Firestone Polyiso Boards

Superior energy efficiency.
Superior protection.

Firestone Polyiso Boards

Firestone

Firestone Building Products

Firestone Polyiso Boards

Firestone total roofing systems

Since Firestone Building Products entered the commercial roofing industry in 1980, the company has produced and installed over 1,500,000,000 m² of single-ply membranes worldwide. This performance has made Firestone Building Products a leading manufacturer of EPDM and TPO membranes.

Firestone, however, is committed to offering a complete line of high performing roofing solutions as unique as your building. This commitment has resulted in the development of Firestone's Polyiso Boards.

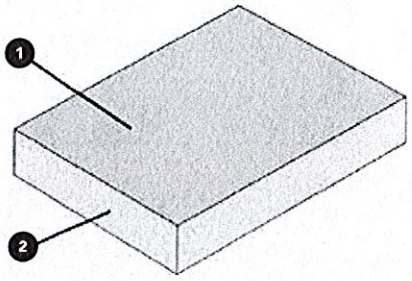
A winning combination

Firestone offers a Polyisocyanurate insulation board: Firestone ISO 95+™ GL, as well as a high density Polyisocyanurate cover board: Firestone ISOGARD™ HD. Thanks to their physical properties, they bring added-value to the roofing system prior to the installation of a durable EPDM or TPO roofing membrane.

The **Firestone ISO 95+™ GL** insulation board offers high-energy efficiency for which PIR boards are renowned for. Compatible with all types of commercial roofing systems, this lightweight easy-to-handle insulation board is suited for direct application onto steel roof, concrete or wood deck. It provides outstanding thermal resistance, dimensional and compressive strength.

Firestone ISOGARD™ HD is a high-density cover board that not only combines high impact resistance and ease of installation in a single durable product, but also enhances fire and wind resistance of the roof build-up, adds compressive strength to the entire roof system and provides a smooth surface in case of reroofing. With the highest thermal performance of any 12 mm cover board product on the market and a superior resistance to extreme weather conditions, Firestone ISOGARD™ HD provides an added measure of protection for any roof.

Firestone ISO 95+™ GL



1. Fiberglass reinforced mat facer
2. Polyiso foam

Polyiso insulation board (PIR)

Firestone ISO 95+™ GL consists of a closed-cell Polyiso foam core, laminated on both sides to a fiberglass reinforced mat facer. The foam technology does not contribute to the depletion of the ozone layer (zero ODP) and uses a HCFC-free blowing agent with a Global Warming Potential (GWP) of less than 5.

Superior insulation solution

Firestone ISO 95+ GL is suitable for adhered, ballasted and mechanically fastened single-ply roofing systems. It provides outstanding and stable thermal resistance, dimensional stability and compressive strength.

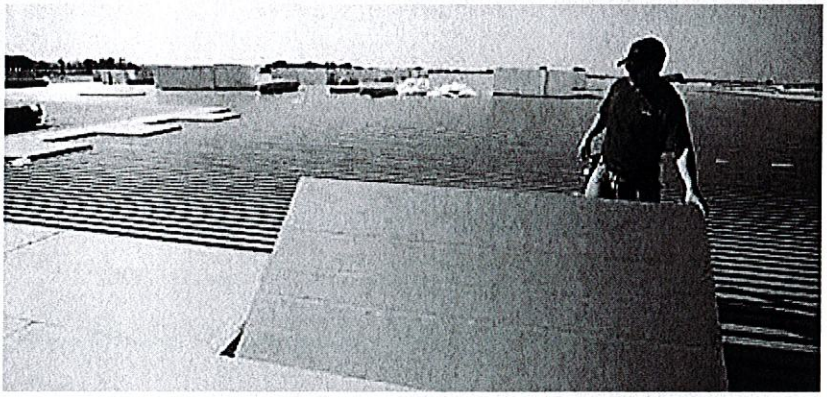
The installation of Firestone ISO 95+ GL insulation boards as part of a Firestone Total Roofing System provides you with a single source of quality design, superior materials and warranty responsibility.

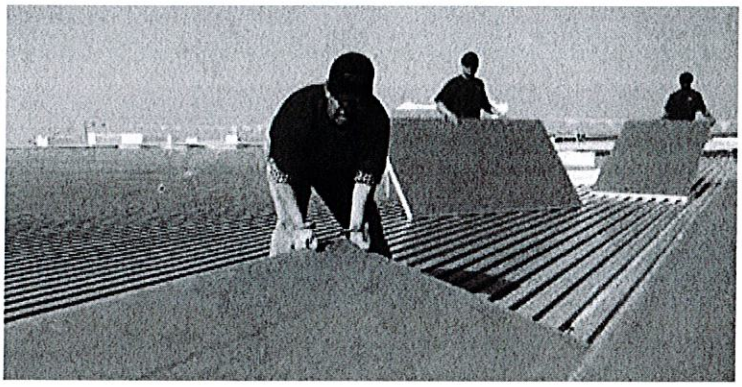
Technical features

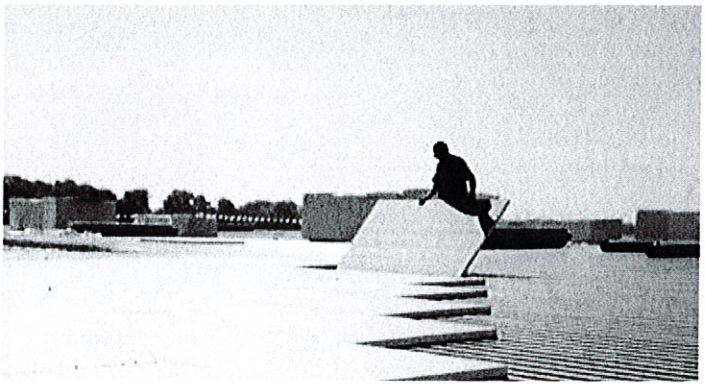
- Compatible with ballasted, fully adhered and mechanically attached single-ply systems.
- Available in flat and tapered boards of 1.22 m x 2.25 m and in thicknesses ranging from 25.4 mm to 10.1.6 mm. The slope of tapered boards ranges from 0.5 % to 4%.
- Coated and perforated fiberglass reinforced mat facer of approx. 150 g/m².
- Firestone EPDM and TPO Roofing Systems installed over Firestone ISO 95+ GL have obtained Class A as per ASTM E-108/UL-790. Please contact Firestone's Technical Department for further information.

Property	ASTM test	Typical Value
Core density*	D-1622	32 kg/m³
Compressive strength	D-1621	> 138 kPa (20 psi)
Dimensional stability	D-2126	< 2%
Water absorption	C-209	< 1% (by volume)
Service temperature		-73°C to 121 °C

* density of the foam core without facer (note: board density including facer depends on the board thickness)







Product data

Initial thermal conductivity of the Firestone ISO 95+ GL board is 0.0224 W/mK determined using the guarded hot plate and heat flow meter method.

Total thermal resistance of the roof build-up needs to take into account the other roof components as well inside and outside surface resistances.

If you require a more detailed R or U-value calculation, please contact Firestone's Technical Department.

Thickness (inch)*	Thickness (mm)	LTTR R-Value**	RSI Value***
1.00	25.40	5.7	1.00
1.25	31.75	7.1	1.25
1.50	38.10	8.6	1.51
1.75	44.45	10.0	1.76
2.00	50.80	11.4	2.01
2.30	58.42	13.2	2.32
2.50	63.50	14.4	2.54
2.80	71.12	16.2	2.85
3.00	76.20	17.4	3.06
3.25	82.55	18.9	3.33
3.50	88.90	20.5	3.61
3.75	95.25	22.0	3.87
4.00	101.60	23.6	4.16

* Please contact Firestone Building Products for availability of other thicknesses.
** Long Term Thermal Resistance (LTTR) values provide a 15-year time weighted average in accordance with CAN/ULC –S770.
*** RSI is metric expression of R-value (m^2. K/W) - derived from the LTTR value.

Code compliance

Firestone ISO 95+ GL bears a variety of code body compliances noted below:

- ASTM C-1289, type II, Class 1, Grade 2 (20psi).*
- UL Classified.
- FM Class 1 Approved (insulated steel deck construction).
- Manufactured in an ISO 9001 registered facility.
- CE marked according to EN 13165.

Note: * Grade 3 (25 psi) is available upon request

Packaging, storage and precautions

- Tuff-wrap packaging provides a durable protective covering to the top and four sides of the bundle, as well as a portion of the bottom board.
- Keep insulation dry at all times. Insulation bundles need to be elevated above the water line to prevent moisture infiltration from the bottom side.
- Combustible. Refer to MSDS for more information.
- Before insulation is placed on the roof deck, the substrate must be clean, dry, free of debris, water, ice or snow and suitably prepared by removing all defects that might affect the quality of the application. Any unusual deck conditions or defects should be brought to the architect or building owner's attention prior to installation.
- Do not install more insulation panels than those that can be covered with membrane and completed before the end of each day's work or before the onset of inclement weather.
- ISO 95+ GL is non-structural and non-load-bearing material. The finished roof assembly should be protected from excessive roof traffic with proper walkway materials.

Installation

ISO 95+ GL insulation boards must be installed using fasteners and plates, hot bitumen or Firestone-approved insulation adhesives. Insulation shall be neatly fitted to all roof perimeters, penetrations and abutments. The ISO 95+ GL board is suitable for adhered, ballasted and mechanically fastened single-ply roofing systems.

Mechanically Attached single-ply Systems

Fasten the insulation board with a minimum of 5 approved fasteners and plates per 1.22 x 2.25 m board. Additional fasteners may be required in areas of high wind loads or around the perimeter of the roof. Please refer to local wind uplift requirements and/or contact Firestone's Technical Department.

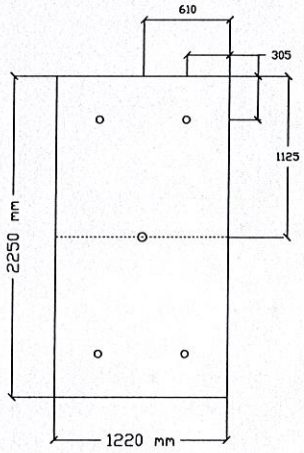
Ballasted single-ply Systems

For ballasted systems, Firestone insulation may be loosely laid or adhered. If mechanical attachment is specified, contact Firestone's Technical Department for specific guidelines.

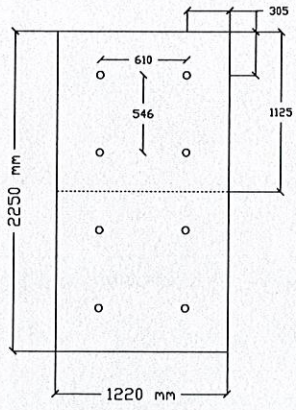
Fully Adhered single-ply Systems

The number of fasteners per board needs to be determined based on a wind uplift calculation in accordance with local building codes and taking into account the following minimum requirements:

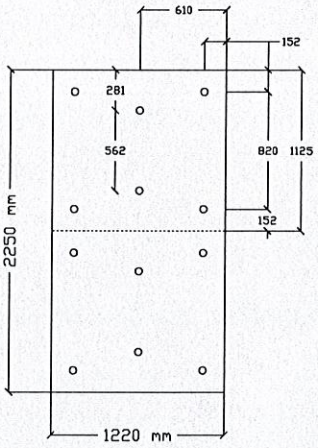
- **Thicknesses less than 38.1 mm**: Fasten insulation with minimum 16 fasteners per 1.22 x 2.25 m board.
- **Thicknesses less than 50.8 mm**: Fasten insulation with minimum 12 fasteners per 1.22 x 2.25 m board.
- **Thicknesses less than or equal to 101.4 mm**: Fasten insulation with minimum 8 fasteners per 1.22 x 2.25 m board.



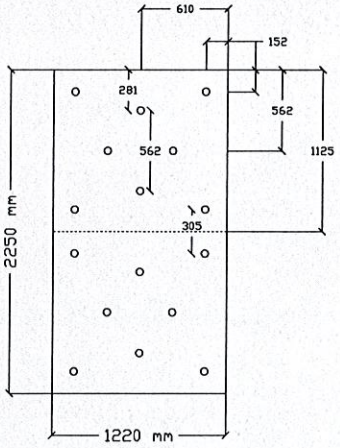
5 fasteners



8 fasteners

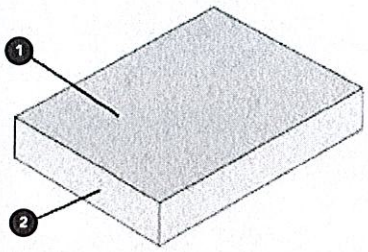


12 fasteners



16 fasteners

Firestone ISOGARD™ HD



1. Coated fiberglass facer
2. High-density foam core

Polyiso roof cover board (PIR)

Firestone ISOGARD™ HD is a 12.7 mm thick Polyiso board designed for use as a cover board. It is a high-density, closed-cell Polyiso foam core that has been manufactured with a coated fiberglass facer.

Protects. Conserves. Endures.

When foot traffic on the roof is heavy, mineral wood boards run the risk of being crushed or, in case of plastic foam insulations, the adhesion of the facer to the foam can be affected. The Firestone ISOGARD HD cover board spreads the load and protects the boards underneath. From a life-cycle cost perspective, it often pays off to protect the insulation boards with ISOGARD HD. It combines impact resistance and ease of installation in a single durable product. It is also an excellent choice for refurbishment projects, used as recovery board over the existing roofing system.

Features & benefits

Quick and easy to use

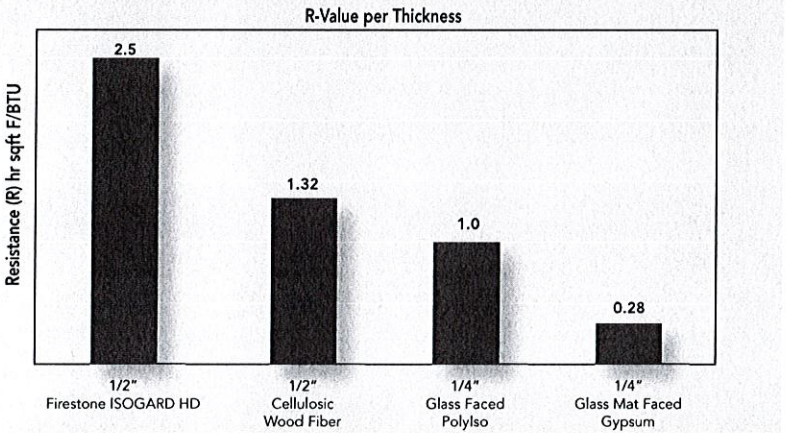
Firestone ISOGARD HD is easy to cut and handle for quick fabrication around roofing details such as drains or other penetrations, reducing installation time and labor costs. A single 1.22 m x 2.25 m sheet of ISOGARD HD weighs only 5 kg, resulting in easy handling and placement.

An added measure of protection

With a compressive strength of more than 800 kPa (5 to 6 times that of a normal PIR insulation board), the Firestone ISOGARD HD cover board adds structural strength to the entire roofing system and helps to absorb the effects of hail, foot traffic and other potentially damaging impacts. ISOGARD HD can also enhance the fire performance of the roofing system. Please contact Firestone's Technical Department for further information.

Outstanding performance qualities

The Firestone ISOGARD HD cover board leads to superior wind uplift performance, lays flat and requires fewer fasteners per 1.22 m x 2.25 m board, compared to 25 mm insulation boards. ISOGARD HD has the highest thermal performance (determined by ASTM C518) of any 12 mm cover board and is resistant to extreme weather conditions.



Environmentally friendly

The Firestone ISOGARD HD cover board is composed of a mold-resistant material that does not support the growth of damage-causing fungi and bacteria. The board is manufactured with a 100% fiberglass, mold and moisture resistant facer. ISOGARD HD contains more than 9% of post consumer and post industrial recycled combined content. The foam technology does not contribute to the depletion of the ozone layer (zero ODP) and uses a HCFC-free blowing agent with a Global Warming Potential (GWP) of less than 5.

Product data

Thickness (mm)	Thickness (inch)	Dimensions (m)
12.7	0.50	1.22 x 2.25

Property	ASTM test	Typical Value
Density	D-1622	80 kg/m³
Compressive strength	D-1621	827 kPa (120 psi)
Resistance to mold	D-3273	Pass
Foot traffic resistance	Rolling Load Emulator	> 6,000 passes
Dimensional stability	D-2126	< 0.5%
Water absorption	C-209	< 3% (by volume)

Code compliance

The Firestone ISOGARD HD cover board conveys a variety of code body compliances noted below:

- Manufactured in an ISO 9001 registered facility.
- FM Global Approved.
- UL Classified.
- ASTM C1289, Type II, Class 1, Grade 3.

Packaging, storage and precautions

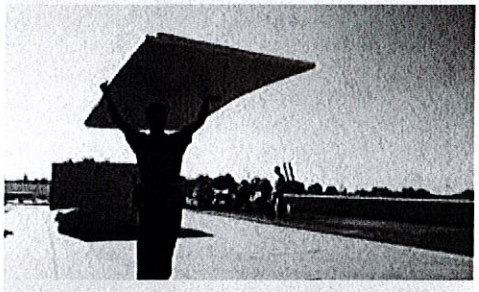
- Keep Firestone ISOGARD HD dry at all times. Bundles need to be elevated above the water line to prevent moisture infiltration from the bottom.
- Combustible. Refer to Safety Data Sheets (SDS) for more information.
- Do not install over wet, damp or uneven substrates.
- Do not torch apply membranes to ISOGARD HD and do not use hot asphalt with ISOGARD HD boards.

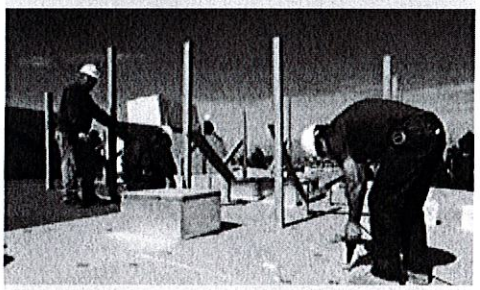
Installation

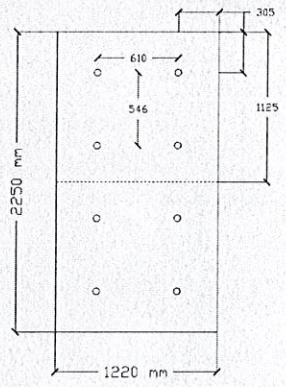
Firestone ISOGARD HD shall be neatly fitted to all roof penetrations and projections. Do not install more boards than those that can be covered with membrane and completed before the end of each day's work or before the onset of inclement weather.

ISOGARD HD can be applied over existing roof surfaces and under adhered or mechanically attached single-ply roofing membranes. ISOGARD HD must be installed using approved fasteners and plates or insulation adhesives.

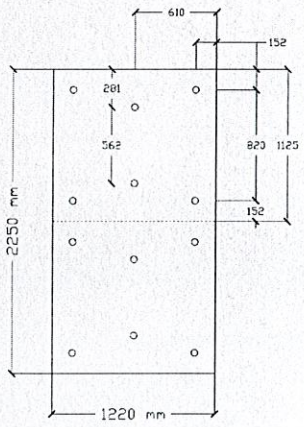
The number of fasteners per board needs to be determined based on a wind uplift calculation in accordance with local building codes and taking into account a minimum requirement of 12 fasteners per board in case of a fully adhered single-ply roofing membrane and minimum 8 fasteners in case of a mechanically attached membrane. Please contact Firestone's Technical Department for further information on fastening patterns.







8 fasteners



12 fasteners

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