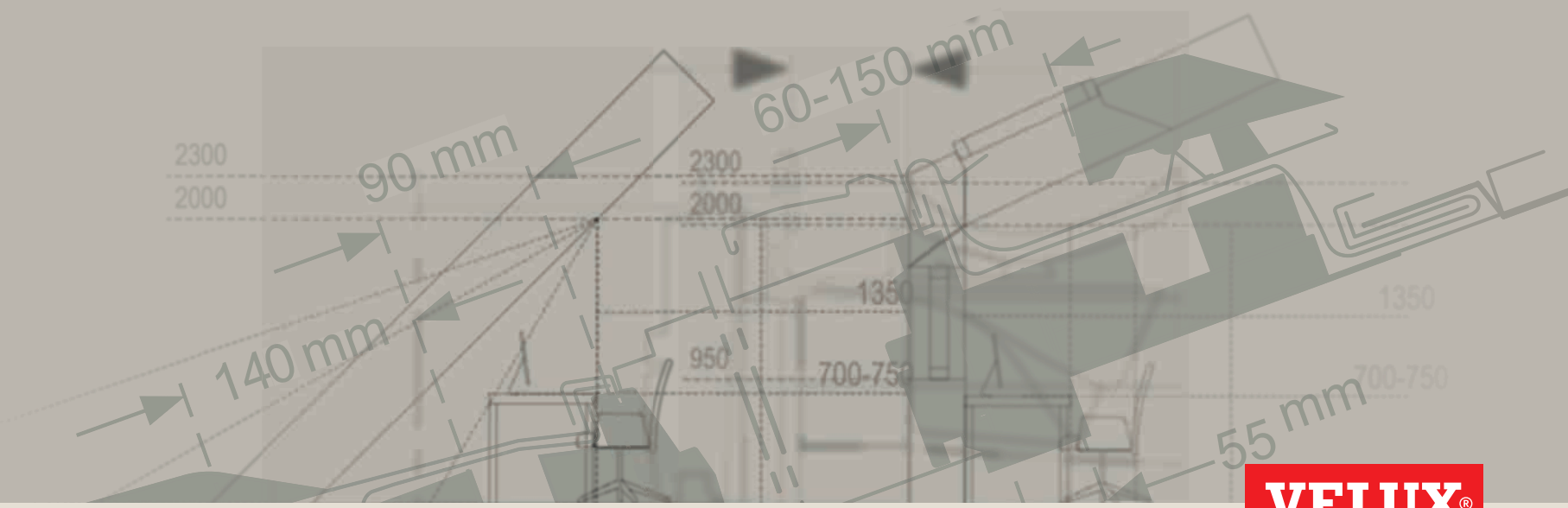


VELUX®

Design Guide

Version 3.0

Design Guide

Intro

A shared dedication to architectural excellence

With years of research and experience in daylight, we have developed services, initiatives, and expertise to empower architects in creating better spaces. Our quest for excellence drives us to provide the best solutions for sustainable building design.

This Design Guide focuses on maximizing the potential of the space under the roof, providing detailed guidance, examples on different configurations and solutions for every sloped roof type. Develop your next project with expert advice on optimizing daylight and indoor climate, ensuring ergonomic and efficient use of attic spaces, while integrating roof solutions effectively.

Discover

Develop

Deliver

Rethink the power of daylight with inspirational content and expert design support tailored to your needs. Develop your project with the right solutions, fostering healthy and sustainable buildings.

We support you at every project stage.

Design Guide

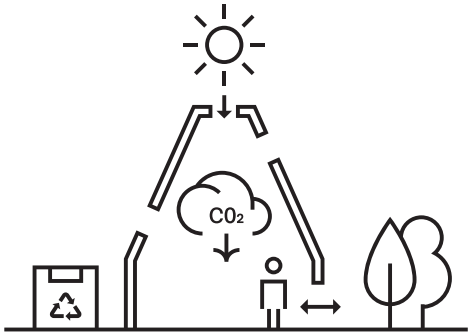
01/ Influence of Daylight

1.1 / Importance of daylight

Criteria for daylight provision

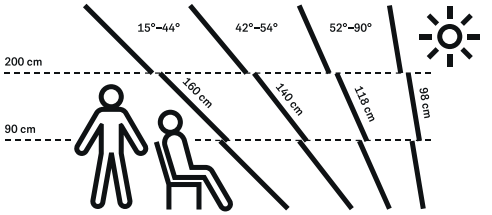
Daylight is essential in building design. The daylight that reaches a building's façade includes direct sunlight, diffuse skylight, and reflected light. Properly balancing these elements ensures good interior daylighting, enhancing visual comfort, supporting circadian rhythms, and improving overall well-being.

Did you know?
In overcast weather, there is 3 times as much daylight coming from top of the sky (zenith) than from the side (horizon).



Make your design more energy-efficient

By including natural daylight through the roof, artificial light can be reduced by hours before switching on the lights. Natural daylight can make a big difference as roof windows capture the sun much longer than vertical windows.



Views to the outside

The inclusion of roof windows boosts daylight provision and offers views of the sky, enhancing occupants' connection to the outdoor environment. Wherever possible, views should incorporate 'layers' for the greatest visual interest, and preferably include a view of the sky, horizon, and ground.

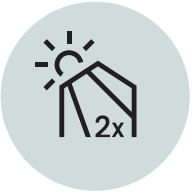
We think that we spend **66%** of our time indoors, but actually we spend **90%** of our time inside

Improve mental and physical well-being

We spend around 90% of our time indoors. That's why it is essential to have a healthy indoor environment. Roof windows can help achieve a better night's sleep, improve productivity, and increase air indoor quality.

1.1 / Importance of daylight

6 reasons to bring more daylight into your design (and how)



Twice the natural light

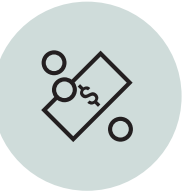
Roof windows are low-energy light sources, more than twice as effective as façade windows.

Four times the ventilation

Natural ventilation using roof windows is far more energy efficient than air conditioning, and up to four times more effective than using façade windows alone.

Three times the insulation

New roof windows can have up to **three times better** thermal performance than old ones (that are ten years older or more), which can translate to significant energy savings.



Sell better, and faster

Everyone is drawn towards light, including potential buyers. Homes with roof windows sell **61% faster** than homes without them.

Save energy and money

Using roof windows can reduce the need for artificial lighting by up to **20%** in homes and **60%** in office buildings.

Added value of roof windows

There is a common misconception that new windows are expensive. A study shows that people are willing to pay **4% more** for open, bright spaces.

1.1 / Importance of daylight

Benefits of sunlight – for people and buildings

Increase focus

Natural light will increase focus and productivity. Daylight helps to boost your energy levels as well as your mood. This is especially important if you work from home.

Sleep better

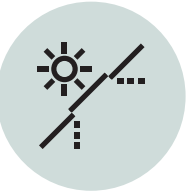
Sunlight has an enormous effect on our mental and physical well-being. Our body is programmed to follow the path of the sun, exposure to daylight makes us sleep better.

Boost mental wellbeing

A study shows that if we get 30 minutes of sunlight a day, we can better cope with stress and anxiety.

Bring outside, inside

Adding more daylight from above has several transformational effects. You'll feel closer to the outdoors and bring a mindful, relaxed atmosphere to any room.



Maximise your designs

Having natural light through the roof can change the experience of a space, depending on the time of day and the placement of the window.

Increase space perception

Multiple sources of daylight are a great way to open up your room.
If your design has low ceilings, lighting will make your space look larger and more open.

1.2 / Daylight recommendations

European Standard for daylight in buildings EN 17037

The European Standard for daylight in buildings recommends that a a certain amount of daylight (300, 500 or 750 lux) is available for 50% of daylight hours during the year, over 50% of the relevant work plane area.

These requirements can be evaluated with climate-based annual simulations (method 2), or daylight factor simulations (with daylight factor targets corresponding to illuminance values) (method 1).

*

Country	Capital	D 300 lx	D 500 lx	D 750 lx
Turkey	Ankara	1,60%	2,60%	3,90%
Bulgaria	Sofia	1,60%	2,70%	4,00%
Romania	Bucharest	1,60%	2,70%	4,10%
Croatia	Zagreb	1,80%	2,90%	4,40%
Slovenia	Ljubljana	1,80%	2,90%	4,40%
Hungary	Budapest	1,70%	2,80%	4,10%
Slovakia	Bratislava	1,80%	3,10%	4,60%
Czech R.	Prague	2,00%	3,40%	5,00%
Poland	Warsaw	2,00%	3,40%	5,10%
UK	London	2,10%	3,50%	5,30%
Lithuania	Vilnius	2,00%	3,30%	4,90%
Latvia	Riga	2,20%	3,70%	5,50%
Estonia	Tallinn	2,20%	3,70%	5,50%

EN 17037 recommendations for daylight availability

Target illuminance (lux) or daylight factor levels	50% of daylight hours during the year	50% of the relevant work plane area

Method 1.

Target daylight factor levels for daylight factor simulations

*		
2.1% United Kingdom (LOW)	**3.5%** United Kingdom (MEDIUM)	**5.3%** United Kingdom (HIGH)

Method 2.

Target illuminance (lux) levels for climate-based annual simulations

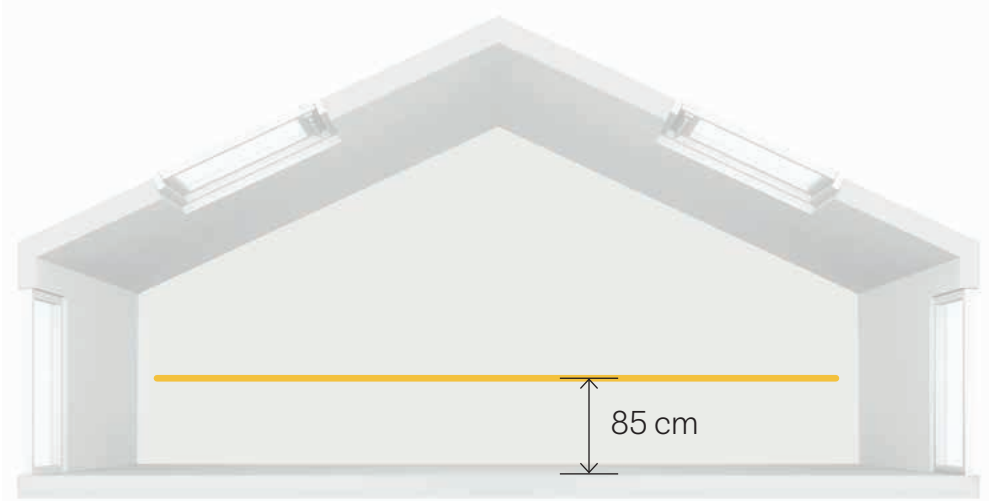
300 lux (LOW)	**500 lux** (MEDIUM)	**750 lux** (HIGH)

1.2 / Daylight recommendations

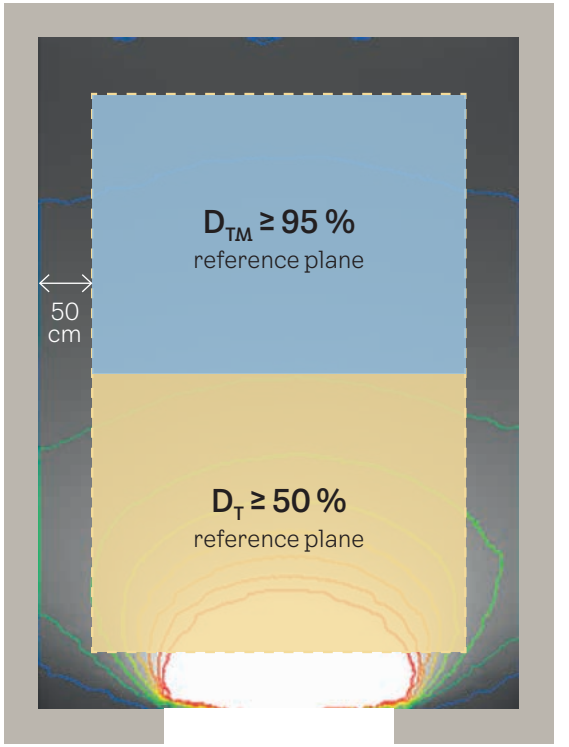
Criteria for daylight provision

D_T **Target daylight factor**
≥ 50 % reference plane

D_{TM} **Minimum target daylight factor**
≥ 95 % reference plane



Reference plane

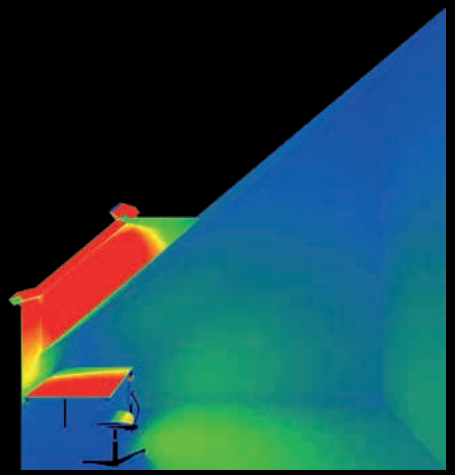


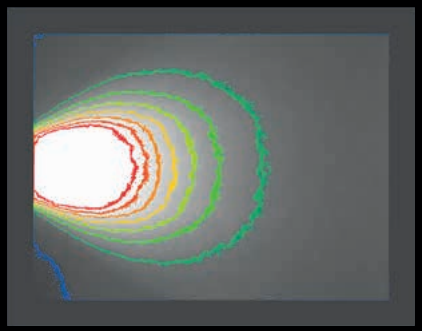
Interiors with opening in vertical and slope.

All daylight calculations in the Slope Roof Design Guide were made with GGL roof windows.

1.2 / Daylight recommendations

Influence of different window types to daylight distribution

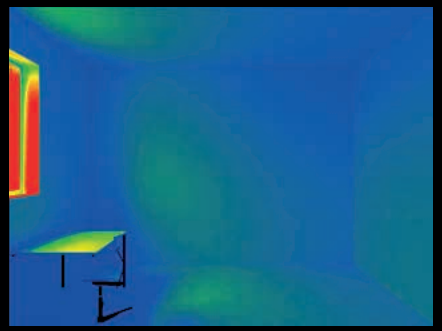


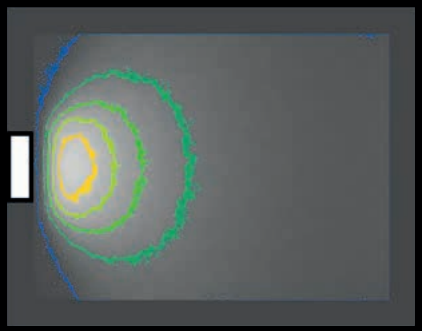


D_T 2,91 %

Minimum fulfilled

+57,3 %





D_T 1,24 %

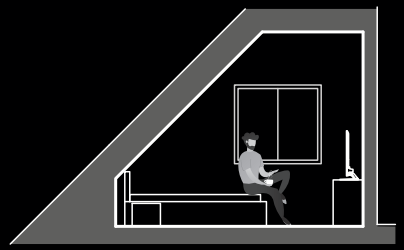
Not fulfilled

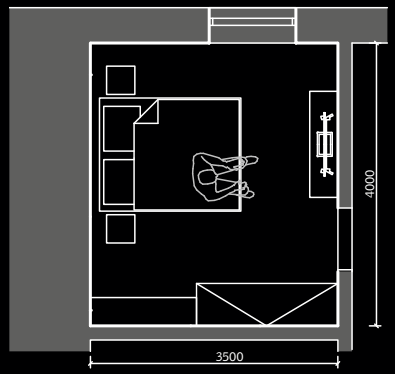
1.2 / Daylight recommendations

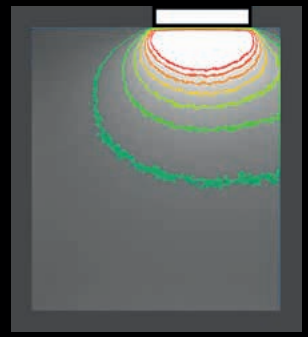
Influence of different window types to daylight distribution

Attic bedroom 14 m² (4,0 m x 3,5 m)

Vertical window (1500 x 1000 mm)







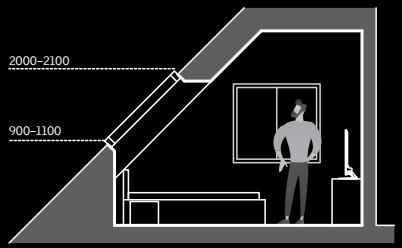
DF %
8,0
7,0
6,0
5,0
4,0
3,0
2,0
1,0

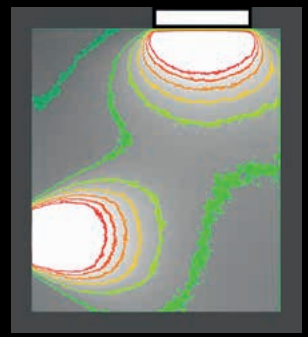
D_T 0,82 %

Not fulfilled

Mean	1,30
Median	0,82
Minimum	0,40
Maximum	7,46
Uniformity 1	0,30 (min/mean)
Uniformity 2	0,05 (min/max)
Above 0,70	60 %

Vertical window (1500 x 1000 mm)
+ **roof window MK06** (780 x 1178mm)





DF %
8,0
7,0
6,0
5,0
4,0
3,0
2,0
1,0

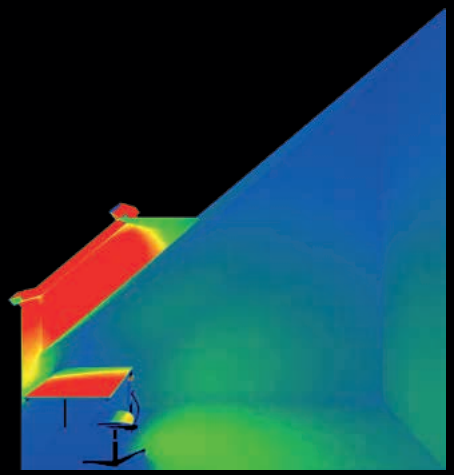
D_T 2,91 %

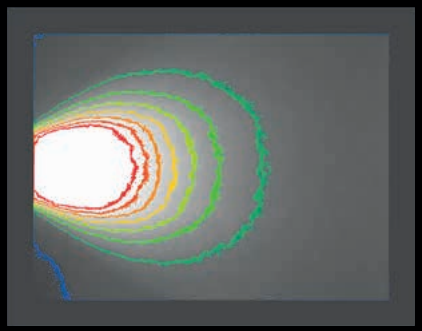
Minimum fulfilled

Mean	3,18
Median	2,27
Minimum	0,58
Maximum	11,35
Uniformity 1	0,18 (min/mean)
Uniformity 2	0,05 (min/max)
Above 0,70	99 %

1.3 / Daylight distribution / lining shape

Influence of different lining shape to daylight distribution

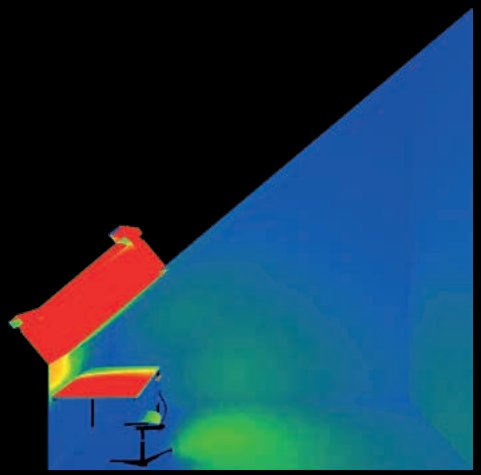


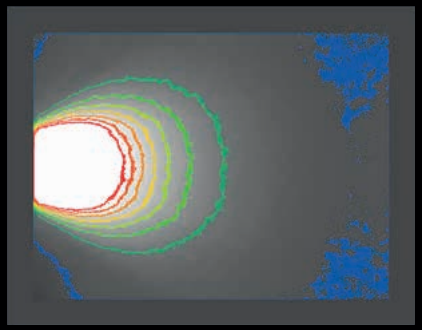


D_T 2,16 %

Minimum level fulfilled

+55 %



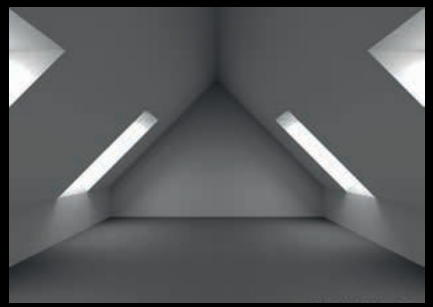


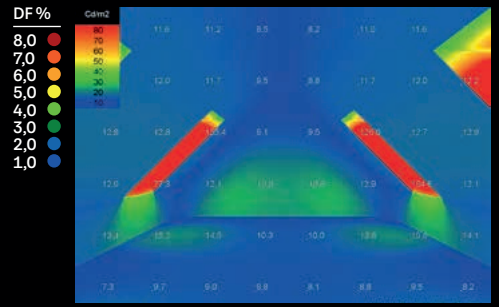
D_T 1,39 %

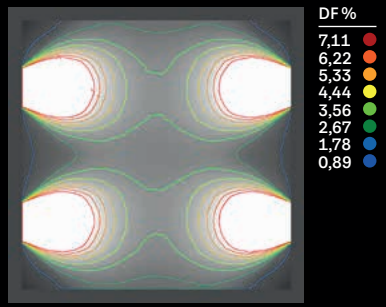
Not fulfilled

1.3 / Daylight distribution / position

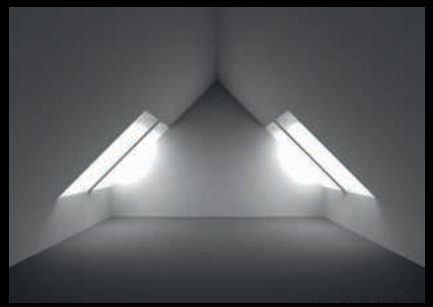
Roof window position impact to daylight distribution

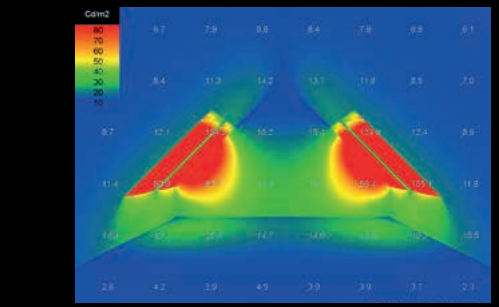


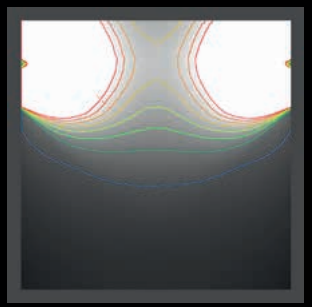




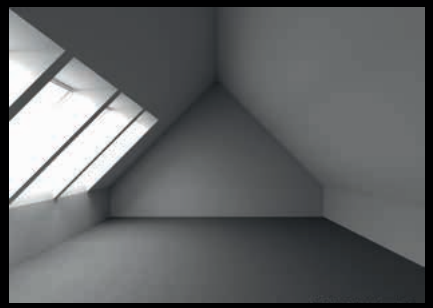
Average DF	5,63 %
Median DF	3,88 %
Uniformity Dmin/Dav	0,22

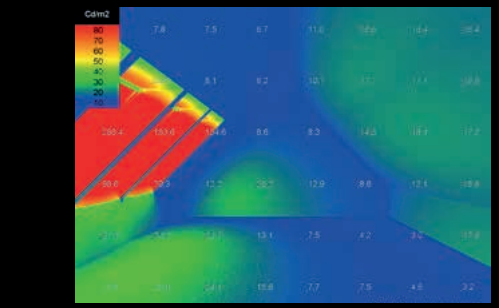


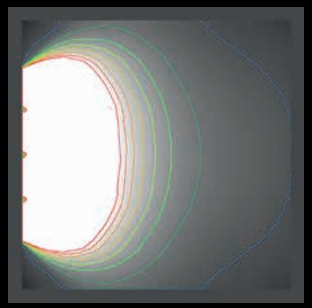




Average DF	4,45 %
Median DF	1,60 %
Uniformity Dmin/Dav	0,06







Average DF	5,88 %
Median DF	2,94 %
Uniformity Dmin/Dav	0,14

1.4 / Daylight performance in the attic

Optimal positioning of roof windows for ideal daylight distribution

1x

- Poor daylight conditions
- Slow air change
- Low variability in workspace placement

2x

- Daylight from both sides
- Cross-ventilation
- Better Design

2x

- Daylight in a depth of floorplan
- Ventilation by stack effect
- Better Design

2x

- Daylight in a depth of floorplan
- Ventilation by stack effect
- Better Design / studio window arrangement

3x

- Daylight in a depth of floorplan
- Cross-ventilation and stack effect
- Better Design / studio window arrangement

Think in section, not just in plan.
Maximize the potential of natural daylight by properly illuminating the depth of floor plan.

1.4 / Daylight performance in the attic

Balancing factors for optimal roof window placement

1x

- Poor daylight conditions
- Slow air change
- Low variability in workspace placement

1x

- Better daylight conditions
- Better view, design and more space
- Bigger variability in workspace placement

1x 1x

- Daylight in a depth of floorplan
- Cross-ventilation
- Better Design / angled glazing for the best view

1x 1x

- Daylight in a depth of floorplan
- Ventilation by stack effect
- Better Design / angled glazing for the best view

Enjoy the view

Plenty of daylight and the view optically enlarge each space. It creates a great visual impression, improves mood, reduces the feeling of fatigue and prolongs the day.

1.4 / Daylight performance in the attic

Balancing factors for optimal roof window placement

1x

- Poor daylight conditions
- Slow air change
- Low variability in workspace placement

2x

- Daylight from both sides
- Cross-ventilation
- Bigger variability in workspace placement

3x

- Daylight in a depth of floorplan
- Cross-ventilation
- Airy space and original design

100 000 LUX

20 000 LUX

Every room needs to meet the minimum daylight requirements. The calculation is done under the least favorable conditions (20.000 LUX).

200 LUX

500 LUX

2 %

5 %

However, only a certain percentage of light gets into the interior. Ideally, it is between 2–5 %.

Good morning!

The first 15 to 20 minutes of morning light help to “set“ the biological clock of our body, higher intesity will start us up for the whole day.

1.4 / Daylight performance in the attic

Balancing factors for optimal roof window placement

2x

- Poor daylight conditions
- Cross-ventilation
- Optically less space

2x 1x

- Targeted daylight on the work area
- Cross-ventilation and stack effect
- Better design and more space

2x 1x

- Daylight in a depth of floorplan
- Cross-ventilation and stack effect
- Airy space

2x 2x

- Daylight in a depth of floorplan
- Cross-ventilation and stack effect
- Airy space and original design

Be master of daylight.
Let's use all the potential of living in the house and let's create an attractive, airy and bright living spaces.

1.5 / Ventilation

Benefits of natural ventilation

Importance of ventilation

Natural ventilation offers several benefits in building design. Let's explore them:

1. Energy efficiency
Natural ventilation reduces reliance on energy-intensive mechanical systems, which translates to cost savings and a smaller environmental footprint. By harnessing wind and buoyancy forces, you can design buildings that stay cool without excessive energy consumption.

2. Improved Indoor Air Quality
Fresh air is crucial for occupant's health and comfort. Natural ventilation brings in outdoor air, diluting pollutants, removing odors and maintaining a pleasant indoor environment. Properly designed openings (such as windows, vents or atria) facilitate this exchange while enhancing occupant's well-being.

3. Humidity Control
Effective ventilation helps regulate humidity levels. Excess moisture can lead to mold growth, damage electronics and cause discomfort. Natural ventilation contributes to better humidity management, especially in climates with varying humidity levels.

4. Eco-Friendly Approach
By relying on natural forces, such as prevailing winds with stack effect, natural ventilation minimizes energy consumption. This aligns with sustainable design principles and contributes to a greener built environment.

1.5 / Ventilation

Benefits of natural ventilation

Comparison between mechanical ventilation and natural ventilation through different window combinations.

Background ventilation (mechanical)

~0,5 ACH
2 hours

Background ventilation regulated by building regulations. Typical level for European homes.

Natural ventilation through facade and roof windows and time for one full air change

~1,5–2,5 ACH
24 min to 1 hour

Single sided window opening

~2,5–5,0 ACH
12 to 24 min

Cross ventilation

~4,5–6,0 ACH
10 to 13 min

Stack effect

~10 ACH
6 min

Stack effect with cross ventilation

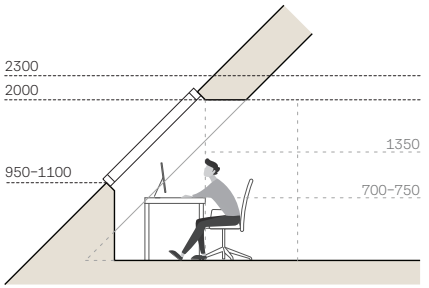
5 min of ventilation using stack effect + cross ventilation will give the same result as 1 hour and 40 minutes of mechanical ventilation.

1.6 / View

Solutions for providing a view

Importance of view

View through the roof window is influenced by knee-wall height and the thickness of the roof construction.
For a view through a roof window, the bottom height should be 95–110cm of the floor, allowing a view also in a sitting position.

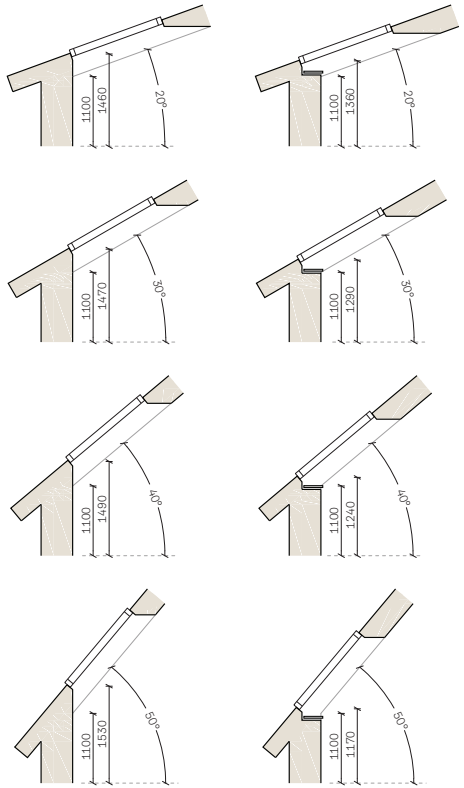


Benefits of the view

- A view creates a visual link to the outdoor environment.
- It creates a feeling of a spaciousness and blurs the border between exterior and interior.
- A view of the iconic architecture or landscape increases property value

Roof window with ventilated window sill

A roof angle affects the difference in installation height between the two window positions



1.6 / View

Solutions for providing a view

Roow window with vertical element

Available wide selection of different sizes and possible combinations

Thoughtful planning and arrangement of furniture

Upgrades the functionality of the room and creates additional storage space

Raised flor construction

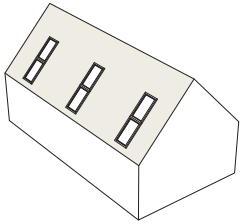
Different floor levels can increase the attractiveness of the living space

02/ Planning the attic

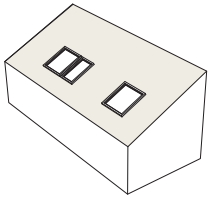
2.1 / Overview of roof design

Common roof types

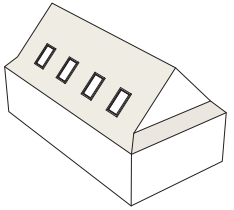
gable roof



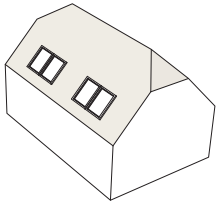
skillion roof/shed roof



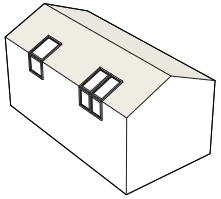
dutch gable roof



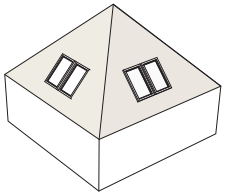
half-hipped roof



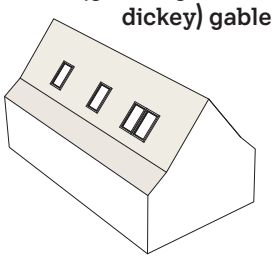
gable roof with high attic parapet



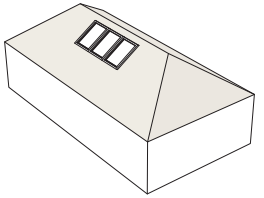
pyramid hip roof



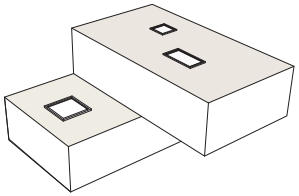
polynesian (gullwing/ dickey) gable



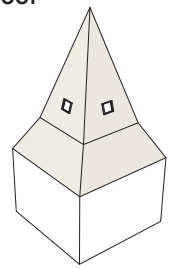
hip roof



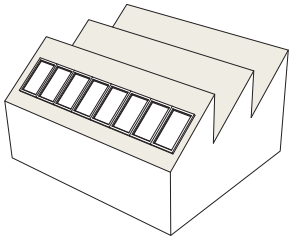
flat roof



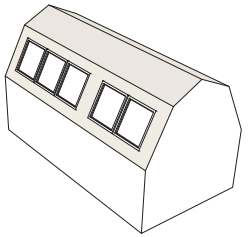
tower roof



saw tooth roof



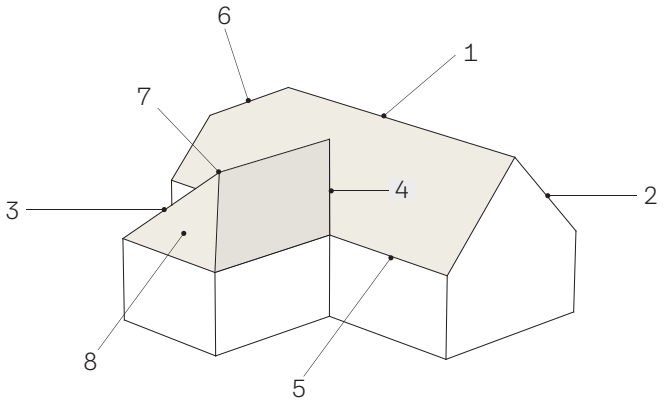
gambrel roof/Mansard roof



2.1 / Overview of roof design

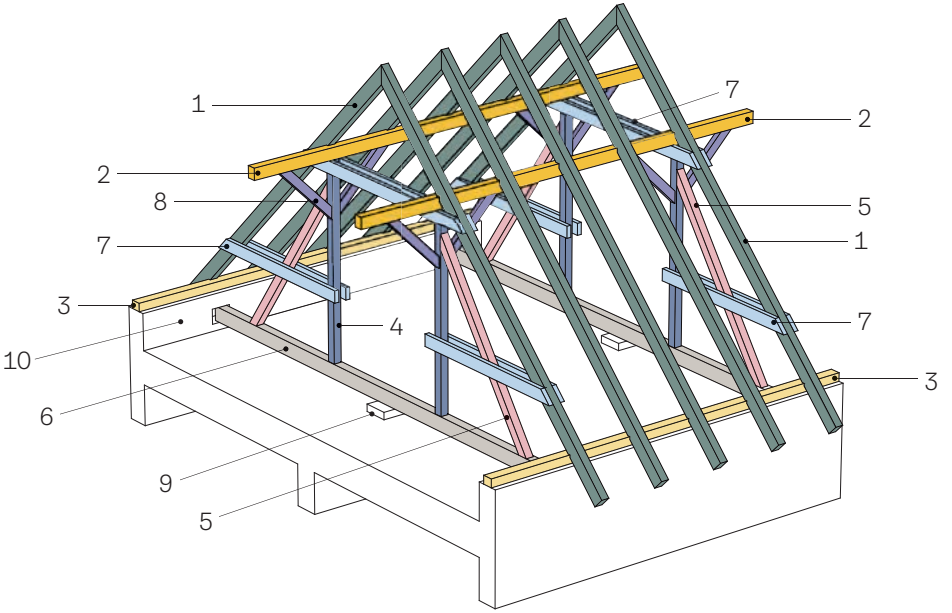
Terminology

roof coverings



1 – roof ridge
2 – gable wall
3 – hip
4 – valley/valley gutter
5 – gutter
6 – half hip end
7 – hip point
8 – hip end

basic elements of the roof truss



1 – rafter/top chord
2 – purlin
3 – wall plate
4 – queen post/framing
5 – inclined struts
6 – bottom chord/tie collar
7 – upper and lower tie beams
8 – straps
9 – beam support
10 – external wall/parapet wall (structural/load bearing)

2.2 / Basic requirements

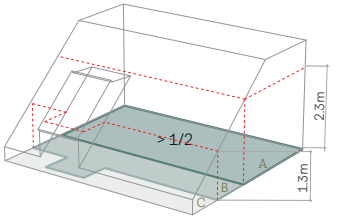
Recomendation of floor area with a sloping ceiling

Floor area in residential buildings

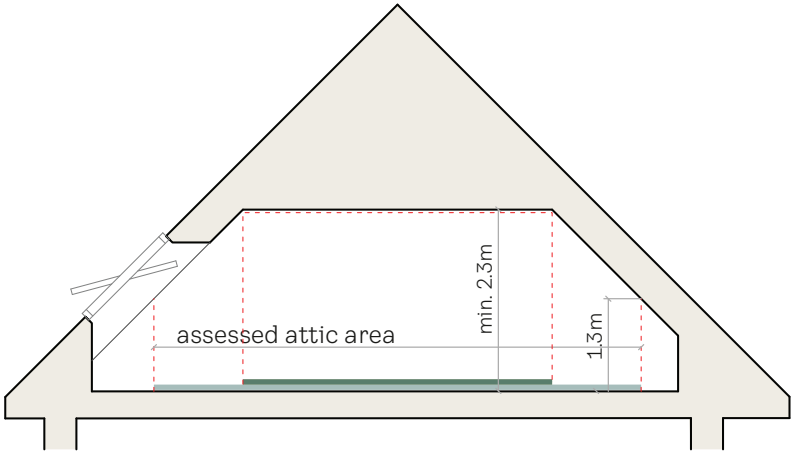
The living room should have an area of at least 8 m² / if the apartment consists of a single room, it should have an area of at least 16 m² / a room with sloping ceilings should have a height of min. 2.3 m at least above half of the floor area / this is defined by an imaginary plane perpendicular to the floor plane, intersecting the plane of the sloping ceiling at a height of 1.3 m above the floor / for sleeping of one person – 8 m², volume of at least 20 m³ / for sleeping of two people a volume of at least 30 m³.

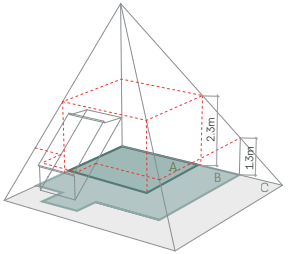
Floor space area and statement of the area
We distinguish two areas of floor space / to assess whether it is a living room or not / for the purposes of the statement of area, i.e. to determine the actual floor covering needs for a given room.

The height of the attic knee wall
The height of the attic knee wall can be theoretically zero / realistically usable height at the place of the attic knee wall is approx. 0.8 m.



The height arrangement of the attic of residential buildings is 1.3 meters according to ČSN 73 4301 Residential buildings.

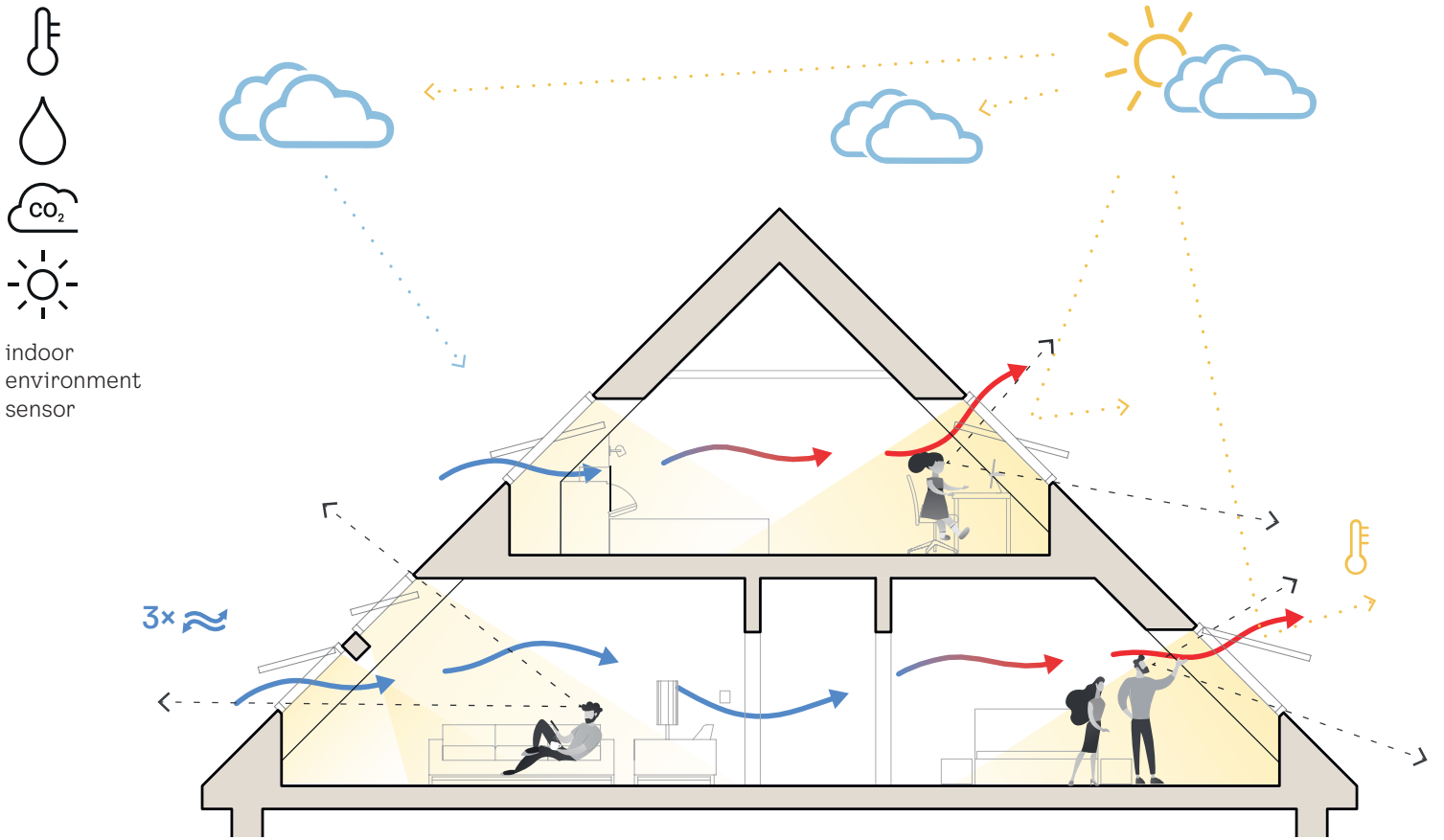




A – Clear height 2.3 m
B – Eligible area of living room min. to 1/2 of the floor
C – Total floor area of the room

2.3 / Optimal use of the attic

Requirements and recommendations for achieving quality indoor climate



Daylight has a significant effect on the human health, affecting our mood and sense of well-being during the day.

2.3 / Optimal use of the attic

Requirements and recommendations for achieving quality indoor climate

Main design elements:

1. **Daylight**
   Minimization of the use of artificial lighting during the day / we assess three parameters / amount of daylight / degree of sunlight / measures against glare / three levels of daylight in interiors: minimum, medium and large / mandatory minimum level – at 50% of comparative plane DT 300 Lux and at the same time to 95% DTM 0.7% 100 Lux.

2. **Indoor air quality**
   During occupation a minimum amount of exchanged outdoor air of 25 m^3/h per person must be delivered / minimum ventilation intensity 0.5 l/h / the indicator of the quality of the indoor environment is CO_2 concentration / the concentration in the indoor air must not exceed 1500 ppm / the CO_2 value is considered to be a healthy indoor environment up to 1000 ppm / controlled ventilation recommended – e.g. automatic window opening / cross ventilation and chimney effect speeds up natural ventilation / larger room volume / tip: do not close the space above the tie beams.

3. **View**
   Daylight in buildings / visual connection with the environment, which provides information about the local conditions / we consider a horizontal angle of view (min. 14°) / length of view (min. 6 m) / number of landscape layers – sky layer / landscape layer / terrain layer (min. 1) / there are determined 3 levels of view.

4. **Temperature**
   Thermal stability of the attic is a fundamental criterion for the quality of the attic design / it is recommended to orient rooms with a larger volume of air and the possibility of effective air exchange / cross ventilation and stack effect / to design all window openings with external shading / to use automatic shading control. The difference in room temperature when using external shading can be up to 7 °C / use of construction materials with heat/cold accumulation / thermal insulation according to current requirements.

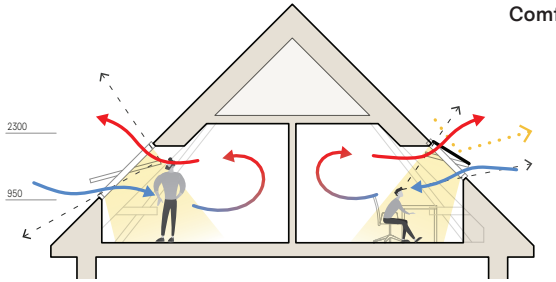
5. **Room acoustics**
   Reduction of outdoor noise by noise absorbing structures / eliminate internal noise by using materials with noise attenuation / design the layout of the room so that it allows good listening / on the street side, the roof window has an 8 dB lower noise level than the facade window / roof window to the yard by about 15 dB.

2.3 / Optimal use of the attic

Recommendations for optimising indoor comfort

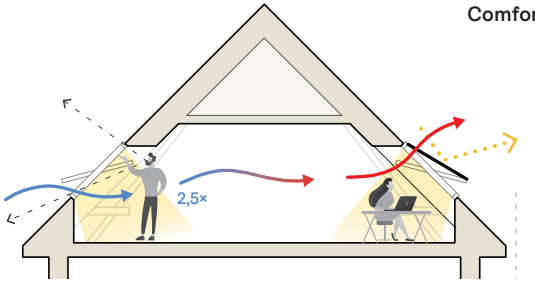
attic in single family home

Light ■■□□□
Vision ■□□□□
Ventilation ■□□□□
Comfort ■□□□□



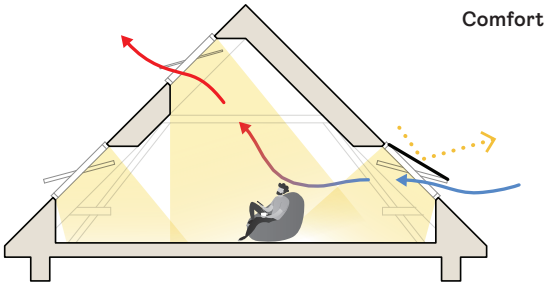
small rooms in the attic / lowered ceiling / high attic knee wall / manual control of windows and shading

Light ■■□□□
Vision ■■□□□
Ventilation ■■□□□
Comfort ■■□□□



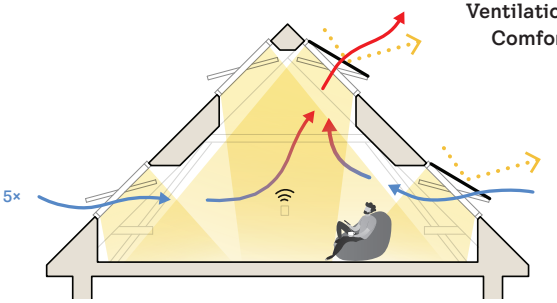
larger room / cross ventilation / lowered ceiling / manual control of windows and shading

Light ■■■□□
Vision ■■■□□
Ventilation ■■■□□
Comfort ■■■□□



larger room / lighting of the entire depth of the room / open ceiling for a larger volume of air in the room / remote-controlled windows and shading

Light ■■■■□
Vision ■■■■□
Ventilation ■■■■□
Comfort ■■■■□

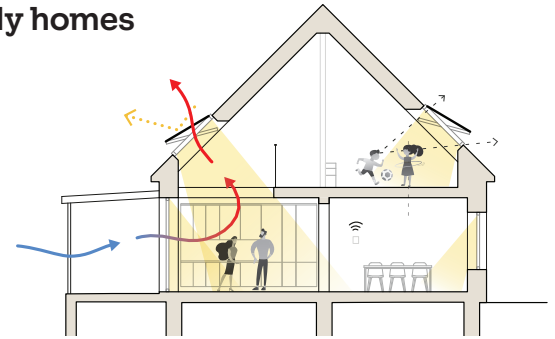


larger room / lighting of the entire depth of the room / open ceiling for a larger volume of air in the room / cross ventilation and chimney effect / automatic window control and shading

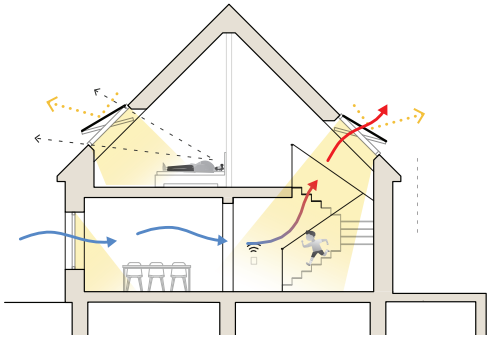
2.3 / Optimal use of the attic

Recommendations for optimising indoor comfort

detached single family homes

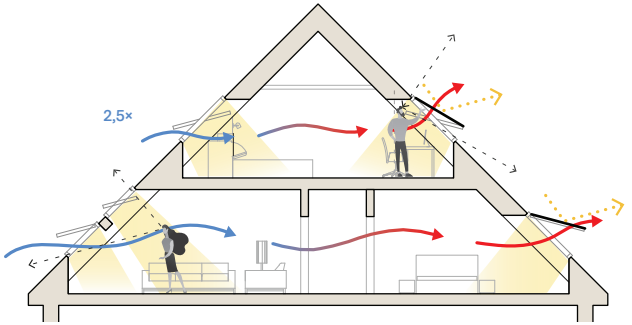


ground floor daylight through roof / daylight in the middle of the layout / efficient ventilation / design element / unique atmosphere / automatic window control

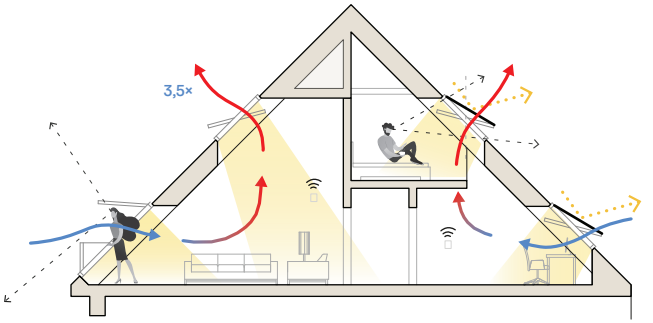


stairwell / effective natural ventilation of the family home / increased safety of movement on the staircase / design element / unique atmosphere / automatic window control

attic flats / lofts



combination of windows on top of each other in the living space / cross ventilation of the bedroom / view from the living rooms even while sitting

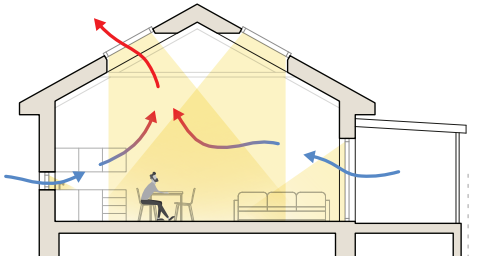


two-storey living space / larger air volume / better lighting / stack effect / atmosphere / room with mezzanine / remote control of high windows

2.3 / Optimal use of the attic

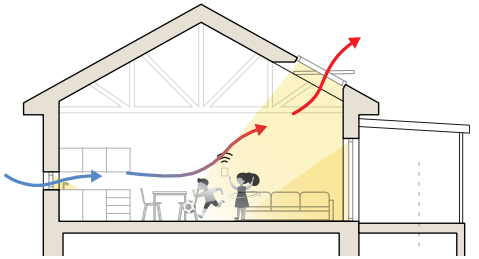
Recommendations for optimising indoor comfort

single story, open structure



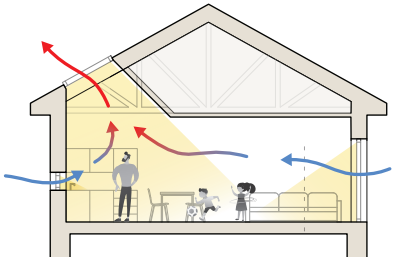
visual construction of trusses over a selected part of the layout / unique atmosphere / enough light in the entire depth of the room / effective ventilation

single story, exposed trusses



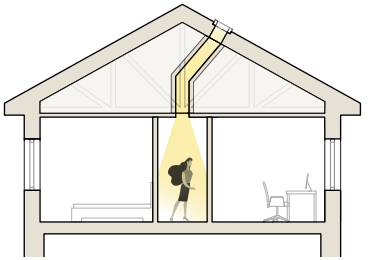
creation of a great visual impression by opening into the truss space / optical enlargement of the space with sufficient daylight intensity / even lighting of the room from above / larger volume of air in the room / controlled natural ventilation with stack effect

single story, light shaft



targeted lighting of a specific part of the layout / freeing up space for upper cabinets thanks to the use of a light shaft / effective ventilation through high-set windows / structurally small intervention in the truss

single story, sun tunnel

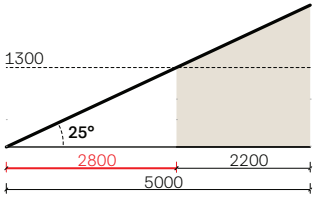


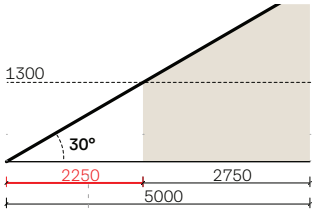
bright impression of otherwise dark, internal spaces / simple way to naturally illuminate small, central rooms / design solution

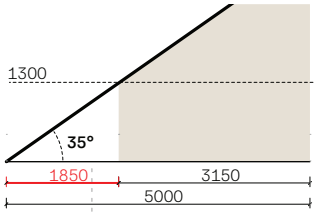
2.3 / Optimal use of the attic

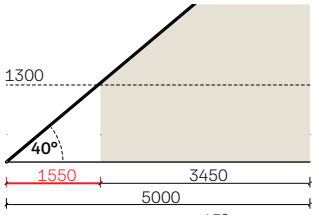
Useable attic space dependent on roof slope

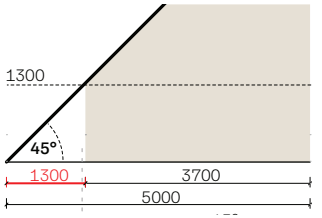
attics with a higher roof pitch are more easily utilised.

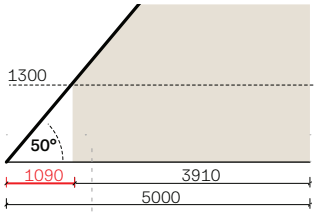








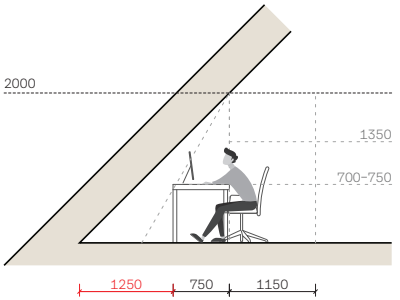


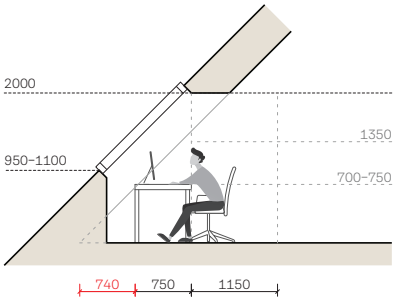


2.4 / Attic ergonomics

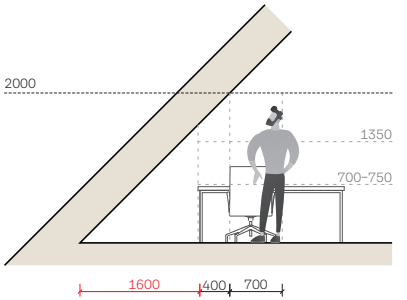
Basic ergonomics for placing furniture under a 45° slope

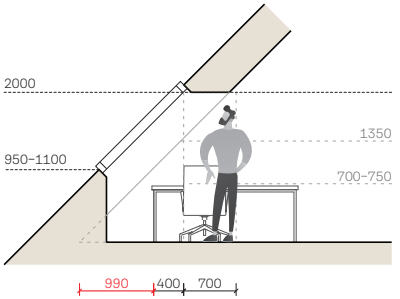
desk location





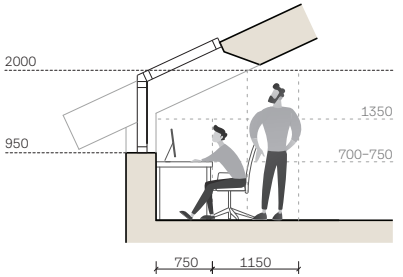
better use of space / targeted lighting of the work surface / perfect view



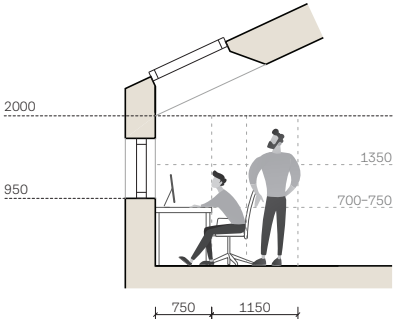


extension of usable space increased by depth of lining to roof window / pay attention to the direction of the light falling on the desk

placement of the desk in a space with a low roof pitch



better illumination deep into the room layout / view provided by an additional window

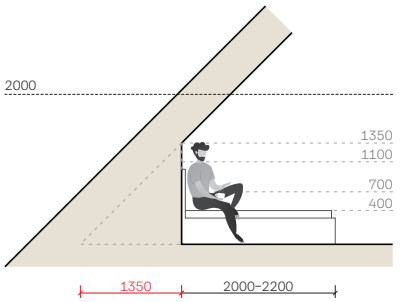


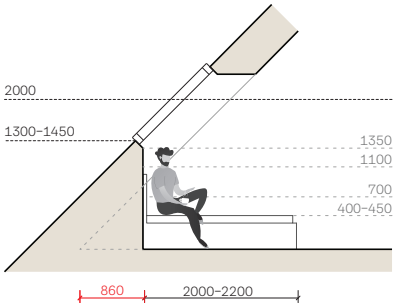
solution of undersizing of facade windows in buildings with low roof pitch / addition of roof lighting

2.4 / Attic ergonomics

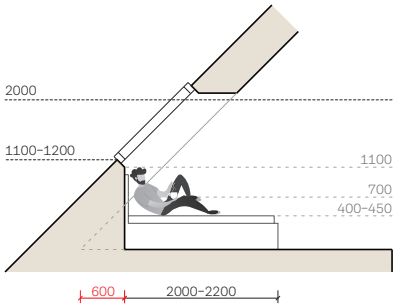
Basic ergonomics for placing furniture under a 45° slope

bed location

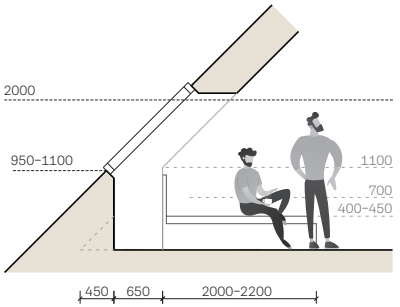




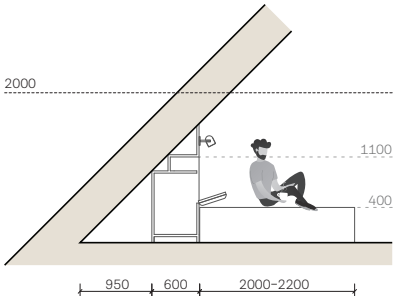
better use of layout / increase of usable area / higher attic knee wall



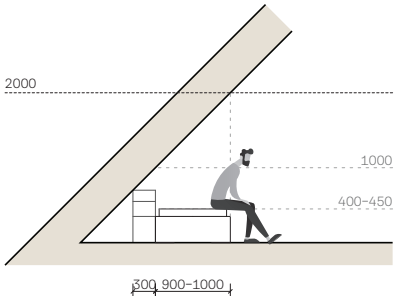
creation of a space with a minimum height for placing the bed under the window



easy access to the bed thanks to the roof windows in recess / low attic knee wall / optimal view



use the inclined wall behind the bed for placement of the furniture

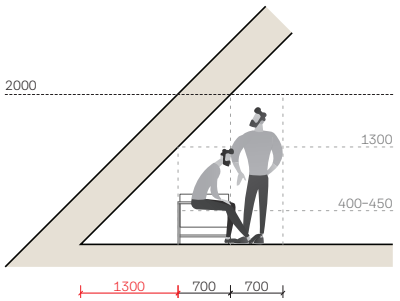


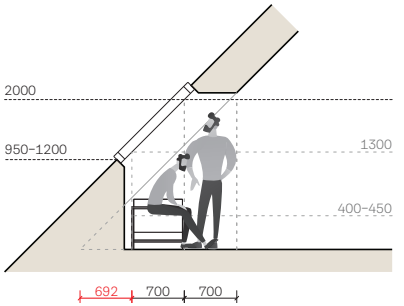
placement of the furniture by the bed parallel to the inclined wall

2.4 / Attic ergonomics

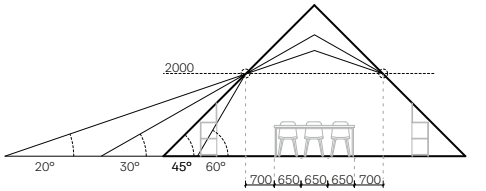
Basic ergonomics for placing furniture under a 45° slope

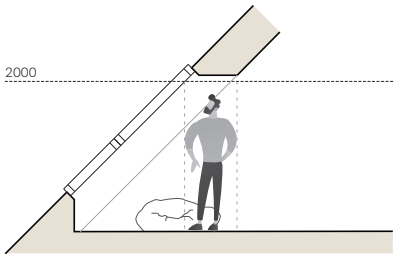
seating location



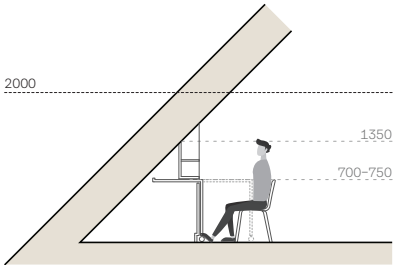


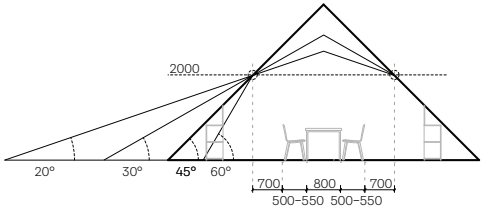
increase the headroom by the depth of the lining





knee wall pushed back to allow lower level fixed windows / glazing to the ground as an attractive element of a modern interior

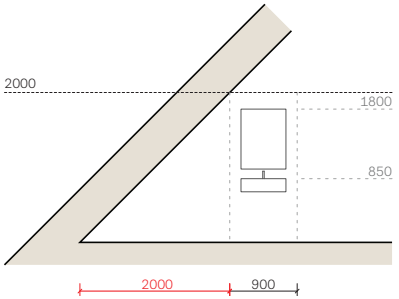


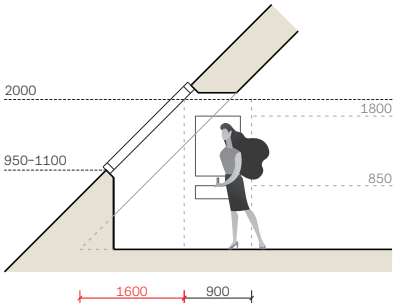


2.4 / Attic ergonomics

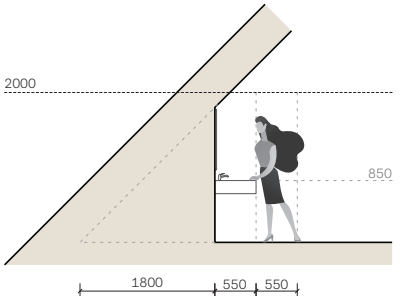
Basic ergonomics for placing furniture under a 45° slope

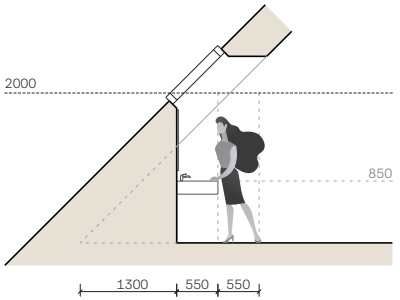
basin location



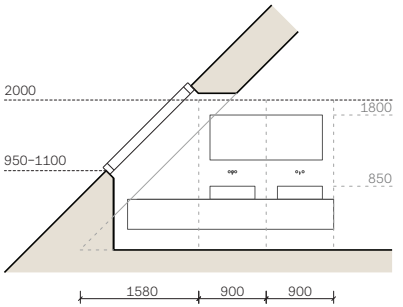


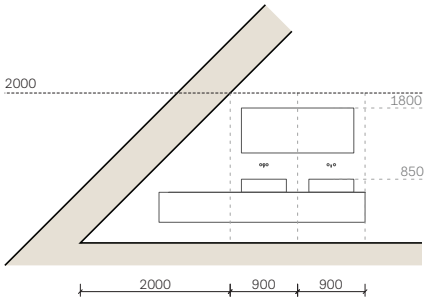
more space / natural light near the mirror





more space / natural light near the mirror

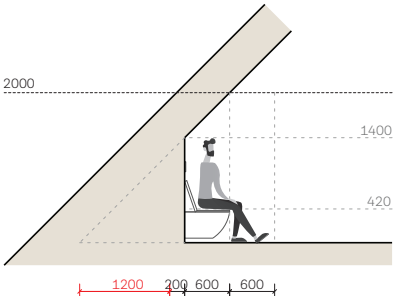


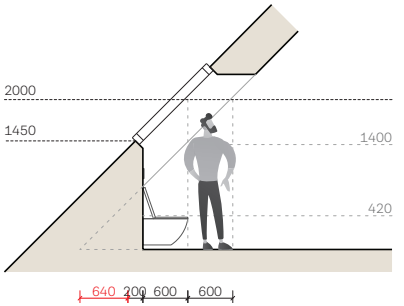


2.4 / Attic ergonomics

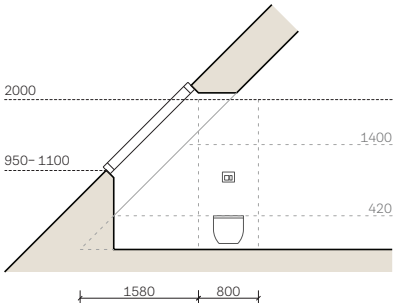
Basic ergonomics for placing furniture under a 45° slope

toilet location

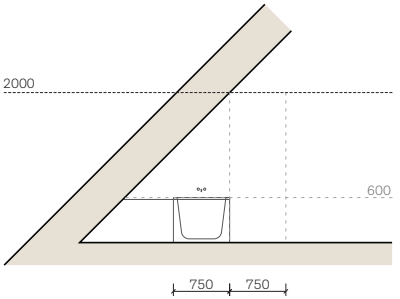


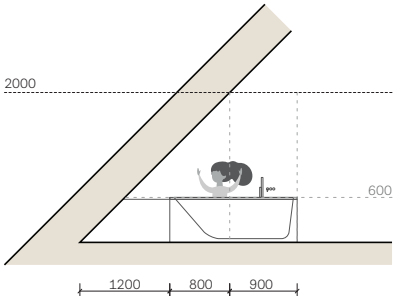


higher headroom / ventilation / lighting

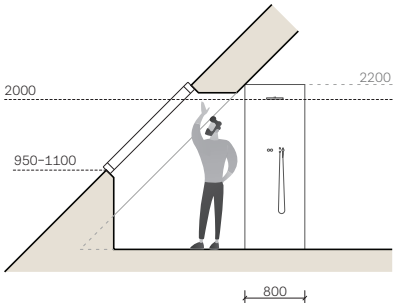


bath/shower location





shower location

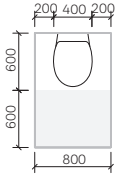


2.4 / Attic ergonomics

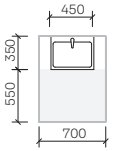
Clear access recommendations

bathroom

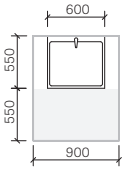
toilet



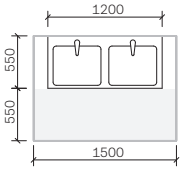
small washbasin



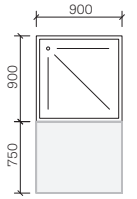
washbasin



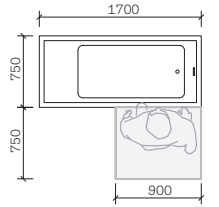
double washbasin



shower

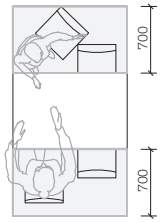


bath

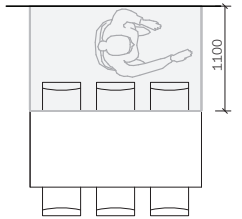


kitchen, dining room

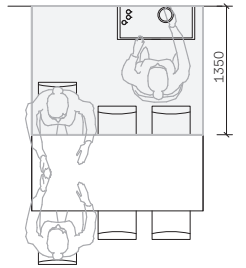
space for moving the chair



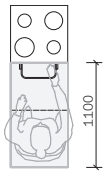
space from a fixed obstacle



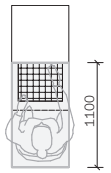
space from the handling obstacle



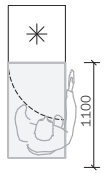
classic oven



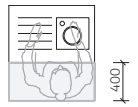
dishwasher



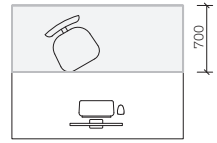
fridge

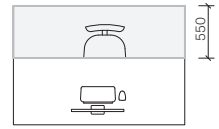


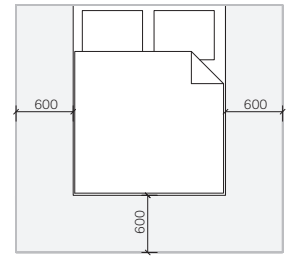
kitchen sink



study/bedroom



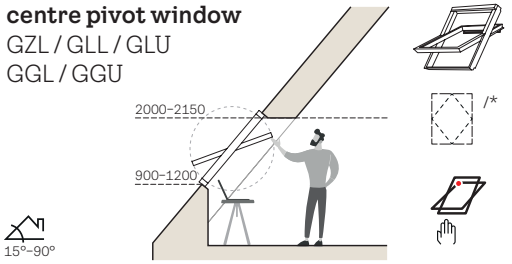




2.5 / Roof window types

Models and methods of control

centre pivot window
GZL / GLL / GLU
GGL / GGU

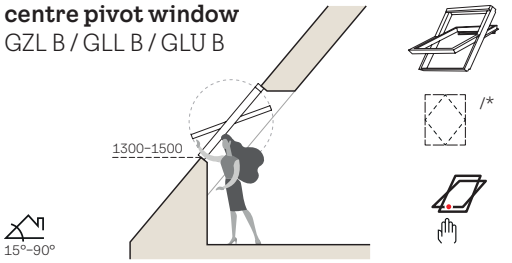


Top operated window

standard attic knee wall / recommended when placing furniture under a window.

*/ display in floor plan

centre pivot window
GZL B / GLL B / GLU B

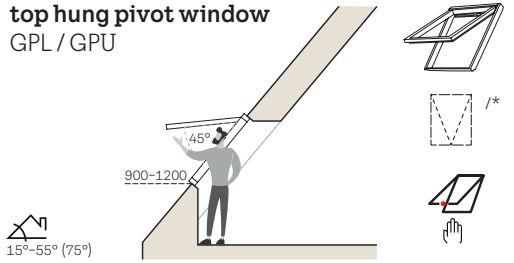


Bottom operated window

high attic knee wall

View lines are limited to the sky when in a seated position. For rooms where a view out is important (living/bedroom), use this as additional lighting.

top hung pivot window
GPL / GPU

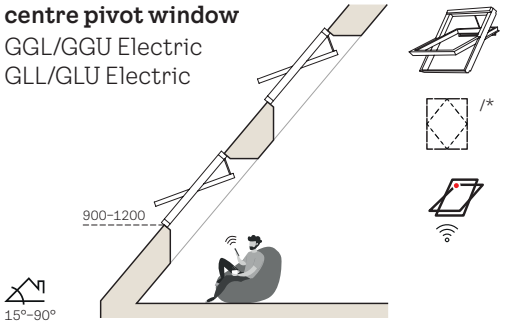


Bottom operated window

standard attic knee wall / panoramic view / possibility to tilt above the roof plane / pivot function for ease of washing the window pane / not optimal for furniture placement under the window

Daylight is irreplaceable. No artificial light source has the same spectrum or changes in colour thoughout the day. This greatly impacts our well-being – we all thrive best in daylight.

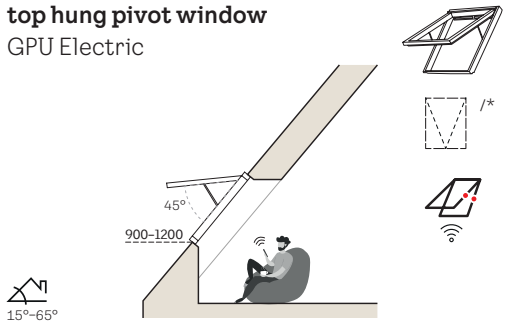
centre pivot window
GGL/GGU Electric
GLL/GLU Electric



Electric or solar powered remote control

not only for windows out of range / comfortable remote control / rain sensor / compatible with VELUX ACTIVE to monitor and automatically optimise indoor climate

top hung pivot window
GPU Electric



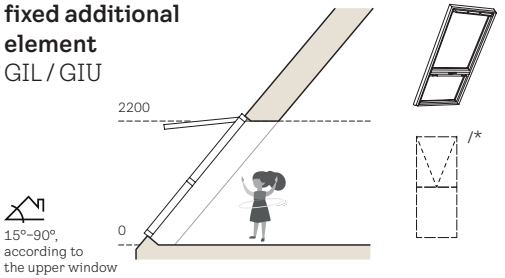
Remote controlled electric powered window

panoramic view / comfortable remote control / rain sensor / compatible with VELUX ACTIVE to monitor and automatically optimise indoor climate

2.5 / Roof window types

Models and methods of control

fixed additional element
GIL / GIU

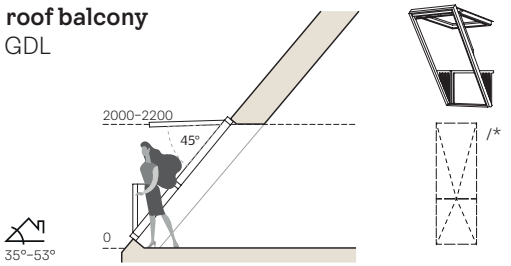


Non-opening, window sill function

install only in combination with roof window above / laminated glass

*/ display in floor plan

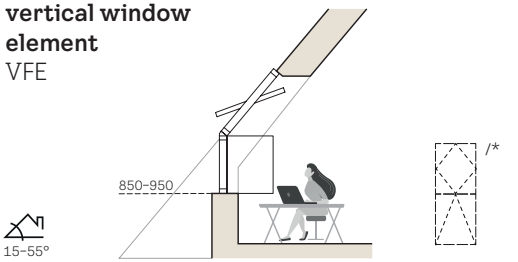
roof balcony
GDL



Balcony created by opening both parts of the window

the upper part operated by lower handle / lower part tilted by handles / side sliding railing with safety device against closing / laminated glass

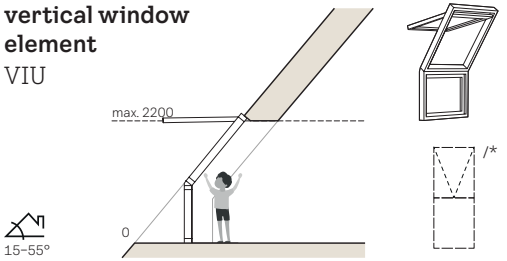
vertical window element
VFE



Openable vertical additional window

view from the facade window / Install only in combination with roof window above / well suited to attic spaces with a high parapet wall / bottom hung window / laminated glass

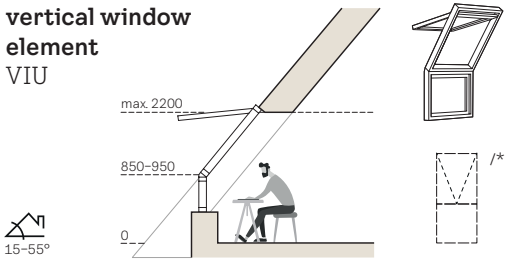
vertical window element
VIU



Non-opening vertical additional window

view from the roof window / Install only in combination with roof window above / window sill function / well suited to attic spaces with a high parapet wall / laminated glass

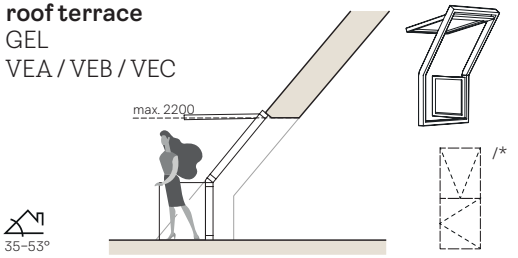
vertical window element
VIU



Non-opening vertical additional window

view from the additional window / Install only in combination with roof window above / well suited to attic spaces with a high parapet wall / laminated glass

roof terrace
GEL
VEA / VEB / VEC



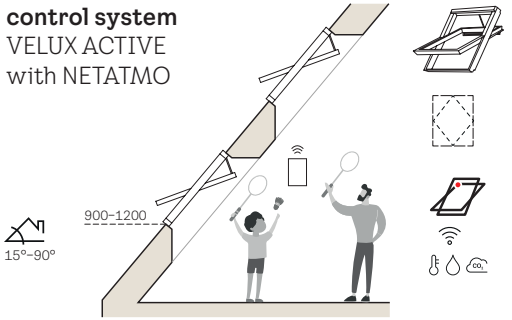
Creates full height access to roof terrace

top hung window gives full head height access to roof terrace/ panoramic views / lower opening or non-opening window / right and left opening / when installed side by side only one vertical element can be openable

2.5 / Roof window types

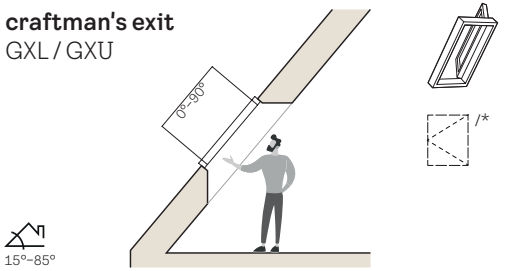
Models and methods of control

control system
VELUX ACTIVE
with NETATMO



Automatic control of the VELUX ACTIVE indoor environment sensors monitor humidity, temperature & CO_2 levels and automatically control window operation, shading devices to ensure optimal indoor climate / smart home / for electrically and solar powered windows and blinds

craftman's exit
GXL / GXU

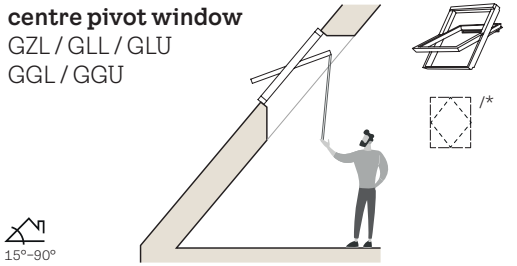


Openable with side hinges

for insulated roof / fixing of the open section

*/ display in floor plan

centre pivot window
GZL / GLL / GLU
GGL / GGU

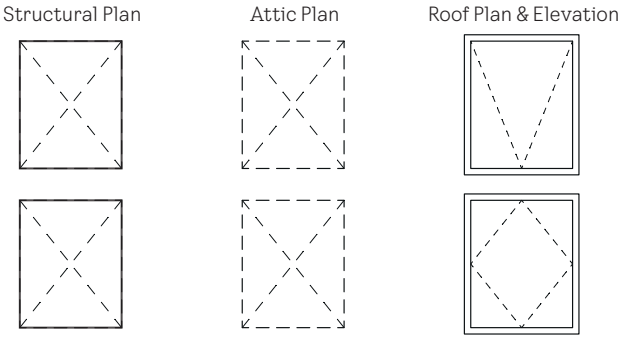


centre pivot roof windows installed in high, out of reach positions can be manually controlled with a pole

Drawings of the construction part

Rules for representation – Lines in construction drawings

Roof windows in floor plan



03/ Rooms in the attic

3.1 Living room

3.2 Kitchen

3.3 Children‘s rooms

3.4 Bedroom

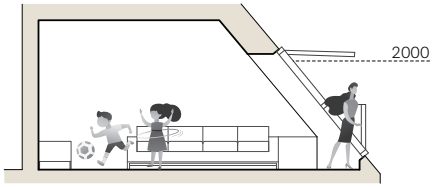
3.5 Bathroom, toilet

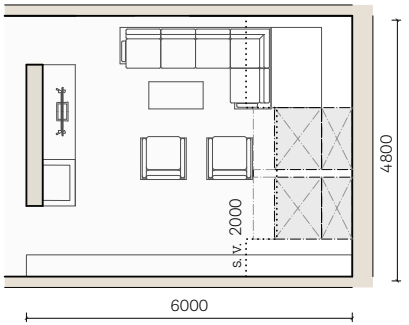
3.6 Study / Home Office

3.1 / Living room

Lighting recommendation is 500 LUX.

living room with roof balcony



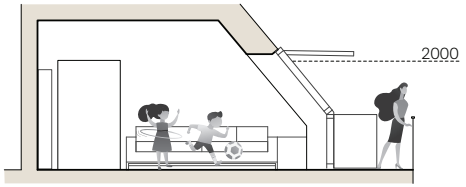


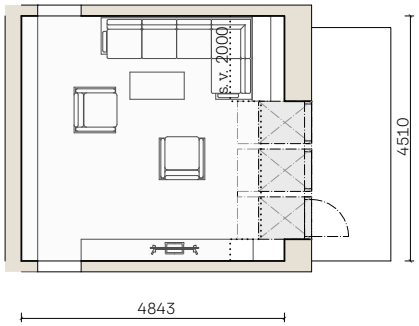
the roof balcony will improve the use of room space / attractive views

3.1 / Living room

Lighting recommendation is 500 LUX.

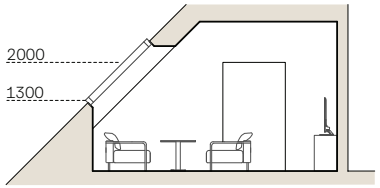
living room with access to a roof terrace

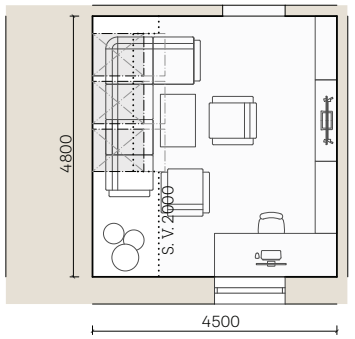




comfortable lighting with access to the terrace / modern loft solution / full glazing optically enlarges the room

economical living room





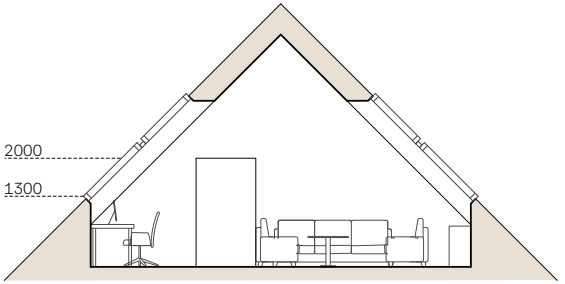
sitting under the roof window / increase in the headroom

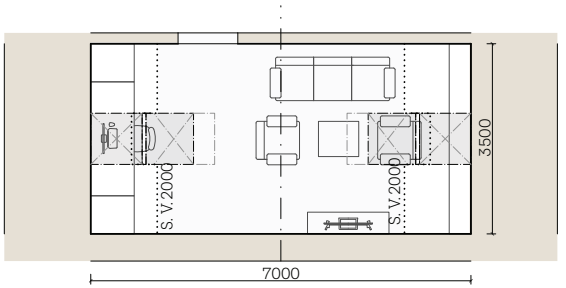
Plenty of daylight and the view optically enlarge each space. It creates a great visual impression, improves mood, reduces the feeling of fatigue and prolongs the day.

3.1 / Living room

Lighting recommendation is 500 LUX.

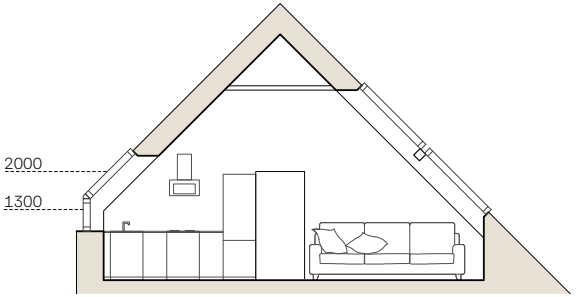
living room with work area

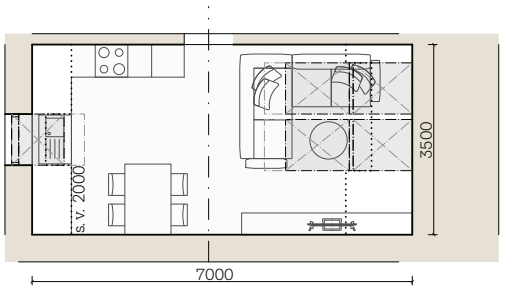




space open to the truss / narrow layout / lighting of the entire depth of the room

living area with kitchen and dining area



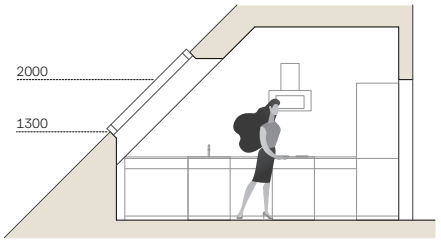


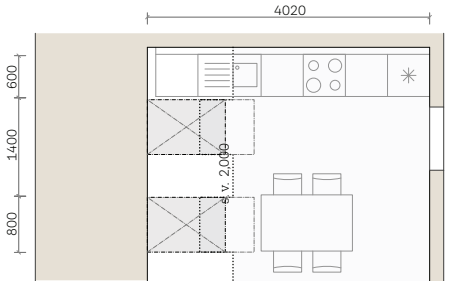
economical layout / combination of inclined walls with vertical windows in the kitchen / combination of windows in the living area optically enlarges the space

3.2 / Kitchen

The lighting recommendation for food preparation is 500 LUX, for dining 300 LUX is recommended.

small single row kitchen

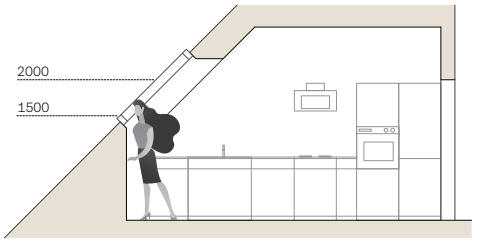


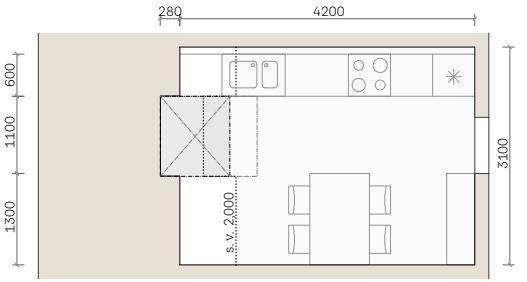


this location provides lighting for the work area as well as a view

single row kitchen

with high attic knee wall





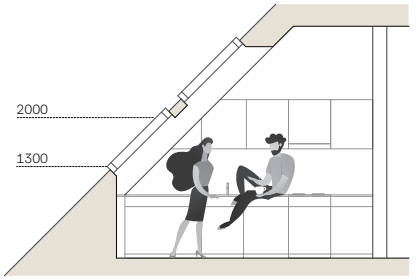
the roof window extends the usable space with the required height

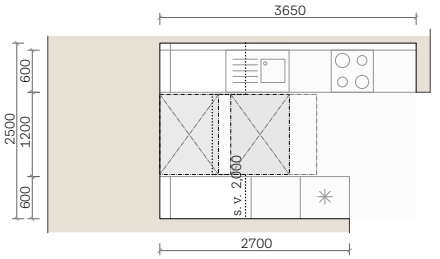
The kitchen is the busiest work area in the household. Targeted lighting of the work surface brings maximum comfort when preparing food.

3.2 / Kitchen

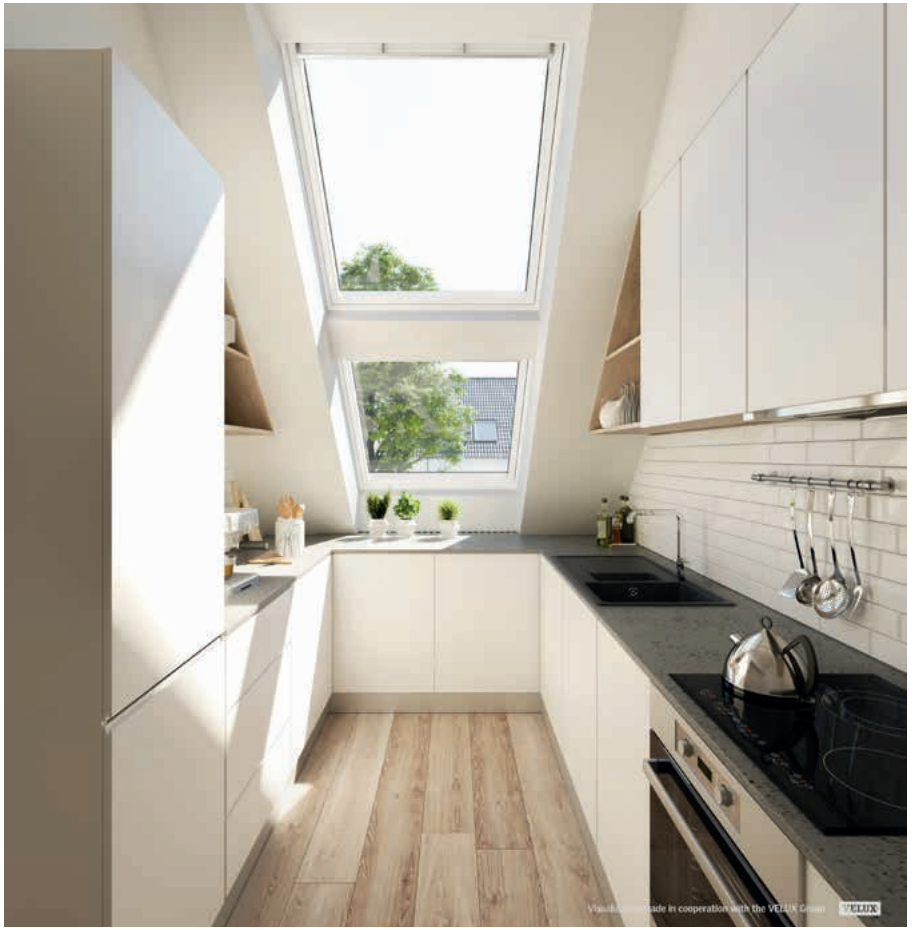
The lighting recommendation for food preparation is 500 LUX, for dining 300 LUX is recommended.

double row kitchen





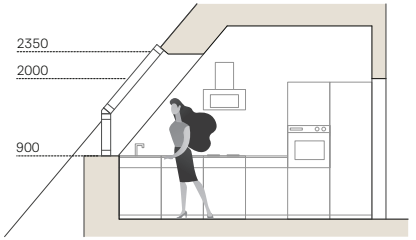
roof windows illuminate both work surfaces / windows above each other look great both from the interior and the exterior and bring light deep into the floor plan

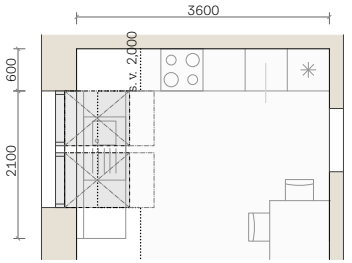


3.2 / Kitchen

The lighting recommendation for food preparation is 500 LUX, for dining 300 LUX is recommended.

L-shaped kitchen



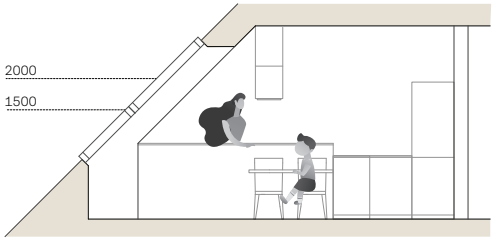


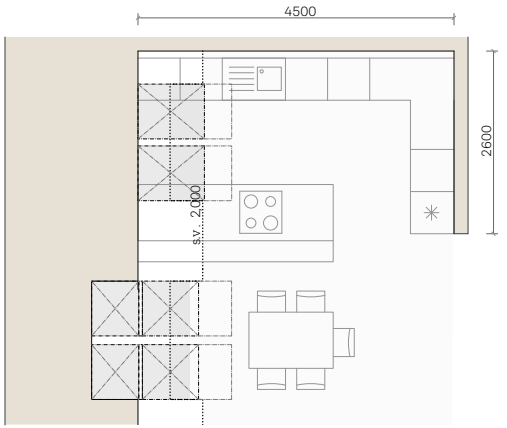
the view from the attic with a high attic parapet is provided by a combination of a roof and a vertical window

3.2 / Kitchen

The lighting recommendation for food preparation is 500 LUX, for dining 300 LUX is recommended.

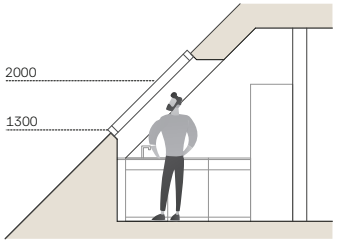
L-shaped kitchen with an island

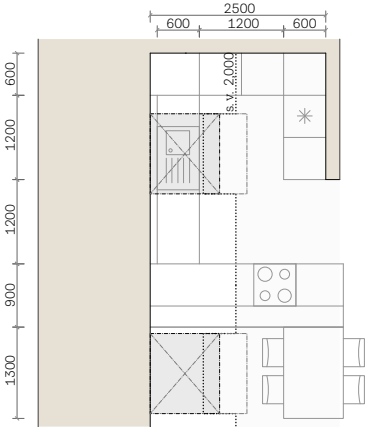




the set of roof windows in the dining room will bring a unique experience with the view / placing the windows in the recess will allow us to lower the window sill for view whilst seated

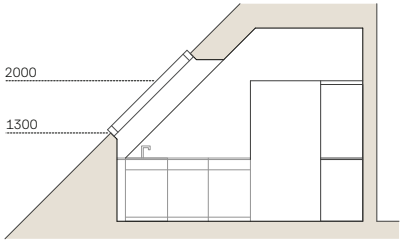
G-shaped kitchen

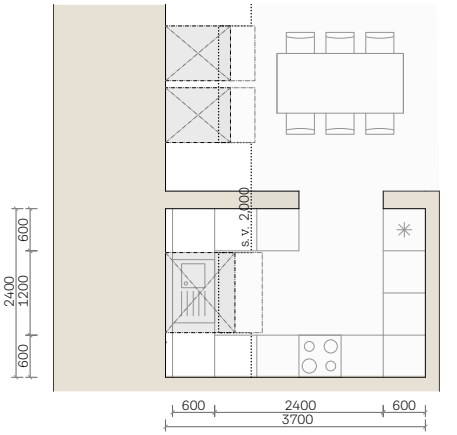




the sunroof will extend the useable space in the kitchen / a wider roof window will bring more daylight and space

G-shaped kitchen





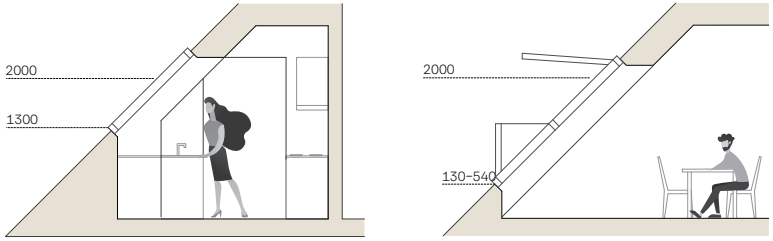
the optimal placement of tall cabinets is outside the inclined wall

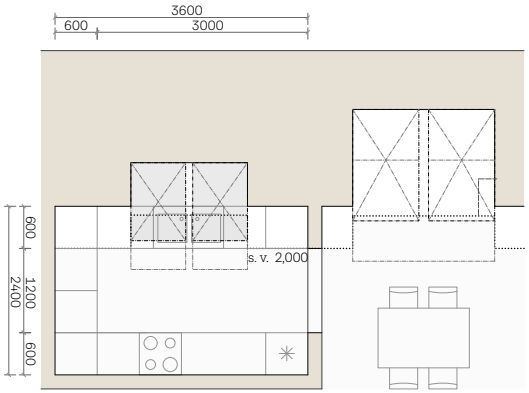
3.2 / Kitchen

The lighting recommendation for food preparation is 500 LUX, for dining 300 LUX is recommended.

U-shaped kitchen

with high attic knee wall / dining room with roof balcony





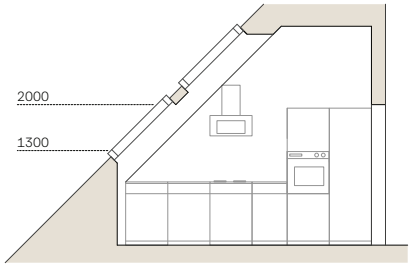
the height of the attic knee wall can be chosen according to the needs of the room / dining room is a suitable space to place larger glazing

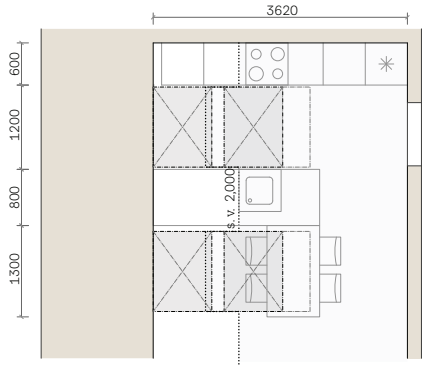
The lighting quality
of an interior
has a major impact
on the value
of the property.

3.2 / Kitchen

The lighting recommendation for food preparation is 500 LUX, for dining 300 LUX is recommended.

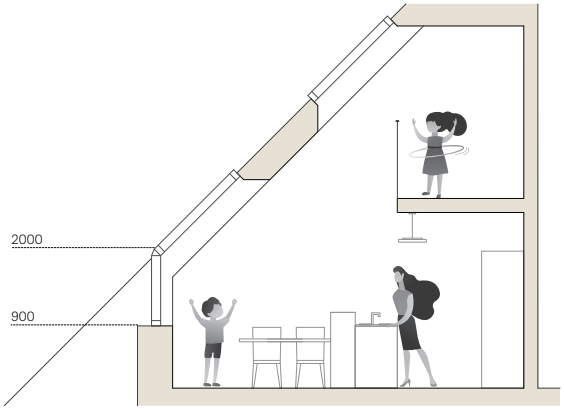
single row kitchen with an island

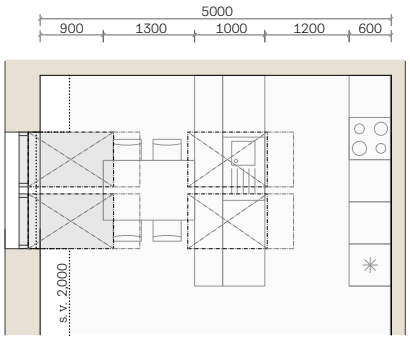




attic space should be large / larger volume of air / slower overheating / interesting design of windows on top of each other

Top lighting is the best solution in the kitchen. The high temperatures used in the preparation of food accelerate the stack effect and natural ventilation through high windows is very effective.



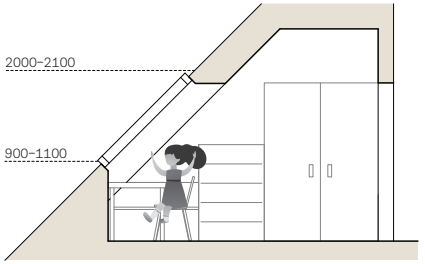


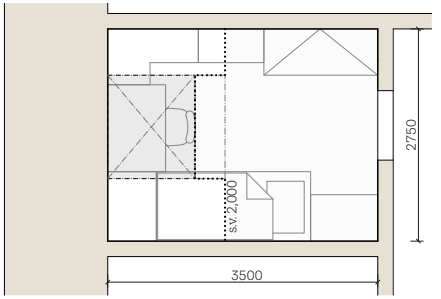
the best attic spaces open over two floors / attractive space / even lighting and deeper lines / faster ventilation

3.3 / Children‘s rooms

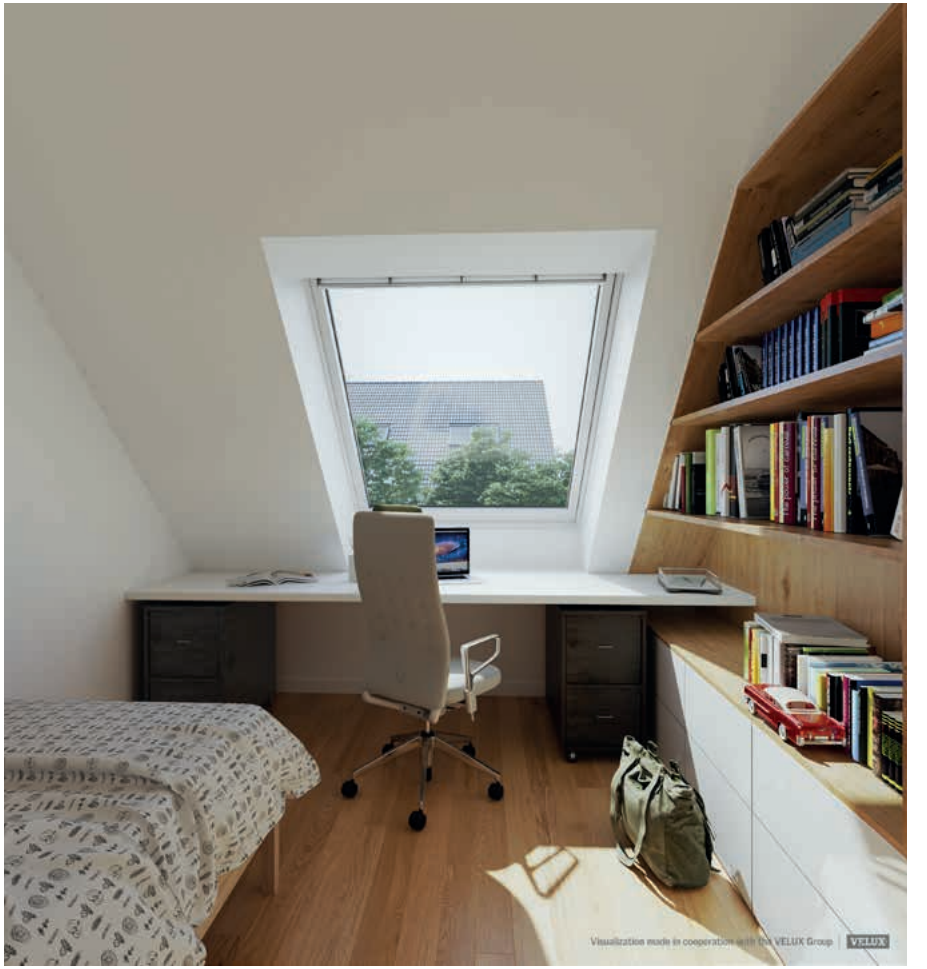
The lighting recommendation for reading and writing is 500 LUX

children‘s rooms for one child





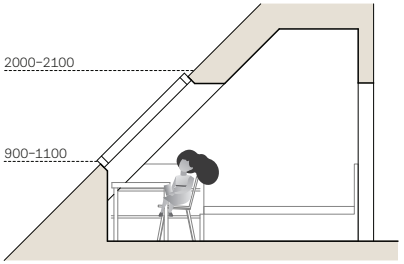
we place higher storage spaces outside the inclined wall / use of standard furniture

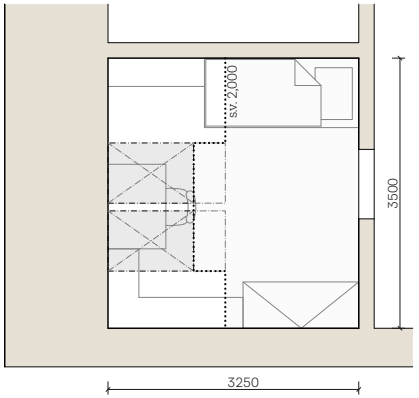


3.3 / Children‘s rooms

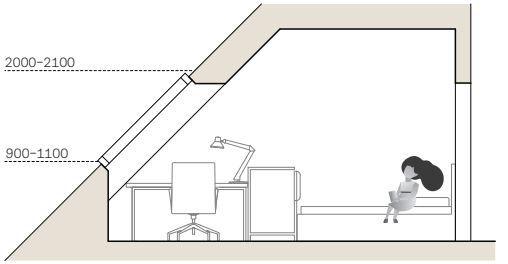
The lighting recommendation for reading and writing is 500 LUX

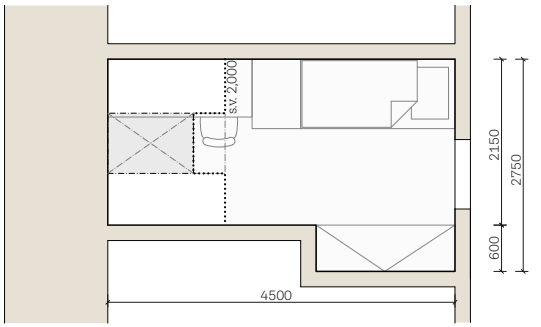
children‘s rooms for one child



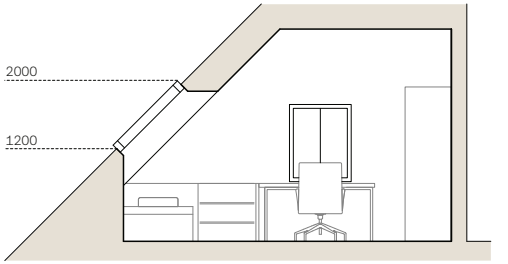


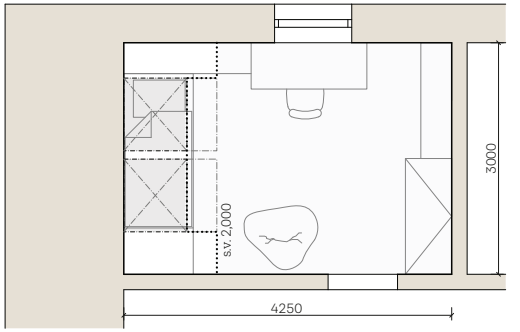
placement of the desk under the window which allows optimal lighting of the worktop / good view even while sitting





recess for wardrobes is a popular feature in today‘s homes



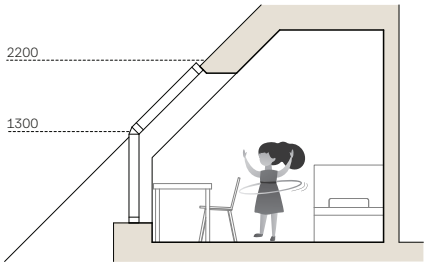


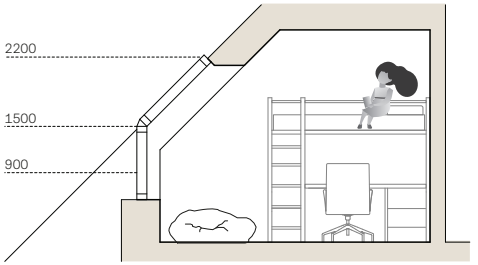

NEW YORK

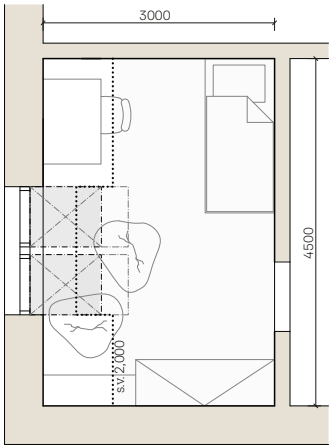
3.3 / Children‘s rooms

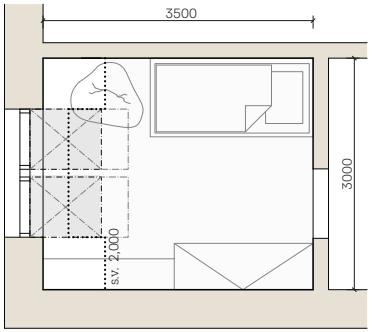
The lighting recommendation for reading and writing is 500 LUX

children‘s rooms for one child







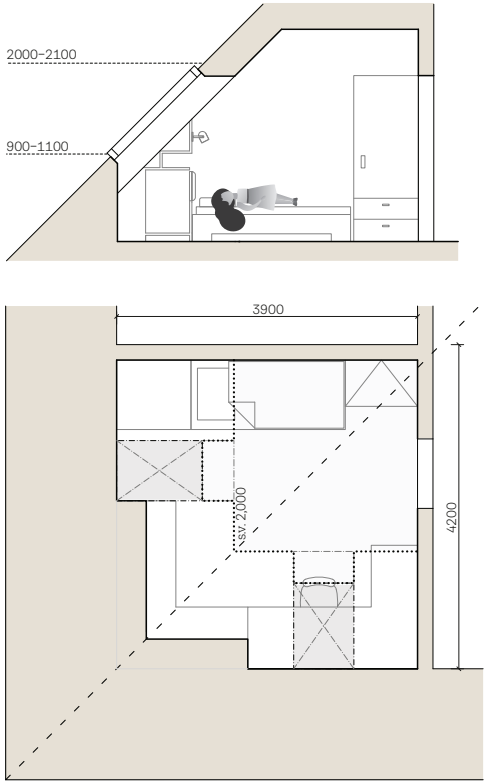


The children‘s room is used for work, study, play and sleep. The right intensity and distribution of natural daylight improves sleep and the ability to learn.

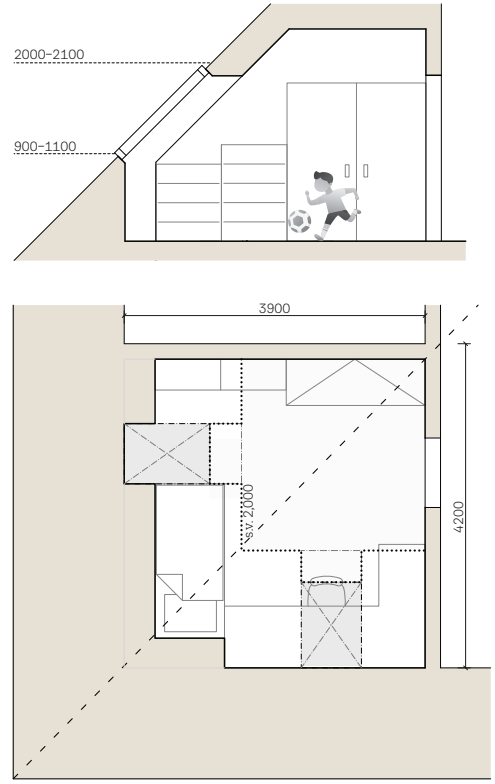
3.3 / Children‘s rooms

The lighting recommendation for reading and writing is 500 LUX

children‘s room for one child

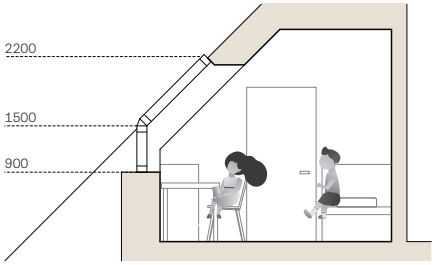


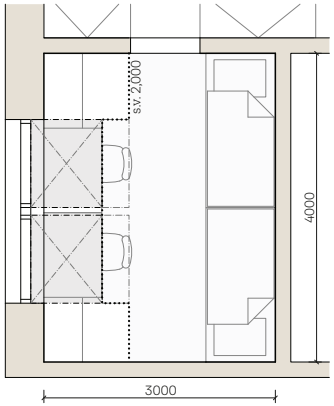
placement of roof windows in opposite parts of the roofs / even lighting / effective ventilation / changing height of the attic knee wall according to the function / integrated storage system effectively uses the space under the inclined wall



placement of windows in opposite parts of the roofs / even illumination / effective ventilation / changing height of the attic knee wall according to function / wardrobes are located in the highest part of the room

children's rooms for one child



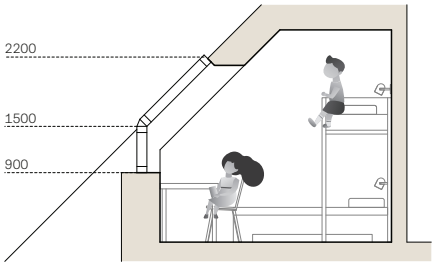


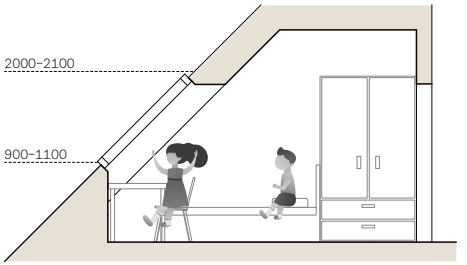
3.3 / Children‘s rooms

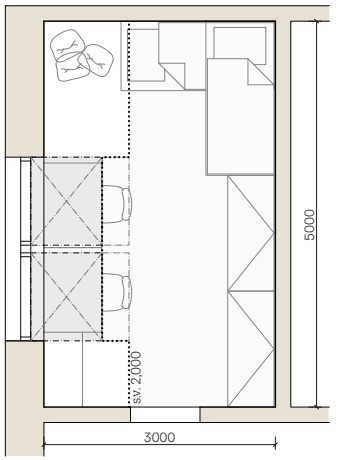
The lighting recommendation for reading and writing is 500 LUX

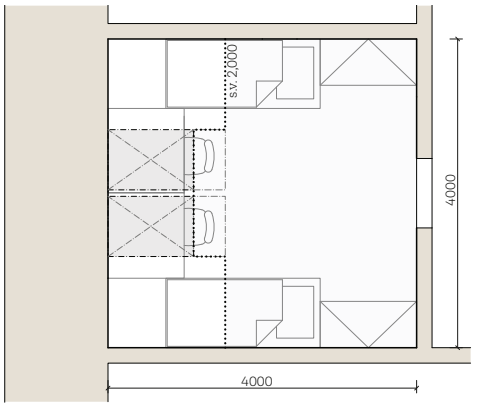
Studies show that concentration and the ability to learn can be increased by up to 15% with better light quality. In the early evening, natural daylight reduces the feeling of fatigue and prolongs the day.

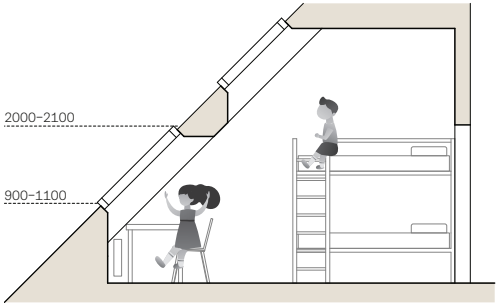
children‘s room for two children

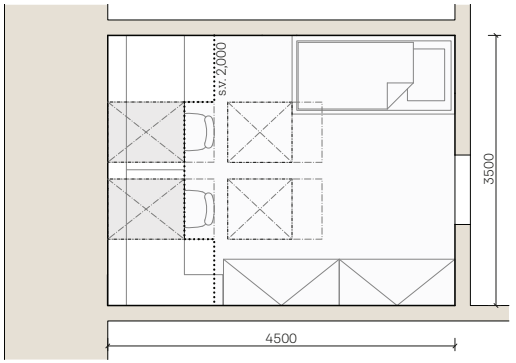










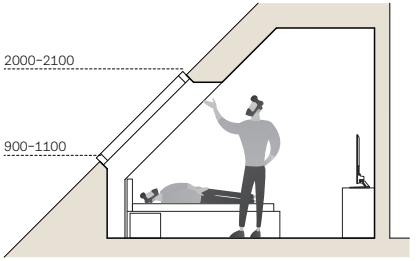


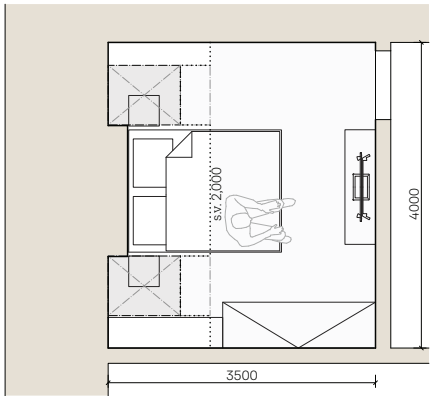
the attic open to the truss will allow better use of the beds above each other / larger air volume / better lighting / better use of space on a smaller floor area

3.4 / Bedroom

Lighting recommendation is 500 LUX.

small attic bedroom





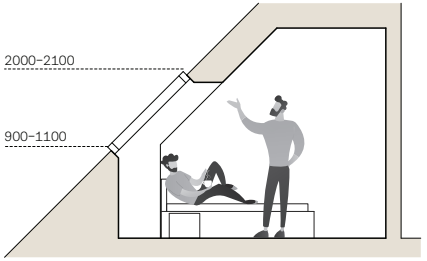
placement of the bed between the windows / low headboard / optimal view / increased head height and easier access to the bed thanks to the placement of windows next to the bed

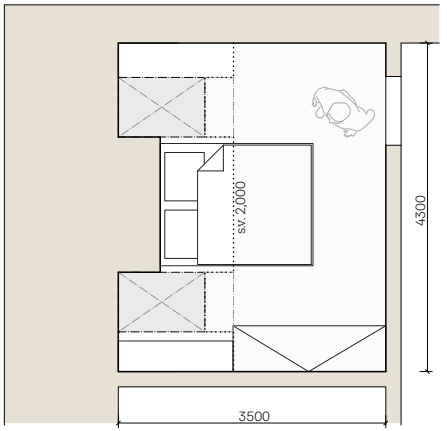
3.4 / Bedroom

Lighting recommendation is 500 LUX.

small attic bedroom

with attic knee wall and recess
for the roof window

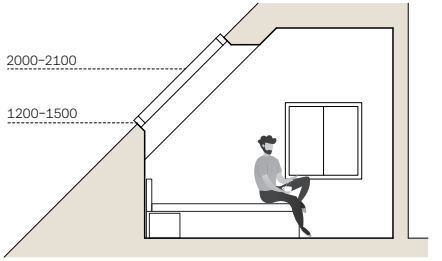


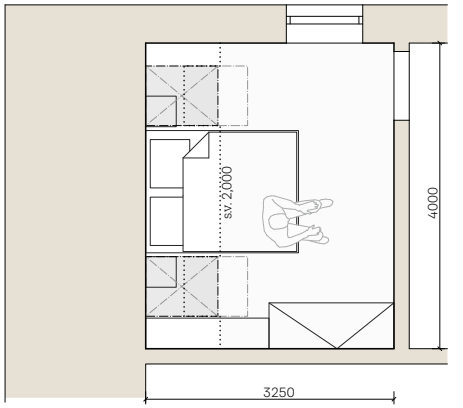


placing the bed between the windows / wall behind the bed will allow you to leave the windows in the optimal position and use the high headboard

small attic bedroom

with high attic knee wall





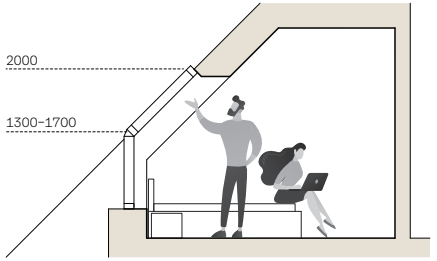
placement of the bed between the windows / with a high knee wall the optimal view is ensured by the facade window

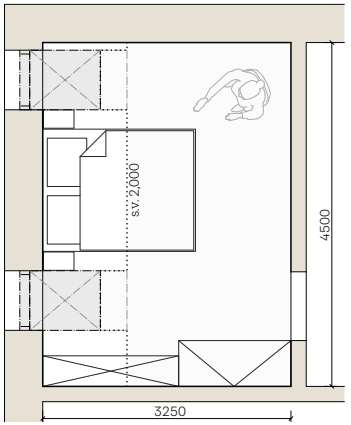
Plenty of daylight and contact with the outside environment visually enlarges each room.

3.4 / Bedroom

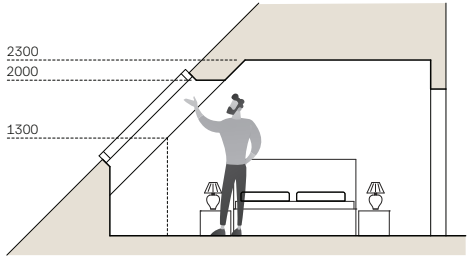
Lighting recommendation is 500 LUX.

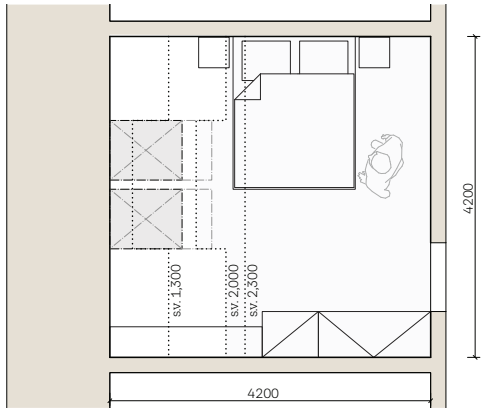
small bedroom



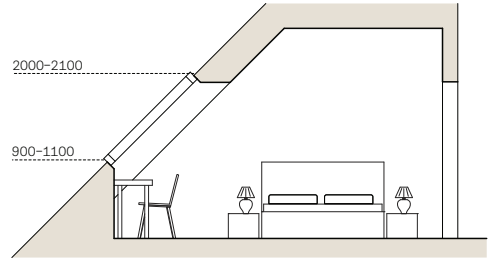


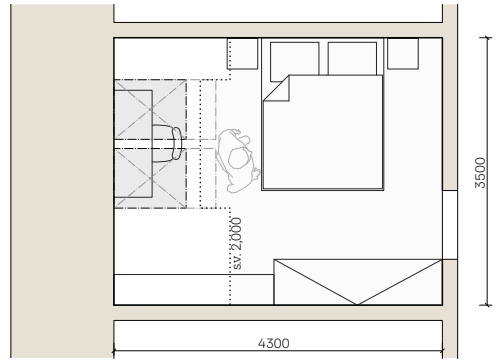
placement of the bed between the windows / use of a combination of roof and vertical window element





placement of the bed by the wall / minimum dimensions / full head clearance only from one side of the bed





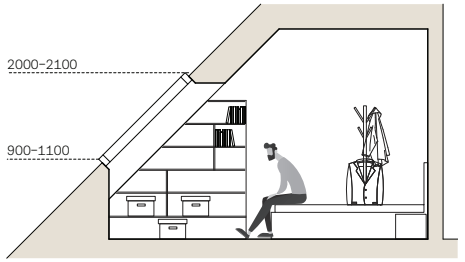
placement of the bed by the wall / minimum access to the bed from both sides

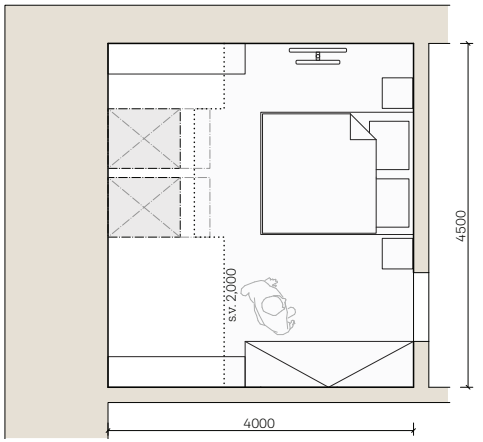
3.4 / Bedroom

Lighting recommendation is 500 LUX.

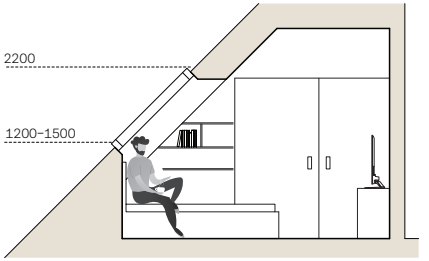
We need the right light at the right intensity at the right time. We may underestimate the lighting of the bedroom, however, it affects our 24-hour biological cycle.

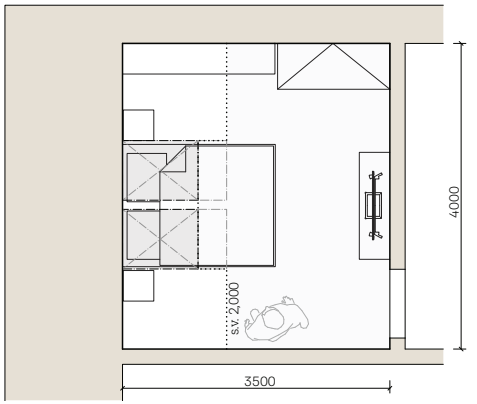
bedroom with a view





location of the bed opposite the windows / optimal view from the bed / effect on the size of the room



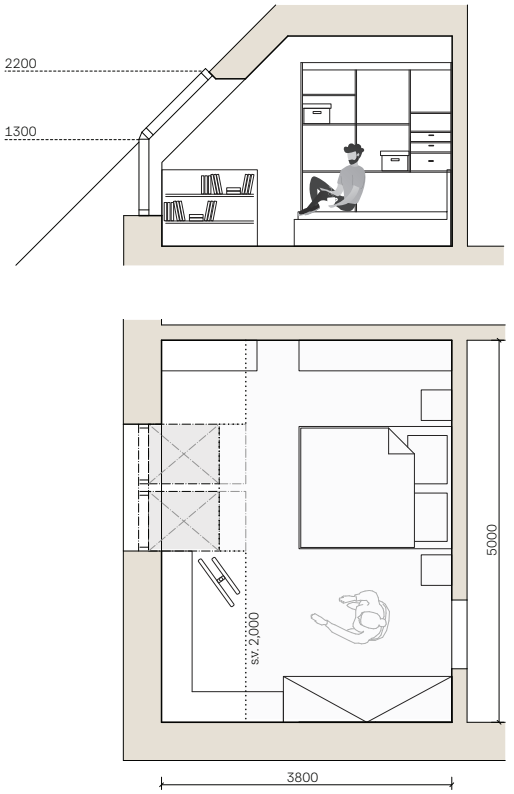


bed located under the windows / economy version layout / star view

3.4 / Bedroom

Lighting recommendation is 500 LUX.

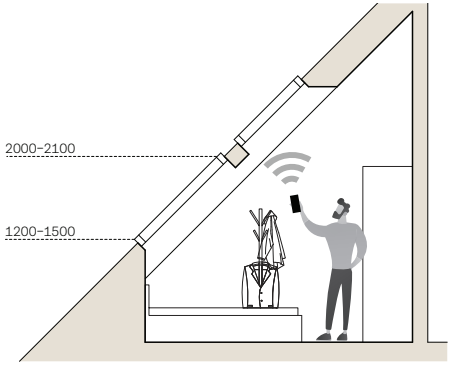
bedroom with a view

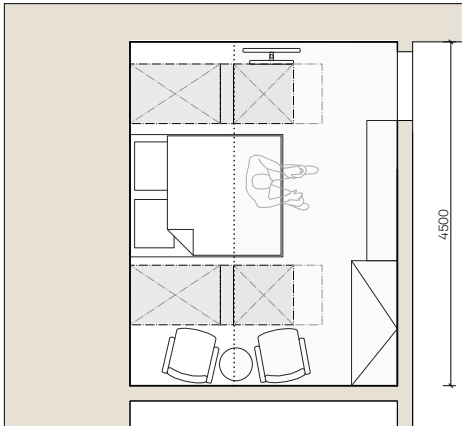


angled glazing for the best view

3.4 / Bedroom

Lighting recommendation is 500 LUX.



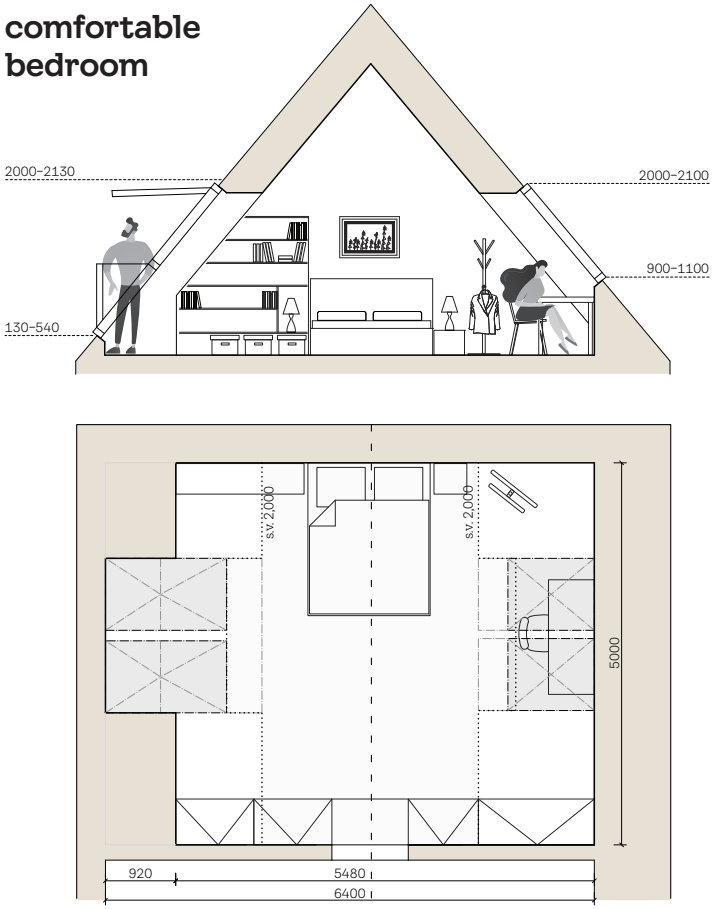


optical enlargement of the space by opening into the truss / larger volume of air / ventilation through the stack effect

3.4 / Bedroom

Lighting recommendation is 500 LUX.

It is assumed that healthy light is very closely related to healthy darkness, which basically means we need high light intensity during the day and a darkened room while sleeping. High light intensity is important for the first 20 minutes in the morning after waking up.

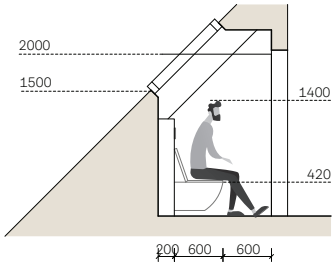


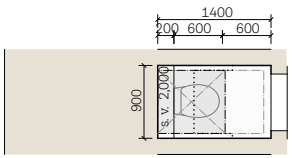
opening into the truss gives the space the opportunity to stand out / connection with the study / the possibility of cross ventilation / comfortable balcony window

3.5 / Bathroom, toilet

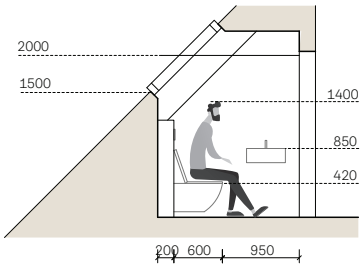
The light intensity of 200 LUX is suitable for showering, washing and changing clothes.

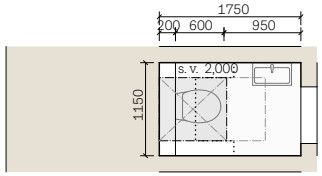
minimum toilet size





toilet with washbasin

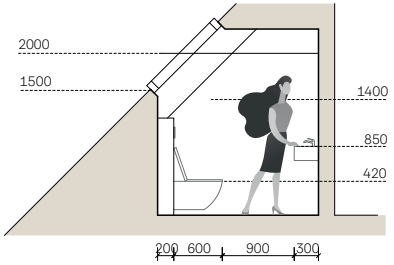


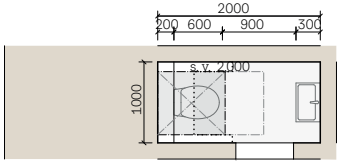


3.5 / Bathroom, toilet

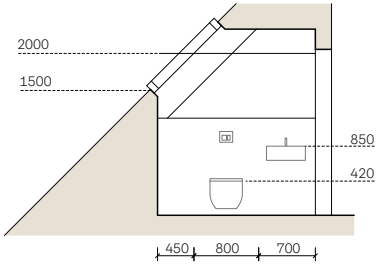
The light intensity of 200 LUX is suitable for showering, washing and changing clothes.

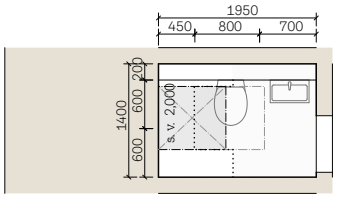
toilet with washbasin and side entrance





toilet with a washbasin



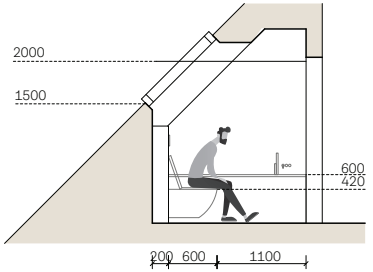


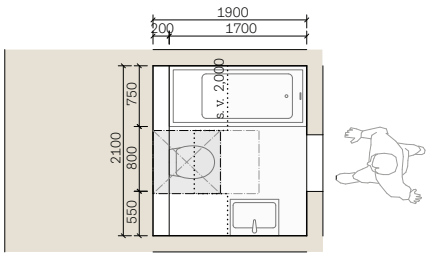
The first 15 to 20 minutes of morning light help to “set” the biological clock of our body, higher intensity will start us up for the whole day.

3.5 / Bathroom, toilet

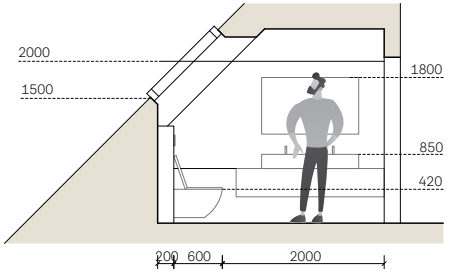
The light intensity of 200 LUX is suitable for showering, washing and changing clothes.

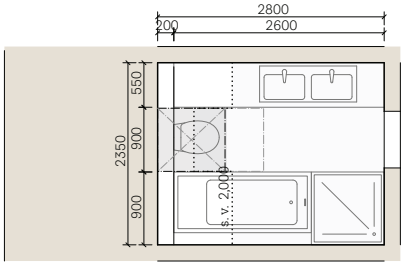
small bathroom with a bath



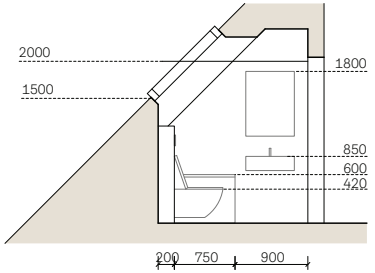


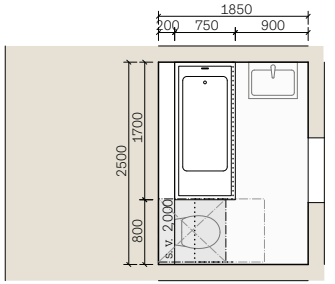
small bathroom with a bath, shower, double washbasin and toilet



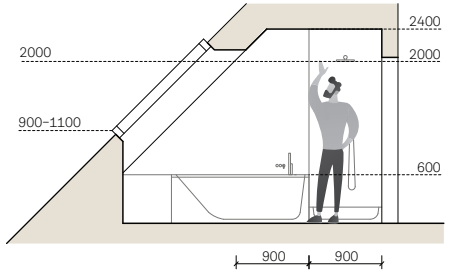


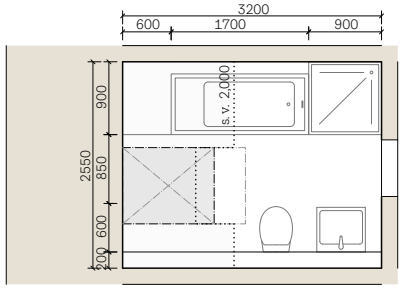
small bathroom with high ceiling





bathroom with low knee wall



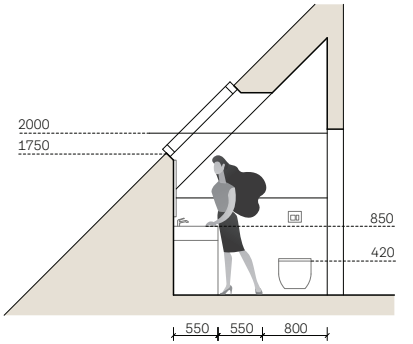


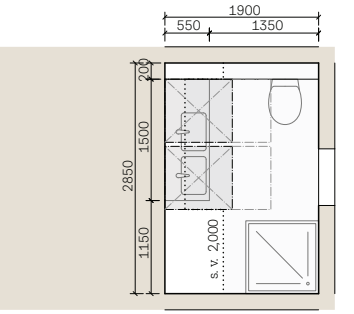
3.5 / Bathroom, toilet

The light intensity of 200 LUX is suitable for showering, washing and changing clothes.

Daylight creates natural colour rendering.
The best make-up is done in daylight.

with washbasin below the inclined wall

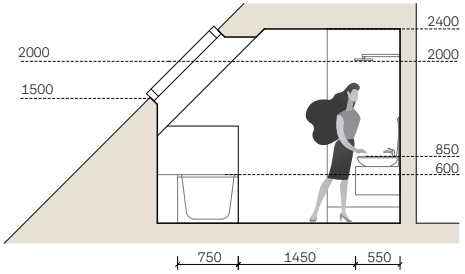


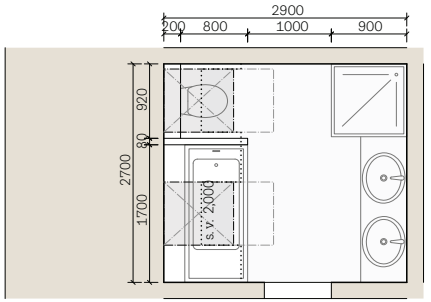


3.5 / Bathroom, toilet

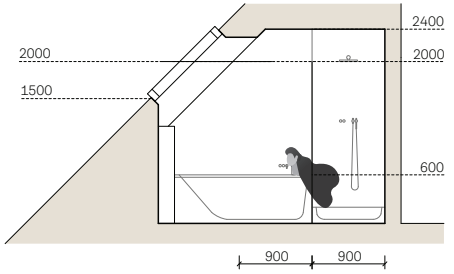
The light intensity of 200 LUX is suitable for showering, washing and changing clothes.

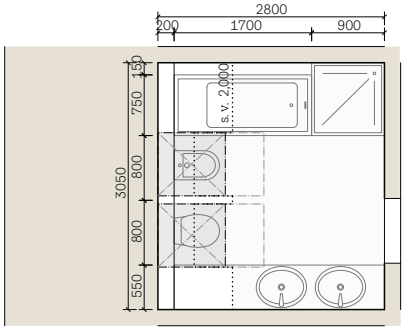
comfortable bathroom with a side entrance



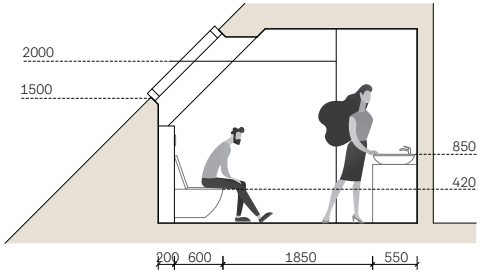


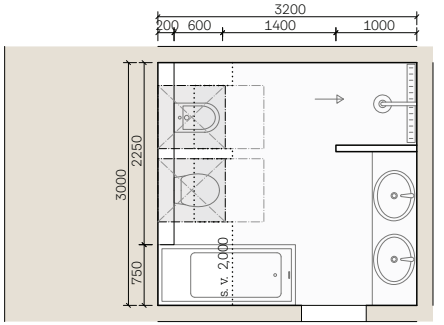
comfortable bathroom with a toilet and bidet





comfortable bathroom with a walk-in shower

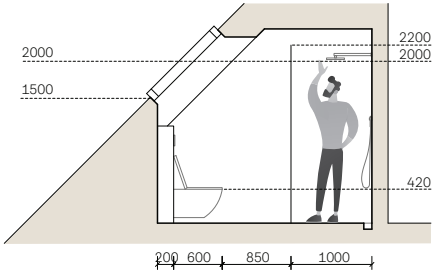


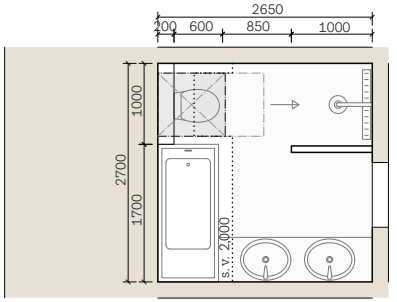


3.5 / Bathroom, toilet

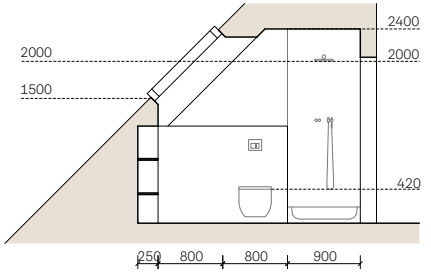
The light intensity of 200 LUX is suitable for showering, washing and changing clothes.

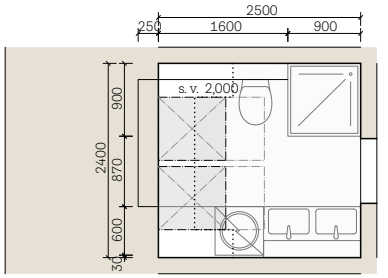
small bathroom with a walk-in shower



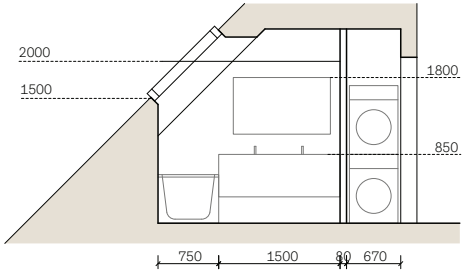


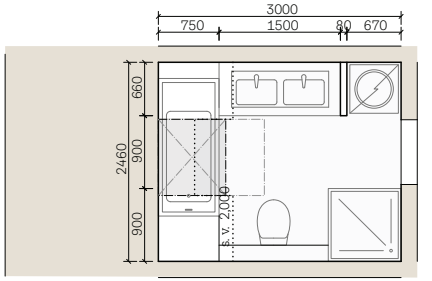
small bathroom with a washing machine





bathroom with a bath under the window



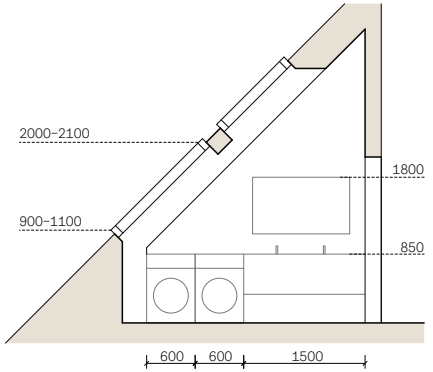


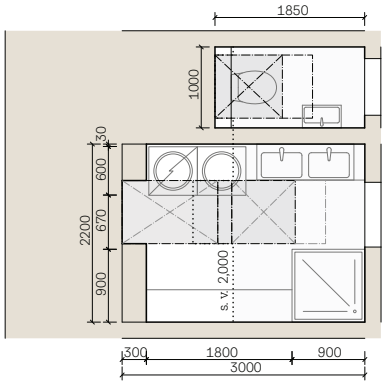
Humidity will be vented as necessary by the automatically operated roof window.

3.5 / Bathroom, toilet

The light intensity of 200 LUX is suitable for showering, washing and changing clothes.

bathroom with a separate toilet, washer and dryer

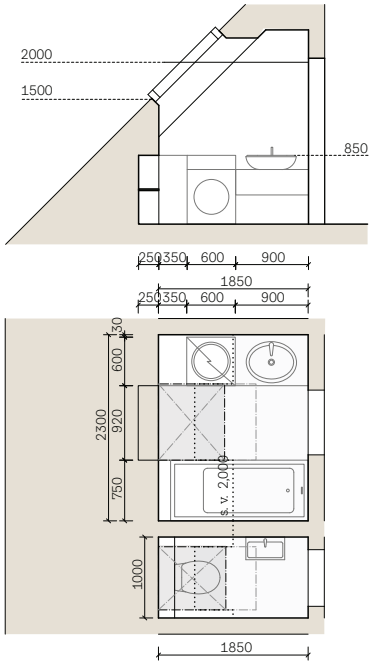




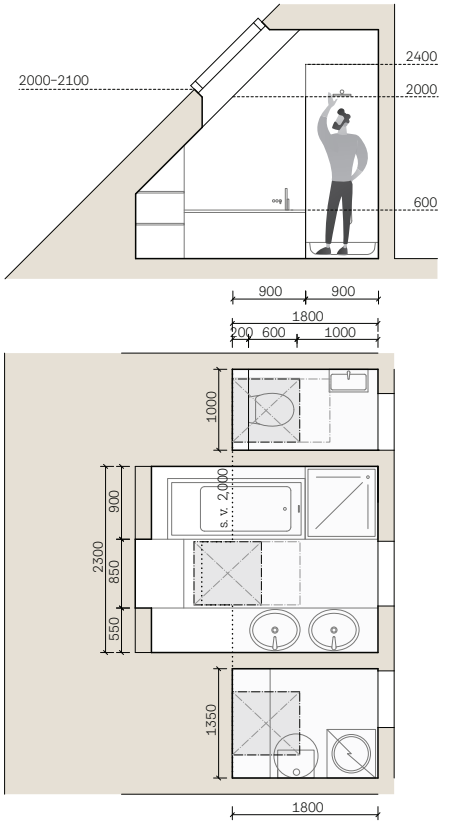
3.5 / Bathroom, toilet

The light intensity of 200 LUX is suitable for showering, washing and changing clothes.

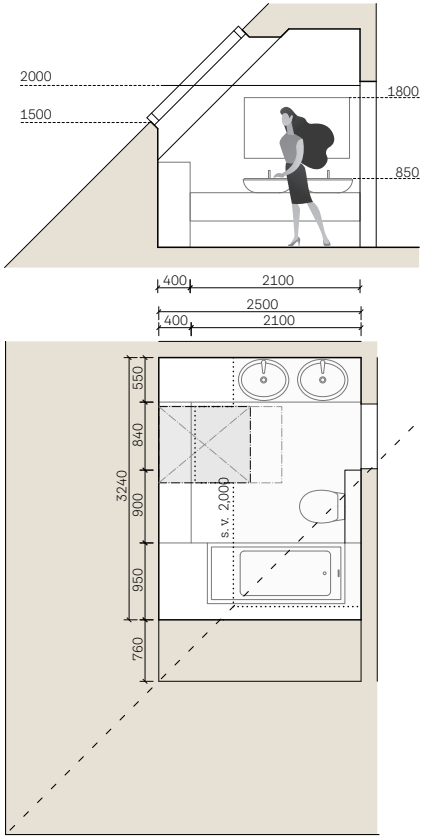
small bathroom with a separate toilet and high attic knee wall



comfortable bathroom with a separate toilet and laundry



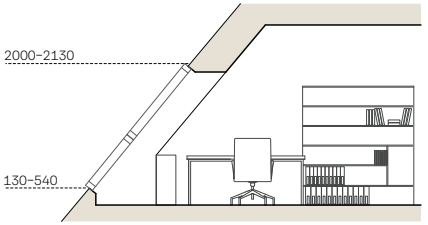
bathroom in the hipped roof

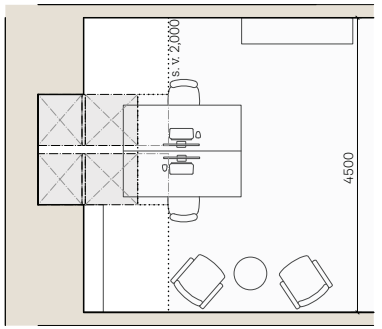


3.6 / Study / Home Office

The lighting recommendation for reading and writing is 500 LUX

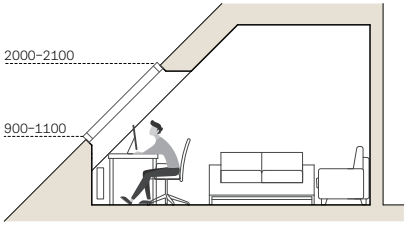
study for two people

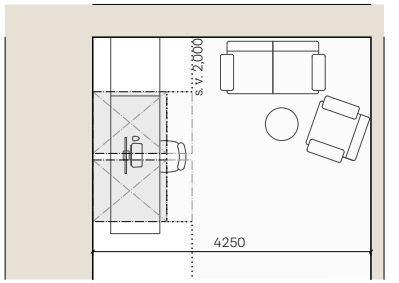




targeted desktop lighting / attractive view

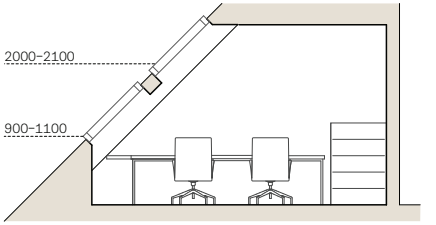
study with a view

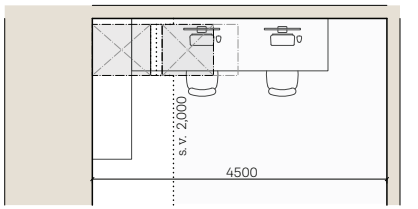




targeted desktop lighting / view / top window control

study for two people



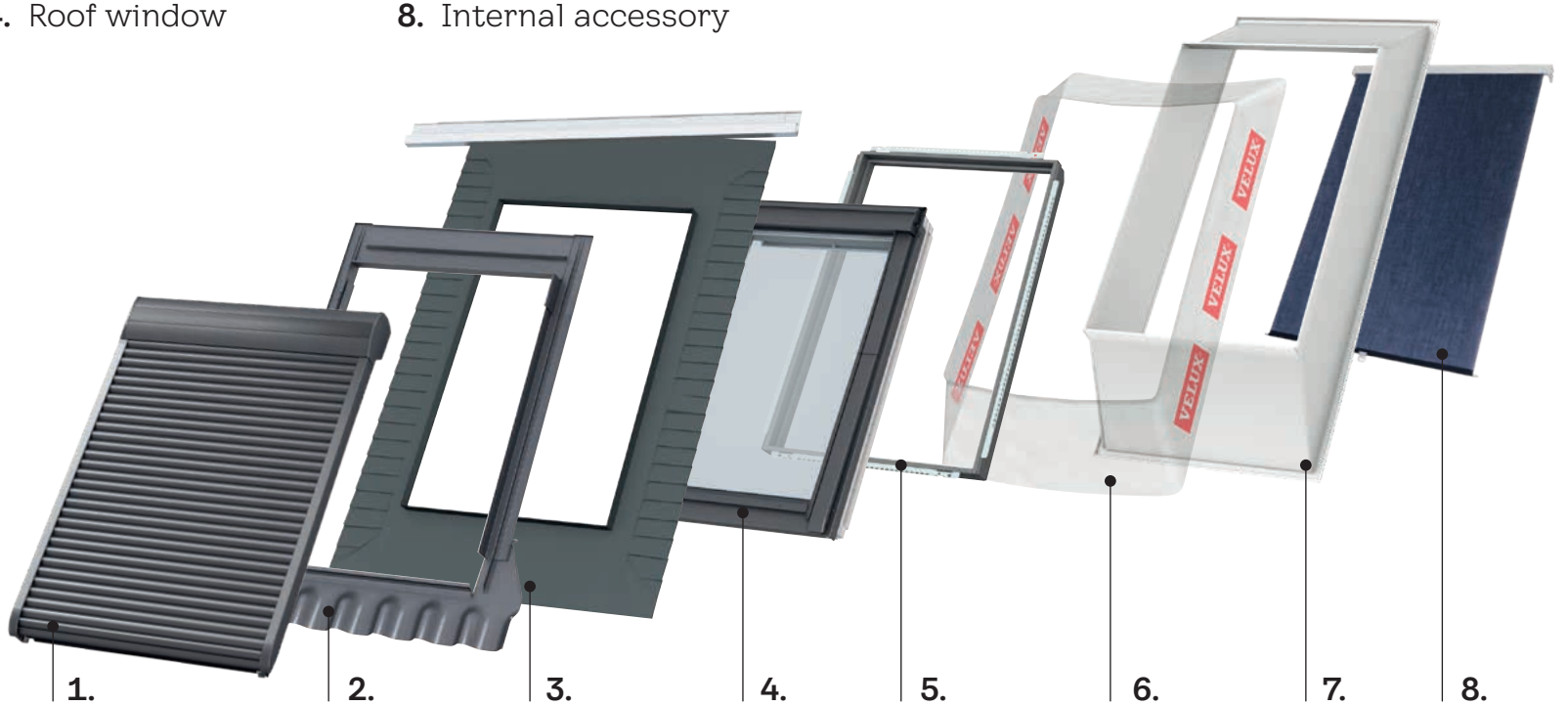


targeted lighting of the desktop / design-attractive organization of places

04/ VELUX products

4.1 / Product portfolio

1. External accessory
2. Flashing
3. Underfelt collar
4. Roof window
5. Thermal insulation frame
6. Vapour barrier collar
7. Lining
8. Internal accessory



4.2 / Roof windows

Types, methods of control

GGL
manual centre-pivot

A standard roof window operated by a top control bar that allows you to open and close the window even with furniture placed underneath it.

- Easy to operate control bar positioned on top of the sash
- Frame and sash made of laminated pine wood with transparent or white painted coating
- Integrated ventilation flap allows airing through closed window
- Various glazing available (more on page 108–109)
- Suggested installation height 90–120 cm from the floor
- Available dimensions on page 106

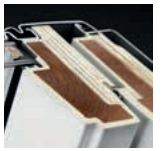
15°–90°

GGU
manual centre-pivot

A standard roof window operated by a top control bar that allows you to open and close the window even with furniture placed underneath it.

- Easy to operate control bar positioned on top of the sash
- Frame and sash made of white lacquered polyurethane moulded around a core of thermally modified timber
- Integrated ventilation flap allows airing through closed window
- Various glazing available (more on page 108–109)
- Suggested installation height 90–120 cm from the floor
- Available dimensions on page 106

15°–90°



4.2 / Roof windows

Types, methods of control

GZL

manual centre pivot

A standard roof window operated by a top control bar that allows you to open and close the window even with furniture placed underneath it.

- Easy to operate control bar positioned on top of the sash
- Frame and sash made of laminated pine wood with transparent coating
- Integrated ventilation flap allows airing through closed window
- 2-Layer glazing (--51) available
- Suggested installation height 90–120 cm from the floor
- Available dimensions on page 106

15°–90°

GZL B

manual centre-pivot

A standard roof window operated by a handle on the bottom sash. Optimal in situations with a high knee wall and no furniture placed underneath.

- Easy to operate handle positioned on the bottom of the sash
- Frame and sash made of laminated pine wood with transparent coating
- Integrated ventilation slot allows airing through closed window
- 2-Layer glazing (--51) available
- Suggested installation height 130–150 cm from the floor
- Available dimensions on page 106

15°–90°

4.2 / Roof windows

Types, methods of control

GLL

manual centre-pivot

A standard roof window operated by a top control bar that allows you to open and close the window even with furniture placed underneath it.

- Easy to operate control bar positioned on top of the sash
- Frame and sash made of laminated pine wood with transparent coating
- Integrated ventilation flap allows airing through closed window
- 3-Layer glazing (--61, --64) available
- Suggested installation height 90–120 cm from the floor
- Available dimensions on page 106

15°–90°

GLL B

manual centre-pivot

A standard roof window operated by a handle on the bottom sash. Optimal in situations with a high knee wall and no furniture placed underneath.

- Easy to operate handle positioned on the bottom of the sash
- Frame and sash made of laminated pine wood with transparent coating
- Integrated ventilation slot allows airing through closed window
- 3-Layer glazing (--61, --64) available
- Suggested installation height 130–150 cm from the floor
- Available dimensions on page 106

15°–90°

4.2 / Roof windows

Types, methods of control

GLU

manual centre-pivot

A standard roof window operated by a top control bar that allows you to open and close the window even with furniture placed underneath it.

- Easy to operate control bar positioned on top of the sash
- Frame and sash made of white lacquered polyurethane moulded around a core of thermally modified timber
- Integrated ventilation flap allows airing through closed window
- 2-Layer (--51) and 3-layer (--61, --64) glazing available
- Suggested installation height 90–120 cm from the floor
- Available dimensions on page 106

15°–90°

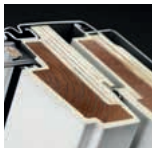
GLU B

manual centre-pivot

A standard roof window operated by a handle on the bottom sash. Optimal in situations with a high knee wall and no furniture placed underneath.

- Easy to operate handle positioned on the bottom of the sash
- Frame and sash made of white lacquered polyurethane moulded around a core of thermally modified timber
- Integrated ventilation slot allows airing through closed window
- 2-Layer (--51) and 3-layer (--61, --64) glazing available
- Suggested installation height 130–150 cm from the floor
- Available dimensions on page 106

15°–90°



4.2 / Roof windows

Types, methods of control

GPL
manual top hung pivot window

A premium roof window operated by a handle on the bottom sash to open the window outwards up to 45°, allowing the panoramic view. Optimal in situations with no furniture placed underneath.

- Easy to operate handle positioned on the bottom of the sash
- Frame and sash made of laminated pine wood with transparent or white painted coating
- Integrated ventilation flap allows airing through closed window
- Various glazing available (more on page 108–109)
- Suggested installation height 90–120 cm from the floor
- Available dimensions on page 106

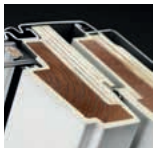
15°–55°

GPU
manual top hung pivot window

A premium roof window operated by a handle on the bottom sash to open the window outwards up to 45°, allowing the panoramic view. Optimal in situations with no furniture placed underneath.

- Easy to operate handle positioned on the bottom of the sash
- Frame and sash made of white lacquered polyurethane moulded around a core of thermally modified timber
- Integrated ventilation flap allows airing through closed window
- Various glazing available (more on page 108–109)
- Suggested installation height 90–120 cm from the floor

15°–55°



4.2 / Roof windows

Types, methods of control

GTL

manual top hung pivot window

A roof window operated by a handle on the bottom of the sash to open the window outwards up to 67°. Due to bigger opening angle, it can be used as an escape opening.

- Easy to operate control bar positioned on top of the sash
- Frame and sash made of laminated pine wood with transparent or white painted coating
- Integrated ventilation flap allows airing through closed window
- 2-Layer (--70) and 3-layer (--66) glazing available
- Suggested installation height 90–120 cm from the floor
- Available dimensions on page 106

15°–55°

GTU

manual top hung pivot window

A roof window operated by a handle on the bottom of the sash to open the window outwards up to 67°. Due to bigger opening angle, it can be used as an escape opening.

- Easy to operate control bar positioned on top of the sash
- Frame and sash made of white lacquered polyurethane moulded around a core of thermally modified timber
- Integrated ventilation flap allows airing through closed window
- 2-Layer (--70) and 3-layer (--66) glazing available
- Suggested installation height 90–120 cm from the floor

15°–55°

4.2 / Roof windows

Types, methods of control

GGL/GGU/GLL/GLU

Electric/solar centre-pivot

Electric or solar powered centre-pivot roof window is a solution that operates remotely with the wall switch. It offers comfortable living and energy-efficient indoor climate.

- Fully integrated motor which runs almost without a sound
- Rain sensor automatically closes the window in case of rain
- Easy to operate with included basic wall switch
- Possible upgrade to intelligent home control options
- Solar battery charges even in cloudy weather

15°–90°

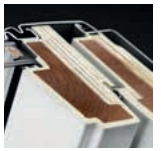
GPU

Electric top-hung

Electric operated top-hung roof window is designed for a panoramic view. When opened it gives a balcony-like feeling.

- Two fully integrated motors which run almost without a sound
- Rain sensor automatically closes the window in case of rain
- Easy to operate with included basic wall switch
- Possible upgrade to intelligent home control options
- Full 45° opening for stunning views
- Available in dimensions FK06, FK08, MK06, MK08, PK06, PK08, SK06 and SK08

15°–65°



Intelligent home control

To unlock the full potential of solar or electric roof windows, blinds and shutters a complete range of intelligent home controls is available. From VELUX Wall switch to the fully automated VELUX ACTIVE solution for optimal indoor climate. Experience the ease of airing out your home and adjusting natural light and temperature with the simple touch of a switch or your smartphone.

Remote operation

VELUX wall switch (KLI 310–313)

Pre-paired for easy control

- Simple remote operation of one product within the home

VELUX Touch (KLR 300)

Indoor comfort at your fingertips

- No Wi-Fi operation – remote operation within the home
- Operation of multiple products
- Products grouping
- Ventilation timer
- Quick and easy access to frequently used features
- Accessible to all household members

Smart operation

VELUX App Control (KIG 300)

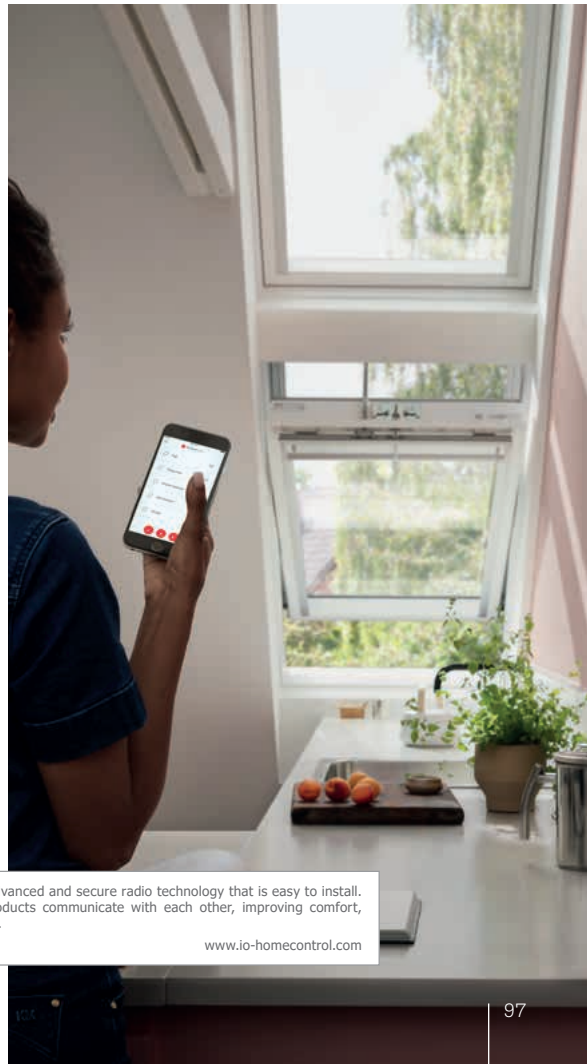
Control your indoors from anywhere

- Wi-Fi operation – remote operation from anywhere via smartphone
- Scheduling to personal preferences
- Operation of multiple products
- Products grouping
- Ventilation timer
- Voice control
- Can be upgraded to VELUX ACTIVE
- Compatible with Apple and Google

VELUX ACTIVE with NETATMO (KIX 300)

Everyday home improvement

- Contains all VELUX App Control features
- Indoor climate control with sensor-based automation
- Use of weather data
- Live indoor sensor data



io-homecontrol® provides advanced and secure radio technology that is easy to install. io-homecontrol® labelled products communicate with each other, improving comfort, security and energy savings.

www.io-homecontrol.com

4.2 / Roof windows

Types, methods of control

GIL

Sloped extention

Additional roof window element that blends seamlessly with the roof window and fills the sloping space between the floor and the bottom of the roof window. Optimal in case of no knee wall.

- Fixed roof window element
- Frame and sash made of laminated pine wood with transparent or white painted coating
- Extends the view to the outdoors
- Various glazing available (more on page 108–109)
- Must be installed in connection with the roof window
- Available dimensions on page 106

15°–90°

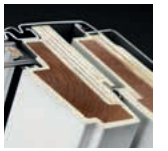
GIU

Sloped extention

Additional roof window element that blends seamlessly with the roof window and fills the sloping space between the floor and the bottom of the roof window. Optimal in case of no knee wall.

- Fixed roof window element
- Frame and sash made of white lacquered polyurethane moulded around a core of thermally modified timber
- Extends the view to the outdoors
- Various glazing available (more on page 108–109)
- Must be installed in connection with the roof window
- Available dimensions on page 106

15°–90°



4.2 / Roof windows

Types, methods of control

VFE

Vertical element

A vertical roof window element that blends seamlessly with the roof window and fills the vertical space in knee wall between the floor and the bottom of the roof window. Optimal in case of a high knee wall.

- Easy to operate handle positioned on the top of the sash
- Frame and sash made of laminated pine wood with transparent or white painted coating
- Extends the view to the outdoors
- Various glazing available (more on page 108–109)
- Must be installed in connection with the roof window
- Available dimensions on page 106

15°–55°

VIU

Vertical element

A vertical roof window element that blends seamlessly with the roof window and fills the vertical space in knee wall between the floor and the bottom of the roof window. Optimal in case of a high knee wall.

- Fixed vertical window element
- Frame and sash made of white lacquered polyurethane moulded around a core of thermally modified timber
- Extends the view to the outdoors
- Various glazing available (more on page 108–109)
- Must be installed in connection with the roof window
- Available dimensions on page 106

15°–55°

4.2 / Roof windows

Types, methods of control

GEL + VEA/VEB/VEC

Roof terrace

Two piece element that allows exit to terrace consists of a top-hung element GEL and lower side-hung element VEA/VEB/VEC.

- GEL opens 45° outwards
- VEA opens to the left, VEB to the right (viewed from the outside)
- VEC fixed
- Frame and sash made of laminated pine wood with transparent or white painted coating
- Integrated ventilation flap allows airing through closed window
- 3-layer glazing available (--65) (U_w = 1,0 W/m²K)
- Available dimensions on page 106

GDL

Roof balcony

Two piece element that opens into balcony consists of a top-hung roof window and a bottom-hung folding element.

- The upper part opens 45° outwards and the lower element pushed outwards to vertical position
- Frame and sash made of laminated pine wood with transparent or white painted coating
- Integrated ventilation flap allows airing through closed window
- 3-layer glazing available (--66) (U_w = 1,3 W/m²K)
- Available dimensions on page 106

4.2 / Roof windows

Types, methods of control

EAW/EAS

Mini dormer

Mini dormer places VELUX roof windows at a steeper angle in the roof compared to the roof pitch. It allows much more daylight to enter than with a single traditional dormer window.

- EAW – for profiled roofing material
- EAS – for flat roofing material
- Increases the angle of the roof window by 10°
- Possible installation of 1, 2 or 3 roof windows side by side
- Can be combined with manual, solar or electrical roof windows
- Increases the height and creates extra space

10°–75°

EBW

Dormer

The ultimate dormer solution and the best alternative to a traditional dormer. It transforms any attic into spacious, bright and airy room.

- For profiled roofing material
- Possible installation of 4 roof windows (sizes MK06, PK06 and SK06) or 6 roof windows (sizes MK06) side by side and over/under
- Can be combined with manual, solar or electrical roof windows
- Increases the height and creates extra space

35°–75°

4.2 / Roof windows

Types, methods of control

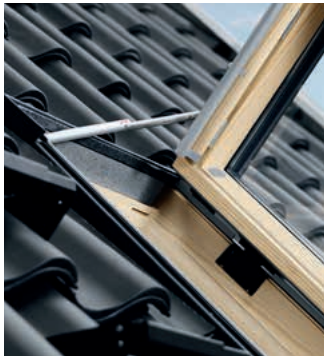
GXL

Roof exit

A roof window equipped with side hinges and operated by a handle on the side of the sash. By opening outwards, it provides safe and convenient access to the roof from the living space.

- Easy to operate handle positioned on the side of the sash
- Frame and sash made of laminated pine wood with transparent or white painted coating
- Integrated ventilation flap allows airing through closed window
- 2-Layer (--70) and 3-layer (--66) glazing available
- Available dimensions on page 106

15°–85°



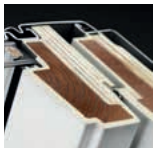
GXU

Roof exit

A roof window equipped with side hinges and operated by a handle on the side of the sash. By opening outwards, it provides safe and convenient access to the roof from the living space.

- Easy to operate handle positioned on the side of the sash
- Frame and sash made of white lacquered polyurethane moulded around a core of thermally modified timber
- Integrated ventilation flap allows airing through closed window
- 2-Layer (--70) and 3-layer (--66) glazing available
- Available dimensions on page 106

15°–85°



4.2 / Roof windows

Types, methods of control

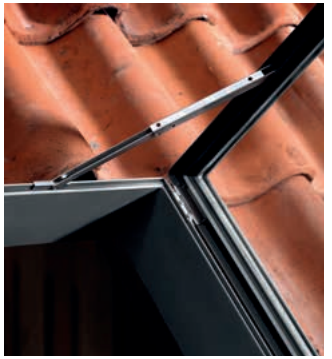
GVT

Roof exit

A roof window designed for use in uninhabited rooms where easy access to the roof and regular ventilation is needed.

- Easy to operate handle positioned on the side of the sash
- Frame is made of weatherproof black polyurethane and the sash is from maintenance-free aluminium
- Integrated flashing
- Three ventilation positions for constant low-level air flow
- 2-Layer glazing (--59) available
- Not possible to install into roofs with flat roofing plate
- Available only in size 540x830 mm

20°–65°



GBL

manual centre-pivot

A standard roof window for low pitched roof operated by a top control bar that allows you to open and close the window even with furniture placed underneath it.

- Easy to operate control bar positioned on top of the sash
- Frame and sash made of laminated pine wood with white painted coating
- Integrated ventilation flap allows airing through closed window
- 3-layer glazing available (--15) (U_w = 1,1 W/m²K)
- Possible upgrade to solar-powered motor with remote-control
- Available dimensions on page 106

10°–20°

4.2 / Roof windows

Types, methods of control

GGL/GGU --40

Smoke ventilation window

A smoke ventilation roof window is designed to quickly release smoke and excess heat. It can also be open to let in fresh air for improved indoor comfort.

- Available for roof window types GGL and GGU
- Operated via the control system for smoke ventilation (KFC 210/220, KFX 210)
- When opened the sash rotates 90°
- Tested according to EN 12101-2
- 2-layer (--70) and 3-layer (--66) glazing available
- Available with or without deflector (KFD)
- No exterior blinds possible

15°–90°

KFX/KFC

Smoke ventilation accessories

Control systems and accessories for smoke ventilation roof windows.

KFX 210

- Includes a control unit, a smoke detector and an additional break-glass point.
- Controls up to 4 smoke ventilation windows GGL/GGU
- Includes 72-hour battery pack

KFC 210/220

- Control unit with integrated break-glass point and ventilation switches
- KFC 210 – controls up to 4 smoke ventilation windows GGL/GGU
- KFC 220 – controls up to 8 smoke ventilation windows GGL/GGU includes 72-hour battery pack

KFC 210/220

KFK 100
Break-glass unit

KFK 200
Ventilation switch

KFA 100
Smoke detector

KLA 200
Rain sensor

Window size *Dimensions (cm)*	MK04 *78x98*	MK06 *78x118*	MK08 *78x140*	PK06 *94x118*	PK08 *94x140*	SK06 *114x118*	SK08 *114x140*	UK04 *134x98*	UK08 *134x140*
Aerodynamic smoke ventilation area with KFD (Aa, m^2)	0,36	0,46	0,59	0,53	0,68	0,61	0,77	0,54	0,83
Aerodynamic smoke ventilation area without KFD (Aa, m^2)	0,19	0,29	0,43	0,30	0,46	0,28	0,44	0,16	0,38
Geometric smoke ventilation area (Av, m^2)	0,63	0,77	0,92	0,95	1,14	1,17	1,40	1,13	1,67

4.2 / Sun tunnels

Rigid and flexible

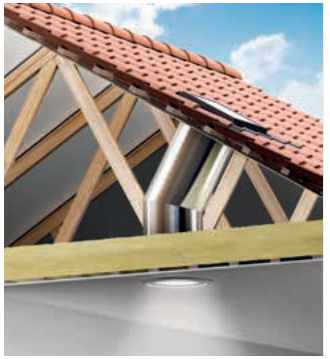
TWR/TLR

Rigid sun tunnel

A sun tunnel directs the natural light to rooms and corridors where installation of a roof window is not possible. Ideal for wardrobe, toilet, bathroom.

- Rigid aluminium tunnel with length from 1,45 to 1,7 m
- Available extensions (ZTR) for tunnel length up to 6 m
- High reflective coating that delivers up to 98 % daylight reflectivity
- Integrated flashing
- Available in 25 cm and 35 cm diameters
- Available light kit (ZTL) that turns sun tunnel into lamp (LED tech.)

15°–60°



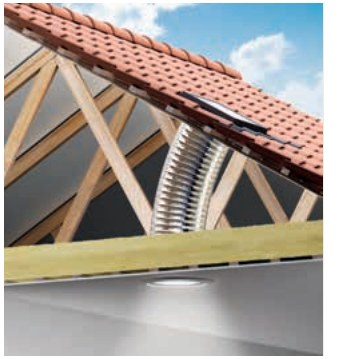
TWF/TLF

Flexible sun tunnel

A sun tunnel directs the natural light to rooms and corridors where installation of a roof window is not possible. Ideal for wardrobe, toilet, bathroom.

- Flexible fiberglass tunnel with length from 0,9 to 2 m
- High reflective coating
- Integrated flashing
- Available in 35 cm diameter
- Available light kit (ZTL) that turns sun tunnel into lamp (LED tech.)

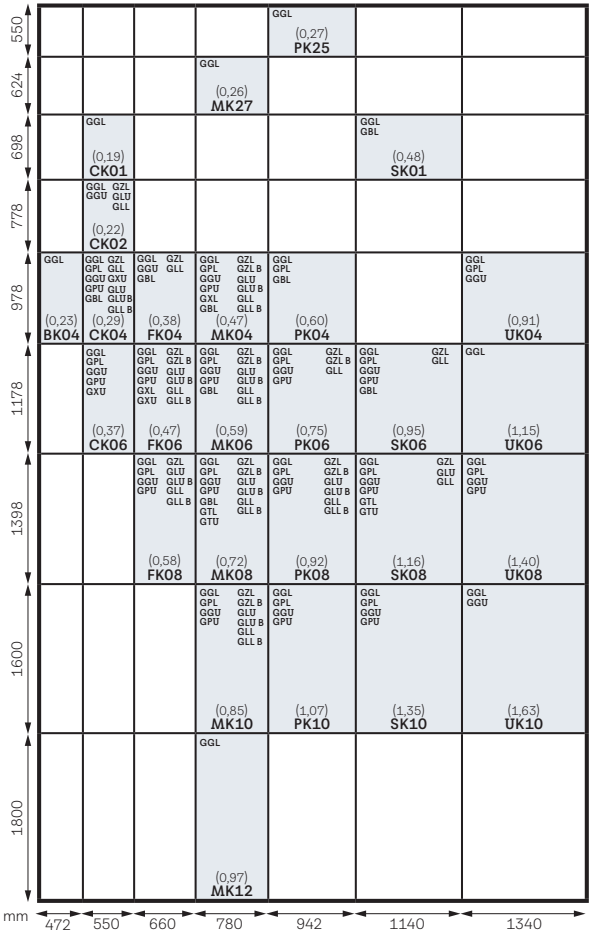
15°–60°



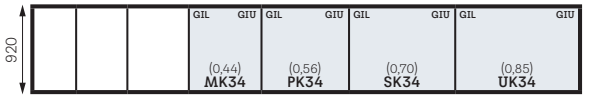
4.2 / Roof windows

Dimension tables

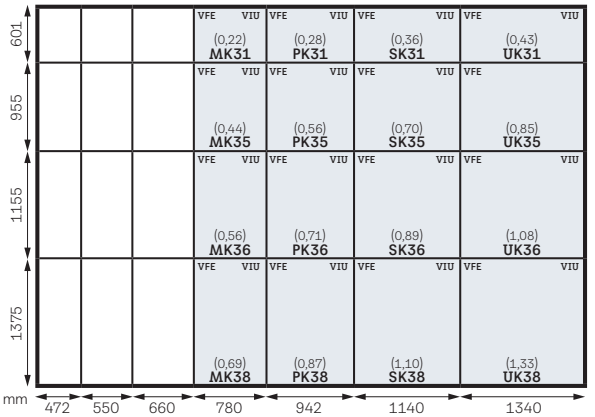
Roof windows



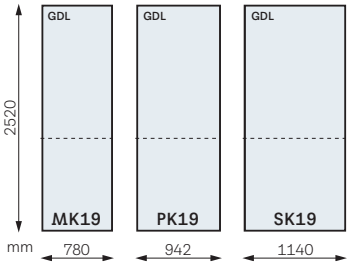
Additional windows



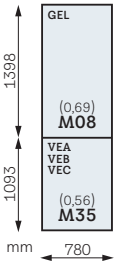
Vertical additional windows



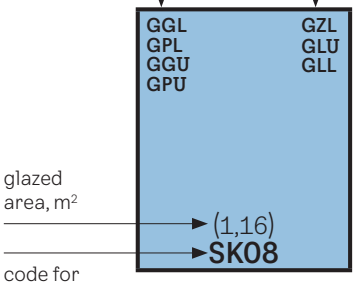
Roof balcony GDL



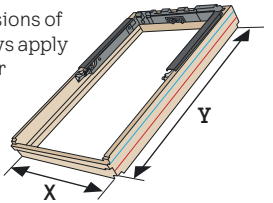
Roof terrace GEL



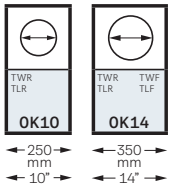
VELUX roof window type



The dimensions of the windows apply to the outer frame of the roof window



Suntunnels



Photographer: Miran Kambič

4.2 / Roof windows

Pane options

The roof window energy balance

When choosing window glazing the focus is often only on U_w-value but the g-value should also be taken to account, as both values are important element of energy balance of every window.

The term energy balance is used to describe the energy characteristics of a window – the balance between solar gain and heat loss. Energy balance is calculated as the sum of usable solar gain through the window during the heating season minus any heat loss.

Energy balance is more accurate way of describing the energy characteristics of a window than just the U_w-value, as energy balance includes both U_w-value and g-value to provide a more complete picture

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

			Double glazing		
Glazing			51 	70 	70Q 
Roof windov model			**GZL, GZL-B, GLU, GLU-B**	**GGL, GGU, GPL, GPU, GTL, GTU, GIL, GIU, VFE, VIU, GXL, GXU**	**GGL, GGU, GPL, GPU**
	Heat insulation			✓	✓
	Sound insulation			✓	✓
	Rain noise reduction			✓	
	Safety lamination			✓	✓
	Toughened glass		✓	✓	✓
	UV filter			✓	✓
	Easy-to-clean				
	Anti-dew				
U_w	Heat insulation (whole window)	(W/m²K)	1,3	1,3	1,3
U_g	Heat insulation (insulating glass)	(W/m²K)	1,0	1,0	1,0
g	Total solar energy transmittance		0,46	0,46	0,45
R_w	Sound reduction	(dB)	31	35	35
	Air permeability class		3	4	4
	Gas filling		Argon	Argon	Argon
T_v	Light transmittance		0,69	0,68	0,68
T_{uv}	UV transmittance		0,22	0,05	0,05
	Burglary protection		–	P2A	P4A
	Security class		–	1B1	1B1

Triple glazing

61 	64 	68 	66 	62 
GLL, GLL-B, GLU, GLU-B	GLL, GLL-B GLU, GLU-B	GGL, GGU, GPL, GPU, GIL, GIU, VFE, VIU	GGL, GGU, GPL, GPU, GTL, GTU, GDL, GIL, GIU, VFE, VIU, GXL, GXU	GGL, GGU, GPL, GPU, GIL, GIU, VFE, VIU
✓	✓	✓	✓	✓
✓	✓	✓	✓	✓
	✓	✓	✓	✓
		✓	✓	✓
✓	✓	✓	✓	✓
		✓	✓	✓
	✓		✓	
			✓	✓
1,1	1,0	1,1	1,0	0,96
0,6	0,6	0,7	0,6	0,5
0,50	0,46	0,49	0,44	0,47
32	35	35	37	42
4	4	4	4	4
Argon	Argon	Argon	Argon	Krypton
0,68	0,62	0,68	0,62	0,68
0,22	0,16	0,05	0,05	0,05
–	–	P2A	P2A	P2A
–	–	1B1	1B1	1B1

Glazing features

Heat insulation
Forget what it's like outside and enjoy pleasant indoor temperature. The lower the U-value, the better.

Sound insulation
The less noise from the outside, the more peace and comfort in your home. The higher the R_w-value, the better.

Rain noise reduction
Enjoy undisturbed sleep without being woken by rain noise on the window.

Laminated safety glass
Prevents glass from falling into the room in case of accidental breakage.

Hardened glass
Adds strength to the outer pane to protect from extreme weather such as heavy storms and hail.

UV filter
Protects your interior furnishings from fading due to the sun's harmful UV rays.

Easy-to-clean coating
Dirt-repellent coating lets you spend less time cleaning and more time enjoying the view.

Anti-dew coating
Hydrophobic coating reduces the amount of dew that can form on the outside for a clearer view.

4.3 / Roof window installations

The flashing system

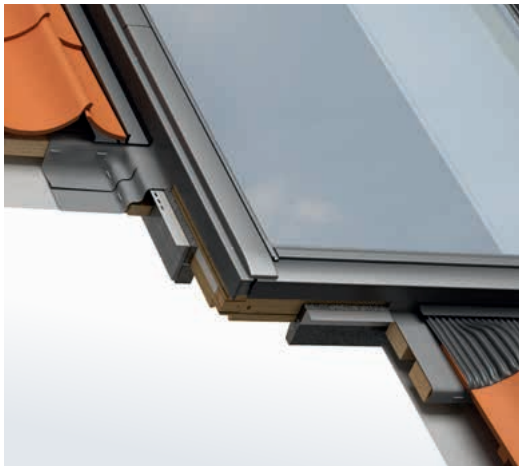
1. Flashing
2. Underfelt collar
3. Thermal insulation frame
4. Vapour barrier collar

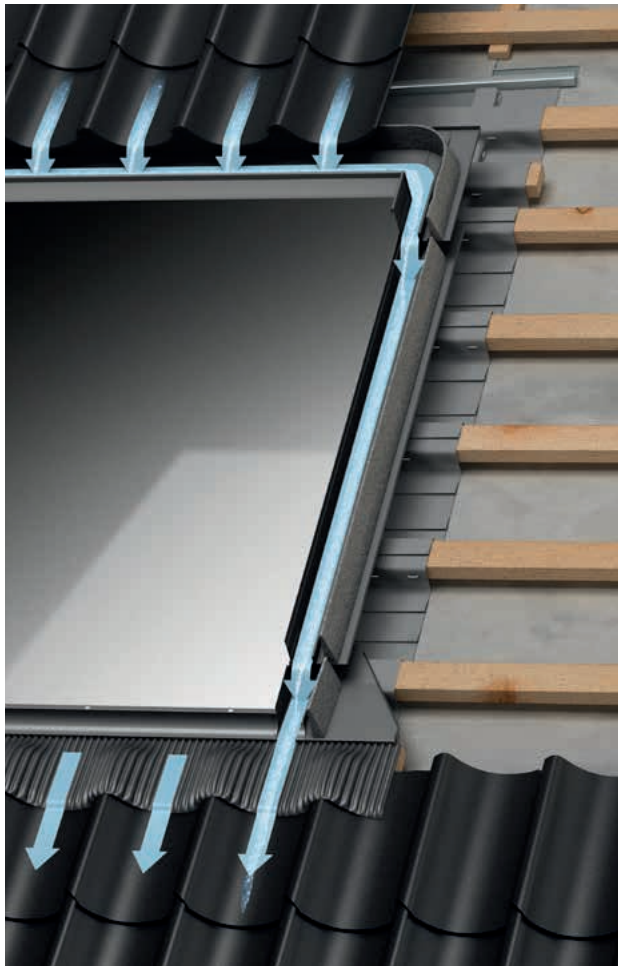
4.3 / Roof window installations

Thermal insulation and watertightness

VELUX products are designed to meet the highest quality standards and undergo through testing. All roof windows are tested to withstand a year's rainfall in just 15 minutes. They are also opened and closed 25.000 times – the equivalent of opening and closing the window every day for 68 years.

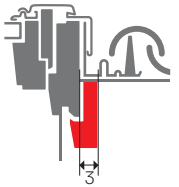
Products for installing roof windows in the roof structure (flashing, insulation collar, underfelt collar) are available for every roofing material and roof slopes between 15° and 90°. They have been carefully tested to achieve good thermal insulation and watertight connection between the roof window and the roof construction.





4.3 / Roof window installations

Flashing



Note: 3 cm distance is needed both sides between the window frame and the rafters for the insulation frame

Flashings for standard installation

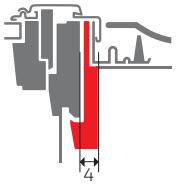
This standard level of installation is in a wide range of different types for all roofing materials. It ensures tightness and a perfect match with the roof.

EDW*/EKW**
For profile roofing materials up to 120 mm. Suitable for interlocking slate, thatch and profiled sheeting.

EDT*/EKT**
For flat tiles 15–40 mm thick. Designed for a neater finish.

EDQ*/EKQ**
For click metal roofs with standing seams between 25–35 mm.

EDS*/EKS**
designed for flat roof slates up to 16 mm (2×8 mm) thick.



Note: 4 cm distance is needed both sides between the window frame and the rafters for the insulation frame

Flashing for flush installation

The flush level of installation provides a more aesthetic design on the roof. It is less exposed to the effect of weather conditions, therefore improving isolation and supporting energy savings.

EDJ*/EKJ**
For profiled roofing materials up to 90 mm

EDN*/EKN**
For flat roof slates up tp 16 mm (2×8 mm) thick

* flashing for single installation
** flashing for combi installation

Freedom to arrange multiple window combinations

Where there is a room for one roof window, there is often room for two.
The VELUX Combi solution features adjacent roof windows that create a stunning architectural feature.

If you want to predict roof windows in desired combinations, the combination flashing system lets you do so efficiently and aesthetically. The system can combine all the main roof window types however you prefer.

It is easy to combine multiple roof windows to expand view and bring more daylight and fresh air into a room or a home.

- Create a solution that meets your specific needs
- achieve enhanced views and more daylight
- give a room a feeling of spaciousness

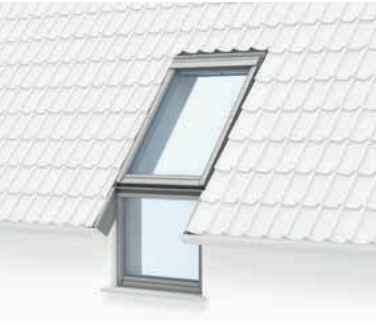
Duo combination next to each other with rafters / Side-by-Side solution without rafters

Trio in combination next to each other with rafters

Combination over the roof ridge

Duo combination above each other

Combination in duo above and next to each other

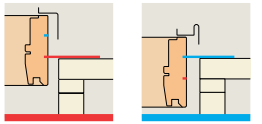


Roof window with vertical element

4.3 / Roof window installations

Flashing

Roof windows	120 mm 15°–90°	2×8 mm 15°–90°	2×8 mm 15°–90°	16 mm 15°–90°	25–40 mm 15°–90°	15°–90°	2×19 mm 25°–90°	2×8 mm 20°–90°	90 mm 20°–90°
	EDW	EDS	EDL		EDQ	EDE	EDB	EDN	EDJ
	EBW	EBS	EBL						
	EKW	EKS	EKL			EKE	EKB	EKN	EKJ
	EKW ---7- + EDW	EKS ---7- + EDS	EKL ---7- + EDL			EKE ---7- + EDE	EKB ---7- + EDB	EKN ---7- + EDN	EKJ ---7- + EDJ
	EFW	EFS	EFL					EFN (20°–55°)	EFJ (20°–55°)
	EFW --22-/--32-	EFS --22-/--32-	EFL --22-/--32-					EFN --22-/--32- (20°–55°)	EFJ --22-/--32- (20°–55°)
	EDW*	EDS*	EDL*			EDE*			
	ETW--00 + EDW	ETS--00 + EDS	ETL--00 + EDL			ETE + EDE		ETN --00 + EDN	ETJ --00 + EDJ
GDL GIL GIL	ETW --00 + ETW --00- + EKW	ETS --00 + ETS --00- + EKS	ETL --00 + ETL --00- + EKL					ETN --00 + ETN --00- + EKN	ETJ --00 + ETJ --00- + EKJ
	EKX --88							EKX --88 (20°–55°)	
	EEW + EEX**	EES + EEX**	EEL + EEX**						
10°	EAW (10°–75°)	EAS (20°–75°)							
a=160 mm	EAW 6-21E/6-31E (10°–75°)	EAS 6-21E/6-31E (20°–75°)							



Standard installation

VELUX standard since 2001.
Mounting brackets are fixed to the bottom and top frames.

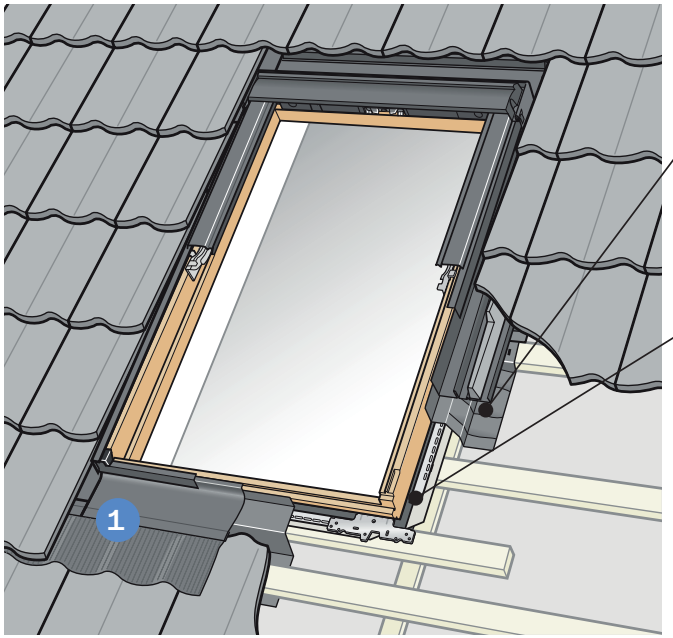
Flush installation

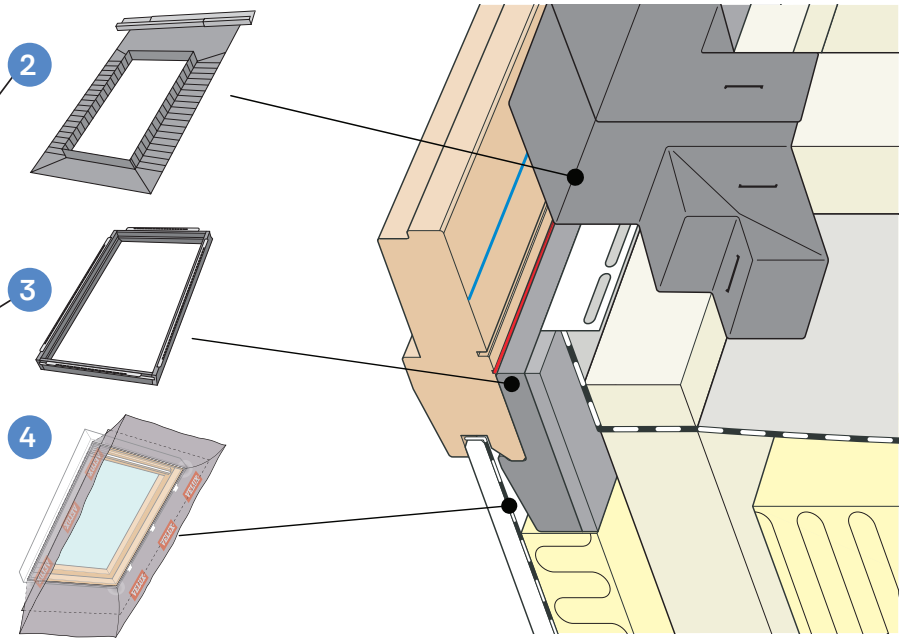
Roof window installed 40 mm deeper into the roof construction compared to installations in red level.
Mounting brackets are fixed to the side frames.

* MK08/PK19/SK19
** M08

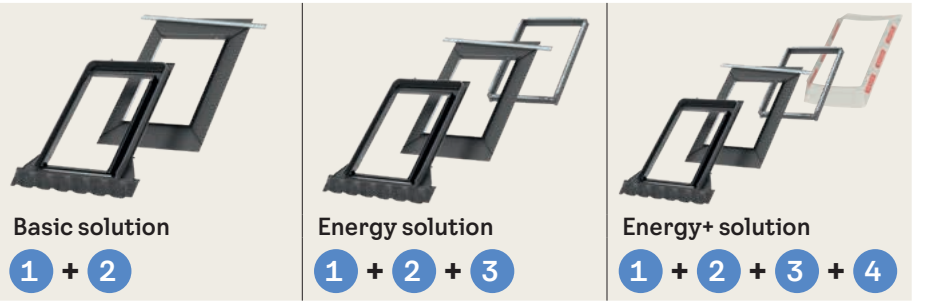
4.3 / Roof window installations

Installation solutions





1. Roof window flashing
2. Underfelt collar BFX
3. Insulation frame BDX
4. Vapour barrier BBX



4.3 / Roof window installations

Installation products

BFX
Underfelt collar with drainage gutter

The underfelt collar ensures a perfect fit and watertight seal between the roof window, battens and the roofing underfelt

- Easy installation
- Made of diffusive material which minimizes the risk of condensation
- An adjustable and self-supporting drainage gutter leads the water awayfrom the upper part of the roof window ifthere is a leak above

BDX
Insulation frame

Insulation frame insulates around the roof window frame, reducing heat loos and eliminating cold bridges

- Made of PE (polietilene) foam which ensures tight, energy efficient installation to the roof construction
- Two layers of foam, flexible and rigid, ensure a tight, energy-efficient installation to the roof construction

BBX
Vapour barrier

The vapor barrier collar guarantees a vapour and airtight solution and prevents condensation from forming in the roof construction

- Perfect fit to the dimensions of the roof window without cutting
- Pre fitted rubber seals along the entire sides guarantee a vapour-tight solution
- Pre-installed welded corners for tightness
- For roof thicknesses up to 530 mm

4.4 / Exterior blinds and shutters

Heat control

Outdoor protection, indoor comfort

Sunrays are turned into heat when they pass through the window-pane and hit the interior. The effect improves as the window is raised from a 90° angle toward a pitch, matching the incoming light from the sun. Heat transmittance in terms of heat loss admittedly increases with a more horizontal window pitch, but the passive solar gain increases even more, improving the g-value to create an overall positive energy balance.
The free heating is welcome as a supplement to the home's mechanical heating system, but it needs to be controlled to avoid unpleasant temperatures.

Temperature control
Exterior blinds and shutters create a shield between the sun's rays and the roof window and thus reduce the amount of heat entering the room. This helps to keep the indoor temperature cooler, reducing the need for air conditioning and lowering energy costs.

Drop in indoor temperature in a simulated room*

	2,1 °C	3,8 °C	4,9 °C
Blind/shutter	Blackout blind (DKL, DML, DSL)	Awning blind (MHL, MML, MSL)	Soft/roller shutter (SSS, SML, SSL)

Based on VELUX 2023 study on impact of accessories during summer for a simulated south-oriented room with two roof windows.

* Average results for the most sold VELUX GGL IGU 66 on two roof windows MK06 (780x1180 mm) during summer (July–August) in 13 cities in region CEE

MHL/MML/MSL

Awning blind

Beyond good heat protection the awning preserves your view and lets in light. Ideal where you'd like to enjoy cooler temperatures or reduce glare on sunny days.

- Effective heat reduction, up to 76%
- Transparent fabric – let in lightand retains the view to the outside
- Available in manual (MHL), electric (MML) or solar (MSL) version with remote control

4.4 / Exterior blinds and shutters

Heat control

SSS
Soft shutter

Beat the heat with the 2-in-1 soft shutter that offers both great heat protection and blackout

- Great heat protection, up to 93%
- Blackout effect
- Effective winter insulation
- Tough durable polyester fabric
- Available only in solar (SSS) version with remote control

SML/SSL
Roller shutter

Complete year-round solution provides top-of-the line heat protection and blackout capabilities, enabling you to stay cool in summer, isolate your home in winter and sleep soundly through stormy nights

- Best heat protection up to 96%
- Blackout effect
- Effective winter insulation
- Made from lacquered aluminium
- Rain noise reduction
- Available in electric (SML) or solar (SSL) version with remote control

4.5 / Interior blinds

Light control

DKL/DML/DSL

Blackout roller blind

For darkness anytime. Ideal for bedrooms to ensure good night's sleep or daytime nap.

- Light-proof fabric for perfect blackout
- Easily set on any position from top down
- Available with white or brushed aluminium side rails
- Available in manual (DKL), electric (DML) or solar (DSL) version

FHC/FMC/FSC

Blackout energy pleated blind

Unique design provide both blackout and insulation all year round. Perfect for bedrooms that need blackout at night and extra insulation.

- Light-proof fabric for perfect blackout
- Dual control bars allow you to adjust the blind from both the top and the bottom of the roof window (manual version only)
- Available with white or brushed aluminium side rails
- Available in manual (FHC), electric (FMC) or solar (FSC) version

DFD

Duo blackout roller blind

Is a blackout roller and a translucent pleated blind in one. Ideal for any room.

- Light-proof fabric for blackout combined with pleated white transparent add-on to soften the light
- Easily set on any position of each of both parts for the desired light control
- Available with white or brushed aluminium side rails
- Available only in manual version

4.5 / Interior blinds

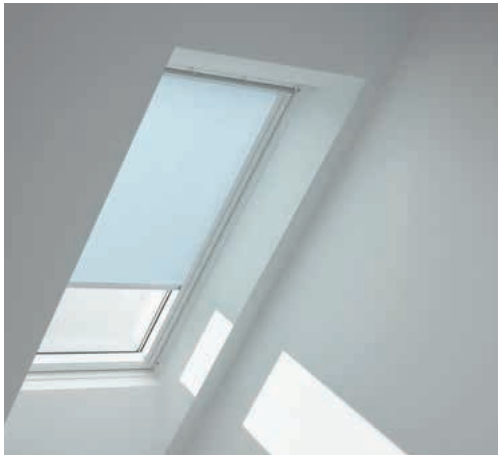
Light control

RFL/RML/RSL/RHL

Translucent roller blind

Provides basic privacy whilst still allowing in natural light. Perfect for living room, offices and playrooms.

- Translucent fabric which softens the incoming light
- Easily set on any position from top down
- Available with white or brushed aluminium side rails
- Available in manual (RFL), electric (RML) or solar (RSL) version
- Available also in basic design with hooks (RHL)



FHL/FML/FSL

Translucent pleated blind

Decorative solution that provides privacy whilst diffusing soft natural light into your room. Perfect for living room, offices and playrooms.

- Translucent fabric which softens the incoming light
- Dual control bars allow you to adjust the blind from both the top and the bottom of the roof window (manual version only)
- Available with white or brushed aluminium side rails
- Available in manual (FHL), electric (FML)or solar (FSL) version

PAL

Venetian blind

A classic solution for light dimming and privacy. Perfect for bathrooms and kitchens.

- Moisture resistant
- Unique design with cordless operation – use the slider to adjust the slates for the perfect light and view
- Available with white or brushed aluminium side rails
- Available only in manual version

4.6 / Accessories

Manual control

ZIL

Insect screen

Insect screen lets in fresh air without the unwanted visitors. It is simple to operate and can be combined with any other VELUX interior or exterior blind. It has transparent net fabric and stows neatly away in the slim top casing when not in use.

- 100% insect proof material
- transparent net fabric doesn't obstruct view
- durable fabric for long-lasting performance

		A						
	mm	0–438	439–530	531–640	641–760	761–922	923–1120	1121–1285
B	0–1600	ZIL BK04	ZIL CK02	ZIL FK08	ZIL MK06	ZIL PK25	ZIL SK06	ZIL UK04
	1601–2000		ZIL CK06	ZIL FK08	ZIL MK06	ZIL PK06	ZIL SK06	ZIL UK10
	2001–2400			ZIL FK08	ZIL MK10	ZIL PK10	ZIL SK10	ZIL UK10

ZCT

Control rod

Control rod is used for operation of VELUX manually operated roof windows, interior blinds and insect screens installed out of reach.

- **ZCZ 080K** – control rod for centre-pivot windows, 80 cm long
- **ZCT 200K** – telescopic rod for centre-pivot windows, 100 cm long, can be extended up to 180 cm
- **ZCZ 112** – control rod for bottom-operated windows, 120cm long
- **ZOZ 095** – adaptor for control rod for windows GZL, GLL GLU

4.6 / Accessories

Electric control

KMG 100K WWA

Mains powered moor

Complete mains-powered upgrade kit for VELUX Manual centre-pivot roof window. KMG 100 is a silent motor that opens the roof window up to 20 cm. It includes rain sensor and pre-configured wall switch. The electric motor requires a power supply via the unit for power supply KUX 110. Wiring is required.

KUX

Power supply

Power supply for remote operation of VELUX electric anti-heat shutters and blinds or interior blinds on a manual roof window.

KLB 100

Battery backup

The battery backup ensures that if there is a power outage, VELUX electrically operated roof windows are closed and VELUX electrically operated blinds/shutters raised. It is recommended for use in regions affected by frequent power failures.

KSX 100K WWA

Solar powered motor

Complete solar-powered upgrade kit for VELUX Manual centre-pivot roof window. Solar set is the best choise for subsequent electrification of manually operated roof windows because it does't require wiring. The set contains silent motor, rain sensor, high-performance battery and preconfigured wall switch.

KLF 200

interface

KLF 200 is programmable and can be used for operation of io-homecontrol® compatible electrical products via external control devices like switches and sensors (potential-free contacts). Can operate 5 products or 5 groups with up to 200 electrical products. Can also be used as a io-homecontrol® repeater.

KLI

Wall switch

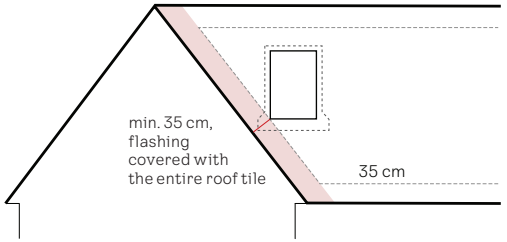
The wireless Wall Switch KLI 311 lets you conveniently open, stop or close VELUX solar and electrically operated roof windows or VELUX roof windows that have been upgraded for electrical or solar operation. One switch can be used to operate several roof windows.

05/ Technical solutions

5.1 / Installation of windows in the roof structure

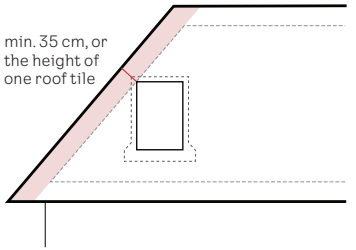
Distances

minimum distances of the roof window from the valley



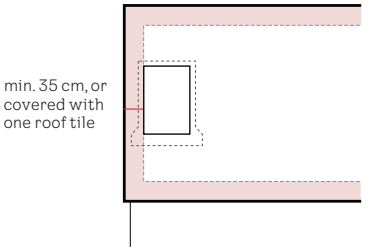
* applies to roof tiles of 30 cm long

minimum distances of the roof window from the hip

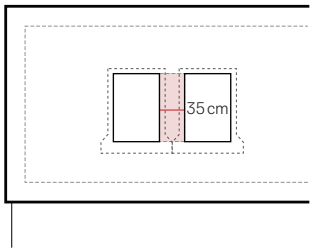


* applies to roof tiles of 30 cm long

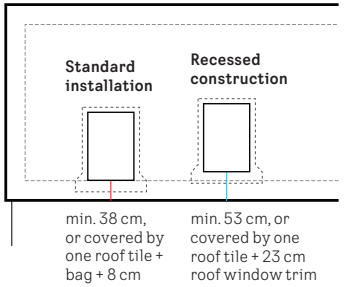
minimum distances of the roof window from the roof edge



minimum distances of two separately installed windows

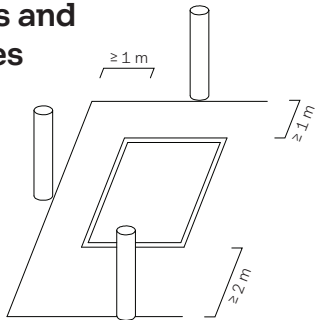


minimum distances of the roof window from the gutter



* applies to roof tiles of 30 cm long

intervals and distances



Chimneys and smoke exhaust pipes – design, implementation and connection of fuel appliances.
The location of roof windows and chimneys is determined by the minimum distances: 1 m from the sides; 2 m under the window; 1 m above the window

5.1 / Installation of windows in the roof structure

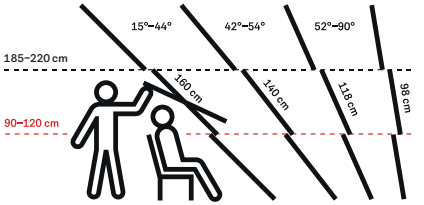
Choosing the right model and window size

Comfortable operation manually or with remote control

Top handle

Pivot roof windows – for 15–90° roof pitch

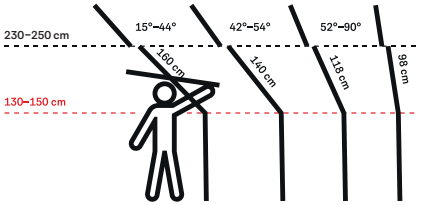
- Suitable for low installation height 90–120 cm
- A solution for ideal view whether standing or sitting
- Opening-closing with top handle
- Furniture can be placed under the roof window
- Easy to use external and internal blinds



Bottom handle

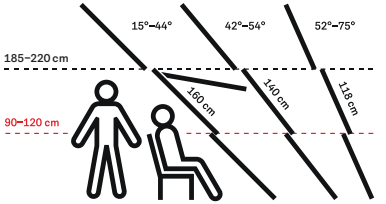
Pivot roof windows – for 15–90° roof pitch

- Suitable for higher installation height 130–150 cm
- Opening-closing with bottom handle
- Furniture below the window might limit you to open-close roof windows easily
- Choose remote controlled variants of external blinds and shutters. For the manual internal blinds you might need operation rod.



Top-hung roof windows – for 15–55° roof pitch

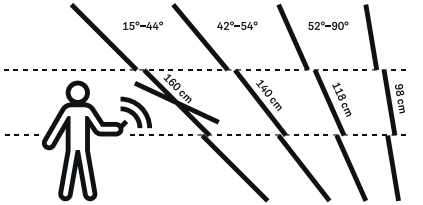
- Suitable for low installation height: 90–120 cm
- Unobstructed panoramic view
- Opening-closing with the bottom handle
- After opening sash swings out, thereby it is important that for closing you can easily reach the bottom handle



Remote control

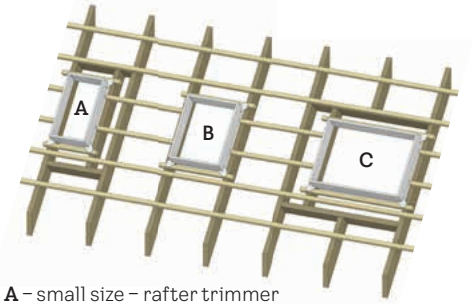
Electrical or solar operated roof windows

- Comfortable remote control
- Electric or solar drive
- Pivot or top-hung roof windows
- Ideal for both in-reach and high-installed roof windows



Choose the best width

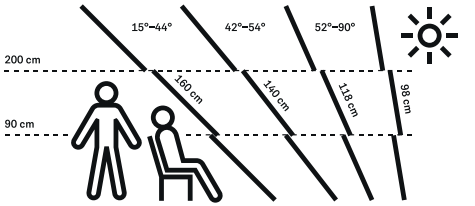
The simplest solution is to match the roof window width to the distance between the rafters, adding 4–6 cm. Adjusting rafter spacing to fit the window width incurs extra work and cost.



A – small size – rafter trimmer
B – medium size – fit between rafters
C – large size – rafter trimmer

Decide on the optimum length

The length of the roof window depends on the roof's pitch: steeper roofs need shorter windows, while shallower roofs require longer ones.



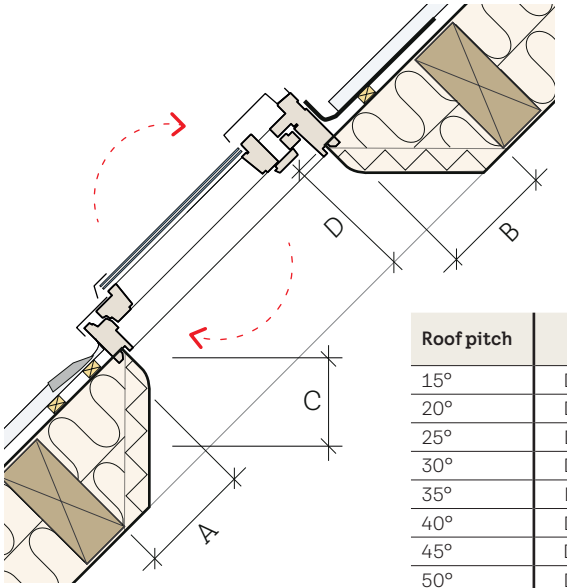
5.1 / Installation of windows in the roof structure

Dimensions of the opening in the roof

Determining the correct position of the trimmers

The trimmers must be placed so far away from the roof window that it is possible to make the window lining horizontally on the upper part and vertically on the lower part of the roof window.

The position of the trimmer depends on the overall thickness of the roof structure and the roof pitch.
The table below is helpful in determining the position of the trimmers.



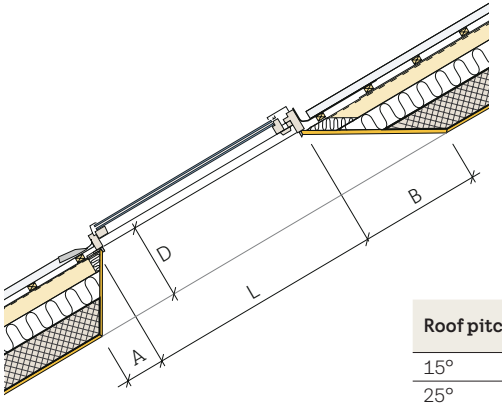
D = the thickness of the roof construction from the roof window to the ceiling

Roof pitch	A (cm)	B (cm)
15°	D×0,27	D×3,75
20°	D×0,36	D×2,78
25°	D×0,47	D×2,13
30°	D×0,58	D×1,73
35°	D×0,70	D×1,43
40°	D×0,84	D×1,19
45°	D×1,00	D×1,00
50°	D×1,19	D×0,84
55°	D×1,43	D×0,70
60°	D×1,73	D×0,58
65°	D×2,14	D×0,47

Determining the correct size of the opening in the concrete roof construction

In case of installing roof window in a concrete roof construction, in order to achieve good natural daylighting of the room, it is necessary to pay attention to the creation of the correct opening in the concrete.

The size of the opening depends on the overall thickness of the roof structure and the roof pitch.
The table below is helpful in determining the size of the opening in the concrete roof structure.

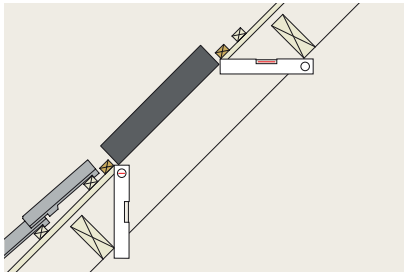


D = the thickness of the roof construction from the roof window to the ceiling

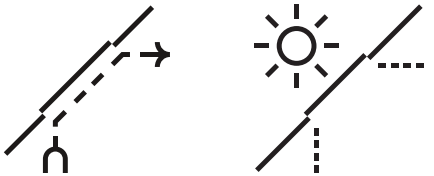
Roof pitch	A (cm)	B (cm)
15°	D×0,27	D×3,75
25°	D×0,58	D×1,73
30°	D×0,58	D×1,73
35°	D×0,70	D×1,43
40°	D×0,84	D×1,19
45°	D×1,00	D×1,00
50°	D×1,19	D×0,84
55°	D×1,43	D×0,70
60°	D×1,73	D×0,58
65°	D×1,73	D×0,47

5.1 / Installation of windows in the roof structure

Roof window lining

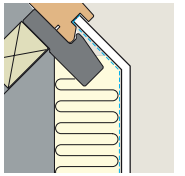


air circulation around the inner surface of the glazing / horizontal upper lining / vertical lower lining / replacements not interfering with oblique lining



upper lining horizontal / lower lining on the opposite vertical / heat source under the roof window keeping the inner surface of the glazing at a higher temperature / bigger supply of light into the room

The lighter the colour, the more daylight is reflected from the lining

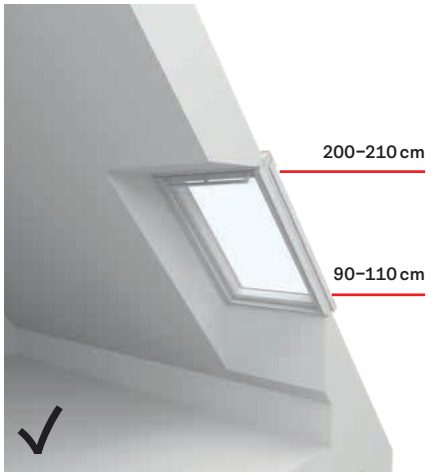


Rise of the lining from the roof window frame towards the ceiling 7–8 cm.

roof window installation height

Too high attic knee wall

Optimum height of attic knee wall



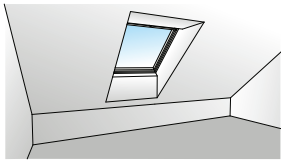
Solution of attic knee wall and recess for the roof window

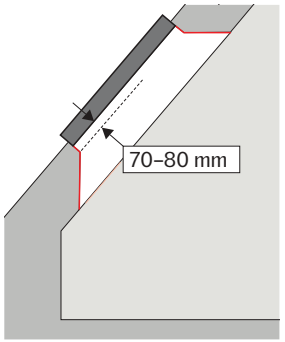
5.1 / Installation of windows in the roof structure

Roof window lining

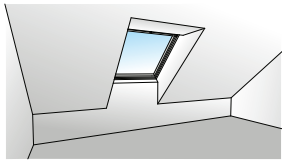
lining shapes

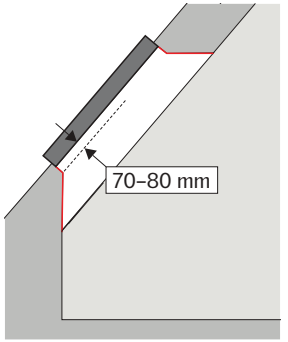
Standard installation



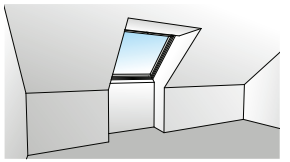


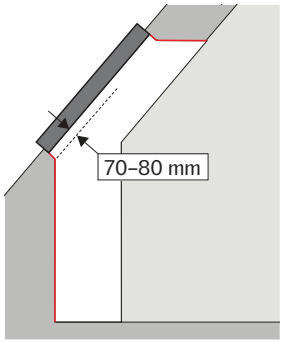
In the plane of the attic wall



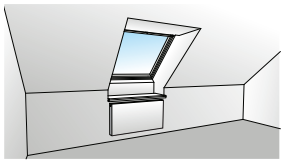


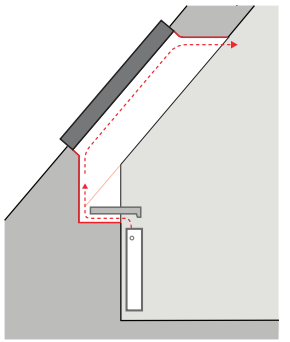
Lining niche in the wall



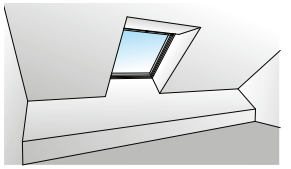


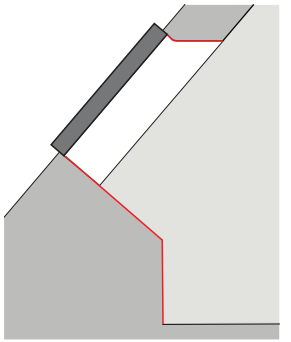
Ventilated window sill





Deep lining





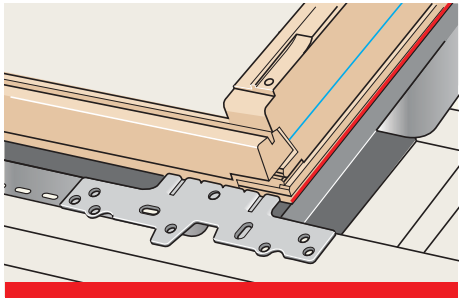
Note: Not suitable for rooms with a higher risk of condensation.

5.1 / Installation of windows in the roof structure

Standard installation

standard installation

between rafter insulation



Red level

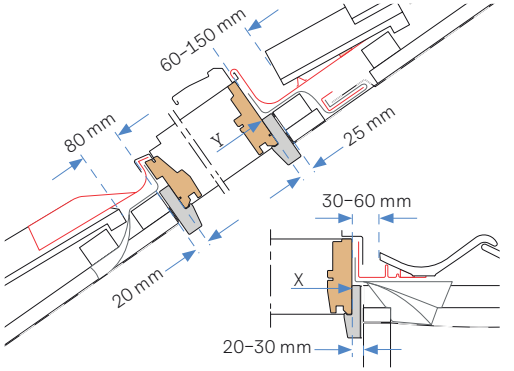
VELUX standard since 2001.
Mounting brackets are fixed to the bottom and top frames.

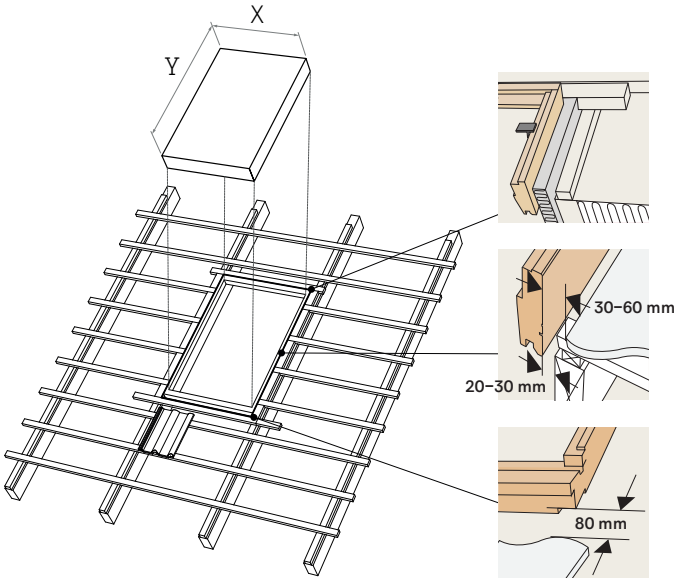
15°–90°

Installation hole size

standard installation
flashing EDW, EDS

	X	X+60	Y	Y+45
CK02	550	610	778	823
CK04	550	610	978	1023
FK06	660	720	1178	1223
FK08	660	720	1398	1443
MK04	780	840	978	1023
MK06	780	840	1178	1223
MK08	780	840	1398	1443
MK10	780	840	1600	1645
PK06	942	1002	1178	1223
PK08	942	1002	1398	1443
PK10	942	1002	1600	1645
SK06	1140	1200	1178	1223
SK08	1140	1200	1398	1443
SK10	1140	1200	1600	1645
UK08	1340	1400	1398	1443
UK10	1340	1400	1600	1645



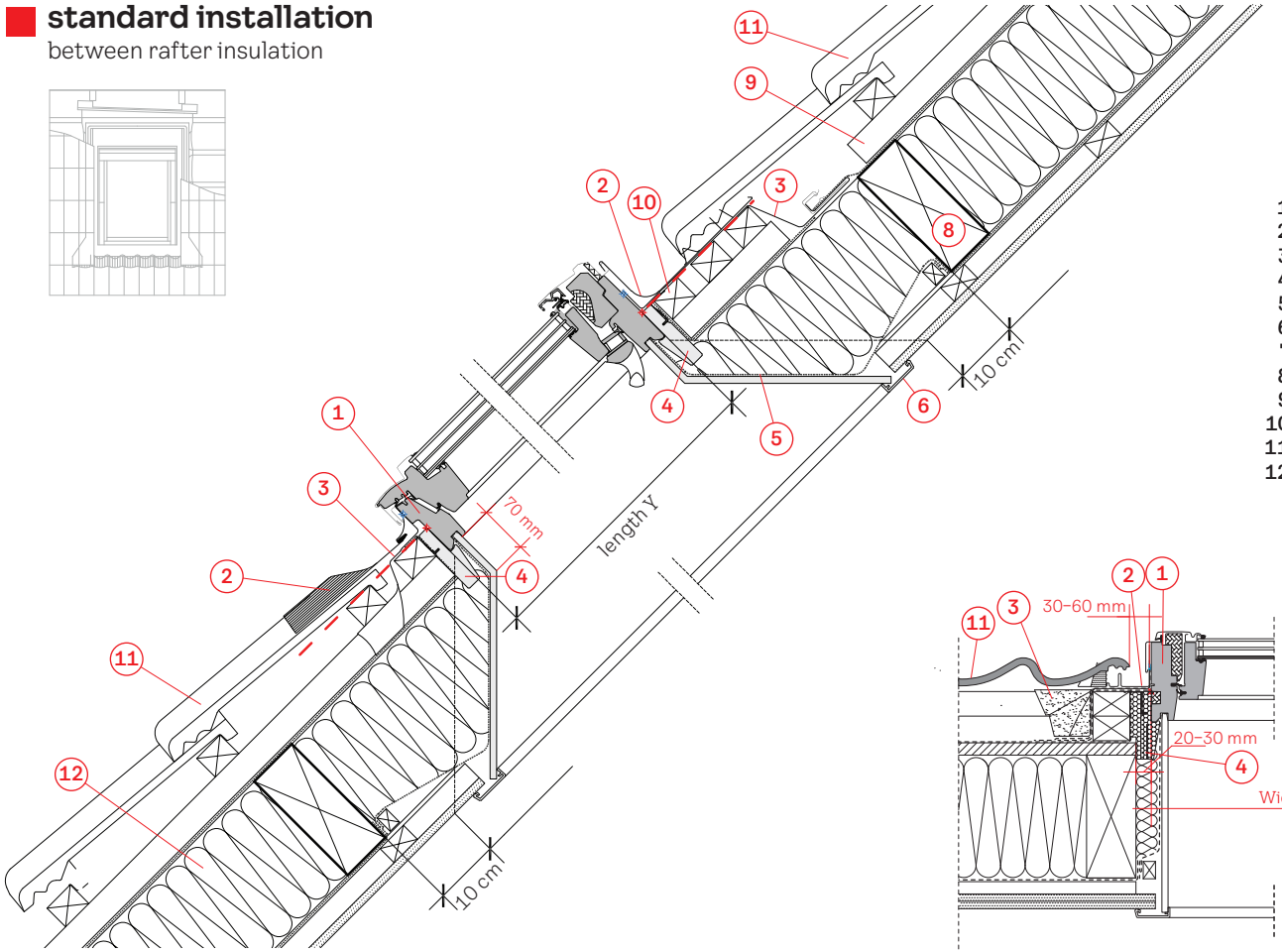


5.1 / Installation of windows in the roof structure

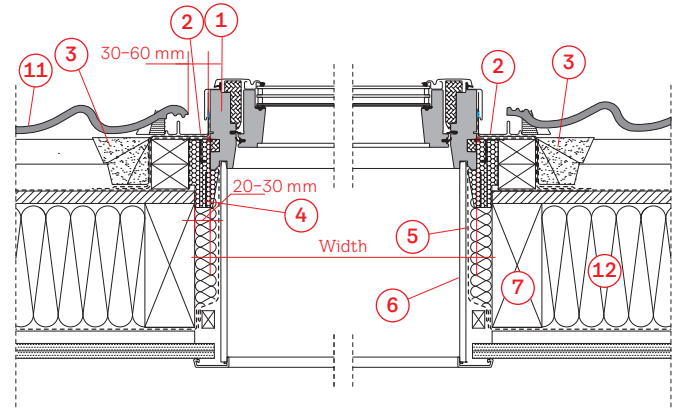
Standard installation

standard installation

between rafter insulation



1. Roof window
2. Flashing
3. VELUX underfelt collar BFX
4. VELUX insulation frame BDX
5. VELUX vapour barrier tape BBX
6. VELUX Lining
7. Rafter
8. Rafter replacement (Trimmer)
9. Roof batten
10. Installation batten
11. Roof tiles
12. Insulation

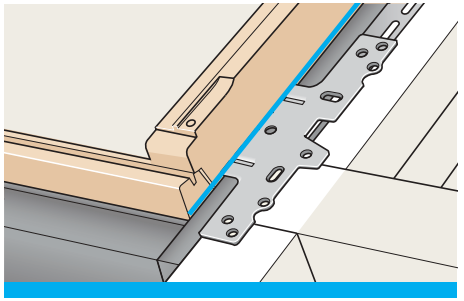


5.1 / Installation of windows in the roof structure

Recessed installation

recessed installation

between rafter insulation



Blue level

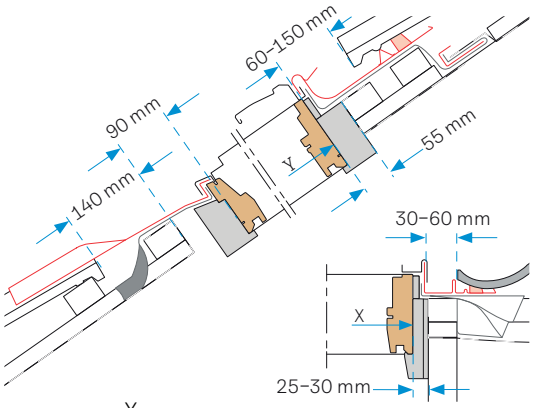
Roof window installed 40 mm deeper into the roof construction compared to installations in red level. Mounting brackets are fixed to the side frames.

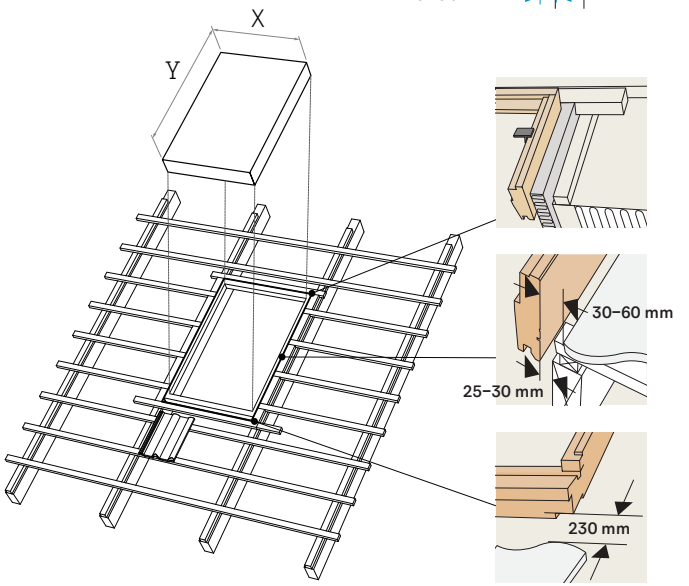
20°–90°

Installation hole size

recessed installation
flashing EDJ, EDN

	X	X+60	Y	Y+145
CK02	550	610	778	923
CK04	550	610	978	1123
FK06	660	720	1178	1323
FK08	660	720	1398	1543
MK04	780	840	978	1123
MK06	780	840	1178	1323
MK08	780	840	1398	1543
MK10	780	840	1600	1745
PK06	942	1002	1178	1323
PK08	942	1002	1398	1543
PK10	942	1002	1600	1745
SK06	1140	1200	1178	1323
SK08	1140	1200	1398	1543
SK10	1140	1200	1600	1745
UK08	1340	1400	1398	1543
UK10	1340	1400	1600	1745



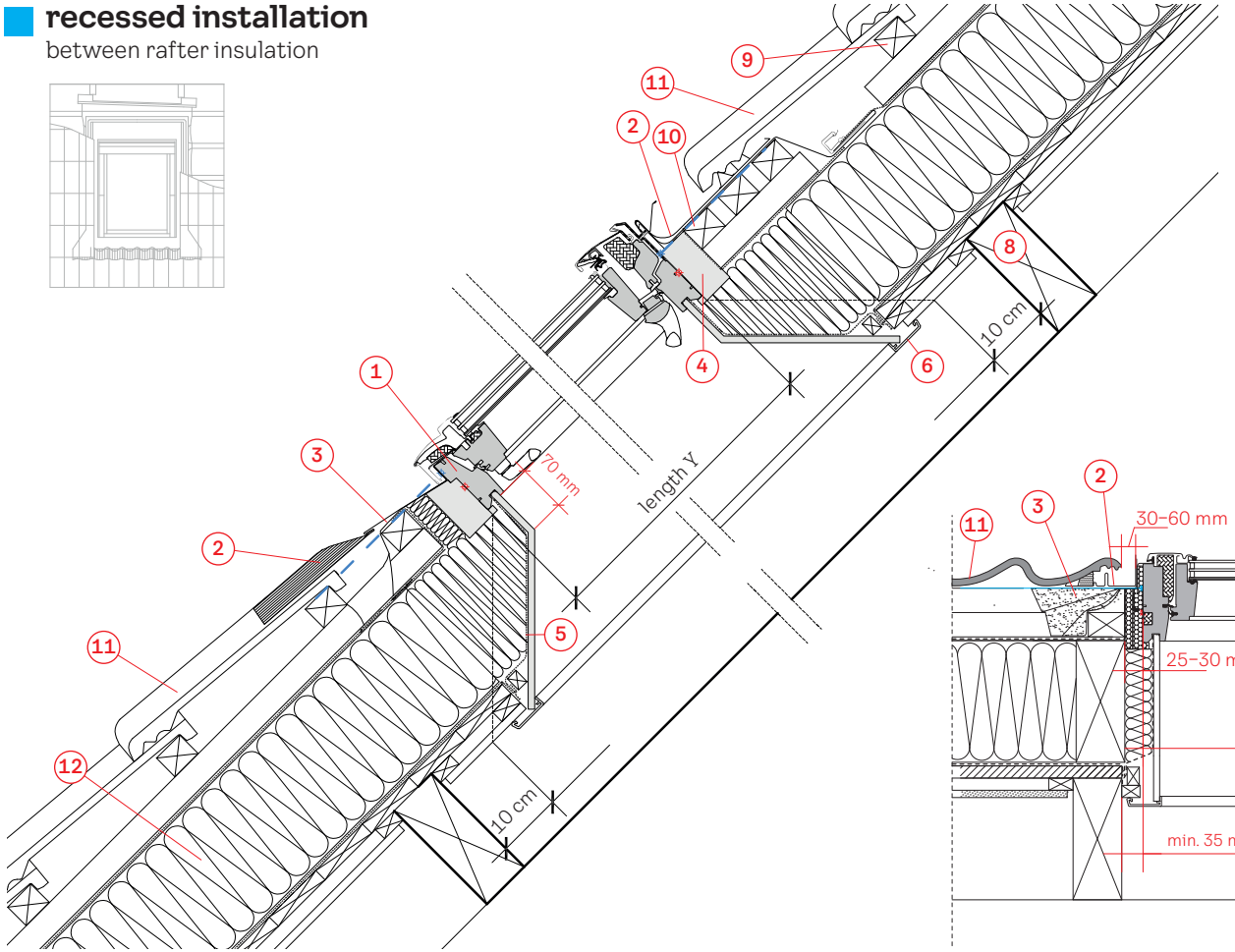


5.1 / Installation of windows in the roof structure

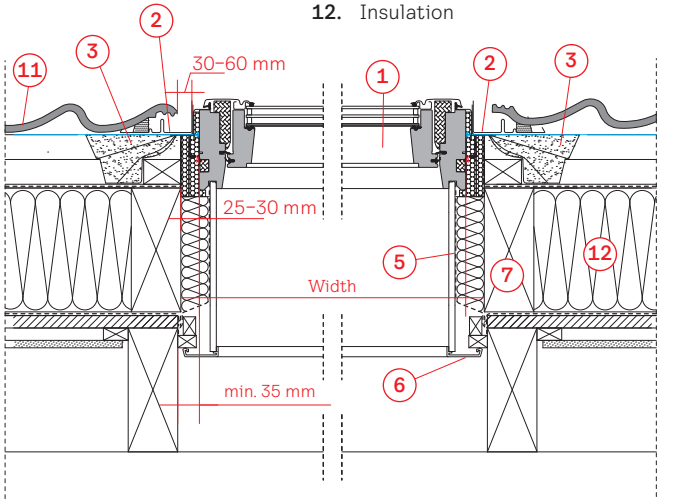
Recessed installation

recessed installation

between rafter insulation



1. Roof window
2. Flashing
3. VELUX underfelt collar BFX
4. VELUX insulation frame BDX
5. VELUX vapour barrier tape BBX
6. VELUX Lining
7. Rafter
8. Rafter replacement (Trimmer)
9. Roof batten
10. Installation batten
11. Roof tiles
12. Insulation



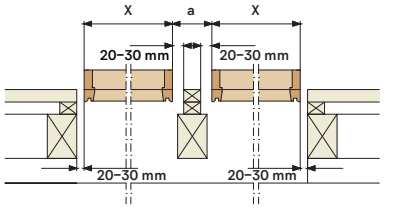
5.1 / Installation of windows in the roof structure

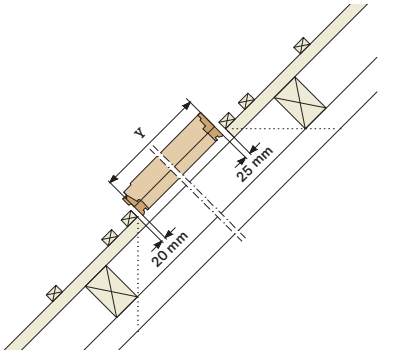
Window combinations

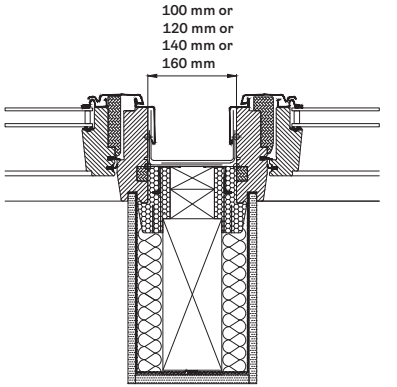
Twin combination with rafter

Basic combination of two roof windows installed next to each other. It can be used with all roof window dimensions.

- Wider view and more daylight
- Increases the feeling of spaciousness
- Distance between window frame and rafter should be 20–30 mm
- Distance between window frames next to each other: a = 100–160 mm
- Possible with standard and recessed installation







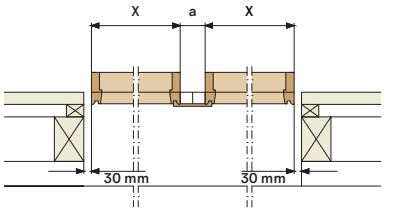
5.1 / Installation of windows in the roof structure

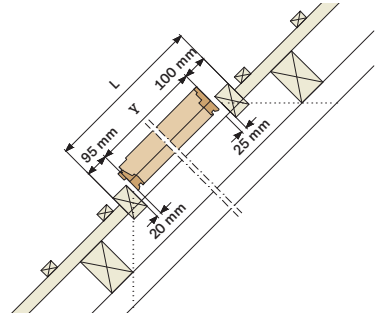
Window combinations

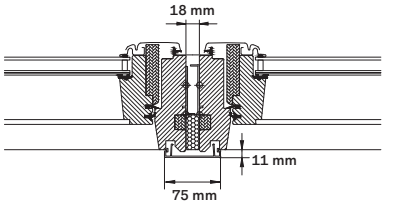
Twin combination without rafter

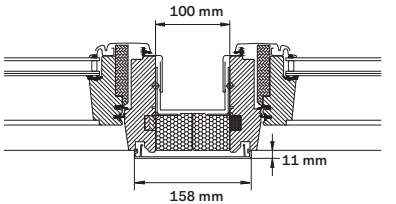
By trimming the rafter between the windows, you reduce the amount of protruding wall between the roof windows to ensure a more integrated roof window with an elegant end result. This solution also provides more usable space in the window area. It can be used with all roof window dimensions.

- Wider view and more daylight
- More usable space below the windows area
- Distance between window frames next to each other: a = 18 or 100 mm
- White or wooden look cover plate available
- Possible only with standard installation









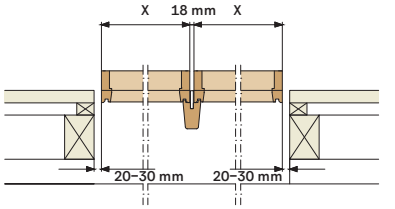
5.1 / Installation of windows in the roof structure

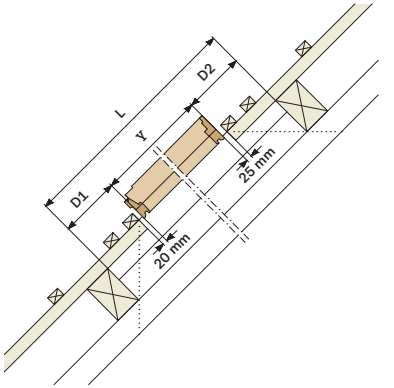
Window combinations

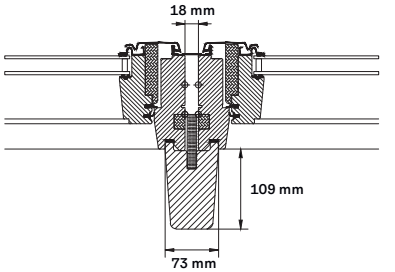
Twin combination with rafter replacement EBY

Twin combination with support rafter EBY replacing an ordinary rafter. This solution connects roof windows, creates panoramic look and provides more usable space in the window area.

- Wider view and more daylight
- Length of the rafter EBY is 3500 mm
- Laminated wood coated with water-based white lacquer
- Distance between window frames 18 mm
- Maximum assembly width 2780 mm
- Possible only with standard installation







L – length of the system rafter
D1, D2 – required overlap of rafter EBY

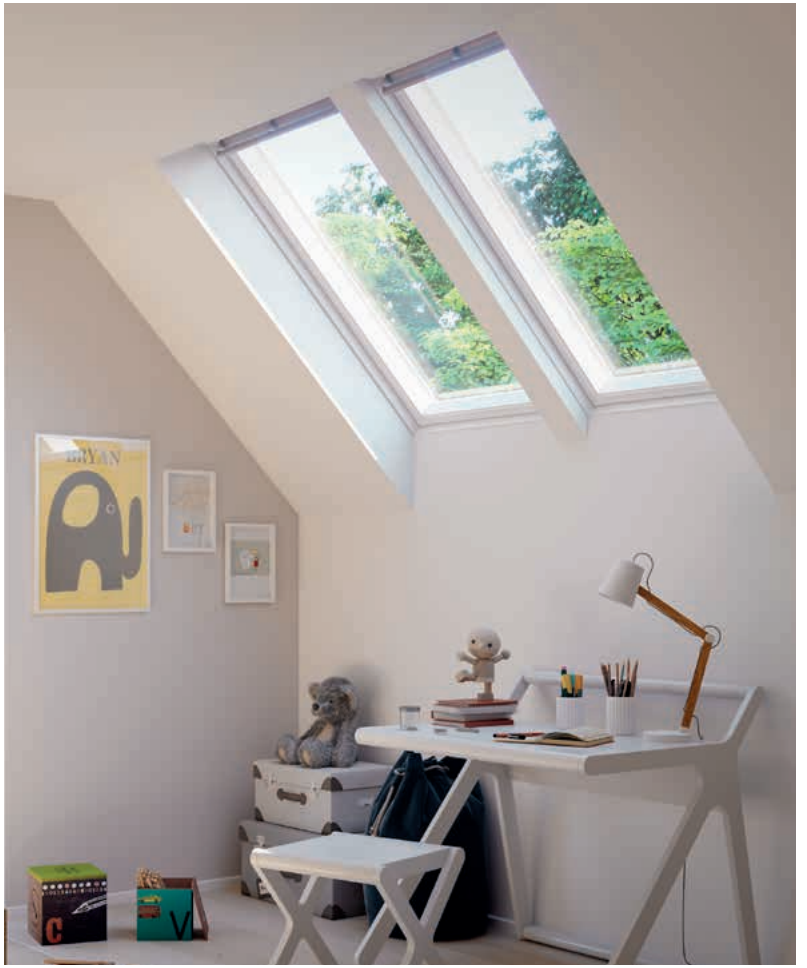
5.1 / Installation of windows in the roof structure

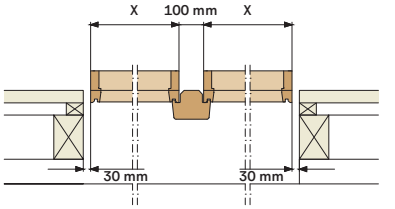
Window combinations

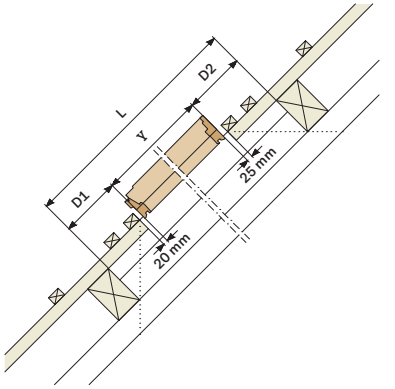
Twin combination with rafter replacement EKY

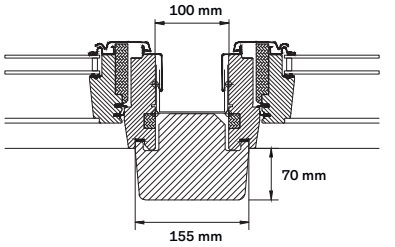
Twin combination with support rafter EKY replacing an ordinary rafter. This solution connects roof windows, creates panoramic look and provides more usable space in the window area.

- Wider view and more daylight
- Length of the rafter EKY is 3500 mm
- Laminated wood coated with water-based white lacquer
- Distance between window frames 100 mm
- Possible use in a combination with several roof windows installed side-by-side
- Possible with standard and recessed installation









L – length of the system rafter
D1, D2 – required overlap of rafter EBY

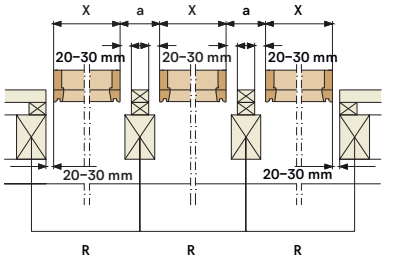
5.1 / Installation of windows in the roof structure

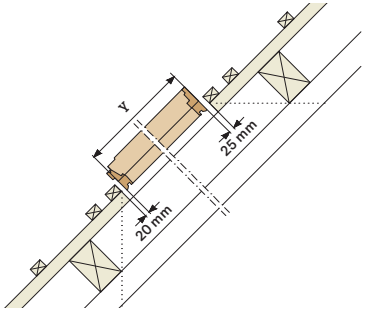
Window combinations

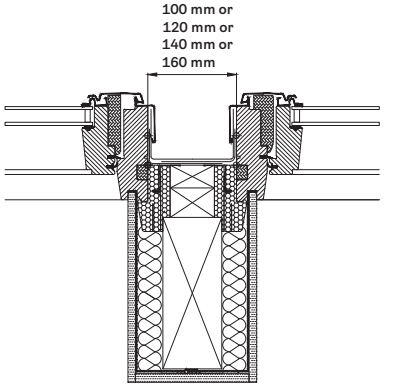
Triple combination with rafter

Achieve extra wow factor with the triple combination. This combination features three adjacent roof windows to give your room even more daylight so you can enjoy a widescreen view to the world outside.

- Wider view and more daylight
- Increases the feeling of spaciousness
- Distance between window frames next to each other: a = 100–160 mm
- Distance between window frame and rafter should be 20–30 mm
- It is necessary to determine appropriate distance between the rafters (R)
- Possible with standard and recessed installation







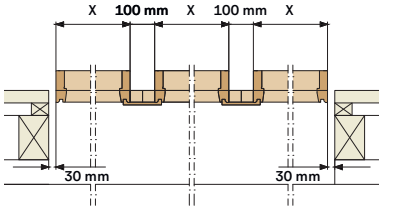
5.1 / Installation of windows in the roof structure

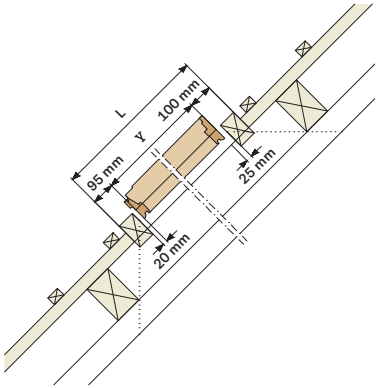
Window combinations

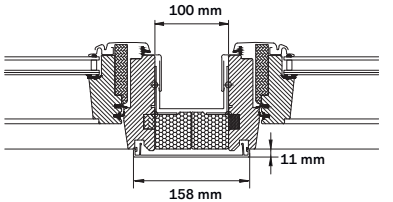
Triple combination without rafter

Triple combination of the Side-by-side solution. Ensures even wider view and provides additional usable space in the window area. It can be used with limited roof window dimensions.

- Wider view and more daylight more usable space below the windows area
- Distance between window frames next to each other: a = 100 mm
- White or wooden look cover plate available
- Possible only with window dimension 550 mm (CK--), 660 mm (FK--) and 780 mm (MK--)
- Possible only with standard installation



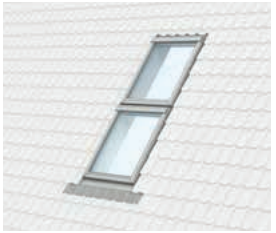




5.1 / Installation of windows in the roof structure

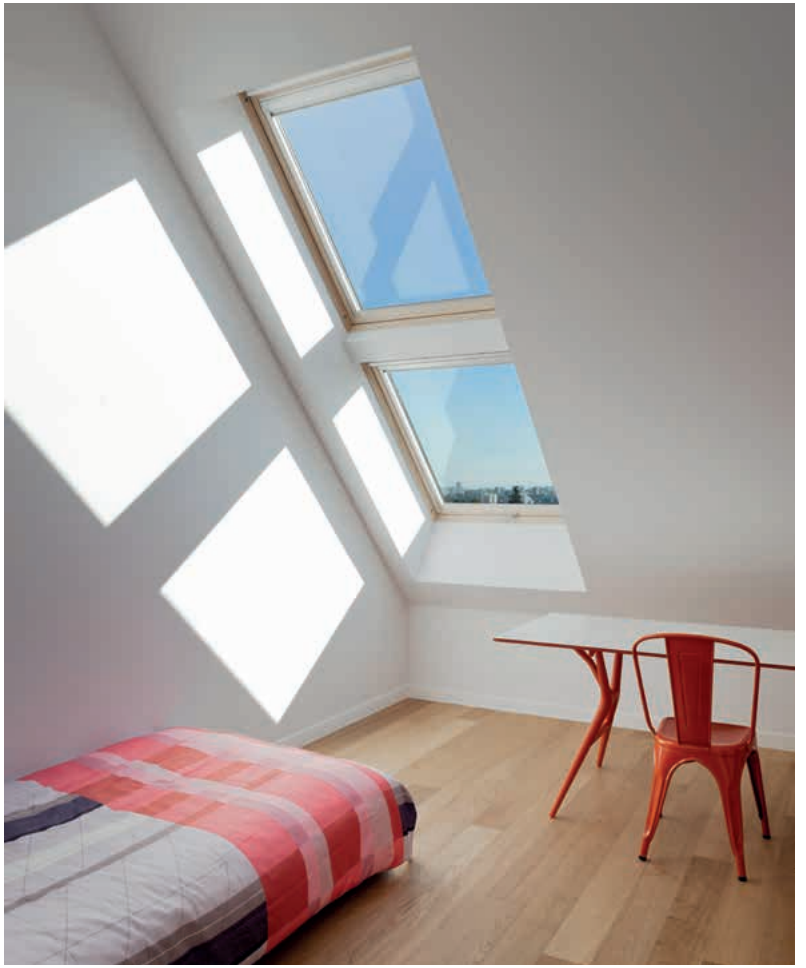
Window combinations

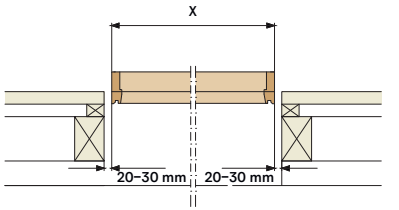
Vertical twin combination

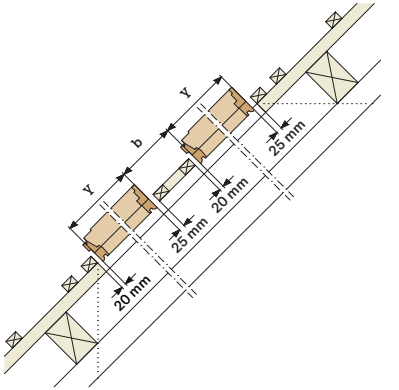


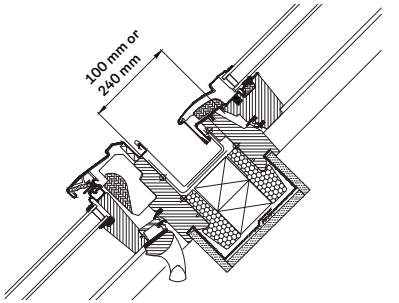
A vertical twin roof window combination in narrow spaces, such as above stairs, draws more daylight deep into the room. By adding an additional roof window you can enhance the feeling of spaciousness, maximize natural light and create an architectural feature in otherwise dark and overlooked spaces.

- Enables better daylight in the depth of the room
- Distance between window frame and rafter should be 20–30 mm
- Distance between window frames on top of each other: b = 100 or 250 mm
- Possible with standard and recessed installation









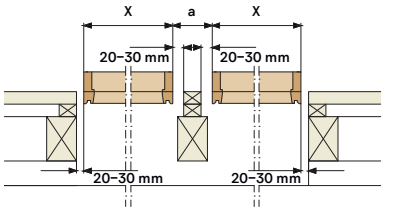
5.1 / Installation of windows in the roof structure

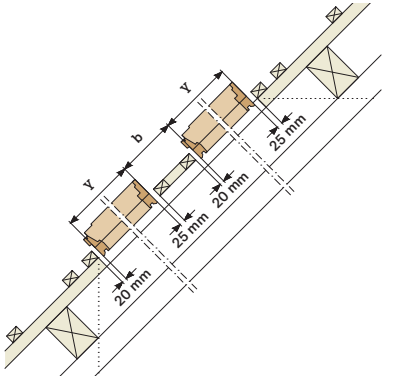
Window combinations

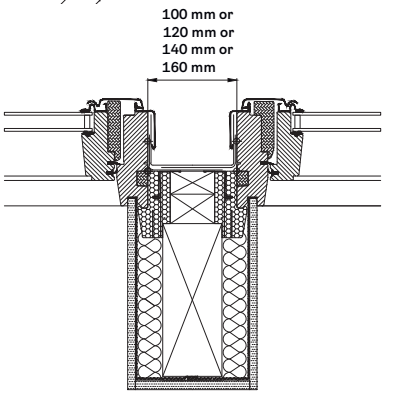
Quattro combination with rafter

A quattro roof window combination takes the traditional twin installation and doubles it for even more daylight and fantastic floor-to ceiling views.. This solution creates a dramatic centerpiece, increasing the amount of daylight and the feeling of spaciousness.

- Floor-to-ceiling views
- More daylight
- Increases the feeling of spaciousness
- Distance between window frames next to each other: a = 100–160 mm
- Distance between window frames on top of each other: b = 100 or 250 mm
- Possible with standard and recessed installation



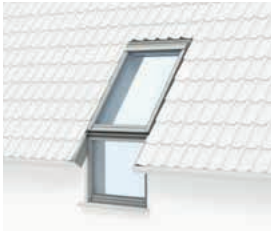




5.2 / Special solution installation

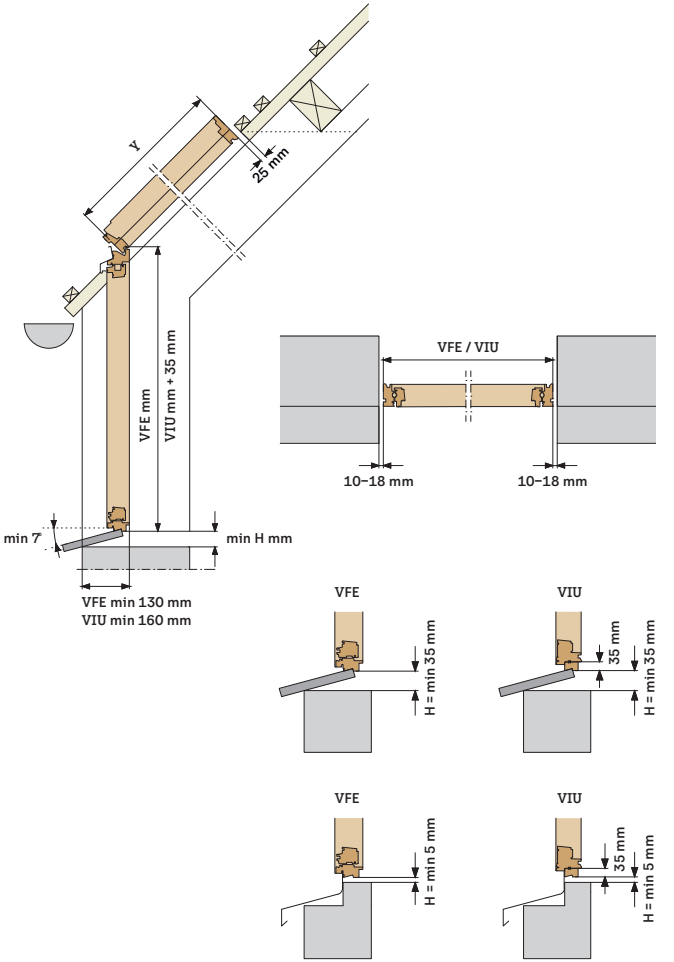
Roof window with vertical element

Combination with vertical element VFE/VIU



This combination is perfect in case of a high knee wall. The use of vertical roof window element provides more expansive view and better natural daylight.

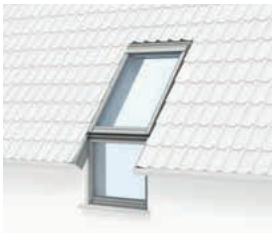
- Must be installed with the roof window
- Roof window and vertical element are in direct contact without any intermediate structural elements
- Opening (VFE) or fixed (VIU) vertical element available
- Distance between the wall and the vertical window frame is 10–18 mm
- Minimum distance of the vertical window frame from the knee wall is 35 mm



5.2 / Special solution installation

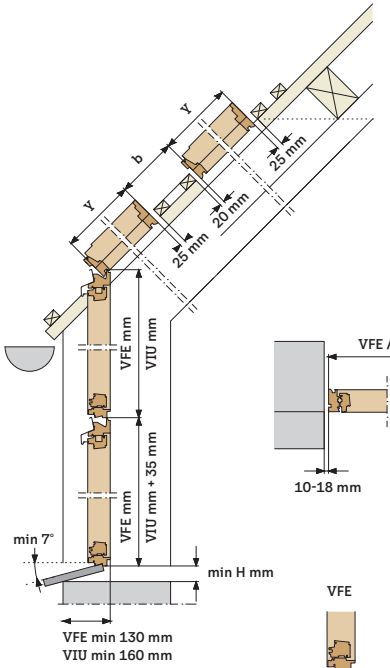
Roof window with vertical element

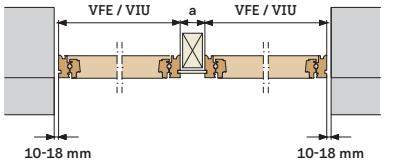
Multiple combinations with VFE/VIU elements

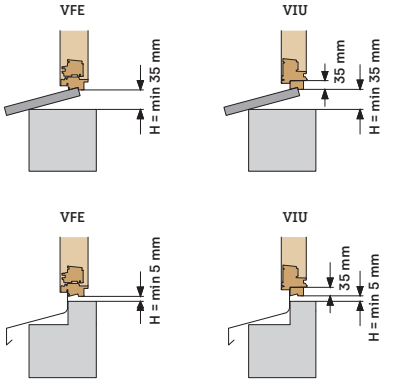


Advanced combination with more roof windows and vertical elements.

- Standard distance between window frames next to each other (a) is 100 mm. Possible distances 120, 140 or 160 mm
- Maximum assembly width 2780 mm
- Possible two vertical window elements on top of each other
- Combined vertical elements must be of the same type (VFE+VFE or VIU+VIU).
- Distance between the wall and the vertical window frame is 10–18 mm
- Minimum distance of the vertical window frame from the knee wall is 35 mm



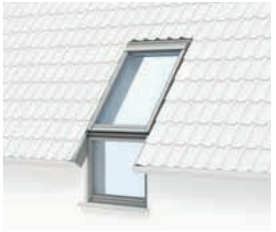




5.2 / Special solution installation

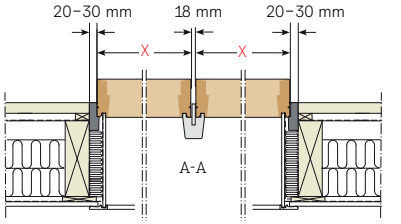
Roof window with vertical element

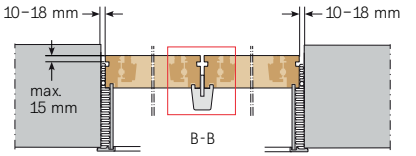
Combination with rafter replacement EBY

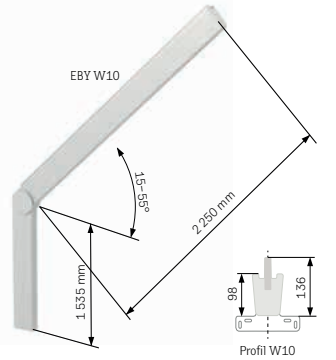


This is a combination of two roof windows and two vertical elements with support rafter EBY W10. This solution connects all windows into one composition.

- Possible installation in roofs with a slope of 15°–55°
- Length of the rafter EBY: vertical part – 1535 mm roof part – 2250 mm
- Laminated wood coated with water-based white lacquer
- Distance between window frames 18 mm
- Maximum assembly width 2780 mm
- Possible only with standard installation



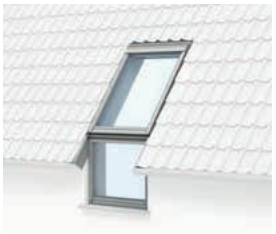




5.2 / Special solution installation

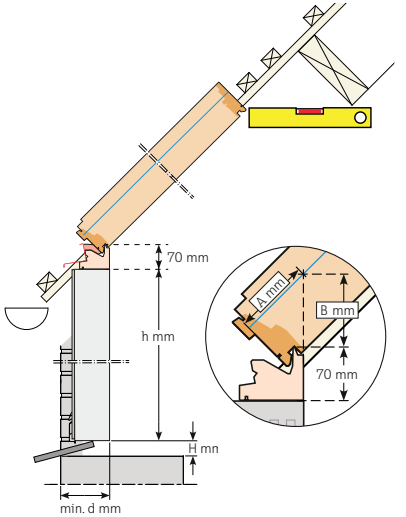
Roof window in connection with facade window

Combination with EFY element

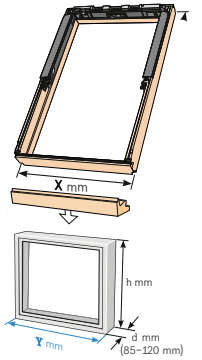


This is a combination where a VELUX roof window is connected with EFY element to a façade window or door from another manufacturer

- Possible installation in roofs with a slope of 15°–55°
- Only individual installation possible
- Only with window dimension 780 mm (MK--), 940 mm (PK--) and 1140 mm (SK--)
- EFY element is made of laminated pine wood with transparent or white painted coating
- Possible only with standard installation



	A (mm)	B (mm)
20°	70	85
25°	79	89
30°	88	95
35°	99	102
40°	110	110
45°	124	121
50°	140	134
55°	160	152



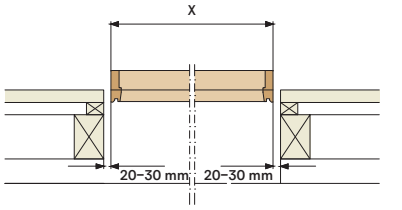
5.2 / Special solution installation

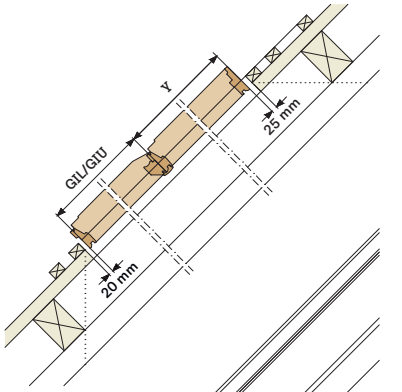
Roof window with sloped extention

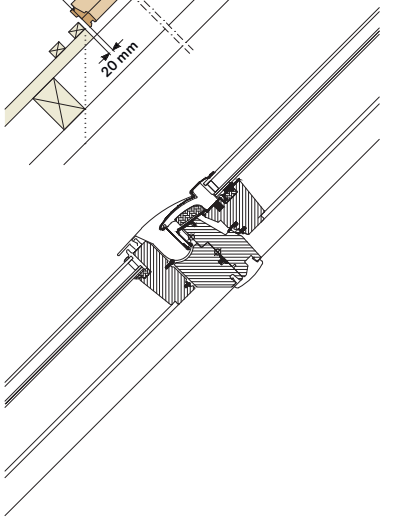
Combination with fixed element GIL/GIU

Roof window with fixed sloped element is ideal in cases where no knee wall is present and floor-to ceiling effect wants to be achieved.

- Must be installed below the roof window of the same width
- Roof window and fixed sloped extension element are in direct contact without any intermediate structural elements
- Elegant cover plate connecting both windows
- Possible combination of several roof windows with fixed element side-by-side
- Possible with standard and recessed installation



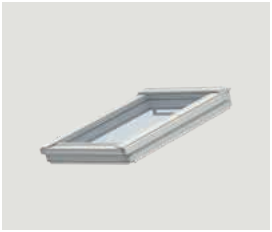




5.2 / Special solution installation

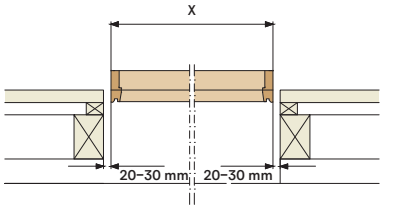
Low pitched roof window

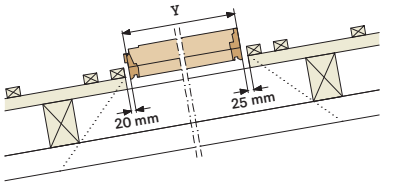
Low pitched roof window GBL



Special roof window that can be installed in roof pitches down to 10°

- Possible installation in roofs with a slope of 10°–20°
- Only individual installation possible with flashing EDG
- Featuring glass-to-edge technology
- Distance between window frame and rafter should be 20–30 mm
- Possible only with standard installation in profiled roofing materials

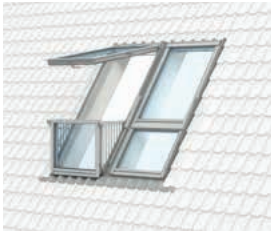




5.2 / Special solution installation

Roof balcony

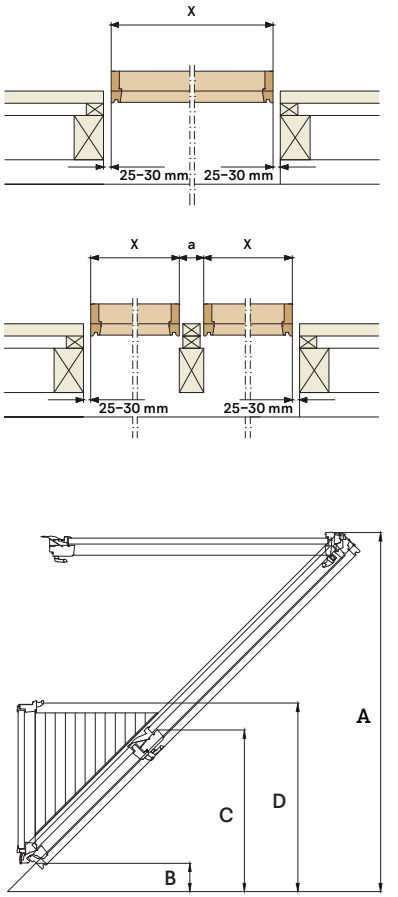
Roof balcony GDL



The innovative roof balcony increases architectural appealing of the attic whilst adding more space, daylight and fresh air.

- Possible installation in roofs with a slope of 35°–53°
- Recommended installation in attics without or with little knee wall
- Possible combination of several roof balconies side-by side
- Possible combination with roof window with sloped extension GIL/GIU
- Distance between window frames: a = 100–160 mm
- Possible only with standard installation

	A	B	C	D
Roof pitch	Top of the window	Bottom of the window	Top of the bottom window element	Railing height
	cm	cm	cm	cm
53°	209	0	81	95
50°	201	0	79	95
45°	200	13	88	108
40°	200	28	98	123
35°	200	45	109	140

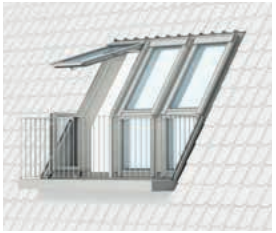


Dependence of the location of the lower edge of the window and the height of the railing on the roof pitch

5.2 / Special solution installation

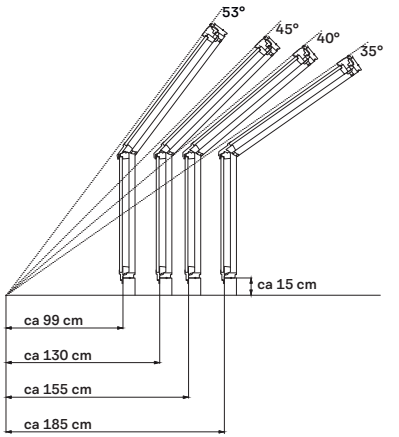
Exit to roof terrace

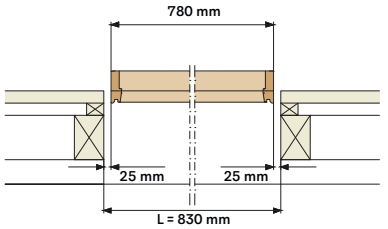
Roof terrace GEL+VEA/VEB/VEC

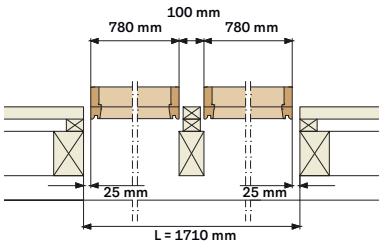


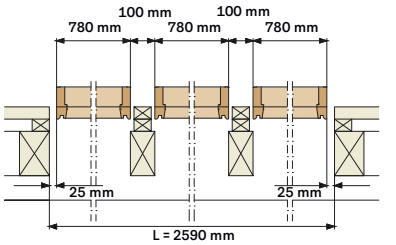
The terrace solution extends a living space by opening space behind the sloped roof, creating a roof terrace.

- Possible installation in roofs with a slope of 35°–53°
- Recommended installation in attics with knee wall
- Possible combination of up to three roof terrace elements side-by side of which only one is openable (VEA/VEB)
- Distance between window frames: a = 100 mm
- Distance between window frame and rafter should be 25 mm
- Possible only with standard installation









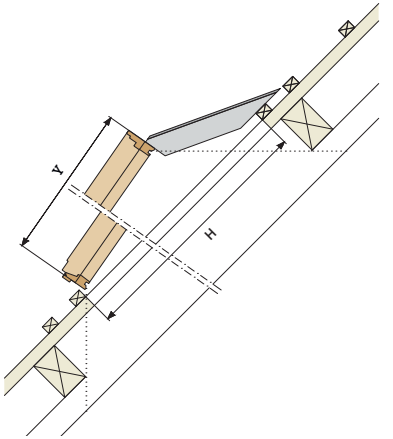
5.2 / Special solution installation

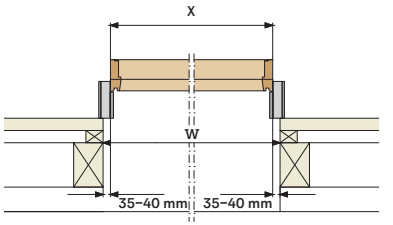
Mini dormer

Mini dormer EAW/EAS

Solution represents a flashing which lifts the angle of the roof window by 10° compared to the roof pitch. It comes as a kit for quick and easy installation.

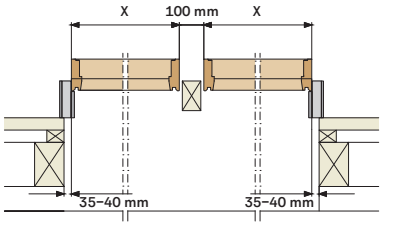
- EAW – can be installed in roof pitches 10°–75°
- EAS – can be installed in roof pitches 20°–75°
- Possible installation of 1,2 or 3 roof windows side by side





Window size code	X (mm)	W (mm)
FK--	660	740
MK--	780	860
PK--	940	1020
SK--	1140	1220
UK--	1340	1420

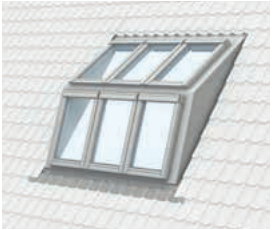
Window size code	Y (mm)	H (mm)
--04	980	1360
--06	1180	1630
--08	1400	1930
--10	1600	2200



5.2 / Special solution installation

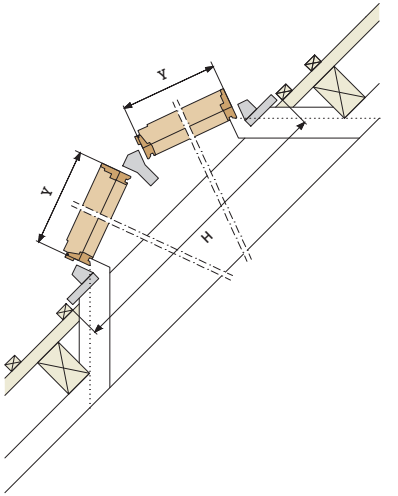
Dormer

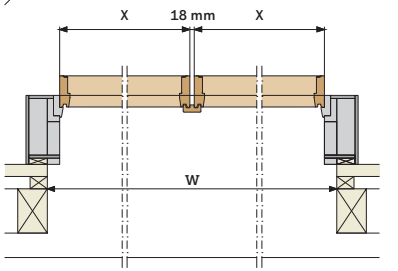
Dormer EBW



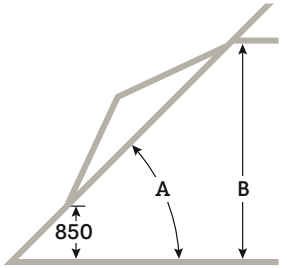
Dormer flashing solution allows roof windows to be fitted out of the roof, creating extra space inside. It comes as a kit for quick and easy installation.

- Possible installation in roofs with a slope of 35°–75°
- For profiled roofing materials up to 120 mm
- Possible installation of 4 roof windows (sizes MK06, PK06 and SK06) or 6 roof windows (sizes MK06) side by side and over/under





A	min. B mm
35°	2 003
40°	2 171
45°	2 328
50°	2 470
55°	2 600
60°	2 714
65°	2 815
70°	2 900



Number and size of windows	W (mm)	H (mm)
2+2 MK06	1680	2670
2+2 PK06	2000	2670
2+2 SK06	2400	2670
3+3 MK06	2480	2670

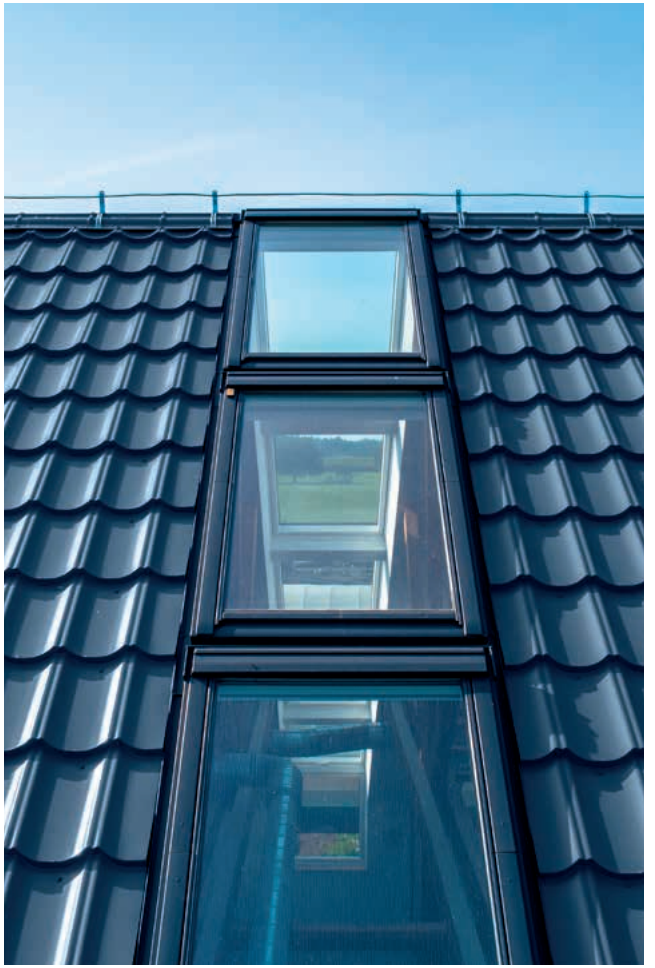
5.2 / Special solution installation

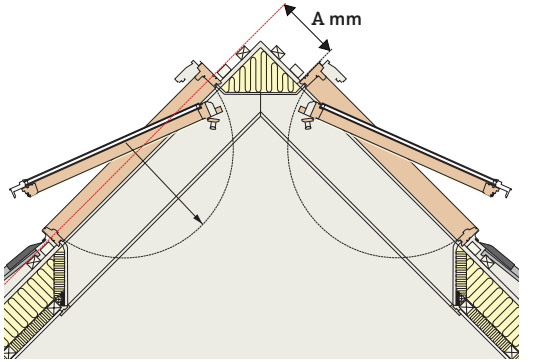
Over the ridge

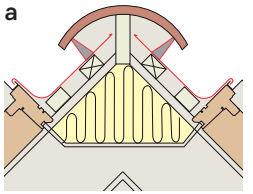
Installation along roof ridge

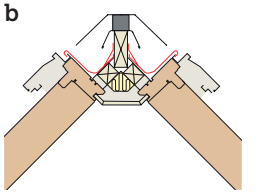
When installing roof windows along the ridge, it is important to know the distance from the upper frame of the window to the upper side of battens on the opposite roof surface (A).

- Possible installation in roofs with a slope of 15°–55°
- Possible use in a combination with several roof windows installed side-by-side
- Roof ridge can be covered with roof tiles (a), but when windows are installed closer to the ridge special metal roof ridge kit (b) must be used
- Possible only with standard installation







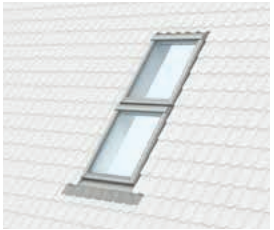


The slope of the roof	Window height (mm)				
	780	980	1180	1400	1600
30°	80	80	80	80	100
35°	80	80	90	120	140
40°	90	110	140	170	185
45°	120	160	250	300	330
50°	230	290	340	400	460

5.2 / Special solution installation

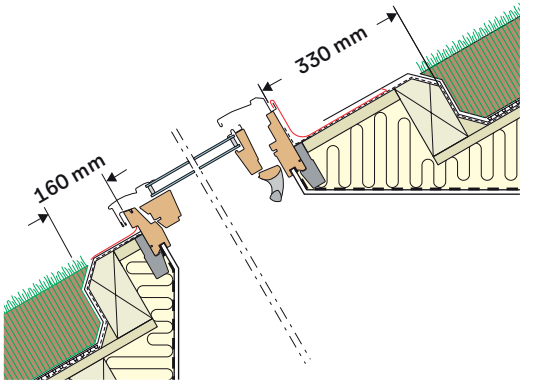
Green roof

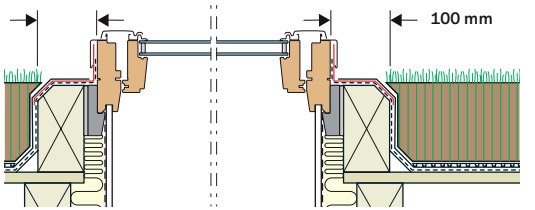
Installation in green roof



When installing the roof window in the green roof, it is necessary to connect the waterproofing layer to the flashing system. The flashing is carried out by a wooden frame, which must be adapted in size to the inner lining.

- Possible installation in roofs with a slope of 15°–45°
- The platform on which the roof window is installed must be levelled with the chosen natural roofing material
- Different roof windowcombinations possible

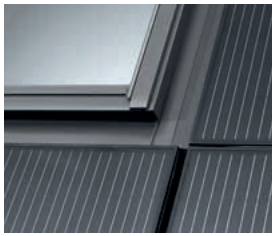




5.2 / Special solution installation

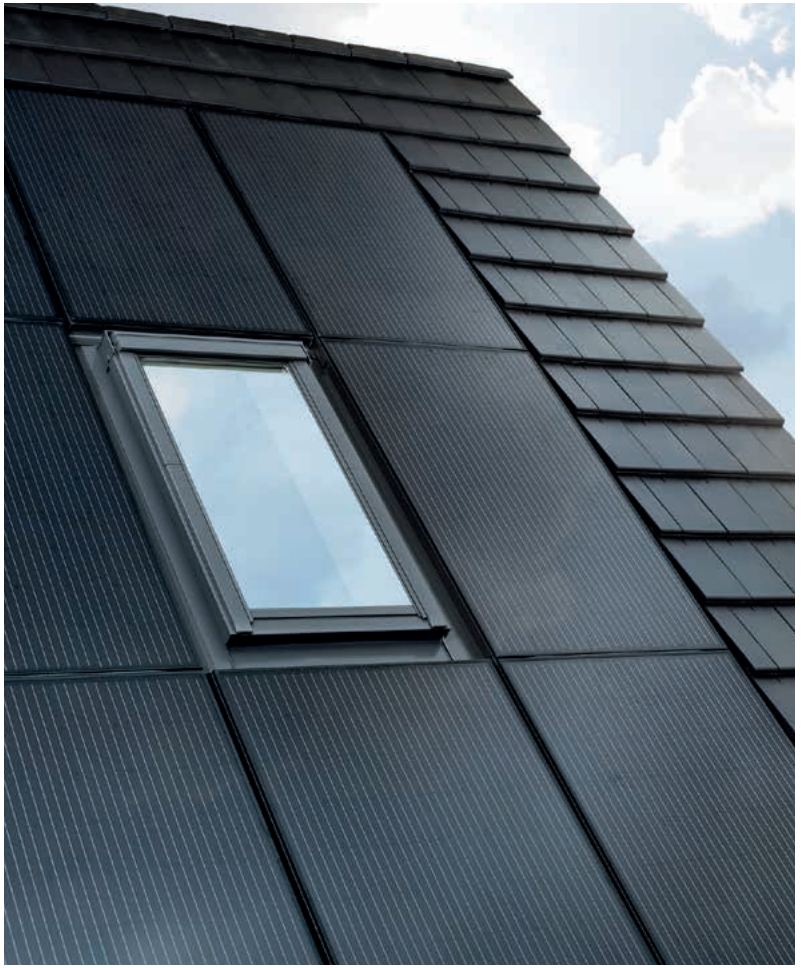
Solar integrator

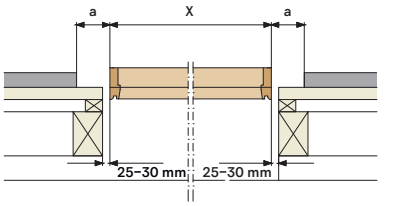
Solar integrator ODL/ODN

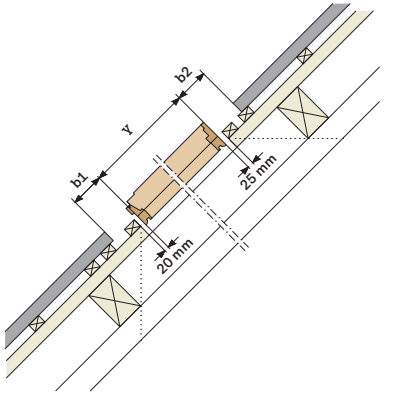


With specially developed flashing system a simple, fast and seamless connection of VELUX roof windows to a selected number of in-roof solar panel system from certain manufacturers is possible

- Possible installation in roofs with a slope of 20°–60°
- Easily integrated with selected solar panel systems
- 25 Mm sideways flexibility for perfect positioning
- Possible only with window dimension MK06, MK08, PK08 and UK10
- Possible only with individual roof window installation







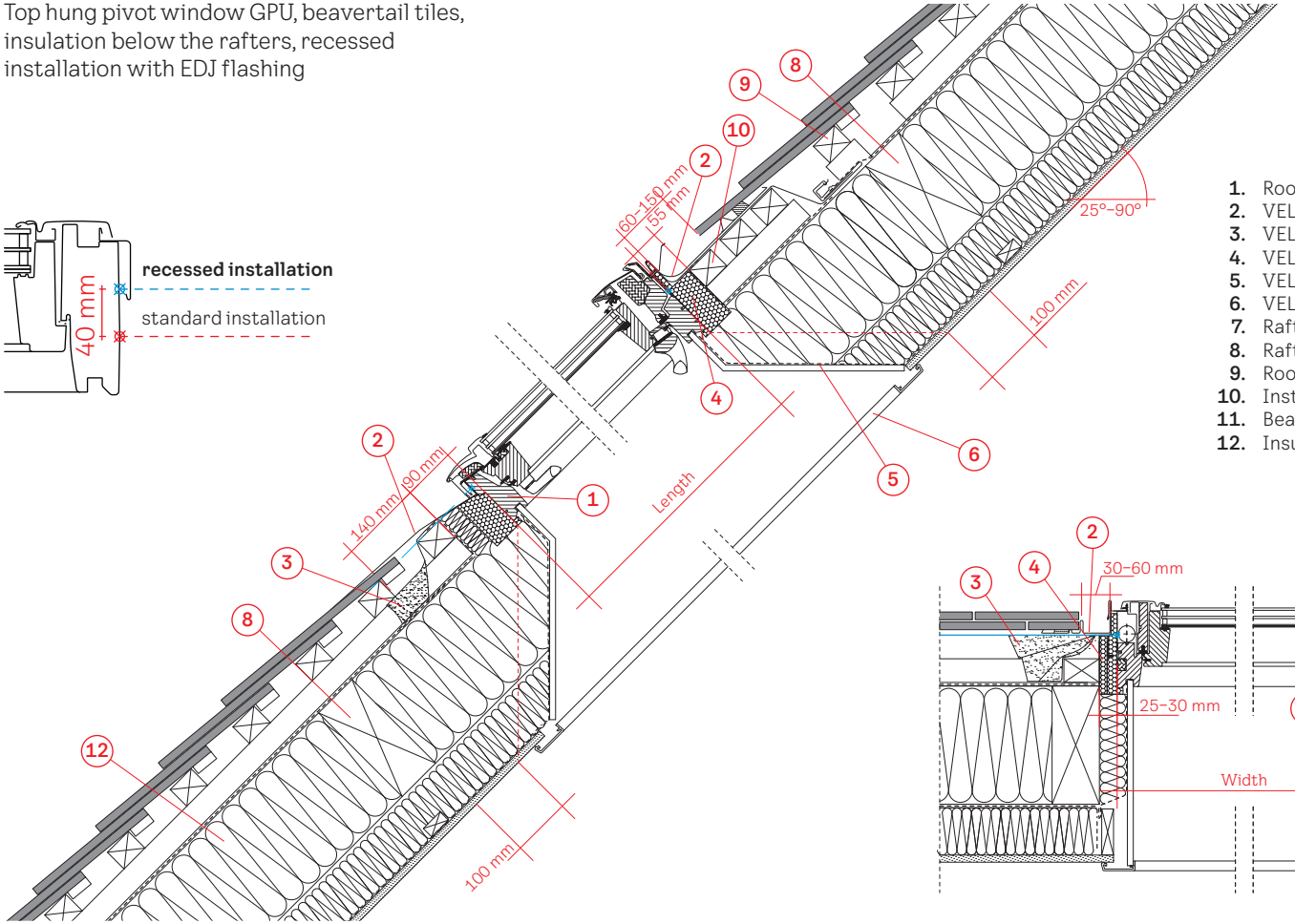
a, b1, b2 – the installation distances of the roof window from the PV modules depend on the PV module manufacturer

juri troy architects
Architekturfotografie Romana Fürnkranz

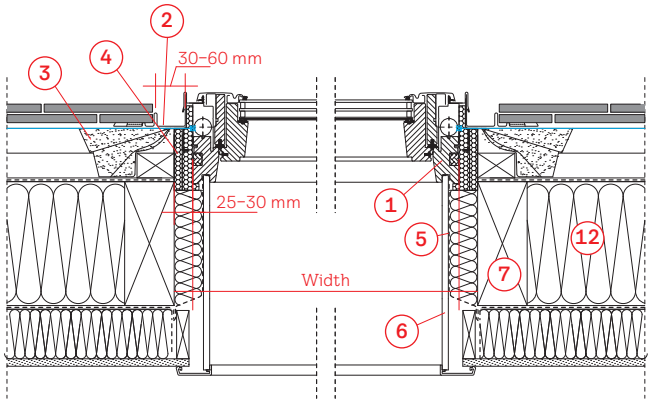
5.3 / Technical drawing

Recessed installation

Top hung pivot window GPU, beavertail tiles, insulation below the rafters, recessed installation with EDJ flashing

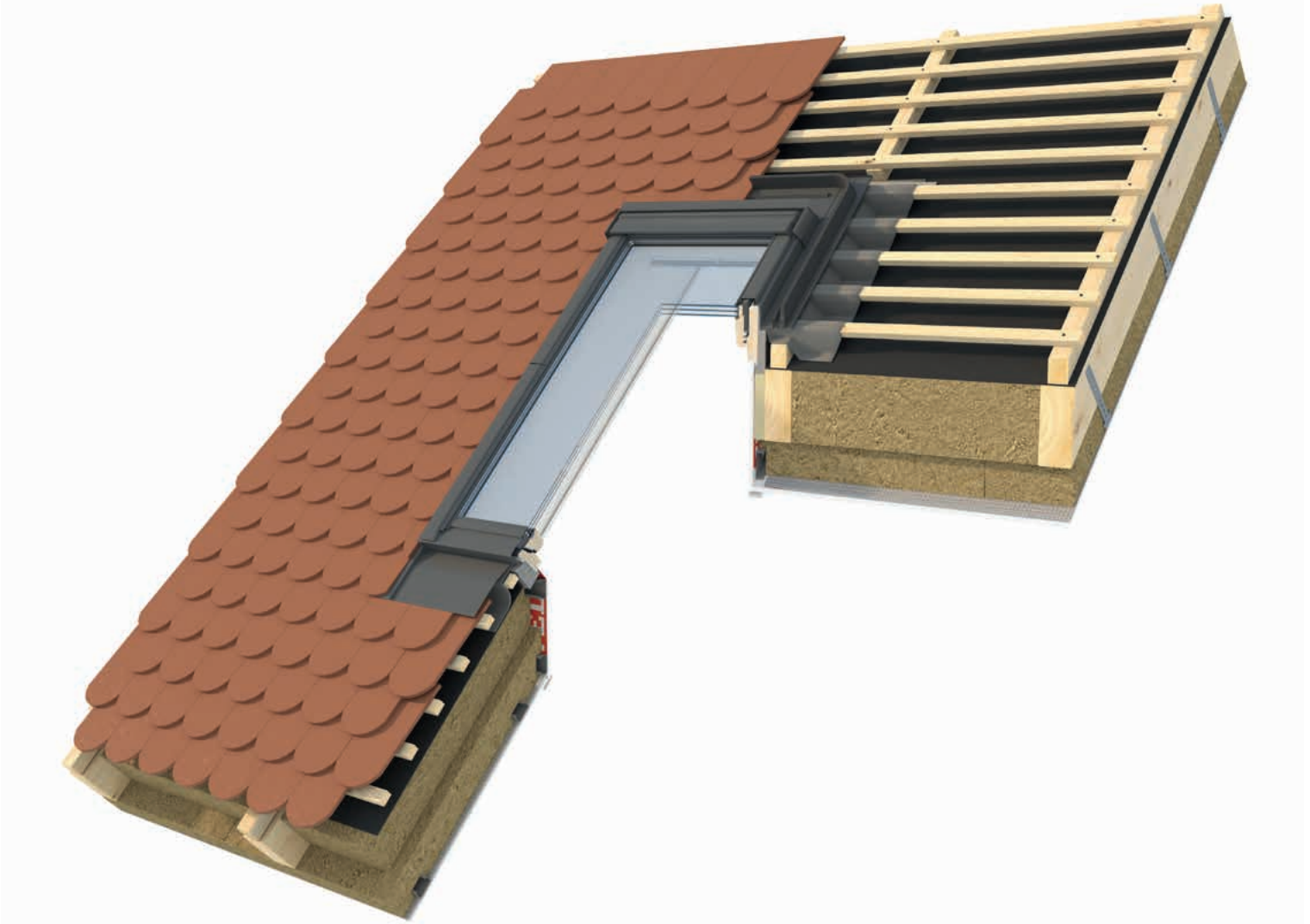


1. Roof window GPU
2. VELUX flashing EDJ
3. VELUX underfelt collar BFX
4. VELUX insulation frame BDX
5. VELUX vapour barrier tape BBX
6. VELUX Lining
7. Rafter
8. Rafter replacement (Trimmer)
9. Roof batten
10. Installation batten
11. Beavertail tiles
12. Insulation



5.3 / Technical drawing

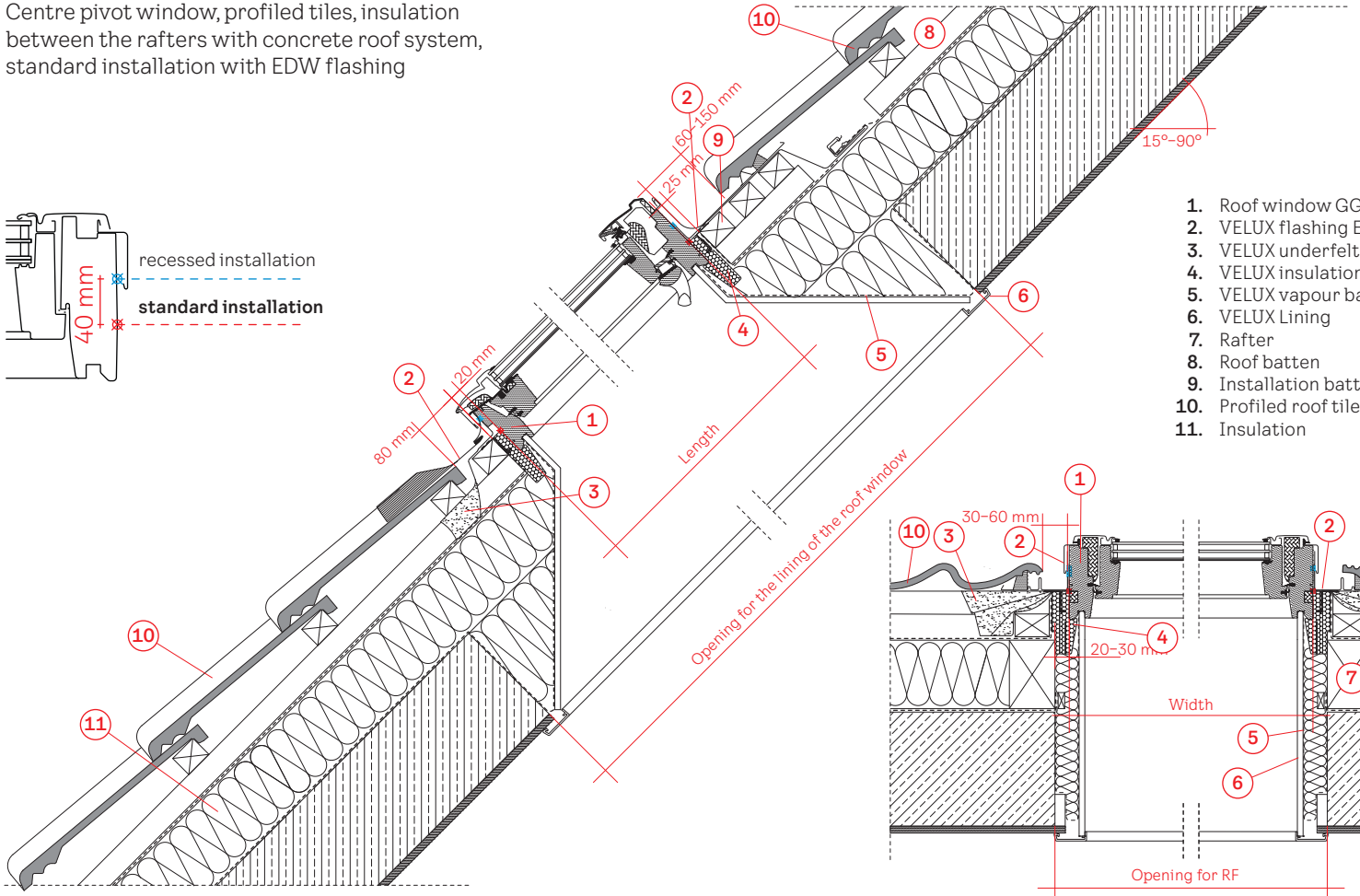
Recessed installation



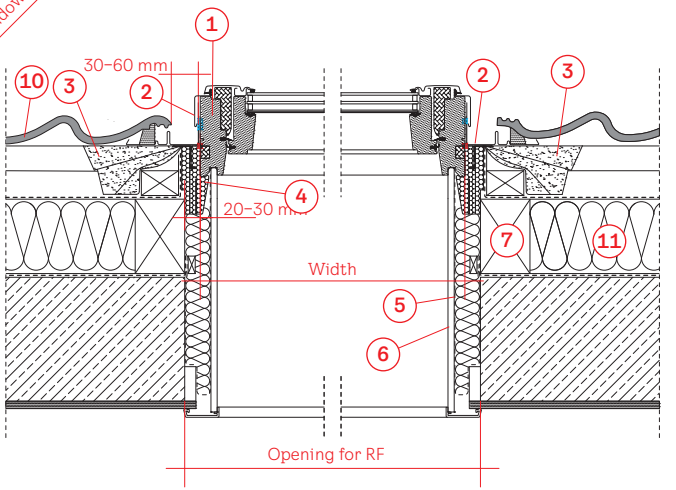
5.3 / Technical drawing

Standard installation

Centre pivot window, profiled tiles, insulation between the rafters with concrete roof system, standard installation with EDW flashing

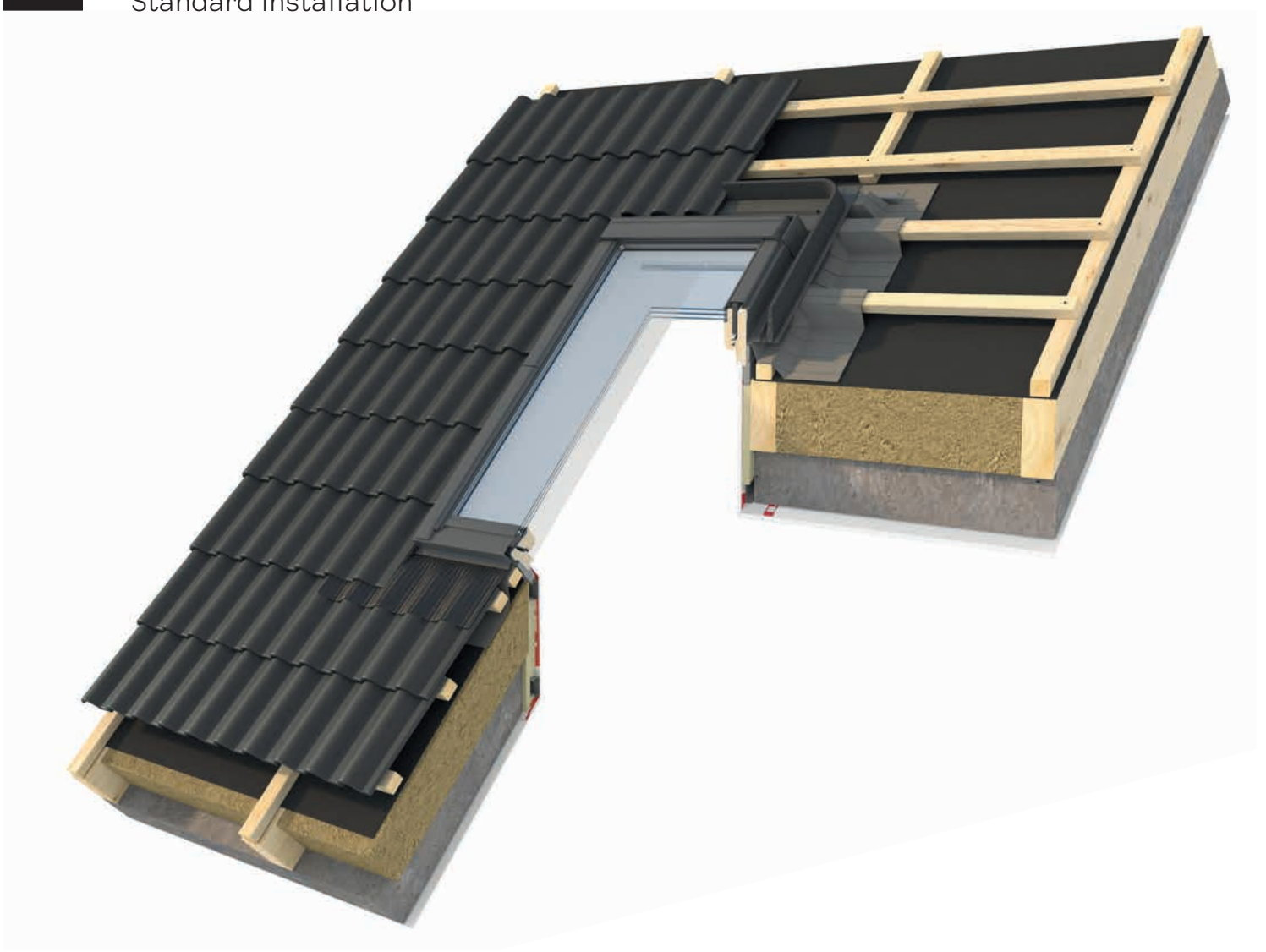


1. Roof window GGL
2. VELUX flashing EDW
3. VELUX underfelt collar BFX
4. VELUX insulation frame BDX
5. VELUX vapour barrier tape BBX
6. VELUX Lining
7. Rafter
8. Roof batten
9. Installation batten
10. Profiled roof tiles
11. Insulation



5.3 / Technical drawing

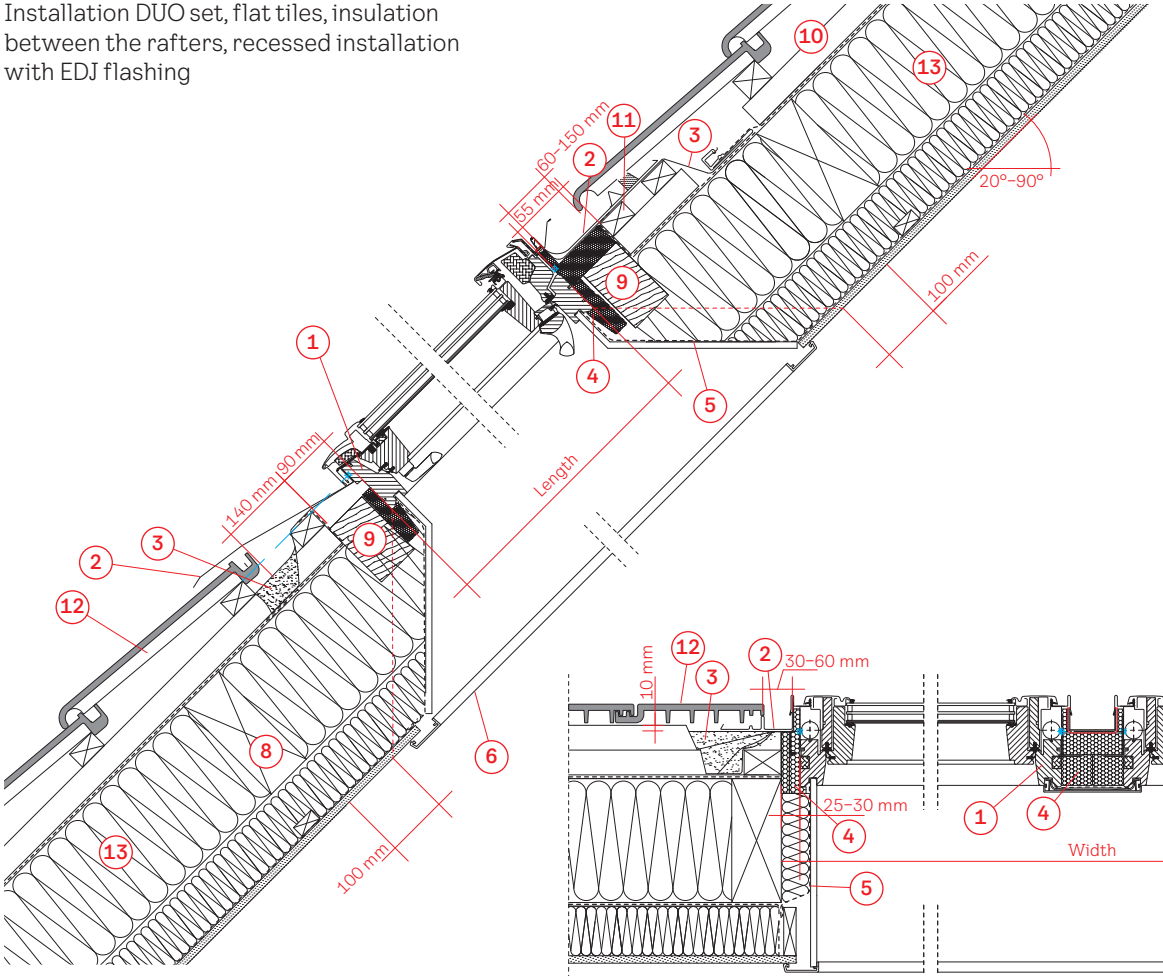
Standard installation

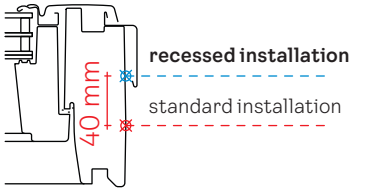


5.3 / Technical drawing

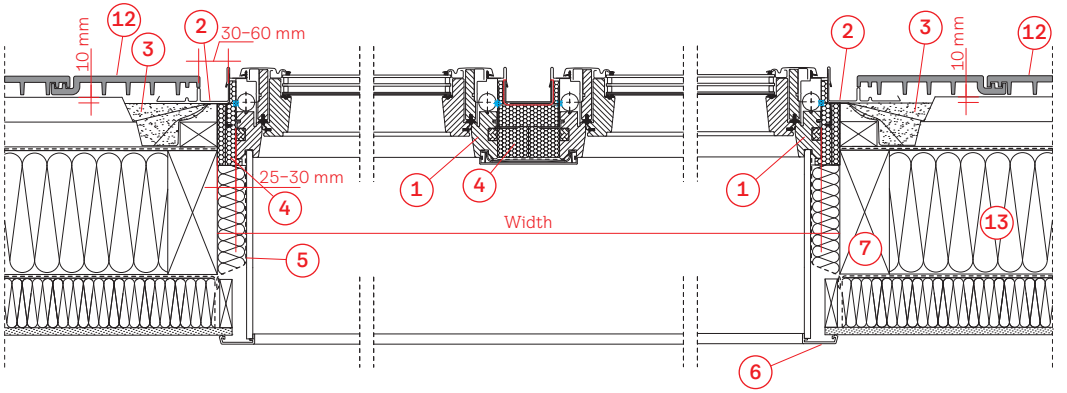
Side-by-side installation

Installation DUO set, flat tiles, insulation between the rafters, recessed installation with EDJ flashing



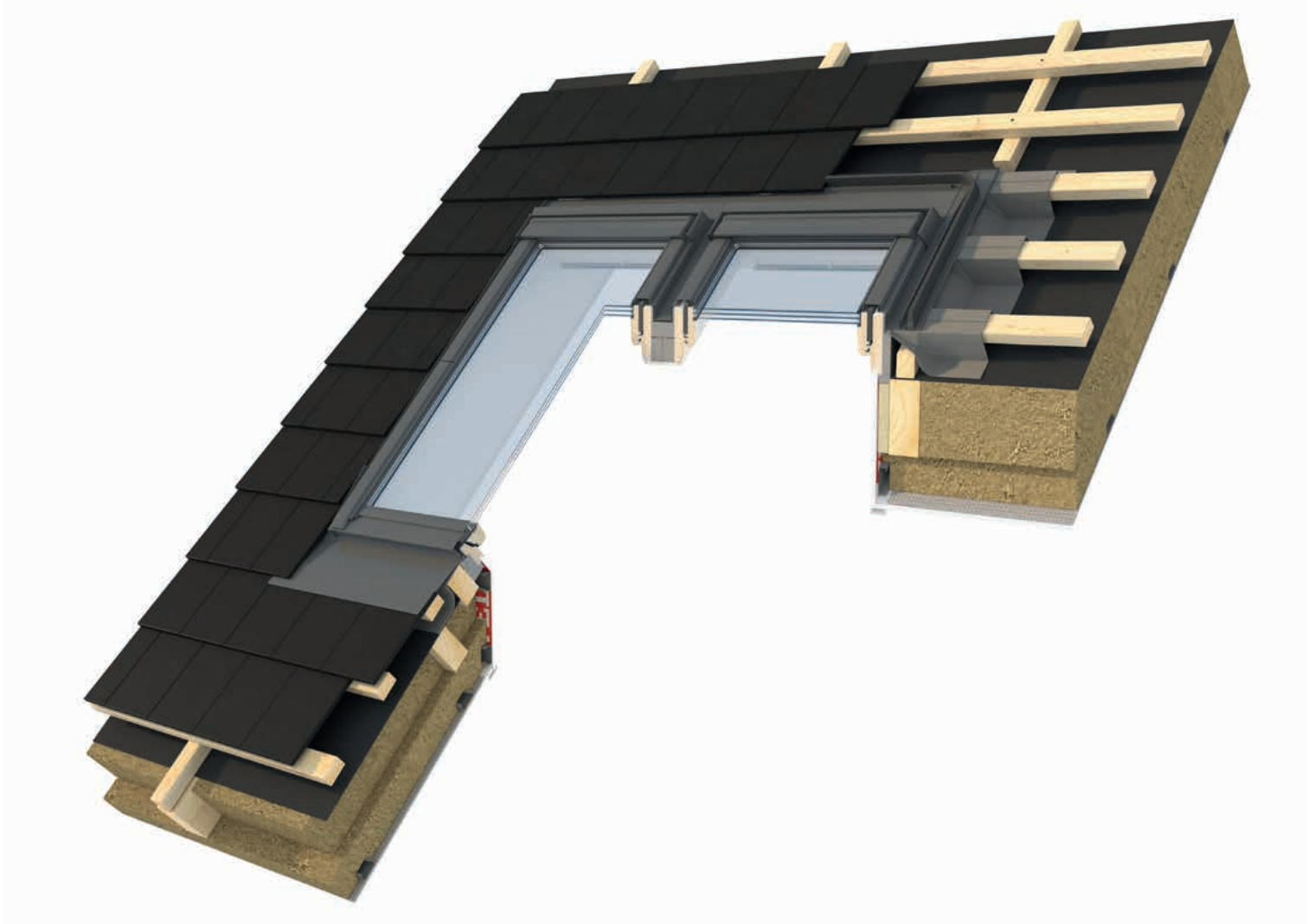


1. Roof window GPL
2. VELUX flashing EDJ
3. VELUX underfelt collar BFX
4. VELUX insulation frame BDX
5. VELUX vapour barrier tape BBX
6. VELUX Lining
7. Rafter
8. Rafter replacement (Trimmer)
9. VELUX EMT trimmer
10. Roof batten
11. Installation batten
12. Flat roof tiles
13. Insulation



5.3 / Technical drawing

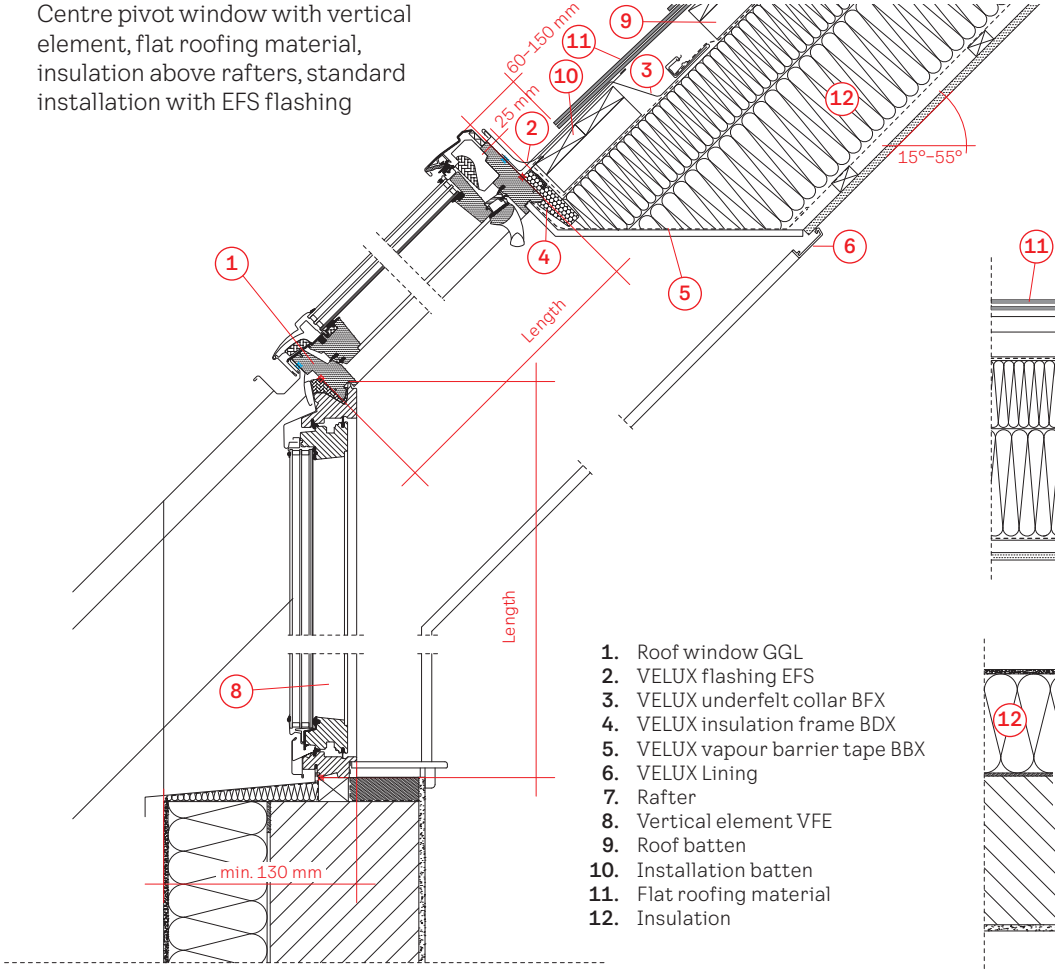
Side-by-side installation



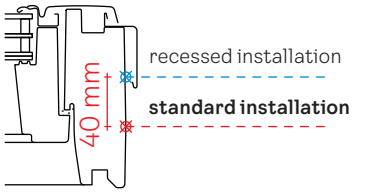
5.3 / Technical drawing

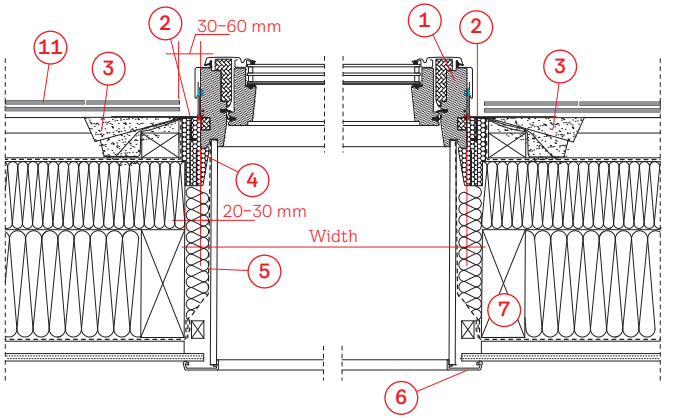
Roof window with vertical element

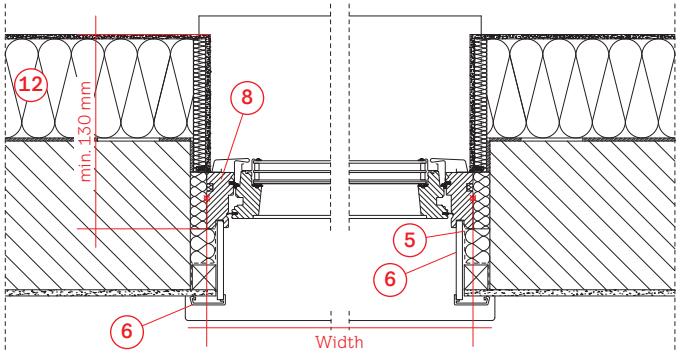
Centre pivot window with vertical element, flat roofing material, insulation above rafters, standard installation with EFS flashing



1. Roof window GGL
2. VELUX flashing EFS
3. VELUX underfelt collar BFX
4. VELUX insulation frame BDX
5. VELUX vapour barrier tape BBX
6. VELUX Lining
7. Rafter
8. Vertical element VFE
9. Roof batten
10. Installation batten
11. Flat roofing material
12. Insulation

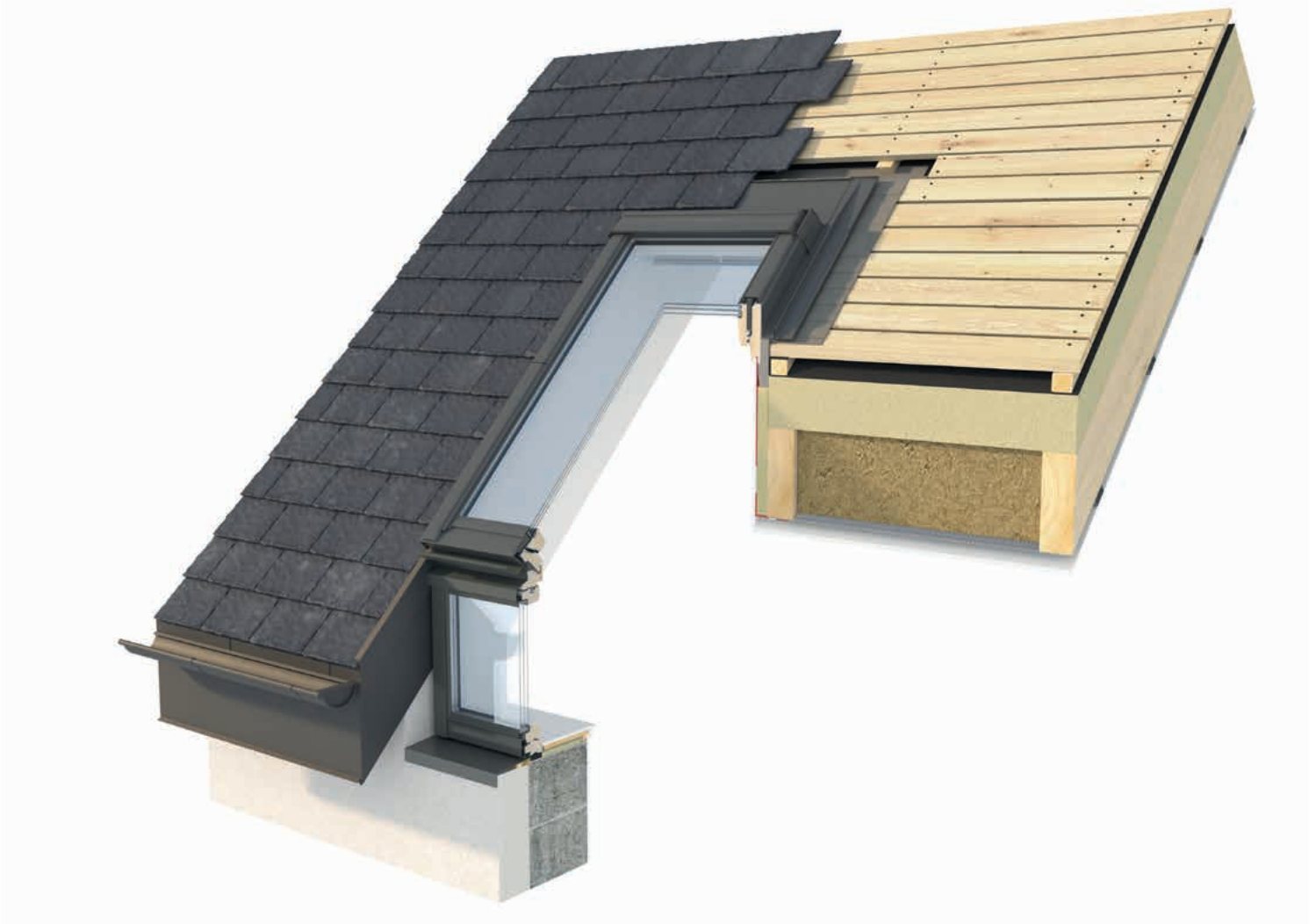






5.3 / Technical drawing

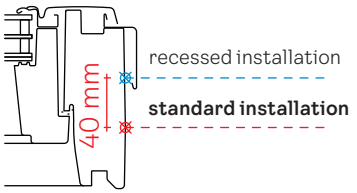
Roof window with vertical element

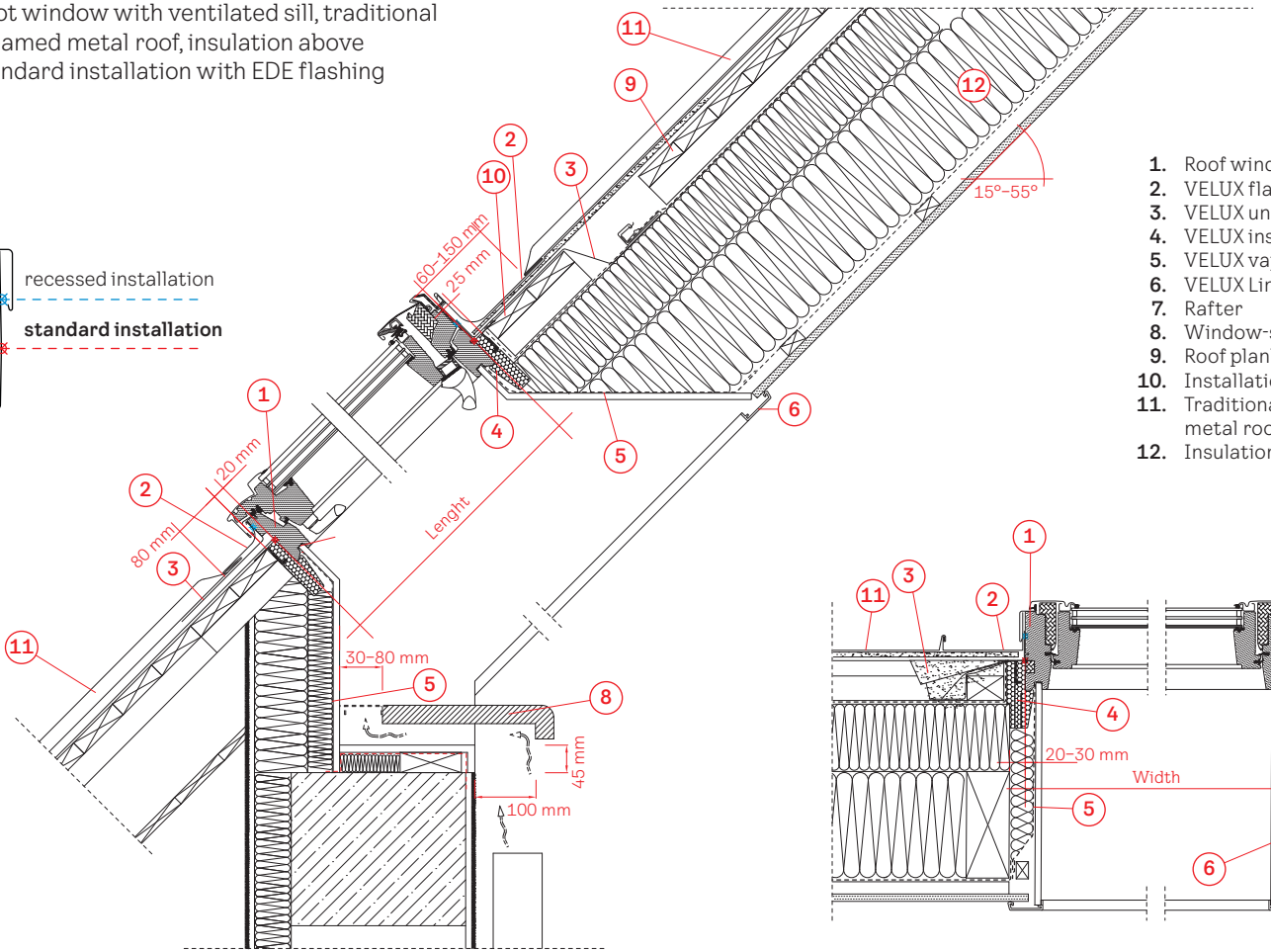


5.3 / Technical drawing

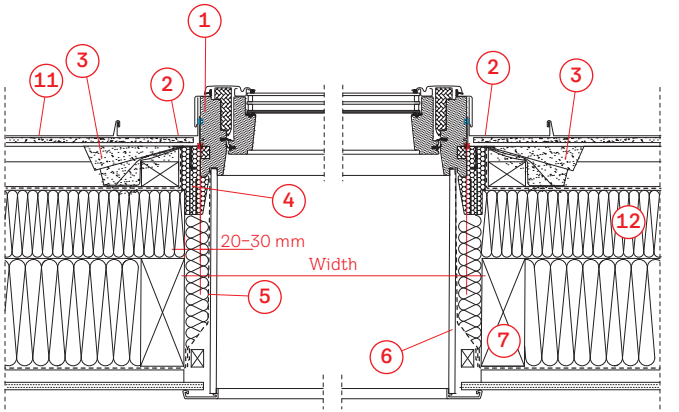
Roof window with window-sill

Centre pivot window with ventilated sill, traditional standingseamed metal roof, insulation above rafters, standard installation with EDE flashing



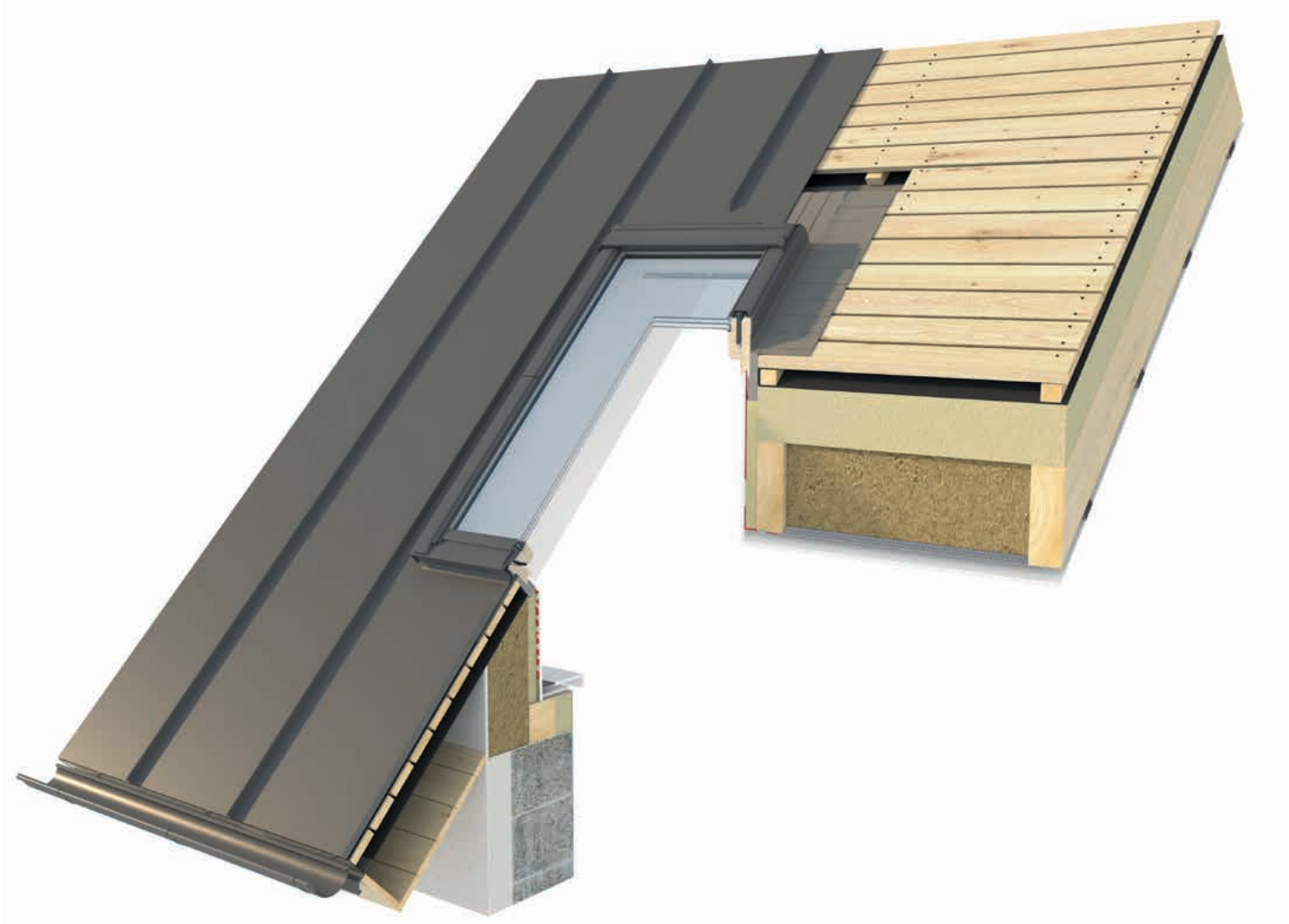


1. Roof window GGU
2. VELUX flashing EDE
3. VELUX underfelt collar BFX
4. VELUX insulation frame BDX
5. VELUX vapour barrier tape BBX
6. VELUX Lining
7. Rafter
8. Window-sill
9. Roof plank
10. Installation plank
11. Traditional standingseamed metal roof
12. Insulation



5.3 / Technical drawing

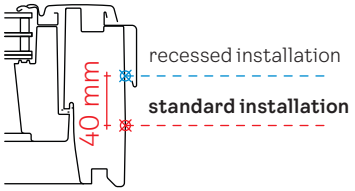
Roof window with window-sill

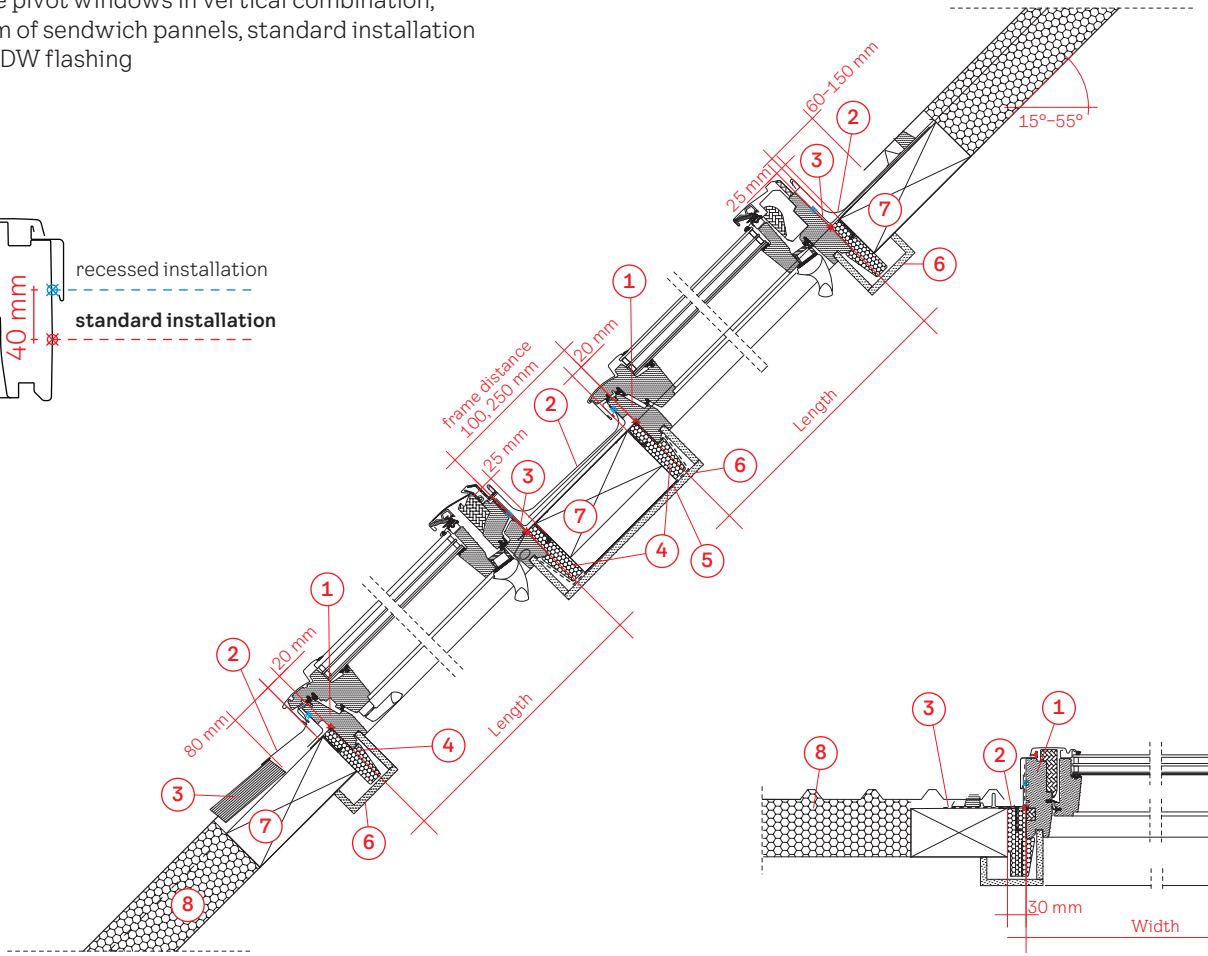


5.3 / Technical drawing

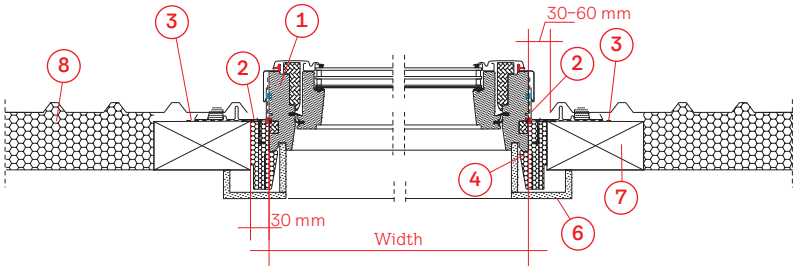
Vertical twin installation

Centre pivot windows in vertical combination, system of sendwich pannels, standard installation with EDW flashing



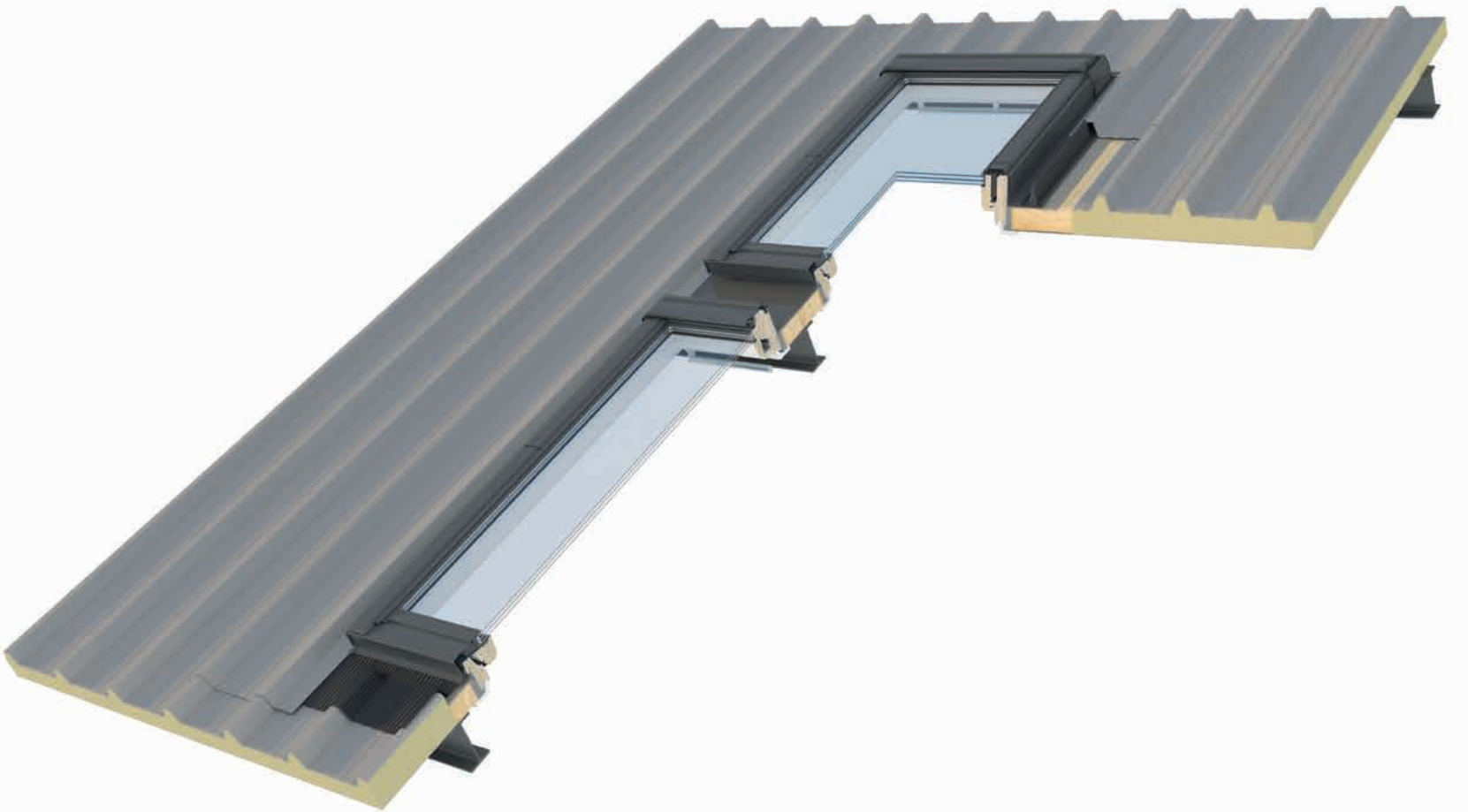


1. Roof window GGU
2. VELUX flashing EDW
3. VELUX underfelt collar BFX
4. VELUX insulation frame BDX
5. VELUX vapour barrier tape BBX
6. Plasterboard lining
7. Supporting trimmer
8. System of sandwich panel



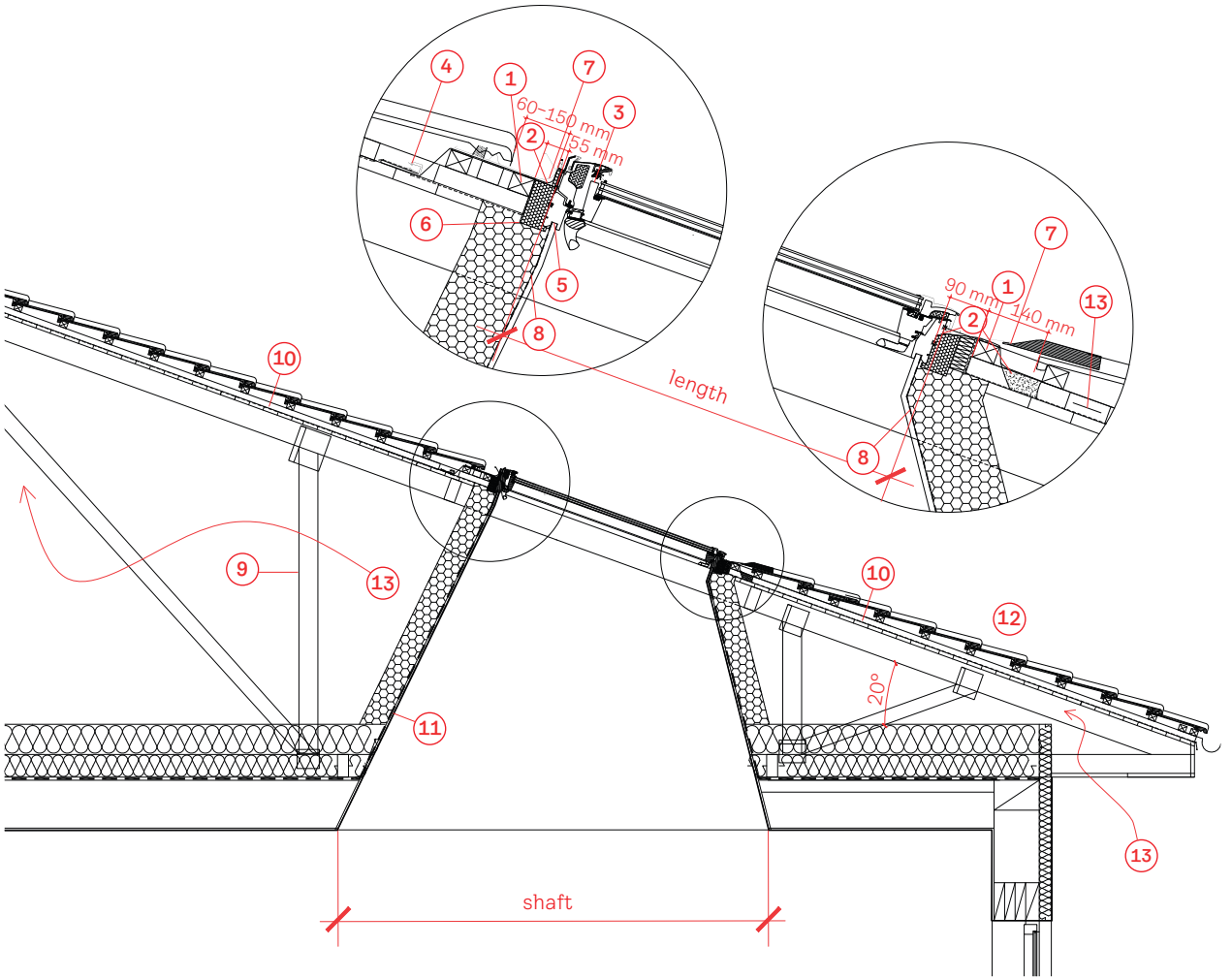
5.3 / Technical drawing

Vertical twin installation



5.3 / Technical drawing

Light shaft



1. Roof window mounting rail
2. VELUX BFX underfelt collar
3. Recessed installation:
   The window is installed 4 cm deeper than standard, the mounting brackets are installed on the side of the frame at the height of the blue line Electric GGU 006621
4. Drainage gutter of the VELUX system (place of connection of the waterproofing sleeve with the waterproofing layer of the roof)
5. Connection of BBX vapour barrier to the roof window
6. BDX – thermal insulation frame
7. EDJ 2000 – roof window flashing
8. BBX – VELUX vapour barrier foil
9. Hammered roof truss
10. Ventilated gap
11. Plasterboard 12.5 mm
12. Permissible roof pitch for the situation from 20° for recessed installation (standard installation from 15°)
13. Ensure ventilation flow

5.3 / Technical drawing

Light shaft

06/ VELUX support

With sustainability becoming an integrated part of designing buildings and the regulation surrounding the process, is essential to have a holistic approach.

Maximize your project by exploring a curated offering of initiatives that inspire and enlighten. Find services tailored to support your design process, fostering healthy and sustainable buildings.

Navigate into three key categories – **Discover, Develop, and Deliver** – based on the stages of every architectural project.

6.1 / Tools and services

Support for all project phases

Discover inspiration

- Case stories
- Demonstration buildings
- Daylight & Architecture
- Case Hub
- Architectural visualization service

Discover innovation

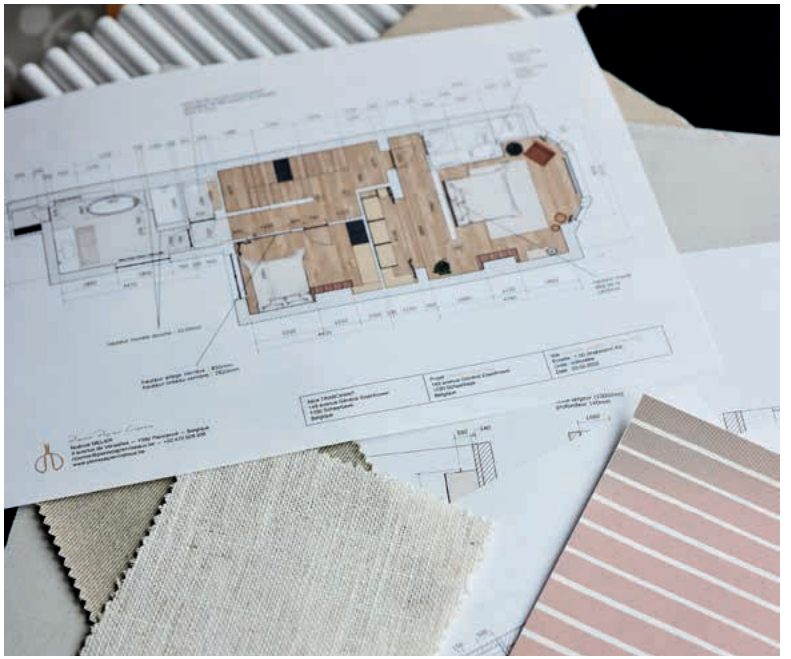
- Build for Life
- Living Places
- The Compass
- LKR Innovation House

6.1 / Tools and services

Support for all project phases

Develop your designs

- Project design support:



Develop your projects

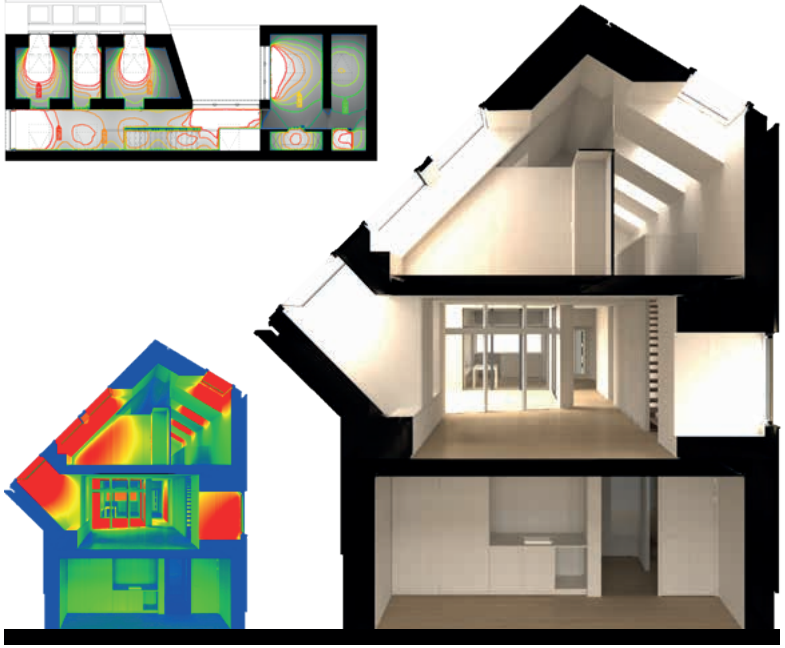
- Product specifications

6.1 / Tools and services

Support for all project phases

Deliver in details

- Daylight Visualizer
- Evaluate compliance with EN 17037
- Photorealistic visualisations
- Simulate Daylight conditions



Deliver with BIM/CAD

- VELUX CAD
- 3D BIM objects
- 2D configurator
- Section drawings and details.in .dwg

Index

Design Guide

Contact info
xxxxxxxxx xxxx xxxxxxxxxxxx
xxxx xxxxxxxxx xxxxxxx xxxxxx
email@velux.com
www.velux.com

www.velux.com

Transforming Spaces