



BRANZ Appraised

Appraisal No.451 [2005]

BRANZ Appraisals

Technical Assessments of products
for building and construction

**BRANZ
APPRAISAL
CERTIFICATE
No. 451 (2005)**

This Certificate replaces BRANZ
Appraisal Certificate No. 451 (2004)
issued 2 March 2004.

**HANDI-SEAL®
WINDOW AND DOOR
SEALANT
FROM RAMSET**

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Product

1.1 Handi-Seal® Window and Door Sealant from Ramset is a self-expanding polyurethane foam air seal used around window and door penetrations and other cladding fenestration trim cavities to assist with weathertightness and energy efficiency.



Scope

2.1 Handi-Seal® Window and Door Sealant from Ramset has been appraised for use as an air seal around window and door penetrations and other cladding fenestration trim cavities in buildings within the following scope:

- the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 with regards to building height and floor plan area; and,
- situated in NZS 3604 Building Wind Zones up to, and including 'Very High'.

2.2 Handi-Seal® Window and Door Sealant from Ramset has also been appraised for use as an air seal with window and door joinery that is designed and manufactured in accordance with NZS 4211, situated in NZS 3604 Building Wind Zones up to, and including 'Very High', and where the cladding is an Alternative Solution and/or the building is outside the scope limitations of NZBC Acceptable Solution E2/AS1, Paragraph 1.1. The weathertightness design of the window and door joinery penetrations and other cladding fenestration trim cavities in these situations has not been assessed and is outside the scope of this Certificate.

Building Regulations

New Zealand Building Code (NZBC)

3.1 In the opinion of BRANZ, Handi-Seal® Window and Door Sealant from Ramset, if designed, used, installed and maintained in accordance with the statements and conditions of this Certificate, will meet or contribute to meeting the following provisions of the NZBC:

Clause B2 DURABILITY: Performance B2.3.1(b), 15 years. Handi-Seal® Window and Door Sealant from Ramset meets this requirement. See Paragraphs 8.1 and 8.2.

Clause E2 EXTERNAL MOISTURE: Performance E2.3.2. When used as part of a cladding system, Handi-Seal® Window and Door Sealant from Ramset will contribute to meeting this requirement. See Paragraphs 10.1 – 10.4.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1. Handi-Seal® Window and Door Sealant from Ramset meets this requirement and will not present a health hazard to people.

3.2 This Certificate appraises an Acceptable Solution in terms of New Zealand Building Code compliance as follows:

- self-expanding polyurethane foam air seal in accordance with NZBC Acceptable Solution E2/AS1 Paragraph 9.1.6.

3.3 This Certificate appraises an Alternative Solution in terms of New Zealand Building Code compliance as follows:

- assisting the weathertightness performance of the building envelope in accordance with Paragraph 2.2 of this Certificate.

Technical Specification

4.1 Products and accessories supplied by Ramset New Zealand are as follows:

Air Seal

- Handi-Seal® Window and Door Sealant from Ramset – a one-component, self-expanding, moisture-cure polyurethane foam available in 587 ml cans fitted with an adaptor system for use with a one-component dispensing gun.

Accessories

- Ramset Solvent Cleaner – a solvent based cleaner for the dispensing gun.

4.2 Accessories supplied by the building contractor are as follows:

- One-component dispensing gun.
- Closed cell polyethylene foam (PEF) backing rod complying with ASTM C1330.

Handling and Storage

5.1 The handling and storage of Handi-Seal® Window and Door Sealant from Ramset on site is the responsibility of the installer. Handi-Seal® Window and Door Sealant from Ramset has a shelf life of 12 months if stored in unopened packaging under dry, cool conditions at temperatures of between 15°C and 27°C. The product must be stored out of direct sunlight.

Technical Literature

6.1 Refer to the Appraisals listing on the BRANZ website for details of the current Technical Literature for Handi-Seal® Window and Door Sealant from Ramset. The Technical Literature must be read in conjunction with this Certificate. All aspects of design, use, installation and maintenance contained in the Technical Literature and within the scope of this Certificate must be followed.

6.2 Some installation instructions are also printed on the can. The can label also contains uses outside the scope of this Certificate.

Design Information

General

7.1 The use of air seals is critical to assist the weathertightness performance of window and door joinery installations at the trim cavities and other wall penetrations. Air seals also assist energy efficiency by reducing heat loss through these cavities.

7.2 Handi-Seal® Window and Door Sealant from Ramset is designed to be used as a gap-filling air seal around window and door trim cavities and wall penetrations, e.g. plumbing pipes. It is designed for use in interior locations, and along with its good gap-filling capacities it has excellent adhesion to most materials. Two exceptions are polyethylene or polypropylene, however testing completed on window installations incorporating polyethylene building wraps and polyethylene backed flashing tapes, has shown that any potential lack of adhesion between the Handi-Seal® Window and Door Sealant from Ramset and the polyethylene will not affect its performance as an air seal.

7.3 Handi-Seal® Window and Door Sealant from Ramset is designed to prevent air leakage at the interior face of the window and door trim cavities and wall penetrations. This prevention of air leakage assists in achieving the overall airtightness requirements of the trim cavity.

7.4 A PEF backing rod must be used in all trim cavities and around wall penetrations to support the Handi-Seal® Window and Door Sealant from Ramset. At the same time the backing rod prevents the trim cavity from being filled by restricting the depth of the air seal to a maximum of 45 mm.

7.5 Handi-Seal® Window and Door Sealant from Ramset is not designed to overcome poor detailing and workmanship of window or door joinery installation. It is designed to be used in conjunction with flashing systems, not as a substitute.

Durability

8.1 Assessment of durability to meet the NZBC is based on difficulty of access and replacement of the air seal, and the ability to detect failure of the air seal both during normal use and maintenance of the building.

Serviceable Life

8.2 When air seals are installed using Handi-Seal® Window and Door Sealant from Ramset in accordance with this Certificate (i.e. in dry, interior environments where the product is inaccessible, and completely sheltered from exposure to sunlight, chemicals, solvents and temperature extremes), they will remain serviceable for at least 15 years.

Outbreak of Fire

9.1 Handi-Seal® Window and Door Sealant from Ramset is combustible and must not be used to seal around chimneys or flues where they penetrate walls. It must be separated from chimneys and flues in accordance with the requirements of NZBC Acceptable Solution C/AS1 Part 9.

External Moisture

10.1 Handi-Seal® Window and Door Sealant from Ramset is a self-expanding polyurethane foam complying with the requirements of NZBC Acceptable Solution E2/AS1 Paragraph 9.1.6.

10.2 When installed over a PEF backing rod complying with ASTM C1330, window, door and other penetration openings in exterior walls incorporating Handi-Seal® Window and Door Sealant from Ramset can minimise the risk of airflows carrying water into the building wall.

10.3 Handi-Seal® Window and Door Sealant from Ramset, when installed in accordance with this Certificate, will assist in the total cladding system's compliance with NZBC Acceptable Solution E2/AS1.

10.4 Buildings outside the scope of NZBC Acceptable Solution E2/AS1, Paragraph 1.1 are the subject of specific weathertightness design. The designer must incorporate air seal details to meet their own requirements and the performance requirements of the NZBC. These details are outside the scope of this Certificate.

Installation Information

Installation Skill Level Requirements

11.1 Installation of Handi-Seal® Window and Door Sealant from Ramset must be completed by competent tradespersons with an understanding of air seal installation, in accordance with the instructions given within the Technical Literature and this Certificate.

General

12.1 Before the installation of Handi-Seal® Window and Door Sealant from Ramset, the installer must refer to the contract documentation, E2/AS1 and the cladding system manufacturer's Technical Literature for guidance on the installation requirements of air seals within their system.

12.2 Substrate surfaces must be clean and free from any surface contaminants such as dust or grease that may cause loss of adhesion. Window and door joinery or wall penetrations must also have been installed and firmly secured in place.

12.3 Substrate surfaces should be moistened with a mist of water before the installation of Handi-Seal® Window and Door Sealant from Ramset. The moisture assists by accelerating the air seal's cure and creating a more homogenous cell structure.

12.4 After installation of the PEF backing rod, Handi-Seal® Window and Door Sealant from Ramset must be extruded into the gap between the window or door reveal liner or wall penetration and the timber frame or building wrap at the internal face of the cavity using the dispensing gun. Once extruded, it will expand to fill the gap and form a continuous air seal.

12.5 Handi-Seal® Window and Door Sealant from Ramset that has spilled but not cured can be removed with Ramset Solvent Cleaner.

12.6 Handi-Seal® Window and Door Sealant from Ramset that has cured can be trimmed with a sharp knife.

Health and Safety

13.1 Safe use and handling procedures for Handi-Seal® Window and Door Sealant from Ramset are provided on the can. Extra care must be taken when using the product in areas where there is insufficient ventilation, and suitable respiratory equipment must be worn. Additional information on the product is available in the Material Safety Data Sheet available from Ramset New Zealand.

Basis of Appraisal

The following is a summary of the technical investigations carried out:

Tests

14.1 A BRANZ ad-hoc test was completed to confirm the suitability of Handi-Seal® Window and Door Sealant from Ramset for use as an air seal. The test results were reviewed by BRANZ experts and found to be satisfactory.

14.2 Cyclic and static pressure water leakage tests in accordance with AS/NZS 4284 were carried out by BRANZ on typical window installations to assess the practicability of expanding foam air seals.

Other Investigations

15.1 The practicability of installation was assessed by BRANZ and found to be satisfactory.

15.2 A Material Safety Data Sheet for Handi-Seal® Window and Door Sealant from Ramset has been reviewed by BRANZ and found to be satisfactory.

15.3 A durability opinion has been given by BRANZ technical experts for Handi-Seal® Window and Door Sealant from Ramset when used as an air seal.

Quality

16.1 The manufacture of the product has not been examined by BRANZ, but details of the quality and composition of the materials used were obtained and found to be satisfactory. Fomo Products Inc is an ISO 9001:2000 Certified manufacturer (QMI Certificate Number 006856 dated 30 April 2003).

16.2 The quality of supply of the product to the market is the responsibility of Ramset New Zealand.

16.3 The quality of installation of the product on site is the responsibility of the installer.

16.4 Building designers are responsible for the design of the building, and for the incorporation of the air seal into their design in accordance with the instructions of Ramset New Zealand.

Sources of Information

- AS/NZS 4284: 1995 Testing of building facades.
- NZS 3604: 1999 Timber framed buildings.
- Compliance Document for the New Zealand Building Code External Moisture Clause E2, Department of Building and Housing, Third Edition July 2005.
- New Zealand Building Code Handbook and Approved Documents, Building Industry Authority, 1992.
- The New Zealand Building Regulations 1992, up to, and including October 2004 Amendment.



BRANZ

In the opinion of BRANZ, Handi-Seal® Window and Door Sealant from Ramset is fit for purpose and will comply with the Building Code to the extent specified in this Certificate provided it is used, designed, installed and maintained as set out in this Certificate.

The Appraisal Certificate is issued only to the Certificate Holder, Ramset New Zealand, and is valid until further notice, subject to the Conditions of Certification.

Conditions of Certification

1. This Certificate:
 - a) relates only to the product as described herein;
 - b) must be read, considered and used in full together with the technical literature;
 - c) does not address any Legislation, Regulations, Codes or Standards, not specifically named herein;
 - d) is copyright of BRANZ.
2. The Certificate Holder:
 - a) continues to have the product reviewed by BRANZ;
 - b) shall notify BRANZ of any changes in product specification or quality assurance measures prior to the product being marketed;
 - c) abides by the BRANZ Appraisals Services Terms and Conditions.
3. The product and the manufacture are maintained at or above the standards, levels and quality assessed and found satisfactory by BRANZ.
4. BRANZ makes no representation as to:
 - a) the nature of individual examples of, batches of, or individual installations of the product, including methods and workmanship;
 - b) the presence or absence of any patent or similar rights subsisting in the product or any other product;
 - c) any guarantee or warranty offered by the Certificate Holder.
5. Any reference in this Certificate to any other publication shall be read as a reference to the version of the publication specified in this Certificate.

For BRANZ

P Robertson
Chief Executive

Date of issue: 1 August 2005