www.isoboard.com

Feel the complete comfort of premium thermal insulation.

Why Insulate?

Installing effective building thermal insulation such as IsoBoard will:

Achieve a comfortable living or working environment within your home or building, usually between 21°C and 28°C.

Enable energy efficiency, and achieve legislated compliance, as required by the National Building Regulations SANS 10400 XA. Using IsoBoard means the minimum amount of energy is used for heating and cooling interventions to achieve comfortable living, or specified temperatures for commercial or agricultural activities. This also contributes to reducing personal or commercial greenhouse gas emissions, i.e. lowering your carbon footprint.

Save money on heating and cooling energy costs. The investment in thermal insulation is usually repaid within two to four years, meaning real savings in successive years. This is especially true with IsoBoard insulation, which can be expected to last the life of the building with the minimum deterioration in thermal performance.

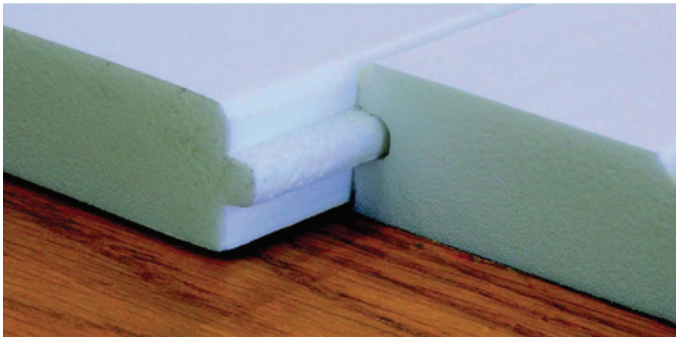
Improve health and productivity. Good thermal insulation will reduce internal condensation and provide stable internal temperatures, contributing to your health, well-being and productivity. In commercial and particularly agricultural applications, yield and input cost is often directly dependent on effective temperature control.

What is IsoBoard?

IsoBoard is a rigid, high density, extruded polystyrene, manufactured in different thicknesses and lengths to meet almost any building thermal insulation requirement in the temperature range -30°C to +60°C.

IsoBoard has Board of Agrément SA certification for five popular applications, which certify IsoBoard is fit for use as recommended. IsoBoard is without doubt the most versatile thermal insulator available.

Thermal insulation provides a barrier to heat transfer, which keeps heat energy on one side of the board or the other. Insulation does not, of itself, provide heating or cooling, but rather controls where heat energy should be, either inside or outside.



IsoBoard has over 25 years of successful local manufacture.

Advantages of IsoBoard

The advantages of IsoBoard are in its effectiveness as a thermal insulator, ease of installation, high compressive strength, resistance to moisture and excellent performance in fire situations. The board is extremely durable and will last for the life of the building, with minimal drop off in thermal performance.

IsoBoard can be painted with water based paints when used in exposed applications, and washed to clean if necessary.

Please see our website **www.isoboard.com** for the full description of the properties and characteristics of IsoBoard thermal insulation.

Thermal Performance of IsoBoard

All insulation products age over time, whether affected by dust, oxidisation, moisture or gas exchange. However, IsoBoard is the only manufacturer to declare and promote the use of fully aged values for our thermal insulation products.

We promote the use of fully aged design thermal values, to determine the anticipated performance of the IsoBoard insulation over the lifetime of the building.

Our design values can be relied upon to be effective over the expected life of a building.

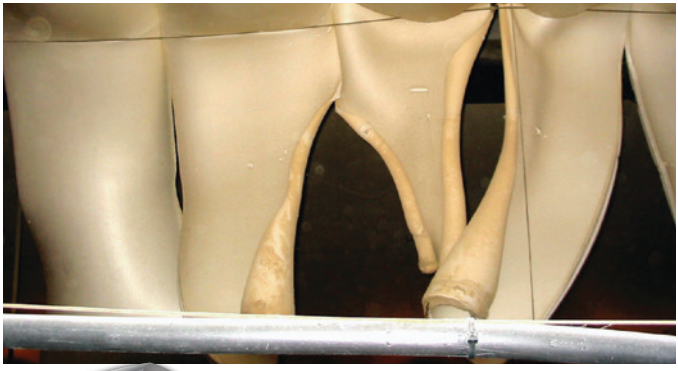
Thermal Resistance: R - Value (m ° C/W)		
Thickness	**Design Value**	**90 Day***
25mm	0.83	1.04
30mm	1.00	1.25
40mm	1.33	1.67
50mm	1.66	2.08
60mm	2.00	2.50
70mm	2.33	2.92
80mm	2.66	3.33

*If comparing IsoBoard to other insulation products, use the resistance values in the column “90 day”, as these equate to the published resistance values for other insulation products.

Fire Performance

IsoBoard is classified as **B/B1/2/H&V** in terms of SANS 428. This means that although the board is combustible, it poses no flame spread hazard and can be used in any building type in a horizontal or vertical application, both with and without sprinklers, with the exception of regulated buildings requiring non-combustible materials, such as hotels and hospitals.

Exposed to fire, IsoBoard shrinks away from the heat source. There are no flaming droplets, and no flame spread. The gases released as a product of combustion are less toxic than burning wood.



IsoBoard does not spread flame.

SANS 10400XA

The National Building Regulations SANS 10400 require that all new renovated buildings are thermally insulated to limit energy usage from heating and cooling. Compliance with section XA is achieve in one of three ways:

1. Following the **prescriptive tables** for each climatic zone in South Africa, generally proven very conservative in nature.

2. Having a competent person demonstrate that the **annual energy usage and energy demand of designated building classifications** does not exceed tabled design limits.

3. Performing a **rational design according to the reference building method**, which demonstrates an equal or better energy usage outcome when compared to compliance with the prescriptive tables.

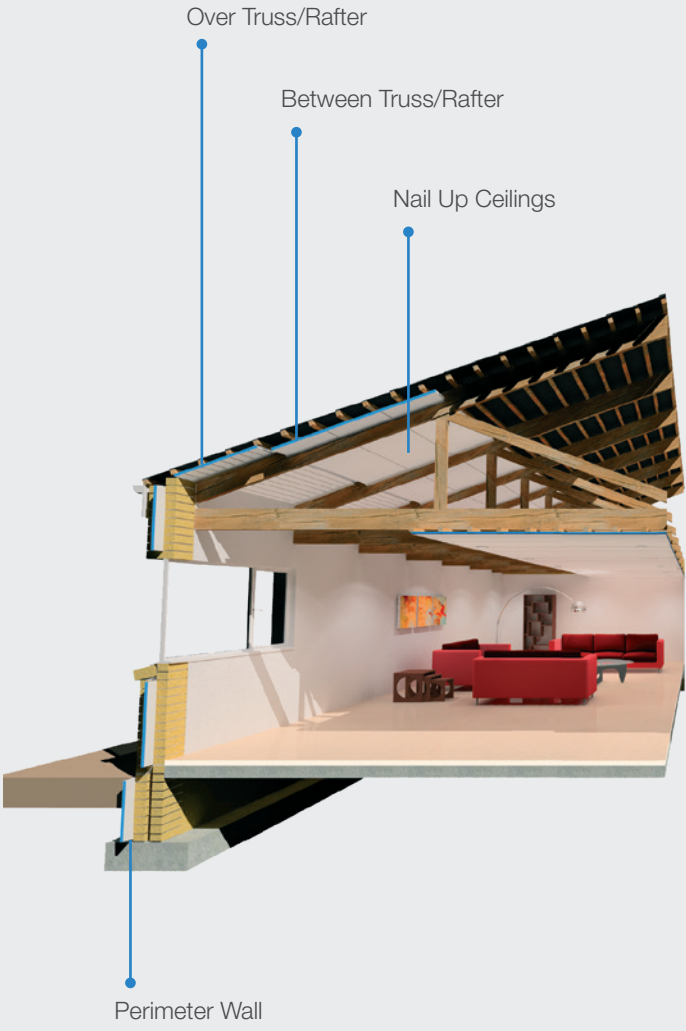
IsoBoard believe the most cost effective and beneficial alternative to the prescriptive tables is the rational design approach. Examples performed of various building occupancy classifications across all climatic zones demonstrate the benefits of rational design from a cost and flexibility point of view. The cost of performing a rational design will repay in cost savings for buildings of approximately 100m2, and more.

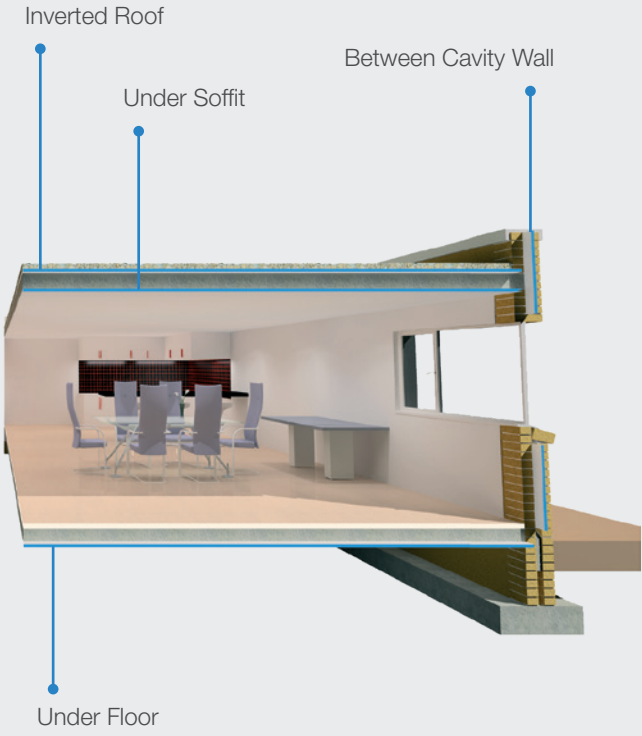
Prescriptive Compliance						
Climatic Zones	**1**	**2**	**3**	**4**	**5**	**6**
Description	Prescriptive Requirements: SANS 10400 XA Clause 4.2.1(b)					
Roofs						
Minimum required Total R-value (m^2.K/W)	3.7	3.2	2.7	3.7	2.7	3.5
Direction of heat flow	up	up	down & up	up	down	up
IsoBoard Requirement	100	80	70	100	65	90
Non-Masonry Walls						
Minimum required Total R-value (m^2.K/W)	2.2	1.9	1.9	1.9	1.9	2.2
IsoBoard Requirement	40	30	30	30	30	40
Floors with underfloor heating						
Minimum required Total R-value (m^2.K/W)	1.0	1.0	1.0	1.0	1.0	1.0
IsoBoard Requirement	30	30	30	30	30	30

Rational Design Compliance (recommended)						
Climatic Zones	**1**	**2**	**3**	**4**	**5**	**6**
Building Classification	Prescriptive: IsoBoard Required Ceiling Insulation (mm per Climatic Zone)					
Small Shop / Strip Mall	40	30	30	30	30	40
High Rise Office	40	40	40	40	40	40
Low Rise Office	30	30	30	30	30	40
Residential > 132m^2	40	40	40	40	40	40
Subsidy Housing	40	30	30	40	30	40
Hospital	40	40	40	40	40	40
Hotel	40	30	40	30	40	40
Retail Shops & Malls	40	40	40	40	40	40

IsoBoard is non toxic, and unaffected by dust and moisture

IsoBoard Thermal Insulation Applications





ISOBOARD THE ADVANTAGE

Simple fixing guidelines allow professional and DIY installations.

Nail Up Ceiling

Fit brandering to room perimeter, and at max. 700mm centres one direction only. IsoBoard is fixed to brandering using adhesive and concealed fixing clips. Use dry wall screws at 300mm intervals on the perimeter where cornices will be installed. Apply adhesive in 5ml blobs every 200mm, coverage is approximately 30m^2 per litre. Clip usage is 3 per m^2.

IsoBoard can be retrofitted below an existing ceiling to cover damage, provide insulation or change the appearance. IsoBoard can also be fixed below a concrete soffit. Fit brandering below the soffit or other ceiling if necessary to allow for rough or sagging surfaces.

When fixing IsoBoard between existing trusses, rafters and brandering, use screws, clips and adhesive as for nail-up ceilings.

Over Rafter and Truss

The boards are laid horizontally in long lengths, always beginning and ending on a truss or rafter. Fix a counter batten above each truss or rafter, secured with screws through the IsoBoard into the beam below at 300mm intervals.

Battens or purlins are fixed to the counter battens.

If fitting IsoBoard below a steel roof, install fibrous acoustic insulation over IsoBoard to dampen weather noise.

Cavity Wall Insulation

Cavity wall insulation is an excellent way of controlling heat transfer through walls, as well as preventing moisture condensing on and penetrating the inner leaf. As homes become smaller and taller, the ratio of roof area to wall area decreases, and the impact of the heat transfer through the walls increases.

Essentially, the boards are fixed horizontally to the inner leaf using wire ties, alternating with ties used to secure the two leaves together across the cavity. Remember to keep the cavity clean.

Inverted Roof Insulation

IsoBoard is laid above the water proofing layer and secured in place using ballast, to prevent flotation or wind uplift. The ballast layer can be gravel, paving stones or a concrete screed. The water proofing is protected from the sun and weather by the IsoBoard, rendering it practically maintenance free. The thermal mass of the concreted slab is maintained at the internal temperature of the building, protected from daily variation, helping to maintain a contact temperature within the building. Inverted Roof insulation can be installed onto a new building, or as a retrofit solution later. IsoBoard excels in Inverted and Green Roof applications, as it is the insulator least affected by water.

Correctly installed, IsoBoard will last for the life of the building.

Surface Bed Insulation

The IsoBoard can be installed either below the screed above the floor slab, or below the floor slab. As a rule, if planning to have an electric heating system to warm your floor, install IsoBoard below screed, to minimize the volume of concrete to heat, and reduce heating costs. If planning a solar water heating system, install the IsoBoard below the floor slab, as the slab will gradually release retained heat into the building at night. An insulated floor without any under-floor heating can be expected to be warmer than an uninsulated floor by 4 to 5°C. SANS 10400XA requires that all heated floors are insulated to a minimum thermal resistance of 1, i.e. 30mm IsoBoard. Specialised applications of this type would include ice rinks and cold rooms.

Foundation Perimeter Insulation

The effect of this application is very similar to under-floor slab insulation, however, perimeter insulation can also be a retrofit installation. IsoBoard is placed against the external foundations of the building, from the surface to the depth of the foundation or at least 600mm. By insulating foundations to this depth, your building is not subjected to heat transfer through the floor from adjacent soil temperatures, which may range from 40°C to frozen. The IsoBoard insulation maintains your floor slab at an even moderate temperature, assisting in controlling the temperature of the building.

Over Purlin Insulation

IsoBoard is laid over purlin, always beginning and ending on a purlin. The board can follow a 5m radius for curved roof applications. Use T-sections to increase the unsupported spanning capability of the IsoBoard. The IsoBoard is clamped to the purlin by the roof sheets, or the concealed-fix fittings. Remember to use longer roof screws to accommodate the thickness of the board. If IsoBoard is clamped in direct contact with a Chromadek or similar painted roof sheet, fit 3mm masonite spacers or slip-sheeting to prevent possible squeaking noise. Spacers are not necessary if concealed-fix roof sheets are used. IsoBoard can be used to clad the sides of steel frame buildings.

Ordering IsoBoard

IsoBoard thermal insulation is available in standard lengths from 1.8m to 7.2m in increments of 600mm, and 8m. Thicknesses range from 25mm, 30mm, 40mm up to 80mm, with board thicknesses above 50mm made to order. IsoBoard can be ordered with the IsoPine surface finish, which looks similar to a tongue and groove pine surface, or beveled edge with the edge of the board beveled to achieve a panel finish. IsoBoard in always 600m in width, having a tongue and groove edge profile to interlock adjacent boards.

IsoBoard keeps you comfortable during summer and winter.

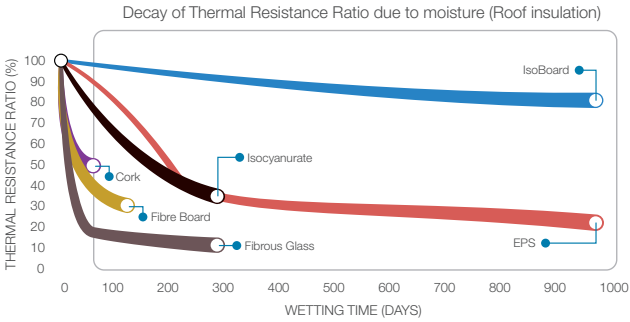
Guidelines For IsoBoard Usage

IsoBoard is a bulk insulator, and the thicker the board chosen, the more resistance is provided. Temperatures are more stable in better insulated buildings, all else being equal. Different climatic regions require different insulation interventions to achieve similar levels of comfort, and legal compliance. **Contact IsoBoard to determine an appropriate thickness for your application.**

- ✓ The board should always be positively secured on its ends, i.e. not left hanging loose.
- ✓ Avoid butt-joining IsoBoard when used as ceilings, as these joints are difficult to conceal. Butt joints for roof lining applications should be over a purlin, rafter or truss.
- ✓ IsoBoard can be readily trimmed to length using a sharp knife or hacksaw.
- ✓ Keep lighting lamps which generate heat in excess of 70°C away from IsoBoard.
- ✓ When fitting down-lighters, always use a swivel-type fitting and either “energy saver CFL” or LED lamps.
- ✓ IsoBoard should not be used on its own as a sound insulator, as it does not have the properties required to be a good sound absorber.
- ✓ IsoBoard should be wiped with a cloth soaked in a softened water solution immediately prior to installation to remove static charges from the surface, if left unpainted.
- ✓ Finish with 2 coats good quality matt acrylic paint, of which we recommend the first coat to be an acrylic filler coat to cover minor surface indentations & imperfections.
- ✓ Always paint IsoBoard in applications where direct or reflected sunlight will fall on the board, to protect from the effects of UV rays which accelerate the board aging process.
- ✓ Handle and install the board with care to prevent damage to board edges. Store out of the sun and weather in original packaging.

Please consult our website or representatives for additional installation specifications where necessary.

How Does Moisture Affect Thermal Insulation?



Reference: New Wetting Curves for Common Roof Insulations. Tobiason, Greatorex, Van Pelt 1991

IsoBoard thermal conductivity (k value) changes as the gas used to form the board exchanges with air over time. This exchange is initially rapid with fresh board, stabilising approximately five years after manufacture. The k value of IsoBoard increases during this process, reaching k = 0.0028 W/m°C. We recommend IsoBoard insulation systems are design using a k value of 0.03 W/m°C. This caters for the highest heat flow expected over the lifetime of the IsoBoard, including any effects from high humidity applications.

IsoBoard is the thermal insulator least affected by moisture.

IsoBoard is washable and paintable.

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IsoBoard is also available through a variety of merchants and resellers.
Please visit our website for updated stockist information.

Follow IsoBoard on Facebook for latest product developments.