SECTION 07 4213

METAL FLAT LOCK TILE PANELS

This section includes editing notes to assist the user in editing the section to suit project requirements. These notes are included as hidden text, and can be revealed or hidden by one of the following methods:

Microsoft Word 2010: Display the FILE tab on the ribbon, click OPTIONS, then on left menu click on DISPLAY. Under ALWAYS SHOW THESE select or deselect HIDDEN TEXT.

Microsoft Word 2007: Click the OFFICE button, select WORD OPTIONS, select DISPLAY, then select or deselect the HIDDEN TEXT option.

Corel WordPerfect: From the pull-down menus select VIEW, then select or deselect the HIDDEN TEXT option.

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Metal flat lock [wall] [and] [roof] tile system.
   2. Underlayment.
   3. Flashings, trim, anchorage, and accessories.

B. Related Sections:
   1. Division 01: Administrative, procedural, and temporary work requirements.
   2. Section [07 9200 - Joint Sealers.] [__ ____ - _____.]

1.2 REFERENCES

A. American Society of Civil Engineers (ASCE) 7 - Minimum Design Loads for Buildings and Other Structures.

B. American Architectural Manufacturers Association (AAMA):
   1. 611 - Voluntary Specification for Anodized Architectural Aluminum.
   2. 621 - Voluntary Specifications for High Performance Organic Coatings on Coil Coated Architectural Hot Dipped Galvanized (HDG) and Zinc-Aluminum Coated Steel Substrates.
   3. 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Architectural Extrusions and Panels.

C. ASTM International (ASTM):
   1. A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
   2. A666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
   3. A755/A755M - Standard Specification for Steel Sheet, Metallic Coated by the Hot-Dip Process and Prepainted by the Coil-Coating Process for Exterior Exposed Building Products.
   4. A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
   5. B69 - Standard Specification for Rolled Zinc.
   6. B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
   7. B370 - Standard Specification for Copper Sheet and Strip for Building Construction.
   8. D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
   9. E330 - Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors under the Influence of Wind Loads.

D. Copper Development Association (CDA) - Contemporary Copper, A Handbook of Sheet Copper

Fundamentals, Design, Details and Specifications.

1.3 SYSTEM DESCRIPTION

A. Design Requirements: Design system to withstand:
   1. Minimum wind pressures in accordance with [ASCE 7,] [Building Code,] [____,] tested in accordance with ASTM E330].
   2. Movement caused by an ambient temperature range of [120] [__] degrees F and a surface temperature range of [160] [__] degrees F.

1.4 SUBMITTALS

A. Submittals for Review:
   1. Shop Drawings:
      a. Include profiles, thicknesses, and dimensions of panels, details of forming, joint supports, anchorages, trim, flashings, sealants, and accessories.
      b. Show:
         1) Details of weatherproofing at edge terminations.
         2) Panel elevations.
         3) Layout of work.
   2. Samples:
      a. [3 x 3] [__ x __] inch finish samples showing available colors.
      b. [After color selection, submit] [8 x 8] [__ x __] inch panel samples in [selected] [specified] color, fabricated into units representative of actual panels.
   3. Warranty: Sample warranty form.

B. Quality Control Submittals:
   1. Test reports: Certified test reports from a recognized independent testing laboratory showing compliance with specified performance criteria.

C. Sustainable Design Submittals:
   1. Recycled Content: Certify percentages of post-consumer and pre-consumer recycled content.
   2. Regional Materials: Indicate cost of products harvested, extracted, recovered, or manufactured within 500 mile radius of Project site.

1.5 QUALITY ASSURANCE

A. Fabricator:
   1. Demonstrate ability to perform work of this Section.
   2. Assume undivided responsibility for all system components
   3. Provide engineering support required for design of system to meet specified requirements.

B. Mockup:
   1. Size: Minimum [4 x 8] [__ x __] feet.
   2. Show metal panels, flashings, and trim. Include [horizontal and vertical panel joints] [and] [one external corner.] [____.]
   3. Locate [where directed.] [____.]
   4. Approved mockup may [not] remain as part of the Work.

1.6 DELIVERY, STORAGE AND HANDLING

A. Provide coverings and spacers to prevent panel-to-panel contact.

1.7 WARRANTIES

A. Provide manufacturer’s 20 year warranty providing coverage against cracking, peeling, fading, or chalking of panel finish.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturers:
1. Alusystems LLC. (www.alusystems.com)
2. MetalTechUSA. (www.metaltech-usa.com)
3. VM Zinc. (www.vmzinc-us.com)
4. [____].
5. [____].
6. [____].

B. Substitutions: [Under provisions of Division 01.] [Not permitted.]

2.2 MATERIALS

A. Aluminum Sheet:
1. ASTM B209, alloy 3015-H14 or equivalent, [[0.032] [__] inch thick.
2. Recycled content: Minimum [__] percent recycled aluminum, with minimum [__] percent classified as post consumer..
3. Surface: [Smooth.[[____.]
4. Finish: AAMA 2605, fluoropolymer coating containing minimum 70 percent PVDF resins, [custom] [____] color [to be selected from manufacturer's full color range].

**** OR ****

5. Finish: AAMA 611, Architectural Class I anodized to 0.0007 inch minimum thickness, [clear.] [light bronze.] [medium bronze.] [dark bronze.] [black.]

**** OR ****

B. Galvanized Steel Sheet:
1. ASTM A653/A653M, Structural Quality, [G60] [G90] [__] coating class, [24] [__] gage core steel.
2. Recycled content: Minimum [__] percent recycled steel, with minimum [__] percent classified as post consumer.

**** OR ****

C. Precoated Galvanized Steel Sheet:
1. ASTM A755/A755M, Structural Quality, [G60] [G90] [__] galvanized coating class, [24] [__] gage core steel.
2. Recycled content: Minimum [__] percent recycled steel, with minimum [__] percent classified as post consumer.
3. Finish: AAMA 621, fluoropolymer coating, containing minimum [50] [70] percent PVDF resins, [custom] [____] color [to be selected from manufacturer's full color range].

**** OR ****

D. Aluminum-Zinc Alloy Coated Steel Sheet:
1. ASTM A792, Commercial Quality, [AZ50] [AZ55] [__] aluminum-zinc alloy coating, [24] [__] gage core steel.
2. Recycled content: Minimum [__] percent recycled steel, with minimum [__] percent classified as post consumer.

**** OR ****

E. Precoated Aluminum-Zinc Alloy Coated Steel Sheet:
1. ASTM A792/A792M, Commercial Quality, [AZ50] [AZ55] [__] aluminum-zinc alloy coating, [24] [26] [__] gage core steel.

2. Recycled content: Minimum [__] percent recycled steel, with minimum [__] percent classified as post consumer.
3. Finish: AAMA 621, fluoropolymer coating, containing minimum [50] [70] percent PVDF resins, [custom] [_____] color [to be selected from manufacturer's full color range].

**** OR ****

F. Stainless Steel Sheet:
1. ASTM A666, [2D] [__] conventional annealed finish, [0.015] [0.018] [__] inch thick.
2. Recycled content: Minimum [__] percent recycled stainless steel, with minimum [__] percent classified as post consumer.
3. Finish: [No. 4 satin.] [_____.]

**** OR ****

G. Copper Sheet:
1. ASTM B370, [0.021] [0.027] [__] inch thick.
2. Recycled content: Minimum [__] percent recycled copper, with minimum [__] percent classified as post consumer.
3. Finish: [2B, bright.] [_____.]

**** OR ****

H. Zinc Sheet:
1. ASTM B69, Type 1, alloy best suited to forming, [0.70] [__] mm thick.
2. Source: [Natural Zinc] [Quartz-Zinc] [Anthra-Zinc] [Pigmento Red] [Pigmento Green] [Pigmento Blue] [Pigmento Brown] by VM Zinc.

2.3 ACCESSORIES

A. Underlayment:
1. ASTM D1970; minimum 40 mil thick polymer modified asphalt laminated to polyethylene film, self adhering with release paper facing, formulated for extended high in-service temperatures up to 240 degrees F.
2. Source:
a. Ice and Water Shield HT by Grace Construction Products. (www.graceconstruction.com)
b. Lastobond Shield HT by Soprema, Inc. (www.soprema.us)

B. Clips: Series 300 stainless steel.

C. Fasteners: Series 300 stainless steel, type best suited to application.

D. Joint Sealers: Specified in Section [07 9200.] [__ _____.]

2.4 FABRICATION

A. Fabricate panels from [aluminum] [galvanized steel] [precoated galvanized steel] [aluminum-zinc alloy coated steel] [precoated aluminum-zinc alloy coated steel] [stainless steel] [copper] [zinc] sheet.

B. Fabricate panels with hemmed edges on four sides to produce single-lock flat seams in [rectangular] [diamond] [square] [rhomboid] profile, [[__ x __] inch size.] [size as indicated.]

C. Fabricate panel units to dimensions indicated based on assumed design temperature of 70 degrees F.

D. Form trim to profiles indicated or as required from same material as panels.

E. Form sections true to shape, accurate in size, square, and free from distortion and defects.

PART 3 EXECUTION

3.1 INSTALLATION OF UNDERLAYMENT

A. Starting at low edge, apply underlayment horizontally on roof.

B. Weatherlap each sheet 4 inches over preceding sheet. Lap ends 6 inches minimum.

C. Press to full bond with substrate without voids, wrinkles, bridging, or fishmouths. Seal ends and edges.

D. Lap underlayment minimum 12 inches over hips and ridges from both sides.

E. Apply 36 inch wide strip centered lengthwise over ridge.

F. Extend minimum 4 inches up abutting vertical surfaces.

3.2 INSTALLATION OF METAL TILE PANELS

A. Install in accordance with approved Shop Drawings.

B. Apply panels beginning at bottom of wall.

C. Separate dissimilar metals by use of bituminous paint or nonabsorptive gaskets.

D. Fit flashings with square corners and surfaces true, aligned, and accurate to required profiles.

E. Install trim to maintain visual continuity of system.

F. Install joint sealers to prevent water penetration.

G. Installation Tolerances:
   1. Variation from location: Plus or minus [1/4] [__] inch.
   2. Variation from plane: [1/4] [__] inch in 10 feet.

3.3 ADJUSTING

A. Touch up field cuts and abrasions on finished surfaces to match factory finish.

END OF SECTION