



Addendum No. 001

January 23, 2026

ADDENDUM TO PLANS AND SPECIFICATIONS FOR:
KNOX FULL SERVICE MAINTENANCE FACILITY
DOT-250002

Prepared For: **Ohio Department of Transportation**

Prepared By:	Jerome Scott & Partners Architects 1020 Goodale Boulevard Columbus, Ohio 43212 tel: 614.225.9535	Korda/Nemeth Engineering, Inc. 1650 Watermark Drive, #200 Columbus, OH 43215 Tel: 614.487.1650
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Advanced Engineering Consultants 1405 Dublin Road Columbus, OH 43215 Tel: 614.486.4778	Paul J Ford & Company 250 E Broad Street, #600 Columbus, OH 43215 Tel: 614.221.6679
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This Addendum is included in the work as noted in the Notice to Bidders and Form of Proposal. Each item refers to drawing sheet numbers, specification numbers, or general comments.

To All Bidders: This addendum supplements and amends the original bid documents dated January 16, 2026 and shall be taken into account in preparing proposals and shall become a part of the contract documents.

Receipt of this Addendum shall be acknowledged by inserting its number and date in the space provided on the Bid Form.

This Addendum consists of 60 - 8.5x11 sheets including all attachments noted herein.

GENERAL:

- Pre-Bid Meeting Minutes
- Pre-Bid Meeting Sign-In Sheet

PROCUREMENT, CONTRACTING, AND GENERAL REQUIREMENTS:

SPECIFICATIONS:

The following specifications have been revised:

- 00 01 10 – Table of Contents
 - Section 01 40 00.1 - Statement of Special Inspections has been added.
- Section 01 40 00.1 - Statement of Special Inspections
- 07 41 16 – Insulated Metal Roof Panels

- 07 42 13 – Insulated Metal Wall Panels
- 10 28 00 – Toilet, Bath, and Laundry Accessories
- 10 51 13 – Metal Lockers

QUESTIONS:

- *RFI 001: Could you tell me if there is a truck washing system in this project.*
 - Response: Yes, there is a truck washing system in this project. Refer to specification section 11 11 10 – Vehicle Wash Systems.
- *RFI 002: I've been searching for the size of the fuel tank, the dimensions, the gallon split, and the preferred manufacturers. I must be looking in the wrong place in the specs. Could you point me in the right direction?*
 - Response: Refer to specification section 33 56 13 – Above Ground Fuel Storage Tanks.
- *RFI 003: I cannot find a size for the "10 51 13.1" metal lockers that show up on OM-A-1301, Truck Storage FF&E. Can you confirm the size for these?*
 - Response: The lockers will be: Single Tier, 24"w x 21"d x 72" high with legs, slope top. This spec has been revised with Addendum 001.
- *RFI 004: Will the plan holder's list be posted on Bid Express?*
 - Response: The Plan Holder's list is available on the Project Solicitation page on Bid Express.

END OF ADDENDUM NO. 001



Pre-Bid Meeting Minutes

Project No. DOT-250002

Project Name: Knox Full Service Maintenance Facility

01-22-2026 ▪ 1:00 PM ▪ 505 Harcourt Rd., Mt. Vernon, Ohio 43050

A. INTRODUCTIONS

B. SIGN-IN / ATTENDEE VERIFICATION

- See attached meeting attendees sign in sheet.

C. PROJECT DESCRIPTION & SCOPE OF WORK

- Demolition of existing buildings
- New 32,000 SF Office Maintenance w/ Admin, Truck Storage, Maintenance, and Wash Bay
- New 10,000 SF Cold Storage (Tension Fabric)
- New, 1,700 SF Mix Storage (Tension Fabric)
- New 4,00 ton Salt Storage (Tension Fabric)
- New Fuel Island
- Associated site development including grading, utilities, and storm water management.

D. DELIVERY METHOD

- General Contracting

E. ALTERNATES, ALLOWANCES AND UNIT PRICES

- Refer to Section 01 21 00 Allowances
 - o Allowance A-1 (Electrical Aid to Construction) - \$25,000
 - Covers cost for electrical company to deliver power to the site. Fees paid to the utility company only. Does not cover any scope performed by the contractor.
 - o Allowance A-2 (Gas Aid to Construction) - \$10,000
 - Covers cost for gas company to set new meter. Fees paid to the utility company only. Does not cover any scope performed by the contractor.
 - o Allowance A-3 (NWOSS Programming) - \$7,500
 - Covers the programming of cameras and access control devices by Northwestern Ohio Security Systems, Inc. (NWOSS). All devices, pathways, and wiring are to be provided and installed by the Contractor and are not included in this Allowance.
 - o Allowance A-4 (Water/Sewer Tap Fees) - \$135,000
 - Covers water and sewer fees to be paid to the Authority Having Jurisdiction.
- Refer to Section 01 22 00 Unit Prices
 - o Unit Price U-1 (Removal/Disposal of ACM Roofing Materials) – 16,000 SF



- Unit Price U-2 (Foundation Undercut and Fill) – 735 CY
 - Removal and replacement of unsuitable foundation bearing soil with low-strength mortar backfill.
- Unit Price U-3 (Slab/Pavement Undercut and Fill) – 8,500 CY
 - Removal and replacement of unsuitable building pad and pavement bearing soil with engineered fill. Includes off-site disposal.
- Refer to Section 01 23 00 Alternates
 - Alternate 1 – Split-Face CMU Wainscot at Truck Storage/Maintenance
 - Base Bid includes insulated metal panel wainscot.
 - Alternate 2 – Brick Wainscot at Admin Building
 - Base Bid includes insulated metal panel wainscot.

F. WORK OR SERVICES BY OTHERS

- Special inspections – Refer to Specification Section 01 40 00 “Quality Control Services” and Sheet S-001
 - Contracted by the A/E as outlined in the specifications. Only inspections explicitly assigned to the A/E in the specs will be covered (soil compaction, concrete reinforcing and compressive strength, etc.). All other testing and inspections are the responsibility of the Contractor.
 - Note that any retesting due to unsatisfactory results or non-compliance with the documents will be the responsibility of the Contractor.
- MultiVista Construction Photography
 - Contracted by the A/E.
 - On site twice a month and at other times deemed appropriate by the A/E.

G. QUESTIONS DURING BID

- RFI & substitution requests shall be submitted in writing to ccastleman@jeromescott-architects.com
 - Substitution requests must be submitted no later than 5:00 pm 1/31/2026
 - No substitution will be allowed to the items specified unless the proposed item has been submitted for approval and has been noted in an Addendum. Bids are to reflect the use of items as specified or “approved” equals only.
 - Bidding Contractor must submit a signed Product Approval Request Form (Specification Section 01 60 00.1) for substitution to be considered.
 - RFI’s must be submitted no later than 5:00 pm 2/03/2026

H. BID ADDENDUM

- Addendums will be issued no later than 2/05/2026 at 2:00 PM.
 - Posted on Bid Express only
- Acknowledge receipt on Bid Form

I. BID OPENING

- Bids will open 2/10/2026 at 2:00 PM
 - Results will be posted on Bid Express same day.



- If you haven't used Bid Express previously, we recommend logging in in advance to make sure electronic signatures, etc. are set up to avoid any issues when submitting your bid. May take up to 7 days to complete signature verification process.

J. COMPLETION TIME & PROJECT SCHEDULE

- Note: Contracting Authority has 60 days from Bid Opening to award the Contract and execute the Agreement.
- Contract milestones include:
 - Milestone M1 – Pre-engineered Metal Building Shop Drawing Submission
 - Within 30 days of Notice to Proceed
 - Milestone M2 – Substantial Completion
 - Within 427 days of Notice to Proceed

K. OBTAINING PLANS AND SPECIFICATIONS

- Available at Bid Express only (<https://bidexpress.com>)

L. REQUIRED BID SUBMITTALS

- Completed Bid form
- Bid Guaranty
- Valid Power of Attorney
- Ohio Department of Insurance Certificate of Compliance

M. RECOMMENDED ADDITIONAL BID SUBMITTALS

- Bidder's Qualifications (Refer to Instructions to Bidders Article 2.10.3)
- Completed EDGE Affidavit

N. PERMITS/INSPECTIONS

- Status of current permit applications
 - Partial Plan Approval
- Awarded contractor will be required to provide deferred permit submittals including but not limited to engineered metal building shop drawings and calculations, tension fabric building shop drawings and calculations, fire alarm shop drawings, and fire suppression shop drawings and calculations.

O. SAFETY

- General Conditions Article 6.13.1.1 – The Contractor is responsible for designing and implementing its own safety program, including compliance with OSHA regulations. The Contractor's safety plans, such as fall protection, hazards, communications, competent person, etc., shall meet or exceed the Owner's safety plan (if any).
- General Conditions Article 6.13.3 – Before starting any Work, the contractor shall submit to the Contracting Authority a copy of the Contractor's site specific safety plan and safety manuals.



P. DRUG FREE – SAFETY PROGRAM (OFCC)

- OBWC Drug-Free Safety Program
 - o Bidder must be enrolled in program prior to contract award.
 - o Subcontractors must be enrolled prior to starting work on site.

Q. EDGE PARTICIPATION (OFCC)

- This project has a 5 % EDGE Participation goal.
- EDGE is discussed in the Solicitation, Bid Form, Instructions to Bidders, & General Conditions.
- If bidder does not commit to the published EDGE goal the Bidder will need to seek a waiver and demonstrate that good faith efforts were exhausted to reach that goal.
- A Bidder's prior EDGE commitment (at bid), and EDGE participation during the Work (EDGE payments), will be considered when evaluating Bidder responsibility for future awards.

R. INSURANCE

- Contractors are to provide and maintain Workers Compensation, Liability, and Builders Risk coverage as outlined in Articles 10.3 and 10.4 of the General Conditions.
- Use of drones on site requires aviation liability insurance coverage and FCC operator's license.

S. SUBCONTRACTORS

- General Conditions Article 4.1.1 – Within 10 days after the Notice to Proceed, or other period as mutually agreed by the Contractor and Contracting Authority, the Contractor shall submit to the A/E a Subcontractor and Material Supplier Declaration form through which the Contractor identifies its Subcontractors.
- General Conditions Article 4.1.5. – No less than 10 days before Work is to be performed by a Subcontractor, or within a shorter period as mutually agreed by the Contractor and Contracting Authority, the Contractor shall submit to the Contracting Authority and A/E a complete copy of the executed Subcontract between the Contractor and Subcontractor.
- General Conditions Article 4.2.1 – All Subcontracts shall be on the State of Ohio Subcontract Form prescribed by OAC Section 153:1-03-02.
 - o Form is available on the Ohio Facilities Construction Commission "forms" website.
- General Conditions Article 4.3.1 – The Contractor shall not replace any Subcontractor after execution of the Subcontract without the prior written approval of the Contracting Authority.

T. PREVAILING WAGE (OFCC)

- This is a State prevailing wage project with Contractor / Subcontractor compliance and reporting requirements.
 - o Current prevailing wage rates have been included in the specifications for reference; however, they are subject to change.



U. MISCELLANEOUS ITEMS

- Site Logistics
 - o The existing salt storage building and two storage buildings will be utilized by the Owner during construction until April 01, 2027. The Contractor will need to maintain drive-up access to all three buildings during that time. On April 01, 2027 the buildings will be turned over to the Contractor for demolition and subsequent site work as outlined in the Construction Documents.

- Storm Sewer Inspections
 - o Note that the Contractor will be responsible for storm sewer inspections in accordance with ODOT Construction and Material Specification Item 611. Refer to project specifications for details.

- The Owner will be salvaging some miscellaneous equipment currently in the building prior to construction. These items include, but are not limited to:
 - o Generator and associated equipment.
 - o Power Washer
 - o Air Compressor
 - o Co-Ray-Vac Pumps
 - o Brine System and Hopper
 - o Cameras/IT Equipment
 - o Fuel Master

V. QUESTIONS

- Will NWOSS provide the cameras?
 - o No. NWOSS is only responsible for programming the cameras and access control devices to integrate them into the Owner's network. These programming costs are to be covered under Allowance A-3. The contractor is responsible for providing and installing all equipment, including cameras and all associated pathways/wiring.

*** Note: Verbal interpretations of the Contract Documents and any statements made at the Pre-Bid meeting by the Associate, the Owner, or its representatives will not be binding. Any and all changes to the Contract Documents will be made by written addendum.**

Document 00 01 10 - Table of Contents (General Contracting Project)

State of Ohio Standard Requirements for Public Facility Construction

PROCUREMENT AND CONTRACTING REQUIREMENTS GROUP

Division 00 – Procurement and Contracting Requirements

Introductory Information

00 01 10..... Table of Contents

Procurement Requirements

00 10 00..... Solicitation
00 21 13..... Instructions to Bidders
00 31 26..... Existing Hazardous Material Information
00 31 26.1..... Existing Hazardous Material Report
00 31 32..... Geotechnical Data
00 31 32.1..... Geotechnical Report
00 41 13..... Bid Form
00 43 13..... Bid Security Form
00 45 13..... Bidder's Qualifications
00 45 39..... EDGE Affidavit

Contracting Requirements

00 52 00..... Agreement Form
00 52 14..... Subcontract Form
00 61 13..... Performance and Payment Bond Form
00 71 00..... Contracting Definitions
00 72 13..... General Conditions
00 73 43..... Wage Rate Requirements
00 73 43.1..... Prevailing Wage Rates

SPECIFICATIONS GROUP

GENERAL REQUIREMENTS SUBGROUP

Division 01 – General Requirements

01 10 00..... Summary
01 21 00..... Allowances
01 22 00..... Unit Prices
01 23 00..... Alternates
01 25 00..... Substitution Procedures
01 26 00..... Contract Modification Procedures
01 31 00..... Project Management and Coordination
01 32 33..... Photographic Documentation
01 33 00..... Submittal Procedures
01 40 00..... Quality Requirements
01 40 00.1..... Statement of Special Inspections
01 42 00..... References
01 50 00..... Temporary Facilities and Controls
01 60 00..... Product Requirements
01 60 00.1..... Product Substitution Request Form
01 71 23..... Field Engineering
01 73 00..... Execution
01 77 00..... Closeout Procedures
01 78 23..... Operation and Maintenance Data

- 01 78 39..... Project Record Documents
- 01 79 00..... Demonstration and Training

FACILITY CONSTRUCTION SUBGROUP

Division 02 – Existing Conditions

- 02 41 16..... Structure Demolition
- 02 82 20..... Hazardous Material Abatement

Division 03 – Concrete

- 03 10 00..... Concrete Forming and Accessories
- 03 20 00..... Concrete Reinforcing
- 03 30 00..... Cast-In-Place Concrete
- 03 30 10..... Cast-In-Place Silica Fume Concrete

Division 04 – Masonry

- 04 22 00..... Unit Masonry
- 04 26 13..... Masonry Veneer

Division 05 – Metals

- 05 12 00..... Structural Steel Framing
- 05 40 00..... Cold-Formed Metal Framing
- 05 44 00..... Cold-Formed Metal Trusses
- 05 50 00..... Metal Fabrications

Division 06 – Wood, Plastics, and Composites

- 06 10 00..... Rough Carpentry
- 06 16 00..... Sheathing
- 06 41 16..... Plastic-Laminate-Clad Architectural Cabinets

Division 07 – Thermal and Moisture Control

- 07 21 00..... Thermal Insulation
- 07 25 00..... Weather Barriers
- 07 41 16..... Insulated Metal Roof Panels
- 07 42 13.1..... Insulated Metal Wall Panels
- 07 62 00..... Sheet Metal Flashing and Trim
- 07 72 53..... Snow Guards
- 07 84 13..... Penetration Firestopping
- 07 92 00..... Joint Sealants

Division 08 – Openings

- 08 11 13..... Hollow Metal Doors and Frames
- 08 22 20..... Fiberglass Doors and Frames
- 08 33 23..... Overhead Coiling Doors
- 08 36 13..... Overhead Sectional Doors
- 08 36 14..... Wash Bay Overhead Sectional Doors
- 08 41 13..... Aluminum-Framed Entrances and Storefronts
- 08 51 13..... Aluminum Windows
- 08 56 53..... Security Windows
- 08 71 00..... Door Hardware
- 08 80 00..... Glazing

Division 09 – Finishes

- 09 22 16..... Non-Structural Metal Framing
- 09 29 00..... Gypsum Board Assemblies
- 09 30 13..... Tiling

- 09 51 13..... Acoustical Panel Ceilings
- 09 65 13..... Resilient Base and Accessories
- 09 67 23..... Resinous Flooring
- 09 77 00..... Fiber Reinforced Plastic Panels
- 09 91 23..... Interior Painting
- 09 96 00..... High Performance Coatings

Division 10 – Specialties

- 10 11 00..... Visual Display Units
- 10 12 00..... Display Cases
- 10 14 23..... Panel Signage
- 10 21 13.17..... Phenolic Core Toilet Compartments
- 10 22 13..... Wire Mesh Partitions
- 10 26 00..... Wall and Door Protection
- 10 28 00..... Toilet, Bath, and Laundry Accessories
- 10 44 13..... Fire Protection Cabinets
- 10 44 16..... Fire Extinguishers
- 10 51 13..... Metal Lockers
- 10 75 16..... Ground-Set Flagpoles

Division 11 – Equipment

- 11 11 00..... Vehicle Service Equipment
- 11 11 10..... Vehicle Wash Systems
- 11 11 19-20 Interior Grease-Oil Piping Systems
- 11 30 13..... Residential Appliances

Division 12 – Furnishings

- 12 21 13..... Horizontal Louver Blinds
- 12 51 00..... Furniture

Division 13 – Special Construction

- 13 31 23..... Tension Fabric Structures
- 13 34 19..... Metal Building Systems

Divisions 14 through 19 – Not Used

FACILITY SERVICES SUBGROUP

Division 20 – Not Used

Division 21 – Fire Suppression

- 21 05 17.....Sleeves and Sleeve Seals for Fire-Suppression Piping
- 21 05 18.....Escutcheons for Fire-Suppression Piping
- 21 05 29.....Hangers and Supports for Fire Suppression Piping and Equipment
- 21 05 53.....Identification for Fire-Suppression Piping and Equipment
- 21 13 13.....Wet-Pipe Sprinkler Systems

Division 22 – Plumbing

- 22 05 17.....Sleeves and Sleeve Seals for Plumbing Piping
- 22 05 18.....Escutcheons for Plumbing Piping
- 22 05 19.....Meters and Gages for Plumbing Piping
- 22 05 23.....General-Duty Valves for Plumbing Piping
- 22 05 29.....Hangers and Supports for Plumbing Piping and Equipment
- 22 05 53.....Identification for Plumbing Piping and Equipment
- 22 07 19.....Plumbing Piping Insulation
- 22 11 16.....Domestic Water Piping
- 22 11 19.....Domestic Water Piping Specialties

- 22 11 24.....Facility Natural-Gas Piping
- 22 13 16.....Sanitary Waste and Vent Piping
- 22 13 19.....Sanitary Waste Piping Specialties
- 22 15 13.....General-Service Compressed-Air Piping
- 22 15 19.....General-Service Packaged Air Compressors and Receivers
- 22 34 00.....Fuel-Fired, Domestic-Water Heaters
- 22 40 00.....Plumbing Fixtures
- 22 45 00.....Emergency Plumbing Fixtures

Division 23 – Heating, Ventilating, and Air Conditioning

- 23 05 00.....HVAC General Requirements
- 23 05 18.....Escutcheons for HVAC Piping
- 23 05 29.....Hangers and Supports for HVAC Piping and Equipment
- 23 05 53.....Identification for HVAC
- 23 05 93.....Testing, Adjusting and Balancing for HVAC
- 23 07 13.....HVAC Duct Insulation
- 23 07 19.....HVAC Piping Insulation
- 23 08 00.....Commissioning of HVAC
- 23 09 23.....Direct Digital Control System for HVAC
- 23 21 13.....Hydronic Piping
- 23 23 00.....Refrigerant Piping
- 23 31 13.....Ductwork
- 23 33 00.....Air Duct Accessories
- 23 34 23.....HVAC Power Ventilators
- 23 35 20.....Gas Detection System
- 23 37 13.....Diffusers, Registers, and Grilles
- 23 37 26.....Fixed Louvers
- 23 54 16.13.....Gas-Fired Furnaces
- 23 55 23.13.....Low-Intensity, Gas-Fired, Radiant Heaters
- 23 74 23.16.....Packaged, Indirect-Fired, Outdoor, Heating-Only Makeup-Air Units
- 23 81 26.....Split-System Air-Conditioners
- 23 82 39.19.....Wall and Ceiling Unit Heaters

Division 24 through 25 – Not Used

Division 26 – Electrical

- 26 00 10.....Electrical General Requirements
- 26 00 15.....Submittals
- 26 00 20.....Basic Electrical Materials and Methods
- 26 05 19.....Low-Voltage Electrical Power Conductors and Cables
- 26 05 26.....Grounding and Bonding for Electrical Systems
- 26 05 29.....Hangers and Supports for Electrical Systems
- 26 05 33.....Raceways and Boxes for Electrical Systems
- 26 05 43.....Underground Ducts and Raceways for Electrical Systems
- 26 05 53.....Identification for Electrical Systems
- 26 05 72.....Short Circuit Coordination Arc Flash Study
- 26 05 81.....Manholes, Handholes and Underground Pull Boxes
- 26 09 23.....Lighting Control Devices
- 26 09 43.....Relay-Based Lighting Controls
- 26 22 13.....Low-Voltage Distribution Transformers
- 26 24 13.....Switchboards
- 26 24 16.....Panelboards
- 26 27 13.....Electricity Metering
- 26 27 26.....Wiring Devices

- 26 28 13.....Fuses
- 26 28 16.....Enclosed Switches and Circuit Breakers
- 26 29 13.....Enclosed Controllers
- 26 32 13.11.....Diesel-Engine-Driven Generator System
- 26 36 00.....Transfer Switches
- 26 41 13.....Lightning Protection for Structures
- 26 43 13.....Surge Protection for Low-Voltage Electrical Power Circuits
- 26 51 19.....LED Interior Lighting
- 26 52 13.....Emergency and Exit Lighting
- 26 56 13.....Lighting Poles and Standards
- 26 56 19.....LED Exterior Lighting

Division 27 – Communications

- 27 05 26.....Grounding and Bonding for Communications Systems
- 27 05 28.....Pathways for Communications Systems
- 27 05 29.....Hangers and Supports for Communications Systems
- 27 05 36.....Cable Trays for Communications Systems
- 27 05 44.....Sleeves and Sleeve Seals for Communications Pathways and Cabling
- 27 05 53.....Identification for Communications Systems
- 27 11 16.....Communications Racks, Frames, and Enclosures
- 27 13 23.....Communications Optical Fiber Backbone Cabling
- 27 15 13.....Communications Copper Horizontal Cabling

Division 28 – Electronic Safety and Security

- 28 13 00.....Access Control
- 28 13 53.....Video Intercom System
- 28 16 00.....Intrusion Detection
- 28 23 00.....Video Surveillance
- 28 31 11.....Digital, Addressable Fire-Alarm System
- 28 53 19.....Emergency Responders Radio System

Division 29 – Not Used

SITE AND INFRASTRUCTURE SUBGROUP

Division 30 – Not Used

Division 31 – Earthwork

- 31 00 00..... Earthwork
- 31 10 00..... Site Clearing
- 31 22 13..... Rough Grading
- 31 23 33..... Piped Utilities-Basic Methods
- 31 25 00..... Erosion and Sediment Control

Division 32 – Exterior Improvements

- 32 12 00..... Flexible Pavement
- 32 13 00..... Rigid Pavement
- 32 31 13..... Chain Link Fences and Gates
- 32 32 15..... Precast Modular Block Gravity Retaining Wall

Division 33 – Utilities

- 33 11 00..... Water Distribution
- 33 30 00..... Sanitary Sewerage
- 33 40 00..... Storm Drainage
- 33 46 00..... Foundation Drainage
- 33 51 00..... Natural-Gas Distribution

33 56 13..... Above Ground Fuel Storage Tanks

Divisions 34 through 39 – Not Used

PROCESS EQUIPMENT SUBGROUP

Division 40 – Not Used

Division 41 – Material Processing and Handling Equipment

41 22 13..... Bridge Crane

41 22 14..... Monorail Crane

41 23 23.1..... Mobile Column Lifts

Division 42 – Not Used

Division 43 – Process Gas and Liquid Handling Equipment

43 22 56..... Salt Brine Production System

Division 44 through 49 – Not Used

END OF DOCUMENT



Statement of Special Inspections

State CPA No.: _____
 Project Name: DOT-250002 - ODOT Knox County FSMF
 Project Location: 505 Hardcourt Rd. Mt. Vernon, Ohio 43050

Pursuant to section 1704.2.3 Ohio Building Code, this statement of special inspections must be prepared by the applicant acting as the owner’s agent. This statement (2-part documents) should be submitted as a condition for plan approval and should include the following:

- **Part I:** A complete list of materials and work requiring special inspections and the required frequency of inspections by sections 1705.1 through 1705.18 Ohio Building Code.
- **Part II:** A list of special inspectors who are qualified and are competent to the particular type of construction or operations. **These special inspectors shall be employed by the owner or owner’s representative, other than contractor. Submit proper resumes and/or certificates of the special inspectors.**

** Please mark “X” on all work items requiring special inspection and the required frequency of inspections for this project per requirements in section 1705 OBC.

PART I: SCHEDULE OF SPECIAL INSPECTIONS				
No.	ITEM	Req'd	Continuous Inspection	Periodic Inspection
1	Special cases: (1705.1.1 OBC)	X		X
2	Steel Construction (1705.2 OBC)			
	▪ Structural steel	X		X
	▪ Cold form steel deck			
	▪ Open-web steel joists and joist girders			
	▪ Cold form steel trusses spanning ≥ 60 feet			
3	Concrete construction (1705.3 OBC)	X	X	X
	▪ Welding reinforcing bars			
	▪ Material tests	X	X	X
4	Masonry Construction (1705.4 OBC)	X	X	X
	▪ Empirically designed in risk category 4			
	▪ Vertical masonry foundation elements	X	X	X
5	Wood Construction (1705.5 OBC)			
	▪ High-load diaphragms			

	▪ Wood trusses spanning \geq 60 feet			
6	Soils (1705.6 OBC)	X	X	X
7	Driven Deep Foundation (1705.7 OBC)			
8	Cast-In-Place Deep Foundation (1705.8 OBC)			
9	Helical Pile Foundation (1705.9 OBC)			
10	Fabricated items (1705.10 OBC)			
11	Wind resistance (1705.11 OBC)			
	▪ Structural wood			
	▪ Cold-form steel light framed construction			
	▪ Wind resisting components			
12	Seismic resistance (1705.12 OBC)			
	▪ Structural steel			
	▪ Structural wood			
	▪ Cold-formed steel light-frame construction			
	▪ Designated seismic systems			
	▪ Architectural components			
	▪ Plumbing, mechanical, electrical components			
	▪ Storage racks			
	▪ Seismic isolation systems			
	▪ Cold-form steel special bolted moment frame			
13	Testing for seismic resistance (1705.13 OBC)			
	▪ Structural steel			
	▪ Nonstructural components			
	▪ Designated seismic systems			
	▪ Seismic isolation systems			
14	Sprayed fire-resistant materials (1705.14 OBC)			
	▪ Physical & visual tests			
	▪ Structural member surface conditions			
	▪ Application			
	▪ Thickness			
	▪ Density			
	▪ Bond strength			
15	Fire resistant coatings (1705.15 OBC)			
16	EFIS system (1705.16 OBC)			
	▪ Water resistive barrier coating			

17	Fire-resistant penetration/joint (1705.17 OBC)			
	▪ Penetration firestops			
	▪ Fire-resistant joint systems			
18	Testing for smoke control (1705.18 OBC)			
	▪ Testing scope			
	▪ Qualifications			

- Submit the resume of special inspectors for all marked special inspection items in the part I table showing the qualification and/or special training per 1704.1 OBC.

PART II: LIST OF SPECIAL INSPECTORS			
No.	ITEM	Inspection Company	Name of Inspector
1	Special cases: (1705.1 OBC)		
2	Steel Construction (1705.2 OBC)		
3	Concrete construction (1705.3 OBC)		
4	Masonry Construction (1705.4 OBC)		
5	Wood Construction (1705.5 OBC)		
6	Soils (1705.6 OBC)		
7	Driven Deep Foundation (1705.7 OBC)		
8	Cast-In-Place Deep Foundation (1705.8 OBC)		
9	Helical Pile Foundation (1705.9 OBC)		

10	Fabricated items (1705.10 OBC)		
11	Wind resistance (1705.11 OBC)		
12	Seismic resistance (1705.12 OBC)		
13	Testing for seismic resistance (1705.13 OBC)		
14	Sprayed fire-resistant materials (1705.14 OBC)		
15	Mastic & intumescent fire- resistant coatings (1705.15 OBC)		
16	EFIS system (1705.16 OBC)		
17	Fire-resistant penetrations and joints (1705.17 OBC)		
18	Testing for smoke control system (1705.18)		


The above statement of special inspections has been prepared by the applicant in accordance with the provision of section 1704.3 Ohio Building Code 2017.

The project registered design professional in responsible charge also acknowledges that he or she is responsible for reviewing and approving the special inspection reports submitted by the special inspectors at the required inspection periods. Any discrepancies in special inspection reports shall be brought to the attention of the building official. A final special inspection report documenting required special inspections and tests, and corrections of any discrepancies noted in the inspections or tests shall be submitted at a point of time agreed upon prior to the start of work by the owner or the owner's representative to the building official prior to the issuance of the certificate of occupancy.

Project applicant:

Name of Applicant: Jeffrey E. McCutchen

Name of Company: Paul J. Ford & Company

Signature: 

Date: 10/17/2025

Property Owner:

Name of Owner:

Name of Company:

Signature:

Date:

SECTION 07 41 16 - INSULATED METAL ROOF PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes: Foamed-insulation-core metal roof panels.
- B. Related Requirements:
 - 1. Section 077253 "Snow Guards" for prefabricated devices designed to hold snow on the roof surface, allowing it to melt and drain off slowly.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Meet with Owner, Architect, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal panels, including installers of roof accessories and roof-mounted equipment.
 - 2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 3. Review methods and procedures related to metal panel installation, including manufacturer's written instructions.
 - 4. Examine support conditions for compliance with requirements, including alignment between, flatness and attachment to structural members.
 - 5. Review structural loading limitations of purlins and rafters during and after roofing.
 - 6. Review flashings, special details, drainage, penetrations, equipment curbs, and condition of other construction that affect metal panels.
 - 7. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
 - 8. Review temporary protection requirements for metal panel systems during and after installation.
 - 9. Review of procedures for repair of metal panels damaged after installation.
 - 10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.4 ACTION SUBMITTALS

- A. Product Data: For foamed-insulation-core metal roof panels. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
- B. Shop Drawings:
 - 1. Include fabrication and installation layouts of metal panels; details of edge conditions, joints, panel profiles, corners, anchorages, attachment system, trim, flashings, closures, and accessories; and special details. Show layouts of panels including methods of support. Distinguish between factory- and field-assembled work; show locations of exposed fasteners.
 - 2. Accessories: Include details of the flashing, trim, and anchorage systems, at a scale of not less than 1-1/2 inches per 12 inches.
 - 3. Show roof-mounted items including roof hatches, equipment supports, pipe supports and penetrations, lighting fixtures, and items mounted on roof curbs.
 - 4. Show wall-mounted items including personnel doors, vehicular doors, windows, louvers, and lighting fixtures.
 - 5. Metal Roof Panel Layout Drawings: Show layouts of panels including methods of support. Include details of edge conditions, joints, panel profiles, corners, anchorages, clip spacing, trim, flashings, closures, and special details. Distinguish between factory- and field-assembled work; show locations of exposed fasteners.
 - a. Show roof-mounted items including roof hatches, equipment supports, pipe supports and penetrations, lighting fixtures, ridge closure, and items mounted on roof curbs.
- C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes.
 - 1. Include similar Samples of trim and accessories involving color selection.
- D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below.
 - 1. Metal Panels: 12 inches long by actual panel width. Include clips, fasteners, closures, and other metal panel accessories.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For foamed-insulation-core metal roof panels, for tests performed by a qualified testing agency.
- C. Field quality-control reports.

- D. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For metal panels to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.8 MOCKUPS

- A. Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockups for typical roof area only, including accessories.
 - a. Size: 12 feet long by 6 feet.
 - b. Each type of exposed seam and seam termination.
 - 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal panels during installation.

1.10 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed according to manufacturers' written instructions and warranty requirements.

1.11 COORDINATION

- A. Coordinate sizes and locations of roof curbs, equipment supports, and roof penetrations with actual equipment provided.
- B. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.12 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures including rupturing, cracking, or puncturing.
 - b. Deterioration of metals and other materials beyond normal weathering.
 - 2. Warranty Period: Two years from date of Substantial Completion.
- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.
 - 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 - 2. Finish Warranty Period: 20 years from date of Substantial Completion.
- C. Special Weathertightness Warranty for Standing-Seam Metal Roof Panels: Manufacturer agrees to repair or replace standing-seam metal roof panel assemblies that leak or otherwise fail to remain weathertight within specified warranty period.
 - 1. Warranty Period: 20 years from date of Substantial Completion.

1.13 ATTIC STOCK

- A. Maintenance Stock: Pack, protect, and label all excess material and store on site as directed by the Architect.
 - 1. Provide 3% excess nuts, bolts, screws, washer and other required fasteners.

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing according to ASTM E72:
 - 1. Wind Loads: As indicated on Drawings and as required by the Ohio Building Code.
 - 2. Other Design Loads: As indicated on Drawings and as required by the Ohio Building Code.
 - 3. Deflection Limits for Metal Roof Panels: Vertical deflection of 1/240 of the span.
 - 4. Metal panel assemblies shall withstand the effects of gravity loads and loads and stresses within limits and under condition indicate according to SSTM E 1592.

- B. Air Infiltration for Metal Roof Panels: Air leakage of not more than 0.06 cfm/sq. ft. when tested according to ASTM E1680 or ASTM E283 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 1.57 lbf/sq. ft.

- C. Water Penetration for Metal Roof Panels: No water penetration when tested according to ASTM E1646 or ASTM E331 at the following test-pressure difference:
 - 1. Test-Pressure Difference: 2.86 lbf/sq. ft.

- D. Wind-Uplift Resistance: Provide metal roof panel assemblies that comply with UL 580 for wind-uplift-resistance class indicated.
 - 1. Uplift Rating: UL 90.

- A. FM Global Listing: Provide metal roof panels and component materials that comply with requirements in FM Global 4471 as part of a panel roofing system and that are listed in FM Global's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM Global markings.
 - 1. Fire/Windstorm Classification: Class 1A-90] [105.
 - 2. Hail Resistance: MH.

- B. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 FOAMED-INSULATION-CORE METAL ROOF PANELS

- A. Provide factory-formed and -assembled metal roof panels fabricated from two sheets of metal with insulation core foamed in place during fabrication with joints between panels designed to form weathertight seals. Include accessories required for weathertight installation.
1. Panel Performance:
 - a. Flatwise Tensile Strength: 30 psi (200 kPa) when tested according to ASTM C297/C297M.
 - b. Humid Aging: Volume increase not greater than 6.0 percent and no delamination or metal corrosion when tested for seven days at 140 deg F (60 deg C) and 100 percent relative humidity according to ASTM D2126.
 - c. Heat Aging: Volume increase not greater than 2.0 percent and no delamination, surface blistering, or permanent bowing when tested for seven days at 200 deg F (93 deg C) according to ASTM D2126.
 - d. Cold Aging: Volume decrease not more than 1.0 percent and no delamination, surface blistering, or permanent bowing when tested for seven days at minus 20 deg F (29 deg C) according to ASTM D2126.
 - e. Fatigue: No evidence of delamination, core cracking, or permanent bowing when tested to a 20-lbf/sq. ft. (958-kPa) positive and negative wind load and with deflection of L/180 for 2 million cycles.
 - f. Autoclave: No delamination when exposed to 2-psi (13.8-kPa) pressure at a temperature of 212 deg F (100 deg C) for 2-1/2 hours.
 - g. Fire-Test-Response Characteristics: Class A according to ASTM E108.
 2. Insulation Core: Modified isocyanurate or polyurethane foam using a non-CFC blowing agent, with maximum flame-spread and smoke-developed indexes of 25 and 450, respectively.
 - a. Closed-Cell Content: 90 percent when tested according to ASTM D6226.
 - b. Density: 2.0 to 2.6 lb/cu. ft. (32 to 42 kg/cu. m) when tested according to ASTM D1622.
 - c. Compressive Strength: Minimum 20 psi (140 kPa) when tested according to ASTM D1621.
 - d. Shear Strength: 26 psi (179 kPa) when tested according to ASTM C273.
- B. Standing-Seam-Profile, Foamed-Insulation-Core Metal Roof Panels Formed with vertical tongue-and-groove ribs at panel edges and a flat pan between ribs; designed for sequential installation by interlocking tongue-and-groove panel edges and mechanically attaching panels to supports using concealed clips located between panels and engaging edges of adjacent panels, and mechanically seaming panels together.
1. Basis of Design: MetlSpan by Nucor, CFR Roof Panels with PIR Insulation.
 - a. Subject to review and compliance, acceptable manufacturers include:
 - 1) Kingspan
 - 2) *American Buildings Company; Division of Magnatrax Corp.*
 - 3) *All-Weather Insulated Panels*
 - 4) *McElroy Metal*
 2. Metallic-Coated Steel Sheet: Facings of zinc-coated (galvanized) steel sheet complying with ASTM A653/A653M, G90 (Z275) coating designation, or aluminum-zinc alloy-

coated steel sheet complying with ASTM A792/A792M, Class AZ50 (Class AZM150) coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.

- a. Nominal Thickness: 0.028 inch (0.71 mm).
- b. Exterior Finish: Three-coat fluoropolymer:
 - 1) Color: As selected by Architect from manufacturer's full range.
3. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).
4. Joint Type: As standard with manufacturer.
5. Panel Coverage: 36 inches.
6. Panel Thickness: 3.0 inches.
7. Thermal-Resistance Value (R-Value): 26.9 according to ASTM C1363.

2.3 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, a minimum of 30 mils (0.76 mm) thick, consisting of slip-resistant, polyethylene-film top surface laminated to a layer of butyl or SBS-modified asphalt adhesive, with release-paper backing. Provide primer when recommended by underlayment manufacturer.
 1. Thermal Stability: Stable after testing at 240 deg F (116 deg C); ASTM D1970.
 2. Low-Temperature Flexibility: Passes after testing at minus 20 deg F (29 deg C); ASTM D1970.
 3. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Atas International
 - b. Polyglass USA
 - c. Owens Corning
 - d. Fabral
 - e. Henry company
- B. Slip Sheet: Manufacturer's recommended slip sheet, of type required for application.

2.4 MISCELLANEOUS MATERIALS

- A. Miscellaneous Metal Subframing and Furring: ASTM C645, cold-formed, metallic-coated steel sheet, ASTM A653/A653M, G90 (Z275 hot-dip galvanized) coating designation or ASTM A792/A792M, Class AZ50 (Class AZM150) coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.
- B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets,

fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.

1. Closures: Provide closures at eaves and ridges, fabricated of same metal as metal panels.
 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
 4. Form exposed sheet metal accessories that are without excessive oil-canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
- C. Flashing and Trim: Provide flashing and trim formed from same material as exterior facings of metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
- D. Gutters: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch (0.46-mm) nominal uncoated steel thickness, prepainted with coil coating; finished to match roof fascia and rake trim. Match profile of gable trim, complete with end pieces, outlet tubes, and other special pieces as required. Fabricate in minimum 96-inch- (2438-mm-) long sections, sized according to SMACNA's "Architectural Sheet Metal Manual."
1. Gutter Supports: Fabricated from same material and finish as gutters.
 2. Strainers: Bronze, copper, or aluminum wire ball type at outlets.
- E. Downspouts: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch nominal uncoated steel thickness, prepainted with coil coating; finished to match metal roof panels. Fabricate in minimum 10-foot- long sections, complete with formed elbows and offsets.
1. Mounting Straps: Fabricated from same material and finish as gutters.
 2. Downspout boots: Provide cast iron downspout adaptors for connection to underground drainage system. Coordinate with Division 33 "Storm Utility Drainage".
- F. Roof Ridge Closure: Zinc-coated (galvanized) or aluminum-zinc alloy-coated steel sheet, 0.018-inch nominal uncoated steel thickness, prepainted with coil coating; finished to match metal roof panels.
- G. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.
- H. Panel Sealants: Provide sealant types recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.

1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

- I. Sheathing: Provide 5/8" Plywood Sheathing at locations indicated in the drawings.

2.5 FABRICATION

- A. Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
 1. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of metal panel.
- B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
 3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
 4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
 5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
 6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
 - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal panel manufacturer for application but not less than thickness of metal being secured.

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Exterior Facings and Accessories:
 - 1. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
- D. Interior Facings:
 - 1. Acrylic or Polyester Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
 - 1. Examine primary and secondary roof framing to verify that rafters, purlins, angles, channels, and other structural panel support members and anchorages have been installed within alignment tolerances required by metal roof panel manufacturer.
- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages according to ASTM C754 and metal panel manufacturer's written recommendations.
- B. Examination: Examine primary and secondary framing to verify that structural-panel support members and anchorages have been installed within alignment tolerances required by manufacturer.

1. Examine roughing-in for components and systems penetrating metal panels, to verify actual locations of penetrations relative to seams before metal panel installation.

3.3 INSTALLATION OF FOAMED-INSULATION-CORE METAL ROOF PANELS

- A. General: Install metal panels according to manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
1. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 2. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weatherproof performance of metal panel assemblies. Provide types of gaskets, fillers, and sealants indicated; or, if not indicated, provide types recommended by metal panel manufacturer.
 - a. Seal metal panel end laps with double beads of tape or sealant the full width of panel. Seal side joints where recommended by metal panel manufacturer.
 - b. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."
 3. Shim or otherwise plumb substrates receiving metal panels.
 4. Flash and seal metal panels with weather closures at perimeter of openings and similar elements. Fasten with self-tapping screws.
 5. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
 6. Install screw fasteners in predrilled holes.
 7. Locate and space fastenings in uniform vertical and horizontal alignment.
 8. Install flashing and trim as metal panel work proceeds.
 9. Locate metal panel splices over structural supports with end laps in alignment.
 10. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
 11. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
 12. Lap metal flashing over metal panels to allow moisture to run over and off the material.
 13. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.
 - a. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.
 14. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.
 - a. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.
- B. Fasteners: Use stainless steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.

- C. Anchor Clips: Anchor metal roof panels and other components of the Work securely in place, using manufacturer's approved fasteners according to manufacturers' written instructions.
- D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

3.4 METAL ROOF PANEL INSTALLATION

- A. General: Provide metal roof panels of full length from eave to ridge unless otherwise indicated or restricted by shipping limitations.
 - 1. Install ridge caps as metal roof panel work proceeds.
 - 2. Flash and seal metal roof panels with weather closures at eaves and rakes. Fasten with self-tapping screws.
- B. Standing-Seam, Foamed-Insulation-Core Metal Roof Panels: Fasten insulated metal roof panels to supports with concealed clips at each standing-seam joint at location, spacing, and with fasteners recommended in writing by manufacturer.
 - 1. Install clips to supports with self-tapping fasteners.
 - 2. Install pressure plates at locations indicated in manufacturer's written installation instructions.
 - 3. Snap Joint: Nest standing seams and fasten together by interlocking and completely engaging factory-applied sealant.
 - 4. Seamed Joint: Crimp standing seams with manufacturer-approved motorized seamer tool so that clip, metal roof panel, and factory-applied sealant are completely engaged.
 - 5. Rigidly fasten eave end of metal roof panels and allow ridge end free movement for thermal expansion and contraction. Predrill panels for fasteners.
 - 6. Provide metal closures at peaks, rake edges, rake walls and each side of ridge caps.
- C. Metal Fascia Panels: Align bottom of metal panels and fasten with blind rivets, bolts, or self-drilling or self-tapping screws. Flash and seal metal panels with weather closures where fasciae meet soffits, along lower panel edges, and at perimeter of all openings.
- D. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal roof panel manufacturers; or, if not indicated, provide types recommended in writing by metal roof panel manufacturer.
 - 2. Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by manufacturer.

- E. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that are permanently watertight and weather resistant.
 - 1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and achieve waterproof performance.
 - 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).
- F. Gutters: Join sections with riveted and soldered or lapped and sealed joints. Attach gutters to eave with gutter hangers spaced not more than 36 inches (914 mm) o.c. using manufacturer's standard fasteners. Provide end closures and seal watertight with sealant. Provide for thermal expansion.
- G. Downspouts: Join sections with telescoping joints. Provide fasteners designed to hold downspouts securely 1 inch (25 mm) away from walls; locate fasteners at top and bottom and at approximately 60 inches (1500 mm) o.c. in between.
 - 1. Provide elbows at base of downspouts to direct water away from building.
 - 2. Tie downspouts to underground drainage system indicated.
- H. Roof Ridge Closure: Join sections with riveted and soldered or lapped and sealed joints. Attach to roof panels using manufacturer's standard fasteners. Seal watertight with sealant. Provide for thermal expansion.
- I. Pipe Flashing: Form flashing around pipe penetration and metal roof panels. Fasten and seal to metal roof panels as recommended by manufacturer.

3.5 INSTALLATION OF UNDERLAYMENT

- A. Self-Adhering Sheet Underlayment: Apply primer if required by manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation. Apply at locations indicated below, wrinkle free, in shingle fashion to shed water, and with end laps of not less than 6 inches (152 mm) staggered 24 inches (610 mm) between courses. Overlap side edges not less than 3-1/2 inches (90 mm). Roll laps with roller. Cover underlayment within 14 days.
 - 1. Apply over the entire roof surface.
- B. Slip Sheet: Apply slip sheet over underlayment before installing metal roof panels.
- C. Flashings: Install flashings to cover underlayment to comply with requirements specified in Section 076200 "Sheet Metal Flashing and Trim."

3.6 ERECTION TOLERANCES

- A. Installation Tolerances: Shim and align metal panel units within installed tolerance of 1/4 inch in 20 feet (6 mm in 6 m) on slope and location lines as indicated and within 1/8-inch (3-mm) offset of adjoining faces and of alignment of matching profiles.

3.7 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect completed metal panel installation, including accessories. Report results in writing.
- B. Remove and replace applications where tests and inspections indicate that they do not comply with specified requirements.
- C. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.
- D. Prepare test and inspection reports.

3.8 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- B. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.
- C. Touchup Painting:
 - 1. After erection, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted structural framing, bearing plates, and accessories.
 - a. Clean and prepare surfaces by SSPC-SP 2, "Hand Tool Cleaning," or by SSPC-SP 3, "Power Tool Cleaning."
 - b. Apply a compatible primer of same type as shop primer used on adjacent surfaces.
- D. Repair damaged galvanized coatings on galvanized items with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.

END OF SECTION 07 41 16

SECTION 07 42 13.1 - INSULATED METAL WALL PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Foamed-insulation-core concealed fastener metal wall panels with related metal trim and accessories.
2. Metal interior liner panels.
3. Metal soffit panels.

B. Related Requirements:

- A. Division 05 Section "Cold-Formed Metal Framing" for cold-formed metal framing supporting metal panels.
- B. Division 07 Section "Sheet Metal Flashing and Trim" for sheet metal flashing items in addition to items specified in this Section.
- C. Division 07 Section "Metal Wall and Roof Panels" for factory-formed metal wall, roof, and soffit panels.
- D. Division 13 Section "Metal Building Systems" for steel framing supporting metal panels.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Meet with Owner, Architect, Owner's insurer if applicable, metal panel Installer, metal panel manufacturer's representative, structural-support Installer, and installers whose work interfaces with or affects metal panels, including installers of doors, windows, and louvers.
2. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review methods and procedures related to metal panel installation, including manufacturer's written instructions.
4. Examine support conditions for compliance with requirements, including alignment between and attachment to structural members.

5. Review flashings, special siding details, wall penetrations, openings, and condition of other construction that affect metal panels.
6. Review governing regulations and requirements for insurance, certificates, and tests and inspections if applicable.
7. Review temporary protection requirements for metal panel assembly during and after installation.
8. Structural limitations of girts and columns during and after wall panel installation.
9. Review procedures for repair of metal panels damaged after installation.
10. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.4 ACTION SUBMITTALS

- A. Product Data Submittals: For each product.
 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of panel and accessory.
- B. Shop Drawings:
 1. Metal Panel Layout Drawings: Show layouts of panels including methods of support. Include details of edge conditions, joints, panel profiles, corners, anchorages, clip spacing, trim, flashings, closures, and special details. Distinguish between factory- and field-assembled work; show locations of exposed fasteners.
 - a. Show wall-mounted items including personnel doors, vehicular doors, windows, louvers, and lighting fixtures.
- C. Samples for Initial Selection: For each type of metal panel indicated with factory-applied color finishes.
 1. Include similar Samples of trim and accessories involving color selection.
- D. Samples for Verification: For each type of exposed finish, prepared on Samples of size indicated below.
 1. Metal Panels: 12 inches long by actual panel width. Include fasteners, closures, and other metal panel accessories.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Test Reports: For each product, tests performed by a qualified testing agency.
- C. Field quality-control reports.
- D. Sample Warranties: For special warranties.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For metal panels to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 - 1. Build mockup of typical metal panel assembly, including corner, supports, attachments, and accessories.
 - 2. Water-Spray Test: Conduct water-spray test of metal panel assembly mockup, testing for water penetration in accordance with AAMA 501.2.
 - 3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 - 4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver components, metal panels, and other manufactured items so as not to be damaged or deformed. Package metal panels for protection during transportation and handling.
- B. Unload, store, and erect metal panels in a manner to prevent bending, warping, twisting, and surface damage.
- C. Stack metal panels horizontally on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal panels to ensure dryness, with positive slope for drainage of water. Do not store metal panels in contact with other materials that might cause staining, denting, or other surface damage.
- D. Retain strippable protective covering on metal panels during installation.

1.9 FIELD CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed in accordance with manufacturers' written instructions and warranty requirements.

1.10 COORDINATION

- A. Coordinate metal panel installation with rain drainage work, flashing, trim, construction of soffits, and other adjoining work to provide a leakproof, secure, and noncorrosive installation.

1.11 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of metal panel systems that fail in materials or workmanship within specified warranty period.

- 1. Failures include, but are not limited to, the following:

- a. Structural failures including rupturing, cracking, or puncturing.
- b. Deterioration of metals and other materials beyond normal weathering.

- 2. Warranty Period: Two years from date of Substantial Completion.

- B. Special Warranty on Panel Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace metal panels that show evidence of deterioration of factory-applied finishes within specified warranty period.

- 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

- a. Color fading more than 5 Hunter units when tested in accordance with ASTM D2244.
- b. Chalking in excess of a No. 8 rating when tested in accordance with ASTM D4214.
- c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.

- 2. Finish Warranty Period: 20 years from date of Substantial Completion.

1.12 ATTIC STOCK

- A. Maintenance Stock: Pack, protect, and label all excess material and store on site as directed by the Architect.

- 1. Provide 3% excess nuts, bolts, screws, washer and other required fasteners.
- 2. Provide 3% full length metal wall and liner panels.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Structural Performance: Provide metal panel systems capable of withstanding the effects of the following loads, based on testing in accordance with ASTM E72:

- 1. Wind Loads: As indicated on Drawings and as required by the Ohio Building Code.

2. Other Design Loads: As indicated on Drawings and as required by the Ohio Building Code.
 3. Deflection Limits for Metal Wall Panels: Horizontal deflection of 1/180 of the span.
- B. Air Infiltration for Metal Wall Panels: Air leakage of not more than 0.06 cfm/sq. ft. when tested according to ASTM E283 at the following test-pressure difference:
1. Test-Pressure Difference: 6.24 lbf/sq. ft.
- C. Water Penetration for Metal Wall Panels: No water penetration when tested according to ASTM E331 at the following test-pressure difference:
1. Test-Pressure Difference: 6.24 lbf/sq. ft.
- D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes by preventing buckling, opening of joints, overstressing of components, failure of joint sealants, failure of connections, and other detrimental effects. Base calculations on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.
- E. Fire-Resistance Ratings: Where assemblies are indicated to have a fire-resistance rating, provide metal panel assemblies identical to those of assemblies tested for fire resistance per ASTM E119 or ASTM E108 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
1. Indicate design designations from UL's "Fire Resistance Directory," FM Global's "Approval Guide," or from the listings of another qualified testing agency.
- F. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
1. Oversize Fire-Rated Door Assemblies: For units exceeding sizes of tested assemblies, provide certification by a qualified testing agency that doors comply with standard construction requirements for tested and labeled fire-rated door assemblies except for size.
- 2.2 FOAMED-INSULATION-CORE METAL WALL PANELS
- A. General: Provide factory-formed and -assembled metal wall panels fabricated from two metal facing sheets and insulation core foamed in place during fabrication, and with joints between panels designed to form weathertight seals. Include accessories required for weathertight installation.
1. Insulation Core: Modified isocyanurate or polyurethane foam using a non-CFC blowing agent, with maximum flame-spread and smoke-developed indexes of 25 and 450, respectively.

- a. Closed-Cell Content: 90 percent when tested in accordance with ASTM D6226.
 - b. Density: 2.0 to 2.6 lb/cu. ft. (32 to 42 kg/cu. m) when tested in accordance with ASTM D1622.
 - c. Compressive Strength: Minimum 20 psi (140 kPa) when tested in accordance with ASTM D1621.
 - d. Shear Strength: 26 psi (179 kPa) when tested in accordance with ASTM C273/C273M.
- B. Concealed-Fastener, Foamed-Insulation-Core Metal Wall Panels Formed with tongue-and-groove panel edges; designed for sequential installation by interlocking panel edges and mechanically attaching panels to supports using concealed clips or fasteners.
1. Basis of Design: MetlSpan by Nucor – CF Flute Wall Panel with PIR Insulation.
 - a. Subject to compliance, additional acceptable manufacturers include:
 - 1) Kingspan
 - 2) *American Buildings Company; Division of Magnatrax Corp.*
 - 3) *Ameri clad*
 - 4) *Centria*
 2. Metallic-Coated Steel Sheet: Facings of zinc-coated (galvanized) steel sheet complying with ASTM A653/A653M, G90 (Z275) coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A792/A792M, Class AZ50 (Class AZM150) coating designation; structural quality. Prepainted by the coil-coating process to comply with ASTM A755/A755M.
 - a. Nominal Thickness: 0.028 inch (0.71 mm).
 - b. Exterior Finish: Three-coat fluoropolymer.
 - 1) Color: As selected by Architect from manufacturer's full range.
 - c. Interior Finish: Facings of zinc-coated (galvanized) steel sheet complying with ASTM A653/A653M, G90 (Z275) coating designation, or aluminum-zinc alloy-coated steel sheet complying with ASTM A792/A792M, Class AZ50 (Class AZM150) coating designation.
 - 1) Color: As selected by Architect from manufacturer's full range.
 3. Panel Coverage: 42 inches.
 4. Panel Thickness: 4.0 inches (102 mm).
 5. Thermal-Resistance Value (R-Value): 35 in accordance with ASTM C1363.
- C. METAL WALL LINER PANELS
1. Tapered-Rib-Profile, Metal Wall Liner Panels: Formed with raised, trapezoidal major ribs and flat pan between major ribs; designed to be installed by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.
 2. Basis of Design: Nucor –Wall Liner Panel
 - a. Subject to compliance, additional acceptable manufacturers include:
 - 1) American Building Company
 - 2) Butler Building Company
 - 3) Chief Buildings
 - 3.

- a. Material: Zinc-coated (galvanized) steel sheet, 0.022-inch (0.56-mm) nominal thickness.
 - 1) Exterior Finish: Acrylic enamel.
 - 2) Color: As selected by Architect from manufacturer's full range.
 - b. Major-Rib Spacing: 6 inches (152 mm) o.c.
 - c. Panel Coverage: 36 inches (914 mm).
 - d. Panel Height: 1.25 inches (32 mm).
4. Finishes:
- a. Exposed Coil-Coated Finish:
 - 1) Two-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in color coat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - b. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).

2.3 MISCELLANEOUS MATERIALS

- A. Miscellaneous Metal Subframing and Furring: ASTM C645, cold-formed, metallic-coated steel sheet, ASTM A653/A653M, G90 (Z275 hot-dip galvanized) coating designation or ASTM A792/A792M, Class AZ50 (Class AZM150) aluminum-zinc-alloy coating designation unless otherwise indicated. Provide manufacturer's standard sections as required for support and alignment of metal panel system.
- B. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
 1. Closures: Provide closures at eaves and rakes, fabricated of same metal as metal panels.
 2. Backing Plates: Provide metal backing plates at panel end splices, fabricated from material recommended by manufacturer.
 3. Closure Strips: Closed-cell, expanded, cellular, rubber or crosslinked, polyolefin-foam or closed-cell laminated polyethylene; minimum 1-inch- (25-mm-) thick, flexible closure strips; cut or premolded to match metal panel profile. Provide closure strips where indicated or necessary to ensure weathertight construction.
- C. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, bases, drips, sills, jambs, corners, endwalls, framed openings, rakes, fasciae, parapet caps, soffits, reveals, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.
- D. Panel Fasteners: Self-tapping screws designed to withstand design loads. Provide exposed fasteners with heads matching color of metal panels by means of plastic caps or factory-applied coating. Provide EPDM or PVC sealing washers for exposed fasteners.

- E. Panel Sealants: Provide sealant type recommended by manufacturer that are compatible with panel materials, are nonstaining, and do not damage panel finish.
 - 1. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch (13 mm) wide and 1/8 inch (3 mm) thick.
 - 2. Joint Sealant: ASTM C920; elastomeric polyurethane or silicone sealant; of type, grade, class, and use classifications required to seal joints in metal panels and remain weathertight; and as recommended in writing by metal panel manufacturer.
 - 3. Butyl-Rubber-Based, Solvent-Release Sealant: ASTM C1311.

2.4 FABRICATION

- A. General: Fabricate and finish metal panels and accessories at the factory, by manufacturer's standard procedures and processes, as necessary to fulfill indicated performance requirements demonstrated by laboratory testing. Comply with indicated profiles and with dimensional and structural requirements.
- B. Provide panel profile, including major ribs and intermediate stiffening ribs, if any, for full length of panel.
- C. Fabricate metal panel joints with factory-installed captive gaskets or separator strips that provide a weathertight seal and prevent metal-to-metal contact, and that minimize noise from movements.
- D. Sheet Metal Flashing and Trim: Fabricate flashing and trim to comply with manufacturer's recommendations and recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, metal, and other characteristics of item indicated.
 - 1. Form exposed sheet metal accessories that are without excessive oil canning, buckling, and tool marks and that are true to line and levels indicated, with exposed edges folded back to form hems.
 - 2. Seams for Aluminum: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.
 - 3. Seams for Other Than Aluminum: Fabricate nonmoving seams in accessories with flat-lock seams. Tin edges to be seamed, form seams, and solder.
 - 4. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate sealant and to comply with SMACNA standards.
 - 5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of accessories exposed to view.
 - 6. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal recommended in writing by metal panel manufacturer.
 - a. Size: As recommended by SMACNA's "Architectural Sheet Metal Manual" or metal wall panel manufacturer for application but not less than thickness of metal being secured.

- A. Protect mechanical and painted finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- C. Steel Panels and Accessories:
 - 1. Three-Coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 2. Concealed Finish: Apply pretreatment and manufacturer's standard white or light-colored acrylic or polyester backer finish consisting of prime coat and wash coat with a minimum total dry film thickness of 0.5 mil (0.013 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, metal panel supports, and other conditions affecting performance of the Work.
 - 1. Examine wall framing to verify that girts, angles, channels, studs, and other structural panel support members and anchorage have been installed within alignment tolerances required by metal wall panel manufacturer.
 - 2. Examine wall sheathing to verify that sheathing joints are supported by framing or blocking and that installation is within flatness tolerances required by metal wall panel manufacturer.
 - a. Verify that air- or water-resistive barriers have been installed over sheathing or backing substrate to prevent air infiltration or water penetration.
- B. Examine roughing-in for components and systems penetrating metal panels to verify actual locations of penetrations relative to seam locations of metal panels before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Miscellaneous Supports: Install subframing, furring, and other miscellaneous panel support members and anchorages in accordance with ASTM C754 and metal panel manufacturer's written recommendations.

3.3 INSTALLATION OF METAL PANELS

- A. General: Install metal panels in accordance with manufacturer's written instructions in orientation, sizes, and locations indicated. Install panels perpendicular to supports unless otherwise indicated. Anchor metal panels and other components of the Work securely in place, with provisions for thermal and structural movement.
 - 1. Unless otherwise indicated, begin metal panel installation at corners with center of rib lined up with line of framing.
 - 2. When two rows of metal panels are required, lap panels 4 inches minimum.
 - 3. When building height requires two rows of metal panels at gable ends, align lap of gable panels over metal wall panels at eave height.
 - 4. Rigidly fasten base end of metal wall panels and allow eave end free movement for thermal expansion and contraction. Pre-drill panels.
 - 5. Shim or otherwise plumb substrates receiving metal panels.
 - 6. Flash and seal metal wall panels with weather closures at eaves and rakes, and at perimeter of all openings. Fasten with self-tapping screws.
 - 7. Do not begin installation until air- or water-resistive barriers and flashings that will be concealed by metal panels are installed.
 - 8. Install screw fasteners in predrilled holes.
 - 9. Locate and space fastenings in uniform vertical and horizontal alignment.
 - 10. Install metal panels perpendicular to structural supports unless otherwise indicated.
 - 11. Install flashing and trim as metal panel work proceeds.
 - 12. Locate panel splices over, but not attached to, structural supports. Stagger panel splices and end laps to avoid a four-panel lap splice condition.
 - 13. Align bottoms of metal panels and fasten with blind rivets, bolts, or self-tapping screws. Fasten flashings and trim around openings and similar elements with self-tapping screws.
 - 14. Provide weathertight escutcheons for pipe- and conduit-penetrating panels.
 - 15. Lap metal flashing over metal panels to allow moisture to run over and off the material.
- B. Metal Wall Panels: Install metal wall panels on exterior side of girts. Attach metal wall panels to supports with fasteners as recommended by manufacturer.
- C. Fasteners:
 - 1. Steel Panels: Use stainless steel fasteners for surfaces exposed to the exterior; use galvanized-steel fasteners for surfaces exposed to the interior.
 - 2. Aluminum Panels: Use aluminum or stainless steel fasteners for surfaces exposed to the exterior; use aluminum or galvanized-steel fasteners for surfaces exposed to the interior.
- D. Metal Protection: Where dissimilar metals contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with corrosion-resistant coating, by

applying rubberized-asphalt underlayment to each contact surface, or by other permanent separation as recommended by metal roof panel manufacturer.

- E. Joint Sealers: Install gaskets, joint fillers, and sealants where indicated and where required for weathertight performance of metal wall panel assemblies. Provide types of gaskets, fillers, and sealants indicated by metal panel manufacturer; or, if not indicated, provide types recommended by metal wall panel manufacturer.
 - 1. Seal metal wall panel end laps with double beads of tape or sealant, full width of panel. Seal side joints where recommended by metal wall panel manufacturer.
 - 2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."
- F. Field cut metal panels as required for doors, windows, and other openings. Cut openings as small as possible, neatly to size required, and without damage to adjacent metal panel finishes.
 - 1. Field cutting of metal panels by torch is not permitted unless approved in writing by manufacturer.

3.4 INSTALLATION OF INSULATION-CORE METAL WALL PANELS

- A. General: Foamed-Insulation-Core Metal Wall Panels: Fasten metal wall panels to supports with concealed clips at each joint at location and spacing and with fasteners recommended by manufacturer. Fully engage tongue and groove of adjacent panels.
 - 1. Install clips to supports with self-tapping fasteners.
 - 2. Fasten foamed-insulation-core metal wall panels to supports with fasteners at each lapped joint at location and spacing and with fasteners recommended by manufacturer.
 - 3. Apply panels and associated items true to line for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.
 - 4. Provide metal-backed washers under heads of exposed fasteners on weather side of insulated metal wall panels.
 - 5. Locate and space exposed fasteners in uniform vertical and horizontal alignment. Use proper tools to obtain controlled uniform compression for positive seal without rupture of washer.
 - 6. Provide sealant tape at lapped joints of insulated metal wall panels and between panels and protruding equipment, vents, and accessories.
 - 7. Apply elastomeric sealant continuously between metal base channel (sill angle) and concrete, and elsewhere as indicated on Drawings; if not indicated, as necessary for waterproofing.
- B. Lap-Seam Metal Panels: Install screw fasteners using power tools with controlled torque adjusted to compress EPDM washers tightly without damage to washers, screw threads, or metal panels. Install screws in predrilled holes.
 - 1. Arrange and nest side-lap joints so prevailing winds blow over, not into, lapped joints. Lap ribbed or fluted sheets one full rib corrugation. Apply metal panels and associated items for neat and weathertight enclosure. Avoid "panel creep" or application not true to line.

- C. Accessory Installation: Install accessories with positive anchorage to building and weathertight mounting, and provide for thermal expansion. Coordinate installation with flashings and other components.
 - 1. Install components required for a complete metal panel system including trim, copings, corners, seam covers, flashings, sealants, gaskets, fillers, closure strips, and similar items. Provide types indicated by metal panel manufacturer; or, if not indicated, provide types recommended by metal panel manufacturer.
- D. Flashing and Trim: Comply with performance requirements, manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, and set units true to line and level. Install work with laps, joints, and seams that are permanently watertight.
 - 1. Install exposed flashing and trim that is without buckling and tool marks, and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to achieve waterproof performance.
 - 2. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

3.5 METAL SOFFIT PANEL INSTALLATION

- A. Provide 22 GA Metallic Coated Sheet Steel soffit panels the full width of soffits. Install panels perpendicular to support framing.
- B. Flash and seal metal soffit panels with weather closures where panels meet walls and at perimeter of all openings.
- C. Finish Sheet Steel soffit panels to match adjacent wall panels.

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Water-Spray Test: After installation, test area of assembly as directed by Architect for water penetration in accordance with AAMA 501.2.
- C. Manufacturer's Field Service: Engage a factory-authorized service representative to test and inspect completed metal wall panel installation, including accessories.
- D. Metal wall panels will be considered defective if they do not pass test and inspections.
- E. Additional tests and inspections, at Contractor's expense, are performed to determine compliance of replaced or additional work with specified requirements.

- F. Prepare test and inspection reports.

3.7 CLEANING AND PROTECTION

- A. Repair damaged galvanized coatings on galvanized items with galvanized repair paint according to ASTM A780/A780M and manufacturer's written instructions.
- B. Touchup Painting:
 - 1. After erection, promptly clean, prepare, and prime or reprime field connections, rust spots, and abraded surfaces of prime-painted structural framing, bearing plates, and accessories.
 - a. Clean and prepare surfaces by SSPC-SP 2, "Hand Tool Cleaning," or by SSPC-SP 3, "Power Tool Cleaning."
 - b. Apply a compatible primer of same type as shop primer used on adjacent surfaces.
- C. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- D. After metal panel installation, clear weep holes and drainage channels of obstructions, dirt, and sealant.
- E. Replace metal panels that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07 42 13.1

SECTION 10 28 00 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Public-use washroom accessories.
 - 2. Underlavatory guards.
 - 3. Custodial accessories.
- B. Related Requirements:
 - 1. Section 093013 "Ceramic Tiling" for ceramic toilet and bath accessories.

1.3 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.4 ACTION SUBMITTALS

- A. Product Data Submittals: For each product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - 2. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 3. Include electrical characteristics.
- B. Samples: For each exposed product and for each finish specified, full size.
 - 1. Approved full-size Samples will be returned and may be used in the Work.
- C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.

1. Identify locations using room designations indicated.
2. Identify accessories using designations indicated.

1.5 INFORMATIONAL SUBMITTALS

- A. Warranty: For manufacturer's special warranties.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For accessories to include in maintenance manuals.

1.7 WARRANTY

- A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.
 1. Failures include, but are not limited to, visible silver spoilage defects.
 2. Warranty Period: 15 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 OWNER-FURNISHED MATERIALS

- A. Owner-Furnished Material: Contractor Installed.
 1. Toilet Paper Dispensers.
 2. Paper Towel Dispensers.
 3. Liquid-Soap Dispenser

2.2 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Structural Performance: Design accessories and fasteners to comply with the following requirements:
 1. Grab Bars: Installed units are able to resist 250 lbf concentrated load applied in any direction and at any point.

2.3 PUBLIC-USE WASHROOM ACCESSORIES

- A. Source Limitations: Obtain type of public-use washroom accessory from single source from single manufacturer.

1. *Acceptable Manufacturers include the following:*
 - a. *Bobrick Washroom Equipment (Basis of Design)*
 - b. *Bradley Corporation*
 - c. *American Specialties*

- B. Toilet Tissue (Roll) Dispenser (10 28 00.1):
 1. Owner furnished; Contractor Installed.

- C. Paper Towel (Folded) Dispenser (10 28 00.2/10 28 00.3):
 1. Owner furnished; Contractor Installed.

- D. Waste Receptacle (10 28 00.4):
 1. Basis-of-Design: Bobrick B-43644
 2. Mounting: Recessed.
 3. Material and Finish: Stainless steel, No.4 finish (satin)
 4. Liner: Reusable, vinyl waste-receptacle liner.
 5. Lockset: Non-locking

- E. Waste Receptacle (10 28 00.5):
 1. Basis-of-Design: Bobrick B-277
 2. Mounting: Surface-Mounted.
 3. Material and Finish: Stainless steel, No.4 finish (satin)
 4. Liner: Reusable, vinyl waste-receptacle liner.
 5. Lockset: Non-locking

- F. Soap Dispenser (10 28 00.6):
 1. Owner furnished; Contractor Installed

- G. 18" Vertical Grab Bar (10 28 00.7):
 1. Basis-of-Design: Bobrick B-6806 x 18.
 2. Mounting: Flanges with concealed fasteners.
 3. Material: Stainless steel, 0.05 inch (1.3 mm) thick.
 - a. Finish: Smooth, No. 4 finish (satin) on ends and slip-resistant texture in grip area.
 4. Outside Diameter: 1-1/2 inches (32 mm).
 5. Configuration and Length: As indicated on Drawings: Straight, 18 inches (455mm).

- H. 36" Horizontal Grab Bar (10 28 00.8):
 1. Basis-of-Design: Bobrick B-6806 x 36.
 2. Mounting: Flanges with concealed fasteners.
 3. Material: Stainless steel, 0.05 inch (1.3 mm) thick.
 - a. Finish: Smooth, No. 4 finish (satin) on ends and slip-resistant texture in grip area.
 4. Outside Diameter: 1-1/2 inches (32 mm).
 5. Configuration and Length: As indicated on Drawings: Straight, 36 inches (914 mm) long.

- I. 42" Horizontal Grab Bar (10 28 00.9):
 1. Basis-of-Design: Bobrick B-6806 x 42.
 2. Mounting: Flanges with concealed fasteners.
 3. Material: Stainless steel, 0.05 inch (1.3 mm) thick.

- a. Finish: Smooth, No. 4 finish (satin) on ends and slip-resistant texture in grip area.
 4. Outside Diameter: 1-1/2 inches (32 mm).
 5. Configuration and Length: As indicated on Drawings: Straight 42" (1066 mm) long.
- J. Sanitary Napkin / Tampon Disposal Unit (10 28 00.10):
1. Basis-of-Design: Bobrick B-270
 2. Mounting: Surface mounted.
 3. Door or Cover: Self-closing, disposal-opening cover.
 4. Receptacle: Removable.
 5. Material and Finish: Stainless steel, No. 4 finish (satin).
- K. Framed Mirror (10 28 00.11):
1. Basis of Design: Bobrick B-290
 2. Frame: Stainless-steel angle 0.05 inch thick.
 - a. Corners: Welded and ground smooth.
 3. Hangers: Produce rigid, tamper proof and theft resistant installation using one piece, galvanized steel wall hanger device with spring action locking mechanism to hold mirror unit in position with no exposed screws, bolts, or fasteners.
 4. Size: as indicated in drawings.
- L. Unframed Mirror (10 28 00.12):
1. Mirror Glass: ASTM C 1036, Type 1 (Transparent Glass, Flat), Class 1 (Clear), Quality (Q1: Mirror Select), with full silver coating, copper coating and protective back coating.
 - a. Refer to Specification Section 088000 "Glazing".
 - b. Nominal Thickness: 6.0 mm
 - c. Size as indicated on drawings.
- 2.4 UNDERLAVATORY GUARDS (10 28 00.13):
- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Plumberex Specialty Products, Inc.
 2. Truebro by IPS Corporation.
 3. HD Supply
- 2.5 CUSTODIAL ACCESSORIES
- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
1. A & J Washroom Accessories, Inc.
 2. Bobrick Washroom Equipment, Inc.
 3. Bradley Corporation.
- B. Mop and Broom Holder (10 28 00.14):

1. Basis-of-Design: Bobrick B-224
2. Description: Unit with shelf, hooks, holders, and rod suspended beneath shelf.
3. Length: 36 inches.
4. Hooks: Three.
5. Mop/Broom Holders: Four, spring-loaded, rubber hat, cam type.
6. Material and Finish: Stainless steel, No. 4 satin.
 - a. Shelf: Not less than nominal 0.05-inch- (1.3-mm-) thick stainless steel.
 - b. Rod: Approximately 1/4-inch- (6-mm-) diameter stainless steel.

2.6 MATERIALS

- A. Stainless Steel: ASTM A240/A240M or ASTM A666, Type 304, 0.031-inch minimum nominal thickness unless otherwise indicated.
- B. Steel Sheet: ASTM A1008/A1008M, Designation CS (cold rolled, commercial steel), 0.036-inch minimum nominal thickness.
- C. Galvanized-Steel Sheet: ASTM A653/A653M, with G60 hot-dip zinc coating.
- D. Galvanized-Steel Mounting Devices: ASTM A153/A153M, hot-dip galvanized after fabrication.
- E. Fasteners: Screws, bolts, and other devices of same material as accessory unit, unless otherwise recommended by manufacturer or specified in this Section, and tamper and theft resistant where exposed, and of stainless or galvanized steel where concealed.
- F. Chrome Plating: ASTM B456, Service Condition Number SC 2 (moderate service).
- G. Mirrors: ASTM C1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.

2.7 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories in accordance with manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.

1. Remove temporary labels and protective coatings.

B. Grab Bars: Install to comply with specified structural-performance requirements.

3.2 ADJUSTING AND CLEANING

A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.

B. Clean and polish exposed surfaces in accordance with manufacturer's written instructions.

END OF SECTION 10 28 00

SECTION 10 51 13 - METAL LOCKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Standard metal lockers.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal locker.
- B. Shop Drawings: For metal lockers.
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Show locker trim and accessories.
 - 3. Include locker identification system and numbering sequence.
- C. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available.
- D. Samples for Verification: For the following products, in manufacturer's standard size:
 - 1. Lockers and equipment.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For adjusting, repairing, and replacing locker doors and latching mechanisms to include in maintenance manuals.

1.7 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. The following metal locker hardware items equal to 10 percent of amount installed for each type and finish installed, but no fewer than five units:
 - a. Locks.
 - b. Blank identification plates.
 - c. Hooks.

1.8 *QUALITY ASSURANCE*

- A. *Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.*
- B. *Regulatory Requirements: Where metal lockers are indicated to comply with accessibility requirements, comply with the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities".*

1.9 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver metal lockers until spaces to receive them are clean, dry, and ready for their installation.

1.10 COORDINATION

- A. Coordinate sizes and locations of bases for metal lockers.
- B. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of work specified in other Sections to ensure that metal lockers can be supported and installed as indicated.

1.11 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of metal lockers that fail in materials or workmanship, excluding finish, within specified warranty period.

1. Failures include, but are not limited to, the following:
 - a. Structural failures.
 - b. Faulty operation of latches and other door hardware.
2. Damage from deliberate destruction and vandalism is excluded.
3. Warranty Period for Knocked-Down Metal Lockers: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain metal lockers and accessories from single source from single locker manufacturer.
 1. Obtain locks from single lock manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: For lockers indicated to be accessible, comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design", the ABA standards of the Federal agency having jurisdiction and ICC A117.1.

2.3 STANDARD METAL LOCKERS

- A. Products: Subject to compliance with requirements, provide one of the following:
 1. Art Metal Products; Standard K.D. Lockers.
 2. Lyon Workspace Products, LLC; Standard Lockers.
 3. Penco Products – Metal Lockers
 4. Republic Storage Systems Company; Standard Lockers.
 5. Tenssco Corp.; Tenssco Lockers.
- B. *Locker Arrangement: Single tier.*
 1. *Garage lockers 24" w x 21" d x 72" high with legs.*
- C. *Material: Cold-rolled steel sheet.*
- D. Doors: One piece; fabricated from 0.060-inch nominal-thickness steel sheet; formed into channel shape with double bend at vertical edges and with right-angle single bend at horizontal edges.
 1. Doors less than 12 inches wide may be fabricated from 0.048-inch nominal-thickness steel sheet.

2. Doors for box lockers less than 15 inches wide may be fabricated from 0.048-inch nominal-thickness steel sheet.
 3. Reinforcement: Manufacturer's standard reinforcing angles, channels, or stiffeners for doors more than 15 inches wide; welded to inner face of doors.
 4. Stiffeners: Manufacturer's standard full-height stiffener fabricated from 0.048-inch nominal-thickness steel sheet; welded to inner face of doors.
 5. Door Style: Vented panel as follows:
 - a. Louvered Vents: No fewer than six louver openings at top and bottom for single-tier lockers.
- E. Body: Assembled by riveting or bolting body components together. Fabricate from unperforated steel sheet with thicknesses as follows:
1. Tops, Bottoms, and Intermediate Dividers: 0.024-inch nominal thickness, with single bend at sides.
 2. Backs and Sides: 0.024-inch nominal thickness, with full-height, double-flanged connections.
 3. Shelves: 0.024-inch nominal thickness, with double bend at front and single bend at sides and back.
- F. Frames: Channel formed; fabricated from 0.060-inch nominal-thickness steel sheet; lapped and factory welded at corners; with top and bottom main frames factory welded into vertical main frames. Form continuous, integral, full-height door strikes on vertical main frames.
1. Cross Frames between Tiers: Channel formed and fabricated from same material as main frames; welded to vertical main frames.
 2. Frame Vents: Fabricate face frames with vents.
- G. Hinges: Welded to door and attached to door frame with no fewer than two factory-installed rivets per hinge that are completely concealed and tamper resistant when door is closed; fabricated to swing 180 degrees; self-closing.
1. ~~Hinges: Manufacturer's standard, steel, continuous or knuckle type.~~
 2. *Knuckle Hinges: Steel, full loop, five or seven knuckles, tight pin; minimum 2 inches (51 mm) high. Provide no fewer than three hinges for each door more than 42 inches (1067 mm) high.*
 3. *Continuous Hinges: Manufacturer's standard, steel, full height.*
- H. Recessed Door Handle and Latch: Stainless steel cup with integral door pull, recessed so locking device does not protrude beyond door face; pry and vandal resistant.
1. Multipoint Latching: Finger-lift latch control designed for use with built-in combination locks, built-in key locks, or padlocks; positive automatic latching and prelocking.
 - a. Latch Hooks: Equip doors 48 inches and higher with three latch hooks and doors less than 48 inches high with two latch hooks; fabricated from 0.105-inch nominal-thickness steel sheet; welded or riveted to full-height door strikes; with resilient silencer on each latch hook.

- b. Latching Mechanism: Manufacturer's standard, rattle-free latching mechanism and moving components isolated *with vinyl* to prevent metal-to-metal contact, and incorporating a prelocking device that allows locker door to be locked while door is open and then closed without unlocking or damaging lock or latching mechanism.
- I. Locks: Combination padlocks to be provided by Owner.
- J. Identification Plates: Manufacturer's standard, etched, embossed, or stamped aluminum plates, with numbers and letters at least 3/8 inch high.
- K. Hooks: Manufacturer's standard ball-pointed hooks, aluminum or steel; zinc plated.
- L. Legs: 6 inches high; formed by extending vertical frame members, or fabricated from 0.075-inch nominal-thickness steel sheet; welded to bottom of locker.
 1. Closed Front and End Bases: Fabricated from 0.036-inch nominal-thickness steel sheet.
- M. Continuous Sloping Tops: Fabricated from manufacturer's standard thickness, but not less than 0.036-inch nominal-thickness steel sheet.
 1. Closures: Vertical-end type.
 2. Sloping-top corner fillers, mitered.
- N. Filler Panels: Fabricated from manufacturer's standard thickness, but not less than 0.036-inch nominal-thickness steel sheet.
- O. Boxed End Panels: Fabricated from 0.060-inch nominal-thickness steel sheet.
- P. Finished End Panels: Fabricated from 0.024-inch nominal-thickness steel sheet to cover unused penetrations and fasteners, except for perimeter fasteners, at exposed ends of nonrecessed metal lockers; finished to match lockers.
- Q. Center Dividers: Fabricated from 0.024-inch nominal-thickness steel sheet.
- R. Materials:
 1. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B, suitable for exposed applications.
 2. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B; with A60 zinc-iron, alloy (galvannealed) coating designation.
 3. *Expanded Metal: ASTM F 1267, Type II (flattened), Class I, 3/4-inch steel mesh, with at least 70 percent open area.*
 4. *Stainless-Steel Sheet: ASTM A 666, Type 304.*
 5. *Plastic Laminate: NEMA LD 3, Grade HGP.*
 6. *Extruded Aluminum: ASTM B 221, alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated.*
 7. *Steel Tube: ASTM A 500, cold rolled.*
 8. *Particleboard: ANSI A208.1, Grade M-2.*

S. Finish: Baked enamel ~~or powder coat~~.

1. Color: As selected by Architect from manufacturer's full range.

2.4 LOCKS

A. Combination Padlock: Provided by Owner.

2.5 FABRICATION

A. Fabricate metal lockers square, rigid, without warp, and with metal faces flat and free of dents or distortion. Make exposed metal edges safe to touch and free of sharp edges and burrs.

1. Form body panels, doors, shelves, and accessories from one-piece steel sheet unless otherwise indicated.
2. Provide fasteners, filler plates, supports, clips, and closures as required for complete installation.

B. Fabricate each metal locker with an individual door and frame; individual top, bottom, and back; and common intermediate uprights separating compartments. Factory weld frame members of each metal locker together to form a rigid, one-piece assembly.

C. Equipment: Provide each locker with an identification plate and the following equipment:

1. Single-Tier Units: Shelf, one double-prong ceiling hook, and two single-prong wall hooks.

D. Knocked-Down Construction: Fabricate metal lockers by assembling at Project site, using manufacturer's nuts, bolts, screws, or rivets.

E. Continuous Sloping Tops: Fabricated in lengths as long as practical, without visible fasteners at splice locations; finished to match lockers.

1. Sloping-top corner fillers, mitered.

F. Boxed End Panels: Fabricated with 1-inch-wide edge dimension, and designed for concealing fasteners and holes at exposed ends of nonrecessed metal lockers; finished to match lockers.

1. Provide one-piece panels for double-row (back-to-back) locker ends.

G. Finished End Panels: Fabricated to conceal unused penetrations and fasteners, except for perimeter fasteners, at exposed ends of nonrecessed metal lockers; finished to match lockers.

1. Provide one-piece panels for double-row (back-to-back) locker ends.

H. Center Dividers: Full-depth, vertical partitions between bottom and shelf; finished to match lockers.

2.6 ACCESSORIES

- A. Fasteners: Zinc- or nickel-plated steel, slotless-type, exposed bolt heads; with self-locking nuts or lock washers for nuts on moving parts.
- B. Anchors: Material, type, and size required for secure anchorage to each substrate.
 - 1. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls for corrosion resistance.
 - 2. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

2.7 STEEL SHEET FINISHES

- A. *Factory finish steel surfaces and accessories except stainless-steel and chrome-plated surfaces.*
- B. *Baked-Enamel Finish: Immediately after cleaning, pretreating, and phosphatizing, apply manufacturer's standard thermosetting baked-enamel finish. Comply with paint manufacturer's written instructions for application, baking, and minimum dry film thickness.*

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls and floors or support bases, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install lockers level, plumb, and true; shim as required, using concealed shims.
 - 1. Anchor locker runs at ends and at intervals recommended by manufacturer, but not more than 36 inches o.c. Using concealed fasteners, install anchors through backup reinforcing plates, channels, or blocking as required to prevent metal distortion.
 - 2. Anchor single rows of metal lockers to walls near top and bottom of lockers.
- B. Knocked-Down Lockers: Assemble with manufacturer's standard fasteners, with no exposed fasteners on door faces or face frames.
- C. Equipment:
 - 1. Attach hooks with at least two fasteners.
 - 2. Identification Plates: Identify metal lockers with identification indicated on Drawings.

- a. Attach plates to each locker door, near top, centered, with at least two aluminum rivets.
- D. Trim: Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.
1. Attach recess trim to recessed metal lockers with concealed clips.
 2. Attach filler panels with concealed fasteners. Locate filler panels where indicated on Drawings.
 3. Attach sloping-top units to metal lockers, with closures at exposed ends.
 4. Attach boxed end panels using concealed fasteners to conceal exposed ends of nonrecessed metal lockers.
 5. Attach finished end panels using fasteners only at perimeter to conceal exposed ends of nonrecessed metal lockers.

3.3 ADJUSTING

- A. Clean, lubricate, and adjust hardware. Adjust doors and latches to operate easily without binding.

3.4 PROTECTION

- A. Protect metal lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit use during construction.
- B. Touch up marred finishes, or replace metal lockers that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by locker manufacturer.

END OF SECTION 10 51 13