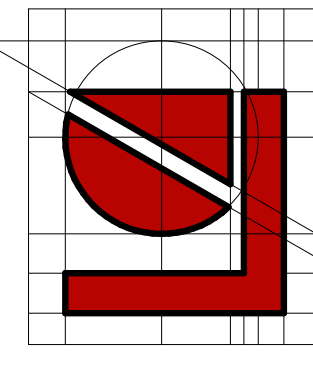


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# BRIGHTON AREA SCHOOLS

# HILTON ELEMENTARY TOILET ROOMS RENOVATION



**Lindhout Associates**  
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HILTON ELEMENTARY SCHOOL  
9600 HILTON RD  
BRIGHTON, MI 48114



## DRAWING INDEX

ALL DEMOLITION DRAWINGS ARE IN COLOR, WITH DEMOLITION SHOWN IN RED (TYP.) REFER TO SHEET INDEX FOR LIST OF SHEETS IN COLOR.

ARCHITECTURAL		
SHEET NUMBER	SHEET NAME	BIDS & PERMITS
A0.0	COVER	X
A0.1	COMPOSITE PLAN	X
A2.0	ENLGD TOILET RM DEMO & NEW WORK PLNS	X
A3.0	INTERIOR ELEVATIONS & DETAILS	X
ID200	OVERALL FINISH FLOOR PLAN & KEY	X

MECHANICAL		
SHEET NUMBER	SHEET NAME	BIDS & PERMITS
MP1.0	MECHANICAL & PLUMBING COMPOSITE PLAN	X
MP1.1	MECHANICAL & PLUMBING PLANS	X
MP1.2	MECHANICAL & PLUMBING PLANS	X

ELECTRICAL		
SHEET NUMBER	SHEET NAME	BIDS & PERMITS
E0.1	GENERAL ELECTRICAL INFORMATION	X
E1.0	ELECTRICAL NEW WORK PLANS	X
E2.0	ELECTRICAL RISER AND SCHEDULES	X
E3.0	ELECTRICAL SPECIFICATIONS	X

CONSULTANT

DATE: 11-08-23	ISSUED FOR: BIDS & PERMITS
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**COVER**

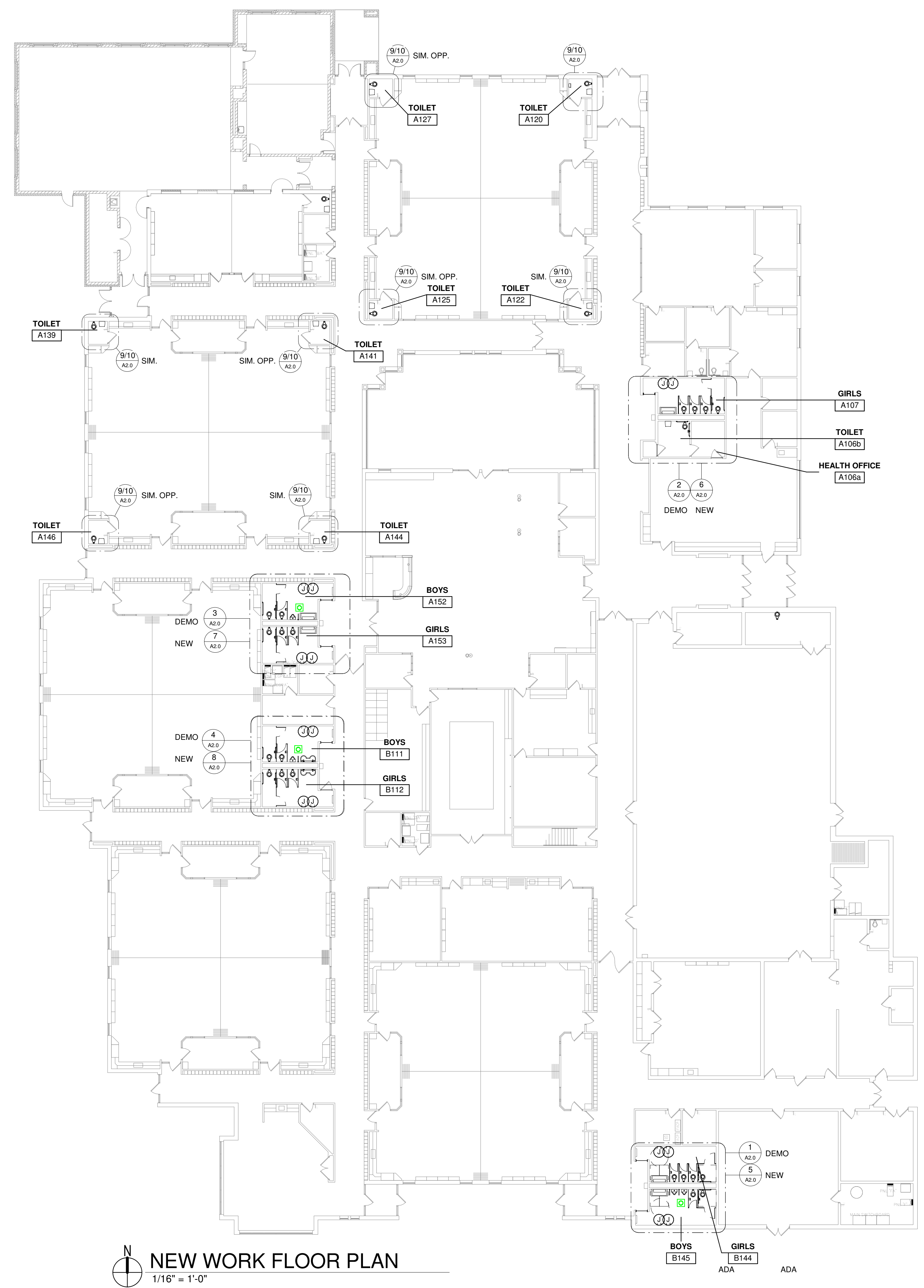
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CODE SUMMARY	
CODES	
2015 MICHIGAN BUILDING CODE	2015 MICHIGAN REHABILITATION CODE
STATE OF MICHIGAN BARRIER FREE ACCESS DESIGN RULES (2009 ICC/ANSI A117.1)	MICHIGAN DEPARTMENT OF LABOR CONSTRUCTION CODE COMMISSION GENERAL RULES
2010 ADA STANDARDS	2015 MICHIGAN MECHANICAL CODE
NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)	MICHIGAN UNIFORM ENERGY CODE
2018 MICHIGAN PLUMBING CODE	2017 NATIONAL ELECTRIC CODE (NEC)
CODES FIRE RESISTIVE ANALYSIS	
CLASSIFICATIONS:	
1 STORIES	0 CONSTRUCTION PROTECTION:
E OCCUPANCY TYPE	0 INTERIOR NON-BEARING PARTITIONS
IB CONSTRUCTION TYPE	0 STRUCTURAL FRAME
Y SPRINKLER SYSTEM	0 EXTERIOR NON-BEARING WALLS
	0 ROOF

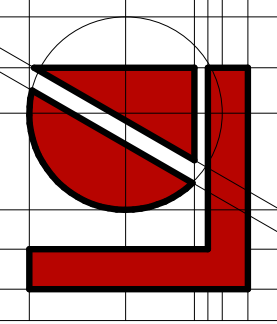
**PROJECT NARRATIVE**

THE AREA OF WORK IS AN INTERIOR RENOVATION TO EXISTING SPACES. NEW FIXTURES, FLOORING, PARTITIONS, FINISHES, ETC., ARE PROPOSED.

THERE IS NO CHANGE IN CONSTRUCTION TYPE, AREA, HEIGHT, EGRESS, OR PLUMBING FIXTURE TOTAL COUNT TO THE EXISTING BUILDING. OCCUPANT LOADS TO THE BUILDING SHALL REMAIN UNCHANGED. THE EXISTING BUILDING IS SUPPRESSED.

RESTROOMS B144 AND B145 WILL BE FULLY RENOVATED WITH ADA TOILET STALLS.

REMAINING RESTROOMS WILL FALL UNDER "LEVEL 1 ALTERATIONS" AS COVERED BY THE 2015 MICHIGAN REHABILITATION CODE, WITH REPLACEMENT FIXTURES AND FINISHES INSTALLED IN EXISTING LOCATIONS.



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DATE: 11-08-23

ISSUED FOR: BIDS & PERMITS

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**HILTON TOILET RM RENOVATION**  
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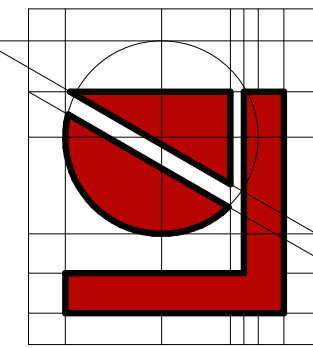
COMPOSITE PLAN

A0.1

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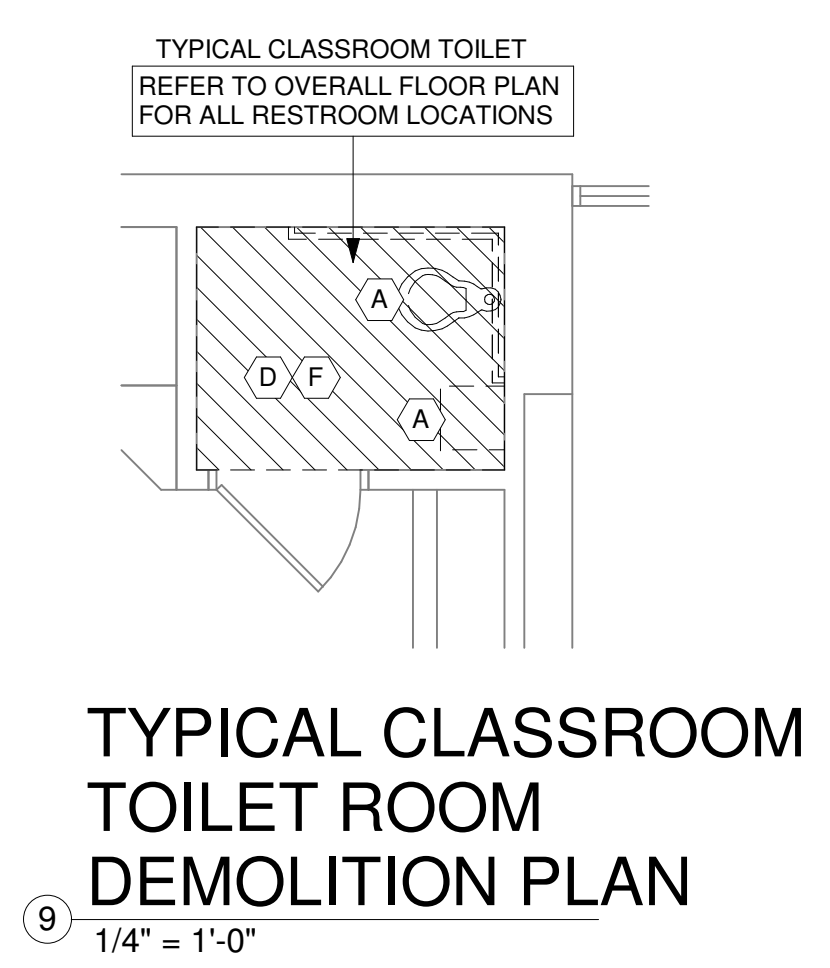
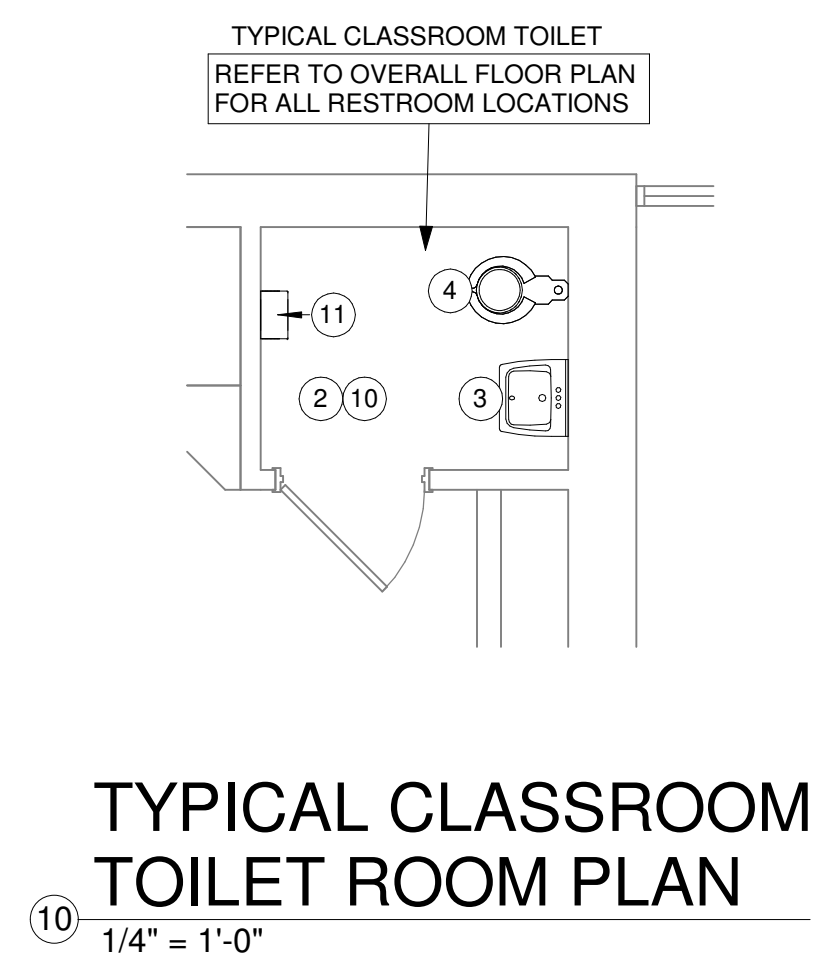
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**HILTON TOILET RM RENOVATION**  
 9600 HILTON RD., BRIGHTON, MI 48114  
**ENLGD TOILET RM DEMO & NEW WORK PLNS**

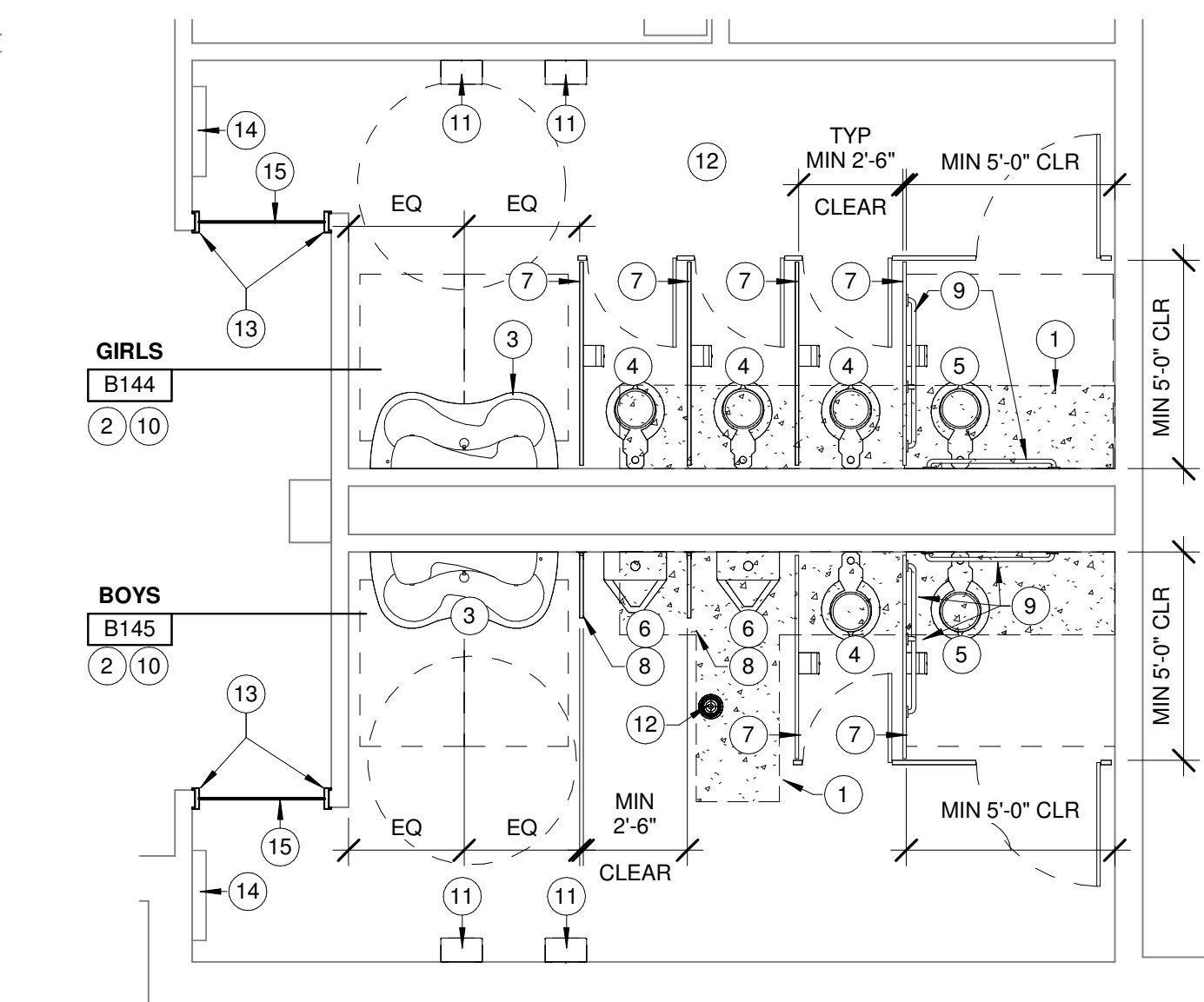
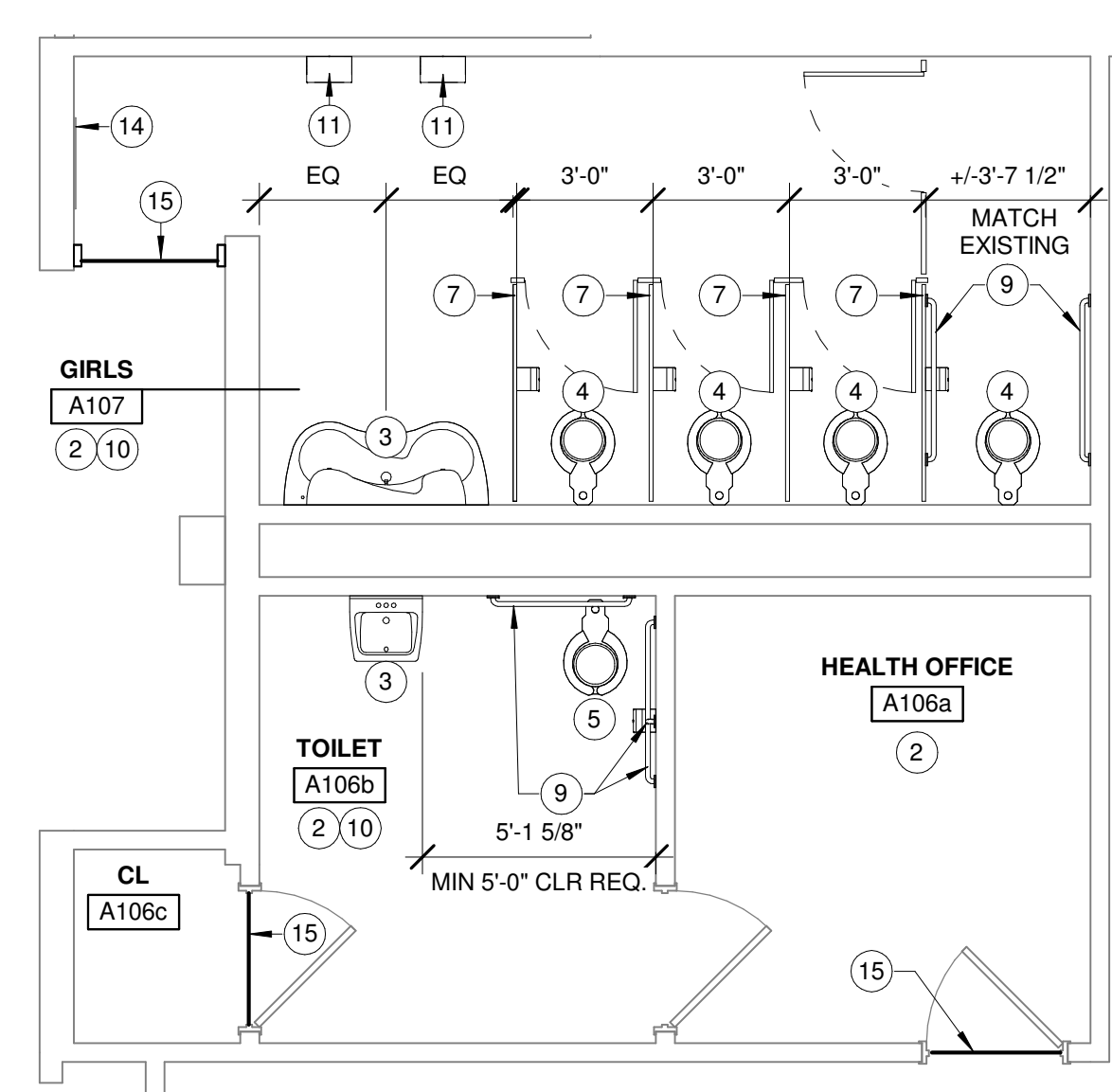
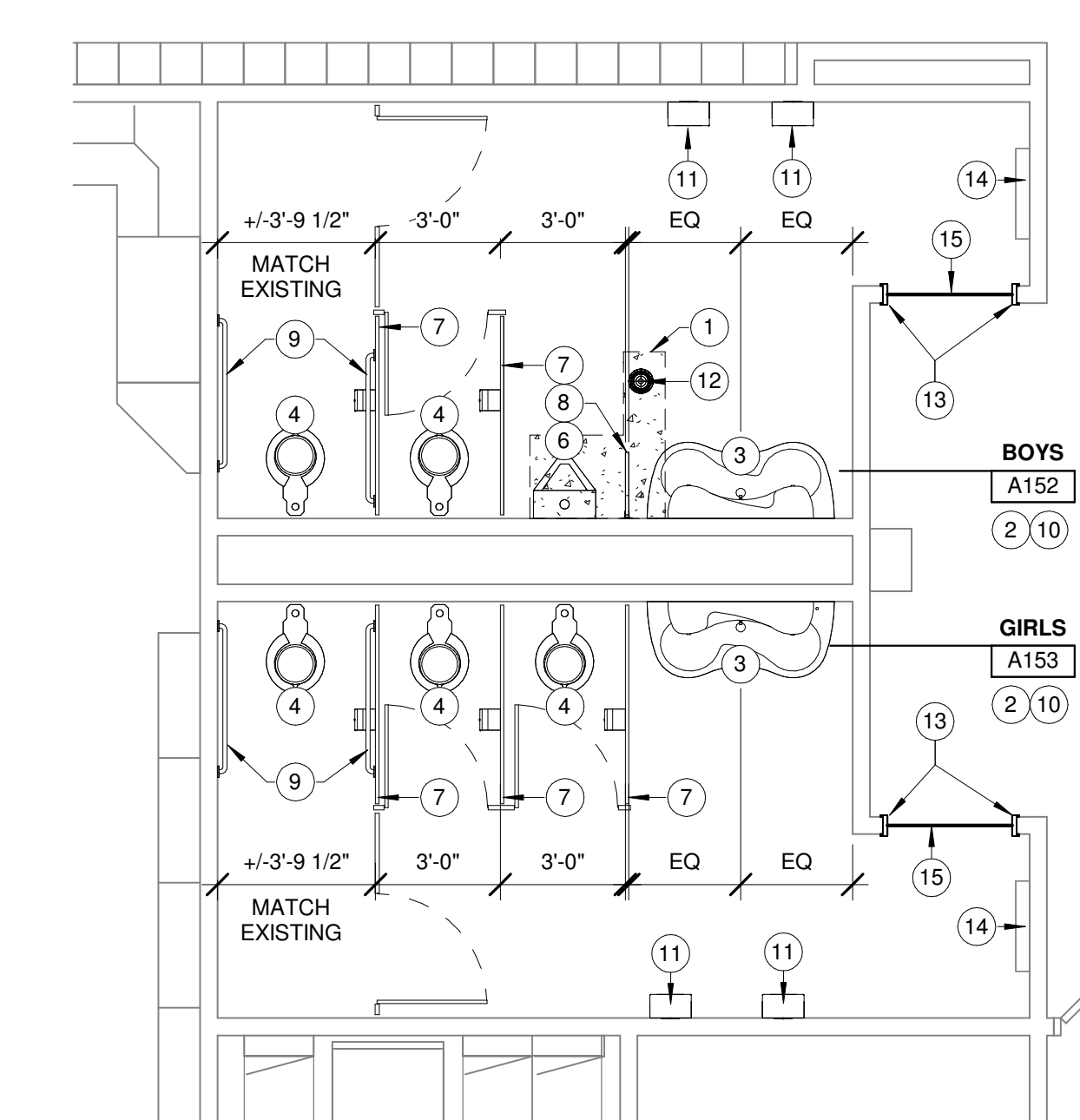
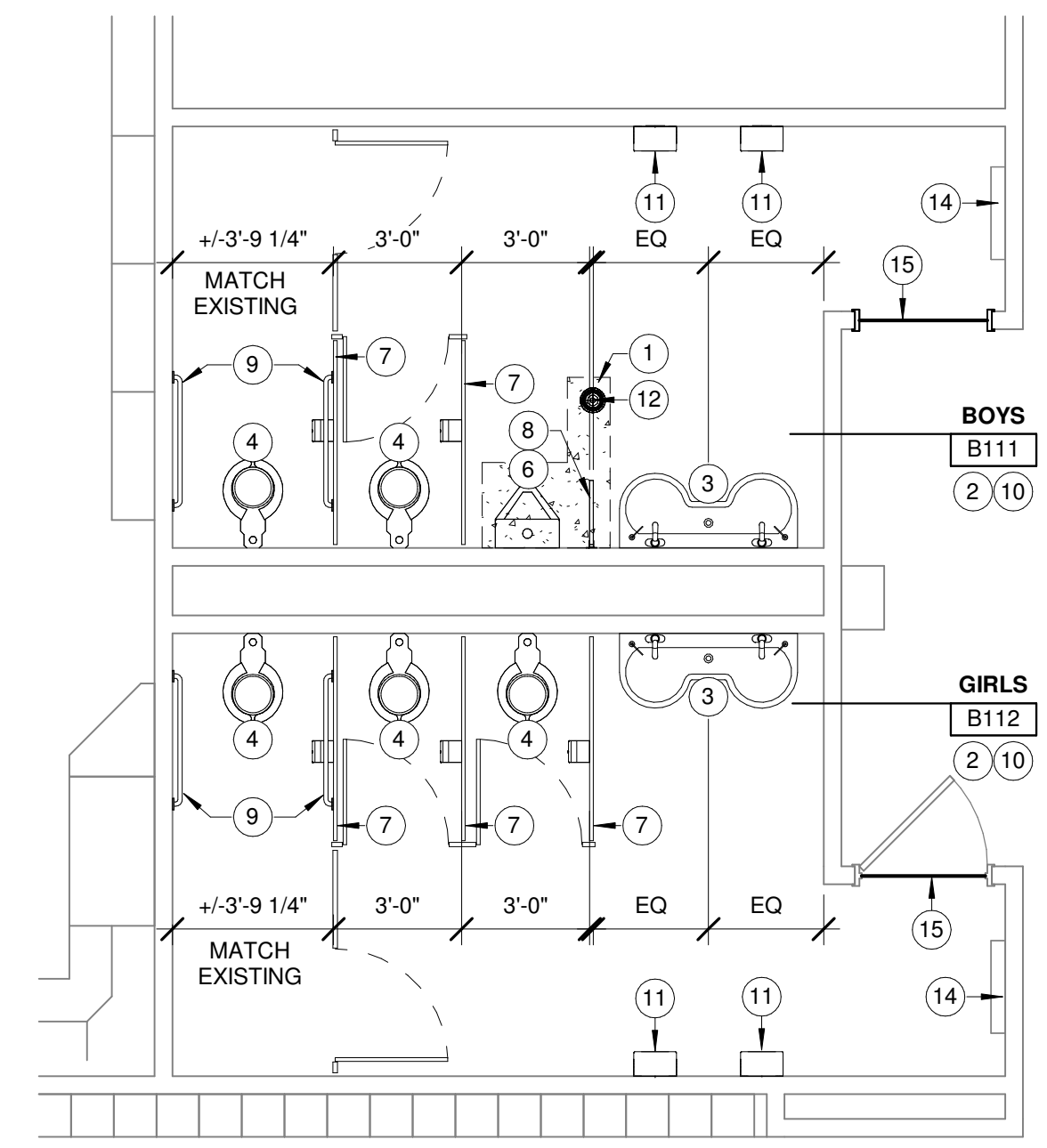
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- ### GENERAL NOTES
- CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY EXISTING CONDITIONS REGARDING DEMOLITION AND NEW WORK BEFORE SUBMITTING A BID FOR THIS PROJECT. CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO ARCHITECT.
  - ANY EXISTING CONDITIONS TO REMAIN THAT ARE DISTURBED ARE TO BE PATCHED/REPAIRED TO MATCH ADJACENT CONDITIONS.
  - WORK SHALL BE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL CODES, LAWS, AND REGULATIONS.
  - REFER TO ELECTRICAL AND MECHANICAL DRAWINGS AS APPLICABLE FOR ADDITIONAL SCOPE OF WORK.
  - INTERIOR DIMENSIONS ARE FROM FINISH FACE.
  - ALL FINISH MATERIALS SHALL ACCOMMODATE ALL M/E ITEMS (CLEANOUTS, FACEPLATES, ETC.).
  - VERIFY FINAL FINISH MATERIALS AND LOCATIONS WITH FLOOR FINISH PLANS AND FINISH SCHEDULE SHEETS.
  - REFER TO SHEET A3.0 FOR ACCESSIBLE MOUNTING HEIGHTS.

- ### NEW WORK KEYNOTES
- INFILL REMOVED CONCRETE SLAB. MATCH EXISTING THICKNESS. PROVIDE SMOOTH TRANSITION TO ADJACENT MATERIALS. SLOPE TO DRAIN AS REQUIRED. SLOPE NOT TO EXCEED 2%.
  - PATCH/REPAIR SURFACES AND PROVIDE NEW FLOOR TILE, WALL TILE, AND/OR PAINT AS SPECIFIED. REFER TO FINISH SCHEDULE.
  - 2-STATION, WALL-HUNG HANDWASHING SYSTEM AS SCHEDULED. REFER TO PLUMBING DRAWINGS.
  - FLOOR-MOUNTED WATER CLOSET AS SCHEDULED (COORDINATE FIXTURE PLACEMENT WITH MINIMUM PARTITION CLEARANCES AS NOTED).
  - FLOOR-MOUNTED ADA WATER CLOSET. ENSURE FLUSH VALVE IS ON OPEN SIDE. REFER TO PLUMBING DRAWINGS. (COORDINATE FIXTURE PLACEMENT WITH MINIMUM PARTITION CLEARANCES AS NOTED).
  - WALL-HUNG URINAL AS SCHEDULED. REFER TO PLUMBING DRAWINGS. (COORDINATE FIXTURE PLACEMENT WITH MINIMUM PARTITION CLEARANCES AS NOTED).
  - TOILET PARTITION. REFER TO ELEVATIONS AND SPECIFICATIONS. MAINTAIN PROPER CLEARANCES (MINIMUM CLEARANCES ARE NOTED, COORDINATE WITH PLUMBING FIXTURE PLACEMENT).
  - 20" DEEP URINAL SCREEN. REFER TO ELEVATIONS AND SPECIFICATIONS.
  - ADA GRAB BARS. REFER TO STANDARD ELEVATIONS AND SPECIFICATIONS FOR SIZE AND PLACEMENT.
  - PROVIDE RESTROOM ACCESSORIES AS SPECIFIED.
  - WALL MOUNTED ELECTRIC HAND DRYER. REFER TO STANDARD ELEVATIONS AND ELECTRICAL DRAWINGS.
  - FLOOR DRAIN. REFER TO PLUMBING DRAWINGS.
  - PROVIDE NEW HOLLOW METAL FRAME AT DOOR OPENING.
  - PROVIDE FIN TUBE COVER, REFER TO MECHANICAL.
  - PROVIDE ADA COMPLIANT THRESHOLD. REFER TO FINISH PLANS.

- ### DEMOLITION KEYNOTES
- REMOVE EXISTING PLUMBING FIXTURES.
  - REMOVE TOILET PARTITIONS.
  - SAWCUT AND REMOVE PORTION OF CONCRETE SLAB. VERIFY EXTENTS IN FIELD. REFER TO PLUMBING DRAWINGS.
  - REMOVE TOILET ROOM ACCESSORIES (MIRRORS, GRAB BARS, DISPENSERS, WASTE RECEPTACLES, ETC.) THROUGHOUT.
  - REMOVE WOOD DOORS AND H.M. FRAMES. STORE AT DIRECTION OF OWNERS REPRESENTATIVE.
  - DEMOLISH PORTION OF PARTITIONS AS REQUIRED FOR IN WALL PLUMBING/ELECTRICAL MODIFICATIONS. (COORDINATE WITH MOUNTING HEIGHTS AND LOCATIONS).
- ### LEGEND
- REMOVE FLOOR FINISH IN ITS ENTIRETY. LEAVE SUBFLOOR IN SUITABLE CONDITION TO RECEIVE NEW FINISH.
  - ITEMS TO BE REMOVED
  - EXISTING ITEMS TO REMAIN
- Room name** ROOM NAME  
**101** ROOM NUMBER KEYNOTES LOCATED WITH ROOM TAG ARE 'TYPICAL' TO ENTIRE ROOM
- KEYNOTE (DEMO)  
 KEYNOTE (NEW)

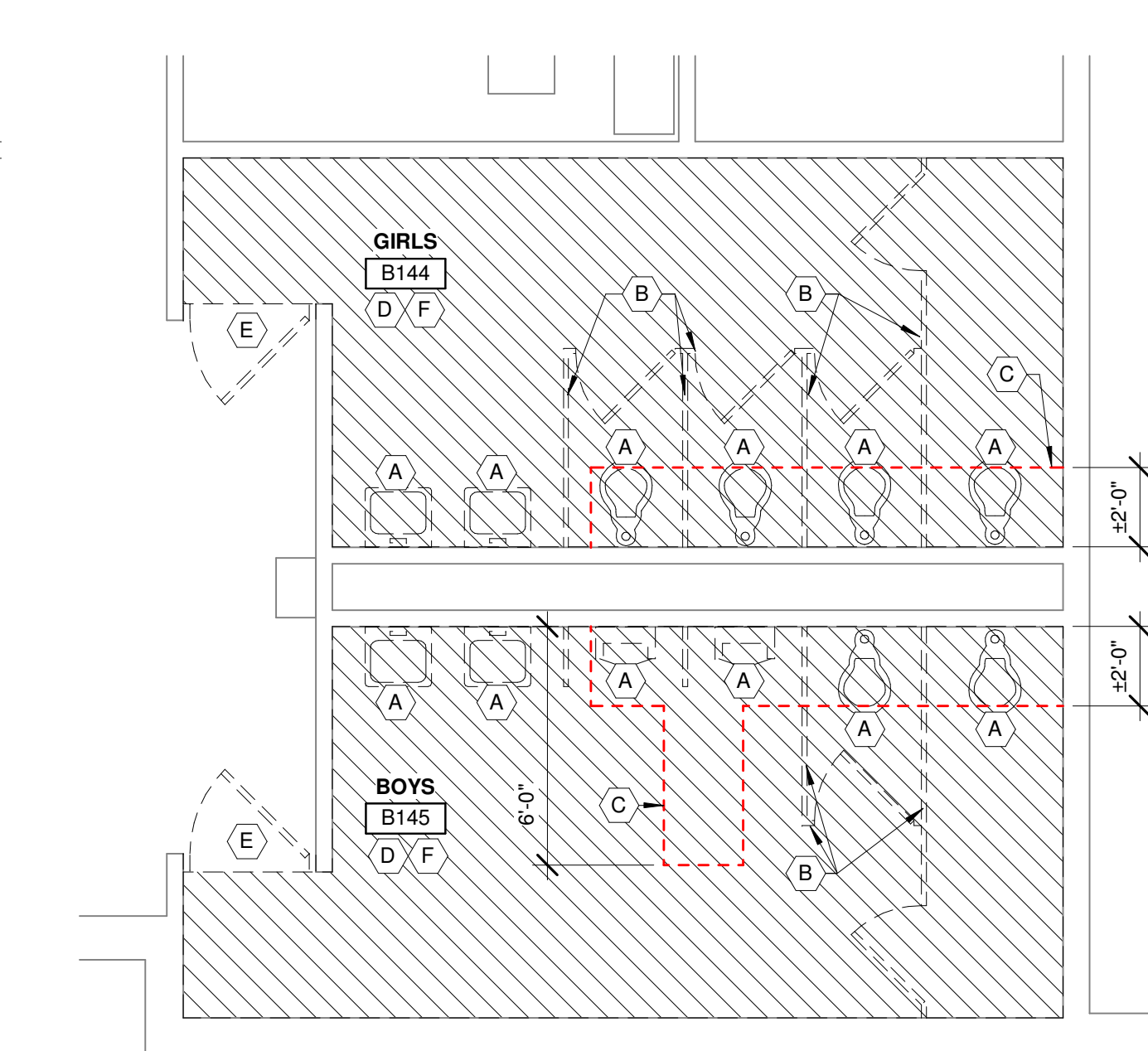
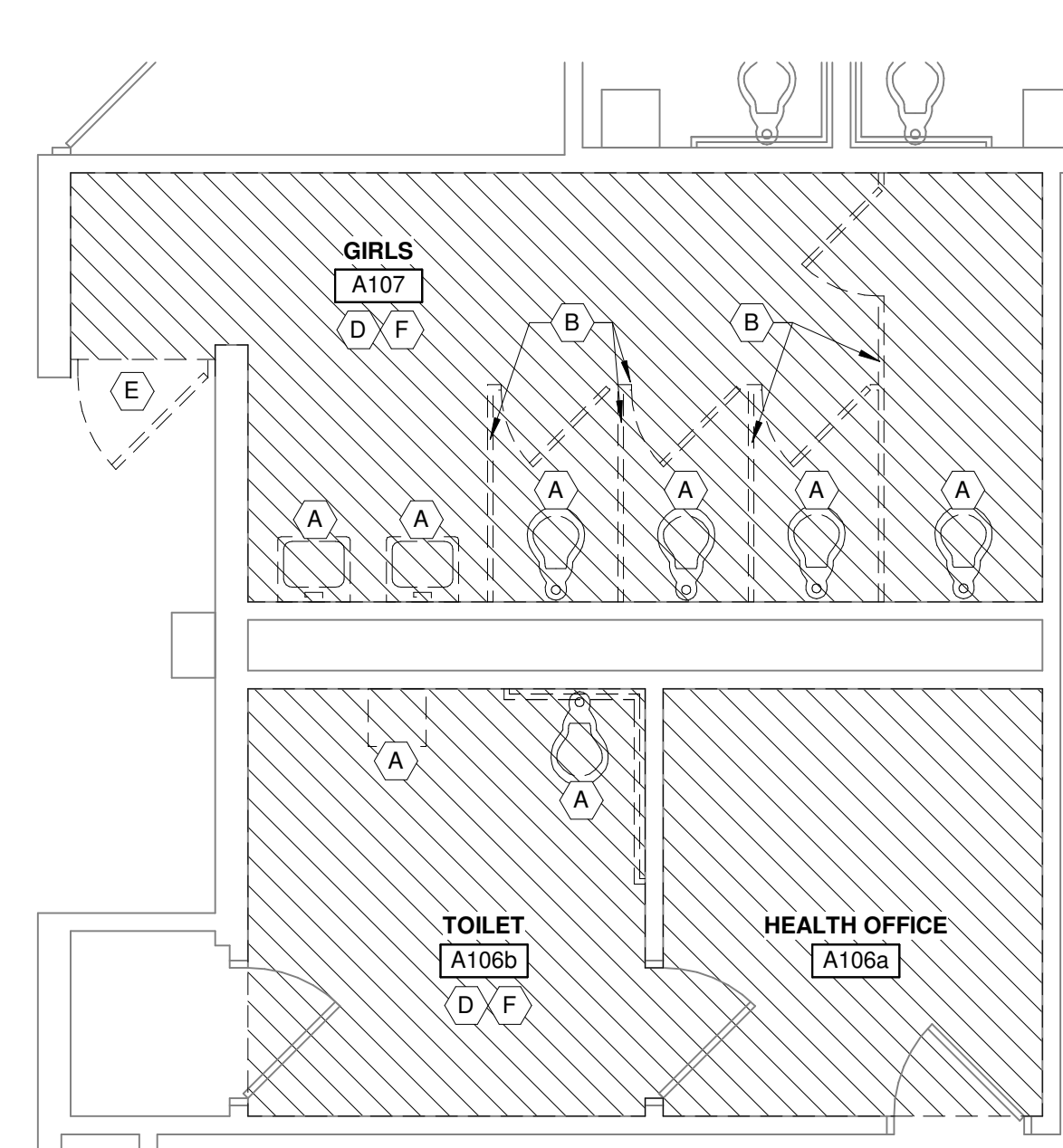
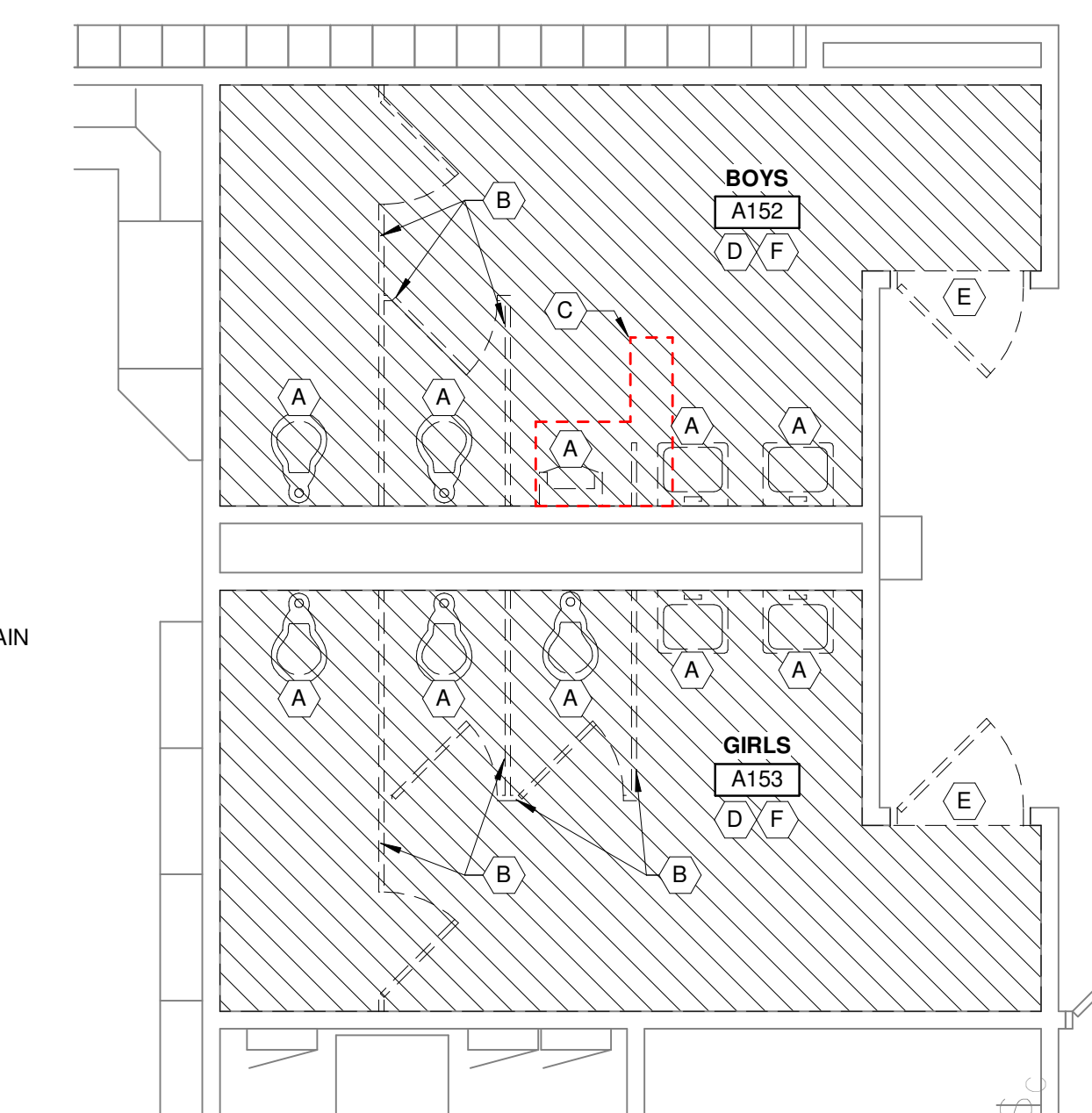
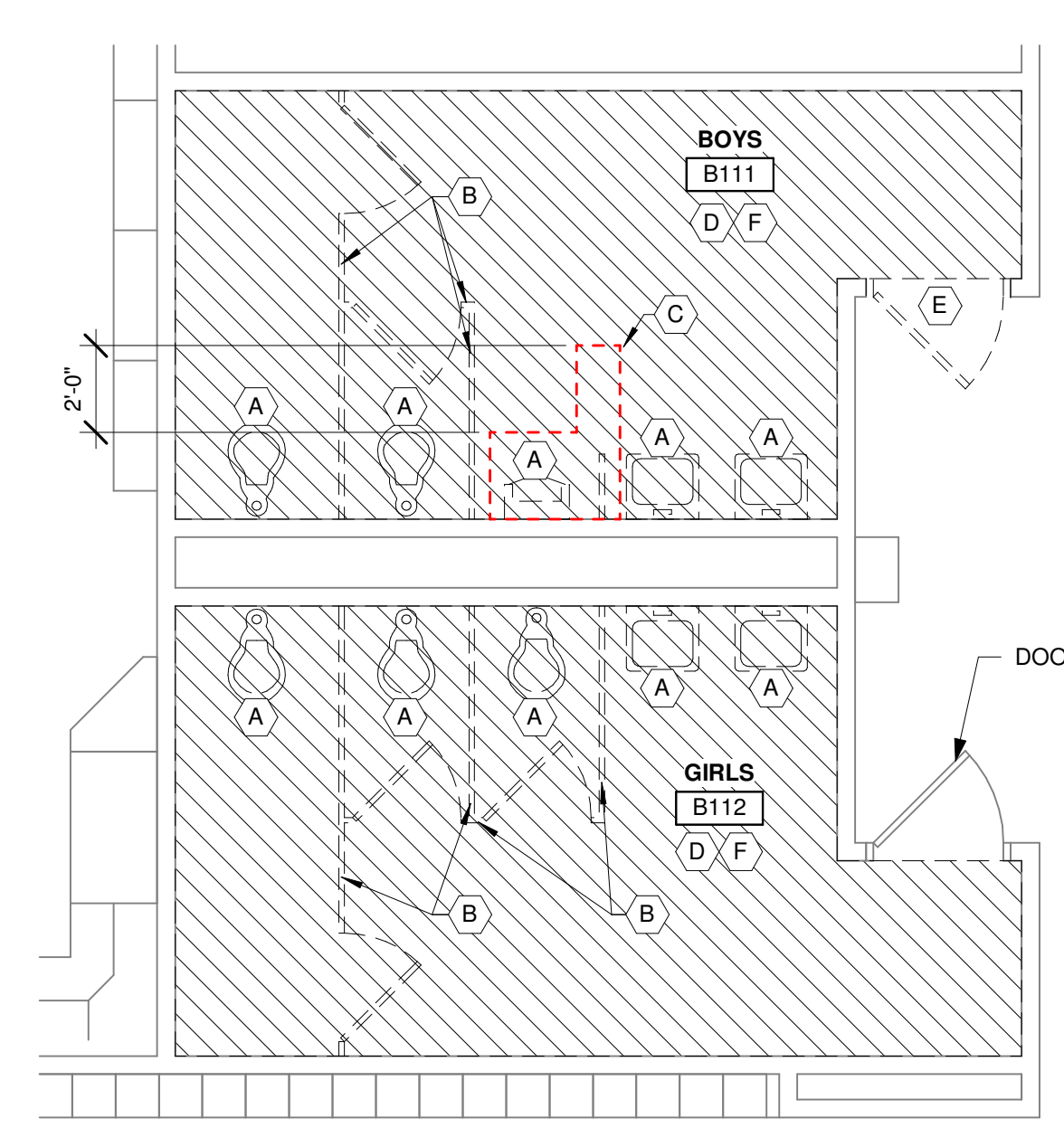


8 NEW WORK PLAN (B111, B112)  
1/4" = 1'-0"

7 NEW WORK PLAN (A152, A153)  
1/4" = 1'-0"

6 NEW WORK PLAN (A106A, A106B, A107)  
1/4" = 1'-0"

5 NEW WORK PLAN (B144 & B145)  
1/4" = 1'-0"



4 ENLARGED DEMO PLAN (B111, B112)  
1/4" = 1'-0"

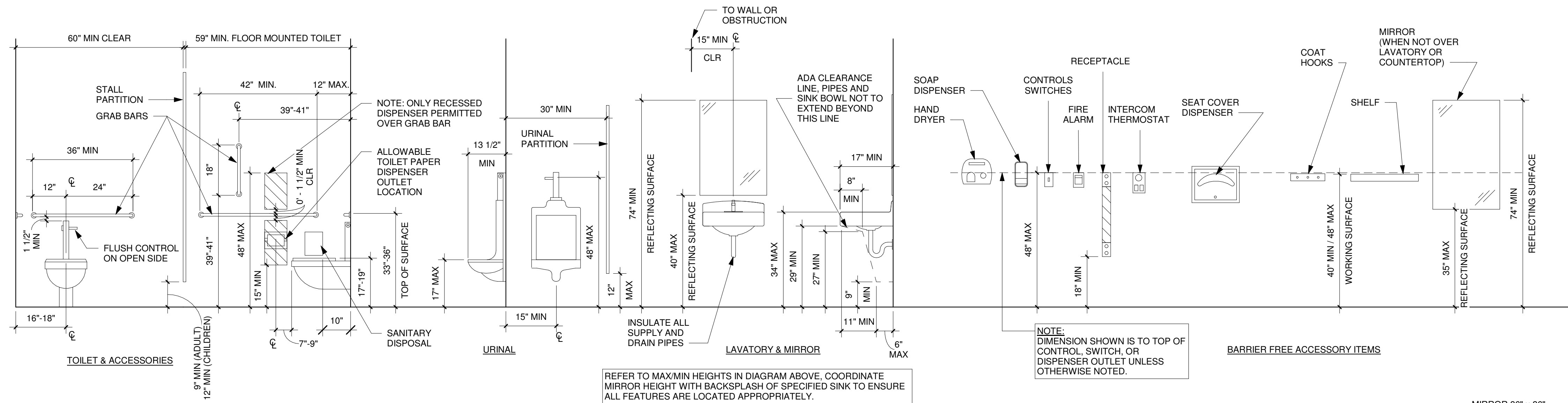
3 ENLARGED DEMO PLAN (A152, A153)  
1/4" = 1'-0"

2 ENLARGED DEMO (A106A, A106B, A107)  
1/4" = 1'-0"

1 ENLARGED DEMO PLAN (B144 & B145)  
1/4" = 1'-0"

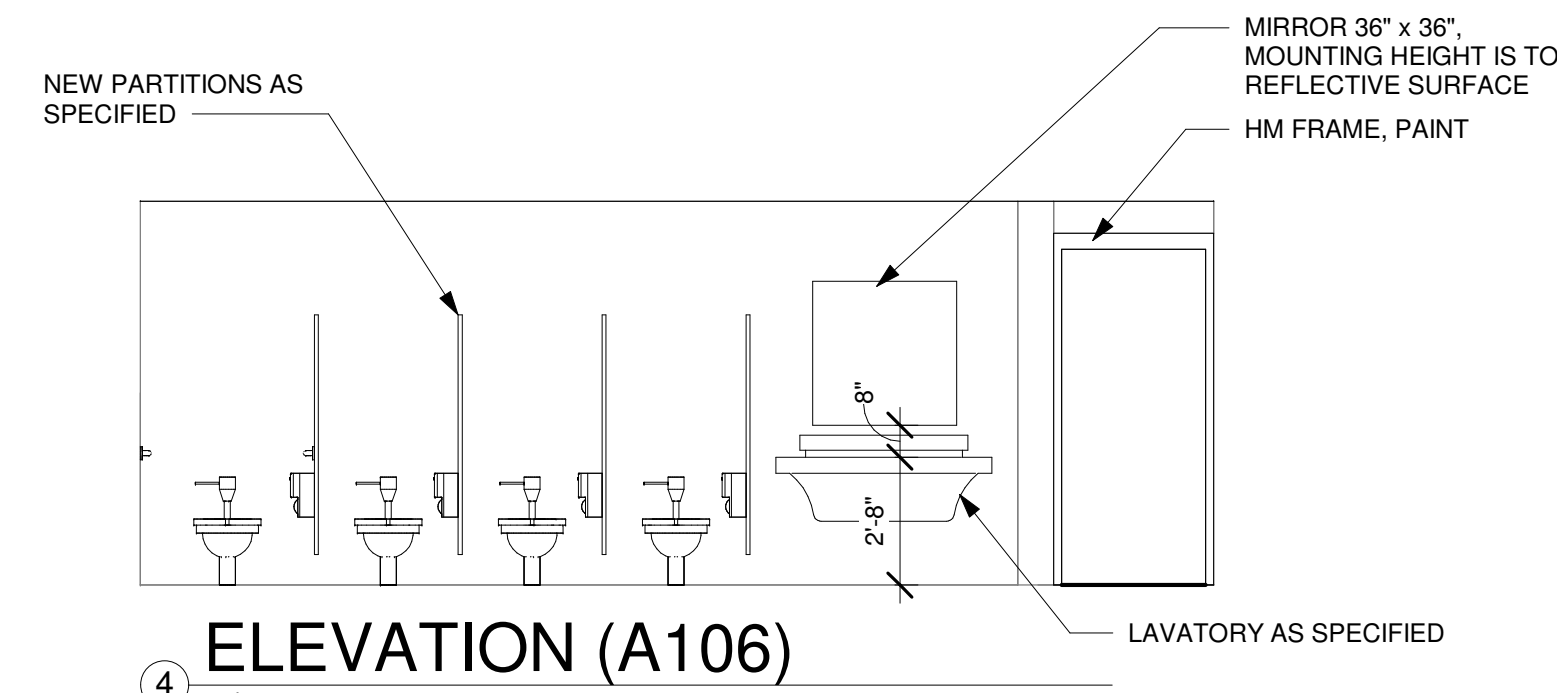


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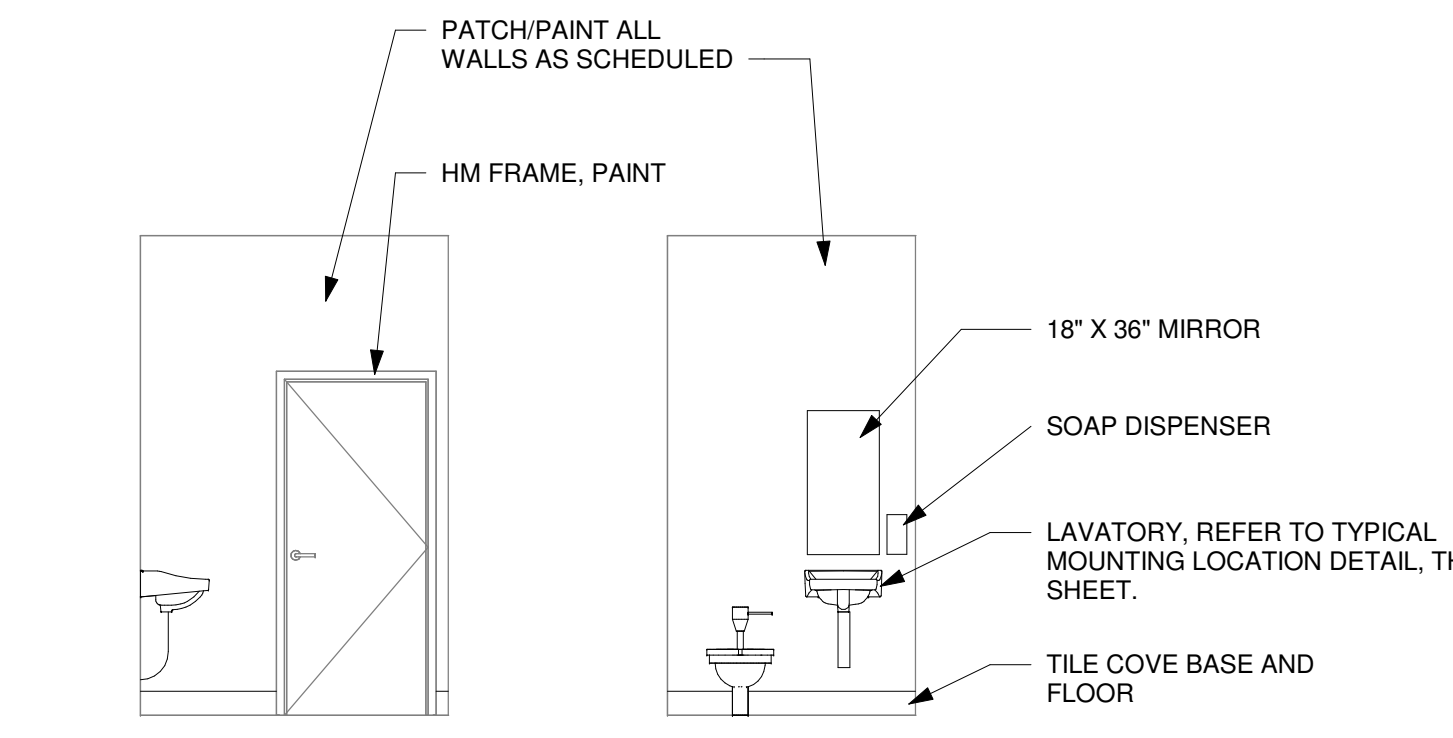


**ACCESSIBLE MOUNTING HEIGHTS**  
1/2" = 1'-0"

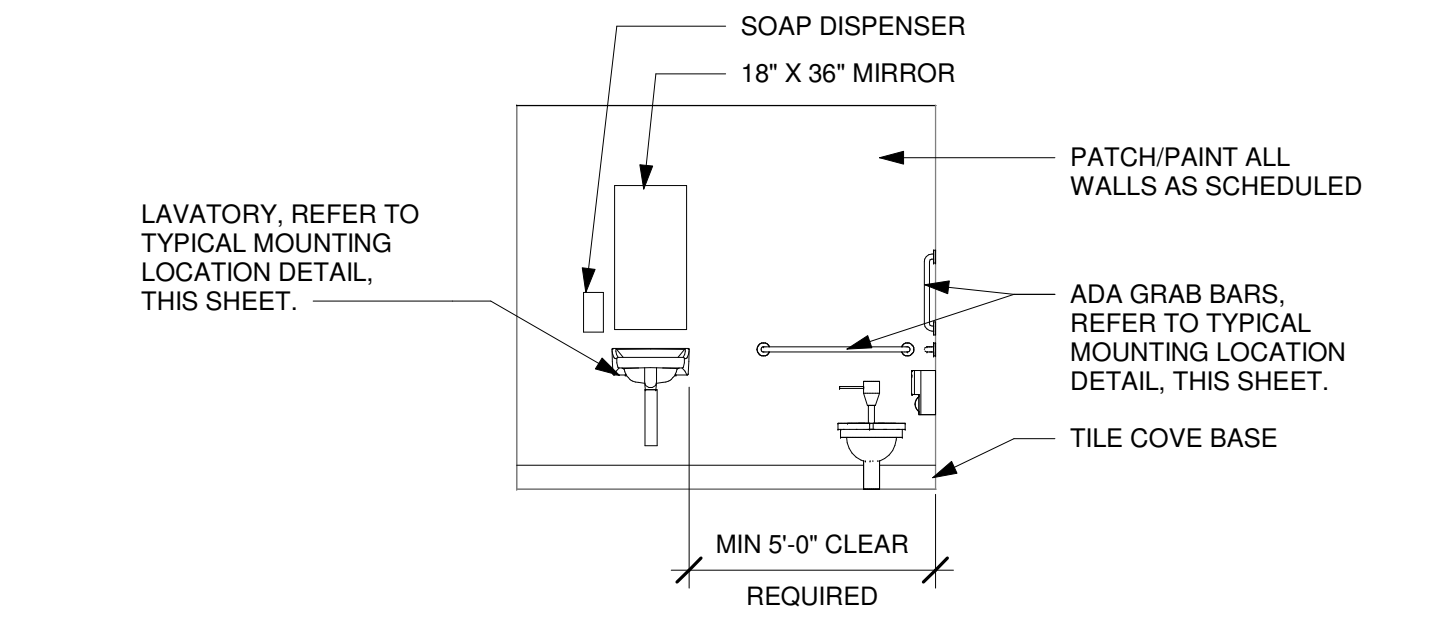
NOTE: DIMENSION SHOWN IS TO TOP OF CONTROL SWITCH, OR DISPENSER OUTLET UNLESS OTHERWISE NOTED.



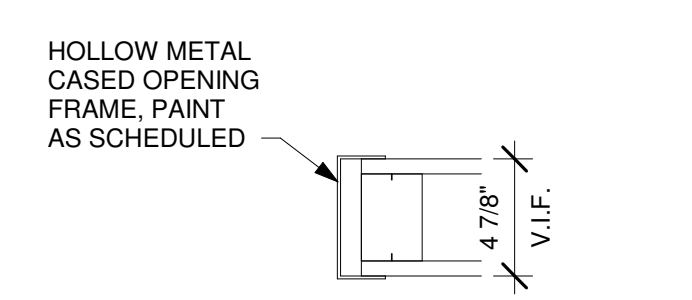
**ELEVATION (A106)**  
1/4" = 1'-0"



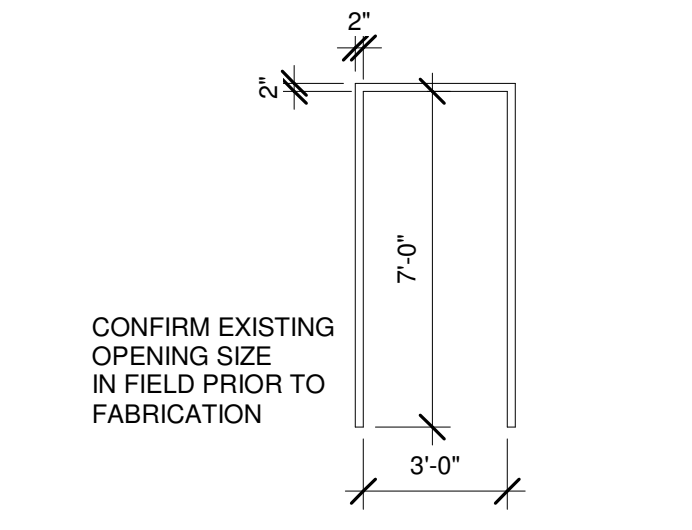
**ELEVATION - CLASS TOILET ROOMS(TYP)**  
1/4" = 1'-0"



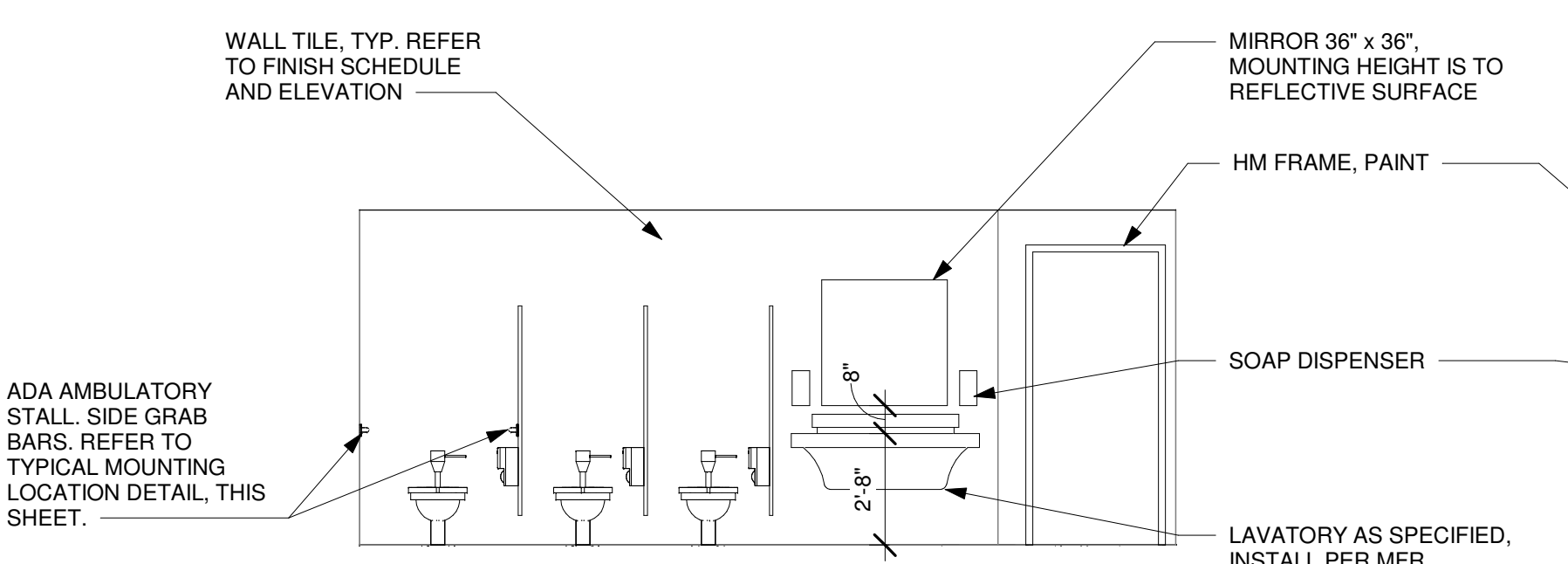
**ELEVATION (A106b)**  
1/4" = 1'-0"



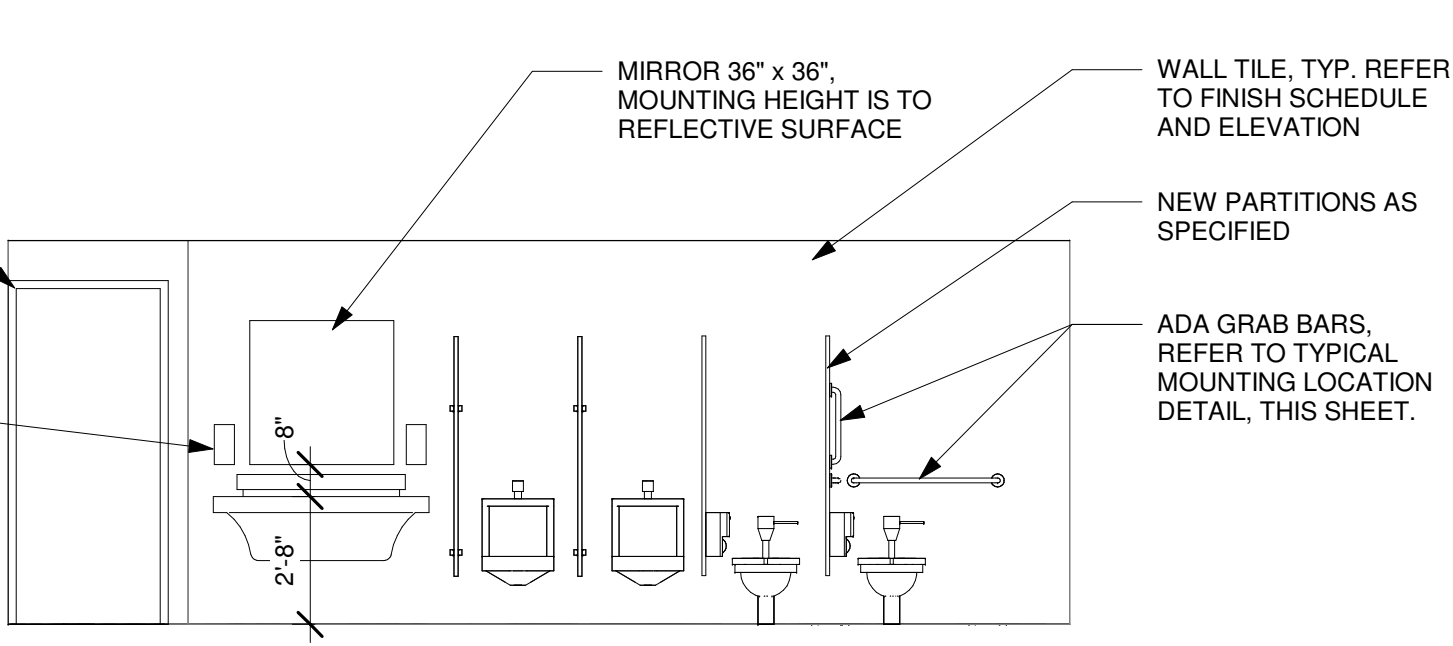
**JAMB DETAIL (TYP)**  
1 1/2" = 1'-0"



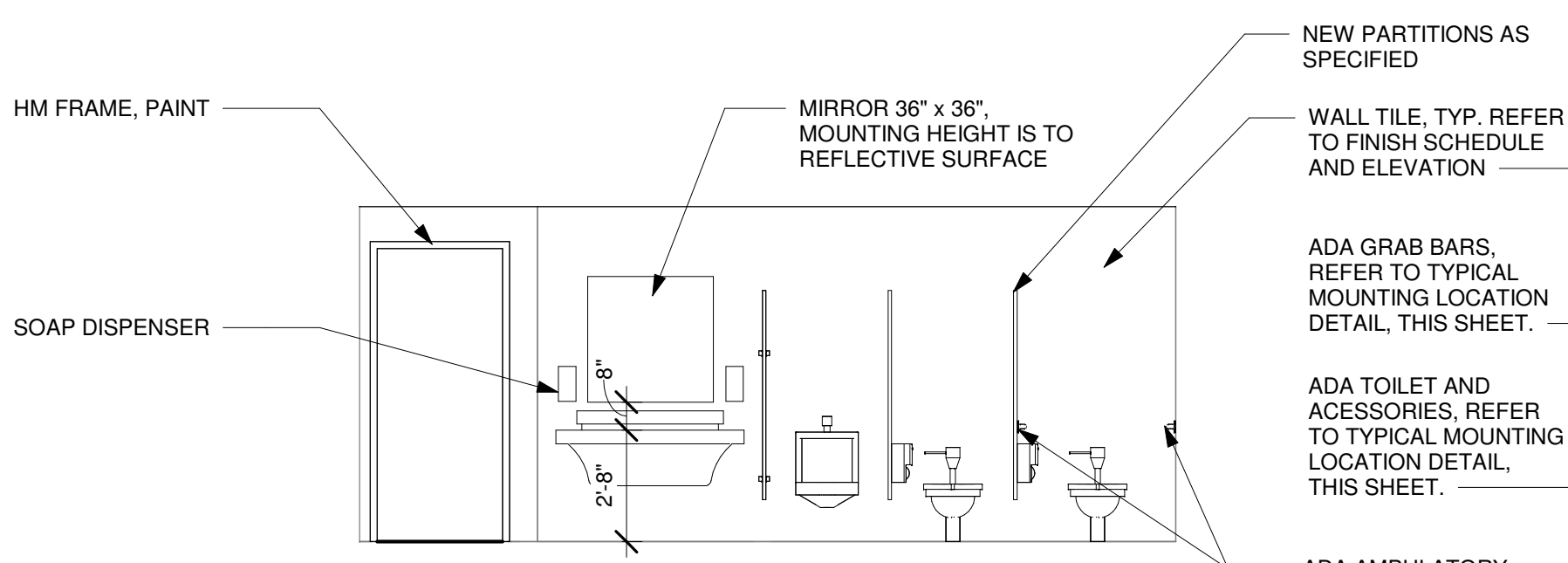
**DOOR FRAME (TYP)**  
1/4" = 1'-0"



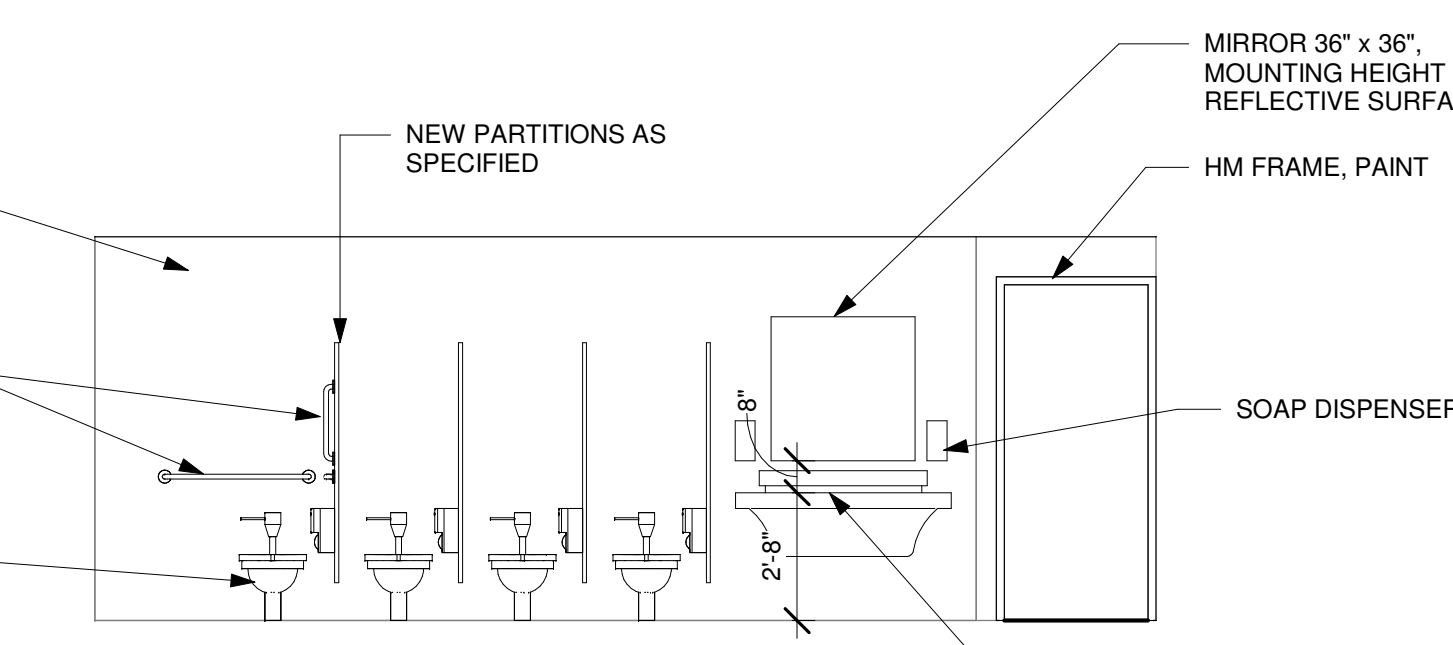
**ELEVATION (A153, B112)**  
1/4" = 1'-0"



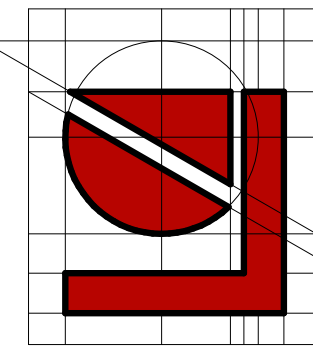
**ELEVATION (B145)**  
1/4" = 1'-0"



**ELEVATION (A152, B111)**  
1/4" = 1'-0"



**ELEVATION (B144)**  
1/4" = 1'-0"



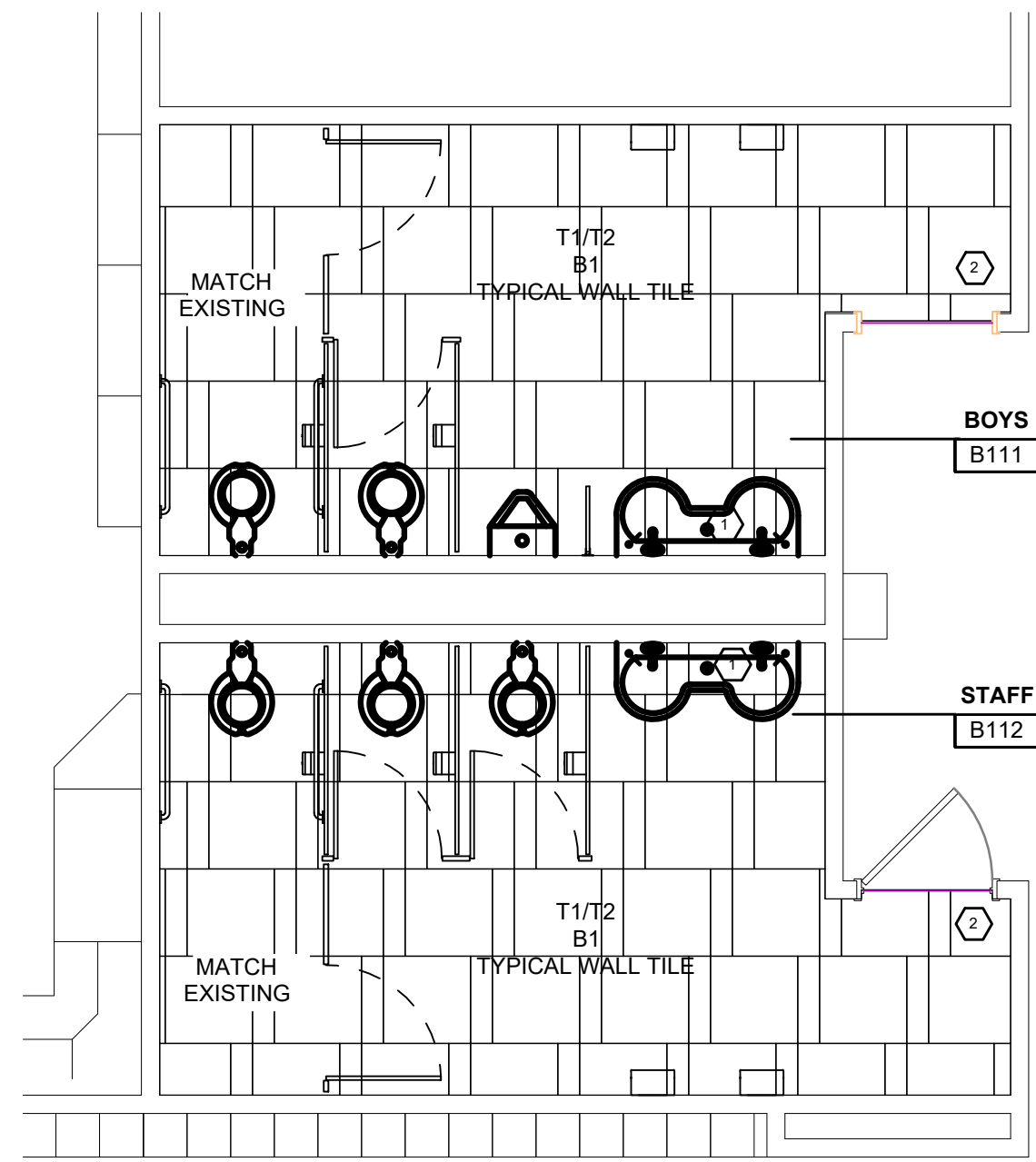
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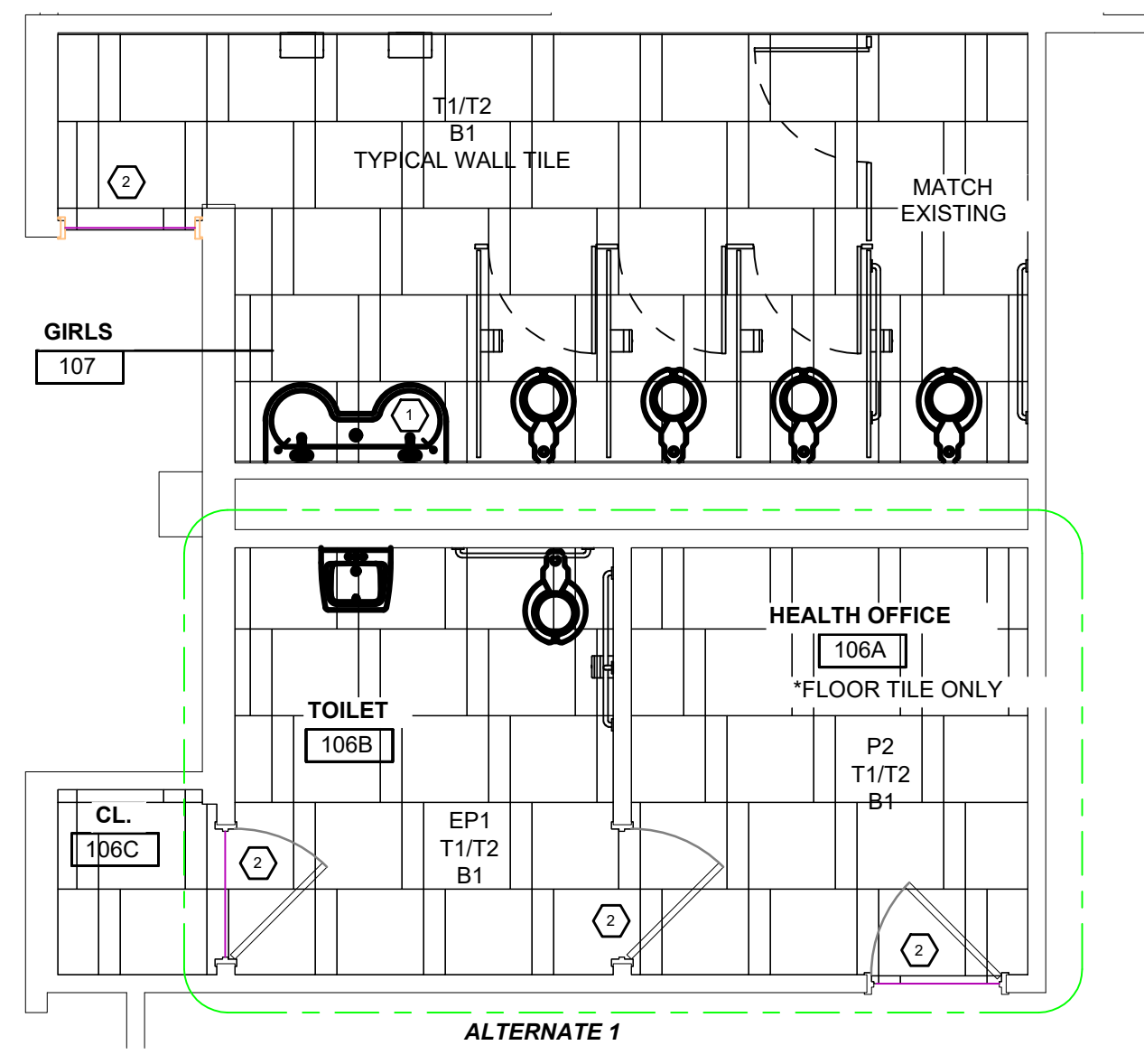
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DRAWN:			

BRIGHTON AREA PUBLIC SCHOOLS  
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**INTERIOR ELEVATIONS & DETAILS**

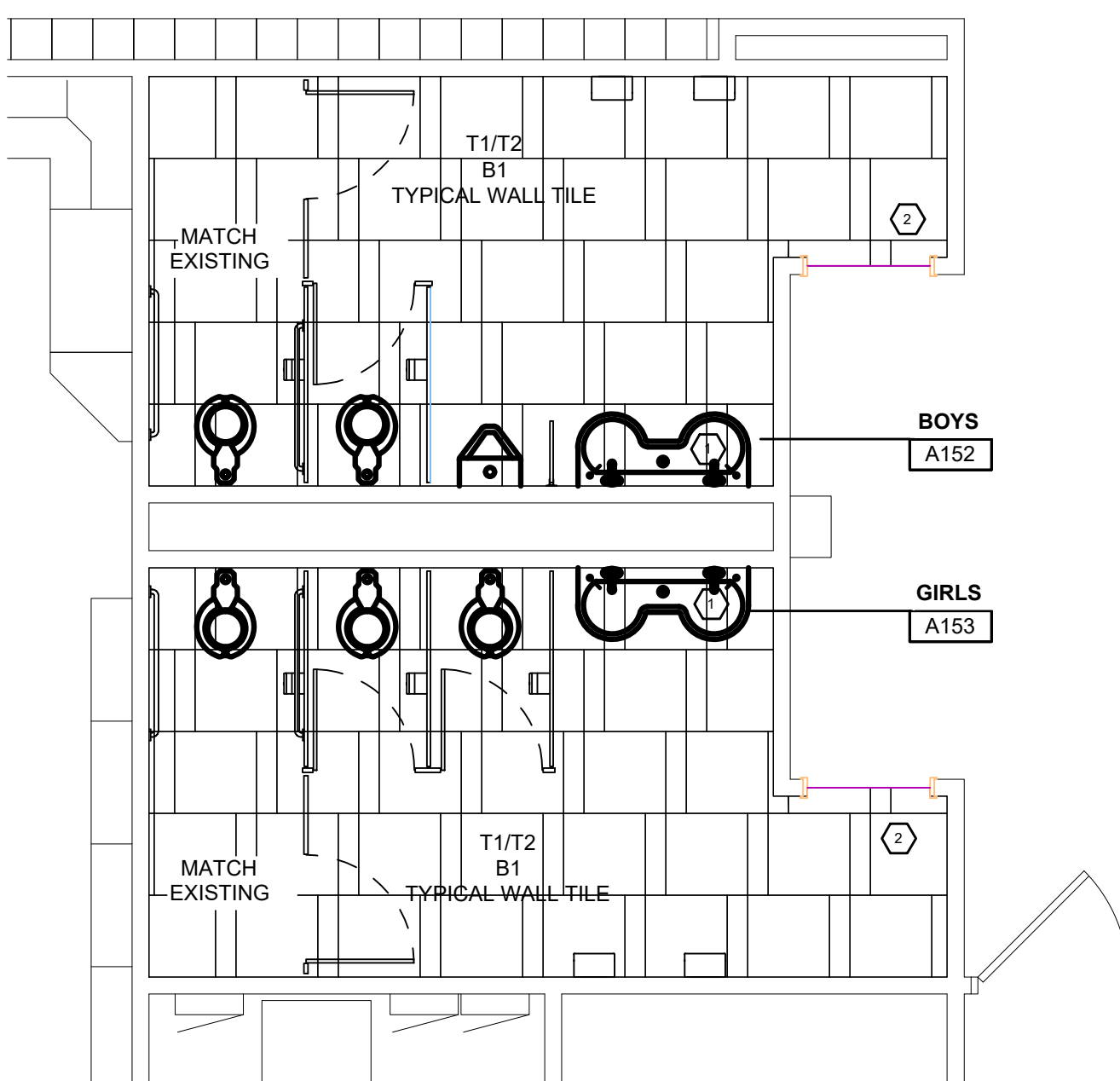
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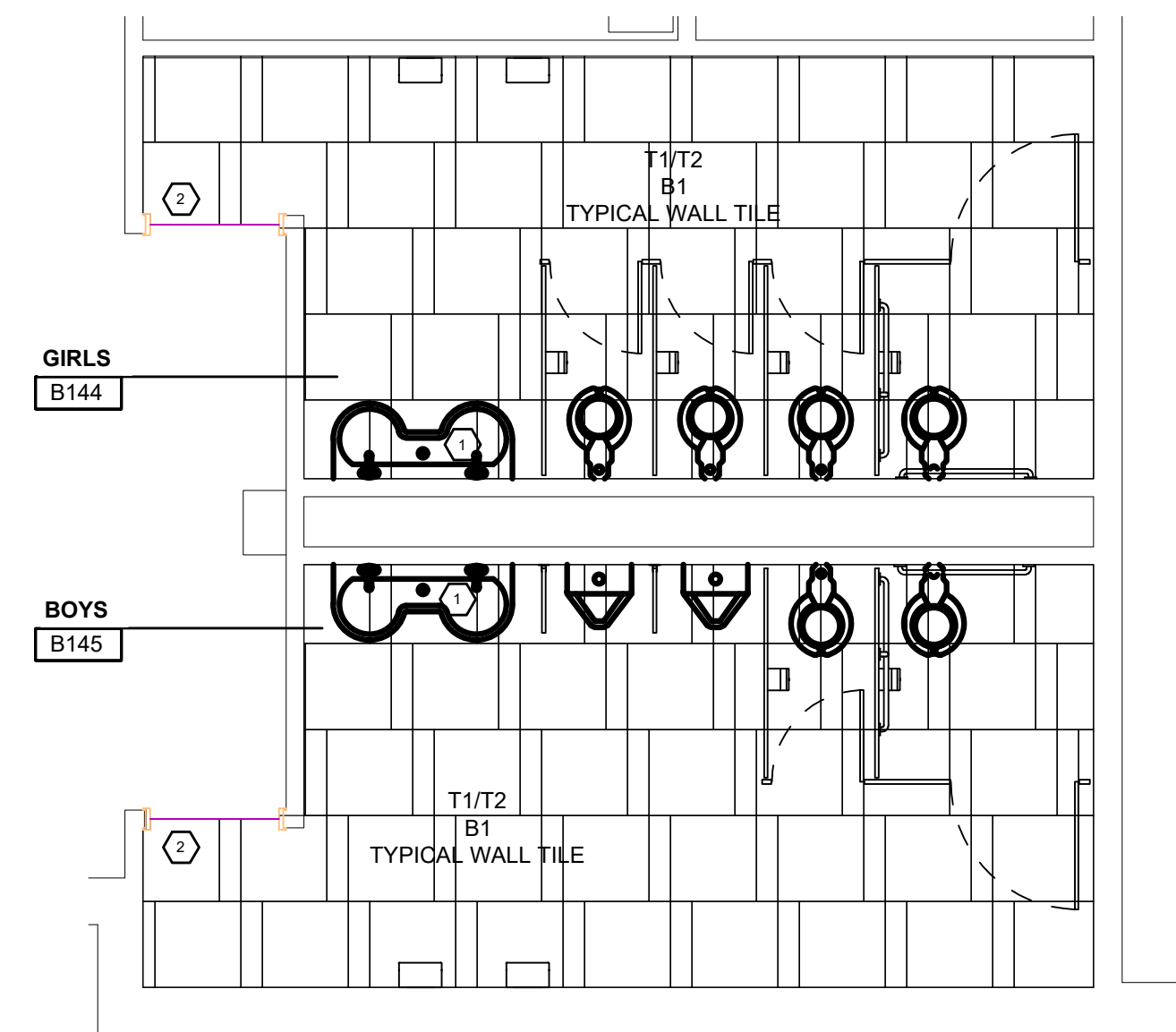
NORTH RESTROOMS B111 & B112  
FINISH FLOOR PLAN  
SCALE: 1/4" = 1'-0"



NORTH RESTROOM 107  
FINISH FLOOR PLAN  
SCALE: 1/4" = 1'-0"

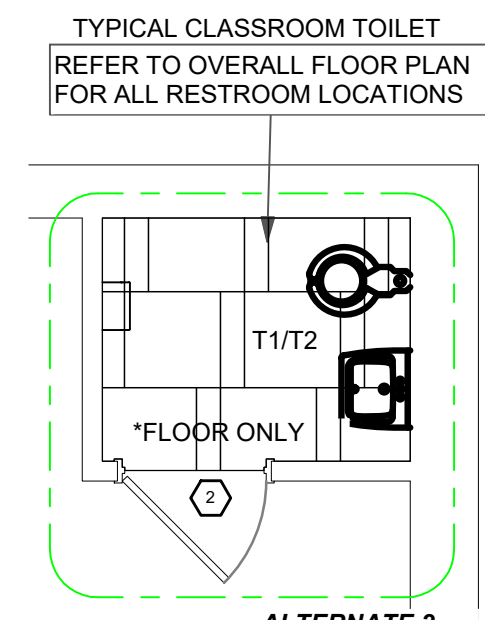


NORTH RESTROOMS B152 & B153  
FINISH FLOOR PLAN  
SCALE: 1/4" = 1'-0"

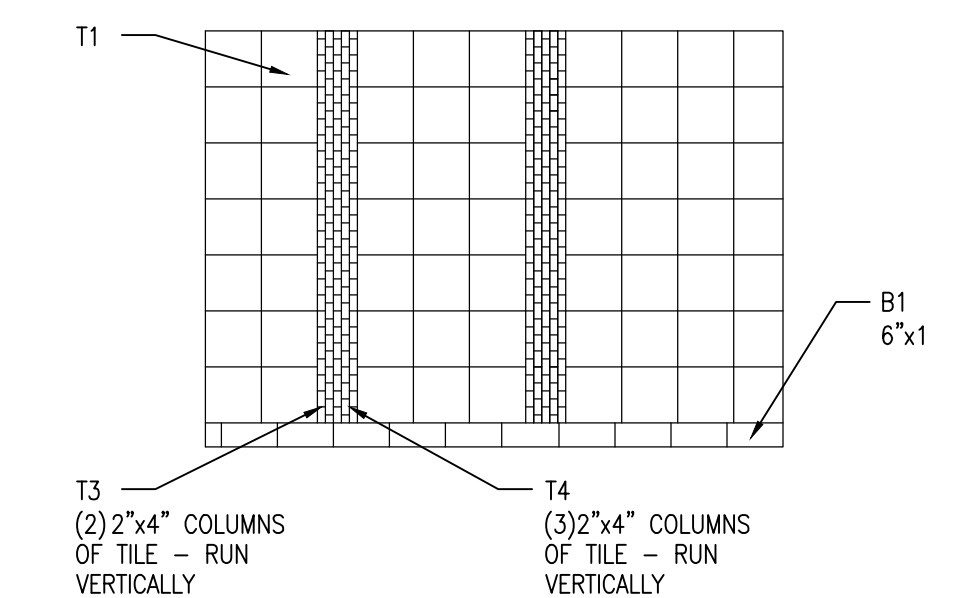


NORTH RESTROOMS B144 & B145  
FINISH FLOOR PLAN  
SCALE: 1/4" = 1'-0"

FINISH KEY				
CODE	MATERIAL	MANUFACTURER	DESCRIPTION	REMARKS
SS1	SOLID SURFACE	TERREON/BRADLEY	COLOR: EMPIRE GRAY	BRADLEY EXPRESS MG SERIES 2 WASH STATION
EP1	EPOXY PAINT	BENJAMIN MOORE	COLOR: BERBER WHITE 955	FIELD (ALL WALLS, UNLESS NOTED OTHERWISE)
P1	PAINT	BENJAMIN MOORE	COLOR: WHITE DOVE OC-17	GENERAL CEILING COLOR, EXPOSED DECK/BEAMS
P2	PAINT	BENJAMIN MOORE	COLOR: BERBER WHITE 955	OFFICE FIELD WALL COLOR
B1	BASE TILE	CROSSVILLE	COLLECTION/STYLE: PORTUGAL COLOR: VELHO WHITE SIZE: 6X12 COVE BASE TILE GROUT: TBD	
T1	TILE	CROSSVILLE	COLLECTION/STYLE: PORTUGAL COLOR: VELHO WHITE SIZE: 24"X24" TILE GROUT: TBD	
T2	TILE	CROSSVILLE	COLLECTION/STYLE: PORTUGAL COLOR: VELHO VERDE SIZE: 6"X24" GROUT: TBD	
T3	TILE	CROSSVILLE	COLLECTION/STYLE: GLASS BLOX COLOR: MOONBEAM SIZE: 2"X4" BRICK MOSAIC	
T4	TILE	CROSSVILLE	COLLECTION/STYLE: GLASS BLOX COLOR: ORANGE SIZZLE SIZE: 2"X4" BRICK MOSAIC	
P1	PARTITIONS	TBD	COLLECTION/STYLE: TBD COLOR: BLACK	



NORTH TYPICAL CLASSROOM TOILET  
FINISH FLOOR PLAN  
SCALE: 1/16" = 1'-0"



TYPICAL WALL TILE PATTERN  
SCALE: 1/16" = 1'-0"

- FINISH PLAN GENERAL NOTES:**
- ALL WALLS TO BE PAINTED EP1 UNLESS OTHERWISE NOTED ON PLAN.
  - REFER TO FINISH KEY FOR SPECIFIC FINISH TYPES.
  - CONTACT DESIGNER SHOULD ANY FINISH DISCREPANCIES OCCUR.
  - THIS SHEET IS INTENDED TO BE PRINTED IN COLOR TO CONVEY NECESSARY DESIGN INFORMATION.
  - PATCH ALL HOLES, ETC. LEFT BY ALL TRADES (INCLUDING ELECTRICAL AND MECHANICAL) PRIOR TO PAINTING. PAINT WALL(S) OR CEILING(S) NOT SCHEDULED TO BE PAINTED, WHICH HAVE HAD PATCHING, FROM INSIDE CORNER TO INSIDE CORNER ACROSS ENTIRE SURFACE.
  - FLOORING CONTRACTOR SHALL INCLUDE FLOOR PREPARATION IN THEIR BASE BID SCOPE OF WORK. ANTICIPATE AN APPLICATION OF FLOOR STONE OVER THE ENTIRE SURFACE TO BRING LIKE-PRODUCTS TO A LEVEL CONDITION THAT MEETS OR EXCEEDS THE SUBFLOOR TOLERANCES ESTABLISHED BY PRODUCT MANUFACTURER. WHERE MATERIAL IS TO BE INSTALLED AT SLAB ON GRADE CONDITIONS, MOISTURE TESTS SHALL BE CONDUCTED OF THE EXISTING SLAB TO ENSURE THE SUBFLOOR MEETS PRODUCT REQUIREMENTS. AT FLOOR TILE INSTALLATIONS, THE MOVEMENT GUIDELINES ESTABLISHED IN EJ171-05 SHALL BE FOLLOWED, INCLUDING THE USE OF BOND BREAKER TAPES AS RECOMMENDED.

- FINISH PLAN KEY NOTES:  
(TYPICAL THIS SHEET ONLY)**
- SOLID SURFACE (SS1) COUNTERTOP
  - PAINTED DOOR/WINDOW FRAMES (P4)

**HILTON ELEM.  
RESTROOM  
RENOVATION  
BRIGHTON AREA  
SCHOOLS  
9600 HILTON RD.  
BRIGHTON MI 48114**

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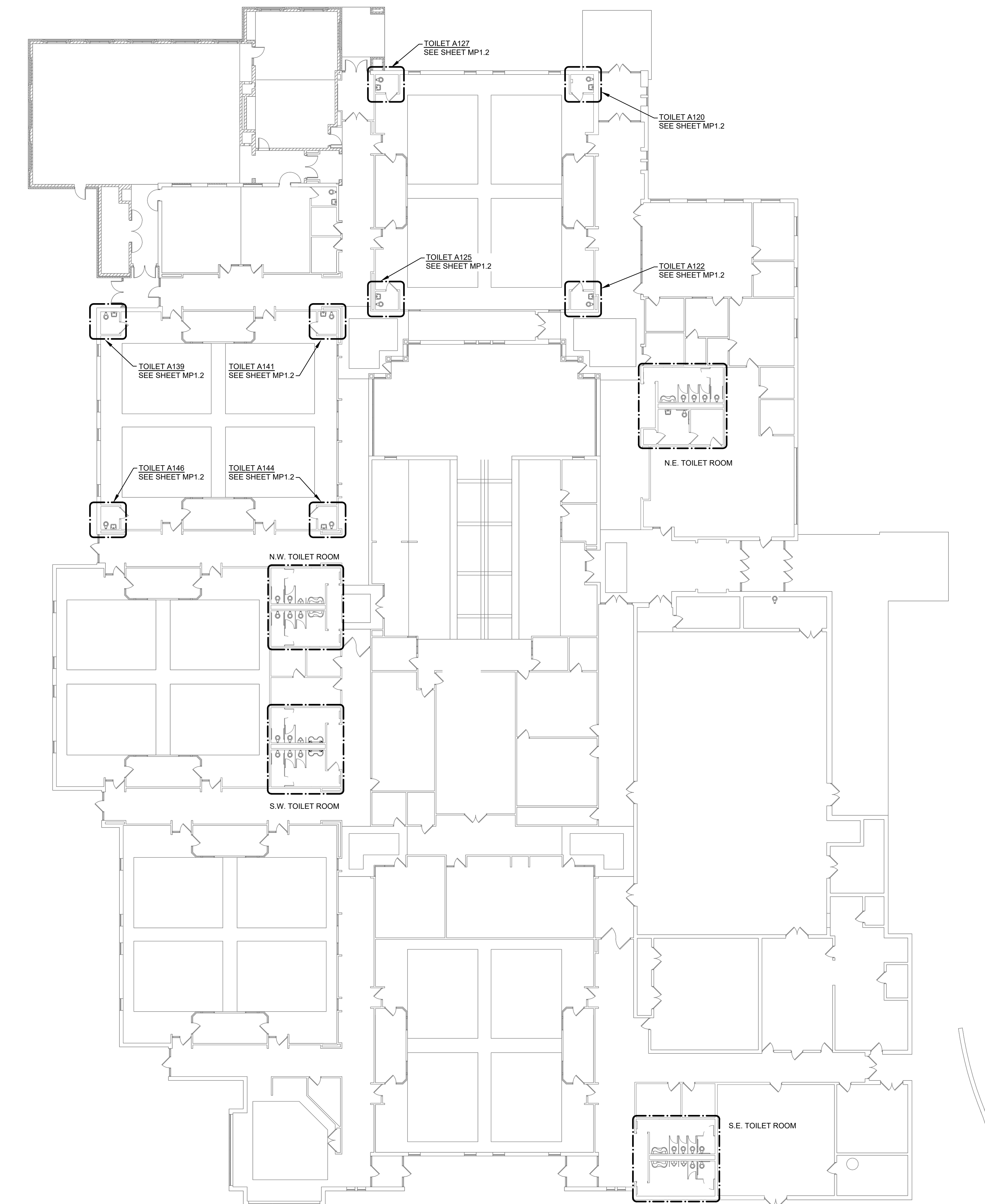
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PROJECT NO.  
SHEET NAME  
**OVERALL  
FINISH FLOOR  
PLAN & KEY**

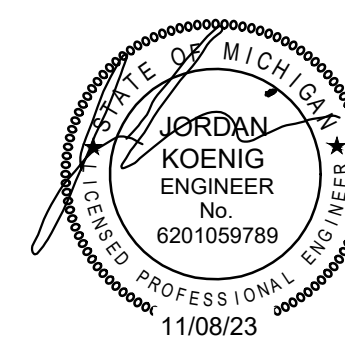
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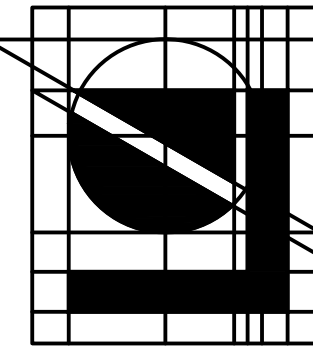
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**MECHANICAL & PLUMBING - COMPOSITE PLAN**  
1/16" = 1'-0"



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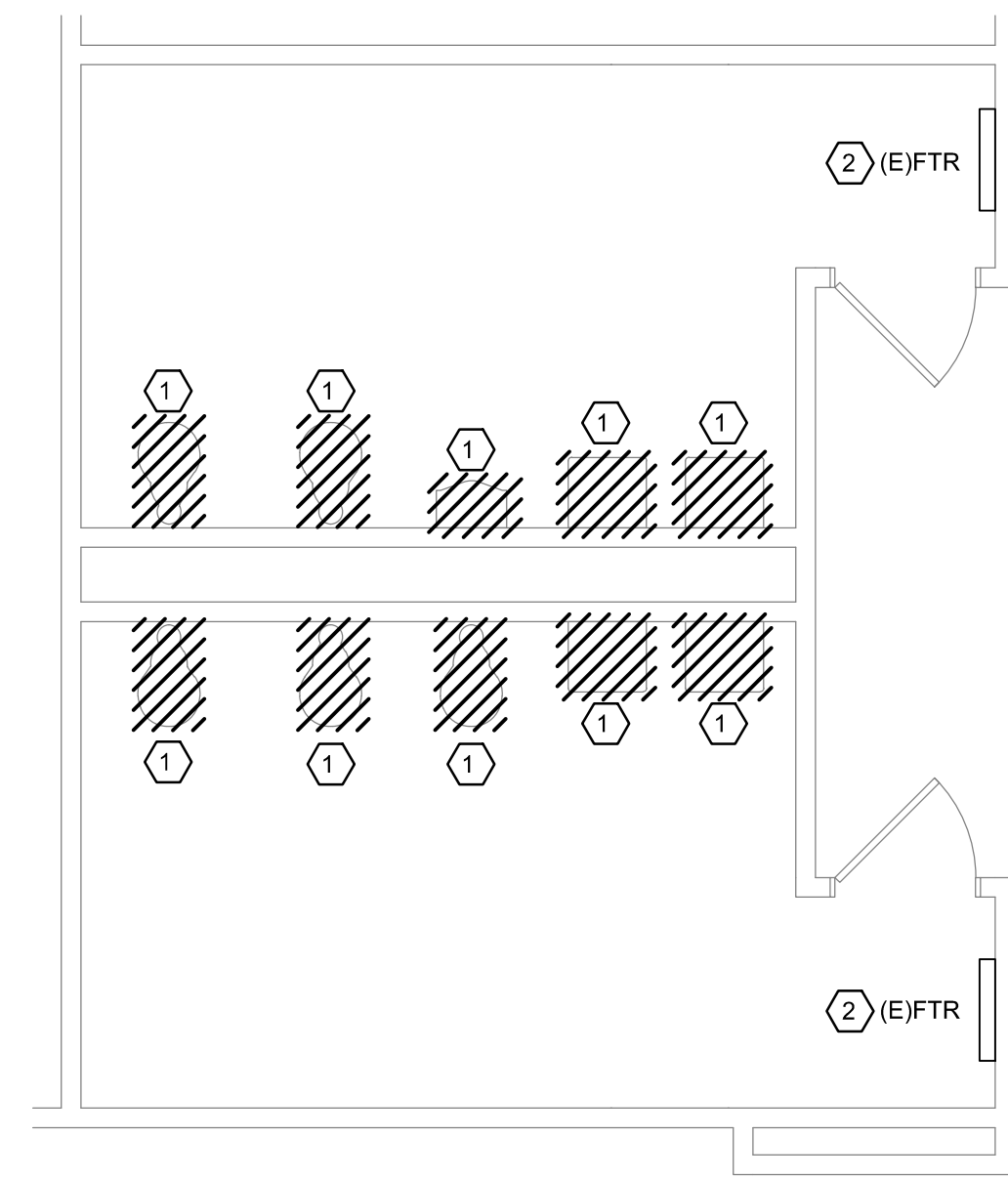


DATE:	11-28-23
ISSUED FOR:	BIDS & PERMITS
APPR: J.K.	
DESIGN: W.V.	
DRAWN: W.V.	

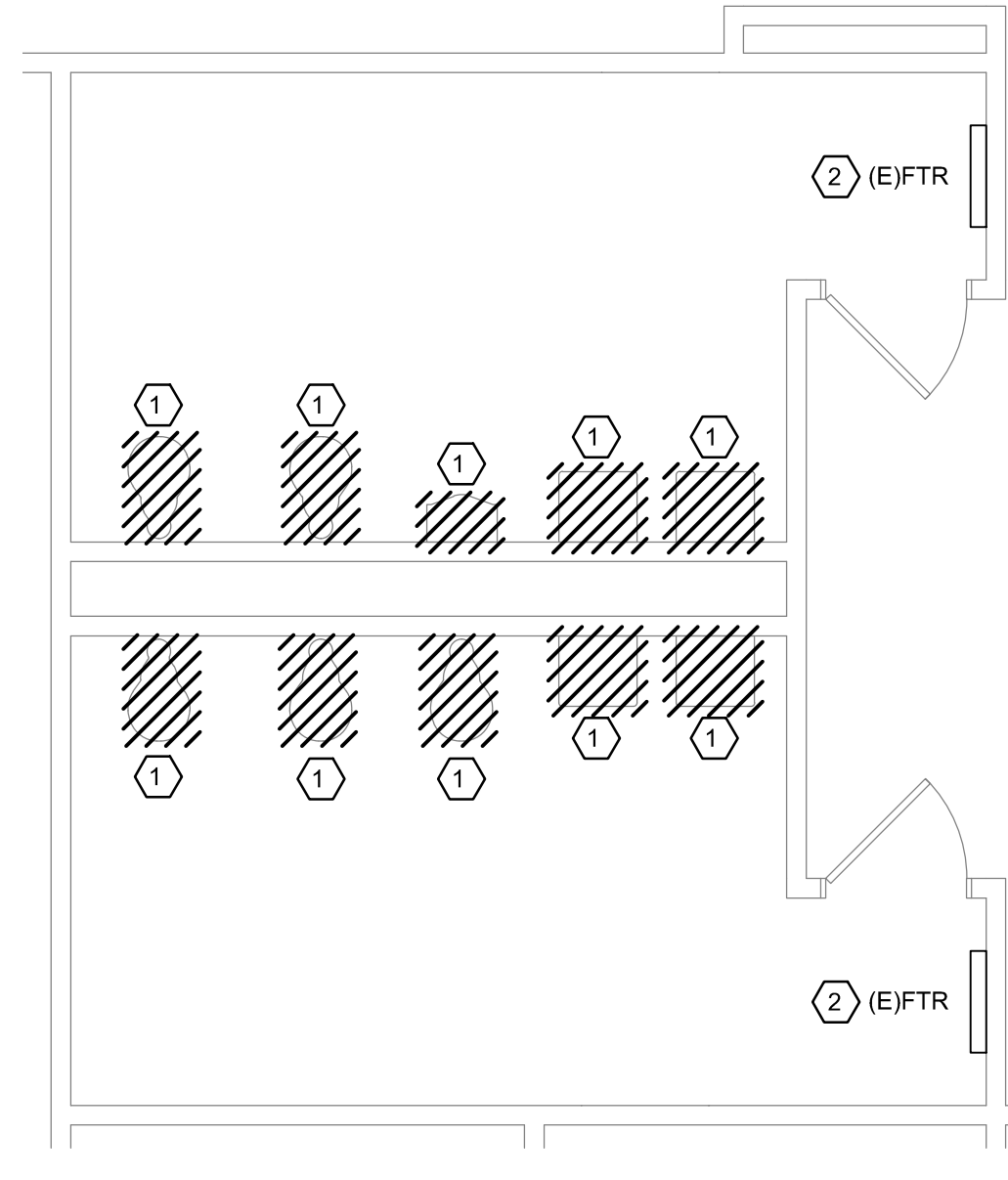
TOILET ROOM RENOVATIONS for:  
**HILTON ELEMENTARY SCHOOL**  
9600 HILTON RD., BRIGHTON, MI 48114  
**MECHANICAL & PLUMBING COMPOSITE PLAN**

**MP1.0**  
18-785

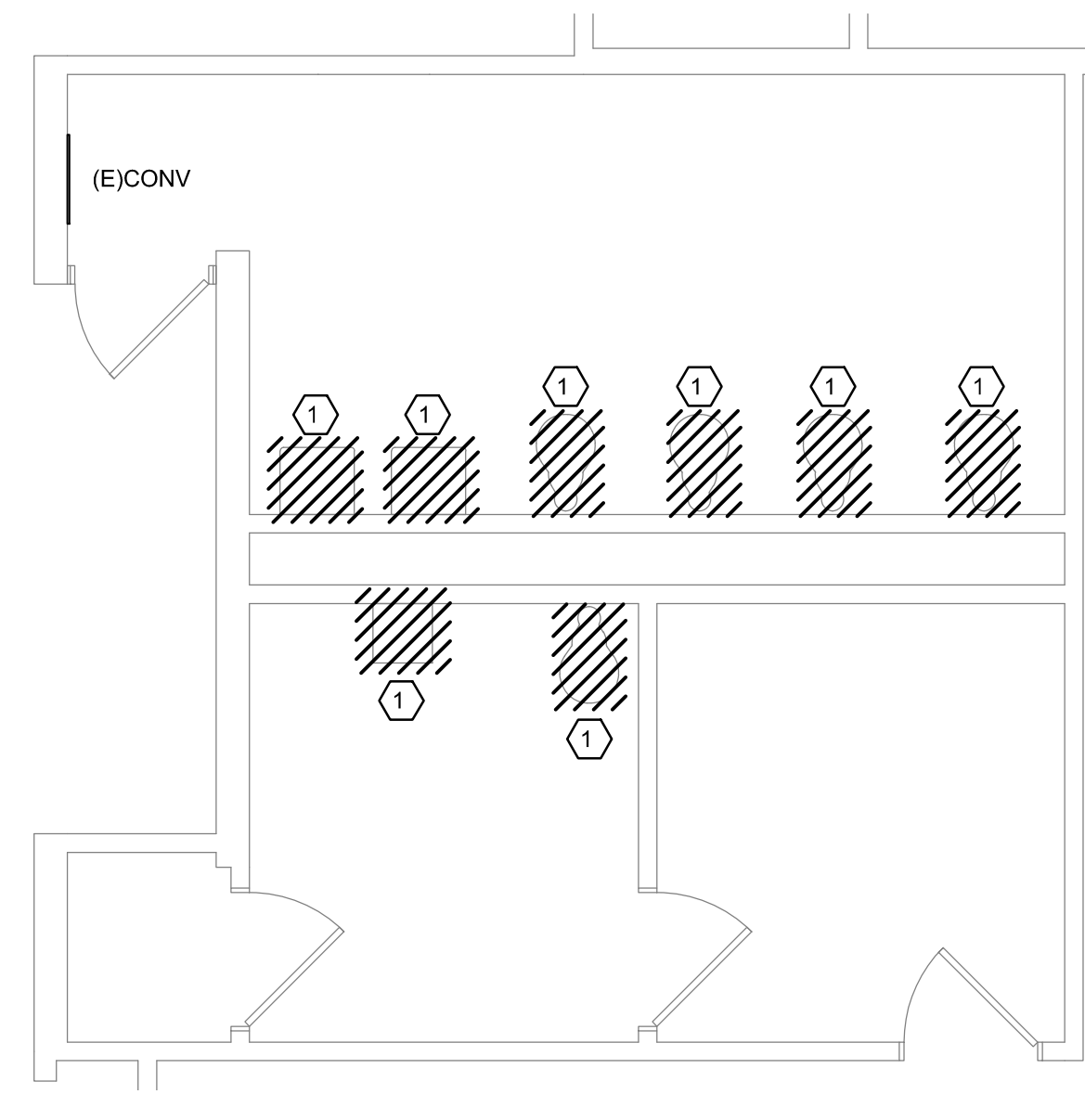
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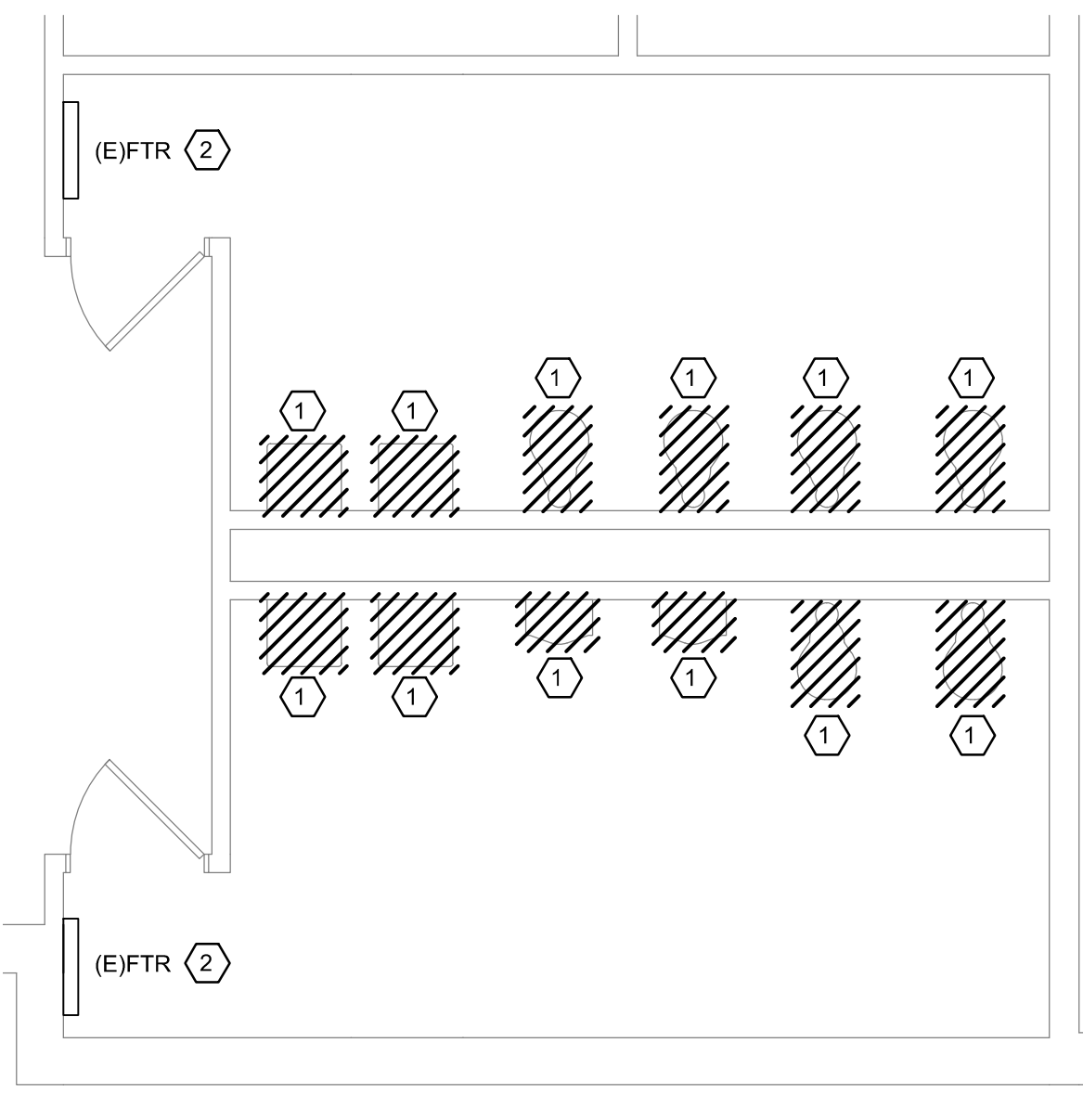
**S.W. TOILET ROOM  
MECHANICAL & PLUMBING  
DEMOLITION PLAN**  
1/4" = 1'-0"



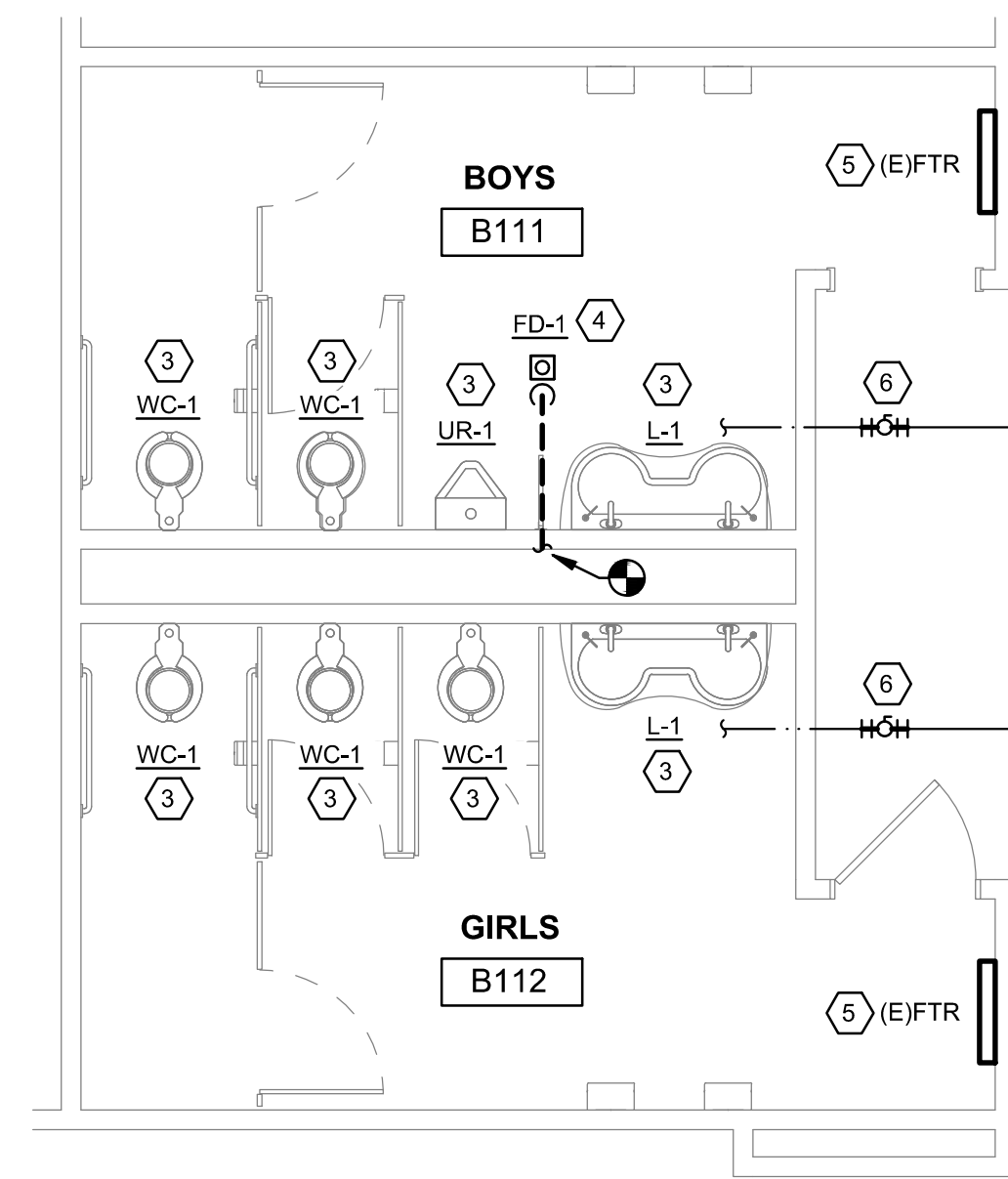
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MECHANICAL & PLUMBING  
DEMOLITION PLAN**  
1/4" = 1'-0"



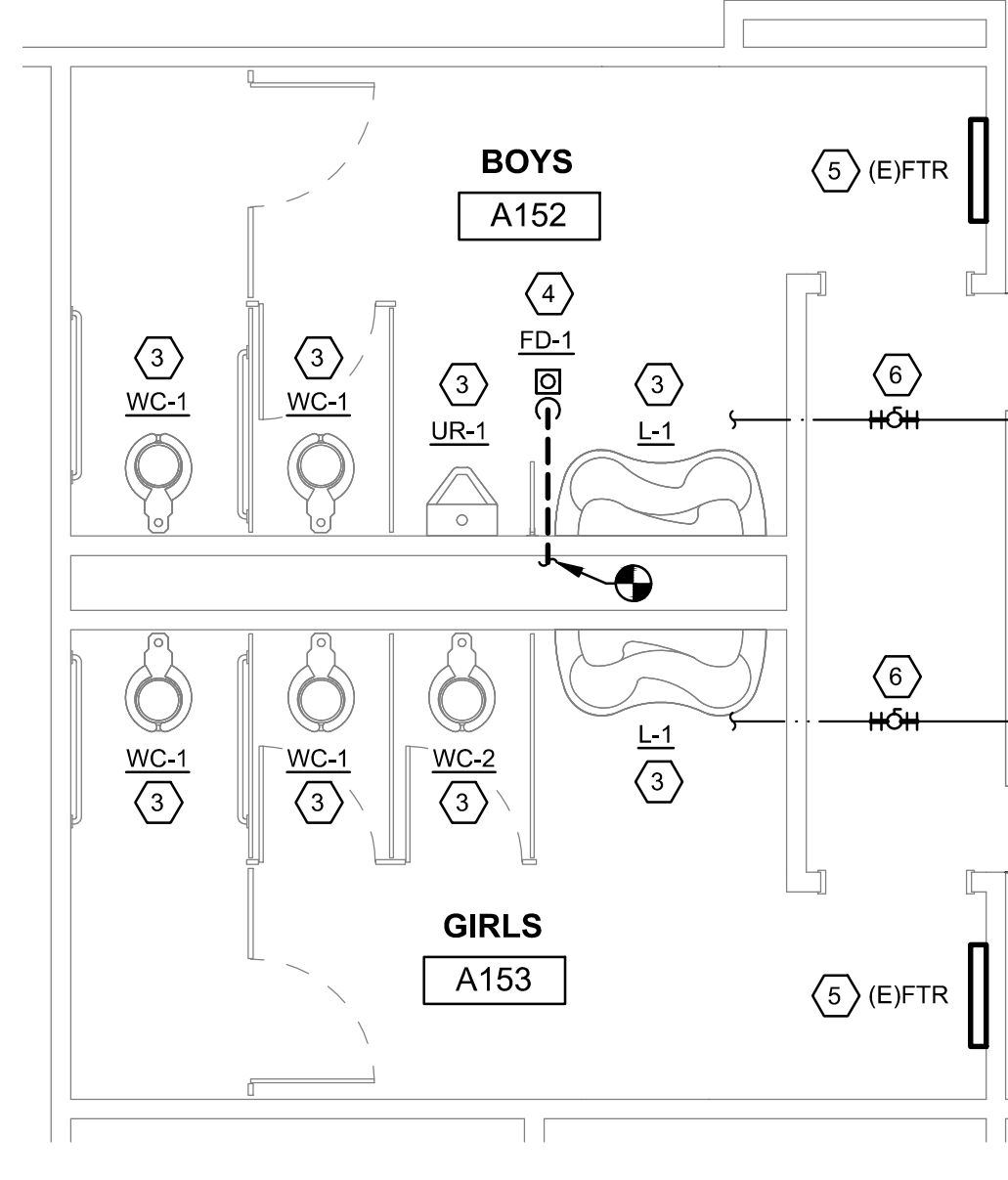
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MECHANICAL & PLUMBING  
DEMOLITION PLAN**  
1/4" = 1'-0"



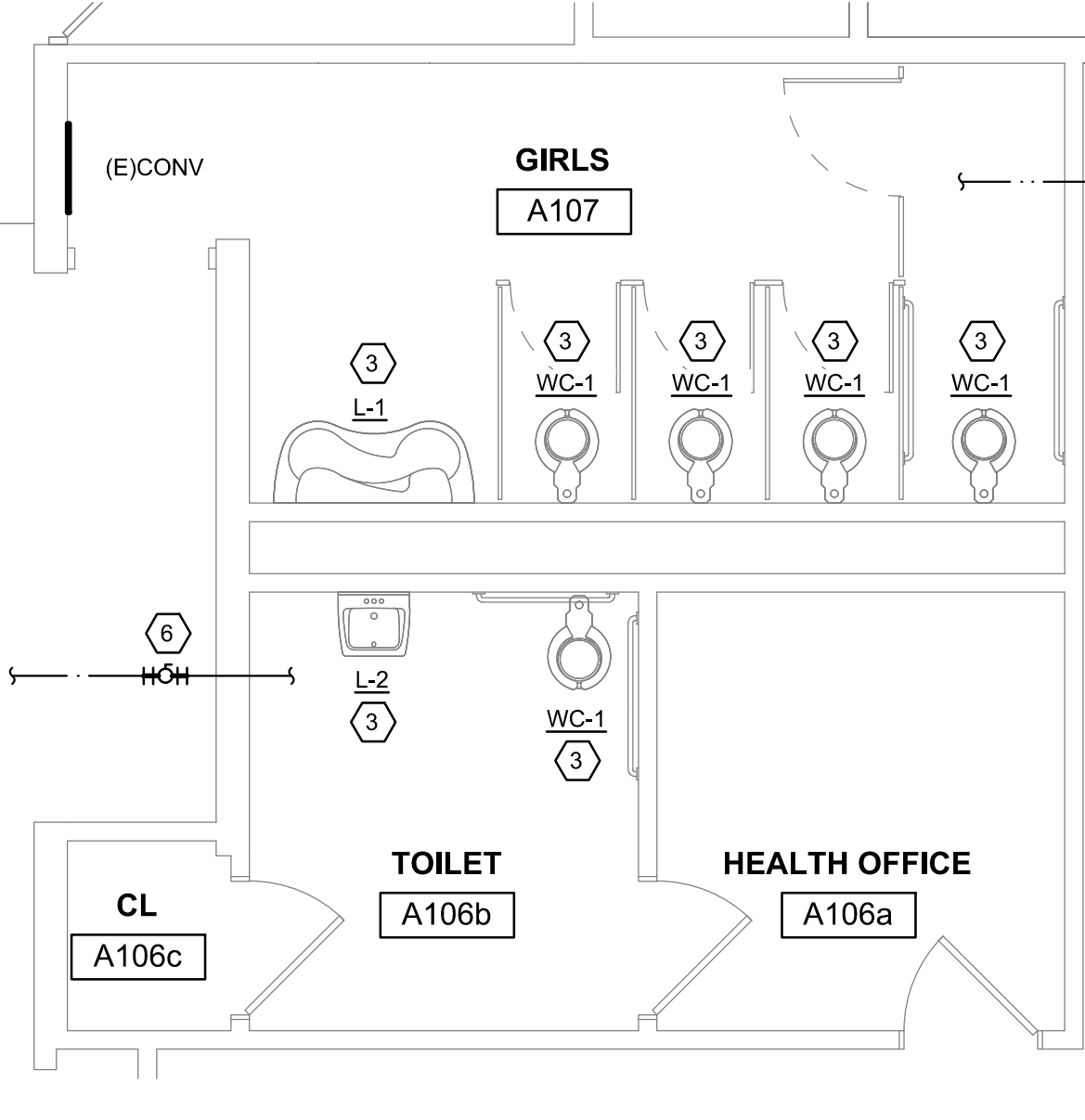
**S.E. TOILET ROOM  
MECHANICAL & PLUMBING  
DEMOLITION PLAN**  
1/4" = 1'-0"



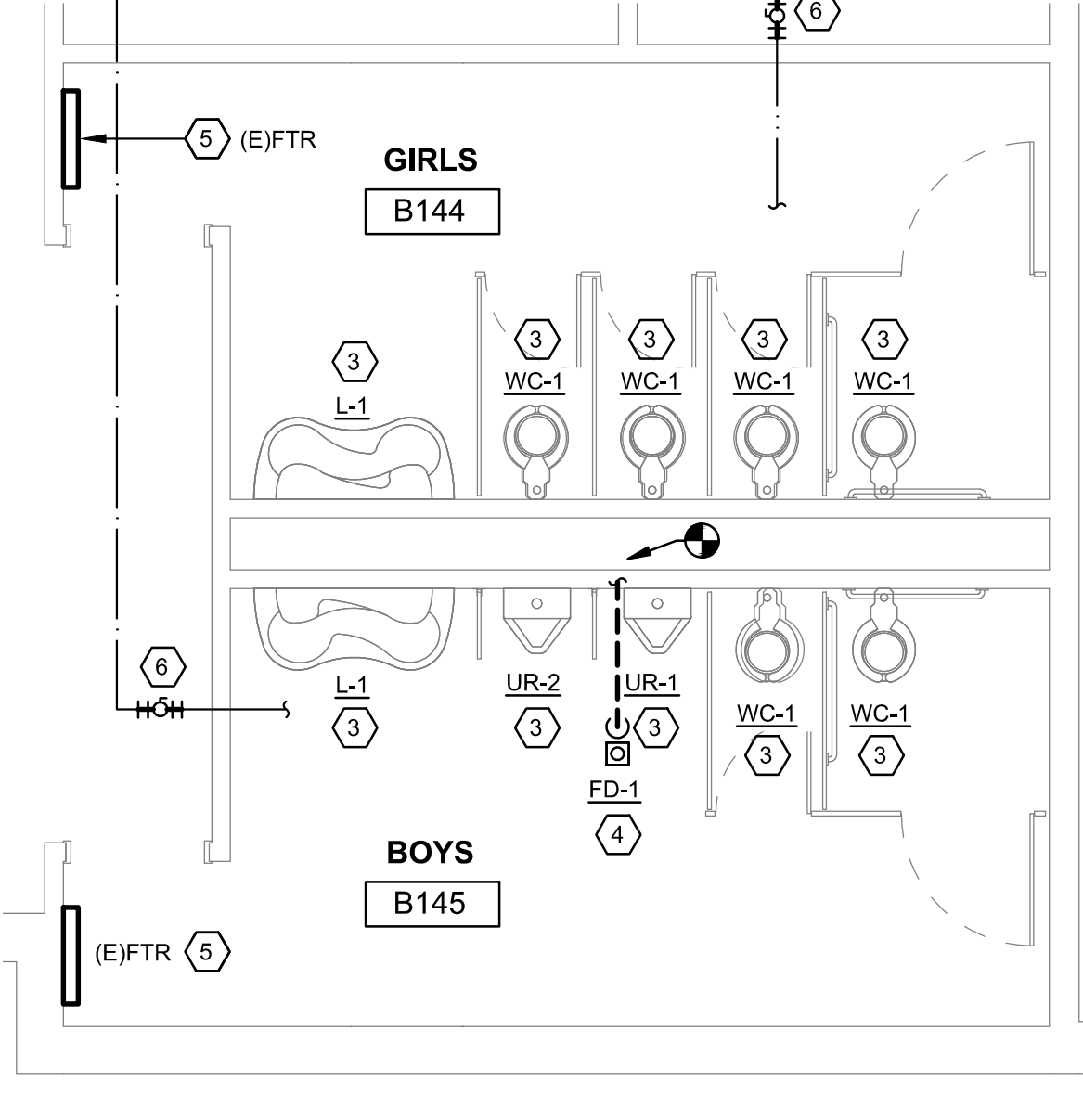
**S.W. TOILET ROOM  
MECHANICAL & PLUMBING  
NEW WORK PLAN**  
1/4" = 1'-0"



**N.W. TOILET ROOM  
MECHANICAL & PLUMBING  
NEW WORK PLAN**  
1/4" = 1'-0"



**N.E. TOILET ROOM  
MECHANICAL & PLUMBING  
NEW WORK PLAN**  
1/4" = 1'-0"



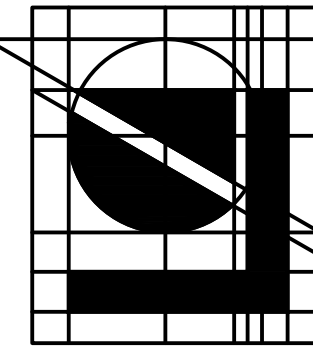
**S.E. TOILET ROOM  
MECHANICAL & PLUMBING  
NEW WORK PLAN**  
1/4" = 1'-0"

PLUMBING FIXTURE SCHEDULE								
UNIT ID	BARRIER FREE	ITEM	PIPE CONNECTION SIZES				MANUFACTURER/ MODEL NO.	REMARKS
			WASTE	VENT	CW	HW		
FD-1	-	FLOOR DRAIN	4"	-	-	-	ZURN: Z415B	DURA-COATED CAST IRON BODY WITH BOTTOM NO HUB OUTLET. COMBINATION INVERTIBLE MEMBRANE CLAMP AND ADJUSTABLE COLLAR WITH SEEPAGE SLOTS AND 5/8" POLISHED NICKEL BRONZE, LIGHT-DUTY STRAINER. PROVIDE SURESEAL OR EQUIVALENT WATERLESS IN-LINE TRAP SEAL.
L-1	Y	LAVATORY	2"	1 1/2"	1/2"	1/2"	BRADLEY: MG-2	SOLID SURFACE MATERIAL LAVATORY SYSTEM, DUAL STATION, CONTINUOUS BOWL, WITH PEDESTAL AND STAINLESS STEEL MOUNTING FRAME. FAUCET: INFRARED SENSOR OPERATED BY LAVATORY MANUFACTURER, 0.5 GPM, SLOW-CLOSING SOLENOID VALVE, WITH ASSE 1070 COMPLIANT MIXING VALVE PER STATION.
UR-1	Y	URINAL (WALL MOUNTED)	2"	1 1/2"	3/4"	-	KOHLER: BAROON K-4991-ET	WASHOUT URINAL, VITREOUS CHINA, TOP SPUD, EXTENDED RIM 0.125 - 1.0 GPF, FLUSH VALVE: SLOAN REGAL 188 SMO - 1.0, SIDE MOUNT SENSOR OPERATED, MOUNT AT ADA HEIGHT.
WC-1	Y	WATER CLOSET (FLOOR MOUNTED)	4"	2"	1 1/2"	-	KOHLER: HIGHCLIFF K-96057	VITREOUS CHINA, ELONGATED BOWL, TOP SPUD, 1.0 - 1.6 GPF, FLUSH VALVE: SLOAN REGAL 111 SMO - 1.6, SIDE MOUNT SENSOR OPERATED.

KEYNOTES	
1.	REMOVE PLUMBING FIXTURE. PLUMBING PIPING SHALL REMAIN TO BE REUSED.
2.	REMOVE FINNED TUBE RADIATOR COVER.
3.	INSTALL NEW PLUMBING FIXTURE AND CONNECT TO EXISTING PLUMBING PIPING, EXTEND/REWORK PIPING AS NECESSARY BASED ON NEW LOCATION. FURNISH AND INSTALL NEW WALL CARRIERS/SUPPORTS AS REQUIRED.
4.	COORDINATE FLOOR SLAB CUTTING WITH GENERAL TRADES. TIE NEW 4" SANITARY PIPE INTO EXISTING SANITARY LINES IN AREA.
5.	INSTALL NEW FINNED TUBE ELEMENT ENCLOSURE, MODINE MODEL #S012 OR EQUIVALENT, SLOPED TOP WITH STAMPED GRILLE. PROVIDE ALL HANGER STRIPS, ENCLOSURE WALL STRIPS, SUPPORT BRACKETS, ELEMENT CRADLES, AND END CAPS, APPROXIMATELY 26" LONG, 12" TALL, 5-1/4" DEEP COVER. FIELD VERIFY FOR EXACT DIMENSIONS AND FINNED TUBE PIPE CONDITIONS. COORDINATE INSTALLATION WITH FINISHED WALL MATERIAL.
6.	PROVIDE NEW SHUT-OFF ON EXISTING DOMESTIC HOT AND COLD WATER.

GENERAL NOTES	
1.	THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK.
2.	MECHANICAL DEMOLITION WORK REQUIRED TO COMPLETE THE INSTALLATION OF NEW SYSTEMS SHALL BE PERFORMED AS PART OF THE PROJECT BASE BID.
3.	CONTRACTOR SHALL VISIT SITE PRIOR TO SUBMITTING BID AND VERIFY LOCATIONS OF EXISTING EQUIPMENT, PIPING, AND SYSTEM COMPONENTS TO FAMILIARIZE THEMSELVES WITH THE SCOPE OF WORK.
4.	PRIOR TO DEMOLITION THE CONTRACTOR SHALL NOTE DIFFERENCES IN THE FIELD CONDITIONS AND WHAT IS SHOWN ON THE CONTRACT DOCUMENTS AND NOTIFY THE ARCHITECT PRIOR TO PROCEEDING WITH WORK.
5.	THE CONTRACTOR SHALL PERFORM ALL DEMOLITION WORK NECESSARY TO PROPERLY COMPLETE THE NEW WORK SHOWN ELSEWHERE.
6.	PATCH AND REPAIR ALL EXISTING SURFACES TO REMAIN THAT MAY BE DAMAGED BY THE PERFORMANCE OF THE DEMOLITION WORK.
7.	PROTECT PIPING FROM ENTRANCE OF FOREIGN MATERIALS.
8.	VERIFY AND PROTECT ANY EQUIPMENT, PIPING, COMPONENTS, TO REMAIN OR BE REUSED PRIOR TO DEMOLITION. ANY SUCH ITEMS THAT ARE DAMAGED DURING DEMOLITION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR AND SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE CONTRACT. OWNER SHALL HAVE THE FIRST RIGHT OF REFUSAL OF ANY EQUIPMENT NOTED TO BE REMOVED.
9.	PROVIDE PLUMBING SYSTEMS COMPLETE AND PER APPLICABLE CODES INCLUDING REQUIRED COMPONENTS, OFFSETS REQUIRED TO AVOID STRUCTURE, ETC.
10.	CONTRACTOR SHALL COORDINATE THE INSTALLATION OF PLUMBING AND PIPING WITH THE WORK OF ALL OTHER TRADES.
11.	PIPING SHALL NOT BE INSTALLED IN A LOCATION THAT RESTRICTS THE ACCESS TO MECHANICAL DEVICES REQUIRING ACCESS.
12.	REFER TO ARCHITECTURAL PLANS FOR SPECIFICATIONS OF AND EXACT LOCATIONS OF FIXTURES (STANDARD AND BARRIER FREE), SINKS, ETC. REFER TO PLUMBING FIXTURE SCHEDULES FOR CONNECTION SIZES, ACCESSORIES, AND ADDITIONAL INFORMATION.

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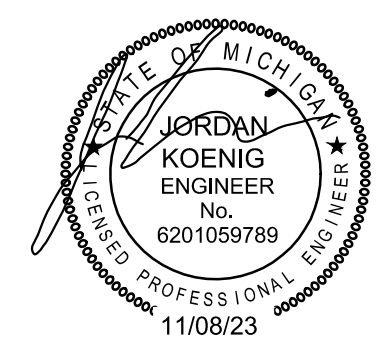


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DRAWN: W.V.	DATE: 11-08-23
CHECKED: W.V.	DATE: 11-08-23
APP'D: J.K.	DATE: 11-08-23
BIDS & PERMITS ISSUED FOR	

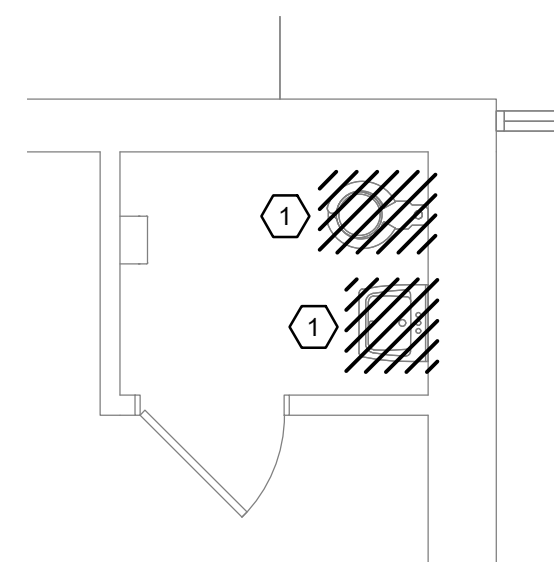
TOILET ROOM RENOVATIONS for:  
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9600 HILTON RD., BRIGHTON, MI 48114  
**MECHANICAL & PLUMBING PLANS**



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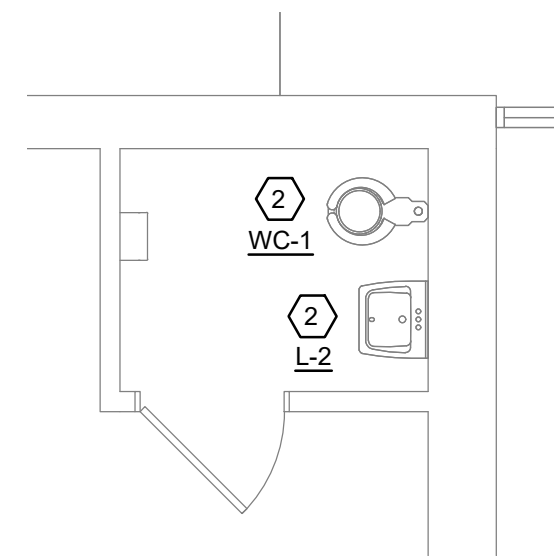
MP1.1  
18-785





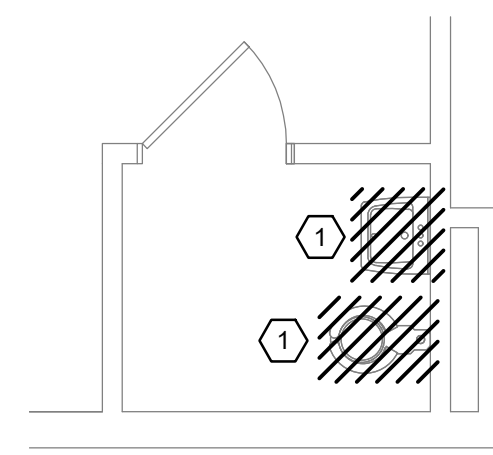
**TOILET ROOM A120  
PLUMBING DEMOLITION PLAN**

1/4" = 1'-0"



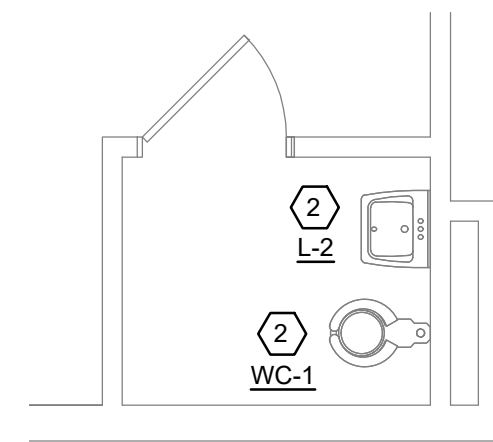
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PLUMBING NEW WORK PLAN**

1/4" = 1'-0"



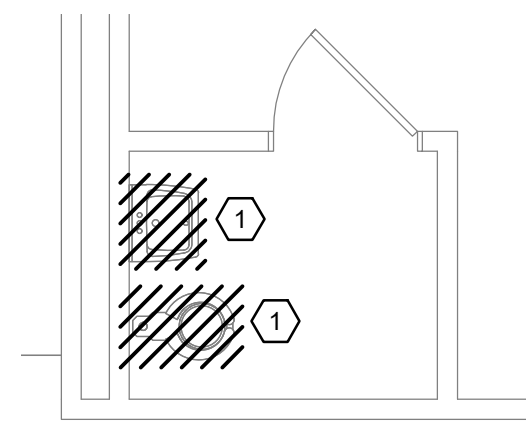
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PLUMBING DEMOLITION PLAN**

1/4" = 1'-0"



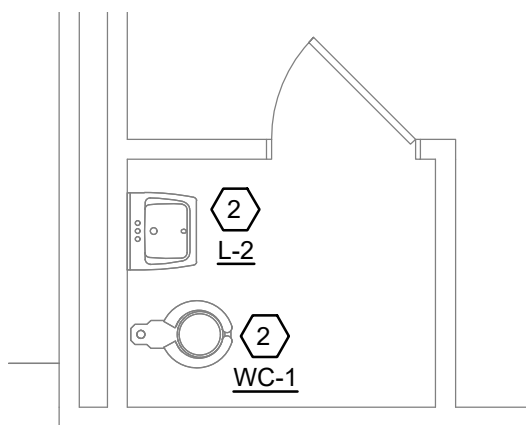
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PLUMBING NEW WORK PLAN**

1/4" = 1'-0"



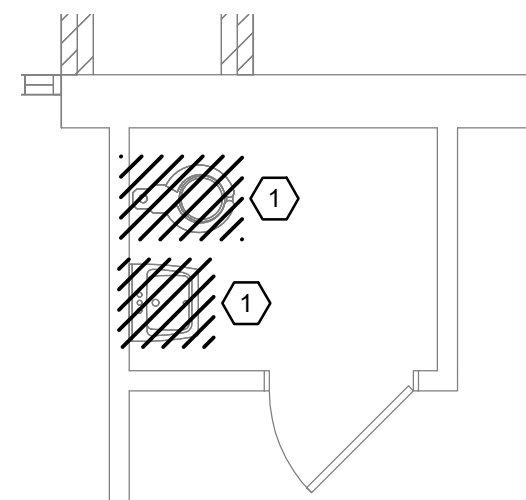
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PLUMBING DEMOLITION PLAN**

1/4" = 1'-0"



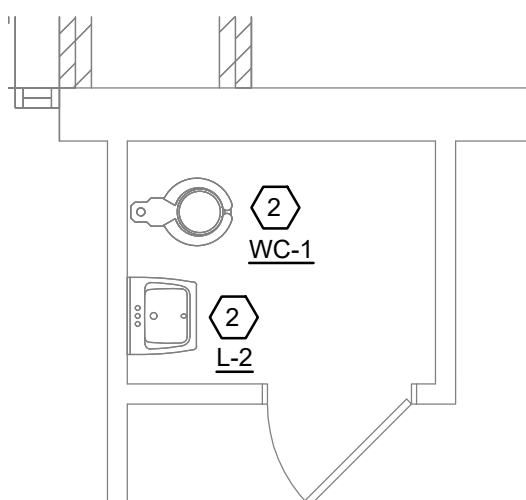
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PLUMBING NEW WORK PLAN**

1/4" = 1'-0"



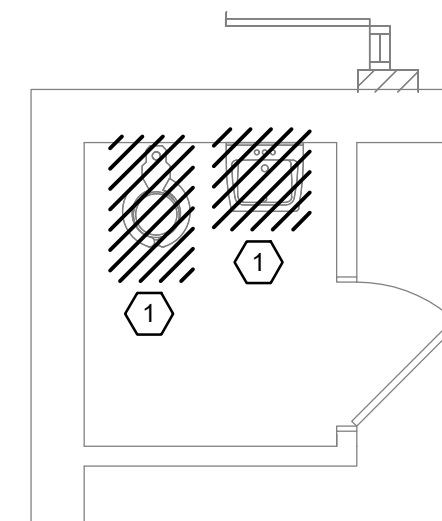
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PLUMBING DEMOLITION PLAN**

1/4" = 1'-0"



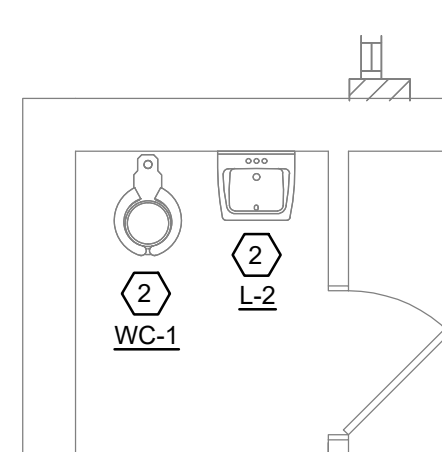
**TOILET ROOM A127  
PLUMBING NEW WORK PLAN**

1/4" = 1'-0"



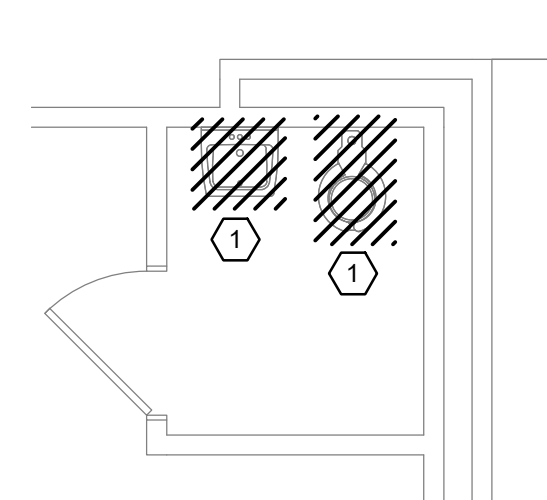
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PLUMBING DEMOLITION PLAN**

1/4" = 1'-0"



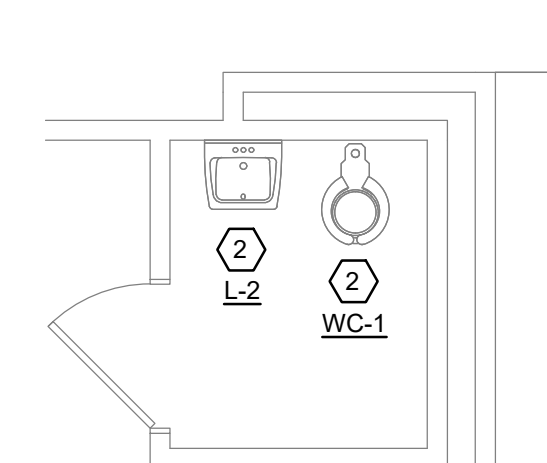
**TOILET ROOM A139  
PLUMBING NEW WORK PLAN**

1/4" = 1'-0"



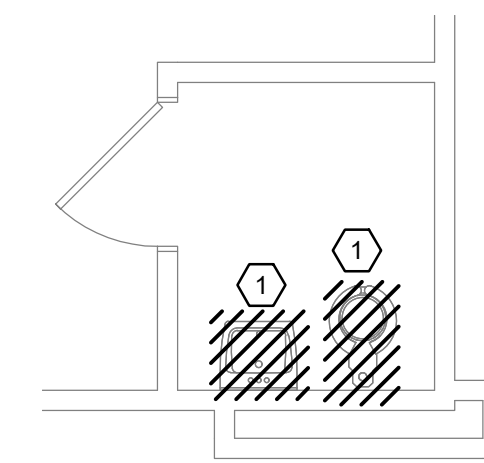
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PLUMBING DEMOLITION PLAN**

1/4" = 1'-0"



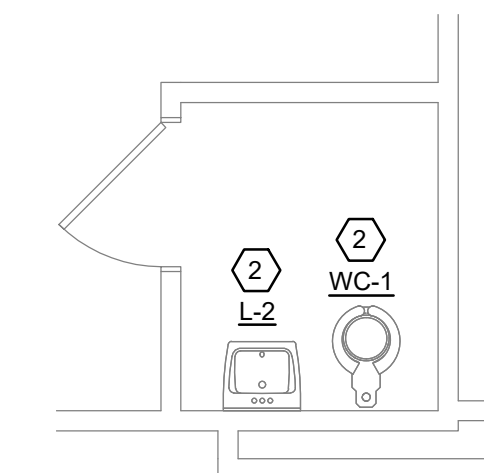
**TOILET ROOM A141  
PLUMBING NEW WORK PLAN**

1/4" = 1'-0"



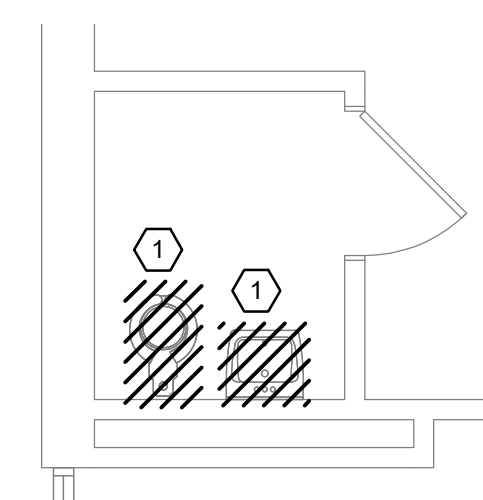
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PLUMBING DEMOLITION PLAN**

1/4" = 1'-0"



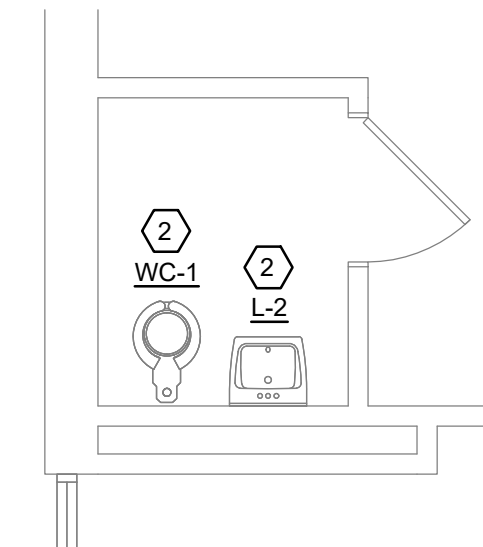
**TOILET ROOM A144  
PLUMBING NEW WORK PLAN**

1/4" = 1'-0"



**TOILET ROOM A146  
PLUMBING DEMOLITION PLAN**

1/4" = 1'-0"



**TOILET ROOM A146  
PLUMBING NEW WORK PLAN**

1/4" = 1'-0"

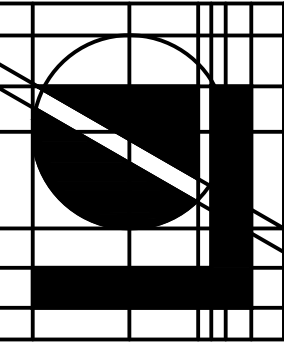
PLUMBING FIXTURE SCHEDULE								
UNIT ID	BARRIER FREE	ITEM	PIPE CONNECTION SIZES				MANUFACTURER/ MODEL NO.	REMARKS
			WASTE	VENT	CW	HW		
L-1	Y	LAVATORY	2"	1 1/2"	1/2"	1/2"	BRADLEY: MG-2	SOLID SURFACE MATERIAL LAVATORY SYSTEM, DUAL STATION, CONTINUOUS BOWL, WITH PEDESTAL AND STAINLESS STEEL MOUNTING FRAME. FAUCET: INFRARED SENSOR OPERATED BY LAVATORY MANUFACTURER, 0.5 GPM, SLOW-CLOSING SOLENOID VALVE, WITH ASSE 1070 COMPLIANT MIXING VALVE PER STATION.
WC-1	Y	WATER CLOSET (FLOOR MOUNTED)	4"	2"	1 1/2"	-	KOHLER: HIGHCLIFF K-96057	VITREOUS CHINA, ELONGATED BOWL, TOP SPUD, 1.0 - 1.6 GPF. FLUSH VALVE: SLOAN REGAL 111 SMD - 1.6, SIDE MOUNT SENSOR OPERATED.

KEYNOTES
1. REMOVE PLUMBING FIXTURE. PLUMBING PIPING SHALL REMAIN TO BE REUSED.
2. INSTALL NEW PLUMBING FIXTURE AND CONNECT TO EXISTING PLUMBING PIPING. EXTEND/REWORK PIPING AS NECESSARY BASED ON NEW LOCATION. FURNISH AND INSTALL NEW WALL CARRIERS/SUPPORTS AS REQUIRED.

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9. PROVIDE PLUMBING SYSTEMS COMPLETE AND PER APPLICABLE CODES INCLUDING REQUIRED COMPONENTS, OFFSETS REQUIRED TO AVOID STRUCTURE, ETC.
10. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF PLUMBING AND PIPING WITH THE WORK OF ALL OTHER TRADES.
11. PIPING SHALL NOT BE INSTALLED IN A LOCATION THAT RESTRICTS THE ACCESS TO MECHANICAL DEVICES REQUIRING ACCESS.
12. REFER TO ARCHITECTURAL PLANS FOR SPECIFICATIONS OF AND EXACT LOCATIONS OF FIXTURES (STANDARD AND BARRIER FREE), SINKS, ETC. REFER TO PLUMBING FIXTURE SCHEDULES FOR CONNECTION SIZES, ACCESSORIES, AND ADDITIONAL INFORMATION.



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DRAWN: W.V.	DATE: 11-08-23	ISSUED FOR: BIDS & PERMITS
CHECKED: W.V.		
APP'D: J.K.		

TOILET ROOM RENOVATIONS for:  
**HILTON ELEMENTARY SCHOOL**  
9600 HILTON RD., BRIGHTON, MI 48114  
**MECHANICAL & PLUMBING PLANS**

MP1.2  
18-785



## ELECTRICAL SYMBOL LIST

POWER SYMBOLS		ONE-LINE DIAGRAM SYMBOLS	
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	JUNCTION BOX - CEILING MOUNTED		CIRCUIT BREAKER - UPPER NUMERAL DENOTES AMPERAGE FRAME RATING AND LOWER NUMERAL INDICATES TRIP RATING
	JUNCTION BOX - FLOOR MOUNTED		FUSIBLE DISCONNECT SWITCH - UPPER NUMERAL DENOTES SWITCH SIZE, LOWER NUMERAL DENOTES FUSE SIZE
	JUNCTION BOX - WALL MOUNTED, FOR HAND DRYER HEIGHT AS INDICATED ON ARCHITECTURAL PLANS		GENERATOR
	KWH METER		GROUND
	WALL MOUNTED SURFACE RACE WAY		KIRK-KEY INTERLOCK
	FUSIBLE DISCONNECT SWITCH - UPPER NUMERAL DENOTES SWITCH SIZE, LOWER NUMERAL DENOTES FUSE SIZE		TRANSFORMER
	NON-FUSED DISCONNECT SWITCH - NUMERAL DENOTES SWITCH SIZE		AUTOMATIC TRANSFER SWITCH
	MAGNETIC MOTOR STARTER		<b>WIRING &amp; CONDUIT SYMBOLS</b>
	COMBINATION MOTOR STARTER		CONDUIT RUN IN WALL OR ABOVE CEILING
	DUPLEX RECEPTACLE OUTLET +18" A.F.F.		CONDUIT RUN BELOW GRADE OR CONCRETE SLAB
	DUPLEX RECEPTACLE OUTLET +48" A.F.F.		BRANCH CIRCUIT HOMERUN
	MOTOR CONNECTION		NOTE: ANY CIRCUIT WITHOUT FURTHER IDENTIFICATION IS 2-WIRE PLUS GROUND WIRE. A GREATER NUMBER OF WIRES IS INDICATED BY HASH MARKS.
	LOAD CENTER		EXISTING TO BE REMOVED OR ABANDONED
	LIGHTING PANELBOARD		
	POWER PANELBOARD		
	DISTRIBUTION PANELBOARD		
	MAIN SWITCHBOARD		
	TRANSFORMER		
	CONTROL PANEL		
	UTILITY POLE		
	KEYED NOTE IDENTIFIER		

## PROJECT SPECIFIC NOTES

- APPLICABLE CODES INCLUDE, BUT ARE NOT NECESSARILY LIMITED TO, THE FOLLOWING:
  - 2015 MICHIGAN BUILDING CODE
  - 2017 NEC WITH MICHIGAN PART 8 AMENDMENTS (INCLUDING NEC ART. 708
  - 2017 MICHIGAN ENERGY CODE (IECC 2015 / ASHRAE 90.1 - 2013)
  - 2009 ICC ANSI STANDARD A117.1-2009
  - 2015 INTERNATIONAL FIRE CODE.
- CONTRACTOR SHALL PROVIDE NAMEPLATES FOR ALL ELECTRICAL EQUIPMENT AND ARC-FLASH LABELS INDICATING REQUIRED PPE PROTECTION.
- ALL WIRING AND BUSSING SHALL BE COPPER, UNLESS OTHERWISE NOTED.
- SURGE PROTECTION DEVICES SHALL BE PROVIDED WHERE INDICATED ON THE DRAWINGS AND/OR SPECIFICATIONS.
- A SEPARATE EQUIPMENT GROUNDING CONDUCTORS, SIZED PER NEC, SHALL BE INSTALLED WITH ALL CIRCUIT CONDUCTORS.
- PROVIDE A THERMAL-ADHESIVE LABEL ON EACH DEVICE (LIGHT SWITCH, RECEPTACLE, ETC.) INDICATING THE SOURCE PANEL AND CIRCUIT NUMBER.

## GENERAL NOTES

- THE CONTRACTOR SHALL ABIDE BY ALL FEDERAL, STATE, AND/OR LOCAL CODES. IF A DISCREPANCY BETWEEN CODES OCCURS, THE MOST STRINGENT SHALL PREVAIL.
- THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO THE COMMENCEMENT OF ANY WORK. SHOULD DISCREPANCIES BE DISCOVERED, THE CONTRACTOR SHALL VERIFY INTENT WITH THE ENGINEER/OWNER BEFORE PROCEEDING.
- COORDINATE LOCATIONS OF ALL CEILING MOUNTED DEVICES WITH OTHER TRADES PRIOR TO INSTALLATION.
- COORDINATE ALL ROUGH-IN REQUIREMENTS FOR OWNER FURNISHED EQUIPMENT WITH THE OWNER PRIOR TO BEGINNING WORK. THESE DRAWINGS ARE BASED ON THE BEST INFORMATION AVAILABLE DURING THE DESIGN PHASE OF THE PROJECT.
- COORDINATE WITH MILLWORK CONTRACTOR TO DETERMINE THE EXACT LOCATION OF OUTLETS BEING PLACED IN MILLWORK.
- ALL DEVICES ARE TO BE FLUSH MOUNTED UNLESS NOTED OTHERWISE.
- DEVICES NOTED "GFI" SHALL INCLUDE GROUND FAULT INTERRUPTING DEVICES.
- DEVICES NOTED "WP" SHALL BE WEATHERPROOF, "WHILE-IN-USE" TYPE WHERE APPLICABLE.
- MULTI-WIRE BRANCH CIRCUITS SHALL BE PROVIDED WITH THE MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNDERGROUND CONDUCTORS AT THE POINT WHERE THE BRANCH CIRCUIT ORIGINATES. REFER TO 2017 NEC 210.4 (B). THIS APPLIES TO ALL MULTI-WIRE BRANCH CIRCUITS SUPPLYING ANY LOAD.
- DEDICATED NEUTRAL CONDUCTORS SHALL BE CONSIDERED CURRENT-CARRYING CONDUCTORS. HOMERUNS CONTAINING MORE THAN THREE CURRENT-CARRYING CONDUCTORS SHALL BE DERATED IN ACCORDANCE WITH THE 2017 NEC.
- BRANCH CIRCUIT HOMERUN CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE 2017 NEC. THE MAXIMUM ALLOWABLE VOLTAGE DROP ON A FEEDER IS 2% AND THE MAXIMUM ALLOWABLE VOLTAGE DROP ON A BRANCH CIRCUIT IS 3%. PROVIDE BRANCH CIRCUIT CONDUCTORS SIZED TO ENSURE THE TOTAL VOLTAGE DROP FROM THE SOURCE TO THE POINT OF UTILIZATION IS LESS THAN OR EQUAL TO 5%.
- DEDICATED NEUTRALS SHALL BE PROVIDED FOR ALL BRANCH CIRCUITS, EXCEPT WHERE A MULTI-WIRE CIRCUIT IS REQUIRED TO SERVE THE LOAD (I.E. SYSTEMS FURNITURE). WHEN SHARING THE NEUTRAL CONDUCTOR IN A MULTI-WIRE CIRCUIT, THE NEUTRAL SIZE SHALL BE INCREASED 17790.
- ALL MOUNTING HEIGHTS PROVIDED ARE TO CENTER OF DEVICE, UNLESS OTHERWISE INDICATED.

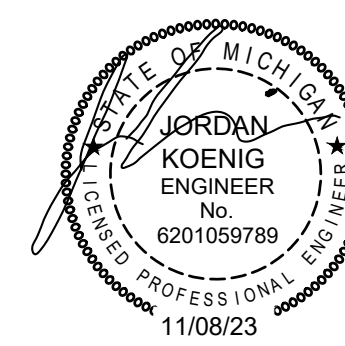
## GENERAL NOTES - DEMOLITION

- CERTAIN AREAS IN THE EXISTING BUILDING SHALL BE MODIFIED TO SUIT THE NEW REQUIREMENTS. THESE DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED TO INDICATE THE SCOPE OF WORK REQUIRED TO COMPLETE A SAFE REMOVAL OF THE ELECTRICAL SYSTEMS AS INDICATED BY THE NOTES ON THIS DRAWING.
- WORK IN THE AREA SHALL INCLUDE THE DISCONNECTION, REMOVAL, RELOCATION, AND RECONNECTION COMPLETE IN ALL RESPECTS OF ALL ITEMS REQUIRED TO SUIT THE DESIGN INTENT. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE PROJECT SITE TO CORRECTLY ASCERTAIN THE SCOPE OF SERVICES AND TO INCLUDE ALL PERTINENT COSTS IN HIS BID. NO EXTRAS WILL BE ALLOWED.
- ALL ELECTRICAL WORK INTERFERING WITH AND REQUIRING MODIFICATION FOR THE NEW REQUIREMENTS SHALL BE RELOCATED AS DIRECTED BY BUILDING MANAGEMENT PERSONNEL AND REINSTALLED AND REWIRED AS NECESSARY TO THE SATISFACTION OF THE BUILDING OWNER.
- PROVIDE ALL EQUIPMENT, MATERIALS, LABOR AND SUPERVISION NECESSARY TO PROVIDE A SAFE ELECTRICAL INSTALLATION. ALL ELECTRICAL DEVICES AND SYSTEMS THAT ARE INDICATED AS EXISTING TO REMAIN SHALL BE IN SAFE WORKING ORDER.
- OBTAIN NECESSARY PERMITS FROM THE LOCAL AUTHORITY HAVING JURISDICTION BEFORE PROCEEDING WITH ANY WORK IN THE FIELD.
- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, OSHA AND OTHER ELECTRICAL SAFETY STANDARDS AND GUIDELINES. CONFORM TO ALL STATE AND LOCAL CODES AND STANDARDS.
- ALL EQUIPMENT AND WIRING NOT IN RENOVATION AREAS BUT AFFECTED BY WORK IN RENOVATION AREAS SHALL BE RECONNECTED AS REQUIRED FOR A COMPLETE WORKING SYSTEM.
- ABANDONED AND INACTIVE CONDUITS, WIRE, DEVICES, EQUIPMENT, ETC. SHALL BE REMOVED IN THEIR ENTIRETY. IN ADDITION TO THESE ITEMS, THIS CONTRACTOR SHALL REMOVE ALL ITEMS AS INDICATED ON THE PLANS, OR AS REQUIRED TO CLEAN UP THE ENTIRE AREA OF UNUSED, ABANDONED, OR INACTIVE MATERIALS. CONDUIT AND WIRING FEEDING DEVICES AND EQUIPMENT TO BE REMOVED SHALL ALSO BE REMOVED UP TO THE NEXT ACTIVE PULLBOX, JUNCTION BOX, OR PANELBOARD. HANGERS, MESSENGER CABLE, BRACKETS, ETC., SUPPORTING ITEMS TO BE REMOVED SHALL ALSO BE UNFASTENED AND REMOVED. OPEN HOLES IN DUCTS, BOXES, PANELBOARDS, AND KNOCKOUTS SHALL BE CLOSED WITH SUITABLE SNAP PLUGS OR FILLER PLATES.
- THE CONTRACTOR SHALL REMOVE AND DELIVER TO A PLACE DESIGNATED BY THE OWNER ALL EXISTING ELECTRICAL EQUIPMENT NO LONGER INTENDED FOR USE. THIS EQUIPMENT REMAINS THE PROPERTY OF THE OWNER.
- ANY EQUIPMENT, DEVICES, MATERIALS, ETC., THE OWNER ELECTS NOT TO RETAIN SHALL BE LEGALLY DISPOSED OF BY THE CONTRACTOR OFF THE OWNER'S PREMISES.
- AT COMPLETION OF ALL ELECTRICAL WORK, UPDATE CIRCUIT DIRECTORIES IN PANELS AFFECTED BY NEW WORK WITH NEW TYPEWRITTEN CIRCUIT DESCRIPTIONS. CIRCUIT DIRECTORIES SHALL BE MOUNTED ON INSIDE OF FRONT PANEL COVER IN A CLEAR PLASTIC ENCLOSURE.
- EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, AND IN ACCORDANCE WITH THEIR LISTING OR LABELING REQUIREMENTS. ANY PENETRATIONS THROUGH FIRE RATED ASSEMBLIES THAT ARE CREATED BY THE ELECTRICAL DEMOLITION, SHALL BE SEALED AND RESTORED IN ACCORDANCE WITH THE UL FIRE RESISTANCE DIRECTORY.
- WHERE CONDUIT AND/OR OUTLET BOXES INDICATED FOR DEMOLITION ARE EMBEDDED IN CONCRETE OR BELOW CONCRETE SLAB, ABANDON IN PLACE. CUT BACK AND SEAL EXPOSED CONDUIT. PROVIDE BLANK COVERS FOR ABANDONED BOXES. REMOVE ALL ASSOCIATED WIRING BACK TO SOURCE.

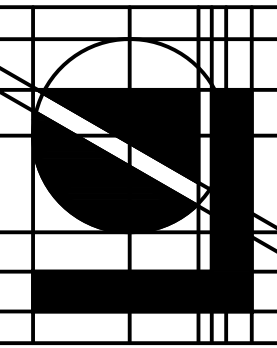
## ELECTRICAL ABBREVIATIONS

A.C.	ALTERNATING CURRENT
AC	ABOVE COUNTERTOP
AFCI	ARC FAULT CIRCUIT INTERRUPTER
AFB	ABOVE FINISHED FLOOR TO CENTERLINE
AFG	ABOVE FINISHED GRADE TO CENTERLINE
BC	BLANK COVER PLATE
BPS	BOLTED PRESSURE SWITCH
C	CONDUIT
CKT/CIRC	CIRCUIT
CTC	CURRENT TRANSFORMER CABINET
DP	DISTRIBUTION PANEL
(E)	EXISTING
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FURN	FURNACE
G/GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GRD	GROUND
IG	ISOLATED GROUND
MDP	MAIN DISTRIBUTION PANEL
NL	NIGHT LIGHT
PP	POWER PANEL
P/P	POWER POLE
RIO	ROUGHED-IN ONLY
RTU	ROOFTOP UNIT
(R)	RELOCATED
S	SURFACE MOUNTED
UC	UNDER COUNTER
UON	UNLESS OTHERWISE NOTED
WH	WATER HEATER
WP	WEATHERPROOF

SHEET INDEX	
SHEET NUMBER	SHEET TITLE
E0.1	GENERAL ELECTRICAL INFORMATION
E1.0	ELECTRICAL NEW WORK PLANS
E2.0	ELECTRICAL POWER ONE-LINE AND SCHEDULES
E3.0	ELECTRICAL SPECIFICATIONS



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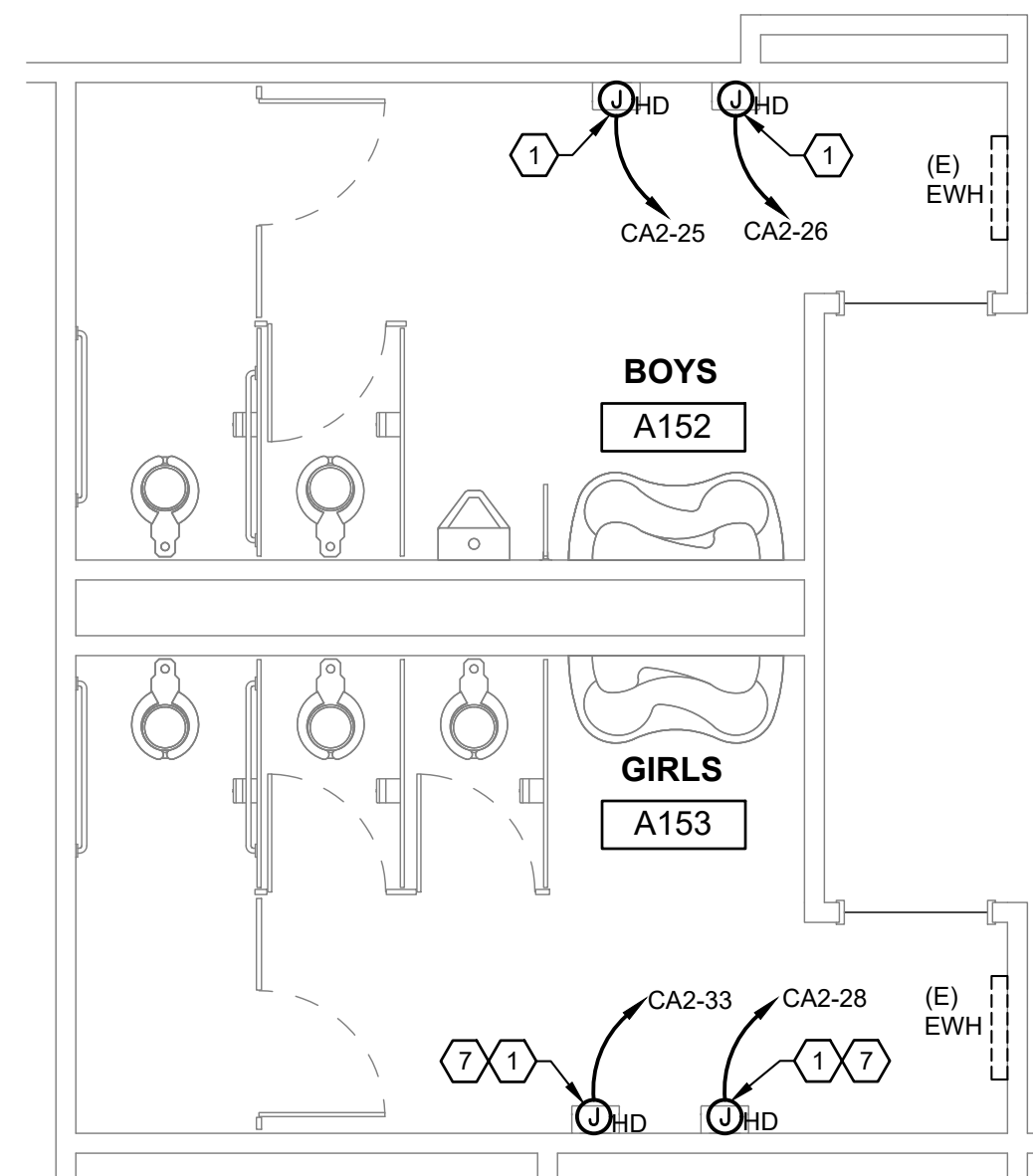
TOILET ROOM RENOVATIONS for:  
**HILTON ELEMENTARY SCHOOL**  
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GENERAL ELECTRICAL INFORMATION

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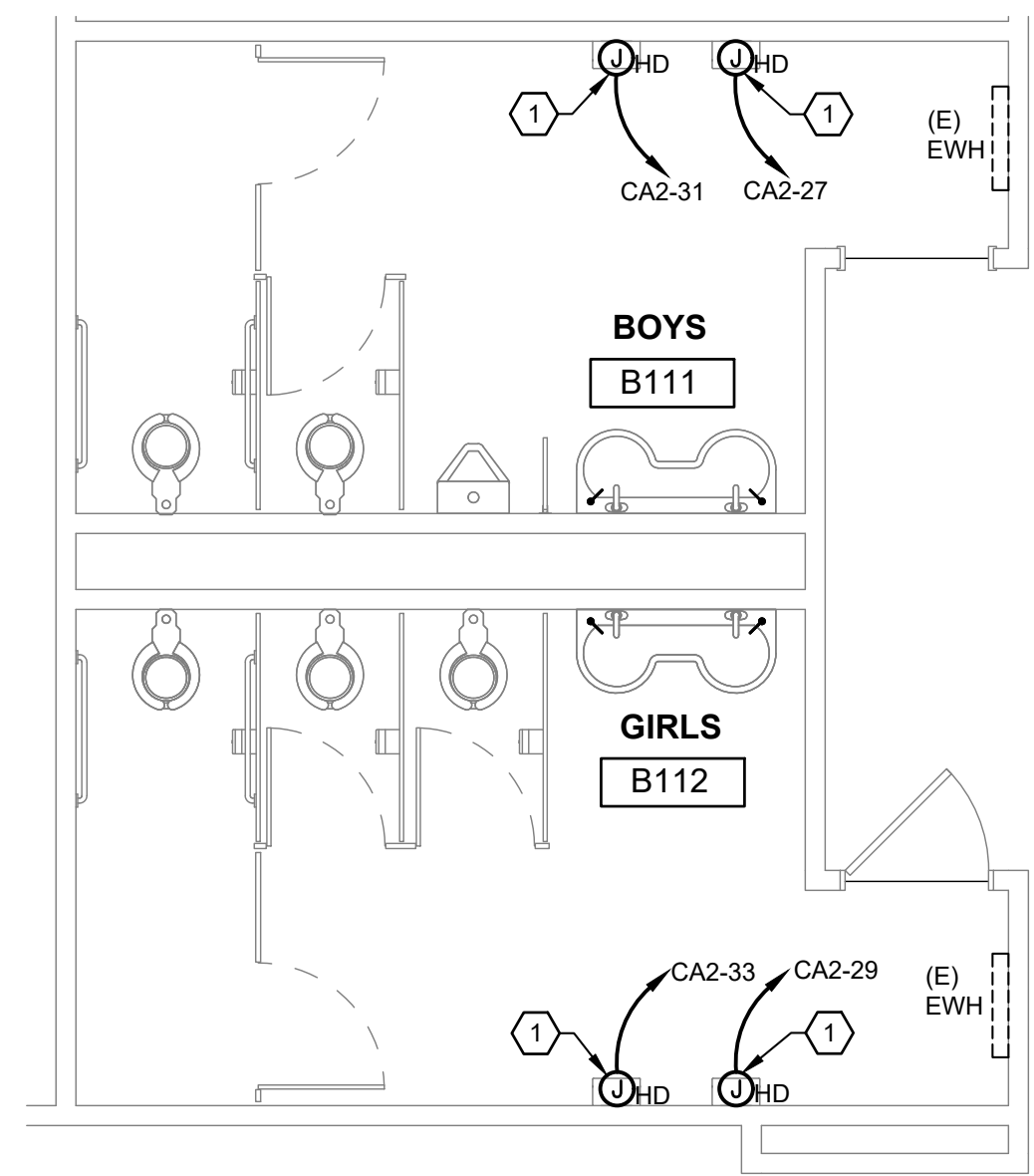
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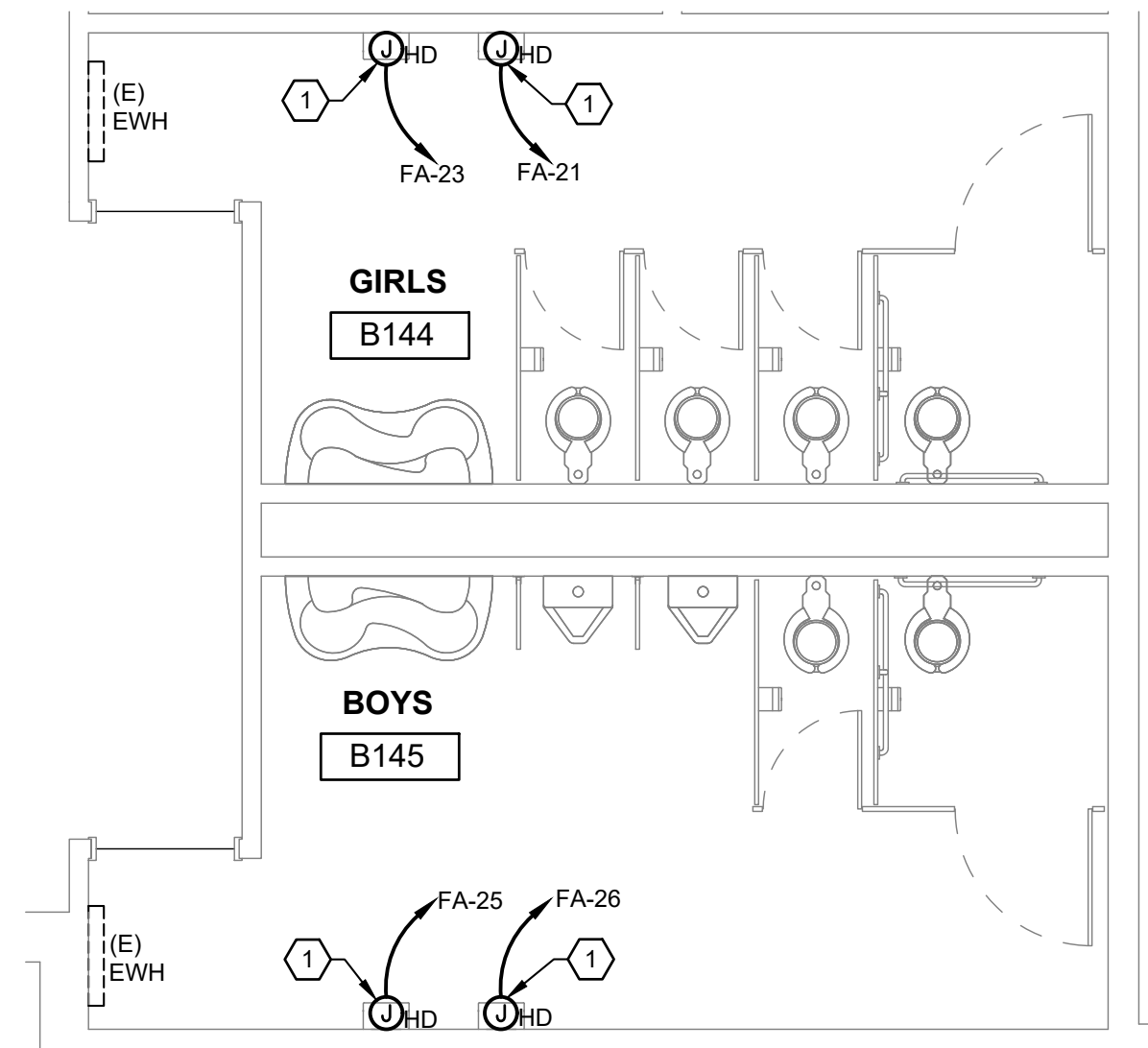
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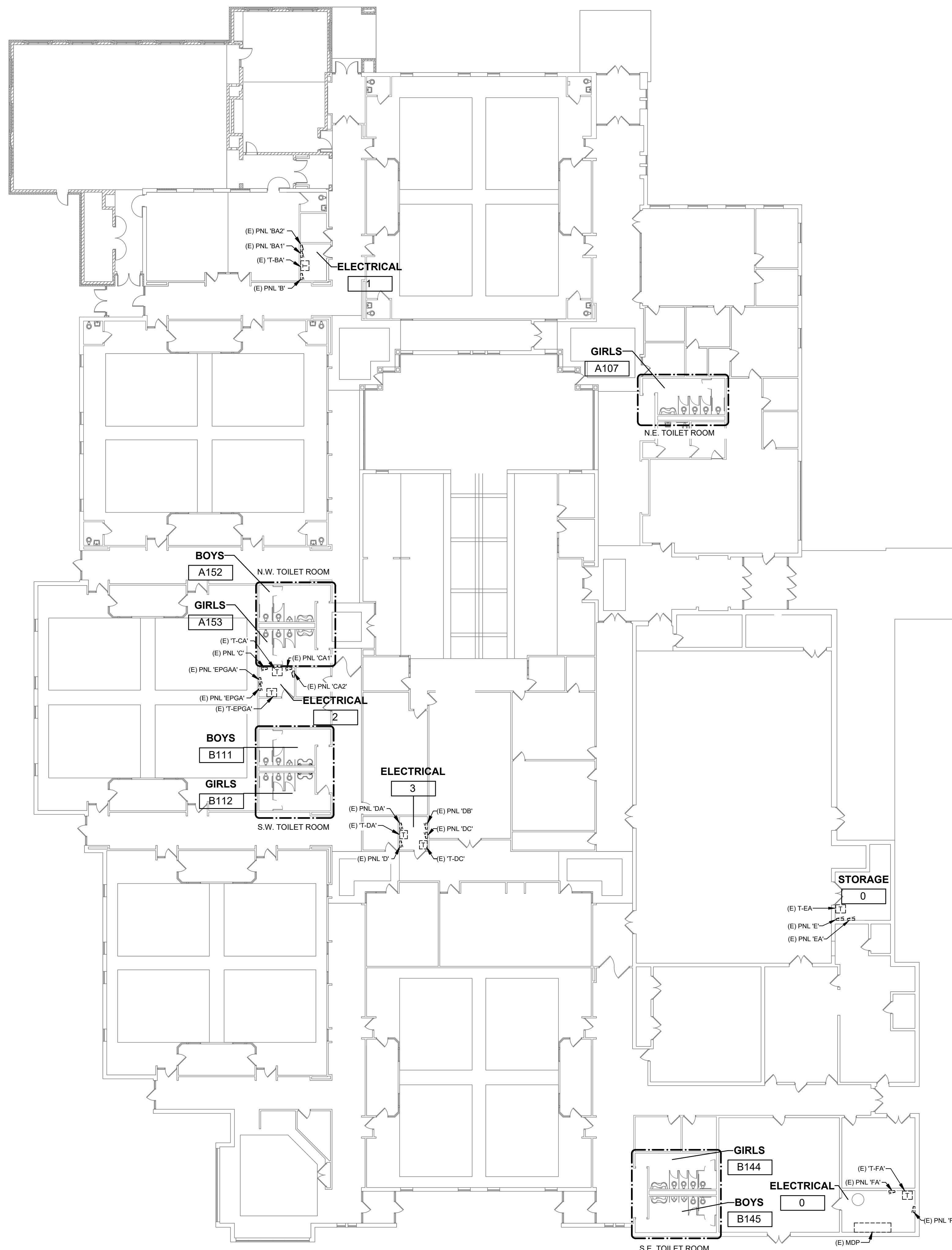
**ELECTRICAL NEW WORK PLAN - N.W. TOILET ROOM**  
1/4" = 1'-0"



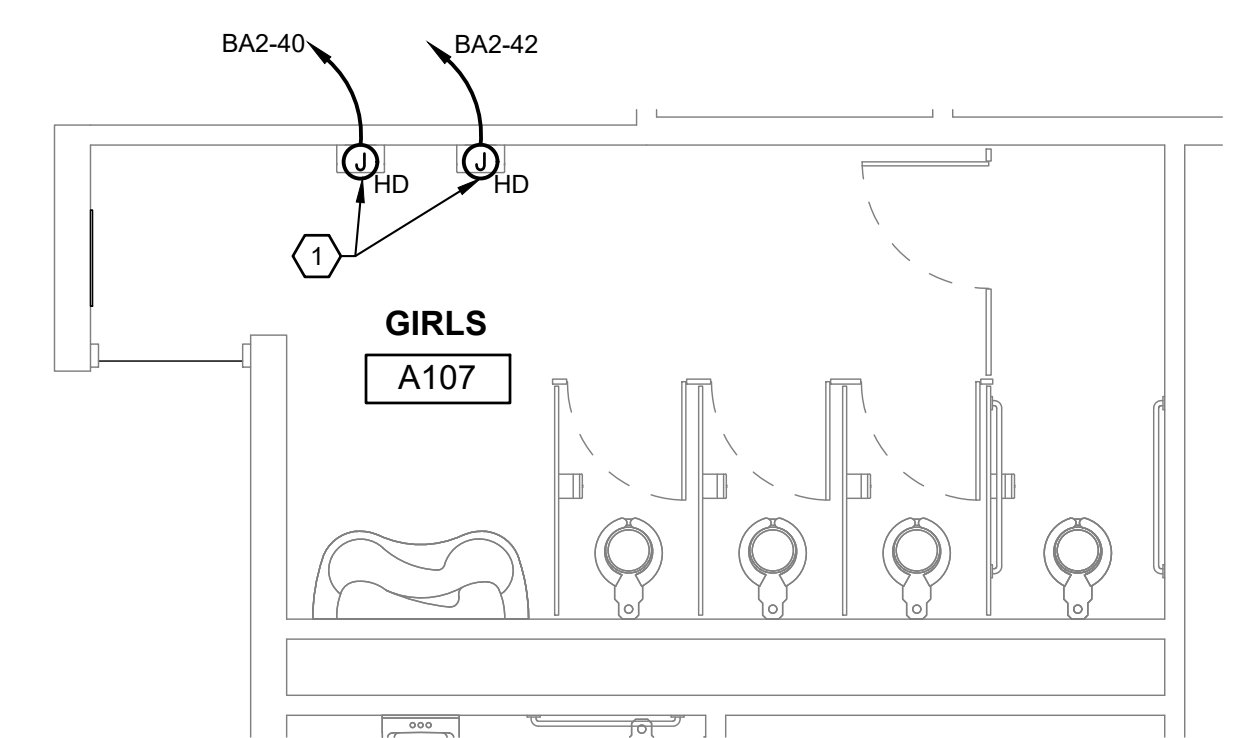
**ELECTRICAL NEW WORK PLAN - S.W. TOILET ROOM**  
1/4" = 1'-0"



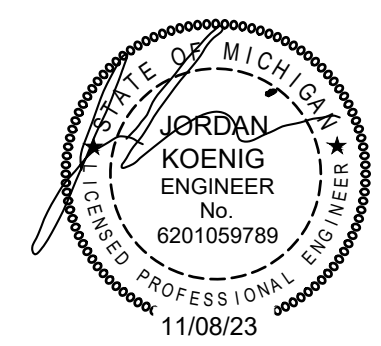
**ELECTRICAL NEW WORK PLAN - S.E. TOILET ROOM**  
1/4" = 1'-0"



**ELECTRICAL PLAN - COMPOSITE**  
1/16" = 1'-0"



**ELECTRICAL NEW WORK PLAN - N.E. TOILET ROOM**  
1/4" = 1'-0"



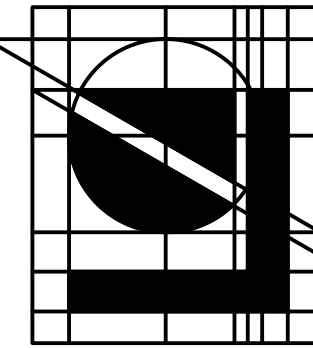
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**KEYNOTES**

- REFER TO ARCHITECTURAL SHEET A3.0 FOR TYPICAL MOUNTING OF HAND DRYERS..

**GENERAL NOTES**

- UNLESS NOTED OTHERWISE, ALL EQUIPMENT, CIRCUITRY, ETC. DENOTED WITH BOLD (DARK) LINES REPRESENT NEW WORK TO BE PERFORMED. ALL EQUIPMENT, CIRCUITRY, ETC. DENOTED WITH LIGHT (SCREENED) LINES REPRESENT EXISTING TO REMAIN AND BE MAINTAINED.
- EXISTING CONDITIONS SHOWN ON THESE DRAWINGS HAVE BEEN OBTAINED FROM EXISTING DRAWINGS AND FIELD INSPECTIONS. CONTRACTOR SHALL VERIFY EXACT LOCATIONS. REPORT DISCREPANCIES TO ARCHITECT/ENGINEER BEFORE DEMOLITION.
- ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR PATCHING, PREPPING AND PAINTING EXISTING WALL SURFACES TO MATCH EXISTING WHERE DEVICES AND EQUIPMENT ARE REMOVED.
- ALL NEW FEEDER AND BRANCH CIRCUIT CONDUIT AND WIRING SHALL BE RUN CONCEALED WITHIN EXISTING WALL CAVITIES OR ABOVE CEILINGS. EXPOSED RACEWAY ACCEPTABLE ONLY WHERE APPROVED BY OWNER. GENERAL CONTRACTOR AND ENGINEER IN WHICH CASES WIREMOLD 700 (IVORY), OR EQUAL, SURFACE MOUNTED RACEWAY IS ACCEPTABLE. CONTRACTORS SHALL FIELD VERIFY EXISTING CONSTRUCTION CONDITIONS PRIOR TO BIDDING.
- NEW HAND DRYERS TO BE FURNISHED BY OTHERS. ELECTRICAL CONTRACTOR SHALL PROVIDE NEW BRANCH CIRCUIT WIRING IN METAL CONDUIT TO PANELS INDICATED. COORDINATE ALL WORK WITH OTHER TRADES AND GENERAL CONTRACTOR.
- NEW HAND DRYER OUTLETS SHALL BE FLUSH MOUNTED IN WALL WITH ALL RACEWAY CONCEALED.
- ALL OUTLETS MOUNTED IN 1-HOUR FIRE RATED ASSEMBLIES SHALL BE PROVIDED WITH FIRE STOP PADS BEHIND OUTLETS TO MAINTAIN THE 1-HOUR FIRE RATING. ALL FIRE STOPPING MATERIALS USED SHALL MEET THE APPROVAL OF THE LOCAL AUTHORITY HAVING JURISDICTION.



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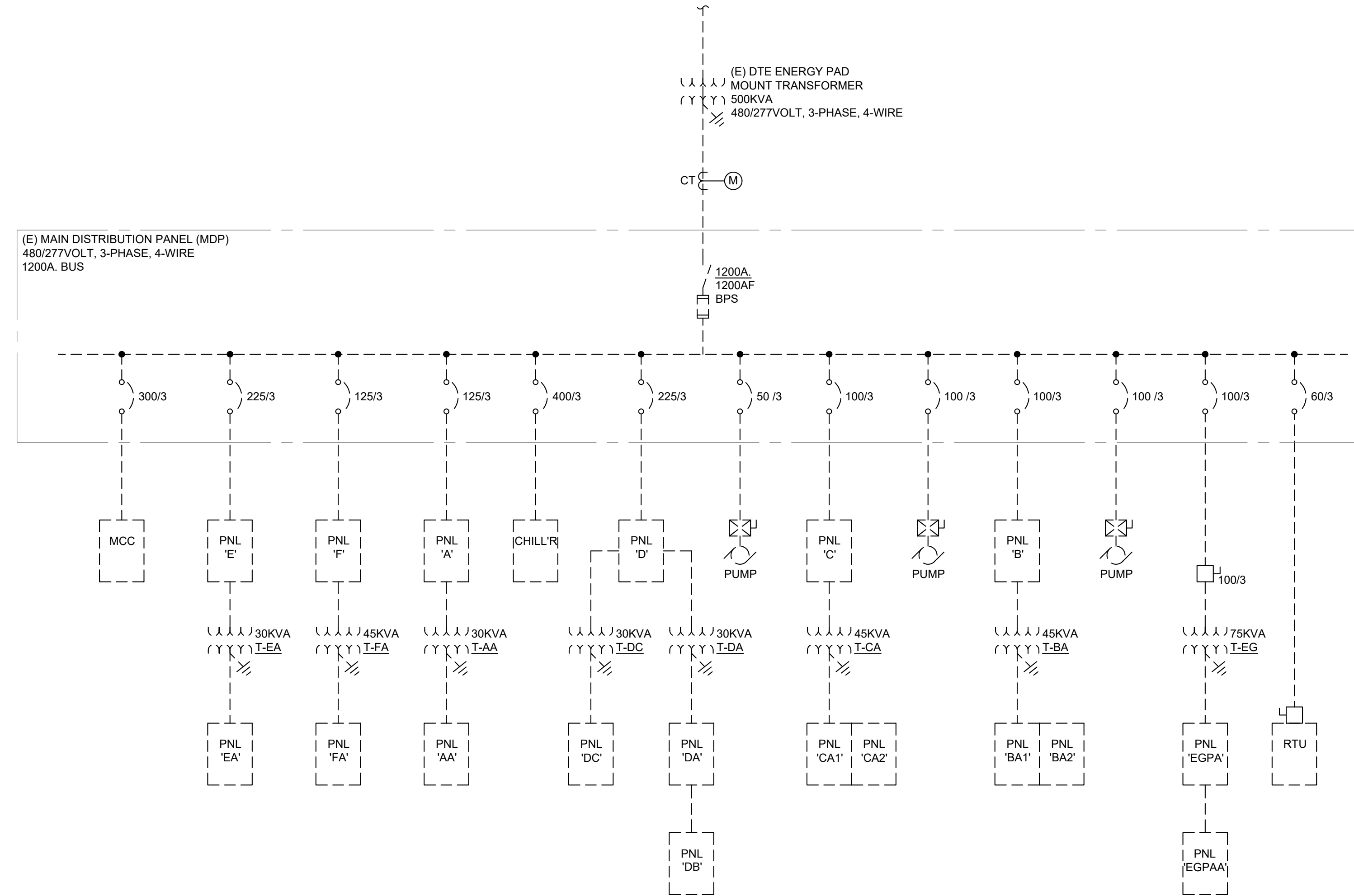
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BUILDING DEMAND CALCULATION  
 EXISTING BUILDING DEMAND LOAD = 435KVA  
 NEW HAND DRYER TOTAL LOAD = 14KVA  
 NEW BUILDING DEMAND (TOTAL) = 449KVA



EXISTING POWER ONE-LINE DIAGRAM  
 N.T.S.

EXISTING PANEL BOARD MAINS	LOAD - VA			VOLTAGE AND PHASE			SYM. A.I.C. MIN.			MOUNTING SURFACE
	A	B	C	BRKR	CKT	CKT	A	B	C	
FLOOR BOX - C.R. 8	360			20	1	2	20	--		PLUGS - C.R. 6
FLOOR BOX - C.R. 8		360		20	3	4	20	--		PLUGS - C.R. 5
FLOOR BOX - C.R. 9			360	20	5	6	20	--		PLUGS - C.R. 5
FLOOR BOX - C.R. 9	360			20	7	8	20	--		COUNTER PLUGS - C.R. 6
FLOOR BOX - C.R. 9		360		20	9	10	20	--		PLUGS - C.R. 6
FLOOR BOX - C.R. 9			360	20	11	12	20	--		COUNTER PLUGS - C.R. 8
FLOOR BOX - C.R. 7	360			20	13	14	20	--		PLUGS - C.R. 8
FLOOR BOX - C.R. 7		360		20	15	16	20	--		COUNTER PLUGS - C.R. 8
FLOOR BOX - C.R. 7			360	20	17	18	20	--		PLUGS - CONF. RM. 8
FLOOR BOX - C.R. 7	360			20	19	20	20	--		DOSING PUMP CONTROL
FLOOR BOX - C.R. 7		360		20	21	22	20	--		PLUG - ELECTRIC ROOM
FLOOR BOX - C.R. 7			360	20	23	24	20	--		FLOOR BOX - C.R. 8
FLOOR BOX - C.R. 7	360			20	25	26	20	--		FLOOR BOX - C.R. 8
VACUUM SYSTEM-ADD	500	500	30	27	28	20	--			CP1 / CP2 - STORAGE REC.
				29	30	20	--			PROJECTOR SCREEN
				31	32	20	--			FREEZE TAPE - NORTH
TRACK LIGHTS - FLOOR BOX	500			20	33	34	20	--		REC - MULTI-PURPOSE
EF-1 - CUH-1			500	20	35	36	20	--		REC - RM. A165
SPACE	--	--	--	37	38	20	--			REC - RM. A166
SPACE	--	--	--	39	40	20	1000			HAND DRYER - GIRLS A107
SPACE	--	--	--	41	42	20	1000			HAND DRYER - GIRLS A107
LOAD DESCRIPTION	DEMAND FACTOR D.F.	VOLT-AMPS			17,580	TOTAL DEMAND LOAD				
LIGHTING	1.0	500	500	125	25% LIGHTING LOAD					
RECEPTACLES	NEC	10,080	10,080	3,000	SPARE					
SMALL MOTORS	1.0	200	200							
MISC. EQUIPMENT	1.0	3,000	3,000	20,705	DESIGN LOAD					
HAND DRYERS	1.0	2,000	2,000	58	DESIGN AMPS					
TOTAL		17,580	17,580							

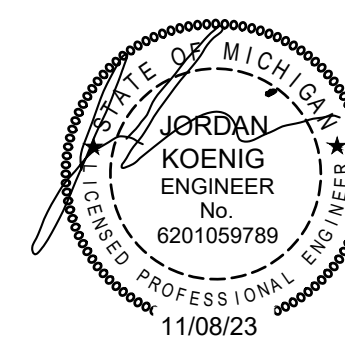
\* ASTERISK DENOTES NEW CIRCUIT BREAKER

EXISTING PANEL BOARD MAINS	LOAD - VA			VOLTAGE AND PHASE			SYM. A.I.C. MIN.			MOUNTING SURFACE
	A	B	C	BRKR	CKT	CKT	A	B	C	
PLUGS C.R. 12	360			20	1	2	20	360		PLUGS - BATHROOMS
COUNTER PLUGS - C.R. 12		360		20	3	4	20	1000		COPY MACHINE
PLUGS - CONF. RM. 12			360	20	5	6	20		500	WATER COOLER
PLUGS CONF. RM. 11	360			20	7	8	20	360		PLUGS - CONF. RM. 18
COUNTER PLUGS - C.R. 11		360		20	9	10	20	360		COUNTER PLUGS - RM. 18
PLUGS C.R. 11			360	20	11	12	20		360	PLUGS - C.R. 18
PLUGS C.R. 16	360			20	13	14	20	360		PLUGS - C.R. 15
COUNTER PLUGS - C.R. 16		360		20	15	16	20	360		COUNTER PLUGS - C.R. 15
PLUGS - CONF. RM. 16			360	20	17	18	20		360	PLUGS - CONF. RM. 15
PLUGS - CONF. RM. 13	360			20	19	20	20	360		PLUGS - CONF. RM. 14
COUNTER PLUGS - C.R. 13		360		20	21	22	20	360		COUNTER PLUGS - C.R. 14
PLUGS - C.R. 13			360	20	23	24	20		360	PLUGS - C.R. 14
* HAND DRYER - BOYS A152	1000			20	25	26	20	1000		HAND DRYER - BOYS A152
* HAND DRYER - BOYS B111		1000		20	27	28	20	1000		HAND DRYER - GIRLS A153
* HAND DRYER - STAFF B111			1000	20	29	30	20		1000	HAND DRYER - STAFF A153
* HAND DRYER - BOYS B111	1000			20	31	32	20	--		SPACE
* HAND DRYER - GIRLS B111		1000		20	33	34	20	--		SPACE
SPACE	--	--	--	35	36	20	--	--		SPACE
SPACE	--	--	--	37	38	20	--	--		SPACE
SPACE	--	--	--	39	40	20	--	--		SPACE
SPACE	--	--	--	41	42	20	--	--		SPACE
LOAD DESCRIPTION	DEMAND FACTOR D.F.	VOLT-AMPS			17,420	TOTAL DEMAND LOAD				
LIGHTING	1.0	--	--	--	25% LIGHTING LOAD					
RECEPTACLES	NEC	7,920	7,920	12,000	SPARE					
SMALL MOTORS	1.0	--	--							
MISC. EQUIPMENT	1.0	1,500	1,500	29,420	DESIGN LOAD					
HAND DRYERS	1.0	8,000	8,000	82	DESIGN AMPS					
TOTAL		17,420	17,420							

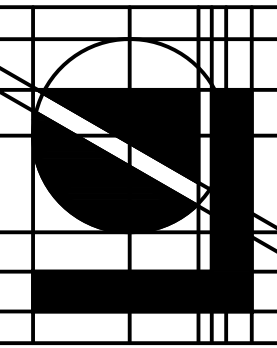
\* ASTERISK DENOTES NEW CIRCUIT BREAKER

EXISTING PANEL BOARD MAINS	LOAD - VA			VOLTAGE AND PHASE			SYM. A.I.C. MIN.			MOUNTING SURFACE
	A	B	C	BRKR	CKT	CKT	A	B	C	
PLUGS - MUSIC ROOM	360			20	1	2	15	100		FIRE ALARM PANEL
CONTROL CONSOLE / MUSIC RM.		360		20	3	4	20	250		SOFTNER
PLUGS - MUSIC ROOM			360	20	5	6	20		500	ELECTRICAL LOAD
LIGHTING CONTROL PANEL	100			15	7	8	20	250		IRON FILTERS
GUARDIAN ALARM PLUGS/CUSTODIAL		360		20	9	10	15	1000		PUMP PP-1, JCI CONTROLS
WATER COOLER			600	20	11	12	15		1000	PUMP PP-2
PLUGS RESTROOM	360			20	13	14	15	1000		EXHAUST FAN #7
PLUGS RECEIVING ROOM		360		20	15	16	15	500		BOILER #2
PLUGS MECHANICAL ROOM/CARD READER			360	20	17	18	15		500	BOILER #1
HOT WATER BOILER	500			20	19	20	15	100		FIRE HORN
* HAND DRYER - GIRLS B144		1000		20	21	22		--		SPACE
* HAND DRYER - GIRLS B144			1000	20	23	24		--		SPACE
* HAND DRYER - BOYS B145	1000			20	25	26	20	1000		HAND DRYER - BOYS B145
SPACE	--	--	--	27	28		--	--		SPACE
SPACE	--	--	--	29	30		--	--		SPACE
SPACE	--	--	--	31	32		--	--		SPACE
SPACE	--	--	--	33	34		--	--		SPACE
SPACE	--	--	--	35	36		--	--		SPACE
SPACE	--	--	--	37	38		--	--		SPACE
SPACE	--	--	--	39	40		--	--		SPACE
SPACE	--	--	--	41	42		--	--		SPACE
LOAD DESCRIPTION	DEMAND FACTOR D.F.	VOLT-AMPS			12,920	TOTAL DEMAND LOAD				
LIGHTING	1.0	--	--	--	25% LIGHTING LOAD					
RECEPTACLES	NEC	2,520	2,520	16,000	SPARE					
SMALL MOTORS	1.0	3,600	3,600							
MISC. EQUIPMENT	1.0	2,800	2,800	28,920	DESIGN LOAD					
HAND DRYERS	1.0	4,000	4,000	80	DESIGN AMPS					
TOTAL		12,920	12,920							

\* ASTERISK DENOTES NEW CIRCUIT BREAKER



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DATE:	11-08-23
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APPROVED:	J.K.
DESIGNED BY:	J.K.
DRAWN BY:	D.P.

TOILET ROOM RENOVATIONS for:  
 HILTON ELEMENTARY SCHOOL  
 9600 HILTON RD., BRIGHTON, MI 48114  
 POWER ONE - LINE AND SCHEDULES

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ELECTRICAL SPECIFICATIONS

1. WORK INCLUDED

- A. These specifications and accompanying drawings contemplate the provisions by the electrical contractor of all labor and materials required to install a complete system of electrical work as indicated on the drawings and/or herein specified.
  - B. Without restricting the generality of the foregoing, the following shall be included:
    - 1) New branch circuit wiring, raceway, and connection complete.
    - 2) Grounding of complete electrical system per article 250 of NEC and specifications.
    - 3) Modifications of existing electrical distribution system equipment as required, and final connections complete.
2. STANDARDS OF MATERIAL AND WORKMANSHIP
- A. All equipment shall be new and shall conform in all respects to the latest approved standards of the I.E.E.E., ANSI
  - B. All work shall be done at such times and in such a manner as will least interfere with the maintenance and operation of all related or affected systems.
  - C. All materials and equipment shall bear the label of approval of the National Board of Fire Underwriter's Laboratories.
  - D. The electrical contractor shall effectively protect, at his own expense, such of his work, materials or equipment as is liable to injury during the construction period.
  - E. All openings into any part of the conduit system as well as associated fixtures, equipment, etc., both before and after being set in place, must be securely covered or otherwise protected to prevent obstruction of the conduit, or injury due to carelessness or maliciously dropped tools or materials, grit, dirt or any foreign matter. The electrical contractor shall be held responsible for all damage done until his work is fully and finally accepted. Conduit ends shall be covered with capped bushings. All electrical equipment shall be grounded.
  - F. It is not intended that the drawings or this specification indicate or specify each piece of conduit, fittings, etc., required for the installation. Where items are required for the satisfactory operation of the installation and are not indicated on the drawings, they shall be considered to be both specified and indicated.
  - G. General requirements and details of equipment are shown. Dimensions or scales shown are approximate and must be checked at job prior to installation of equipment or any order given for fabrication.
  - H. Electrical contractors shall have competent foreman on the premises at all times to superintend and check and lay out all work, give information to general contractor regarding chases and openings, and be responsible for such locations. This contractor shall cooperate with other contractors where chases, openings, pipes, foundations, etc., are in proximity to the work of other trades and arrange the work to fit. This contractor shall study where other trades leave connections and outlets to be connected, so that all work and appliances shall be properly arranged for and connected ready for use.

3. COMPLIANCE WITH CODES AND ORDINANCES

All electrical work shall comply with the 2017 National Electrical Code, 2015 Michigan Building Code, 2017 Michigan electrical code, Michigan construction code Part 8 Electrical Code, all local ordinances and regulations and the Occupational Safety and Health Act (OSHA).

4. PERMITS AND FEES

The electrical contractor shall obtain all permits, pay all fees, and arrange for all inspections for his work. At the completion of electrical work, the electrical contractor shall furnish the owner with all certificates of final inspection and approvals.

5. SITE VISITS BY THE CONTRACTOR

- A. The contractor shall visit the site and verify the conditions under which his work must be conducted before submitting his proposal.
- B. The submitting of a proposal implies that the contractor has visited the site, is conversant with all site conditions, including existing services and equipment, obstructions and all conditions, which will be encountered in the removal and/or relocation of present materials and equipment, installation of new materials and cutting and patching, etc., for a complete electrical installation.

6. CONFLICTS WITH STRUCTURE

Should any structural difficulties prevent setting of cabinets, running conductors, etc., at points shown on plans, the necessary minor deviations therefrom, as determined by architect, may be permitted and must be made without additional cost.

7. SUBSTITUTIONS

- A. Any equipment proposed as equal to that specified shall be so proven by the contractor who shall, prior to bidding, submit via us mail or email, the manufacturer's name, model numbers, verification data sheets and applicable working drawings.
  - 1) The engineer shall review and approve or disapprove, in writing, such proposed substitutions prior to bidding time.
  - 2) If this procedure is not followed by the contractor prior to bidding, the contractor shall bid equipment of make and model number as specified herein, or on the drawings.
  - 3) All equipment submittals which have been substituted by the contractor without prior written approval by the engineer will be rejected by the engineer and returned to the contractor who shall then submit equipment as specified.
- B. Contractor's agreement to pay for review of substitutions:
  - 1) In the event equipment substitutions are proposed to the engineer after the contract has been awarded, the engineer will record all time used by him in evaluation of each proposed substitution.
  - 2) Whether or not the engineer approves the proposed substitution, the contractor agrees to promptly upon receipt of the engineer's billing, reimburse the engineer at the rate of two and three-quarter times the direct cost to the engineer for all time spent by him in evaluation of the proposed substitution.

8. COOPERATION WITH OTHER CONTRACTORS

- A. Electrical contractor shall arrange all parts of his work in proper relation to the work of others and to the architectural finish. Where interferences occur, the electrical contractor shall, before installing the work involved, consult with the architect as to the exact location and level of his work. The architect's decision shall be final.
- B. The electrical contractor shall be responsible for the arrangement of his work, and equipment and maintenance of proper headroom under this work. Should work installed by him require modification to avoid interference with other work, as determined by the architect, such changes shall be made without additional cost.

10. OWNER TESTS AND INSPECTIONS

- A. The Owner reserves the right to inspect and test any portion of the equipment during the progress of its erection. The contractor shall afford the Owner's representative every facility for evaluating the skill and competence of the mechanics and to examine the materials and installation. Concealed work shall be reopened when so directed during his periodic visits.
- B. The contractor shall notify the Owner's representative or engineer before any electrical work is concealed by a concrete pour, covering of a trench, a wall or installation of a ceiling. This notification shall be received from the contractor at least 72 hours prior to concealment.
- C. The electrical contractor shall test the entire system in the presence of the Owner's representative when the work is finally completed to insure that all portions are free from short circuits and grounds, are in good and intended working condition. Power for final tests after all erections are completed will be furnished by the owner. All equipment necessary to conduct the above tests shall be furnished at the expense of the electrical contractor.

11. CUTTING AND PATCHING

Cutting and patching of walls, floors, ceilings, roofs, etc., shall be done at the expense of the contractor installing equipment and appurtenances, subject to the approval of the Owner/ architect. Structural members shall not be cut without obtaining written permission from the architect.

12. FLASHING

Conduits passing through roofs or outside walls exposed to weather shall be carefully flashed. Fire proofing of holes shall be provided and shall be of a UL listed material, and approved by authority having jurisdiction (AHJ).

13. FIRE AND SMOKE BARRIERS

- A. All conduit penetrations in fire-rated walls and floors and designated smoke barriers shall be sealed with an approved fire barrier material.
- B. System shall pass fire test exposure per ASTM E\_814 (U. L. 1479) and will provide a 3-hour fire rating.
- C. Barrier material shall be equal to 3M fire barrier composite sheet CS\_195. All seams and edges shall be sealed with 3M CP\_25 fire barrier caulk or 303 putty, or equal.

14. CLEAN UP

The electrical contractor and his sub\_contractors shall keep the premises free of debris and unusable materials resulting from their work and immediately upon completion of this work, he shall remove such debris and materials from the Hospital property and he shall leave all floors broom clean in areas affected by their work.

15. MANUFACTURER'S DRAWING

- A. The electrical contractor shall submit to the engineer manufacturer's drawings of receptacles, switches and misc. electrical devices equipment to be installed on this job, for the approval before ordering same for installation.
- B. Failure of the electrical contractor to submit shop drawings in ample time for checking shall not entitle him to an extension of contract time, and no claim for extension by reason of such default will be allowed.

16. AS\_BUILT DRAWINGS

- A. A set of the construction drawings shall be marked up with red pen during construction to indicate the true and accurate "as\_built" condition. At the completion of the project, they shall serve as final "as\_built" drawings. Submit to the Owner and architect the original revised "as\_built" drawings and one set of color copies.
- B. Final payment will not be made to the electrical contractor until the completed as\_built drawings have been submitted.

18. SPECIFICATIONS AND DRAWINGS

Any item appearing on the drawings and not in the specification or vice versa, and any items appearing in neither but necessary to accomplish the intent of these specifications, shall be furnished by the electrical contractor.

19. GROUNDING

- A. Furnish and install a complete grounding system in accordance with the National Electrical Code and Michigan Building Code.
- B. The grounding electrode system shall be in compliance with 2017 NEC, Articles 250.66 and 250.122.
- C. Grounding path from circuits, equipment, and conductor enclosures shall be permanent and continuous; and shall have a resistance to ground of less than 5 ohms.
- D. All cabinets, motor frames, motor starters, transfer switches, conduit systems, panelboards, transformers, etc., shall be thoroughly grounded in accordance with the NEC Sections 250.24; 250.50; 250.52; and tables 250.66 and 250.122.

20. CONDUCTORS

All conductors shall be installed in approved raceway. All branch circuit conductors shall be copper, with type XHHW, THHN or THW, 75 deg C, 600 volt insulation. All feeders shall be copper, with type XHHW or RHW, 75 deg C, 600 volt insulation.

21. RACEWAYS

- A. Raceway installed below ground and exterior to the building may be schedule 40 heavy wall PVC plastic type.
- B. All conduit installed exposed at exterior of building shall be galvanized rigid steel.
- C. Raceway installed indoor may be galvanized rigid steel or thin-wall type electrical metallic tubing ("EMT").

22. FUSES

Fuses 0 to 600 ampere shall be current limiting dual element type, with separate elements for overloads and short circuits, 200,000 A.I.C. R.M.S. symmetrical UL Class RK1. Busmann or approved equal.

23. GUARANTEE

- A. Electrical contractor shall guarantee all work installed by his workmen under this contract to be free from all defective workmanship and materials for a period of one year after the acceptance of the generator installation by the Owner/Architect. Should defects occur within this period, the electrical contractor shall repair and/or replace defective items, at no expense to the Owner.

24. NAMEPLATES

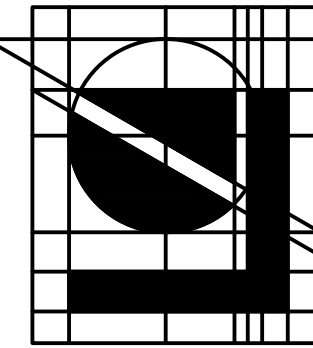
Control panels, disconnect switches, panelboards, etc., shall be identified with manufacturer's nameplates, shop orders, where applicable on composite assemblies, and designations used on the drawings. Nameplates for this purpose shall be laminated phenolic plastic, beveled edge, black with engraved white letters. Except where impractical, letters and numerals shall be a minimum of 1/4" high. Nameplates shall be mechanically secured. Dymo labels shall not be used for this purpose. Panel directories shall be neatly typed showing equipment served and location for each breaker or switch.

25. TESTING

- A. All circuits and equipment shall be tested upon completion of work and final tests, when requested, shall be done in the presence of the Owner/Architect. Any circuits or equipment found to be defective shall be replaced or repaired, as necessary, and then retested without additional expense to the Owner.

26. CLEANING

Upon completion of the project, all enclosures shall be left free of refuse and the exterior free of dirt and paint splatters.

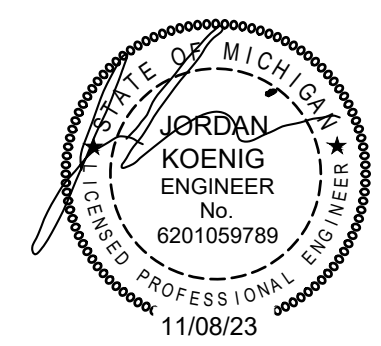


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DRAWING	D.F.P.
DESIGNED	J.E.
APP'D	J.K.
DATE:	11-20-23
ISSUED FOR	BIDS & PERMITS

TOILET ROOM RENOVATIONS for:  
HILTON ELEMENTARY SCHOOL  
9600 HILTON RD., BRIGHTON, MI 48114  
ELECTRICAL SPECIFICATIONS



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