

Appraisal of a Building Product



Tegola Candese Roof Membrane System

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General Information

Description of Product

The Tegola Candese Roof Membrane system comprises of "Safety Colour", a 4.5mm thick bitumen based membrane protected by an adhered layer of UV resistant coloured mineral chips, applied over "Safety Poly", a 3mm or 4mm thick bitumen membrane, applied to a prepared substrate; usually treated ply or concrete. Where the

substrate is porous or dusty, use is made of S primer / adhesive to ensure proper adherence of the Safety Poly. Trained and approved tradesmen are required to install the product. The Tegola Candese Roof Membrane system is referred to in this appraisal as the 'Tegola Candese Roof Membrane System'.



R715 Completed October 2007
Verification of Clauses B2, and E2
of the New Zealand Building Code

GBS GROUP LTD

PRODUCT DISTRIBUTION & WAREHOUSING

Trade Literature

Tegola Safety Poly & Safety Colour product data sheets and Tegola Technical Specification GBS-01 Doc issue A August 2008 describe the correct method of installation.

Applicant

The applicant is GBS Group Ltd.

Scope & Limitations

Tegola Candese Membrane system has been appraised as a roofing membrane system installed over plywood substrates (with the limitations described in Para 8.5.1, 8.5.2 and 8.5.3 of E2/AS1), smooth concrete (clean & cured for at least 7 days), and compressed fibre-cement sheet complying with AS2908.2 or a specified performance requirement described in this appraisal in order to meet the Performances of the Building Code claimed in this Appraisal.

This limitation includes restricting the use of the products to timber framed buildings complying with NZS 3604: 1999 'Timber Framed Buildings, and NASH 3405 for lightweight steel framed buildings and the use of Ecoply roofing and decking material where the substrate is plywood.

E2/AS1 refers to the acceptable solution contained in the Department of Building and Housing's Compliance Document for New Zealand Building Code Clause E2 'External moisture', Third Edition including Amendments 1 and 2 and Erratum 1. The Tegola Candese Roof Membrane system has been appraised as providing an alternative to the requirements of E2/AS1.

The installation shall be as described in the Tegola Safety Poly & Safety Colour product data sheets and Tegola Technical Specification GBS-01 Doc issue A August 2008 and carried out by GBS Group Ltd. Approved Licensed applicators.

Detailed Information

Technical Description

The Tegola Candese Roof Membrane system comprises of two thick sheet membranes applied by torch to the substrate or base sheet.

The bitumen membranes are specially formulated to withstand a wide range of weather conditions, particularly on low angle roofs (<5°). This property makes

the use of sheet membrane roofing products suited to roofs where there is a change in angle, usually with the lower roof angle approaching flat.

The upper sheet membrane is particularly UV resistant owing to the sheet having small mineral granules incorporated into the surface which require virtually no maintenance.

Product Data

Tegola Candese membranes are manufactured from prefabricated polymer bitumen materials incorporating various types of reinforcement. The addition of the polymers gives the membranes the property of being able to tolerate a wide range of hot and cold weather conditions.

Safety Poly is a 3mm or 4mm thick underlay that is applied to the prepared substrate by way of burner / torch.

Safety Colour is a 4.5mm thick membrane with a coloured mineral chip finish that is applied over the Safety Poly by way of burner / torch.

In situations where there are areas of application are greater than 30 sq.m, then a vent must be installed for each 20 sq.m. (supplied by GBS Ltd).

Where the substrate is porous such as on concrete slabs, use must be made of a special primer to improve long term adhesion of the Safety Poly membrane.

Note: 4mm Safety Poly is also used as an accessory where required under Tegola Asphalt Roof Shingles. Refer to BEAL Appraisal R715.

Storage, Handling & Safety Issues

The rolls of membrane can be stored indefinitely when kept dry and out of the weather.

Tegola Candese Roof Membrane system requires the tradesmen to wear appropriate safety clothing and keep a fire extinguisher (min. 9kg) as a preventative measure near the work area.

The correct health and safety procedures are described in the trade literature.

Specific Performances with the NZ Building Code

Clause B2 - Durability

The Tegola Candese Roof Membrane system when used in accordance with this Appraisal will meet Performance B2.3.1(b) of the New Zealand Building Code. In other words, the product as appraised will be durable for at least 15 years.

Clause E2 - External Moisture

The Tegola Candese Roof Membrane system complies with clause E2.3.2 of the



Building Code when installed in accordance with this Appraisal. In other words, the product as appraised will “prevent the penetration of water that could cause undue dampness, or damage to building elements”.

Clause F2 – Hazardous Building Materials

The product contains no hazardous materials complying with clause F2.3.2 of the Building Code.

Basis of Appraisal

Clause B2 - Durability

For assessing the durability of the Tegola Candese Roof Membrane system, European Standard ‘UNI EN 13707 - Reinforced bitumen sheets for roof waterproofing’, was used as the criteria for the assessment of conformance with the performance requirements of the New Zealand Building Code.

Durability was assessed for key performances including:

- Dimensional consistency
- Heat stability
- Cold Flexibility
- Tensile strength
- Elongation
- Tear Resistance
- Resistance to static load
- Joint strength

[Refer to the Verification of Compliance on page 4.]

E2 - External Moisture

The Tegola Candese Membrane system was also assessed for ‘proper design’ and tested to ‘verify conformance’ with performance requirements of BS EN 13707 and therefore Clause E2.

The Tegola Candese Roof Membrane system was also evaluated in practical building situations to assess the following:

- Ease of installing the product / system
- Potential risks of non performance when being installed
- Any external factors that could affect the quality of the installed product
- Ease of repair or maintenance (where applicable)
- The impact of other building products /systems when in contact
- Comparison with other similar

Products.

The completed assessments and test results demonstrated conformance with the requirements of Clause E2 (External Moisture) of the NZ Building Code.

F2 Hazardous Building Materials

For assessing the potential for the Tegola Candese Roof Membrane system to

become hazardous to health BEAL considered the materials used in the manufacture of the membrane and equipment used for their installation.

Product QA Information

Tegola Candese Roof Membrane materials and accessories are manufactured to ISO 9001 and BS EN 13707 standards. All products used in New Zealand are covered by a Quality Management System to ensure continuous compliance with the New Zealand Building Code.

Design Considerations

The Tegola Candese Membranes are supplied in 10m rolls 1m wide (10 sq.m) and weigh approximately 4 Kg/sq.m.

The Tegola Candese Roof Membrane system is most commonly applied to plywood substrates. Reference shall be made to the ‘Ecoply roofing and decking manual’ when plywood is specified as the substrate. The Tegola Candese Roof Membrane system can also be installed on concrete slab but shall have a special primer / adhesive applied to ensure long term adhesion.

The Tegola Candese Roof Membrane system can be used where a fire rating and or thermal performance is required, however these features are not part of this appraisal. Technical information about fire and thermal performance can be obtained on request from GBS Group Ltd.

The owner is expected to supply and install in addition to the constructed framing:

- A suitable roof substrate with a fall of at least 1.5°.
- Where the roof area is greater than 30 sq.m., ventilation points for every 20 sq.m.
- Suitable bottom edge flashing
- Any kick-out flashings or scuppers or droppers or overflows as approved by the installer



- Blocking to allow for the installation of any penetrations, fixings or the like that are attached to the roof
- Anything else not specifically expected to be supplied by the roofing installer

The owner is also responsible for the protection of any substrate until the roofing installer can commence the installation of the membranes.

The installer is expected to supply the materials and accessories described in Tegola Safety Poly & Safety Colour product data sheets and Tegola Technical Specification GBS-01 Doc issue A August 2008.

This includes:

- Safety Poly
- Safety Colour
- Primer / adhesive
- Vents (where required)

When specifying the 'Tegola Candese Roof Membrane System' the product name should be accompanied by the BEAL Appraised number. E.g. "Tegola Candese Roof Membrane System: BEAL Appraised R715".

Verification of Compliance

Methods Used

[Options suggested by the Department of Building and Housing]

- A technical opinion from a laboratory or testing facility - BEAL
- In service history - over 29 years in Europe, 10 years in New Zealand.

This appraisal uses the in service history provided by the manufacturer, together with test results from a recognised laboratory for verification of conformance with European Standard BS EN 13707, together with testing by BEAL as the 'methods' for demonstrating compliance with the relevant clauses of the Building Code.

The manufacture of the membrane has been assessed by SGS United Kingdom Ltd, and certified as meeting the requirements of Directive 89/106/EEC3 for product compliance with EN 13707:2005 Flexible sheets for waterproofing.

NOTE

For information about BS EN Performance Criteria, refer to BSI.

For information about Test Methods developed by BEAL, refer to www.bqi.org.nz

Sources of Information

- BS EN 13707:2005 Flexible sheets for waterproofing
- Code of Practice for the Selection, Design and Installation of Torch-on Membrane Systems (modified bituminous materials) Developed by the Membrane Group (being members of the Roofing Association of New Zealand)
- Data provided by the manufacturer (General Membrane)
- Data provided by the importer
- BEAL Test Certificate TR071031
- BEAL Test Certificate TR071106
- Roofing Technologies Technical Manual - Tegola Canadese
- Ecoply roofing & decking manual - Carter Holt Harvey
- Quality Management System of GBS Group Ltd.



Conditions of this Appraisal

1. The Products continue to comply with the quality assurance measures of GBS Group Ltd. These quality assurance measures have been viewed and approved by BEAL.
2. The products comply with the conditions of this appraisal and with the General APP Tegola Candese -10°C Roof Membrane system Technical Literature.
3. GBS Group Ltd continues to have the product range reviewed and quality assurance programme audited annually by BEAL.
4. The overall quality and performance of the products are maintained.
5. GBS Group Ltd. shall notify BEAL of any changes in specification or quality assurance measures prior to them coming into effect.
6. BEAL staff use New Zealand or appropriate international Standards or a BQI Interim Performance Standard (in the absence of a relevant New Zealand Standard) for carrying out testing and assessments. The evaluation of products is performed either at BEAL's facilities or at a nominated laboratory and carried out by experienced and qualified specialists.
7. The system has been tested against one or more of the following criteria which was applicable at the time of the appraisal:
 - a measurable criteria described in the Building Code, or
 - a relevant New Zealand or Australian Standard, or
 - an appropriate requirement set out in a New Zealand Department of Building & Housing document, or
 - a requirement set out in a Building Quality Institute "Interim Performance Standard"
8. BEAL's verification of the building product or system complying with one or more abovementioned criteria is given on the basis that the criteria used were those that were appropriate to demonstrate compliance with the Building Code at the date of this appraisal. In the event that the criteria are withdrawn or amended at a later date, this Appraisal may no longer remain valid.

BEAL's new approval logo is the assurance that a building product complies with the requirements of the New Zealand Building Code.



Using the latest in Australasian and overseas testing and assessment methods and criteria, BEAL's logo is a sign of confidence -

- ◆ Confidence for the architect or designer that the product literature and details will meet their specific needs;
- ◆ Confidence for the Building Certifying Authority that the product has been evaluated in a rigorous manner to demonstrate or otherwise, compliance with the relevant Clauses of the NZ Building Code;
- ◆ Confidence for the builder and installer that the Technical Manuals are clear and easy to understand.

BEAL's new 'Approval Logo' is being promoted throughout the building industry thus ensuring maximum exposure for all products that carry this logo. For further information contact Colin Prouse at BEAL on (+64) 4 233 6661 or e-mail at sales@beal.co.nz

Contact Details

GBS GROUP LTD

PRODUCT DISTRIBUTION & WAREHOUSING

The distributor of the Tegola Candese Roof Membrane system is
GBS Group Ltd.

GBS Group Ltd. can be contacted at:

Head Office 09 268 7392

Fax 09 268 7391

Web Site www.gbsgroup.co.nz

Sales and technical enquires to Brad McNaughten



BEAL can be contacted at:

Head Office 04 233 6661

Fax 04 233 6662

E-mail sales@beal.co.nz

Web Site <http://www.beal.co.nz>

Further information about this Appraisal can be directed to Mr Colin Prouse