SECTION 06730

FIBER-REINFORCED HYBRID DECKING

\*\* 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:

 4035 Cheyenne Ct.

 Chino, CA. 91710

 Tel: (909) 393-2888

 Fax: (909) 393-2881

 Email: info@resystausa.com

 Web: www.resystausa.com

 {click Here} for additional information.

Resysta material is manufactured by Resysta North America, Inc., 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.

1. GENERAL
	1. SECTION INCLUDES
		1. Fiber reinforced hybrid decking and sleeper systems finished with stain and sealers for exterior applications.
	2. RELATED SECTIONS

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

* + 1. Section 03300 - Cast-in-Place Concrete: Bearing support.
		2. Section 04200 - Unit Masonry: Bearing support.
		3. Section 06100 - Rough Carpentry: Bearing support.
		4. Section 07100 - Damproofing and Waterproofing: Vapor barrier and waterproofing applications under the decking.
		5. Section 02200 - Aggregate Base Courses: Aggregate crushed rock bearing surface.
		6. Section 03133 - Concrete Paving: Slab on Grade bearing surface.
	1. REFERENCES

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

* + 1. ASTM International (ASTM):
			1. ASTM E 84-11a - Standard Test Method for Surface Burning Characteristics of Building Materials.
			2. ASTM D 1037-2006a - Standard Test Methods for Evaluating Properties of Wood-Based Fiber and Particle Panel Materials.
			3. ASTM D 1413-2007e1 - Standard Test Method for Wood Preservatives by Laboratory Soil Block Cultures.
			4. ASTM F 1679-04 - Standard Test Method for Using a Variable Incidence Tribometer (VIT)
			5. ASTM D 2047 - 2011 - Standard Test Method for Static Coefficient of Friction of Polished-Coated Flooring Surfaces as Measured by the James Machine.
			6. ASTM D 2395-2002 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Wood and Wood-Based Materials.
			7. ASTM D 2565 (Reapproved 2008) - Practice for Operating Xenon-Arc-Type Light- Exposure Apparatus with and Without Water for Exposure of Plastics.
			8. ASTM D 5071-06 - Standard Practice for Exposure of Photodegradable Plastics in a Xenon Arc Apparatus.
			9. ASTM D 696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30 degrees C and 30 Degrees C with a Vitreous Silica Dilatometer ; 2008.
			10. ASTM D 2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine; 2004.
		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 - Administrative Requirements.
		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.

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

* + 1. LEED Reports:
			1. Submit documentation to verify Resysta products meet LEED requirements to Project LEED Administrator and other project team members as requested.
			2. Innovation in Design submittal to USGBC to be executed during pre-design. USGBC is the final decision making body for Credit attainment.
		2. Shop Drawings: Indicate substrate deck framing system, loads and cambers, bearing details, and framed openings.

\*\* 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 of Fiber Reinforced Hybrid Decking Exposed to View: Submit samples, 5.5 by 12 inches (140 by 305 mm) in size illustrating surface texture, stain, and finish.
		2. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.
			1. Samples of Fiber Reinforced Hybrid Decking Exposed to View: Submit two samples, 5.5 by 12 inches (140 by 305 mm) in size illustrating specified surface texture, stain, and finish.
	1. QUALITY ASSURANCE
		1. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum ten years of code compliant products for 10 years.
		2. Material Disclosures Required: Health Product Declaration
		3. Installer Qualifications: Minimum 2 year experience installing similar products.

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

* + 1. LEED Prerequisites and Credits: LEED for New Construction, Version 3 (2009).
			1. SS Credit 7.1: Heat Island Effect-Non Roof.
				1. Decking can qualify as a non-roof strategy for reducing the urban heat island effect due to the qualifying Solar Reflectance Index value of certain colors of the Resysta RBP Primer and RCL Stain.
				2. To meet the credit requirements, 50 percent of hardscaped areas of the developed area must have an SRI value of 29 or better, including walkways and covered parking areas.
			2. MR Credit 6: Rapidly Renewable Materials, 1 point.
				1. Resysta decking is made from 25 percent rice husks, and 60 percent by volume of the mixture of the proprietary Active Resysta Fiber (ARF).
				2. Rice husks are plants harvested within a 10 year cycle.
				3. Resysta products can contribute toward the 2.5 percent threshold of total value of rapidly renewable materials used in the project, based on cost.
			3. ID/MR Credit 1: Rapidly Renewable Materials 5 percent, 1 point.
				1. Resysta products have a high percentage of rapidly renewable materials providing projects teams the opportunity for exemplary performance in material selection.
			4. ID/MR Credit 2: Building Product Disclosure and Optimization - Material Ingredients, 1 point.
				1. Option 1: Material Ingredient Reporting: Resysta products come with a Health Product Declaration.

\*\* 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. Manufacturer shall provide a fifteen year manufacturer warranty for commercial applications or twenty-five years manufacture 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.
1. PRODUCTS

\*\* NOTE TO SPECIFIER \*\* 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.

* 1. MANUFACTURERS
		1. Acceptable Manufacturer: Resysta North America, Inc., which is located at: 4035 Cheyenne Court, Chino, California, 91710, Tel: 909-590-0121, Email: info@resystausa.com, Web: www.resystausa.com.

\*\* 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.

\*\* NOTE TO SPECIFIER \*\* Resysta material surpasses natural hardwood in many aspects. It is resistant to weather, pests and fungal decay, and will not splinter, swell or crack. At the same time, Resysta material requires minimal maintenance, is slip resistant and available in diverse shapes and colors. All these characteristics make Resysta Decking especially suitable for areas exposed to weather or humidity and maritime applications.

* 1. MATERIALS
		1. Materials: Resysta products contain 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:
				1. Bending Strength per ASTM D 790: 4,696 psi (32.38 N per sq mm).
				2. Bending E-Modulus per ASTM D 790: 535,600 psi (3,692.8 N per sq mm).
				3. Tensile Strength per ISO 527: 3,162 psi (21.8 N per sq mm).
				4. Tensile E-Modulus per ISO 527: 339,440 psi (2,340.4 N per sq mm).
				5. 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).

* + - * 1. Thermal Conductivity (DIN EN 12664): 1.38 BTU-in/hr-sq.ft. (ca. 0.199 W/(mK)).
				2. Coefficient of Linear Thermal Expansion (ASM 696): 0.0000656 ft./ft. degrees F (.000036 m/m degrees C).
				3. Density (Approximate): 0.05 lbs per cu in (1.46 g per cu cm).
				4. Moisture Effect: Product does not absorb moisture.
				5. Fungal Decay Resistance (AWPA E 10-11): No attack by test fungi, highest durability class 1.

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

* + - * 1. Weathering (ASTM D 2565): No cracks, blisters or other visible changes after 4500 hours.
				2. 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. Decking:

\*\* NOTE TO SPECIFIER \*\* Delete decking profiles not required. The 12 ft (3658 mm) lengths are standard.

* + - 1. Decking Profile: Gold – RESG010612. 12 ft (3658 mm) lengths.
				1. Size (WxH): 5-1/2 x 1 inch (140 x 24.8 mm) wide hollow core board with internal ribs.
				2. Texture: Sanded both sides; one side with radius. Place radius or non-radius side as the walking surface as indicated on drawings.
			2. Decking Profile: Gold – RESG010616. 16 ft (4877 mm) lengths.
				1. Size (WxH): 5-1/2 x 1 inch (140 x 24.8 mm) wide hollow core board with internal ribs.
				2. Texture: Sanded both sides; one side with radius. Place radius or non-radius side as the walking surface as indicated on drawings.
			3. Decking Profile: Platinum – RES010612. 12 ft (3658 mm) lengths.
				1. Size (WxH): 5-1/2 x 1 inch (140 x 25.4 mm) wide hollow core board with internal ribs.
				2. Texture: Sanded both sides; one side with parallel grooves running the length of the deck board. Place flat side or groove side as the walking surface as indicated on drawings.
			4. Decking Profile: Platinum – RES010616. 16 ft (4877 mm) lengths.
				1. Size (WxH): 5-1/2 x 1 inch (140 x 25.4 mm) wide hollow core board with internal ribs.
				2. Texture: Sanded both sides; one side with parallel grooves running the length of the deck board. Place flat side or groove side as the walking surface as indicated on drawings.
			5. Decking Profile: Platinum – RES010812. 12 ft (3658 mm) lengths.
				1. Size (WxH): 7-1/2 x 1 inch (190 x 25.4 mm) wide hollow core board with internal ribs.
				2. Texture: Sanded both sides; one side with parallel grooves running the length of the deck board. Place flat side or groove side as the walking surface as indicated on drawings.
			6. Decking Profile: Platinum – RES010816. 16 ft (4877 mm) lengths.
				1. Size (WxH): 7-1/2 x 1 inch (190 x 25.4 mm) wide hollow core board with internal ribs.
				2. Texture: Sanded both sides; one side with parallel grooves running the length of the deck board. Place flat side or groove side as the walking surface as indicated on drawings.
			7. Decking Field Boards and Perimeter boards: Manufacturer's proprietary hollow core floor decking with hidden fasteners.
				1. Slip Index: (ASTM F 1679-04):

Longitudinal (Dry): 0.720.

Longitudinal (Wet): 0.975.

Transverse (Dry): 0.748.

Transverse (Wet): 0.993.

* + - 1. Fascia Board, Perimeter Boards: No. RESF12812
				1. Size (WxH): 1/2 x 8 inch (12 x 203 mm) wide solid board.
				2. Length: 12 ft (3658 mm).
				3. Texture: Sanded.
			2. End Plates, Perimeter Boards: No. RES010312
				1. Size (WxH): 3/4 x 2-3/4 inches (19 x 70 mm) wide solid board.
				2. Length: 12 ft (3658 mm).
				3. Texture: Sanded.
			3. Rectangular End Strip: RESEND6
				1. Size (WxH): 5/8 x 5/8 inch (16 x 16 mm)
				2. Length: 6 ft (1829 mm)
			4. Rectangular Edge Profile: No. RESEDGE6
				1. Size (WxH): 1/2 x 1/2 inch (12 x 12 mm)
				2. Length: 6 ft (1829 mm)
			5. Joists (Runner for concrete surface only): No. RESJ010212
				1. Size (WxH): 1 x 1-1/2 inches (25 x 38 mm) wide hollow core board with internal ribs.
				2. Length: 12 ft (3658 mm).
				3. Texture: Unsanded.
	1. ACCESSORIES
		1. Substructure Frame:
			1. Standard wood frame substructure.
			2. Resysta Joist substructure.
			3. EuroTec Eco Aluminum system.
		2. Fasteners and Anchors: Resysta Decking Clips: RESCLIP200.
			1. Fastener Type and Finish: Stainless steel corrosion resistant screw #7 1-5/8 inch for wood frame substructure; #7 1-1/4 inch for Resysta Joist Substructure and EuroTec Eco Aluminum system for hidden fastening application. Comply with manufacturer's installation guides.
		3. Accessory Components: 1/2 inch (12 mm) diameter Dowel, Fascia board, edge guard, and end cap of same material and finish as decking or adjacent trim as indicated on Drawings.
	2. FINISH

\*\* NOTE TO SPECIFIER \*\* All Resysta products must be stained and sealed to prevent unwanted staining. Resysta Company highly recommends Resysta stains and sealers to be used on Resysta material. Use of non-approved water borne or oil based stain is not recommended and may violate the product warranty.

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:

\*\* NOTE TO SPECIFIER \*\* Water based stain for the color design of surfaces.

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

\*\* 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. EXECUTION
	1. EXAMINATION
		1. Examine substrate conditions before beginning installation; verify dimensions and acceptability of substrate.
			1. Determine substrate was installed to accommodate all loads imposed upon it by the Resysta Fiber Reinforced Decking and components supplied by other parties.
		2. Do not proceed with installation until unacceptable conditions have been corrected.
		3. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
		4. If the decking is being installed in a location where the air gap below the decking is equal to or less than 6 inches (152 mm) from the underside of the decking substructure to the ground / solid structure the joist spacing shall be reduced to 12 inches (305 mm) center-to-center. Comply with manufacturer’s installation guidelines.
	2. PREPARATION
		1. Coordinate placement of bearing items.
		2. Apply one coat of bituminous paint to concealed surfaces that will be in contact with cementitious or dissimilar materials.
		3. Do not install materials until site pre-finishing is complete and dry.
	3. INSTALLATION - BOARD DECKING

\*\* NOTE TO SPECIFIER \*\* Confirm that the drawing details reflect the manufacturer's assembly recommendations.

* + 1. Install sleepers, decking, trim and accessories per manufacturer's recommendations.
		2. Apply finish stain to individual decking planks and trim prior to installation before or after installation.
		3. Install decking perpendicular to framing members, with ends staggered over minimum 1-1/2 inches (38 mm) minimum firm bearing.
		4. Always consider the expansion/contraction of Resysta material and plan gaps at board abutment joints, termination points, and trim locations accordingly. Comply with manufacturer's installation guidelines.
		5. Secure with manufacturer's proprietary fastener system. Refer to Resysta Decking Installation Instructions for fasteners appropriate for the design and field conditions.
		6. Cut decking to accommodate roof drain and flange.
		7. Framing and decking shall be installed using the manufacturer’s recommended joist spacing for the specific decking product being installed. If the decking is to be installed at any angle with respect to the framing substructure the maximum joist spacing must be reduced to maintain joist spacing along the length of the decking boards.
		8. Touch-up prefinished stained surfaces that are disfigured. Unsightly touch-up wall requires removal and replacement of affected decking.
		9. Sand work smooth with 24-36 grit sandpaper for color uniformity prior to staining.
	1. TOLERANCES
		1. Surface Flatness of Decking Without Load: 1/4 inch in 10 feet (2 mm per m) maximum, and 1/2 inch in 30 feet (12 mm per 9 m) maximum.
	2. CLEANING
		1. Clean installation per manufacturer recommendations.
		2. Provide Owner with two copies of cleaning and maintenance instructions.
	3. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION