SECTION 074624 - WOOD SHINGLE AND SHAKE SIDING

Revise this Section by deleting and inserting text to meet Project-specific requirements.

1. GENERAL
   * + 1. RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

* + - 1. SUMMARY
         1. Section Includes:

Undercoursing.

Wood-shingle siding.

Wood-shake siding.

Wood-shingle-clad panels.

Retain remaining subparagraphs if felt weather-resistive barrier and flexible flashing are specified in this Section. Alternatively, they can be specified in Section 072500 "Weather Barriers." See "Asphalt-Saturated Organic Felt" and "Flexible Flashing" articles in the Evaluations.

* + - 1. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at **Project site.**
      1. SUBMITTALS
         1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
         2. Manufacturer’s installation instructions shall be provided along with product data.
         3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
         4. Product Data: For each type of product.
         5. Sustainable Design Submittals:

Retain "Samples" paragraph below for single-stage Samples, with a subordinate list if applicable. Retain "Samples for Initial Selection" and "Samples for Verification" paragraphs for two-stage Samples.

* + - * 1. Samples for Initial Selection: For each type of siding product with factory-applied finishes.
        2. Samples for Verification: For the following products, of sizes indicated, to verify color and finish selected.

Wood Shingles: Full size.

Wood Shakes: Full size.

Wood-Shingle-Clad Wall Panels: Full height by 12 inches long.

* + - * 1. Qualification Data: For Installer.
        2. Sample Warranty: For special warranties.
      1. CLOSEOUT SUBMITTALS
         1. Maintenance Data: For siding to include in maintenance manuals.
      2. MAINTENANCE MATERIAL SUBMITTALS
         1. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Wood Shingles**: [100 sq. ft.] <Insert area>** of each type, color, and finish, in unbroken bundles.

Wood Shakes: **[100 sq. ft.] <Insert area>** of each type, color, and finish, in unbroken bundles.

Wood-Shingle-Clad Wall Panels: **[100 sq. ft.] <Insert area>** of each type, color, and finish, in unbroken bundles.

* + - 1. QUALITY ASSURANCE

Retain "Installer Qualifications" paragraph below for cedar shingle or shake siding or revise to suit Project.

* + - * 1. Installer Qualifications: Approved by CSSB.

Retain "Grading Agency Qualifications" paragraph below for graded cedar shingle and shake siding or revise to suit Project.

* + - * 1. Grading Agency Qualifications: An independent testing and inspecting agency recognized by authorities having jurisdiction as qualified to label siding for compliance with referenced grading rules.
        2. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

Build mockups for siding including accessories.

Size: **[48 inches long by 48 inches wide] <Insert dimensions>**.

Approval of mockups do not constitute approval of deviations from the Contract Documents contained in mockups unless Director’s Representative specifically approves such deviations in writing.

Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

* + - 1. DELIVERY, STORAGE, AND HANDLING
         1. Store siding in a dry, well-ventilated, weathertight location according to manufacturer's written instructions.

Retain paragraph below if felt weather-resistive barrier is specified in this Section.

* + - * 1. Store rolls of felt used for weather-resistive barrier on end, on pallets or other raised surfaces. Do not double stack rolls.

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

* + - 1. FIELD CONDITIONS
         1. Environmental Limitations: Proceed with installation only when existing and forecasted weather conditions permit siding installation and related work to be performed according to manufacturer's written instructions.

Retain "Field-Finished Siding" subparagraph below if required.

Field-Finished Siding: Proceed with installation of siding only when existing and forecast weather conditions permit installation and the immediate application of at least one coat of specified finish on siding before it is exposed to rain, snow, or dampness.

Retain subparagraph below for shake and shingle siding.

Proceed with installation only after base or primer coat has been applied to every surface of siding units and has dried.

* + - 1. WARRANTY

Retain this article for cedar shingle or shake siding or revise to suit Project. See "Product Warranties" Article in the Evaluations.

When warranties are required, verify with Director’s Representative that warranties stated in this article are not less than remedies available to the Facility under prevailing local laws.

* + - * 1. Special Materials Warranty: Manufacturer's warranty administered by CSSB and on CSSB's standard form in which Manufacturer agrees to repair or replace CSSB-labeled products that fail in materials within specified warranty period. Material failures include manufacturing defects that result in leaks.

Materials Warranty Period: Limited lifetime from date of Substantial Completion.

Warranty Extension: The one year period required by Paragraph 9.8 of the General Conditions is extended to 2 years for the Work of this Section. Refer to Supplementary Conditions.

1. PRODUCTS
   * + 1. SOURCE LIMITATIONS

Obtain each type of product from a single source from single manufacturer.

* + - 1. PERFORMANCE REQUIREMENTS

Retain "Fire Resistance" or "Decay Resistance" paragraph below if required. Siding can be pressure treated with fire retardants or preservatives; the treatments cannot be used in combination. Both treatments affect the ability of siding to accept finishes. Verify compatible finishes with treatment manufacturer.

If retaining "Fire Resistance" paragraph below, verify requirements of authorities having jurisdiction.

* + - * 1. Fire Resistance: Provide wood products that are fire-retardant treated according to AWPA U1, pressure treated in closed vessels under pressures of not less than 50 psig, and as follows:

Surface-Burning Characteristics: According to ASTM E84; testing by a qualified testing agency acceptable to authorities having jurisdiction, as follows:

Flame-Spread Index: **[25] <Insert value>** or less.

Progressive Combustion: No evidence of significant progressive combustion when the test is continued for an additional 20-minute period.

Flame Front: Does not progress more than 10-1/2 feet beyond the centerline of the burners at any time during the test.

Effect of Weathering: No increase in the listed classification when subjected to accelerated weathering according to ASTM D2898 Method A.

Product Identification: Attach a label to each bundle of wood products that includes the following:

Identification mark of testing agency acceptable to authorities having jurisdiction.

Identification of treatment manufacturer, chemical treatment, method of application, purpose of treatment, and warranties available.

Species of wood.

The IBC does not prescribe the smoke-developed index for exterior siding but does require products to be labeled with the index.

Flame-spread and smoke-developed indexes.

Method of drying after treatment.

The words "No increase in the listed classification when subjected to the Standard Rain Test."

References to model-code approval.

See Evaluations for discussion of CCA preservative treatment. Verify compatible finishes with treatment manufacturer.

* + - * 1. Decay Resistance: Provide wood products that are preservative treated according to AWPA U1, chromated copper arsenate (CCA) pressure treatment; with a minimum of 0.40 lb/cu. ft. retention.

Identification: Attach a label to each bundle of wood products; identify manufacturer and include chemical treatment, method of application, purpose of treatment, and warranties available.

Retain "Grading Rules" paragraph below for cedar shingles or shakes. Most shingles and shakes are cedar. Shakes may be available in other wood species such as southern yellow pine, redwood, white spruce, or black spruce.

* + - * 1. Grading Rules: Provide siding that complies with CSSB's grading rules for products indicated.

Identification: Attach a label to each bundle of siding that identifies manufacturer, type of product, grade, dimensions, and identification mark of grading agency.

* + - 1. UNDERCOURSING

Retain this article for economical starter courses for single-coursed walls or for undercourses of double-coursed walls sided with shingles or shakes. Typically, fancy-butt shingles are not double coursed and do not use a doubled starter course. If the undercourse is not exposed, CSSB permits using products of a lower grade than the outercourse.

"Cedar Undercoursing Shingles" paragraph below corresponds to CSSB's Certigrade shingles. According to CSSB, they can be used under smooth-sawn, rebutted-and-rejointed, and machine-grooved cedar shingles and under shakes.

* + - * 1. Cedar Undercoursing Shingles: Smooth-sawn western red cedar shingles.

Size: **[Length matching exposed siding and in manufacturer's standard thickness] <Insert requirements>**.

Grade: **[No. 3] [Undercoursing]**.

Finish: **[Match exposed siding] <Insert requirements>**.

The undercourse of ribbon-coursed walls is exposed 1 inch below the butt line of the outercourse; therefore, the undercourse should match the grade of the outercourse.

* + - * 1. Ribbon-Coursed-Wall Undercoursing: **[Match type, length, thickness, and grade of exposed siding of outercourse] <Insert requirements>**.

Finish: **[Match exposed siding of outercourse] <Insert requirements>**.

* + - 1. WOOD SHINGLE SIDING

"Smooth-Sawn Cedar Shingles" paragraph below corresponds to CSSB's Certigrade shingles. They produce a wall with a more rustic appearance than rebutted-and-rejointed cedar shingles.

* + - * 1. Smooth-Sawn Cedar Shingles: Western red cedar shingles.

Grade: [**No. 1**] [**No. 2**] [**No. 3**].

Coordinate option retained in "Size" subparagraph below with weather exposure retained in Part 3. Shingle thickness is customarily described by the overall thickness of a stack of shingles measured at the butt ends, which varies with shingle length. First option corresponds to five shingle butts measuring 2 inches; second option corresponds to five shingle butts measuring 2-1/4 inches; and third option corresponds to four shingle butts measuring 2 inches.

Size: [**16 inches** long; **0.40 inch** thick] [**18 inches** long; **0.45 inch** thick] [**24 inches**  long; **0.50 inch** thick] at butt.

For pressure-treated shingles, verify compatible finishes with treatment manufacturer.

Finish: **[Unfinished] [Semitransparent penetrating stain, oil based, factory applied] [Semisolid penetrating stain, oil based, factory applied] [Oil-based primer, stain blocking, factory applied] <Insert factory finish>**.

Retain "Color" subparagraph below for factory-applied finishes.

Color: **[As selected by Director’s Representative from manufacturer's full range] <Insert color designation>**.

"Rebutted-and-Rejointed Cedar Shingles" paragraph below corresponds to CSSB's Certigrade Rebutted/Rejointed shingles. Shingle butts are sawn at right angles (rebutted) and edges are trimmed parallel to each other (rejointed) to produce a more uniform appearance than smooth-sawn shingles.

* + - * 1. Rebutted-and-Rejointed Cedar Shingles: [**Smooth-sawn**] [**Sanded**] western red cedar shingles.

Grade: [**No. 1**] [**No. 2**].

Coordinate option retained in "Size" subparagraph below with weather exposure retained in Part 3. Shingle thickness is customarily described by the overall thickness of a stack of shingles measured at the butt ends, which varies with shingle length. First option corresponds to five shingle butts measuring 2 inches; second option corresponds to five shingle butts measuring 2-1/4 inches; and third option corresponds to four shingle butts measuring 2 inches.

Size: [**16 inches** **long; 0.40 inch thick**] [**18 inches** **long; 0.45 inch thick**] [**24 inches** **long**; **0.50 inch** **thick**] at butt.

For pressure-treated shingles, verify compatible finishes with treatment manufacturer.

Finish: **[Unfinished] [Semitransparent penetrating stain, oil based, factory applied] [Semisolid penetrating stain, oil based, factory applied] [Oil-based primer, stain blocking, factory applied] <Insert factory finish>**.

Retain "Color" subparagraph below for factory-applied finishes.

Color: **[As selected by Director’s Representative from manufacturer's full range] <Insert color designation>**.

"Machine-Grooved Cedar Shingles" paragraph below corresponds to CSSB's Certigroove shingles.

* + - * 1. Machine-Grooved Cedar Shingles: Rebutted-and-rejointed, machine-grooved, No. 1 grade, smooth-sawn western red cedar shingles.

Coordinate option retained in "Size" subparagraph below with weather exposure retained in Part 3. Shingle thickness is customarily described by the overall thickness of a stack of shingles measured at the butt ends, which varies with shingle length. First option corresponds to five shingle butts measuring 2 inches; second option corresponds to five shingle butts measuring 2-1/4 inches; and third option corresponds to four shingle butts measuring 2 inches.

Size: **[16 inches long; 0.40 inch thick] [18 inches long; 0.45 inch thick] [24 inches long; 0.50 inch thick]** at butt.

For pressure-treated shingles, verify compatible finishes with treatment manufacturer.

Finish: **[Unfinished] [Semitransparent penetrating stain, oil based, factory applied] [Semisolid penetrating stain, oil based, factory applied] [Oil-based primer, stain blocking, factory applied] <Insert factory finish>**.

Retain "Color" subparagraph below for factory-applied finishes.

Color: **[As selected by Director’s Representative from manufacturer's full range] <Insert color designation>**.

"Fancy-Butt Cedar Shingles" paragraph below corresponds to CSSB's Certi-Cut shingles. Starter courses and double courses are typically not used with fancy-butt shingles because offset layers change the pattern produced by the fancy butts.

* + - * 1. Fancy-Butt Cedar Shingles: Clear heartwood red cedar, No. 1 grade, with butt shape indicated.

Butt Shape: **[Diagonal] [Half Cove] [Diamond] [Round] [Hexagonal] [Octagonal] [Arrow] [Square] [Fish Scale] <Insert shape>**.

Coordinate option retained in "Size" subparagraph below with weather exposure retained in Part 3.

Size: **[16 inches] [18 inches]** long by 5 inches wide, in manufacturer's standard thickness.

For pressure-treated shingles, verify compatible finishes with treatment manufacturer.

Finish: **[Unfinished] [Semitransparent penetrating stain, oil based, factory applied] [Semisolid penetrating stain, oil based, factory applied] [Oil-based primer, stain blocking, factory applied] <Insert factory finish>**.

Retain "Color" subparagraph below for factory-applied finishes.

Color: **[As selected by Director’s Representative from manufacturer's full range] <Insert color designation>**.

* + - 1. WOOD SHAKE SIDING

"Split Cedar Shakes" paragraph below corresponds to CSSB's Certi-Split hand-split and resawn shakes. CSSB members offer straight-split (barn) and taper-split shakes for historic accuracy. If straight-split or taper-split shakes are required, verify availability with manufacturers and revise description accordingly.

* + - * 1. Split Cedar Shakes: Hand-split and resawn western red cedar shakes; split face and sawn back.

Grade: [**Premium**] [**No. 1**].

Coordinate option retained in "Length" subparagraph below with weather exposure retained in Part 3.

Length: [**18 inches**] [**24 inches**].

Thickness: [**1/2 inch**] [**3/4 inch**] at butt.

For pressure-treated shingles, verify compatible finishes with treatment manufacturer.

Finish: **[Unfinished] [Semitransparent penetrating stain, oil based, factory applied] [Semisolid penetrating stain, oil based, factory applied] [Oil-based primer, stain blocking, factory applied] <Insert factory finish>**.

Retain "Color" subparagraph below for factory-applied finishes.

Color: **[As selected by Director’s Representative from manufacturer's full range] <Insert color designation>.**

"Taper-Sawn Cedar Shakes" paragraph below corresponds to CSSB's Certi-Sawn Tapersawn shakes.

* + - * 1. Taper-Sawn Cedar Shakes: Western red cedar shakes; sawn both sides.

Grade: **[Premium] [No. 1] [No. 2]**.

Coordinate option retained in "Length" subparagraph below with weather exposure retained in Part 3.

Length: [**18 inches] [24 inches**].

Thickness: [**5/8 inch] [3/4 inch] <Insert dimension**> at butt.

For pressure-treated shingles, verify compatible finishes with treatment manufacturer.

Finish: **[Unfinished] [Semitransparent penetrating stain, oil based, factory applied] [Semisolid penetrating stain, oil based, factory applied] [Oil-based primer, stain blocking, factory applied] <Insert factory finish>**.

Retain "Color" subparagraph below for factory-applied finishes.

Color: **[As selected by Director’s Representative from manufacturer's full range] <Insert color designation>**.

Shakes may be available in other wood species such as yellow cedar, southern yellow pine, redwood, white spruce, or black spruce.

* + - 1. WOOD-SHINGLE-CLAD PANELS
         1. Cedar-Shingle Panels: Clear, vertical-grain, western red cedar shingles bonded with exterior-type adhesives to 5/16-inch thick, 96-inch long DOC PS 1 Exterior C-D plywood panels; with **[one shingle course] [two shingle courses] [three shingle courses] <Insert number of shingle courses>** per panel.

Retain "Style" or "Fancy-Butt Style" subparagraph below to suit Project.

Style: **[Even butt line, tight spacing] [Even butt line, open key way] [Staggered butt line] [Even butt line, striated texture, tight spacing] <Insert style>**.

Fancy-Butt Style: **[Diagonal] [Half Cove] [Diamond] [Round] [Hexagonal] [Octagonal] [Arrow] [Square] [Fish Scale] <Insert style>**.

Exposure: Nominal **[4-1/2 inches] [5 inches] [7 inches] <Insert dimension>** per course.

* + - * 1. Prefabricated Corners: [**Flush**] [**Add-on**] <**Insert requirements**> type.
        2. Special Purpose Panels: [Radius panels for inside or outside radii of **48 inches** or more] <Insert requirements>.

For pressure-treated panels, verify compatible finishes with treatment manufacturer.

* + - * 1. Finish: **[Unfinished] [Semitransparent penetrating stain, oil based, factory applied] <Insert factory finish>**.

Retain "Color" subparagraph below for factory-applied finishes.

Color: **[As selected by Director’s Representative from manufacturer's full range] <Insert color designation>**.

* + - 1. ACCESSORIES

Retain "Felt Weather-Resistive Barrier" paragraph below if weather-resistive barrier is not specified in Section 072500 "Weather Barriers." CSSB recommends ASTM D226 Type II or ASTM D4869 Type IV felt, both weighing 26 lb/100 sq. ft.. See "Asphalt-Saturated Organic Felt" Article in the Evaluations.

* + - * 1. Felt Weather-Resistive Barrier: **[ASTM D226, Type II] [or] [ASTM D4869, Type III],** asphalt-saturated organic felt, nonperforated.
        2. Ventilated Underlayment: Three-dimensional, nylon mat.

Retain "Flexible Flashing" paragraph below if flexible flashing is not specified in Section 072500 "Weather Barriers."

* + - * 1. Rubberized-Asphalt Flashing: Composite flashing product consisting of a pliable, adhesive rubberized-asphalt compound bonded to a high-density, cross-laminated polyethylene film to produce an overall thickness of not less than **[25 mil] [30 mil] [40 mil] [60 mil]**.

Primer: Product recommended in writing by manufacturer of flashing for applicable substrate.

Revise "Nails" paragraph below if staples are acceptable. According to CSSB, nails should be stainless steel Type 316 if Project is within 15 miles of salt water.

* + - * 1. Nails: ASTM F1667, **[stainless-steel, Type 316,] [stainless-steel, Type 304,] [hot-dip galvanized-steel, ASTM A153 coating,]** wire nails, sharp pointed, and of sufficient length to penetrate a minimum of 3/4 inch into sheathing.

Cedar: Use box nails.

Retain "Felt Weather-Resistive Barrier" subparagraph below if specified in this Section.

Felt Weather-Resistive Barrier: Use roofing nails.

Retain "Nails in Contact with Metal Flashing" subparagraph below if applicable; revise to suit Project.

Nails in Contact with Metal Flashing: Use nails made from same metal as flashing or made from metal compatible with metal flashing.

* + - * 1. Wood-Shingle-Clad Panel Fasteners: **[As recommended in writing by manufacturer] <Insert requirements>**.

Retain "Cedar Lath Strip" paragraph below for fancy-butt cedar shingles or for double-coursed cedar wall shingles and shakes if the first course is not triple laid.

* + - * 1. Cedar Lath Strip: Western red cedar, clear heartwood, a minimum of 1-1/2 inches wide.

1. EXECUTION
   * + 1. EXAMINATION
          1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
          2. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
          3. Proceed with installation only after unsatisfactory conditions have been corrected.
       2. INSTALLATION OF FELT WEATHER-RESISTIVE BARRIER

Retain this article if weather-resistive barrier is specified in this Section.

* + - * 1. Comply with felt manufacturer's written installation instructions and CSSB written recommendations applicable to products and applications indicated unless more stringent requirements apply.
        2. Cover exposed exterior surface of sheathing with felt nailed to framing immediately after sheathing is installed.

Apply horizontally with a 2-inch overlap and a 6-inch end lap. Wrap around inside and outside corners 4 inches.

Cut back felt 1/2 inch on each side of the break in supporting members at expansion- or control-joint locations.

Apply felt to cover vertical flashing with a minimum 4-inch overlap unless otherwise indicated.

* + - 1. INSTALLATION OF FLEXIBLE FLASHING

Retain this article if flexible flashing is specified in this Section.

* + - * 1. Apply flexible flashing to comply with manufacturer's written installation instructions.

Prime substrates as recommended by flashing manufacturer.

Lap seams and junctures with other materials at least 4 inches except that at flashing flanges of other construction, laps need not exceed flange width.

Lap flashing over felt weather-resistive barrier at bottom and sides of openings.

Retain first subparagraph below if head flashing is used; see Evaluations.

Lap felt weather-resistive barrier over flashing at heads of openings.

After flashing has been applied, roll surfaces with a hard rubber or metal roller to ensure that flashing is completely adhered to substrates.

* + - 1. INSTALLATION OF SINGLE-COURSED WALLS

Retain this article for single-coursed shingles or shakes.

* + - * 1. Install products according to manufacturer's written instructions and recommendations in CSSB's "Exterior and Interior Wall Manual."
        2. Install products, beginning at base of wall.
        3. Starter Undercourse: Install a single course of undercoursing at the base of the wall in a continuous straight line.

Extend [**1 inch**] [**1-1/2 inches**] <**Insert dimension**> below top of foundation wall.

Match fastening and corner treatment of siding.

* + - * 1. Wood Siding:

Install starter (first) course of exposed siding over starter undercourse with butts 1/2 inch lower than undercourse butts.

Offset joints in first course of exposed siding a minimum of 1-1/2 inches from joints in starter undercourse.

Install succeeding exposed siding courses with joints offset a minimum of 1-1/2 inches between adjacent courses.

1-inch stagger is the maximum for 16- and 18-inch long shingles and 18-inch long shakes. 1-1/2-inch stagger is the maximum for 24-inch long shingles and shakes.

Install exposed siding courses with butt lines [even] [staggered 1 inch] [staggered 1-1/2 inches].

Fasten each unit with two concealed nails spaced 3/4 to 1 inch from edges and 1 inch above butt line of succeeding course.

For shingles wider than 10 inches, install two additional concealed fasteners, spaced 1 inch apart, to the center of the unit.

Drive fasteners flush with top surface of units without crushing wood.

Interior Corner Treatment: **[Butted against wood stop] [Laced, with flashing behind]**.

Exterior Corner Treatment: **[Butted against corner boards] [Laced] [Mitered]**.

* + - * 1. Weather Exposure and Spacing:

Wood Shingle Siding:

Options in first subparagraph below are maximum exposures recommended by CSSB for No. 1 grade, single-coursed shingles.

Maintain maximum weather exposure of **[**7 inches **for** 16-inch**] [**8 inches **for** 18-**inch] [10-1/2 inches for 24-inch] <Insert dimensions> long shingles.**

**Space shingles with [1/8 to 1/4 inch] [1/4 inch]** keyway.

Wood Shake Siding:

Options in first subparagraph below are maximum exposures recommended by CSSB for No. 1 grade, single-coursed shakes.

Maintain weather exposure of **[8 inches for 18-inch] [10-1/2 inches for 24-inch] <Insert dimensions>** long shakes.

Space shakes with 3/8 to 1/2 inch keyway.

* + - 1. INSTALLATION OF DOUBLE-COURSED WALLS

Retain this article for double-coursed shingles or shakes except for ribbon-coursed walls.

* + - * 1. Install products in continuous straight-line courses according to manufacturer's written instructions and recommendations in CSSB's "Exterior and Interior Wall Manual."
        2. Undercourse: Install undercoursing under each course of outercourse beginning at base of wall. Fasten each undercourse unit with a single center-and-top nail.

Install starter course of undercourse **[doubled with joints offset a minimum of 1-1/2 inches between layers] [over wood lath to match slant of succeeding courses]**.

Extend starter course **[1 inch] [1-1/2 inches] <Insert dimension>** below top of foundation wall.

Space undercoursing shingles with at least ¼ inch keyway

Install successive courses of undercoursing with joints offset a minimum of 1-1/2 inches from joints in adjacent outercourse.

Match corner treatment of outercourse.

* + - * 1. Outercourse: Install outercourse of exposed siding with butts 1/2 inch lower than undercourse butts (to conceal undercourse butts) and with joints offset a minimum of 1-1/2 inches from joints in undercourse and from adjacent courses of outercourse.

Fasten each unit with two exposed nails spaced 3/4 to 1 inch from edges and 2 inches above butt line.

For units wider than 10 inches, add two fasteners, spaced 1 inch apart, to the center of unit.

Drive fasteners flush with top surface of units without crushing wood.

Interior Corner Treatment: **[Butted against wood stop] [Laced, with flashing behind]**.

Exterior Corner Treatment: **[Butted against corner boards] [Laced] [Mitered]**.

* + - * 1. Weather Exposure and Spacing:

Wood Shingle Siding:

Options in first subparagraph below are maximum exposures recommended by CSSB for No. 1 grade, double-coursed shingles.

Maintain weather exposure of **[12 inches for 16-inch] [14 inches for 18-inch] [16 inches for 24-inch] <Insert dimensions>** long shingles.

Space shingles with **[1/8 to 1/4 inch[ [1/4 inch]** keyway.

Wood Shake Siding:

Options in first subparagraph below are maximum exposures recommended by CSSB for No. 1 grade, double-coursed shakes.

Maintain weather exposure of **[14 inches for 18-inch] [18 inches for 24-inch] <Insert dimensions>** long shakes.

Space shakes with 3/8 to 1/2 inch keyway.

* + - 1. INSTALLATION OF FANCY-BUTT SHINGLES
         1. Install fancy-butt shingles in continuous straight-line courses along wall with even butt lines according to manufacturer's written instructions and recommendations in CSSB's "Exterior and Interior Wall Manual." Center each shingle in succeeding courses between the two shingles below it.

Retain first subparagraph below if first course of shingles is fancy-butt type. Fancy-butt shingles can be used as accent courses in walls sided with other types of shingles.

Install wood lath under first course to match thickness of succeeding courses.

Extend starter course **[1-1/2 inches] [2 inches] <Insert dimension>** below top of foundation wall.

Fasten each unit with two concealed nails spaced 3/4 to 1 inch from edges and 1 inch above butt line of succeeding course.

Drive fasteners flush with top surface of units without crushing wood.

Maintain weather exposure of 7-1/2 inches.

Space shingles with **1/8 to 1/4** inch keyway.

Interior Corner Treatment: Butted against wood stop.

Exterior Corner Treatment: **[Butted against corner boards] [Mitered]**.

* + - 1. INSTALLATION OF RIBBON-COURSED SHINGLES
         1. Install products in continuous straight-line courses according to manufacturer's written instructions and recommendations in CSSB's "Exterior and Interior Wall Manual."
         2. Undercourse: Install undercoursing shingles under each course of outercourse beginning at base of wall.

Install starter course of undercoursing **[doubled with joints offset a minimum of 1-1/2 inches between layers] [over wood lath to match slant of succeeding courses]**.

Extend starter course **[1 inch] [ 1-1/2 inch]** below top of foundation wall.

Fasten each unit with two concealed nails spaced ¾ to 1 inch from edges and approximately 1 inch above upper edge of previous outercoursing.

Drive fasteners flush with top surface of units without crushing wood.

Space shingles with **[1/8 to ¼ inch] [1/4 inch]** keyway.

Install successive courses of undercourse with joints offset a minimum of 1-1/2 inches from joints in adjacent outercourse.

Match corner treatment of outercourse.

* + - * 1. Outercourse: Install outercourse of exposed siding with butts 1 inch higher than undercourse butts (to expose undercourse butts) and with joints offset a minimum of 1-1/2 inches from joints in the undercourse and from adjacent courses of the outercourse.

Fasten each unit with two exposed nails spaced 3/4 to 1 inch from edges and 2 inches above butt line.

For units wider than 10 inches, add two fasteners, spaced 1 inch apart, to the center of unit.

Drive fasteners flush with top surface of units without crushing wood.

Interior Corner Treatment: **[Butted against wood stop] [Laced, with flashing behind]**.

Exterior Corner Treatment: **[Butted against corner boards] [Laced] [Mitered]**.

* + - * 1. Weather Exposure and Spacing:

Wood Shingle Siding:

Options in first subparagraph below are maximum exposures recommended by CSSB for No. 1 grade, double-coursed shingles.

Maintain weather exposure of **[12 inches for 16-inch] [14 inches for 18-inch] [16 inches for 24-inch] <Insert dimensions>** long shingles.

Space shingles with **[1/8 to 1/4 inch[ [1/4 inch]** keyway.

Wood Shake Siding:

Options in first subparagraph below are maximum exposures recommended by CSSB for No. 1 grade, double-coursed shakes.

Maintain weather exposure of **[14 inches for 18-inch] [18 inches for 24-inch] <Insert dimensions>** long shakes.

Space shakes with **3/8 to 1/2 inch** keyway.

* + - 1. INSTALLATION OF WOOD-SHINGLE-CLAD PANELS

Retain this article for manufactured wood-shingle-clad panels. Insert special installation requirements not specified in manufacturer's written instructions.

* + - * 1. Install wood-shingle-clad-panel products accordance to manufacturer's written installation instructions.
        2. Install panels level, plumb, true, and aligned with adjacent materials.
        3. Install panels working from the lowest level to the top of the wall area.

END OF SECTION 074624