SECTION 07 31 29

WOOD SHINGLE AND SHAKE ROOFING

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\*\* NOTE TO SPECIFIER \*\* Cedar Shake and Shingle Bureau; cedar shingle and shake roofing.
This section is based on the products by members of the Cedar Shake and Shingle Bureau, which is located at:
P.O. Box 1178
Sumas, WA 98295-1178
Phone: 604-820-7700
Fax: 604-820-0266
Email: info@cedarbureau.com
Web: www.cedarbureau.org
[Click Here] for additional information.
The Cedar Shake and Shingle Bureau (CSSB) is a non-profit organization that promotes the use of Certi-label� cedar roofing and sidewall products.
Each year the Cedar Shake and Shingle Bureau's staff answer thousands of technical questions and product selection queries. Offering informed Certi-Wood� advice and the responsibility for educating the public and building code officials falls on the CSSB. Owing to knowledgeable staff, the Cedar Shake & Shingle Bureau has earned the distinction as the recognized industry authority. Our proud history, quality reputation and dedicated CSSB members, Directors, District Managers and staff form the Certi-Wood� team that showcases trusted Certi-label� products to the world. Members are united by their common interest to promote quality products and services.

1. GENERAL
	1. SECTION INCLUDES

\*\* NOTE TO SPECIFIER \*\* Delete items below not required for project.

* + 1. Cedar Shingle Roofing of the following types:
			1. Cedar Shingles. (Certigrade)
			2. Pressure-Impregnated, Preservative Treated Shingles. (Certi-Last)
			3. Pressure-Impregnated, Fire-Retardant Treated Shingles. (Certi-Guard)
			4. Hip and Ridge Units. (Certi-Ridge)
		2. Cedar Shake Roofing of the following types:
			1. Handsplit and Resawn Shakes. (Certi-Split)
			2. Tapersawn Shakes. (Certi-Sawn)
			3. Tapersplit Shakes. (Certi-Split)
			4. Straight-Split Shakes. (Certi-Split)
			5. Pressure-Impregnated, Preservative Treated Shakes. (Certi-Last)
			6. Pressure-Impregnated, Fire-Retardant Treated Shakes. (Certi-Guard)
		3. Hip and Ridge Units. (Certi-Ridge)
	1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + 1. Section 06 10 00 - Rough Carpentry.
		2. Section 07 46 16 - Aluminum Siding.
		3. Section 07 62 00 - Sheet Metal Flashing and Trim.
	1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section.

* + 1. Cedar Shake and Shingle Bureau (CSSB):
			1. Registered Trademarks: The following terms are registered trademarks of the Cedar Shake and Shingle Bureau (CSSB) and are only to be used in the representation and specification of products manufactured by members of the CSSB.
				1. Certi-Wood.
				2. Certi-Label.
				3. Certigrade.
				4. Certi-Last.
				5. Certi-Guard.
				6. Certi-Ridge.
				7. Certi-Split..
				8. Certi-Sawn
				9. Blue Label.
			2. CSSB Certi-Label: Grading and Packing Rules for Western Red Cedar Shake and Western Red Cedar Singles.
			3. CSSB New Roof Construction Manual.
		2. ASTM Annual Book of Standards (ASTM):
			1. ASTM A153 - Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware.
			2. ASTM A493 - Standard Specification for Stainless Steel Wire and Wire Rods for Cold Heading and Cold Forging.
			3. ASTM D226 - Standard Specification for Asphalt-Saturated Organic Felt Type II Used in Roofing and Waterproofing.
			4. ASTM D4869 - Standard Specification for Asphalt-Saturated Organic Felt Type IV Underlayment Used in Steep Slope Roofing.
			5. ASTM E108 - Standard Test Methods for Fire Tests of Roof Coverings.
	1. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data:
			1. Manufacturer's data sheets on each product to be used.
			2. Preparation instructions and recommendations.
			3. Storage and handling requirements and recommendations.
			4. Typical installation methods.

\*\* NOTE TO SPECIFIER \*\* Delete if not applicable to product type.

* + 1. Verification Samples: Two representative units of each type, size, pattern and color.
		2. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
		2. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
		3. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

\*\* NOTE TO SPECIFIER \*\* Include mock-up if the project size or quality warrant the expense. The following is one example of how a mock-up might be specified. When deciding on the extent of the mock-up, consider all the major different types of work on the project.

* + 1. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
			1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
			2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
			3. Retain mock-up during construction as a standard for comparison with completed work.
			4. Do not alter or remove mock-up until work is completed or removal is authorized.
	1. PRE-INSTALLATION CONFERENCE
		1. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.
	2. DELIVERY, STORAGE, AND HANDLING
		1. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
		2. Protect from damage due to weather, excessive temperature, and construction operations.
		3. Allow all cedar roofing products to acclimate to site conditions before installing.
	3. PROJECT CONDITIONS
		1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.
		2. Do not install when rain is present.
		3. Provide attic ventilation 1/150 is recommended.
		4. Do not insulate directly under plywood decking or spaced sheathing.
	4. WARRANTY
		1. Manufacturer's Warranty: Provide manufacturer's standard limited warranty.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturers: Members of the Cedar Shake and Shingle Bureau, which is located at: P.O. Box 1178; Sumas, WA 98295-1178; ASD Phone: 604-820-7700; Fax: 604-820-0266; Email: info@cedarbureau.com; Web: www.cedarbureau.org.

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
		2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
	1. PERFORMANCE REQUIREMENTS
		1. Standards Compliance: CSSB Certi-labelproducts.
		2. \* NOTE TO SPECIFIER \*\* Delete article if not required.
	2. CEDAR SHINGLES

\*\* NOTE TO SPECIFIER \*\* Delete basis of design options not required.

* + 1. Basis of Design: Certigrade Cedar Shingles, Blue Label; as manufactured by Members of the Cedar Shake and Shingle Bureau.
			1. Grade: Number 1, Blue Label 100 percent clear, edge grain, heartwood.

\*\* NOTE TO SPECIFIER \*\* Delete species option not required.

* + - 1. Species: Western Red Cedar.
			2. Species: Alaskan Yellow Cedar.
		1. Basis of Design: Certigrade Cedar Shingles, Red Label; as manufactured by Members of the Cedar Shake and Shingle Bureau.
			1. Grade: Number 2, flat grain and limited sapwood are permitted.
			2. Species: Western Red Cedar.
		2. Basis of Design: Certigrade Cedar Shingles, Black Label; as manufactured by Members of the Cedar Shake and Shingle Bureau.
			1. Grade: Number 3, utility grade.
			2. Species: Western Red Cedar.
		3. Basis of Design: Certigrade Cedar Shingles, Green Label Undercoursing; as manufactured by Members of the Cedar Shake and Shingle Bureau.
			1. Grade: Number 4, utility grade for undercoursing, not a roofing material.
			2. Species: Western Red Cedar.
		4. Cedar Shingle Characteristics and Ancillary Items:

\*\* NOTE TO SPECIFIER \*\* Delete size options not required.

* + - 1. Size: 16 inches (406 mm) by 5/2, 5 butt ends equal 2 inches (51 mm).
				1. 4/12 and Greater Blue Label Maximum Exposure: 5 inches (127 mm).
			2. Size: 18 inches (457 mm) by 5/2-1/4, 5 butt ends equal 2-1/4 inches (57 mm).
				1. 4/12 and Greater Blue Label Maximum Exposure: 5-1/2 inches (140 mm).
			3. Size: 24 inches (610 mm) by 4/2, 4 units equal 2 inches (51 mm).
				1. 4/12 and Greater Blue Label Maximum Exposure: 7 inches (178 mm).
			4. Size and Exposure: \_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete treatment options not required.

* + - 1. Treatment: Preservative. Pressure-impregnated. Certi-Last; as manufactured by Members of the Cedar Shake and Shingle Bureau.
			2. Treatment: Fire-Retardant. Pressure-impregnated. Certi-Guard; as manufactured by Members of the Cedar Shake and Shingle Bureau.

\*\*\* NOTE TO SPECIFIER \*\* Delete fire rating options not required.

* + - 1. Fire Rating: Class A:
				1. Class A system B Certi-Guard fire-retardant pressure impregnated treated shingles.
				2. Class A system B fire-treated, starters, hips, and ridges.
				3. Decking: Exterior Plywood: 1/2 inch (13 mm) minimum.
				4. Decking: Spaced Sheeting: 1 inch x 4 ft (25 x 1219 mm).
				5. Flashings, Valleys and Gutters:

Minimum 28 gauge galvanized steel.

Finish: Pre-painted baked enamel.

Copper or Other Non-Coated Metal, Including Galvanized:

Finish: 2 coats of clear acrylic enamel finish.

* + - * 1. Cap Sheet: Mineral surfaced, Class A Fiberglass per UL 55-A. Must cover entire deck, beginning at the eaves. Contact the treatment company for specification of accessory building product requirements, including fasteners.

Fiberglass sheets must be 36 inch wide, 76 lbs minimum.

* + - 1. Fire Rating: Class B:
				1. Class B Certi-Guard fire-retardant pressure impregnated treated shingles.
				2. Class B fire-treated, starters, hips, and ridges.
				3. Decking: Exterior Plywood: 1/2 inch (13 mm) minimum.
				4. Decking: Spaced Sheeting: 1 inch x 4 ft (25 x 1219 mm).
				5. Flashings, Valleys and Gutters:

Minimum 28 gauge galvanized steel.

Finish: Pre-painted baked enamel.

Copper or Other Non-Coated Metal, Including Galvanized:

Finish: 2 coats of clear acrylic enamel finish. Contact the treatment company for specification of accessory building product requirements, including fasteners.

* + - 1. Fire Rating: Class C:
				1. Class C Certi-Guard fire-retardant pressure impregnated treated shingles.
				2. Class C fire-treated, starters, hips, and ridges.
				3. Decking: Exterior Plywood: 1/2 inch (13 mm) minimum.
				4. Decking: Spaced Sheeting: 1 inch x 4 ft (25 x 1219 mm).
				5. Flashings, Valleys and Gutters:

Minimum 28 gauge galvanized steel.

Finish: Pre-painted baked enamel.

Copper or Other Non-Coated Metal, Including Galvanized:

Finish: 2 coats of clear acrylic enamel finish Contact the treatment company for specification of accessory building product requirements, including fasteners.

\*\* NOTE TO SPECIFIER \*\* Delete permeable underlayment options not required. Always use a permeable underlayment. Be sure that it is resistant to clogging from fine particles, dust, and resins.

* + - 1. Permeable Underlayment: Felt No. 30 ASTM D226 Type II, asphalt saturated.
			2. Permeable Underlayment: Felt No. 30 ASTM D4869 Type IV, asphalt saturated.
			3. Permeable Underlayment: Synthetic. As approved by authorities having jurisdiction.
			4. Fasteners: Electrogalvanized fasteners are not acceptable.

\*\* NOTE TO SPECIFIER \*\* Delete fastener type options not required. Fasteners must be Type 316 stainless steel within 15 miles ( km) of saltwater. Type 316 stainless steel is required by code for a Fire Rating Class of A, B, or C. Fasteners for pressure impregnated shakes must be Type 316 stainless steel. The Cedar Shake and Shingle Bureau prefers the use of nails.

* + - * 1. Nail Type: Ring shank.
				2. Nail Type: \_\_\_\_\_\_\_\_.
				3. Nail Material: Hot-dipped galvanized per ASTM A 153 Class D, 1.0 oz per sq ft.
				4. Nail Material: Type 304 stainless steel.
				5. Nail Material: Type 316 stainless steel.
				6. Nail Length: Shake: 18 inch (457 mm) Straight-Split. 5d Box.
				7. Nail Length: Shake: 18 and 24 inch (457 and 610 mm) Handsplit and Resawn. 6d Box.
				8. Nail Length: Shake: 24 inch (610 mm) Tapersplit. 5d Box.
				9. Nail Length: Shake: 18 and 24 inch (457 and 610 mm) Tapersawn. 6d Box.
				10. Staple Type: 16 gauge with crowns 7/16 inch (11 mm) minimum, 3/4 inch (19 mm) maximum horizontal to the Certi-label shake butt.
				11. Staple Material: Type 304 stainless steel.
				12. Staple Material: Type 316 stainless steel.
				13. Staple Length: \_\_\_\_.
		1. Hip and Ridge Caps:
			1. Basis of Design: Certi-Ridge, Shingle; as manufactured by Members of the Cedar Shake and Shingle Bureau.
				1. Species: Western Red Cedar.
				2. Species: Alaskan Yellow Cedar.

\*\* NOTE TO SPECIFIER \*\* Grade 2 is available. Contact manufacturer for more information. Grade: Number 1 Grade, 100 percent clear, edge grain, heartwood allowed in each bundle.

* + - * 1. Grade: Number 1. 100 percent clear, edge grain, heartwood in each bundle.

\*\* NOTE TO SPECIFIER \*\* Delete size options not required.

* + - * 1. Size: 16 inches (406 mm) by 5/2, 5 butt ends equal 2 inches (51 mm).
				2. Size: 18 inches (457 mm) by 5/2-1/4, 5 butt ends equal 2-1/4 inches (57 mm).
				3. Size: 24 inches(610 mm) by 5/2-1/2, 5 butt ends equal 2-1/2 inches (64 mm).
				4. Size: \_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete treatment option not required. You can have the preservative treatment or the fire-retardant treatment but not both on one product. Delete both treatment options if no treatment is required.

* + - * 1. Treatment: Preservative. Pressure-impregnated. Certi-Last; as manufactured by Members of the Cedar Shake and Shingle Bureau.
				2. Treatment: Fire-Retardant. Pressure-impregnated. Certi-Guard; as manufactured by Members of the Cedar Shake and Shingle Bureau.

\*\*\* NOTE TO SPECIFIER \*\* Delete fire rating options not required.

Fire Rating: Class A System. Requires Certi-Guard Class B fire retardant pressure treated shingles.

Fire Rating: Class B. Requires Certi-Guard Class B fire retardant pressure treated shingles.

Fire Rating: Class C. Requires Certi-Guard Class C fire retardant pressure treated shingles.

\*\* NOTE TO SPECIFIER \*\* Delete article if not required.

* 1. CEDAR SHAKES

\*\* NOTE TO SPECIFIER \*\* Delete shake options not required.

* + 1. Shakes: Certi-Split Handsplit and Resawn.
			1. Basis of Design: Certi-Split Handsplit and Resawn Shakes; as manufactured by Members of the Cedar Shake and Shingle Bureau.
				1. Face: Split. Back: Sawn.
		2. Shakes: Certi-Sawn Tapersawn Shakes.
			1. Basis of Design: Certi-Sawn Tapersawn Shakes; as manufactured by Members of the Cedar Shake and Shingle Bureau.
				1. Face: Sawn. Back: Sawn.
		3. Shakes: Certi-Split Tapersplit Shakes.
			1. Basis of Design: Certi-Split Tapersplit Shakes; as manufactured by Members of the Cedar Shake and Shingle Bureau.
				1. Face: Hand split. Back: Hand split.
		4. Shakes: Certi-Split Straight-Split.
			1. Basis of Design: Certi-Split Straight-Split Shakes; as manufactured by Members of the Cedar Shake and Shingle Bureau.
				1. Face: Split. Back: Hand split.
		5. Cedar Shake Characteristics and Ancillary Items:

\*\* NOTE TO SPECIFIER \*\* Delete grade option not required. Grade 2 and 3 are available. Contact manufacturer for more information.

* + - 1. Grade: Number 1 Premium Grade, 100 percent edge grain.
			2. Grade: Number 1 Grade, up to 20 percent flat grain in each bundle.

\*\* NOTE TO SPECIFIER \*\* Delete species option not required.

* + - 1. Species: Western Red Cedar.
			2. Species: Alaskan Yellow Cedar.

\*\* NOTE TO SPECIFIER \*\* Delete butt thickness options not required. Other butt thicknesses are available. Contact manufacturer for more information.

* + - 1. Butt Thickness: 3/8 inch (10 mm).
			2. Butt Thickness: 1/2 inch (13 mm).
			3. Butt Thickness: 5/8 Inch (16 mm).
			4. Butt Thickness: 3/4 inch (19 mm).
			5. Butt Thickness: 7/8 Inch (22 mm).
			6. Butt Thickness: 1 inch (25 mm).
			7. Butt Thickness: \_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete length options not required. Other lengths are available. Contact manufacturer for more information.

* + - 1. Length: 18 inches (457 mm). Maximum Exposure: 7-1/2 inch (191 mm).
			2. Length: 24 inches (610 mm). Maximum Exposure: 10 inch (254 mm).
			3. Length: \_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete treatment option not required. You can have the preservative treatment or the fire-retardant treatment but not both on one product. Delete both treatment options if no treatment is required.

* + - 1. Treatment: Preservative. Pressure-impregnated. Certi-Last; as manufactured by Members of the Cedar Shake and Shingle Bureau.
			2. Treatment: Fire-Retardant. Pressure-impregnated. Certi-Guard; as manufactured by Members of the Cedar Shake and Shingle Bureau.

\*\*\* NOTE TO SPECIFIER \*\* Delete fire rating options not required.

* + - 1. Fire Rating: Class A:
				1. Class A System B Certi-Guard fire-retardant pressure impregnated treated shakes.
				2. Class A System B fire-retardant treated, starters, hips, and ridges.
				3. Decking: Exterior Plywood: 1/2 inch (13 mm) minimum.
				4. Decking: Spaced Sheeting: 1 inch x 4 ft (25 x 1219 mm).
				5. Flashings, Valleys and Gutters:

Minimum 28 gauge galvanized steel.

Finish: Pre-painted baked enamel.

Copper or Other Non-Coated Metal, Including Galvanized:

Finish: 2 coats of clear acrylic enamel finish

* + - * 1. Cap Sheet: Mineral surfaced, Class A Fiberglass per UL 55-A. Must cover entire deck, beginning at the eaves.

Fiberglass sheets must be 36 inch wide, 76 lbs minimum.

* + - 1. Fire Rating: Class B:
				1. Class B Certi-Guard fire-retardant pressure impregnated treated shakes.
				2. Class B fire-retardant treated, starters, hips, and ridges.
				3. Decking: Exterior Plywood: 1/2 inch (13 mm) minimum.
				4. Decking: Spaced Sheeting: 1 inch x 4 ft (25 x 1219 mm).
				5. Flashings, Valleys and Gutters:

Minimum 28 gauge galvanized steel.

Finish: Pre-painted baked enamel.

Copper or Other Non-Coated Metal, Including Galvanized:

Finish: 2 coats of clear acrylic enamel finish

* + - 1. Fire Rating: Class C.
				1. Class C Certi-Guard fire-retardant pressure impregnated treated shakes.
				2. Class C fire-retardant treated, starters, hips, and ridges.
				3. Decking: Exterior Plywood: 1/2 inch (13 mm) minimum.
				4. Decking: Spaced Sheeting: 1 inch x 4 ft (25 x 1219 mm).
				5. Flashings, Valleys and Gutters:

Minimum 28 gauge galvanized steel.

Finish: Pre-painted baked enamel.

Copper or Other Non-Coated Metal, Including Galvanized:

Finish: 2 coats of clear acrylic enamel finish

\* NOTE TO SPECIFIER \*\* Delete permeable underlayment options not required. Always use a permeable underlayment. Be sure that it is resistant to clogging from fine particles, dust, and resins.

* + - 1. Permeable Underlayment: Felt No. 30 ASTM D226 Type II, asphalt saturated.
			2. Permeable Underlayment: Felt No. 30 ASTM D4869 Type IV, asphalt saturated.
			3. Permeable Underlayment: Synthetic. As approved by authorities having jurisdiction.
			4. Fasteners: Electrogalvanized fasteners are NOT acceptable.

\*\* NOTE TO SPECIFIER \*\* Delete fastener type options not required. Fasteners must be Type 316 stainless steel within 15 miles ( km) of saltwater. Fasteners for pressure impregnated shakes must be Type 316 stainless steel. The Cedar Shake and Shingle Bureau prefers the use of nails.

* + - * 1. Nail Type: Ring shank.
				2. Nail Type: \_\_\_\_\_\_\_\_.
				3. Nail Material: Hot-dipped galvanized per ASTM A 153 Class D, 1.0 oz per sq ft.
				4. Nail Material: Type 304 stainless steel.
				5. Nail Material: Type 316 stainless steel.
				6. Nail Length: Shake: 18 inch (457 mm) Straight-Split. 5d Box.
				7. Nail Length: Shake: 18 and 24 inch (457 and 610 mm) Handsplit and Resawn. 6d Box 2.
				8. Nail Length: Shake: 24 inch (610 mm) Tapersplit. 5d Box.
				9. Nail Length: Shake: 18 and 24 inch (457 and 610 mm) Tapersawn. 6d Box 2.
				10. Staple Type: 16 gauge with crowns 7/16 inch (11 mm) minimum, 3/4 inch (19 mm) maximum horizontal to the Certi-label shake butt.
				11. Staple Material: Type 304 stainless steel.
				12. Staple Material: Type 316 stainless steel.
				13. Staple Length: \_\_\_\_.
		1. Hip and Ridge Caps:

\*\* NOTE TO SPECIFIER \*\* Delete basis of design option not required.

* + - 1. Basis of Design: Certi-Ridge, Handsplit; as manufactured by Members of the Cedar Shake and Shingle Bureau.
				1. Face: Split. Back Sawn
			2. Basis of Design: Certi-Ridge, Tapersawn; as manufactured by Members of the Cedar Shake and Shingle Bureau.
				1. Face: Sawn, Back Sawn
			3. Hip and Ridge Cap Characteristics:
				1. Species: Western Red Cedar.

\*\* NOTE TO SPECIFIER \*\* Delete grade option not required.

* + - * 1. Grade: Premium Grade, 100 percent edge grain.
				2. Grade: Number 1 Grade, up to 20 percent flat grain allowed in each bundle.

\*\* NOTE TO SPECIFIER \*\* Delete thickness options not required.

* + - * 1. Thickness: 1/2 inch (13 mm).
				2. Thickness: 5/8 inch (16 mm).
				3. Thickness: 3/4 inch (19 mm).
				4. Thickness: 7/8 inch (22 mm).
				5. Thickness: \_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete length options not required.

* + - * 1. Length: 18 inches (457 mm).
				2. Length: 24 inches (610 mm).
				3. Length: \_\_\_\_\_.

\*\* NOTE TO SPECIFIER \*\* Delete treatment option not required. You can have the preservative treatment or the fire-retardant treatment but not both on one product. Delete both treatment options if no treatment is required.

* + - * 1. Treatment: Preservative. Pressure-impregnated. Certi-Last; as manufactured by Members of the Cedar Shake and Shingle Bureau.
				2. Treatment: Fire-Retardant. Pressure-impregnated. Certi-Guard; as manufactured by Members of the Cedar Shake and Shingle Bureau.

\*\* NOTE TO SPECIFIER \*\* Delete fire rating options not required.

Fire Rating: Class A system. Requires Certi-Guard Class B fire retardant pressure treated shakes, and a Class A Fiberglass sheet ( UL 55-A) which must cover the entire deck, beginning at the eaves.

Fire Rating: Class B. Requires Certi-Guard Class B fire retardant pressure treated shakes.

Fire Rating: Class C. Requires Certi-Guard Class C fire retardant pressure treated shakes.

* 1. ATTIC VENTILATION
		1. Ridge Vents: Flexible or rigid plastic ridge ventilator designed to allow the passage of hot air from attics, while resisting snow infiltration. For use in conjunction with eave/soffit ventilation products.
			1. Net Free Ventilation Area (NFVA): 12.5 sq inches per lineal ft (26460 sq.mm per m).
		2. Fascia and Soffit/Under Eave Vents: Surface mounted.

\*\* NOTE TO SPECIFIER \*\* Delete soffit vent option not required

* + - 1. Soffit Vent: Screened aluminum, corrosion resistant.
				1. Net Free Vent Space (NFVA): 9.0 sq inches per lineal ft (11613 sq mm per m).
			2. Soffit Vent: Closeable soffit vent with integral screen to help prevent wildfire embers from being drawn into
				1. Net Free Vent Space (NFVA): 9.0 sq inches per lineal ft (11613 sq mm per m).
		1. METAL FLASHING

\*\* NOTE TO SPECIFIER \*\* .\*\*Delete flashing material not required.

* + - 1. Flashing: 26 ga hot dip galvanized sheet steel complying with ASTM A 653M, G90.Z275 painted.
			2. Flashing: 16 oz/sq ft (0.56 mm) copper sheet, complying with ASTM B 370.
			3. Flashing: 0.032 inch (0.8 mm) aluminum sheet, complying with ASTM B 209. Painted.
			4. Type 304 or type 316 26 gauge stainless steel.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly constructed and prepared.
		2. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Verify that the deck is dry, sound, clean and smooth. It shall be free of any depressions, waves, and projections.
		3. Replace damaged deck with new materials.
		4. Clean deck surfaces thoroughly prior to installation of eaves protection membrane and underlayment.
	3. INSTALLATION
		1. Install all roofing products in accordance with federal, state, local codes, manufacturer's instructions, approved submittals, and in proper relationship with adjacent construction.
			1. Refer to application instructions for the selected starter shingles or shakes.
		2. Shakes: When solid sheathing is specified plywood is required
			1. Solid Deck is Recommended for the Following Situations: See CSSB New Roof Construction Manual pages 20 and 21 for more information.
				1. Seismic activity zones.
				2. Hurricane and tornado regions.
				3. Where wind-driven snow is encountered.
				4. Under pressure impregnated treated shakes.
				5. Continuous ventilation product.
				6. Vertical Strips: 2 x 4 inch (51 x 102 mm). Horizonal: 1 x 4 inch (25 x 102 mm) or 1 x 6 inch (25 x 152 mm).
			2. Check with local building code official for plywood thickness and dimensions.
			3. Install valley and eave protection as required by local code
			4. Felt Interlay:
				1. Apply a 36 inch (914 mm) wide strip of roofing felt at the eave line.
				2. Apply an 18 inch (457 mm) wide strip of roofing felt over the top portion of the shakes; maximum 4 inches (102 mm) from the top of the shake, and extend onto the sheathing.
				3. Position bottom edge of felt at a distance above the butt equal to twice the weather exposure.
				4. Felt interlay between courses is not necessary when straight-split, or taper-split shakes are applied in snow-free areas at weather exposures of less than one-third the total shake length; 3-ply roof. Check with local building code official for local jurisdiction requirements
			5. Shakes to be a starter shake or doubled at all eaves.
			6. Butts of the shakes in the first course on roofs shall project 1-1/2 inches (38 mm) from the edge of roof eaves to insure proper spill into gutters and approximately 1 inch (25 mm) at gable and rake edge.
			7. Spaces between adjacent rows shall be 1-1/2 inches (38 mm) apart minimum
			8. No Shake smaller than 4 inches (102 mm) wide should be installed
			9. Shake Spacing: Not less than 3/8 inch (10 mm), not more than 5/8 inch (16 mm).
			10. Premium and Number 1 Grade Maximum Weather Exposure:
				1. Shake Length: 18 inch (457 mm). Exposure: 7-1/2 inch (190 mm).
				2. Shake Length: 24 inch (610 mm). Exposure: 10 inch (254 mm).
				3. Resawn Shakes: 24 x 3/8 inch (610 x 10 mm). Exposure: 7-1/2 inch (191 mm).
			11. Chimney Flashing: Extend up chimney to a height not less than 3 inches (76 mm), up the roof slope to a point equal in height to the flashing on the chimney but never less than 1 1/2 times Shake exposure. All metal flashings should be painted.
			12. Manufactured Step-Flashing: 8 x 12 shakes: 4 inch (102 mm) horizontal.
			13. Step Flashing: Minimum height of 3 inches (76 mm). Greater heights are often required. Check with local building code official for step flashing height.
			14. Apron Counter Flashing: Extend to within 1 inch (25 mm) of surface of finished roof.

\*\* NOTE TO SPECIFIER \*\* Delete fire rating options not required.

* + - 1. Fire Rating Class A System installation:
				1. Space decking so center of each board coincides with exposure and fastening of shakes.
				2. Cap Sheet installation:

If over spaced sheeting, the horizontal edge of sheet must meet a solid nailing surface and overlap the next layer.

Overlap: 2 inch (51 mm) on both sides and ends of each sheet and attached with sufficient fastener quantities to hold the sheet in place preventing movement prior to shingles application.

* + - * 1. Along Eave Line: Lay a 36 inch (914 mm) wide strip of No 30 roofing felt per ASTM D226 Type II or ASTM D4869 Type IV, over the mineral-surfaced Class "A" fiberglass cap sheet.
				2. After each course of shakes is applied, an 18 inch (457 mm) wide strip of No. 30 roofing felt per ASTM D226 Type II or ASTM D4869 Type IV, is laid over the top portion of the shakes extending onto the sheathing, with the bottom edge of the felt positioned at a distance above the butt equal to twice the weather exposure.
				3. Wash and rinse entire roof, less than 125 psi (856 kPa) immediately after application.
			1. Fire Rating Class B installation:
				1. Space decking so center of each board coincides with exposure and fastening of shakes.
				2. Along Eave Line: Lay a 36 inch (914 mm) wide strip of No 30 roofing felt per ASTM D226 Type II or ASTM D4869 Type IV.
				3. After each course of shakes is applied, an 18 inch (457 mm) wide strip of No. 30 roofing felt per ASTM D226 Type II or ASTM D4869 Type IV, is laid over the top portion of the shakes extending onto the sheathing, with the bottom edge of the felt positioned at a distance above the butt equal to twice the weather exposure.
				4. Wash and rinse entire roof, less than 125 psi (856 kPa) immediately after application.
			2. Fire Rating Class C Installation:
				1. Space decking so center of each board coincides with exposure and fastening of shakes.
				2. Along Eave Line: Lay a 36 inch (914 mm) wide strip of No 30 roofing felt per ASTM D226 Type II or ASTM D4869 Type IV.
				3. After each course of shakes is applied, an 18 inch (457 mm) wide strip of No. 30 roofing felt per ASTM D226 Type II or ASTM D4869 Type IV, is laid over the top portion of the shakes extending onto the sheathing, with the bottom edge of the felt positioned at a distance above the butt equal to twice the weather exposure.
				4. Wash and rinse entire roof, less than 125 psi (856 kPa) immediately after application.
		1. Shingles: Apply over solid sheathing, plywood is the only sheathing recommended.
			1. A solid deck is recommended in seismic activity, hurricane and tornado regions and in areas where wind-driven snow is encountered and under pressure impregnated treated shakes.
			2. Check with local building code official for plywood thickness/dimensions.
			3. Shingles to be at least doubled at all eaves.
			4. Butts of the shingles in the first course on roofs shall project 1-1/2 inch (38 mm) from the edge of roof eaves to insure proper spill into gutters and approximately 1 inch (25 mm) at gable and rake edge.
			5. Shingles Spacing: Not less than 1/4 inch (6 mm), not more than 3/8 inch (10 mm).
			6. Number 1 Blue Label Maximum Weather Exposure:
				1. Shingle Length: 16 inch (406 mm).

Roof Slope: 3:12 to 4:12: 3-3/4 inch (95 mm).

Roof Slope: 4:12 and Steeper: 5 inch (127 mm).

* + - * 1. Shingle Length: 18 inch (457 mm).

Roof Slope: 3:12 to 4:12. Exposure: 4-1/4 inch (108 mm).

Roof Slope: 4:12 and Steeper. Exposure: 5-1/2 inch (140 mm).

* + - * 1. Shingle Length: 24 inch (610 mm).

Roof Slope: 3:12 to 4:12. Exposure: 5-3/4 inch (146 mm).

Roof Slope: 4:12 and Steeper. Exposure: 7-1/2 inch (191 mm).

* + - 1. Number 2 Red label Maximum weather Exposure:
				1. Shingle Length 16 inch (406 mm):

Roof slope 3:12 to 4:12: 3-1/2 inches (89 mm).

Roof slope 4:12 and steeper 4 inches (102 mm).

* + - * 1. Shingle Length 18 inch (457 mm):

Roof slope 3:12 to 4:12: 4 inches (102 mm).

Roof slope 4:12 and steeper 4-1/2 inches (114 mm).

* + - * 1. Shingle Length 24 inch (610 mm):

Roof slope 3:12 to 4:12: 5-1/2 inches (140 mm).

Roof slope 4:12 and steeper 6-1/2 inches (165 mm).

* + - 1. Chimney Flashing: Extend up chimney to a height not less than 3 inches (76 mm), up the roof slope to a point equal in height to the flashing on the chimney but never less than 1-1/2 times shingle exposure. All metal flashings should be painted.
			2. Manufactured Step-Flashing: Horizontal and Vertical 2-1/2 inch (64 mm) step flashings require a 3 inch (76 mm) minimum overlap.
			3. Step Flashing: Minimum height of 2-1/2 inches (64 mm). Greater heights are often required. Check with local building code official for step flashing height.
			4. Apron Counter Flashing: Extend to within 1 inch (25 mm) of surface of finished roof.

\*\* NOTE TO SPECIFIER \*\* Delete fire rating options not required.

* + - 1. Fire Rating Class A installation:
				1. Deck Spacing Installation: Center of each board coincides with exposure and fastening of shingles.
				2. Cap Sheet Installation:

Over Spaced Sheeting: The horizontal edge of sheet must meet a solid nailing surface and overlap the next layer.

Overlap: 2 inch (51 mm) on both sides and ends of each sheet and attached with sufficient fastener quantities to hold the sheet in place preventing movement prior to shingles application.

Along Eave Line: Lay a 36 inch (914 mm) wide strip of roofing felt over the cap sheet.

* + - * 1. Wash and rinse entire roof, less than 125 psi (856 kPa) immediately after application.
			1. Fire Rating Class B Installation:
				1. Deck Spacing Installation: Center of each board coincides with exposure and fastening of shingles.
				2. Wash and rinse entire roof, less than 125 psi (856 kPa) immediately after application.
			2. Fire Rating Class C Installation:
				1. Deck Spacing Installation: Center of each board coincides with exposure and fastening of shingles.
				2. Wash and rinse entire roof, less than 125 psi (856 kPa) immediately after application.
		1. Saddles or Crickets: Formed in back of chimneys, curves or similar vertical surfaces, they shall be carried not be less than 10 inch (254 mm) under shakes and shingles.
		2. Step flashing is to be used where vertical surfaces occur in connection with slopes. They are to be formed of separate pieces. Extend flashing horizontally not less than 3 inches (76 mm) and up the vertical wall so that they are lapped by the counter flashing. Counter flashing shall be vertically at least 4 inches (102 mm) above roof surface. Install step flashing in step fashion. Each piece to lap not less than 3 inches (76 mm); one flashing installed on each course concealed under the covering course. If other than masonry is used, the flashing is to extend up the wall not less than 3 inches (76 mm) behind the sheathing paper.
		3. Dormer Flashings: To run 3 inches (76 mm) up under the sheathing paper and not less than 3 inches (76 mm) horizontally.
		4. Window Caps and Other Projections: At points where rain water accumulates, provide with flashings extending a distance of 3 inches (76 mm) up the wall behind the sheathing paper.
		5. Soil Pipes: Metal to extend no less than 6 inches (152 mm) in all directions and installed to lap and shed water to shakes or shingles below.
		6. Hips and Ridges: To be of alternate overlap type applied at same exposure as field of roof and with nails long enough to penetrate into sheathing at least 3/4 inches (19 mm).
			1. Position fasteners approximately 2 inches (51 mm) above exposure line.
			2. Install a strip of felt, eave protection material or metal over hip or ridge under the ridge or hip cap. If longer or shorter ridge cap is used, adjust exposure accordingly.
		7. Valleys:
			1. Install eaves protection membrane at least 36 inches (914 mm) wide and centered on the valley. Lap ends 6 inches (152 mm) and seal.
			2. Shakes or shingles extending into the valley shall be sawed to the proper miter.
			3. Do not lay shakes or shingles with grain parallel with the centerline of valleys.
			4. All valleys shall be installed with shakes or shingles lapping the valley flashing not less than 7 inches (178 mm) on each side.
			5. On shingle roofs of less than 6:12 slope, flashing should extend at least 11 inches (279 mm) on each side.
			6. For shakes, metal valley sheets shall be center-crimped; of 20 inches (508 mm) minimum width; underlayed with a strip of roofing felt over the sheathing, and coated with a metal paint.
			7. Where valleys are indicated to be "open valleys", install metal flashing over leak barrier before shingles or shakes are installed. Secure the flashing by nailing at 18 inches (457 mm) on center. No nails closer than 9 inches (229 mm) from center of valley.
			8. Valley metals that have proved reliable in a particular geographic region should be selected.
				1. Copper Flashing: Check with local building code official on the durability of copper valleys in your area.
		8. Fasteners:
			1. Fasteners to be long enough to penetrate into the solid wood sheathing at least 3/4 inch (19 mm) or all the way through.
			2. Nails are to be driven flush but not so that the nail head crushes the wood. Place approximately 3/4 to 1 inch (19 to 25 mm) from the side edges of the shakes or shingles and approximately 1-1/2 inches (38 mm) above the butt line of the following course.
			3. Each roof shake or shingle shall be secured with two full-driven, required fasteners.
		9. Attic Ventilation required. As recommended by local code.
	1. FIELD QUALITY CONTROL
		1. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

\*\* NOTE TO SPECIFIER \*\* Include if manufacturer provides field quality control with onsite personnel for instruction or supervision of product installation, application, erection or construction. Delete if not required.

* + 1. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.
	1. CLEANING AND PROTECTION
		1. Clean products in accordance with the manufacturer's recommendations.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION