PRESS RELEASE

Launch of the RenovActive project

On 26 May 2015, VELUX launched its RenovActive project, the first affordable and easily-reproduced climatic renovation concept. This unique concept combines health and well-being with increased energy efficiency.

Many homes across Europe now require renovation. 40% of residential buildings were built in the 1960s and do not even come close to meeting today's energy-efficiency requirements. Furthermore, 90% of current buildings will still be in use in 40 years' time. Currently, 30% of the buildings where we live and work do not have a healthy indoor climate. VELUX's climatic renovation project intends to respond to these challenges.

"At VELUX, we want to make a commitment and encourage debate about sustainable housing."
Christian Fosseur, Managing Director of VELUX Belgium

The RenovActive project involves renovating an 80 m² house in Anderlecht and dramatically improving energy efficiency, to turn the house into a comfortable place to live at an affordable price. The distinguishing feature of this project is that it can be reproduced, from both a financial point of view and a technical one.

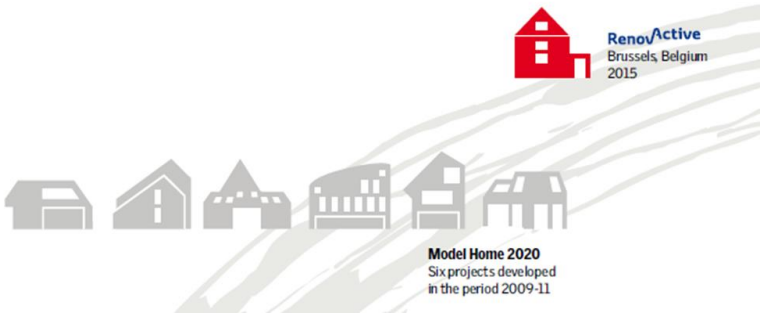
Before

After

ORIGINS and INTRODUCTION OF THE CONCEPT

The current challenge is not to build or renovate to produce an energy efficient building, but to do so at a reasonable cost, so as to benefit as many people as possible, and provide a large-scale solution to today's energy challenges.

According to the statistics, almost 80 million Europeans live in damp and insalubrious buildings. But light and fresh air are essential for a healthy life. They have a positive effect on our health and well-being, as well as on our ability to learn. Living in a healthy indoor atmosphere, without mildew, reduces the risk of developing asthma by 50%. 9 out of 10 buildings in Europe today will still be in use in 2050. Future construction should therefore concentrate on reducing the heating requirement through efficient products and airtight buildings, without compromising the health of the people who live in those buildings. Favouring healthy buildings and energy efficiency is a priority.



That is why VELUX is launching its first climatic renovation project in Belgium. Between 2009 and 2011, the VELUX group already built six demo experimental homes across Europe, as part of the Model Home 2020 project. These houses are intended as a specific response to environmental challenges, and are designed to improve living environments. They are now used as a reference for sustainable residential design guaranteeing a healthy and comfortable indoor atmosphere.

The distinguishing feature of this climatic renovation is that it can be easily transposed in both technical and financial terms. Because the challenge nowadays is to develop a renovation model which can be reproduced on a large scale.

The project specifications were defined by the Active House Alliance. The VELUX group supports this NGO, which brings together producers of building materials, scientists and architects to design the housing of the future. In other words, not only does an Active House use less energy; it provides a high-quality space and indoor atmosphere, and has a positive impact on the environment. VELUX wants to test its products in a real-life setting and promote the general well-being of residents through this renovation project.

> "One experiment is better than a thousand expert opinions." Villum Kann Rasmussen, the Danish founder of VELUX

In this specific project, the partners are working to achieve better quality housing and a better direct environment, rational energy consumption and strong social cohesion.

The Active House principles

Renovation
Active House I Affordable I Reproducible

The RenovActive project focuses on the health and well-being of residents and embodies the Active House principles: living comfort, energy efficiency and minimal environmental impact. RenovActive has a specific goal: to develop a sustainable, affordable renovation model which can be reproduced on a large scale. VELUX's challenge was to devise a new kind of renovation concept, based on affordability, well-being and energy efficiency, which could be easily reproduced. Therefore, VELUX focused on using techniques that are widespread in Belgium which are easy for everyone to use. For instance, a gas boiler was selected instead of a geothermal pump.

The RenovActive project aims to create a space where the indoor atmosphere is comfortable for the occupiers. A positive environmental impact is also sought by reusing materials and managing water. Therefore, the concept of the building fits in with the Active House principles, which aim to strike a perfect balance between energy efficiency, comfort and environmental concerns.

"We believe that more attention should be paid to health and well-being. For instance, we must be concerned about the quality of the air inside airtight buildings. Moreover, I think this project is really interesting from a social point of view: it is important to enable as many people as possible to access sustainable and more healthy buildings."
Christian Fosseur, Managing Director of VELUX Belgium

What we are trying to do is increase **affordability** for as many people as possible, whether it be via collective renovation projects led by social housing companies, or individuals wanting to renovate their own homes. This affordability must not come at the price of indoor **comfort**: comfort goes beyond well-being, and often reflects better overall health. For instance, it has been proven that daylight and fresh air encourage better sleep patterns and reduce cases of asthma.

In the long term, VELUX has made choices of techniques and materials which guarantee optimum **efficiency** (including energy efficiency), at reasonable costs, so that the concept can be **reproduced** in as many homes as possible.

The house selected

To implement its project, VELUX joined forces with a social housing company called "Le Foyer Anderlechtois", which owns 3,600 housing units in Anderlecht. An 80 m² semi-detached house built in the 1920s and in an advanced state of disrepair will be completely renovated according to the RenovActive concept.

The house chosen for this project is situated in the Bon Air district of Anderlecht (no.1, rue Jean Lagey). Bon Air was built from 1923 onwards to provide quality housing for people living in insalubrious conditions and to accommodate residents from the centre of Brussels displaced by the major building work of the time (law courts, North-South connection railway link, etc.). Although at the time, these houses were the cutting edge of architecture, representing a vast improvement in the housing on offer to working populations in the early 20th century, they do not meet today's housing standards. The Bon Air district is in urgent need of renovation. Many houses have become

dilapidated or been abandoned. The aim is to bring the original charm back to this area, by gradually renovating its houses.

Climatic renovation may serve as an example to the Foyer Anderlechtois for the modernisation of some of its properties.

The architectural concept

ONO Architectuur (in partnership with the Daidalos-Peutz engineering consultancy firm) won a competition to develop the architectural concept for the house. This Antwerp-based office submitted a renovation project which was both subtle and ambitious. Not only does it meet the technical criteria set by the Active House Alliance, it also aims to inspire the district to improve its general quality of life. The project was selected for its rational use of space, profitability and its simple and effective technical approach, which can be easily reproduced.

Project finance

VELUX's priority was to put forward an affordable renovation project. It focused on the cost of the renovation. RenovActive is fully supported by VELUX, but other partner building materials manufacturers contributed their expertise and provided materials free of charge. However, the public cost of these materials was used to determine the final price of the renovation.

All materials or techniques entailing an additional cost have been eliminated. The cost of the RenovActive project is within the Foyer Anderlechtois limit, i.e. a maximum of €1,450/m² for renovations and €1,750/m² for new building work, which amounts to an available budget of €163,000 for the renovation of the house on Rue Jean Lagey. Of course, once the project starts to be reproduced, the engineering consultancy costs will no longer apply.

It is also important to underline that renovation subsidies are available in the three Belgian regions. These subsidies are particularly large for investments in a building's energy efficiency. As a commercial company, VELUX was unable to take advantage of these subsidies, but an individual or social housing company would have been entitled to just under €18,000 for this project in the Brussels Region.

A source of inspiration

The RenovActive project is intended to serve as an example for future renovations. The project is intended as a source of inspiration and reflection, and a model which can be reproduced on a large scale for existing buildings. The ability to reproduce the idea is a key part of the project. VELUX has therefore selected a type of building which is very widespread in Belgium and Europe.

RENOVATION IN PRACTICE

To implement this project, ONO Architectuur developed an ambitious and ingenious renovation proposal, which not only met the Active House technical criteria, but also acted as an incentive to improve the overall quality of life in the surrounding area. The idea is to use **daylight and natural ventilation** to make the house as comfortable as possible, while guaranteeing optimum **energy efficiency**.

Extension

Specifically, the house, which has an initial surface area of 80 m², will be extended by means of a flat-roofed annex, where the kitchen will be located (surface area after the work: 95 m²). The structure of the annex will be wood with a flat, living roof. This will create a bright, healthy and comfortable living space, bringing light to the building and ensuring a view of the garden. Furthermore, the staircase will be moved to the centre of the house to give maximum natural ventilation and light. The new compact stairwell will serve as both a source of light and ventilation infrastructure.

Before

After

Natural light

The RenovActive project focuses on providing maximum daylight. The VELUX Daylight Visualizer[1] was used to simulate daylight levels in the building, revealing excellent levels of natural light after renovation. The various VELUX roof windows that will be installed in the house will be a good source of natural light and give the inhabitants indoor comfort all year round

"Daylight and natural ventilation – in other words, VELUX's main focus
– play a key role in climatic renovations."
Christian Fosseur, Managing Director of VELUX Belgium

In view of the glazed surfaces, which guarantee levels of natural light and passive solar gains in winter, it is important to control excess heat using fully automated solar protection. The opening and closing of the exterior blinds will depend on the hours of sunshine and the outdoor temperature. The windows will also be fitted with interior blinds that will control the light levels as desired.

Ventilation

To ensure a healthy indoor atmosphere and a maximum of fresh air in the house, a natural ventilation system will be fitted, in partnership with Renson ("C+ Health Box® system"). When the outside temperature

[1] http://viz.velux.com/

is over 14°C, an automatic window-opening system (for both roof and façade windows) will be used. Natural ventilation will be controlled via the VELUX INTEGRA® system, which makes it possible to easily open or close windows. Sensors (humidity, temperature, CO2 etc.) integrated into the ventilation unit control the opening of the windows, guaranteeing excellent indoor air quality. In winter, air is let in by ventilation flaps integrated into the windows. This ensures maximum air quality and comfort: the ventilation levels adapt to user needs in real time. This system also saves energy, as it avoids excessive ventilation.

Insulation

The house has been designed with optimum insulation in mind. Additionally, great attention will be paid to airtightness and construction nodes. The roof, the ground and the walls will be insulated to ensure optimum indoor thermal comfort.

The house will also be fitted with double or triple glazing, depending on its orientation. Ultimately, RenovActive will reduce heating needs from 385 to around 19 Kw/h/m²/year, which is a major achievement for this type of renovation.

Environment

Finally, the RenovActive project's environmental impact will be minimised by the choice and reuse of the materials and by rational water use. A tank for collecting rainwater will also be installed.

Technical partners

In order to implement such a large-scale project, VELUX has joined forces with different partners, who will offer effective products for the RenovActive project.

The Saint-Gobain group is supplying double- and triple-glazed windows (via Saint Gobain Glass Solutions), roofing and extension insulation (via ISOVER), external insulation and plastering (via WEBER), the Vertex wall reinforcement (via Adfors) and plasterboard panels for the walls and ceilings in living areas and the bathroom (Gyproc).

Renson has provided its C+ Healthbox system for the ventilation system. Renson will also install the Miniscreen 100 solar protection screen.

Grundfos will install a 5,000 litre-capacity water tank. It will collect rainwater and will be fitted with a water pump.

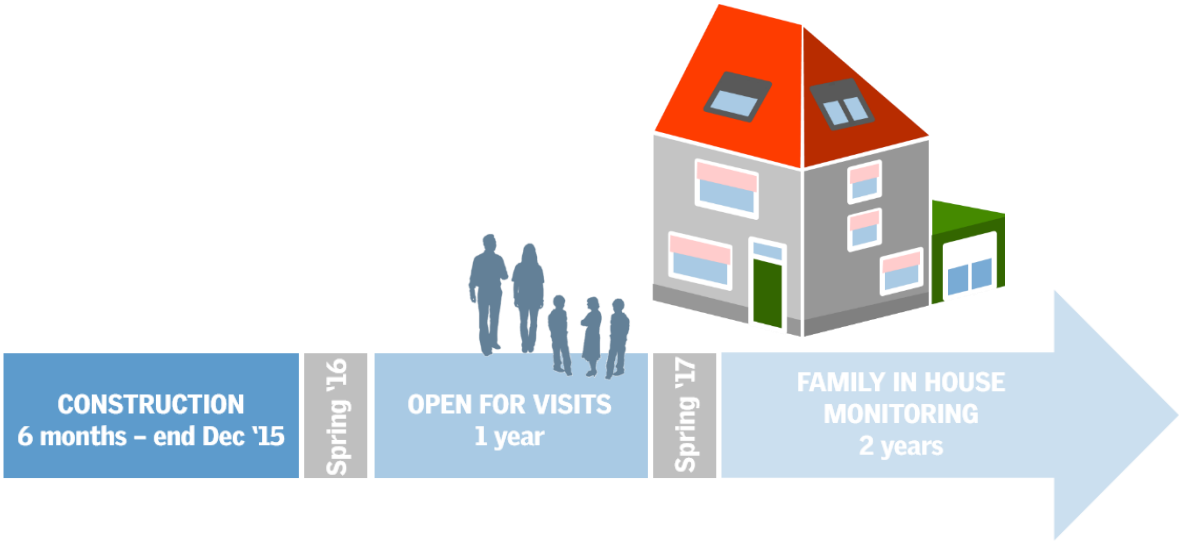
Somfy will supply the solar protection system, and Wienerberger will supply the tiles.

CONCLUSION

The renovation work will start at the end of May and finish at the end of 2015.

In spring 2016, the RenovActive house in Brussels will open its doors to the general public for a year. The goal is to provide information to citizens and professionals, and to demonstrate that nowadays, a different kind of renovation is possible, significantly reducing costs and indisputably increasing quality of life in a sustainable way.

The house will subsequently be used by a family with three children. It will undergo regular observation for two years, during which time consumption and the inhabitants' reactions will be monitored.



The impact of the renovation on daily life will be scientifically studied. This will make it possible to go beyond the hypotheses and calculations to understand how the technologies used actually work. The theory will be confronted with practice to re-evaluate certain criteria if necessary and further to improve the renovation or to draw the necessary lessons for future projects. Apart from the quantitative criteria (levels of light, energy consumption, etc.), more qualitative aspects will be assessed using questionnaires initially developed by the Humboldt University of Berlin.

Follow the RenovActive project journey at http://renovactive.velux.be

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The project photos can be seen by accessing the following link: http://we.tl/fEibtiqwaZ

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Links

http://www.velux.be

http://renovactive.velux.be

http://www.velux.com/sustainable_living/demonstration_buildings

http://www.foyeranderlechtois.be/home_fr.asp

http://www.activehouse.info