections and Publications are being issued with this addendum.

a. Sedgwick County Product Installation Specifications for Building Data Communication Cabling, Updated Version June 23, 2026, 4.3.2

c. Section 260513 – Wires and Cables, Low Voltage

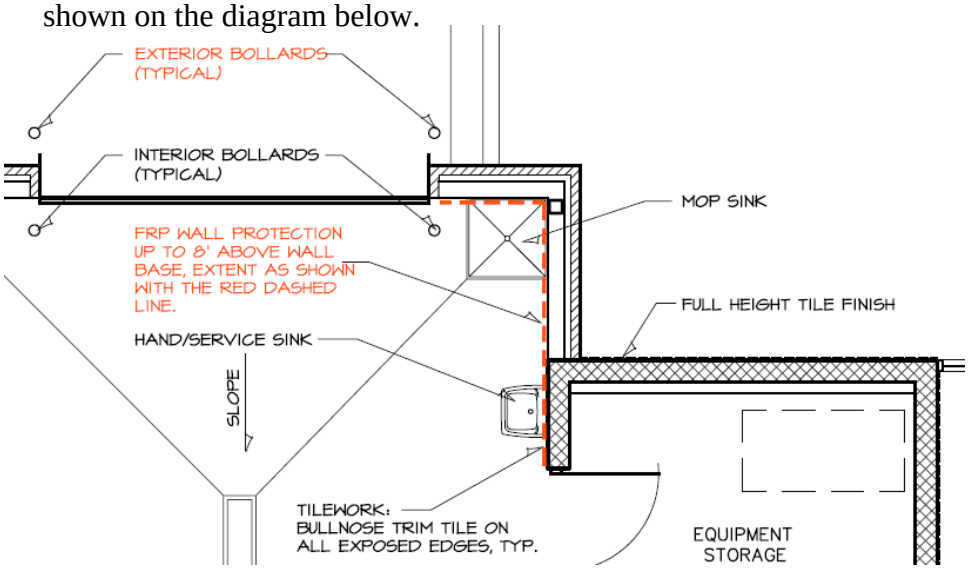
d. Section 260519 – Low Voltage Electrical Power Conductors and Cables

III. CHANGES TO THE DRAWINGS:

3.1 Index Sheet
Added Sheet A3.3, Aluminum mullion details.
This sheet is reissued with this addendum.

3.2 Sheet Code 2
The yellow color hatch on the ICC500 shelter area (rooms 105, 106, 107 and 114) shall be changed to blue.

3.3 Sheet A1.1
Northeast corner of the Ambulance Bay – 111, is a note about FRP wall protection. The FRP shall extend 8'-0" tall (full sheet) on both the north wall and east walls as shown on the diagram below.



3.4 Sheet A1.4
Accessory Legend clarifications and revisions:

a. Item A2 – Dry Erase Board, shall be clarified to be equal to:
Manufacturer: Clarus, Float,
Size: 4' x 6',
Finish: Low Glare Matte Finish, Magnetic
Surround: Not Desired.
Color of board: CBC-100.
Accessories:
72" T-Tray, White Circle Magnets, Grey Square Magnets,
Dry Erase Markers, Magnetic Eraser, and Marker Cup.
Contact: Maggie Goss, 816-377-2735, maggie@mercurycontract.com
Installation: Per Clarus's written guidelines. Installation shall maintain warranty.

b. Locker Bench:
Change the A7 to be A6.

c. Locker:
Change the one A8 locker to be A7.

3.5 Sheet A1.6

Interior signage clarifications and revisions.
The owner to identify actual placement in the field.

a. Signage Schedule revisions as follows:
   1. Room 103, first line for Sign Type S5.1: Sign type found on Sheet ICC500-1, see Signage Detail 1.
   2. Room 103, second line for Sign Type S5.2: omit sign here.
   3. Room 109, first line for Sign Type S1.5: remains unchanged.
   4. Room 109, second line for Sign Type S1.5: omit sign
   5. Room 111, add Sign Type S5.2: Sign type found on Sheet ICC500-1, see Signage Detail 2.
   6. Room 114, add Sign Type S5.3: Sign type found on Sheet ICC500-1, see Signage Detail 3.

b. Signage Plan Detail A, revisions as follows:
   1. Dining 103, omit sign S5.2
   2. Equipment 110, revise sign type to S1.6 in lieu of S5.1.
   3. Ambulance Bay 111, revise sign type to S5.2 in lieu of S5.1

c. Superior Signs & Engraving, Inc to manufacturer signs in schedule (upon owner's approval). Signs by G.C. Contact: David Stiles, 316-263-4264, david@superiorsigns.biz.

3.6 Sheet A3.1

This sheet has been revised and is reissued with this addendum.

3.7 Sheet A3.3

This is a new sheet showing aluminum mullion details, and is issued with this addendum.

3.8 Sheet A4.4

Detail 3, the FRP wall protection to the left of door opening 110a is shown as 6-foot tall. This shall be changed to be 8-foot tall (full sheet), with the metal liner panel above. The extent of this wall finish was added to Sheet A1.1 in this addendum. Please refer to item 3.3 of this addendum.

3.9 Sheet A6.1

Mirrors shown on this sheet and are placed above lavatory, size clarificaiton: 24" x 48"

3.10 Sheet S200

The Shelter Lid Plan that is crossed out shall be deleted from the sheet. The current detail was moved to sheet S201.

3.11 Sheet P2.0

The gas loads, water service riser diagram, and several specifications have been added to this sheet. This sheet is being reissued with this addendum.

3.12 Sheet E1.0
There have been several corrections to this sheet.
This sheet is being reissued with this addendum.

3.13 Sheet E2.0
Several notes have been added to this sheet.
This sheet is being reissued with this addendum.

3.14 Sheet E3.0
Clarifications to the storm shelter area and several notes have been added to this sheet.
This sheet is being reissued with this addendum.

END OF ADDENDUM

INDEX TO DRAWINGS

PRE-ENGINEERED METAL BUILDING (PEMB)
BUILDING DRAWINGS FROM THE PEMB ARE TO BE SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER WHO IS LICENCES IN THE STATE OF KANSAS.

THE SHOP DRAWING SHALL INDICATE THE ROOF LOAD IS NOT REDUCIBLE TO MEET THE WICHITA SEDGWICK COUNTY UNIFIED BUILDING AND TRADE CODE , ARTICAL 2, SECTION 2.2.1090

THE SHOP DRAWING SHALL INCLUDE THE UPDATED SNOW LOADS FOR A RISK IV STRUCTURE TO MEET IBC SECTION 1608

ARCHITECTS

MARTIN R. HANNEY
LICENSED
3008
KANSAS
PROFESSIONAL ARCHITECT

9/1/26

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Phone (316) 683-8965
Fax (316) 684-1441
www.hoarchitects.com

2026

SEDGWICK COUNTY - EMS POST 1

3099 West 13th Street North

Wichita, Kansas

DRAWINGS ISSUED		
NO.	DATE	ITEM ISSUED
7	9/1/26	ADDENDUM 2
6	6/26/26	MABCD REVISIONS
5	3/31/26	MABCD PERMIT
4	2/16/26	CHECK SET
3	1/15/26	CHECK SET
2	12/19/25	CHECK SET
1	12/12/25	CHECK SET

COMPUTER DRAWING
002_EMS1_INDEX.dwg

DATE: JANUARY 2026	
DRAWN BY:	CHECKED BY:
CH, TH, FH, TB	MH

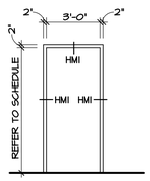
SHEET

INDEX

OF 1 SHEETS

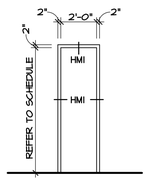
DOOR FRAME TYPES

HOLLOW METAL



1F

H.M. FRAME
PAINT FINISH



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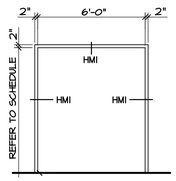
H.M. FRAME
PAINT FINISH



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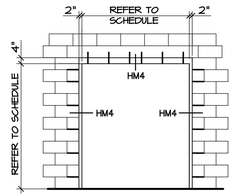
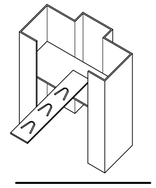
H.M. FRAME
PAINT FINISH



4F

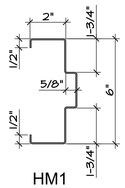
STORM SHELTER
14 GAUGE
GROUT FRAME SOLID



HM4

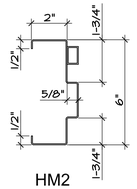
14 GAUGE
-

FRAME PROFILES



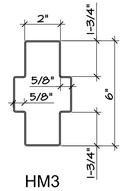
HM1

HOLLOW METAL



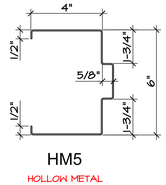
HM2

HOLLOW METAL



HM3

HOLLOW METAL

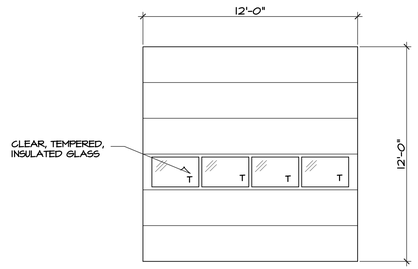


HM5

HOLLOW METAL

THE GAUGE OF THE STORM SHELTER FRAME, OPENING 114a, IS 14-GA. PER THE REQUIREMENTS OF ICC500.

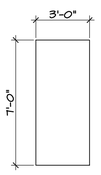
OVERHEAD DOORS



OH

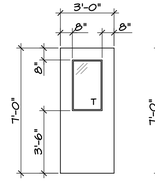
PREFINISHED METAL (EXTERIOR AND INTERIOR)
INSULATED
MOTORIZED
SECTIONAL OVERHEAD DOOR

DOOR TYPES



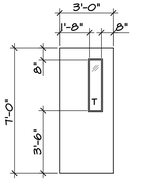
M1

H.M.
1 3/4" THICK
GALVANIZED
HOLLOW METAL
PRIMER AND PAINT



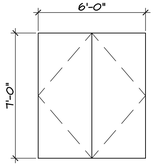
M2

H.M.
1 3/4" THICK
GALVANIZED
HOLLOW METAL
PRIMER AND PAINT



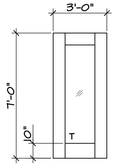
M3

H.M.
1 3/4" THICK
GALVANIZED
HOLLOW METAL
PRIMER AND PAINT



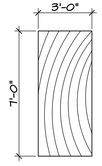
M4

ICC500 - STORM DOOR
HOLLOW METAL
1 3/4" THICK
REINFORCED
14 GAUGE



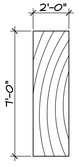
A1

ALUMINUM
MEDIUM STYLE
CLEAR ANODIZED ALUM. FINISH
1 3/4" THICK
THERMALLY BROKEN FRAME
INSULATED GLASS



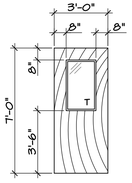
W1

SOLID CORE
1 3/4" THICK
RED OAK
PLAIN SLICED
EDGE MATCHED



W2

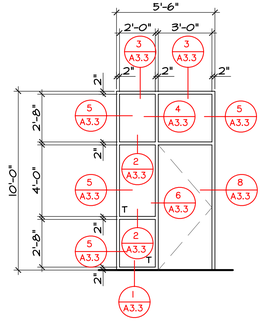
SOLID CORE
1 3/4" THICK
RED OAK
PLAIN SLICED
EDGE MATCHED



W3

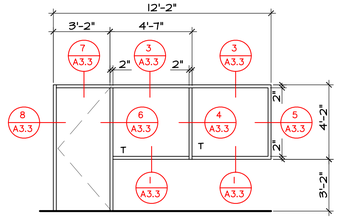
SOLID CORE
1 3/4" THICK
1/4" CLEAR,
TEMPERED GLASS
RED OAK
PLAIN SLICED
EDGE MATCHED

WINDOW TYPES

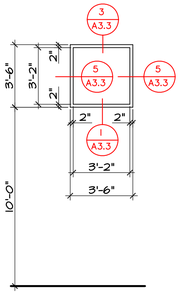


T = TEMPERED GLAZING, TYP.

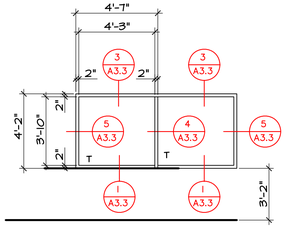
(A) PAINTED FRAME
1" INSULATED GLASS
ENTRY DOOR



(B) PAINTED FRAME
1" INSULATED TEMPERED GLASS



(C) ALUMINUM STOREFRONT CLEAR
ANODIZED ALUM. FINISH
THERMALLY BROKEN FRAME
1" INSULATED TEMPERED GLASS
SUB-SILL FLASHING W/END DAMS



(D) PAINTED FRAME
1" INSULATED TEMPERED GLASS

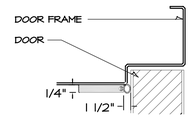
DOOR SCHEDULE

	DOOR					FRAME								NOTES & REMARKS
DOOR NO.	MATL	TYPE	WIDTH	HEIGHT	THK.	MATL	TYPE	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	FIRE RATING (F.P.S.C.)	HDW. GROUP	KEYING SET	
101a	AL	A1	3'-0"	7'-0"	1 3/4"	AL	(A)	2/A3.1	2+3/A3.1	3/A3.1	-	1.0	-	KEY CARD LOCK, CLOSER
102a	HM	W3	3'-0"	7'-0"	1 3/4"	HM	1F	-	-	-	-	9.0	-	OFFICE - PASSSAGE SET
104a	AL	A1	3'-0"	7'-0"	1 3/4"	AL	(D)	2/A3.1	2+3/A3.1	3/A3.1	-	1.0	-	KEY CARD LOCK, CLOSER
105a	WD	W1	3'-0"	7'-0"	1 3/4"	HM	1F	-	-	-	-	3.0	-	PRIVACY SET
106a	WD	W1	3'-0"	7'-0"	1 3/4"	HM	1F	-	-	-	-	4.0	-	PASSAGE SET
106b	WD	W2	2'-0"	7'-0"	1 3/4"	HM	2F	-	-	-	-	5.0	-	LOCKSET
107a	WD	W1	3'-0"	7'-0"	1 3/4"	HM	1F	-	-	-	-	3.0	-	PRIVACY SET
109a	HM	M2	3'-0"	7'-0"	1 3/4"	HM	1F	-	-	-	-	6.0	-	PUSH PULL, CLOSER
109b	WD	W2	2'-0"	7'-0"	1 3/4"	HM	2F	-	-	-	-	9.0	-	PASSAGE SET
110a	HM	M1	3'-0"	7'-0"	1 3/4"	HM	1F	-	-	-	-	7.0	-	LOCKSET
111a	AL	OH	12'-0"	12'-0"	-	-	-	-	-	-	-	2.0	-	OVERHEAD DOOR
111b	HM	M3	3'-0"	7'-0"	1 3/4"	HM	1F	2/A3.1	2+3/A3.1	3/A3.1	-	1.1	-	KEY CARD LOCK, CLOSER
111c	AL	OH	12'-0"	12'-0"	-	-	-	-	-	-	-	2.0	-	OVERHEAD DOOR
111d	AL	OH	12'-0"	12'-0"	-	-	-	-	-	-	-	2.0	-	OVERHEAD DOOR
111f	HM	M3	3'-0"	7'-0"	1 3/4"	HM	1F	2/A3.1	2+3/A3.1	3/A3.1	-	1.2	-	TRILOGY DL2800 LOCK, CLOSER
111g	AL	OH	12'-0"	12'-0"	-	-	-	-	-	-	-	2.0	-	OPERATOR
112a	WD	W3	3'-0"	7'-0"	1 3/4"	HM	1F	-	-	-	-	10.0	-	OFFICE - LOCK SET
114a	HM	M4	6'-0"	7'-0"	1 3/4"	HM	4F	-	-	-	2-HR	8.0	-	ICC500 STORM DOOR, WITH HOLD OPEN
GATE														OUTDOOR MECH. GATE

1. INSTALL WEATHER STRIPPING, THRESHOLD & DRIP CAP AT EXTERIOR DOOR.
2. INSTALL BLOCKING AT NEW WALL MOUNTED DOOR STOPS.
3. MODIFICATIONS TO EXISTING HARDWARE SHALL MAINTAIN FIRE RATING WHERE NOTED.
4. SOUNDPROOF, INSULATED METAL DOOR FRAME.
5. KEYED LOCK TO MASTER, COORDINATE WITH OWNER.
6. ALL EXISTING EXTERIOR AND INTERIOR KEYED LOCKS TO REMAIN IN THE EXISTING LOCATIONS, EXCEPT WHERE NOTED OTHERWISE.
7. ALL INTERIOR KEYING TO BE EXISTING 6123 KEYWAY MASTER KEY SYSTEM PASSED BY EXISTING INTERIOR MASTER KEY.

DETAILS

THE WEATHERSTRIPPING AT THE HEAD AND BOTH JAMBS SHALL BE INSTALLED UNBROKEN FOR THE TOTAL WIDTH AND HEIGHT OF THE DOOR.



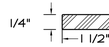
THIS ITEM IS SUPPLIED WITH A 1/4" - 1 1/2" FASTENER

(N) Neoprene
Clear Anodized Aluminum

TYPICAL HOLLOW METAL FRAME

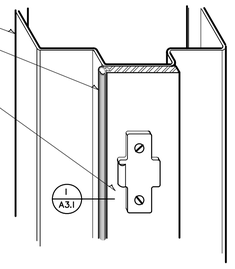
THE WEATHERSTRIPPING SHALL BE EQUAL TO TOONA BY "NATIONAL GUARD" OR THE APPROVED EQUAL.

ON THE STRIKE SIDE JAMB AND HEAD THE WEATHERSTRIPPING SHALL RUN UNBROKEN. OTHER HARDWARE SHALL BE SURFACE MOUNTED (INCLUDING CLOSURE)



THE WEATHERSTRIPPING SHALL BE EQUAL TO TOONA BY "NATIONAL GUARD" OR THE APPROVED EQUAL.

THE LATCH STRIKE FOR THE PANIC DEVICES SHALL BE SURFACE MOUNTED TO THE FACE OF THE WEATHER STRIPPING.

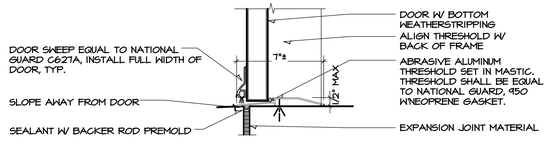


1 WEATHERSTRIP DETAIL

N.T.S.

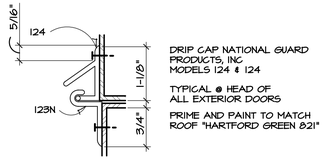
2 JAMB DETAIL

N.T.S.



3 THRESHOLD DETAIL

N.T.S.



GENERALLY APPLY TO EXTERIOR ENTRANCES, U.N.O.

4 DRIP CAP

N.T.S.

ARCHITECTS

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9/1/26

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7	9/1/26	ADDENDUM 2
6	6/26/26	MABCD REVISION
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4	2/16/26	CHECK SET
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2	12/19/25	CHECK SET
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DATE: JANUARY 2026	
DRAWN BY:	CHECKED BY:
CH, TH, FH, TB	MH

SHEET

A3.1

OF 1 SHEETS

ALUMINUM
THERMALLY BROKEN
FINISH: CLEAR ANODIZED
GLAZING: 1" INSUL, TEMP,
EQUAL TO MANKO 2450
SUB SILL FLASHING W/ END DAMS

STOREFRONT
1 SILL
SCALE: 1 1/2" = 1'-0"

ALUMINUM
THERMALLY BROKEN
FINISH: CLEAR ANODIZED
GLAZING: 1" INSUL, TEMP,
EQUAL TO MANKO 2450

STOREFRONT
2 MULLION
SCALE: 1 1/2" = 1'-0"

ALUMINUM
THERMALLY BROKEN
FINISH: CLEAR ANODIZED
GLAZING: 1" INSUL, TEMP,
EQUAL TO MANKO 2450

STOREFRONT
3 HEAD
SCALE: 1 1/2" = 1'-0"

ALUMINUM
THERMALLY BROKEN
FINISH: CLEAR ANODIZED
GLAZING: 1" INSUL, TEMP,
EQUAL TO MANKO 2450

STOREFRONT
4 MULLION
SCALE: 1 1/2" = 1'-0"

ALUMINUM
THERMALLY BROKEN
FINISH: CLEAR ANODIZED
GLAZING: 1" INSUL, TEMP,
EQUAL TO MANKO 2450

STOREFRONT
5 JAMB
SCALE: 1 1/2" = 1'-0"

ALUMINUM
THERMALLY BROKEN
FINISH: CLEAR ANODIZED
GLAZING: 1" INSUL, TEMP,
EQUAL TO MANKO 2450

STOREFRONT
6 JAMB
SCALE: 1 1/2" = 1'-0"

ALUMINUM
THERMALLY BROKEN
FINISH: CLEAR ANODIZED
GLAZING: 1" INSUL, TEMP,
EQUAL TO MANKO 2450

STOREFRONT
7 HEAD
SCALE: 1 1/2" = 1'-0"

ALUMINUM
THERMALLY BROKEN
FINISH: CLEAR ANODIZED
GLAZING: 1" INSUL, TEMP,
EQUAL TO MANKO 2450

STOREFRONT
8 HEAD
SCALE: 1 1/2" = 1'-0"

ARCHITECTS

MARTIN R. HANNEY LICENSED 3008 KANSAS PROFESSIONAL ARCHITECT

9/1/26

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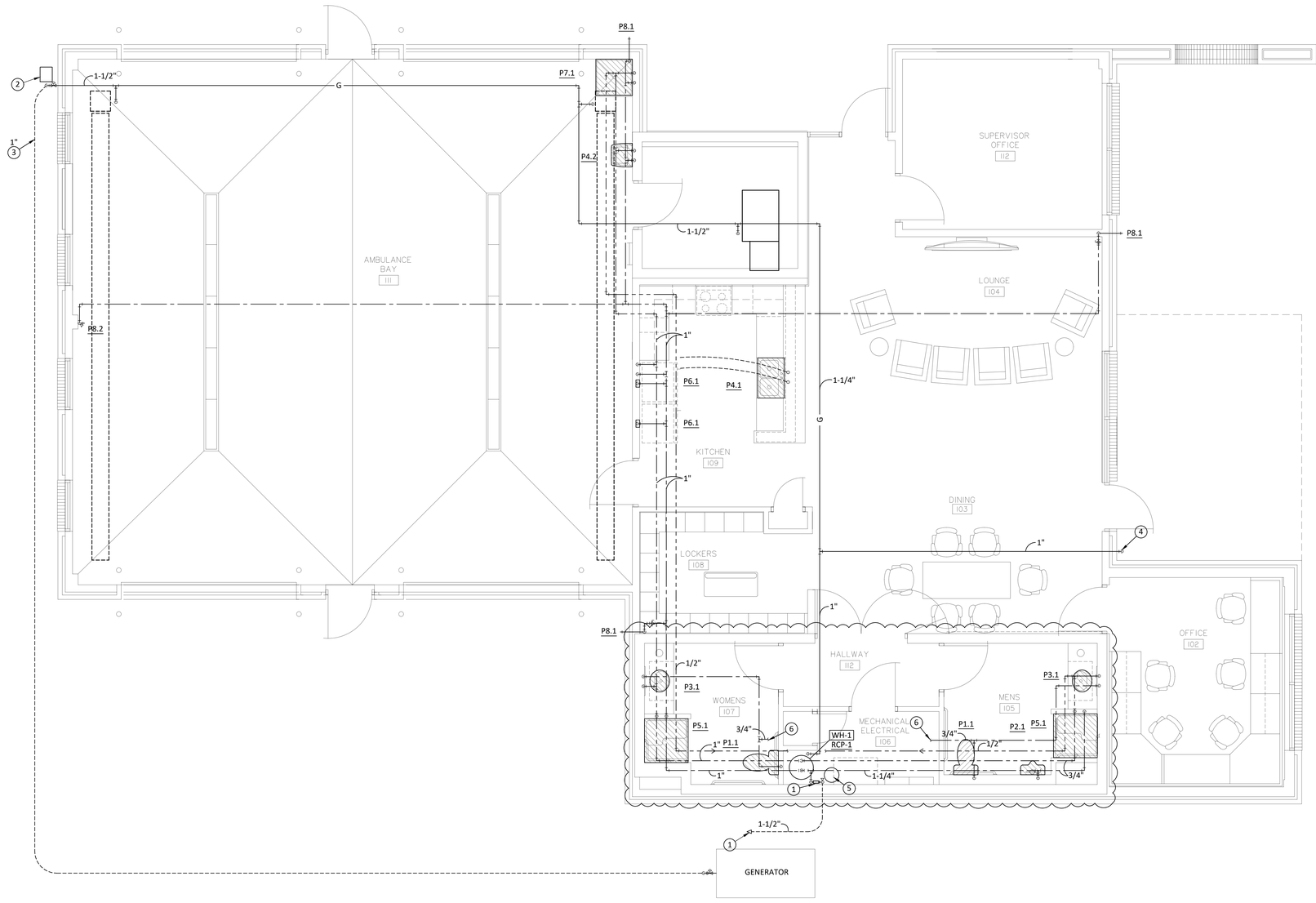
SHEET
A3.3
OF 1 SHEETS



NORTH

A PLUMBING FLOOR PLAN - WATER & GAS

SCALE: 1/4" = 1'-0" 0 2 4 8

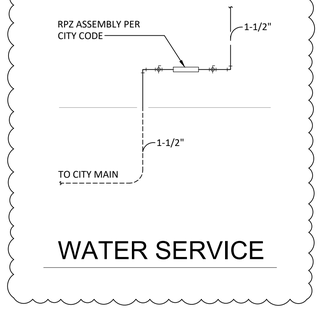
PLUMBING KEYED NOTES:

1. EXTEND NEW COLD WATER MAIN TO EXISTING DOMESTIC WATER MAIN ON SITE. PROVIDE SHUT-OFF BALL VALVE & BACKFLOW PREVENTER PER CITY OF WICHITA REQUIREMENTS. REFER TO SITE UTILITY PLAN.
2. PROPOSED LOCATION OF NEW GAS METER & SERVICE LINE BY GAS COMPANY. GAS PIPING SIZED AT EQUIVALENT PIPE LENGTH OF 200'. REFER TO SITE UTILITY PLAN.
3. ROUTE GAS PIPING BELOW GRADE FOR GENERATOR AT ELEVATED PRESSURE (14"WC OR 2PSI). PROVIDE GAS REGULATOR AT GENERATOR.
4. GAS PIPING DOWN WALL FOR GAS GRILLE. COORDINATE FINAL LOCATION & REQUIREMENTS.
5. PROVIDE WELLXTROL 26 GALLON BLADDER STORAGE TANK & BACKFLOW PREVENTOR FOR THE EVENT OF A LOSS IN WATER PRESSURE TO SERVE SHELTER LAVATORIES & WATER CLOSETS COLD WATER.
6. VIA WATER STORAGE TANK.

SHELTER: ALL SHELTER PENETRATIONS MORE THAN 3.5 SQUARE INCHES OR 2.06" DIAMETER TO BE PROTECTED WITH APPROVED WALL SHROUD (CYCLONE OR EQUAL).

GAS LOADS

EQUIPMENT	MBH
F-1	100
IR-1	65
IR-1	65
WH-1	60
GAS GRILL	60
GENERATOR	600
TOTAL:	950 MBH



WATER SERVICE

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GARRET S. PIKE LICENSED 24820 31 22 KANSAS PROFESSIONAL ENGINEER

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3	1/15/26	CHECK SET
2	12/19/25	CHECK SET
1	12/12/25	CHECK SET

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DATE: JANUARY 2026

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CH, TH, FH, TB	MH

SHEET

P2.0

OF 1 SHEETS

PIKE consulting engineers
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316.215.7025 | www.pikeengineers.com

ELECTRICAL GENERAL NOTES:

1. PLANS ARE SCHEMATIC IN NATURE. CONTRACTOR SHALL VISIT THE JOB SITE & FIELD VERIFY ALL EXISTING CONDITIONS RELATING TO PROJECT PRIOR TO ORDERING, FABRICATING OR INSTALLING ANY MATERIALS.
2. ELECTRICAL CONTRACTOR SHALL COORDINATE INSTALLATION OF ELECTRICAL SYSTEMS WITH G.C. & OTHER TRADES AS REQUIRED.
3. ELECTRICAL CONTRACTOR SHALL PROVIDE A ONE YEAR WARRANTY ON ALL EQUIPMENT WHICH THEY FURNISH AND INSTALL, AND SHALL REPLACE ANY FAULTY MATERIALS OR DEFECTS AT NO COST TO THE OWNER.
4. ELECTRICAL CONTRACTOR SHALL COORDINATE ROUTING OF WIRING & CONDUIT WITH STRUCTURAL ELEMENTS & OTHER TRADES.
5. ALL ELECTRICAL CIRCUITS GREATER THAN 100' IN LENGTH FROM THE PANEL SHALL BE UP-SIZED FOR VOLTAGE DROP.
6. ALL ELECTRICAL OUTLET BOXES LOCATED IN RATED WALLS SHALL MEET IBC 711 - 714. ALL PENETRATIONS THRU RATED WALLS SHALL MEET IBC 711 - 714.
7. ALL ELECTRICAL WORK IS TO BE COMPLETED IN A WORKMAN LIKE MANNER.
8. ELECTRICAL CONTRACTOR SHALL COORDINATE THE CONNECTION OF MECHANICAL EQUIPMENT & ALL REQUIREMENTS.
9. DRAWINGS ARE SCHEMATIC & INDICATE APPROXIMATE LOCATIONS OF OUTLETS, EQUIPMENT & ROUTING OF WIRING & CONDUIT. ACTUAL ROUTING OF WIRING & CONDUIT SHALL BE GOVERNED BY STRUCTURAL CONDITIONS.
10. COORDINATE OUTLET BOX LOCATIONS WITH MASONRY TO MINIMIZE CUTTING & PATCHING OF BRICK OR BLOCK.
11. REFER TO MECHANICAL DRAWINGS FOR THERMOSTAT LOCATIONS. REFER TO MECHANICAL EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR THERMOSTAT CONNECTION REQUIREMENTS.
12. DATA SYSTEMS SHALL CONSIST OF OUTLET BOXES WITH 3/4" OR GREATER CONDUIT STUBBED INTO CEILING CAVITY. DATA CABLING & DATA TERMINATIONS ARE BY OTHERS. COORDINATE FINAL LAYOUT & QUANTITY OF DATA BOXES WITH OWNER.

FEEDER SCHEDULE (CU)

TAG	CONDUCTORS			GROUND SIZE (PER SET)	CONDUIT SIZE (PER SET)
	SETS	QTY./SET	SIZE		
(20.X)	1	X	#12	#12	1/2"
(30.X)	1	X	#10	#10	1/2"
(40.X)	1	X	#8	#10	3/4"
(50.X)	1	X	#8	#10	1"
(60.X)	1	X	#6	#8	1-1/4"
(80.X)	1	X	#4	#8	1-1/4"
(100.X)	1	X	#3	#6	1-1/2"
(200.X)	1	X	#3/0	#6	2"
(225.X)	1	X	#4/0	#4	2-1/2"
(400.X)	1	X	#500 KCMIL	#3	3-1/2"
(600.X)	2	X	#350 KCMIL	#1	3"

AMPACITY (20.X) # OF CONDUCTORS (HOT + NEUTRAL)

AMPACITY (400.XS) SERVICE FEEDER, NO GROUND REQUIRED.

NOTES:
1. NOT ALL SYMBOLS LISTED ABOVE ARE BEING USED ON THIS PROJECT.
2. REFER TO PLANS FOR CONDUCTOR COUNT (HOT, NEUTRAL, GROUND).

ELECTRICAL SYMBOLS SCHEDULE

SYMBOL	DESCRIPTION	NOTES	SYMBOL	DESCRIPTION
$	1-POLE SWITCH		MC	MECHANICAL CONTRACTOR
$3	3-WAY SWITCH			
$D	DIMMER SWITCH		EC	ELECTRICAL CONTRACTOR
	DUPLEX RECEPTACLE			
	DOUBLE DUPLEX RECEPTACLE		PC	PLUMBING CONTRACTOR
	GFCI DUPLEX RECEPTACLE			
	STORE FRONT RECEPTACLE	MOUNTED ABOVE WINDOW	GC	GENERAL CONTRACTOR
	GFCI DUPLEX RECEPT. (WEATHERPROOF)			
	RANGE RECEPTACLE	50A, 1Ø, 250V, NEMA 14-50R	AFF	ABOVE FINISH FLOOR
	DRYER RECEPTACLE	30A, 1Ø, 250V, NEMA 14-30R		
	SMOKE / CARBON MONOXIDE DETECTOR	CLEARANCES PER NFPA, INTERCONNECTED, BATTERY BACKUP	(#)	KEYED NOTE
	DATA OUTLET			
	CATV			CONNECT TO EXISTING
	MOTOR			
	JUNCTION BOX		###-#	EQUIPMENT TAG
	DISCONNECT NEMA 1			
	DISCONNECT NEMA 3R		NL	NIGHT LIGHT (ALWAYS ON)
	BRANCH CIRCUIT		+H	VERIFY MOUNTING HEIGHT
	HOME RUN			
	ON CIRCUIT			
CT	MOUNT AT COUNTER TOP			
A:5	PANEL : CIRCUIT NUMBER			

(NOT ALL SYMBOLS LISTED ABOVE ARE BEING USED ON THIS PROJECT)

PANEL A

VOLTAGE: 120/240
PHASE: SINGLE
WIRES: 3W, G
ENCLOSURE: NEMA 1

A.I.C RATING: 22,000 SERIES RATED
MAINS RATING: 200 AMP
MAIN BREAKER SIZE: 200A MCB
MOUNTING: SURFACE

CIRC. #	LOAD DESCRIPTION	WIRE REQ.	WATTAGE A	WATTAGE B	CB TRIP / POLES	A	B	CB TRIP / POLES	WATTAGE A	WATTAGE B	WIRE REQ.	LOAD DESCRIPTION	CIRC. #
1	INTERIOR LIGHTING	(FEEDER SCHED.)	1000		20/1			20/1	1000		(FEEDER SCHED.)	OVERHEAD DOOR	2
3	INTERIOR LIGHTING	(FEEDER SCHED.)		1000	20/1			20/1		1000	(FEEDER SCHED.)	OVERHEAD DOOR	4
5	INTERIOR LIGHTING	(FEEDER SCHED.)	1000		20/1			20/1	1000		(FEEDER SCHED.)	OVERHEAD DOOR	6
7	INTERIOR LIGHTING	(FEEDER SCHED.)		1000	20/1			20/1		1000	(FEEDER SCHED.)	OVERHEAD DOOR	8
9	EXTERIOR BUILDING LIGHTS	(FEEDER SCHED.)	600		20/1			20/1	1000		(FEEDER SCHED.)	RECEPTACLES	10
11	SITE POLE LIGHTS	#10		600	20/2			20/1		1000	(FEEDER SCHED.)	RECEPTACLES	12
13			600					20/1	1000		(FEEDER SCHED.)	RECEPTACLES	14
15	FLAG POLE LIGHTS	(FEEDER SCHED.)		600	20/1			20/1		1000	(FEEDER SCHED.)	RECEPTACLES	16
17			-		20/1			20/1	1000		(FEEDER SCHED.)	RECEPTACLES	18
19	CU-1	(FEEDER SCHED.)		2700	45/2			20/1		1000	(FEEDER SCHED.)	RECEPTACLES	20
21			2700					20/1	1000		(FEEDER SCHED.)	RECEPTACLES	22
23	F-1	(FEEDER SCHED.)		1500	20/1			20/1		1000	(FEEDER SCHED.)	RECEPTACLES	24
25	INFRARED HEATERS	(FEEDER SCHED.)	600		20/1			20/1	1000		(FEEDER SCHED.)	RECEPTACLES	26
27	WH-1, RPC-1	(FEEDER SCHED.)		300	20/1			20/1		1000	(FEEDER SCHED.)	RECEPTACLES	28
29	EXHAUST FAN	(FEEDER SCHED.)	1000		20/1			20/1	1000		(FEEDER SCHED.)	RECEPTACLES	30
31	HOSE REEL	(FEEDER SCHED.)		-	VERIFY			20/1		1000	(FEEDER SCHED.)	RECEPTACLES	32
33			-					20/1	1000		(FEEDER SCHED.)	RECEPTACLES	34
35	HOSE REEL	(FEEDER SCHED.)		-	VERIFY			20/1		1000	(FEEDER SCHED.)	RECEPTACLES	36
37			-					20/1	1000		(FEEDER SCHED.)	RECEPTACLES	38
39	GENERATOR CIRCUIT	(FEEDER SCHED.)		500	20/1			20/1		1000	(FEEDER SCHED.)	RECEPTACLES	40
41	GENERATOR CIRCUIT	(FEEDER SCHED.)	500		20/1			20/1	1000		(FEEDER SCHED.)	RECEPTACLES	42
43	LOUVER	(FEEDER SCHED.)		500	20/1			20/1		1000	(FEEDER SCHED.)	DISPOSER	44
45	SPARE		-		20/1			20/1	1000		(FEEDER SCHED.)	RECEPTACLES	46
47	SPARE			-	20/1			20/1		500	(FEEDER SCHED.)	HOOD	48
49	SPARE		-		20/1			50/2	4000		(FEEDER SCHED.)	RANGE	50
51	SPARE			-	20/1					4000			52
53	SPARE		-		20/1			20/1	1000		(FEEDER SCHED.)	REFRIGERATOR	54
55	SPARE			-	20/1			20/1		1000	(FEEDER SCHED.)	REFRIGERATOR	56
57	SPARE		-		20/1			20/1	1500		(FEEDER SCHED.)	MICROWAVE	58
59	SPARE			-	20/1			20/1		1000	(FEEDER SCHED.)	EXTERIOR RECEPTACLES	60

LOAD SUMMARY (PER NEC 220):

LOAD CLASSIFICATION	CONNECTED LOAD (KVA)	FACTOR	DEMAND (KVA)
LIGHTS	6.4	1.25	8.0
RECEPTACLES (< 10KVA)	10.0	1.0	10.0
RECEPTACLES (> 10KVA)	9.0	0.5	4.5
LARGEST MOTOR	5.4	1.25	6.8
MOTORS (REMAINING)	4.9	1.0	4.9
MISC. EQUIPMENT	16.5	0.65	10.7
TOTALS:		KVA: 44.9	120/240V/1Ø, 3W, 60HZ AMPS: 187.1

ALL 20A/1P FEEDERS TO BE ROUTED IN 1/2" CONDUIT PER SET, UNLESS NOTED OTHERWISE. ALL CIRCUITS OVER 100' SHALL BE UPSIZED FOR VOLTAGE DROP.

LIGHT FIXTURE SCHEDULE

FIXT. SYMBOL	MANUF.	CATALOG NUMBER	TYPE	FIXT. VOLT.	MOUNTING	HEIGHT	FIXTURE TYPE	REMARKS
A	WILLIAMS	BP-22-LS/8CS	LED	UNV	LAY-IN	-	2X2 RECESSED LED FLAT PANEL	-
B	WILLIAMS	BP-24-LS/8CS	LED	UNV	LAY-IN	-	2X4 RECESSED LED FLAT PANEL	-
C	WILLIAMS	4DR-TL-L20/840	LED	UNV	RECESSED	-	4" LED CAN	-
D	WILLIAMS	GL-4-L2000/835-WGC1 1-SAF12125	LED	UNV	PENDANT	-	LED HIGHBAY	-
E	WILLIAMS	WMAUD-3-L15/835U/L23/835	LED	UNV	WALL/SURF	-	BATHROOM VANITY LIGHT	-
F	WILLIAMS	FS-4-LS/8CS	LED	UNV	WALL/SURF	-	4' LENSED LED STRIP	-
SA	-	GLEON-AF-02-LED-E1-T3	LED	UNV	25' POLE	-	SINGLE HEAD LED POLE LIGHT	-
SB	WILLIAMS	WPTZ-L38/850-PVS	LED	UNV	WALL/SURF	-	EXTERIOR WALLPACK	-
SC	WE-EF	FLC121 LED-665-0321	LED	UNV	IN GROUND	-	FLAG POLE LIGHT	-
	DUAL-LITE	EV4D	W/ UNIT	120	WALL / SURF	7'-6"	EMERGENCY LIGHT (BATTERY BACKUP)	-
	DUAL-LITE	EVEURWE	W/ UNIT	120	WALL / CLG	-	EXIT LIGHT (BATTERY BACKUP)	-
	DUAL-LITE	EVCURWD4	W/ UNIT	120	WALL / CLG	-	EXIT / EMERG. COMBO (BATTERY BACKUP)	-
	DUAL-LITE	PGBHTR	W/ UNIT	120	OVER DOOR	-	EMERGENCY LIGHT (BATTERY BACKUP)	-

NOTES:
1. CONNECT EXIT & EMERGENCY LIGHTS TO UNSWITCHED CIRCUIT.
2. COORDINATE ALL FIXTURE SELECTIONS, LOCATIONS & MOUNTING HEIGHTS WITH OWNER.

EQUIPMENT CONNECTION SCHEDULE

EQUIP. TAG	VOLTAGE 120/1	208/1	208/3	,	,	LOAD KW	FLA	MCA	PANEL DEVICE RATING 15/1	20/1	20/2	,	45/2	,	DISCONNECTING DEVICE AT EQUIP. 30/1	30/2	30/3	60/2	60/3	STARTER	NEMA 3R	FUSE SIZE	CIRCUIT #	FEEDER	REMARKS
CU-1		●				-	-	26.0					●					D			●	45	-	(45.2)	-
F-1	●					-	-	-	●						T						-		-	(20.2)	
WH-1	●					-	-	-		●					T						-		-	(20.2)	

D = DISCONNECT SWITCH
T = TOGGLE SWITCH
R = RECEPTACLE

NOTES:
1. ALL ELECTRICAL CONNECTION REQUIREMENTS FOR THE EQUIPMENT LISTED ABOVE SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE REQUIREMENTS WITH THE MECHANICAL DRAWINGS & FINAL EQUIPMENT SELECTIONS. PROVIDE SWITCHES, TIME CLOCKS, RELAYS, TRANSFORMERS, ETC. AS REQUIRED FOR PROPER CONNECTION PER EQUIPMENT MANUFACTURER'S INSTALLATION INSTRUCTIONS.
2. REFER TO PLANS FOR CONDUCTOR COUNT (HOT, NEUTRAL, GROUND).

AMPACITY (20.X) # OF CONDUCTORS (HOT + NEUTRAL)

A ELECTRICAL ONE-LINE DIAGRAM
NOT TO SCALE 120/240V, 1Ø, 3W

ARCHITECTS

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COMPUTER DRAWING

DATE: JANUARY 2026

DRAWN BY:	CHECKED BY:
CH, TH, FH, TB	MH

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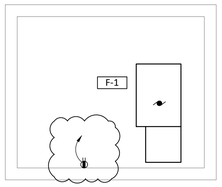
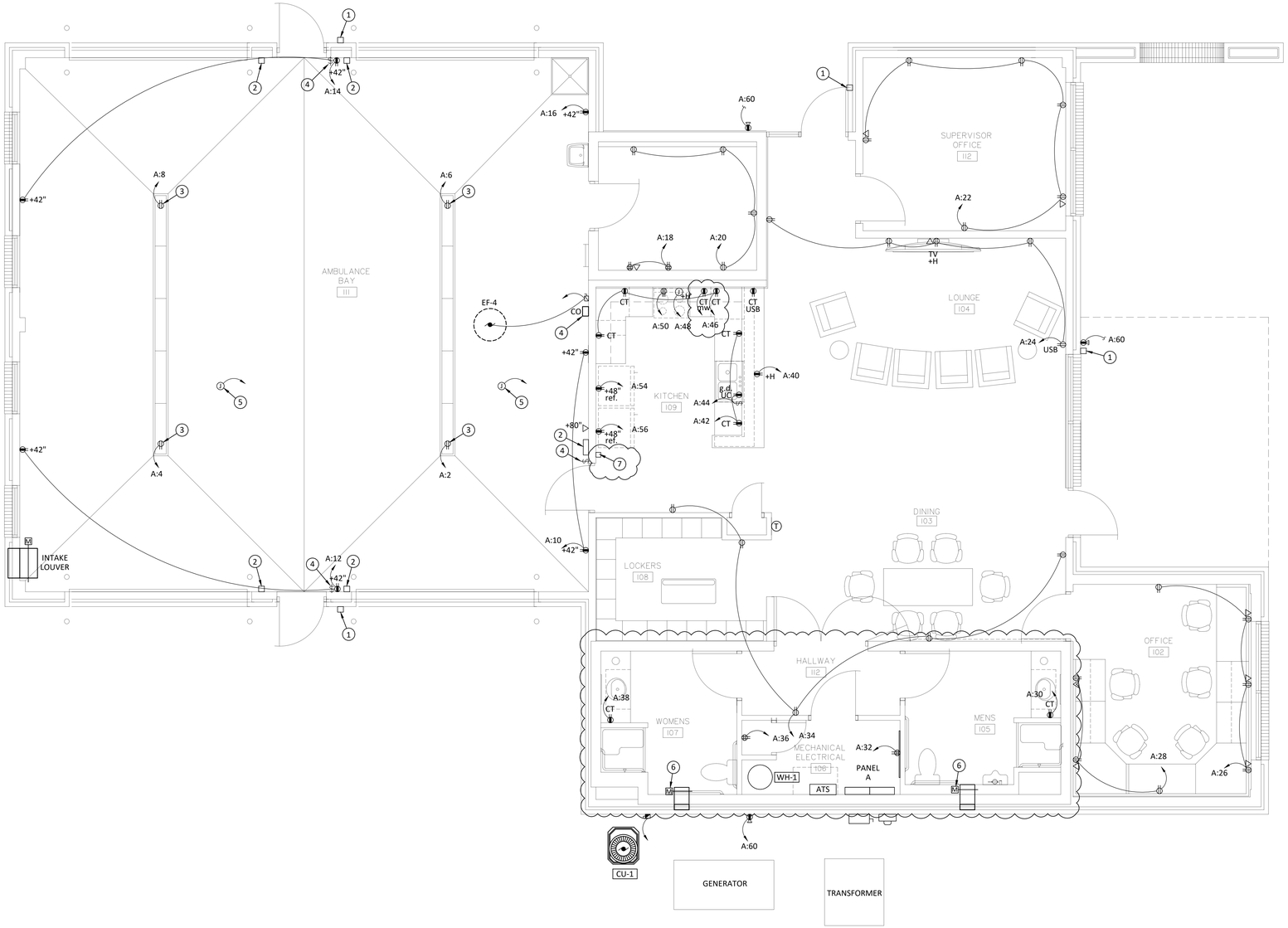


NORTH

B EQUIPMENT PLATFORM

SCALE: 1/4" = 1'-0" 0 2 4 8



NORTH

A ELECTRICAL FLOOR PLAN - POWER

SCALE: 1/4" = 1'-0" 0 2 4 8

ELECTRICAL KEYED NOTES:

1. JUNCTION BOX & CONDUIT STUBBED FOR DOOR ACCESS CONTROL.
2. GARAGE DOOR OPENER LOCATION.
3. OWNER PROVIDED GARAGE DOOR OPENER.
4. MANUAL OVERRIDE FOR GAS DETECTION SYSTEM INTERLOCKED WITH EXHAUST FAN & INTAKE LOUVER.
5. AUTO RETRACT CORD REEL. PROVIDE (1) 12GA 3 CONDUCTOR & PLUG (WOODHEAD OR EQUAL) 15 AMP MAX AND 35' CORD LENGTH FOR AMBULANCE HOOK UP. COORDINATE FINAL LOCATION & REQUIREMENTS.
6. PROVIDE 120V POWER FOR SHELTER NATURAL VENTILATION MOTORIZED DAMPER (NORMALLY SHUT WHEN ENERGIZED).
7. PROVIDE EMERGENCY SHUT-OFF BUTTON FOR RANGE HOOD & GAS SOLENOID VALVE.

COORDINATE FINAL POWER OUTLETS, DATA, LIGHT SWITCHING & DIMMING REQUIREMENTS WITH OWNER.

SHELTER: ALL SHELTER PENETRATIONS MORE THAN 3.5 SQUARE INCHES OR 2.06" DIAMETER TO BE PROTECTED WITH APPROVED WALL SHROUD (CYCLONE OR EQUAL).

GENERATOR: GENERAC PROTECTOR XG SERIES 48KW SINGLE PHASE (OR EQUAL).

LOW-VOLTAGE CABLING: REFERENCE SPEC SECTION 260519

HANNEY & ASSOCIATES, ARCHITECTS
1726 South Hillside, Wichita, Kansas, 67211
Phone (316) 683-8965
Fax (316) 684-1441
www.haarchitects.com

GARRET S. PIKE LICENSED LANDSCAPE ARCHITECT 24820 KANSAS PROFESSIONAL ENGINEER

2026 SEDGWICK COUNTY - EMS POST 1

3099 West 13th Street North
Wichita, Kansas

DRAWINGS ISSUED		
NO.	DATE	ITEM ISSUED
7	9/01/26	ADDENDUM #2
6	6/19/26	REVISIONS
5	3/31/26	PERMIT
4	2/16/26	CHECK SET
3	1/15/26	CHECK SET
2	12/19/25	CHECK SET
1	12/12/25	CHECK SET

COMPUTER DRAWING

DATE: JANUARY 2026

DRAWN BY:	CHECKED BY:
CH, TH, FH, TB	MH

SHEET

E2.0

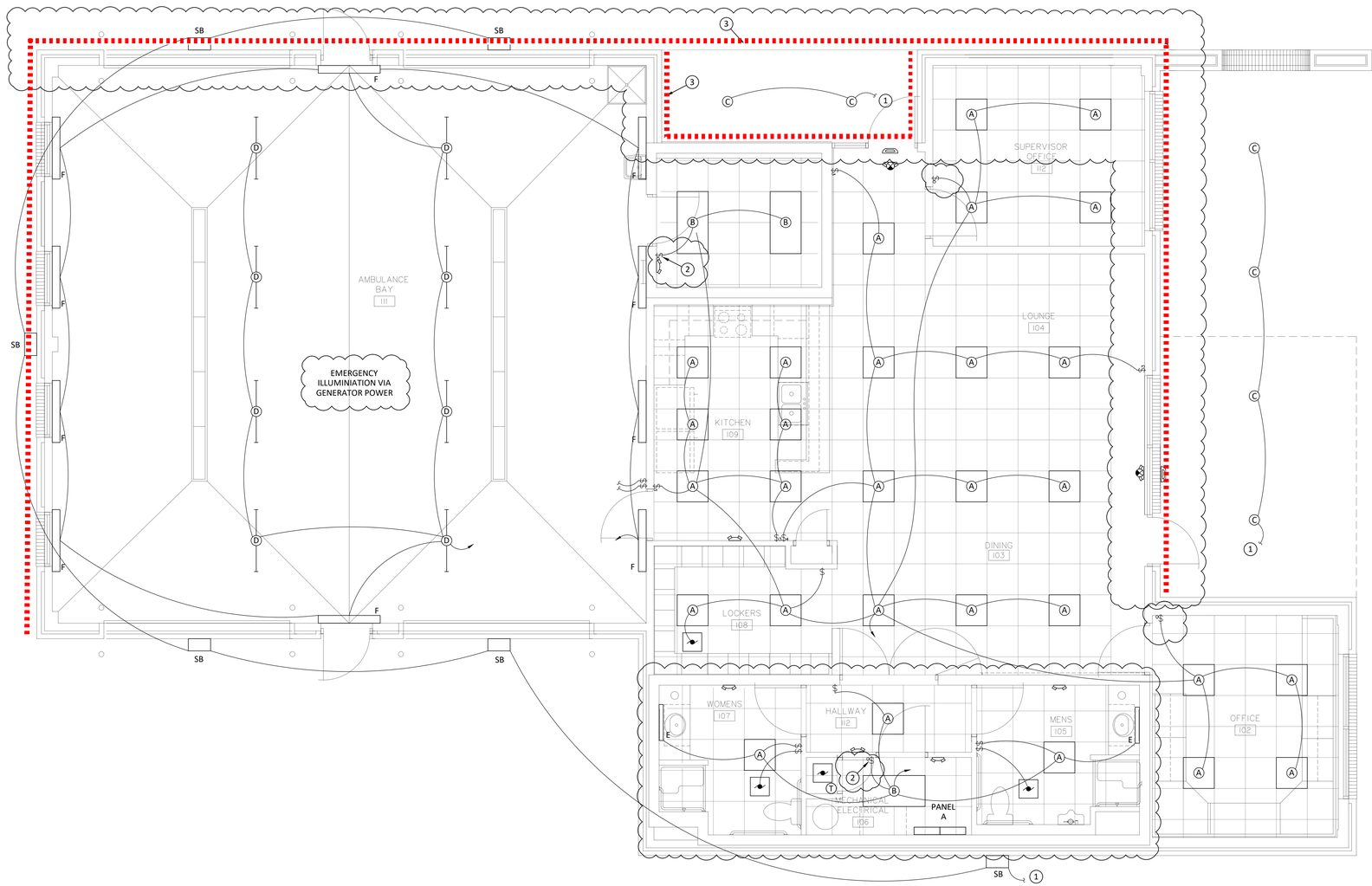
OF 1 SHEETS

PIKE consulting engineers
mechanical | electrical | plumbing
316.267.7025 | www.pikeengineers.com

NORTH

B EQUIPMENT PLATFORM

SCALE: 1/4" = 1'-0" 0 2 4 8



NORTH

A ELECTRICAL FLOOR PLAN - LIGHTING

SCALE: 1/4" = 1'-0" 0 2 4 8

ELECTRICAL KEYED NOTES:

1. VIA PHOTOCELL & TIMECLOCK. COORDINATE FINAL REQUIREMENTS W/ OWNER.
2. VIA MOTION SENSOR SWITCH.
3. PROVIDE EXTERIOR SOFFIT LIGHTING (SHOWN DASHED), COLOR KINETICS FLEX COMPACT PRO, FLAT LENSE, 50 NODES, BLACK HOUSEING, 4" NODE SPACING. PROVIDE IPLAYER 3 CONTROLLER. PROVIDE ALL NECESSSARY COMPONENTS FOR MOUNTING & INSTALLATION.

SHELTER:

ALL SHELTER PENETRATIONS MORE THAN 3.5 SQUARE INCHES OR 2.06" DIAMETER TO BE PROTECTED WITH APPROVED WALL SHROUD (CYCLONE OR EQUAL).

EMERGENCY LIGHTING TO BE PROVIDED VIA WALL MOUNT EMERGENCY BATTERY BACKUP LIGHTS AS SHOWN TO MEET ICC 500 702.8.

HA ARCHITECTS

GARRET S. PIKE LICENSED KANSAS 24820 PROFESSIONAL ENGINEER

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COMPUTER DRAWING

PIKE consulting engineers
mechanical | electrical | plumbing
316.267.7225 | www.pikeengineers.com

DATE: JANUARY 2026	
DRAWN BY:	CHECKED BY:
CH, TH, FH, TB	MH

SHEET

E3.0

OF 1 SHEETS

SECTION 087100

DOOR HARDWARE

PART 1 – GENERAL

1. RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

2. SUMMARY

2.1 This Section includes commercial door hardware for the following:

2.1.1 Swinging doors

2.1.2 Other doors to the extent indicated

2.2 Door hardware includes, but is not necessarily limited to, the following:

2.2.1 Mechanical door hardware

2.2.2 Electromechanical door hardware

2.2.3 Cylinders specified for doors in other sections

2.3 Related Sections

2.3.1 Division 08 Section “Door Hardware Schedule”

2.3.2 Division 08 Section “Hollow Metal Doors and Frames”

2.3.3 Division 28 Section “Access Control”

2.4 Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

2.4.1 ANSI A117.1 – Accessible and Usable Building and Facilities

2.4.2 FEMA P-361 2015 – Design and Construction Guidance for Community Safe Rooms

2.4.3 ICC 500-2014, ICC/NSSA Standard for the Design and Construction of Storm Shelters

2.4.4 ICC/IBC – International Building Code

2.4.5 NFPA 70 – National Electrical Code

2.4.6 NFPA 80 – Fire Doors and Windows

2.4.7 NFPA 101 – Life Safety Code

2.4.8 NFPA 105 – Installation of Smoke Door Assemblies

2.4.9 State Building Codes, Local Amendments

2.5 Standards: All hardware specified herein shall comply with the following industry standards:

2.5.1 ANSI/BHMA Certified Product Standards – A156 Series

2.5.2 UL10C – Positive Pressure Fire Tests of Door Assemblies

3. SUBMITTALS

3.1 Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.

3.2 Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

3.2.1 Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule"

3.2.2 Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.

3.2.3 Content: Include the following information:

A. Type, style, function, size, label, hand, and finish of each door hardware item.

B. Manufacturer of each item

C. Fastenings and other pertinent information

D. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule

E. Explanation of abbreviations, symbols, and codes contained in schedule

F. Mounting locations for door hardware

G. Door and frame sizes and materials

H. Warranty information for each product

3.3.4 Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Product construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

3.3 Shop Drawings

Details of electrified access control hardware indicating the following:

3.3.1 Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

A. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.

B. Complete (risers, point-to-point) access control system block wiring diagrams.

C. Wiring instructions for each electronic component scheduled herein.

3.3.2 Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

3.4 Proof of Qualification
Provide copy of manufacturer(s) Factory Trained Installer documentation indicating proof of status as a qualified installer of Windstorm assemblies.

3.5 Keying Schedule
After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders / cores.

3.6 Information Submittals
Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.

3.7 Operating and Maintenance Manuals
Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals.

4. QUALITY ASSURANCE

4.1 Manufacturer Qualifications: Engage qualified manufacturers with a minimum of 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.

4.2 Installer Qualifications: A minimum of 5 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

4.3 Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.

4.4 Windstorm Assembly Installer Qualifications: Installers are to be factory trained for shop and field installation prior to project bid, and are responsible for commissioning, servicing, and warranting the installed equipment specified for the project. A pre-installation site inspection of the frame and floor conditions shall be conducted by the factory trained installer prior to any Windstorm assembly hardware applied to the opening.

4.5 Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.

4.5.1 Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.

4.5.2 Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

4.6 Severe Storm Shelter Openings: Provide complete door systems for hurricane or tornado resistant storm shelters and other areas of refuge complying and tested according to FEMA P-361 (2015), Design and Construction Guidance for Community Safe Rooms; and ICC 500 (2014), ICC/NSSA Standard for the Design and Construction of Storm Shelters.

4.7 Each unit to bear third party permanent label demonstrating compliance with the referenced standards.

4.8 Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings". Keying conference to incorporate the following criteria into the final keying schedule document:

4.8.1 Function of building, purpose of each area and degree of security required.

4.8.2 Plans for existing and future key system expansion.

4.8.3 Requirements for key control storage and software.

4.8.4 Installation of permanent keys, cylinder cores and software.

4.8.5 Address and requirements for delivery of keys.

4.9 Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware.

4.9.1 Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.

4.9.2 Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.

4.9.3 Review sequence of operation narratives for each unique access-controlled opening.

4.9.4 Review and finalize construction schedule and verify availability of materials.

4.9.5 Review the required inspecting, testing, commissioning, and demonstration procedures.

4.10 At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

5. DELIVERY, STORAGE, AND HANDLING

5.1 Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.

5.2 Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basis installation instructions with each item or package.

5.3 Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

6. COORDINATION

6.1 Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

6.2 Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.

6.3 Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling, and access control system hardware without additional in-field modifications.

7. WARRANTY

7.1 General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

7.2 Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:

7.2.1 Structural failures including excessive deflection, cracking, or breakage.

7.2.2 Faulty operation of hardware.

7.2.3 Deterioration of metals, metal finishes, and other materials beyond normal weathering.

7.2.4 Electrical component defects and failures within the systems operation.

7.3 Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.

7.4 Special Warranty Periods:
- 7.4.1 Seven years for heavy duty cylindrical (bored) locks and latches.
- 7.4.2 Five years for exit hardware
- 7.4.3 Twenty-five years for manual surface door closer bodies.
- 7.4.4 Two (2) years for electromechanical door hardware.

8. MAINTENANCE SERVICE

Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions, as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 – PRODUCTS

9. SCHEDULED DOOR HARDWARE

9.1 General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.

9.2 Designations: Requirements foe quantity, item, sized, finish, or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:

- 9.2.1 Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturer's names are abbreviated in the Door Hardware Schedule.

9.3 Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the Architect, Owner, and their designated consultants.

10. HANGING DEVICES

10.1 Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles as specified in the Door Hardware Sets.

- 10.1.1 Quantity: Provide the following hinge quantity, unless otherwise indicated:
  - A. Two Hinges: For doors with heights up to 60 inches.
  - B. Three Hinges: For doors with heights 61 to 90 inches.
  - C. Four Hinges: For doors with heights 91 to 120 inches.
  - D. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
- 10.1.2 Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
  - A. Widths up to 3 ft. 0 in.: 4-1/2 inch standard or heavy weight as specified.
  - B. Sizes from to 3 ft. 1 in. to 4 ft. 0 in.: 5 inch standard or heavy weight as specified.

10.1.3 Hinge Weight and Base Material
Unless otherwise indicated, provide the following:
A. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.

B. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.

C. Tornado Resistant Assemblies: At a minimum, provide heavy weight hinges with stainless steel screws used in accordance with and specified as part of a Severe Storm Shelter Opening meeting ICC 500 and FEMA 361,

10.1.4 Hinge Options: Comply with the following:
Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.

10.1.5 Acceptable Manufacturers:
A. Bommer Industries (BO)

B. Hager Companies (HA)

C. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK)

10.2 Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge, with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
10.2.1 Acceptable Manufacturers:
A. Bommer Industries (BO)

B. Hager Companies (HA)

C. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK)

D. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE)

11. POWER TRANSFER DEVICES

11.1 Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
11.1.1 Acceptable Manufacturers:
A. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE) – EL-CEPT Series

B. Securitron (SU) – EL-CEPT Series

C. Von Duprin (VD) – EPT-10 Series

11.2 Electric Door Wire Harnesses: Provide electric / data transfer wiring harnesses with standardized plug connectors to accommodate up to twelve (12) wires. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Provide sufficient number and type of concealed wires to accommodate electric function of specified hardware. Provide a connector for through-door electronic locking devices and from hinge to junction box above the opening. Wire nut connections are not acceptable. Determine the length required for each electrified hardware component for the door type, size and construction, minimum of two per electrified opening.

11.2.1 Provide one each of the following tools as part of the base bid contract:

A. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) – Electrical Connecting Kit: QC-R001

B. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) – Connector Hand Tool: QC-R003

11.2.2 Acceptable Manufacturers:

A. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) – QC-C Series

12. CYLINDERS AND KEYING

12.1 General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

12.2 Source Limitations: Obtain each type of keyed cylinder and keys from the same source manufacturer as lockets and exit devices, unless otherwise indicated.

12.2.1 Acceptable Manufacturers:

A. Sargent Manufacturing (SA)

12.3 Cylinders: Original manufacturer cylinders complying with the following:

12.3.1 Mortise Type: Threaded cylinders with rings and cams to suit hardware application.

12.3.2 Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.

12.3.3 Bored-Lock Type: Cylinders with tailpieces to suit locks.

12.3.4 Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.

12.3.5 Keyway: Manufacturer's Standard

12.4 Keying System: Each type of lock and cylinders to be factory keyed.

12.4.1 Conduct specified "Keying Conference" to define and document keying system instructions and requirements.

12.4.2 Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.

12.4.3 New System: Key locks to a new key system as directed by the Owner.

12.5 Key Quantity: Provide to following minimum number of keys:

12.5.1 Change Keys per Cylinder: Two (2)

12.5.2 Master Keys (per Master Key Level/Group): Five (5)

12.6 Key Registration List (Bitting List):
12.6.1 Provide keying transcript list to Owner's representative in the proper format for importing into key control software.

12.6.2 Provide transcript list in writing or electronic file as directed by the Owner.

12.7 Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.
12.7.1 Acceptable Manufacturers:
A. Lund Equipment (LU)

B. MMF Industries (MM)

C. Telkee (TK)

13. MECHANICAL LOCKS AND LATCHING DEVICES

13.1 Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Grade 1 certified.
13.1.1 Furnish with solid cast levers, standard 2-3/4 inch backset, and 1/2 (3/4 inch at rated paired openings) throw brass or stainless steel latchbolt.

13.1.2 Locks are to be non-handed and fully field reversible.

13.1.3 Extended cycle test: Locks to have been cycle tested in ordinance with ANSI/BHMA 156.2 requirements to 2 million cycles.

13.1.4 Acceptable Manufacturers:
A. Corbin Russwin Hardware (RU) – CL3300 Series

B. Sargent Manufacturing (SA) – 10 Line

C. Schlage (SC) – ND Series

14. LOCK AND LATCH STRIKES

14.1 Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
14.1.1 Flat-Lip Strikes: For locks with three-piece antifriction latch-bolts, as recommended by manufacturer.

14.1.2 Extra-Long-Lip-Strikes: For locks used on frames with applied wood casing trim.

14.1.3 Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.

14.1.4 Double-lipped Strikes: For locks at double-acting doors. Furnish with retractable stop for rescue hardware applications.

14.2 Standards: Comply with the following:

14.2.1 Strikes for Mortise Locks and Latches: BHMA A156.13

14.2.2 Strikes for Bored Locks and Latches: BHMA A 156.2

14.2.3 Strikes for Auxiliary Deadlocks: BHMA A156.36

14.2.4 Dustproof Strikes: BHMA A156.16

15. CONVENTIONAL EXIT DEVICES

15.1 General Requirements: All exit devices specified herein shall meet or exceed the following criteria:

15.1.1 At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.

15.1.2 Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.

15.1.3 Except on fire rated doors, provide exit devices with hex key dogging device to hold the push-bar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.

15.1.4 Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.

15.1.5 Lever Opening Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded stud for thru-bolts.

A. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.

B. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.

15.1.6 Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.

15.1.7 Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2-inch wide stiles.

15.1.8 Dummy Push Bar: Nonfunctioning push bar matching functional push bar.

15.1.9 Extended Cycle Test: Devices to have been cycle tested in ordinance with ANSI/BHMA 156.3 requirements to 9 million cycles.

15.1.10 Rail Sizing: Provide exit device rails factory-sized for proper door width application.

15.1.11 Through Bolt Installation: For exit devices and trim, as indicated in Door Hardware Sets.

15.2 Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA 156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.

15.2.1 Acceptable Manufacturers:

A. Corbin Russwin Hardware (RU) – ED4000 / ED 5000 Series

B. Sargent Manufacturing (SA) – 80 Series

16. DOOR CLOSERS

16.1 All door closers specified herein shall meet or exceed the following criteria:

16.1.1 General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.

16.1.2 Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be UL listed for use of fire rated doors.

16.1.3 Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.

16.1.4 Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.

16.1.5 Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.

16.1.6 Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

16.1.7 Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners, as specified in the hardware sets.

16.2 Door Closers, Surface Mounted (Large Body Cast Iron): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron body construction, with adjustable backcheck and separate non-critical values for closing sweep and latch speed control.

16.2.1 Acceptable Manufacturers:

A. Corbin Russwin Hardware (RU) – DC8000 Series

B. Norton Door Controls (NO) – 9500 Series

C. Sargent Manufacturing (SA) – 281 Series

17. ARCHITECTURAL TRIM

17.1 Door Protective Trim

17.1.1 General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.

17.1.2 Size: Fabricate protection plates (kick, armor, or mop), not more than 2-inches less than door width (LDW) on stop side of single doors and 1-inch LDW on stop side of pairs of doors, and not more than 1-inch less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates.

17.1.3 Where plates are applied to fire rated doors with the top of the plate more than 16 inches above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.

17.1.4 Protection Plates
ANSI/BHMA A156.6 certified protection plates (kick armor mop), fabricated from the following:
A. Stainless Steel: 300 grade, 0.50-inch thick.

17.1.5 Options and Fasteners: Provide manufacturer's designated fastener type, as specified in the Hardware Sets)

17.1.6 Acceptable Manufacturers
A. Burns Manufacturing (BU)
B. Hager Companies (HA)
C. Hiawatha, Inc. (HI)
D. Rockwood Products; ASSA ABLOY Architectural Door Association (RO)

18. DOOR STOPS AND HOLDERS

18.1 General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.

18.2 Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead-type stops and holders.

18.2.1 Acceptable Manufacturers
A. Burns Manufacturing (BU)
B. Hager Companies (HA)
C. Hiawatha, Inc. (HI)
D. Rockwood Products; ASSA ABLOY Architectural Door Association (RO)

18.3 Overhead Door Stops and Holders: ANSI/BHMA A156.6, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm, and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

18.3.1 Acceptable Manufacturers

A. Rixon Door Controls (RF)

B. Rockwood Products; ASSA ABLOY Architectural Door Association (RO)

C. Sargent Manufacturing (SA)

19. ARCHITECTURAL SEALS

19.1 General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.

19.2 Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.

19.2.1 Provide smoke labeled perimeter gasketing at all smoke labeled openings.

19.3 Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.

19.3.1 Provide intumescent seals as indicated to meet UL-10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NFPA 252, Standard Methods of Fire Tests of Door Assemblies.

19.4 Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.

19.5 Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.

19.6 Hurricane and Tornado Resistance Compliance: Architectural seals to be UL listed for windstorm assemblies where applicable. Provide the appropriate hurricane or tornado resistant products that have been independently third party tested, certified, and labeled to meet state and local windstorm building codes applicable to the project.

19.6.1 Acceptable Manufacturers:

A. National Guard Products (NG)

B. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE)

C. Reese Enterprises, Inc. (RE)

20. ELECTRONIC ACCESSORIES

20.1 Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into 1-inch diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.

20.1.1 Acceptable Manufacturers:

A. Sargent Manufacturing (SA) – 3280 Series

B. Security Door Controls (SD) – DPS Series

C. Securitron (SU) – DPS Series

21. FABRICATION

21.1 Fasteners: Provide door hardware manufacturered to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturer's recognized installation standards for application intended.

22. FINISHES

22.1 Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.

22.2 Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware.

22.3 Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 – EXECUTION

23. EXAMINATION

23.1 Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.

23.2 Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

24. PREPARATION

24.1 Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.

24.2 Wood Doors: Comply with ANSI/DHI A115-W series.

25. INSTALLATION

25.1 Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.

25.1.1 Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.

25.2 Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:

25.2.1 Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames".

25.2.2 Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors"

25.2.3 Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities"

25.2.4 Provide blocking in drywall partitions where wall stops or other wall-mounted hardware is located.

25.3 Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.

25.4 Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants".

25.5 Storage: Provide a secure lock-up for hardware delivered to the project, but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

26. FIELD QUALITY CONTROL

26.1 Field Inspection: Supplier will perform a final inspection of installed door hardware and state in report whether work complies with or deviates from requirements, including whether door hardware is properly installed, operating, and adjusted.

27. ADJUSTING

27.1 Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

28. CLEANING AND PROTECTION

28.1 Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.

28.2 Clean adjacent surfaces soiled by door hardware installation.

28.3 Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure that door hardware is without damage or deterioration at time of owner occupancy.

29. DEMONSTRATION

29.1 Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

30. DOOR HARDWARE SETS

30.1 The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only, and should not be considered a detailed hardware schedule.. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

30.2 Manufacturer's Abbreviations:

A. MK – McKinney
B. PE – Pemko
C. SA – Sargent
D. AL – Alarm Lock Systems
E. RF – Rixson
F. RO – Rockwood
G. SU – Securitron
H. LU – Lund Equipment Co., Inc.
I. NG – National Guard Products
J. HES – HES by Assa Abloy

(Door Hardware Sets begin on following page.)

DOOR HARDWARE SETS

SET: 1.0
Doors: 111b
Description: Exterior – Hollow Metal

1	Continuous Hinge	CFMHD1 PT x Door Height		PE
1	Fail Secure Electric Lock	RX 28 10G71-24V LB MK	US26D	SA
1	Door Closer	TB 281 CPS	EN	SA
1	Kick Plate	K1050 10" X 2" LDW BEV CSK	US32D	RO
1	Door Stop	462	US2C	RO
1	Threshold	279x292AFGPK x Opening Width		PE
1	Gasketing	700NA (Head & Jambs)		NGP
1	Rain Guard	347A x Overall Frame Width		PE
1	Sweep	345ANB x Door Width		PE
1	Electric Power Transfer	EL-CEPT		SU
1	ElectroLynx Harness	QC-C1500P		MK
1	ElectroLynx Harness	QC-C Length Required		MK
1	Position Switch	DPS-M-BK		SU
1	Electric Strike	HES 4500 Electric Strike by Assa Abloy		HES

Notes: Card reader furnished by Owner.
Power supply furnished by the access control supplier.

Operation:
Door is normally closed and locked. When a valid credential is presented to the wall mounted car reader, the otside level will unlock and you can turn the lever and enter the space. When the door comes back closed, the outside level will relock. The inside lever will have a REX or request to exit switch built into it. You can alsways exit the space by turning the inside lever and exit the space.

SET: 1.1
Door: 101a, 104a
Description: Exterior – Aluminum

1	Continuous Hinge	CFMHD1 PT x Door Height		PE
1	Storeroom Lock	28 10G04 LB MK	US26D	SA
1	Door Closer	TB 281 CPS	EN	SA
1	Door Stop	462	US2C	RO
1	Threshold	279x292AFGPK x Opening Width		PE
1	Gasketing	700NA (Head & Jambs)		NGP
1	Rain Guard	347A x Overall Frame Width		PE
1	Sweep	345ANB x Door Width		PE
1	Electric Power Transfer	EL-CEPT		SU
1	Position Switch	DPS-M-BK		SU
1	Electric Strike	HES 4500 Electric Strike by Assa Abloy		HES

SET: 1.2
Door: 111f
Description: Exterior – Hollow Metal

1	Continuous Hinge	CFMHD1 PT x Door Height		PE
1	Key Pad Lock Set	DL2800	EN	AL
1	Door Closer	TB 281 CPS	EN	SA
1	Kick Plate	K1050 10" X 2" LDW BEV CSK	US32D	RO
1	Door Stop	462	US2C	RO
1	Threshold	279x292AFGPK x Opening Width		PE
1	Gasketing	700NA (Head & Jambs)		NGP
1	Rain Guard	347A x Overall Frame Width		PE
1	Sweep	345ANB x Door Width		PE
1	Electric Strike	HES 4500		
1	Position Switch	DPS-M-BK		SU
1	Electric Strike	HES 4500 Electric Strike by Assa Abloy		HES

Notes: Card reader furnished by Owner.
Power supply furnished by the access control supplier.

SET: 2.0
Doors: 111a, 111c, 111d, 111g
Description: Exterior

Notes: All hardware furnished by the Overhead Door Supplier.

SET: 3.0
Doors: 105a, 107a
Description: Women, Men

3	Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Privacy Set w/ Indicator	V21 EMB8265 LNMD	US26D	SA
1	Door Closer	TB 281 CPS	EN	SA
1	Wall Stop	409	US32D	RO
3	Silencer	608		RO

SET: 4.0
Doors: 106a
Description: Mechanical, Electrical

3	Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Passage Set	28 10U15 LB	US26D	SA
1	Door Closer	TB 281 CPS	EN	SA
1	Wall Stop	409	US32D	RO
3	Silencer	608		RO

SET: 5.0
Door: 106b
Description: Server Closet

3	Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Storeroom Lock	28 10G04 LB MK	US26D	SA
1	Wall Stop	409	US32D	RO
3	Silencer	608		RO

SET: 6.0
Door: 109a
Description: Ambulance Bay

3	Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Rim Exit Device	8810	US26D	SA
1	Keypad Exit Device Trim	ETDL	626	AL
1	Cylinder	34 MK	US26D	SA
1	Door Closer	TB 281 CPS	EN	SA
1	Kick Plate	K1050 10" x 2" LDW BEV CSK	US32D	RO
1	Threshold	279x292AFGPK x Opening Width		PE
1	Gasketing	S773D (Head & Jambs)		PE
1	Door Sweep	315CN x Door Width		PE

SET: 7.0
Door: 110a
Description: Storage (located in the shelter)

4	Hinge	SP3786 5" x 4-1/2"	US26D	MK
1	Multi-Point Lock	FM7325 OB MK	US26D	SA
1	Door Closer	TB 281 CPS	EN	SA
3	Silencer	608		RO

SET: 8.0
Door: 114a
Description: Shelter (Rated)

8	Hinge, Hvy Wt.	SP3786 NRP 5" x 4-1/2"	US26D	MK
2	Surface Bolt	988	Bright Zinc	SA
1	Multi-Point Lock	LC FM7325 LNB	626	SA
1	Mortise Cylinder	2153 MK x Correct Cam	626	YA
1	Coordinator	576	BSP	RO
2	Surface Closer	TB 281 P10	EN	SA
2	Electromagnetic Holder	998M	EN	NO
1	Gasketing	S773BL (Head & Jambs)	PE	

Notes: Metal overlapping astragal furnished by Hollow Metal Door Supplier.
Doors will have a 3/8" undercut.
Bottom strikes will be mounted directly to the concrete floor.

SET: 9.0
Doors: 102a, 109b
Description: Group Office and Pantry

3	Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Passage Set	28 10U15 LB	US26D	SA
1	Wall Stop	409	US32D	RO
3	Silencer	608		RO

SET: 10.0
Door: 102a, 109b
Description: Supervisor Office

3	Hinge	TA2714 4-1/2" x 4-1/2"	US26D	MK
1	Lock Set	28 10G05 LL	US26D	SA
1	Wall Stop	409	US32D	RO
3	Silencer	608		RO

End of Section 087100

SECTION 260513

WIRES AND CABLES, LOW VOLTAGE

PART 1- GENERAL

1.1 DESCRIPTION:

A. This section includes the furnishing, installation, and connection of the power, lighting, system, and control wiring.

PART 2 - PRODUCTS

2.1 CABLE AND WIRE (POWER AND LIGHTING):

A. Cable and Wire: Fed. Spec. J-C-30, except as hereinafter specified. All conductors shown on plans are sized for copper unless noted otherwise. UL label required. American, Southwire, Essex, or equal, rated 600 volts, finished with fadeless color coding and bearing Underwriters label.

All cable and wiring shall be continuous between electrical equipment. Splices shall not be added except as required for taps in branch circuits or as approved by the engineer. No splices will be allowed within panelboards and switchboards.

B. Single Conductor:

1. Soft annealed copper.

2. All conductors #8 gauge and larger shall be stranded unless noted otherwise All conductors #10 gauge and smaller may be solid or stranded unless noted otherwise on the drawings. Stranded conductors may be used only on devices and lugs that are U.L. listed for use with stranded conductors.

3. Minimum size No. 12, except where larger sizes are shown. (Size No. 14 minimum for controls).

C. Insulation:

1. Wires for general use within the building shall be type THHN or type THWN, 90 degree rated except where called for otherwise on the drawings. Type THHN or type THWN shall be used at the temperature rating of equipment termination lugs, environmental conditions, and as Code allows. Wires for other than general use shall be as hereinafter specified for specific services.

D. An equipment grounding conductor, sized per NEC Article “Grounding”, shall be installed in each conduit containing phase conductors.

E. Color Code:

1. All conductors shall be identified by circuit number and color coding at all termination points and splices. All conductors shall be identified in all pull and junction boxes by the following method of color coding. Means of identification shall be permanently posted at each branch circuit panel with a nameplate identifying color coding system used in that panelboard.

Phase	208/120V	480/277V	240V.	240/120V
A	Black	Brown	Black	Black
B	Red	Orange	Red	Red
C	Blue	Yellow	Blue**	
Neutral	White	Gray*		White
Ground	Green	Green	Green	Green
Iso. Grd	Green w/Yellow	Green w/Yellow	Green w/Yellow	Green w/Yellow

* or white with colored (other than green) tracer.
**Identify 'High Leg' per N.E.C.

2. Use solid color compound or solid color coating for No. 6 and smaller branch circuit conductors and neutral sizes.

3. Phase conductors No. 4 and larger color code using one of the following:

   a. Solid color compound or solid color coating.

   b. Colored as specified using 3/4-inch wide tape. Apply tape in two layers, half overlapping turns for a minimum of three-inches for terminal points, and in junction boxes, pull boxes, troughs, manholes, and handholes. Apply the last two laps of tape with no tension to prevent possible unwinding. Where cable markings are covered by tape, apply tags to cable stating size and insulation type. Where any conductor is or can be supplied from an emergency system, the Contractor shall mark each conductor with an additional two layers, one-half lapped, of purple colored vinyl electrical tape.

   c. Yellow stripe on isolated ground may be 1/4-inch wide yellow tape on top of green.

4. For modifications and additions to existing wiring systems, color coding shall conform to the existing wiring system.

5. Provide plastic engraved color code legend on each panelboard and switchboard per NEC Article "Branch Circuits", "Identification Of Ungrounded Conductors".

6. All improperly color coded conductors will be completely replaced at no additional cost to Owner.

F. See riser diagrams and/or other sections of the Specifications for types and ratings for sound, fire alarm, control and other special cables.

G. Where quantities of conductors in a raceway system are not specifically indicated, provide the number as required to maintain function, control and number of circuits as indicated.

H. All isolated ground circuits shall be provided with separate phase, neutral, and ground conductors (no shared neutrals or grounds). All isolated ground circuits shall be installed in separate raceways from all other circuiting.

I. Where multiple sets of conductors are indicated, do not install the same phase conductors in the same raceway. Each raceway shall be provided with A, B, C phase conductors, neutral (if indicated), and ground (if indicated).

J. Where GFCI circuit breakers are used, provide a separate neutral conductor for the GFCI circuit. (Not a shared neutral with another circuit).

2.2 SPLICES AND JOINTS:

A. In accordance with UL 486 A, B, D and NEC.

B. Splices and taps for #6 and larger conductors shall be made with block type terminations (with insulating jacket) or with split bolt connectors, covered and completely insulated with a minimum of three half-lapped layers of Scotch No. 33+ (105 degree C) plastic electrical tape or by approved insulated fastener. All splices and taps having irregular surfaces shall be properly padded with Scotchfil putty before application of insulating plastic tape. Scotchlok electrical pre-insulated spring pressure connectors or equal may be used for up to #8 conductors.

2.3 CONTROL WIRING:

A. All control wiring shall be copper, solid or stranded, #14 Ga. or larger depending upon current requirements, with insulation type for 90 C. rating. Where stranded conductors are used, provide with spade type insulated copper terminals. Unless noted otherwise on the Mechanical drawings or herein, all mechanical control wiring for all systems shall be routed within conduit, shall be of the same insulation type and shall be continuous between outlets and boxes (with no splices or taps into conduit). All line and low voltage mechanical control wiring, conduit, connections, and/or terminations are by the Electrical Contractor unless specifically noted otherwise within the bidding documents.

2.4 WIRE LUBRICATING COMPOUND:

A. The cable pulling lubricant shall be compatible with all cable jackets. The lubricant shall be UL (or CSA) listed. The lubricant shall contain no waxes, greases, silicones, or polyalkylene glycol oils or waxes.

B. A 200-gram sample of the lubricant, when placed in a one-foot, split metal conduit and fully dried for 24 hours at 105 degrees C, shall not spread a flame more than three-inches beyond a point of ignition at a continued heat flux of 40 kW/m^2. Total time of test shall be one-half hour.

C. Approved Lubricant is:

Dyna Blue

Polywater J available from:

American Polywater Corporation

Equal by Quick Slip from Buchanan
CCR Wire Pulling Lube from CRC
Poly-X from American Colloid.

2.5 FIREPROOFING TAPE:

A. The tape shall consist of a flexible, conformable fabric of organic composition coated one side with flame-retardant elastomer.

B. The tape shall be self-extinguishing and shall not support combustion. It shall be arcproof and fireproof.

C. The tape shall not deteriorate when subjected to water, gases, salt water, sewage, or fungus and be resistant to sunlight and ultraviolet light.

D. The finished application shall withstand a 200 ampere arc for not less than 30 seconds.

E. Securing tape: Glass cloth electrical tape not less than 7 mils thick, and 3/4-inch wide.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERALLY:

A. Install in accordance with the NEC, and as specified.

B. Unless noted otherwise on the Electrical drawings or herein, all wiring for all systems shall be routed within conduit, shall be of the same insulation type and shall be continuous between outlets and boxes (with no splices or taps into conduit).

C. Splices and taps in outlet boxes shall be twisted joints. U.L. approved pre-insulated spring pressure connectors shall be used for branch circuit connections. Connectors shall be installed so that all conductors are properly insulated.

D. Splice cables and wires only in outlet boxes, junction boxes, pull boxes, manholes, or handholes. Do not splice cables in panelboards, switchboards, disconnects, etc.

E. Install cable supports for all vertical feeders in accordance with the NEC. Provide split wedge type which firmly clamps each individual cable and tightens due to cable weight.

F. For panelboards, cabinets, wireways, switches, and equipment assemblies, neatly form, and tie all cables.

G. Seal cable and wire entering a building from underground between the wire and conduit, where the cable exits the conduit, with a non-hardening approved compound.

H. Wire Pulling:

1. Provide installation equipment that will prevent the cutting or abrasion of insulation during pulling of cables.

2. Use ropes made of nonmetallic material for pulling feeders.

3. Attach pulling lines for feeders by means of either woven basket grips or pulling eyes attached directly to the conductors, as approved by the Engineer.

4. Pull multiple cables into a single conduit with a single continuous pull.

5. Always use wire lubricant per this specification.

3.2 SPLICE INSTALLATION:

A. Splices and terminations shall be mechanically and electrically secure.

B. Where the Engineer determines that unsatisfactory splices or terminations have been installed, remove the devices and install approved devices at no additional cost to the Owner.

3.3 CONTROL, COMMUNICATION, AND SIGNAL WIRING INSTALLATION:

A. Unless otherwise specified in other sections of these specifications, install wiring as described below. Wiring shall be connected to perform the functions shown and specified in other sections of this specification.

B. Except where otherwise required, install a separate power supply circuit for each system, or control equipment, or control power. Circuit to nearest 120 volt panel or nearest emergency panel if equipment controlled is connected to emergency system. Provide 20 Amp breakers in panels where none are designated. Verify all requirements with actual equipment supplied in field.

C. Install a breaker lock-on clip on the handle of the branch circuit breaker for the power supply circuit for each system to prevent accidental de-energizing of the systems.

D. System voltages shall not exceed 120 volts and shall be lower voltages where shown on the drawings or required by the NEC.

E. Wire and cable identification:

1. Install a permanent wire marker on each wire at each termination, outlet box, junction box, panel, and device.

2. Identifying numbers and letters on the wire markers shall correspond to those on the wiring diagrams used for installing the systems.

3. Wire markers shall retain their markings after cleaning.

3.4 FIELD TESTING:

A. Feeders and branch circuits shall have their insulation tested after installation and before connection to utilization devices such as fixtures, motors, or appliances.

B. Test shall be performed by meggar and conductors shall test free from short-circuits and grounds.

C. Test conductors phase-to-phase and phase-to-ground.

D. Meggar motors after installation but before start-up and test free from grounds.

E. The Contractor shall furnish the instruments, materials, and labor for these tests.

END OF SECTION

SECTION 260519

LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Building wires and cables rated 600 V and less.
2. Connectors, splices, and terminations rated 600 V and less.

1.2 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 CONDUCTORS AND CABLES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Southwire Company
2. General Cable Technologies Corporation
3. Cerrowire LLC
4. Encore Wire Corporation
5. AFC Cable Systems

B. Use Copper Conductors Only: UL-Listed, comply with NEMA WC 70. All conductor sizes are based on the use of copper materials and are code required minimum sizes. Conductor sizes exceeding ampacity requirements of the circuit are sized for voltage drop and shall be installed as indicated.

C. Conductor Insulation: Comply with NEMA WC 70 for TypesTHHN-THWN-2.

D. Minimum Size: Wire smaller than No. 12 AWG shall not be used unless specifically indicated herein or on the drawings

1. No. 14 AWG (or larger) copper, solid or stranded, 90° C. wire shall be permitted for control wiring applications. Where stranded conductors are used, provide with spade type insulated copper terminals.

E. MC cable - Equal to AFC Cable Systems MC-TUFF:

1. Steel armor, #12awg copper, with green ground conductor.
2. Phase conductors color-coded per specifications.

3. Lock-nut method of connection when terminating mc cable to a junction box (do not use snap-in connectors). Equal to Bridgeport 590-DC12 or Arlington Snap2IT 38A.

F. MC Luminary cable - Equal to AFC Cable Systems MC-TUFF Luminary:

1. Steel armor, #12awg copper, with green ground conductor.
2. #16awg copper shielded twisted jacketed pair (purple/gray) for 0-10v lighting control.
3. Phase conductors color-coded per specifications.
4. Lock-nut method of connection when terminating mc cable to a junction box (do not use snap-in connectors). Equal to Bridgeport 590-DC12 or Arlington SG50A

2.2 CONNECTORS AND SPLICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Hubbell Power Systems, Inc.
2. O-Z/Gedney; EGS Electrical Group LLC.
3. 3M; Electrical Products Division.
4. Ideal Industries, Inc.
5. ILSCO

B. Description: UL-Listed, Factory-fabricated connectors and splices of size, ampacity rating, material, type, and class for application and service indicated.

C. Conductors smaller than or equal to No. 8 AWG are permitted to be spliced or tapped with spring pressure, screw-on, pre-insulated connectors rated for the circuit involved.

D. Conductors larger than No. 8 AWG shall be spliced with compression connectors (fully insulated).

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders & Branch Circuits: **Copper**. Solid for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION, APPLICATIONS AND WIRING METHODS

A. Service Entrance and all other underground circuits: Type THWN-2, single conductors in raceway.

B. Feeders & Branch Circuits: Type THHN/THWN-2, single conductors in raceway.

C. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

D. MC cable shall be permitted when all of the following conditions are met:

1. Wood Frame Construction only. If the construction type is NOT wood frame, MC cable is NOT permitted.
2. 20A branch circuits only.
3. Color-coded throughout building per specifications.

4. Use EMT with individual conductors for all homeruns out of panelboard to 1st j-box; set 1st j-box in area of branch circuit load, then convert to mc cable.
5. Use lock-nut method of connection when terminating mc cable to a junction box (do not use snap-in connectors).

E. MC Luminary cable shall be permitted when all of the following conditions are met:

1. For 0-10v LED lighting control applications.
2. 20A branch circuits only.
3. Dedicated to specific room lighting zone. Do not use MC cable between rooms/zones.
4. Use lock-nut method of connection when terminating mc cable to a junction box (do not use snap-in connectors).

F. Class 1 Control Circuits: Type THHN-THWN, in raceway.

G. Class 2 Control Circuits: Type THHN-THWN, in raceway.

3.3 INSTALLATION OF CONDUCTORS AND CABLES

A. Install wires and cables as indicated, according to manufacturer's written instructions and NECA's "Standard of Installation."

B. Conceal conductors & cables in finished walls, ceilings, and floors, unless otherwise indicated via raceway.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed conductors & cables (in raceway) parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

G. Identify and Color-code conductors and cables according to Section 260553 "Identification for Electrical Systems." Note: All conductors shall have fully colored, factory applied insulation.

H. Seal around cables/raceways penetrating fire-rated elements according to Section 078413 to restore original fire-resistance rating of assembly. Seal cable and wire (between conduit and conductor) entering a building from underground where the conductor(s) exit the conduit, with a non-hardening compound listed for such use.

I. Neatly form and tie all wires inside panelboards, cabinets, wireways, switches, equipment enclosures, etc.

J. Install cable supports (split wedge type) inside raceways for all vertical feeder runs in accordance with the NFPA 70.

K. Where quantities of conductors in a raceway system are not shown / missing on the drawings, provide the number as required to maintain function, control and number of circuits indicated.

L. Do not share the neutral conductor across phases. Provide dedicated neutral conductor per phase conductor.

M. Maximum of (3) 20A-1P branch circuits per raceway.

N. Do not route branch circuits from one panelboard through another panelboard (can). All branch circuits shall exit the source panelboard via "homerun" raceway(s).

3.4 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Section 260544 "Sleeves and Sleeve Seals for Electrical Raceways and Cabling."

3.5 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

B. Electrical Connections: Connect outlets and components to wiring and to ground as indicated and instructed by manufacturer and per NFPA 70 Article 110.14. See receptacle wiring detail on drawings.

C. Wiring at Outlets: Install conductor at each outlet, with at least 8 **inches** of slack.

D. All wires shall be routed within conduit, shall be of the same insulation type and shall be continuous between outlets and boxes (no splices or taps in conduit).

E. Keep all splicing to a minimum. Splicing will not be allowed in panelboards, switchboards or other enclosures where the conductor(s) are to be terminated.

1. Make splices and taps that are compatible with conductor material (copper) and that possess equivalent or better mechanical strength and insulation ratings than un-spliced conductors. All conductor splices larger than #6AWG shall be spliced using compression method insulated with a heavy wall shrink tubing.
2. Unsatisfactory splices or terminations shall be re-worked as directed by the Engineer at no additional cost to the Owner.

3.6 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

B. Tests and Inspections:

1. After installing conductors and cables and before electrical circuitry has been energized, test conductors for compliance with requirements.

2. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Test electrical insulation using megger testing. Certify compliance with test parameters.
3. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each splice in cables and conductors No. 3 AWG and larger. Remove box and equipment covers so splices are accessible to portable scanner.

    a. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each splice 11 months after date of Substantial Completion.
    b. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide calibration record for device.
    c. Record of Infrared Scanning: Prepare a certified report that identifies splices checked and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

C. Test Reports: Prepare a written report to record the following:

1. Test procedures used.
2. Test results that comply with requirements.
3. Test results that do not comply with requirements and corrective action taken to achieve compliance with requirements.

D. Remove and replace malfunctioning units and retest as specified above.

End of Section 260519

SEDGWICK COUNTY

Product and Installation Specifications

for

Building Data Communication Cabling

April 2026

Updated Version: June 23, 2026
4.3.2

1. OVERVIEW

This document is the specification for the installation of Structured Cabling Systems at Sedgwick County. The data part is suitable for the provision of high-speed Ethernet communications for individual buildings. The principal use of this practice is for the construction of new buildings, major renovations, or additions to cable plant.

1.1 General Scope

The practice basically follows the relevant EIA, TIA, CSA standards and architectures for commercial buildings. As such, it is focused on the facilities required within a building not the inter-building facilities that are required to ensure a comprehensive County wide network. For specifications of telecommunications rooms see the County document "Communications Infrastructure Specifications, Standards and Practices "and for conduit sizes see the EIA/TIA 569B standard.

The practice aims to ensure a cabling system that will give a predictable, consistent and flexible subsystem with a substantial lifetime for the applications that Sedgwick County needs. It specifies Cat 6 cable for the horizontal UTP copper systems. The formerly specified Cat5e cable has been replaced by Cat6 cable. This practice specifies which OEMs can be used. Recommended OEMs include, but are not limited to, Belden, CommScope, Panduit and Leviton. It will be noted that for telecommunications rooms, there is single vendor approach for the piece parts such as racks, power distribution units and cable management subsystems. This is done for consistency to make it easier for technicians to service and expand the facilities in those rooms.

1.1.1 This document specifies the requirements for the installation of all horizontal UTP cabling and all copper/fiber backbone cabling to support voice and data applications in a new or renovated space. It should be noted that Category 6 cabling is specified in the vertical riser in addition to fiber.

1.1.2 The cabling contractor shall supply and install a complete telecommunications cabling system based on a physical star wiring topology that is designed in accordance with practices recommended by the Building Industry Consulting Service International (BICSI) organization. Furthermore, the cabling contractor shall include all communication outlets, terminating hardware, network racks, patch panels, cable management, patch cables (both fiber and Cat6), and selected connectivity devices as outlined in this specification.

Cabiling Contractor must provide documentation that a Building Industry Consulting Services International (Bicsi) Certified installer 2 is on staff prior to project start date.

1.1.3 It is the responsibility of the cabling contractor to report any errors and/or omissions in this specification with their bids.

1.2 Inquiries Bidders who find discrepancies or omissions in this specification, or who have any doubt as to the meaning or intent of any part of this specification, shall direct their questions or other inquiries by email or facsimile to the System Admin and Telecom Manager of Sedgwick County.

2. PRODUCT AND INSTALLATION STANDARDS

2.1 The equipment, material and installation shall conform to the latest version of the applicable codes, standards and regulations of authorities having jurisdiction.

2.2 All components supplied and/or installed will support current applications and any future application introduced by recognized standards or user forums that use EIA/TIA 568 component and link/channel specifications for cabling.

2.3 The specifications detailed in this document are accompanied by EIA/TIA and/or CSA requirements both for product and installation practices. The following are communications standards documents that must be adhered to:

Standard	Title
ANSI/TIA-568-C.0	Generic Telecommunications Cabling for Customer Premises
ANSI/TIA-568-C.1 Standard	Commercial Building Telecommunications Cabling
ANSI/TIA-568-C.2	Balanced Twisted-Pair Telecommunication Cabling and Components Standard
ANSI//TIA-568-C.3	Optical Fiber Cabling Components Standard
ANSI/EIA/TIA-569-A	Commercial Building Standard for Telecommunications Pathways and Spaces
ANSI/EIA/TIA-606(A)	Administration Standard for the Telecommunications Infrastructure of Commercial Buildings Product and Installation Specifications For Building Data Communication Cabling 5
ANSI/EIA/TIA-607(A)	Commercial Building Grounding and Bonding Requirements for Telecommunications
ANSI/EIA/TIA-598	Color Coding of Fiber Optic Cables

ANSI/EIA/TIA-455	Test Procedures For Fiber Optics, Cables and Transistors
ANSI/EIA/TIA-604-3	FOCIS 3 Fiber Optic Connector Intermatability Standard
ANSI/ICEA S-83-596	Fiber Optic Premises Distribution Cable
ANSI/ICEA S-83-640	Fiber Optic Outside Plant Communications Cable
ANSI/NECA/BICSI-568	Standard for Installing Commercial Building Telecommunications Cabling

3. PRODUCT SPECIFICATIONS

3.1 General Conditions

3.1.1 This document specifies that the horizontal structured cabling system shall be a single manufacturer end-to-end solution. Recommended manufacturers include, but are not limited to, Panduit TX 6000TM System, Belden IBDN 2400 System, CommScope Giga speed XL, and Leviton. See appendices for examples of vendor product list and part numbers. It is recommended to consult vendors on current product offerings.

Product and Installation Specifications For Building Data Communication Cabling

3.1.2 The Cat 6 end-to-end system solution shall meet or exceed 250MHz in the channel. Third party test results shall be required such as ETL test results. In-house manufacturer test results are not acceptable.

3.1.3 Products installed must meet or exceed all local, provincial and federal buildings, fire, health, safety and electrical codes.

3.1.4 The cabling contractor is responsible for complete storage, handling, delivery, and installation of all materials used in the performance of the work.

3.1.5 The cabling contractor is responsible for keeping the workplace clean, safe and free from debris at all times. All debris must be removed from the site on a daily basis. The costs for cleaning are the responsibility of the cabling contractor.

3.2 Cabling Support Structure

3.2.1 The cabling contractor is to supply and install cable support system and any other miscellaneous hardware required for supporting all horizontal cabling where conduit or cable tray has not been provided. All horizontal cabling must be supported at 48” to 60” intervals.

3.3.2 Red Iron and or building infrastructure is not an acceptable cabling support system. Examples of an acceptable support system are but not limited to J-Hooks, Basket Tray, Bridal Rings, Etc.

3.2.3 Where required by local codes all cabling shall be installed in metallic EMT conduit.

3.3 Communications Cabling Category 6 Horizontal Data Cable

3.3.1 The horizontal data cabling shall be solid copper, blue unshielded twisted pair (UTP), 4- pair, 23 AWG, CMP rated (FT6) or CMR rated (FT4), Category 6 cable as applicable. Acceptable examples of cables are Panduit TX 6000TM System, Belden IBDN 2400 System, Commscope Gigaspeed XL, or Leviton.

3.3.2 The cable shall be tested and characterized to 350 MHz and have a positive PSACR above 250 MHz. It shall also be UL listed.

3.3.3 The jacket shall be printed with a 1000’ to 0’ marking system and/or 333 meters to 0 meters system.

3.4 Work Area Outlet Solutions Category 6 Modular Jacks

3.4.1 Horizontal UTP Category 6 data cabling to be terminated at the workstation shall be terminated with modular 8 position, 8 wire RJ45 connector. Recommended OEMs include, but are not limited to Panduit, Belden, CommScope or Leviton. Modules are to be wired as per T568B. Modular data jacks shall be blue in color except when used for wireless applications in which case they shall be orange in color.

3.4.2 The approved horizontal UTP Category 6 voice cabling to be terminated at the workstation shall be terminated with modular 8 position, 8 wire RJ45 connector. Recommended OEMs include, but are not limited to Panduit, Belden, CommScope or Leviton. Modules are to be wired as per T568B. Modular voice jacks shall be blue in color.

3.4.3 Modular jacks must meet FCC Part 68 Subpart F; contacts are to be plated with 50 micro inches of gold.

3.4.4 Modular jack contacts shall have a minimum of 2500 plug insertions without degradation of electrical or mechanical performance as per the IEC60603-7 specification.

3.4.5 Jack termination shall utilize a paired termination sequence. Maintain untwist to a maximum of ½ inch during termination. Leave one (1) foot or thirty (30) centimeters of cable slack in the ceiling above each work area outlet location. If the cable is installed in conduit leave one (1) foot or thirty (30) centimeters of cable slack in the closest pull box and or cable tray.

Work Area Patch Cords

3.4.6 Patch cords shall be stranded Category 6 and meet or exceed FCC Part 68 and IEC 60603-7 specifications. The plug shall have contacts plated with 50 micro inches of gold for improved durability and have a minimum of 2500 plug insertions without degradation of electrical or mechanical performance.

3.4.7 The patch cord shall be blue in color and shall be ten (10) feet or three (3) meters in length except when used for wireless applications in which case they shall be orange in color and shall be no more than seven (7) feet or two (2) meters in length.

3.4.8 Patch cords shall be manufacturer assembled and verified. Some of recommended manufacturers are Panduit, Belden, Commscope, and Leviton.

Flush Mounted Faceplates

3.4.9 The horizontal UTP cabling shall be terminated at the workstation on a flush mounted wall plate. Each faceplate shall be 4 or 6 ports on a single gang to allow for future growth. All unused ports will have blank modules installed.

3.4.10 Faceplates shall be UL listed and CSA Certified. Furniture Faceplates

3.4.11 Horizontal UTP cabling terminated at the workstation in systems furniture shall use a four-port faceplate. All unused ports shall be filled in with blank inserts.

3.5 Telecommunications room termination solutions.

Horizontal Data Cable Terminations

3.5.1 All data Cat 6 horizontal UTP cabling shall be terminated on RJ45 modular jacks and connected to modular rack mount patch panels. The modular patch panels shall be mounted in a standard 19” rack. All materials to be supplied by the Contractor to make a complete solution.

3.5.2 Modular patch panels shall be 24 or 48 port modular panels and shall be black in color. RJ45 modular jacks shall be used to connect to modular patch panels.

3.5.3 Leave ten (10) feet and or three (3) meters of slack in the telecommunications room to allow for future rack relocation if required. Do not store the slack in bundled loops. Cable slack should be stored in an extended loop or in figure eight.

Telecom Room Patch Cords

3.5.5 Patch cords shall be stranded Category 6 and meet or exceed FCC Part 68 and IEC 60603-7 specifications. The plug shall have contacts plated with 50 micro inches of gold Product and Installation Specifications For Building Data Communication Cabling 9 for

improved durability and have a minimum of 2500 plug insertions without degradation of electrical or mechanical performance.

3.5.6 Data patch cords shall be blue in color and shall be seven (7) feet and or two (2) meters in length unless otherwise specified.

3.5.7 Approved patch cords shall be manufacturer assembled, tested and verified. Some of recommended manufacturers are Panduit, Belden, CommScope or Leviton.

Fiber Optic Backbone Cabling – Singlemode & Multimode

3.5.9 Sedgwick County utilizes single mode fiber between buildings, and OM3 multimode fiber between Telecommunications Rooms within a single building. The approved inter-building single mode fiber optic backbone cables shall be 9/125um OS2 and constructed with Corning optical fiber. The approved intra-building multimode fiber optic cables shall be 50/125um OM3. Indoor cables shall be tightly buffered with CMP (FT6) or CMR (FT4) where applicable. If needed, outdoor cables shall be loose tube CMR (FT4) outdoor rated fiber optic cable. Recommended manufacturers are Panduit, Belden, CommScope, Corning, and Leviton.

3.5.10 The approved inter-building single mode fiber optic backbone cables from the Building Entrance Facility (BEF) to the Telecommunications Room (TR) shall be a minimum twelve-strand (12-strand) cable unless otherwise specified by Sedgwick County. The approved intra-building multimode fiber optic cables that run between Telecommunications Rooms (TRs) shall be a minimum of twelve-strand (12-strand) cable unless otherwise specified by Sedgwick County

3.5.11 Cable to be formed into groups of 12 fibers. Groups and individual fibers shall be identified in accordance with ANSI/EIA/TIA-598-A

3.5.12 Fiber optic cable groups shall be assembled to form a single compact core and covered by a protective sheath. The sheath shall consist of an overall jacket and one or more layers of dielectric material applied over the core.

Fiber Optic Connectors

3.5.13 The fiber optic connectors must be field installable connectors. The connectors shall be LC style UPC for both inter-building backbone cables and intra-building backbone cables. All connectors are to meet ANSI/EIA/TIA and IEC standards for repeatability.

3.5.14 The connector shall be capable of terminating on either 900 micron tight-buffered cable, 3.0 mm jacketed fibers or 250 micron loose tube fibers. The connector shall also have a zirconia ceramic ferrule for both multimode and single mode connectors and must have a locking feature to the coupler.

3.5.15 The connector shall provide a strain relief mechanism for installation on a single fiber. The fiber within the body of the connector shall be isolated mechanically from cable tension bending and twisting as per ANSI/TIA-568-C.3.

Fiber Optic Patch Panels

3.5.16 The fiber optic patch panel shall be rack mountable in a 19" rack and black in color. The panels shall comply with ANSI/TIA-568-C.3 (connecting hardware section). Recommended manufacturers include, but are not limited to Panduit, Belden, CommScope, Corning and Leviton.

3.5.17 The fiber optic patch panel shall have a slide out shelf or swing out drawer for access to the fiber terminations, adapter panels for patching.

3.5.18 The fiber optic patch panel shall provide for bend radius control and use a strain relief to accommodate the fiber optic cables.

3.5.19 The fiber optic patch panel shall be capable of terminating tight buffered and loose tube multimode or single mode fiber optic cables.

Fiber Optic Patch Cords

3.5.20 Dual fiber optic patch cords are to be single mode 9/125um or OM3 multimode 50/125um. Connector types on ends of patch cords to be determined by Sedgwick County.

3.5.21 Patch cords to be factory assembled and verified. Fiber patch cords shall comply with ANSI/TIA-568-C.3

3.5.22 The color of the single mode patch cords will be yellow. The color of the multimode patch cords will be aqua. The length of the patch cords will be ten (10) feet or three (3) meters unless otherwise specified. Recommended manufacturers include, but are not limited to, Panduit, Belden, CommScope, Corning and Leviton.

3.6 Rack and Cable Management System

Telecommunication Racks

3.6.1 Telecommunication racks shall be 19", floor mounted, black in color, accommodate a minimum of 45 rack unit space, and have anchor holes in the base. Each rack shall be equipped with one (1) duplex outlet on a dedicated 15 A, 120 V, isolated ground circuit.

Panduit CMR series rack part number 19X84S is an example of a recommended manufacturer.

3.6.2 All telecommunications racks are to be fitted with one (1) black 10 horizontal outlet, rack mount, power strip.

3.6.3 All racks are to be equipped with a Telecommunications rack ground bar, for example Panduit TRGB19.

3.6.4 The color of the rack and accessories shall be black.

Vertical Cable Management

3.6.5 A six inch (6") vertical cable manager is to be provided on each side of the 19" inch rack, except where racks are ganged together. Panduit patch runner PRVF6 (vertical manager), PRD6 (door) or equivalents shall be used.

3.6.6 Where racks are ganged together utilize an eight-inch (8") PRVF8 (vertical manager), PRD8 (door) or equivalents between the racks. Depending on the number of horizontal drops where racks are ganged together the twelve inch (12") PRVF12 (vertical manager), PRD12 (door) or equivalent shall be used.

3.6.7 The vertical cable manager shall have a metal door that hinges open from the right or left.

3.6.8 The vertical cable manager shall have bend radius control built into the manager so as patch cables transition into the manager they are not resting on a sharp edge.

Horizontal Cable Management

3.6.9 One (1) horizontal cable manager per copper patch panel is to be provided. Managers are to be 1U for 24 port patch panel or 2U for 48 port patch panel. The exact layout of cable management per patch panel should be based on the rack layout template in Appendix A.

3.6.10 The horizontal cable manager door shall hinge up or down, must have bend radius control built into the slots for patching and transitioning into the vertical managers and must have retaining clips.

3.6.11 The color of the horizontal cable manager shall be black. Panduit Patch Link series, WMPFSE, WMPHF2E is an example of an acceptable product.

3.7 Raceway Solutions

3.7.1 All single channel or multi-channel Raceway solutions and accessories installed shall be Panduit, Wiremold, or equivalent.

3.7.2 All Raceway shall be installed to the recommended practices of the manufacturer and all applicable electrical codes. All accessories shall have bend radius control built in for communications cabling as per the ANSI/EIA/TIA 569 –A standard.

3.8 Grounding and Bonding

3.8.1 The grounding and bonding of the telecommunications system shall meet all local, provincial and national codes and bylaws.

3.8.2 All grounding and bonding shall be installed as per ANSI/EIA/TIA 607(A)

3.8.3 A separate ground should be established for the telecommunications system. Where this is not possible the telecommunications system ground shall be tied into the building/electrical ground.

3.8.4 A communications ground that is continuous and permanent through all telecommunication rooms must be established.

3.8.5 All racks and cabinets must be grounded to the telecommunications grounding system using 6 AWG green insulated stranded copper ground wire. All racks are to be equipped with Panduit TRGB19 telecommunications rack ground bars or equivalent.

3.9 Miscellaneous

Test Equipment

3.9.1 The cabling contractor is to use the Fluke DTX series scanner or equivalent with the latest version of firmware to test the UTP cabling system. All optical fiber shall be tested with a light source meter. (Details in the testing section of this document.)

Spiral Wrap

3.9.2 Cables running from system furniture feed points to the system furniture shall be neatly wrapped with Panduit T50R-C series spiral wrap and or PW series Pan Wrap or equivalent. Cabling contractor to size the spiral wrap accordingly.

Fire Stopping

3.9.3 The cabling contractor must supply and install all required fire stopping materials to reestablish the integrity of any and all fire-rated architectural structures and assemblies they have worked on. Mechanical systems consisting of standard conduit, sleeves, cored

holes and all horizontal and backbone pathways that penetrate fire-rated barriers shall be fire stopped. The cabling contractor must install an approved fire-stop material recommended by CSA, ULC or UL in accordance with all applicable codes. Intumescent putties and or cementitious materials with a minimum three (3) hour rating shall be used.

4. INSTALLATION

The approved contractors that have been chosen to participate in this bid shall be a certified installer. The contractor shall have a minimum of five (5) years' industry experience and have been trained in the proper installation practices as per ANSI/TIA-568-C. All contractors shall have manufacturer-trained technicians with a minimum of two (2) years installation experience.

4.1 General Conditions

4.1.1 The approved cables and components must be installed and terminated in accordance with the ANSI/TIA-568-C standard. Particular attention must be given to maintaining the integrity of the pair twists, bend radius and ensuring proper distance is kept from fluorescent light fixtures, electrical cables or any other source of EMI.

4.1.2 Leave ten (10) feet and or three (3) meters of slack in the telecommunications room to allow for future rack relocation if required. Do not store the slack in bundled loops. Store cable slack in an extended loop or a figure eight. Leave one (1) foot of cable slack in the ceiling above each work area outlet location.

4.1.3 The maximum horizontal cable length is not to exceed 90 meters or 295 feet. If the 90 meters or 295 feet constraint cannot be met, the cabling contractor is to notify Sedgwick County.

4.1.4 All plywood backboard(s) are to be supplied and installed by the contractor unless otherwise noted. All plywood backboards shall be fire retardant.

4.1.5 All cables and pathways such as conduits, cable tray or other systems used for communication cable distribution to be run parallel or perpendicular to building lines.

4.1.6 To minimize any possibilities of disruption, maintain the minimum clearances from electrical and heat sources when routing cables.

4.1.7 Any deviation from the cable routing, outlet and equipment locations shown on drawings must be approved by the consultant and documented on as-built drawings.

4.1.8 Avoid scraping, denting, or otherwise damaging cables, before, during or after installation. The cabling contractor, without any additional compensation, shall replace damaged cables.

4.1.9 Bush, ream and remove any sharp projections on all conduits prior to installation of communications cables.

4.2 Horizontal Cable Distribution

4.2.1 The cabling contractor is to supply Panduit Tak-Ty cable ties or equivalent and any other miscellaneous hardware required to support horizontal cabling where conduit or cable tray has not been provided.

4.2.2 Pull all cables in a continuous run. No cable splices will be permitted.

4.2.3 Leave one (1) foot or thirty (30) centimeters of cable slack in the ceiling above each work area outlet location. If the cable is installed in conduit leave one (1) foot or thirty (30) centimeters of cable slack in the closest pull box and or cable tray.

4.2.4 When bundling cables, comply with manufacturer's recommended bundling practices for installation. Ensure that excess pressure is not placed on the cable at any point that may result in the compression or deformation of the cable jacket and internal pair/conductor geometry.

4.2.5 Provide blank filler plates for all unused modular jack positions on faceplates.

4.3 Horizontal Cabling

4.3.1 Supply and install horizontal cabling as detailed on communications cabling layout drawings.

4.3.2 A Typical station cable drop consists of two (2) horizontal data cables. Unless otherwise noted on the drawings and/or otherwise specified, each station cable drop shall have a minimum of two (2) cables.

4.3.3 All horizontal data and voice cabling will originate from the telecommunication room out to the designated workstation location in a star topology.

4.4 Rack and Cable Management System

4.4.1 All 19" racks and brackets are to be located as shown on communications cabling layout drawings.

4.4.2 All racks are to be anchored securely to the floor.

4.4.3 All racks, patch panels, cabinets, metal raceways and data equipment are to be grounded to building ground bus bars using Panduit Network Grounding Systems product or equivalent.

4.5 Fire Stopping

4.5.1 Fire stopping requirements must include prevention of fire from passing through a barrier. These seals are required to maintain safety and security within the clients' premises.

4.5.2 The cabling contractor must re-establish the integrity of any and all fire-rated architectural structures and assembles they have worked on.

4.6 Labeling

4.6.1 All labels shall be Panduit Identification or equivalent Products for voice and data structure cabling systems.

4.6.2 Cable labels shall be self-laminating vinyl construction with a white printing area and a clear tail that self laminates the printed area when wrapped around a cable. The clear area should be of sufficient length to wrap around the cable at least one and one-half times and be installed within 2" of the termination point of the cable, patch cord or pigtail.

4.6.3 All adhesive cable labels shall meet the legibility, defacement, and adhesion requirements specified in UL 969 (Ref. D-16). In addition, the labels shall meet the general exposure requirements in UL 969 for indoor use.

4.6.4 All cable labels shall be compliant with the TIA/EIA-606(A) Section 6.2.2 Cable Labeling, Section 6.2.4 Termination Hardware Labeling, and Section 6.2.6 Termination Position Labeling.

4.6.5 All patch panel and BIX/110 block labels are to be mechanically printed and are to follow the guidelines in CSA-T528-93 for Color Coding of Termination Fields.

4.6.6 Label all cabling in accordance with CSA-528 specifications. One label should be attached to the front of the workstation faceplate, one to the front of the patch panel, and one at each end of the cable.

4.6.7 All labels must be mechanically printed. Hand written labels are not permitted.

4.6.8 All intra-building and inter-building backbone cables for voice and data shall be labeled. Labeling shall include destination (building) to and from at each end.

4.6.9
The horizontal cables shall be labeled in the format of **FS-AN**, where:

F is the numeric character(s) identifying the floor of the building occupied by the telecommunications space (TS);
S is the alpha character(s) uniquely identifying the TS on floor F, or the building area in which the space is located;

A is either one or two characters uniquely identifying a single patch panel, a group of patch panels with sequentially numbered ports, an IDC connector, or a group of IDC connectors, serving as part of the horizontal cross connect;
N is two to four numeric characters designating the port on the patch panel, or the section of an IDC connector on which a four-pair horizontal cable is terminated in the TS.

Example:

1A-B24

F = 1
S = A
A = B
N = 24

Port 24 in patch panel B in closet A on the first floor

4.7 Testing

4.7.1 The cabling contractor is to use the Fluke DTX series or equivalent with the latest version of firmware to test the UTP cabling system. A light source and power meter will be used to for all fiber optic cables. The cabling contractor must ensure that all cabling is tested in accordance to the proposed specifications of the category installed.

4.7.2 Upon completion of testing by the cabling contractor, a Sedgwick County representative may choose to witness up to 10% of the cables being tested.

4.7.3 All deficiencies must be corrected before the Project Manager will provide a certificate to release the holdback on the project.

4.7.4 Category 6 field test parameters shall be. Testing of all 4 pairs is to include but not be limited to the following:

1) Wire Map
2) Insertion Loss
3) Equal Level Far End Cross Talk (ELFEXT)
4) Power sum equal level far end cross talk (PSELFEXT)
5) Delay Skew
6) Power sum attenuation to crosstalk ratio (PSACR)
7) Near end cross talk (NEXT)
8) Propagation Delay
9) Cable length
10) Power sum near end cross talk (PSNEXT)
11) Return Loss

4.7.5 A tester with the most recent version of its software and firmware must perform all tests in accordance to ANSI/EIA/TIA TSB-67. The nominal velocity of propagation (NVP) must be set specific to each cable manufacturer before testing. Portable testers to be calibrated on a minimum annual basis. Fluke DTX or equivalent shall be used.

4.7.6 Test patch cords for the tester must be designed and approved for testing by the manufacturer. Field assembled patch cords are not acceptable.

4.7.7 Test each strand of fiber with a Power Meter / Light Source combination operating at wavelengths of 850 nm and 1300 nm for multimode fibers and 1310 nm and 1550 nm for single mode fibers. Perform these tests in both directions. These tests shall be completed after cable installation, splicing and connectors are installed. Provide test results in soft copy to the Sedgwick County representative for the project.

4.7.8 All cable faults must be corrected. Splicing of any cables will not be permitted, for any reason, unless prior authorization is received in writing by Sedgwick County.

5. DOCUMENTATION

5.1 “As built” drawings

The cabling contractor is required to provide as-built drawings of the cable installation. This shall include the pathway of the cables from the telecommunications rooms to the workstation. The as-built drawings shall also include all additional cabling installed during the project. The cabling contractor shall provide the as-built drawings to Sedgwick County within 7 business days of the completion of the project.

5.2 Cable test results

The cabling contractor shall provide all test results in hard and soft copy to Sedgwick County. The electronically supplied test results shall be in the proper tester format. Test results shall include all voice and data horizontal cables and all voice and data backbone cables. The hard copy report shall indicate for each cable, when it was tested successfully and the signature of the technician that performed the test. The entire report must be signed by an authorized person for the cabling contractor at the end of the project.

5.3 Cabling Contract Certification

The cabling contractor shall provide certification with all mentioned documentation mentioned above. Certification requirements are documentation that a Building Industry Consulting Services International (Bicsi) Certified installer 2 is on staff

6. WARRANTY

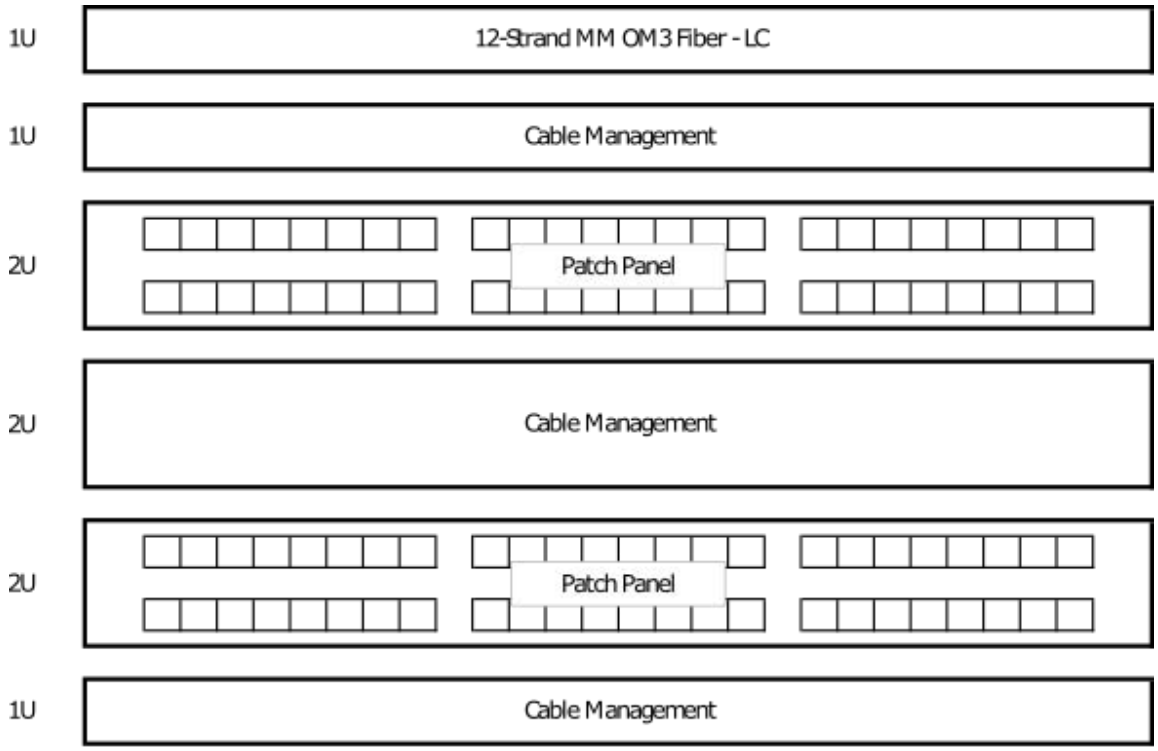
The cabling contractor must provide the owner with a 20-year product warranty and a minimum one (1) year labor warranty.

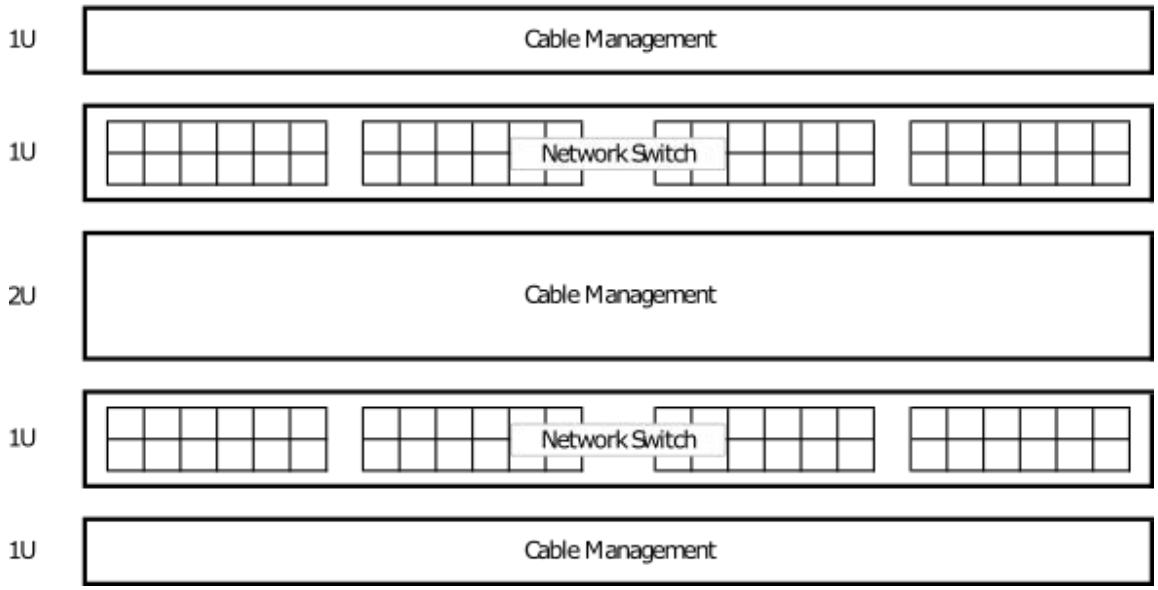
7. COMPLETE SOLUTION

A complete solution consists of jacks, cabling, patch panels, labeling, testing and warranty supplied by Contractor and Manufacture.

Appendix A: Network Rack Layout Example

Information on vertical cable management can be found starting in section 3.6.5. The vertical cable management should be self-explanatory. Information for horizontal cable management can be found starting in section 3.6.9. The image on the next page is an example rack layout template – it is not an exact rack layout for any particular project and should not be treated as such. It is merely a guide for quantity, size, and placement of vertical cable management. An exact layout for a particular project can be provided by Sedgwick County Networking to the cabling contractor upon request.


1U
12-Strand MM OM3 Fiber - LC
1U
Cable Management
2U
Patch Panel
2U
Cable Management
2U
Patch Panel
1U
Cable Management


1U
Cable Management
1U
Network Switch
2U
Cable Management
1U
Network Switch
1U
Cable Management