

RenovActive

A healthy and affordable renovation concept

7 replicable renovation elements to optimise energy, comfort, and indoor air quality

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VELUX®



A building stock in decline

Proper and viable renovation concepts are key to support an aging building stock



- ▶ Half of the current dwellings in Europe are built between 1945 and 1980
- ▶ A 30% decline in construction output since 2008 (Eurostat)¹
- ▶ 9 out of 10 existing buildings will still be in use by 2050 (EuroAce)²



In 2050

9 out of 10 of the existing buildings in Europe will still be in use.

The challenges of an aging building stock



Housing
shortage



Insufficient
daylight



Insufficient
insulation



Unhealthy indoor
environments



Un-optimised
building design



Why address this issue as a “window company”?



VE = ventilation

LUX = light

It's
in our
DNA

Active House principles



- ▶ Active House focuses on comfort, energy and environment
- ▶ Active House puts the inhabitants' wellbeing and the environmental impact on a level with strict energy requirements

www.activehouse.info

RenovActive House

– our prototype and proof of concept

Energy bill could be reduced by up to

50%

after renovation²



- ▶ First renovation project was implemented in a an old, run-down house in Anderlecht, Belgium
- ▶ Comprises all seven elements and is the first of 86 similar projects in the community
- ▶ Performed in partnership with Le Foyer Anderlechtois¹



ONO architectuur

PEUTZ

RenovActive Concept

– 7 replicable renovation elements









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Demonstration buildings

Key results from monitoring



Having many large windows doesn't necessarily lead to overheating



Plenty of daylight eliminates your need for artificial lighting during the day



Moderate bedroom temperatures ensure a good night's sleep



Good ventilation lowers the temperature during the night



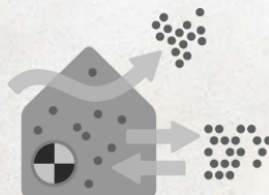
Solar screening protects your home from overheating



To get the full effect, you need intelligent automation



Natural ventilation provides good indoor air quality during large parts of the year



Mechanical ventilation meets CO2 level standards, but doesn't satisfy the increased demands for clean air in the bedroom

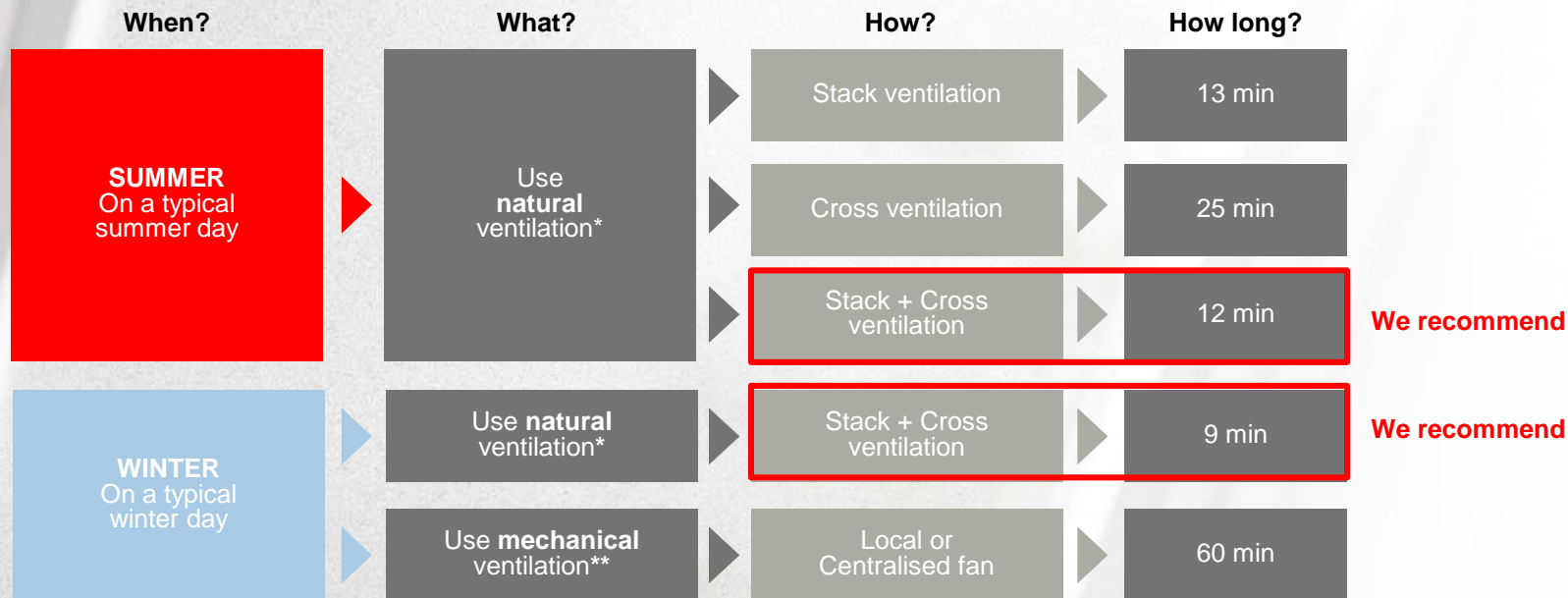


Good air quality in the bedroom can require targeted measures



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How quickly can you renew the air in your home?



* Ventilation rates achieved for the full body of a house with airing, calculated with VELUX Energy and Indoor Climate Visualizer for a typical house in Berlin. Four windows are used for airing, and the ventilation rates achieved with single-sided airings, cross-ventilation and stack ventilation.

** Ventilation rate according to EPBD Brussels – Bedroom, Office room, play room - Hypothetical room area 29 m² - room height 2.5 m



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Scalable design parameters

Daylight	Window surface of preferably 15% of the floor surface, with a minimum of 12% Two smaller windows preferable to one big window
Natural ventilation	Combine mechanical ventilation with natural ventilation (through the windows) for optimal indoor air quality
Thermal comfort	Favour double glazing. If necessary, use triple glazing for windows oriented to the North Prevent overheating by using the stack effect in the staircase Place awning blinds on windows oriented to the South – West – East (in this order)
Energy efficiency	Consider a mix of VELUX roof windows with double glazing and triple glazing depending on North/South orientation and insulation frame
More space	Convert the unused attic to living space Create additional living space on the ground floor

A HEALTHY AND AFFORDABLE RENOVATION CONCEPT

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Bringing light to life™