

SPECIAL CONDITIONS

1. The Contractor shall examine the site and all conditions thereon and shall take into consideration all such conditions as may affect the work under the contract.
2. The Contractor shall warrant and guarantee all work performed under this Contract for a period of two (2) years from the date of final acceptance, unless the work has been abused by or neglected by the staff of the Montana Fish, Wildlife and Parks.
3. Damage: Any work damaged by failure to provide adequate protection shall be removed and replaced at the Contractor's expense. Any damage to any existing structures or landscaping caused by the Contractor or their negligence shall be their obligation to repair at no cost to the Owner.
4. Clean-up: The Contractor shall remove all temporary protection and all debris attributed to the execution of the Contract subject to Owner's final acceptance.
5. Demolition and construction waste must be removed from the site each day or placed in covered waste receptacles furnished by the Contractor. The Owner's waste receptacles shall not be use by the Contractor. Construction waste includes roofing fasteners as a result of the removal of the existing materials.
6. Parking: Contractor employees shall not park vehicles or equipment in parking spaces designated for visitor or employee use. Designated area for Contractor parking, staging equipment and materials is located at the rear (west end) of the Visitors' Center. Access is via the driveway for 6755 Highway 12W, approximately 0.1 mile west of the park entrance.
7. The contractor shall not drive vehicles or equipment on the yard areas or off established roads unless approved by the Owner's project representative. Damage to the landscape areas shall be repaired by the Contractor at no cost to the Owner.
8. Undesirable language and other such devices such as excessively loud radios and conversation are hereby specifically prohibited on the project site, as determined by the Owner.

END OF SECTION

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Coordination with occupants.
5. Work restrictions.
6. Specification and drawing conventions.
7. Miscellaneous provisions.

B. Related Requirements:

1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.
2. Work shall meet or exceed all specifications set forth in the project manual, the manufacturer's specifications, and the Montana Public Works Standard Specifications. If there is a conflict between specifications, the more stringent will apply, unless otherwise specifically authorized by the Owner.

1.2 PROJECT INFORMATION

A. Project Identification: Traveler's Rest State Park Visitor Center Re-roof

Project Location:
6717 Highway 12 W
Lolo, MT 59847

B. Owner: State of Montana Fish Wildlife & Parks.

1. Owner's Representative:

Jon Maxwell, Project Manager
State of Montana Fish, Wildlife and Parks
Design & Construction Bureau.
1522 Ninth Avenue
Helena, Montana
Phone: (406) 841-4002

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of Project is defined by the Contract Documents and consists of the following:

1. The work consists of removing existing metal roof panels and related materials from the Visitor Center building at Travelers' Rest State Park. Replace the roofing with 'Delta rib' style metal roofing.
2. With the exception of rafter reinforcement, selective purlin replacement, and addition of insulation, all work associated with the re-roofing project and included in these specifications shall be considered incidental, including but not limited to: fasteners, seals, drip edge, flashing, ridge vent, gable edge, roof penetrations, existing roofing removal & disposal, roofing preparation, site protection, and associated work.
3. It is the contractor's responsibility to confirm dimensions and layout for quantifying materials. Slope factor, waste, and overlap is considered incidental to the project and will not be paid as extra.

B. Type of Contract.

1. Project will be constructed under a single prime contract.

1.4 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to work in areas of re-roofing. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, the public, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.5 COORDINATION WITH OCCUPANTS

A. Full Owner Occupancy: Owner will occupy site and existing building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate safe Owner and the Public usage. Perform the Work so as not to

interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
2. Notify Owner not less than 72 hours in advance of activities that will affect Owner's operations.

1.6 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Project work will be limited to the hours of 8:00 a.m. to 5:00 p.m., Monday through Friday. Additional hours or working days are subject to Owner approval with prior notice. Contractor must give Owner a minimum of two (2) days' notice for working hours outside of those indicated above.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 1. Notify Owner not less than two days in advance of proposed utility interruptions.
 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 1. Notify Owner not less than two days in advance of proposed disruptive operations.
- E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet (8 m) of entrances, operable windows, or outdoor-air intakes.

1.7 MISCELLANEOUS PROVISIONS

- A. See Special Conditions.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Division 01 Section "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

- A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to Owner and authorities having jurisdiction.
- B. Electric Power Service from Existing System: Electric power from Owner's existing system may be available for use without metering and without payment of use charge. Contractor must review with Owner before start of work. Provide connections and extensions of services as required for construction operations. Contractor must plan on providing portable generators for the project if use of Owner's on-site service is not practical.

1.3 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service.

1.4 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use.

PART 2 - PRODUCTS

2.1 TEMPORARY FACILITIES

- A. Field Offices, General: Prefabricated or mobile units. Contractor's option- Field office not required at project site.

- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations. Contractor's option – Storage shed not required at project site.
- C. Toilet Facility: Locate in designated staging area, or as directed by Owner's project representative.

2.2 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Connect to existing service.
- B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Toilets: Use of Owner's existing toilet facilities will not be permitted.
- C. Electric Power Service: Connect to Owner's existing electric power service, if approved by Owner. Maintain equipment in a condition acceptable to Owner. Provide Contractor supplied portable generators.
- D. Telephone Service: Provide job superintendent with a cellular phone to use on the job site or away from the job site.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Parking: Use area(s) designated by Owner for construction personnel.
- B. Waste Disposal Facilities: Provide covered waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. The Owner's waste receptacles shall not be used by the Contractor.

- C. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION

- A. Contractor is solely responsible for security and protection of all temporary facilities, equipment and materials stored on site.
- B. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- C. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
- D. Tree and Plant Protection: Protect vegetation from damage from construction operations. Replace vegetation damaged from work in this Contract. Replace damaged trees and plants as directed by the landscape architect and/or Engineer at no cost to the Owner.
- E. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Termination and Removal: Remove each temporary facility when need for its service has ended. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

END OF SECTION

SECTION 070150 - PREPARATION FOR RE-ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Roof tear-off.

1.2 SUBMITTALS

A. Contractor shall submit to the Owner the following information at least 5 business days prior to starting work:

1. Procedures for protecting shrubs, trees, HVAC units, and other utilities or landscaping features which may be impacted by the reroofing project.
2. Procedures to allow a safe working environment for FWP employees and continued service to the public.
3. Fastener removal management, clean-up procedures, and disposal container locations.

1.3 PERMITS

- A. Contractor will be responsible to obtain and pay for all necessary permits to complete the work.
- B. Copies of the permit(s) shall be provided to the Owner before the start of any work.

1.4 PROJECT CONDITIONS

- A. Owner will occupy building(s) immediately below reroofing areas. Conduct reroofing so Owner's operations will not be disrupted. Provide Owner with not less than 72 hours' notice of activities that may affect Owner's operations.
- B. Protect building to be reroofed, adjacent buildings, walkways, site improvements, exterior plantings, HVAC units, and landscaping from damage or soiling from reroofing operations.
- C. Weather Limitations: Proceed with reroofing preparation only when existing and forecasted weather conditions permit work to proceed without water entering existing roofing system or building.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work, if required. Cover air-intake louvers before proceeding with reroofing work that could affect indoor air quality or activate smoke detectors in the ductwork.

3.2 ROOF TEAR-OFF

- A. General: Notify Owner each day of extent of roof tear-off proposed for that day.
- B. Contractor to remove existing metal materials down to roof decking (purlins or sheathing).
- C. Exception to IBC 1511.3: Where the existing roof assembly includes an ice barrier membrane that is adhered to the roof deck (and could result in unnecessary damage to the roof decking), the existing ice barrier membrane shall be permitted to remain in place and covered with an additional layer of ice barrier membrane in accordance with IBC Section 1507.

3.3 DECK PREPARATION

- A. Inspect decking after tear-off of roofing system.
- B. If broken or loose fasteners that secure decking are observed or if deck appears or feels inadequately attached, immediately notify Owner's representative. Do not proceed with installation until directed by Owner's representative. Minor work to re-secure decking in areas where fasteners are needed is allowed without prior approval.
- C. If deck surface is not suitable for receiving new roofing or if structural integrity of deck is suspect, immediately notify Owner's representative. Do not proceed with installation until directed by Owner's representative.

3.4 EXISTING BASE FLASHINGS

- A. Remove and replace existing base flashings around curbs and penetrations as required.
- B. Remove and replace drip edge and gable edge around perimeter as required.
- C. Do not damage metal counterflashings that are to remain. Replace metal counterflashings damaged during removal with counterflashings of same metal, weight or thickness, and finish. Metal counterflashings determined to be damaged or not able to be reused by the Owner's Representative, shall also be replaced.

3.5 FASTENER REMOVAL AND COLLECTION

- A. Contractor will be required to control the collection of removed fasteners and minimize the amount that may land onto sidewalks, landscaped areas, and gravel/paved parking areas. Control procedures may consist of using tarps or other means to collect the fasteners as the existing roofing materials are removed.
- B. Contractor will be required to inspect the grounds at the end of each work day and at the end of the project completion for stray fasteners. Magnets or other collection devices should be used to properly collect fasteners. Owner will inspect and approve the clean-up areas at the end of the project before final payment will be approved.

3.6 DISPOSAL

- A. All materials removed become the property of the Contractor and therefore is responsible for disposal and removal from the site. Collect and place demolished materials in Contractor furnished containers. Promptly dispose of demolished materials at permitted facility, in accordance with applicable regulations. Do not allow demolished materials to accumulate on-site.
- B. The function of the building continued use by employees, and service to the public will require the Contractor to clean the grounds on a daily basis, and not allow removed materials to accumulate on the landscaped grounds, sidewalks, or parking areas.
- C. Transport and legally dispose of demolished materials off Owner's property.

END OF SECTION

SECTION 074113
METAL ROOF PANELS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Architectural roofing system of preformed steel panels.
- B. Attachment system.
- C. Finishes.
- D. Accessories.

1.02 RELATED REQUIREMENTS

- A. Not Used.

1.03 REFERENCE STANDARDS

- A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2015.
- B. ASTM D226/D226M - Standard Specification for Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing; 2009.
- C. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2013.
- D. ASTM D4869/D4869M - Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing; 2015.
- E. ASTM E96/E96M - Standard Test Methods for Water Vapor Transmission of Materials; 2014. F. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings; 2011.
- G. IAS AC472 - Accreditation Criteria for Inspection Programs for Manufacturers of Metal Building Systems; 2012.
- H. ICC-ES AC188 - Acceptance Criteria for Roof Underlayments; 2012.

1.04 SUBMITTALS

- A. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Storage and handling requirements and recommendations.
 - 2. Installation methods.
 - 3. Specimen warranty.
- B. Shop Drawings: Include layouts of roof panels, details of edge and penetration conditions, spacing and type of connections, flashings, underlayments, and special conditions.
 - 1. Show work to be field-fabricated or field-assembled.
- C. Selection Samples: For each roofing system specified, submit color chips representing manufacturer's full range of available colors and patterns.
- D. Manufacturer Qualification Statement: Provide documentation showing metal roof panel fabricator is accredited under IAS AC472.
- E. Warranty: Submit specified manufacturer's warranty and ensure that forms have been completed in State of Montana Fish, Wildlife & Parks name and are registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.
- B. Installer Qualifications: Company specializing in performing work of the type specified and with at least three years of documented experience.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Protect panels from damage during delivery and handling.
- B. Store roofing panels on project site as recommended by manufacturer to minimize damage to panels prior to installation.

1.07 WARRANTY

- A. Finish Warranty: Provide manufacturer's special warranty covering failure of factory-applied exterior finish on metal roof panels and agreeing to repair or replace panels that show evidence of finish degradation, including significant fading, chalking, cracking, or peeling within specified warranty period of a minimum of 25 years from Date of Substantial Completion.
- B. Waterproofing Warranty: Provide manufacturer's warranty for weathertightness of roofing system, including agreement to repair or replace roofing that fails to keep out water within specified warranty period of 2 years from Date of Substantial Completion.
- C. Contractor's Warranty: Provide contractor's warranty for weathertightness of roofing system, including agreement to repair or replace roofing that fails to keep out water within specified warranty period of 2 years from date of Substantial Completion.

PART 2 PRODUCTS

2.01 ARCHITECTURAL METAL ROOF PANELS

- A. Architectural Metal Roofing: Provide complete engineered system complying with specified requirements and capable of remaining weathertight while withstanding anticipated movement of substrate and thermally induced movement of roofing system.
- B. Metal Panels: Factory-formed panels with factory-applied finish.
 - 1. Type: Single skin, uninsulated.
 - 2. Steel Panels:
 - a. Steel Thickness: minimum 26-gauge with 80 ksi minimum yield strength.
 - 2. Profile: Vertical, 'Delta Rib' Style.
 - 3. Texture: Smooth.
 - 4. Length: Maximum 2 panels per length of roof slope.
 - 5. Width: Panel coverage of 36 inches.

2.02 ATTACHMENT SYSTEM

2.03 FABRICATION

- A. Panels: Provide factory or field fabricated panels with applied finish and accessory items, using manufacturer's standard processes as required to achieve specified appearance and performance requirements.
- B. Joints: Provide captive gaskets, sealants, or separator strips at panel joints to ensure weathertight seals, eliminate metal-to-metal contact, and minimize noise from panel movements.

2.04 FINISHES

- A. Fluoropolymer Coating System: Manufacturer's standard multi-coat thermocured coating system, including minimum 70 percent fluoropolymer color topcoat with minimum total dry film thickness of 0.9 mil; color and gloss as selected from manufacturer's standards.

2.05 ACCESSORIES

- A. Miscellaneous Sheet Metal Items: Provide flashings, trim, moldings, closure strips, caps, and similar roof accessory items. of the same material, thickness, and finish as used for the roofing panels. Items completely concealed after installation may optionally be made of stainless steel.

- B. Rib and Ridge Closures: Provide prefabricated, close-fitting components of steel with corrosion resistant finish or combination steel and closed-cell foam.
- C. Sealants:
 - 1. Exposed Sealant: Elastomeric; silicone, polyurethane, or silyl-terminated polyether/polyurethane.
 - 2. Concealed Sealant: Non-curing butyl sealant or tape sealant.
 - 3. Seam Sealant: Factory-applied, non-skinning, non-drying type.
- D. Underlayment: Synthetic non-asphaltic sheet, intended by manufacturer for mechanically fastened roofing underlayment without sealed seams.
 - 1. Type: Woven polypropylene with anti-slip polyolefin coating on both sides.
 - 2. Minimum Requirements: Comply with requirements of ICC-ES AC188 for non-self-adhesive sheet.
 - 3. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.
 - 4. Flammability: Minimum of Class A, when tested in accordance with ASTM E108.
 - 5. Low Temperature Flexibility: Passing test specified in ASTM D1970/D1970M.
 - 6. Water Vapor Permeance: Vapor retarder; maximum of 1 perm, when tested in accordance with ASTM E96/E96M Procedure A (desiccant method).
 - 7. Performance: Meet or exceed requirements for ASTM D226/D226M, Type II asphalt-saturated organic felt.
 - 8. Liquid Water Transmission: Passes ASTM D4869/D4869M.
 - 9. Functional Temperature Range: Minus 70 degrees F to 212 degrees F.
 - 10. Fasteners: As specified by manufacturer and building code qualification report or approval.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Do not begin installation of preformed metal roof panels until substrates have been properly prepared.
- B. If substrate preparation is the responsibility of another installer, notify Engineer of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Broom clean wood sheathing prior to installation of roofing system.
- B. Coordinate roofing work with provisions for roof drainage, flashing, trim, penetrations, and other adjoining work to assure that the completed roof will be free of leaks.
- C. Remove protective film from surface of roof panels immediately prior to installation. Strip film carefully, to avoid damage to prefinished surfaces.
- D. Separate dissimilar metals by applying a bituminous coating, self-adhering rubberized asphalt sheet, or other permanent method approved by roof panel manufacturer.
- E. Where metal will be in contact with wood or other absorbent material subject to wetting, seal joints with sealing compound and apply one coat of heavy-bodied bituminous paint.

3.03 INSTALLATION

- A. Overall: Install roofing system in accordance with approved shop drawings and panel manufacturer's instructions and recommendations, as applicable to specific project conditions. Anchor all components of roofing system securely in place while allowing for thermal and structural movement.
 - 1. Install roofing system with fasteners as recommended by manufacturer.
 - 2. Minimize field cutting of panels. Where field cutting is absolutely required, use methods that will not distort panel profiles. Use of torches for field cutting is absolutely prohibited.

- B. Accessories: Install all components required for a complete roofing assembly, including flashings, trim, moldings, closure strips, rib closures, ridge closures, and similar roof accessory items.
- D. Roof Panels: Install panels in strict accordance with manufacturer's instructions, minimizing transverse joints except at junction with penetrations.
 - 2. Install sealant or sealant tape, as recommended by panel manufacturer, at end laps and side joints.

3.04 CLEANING

- A. Clean exposed sheet metal work at completion of installation. Remove grease and oil films, excess joint sealer, handling marks, and debris from installation, leaving the work clean and unmarked, free from dents, creases, waves, scratch marks, or other damage to the finish.

3.05 PROTECTION

- A. Do not permit storage of materials or roof traffic on installed roof panels. Provide temporary walkways or planks as necessary to avoid damage to completed work. Protect roofing until completion of project.
- B. Touch-up, repair, or replace damaged roof panels or accessories before Date of Substantial Completion.

END OF SECTION

SECTION 077100 - ROOF SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Roof-edge flashings.
 - 2. Roof fascia & drip edge.
 - 3. Plumbing vents.

1.2 PERFORMANCE REQUIREMENTS

- A. Approvals' Listing: Manufacture and install roof-edge flashings and fascia approved for windstorm classification, Class 1-90.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For roof specialties. Include plans, elevations, expansion-joint locations, keyed details, and attachments to other work. Distinguish between plant- and field-assembled work.
- C. Samples: For each exposed product and for each color and texture specified.
- D. Product test reports.

1.4 WARRANTY

- A. Special Warranty on Painted Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace roof specialties that show evidence of deterioration of factory-applied finishes within 25 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 EXPOSED METALS

- A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation.
 - 1. Surface: Smooth, flat finish.

2. Exposed Coil-Coated Finishes: Pre-painted by the coil-coating process to comply with ASTM A 755/A 755M. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - a. Two or Three-Coat Fluoropolymer: AAMA 621. System consisting of primer, fluoropolymer color coat, and clear fluoropolymer topcoat, with both color coat and clear topcoat containing not less than 70 percent PVDF resin by weight. Manufacturer's standard Fluoropolymer finish.

2.2 CONCEALED METALS

- A. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, G90 (Z275) coating designation.

2.3 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Sheet: Minimum 45 mil. thick, consisting of slip-resisting polyethylene-film top surface laminated to layer of butyl or SBS-modified asphalt adhesive, with release-paper backing; cold applied. Provide primer when recommended by underlayment manufacturer. Similar to Titanium "PSU" 30.
 1. Thermal Stability: ASTM D 1970; stable after testing at 240 deg F (116 deg C).
 2. Low-Temperature Flexibility: ASTM D 1970; passes after testing at minus 20 deg F (29 deg C).
- B. Felt Underlayment: No. 30, un-perforated organic felt complying with Type I, ASTM 226.
 1. Fasteners: Manufacturer's recommended fasteners, suitable for fascia application and design to meet metal fascia manufacturer's requirements

2.4 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, protective coatings, sealants, and other miscellaneous items required by manufacturer for a complete installation.
 1. Fasteners: Manufacturer's recommended fasteners, suitable for application and designed to meet performance requirements.
- B. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.

2.5 PLUMBING/MECHANICAL VENTS

- A. All existing vents shall remain.
- B. Furnish and install new rubber boots around existing penetrations with equal or improved quality rubber boots.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. General: Install roof specialties according to manufacturer's written instructions. Anchor roof specialties securely in place, with provisions for thermal and structural movement. Use fasteners, protective coatings, separators, sealants, and other miscellaneous items as required to complete roof-specialty systems.
 - 1. Install roof specialties level, plumb, true to line and elevation; with limited oil-canning and without warping, jogs in alignment, buckling, or tool marks.
 - 2. Provide uniform, neat seams with minimum exposure of sealant.
 - 3. Install roof specialties to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before manufacture.
 - 4. Torch cutting of roof specialties is not permitted.
 - 5. Install underlayment: Apply in shingle fashion to shed water, with lapped joints of not less than 2 inches (50 mm). Roll laps of self-adhering sheet underlayment with roller; cover within 14 days.
- B. Metal Protection: Protect metals against galvanic action by separating dissimilar metals from contact with each other or with corrosive substrates by painting contact surfaces with bituminous coating or by other permanent separation as recommended by manufacturer.
- C. Expansion Provisions: Allow for thermal expansion of exposed roof specialties.
 - 1. Space movement joints at a maximum of 12 feet (3.6 m) with no joints within 12 inches of corners or intersections unless otherwise shown on Drawings.
 - 2. When ambient temperature at time of installation is between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures.
- D. Fastener Sizes: Use fasteners of sizes that will penetrate substrate not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
- E. Seal joints with sealant as required by roofing-specialty manufacturer.
- F. Seal joints as required for watertight construction. Place sealant to be completely concealed in joint. Do not install sealants at temperatures below 40 deg F (4 deg C).

3.2 ROOF-EDGE FLASHING INSTALLATION

- A. Install cleats and other anchoring and attachment accessories and devices with concealed fasteners.

3.3 CLEANING AND PROTECTION

- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

- B. Remove temporary protective coverings and strippable films as roof specialties are installed.

END OF SECTION