#### SECTION 07 31 29

**WOOD SHINGLES AND SHAKES**

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

***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.***

***Notes to Specifier: Pay special attention to items in the color red and italic typeface. Roof system options are identified within [brackets]* *by the color blue. This language may be deleted or added to as required by the scope of project. Recent changes in the specification are associated with the date by the title and are identified by the color green. Obtain the most current specification section for each project. Section has language for both new construction and re-roofing.***

***Notes to Specifier: 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 Specifications.***

part 1 - GENERAL

Scope

The work under this section includes all labor, material, equipment and related services necessary to install [Wood Shingles] [Shakes] associated system components including metal flashing, all roof related construction [and insulation.] [Record documents to include digital photos.]

**Note to Contractor:** See GENERAL REQUIREMENT, Article 28. Construction Waste Management. “In accordance with the Department of Administration’s management practice, all contractors shall reduce, reuse, salvage, and/or recycle construction waste to the extent that is feasible.” Roofing materials removed and disposed of by this project are intended to be recycled. Contractor shall make an effort to locate a recycling site nearest the project for delivery of all materials not intended for reuse by this project. See further instructions at: “TECHNICAL SUBMITTALS AND OTHER DOCUMENTS”.

PART 1 - GENERAL

Scope

Related Work

Reference Standards

Guarantee

Quality Assurance

Product Delivery, Storage and Handling

Technical Submittals and Other Documents

Site Conditions

PART 2 - PRODUCTS

Materials

PART 3 - EXECUTION

Examination

Substrate Preparation

Installation of New Roof System

Cleaning

Construction Verification

RELATED WORK

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

07 08 00 – Commissioning of Thermal and Moisture Protection

[06 10 53 - Miscellaneous Rough Carpentry]

[07 63 00 -Sheet Metal Roofing Specialties]

[26 41 00 – Facility Lightning Protection]

[00 00 00 - Specific Roofing Section]

***Note to Specifier:” Lightning Protection Systems” that must be removed, altered, interrupted or disabled to perform the new work must be upgraded at the roof level. The Contractors qualified lightning protection system Installer shall submit a written statement that the roof level portion of the installation would\* qualify for a UL “Master Label”.***

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, 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.

**REFERENCES STANDARDS**

ASTM D226 - Asphalt-Saturated Organic Felt Used in Roofing and Waterproofing.

[ASTM D1970 – Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.]

[ALSC PS 20 – American Softwood Lumber Standard.]

Cedar Shake and Shingle Bureau.

NRCA ‑ Roofing and Waterproofing Manual.

UL ‑ Fire Hazard Classifications.

**GUARANTEE**

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 with final inspection performed within last 6-months of term. Submit written inspection reports to DFD Project Manager and Agency Representative 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 Guarantee form is appended hereto.

***Note to Specifier: The following shall apply for existing roof systems covered by State guarantee or manufacturer warranties. DFD Re-Roofing Project Manager and the membrane manufacturer must be notified of intent to penetrate the existing guaranteed and/or warranted roof system prior to approval of final bid documents. DFD shall provide information concerning the original approved roof system Contractor(s), existing guarantees & warranties. If required, the manufacture shall provide alternate approved Contractor information when original Contractor is not available. This information shall be included within the bid documents allowing the State to maintain the existing State Guarantee and/or various manufacturer warranties through their expiration dates.***

***Note to Specifier: The following shall apply for existing roof systems no longer covered by State guarantee or manufacturer warranties. At minimum, request and insert a one (1) year or two (2) year State guarantee for all new construction projects and remodel projects including mechanical and electrical new work including penetrations or abandonment of existing roof penetrations that require minor roof system repair, replacement and/or new roofing material installed into a portion of the existing roof system to seam in to the existing roof system membrane to achieve a watertight condition.***

(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 wood [shingle] [shakes] manufacturer's standard [twenty (20)] [thirty (30)] [forty (40)] [fifty (50)] year warranty against material defects and wind damage.

***Note to Specifier: Send one (1) copy each (In PDF/scan format via e-mail) of all Contractor submitted and “signed” roof system State guarantees, manufacturer warranties, manufacturer metal guarantee and other guarantees associated with the roof system to the DFD Project Manager.***

Include the following information on all guarantee and warranty submittals: State of Wisconsin [Owner], Agency/Location/Address where work is performed obtained from the [Architect/Engineer] [Agency Representative listed on page B-1 of this specification], Building Name, Bldg. State Number, Roof Areas, DFD Project Number and total sq. ft. of all roof areas.

Manufacturer material and installation requirements may vary concerning issuance of the non-prorated protection warranty.

Contractor quote shall include and provide all product(s), labor and installation methods necessary and as specified herein, including manufacturer requirements not found specified herein, as required by the approved manufacturer to obtain the specified warranty requested herein.

New membrane, [insulation,] shop fabricated and/or manufacturer fabricated metal flashing, pre-molded and/or factory supplied associated roof system products, their fasteners and/or all products used for adhesive and/or adherence purposes and sealants approved and/or supplied by the manufacturer shall be covered by the manufacturer non-prorated protection warranty specified herein and the State Guarantee.

Existing re-installed metal flashing and new wood blocking mechanical securement shall be covered in the State guarantee but not the manufacturer system warranty specified herein.

Shop fabricated metal flashing materials as specified in section 07 63 00 and herein or as required for a complete watertight system may be provided in lieu of manufacturer fabricated metal flashing and shall be covered in the manufacturer system warranty specified.

**QUALITY ASSURANCE**

Roofing Contractor shall be recognized by the manufacturer of the roof membrane system 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.

***Note to Specifier: Roofing Contractor shall submit manufacturer’s current written documentation stating that they are an ”approved applicator” in good standing able to perform quality work on new construction projects, remodel projects including mechanical and electrical new work penetrations or abandonment of existing roof penetrations that require minor system repair, replacement and/or new material installed into a portion of the existing roof system with intension to seam in to the existing roof system membrane to achieve a watertight condition. This requirement shall apply to all work requiring submittal of a State Guarantees and/or manufacturer warranties.***

Submittal: Copies [as specified] of manufacturer’s current written documentation stating the Roofing Contractor is an ”approved applicator” in good standing, for the work specified herein.

***Note to Specifier – For Projects with AE, Agency or DFD Field Representative over-site: Roofing Contractor shall submit specified amount of manufacturer’s current paper-print installation and detail manual to be given to the Facility Representative at the preconstruction meeting.***

[Submittal: One (1) copy of the manufacturer’s most current installation and detail manual to be given to the Facility Representative at the preconstruction meeting. ]

Submittal: Web-site information to allow access to manufacturer’s most current installation and detail manual.

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Roofing Contractor shall perform work required using details provided within the specifications, on the drawings or as required by the manufacturer for a proper watertight installation and to allow issuance of warranties required herein.

All components included in the roof system installed by the work required shall be included in the manufacturer watertight warranty for the duration of such warranty required herein. System components required by the work but otherwise not warranted by the manufacturer shall be upgraded to be manufacturer specific products at the time of bid such that they are covered by the warranty required herein.

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

Roofing installations shall comply with fire resistive rating as defined in the Wisconsin Administrative Code. Required rating on these roofs: U.L. Class C.

**Prior to the start of construction, it is required that the Contractor’s superintendent or foreman shall be in attendance at preconstruction/pre-installation meeting(s).**

It is the responsibility of the Roofing 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.

Agency is responsible for disconnect where wiring must be pulled or cut and conduits relocated to allow installation of the new roof system.

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 mechanical and electrical trades’ roof system penetrations 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 that the electrical run is terminated, 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**

Make no deliveries to the project site until ready to install or approved storage is provided. The State will not accept delivery nor will the State be responsible for any materials or equipment stored on the premises.

Deliver materials in the manufacturer's original, unopened containers and rolls with labels intact and legible.

Deliver materials in sufficient quantity to allow continuity of work.

Materials used on the job must be stored in such a manner as not to create a nuisance or hazard.

Store materials on clean, raised platforms, with breathable, weather protective covering when stored outdoors. Provide continuous protection from materials against weathering and moisture absorption. Factory applied "shrink-wrapping" is not considered to be an acceptable weather protective covering. Store rolled goods on end; do not double stack rolls. Improper storage practices will be grounds for rejection of questionable materials.

Store primers, coatings, sealants and similar materials between 60 degrees and 80 degrees Fahrenheit.

DO NOT store materials in a manner which will overload any portion of the building.

Handle all materials in a manner which will not damage the material. All damaged materials shall be removed from project site.

Select and operate material handling equipment and store materials as not to damage existing construction or applied roofing, and without overloading the building structural system.

**TECHNICAL SUBMITTALS AND OTHER DOCUMENTS**

**At [or before] the preconstruction meeting and prior to start of work,** **submit the following for approval to DFD Project Manager [Architect/Engineer]:**

The following information shall be included on all submitted documents:

Agency/Location/Address where work is performed obtained from the [Architect/Engineer] [Agency Representative listed on page B-1 of this specification], Building Name, Bldg. State Number, Roof Areas, DFD Project Number and total sq. ft. of all roof areas.

**INSTALLATION INSTRUCTIONS:** Provide one (1) copy of the manufacturer’s most current installation/instruction and detail manual concerning the installation of the roof system and all associated products that will be used in this project to be turned over to the Agency Representative at the preconstruction meeting.

**RECYCLED MATERIALS:**  Three (3) copies of a 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.

**SEE QUALITY ASSURANCE:** Three (3) copies of manufacturer’s current written documentation stating the Roofing Contractor is an ”approved applicator” in good standing, for the work specified herein.

**MATERIAL LIST:** Provide 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.

Contractor shall state the following on the material list submittal;

**“New products installed on this project do not contain asbestos”.**

***Note to Specifier: When removing an existing roof where existing materials might contain asbestos, insert the following paragraph:***

**CONTRACTOR: SEE CHANGES to**

**DIVISION 1 - GENERAL REQUIREMENTS**

**4. HAZARDOUS SUBSTANCES - ASBESTOS, LEAD AND POLYCHLORINATED BIPHENYLS (PCB'S) – submittal requirements (Expected May 01, 2009).**

**[ASBESTOS TESTING:** Three (3) copies required. Contractor replacing the roof system is required to take a minimum of two (2) samples of existing roof system(s) encountered to be sent to a testing lab. Each test result shall properly identify the DFD Project No., project location, bldg. name, bldg. number & roof area/location where the test sample was taken. Test lab charges shall be the responsibility of the Contractor at no additional cost to the project.

Minimum of two test samples on each roof area of existing roof systems, one to be taken in the field of the roof and one at the base flashing.

Pre-bid tour Contractors are advised to obtain a small sample of the existing roof system while on site.

**ASBESTOS:** Three (3) copies of the necessary regulatory notifications for asbestos removal or three (3) copies of core sample test results indicating the roofing materials slated for removal do not contain asbestos. (Refer to General Requirements Article “HAZARDOUS SUBSTANCES – ASBESTOS, LEAD AND POLYCHLORINATED BIPHENYLS (PCB’S)” for additional information.)

**Test lab results must be submitted prior to start of work]**

**SAFETY REPORT:** One (1) copy of a written report to be given to the Agency Representative at the preconstruction meeting, describing in detail the Contractors implementation of specific OSHA regulations, Contractor’s worker safety program methods/means, roof perimeter safety and identification of the “watch person” required at all roof levels. Identify fire extinguisher and their locations, all equipment/operators on roof/ground in setup/storage area and travel routes used while performing the work.

**MSDS DATA:** One (1) copy of all MSDS paperwork for each products used on this project to be given to the Agency Representative at the preconstruction meeting.

**EMERGENCY AND OFFICE CONTACT PHONE LIST:** One (1) copy of the Contractor’s office superintendent and job foreman daytime, after hours and weekend phone contact numbers to be given to the Agency Representative at the preconstruction meeting.

**Contractor shall maintain at least one (1) copy of the following at the project site throughout construction:**

Specifications, drawings, addenda, value enhancement, change order and all approved submittals.

Latest version of the manufacturer’s handbook including details and technical information concerning application techniques for all primary roofing system materials required by the work.

Material Safety Data Sheets (MSDS) manual for all materials used on this project.

**After the completion of the project, and prior to final payment, submit the following to DFD Project Manager as one (1) package including a cover page listing all documents sent:**

**DIGITAL PHOTOS:** Provide digital photos as required by this specifications

Contractor shall take multiple digital photos to be submitted electronically to the DFD Project Manager of the following;

Various locations and types of mechanical fastening that will be hidden from view or otherwise concealed beneath the completed work. Multiple photos shall be taken of the valley installation as it progresses in layers as required per specification and especially at the bottom of the valley showing the end-of-run, on-site metal fabrication, watertight closure, and/or other locations as noted herein.

Contractor shall take and provide digital photo’s of all changes to the scope of work to include existing conditions as the work takes place in its various stages of demolition and of the new and completed work as it takes place in its various stages.

Contractor shall take and provide digital photo’s of the completed work. Photos shall include the various metal flashing details, transitions and penetration height changes and in general an over-all view of the field of all roof areas. Photos shall be identified by the roof area where photos are taken.

**RECYCLED MATERIALS:**  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.

[Contractor shall contact the following or another recycling company to arrange for pick up of EPDM and/or whole-piece insulation intended for disposal by the Contractor.

“Nationwide Foam, Inc.”: Recycles insulation and will arrange for flatbed drop off and removal at a cost less than landfill fees. Contact: Ken Wardrop at (888) 820-2760 Ext. 29 or e-mail at ken@nationwidefoam.com.]

[Contractor shall contact local concrete companies or earth fill providers concerning disposal of existing concrete and/or stone ballast.]

[Contractor shall deliver sheet-rock and shingle roof debris to the following recycling company, or another recycle service if closer to the work, to include all associated paper, wood, metal, fasteners, plastics, felt/membranes that are mixed in with the shingles and intended for disposal by the Contractor.

“2ndSeason”: Recycles debris from shingle tear-off and will accept your loads between the hours of 7:00 AM – 4:30 PM Monday through Friday. Cedar shingle drop off cost will be slightly higher. They are located at 2159 Range Trail, Verona, Wisconsin 53593. Contractor may find location and drive-maps at “map quest”, “live search” or other such services. The site phone number is (608) 848-4400. ]

[Contractor shall contact a metal recycle company for metal debris containers, pickup or delivery of metal debris intended for disposal.]

Contractor shall 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 as described in GENERAL REQUIREMENTS, Article 28.

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.

**[WASTE MANIFEST:** Two (2) copies of the Waste Manifest Records to DFD Project Manager if required in accordance with General Requirements Article “HAZARDOUS SUBSTANCES – ASBESTOS, LEAD AND POLYCHLORINATED BIPHENYLS (PCB’S)”.]

***Note to Specifier: Waste Manifest submittal is NOT REQUIRED if no asbestos was found in the existing roof system.***

**STATE OF WISCONSIN ROOF GUARANTEE:** One (1) original copy of guarantee as required herein. (Refer to GUARANTEE article in Part 1 of this Section).

**MANUFACTURER ROOF WARRANTY:** One (1) original copy of all membrane warranties as required herein. (Refer to GUARANTEE article in Part 1 of this Section).

**[MISCELLANEOUS METAL WARRANTY:**  One (1) original copy of manufacturer warranty as required by Specification Section 07 63 00).]

**[LIGHTNING PROTECTION CERTIFICATION:** One (1) original copy of all testing required by Specification Section 26 41 00.1).]

**SETTLEMENT CERTIFICATE [AND WAGE RATE AFFIDAVIT]:** One (1) copy of each document.

The following information shall be included on all submittal documents.

Agency/Location/Address where work is performed obtained from the [Architect/Engineer] [Agency Representative listed on page B-1 of this specification], Building Name, Bldg. State Number, Roof Areas, DFD Project Number and total sq. ft. of all roof areas.

**SITE CONDITIONS**

Apply roofing in dry weather. All roofing materials installed during rain shall be removed and replaced with dry materials at Contractor's expense.

Contractor shall layout plastic, cloth or canvas tarping that will not easily tear from dropped debris to catch all falling debris during demolition and installation. Protection provided shall extend beyond eave or edge slide-off and/or drop-off areas a minimum of 10’-0”. After removal, Contractor shall walk the area beyond and under the debris drop-off area to clean up all debris by use of a wheel-magnet and eye-sight.

The same protection shall be provided under and/or around dump truck or dump box locations at or along side the building.

DO NOT apply roofing unless authorized by the [DFD Project Manager] [Architect/Engineer] [DFD Project Representative] when the working hours ambient temperature is below 32 degrees Fahrenheit. Under no circumstances will any seaming, flashing or adhesive activities be allowed when the ambient temperature is below 20 degrees Fahrenheit, or the wind chill factor is below 0 degrees Fahrenheit.

[Existing materials designated to remain, which are damaged or defaced as a result of the work shall be replaced at Contractor's expense to like new condition.]

[Reinstall] [Install] all rooftop mounted equipment in a watertight manner and repair any damage to sheet metal or other components related to connection and protection of the roof system.

Protection of surfaces:

Take every precaution to prevent water leakage, or debris falling into the building interior, or other such occurrences. Contractor is responsible for any damage to the building interior, or contents, during [reroofing] [construction].

Provide special protection or avoid heavy traffic on completed work. Temporary walkways and work platforms shall be provided as necessary.

Wall surfaces shall be protected with tarpaulins or other suitable cover to prevent damage, staining or discoloration that might result from operations such as removal, disposal, replacement or removing of equipment or materials to the roof surface. Windows, doorways, docks, walkways, etc. may require special protection measures.

Provide 3-sided enclosures at all building entry areas to allow access to the building during demolition and construction activity. Minimum enclosure construction requirements are as follows;

Building entry enclosure shall start at a minimum of 10’-0” beyond the building eave or edge slide-off and/or drop-off area.

Over-head: ¾” CDX plywood mechanically fastened or secured to minimum of 4 wood scaffolding planks securely fastened over properly braced walk-through steel scaffolding.

Side: ¾” CDX plywood mechanically fastened or secured to each side of the walk-through steel scaffolding to provide complete enclosure.

Disposal of materials:

All materials to be disposed of shall be loaded directly into trucks by means that will prevent damage to existing or new surfaces and to control pollution. Free-fall of debris from heights over 15’ will not be allowed.

The Contractor is responsible for any charges, such as landfill fees, incurred for disposal of materials.

# PART 2 - PRODUCTS

All products used in this installation shall be compatible with one another.

Where specific manufacturers are named, products by other manufacturers may be considered equal in accordance with the provisions of Article 17 of the General Conditions.

[Use new materials only; salvaged or used materials are unacceptable.]

**MATERIALS**

Note to Specifier: It is required to design roofs in accordance with the provisions of the State Energy Code (ILHR 63.12) relative to system “U” value. Pre-manufactured nail base insulations are typically unacceptable as they are considerably more costly than field assembled insulated and ventilated substrates.

[Polyisocyanurate: ASTM C1289, Type II, Class 1, Grade 2; rigid board insulation with felt or fibrous mat facing on both sides. For mechanically attached boards, maximum size = 48" x 96"; for adhered boards, maximum size = 48” x 48”. Thickness = [1-1/2”] [2.0”].]

[Sheathing: American Plywood Association (APA); 15/32" CDX 5-ply fir plywood or ½” OSB (oriented strand board).] [or as specified by Section 06 10 53 or drawings.]

[Roof Edge: Specified in Section 07 63 00.]

Underlayment: ASTM D226, Type II; No. 30 asphalt saturated organic felt, non-perforated.

[Ice Protection: ASTM D1970; polyethylene surfaced, self adhering modified bitumen such as W.R. Grace Ice and Water Shield, GAF Weather Watch or as approved.]

Cedar Roofing Shingles: No. 1 Blue Label, 16” XXXXX Certigrade red cedar shingles.

[Match existing shingle size, width and butt edge.]

[Lattice Work: ALSC PS 20, grade No. 2 or better, 1” x 3” pine.]

Fasteners: Hot-dipped galvanized. Lengths as follows:

[For Attachment of the Plywood Sheathing to the Existing Wood Deck: 3-1/2" hot-dip galvanized or polymer coated screws.]

Shingle Nails: 3d (1-1/4”) box nails.

For Hips and Ridges: 6d (2”) box nails.

[For Lattice Work: 6d (2”) ring shank nails.]

***Note to Specifier: Provide zinc or copper strips at locations required on all wood shingle installations.***

Fungus and Mildew Inhibitor Strips: Zinc or copper 20 oz. sheet stock.

Hip and Ridge: [Cut from specified shingles.] [1” x 6” rough-sawn cedar boards.]

[Plumbing Vents Flashing (soil stacks): Four (4) pound lead boot flashing fabricated such that top will turn back into stack a minimum of 1". Flange shall be 12" x 12" plus O.D. of stack in both directions.]

[Drip Edge, Valley Metal, Step Flashing and Flashing under Hip and Ridge: Fabricate from 16 oz. copper in accordance with Section 07 63 00, size as detailed or to suit conditions.]

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 approval by the Architect/Engineer [and Project Representative].

# PART 3 - EXECUTION

**EXAMINATION**

Examine the areas and conditions under which work in this section will be installed. Bring to the Project Representative's attention any conditions detrimental to the proper and timely completion of the work. Do not proceed until unsatisfactory conditions have been corrected.

**SUBSTRATE PREPARATION**

Plan work and take whatever action is necessary to prevent dirt and debris from entering the building during [construction] [removal of existing roofing materials].

***Note to Specifier: If required, insert language relative to removal and disposal of existing roofing system. Include archival information on existing materials, if available.***

[Verify that existing wood blocking, curbs and nailers are securely anchored and that roof openings and penetrations are in place and set and braced.]

Verify that the substrate is clean, dry and free from sharp projections and depressions and that all surfaces and site conditions are ready to receive new materials.

**INSTALLATION OF NEW ROOF SYSTEM**

Sweep the entire roof to remove all loose debris.

**Contractor shall instruct all shingle applicators employed on this project to become familiar with manufacturer’s written installation instructions as printed on the product wrapper or obtained from the manufacturer. A copy of the manufacturer’s installation instructions shall be kept on site for the duration of the project.**

[Install all nailers and wood blocking in accordance with Section 06 10 53.]

Pressure Treated Plywood and Lumber: These products shall not be specified or provided for use in roofing projects as a substrate material intended to receive mechanical fasteners used to secure metal roof panels, panel clips, metal coping, roof penetration curbs cap and Counterflashing, all other metal flashing, roofing insulation and membrane installations that are a part of the roof system.

The manufacture shall approve of all mechanical fasteners used to secure all roof system components.

[Contractor shall take multiple digital photos to be submitted electronically to the [Project Manager] [Architect Engineer] [DFD Project Representative] showing the various locations and types of mechanical fastening that will be hidden from view or otherwise concealed beneath the completed roof system.]

Install ice protection [over the entire roof] [where indicated on the roof plan] in accordance with manufacturer’s recommendations and the following:

Apply material directly to the [plywood] [wood] deck, working from the eave toward the ridge.

All head and end laps shall be minimum 6”. Roll all laps with a hand roller.

Turn material up walls minimum 6”. Seal all deck penetrations.

Install metal drip edge at roof eaves over the ice protection sheet; fasten through the top flange with copper roofing nails @ 16" O.C.

[Self adhering waterproofing membrane shall be installed two (2) rolls wide along eaves, one (1) roll width along rake and one (1) roll width around all penetrations. 30 # membrane shall continue over all of the self adhering waterproofing membrane installations.]

[Directly over the ice protection, install [Install] one layer of underlayment over the entire roof. Underlayment head laps shall be minimum 2”; end laps shall be minimum 6”. Secure to the deck with sufficient fasteners to hold material in place until shingles are applied.]

Install drip edge over underlayment on rakes; fasten @ 16" O.C.

[Install new 1” x 3” wood latticework [over ice protection] [over underlayment] as follows:

Install base layer of 1” x 3” boards parallel to the slope @ 16” O.C. Provide additional 1” x 3” boards along rakes, intersecting walls, along each side of valley lines, and around penetrations, etc. Secure with two (2) specified fasteners @ 12” O.C.

Install second layer of 1” x 3” board’s perpendicular to the slope over the base layer @ 5” O.C. Provide triple starter and end courses. Secure to base layer with two (2) specified fasteners at each intersection.]

[Joints in lattice boards to occur over other boards.]

[Install metal for open valleys in accordance with Section 07 63 00.]

Install cedar roofing shingles in accordance with recommendations of the Cedar Shake and Shingle Bureau and the following:

Replace damaged or wrinkled underlayment. Underlayment must be wrinkle free when installing the cedar shingles.

Double shingles at roof eaves. Butts of first course shall project 1-1/2” over drip edge on eaves and 1” over edge on rakes.

Apply shingles with 5” exposed to the weather. Install with butt lines straight and flush. Spacing between adjacent shingles shall be a minimum of ¼” and a maximum of 3/8”. Offset joints in adjacent shingle courses a minimum of 1-1/2”. Joints in alternate courses should not be in direct alignment.

Knots and similar defects shall be treated as the edge of the shingle and the joint in the course above placed 1-1/2” from the edge of the defect.

Split any shingles wider than 7”. [if random width shingles are used.]

Fasten each shingle with two (2) nails placed ¾” from the shingle edge and approximately 6-1/2” above the butt. Drive nails straight and flush with the surface; DO NOT break surface with nail head.

[Adjacent to vertical surfaces, install step flashing over each course of shingles. Each flashing piece shall overlap previous piece a minimum of 3”.]

[Install shingles up to plumbing vent pipes. Install lead flashings [as detailed]. Cut and install shingle over flashing to fit around pipe.]

[Install copper valley flashings in accordance with Section 07 63 00. Valley flashing shall extend a minimum of 11” on each side of the valley centerline.]

Install hip and ridge as follows:

Install zinc or copper strips under hip and/or ridge cap [and at middle of run of sloped roof] with minimum 2” exposure and/or as specified.

***Note to Specifier: Use only one of the following paragraphs.***

[Install “Boston style” hip and ridge using uniform width shingles between 4” and 5”. Provide double starter course.]

[Install hip and ridge using alternate overlap method. Bevel edge of underlying shingle of overlap to match roof slope. Provide double starter course.]

[Install cedar boards with edges cut to a bevel to match roof slope.]

At the completion of the project, provide the institution one (1) bundle of extra shingles.

**CLEANING**

Clean roof surface and replace damaged shingles Sweep the entire roof surface to remove loose granules and other debris.

Clean all existing and new gutters and downspouts to be free of roofing debris including shingle and metal cuttings, nails and shingle granules to allow for unobstructed, proper water flow.

Inspect adjacent roof systems, their drain strainers and the grounds below the work area and remove debris associated with this project.

Repair or replace defaced or disfigured finishes caused by work of this Section. In areas where finished surfaces are soiled by asphalt or any other source of soiling caused by work of this Section, consult manufacturer of surfaces and manufacture of product causing the stain for cleaning advice, product recommendation and conform to their instructions.

**CONSTRUCTION VERIFICATION**

Contractor is responsible for utilizing the construction verification checklists supplied under specification Section 07 08 00 in accordance with the procedures defined for construction verification in Section 01 91 01 or 01 91 02.

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