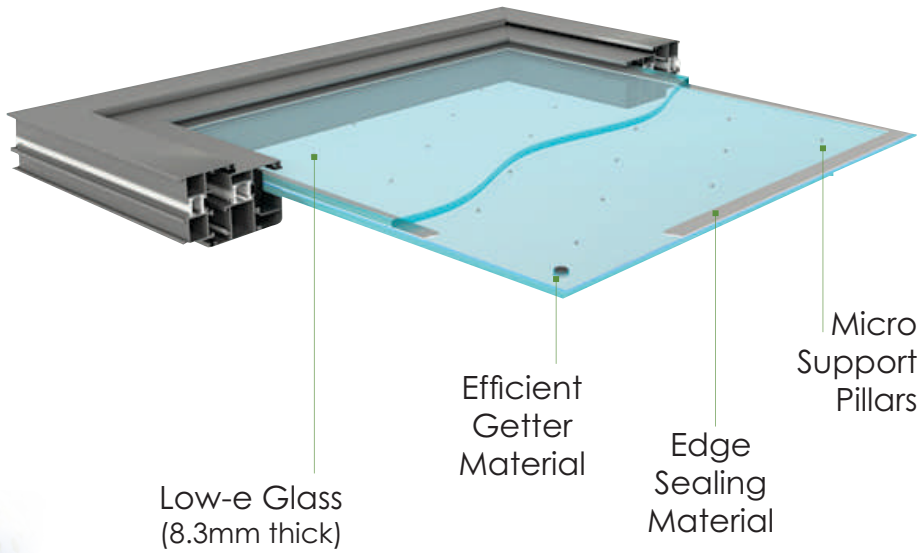




# VIG

VACUUM INSULATED GLASS



**FMI has exclusive rights to supply LandVac, the world's leading tempered vacuum insulating glass (VIG) in New Zealand.**

The LandVac brand uses the most advanced VIG technology with a focus on environmental sustainability making it a natural fit with FMI's net zero carbon ambitions and large trusted product portfolio.

To this end FMI now offers the most high-performance, slimline insulating glass technology in New Zealand and presents an entirely new paradigm of high-performance glass possibilities.

## OVERVIEW

# VACUUM INSULATED GLASS (VIG)

---

Triple glazing used to be the best thermal and acoustic insulation option for windows but its effectiveness is limited and makes for extremely thick and heavy windows, noticeably reducing light transmission.

The typical home loses 30% of its heat through windows, so highly insulated windows are an energy efficiency option with a disproportionately large benefit. Essentially, a Vacuum Insulated Glass (VIG) window is like a flat, transparent thermos bottle that dramatically reduces heat loss and sound penetration. Super thin panes of glass, separated by tiny spacers, are sealed around the edges. The vacuum between the two panes virtually eliminates conduction and convection heat loss.

Landvac is tempered Vacuum Insulated Glass (VIG) that combines the best thermal insulation and noise reduction with appealing aesthetics allowing seamless integration into existing frames or new windows and doors. Landvac has the most advanced VIG technology, optimizing indoor comfort by outperforming conventional IGUs (Insulated Glass Units).

## RETROFIT

# ADVANTAGES

---

The nature of new high performance windows means that they are much thicker than old fashioned single-glazed windows due to the requirement of air space between the glass panels.

This means that older homes originally built with single glaze windows cannot have insulated multipane units without replacement of sashes, beads and potentially panels as the new glass units will not fit existing aluminium profiles. This in turn causes issues with colour matching the remaining profiles.

Retro fitting with FMI's VIG perfectly addresses this problem because it is thin enough to fit into existing single-glazed windows and doors.

This allows the original windows to be restored while still enabling the energy gains often targeted in a project.

## INSULATED GLASS UNIT

# ADVANTAGES

---

By adding a VIG to one skin of an insulated glass unit, you are effectively super charging it as far as thermal and acoustic properties are concerned

This is an effective way of gaining increased thermal performance for either replacement windows and doors or windows and doors for a new home.



# PERFORMANCE ADVANTAGES

---

## ENERGY CONSERVATION

Since there is no thermal expansion or contraction in the high vacuum chamber of LandVac, the use of LandVac is not limited by geographical locations or elevation. The high vacuum chamber of LandVac, effectively blocks thermal transmission ensuring the thermal insulation performance of LandVac is significantly better than either single pane and insulated glass at reducing heat exchange. Compared with insulated glass, the energy consumption per unit of floor area is reduced by approximately 20%

## NOISE REDUCTION

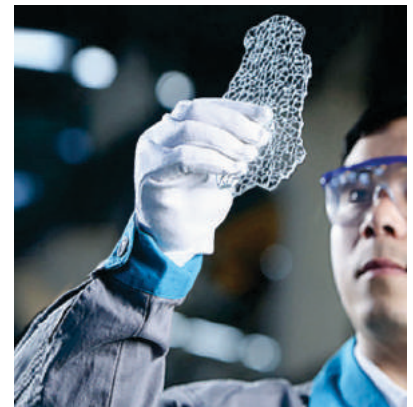
Thanks to the high vacuum chamber of LandVac, which effectively blocks the sound transmission, the sound insulation performance is far better than insulated glass. LandVac's weighted sound reduction index which exceeds 36 dB, delivers remarkable acoustic properties against high penetrative medium and low frequency noises such as traffic noises.

## THINNER AND LIGHTER

LandVac's structure is thinner and lighter than insulated glass. A piece of 8.3 mm thick LandVac weighs only 20kg/m<sup>2</sup>, is light and aesthetically pleasing.

## FULLY TEMPERED

By adopting low temperature sealing technology LandVac retains exceptional high strength and impact resistance. If the glass does break, it breaks into small honeycomb shaped particles.



## THERMAL INSULATION

The properties of this product meet all international thermal transmittance requirements on windows and doors for passive houses.

## SUPER LONG LIFE

The service life expectancy of LandVac exceeds 25 years. By using flexible edge sealing materials, LandVac overcomes the seal failure problem caused by fragile sealing materials especially in the environment with big temperature difference between the inner and outer glass surfaces.

After the material is "activated", while maintaining its solid form (i.e. not being evaporated) it turns into the getter that absorbs gas directly. With the assistance of built-in high efficiency getter material, it can sustain a high level of vacuum for a long time.

## EASY TO REPLACE

LandVac will make historic building restoration work easy and safe. A single piece of LandVac is only 8.3 mm in thickness. When upgrading a single pane window, LandVac can be easily fitted into the original window and door frames to better retain the original shape of the building.

## EXCELLENT UV FILTERING

LandVac insulated glass effectively lowers the UV radiation protecting indoor furniture and home appliances.

## LEAD FREE

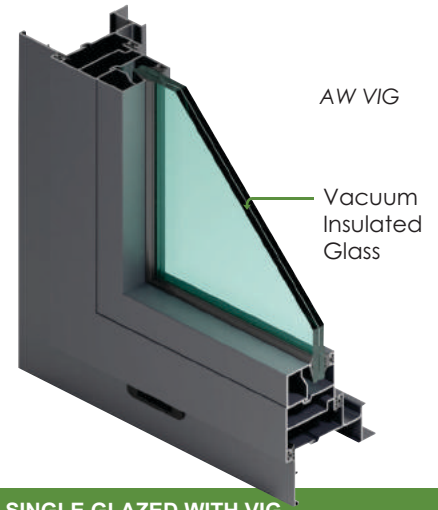
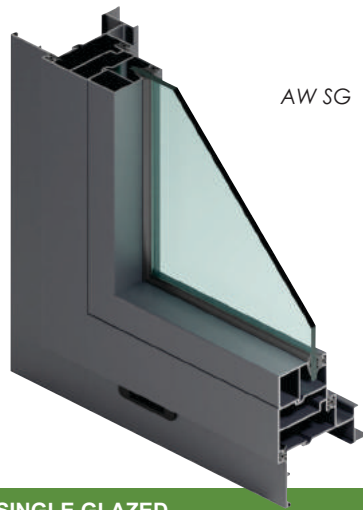
The Testing Report from CTI, which is authorized by RoHS EU, has witnessed the outstanding environmental-friendly performance of LandVac. CTI testing concludes that the metal sealing material is lead-free, hazard-free, and food-grade safe.

# OUR VIG DATA

## Single Glazed VIGs

# 11x

### Better Than Single Glazing

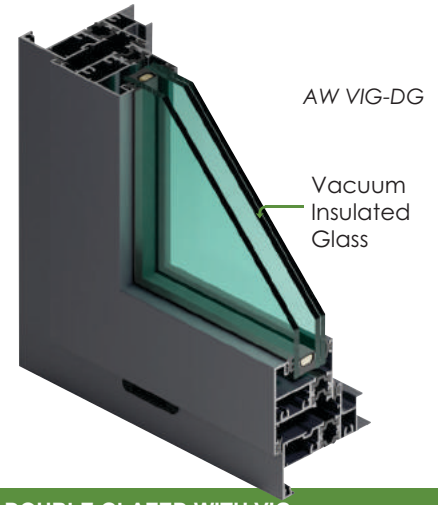
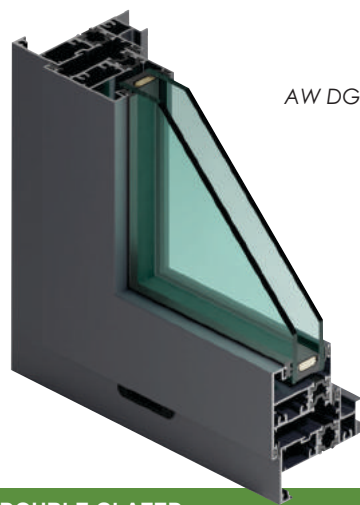


|  | SINGLE GLAZED<br>NON THERMAL FRAME | SINGLE GLAZED WITH VIG<br>NON THERMAL FRAME |
|--|------------------------------------|---|
| <b>GLAZING THERMAL TRANSMITTANCE</b><br><i>U<sub>COG</sub> Value <sup>(2)</sup> w/(m<sup>2</sup>K)/W</i> | 5.80                               | 0.51  |
| <b>ENERGY EFFICIENCY GLAZING</b><br><i>R<sub>w</sub>Value <sup>(1)</sup> (m<sup>2</sup>K)/W</i>          | 0.16                               | 0.60  |
| <b>SOLAR HEAT GAIN COEFFICIENT</b><br><i>SHGC <sup>(2)</sup></i>   | 0.91                               | 0.56  |
| <b>VISUAL LIGHT TRANSMISSION</b><br><i>VLT <sup>(2)</sup></i>  | 91%                                | 80%   |

## Double Glazed VIGs

# 6x

### Better Than Double Glazing



|  | DOUBLE GLAZED<br>THERMAL FRAME | DOUBLE GLAZED WITH VIG<br>THERMAL FRAME |
|--|--------------------------------|---|
| <b>GLAZING THERMAL TRANSMITTANCE</b><br><i>U<sub>COG</sub> Value <sup>(2)</sup> w/(m<sup>2</sup>K)/W</i> | 2.71                           | 0.46                                    |
| <b>ENERGY EFFICIENCY GLAZING</b><br><i>R<sub>w</sub>Value <sup>(1)</sup> (m<sup>2</sup>K)/W</i>          | 0.32                           | 0.80                                    |
| <b>SOLAR HEAT GAIN COEFFICIENT</b><br><i>SHGC <sup>(2)</sup></i>   | 0.76                           | 0.50                                    |
| <b>VISUAL LIGHT TRANSMISSION</b><br><i>VLT <sup>(2)</sup></i>  | 82%                            | 74%                                     |

#### KEY CHART

(1) Window 1500h x 1800w with a central mullion and one opening light (NZS4218) to standard ISO 10077  
(2) CEN environmental conditions to standards EN673 and EN410 - VIG to NFRC-100 / ISO 15099

- U<sub>COG</sub>** U<sub>COG</sub> is the thermal transmittance measured at the centre of the glazing. The lower the value, the less heat is lost.
- R-Value** R-Value is the thermal resistance of a material. The higher the value, the less heat is lost through the material and the better the insulation and efficiency.
- VLT** Visible Light Transmittance (VLT) describes the percentage of visible light transmitted through the glass. The higher the percentage the more daylight transmitted.
- SHGC** The Solar Heat Gain Coefficient (SHGC) is the total fraction of available solar radiation that is transmitted through the window as heat gain. The lower the solar heat gain, the less solar heat it transmits.

## TALK TO YOUR SUPPLIER FOR ADVICE

---

CONTACT US

TO FIND THE RIGHT GLASS CHOICE FOR YOUR HOME OR PROJECT, PLEASE TALK TO YOUR ARCHITECT, BUILDER OR LOCAL SUPPLIER FOR ASSISTANCE.

[fmi.co.nz](http://fmi.co.nz)