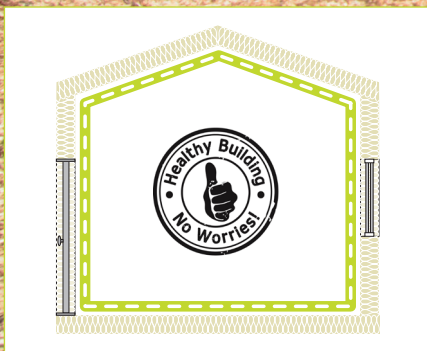


# Intelligent Air Barrier Airtightness system pro clima INTELLO®



[www.proclima.co.nz](http://www.proclima.co.nz)

NZ



BRANZ Appraised  
Appraisal No.1149 [2021]

... and the insulation  
is perfect



# The basic needs of a 21<sup>st</sup> century human being

## Health

If your home is warm and drier all year round it has a positive effect on your health as it provides the optimum protection against mould and mildew.



## Saving Energy

An energy efficient home reduces your running costs and carbon footprint.



## Comfort

With indoor air temperatures between 18 – 21 °C and relative humidity between 40 % – 60 % all year round you feel more comfortable in your home.



## Investment protection

A well designed and built home, allowing for maximum drying capacity, offers the best protection against leaky building syndrome.



# Requirements of a 21<sup>st</sup> century house

## Typical New Zealand house

## 21<sup>st</sup> century New Zealand house

### Airtightness

A typical modern New Zealand house built to NZBC standard has between 5 - 7 air changes per hour (ACH) when tested with a Blower Door. This means that the entire inner volume of the building is exchanged with outside air 5 - 7 times per hour.

### Weathertightness

Roof and wall underlays are not combining high levels of wind- and watertightness with high diffusion permeability.

### Insulation

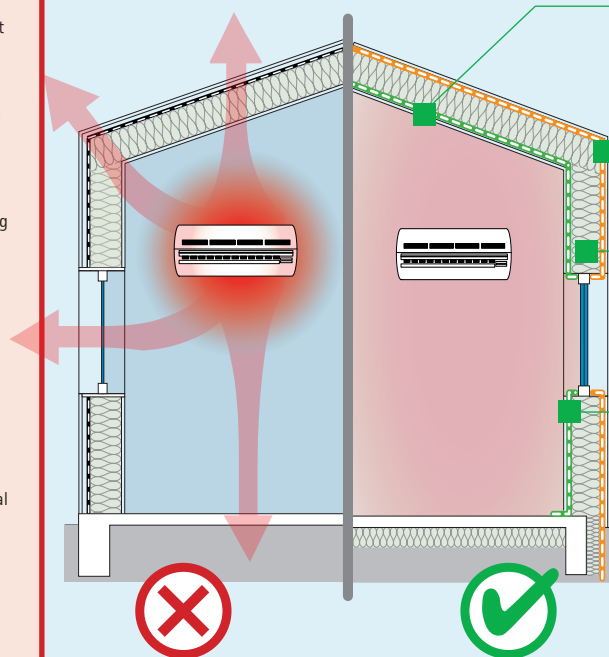
The principle of insulation is still air between the insulation fibres. Due to the high air leakage the insulation cannot perform to its measured R-value.

### Moisture control

A typical New Zealand house lacks internal moisture control layer.

### Heating

A typical New Zealand house requires multiple heating and cooling appliances with significant running costs due to the high air leakage through the construction.



### Airtightness

A 21st century New Zealand house using pro clima products can achieve a Passive House standard of less than 0.6 air changes per hour (ACH).

### Weathertightness

The high performance pro clima roof and wall underlays provide optimum weathertightness protection from the outside whilst allowing the construction to dry from the inside.

### Insulation

The pro clima airtightness layer prevents air leakage and therefore the insulation can perform to its maximum R-value.

### Moisture control

A 21st century house includes a humidity-variable moisture control layer preventing internally driven moisture entering the construction in winter but allowing for back diffusion in summer.

### Heating

A 21st century New Zealand house requires less heating and cooling appliances, is more energy efficient and keeps your house warm in winter and cool in summer.

## About Airtightness

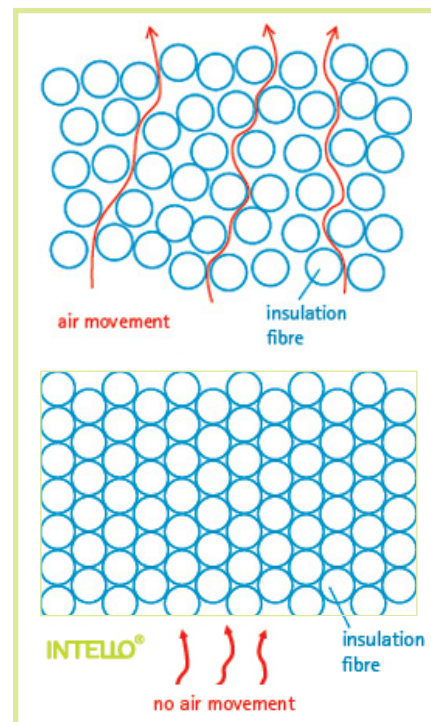
### What is airtightness?

Airtightness is a term used when referring to the control of air and moisture through a building's structural envelope. By eliminating zones where uncontrolled air infiltrates a building's structure, a high level of airtightness is achieved.

### Why is airtightness important?

Uncontrolled airflow through the building structure drastically reduces the efficiency of insulation and will ultimately compromise the integrity of that insulation if moisture builds up within the wall cavity. **Long term insulation effectiveness is dependent on the quality of the airtightness envelope protecting the structure of your home.**

Airtightness maintains the same indoor temperature saving energy costs on your heating with perfect insulation. Airtight building insulation ensures that energy is kept within your home rather than being wasted by escaping into the atmosphere.



### Why is an intelligent airtightness system necessary for New Zealand homes?

New Zealand is influenced by a temperate maritime climate – there aren't the same seasonal extremes of temperatures as some countries – however most parts of the country have damp and/or humid conditions throughout the year.

#### Water vapour (humidity) moves through building structures in the following ways:

- air movement (convection)
- diffusion through materials

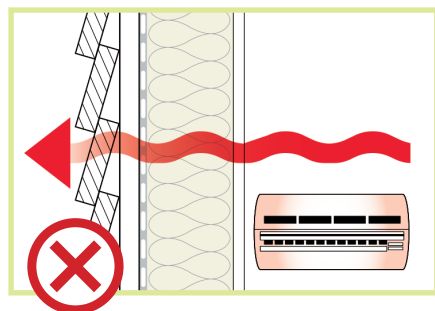
#### Therefore it is important to:

- Control air movement through the building envelope
- Protect structures from internally driven moisture
- Allow structural drying on the inside

## Benefits of Airtightness

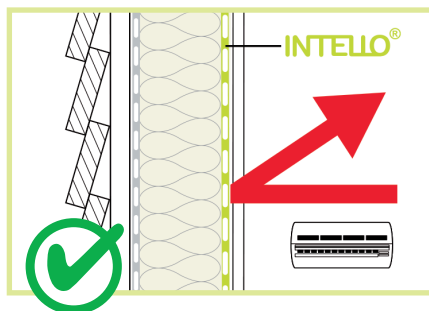
*Airtightness is the essential element to ensure thermal insulation is perfect resulting in warmer, drier, healthier homes – all year round*

### Energy retention



#### Energy Efficiency

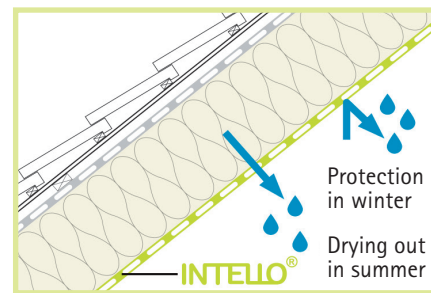
- ✓ Reduced air infiltration saves energy and therefore less heating / cooling appliances are needed
- ✓ Keeps your home warm in winter and cool in summer
- ✓ Solution to reduce New Zealand's overall energy dependence through greater energy efficiency



#### Freedom from structural damage

- ✓ Prevents moisture build up in the construction
- ✓ High drying capacity through the intelligent INTELLO® membrane
- ✓ In-situ installation verification through WINCON test

### Moisture control in summer and winter



#### Healthy Indoor Air

- ✓ Eliminates contamination of the indoor air
- ✓ Prevents mould and mildew in the construction from internally driven moisture
- ✓ Enables controlled ventilation

# pro clima INTELLO<sup>®</sup> Intelligent Airtightness System

The high-performance system from pro clima for maximum reliability



The pro clima airtightness system prevents uncontrolled air infiltration or leakage through the building envelope and assists the drying capacity of the building through its unique moisture control properties. This is possible because the INTELLO<sup>®</sup> membrane offers high diffusion tightness and maximum diffusion openness depending on temperature and humidity.



Maximum protection for your construction;  
Ideal prevention against structural damage and mould even in the event of unexpected moisture intrusion;  
Extremely high humidity-variable diffusion resistance

## Advantages

- ✓ A healthy home
- ✓ Enhanced insulation performance
- ✓ Maximum structural protection
- ✓ Effective and efficient energy savings



## Technical data

Characteristic	Value	
Cover-fleece + protective-layer:	PP microfibre fleece	
Membrane <sup>^</sup> :	polyethylene copolymer	
Surface weight:	110 ± 20 g/m <sup>2</sup>	
Thickness <sup>^</sup> :	0.4 ± 0.15 mm	
Flammability index:	< 5	AS 1530.2-1993
Air control:	≥ 0.1 MNs/m <sup>-3</sup> Air barrier	ISO 5636.5, BS 6538.3 AS/NZS 4200.1-2017
Vapour classification:	Class 2 - Class 3	AS/NZS 4200.1-2017
Sd value, equiv. air layer thickness:	0.25 -> 25 m	EN ISO 12572 (equiv. 1.25-125 MN.s/g)
Water vapour resistance (MVTR <sup>†</sup> ):	1.25-125 MN.s/g	
Edge tear: MD / CD <sup>‡</sup>	200 / 200 N	EN 13859-1
Tensile strength <sup>^</sup> : MD / CD <sup>‡</sup>	6.8 / 4.4 kN/m	EN 13859-1
Temperature resistance:	-40 °C to +80 °C	
INTELLO <sup>®</sup> PLUS UTILISES HYDROSAFE <sup>™</sup> TECHNOLOGY		
The Sd at 70% RH falls between > 1.5 m and < 2.5 m		

<sup>\*</sup>back-diffusion refers to the summer condition when water vapour can migrate from outside to inside. Vapour is forced to the relatively cool inside by high external humidity and/or moisture from damp claddings combined with high external temperatures, <sup>†</sup>MVTR: Mean vapour transmission rate, <sup>‡</sup>MD / CD: Machine direction / cross direction, <sup>^</sup>INTELLO<sup>®</sup> PLUS has a polypropylene non-woven fabric reinforcement; Thickness: 0.4 ± 0.1 mm; Tensile strength: 7.0 / 5.8 kN/m

## Delivery Form

Roll length	Roll width	Roll area	Roll weight
20 m	1.50 m	30 m <sup>2</sup>	3.5 kg
50 m	1.50 m	70 m <sup>2</sup>	7 kg
50 m	3.00 m	150 m <sup>2</sup>	14 kg



pro clima

# Intelligent Airtightness System Components for your home

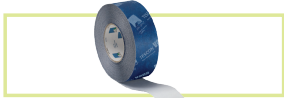
- ✓ Humidity-variable airtightness membrane INTELLO® & INTELLO® PLUS
- ✓ Multi-purpose adhesive tape TESCON® VANA
- ✓ Multi-purpose liquid adhesive ORCON®
- ✓ Airtightness grommets KAFLEX and ROFLEX
- ✓ Airtightness box for power points and light switches INSTAABOX

## System components



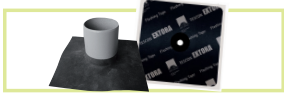
### INTELLO® & INTELLO® PLUS

Intelligent vapour check and airtightness reinforced membrane with humidity-variable diffusion resistance for active moisture management



### TESCON® VANA

Multi-purpose adhesive tape for sealing membrane overlaps and other components



### ROFLEX / KAFLEX

Sealing grommets for cables and pipes that penetrate through the INTELLO® membrane layer



### ORCON®

Multi-purpose liquid adhesive in cartridge or soft tubular film. The adhesive is applied to join the INTELLO® membrane to concrete or wooden frames



### INSTAABOX

This box allows for airtight installation of light switches and power plugs for wall systems without service cavity



### WINCON

Installation verification device

		TESCON® VANA	TESCON® PROFIL	TESCON® EXTORA®	ORCON® CLASSIC	CONTEBA® IQ	KAFLEX monolubio	ROFLEX	DUPLEX	TESCON® PRIMER RP	AEROSANA® VISCONN
Timber, OSB, Plywood	dirty										
	clean	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Plaster board	clean	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Paint primers		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
AEROSANA® VISCONN	dry / clean	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PIR Polyisocyanurate	on foil	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	on PIR										
XPS Extruded Polystyrene	clean	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
EPS Expanded Polystyrene	clean	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Expanding foams	dry										✓
Cement / Gypsum plaster	smooth	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	rough										✓
Acrylic plaster	rough										✓
	smooth	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Steel	galvanised	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	bright	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	painted	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Aluminium	clean	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	rough										✓
Brickwork	rough										✓
	friable										✓
Concrete	smooth	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	rough										✓
Fibre cement	clean	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	friable										✓
Windows	aluminium	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	PVC										✓
	timber	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cables*	flat	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	round	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pipes / ducts*		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

- See current BRANZ Appraisal for tested substrates
- Surfaces should always be dry and free from dust and grease.
- TESCON® PRIMER RP is always recommended for mineral based surfaces.
- \* KAFLEX / ROFLEX should always be the first choice when sealing penetrations.

## 1 INTELLO®



The INTELLO® airtightness membrane is laid on the interior, over the insulation. Bonding with adhesive tapes should be on the smooth printed side. Staples should be 10 mm wide and 8 mm long and set at a max distance of 100 mm - 150 mm.

## 2 TESCON® VANA



Seal the membranes at overlaps without strain or loading, using TESCON® VANA adhesive tape. The tape should be applied centrally and pressed down firmly using, for example, pro clima PRESSFIX.

## 3 ORCON®



The liquid adhesive ORCON is applied to join the INTELLO® membrane to concrete or wooden frames. Do not press the adhesive completely flat.

## 4 KAFLEX



If pipes or cables penetrate the airtightness layer, they too must be securely sealed. KAFLEX cable grommets are self-adhesive. Remove the release paper, push over the cable and stick on.

## 5 ROFLEX



ROFLEX pipe grommets are affixed using TESCON® EXTORA. Press firmly to secure the adhesive tape.

## 6 INSTAABOX



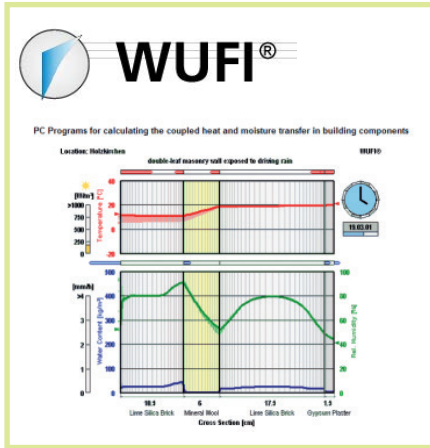
The airtightness box for power points and light switches is cut and fitted into the INTELLO® layer and then sealed by using TESCON® VANA to create a seamless airtightness system.



# Verification – Quality Assurance

## Simulation

WUFI® – Computer-assisted simulation programme for heat and humidity transport (dynamic)

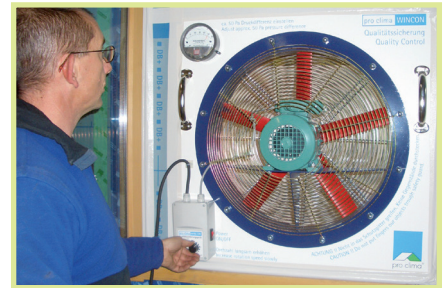
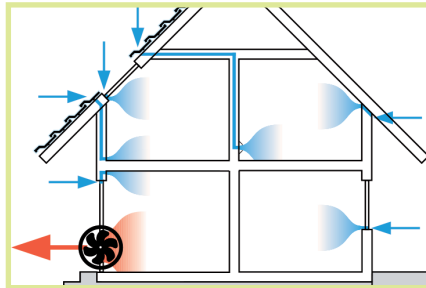


WUFI® is a software tool for simulation and calculation of heat and moisture flows within constructions based on the actual climate conditions and the individual orientation of buildings. The program will determine how high the humidity levels and the risk of mould and structural damage will be within constructions. WUFI® was designed to international standards and is used worldwide while taking into account the climate conditions of New Zealand. WUFI® was developed by the Fraunhofer Institute for Building Physics (IBP), Germany. The IBP offers seminars at various locations that include the understanding of building physics principles and an introduction to the use of the software. For information on the WUFI® seminars in New Zealand, please visit [www.wufi.co.nz](http://www.wufi.co.nz).

## Airtightness is measurable

### WINCON – Verification of installation

Verification of the installation of the Intelligent Airtightness System (IAS) is undertaken by using the pro clima WINCON. The simple and easy WINCON test allows air leakage to be identified by depressurising the building. The WINCON is readily available from your pro clima.

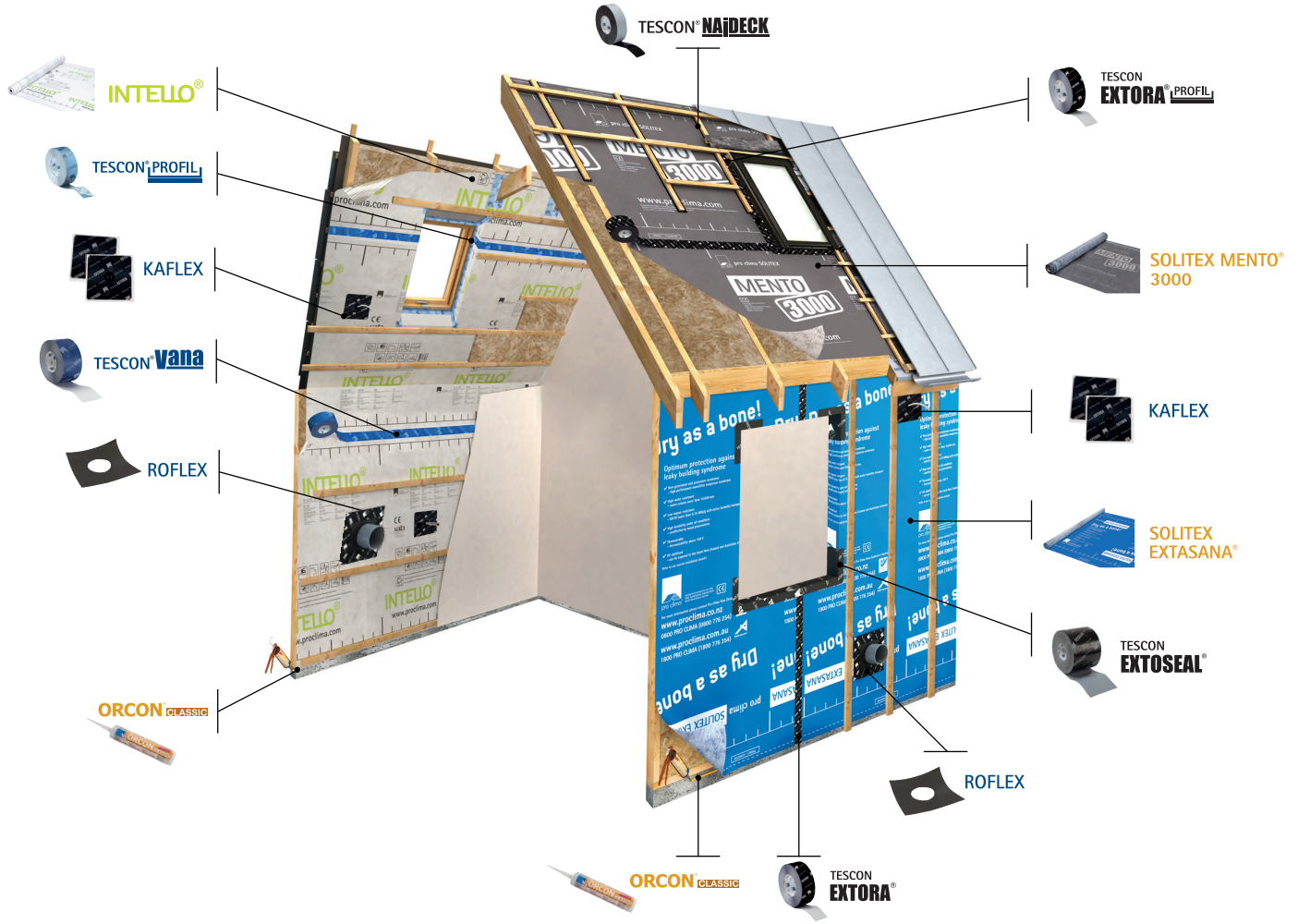


### Blower Door – Measuring building performance

A Blower Door is a diagnostic tool which helps locate air leakage within the building envelope. Measurements are performed in pressurised or depressurised buildings where climatic or other external influences are minimized due to the high pressure difference created by a fan. This allows for a reliable measurement of infiltration rates. For information about Blower Doors in New Zealand, please visit [www.blower-door.co.nz](http://www.blower-door.co.nz).



# pro clima's Airtightness and Weathertightness Building System Products



**INTELLO®**  
system  
certifications:

NZ

Global



GER

UK

EU

IRL



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