2024/07/02

ADDENDUM NO. 2
TO CONTRACT DOCUMENT PLANS SPECIFICATIONS

PROJECT: **MWA METRO PARK WEST LANDFILL**
P-66 SCALEHOUSE CONSTRUCTION

TO: **PROSPECTIVE BIDDERS AND OTHER INTERESTED PARTIES**

The Contract Documents and Specifications, including the Contract Drawings, are hereby modified by the following items:

CHANGES TO DRAWINGS

AD-2 Item 1 SHEET E-101

A. REPLACE Sheet E-101 with the Sheet E-101 attached as a part of this Addendum No.2. Revisions includes revise power and data at workstations, added power for locker drawer heaters and revised USB receptacles for lockers.

AD-2 Item 2 SHEET E-111

A. REPLACE Sheet E-111 with the Sheet E-111 attached as a part of this Addendum No.2. Revision includes wall mount light fixture centered over ticket booth window.

AD-2 Item 3 SHEET E-601

A. REPLACE Sheet E-601 with the Sheet E-601 attached as a part of this Addendum No.2. Revisions include added circuit for lockers and revise load to circuit 9.

AD-2 Item 4 SHEET P-101

A. REPLACE Sheet P-101 with the sheet P-101 attached as a part of this Addendum No. 2. Revisions include the removal to the reference of a coffee maker and icemaker and replaced with reference to a refrigerator in the note for the SB-1.

AD-2 Item 5 SHEET P-501

A. REPLACE Sheet P-501 with the sheet P-501 attached as a part of this Addendum No. 2. Revisions include the removal of detail #6 ICE MACHINE CONNECTION DETAIL.

AD-2 Item 6 SHEET M-101

A. REPLACE Sheet M-101 with the sheet M-101 attached as a part of this Addendum No. 2. Revisions include addition of ductwork into data closet, updated ductwork sizing, and updates to sequence of operations.

AD-2 Item 7 SHEET M-601

A. REPLACE Sheet M-601 with the sheet M-601 attached as a part of this Addendum No. 2. Revisions include updates to louver schedule, fan schedule, electric air handling heat pump schedule, and removal of motor operated damper schedule.

AD-2 Item 8 SHEET A-102 – ARCHITECTURAL PLAN

A. REPLACE Sheet A-102 with the Sheet A-102 attached as part of this Addendum No. 2. Revisions include changes to painted wall surfaces, added door 102A and window types.

AD-2 Item 9 SHEET A-201– ARCHITECTURAL EXTERIOR ELEVATIONS

A. REPLACE Sheet A-201 with the Sheet A-201 attached as part of this Addendum No. 2. Revisions include changes to window types.

AD-2 Item 10 SHEET A-202 – ARCHITECTURAL INTERIOR ELEVATIONS & SECTIONS

A. REPLACE Sheet A-202 with the Sheet A-202 attached as part of this Addendum No. 2.

AD-2 Item 11 SHEET A-301 – ARCHITECTURAL INTERIOR ELEVATIONS & SECTIONS

A. REPLACE Sheet A-301 with the Sheet A-301 attached as part of this Addendum No. 2.

AD-2 Item 12 SHEET A-501 – ARCHITECTURAL INTERIOR ELEVATIONS & SECTIONS

A. REPLACE Sheet A-501 with the Sheet A-501 attached as part of this Addendum No. 2. Revisions include addition of detail 19/A-501.

AD-2 Item 13 SHEET A-601 – ARCHITECTURAL SCHEDULES

A. REPLACE Sheet A-601 with the Sheet A-601 attached as part of this Addendum No. 2. Revisions include added door 102A and window type changes.

AD-2 Item 14 SHEET A-602 – ARCHITECTURAL INTERIOR FINISHES

A. REPLACE Sheet A-602 with the Sheet A-602 attached as part of this Addendum No. 2. Revisions include changes to materials and paint selections.

CHANGES TO SPECIFICATIONS

AD-2 Item 15 SECTION 00 20 00 – EJCDC C-200 INSTRUCTIONS TO BIDDERS

A. REMOVE Article 3, 3.01, C AND 3.01, D

B. REMOVE Article 3, 3.02 AND 3.03

AD-2 Item 16 SECTION 00 45 10 – EJCDC C-451 QUALIFICATION STATEMENT

A. REMOVE entire Section.

AD-2 Item 17 SECTION 07 61 13 - METAL ROOFING

A. REVISE specification section 07 61 13 METAL ROOFING, DELETE paragraph 2.2.A.1.a. and replace with “2.2.A.1.a. Galvanized steel, ASTM A653/A653M, Class SS, Grade 37, G90. minimum.”

B. REVISE specification section 07 61 13 METAL ROOFING, DELETE paragraph 2.4.B.3. and replace with “2.4.B.3. Gage: Minimum 22.”

AD-2 Item 18 SECTION 07 42 16 - PREFORMED METAL PANELS

A. ADD to specifications section 07 42 16 PREFORMED METAL PANELS, paragraph 2.3.A.5. Color: to be selected from full range of colors including Thermaclad Panel colors options.

AD-2 Item 19 SECTION 08 51 13 – ALUMINUM WINDOWS

A. REVISE specification section 08 51 13 ALUMINUM WINDOWS, paragraph 2.1.A.2., change window type to “type F.”

B. REVISE specification section 08 51 13 ALUMINUM WINDOWS, paragraph 2.1.A.3.a.1).b)., replace existing text with “1’-6” w. X 2’-0” t., Window type D – manual slider window below ticket window.”

AD-2 Item 20 SECTION 08 51 13.13 – ALUMINUM WINDOWS – HORIZONTAL SLIDE

A. REVISE specification section 08 51 13.13 ALUMINUM WINDOWS – HORIZONTAL SLIDE, paragraph 2.1.A., change window type to “type B & G.”

AD-2 Item 21 SECTION 08 71 00 - DOOR HARDWARE

A. ADD to specification section 08 71 00 DOOR HARDWARE, Hardware Set 4.0: Door 102A.

AD-2 Item 22 SECTION 10 51 13 - METAL LOCKERS AND LOCKER BENCHES

A. ADD to specification section 10 51 13 METAL LOCKERS AND LOCKER BENCHES, paragraph 2.4.A.9. Lockers shall be, 24” W x 18” D x 72” T, single tier with doors, sloped top and closed base, top and bottom shelves, and USB connection point.

ADDITIONAL CLARIFICATIONS & INFORMATION

AD-2 Item 23 PROSPECTIVE BIDDER QUESTIONS AND RESPONSES NOT INCLUDED IN ABOVE ADDENDUM ITEMS

Question 1: Please confirm the thickness of the sidewalk? Also please confirm that it is on the east and west of the building, and not at the bottom of the ramp or stairs on the north and south ends?
Answer 1: The thickness of the sidewalk is 4-inches. Correct, there is sidewalk on the east and west of the building, but not at the bottom of the ramp or stairs on the north and south ends.

Question 2: Can a substitution request be submitted for the windows to single source?
Answer 2: Substitution requests will be considered after project award.

Question 3: Can a substitution request be submitted for a different liquid moisture barrier?
Answer 3: Substitution requests will be considered after project award.

Question 4: What septic system is called for on this project?
Answer 4: Septic system must meet Boone County ordinance, permit, and code requirements for the building occupancy and per perc test results. The septic field must also comply with IAC Chapter 69 requirements, including Appendix B – Percolation Test Procedure, and will be sized based on the Iowa 2003 Onsite Sewage Design and Reference Manual once perc test results are received. Project defines area for the septic field, and that a conventional septic system be installed. Contractor to submit shop drawings demonstrating compliance with regulatory requirements and perc test results.

Question 5: What is the plan in the future when it comes to the Air Handling Unit's refrigerant? Plans call for R410A but due to new regulations R410A is to be fazed out by January 1st, 2025.
Answer 5: Supply equipment, as specified.

A-2 Item 24 SUPPLEMENTAL GEOTECHNICAL INFORMATION

Providing previous geotechnical report from TEAM Services dated March 7, 2024

ALL ITEMS IN CONFLICT WITH THIS ADDENDUM ARE HEREBY DELETED.

THIS ADDENDUM IS MADE PART OF THE CONTRACT DOCUMENTS AND SHALL BE NOTED ON THE BID FORM.

HDR Engineering, Inc.

William Nicholson, PE on behalf of Katie Kinley, PE

Certified copy provided to Owner on July 2, 2024

KEYNOTES (##)

1 PROVIDE ROUGH-IN JUNCTION BOX WITH A CONDUIT PATHWAY TO DATA CABINET IN DATA 102 WITH PULL STRING. CARD READER AND ASSOCIATED CABLING PROVIDED BY OTHERS.

2 CEILING CAMERA LOCATION, PROVIDE CONDUIT PATHWAY TO DATA CABINET IN DATA 102 WITH PULL STRING. CAMERA AND ASSOCIATED CABLING PROVIDED BY OTHERS.

3 PROVIDE WIREMOLD 4000 SERIES IVORY COLORED COMBINATION POWER/DATA SURFACE METAL RACEWAY WITH DEVICES AT LOCATIONS SHOWN.

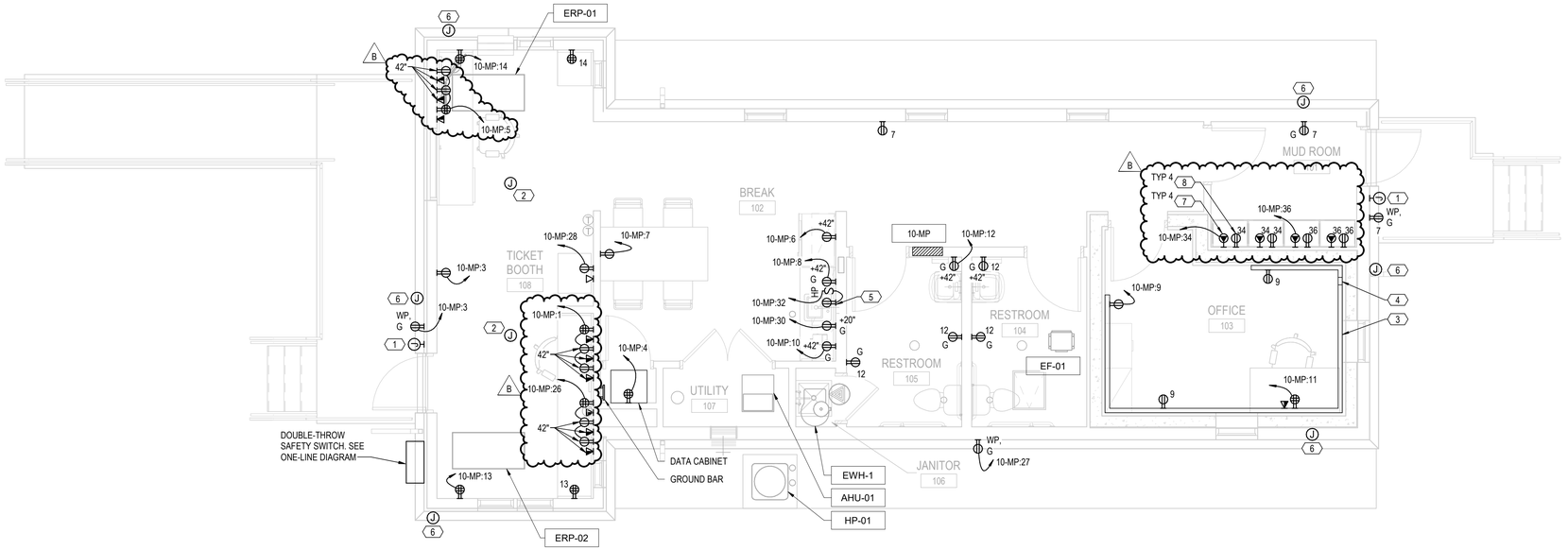
4 PROVIDE VERTICAL SECTION OF RACEWAY PER KEYNOTE 4 NEAR CORNER OF ROOM TO RISE UP ABOVE CEILING.

5 PROVIDE RECEPTACLE BELOW SINK WITH MATCHING CORD AND PLUG TO CONNECT GARBAGE DISPOSAL.

6 PROVIDE RECESSED JUNCTION BOX WITH WEATHERPROOF BLANK COVER AT 96" ABOVE FINISHED FLOOR LEVEL FOR FUTURE SECURITY CAMERA. PROVIDE 3/4" CONDUIT WITH PULL WIRE TO DATA CABINET.

B 7 PROVIDE SURFACE MOUNTED DEVICE BOX IN BACK OF LOCKER. COORDINATE HEIGHT AND LOCATION WITH LOCKER SUPPLIER TO CORRESPOND WITH SHELF IN LOCKER. PROVIDE LEVITON # USB4P-GY (OR APPROVED EQUAL) USB CHARGING DEVICE.

8 PROVIDE CONNECTION TO DRAWER HEATER FURNISHED WITH LOCKERS. COORDINATE REQUIREMENTS WITH LOCKER SUPPLIER.



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ARCHITECT	RANDALL MILBRATH
CIVIL ENGINEER	KATIE KINLEY
STRUCTURAL ENGINEER	CALEB ALLERHEILIGEN
ELECTRICAL ENGINEER	KEVIN VANDER KOLK
FIRE PROTECTION ENGINEER	ZACH SACHSENMAIER
MECHANICAL ENGINEER	JEFF LEWIS
PROJECT NUMBER	10386668

Metro Waste Authority

METRO PARK WEST SCALE HOUSE DESIGN

SCALE HOUSE ELECTRICAL POWER AND SYSTEMS PLAN

0 1" 2"

FILENAME 10386668-MEP.rvt

SCALE 1/4" = 1'-0"

SHEET E-101

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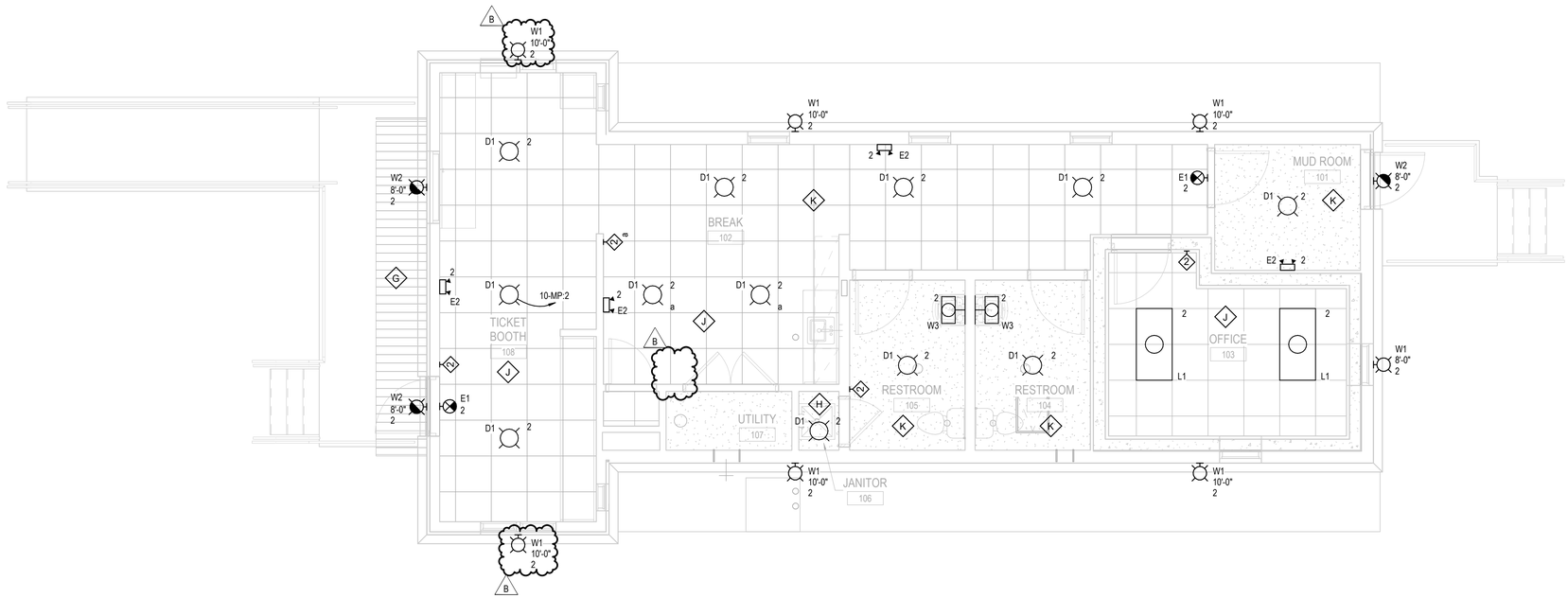

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Metro Waste Authority

METRO PARK WEST
SCALE HOUSE DESIGN

SCALE HOUSE
ELECTRICAL LIGHTING PLAN

0 1" 2"

FILENAME 10386668-MEP.rvt

SCALE 1/4" = 1'-0"

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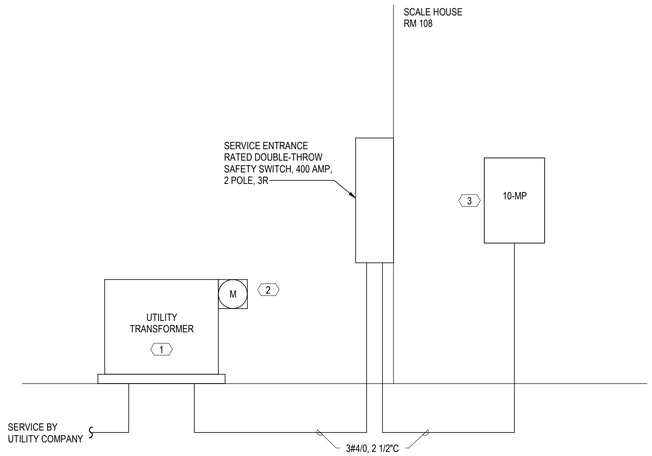

1 ELECTRICAL ONE-LINE RISER DIAGRAM

PANELBOARD NO: 10-MP

VOLTAGE:	120/240	**BUS RATING (A):**	225	**ENCLOSURE:**	NEMA 1
PHASE:	1	**MAIN OC DEVICE:**	225/2	**MOUNTING:**	RECESSED
WIRE:	3+GND	**INTERRUPTING RATING (KA):**	10	**LOCATION:**	ROOM 108
200% NEUTRAL:	NO	**SERVICE ENTRANCE LABEL:**	NO	**INTEGRAL SPD:**	**YES**

CKT NO.	DESCRIPTION	CONNECTED LOAD (VA) LTS	REC	MECH	MISC	OCP AMPS	P		OCP AMPS	P	CONNECTED LOAD (VA) LTS	REC	MECH	MISC	DESCRIPTION	CKT NO.
1	REC RM 108		720			20	1	A	20	1	649				LIGHTING	2
3	REC RM 108, EXT		360			20	1	B	20	1		360			REC DATA CABINET	4
5	REC RM 108		720			20	1	A	*20	1		500			REFRIGERATOR	6
7	REC RM 101, 102, EXT		720			20	1	B	20	1		180			REC RM 102	8
9	REC RM 103		540			20	1	A	20	1		180			REC RM 102	10
11	REC RM 103		360			20	1	B	20	1		720			REC RM 104, 105	12
13	REC RM 108		720			20	1	A	20	1		720			REC RM 108	14
15	EDH-01			7,500		100	2	B	15	2			360		ERP-01	16
17				7,500				A					360			18
19	AHU-01			564		15	2	B	15	2			360		ERP-02	20
21				564				A					360			22
23	DWH-01			3,000		40	2	B	15	1			180		EF-01	24
25				3,000				A	20	1		720			REC RM 108	26
27	REC EXTERIOR		200			20	1	B	20	1		180			REC RM 108	28
29	DRP-1			122		15	1	A	20	1		180			REC RM 102	30
31	HP-01			2,291		40	2	B	*20	1		180			GARBAGE DISPOSAL	32
33				2,291				A	20	1		500			LOCKERS	34
35	SPARE					20	1	B	20	1		500			LOCKERS	36
37	SPARE					20	1	A	20	1					SPARE	38
39	SPARE					20	1	B		2					SPD BRKR RATING PER MANUFACTURER	40
41	SPARE					20	1	A								42

LOAD SUMMARY

	LTS	REC	MECH	MISC	SPARE	TOTAL				PHASE BALANCE	
CONNECTED LOAD (KVA)	0.6	9.3	28.5	0.0	---	38.4		240	LINE-TO-LINE...	PHASE A (KVA)	20
DEMAND FACTOR	1.25	NEC	1.00	1.00	20%	---		160	CONNECTED AMPS	PHASE B (KVA)	18
DESIGN LOAD (KVA)	0.8	9.3	28.5	0.0	7.7	46.2		192	DESIGN AMPS		

* PROVIDE GFCI BREAKER

KEYNOTES (##)

1 PROVIDE FIBERGLASS TRANSFORMER PAD FOR UTILITY TRANSFORMER. COORDINATE WITH UTILITY COMPANY FOR SIZE AND REQUIREMENTS.

2 INSTALL METER SOCKET FURNISHED BY UTILITY COMPANY.

3 PROVIDE 2" CONDUIT WITH PULL WIRE FOR CONNECTION OF FUTURE SOLAR PANELS. COORDINATE LOCATION FOR FUTURE PANELS WITH OWNER AND STUB OUT CONDUIT ACCORDINGLY.

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Metro Waste Authority

METRO PARK WEST
SCALE HOUSE DESIGN

SCALE HOUSE
ELECTRICAL ONE-LINE RISER DIAGRAM AND PANEL SCHEDULE

0 1" 2"

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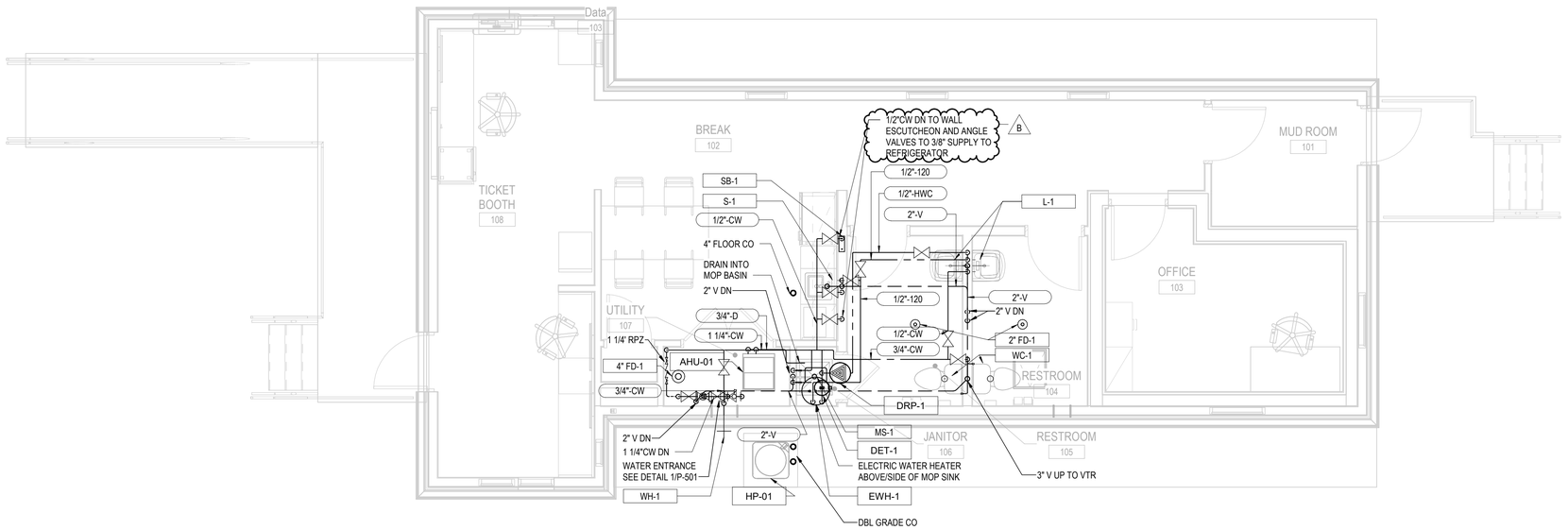
SHEET E-601



GENERAL NOTES

KEYNOTES

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METRO PARK WEST
SCALE HOUSE DESIGN

SCALE HOUSE
PLUMBING PLAN

0 1" 2"

FILENAME	10386668-MEP.rvt
SCALE	1/4" = 1'-0"

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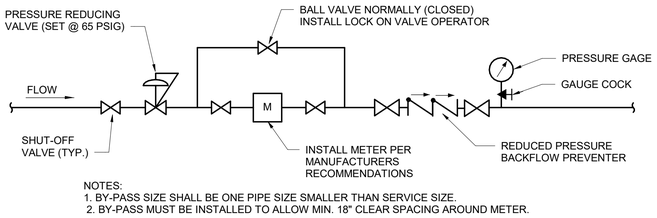
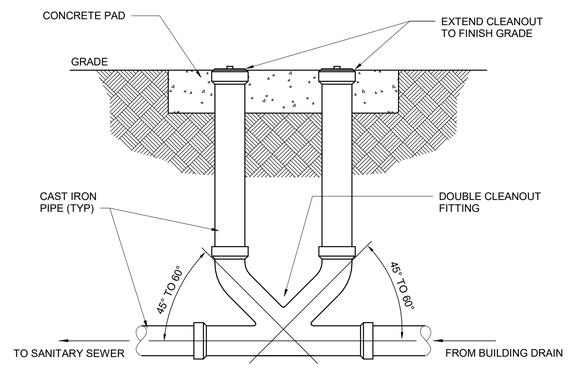
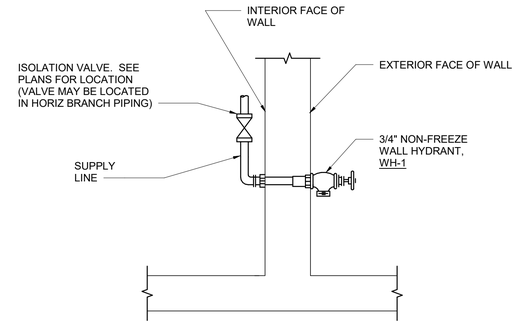


NOTES:
1. BY-PASS SIZE SHALL BE ONE PIPE SIZE SMALLER THAN SERVICE SIZE.
2. BY-PASS MUST BE INSTALLED TO ALLOW MIN. 18" CLEAR SPACING AROUND METER.

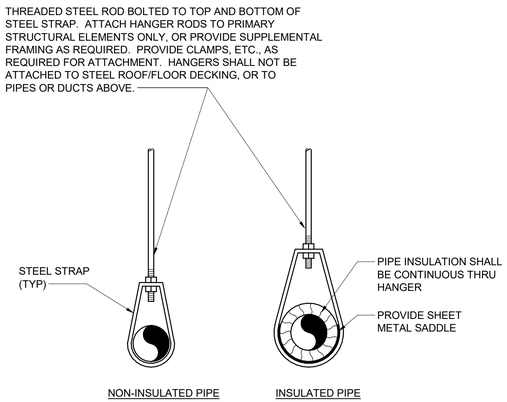
1 WATER SERVICE ENTRANCE DETAIL
NOT TO SCALE



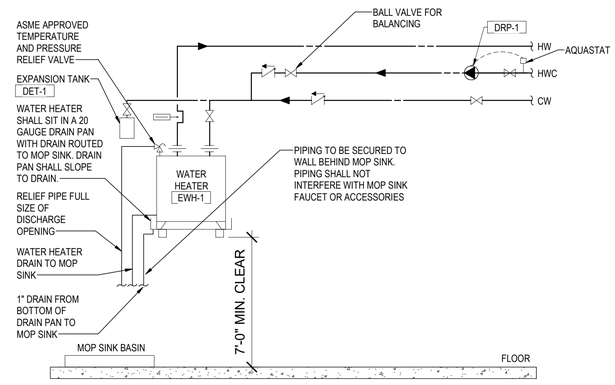
2 DOUBLE GRADE CLEANOUT DETAIL
NOT TO SCALE



3 WALL HYDRANT INSTALLATION DETAIL
NOT TO SCALE



4 INDIVIDUAL PIPE HANGER DETAIL
NOT TO SCALE



5 WATER HEATER (EWH-1) DETAIL
NOT TO SCALE

B

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Metro Waste Authority

METRO PARK WEST
SCALE HOUSE DESIGN

SCALE HOUSE
PLUMBING DETAILS

0 1" 2"

FILENAME 10386668-MEP.rvt
SCALE As indicated

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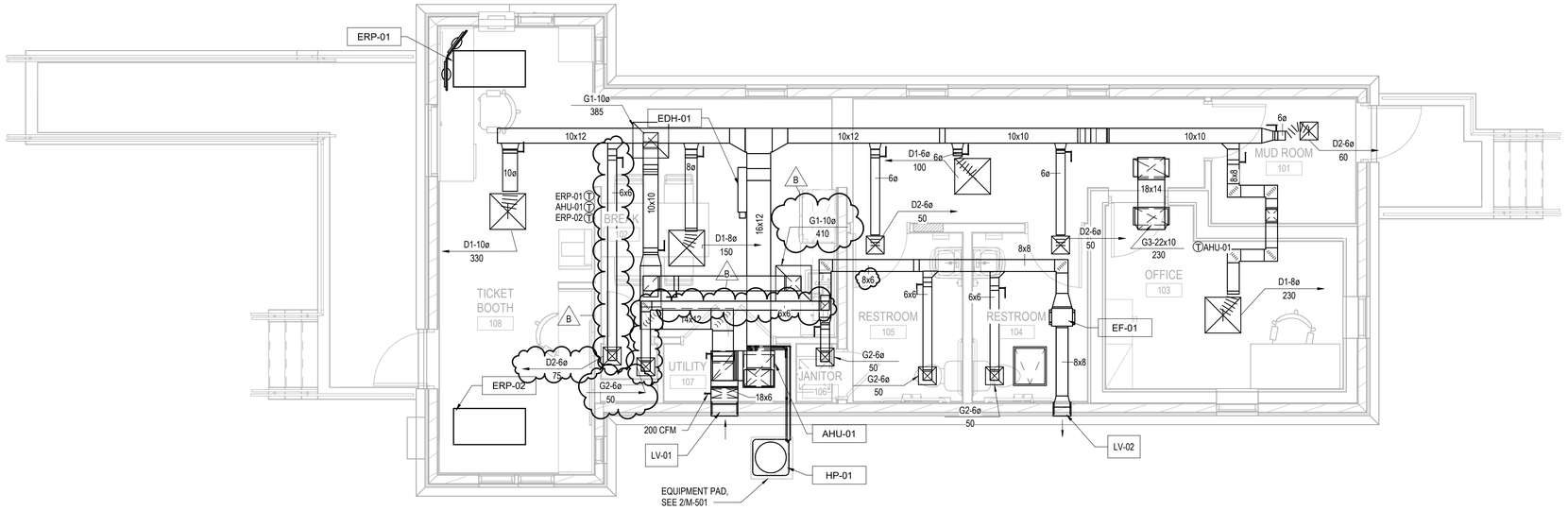
GENERAL NOTES

1. FOR SUPPLY AND RETURN DUCTWORK INTO OFFICE SPACE 103, DUCT SHALL BE CONSTRUCTED OF 12 GAUGE SHEET METAL WITH WELDED CONNECTION AT CONCRETE WALL.
2. AHU-01 THERMOSTATS IN TICKET BOOTH ROOM 108 AND OFFICE ROOM 103 SHALL BOTH BE AVERAGING THERMOSTATS FOR CONTROL OF AHU-01.

KEYNOTES (##)



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SEQUENCE OF OPERATIONS:

AIR HANDLING UNIT WITH ELECTRIC DUCT HEATER AND CONDENSING UNIT (AHU-01, EDH-01, HP-01):

OUTSIDE AIR DAMPER SHALL BE SET TO 200 CFM.

SPACE TEMPERATURE CONTROL WILL BE DETERMINED VIA A 7-DAY PROGRAMMABLE THERMOSTAT. SEE NOTE 2 IN GENERAL NOTES.

COOLING: ON A CALL FOR COOLING AHU-01 AND HP-01 SHALL OPERATE TO MAINTAIN SPACE COOLING SETPOINT OF 74°F (ADJUSTABLE). WHEN SPACE TEMPERATURE IS SATISFIED, HP-01 SHALL CYCLE OFF.

HEATING: ON A CALL FOR HEATING AHU-01 AND HP-01 SHALL OPERATE TO MAINTAIN SPACE HEATING SETPOINT OF 60°F (ADJUSTABLE). IF HP-01 IS NOT ABLE TO MAINTAIN SPACE TEMPERATURE, ELECTRIC DUCT HEATER, EDH-01, SHALL OPERATE TO MAINTAIN SPACE TEMPERATURE. WHEN SPACE TEMPERATURE IS SATISFIED, EDH-01 AND HP-01 SHALL CYCLE OFF.

EXHAUST FAN (EF-01):
FAN SHALL RUN CONTINUOUSLY.

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METRO PARK WEST
SCALE HOUSE DESIGN

SCALE HOUSE HVAC PLAN

0 1" 2"

FILENAME	10386668-MEP.rvt
SCALE	1/4" = 1'-0"
SHEET	M-101

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DIFFUSER, REGISTER AND GRILLE SCHEDULE

MARK	DESCRIPTION	MOUNTING	USE	FACE SIZE (IN)	NECK SIZE (IN)	MATERIAL	FINISH	MAX. N.C. AT P.D. SHOWN	ACCESSORIES	BASIS OF DESIGN	NOTES
D1	SQUARE, LOUVER FACE	LAY-IN	SUPPLY AIR	24X24	SEE PLAN	ALUMINUM	WHITE	30	--	TITUS TMS	
D2	SQUARE, LOUVER FACE	SURFACE MOUNT	SUPPLY AIR	12X12	SEE PLAN	ALUMINUM	WHITE	30	--	TITUS TMS	
G1	EGG-CRATE	LAY-IN	RET/EXH AIR	24X24	SEE PLAN	ALUMINUM	WHITE	30	--	TITUS 50F	1, 2
G2	EGG-CRATE	SURFACE MOUNT	RET/EXH AIR	12X12	SEE PLAN	ALUMINUM	WHITE	30	--	TITUS 50F	1, 2
G3	EGG-CRATE	LAY-IN	RET/EXH AIR	24X12	SEE PLAN	ALUMINUM	WHITE	30	--	TITUS 50F	1, 2

NOTES:
1. GRILLE SIZE SHALL BE 2" LARGER THAN NECK SIZE IN EACH DIMENSION (1" BORDER).
2. PROVIDE WITH INTEGRAL OPPOSED BLADE DAMPER (OBD) WHERE NO BALANCING DAMPER IS INDICATED IN BRANCH DUCT.

LOUVER SCHEDULE

MARK	LOCATION	SERVICE	SIZE (IN.)		CFM	MATERIAL	FINISH	FREE AREA (SQ FT)	VELOCIY (FPM)	MAX S.P. (IN. WG)	BASIS OF DESIGN	NOTES
			WIDTH	HEIGHT								
LV-01	UTILITY RM 107	INTAKE	18	18	200	ALUMINUM	PVDF	0.97	205	0.01	RUSKIN ELF 375 DX	1
LV-02	RESTROOM RM 104	EXHAUST	12	12	200	ALUMINUM	PVDF	0.34	595	0.07	RUSKIN ELF 375 DX	1

NOTES:
1. PROVIDE ALUMINUM BIRD SCREEN.

B

B

ELECTRIC DUCT HEATER UNIT SCHEDULE

MARK	LOCATION	CAP. (KW)	MIN. VEL. (FPM)	MOUNTING	DUCT SIZE (IN.)	VOLT	PH	HZ	AMPS	BASIS OF DESIGN	NOTES
EDH-01	BREAK ROOM	15	525	DUCT	16 X 12	240	1	60	62.5	INDEECO QUA	1, 2, 3

NOTES:
1. PROVIDE 4-20mA INPUT FOR SCR CONTROL.
2. PROVIDE WITH MANUFACTURER PROVIDED CONTROLLER.
3. PROVIDE DISCONNECT SWITCH. COORDINATE INSTALLATION WITH ELECTRICAL CONTRACTOR.

AIR TO AIR HEAT PUMP CONDENSING UNIT SCHEDULE

MARK	SERVES	REFR. TYPE	COOLING DATA		HEATING DATA		ELECTRICAL DATA				BASIS OF DESIGN	NOTES
			AMB. TEMP. (°F)	TOTAL CAP. (MBH)	AMB. TEMP. (°F)	TOTAL CAP. (MBH)	VOLT	PH	MCA (AMPS)	MOCP (AMPS)		
HP-01	AHU-01	R-410A	95.0	33.4	17.0	33.8	240	1	21.0	30.0	LENNOX EL18XPV-036-230	1, 2

NOTES:
1. PAIR WITH AHU-01 AND WIRED 7-DAY PROGRAMMABLE THERMOSTAT
2. PROVIDE UNIT WITH VARIABLE SPEED COMPRESSOR.

B

ELECTRIC AIR HANDLING HEAT PUMP

MARK	LOCATION	TOTAL CFM	MIN. OUTSIDE AIR (CFM)	EXT. STATIC PRESSURE	COOLING COIL DATA							HEATING DATA				ELECTRICAL DATA					BASIS OF DESIGN	NOTES
					E.A.T. (DB)	E.A.T. (WB)	L.A.T. DB (°F)	L.A.T. WB (°F)	TOTAL (MBH)	SENSIBLE (MBH)	SEER	FUEL TYPE	OUTPUT HIGH (MBH)	OUTPUT LOW (MBH)	HSPF	HP	VOLT	PH	FLA	MCA		
AHU-01	UTILITY RM	1045	200	0.50	80.1	67.0	56.9	56.6	33	24.8	18.0	ELECTRIC	33.8	21.0	9.6	0.50	240	1	4.1	5.2	LENNOX CBA27UHE-036	1, 2, 3

NOTES:
1. PROVIDE FILTER AND FILTER RACK
2. PAIR WITH WIRED 7-DAY PROGRAMMABLE THERMOSTAT
3. PROVIDE UNIT WITH VARIABLE SPEED COMPRESSOR.

ELECTRIC RADIANT CEILING PANEL SCHEDULE

MARK	LOCATION	WATTS	PANEL DATA			ELECTRICAL DATA				BASIS OF DESIGN	NOTES
			LENGTH (INCHES)	WIDTH (INCHES)	WEIGHT (LBS)	VOLT	PH	HZ	AMPS		
ERP-01	TICKET BOOTH	725	48	24	30	240	1	60	3.0	INDEECO AS2448-725-240	1, 2, 3
ERP-02	TICKET BOOTH	725	48	24	30	240	1	60	3.0	INDEECO AS2448-725-240	1, 2

NOTES:
1. PROVIDE WALL MOUNTED THERMOSTAT.
2. PROVIDE WITH MANUFACTURER'S RECESSED GRID CEILING MOUNT KIT.

B

FAN SCHEDULE

MARK	SERVES	FAN DATA					ELECTRICAL DATA					WEIGHT (LBS)	BASIS OF DESIGN	NOTES
		TYPE	CFM	EXT. S.P. (IN. WG)	DRIVE	RPM	HP	VOLT	PH	HZ	FLA			
EF-01	RESTROOMS	INLINE	200	0.33	DIRECT	1,030	0.04	120	1	60	1.5	24	GREENHECK CSP-A390-VG	1

NOTES:
1. PROVIDE HIGH EFFICIENCY MOTOR WITH INTEGRAL ELECTRONICALLY COMMUTATED MOTOR (ECM).

B

B

B	07/02/2024	ADDENDUM #2
A	06/14/2024	ISSUED FOR BID
ISSUE	DATE	DESCRIPTION

PROJECT MANAGER	KATIE KINLEY
ARCHITECT	RANDALL MILBRATH
CIVIL ENGINEER	KATIE KINLEY
STRUCTURAL ENGINEER	CALEB ALLERHEILIGEN
ELECTRICAL ENGINEER	KEVIN VANDER KOLK
FIRE PROTECTION ENGINEER	ZACH SACHSENMAIER
MECHANICAL ENGINEER	JEFF LEWIS
PROJECT NUMBER	10386668

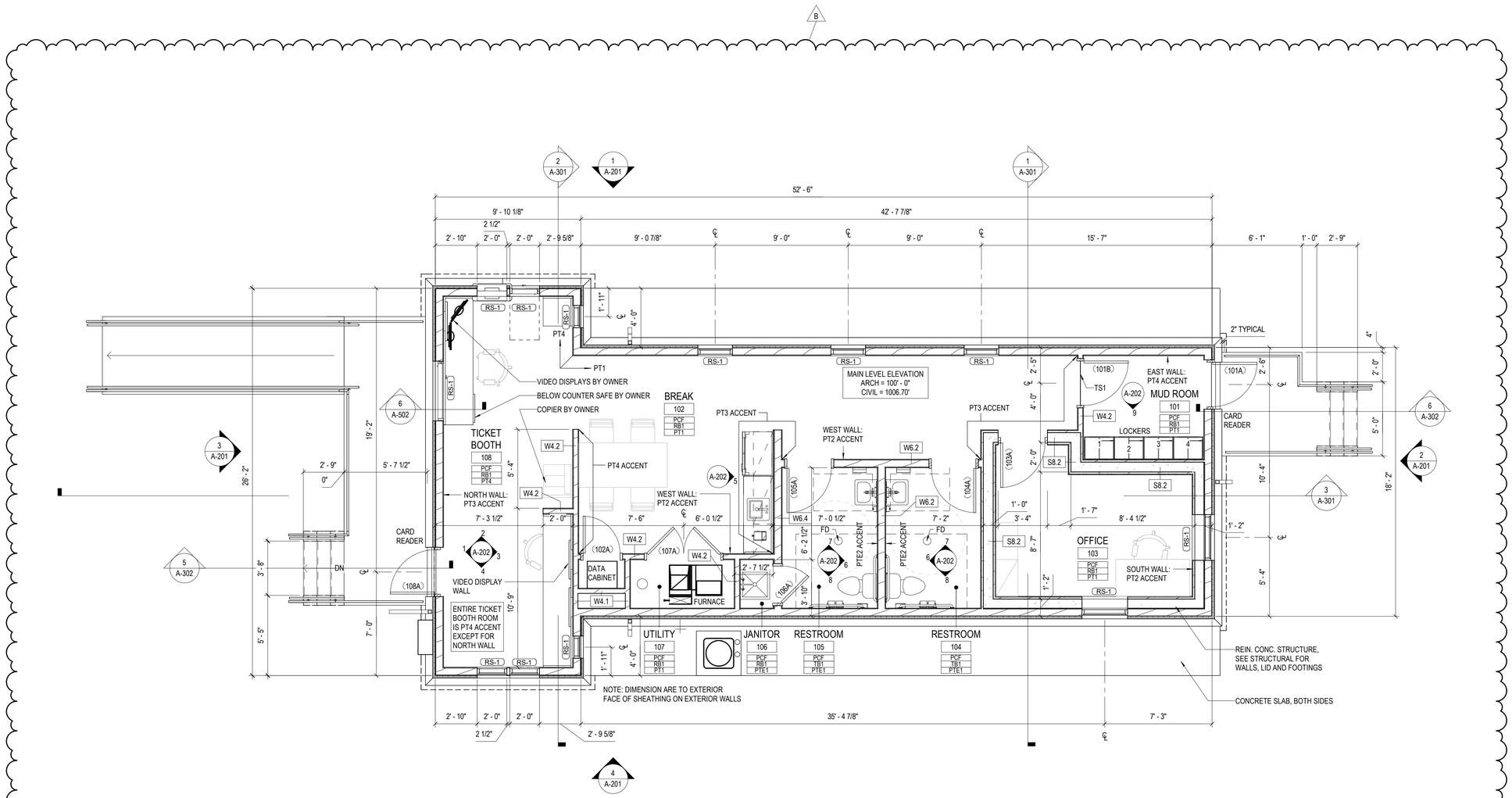
Metro Waste Authority
METRO PARK WEST
SCALE HOUSE DESIGN

SCALE HOUSE
HVAC SCHEDULES

0 1" 2"

FILENAME 10386668-MEP.rvt
SCALE

SHEET
M-601



GENERAL NOTES

1. DRAWINGS & SPECIFICATIONS ARE COMPLIMENTARY COMPONENTS OF THE CONTRACT DOCUMENTS. REVIEW ALL DRAWINGS AND SPECIFICATIONS FOR THE COMPLETE SCOPE OF WORK. NOTIFY ARCHITECT IMMEDIATELY FOR CLARIFICATION IN INCONSISTENCIES, CONTRADICTIONS OR OMISSIONS ARE DISCOVERED.
2. DO NOT SCALE DRAWINGS, IF DIMENSIONAL INFORMATION IS REQUIRED & NOT FOUND, NOTIFY ARCHITECT IMMEDIATELY FOR CLARIFICATION.
3. ALL DIMENSIONS ARE ACTUAL AND TO FINISH FACE OF INTERIOR PARTITIONS OR FACE OF CONCRETE WALLS AND TO EXTERIOR FACE OF SHEATHING AT EXTERIOR WALLS, UNO.
4. ALL INTERIOR WALLS ARE AS TAGGED AND PER WALL TYPES DETAIL. REFER TO INTERIOR WALL PARTITION TYPE ASSEMBLIES LEGEND BELOW.
5. VERIFY MECHANICAL AND ELECTRICAL DRAWINGS FOR SCOPE AND INTERFACE. CONTACTOR SHALL COORDINATE LOCATION FOR ALL MECHANICAL AND ELECTRICAL ITEMS WITH GENERAL CONSTRUCTION. REVIEW ANY DISCREPANCIES WITH THE ENGINEER PRIOR TO INSTALLATION AND/OR FABRICATION.
6. IT IS THE INTENT OF THIS CONTRACT THAT ALL AREAS AFFECTED BY CONSTRUCTION BE FINISHED & COMPLETE PROJECT. CONTRACTOR SHALL PATCH, REPAIR & ADJUST AS REQUIRED TO ACHIEVE THIS FINISHED PROJECT.
7. REFER TO A-202 FOR TOILET ACCESSORY LEGEND.
8. REFER TO A-601 FOR DOOR AND WINDOW SCHEDULES/LEGENDS, AND DOOR AND WINDOW TYPES.
9. ALL STRUCTURAL STOOPS TO SLOPE AWAY FROM FACE OF BUILDING, SEE STRUCTURAL DRAWINGS.
10. PROVIDE SOUND ATTENTUATION INSULATION AT ALL WALLS & CEILINGS OF RESTROOMS AND UTILITY ROOM.

PARTITION TYPE ASSEMBLIES

W4.1	SINGLE LAYER 5/8" GWB ONE SIDE - 2x4 STUDS @ 16" O.C.
W4.2	SINGLE LAYER 5/8" GWB BOTH SIDES - 2x4 STUDS @ 16" O.C.
W6.2	SINGLE LAYER 5/8" GWB BOTH SIDES - 2x6 STUDS @ 16" O.C.
W6.4	SINGLE LAYER 5/8" GWB BOTH SIDES, PLYWOOD SHEATHING ONE SIDE - 2x6 STUDS @ 16" O.C.; SEE STRUCTURAL.
S8.1	8" REINFORCED CONCRETE WALL W/ FURRING ON ONE SIDE - SINGLE LAYER 5/8" GWB OVER 1 1/2" FURRING; SEE STRUCTURAL.
S8.2	8" REINFORCED CONCRETE WALL W/ FURRING ON BOTH SIDES - SINGLE LAYER 5/8" GWB OVER 1 1/2" FURRING; SEE STRUCTURAL.

FINISHES LEGEND

FLOOR —X
BASE TRIM —X
WALL —X

PCF	POLISHED CONCRETE
TB1	TILE COVE BASE
RB1	RESILIENT BASE
PT1	PAINT
PT2	PAINT
PT3	PAINT
PT4	PAINT
PTE1	EPOXY PAINT
PTE2	EPOXY PAINT
RS-1	MANUAL ROLLER SHADE

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MECHANICAL ENGINEER	JEFF LEWIS
PROJECT NUMBER	10386668

Metro Waste Authority
METRO PARK WEST
SCALE HOUSE DESIGN

SCALE HOUSE
ARCHITECTURE PLAN

0 1" 2"

FILENAME 10386668-SAF.rvt
SCALE 1/4" = 1'-0"

SHEET A-102

Autodesk Docs://10386668_MWA_MPW_Scalehouse_Design_2022/10386668-SAF.rvt
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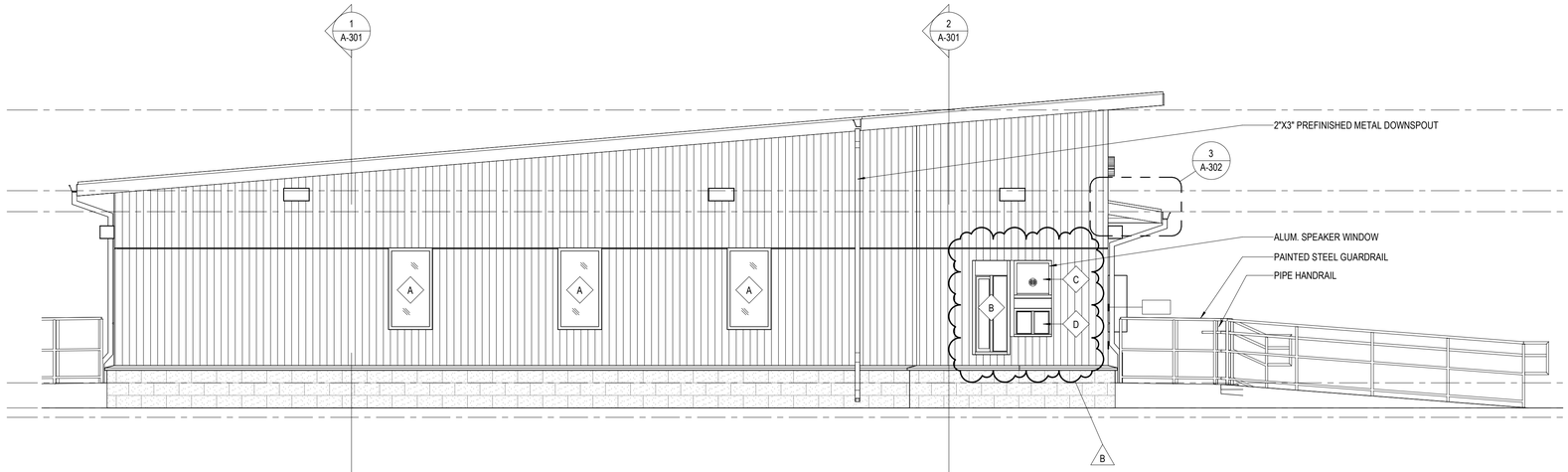
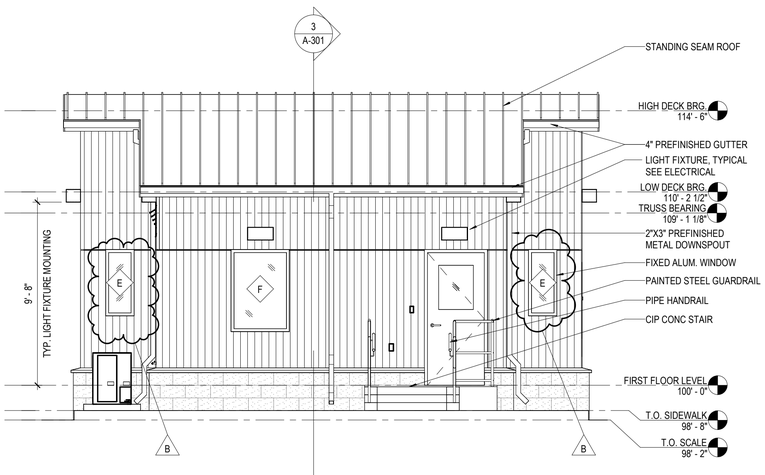


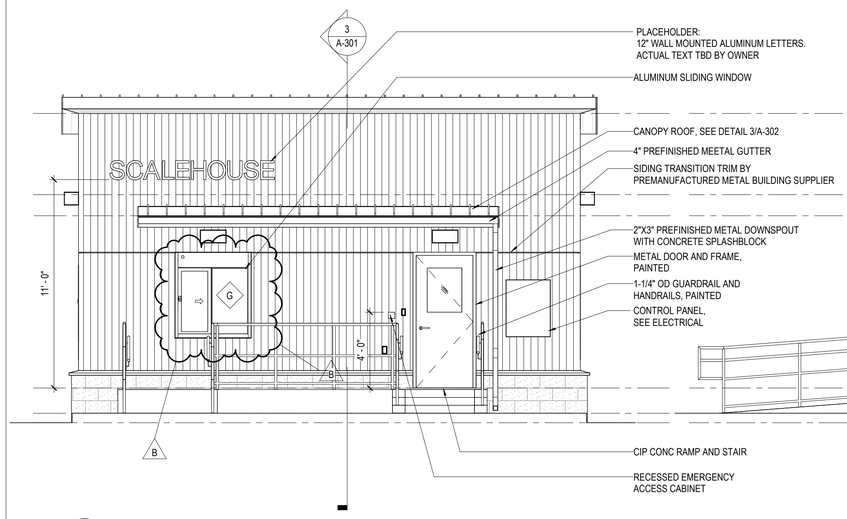
1 EAST ELEVATION

1/4" = 1'-0"



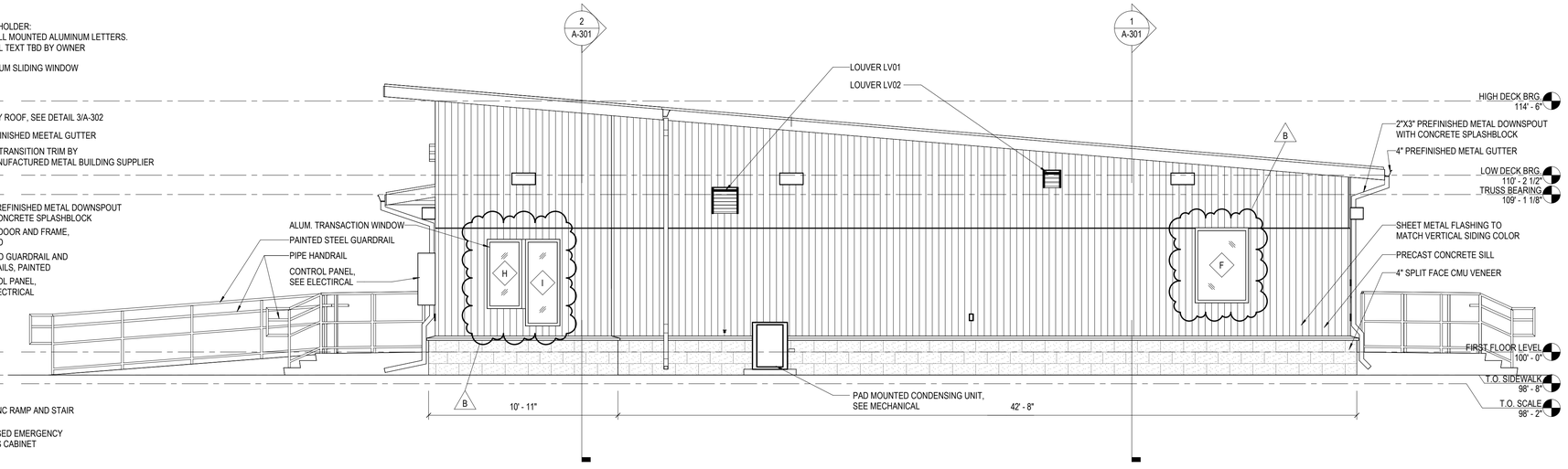
2 SOUTH ELEVATION

1/4" = 1'-0"



3 NORTH ELEVATION

1/4" = 1'-0"



4 WEST ELEVATION

1/4" = 1'-0"

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PROJECT NUMBER	10386668

Metro Waste Authority

METRO PARK WEST
SCALE HOUSE DESIGN

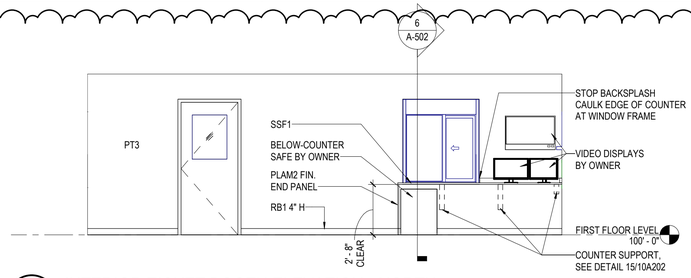
SCALE HOUSE
ARCHITECTURE EXTERIOR ELEVATIONS

0 1" 2"

FILENAME 10386668-SAF.rvt

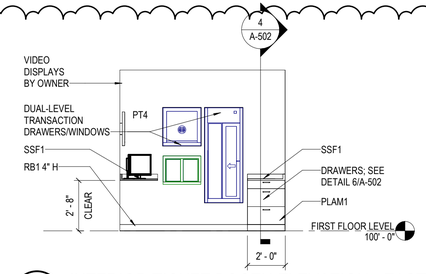
SCALE 1/4" = 1'-0"

SHEET **A-201**



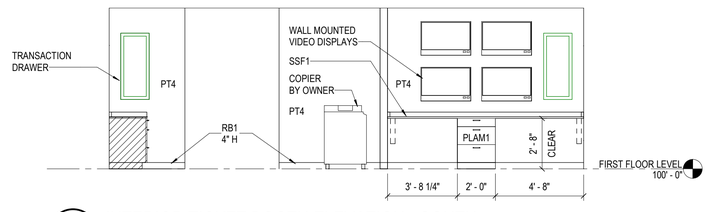
1 INTERIOR TICKET BOOTH ELEVATION - NORTH

1/4" = 1'-0"



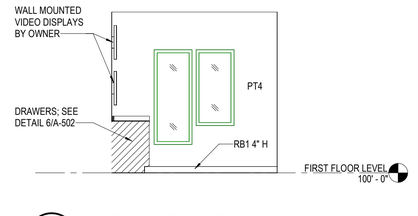
2 INTERIOR TICKET BOOTH ELEVATION - EAST

1/4" = 1'-0"



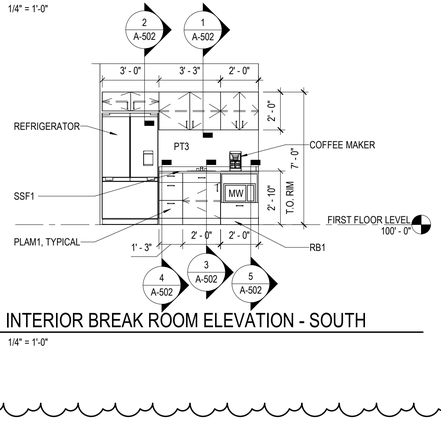
3 INTERIOR TICKET BOOTH ELEVATION - SOUTH

1/4" = 1'-0"



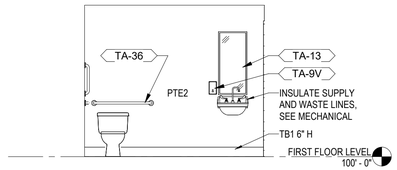
4 INTERIOR TICKET BOOTH ELEVATION - WEST

1/4" = 1'-0"



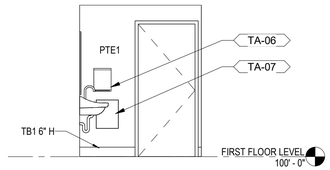
5 INTERIOR BREAK ROOM ELEVATION - SOUTH

1/4" = 1'-0"



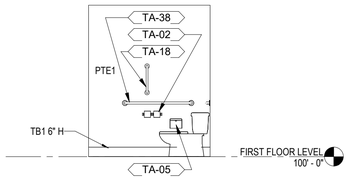
6 INTERIOR RESTROOM ELEVATION

1/4" = 1'-0"



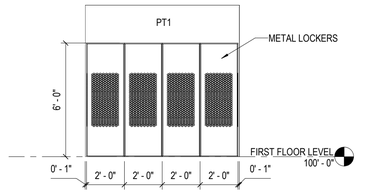
7 INTERIOR RESTROOM ELEVATION

1/4" = 1'-0"



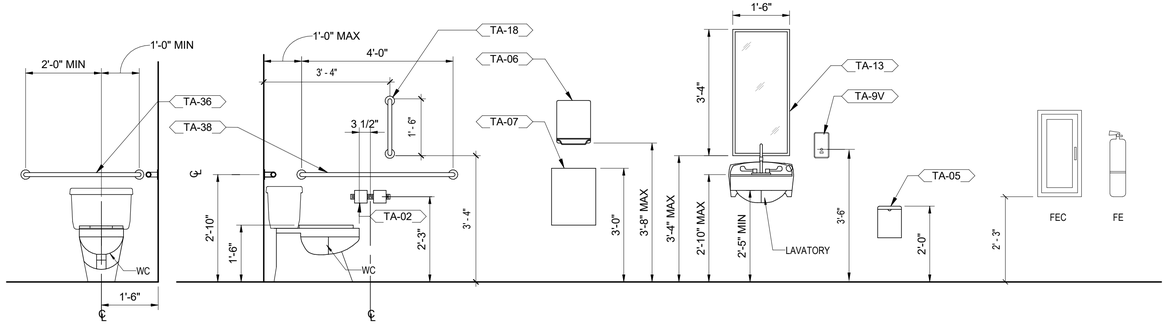
8 INTERIOR RESTROOM ELEVATION

1/4" = 1'-0"



9 INTERIOR MUD ROOM ELEVATION - WEST

1/4" = 1'-0"



TOILET ACCESSORY LEGEND:

TA-02:	TOILET TISSUE DISPENSER (DOUBLE NON-CONTROLLED)
TA-05:	FEMININE NAPKIN DISPOSAL
TA-06:	PAPER TOWEL DISPENSER
TA-07:	WASTE RECEPTACLE
TA-9V:	LIQUID SOAP DISPENSER
TA-13:	MIRROR SIZE INDICATED ON DRAWINGS.
TA-18:	GRAB BAR; 18"
TA-36:	GRAB BAR; 36"
TA-38:	GRAB BAR; 48"

13 TOILET ACCESSORY MOUNTING

1/2" = 1'-0"

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MECHANICAL ENGINEER	JEFF LEWIS
PROJECT NUMBER	10386668

Metro Waste Authority

METRO PARK WEST
SCALE HOUSE DESIGN

SCALE HOUSE
ARCHITECTURE INTERIOR ELEVATIONS & SECTIONS

0 1" 2"

FILENAME 10386668-SAF.rvt
SCALE As indicated

SHEET
A-202

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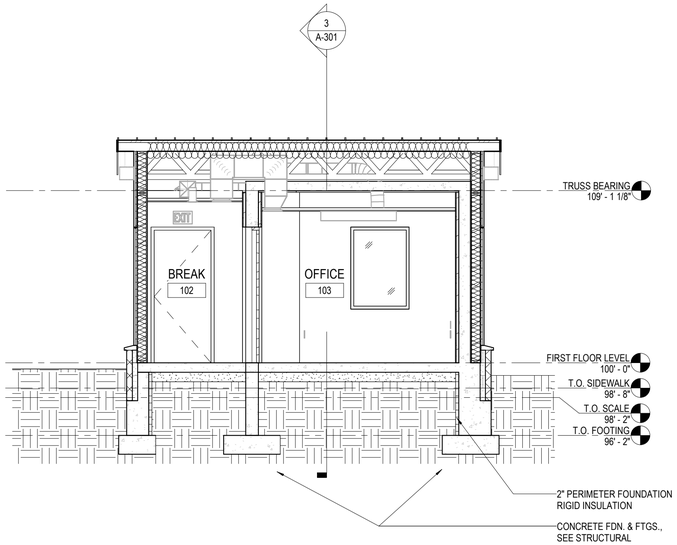
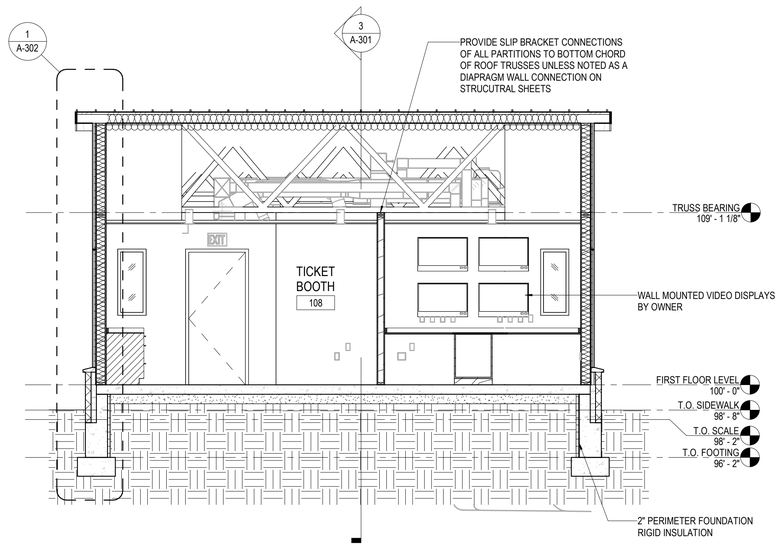


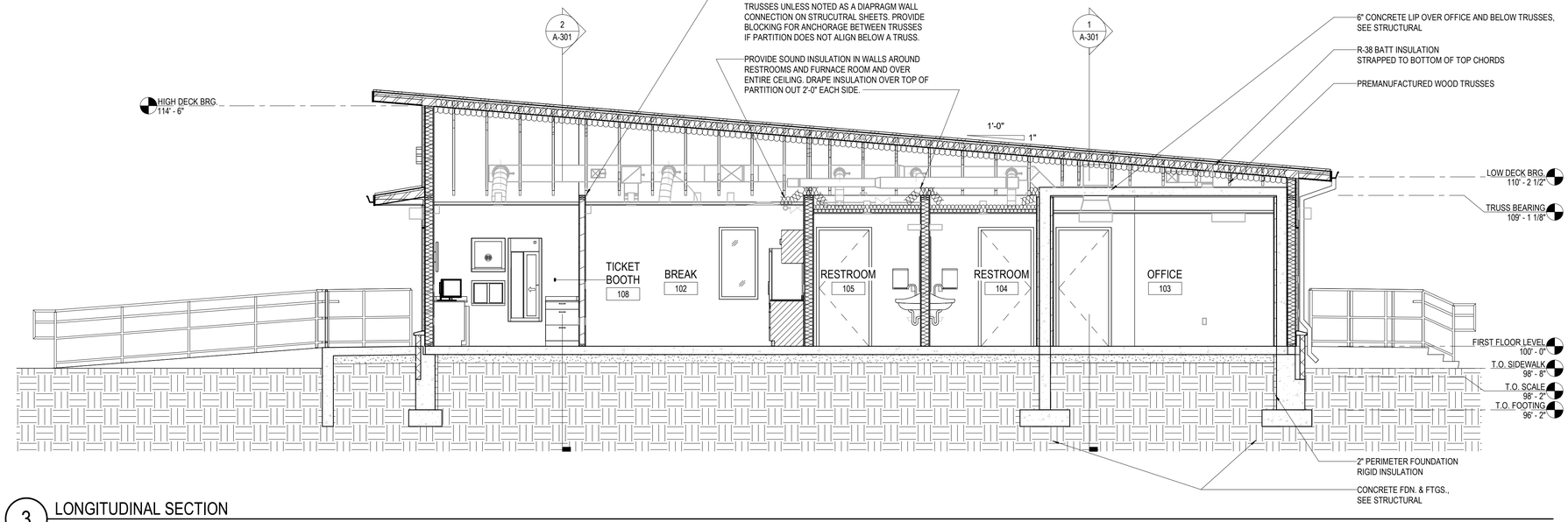
1 CROSS SECTION

1/4" = 1'-0"



2 CROSS SECTION

1/4" = 1'-0"



3 LONGITUDINAL SECTION

1/4" = 1'-0"

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PROJECT NUMBER	10386668

Metro Waste Authority

METRO PARK WEST
SCALE HOUSE DESIGN

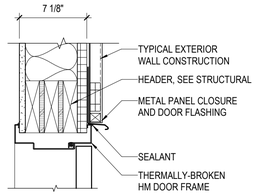
SCALE HOUSE
ARCHITECTURE BUILDING SECTIONS

0 1" 2"

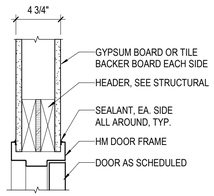
FILENAME 10386668-SAF.rvt

SCALE 1/4" = 1'-0"

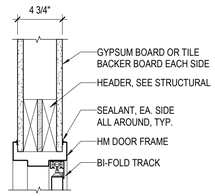
SHEET A-301



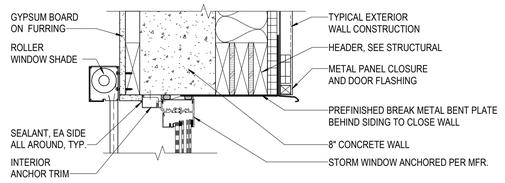
1 HM DOOR HEAD IN EXT. WOOD STUD WALL
1 1/2" = 1'-0"



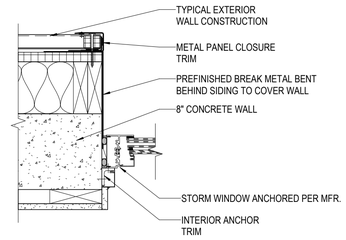
2 HM DOOR HEAD IN WOOD STUD WALL
1 1/2" = 1'-0"



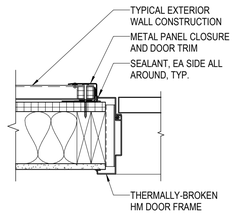
3 HM BI-FOLD DOOR HEAD IN WOOD STUD WALL
1 1/2" = 1'-0"



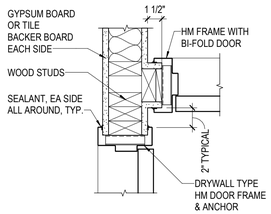
13 STORM WINDOW HEAD IN EXT. WALL
1 1/2" = 1'-0"



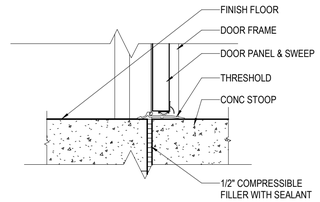
14 STORM WINDOW JAMB IN EXT. WALL
1 1/2" = 1'-0"



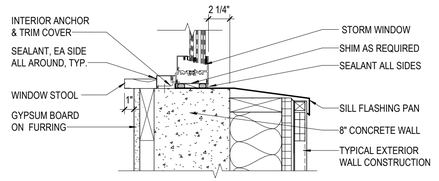
4 HM DOOR JAMB IN EXT. WOOD STUD WALL
1 1/2" = 1'-0"



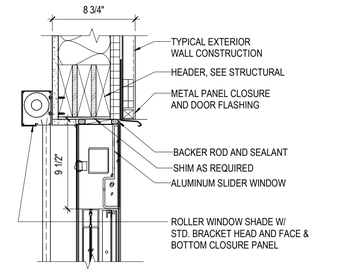
5 HM DOOR CORNER JAMB IN WOOD STUD WALL
1 1/2" = 1'-0"



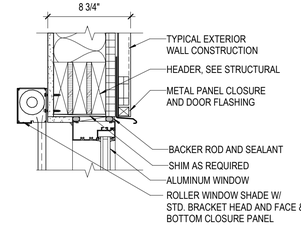
6 HM DOOR SILL
1 1/2" = 1'-0"



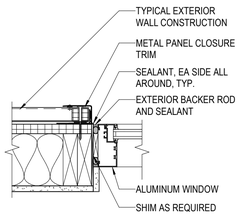
15 STORM WINDOW SILL IN EXT. WALL
1 1/2" = 1'-0"



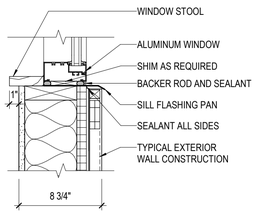
16 SLIDING WINDOW HEAD IN EXT. WOOD STUD WALL
1 1/2" = 1'-0"



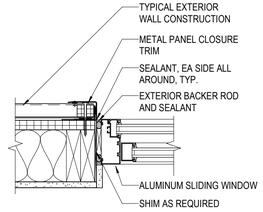
7 WINDOW HEAD IN EXT. WOOD STUD WALL
1 1/2" = 1'-0"



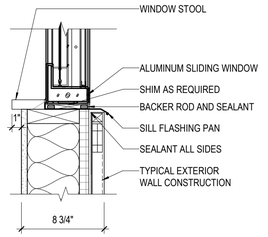
8 WINDOW JAMB IN EXT. WOOD STUD WALL
1 1/2" = 1'-0"



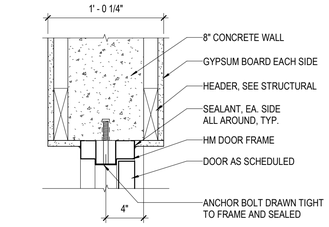
9 WINDOW SILL IN EXT. WOOD STUD WALL
1 1/2" = 1'-0"



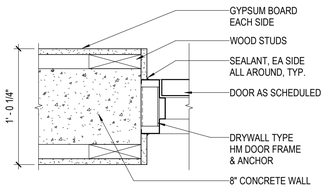
17 SLIDING WINDOW JAMB IN EXT. WOOD STUD WALL
1 1/2" = 1'-0"



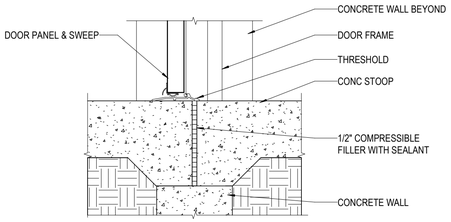
18 SLIDING WINDOW SILL IN EXT. WOOD STUD WALL
1 1/2" = 1'-0"



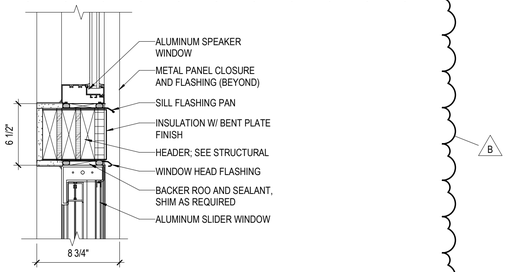
10 HM DOOR HEAD IN CONCRETE WALL
1 1/2" = 1'-0"



11 HM DOOR JAMB IN CONCRETE WALL
1 1/2" = 1'-0"



12 HM DOOR CONCRETE SILL
1 1/2" = 1'-0"



19 SLIDING WINDOW/SPEAKER WINDOW HEAD/SILL
1 1/2" = 1'-0"

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MECHANICAL ENGINEER	JEFF LEWIS
PROJECT NUMBER	10386668

Metro Waste Authority

METRO PARK WEST
SCALE HOUSE DESIGN

SCALE HOUSE ARCHITECTURE DETAILS

0 1" 2"

FILENAME 10386668-SAF.rvt

SCALE 1 1/2" = 1'-0"

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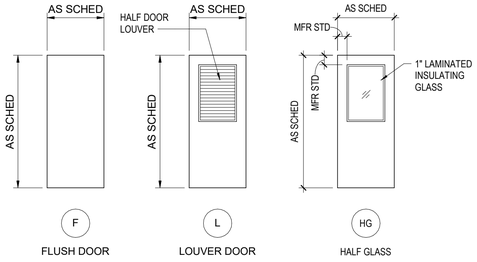
DOOR SCHEDULE

DOOR NUMBER		WIDTH	HEIGHT	DOOR TYPE	DOOR MATERIAL	DOOR FINISH	FRAME TYPE	FRAME MATERIAL	FRAME FINISH	RATING	HARDWARE SET	DETAILS HEAD	DETAILS JAMB	DETAILS SILL	*REMARKS
101A		3' - 0"	7' - 0"	HG	HM	PT	1	HM	PT	--	1.0	1/A-501	4/A-501	6/A-501	
101B		3' - 0"	7' - 0"	F	WD	FAS	1	HM	PT	--	6.0	2/A-501	5/A-501	-	
102A		2' - 6"	7' - 0"	L	WD	FAS	1	HM	PT	--	4.0	2/A-501	5/A-501	-	
103A		3' - 0"	7' - 0"	F	HM	PT	1	HM	PT	--	2.0	10/A-501	11/A-501	12/A-501	
104A		3' - 0"	7' - 0"	F	WD	FAS	1	HM	PT	--	5.0	2/A-501	5/A-501	-	
105A		3' - 0"	7' - 0"	F	WD	FAS	1	HM	PT	--	5.0	2/A-501	5/A-501	-	
106A		2' - 6"	7' - 0"	F	WD	FAS	1	HM	PT	--	4.0	2/A-501	5/A-501	-	
107A	PR	2' - 6"	7' - 0"	F	WD	FAS	1	HM	PT	--	3.0	2/A-501	5/A-501	-	
108A		3' - 0"	7' - 0"	HG	HM	PT	1	HM	PT	--	1.0	1/A-501	4/A-501	6/A-501	

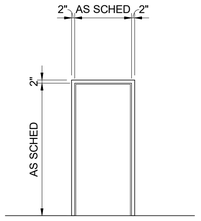
MATERIAL AND FINISH LEGEND

MATERIAL		FINISH	
HM	HOLLOW METAL	PT	PAINT
WD	WOOD	FAS	FACTORY APPLIED STAIN

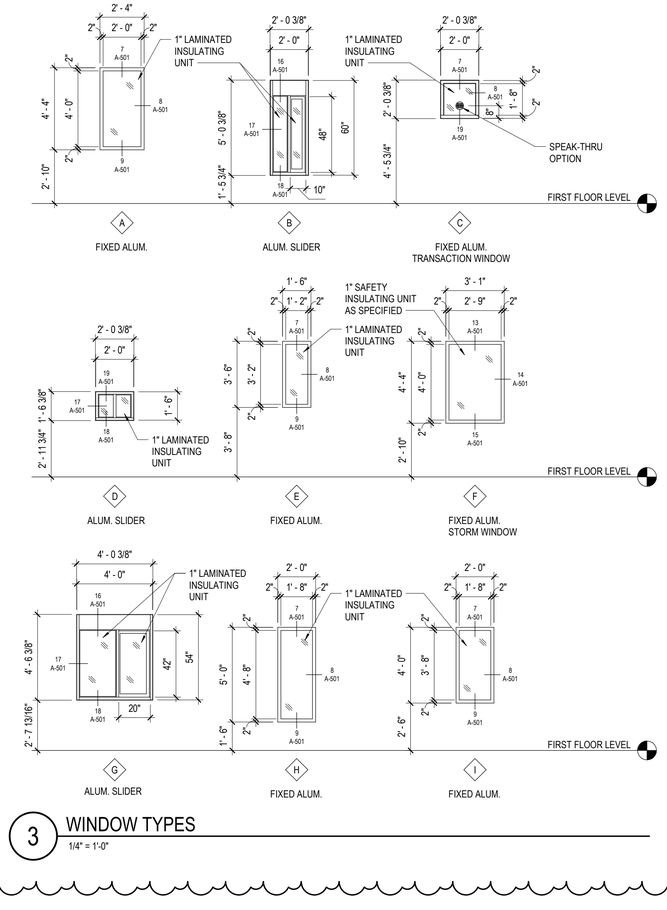
REMARKS:
1.



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



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



3 WINDOW TYPES
1/4" = 1'-0"

B

B 07/02/2024 ADDENDUM #2
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Metro Waste Authority
METRO PARK WEST
SCALE HOUSE DESIGN

SCALE HOUSE
ARCHITECTURE SCHEDULES

0 1" 2"

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FINISH LEGEND

SPECIFICATION	CODE	DESCRIPTION	MFG	SERIES	COLOR	FINISH	SIZE	INSTALL METHOD	COMMENTS
POLISHED CONCRETE FINISHING									
03 35 43	PCF	POLISHED CONCRETE	SEE SPECIFICATIONS						-
ARCHITECTURAL CASEWORK									
06 41 00	PLAM1	PLASTIC LAMINATE	FORMICA	-	GRAYED OAK 5791-PG	PURE GRAIN	-	-	BREAK ROOM
TILE									
09 30 00	TB1	TILE COVE BASE	CROSSVILLE	GOTHAM, AV326.10612CBS	PAVEMENT	STANDARD	6" X 12", 3/8" THICKNESS	-	MAPEI COLOR 47 CHARCOAL GROUT
ACOUSTICAL CEILINGS (ACT)									
09 51 00	ACT1	ACOUSTICAL CEILING PANELS	ARMSTRONG	ULTIMA. 15/16 BEVELED TEGULAR, ITEM NO. 1911	WHITE	BEVELED TEGULAR	24" X 24" X 3/4" THICKNESS	USE WITH PRELUDE 15/16" GRID	MAIN CEILING TILE
09 51 00		GRID:	ARMSTRONG	15/16" PRELUDE XL	WHITE	---	---	---	---
RESILIENT BASE (RB)									
09 65 13	RB1	RESILIENT BASE	ROPPE	PINNACLE RUBBER BASE	197 ICEBERG	-	4 " HIGH	-	-
INTERIOR PAINTING									
09 91 23	PT1	PAINT	SHERWIN WILLIAMS	-	PASSIVE SW7064	EGGSHELL	-	-	MAIN WALL PAINT
09 91 23	PT2	PAINT	SHERWIN WILLIAMS	-	BLUE PLATE SW6796	EGGSHELL	-	-	ACCENT WALL PAINT
09 91 23	PT3	PAINT	SHERWIN WILLIAMS	-	CITYSCAPE SW7067	EGGSHELL	-	-	ACCENT WALL PAINT
09 91 23	PT4	PAINT	SHERWIN WILLIAMS	-	STAY IN LIME SW9032	EGGSHELL	-	-	ACCENT WALL PAINT
09 91 23	PT5	PAINT	SHERWIN WILLIAMS	-	PASSIVE SW7064	SEMI-GLOSS			DOORS AND FRAMES
09 91 23	PTE1	EPOXY PAINT	SHERWIN WILLIAMS	-	PASSIVE SW7064	EPOXY	-	-	RESTROOM WALL PAINT
09 91 23	PTE2	EPOXY PAINT	SHERWIN WILLIAMS		STAY IN LIME SW9032	EPOXY			RESTROOM ACCENT WALL PAINT
09 91 23	PTE3	EPOXY PAINT	SHERWIN WILLIAMS	-	CEILING BRIGHT WHITE SW7007	EPOXY	-	-	CEILING IN RESTROOMS
ROLLER WINDOW SHADES									
12 24 13	RS1	MANUAL ROLLER SHADE	SWF CONTRACT	R SERIES MANUAL SOLAR SHADE	CROSSHATCH R300, EBONY/STONE C8218	3% OPENNESS	SURFACE MOUNTED	-	USE AT ALL EXTERIOR WINDOWS UNLESS OTHERWISE NOTED
SOLID SURFACE FABRICATIONS									
12 36 63	SSF1	SOLID SURFACE	FORMICA	-	416 LUNA PEWTER	-	-	-	COUNTERTOPS/WORKSURFACES

INTERIOR FINISH ABBREVIATION SCHEDULE

FLOOR/BASE	
PCF	POLISHED CONCRETE FLOOR
EXIST	EXISTING
RT	RESILIENT TILE
TB	TILE BASE
RB	RESILIENT BASE
WCPT	WALK-OFF CARPET TILE
WALLS	
T	TILE
PT	PAINT
PTE	EPOXY PAINT
CELINGS	
ACT	ACOUSTICAL CEILING TILE
GWB	GYPSUM WALLBOARD
PT	PAINT
MISCELLANEOUS	
PLAM	PLASTIC LAMINATE
RS	ROLLER SHADE
SC	SHOWER CURTAIN
SSF	SOLID SURFACE FABRICATION
TS	TRANSITION STRIP

B

B

INTERIOR GENERAL NOTES

1. INTERIOR FINISH LEGEND IS FOR MATERIAL DESCRIPTION AND ASSIGNMENT ONLY:
   A. USE IN CONJUNCTION WITH THE ARCHITECTURAL SPECIFICATIONS AND DRAWINGS.
   B. BRING ANY APPARENT ERROR, INCONSISTENCY, OR OMISSION TO THE ATTENTION OF THE ARCHITECT BEFORE PROCEEDING.
   C. FIELD VERIFY EXISTING CONDITIONS OF SIMILAR ROOMS WHEN MATCHING FINISHES FOR THE SAME ROOM TYPE WITHIN THIS PROJECT.
2. GENERAL NOTES:
   A. AESTHETICS ARE A VERY IMPORTANT PART OF THIS PROJECT:
      1. ANY PROPOSED CHANGE IMPACTING APPEARANCE PRIOR TO THE BID REQUIRES SUBMITTAL OF ALTERNATE REQUESTS.
      2. ANY PROPOSED CHANGE IMPACTING APPEARANCE AFTER THE BID REQUIRES SUBMITTAL OF A SUBSTITUTION REQUEST.
   B. PROVIDE CONSISTENT MATERIAL COLORS AND PATTERNS IN EACH ROOM OR AREA. IF REQUIRED FOR CONSISTENCY, PROVIDE MATERIALS FRO...
3. TYPICAL FINISHES:
   A. SEE ROOM FINISH TAG ON DRAWINGS FOR FINISH INFORMATION.
      1. WHERE MULTIPLE FINISHES ARE LISTED ON ROOM FINISH TAG, REFER TO ADDITIONAL NOTES AND ELEVATIONS FOR LOCATION AND EXTENTS...
      2. ALIGN FINISHES IF THEY APPEAR TO ALIGN WITH A WALL CORNER, CASEWORK, OR OTHER BUILT COMPONENT.
      3. NOT ALL "ALIGNED" FINISHES ARE NOTED.
   B. HOLLOW METAL DOORS AND FRAMES SHALL BE PT6 UNLESS OTHERWISE NOTED.
   C. IN TOILET ROOMS WHERE WALL FINISH IS TILE, INSTALL TILE TO FLOOR AND CAULK SEAM. TILE BASE NOT REQUIRED.
4. PAINT:
   A. WHERE ITEMS OR SURFACES ARE NOT SPECIFICALLY MENTIONED, BRING TO THE ATTENTION OF ARCHITECT.
   B. GRILLS, DIFFUSERS, ELECTRICAL PANELS, ACCESS PANELS, ETC., WHICH ARE EXPOSED IN FINISH SPACES SHALL BE PAINTED TO MATCH ADJACEN...
      1. PAINT INTERIOR SURFACES OF DUCTS FLAT BLACK WHERE SURFACES ARE VISIBLE THROUGH GRILLS OR DIFFUSERS.
   C. UNLESS OTHERWISE INDICATED, METAL SURFACES OF ANODIZED ALUMINUM, STAINLESS STEEL, RHODIUM PLATED, COPPER, BRONZE AND SIMILAR FINISHED MATERIALS WILL NOT REQUIRE FINISH PAINTING.
   D. PAINT EXPOSED CONDUITS, SPRINKLER PIPING, PLUMBING PIPING, ETC. UNLESS NOTED OTHERWISE. THIS EXCLUDES MECH, ELEC, TELECOM, AND...
5. WALL FINISHES:
   A. ALL EXTERNAL CORNERS OF TILE WALLS SHALL RECEIVE METAL TRIM (TRIM1).
   B. URETHANE GROUT SHALL BE USED AT ALL FLOOR TILE LOCATIONS. SEE SPECIFICATION FOR FURTHER DETAILS.
6. FLOORING:
   A. WHERE CONTROL JOINTS PASS BEHIND RESILIENT OR OTHER WALL BASE, CAULK CONTROL JOINT USING A COLOR WHICH MATCHES THE COLOR ...
   B. WHERE FINISH FLOORING TERMINATES PROVIDE TRANSITION STRIPS AS SPECIFIED.
7. CEILING:
   A. SEE AC-SERIES DRAWINGS FOR CEILING LOCATIONS, LAYOUTS AND DETAILS.
      1. NOT ALL EXPOSED CEILINGS REQUIRE PAINTING. REFER TO AC-SERIES DRAWINGS FOR PT FINISH WHERE REQUIRED.
   B. WHERE ACCESS PANELS ARE REQUIRED, CONTRACTOR MUST VERIFY LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION.
8. CASEWORK:
   A. TYPICAL COUNTERTOP FINISH IS SSF1.
   B. WHERE WOOD GRAIN LAMINATE IS USED, GRAIN SHALL RUN VERTICALLY.
9. ROLLER SHADES:
   A. FIELD VERIFY ALL WIDTHS AND LENGTHS PRIOR TO SUBMITTALS AND ORDERING.
   B. REFER TO REFLECTED CEILING PLANS FOR LOCATIONS AND DETAILS FOR MOUNTING DETAILS.

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Metro Waste Authority

METRO PARK WEST
SCALE HOUSE DESIGN

SCALE HOUSE
ARCHITECTURE INTERIOR FINISHES

0 1" 2"

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SCALE

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SECTION 07 42 16
PREFORMED METAL PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Furnish labor, materials, tools, equipment, and services for Preformed Metal Panels, as indicated, in accordance with provisions of Contract Documents.

B. Completely coordinate with work of other trades.

1.2 REFERENCES

A. ASTM International (ASTM):

1. ASTM A653 Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
2. ASTM A755 Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products
3. ASTM B117 Standard Practice for Operating Salt Spray (Fog) Apparatus
4. ASTM B209 Specification for Aluminum and Aluminum Alloy Sheet and Plate
5. ASTM C645 Specification for Nonstructural Steel Framing Members
6. ASTM C754 Specification for Installation of Steel Framing Members to Receive Screw Attached Gypsum Panel Products
7. ASTM C920 Specification for Elastomeric Joint Sealants
8. ASTM C1363 Standard Test Method for Thermal Performance of Building Materials and Envelope Assemblies by Means of a Hot Box Apparatus
9. ASTM D968 Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
10. ASTM E72 Standard Test Methods of Conducting Strength Tests of Panels for Building Construction
11. ASTM E84 Test Methods for Surface Burning Characteristics of Building Materials
12. ASTM E119 Test Methods for Fire Tests of Building Construction and Materials
13. ASTM E1996 Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes

B. American Architectural Manufacturer's Association (AAMA):

1. AAMA 501.1 Standard Test Method for Exterior Windows, Curtain Walls, and Doors for Water Penetration Using Dynamic Pressure
2. AAMA 501.2 Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems.
3. AAMA 508-07 Voluntary Test Method and Specification for Pressure Equalized Rain Screen Wall Cladding Systems
4. AAMA 2604 Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels
5. AAMA 2605 Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels

C. American Society of Civil Engineers (ASCE):

1. ASCE 7 Minimum Design Loads for Buildings and Other Structures.

D. National Fire Protection Association (NFPA):

1. NFPA 285 Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components.

2. NFPA 286 Standard Methods of Fire Tests for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire Growth.

E. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA):

1. Architectural Sheet Metal Manual.

F. UL:

1. UL 263 Fire Resistance Tests of Building Construction and Materials.
2. UL 723 Test for Surface Burning Characteristics of Building Materials.
3. UL 1040 Fire Test of Insulated Wall Construction.
4. UL 1715 Room Corner Test.

1.3 SUBMITTALS

A. Product Data:

1. For each type of material and accessory.

B. Shop Drawings:

1. Elevations showing each metal panel and attachment point.
2. Details of each condition of installation and attachment.
3. Details of each transition and termination.

C. Samples:

1. Manufacturers complete range of colors for selection.
2. Three samples of panel in finish selected by Architect.

D. Project Information:

1. Structural calculations for Preformed Metal Wall Panels indicating design conforms to specified design criteria, sealed by the Specialty Structural Engineer.
   a. Submit concurrent with Shop Drawings.
2. Certification of installer qualifications.
3. Field Water Infiltration Test reports.

E. Contract Closeout Information:

1. Warranty.

1.4 QUALITY ASSURANCE

A. Installer Qualifications:

1. Installer franchised or approved in writing by manufacturer.

B. Provide Preformed Metal Panels engineered to support dead, live, and lateral, wind or seismic, loads indicated.

1. Include headers and reinforcing members around openings.
2. Required details defining method of fastening throughout system and attachments to supporting primary structure included in engineering requirement.

1.5 NUCORWARRANTY

A. Provide five year warranty on wall panels, flashing and associated work.

B. Warranty to cover waterproof integrity of panel system against leaks through wall.

C. Warranty signed by Contractor and Installer.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Preformed Metal Panels:

1. Base:
    a. Varco Pruden
2. Optional:
    a. NuCor
    b. PAC-CLAD
    c. MBCI

B. Other manufacturers desiring approval comply with Section 01 61 00.

2.2 DESIGN CRITERIA

A. Design Loads:

1. Design Preformed Metal Panels and anchorage to meet design loads.
    a. Wind Loads:
        1) Wind Pressures as required per local building code based on wind speed, exposure factor and importance factor noted in the Structural Drawings.
        2) minimum.
    b. Deflection Values: Use the most restrictive of the following:
        1) Limit deflection to values specified for Uniform Design Load Test.
        2) Limit deflection to comply with Building Code as locally adopted and amended.
        3) Limit deflection to L/175 or maximum.

B. Thermal Expansion and Structural Movement:

1. Expansion and contraction, caused by changes in surface temperature equal to DT (delta T).
    a. Delta T for this project: 200 deg F 93.3.
    b. Thermal contraction/expansion in this range shall not cause buckling, stresses on glass, failure of joint seals, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or other detrimental effects over this temperature range.
    c. Operating windows and doors shall function normally over this temperature range.

C. Structural Movements of Building Structure:

1. Inter-story drift caused by wind or earthquake forces.
    a. h/120 maximum.
2. Live load deflection of the supporting members.
    a. L/180 maximum.
    b.

D. Drainage:

1. Design Preformed Metal Panels to intercept, collect, contain, and drain water which may infiltrate system to exterior.

2.3 MATERIALS

A. Preformed Metal Panels:

1. Use: Vertical Wall Panel.
2. Coverage: 36 inches.
3. Style: RPR by Varco Pruden.
4. Thickness 24 gauge.

5. Color: To be selected from full range of colors including Thermaclad Panel colors options.
6. Interior finish:
    a. Prime coat of manufacturer's standard light color.

B. Perimeter Trim, Flashing and Accessories:

1. As required to complete entire wall panel installation.
2. Shop fabricated corners.
3. Match gage, color, and finish of wall panels.

C. Fastening System as approved by Manufacturer to meet Design Criteria.

D. Insulation:

1. Specified in Section 07 21 00

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify suitability of substrate to receive installation.

B. Installation constitutes acceptance of responsibility for performance.

3.2 INSTALLATION

A. Erect system, per reviewed shop drawings.

B. Erect with concealed fasteners.

C. Use fasteners which lock entire unit to structural supports and prohibit negative load pull-off under design loads.

3.3 FIELD TESTING

A. Upon completion of walls, perform field water test in accordance with AAMA 501.2 - Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems.

B. Spray entire surface of exterior walls.

C. Repair leaks.

3.4 PROTECTION

A. Provide required temporary closures and flashings to maintain weather integrity, during and after erection.

END OF SECTION

SECTION 07 61 13
METAL ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Vapor retarder.
2. Roof insulation.
3. Ice dam membrane.
4. Standing seam metal roofing.
5. Prefinished gutters and downspouts.
6. Snow retention system.
7. Sheet metal work required for roofing.

B. Related Specification Sections include but are not necessarily limited to:

1. Section 04 05 23 - Masonry Accessories.
2. Section 06 10 00 - Rough Carpentry.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. American Architectural Manufacturers Association (AAMA):
   a. 621, Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) and Zinc-Aluminum Coated Steel Substrates.
2. ASTM International (ASTM):
   a. A653/A653M, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   b. A792/A792M, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
   c. C209, Standard Test Methods for Cellulosic Fiber Insulating Board.
   d. C1289, Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board.
   e. D882, Standard Test Method for Tensile Properties of Thin Plastic Sheeting.
   f. D1970/D1970M, Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
   g. D4833/D4833M, Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.
   h. E96/E96M, Standard Test Methods for Water Vapor Transmission of Materials.
   i. E1592, Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
   j. E1646, Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.
   k. E1680, Standard Test Method for Rate of Air Leakage Through Exterior Metal Roof Panel Systems.
   l. E1745, Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
   m. F593, Standard Specification for Stainless Steel Bolts, Hex Cap Screws, and Studs.
3. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA):

a. Architectural Sheet Metal Manual.

4. Underwriters Laboratories, Inc. (UL):
   a. Building Materials Directory.
   b. Fire Resistance Directory.
   c. 580, Standard for Tests for Uplift Resistance of Roof Assemblies.
   d. 790, Standard Test Methods for Fire Tests of Roof Coverings.
   e. 1256, Standard for Fire Test of Roof Deck Constructions.

B. Qualifications:

1. Manufacturer shall have minimum of 10 years of experience in the production of structural standing seam metal roofing.
   a. All structural components of the roof system shall be designed and sealed by registered professional structural engineer licensed in the State of Iowa.
2. Installing contractor shall be licensed or approved in writing by manufacturer.
3. Contractor and installer shall have minimum of seven years of experience in the installation of structural standing seam metal roof systems similar to system specified.
4. Contractor and installer shall have successfully completed two projects of similar size, scope and complexity within past two years.
5. Panels shall be same panels as specified or approved for Project.
   a. Exact color is not necessary; however, Contractor is to label each exposed component to identify final installed color of component.
6. Step construction to allow observation of all components.
7. Construct additional mock-ups or rework existing mock-ups until acceptable to Engineer.
8. Maintain mock-ups at project site until Engineer approves removal of mock-ups.
9. Approved mock-ups to constitute minimum acceptable standard of quality for actual construction.

C. Completed roof system to be inspected by roof manufacturer's authorized factory trained representative prior to issuance of roof warranty.

1.3 DEFINITIONS

A. Installer or Applicator:

1. Installer or applicator is the person actually installing or applying the product in the field at the Project site.
2. Installer and applicator are synonymous.

B. Steep Slope: Having a pitch of 3:12 or greater.

C. Low Slope: Having a pitch less than 3:12 but greater than 1/4:12.

D. PVDF: Polyvinylidene fluoride.

1.4 SYSTEM DESCRIPTION

A. Prefinished, field-insulated, structural standing seam metal roof system, including but not limited to:

1. Ice dam membrane.
2. Vapor retarder.
3. Structural standing seam metal roof panels.
   a. Roof panel support and attachment system to be determined by standing seam roof manufacturer.

B. All flashing and miscellaneous trim required for a complete water and airtight system, including but not limited to:

1. Flashing.
2. Counterflashing.
3. Sealants.

C. Standing seam fascia system.

D. Prefinished gutters and downspouts.

E. Snow retention system.

1.5 SUBMITTALS

A. Shop Drawings:

1. Fabrication and/or layout drawings:
   a. Manufacturer prepared computer generated Drawings showing anchorage, flashing, jointing and all other accessories required and all special detailing required by the system.
      1) Minimum plan scale: 1 inch = 8 feet.
      2) Minimum detail scale: 1-1/2 inches = 1 foot.
   b. Provide complete erection plan for each building structure with all details and sections referenced, all penetrations shown, expansion joints shown, detailed and referenced, and all special conditions identified, referenced and detailed.
   c. Erection plan to identify limits of each different substrate material (decking).
   d. Provide distinction between factory and field assembled work.
2. Product technical data including:
   a. Manufacturer data sheets on each component, including masonry reglets used in the roof system.
   b. Acknowledgement that products submitted meet requirements of standards referenced.
      1) Certification by manufacturer that roofing assembly being supplied has been successfully tested under UL 580 procedures and has achieved a Class 90 rating.
3. Test results:
   a. UL 580, Class 90 test data.
   b. ASTM E1592 test results.
      1) Provide results of tests conducted in accordance with ASTM E1592 for panel size and gage and clip type and spacing similar to panels and clips being used.
   c. ASTM E1646 and ASTM E1680 test results.
   d. Concentrated load test data.
      1) Load test to be conducted on panel size, gage and with clip spacing as required.
4. Qualifications:
   a. Manufacturer: Provide structural engineer qualifications.
   b. Contractor:
      1) Certification of approval or license to install product from manufacturer.
      2) Certification of experience.
      3) Listing of projects completed in the past two years with similar scope.
      4) Completed projects information to include, square footage of roofing installed, dollar value of roofing installed, manufacturer and type of roofing installed and contact name and telephone number of building Owner.
   c. Installer: Provide qualifications of all personnel expected to be working on the Project.
5. Roofing manufacturer's letter of approval for insulation proposed for use.
6. Warranty: Sample language of manufacturer's warranty to be provided on this Project.
7. Structural Engineer's sealed and signed calculations certifying that system structural components meet the requirements for lateral, upward and downward loads specified.

B. Samples:

1. General: Tag, identify and provide statement regarding use for all fasteners, anchor clips, closures and sealants.
2. Color samples:
    a. For initial preliminary color selection, provide manufacturer's color chart showing all colors available.
    b. For final color selection, provide two 2 inches x 3 inches colored metal samples, for each color selected during the initial color selection.

C. Contract Closeout Information:

1. Operation and Maintenance Data:
    a. See Specification Section 01 77 01 for requirements of project closeout.

D. Informational Submittals:

1. Final warranty.

1.6 WARRANTY

A. Provide 20 year complete system warranty, including material for air and weather tightness of entire roof assembly signed by manufacturer.

1. Warranty limits shall meet the minimum load capacity requirements of ASTM E1592.

B. Provide manufacturer's 20 year warranty on panel finish against fading, chipping, cracking and peeling of the panel exterior finish and/or erosion of substrate metal.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Metal roofing and standing seam fascia products specified are manufactured by Centria.

B. Manufacturers listed and other manufacturers not listed, but capable of meeting this Specification Section, are expected to provide a system with similar profile, standing seam height, spacing, construction and factory applied finish.

C. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. Metal roofing :
    a. CENTRIA by NCI Building Systems.
    b. Merchant & Evans, Inc. - ZIP-RIB.
    c. IMETCO.
    d. Other manufacturers capable of providing structural standing seam system and profiles similar to that specified will be considered.
2. Vapor retarder:
    a. Griffolyn by Reef Industries, Inc.
3. Ice dam membrane.
    a. GAF.
    b. Carlisle Coatings & Waterproofing.
    c. Owens Corning.
4. Insulation:
    a. Any manufacturer meeting these specifications and approved by metal roofing manufacturer.
5. PVDF resin:
    a. PPG IdeaScapes - DURANAR.

b. Valspar - Fluropon.
c. Arkema - Kynar 500.
d. Solvay - Hylar 5000.
e. Solvay - Hylar 5000.

6. Snow retention system:
   a. S-5! Attachment Solutions by Metal Roof Innovations, Ltd.
   b. Provide at 12” from edge with gutter.

2.2 MATERIALS

A. Roof Panels:
   1. General:
      a. Galvanized steel, ASTM A653/A653M, Class SS, Grade 37, G90.

B. Perimeter Trim, Panel Closures, Flashing and Counterflashing: Material and factory applied finish to match roof panels.

C. Fasteners: 300 series stainless steel, ASTM F593.

D. Intermediate Support System:
   1. Galvanized steel: ASTM A653/A653M, Class SS, Grade 50, G90.

E. Sealant: Manufacturer's standard non-curing butyl.

F. Ice dam membrane.
   1. Self-adhesive, polymer modified bituminous sheet.
   2. Thickness: Minimum 40 mil.
   3. Manufactured to meet ASTM D1970/D1970M.
   4. Non-slip surface.
   5. Acceptable to roofing manufacturer.

G. Masonry Reglets: See Specification Section 04 05 23.

2.3 ACCESSORIES

A. Gutters and Downspouts:
   1. General:
      a. Galvalume steel, ASTM A792/A792M, Class CS.
         1) Painted surfaces: AZ50.
         2) Unpainted surfaces: AZ55.
         3) Minimum thickness: 22 GA.
         4) All exposed surfaces to have finish and color to match roofing metal.
   2. Gutters:
      a. "Style D" gutter per SMACNA Figure 1-2.
         1) Seamless except for expansion joints.
      b. Gutter straps and eave closure flashing: Match gutter material, finish and color.
   3. Downspouts:
      a. SMACNA Figure 1-32B.
         1) Seam on concealed side of downspout.
         2) Provide gutter to downspout connection per SMACNA Figure 1-33B, Detail 1.
      b. Hanger straps: Material and finish to match downspouts.

B. Vapor Retarder:
   1. ASTM E1745, Class A rated.

2. Water vapor permeance: ASTM E96/E96M, 0.03 maximum.
3. Tensile strength: ASTM D882, 275 feet-LB.
4. Puncture strength: ASTM D4833/D4833M, 72 feet-LB.
5. Griffolyn Type 105.
6. Vapor retarder tape: As recommended by vapor retarder manufacturer.

C. Roof Penetration Flashing:

1. Round penetrations:
   a. Premolded EPDM boot with metal collar.
   b. Buildex "DEK-TITE."

D. Flashing Curb:

1. Provided by metal roofing manufacturer.
2. One-piece completely seal welded prefabricated roof curb, including vertical flashing, and counter flashing, cricket on high side of penetration and flat pan fabricated to replace standing seam metal roof panel.
3. Size as required for penetration.
4. Bottom sloped to match roof.
   a. Level on top.
5. Minimum 16 GA galvannealed steel.
   a. Finish to match roof panel.

E. Foam and metal closures, sealant, gaskets, fasteners, washers, clips, angles, and all miscellaneous trims shall be provided by roofing manufacturer, fabricated for the specific condition as required.

F. Snow Retention System:

1. Mechanical non-penetrating system for sloped metal roof systems to prevent ice and snow from sliding off roof.
   a. Provide splice fittings for a continuous installation.
2. Snow retention system shall consist of aluminum extrusion secured to the standing seam with non-penetrating stainless steel set screws having rounded points.
3. Aluminum:
   a. Finish: Manufacturer's standard finish.
   b. Extrusion to have receptacle in face to provide for insertion of prefinished sheet metal strip to match roofing color.
4. Snow/Ice clips:
   a. Aluminum or stainless steel.
   b. Provide with rubber foot on end that sits on the metal roof pan.
5. Metal Roof Innovations, Ltd. S-5! "ColorGard" system.

2.4 FABRICATION

A. General:

1. Fabricate with square, true corners, mitered and welded.
2. Fabricate trim, flashings and closure pieces to match panel profile and finish.
3. Hem all edges.
4. Fabricate panels in full length with no end laps.

B. Standing Seam Metal Roof Panels:

1. Profile: Centria "SRS" System.
2. Height of standing seam: 2 inches.

3. Gage: Minimum 22.
4. Width:
    a. 12 inches.
    b. Longitudinal stiffening elements to minimize oil canning.
5. System shall be designed as a true structural standing seam shape.
6. Finish:
    a. PVDF based with minimum 70% resin.
    b. Three-coat system having minimum 0.8 mil epoxy primer coat on both sides of panel with a 0.8 mil PVDF resin color coat and a 0.8 mil PVDF resin clear top coat on the exterior side of the panel.
    c. Meet or exceed requirements of AAMA 621.
    d. Smooth finish.
    e. Color:
        1) To be selected from manufacturers full range of primary and secondary colors.
            a) Does not include exotic, metallic flake or iridescent colors.
7. Concealed fasteners:
    a. Provide concealed fasteners in all locations.
    b. If exposed fasteners are required by the roof panel manufacturer, because of location, constructability issues or other critical design requirement, finish of fastener shall match roof panel finish.
        1) Exposed fasteners are to be approved by Engineer.
    c. The use of deflection limiter devices is not allowed.

C. Intermediate Support System:

1. Roof panel anchor clips:
    a. Manufacturer's standard one-piece clip suitable for condition.
        1) Two-piece clips are acceptable if required by roofing manufacturer.
    b. Minimum 16 GA steel.
        1) Galvanized, ASTM A653/A653M, G90.
2. Roof panel manufacturer shall be responsible for designing and providing all necessary intermediate "Z" or "hat-shaped" or other miscellaneous support members as required to transfer roof panel loads into building roof framing members.
    a. Design in accordance with building code and loads shown on the Drawings.
3. Bearing plates:
    a. Sized by roofing manufacturer for roof loading indicated.
    b. Minimum 16 GA steel.
        1) Galvanized, ASTM A653/A653M, G90.

2.5 SOURCE QUALITY CONTROL

A. Roof assembly to be Class A roof covering assembly per UL 1256.

B. Structural Testing:

1. The system shall be designed to safely resist the positive and negative loads per the building code and as shown on Drawings.
2. Structural-uniform uplift load capacity of the panel system shall be determined in accordance with ASTM E1592.
    a. The factor of safety on the test results shall be 1.65 for the panel, batten or clip ultimate loads with no increase for wind.
    b. The factor of safety for fasteners shall be 3.0 for one single fastener per clip, 2.25 for two fasteners per clip and 4.0 inches masonry.

c. Design uplift capacity for conditions of gage, span or loading other than those tested may be determined by interpolation of test results.

1) Extrapolation of conditions outside the range of the tests is not acceptable.

d. Deflection shall be L/180 for positive loading.

C. Water Penetration: No uncontrollable leakage at minimum 6.4 psf when tested in accordance with ASTM E1646.

D. Air Infiltration: Maximum 0.00 SCFM/SQFT when tested at 4.0 psf differential pressure when tested in accordance with ASTM E1680.

E. Fire Resistance/Wind Uplift Rating:

1. UL 790, Class 1.
2. UL 580, Class 90.

F. The panels shall withstand a 250 pound concentrated load applied to a 4 square inches area at the center of the panel at mid span between supports with no panel deformation, rib buckling, or panel sidelap separation which will adversely affect the weather tightness of the system.

G. Support roofing panels on top of roof insulation using bearing plates attached to the structural frame or connect to manufacturer-provided intermediate support system.

1. Bearing plate and standing seam roof panel anchor clip attachment is to be determined by the roofing manufacturer and shall take precedent over this Specification.
   a. Provide attachment to roof structural frame or deck as required for loading criteria specified.
2. Roof panel anchor clips shall be designed to allow thermal movement of the panels except where specific fixed points are indicated.
   a. Roof panel manufacturer shall be responsible for determining fixed point locations unless otherwise indicated.
3. Wood blocking shown at roof edge is strictly for attachment of miscellaneous flashings and shall not be used for any structural value.
4. Maximum spacing of roof clips shall be determined by manufacturer.

H. Roof panel manufacturer shall be responsible for designing and installing all necessary expansion joints in the roof system.

1. Where roof expansion joints occur, provide corresponding expansion joints in fascia, soffit and gutters.

2.6 MAINTENANCE MATERIALS

A. Provide Owner with 4 OZ of touch-up paint to match each different color used in the system.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:

1. Install products in accordance with manufacturer's instructions, SMACNA (where referenced) and details shown on Drawings for a complete weathertight installation without waves, warps buckles or distortions.
   a. Provide all closures, trim, angles, plates, sealant, gaskets, fasteners, washers, etc., as necessary.
2. Attachments shall allow for thermal expansion and contraction.
3. Seal all joints as required for watertight installation.
4. Touch-up paint all damaged surfaces.

B. Vapor Retarder:

1. Install on winter warm side of roof assembly in accordance with manufacturer's recommendations.
2. Lap joints minimum: 4 inches.
3. Seal to perimeter, tape all joints and repair all tears.

C. Roof Insulation:

1. Install in accordance with manufacturer’s recommendations.
2. If multiple layers are provided to achieve total thickness as shown on Drawings, stagger joints minimum 12 inches in each direction.

D. Ice Dam Membrane:

1. Install per manufacturer's recommendations in areas indicated on Drawings.
2. Provide ice dam membrane from eave line to a point that is a minimum of 36 inches horizontally inside the interior face of the exterior wall.
3. Provide at all ridges, hip ridges and hip valley lines extending minimum 36 inches up the slope at valleys and down the roof slope each side of the ridge line.

E. Standing Seam Roofing Panels:

1. Install in one continuous length from ridge to eave.
2. Hand crimp battens at each clip.
3. Seam panels and battens together with portable electric seaming machine supplied by the manufacturer.

F. Snow Retention System:

1. Install starting 2 feet from the eave edge of the roof.
2. Install system in continuous lengths using manufacturer provided splice fittings.
3. Mount to metal roofing utilizing clamps fastened to standing seam with non-penetrating bullet-nosed set-screws.
    a. Fasteners shall be compatible with roof panel system and shall not void any roof warranties.
    b. Fasteners shall not damage panel finish.
4. Install metal color strip in face of extrusion.
    a. Color strip to match color of standing seam roofing.
5. Provide snow/ice clips in each standing seam panel laterally across the roof or as recommended by manufacturer.
    a. Provide single clip for seam spacing of less than 16 inches and two clips for seam spacing 16 inches and greater.

G. Gutters:

1. Install gutters using gutter straps in accordance with SMACNA Table 1-8 and Figure 1-12 and per roofing manufacturer's recommendations.
    a. Provide gutter brackets or hangers at 24 inches on-center maximum.
    b. Provide expansion joints in gutters per SMACNA and at expansion joint locations shown on Drawings.
    c. Install gutters to provide positive drainage to downspout locations.
    d. Seal all joints in gutters to provide completely water tight system.

H. Downspouts:

1. Install downspouts in locations shown on the Drawings.
2. Provide downspout hanger straps per SMACNA Figure 1-35 as appropriate for downspout style.
3. Provide gutter to downspout connection per SMACNA Figure 1-33B, Detail 1.

4. Seal all joints in downspout for a complete watertight system.
    a. Angle bottom of downspout out away from building.
5. Fasten hanger straps to building wall with stainless steel screws and anchor sleeves appropriate for wall construction.
    a. Provide minimum of two fasteners per strap.
6. Maximum spacing of hanger straps shall be 10 feet with minimum of two hanger straps per vertical piece of downspout.
7. Spacing and location of hanger straps shall be consistent from downspout to downspout.

END OF SECTION

SECTION 08 51 13
ALUMINUM WINDOWS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Aluminum windows.

B. Related Sections include but are not necessarily limited to:

1. Section 07 92 00 - Joint Sealants.
2. Section 08 81 00 - Glass and Glazing.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. American Architectural Manufacturers Association (AAMA):
   a. 904, Voluntary Specification for Multi-Bar Hinges in Window Applications
   b. 1503, Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.
   c. 2605, Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels.
2. ASTM International (ASTM):
   a. A924, Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
   b. C1363, Standard Test Method for the Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus.
   c. E283, Standard Test Method for Determining the Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
   d. E330, Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights, and Curtain Walls by Uniform Static Air Pressure Difference.
   e. E331, Standard Test Method for Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference.
3. American Welding Society (AWS):
   a. D1.2, Structural Welding Code - Aluminum.

1.3 DEFINITIONS

A. Installer or Applicator:

1. Installer or applicator is the person actually installing or applying the product in the field at the Project site.
2. Installer and applicator are synonymous.

1.4 SUBMITTALS

A. Shop Drawings:

1. Product technical data for framing system and major accessories including:
   a. Acknowledgement that products submitted meet requirements of standards referenced.
   b. Hardware being provided by window manufacturer.
   c. Glass being provided by window manufacturer in factory glazed units.
   d. Manufacturer's installation instructions.

2. Elevation drawings indicating window dimensions and details.

B. Samples:

1. After initial color selection, provide 2 x 3 inches minimum sample of each color and finish selected.

C. Informational Submittals:

1. Qualifications of testing laboratory.
2. Test results.
3. Warranty.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store units in vertical position off ground with wood spacers between each unit.

1.6 WARRANTY

A. Five year warranty of weathertightness of installation.

1. Air and water integrity and structural adequacy of units and hardware, including sealants and sealing within and around perimeter of installation.
2. Signed jointly by fabricator, installer, and contractor.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. Thermally broken windows:
   a. Wausau Metals Corp., 2250-T Series.
   b. Kawneer Company Inc., 8225-T Series.
2. Storm windows (type F):
   a. Winco 3350 series, 3 ½" thermally broken fixed FEMA 361/ICC 500-2014 heavy commercial aluminum window.
      1) Clear anodized finish.
      2) Factory installed insulated glass for large missile impact.
3. Transaction Window (C):
   a. QuikServ T1 ticket window, custom sized per drawings.
      1) Options:
         a) Speak-thru feature
         b) 1'-6" w. X 2'-0" t., Window type D - manual slider window below ticket window

2.2 MATERIALS

A. Extruded Aluminum: 6063T5 alloy.

B. Sealants: As specified in Section 07 92 00.

C. Thermal Insulator: Poured in place polyurethane, self-adhering to adjacent aluminum surfaces.

D. Weatherstripping: Sponge neoprene.

2.3 ACCESSORIES

A. Screens:

1. 18 x 16 mesh aluminum wire screens.
2. Secure to aluminum shapes with vinyl spline.
3. Hold in place with spring loaded plungers.

4. Removable to inside of building.
5. Finish same as window frames.

B. Flashing:

1. Minimum 0.040 inches aluminum.
2. Finish to match window frames.
3. Mill finish if concealed.

2.4 FABRICATION

A. General:

1. Fully degrease and clean members prior to assembly or application of protective coatings.
2. Weld by methods recommended by manufacturer and AWS D1.2 to avoid discoloration at welds.
3. Grind exposed welds smooth and restore finish.
4. Ease corners of cut edges to a radius of approximately 1/64 inches.
5. Conceal fasteners wherever possible.
6. Fit and assemble work at shop to maximum extent possible.
7. Maintain true continuity of line and accurate relation of planes and angles.
8. Provide secure attachment and support at mechanical joint, with hairline fit of contacting members.
9. Reinforce work as necessary to withstand wind loadings and to support system.
10. Separate dissimilar metal with paint or preformed separators to prevent corrosion.
11. Separate metal surfaces at moving joints with plastic inserts or other nonabrasive concealed inserts to permanently prevent freeze-up of joint.
12. Reinforce frames for hardware.
13. Structural steel reinforcement hot-dip galvanized after fabrication meeting G-90, ASTM A924, requirements.

B. Thermal Insulator: Provide minimum 1/4 inches separation between exterior and interior metal surfaces after bridge is removed.

C. Weatherstripping:

1. Thermally broken type windows:
    a. Casement and projected:
        1) Provide two rows of fin type extruded neoprene weatherstrips extending around perimeter of sash at both inner and outer overlap contacts.
        2) Provide corners which are securely staked and joined.
        3) Provide units which are easily replaceable.

D. Window Hardware:

1. General:
    a. Locking device and strikes: White bronze and/or non-magnetic stainless steel.
    b. All hardware elements that bridge sash or frame thermal barrier: Reinforced nylon, deirin or suitable non-metallic, low conductivity material.
    c. Custodial key operation: Secure sash in closed position and automatically lock in washing position.
    d. Safety keys removable only in closed position.
2. Glass: See Section 08 81 00 for types of glass to be installed under this Section.

E. Fasteners:

1. Finish exposed fasteners to match finish of system.

2. Provide Phillips flat head screws where exposed.

F. Finish: AAMA 2605 Fluoropolymer paint; color to be clear anodized.

2.5 SOURCE QUALITY CONTROL

A. General Test Requirements:

1. Utilize independent testing laboratories specifically qualified to conduct all performance tests required.
2. Performance tests may be conducted in manufacturer's laboratories provided they are witnessed and certified by qualified independent testing laboratory personnel.
3. Perform all tests on "Test Unit":
    a. Full-sized window unit for project or a minimum 5 x 8 feet unit mounted in test chamber in exact accordance with job conditions including anchorage system, sealing, etc.
    b. Test unit to be completely assembled and glazed.
        1) Thermal tests may be conducted on 4 x 6 feet unit.
4. Test air infiltration first, water resistance second.
    a. Other tests may be in any order.
5. Test data on vertical pivot windows will be accepted for fixed windows for condensation resistance, thermal, temperature exposure and acoustical tests provided the fixed windows are the same as the vertical windows tested in the following respects:
    a. Same frame section (or same family of extrusions).
    b. Same basic metal mass inside and outside.
    c. Identical thermal break.
    d. Same type of glazing.

B. Test Requirements:

1. Air infiltration test:
    a. With sash and ventilators closed and locked, test in accordance with ASTM E283.
    b. Air infiltration, in CFM/FT of crack length, at pressure differential of 6.24 psf as follows:
        1) Fixed windows: 0.06 maximum, all others 0.10 maximum.
2. Water resistance test:
    a. Mount glazed unit in its vertical position, continuously supported around outside perimeter with sash and ventilators closed and locked.
    b. Test in accordance with ASTM E331.
    c. No uncontrolled leakage allowed, with pressure differential of 6.24 psf.
3. Uniform load deflection test:
    a. Test in accordance with ASTM E330.
    b. Subject unit to load of 25 psf applied to outside of window and 25 psf applied to inside of window.
    c. Maximum allowable deflection of any unsupported span: L/175.
    d. No glass breakage, permanent damage to fasteners, hardware parts, support arms or activating mechanisms, or any other damage which would cause window to be inoperable will be allowed.
4. Uniform load structural test:
    a. Test in accord with ASTM E330.
    b. Subject unit to loads indicated below.
    c. Stabilize pressure and maintain it for minimum period of 10 seconds.
    d. No glass breakage, permanent damage to fasteners, hardware parts, support arms or activating mechanisms or any other damage which would cause window to be inoperable will be allowed.

e. Maximum permanent deformation of any main frame, sash or ventilator member: 0.4% of its span.

f. After performing Uniform Load Structural Test, increase loads 1-1/2 times and perform safety test.

g. Design unit to withstand following design pressures acting normal to plane of wall, at applicable heights and locations excluding storm windows.

1) At height of 30 feet or less: 20 PSF acting inward 20 PSF acting outward.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Set units plumb, level, and true to line.

C. Anchor securely in place.

D. Separate metal surfaces from sources of corrosion or electrolytic action.

E. Set sill and base members in a bed of sealant.

F. Provide joint fillers or gaskets for weathertight construction.

G. Seal all joints within and at perimeter of system.

H. Provide sealant color to match finish of system at exposed locations.

I. Provide sealants compatible with aluminum system and recommended for use with this type of installation.

J. See Section 07 92 00 for sealants.

3.2 FIELD QUALITY CONTROL

A. Installation supervised or inspected by manufacturer's authorized representative.

END OF SECTION

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SECTION 08 51 13.13

ALUMINUM WINDOWS - HORIZONTAL SLIDE

PART 1 - GENERAL

1.1 SUMMARY

A. Furnish labor, materials, tools, equipment, and services for Aluminum Windows - Horizontal Slide, as indicated, in accordance with provisions of Contract Documents.

B. Completely coordinate with work of other trades.

1.2 SUBMITTALS

A. Product Data:

1. For each type of material and accessory.

B. Shop Drawings:

1. Elevations, sections, and details for review of support system to building frame.

C. Samples:

1. Range samples of aluminum finishes.

D. Project Information:

1. Certified independent laboratory test reports verifying requirements.

E. Contract Closeout Information:

1. Warranty.
2. Warrantable report by manufacturer's field service representative stating Aluminum Windows - Horizontal Slide systems have been installed in accordance with manufacturer's published specifications, drawings, details, and project design requirements.

1.3 QUALITY ASSURANCE

A. Provide Aluminum Windows - Horizontal Slide engineered by specialty structural engineer to support superimposed loads indicated.

1. Include headers and reinforcing members around openings.
2. Required details defining method of fastening throughout system and attachments to supporting primary structure included in engineering requirement.
3. Meet or exceed performance criteria, in addition to AAMA/WDMA/CSA 101/I.S.2/A440 for Architectural AW Performance Class windows, Performance Grade 100 (AW100) unless otherwise noted.

B. Installer Qualifications:

1. Firm with not less than ten (10) years successful experience in erection and installation of Aluminum Windows - Horizontal Slide similar in design and scale of systems proposed for this project.
2. Certified by Aluminum Windows - Horizontal Slide manufacturer in erection and installation of manufacturer's products.
3. Submit a minimum of five (5) references of projects similar in size and scope.
4. Submit results of monthly onsite inspections conducted by manufacturer's field service representative, to assure proper installation, to Architect.
5. Upon completion of project, submit report from manufacturer's field service representative.
    a. See Submittals, Contract Closeout Information, below.

C. Welding and Welders:

1. Utilize skilled and qualified welders, licensed where required in accordance with local building regulations.
2. Perform welding in conformance with AWS structural welding code.

1.4 SPECIAL WARRANTY

A. Written ten-year warranty, agreeing to repair or replace defective materials or workmanship, including noncompliance with specification requirements and industry standards, which result in failure of the curtain wall system, finish, glass, or parts.

1. Failure includes but not limited to:
   a. Defects in materials, workmanship, water infiltration of assembly, air infiltration of assembly, glazing, sealant, or defects which influence system capacity to perform as a weather tight envelope.
2. Glass:
   a. Free from obstruction of vision as a result of dust or film formation on internal glass surfaces caused by failure of hermetic seal.
   b. Warranty period: Ten (10) years.
3. Finish:
   a. Cracking, crazing, flaking, blistering, or combination of Anodized finishes:
      1) Warranty period: Ten (10) years.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Aluminum Windows - Horizontal Slide (type ~~F~~B & G):

1. Base:
   a. QuikServ SS-4035E, custom sizes per drawings.
2. Optional:
   a. Wausau Window and Wall Systems
   b. EFCO Corporation
   c. Peerless Products

B. Other manufacturers desiring approval comply with Section 01 61 00.

2.2 DESIGN CRITERIA

A. Design and fabricate curtain wall systems under responsibility of one manufacturer, with components sized for ease of shipping, distribution, and erection.

B. Design Wind Loads - Allowable Stress Design (ASD):

1. Use most restrictive of following:
   a. Wind pressures as required per local building code based on wind speed, exposure factor and importance factor noted in the Structural Drawings.
   b. Wind Pressures defined by Building Code as locally adopted and amended.
   c. Deflection values: Use the most restrictive of the following:
      1) Limit deflection to values specified for Uniform Design Load Test.
      2) Limit deflection to comply with Building Code as locally adopted and amended.
      3) Limit deflection to L/175 or 3/4 inches maximum.
2. Design structural components, including transoms, mullions, and anchors, complying with deflection and stress requirements.

C. Thermal Expansion and Structural Movement:

1. Expansion and contraction, caused by changes in surface temperature equal to delta T.

a. Delta T for this project: 200 deg F.

b. Thermal contraction/expansion in this range shall not cause buckling, stresses on glass, failure of joint seals, undue stress on structural elements, damaging loads on fasteners, reduction of performance, or other detrimental effects over this temperature range.

c. Operating windows and doors shall function normally over this temperature range.

2.3 PERFORMANCE REQUIREMENTS

A. Test in accordance with NAFS-2008 for Architectural AW Performance Class windows, Performance Grade 70 (AW70).

B. Air Infiltration:

1. 0.3 cfm per square foot at 6. 6.24 psf maximum pressure differential when tested in accordance with ASTM E283.

C. Water Infiltration:

1. No uncontrolled water leakage at 12.00 psf static pressure differential, with water application rate of 5 gph/SQFT when tested in accordance with ASTM E331 and ASTM E547.

D. Structural Test Performance Requirements:

1. Uniform Load Deflection Test:
   a. No deflection of any unsupported span L of test unit (framing rails, muntins, mullions) in excess of L/175 at both a positive and negative load of 70 psf design test pressure when tested in accord with ASTM E330.
2. Uniform Load Structural Test:
   a. Unit to be tested at 1.5 x design test pressure, both positive and negative, acting normal to plane of wall in accord with ASTM E330.
   b. No glass breakage; permanent damage to fasteners, hardware parts, or anchors; damage to make sliding glass doors inoperable; or permanent deformation of any main frame or ventilator member in excess of 0.2 percent of its clear span.

E. Condensation Resistance and Thermal Transmittance Performance:

1. Perform thermal tests in accordance with NFRC 102 and/or AAMA 1503 or provide finite element computer thermal modeling and calculations per NFRC 100, NFRC 705 or AAMA 507, using DOE/LBL THERM, WINDOW, and/or CMAST software.

2.4 MATERIALS

A. 4100i Double Slide Thermal Aluminum Windows by Wausau Window and Wall Systems

B. Extruded Aluminum: 6063-T5 or 6063-T6 alloy.

C. Glass:

1. See Section 08 81 00.

D. Sealant:

1. As specified in Section 07 92 00.
2. Match color of aluminum.

E. Thermal Break:

1. Continuous extruded polyamide nylon, reinforced and mechanically crimped.

F. Hardware:

1. Continuous extruded pull handle.
2. Automatic spring-loaded jamb locks.
3. Replaceable rollers and housings.

G. Fasteners:

1. Avoid use of exposed fasteners.
2. Where exposed fasteners cannot be avoided, use Phillips flat head screws.
3. Match window color.

H. Weatherstripping:

1. Woven pile weather-strip with side or center fins at center weathering seals, and interior and exterior sash-to-frame contact points.
2. Bulb-type neoprene at lower sash, with EPDM or PVC weather-strip at sash/frame water shed.

I. Screens:

1. Aluminum frame with finish to match window.
2. Fabric 18 x 16 aluminum mesh.
3. Provide for each operable window.
4. Mesh color: Charcoal .

J. Finish:

1. AA-M10C21A41, Class I, AAMA 611, Clear.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Field verify window opening dimensions prior to fabrication.

B. Verify building substrates permit installation of windows according to manufacturer's instructions, approved shop drawings, calculations, and contract documents.

C. Do not install windows until unsatisfactory conditions are corrected.

3.2 INSTALLATION

A. Comply with manufacturer's installation recommendations.

B. Set units plumb and true.

1. Anchor securely in place.
2. Separate aluminum and other corrodible metal surfaces from sources of corrosion or electrolytic action.

C. Set frame members in sealant bed, joint fillers, or gaskets to provide weathertight construction.

D. Adjust operating sash and hardware to provide tight fit for smooth operation and weathertight closure.

E. Clean aluminum surfaces promptly after installation.

F. Remove excess sealant, dirt, and other substances.

G. Lubricate hardware and other moving parts.

H. Provide protection to ensure that units are without damage at time of acceptance by Owner.

3.3 FIELD QUALITY CONTROL

A. Field Tests - General:

1. Architect shall select Aluminum Windows to be tested when representative portion of Aluminum Windows have been installed, glazed, perimeter caulked and cured.
2. Test for water penetration in accordance with AAMA 501.2-03, Quality Assurance and Diagnostic Water Leakage Field Check of Installed Storefronts, Curtain Walls, and Sloped Glazing Systems.

3. Where test results do not meet requirements: Correct deficiencies and implement improved installation procedures for completing balance of Storefront.

3.4 ADJUSTING AND CLEANING

A. Adjust windows for proper operation; recheck installation, weatherseal, sealants and other items of complete installation.

B. Repair or replace damaged components.

C. Clean glass and metal surfaces and remove labels before final acceptance.

END OF SECTION

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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. This Section includes commercial door hardware for the 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. Electromechanical door hardware.
3. Cylinders specified for doors in other sections.

C. Related Sections:

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

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

1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
2. ICC/IBC - International Building Code.
3. NFPA 70 - National Electrical Code.
4. NFPA 80 - Fire Doors and Windows.
5. NFPA 101 - Life Safety Code.
6. NFPA 105 - Installation of Smoke Door Assemblies.
7. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards as applicable. Any undated reference to a standard shall be interpreted as referring to the latest edition of that standard:

1. ANSI/BHMA Certified Product Standards - A156 Series.
2. UL10C - Positive Pressure Fire Tests of Door Assemblies.
3. ANSI/UL 294 - Access Control System Units.
4. UL 305 - Panic Hardware.
5. ANSI/UL 437- Key Locks.

1.3 SUBMITTALS

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

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

1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
3. Content: Include the following information:
    a. Type, style, function, size, label, hand, and finish of each door hardware item.
    b. Manufacturer of each item.
    c. Fastenings and other pertinent information.
    d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
    e. Explanation of abbreviations, symbols, and codes contained in schedule.
    f. Mounting locations for door hardware.
    g. Door and frame sizes and materials.
    h. Warranty information for each product.
4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.

C. Shop Drawings: Details of electrified access control hardware indicating the following:

1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:
    a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
    b. Complete (risers, point-to-point) access control system block wiring diagrams.
    c. Wiring instructions for each electronic component scheduled herein.
2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.

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

E. Informational Submittals:

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

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

1. Maintenance manual must be provided for tornado/hurricane storm shelter impact protective systems.

1.4 QUALITY ASSURANCE

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

B. Certified Products: Where specified, products must maintain a current listing in the Builders Hardware Manufacturers Association (BHMA) Certified Products Directory (CPD).

C. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.

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

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

1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

F. Storm Shelter Openings: Provide complete door systems for hurricane or tornado resistant storm shelters and other areas of refuge complying and tested according to ICC 500 (2014/2020), ICC/NSSA Standard for the Design and Construction of Storm Shelters.

G. Each unit to bear third party permanent label indicating compliance with the referenced testing standards.

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

1. Function of building, purpose of each area and degree of security required.
2. Plans for existing and future key system expansion.
3. Requirements for key control storage and software.
4. Installation of permanent keys, cylinder cores and software.
5. Address and requirements for delivery of keys.

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

1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware

(including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.

2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
3. Review sequence of operation narratives for each unique access controlled opening.
4. Review and finalize construction schedule and verify availability of materials.
5. Review the required inspecting, testing, commissioning, and demonstration procedures

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

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 WARRANTY

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

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

1. Structural failures including excessive deflection, cracking, or breakage.
2. Faulty operation of the hardware.
3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
4. Electrical component defects and failures within the systems operation.

C. Warranty Period: Unless otherwise indicated, warranty shall be one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

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

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

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

C. Please note that ASSA ABLOY is transitioning the Yale Commercial brand to ASSA ABLOY ACCENTRA. This affects only the brand name; the products and product numbers will remain unchanged. The brand transition is expected to be complete in or about May of 2024, and products shipping after that time will be branded ASSA ABLOY ACCENTRA.

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

2.2 BUTT HINGES

A. Hinges: ANSI/BHMA A156.1 butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.

1. Quantity: Provide the following hinge quantity:
2. Two Hinges: For doors with heights up to 60 inchesThree Hinges: For doors with heights 61 to 90 inchesFour Hinges: For doors with heights 91 to 120 inchesFor doors with heights more than 120 inchesprovide 4 hinges, plus 1 hinge for every 30 inchesof door height greater than 120 inchesHinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
    a. Widths up to 3’0”: 4-1/2” standard or heavy weight as specified.
    b. Sizes from 3’1” to 4’0”: 5” standard or heavy weight as specified.
3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
    a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
    b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
        1) Interior door that is 3'8" to 4'0" wide, require heavy weight hinges.
4. Hinge Options: Comply with the following:
    a. Non-removable Pins: With the exception of electric through wire hinges, provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
5. Manufacturers:
    a. McKinney (MK) - TA/T4A Series, 5-knuckle.

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

1. Quantity: Provide the following hinge quantity:
    a. Three Hinges: For shutters with heights 36 to 60 inches, and doors at height of 80 inches.

b. Four Hinges: For shutters with heights > 60 inches to 80 inches, and doors with heights greater than 84 inches.

2. Quantity: Provide the following hinge quantity:
   a. Three Hinges: For shutters with heights 36 to 60 inches, and doors at height of 80 inches.
   b. Four Hinges: For shutters with heights > 60 inches to 80 inches, and doors with heights greater than 84 inches.
   c. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
   d. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
   e. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
3. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
   a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
   b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
4. Hinge Weight and Base Material: At a minimum, provide heavy weight hinges with stainless steel screws used in accordance with and specified as part of a certified Storm Shelter Opening meeting ICC 500.
5. Manufacturers:
   a. McKinney (MK) - SP3386/SP3786.
   b. No Substitution.

2.3 POWER TRANSFER DEVICES

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

1. Provide one each of the following tools as part of the base bid contract:
   a. McKinney (MK) - Electrical Connecting Kit: QC-R001.
   b. McKinney (MK) - Connector Hand Tool: QC-R003.
2. Manufacturers:
   a. McKinney (MK) - QC-C Series.

2.4 DOOR OPERATING TRIM

A. Flush Bolts and Surface Bolts: Provide products conforming to ANSI/BHMA A156.3 and A156.16, Grade 1.

1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
2. Furnish dust proof strikes for bottom bolts.
3. Surface bolts to be minimum 8" in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.
5. Manufacturers:
   a. Rockwood (RO).

B. Door Push Plates and Pulls: ANSI/BHMA A156.6 door pushes and pull units of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

1. Push/Pull Plates: Minimum .050 inchthick, size as indicated in hardware sets,with beveled edges, secured with exposed screws unless otherwise indicated.
2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
4. Pulls, where applicable, shall be provided with a 10” clearance from the finished floor on the push side to accommodate wheelchair accessibility.
5. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
6. Manufacturers:
    a. Rockwood (RO).

2.5 CYLINDERS AND KEYING

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

B. Cylinder Types: Original manufacturer cylinders able to supply the following cylinder formats and types:

1. Threaded mortise cylinders with rings and cams to suit hardware application.
2. Rim cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
3. Bored or cylindrical lock cylinders with tailpieces as required to suit locks.
4. Tubular deadlocks and other auxiliary locks.
5. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
6. Keyway: Match Facility Standard.

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

1. Supplier shall conduct a "Keying Conference" to define and document keying system instructions and requirements.
2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
3. Existing System: Field verify and key cylinders to match Owner's existing system.

D. Key Quantity: Provide the following minimum number of keys:

1. Change Keys per Cylinder: Two (2)
2. Master Keys (per Master Key Level/Group): Five (5).
3. Construction Keys (where required): Ten (10).

E. Construction Keying: Provide construction master keyed cylinders.

F. Key Registration List (Bitting List):

1. Provide keying transcript list to Owner's representative in the proper format for importing into key control software.
2. Provide transcript list in writing or electronic file as directed by the Owner.

2.6 KEY CONTROL

A. Key Control Cabinet: Provide a key control system including envelopes, labels, and tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent

markers, and standard metal cabinet. Key control cabinet shall have expansion capacity of 150% of the number of locks required for the project.

1. Manufacturers:
    a. Lund Equipment (LU).
    b. MMF Industries (MM).
    c. Telkee (TK).

2.7 CYLINDRICAL LOCKS AND LATCHING DEVICES

A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Operational Grade 1 Certified Products Directory (CPD) listed cylindrical locksets. Listed manufacturers shall meet all functions and features as specified herein.

1. Manufacturers:
    a. Corbin Russwin Hardware (RU) - CLX3300 Series.
    b. Sargent Manufacturing (SA) - 10X Line.

2.8 MULTI-POINT LOCKS AND LATCHING DEVICES

A. Multi-Point Locksets, Storm Shelter: Provide ANSI/BHMA A156.37, Series 1000, Operational Grade 1 and Security Grade 1 Certified Products Directory (CPD) listed multi-point locksets. Listed manufacturers shall meet all functions and features as specified herein.

1. Provide locksets with functions and features as follows:
    a. Where required by code, provide knurling or abrasive coating on all levers leading to hazardous areas.
    b. Meets UL and CUL Standard 10C Positive Pressure, Fire Test of Door Assemblies with levers that meet A117.1 Accessibility Code.
    c. Meets Florida Building Code FL2998 and UL Certification Directory ZHEM.R21744 for latching hardware for hurricane requirements.
    d. Approved for usage as part of a complete ICC 500 (2014/2020) and FEMA P-361 (2015/2021) door, frame, and hardware assemblies for storm shelter components.
    e. Lever torque to retract all bolts less than 28 in.lb.
    f. Cycle tested to 1,000,000 cycles.
    g. Seven-year limited warranty for mechanical functions.
2. Manufacturers:
    a. Corbin Russwin Hardware (RU) - FE6600 Series.
    b. Sargent Manufacturing (SA) - FM7300 Series.

2.9 LOCK AND LATCH STRIKES

A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:

1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.

B. Standards: Comply with the following:

1. Strikes for Mortise Locks and Latches: BHMA A156.13.
2. Strikes for Bored Locks and Latches: BHMA A156.2.

3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
4. Dustproof Strikes: BHMA A156.16.

2.10 DOOR CLOSERS

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

1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers.
2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
3. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the Americans with Disabilities Act, provide units complying with ANSI ICC/A117.1.
4. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
5. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.
6. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.

1. Heavy duty surface mounted door closers shall have a 30-year warranty.
2. Manufacturers:
   a. Corbin Russwin Hardware (RU) - DC6000 Series.
   b. Norton Rixson (NO) - 7500 Series.
   c. Sargent Manufacturing (SA) - 351 Series.

C. Door Closers, Surface Mounted (Unitrol): ANSI/BHMA A156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted closers with door stop mechanism to absorb dead stop shock on arm and top hinge. Hold-open arms to have a spring loaded mechanism in addition to shock absorber assembly. Arms to be provided with rigid steel main arm and secondary arm lengths proportional to the door width.

1. Manufacturers:
   a. Corbin Russwin Hardware (RU) - Unitrol Series.
   b. Norton Rixson (NO) - Unitrol Series.

D. Door Closers, Surface Mounted (Cam Action): ANSI/BHMA 156.4, Grade 1 Certified Products Directory (CPD) listed surface mounted, high efficiency door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be of the cam and roller design, one piece cast aluminum silicon alloy body with adjustable backcheck and independently controlled valves for closing sweep and latch speed.

1. Manufacturers:
   a. Corbin Russwin (RU) - DC5000 Series.
   b. Norton Rixson (NO) - 2800ST Series.
   c. Sargent Manufacturing (SA) - 422 Series.

2.11 ARCHITECTURAL TRIM

A. Door Protective Trim

1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1” LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
3. Where plates are applied to fire rated doors with the top of the plate more than 16” above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer’s catalog and template book for specific requirements for size and applications.
4. Protection Plates: ANSI/BHMA A156.6 protection plates (kick, armor, or mop), fabricated from the following:
    a. Stainless Steel: 300 grade, 050-inchthick.
5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
6. Manufacturers:
    a. Rockwood (RO).

2.12 DOOR STOPS AND HOLDERS

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

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

1. Manufacturers:
    a. Rockwood (RO).

C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 Certified Products Directory (CPD) listed overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Manufacturers:
    a. Norton Rixson (RF).
    b. Rockwood (RO).
    c. Sargent Manufacturing (SA).

2.13 ARCHITECTURAL SEALS

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

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

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

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

1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NFPA 252, Standard Methods of Fire Tests of Door Assemblies.

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

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

F. Manufacturers:

1. Pemko (PE).

2.14 ELECTRONIC ACCESSORIES

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

1. Manufacturers:

a. Securitron (SU) - DPS Series.

B. Intelligent Switching Power Supplies: Provide power supplies with single, dual or multi-voltage configurations at 12 and/or 24VDC. Power Supply shall have battery backup function with an integrated battery charging circuit. The power supply shall have a standard, integrated Fire Alarm Interface (FAI). The power supply shall provide capability for secondary voltage, power distribution, direct lock control and network monitoring through add on modules. The power supply shall be expandable up to 16 individually protected outputs. Output modules shall provide individually protected, continuous outputs and/or individually protected, relay controlled outputs. Network modules shall provide remote monitoring functions such as status reporting, fault reporting and information logging.

1. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw for the specified electrified hardware and access control equipment.
2. Manufacturers:

a. Securitron (SU) - AQL Series.

2.15 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.

2.16 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.

PART 3 - EXECUTION

3.1 EXAMINATION

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

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

3.2 PREPARATION

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

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

3.3 INSTALLATION

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

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

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

1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
2. DHI TDH-007-20: Installation Guide for Doors and Hardware.
3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.

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

D. Door Closers:

1. Install closers on room side of corridor doors, and stair side of stairways.
2. Lobby doors: Mount on vestibule side.
3. Exterior doors: Parallel rigid arm installation.
4. Where through-bolts are required, install closers using only manufacturer-furnished through-bolts.
5. Install closers using only manufacturer-furnished template machine screws for metal doors and manufacturer -furnished wood screws for wood doors.
6. Coordinate with door supplier to provide proper blocking for surface mounting.
7. Use of self-drilling or self-tapping fasteners is not allowed.
8. Where full glazed door units are specified, use closer arm and mounting configuration as required to avoid use of drop brackets whenever possible.

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

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

3.4 FIELD QUALITY CONTROL

A. Field Inspection (Punch Report): Reference Division 01 Sections “Closeout Procedures”. Produce project punch report for each installed door opening indicating compliance with approved submittals and verification hardware is properly installed, operating and adjusted. Include list of items to be completed and corrected, indicating the reasons or deficiencies causing the Work to be incomplete or rejected.

1. Organization of List: Include separate Door Opening and Deficiencies and Corrective Action Lists organized by Mark, Opening Remarks and Comments, and related Opening Images and Video Recordings.

3.5 ADJUSTING

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

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.
4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

B. Manufacturer’s Abbreviations:

1. MK - McKinney
2. RO - Rockwood
3. SA - SARGENT
4. RF - Rixson
5. NO - Norton

6. PE - Pemko
7. CR - Curries (Hardware Only)
8. SU - Securitron
9. OT - Other

Hardware Sets

Set: 1.0

Doors: 101A, 108A
Exterior - Card Reader (DPS): EL Lock (RTE) x Door Closer w/ Spring Stop

2	Hinge (qty per spec)	T4A3386 (size per spec, NRP as applicable)	US32D	MK	
1	Electric Hinge	T4A3386 QC (size per spec)	US32D	MK	⚡
1	Fail Secure Lock	RX 10XG71 LL	US26D	SA	⚡
1	Surface Closer	UNI7500	689	NO	
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO	
1	Rain Guard	346_		PE	
1	Latch Protector	320-RKW	US32D	RO	
1	Sweep	345_PK		PE	
1	Threshold	252 / 253 x__FG		PE	
1	Kerf Weather Seal	by frame manufacturer		CR	
1	ElectroLynx Harness	QC-C00_		MK	⚡
1	ElectroLynx Harness	QC-C3000_		MK	⚡
1	Position Switch	DPS		SU	⚡
1	Power Supply	AQL x Relay(s) (consolidate as applicable)		SU	⚡
1	Access Control Reader	By Division 28		OT	
1	Set Wiring Diagrams	By Division 28		00	

Door normally closed and locked.
Entrance by presenting a valid card to card-reader.
Egress allowed at all times.
Loss of power maintains security from lock side, entrance by mechanical key only.
Door monitored for door ajar and forced open.

Set: 2.0

Doors: 103A
StormPro 361 (T6) Door: Multi-Point Lock x Door Closer

4	Hinge, Hvy Wt	SP3786	US26D	MK
1	Multi-Point Lock	FM7325 LNL 188	US26D	SA
1	Surface Closer	7500 TBGN	689	NO
1	Wall Stop	RM860 / RM861	US26D	RO
1	Gasketing	S773		PE
1	Sweep	345 (as required)		PE

Application:
-Curries StormPro: 361 ("T6" - inswing or outswing)
-All door hardware to follow door manufacturer requirements

Door normally closed, unlocked, deadbolt retracted - free egress and ingress.
Outside trim locked when deadbolt is projected or by outside mechanical key.
Inside lever-turn or outside mechanical key will project or retract deadbolt.
Inside lever will retract both deadbolt and latch simultaneously allowing free egress at all times.

Set: 3.0

Doors: 107A

Pair: Storeroom Lock x Overhead Stop

6	Hinge (qty per spec)	TA2714 (size per spec, NRP as applicable)	US26D	MK
1	Dust Proof Strike	570	US26D	RO
1	Flush Bolt	555 / 557	US26D	RO
1	Storeroom/Closet Lock	10XG04 LL	US26D	SA
2	Surf Overhead Stop	10-X36	630	RF
1	Overlapping Astragal	"Z" Type by door manufacturer		00
2	Silencer	608		RO

Application:
-top flush bolt only.

Set: 4.0

Doors: 106A, 102A

Storeroom Lock x Overhead Stop

3	Hinge (qty per spec)	TA2714 (size per spec, NRP as applicable)	US26D	MK
1	Storeroom/Closet Lock	10XG04 LL	US26D	SA
1	Surf Overhead Stop	10-X36	630	RF
3	Silencer	608		RO

Set: 5.0

Doors: 104A, 105A

Privacy Lock (no indicator) x Door Closer

3	Hinge (qty per spec)	TA2714 (size per spec)	US26D	MK
1	Privacy Lock	10XU65 LL	US26D	SA
1	Surface Closer	PS2800ST / 2800ST	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
1	Wall Stop	RM860 / RM861	US26D	RO
1	Gasketing	S88		PE
1	Coat Hook	RM840	US32D	RO

Set: 6.0

Doors: 101B

Passage x Closer

3	Hinge (qty per spec)	TA2714 (size per spec)	US26D	MK
1	Passage Latch	10XU15 LL	US26D	SA
1	Surface Closer	R7500 / PR7500	689	NO
1	Kick Plate	K1050 10" high CSK BEV	US32D	RO
1	Wall Stop	RM860 / RM861	US26D	RO
1	Gasketing	S88		PE

END OF SECTION

SECTION 10 51 13
METAL LOCKERS AND LOCKER BENCHES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Metal lockers .

B. Related Sections include but are not necessarily limited to:

1. Section 07 92 00 - Joint Sealants.

1.2 QUALITY ASSURANCE

A. Referenced Standards:

1. ASTM International (ASTM):
   a. A540/A540M, Standard Specification for Alloy-Steel Bolting Materials for Special Applications.
   b. A1008/A1008M, Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Baked Hardenable.
   c. B108/B108M, Standard Specification for Aluminum-Alloy Permanent Mold Castings.

1.3 SUBMITTALS

A. Shop Drawings:

1. Drawings showing location, numbering sequence, anchoring method and locking.
2. Product technical data including:
   a. Acknowledgement that products submitted meet requirements of standards referenced.
   b. Manufacturer's installation instructions.
   c. Color chart showing manufacturer's full line of available colors for preliminary color selection by Engineer.

B. Contract Closeout Information:

1. Operation and Maintenance Data:
   a. See Specification Section 01 77 01 for closeout requirements.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Subject to compliance with the Contract Documents, the following manufacturers are acceptable:

1. Lockers and locker benches:
   a. Art Metal Products.
   b. DeBourgh Manufacturing.
   c. List Industries, Inc.
   d. Lyon LLC.
   e. Penco Products.
   f. Republic Steel.

2.2 MATERIALS

A. Steel: ASTM A1008/A1008M.

B. Fasteners: Zinc-Nickel plated steel ASTM A540/A540M.

C. Hooks and Hanger Rods: Zinc-Nickel plated steel ASTM A540/A540M or cast aluminum ASTM B108/B108M.

2.3 ACCESSORIES

A. Hooks:

1. Provide one double-prong ceiling hook and three single-prong wall hooks for single-tier lockers.

B. Provide hat shelf in single-tier lockers.

1. Provide surface mounted USB charging station under electrical contract.

C. Provide hanger rod minimum 5/8 inches diameter, in lieu of ceiling hook, in single tier lockers 18 inches deep or deeper.

D. Number Plates:

1. Manufacturer's standard etched, embossed, or stamped, non-ferrous metal number plates.
2. Three-digit numerals not less than 3/8 inches high.
3. Sequence numbers as directed by Owner.
4. Attach plates centered, near top of each locker door, with two fasteners of same finish as number plate.
5. Provide on each locker door.

E. Metal Base:

1. Minimum 20 GA.
2. Cover entire front of base of lockers without additional fastening devices.
3. Flange bottoms inward 3/4 inches for stiffening.
4. Factory-finish base to match lockers.

2.4 FABRICATION

A. General:

1. Fabricate lockers square, rigid, and without warp, with metal faces flat and free of dents or distortion.
2. Ease all exposed metal edges.
3. Weld frames together.
4. Weld, bolt, or rivet other connections per manufacturer's standard.
5. Grind exposed welds flush.
6. Chemically pretreat metal with degreasing and phosphatizing process.
7. Apply baked-on enamel finish to all surfaces, exposed and concealed, except plated and non-ferrous metal.
8. Finished film thickness of not less than 0.75 mil for all exterior surfaces and not less than 0.5 mil for all interior surfaces.
9. Lockers shall be, 24” W x 18” D x 72” T, single tier with doors, sloped top and closed base, top and bottom shelves and USB connection point.

B. Lockers:

1. Frames:
   a. Minimum 16 GA channels or 12 GA angles, with corners electrically welded to form solid one-piece structure.
   b. Provide door stops at door openings.
   c. Provide minimum 16 GA horizontal members between doors of other than single-tier lockers.

2. Backs and sides:
    a. Minimum 24 GA.
    b. Flange backs on vertical edges and sides where they intermember with backs, making double-flanged rear corners.
3. Exposed ends of non-recessed lockers: Minimum 16 GA.
4. Tops, bottoms, and shelves: Minimum 24 GA, flanged on all sides.
5. Sloped tops: Continuous, minimum 20 GA.
6. Doors:
    a. One-piece, minimum 16 GA, flanged at all edges, with corners.
    b. Extra bracing or reinforcing on inside of doors over 15 inches wide.
    c. Construct to prevent springing when opening or closing.
    d. Door swing of 180 degrees.
    e. Stamped louvered vents in door faces.
        1) Single-tier lockers: Not less than six 6 inches louver openings in top and bottom of each door.
7. Door hinges:
    a. Full-loop, five-knuckle, tight pin.
    b. Not less than 0.050 inches thick steel, 2 inches high.
    c. Continuous weld hinges to inside of frame and secure to door with not less than two factory-installed fasteners, completely concealed and tamperproof when door is closed.
    d. Minimum three hinges for each door 42 inches high and over.
    e.
8. Latching:
    a. Positive, automatic, pre-locking, pry-resistant latch and pull.
    b. Rubber silencers.
    c. Chromium-plated, vandalproof or kickproof lift-up handle, containing strike and hole for padlock.
    d. Enclose latch on four sides in a boxed receptacle in lock bar channel, and engaging latch hooks on frame opposite hinges.
    e. Three-point latching for single-tier lockers.
    f. One-point gravity or spring latch with padlock lugs for box lockers.
9. Provision for padlock: Latch pull with hole to accept padlock.
10. ADA compliant lockers:
    a. Single tier locker in same construction as standard lockers specified and provide with the following modifications:
        1) Shelves:
            a) Bottom shelf located not less than 9 inches above finished floor.
                (1) Provide full width closure panel from bottom shelf to locker floor.
            b) Top shelf located not more than 54 inches above finished floor.
        2) Top of hanger rod located not more than 48 inches above finished floor.
        3) Single-prong wall hooks located not more than 46 inches above finished floor.
        4) Door latching device:
            a) Lever handle, push type or U-shaped design.
            b) Operating device to be located 48 inches above finished floor.
            c) Spring loaded.
        5) Keyed lock to be self-locking when door is closed.
    b. Top of locker to align with adjacent lockers.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install plumb, level, rigid and flush.

C. Space fasteners not over 48 inches on center:

1. Install through suitable reinforcing plates where necessary to prevent metal distortion.
2. Conceal all fasteners wherever possible.

D. Provide and install filler and closure pieces as required.

3.2 FIELD QUALITY CONTROL

A. Touch-up any damaged finishes or replace as directed by Engineer.

1. Use only materials and finishes as recommended or furnished by locker manufacturer.

3.3 ADJUSTMENT

A. Adjust doors and latches to operate easily without bind.

1. Verify satisfactory operation of integral locking devices.

3.4 SCHEDULES

A. Locker Types and Sizes:

1. Type A: Single tier 24 x 18 x 72 inches.

END OF SECTION

March 7, 2024

TEAM *Services*
Geotechnical and Construction Material Consultants

HDR Engineering Inc.
300 E Locust St.
Des Moines, IA 50309

Re: Foundation Observation
Metro West Landfill Scale
Perry, Iowa
TEAM Project No. 2-9465.001

Dear Mr. Lee:

TEAM Services observed and tested footings for the subject project on March 6, 2024.

Soil conditions in the footing excavations were observed for compliance with subsurface conditions anticipated in the project subsurface exploration report by TEAM Services.

Our observation procedures included visual classification of the exposed soils. In order to gain additional information on subsurface conditions at the foundation excavations, hand auger borings were performed. The borings were advanced by manually twisting a sharpened steel auger into the ground. The soils encountered were identified, in the field, from cuttings brought to the surface by the augers.

At selected intervals, the auger was removed and the soil consistency was measured with a static cone penetrometer. The static cone penetrometer was also used to probe the ground surface between profile locations. The static cone penetrometer is a dual rod system which enables direct measurement of the cone stress (tip resistance) of the cone located at the end of the penetrometer. As the static cone is pushed into the ground, the tip resistance readings are recorded per 1-foot increments. The tip resistance reading can then be converted into a shear strength of the soil which is then converted into an estimated bearing capacity of the materials encountered.

717 S.E. 6th St, Des Moines, IA 50309 (515) 282-8818 www.teamservices.com staff@teamservices.com
Des Moines ▪ Fort Dodge ▪ Spirit Lake ▪ Mason City ▪ Cedar Rapids ▪ Cedar Falls ▪ Davenport▪ Dubuque▪ Council Bluffs

Areas inspected by the above outlined procedures included:

- Five rectangular foundations for the new scale

The soils observed in the foundation excavations generally consisted of dark gray lean clay (natural); brown and gray lean clay (natural); and brown and gray sandy lean clay (natural). These soils were similar to the conditions anticipated at the bearing elevation in the subsurface exploration report for the project. A tile line was encountered buried beneath a footing and it appears the trench wasn't very wide (not apparent at the ground surface) and the backfill soils were stiffer than the native soils. It is understood that foundations were dug a foot deeper in hopes of improving their bearing capacity.

Acceptable areas as noted above were approved for a bearing pressure of 2,500 psf.

Footing excavations should be protected from freezing and excessive wetting or drying during construction. If water enters an excavation, it should be removed along with disturbed or softened soil. If desiccation occurs after the bearing soils are exposed, the dried material should be removed prior to placing concrete. Frozen material should also be removed prior to placing concrete.

We appreciate the opportunity to be of service to you on this project. If you have any questions concerning this report, or if we may be of further service to you in any way, please do not hesitate to contact us.

Sincerely,
TEAM Services

Clinton Halverson, P.E.
Principal Engineer

On-site personnel: Sean Miller