



Timberline Solar®

Solar Roofing System

It's a Timberline® roof. With solar energy. It's that simple.

Timberline Solar® isn't a solar panel system. It's a comprehensive building-integrated photovoltaic roofing system that incorporates energy shingles and roofing shingles to generate solar energy from either new or replacement roofs. It complies with all applicable building codes and required safety standards.



Timberline Solar® ES2

Available Energy Shingles

Electrical Characteristics¹

P _{max} (±5%)	57 W
V _{oc} (±5%)	10.85 V
I _{sc} (±5%)	6.63 A
V _{mp} (±5%)	9.04 V
I _{mp} (±5%)	6.30 A
Max. System Voltage	1,000 V
Max. Series Fuse	15 A
Protection Class	Class II
Positive Load Rating	1,600 Pa
Max. Modules in Series	48
Max. Parallel Strings	2
Cell Type	Monocrystalline PERC
Connector Type	Staubli MC4: PV-KBT4/6X-UR, PV-KST4/6X-UR
Connector Compatibility	Staubli EVO2: PV-KBT4-EVO 2A/6X, PV-KST4-EVO 2A/6X
Temp. Coeff. I _{sc}	+0.04%/°C
Temp. Coeff. V _{oc}	-0.26%/°C
Temp. Coeff. P _{max}	-0.35%/°C

Mechanical Characteristics

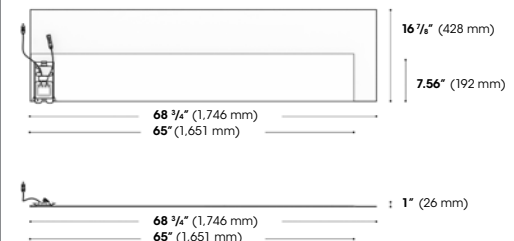
Energy Shingle Dimensions	68 3/4" x 16 7/8" x 1" (1,746 x 428 x 26 mm)
Active Exposure	65" x 7.56" (1,651 x 192 mm)
Energy Shingle Weight	10.1 lb. (4.58 kg)
Energy Shingle Coverage	Approximately 30 energy shingles per square (1.7 kW per square)
Installed System Weight	3.36 lb./sq. ft.
Allowed Roof Pitch	2:12 or greater
Sheathing Minimums	7/16" OSB or 15/32" plywood
Max. Installation Altitude	13,100 ft. (4,000 m)
Avg. Ambient Temp. Range	-40°F to 122°F (-40°C to 50°C)



Certifications

■ Fire Certification ²	UL 790 Class A
■ Wind Classification	ASTM D3161 Class F
■ Rapid Shutdown	Article 690.12 NEC UL 3741
■ Module Certifications ³	UL 61730-1, -2 SECT 30 UL 1703
■ BIPV System Certification	UL 7103
■ Impact Resistance	UL 2218 Class 4 ⁴

- Model TLS-2, TLS-2AJM
- ETL Listed PV Hazard Control System UL 3741
- Florida Product Approval FL41599



¹ All electrical data shown under standard test conditions (STC) (1,000 W/m², 25°C ±2°, 1.5 AM).

² See installation manual for requirements to achieve a System Fire Class Rating with this product.

³ UL 61730-1 & UL 61730-2 superseded UL 1703 effective 12/4/19.

⁴ Only Timberline Solar® Energy Shingles 2 sold in packages bearing the UL2218 Class 4 Intertek-ETL Listing statement are rated for Class 4 impact resistance. Refer to the Intertek Directory of Building Products for actual assemblies. Testing performed under controlled laboratory conditions. GAF Energy makes no express or implied warranty about the impact performance of this product against hail. Hail damage, including but not limited to damage causing leaks, reduced solar output, or aesthetic issues that may require or result in product replacement, are not covered under limited warranties. See Timberline Solar® Shingle & Accessory Limited Warranty available at gaf.com/warranties for complete coverage and restrictions.



Applies to Timberline Solar® ES2



CCRR-0580



Miami-Dade County Product Control Approved
NOA No.: 25-0204.03

Approved for installation in Los Angeles County. See Research Bulletin 13 (RB 13). Meets requirements of LAC 2023 Codes: Building, Residential, Electrical & Green Building Standards, and 2022 Building Energy Efficiency Standards.

Approved for installation in High-Velocity Hurricane Zones (HVHZ) per Florida Product Approval FL41599.

Meets requirements of the Texas Department of Insurance (TDI).



Energy from
every roof®