SECTION 06603

FIBER-REINFORCED HYBRID WALL CLADDING

1. \*\* NOTE TO SPECIFIER \*\* Resysta North America Incorporated; hybrid decking, siding, and wall cladding. This section is based on the products of Resysta North America, Inc., which is located at:
2. 4035 Cheyenne Ct.
3. Chino, CA. 91710
4. Tel: (909) 393-2888
5. Fax: (909) 393-2881
6. Email: info@resystausa.com
7. Web: www.resystausa.com
8. {click Here} for additional information.
9. Resysta material is manufactured by Resysta North America, Incorporated, a manufacturer of polyvinyl chloride (PVC) decking, siding and wall cladding profiles. Resysta is a material with a great reputation that has been earned through strong leadership, product innovation, vertical integration, and a commitment to engineering and manufacturing practices that exceed regulatory requirements and industry standards. The representations below are for guidance purposes only and should not be relied upon as a representation of any kind by Resysta Company. Installation is the sole responsibility of the installer and not Resysta Company.
10. GENERAL
	* 1. SECTION INCLUDES
			1. Fiber reinforced hybrid wall cladding systems finished with stain and sealers.
		2. RELATED SECTIONS
11. \*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.
	* + 1. Section 04200 - Unit Masonry: Wall Cladding substrate.
			2. Section 05400 - Cold-Formed Metal Framing: Wall Cladding substrate.
			3. Section 06100 - Rough Carpentry: Wall Cladding substrate of wood studs or sheathing.
			4. Section 06200 - Finish Carpentry: Exterior wood trim at windows.
			5. Section 07250 - Weather Barriers: Weather barrier under Wall Cladding.
			6. Section 07620 - Sheet Metal Flashing and Trim: Product requirements for metal flashings and trim associated with wood Wall Cladding for placement by this section.
			7. Section 07900 - Joint Sealers: Sealant at perimeter.
			8. Section 09216 - Gypsum Board Assemblies: Wall Cladding substrate of gypsum sheathing.
			9. Section 09900 - Painting and Coating: Prime and finish painting.
		1. REFERENCES
12. \*\* NOTE TO SPECIFIER \*\* Delete references below that are not actually required by the materials used in the project edited section. The following Notes are to assist the specifier in identifying the U.S. Standard for below product testing standards the products have passed:
	* + 1. ASTM International (ASTM):
				1. ASTM E 84-11a - Standard Test Method for Surface Burning Characteristics of Building Materials.
				2. ASTM D 1413-2007e1 - Standard Test Method for Wood Preservatives by Laboratory Soil Block Cultures.
				3. ASTM D 1037-2006a - Standard Test Methods for Evaluating Properties of Wood-Based Fiber and Particle Panel Materials.
				4. ASTM D 2395-2002 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Wood and Wood-Based Materials.
				5. ASTM D 2565 (Reapproved 2008) - Practice for Operating Xenon-Arc-Type Light- Exposure Apparatus with and without Water for Exposure of Plastics.
				6. ASTM D 5071-06 - Standard Practice for Exposure of Photodegradable Plastics in a Xenon Arc Apparatus.
				7. ASTM D 696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between minus 30 degrees C and 30 Degrees C with a Vitreous Silica Dilatometer; 2008.
				8. ASTM D 2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine; 2004.
				9. ASTM D 2565-99 (Reapproved 2008) - Practice for Operating Xenon-Arc-Type Light-Exposure Apparatus with and without Water for Exposure of Plastics.
			2. American Wood Protection Association (AWPA):
				1. AWPA E1-09 - Standard Method for Laboratory Evaluation to Determine Resistance to Subterranean Termites.
				2. AWPA E10-11 - Standard Method of Testing Wood Preservatives by Laboratory Soil-Block Cultures.
		1. SUBMITTALS
			1. Submit under provisions of Section 01300.
			2. Product Data: Manufacturer's data sheets on each product to be used, including:
				1. Preparation instructions and recommendations.
				2. Storage and handling requirements and recommendations.
				3. Installation methods.
13. \*\* NOTE TO SPECIFIER \*\* Delete if not required.
	* + 1. LEED Report: Submit documentation to verify Resysta products meet LEED requirements to project LEED Administrator and other project team members as requested.
				1. Innovation in Design submittal to USGBC to be executed during pre-design. USGBC is the final decision making body for Credit attainment.
14. \*\* NOTE TO SPECIFIER \*\* Delete selection samples if colors have already been selected.
	* + 1. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.
				1. Samples: Submit samples 12 by 12 inches (305 by 305 mm) in size to applicator of finish paint for use in preparation of finish samples.
			2. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (152 mm) square representing actual product, color, and patterns.
				1. Samples: Submit two samples 12 by 12 inches (305 by 305 mm) in size to applicator of finish paint for use in preparation of finish samples.
		1. QUALITY ASSURANCE
			1. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than 10 years of extruding code compliant products.
			2. Material Disclosures Requirements: Health Product Declaration.
			3. LEED Prerequisites and Credits: LEED for New Construction, Version 3 (2009).
				1. MR Credit 6: Rapidly Renewable Materials, 1 point.

Resysta wall cladding is made from 25 percent rice husks, and 60 percent by volume of the mixture of the proprietary Active Resysta Fiber (ARF).

Rice husks are plants harvested within a 10 year cycle.

Resysta products can contribute toward the 2.5 percent threshold of total value of rapidly renewable materials used in the project, based on cost.

* + - * 1. ID/MR Credit 1: Rapidly Renewable Materials 5 percent, 1 point.

Resysta products have a high percentage of rapidly renewable materials providing projects teams the opportunity for exemplary performance in material selection.

* + - * 1. ID/MR Credit 2: Building Product Disclosure and Optimization - Material Ingredients, 1 point.

Option 1: Material Ingredient Reporting: Resysta products come with a Health Product Declaration.

* + - 1. Installer Qualifications: Minimum 2 year experience installing similar products.
1. \*\* NOTE TO SPECIFIER \*\* Include a mock-up if the project size and/or quality warrant taking such a precaution. The following is one example of how a mock-up on a large project 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: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
				1. Finish areas designated by Architect.
				2. Do not proceed with remaining work until workmanship is approved by Architect.
				3. Refinish mock-up area as required to produce acceptable work.
		1. PRE-INSTALLATION MEETINGS
			1. Convene minimum two weeks prior to starting work of this section.
		2. DELIVERY, STORAGE, AND HANDLING
			1. Store products in manufacturer's unopened packaging until ready for installation.
			2. Store in ventilated areas with constant minimum temperature of 60 degrees F (16 degrees C) and maximum relative humidity of 55 percent.
		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.
		4. SEQUENCING
			1. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.
		5. WARRANTY
			1. Provide fifteen year manufacturer warranty for commercial applications or twenty-five year manufacturer warranty for residential applications on materials. Resysta Company warrants the products shall be free from defects in workmanship and materials that (1) occur as a direct result of the manufacturing process, (2) occur during the warranty period and (3) have structural damage or fungal decay.
2. PRODUCTS
	* 1. MANUFACTURERS
			1. Acceptable Manufacturer: Resysta North America, Incorporated, which is located at: 4035 Cheyenne Court, Chino, California, 91710, Tel: 909-590-0121, Email: info@resystausa.com, Web: www.resystausa.com.
3. \*\* 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 01600.
		1. MATERIALS
			1. Material: Resysta, a bio-based wood substitute made of ARF (Active Resysta Filler). ARF is a proprietary blend of rice husks (60 percent by volume of recycled content) that would otherwise become landfill waste, common salt, and mineral oil.
				1. Properties:

Bending Strength per ASTM D 790: 4,696 psi (32.38 N per sq mm).

Bending E-Modulus per ASTM D 790: 535,600 psi (3,692.8 N per sq mm).

Tensile Strength per ISO 527: 3,162 psi (21.8 N per sq mm).

Tensile E-Modulus per ISO 527: 339,440 psi (2,340.4 N per sq mm).

Screw Withdrawal: 1,299 lbf (589.2 kg).

Screw extension stability according to ASTM E 330.

Axial extraction force: 609,456 psi (4202 N per sq mm).

Axial extraction resistance: 40,615 psi (280 N per sq mm).

Thermal Conductivity (DIN EN 12664): 1.38 BTU-in/hr-sq.ft. (ca. 0.199 W/(mK)).

Coefficient of Linear Thermal Expansion (ASM 696): 0.0000656 ft./ft. degrees F (.000036 m/m degrees C).

Density (Approximate): 0.05 lbs per cu in (1.46 g per cu cm).

Moisture Effect: Product does not absorb moisture.

Fungal Decay Resistance (AWPA E 10-11): No attack by test fungi, highest durability class 1.

1. \*\* NOTE TO SPECIFIER \*\* This is very durable and is comparable to the high durability class of wood; e.g. robinia.

Weathering (ASTM D 2565): No cracks, blisters or other visible changes after 4500 hours.

Emissions:

LGA Tested (Passed).

Formaldehyde emission: Less than 0.01 ppm.

PCP (pentachlorophenol): Less than 8 x 10-6 oz. lb.

TeCP (tetrachlorophenol): Less than 8 x 10-6 oz. lb.

DEHP (diethylhexylphtalate): Less than 0.05 percent.

BBP (benzylbutylphtalate): Less than 0.05 percent.

DBP (di-n-butylphtalate): Less than 0.05 percent.

PAH (polycyclic aromatic hydrocarbons) skin contact under 30 sec. total: 0.000016 oz per lb (10 mg per kg).

Benzo(a)pyrene: 0.000016 oz per lb (10 mg per kg).

Cadmium: 0.005 percent.

* + - * 1. Rapidly Renewable Materials: 60 percent by volume.
		1. WALL CLADDING
1. \*\* NOTE TO SPECIFIER \*\* Include a listing of the profiles and sizes required for the project design. Delete items not required.
	* + 1. Wall Cladding, Hollow (2 Channel): RESP1223412.
				1. Size: 0.590 x 2.75 inches (15 x 70 mm).
				2. Standard Length: 12 ft. (3658 mm).
			2. Wall Cladding, Hollow (2 Channel): RESP3423412.
				1. Size: 0.787 x 2.75 inches (20 x 70 mm).
				2. Standard Length: 12 ft. (3658 mm).
			3. Wall Cladding, Hollow (3 Channel): RESP1231212.
				1. Size: 0.590 x 3.54 inches (15 x 90 mm).
				2. Standard Length: 12 ft. (3658 mm).
			4. Wall Cladding, Hollow (4 Channel): RESP340612.
				1. Size: 0.787 x 5.51 inches (20 x 140 mm).
				2. Standard Length: 12 ft. (3658 mm).
			5. Wall Cladding, Hollow (7 Channel): RESP340812.
				1. Size: 0.787 x 7.87 inches (20 x 200 mm).
				2. Standard Length: 12 ft. (3658 mm).
			6. Hidden Fastener Hollow Profiles: Façade Clip No. RESCLIPHF100.
		1. FINISH
2. \*\* NOTE TO SPECIFIER \*\* All products made with Resysta products must be stained and sealed in order to prevent unwanted staining. Use of non-approved water borne or oil based stain is not recommended and may violate the product warranty.
3. Resysta Color Concept provides unique opportunity to create stunning projects with the variety of over 30 colors. We pride ourselves to offer the only composite product on the market which can be refinished based on customers color preference.
	* + 1. System:
4. \*\* NOTE TO SPECIFIER \*\* Water based stain for the color design of surfaces.
5. Resysta Stain is a carefully mixed composition of the water-diluted paint system with the high quality pigments. The unique color of the surfaces is achieved by the interaction between the shade of the Resysta substrate and the transparent color hue of the stain. The overall outcome is determined by the amount of pigments applied, Therefore some colors appear to be less transparent than the others. Moreover, variations of the shade between boards stained with the same color are also to be expected, which adds to the unique visual properties of the Resysta material.
	* + - 1. Primer: RBP Resysta Base Primer is an aqueous, colorless primer based on an acrylate dispersion
				2. RCL Resysta Coating Layer is a water-based 1-component protective stain for color designing of Resysta surfaces. RCL finish is specially designed for indoor and outdoor use
6. \*\* NOTE TO SPECIFIER \*\* Delete colors not required. The first six colors listed are standard.
	* + - 1. Color: C08, Burma.
				2. Color: C14, Siam.
				3. Color: C23, Aged Teak.
				4. Color: C24, Java.
				5. Color: C42, Cape Cod.
				6. Color: C51, Walnut.
				7. Color: C02, Pale Golden.
				8. Color: C09, Dark Burma.
				9. Color: C15, Dark Siam.
				10. Color: C26, Rust.
				11. Color: C28, Light Taupe.
				12. Color: C29, Dark Taupe.
				13. Color: C45, Mustard Green.
				14. Color: C46, Sage.
				15. Color: C47, Green/Blue.
				16. Color: C49, Lavender.
				17. Color: C52, Terra Cotta.
				18. Color: C53, Dark Grey.
				19. Color: C64, Mahagony.
				20. Color: C71, Palisander.
				21. Color: C73, Yellow Teak.
				22. Color: C77, Concrete Grey.
				23. Color: C3001, Bright Red.
				24. Color: C3011, Red.
				25. Color: C5010, Blue.
				26. Color: C60062, Apple Green.
				27. Color: C6005, Moss Green.
				28. Color: C7016, Anthracite.
				29. Color: C9005, Black.
				30. Color: C9010, White.
		1. ACCESSORIES
			1. Fastener Type and Finish: Plastic Clip with provided stainless steel screws: #8 x 1-1/4 inches (38 mm) wood screws if using wood battens, #8 x 1/2 inch (13 mm) TEC self-tapping screws if using steel or aluminum battens and #8 x 1/2 inch (13 mm) screws to attach the clip to the wall cladding. Take care not to puncture the weathering membrane behind the batten system. Comply with manufacturer’s installation guide.
			2. Flashing: Galvanized steel as specified in Section 07620.
			3. Accessory Components: Aluminum trim, corners, starter strips, and gap covering strips
7. EXECUTION
	* 1. EXAMINATION
			1. Examine batten conditions before beginning installation; verify dimensions and acceptability of batten system.
				1. Determine battens were installed to accommodate all loads imposed upon it by the Resysta Fiber Reinforced Wall Cladding and components supplied by other parties.
			2. Verify that weather barrier has been installed completely and correctly.
			3. Confirm metal flashings are installed at sills, heads of wall openings, and horizontal joints of sheet materials.
			4. Do not proceed with installation until unacceptable conditions have been corrected.
			5. If batten preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
		2. INSTALLATION
			1. Always consider the expansion/contraction of Resysta material and plan gaps at board abutment joints, inside corners, outside corners, door and window termination points accordingly. Comply with manufacturer installation guidelines.
			2. Install Wall Cladding in accordance with manufacturer's installation guidelines.
				1. Preplan cuts to allow for expansion/contraction gaps at inside and outside corners.
				2. Provide joint gaps as indicated on Drawings. For design of typical joint gaps see manufacturer installation guidelines
			3. Attach vertical support battens (furring) securely to framing, or screw pull out rated sheathing, with horizontal components true to level and vertical components true to plumb, providing a weather resistant installation.
				1. Place vertical support battens (furring) to allow clip attachment between 1/2 and 1 inch (13 and 25 mm) from the end of the horizontally placed wall cladding panels.
				2. Confirm battens provide minimum 3/4 inch (19 mm) airspace between wall cladding and weather barrier (1/2 inch (13 mm) for battens and 1/4 inch (6 mm) for the clip).
			4. Apply finish stain to individual planks, panels and trim prior to installation.
			5. Fasten wall cladding in place, level and plumb.
				1. Attach wall cladding to battens with Resysta Wall Cladding Clip.
				2. Install wall cladding for natural shed of water.
				3. Position cut ends over bearing surfaces.
			6. Install corner strips per manufacturer’s instructions.
			7. Install joint sealers between wall cladding/soffit/trim and adjacent construction, using procedures specified in Section 07900.
			8. Touch-up prefinished stained surfaces that are disfigured. Unsightly touch-up will require removal and replacement of affected wall cladding.
			9. Ease sharp edges with 24-36 grit sandpaper for color uniformity prior to staining.
			10. Prepare for site finishing specified in Section 09900.
		3. TOLERANCES
			1. Maximum Variation From Plumb and Level: 1/4 inch per 10 feet (6 mm in 3 m).
			2. Maximum Offset From Joint Alignment: 1/16 inch (2 mm).
		4. PROTECTION
			1. Protect installed products until completion of project.
			2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION