DAVIS BOWEN & FRIEDEL, INC.

ARCHITECTS • ENGINEERS • PLANNERS • SURVEYORS

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ADDENDUM NO. 3

SNOW HILL LIBRARY RENOVATIONS
TOWN OF SNOW HILL
WORCESTER COUNTY, MARYLAND
DBF #0085A049.A01
February 18, 2026

The following revisions are hereby made part of the Contract Documents. Unaltered provisions of the Documents shall remain in effect. Unless otherwise specified, material and work required by this Addendum shall conform to the requirements of the original Contract Documents.

Failure to acknowledge receipt of this Addendum on the Bid Form may subject the bidder to disqualification.

This Addendum (3 pages) and the attachments (87 pages) totals 90 pages.

GENERAL

1. Bid due date has been extended to Wednesday, March 4, 2026, at 2:30pm.

2. Calendar days to complete the library portion of the project is increased to 182 calendar days. With regard to work to be completed in these 182 days, this includes all work in the main library and the restrooms. The meeting room/storage room areas are to be completed after that.

3. Clarification: Refer to drawing C-401 Utility Plan. The 6” line coming off Bank St is the proposed water line. The 4” line is the existing storm drain. No backflow prevention is required at the meter. A wet tap is acceptable for the 6” service connection at the main.

4. Clarification: With regard to utility and traffic control work on Rt. 12 and Bank St., the contractor is responsible for permits and any lane closures required with the Town and State Highway Administration (MD SHA).

5. With regard to Alternate #1, note the following:
    a. Specification Section 042613 is attached, related to the required brick veneer.
    b. Specification Section 042000 is attached, related to required CMU.
    c. Contractor should include in the price the removal and replacement of the stamped concrete terrace (+/- 730sf) with 4” 3500psi. Concrete slab on 4” of

crusher run. Slab to have W2.9xW2.9 WWF.

d. Powder-coated railing system is acceptable.

6. With regard to the new vestibule doors (132-1 and 132-2), note the following:
    a. Doors are not required to meet ASTM requirements for large or small missile test.
    b. Doors are not required to be thermally broken
    c. Doors will have a 10" bottom rail, 5" mid-rail (at panic bar), and a 5" top rail.

7. With regard to communication wiring, CCTV, and access controls, the Contractor shall provide and install conduits and other pathways for security devices as part of this contract. Security devices and cabling shall be provided and installed by the security vendor, outside of this contract.

8. Non-load bearing interior metal studs will be 33KS, 362 S1 25-27 studs at 16" O.C.

9. Provide sound batt insulation in all new interior walls: Owens Corning Thermafiber SAFB or equal.

10. Clarification: Rooms with floor drains will have the new concrete floor sloped to the drain.

11. With regard to the ceramic floor tile, 12x12" with thin set mortar is acceptable in the restrooms. A 6"x12" core base is acceptable.

12. I.T. Room 136 is to have Armstrong Excelon SDT floor tile, 12x12".

13. With regard to the fire alarm, the system was replaced 2 years ago and recently upgraded. Contractor will be required to work with Absolute Security for minor modifications.

14. Revised Bid Form is attached.

15. Revised sheet AD-101 is attached. A summary of changes is as follows:
    a. Existing doors/frames to be removed and replaced with new are as follows: 105-2, 106-1, 106-2, 121-1, 123-1, 123-4, 124-1, 126-1, 126-4, 132-1, 132-2.
    b. Existing doors to be removed and replaced with new but existing door frames to remain are: 133-1 and 133-2.
    c. Existing doors/frames to remain are as follows: 102-1, 106-3, 107-1, 107-3, 108-1, 109-3, 111-2, 126-2, 126-3, 131-1.

16. Revised sheet A-402 is attached. Interior elevation M-1 has been revised to note base and window trim. M-7 has notes related to the ADA counter. See #27 below.

17. Revised sheet A-601 is attached, noting door schedule revisions and trim/casing at frame elevations.

18. Refer to attached Specification Section 087100 - Door Hardware, which includes hardware sets.

19. Refer to attached Specification Section 087113 - Automatic Door Operators. These will be located at doors 132-1, 132-2, and 133-2.

20. Attached are Division 27 and 28 Specifications:
    a. 270500 – Telecommunications Pathways and Spaces
    b. 271000 – Structured Cabling
    c. 280501 – Security Pathways and Spaces

21. Contractor is to assume that all existing data outlets do not meet CAT 6 standards and are to be removed.

22. Contractor is required to provide and install new ladder rack in I.T. Room 136.

23. The existing meeting room AV system shall remain. Due to wall revisions, the speakers will need to be removed, protected and re-installed, no other work is anticipated.

24. Clarification: Shelves and benches noted on the floor plan at the interior side of the exterior wall will be provided by the Owner.

25. Door 102-1 will remain and will not be part of Alternate 7, door hardware will be replaced.

26. The 42” knee walls noted with solid surface cap near the terrace side are new. Metal studs are acceptable.

27. ADA solid surface counter and supporting casework as shown on M-7/A-402 are new and part of the Base Bid.

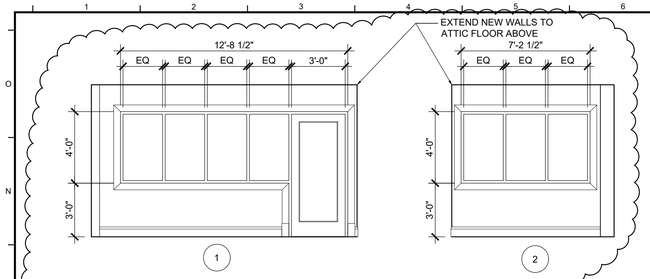
28. All cabinetry is to be plywood core.

29. Provide an allowance of $2,500.00 for interior signage.

30. See attached Specification Section 064214 for Stile and Rail Wood Doors. Doors are to match existing narrow stile as close as practicable. Provide wide stiles at restrooms where mortise locks will be used. Confirm stile dimension is compatible with mortise lock provided in your bid.

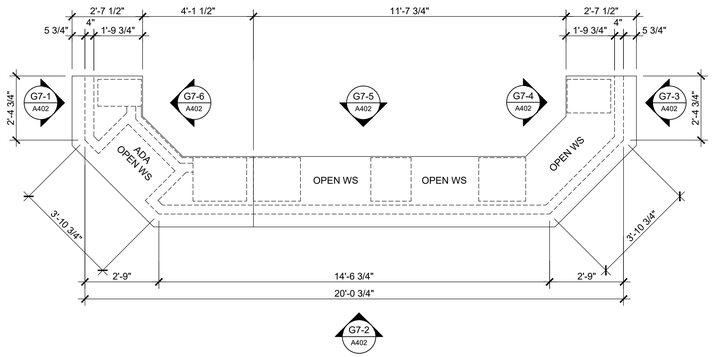
31. Clarification: All work noted on these drawings pertains to this project. No work from any discipline noted is part of a future HVAC project.

32. Cast-in-place concrete pads are required for all new MEP equipment.



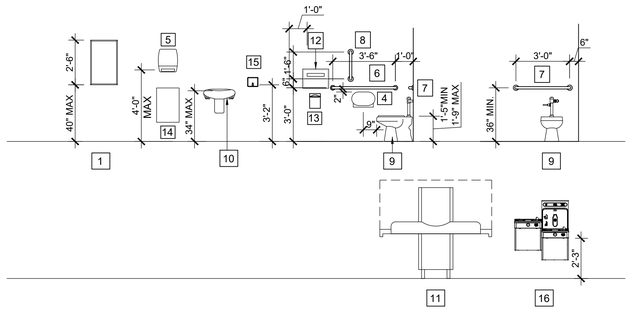
M1 INTERIOR ELEVATIONS

1/4" = 1'-0"



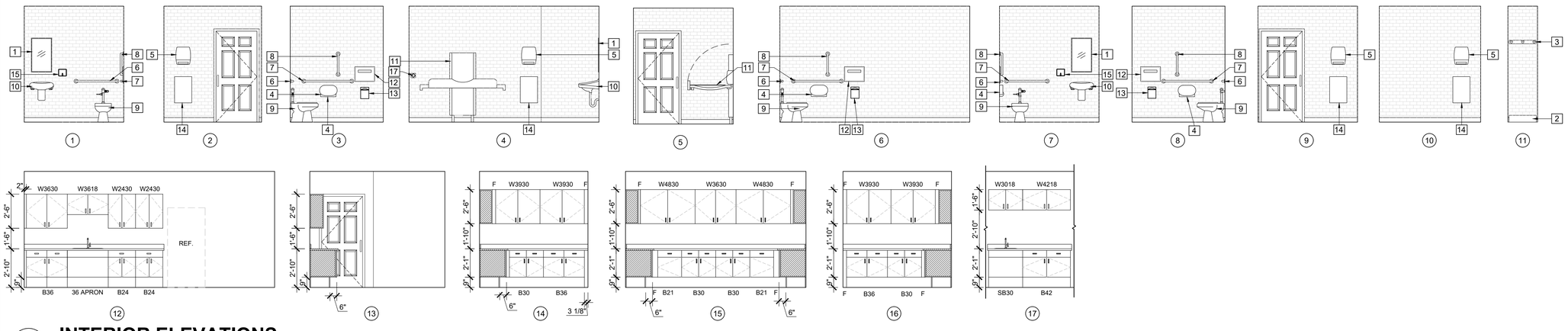
I-1 ALTERNATE #2 CIRCULATION DESK

3/8" = 1'-0"



E1 ADA FIXTURE MOUNTING HEIGHTS

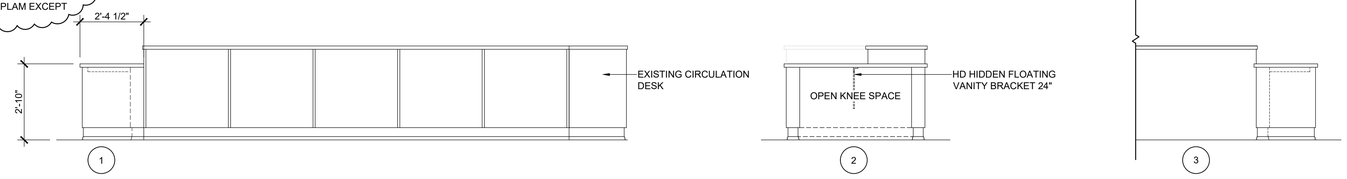
1/4" = 1'-0"



A1 INTERIOR ELEVATIONS

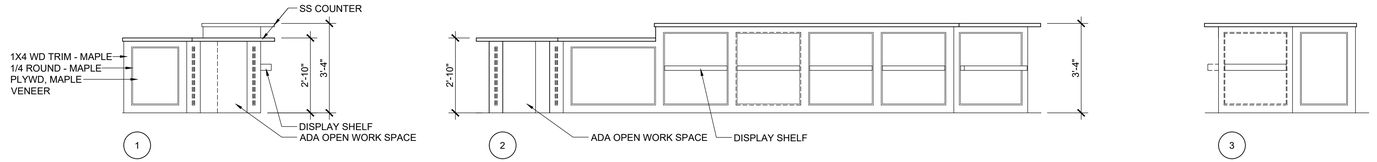
1/4" = 1'-0"

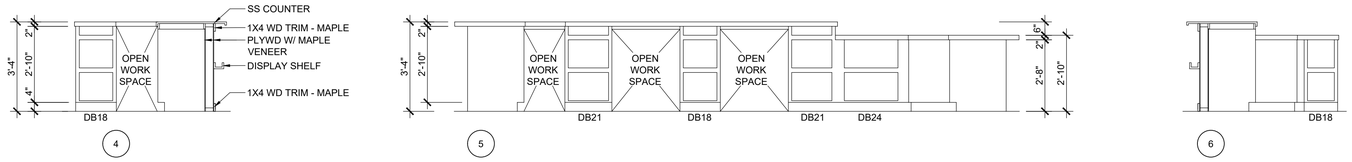
NOTE:
1. NEW ADA SS COUNTERTOP AND SUPPORTING CASEWORK IS TO BE PART OF THE BASE BID.
2. ALL EXPOSED SURFACES TO BE COVERED IN PLAM EXCEPT WD BASE



M7 INTERIOR ELEVATIONS

3/8" = 1'-0"





G7 ALTERNATE #2 CIRCULATION DESK ELEVATIONS

3/8" = 1'-0"

WORCESTER COUNTY WILL SUPPLY DISPENSERS TO MATCH EXISTING SYSTEMS BUT CONTRACTOR TO PROVIDE INSTALLATION.

1. MIRROR - 18" WIDE
2. 24" X 24" MOP SINK
3. MOP HOLDER - WALL MOUNT
4. TOILET PAPER DISPENSER
5. PAPER TOWEL DISPENSER
6. GRAB BAR - 36" LONG
7. GRAB BAR - 48" LONG
8. GRAB BAR - 18" LONG
9. TOILET - FLOOR MOUNT
10. LAVATORY - WALL MOUNT W/ HARD PIPE SHROUD
11. ADULT CHANGING TABLE - WALL/FLR MOUNT
12. TOILET SEAT COVER DISPENSER
13. SANITARY NAPKIN RECEPTACLE
14. SEMI-RECESSED TRASH RECEPTACLE
15. SOAP DISPENSER
16. HI/LO DRINKING FOUNTAIN W/ BOTTLE FILLER
17. WALL MOUNT EMERGENCY STOP BUTTON

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MILFORD, DELAWARE 302.424.1441
SALISBURY, MARYLAND 410.543.9091

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Architect in the laws of the State of Maryland License No. 11115. Expiration Date: 09-08-2026

SNOW HILL LIBRARY RENOVATIONS

BID SET

307 NORTH WASHINGTON STREET
SNOW HILL, MARYLAND 21863

DATE	COMMENTS

Date: JANUARY 23, 2026
Scale: AS NOTED
Dwn.By: EHC
Proj.No.: 0085B054.A01

INTERIOR ELEVATIONS & ALTERNATE #2 INTERIOR ELEVATIONS

Dwg.No.: **A402**

R:\0085\0085B054.A01 Snow Hill Library\A-Cd\Drawings\A-401_12-19-25.dwg Feb 18, 2026 - 12:04pm CYLE

ROOM FINISH SCHEDULE

NO.	Name	FLR	Base	Walls				Clg	HT	NOTES
				N	S	E	W			
101	STOR 1	CPT	WD	EXG GYP	GYP	GYP	EXG GYP	ATC	9'-6"	1, 5
102	SPECIAL COLLECTIONS	CPT	WD	EXG GYP	GYP	EXG GYP	GYP	ATC	9'-0"	1, 3
103	A/V ELEC	LVT	WD	EXG GYP	EXG GYP	GYP	EXG GYP	ATC	9'-6"	1
104	STOR 2	CPT	WD	GYP	GYP	GYP	GYP	GYP	9'-6"	1
106	COR 5	LVT	WD	EXG GYP	EXG GYP	EXG GYP	EXG GYP	GYP	8'-6"	1
107	COR 3	LVT	WD	GYP	GYP	GYP	EXG GYP	ATC	8'-6"	1
108	PITTS ARCHIVE	CPT	WD	GYP	GYP	EXG GYP	GYP	ATC	9'-0"	1
109	MEETING ROOM	CPT	WD	EXG GYP	GYP	GYP	GYP	ATC	9'-4"	1, 2, 5
110	STOR 3	CPT	WD	EXG GYP	EXG GYP	EXG GYP	EXG GYP	EXG GYP	8'-6"	1
111	BREAK RM	LVT	WD	EXG GYP	GYP	GYP	EXG GYP	ATC	8'-6"	1
112	TOIL	CT	CT	CT	CT	CT	CT	GYP	8'-6"	4
113	STUDY RM	CPT	WD	EXG GYP	GL/GYP	GL/GYP	EXG GYP	ATC	8'-6"	1, 6
114	TOIL	CT	CT	CT	CT	CT	CT	GYP	8'-6"	4
115	STOR 4	CPT	WD	GYP	GYP	GYP	GYP	ATC	8'-6"	1
116	TOIL	CT	CT	CT	CT	CT	CT	GYP	8'-6"	4
117	TOIL	CT	CT	CT	CT	CT	CT	GYP	8'-6"	4
118	JAN	LVT	WD	GYP	GYP	GYP	GYP	GYP	8'-6"	1
119	STOR 5	CPT	WD	EXG GYP	EXG GYP	EXG GYP	EXG GYP	GYP	8'-6"	1
120	STOR T/C	CPT	WD	GYP	EXG GYP	GYP	EXG GYP	ATC	8'-6"	1
121	VEST	CT	CT	GYP	EXG GYP	GYP	GYP	ATC	9'-6"	1
123	COR 4	CPT	WD	GYP	EXG GYP	GYP	GYP	ATC	8'-6"	1
124	DIRECTORS OFFICE	CPT	WD	EXG GYP	EXG GYP	EXG GYP	EXG GYP	ATC	9'-0"	1
126	WORK ROOM	CPT	WD	EXG GYP	GYP	GYP	GYP	ATC	9'-6"	1,3
127	WORK RM	CPT	WD	EXG GYP	GYP	EXG GYP	GYP	ATC	9'-6"	1,3
128	CIRCULATION	CPT	WD	--	--	--	EXG GYP	ATC	9'-6"	1
129	OFFICE 1	CPT	WD	GYP	GYP	EXG GYP	GYP	ATC	9'-6"	1
130	RISER/STOR	CPT	WD	GYP	EXG GYP	GYP	GYP	ATC	9'-6"	1
131	BOOK DROP	CPT	WD	EXG GYP	EXG GYP	EXG GYP	GYP	GYP	8'-6"	1
132	EXG VEST	CPT	WD	EXG GYP	EXG GYP	EXG GYP	EXG GYP	ATC	9'-6"	1
133	STACKS	CPT	WD	EXG GYP	EXG GYP	EXG GYP	GYP	ATC	9'-6"	1
134	COR 1	CPT	WD	EXG GYP	GYP	GYP	--	ATC	9'-6"	1
135	COR 2	CPT	WD	--	GYP	EXG GYP	GYP	ATC	9'-6"	1
136	IT ROOM	LVT	WD	GYP	GYP	GYP	EXG GYP	ATC	9'-6"	1

ROOM FINISH SCHEDULE NOTES

1. BASE MOULDING TO BE M163E.
3. REMOVE CROWN MOULDING.
4. CERAMIC TILE TO BE FULL HEIGHT AT TOILET ROOM WALLS.
5. MODIFY EXISTING CEILING AS NEEDED.
6. SEE M1/A402 FOR INTERIOR ELEVATIONS OF GLAZING.

GENERAL NOTES:

1. PATCH AND REPAIR EXISTING GYPSUM BOARD, BASE AND OTHER FINISHES AS NEEDED.
2. BRICK FLOOR TO REMAIN WHERE INDICATED AT ENTRY/CIRCULATION DESK AREA ON SHEET AD101.
3. CROWN MOULDING TO REMAIN AT EXISTING WALLS, TO BE PAINTED.

DOOR SCHEDULE

Number	Door Type	Door Mat	Size W	Size H	Size TH	Frame Type	Frame Mat	Details Sill	Details Jamb	Details Head	Remarks Label	Remarks Hdw Set	Remarks Note
102-1	--	EXG	3'-0"	6'-8"	1 3/4"	--	EXG	EXG	EXG	EXG	--	--	
105-2	P	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	1-HR	--	6
106-1	P	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	1 HR	--	6
106-2	P	HM	3'-0"	7'-0"	1 3/4"	104	HM/WD	6	5	4	--	--	1, 5
106-3	--	EXG	3'-0"	6'-8"	1 3/4"	--	EXG	EXG	EXG	EXG	--	--	5
107-1	--	EXG	3'-0"	6'-8"	1 3/4"	--	EXG	EXG	EXG	EXG	--	--	
107-2	P	SCWD	3'-0"	6'-8"	1 3/4"	102	WD/HM	3	2	1	--	--	
107-3	--	EXG	2'-8"	6'-8"	1 3/4"	--	EXG	EXG	EXG	EXG	--	--	
108-1	--	EXG	3'-0"	6'-8"	1 3/4"	--	EXG	EXG	EXG	EXG	--	--	
109-1	P	SCWD	6'-0"	6'-8"	1 3/4"	103	HM/WD	3	2	1	--	--	
109-3	--	EXG	2'-0"	6'-8"	1 3/4"	--	EXG	EXG	EXG	EXG	--	--	
111-1	P	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	
111-2	--	EXG	3'-0"	6'-8"	1 3/4"	--	EXG	EXG	EXG	EXG	--	--	8
112-1	P	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	4
113-1	FG	AL	3'-0"	7'-0"	1 3/4"	105	AL	9	8	7	--	--	
114-1	P	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	4
115-1	P	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	
118-1	P	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	
121-1	P	HM	6'-0"	6'-8"	1 3/4"	106	HM/WD	6	5	4	--	--	1, 5
121-2	P	SCWD	6'-0"	6'-8"	1 3/4"	103	HM/WD	3	2	1	--	--	5
123-1	P	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	2, 7
123-2	P	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	4
123-3	P	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	4
123-4	P	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	
124-1	P-HG1	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	
126-1	P-HG1	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	
126-2	--	EXG	3'-0"	6'-8"	1 3/4"	--	EXG	EXG	EXG	EXG	--	--	
126-3	--	EXG	3'-0"	6'-8"	1 3/4"	--	EXG	EXG	EXG	EXG	--	--	
126-4	P	HM	3'-0"	7'-0"	1 3/4"	104	HM/WD	6	5	4	--	--	1
129-1	P-HG1	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	2
130-1	P	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	
131-1	--	EXG	2'-8"	6'-8"	1 3/4"	--	EXG	EXG	EXG	EXG	--	--	
132-1	FG-2	AL	6'-0"	7'-0"	1 3/4"	101	AL	12	11	10	--	--	3, 5
132-2	FG-2	AL	6'-0"	7'-0"	1 3/4"	101	AL	12	11	10	--	--	3, 5
133-1	P-HG2	HM	3'-0"	7'-0"	1 3/4"	--	EXG	15	14	13	--	--	5
133-2	P-HG2	HM	3'-0"	7'-0"	1 3/4"	--	EXG	15	14	13	--	--	3, 5
136-1	P	SCWD	3'-0"	6'-8"	1 3/4"	102	HM/WD	3	2	1	--	--	1

DOOR SCHEDULE NOTES

1. DOOR HARDWARE CONTRACTOR TO PREP THE DOORS AND FRAMES PROPERLY FOR SPECIALIZED ELECTRIFIED HARDWARE.
2. DOOR WILL BE KEYED.
3. DOOR TO HAVE NEW ADA PUSH BUTTON/ACTIVATION DEVICE.
4. DOOR TO BE WIDE STILE TO RECEIVE MORTISE LOCK WITH VACANCY INDICATOR.
5. DOOR TO HAVE PANIC BAR. SEE DOOR HARDWARE SPEC.
6. DOOR TO BE 1-HOUR RATED.
7. DOOR TO BE SECURED AFTER HOURS.
8. REVERSE DOOR SWING ON EXISTING DOOR & FRAME.

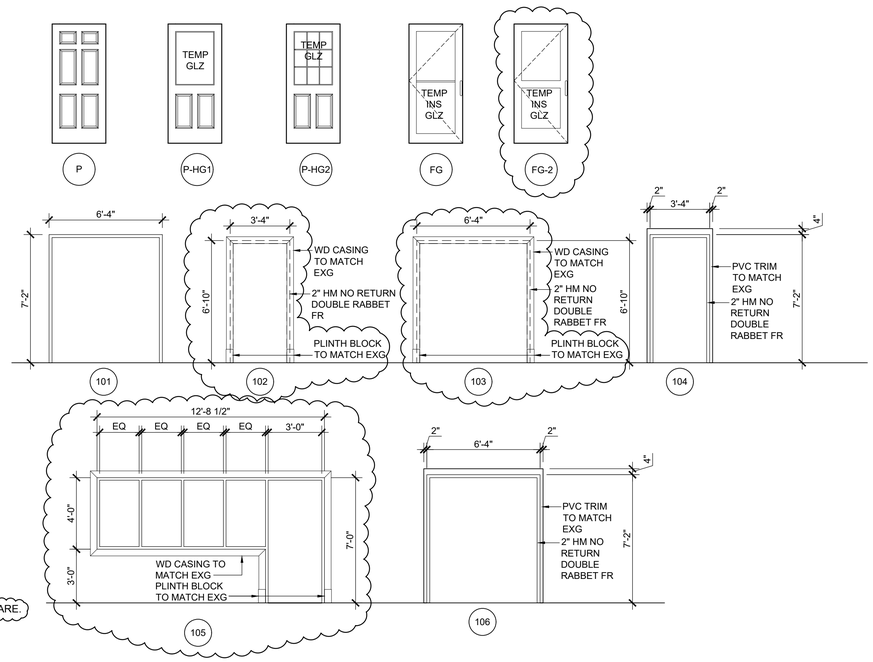
NOTES 9,10 & 11 HAVE BEEN REMOVED.

GENERAL NOTES:

12. ALL EXISTING AND NEW DOORS WILL RECEIVE NEW LOCKSETS SO THAT ALL DOORS MATCH AND ARE RE-KEYED WITH A MASTER.

ABBREVIATION LEGEND

AL	ALUMINUM
ATC	ACOUSTICAL TILE CEILING
CPT	CARPET
CT	CERAMIC TILE
GYP	GYPSUM
HM	HOLLOW METAL
SCWD	SOLID CORE WOOD DOOR
WD	WOOD
GL	GLASS



F14 **DOOR & FRAME TYPES**

1/4" = 1'-0"

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Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Architect in the laws of the State of Maryland License No. 11115. Expiration Date: 09-08-2026

SNOW HILL LIBRARY RENOVATIONS

BID SET

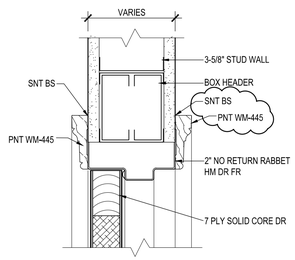
307 NORTH WASHINGTON STREET
SNOW HILL, MARYLAND 21863

DATE	COMMENTS

Date: JANUARY 23, 2026
Scale: AS NOTED
Dwn.By: AMS
Proj.No.: 0085B054.A01

DOOR & FRAME TYPES & SCHEDULES

Dwg.No.: **A601**



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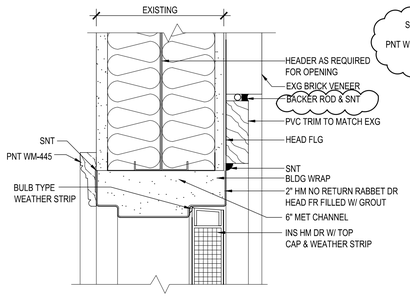

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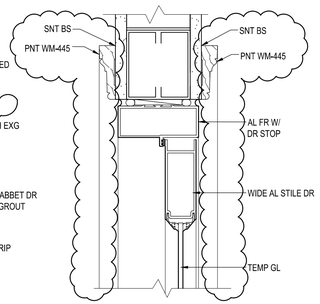

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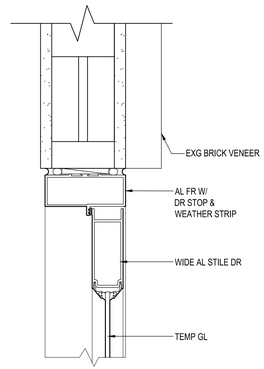

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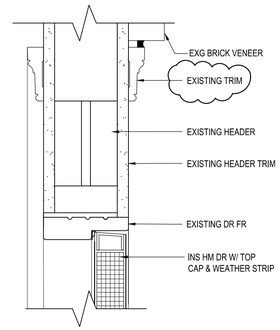

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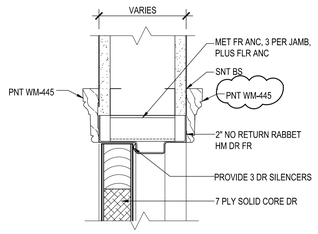
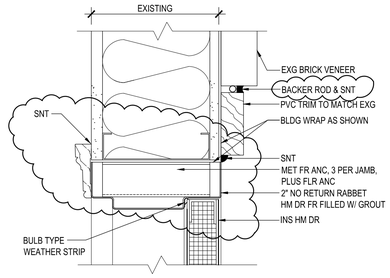


2 JAMB



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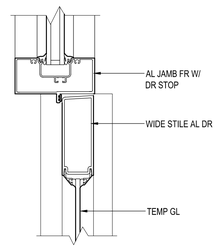

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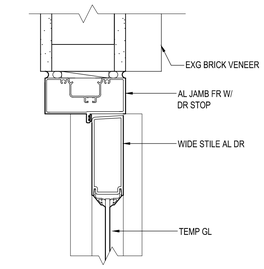

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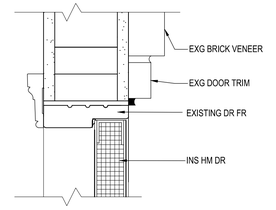

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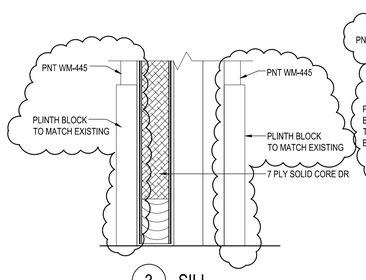

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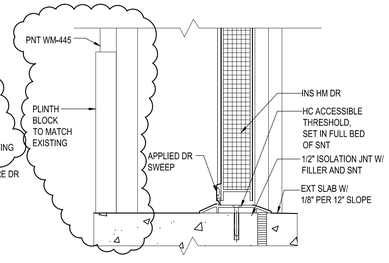

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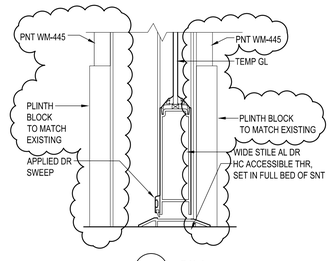

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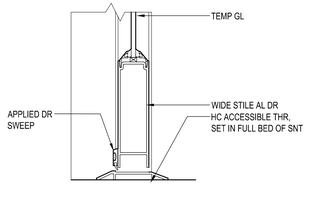

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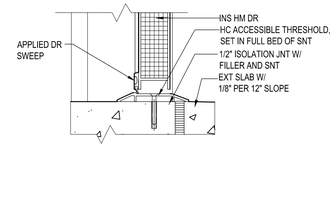


15 SILL

A20 **DOOR DETAILS**
3" = 1'-0"

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Architect in the laws of the State of Maryland License No. 11115. Expiration Date: 09-08-2026

DAVIS BOWEN & FRIEDEL, INC.
ARCHITECTS · ENGINEERS · SURVEYORS
EASTON, MARYLAND 410.770.4744
MILFORD, DELAWARE 302.424.1441
SALISBURY, MARYLAND 410.543.9091

SNOW HILL LIBRARY RENOVATIONS

BID SET

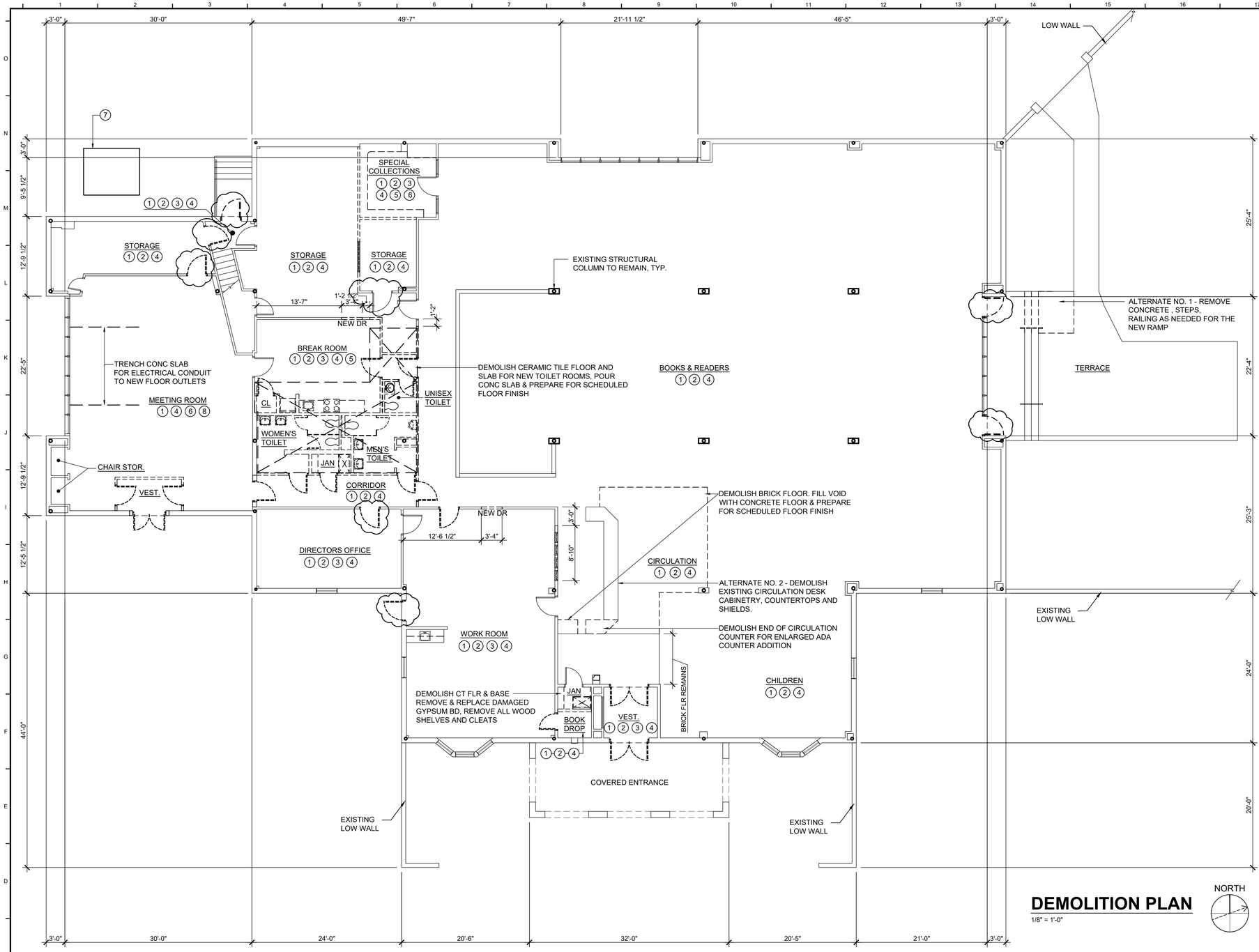
307 NORTH WASHINGTON STREET
SNOW HILL, MARYLAND 21863

DATE	COMMENTS

Date: JANUARY 23, 2026
Scale: AS NOTED
Dwn.By: EHC
Proj.No.: 0085B054.A01

DOOR DETAILS

Dwg.No.:
A602



DEMOLITION PLAN

1/8" = 1'-0"

NORTH

GENERAL DEMOLITION NOTES:

1. REMOVE LOCKSETS FROM EXISTING DOORS TO REMAIN.
2. EXISTING DOORS REMOVED TO BE SALVAGED AND REPURPOSED WHERE POSSIBLE.

DEMOLITION NOTES:

1. REMOVE FLOOR FINISH & REMAINING ADHESIVES
2. REMOVE WOOD BASE
3. REMOVE WOOD CROWN MOLDING
4. REMOVE CEILING TILE & SUSPENSION GRID
5. DEMOLISH BUILT-IN CABINETS OR SHELVING
6. REMOVE PICTURE MOLDING
7. EXISTING CONC PAD FOR CHILLER TO REMAIN.
8. WITH REGARD TO SEQUENCE OF WORK:

THE MEETING ROOM AREA WILL BE USED FOR CLIMATE- CONTROLLED STORAGE WHILE THE REMAINDER OF THE BUILDING IS UNDER CONSTRUCTION.

WORK IN THE MEETING ROOM WILL BEGIN AFTER THE RENOVATION IS SUBSTANTIALLY COMPLETE IN THE ADJACENT AREA AND STORED MATERIALS ARE MOVED BACK INTO THE RENOVATED SPACE.

LEGEND:

- DOOR TO BE REMOVED
- EXG DOOR TO REMAIN
- WALL TO BE REMOVED
- EXG WALL TO REMAIN
- DEMO WINDOW AND WINDOW TRIM
- DEMO GYPSUM BOARD

Professional Certification. I hereby certify that these documents were prepared or approved by me, and that I am a duly licensed Professional Architect in the laws of the State of Maryland License No. 11115. Expiration Date: 09-08-2026

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Proj.No.: 0085B054.A01

DEMOLITION PLAN

Dwg.No.: **AD101**

R:\0085\0085B054.A01 Snow Hill Library\4-Cad\Drawings\A-101_12-1-25.dwg Feb 13, 2026 - 1:25pm CYLE

DOCUMENT 004116 - BID FORM - STIPULATED SUM

1.1 BID INFORMATION

A. Bidder: _____.

B. Project Name: Snow Hill Library Renovation.

C. Project Location: 307 N Washington St, Snow Hill, Maryland 21863

D. Owner: Worcester County Commissioners.

E. Architect: Davis Bowen & Friedel, Inc.

F. Architect Project Number: 0085B054.A01

1.2 CERTIFICATIONS AND BASE BID

A. Base Bid, Single-Prime (All Trades) Contract: The undersigned Bidder, having carefully examined the Procurement and Contracting Requirements, Conditions of the Contract, Drawings, Specifications, and all subsequent Addenda, as prepared by DBF and Architect's consultants, having visited the site, and being familiar with all conditions and requirements of the Work, hereby agrees to furnish all material, labor, equipment, and services, including all **Payment and Performance Bonds and Builders Risk Insurance**, necessary to complete the construction of the above-named Project, according to the requirements of the Procurement and Contracting Documents, for the stipulated sum of:

1. _____ Dollars ($_____).

1.3 BID GUARANTEE

A. The undersigned Bidder agrees to execute a contract for this Work in the above amount and to furnish surety as specified within 10 days after a written Notice of Award, if offered within 60 days after receipt of bids, and on failure to do so agrees to forfeit to Owner the attached cash, cashier's check, certified check, U.S. money order, or bid bond, as liquidated damages for such failure, in the following amount constituting five percent (5%) of the Base Bid amount above:

1. _____ Dollars ($_____).

B. In the event Owner does not offer a Notice of Award within the time limits stated above, Owner will return to the undersigned the cash, cashier's check, certified check, U.S. money order, or bid bond.

1.4 SUBCONTRACTORS AND SUPPLIERS

A. The following companies shall execute subcontracts for the portions of the Work indicated:

1. Underground Utilities Work:_____.

2. Plumbing Work:_____.

3. Electrical Work:_____.

4. HVAC Work:_____.

5. Flooring Work:_____.

6. Ceiling Work: _____.

7. Framing Work: _____.

8. Drywall Work: _____.

9. Painting Work: _____.

1.5 TIME OF COMPLETION

A. The undersigned Bidder proposes and agrees hereby to commence the Work of the Contract Documents on a date specified in a written Notice to Proceed to be issued by Architect and shall reach Substantial Completion in 122 calendar days.

1.6 ACKNOWLEDGEMENT OF ADDENDA

A. The undersigned Bidder acknowledges receipt of and use of the following Addenda in the preparation of this Bid:

1. Addendum No. 1, dated _____.
2. Addendum No. 2, dated _____.
3. Addendum No. 3, dated _____.
4. Addendum No. 4, dated _____.

1.7 CONTRACTOR'S LICENSE

A. The undersigned further states that it is a duly licensed Contractor, for the type of work proposed, in Worcester County, Maryland and that all fees, permits, etc., pursuant to submitting this proposal have been paid in full.

1.8 SUBMISSION OF BID

A. Respectfully submitted this ____ day of _____, 2026.

B. Submitted By :_____(Name of bidding firm or corporation).

C. Authorized Signature :_____(Handwritten signature).

D. Signed By :_____(Type or print name).

E. Title :_____(Owner/Partner/President/Vice President).

F. Street Address: _____.

G. City, State, Zip: _____.

H. Phone: _____.

I. License No.:_____.

J. Federal ID No. :_____(Affix Corporate Seal Here).

END OF DOCUMENT 004116

SECTION 042000 - UNIT MASONRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Concrete masonry units.
2. Steel reinforcing bars.

B. Related Requirements:

1. Section 042613 - Masonry Veneer.
2. Section 071400 - Fluid Applied Waterproofing.
3. Section 072100 - Thermal Insulation.
4. Section 076200 - Sheet Metal Flashing and Trim.

1.2 REFERENCE STANDARDS

A. American Concrete Institute:

1. ACI 530/530.1 - Building Code Requirements and Specification for Masonry Structures and Related Commentaries.

B. ASTM International:

1. ASTM A615 - Standard Specification for Deformed and Plain Carbon Steel Bars for Concrete Reinforcement.
2. ASTM A951 - Standard Specification for Steel Wire for Masonry Joint Reinforcement.
3. ASTM C55 - Standard Specification for Concrete Building Brick.
4. ASTM C90 - Standard Specification for Loadbearing Concrete Masonry Units.
5. ASTM C129 - Standard Specification for Nonloadbearing Concrete Masonry Units.
6. ASTM C140 - Standard Test Methods for Sampling and Testing Concrete Masonry Units and Related Units.

1.3 COORDINATION

A. Coordinate Work of this Section with Masonry veneer, and application of water-repellent coatings.

1.4 DEFINITIONS

A. CMU: Concrete masonry units.

B. Reinforced Masonry: Masonry containing reinforcing steel in grouted cells.

1.5 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data: For each type of product.

C. Shop Drawings: For reinforcing steel. Detail bending, lap lengths, and placement of unit masonry reinforcing bars. Comply with ACI 315.

D. Material Certificates: For each type and size of product. For masonry units, include material test reports substantiating compliance with requirements.

E. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1. Include test reports for mortar mixes required to comply with property specification. Test according to ASTM C 109/C 109M for compressive strength, ASTM C 1506 for water retention, and ASTM C 91/C 91M for air content.
2. Include test reports, according to ASTM C 1019, for grout mixes required to comply with compressive strength requirement.

F. Source Quality-Control Submittals: Indicate results of factory tests and inspections.

G. Field Quality-Control Submittals: Indicate results of Contractor-furnished tests and inspections.

H. Qualifications Statements:

1. Submit qualifications for installer.

1.6 QUALITY ASSURANCE

A. Perform Work according to ACI 530/530.1.

B. Installer: Company specializing in performing Work of this Section with minimum three years' documented experience.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Section 016000 - Product Requirements: Requirements for transporting, handling, storing, and protecting products.

B. Inspection: Accept units on-Site. Inspect for damage.

1.8 AMBIENT CONDITIONS

A. Section 015000 - Temporary Facilities and Controls: Requirements for ambient condition control facilities for product storage and installation.

B. Do not store reinforcing material directly on ground. Utilize blocking and other methods to prevent rust on accessories prior to installation.

C. Cold Weather Requirements: According to ACI 530.1 when ambient temperature or temperature of masonry units is less than 40 degrees F (4 degrees C).

D. Hot Weather Requirements: According to ACI 530.1 when ambient temperature is greater than 100 degrees F (38 degrees C) or ambient temperature is greater than 90 degrees F (32 degrees C) with wind velocity greater than 8 mph (13 km/h).

1.9 EXISTING CONDITIONS

A. Field Measurements: Verify elevations, dimensions, and alignment of foundations and other supporting construction prior to beginning Work. Indicate field measurements on Shop Drawings.

PART 2 - PRODUCTS

2.1 PERFORMANCE AND DESIGN CRITERIA

2.2 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects are exposed in the completed Work.

C. Fire-Resistance Ratings: Comply with requirements for fire-resistance-rated assembly designs indicated.

D. Concrete Masonry Compressive Strength (f'm): 2,500 psi (17.24 MPa); determined by prism test method.

1. Concrete Masonry Units (CMU): 2150 psi (14.8 MPa) minimum net area compressive strength.

2.3 UNIT MASONRY ASSEMBLIES

A. Masonry Unit

1. Manufacturers:

a. Acme Brick Company.
b. Belden Brick Company (The).
c. Endicott Clay Products Co.

d. General Shale Brick.
e. Oldcastle BuildingEnvelope (OBE); CRH Americas.

2. Substitutions: Section 016000 - Product Requirements.

2.4 MATERIALS

A. Hollow Load-Bearing CMU: ASTM C90; normal weight.

B. Solid Load-Bearing CMU: ASTM C90; normal weight.

C. Concrete Masonry Units

1. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching exposed faces of adjacent units unless otherwise indicated.

a. Provide special shapes for lintels, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.

2. CMUs: ASTM C 90.

a. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2150 psi (14.8 MPa).
b. Density Classification: Normal weight.

3. Concrete Building Brick: ASTM C 55.

a. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 2500 psi (17.3 MPa).
b. Density Classification: Normal weight.

2.5 ACCESSORIES

A. Mortar and Grout Materials:

1. Portland Cement: ASTM C 150/C 150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
2. Hydrated Lime: ASTM C 207, Type S.
3. Portland Cement-Lime Mix: Packaged blend of portland cement and hydrated lime containing no other ingredients.
4. Masonry Cement: ASTM C 91/C 91M.

a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

1) Capital Materials Corporation.
2) Lafarge North America Inc.
3) Lehigh Cement Company.
4) National Cement Company, Inc.

5. Aggregate for Mortar: ASTM C 144.

    a. White-Mortar Aggregates: Natural white sand or crushed white stone.
    b. For joints less than 1/4 inch (6 mm) thick, use aggregate graded with 100 percent passing the No. 16 (1.18-mm) sieve.
6. Aggregate for Grout: ASTM C 404.
7. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

    a. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:

        1) Euclid Chemical Company (The); Accelguard 80.
        2) Grace Construction Products, W. R. Grace & Co. - Conn.; Morset.
        3) Sonneborn Products, BASF Aktiengesellschaft; Trimix-NCA.

8. Water: Potable.

B. Mortar and Grout Mixes:
1. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

    a. Do not use calcium chloride in mortar or grout.
    b. Use portland cement-lime or masonry cement mortar unless otherwise indicated.
    c. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

2. Preblended, Dry Mortar Mix: Furnish dry mortar ingredients in form of a preblended mix. Measure quantities by weight to ensure accurate proportions, and thoroughly blend ingredients before delivering to Project site.
3. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion and Property Specification. Provide the following types of mortar for applications stated unless another type is indicated.

    a. For masonry below grade or in contact with earth, use Type S.
    b. For exterior, above-grade, load-bearing and nonload-bearing walls and parapet walls; for interior load-bearing walls; for interior nonload-bearing partitions; use Type N.

4. Grout for Unit Masonry: Comply with ASTM C 476.

    a. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with TMS 602/ACI 530.1/ASCE 6 for dimensions of grout spaces and pour height.
    b. Proportion grout in accordance with ASTM C 476, paragraph 4.2.2 for specified 28-day compressive strength indicated, but not less than 2000 psi (14 MPa).
    c. Provide grout with a slump of 8 to 11 inches (200 to 280 mm) as measured according to ASTM C 143/C 143M.

C. Reinforcement:

1. Uncoated-Steel Reinforcing Bars: ASTM A 615/A 615M or ASTM A 996/A 996M, Grade 60 (Grade 420).
2. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells and to hold reinforcing bars in center of cells. Units are formed from 0.148-inch (3.77-mm) steel wire, hot-dip galvanized after fabrication. Provide units designed for number of bars indicated.
3. Masonry-Joint Reinforcement, General: ASTM A 951/A 951M.

a. Interior Walls: Hot-dip galvanized, carbon steel.
b. Exterior Walls: Hot-dip galvanized carbon steel.
c. Wire Size for Side Rods: 0.148-inch (3.77-mm) diameter.
d. Wire Size for Cross Rods: 0.148-inch (3.77-mm) diameter.
e. Spacing of Cross Rods: Not more than 16 inches (407 mm) o.c.
f. Provide in lengths of not less than 10 feet (3 m).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that field conditions are acceptable and ready to receive Work.

B. Verify that items provided by other Sections of Work are properly sized and located.

C. Verify that built-in items are in proper location and ready for roughing into masonry Work.

3.2 PREPARATION

A. Direct and coordinate placement of metal anchors supplied to other Sections.

B. Furnish temporary bracing during installation of masonry Work. Maintain in place until building structure provides permanent support.

3.3 INSTALLATION

A. Establish lines, levels, and coursing indicated. Protect from displacement.

B. Maintain masonry courses to uniform dimension. Form bed and head joints of uniform thickness.

C. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

D. Coursing of CMU:

1. Bond: Running.
2. Coursing: One unit and one mortar joint to equal 8 inches (200 mm).
3. Mortar Joints: Flush.

E. Placing and Bonding:

1. Lay solid masonry units in full bed of mortar, with full head joints.
2. Lay hollow masonry units with face shell bedding on head and bed joints.
3. Buttering corners of joints or excessive furrowing of mortar joints are not permitted.
4. Remove excess mortar as Work progresses.
5. Interlock intersections and external corners.
6. Do not shift or tap masonry units after mortar has achieved initial set. Where adjustment is required, remove mortar and replace.
7. Perform Project Site cutting of masonry units with proper tools to assure straight, clean, unchipped edges. Prevent broken masonry unit corners or edges.
8. Cut mortar joints flush where fluid applied waterproofing is applied.
9. Isolate masonry from vertical structural framing members with movement joint.

F. Fire-Rated Masonry Construction:

1. Install fire-rated masonry in compliance with requirements of ASTM E119 and with the hourly rating indicated on the Drawings.

G. Joint Reinforcement and Anchorage - Single-Wythe Masonry:

1. Install horizontal joint reinforcement 16 inches (400 mm) o.c.
2. Install horizontal joint reinforcement 8 inches (200 mm) o.c. in foundation walls
3. Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 16 inches (400 mm) each side of opening.
4. Place joint reinforcement continuous in first and second joint below top of walls.
5. Lap joint reinforcement ends minimum 6 inches (150 mm).
6. Reinforce joint corners and intersections with strap anchors 16 inches (400 mm) o.c.

H. Joint Reinforcement and Anchorage - Masonry Veneer:

1. See Section 042613 - Masonry Veneer

I. Grouted Components:

1. Reinforce bond beams and pilasters as indicated on Drawings. Maintain minimum of 1 inch (25 mm) clearance from bottom web.
2. Lap splices bar diameters as required by code.
3. Support and secure reinforcing bars from displacement.
4. Place and consolidate grout fill without displacing reinforcing.
5. At bearing locations, fill masonry cores with grout for minimum 12 inches (300 mm) both sides of opening.

J. Reinforced Masonry:

1. Lay masonry units with cells vertically aligned and clear of mortar and unobstructed.
2. Place reinforcement bars as indicated on Drawings.

3. Splice reinforcement as indicated on Drawings.
4. Support and secure reinforcement from displacement.
5. Place and consolidate grout fill without displacing reinforcing.
6. Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
7. Limit height of vertical grout pours to not more than 60 inches (1520 mm).
8. Place grout according to ACI 530.1.

K. Control Joints:

1. Install control joints at the following maximum spacings, unless otherwise indicated on Drawings:

    a. Exterior Walls: 20 feet (6 m) o.c. and within 24 inches (600 mm) on one side of each interior and exterior corner.
    b. Interior Walls: 30 feet (9 m) o.c.
    c. At changes in wall height.

2. Do not continue horizontal joint reinforcement through control joints.
3. Install preformed control joint device in continuous lengths. Seal butt and corner joints.
4. Size control joint as specified in Section 079000 - Joint Protection for sealant performance.

L. Expansion Joints:

1. Form expansion joints as indicated on Drawings.
2. Do not continue horizontal joint reinforcement through expansion joints.

M. Built-in Work:

1. As Work progresses, install built-in anchor bolts, plates, and other items to be built in the Work and furnished by other Sections.
2. Install built-in items plumb and level.
3. Bed anchors of metal door and glazed frames in adjacent mortar joints. Fill frame voids solid with grout or mortar. Fill adjacent masonry cores with grout minimum 12 inches (300 mm) from framed openings.
4. Do not build in materials subject to deterioration.

N. Cutting and Fitting:

1. Cut and fit for chases, pipes, conduit, sleeves and grounds. Coordinate with other Sections of Work to provide correct size, shape, and location.
2. Obtain Architect/Engineer's approval prior to cutting or fitting masonry Work not indicated or where appearance or strength of masonry Work may be impaired.

3.4 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2-inch (12-mm) maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2-inch (12-mm) maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, and reveals, do not vary from plumb by more than 1/8 inch in 10 feet (3 mm in 3 m) maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2-inch (12-mm) maximum.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).
2. For head and collar joints, do not vary from thickness indicated by more than plus 3/8 inch (9 mm) or minus 1/4 inch (6 mm).
3. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm).

3.5 FIELD QUALITY CONTROL

A. Testing and Inspecting: Owner will engage inspectors to perform tests and inspections and prepare reports. Allow inspectors access to scaffolding and work areas as needed to perform tests and inspections. Retesting of materials that fail to comply with specified requirements shall be done at Contractor's expense.

B. Inspections: Special inspections according to Level B in TMS 402/ACI 530/ASCE 5.

1. Begin masonry construction only after inspectors have verified proportions of site-prepared mortar.
2. Place grout only after inspectors have verified compliance of grout spaces and of grades, sizes, and locations of reinforcement.
3. Place grout only after inspectors have verified proportions of site-prepared grout.

C. Testing Prior to Construction: One set of tests.

D. Concrete Masonry Unit Test: For each type of unit provided, according to ASTM C 140 for compressive strength.

E. Mortar Aggregate Ratio Test (Proportion Specification): For each mix provided, according to ASTM C 780.

F. Mortar Test (Property Specification): For each mix provided, according to ASTM C 780. Test mortar for mortar air content and compressive strength.

G. Grout Test (Compressive Strength): For each mix provided, according to ASTM C 1019.

3.6 CLEANING

A. Remove excess mortar and mortar smears as Work progresses.

B. Replace defective mortar. Match adjacent Work.

C. Clean soiled surfaces with cleaning solution.

D. Use non-metallic tools in cleaning operations.

3.7 PROTECTION

A. Protect exposed external corners subject to damage.

B. Protect base of walls from mud and mortar splatter.

C. Protect masonry and other items built into masonry walls from mortar droppings and staining caused by mortar.

D. Protect tops of masonry Work with waterproof coverings secured in place without damaging masonry. Provide coverings where masonry is exposed to weather when Work is not in progress. Maintain protection on tops of completed exterior walls until installation of permanent waterproof cap materials.

END OF SECTION 042000

SECTION 042613 - MASONRY VENEER

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Clay Face Brick.
2. Mortar.
3. Reinforcement, anchorage, and accessories.
4. Penetrating Water Repellents

1.2 SUBMITTALS

A. Section 013300 - Submittal Procedures: Requirements for submittals.

B. Product Data:

1. Submit data for clay masonry units fabricated wire reinforcement, wall ties, anchors and other accessories.

C. Samples: Submit two samples of facebrick, and mortar illustrating color, texture, and extremes of color range, to be compared and matched with existing building brick veneer.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

1.3 QUALITY ASSURANCE

A. Perform Work according to ACI 530/530.1.

1.4 QUALIFICATIONS

A. Installer: Company specializing in performing Work of this Section with minimum three years' documented experience.

1.5 FIELD CONDITIONS

A. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

1. Cold-Weather Cleaning: Use liquid cleaning methods only when air temperature is 40 deg F (4 deg C) and higher and will remain so until masonry has dried, but not less than seven days after completing cleaning.

B. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

2.1 UNIT MASONRY, GENERAL

A. Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6, except as modified by requirements in the Contract Documents.

B. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks, or other defects exceeding limits stated. Do not use units where such defects will be exposed in the completed Work.

2.2 BRICK

A. Shapes: Provide shapes indicated and as follows, with exposed surfaces matching finish and color of exposed faces of adjacent units:

1. For ends of sills and caps and for similar applications that would otherwise expose unfinished brick surfaces, provide units without cores or frogs and with exposed surfaces finished.
2. Provide special shapes for applications where shapes produced by sawing would result in sawed surfaces being exposed to view and as shown on the Drawings

B. Clay Face Brick: Facing brick complying with ASTM C 216 or hollow brick complying with ASTM C 652, Class H40V (void areas between 25 and 40 percent of gross cross-sectional area).

1. Basis of Design: Field Brick – Pine Hall Stratford Rose Oversize
2. Grade SW.
3. Type FBS.
4. Initial Rate of Absorption: Less than 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested according to ASTM C 67.
5. Efflorescence: Provide brick that has been tested according to ASTM C 67 and is rated "not effloresced."
6. Size (Actual Dimensions): 3-5/8 inches (92 mm) wide by 2-1/4 inches (57 mm) high by 7-5/8 inches (194 mm) long.
7. Texture: Machine Molded.

2.3 MORTAR MATERIALS

A. General: Colored Masonry Cement required at brick veneered walls above grade.

1. Basis of Design: Khaki from Argos

B. Portland Cement: ASTM C 150/C 150M, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.

C. Hydrated Lime: ASTM C 207, Type S.

D. Portland Cement-Lime Mix: Packaged blend of Portland cement and hydrated lime containing no other ingredients.

E. Colored Masonry Cement: ASTM C 91.

F. Mortar Pigments: Natural and synthetic iron oxides and chromium oxides, compounded for use in mortar mixes and complying with ASTM C 979/C 979M. Use only pigments with a record of satisfactory performance in masonry mortar.

G. Aggregate for Mortar: ASTM C 144.

1. White-Mortar Aggregates: Natural white sand or crushed white stone.
2. Colored-Mortar Aggregates: Natural sand or crushed stone of color necessary to produce required mortar color.

H. Cold-Weather Admixture: Nonchloride, noncorrosive, accelerating admixture complying with ASTM C 494/C 494M, Type C, and recommended by manufacturer for use in masonry mortar of composition indicated.

I. Water: Potable.

2.4 TIES AND ANCHORS

A. General: Ties and anchors shall extend at least 1-1/2 inches (38 mm) into veneer but with at least a 5/8-inch (16-mm) cover on outside face.

B. Materials: Provide ties and anchors specified in this article that are made from materials that comply with the following unless otherwise indicated:

1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82/A 82M, with ASTM A 153/A 153M, Class B-2 coating.
2. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, with ASTM A 153/A 153M, Class B coating.

2.5 MASONRY ACCESSORIES

A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene, urethane or PVC.

B. Weep/Vent Products: Use one of the following unless otherwise indicated:

1. Cellular Plastic Weep/Vent: One-piece, flexible extrusion made from UV-resistant polypropylene copolymer, full height and width of head joint and depth 1/8 inch (3 mm) less than depth of outer wythe, in color selected from manufacturer's standard.

    a. Basis of Design: York Manufacturing Weep Vents.

2.6 MASONRY CLEANERS

A. Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains, efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry units being cleaned.

2.7 MORTAR MIXES

A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures unless otherwise indicated.

1. Do not use calcium chloride in mortar or grout.
2. Use Portland cement-lime or masonry cement mortar unless otherwise indicated.
3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.

B. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Use Type N unless another type is indicated.

C. Pigmented Mortar: Use colored cement product or select and proportion pigments with other ingredients to produce color required. Do not add pigments to colored cement products.

1. Pigments shall not exceed 10 percent of Portland cement by weight.
2. Pigments shall not exceed 5 percent of masonry cement or mortar cement by weight.
3. Application: Use pigmented mortar for exposed mortar joints.

2.8 PENETRATING WATER REPELLENTS

A. Silane/Siloxane-Blend, Penetrating Water Repellent: Clear, silane and siloxane blend with 400 g/L or less of VOCs.

1. Basis of Design: ‘Water-Shield’, York Building Products.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp,

unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.

B. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures. Mix units from several pallets or cubes as they are placed.

C. Wetting of Brick: Wet brick before laying if initial rate of absorption exceeds 30 g/30 sq. in. (30 g/194 sq. cm) per minute when tested according to ASTM C 67. Allow units to absorb water so they are damp but not wet at time of laying.

3.2 TOLERANCES

A. Dimensions and Locations of Elements:

1. For dimensions in cross section or elevation, do not vary by more than plus 1/2 inch (12 mm) or minus 1/4 inch (6 mm).
2. For location of elements in plan, do not vary from that indicated by more than plus or minus 1/2 inch (12 mm).
3. For location of elements in elevation, do not vary from that indicated by more than plus or minus 1/4 inch (6 mm) in a story height or 1/2 inch (12 mm) total.

B. Lines and Levels:

1. For bed joints and top surfaces of bearing walls, do not vary from level by more than 1/4 inch in 10 feet (6 mm in 3 m), or 1/2 inch (12 mm) maximum.
2. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
3. For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2 inch (12 mm) maximum.
4. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet (3 mm in 3 m), 1/4 inch in 20 feet (6 mm in 6 m), or 1/2 inch (12 mm) maximum.
5. For lines and surfaces, do not vary from straight by more than 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in 20 feet (9 mm in 6 m), or 1/2 inch (12 mm) maximum.

C. Joints:

1. For bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm), with a maximum thickness limited to 1/2 inch (12 mm).
2. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch (3 mm). Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch (3 mm).

3.3 LAYING MASONRY VENEER

A. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

B. Bond Pattern for Exposed Masonry: Unless otherwise indicated, lay exposed masonry in running bond; do not use units with less-than-nominal 4-inch (100-mm) horizontal face dimensions at corners or jambs.

3.4 MORTAR BEDDING AND JOINTING

A. Lay masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.

B. Tool exposed joints slightly concave when thumbprint hard, using a jointer larger than joint thickness unless otherwise indicated.

3.5 WEEP HOLES, AND VENTS

A. General: Install weep holes in masonry at shelf angles, lintels, ledges, other obstructions to downward flow of water in wall, and where indicated.

B. Install weep holes in veneers in head joints of first course of masonry immediately above embedded flashing.

1. Use specified weep/vent products to form weep holes.
2. Space weep holes 24 inches (600 mm) o.c. unless otherwise indicated..

3.6 REPELLENT EXECUTION

A. Examine substrates, areas, and conditions, with Applicator present, for compliance with requirements and conditions affecting performance of the Work.

1. Verify that surfaces are clean and dry according to water-repellent manufacturer's requirements. Check moisture content in representative locations by method recommended by manufacturer.
2. Verify that there is no efflorescence or other removable residues that would be trapped beneath the application of water repellent.
3. Verify that required repairs are complete, cured, and dry before applying water repellent.

B. Test PH level according to water-repellent manufacturer's written instructions to ensure chemical bond to silica-containing or siliceous minerals.

C. PREPARATION

1. New Construction and Repairs: Allow concrete and other cementitious materials to age before application of water repellent, according to repellent manufacturer's written instructions.

2. Cleaning: Before application of water repellent, clean substrate of substances that could impair penetration or performance of product according to water-repellent manufacturer's written instructions.

3. Coordination with Mortar Joints: Do not apply water repellent until pointing mortar for joints adjacent to surfaces receiving water-repellent treatment has been installed and cured.

4. Coordination with Sealant Joints: Do not apply water repellent until sealants for joints adjacent to surfaces receiving water-repellent treatment have been installed and cured.

   a. Water-repellent work may precede sealant application only if sealant adhesion and compatibility have been tested and verified using substrate, water repellent, and sealant materials identical to those required.

D. APPLICATION

1. Apply coating of water repellent on surfaces to be treated using low-pressure spray to the point of saturation. Apply coating in dual passes of uniform, overlapping strokes. Remove excess material; do not allow material to puddle beyond saturation. Comply with manufacturer's written instructions for application procedure unless otherwise indicated.

2. Apply a second saturation coating, repeating first application. Comply with manufacturer's written instructions for limitations on drying time between coats and after rainstorm wetting of surfaces between coats. Consult manufacturer's technical representative if written instructions are not applicable to Project conditions.

3.7 MASONRY WASTE DISPOSAL

A. Waste Disposal as Fill Material: Dispose of clean masonry waste, including excess or soil-contaminated sand, waste mortar, and broken masonry units, by crushing and mixing with fill material as fill is placed.

1. Do not dispose of masonry waste as fill within 18 inches (450 mm) of finished grade.

B. Excess Masonry Waste: Remove excess clean masonry waste that cannot be used as fill, as described above or recycled, and other masonry waste, and legally dispose of off Owner's property.

END OF SECTION 042613

SECTION 081433 – STILE AND RAIL WOOD DOORS

PART 1 – GENERAL

1.1 SUBMITTALS

A. Product Data: Indicate stile and rail core materials and construction; veneer species, type, and characteristics.

1.2 WARRANTY

A. Interior Doors: Provide manufacturer's warranty for the life of the installation.

B. Include coverage for delamination of veneer, warping beyond specified installation tolerances, defective materials, and telegraphing core construction.

PART 2 – PRODUCTS

2.1 DOORS

A. Quality Standard: Premium Grade, Heavy Duty performance, in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI(NAAWS), unless otherwise indicated.

B. Interior Doors: 1-3/4 inches thick unless otherwise indicated; solid lumber construction; mortise and tenon joints. Opaque finish.

C. Wood veneer-facing with factory opaque finish.

2.2 DOOR AND PANEL FACINGS

A. Materials for Opaque Finishes: Medium density overlay (MDO).

B. Adhesive: Type I – Waterproof

2.3 DOOR CONSTRUCTION

A. Panels: Raised.

B. Factory machine doors for finish hardware in accordance with hardware requirements and dimensions. Do not machine for surface hardware.

2.4 FINISHES

A. Finish work in accordance with AWI/AWMAC/WI (AWS) or AWMAC/WI (NAAWS), Section 5 – Finishing for grade specified and as follows:

1. Opaque:

a. System – 4, Latex Acrylic, Water-based
b. Color: As selected by Owner.
c. Sheen: Semigloss

2.5 ACCESSORIES

A. Hollow Metal Doors Frames: See Section 081113

PART 3 – EXECUTION

3.1 INSTALLATION

A. Install doors in accordance with manufacturer’s instructions and specified quality standards.

B. Coordinate installation of doors with installation of frames and hardware.

3.2 TOLERANCES

A. Comply with specified quality standard for fit, clearance, and joinery tolerances.

END OF SECTION

SECTION 087100 – DOOR HARDWARE

PART 1 – GENERAL

1.1 SECTION INCLUDES

A. Hardware for wood, aluminum, and hollow metal doors.

B. Hardware for fire-rated doors.

C. Electrically operated and controlled hardware.

D. Lock cylinders for doors with balance of hardware specified in other sections.

E. Thresholds.

F. Smoke and draft control seals.

G. Weatherstripping and gasketing.

1.2 RELATED REQUIREMENTS

A. Section 081113 - Hollow Metal Doors and Frames.

B. Section 081116 - Aluminum Doors and Frames.

C. Section 081213 - Hollow Metal Frames.

D. Section 081416 - Flush Wood Doors.

E. Section 281000 - Access Control: Electronic access control devices.

1.3 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design 2010.

B. BHMA A156.1 - Standard for Butts and Hinges 2021.

C. BHMA A156.2 - Bored and Preassembled Locks and Latches 2017.

D. BHMA A156.3 - Exit Devices 2020.

E. BHMA A156.4 - Door Controls - Closers 2019.

F. BHMA A156.8 - Door Controls - Overhead Stops and Holders 2021.

G. BHMA A156.13 - Mortise Locks & Latches Series 1000 2017.

H. BHMA A156.16 - Auxiliary Hardware 2018.

I. BHMA A156.18 - Materials and Finishes 2020.

J. BHMA A156.21 - Thresholds 2019.

K. BHMA A156.25 - Electrified Locking Devices 2018.

L. BHMA A156.26 - Standard for Continuous Hinges 2021.

M. BHMA A156.28 - Recommended Practices For Mechanical Keying Systems 2018.

N. BHMA A156.115 - Hardware Preparation In Steel Doors And Steel Frames 2016.

O. BHMA A156.115W - Hardware Preparation in Wood Doors with Wood or Steel Frames 2006.

P. DHI (H&S) - Sequence and Format for the Hardware Schedule 2019.

Q. DHI (KSN) - Keying Systems and Nomenclature 2019.

R. NFPA 70 - National Electrical Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

S. NFPA 80 - Standard for Fire Doors and Other Opening Protectives 2022.

T. NFPA 101 - Life Safety Code Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

U. NFPA 105 - Standard for Smoke Door Assemblies and Other Opening Protectives 2022.

V. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies 2022.

W. UL 10C - Standard for Positive Pressure Fire Tests of Door Assemblies Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordinate the manufacture, fabrication, and installation of products that door hardware is installed on.

B. Sequence installation to ensure facility services connections are achieved in an orderly and expeditious manner.

C. Preinstallation Meeting: Convene a preinstallation meeting four weeks prior to commencing work of this section; require attendance by affected installers and the following:
   1. Architect.
   2. Installer's Architectural Hardware Consultant (AHC).
   3. Hardware Installer.
   4. Owner's Security Consultant.

D. Furnish templates for door and frame preparation to manufacturers and fabricators of products requiring internal reinforcement for door hardware.

E. Keying Requirements Meeting: Arrange meeting with Owner, Architect and finish hardware supplier to determine keying requirements immediately upon receipt of finishing hardware schedule.

1.5 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data: Manufacturer's catalog literature for each type of hardware, marked to clearly show products to be furnished for this project, and includes construction details, material descriptions, finishes, and dimensions and profiles of individual components.

C. Shop Drawings - Door Hardware Schedule: A detailed listing that includes each item of hardware to be installed on each door.
    1. Prepared by or under supervision of Architectural Hardware Consultant (AHC).
    2. Comply with DHI (H&S) using door numbering scheme and hardware set numbers as indicated in Contract Documents.
        a. Submit in vertical format.
    3. List groups and suffixes in proper sequence.
    4. Include complete description for each door listed.
    5. Include manufacturer's and product names, and catalog numbers; include functions, types, styles, sizes and finishes of each item.
    6. Include account of abbreviations and symbols used in schedule.

D. Shop Drawings - Electrified Door Hardware: Include diagrams for power, signal, and control wiring for electrified door hardware that include details of interface with building safety and security systems. Provide elevations and diagrams for each electrified door opening as follows:
    1. Prepared by or under supervision of Architectural Hardware Consultant (AHC) and Electrified Hardware Consultant (EHC).
    2. Elevations: Include front and back elevations of each door opening showing electrified devices with connections installed and an operations narrative describing how opening operates from either side at any given time.
    3. Diagrams: Include point-to-point wiring diagrams that show each device in door opening system with related colored wire connections to each device.

E. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

F. Manufacturer's qualification statement.

G. Installer's qualification statement.

H. Supplier's qualification statement.

I. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.
    1. Include manufacturer's parts lists and templates.
    2. Bitting List: List of combinations as furnished.

J. Keying Schedule:
    1. Submit three (3) copies of Keying Schedule in compliance with requirements established during Keying Requirements Meeting unless otherwise indicated.

K. Warranty: Submit manufacturer's warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

L. Project Record Documents: Record actual locations of concealed equipment, services, and conduit.

M. Maintenance Materials and Tools: Furnish the following for Owner's use in maintenance of project.
    1. See Section 016000 - Product Requirements, for additional provisions.
    2. Tools: One set of each special wrench or tool applicable for each different or special hardware component, whether supplied by hardware component manufacturer or not.

1.6 QUALITY ASSURANCE

A. Standards for Fire-Rated Doors: Maintain one copy of each referenced standard on site, for use by Architect and Contractor.

B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of documented experience.

C. Installer Qualifications: Company specializing in performing work of the type specified for commercial door hardware with at least three years of documented experience.

D. Supplier Qualifications: Company with certified Architectural Hardware Consultant (AHC) and Electrified Hardware Consultant (EHC) to assist in work of this section.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Package hardware items individually; label and identify each package with door opening code to match door hardware schedule.

1.8 WARRANTY

A. See Section 017800 - Closeout Submittals for additional warranty requirements.

B. Manufacturer Warranty: Provide manufacturer warranty against defects in material and workmanship for period indicated, from Date of Substantial Completion. Complete forms in Owner's name and register with manufacturer.
    1. Closers: Ten years, minimum.
    2. Exit Devices: Five years, minimum.
    3. Locksets and Cylinders: Ten years, minimum.

PART 2 – PRODUCTS

2.1 GENERAL REQUIREMENTS

A. Provide specified door hardware as required to make doors fully functional, compliant with applicable codes, and secure to extent indicated.

B. Provide individual items of single type, of same model, and by same manufacturer.

C. Locks: Provide a lock for each door, unless it's indicated that lock is not required.
    1. Lock Function: Provide lock and latch function numbers and descriptions of manufacturer's Series. As indicated in hardware sets.
    2. Trim: Provide lever handle or pull trim on outside of each lock, unless otherwise indicated.
    3. Strikes:
        a. Finish: To match lock or latch.
        b. Curved-Lip Strikes: Provide as standard, with extended lip to protect frame, unless otherwise indicated.
        c. Center Strike At Pairs of Doors:7/8-inch (22.2 mm) lip.

D. Closers:
   1. Provide door closer on each exterior door, unless otherwise indicated.
   2. Provide door closer on each fire-rated and smoke-rated door.
   3. Spring hinges are not an acceptable self-closing device, unless otherwise indicated.

E. Overhead Stops and Holders (Door Checks).
   1. Provide stop for every swinging door, unless otherwise indicated.
   2. Overhead Stop is not required if positive stop feature is specified for door closer; positive stop feature of door closer is not an acceptable substitute for a stop, unless otherwise indicated.
   3. Overhead stop is not required if a floor or wall stop has been specified for the door.

F. Drip Guards: Provide at head of outswinging exterior doors unless protected by roof or canopy directly overhead.

G. Thresholds:
   1. Exterior Applications: Provide at each exterior door, unless otherwise indicated.

H. Smoke and Draft Control Seals:
   1. Provide gasketing for smoke and draft control doors that complies with local codes, requirements of assemblies tested in accordance with UL 1784.

I. Weatherstripping and Gasketing:
   1. Provide weatherstripping on each exterior door at head, jambs, and meeting stiles of door pairs, unless otherwise indicated.
   2. Provide door bottom sweep on each exterior door, unless otherwise indicated.

J. Electrically Operated and/or Controlled Hardware: Provide necessary power supplies, power transfer hinges, relays, and interfaces as required for proper operation; provide wiring between hardware and control components and to building power connection in compliance with NFPA 70.

K. See Section 281000 for additional access control system requirements.

L. Fasteners:
   1. Provide fasteners of proper type, size, quantity, and finish that comply with commercially recognized standards for proposed applications.
      a. Aluminum fasteners are not permitted.
      b. Provide phillips flat-head screws with heads finished to match door surface hardware unless otherwise indicated.
   2. Provide machine screws for attachment to reinforced hollow metal and aluminum frames.
      a. Self-drilling (Tek) type screws are not permitted.
   3. Provide stainless steel machine screws and lead expansion shields for concrete and masonry substrates.
   4. Provide wall grip inserts for hollow wall construction.
   5. Fire-Resistance-Rated Applications: Comply with NFPA 80.
      a. Provide wood or machine screws for hinges mortised to doors or frames, strike plates to frames, and closers to doors and frames.
      b. Provide steel through bolts for attachment of surface mounted closers, hinges, or exit devices to door panels unless proper door blocking is provided.

2.2 PERFORMANCE REQUIREMENTS

A. Provide door hardware products that comply with the following requirements:

6. Applicable provisions of federal, state, and local codes.
    a. NFPA 101.
7. Accessibility: ADA Standards and ICC A117.1.
8. Fire-Resistance-Rated Doors: NFPA 80, listed and labeled by qualified testing agency for fire protection ratings indicated, based on testing at positive pressure in accordance with NFPA 252 or UL 10C.
9. Hardware on Fire-Resistance-Rated Doors: Listed and classified by UL (DIR), ITS (DIR), or testing firm acceptable to authorities having jurisdiction as suitable for application indicated.
10. Hardware for Smoke and Draft Control Doors: Provide door hardware that complies with local codes, and requirements of assemblies tested in accordance with UL 1784.
11. Hardware Preparation for Steel Doors and Steel Frames: BHMA A156.115.
12. Hardware Preparation for Wood Doors with Wood or Steel Frames: BHMA A156.115W.
13. Products Requiring Electrical Connection: Listed and classified by UL (DIR) as suitable for the purpose specified.

2.3 HINGES

A. Manufacturers: Conventional butt hinges.
    1. BEST; dormakaba Group:
    2. Mckinney.
    3. Ives Hardware.

B. Properties:
    14. Butt Hinges: As applicable to each item specified.
        a. Standard Weight Hinges: Minimum of two (2) permanently lubricated non-detachable bearings.
        b. Heavy Weight Hinges: Minimum of four (4) permanently lubricated bearings on heavy weight hinges.
        c. Template screw hole locations.
        d. Bearings: Concealed fully hardened bearings.
        e. UL 10C listed for fire-resistance-rated doors.

C. Sizes: See Door Hardware Schedule.
    1. Hinge Widths: As required to clear surrounding trim.
    2. Sufficient size to allow 180-degree swing of door.

D. Finishes: See Door Hardware Schedule.
    1. Fully polish hinges, front, back, and barrel.

E. Grades:
    1. Butt Hinges: Comply with BHMA A156.1 and BHMA A156.7 for templated hinges.
    2. Comply with BHMA A156.18 Materials and Finishes.

F. Material: Base metal as indicated for each item by BHMA material and finish designation.

G. Types:
    1. Butt Hinges: Include full mortise hinges.

H. Options: As applicable to each item specified.

I. Quantities:
1. Butt Hinges: Three (3) hinges per leaves up to 90 inches (2286 mm) in height. Add one (1) for each additional 30 inches (762 mm) in height or fraction thereof.
a. Hinge weight and size unless otherwise indicated in hardware sets:
i. For doors up to 36 inches (914 mm) wide and up to 1-3/4 inches (44.5 mm) thick provide hinges with a minimum thickness of 0.134 inch (3.4 mm) and a minimum of 4-1/2 inches (114 mm) in height.
ii. For doors from 36 inches (914 mm) wide up to 42 inches (1067 mm) wide and up to 1-3/4 inches (44.5 mm) thick provide hinges with a minimum thickness of 0.145 inch (3.7 mm) and a minimum of 4-1/2 inches (114 mm) in height.
iii. For doors from 42 inches (1067 mm) wide up to 48 inches (1219 mm) wide and up to 1-3/4 inches (44.5 mm) thick provide hinges with a minimum thickness of 0.180 inch (4.6 mm) and a minimum of 5 inches (127 mm) in height.
iv. For doors greater than 1-3/4 inches (44.5 mm) thick provide hinges with a minimum thickness of 0.180 inch (4.6 mm) and a minimum of 5 inches (127 mm) in height.

J. Applications: At swinging doors.
1. Provide non-removable pins at out-swinging doors with locking hardware and all exterior doors.

K. Products:
1. Butt Hinges:
a. Ball Bearing, Five (5) Knuckle.

2.4 CONTINUOUS HINGES

A. Manufactures:
1. Best Access
2. Roton
3. Select Hardware
a. Geared Continuous Hinges: As applicable to each item specified.
i. Non-handed.
ii. Anti-spinning through-fastener.
iii. UL 10C listed for fire-resistance-rated doors.
(a) Metal Door Installation: Rated up to 90 minutes.
(b) Wood Door Installation: Rated up to 60 minutes.
iv. Sufficient size to permit door to swing 180 degrees

B. Finishes: See Door Hardware Schedule.

2.5 BOLTS

A. Manufacturers:
1. ABH.
2. Burns.
3. Trimco.

B. Properties:
1. Dustproof Strikes: For bolting into floor, provide except at metal thresholds.

C. Options:

1. Extension Bolts: In leading edge of door, one bolt into floor, one bolt into top of frame.
2. Lever extensions: Provide for top bolt at oversized doors.

2.6 EXIT DEVICES

A. Manufacturers:
   1. Precision Apex 2000 Series
   2. Corbin 5000 Series.

B. Properties:
   1. Actuation: Crossbar.
   2. Touchpads: 'T" style metal touchpads and rail assemblies with matching chassis covers end caps.
   3. Latch Bolts: Stainless steel deadlocking with 3/4 inch (19 mm) projection using latch bolt.
   4. Lever Design: Match project standard lockset trims.
   5. Cylinder: Include where cylinder dogging or locking trim is indicated.
   6. Strike as recommended by manufacturer for application indicated.
   7. Dogging:
      a. Non-Fire-Resistance-Rated Devices: Cylinder 1/4 inch (6 mm) hex key dogging.
      b. Fire-Resistance-Rated Devices: Manual dogging not permitted.

C. Touch bar assembly on wide style exit devices to have a 1/4 inch (6.3 mm) clearance to allow for vision frames.
   1. All exposed exit device components to be of architectural metals and "true" architectural finishes.
   2. Handing: Field-reversible.
   3. Fasteners on Back Side of Device Channel: Concealed - exposed fasteners not allowed.
   4. Vertical Latch Assemblies' Operation: Gravity, without use of springs.

D. Grades: Complying with BHMA A156.3, Grade 1.
   1. Provide exit devices tested and certified by UL or by a recognized independent laboratory for mechanical operational testing to 10 million cycles minimum with inspection confirming Grade 1 Loaded Forces have been maintained.

E. Standards Compliance:
   1. UL Listed for Panic and Fire for Class II Circuitry.
   2. Provide UL (DIR) listed exit device assemblies for fire-resistance-rated doors.
   3. Comply with UL 10C.

F. Code Compliance: As required by authorities having jurisdiction in the State in which the Project is located.
   1. Listed by UL as a Controlled Exit Device (FULA) and Special Locking Arrangements (FWAX) category.

G. Options:
   1. Electrified Devices:
   2. Delayed Egress Devices: Manufacturer's standard for the application.
   3. Internally mounted switch used to signal other components.
   4. Internally mounted switch that monitors the position of the latchbolt.
   5. MLR: Motorized latch retraction.

H. Products:

1. 2000.

2.7 LOCK CYLINDERS

A. Manufacturers:
1. Corbin L1 Keyway Zero Bitted, No Substitutions, Existing System.

B. Material:
1. Manufacturer's standard corrosion-resistant brass alloy.

C. Types: As applicable to each item specified.
1. Standard core type cylinders, with seven pin cores.

2.8 MORTISE LOCKS

A. Manufacturers:
1. BEST, 45H Series
2. Corbin ML2000 Series.

B. Properties:
1. Mechanical Locks: Manufacturer's standard.
a. Fitting modified ANSI A115.1 door preparation.
b. Door Thickness Coordination Fitting 1-3/4 inch (44 mm) to 2-1/4 inch (57 mm) thick doors.
c. Latch: Solid, one-piece, anti-friction, self-lubricating stainless steel.
d. Latchbolt Throw: 3/4 inch (19 mm), minimum.
e. Auxiliary Deadlatch: One piece stainless steel, permanently lubricated.
f. Backset: 2-3/4 inch (70 mm).
g. Lever Trim:
i. Functionality: Allow the lever handle to move up to 45 degrees from horizontal position prior to engaging the latchbolt assembly.
ii. Strength: Locksets outside locked lever designed to withstand minimum 1,400 inch-lbs (158.2 Nm) of torque. In excess of that, a replaceable part will shear. Key from outside and/or inside lever will still operate lockset.
iii. Spindle: Designed to prevent forced entry from attacking of lever.
iv. Independent spring mechanism for each lever.
(1) Trim to be self-aligning and thru-bolted.

C. Finishes: See Door Hardware Schedule.
1. Core Faces: Match finish of lockset.

D. Grades:

E. Products: Mortise locks, including standard and electrified types.
1. 45H.

2.9 CYLINDRICAL LOCKS

A. Manufacturers:
1. BEST, 9K Series
2. Corbin, CL3300 Series

B. Properties:
1. Mechanical Locks:
a. Fitting modified ANSI A115.2 door preparation.
b. Door Thickness Fit: 1-3/8 inches (35 mm) to 2-1/4 inches (57 mm) thick doors.
c. Construction: Hub, side plate, shrouded rose, locking pin to be a one-piece casting with a shrouded locking lug.
i. Through-bolted anti-rotational studs.
d. Cast stainless steel latch retractor with roller bearings for exceptionally smooth operation and superior strength and durability.
e. Bored Hole: 2-1/8 inch (54 mm) diameter.
f. Backset: 2-3/4 inches (70 mm) unless otherwise indicated.
g. Latch: Single piece tail-piece construction.
i. Latchbolt Throw: 9/16 inch (14.3 mm), minimum.
h. Cylinders:
i. Cylinder Core Types: Locks capable of supporting manufacturers' cores, as applicable.
i. Lever Trim:
i. Style: See Door Hardware Schedule.
ii. Outside Lever Sleeve: Seamless one-piece construction.

2. Electrified Locks: Same properties as standard locks, and as follows:
a. Function: Electrically locked (Fail Safe) or unlocked (Fail Secure), as indicated for each lock in Door Hardware Schedule.

C. Finishes: See Door Hardware Schedule.
1. Core Faces: Match finish of lockset.

D. Grades: Comply with BHMA A156.2, Grade 1, Series 4000, Operational Grade 1, Extra Heavy Duty.

E. Material: Manufacturer's standard for specified lock.

F. Products: Cylindrical locks, including mechanical and electrified types.
1. 9K (Grade 1).

2.10 DOOR PULLS AND PUSH PLATES

A. Manufacturers:
1. Trimco.
2. Burns.
3. ABH.

B. Material: Stainless steel, unless otherwise indicated.

2.11 CLOSERS

A. Manufacturers:
1. Dorma 8900 Series
2. Corbin DC6000 Series.

B. Grades:
1. Closers: Comply with BHMA A156.4, Grade 1.
a. Underwriters Laboratories Compliance:
i. Product Listing: UL (DIR) and ULC for use on fire-resistance-rated doors.

1) UL 228 - Door Closers-Holders, With or Without Integral Smoke Detectors.

C. Installation:
1. Mounting: Includes surface mounted installations.
2. Mount closers on non-public side of door and stair side of stair doors unless otherwise noted in hardware sets.
3. At outswinging exterior doors, mount closer on interior side of door.
4. Provide adapter plates, shim spacers, and blade stop spacers as required by frame and door conditions.
5. Where an overlapping astragal is included on pairs of swinging doors, provide coordinator to ensure door leaves close in proper order.

2.12 OVERHEAD STOPS AND HOLDERS

A. Manufacturers:
1. Architectural Builders Hardware Mfg (ABH)
2. Glynn Johnson
3. Rixson

B. Sizes: Manufacturer's standard for the application.

C. Finishes:
1. Arms and Brackets: Zinc-plated.

D. Grades: As applicable to item specified.
1. Comply with BHMA A156.8, Grade 1.

E. Types:
15. Surface-applied.
16. Concealed.

2.13 PROTECTION PLATES

A. Manufacturers:
1. ABH.
2. Burns.
3. Trimco.

B. Properties:
1. Plates:
a. Kick Plates: Provide along bottom edge of push side of every wood door with closer, except aluminum storefront and glass entry doors, unless otherwise indicated.
i. Size: 10 inches (254 mm) high by 2 inch (51 mm) less door width (LDW) on push side of door.
b. Mop Plates: Provide along bottom edge of push side of doors to provide protection from cleaning liquids and equipment damage to door surface.
c. Edges: Beveled, on four (4) unless otherwise indicated.

C. Grades: Comply with BHMA A156.6.

D. Material: As indicated for each item by BHMA material and finish designation.
1. Metal Properties: Stainless steel.
a. Metal, Standard Duty: Thickness 0.050 inch (1.27 mm), minimum.

E. Installation:
    1. Fasteners: Countersunk screw fasteners

2.14 STOPS AND HOLDERS

A. Manufacturers:
    1. ABH.
    2. Burns.
    3. Trimco.

B. General: Provide overhead stop/holder when wall or floor stop is not feasible.

C. Grades:
    1. Door Holders, Wall Bumpers, and Floor Stops: Comply with BHMA A156.16 and Resilient Material Retention Test as described in this standard.

D. Types:

2.15 THRESHOLDS

A. Manufacturers:
    1. National Guard Products
    2. Pemko.
    3. Reese.

B. Properties:
    1. Threshold Surface: Fluted horizontal grooves across full width.

C. Grades: Thresholds: Comply with BHMA A156.21.

D. Material: Base metal as indicated for each item by BHMA material and finish designation.

E. Types: As applicable to project conditions. Provide barrier-free type at every location where specified.
    1. Saddle Thresholds: Without thermal break.
    2. Bumper Seal Thresholds with Gasket: Use silicone gaskets.

2.16 WEATHERSTRIPPING AND GASKETING

A. Manufacturers:
    1. National Guard Products, Inc: www.ngpinc.com/#sle.
    2. Pemko.
    3. Reese.

B. Products:
    1. Weatherstripping: See Door Hardware Schedule.
    2. Smoke Seals: See Door Hardware Schedule.
    3. Meeting Stile Seals: See Door Hardware Schedule.
    4. Door Bottom Seals:
        a. Door Sweeps: See Door Hardware Schedule.

2.17 KEYS AND CORES

A. Manufacturers:
    1. Corbin No Substitution, Existing System. L1 Keyway Zero Bitted.
    2. Owner to coordinate keying directly with RJ Locksmiths.

3. Keying to be done by RJ Locksmith, Ocean City, MD.

B. Properties: Complying with guidelines of BHMA A156.28.
1. Provide Corbin Standard keys and cores.
2. Provide keying information in compliance with DHI (KSN) standards.
3. Keying Schedule: Arrange for a keying meeting, with Architect, Owner and hardware supplier, and other involved parties to ensure locksets and locking hardware, are functionally correct and keying complies with project requirements.
4. Keying: Master keyed.
5. Include construction keying.as directed by owner.
6. Supply keys in following quantities:
    a. Grand Master Keys: 2 each.
    b. Master Keys: 4 each each group.
    c. Change Keys: 2 each change keys for each keyed core.
7. Deliver keys with identifying tags to Owner by security shipment direct from manufacturer.

2.18 KEY CABINETS

A. Manufacturers:
1. Lund Equipment Company, Inc
2. Telkee

B. Properties:.
1. Key Management System: For each keyed lock on project, provide one set of consecutively numbered duplicate key tags with hanging hole and snap catch.
2. Security Key Tags: For each keyed lock on project, provide one set of matching key tags for permanent attachment to one key of each set.
3. Provide key collection envelopes, receipt cards, and index cards in quantity suitable to manage number of keys.
4. Mounting: Wall surface mounted.
5. CapacityActual quantity of keys, plus 50 percent additional capacity.
6. Key cabinet lock to facility's keying system.

C. Finishes: Baked enamel, manufacturer's standard color.

D. Material: Sheet steel.

2.19 FINISHES

A. Finishes: Identified in Hardware Sets.

PART 3 – EXECUTION

3.1 EXAMINATION

A. Verify that doors and frames are ready to receive this work; labeled, fire-rated doors and frames are properly installed, and dimensions are as indicated on shop drawings.

B. Correct all defects prior to proceeding with installation.

C. Verify that electric power is available to power operated devices and of correct characteristics.

3.2 INSTALLATION

A. Install hardware in accordance with manufacturer's instructions and applicable codes.

B. Install hardware using the manufacturer's fasteners provided. Drill and tap all screw holes located in metallic materials. Do not use "Riv-Nuts" or similar products.

C. Install hardware on fire-rated doors and frames in accordance with applicable codes and NFPA 80.

D. Install hardware for smoke and draft control doors in accordance with NFPA 105.

E. Use templates provided by hardware item manufacturer.

F. Do not install surface mounted items until application of finishes to substrate are fully completed.

G. Wash down masonry walls and complete painting or staining of doors and frames.

H. Complete finish flooring prior to installation of thresholds.

I. Set exterior door thresholds with full-width bead of elastomeric sealant at each point of contact with floor providing a continuous weather seal; anchor thresholds with stainless steel countersunk screws.

3.3 FIELD QUALITY CONTROL

A. Perform field inspection and testing under provisions of Section 014000 - Quality Requirements.

3.4 CLEANING

A. Clean finished hardware in accordance with manufacturer's written instructions after final adjustments have been made.

B. Clean adjacent surfaces soiled by hardware installation activities.

3.5 PROTECTION

A. Protect finished Work under provisions of Section 017000 - Execution and Closeout Requirements.

B. Do not permit adjacent work to damage hardware or finish.

END OF SECTION

Manufacturer list

ABH	Architectural Builders Hardware
BES	BEST
PRE	BEST (Precision)
C-R	Corbin Russwin
DKA	dormakaba Architectural
NGP	National Guard Products
RCI	Rutherford Controls Inc
TRI	Trimco

Finish list

Code:	Name:
SIA	Slick It Ain't
689	689 Aluminum
626	Satin Chrome
CL	Clear
693	693 Black
US27	Mill Aluminum
BSP	Black Suede Powder Coat
A	Anodized Aluminum
622	Powder Coat Black
19	19>FLAT BLACK COATED
26D	26D>CHROMIUM PLATED SATIN
Gray	Gray Rubber
630	Satin Stainless Steel
AL	AL>ALUM CLEAR COATED
C	Charcoal

Specification Report

Set #1 - Exter New HMF x HMD - Card access - Scheduled

Doors: 121-1

6.0	Hinge	FBB199 NRP 45X45	19	BES
1.0	Exit Device	C MLR 2803	630	PRE
1.0	Exit Device	C MLR 2801	630	PRE
1.0	Cylinder	CR3000 L1 Keyway, Zero Bitted	BSP	C-R
1.0	Exit Trim	1703 B	622	PRE
1.0	Exit Trim	1702 B	622	PRE
2.0	Power Transfer	EPT-12C		PRE
2.0	Door Closer	89 16 SDS FC LSN	689	
	DKA			
2.0	Wire Harness	WH-6E		BES
2.0	Wire Harness	WH-192P		BES
1.0	Card Reader	CARD READER BY SECURITY VENDOR		
1.0	Power Supply	POWER SUPPLY BY SECURITY VENDOR		
2.0	Door Position Switch	DPS BY SECURITY VENDOR		
1.0	Wiring Diagram	FURNISHED BY HWDE SUPPLIER		
1.0	Gasketing	700N Head & Jambs (2)	A	
	NGP			
1.0	Drip Cap	16 4" ODW	A	
	NGP			
1.0	Door Sweep	1015V	US27	
	NGP			
1.0	Threshold	8533V	A SIA	
	NGP			

NOTE: Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinders to be L1 Keyway, Zero Bitted. Operation: Open Hours: Access control schedules latchbolts of exit devices held in retracted position allowing manual push / pull operation. Locked Hours: Presentation of valid credential to card reader retracts latchbolt of active leaf allowing authorized entry. Request to Exit by Security Vendor. Mechanical key override. All wiring and conduit by electrical contractor. Coordinate wiring and installation with GC / EC / Security Vendor.

Door hardware supplier to prep doors and frame for door position switches. Coordinate with Owner’s Security Vendor.

Set #2 - Vestibule

Doors: 121-2

6.0	Hinge	FBB168 45X45	26D	BES
2.0	Exit Device	3R 0 671 DR Dummy Bar	630	PRE
2.0	Exit Trim	1702 B	630	PRE
2.0	Door Closer	89 16 SDS FC LSN	689	
	DKA			
2.0	Door Holder	1221	626	TRI
1.0	Gasketing	2525 Head & Jambs (2)	C	
	NGP			
1.0	Gasketing	5070 Meeting Stile Astragal	CL	

NGP

Set #3 - Exter New HMF x HMD - Card Access

Doors: 126-4

3.0	Hinge	FBB199 NRP 45X45	19	BES
1.0	Exit Device	2103 LD	630	PRE
1.0	Cylinder	CR3000 L1 Keyway, Zero Bitted	BSP	C-R
1.0	Exit Trim	1702 B	622	PRE
1.0	Electric Strike	0162 LM	32D	RCI
1.0	Door Closer	89 16 SDS FC LSN	689	
	DKA			
1.0	Card Reader	CARD READER BY SECURITY VENDOR		
1.0	Power Supply	POWER SUPPLY BY SECURITY VENDOR		
1.0	Door Position Switch	DPS BY SECURITY VENDOR		
1.0	Wiring Diagram	FURNISHED BY HWDE SUPPLIER		
1.0	Gasketing	700N Head & Jambs (2)	A	
	NGP			
1.0	Drip Cap	16 4" ODW	A	
	NGP			
1.0	Door Sweep	1015V	US27	
	NGP			
1.0	Threshold	8533V	A SIA	
	NGP			

NOTE: Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted. Operation: Door normally closed and locked. Presentation of valid credential to card reader releases electric strike allowing authorized entry. Request to Exit by Security Vendor. Mechanical key override. All wiring and conduit by electrical contractor. Coordinate wiring and installation with GC / EC / Security Vendor.

Door hardware supplier to prep doors and frame for door position switches. Coordinate with Owner’s Security Vendor.

Set #4 - Ext Pair Alum - Operator

Doors: 132-1

6.0	Hinge	FBB199 NRP 45X45	19	BES
1.0	Exit Device	2803 CD C03	622	PRE
1.0	Exit Device	2801 CD	622	PRE
1.0	Cylinder	CR3000 L1 Keyway, Zero Bitted	BSP	C-R
2.0	Cylinder	CR1000 L1 Keyway, Zero Bitted	622	C-R
2.0	Pull	1191 4J N	622	TRI
1.0	Door Closer	89 16 SPA FC LSN DP89 BSHD NFHD	693	
	DKA			
1.0	Auto Operator	PROVIDED BY SECTION 087113		
2.0	Overhead Concealed	1020SL Series	S4/BSP	
	ABH			
	Stop			
2.0	Actuator	946 HP 475 MO	32D	RCI

2.0	Door Position Switch	DPS BY SECURITY VENDOR		
1.0	Drip Cap NGP	16 4" ODW	A	
2.0	Door Sweep NGP	1015V	US27	
1.0	Threshold NGP	8533V	A SIA	

NOTE: Balance of weather-stripping by Aluminum Frame/Door manufacturer. Coordinate and verify hardware compatibility with Aluminum Frame/Door manufacturer. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinders to be L1 Keyway, Zero Bitted. Unlocked Hours: Doors mechanically dogged down for Push / Pull operation. Operator and actuators enabled by switch on operator. Active leaf can be manually opened by door pull or automatically by exterior and vestibule side actuators to signal automatic operator to cycle to open the door. Locked Hours: Doors closed and locked by un-dogging the device. Operator and actuators disabled by switch on operator. Mechanical key override. Request to Exit by Security Vendor. Mechanical key override. All wiring and conduit by electrical contractor. Coordinate wiring and installation with GC / EC / Security Vendor. Opening to be Prewired for future Maglock system. Coordinate with GC / EC / Security Vendor.

Door hardware supplier to prep doors and frame for door position switches. Coordinate with Owner's Security Vendor.

Set #5 - Vest Pair Alum - Operator

Doors: 132-2

6.0	Hinge	FBB168 45X45	19	BES
2.0	Exit Device	3R 0 671 DR	622	PRE
2.0	Pull	1191 4J N	622	TRI
1.0	Door Closer DKA	89 16 SPA FC LSN DP89 BSHD NFHD	693	
1.0	Auto Operator	PROVIDED BY SECTION 087113		
2.0	Overhead Concealed ABH Stop	1020SL Series	S4/BSP	
2.0	Actuator	946 HP 475 MO	32D	RCI
2.0	Door Holder	1221	622	TRI
2.0	Sweep NGP	200N LAR	A	
1.0	Threshold NGP	425 LAR (1/4-20 SS MS/EA)	A	

NOTE: Balance of weather-stripping by Aluminum Frame/Door manufacturer. Coordinate and verify hardware compatibility with Aluminum Frame/Door manufacturer. Operation: Operator and actuators enabled by switch on operator. Active leaf can be manually opened by door pull or automatically by either side actuators to signal automatic operator to cycle to open the door. All wiring and conduit by electrical contractor. Coordinate wiring and installation with GC / EC / Security Vendor.

Set #6 - Ext - New HMD x Exist Frame

Doors: 133-1

3.0	Hinge	FBB199 NRP 45X45	19	BES
1.0	Exit Device	2103 CD	630	PRE
1.0	Cylinder	CR3000 L1 Keyway, Zero Bitted	BSP	C-R
1.0	Cylinder	CR1000 114 L1 Keyway, Zero Bitted	626	C-R
1.0	Exit Trim	1703 B	622	PRE
1.0	Door Closer DKA	89 16 DS FC LSN	689	
1.0	Door Position Switch	DPS BY SECURITY VENDOR		
1.0	Gasketing NGP	700N Head & Jambs (2)	A	
1.0	Door Sweep NGP	1015V	US27	
1.0	Threshold NGP	8533V	A SIA	

NOTE: Verify new hardware with existing frame. Patch, prep and modify existing frame as required by GC. Fill or patch all remaining holes and meet code compliant conditions. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted. Opening to be Prewired for future Maglock system. Coordinate with GC / EC / Security Vendor.

Door hardware supplier to prep doors and frame for door position switches. Coordinate with Owner's Security Vendor.

Set #7 - Ext SGL New HMD x Exist Frame - Operator

Doors: 133-2

3.0	Hinge	FBB199 NRP 45X45	19	BES
1.0	Exit Device	2103 CD	630	PRE
1.0	Cylinder	CR3000 L1 Keyway, Zero Bitted	BSP	C-R
1.0	Cylinder	CR1000 114 L1 Keyway, Zero Bitted	626	C-R
1.0	Exit Trim	1703 B	622	PRE
1.0	Auto Operator	PROVIDED BY SECTION 087113		
2.0	Actuator	946 HP 475 MO	32D	RCI
1.0	Door Position Switch	DPS BY SECURITY VENDOR		
1.0	Door Sweep NGP	1015V	US27	
1.0	Threshold NGP	8533V	A SIA	

NOTE: Verify new hardware with existing frame. Patch, prep and modify existing frame as required by GC. Fill or patch all remaining holes and meet code compliant conditions. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinders to be L1 Keyway, Zero Bitted. Unlocked Hours: Doors mechanically dogged down for Push / Pull operation. Operator and actuators enabled by switch on operator. Door can be manually opened by door pull or automatically by exterior and inside actuators to signal automatic operator to cycle to open the door. Locked Hours: Doors closed and locked by un-dogging the device. Operator and actuators disabled by switch on operator. Mechanical key override. Request to Exit by Security Vendor. Mechanical key

override. All wiring and conduit by electrical contractor. Coordinate wiring and installation with GC / EC / Security Vendor. Opening to be Prewired for future Maglock system. Coordinate with GC / EC / Security Vendor.

Door hardware supplier to prep doors and frame for door position switches. Coordinate with Owner's Security Vendor.

Set #8 - Ext - Card Access

Doors: 106-2

3.0	Hinge	FBB199 NRP 45X45	19	BES
1.0	Exit Device	2103 LD	630	PRE
1.0	Cylinder	CR3000 L1 Keyway, Zero Bitted	BSP	C-R
1.0	Exit Trim	1703 B	622	PRE
1.0	Electric Strike	0162 LM	32D	RCI
1.0	Door Closer DKA	89 16 SDS FC LSN	689	
1.0	Card Reader	CARD READER BY SECURITY VENDOR		
1.0	Power Supply	POWER SUPPLY BY SECURITY VENDOR		
1.0	Wiring Diagram	FURNISHED BY HWDE SUPPLIER		
1.0	Door Position Switch	DPS BY SECURITY VENDOR		
1.0	Drip Cap NGP	16 4" ODW	A	
1.0	Gasketing NGP	700N Head & Jambs (2)	A	
1.0	Door Sweep NGP	1015V	US27	
1.0	Threshold NGP	8533V	A SIA	

NOTE: Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Rim cylinder to be L1 Keyway, Zero Bitted. Operation: Door normally closed and locked. Presentation of valid credential to card reader releases electric strike allowing authorized entry. Request to Exit by Security Vendor. Mechanical key override. All wiring and conduit by electrical contractor. Coordinate wiring and installation with GC / EC / Security Vendor.

Door hardware supplier to prep doors and frame for door position switches. Coordinate with Owner's Security Vendor.

Set #9 - Storeroom

Doors: 109-1

6.0	Hinge	FBB179 45X45	26D	BES
2.0	Cylindrical Lock	9K 0 1DT 15 C Dummy Lever	626	BES
2.0	Roller Latch ABH	1892	US32D	
2.0	Overhead Stop ABH	9020 Series	US32D	
2.0	Silencers	1229A	Gray	TRI

Set #10 - Corr – New Frame & Door

Doors: 123-1, 123-4

3.0	Hinge	FBB179 NRP 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 R 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Wall Stop ABH	AB400	626	
3.0	Silencers	1229A	Gray	TRI

NOTE: Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted.

Set #11 - Work Rm - Existing Frame & Door

Doors: 126-3

3.0	Hinge	FBB179 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 AB 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Wall Stop ABH	AB403	US26D	
3.0	Silencers	1229A / 1229B as Req'd	Gray	TRI

NOTE: Verify new hardware and lock strikes with existing frame and door by hardware supplier before ordering. Patch, prep and modify existing as required by GC. Fill or patch all remaining holes and meet code compliant conditions. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted.

Set #12 - Book Drop - Existing Frame & Door

Doors: 131-1

3.0	Hinge	FBB179 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 D 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Wall Stop ABH	AB400	626	
3.0	Silencers	1229A / 1229B as Req'd	Gray	TRI

NOTE: Verify new hardware and lock strikes with existing frame and door by hardware supplier before ordering. Patch, prep and modify existing as required by GC. Fill or patch all remaining holes and meet code compliant conditions. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted.

Set #13 - A/V Elec - Existing Frame & Door

Doors: 109-3

3.0	Hinge	FBB179 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 D 15 C S3 COR LC	626	BES

1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Dome Stop	1211	626	TRI
3.0	Silencers	1229A / 1229B as Req'd	Gray	TRI

NOTE: Verify new hardware and lock strikes with existing frame and door by hardware supplier before ordering. Patch, prep and modify existing as required by GC. Fill or patch all remaining holes and meet code compliant conditions. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted.

Set #14 - Corr / Stacks - Existing Frame & Door

Doors: 107-1

3.0	Hinge	FBB179 NRP 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 R 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Door Closer DKA	89 16 SDS FC LSN	689	
1.0	Gasketing NGP	2525 Head & Jambs (2)	C	

NOTE: Verify new hardware and lock strikes with existing frame and door by hardware supplier before ordering. Patch, prep and modify existing as required by GC. Fill or patch all remaining holes and meet code compliant conditions.

Set #15 - Corr / Stair - Existing Frame & Door

Doors: 106-3

3.0	Hinge	FBB179 45X45	26D	BES
1.0	Exit Device	2114 A 4914	630	PRE
1.0	Door Closer DKA	89 16 SPA FC LSN	689	
1.0	Wall Stop ABH	AB400	626	
3.0	Silencers	1229A / 1229B as Req'd	Gray	TRI

NOTE: Verify new hardware and lock strikes with existing frame and door by hardware supplier before ordering. Patch, prep and modify existing as required by GC. Fill or patch all remaining holes and meet code compliant conditions.

Set #16 - Pitts Archive - Existing Frame & Door

Doors: 108-1

3.0	Hinge	FBB179 NRP 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 R 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Door Closer DKA	89 16 SPA FC LSN	689	
1.0	Wall Stop ABH	AB400	626	

1.0	Gasketing NGP	2525 Head & Jambs (2)	C	
1.0	Sweep NGP	200N LAR	A	
1.0	Threshold NGP	425 LAR (1/4-20 SS MS/EA)	A	

NOTE: LHR Swing 180 degree. Verify door undercut and the frame jamb depth for the new hardware. Verify new hardware and lock strikes with existing frame and door by hardware supplier before ordering. Patch, prep and modify existing as required by GC. Fill or patch all remaining holes and meet code compliant conditions. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted.

Set #17 - Office - Existing Frame & Door

Doors: 126-2

3.0	Hinge	FBB179 NRP 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 AB 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Dome Stop	1211	626	TRI
3.0	Silencers	1229A / 1229B as Req'd	Gray	TRI

NOTE: Verify new hardware and lock strikes with existing frame and door by hardware supplier before ordering. Patch, prep and modify existing as required by GC. Fill or patch all remaining holes and meet code compliant conditions. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted.

Set #18 - Break Room - Existing Frame & Door

Doors: 111-2

3.0	Hinge	FBB179 NRP 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 AB 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Door Closer DKA	89 16 IS FC LSN	689	
1.0	Protection Plate ABH	PP0050 8" x 2" LDW B4E CSK	US32D	
1.0	Gasketing NGP	2525 Head & Jambs (2)	C	

NOTE: Keeping as LHR. Verify new hardware and lock strikes with existing frame and door by hardware supplier before ordering. Patch, prep and modify existing as required by GC. Fill or patch all remaining holes and meet code compliant conditions. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted.

Set #19 - Break Room

Doors: 111-1

3.0	Hinge	FBB179 45X45	26D	BES

1.0	Cylindrical Lock	9K 3 7 AB 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Door Closer DKA	89 16 AF89 FC LSN	689	
1.0	Protection Plate ABH	PP0050 8" x 2" LDW B4E CSK	US32D	
1.0	Wall Stop ABH	AB403	US26D	
1.0	Gasketing NGP	2525 Head & Jambs (2)	C	

NOTE: Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted.

Set #20 - Storeroom

Doors: 107-2, 115-1

3.0	Hinge	FBB179 NRP 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 D 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Door Closer DKA	89 16 SPA FC LSN	689	
1.0	Wall Stop ABH	AB400	626	
3.0	Silencers	1229A	Gray	TRI

NOTE: 180 degree door swing. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted.

Set #21 - Janitor

Doors: 118-1

3.0	Hinge	FBB179 NRP 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 D 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Protection Plate ABH	PP0050 8" x 2" LDW B4E CSK	US32D	
1.0	Wall Stop ABH	AB400	626	
3.0	Silencers	1229A	Gray	TRI

NOTE: 180 degree door swing. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted.

Set #22 - Toilet - VIBEO Indicator

Doors: 123-2, 123-3

3.0	Hinge	FBB179 45X45	26D	BES
1.0	Mortise Lock	45H 0 LT 15 H VIBE x O Indicator	626	BES

1.0	Door Closer DKA	89 16 DS FC LSN	689	
1.0	Protection Plate ABH	PP0050 8" x 2" LDW B4E CSK	US32D	
1.0	Gasketing NGP	2525 Head & Jambs (2)	C	

Set #23 - Toilet - VIBEO Indicator

Doors: 112-1, 114-1

3.0	Hinge	FBB179 45X45	26D	BES
1.0	Mortise Lock	45H 0 LT 15 H VIBE x O Indicator	626	BES
1.0	Door Closer DKA	89 16 AF89 FC LSN	689	
1.0	Protection Plate ABH	PP0050 8" x 2" LDW B4E CSK	US32D	
1.0	Protection Plate ABH	PP0050 6" x 1" LDW B4E CSK	US32D	
1.0	Wall Stop ABH	AB400	626	
1.0	Gasketing NGP	2525 Head & Jambs (2)	C	

Set #24 - IT Room - Card Access

Doors: 136-1

3.0	Hinge	FBB179 NRP 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 D 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Electric Strike	F2164 F2LM	32D	RCI
1.0	Door Closer DKA	89 16 SPA FC LSN	689	
1.0	Wall Stop ABH	AB400	626	
1.0	Card Reader	CARD READER BY SECURITY VENDOR		
1.0	Power Supply	POWER SUPPLY BY SECURITY VENDOR		
1.0	Door Position Switch	DPS BY SECURITY VENDOR		
1.0	Wiring Diagram	FURNISHED BY HWDE SUPPLIER		
1.0	Gasketing NGP	2525 Head & Jambs (2)	C	

NOTE: Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted. Operation: Door normally closed and locked. Presentation of valid credential to card reader releases electric strike allowing authorized entry. Request to Exit by Security Vendor. Mechanical key override. All wiring and conduit by electrical contractor. Coordinate wiring and installation with GC / EC / Security Vendor.

Door hardware supplier to prep doors and frame for door position switches. Coordinate with Owner’s Security Vendor.

Set #25 - Riser/Stor

Doors: 130-1

3.0	Hinge	FBB179 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 D 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Wall Stop ABH	AB400	626	
3.0	Silencers	1229A	Gray	TRI

NOTE: Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted.

Set #26 – Office, IT Rm

Doors: 124-1, 126-1, 129-1

3.0	Hinge	FBB179 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 AB 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Wall Stop ABH	AB403	US26D	
3.0	Silencers	1229A	Gray	TRI

NOTE: Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted.

Set #27 - Study Room - Alum

Doors: 113-1

1.0	Hinge	661HDUL	AL	BES
1.0	Cylindrical Lock	9K 3 0 N 15 C S3	626	BES
1.0	Door Closer DKA	89 16 AF89 FC LSN	689	
1.0	Dome Stop	1211	626	TRI

NOTE: Balance of seals by Aluminum Frame/Door manufacturer. Coordinate and verify hardware compatibility with Aluminum Frame/Door manufacturer.

Set #28 - Spec Collections - Existing Frame & Door

Doors: 102-1

3.0	Hinge	FBB179 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 R 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Door Closer DKA	89 16 IS FC LSN	689	
3.0	Silencers	1229A / 1229B as Req'd	Gray	TRI

NOTE: Verify new hardware and lock strikes with existing frame and door by hardware supplier before ordering. Patch, prep and modify existing as required by GC. Fill or patch all remaining holes and meet code compliant conditions. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Cylinder to be L1 Keyway, Zero Bitted.

Set #29 - Storage 2

Doors: 105-2

3.0	Hinge	FBB179 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 D 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Door Closer DKA	89 16 IS FC LSN	689	
1.0	Gasketing NGP	2525 Head & Jambs (2)	C	

Set #30 - Storage 2

Doors: 106-1

3.0	Hinge	FBB179 NRP 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 D 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
2.0	Door Closer DKA	89 16 SDS FC LSN	689	
1.0	Gasketing NGP	2525 Head & Jambs (2)	C	

Set #31 - Stor 3 - 1 3/8" Existing Frame & Door

Doors: 107-3

3.0	Hinge	RD14 FBB179 NRP 35X35	26D	BES
1.0	Cylindrical Lock	CL38 57 NZD B238 L1 Keyway Zero Bitted	626	C-R
1.0	Wall Stop ABH	AB400	626	
3.0	Silencers	1229A / 1229B as Req'd	Gray	TRI

NOTE: Verify new hardware and lock strikes with existing frame and door by hardware supplier before ordering. Patch, prep and modify existing as required by GC. Fill or patch all remaining holes and meet code compliant conditions. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Core to be L1 Keyway, Zero Bitted.

Set #32 - Stor 3 - Alternate for New Frame & Door

Doors: 107-3 ALT

3.0	Hinge	FBB179 NRP 45X45	26D	BES
1.0	Cylindrical Lock	9K 3 7 D 15 C S3 COR LC	626	BES
1.0	Cylinder	CR2000 L1 Keyway, Zero Bitted	626	C-R
1.0	Wall Stop	AB400	626	

	ABH			
3.0	Silencers	1229A	Gray	TRI

NOTE: Alternate for new opening. Owner to coordinate keying of locksets. Keying to be done by RJ Locksmith, Ocean City MD. Core to be L1 Keyway, Zero Bitted.

SECTION 087113 – AUTOMATIC DOOR OPERATORS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This section includes the following types of automatic door operators:
   1. Low-energy door operators for swinging doors.

B. Related Sections:
   1. Division 7 Sections for caulking to the extent not specified in this section.
   2. Division 8 Sections for “Aluminum-Framed Entrances and Storefronts” for entrances furnished and installed separately in Division 8 Section.
   3. Division 8 Section “Door Hardware” for hardware to the extent not specified in this section.
   4. Division 8 Section “Glazing” for materials and installation requirements of glazing for automatic entrances.
   5. Division 26 and 28 Sections for electrical connections including conduit and wiring for automatic entrance operators and access-control devices.

1.3 REFERENCES

A. References: Comply with the version year adopted by the Authority Having Jurisdiction.
   1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
   2. ICC/IBC - International Building Code.
   3. CUL – Approved for use in Canada.
   4. NFPA 70 - National Electrical Code.
   5. NFPA 80 - Fire Doors and Windows.
   6. NFPA 101 - Life Safety Code.
   7. NFPA 105 - Installation of Smoke Door Assemblies.

B. American National Standards Institute (ANSI) / Builders Hardware Manufacturers Association (BHMA).
   1. ANSI/BHMA A156.19 Standards for Power Assist and Low Energy Power Operated Doors.

C. Underwriters Laboratories (UL).
   1. UL10C – Positive Pressure Fire Tests of Door Assemblies.
   2. UL 325 - Standard for Safety for Door, Drapery, Gate, Louver, and Window Operators and Systems.

D. American Association of Automatic Door Manufacturers (AAADM).

E. American Society for Testing and Materials (ASTM).

1. ASTM B221 Standard Specification for Aluminum and Aluminum Alloy Extruded Bars, Rods, Wire, Profiles and Tubes.
2. ASTM B209 Standard Specification for Aluminum and Aluminum Alloy Sheet and Plate.

F. American Architectural Manufacturers Association (AAMA).
1. AAMA 611 Voluntary Specification for Anodized Architectural Aluminum.

G. National Association of Architectural Metal Manufacturers (NAAMM).
1. Metal Finishes Manual for Architectural Metal Products.

H. International Code Council (IBC).
1. IBC: International Building Code Building Code.

1.4 DEFINITIONS

A. Activation device: Device that, when actuated, sends an electrical signal to the door operator to initiate the door operation.

B. Monitored Safety Devices: A tested system that works in conjunction with the automatic door control that detects the presence of a person or an object within a zone where contact could occur and provides a signal to stop the movement of the door.

C. AAADM: American Association of Automatic Door Manufacturers.

D. Operating ambient Temperature Range: 5 Degrees F to plus 122 degrees F (minus 15 C to 50 degrees C).

E. For automatic door terminology, refer to ANSI/BHMA A 156.19 for definitions of terms.

1.5 PERFORMANCE REQUIREMENTS

A. General: Provide automatic doors that have been designed and fabricated to comply with specified performance requirements, as demonstrated by testing manufacturers corresponding systems.

B. Compliance:
1. ICC/IBC International Building Code
2. ANSI/BHMA A 156.19 American National Standard for Power Operated Doors Pedestrian Doors.
3. UL 325 Listed
4. NFPA 70 National Electrical Code.
5. NFPA 101 Life Safety Code
6. CUL Approved for use in Canada
7. UL Listed Fire Door Operator with Automatic Closer

C. Automatic Door equipment accommodates medium to heavy pedestrian traffic.

D. Opening Force Requirements:
1. Power-Operated swinging doors shall open with a manual force not to exceed 30 lbf (133N) to set the door in motion and 15 lbf to fully open the door with force applied at 1” (25mm) from the latched edge of the door. The required force to prevent a stopped door from opening

or closing shall to exceed 15 lbf (67N) measured 1" (25mm) from the latch edge of the door at any point during the opening or closing.

E. Closing Time:
1. Door operators shall be field adjustable to close 90 degrees to 10 degrees in 3 seconds or longer per ANSI/BHMA A 156.19 standard.
2. Door shall be field adjusted to close from 10 degrees to fully closed position in not less than 1.5 seconds.

1.6 SUBMITTALS

A. Comply with Division 01 – Submittal Procedures.

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

C. Shop Drawings: For automatic entrances. Include plans, elevations, sections, details, hardware mounting heights, additional accessories and attachments to other work.

D. Samples: color samples of exposed finish as required.

E. Informational Submittals: Manufacturers product information and applicable sustainability program credits that are available towards a LEED rated product certification.
1. Credit MR 4.1 and 4.2: Manufacture's or fabricator's certificate indicating percentage of post-consumer recycled content by weight and pre-consumer recycled content by weight for each product specified under this section.

F. Manufacturers Field Reports: Submit manufacturer's field reports from AAADM certified technician of inspection and approval of doors for compliance with ANSI/BHMA A 156.19 after completion of installation.

G. Operating and Maintenance Manuals: Provide manufacturers operating, owners and maintenance manuals for each item specified as required in Division 01, Closeout Submittals.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: 10 years minimum of documented experience in manufacturing door equipment similar to that indicated within this specification with a proven record of successful service performance. A manufacturer with company certificate issued by AAADM.

B. Installer Qualifications: Installers, trained by the primary product manufacturers, with a minimum 5 years documented experience installing and maintenance of units similar in material, design, and extent to that indicated in this specification and whose work has resulted in construction with a record of successful in-service performance. Manufacturer's authorized representative who is trained and approved for installation and maintenance of units by AAADM required for this Project

C. Source Limitations for Automatic Operators: Obtain each type of automatic door operator and senor components specified in this section from single source from single manufacturer.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

E. Power-Operated Door Standard: ANSI/BHMA A 156.19 Current year.

F. Emergency-Exit Door Requirements: Comply with requirements of authorities having jurisdiction for automatic entrances serving as a required means of egress.

1.8 PROJECT CONDITIONS

A. Field Measurements: Verify actual dimensions of openings to receive automatic entrances by field measurements before fabrication.

1.9 COORDINATION

A. Coordinate door operators with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish. Coordinate hardware for automatic entrances with hardware required for rest of project.

B. Electrical System Roughing-in: Coordinate layout and installation of automatic power door operator with connections to power supplies and access-control system.

1.10 WARRANTY

A. Automatic Door Operators to be free of defects in material and workmanship for a period of One (1) year from the date of substantial completion.

B. During the warranty period a factory trained technician shall preform service and affect repairs. A safety inspection shall be performed after each adjustment or repair and a completed inspection form submitted to the owner.

C. During the warranty period all warranty work shall be performed during normal working hours.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. dormakaba • Reamstown, PA • 1-844-SPEC-NOW (1-844-773-2669) • Website: www.dormakaba.us • Email: specnow@dorma.com

B. Substitutions: Requests for substitution and product approval in compliance with the specification must be submitted in writing and in accordance with the procedures outlined in Division 1, Section “Substitution Procedures”. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 AUTOMATIC SWING DOOR OPERATOR

1. Door 132-1: 1ea Auto Operator Exterior Scheduled x Actuator Both Sides, Black Finish.

2. Door 132-2: 1ea Auto Operator Vest x Actuator Both Sides, Black Finish.

3. Door 133-2: 1ea Auto Operator Exterior Scheduled x Actuator Both Sides, Aluminum Finish.

A. Model: DORMA, ED Series **ED100** (Basis of Design) An Integrated, self-learning automatic swing door operator with an advanced CPU, a multistage gearbox with real time adaptive software and available user interface.
   1. Automatic Door Configuration:
      a. Configuration: Single swing door or pair of doors swinging.
      b. Traffic Pattern: two-way as shown on drawings
      c. Mounting: Surface applied

B. Approved substitution manufacturer.
   1. Stanley Access Technologies; M-Force Operator with Swing Guard Safety system.
   2. Besum Entrance Solutions; an ASSA ABLOY Group Company

C. Control Features
   1. Power-hold Close
   2. Built in Lock Delay
   3. On-Off-Hold Open switch control to control door function, (Automatic-Hold Open- Exit Only)
   4. On-Off Power Switch
   5. Fire Alarm Integration
   6. Field Adjustable Handing
   7. Power Assist Opening Activation
   8. Intergraded Connections for Monitored Safety Sensors and other accessories.
   9. Integrated access control

D. Door Control Features
   1. Wind Load and Stack Pressure microprocessor monitored with power boost to ensure secure opening and closing in changing conditions.
   2. Door Weight Max. ED 100 600 lbs.

E. Header Size: Fine header height at 2 ¾” by 5” 1/8” depth.

2.3 ACTIVATION DEVICES

A. Activation Device:
   1. RCI 946HP475- MO Push Plate: Hard wired engraved with "Push to Open" with a handicap logo.
   2. Access control activator: Card readers As shown at locations on drawings.

2.4 ELECTRICAL

A. Electrical 115 V AC +/- 10% 50/60 Hz 6.6 A max.

2.5 FINISHES

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Anodized Finish:
1. Door 133-2 Color Alum Anodic Finish: AAMA 611, AA-M12C22A44, Class I, 0.018 mm
2. Door 132-1 & 132-2 Color Black Anodic Finish: AAMA 611, AA-M12C22A44, Class I, 0.018 mm]. To match architects sample

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and frames with Installer present, for compliance with requirements for installation tolerances, wall and floor construction and other conditions affecting performance of automatic entrances.

B. Examine roughing in for electrical source power to verify actual locations of wiring connections.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Do not install damaged components. Fit frame joints to produce hairline joints free of burrs and distortion. Rigidly secure non-movement joints.

B. Entrances: Install automatic entrances plumb and true in alignment with established lines and grades without warp or rack of framing members and doors. Anchor securely in place.
1. Install surface-mounted hardware using concealed fasteners to greatest extent possible.
2. Set headers, carrier assemblies, tracks, operating brackets, and guides level and true to location with anchorage for permanent support.

C. Door Operators: Connect door operators to electrical power distribution system as specified in Division 26 Sections

D. Sealants: Comply with requirements specified in Division 07 Section "Joint Sealants" to provide seal between the operator housing and wall surface. installation.

E. Signage: Apply signage on both sides of each door and each sidelight as required by ANSI/BHMA A 156.19

3.3 FIELD QUALITY CONTROL

A. Manufacturer’s representative shall provide technical assistance and guidance for installation of automatic doors.
1. Factory trained and AAADM certified representative shall test and inspect each automatic door to determine compliance of the installed system to ANSI/BHMA A 156.19

3.4 ADJUSTING

A. Adjust door operators and controls for smooth and safe operation.

3.5 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by automatic operator installation promptly after installation .

3.6 DEMONSTRATION

A. Engage a factory authorized representative to train Owner's maintenance personnel to adjust, operate, and maintain safe operation of automatic entrances.

END OF SECTION 087113

SECTION 270500 - TELECOMMUNICATIONS PATHWAYS AND SPACES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Telecommunications Room Build Out

B. Pathways for Telecommunications Systems

C. Grounding and Bonding for Telecommunications

1.2 REFERENCES

A. Industry Codes, Standards and Methods shall be observed, including the following:

1. ANSI/TIA-568-C.0: Generic Telecommunications Cabling for Customer Premises.
2. ANSI/TIA-568-C.1: Commercial Building Telecommunications Cabling Standard
3. ANSI/TIA-568-C.2: Balanced Twisted Pair Cabling and Components Standard
4. ANSI/TIA-568-C.3: Optical Fiber Cabling Components Standard
5. ANSI/TIA-569-B: Commercial Building Standard for Telecommunications Pathways and Spaces
6. ANSI/TIA-570-B: Residential Telecommunications Cabling Standard
7. ANSI/TIA-606-A: Administration Standard for Telecommunications Infrastructure of Commercial Buildings
8. ANSI-J-STD-607-D: Commercial Building Grounding and Bonding Requirements for Telecommunications
9. ANSI/TIA-758-A: Customer-Owned Outside Plant Telecommunications Cabling Standard
10. BICSI Telecommunications Distribution Methods Manual (TDMM), Latest Edition
11. National Fire Protection Agency (NFPA-70): National Electrical Code (NEC)

B. Comply with all local, state and federal codes for telecommunications installations.

1.3 SYSTEM DESCRIPTION

A. Design Requirements

1. The contractor shall outfit all telecom rooms according to T Drawings. Termination and distribution fields shall be installed according to manufacturer’s guidelines and industry standards.
2. Telecom Room layouts shall be approved by Technology personnel prior to installation of cabling, pathways or termination hardware.

B. Performance Requirements

1. Materials and equipment will be installed in an orderly and precise manner. Clearances between equipment will prevent incidental damage or unsafe conditions.

2. Equipment shall provide proper support and housing of all intended active and non-active components.

3. Refer to Telecom Room Details for precise location of equipment and termination fields.

1.4 SUBMITTALS

A. Product Data

1. Provide product data for all equipment listed in Part 2

2. Equipment data must be submitted in a single package and clearly indicated for efficient review. (by specifications section) Equipment submittals not clearly called out will be rejected without question at the contractor's expense for resubmittal.

3. Product data must be approved by the designer and owner prior to purchase and installation of equipment.

4. LEED Submittals

a Product data for Credit IEQ 4.1: For adhesives and sealants applied within the building waterproofing envelope, documentation including printed statement of VOC content in g/L.

b Product data for Credit IEQ 4.2: For paints and coatings applied within the building water proofing envelope, documentation including printed statement of VOC content in g/L.

c Product data for Credit IEQ 4.4: For composite wood installed in the building interior as equipment backer boards, documentation indicating no added urea formaldehyde resins.

B. SHOP DRAWINGS

1. Provide scaled drawings to show proposed equipment locations, clearances and administrative labeling of Telecom Rooms and equipment. All fields, racks and cabinets shall be methodically documented and permanently labeled agreed upon by school district.

2. Shop drawings must be approved by the designer and owner prior to purchase and installation of any equipment.

C. AS-BUILT DRAWINGS

1. The contractor shall upon completion of the project, provide a complete set of As-Built drawings. These drawings shall identify room numbers and outlet identification numbers for all low voltage cabling systems. Drawings should also include all telecom room locations with a detailed layout of all racks, patch panels, trays, and wall fields.

2. Additional project information shall include Reline Details of all horizontal and backbone cable routes and pathways.

3. As-builts shall be submitted in electronic CAD format and in hardcopy at the end of the project.

1.5 QUALITY ASSURANCE

A. Regulatory Requirements

1. All equipment shall be installed in a neat and professional manner. All methods of construction that are not specifically described or indicated in the contract documents shall be subject to the control and approval of the school district. Equipment and materials shall be of the quality and manufacturer indicated. The equipment specified is based upon the acceptable manufacturers listed. Where “approved equal” is stated, equipment shall be equivalent in every way to that of the equipment specified and subject to approval.

B. Substitutions

1. Conditions for consideration of “Or Equal” Products: Where products are specified by name and accompanied by the term “or equal”, the proposed “or equal” product will be considered when the following conditions are satisfied.

a If all the following conditions are not satisfied, Design Consultant will return requests without action, except to record noncompliance with these requirements.

b Proposed product does not require extensive revisions to the Contract Documents.

c With the exception of the product name or number and manufacturer’s name, proposed product conforms with requirements indicated on the Drawings and in the Specifications in every respect and will produce indicated results.

d Proposed product is fully documented and properly submitted.

e Proposed product is compatible with and has been coordinated with other portions of the Work.

f Proposed product provides specified warranty.

2. If proposed product involves more than one contractor, proposed product has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

3. Submission is accompanied with detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.

4. Submission is accompanied with a list of similar installations for completed projects with project names and addresses and names and addresses of design consultants and authorities, if requested.

5. Submission is accompanied with proposed product’s Manufacturer signed written statement on Manufacturer’s letterhead, certifying that manufacturer complies with requirements in the Contract Documents.

1.6 WARRANTY

A. Warranty: Installer must provide manufacturer’s warranty without cost to the owner during that time period, including materials, hourly costs, etc,.

B. Installer's warranty shall guarantee workmanship for a period of one year, during which time any deficiency in installation shall be repaired or replaced at no additional cost to the school district. Contractor must respond within 2 business days of written notification.

PART 2 PRODUCTS

2.1 MATERIALS

A. Adhesives, sealants, paints and coatings applied within the building waterproofing envelope: Comply with low-emitting requirements in Division 01 Section "Indoor Air Quality Requirements."

B. Composite wood installed in the building interior as equipment backer boards: Contain no added urea formaldehyde resins.

C. Ladder-Type Aluminum Cable Tray (Ladder Rack)

1. All Telecom Room locations shall receive ladder-rack style cable tray as shown in T-series drawings for cable distribution.

2. Class 5160 or Chatsworth "TELCO-Style Cable Runway," 12 and inch ladder rack from racks/cabinets from corridor or other wire routing space where indicated on drawings.

D. J-Hooks

1. J-Hooks shall be rated for low voltage cables.

2. J-hooks shall be provided where cable tray and conduit are not present.

3. J-hooks shall be installed on 5'-6' centers, not further apart.

E. Conduit

1. In-wall conduit shall be provided for work in new areas. Refer to T Drawings for conduit details.

2. Conduit bend radii shall follow current ANSI/TIA standards for telecommunications.

3. Refer to T drawings for locations and sizes of all sleeves for telecommunications.

F. Gang Boxes

1. In-wall Gang Boxes for low voltage

a Single Gang Box: Minimum 2.75" wide X 3.75" high X 1.7" deep with ¾" and 1" knockouts.

b In-wall Double Gang Box for low voltage: 4 Inch Back Knockout, 4 Inch Side Knockout, 4 Inch End Knockout, Length 3 3/4 Inches, Width 3 25/32 Inches, Depth 3 1/2 Inches or comparable.

2. Extra Deep in-wall gang boxes

a 3 3/4" Deep, 2 3/16" Wide, 3 7/8" High

b 4 Knockouts, 2 Per End

3. AV Boxes

a FSR PWB-CMU8

b FSR PWB-250

c Extron RMW 1

d FSR CB-12P with CB-12 SR Drywall Frame

G. Floor Boxes

1. In-floor box

a Coordinate all floor boxes and poke-through devices for telecom equipment with electrical installer.

b Floor box shall meet latest UL standards for scrub water resistance.

c Wiremold 880CS2-1

d Wiremold 880CS3-1

e Wiremold RFBA4-OG

f The top of certain boxes shall allow for matching floor finish insert and be constructed of metal.

g Provide all brackets and accessories for proper telecommunications installation.

H. Distribution Backboard

1. Plywood

a ¾" AC-grade plywood shall be provided as shown on T drawing details to line the walls within the TR. The plywood should be provided in 4' x 8' sheets.

b Plywood shall be void free and painted on all sides with two coats of fire-resistant paint.

I. Electrical Protection for Telecommunications

1. Telecommunications Primary Bonding Busbar (PBB) and Telecommunications Grounding Busbar (SBB)

a Provide one PBB in the main telecom room as shown on T Drawings.

b Provide a SBB in every Telecommunications Room and distribution cabinet location as shown on T Drawings.

c The telecom grounding and bonding system shall be bonded to the main electrical ground for the facility.

J. Rack mounted power strip

1. Provide one 10 port transient, surge protection strip (UL Listed) for each rack or cabinet.

PART 3 EXECUTION

3.1 EXAMINATION

A. Site Verification of Conditions

1. Contractor shall ensure that sufficient space has been allocated for the installation of all equipment per T Drawings prior to Installation. Clearances and existing equipment should be taken into consideration. If insufficient space exists, the Design consultant should be notified in writing, before proceeding with Installation.

3.2 INSTALLATION

A. Distribution Racks and Cabinets

1. Racks shall be assembled such that mounting rails are exactly perpendicular to the base.

2. Racks shall be secured to the floor using appropriate anchors.

3. Racks shall be grounded to the PBB or appropriate building ground using a minimum #6 grounding wire.

B. Distribution Backboard

1. Securely fasten backboard to wall-framing members to ensure it can support attached equipment.

2. Mount plywood on all available areas where telecommunications equipment may be located.

3. Refer to T Drawings for minimum coverage.

C. Ladder Rack and Cable Tray

1. The ladder rack and cable tray shall be properly secured using manufacturer recommended anchors and connectors.

2. The ladder rack and cable tray shall be routed according to T Drawing floor plans.

3. Ladder rack and cable tray shall be bonded to ground according to ANSI/TIA 607.

D. Firestop

1. Provide re-enterable, non-hardening, intumescent putty, rated for floors or wall, UL approved assembly, with approved packing material for fire stopping inside building cable penetrations through conduits sleeves.

2. The material used for sealing all openings shall have a fire rating equal to or greater than the floor ceiling, wall or partition material.

E. Sleeves and openings

1. The telecommunications contractor shall provide sleeves through all walls and floors to protect cabling and or raceways installed as part of the telecommunications system. All sleeves shall extend through the respective wall or partition and finish with a connector protective bushing.

2. Sleeves through all fire rated structures shall have an appropriate fire stop system.

END OF SECTION 270500

SECTION 27 10 00 - STRUCTURED CABLING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Local Area Network (LAN) Cabling

B. Telephone Cabling

C. Termination Equipment for Telecommunications

D. Faceplates and Outlets

E. Coaxial Equipment

1.2 DEFINITIONS

A. “Backbone Cabling” refers to telecommunications cabling that provides interconnections between telecommunications rooms, equipment rooms, and entrance facilities.

B. “Communications Network Outlet (CNO)” refers to a collection of one or more mechanical cable termination devices for horizontal cable in the work area.

C. “Drop” refers to the vertical transition to a location of one or more CNOs.

D. “Horizontal Cabling” refers to the cabling between and including the work area communications network outlet and the horizontal cross-connect in the telecommunications room.

E. “Jack” refers to a female-style telecommunication receptacle.

F. “Telecom Room (TR)” refers to an enclosed space for housing telecommunications equipment, cable terminations, and cross-connects. The room is the recognized cross-connect between the backbone or trunk cabling and horizontal cabling.

G. “Telecom Equipment Room (TER)” refers to a centralized space for telecommunications equipment that serves the occupants of the building, usually containing the headend equipment for the distribution systems found in the building.

1.3 REFERENCES

A. Industry Codes, Standards and Methods shall be observed, including the following:
   1. ANSI/TIA-568.0-E: Generic Telecommunications Cabling for Customer Premises
   2. ANSI/TIA-568.1-E: Commercial Building Telecommunications Cabling Standard
   3. ANSI/TIA-568.2-D: Balanced Twisted Pair Cabling and Components Standard
   4. ANSI/TIA-568.3-D: Optical Fiber Cabling Components Standard
   5. ANSI/TIA-569-E: Commercial Building Standard for Telecommunications Pathways and Spaces
   6. ANSI/TIA-606-C: Administration Standard for Telecommunications Infrastructure of Commercial Buildings
   7. ANSI/TIA-607-D: Commercial Building Grounding and Bonding Requirements for Telecommunications
   8. ANSI/TIA-758-B: Customer-Owned Outside Plant Telecommunications Cabling Standard
   9. BICSI Telecommunications Distribution Methods Manual (TDMM), Latest Edition
   10. National Fire Protection Agency (NFPA-70): National Electrical Code (NEC)

B. Comply with all local, state, and federal codes for telecommunications installations.

1.4 SYSTEM DESCRIPTION

A. Design Requirements

1. All systems and equipment must comply with the owner's Information Technology and Architecture Standards, Latest Version.
2. LAN and Telephone Distribution:

    a. Provide labor, materials, equipment, services, and operations required for complete installation of LAN compatible with:

        i. Ethernet 10Base-SX
        ii. Ethernet 100Base-FX
        iii. Ethernet 1000Base-SX
        iv. Ethernet 1000Base-LX
        v. Ethernet 10GBase-S
        vi. Ethernet 10Base-LX4
        vii. Ethernet 10GBase-L
        viii. Ethernet 10GBase-LRM
        ix. Fibre Channel 100-MX-SN-I
        x. Fibre Channel 100-SM-LC-L
        xi. Fibre Channel 200-MX-SN-I
        xii. Fibre Channel 200-SM-LC-L
        xiii. Fibre Channel 400-MX-SN-I
        xiv. Fibre Channel 400-SM-LC-L
        xv. Fibre Channel 1200-MX-SN-I
        xvi. Fibre Chanel 1200-SM-LL-L
        xvii. FDDI PMD ANSI X3.166
        xviii. FDDI SMF-PMD ANSI X3.184

    b. All wiring including copper and fiber optic employs a star topology.

        i. Category 6 UTP wiring terminates on Category 6 RJ-45 jack at workstation and on Category 6 rack-mounted patch panel in telecommunications room. Connections wired per ANSI/TIA-568A.

        ii. Multi-strand composite fiber optic cable connects distribution racks between telecommunications rooms and terminates on rack-mounted fiber optic patch panel.

    c. Network cables routed from distribution racks throughout building as shown on T-Drawings. Drop to outlet installed in conduit and wall box, or dual-channel surface mounted raceway to communications outlet in classrooms, offices, or other locations indicated on T-Drawings.

        i. Refer to notes on each drawing to determine exact installation methods.

        ii. Note and record all cable lengths to the nearest foot.

        iii. Replace any cable exceeding 90 meters (295 feet) and route to reduce length to a minimum of 90 meters. Complete all cable rerouting for compliance at no additional cost to the owner.

        iv. Identify to Design consultant prior to installation of any cables that cannot be reduced to 90 meters or less in total length (rise and run).

        v. Strictly adhere to most current version of ANSI/TIA Telecommunications cabling standards.

vi. Unless otherwise noted on T-Drawings, provide ladder-type cable tray from corridor to distribution racks and termination fields in telecommunication rooms.

vii. Install “waterfall” device providing sweep from cable tray to data rack/cabinet and other vertical transitions.

d. Data and Telephone outlets: Category 6 rated RJ-45 type connectors with all four copper pairs terminated and tested in accordance with the 568B wiring standard.

e. Fiber Optic Horizontal and Backbone Cables: Terminate on panels in each rack and connectors with ceramic sleeves. Terminate and test all strands unless otherwise noted.

f. Permanently identify and label all cables and termination devices, at distribution rack and workstation in accordance with ANSI TIA 606 Standard or as agreed by Design consultant and owner.

g. Remove and replace any cables failing to meet end-to-end testing requirements; do not abandon cable in place. All cable shall be terminated at both ends, unless noted in T-Drawings.

B. Performance Requirements
1. Comply with applicable requirements in Local, State and Federal Codes, ANSI/TIA Standards, and BICSI methodology.

1.5 SUBMITTALS
A. Comply with requirements of Division 0 and Division 1 - Submittals and as modified below.
B. Product Data: Submit manufacturer’s product literature, technical specifications and similar information for the following items demonstrating compliance with the specified requirements.
1. Communications outlets, faceplates, and accessories.
2. Fiber optic cable, patch cables and terminations.
3. Copper cable, patch cables and termination devices.
4. Inner duct and accessories.
5. Rack configurations and wiring diagrams.
6. Network cabling test equipment and process (routines).
7. Equipment Racks
8. Outlets
C. Samples:
1. Provide samples of outlets and assemblies as described below, prior to installation, for approval by designer.
2. Telecommunications outlets – Submit samples of telecommunications outlets to be provided including following components and characteristics:

a. Flush mounted and Raceway outlets – Completely assembled faceplate and wall box with each type of outlet to be mounted in faceplate, including blank covers, dust covers, labeling field, cabling, and adapter plates and bezels required.

b. Sample characteristics:

i. Provide all components in colors selected by Design consultant.

ii. Provide multiple outlet samples where required to accurately represent range of outlets to be provided.

D. Shop Drawings

1. The Contractor shall submit shop drawings of all systems showing major components of the systems. Submit wiring diagrams showing connections for all systems and equipment.

E. Quality Control Submittal
   1. Test Reports: Submit complete sample test data and reports with exact labels used on cables, patch panels and faceplates.
   2. Certificates

      a. Manufacturer Certification: Submit certification from manufacturer of products to be installed under this contract certifying that Installer is authorized by manufacturer to install specified products.

      b. Installer Experience Listing: Submit list of at least 5 completed projects as specified below in “Quality Assurance – Qualifications – Installer.”

F. Contract Closeout Submittal: Comply with requirements of Division 0, including submission of operating and maintenance instructions as item in “Operation and Maintenance Data” manual described in that Section.

1.6 QUALITY ASSURANCE

A. All Work shall be installed in a first class, neat and workmanlike manner by skilled Technicians. The quality of the workmanship shall be subject to inspection and approval by authorized owner personnel. Any work found to be of inferior quality and/or workmanship shall be replaced and/or reworked until the approval of the owner is obtained.

B. Installer Qualifications: Qualified to cable, terminate and test data network cabling system specified in this Section, certified by manufacturer of products to be installed, and completed at least 5 computer network installations of similar size, nature and complexity as specified for this project.

C. Conditions for Consideration of "Or Equal" Products: Where products are specified by name and accompanied by the term "or equal”, the proposed "or equal" product will be considered when the following conditions are satisfied. If all the following conditions are not satisfied, Design Consultant will return requests without action, except to record noncompliance with these requirements:
   1. Proposed product does not require extensive revisions to the Contract Documents.
   2. With the exception of the product name or number and manufacturer's name, proposed product conforms with requirements indicated on the Drawings and in the Specifications in every respect and will produce indicated results.
   3. Proposed product is fully documented and properly submitted.
   4. Proposed product has received necessary approvals of authorities having jurisdiction.
   5. Proposed product is compatible with AND has been coordinated with other portions of the Work.
   6. Proposed product provides specified warranty.
   7. If proposed product involves more than one contractor, proposed product has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
   8. Submission is accompanied with detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
   9. Submission is accompanied with a list of similar installations for completed projects with project names and addresses and names and addresses of design consultants and authorities, if requested.

10. Submission is accompanied with proposed product's Manufacturer signed written statement on Manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents.

1.7 WARRANTY

A. Installer’s Warranty: Provide manufacturer’s system warranty against electrical or mechanical defects for 2 years from date of final acceptance.

B. A fifteen (15) year Extended Product Warranty and Systems Assurance Warranty for this wiring system shall be provided by the Manufacturer as follows:

1. Extended Product Warranty: The Extended Product Warranty shall ensure against product and workmanship defects, that all approved cabling components exceed the specifications of ANSI/TIA 568B and Addenda for fiber link/channels and copper components, for a fifteen (15) year period. The warranty shall apply to all passive components, including both cable and connecting hardware as a combined system. Any claims cover replacement costs on any defective product, both material and labor. Extended warranties beyond fifteen (15) years will be considered.
2. System Assurance: System Assurance shall cover the failure of the wiring system to support the application which it was designed to support as well as additional application(s) introduced in the future by recognized standards or user forums that use the ANSI/TIA 568B component and link/channel specifications for cabling, for a fifteen (15) year period.
3. System Certification: Upon successful completion of the installation and subsequent inspection, the owner shall be provided with a numbered certificate, from the manufacturing company, registering the installation.

PART 2 PRODUCTS

2.1 MATERIALS

A. All materials shall be new and unused except as noted in T-series Drawings.

B. All cables shall be plenum rated.

C. System wiring and equipment installation shall be in accordance with good engineering practices as established by ANSI/TIA and the NEC. Wiring shall meet all state and local electrical codes. All wiring shall test free from all grounds and shorts.

D. Velcro straps shall be used for bundling wires. Wires shall be bundled loosely. Permanent cable ties are not acceptable.

E. Wiring system shall consist of the following:

1. Accessories and Appurtenances
2. Cable Management Devices
3. Fiber Optic Cable and Terminators (as indicated on drawings)
4. Copper and Fiber Patch cables
5. Remote Jacks
6. Termination/Patch Panels
7. Twisted Pair Data Cables
8. The Cable Infrastructure Project requires a structured cabling system, or equivalent single-manufacturer solution. The Category 6 portion of the cabling system shall comply with the link and channel performance requirements of ANSI/TIA for 4-pair 100 Ohm Category 6 Cabling”. The cabling system shall be backed by a 15-Year System Warranty.
9. The work includes the provision for a complete and operable Local Area Network Building Data System consisting of active and non-active components. The cabling system and all wiring components shall meet and comprise an ANSI/TIA Category 6

Wiring System. With master and remote data equipment the completed system shall provide 1Gbs Fiber Optic Fast Ethernet communications backbone support to the edge switches and Ethernet 1000 BASE-T to the workstation data jacks. The system shall provide such services as computer networking, data transmission, graphics, and other multi-media offerings.

10. Provide one home run cable from each data/voice jack to appropriate wiring closet.
11. Cable length of home run cable shall not exceed 90 meters.
12. All Modular jack panels shall be wired to ANSI//TIA 568B.

2.2 J-HOOKS

A. Cooper B-Line BCM-21, 23 or 64.
   1. Provide in sufficient quantity for 15% future expansion.
   2. Installed no more than 6’ apart.
   3. Install in any area without cable tray above false ceilings.

2.3 RACKS / CABINETS

A. Distribution Racks and Cabinets

1. Floor Mounted Free Standing 2 Post Racks

   a. Racks shall be UL Listed and of aluminum construction with a black polyurethane or mil finish. They shall be 84” tall with a 15” base depth. Rack base shall be pre-drilled for securing rack to the floor. Racks shall have 12/24 mounting screws included in the package.

   b. Rack rails shall be spaced for 19” mounting rail-to-rail and shall be of a U-shaped construction with 12/24 pre-tapped holes in the standard hole pattern providing 45 rack spaces on both the front and rear. Rails shall have a universal side-drilling pattern to allow racks to be bolted together or attachment of accessories. Racks shall be secured to the floor with anchor bolts.

   c. Vertical cable management channels shall be provided for each rack. Channels should allow for and facilitate orderly routing of distribution cables.

   d. Acceptable racks: 10” Mighty Moe,

      i. Or approved equivalent.

2. Floor Mounted Free Standing 4 Post Racks

   a. Four post aluminum frames with ANSI-TIA rails

   b. 45 Rack Units

   c. Black

   d. Similar to Ortronics OR-MM67SVR

      i. Or approved equivalent.

3. Floor Mounted Equipment Cabinet

   a. The cabinet frame shall be constructed of four cold rolled steel components – top, bottom, left and right welded to form a self-supporting framework. The top and bottom shall be fabricated from 14ga cold rolled steel. The vertical uprights shall

have integral cable management channels with provisions for hook and loop or traditional cable ties. The frame shall be bolted to the floor, and side by side to other frames.

b. The side covers shall be constructed of 19ga cold rolled steel with double bent flanges along the entire perimeter. The side covers shall lift off easily via grip handles assembled to the covers. The side cover shall have clusters of rectangular perforation to accommodate ventilation for equipment providing greater than 100 sq. in. of ventilation.

c. The front door shall be perforated and assembled to the frame via spring-loaded hinges at the top and bottom. The door shall be locking with a unique operator's key. The operator's key shall operate the front door only. The latch shall be flush to the door. The window shall be a .125" acrylic panel secured to a reinforced steel frame.

d. The rear door shall be a steel door assembled to the frame via spring-loaded hinges at the top and bottom. The door shall be locking with a unique service personnel key. The service personnel key shall operate both the rear and front doors. The latch shall be push-button operated. The rear door shall be reinforced and have a cluster of rectangular perforations for ventilation.

e. The top shall have a removable panel in the center, designed to be replaced with a cooling fan, and six 3" diameter cable entry knockouts; three along each side to route cables directly into vertical cable organizers minimizing the number of bends to the cables.

f. The bottom panel shall be similarly configured with 6 knockout locations. The cabinet bottom shall also be provided with holes for securing the cabinet to the floor.

g. The top cover shall accept the mounting of a 250 CFM cooling fan.

h. The cabinet shall be pre-configured for 19" mounting with universal hole spacing per 310 D. The cabinet shall feature three sets of rails, front, center, and rear. The rear and center rails shall be the full internal height. The recess of all three sets of rails shall be adjustable forward and back. The rails shall be tapped for a #10-32 screw. The center rails shall be formed in a 'C' profile, 3" deep tapped on both the front and rear flanges so as to provide the functionality of an open frame rack. The front and rear rails shall be an L shape.

i. The entire enclosure shall be finished with a durable polyurethane powder coat – medium texture and shall be available in black.

4. All racks and cabinets shall be capable of supporting the weight and space of existing and proposed equipment. 30% growth capacity shall be provided in addition to detailed requirements.

5. Racks, cabinets and other termination equipment shall be properly secured to floor with appropriate anchors and bonded to Telecommunications Grounding System.

6. PDU

a. Provide (1) transient surge protection strip for each TR and per rack/cabinet in the TER and TRs.

b. Tripplite PDUMNV20LX

c. Or approved equal.

B. Cable Management

1. Horizontal Cable Management

a. Horizontal wire management panels are required for patch panels in certain racks. (See drawings for rack diagrams.)

b. Horizontal cable management shall occupy 1 or 2 rack units, as shown on T Drawings.

c. Similar to OR-MM6HMF1RU

i. or approved equivalent

Vertical Cable Management

d. Vertical Cable management shall be provided for all racks. Provide 2 for each rack or cabinet.

e. Cable management shall be – Ortronics OR-60400510

f. Or approved equivalent.

C. Electrical Protection for Telecommunications

1. Telecommunications Grounding Busbars

a. Each rack/cabinet shall have a horizontal or vertical rack/cabinet grounding busbar and shall be bonded to the grounding system.

b. The telecom grounding and bonding system shall be bonded to the main electrical ground for the facility.

2.4 HORIZONTAL CABLES

A. Category 6 100-ohm UTP Voice, Data, Wireless and Security cables shall each have a distinctive color. Submit for approval from design team.
1. Hubbell HC6RPExx
2. Hubbell HC6RRxx
3. Hubbell C6SOPBK
4. Or approved equal from
a. Hitachi
b. Belden
c. Berk-Tek
d. Systimax

B. RG-6 Quad Shield Coaxial Cable. Submit for approval from design team.
1. Hitachi
2. Belden

3. Berk-Tek
4. Systimax

2.5 BACKBONE CABLES

A. Multi-pair Cat 5e Riser Cables
   1. Hitachi 30093-50
   2. Hitachi 30172-100
   3. Or approved equal from
      a. Mohawk
      b. Belden
      c. Berk-Tek

B. SingleMode Fiber Optic Cables
   1. 12 Strand Hitachi 61459
   2. Or approved equal from
      a. Corning
      b. Berk-Tek
      c. Hubbell

C. RG-11 Quad Shield Coaxial Cable
   1. Belden
   2. Berk-Tek

2.6 TERMINATION FIELDS

A. Category 6 48-Port Patch Panels. Patch panels shall be segregated for POE switches and non-POE switches.
   1. Provide 15% spare capacity
   2. Hubbell P6E48U
   3. Hubbell PCBLMGT Rear Cable Manager
   4. Or approved equal from
      a. Ortronics
      b. Panduit
      c. Systimax
      d. Leviton

B. Fiber Enclosure
   1. Hubbell 2U FCR350SP36R
   2. Hubbell 2U FCR350SP54R
   3. Hubbell 3U FCR525SPR
   4. Hubbell 4U FCR700SP
   5. Or approved equal from
      a. Ortronics
      b. Panduit
      c. Systimax
      d. Leviton

C. Fiber Adaptor Panels
   1. Hubbell FSPLCDM6AQ
   2. Hubbell FSPLCQM6AQ
   3. Hubbell FSPLCDS6
   4. Hubbell FSPLCQS3
   5. Or approved equal from
      a. Ortronics
      b. Panduit
      c. Systimax

d. Leviton

D. Fiber Connector
1. Hubbell FCLC900K50GM12 50/125um OM4 Aqua
2. Hubbell FCLC900K50GM12 9/125 UPC
3. Or approved equal from
a. Ortronics
b. Panduit
c. Systimax
d. Leviton

E. 110 Blocks
1. Hubbell 110BLK50FTK5
2. Hubbell 110BLK100FTK5
3. Hubbell 110BLK300FTK5
4. Or approved equal from
a. Ortronics
b. Panduit
c. Systimax
d. Leviton

2.7 OUTLETS

A. Category 6 Voice and Data Jacks
1. Hubbell HXJ6xx (replace xx with specified colors)
2. Or approved equal from
a. Ortronics
b. Panduit
c. Systimax
d. Leviton

B. RG-6 F-Connectors
1. Crimp style connectors
2. Or approved equal from
a. Belden
b. Berk-Tek

C. Faceplates
1. Grommeted Opening
2. Brushed Opening
3. Hubbell IFP11xx
4. Hubbell IFP12xx
5. Hubbell IFP13xx
6. Hubbell IFP14xx
7. Hubbell IFP16xx
8. Hubbell IFP26xx
9. Hubbell IFP29xx
10. Hubbell IFP212xx
11. Or approved equal from
a. Ortronics
b. Panduit
c. Systimax
d. Leviton

D. Frames
1. Hubbell ISF2xx
2. Hubbell ISF3xx

3. Hubbell ISF4xx
4. Hubbell ISF6xx
5. Hubbell NS620xx
6. Or approved equal from
    a. Ortronics
    b. Panduit
    c. Systimax
    d. Leviton

2.8 PATCH CORDS

A. Cat 6 UTP Copper Patch Cords
1. Hubbell HC6xx03
2. Hubbell HC6xx05
3. Hubbell HC6xx07
4. Hubbell HC6xx010
5. Hubbell HC6xx15
6. Hubbell HC6xx20
7. Hubbell HC6xx25
8. Or approved equal from
    a. Ortronics
    b. Panduit
    c. Systimax
    d. Leviton

B. Fiber Patch Cords
1. Hitachi Singlemode
2. Or approved equal from
    a. Ortronics
    b. Panduit
    c. Systimax
    d. Leviton

C. RG-6 Coaxial Cable
1. Belden or approved equal

2.9 COAXIAL COMPONENTS

A. 8 Port Splitter (1 Gig)
1. Blonder Tongue DGS-8

B. Bidirectional Amplifier
1. Blonder Tongue Bida-750-30

PART 3 **EXECUTION**

3.1 EXAMINATION

A. Verification of Conditions: Examine conditions under which telecommunications cabling and equipment and related components are to be installed in coordination with Installer of materials and components specified in this Section and notify affected Prime Contractors and Design consultant in writing of any conditions detrimental to proper and timely installation. Do not proceed with installation until unsatisfactory conditions have been corrected to ensure a safe and timely installation.
1. When Installer confirms conditions as acceptable to ensure proper and timely installation and to ensure requirements for applicable warranty or guarantee can be satisfied, submit to Design consultant written confirmation from applicable Installer. Failure to submit

written confirmation and subsequent installation will be assumed to indicate conditions are acceptable to Installer.

2. Visit Site to identify and become familiar with existing field conditions and specific requirements of each Site.
3. Verify all dimensions in field and confirm condition of existing hardware to be utilized.
4. Confirm space requirements and physical confines of all work areas to ensure that all materials can be installed in indicated spaces.
5. Confirm all outlet locations and cable pathways and advise Design consultant in writing of any discrepancies or issues in Design described in Contract Documents.

3.2 PREPARATION

A. Protection: Provide adequate protection of equipment and hardware before and after installation.

B. Existing Communications Services: Ensure all telecommunications systems (voice, video, and data) remain operational throughout the project.

1. Identify any additional telecommunications outlets, circuits, and wiring at the site not shown on T-Drawings and interfering with installation of specified equipment.
2. Contact local telephone, network and CATV company to identify all circuits providing existing services.
3. Remove all accessible portions of abandoned communications cabling per NEC 800.52. Tag all communications cabling not terminated at both ends but retained for future use.

3.3 INSTALLATION

A. Distribution Racks and Cabinets

1. Racks shall be assembled such that mounting rails are exactly perpendicular to the base.

2. Racks shall be secured to the floor using appropriate anchors.

3. Racks shall be grounded to the TGB or appropriate building ground using a minimum #6 grounding wire.

B. Provide and install all components necessary to install complete telecommunications cabling and equipment systems, including (but is not limited to) connectors, patch cables, terminators, etc…

1. Cable runs shall be continuous and unbroken from end to end. Splicing of any Telephone, LAN, or video distribution cable is prohibited. Horizontal cabling for LAN and telephone shall end in rack-mounted patch panels.
2. Secure all horizontal cables within ceiling cavities to building structure.
3. Loosely bundle all cables and support from structure at unequal intervals from 5 to 6 feet with spring steel fasteners and cable clip rated for use with high performance cables where cable tray or other support structure has not been provided as indicated on Drawings. All mounting clips shall be seismic type as per BOCA.
4. Do not violate manufacturer’s recommended loadings. Leave 30% capacity for future use of pathway.
5. Verify all horizontal cable run lengths prior to installation. Re-distribute horizontal cabling to maintain distance requirements and maintain pathway route accessibility.
6. Do not support cables from ceiling grid T-Bars, grid wire supports or bridle rings. Do not allow cables to touch ceiling grid.
7. Do not secure cables with permanent cable ties. Do not tighten cable bundles in such a way as to cause jacket deformation or damage.
8. Provide a 10-foot service loop in all fiber optical cables to permit future cable splice and repair at all building entrance points and termination points.

9. Place cables in compliance with ANSI/TIA-568.B standards and BICSI recommended methods.
10. Tight 90-degree bends are unacceptable and use of plastic "cinch-type" tie-wraps are not permitted, in order to prevent damage to cable jacket and compromise the cable's electrical or optical characteristics.
11. Cable bundles shall be neatly routed with a service loop to provide 10 feet of slack at the cross-connect end and as noted in the T-drawings. Cable bundles shall be secured using only black Velcro cable wraps.
12. 10 feet of service loop shall be provided in the ceiling at each workstation. Contractor shall not secure service loop in coils, but route in such a manner as to minimize EMI.
13. Wireless outlet locations

    a. Wireless locations shown on T-series drawings shall be installed outside of a faceplate.

    b. Ceiling shall be marked and as-builts shall reflect the location of all terminated ends and service loops as directed by owner personnel.

    c. Cable shall be terminated in a female RJ-45 female jack, and left with a service loop as described in T-series drawings. Cable shall be tested and documented per previous requirements.

    d. After completion of wireless site survey, outlet shall be re-terminated for connection to Wireless Access Point.

C. Determine allowable cable proximity to other electrical power sources of 480 Volts or less using ANSI/TIA-569A "Cabling Pathway Standard" for UTP cable separations from sources of EMI:

1. Minimum separation distance from Power Source at 480 V or less:

	CONDITION	< 2kVA	2-5 kV	> 5 kVA
a.	Unshielded power lines or electrical equipment in proximity to open or non-metal pathways	6 in.	12 in.	24 in.
b.	Unshielded power lines or electrical equipment in proximity to open or non-metal pathways	3 in.	6 in.	12 in.
c.	Power lines enclosed in a grounded metal conduit (or equivalent shielding) in proximity to grounded metal conduit pathway	3 in.	6 in.	12 in.
d.	Transformers & Elec. Motors	40 in.	40 in.	40 in.
e.	Fluorescent Lighting	12 in.	12 in.	12 in.

D. Interior Fiber Optical Cable Installation Requirements

1. Install all interior fiber optic backbone cables in 1-inch plenum-rated inner duct, similar to Pyramid Industries #PLM100(T) where fiber optical cable placed in cable tray or otherwise fully supported in accordance with manufacturer's requirements.
2. Install all outdoor rated communications cables not rated for plenum placement in interior environments in metallic conduit, according to NEC Articles 770 and 800.

3. Install inner duct for fiber optic cabling in all conduits, as necessary for proper support of cables, or where required to assure pull-in tension not exceeding manufacturer's recommendations.
4. Provide pull strings or ropes in all conduit and inner duct used for communications cables.

E. Cabling System
1. Where not provided as part of the electrical work or the data/voice work, the Contractor shall furnish and install necessary conduit, raceways, pull boxes, outlet boxes and cable to provide a complete system as herein specified. All wiring shall be tested for continuity and freedom of all grounds and short-circuits. All outlet boxes shall be as specified for other wiring devices; size as required by equipment manufacturer.
2. Cables shall be installed in raceways or EMT, as detailed on the drawings and/or as specified, above non-accessible ceilings, where exposed, and wherever it may be subject to physical damage. Where not provided as part of the electrical work or the data/voice work, the Contractor shall provide a raceway (conduit) from each outlet to above the accessible ceiling. Otherwise, cable shall be installed above accessible suspended tile ceilings and attached to building structure with approved bridle rings or J-hooks, cable is not permitted to rest on ceiling. The cable routes used shall avoid steam lines, power wiring and other utilities that may adversely affect the system's performance or result in damage to the cable. If the routes required place the cable in proximity to these utilities, the cable shall be suitably protected. Under no circumstances shall cable be run in hangers used for pipes or electric conduits nor shall the cable be supported in any way by attachment to these pipes, conduits, or ceiling hangers.
3. During the installation work, improper bending, stretching, twisting, kinking, pinching or any other improper handling must not deform the cable. All cable runs shall contain "S" loops or other means to accommodate expansion and contraction. Cables shall not bend at any point of installation to a radius of less than ten times the diameter of the cable or less than the value recommended by the cable manufacturer. Cable connected to electronic equipment in the system shall be tagged to show its function and the location of its other end. All labels shall be of durable material and securely fastened to the cable.
4. All cables shall be fastened securely with suitable hardware so as to avoid sharp bends and to prevent rubbing against sharp corners and in a manner to prevent injury or physical distortion.
5. Wiring for all wall-mounted equipment shall be concealed in raceway (conduit) from outlet to above removable ceilings, unless noted otherwise.
6. Wiring installed above removable ceilings shall be installed on bridle rings. No cables shall be installed on roof or exterior of building.
7. Infrastructure properly terminated on backboard, neatly arranged in orderly fashion and accurately identified.
8. Equipment cabinet(s) anchored to wall or floor utilizing an approved method.
9. Install all exposed cabling in surface raceway by Wiremold, Hubbell or Panduit where in-wall conduit has not been provided. Follow all manufacturers' guidelines requirements regarding bending radius and slack. All bends, offsets and fittings shall be appropriately sized to provide 30% capacity after installation.

F. Install all cable in accordance with National, state, and local codes and ANSI/TIA Standards, and BICSI methods.
1. Follow manufacturer's guidelines and requirements for all cable termination.
2. Install and connect #6 AWG to bond all equipment racks, conduits and cable trays to busbar in each telecom room. Each telecom room shall be interconnected to TER with #3 AWG bonding backbone to the PBB per Telecommunications Grounding Diagram. It shall be left to licensed electrician to interconnect the PBB with lowest point of building

ground. Contractor shall verify the PBB has been bonded to building ground before declaring completion.

G. Permanently identify all system components following ANSI/TIA-606A "Administration Standard for Commercial Telecommunications Infrastructure" with identification format:
   1. Identification: Provide permanent identification labels for outlets, faceplates, patch panels, access panels and entrance facilities.
   2. Each individual cable shall be labeled on both ends of cable terminations regardless of cable intended use. Labels must be machine printed with permanent black ink on laminated white label material. Contractors must check with appropriate owner personnel for appropriate labeling scheme. The intended format and labeling material must be approved by owner technology staff before labeling begins.

3.4 TESTING

A. LAN and Telephone
   1. Upon completion of work, all parts of the telecommunications installation shall be tested by the Telecommunications Contractor and demonstrated free of any defects. Preliminary testing will be permitted but shall not be accepted in lieu of obtaining final test results. Final test results shall be accomplished by the use of proper test equipment for the system being tested.
   2. Re-terminate and re-test any cables or pairs of cables failing end-to-end testing requirements. Replace any faulty cables/pairs or termination devices. Remove all defective cables completely from pathways.

B. As-Builts
   1. Accurate as-built drawings shall be provided in electronic and hard copy format.
      a. Drawings shall accurately show and describe all cable routing and equipment location in redline format.
      b. 3 copies of electronic (CAD) drawings shall be distributed on appropriate media: 1 to construction management, 1 to designers and 1 to the owner.
      c. 3 hard copies of CAD drawings shall be plotted on full size sheets and test results of every installed cable have been given to the construction management for appropriate distribution.

3.5 ACCEPTANCE

A. The contractors work shall be considered complete after the following conditions have been met:
   1. Cable installation is complete, and all cable runs have been tested and documented to be installed according to specifications and drawings.
   2. An owner Technology representative has successfully tested the "LIVE" system.
   3. All punch list items have been reconciled.
   4. All disturbed ceiling panels, firestopping materials, covers, etc. have been properly reinstalled.
   5. All materials and trash have been removed from the site.
   6. A 2-Year Installers warranty has been given to an owner Technology representative.
   7. Submit Manufacturers Extended Warranty Application.

END OF SECTION 271000

SECTION 28 05 01 - SECURITY PATHWAYS AND SPACES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Telecommunications Room Build Out

B. Pathways for Security Systems

C. Grounding and Bonding for Security

1.2 References

A. Industry Codes, Standards and Methods shall be observed, including the following:

1. ANSI/TIA-568-C.0: Generic Telecommunications Cabling for Customer Premises.
2. ANSI/TIA-568-C.1: Commercial Building Telecommunications Cabling Standard
3. ANSI/TIA-568-C.2: Balanced Twisted Pair Cabling and Components Standard
4. ANSI/TIA-568-C.3: Optical Fiber Cabling Components Standard
5. ANSI/TIA-569-B: Commercial Building Standard for Telecommunications Pathways and Spaces
6. ANSI/TIA-570-B: Residential Telecommunications Cabling Standard
7. ANSI/TIA-606-A: Administration Standard for Telecommunications Infrastructure of Commercial Buildings
8. ANSI-J-STD-607-D: Commercial Building Grounding and Bonding Requirements for Telecommunications
9. ANSI/TIA-758-A: Customer-Owned Outside Plant Telecommunications Cabling Standard
10. BICSI Telecommunications Distribution Methods Manual (TDMM), Latest Edition
11. National Fire Protection Agency (NFPA-70): National Electrical Code (NEC)

B. Comply with all local, state and federal codes for telecommunications installations.

1.3 System Description

A. Design Requirements

1. The contractor shall outfit all telecom rooms according to TY Drawings. Pathways, wallboards and grounding equipment shall be installed according to the manufacturer’s guidelines and industry standards.
2. Telecom room layouts shall be approved by Technology personnel prior to installation.

B. Performance Requirements

1. Materials and equipment will be installed in an orderly and precise manner. Clearances between equipment will prevent incidental damage or unsafe conditions.

2. Equipment shall provide proper support and housing of all intended active and non-active components.

3. Refer to Telecom Room Details for precise location of equipment and termination fields.

1.4 Submittals

A. Product Data

1. Provide product data for all equipment listed in Part 2

2. Equipment data must be submitted in a single package and clearly indicated for efficient review. (by specifications section) Equipment submittals not clearly called out will be rejected without question at the contractor's expense for resubmittal.

3. Product data must be approved by the designer and owner prior to purchase and installation of equipment.

4. LEED Submittals

a. Product data for Credit IEQ 4.1: For adhesives and sealants applied within the building waterproofing envelope, documentation including printed statement of VOC content in g/L.

b. Product data for Credit IEQ 4.2: For paints and coatings applied within the building water proofing envelope, documentation including printed statement of VOC content in g/L.

c. Product data for Credit IEQ 4.4: For composite wood installed in the building interior as equipment backer boards, documentation indicating no added urea formaldehyde resins.

B. Shop Drawings

1. Provide scaled drawings to show proposed equipment locations and clearances of Telecom Rooms and equipment.

2. Shop drawings must be approved by the designer and owner prior to purchase and installation of any equipment.

C. As-Built Drawings

1. Contractor shall upon completion of the project, provide a complete set of As-Built drawings. These drawings shall identify room numbers and outlet identification numbers for all low voltage cabling systems. Drawings should also include all telecom room locations with a detailed layout of all racks, patch panels, trays, and wall fields.

2. Additional project information shall include Reline Details of all horizontal and backbone cable routes and pathways.

3. As-builts shall be submitted in electronic CAD format and in hardcopy at the end of the project.

1.5 Quality Assurance

A. Regulatory Requirements

1. All equipment shall be installed in a neat and professional manner. All methods of construction that are not specifically described or indicated in the contract documents shall be subject to the control and approval of the owner. Equipment and materials shall be of the quality and manufacturer indicated. The equipment specified is based upon the acceptable manufacturers listed. Where "approved equal" is stated, equipment shall be equivalent in every way to that of the equipment specified and subject to approval.

B. Substitutions

1. Conditions for consideration of "Or Equal" Products: Where products are specified by name and accompanied by the term "or equal", the proposed "or equal" product will be considered when the following conditions are satisfied.

a. If all the following conditions are not satisfied, Design Consultant will return requests without action, except to record noncompliance with these requirements

b. Proposed product does not require extensive revisions to the Contract Documents.

c. With the exception of the product name or number and manufacturer's name, proposed product conforms with requirements indicated on the Drawings and in the Specifications in every respect and will produce indicated results.

d. Proposed product is fully documented and properly submitted.

e. Proposed product is compatible with and has been coordinated with other portions of the Work.

f. Proposed product provides specified warranty.

2. If proposed product involves more than one contractor, proposed product has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

3. Submission is accompanied with detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.

4. Submission is accompanied with a list of similar installations for completed projects with project names and addresses and names and addresses of design consultants and authorities, if requested.

1.6 Warranty

A. Warranty: Installer must provide manufacturer's warranty without cost to the owner during that time period, including materials, hourly costs, etc,.

B. Installer's warranty shall guarantee workmanship for a period of one year, during which time any deficiency in installation shall be repaired or replaced at no additional cost to the owner. Contractor must respond within 2 business days of written notification.

PART 2 PRODUCTS

2.1 Materials

A. Adhesives, sealants, paints and coatings applied within the building waterproofing envelope: Comply with low-emitting requirements in Division 01 Section “Indoor Air Quality Requirements.”

B. Composite wood installed in the building interior as equipment backer boards: Contain no added urea formaldehyde resins.

C. J-Hooks

1. J-Hooks shall be rated for low voltage cables

2. J-hooks shall be provided where cable tray and conduit are not present

3. J-hooks shall be installed on 5’-6’ centers, not further apart.

D. Conduit

1. In-wall conduit shall be provided for work in new areas. Refer to TY Drawings for conduit details.

2. Conduit bend radii shall follow current ANSI/TIA standards for telecommunications.

3. Refer to TY drawings for locations and sizes of all sleeves for telecommunications.

E. Gang Boxes

1. In-wall Gang Boxes for low voltage

a. In-wall Double Gang Box for low voltage: 4 Inch Back Knockout, 4 Inch Side Knockout, 4 Inch End Knockout, Length 3 3/4 Inches, Width 3 25/32 Inches, Depth 3 1/2 Inches or comparable.

2. Extra Deep in-wall gang boxes

a. 3 3/4" Deep, 2 3/16" Wide, 3 7/8" High

b. 4 Knockouts, 2 Per End

F. Distribution Backboard

1. Plywood

a. ¾” AC-grade plywood shall be provided as shown on T drawing details to line the walls within the TR. The plywood should be provided in 4’ x 8’ sheets.

b. Plywood shall be void free and painted on all sides with two coats of fire-resistant paint.

G. Electrical Protection for Security Systems

1. Telecommunications Main Grounding Busbar (PBB) and Telecommunications Grounding Busbar (SBB)

a. The telecom grounding and bonding system shall be bonded to the main electrical ground for the facility and include the security systems.

PART 3 EXECUTION

3.1 Examination

A. Site Verification of Conditions

1. Contractor shall ensure that sufficient space has been allocated for the installation of all equipment per TY Drawings prior to Installation. Clearances and existing equipment should be taken into consideration. If insufficient space exists, the Design consultant should be notified in writing, before proceeding with Installation.

3.2 Installation

A. Distribution Backboard

1. Securely fasten backboard to wall-framing members to ensure it can support attached equipment.

2. Mount Plywood on all available areas where telecommunications equipment may be located.

3. Refer to TY Drawings for minimum coverage.

B. Firestop

1. Provide re-enterable, non-hardening, intumescent putty, rated for floors or wall, UL approved assembly, with approved packing material for fire stopping inside building cable penetrations thru conduits sleeves.

2. The material used for sealing all openings shall have a fire rating equal to or greater than the floor ceiling, wall or partition material.

C. Sleeves and openings

1. The security contractor shall provide sleeves through all walls and floors to protect cable and or raceways installed as part of the telecommunications system. All sleeves shall extend through the respective wall or partition and finish with a connector protective bushing.

2. Sleeves through all fire rated structures shall have the appropriate fire stop system.

END OF SECTION 280500