

Appraisal of a Building Product



The PLASTABRICK *Enviro*[®] AAC Panel System



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General Information



**C926 Completed March 2010
Verification of Clauses B1, B2,
E2 and F2
of the New Zealand Building Code**

Specific Performances with the NZ Building Code

Clause B1 - Structure

The PLASTABRICK Enviro AAC Panel System when used in accordance with this Appraisal will meet Performance Requirements of B1.3.3 of the New Zealand Building Code.

Clause B2 - Durability

The PLASTABRICK Enviro AAC Panel System when used in accordance with this Appraisal will meet Performance B2.3.1(b) (15 years), B2.3.1 (c) (5 years) of the New Zealand Building

Code.

Clause E2 - External Moisture

The PLASTABRICK Enviro AAC Panel System when used in accordance with this Appraisal will meet Performance requirement of E2.3.2 of the New Zealand Building Code.

Clause F2 - Hazardous Building Materials

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



Description of Product

The PLASTABRICK Enviro AAC Panel System is comprised of durable, 50mm thick light-weight autoclaved aerated concrete (AAC) panels, fixed by way of bugle-head galvanised screws into vertically fixed H3.2 timber AAC Enviro Ties, which are fixed in turn over a building wrap 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 and control joints 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 has the Plastabrick Premium Decorative Texture system applied to provide a durable weather resistant finish.

The product can be used for buildings situated in Very High wind zones as described in NZS3604.

Applicant

The applicant is Masons Plastabrick 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 PLASTABRICK Enviro AAC Panel System Technical Manual describes the correct method of installation.

Scope & Limitations

The PLASTABRICK Enviro AAC Panel 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 the previously mentioned 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 only be used in wind zones up to Very High

as described in NZS3604.

Detailed Information

Technical Description

The PLASTABRICK Enviro AAC Panel 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 PLASTABRICK Enviro AAC Panel 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 45mm x 45mm x 200mm long H3.2 grade timber battens. The battens are fixed by way of 90mm galvanized annular grooved nails.

SUBSTRATE:

The PLASTABRICK Enviro AAC Panel System uses 50mm AAC panels as the cladding substrate.

FLASHINGS:

The PLASTABRICK Enviro AAC Panel System incorporates a nominated DPC and the Plastabrick base shoe with Plastabrick vents when a concrete slab with a rebate is used, or where the cladding overhangs the slab edge, the Plastabrick base shoe cavity closer.

Plastabrick PVC Jamb, Sill 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



cavity.

COATING SYSTEM:

For providing weather protection the AAC panel is firstly rendered using the Plastabrick render system followed by the application of the Plastabrick Premium Decorative Texture system.

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 renders are supplied in 20 kg paper bags while the coatings are supplied in xxLitre 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 PLASTABRICK Enviro AAC Panel System Technical Manual dated March 2010. Only certified installers are approved to install the cladding system.

All aspects of the supply, installation and maintenance shall be as described in the Masons 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 PLASTABRICK Enviro AAC Panel System to support self weight and wind loadings, was assessed by an independent engineer.

B2 - Durability

For assessing the durability of the PLASTABRICK Enviro AAC Panel 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

- The nominated Adhesives
 - The H3.2 timber battens
 - The nominated Plastabrick PVC flashing materials
 - The DPM coating or tape for concrete rebates
 - The nominated flexible flashing materials
 - The Plastabrick Render System
 - The Plastabrick Premium Decorative Texture coatings
- [Refer to Verification of Compliance on page 5.]

E2 - External Moisture

The PLASTABRICK Enviro AAC Panel 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 5.]

F2 - Hazardous Materials

The PLASTABRICK Enviro AAC Panel System was also evaluated in terms of F2—Hazardous Building Materials.

BEAL considered the materials used in the installation of 50mm AAC Cladding System, and concluded that no threat is presented. Installers of the 50mm AAC Cladding System shall wear appropriate protective clothing.

Product QA Information

- The overseas manufactured AAC panel, is manufactured to an in-house standard.
- The Plastabrick AAC jointing glue is a proprietary product manufactured to an in-house standard.
- All galvanised screws shall meet the requirements of Table 20 of E2/AS1.
- The 45mm x 45mm x 200mm timber battens are manufactured to NZS3602:2003
- The DPC tape is manufactured to comply with Table 23 of E2/AS1.
- The Low foaming PU foam is a proprietary product manufactured to comply with AAMA 812-04.
- The Sealant is a proprietary product manufactured to comply with either Type F, Class 20LM or 25LM of ISO 11600, or b. low modulus Type II Class A of Federal Specification TT-S-00230C.
- The nominated low foaming PU



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 Masons Plastabrick Building Product Quality Plan to ensure the completed cladding system will continue to comply with the New Zealand Building Code requirements.

Design Considerations

The PLASTABRICK Enviro AAC Panel System provides fire resistance, sound reduction and thermal performance which is not covered in this appraisal.

For more information about these features contact the nearest Plastabrick Applicator.

*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
- BEAL expert opinion covering the Plastabrick render system and coating system

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 - Dimensions of AAC
 - BEAL Test Report - Adhesion of render and coating system
 - BEAL Test Report - AAC Density
 - BEAL Test Report - AAC Compression
 - BEAL Test Reports covering the Plastabrick renders and Plastabrick Premium Decorative Texture system
 - Weathertightness testing by BEAL 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 Product(s) or system continues to comply with the quality assurance measures of the manufacturer, Masons Plastabrick Ltd. These quality assurance measures have been viewed and approved by BEAL.
2. The products comply with the conditions of this appraisal and with Masons Plastabrick Ltd.'s Building Product Quality Plan.
3. Masons Plastabrick Ltd. continues to have quality of the product or system components and installation training process monitored and their Building Product Quality Plan audited annually by BEAL.
4. The overall quality and performance of the product(s) or system are maintained. A finding of substandard product or a system will require a Special Product Audit being conducted by BEAL.
5. Masons Plastabrick 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 BEAL "Test Method"
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 three 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 -



31 March 2010

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 and supplier of the PLASTABRICK Enviro AAC Panel System is Masons Plastabrick Limited

Masons Plastabrick Limited can be contacted at:

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