SECTION 32 31 32

WOOD COMPOSITE FENCES AND GATES

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\*\* NOTE TO SPECIFIER \*\* Trex Fencing; products.
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This section is based on the products of Trex Fencing and FDS Distributors, the national distribution partner, which is located at:
543 E 600 S

Provo, UT 84606

Email: request info: Edmund Rose, Product Manager, (EdmundR@TrexFencing.com)
Web: <https://www.trexfencingfds.com/>
Since 1996 Trex has invented, defined and perfected the composite deck category, becoming the world's largest manufacturer of wood-alternative decking products. Never content to settle, we continue to make strides in outdoor engineering, melding innovation with environmental responsibility and beautiful form with powerful function. Leveraging our success with decking led to the inclusion of other compatible products. Primary among them was composite fencing, a unique and innovative application of material that had already proven its value.
There's a reason we're the world's #1 composite fencing brand: we offer the most innovative, technologically advanced outdoor living products available today. As the first company to combine the durability of recycled plastic with the natural beauty of reclaimed wood in high-performance products, we lead the way in applying this proprietary technology to a wide variety of outdoor applications for low-maintenance, luxurious outdoor living.
Since its introduction in 2005, Trex Fencing has lead the way in establishing composite materials as high end alternatives to wood and vinyl. As the third generation in fencing, Trex composite combines a natural look with low maintenance. From the immediate exterior of your home to the perimeter of your property, Trex products truly define outdoor living.

1. GENERAL
	1. SECTION INCLUDES

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

* + 1. Wood composite fences.
		2. Wood composite gates.
		3. Excavation for posts.
	1. RELATED SECTIONS

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

* + 1. Section 03 30 00 - Cast-in-Place Concrete.
		2. Section 06 73 00 - Composite Decking.
	1. REFERENCES

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

* + 1. ASTM C 94 - Standard Specification for Ready-Mixed Concrete.
		2. ASTM C 177 - Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus.
		3. ASTM D 143 - Standard Test Methods for Small Clear Specimens of Timber.
		4. ASTM D 198 - Standard Test Methods of Static Tests of Lumber in Structural Sizes.
		5. ASTM D 1037 - Standard Test Methods for Evaluating Properties of Wood-Base Fiber and Particle Panel Materials.
		6. ASTM D 1413 - Standard Test Method for Wood Preservatives by Laboratory Soil-Block Cultures.
		7. ASTM D 1761 - Standard Test Methods for Mechanical Fasteners in Wood.
		8. ASTM D1929 - Standard Test Method for Determining Ignition Temperature of Plastics.
		9. ASTM D 2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
		10. ASTM D 2394 - Standard Methods for Simulated Service Testing of Wood and Wood-Base Finish Flooring.
		11. ASTM D 2395 - Standard Test Methods for Specific Gravity of Wood and Wood-Based Materials.
		12. ASTM D 4761 - Standard Test Methods for Mechanical Properties of Lumber and Wood-Base Structural Material.
		13. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
		14. ASTM F 1679 - Standard Test Method for Using a Variable Incidence Tribometer (VIT).
		15. American Wood Preservers Association (AWPA) E1-06 - Standard Method for Laboratory Evaluation to Determine Resistance to Subterranean Termites.
	1. DESIGN / PERFORMANCE REQUIREMENTS
		1. Design Requirements: Design fence system to withstand 130 MPH steady wind and 147 MPH gusting wind tests.
	2. SUBMITTALS
		1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
		2. Product Data: Manufacturer's data sheets on each product to be used indicating sizes, profiles, surface finishes, and performance characteristics, and including:
			1. Preparation instructions and recommendations.
			2. Storage and handling requirements and recommendations.
			3. Installation methods.
			4. Instructions on care and cleaning of composite wood products.
		3. Verification Samples: For each finish product specified, two samples, minimum size 9 inches (229 mm) square, representing actual product, color, and patterns.
		4. Manufacturer's Certificates: Certify products meet or exceed specified requirements.
		5. Closeout Submittals: Provide manufacturer's maintenance instructions that include recommendations for cleaning and maintenance.
	3. DELIVERY, STORAGE, AND HANDLING
		1. Deliver, store and handle products in accordance with the manufacturer's instructions.
		2. Store level and flat, off ground or floor, with supports at each end and maximum 24 inches on center.
		3. Do not stack wood composite over 8 feet (203 mm) high.
		4. Cover wood composite with waterproof covering, vented to prevent moisture buildup.
	4. WARRANTY
		1. Provide manufacturer's 25 year residential warranty / 10 year commercial warranty providing coverage against checking, splitting, splintering, rotting, structural damage from termites, and fungal decay of wood composite.
1. PRODUCTS
	1. MANUFACTURERS
		1. Acceptable Manufacturer: Trex Fencing (composite) / FDS Distributors (Horizons frame system), located at: 543 E 600 S, Provo, UT 84606; Email:request info (Sales@TrexFencing.com); Web:<https://www.TrexFencingFDS.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 01 60 00 - Product Requirements.

\*\* NOTE TO SPECIFIER \*\* Edit the following General paragraphs as required and applicable to project LEED requirements. Coordinate project locations for applicable regional credits. Delete the paragraphs that are not applicable or if LEED is not applicable.

* 1. MATERIALS
		1. Wood composite: Reclaimed wood and plastic with integral coloring; free from toxic chemicals and preservatives:
			1. Characteristics:
				1. Abrasion resistance: 0.01 inch wear per 1000 revolutions, tested to ASTM D 2394.
				2. Hardness: 1124 pounds, tested to ASTM D 143.
				3. Self ignition temperature: 743 degrees F, tested to ASTM D 1929.
				4. Flash ignition temperature: 698 degrees F, tested to ASTM D 1929.
				5. Flame spread rating: 80, tested to ASTM E 84.
				6. Water absorption, 24 hour immersion, tested to ASTM D 1037:

Sanded surface: 4.3 percent.

Unsanded surface: 1.7 percent.

* + - * 1. Thermal expansion coefficient, 36 inch long samples:

Width: 35.2 x 10-6 to 42.7 x 10-6.

Length: 16.1 x 10-6 to 19.2 x 10-6.

* + - * 1. Fastener withdrawal, tested to ASTM D 1761:

Nail: 163 pounds per inch.

Screw: 558 pounds per inch.

* + - * 1. Static coefficient of friction:

Dry: 0.53 to 0.55, tested to ASTM D 2047.

Dry: 0.59 to 0.70, tested to ASTM F 1679.

Wet: 0.70 to 0.75, tested to ASTM F 1679.

* + - * 1. Fungus resistance, white and brown rot: No decay, tested to ASTM D 1413.
				2. Termite resistance: 9.6 rating, tested to AWPA E-1.
				3. Specific gravity: 0.91 to 0.95, tested to ASTM D 2395.
				4. Compression:

Parallel: 1806 PSI ultimate, 550 PSI design, tested to ASTM D 198.

Perpendicular: 1944 PSI ultimate, 625 PSI design, tested to ASTM D 143.

* + - * 1. Tensile strength: 854 PSI ultimate, 250 PSI design, tested to ASTM D 198.
				2. Shear strength: 561 PSI ultimate, 200 PSI design, tested to ASTM D 143.
				3. Modulus of rupture: 1423 PSI ultimate, 250 PSI design, tested to ASTM D 4761.
				4. Modulus of elasticity: 175,000 PSI ultimate, 100,000 PSI design, tested to ASTM D 4761.
				5. Thermal conductivity: 1.57 BTU per inch per hour per square foot at 85 degrees F, tested to ASTM C 177.
	1. COMPONENTS
		1. Fence System: Trex w/Horizons Horizontal Fence System.
			1. Fence height:

\*\* NOTE TO SPECIFIER \*\* Select the height required from the following paragraphs and delete those that are not applicable.

* + - * 1. 2 feet.
				2. 3 feet.
				3. 4 feet.
				4. 5-6 feet.
				5. 7-8 feet.
				6. 9-10 feet.
				7. 11-12 feet.
				8. Custom height as indicated on the Drawings.
			1. Components:

\*\* NOTE TO SPECIFIER \*\* Select the components required from that following paragraphs and delete those that are not applicable.

* + - * 1. Fence posts:
				2. Post caps:

Pyramid.

Flat.

Crown.

* + - * 1. Horizontal frame system, including horizontal rails, vertical rails, and brackets (manufactured by FDS Distributors)
				2. Bottom rail covers/Pickets, 91 inch.
			1. Surface texture: Smooth.
			2. Color: Composite

\*\* NOTE TO SPECIFIER \*\* Select the color required from that following paragraphs and delete those that are not applicable.

* + - * 1. Saddle.
				2. Winchester Grey.
				3. Woodland Brown.
				4. Note: Horizons frame system is black
	1. ACCESSORIES
		1. Fasteners: #10 3/4", #2 Phillips pan-head screw black oxide, coated. Provide finish nails where applicable.

\*\* NOTE TO SPECIFIER \*\* Select one of the following paragraphs as required for the project and delete the one that is not applicable.

* + 1. Concrete: Provide as Specified in Section 03 30 00 - Cast-in-Place Concrete; minimum 2500 PSI compressive strength at 28 days, with a 3 to 5 inch slump.
		2. Concrete: Provide concrete conforming to ASTM C 94; minimum 2500 PSI compressive strength at 28 days, with a 3 to 5 inch slump.

\*\* NOTE TO SPECIFIER \*\* Select and edit gate hardware from that following paragraphs if required. Delete if not required.

* + 1. Gate Hardware:
			1. Provide two Trex hinges per gate leaf minimum, and size to gate weight and conditions.
			2. Provide center gate stop and drop rod for double gates.
			3. Provide with latching mechanism.
			4. Provide with padlock provisions, if applicable.
1. EXECUTION
	1. EXAMINATION
		1. Do not begin installation until substrates have been properly prepared.
		2. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
	2. PREPARATION
		1. Clean surfaces thoroughly prior to installation.
		2. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
	3. INSTALLATION
		1. Install in accordance with manufacturer's instructions.
		2. Cut and drill wood composite using carbide tipped blades.
		3. Space posts maximum 8 feet on center.
		4. Drill post holes into undisturbed or compacted soil; excavate deeper in soft or loose soils and for posts with heavy lateral loads.
		5. Minimum footer dimensions: drill posts to 12 inch diameter. Locate bottom of post 30 inches below grade or below frost line whichever is greater. Refer to local building requirements or engineering for alternative instructions on footer depth and width.

\*\* NOTE TO SPECIFIER \*\* Select one of the following 3 paragraphs as required for the project and delete the ones that are not applicable.

* + 1. Place top of concrete 2 inches below finished grade.
		2. Place top of concrete flush with finished grade.
		3. Place top of concrete 2 inches above finished grade.
		4. Screw fence brackets to posts with two #10 3/4", #2 Phillips pan-head screw black oxide, coated.
		5. Cut frame rails and pickets to lengths required. Treat exposed metal with rust-inhibiting paint.
		6. Slide pickets onto horizontal rail pieces.
		7. Position horizontal top rail on fence brackets.
		8. Cut pickets as needed to appropriate lengths, leaving 3/16” inch on each side of fence section to allow for expansion.
		9. Attach vertical back rails.
		10. Hang pickets from top picket, interlocking adjacent pieces.
		11. Attach vertical front rails.
		12. Attach optional vertical mid-rail if necessary (typically used in high heat, high humidity environments).
		13. Place post caps over post tops and secure with construction adhesive or four finish nails.
	1. CLEANING
		1. Clean wood composite to remove stains:
			1. Mold, mildew, and berry and leaf stains: Clean surfaces with conventional deck wash containing detergent or sodium hypochlorite.
			2. Rust and ground-in dirt: Clean surfaces with cleaner containing oxalic or phosphoric acid.
			3. Oil and grease: Clean surfaces with detergent containing degreasing agent.
	2. PROTECTION
		1. Protect installed products until completion of project.
		2. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION