

Appraisal of a Building Product



The Rockcote INTEGRA Cavity Plus Cladding System



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C923 Completed October 2009
Verification of Clauses B1, B2, C3
E2 and F2
of the New Zealand Building Code



General Information

Specific Performances with the NZ Building Code

Clause B1 - Structure

The Rockcote Integra Cavity Plus Cladding System when used in accordance with this Appraisal will meet Performance Requirements of B1.3.3 (a), (f) and (h) of the New Zealand Building Code.

Clause B2 - Durability

The Rockcote Integra Cavity Plus

Cladding System when used in accordance with this Appraisal will meet Performance B2.3.1(b) 15 years, B2.3.1 (c) 5 years and B2.3.2 of the New Zealand Building Code.

Clause C3 - Spread of Fire

The Rockcote Integra Cavity Plus Cladding System when used in accordance with this Appraisal will meet Performance requirement of C3.3.5 of the New Zealand Building Code.

Clause E2 - External Moisture

The Rockcote Integra Cavity Plus Cladding System complies with clause E2.3.2 of the Building Code when installed in accordance with this Appraisal.

Clause F2 – Hazardous Building Materials

The product contains no hazardous materials complying with clause F2.3.1 of the Building Code.

An Alternative Solution:

The Rockcote Integra Cavity Plus Cladding System has been appraised as providing an alternative solution to the requirements of E2/AS1.

Description of Product

The Rockcote Integra Cavity Plus Cladding System is comprised of durable, 50mm thick light-weight autoclaved aerated concrete panels, fixed by way of galvanised screws into vertically mounted VH Grade Polystyrene or H3.2 timber battens, which are fixed in turn to the framing. The panels are mounted horizontally in a stretcher-bond pattern and glued at their edges to each other except where control joints are installed. Once the panels have been installed, window, door and other flashings are installed for moisture management. When the windows, doors, meter boxes and the like have been installed, the panel substrate is then rendered and coated to provide an attractive weather resistant finish. The product can be used for buildings situated in Very High wind zones as described in NZS3604.

Applicant

The applicant is Rockcote Resene Ltd.

Purpose of this Appraisal

The purpose of this Appraisal is to verify compliance with the relevant clauses of the NZ Building Code based on overseas service history for AAC panel, the manufacturer's technical information, with assessments and testing carried out by BEAL.

Trade Literature

The following literature describes the correct method of installation:

- Rockcote Integra Cavity Plus Render System RenderSpec™
- Rockcote TradeSpec™ Documents.

Scope & Limitations

The Rockcote Integra Cavity Plus Cladding System has been appraised as an external cladding system to be used with timber framing complying with NZS3604 and steel framing complying with NASH 3405, with cavity battens and all accessories complying with either compliance document E2/AS1 or a specified performance requirement described in this appraisal.

The cladding system is to be installed on vertical walls and may be used in wind zones up to Very High as described in NZS3604.

Detailed Information

Technical Description

The Rockcote Integra Cavity Plus Cladding System is deemed a Medium Wall Cladding based on NZS 3604, being approx 30 to 40 Kg /m², comprising of approximately 50mm thick panels of autoclaved aerated concrete (AAC) nominally 2200mm by 600mm, containing coated steel wire reinforcing to prevent damage while handling.

FRAMING:

The Rockcote Integra Cavity Plus Cladding System must be used in conjunction with timber framing and other components of a wall assembly that comply with E2/AS1 or in place of timber framing with lightweight steel framing that complies with NASH 3405, in all respects except as varied herein, in order to meet the Performances of the Building Code claimed in this Appraisal. This limitation includes requiring the cladding system to incorporate the use of wall wraps that comply with Table 23 of E2/AS1 and window sealing tape that complies with AC148, and in place of S4.4. with UV testing for 500hrs as per ASTM D4799 with nail sealability testing before and after UV conditioning.

Battens are to be either 40mm x 22mm VH Grade Polystyrene or, H3.2 grade 40mm x 20mm timber battens. The polystyrene battens are fixed temporarily by way of a nominated adhesive while the timber battens are fixed by way of galvanized annular grooved nails. In both cases the panel is fixed through



he batten material into the timber or steel framing.

SUBSTRATE:

The Rockcote Integra Cavity Plus Cladding System uses 50mm AAC panels as the cladding substrate.

FLASHINGS:

The Rockcote Integra Cavity Plus Cladding System incorporates a nominated DPM coating or tape when a concrete slab with a rebate is used, and the Rockcote Starter Strip where the cladding overhangs the slab edge.

Rockcote flashings in conjunction with nominated flexible flashing materials are used at head, jamb and sill positions of windows, doors and other rectangular openings, such as meter boxes, to provide moisture management in the cavity.

COATING SYSTEM:

For a render system Rockcote's Render Prime, PM100 Quick Render and Acrylic Texture are used. For a coating system, Resene X200 or Rockcote Armour are used.

Storage & Handling

The AAC panels are supplied stacked flat on pallets and protected from the weather by plastic sheeting. Handling of the sheets requires care to prevent damage to corners and excessive flexing.

The Rockcote's Render Prime is supplied in 15Litre pails, PM100 Quick Render in 20kg bags, and Acrylic Texture in 20 Litre pails (24.5kg). Resene X200 is supplied in 4 and 15 Litre pails, while Rockcote Armour is supplied in 4 and 10 Litre plastic pails.

All products shall be stored and protected from the weather and to prevent accidental damage.

How to install the product

The product shall be installed as described in the Rockcote TradeSpec™ Documents Version 3 dated September 2009. Only certified installers are approved to install the cladding system.

All aspects of the supply, installation and maintenance shall be as described in the Building Product Quality Plan.

Basis of Appraisal

[BEAL use the Compliance Verification Procedure to demonstrate compliance with the relevant clauses of the NZ Building Code based on a risk-analysis procedure.]

Clause B1 - Structure

The ability of the Rockcote Integra Cavity Plus Cladding System to support self weight and wind loadings, was assessed by an independent engineer.

B2 - Durability

For assessing the durability of the Rockcote Integra Cavity Plus Cladding System, an evaluation of Durability for the following was carried out:

- The nominated substrate, coated wire reinforcement as well as AAC bands and sill blocks
- The VH Grade Polystyrene battens & their fixings
- The nominated Adhesive
- The H3.2 timber battens
- The nominated Rockcote flashing materials
- The DPM coating or tape for concrete rebates
- The nominated flexible flashing materials
- The Rockcote Render System
- The Rockcote Armour and Resene X200 coatings

[Refer to Verification of Compliance on page 4.]

Clause C3 - Spread of Fire

For assessing the resistance to spread of fire of the Rockcote Integra Cavity Plus Cladding System, historical information covering the use of typical hi-build acrylic coatings was used.

E2 - External Moisture

The Rockcote Integra Cavity Plus Cladding System was assessed for functionality based on data provided by the manufacturer and an OPUS appraisal for a similar system and the control joint system tested by BEAL to verify compliance with Clause E2. [Refer to the Verification of Compliance - page 4.]

The Integra Cavity Plus Cladding System was also evaluated in



practical building situations to assess the following:

- Ease of installing the system
- Potential risks of non performance when being installed
- Any external factors that could effect 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.

These assessments and tests demonstrated compliance with the requirements of Clause E2 (External Moisture) of the NZ Building Code.

F2 Hazardous Building Materials

BEAL considered the materials used in the installation of AAC panels, the application of jointing materials, the coating system, and concluded that no threat is presented. Installers of the Rockcote Integra Cavity Plus Cladding System shall wear appropriate protective clothing.

Product QA Information

- The overseas manufactured AAC panel, is manufactured to an in-house standard.
- The AAC jointing compound/ adhesive is a proprietary product manufactured to an in-house standard.
- All galvanised screws shall meet the requirements of Table 20 of E2/AS1.
 - The 40mm x 22mm VH Grade Polystyrene battens are manufactured to AS1366.3.
 - Timbers battens when used, are manufactured to NZS3602:2003
 - The DPC coating and if used, tape, is manufactured to comply with Table 23 of E2/AS1.
 - The Backing Rod is a proprietary product manufactured to comply with Para 9.2.4.1 of E2/AS1.
 - The Sealant is a proprietary product manufactured to comply with Para 9.2.4.1 of E2/AS1.
 - The nominated low foaming PU foam is a proprietary product manufactured to comply with selected ASTM Test Methods*
 - The nominated window sealing tape (used for sealing other penetrations as well) is a proprietary product that complies with selected ASTM Test Methods*.

All products are covered by Rockcote System's Quality Manual to ensure the completed cladding system will continue to comply with the New Zealand Building Code requirements.

Design Considerations

The Rockcote Integra Cavity Plus Cladding System provides a number of features and benefits not covered in this appraisal. These include Thermal Insulation, Sound Insulation, Fire Resistance, Ease of Working With and Eco-friendly Composition of the panels.

For further information about these contact the nearest Rockcote Applicator found on the web site www.rockcote.co.nz

*Selected by BEAL to demonstrate continuous compliance with the NZ Building Code.

Verification of Compliance

Methods Used

- Testing and assessment by a laboratory or testing facility (BEAL)
- In service history of AAC - over 16 years in Australia and 12 years in New Zealand
- In service history of the Resene X200 and Rockcote Armour coatings

This appraisal uses the Compliance Verification Procedure for demonstrating Compliance with the performance requirements of the NZ Building Code, as the 'method' for demonstrating compliance with the relevant clauses of the Building Code.

The following documentation was consulted:

- New Zealand Building Code
 - Acceptable Solutions E2/AS1
 - BEAL Test Report TR080829a - Dimensions of AAC
 - BEAL Test Report TR080829b - Water Vapour Transmission
 - BEAL Test Report TR080904 - AAC Density
 - BEAL Test Report TR080905 - AAC Compression
 - AZUMA Test Report AZT0125.08 - Corrosion Resistance (of reinforcing wire)
 - BEAL Test Report TR090916 - Adhesive Strength of the render, before and after freeze-thaw conditioning
 - BEAL Test Report TR090918 - Density of the render
 - BEAL Test Report TR090918a - Flexural capacity of the render
 - BEAL Test Report TR090918b - Potential shrinkage cracking of the render
 - BEAL Test Report TR091007 - water resistance of the render
 - Weathertightness testing by others to E2/VM1
 - Various ASTM Standards and Test Methods
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- An assessment for ease of use carried out by BEAL.
 - Technical and trade literature provided by the manufacturer.



Conditions of this Appraisal

1. The Products continue to comply with the quality assurance measures of Rockcote Resene Ltd. These quality assurance measures have been viewed and approved by BEAL.
2. The products comply with the conditions of this appraisal and with Rockcote's Integra Cavity Plus Render System RenderSpec™, Rockcote TradeSpec™ Documents and the Rockcote's Building Product Quality Plan.
3. Rockcote Resene Ltd continues to have quality of the product components and installation monitored and their Building Product Quality Plan audited annually by BEAL.
4. The overall quality and performance of the products are maintained.
5. Rockcote Resene 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 BEAL Test Method or 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 is withdrawn or amended at a later date, this Appraisal may no longer remain valid.
9. This appraisal will be reviewed within five years from the date of issuance unless audits require otherwise. In the event that there are changes not approved by BEAL, this appraisal will no longer be valid.

Authorised Signatory -

6 November 2009

C R Prouse - Director

Date of Issue



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



The manufacturer of the Integra Cavity Plus Cladding System is Rockcote Resene Ltd.

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