#### SECTION 07 63 00.01

**SHEET METAL FLUIS APPLIED ROOFING SPECIALTIES**

#### BASED ON DFD MASTER SPECIFICATION DATED (02/06/17)

**Note to Specifier:**

**Read the first paragraph after this statement, before proceeding.**

**Obtain and read the most current version of the DOA-DFD “Minimum Design Guidelines for Roofing and Waterproofing Systems”. Note the revision date at the title.**

This section has been written to cover most (but not all) situations that you will encounter. Depending on the requirements of your specific project, you may have to add materials, delete items, or modify what is currently written. The Division of Facilities Development expects changes and comments from you.

Recent changes in the specification are associated with the date by the title, identified by the ‘color green’. DO NOT DELETE THE DATE. Obtain the most current specification section for each project. Pay special attention to all ’Notes to Specifier’ identified in color of ‘dark red’ in italic typeface. Roof system options are also identified within [brackets] by the ‘color blue’. This language may be used or deleted as required by the scope of project. This section should be reviewed carefully as it has language for both new construction and re-roofing.

DFD Standard Roofing Details for various roof systems including HVAC and Electrical runs, curbs and support, louver, door and windows and State of Wisconsin Guarantee Forms are located on the DFD Website with the Master Roofing Specification.

part 1 – GENERAL

Scope

The work under this section includes all labor, material, equipment and related services necessary to install all roof related sheet metal. [Record documents to include digital photos].

PART 1 - GENERAL

 Scope

 Related Work

 Reference Standards

 [Guarantee]

 Quality Assurance

 Product Delivery, Storage and Handling

 Submittals - Technical and Other Documents

 Submittals – Final Documents Required Upon Completion of the Work

PART 2 - PRODUCTS

 Sheet Metal Materials

 Other Materials

PART 3 - EXECUTION

 Fabrication

 Workmanship

 Installation

 Cleaning

RELATED WORK

Applicable provisions of Division 1 shall govern work under this Section. The Contractor shall consult these provisions in detail prior to proceeding with work.

[06 10 53.01 – Miscellaneous Rough Carpentry - Roofing]

[07 57 13.01 – Fluid Applied Roofing]

In the event that the Contractor wishes to make improvements in materials and/or techniques, or is required to make improvements by his material manufacturer in order to obtain guarantees/warranties, he shall make written request stating in full the nature of the proposed changes and stating that the changes, if approved, will be accomplished at no increase in cost.

**REFERENCE Standards**

[AISI – American Iron and Steel Institute.]

[ASTM A308 – Steel Sheet, Terne (Lead-Tin Alloy) Coated by the Hot-Dip Process.]

ASTM A653 - Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.

[ASTM B32 - Solder Metal.]

[ASTM B101 – Lead-Coated Copper Sheet and Strip for Building Construction.]

[ASTM B209 - Aluminum and Aluminum-Alloy Sheet and Plate.]

[ASTM B370 - Copper Sheet and Strip for Building Construction.]

[ASTM C920 – Elastomeric Joint Sealants.]

[ASTM D2244 – Test Method for Calculation of Color Differences from Instrumentally Measured Color Coordinates.]

[ASTM D4214 – Test Methods for Evaluating Degree of Chalking of Exterior Paint Films.]

[FS TT-S-00230C ‑ Federal Specification.]

NRCA ‑ Roofing and Waterproofing Manual.

SMACNA - Architectural Sheet Metal Manual.

**Note to Specifier:** When specifying prefinished sheet metal, include the following “Guarantee” article.

**[GUARANTEE**

**Note to Specifier:** Separate guarantee is required if this Work is not part of a re-roofing Project.

State of Wisconsin Roof System Guarantee: Provide written five (5) year guarantee warranting all roofing and flashing required under contract, to be watertight and free from defects in materials or workmanship for period of time, as stipulated in guarantee form.

Contractor shall perform a minimum of two (2) roof system inspections during the term of this guarantee. The first inspection shall be approximately two (2) years after installation date on five (5) year guarantee with final inspection performed within last 6-months of five (5) year guarantee. Contact the Agency Contact to arrange for a site visit date. Agency Contact will accompany the Contractor. Submit written inspection reports, e-mailed to Owner (DFD Project Manager) and Agency Contact immediately after inspection is performed and prior to guarantee expiration.

It is recommended that the Contractor take digital photos of the finished work for their files and future reference.

A copy of the required State of Wisconsin Roof System 5-yr Guarantee form shall be bound herein located at the end of this Section and may be acquired at the following State website; doa.wi.gov/DFD

**Contractor and all sub-contractors shall review the guarantee and requirements of this Section prior to providing a quote for the Work required by this Section.]**

(The Contractors Performance-Payment Bond is only required to apply to this trade section during the construction period and the first year of the guarantee period. Said Bond shall not apply to any extended guarantee period beyond the first year. Such extended guarantees are limited to the applicable Contractor and manufacturer as herein specified.)

Manufacturer’s Warranty: Provide the sheet metal manufacturer’s standard twenty (20) year warranty stating at a minimum that the metal finish will not chalk in excess of an eight (8) rating, or fade in excess of a five (5) rating, when tested in accordance with ASTM D2244 and ASTM D4214.

The following information shall be included on all guarantee and warranty documents:

State of Wisconsin (Owner), Agency, city or township, street address where work was performed, building name, Owner Project number, Owner (DOA) building number, all roof areas involved and total sq. ft. area of all roof areas.

**QUALITY ASSURANCE**

Contractor shall be recognized by the manufacturer of the sheet metal as an “approved” or “authorized” applicator. Within the past five (5) years, the contractor shall be able to document the successful completion of a minimum of three (3) projects of similar size and scope of the work specified in this section.

Provide all equipment recommended by the manufacturer for proper installation of the materials specified.

**Note to Specifier:** Remove all of the follow in ‘blue’ if already in the roofing Section.

[Prior to the start of construction, it is required that the Contractor’s superintendent or foreman attends the preconstruction/pre-installation meeting(s).

It is the responsibility of the Contractor to obtain the services of a competent:

Electrician: For removal and reinstallation of roof curb-mounted exhaust fans and associated covers, ventilators, other electrical equipment and their associated wiring connections at the unit(s), relative to work on this project.

Plumber: To re-lead, repair and/or reset the roof drain bowls, relative to work on this project.

Remove, relocate and support gas or pressurized air piping as directed.

Mechanical Contractor] [State Agency]: For removal of belt, chain driven and/or electrical exhaust fans and associated flex connection duct runs/piping and its associated roof curb penetration.

The Contractor shall raise all existing curbs to a minimum height above the roof system of 8”.

Contractor shall notify the Agency Representative 24 hours in advance of all Electrical, Plumbing and Mechanical disconnections.]

[Lightning Protection Contractor: For removal, upgrading and certification of existing cabling, lightning rods, associated products and proper anchoring, fastening and/or adherence of all of cabling and rods and/or rod base plates. Verify that this installation does not interfere with the proper installation of the roofing metal flashing and its clip/cleat fastening point.]

[It is the responsibility of the Agency to perform inspection of the roof areas to be replaced by this project and to provide the following services:

State Agency: Existing Electrical, Plumbing and Mechanical installations and associated equipment pipe and duct runs shall be identified/verified by the State Agency as in use or be spray painted in ORANGE by the Agency if they are abandoned or shall be abandoned and shall be removed by this roofing Contractor, and verify the electrical is disconnected or conduct the disconnect prior to start of work by Contractor. Electrical conduct runs lying directly on the existing roof membrane shall be relocated by the Agency prior to start of work.]

**PRODUCT DELIVERY, STORAGE AND HANDLING**

Store all products in accordance with applicable provisions of Division 1 and Section(s) [insert appropriate Division 7 specification section number(s)] [07 57 13.01.]

Stack preformed material to prevent twisting, bending or abrasion and to provide ventilation.

Prevent contact with materials during storage, which may cause discoloration, staining or damage.

**SUBMITTALS - TECHNICAL AND OTHER DOCUMENTS**

**At the preconstruction meeting and prior to start of work,** **submit the following for approval by Owner.**

The following information shall be included on all submitted documents:

Agency/Location/Address where work is performed obtained from the Agency Contact listed to include Building Name, Bldg. State Number, Roof Areas, DFD Project Number and total sq. ft. of all roof areas.

**Submit:** Three (3) copies of a list of all materials used on the project, identified by manufacturer's name, size, thickness, type or grade. List shall be submitted on Contractor's letterhead stationery.

**Submit:** Two (2) copies of the manufacturer’s color sample cut sheet.

**Submit:** Actual samples of pre-finished sheet metal showing the exact color(s), metal type and texture(s) available for selection.

**Submit:** Actual samples of finished and unfinished side metal flashing for review.

Contractor will be notified of any additional required submittals at the pre-construction meeting.

**SUBMITTALS – FINAL DOCUMENTS REQUIRED UPON COMPLETION OF THE WORK:**

**Prior to final payment, submit the following to Owner as one (1) package including a cover page listing all documents sent:**

**RECYCLED MATERIALS:**

**Submit:** Three (3) copies of a completed Waste Management Plan to DFD for review. Include recycle business name, address, contact, and phone number where all recycled roofing material removed by this project will be delivered.

**Submit:** A final summary of the progress reports, including the percentage of recycled waste (weight or volume) to the quantity of waste that would have been otherwise land filled.

**Submit:** Recycler receipt for all deliveries showing all received product their weight and % calculation.

Material kept for reuse and delivered to the Contractors property or given away at the site by the Contractor shall be identified as well. The total sq. ft/bulk sum of all material shall be recorded and submitted.

**STATE OF WISCONSIN 5 YEAR ROOF GUARANTEE:**

**Submit:** One (1) original of guarantee as required herein. (Refer to GUARANTEE article in Part 1 of this Section).

**MISCELLANEOUS METAL WARRANTY:**

**Submit:** One (1) original of manufacturer warranty as required by Specification Section 07 63 00).

PART 2 - PRODUCTS

All products used in this installation shall be compatible with materials used in Section(s) [insert appropriate Division 7 specification section number(s)] [07 57 13.01.]

**SHEET METAL MATERIALS**

Prefinished Galvanized: ASTM A653, G-90; 24 gauge galvanized steel coated with a minimum 70% Kynar (Kynar 500) flouropolymer resin of 0.9-1.1 mil total dry film thickness and primed on the reverse side a wash coat of 0.3-0.4 mil dry film thickness. Color to be chosen from the manufacturer's standard color selection at the preconstruction meeting. Texture shall be smooth.

Galvanized: ASTM A653, G-90; galvanized steel. Thickness as follows:

22 gauge galvanized steel for continuous cleats.

24 gauge for metal edge, coping, flashing, seamless-gutter/downspouts, expansion joint, pourable sealer pans, sleeves and hoods.

Where foam insulation is applied to be under a counterflashing, the underside of that metal flashing shall be unfinished, clean and prepared to receive the application such that the foam insulation will adhere to the metal.

The exposed outer side of counterflashing shall be a pre-finished material, color selected by the owner at the preconstruction meeting.

[Prefinished Aluminum: ASTM B209, Series 3000, Temper H-14; 0.040” [0.032”] [0.050”] pre-finished aluminum coated with a minimum 70% Kynar (Kynar 500) flouropolymer resin of 0.9-1.1 mil total dry film thickness and primed on the reverse side a wash coat of 0.3-0.4 mil dry film thickness. Color to be chosen from the manufacturer's standard color selection at the preconstruction meeting. Texture shall be smooth.

22 gauge galvanized steel for continuous cleats.

0.040” [0.032”] for metal edge, coping, flashing, seamless-gutter/downspouts, expansion joint, pourable sealer pans, sleeves and hoods.]

**other materials**

Fasteners: Where not specified, size fasteners to suit conditions.

Metal to Wood, at exposed locations: #10 x 1-1/2" stainless steel screws with metal capped neoprene or PVC washers.

[*Other* Metal to Wood (concealed locations): 1-3/4" hot-dipped galvanized roofing nails.]

[Metal to Metal: [#10 x 3/4" stainless steel sheet metal screws with pan or hex heads] [3/16” diameter blind copper rivets] [1/8” diameter color-matched pop rivets].

[Metal to Concrete or Masonry: Zinc-alloy expansion shields with hardened steel pins.]

Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT, M, G, A or O; FS TT-S-00230C, Type II, Class A; one-part polyurethane base, elastomeric joint sealing compound such as Sika Chemicals "Sikaflex 1a", Sonneborn-Contech "Sonolastic NP1" or Tremco "Vulkem 116" or “Dymonic".

Other products, not specifically described, but required for a complete and proper installation of the work in this section shall be selected by the Contractor subject to the approval of Owner.

part 3 - EXECUTION

Refer to the drawings included with these specifications.

Fabricate and install all material in accordance with the latest edition of SMACNA, the best-accepted practices of the industry and these specifications.

**fabrication**

Fabricate new sections as detailed. Form sections true to shape, accurate in size, square and free from distortion or defects. Do not “punch” metal at brake points.

Form all pieces in lengths of 8'-0" or 10'-0" where practical. Sections less than 3' long are unacceptable unless that section comprises the entire run.

Unless detailed otherwise, hem exposed edges on underside 1/2"; fabricate vertical faces with bottom edge formed outward 3/4" at 45 degrees and hemmed to form drip.

Outside corners shall be prefabricated such that the outside face of section is broken at corner; seam at corner is unacceptable. Miter and seam top of outside and inside corners using rivets and specified polyurethane or manufacturer recommended and approved sealant. Corner pieces shall be a minimum of 18” in length, in both directions from the corner.

**WORKMANSHIP**

Make all work weather and watertight throughout; provide allowances for material expansion and contraction.

Contractors workers shall carry a container or apron to deposit all metal cut offs, droppings or other debris created by the work. Waste shall not be dropped to the roof and ground.

Sections shall be uniform, accurately fitted so as to line up straight and true and rigidly secured in place, without kinks or buckles. Joints at corners and angles shall be smooth, tight and neatly mitered and seamed.

Unless detailed otherwise, lap all vertical joints between adjacent sections a minimum of 2".

Where metal is hooked to a continuous cleat, crimp metal to cleat along entire length.

**Installation**

Roof Edge: As indicated on supplied details.

Miscellaneous Flashings:

Install appropriate flashings at all exhausts, vents and penetrations not specifically called out but required.

Remount and secure all rooftop equipment. Use threaded fasteners.

**CLEANING**

The work areas including the roof and ground below shall be inspected on a daily basis for waste/droppings.

Properly dispose of all cut offs, droppings and other debris on a daily basis to avoid damage or injury to others and/or owners property.

\*\*\* END OF SECTION \*\*\*