Pro Clima INTELLO® PLUS

Product Technical Statement: 103274

miproducts

Air & vapour control layer for insulation performance and prevention of interstitial condensation

View miproducts listing

Level of assurance needed to demonstrate NZ Building Code Compliance

MEDIUM

Supporting documentation should include technical information by manufacturer and either an independent assessment or reference to an industry-based scheme

Pro Clima confirms that this minimum level of assurance has been met or exceeded by the following:
BRANZ Appraisal
1149

masterspec partner

Technical Statement

Product Description

INTELLO PLUS is a high performance reinforced vapour control layer that provides optimum protection for all thermal insulation in roofs, walls and floors as well as protecting the structure of the building from moisture intrusion.

INTELLO PLUS is:

- Intelligent - it offers high diffusion tightness in winter (protects against interstitial condensation) and maximum diffusion openness in summer (facilitates rapid drying) therefore protecting the building envelope in all climatic conditions
- an ideal solution for structures that are difficult to protect from interstitial condensation (skillion, flat roofs, flexible metal sheeting etc)
- airtight - allows insulation to perform for comfort, health and low energy requirement for heating or cooling
- easy to install
- applied to the framing on the inside face of the insulation layer
- verified when installed using Blower Door test
- recyclable (emits no toxic gases when burned)
- A Declare label product, by the International Living Future Institute

Scope of use

The INTELLO Humidity Variable Intelligent Airtightness System has been appraised for use as a vapour control layer and air barrier on buildings within the following scope:

- constructed with timber framing in accordance with NZS 3604, or to a specific engineering design; or ·

- constructed with steel framing in accordance with NASH Standard Part Two, or to a specific engineering design; and ·

- used on walls and ceilings which incorporate fibrous thermal insulation.

The use of the INTELLO Humidity Variable Intelligent Airtightness System in buildings with high moisture loads such as swimming pools, commercial laundries and kitchens or with non-vented membrane roof coverings has not been assessed and is therefore outside the scope of this Appraisal. Contact Pro Clima (NZ) Ltd for use of the INTELLO Humidity Variable Intelligent Airtightness System in these building types.

New Zealand Building Code (NZBC)

The product will, if employed in accordance with the supplier's installation and maintenance requirements, assist with meeting the following provisions of the building code:

- **Clause B2 Durability:** Performance B2.3.1(a), B2.3.1(b)
- **Clause E3 Internal moisture:** Performance E3.3.1
- **Clause F2 Hazardous building materials:** Performance F2.3.1
- **Clause H1 Energy efficiency :** Performance H1.3.1

Supporting Evidence

The product has and can make available the following additional evidence to support the above statements:

BRANZ Appraisal
1149

Product Criteria

Company Contact Details

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Design requirements

Design Information

General

1. INTELLO membranes function as an air barrier to limit air infiltration between the indoor and outside environments. Controlling air leakage contributes to improving the thermal efficiency of a building, as it reduces the heat lost from uncontrolled air flows, particularly for fibrous insulation as the R-value is reduced due to air infiltration. Controlling air leakage can also reduce the chance of interstitial condensation, because it can help prevent moist air reaching any surfaces that may be colder than the dew point of the moist air. Whilst limiting uncontrolled air infiltration is desirable from an energy and building durability standpoint, it is important that adequate ventilation levels are provided for indoor air quality.

2. INTELLO membranes can function as a vapour control layer to lessen diffusion between the indoor and outside environments. If it is desired to lessen the rate of diffusion through the building envelope, INTELLO membranes can be used because they have a higher vapour resistance under normal operating conditions than the materials typically used in walls and roofs. Under typical winter conditions, this has the effect of lowering the vapour pressure (and consequently the relative humidity) at the locations outboard of the membrane. The general rule of thumb is to have the highest vapour resistance in the wall on the warm side of the insulation in winter.

3. INTELLO membranes are not what has been traditionally referred to as a ‘vapour barrier’. Under normal operating conditions they have a moderate vapour resistance. This means that they can reduce the rate of diffusion through the wall, not eliminate it. In the event that there is liquid water in the wall, the vapour resistance of the membrane is such that water vapour can diffuse through it i.e. the wall can still dry to the inside, in much the same way as ‘typical’ New Zealand walls.

4. The vapour diffusion resistance for the product varies depending on the relative humidity (RH) from 1.25 MN s/g to 125 MN s/g. INTELLO has a specific moisture profile (vapour resistance versus relative humidity). At an RH of 70%, the vapour resistance is 10 MN s/g and at an RH of 60% the vapour resistance is 7.5 MN s/g. During ‘winter’ conditions the vapour resistance increases preventing water vapour from moving from the building interior to the exterior. In ‘summer’ conditions the vapour resistance decreases, allowing vapour to flow from the building structure to the building interior.

5. INTELLO and INTELLO PLUS membranes are not vapour barriers. The product is fitted to the inside-face of the building envelope on the warm side of the thermal insulation.

6. The designer must consider the intended and future occupancy of the building and provide adequate ventilation mechanisms (e.g. openable windows and doors, mechanical ventilation systems), appropriate to the expected moisture loading and occupancy.

WUFI® Software

7. WUFI® is computer software developed by the Fraunhofer Institute for Building Physics that allows modelling of heat and moisture flows through building elements. The software may be used to model buildings that are to incorporate the INTELLO Humidity Variable Intelligent Airtightness System. The WUFI® properties for the INTELLO membrane are contained within WUFI® software. Modelling must be undertaken by a competent and appropriately qualified person, using relevant parameters appropriate to New Zealand conditions, for the intended building site.

Blower Door Tests

8. The quality of airtightness is determined by the freedom from air leakage in the building envelope. To verify the airtightness of the complete building, Blower Door testing should be completed prior to installation of internal linings in accordance with the Technical Literature and AS/NZS 9972 or EN 13829. Typical airtightness targets are < n50=3 air changes per hour (ACH) or < 1.5 ACH for buildings with a balanced heat recovery ventilation system. Remedial work may be required to seal air leakage paths in the building prior to installation of the internal linings, to achieve the desired airtightness target.

Ceilings

9. Timber ceiling battens are fixed conventionally to the underside of the ceiling rafters over the INTELLO membrane. Steel ceiling battens are also fixed directly to the underside of the ceiling rafters without using the clips/hangers that are typically part of these ceiling systems. Installation should then follow the lining supplier’s instructions.

Walls

10. INTELLO membranes can be fitted directly over the wall framing or over battens used to form a cavity. This cavity can be used for small services such as water supply pipework.

Mid-Floors

11. Where the INTELLO Humidity Variable Intelligent Airtightness System is used in multi-level construction, the airtightness must be detailed to be continuous. Refer to the Technical Literature for detailing options.

Installation requirements

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Maintenance requirements

Provided the internal lining is maintained in accordance with the lining manufacturer's instructions and the lining remains sound, the INTELLO Humidity Variable Intelligent Airtightness System is expected to have a serviceable life equal to that of the internal lining.

Warrantees

The warranty period for products shall begin at the time of the sale of the product to the first customer by Moll and shall end six years after this time.

The warranty period shall extend to ten years after the time of the sale of the product to the first customer by Moll if installation of the products is carried out solely in combination with proclima standard products, insofar as products for the relevant application are available as part of the pro clima system.

Company Product Information

Environmental

- Asthma Foundation - Sensitive Choice product
- Red List Free product
- Declare label product
- Passive House Institute - Certified component

Relationships

Member of New Zealand Green Building Council

Videos

My INTELLO Ep8 - What is the target?
Leaky building 2.0 Skillion Roof - Part 1
My INTELLO Ep3 - Where does the airtightness layer
My INTELLO Ep10 - INTELLO as part of the pro clima
My INTELLO Ep1 - What is Airtightness?
Ask me anything - Moisture Management for schools
My INTELLO Ep2 - Benefits of Airtightness
My INTELLO Ep6 - INTELLO & Insulation
Ask me anything - High performance residential
My INTELLO Ep9 - Hydrosafe
My INTELLO Ep4 - pro clima Intelligent Airtightnes
My INTELLO Ep7 - What is the target?
Ask me anything - Passive House commercial build
Skillion Roof - Part 2 INTELLO Intelligent Air Bar
INTELLO function video
My INTELLO Ep7 - How to specify INTELLO?
My INTELLO Ep5 - INTELLO & Ventilation

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