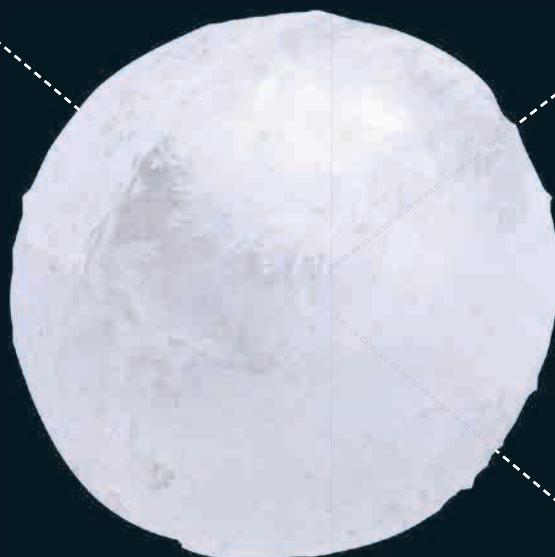


IT'S AS BIG AS A
CRICKET BALL...



IT WEIGHS MORE THAN
A CRICKET BALL...

AND IT'S ABOUT TO
HIT A VELUX SKYLIGHT AT

172 KPH

WELCOME TO VELUX

HAIL

TEST!



TEST STATS

THE COOL FACTS:

No. of hailstones:

32

Max. diameter of hailstones:

72 mm

Max. weight of hailstones:

180 g (heavier than a cricket ball)

Max. speed of hailstones:

172 kph (faster than any fast bowler)

Damage to VELUX:

NONE

VELUX®



THE LARGEST 'HAILSTONES'
IN THE TEST WERE THE
SIZE OF CRICKET BALLS

OVER BUT NOT OUT



The launcher released 'hailstones' at speeds of up to 172 kph

Recognised test facility testing weakest points

We submitted three VELUX skylights – an openable, a fixed and a flat roof skylight – to Australia's first hail test of residential glass skylights. The test was conducted by the nationally recognised IBA test centre in Melbourne in accordance with ASTM E822-2009. The test samples were impacted at their weakest points – near the corners. The glass near the corners doesn't give so it cops the full force of the impact...

25 mm 'hailstones' fired at 108 kph

The first four man-made hailstones measured 25 mm in diameter and hit the VELUX skylight at a speed of 108 kph. No damage. Realising that more impact was required, the test team increased the size of the hailstones to 35 mm and the speed to 120 kph. Still no damage. Upping the ante, the test team now increased the size of the hailstones to 50 mm and the speed to 135 kph. All three VELUX skylights passed without a scratch.

72 mm hailstones travelling at 150 kph+

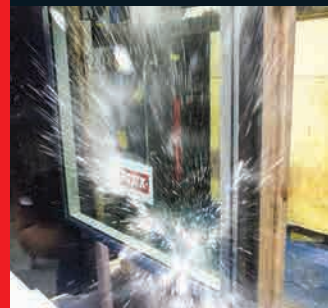
Finally the diameter of the hailstones was increased to 72 mm – the size of a cricket ball. Weighing 180 g the hailstones were heavier than a cricket ball and they travelled faster, too. All three VELUX skylights were hit once near every corner at speeds ranging from 151 kph to 172 kph – faster than any bowler has ever delivered a cricket ball*. Still the VELUX skylights remained unscratched...



The skylights were hit at their weakest points - the corners



Each skylight was hit four times with 50 mm hailstones at 135 kph and four times with 72 mm hailstones at 150 kph+



Testing with smaller and slower hailstones was only conducted on one skylight due to lack of impact



At the end of the test there was no damage at all on any of the three VELUX skylights

*The world record stands at 161.3 kph, set by Shoaib Akhtar (Pakistan) against England on 22 February 2003.

An aerial photograph of a city skyline, likely Perth, Australia, taken from a high vantage point. The sky is filled with large, dark, dramatic clouds, suggesting an approaching storm or late afternoon light. The city below is densely packed with buildings of various heights. In the foreground, several prominent skyscrapers are visible, including one with the 'nab' logo, another with 'ANZ' branding, and a taller one with 'OPTUS' on its side. The overall mood is somber and dramatic.

SYDNEY 1 JANUARY 1947

BRISBANE 18 JANUARY 1985

SYDNEY 14 APRIL 1999

SYDNEY 9 DECEMBER 2007

MELBOURNE 6 MARCH 2010

PERTH 22 MARCH 2010

HALF OF AUSTRALIA'S COSTLIEST HAILSTORMS HAVE HAPPENED SINCE 2007



VELUX inspects a roof hit by hailstones the size of cricket balls in the Melbourne storm 2010. All VELUX skylights remained intact.

The costliest natural disasters

The April 1999 Sydney hailstorm is the costliest natural disaster in Australia's history. Measured in insured losses it exceeds even cyclone Tracy, the Newcastle earthquake, the Brisbane floods and the Ash Wednesday bushfires. The 2010 hailstorms that hit Melbourne and Perth only 16 days apart were the costliest natural disasters ever to hit these cities. Hailstorms account for a third of all insured losses for major events, by far the costliest natural hazard in Australia.

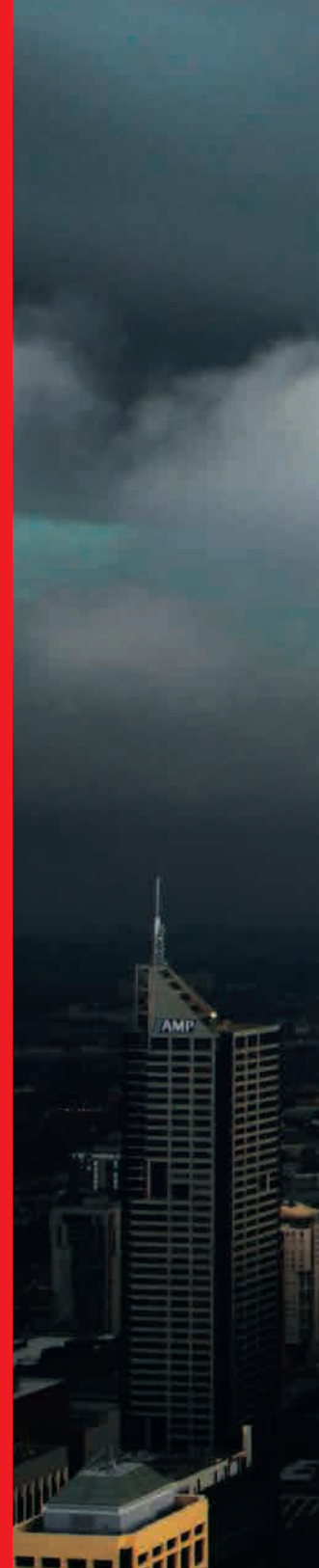
Increasing frequency

Three of the six costliest hailstorms in Australian history have happened since 2007. Two of these – the 2010 hailstorms in Melbourne and Perth – happened in cities that had never before experienced major hail damage. Still, on Christmas Day 2011 Melbourne was again hit by a severe hailstorm causing extensive damage.

Still there's no hail test for skylights in Australia

A smashed skylight with subsequent flooding will contribute considerably to the damage in the event of a hailstorm. Still there is no Australian Standards hail test for glass skylights. The hail test we refer to in this brochure offers a good indication of how VELUX skylights perform in a serious hailstorm. The results confirm real-life experiences in the 2010 Melbourne storm as documented in our case study *VELUX weather the perfect storm*.

Please visit www.velux.com.au or call 1300 859 856 for a free copy.





VELUX

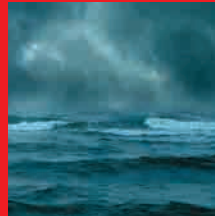
**IS DESIGNED TO
HANDLE ANYTHING
AUSTRALIA
THROWS AT IT..**

HERE ARE THE TESTS TO PROVE IT:



Bushfire tested

VELUX skylights surpass the tough Australian Bushfire Attack Level 40 requirements. In the test the skylights were exposed to a 930°C heat source.



Cyclone tested

VELUX skylights are wind pressure tested in accordance with AS 4285. They are suitable even for cyclonic regions in the far northern parts of Australia.



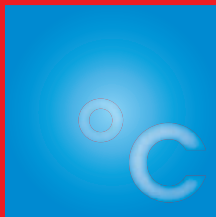
Load tested

120 kg of concentrated load on the two weakest points proved no match for VELUX skylights. All VELUX skylights surpass AS 4285 and AS 1288.



Watertightness tested

VELUX skylights have passed the same watertightness test as roof tiles.



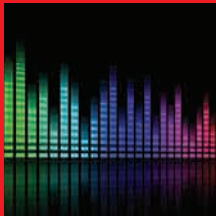
80% heat block

Advanced glazing technology blocks 80% of radiant heat.



99% UV block

VELUX skylights block 99% of UV rays. No risk of fading or other damaging effects from sunlight.




32dB noise reduction

VELUX skylights reduce noise by as much as 32dB. In practical terms curbing the noise from a lawn mower to the level of normal conversation.



5-star energy rating

VELUX skylights have achieved the maximum 5 stars on the WERS summer rating for their ability to keep the heat outside.

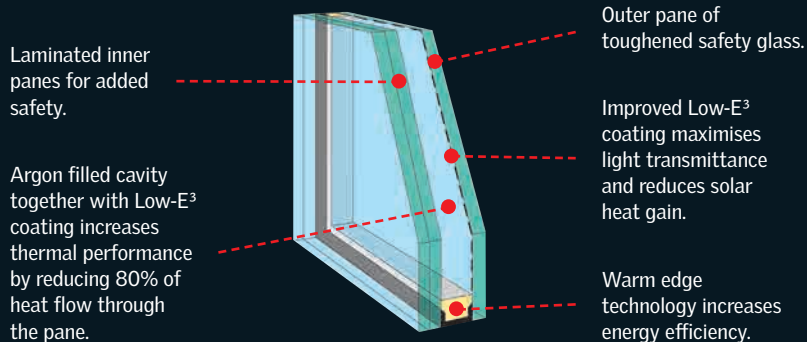


VELUX HIGH PERFORMANCE
DOUBLE GLAZING (2004) WAS
USED IN ALL TEST SAMPLES.
THE TOUGHENED SAFETY GLASS
WAS UNSCRATCHED AFTER THE
HAILSTONE TEST.

BEHIND VELUX HIGH PERFORMANCE DOUBLE GLAZING...

VELUX skylights are designed to protect life and property – not add to the damage. But how can they resist hailstones the size and weight of cricket balls without breaking? It's due to the way they are built. The outer pane – which proved too strong for the hailstones in the test – is made of toughened safety glass. Behind it are laminated inner panes for added safety. Have a look below to see how a VELUX skylight is built...

High Performance double glazing (2004)



VELUX TAKES TESTING TO THE

EXTREME

VELUX®

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