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AeroBarrier

Air Sealing Technology



Technical Data Sheet

Introduction

The system is developed and manufactured in the USA by AeroSeal and is marketed and installed in New Zealand and Australia by Aero, a division of Virid Systems Ltd.

The purpose of the system is to reduce random air movement and air infiltration through buildings, to reduce heat loss and control water vapour in wall cavities and building envelopes.

The system is developed and manufactured in the USA by AeroSeal and is marketed and installed in New Zealand by Aero, a division of Virid Systems Ltd.

Currently, the system is used extensively in the USA, UK and Europe.

The system consists of sophisticated electronic components, specialised software and strategically placed spray stations which distribute atomised sealant into the pressurised building envelope. The sealant particles are carried to gaps and holes in the envelope as the air pressure is equalising from the interior to the lower exterior air pressure resulting in sealing both visible and hidden gaps and holes in the building envelope.

The building envelope is pressurised by the use of a modified blower door and fan assembly, and maintained at constant pressure to enable both pre-seal and post-seal test leakage measurements, and sealant distribution, completely run and monitored from a laptop computer via wifi.

When the procedure is complete, the system produces a certificate of completion recording the pre-seal and the post-seal airtightness of the envelope in both litres per second (L/s) and in Air Changes per Hour (ACH) at 50Pa.

The sealant is a water based non toxic low VOC, flexible sealant.

Intended uses

The AeroBarrier system is intended for use in the interior of residential and commercial buildings where owners and occupiers want a “better than code” outcome for the air tightness of living spaces to achieve safer, more comfortable environments with improved building performance, in an easy cost effective manner.

It is intended that the air seal should occur at the plane of the interior wall and ceiling linings unless otherwise specifically designed.

The system is intended for use in conjunction with other components designed to improve air tightness, in order to achieve best outcomes, such as superior joinery, electrical fittings, down-lights, mechanical ventilation systems and construction considerations.

The system is suitable for use in most wall and ceiling construction types that already meet the requirements of the New Zealand Building Code and in particular Clause H1. Including; Timber and steel framing in accordance with NZS 3604 and Nash Standard Part two.

Limitations

The AeroBarrier sealing system is limited to use in buildings that meet the requirements of the New Zealand Building Code in every respect including Clause H1.

An acceptable mechanical ventilation system must be installed where the AeroBarrier system will reduce the ACH (Air Changes per Hour) to less than 5 ACH.

Unless otherwise specifically designed by a suitably qualified professional, the plane of the air seal should be at the interior lining of the wall and ceiling with insulation on the outer side.

AeroBarrier sealant cannot be installed when temperatures are less than 8 deg C or where ambient internal MC is over 90%. In some circumstances a heater may be used to control these limitations.

Compliance

New Zealand Building Code

AeroBarrier Sealant will meet the requirements of following clauses of the NZBC.

Clause B2 DURABILITY: Performance B2.3.1 (a) not less than 50 years.

Clause F2 HAZARDOUS BUILDING MATERIALS: Performance F2.3.1

Industry Performance Certification

The Aerobarrier system is a recognised and proven method to contribute to gaining certification for the following enhanced performance certification.

NZGBC - New Zealand Building Council: Green Star Ratings

PHINZ - Passive House Institute New Zealand: Passive House

AeroBarrier X1 Sealant Specification

Properties and Compliance testing

Seals leaks up to 13 mm and as small as a human hair.

Most economical to install at stopped plasterboard, before finishing lines stage of construction but can be applied to unoccupied, finished spaces.

Sealant does not stick to vertical surfaces like walls, windows, or doors.

UL GreenGuard Gold certified. Safe to use in any type of building.

Ultra-Low VOC: 12 grams per liter. No off-gassing.

Solids: 18.5 to 21.5 percent.

Sealant Base: Acrylic.

Color: White.

GreenGuard Gold Certification

ASTM E84 - Surface Burning Characteristics of Building Materials

ASTM C719 - Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement

ASTM D543 - Standard Practices for Evaluating the Resistance of Plastics to Chemical Reagents

NFPA 285 - Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Wall Assemblies Containing Combustible Components

ASTM E2357 - Standard Test Method for Determining Air Leakage Rate of Air Barrier Assemblies

Design

Design Considerations

For best results for airtightness, design needs to be thoroughly considered along with other contributing componentry at the design stage not as an afterthought.

Components to consider:

- Use air tight electrical flush boxes on exterior building envelope walls. Some internal walls should also be considered where drilled holes for wiring forms an air path to the exterior or roof cavity.
- Install airtight downlights or airtight caps over downlights.
- Install sealed ceiling access hatches.
- Specify best quality airtight joinery appropriate for the level of airtightness required.
- Consider specifying rigid air barrier to the exterior of the frame.

Installation

Installation of AeroBarrier is carried out from start to finish by a licenced AeroBarrier installer operating under the Aero brand. Apart from making sure the site is ready and safe for Aero to carry out the work there is nothing for the owner or the main contractor to do.

Most jobs will take 2 - 4 hours from start to finish and another 30mins before other trades can enter the building.

The sealant does not stick to vertical surfaces and Aero will mask off any horizontal surfaces that could be effected and cover larger temporary holes such as ceiling access where the finish hatch is not installed.

Contractor Responsibility

- Provide a clean safe site with clear access for a van and trailer to within 20 metres of the site to be sealed.
- Ensure wallboard is cut neatly around penetrations such as flush boxes and plumbing.
- Cover or move any building materials.

Technical Information Contact

For Further Technical information please contact:

Email : Info@aero.solutions

Web : www.aero.solutions

Phone 09 235 2822

