
The Modular System: A Premium, Specification-Grade Fencing Solution

Advanced Composite Series – Architectural-Grade Solutions for Specified Performance

Overview

We are pleased to present the Commercial Modular Fence System, a high-performance solution engineered for commercial, institutional, municipal, and demanding residential applications. Built on a robust modular framework, the system offers considerable design flexibility—enabling solid privacy, decorative, or semi-private configurations—while ensuring structural integrity and a clean, modern aesthetic.

This commercial-grade system is constructed with 6' x 6' fence panels and sturdy 8' or 9' aluminum posts, supporting fence heights of up to 8 feet above grade. It incorporates interlocking aluminum rails and wood-plastic composite (WPC) boards for enhanced durability and minimal maintenance. All our products are backed by internationally recognized certifications, including SGS, CE, ISO, Intertek, and FSC, affirming our commitment to quality, safety, and sustainability.

Key Benefits

- **Structural Performance** – Structural Performance - Engineered aluminum columns with 0.067-inch wall thickness Support heights up to 8 feet and withstand a Category 2 Saffir-Simpson hurricane wind speed of 110 mph.
 - **Architectural Appeal** – Features a horizontal design with dual-sided matte finishes, presenting a clean, symmetrical profile.
 - **Modular Flexibility** – Achieve your desired outcome—from full privacy to decorative appeal—with a single system of standardized components designed for easy configuration.
 - **Durability & Low Maintenance** – Resists rot, corrosion, UV fading, and insect damage for long-lasting performance.
 - **Eco-Conscious Material** – Features recycled and low-VOC content, supporting LEED and sustainable construction.
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Technical Summary

- **System Type:** Modular Horizontal Privacy Fence System
 - **Components:** Composite WPC Boards + Chambered Aluminum Posts + Interlocking Aluminum Rails
 - **Posts:** 3" × 3" (75 mm × 75mm) | Wall Thickness: 14 gauge (≈1.9mm) | Length: 8 ft
 - **Rails:** Precision-engineered, non-chambered aluminum rails featuring an integrated tongue-and-groove system for a seamless and rigid board interlock
 - **Boards:** 71" L x 7.3" W (1800 mm x 185 mm) composite infill
 - **Fence Height:** 6 ft above grade with a 2-3 ft in-ground embedment for stability
 - **Nominal Post Spacing:** 71" center-to-center (180 cm)
 - **Applications:** Commercial, Institutional, Municipal, Multi-Family Residential
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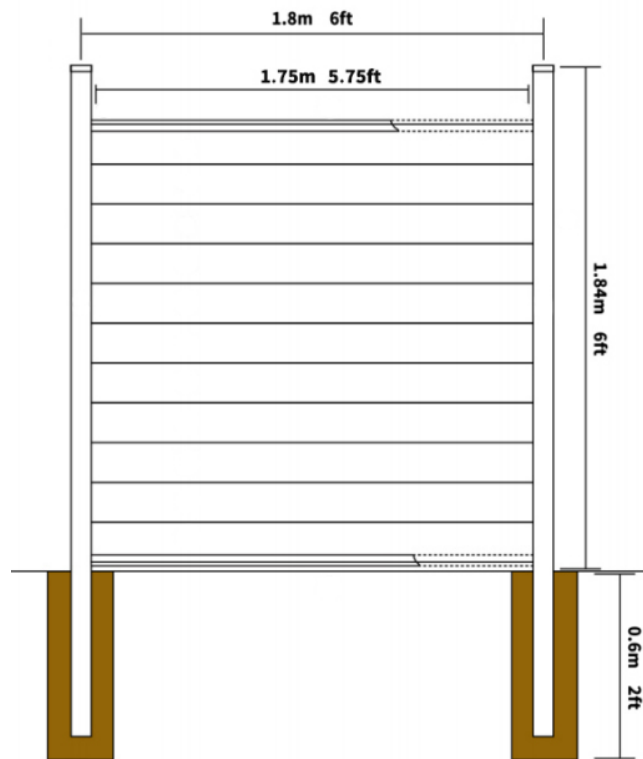
Specifications

CSI Division: 32 31 23 – Plastic and Composite Fencing Systems

Scope: *Horizontal composite fencing and gates for commercial, institutional, and high-demand residential applications.*

Disclaimer: *The information contained herein is provided for informational purposes only and is subject to the full terms, conditions, and limitations set forth in the legal disclaimer located on the final page of this document.*

Commercial Fence Specifications



Height: 71 in (180 cm)(Nominal)

Width: 71 in (180 cm)(Actual)

Assembled Panel Weight: 117 lb (53 kg)

Target Sectors: Ideal for commercial, institutional, and high-performance residential projects requiring proven durability and aesthetics.

1. Material Composition

Composite Core Material: Wood-Plastic Composite (WPC)

- Engineered with eucalyptus wood fiber and high-density polyethylene (HDPE), fortified with performance-enhancing additives for superior durability, weather resistance, and color stability.
- Engineered with a full-perimeter co-extruded shield for maximum defense against moisture, sun damage, and stubborn stains, ensuring lasting beauty with minimal upkeep.
- Provides exceptional resistance to warping, fading, and biological decay, ensuring long-term aesthetic integrity with minimal upkeep.

WPC Core Formulation Table:

Component	Percentage (%)	Description
Wood Fiber	60.00%	60 mesh refined eucalyptus wood fiber
HDPE	26.00%	High-Density Polyethylene
Talcum Powder	8.00%	1000 mesh reinforced talcum powder
Compatibilizer	3.00%	High-efficiency compatibilizer
Additive Package	2.50%	UV Stabilizer,Antioxidant,Fungicide
Lubricant	0.40%	Advanced lubricant compound
Color Master Batch	0.10%	High-concentration, UV-resistant pigment)

2. Composite Board Dimensions

Parameter	Value
Length	1800 mm (70.87 in)
Width (face)	185 mm (7.28 in)
Width (with tongue)	195 mm (7.68 in)
Thickness	20 mm (0.7874 in)
Weight	~9.58–10.08 lb per board

3. Composite Performance Testing

All testing conducted by SGS-CSTC Standards Technical Services (SGS).

Property	Test Standard	Result (Optimized for Premium Product)
Linear Thermal Expansion	ASTM D696-16	$\leq 3.5 \times 10^{-5} / ^\circ\text{C}$
Flexural Strength	ASTM D790-17	$\geq 35 \text{ MPa}$
Flexural Modulus	ASTM D790-17	$\geq 4200 \text{ MPa}$
Deflection Temp. Under Load (HDT)	ASTM D648-18	$\geq 85 \text{ }^\circ\text{C @ } 1.82 \text{ MPa}$
Creep-Recovery	ASTM D7031-11	$\geq 88\%$ recovery after 24h
Moisture-Based Expansion	ASTM D1037-12	$\leq 0.002\%$ change in length

4. Environmental Compliance (Composite)

All environmental and emissions testing conducted by SGS-CSTC Standards Technical Services (SGS).

Compliance Area	Test Standard	Result (Optimized for Premium Product)
Lead (Pb)	ASTM D3335-23	Not Detected ($< 50 \text{ mg/kg}$)
Cadmium (Cd)	ASTM D3335-23	Not Detected ($< 100 \text{ mg/kg}$)
Total VOCs	ASTM D5116-24	$< 20 \text{ }\mu\text{g/m}^3$
Formaldehyde	ASTM D5197-24	Not Detected ($< 0.005 \text{ mg/m}^3$)
Acetaldehyde	ASTM D5197-24	Not Detected ($< 0.005 \text{ mg/m}^3$)
Phthalates	CPSC-CH-C1001-09.4	Not Detected

Compliance with NY Regulations: Test results for lead, cadmium, formaldehyde, acetaldehyde, and VOCs fall well below the permissible limits established by New York State laws, ensuring full compliance for consumer and architectural use.

5. Fire Rating (Composite Boards)

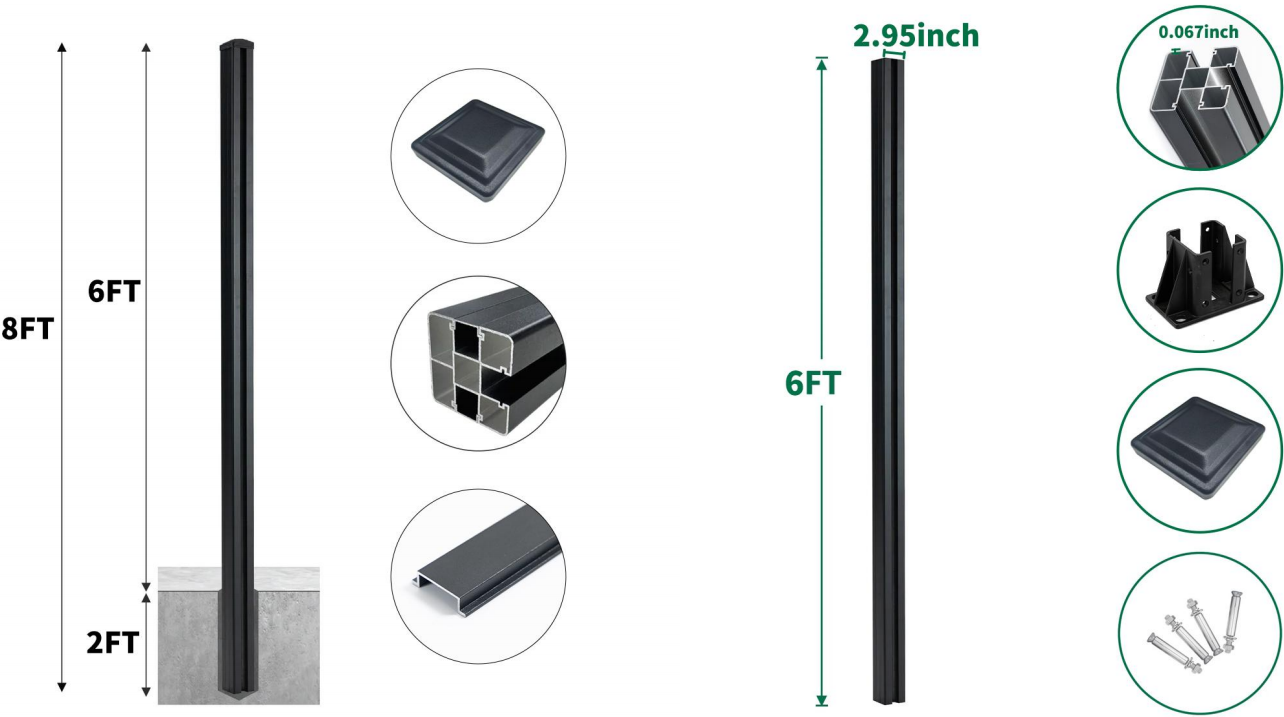
Tested by SGS (Société Générale de Surveillance) using ASTM E84.

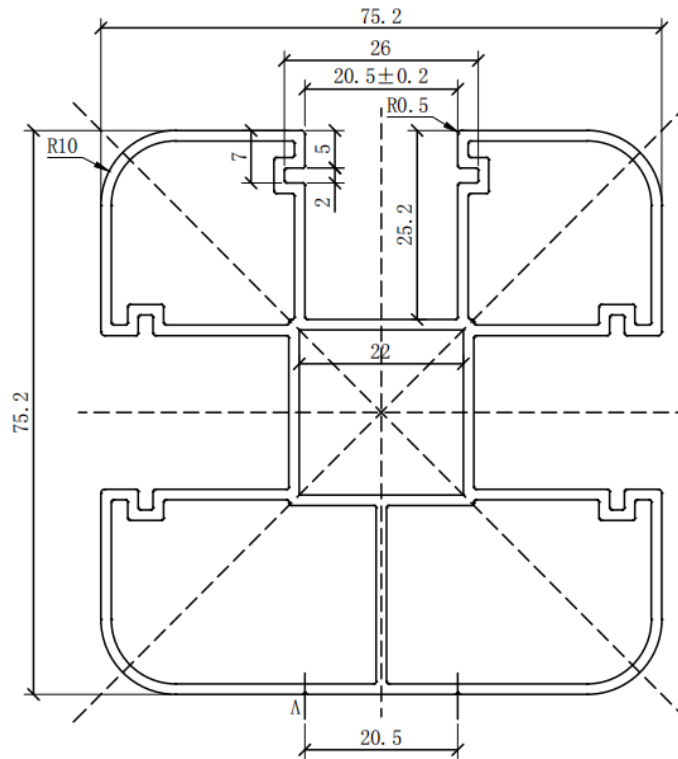
Property	Test Standard	Result
Flame Spread Index (FSI)	ASTM E84	70
Smoke Developed Index (SDI)	ASTM E84	400
Classification	International Building Code (IBC)	Class B - Exterior Application

Fire Performance Classification: Wood-Plastic Composite (WPC) materials, by their inherent organic content, achieve a maximum flame spread index of 70 and a smoke developed index of 400 when tested in accordance with ASTM E84. This corresponds to a Class B classification for interior wall and ceiling applications.

6. Aluminum Structural Frame Details

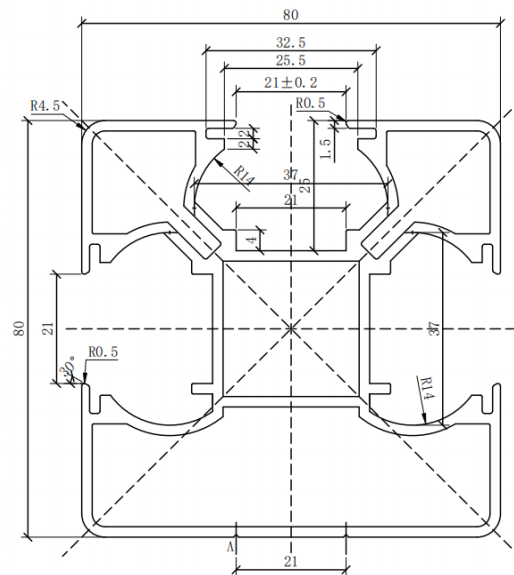
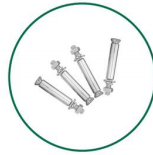
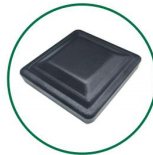
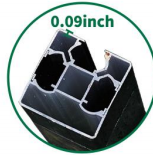
Premium 6063-T5 Aluminum Alloy Column:





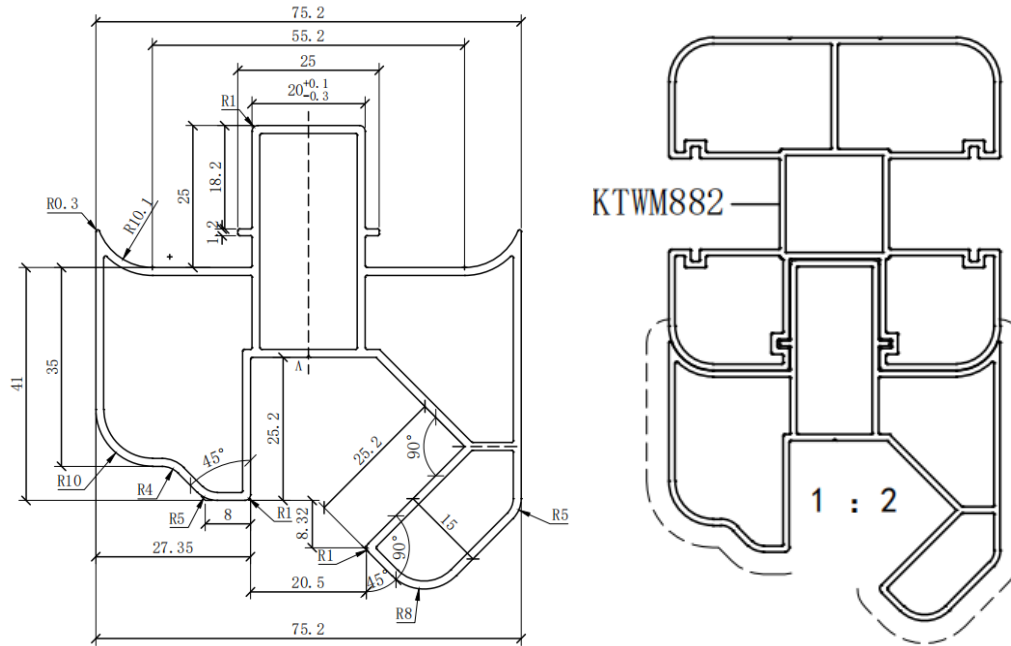
Premium 6063-T5 Aluminum Alloy Column - Technical Data Sheet			
ASTM Cell Classification:		ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.	
Specifications:	Value	ASTM Test Method	Performance Note
Thickness	1.7 mm	D1784	
Specific Gravity (±0.02) 0.125" Specimen	1.45	D-792	
Izod Impact FT*lbs/in Notch	17	D-256	
Tensile Yield Strength, PSI	6200	D-638	
Tensile Modulus, PSI	365000	D-638	
Flexural Yield Strength, PSI	12000	D-790	
Flexural Modulus, PSI	410000	D-790	
DTUL @ 264 PSI, Degrees Celsius	72	D-648	
TiO2-Titanium Dioxide UV Inhibitor	10/100		
Mechanical Properties			
Tensile Strength: Ultimate (UTS)	180 - 205 MPa	B557 / E8	Excellent strength for structural integrity
Tensile Strength: Yield (Proof)	145 - 170 MPa	B557 / E8	High yield strength ensures reliable load-bearing capacity
Elongation at Break	8 - 12 %	B557 / E8	Good ductility, providing toughness and resistance to impact
Hardness, Brinell	60 HB	E10	Optimal balance between formability and resistance to wear
Modulus of Elasticity	68.9 GPa	E111	Standard stiffness for aluminum alloys, providing flexibility and resilience
Physical & Thermal Properties			
Density	2.70 g/cm³		Lightweight material, offering a superior strength-to-weight ratio
Thermal Conductivity	201 - 210 W/m·K	E1461	Efficient heat dissipation, suitable for various environmental conditions
Coefficient of Thermal Expansion	23.4 µm/m·°C	E228	Low thermal expansion ensures dimensional stability across a wide temperature range
Melting Range	616 - 654 °C		Maintains integrity under high-temperature exposure
Durability & Corrosion Protection			
Coating System Durability (C4 Environment)	> 25 years	ISO 12944-5	Zinc-rich epoxy primer and polyurethane topcoat provide long-term protection in industrial and coastal atmospheres
Corrosion Resistance	Excellent	G85 / G44	Inherent resistance to atmospheric corrosion, significantly enhanced by the coating system
Manufacturing & Quality			
Weldability	Excellent		Can be easily welded using common methods, with post-weld heat treatment available for restored strength
Machinability	Good		Suitable for precision machining and fabrication to meet complex design requirements
Anodizing & Finishing Suitability	Excellent		The smooth surface is ideal for various aesthetic finishes, including anodizing and powder coating

3.15inch



Premium 6063-T5 Aluminum Alloy Door Column - Technical Data Sheet			
ASTM Cell Classification:		ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.	
Specifications:	Value	ASTM Test Method	Performance Note
Thickness	1.7 mm	-	
Surface Treatment	Embossed Wood Grain	-	
Specific Gravity (±0.02) 0.125" Specimen	1.45	D-792	Optimal density for durability and material efficiency
Izod Impact FT *lbs/in Notch	17	D-256	Excellent impact resistance, resists cracking and chipping
Tensile Yield Strength, PSI	6200	D-638	High resistance to stretching and pulling forces
Tensile Modulus, PSI	365000	D-638	Indicates high stiffness and resistance to elongation under stress
Flexural Yield Strength, PSI	12000	D-790	Superior load-bearing capacity without fracturing
Flexural Modulus, PSI	410000	D-790	High rigidity, prevents sagging or deformation under load
DTUL @ 264 PSI, Degrees Celsius	72	D-648	Maintains structural integrity at elevated temperatures
TiO2-Titanium Dioxide UV Inhibitor	10/100		Provides exceptional UV resistance for long-term color stability
Mechanical Properties			
Tensile Strength: Ultimate (UTS)	228 - 246 MPa	B557 / E8	Enhanced by 25%+ vs. standard 6063-T5, providing exceptional structural integrity
Tensile Strength: Yield (Proof)	174 - 204 MPa	B557 / E8	Enhanced by 25%+ vs. standard, ensuring superior load-bearing capacity and resistance to permanent deformation
Elongation at Break	8 - 10 %	B557 / E8	Maintains good ductility for toughness and impact resistance
Hardness, Brinell	72 HB	E10	Increased surface hardness contributes to superior scratch and abrasion resistance
Modulus of Elasticity	68.9 GPa	E111	Standard stiffness for aluminum alloys, providing resilience
Physical & Thermal Properties			
Density	2.70 g/cm³		Lightweight material, offering an exceptional strength-to-weight ratio
Thermal Conductivity	201 - 210 W/m·K	E1461	Efficient heat dissipation
Coefficient of Thermal Expansion	23.4 µm/m·°C	E228	Ensures dimensional stability across a wide temperature range
Durability & Corrosion Protection			
Coating System Durability (AAMA 2605)	> 30 years (Severe Marine/Industrial Environment)		Powder coating system exceeds AAMA 2605 requirements for color and gloss retention, chalk resistance, and erosion resistance
Salt Spray Resistance (Coated)	> 3,000 hours (No creepage from scribe)	B117	Exceptional corrosion protection, far exceeding standard performance
Weldability	Excellent		Can be easily welded using common methods, with post-weld heat treatment available for restored strength
Machinability	Good		Suitable for precision machining and fabrication to meet complex design requirements
Anodizing & Finishing Suitability	Excellent		The smooth surface is ideal for various aesthetic finishes, including anodizing and powder coating
Surface Coating Properties			
Coating Adhesion (Cross-Cut)	Class 5B (No removal)	D3359	Excellent adhesion to the substrate
Coating Hardness (Pencil Hardness)	2H-3H	D3363	Superior scratch and mar resistance compared to anodized finishes
Impact Resistance (Direct/Reverse)	160 in-lbs (No cracking)	D2794	High resistance to impact chipping and cracking
Gloss Retention (45°)Color Change	> 90% / ΔE<2 after 10,000 hrs QUV-A	G154 / D2244	Exceptional resistance to UV degradation, ensuring long-term aesthetic appeal

Premium 6063-T5 Aluminum Alloy Corner column accessories:



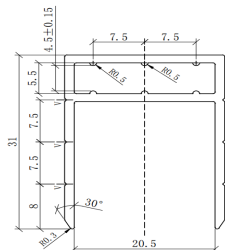
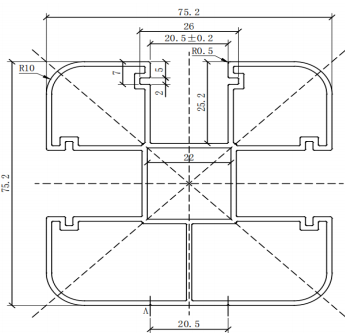
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Specifications:	Value	ASTM Test Method	Performance Note
Thickness	1.7 mm	D1784	
Specific Gravity (±0.02) 0.125" Specimen	1.45	D-792	
Izod Impact FT*lbs/in Notch	17	D-256	
Tensile Yield Strength, PSI	6200	D-638	
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DTUL @ 264 PSI, Degrees Celsius	72	D-648	
TiO2-Titanium Dioxide UV Inhibitor	10/100		
Mechanical Properties			
Tensile Strength: Ultimate (UTS)	180 - 205 MPa	B557 / E8	Excellent strength for structural integrity
Tensile Strength: Yield (Proof)	145 - 170 MPa	B557 / E8	High yield strength ensures reliable load-bearing capacity
Elongation at Break	8 - 12 %	B557 / E8	Good ductility, providing toughness and resistance to impact
Hardness, Brinell	60 HB	E10	Optimal balance between formability and resistance to wear
Modulus of Elasticity	68.9 GPa	E111	Standard stiffness for aluminum alloys, providing flexibility and resilience
Physical & Thermal Properties			
Density	2.70 g/cm³		Lightweight material, offering a superior strength-to-weight ratio
Thermal Conductivity	201 - 210 W/m·K	E1461	Efficient heat dissipation, suitable for various environmental conditions
Coefficient of Thermal Expansion	23.4 µm/m·°C	E228	Low thermal expansion ensures dimensional stability across a wide temperature range
Melting Range	616 - 654 °C		Maintains integrity under high-temperature exposure
Durability & Corrosion Protection			
Coating System Durability (C4 Environment)	> 25 years	ISO 12944-5	Zinc-rich epoxy primer and polyurethane topcoat provide long-term protection in industrial and coastal atmospheres
Corrosion Resistance	Excellent	G85 / G44	Inherent resistance to atmospheric corrosion, significantly enhanced by the coating system
Manufacturing & Quality			
Weldability	Excellent		Can be easily welded using common methods, with post-weld heat treatment available for restored strength
Machinability	Good		Suitable for precision machining and fabrication to meet complex design requirements
Anodizing & Finishing Suitability	Excellent		The smooth surface is ideal for various aesthetic finishes, including anodizing and powder coating

7. Aluminum Alloy Selection: 6063 T5 Rationale

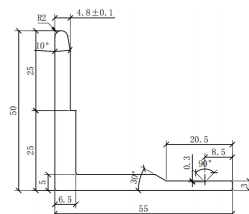
- **Structural Integrity:** Engineered with high tensile and yield strength to meet the demanding requirements of structural fencing systems
 - **Corrosion Resistance:** Magnesium and silicon alloying provides inherent corrosion resistance for extended service life in all climates
 - **Workability & Finish:** The material exhibits excellent surface integrity and dimensional stability, enabling precision machining and ensuring a flawless, high-adhesion powder-coated finish
 - **Environmental Performance:** Engineered to withstand harsh coastal conditions, intense UV exposure, and strong winds, ensuring long-term durability and performance in demanding outdoor settings.
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8. Fence Components Diagrams

Aluminum alloy column

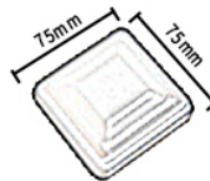
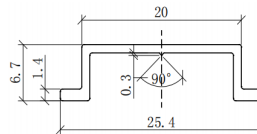


Aluminum alloy beam



Aluminum alloy L-shaped tongue

Aluminum alloy column baffle



Aluminum alloy column cap

WPC composite fence board



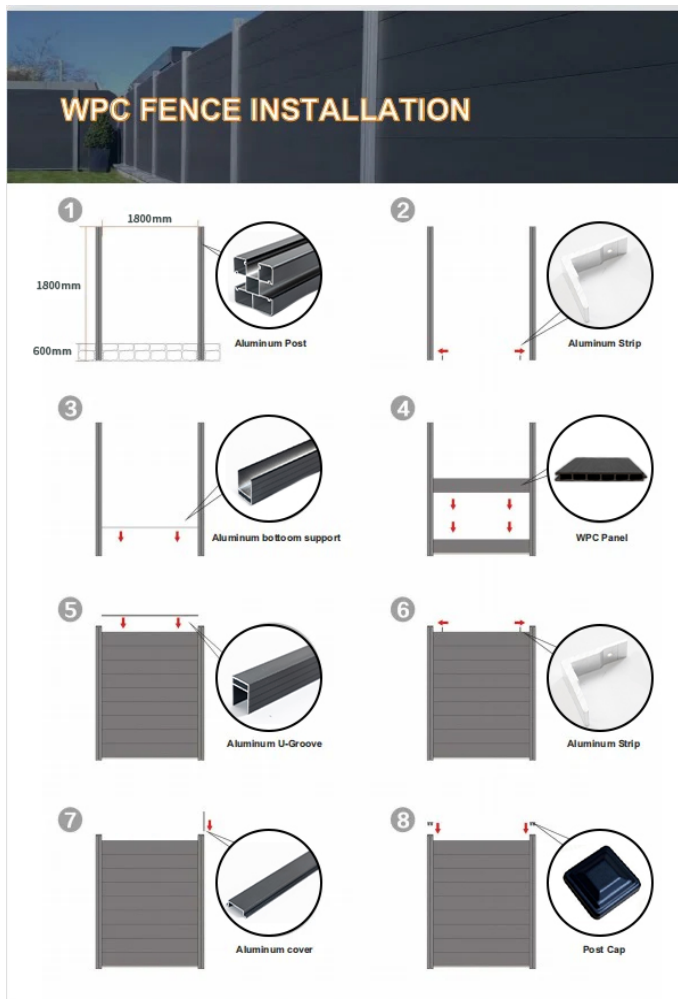
- **Aluminum Post:** The primary structural component designed to transfer lateral and gravity loads from the fence system to its foundation.
 - **Aluminum Side Cover:** A closure component designed to cover unused openings in fence posts.
 - **Aluminum Top Cover:** A secondary structural member that enhances stability by connecting posts.
 - **Aluminum Bottom Cover:** A secondary structural member that enhances stability by connecting posts.
 - **Insertion Bracket:** A connecting bracket attached to rail ends for insertion into post channels.
 - **L-Bracket:** A right-angle connecting bracket for securing fence rails to structural posts.
 - **Aluminum Post Cap:** A protective and aesthetic finishing cap for the top of posts.
 - **Composite (WPC) Slats:** ITongue-and-groove infill boards for stackable installation.
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9. Installation Instructions

- **Post Depth:** 23.62 inches of embedment, set in a 5.9-inch diameter hole filled with concrete.
- **Post Spacing:** 70.87 inches on-center between posts.

Installation Steps:

1. **Mark Post Locations:** Mark post locations spaced 70.87 inches on-center.
2. **Dig Holes:** Excavate holes to a depth of 23.62 inches with a 5.9-inch diameter.
3. **Post Setting:** Place posts in holes and anchor with concrete. Verify posts are plumb and aligned.
4. **Framework and Infill:** Secure horizontal rails to posts. Install composite boards to complete the assembly.



Tip: Before installing the tracks and planks, ensure the concrete is fully cured for maximum stability and ease of installation.

10. Wind Load Performance (Reference Only)

The Fence System is engineered with a modular design, supporting configurations ranging from solid privacy to decorative and semi-private styles. Elements like open infills or spaced slats are optimized to manage wind flow and minimize surface resistance.

To establish a structural benchmark, a 6 ft (72") solid privacy configuration—representing the most demanding design in the system—was evaluated under uniform static pressure conditions.

Test Method: ASTM E330 – Standard Test Method for Structural Performance of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.

Test Setup:

- **Configuration:** 6 ft (H) × 6 ft (W) fully assembled solid privacy fence section
- **Mounting:** Posts embedded to a depth of 20 inches (500 mm) and set in concrete
- **Load Duration:** 30-second sustained uniform static pressure per ASTM E330
- **Result:** No structural failure or permanent deformation observed under a wind load equivalent to 110 mph
- **Laboratory:** Intertek Group PLC (Independent Third-Party Inspection Agency)

Note:

1. This report does not involve sampling. The report only reflects conformity of the tested items of the samples provided by the testing applicant. Representativeness and authenticity of the submitted samples are responsibilities of the testing applicant.

2. Wind speed for each wind generator was calibrated according to AAMA 501.1-17. Deflections were measured with displacement transducers accurate to 0.01 in.

Test Report

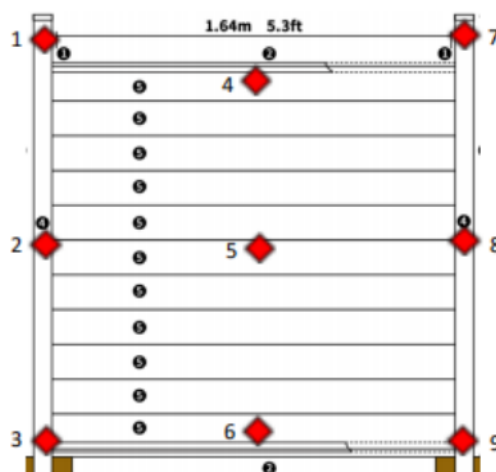
Original Issue Date: 2025-06-25

Intertek Report No. 250605016SHF-001

5. Test Results

Wind Speed	Duration	Maximum Deflection (inches)								
		1	2	3	4	5	6	7	8	9
80 mph	45 sec	0.65	0.31	0.03	1.53	1.31	0.20	0.61	0.28	0.02
0 mph	Permanent Set	0.11	0.08	0.01	0.19	0.20	0.04	0.08	0.07	<0.01
90 mph	40 sec	0.75	0.36	0.04	1.76	1.47	0.24	0.72	0.32	0.03
0 mph	Permanent Set	0.14	0.12	0.02	0.30	0.18	0.03	0.13	0.11	0.01
100 mph	36 sec	Specimen sustained maximum wind load of 100 mph and no damage was observed after test. ¹								
0 mph	Permanent Set									
110 mph	33 sec	Specimen sustained maximum wind load of 110 mph and no damage was observed after test. ¹								
0 mph	Permanent Set									

Note 1: As confirmed by the Applicant, the deflections of the sample at the wind speed of 100 mph and 110 mph and the permanent sets at 0 mph were not requested to record or reported.



11. Recommended Applications

- Suited for residential and commercial properties requiring secure visual screening
- Ideal for public infrastructure, perimeter definition, and area screening projects
- Engineered to withstand demanding conditions, including freeze-thaw cycles, coastal salt spray, and high-UV/sun exposure environments
- Complies with green building standards for recycled and low-VOC materials

12. Performance Summary

- **Certified Materials:**SGS-certified composite and aluminum components
- **Fire Safety:**Class B fire rating (ASTM E84), with flame spread index of 26-75
- **Dimensional Stability:**Low thermal and moisture expansion
- **Structural Framing:**6063-T5 aluminum frame with powder coating
- Easy installation with long-term durability

13. Maintenance Guidelines

- **Frequency:** Conduct semiannual cleaning (recommended in spring and autumn)
- **Method:** Use a soft brush/sponge with mild soap and warm water on composite boards and aluminum framing. Avoid harsh chemicals/abrasives
- **Pre-Cleaning & Rinsing:** Rinse with water before and after washing to remove debris and prevent soap residue.
- **Inspection:** Check periodically for damage or loose components
- **Protective Measures:** Periodically apply sealant for UV and moisture protection.

14. Warranty Information

- **Warranty Period:** 5-year commercial limited warranty
- **Coverage:** Defects in materials, fading >30%, deformation >5mm
- **Exclusions:** This limited warranty does not cover damages resulting from:
(1) normal wear, tear, and aging; (2) improper installation, modification, or use of non-approved accessories; (3) external factors such as accidents, force majeure events, or exposure to harmful substances

Contact Information

Materials & Design

- Address:
- Phone Number:
- Email Address:
- Website:

For detailed technical information—including advanced test data, specific load-bearing capacities, or architectural integration details—please contact our technical support team. We are ready to provide additional resources tailored to your project requirements.

Disclaimer and Terms of Use

1. Accuracy of Information

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2. No Performance Warranty

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