

SECTION 05 50 00 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior railings.
2. Miscellaneous framing and supports.
3. Miscellaneous steel trim.
4. Bollards.
5. Pipe and downspout guards.
6. Downspout brackets.
- ~~7.~~ Decorative assemblies.
- ~~8.~~ Air structure angle support assemblies.
- ~~7-9.~~ Loose bearing and leveling plates.

B. Products furnished, but not installed, under this Section include the following:

1. Loose steel lintels.
2. Steel weld plates and angles for casting into concrete for applications where they are not specified in other Sections.
3. Anchor bolts, steel pipe sleeves, slotted-channel inserts, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.

C. Related Requirements:

1. Section 04 26 13 "Masonry Veneer" for installing loose lintels.
2. Section 05 12 00 "Structural Steel Framing" for structural steel supporting work of this Section.
3. Section 06 40 00 "Architectural Woodwork" for bracket support products, for decorative metal frames for wood screens and toe kick.
4. Section 07 05 43 "Cladding Support Systems" for shelf angle systems for masonry veneer.
5. Section 08 71 00 "Door Hardware" for door access bollard.
6. Section 11 81 29 "Facility Fall Protection".

1.2 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written instructions to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.3 ACTION SUBMITTALS

- A. Product Data: For all products.

- B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items. Provide Shop Drawings for all fabrications.

- 1. Decorative assembly shop drawings are submitted under cover of Section 06 40 00.

- C. Delegated Design Submittals: For items indicated and items requiring engineer, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

- A. Mill Certificates: Signed by stainless steel manufacturers, certifying that products furnished comply with requirements.
- B. Welding certificates.
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- D. Research Reports: For post-installed anchors.
- E. Delegated design engineer qualifications.

1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel in accordance with the following welding codes:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - 2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum."
 - 3. AWS D1.6/D1.6M, "Structural Welding Code - Stainless Steel."
- B. Fabricator, Decorative Assemblies: A firm experienced in producing decorative metal similar to that indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls, floor slabs, decks, and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 35 25 "Delegated Design Requirements," to design miscellaneous framing and supports.
 - 1. Design top connection and bracing to structure of steel frame for wood screens.
- B. Structural Performance: As shown on Structural Drawings.

- C. Thermal Movements, Exterior: Allow for thermal movements from ambient and surface temperature changes.

- 1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

2.2 METALS

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.
- B. Steel Plates, Shapes, and Bars: ASTM A36/A36M.
- C. Steel Tubing: ASTM A500/A500M, cold-formed steel tubing.
- D. Steel Pipe: ASTM A53/A53M, Standard Weight (Schedule 40) unless otherwise indicated.
- E. Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4; solid and slotted, punched flanges.
 - 1. Size of Channels: Minimum 1-5/8 by 1-5/8 inches.
 - 2. Galvanized Steel: ASTM A653/A653M, structural steel, Grade 33, with G90 coating interior not scheduled for painting or concealed locations; 0.108-inch nominal thickness.
 - 3. Cold-Rolled Steel: ASTM A1008/A1008M, structural steel, Grade 33; 0.108-inch minimum thickness; unfinished at interior and shop primed where indicated to be painted; hot dipped at exterior locations and shop primed.

2.3 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A307, Grade A; with hex nuts, ASTM A563; and, where indicated, flat washers.
- C. High-Strength Bolts, Nuts, and Washers: ASTM F3125/F3125M, Grade A325, Type 3, heavy-hex steel structural bolts; ASTM A563, Grade DH3, heavy-hex carbon-steel nuts; and where indicated, flat washers.
- D. Stainless Steel Bolts and Nuts: Regular hexagon-head annealed stainless steel bolts, ASTM F593; with hex nuts, ASTM F594; and, where indicated, flat washers; Alloy Group 1 .
- E. Anchor Bolts: ASTM F1554, Grade 36, of dimensions indicated; with nuts, ASTM A563; and, where indicated, flat washers.
 - 1. Hot-dip galvanize or provide mechanically deposited, zinc coating where item being fastened is indicated to be galvanized.
- F. Anchors, General: Capable of sustaining, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing in accordance with ASTM E488/E488M, conducted by a qualified independent testing agency.

- G. Cast-in-Place Anchors in Concrete: Either threaded or wedge type unless otherwise indicated; galvanized ferrous castings, either ASTM A47/A47M malleable iron or ASTM A27/A27M cast steel. Provide bolts, washers, and shims as needed, all hot-dip galvanized per ASTM F2329/F2329M.
- H. Post-Installed Anchors: Types for application approved by Architect and products indicated on Structural Drawings.
 - 1. Material for Interior Locations: Carbon-steel components zinc plated to comply with ASTM B633 or ASTM F1941/F1941M, Class Fe/Zn 5, unless otherwise indicated.
 - 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 stainless steel bolts, ASTM F593, and nuts, ASTM F594.

2.4 MISCELLANEOUS MATERIALS

- A. Shop Primers: Provide primers that comply with Section 099113 "Exterior Painting," Section 099123 "Interior Painting," and Section 099600 "High-Performance Coatings."
- B. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
 - 1. Use primer that contains pigments that make it easily distinguishable from zinc-rich primer.
- C. Water-Based Primer: Emulsion type, anticorrosive primer for mildly corrosive environments that is resistant to flash rusting when applied to cleaned steel, complying with MPI#107 and compatible with topcoat.
- D. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.
- E. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish paint systems indicated.
- F. Galvanizing Repair Paint: See Structural Drawings.
 - 1. Use repair products with to match galvanized color and finish for items left exposed.
 - 2. Use materials compatible with primers or provide transition coats over repair paint before primer repair.
- G. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D1187/D1187M.
- H. Shrinkage-Resistant Grout: Factory-packaged, nonmetallic, nonstaining, noncorrosive, nongaseous grout complying with ASTM C1107/C1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.5 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Form metal to required shapes and sizes, true to line and level with true curves and accurate angles and surfaces. Finish exposed surfaces to smooth, sharp, well-defined lines and arris.

- C. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- D. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- E. Form simple and compound curves in bars, pipe, tubing, and extruded shapes by bending members in jigs to produce uniform curvature for each configuration required; maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces.
- F. Form exposed work with accurate angles and surfaces and straight edges.
- G. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
 - 5. At exposed, decorative assemblies, where welds cannot be concealed behind finished surfaces, finish joints to comply with NOMMA's "Voluntary Joint Finish Standards" as follows:
 - a. Type 1 Welds: no evidence of a welded joint.
 - b. Type 2 Welds: completely sanded joint, some undercutting and pinholes okay.
- H. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- I. Mill joints to a tight, hairline fit. Cope or miter corner joints. Fabricate connections that will be exposed to weather in a manner to exclude water.
- J. Fabricate seams and other connections that are exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- K. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- L. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
- M. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.6 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.

- B. Fabricate units from steel shapes, plates, and bars of welded construction unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction.
 - 1. Fabricate units from slotted channel framing where indicated.
 - 2. Furnish inserts for units installed after concrete is placed.
- C. Fabricate supports for sectional doors from continuous steel beams of sizes required for support with attached bearing plates, anchors, and braces as required for seismic bracing.
- D. Galvanize miscellaneous framing and supports where indicated.
- E. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

2.7 METAL BOLLARDS

- A. Fabricate metal bollards from Schedule 80 steel pipe.
 - 1. Cap bollards with 1/4-inch- thick, steel plate with domed top.
- B. Fabricate sleeves for bollard anchorage from steel ~~steel~~-pipe or tubing with 1/4-inch- thick, steel or stainless steel plate welded to bottom of sleeve. Make sleeves not less than 8 inches deep and 3/4 inch larger than OD of bollard.
- C. Fabricate internal sleeves for removable bollards from Schedule 80 steel pipe or 1/4-inch wall-thickness steel tubing with an OD approximately 1/16 inch less than ID of bollards. Match drill sleeve and bollard for 3/4-inch steel machine bolt.
- D. Galvanize steel bollards and shop prime.

2.8 PIPE AND DOWNSPOUT GUARDS

- A. Fabricate downspout guards from 3/8-inch- thick by 12-inch- wide, steel plate, bent to fit flat against the wall or column at both ends and to fit around pipe with 2-inch clearance between pipe and pipe guard. Drill each end for two 3/4-inch anchor bolts.
- B. Prime steel downspout guards with primer specified in Section 09 96 00 "High-Performance Coatings."

2.9 DOWNSPOUT BRACKET, TAB

- A. Fabricate downspout bracket tab from 1/8-inch plate steel. Weld to columns in Section 05 12 00 "Structural Steel Columns" in shop and finish with columns.
 - 1. Size: 2-inches tall, 1-inch deep.
 - 2. Weld: NOMMA Type 2.
 - 3. Punch hole for hanger hardware in Section 07 62 00 "Sheet Metal Flashing and Trim."
 - 4. Coordinate locations and downspout in Section 07 62 00.

2.10 DECORATIVE ASSEMBLIES

- A. Interior Handrail: Fabricate handrails from steel from profiles indicated with decorative welds, NOMMA Type 1.

1. Finish: Shop primed, universal primer.
- B. Decorative Assemblies, Woodwork: See Section 06 40 00 "Architectural Woodwork" for the following:
 1. Steel frames for wood screens. Top support and connection designed in this Section.
 2. Metal toe kick.

C. Steel Door Frame at Sectional Door:

1. Fabricate from steel plates in profiles indicated. Reinforce frames and integrally weld sheet metal anchors and alignment components and drill and tap as necessary to accept mounting and finish hardware.
 - a. Provide internal concealed alignment tab clips for joining jambs and head profiles and aligning faces.
 - b. Accommodate for seam sealer for watertight installation or fully weld corners with NOMMA Type 1 finish.
 - c. Coordinate for attachment of subsequent attachment and support of with sectional door tracks and jamb anchor spacing.
 - d. Extend bottom of frames to floor elevation with 1/16-inch gap.
2. Corners: Miter.
3. Anchoring: Undercut countersunk flush head stainless steel or corrosion-resistant coated steel screw fasteners finished to match frames.
 - a. Screw: Stainless steel countersink, 1/4-diameter, length as required; tamper resistant head, factory painted to match frame.
 - 1) Product: Aspen Fasteners, TR009-14X11230; or equal.
 - b. Locate anchors 3 inches from ends of profiles and equally spaced at a maximum 24 inches o.c. between; interior return leg and at opening faces, into stud framing and to avoid penetration in HSS steel posts.
4. Prime steel frame with high performance primer on all sides and anchor openings.
5. Installation Supplement:
 - a. Provide foam tape closure on back of frame-to-rough opening, sealing corner joints for the depth of frame to sealant back and for the full perimeter run continuously at back of interior frame at corner of return flange.
 - 1) Foam Tape: 1-inch wide, 1-inch expanded thickness of 1-inch or 5 times gap depth:
 - a) EMSeal AST Hi-Acrylic, ASH-25-25-06 or equal.
 - b. Seal corner joints with urethane or epoxy seam sealer compatible with primers and painting, prior to field painting topcoats. Tool seam sealer flush with adjacent surfaces for seamless appearance.
 - 1) Seam Sealer:
 - a) 3M Urethane Seam Sealer.
 - b) 3M Fast 'N Firm Seam Sealer.

c) Or equal.

2.11 AIR STRUCTURE ANGLE SUPPORT ASSEMBLIES

A. Fabricate angle support assemblies from steel profiles indicated. Provide movement for thermal expansion with fully welded, continuous angle supports.

1. Joints, Angle: Welded.

a. Linear: Butt.

b. Corners: Mitered.

2. Welds: Shop and Field:

a. Exposed: NOMMA Type 1.

b. Semi-Concealed: NOMMA Type 2, except Type 1 for flush surfaces for air structure curtain sealing.

3. Hardware: Galvanized, of size and type indicated.

B. Finish: As indicated, galvanize after fabrication and shop prime exposed areas. Extend primer 2-inches beyond exposure.

2.112.12 LOOSE BEARING AND LEVELING PLATES

A. Provide loose bearing and leveling plates for steel items bearing on masonry or concrete construction. Drill plates to receive anchor bolts and for grouting.

B. Galvanize exterior bearing and leveling plates.

C. Prime plates at interior, except those for weld plates, with zinc-rich primer.

2.122.13 LOOSE STEEL LINTELS

A. Fabricate loose steel lintels from steel angles and shapes of size indicated for openings and recesses in masonry walls and partitions at locations indicated. Fabricate in single lengths for each opening unless otherwise indicated. Weld adjoining members together to form a single unit where indicated.

B. Size loose lintels to provide bearing length at each side of openings indicated.

C. Galvanize loose steel lintels located in exterior walls. Prime surfaces units-exposed to view and extend primer 2-inches into portion concealed.

D. Prime loose steel lintels located in interior walls with zinc-rich primer.

2.132.14 STEEL WELD PLATES AND ANGLES

A. Provide steel weld plates and angles not specified in other Sections, for items supported from concrete construction as needed to complete the Work. Provide each unit with no fewer than two integrally welded steel strap anchors for embedding in concrete.

2-142.15 GENERAL FINISH REQUIREMENTS

- A. Finish metal fabrications after assembly.
- B. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2-152.16 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A153/A153M for steel and iron hardware and with ASTM A123/A123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- B. Preparation for Shop Priming Galvanized Items: After galvanizing, thoroughly clean galvanized surfaces of grease, dirt, oil, flux, and other foreign matter, and treat with metallic phosphate process.
- C. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, sprayed-on fireproofing, or masonry, or unless otherwise indicated.
 - 1. Shop prime with universal shop primer unless zinc-rich primer is indicated.
- D. Preparation for Shop Priming: Prepare surfaces to comply with requirements indicated below:
 - 1. Exterior Items: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 2. Items Indicated to Receive Zinc-Rich Primer: SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 3. Items Indicated to Receive Primers Specified in Section 099600 "High-Performance Coatings": SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
 - 4. Other Steel Items: SSPC-SP 3, "Power Tool Cleaning."
 - 5. Galvanized-Steel Items: SSPC-SP 16, "Brush-off Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals."
- E. Shop Priming: Apply shop primer to comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.
 - 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
 - 2. For items requiring field welding, do not prime 2-inches from weld joints and surfaces.
 - a. On galvanized items, provide 4-inches clear from weld joints and surfaces.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Comply with installation requirements in Section 05 12 00 "Structural Steel Framing."
- B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.

- C. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- D. Field Welding: Comply with the following requirements:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- E. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- F. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- G. Corrosion Protection: Coat concealed surfaces of aluminum that come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
 - 1. Cast Aluminum: Heavy coat of bituminous paint.
 - 2. Extruded Aluminum: Two coats of clear lacquer.

3.2 INSTALLATION OF MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for overhead doors and other required supports securely to, and rigidly brace from, building structure.
- C. Anchor shelf angles securely to existing construction with anchor bolts or other anchor types approved in Shop Drawings.

3.3 INSTALLATION OF SHELF ANGLES

- A. Install shelf angles as required to keep masonry level, at correct elevation, and flush with vertical plane.

3.4 INSTALLATION OF MISCELLANEOUS STEEL TRIM

- A. Anchor to concrete construction to comply with manufacturer's written instructions.

3.5 INSTALLATION OF METAL BOLLARDS

- A. Fill metal-capped bollards solidly with concrete and allow concrete to cure seven days before installing.

1. Do not fill removable bollards with concrete.
- B. Anchor bollards in place with concrete footings. Center and align bollards in holes 3 inches above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace bollards in position until concrete has cured.
- C. Anchor internal sleeves for removable bollards in place with concrete footings. Center and align sleeves in holes 3 inches above bottom of excavation. Place concrete and vibrate or tamp for consolidation. Support and brace sleeves in position until concrete has cured.
- D. Place removable bollards over internal sleeves and secure with 3/4-inch machine bolts and nuts. After tightening nuts, drill holes in bolts for inserting padlocks. Owner furnishes padlocks.

3.6 ANCHORING POSTS

- A. Form or core-drill holes not less than 5 inches deep and 3/4 inch larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's written instructions.
 1. Leave anchorage joint exposed with anchoring material flush with adjacent surface.

3.7 INSTALLATION OF LOOSE BEARING AND LEVELING PLATES

- A. Clean concrete and masonry bearing surfaces of bond-reducing materials, and roughen to improve bond to surfaces. Clean bottom surface of plates.
- B. Set bearing and leveling plates on wedges, shims, or leveling nuts. After bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims but, if protruding, cut off flush with edge of bearing plate before packing with shrinkage-resistant grout. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.

3.8 REPAIRS

- A. Touchup Painting-Priming:
 1. Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - a. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.
 2. Cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint are specified in Section 09 91 13 "Exterior Painting" Section 09 91 23 "Interior Painting."
 3. Apply primers over galvanized surfaces after galvanizing repair.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to equivalent coating thickness to comply with ASTM A780/A780M and as indicated on Structural Drawings.
 - 3-1. Lap galvanized repair coatings over galvanized surfaces 1 inch minimum.

END OF SECTION