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SECTION 01140 - WORK RESTRICTIONS

PART 1 - GENERAL

1.1 USE OF PREMISES

A. Use of Site: Limit use of premises to work in areas indicated. Do not disturb portions of site beyond areas in which the Work is indicated.

1. Limits: Confine constructions operations to buildings to be reroofed and areas immediately adjacent.
2. Owner Occupancy: Allow for Owner occupancy of site and use by the public.
3. Areas for contractor staging and contractor parking will be designated at the preconstruction conference.
4. Driveways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, 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.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

B. Use of Existing Building: Maintain existing buildings in a weather tight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

1.2 OCCUPANCY REQUIREMENTS

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

1. Access to the building interiors by the Contractor is strictly prohibited.
2. Owner’s representative must be present when any contractor’s personnel require access to building interiors.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01310 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

1. General project coordination procedures.
2. Conservation.
3. Project meetings.

1.2 COORDINATION

A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

B. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:

1. Preparation of Contractor's Construction Schedule.
2. Preparation of the Schedule of Values.
3. Installation and removal of temporary facilities.
4. Delivery and processing of submittals.
5. Progress meetings.
6. Preinstallation conferences.
7. Project closeout activities.

C. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.

1.3 PROJECT MEETINGS

A. Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owners' Representative of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owners' Representatives (3) days of the meeting.

B. Preconstruction Conference: Schedule a preconstruction conference before starting construction no later than 10 days after execution of the Agreement. Hold the conference at Project site. Conduct the meeting to review responsibilities and personnel assignments.

C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity that requires coordination with other construction.

1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting.
2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:

    a. Contract Documents.
    b. Related Change Orders.
    c. Purchases.
    d. Deliveries.
    e. Submittals.
    f. Possible conflicts.
    g. Time schedules.
    h. Weather limitations.
    i. Manufacturer's written recommendations.
    j. Warranty requirements.
    k. Temporary facilities.
    l. Space and access limitations.
    m. Protection of construction and personnel.

3. Record significant conference discussions.
4. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meeting at intervals agreed upon by those involved. Coordinate dates of meetings with preparation of payment requests.

1. Attendees: Representatives of Owner. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Review items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.

    a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
    b. Review present and future needs of each entity present, including the following:
        1) Status of submittals.
        2) Deliveries.
        3) Access.
        4) Work hours.
        5) Progress cleaning.
        6) Change Orders.
        7) Documentation of information for payment requests.

3. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.

    a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

1.1 GENERAL

A. Use Charges: Unless noted otherwise, cost or use charges for temporary facilities are not chargeable to Owner and shall be included in the Contract Sum.

B. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:

1. Keep temporary services and facilities clean and neat.
2. Relocate temporary services and facilities as required by progress of the Work.

1.2 PRODUCTS

A. Materials: Provide new materials. Undamaged, previously used materials in serviceable condition may be used if approved by Architect. Provide materials suitable for use intended.

1. Lumber and Plywood: Comply with requirements in Division 6 Section "Rough Carpentry."
2. Tarpaulins: Fire-resistive labeled with flame-spread rating of 15 or less.
3. Water: Potable.

B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.

1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

C. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.

D. Drinking-Water Fixtures: Containerized drinking-water units, including paper cup supply.

E. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

1.3 EXECUTION

A. Installation, General: Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.

1. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

B. Temporary Facility Installation:

1. Water Service: Existing water service at buildings may be used. Exercise conservation to limit usage.
2. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.

a. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.

3. Electric Power Service: Existing electrical service at buildings may be used. Exercise conservation to limit usage.
4. Electric Distribution: Provide power cords adequate for connection of power tools and equipment.

a. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
1) Telephone Service: Provide telephone service throughout construction period in the form of a cellular phone carried at all times by the superintendent. Distribute phone number to Architect and Owner's Representative no later than preconstruction conference.

C. Support Facilities Installation: Comply with the following:

1. Locate storage, sanitary facilities, and other temporary construction and support facilities for easy access.

2. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste.

a. If required by authorities having jurisdiction, provide separate containers, clearly labeled, for each type of waste material to be deposited.

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

D. Security and Protection Facilities Installation: Comply with the following:

1. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects. Avoid using tools and equipment that produce harmful noise. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.
2. Tree and Plant Protection: Protect vegetation from construction damage. Protect tree root systems from damage and erosion.
3. Temporary Fire Protection: Protect against reasonably predictable and controllable fire losses.
    a. Provide fire extinguisher in superintendent's vehicle, visible and accessible from area being served.
    b. Store combustible materials in containers in fire-safe locations.
    c. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire-protection facilities, stairways, and other access routes for firefighting. Prohibit smoking in hazardous fire-exposure areas.

E. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

F. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.

G. Termination and Removal: Remove each temporary facility when need for its service has ended, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

1. Materials and facilities that constitute temporary facilities are the property of Contractor.
2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1 Section "Closeout Procedures."

END OF SECTION

SECTION 06100 - ROUGH CARPENTRY

2.1 GENERAL

A. Submittals: Submit the following:

1. Product Data for underlayment and construction adhesives.

B. If areas of substandard existing roof sheathing are encountered as roof is removed, identify extent of substandard area and notify University personnel before proceeding. Substandard areas will be removed and replaced using unit prices agreed upon in the contract for construction.

2.2 PRODUCTS

A. Lumber, General: Comply with DOC PS 20 and with applicable grading rules of inspection agencies certified by the American Lumber Standards Committee's (ALSC) Board of Review. Provide dressed lumber, S4S, with each piece factory marked with grade stamp of inspection agency.

1. For exposed lumber, furnish pieces with grade stamps applied to ends or back of each piece, or omit grade stamps and provide grade-compliance certificates issued by inspection agency.
2. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2-inch nominal (38-mm actual) thickness or less, unless otherwise indicated.Concealed Boards: Provide lumber with 19 percent maximum moisture content and any of the following species and grades:

B. Species and Grade: Mixed southern pine, No. 2 per SPIB rules.

C. Wood Structural Panels:

1. Plywood: DOC PS 1, Exterior, Structural 1.
2. Comply with "Code Plus" provisions in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial."

D. Wood-Preservative-Treated Materials: AWPA C2 (lumber) except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPA C31 with inorganic boron (SBX).

1. Kiln-dry material after treatment to a maximum moisture content of 19 percent. Mark each treated item with the treatment quality mark of an inspection agency approved by the American Lumber Standards Committee Board of Review.
2. Application: Treat items indicated on Drawings, and the following:

Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.

E. Miscellaneous Lumber: Provide No. 3 or Standard grade lumber of any species for support or attachment of other construction, including rooftop equipment curbs and support bases, cant strips, bucks, nailers, blocking, and similar members.

F. Fasteners: Size and type indicated. Provide fasteners with a hot-dip zinc coating per ASTM A 153 or of Type 304 stainless steel.

1. Attach wood construction with nails, screws or bolts; staples are not permitted.
1. Power-Driven Fasteners: CABO NER-272.
2. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

2.3 EXECUTION

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted.

B. Fit rough carpentry to other construction; scribe and cope as required for accurate fit. Correlate location of furring, nailers, blocking, grounds, and similar supports to allow attachment of other construction.

C. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. "Table 2305.2--Fastening Schedule" of the BOCA National Building Code.

D. Use hot-dip galvanized or stainless-steel nails.

E. Apply field treatment complying with AWPA M4 to cut surfaces of preservative-treated lumber and plywood.

F. When replacing areas of substandard roof sheathing, remove whole existing sheathing panels back to nearest framing member. Replace with panels of same size and thickness. Provide blocking or additional framing members nailed to existing framing as required to provide additional nailing surface for new sheathing.

END OF SECTION

SECTION 07 31 13 – ASPHALT SHINGLES

PART 1 GENERAL

1.1 DESCRIPTION

A. Contract and General Requirements shall govern the work of this section.
B. Contractor shall provide all materials, labor, tools, supervision, and equipment required to prepare an install fiberglass asphalt shingle roof replacement described in the specifications and shall follow the manufacturer's written project recommendations.
C. Contractor shall provide all materials, labor, tools, supervision and equipment required to remove and replace underlayment as described in the specifications and shall follow all manufacturer's written project recommendations.

LOCATION:
Northern Kentucky University Campus:
University Suites, 30 Campbell Dr Highland Heights, KY
Kentucky Hall, 20 Campbell Dr. Highland Heights, KY
Commonwealth Hall, 20 Campbell Dr. Highland Heights, KY

SCHEDULE: Working days at Northern Kentucky University are generally Monday through Friday, 7:00am to 4:30pm. Please inform project manager of general working hours. All work shall be coordinated through NKU Project Manager. Any night work will need to be approved by said project manager.

1.2 SUMMARY

D. Section includes granular surfaced asphalt shingle roofing, including but not limited to the following:
   1. Moisture shedding underlayment.
   2. Eave, rake and ridge protection.
   3. Roof ventilation
   4. Associated metal flashings and accessories.
   5. Removal of existing roofing materials.
   6. Metal Trim (ALTERNATE)

E. It is not the intent to herein describe all of the details for asphalt roofing and flashing. Ensure that all items and details not otherwise specified, but shown on the drawings, or as otherwise required to achieve a complete watertight roofing installation, shall be provided under this Section at no additional cost to the Owner.

1.3 QUALIFICATIONS

A. Use adequate numbers of skilled workers thoroughly trained and experienced in the necessary crafts and completely familiar with the specified requirements and methods needed for proper performance of the work of this section.
B. Installer qualifications:

1. Installer shall have at least five years experience in installing materials of types specified and shall have successfully completed at least five projects of similar scope and complexity.
2. Installer shall designate a single individual as project foreman who shall be on site at all times during construction.
3. An authorized installer who is trained approved by manufacturer.

C. Single source responsibility for roof system installation per roof:
1. Obtain roof replacement materials from a single manufacturer for each different product required to ensure compatibility per each building.

1.4 WARRANTY:

A. Contractor and manufacturer agree to repair or replace asphalt shingles that fail within specified warranty period.
1. Shingles Material Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace asphalt shingles that fail in materials within specified warranty period. Materials failures include manufacturing defects and failure of asphalt shingles to self-seal after a reasonable time.
2. Material Warranty Period: 25 years from date of Substantial Completion, prorated, with first 5 years non-prorated.
3. Workmanship and Product Warranty: In addition to the manufacturer’s product warranty, provide a one (1) year written guarantee commencing from date of Owner’s Representative’s acceptance for the replacement of all defective work related to the roofing, including but not limited to asphalt shingle installation, felts, watershield,metal work and other related installed work.
4. Wind-Speed Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds of up to 130 mph for 15 years from date of Substantial Completion.
5. Algae-Resistance Warranty Period: Asphalt shingles will resist blow-off or damage caused by wind speeds of up to 130 mph for 15 years from date of Substantial Completion.

1.5 SUBMITTALS

A. Product Data: Submit manufacturer’s product data indicating material characteristics, performance criteria, and limitations.
B. Samples: Submit two of each type shingle selected; two 12" x 12" of metal flashing indicating finish; two samples of 12" x 12" underlayment and water shield; and three samples of each type nail required for asphalt shingle and flashing.
C. Manufacturer's Installation Instructions: Submit installation criteria and procedures.
D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
E. Warranties: Special warranties specified in this Section.

1.6 ENVIRONMENTAL REQUIRMENTS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit asphalt shingle roofing to be performed according to manufacturer's written instructions and warranty requirements.
B. Install self-adhering ice and water dam protection sheet underlayment within the range of ambient and substrate temperatures recommended by manufacturer.
C. Do not apply roofing membrane to damp or frozen deck surfaces.

1.6 PERFORMANCE REQUIREMENTS

A. Shingles shall comply with ASTM D3462 and meet the following requirements:
    1. ASTM E108, or UL 790 Class A, fire exposure-test requirements.
    2. Pass ASTM D7158 wind-resistance-test requirements.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver all materials to the jobsite in their original unopened containers, with all labels intact.
B. Store materials in strict accordance with manufacturer’s recommendations.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Exterior Fire-Test Exposure: Provide asphalt shingles and related roofing materials identical to those of assemblies tested for Class A fire resistance in accordance with ASTM E108 or UL 790 by Underwriters Laboratories or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify products with appropriate markings of applicable testing agency.

B. Wind Resistance: Provide asphalt shingles that comply with requirements of ASTM D3161/D3161M, Class F, and with ASTM D7158/D7158M, Class H.

C. Energy Performance, ENERGY STAR: Provide asphalt shingles that are listed on the DOE's "ENERGY STAR Roof Product List" for steep-slope roof products.

2. GLASS-FIBER-REINFORCED ASPHALT SHINGLES
2

A. Three-Tab-Strip Asphalt Shingles: ASTM D3462/D3462M; glass-fiber reinforced, mineral- granule surfaced, and self-sealing; with tabs regularly spaced.
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
      a. Certainteed; SAINT-GOBAIN.
      b. GAF.
      c. Owens Corning.
   2. Strip Size: Manufacturer's standard.
   3. Algae Resistance: Granules resist algae discoloration.
   4. Color and Blends: As selected by Owner from manufacturer's full range.

B. Hip and Ridge Shingles: Manufacturer's standard units to match asphalt shingles.

2.1 UNDERLAYMENT

A. Felts: ASTM D226, Type I, No. 15 (minimum) asphalt-saturated organic felts, nonperforated.
   1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   2. Atlas Roofing Corporation - Molded Polystyrene.
   3. Certainteed; SAINT-GOBAIN.
   4. GAF.
   5. Owens Corning.

B. Ice-and Water Dam Protection Underlayment: Self-Adhering Sheet Underlayment, Polyethylene Faced: ASTM D1970, minimum of 40-mil-thick, slip-resisting, polyethylene-film-reinforced top surface laminated to SBS-modified asphalt adhesive, with release paper backing; cold applied

   1. “Ice and Water Shield” by W.R. Grace.

   2. “CCW WIP 400 Roofing Underlayment”, manufactured by Carlisle Coatings & Waterproofing, Div. of Carlisle Companies Inc.

2.2 ROOF VENTILATION

A. Rigid Ridge Vent: Manufacturer's standard, rigid-section, high-density, UV-stabilized plastic ridge vent for use under ridge shingles.
   1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
      a. Certainteed; SAINT-GOBAIN.
      b. GAF.
      c. Owens Corning.

A. Roof Vents: provide 1 SF of roof vents per every 150 SF of attic.

2.3 ACCESSORIES

A. Fasteners:

a

1. Shingle nails shall be hot-dipped galvanized or aluminum, 11- or 12-gage, barbed shank, 5/8" head, sharp pointed roofing nails of sufficient length to penetrate at least 3/4" into plywood sheathing or wood substrate.

   a. Staples to secure asphalt shingles will not be permitted.

2. Felt underlayment nails shall be aluminum, stainless-steel, or hot-dip galvanized steel wire with low profile capped heads or disc caps, 1-inch minimum diameter.

3. Nails used for fastening aluminum flashings shall be approved and compatible nails of the stronghold type, with large, flat heads, annular threads and needle points. They shall not be smaller than No. 12 Stubbs gage, and of sufficient length to penetrate wood blocking not less than 1"

B. Plastic Cement: ASTM D4586, Type II asphalt type with mineral fiber components, free of asbestos and toxic solvents, capable of setting within 24 hours at temperatures of 75 degrees F and 50 percent RH.

C. Bituminous Paint: Acid and alkali resistant type; black color

2.4 FLASHING

A. General: All miscellaneous formed aluminum flashings and items required for the project in various thicknesses and profiles as indicated on the drawings or required to suit conditions shall be as applicable to SMACNA details and as approved by the Owner's Representative. In absence of thicknesses shown, provide minimum.040" thick flashings and members.

B. Drip Edge: A drip edge shall be provided at eaves and rake edges. Adjacent segments of a drip edge shall be lapped not less than 2" inches.

1. The vertical leg of the drip edge shall be not less than 1.5" in width and shall extend not less than 0.25" below the sheathing.

2. The drip edge shall extend back on the roof not less than 2" inches.

3. The underlayment shall be installed over the drip edge at eaves. The drip edge shall be installed over the underlayment along rake edges.

4. The drip edge shall be mechanically fasten at intervals not greater than 12" inches on center.

2.5 FINISH:

A. All aluminum items specified and referred to as stated above shall have exposed surfaces finished with a factory applied fluropolymer coating equal to "Kynar 500" meeting AAMA 2605 specifications. Coating shall consist of a pre-treatment and multi-coat thermo-cured system; primer and color coating. Color: TBD

2.6 FABRICATION

A. Form flashings to meet existing profiles, and to protect roofing materials from physical damage and shed water.

B. Form flashing sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.

C. Hem exposed edges of flashings minimum 1/4-inch on underside.

D. Apply bituminous paint on concealed surfaces of flashings.

PART 3 - EXECUTION

3.1 REMOVAL OF EXISTING WORK

A. Work to be removed to make ready for new asphalt shingle work include but not limited to the removal of all existing asphalt shingles and related flashings, gutters and leaders.

a

B. Removal work shall include the examination of the existing wood deck, fascia and trim to determine the scope of replacement necessary to provide an acceptable surface and trim as approved by the Owner's Representative. Replacement work shall be done under the scope of this section, and shall include removal of all unacceptable wood sheathing, fascias and wood trim, replaced with exterior grade plywood, wood strips, and boarding depending on the field conditions for roof; and No. 1 pine for fascia and trim replacement. All wood thicknesses shall match existing conditions.

B. In addition to the work outlined above, include re-nailing all loose nails and or replacing with additional nails to make the sheathing tight and properly secured to the structural framing.

C. All existing asphalt shingle work to be removed which is located at adjacent surface to remain shall be removed with special care to prevent damage of the remaining adjacent work.

D. It is the responsibility of this trade to make watertight all areas and after the removal operation as specified herein. Any damage resulting from the work performed by this trade shall be paid for, without cost to the Owner.

E. Attention is directed not to disturb or attempt removal of any discovered hazardous materials or contaminated substances. Immediately notify both the Owner and the Owner's Representative upon discovery of such conditions. Removal or containment of the hazardous materials or contaminated substances shall be performed by an abatement specialist under separate contract with the Owner.

F. Remove any unused or abandoned vent pipes through roof. Terminate below line of roof and repair holes with sheathing to match existing.

G. Disposal of material shall be by tripod type hoist with suitable containers and/or enclosed chutes. Material shall not be thrown off the roof. Materials to be placed in covered containers or dumpsters. Take all necessary measure to ensure materials or other debris cannot blow onto Airport secure area. Keep work area clean and clear of all debris.

H. Dispose of all materials in accordance with State, Local and Environmental regulations.

3.2 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.

B. Verify that substrate is sound, dry, smooth, free of ridges, warps or voids, clean, sloped for drainage, and completely anchored; and that provision has been made for flashings and penetrations through asphalt shingles.

C. Verify roof penetrations and plumbing stacks are in place and flashed to deck surface.

3.3 UNDERLAYMENT INSTALLATION

A. Ice and Water Dam Underlayment: Shall be installed continuously at eaves, Valleys, rakes, and both sides of ridge, 36" wide in single sheet, installed in compliance with manufacturer's recommendations.

B. Single-Layer Felt Underlayment: Install single layer of felt underlayment on roof deck perpendicular to roof slope in parallel courses. Lap sides a minimum of 2 inches over underlying course. Lap ends a minimum of 4 inches. Stagger end laps between succeeding courses at least 72 inches.

1. Fasten with felt underlayment nails.

2. Nailing pattern shall comply with shingle manufacturer's recommendation.

C. Protect unused underlayment from weather, sunlight, and moisture when left overnight or when roofing work is not in progress.

3.4 METAL FLASHING AND ACCESSORIES INSTALLATION

A. Workmanship shall be in accordance with SMACNA publication specifications. All flashing shall be done in accordance with the recommended practice and standards set forth in the industry and shall be placed without use of exposed nails on face.

B. Provide continuous eaves flashing with fascia drip extending onto roof a minimum of 2"inches. Include flashings at eave returns at building ends. Provide and install continuous gutters in profiles shown including straps, baskets, rain leaders with elbows and leader straps to complete the work. Include installation of all other metal trim work indicated or necessary to complete the work in accordance with project conditions as approved by the Owner’s Representative.

C. Sheet metal work shall be adequate to provide water and weathertight work. Lines, arises, and angles shall be sharp and true. Plane surfaces shall be free from waves and buckles. Seams shall overlap in the direction of the flow. Joints and seams in plane surfaces shall be avoided as far as possible. Provide all profiles and dimensions indicated or inferred on the drawings to complete the flashing work.

D. Ample provision shall be made for expansion and contraction. All exposed surfaces shall be cleaned as each section of the work is completed. Care shall be exercised to prevent staining or discoloring exposed surrounding surfaces. Work so damaged shall be cleaned, repaired or replaced.

E. Except as otherwise indicated or specified, gutters, fascias, trim eaves strip and similar members shall be made from 10’-0” long sections. Indicate spacings and locations and detail proposed slip joints on shop drawings. Provide other expansion joints as required.

F. Exposed edges at all condition shall be doubled back ½" in such a manner as to conceal them and to provide stiffness. Expose no nails in face of finished work; providing receiver strips, cleats and the like to secure fascias, trim, etc.

G. Flashings shall be installed in such a manner as will prevent galvanic action with other dissimilar adjacent metals, by priming with bituminous paint or other approved methods.

H. Reinstall gutters along entire length of front of building. Pitch gutters at 1/8” per foot or as required by code to slope towards rain leaders located at piers between doors. Install gutters and leaders with all necessary brackets, spacers and fasteners. Seal joints with sealant. Install splash block at each rain leader location.

3.5 ASPHALT SHINGLE INSTALLATION

A. Install starter strip along lowest roof edge, consisting of an inverted asphalt shingle strip and at least 9 inches wide with self-sealing strip face up at roof edge.

1. Extend asphalt shingles 3/4 inch over fascia at eaves and rakes.

2. Install starter strip along rake edge.

B. Fasten asphalt shingle strips with a minimum of four roofing nails located according to manufacturer's written instructions.

C. At valleys, lay a 24" wide valley liner of Carlisle EPDM membrane conforming to roofing manufacturer’s details, flashing nailed at outer edges and set in adhesive. Apply valley shingles by weaving each course in turn over the valley, extending it along the adjoining roof deck at least 12". Install shingles using the alignment notches provided (see application instructions) alternately weaving the valley shingles over each other.

D. Ridge Vents and Roof Vents: Install continuous ridge vents over asphalt shingles according to manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing.

E. Ridge Cap Shingles: Maintain same exposure of cap shingles as roofing shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds. Fasten with roofing nails of sufficient length to penetrate sheathing.

F. Install shingles to provide uniform distribution of color blend.

G. Coordinate installation of roof mounted components or work projecting through roof with weather tight placement of Counterflashings.

H. Complete installation to provide weather tight service.

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I. Open Valleys: Cut and fit asphalt shingles at open valleys, trimming upper concealed corners of shingle strips.

1. Maintain uniform width of exposed open valley from highest to lowest point.
2. Extend shingle a minimum of 4 inches (102 mm) over valley metal.
3. Set valley edge of asphalt shingles in a 3-inch- (76-mm-) wide bed of asphalt roofing cement.
4. Do not nail asphalt shingles to metal open-valley flashings.

J. Ridge Vents: Install continuous ridge vents over asphalt shingles in accordance with manufacturer's written instructions. Fasten with roofing nails of sufficient length to penetrate sheathing.

K. Hip and Ridge Shingles: Maintain same exposure of cap shingles as roofing-shingle exposure. Lap cap shingles at ridges to shed water away from direction of prevailing winds.
1. Fasten with roofing nails of sufficient length to penetrate sheathing.
2. Fasten ridge cap asphalt shingles to cover ridge vent without obstructing airflow.

3.6 PROTECTIONON OF INSTALLE MATERIAL

A. Do not permit traffic over finished roof surface.

3.7 CLEANING:

A. Provide visual inspection of grounds along with 2 rounds of magnet control for all loose nails.

END OF SECTION

SECTION 07620 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes sheet metal flashing and trim in the following categories:

1. Roof-drainage systems.
2. Exposed trim.
3. Copings.
4. Metal flashing.
5. Vinyl Soffits

B. Related Sections: The following Sections contain requirements that relate to this Section:

1. Division 7 Roofing Sections for flashing and roofing accessories installed integral with roofing membrane as part of roofing-system work.

1.3 PERFORMANCE REQUIREMENTS

A. General: Install sheet metal flashing and trim to withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failing.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: Engage an experience Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

1.5 PROJECT CONDITIONS

A. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation. Ensure best possible weather resistance, durability of Work, and protection of materials and finishes.

PART 2 - PRODUCTS

2.1 METALS

A. Aluminum: Alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated and with not less than the strength and durability of alloy and temper designated below:

1. Factory-Painted Aluminum Sheet: ASTM B 209 (ASTM B 209M), 3003-H14, with a minimum thickness of 0.040 inch (1.0 mm), unless otherwise indicated.

B. Coil-Coated Galvanized Steel Sheet: Zinc-coated, commercial-quality steel sheet conforming to ASTM A 755, G 90 (ASTM A 755M, Z 275) coating designation, coil coated with high-performance fluoropolymer coating as specified in "Coil-Coated Galvanized Steel Sheet Finish" Article; not less than 0.0336 inch (0.85 mm) thick, unless otherwise indicated.

C. Lead Sheet: ASTM B 749, Type L51121, copper-bearing lead sheet, with a minimum thickness of 0.0625 inch (1.6 mm) except not less than 0.0937 inch (2.4 mm) thick for applications where burning (welding) is involved.

2.2 MISCELLANEOUS MATERIALS AND ACCESSORIES

A. Fasteners: Same metal as sheet metal flashing or other noncorrosive metal as recommended by sheet metal manufacturer. Match finish of exposed heads with material being fastened.

B. Asphalt Mastic: SSPC-Paint 12, solvent-type asphalt mastic, nominally free of sulfur and containing no asbestos fibers, compounded for 15-mil (0.4-mm) dry film thickness per coat.

C. Mastic Sealant: Polyisobutylene; nonhardening, nonskinning, nondrying, nonmigrating sealant.

D. Elastomeric Sealant: Generic type recommended by sheet metal manufacturer and fabricator of components being sealed.

E. Epoxy Seam Sealer: 2-part, noncorrosive, aluminum seam-cementing compound, recommended by aluminum manufacturer for exterior and interior nonmoving joints, including riveted joints.

F. Adhesives: Type recommended by flashing sheet metal manufacturer for waterproof and weather-resistant seaming and adhesive application of flashing sheet metal.

G. Metal Accessories: Provide sheet metal clips, straps, anchoring devices, and similar accessory units as required for installation of Work, matching or compatible with material being installed; noncorrosive; size and thickness required for performance.

H. Gutter Screen: 1/4-inch (6-mm) hardware cloth installed in sheet metal frames. Fabricate screen and frame of same basic material as gutters and downspouts.

I. Roofing Cement: ASTM D 4586, Type I, asbestos free, asphalt based.

2.3 FABRICATION, GENERAL

A. Sheet Metal Fabrication Standard: Fabricate sheet metal flashing and trim to comply with recommendations of SMACNA's "Architectural Sheet Metal Manual" that apply to the design, dimensions, metal, and other characteristics of the item indicated.

B. Comply with details shown to fabricate sheet metal flashing and trim that fit substrates and result in waterproof and weather-resistant performance once installed. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Form exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems.

D. Seams: Fabricate nonmoving seams in sheet metal with flat-lock seams. Tin edges to be seamed, form seams, and solder.

E. Seams: Fabricate nonmoving seams in aluminum with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

F. Expansion Provisions: Space movement joints at maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints).

G. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards.

H. Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces at locations of contact with asphalt mastic or other permanent separation as recommended by manufacturer.

I. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces of sheet metal exposed to public view.

J. Fabricate cleats and attachment devices from same material as sheet metal component being anchored or from compatible, noncorrosive metal recommended by sheet metal manufacturer.

1. Size: As recommended by SMACNA manual or sheet metal manufacturer for application but never less than thickness of metal being secured.

2.4 SHEET METAL FABRICATIONS

A. General: Fabricate sheet metal items in thickness or weight needed to comply with performance requirements but not less than that listed below for each application and metal.

B. Gutters: Fabricate from the following material:
1. Aluminum: 0.040 inch (1.0 mm) thick.

C. Downspouts: Fabricate from the following material:
1. Aluminum: 0.024 inch (0.6 mm) thick.

D. Exposed Trim: Fabricate from the following material:
1. Coil-Coated Galvanized Steel: 0.0276 inch (0.7 mm) thick.

E. Copings: Fabricate from the following material:
1. Coil-Coated Galvanized Steel: 0.0396 inch (1.0 mm) thick.

F. Base Flashing: Fabricate from the following material:
1. Coil-Coated Galvanized Steel: 0.0276 inch (0.7 mm) thick.

G. Counterflashing: Fabricate from the following material:
1. Coil-Coated Galvanized Steel: 0.0217 inch (0.55 mm) thick.

H. Flashing Receivers: Fabricate from the following material:
1. Coil-Coated Galvanized Steel: 0.0217 inch (0.55 mm) thick.

I. Valley Flashing: Fabricate from the following material:
1. Coil-Coated Galvanized Steel: 0.0276 inch (0.7 mm) thick.

J. Drip Edges: Fabricate from the following material:
1. Aluminum: 0.0320 inch (0.8 mm) thick.

K. Eave Flashing: Fabricate from the following material:
1. Coil-Coated Galvanized Steel: 0.0217 inch (0.55 mm) thick.

L. Roof-Penetration Flashing: Fabricate from the following material:

1. Lead: 4.0 lb/sq. ft. (1.6 mm thick), hard tempered.

2.5 ALUMINUM FINISHES

A. General: Comply with Aluminum Association's (AA) "Designation System for Aluminum Finishes" for finish designations and application recommendations.

B. High-Performance Organic Coating Finish: AA-C12C42R1x (Chemical Finish: cleaned with inhibited chemicals; Chemical Finish: acid chromate-fluoride-phosphate conversion coating; Organic Coating: as specified below). Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturer's instructions.

1. Fluoropolymer 2-Coat Coating System: Manufacturer's standard 2-coat, thermocured system composed of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 605.2.

    a. Color and Gloss: As selected by Architect from manufacturer's full range of choices for color and gloss.

2.6 COIL-COATED GALVANIZED STEEL SHEET FINISH

A. High-Performance Organic Coating Finish: Apply the following system by coil-coating process on galvanized steel sheet as recommended by coating manufacturers and applicator.

1. Fluoropolymer 2-Coat Coating System: Manufacturer's standard 2-coat, thermocured system composed of specially formulated inhibitive primer and fluoropolymer color topcoat containing not less than 70 percent polyvinylidene fluoride resin by weight; complying with AAMA 605.2.

    a. Color and Gloss: As selected by Architect from manufacturer's full range of choices for color and gloss.
    b. Resin Manufacturers: Subject to compliance with requirements, provide fluoropolymer coating systems containing resins produced by one of the following manufacturers:

        1) Ausimont USA, Inc. (Hylar 5000)
        2) Elf Atochem North America, Inc. (Kynar 500)

2. Coil-Coated Steel Sheet Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Atas Aluminum Corporation.
    b. Copper Sales, Inc.
    c. MM Systems Corporation.
    d. Petersen Aluminum Corporation.
    e. Vincent Metals.

2.7 Perforated Vinyl Soffits:

A. Subject to compliance with requirements, provide products by one of the following:
    1. Heartland Building Products, Inc.
    2. Owens Corning
    3. Wolverine Siding Systems

B. Soffit: Vinyl, full vent (perforated) .040 inch thickness.

1. Color: As selected from manufacturer’s full line of soffit product colors.
2. Width: Manufactured or field –cut to span full width of existing overhamgs

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions under which sheet metal flashing and trim are to be installed and verify that Work may properly commence. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Unless otherwise indicated, install sheet metal flashing and trim to comply with performance requirements, manufacturer's installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Anchor units of Work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install Work with laps, joints, and seams that will be permanently watertight and weatherproof.

B. Install exposed sheet metal Work that is without excessive oil canning, buckling, and tool marks and that is true to line and levels indicated, with exposed edges folded back to form hems. Install sheet metal flashing and trim to fit substrates and to result in waterproof and weather-resistant performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.

C. Roof-Edge Flashings: Secure metal flashings at roof edges according to FM Loss Prevention Data Sheet 1-49 for local wind zone.

D. Expansion Provisions: Provide for thermal expansion of exposed sheet metal Work. Space movement joints at maximum of 10 feet (3 m) with no joints allowed within 24 inches (610 mm) of corner or intersection. Where lapped or bayonet-type expansion provisions in Work cannot be used or would not be sufficiently weatherproof and waterproof, form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with mastic sealant (concealed within joints

E. Sealed Joints: Form nonexpansion, but movable, joints in metal to accommodate elastomeric sealant to comply with SMACNA standards. Fill joint with sealant and form metal to completely conceal sealant.

1. Use joint adhesive for nonmoving joints specified not to be soldered.

F. Seams: Fabricate nonmoving seams in metal with flat-lock seams. Form seams and seal with epoxy seam sealer. Rivet joints for additional strength.

G. Separations: Separate metal from noncompatible metal or corrosive substrates by coating concealed surfaces, at locations of contact, with asphalt mastic or other permanent separation as recommended by manufacturer.

1. Underlayment: Where installing aluminum directly on cementitious or wood substrates, install a slip sheet of red-rosin paper and a course of polyethylene underlayment.
2. Bed flanges of Work in a thick coat of roofing cement where required for waterproof performance.

H. Counterflashings: Coordinate installation of new work in conjunction with existing counterflashings, which are to remain in place. Secure in a waterproof manner by means of snap-in installation and sealant, interlocking folded seam, or blind rivets and sealant. Lap counterflashing joints a minimum of 2 inches (50 mm) and bed with sealant.

I. Roof-Drainage System: Install drainage items fabricated from sheet metal, with straps, adhesives, and anchors recommended by SMACNA's Manual or the item manufacturer, to drain roof in the most efficient manner. Coordinate roof-drain flashing installation with roof-drainage system installation. Coordinate flashing and sheet metal items for steep-sloped roofs with roofing installation.

J. Roof-Penetration Flashing: Coordinate roof-penetration flashing installation with roofing and installation of items penetrating roof. Install flashing as follows:

1. Turn lead flashing down inside vent piping, being careful not to block vent piping with flashing.

K. Install continuous gutter screens on gutters with noncorrosive fasteners, arranged as hinged units to swing open for cleaning gutters.

L. Install vinyl soffits over existing soffit blocking with noncorrosive fasteners.

3.3 CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances that might cause corrosion of metal or deterioration of finishes.

B. Provide final protection and maintain conditions that ensure sheet metal flashing and trim Work during construction is without damage or deterioration other than natural weathering at the time of Substantial Completion.

END OF SECTION 07620