Welcome to the future

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The best of what we know

The customers must know what they are getting

Daylight and fresh air

Design changes
The introduction of a new generation of VELUX roof windows is a milestone and a major event.

Milestone because we now have a product platform that is a worthy successor to our earlier products. And major because it is a platform that will enable us to provide our customers with exactly what is needed to secure our position as market leader for many years to come. Countless VELUX people have devoted all their time and effort over recent years to make that possible. This massive product development programme has taken what corresponds to one man working for a hundred years.

It is a powerful manifestation of how many skilful, motivated and hardworking people we have, who have given of their very best to create this new generation of VELUX products. There is every reason to feel proud of the result, which you can read more about in this magazine.

Challenging ourselves

The world is facing the monumental challenge of global warming; it is our challenge too. As a model company, we must do everything we can to be useful to society and ultimately take care of our planet, and we must contribute to solving these problems by ensuring our product design plays a significant role in being able to build attractive homes with lower energy consumption. And this is just where our new range of products comes into the picture.

This is not the first time we in the VELUX Group have shaken up the view of what the future may bring. Together with a large team of international collaborators, we are working on the Active House concept, whose aim is to be part of the process to shape the buildings of tomorrow through more stringent demands on energy consumption, indoor climate and the environment. And the same applies to our Model Home 2020 experiments.

These initiatives are examples of how the VELUX Group constantly challenges what exists here and now. And examples of how we take a leading role in the international development of energy efficiency and sustainability in buildings.

The will to challenge ourselves was taken a step further in the development of the new generation of roof windows, which is the platform that will make our VELUX Brand even stronger, and it is the tool that will lead the VELUX Group into the future.

– Jørgen Tang-Jensen, CEO
New standards for light, air and energy efficiency

The homes of the future must be sustainable – and that places great demands on the components used in their construction. And it is these demands that form the basis of the new generation of VELUX roof windows that have been developed to live up to future customer demand and legislation.

“Along with our position as market leader goes the duty to lead the industry and set new standards for innovation,” says Lars Gylstorff, Manager of Windows Global Product Management (W-GPM). “It is a duty we welcome and this new generation of roof windows is precisely what is needed to secure our leading position on the market.”

All-round improvements

The new product platform is the result of a concentrated effort to develop and strengthen the qualities our roof windows already have. Our objective has been simultaneously to improve quality, function and design, and the advantages of the new generation will become apparent in three areas: daylight, comfort and energy.

“The windows of the future will be designed with the focus on outstanding insulation properties and maximum exploitation of solar energy through the pane to achieve the best possible energy balance,” explains Lars Gylstorff.

“Along with our position as market leader goes the duty to lead the industry and set new standards for innovation,” says Lars Gylstorff, Manager of Windows Global Product Management (W-GPM). “It is a duty we welcome and this new generation of roof windows is precisely what is needed to secure our leading position on the market.”

The new generation of roof windows has also seen a design development – both internally and externally. For example, there are fewer screws and the sashes are slim, which makes for a simpler and more elegant window.

Another improvement is the possibility for the window to be installed at two different levels – standard or countersunk – depending on what suits the roofing materials best. With a countersunk installation, the window lies 40 mm deeper in the roof, which makes for a more aesthetic installation and contributes to energy efficiency.

Gradual launch

“We wanted to develop a new platform of roof windows that create the best balance between quality, price and innovation,” continues Lars Gylstorff. “And I believe we have got that balance just right.”

“The new windows will be launched gradually over the next few years, starting in Scandinavia and Germany in the spring of 2012,” informs Helle Vejlgaard, Regional Product Manager. “So we are now working closely with the sales companies to optimise the product range so we can continue supplying solutions that meet local customer demands and market specifications.”

How a window’s energy balance is calculated

A window’s energy balance is made up of solar heat gain and heat loss. The sun radiates heat in through the window; at other times, heat is lost through the window. The energy balance can be summed up in a formula that is already used in some EU countries for energy-labelling windows.

Solar gain (g-value) – Heat loss (U-value) = Energy balance

In the spring of 2012, a new generation of VELUX roof windows will arrive on the market. We have succeeded in producing a range of windows that combine stringent demands for quality and design with high energy efficiency.

The new windows will be launched gradually over the next few years, starting in Scandinavia and Germany in the spring of 2012,” informs Helle Vejlgaard, Regional Product Manager.
The customers must know what they are getting

Everybody will have a part to play when we launch the new generation of VELUX roof windows. One vital task is to put the central message into words: a sustainable solution that saves energy. A communications toolbox will help strengthen and harmonise the launch.

“Customers associate our products with daylight and fresh air. We want to extend their image of us to include energy,” says Mark Saxton, Strategic Project Manager. “So one of the communications objectives is to strengthen customer perception of the VELUX Group as a company that supplies energy-efficient and sustainable products.”

“The communication campaign behind the new generation of roof windows will enhance our position as market leader at the same time as strengthen-
The VELUX Group has always guaranteed the high quality of its roof windows, which bring fresh air and daylight into buildings. And we still do. Both the design and function were in focus when developing the new generation of roof windows.

“We wanted to make a window that changes people’s perception of what a roof window is and can do,” says Peder Diness Jakobsen, Project Manager in Research & Development. “It is no longer just a window – it is a sustainable solution that plays an important role in a building’s overall energy accounts.”

“The future places demands

“There are more stringent demands for buildings’ energy consumption in many energy and environment policies. And that is making an impact on the market,” relates Claus Holm, Manager of Product Development. “And the demand for energy-efficient solutions is one of the most important issues we have addressed with the new products. Our new generation of roof windows was designed to meet the tough demands of the future for energy efficiency.”

Stylish and timeless

The new VELUX roof windows have a rounder and softer design than their predecessors. The most noticeable changes from the outside are the slimmer construction and covers. The result is a harmonic and more stylish appearance.

“We wanted to make a window that changes people’s perception of what a roof window is and can do,” says Peder Diness Jakobsen.

The best of what we know

– with a portion of future added

The new generation of roof windows was designed with focus on sustainability and energy balance. Innovation and optimisation of all the best from the last generation give our customers the roof window of the future.

»More daylight, higher energy efficiency, increased user-friendliness, effective noise reduction and enhanced design«

Research & Development. “It is no longer just a window – it is a sustainable solution that plays an important role in a building’s overall energy accounts.”

New generation

The rounded design of the external covers and screw-free installation gives a more modern design.

Previous generation

The narrow design of the top cover allows for a larger pane area, so the new windows let in more daylight.

A new material (VELUX Thermo Technology) that ensures superior insulation properties has been used in certain parts of the construction.
Our colleagues have developed the new generation of roof windows with focus on daylight, comfort and energy balance. Innovation and optimisation of all the best features of the previous generation bring our customers the roof window of the future.

One of the most visible changes to the internal design is the ventilation flap. It is the work of Jacob Jensen Design and has a softer and more ergonomic form. The ventilation flap and the control bar are still there – they are part of the identity of earlier generations of VELUX roof windows. The shape of the control bar gives the window character, improves user convenience and helps the user know intuitively how to operate the window.

The control bar and the ventilation flap have the same functions as before but their operation is now illustrated with simple icons on the control bar.

Visible and invisible improvements Users will see for themselves the result of the innovation in the new windows in the form of more daylight, higher energy efficiency, increased user-friendliness, effective noise reduction and enhanced design – without compromising on quality or price.

Many improvements are invisible to the user, for instance new materials with better insulation properties. Others are more visible, such as the new design of the control bar and the ventilation flap, the slim sashes and the larger pane area. The design enhancements are not purely aesthetic. The new design with fewer screws also offers even greater protection against water seeping in. And the installation of the new windows is very simple thanks to the so-called ‘click-on’ system. Together with improved packaging, this will make the installer’s job much easier in the future.

Innovation and optimisation of all the best features of the previous generation bring our customers the roof window of the future.

“We will go on adjusting and improving the new windows in the years to come,” says Claus Holm.

The new generation of VELUX roof windows contain many improvements:

• Better energy balance
• Up to 18 % more pane area
• Improved insulation
• User-friendly design
• INTEGRA® control pad with several programs
• Improved packaging
• Quiet motor
• Lower CO₂ impact

FACTS

The design changes compared to the earlier generation of roof windows are considerable,” says Carsten Thomsen, Project Manager for Research & Development.

Inside, the design gives you a larger pane area and slimmer sashes.

The ventilation flap has been made smaller and the control bar rounder and more harmonious. Polyurethane windows now have an aluminium control bar.

“the design changes compared to the earlier generation of roof windows are considerable,” says Carsten Thomsen, Project Manager for Research & Development.

The new VELUX INTEGRA® control pad has a touch-sensitive screen that gives more intuitive control of VELUX electrical products, which are now quieter and use less electricity.
Daylight and fresh air are vital for people's comfort, health and well-being. That is why the design of VELUX roof windows starts with the philosophy that they should improve the quality of life of our customers. "Fresh air and daylight are part of our DNA. They are the core of our brand and they are the two elements we strive constantly to optimise," says Karsten Duer of VELUX Standardisation & Product Regulation. "With the new generation of windows, we have succeeded in admitting more daylight, improving the energy balance and ensuring good ventilation – at the same time as enhancing the design."

"The new roof windows have slim sashes and a larger pane area. The new design allows more daylight to enter – up to 18 % for the smallest windows – and an even better energy balance."

"Energy balance is the relationship between heat loss and heat gain through a window. So increasing the glazed area has had the highest priority in the new generation," explains Karsten Duer. "More glazed area means more daylight and more heat from the sun. Another approach would have been to develop a window with a large sash and low heat loss – but that would have meant a window with less daylight and solar energy."

We believe that windows should be considered as energy contributors – and we have been working on the product itself and on gaining knowledge on where to install the window to obtain the maximum effect from our windows. Good daylight levels save electricity, and solar gain through correctly placed windows does help to heat up the house in the heating season.

Daylight and fresh air are in our DNA

Since the company was formed, daylight and fresh air have been the essence of what we supply to our customers. "We are daylight engineers," said our founder, Villum Kann Rasmussen. And that hasn't changed with the new generation of roof windows.

Roof windows mean efficient ventilation

Above all, we must ensure the relevance of our products – and to do that it is absolutely essential that they can be used in the sustainable homes of the future. So new products must provide more fresh air, more daylight and have a better energy balance. But although many changes have been made to the construction of the new roof windows, we have succeeded in retaining good ventilation performance.

"The design of VELUX roof windows starts with the philosophy that they should improve the quality of life of our customers."

"We are seeing much greater interest in keeping indoor temperatures down in the summer with the help of windows, something roof windows are particularly suitable for because of their location in the roof. Because a combination of high and low placed windows gives the most efficient ventilation," continues Karsten Duer. "On most markets, roof windows provide both greater comfort and better energy efficiency than, for example, air conditioning."

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The window lets in the warmth of the sun

Energy balance is a key factor for the VELUX Group. Roof windows must no longer be considered as a source of energy loss but as an element that lets in the warmth of the sun.

When the energy balance of a roof window is measured, what is actually being measured is the balance between the solar heat that comes in through the window and the heat loss through the window. If the solar heat gain is greater than the heat loss, the window’s energy balance is positive. During the development of the new generation of roof windows, innovative solutions were applied to improve the energy balance of VELUX roof windows. Instead of concentrating on developing a heat-insulating roof window, we worked on its overall energy balance. It is the relationship between insulation properties and passive solar heating that boosts energy efficiency and thereby energy balance. And we now have a window that lives up to the most stringent energy legislation in the building components sector and that qualifies it as the most energy-efficient roof window on the market.

A window that contributes energy

Energy efficiency has had very high priority in the new generation of roof windows. The focus during the design phase was on two factors – reducing energy loss partly with a newly-developed foam insulation technique with greatly improved insulating properties (VELUX ThermoTechnology) and increasing passive solar heat gain with a larger pane area.

“This represents a major change in the way of looking at a window – from being an element that causes heat loss to an element that, actually contributes to the heating of a home,” explains Bruno Harald Philipson of VELUX TMS, Technical Values.

“We believe that energy balance is the most effective and user-friendly method of determining a window’s energy performance,” says Bruno Harald Philipson.

“A roof window can make a positive contribution to a home’s energy accounts because it lets in the warmth of the sun”

Wanted: common European energy labelling

The EU Commission is currently working on a common energy labelling system for buildings and building components. The VELUX Group applauds and supports this move. “Within that framework, we believe that energy balance is the most effective and user-friendly method of determining a window’s energy performance,” says Bruno Harald Philipson.

“With the new generation of VELUX roof windows, the window is a roof window in the truest sense of the word. The window lets in the heat of the sun and is an integral part of the heating system of the home,” says Karen S. Andreassen from VELUX Standardisation & Product Regulation.

“Within that framework, we believe that energy balance is the most effective and user-friendly method of determining a window’s energy performance,” says Bruno Harald Philipson. It is also the method that will give customers the most understandable and useful guidance in choosing the right roof window for their homes.

VELUX windows have a long life

An assessment of a window’s impact on the environment includes such aspects as production of raw materials, manufacture of the window, its use and the disposal of it.

“The environmental assessment of the new roof windows shows an improvement on the existing range,” says Karen S. Andreassen from VELUX Standardisation & Product Regulation. “The environmental cost of procuring the raw materials, making the window, transporting it and disposing of it is mere or less the same. The bonus lies in the time the window is in use in the roof. VELUX windows have a long life, so the bonus is big.”

The environmental bonus with the new generation of VELUX roof windows lies in the time it is in use in the roof,” says Karen S. Andreassen from VELUX Standardisation & Product Regulation.
Testing of potential sources of electromagnetic interference at our state-of-the-art test facilities.

Panels are tested for strength and durability under a 50 kg load.

Nothing left to chance

When we introduce a new product, it is only after an exhaustive series of tests to ensure it meets all authority requirements, national approval procedures and internal VELUX demands.

The new generation is no exception. Initially it was subjected to a whole series of tests for optimised insulation properties and energy balance, airtightness, water-tightness, wind load, condensation formation and its ability to reduce noise – traffic noise, for example. Then, of course, there are tests for mechanical safety, ease of operation, and lifetime; all conducted at the VELUX internal state-of-the-art test facilities, with the results checked at external institutes throughout Europe.

“Early on in the process, a few windows are installed in a north-south test roof at Østbirk that is monitored by accurate measuring equipment,” explains Christian Dalgaard Johansen, Project Manager for Research & Development. “Later comes the user test. Windows are installed in real roofs all over Europe; the installation process itself is monitored and then periodic follow-up checks are made over a number of years. The objective is to discover any quality problems that the laboratory tests don’t reveal.”

The window’s packaging has also been given a major facelift. A new opening procedure makes it much easier to unpack the product and prepare it for installation. The packaging was also tested exhaustively. The key factor here is durability, as it is crucial that the products can make the journey from factory to end user without being damaged on the way.

“Roof windows are installed in the roofs of selected European users to simulate the challenges a roof window has to face in the course of its life,” explains Christian Dalgaard Johansen, Project Manager for Research & Development.

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The smart roof window just got smarter

The VELUX INTEGRA® series in the new generation of roof windows has a number of new intelligent functions – a new control pad and the easiest installation on the market to name but two. The many new user-friendly programmes improve energy balance and give a better indoor climate.

The new VELUX INTEGRA® roof windows were developed with a range of new functions and a new design. The motor that opens and shuts the window is much quieter and is now concealed, so it is impossible to see the difference between an electrically operated VELUX INTEGRA® roof window and a manually operated window.

The control pad has been redesigned, with a user-friendly touch-sensitive screen with easily understood icons, so making use of the extended range of functions is simple and intuitive. “The new VELUX INTEGRA® window is simpler to operate and designed to the concept that users should be able to tailor their windows to suit their precise needs. Much attention was paid during development to ensuring that the window is suited to local conditions, whether you live in southern Spain or northern Norway,” says Peter Stellfeld Skou, Product Category Manager.

The new VELUX INTEGRA® has a completely redesigned control pad. It has a touch-sensitive screen from which all VELUX electronic products can be operated.

“Much attention was paid during development to ensuring that the INTEGRA® window is suited to local conditions, whether you live in southern Spain or northern Norway,” says Peter Stellfeld Skou, Product Category Manager.

The control pad is pre-programmed with weather data from 25 major European cities and has 26 languages. This makes it possible to optimise the energy balance by controlling the window automatically according to the stored meteorological data.

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VELUX INTEGRA® says good morning

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The control pad has a number of new programmes that save energy, create a better indoor climate and increase home comfort. The user has to activate them only once, after which they run at fixed intervals until the user decides to change them.

The new features include an energy balance program that controls sunscreening to make maximum use of solar energy and a ventilation program that automatically opens the roof windows and ventilates the house four times a day. If it starts raining, the windows close automatically and ventilation takes place via the rainproof ventilation flap.

“The program functions ‘Leaving home’ and ‘On vacation’ secure the home’s door and windows and make it appear that someone is at home, as electric lights and window blinds can also be programmed to switch on and off automatically,” explains Peter Stellfeld Skou. “The control pad also includes ‘Good morning’ and ‘Good night’ programs that activate blinds at the selected times.”

Even easier to install

The VELUX INTEGRA® roof window comes fitted with electronics, a motor, rain sensor and control pad, which makes installation much easier. The window is also fitted for later addition of blinds, roller shutters, pleated blinds and frame lights, all accessories that can be operated from the control pad.

“The new generation of intelligent roof windows is a clear improvement in many ways. It has a better energy balance, it lets in more daylight, it has an enhanced design and it allows for better ventilation,” says Peter Stellfeld Skou. “Every function is activated via the control pad and that optimises the energy balance. VELUX INTEGRA® is an intelligent product that will appeal to many users (because it gives a better indoor climate and comfort) and installers (because it is easier to install, put into operation and instruct users in its full range of functions).”

A range of programmes control windows and sunscreening automatically. One of them is an ‘On vacation’ program that also controls electric lights, making it appear that someone is at home.
When the new generation of VELUX roof windows is ready for sale on the markets, the sales material must also be ready. This calls for action from the team responsible for taking pictures of the new products. Three sets were built in a large storage hall, and rebuilt time and time again over six months or so to suit all the various categories of photo needed.

Optimal daylight in the dark
"It’s rather strange," says Anders Lundgren of Visuals, "because to get the best pictures of sunlight shining through VELUX windows, we were all working in a dark storage facility for up to ten hours a day. This was the best way to create perfect working conditions and get the best lighting to bring out all the many unique features of the products."

The roomy and high-ceilinged storage hall had many advantages. It could house all the workmen’s vans, all the props, all the products and building materials as well as the sets themselves – and the team of 45 people (fitters, stylists, models, photographers and VELUX employees) who spent their working days here for the more than 10,000 man-hours the project required.

Just the right atmosphere
Transforming three sets into 20 different kinds of home and room takes a lot of people; and a lot of props – kitchen cupboards, entire bathrooms and bedrooms, furniture, lamps, carpets, pictures and knick-knacks. To say nothing of a 300 kg iron staircase, a fireplace, a chimney and a wooden floor with a synthetic patina to create just the right atmosphere in every single picture.

“We did all our shooting for the new communication material without ever actually handling the new products,” explains Christina E. Nielsen of VELUX A/S. “For more than half the production period, we had four early prototypes to play with. It took some considerable flexibility in our planning and execution of the project.

With the great help of our colleagues in Østbirk, we finally got hold of the real new products in September, along with various kinds of sunscreening products.”

“But that’s the sort of challenge we thrive on. We make things happen,” says Kerstin V. Hansen of Visuals in VELUX A/S, “even when we only have mock-ups and plastic models spewed out of a 3-D foam sprayer from product development.”

FACTS

• The 50 shooting days took place in a 1,250 m² storage hall
• Photos were taken of some 35 different V22 products
• 800 photos were taken and treated for the V22 launch in early 2012
• The team comprised 3 photographers, 3 assistants, 22 models, 4 stylists, 8 fitters and 5 VELUX people