Catalogue of Green Building Materials

A guide towards SANS 10400 XA compliance in the Western Cape

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Western Cape Government
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GreenCape

Agenda

1. **Introduction**
2. Overview of Green Building sector interventions
3. Introduction to Green Building Material Catalogue and key Criteria
4. Next Steps

GreenCape Sector Development Agency – An introduction

- A section 21 company, special purpose vehicle, established with the help of the WCPG to unlock the investment and employment potential of the Western Cape economy.
- Key Focal Areas: Sector Development (agriculture, built environment, energy efficiency, renewable energy and waste) and Projects (Biofuels, Waste Economy, WISP, etc.)
- Some key interventions to date include:
  - Atlantis Green Technology SEZ(incentives include 15% corporate tax, competitive rentals)
  - Barrier Busting interventions through sector desk platforms (working groups, technology clusters, industry networking functions, etc.)
  - Clarity on legislative matters pertaining to green growth (REI4P, Industry standards, etc.)
  - Trade facilitation for green investments into the province

The introduction of the SANS 10400 XA regulations is widely viewed as a key enabler of green building in the country

New Regulations moving South Africa forward strongly towards sustainable building

GBCSA, (SEPTEMBER 2014)

SA construction sector evolves with use of alternative building methods

SPECIFILE (11 AUGUST Y 2014)

S.AFRICA'S GREEN BUILDING SECTOR ON THE RISE *GBCSA INTERVIEW WITH CNB AFRICA (26 JULY 2014)*

The Business Case for building green as an alternative is gaining momentum in the Western Cape

Public

Subsidy/Gap

Flagship housing projects with green interventions introduced (N2 GateWay, Delft 3 & 5, Legacy Project, Blue Downs, etc.)

Other government infrastructure projects

Planned social infrastructure budget allocations towards alternative building technologies by government (up to 60% of new social infrastructure for the next 3-5 years)

Private

Commercial

Over 50 Green Star Rated Buildings (incl. >12 in Western Cape) for commercial property developments

Residential

Residential developments using alternative building systems (Including Single dwellings, student accommodation)

Industrial

Light Retail construction (e.g MacDonald's franchise stores, factory utilities, etc.

Key Enablers

- Policy (Breaking New Ground, New Building Regulations, Norms and Standards etc.)
- Demand side factors (faster delivery associated with modular building systems)
- Quality (Insulated homes , integrated design, etc.)

- Policy (New Building Regulations, SANS10400 XA etc.)
- Energy Efficiency (increasing electricity prices)
- Market Trends (competitive, economic factors)
- Consumer Awareness (better education around benefits of green buildings, etc.)

The catalogue aims to unlock economic opportunities for suppliers of green building products in the province

The purpose of this catalogue
Is to act an information guide on the various materials and building technologies that are readily available in the market place that effectively comply with the new energy efficiency building regulations.

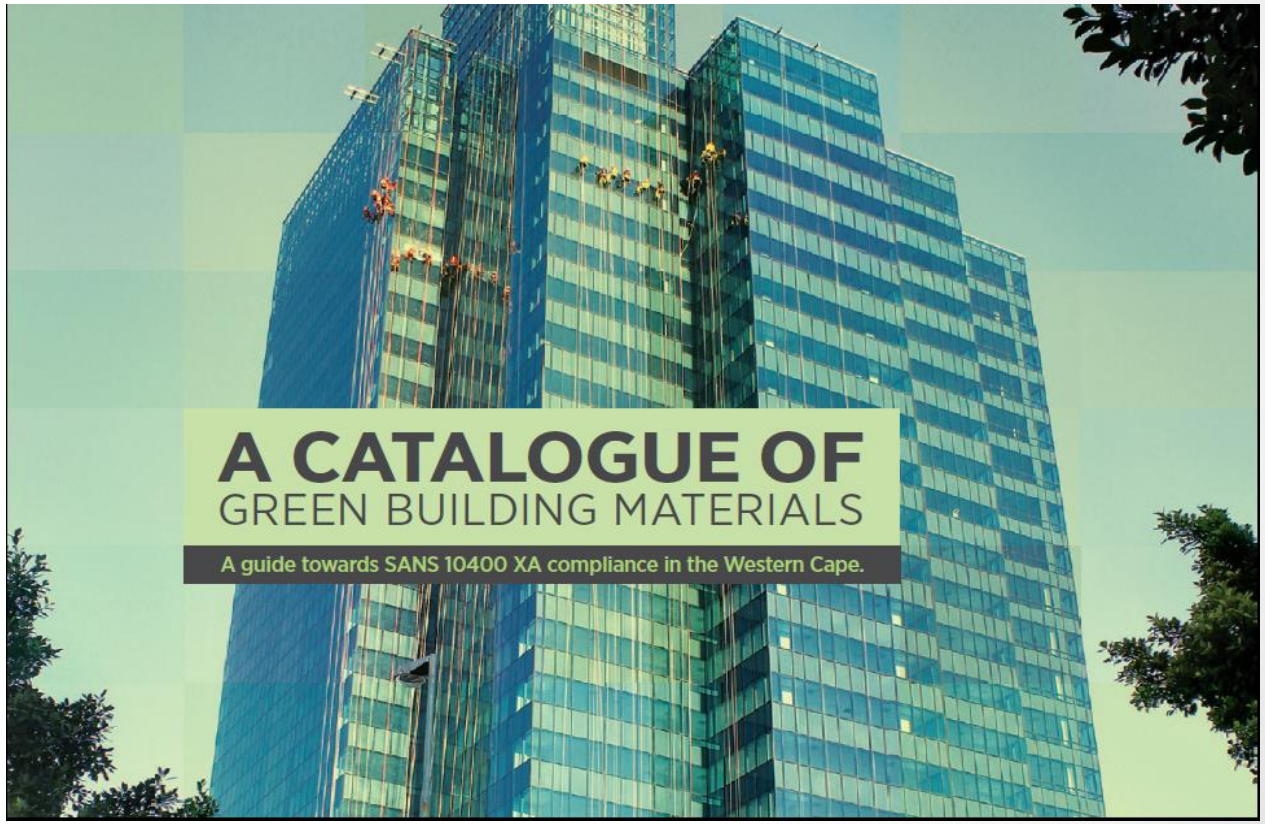

Image courtesy of the CCID

Green Building Material: Content

Insulation

Fenestration

Modular Technologies

Walling

Coatings

Quality and Control : Agrement SA, Industry stakeholders, Supplier Verification

Thermal Insulation

Taxonomy and key benefits

1. Bulk Insulation
2. Cellulose
3. Board Insulation
4. Reflective Insulation

Key benefits include: reduced energy consumption, reduced heat loss and estimated cost savings.

Key Criteria:

1. Dimensions (thickness, density factors)
2. R-value
3. Noise Reduction Efficiency
4. Resource efficiency factors (recycled, energy saving potential.

SANS 10400 XA criteria: R – Value requirements for Climate Zone 4 (e.g. R value of 3.7 for roof assemblies)

Thermal Insulation Example

Products in Market	Dimensions (thickness)	NRC	R – Value	Resource Efficiency Indicator
Top Hat Cellulose Insulation	135mm	-	3.3m².K/W	DIY
Isotherm Recycled PET	135mm	-	3.37m².K/W	DIY
Thermguard	135mm	-	3.55m².K/W	DIY
Isover® - FactoryLite (Glasswool)	**Industrial roof insulation:** over purlin installation (new buildings), between purlin installation (existing buildings). Should not be installed in applications where the facing material is exposed to direct or indirect Ultraviolet radiation.			
	50mm	0,7	1.28m².K/W	DIY
	75mm	-	1.92m².K/W	DIY
	100mm	-	2.56m².K/W	DIY
	135mm	-	3.346m².K/W	DIY
ThermocousTex® - Fibre (Recycled Polyester)	**Domestic and Industrial:** Suitable for domestic roofing and cavity walls for wooden houses where acoustic and thermal insulation is required.			
Over Ceiling	50mm	0,73	1.35m².K/W	
Over Purlin (with Laminated Foil Roll)	25mm	0,73	2.05m².K/W	
ThermocousTex® - Plain Board (Recycled Polyester)	Used over or between purlins within ceiling voids, as cladding or in cavity walls; ideal for both acoustic and thermal insulation, especially in humid areas (up to 95%).			
	25mm	-	0.74m².K/W	
	35mm	-	1.03m².K/W	
	50mm	0,69	1.44m².K/W	
ThermocousTex® Plasterboard Ceilings	35mm; 2,80kg/m²	0.65	1.02m².K/W	

Glossary

NRC:
Noise Reduction Coefficient

R-Value:
Thermal Resistance

- Cost Savings
- Energy Savings
- Fire Retardant
- Recycled
- Lightweight
- DIY - Easy Installation

Key

Recommended cost effective insulation for Western Cape

Note

The 50mm + 75mm insulation can be installed as top up in homes that already have insulation but currently do not meet the requirements for the buildings in SANS 10400 XA.

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Fenestration

Taxonomy and key benefits

1. Aluminium
2. Timber
3. uPVC

Key benefits include: reduced energy consumption, reduced heat loss and estimated cost savings.

Key Criteria:

1. Solar Heat Gain
2. U-value
3. Glazing type
4. Resource efficiency factors (recycled, energy saving potential.

SANS 10400 XA criteria: 15% of net floor area deemed to satisfy energy efficiency requirements

Fenestration Example

Glossary

E: Emissivity

PVB: Polyvinyl Butyral

PVC: Polyvinyl Chloride

SHGC: Solar Heat Gain Coefficient

U-Value: Thermal Transmittance

uPVC: Unplasticised Polyvinyl Chloride

- Cost Savings
- Energy Savings
- Recycled
- Easy to clean
- DIY - Easy Installation

Products in Market	Product Range	Dimensions (width x height)	Glazing	SHGC	U-Value	Resource Efficiency Indicator
SolarShield*	Double glazed environmental window solution for commercial buildings that provides high solar control in a range of colours. Typical applications include curtain walls to office blocks & entrance to commercial buildings; Solar energy control; glazed partitions and screens and skylights.					
	Laminated Safety Glass	Variable	PVB	-0.49-0.69	-5.80W/m²/K	
uPVC	**Application:** Mostly for window frames and sills when installing double glazing in new buildings, or to replace older single glazed windows.					
*Betcrete	Top Hung Double Glazing	Variable	4mm +6mm +4mm	-0.49	-4.13W/m²/K	DIY
*Betcrete	Top/Side Hung	Variable	6.38mm PVB Clear Glass	0.55	5.7W/m²/K	DIY
**REHAU Ecotec uPVC Profile System	Double Glazing	1200mm x 1500mm	24mm	0.55	2.7W/m2/K	
Tritec (New look collection)	Single Glazing	Variable	4mm	0.55	4.8W/m²/K	
Tritec (New look collection)	Double Glazing No Emissivity Glass	Variable	24mm	0.55	2.7W/m²/K	
Tritec (New look collection)	Double Glazing with Low E Glass	Variable	24mm	0.55	2.0W/m²/K	

Thank you

1. To access a copy of the Green Building material catalogue please visit our website, www.greencape.co.za

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