



# STRANDEC™

*Innovative Building Systems*

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## Fast track Green Solutions™



Innovative Building Systems with Fasttrack Green Solutions



An Anutone® India and Celenit® Italy Initiative



### Strandec™ Solutions

Strandec™ is not just a building board or a system but a complete green building solution that saves energy and earns carbon credits.

The system itself is low-energy consuming and ensures a one-stop single-source turnkey supply to project sites for fasttrack green construction.

It includes accessories such as metal framing, braces, fasteners, thermacoustic infill, control joints, sealants, vapour barriers, scrim mat, finishing plaster etc.

Building solutions for the better future...

## About the company



Strandec™ Elements promotes innovative building solutions for fast track green construction. Strandec™ Elements is a division of Anutone Acoustics Limited, the pioneers of Inorganic Bonded Composites (IBC) and Acoustical Technologies in India and Asia.

For Strandec™, Anutone® India has partnered Celenit® Italy - one of Europe's leading manufacturers and solution-providers of ecobiocompatible insulation made from mineralised wood-wool bound with Portland cement. Celenit® Italy has proven expertise and experience in solutions for fasttrack green buildings.

The Strandec™ Board is a low-energy consuming Inorganic Bonded Composite. The board is manufactured by using mineralised wood strands, cement binders and additives.

Mineralisation of the wood strands makes it an inert, inorganic material that eliminates the problems of vermin, termite and fungus attack.

Bonding with portland cement makes the board as strong as wood. A wood cement plank, which does not shatter or crack and is fire resistant.

The matrix structure of wooden strands builds in the physical properties of strength with lightweight and the functional properties of fire, acoustical and thermal insulation.

Strandec™ Board's definitive properties along with accessories make it an ideal solution for complete building systems that include dry walling, diaphragm construction, roof decks and permanent forming.

Anutone® India and Celenit® Italy through Strandec™ Elements offer total building solutions to meet varying requirements of fire, acoustics, thermal in diverse applications of industrial, commercial and residential spaces.

# Properties

## Properties



### Thermal Insulation

With temperatures varying from place to place and season to season as well as in a day from morning to night to next morning there is variable heat accumulation in the building structure. Strandec™ mass and specific heat has more capacity of thermal accumulation than other insulators. Compared to traditional bricks, an inch of Strandec™ Board has the same insulation value as fourteen inches of brickwork!

The use of Strandec™ in external walls and roofs saves energy downsizing the carbon footprint of buildings - it lowers initial and running costs of airconditioning and hence power consumption, apart from making interiors comfortable.



### Acoustic insulation

Besides the mass and the cellular structure Strandec™ has low elasticity coefficient and its inbuilt sound reduction properties makes it both an excellent sound absorbing and noise isolating product.



### Fire Resistance

Strandec™ is suitable for protecting other construction components in a building. Its excellent thermal insulation acts as a thermal shield increasing its fire resistance of such components. As the board has a cellular structure it is not subject to bursting and splintering.

The board's mineralised wood strands will remain intact for a long time even when subject to direct fire. Depending on thickness it can be used for construction of composite building components with fire protection up to 3 hours.



### Termite Resistance

Strandec™ is not vulnerable to termite or vermin attack.



### Humidity Regulating

Strandec's unique feature is it acts as a hygrometric regulator. It absorbs excess humidity and releases it when normal conditions returns without any deformation.

Hence, Strandec™ acts as both a dehumidifier and humidifier.



### Water Resistance

It does not deteriorate or deform when immersed in water. Therefore in humid conditions no swelling or crumbling occurs.



### Safe, Healthy and Bio Compatible

Strandec™ Board is made of natural products, wood and cement composites. There is no risk of pollution, neither at the production nor application stage; nor at any subsequent recycling, or waste disposal stage.

It contains no harmful metals, it does not develop harmful gases, it is not radioactive and is not flammable. It contains no asbestos. Strandec™ Boards contribute positively to green buildings and wins 15 LEED points.

### Durability

Strandec™ Boards are not affected by biological, chemical or meteorological phenomenon over time, the carbonation of time contained in Portland cement increases the level of resistance.

### Compatibility

Strandec™ is neutral when in contact with other building materials. It does not corrode metal or crumble concrete.

### Finishes

Strandec™ accepts all kinds of rendering plastering decorative materials and mastics. Strandec™ can be subsequently painted, tiled, wall papered or clad.

### Workability

Easy to cut and fix. Strandec™ can be cut using ordinary hand saw, electric saw or router. Can be drilled, nailed, screw fixed, anchored with raw plugs and bolts, glued.

### Adaptability

Strandec™ is very adaptable to construction and installation. It can be easily fixed to

- Wooden frames
- Steel frames
- RCC structures

### Euro Norms

Strandec™ Boards conform to EN 13168 2001, the only world standard on wood wool cement boards, with certification from Celenit™ Italy for CE. Celenit Italy is a member of AIA, ANAB, ANIT, CTI, UNI.



# Technical Characteristics

## Technical Characteristics

### Fire

- Non-combustibility – Mass loss 53% @ 750°C -ISO 1182
- Ignitibility – 'P' - BS 476 Part 5
- Fire Propagation Index – 5.17 - BS 476 Part 6
- Surface Spread – Class I - BS 476 Part 7
- Specific Optical Density of Smoke – Flaming Exposure 26.28 Dm (Corr) - ASTM E662
- Euro class - B-s1 d0 EN 13501-1 (Swiss class 6q.3)

### Thermal

- Thermal Conductivity – 0.08 Wm/k - IS 3346
- Declared Thermal Resistance - 0.20 to 1.75 m<sup>2</sup>K/W
- Specific Heat - 2.1 kJ/kgK
- Capacity for Thermal Accumulation - 1260 to 726 kJ/m<sup>3</sup>K
- Temperature Limit of Use - 200°C

### Water

- Water Vapour Diffusion Resistance - '5' - EN 12086
- Short Term Water Absorption - 3.35 to 4.40 kg/m<sup>2</sup>
- Capacity of Absorption of Room Humidity - 2 to 3.5 l/m<sup>2</sup>

### Strength

- Compressive Stress @ 10% - 150 to 300 kPa - EN 826
- Bending Strength - 650 to 3300 kPa for 25 mm - EN 12089A
- Tensile Strength (perpendicular to faces) 20 to 40 kPa - EN 1607
- Shear Stress Resistance - 0.28 N/mm<sup>2</sup>
- Adhesion to concrete - 0.05 N/mm<sup>2</sup>

### Acoustics

- Sound Absorption - upto NRC 0.9 - ISO 354
- Noise Isolation - upto 68 dB - ISO 140



# Board Specifications

## Board Specifications

Density (kg/m <sup>3</sup> )	~500
Binder	Portland Cement (OPC); White Cement (optional)
Sizes (mm)	Width - 600; Lengths - 1200 / 2400
Thickness (mm)	15 / 20 / 25 / 30 / 35 / 40 / 50 / 75 / 100
Weight (kg/m <sup>2</sup> )	7.5 / 10 / 12.5 / 15 / 17.5 / 20 / 25 / 37.5 / 50
Edge Profiles	Square, Chamfer, Taper, Tongue Groove, Combo
Workability	Yes - IS 14276 Resistance to cutting - 0.28 N/mm <sup>2</sup>
Water absorption	2 hours - 30%; 24 hours - 30%; no change in dimensions - IS 14276
Termite and vermin resistance	Yes - IS 2380
Weathering resistance	No change in dimensions or density - IS 9307 Part 8
Coefficient of Linear Dilation	0.01 mm/mK

# Board Types

## Board Types

- SDN GB  
- Strandec™ Natural Grey
- SDC EPS  
- Strandec™ Composite EPS
- SDC MW  
- Strandec™ Composite MW
- SDB GB  
- Strandec™ Speciality Grey Burl
- SDN WB  
- Strandec™ Natural White
- SDB WB  
- Strandec™ Speciality White Burl



SDN GB



SDB GB



SDC EPS



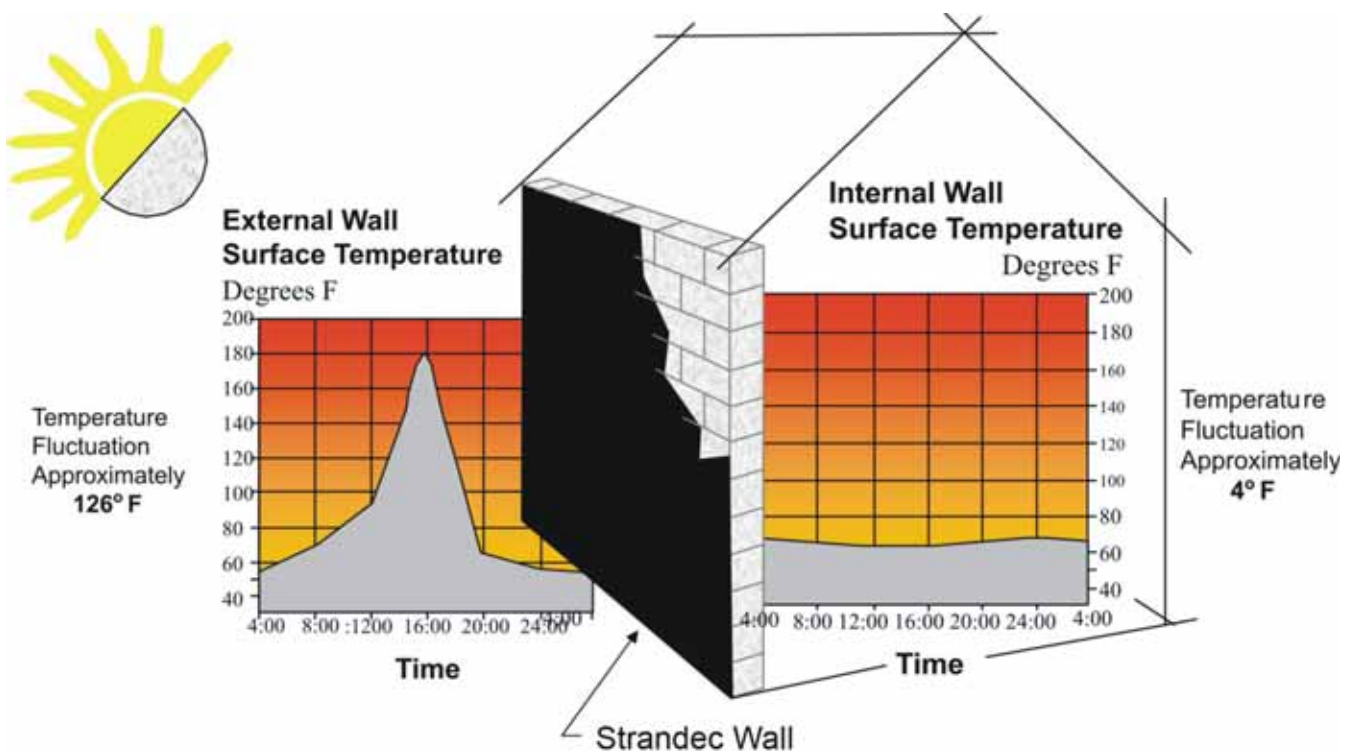
SDC MW



SDB WB

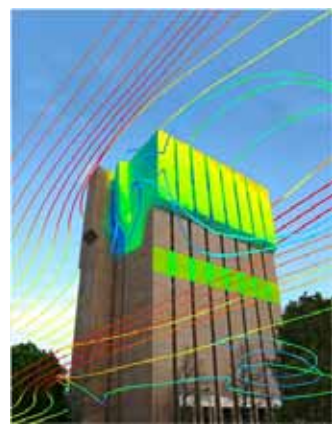
# Empowers to save power

## Empowers to save power



### Features

- No additional expenditure on thermal insulation of space
- Ideally suited for Indian conditions where the cost of power is going up every day
- Adds significantly to the bottom line in terms of savings on power on an incremental basis year on year
- Increases comfort levels resulting in better productivity
- Lower investment on capital equipment by lowering cooling capacity requirements
- Thermal Conductivity - 0.08 Wm/k - IS 3346
- Meets Government's ECBC Norms introduced in May 2007 for all new commercial buildings





# STRANDEC™

## – a complete solution for innovative building systems

The definitive properties and exceptional characteristics of the Strandec™ systems makes it an ideal choice for a wide and varied usage in innovative building applications such as sloping roof decks, flat roofs, permanent forms for concrete walls, slabs, columns and beams, floor underlays as well as in fasttrack green building solutions for exterior walls. Strandec™ systems can also be used in existing structures to enhance thermal, acoustic and fire performance.

Construction of the total outer shell in walls and roofs and internally dividing space in the form of slabs, partition and floors for total comfortable living and working spaces with assured and consistent air conditioning, fire protection and sound insulation is possible with the versatile building system - Strandec™.

The unique feature of Strandec™ is that it a low-energy consuming system (a green product) and on installation in buildings it provides the necessary energy-saving envelope (a green building) thereby providing a double benefit to the ecosystem.

- Partition, Internal or External
- Stand-alone partitions
- Walls and ceilings
- Roof decks - sloping and flat
- Wall forms
- Permanent shuttering - roof decks
- Floor underlays
- Damp elimination from walls
- Core for acoustic and fire doors





Internal Framed Partition



External Framed Partition



## Walling

### High Bay Walls

The Strandec™ system consists of Strandec™ boards nailed to wooden frames or screw fixed to metal frames on either side to form internal partitions that not only segregate to create barrier but also to create comfortable interiors.

### External Framed Walls

Strandec™ Elements is for the first time introducing a complete system for fasttrack green construction using Strandec™ Boards and special metal frames for building up the exterior partition to form a shell which will eliminate heat, sound besides providing fire protection.

## Roofing

### Sloping Roof Deck Systems

Strandec™ Boards has excellent cement compatibility, abuse resistance, thermal and sound insulation making it an ideal choice for roof deck systems. It can be used either alone or as a composite panel for additional thermal insulation, finished with an integrated metal sheathing.

Strandec™ Boards is an environmentally friendly alternate to conventional sandwich panels. Strandec™ does not contain formaldehydes or CFCs or asbestos.

## Flooring

### Floor Underlays

A continuous layer placed between the floor slab and floor finishes mitigates impact noise transmission through the floor and overhead noises transmitted through the partition walls. It also resists transfer of heating / cooling to lower floors thereby controlling condensation and conserving power.



## Walling

### High Performance Walls

Strandec™ Boards can be used for building a reinforced concrete wall with built in thermal and acoustical insulation besides fire protection.

Strandec™ Boards are locked as modulator units, dry stacked (without mortar) and filled with poured-concrete after placing the required reinforcing steel tie rods.

Strandec™ Boards are incorporated in the casting and forming a single monolithic block giving it high levels of rigidity and lateral stability.

Strandec™ Boards eliminates thermal and acoustics bridges. It also eliminates condensates and relating damages of structures and systems. It is a good base for any plaster.



High Performance Walls



## Roofing

### Sloping Roof Deck Systems

Strandec™ Boards excellent sound absorption, abuse resistance, thermal and sound insulation makes it an ideal choice for roof deck systems. It can be used either alone or as a composite panel for additional thermal insulation, finished with lightweight insulating concrete on top.

### Slab Formwork (Permanent Shuttering)

Strandec™ Boards can be used as permanent formwork for slabs. The boards are placed side to side just as temporary formworks, the reinforcement is overlaid and the slab is cast. Besides thermal acoustic and fire insulation it eliminates thermal and acoustic bridges.

### Miscellaneous Applications

Strandec™ Boards can be used

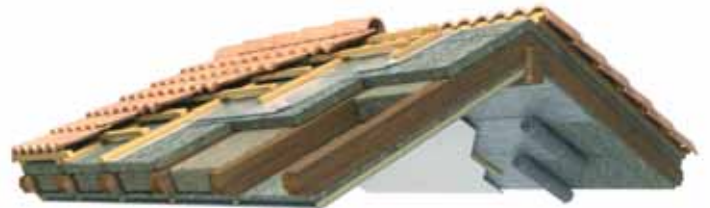
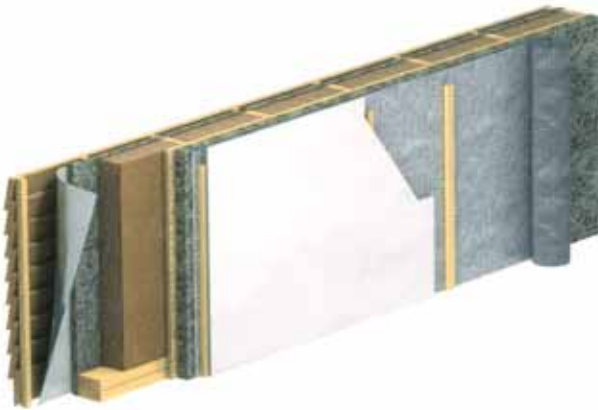
- To either form column or to clad the existing column, acting as barrier in thermal bridges
- As sole plate to isolate a structure-borne sound transmission
- As infill between solid block walls for sound isolation
- As overlays, lining and underlays on existing floors, walls and roofs respectively for isolating sound, heat and fire.



Sloping and Flat Roof Deck Systems



Sloping Roofs





# Applications



Industrial



Commercial



Residential

**STRANDEC**<sup>™</sup>  
Innovative Building Systems

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Innovative Building Systems with Fasttrack Green Solutions

**anutone**<sup>®</sup>  
Enhancing Living Experiences<sup>™</sup>

**CELENIT**<sup>®</sup>  
NATURAL INSULATORS

An Anutone<sup>®</sup> India and Celenit<sup>®</sup> Italy Initiative

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