Murphy & Dittenhafer
ARCHITECTS

May 15th, 2025

Harford County Public Schools
Church Creek ES & Edgewood ES Blueprint Program

Addenda #2 Documents Provided

Drawings - Church Creek

- A-101 Partial Floor Plans
- A-400 Enlarged Plans & Elevations
- A-500 Details
- A-600 Partition Types
- A-601 Door Schedule
- P901

Drawings - Edgewood

- AD-111 Partial RCP Demo
- A-101 Partial Floor Plans
- A-400 Enlarged Plans & Elevations
- P901

Specifications

- Revised – 02 41 19 Selective Demolition
- Revised – 06 40 23 Interior Architectural Woodwork
- Revised – 08 14 16 Flush Wood Doors
- Revised – 08 71 00 Door Hardware
- Added – 10 40 00 HCPS Identifying Devices
- Added – 11 30 13 Residential Appliances
- Revised – 22 11 16 Domestic Water Piping
- Revised – 22 40 00 Plumbing Fixtures

*Note that revisions to Spec Sections will be indicated as below:

Items that are added to the Specifications are shown in red (Arch) **or bold (MEP)**
Items that are deleted from the Specifications ~~are shown with a strikethrough.~~

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Thank you

Robert D. Taylor, AIA, CCCA

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Harford County Public Schools
Church Creek ES / Edgewood ES Blueprint Projects

Addendum #2
Contractor Questions and Responses

Q#		
1	**Question**	For both locations, is there a mandatory or preferred fire alarm company to use that services the systems? Can you confirm that the system is Silent Knight at Church Creek ES and Siemens Cerberus at Edgewood ES
	Response	Confirmed. Silent Knight is Church Creek ES and Cerberus Pyrotronics is at Edgewood ES.
2	**Question**	We note that there is no room signage indicated on the drawings nor is there a signage spec. Please provide the necessary information for signage.
	Response	The HCPS Spec 10 40 00 Identifying Devices has been included. Contractor to coordinate with HCPS during construction for actual signage information. Provide Bid for (5) Corridor Signs.
3	**Question**	Please confirm that the refrigerator shown in the Church Creek E S Health Suite is by the Owner.
	Response	The Refrigerator is to be Contractor Provided. Residential grade with Icemaker. Spec will be provided on Addenda #2.
4	**Question**	The wood door spec. calls for stave core doors. Stave core doors have become rather uncommon in recent years. We visited the websites of two of the specified door manufacturers and reviewed the specification for the listed products. We note that neither are available in stave core. Please remove the stave core requirement from the door specification
	Response	Stave cores will be removed from the spec. Revised specification will be provided on Addenda #2
5	**Question**	Please provide information on the existing roofing material at Edgewood E S so we can coordinate the penetration for the sanitary vent properly.
	Response	The existing Roof is Johns Manville 4-ply builtup. The warranty expired in 2020. A note will be added to the drawingsto patch the opening per manufacturer's details. Revised drawing will be provided on Addenda #2. Addenda #2 Update: Refer to P901 for Plumbing Vent Penetration Detail.
6	**Question**	We note that the new drywall walls are designed to provide high STC values, but the doors do not require any particular STC values. Please confirm that there are no STC requirements for the doors
	Response	Gyp partition type will be revised to not require STC rating. Drawings and specs will be revised.

7	**Question**	The new RCP for the ADA restroom in Edgewood E S does not show a sprinkler head. Please advise if one is required in this room and provide the location if required
	Response	The sprinkler system/layout is a delegated design by the contractor. Refer to fire protection notes on drawing P101 for both projects. The existing sprinkler system shall be modified as needed and sprinkler heads moved or provided as required by NFPA. It is expected that at least one sprinkler head will be required in the restroom.
8	**Question**	The RCP demolition and new work plans indicate the ceiling and grid in Edgewood E S room 122 are to be removed and replaced. It was discussed at the meeting that the grid is ETR and only the ACT is to be replaced. Please confirm
	Response	The ceiling grid is to remain. The drawings will be revised to indicate this. Revised drawings will be provided on Addenda #2.
9	**Question**	We note that specification section 095123 calls for the ACT to be Armstrong product number 942. We understand this to be a residential tile. Please confirm the tile required
	Response	The 09 51 23 Spec product is correct per HCPS.
10	**Question**	Spec section 024119.3.4.E requires the contractor to move existing furnishings and return the same upon completion of construction. As this project is changing the use of these spaces, please clarify the extent to which the contractor will be required to box, move, store and replace existing furnishings
	Response	Owner will be responsisbile for existing furnishings. Revised spec section will be provided on Addenda #2
11	**Question**	Regarding 064023: Please confirm that AWI QCP labels are required
	Response	AWI QCP Labels are required.
12	**Question**	Regarding 064023: Please specify the grade of quality required
	Response	Refer to revised 06 40 23-1.5.E
13	**Question**	Regarding 064023: Please confirm if core materials are to be fire retardant treated
	Response	Fire Retardant Treated core materials are not required. 06 40 23 has been revised and provided.
14	**Question**	Regarding 064023: Please confirm whether wood components must be FSC certified
	Response	FSC Certified is not required. 06 40 23 has been revised and provided.
15	**Question**	Regarding 064023: Please correct the HPDL manufacturers listed in item 2.1.A.1. The listed companies manufacture division 12 casework, not laminate.
	Response	This section has been revised.
16	**Question**	Please advise whether Sitemaster 200 key control system is required
	Response	Not required.

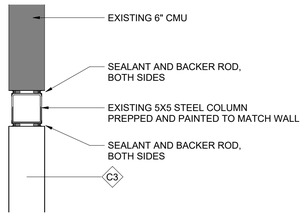
17	**Question**	Please confirm that master and grand master keys are not required
	Response	Not Required; however, new door locks and key cylinders should match existing within site. Church Creek key system is Yale SD-6. Edgewood ES key system is Corbin Russwin 62B2-6, if applicable.
18	**Question**	Please confirm how many key blanks are required
	Response	2 per cylinder provided, typically
19	**Question**	Please confirm Owner's stock hardware requirement per section 087100.2.14.A
	Response	As stated, unless a credit is issued. Upon HCPS reviewing Hardware schedule, the following should be considered and corrected: Set 1: Classroom/Office lockset should be Yale mortise lock: 8809 Conventional mortise cylinder should be Yale SD-6 (no i.c.) Set 2: Classroom/Office lockset should be Yale mortise lock: 8809 Conventional mortise cylinder should be Yale SD-6 (no i.c.) Set 3: Privacy lockset should be Yale mortise lock: 8862 Indicator not desirable
20	**Question**	Please confirm that waxing of new VCT floors is not required
	Response	Waxing of new VCT flooring is not required.
21	**Question**	Please confirm that mock-ups for resinous flooring will not be required
	Response	No resinous floor mock-ups will be required. The spec will be revised to indicate this. The revised spec will be provided on Addenda #2.
22	**Question**	Please clarify the detail in the bathrooms where the tiled walls meet the resinous flooring. The detail on sheet A-600 indicates VB-1. Spec section 096700 does not discuss integral cove base
	Response	VB-1 is to be installed where 4" resinous integral cove base is not installed. The resinous flooring is to have a 4" integral cove base, per 09 67 00-2.1-B.1. The drawings will be revised to indicate this. The revised drawings will be provided on Addenda #2.
23	**Question**	As it seems extremely unlikely that the concrete substrate in the bathrooms will meet the maximum moisture requirement for the resinous flooring system when installation is required, please specify a moisture mitigation system
	Response	This will be addressed, as needed, during construction.

24	**Question**	Can you clarify the duct liner requirements? There is a conflict between M101 Note 7 and Spec 23 31 13-3-10-H.4.
	Response	The spec section requiring the galzanized inner liner is correct. A detail for sound lined ductwork is shown on drawing M701, detail 5, which also indicates the perforated galvanized inner liner for the transfer duct.
25	**Question**	What raceway is to be used for the data portion of administration drop on existing block walls?
	Response	For existing walls that cannot be fished, use wiremold 700 series for data cables at Admin Drops (approximate equivalent to 1 ¼" conduit).
26	**Question**	Please provide a color selection for PL-1.
	Response	Color to be selected by owner during construction from manufacturer's stock color selection.
27	**Question**	What is the countertop material?
	Response	Countertops: High pressure plastic laminate bonded to core board core. Thickness as shown on plans and specifications. Interior side to be properly balanced with heavy gauge neutral colored backing sheet. Edges shall be high pressure plastic laminate to match horizontal color. Furnish counter tops in design as shown on plans. Provide continuous tops of counter type cabinets fixed in a line.
28	**Question**	For Church Creek: It seems that the scope is manual roller shades at sidelights at door #s 1,2 and 4 per notes on A601. Please confirm that shades at sidelights will have blackout fabric. Also, will fascia be required for these shades? (details on A601 don't show any shade accessories)
	Response	Per HCPS, no roller shades are to be installed at sidelights.
29	**Question**	For Church Creek: Are manual shades (RS-1) in spec 124940 required at exterior windows in exam room in the health suite on 1/A101?
	Response	Exterior windows have existing window treatment. RS-1 not required.
30	**Question**	For Church Creek: Please confirm no window treatments are required at pre k classroom (2/A101).
	Response	Confirmed.
31	**Question**	For Church Creek: Are cubicle curtains (spec 122200) required at any locations?
	Response	There will be (2) cubicle curtains required at the Resting Area of the Health Suite. Refer to A-800 for furniture configuration.
32	**Question**	For Edgewood: Please confirm that blackout roller shades are required at interior sidelights in rooms 122 and 335 (will match those provided at sidelights in Church creek)
	Response	Roller Shades are not required at Edgewood
33	**Question**	For Edgewood: Are manual shades (RS-1) in spec 124940 required at exterior windows in rooms 122 and 335?
	Response	Roller Shades are not required at Edgewood
34	**Question**	For Edgewood: Confirm no cubicle curtains are required

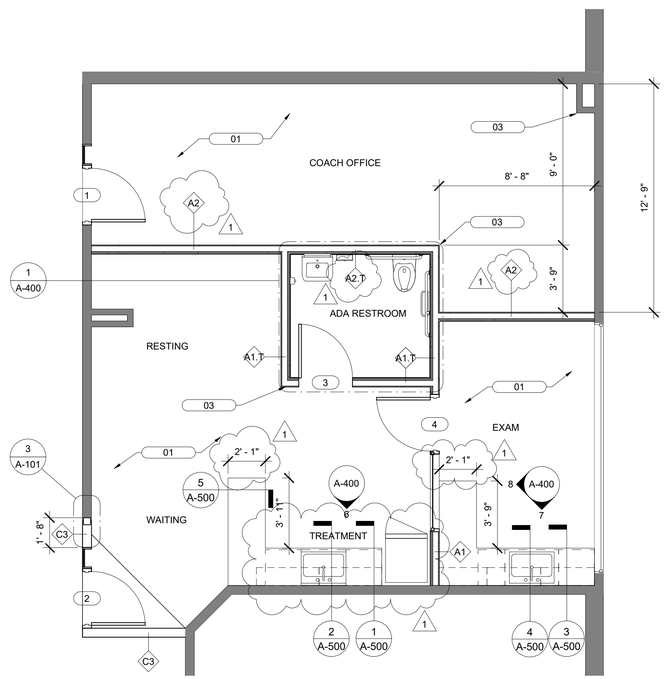
Response	No cubicle curtains are required.

GENERAL CONSTRUCTION NOTES

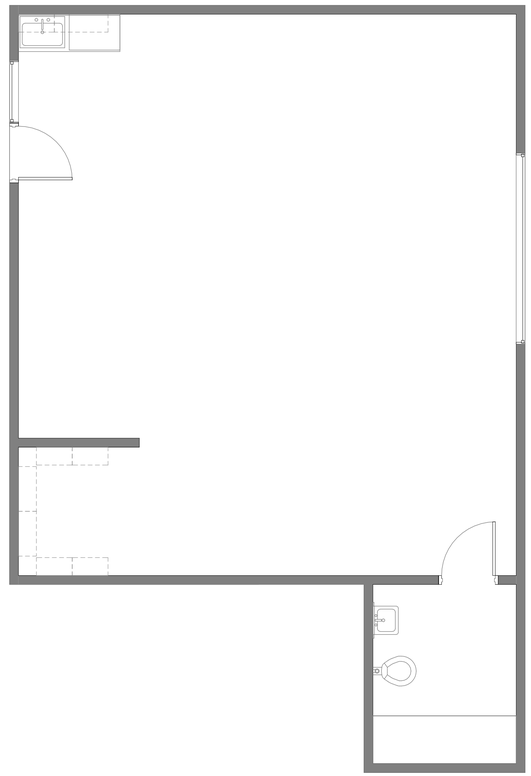
1. ALL DIMENSIONS ARE FROM FACE OF FINISH TO FACE OF FINISH UNLESS OTHERWISE NOTED.
2. ALL WORK SHALL CONFORM TO LOCAL AND STATE CODES. LOCAL AND STATE ARE TO TAKE PRECEDENCE OVER THE DRAWINGS AND SPECIFICATIONS. IF DISCREPANCY IS NOTED, INFORM THE ARCHITECT IMMEDIATELY AND BEFORE PROCEEDING WITH WORK.
3. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS BEFORE INSTALLATION OF NEW PARTITIONS & STOREFRONT.
4. CONTRACTOR SHALL COORDINATE AND SCHEDULE HIS WORK WITH BUILDING OCCUPANTS, FOR MINIMAL DISRUPTION, AND ANY REQUIRED UTILITY SHUT-DOWNS.
5. RUN ALL NEW UTILITIES CONCEALED WHERE FEASIBLE WITHIN EXISTING CONSTRUCTION. WHERE IT IS NOT FEASIBLE TO RUN CONCEALED, PAINT UTILITIES TO MATCH ADJACENT FINISH.
6. PATCH DISTURBED SURFACES BACK TO THEIR EXISTING CONDITION.
7. PAINT NEW WALL PARTITIONS TO MATCH EXISTING.
8. WHERE EXISTING WALLS ARE TO BE PATCHED, MATCH TO EXISTING ADJACENT CONDITIONS, TYP.
9. NEW SEALANTS: CAULK ALL INTERSECTIONS OF DISSIMILAR MATERIALSWITH SEALANT (WITH EXCEPTION OF ACT)
10. REMOVE CEILING TILES AS REQUIRED FOR ACCESS AND ANY REQUIRED UTILITY WORK. WHERE TILES BECOME DAMAGED; REPLACE ACT INKIND - FURNISHED BY GC - CONTRACTOR SHALL PHOTOGRAPH CEILING AREAS TO BE DISTURBED TO DOCUMENT EXISTING CONDITIONS.
11. ANY DAMAGED VCT FLOORING BEYOND EXTENTS OF SELECTIVE DEMOLITION SHALL BE REPLACED TO MATCH EXISTING.
12. REPLACE ANY CEILING TILE AND GRID THAT IS DAMAGED DUE TO MOVING WIRE MOULDING OR EQUIPMENT.



3 PLAN DETAIL - EXISTING COLUMN
1" = 1'-0"



1 FIRST FLOOR - CR117 HEALTH SUITE & COACH OFFICE
1/4" = 1'-0"



2 FIRST FLOOR - CR225 PRE-K CLASSROOM - EXISTING TO REMAIN
1/4" = 1'-0"

PLAN KEYNOTES	
TAG	DESCRIPTION
01	INSTALL VCT PER MANUFACTURER'S SPECIFICATIONS
03	INSTALL CORNER GUARDS PER MANUFACTURER'S SPECIFICATIONS

HARFORD COUNTY PUBLIC SCHOOLS
CHURCH CREEK ELEMENTARY SCHOOL
BLUEPRINT PROGRAM PROJECT
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Mark	Date	Description
	3/14/2025	100% DESIGN DEVELOPMENT
	3/28/2025	50% CONSTRUCTION DOCUMENTS
	4/18/2025	100% CONSTRUCTION DOCUMENTS
1	5/15/2025	Addenda #2

I certify that these documents were prepared or approved by me, Frank E. Dittenhafer II, and that I am a duly licensed Architect under the laws of the State of Maryland.

License Number: 6607-A

Expiration Date: 6/13/2027

ARCHITECTURAL REGISTRATION BOARD 6607-A FRANK ELLWOOD DITTENHAFER, II STATE OF MARYLAND

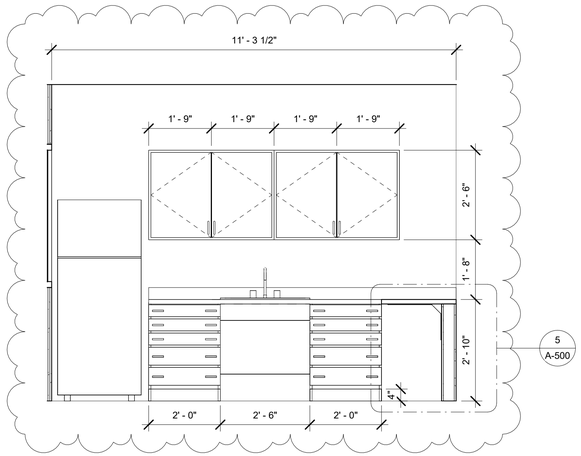
PROJECT NO:	24127
DRAWN BY:	GRT
CHECKED BY:	RT

PARTIAL FLOOR PLANS

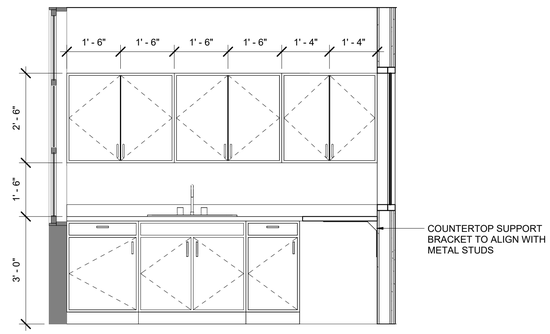
SHEET
A-101

TOILET ACCESSORIES SCHEDULE						
MARK	QTY.	DESCRIPTION	MOUNTING	MOUNTING HEIGHT	FURNISHED BY	INSTALLED BY
TA-1	1	Angle-Frame Mirror, Welded Corners, 24 by 36 inches	SURFACE	3'-4 1/2"	CONTRACTOR	CONTRACTOR
TA-2	1	Soap Dispenser	SURFACE	3'-7"	OWNER	CONTRACTOR
TA-3	1	RENOWN HANDS-FREE ROLL TOWEL DISPENSER	SURFACE	3-8"	OWNER	CONTRACTOR
TA-4	1	RENOWN SIDE-BY-SIDE 2-ROLL TISSUE DISPENSER	SURFACE	1'-9"	OWNER	CONTRACTOR
TA-5	1	SIDE WALL GRAB BAR - 42"	SURFACE	2'-10"	CONTRACTOR	CONTRACTOR
TA-6	1	BACK WALL GRAB BAR - 36"	SURFACE	2'-10"	CONTRACTOR	CONTRACTOR
TA-7	1	VERTICAL GRAB BAR - 18"	SURFACE	3'-3"	CONTRACTOR	CONTRACTOR

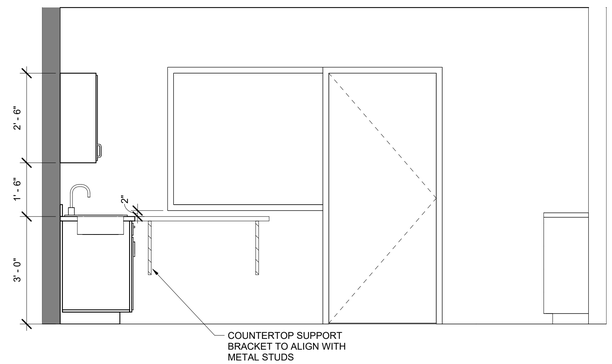
NOTE: REFER TO SPECIFICATIONS FOR BLOCKING REQUIREMENTS FOR SURFACE MOUNTED ACCESSORIES.



6 TREATMENT - INTERIOR ELEVATION
1/2" = 1'-0"

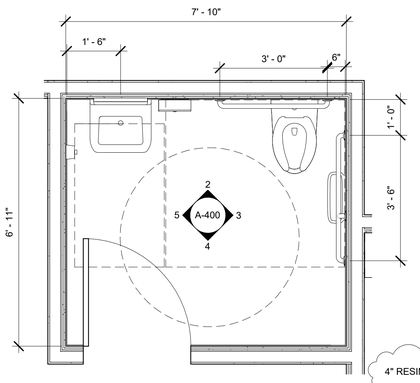


7 EXAM - INTERIOR ELEVATION SOUTH
1/2" = 1'-0"

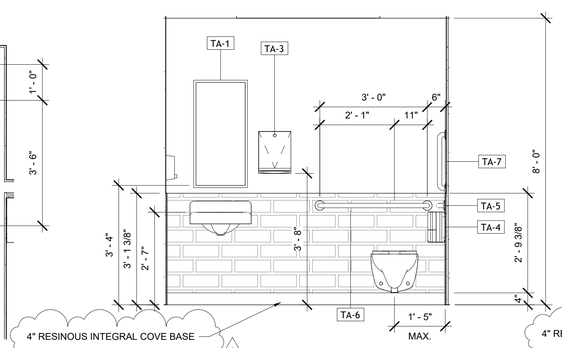


8 EXAM - INTERIOR ELEVATION WEST
1/2" = 1'-0"

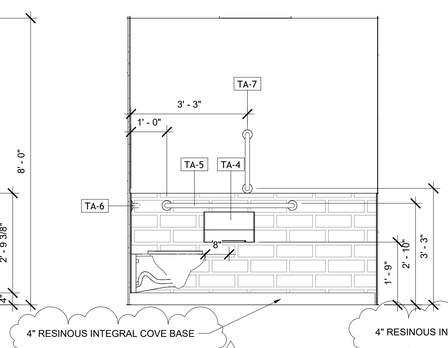
NOTE: RESTROOM WALLS ABOVE CERAMIC TILE TO BE PAINTED.
RESTROOM FLOORS ARE TO BE RESINOUS FLOORING WITH INTEGRAL 4" COVE BASE. REFER TO SPECIFICATIONS FOR BASIS OF DESIGN.



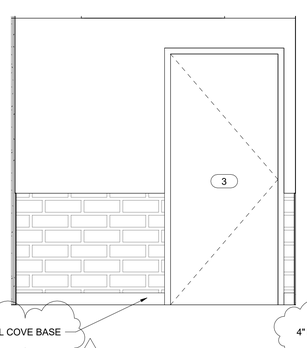
1 ADA RESTROOM - ENLARGED PLAN
1/2" = 1'-0"



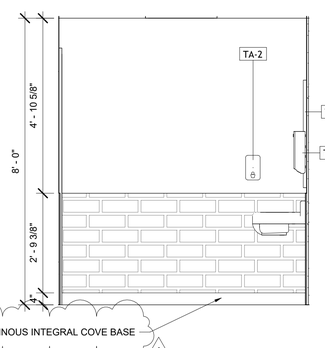
2 ADA RESTROOM - INTERIOR ELEVATION - NORTH
1/2" = 1'-0"



3 ADA RESTROOM - INTERIOR ELEVATION - EAST
1/2" = 1'-0"



4 ADA RESTROOM - INTERIOR ELEVATION - SOUTH
1/2" = 1'-0"



5 ADA RESTROOM - INTERIOR ELEVATION - WEST
1/2" = 1'-0"

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6607-A
FRANK ELMWOOD DITTENHAFER, III
STATE OF MARYLAND

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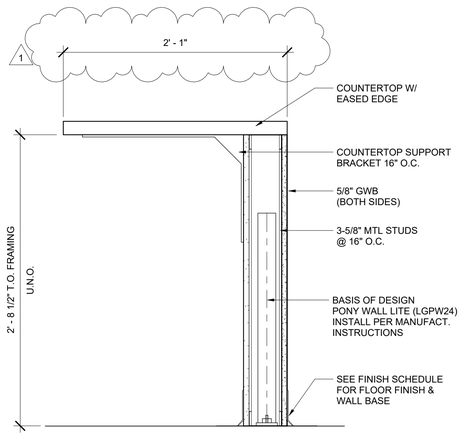
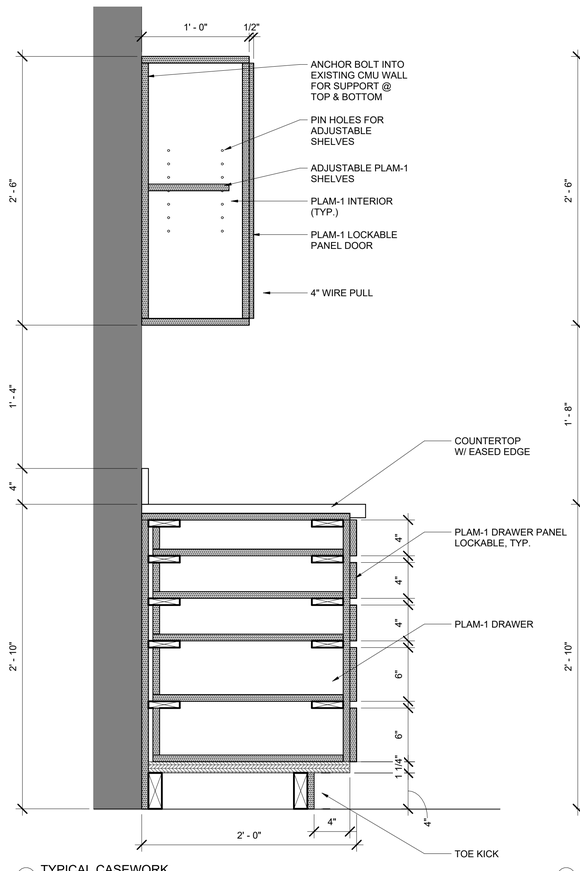
CHECKED BY:	RT

ENLARGED PLANS & ELEVATIONS

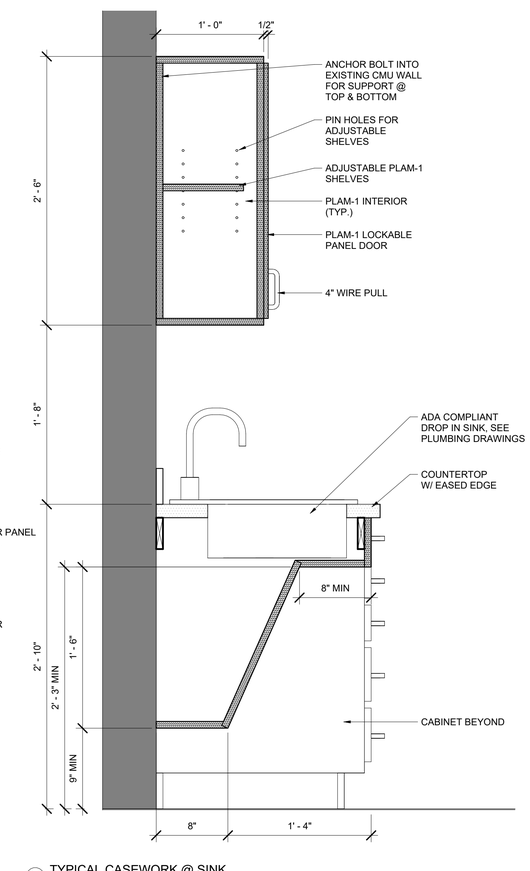
SHEET
A-400



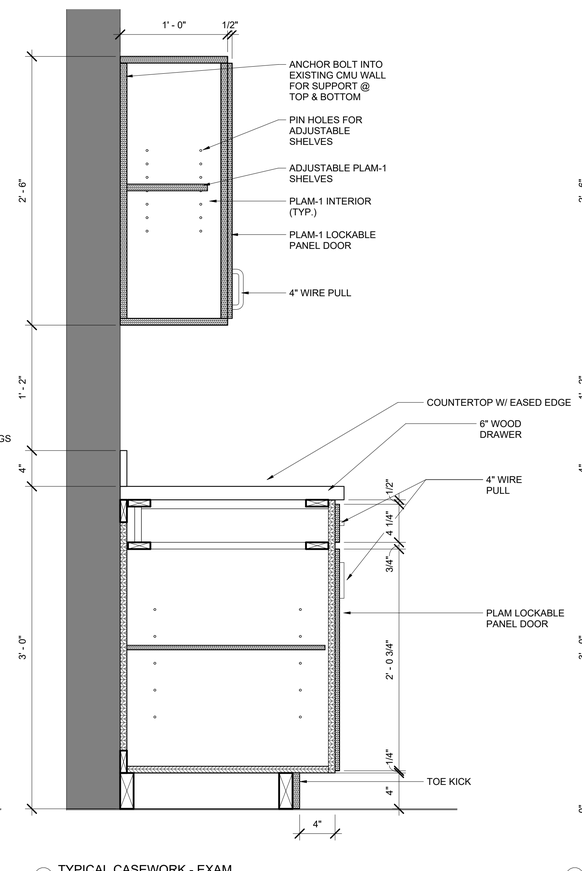
5 PONY WALL LITE DETAIL
1 1/2" = 1'-0"



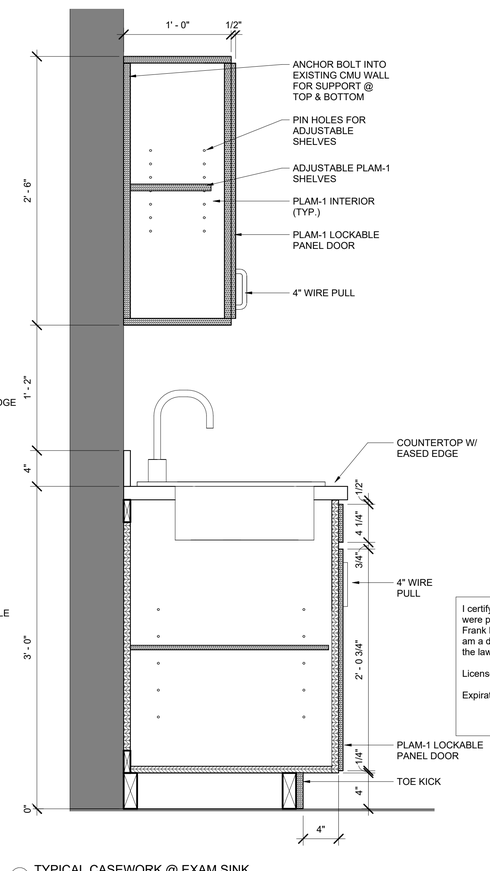
1 TYPICAL CASEWORK
1 1/2" = 1'-0"



2 TYPICAL CASEWORK @ SINK
1 1/2" = 1'-0"



3 TYPICAL CASEWORK - EXAM
1 1/2" = 1'-0"



4 TYPICAL CASEWORK @ EXAM SINK
1 1/2" = 1'-0"

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FRANK ELWOOD DITTENHAFER, II
STATE OF MARYLAND

PROJECT NO: 24127
DRAWN BY: GRT
CHECKED BY: RT

DETAILS

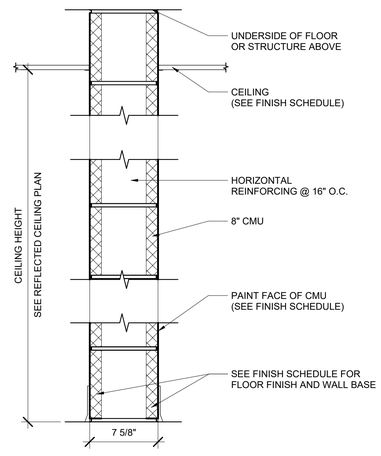
SHEET
A-500

A SERIES - 3-5/8" MTL STUDS

A1	AS SHOWN ABOVE - STUDS & GYP CONSTRUCTED UP TO DECK
A2	AS SHOWN ABOVE - STUDS & GYP CONSTRUCTED UP TO DECK BUT MIN. STC RATING = 50
A3	AS SHOWN, BUT NO INSULATION OR STC RATING

1

PARTITION TYPES
1 1/2" = 1'-0"



C1	AS SHOWN ABOVE; AT FIRE-RATED LOCATIONS USE UL U906
C2	AS SHOWN WITH 12" CMU; AT FIRE-RATED LOCATIONS USE UL U906 ASSEMBLY
C3	AS SHOWN ABOVE WITH 6" CMU
C4	AS SHOWN ABOVE WITH 8" CMU FULLY GROUTED
C5	AS SHOWN WITH 8" CMU UP TO 10'-8" AFF

NOTE:
USE ROUNDED CMU CORNER UNITS @ ALL EXPOSED OUTSIDE CORNERS IN HIGH TRAFFIC AREAS.
COORDINATE W/ ARCHITECT IN FIELD

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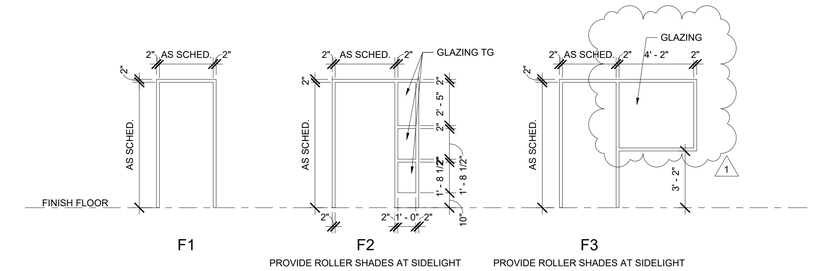
PROJECT NO: 24127
DRAWN BY: GRT
CHECKED BY: RT

PARTITION TYPES

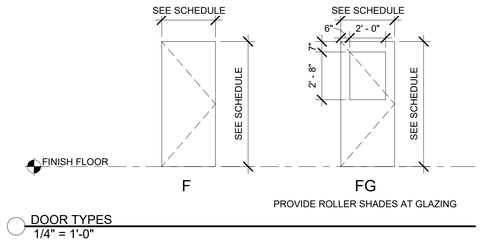
SHEET
A-600

DOOR SCHEDULE

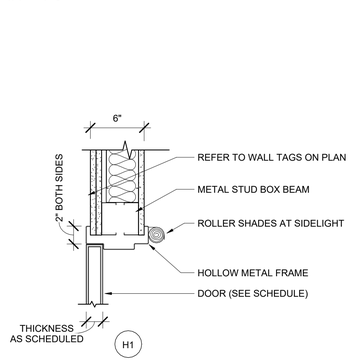
MARK	DIMENSIONS			DOOR		FRAME		CONSTRUCTION DETAILS			HW SET	COMMENTS
	WIDTH	HEIGHT	THICKNESS	TYPE	MATERIAL	TYPE	MATERIAL	HEAD	JAMB	SILL		
1	3' - 0"	7' - 0"	1 3/4"	F	WD	F2	H.M.	H2	J2	S1	1	
2	3' - 0"	7' - 0"	1 3/4"	FG	WD	F2	H.M.	H2	J2	S1	2	
3	3' - 0"	7' - 0"	1 3/4"	F	WD	F1	H.M.	H1	J1	S1	3	
4	3' - 0"	7' - 0"	1 3/4"	FG	WD/GLASS	F3	H.M.	H1	J1	S1	4	

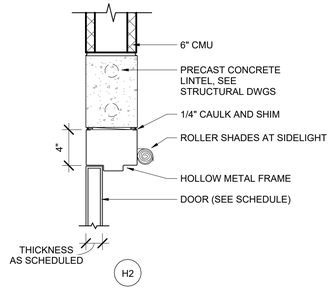


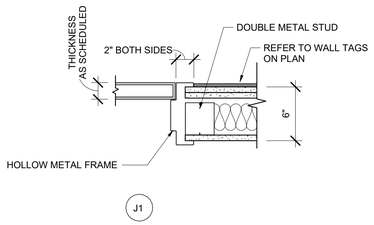
FRAME TYPES
1/4" = 1'-0"

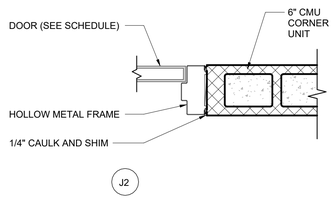


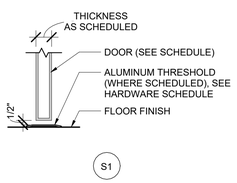
DOOR TYPES
1/4" = 1'-0"











HARFORD COUNTY PUBLIC SCHOOLS
CHURCH CREEK ELEMENTARY SCHOOL
BLUEPRINT PROGRAM PROJECT
4299 CHURCH CREEK ROAD
BELCAMP, MD 21017

Murphy & Dittenhafer ARCHITECTS
800 North Charles Street, Baltimore, Maryland 21201
410-625-4823 voice 410-625-4874 fax
226 West Market Street, York, Pennsylvania 17401
717-848-8827 voice 717-843-2448 fax

Mark	Date	Description
	3/14/2025	100% DESIGN DEVELOPMENT
	3/28/2025	50% CONSTRUCTION DOCUMENTS
	4/18/2025	100% CONSTRUCTION DOCUMENTS
1	5/15/2025	Addenda #2

I certify that these documents were prepared or approved by me, Frank E. Dittenhafer II, and that I am a duly licensed Architect under the laws of the State of Maryland.

License Number: 6607-A

Expiration Date: 6/13/2027

ARCHITECTURAL REGISTRATION BOARD 6607-A FRANK ELWOOD DITTENHAFER, II STATE OF MARYLAND

PROJECT NO:	24127
DRAWN BY:	GRT
CHECKED BY:	RT

DOOR SCHEDULE

SHEET
A-601

PLUMBING FIXTURE SCHEDULE

DESIG.	FIXTURE	ROUGH-IN CONNECTION				FIXTURE UNIT VALUES			FLOW RATE (GPM)	TYPE	TRIM	BASED ON
		C.W.	H.W.	SAN.	VENT	C.W.	H.W.	SAN.				
P1	WATER CLOSET (ADA)	1"	---	4"	2"	10	---	4	1.6 GPF	FLOOR MOUNTED	FLUSH VALVE: SLOAN ROYAL NO. 111, POLISHED CHROME FINISH; SEAT: CHURCH 9500SSC	AMERICAN STANDARD MADERA FLOWISE, ADULT ADA; COLOR: WHITE
P2	LAVATORY (ADA)	½"	½"	1½"	1½"	1.5	1.5	1	0.5	WALL MOUNTED	FAUCET: MOEN M-PRESS 8886, BRUSHED CHROME FINISH; VALVES AND TRIM BY CHICAGO	AMERICAN STANDARD LUCERNE, 20x18; COLOR: WHITE
P3	COUNTER SINK	½"	½"	1½"	1½"	1.5	1.5	1	1.5	COUNTER MOUNTED	FAUCET: CHICAGO FAUCET 201-AGN8AE2805FAB, WRIST BLADE HANDLES, RESTRICTED SWING	JUST MANUFACTURING SL-ADA-2231, 31"x22", STAINLESS STEEL WITH BOTTOM PADS

2

NOTES:

1) W/H = WALL HUNG

2) LOCATE ROUGH IN FOR HANDICAPPED TOILETS SO THAT FLUSH VALVE HANDLE IS IN THE WIDE SIDE OF THE STALL

3) SLAB ON GRADE FIXTURE DRAINS SHALL BE 2" MINIMUM.

4) PROVIDE CARRIER FOR WALL HUNG FIXTURES.

5) PROVIDE ASSE 1070 TEMPERATURE LIMITING VALVE FOR ALL LAVATORIES AND SINK FAUCETS

6) REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

PLUMBING EQUIPMENT NOTES

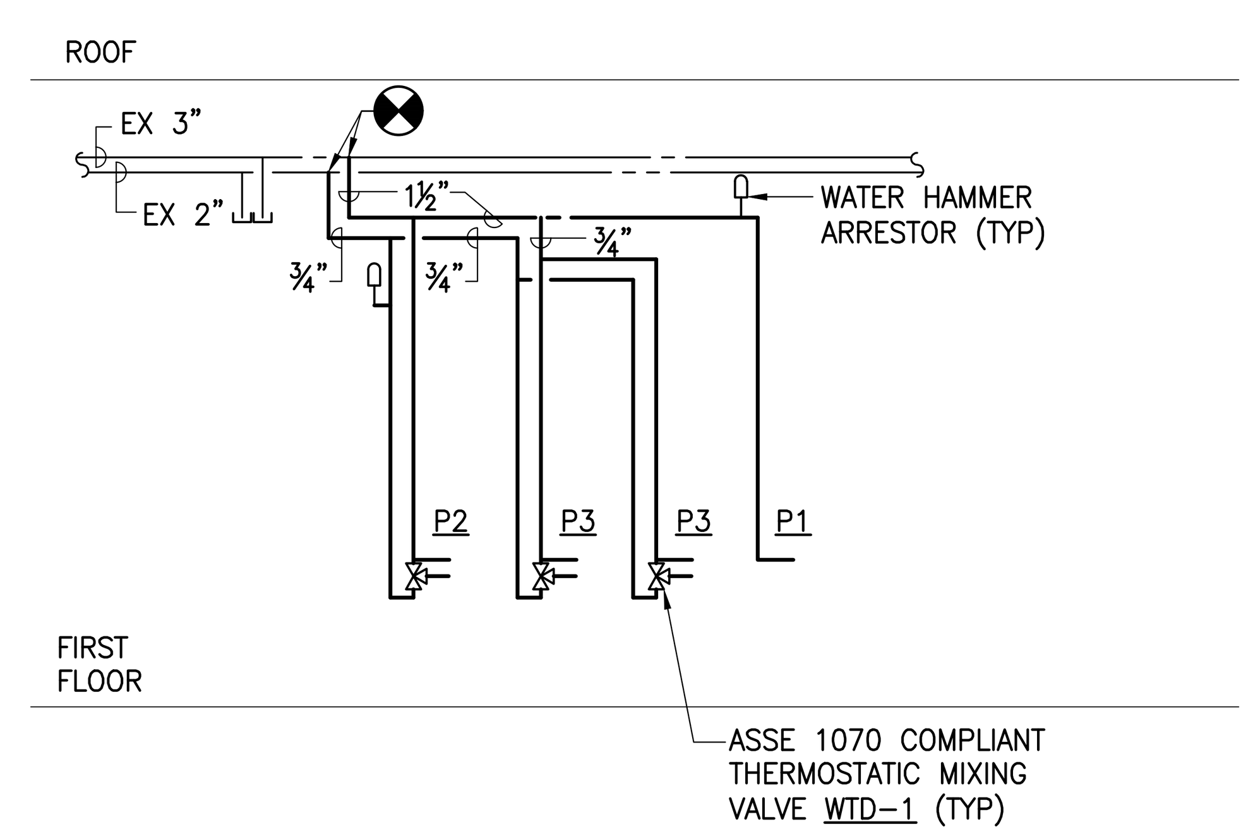
1. WATER TEMPERING DEVICES

WATER TEMPERING DEVICE #1 (WTD-1)
PROVIDE FOR ALL FIXTURES FOR WHICH HOT WATER IS PROVIDED
TEMPER WATER TO 100°F (ADJUSTABLE)
ASSE 1070 RATED, NSF-61 CERTIFIED
ADJUSTABLE TEMPERATURE CONTROL WITH LOCKING FEATURE
SHALL HAVE INTEGRAL WALL BRACKET FOR MOUNTING.
CHICAGO FAUCET MODEL 131-ABNF OR AS APPROVED EQUAL

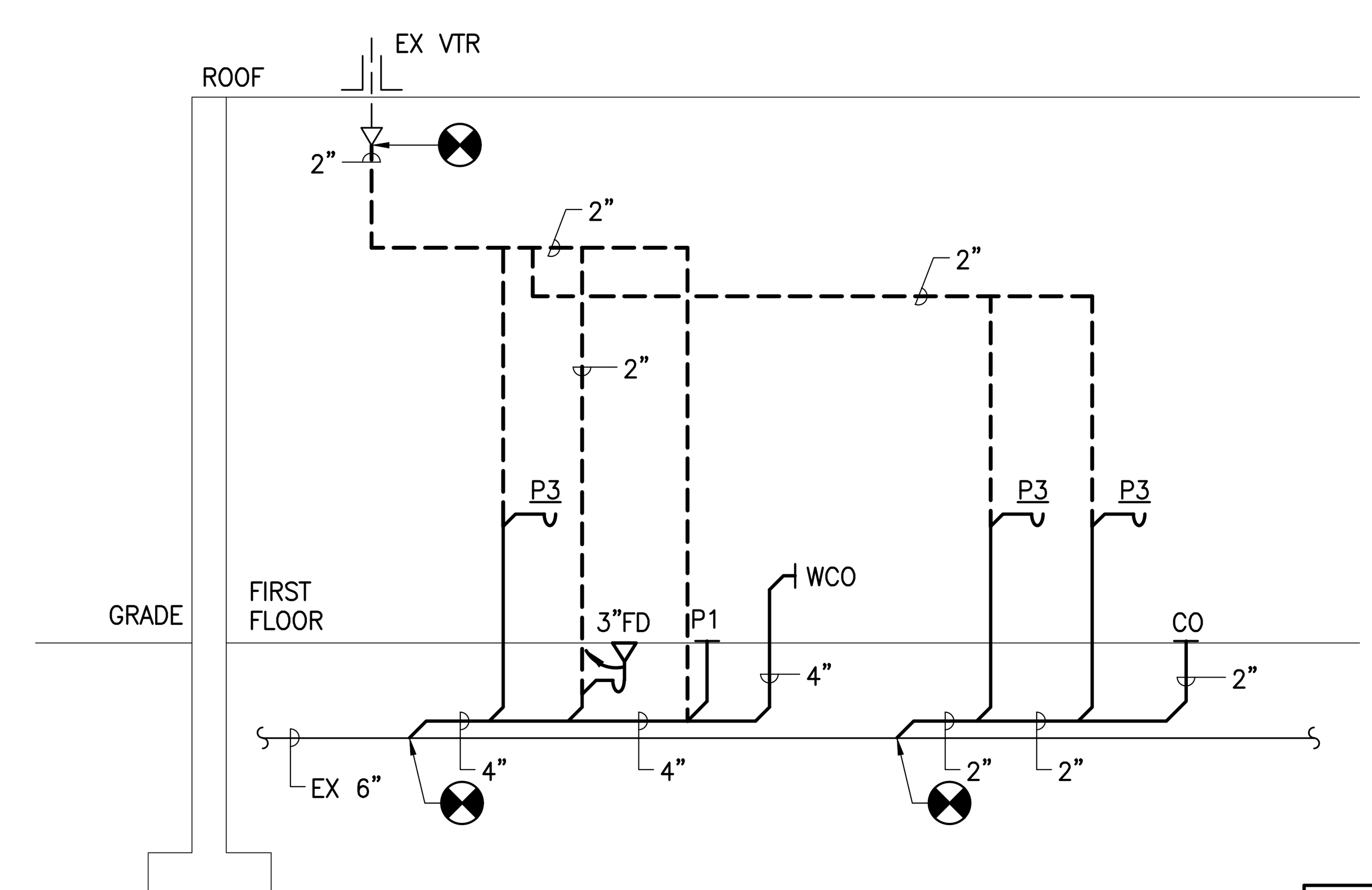
SHOCK ABSORBER SIZING TABLE

P.D.I. ◆ SYMBOLS	A	B	C	D	E	F
FIXTURE UNIT RATING	1-11	12-32	33-60	61-113	114-154	155-300

◆ PLUMBING AND DRAINAGE INSTITUTE ESTABLISHED THESE SIZE SYMBOLS TO CORRESPOND TO THOSE UNITS COVERED BY THE CERTIFICATION AND TESTING PROGRAM DESCRIBED IN P.D.I. STANDARD MANUAL WH-201.



DOMESTIC WATER RISER DIAGRAM
SCALE: NOT TO SCALE



SANITARY/VENT RISER DIAGRAM
SCALE: NOT TO SCALE

I certify that these documents were prepared or approved by me, and that I am a duly licensed Engineer under the laws of the State of Maryland.

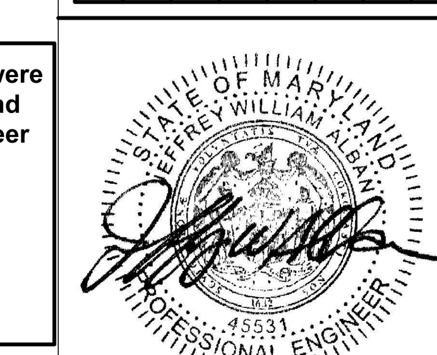
License Number: 45531

Expiration Date: 06/03/2026

HARFORD COUNTY PUBLIC SCHOOLS
CHURCH CREEK ELEMENTARY SCHOOL
BLUEPRINT PROGRAM PROJECT
4299 CHURCH CREEK ROAD
BELCAMP, MD 21017

Murphy & Dittenhafer
A R C H I T E C T S
800 North Charles Street, Baltimore, Maryland 21201
410-625-4823 voice 410-625-4674 fax
226 West Market Street, York, Pennsylvania 17401
717-848-6627 voice 717-843-2449 fax

Mark	Date	Description
	3/14/2025	100% DESIGN DEVELOPMENT
	3/28/2025	50% CONSTRUCTION DOCUMENTS
	4/18/2025	100% CONSTRUCTION DOCUMENTS
	5/01/2025	PERMIT SET
	5/15/2025	ADDENDUM #2



PROJECT NO:	24127
DRAWN BY:	NJM
CHECKED BY:	JWA

PLUMBING SCHEDULES & EQUIPMENT

SHEET

P901

RCP KEY

- 2x4 RECESSED LIGHTING - DEMO
- DIFFUSER - DEMO
- RETURN - DEMO
- SPRINKLER HEAD - DEMO
- VIDEO PROJECTOR - DEMO
- WIRELESS ACCESS POINT - DEMO
- 2x4 RECESSED LIGHTING - EXISTING TO REMAIN.
- DIFFUSER - EXISTING TO REMAIN.
- RETURN - EXISTING TO REMAIN.
- SPRINKLER HEAD - EXISTING TO REMAIN.
- VIDEO PROJECTOR - EXISTING TO REMAIN.
- WIRELESS ACCESS POINT - EXISTING TO REMAIN.

GENERAL DEMO NOTES:

A. ALL DEMOLITION WORK SHALL BE PERFORMED FOLLOWING THE STRICTEST SAFETY STANDARDS TO PROTECT OCCUPANTS AND WORKERS. FOLLOWING OSHA, AND COUNTY SAFETY REGULATIONS. ALL DEMOLITION WORK SHALL BE PERFORMED SO AS NOT TO DAMAGE UNAFFECTED AREAS. THE CONTRACTOR SHALL PROTECT THE EXISTING BUILDING AND ITS CONTENTS AGAINST DAMAGE FROM ANY SOURCE RELATED TO THEIR WORK. ANY DAMAGE TO THE EXISTING CONSTRUCTION TO REMAIN SHALL BE REPAIRED TO MATCH EXISTING CONDITIONS AT NO ADDITIONAL COST TO THE OWNER BY THE CONTRACTOR RESPONSIBLE FOR THE DAMAGE.

B. THE CONTRACTOR SHALL REMOVE FROM THE PREMISES ALL ACCUMULATED CONSTRUCTION DEBRIS AND RUBBISH AS CONSEQUENTIAL OF THEIR WORK ON A DAILY BASIS. THE CONTRACTOR SHALL PAY FOR THEIR REQUIRED REMOVAL AND DISPOSAL FEES.

C. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR ESTABLISHING AND MAINTAINING ON-SITE STORAGE. SECURITY FOR ALL EQUIPMENT AND MATERIALS IS THE RESPONSIBILITY OF THE CONTRACTOR.

D. THE CONTRACTOR SHALL USE ALL PHYSICAL MEANS TO RESTRICT ACCESS AND PROTECT FULLY ALL PERSONS AROUND WORK AREAS, SAFETY AND DEVICES SHALL BE USED IN ACCORDANCE WITH ALL PERTINENT FEDERAL, STATE AND LOCAL SAFETY PRACTICES, STANDARD CODES AND ORDINANCES.

E. VERIFY ALL EXISTING CONDITIONS PRIOR TO SELECTIVE DEMOLITION. NOTIFY OWNER/ARCHITECT IMMEDIATELY IN THE EVENT OF ANY AMBIGUITY OR INCONSISTENCIES.

F. ALL DIMENSIONS ARE SHOWN FROM FINISH FACE OF WALL, UNLESS OTHERWISE NOTED.

G. COORDINATE ARCHITECTURAL DEMOLITION WORK WITH THAT OF THE MECHANICAL, ELECTRICAL, PLUMBING, IT & FIRE ALARM AND DRAWINGS, VERIFY ALL EXISTING CONDITIONS IN THE FIELD AND NOTIFY ARCHITECT OF ANY DISCREPANCY PRIOR TO COMMENCING WORK.

H. DEMOLITION CONTRACTOR SHALL NOT USE ANY CONSTRUCTION METHODS THAT WILL CAUSE DAMAGE TO WORK TO BE LEFT IN PLACE. REPAIR DAMAGE TO THE EXISTING CONSTRUCTION CAUSED BY WORK UNDER THIS CONTRACT.

I. OWNER HAS RIGHT OF FIRST REFUSAL OF ALL SALVAGEABLE ITEMS. CONTRACTOR SHALL COORINDATE WITH THE OWNER OR THEIR AUTHORIZED REPRESENTATIVE, TO DETERMINE ALL EXISTING EQUIPMENT AND DEVICES TO BE RETAINED BY THE OWNER. CONTRACTOR SHALL CAREFULLY REMOVE ALL EQUIPMENT AND DEVICES TO BE RETAINED, PRESERVE AND STORE THE EQUIPMENT IN A LOCATION DESIGNATED BY THE OWNER. ALL OTHER DEVICES, EQUIPMENT, AND DEBRIS SHALL BE DISPOSED OF BY THE CONTRACTOR AT AN APPROPRIATE OFFSITE LOCATION.

J. COORDINATE ALL CEILING MOUNTED EQUIPMENT WITH MEP DRAWINGS AND FIRE PROTECTION & FIRE ALARM DRAWINGS.

K. REMOVE WALLS INDICATED TO BE DEMOLISHED FROM FLOOR TO STRUCTURE ABOVE AND INCLUDE ALL MECHANICAL, ELECTRICAL, EQUIPMENT, ETC. PREPARE ALL DISTURBED AREAS FOR NEW CONSTRUCTION.

L. WHERE PARTIAL DEMOLITION OF A WALL IS REQUIRED, COORDINATE EXTENT AND LOCATION OF R EMOVED PORTION WITH NEW CONSTRUCTION PLAN AND FIELD CONDITIONS.

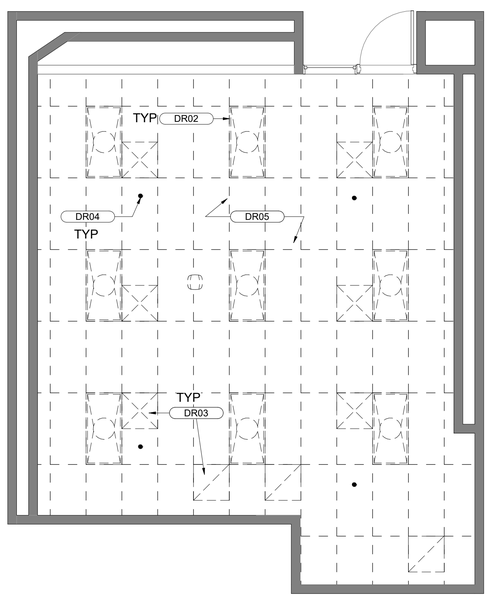
M. CLOSE OFF AND PATCH OPENINGS AND VOIDS LEFT BY THE REMOVAL OF EXISTING CONSTRUCTION, EQUIPMENT, PIPING, DUCTS, ELECTRICAL DEVICES, ETC. TO MAINTAIN PROPER FIRE RATING IN A RATED ASSEMBLY. IN NON-FIRE-RATED AND SMOKE PARTITIONS, SEAL PENETRATIONS WITH ACOUSTICAL SEALANT AND FILL WITH SOUND ATTENUATION BLANKETS. PREPARE PATCHES TO RECEIVE NEW FINISHES AS REQUIRED TO MATCH EXISTING ADJACENT FINISHES.

N. NO SAW CUTTING OF CMU. ALL MASONRY TO BE TOOTHED IN REMOVE ANY DAMAGED CMU.

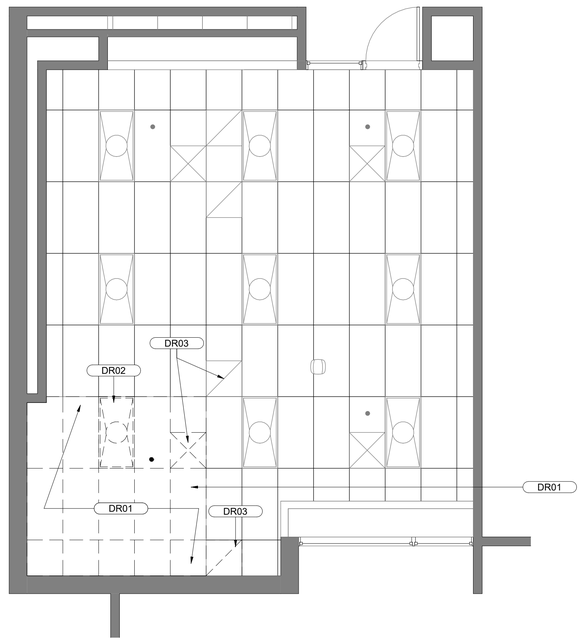
DEMOLITION KEYNOTES	
TAG	DESCRIPTION
DR01	REMOVE AND DISCARD PORTION OF CEILING GRID AND ACT TO ALLOW FOR INSTALLATION OF INTERIOR PARTITIONS.
DR02	REMOVE LIGHTING AND SALVAGE FOR RE-USE AND RELOCATION. COORDINATE WITH OWNER. COORDINATE RELOCATION WITH MEP.
DR03	REMOVE DIFFUSER AND RETURN AND SALVAGE FOR RE-USE. COORDINATE WITH OWNER. COORDINATE RELOCATION WITH MEP.
DR04	RELOCATE SPRINKLER HEAD AS NEED TO ACCOUNT FOR NEW INTERIOR PARTITIONS.
DR05	REMOVE AND DISCARD ACT IN THEIR ENTIRETY. EXISTING CEILING GRID AND SUSPENSION SYSTEM TO REMAIN FOR REUSE.

1

*ALL CEILING EQUIPMENT WILL BE REMOVED AND SALVAGED FOR REUSE. REPLACE IN EXISTING LOCATION. COORDINATE WITH OWNER FOR STORAGE.



1 FIRST FLOOR RCP - Room 122 Special Education Copy 1
1/4" = 1'-0"



2 FIRST FLOOR RCP - Room 335 ADA Restroom Copy 1
1/4" = 1'-0"

HARFORD COUNTY PUBLIC SCHOOLS
EDGEWOOD ELEMENTARY SHCOOL
BLUEPRINT PROGRAM PROJECT
2100 CEDAR DR
EDGEWOOD, MD 21040

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226 West Market Street, York, Pennsylvania 17401
717-843-8827 voice 717-843-2448 fax
800 North Charles Street, Baltimore, Maryland 21201
410-625-4823 voice 410-625-4874 fax

Mark	Date	Description
	3/14/2025	100% DESIGN DEVELOPMENT
	3/28/2025	50% CONSTRUCTION DOCUMENTS
	4/18/2025	100% CONSTRUCTION DOCUMENTS
1	5/15/2025	Addenda #2

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License Number: 6607-A

Expiration Date: 6/13/2027

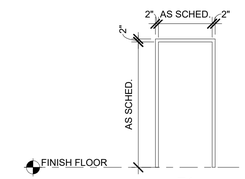
ARCHITECTURAL REGISTRATION BOARD 6607-A FRANK ELWOOD DITTENHAFER, II STATE OF MARYLAND

PROJECT NO: 24127
DRAWN BY: GRT
CHECKED BY: RT

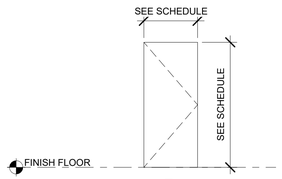
PARTIAL REFLECTED CEILING PLANS - DEMO

SHEET
AD-111

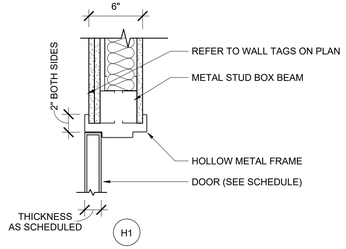
DOOR SCHEDULE												
MARK	DIMENSIONS			DOOR		FRAME		CONSTRUCTION DETAILS			HW SET	COMMENTS
	WIDTH	HEIGHT	THICKNESS	TYPE	MATERIAL	TYPE	MATERIAL	HEAD	JAMB	SILL		
1	3' - 0"	7' - 0"	1 3/4"	F	WD	F1	H.M.	H1	J1	N/A	3	

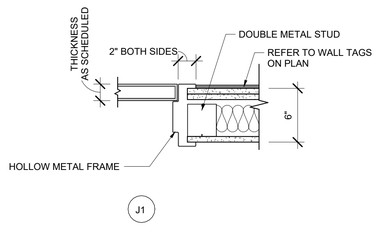


FRAME TYPES
1/4" = 1'-0"



DOOR TYPES
1/4" = 1'-0"

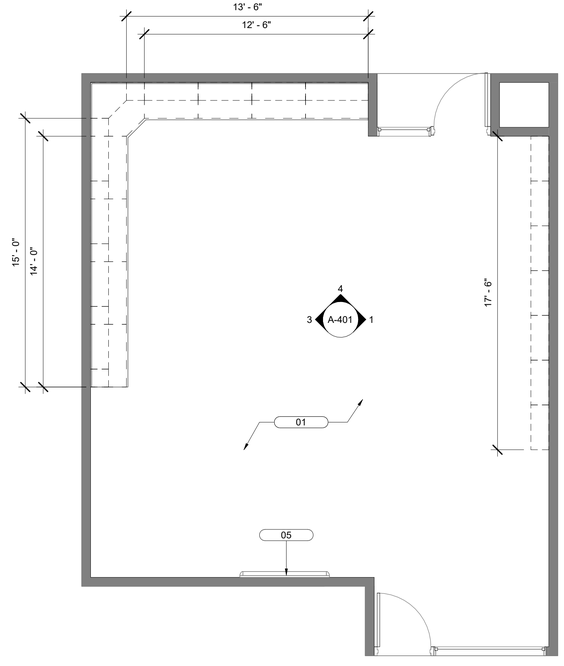




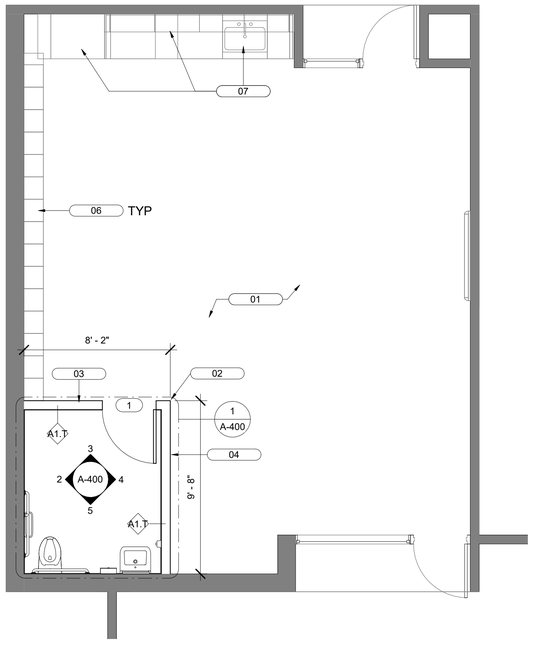
GENERAL CONSTRUCTION NOTES

1. ALL DIMENSIONS ARE FROM FACE OF FINISH TO FACE OF FINISH UNLESS OTHERWISE NOTED.
2. ALL WORK SHALL CONFORM TO LOCAL AND STATE CODES. LOCAL AND STATE ARE TO TAKE PRECEDENCE OVER THE DRAWINGS AND SPECIFICATIONS. IF DISCREPANCY IS NOTED, INFORM THE ARCHITECT IMMEDIATELY AND BEFORE PROCEEDING WITH WORK.
3. CONTRACTOR SHALL VERIFY ALL EXISTING UTILITY LOCATIONS BEFORE INSTALLATION OF NEW PARTITIONS & STOREFRONT.
4. CONTRACTOR SHALL COORDINATE AND SCHEDULE HIS WORK WITH BUILDING OCCUPANTS, FOR MINIMAL DISRUPTION, AND ANY REQUIRED UTILITY SHUT-DOWNS.
5. RUN ALL NEW UTILITIES CONCEALED WHERE FEASIBLE WITHIN EXISTING CONSTRUCTION. WHERE IT IS NOT FEASIBLE TO RUN CONCEALED, PAINT UTILITIES TO MATCH ADJACENT FINISH.
6. PATCH DISTURBED SURFACES BACK TO THEIR EXISTING CONDITION.
7. PAINT NEW WALL PARTITIONS TO MATCH EXISTING.
8. WHERE EXISTING WALLS ARE TO BE PATCHED, MATCH TO EXISTING ADJACENT CONDITIONS, TYP.
9. NEW SEALANTS: CAULK ALL INTERSECTIONS OF DISSIMILAR MATERIALSWITH SEALANT (WITH EXCEPTION OF ACT)
10. REMOVE CEILING TILES AS REQUIRED FOR ACCESS AND ANY REQUIRED UTILITY WORK. WHERE TILES BECOME DAMAGED; REPLACE ACT INKIND - FURNISHED BY GC - CONTRACTOR SHALL PHOTOGRAPH CEILING AREAS TO BE DISTURBED TO DOCUMENT EXISTING CONDITIONS.
11. ANY DAMAGED VCT FLOORING BEYOND EXTENTS OF SELECTIVE DEMOLITION SHALL BE REPLACED TO MATCH EXISTING.
12. REPLACE ANY CEILING TILE AND GRID THAT IS DAMAGED DUE TO MOVING WIRE MOULDING OR EQUIPMENT.

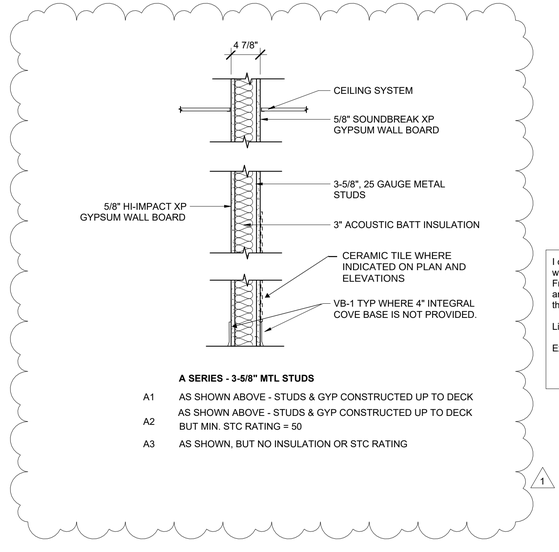
PLAN KEYNOTES	
TAG	DESCRIPTION
01	INSTALL VCT PER MANUFACTURER'S SPECIFICATIONS.
02	INSTALL CORNER GUARDS PER MANUFACTURER'S SPECIFICATIONS.
03	INSTALL 30" x 60" TACKBOARD AND PROVIDE BLOCKING, AS REQUIRED PER MANUFACTURER'S SPECIFICATIONS.
04	INSTALL 48" x 60" TACKBOARD AND PROVIDE BLOCKING, AS REQUIRED PER MANUFACTURER'S SPECIFICATIONS.
05	EXISTING TEACHING WALL TO REMAIN.
06	EXISTING STORAGE UNITS TO REMAIN.
07	EXISTING CASEWORK AND PLUMBING FIXTURES TO REMAIN.



1 FIRST FLOOR - Room 122 Special Education
1/4" = 1'-0"



2 FIRST FLOOR - Room 335 ADA Restroom
1/4" = 1'-0"



A SERIES - 3-5/8" MTL STUDS

A1	AS SHOWN ABOVE - STUDS & GYP CONSTRUCTED UP TO DECK
A2	AS SHOWN ABOVE - STUDS & GYP CONSTRUCTED UP TO DECK BUT MIN. STC RATING = 50
A3	AS SHOWN, BUT NO INSULATION OR STC RATING

1

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License Number: 6607-A

Expiration Date: 6/13/2027

ARCHITECTURAL REGISTRATION BOARD
6607-A
FRANK EDWOOD DITTENHAFER, II
STATE OF MARYLAND

PROJECT NO:	24127
DRAWN BY:	GRT
CHECKED BY:	RT

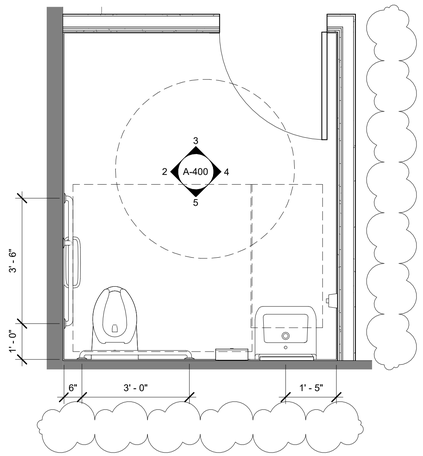
PARTIAL FLOOR PLANS

SHEET
A-101

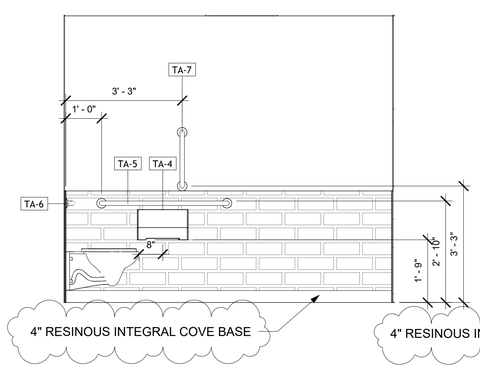
TOILET ACCESSORIES SCHEDULE						
MARK	QTY.	DESCRIPTION	MOUNTING	MOUNTING HEIGHT	FURNISHED BY	INSTALLED BY
TA-1	1	Angle-Frame Mirror, Welded Corners, 24 by 36 inches	SURFACE	3'-4 1/2"	CONTRACTOR	CONTRACTOR
TA-2	1	Soap Dispenser	SURFACE	3'-7"	OWNER	CONTRACTOR
TA-3	1	RENOWN HANDS-FREE ROLL TOWEL DISPENSER	SURFACE	3'-8"	OWNER	CONTRACTOR
TA-4	1	RENOWN SIDE-BY-SIDE 2-ROLL TISSUE DISPENSER	SURFACE	1'-9"	OWNER	CONTRACTOR
TA-5	1	SIDE WALL GRAB BAR - 42"	SURFACE	2'-10"	CONTRACTOR	CONTRACTOR
TA-6	1	BACK WALL GRAB BAR - 36"	SURFACE	2'-10"	CONTRACTOR	CONTRACTOR
TA-7	1	VERTICAL GRAB BAR -18"	SURFACE	3'-3"	CONTRACTOR	CONTRACTOR

NOTE: REFER TO SPECIFICATIONS FOR BLOCKING REQUIREMENTS FOR SURFACE MOUNTED ACCESSORIES.

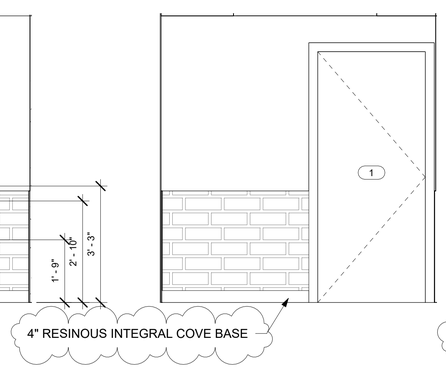
NOTE: RESTROOM WALLS ABOVE CERAMIC TILE TO BE PAINTED.
RESTROOM FLOORS ARE TO BE RESINOUS FLOORING WITH INTEGRAL 4" COVE BASE. REFER TO SPECIFICATIONS FOR BASIS OF DESIGN.



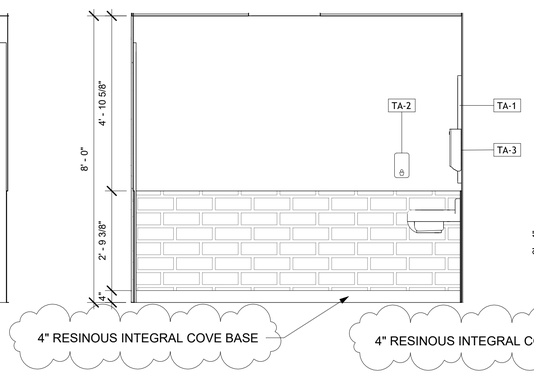
1 ADA RESTROOM ENLARGED PLAN
1/2" = 1'-0"



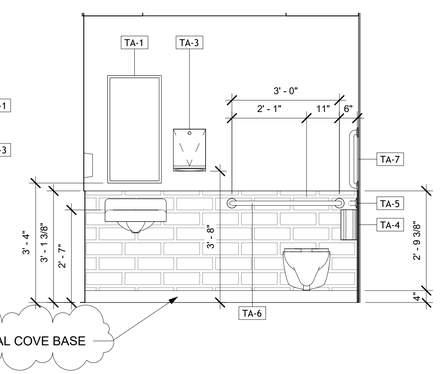
2 ADA RESTROOM - WEST ELEVATION
1/2" = 1'-0"



3 ADA RESTROOM - NORTH ELEVATION
1/2" = 1'-0"



4 ADA RESTROOM - EAST ELEVATION
1/2" = 1'-0"



5 ADA RESTROOM - SOUTH ELEVATION
1/2" = 1'-0"

I certify that these documents were prepared or approved by me, Frank E. Dittenhafer II, and that I am a duly licensed Architect under the laws of the State of Maryland.

License Number: 6607-A

Expiration Date: 6/13/2027

ARCHITECTURAL REGISTRATION BOARD
6607-A
FRANK ELLWOOD DITTENHAFER II
STATE OF MARYLAND

HARFORD COUNTY PUBLIC SCHOOLS
EDGEWOOD ELEMENTARY SHCOOL
BLUEPRINT PROGRAM PROJECT
2100 CEDAR DR
EDGEWOOD, MD 21040

Murphy & Dittenhafer
ARCHITECTS
800 North Charles Street, Baltimore, Maryland 21201
410-625-4823 voice 410-625-4874 fax
226 West Market Street, York, Pennsylvania 17401
717-848-8827 voice 717-843-2448 fax

Mark	Date	Description
	3/14/2025	100% DESIGN DEVELOPMENT
	3/28/2025	50% CONSTRUCTION DOCUMENTS
	4/18/2025	100% CONSTRUCTION DOCUMENTS
1	5/15/2025	Addenda #2

PROJECT NO: 24127
DRAWN BY: NFL
CHECKED BY: RT

ENLARGED PLANS & ELEVATIONS

SHEET
A-400

PLUMBING FIXTURE SCHEDULE

DESIG.	FIXTURE	ROUGH-IN CONNECTION				FIXTURE UNIT VALUES			FLOW RATE (GPM)	TYPE	TRIM	BASED ON
		C.W.	H.W.	SAN.	VENT	C.W.	H.W.	SAN.				
P1	WATER CLOSET (ADA)	1"	---	4"	2"	10	---	4	1.6 GPF	FLOOR MOUNTED	FLUSH VALVE: SLOAN ROYAL NO. 111, POLISHED CHROME FINISH; SEAT: CHURCH 9500SSC	AMERICAN STANDARD MADERA FLOWISE, ADULT ADA; COLOR: WHITE
P2	LAVATORY (ADA)	½"	½"	1½"	1½"	1.5	1.5	1	0.5	WALL MOUNTED	FAUCET: MOEN M-PRESS 8886, BRUSHED CHROME FINISH; VALVES AND TRIM BY CHICAGO	AMERICAN STANDARD LUCERNE, 20x18; COLOR: WHITE

NOTES:

1) W/H = WALL HUNG
2) LOCATE ROUGH IN FOR HANDICAPPED TOILETS SO THAT FLUSH VALVE HANDLE IS IN THE WIDE SIDE OF THE STALL
3) SLAB ON GRADE FIXTURE DRAINS SHALL BE 2" MINIMUM.
4) PROVIDE CARRIER FOR WALL HUNG FIXTURES.
5) PROVIDE ASSE 1070 TEMPERATURE LIMITING VALVE FOR ALL LAVATORIES AND SINK FAUCETS
6) REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

SHOCK ABSORBER SIZING TABLE

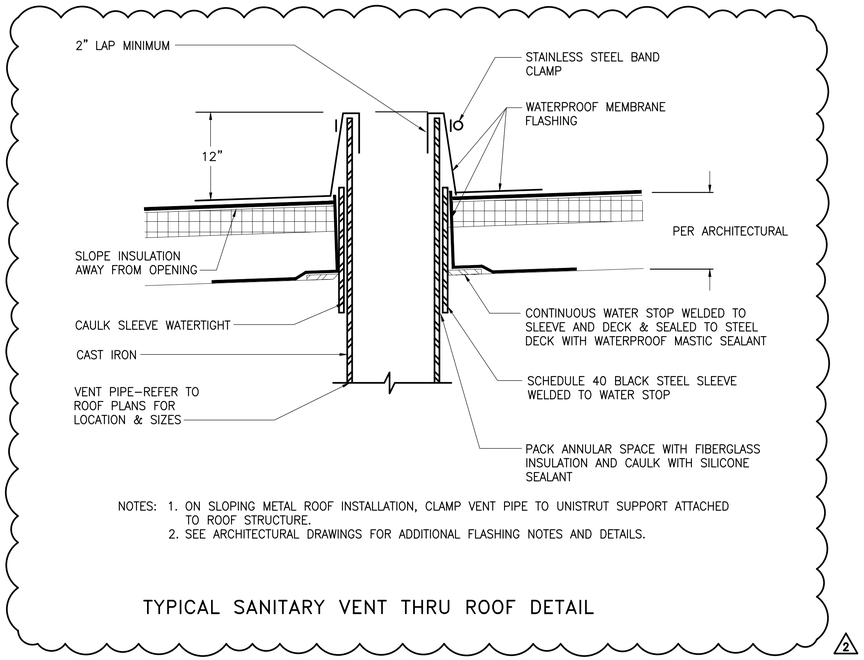
P.D.I. ◆ SYMBOLS	A	B	C	D	E	F
FIXTURE UNIT RATING	1-11	12-32	33-60	61-113	114-154	155-300

◆ PLUMBING AND DRAINAGE INSTITUTE ESTABLISHED THESE SIZE SYMBOLS TO CORRESPOND TO THOSE UNITS COVERED BY THE CERTIFICATION AND TESTING PROGRAM DESCRIBED IN P.D.I. STANDARD MANUAL WH-201.

PLUMBING EQUIPMENT NOTES

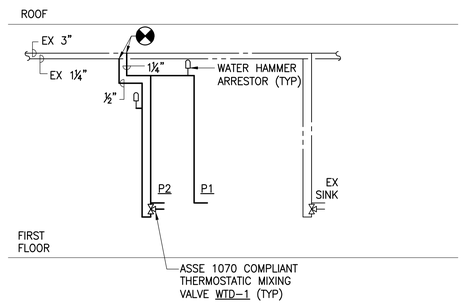
1. WATER TEMPERING DEVICES

WATER TEMPERING DEVICE #1 (WTD-1)
PROVIDE FOR ALL FIXTURES FOR WHICH HOT WATER IS PROVIDED
TEMPER WATER TO 100°F (ADJUSTABLE)
ASSE 1070 RATED, NSF-61 CERTIFIED
ADJUSTABLE TEMPERATURE CONTROL WITH LOCKING FEATURE
SHALL HAVE INTEGRAL WALL BRACKET FOR MOUNTING.
CHICAGO FAUCET MODEL 131-ABNF OR AS APPROVED EQUAL

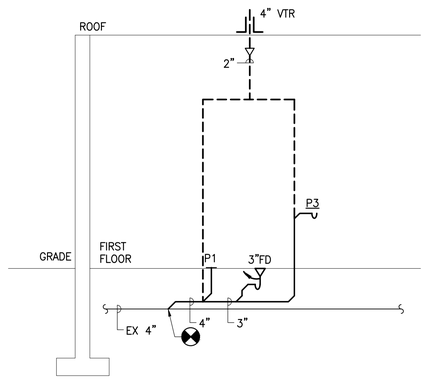


NOTES: 1. ON SLOPING METAL ROOF INSTALLATION, CLAMP VENT PIPE TO UNISTRUT SUPPORT ATTACHED TO ROOF STRUCTURE.
2. SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL FLASHING NOTES AND DETAILS.

TYPICAL SANITARY VENT THRU ROOF DETAIL



DOMESTIC WATER RISER DIAGRAM
SCALE: NOT TO SCALE



SANITARY/VENT RISER DIAGRAM
SCALE: NOT TO SCALE

HARFORD COUNTY PUBLIC SCHOOLS
EDGEWOOD ELEMENTARY SHCOOL
BLUEPRINT PROGRAM PROJECT
2100 CEDAR DR
EDGEWOOD, MD 21040

Murphy & Dittenhafer ARCHITECTS
226 West Market Street, York, Pennsylvania 17401 717-848-8627 voice 717-843-2449 fax
800 North Charles Street, Baltimore, Maryland 21201 410-625-4623 voice 410-625-4674 fax

Mark	Date	Description
	3/13/2025	DD SUBMISSION
	3/28/2025	50% CONSTRUCTION DOCUMENTS
	4/18/2025	100% CONSTRUCTION DOCUMENTS
	5/01/2025	PERMIT SET
	5/15/2025	ADDENDUM #2

I certify that these documents were prepared or approved by me, and that I am a duly licensed Engineer under the laws of the State of Maryland.

License Number: 45531

Expiration Date: 06/03/2026

STATE OF MARYLAND · JAMES WILLIAM ALLEN · 45531 · PROFESSIONAL ENGINEER

PROJECT NO: 24127
DRAWN BY: NJM
CHECKED BY: JWA

PLUMBING SCHEDULES & EQUIPMENT

SHEET
P901

SECTION 02 41 19 - SELECTIVE DEMOLITION

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. Section Includes:

1. Demolition and removal of selected portions of building.

B. Related Requirements:

1. Section 01 10 00 "Summary" for restrictions on the use of the premises, Owner-occupancy requirements, and phasing requirements.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

C. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled. These items shall be preserved and protected in-place.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1. Carefully salvage in a manner to prevent damage and promptly turn over to Owner.

1.5 PREINSTALLATION MEETINGS

A. Pre-demolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.
3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For refrigerant recovery technician.

B. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for environmental protection, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

C. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations and activities are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of stairs.
5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

D. Inventory: Submit a list of items to be removed and salvaged and delivered to Owner prior to start of demolition.

E. Pre-demolition Photographs or Video: Submit before Work begins.

F. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

G. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.7 CLOSEOUT SUBMITTALS

A. Inventory: Submit a list of items that have been removed and salvaged.

B. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.8 QUALITY ASSURANCE

A. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.

1.9 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

1. Before selective demolition, consult with Owner to identify items to be removed.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

E. Historic Areas: Demolition and hauling equipment and other materials shall be of sizes that clear surfaces within historic spaces, areas, rooms, and openings, including temporary protection.

F. Storage or sale of removed items or materials on-site is not permitted.

G. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.10 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties. Notify warrantor before proceeding.

PART 2 - PRODUCTS

2.1 PEFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review record documents of existing construction provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in record documents.

C. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.

D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.

E. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.

1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
2. Steel Tendons: Locate tensioned steel tendons and include recommendations for de-tensioning.

F. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs and videotapes.
1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

1. Comply with requirements for existing services/systems interruptions specified in Section 01 10 00 "Summary."

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
1. Arrange to shut off indicated utilities with utility companies.

2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    c. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    d. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

3.3 PREPARATION

A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

1. Comply with requirements for access and protection specified in Section 01 50 00 "Temporary Facilities and Controls."

B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.
5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 01 50 00 "Temporary Facilities and Controls."

C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch, if necessary, and portable fire-suppression devices during flame-cutting operations.
5. Maintain adequate ventilation when using cutting torches.
6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area off-site.
5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition.

E. Moving Existing Furnishings: The Moving of existing furnishings should occur at each phase of work.
1. The Owner will be responsible for moving existing furnishings. No action is required by Contractor.
2. ~~It is responsibility of the Contractor to move existing furnishings out of the area to be selectively demolished before work is to begin. The Contractor is to survey the number of materials that will need to be packed and stored.~~
3. ~~Upon completion of the survey, the Contractor is to coordinate with the Architect and Owner PM for existing furnishings storage locations and space requirements while the work is being completed for that phase.~~

4. ~~The existing furnishings to be packed include Teacher's supplies (all remaining items after school personnel have moved out of the areas) excluding only computers (laptops, monitors, PC's) and personal effects.~~
5. ~~Provide all boxes required, packing materials, labels, etc. necessary to complete the move. Supply deliveries should be made prior to the start of construction. Packed boxes, furniture, and other furnishings should be removed from the spaces prior to the start of construction.~~
6. ~~All items to be stored onsite shall be secured and protected from dust, weather, and vandalism, among other things.~~
7. ~~It is the responsibility of The Contractor to return packed boxes, furniture and other furnishings upon completion of construction and cleaning of the area. Coordinate relocation efforts with the Owner PM.~~

~~F. Moving Library/Media Center: The Moving of existing furnishings should occur at each phase of work.~~

1. ~~The contractor shall be responsible for packing, storing and unpacking Media Center materials. The contractor is required to hire an approved moving company with experience packing and moving library materials. The boxes must be stored in a conditioned storage location, possibly offsite, at the contractors' expense.~~

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, then remove concrete between saw cuts.

B. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

C. Resilient Floor Coverings: Remove floor coverings and adhesive according to recommendations in RFCI's "Recommended Work Practices for the Removal of Resilient Floor Coverings." Do not use methods requiring solvent-based adhesive strippers.

D. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19

SECTION 06 40 23 - INTERIOR ARCHITECTURAL WOODWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Interior standing and running trim.
2. Plastic-laminate cabinets.
3. Plastic-laminate countertops and aprons.
4. Closet and utility shelving.
5. Shop finishing of interior woodwork.
6. Countertop supports.
7. Cabinet and miscellaneous hardware.

B. Related Sections include the following:

1. Division 6 Section "Rough Carpentry" for wood blocking, shims, and hanging strips required for installing woodwork and concealed within other construction before woodwork installation.
2. Division 7 Sealants.
3. Division 9 Painting.

1.3 DEFINITIONS

A. Interior architectural woodwork includes wood furring, blocking, shims, and hanging strips for installing woodwork items unless concealed within other construction before woodwork installation.

1.4 SUBMITTALS

A. Product Data: For panel products, high-pressure decorative laminate, adhesive for bonding plastic laminate, solid-surfacing material, fire-retardant-treated materials, cabinet hardware and accessories and finishing materials and processes.

1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Shop Drawings: Show location of each item, dimensioned plans and elevations, large-scale details, attachment devices, and other components.

1. Show details full size.

2. Show locations and sizes of blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
3. Show locations and sizes of cutouts and holes for other items installed in architectural woodwork.
4. ~~Apply AWI-certified compliance label to first page of Shop Drawings.~~

C. Samples for Initial Selection:

1. Shop-applied transparent finishes (on board and veneer panels).
2. Plastic laminates (PVC edgings not permitted for exposed surfaces).
3. Thermoset decorative panels (for cabinet interiors and other non-exposed surfaces).
4. Solid-surfacing materials.

D. Samples for Verification:

1. Lumber with or for transparent finish, not less than 5 inches wide by 24 inches long, for each species and cut, finished on 1 side and 1 edge.
2. Veneer-faced panel products with or for transparent finish, 8 by 10 inches, for each species and cut. Include at least one face-veneer seam and finish as specified.
3. Plastic laminates, 8 by 10 inches, for each type, color, pattern, and surface finish, with 1 sample applied to core material and specified edge material applied to 1 edge.
4. Thermoset decorative-panels, 8 by 10 inches, for each type, color, pattern, and surface finish, with edge banding on 1 edge.
5. Solid-surfacing materials, 2 inches square.

E. Product Certificates: For each type of product, signed by product manufacturer.

~~F. Woodwork Quality Standard Compliance Certificates: AWI Quality Certification Program certificates.~~

G. Qualification Data: For fabricator/installer.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate products similar to those required for this Project and whose products have a record of successful in-service performance. Shop is a certified participant in AWI's Quality Certification Program.

B. Installer Qualifications: Fabricator of products and certified participant in AWI's Quality Certification Program.

~~C. Forest Certification: Provide wood products made from forests certified by an FSC-accredited certification body. All non-FSC wood in assemblies with FSC-certified wood shall meet the FSC Controlled Wood (CW) criteria.~~

D. Source Limitations: Engage a qualified woodworking firm to assume undivided responsibility for production of interior architectural woodwork with sequence-matched wood veneers and transparent-finished wood doors that are required to be of same species as woodwork.

E. Quality Standard: Unless otherwise indicated, comply with AWI's "Architectural Woodwork Quality Standards" for grades of interior architectural woodwork Performance Requirements as indicated below:. ~~indicated for construction, finishes, installation, and other requirements~~.

1. Structural Performance: ANSI/ASW 0641 Duty Level 3

2. Aesthetic Performance: ANSI/AWI 0641 Custom Grade.

3. ~~Provide AWI Quality Certification Program labels and certificates indicating that woodwork, including installation, complies with requirements of grades specified.~~
4. The Contract Documents contain selections chosen from options in the quality standard and additional requirements beyond those of the quality standard. Comply with such selections and requirements in addition to the quality standard.

F. Fire-Test-Response Characteristics: Where fire-retardant materials or products are indicated, provide materials and products with specified fire-test-response characteristics as determined by testing identical products per test method indicated by UL, ITS, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify with appropriate markings of applicable testing and inspecting agency in the form of separable paper label or, where required by authorities having jurisdiction, imprint on surfaces of materials that will be concealed from view after installation.

G. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

H. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Management and Coordination."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver woodwork until painting and similar operations that could damage woodwork have been completed in installation areas. If woodwork must be stored in other than installation areas, store only in areas where environmental conditions comply with requirements specified in "Project Conditions" Article.

1.7 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install woodwork until building is enclosed, wet work is complete, and HVAC system is operating and maintaining temperature and relative humidity at occupancy levels during the remainder of the construction period.

B. Field Measurements: Where woodwork is indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support woodwork by field measurements before being enclosed and indicate measurements on Shop Drawings.
2. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating woodwork without field measurements. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.8 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to ensure that interior architectural woodwork can be supported and installed as indicated.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Vertical Surface high pressure plastic laminate: High pressure plastic laminate for exterior cabinet surfaces shall meet NEMA standards for vertical grade. Suede finish surface in manufacturer's standard and solid colors.
   a. Suede finish vertical surface grade selected from manufacturer's standard stock colors consisting of both wood grain patterns and solid colors.
   b. Cabinet faces to be one color in each room. End panels may match face or as selected from manufacturer's stock color selection.

B. High pressure plastic laminate backing sheet: Putty coloring heavy gauge high pressure plastic laminate backing sheet shall be textured surface and meet NEMA standards.

C. Countertop high pressure plastic laminate: High pressure plastic laminate, satin or textured finish minimum 1/16" thick. Color as colored backing sheet for balanced construction.

D. Particle Board Core Material:
   a. ANSI A208.1, Type M-3 exterior glue complying with requirements in ANSI Ao08.1, Grade M-3.
   b. Casework manufacturer shall provide documentation and certification of use. No formaldehyde shall be used, no exceptions.
   c. Properties
   d. Face Screw Holding (lbs) 247
   e. Edge Screw Holding (lbs) 225
   f. Internal Bond (psi) 80
   g. Hardness (lbs) 500
   h. Modulus of Rupture (psi) 2,393
   i. Modulus of Elasticity (psi) 398,900
   j. Putty colored polyester laminate for semi-exposed cabinet interiors behind doors and drawers and interiors of all open cabinets.
      Hardboard: Hardboard shall meet or exceed Commercial Stands CS-251 and Federal Specifications LLL-B-00810. Tempered hardboard shall be ¼" thick, smooth both sides. Hardboard exposed one side to be ¼" thick, pre-finished in putty color to match cabinet interior. Opposite face pre-finished with neutral color balance coating.

A. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or, if not indicated, as required by woodwork quality standard.

1. Manufacturers: Subject to compliance with requirements, provide high-pressure decorative laminates by one of the following:
   a. Wilsonart
   b. Panolam
   c. Formica
   ~~d. TMI~~

~~e. Colmar Manufacturing Co.~~
~~f. Tru-Bilt System Two~~
~~g. Counterspace Incorporated~~
~~h. Taylor~~
~~i. Modular Concepts LLC~~

2.2 CABINET HARDWARE AND ACCESSORIES

A. Where close matching of cabinet hardware and door hardware is required, it may be preferable to specify cabinet hardware in Division 8.

B. Hinges shall be heavy duty, five knuckle 2-1/2" institutional type hinge. Mill ground, hospital tip, tight pin feature with all edges eased. Hinge to be full wrap around type of tempered steel .093 inch thick. Each hinge to have minimum seven screws #8, 5/8" F.H.S.M. to assure positive door action and alignment. One pair per door to 48 inch height. One and one-half pair over 48 inches in height. Hinge to accommodate 1/16 inch thick laminated door, and allow 270 degree swing. Finish to be Satin Chrome plated.

C. Pulls shall be satin chrome wire pull 3-1/2 inch – LH-321.

D. Drawer glides:
1. Standard drawers: National Lock Co., with positive instop. Nylon ball bearing rollers, both front and rear. Minimum 100 lb. load rating.
2. Shallow drawers: Grant No. 328, full extension.
3. File drawers: Grant No. 329, full extension.
4. File drawer followers: Knape & Vogt No. 476 follower and track assembly.

E. Catches:
1. LH-340 Magnetic catch for base and wall cabinets. Minimum 6 lb. pull.
2. LH-341 Magnetic catch for tall cabinets. Two per door. Minimum 14 lb. pull per catch.

F. Adjustable shelf clips shall be LH-352 heavy duty shelf support clips with positive locking pin for back two supports on all adjustable shelves. Molded of natural nylon. Alternative method of adjustable shelf locking is to rout out bottom of shelf to exact shape and depth of each shelf support so that shelf fits down over supports.

G. Locks: disc tumbler lock keyed and master keyed as indicated. Dull chrome finish.
1. Hinged doors and drawers National Lock No. 68-054, or equal
2. Sliding doors ¾ inch thick National Lock No. 68-057, or equal

2.3 MISCELLANEOUS MATERIALS

A. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls and elsewhere as required for corrosion resistance. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

2.4 FABRICATION

A. Fabrication shall be in strict accordance with specifications, approved shop drawings and the highest standards of the casework industry.

2.5 CONSTRUCTION

A. If all woodwork is same grade, retain first paragraph below and delete separate grades in other articles; otherwise, delete paragraph or retain as default and indicate exceptions in other articles.

B. Sub-base: Continuous base of ¾ inch unfinished plywood. Rubber or vinyl base may be furnished and applied by others. Tubular steel 1-1/4 inch square base painted black shall be furnished where specified.

C. Cabinet top and bottom – wall and base: Base cabinet bottoms to be putty colored polyester laminated core board interior side, ¾" thick with phenolic neutral colored backer sheet on concealed side. Wall cabinet bottoms and tops are 1" thick. Solid sub-top shall be furnished for all lower base cabinets. Finish of exposed side to be phenolic overlay neutral color. Exterior exposed wall cabinet bottoms shall be putty colored polyester laminate. Screws and fastening devices shall be concealed on bottom side of wall cabinets. Exposed edges shall be purified P.V.C., black or putty in color.

D. Cabinet ends: Putty colored polyester laminated core board interior side, ¾" thick with phenolic neutral colored backer sheet on concealed side. Holes drilled for adjustable shelves 2 inches o.c. for standard cabinetry. Exposed exterior cabinet ends to be laminated with high pressure plastic laminate.

E. Fixed and adjustable shelves: Putty colored polyester laminated core board two sides. Leading exposed edge of shelves to be edged with purified P.V.C., putty in color. Thickness: ¾" standard shelving to 36 inches wide. One inch shelving 36 inches wide and over. Instrument storage shelves to be ¾" thick consisting of 1/8" tempered sandalwood hardwood laminated to top and bottom of ½" core board core. Front leading edge rabbeted to receive ¾" x ¾" extruded metal edge.

F. Cabinet backs: standard cabinet back to be ¼" thick putty colored pre-finished hardboard for use on all cabinets with or without doors. Rear, unexposed side of back to receive continuous hot melt glue at joint between back and sides/top/bottom for sealing against moisture and vermin, and further contribute to case rigidity. Exposed exterior backs shall be ¾" core board faced with high pressure laminate.

G. Doors and Drawer fronts:
   1. Plastic laminated doors and drawer fronts to be 13/16" thick for all hinged and sliding doors. Core material to be ¾" thick, 45 lb. density core board bonded on exterior with high pressure laminate and with putty colored heavy gauge backing sheet on interior face. Exposed door and drawer fronts shall be edged with 3mm thick P.V.C. color thru with machine radii corners.

2. Stile and rail doors to be 13/16" thick plastic laminate door with ¼" plate glass. Available hinged or sliding. All exposed edges to be trimmed and glazed with extruded vinyl glazing bead.

H. Drawers: Drawer fronts shall be applied to drawer sub-front. High pressure plastic laminate exterior side with heavy gauge putty colored backing sheet on interior face. Total thickness 13/16". All edges shall be purified P.V.C., putty in color. Sides and backs of drawers to be ½" thick putty colored polyester laminated core board, sub-front same, except 5/8" thick.
1. Exposed top edge to be A.B.S. edge, putty in color. Drawer sides to be doweled to receive front and back, glued and pinned together. Drawer bottom shall be pre-finished putty color ¼" thick hardboard, housed and glued into front, sides and back. Underside of drawer to receive continuous hot melt glue at joint between bottom and back/sides/front for sealing and rigidity. Reinforce drawer bottoms as required with intermediate spreaders. Paper storage drawer fitted with hood and back. All drawers shall have roller guides as specified under paragraph 2.02 A.6.c. Drawer glides.

I. Vertical and horizontal dividers: one of the following as indicated by cabinet numbers:
1. Tempered hardboard ¼" thick, smooth both faces. Secured in cabinet with molded plastic clips.
2. Putty colored polyester laminated core board ¾" thick. Secured in cabinet with molded plastic clips. Edges to be P.V.C., putty in color.

J. Countertops: High pressure plastic laminate bonded to core board core. Thickness as shown on plans and specifications. Interior side to be properly balanced with heavy gauge neutral colored backing sheet. Edges shall be high pressure plastic laminate to match horizontal color. Furnish counter tops in design as shown on plans. Provide continuous tops of counter type cabinets fixed in a line.
1. Provide steel concealed brackets by A&M Hardware, Inc. or approved equal.
a. Size: Coordinate with countertop detail for required supporting arm depth.
b. Install bracket within stud wall construction directly to metal studs.

2.7 WORKMANSHIP

A. Delete this Article if shop finishing is not required. See Evaluations. Shop finishing can be used to help comply with LEED Credit EQ 4.2, which limits VOC content of paints and coatings used within building.

B. Retain paragraph below and delete other grade requirements, or delete below and specify grades under finish types. Finish grade can be different from Construction grade.

C. All exterior exposed vertical surfaces shall be finished with high pressure plastic laminate unless otherwise indicated. Laminate plastic to core board core with balancing sheet using a rigid type adhesive. Fabricate using cold press method with regulated pressure for a minimum of 8 hours at a minimum 70 degrees. Properly temper all material into factory under controlled humidity and temperature conditions prior to gluing.

D. Cabinet parts shall be accurately machined with interlocking dadoes and rabbets for premium quality graded joinery construction. Glue and screw all joints for maximum stability and construction.

E. End panels shall be dadoes and rabbeted to receive bottom, top and back. Back shall be housed into cabinet sides, top and bottom to insure rigidity and a fully closed cabinet.

F. Drawer bottom shall be fully housed into sides, back and sub-front. Sides of drawers to be fully doweled to receive drawer back, locked in fully to sides, fastened with glue and mechanical fasteners.

G. Hanging rails shall be applied to back side of all wall, base and tall cabinets for extra rigidity and to facilitate installation. Rails, cabinet backs, drawer bottoms shall be additionally secured by the hot melt glue process for extra strength.

H. All cases shall be square, plumb and true.

I. Provide removable back panels and closure panels for plumbing access where required. Easy accessible access panel. Access panels shall not be located behind drains, etc., where removal is difficult.

J. Design: Flush overlay reveal construction.

PART 3 - EXECUTION

3.1 STORAGE AND PROTECTION

A. Casework shall be protected in transit. Store under cover in a ventilated building not exposed to extreme temperature and humidity changes. Do not store or install casework in building until concrete, masonry and plasterwork is dry.

3.2 INSTALLATION (FOR ALL LAMINATED CASEWORK)

A. Before installation, condition woodwork to average prevailing humidity conditions in installation areas.

B. Before installing architectural woodwork, examine shop-fabricated work for completion and complete work as required, including removal of packing and backpriming.

C. Installation shall be in strict accordance with approved shop drawing and manufacturer's printed instructions. Installation shall be under the direct supervision of a factory representative of the manufacturer of the casework and countertops.

D. All components shall be fully assembled, installed and securely fastened in place, plumb and level in complete working order.

E. Securely attach all casework, cabinets, storage units, etc. to walls with toggle bolts. Cut out flooring materials as required for installation except at freestanding wood shelving units in Media Center and in Classrooms adjacent to demountable partitions.

F. All cabinets and tops shall be installed tight to adjacent walls with no open joints or gaps. Scribe tops to walls as required.

G. Any exposed screw heads required for cabinet installation shall be countersunk below laminate finish and filled with putty to match laminate.

H. Contractor shall provide blank fillers, corners, etc. as required. All fillers, corners, etc. shall match adjacent materials and finishes of base and wall cabinet doors. Provide matching base at these locations.

I. All casework shall be totally finished with no sharp or ragged edges, joints, etc. Ends of all casework shall be totally finished and match front of units.

J. Contractor shall be responsible for verifying all dimensions and conditions in field prior to fabrication and delivery.

K. Contractor shall coordinate fabrication and installation of all casework, etc. with plumbing and electrical connections.

L. Install caulking around perimeter of countertops, backsplashes.

M. Provide top and bottom closures at all fillers from face of cabinets to wall. Closures shall include the top of tall cabinets that do not carry back to the wall due to alignment of front faces.

N. All cabinets and drawers must be lockable in the nurse's suite.

3.3 KEYING

A. All casework doors and drawers shall have locks. Key all locks in each room alike with one master key. Installer to provide and set up key cabinet for all casework and turn over a Keying and bitting chart to Owner at time of Substantial Completion.

3.4 ADJUSTING AND CLEANING

A. Repair damaged and defective woodwork, where possible, to eliminate functional and visual defects; where not possible to repair, replace woodwork. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean woodwork on exposed and semiexposed surfaces. Touch up shop-applied finishes to restore damaged or soiled areas.

END OF SECTION 06 40 23

SECTION 08 14 16 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Solid core doors with wood veneer faces.
2. Factory finishing wood doors.
3. Factory fitting wood doors to frames and factory machining for hardware.

B. Related Sections:
1. Division 08 Section "Hollow Metal Doors and Frames" for wood doors in steel frames.
2. Division 08 Section "Glazing" for glass view panels in wood doors (except for fire-rated doors).
3. Division 08 Section "Door Hardware" for door hardware for flush wood doors and wood frames.

C. Standards and References: Comply with the version year adopted by the Authority Having Jurisdiction.

1. ANSI A208.1 – Wood Particleboard.
2. Intertek Testing Service (ITS Warnock Hersey) - Certification Listings for Fire Doors.
3. NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.
4. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association.
5. UL 10C - Positive Pressure Fire Tests of Door Assemblies; UL 1784 - Standard for Air Leakage Tests of Door Assemblies.
6. Window and Door Manufacturers Association - WDMA I.S.1-A Architectural Wood Flush Doors.

1.3 SUBMITTALS

A. Product Data: For each type of door indicated. Include details of core and edge construction, louvers, trim for openings, and WDMA I.S.1-A or AWS classifications. Include factory finishing specifications.

B. Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the wood door supplier in order to prepare the doors and frames to receive the finish hardware items.

C. Shop Drawings: Indicate location, size, and hand of each door; elevation of each kind of door; construction details not covered in Product Data; location and extent of hardware blocking; and other pertinent data.

1. Indicate dimensions and locations of mortises and holes for hardware.
2. Indicate dimensions and locations of cutouts.
3. Indicate requirements for veneer matching.
4. Indicate doors to be factory finished and finish requirements.
5. Indicate fire protection ratings for fire rated doors.

D. Samples for Initial Selection: For factory finished doors.

1. Factory finishes applied to actual door face materials, approximately 8 by 10 inches, for each material and finish. For each wood species and transparent finish, provide set of three samples showing typical range of color and grain to be expected in the finished work.

2. Corner sections of doors, 8 by 10 inches, with door faces and edges representing actual materials to be used.
   a. Provide samples for each species of veneer and solid lumber required.
   b. Finish veneer faced door samples with same materials proposed for factory finished doors.
3. Frames for light openings, 6 inches long, for each material, type, and finish required.

E. Warranty: Sample of special warranties.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain flush wood doors through one source from a single manufacturer wherever possible.

B. Quality Standard: AWI Quality Standard: AWI's "Architectural Woodwork Quality Standards" for grade of door, core, construction, finish, and other requirements.

C. Provide doors with STC ratings as indicated on the drawings.

D. Pre-installation Conference: Before installing wood doors, conduct conference at Project site in compliance with requirements of Division 1 Section "Project Meetings." Notify participants at least 5 working days before conference.
   a. Meet with Owner, Architect, and door Installer.
   b. Review methods and procedures related to door installation, including manufacturer's written instructions.
      Installation Note:
      Surface mounted hardware, on mineral core doors, must be anchored on an inner blocked door using a No. 12 screw which penetrates the door by a minimum of 1-1/4". 9/64" pilot holes must be drilled the depth of the screws. Do not use combination screws.
      Performance Standards
      Adhesive Bond Durability WDMA TM-6:
      Extra Heavy Duty: Type II
      Screw Holding Capacity WDMA TM-10, 1990:
      Door Face / Core: 700 lbs.
      Vertical Door Edge: 500 lbs.
      Horizontal Door Edge: 500 lbs.

NOTE Other formulations may exhibit similar performance characteristics, but must meet or exceed the performance levels for the systems specified to be considered as equal.

Interior Blocking Options

Wide Stile Back: 4" width; 1-1/2" height
Wide Rail: 5" width; 1-1/2" height
Intermediate Rail: 5" width; 1-1/2" height
Lock Block: 5" x 18" width; 1-1/2" height
Closer Block: 5" width; 1-1/2" height

1.5 DELIVERY, STORAGE, AND HANDLING

A. Comply with requirements of referenced standard and manufacturer's written instructions.

B. Package pre-finished doors individually in plastic bags or cardboard cartons and wrap bundles of doors in plastic sheeting.

C. Mark each door on top rail with opening number used on Shop Drawings.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weather tight, wet work in spaces is complete and dry, and HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.7 WARRANTY

A. General Warranty: Door manufacturer's warranty specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.

B. Door Manufacturer's Warranty: Submit written agreement on door manufacturer's standard form, signed by manufacturer, Installer, and Contractor, agreeing to repair or replace defective doors that have warped (bow, cup, or twist) more than ¼" in a 42-by-84 inch section or that show telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span, or do not comply with tolerances in referenced quality standard.
   1. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
   2. Warranty shall be in effect during the following period of time after the date of Substantial Completion:
      a. Stave-Core Interior Doors: Life of installation

PART 2 - PRODUCTS

2.1 DOOR CONSTRUCTION – GENERAL

A. Door openings shall meet all applicable codes in relation to ingress/egress and ADA. Doors shall have a minimum clear opening of 36". Exceptions may be made only to closets without clear floor space.

B. Interior wood doors are to be 5 ply ~~stave core~~ with a hard wood finish. Flush wood doors are to be specified factory finished. Flush wood doors are to be specified factory fit doors to frame and factory machining for hardware. Door thickness is to be 1 ¾". The specified manufacturer shall provide a ten (10) year warranty for doors. Doors to be blocked to accept the approved hardware.

C. Face veneers to be standard 2 or 3 ply face panels, red oak or birch veneer premium grade. Match faces and grade of non-rated doors of same area of building. Vertical stiles shall be hardwood matching the face veneer.

D. Require door and frame construction at labeled doors to be in accordance with applicable codes and UL requirements. Provide metal embossed label designating UL classification.

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

1. Masonite Architectural: Aspiro Series
2. VT Industries: Heritage Collection
3. Graham: GPD
4. Marshfield: Signature

2.2 LIGHT FRAMES AND GLAZING

A. Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with the flush wood door manufacturer's written instructions.

2.3 FABRICATION

A. Factory fit doors to suit frame opening sizes indicated. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.

1. Comply with requirements in NFPA 80 for fire rated doors.

B. Factory machine doors for hardware that is not surface applied. Comply with final hardware schedules, door frame Shop Drawings, DHI A115-W series standards, and hardware templates.

1. Coordinate with hardware mortises in metal frames to verify dimensions and alignment before factory machining.
2. Metal Astragals: Factory machine astragals and formed steel edges for hardware for pairs of fire rated doors.

C. Transom and Side Panels: Fabricate matching panels with same construction, exposed surfaces, and finish as specified for associated doors. Finish bottom edges of transoms and top edges of rabbeted doors same as door stiles.

D. Openings: Cut and trim openings through doors in factory.

1. Light Openings: Trim openings with moldings of material and profile indicated. If not indicated, provide standard pre-finished metal trim kits in color as selected by Architect from manufacturer's standard colors.
2. Glazing: Comply with applicable requirements in Division 08 Section "Glazing."
3. Fire-rated Glazing: Factory install glazing for rated doors and ship to Project Site as completely assembled units.
4. Louvers: Factory install louvers in prepared openings.

E. Electrical Raceways: Provide flush wood doors receiving electrified hardware with concealed wiring harness and standardized Molex™ plug connectors on both ends to accommodate up to twelve wires. Coordinate connectors on end of the wiring harness to plug directly into the electrified hardware and the through wire transfer hardware or wiring harness specified in hardware sets in Division 08 "Door Hardware". Wire nut connections are not acceptable.

2.4 FACTORY FINISHING

A. General: Comply with referenced quality standard for factory finishing. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.

1. Finish faces, all four edges, edges of cutouts, and mortises. Stains and fillers may be omitted on top and bottom edges, edges of cutouts, and mortises.

B. Transparent Finish: Provide a clear protective coating over the wood veneer allowing the natural color and grain of the selected wood species to provide the appearance specified. Stain is applied to the wood surface underneath the transparent finish to add color and design flexibility.

1. Grade: Premium.
2. Finish: Meet or exceed WDMA I.S. 1A TR6 Catalyzed Polyurethane finish performance requirements.
3. Staining: As selected by Architect from manufacturer's full range.
4. Sheen: Satin.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine doors and installed door frames before hanging doors.

1. Verify that frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
2. Reject doors with defects.

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

3.2 INSTALLATION

A. Hardware: For installation, see Division 8 Section "Door Hardware."

B. Installation Instructions: Install doors to comply with manufacturer's written instructions and the referenced quality standard, and as indicated.

1. Install fire rated doors in corresponding fire rated frames according to NFPA 80.

C. Factory Fitted Doors: Align in frames for uniform clearance at each edge.

D. Factory Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

A. Operation: Re-hang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors that do not comply with requirements. Doors may be repaired or refinished if work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 08 14 16

SECTION 08 71 00 - DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Work under this section comprises of furnishing and installing commercial door hardware needed for a complete and operational system for following:
   1. Swinging doors.
   2. Other doors to the extent indicated.

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

   1. Mechanical door hardware.
   2. Cylinders specified for doors in other sections.

C. Products Supplied but not Installed under this Section:
   1. Cylinders for locks on storefront entrance doors
   2. Final replacement cores and keys installed by Owner

D. Related Sections:

   1. Division 08 Section “Hollow Metal Doors and Frames”.
   2. Division 08 Section “Flush Wood Doors”.
   3. Division 08 Section “Access Doors”.

E. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction. Publications listed herein are part of this specification to extent referenced

   1. ANSI A156 Series
   2. ANSI A115W Wood Door Hardware Standards; Hardware Preparation
   3. ANSI A115 Specifications for Steel Door and Frame Preparation for Hardware
   4. ANSI A117.1 Accessible and Usable Buildings and Facilities.
   5. ANSI A250.6 Hardwar on Steel Doors (Reinforcement – Application)
   6. ICC/IBC - International Building Code.
   7. Americans with Disabilities Act Accessibility Guidelines (ADAAG)
   8. DHI Publication - Abbreviations and Symbols
   9. DHI Publication - Basic Architectural Hardware
   10. DHI Publication - Hardware Reinforcements on Steel Doors and Frames
   11. DHI Publication - Installation Guide for Doors and Hardware
   12. DHI Publication - WDHS-1 Template Book Criteria for Wood Doors
   13. DHI Publication - WDHS-3 Recommended Hardware Locations for Wood Flush Doors
   14. DHI Publication - For Processing Hardware Schedules and Templates
   15. NFPA 70 - National Electrical Code.

16. NFPA 80 - Fire Doors and Windows.
17. NFPA 101 - Life Safety Code.
18. NFPA 105 - Installation of Smoke Door Assemblies.
19. NFPA 252 – Standard Methods of Fire Tests of Door Assemblies
20. State Building Codes, Local Amendments.
21. SDI-109 Hardware for Standard Steel Doors and Frames
22. UL Standard 10C Positive Pressure Fire Tests of Door Assemblies
23. UL Standard 1784 Air Leakage Tests of Door Assemblies
24. UL Building Materials Directory

1.3 SUBMITTALS

A. Submittal Sequence

1. Door installation Supervisor qualification; must show a working history of successful door and hardware installation experience of equal project scope.

2. Submit final Door Hardware Schedule at earliest possible date, particularly where approval of Door Hardware Schedule must precede fabrication of other work that is critical in Project construction schedule.

3. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to coordinated review of Door Hardware Schedule.

B. Product Data

1. Submit manufacturer’s technical product fact sheets describing each item of hardware to be provided including material descriptions, dimensions of individual components and profiles, and finishes

C. Door Hardware Schedule

1. Submit door hardware schedule prepared by or under supervision of a DHI certified Architectural Hardware Consultant (AHC) or Certified Door Consultant (CDC) detailing fabrication and assembly of door hardware, as well as procedures and diagrams.

2. Coordinate Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.

3. Format:
   a. Comply with scheduling sequence and vertical form as described in DHI’s Sequence and Format for the Hardware Schedule.
   b. Horizontal hardware schedules are not acceptable.
   c. Submit 6 copies of hardware schedule.

4. Organization:
   a. Organize door hardware schedule into hardware sets indicating complete designations of every item needed for each door or opening.
   b. Organize door hardware sets in same order as in Door Hardware Schedule contained in Part 3 of this specification.
   c. For doors of different sizes or where hinges, locks, or closers are different, a separate heading shall be used. No labeled openings shall be combined with non-labeled openings.

5. Content:
   a. Type, style, function, size, label, hand, and finish for each door hardware item
   b. Name and manufacturer of each item
   c. Fastenings and other pertinent information
   d. Location of each door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule
   e. Explanation of abbreviations, symbols, and codes contained in schedule
   f. Mounting locations for door hardware
   g. Door and frame sizes and materials

D. Shop Drawings:

1. Provide a copy with each hardware schedule submitted.
   a. Electrical components shall be listed by opening in hardware submittals.

2. Submit details of interface between electrified door hardware and following:
   a. Fire alarm system
   b. Access control system
   c. Security system
   d. Building control system shall be integrated into the security system allowing for the system to be deactivated upon the swipe or placement of the proximity card

3. Provide description of each electrified door hardware function, including location, sequence of operation, and interface with other building control systems; include description of component functions that occur in following situations:
   a. Authorized person wants to enter
   b. Authorized person wants to exit
   c. Unauthorized person wants to enter
   d. Unauthorized person wants to exit

4. Provide elevation drawings of electronic hardware and systems identifying locations of system components with respect to their placement in door opening.
   a. Indicate mounting heights and locations of electronic components listed by opening in hardware submittals.

5. Wiring Diagrams:
   a. Submit detail wiring for power, signal, and control systems for each opening that requires electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include following:

System schematic
Parallel Wiring not Point-to-point wiring diagram
Riser diagram

1) Elevation of each door

E. Samples

1. Submit samples of door hardware items if requested by Architect. Accepted samples may be incorporated into work.

F. Quality Assurance Submittals

1. Test Reports:
   a. Provide product test reports based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified testing agency, indicating current products comply with requirements.

2. Certificates
   a. Submit Product Certificates signed by manufacturers of electrified door hardware certifying that electronic hardware and systems being furnished comply with specified requirements.
   b. Submit a statement from manufacturer certifying that door hardware is approved for use on types and sizes of labeled fire doors and complies with listed fire door assemblies.

3. Manufacturer's Instructions
   a. Submit instructions for installation and maintenance of operating parts and finish.
   b. Furnish templates and schedules needed for fabrication of hollow metal doors and frames, wood doors and frames, and other items related to hardware.
   c. Submission for templates and template list shall follow procedures established by DHI publication For Processing Hardware Schedules and Templates.

4. Field Quality Assurance:
   a. To ensure and validate the proper closing, latching, sealing and securing of a door the manufacturer of the gasket shall provide a program of Field Quality Assurance.
   b. The program shall be acceptable to the architect and provide the site superintendent and installers with knowledge as to the industry acceptable standards for tolerances in manufacturing and field installation.
   c. The program shall create an audit trail of documentation for the inspection of pre-machined doors for machining and sizing, including hinge backset and depth of mortise, width and height. An "Installation Checklist" and the "Industry Guidelines" shall also be furnished for verification of acceptability of related door, frame and hardware components prior to installing the gasket. These forms shall be part of the submittal process and shall be acknowledged by the site superior and returned to the manufacturer in a timely manner.
      1) http://dhsi-seal.com/inspectionforms.cfm

G. Closeout Submittals:

1. Operation and Maintenance:
   a. Provide operation and maintenance data for electrically operated and non-electrical hardware consisting of technical information as follows:
      1) Maintenance instructions for each item of hardware
      2) Catalog pages for each product
      3) Parts list for each product
      4) Copy of final hardware schedule
      5) Copy of final keying schedule
   b. Provide complete operational descriptions of electronic components listed by opening in hardware submittals.
      1) Operational descriptions shall detail how each electronic component functions within opening incorporating conditions of ingress and egress.
      2) Provide complete point-to-point wiring diagrams for electronic components listed by opening in hardware submittals.
   c. Include a copy of operational and maintenance descriptions in Operation and Maintenance Data Manual.

H. Warranties:

1. Submit Special warranties specified in this section

I. Keying Schedule:

1. Prepare and submit a keying schedule using keyset symbols referenced in DHI manual Keying Systems and Nomenclature. Include schematic keying diagram and index each key set to unique door designations.
2. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
3. Provide one complete bitting list of key cuts.
4. Keying schedule shall be prepared by or under supervision of supplier, detailing Owner's final keying instructions for locks.
5. Submit 4 copies of keying schedule.

J. Deliver keys and bitting list to the Owner by registered mail or overnight package service.

1.4 QUALITY ASSURANCE

A. Qualifications:

1. Door Hardware Supplier:
   a. Door hardware supplier shall have warehousing facilities in Project's vicinity and shall employ a qualified Certified Architectural Hardware Consultant (AHC) available during course of Work to consult with Contractor, Architect, and Owner about door hardware and keying.
   b. Electrified Door Hardware:
      1) Supplier shall be an experienced door hardware supplier who has completed projects with electrified door hardware similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance, and who is acceptable to manufacturer of primary materials.
      2) Supplier shall prepare data for electrified door hardware, including shop drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.

2. Architectural Hardware Consultant:
   a. Architectural Hardware Consultant shall be a person who is currently certified by Door and Hardware Institute as an Architectural Hardware Consultant (AHC) and who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project.
   b. Architectural Hardware Consultant shall be experienced in providing consulting services for electrified door hardware installations.
   c. Architectural Hardware Consultant shall conduct a pre-install training session onsite training on the topic of the project specific hardware.
   d. Architectural Hardware Consultant shall perform and project punch-list for distribution and follow up to confirm completion.

3. Installer:
   a. Door hardware shall be installed by an experienced installer who has completed door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

4. Single Source Responsibility:
   a. Obtain each type and variety of door hardware from a single manufacturer, unless otherwise indicated.
   b. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated.
   c. Manufacturers that are listed to perform electrical modifications, by a testing and inspecting agency acceptable to authorities having jurisdiction, shall be acceptable.

B. Regulatory Requirements:

1. Hardware and installation shall comply with provisions and standards listed in IBC 2003.

2. Federal Accessibility Regulations:
   a. Americans with Disabilities Act - ADA
   b. Uniform Federal Accessibility Standards - UFAS
   c. ANSI A117.1 Standard for Accessible and Usable Building s and Facilities
   d. Accessibility Guidelines for Buildings and Facilities (ADAAG)
   e. National Fire Protection Association:
   f. NFPA 80 Standard for Fire Doors and Windows
   g. NFPA 101 Life Safety Code
   h. NFPA 105 Recommended Practice for the Installation of Smoke-Control Door Assemblies
   i. NFPA 252 Standard Methods of Fire Tests of Door Assemblies
   j. Underwriters Laboratories Inc.:
   k. UL 10C Positive Pressure Fire Tests of Door Assemblies
   l. UL 1784 Air Leakage Tests of Door Assemblies
   m. ANSI/BHMA Standards
   n. A115-W Series
   o. A115 Series
   p. A156 Series:

3. Door and Hardware Institute:
   a. Abbreviations and Symbols
   b. Basic Architectural Hardware
   c. Hardware for Labeled Fire Doors (with supplements)
   d. Hardware Reinforcements on Steel Doors and Frames
   e. Installation Guide for Doors and Hardware
   f. WDHS-1 Template Book Criteria for Wood Doors
   g. WDHS-3 Recommended Hardware Locations for Wood Flush Doors

C. Certifications:

1. Hardware used in labeled fire or smoke rated openings shall be bear identifying label or mark indicating listing by Underwriters Laboratories, Inc., ITS (Warnock Hersey International), or other nationally recognized organizations acceptable to authority having jurisdiction.

2. Provide door hardware for fire-rated door assemblies complying with NFPA 80 for fire ratings indicated, based on testing in compliance with NFPA 252.

3. Electrified door hardware shall be listed and labeled as defined in NFPA 70, Article 100.

D. Pre-Installation Meetings:

1. Conduct conference on-site to comply with requirements in Division 1 for Project Meetings.

2. Topics to be discussed at meeting shall include:
   a. Review items such as proper installation sequence, adjustments, attachment, and location of door hardware.
      1) Proof of qualification.
      2) Review submittals.
      3) Keying review.
      4) Mock-up review if available.
      5) Special project conditions.
   b. Review methods and procedures related to electrified door hardware including but not limited to following:
      1) Inspect and discuss electrical roughing-in and other preparatory work performed by other trades.
      2) Review sequence of operation for each type of electrified door hardware.
      3) Review required testing, inspecting, and certifying procedures.

3. Review and finalize construction schedule and verify availability of materials, installer's personnel, equipment, and facilities needed to make progress and avoid delays

E. Keying Conference:

1. Conduct conference on-site to comply with requirements in Division 1 for Project Meetings. Participants shall be Owner's representative, Contractor, hardware supplier, and lock manufacturer's representative.

2. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including but not limited to following:
   a. Function of building, flow of traffic, purpose of each area, degree of security needed, and plans for future expansion.
   b. Preliminary key system schematic diagram
   c. Requirements for key control system
   d. Address for delivery of keys
   e. Key section and symbol

F. Coordination:

1. Templates:
   a. Obtain and distribute templates for doors, frames, and other work specified to be factory prepared for installing door hardware to parties involved.
   b. Check shop drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with specified requirements.

2. Electrical System Roughing-In:
   a. Coordinate layout and installation of electrified door hardware with connections to power supplies, fire alarm system and detection devices, access control system, security system, building control system.
   b. Refer to work specified in Division 16 applicable to electrified hardware items including, but not limited to conduit, pull boxes, wiring, and final connections.

1.5 DELIVERY, STORAGE, AND HANDLING

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

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

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

1.6 COORDINATION

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

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

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

1.7 SPECIAL WARRANTY

A. Provide written warranty, executed by manufacturer agreeing to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period. Failures include but are not limited to following:
1. Structural failures including excessive deflection, cracking, or breakage
2. Faulty operation of operators and door hardware
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering

B. Warranty period shall be for not less than 3 years from Date of Substantial Completion unless otherwise indicated.
1. Manual Closers: 10 years

C. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of Contract Documents.

1.8 MAINTENANCE

A. Furnish 3 dozen extra screws and other fasteners of each size, type and finish used with the hardware items provided.

B. Extra materials shall be Delivered to HCPS as directed by Owner.

1. Maintenance Service:
   a. A hardware adjustment shall be performed 6 months after substantial completion or building occupancy.
   b. Beginning at Substantial Completion, provide 12 <Insert number> months' full maintenance by skilled employees of door hardware installer.
   c. Include quarterly preventive maintenance, repair or replacement of worn or defective components, lubrication, cleaning, and adjusting as needed for proper door hardware operation.
   d. Provide parts and supplies as used in manufacture and installation of original products.

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

PART 2 - PRODUCTS

2.1 MATERIALS

A. General Requirements:

1. Hardware shall be of best grade, entirely free of imperfections in manufacture and finish, and shall satisfactorily perform various functions needed.

2. Furnish necessary screws, bolts or others fastenings of suitable size and type to anchor hardware in position and match hardware as to material and finish. Provide Phillips flat-head screws except as otherwise indicated.

3. Do not use through-bolts for installations where bolt head or nut opposite face is exposed in other work.

4. No doors shall include concealed vertical rods.

5. Exterior doors shall have no active trim, unless required by current codes. In double door applications no more than one exterior door shall have active exterior trim for security purposes.

6. High traffic and high abuse areas such as locker rooms and athletic areas shall have the minimum active trim allowed be current codes.

7. Automatic door openers shall not be utilized.

8. Drawings show direction of slide, swing or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as indicated. Items of hardware not definitely specified, but needed for satisfactory installation of hardware shall be provided. Such items shall be of type and quality suitable for service needed and comparable to adjacent hardware.

9. Finishes shall comply with ANSI A156.18/ BHMA 1301. Finish designations cross references shall be as follows:

BHMA Code	Description	Nearest US Equiv.	BHMA Category	Basis Metal
600	Primed for painting	USP	D	Steel
626	Satin chromium plated	US26D	A	Brass; Bronze
628	Satin aluminum, clear anodized	US27	A	Aluminum
630	Satin stainless steel	US32D	A	Stainless Steel
652	Satin chromium plated	US26D	E	Steel
689	Aluminum painted	US28	E	Any

B. Substitutions:

1. Manufacturers and model numbers listed are to establish a standard of quality and design. The architect and Owner must approve all product substitutions. Any request for substitutions must be submitted 10 days before the bid date, to allow sufficient time for an addendum to be added to the bid document. In accordance with Section 016000, required data and physical samples must be provided to the architect and Owner for review.

2.2 HINGES

A. Butt Hinges: ANSI/ BHMA A156.1

1. Provide full mortise, template, 5-knuckle, button tip hinges with non-rising loose pins and ball type bearings.

2. Out-swinging exterior doors shall be furnished with stainless steel, hinges with non-removable pins or security studs.

3. Interior doors with locksets shall be furnished with non-removable pins hinges.

4. Hinges shall be furnished in following quantities:
   a. Doors up to 90” in height: 3 hinges
   b. Doors over 90” in height: Add 1 hinge for every additional 30”

5. Furnish hinge sizes not less than as follows:
   a. For 1 3/4” Thick Doors: Standard weight
   b. Doors up to 3’-0” wide: 4 1/2 x 4 1/2 x 0.134 gauge
   c. Doors 3’-0” to 4’-0” wide: 5 x 4 1/2 x 0.146 gauge

6. For 1 3/4” Thick Doors: Heavy weight
   a. Doors up to 3’-0” wide: 4 1/2 x 4 1/2 x 0.180 gauge
   b. Doors 3’-0” to 4’-0” wide: 5 x 4 1/2 x 0.190 gauge

7. Furnish hinges of sufficient throw where needed to clear trim or permit doors to swing 180 degrees.

8. Finishes:
   a. Exterior Doors: BHMA #630 (US32D)
   b. Interior Doors: BHMA #652 (US26D)

9. Acceptable Manufacturers:

	Steel	Stainless Steel
Bommer:	BB5000	BB5002
Hager:	BB1279	BB1191
Ives:	5BB1	5BB1

10. Acceptable Manufacturers:

		Steel	Stainless Steel
a.	Bommer:	BB5004	BB5006
b.	Hager:	BB1168	BB1199
c.	Ives:	5BB1HW	5BB1HW

B. Geared Continuous Hinges are not acceptable, in cases when they are absolutely necessary they shall be: ANSI/ BHMA A156.26 Grade 1

1. Provide full mortise, non-handed, full height hinges with interlocking cover and symmetrically templated hole pattern made from extruded aluminum.

2. Finish: BHMA #628 (US27) <Edit to suit Project>

3. Acceptable Manufacturers:

   a. Hager: 780-224 HD
   b. Ives: 224HD
   c. Select: SL-24HD

2.3 CYLINDERS AND KEYING

A. General Requirements:

1. Cylinders to be keyed into existing Schlage Everest/ D Family, Level 9G key system. Or match existing keyway on small renovations; consult owner.

2. Meet with Architect and Owner to finalize keying requirements and obtain keying instructions in writing. Keying schedule shall be established in compliance with specific requirements determined in consultation with Owner. HCPS Building Hardware Department shall provide key section and symbol.

3. Provide temporary construction keying system during construction period. Owner or Owner's Security Agent will void operation of construction keys.

4. Permanent cores shall be delivered to the Owner, as per their instruction, directly from the manufacturer. Installation of permanent cores and removal of construction cores shall be by the Owner and Contractor, with Owner's supervision and responsibility for key control.

B. Key Control System:

1. Furnish one SITEMASTER 200® key control system complete with indexed door numbers, key codes, bittings, building numbers, room numbers, lock function, design, and finish.

2. In addition, include model numbers, handing, design, and functions of exit devices and door closers.

3. Transmit to Owner by secure carrier, return receipt requested.

C. Cylinders:

1. Permanent cores shall be keyed by manufacturer and configured into sets or subsets, master keyed or great grand master keyed as directed by Owner.

2. Permanent keys shall be marked with applicable blind code for identification. These visual key control (VKC) marks or codes shall not include actual key cuts.

3. Permanent cores shall be marked with concealed key control (CKC). These marks or codes shall not include actual key cuts.
   a. Key and cylinder identification stamping shall be approved by Architect and Owner. Failure to properly comply with these requirements shall be cause for replacement of cylinders and keys involved at no additional cost to Owner.

4. Equip locks and cylinders with patent protected, full size cylinders with LFIC six nickel silver finger pins. Provide a minimum of LFIC six pins with nickel silver bottom pins. Cylinders shall allow for multiplex master keying, configured to Owner's instructions.

D. Key Material:

1. Provide manufacturer's standard embossed keys of nickel silver to ensure durability. Key Quantity: Furnish keys in following quantities:

   a. Grand Master Keys: 6 per project
   b. Master Keys: 10 per master group
   c. Control Keys: 3 per project
   d. Change Keys:
   1) Locks Keyed Alike: 15 per set
   2) Locks Keyed Different: 5 per lock
   e. Key Blanks: 200 per project
   f. Temporary Construction Master Keys: 10 total
   g. Temporary Construction Control Keys: 3 total

2. Deliver end user exclusive permanent key blanks and other security keys directly to Owner's representative from manufacturer by secure courier, return receipt requested. Failure to properly comply with these requirements shall be cause for replacement of cylinders and keys involved at no additional cost to Owner.

E. Acceptable Manufacturer:
   Cylinders and Keys: Schlage - Everest Primus and Everest Restricted patented full size cylinders

2.4 LOCKSETS AND LATCH SETS

A. Padlocks:

1. Provide padlocks meeting ASTM, Grade 6.

2. Key to existing Grand Master Key interchangeable core key system.
3. Double-locking, triple-plated, heat treated, molybdenum alloy steel
4. Triple-plated, hardened steel body with internal stainless steel components.
5. 5/16” shackle, length determined by Owner.
6. Acceptable Manufacturer:

    a. Schlage: KS23 Series w/ FSIC (In renovations HCPS must be consulted prior to specification of key way)

B. General Requirements:
1. Shape of lever shall be easy to grasp with one hand and not require tight grasping, tight pinching, or twisting of wrist.
2. Locksets and latch sets shall not require more than 15 lbf to release latch. Locks shall not require use of a key, tool, or special knowledge for operation.
3. Provide manufacturer’s standard wrought box strike for each latch set and lockset with curved lip extended to protect frame without catching clothing. Finish shall match hardware set.
4. Provide knurling or abrasive coating to lever on corridor side of openings leading to hazardous areas, such as electrical closets and mechanical equipment rooms as a tactile warning to visually impaired persons. Apply tactile warning on side of lever facing door only.
5. All classrooms offices and conference rooms shall have entry function hardware which includes buttons or thumb turn on interior trim.

C. Mortise Locksets and Latch sets:
1. Provide heavy duty mortise locksets and latch sets that comply to ANSI A156.13, Series 1000, Grade 1 Operational. Functions as listed in Hardware Sets.
2. Locksets shall be manufactured from heavy gauge steel, 1/8” minimum lock case thickness, containing components of steel with Zinc dichromate plating for corrosion resistance.
3. Locksets are to have a standard 2 3/4” backset with a full 3/4” throw. Deadbolt shall be a full 1” throw, constructed of stainless steel.
4. Latch bolts shall be two piece ¾ inch, stainless steel, and anti-friction.
5. Lock shall be easily handed without opening the lock case.
6. Lock trim shall be through-bolted to door to assure correct alignment and proper operation.
7. Provide Security Classroom function locks on all classrooms.
8. Finish: BHMA #626 (US26D) <Edit to suit Project>
9. Acceptable Manufacturers:

    a. Sargent: 8200 Series with LNP lever design
    b. Schlage: L Series with 06A lever design
    c. Corbin/Russwin: ML2000 Series x 340L60/61 w/ PSA lever design

2.5 DOOR CLOSERS

A. General Requirements:

1. Closers shall be sealed and filled with all-weather fluid. Provide stable hydraulic fluid to withstand a temperature range of 120 degrees F to minus 30 degrees F.
2. Door Schedule must include a Degree of Opening for each door, to allow for proper closer installation.

3. Size closers in compliance with requirements for accessibility for handicapped and recommendations of manufacturer. Provide barrier free and delayed action features as needed. Comply with following maximum opening-force requirements:

    a. Interior Hinged Doors: 5.0 lbs.
    b. Exterior Hinged Doors: 8.5 lbs.
    c. Fire Doors: Minimum opening force allowable by authorities having jurisdiction

B. Surface Closers: ANSI/ BHMA A156.4, Grade 1

1. Surface mounted closers shall be full rack-and-pinion type closer with full complement bearings, single piece forged piston, chrome silicon steel spring, non-critical screw valves; back check, sweep and latch, all weather fluid.
2. Furnish closers complete with rectangular, non-ferrous covers, necessary brackets and fasteners for top of door surface mounted units.
    a. Finish: BHMA #689
3. Closer products with any type of pressure relief valve system shall not be acceptable.
4. Closers shall be ISO 9000 certified. Units shall be stamped with date of manufacturer code.
5. Non-sized closer to be independent lab tested for 10,000,000 cycles.
6. Closers shall be non-sized, field adjustable from size 1 to 6.
7. Furnish non-sized closers with 1 1/2” diameter piston.
8. Furnish Special Rust Inhibitor (SRI) finish at all Exterior and Pool openings.
9. Provide steel thru bolts. Aluminum thru bolts not accepted.
10. Do not through-bolt if there has been special blocking specified in wood door specification; refer to Section 08210.
11. Locate closers on interior side of exterior doors and on non-public side of interior doors, unless otherwise specified.
12. Provide forged arms at doors scheduled with parallel arm applications and no track rolling arm.
13. Provide plates, brackets and special templates when needed for interface with particular header door, frame, and wall conditions and adjacent hardware.
14. No hold open arms are permitted on exterior doors.
15. Closers shall be tested to 100 hours of salt spray test in compliance with ASTM B117; furnish data on request.
16. Acceptable Manufacturers:

    a. Interior

Dorma	Sargent	LCN
8916	281-0	
8916-SPA	281-P10	4111
8916-DS	281-PS	4111-CUSH
8916-S-DS	281-CPS	4111-SCUSH

2.6 FLUSH BOLTS

A. Flush bolts: ANSI/ BHMA A156.16

1. Provide minimum 1/2” diameter rods of brass or stainless steel, with minimum 12” long rods for doors up to 7’-0” in height. Provide longer rods as needed for doors exceeding 7’-0” in height

2. Provide dustproof strikes for bottom flush bolt applications, except where special threshold construction provides non-recessed strike for bolt.
3. Finish: BHMA #630 (US32D)
4. Acceptable Manufacturers:
    a. Ives: FB458
    b. Rockwood: 555
    c. Trimco: 3917

B. Combination Flush bolts: ANSI/ BHMA A156.16

1. Provide combination flush bolts using two automatic flush bolts for top and bottom of the door. When active leaf is opened flush bolts are opened. Automatic flush bolts engage each time inactive leaf is closed.
2. Provide dust-proof strikes for bottom flush bolt applications.
3. Finish: BHMA #630 (US32D) <Edit to suit Project>
4. Acceptable Manufacturers: (wood doors)

    a. Ives: FB41P
    b. Rockwood: 1945
    c. Trimco: 3815

2.7 ARCHITECTURAL TRIM

A. Push Plates, Pull Bars, and Grips
1. General Requirements: ANSI/ BHMA A156.6
    a. Provide concealed mounting where possible. Where exposed fasteners are used, they shall be countersunk.
    b. Push plates shall be beveled on four edges.
    c. Where applicable plates shall be prepared to receive cylinder locks or thumb turns as scheduled.
    d. Finish: BHMA #630 (US32D)

2. Push Plates:
    a. Size: 8” x 16”
    b. Thickness (US GA): 18 gauge; .050”
    c. Acceptable Manufacturers:
    1) Hager: 30S
    2) Ives: 8200
    3) Rockwood: 70C

3. Pull Plates:
    a. Size: 4” x 16”
    b. Thickness (US GA): 18 gauge; .050”
    c. Pull Size: 1” diameter; 10” center-to-center
    d. Acceptable Manufacturers:
    1) Hager: 34G
    2) Ives: 8302-0
    3) Rockwood: 110 x 70C

4. Pull Bars: NOT PERMITTED

B. Door Protection Devices

1. General Requirements: ANSI/ BHMA A156.6
    a. Fabricate protection plates (kick, or mop) not more than 2" less than door width on stop side and not more than 2" less than door width on pull side, x height indicated.
    b. Protection plates shall be beveled on three edges.
    c. Furnish protection plates for concealed mounting where possible. Where exposed fasteners are used, they shall be countersunk.
    d. Metal Plates: Stainless steel
    1) Thickness (US GA): 18 gauge; .050"
    e. Finish: BHMA #630 (US32D)

2. Kick Plates:
    a. Size: 10" Height
    b. Acceptable Manufacturers:
    1) Hager: 193S
    2) Ives: 8400
    3) Rockwood: kick plate

3. Mop Plates:
    a. Size: 4" Height
    b. Acceptable Manufacturers:
    1) Hager: 190S
    2) Ives: 8400
    3) Rockwood: mop plate

4. Surface Mounted Overhead Holders/Stops: ANSI/ BHMA A156.
    a. Description: Heavy-duty extruded brass, bronze or stainless steel stop/holders with shock absorber and no plastic parts
    b. Finish: BHMA #630 (US32D)
    c. Acceptable Manufacturers:
    1) GJ: 90 Series
    2) Rixson: Heavy Duty 9 Series

2.8 SEALS AND GASKETS

A. General Requirements: ANSI/ BHMA A156.22

1. Except as otherwise indicated, provide DHSI #105 weather stripping at each edge of every exterior door leaf.
2. Seals and gasket manufacturer shall show evidence that they can provide an STC of 30 or more on sealed openings. Evidence shall be provided that this STC, as well as any requirements for smoke gasket can be maintained under industry allowable tolerances for warp (AWI) and plumb (SDI). Evidence shall be provided that the gasket system can meet criteria under the Field Quality Assurance Standards.
    a. Any opening, allowing light to pass the frame perimeter (exclusive of the door bottom) shall be rejected. (U/L 1784)
    b. Gasket that binds the door, requiring more than 15# to release the latch is unacceptable. (NFPA 101)
    c. Filing of strike plates shall be unacceptable. (NFPA 80)
    d. To avoid self-adhesive failure, due to stretching during installation self adhesive frame seals shall be inelastic and shall not be subject to stretching. (Failure of a smoke seal voids listing of the opening).
    e. Provide DHSI #105 "Cush 'N' Seal".

3. Door Bottoms: Door sweeps used on exterior doors shall be NGP 101V or 100V as listed. Door bottom seals used on interior doors for sound, light transfer, smoke reduction or security shall be DHSI #CS-36, #A-MDB3 or #SSDB3 as selected and detailed in the hardware sets.
4. Meeting Stile Gasket: When a wood or metal astragal is not permitted, due to operation of the hardware or code restrictions, provide a self-adhesive seal at the meeting stiles that does not restrict the opening and closing of the door leafs.
    a. Provide DHSI #SA surface astragal.
    b. Where a mortise astragal can be used on unlabeled wood doors provide DHSI # A-MA.

5. Where positive pressure labeling is required surface applied intumescent, on either the door or frame is unacceptable.
6. Screw-on type weather strip on frames is unacceptable.

2.9 AUXILIARY HARDWARE

A. Silencers: ANSI/ BHMA A156.16
1. Furnish tamper proof resilient cushions designed to absorb shock and noise at openings without gaskets.
2. Provide 3 silencers per single door, and 2 for pairs of doors.
3. Acceptable Manufacturers:
    a. Hager: 307D
    b. Ives: SR64
    c. Rockwood: 608

B. Wall Bumpers: 2 1/2” diameter; 1” nominal projection
1. Finish: BHMA #626 (US26D)
2. Acceptable Manufacturers:
    a. Hager: 235W
    b. Ives: WS402CCV
    c. Rockwood: 403

C. Interior Floor-Mounted Stops: Dome stops with risers; 1” height
1. Finish: BHMA #626 (US26D) <Edit to suit Project>
2. Acceptable Manufacturers:
    a. Hager: 241F
    b. Ives: FS13
    c. Rockwood: 441

2.10 FABRICATION

A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.11 FINISHES

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

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

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

2.12 EXISTING HARDWARE

A. All hardware for doors listed as existing to remain in the door schedule or in the hardware sets will remain. The general contractor shall clean and adjust these items for proper alignment and operation.

2.13 EXISTING HARDWARE PREPS

A. The general contractor shall verify that all new hardware specified for existing doors and frames will be compatible with the existing hardware preparations. Lack of verification prior to bid, that requires additional work to the existing doors and frames or additional material, will be the responsibility of the general contractor.

2.14 OWNER'S STOCK

A. At completion of project, supply to the Owner the following items:

1. One (1) lockset, with trim, of each function supplied
2. Two (2) door closers of each series and hand
3. One (1) exit device with trim, of each application supplied

PART 3 - EXECUTION

3.1 EXAMINATION

A. Site Verification of Conditions:
1. Examine doors and frames with Installer present for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
2. Proceed with installation only after unsatisfactory conditions have been corrected.
3. Commencement of installation constitutes acceptance of conditions and responsibility for satisfactory performance.

3.2 PREPARATION

A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
1. Surface-Applied Door Hardware: Drill and tap doors and frames in compliance with SDI 109

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

3.3 INSTALLATION

A. General Requirements:
1. Install each door hardware item to comply with manufacturers' written instructions using manufacturers supplied fasteners.
2. Securely install finish hardware items in compliance with accepted schedule and templates furnished with hardware.
3. Install mortised items flush with adjacent surfaces.
4. Install locksets, surface mounted closers, and trim after finishing of doors and frames is complete.
    a. Where cutting and fitting is needed to install door hardware onto or into surfaces that are to be painted or finished in another way later, coordinate removal, storage, and reinstallation of door hardware with finishing work.
5. Set units level, plumb, and true to line and location. Adjust and reinforce attachment substrates as necessary for proper installation and operation.
6. Drill and countersink units that are not factory-prepared for anchorage fasteners. Space fasteners and anchors in compliance with industry standards.

B. Mounting Heights:

1. Mount door hardware units at heights indicated in following applicable publications, unless otherwise specifically indicated or required to comply with governing regulations:
    a. Steel Doors and Frames: ANSI A250.6
    1) DHI Publication Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames
    2) DHI Publication Recommended Locations for Builders' Hardware for Custom Steel Doors and Frames

    b. Wood Doors: DHI Publication WDHS-3

C. Door Stops:
1. Door stops shall be furnished for every door leaf. Install floor-mounted or wall-mounted stops, as scheduled. Overhead door holder shall be provided where floor or wall stops cannot be used. Provide proper wall blocking.
2. Place door stops in such a position that they permit maximum door swing, but do not present a hazard or obstruction. Furnish floor strikes for floor holders of proper height to engage holders of doors.
3. Floor stops shall be installed with risers as needed to accommodate finish flooring materials for proper relationship to door.

3.4 FIELD QUALITY CONTROL

A. Owner shall accompany and perform inspection with a qualified independent Architectural Hardware Consultant (AHC) to perform inspections and to prepare inspection reports.

1. Inspection Service:
    a. After installation of door hardware is complete, independent Architectural Hardware Consultant will inspect door hardware for proper application of finish hardware in compliance finish hardware schedule and keying schedule. In addition, check hardware for adjustment and proper operation.
    b. Prepare and submit, to Contractor, Architect, and Owner, a written report of inspection stating whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted. Report shall be submitted within 3 days following site visits.

c. Prior to final acceptance, the AHC shall finally back check and confirm all hardware has been installed according to the manufactures direction and adjusted for proper operation.

3.5 ADJUSTING

A. Initial Adjustment:
1. Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
2. Adjust door closer sweep period so that from an open position of 70 degrees door will take at least 3 seconds to move to a point 3" from latch measured to leading edge of door. Provide back check adjustment to engage at approximately 70-degrees of opening cycle.

B. Final Adjustment:
1. Return to Project during week prior to Substantial Completion and make final check and adjustment of hardware items.
2. Adjust hardware so doors operate in perfect order. Test and adjust hardware for quiet, smooth operation, free of sticking, binding, or rattling. Adjust closers for proper, smooth operation.
3. Adjust door control devices to compensate for final operation of heating and ventilating equipment.

C. Six Month Adjustment:
1. Approximately six months after Date of Substantial Completion, installer shall perform following:
    a. Examine and readjust each item of door hardware as necessary to ensure function of doors, door hardware and electrified door hardware.
    b. Consult with, and instruct, Owner's personnel on recommended maintenance procedures.
    c. Replace door hardware items that have deteriorated or failed due to faulty design, materials, or installation.

3.6 CLEANING AND PROTECTION

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

B. Clean adjacent surfaces soiled by door hardware installation.

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

3.7 DEMONSTRATION

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

3.8 DOOR HARDWARE SETS

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

1. Quantities listed are for each pair of doors, or for each single door.

2. The supplier is responsible for handing and sizing all products.

3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate application for the opening.

B. Hardware Sets: List of manufacturers represented in the hardware sets:

1. Hinges: H. B. Ives – 877-613-8766 – www.iveshardware.com (IVE)
2. Automatic Flush Bolts: H. B. Ives – 877-613-8766 – www.iveshardware.com (IVE)
3. Flush Bolts: H. B. Ives – 877-613-8766 – www.iveshardware.com (IVE)
4. Surface Bolts: H. B. Ives – 877-613-8766 – www.iveshardware.com (IVE)
5. Coordinators: H. B. Ives – 877-613-8766 – www.iveshardware.com (IVE)
6. Cylinder & Keys: Schlage – 719-264-5300 – www.schlage.com (SCH)
   Yale – 855-557-5078 – www.accentra-assaabloy.com (YA)
7. Dead Bolts: Schlage – 719-264-5300 – www.schlage.com (SCH)
8. Locksets & Latch sets: Schlage – 719-264-5300 – www.schlage.com (SCH)
   Yale – 855-557-5078 – www.accentra-assaabloy.com (YA)
9. Exit Devices & FEH: Von Duprin – 317-897-9944 – www.vonduprin.com (VON); Monarch: 800-826-5792 www.monarchhardware.com (MON)
10. Door Pulls: H. B. Ives – 877-613-8766 – www.iveshardware.com (IVE)
11. Push/Pull Bars: H. B. Ives – 877-613-8766 – www.iveshardware.com (IVE)
12. Push/Pull Plates: H. B. Ives – 877-613-8766 – www.iveshardware.com (IVE)
13. Surface Closers: LCN – 800-526-2400 – www.lcnclosers.com (LCN); Dor-O-Matic – 800-815-1517 – www.doromatic.com (DOR)

14. Wall & Floor Stops: H. B. Ives – 877-613-8766 – www.iveshardware.com (IVE)
15. Protective Plates: H. B. Ives – 877-613-8766 – www.iveshardware.com (IVE)
16. Weather strip & Gasket: DHSI – 800-836-8085 – www.dhsi-seal.com (DHS); National Guard Prod. 800-647-7874 – www.ngpinc.com (NGP)

Set: 1 – Corridor Office

Door 1 (Church Creek ES)

3	Hinge	5BB1 4-1/2" x 4-1/2"	US26D	IVE
1	Classroom/Office Lockset	~~L Series with 06A Lever Design x temporary core~~ 8809 x CMK	626	YA ~~SCH~~
1	Permanent Core	~~Everest Primus~~ SD-6 (no i.c.) x MK	626	YA ~~SCH~~
1	Closer	281-0 Pull Side	689	SA
1	Kickplate	K1050 10" x 2" LDW 4BE CSK	US32D	RO
1	Mop Plate	K1050 4" x 1" LDW 4BE CSK	US32D	RO
1	Floor Stop	441	US32D	RO
1	Gasketing (Set)	S88 BL x DOW x DOH		PE

Set: 2 – Health Suite

Door 2 (Church Creek ES)

3	Hinge	5BB1 4-1/2" x 4-1/2"	US26D	IVE
1	Classroom/Office Lockset	~~L Series with 06A Lever Design x temporary core~~ 8809 x CMK	626	YA ~~SCH~~
1	Permanent Core	~~Everest Primus~~ SD-6 (no i.c.) x MK	626	YA ~~SCH~~
1	Closer	281-0 Pull Side	689	SA
1	Kickplate	K1050 10" x 2" LDW 4BE CSK	US32D	RO
1	Mop Plate	K1050 4" x 1" LDW 4BE CSK	US32D	RO
1	Wall Stop	403	US32D	RO
1	Gasketing (Set)	S88 BL x DOW x DOH		PE

Set: 3 – Toilet

Door 3 (Church Creek ES), Door 1 (Edgewood ES)

3	Hinge	5BB1 4-1/2" x 4-1/2"	US26D	IVE
1	Privacy Set ~~& Indicator~~	~~8265 LNP x EMB x V21~~ 8862	US26D	YA ~~SA~~
1	Kickplate	K1050 10" x 2" LDW 4BE CSK	US32D	RO
1	Mop Plate	K1050 4" x 1" LDW 4BE CSK	US32D	RO
1	Wall Stop	403	US32D	RO
3	Silencer	608-RKW		RO

Set: 4 – Exam

Door 4

3	Hinge	5BB1 4-1/2" x 4-1/2"	US26D	IVE
1	Passage Set	8215 LNP	US26D	SA
1	Kickplate	K1050 10" x 2" LDW 4BE CSK	US32D	RO
1	Mop Plate	K1050 4" x 1" LDW 4BE CSK	US32D	RO
1	Wall Stop	403	US32D	RO
3	Silencer	608-RKW		RO

END OF SECTION 087100

DIVISION 10 - Specialties

10400 – Identifying Devices

1. Room signs shall be mounted on the wall adjacent to the subject room door on the latch side and shall be installed at proper ADA handicap height. Signs should include the room name or number on sign. As some room uses change over time some select rooms may have only the room number. Signs are to be a flat plastic (6”x6” base size) plaque with raised names/numbers and Braille translations.

2. **Door Identification**

   A. All Exterior Doors must be numbered according to the following sequence.
      a. The Main Building Entry Point shall be door “**1”**.
      b. From this entry point the doors shall be numbered sequentially in a clockwise rotation around the perimeter of the building.

   B. Special Designations
      a. Exterior doors that lead to Utility spaces which are not occupied, such as mechanical or storage rooms, shall be designated with a “-U” following the building door numbering sequence.
      b. Courtyard doors shall be labeled with a court-yard designation of “CY” followed by a door number. In the case of a building with multiple courtyards the CY designation shall be followed by a Courtyard number, followed by a door number. example CY1-1
         i. Courtyard door numbering shall start with door “1” being closest to the main building entry.
      c. Portable classroom door numbers shall be numbered with an independent sequential numbering system starting with the number “1”.
      d. Accessory buildings utilized for education (for example kindergarten buildings and planetariums) shall be labeled in an independent numbering sequence prefixed with an “A-“
      e. Accessory buildings that are not utilized for education (for example storage or utility buildings) shall be labeled in an independent numbering sequence prefixed with an “AU-“

   C. Example
      a. An example door numbering sequence could be as follows:
         1, 2, 3, 4, 5-U, 6, 7, CY1-1, CY1-2, CY2-1, CY2-2, A-1, A-2, A-3.

   D. Material
      a. Doors shall be labeled with adhesive vinyl.
      b. Exterior labeling material.
         i. 7” high, rectangular, white, reflective background.
         ii. 6” black, Arial font, bold, lettering and numbering.
      c. Interior Labeling material.
         i. 4” rectangular, white, non-reflective background.
         ii. 3” black, Arial font, bold, lettering and numbering.

E. Portable Classroom Numbering
    a. Portable classrooms shall be numbered individually and designated with a P-#
    b. Each classroom unit shall be numbered with 12 inch letters on a square background utilizing the same material as the door numbering.
    c. Portable classroom doors shall be labeled in an independent numbering sequence (1, 2)

SECTION 11 30 13 - RESIDENTIAL APPLIANCES

PART 1 - GENERAL

1.1 SUMMARY – See Enlarged Architectural plan and Appliance Schedule

A. Section Includes:
1. Refrigeration appliances.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.3 INFORMATIONAL SUBMITTALS

A. Product certificates.

B. Field quality-control reports.

C. Sample warranties.

1.4 CLOSEOUT SUBMITTALS

A. Operation and maintenance data.

1.5 WARRANTY

A. Special Warranties: Manufacturer agrees to repair or replace residential appliances or components that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Electrical Appliances: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 REFRIGERATOR/FREEZERS

A. Refrigerator/Freezer: Single door refrigerator with top freezer. No Water or Ice machine.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
      a. General Electric (Basis of Design)
      b. BSH Home Appliances Corporation (Bosch).
      c. Samsung.
      d. Whirlpool Corporation.

   2. Model: GTS18HYNRFS (Basis of Design)
   3. Type: Freestanding, Top Freezer
   4. Storage Capacity: 17.5 cu ft
      a. Refrigeration Compartment Volume: 13.49 cu ft
      b. Freezer Volume: 4.04 cu ft
   5. Dimensions: 67 3/8 H x 28 W x 32 1/2 D
   6. General Features:
      a. Interior light in refrigeration compartment.
      b. Automatic defrost.
      c. Interior light in freezer compartment.
      d. Automatic icemaker and storage bin.
   7. Power: 120V
   8. ENERGY STAR: Provide appliances that qualify for the EPA/DOE ENERGY STAR product-labeling program.
   9. Front Panel(s): Fingerprint Resistant Stainless
   10. Provide Optional Icemaker Kit (IM4D)

PART 3 - EXECUTION

3.1 INSTALLATION

A. Built-in Equipment: Securely anchor units to supporting cabinets or countertops with concealed fasteners. Verify that clearances are adequate for proper functioning and that rough openings are completely concealed.

B. Freestanding Equipment: Place units in final locations after finishes have been completed in each area. Verify that clearances are adequate to properly operate equipment.

3.2 FIELD QUALITY CONTROL

A. Perform the following tests and inspections

   1. Perform visual, mechanical, and electrical inspection and testing for each appliance according to manufacturers' written recommendations. Certify compliance with each manufacturer's appliance-performance parameters.
   2. Operational Test: After installation, start units to confirm proper operation.
   3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and components.

B. An appliance will be considered defective if it does not pass tests and inspections.

C. Prepare test and inspection reports.

END OF SECTION 11 30 13

SECTION 22 11 16 - DOMESTIC WATER PIPING

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. Section Includes:

1. Piping Materials.
2. Copper Tube and Fittings
3. CPVC Pipe and Fittings
4. Ductile Iron Pipe and Fittings
5. Piping Joining Materials.
6. Transition Fittings
7. Dielectric Fittings
8. Specialty valves.
9. Flexible connectors.
10. Water Meters.

B. Related Section:

1. Division 22 Section "Facility Water Distribution Piping" for water-service piping outside the building from source to the point where water-service piping enters the building.

1.3 SUBMITTALS

A. Product Data: For the following products:

1. Specialty valves.
2. Piping
3. Transition fittings.
4. Dielectric fittings.
5. Flexible connectors.
6. Backflow preventers and vacuum breakers.
7. Water penetration systems.

B. Water Samples: Specified in "Cleaning" Article.

C. Coordination Drawings: For all piping, draw to 3/8” scale, on which the following items are shown and coordinated with each other, using input from Installers of the items involved:

1. Fire-suppression-water piping.
2. Domestic water piping.
3. HVAC hydronic piping.
4. Equipment.
5. Ductwork.

D. Field quality-control reports.

1.4 QUALITY ASSURANCE

A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

B. Comply with NSF 61, Annex G and House Bill 372 for potable domestic water piping and components.

1.5 COORDINATION

A. Coordinate sizes and locations of concrete bases with actual equipment provided.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. Comply with requirements in "Piping Schedule" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and pipe sizes.

2.2 COPPER TUBE AND FITTINGS

A. Hard Copper Tube Above-Ground: ASTM B 88, Type L water tube, drawn temper.

1. Cast-Copper Solder-Joint Fittings: ASME B16.18, pressure fittings.
2. Wrought-Copper Solder-Joint Fittings: ASME B16.22, wrought-copper pressure fittings.
3. Bronze Flanges: ASME B16.24, Class 150, with solder-joint ends.
4. Copper Unions: MSS SP-123, cast-copper-alloy, hexagonal-stock body, with ball-and-socket, metal-to-metal seating surfaces, and solder-joint or threaded ends.
5. **Press Fittings: Viega ProPress or XPress products accepted.** [2]

B. Soft Copper Tube Below Building Slab: ASTM B 88, Type K (ASTM B 88M, Type A) water tube, annealed temper.

1. Copper Solder-Joint Fittings: ASME B16.22, wrought-copper pressure fittings.

2.3 DUCTILE IRON PIPE AND FITTINGS

A. Mechanical-Joint, Ductile-Iron Pipe: AWWA C151, with mechanical-joint bell and plain spigot end unless grooved or flanged ends are indicated.

1. Standard-Pattern, Mechanical-Joint Fittings: AWWA C110, ductile or gray iron.
2. Compact-Pattern, Mechanical-Joint Fittings: AWWA C153, ductile iron.
    a. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.
3. Lining: AWWA C104, cement mortar.
4. Gaskets: AWWA C111, rubber.

[2] **Addendum #2 – 05-15-2025**

~~2.4 CPVC PIPING~~

~~A. CPVC Pipe: ASTM F 441/F 441M, Schedule 40 and Schedule 80.~~

~~1. CPVC Socket Fittings: ASTM F 438 for Schedule 40 and ASTM F 439 for Schedule 80.~~
~~2. CPVC Threaded Fittings: ASTM F 437, Schedule 80.~~

~~B. CPVC Piping System: ASTM D 2846/D 2846M, SDR 11, pipe and socket fittings.~~

~~C. CPVC Tubing System: ASTM D 2846/D 2846M, SDR 11, tube and socket fittings.~~ [2]

2.5 PIPING JOINING MATERIALS

A. Pipe-Flange Gasket Materials: AWWA C110, rubber, flat face, 1/8 inch (3.2 mm) thick or ASME B16.21, nonmetallic and asbestos free, unless otherwise indicated; full-face or ring type unless otherwise indicated.

B. Metal, Pipe-Flange Bolts and Nuts: ASME B18.2.1, galvanized steel unless otherwise indicated.

C. Solder Filler Metals: ASTM B 32, lead-free alloys. Include water-flushable flux according to ASTM B 813.

D. Brazing Filler Metals: AWS A5.8/A5.8M, BCuP Series, copper-phosphorus alloys for general-duty brazing unless otherwise indicated.

E. Solvent Cements for Joining CPVC Piping and Tubing: ASTM F 493.

2.6 TRANSITION FITTINGS

A. General Requirements:

1. Same size as pipes to be joined.
2. Pressure rating at least equal to pipes to be joined.
3. End connections compatible with pipes to be joined.

B. Fitting-Type Transition Couplings: Manufactured piping coupling or specified piping system fitting.

C. Sleeve-Type Transition Coupling: AWWA C219.

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

a. Cascade Waterworks Manufacturing.
b. Dresser, Inc.; Dresser Piping Specialties.
c. Smith-Blair, Inc; a Sensus company.
d. Viking Johnson; c/o Mueller Co.

[2] **Addendum #2 – 05-15-2025**

2.7 DIELECTRIC FITTINGS

A. General Requirements: Assembly of copper alloy and ferrous materials or ferrous material body with separating nonconductive insulating material suitable for system fluid, pressure, and temperature.

B. Dielectric Flanges:

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

a. EPCO Sales, Inc.
b. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
c. Hart Industries International, Inc.

2. Description:

a. Factory-fabricated, bolted, companion-flange assembly.
b. Pressure Rating: 150 psig (1035 kPa).
c. End Connections: Solder-joint copper alloy and threaded ferrous; threaded solder-joint copper alloy and threaded ferrous.

C. Dielectric Nipples:

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

a. Perfection Corporation; a subsidiary of American Meter Company.
b. Precision Plumbing Products, Inc.
c. Victaulic Company.

2. Description:

a. Electroplated steel nipple complying with ASTM F 1545.
b. Pressure Rating: 300 psig (2070 kPa) at 225 deg F (107 deg C).
c. End Connections: Male threaded or grooved.
d. Lining: Inert and noncorrosive, propylene.

D. Dielectric unions and couplings are prohibited.

2.8 FLEXIBLE CONNECTORS

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

1. Flex-Hose Co., Inc.
2. Flexicraft Industries.
3. Flex Pression, Ltd.
4. Flex-Weld, Inc.
5. Hyspan Precision Products, Inc.
6. Mercer Rubber Co.
7. Metraflex, Inc.
8. Proco Products, Inc.
9. Tozen Corporation.
10. Unaflex, Inc.
11. Universal Metal Hose; a Hyspan company

12. Mason Industries.

B. Stainless-Steel-Hose Flexible Connectors: Corrugated-stainless-steel tubing with stainless-steel wire-braid covering and ends welded to inner tubing.

1. Working-Pressure Rating: Minimum 200 psig (1380 kPa).
2. End Connections NPS 2 (DN 50) and Smaller: Threaded steel-pipe nipple.
3. End Connections NPS 2-1/2 (DN 65) and Larger: Flanged steel nipple.

2.9 WATER METERS

A. Displacement-Type Water Meters (1-1/4” and Smaller):

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

a. Seametrics
b. Badger Meter, Inc.
c. Sensus Metering Systems.
d. Hersey Meter.

2. Description:

a. Standard: AWWA C700.
b. Pressure Rating: 150-psig (1035-kPa) working pressure.
c. Body Design: Nutating disc; totalization meter.
d. Registration: In gallons or cubic feet as required by utility. In gallons for make-up water and other building sub-metering requirements.
e. Case: Bronze.
f. End Connections: Threaded.
g. Energy Management: Connection to the BACNET (Building Management System).

B. Electromagnetic-Type Water Meters (1-1/2” and Larger):

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

a. Seametrics
b. Badger Meter, Inc.
c. Sensus Metering Systems.
d. Hersey Meter.
e. Onicon.

2. Description:

a. Standard: AWWA C701.
b. Pressure Rating: 150-psig (1035-kPa) working pressure.
c. Body Design: Turbine; totalization meter.
d. Registration: In gallons or cubic feet as required by utility company. In gallons for make-up water and other building sub-metering requirements.
e. Case: Stainless Steel.
f. End Connections for Meters NPS 2 (DN 50) and Smaller: Threaded.
g. End Connections for Meters NPS 2-1/2 (DN 65) and Larger: Flanged.
h. Energy Management: Connection to the BACNET Building Management System.

PART 3 - EXECUTION

3.1 EARTHWORK

A. Comply with requirements in Division 31 Section "Earth Moving" for excavating, trenching, and backfilling.

3.2 PIPING INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of domestic water piping. Indicated locations and arrangements are used to size pipe and calculate friction loss, expansion, and other design considerations. Install piping as indicated unless deviations to layout are approved on Coordination Drawings.

B. Install copper tubing under building slab according to CDA's "Copper Tube Handbook."

C. Install ductile-iron piping under building slab with restrained joints according to AWWA C600 and AWWA M41.

D. Install shutoff valve, hose-end drain valve, strainer, pressure gauge, and test tee with valve, inside the building at each domestic water service entrance. Comply with requirements in Division 22 Section "Meters and Gauges for Plumbing Piping" for pressure gauges and Division 22 Section "Domestic Water Piping Specialties" for drain valves and strainers.

E. Install shutoff valve immediately upstream of each dielectric fitting.

F. Install water-pressure-reducing valves downstream from shutoff valves. Comply with requirements in Division 22 Section "Domestic Water Piping Specialties" for pressure-reducing valves.

G. Install domestic water piping level with 0.25 percent slope downward toward drain and plumb.

H. Install piping concealed from view and protected from physical contact by building occupants unless otherwise indicated and except in equipment rooms and service areas.

I. Install piping indicated to be exposed and piping in equipment rooms and service areas at right angles or parallel to building walls. Diagonal runs are prohibited unless specifically indicated otherwise.

J. Install piping above accessible ceilings to allow sufficient space for ceiling panel removal, and coordinate with other services occupying that space.

K. Install piping adjacent to equipment and specialties to allow service and maintenance.

L. Install piping to permit valve servicing.

M. Install nipples, unions, special fittings, and valves with pressure ratings the same as or higher than system pressure rating used in applications below unless otherwise indicated.

N. Install piping free of sags and bends.

O. Install fittings for changes in direction and branch connections.

P. Install unions in copper tubing at final connection to each piece of equipment, machine, and specialty.

Q. Install liquid filled pressure gages on suction and discharge piping from each plumbing pump and packaged booster pump. Comply with requirements in Division 22.

R. Install thermostats in hot-water circulation piping. Comply with requirements in Division 22.

S. Install thermometers on inlet and outlet piping from each water heater. Comply with requirements in Division 22.

T. Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Division 22.

U. Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Division 22.

V. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Division 22.

W. Install underground copper tube and ductile iron pipe in PE encasement according to ASTM A674 or AWWA C105.

3.3 JOINT CONSTRUCTION

A. Ream ends of pipes and tubes and remove burrs. Bevel plain ends of steel pipe.

B. Remove scale, slag, dirt, and debris from inside and outside of pipes, tubes, and fittings before assembly.

C. Threaded Joints: Thread pipe with tapered pipe threads according to ASME B1.20.1. Cut threads full and clean using sharp dies. Ream threaded pipe ends to remove burrs and restore full ID. Join pipe fittings and valves as follows:

1. Apply appropriate tape or thread compound to external pipe threads.
2. Damaged Threads: Do not use pipe or pipe fittings with threads that are corroded or damaged.

D. Brazed Joints: Join copper tube and fittings according to CDA's "Copper Tube Handbook," "Brazed Joints" Chapter.

E. Soldered Joints: Apply ASTM B 813, water-flushable flux to end of tube. Join copper tube and fittings according to ASTM B 828 or CDA's "Copper Tube Handbook."

F. Flanged Joints: Select appropriate asbestos-free, nonmetallic gasket material in size, type, and thickness suitable for domestic water service. Join flanges with gasket and bolts according to ASME B31.9.

G. Dissimilar-Material Piping Joints: Make joints using adapters compatible with materials of both piping systems.

H. Ductile-Iron-Piping Grooved Joints: Cut groove end of pipe. Assemble coupling with housing, gasket, lubricant, and bolts. Join ductile-iron pipe and grooved-end fittings according to AWWA C606 for ductile-iron-pipe, cut-grooved joints.

I. Flanged Joints: Select appropriate asbestos-free, nonmetallic gasket material in size, type, and thickness suitable for domestic water service. Join flanges with gasket and bolts according to ASME B31.9.

3.4 VALVE INSTALLATION

A. General-Duty Valves: Comply with requirements in Division 22.

B. Install shutoff valve close to water main on each branch and riser serving plumbing fixtures or equipment, on each water supply to equipment, for each branch serving toilet room(s), for each branch pipe serving two or more fixtures, and on each water supply to plumbing fixtures that do not have supply stops. Use ball valves for piping NPS 2 (DN 50) and smaller. Use butterfly or ball valves for piping NPS 2-1/2 (DN 65) and larger.

C. Install drain valves for equipment at base of each water riser, at low points in horizontal piping, and where required to drain water piping. Drain valves are specified in Division 22 Section.

1. Hose-End Drain Valves: At low points in water mains, risers, and branches.
2. Stop-and-Waste Drain Valves: Instead of hose-end drain valves where indicated.

D. Install combination balancing/shut-off valve in each hot-water circulation return branch and discharge side of each pump and circulator. Set balancing valves partly open to restrict but not stop flow. Comply with requirements in Division 22.

3.5 TRANSITION FITTING INSTALLATION

A. Install transition couplings at joints of dissimilar piping.

B. Transition Fittings in Underground Domestic Water Piping:

1. NPS 1-1/2 (DN 40) and Smaller: Fitting-type coupling.
2. NPS 2 (DN 50) and Larger: Sleeve-type coupling.

3.6 DIELECTRIC FITTING INSTALLATION

A. Install dielectric fittings in piping at connections of dissimilar metal piping and tubing.

B. Dielectric Fittings for NPS 2 (DN 50) and Smaller: Use dielectric nipples only.

C. Dielectric Fittings for NPS 2-1/2 and larger: Use dielectric flanges only.

3.7 FLEXIBLE CONNECTOR INSTALLATION

A. Install flexible connectors in suction and discharge piping connections to each domestic water pump.

B. Install bronze-hose flexible connectors in copper domestic water tubing.

3.8 WATER METER INSTALLATION

A. Rough-in domestic water piping and install water meters according to utility company's requirements and/or as required for building sub-metering.

B. Install water meters according to AWWA M6 and/or the utility company's requirements

C. Install displacement-type water meters with shutoff valve on water-meter inlet. Install valve on water-meter outlet and valved bypass around meter unless prohibited by authorities having jurisdiction.

D. Install turbine-type water meters with shutoff valve on water-meter inlet. Install valve on water-meter outlet and valved bypass around meter unless prohibited by authorities having jurisdiction.

E. Install remote registration system according to standards of utility company and of authorities having jurisdiction.

F. Provide remote reading for integration with the BACNET Building Control System.

3.9 HANGER AND SUPPORT INSTALLATION

A. Comply with requirements in Division 22 Section "Vibration and Seismic Controls for Plumbing Piping and Equipment" for vibration isolation devices.

B. Comply with requirements in Division 22 Section "Hangers and Supports for Plumbing Piping and Equipment" for pipe hanger and support products and installation.

1. Vertical Piping: MSS Type 8 or 42, clamps.
2. Individual, Straight, Horizontal Piping Runs:
    a. 100 Feet (30 m) and Less: MSS Type 1, adjustable, steel clevis hangers.
    b. Longer Than 100 Feet (30 m): MSS Type 43, adjustable roller hangers.
    c. Longer Than 100 Feet (30 m) If Indicated: MSS Type 49, spring cushion rolls.
3. Multiple, Straight, Horizontal Piping Runs 100 Feet (30 m) or Longer: MSS Type 44, pipe rolls. Support pipe rolls on trapeze.
4. Base of Vertical Piping: MSS Type 52, spring hangers.

C. Support vertical piping and tubing at base and at each floor.

D. Rod diameter may be reduced one size for double-rod hangers, to a minimum of 3/8 inch (10 mm).

E. Install hangers for copper tubing with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 3/4 (DN 20) and Smaller: 60 inches (1500 mm) with 3/8-inch (10-mm) rod.
2. NPS 1 and NPS 1-1/4 (DN 25 and DN 32): 72 inches (1800 mm) with 3/8-inch (10-mm) rod.
3. NPS 1-1/2 and NPS 2 (DN 40 and DN 50): 96 inches (2400 mm) with 3/8-inch (10-mm) rod.
4. NPS 2-1/2 (DN 65): 108 inches (2700 mm) with 1/2-inch (13-mm) rod.
5. NPS 3 (DN 80): 10 feet (3 m) with 1/2-inch (13-mm) rod.
6. NPS 4 (DN 150): 12 feet (3 m) with 5/8-inch (16-mm) rod.
7. NPS 6 (DN 200): 12 feet (3 m) with 3/4-inch (19-mm) rod.

F. Install supports for vertical copper tubing every 10 feet (3 m).

G. Install hangers for steel piping with the following maximum horizontal spacing and minimum rod diameters:

1. NPS 1-1/4 (DN 32) and Smaller: 60 inches with 3/8-inch rod.
2. NPS 1-1/2 (DN 40): 96 inches with 3/8-inch rod.
3. NPS 2 (DN 50): 8 feet with 3/8-inch rod.
4. NPS 2-1/2 (DN 65): 10 feet with 1/2-inch rod.
5. NPS 3 and NPS 3-1/2 (DN 80 and DN 90): 12 feet (3.7 m) with 1/2-inch (13-mm) rod.
6. NPS 4 (DN 100): 14 feet with 5/8-inch rod.
7. NPS 6 (DN 150): 16 feet with 3/4-inch rod.
8. NPS 8 to NPS 12 (DN 200 to DN 300): 20 feet with 7/8-inch (22-mm) rod.

H. Install supports for vertical steel piping every 15 feet (4.5 m).

I. Support piping and tubing not listed in this article according to MSS SP-69 and manufacturer's written instructions.

J. Hangers shall be connected to top chord panel points at joist locations.

3.10 CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to equipment and machines to allow service and maintenance.

C. Connect domestic water piping to exterior water-service piping. Use transition fitting to join dissimilar piping materials.

D. Connect domestic water piping to water-service piping with shutoff valve; extend and connect to the following:

1. Water Heaters: Cold-water inlet and hot-water outlet piping in sizes indicated, but not smaller than sizes of water heater connections.
2. Plumbing Fixtures: Cold- and hot-water supply piping in sizes indicated, but not smaller than required by plumbing code. Comply with requirements in Division 22 plumbing fixture Sections for connection sizes.
3. Equipment: Cold- and hot-water supply piping as indicated, but not smaller than equipment connections. Provide shutoff valve and union for each connection. Use flanges instead of unions for NPS 2-1/2 (DN 65) and larger.

3.11 IDENTIFICATION

A. Identify system components. Comply with requirements in Division 22 Section "Identification for Plumbing Piping and Equipment" for identification materials and installation.

B. Label pressure piping with system operating pressure.

3.12 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Piping Inspections:

1. Do not enclose, cover, or put piping into operation until it has been inspected and approved by authorities having jurisdiction.
2. During installation, notify authorities having jurisdiction at least one day before inspection must be made. Perform tests specified below in presence of authorities having jurisdiction:
    a. Roughing-in Inspection: Arrange for inspection of piping before concealing or closing-in after roughing-in and before setting fixtures.
    b. Final Inspection: Arrange final inspection for authorities having jurisdiction to observe tests specified below and to ensure compliance with requirements.
3. Reinspection: If authorities having jurisdiction find that piping will not pass tests or inspections, make required corrections and arrange for reinspection.
4. Reports: Prepare inspection reports and have them signed by authorities having jurisdiction.

C. Piping Tests:

1. Fill domestic water piping. Check components to determine that they are not air bound and that piping is full of water.
2. Test for leaks and defects in new piping. If testing is performed in segments, submit a separate report for each test, complete with diagram of portion of piping tested.
3. Leave new domestic water piping uncovered and unconcealed until it has been tested and approved. Expose work that was covered or concealed before it is tested.
4. All piping joints shall be uncovered and uninsulated for inspection during the testing process.
5. Cap and subject piping to static water pressure of 50 psig (345 kPa) above operating pressure, without exceeding pressure rating of piping system materials. Isolate test source and allow to stand for four hours. Leaks and loss in test pressure constitute defects that must be repaired.
6. Repair leaks and defects with new materials and retest piping or portion thereof until satisfactory results are obtained.
7. Prepare reports for tests and for corrective action required.
8. Testing with air in lieu of water shall be at the Owner’s discretion dependent upon weather conditions.

D. Domestic water piping will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

3.13 ADJUSTING

A. Perform the following adjustments before operation:

1. Close drain valves, hydrants, and hose bibbs.
2. Open shutoff valves to fully open position.
3. Open throttling valves to proper setting.
4. Adjust balancing valves in hot-water-circulation return piping to provide adequate flow.
    a. Manually adjust ball-type balancing valves in hot-water-circulation return piping to provide flow of hot water in each branch.
    b. Adjust calibrated balancing valves to flows indicated.
5. Remove plugs used during testing of piping and for temporary sealing of piping during installation.

6. Remove and clean strainer screens. Close drain valves and replace drain plugs.
7. Remove filter cartridges from housings and verify that cartridges are as specified for application where used and are clean and ready for use.
8. Check plumbing specialties and verify proper settings, adjustments, and operation.

3.14 CLEANING

A. Clean and disinfect potable and non-potable domestic water piping as follows:

1. Purge new piping and parts of existing piping that have been altered, extended, or repaired before using.
2. Use purging and disinfecting procedures prescribed by authorities having jurisdiction; if methods are not prescribed, use procedures described in either AWWA C651 or AWWA C652 or follow procedures described below:
    a. Flush piping system with clean, potable water until dirty water does not appear at outlets.
    b. Fill and isolate system according to either of the following:
        1) Fill system or part thereof with water/chlorine solution with at least 200 ppm (200 mg/L) of chlorine. Isolate and allow to stand for three hours.
    c. Flush system with clean, potable water until chlorine level is <1.0 ppm in water coming from system after the standing time.
    d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedures if biological examination shows contamination.
    e. Submit testing results to Architect.

3.15 PIPING SCHEDULE

A. Transition and special fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.

B. Flanges and unions may be used for aboveground piping joints unless otherwise indicated.

C. Under-building slab, water-service-main piping, NPS 4 to NPS 12, shall be the following:

1. Mechanical-joint, ductile-iron, cement mortared lined pipe; standard-pattern mechanical-joint fittings; and mechanical joints.

D. Under-building-slab, domestic water, building-service piping, NPS 2-1/2 to NPS 4, shall be the following:

1. Mechanical-joint, ductile-iron, cement mortared lined pipe; standard-pattern mechanical-joint fittings; and mechanical joints.

E. Under-building-slab, domestic water piping, NPS 1/2 to NPS 2 shall be the following:

1. Type K hard drawn copper tubing, plain end.

F. Above-ground, domestic water, building-service piping, NPS 2-1/2 to NPS 4, shall be the following:

1. Type L hard drawn copper tubing, plain end, ~~soldered joints with cast brass ASME B16.18 or wrought copper ASME B16.22 fittings~~. **and press fittings such as Viega ProPress or XPress products.** [2]

3.16 VALVE SCHEDULE

A. Drawings indicate valve types to be used. Where specific valve types are not indicated, the following requirements apply:

1. Shutoff Duty: Use ball valves for piping. Use ball valves with flanged ends for piping NPS 2-1/2 (DN 65) and larger.
2. Throttling Duty: Use ball valves for piping NPS 4 (DN 100) and smaller. Use ball valves with flanged ends for piping NPS 2-1/2 (DN 65) and larger.
3. Hot-Water Circulation Piping, Balancing Duty: Memory-stop balancing valves.
4. Drain Duty: Hose-end drain valves.

B. Use check valves to maintain correct direction of domestic water flow to and from equipment.

END OF SECTION 221116

[2] **Addendum #2 – 05-15-2025**

SECTION 22 40 00 - PLUMBING FIXTURES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following conventional plumbing fixtures and related components:

1. Faucets for lavatories, showers and sinks.
2. Laminar-flow faucet-spout outlets.
3. Flushometers.
4. Toilet seats.
5. Protective shielding guards.
6. Fixture supports.
7. Interceptors.
8. Dishwasher air-gap fittings.
9. Water closets.
10. Urinals.
11. Lavatories.
12. Commercial sinks.
13. Individual showers.
14. Kitchen sinks.
15. Service basins.

B. Related Sections include the following:

1. Division 10 Section "Toilet, Bath, and Laundry Accessories."
2. Division 22 Section "Domestic Water Piping Specialties" for backflow preventers, floor drains, and specialty fixtures not included in this Section.
3. Division 22 Section "Drinking Fountains and Water Coolers."
4. Division 31 Section "Facility Water Distribution Piping" for exterior plumbing fixtures and hydrants.

1.2 DEFINITIONS

A. ABS: Acrylonitrile-butadiene-styrene plastic.

B. Accessible Fixture: Plumbing fixture that can be approached, entered, and used by people with disabilities.

C. Cast Polymer: Cast-filled-polymer-plastic material. This material includes cultured-marble and solid-surface materials.

D. Cultured Marble: Cast-filled-polymer-plastic material with surface coating.

E. Fitting: Device that controls the flow of water into or out of the plumbing fixture. Fittings specified in this Section include supplies and stops, faucets and spouts, shower heads and tub spouts, drains and tailpieces, and traps and waste pipes. Piping and general-duty valves are included where indicated.

F. FRP: Fiberglass-reinforced plastic.

G. PMMA: Polymethyl methacrylate (acrylic) plastic.

H. PVC: Polyvinyl chloride plastic.

I. Solid Surface: Nonporous, homogeneous, cast-polymer-plastic material with heat-, impact-, scratch-, and stain-resistance qualities.

1.3 SUBMITTALS

A. Product Data: For each type of plumbing fixture indicated. Include selected fixture and trim, fittings, accessories, appliances, appurtenances, equipment, and supports. Indicate materials and finishes, dimensions, construction details, and flow-control rates.

B. Shop Drawings: Diagram power, signal, and control wiring.

C. Operation and Maintenance Data: For plumbing fixtures to include in emergency, operation, and maintenance manuals.

D. Warranty: Special warranty specified in this Section.

1.4 QUALITY ASSURANCE

A. Source Limitations: Obtain plumbing fixtures, faucets, and other components of each category through one source from a single manufacturer.

1. Exception: If fixtures, faucets, or other components are not available from a single manufacturer, obtain similar products from other manufacturers specified for that category.

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

C. Regulatory Requirements: Comply with requirements in ICC A117.1, "Accessible and Usable Buildings and Facilities"; Public Law 90-480, "Architectural Barriers Act"; and Public Law 101-336, "Americans with Disabilities Act"; for plumbing fixtures for people with disabilities.

D. Regulatory Requirements: Comply with requirements in Public Law 102-486, "Energy Policy Act," about water flow and consumption rates for plumbing fixtures.

E. NSF Standard: Comply with NSF 61, "Drinking Water System Components--Health Effects," for fixture materials that will be in contact with potable water.

F. Select combinations of fixtures and trim, faucets, fittings, and other components that are compatible.

G. Comply with the following applicable standards and other requirements specified for plumbing fixtures:

1. Enameled, cast-iron fixtures: ASME A112.19.1M.

2. Solid-Surface-Material Lavatories and Sinks: ANSI/ICPA SS-1.
3. Stainless-Steel Commercial, Handwash Sinks: NSF 2 construction.
4. Vitreous-China Fixtures: ASME A112.19.2M.
5. Water-Closet, Flush Valve, Tank Trim: ASME A112.19.5.

H. Comply with the following applicable standards and other requirements specified for lavatory and sink faucets:

1. Backflow Protection Devices for Faucets with Hose-Thread Outlet: ASME.A112.18.3M.
2. Faucets: ASME A112.18.1.
3. Hose-Connection Vacuum Breakers: ASSE 1011.
4. Hose-Coupling Threads: ASME B1.20.7.
5. Integral, Atmospheric Vacuum Breakers: ASSE 1001.
6. NSF Potable-Water Materials: NSF 61.
7. Pipe Threads: ASME B1.20.1.
8. Sensor-Actuated Faucets and Electrical Devices: UL 1951.
9. Supply Fittings: ASME A112.18.1.
10. Brass Waste Fittings: ASME A112.18.2.

I. Comply with the following applicable standards and other requirements specified for shower faucets:

1. Backflow Protection Devices for Hand-Held Showers: ASME A112.18.3M.
2. Combination, Pressure-Equalizing and Thermostatic-Control Antiscald Faucets: ASSE 1016.
3. Faucets: ASME A112.18.1.
4. Hand-Held Showers: ASSE 1014.
5. High-Temperature-Limit Controls for Thermal-Shock-Preventing Devices: ASTM F 445.
6. Hose Coupling Threads: ASME B1.20.7.
7. Manual-Control Antiscald Faucets: ASTM F 444.
8. Pipe Threads: ASME B1.20.1.
9. Pressure-Equalizing-Control Antiscald Faucets: ASTM F 444 and ASSE 1016.
10. Thermostatic-Control Antiscald Faucets: ASTM F444 and ASSE 1016.

J. Comply with the following applicable standards and other requirements specified for miscellaneous fittings:

1. Atmospheric Vacuum Breakers: ASSE 1001.
2. Brass and Copper Supplies: ASME A112.18.1.
3. Dishwasher Air-Gap Fittings: ASSE 1021.
4. Manual-Operation Flushometers: ASSE 1037.
5. Plastic Tubular Fittings: ASTM F 409.
6. Brass Waste Fittings: ASME A112.18.2.
7. Sensor-Operation Flushometers: ASSE 1037 and UL 1951.

K. Comply with the following applicable standards and other requirements specified for miscellaneous components:

1. Disposers: ASSE 1008 and UL 430.
2. Dishwasher Air Gap Fittings: ASSE 1021.
3. Flexible Water Connectors: ASME A112.18.6.
4. Floor Drains: ASME A112.6.3.
5. Grab Bars: ASTM F 446.
6. Hose Coupling Threads: ASME B1.20.7.

7. Off-Floor Fixture Supports: ASME A112.6.1M.
8. Pipe Threads: ASME B1.20.1.
9. Plastic Toilet Seats: ANSI Z124.5.
10. Supply and Drain Protective Shielding Guards: ICC A117.1.

1.5 EXTRA MATERIALS

A. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Faucet Washers and O-Rings: Equal to 10 percent of amount of each type and size installed.
2. Faucet Cartridges and O-Rings: Equal to 5 percent of amount of each type and size installed.
3. Flushometer Valve, Repair Kits: Equal to 10 percent of amount of each type installed, but no fewer than 2 of each type.
4. Provide hinged-top wood or metal box, or individual metal boxes, with separate compartments for each type and size of extra materials listed above.
5. Toilet Seats: Equal to 5% of amount of each type installed.

PART 2 - PRODUCTS

2.1 SOLID-BRASS, MANUALLY OPERATED LAVATORY FAUCETS

A. NSF Standard: Comply with NSF/ANSI 61, "Drinking Water System Components - Health Effects," for faucet materials that will be in contact with potable water. Comply with NSF 61, Annex G and NSF 372.

B. Lavatory Faucets LF-1: Manual, deck mounted metering solid-brass valve.
1. Basis-of-Design Product: Subject to compliance with requirements, provide ~~Chicago Faucet model 3520-E39VPABCP~~ **Moen M-PRESS 8886**[2] or comparable product by one of the following:

~~a. Zurn Industries, LLC; Commercial Brass and Fixtures~~ **Delta**[2]
b. T & S Brassworks

2. Standards: ASME A112.18.1/CSA B125.1.
3. General: Coordinate faucet inlets with supplies and fixture hole punchings; coordinate outlet with spout and fixture receptor.
4. Body Type: Single hole.
5. Body Material: Commercial, solid brass.
6. Finish: Polished chrome plate.
7. Maximum Flow Rate: ~~0.35~~ **0.5** gpm (3.79L/min.).
8. Mounting Type: Deck, concealed.
9. Valve Handles: Push Button, vandal proof, metering type.
10. Spout: Rigid type.
11. Spout Outlet: Spray.

[2] Addendum #2 – 05-15-2025

2.2 SHOWER FAUCETS

~~A. Shower Faucets, P7:~~

~~1. Basis of Design Product: Subject to compliance with requirements, provide Bradley model WS-1X, or a comparable product by one of the following:~~

~~a. Powers; a Watts Industries Co.~~
~~b. Symmons Industries.~~

~~2. Description: Stainless steel shower panel with sloped top and single-handle Equa Flow HD pressure-balance valve. Include fixed height shower head. Include hot- and cold-water indicators; check stops and flange. Coordinate faucet inlets with supplies and outlet with diverter valve. If basis-of-design product manufacturer's name, product name or designation, and description above are explicit enough, requirements in 16 subparagraphs below may be reduced or omitted.~~

~~a. Body Material: Solid brass.~~
~~b. Finish: Polished chrome plate.~~
~~c. Panel Material: 18 Ga Stainless Steel with sloped top~~
~~d. Maximum Flow Rate: 1.5 gpm (9.5 L/min.), unless otherwise indicated.~~
~~e. Diverter Valve: Not required.~~
~~f. Mounting: Wall mounted~~
~~g. Operation: Noncompression, manual.~~
~~h. Antiscald Device: Integral with mixing valve.~~
~~i. Check Stops: Check-valve type, integral with or attached to body; on hot- and cold-water supply connections.~~
~~j. Supply Connections: NPS 1/2 (DN 15), sweat.~~
~~k. Shower Head Types:~~
~~1) Fixed axis showerhead with ball joint~~

~~l. Shower Head Material: Solid Brass with chrome-plated finish.~~
~~m. Spray Pattern: Fixed.~~
~~n. Integral Volume Control: Required.~~
~~o. Shower-Arm Flow-Control Fitting: Not required~~
~~p. Temperature Indicator: Integral with faucet.~~
~~q. Hardware: Vandal Resistant Screws~~

~~B. Shower Faucets, ADA, P7A:~~

~~1. Basis of Design Product: Subject to compliance with requirements, provide Bradley model WS-1X-HN, or a comparable product by one of the following:~~

~~a. Powers; a Watts Industries Co.~~
~~b. Symmons Industries.~~

~~2. Description: ADA Accessible stainless steel shower panel with sloped top and single-handle Equa Flow HD pressure-balance valve. Include fixed height shower head and ADA hand shower with 60" stainless steel flexible hose. Include hot- and cold-water indicators; check stops and flange. Coordinate faucet inlets with supplies and outlet with diverter valve. If basis-of-design product manufacturer's name, product name or designation, and description above are explicit enough, requirements in 16 subparagraphs below may be reduced or omitted.~~ [2]

[2] Addendum #2 – 05-15-2025

~~a. Body Material: Solid brass.~~
~~b. Finish: Polished chrome plate.~~
~~c. Panel Material: 18 Ga Stainless Steel with sloped top~~
~~d. Maximum Flow Rate: 1.5 gpm (9.5 L/min.), unless otherwise indicated.~~
~~e. Diverter Valve: Required.~~
~~f. Mounting: Wall mounted~~
~~g. Backflow Protection Device for Hand-Held Shower: Required.~~
~~h. Operation: Noncompression, manual.~~
~~i. Antiscald Device: Integral with mixing valve.~~
~~j. Check Stops: Check-valve type, integral with or attached to body; on hot- and cold-water supply connections.~~
~~k. Supply Connections: NPS 1/2 (DN 15), sweat.~~
~~l. Shower Head Types:~~

~~1) Hand-held with 60" stainless steel flexible hose.~~
~~2) Fixed axis showerhead with ball joint~~

~~m. Shower Head Material: Solid Brass with chrome-plated finish.~~
~~n. Spray Pattern: Fixed.~~
~~o. Integral Volume Control: Required.~~
~~p. Shower-Arm Flow-Control Fitting: Not required~~
~~q. Temperature Indicator: Integral with faucet.~~
~~r. Hardware: Vandal Resistant Screws~~ [2]

2.3 SINK FAUCETS

A. Sink Faucets, SF-1:
1. Basis of Design Product: Subject to compliance with requirements, provide Chicago Faucet Model 540-LD897SWXFXKCAB faucet or a comparable product by one of the following:

a. Zurn Industries, LLC; Commercial Brass and Fixtures
b. T& S Brass & Bronze Works, Inc.
c. Moen

2. Description: Service sink faucet with stops in shanks, vacuum breaker, hose-thread outlet, and pail hook. Include hot-and cold-water indicators; coordinate faucet inlets with supplies and fixture holes; coordinate outlet with spout and fixture receptor.

a. Body Material: Commercial, solid brass.
b. Finish: Polished chrome plate.
c. Maximum Flow Rate: 2.5 gpm (9.5 L/min.), unless otherwise indicated.
d. Mixing Valve: Two-lever handle.
e. Backflow Protection Device for Hose Outlet: Required.
f. Centers: 8 inches (203 mm).
g. Mounting: Back/wall, exposed.
h. Handle(s): Lever.
i. Inlet(s): NPS 1/2 (DN 15) male shank.
j. Spout Type: Rigid, solid brass with wall brace.
k. Spout Outlet: Hose thread.
l. Vacuum Breaker: Required.
m. Operation: Compression, manual with integral check valves.
n. Drain: Grid.

[2] Addendum #2 – 05-15-2025

B. Sink Faucets SF-2: Manual type, two-lever-handle mixing valve.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Chicago Faucet model 201-AGN8AE2805FAB faucet or comparable product by one of the following:

   a. Zurn Industries, LLC; Commercial Brass and Fixtures
   b. T& S Brass & Bronze Works, Inc.
   c. Moen

2. Standard: ASME A112.18.1/CSA B125.1.
3. General: Include hot- and cold-water indicators; coordinate faucet inlets with supplies and fixture hole punchings; coordinate outlet with spout and sink receptor.
4. Body Type: Widespread.
5. Body Material: Commercial, solid brass.
6. Finish: Polished chrome-plate.
7. Maximum Flow Rate: 0.5 gpm (8.3 L/min.).
8. Handle(s): Lever.
9. Mounting Type: Deck, exposed.
10. Spout Type: Rigid/swing gooseneck w/ 120 degree swing limit.
11. Vacuum Breaker: Not required for hose outlet.
12. Spout Outlet: 0.5 gpm vandal proof aerator

~~C. Sink Faucets SF-3: Manual type, two-lever-handle mixing valve.~~

~~Basis-of-Design Product: Subject to compliance with requirements, provide Chicago Faucet model LWM2-A13-A faucet or comparable product by one of the following:~~

~~a. Zurn Industries, LLC; Commercial Brass and Fixtures~~
~~b. T& S Brass & Bronze Works, Inc.~~

~~2. Standard: ASME A112.18.1/CSA B125.1.~~
~~3. General: Include hot- and cold-water indicators; coordinate faucet inlets with supplies and fixture hole punchings; coordinate outlet with spout and sink receptor.~~
~~4. Body Type: Widespread.~~
~~5. Body Material: Commercial, solid brass.~~
~~6. Finish: Polished chrome-plate.~~
~~7. Maximum Flow Rate: 0.74 gpm (8.3 L/min.).~~
~~8. Handle(s): 4" wristblade.~~
~~9. Mounting Type: Deck, exposed.~~
~~10. Spout Type: Rigid/swing gooseneck w/ 120 degree swing limit.~~
~~11. Vacuum Breaker: Required~~
~~12. Spout Outlet: 0.74 gpm vandal proof serrated nozzle~~

~~D. Sink Faucets SF-4: Manual type, single-lever-handle~~

~~1. Basis-of-Design Product: Subject to compliance with requirements, provide Chicago Faucet model 928-VR317XKCP faucet or comparable product by one of the following:~~

~~a. Zurn Industries, LLC; Commercial Brass and Fixtures~~
~~b. T& S Brass & Bronze Works, Inc.~~

~~2. Standard: ASME A112.18.1/CSA B125.1.~~
~~3. General: Include cold-water indicators coordinate faucet inlet with supplies and fixture hole punchings; coordinate outlet with spout and sink receptor.~~ [2]

[2] Addendum #2 – 05-15-2025

4. ~~Body Type: Widespread.~~
5. ~~Body Material: Commercial, solid brass.~~
6. ~~Finish: Polished chrome-plate.~~
7. ~~Maximum Flow Rate: 0.74 gpm (8.3 L/min.).~~
8. ~~Handle(s): 4" wristblade.~~
9. ~~Mounting Type: Deck, exposed.~~
10. ~~Spout Type: Rigid/swing gooseneck w/ 120 degree swing limit.~~
11. ~~Vacuum Breaker: Required~~
12. ~~Spout Outlet: 0.74 gpm vandal proof serrated nozzle~~ [2]

2.4 FLUSHOMETERS

A. Water Closet, Lever-Handle, ~~Dual Action~~ ~~(1.6 gpf/1.1 gpf)~~[2] Diaphragm Flushometer Valves (FV-1):

1. Manufacturers: Subject to compliance with requirements, provide products by Sloan ~~WES~~ **Royal** model 111-1.6~~/1.1~~[2] or comparable product by one of the following:

   ~~a. American Standard~~[2]
   b. Zurn Industries, LLC; Commercial Brass and Fixtures.

2. Standard: ASSE 1037.
3. Minimum Pressure Rating: 125 psig (860 kPa).
4. Features: Include integral check stop and backflow-prevention device.
5. Material: Brass body with corrosion-resistant components.
6. Exposed Flushometer-Valve Finish: Chrome plated.
7. Panel Finish: Chrome plated or stainless steel.
8. Style: Exposed.
9. Consumption: 1.6/1.1 gal. (4.8 L) per flush.
10. Minimum Inlet: NPS 1 (DN 25).
11. Minimum Outlet: NPS 1-1/4 (DN 32).

~~B. Urinal flushometer valve, Lever-Handle, Diaphram Flushometer Valves (FV-2):~~

~~1. Manufacturers: Subject to compliance with requirements, provide products by basis-of-design Sloan Royal model 186-0.125 or comparable product by the following:~~

~~a. American Standard~~
~~b. Zurn Industries, LLC; Commercial Brass and Fixtures.~~

~~2. Standard: ASSE 1037.~~
~~3. Minimum Pressure Rating: 125 psig (860 kPa).~~
~~4. Features: Include integral check stop and backflow-prevention device.~~
~~5. Material: Brass body with corrosion-resistant components.~~
~~6. Exposed Flushometer-Valve Finish: Chrome plated.~~
~~7. Panel Finish: Chrome plated.~~
~~8. Style: Exposed.~~
~~9. Consumption: 0.125 gal. per flush.~~
~~10. Minimum Inlet: NPS ¾ (DN 20).~~
~~11. Minimum Outlet: NPS-1-1/4 (DN 32).~~ [2]

[2] Addendum #2 – 05-15-2025

2.5 TOILET SEATS

A. Toilet Seats (TS-1):

1. Manufacturers: Subject to compliance with requirements, provide products by the following:
   a. Bemis Manufacturing Company. Model 1655SSCT
   b. Church Seats Model 9500SSCT
   c. Olsonite Seat Co.
2. Standard: IAPMO/ANSI Z124.5.
3. Material: Plastic.
4. Type: Commercial (Heavy duty).
5. Shape: Elongated rim, open front.
6. Hinge: Self-sustaining, check.
7. Hinge Material: Noncorroding metal.
8. Seat Cover: Not required.
9. Color: White.

2.6 PROTECTIVE SHIELDING GUARDS

A. Protective Shielding Pipe Covers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   a. Engineered Brass Co.
   b. McGuire Manufacturing Co., Inc.
   c. TRUEBRO, Inc.
2. Description: Manufactured plastic wraps for covering plumbing fixture hot- and cold-water supplies and trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements.

2.7 FIXTURE SUPPORTS

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

1. Josam Company.
2. Smith, Jay R. Mfg. Co.
3. Zurn

B. Water Closet Supports:
1. Description: Combination carrier designed for accessible/standard mounting height of wall-mounting, water-closet-type fixture. Include single or double, vertical or horizontal, hub-and-spigot or hubless waste fitting as required for piping arrangement; faceplates; couplings with gaskets; feet; and fixture bolts and hardware matching fixture. Include additional extension coupling, faceplate, and feet for installation in wide pipe space.

C. Urinal Supports:
1. Description: Type I, urinal carrier with fixture support plates and coupling with seal and fixture bolts and hardware matching fixture for wall-mounting, urinal-type fixture. Include steel uprights with feet.

2. Accessible-Fixture Support: Include rectangular steel uprights.

D. Lavatory Supports:

1. Description: Type II, lavatory carrier with concealed arms and tie rod for wall-mounting, lavatory-type fixture. Include steel uprights with feet.
2. Accessible-Fixture Support: Include rectangular steel uprights.

2.8 INTERCEPTORS

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

1. Zurn Plumbing Products Group, model Z-1184.
2. Josam.
3. J. R. Smith.

B. Sediment Interceptors:

1. Description: Manufactured unit with removable screens or strainer and removable cover; designed to trap and retain waste material.

a. Material: carbon-steel body with acid-resistant lining and coating with stainless-steel removable screen bucket.
b. Pipe Connections: NPS 2 (DN 50).
c. Removable screens must be accessible from the top of the interceptor without the use of any tools.

2.9 WATER CLOSETS

~~A. Water Closets P1: Pre-K/Kindergarten (Child) ADA, Floor mounted, bottom outlet, top spud.~~[2]

~~1. Manufacturers: Subject to compliance with requirements, provide products by Kohler model K-96064-SS or comparable product by one of the following:~~

~~a. American Standard~~
~~b. Sloan.~~

~~2. Bowl:~~

~~a. Standards: ASME A112.19.2/CSA B45.1 and ASME A112.19.5.~~
~~b. Material: Vitreous china.~~
~~c. Type: Siphon jet.~~
~~d. Style: Flushometer valve.~~
~~e. Height: 10" to top of bowl (11 ½" to top of seat).~~
~~f. Rim Contour: Elongated.~~
~~g. Water Consumption: 1.6 gal. (4.8 L) per flush.~~
~~h. Spud Size and Location: NPS 1-1/2 (DN 40); top.~~
~~i. Color: White.~~

~~3. Flushometer Valve: (FV-1).~~
~~4. Toilet Seat: 9500 SSC.~~
5. ~~Support: See "Fixture Supports" article~~. [2]

[2] Addendum #2 – 05-15-2025

B. Water Closets P1A: Grades 1-5 (Youth) ADA & Grades 6-8 (Adult) Standard, Floor mounted, bottom outlet, top spud.

1. Manufacturers: Subject to compliance with requirements, provide products by Kohler K-96053-SS or comparable product by one of the following:

~~a. American Standard~~ **Kohler[2]**
b. Sloan.

2. Bowl:

a. Standards: ASME A112.19.2/CSA B45.1 and ASME A112.19.5.
b. Material: Vitreous china.
c. Type: Siphon jet.
d. Style: Flushometer valve.
e. Height: 15" to top of bowl.
f. Rim Contour: Elongated.
g. Water Consumption: 1.6 gal. (4.8 L) per flush.
h. Spud Size and Location: NPS 1-1/2 (DN 40); top.
i. Color: White or as selected by Architect.

1. Flushometer Valve: (FV-1).
2. Toilet Seat: 9500 SSC.
3. Support: See "Fixture Supports" article.

~~C. Water Closets P1B: Adult ADA, Floor mounted, bottom outlet, top spud.~~

~~1. Manufacturers: Subject to compliance with requirements, provide products by Kohler model K-96057-SS or comparable product by one of the following:~~

~~a. American Standard~~
~~b. Sloan.~~

~~2. Bowl:~~

~~a. Standards: ASME A112.19.2/CSA B45.1 and ASME A112.19.5.~~
~~b. Material: Vitreous china.~~
~~c. Type: Siphon jet.~~
~~d. Style: Flushometer valve.~~
~~e. Height: 17" handicapped complying with ICC/ANSI A117.1.~~
~~f. Rim Contour: Elongated.~~
~~g. Water Consumption: 1.6 gal. (4.8 L) per flush.~~
~~h. Spud Size and Location: NPS 1-1/2 (DN 40); top.~~
~~i. Color: White.~~

~~3. Flushometer Valve: (FV-1).~~
~~4. Toilet Seat: 9500 SSC.~~
~~5. Support: See "Fixture Supports" article.~~

~~2.10 URINALS~~

~~A. Urinals: Wall hung, back outlet: P2 standard; P2A accessible.~~
~~1. Manufacturers: Subject to compliance with requirements, provide products by Kohler K-4991-ETSS or comparable product by the following:~~
~~a. American Standard~~
~~b. Sloan.~~

[2] Addendum #2 – 05-15-2025

~~2. Fixture:~~
~~a. Standards: ASME A112.19.2/CSA B45.1 and ASME A112.19.5.~~
~~b. Material: Vitreous china.~~
~~c. Type: Washout.~~
~~d. Strainer or Trapway: Manufacturer's standard strainer with integral trap.~~
~~e. Water Consumption: 0.125 gal. per flush.~~
~~f. Spud Size and Location: NPS 1-1/4 (DN 20); top.~~
~~g. Outlet Size and Location: NPS 2 (DN 50); back.~~
~~h. Color: White.~~
~~3. Support: See "Fixture Supports" article.~~[2]

2.11 LAVATORIES

A. Lavatories, P3, ~~P3A~~: Wheelchair, ~~enameled cast iron~~ vitreous china, wall mounted for public restrooms:

1. Manufacturers: Subject to compliance with requirements, provide products by ~~Kohler Hudson model K-2812~~ **American Standard Lucerne[2]** or comparable products by the following:

~~a. American Standard~~ **Kohler[2]**
b. Sloan

2. Fixture:

a. Standard: ASME A112.19.2/CSA B45.1.
b. Type: P3~~A~~ shall be Wheelchair (ADA) accessible.
c. Nominal Size: Rectangular 20 by 18 inches (686 by 559 mm).
d. Material: Cast iron w/ acid resistant enamel.
e. Faucet-Hole Punching: Single hole.
f. Faucet-Hole Location: Top.
g. Color: White.
h. Mounting: Concealed arm carrier.

3. Faucet: "Solid-Brass, Manually Operated Lavatory Faucets" LF-1.
4. Support: ASME A112.6.1M, Type II, concealed-arm lavatory carrier with rectangular, steel uprights.

2.12 MOP SINK

A. Mop Sink, P4:

1. Manufacturers: Basis of Design Product: Subject to Compliance with requirements, provide Crane Plumbing, LLC/Fiat Products, Fiat Model TSB3003, or a comparable product of one of the following:

a. Acorn Engineering Company.
b. Stern-Williams Co., Inc.
c. Florestone Products Co., Inc.

2. Description: Flush-to-wall, floor-mounting, precast terrazzo fixture with rim guard.

a. Shape: Rectangular.
b. Size: 36 by 24 inches.

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c. Height: 12 inches (305 mm) with 6" dropped front.
d. Tiling Flange: On all sides.
e. Rim Guard: Stainless steel cap on all top surfaces.
f. Color: White with black and white marble chips.
g. Drain: Grid with NPS 3 (DN 80) outlet.
h. Wall Guards: Heavy gauge stainless steel on all walls.
i. Mop Hangers: Provide four (4) hangers.
j. Faucet: SF-1

1) Number required: One
2) Mounting: Wall

2.13 SINKS

A. Counter Sink (Typical) P5:
1. Basis of Design Product: Subject to compliance with requirements, provide Just SLF-ADA-~~2125-A55~~**-2231**[2] - or a comparable product by one of the following:
a. Advance Tabco.
b. Elkay Manufacturing Co.

2. Fixture:
a. Standard: ASME A112.19.3/CSA B45.4.
b. Type: Ledger back.
c. Number of Compartments: One.
d. Overall Dimensions: 25" x 21-1/4"x 5-1/2".
e. Meal Thickness: 18 gauge.
f. Compartment:
1) Dimensions: 21" x 15-3/4" x 5-1/2"
2) Drain: Grid with NPS 1-1/2 (DN 40) tailpiece and twist drain).
3) Drain Location: Near back of compartment.
3. Faucet: SF-2
a. Number Required: One.
b. Mounting: ON ledge.
4. Supply Fittings:
a. Standard: ASME A112.18.1/CSA B125.1.
b. Supplies: Chrome-plated brass threaded stop with inlet connection matching water-supply piping type and size.
1) Operation: Loose key.
2) Risers: NSP 1/2 (DN 15), chrome-plated, soft-copper flexible tube.
5. Waste Fittings:
a. Standard: ASME A112.18.2/CSA B125.2.
b. Trap(s):
1) Size: NPS 1-1/2 (DN 40).
2) Materials: Chrome-plated two-piece, cast-brass trap and swivel elbow with 0.032-inch (0.83-mm thick brass tube to wall and chrome-plated brass or steel wall flange.
3) Material: Stainless-steel, two-piece trap and swivel elbow with 0.012-inch-(0.30-mm) thick stainless-steel tube to wall; and stainless-steel wall flange.
c. Continuous Waste:
1) Size: NPS 1-1/2 (DN 40).
2) Material: Chrome-plated, 0.032-inch (0.83 mm) thick brass tube

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B. Counter Sink (Classroom) P5A:
   1. Basis of Design Product: Subject to compliance with requirements, provide Just CRAF-ADA-1725-A-GR or a comparable product by one of the following:
      a. Advance Tabco.
      b. Elkay Manufacturing Co.

   2. Fixture:
      a. Standard: ASME A112.19.3/CSA B45.4.
      b. Type: Ledger back.
      c. Number of Compartments: One.
      d. Overall Dimensions: 25" x 17"x 5-1/2".
      e. Meal Thickness: 18 gauge.
      f. Compartment:
         1) Dimensions: 14" x 16" x 5-1/2"
         2) Drain: Grid with NPS 1-1/2 (DN 40) tailpiece and twist drain).
         3) Drain Location: Near back of compartment.
      g. Faucet Hole Punching: 3 hole, left side
      h. Bubbler Hole Punching: 1 hole, right side
   3. Faucet: SF-2
      a. Number Required: One.
      b. Mounting: ON ledge.
   4. Bubbler:
      a. Just Sinks Model JSB-10-FLX-VR
   5. Supply Fittings:
      a. Standard: ASME A112.18.1/CSA B125.1.
      b. Supplies: Chrome-plated brass threaded stop with inlet connection matching water-supply piping type and size.
         1) Operation: Loose key.
         2) Risers: NSP 1/2 (DN 15), chrome-plated, soft-copper flexible tube.
   6. Waste Fittings:
      a. Standard: ASME A112.18.2/CSA B125.2.
      b. Trap(s):
         1) Size: NPS 1-1/2 (DN 40).
         2) Materials: Chrome-plated two-piece, cast-brass trap and swivel elbow with 0.032-inch (0.83-mm thick brass tube to wall and chrome-plated brass or steel wall flange.
         3) Material: Stainless-steel, two-piece trap and swivel elbow with 0.012-inch-(0.30-mm) thick stainless-steel tube to wall; and stainless-steel wall flange.
      c. Continuous Waste:
         1) Size: NPS 1-1/2 (DN 40).
         2) Material: Chrome-plated, 0.032-inch (0.83-mm) thick brass tube

C. Counter Sink (Art) P5B:
   1. Basis of Design Product: Subject to compliance with requirements, provide Just SL-X-2133-A-J or a comparable product by one of the following:
      a. Advance Tabco.
      b. Elkay Manufacturing Co.

   2. Fixture:
      a. Standard: ASME A112.19.3/CSA B45.4.
      b. Type: Ledger back.
      c. Number of Compartments: One.
      d. Overall Dimensions: 22" x 33"x 10-1/8".
      e. Meal Thickness: 18 gauge.
      f. Compartment:

~~1) Dimensions: 16" x 28" x 10"~~
~~2) Drain: Grid with NPS 1-1/2 (DN 40) tailpiece and twist drain).~~
~~3) Drain Location: Near back of compartment.~~

~~3. Faucet: SF-2~~
~~a. Number Required: One.~~
~~b. Mounting: ON ledge.~~

~~4. Supply Fittings:~~
~~a. Standard: ASME A112.18.1/CSA B125.1.~~
~~b. Supplies: Chrome-plated brass threaded stop with inlet connection matching water-supply piping type and size.~~
~~1) Operation: Loose key.~~
~~2) Risers: NSP 1/2 (DN 15), chrome-plated, soft-copper flexible tube.~~

~~5. Waste Fittings:~~
~~a. Standard: ASME A112.18.2/CSA B125.2.~~
b. Trap(s):
~~1) Size: NPS 1-1/2 (DN 40).~~
~~2) Material: Chrome-plated to trap; Zurn Model Z-1180 top access solids trap with removable stainless steel bucket and chrome-plated brass or steel wall flange.~~
~~c. Continuous Waste:~~
~~1) Size: NPS 1-1/2 (DN 40).~~
~~2) Material: Chrome-plated, 0.032-inch (0.83 mm) thick brass tube~~

~~D. Counter Sink (Art, ADA)~~ P5C~~:~~
~~1. Basis of Design Product: Subject to compliance with requirements, provide Just SL-ADA-2133-A55-J or a comparable product by one of the following:~~
~~a. Advance Tabco.~~
~~b. Elkay Manufacturing Co.~~

~~2. Fixture:~~
~~a. Standard: ASME A112.19.3/CSA B45.4.~~
~~b. Type: Ledger back.~~
~~c. Number of Compartments: One.~~
~~d. Overall Dimensions: 22" x 33"x 5-1/2".~~
~~e. Meal Thickness: 18 gauge.~~
~~f. Compartment:~~
~~1) Dimensions: 16" x 28" x 5-1/2"~~
~~2) Drain: Grid with NPS 1-1/2 (DN 40) tailpiece and twist drain).~~
~~3) Drain Location: Near back of compartment.~~
~~g. Faucet Hole Punching: 3 hole, rear side~~

~~3. Faucet: SF-2~~
~~a. Number Required: One.~~
~~b. Mounting: ON ledge.~~

~~4. Supply Fittings:~~
~~a. Standard: ASME A112.18.1/CSA B125.1.~~
~~b. Supplies: Chrome-plated brass threaded stop with inlet connection matching water-supply piping type and size.~~
~~1) Operation: Loose key.~~
~~2) Risers: NSP 1/2 (DN 15), chrome-plated, soft-copper flexible tube.~~

~~5. Waste Fittings:~~
~~a. Standard: ASME A112.18.2/CSA B125.2.~~
~~b. Trap(s):~~
~~1) Size: NPS 1-1/2 (DN 40).~~

2) Material: Chrome-plated to trap; Zurn Model Z-1180 top access solids trap with removable stainless steel bucket and chrome-plated brass or steel wall flange.

c. Continuous Waste:
1) Size: NPS 1-1/2 (DN 40).
2) Material: Chrome-plated, 0.032-inch (0.83 mm) thick brass tube

E. Counter Sink (Science, Student) P5D: Epoxy resin countertop and sink furnished under another division. Plumber provides rough-in and final connections. Coordinate piping connection requirements with the casework supplier.

a. Faucet(s): Sink – SF-3

1) Number Required: One per sink.
2) Mounting: Deck.
3) Counter Mounted emergency fixture: see plans for locations and instances

b. Supplies: NPS 1/2 (DN 15) chrome-plated copper with loose-key, angle service stops. Chicago Model 1006-ABCP with supply risers.
c. Drain Piping:
1) Material: NPS 1-1/2 (DN 40) CPVC Type IV Grade 1 compounds with a minimum cell classification of 23477. Pipe and fittings shall conform to ASTM F2618 and solvent cement shall be formulated for chemical waste and conform to ASTM 493
2) Trap: Orion-BT-1, two-quart capacity bottle dilution trap; and chrome-plated brass or steel wall flange.

F. Counter Sink (Science, ADA) P5E: Epoxy resin countertop and sink furnished under another division. Plumber provides rough-in and final connections. Coordinate piping connection requirements with the casework supplier.

a. Faucet(s): Sink – SF-3

1) Number Required: One per sink.
2) Mounting: Deck.
3) Counter Mounted emergency fixture: see plans for locations and instances

b. Supplies: NPS 1/2 (DN 15) chrome-plated copper with loose-key, angle service stops. Chicago Model 1006-ABCP with supply risers.
c. Drain Piping:
1) Material: NPS 1-1/2 (DN 40) CPVC Type IV Grade 1 compounds with a minimum cell classification of 23477. Pipe and fittings shall conform to ASTM F2618 and solvent cement shall be formulated for chemical waste and conform to ASTM 493
2) Trap: Orion-BT-1, two-quart capacity bottle dilution trap; and chrome-plated brass or steel wall flange.

G. Two Compartment Counter Sink P5F:
1. Basis of Design Product: Subject to compliance with requirements, provide Just DL-ADA-2233-A-GR or a comparable product by one of the following:
a. Advance Tabco.
b. Elkay Manufacturing Co.

2. Fixture:

~~a. Standard: ASME A112.19.3/CSA B45.4.~~
~~b. Type: Ledger back.~~
~~c. Number of Compartments: Two.~~
~~d. Overall Dimensions: 22" x 33"x 5-1/2".~~
~~e. Meal Thickness: 18 gauge.~~
~~f. Compartment:~~
~~1) Dimensions: 14" x 16" x 5-1/2" each~~
~~2) Drain: Grid with NPS 1-1/2 (DN 40) tailpiece and twist drain).~~
~~3) Drain Location: Near back of compartment.~~

~~3. Faucet: SF-2~~
~~a. Number Required: One.~~
~~b. Mounting: ON ledge.~~

~~4. Supply Fittings:~~
~~a. Standard: ASME A112.18.1/CSA B125.1.~~
~~b. Supplies: Chrome-plated brass threaded stop with inlet connection matching water-supply piping type and size.~~
~~1) Operation: Loose key.~~
~~2) Risers: NSP 1/2 (DN 15), chrome-plated, soft-copper flexible tube.~~

~~5. Waste Fittings:~~
~~a. Standard: ASME A112.18.2/CSA B125.2.~~
~~b. Trap(s):~~
~~1) Size: NPS 1-1/2 (DN 40).~~
~~2) Materials: Chrome-plated two-piece, cast-brass trap and swivel elbow with 0.032-inch (0.83-mm thick brass tube to wall and chrome-plated brass or steel wall flange.~~
~~3) Material: Stainless-steel, two-piece trap and swivel elbow with 0.012-inch (0.30-mm) thick stainless-steel tube to wall; and stainless-steel wall flange.~~
~~c. Continuous Waste:~~
~~1) Size: NPS 1-1/2 (DN 40).~~
~~2) Material: Chrome-plated, 0.032-inch (0.83 mm) thick brass tube~~ [2]

2.14 SUPPLY BOXES

A. Clothes Washer Box, P9:
1. Manufacturers:
   a. Guy Grey Model BB200TS.
   b. Oatey.
   c. I.P.S. Corp.
2. Description: Recessed steel box, epoxy finish
   a. Two-inch drain.
   b. One-half inch CW and HW angle valves with hose end thread.

B. Cold Water Supply Box, P8:
1. Manufacturers:
   a. I.P.S. Corp, Model M1B1.
   b. Oatey.
   c. Guy Grey.
2. Description: Recessed 304 Steel Box.
   a. 8"L x 8"W x 4"D clear interior dimensions.
   b. Vandal Resistant lock with Torx Screwdriver.
   c. Concealed pivot pins hinge.

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C. Valve Box:
   1. Manufacturers:
      a. MIFAB Model # MI-VBSS080806-VP or as approved equal.
   2. Description: Recessed Steel Box, epoxy finish.
      a. One-quarter turn chrome valves.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine roughing-in of water supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before plumbing fixture installation.

B. Examine cabinets, counters, floors, and walls for suitable conditions where fixtures will be installed.

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

3.2 INSTALLATION

A. Assemble plumbing fixtures, trim, fittings, and other components according to manufacturers' written instructions.

B. Install off-floor supports, affixed to building substrate, for wall-mounting fixtures.

   1. Use carrier supports with waste fitting and seal for back-outlet fixtures.
   2. Use carrier supports without waste fitting for fixtures with tubular waste piping.
   3. Use chair-type carrier supports with rectangular steel uprights for accessible fixtures.

C. Install back-outlet, wall-mounting fixtures onto waste fitting seals and attach to supports.

D. Install floor-mounting fixtures on closet flanges or other attachments to piping or building substrate.

E. Install wall-mounting fixtures with tubular waste piping attached to supports.

F. Install counter-mounting fixtures in and attached to casework.

G. Install fixtures level and plumb according to roughing-in drawings.

H. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.

   1. Exception: Use ball valves if supply stops are not specified with fixture. Valves are specified in Division 22 Section "General-Duty Valves for Plumbing Piping."

I. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.

J. Install tubular waste piping on drain outlet of each fixture to be indirectly connected to drainage system.

K. Install flushometer valves for accessible water closets with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.

L. Install tanks for accessible, tank-type water closets with lever handle mounted on wide side of compartment.

M. Install toilet seats on water closets.

N. Install trap-seal liquid in dry urinals.

O. Install faucet-spout fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.

P. Install water-supply flow-control fittings with specified flow rates in fixture supplies at stop valves.

Q. Install faucet flow-control fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.

R. Install shower flow-control fittings with specified maximum flow rates in shower arms.

S. Install traps on fixture outlets.

1. Exception: Omit trap on fixtures with integral traps.
2. Exception: Omit trap on indirect wastes, unless otherwise indicated.

T. Install disposer in outlet of each sink indicated to have disposer. Install switch where indicated or in wall adjacent to sink if location is not indicated.

U. Install escutcheons at piping wall ceiling penetrations in exposed, finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding fittings. Escutcheons are specified in Division 22 Section "Escutcheons for Plumbing Piping."

V. Seal joints between fixtures and walls, floors, and countertops using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Sealants are specified in Division 07 Section "Joint Sealants."

W. All valves on supplies shall have threaded connections. Compression style valves are prohibited.

3.3 CONNECTIONS

A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.

C. Ground equipment according to Division 26 Section "Grounding and Bonding for Electrical Systems."

D. Connect wiring according to Division 26 Section "Low-Voltage Electrical Power Conductors and Cables."

3.4 FIELD QUALITY CONTROL

A. Verify that installed plumbing fixtures are categories and types specified for locations where installed.

B. Check that plumbing fixtures are complete with trim, faucets, fittings, and other specified components.

C. Inspect installed plumbing fixtures for damage. Replace damaged fixtures and components.

D. Test installed fixtures after water systems are pressurized for proper operation. Replace malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.

E. Install fresh batteries in sensor-operated mechanisms.

3.5 ADJUSTING

A. Operate and adjust faucets and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.

B. Operate and adjust disposers and controls. Replace damaged and malfunctioning units and controls.

C. Adjust water pressure at faucets and flushometer valves to produce proper flow and stream.

D. Replace washers and seals of leaking and dripping faucets and stops.

E. Install fresh batteries in sensor-operated mechanisms.

3.6 CLEANING

A. Clean fixtures, faucets, and other fittings with manufacturers' recommended cleaning methods and materials. Do the following:

1. Remove faucet spouts and strainers, remove sediment and debris, and reinstall strainers and spouts.
2. Remove sediment and debris from drains.

B. After completing installation of exposed, factory-finished fixtures, faucets, and fittings, inspect exposed finishes and repair damaged finishes.

3.7 PROTECTION

A. Provide protective covering for installed fixtures and fittings.

B. Do not allow use of plumbing fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION 224000