

Appraisal of a Building Product



Expires October 2016

Valéron Vortec™ Wall Wrap - designed for “direct fix” over timber or steel framing

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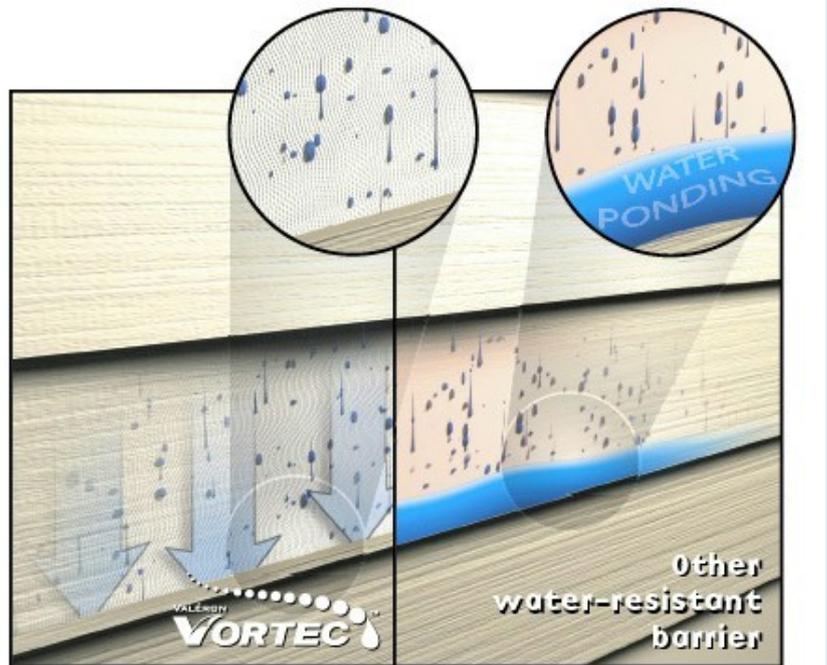
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CA801 Completed Apr 08 Updated June 2010
Verification of Clauses B2, E2 and F2
of the New Zealand Building Code

Insulation Wholesalers Ltd

General Information

Specific Performances with the NZ Building Code

Clause B2 - Durability

The Valéron Vortec™ wall wrap when used in accordance with this Appraisal will meet Performance B2.3.1(a) of the New Zealand Building Code. In other words, the product as appraised will be durable for at least 50 years.

Clause E2 - External Moisture*

Buildings that use Valéron Vortec™

wall wrap when installed in accordance with this Appraisal will meet the performance requirement of E2.3.2.

Note that the performance of Valéron Vortec™ wall wrap is reliant on the building being compliant with the performance requirements of Clause E3.3.1.

i.e. There shall be adequate *ventilation*, and *heating* to all habitable spaces, bathrooms, laundries, and other spaces where moisture may be generated or may accumulate.

Note that to ensure effective ventilation, buildings shall comply with **NZS 4303:1990 Table 2**.

Clause F2 – Hazardous Building Materials

Based on the manufacturer's information, the products contain no hazardous materials thus complying with clause F2.3.2 of the Building Code.

Description of Product

Valéron Vortec™ wall wrap with Engineered Vented Drain (EVD™) technology has a unique 3-dimensional pattern of raised, micro perforated dimples that creates an almost crush-resistant airspace between the timber or steel framing and the back of the cladding, allowing any moisture to drain away.

The Vortec EVD™ surface allows for installation of the wrap in any direction providing drainage for any moisture that happens to get past an exterior non-absorbent cladding system, that is 'direct fixed' to the framing.

The Vortec EVD™ pattern also reduces the transfer of solar-driven vapour moisture into porous timber framing thus helping protect the framing from potential deterioration.

Examples of non-absorbent cladding that can be used with the Vortec EVD™ wall wrap include -

- Metal claddings
- Plastic claddings
- Sealed fibre-cement sheeting
- Sealed treated plywood

Trade Literature

The Valéron Vortec™ wall wrap Installation manual dated May 2009 describes the correct method of installation.

Applicant

The applicant is Insulation Wholesalers Ltd.

Scope & Limitations

Valéron Vortec™ wall wrap (Vortec) has been appraised for use with timber framing and other components of a wall assembly that comply with NZS 3604 or light-weight 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. The wall wrap has not been appraised as a roof underlayment.

For timber framing -

- The bottom plate shall be treated to H3.2
- Otherwise for either timber or light-weight steel framing-
- The back face and bottom edge of the cladding must be impervious to moisture ingress
 - Where there is a rebated floor slab, a tanking membrane needs to be installed into the rebate.
 - The wall wrap needs to be installed at least 50mm below the bottom plate
 - Where the bottom plate is fixed to the edge of a non-rebated floor, the bottom edge of the wall wrap and cladding must be at least 50mm below the floor height.

The installation of the wall wrap must be in accordance with the manufacturer's Installation literature in order to meet the stated performance covered under clause E2 and E3 of the Building Code.

Detailed Information

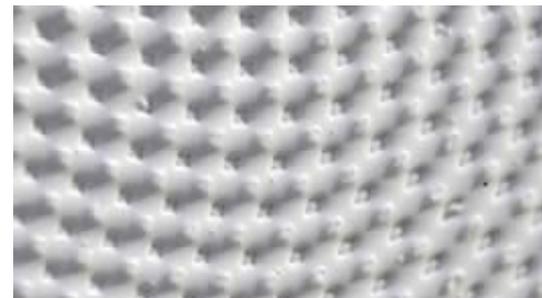
Technical Description

The Valéron Vortec™ wall wrap is a breather type wall wrap incorporating EVD technology manufactured from 100% UV enhanced, cross-laminated high density polyethylene. It is an alternative solution in terms of compliance document E2/AS1.

The Valéron Vortec™ wall wrap can be used with either treated timber or lightweight steel framing.

The dimpled pattern of the EVD technology enables the wall wrap to be used behind non-absorbent cladding systems or absorbent claddings with an impervious back without the need for a cavity. This provides a new solution for non-absorbent fibre-cement board and claddings such as plastic and profiled steel in wind zones as described in NZS3604 up to and including "Very High".

The Valéron Vortec wall wrap is a



Close up of the dimpled pattern



relatively light 70g/m² white synthetic sheet available in standard widths of 1.52m in a 61 m roll. (Coverage is approximately 93 square metres per roll).

Storage & Handling Issues

Valéron Vortec™ wall wrap can be stored indefinitely when kept dry and out of the weather. Heavy items must not be stored on-top of the rolls.

How to Install the Product.

In summary, the wall wrap is installed taut in horizontal laps starting 50mm below the bottom plate for either timber or light-weight steel framing.

For timber framing, the wall wrap is fixed to the studs using large head galvanized clouts or zinc-plated 6-8mm staples.

For light-weight steel framing, fixing over the thermal break is by way of flat head nails using special power tools. It is essential the wrap be pulled taut before using fixings. Strapping is not required for Valéron Vortec™ wall wrap.

There shall be a minimum 150mm horizontal overlap of the wraps. Vertical joints shall have a 150mm overlap and over a stud.

Basis of Appraisal

[Use is made of the Compliance Verification Procedure to verify compliance with the relevant clauses of the NZ Building Code based on a risk-analysis procedure.]

Clause B2 - Durability

For assessing the durability of the Valéron Vortec™ wall wrap, being not less than fifty years, an assessment of the In Service history of the material used overseas was made. In addition performance of the material has been verified by several overseas laboratories.

For assessing the durability of the materials used for hot-dipped galvanised clouts or zinc-plated staples, an assessment of In Service history was used.

E2 - External Moisture

For assessing and verifying the performance of Valéron Vortec™ wall wrap when installed, BEAL considered the hygrothermal conditions of typical constructions and the performances of typical

materials used in construction of wall assemblies.

To verify the ability of the wall wrap to drain moisture when compressed against a list of nominated cladding materials, a series of tests were carried out. These tests demonstrated the ability of the EVD technology to drain moisture. (Refer to the Verification Table page 4.)

Product QA Information

Valéron Vortec™ wall wrap is manufactured to a US based in-house quality standard, using ISO 9001 as its overall QA criteria.

The New Zealand importer has its own QA System which has been reviewed by BEAL and found satisfactory.

Each roll of product is uniquely identified in compliance with AS/NZS 4859.1.

Installers of the product are required to be familiar with the supplied Valéron Vortec™ wall wrap Installation Literature.

Maintenance Information

The wall wrap requires no maintenance provided it has been installed correctly.

Design Considerations

The wall wrap allows the designer to choose both non-absorbent and absorbent cladding materials (back sealed) for direct fixing to the relevant framing system.

This direct-fixed solution produces a number of benefits including improved thermal efficiency, less materials needed, less labour costs, and a smaller building footprint.

The ability of the wall wrap to ensure a building complies with the performance requirements of E3 of the New Zealand Building Code is dependant on the internal moisture being properly managed.

Where a metal cladding is being used in conjunction with steel framing, use of a thermal break is required.

Insulation Wholesalers Ltd recommend the use of ThermaX B™ thermal break, and a code compliant insulation in the wall assembly, which is a requirement for habitable spaces.

For further information about the these materials please contact the New Zealand distributor, Insulation Wholesalers Ltd.

Insulation Wholesalers Ltd



Verification of Performance

[Suggested methods from the Department of Building and Housing]

Methods Used

- A technical opinion from a laboratory or testing facility - BEAL
- In service history - in the USA
- Test Report from a laboratory or testing facility - SGS and ICC Evaluation Service

This appraisal uses the in service history provided by the manufacturer, together with the following test results based on ASTM Test Methods and a series tests completed by BEAL as the 'method' for verifying the required performances described in the relevant clauses of the Building Code.

TEST	METHOD	CRITERIA	RESULT
UV Resistance		≥ 85% of Tensile Strength after 500hrs	≥ 90% of Tensile Strength after 500hrs*
Tensile Strength	ASTM D882	3.4kg/cm both directions	Machine 4.57kg/cm Cross 4.73kg/cm
WVTR	ASTM E96	5.11Perms	5.39 Perms
Water Resistance	ASTM D779 AS/NZS4201.4	10min No passage	88min No Passage
Drainage Efficiency	ASTM E2273	90%	93%
Surface Burning Characteristics	ASTM E84-97a Flame Spread	Class A	Class A
Drainage behind non absorbent claddings e.g. Plastic / Metal	ASTM E2273 BEAL Test Method	93% drainage ~100% drainage	Pass Pass

* Rated by National Research Council Canada as being durable for 60 days of exposure to the weather

Sources of Information

For information about AS/NZS Test Methods, refer to www.standards.co.nz

For information about ASTM Test Methods, refer to www.astm.com

For information about NASH 3405:2006, refer to www.nash.org.nz

- NASH 3405 - Steel Framed Buildings
- NZS 3604 - Timber Framed Buildings
- SGS Test Report 269132 - Compliance with Table 3 and section 3.3 of ICC ES Acceptance Criteria for water resistive barriers, AC38
- ESR Report 1609 - compliance with 2003 International Building Code & 2003 International Residential Code and others
- SGS Test Report 327540 - Drainage Efficiency Test in accordance with Section 4.10 of ES AC235 (using ASTM Test Method E2273-03)
- BEAL Test Certificate 080419 - Testing of the Valéron Vortec EVD technology™
- CCMC Evaluation Report 13259-R
- Valéron Informational Guide Specification v.08-04-2005
- Valéron Preliminary Data Sheet, January 8, 2004.

Authorised Signatory -

Updated 3 September 2013



C. R. Prouse

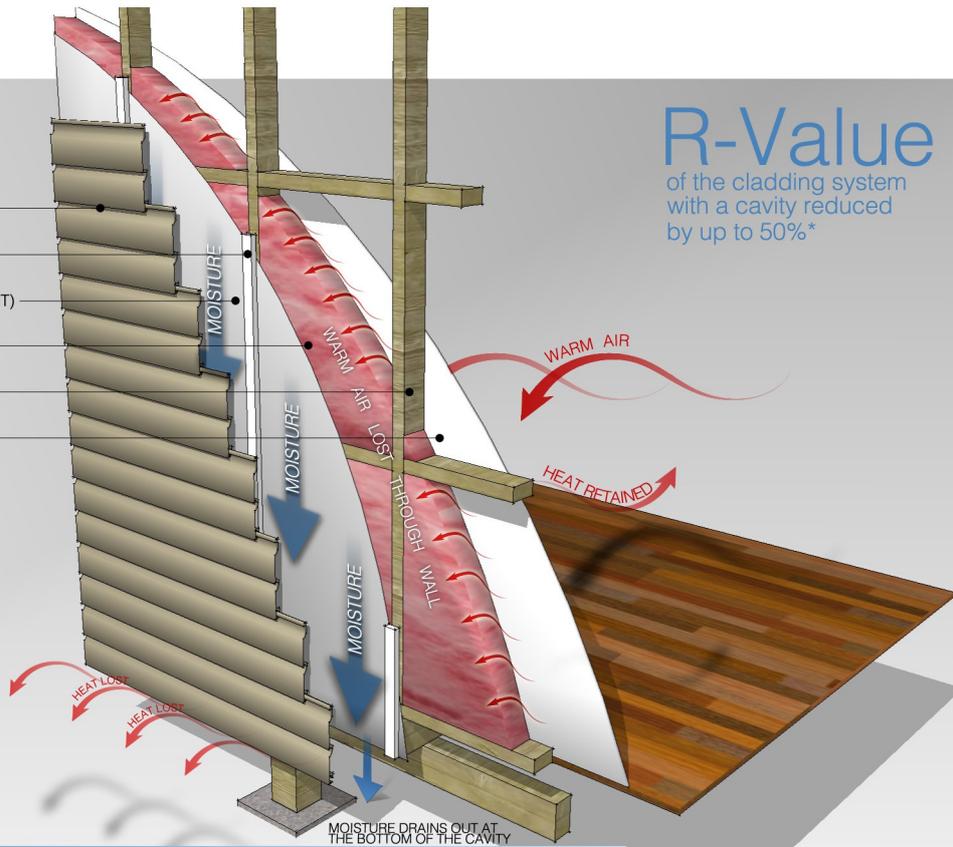
C R Prouse - Director

Interim Approval

Keep Water on the Run.



- TYPICAL CLADDING SYSTEM
- TIMBER OR POLYSTYRENE BATTENS
- TYPICAL BUILDING WRAP (NON ABSORBENT)
- INSULATION
- TIMBER OR STEEL FRAMING
- PLASTERBOARD INTERNAL LINING



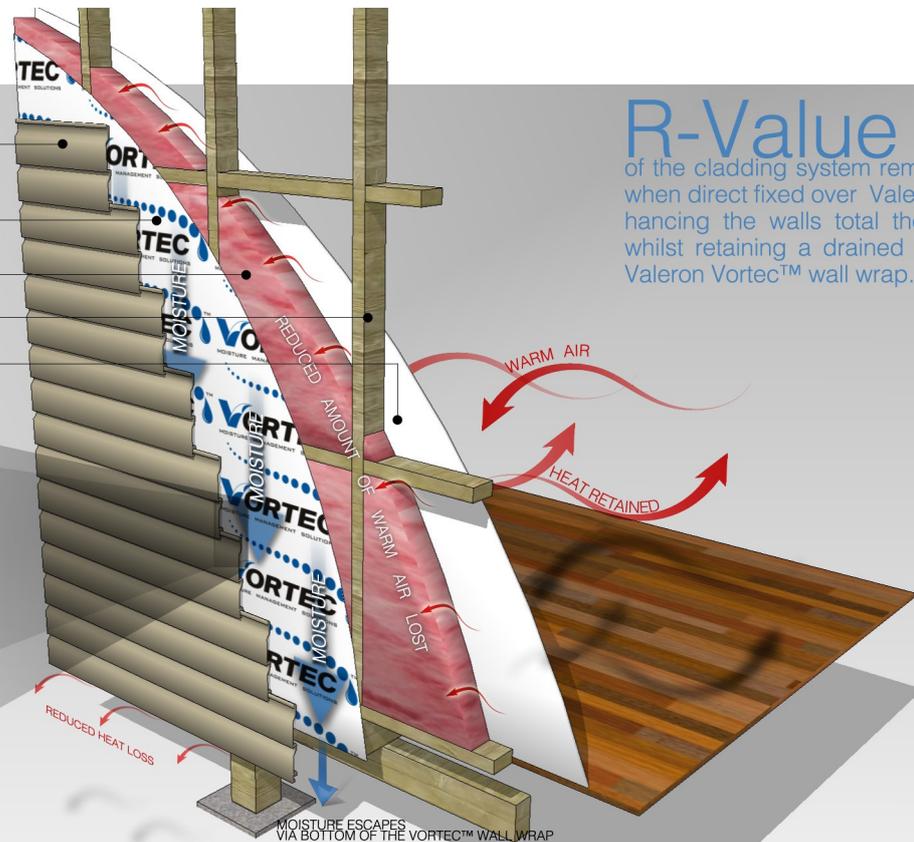
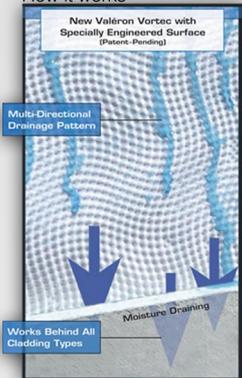
R-Value

of the cladding system with a cavity reduced by up to 50%*

SITUATION 1: Typical drained cavity cladding system

- DIRECT FIXED CLADDING SYSTEM
- VALÉRON VORTEC™ DRAINAGE BARRIER
- INSULATION
- TIMBER OR STEEL FRAMING
- PLASTABOARD INTERNAL LINING

How it works



R-Value

of the cladding system remains unchanged when direct fixed over Valeron Vortec™, enhancing the walls total thermal resistance whilst retaining a drained cavity within the Valeron Vortec™ wall wrap.

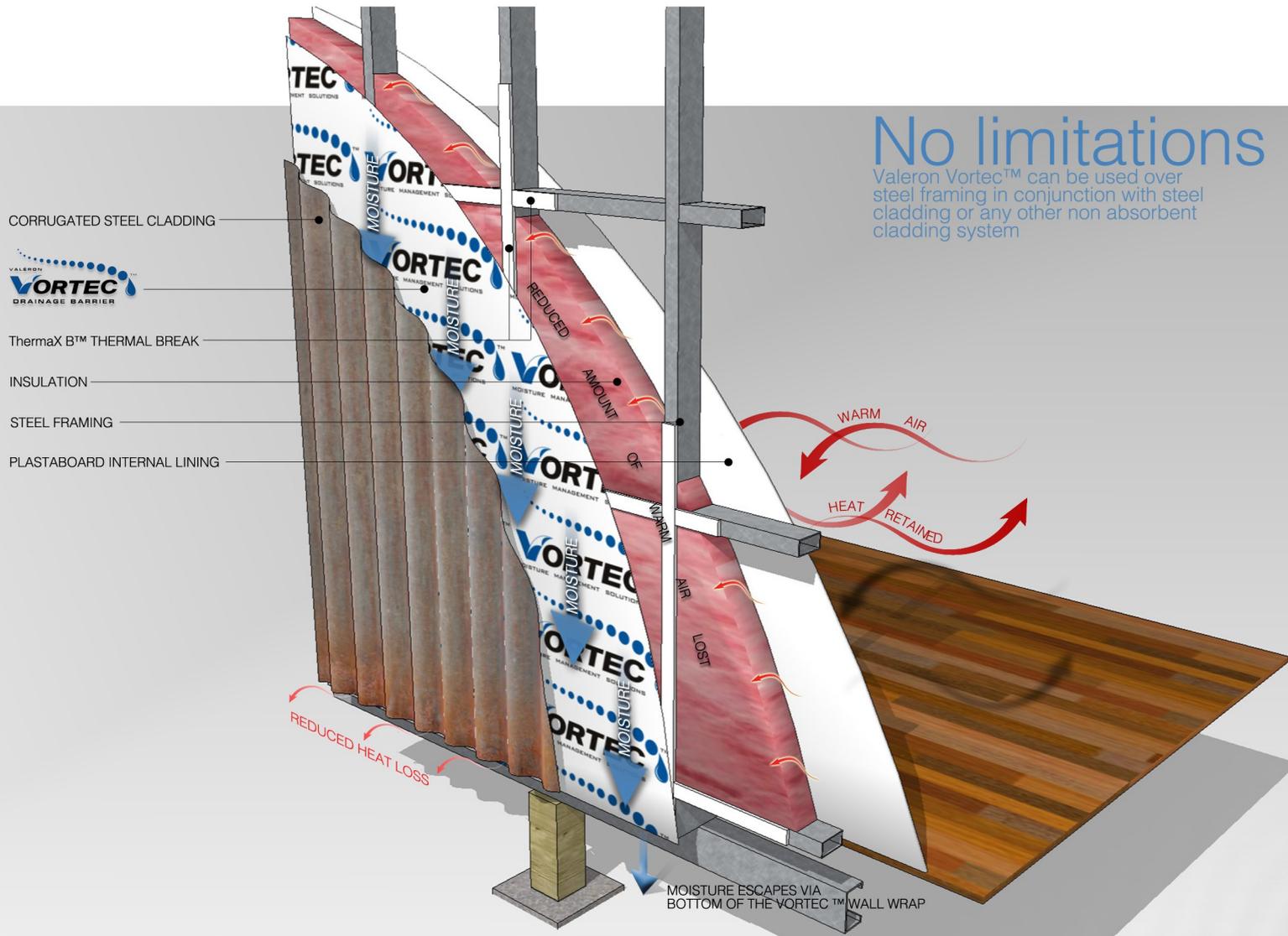
SITUATION 2: Valeron Vortec™ with direct fixed cladding system



Insulation Wholesalers Ltd

DESIGNED TO

DRAIN



SITUATION3: Direct fixed steel cladding on steel frame

Valéron Vortec™ Benefits

- Valéron Vortec™ is the premier water-resistive barrier that incorporates a patent-pending pattern of multi-directional channels to promote drainage, and eliminating the need for drained cavity construction
- Valéron Vortec promotes more thermally efficient walls, especially where insulated claddings are used.
- Vortec is not only tear, snag, and puncture resilient, but also lightweight and translucent making it easy to handle for quick installs.
- Textured pattern is multi-directional for quick and easy installation
- Valéron Vortec™ has been appraised to be used over both timber and steel framing, as well as for use under non absorbent cladding systems



Insulation Wholesalers Ltd

Conditions of this Appraisal

1. The Products continue to comply with the quality assurance measures of Insulation Wholesalers 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 Valéron Vortec™ wall wrap Installation Literature.
3. Insulation Wholesalers 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. Insulation Wholesalers 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

Insulation Wholesalers Ltd

The distributor of the 'Valéron Vortec™ Wall Wrap' is
Insulation Wholesalers Ltd.

Insulation Wholesalers Ltd can be contacted at:

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