

**SECTION 07 31 13**  
**ASPHALT SHINGLES**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Asphalt shingle roofing.
- B. Flexible sheet membranes for eave protection, underlayment, and valley protection.
- C. Metal flashing.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry: Roof sheathing.

**1.03 REFERENCE STANDARDS**

- A. ASTM D1970/D1970M - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection; 2021.
- B. ASTM D3462/D3462M - Standard Specification for Asphalt Shingles Made From Glass Felt and Surfaced with Mineral Granules; 2019.
- C. ASTM D4586/D4586M - Standard Specification for Asphalt Roof Cement, Asbestos-Free; 2007 (Reapproved 2018).
- D. ASTM D4869/D4869M - Standard Specification for Asphalt-Saturated Organic Felt Underlayment Used in Steep Slope Roofing; 2016a (Reapproved 2021).
- E. ASTM D7158/D7158M - Standard Test Method for Wind Resistance of Asphalt Shingles (Uplift Force/Uplift Resistance Method); 2020.
- F. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings; 2020a.
- G. ASTM F1667/F1667M - Standard Specification for Driven Fasteners: Nails, Spikes, and Staples; 2021a.
- H. NRCA (RM) - The NRCA Roofing Manual; 2022.
- I. SMACNA (ASMM) - Architectural Sheet Metal Manual; 2012.

**1.04 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements for submittal procedures.
- B. Product Data: Provide data indicating material characteristics, performance criteria, and limitations.
- C. Shop Drawings: For metal flashings, indicate specially configured metal flashings, jointing methods and locations, fastening methods and locations, and installation details.
- D. Manufacturer's Installation Instructions: Indicate installation criteria and procedures.
- E. Installer's qualification statement.
- F. Warranty Documentation: Submit manufacturer warranty and ensure that forms have been completed in Director's Representative's name and registered with manufacturer.

**1.05 QUALITY ASSURANCE**

- A. Installer Minimum Qualifications: Installer shall be licensed or otherwise authorized by all federal, state and local authorities to install all products specified in this section. Installer shall perform work in accordance with NRCA Roofing and Waterproofing Manual.
  - 1. Work shall be acceptable to the roofing manufacturer.
- B. Pre-installation Meeting - Conduct a pre-installation meeting at the site prior to commencing work of this section: Require attendance of entities directly concerned with roof installation.
  - 1. Agenda will include:
    - a. Installation procedures and manufacturer's recommendations
    - b. Safety procedures
    - c. Coordination with installation of other work

- d. Availability of roofing materials
- e. Preparation and approval of substrate and penetrations through roof
- f. Other items related to successful execution of work
- 2. Maintain one copy of manufacturers application instructions on the project site.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver and store materials with labels intact in manufacturer's unopened packaging until ready for installation.
- B. Store materials under dry and waterproof cover, well ventilated, and elevated above grade on a flat surface.
- C. Protect materials from harmful environmental elements, construction dust, direct sunlight, and other potentially detrimental conditions.
- D. When storing roofing materials on roofing system ensure that no damage occurs to supporting members and other materials.

#### **1.07 WARRANTY**

- A. See Section 01 78 00 - Closeout Submittals for additional warranty requirements.
- B. Manufacturer's Warranty: Finish shingle manufacturer's warranty for the product listed below:
  - 1. System Plus Limited Warranty Minimum 50 year protection with 10 year stainguard-labeled shingles and 25 years for stainguard plus labeled shingles and ridge cap shingles.
- C. Extended Correction Period: Correct defective work within 2-year period commencing on Date of Substantial Completion.

### **PART 2 PRODUCTS**

#### **2.01 MANUFACTURERS**

- A. Algae Resistant Asphalt Shingles:
  - 1. GAF; Timberline HDZ Shingles with StainGuard Plus: [www.gaf.com/#sle](http://www.gaf.com/#sle).
  - 2. Substitutions: See Section 01 60 00 - Product Requirements.

#### **2.02 ASPHALT SHINGLES**

- A. Asphalt Shingles: Asphalt-coated glass felt, mineral granule surfaced, complying with ASTM D3462/D3462M.
  - 1. Fire Resistance: Class A, complying with ASTM E108.
  - 2. Warranted Wind Speed: Not greater than 150 mph (241 km/h).
  - 3. Algae resistant.
  - 4. Weight: 250 lb/100 sq ft (\_\_\_ kg/9.3 sq m).
  - 5. Color: Charcoal.
  - 6. Basis of Design: GAF Timberline HDZ Shingles with Stainguard Plus.

#### **2.03 SHEET MATERIALS**

- A. Eave Protection Membrane:
  - 1. Eave Protection Membrane: Self-adhering polymer-modified asphalt sheet complying with ASTM D1970/D1970M; 40 mil (1 mm) total thickness; with strippable treated release paper and polyethylene sheet top surface.
  - 2. Products:
    - a. WeatherWatch Mineral-Surfaced Leak Barrier.
- B. Underlayment: Synthetic non-asphaltic sheet, intended by manufacturer for mechanically fastened roofing underlayment without sealed seams.
  - 1. Self Sealability: Passing nail sealability test specified in ASTM D1970/D1970M.
  - 2. Low Temperature Flexibility: Passing test specified in ASTM D1970/D1970M.
  - 3. Fasteners: As recommended by manufacturer or building code qualification report or approval.
  - 4. Products:

- a. Basis of Design: Product recommended by manufacturer. Feltbuster High Traction Synthetic Roofing Felt.

## **2.04 METAL FLASHING**

- A. Metal Flashings: Provide sheet metal eave edge, gable edge, ridge, ridge vents, open valley flashing, chimney flashing, dormer flashing, and other flashing as indicated.
  - 1. Form flashings to profiles indicated on drawings.
  - 2. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.
  - 3. Hem exposed edges of flashings minimum 1/4 inch (6 mm) on underside.
- B. Steel Flashing: Prefinished and galvanized steel sheet, 26 gauge, 0.0179 inch (0.45 mm) minimum thickness, G90/Z275 hot-dip galvanized; PVC coated, color as selected.

## **2.05 ACCESSORIES**

- A. Roofing Nails: Standard round wire shingle type, galvanized steel, stainless steel, aluminum roofing nails, or copper roofing nails, minimum 3/8-inch (9.5 mm) head diameter, 12-gauge, 0.109-inch (2.77 mm) nail shank diameter, 1 inch (25.4 mm) long and complying with ASTM F1667/F1667M. Extend nail length as required to maintain minimum 3/4" nail penetration of roof sheathing at ridge vent while precluding visible nails at underside of roof sheathing.
- B. Asphalt Roof Cement: ASTM D4586/D4586M, asbestos-free.
- C. Bituminous Paint: Acid and alkali resistant type; black color.
- D. GAF Zinc Strips: Installed per manufacturers instructions.
- E. Ridge vent: Manufacturer's recommended ridge vent.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verify existing conditions prior to starting this work.
- B. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surface.
- C. Verify deck surfaces are dry, free of ridges, warps, or voids.

### **3.02 PREPARATION**

- A. Broom clean deck surfaces before installing underlayment or eave protection.
- B. Install eave edge flashings and gable edge tight with fascia boards, weather lap joints 2 inches (50 mm) and seal with roof cement, and secure flange with nails spaced 8 inches (\_\_\_\_ mm) on center.

### **3.03 INSTALLATION**

- A. Eave Protection Membrane:
  - 1. Install eave protection membrane from eave edge to minimum 48 inches (1,220 mm) up-slope beyond interior face of exterior wall.
  - 2. Install eave protection membrane in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
- B. Metal Drip Edge:
  - 1. Install metal drip edge all around roof edges.
  - 2. Install metal drip edge under eave protection at eaves.
  - 3. Install metal drip edge over eave protection at rake edges.
- C. Underlayment:
  - 1. Roof Slopes Greater Than 4:12: Install underlayment perpendicular to slope of roof, with ends and edges weather lapped minimum 4 inches (100 mm); stagger end laps of each consecutive layer, seal watertight with asphalt roofing cement, and weather lap minimum 4 inches (100 mm) over eave protection.

2. Roof slopes between 2:12 and 4:12 - Use manufacturers recommended Roofing Underlayment. Follow manufacturer's printed instructions for low slope application of this product. Do not use staples on this product.
  3. Weather lap and seal watertight with plastic cement any items projecting through or mounted on roof.
- D. Valley Protection:
1. For "closed-out," "woven," and "open" valleys, first place one ply of WinterGuard, minimum 36 inches wide, centered over valleys. Lap joints minimum of 6 inches. Follow instructions of shingle and waterproofing membrane manufacturer.
- E. Shingles:
1. Install shingles in accordance with manufacturer's instructions and NRCA (RM) applicable requirements.
    - a. Fasten individual shingles using 4 nails per shingle, or as required by manufacturer and local building code, whichever is greater.
    - b. Fasten strip shingles as required by manufacturer or local building code, whichever is greater.
  2. Place shingles in straight coursing pattern with 5-inch (125 mm) weather exposure to produce double thickness over full roof area, and provide double course of shingles at eaves.
  3. Project first course of shingles 3/4 inch (19 mm) beyond fascia boards.
  4. Extend shingles 1/2 inch (13 mm) beyond face of gable edge fascia boards.
  5. Complete installation to provide weathertight service.

### **3.04 PROTECTION**

- A. Do not permit traffic over finished roof surface; protect roofing until completion of project.
- B. Touch-up, repair, or replace damaged asphalt shingles or accessories before Date of Substantial Completion.

### **END OF SECTION**

**SECTION 07 46 46**  
**FIBER-CEMENT SIDING**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Fiber-cement siding.
- B. Fiber-cement trim.

**1.02 RELATED REQUIREMENTS**

- A. Section 06 10 00 - Rough Carpentry: Siding substrate.
- B. Section 07 92 00 - Joint Sealants: Sealing joints between siding and adjacent construction and fixtures.
- C. Section 09 91 01 - Exterior Painting: Field painting.

**1.03 REFERENCE STANDARDS**

- A. ASTM C1186 - Standard Specification for Flat Fiber Cement Sheets 2008 (Reapproved 2016).

**1.04 SUBMITTALS**

- A. See Section 01 33 01 - Administrative Requirements, for submittal procedures.
- B. Product Data: Submit manufacturer's data sheets on each product to be used, including:
  - 1. Manufacturer's requirements for related materials to be installed by others.
  - 2. Preparation instructions and recommendations.
  - 3. Storage and handling requirements and recommendations.
  - 4. Installation methods, including nail patterns.
- C. Maintenance Instructions: Periodic inspection recommendations and maintenance procedures.
- D. Warranty: Submit copy of fiber-cement siding and trim board manufacturer's warranty, made out in Owner's name, showing that it has been registered with manufacturer.

**1.05 DELIVERY, STORAGE, AND HANDLING**

- A. Store products under waterproof cover and elevated above grade, on a flat surface.

**1.06 WARRANTY**

- A. See Section 01 77 00 - Closeout Procedures, for additional warranty requirements.
- B. Correct defective work within a five-year period after Date of Substantial Completion.
- C. Provide multi-year manufacturer warranty as indicated under Siding article sub-heading "Warranty".

**PART 2 - PRODUCTS**

**2.01 FIBER-CEMENT SIDING**

- A. Lap Siding: Individual horizontal boards made of cement and cellulose fiber formed under high pressure with integral surface texture, complying with ASTM C1186, Type A, Grade II; with machined edges, for nail attachment.
  - 1. Style: Standard lap style.
  - 2. Texture: Smooth.
  - 3. Length: 12 ft, nominal.
  - 4. Width (Height): 7-1/4 inches.
  - 5. Thickness: 5/16-inch, nominal.
  - 6. Exposure: 6".
  - 7. Finish: Factory-applied primer.
  - 8. Warranty: 30 year limited.
  - 9. Manufacturer:
    - a. James Hardie Building Products, Inc: [www.jameshardie.com/#sle](http://www.jameshardie.com/#sle).
    - b. Or approved equal..

- B. Exterior Fiber-Cement Items:
  - 1. Fascia and Trim Boards: Pre-primed fiber-cement boards and panels, prepared for paint finish.
    - a. Texture: Smooth.
    - b. Length: 12 ft, nominal.
    - c. Width (Height): Per Drawings.
    - d. Thickness: 5/4 nominal.
  - 2. Manufacturer:
    - a. James Hardie Building Products, 231 S. LaSalle St., Suite 2000, Chicago, Illinois 60604, (888) 542-7343, [www.JamesHardie.com](http://www.JamesHardie.com).
    - b. Or approved equal.
  - 3. Warranty: 30-year limited.

## **2.02 ACCESSORIES**

- A. Fasteners for Siding: Stainless steel; length as required to penetrate minimum 1-1/4 inch.
- B. Fasteners for Exterior Trim: Stainless steel trim head screws of sufficient size and length for application in accordance with trim board manufacturer's written installation instructions.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.
- C. See Section 062000 for installation of recessed wood blocking.
- D. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of trim.
- E. Verify that weather barrier has been installed over substrate continuously and correctly.
- F. If substrate preparation is responsibility of another installer, notify Director's Representative of unsatisfactory preparation before proceeding.
- G. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.02 PREPARATION**

- A. Clean and repair substrates as required to eliminate conditions that would be detrimental to proper installation.
- B. Install Sheet Metal Flashing:
  - 1. Above door and window trim and casings.
  - 2. Above horizontal trim in field of siding.

### **3.03 INSTALLATION**

- A. Install in accordance with manufacturer's instructions and recommendations.
  - 1. Read warranty and comply with terms necessary to maintain warranty coverage.
  - 2. Use trim details indicated on drawings.
  - 3. Touch up field cut edges before installing.
  - 4. Pre-drill nail holes if necessary to prevent breakage.
- B. Set and secure materials and components in place, plumb and level.
- C. Carefully scribe and cut work abutting other components for accurate fit, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
- D. Install fiber-cement siding and trim boards with fasteners in numbers and at spacings in accordance with the manufacturer's written installation instructions, and with nails at 16 inches on center minimum.
- E. Over Wood Beams without Sheathing: Install trim over weather-resistive barrier, fastened into beams.

- F. Over Wood and Wood-Composite Sheathing: Fasten siding and trim through combination wall sheathing, water-resistive barrier, and air barrier, and into studs.
- G. Trim: Install in single, unjointed lengths at openings and for runs less than the maximum lumber length available. For long runs, use only 1 piece less than the maximum length available in any straight run. Stagger joints in adjacent members.
  - 1. Miter rake fascia where sloping fascia boards meet vertical drip fascia boards.
  - 2. Miter rake fascia boards plumb where they meet at the ridge.
- H. Joints in Horizontal Siding: Avoid joints in lap siding except at corners; where joints are inevitable stagger joints between successive courses.
- I. Joints in Trim: Install Z-flashing in horizontal joints where indicated on the Drawings.
- J. Do not install siding less than 6 inches from surface of ground nor closer than 1 inch to roofs, patios, porches, and other surfaces where water may collect.
- K. After installation, seal joints except lap joints of lap siding; seal around penetrations, and paint exposed cut edges.

#### **3.04 PREPARATION FOR SITE FINISHING**

- A. Set exposed trim fasteners. Apply trim manufacturer's recommended filler in exposed fastener indentations. Sand work smooth.
- B. Site Finishing: See Section 09 91 01.

#### **3.05 TOLERANCES**

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

**END OF SECTION**

**SECTION 07 62 00**  
**SHEET METAL FLASHING AT TRIM**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES**

- A. Fabricated sheet metal items, including trim, window head and penetration flashings at exterior walls, and other items indicated on the Drawings.
- B. Sealants for joints within sheet metal fabrications.

**1.02 RELATED REQUIREMENTS**

- A. Section 061000 - Rough Carpentry: Wood nailers for sheet metal work; wall sheathing and related seam tape.
- B. Section 073113 - Asphalt Shingles: Non-metallic flashings associated with shingle roofing.

**1.03 REFERENCE STANDARDS**

- A. AAMA 2604 - Voluntary Specification, Performance Requirements and Test Procedures for High Performance Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- B. AAMA 2605 - Voluntary Specification, Performance Requirements and Test Procedures for Superior Performing Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix) 2017a.
- C. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2014.
- D. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric) 2014.
- E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants 2018.
- F. SMACNA (ASMM) - Architectural Sheet Metal Manual 2012.

**1.04 SUBMITTALS**

- A. See Section 01 30 00 - Administrative Requirements, for submittal procedures.
- B. Shop Drawings: Indicate material profile, jointing pattern, jointing details, fastening methods, flashings, terminations, and installation details.

**1.05 QUALITY ASSURANCE**

- A. Perform work in accordance with SMACNA (ASMM) and CDA A4050 requirements and standard details, except as otherwise indicated.

**1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Stack material to prevent twisting, bending, and abrasion, and to provide ventilation. Slope metal sheets to ensure drainage.
- B. Prevent contact with materials that could cause discoloration or staining.

**PART 2 - PRODUCTS**

**2.01 SHEET MATERIALS**

- A. Running Trim and Head Flashings at Wall Penetrations and Windows - Pre-Finished Aluminum: ASTM B209 (ASTM B209M); 24 gage, 0.020 inch thick; plain finish shop pre-coated with fluoropolymer coating.
  - 1. Fluoropolymer Coating: High Performance Organic Finish, AAMA 2604; multiple coat, thermally cured fluoropolymer finish system.
  - 2. Color: Brown.

**2.02 FABRICATION**

- A. Brake-form sections true to shape, accurate in size, square, and free from distortion or defects.
- B. Brake-form pieces in longest possible lengths.



- C. Hem exposed edges on underside 1/4 inch; miter and seam corners.
- D. Form material with flat lock seams, except where otherwise indicated; at moving joints, use sealed lapped, bayonet-type or interlocking hooked seams.
- E. Fabricate corners from one piece with minimum 18-inch-long legs; seam for rigidity, seal with sealant.
- F. Fabricate vertical faces with toe extension per drawings and with bottom edge formed outward 1/4 inch and hemmed to form drip.

### **2.03 EXTERIOR PENETRATION FLASHING PANELS**

- A. Flashing Panels for Exterior Wall Penetrations: Premanufactured components and accessories as required to preserve integrity of building envelope; suitable for conduits and facade materials to be installed.
- B. Form flashings as indicated on the drawings and as otherwise required to protect trim materials from physical damage and shed water.
- C. Form sections square and accurate to profile, in maximum possible lengths, free from distortion or defects detrimental to appearance or performance.
- D. Hem exposed edges of flashings minimum 1/4 inch on underside.

### **2.04 ACCESSORIES**

- A. Fasteners: Same material and finish as flashing metal.
- B. Concealed Sealants: Non-curing butyl sealant.
- C. Exposed Sealants: ASTM C920; elastomeric sealant, with minimum movement capability as recommended by manufacturer for substrates to be sealed; color to match adjacent material.

## **PART 3 - EXECUTION**

### **3.01 EXAMINATION**

- A. Verify trim and backup blocking are solidly set, and nailing strips located.

### **3.02 PREPARATION**

- A. Install flashings true to lines and levels.

### **3.03 INSTALLATION**

- A. Comply with drawing details.
- B. Secure flashings in place using concealed fasteners, and use exposed fasteners only where permitted.
- C. Seal top of flashing to framing or sheathing with sheathing panel manufacturer's proprietary seam tape.
- D. Apply plastic cement compound between metal flashings and felt flashings.
- E. Fit flashings tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.
- F. Install trim flashings tight with trim boards, weather lap joints 2 inches and seal; secure flange with nails spaced 8 inches on center.
- G. Seal metal joints watertight with sealant.

### **3.04 FIELD QUALITY CONTROL**

- A. See Section 01 40 00 - Quality Requirements, for field inspection requirements.
- B. Inspection will involve surveillance of work during installation to ascertain compliance with specified requirements.

**END OF SECTION**