

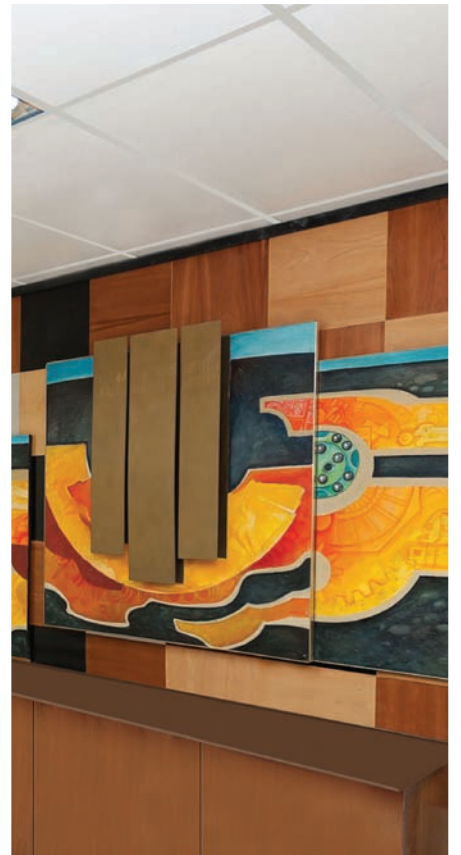
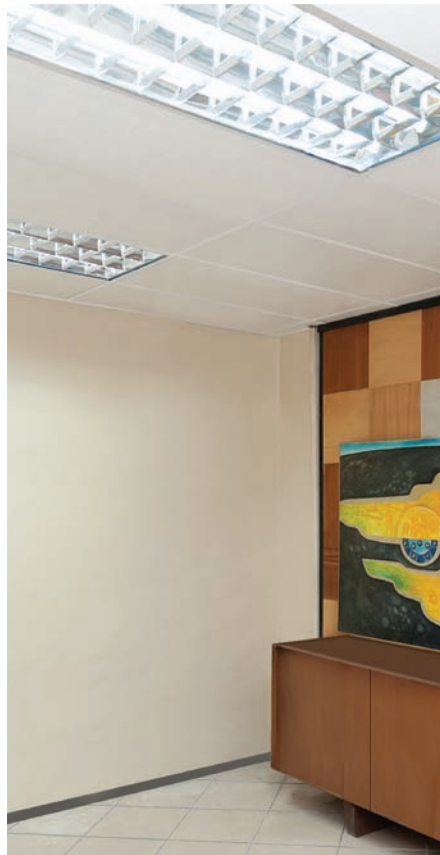
lasting strength
with fibre-cement

nutec[®]
ROOFING AND CLADDING SOLUTIONS

Manufactured by
EVERITE
Established in 1941

SUSPENDED CEILING





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Catalogue Information

The information contained in this catalogue serves as a general guide only and should not be accepted as the standard for all construction. EVERITE can assist in designs of a special nature, however, architects, engineers and specifiers must finally approve the acceptability in terms of the design and construction criteria, as well as other implications.

About Everite and Nutec

■ Everite Building Products

Everite Building Products, wholly owned by JSE listed Group Five, has been associated with the South African building industry since 1941. Producing a wide range of materials that satisfy the needs of the commercial, industrial and residential market sectors, Everite is renowned for its comprehensive range of Nutec Roofing and Cladding Solutions and includes fibre-cement roofing, cladding, ceilings and building columns amongst others.

Nutec fibre-cement high performance properties and added benefits include: the use of safe renewable fibres; considerable tensile strength with enhanced dynamic load bearing properties; excellent thermal properties; water and wind resistance; hail resistance; fire resistance and resistance to fungus, rodents and acid.

A programme of quality assurance in accordance with the requirements of the International Standards Organisation (ISO 9001:2008) is entrenched in Everite's process and management systems. Quality of all products is continuously monitored as specified by the South African National Standards and recognised international bodies.

Everite's 54 hectare manufacturing facility near Johannesburg is well located and has immediate access to all major road and rail links to national destinations and major ports. The company has branches located at major centres throughout South Africa. Nutec products are distributed through leading stockists countrywide and an established export market further endorses the international acceptance of the Nutec Roofing and Cladding Solutions range of products.

■ Nutec

Nutec is the registered name for products manufactured without asbestos as a raw material. Nutec fibre cement products are manufactured using a mixture of cellulose fibre, cement, silica and water.

Through ongoing research and development, Everite Building Products are committed to provide product of world-class quality.

Accordingly, the Nutec product range is continuously reviewed not only in the interests of the end-user and superior product performance, but also with respect to its impact on the environment. Everite Building Products has over the years established a reputation for producing a variety of outstanding quality products which have been used in a wide range of external and internal applications.

Environmental benefits of Nutec Fibre Cement

- Environmental costs incurred by using fibre cement are measurably less than for other building materials. (Low embodied energy per m²).
- Requires less energy in assembly and construction than all other wall materials except timber.
- Low energy consumption in transportation and installation.
- Environmental costs relating to ozone layer depletion, carcinogenic substances and solid waste emissions are almost negligible.
- Low environmental impact in relation to ozone layer depletion, carcinogenic substances, and solid waste emissions.
- No pesticides are involved in the manufacture or use of fibre cement.

The benefits of Nutec Fibre Cement

- The use of safe fibres.
- Considerable tensile strength with enhanced dynamic load bearing properties.
- Cost competitive.
- Excellent thermal properties.
- Water tight and wind resistant.
- Hail resistant.
- Fire-resistant.
- Fungus and rodent resistant.
- Acid resistant.
- Complies with SABS ISO 9933.
- ISO 9001 : 2008 Quality Management System.

The environmental benefits in the manufacturing process of Nutec Fibre Cement

- Recycling the water used in production many times.
- Recycling solid wastes.
- Using sustainable raw materials in production.

Embodied Energy – Definition

Embodied energy is the energy consumed by all of the processes associated with the production of a building, from the mining and processing of natural resources to manufacturing, transport and product delivery. Embodied energy does not include the operation and disposal of the building material. This would be considered in a life cycle approach. Embodied energy is the 'upstream' or 'front-end' component of the lifecycle impact of a home. Fibre cement is one of the most energy efficient materials on the market and it has one of the lowest embodied energy contents per square metre of cover of any building product.

FEATURES

Nutec Suspended Ceiling Boards

Finishing of concrete roof ceilings is easily achieved by installing a Nutec Suspended Ceiling. This solution is cost effective and is an affordable way to hide fixtures and wiring to the underside of the slab. The suspended ceiling technique allows for easy access to wiring or plumbing connections in shallow roof spaces.

Nutec Suspended Ceiling Boards are available in a plain or vinyl clad finish. For enhanced insulation, Nutec Thermoclad Suspended Ceiling Boards come with a 25 mm insulation backing. Nutec Suspended Ceiling Boards exhibit the same performance properties as Nutec Branded Ceiling boards and are ideal when used in a suspended ceiling assembly to the underside of concrete slabs, traditional timber construction and lightweight steel frame roofing.

■ Features

- An economical all-purpose ceiling board, unaffected by moisture and ideal for internal use in almost any conceivable application.
- Light in weight and can be supported on light gauge metal frames. These factors facilitate easy handling and erection.
- Non-combustible for perfect protection against fire.
- Resistant to corrosion.
- Designed to have good thermal properties.
- Manufactured to the highest internal quality standards. Compliance is ensured by strict quality assurance programmes in the production process as well as stringent testing in our laboratory.
- SANS 9001: 2008 certified.

Safety, Handling and Storage Instructions

Safety

Safety rules as per current legislation and work practices as described in General Installation Guidelines must be observed when working with the product.

Handling

Nutec Suspended Ceiling Boards are manufactured from a composite material containing mainly cement and may be damaged under excessively high shock loads. Reasonable care should therefore be taken to ensure that the products are not dropped or subjected to rough handling.

Storage

Nutec Suspended Ceiling Boards should be stacked under cover. The stacks must be packed on suitable timber supports, maximum 400 mm apart, off the ground. A level under cover area where the boards can be stored safely must therefore be made available. Special care should be taken to ensure that the vinyl finish is not damaged or soiled during handling.

GENERAL DESIGN CRITERIA

General Design Criteria

Supporting Structure

To ensure a high standard of finish, it is essential that the supporting structure is accurate and sound.

Fixing Accessories

A complete range of grids and fixing accessories for Nutec Suspended Ceilings are obtainable from EVERITE.

The grid systems are designed to cater for the long term behaviour of the boards and it is essential that only the approved systems are used with the products.

Alternative systems available on the market may not take these factors into account which could result in failure of the ceiling.

Please contact EVERITE for advice where alternative systems are being considered.

Site Service

Service personnel are available on request to provide assistance on recommended storage, handling and installation of the Company's products, before and during installation.

Product Range

■ Nutec Vinyl Clad Ceiling Boards

Fissured Vinyl

Product No.	Nominal thickness mm	Size mm	Average Mass (kg)
366-328	4	1 195 x 595	4.0
366-638	4	595 x 595	2.0
366-210	6	1 195 x 595	6.0
366-212	6	595 x 595	2.0

Embossed White Vinyl

Product No.	Nominal thickness mm	Size mm	Average Mass (kg)
366-428	4	1 195 x 595	4.0
366-639	4	595 x 595	2.0
366-220	6	1 195 x 595	6.0
366-222	6	595 x 595	2.0

■ Nutec Vinyl Thermoclad 25 mm Polystyrene Backing**

Fissured

Product No.	Nominal thickness mm	Size mm	Average Mass (kg)
366-500	4	1 195 x 595	4.0
366-648	4	595 x 595	2.0
366-312	6	1 195 x 595	4.0
366-306	6	595 x 595	2.0

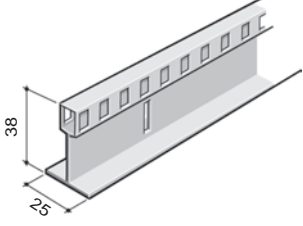
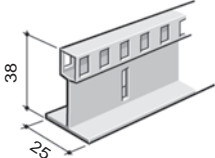
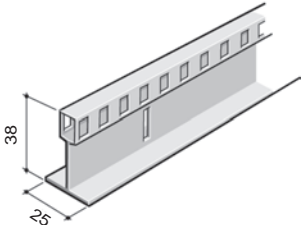
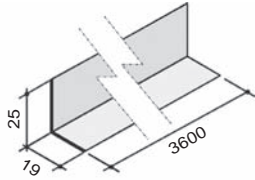
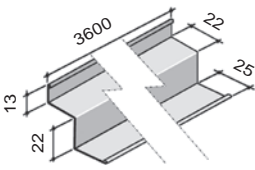
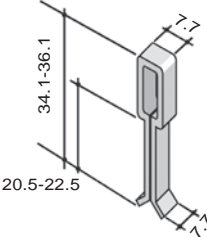
Embossed White

Product No.	Nominal thickness mm	Size mm	Average Mass (kg)
366-600	4	1 195 x 595	4.0
366-649	4	595 x 595	2.0
366-412	6	1 195 x 595	4.0
366-406	6	595 x 595	2.0

**Non stock item: Available on order
Refer Call Centre for details

CEILING PANEL ACCESSORIES

Nutec Suspended Ceiling Panel Accessories

Product No.	Description	Length mm	Sketch of Article
685-292	T38 Main T-white	3 600	
685-294	T38 Cross T-white	600	
685-295	T38 Cross T-white	1 200	
685-297	Standard wall angle	3 600	
685-004	Recessed wall angle	3 600	
685-121	Universal hold down clips		

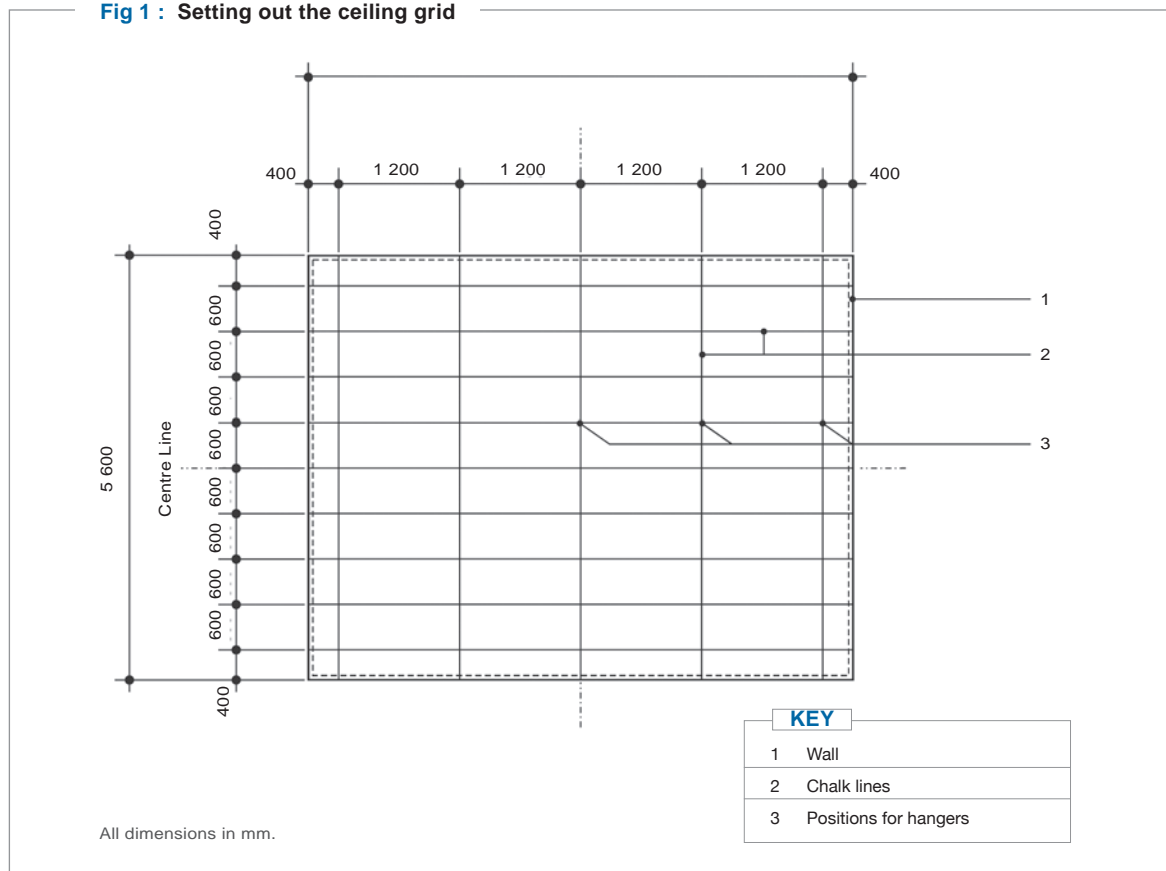
Erecting a Nutec Suspended Ceiling to the Underside of a Concrete Slab

■ Step 1

Setting out the Grid

- Strike a level chalk line around the perimeter of the room at the height at which the ceiling is to be fixed.
- Fix the wall angle on this line using screws and plugs at a maximum 400 mm centres. For a tidy finish the wall angles should not rest on top of each other at the corners. Mitre and butt-join.
- Establish the centre of the room and mark on the opposite walls of the room adjacent to the underside of the slab.
- After determining the direction in which the boards will be installed, start from the centre of one wall and mark at 1 200 mm intervals, finishing with equal spacings at the adjoining walls. Repeat the procedure on the opposite wall. Strike chalk lines against the concrete slab to connect these points across the width of the room.
- To mark the room in the other direction, start on the centre line previously marked and mark the wall at 600 mm centres, finishing with equal spacings at opposite ends of the room. Mark the opposite wall in the same manner. Strike chalk lines to join these points.
- The underside of the slab should now be marked out in blocks of 1 200 mm x 600 mm.

Fig 1 : Setting out the ceiling grid



INSTALLATION PROCEDURE

■ Step 2

Installing the Grid System

- Fix hangers to the underside of the concrete slab at positions where the chalk lines intersect.
Refer Fig 1.
(For the fixing of hangers to the underside of the concrete slab, use angle cleats 25 x 25 x 25 mm long, 1,6 mm material not supplied by EVERITE).
- The hangers can either be 25 mm x 1 mm galvanised strapping or the recommended 4 mm diameter suspension rod and hook combined with suspension spring clip and T-suspension plate.
- Span fish lines at various positions across the width of the room in line with the bottom surface of the wall angle.
- Attach main T's (T38) to the hangers which are at 1 200 mm centres. Adjust the hangers so that the face of T-section touches the fish lines.
- Fit Nutec Suspended Ceiling Board to grid.

Hold down clips.

- 1 195 mm x 595 mm ceiling boards - four hold down clips per board.
- 595 mm x 595 mm ceiling boards - two hold down clips per boards.
- All perimeter and cut boards must be secured with hold down clips.

Fig 2 : Grid layout for suspended ceilings using 600 mm cross T-section

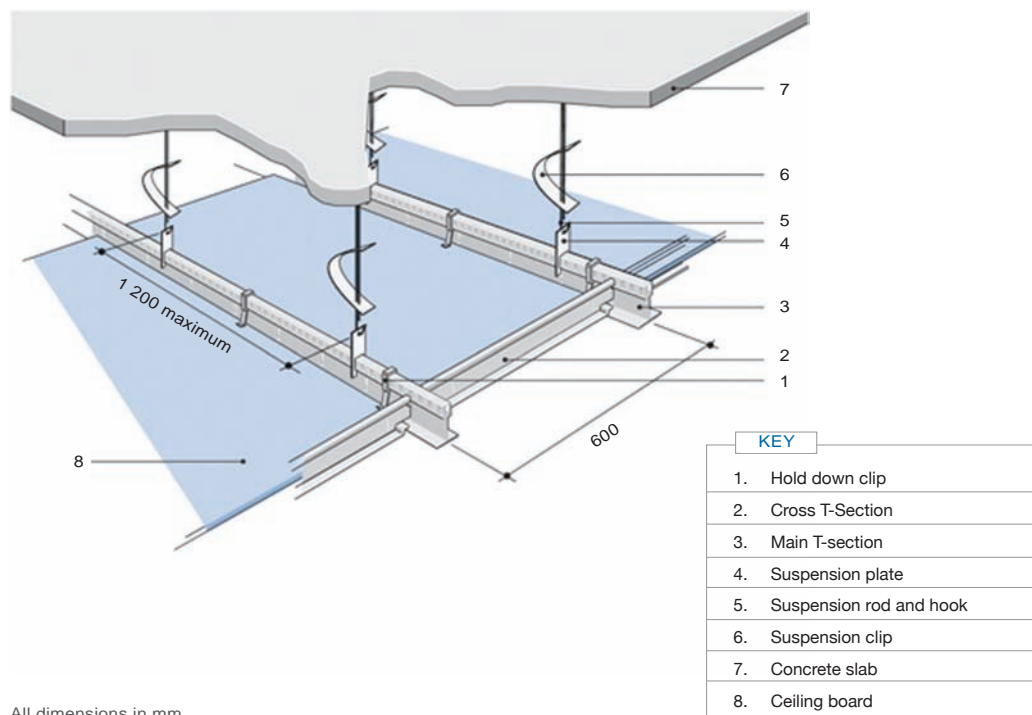
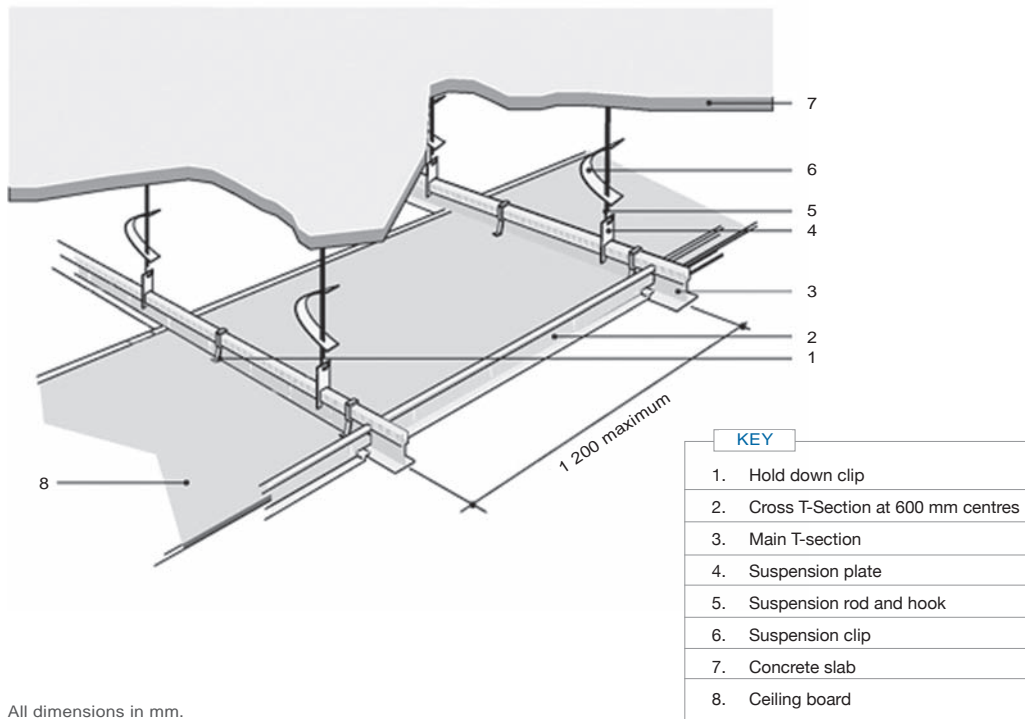


Fig 3 : Grid layout for Nutec Suspended Ceilings using 1200 mm cross T-section



Checking the Grid

- Check that the hangers for the grid are correctly spaced and adequately secured to the main structure.
- Check that the underside of the grid is perfectly level. If not, adjust accordingly.
- Check that the grid is adequately reinforced where light fittings are to be suspended from the ceilings and install supporting structure where necessary.

MECHANICAL AND PHYSICAL PROPERTIES

Mechanical and Physical Properties

- Mechanical and physical properties for plain and textured Nutec Suspended Ceiling Boards

Parameter	Unit	MD Nutec	Vinyl-Clad Board	Textured Tiles	Thermoclad	Test Method
Specifications						
DIMENSIONS						
Thickness Tolerance:						
4 mm	mm	± 0.5	± 0.5	-	-	SANS 803
6 mm	mm	± 0.5	± 0.5	± 0.5	-	SANS 803
29 mm	mm	-	-	-	± 15	SANS 803
31 mm	mm	-	-	-	± 15	SANS 803
Length Tolerance:						
up to 595 mm	mm	+ 0 or - 2	+ 0 or - 2	+ 0 or - 2	+ 0 or - 2	SANS 803
up to 1 195 mm	mm	+ 0 or - 2	+ 0 or - 2	+ 0 or - 2	+ 0 or - 2	SANS 803
up to 1 495 mm	mm	+ 0 or - 5	+ 0 or - 5	+ 0 or - 5	+ 0 or - 2	SANS 803
Width Tolerance:						
495 mm	mm	+ 2	+ 2	+ 2	+ 2	SANS 803
595 mm	mm	+ 3 or - 5	+ 3 or - 5	+ 3 or - 5	+ 3 or - 5	SANS 803
Squareness						
All sizes	mm	Maximum 2	Maximum 2	Maximum 2	Maximum 2	SANS 803
Edge Trueness						
All sizes	mm	Maximum 3	Maximum 3	Maximum 3	Maximum 3	SANS 803
Physical Properties						
Minimum MOR : With Grain	MPa	7.40 ⁽¹⁾	7.40 ⁽¹⁾	7.40 ⁽¹⁾	7.40 ⁽¹⁾	SANS 803
Minimum MOR : Across Grain	MPa	10.60 ⁽¹⁾	10.60 ⁽¹⁾	10.60 ⁽¹⁾	10.60 ⁽¹⁾	SANS 803
Target Density	g/cm ³	1.26	1.26	1.26	1.26	ISO 8336
Maximum Hygral Linear Expansion	mm/m	2.47	2.47	2.47	2.47	SANS 803

(1) Dried till constant weight (2) Saturated with water (3) Equilibrium conditions

MECHANICAL AND PHYSICAL PROPERTIES

■ Mechanical and physical properties for plain and textured Nutec Suspended Ceiling Boards (*cont.*)

Parameter	Unit	MD Nutec	Vinyl-Clad Board	Textured Tiles	Thermoclad	Test Method
Typical Values						
Thermal Conductivity	W/m.K	0.19	0.19	0.19	0.054	ASTM C518
Thermal Expansion Coefficient 20-70°C	°C ⁻¹	Negligible	Negligible	Negligible	-	SANS Doc.772/W1009
10-70°C	°C ⁻¹	9.31 x 10 ⁻⁶	9.31 x 10 ⁻⁶	9.31 x 10 ⁻⁶	-	ASTM C531
Moisture Movement With Grain	%	0.06	0.06	0.06	-	ASTM C1185
Across Grain	%	0.06	0.06	0.06	-	ASTM C1185
Moisture Content	%	6.25	6.25	6.25	-	ASTM C1185
Water Absorption	%	37.72	37.72	37.72	-	ASTM C1185
Permeability	-	No droplets formed	No droplets formed	No droplets formed	-	SANS 685 ASTM C1185 BS 4624
Water Vapour Transmission	ng/Pa.s.m ²	276.79	276.79	276.79	-	ASTM E96
pH	-	10-12	10-12	10-12	-	-
Mechanical Properties						
MOR : With Grain	MPa	4.20 ⁽²⁾	4.20 ⁽²⁾	4.20 ⁽²⁾	-	ASTM C1185
	MPa	11.20 ⁽³⁾	7.50 ⁽³⁾	7.50 ⁽³⁾	-	ASTM C1185
	MPa	9.40 ⁽³⁾	11.20 ⁽³⁾	11.20 ⁽³⁾	-	BS 4624
MOR : Across Grain	MPa	7.75 ⁽²⁾	7.75 ⁽²⁾	7.75 ⁽²⁾	-	ASTM C1185
	MPa	18.50 ⁽³⁾	12.10 ⁽³⁾	12.10 ⁽³⁾	-	ASTM C1185
	MPa	15.60 ⁽³⁾	16.40 ⁽³⁾	16.40 ⁽³⁾	-	BS 4624

(1) Dried till constant weight (2) Saturated with water (3) Equilibrium conditions

MECHANICAL AND PHYSICAL PROPERTIES

- Mechanical and physical properties for plain and textured Nutec Suspended Ceiling Boards (*cont.*)

Parameter	Unit	MD Nutec	Vinyl-Clad Board	Textured Tiles	Thermoclad	Test Method
Mechanical Properties (<i>continued.</i>)						
Classification in accordance to ASTM C1186	-	I	I	I	I	ASTM C1186
Compressive Strength Parallel to Surface of Board						
With Grain	MPa	10.86 ⁽²⁾	10.86 ⁽²⁾	-	-	ASTM D1037
	MPa	15.57 ⁽³⁾	15.57 ⁽³⁾	-	-	ASTM D1037
Across Grain	MPa	11.54 ⁽²⁾	11.54 ⁽²⁾	-	-	ASTM D1037
	MPa	19.58 ⁽³⁾	19.58 ⁽³⁾	-	-	ASTM D1037
Tensile Strength Parallel to Surface of Board						
With Grain	MPa	2.11 ⁽²⁾	2.11 ⁽²⁾	-	-	ASTM D1037
	MPa	3.26 ⁽³⁾	3.26 ⁽³⁾	-	-	ASTM D1037
Across Grain	MPa	2.24 ⁽²⁾	2.24 ⁽²⁾	-	-	ASTM D1037
	MPa	2.88 ⁽³⁾	2.88 ⁽³⁾	-	-	ASTM D1037
Tensile Strength Parallel to Surface of Board						
	MPa	0.83 ⁽²⁾	0.83 ⁽²⁾	-	-	ASTM D1037
	MPa	1.02 ⁽³⁾	1.02 ⁽³⁾	-	-	ASTM D1037
Young's Modulus (E.Mod)						
With Grain	MPa	5 337 ⁽³⁾	5 337 ⁽³⁾	-	-	ASTM C120
	MPa	3 974 ⁽²⁾	3 974 ⁽²⁾	-	-	ASTM C120
Across Grain	MPa	6 474 ⁽³⁾	6 474 ⁽³⁾	-	-	ASTM C120
	MPa	4 681 ⁽²⁾	4 681 ⁽²⁾	-	-	ASTM C120
Block Shear Strength						
	MPa	1.60 ⁽²⁾	1.60 ⁽²⁾	-	-	ASTM D143
	MPa	1.32 ⁽³⁾	1.32 ⁽³⁾	-	-	ASTM D143

(1) Dried till constant weight (2) Saturated with water (3) Equilibrium conditions

MECHANICAL AND PHYSICAL PROPERTIES

■ Mechanical and physical properties for plain and textured Nutec Suspended Ceiling Boards (*cont.*)

Parameter	Unit	MD Nutec	Vinyl-Clad Board	Textured Tiles	Thermoclad	Test Method
Fire Properties						
Fire Properties						SANS 10177: Part III
Surface Spread of Flame	Class	1	1	1	-	BS 476:Part 7
Spread of Flame Index	-	Nil	Nil	Nil	-	SANS 10177 Part III
Heat Contribution Index	-	Nil	Nil	Nil	-	SANS 10177 Part III
Smoke Emission Index	-	Nil	Nil	Nil	-	SANS 10177 Part III
Surface Fire Index	-	Nil	Nil	Nil	-	SANS 10177 Part III
Surface Burning Characteristics						
FSI	-	0	0	0	-	ASTM E84
SD	-	3	3	3	-	ASTM E84
Non-Combustibility		Non-combus.	Non-combus.	Non-combus.	-	BS 476 Part 4, SANS 10177: Part V
Continuous Temp.	-	150°C	150°C	150°C	-	-
Other Properties						
Frost Resistance						
Cycles Completed	-	50	-	-	-	ASTM C1185
Strength Ratio	%	78.5	-	-	-	ASTM C1185
Biological Resistance						
Rodent Resistance	Class	B1	B1	-	-	SANS 5419
Termite Resistance		No Damage	No Damage	-	-	SANS 5471
Resistance to Bacteria		No Growth	No Growth	-	-	BS 5980

(1) Dried till constant weight (2) Saturated with water (3) Equilibrium conditions

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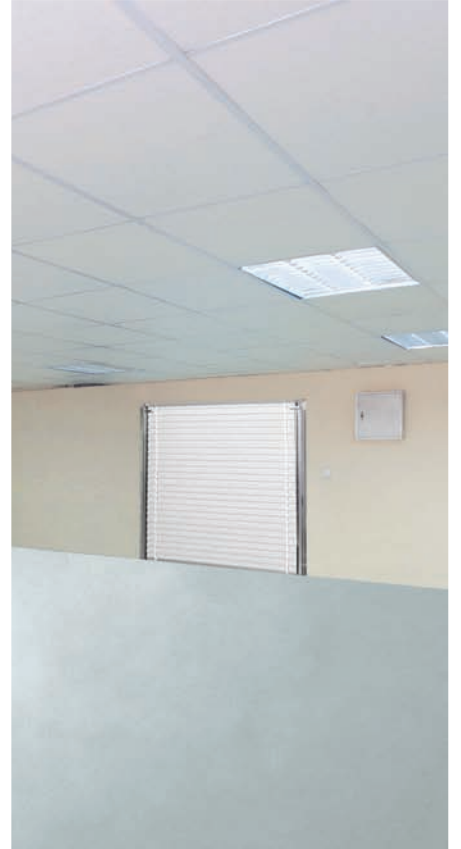
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