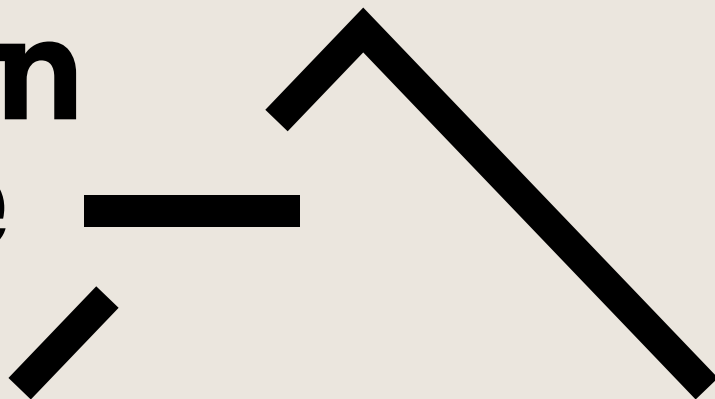
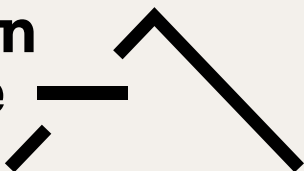


# Design Guide

Version 2.01



# Design Guide



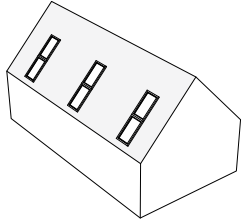
# 01/ Basics



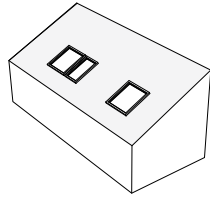
# 1.1 / Overview of roof design

Common roof types

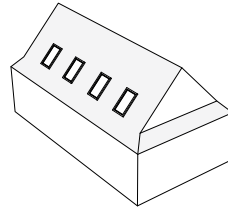
gable roof



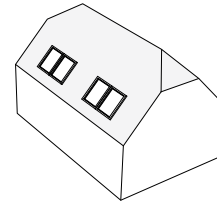
skillion roof/shed roof



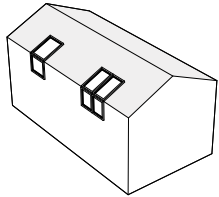
dutch gable roof



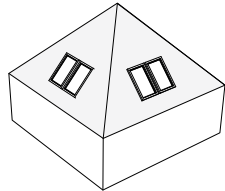
half-hipped roof



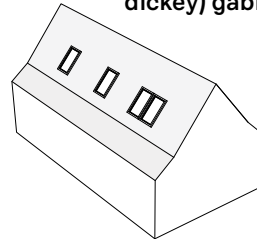
gable roof with high attic parapet



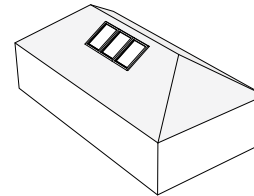
pyramid hip roof



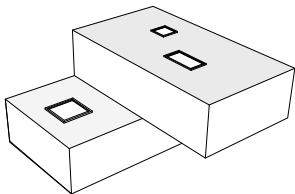
polynesian (gullwing/dickey) gable



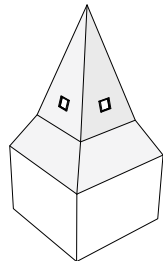
hip roof



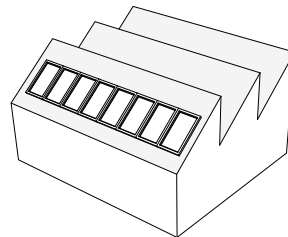
flat roof



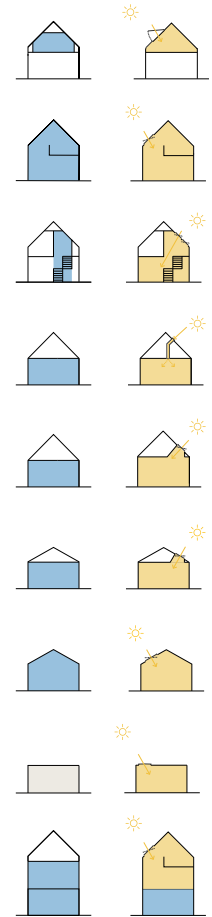
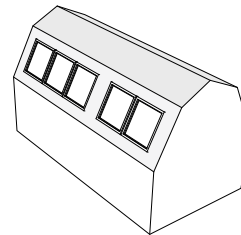
tower roof



saw tooth roof



gambrel roof/Mansard roof



Additional roof types that could be useful: mansard (actual), a frame, catslide/saltbox, lean to, butterfly

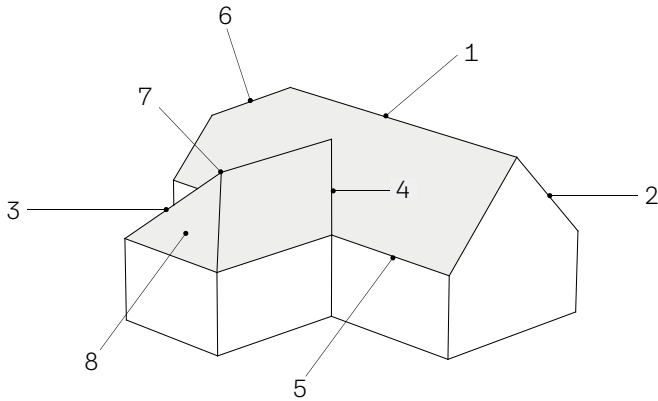
We illuminate every roof.



# 1.1 / Overview of roof design

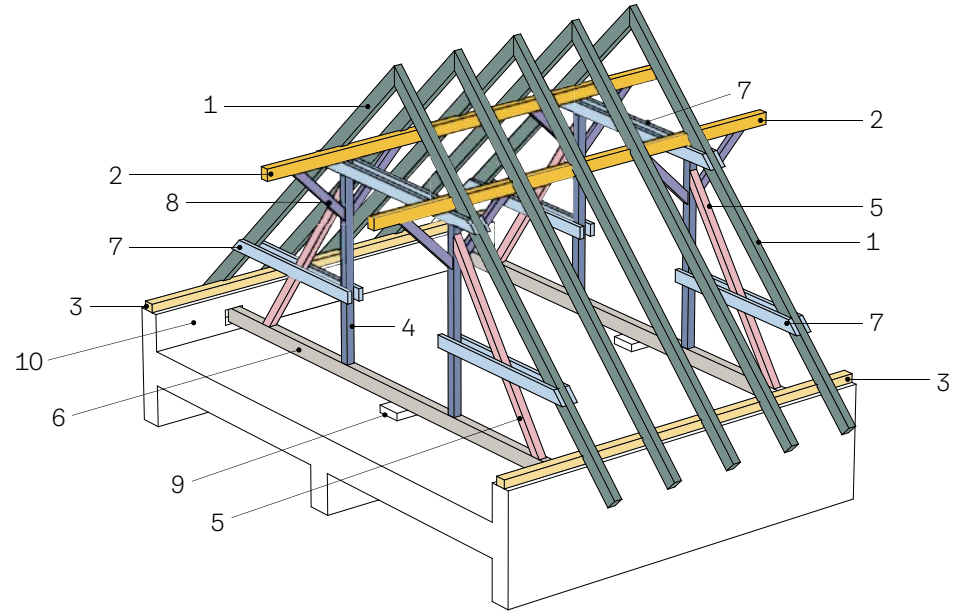
## Terminology

### 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



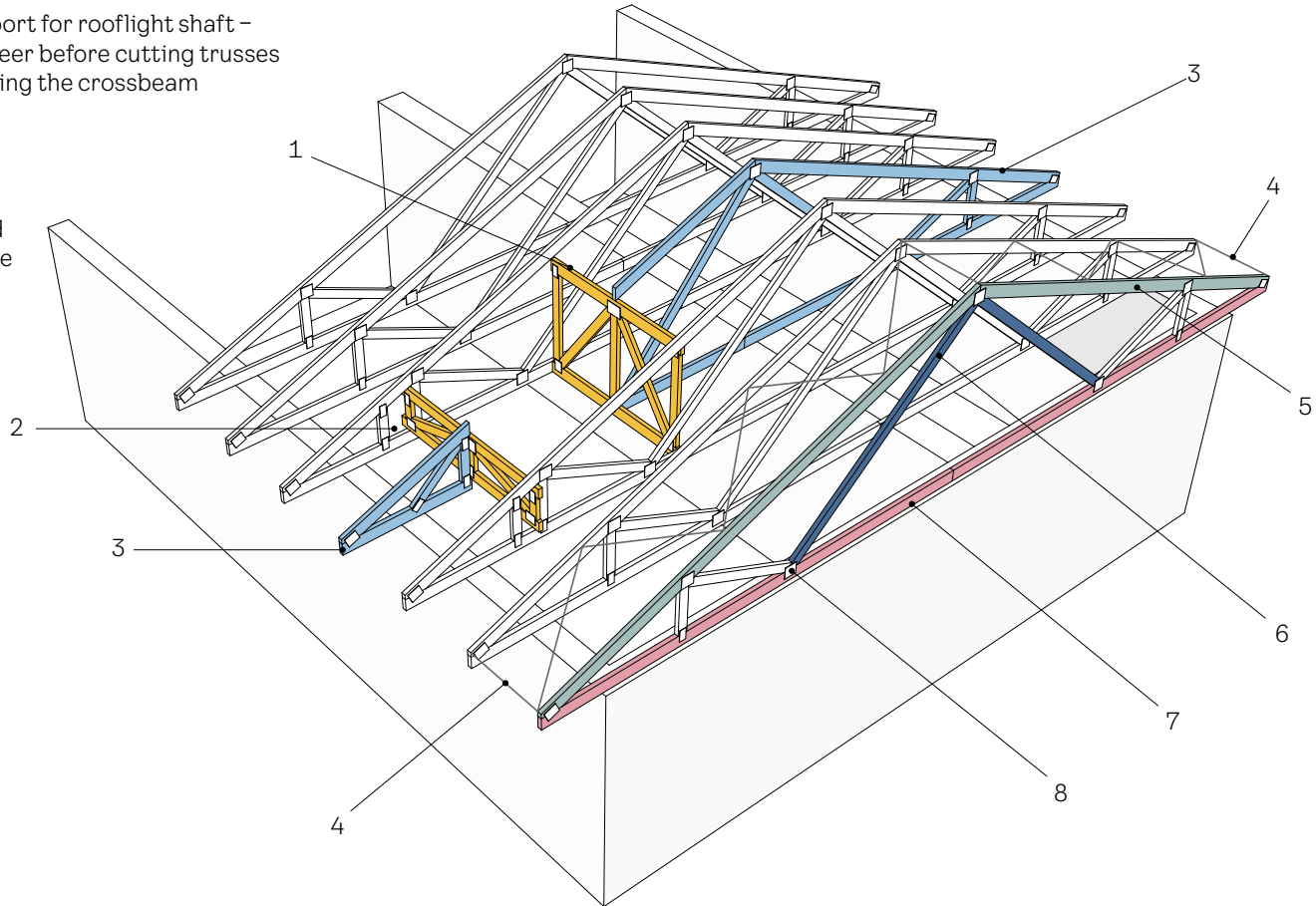
- 1 - rafter/top chord
- 2 - purlin
- 3 - wall plate
- 4 - queen post/framing
- 5 - inclined struts
- 6 - bottom chord/tie collar
- 7 - upper and lower tie beams
- 8 - straps
- 9 - beam support
- 10 - external wall/parapet wall (structural/load bearing)

# 1.1 / Overview of roof design

## Terminology

### roof trusses elements

- 1 – trimmer support for rooflight shaft –  
consult engineer before cutting trusses
- 2 – slot for inserting the crossbeam
- 3 – split truss
- 4 – wind bracing
- 5 – top chord
- 6 – web
- 7 – bottom chord
- 8 – gang nail plate

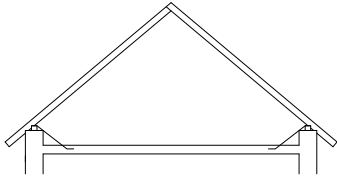


# 1.1 / Overview of roof design

Roof trusses – division of trusses according to the type of main connection / structure

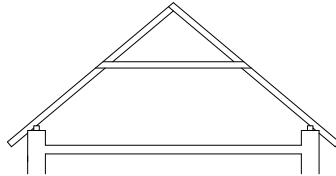
## rafter system

the structure consists of pairs of RAFTERS connected at the top



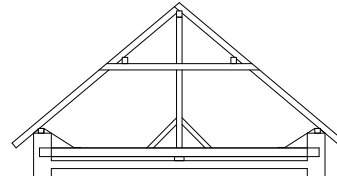
## collar beam truss

formed by rafters and horizontal reinforcements



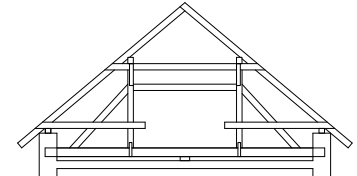
## purlin binding system with vertical posts (king post)

with vertical posts (king post)



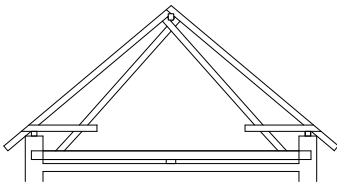
## purlin binding system queen posts

queen posts



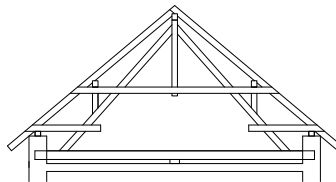
## purlin binding system with sloping posts (queen post)

with sloping posts (queen post)



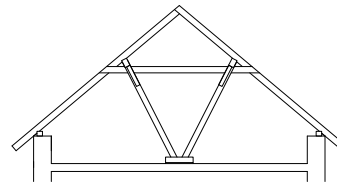
## purlin binding system queen post with a strut

queen post with a strut



## purlin binding system queen post with a shortened tie beam

queen post with a shortened tie beam

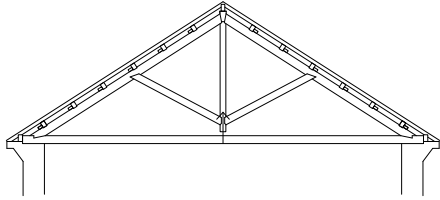


# 1.1 / Overview of roof design

Roof trusses – the most commonly used trusses in reconstructions

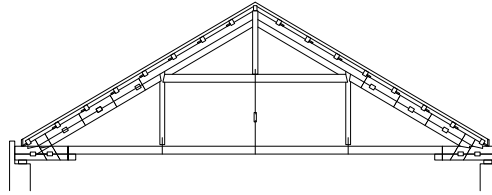
## king post truss

with a king post truss; characteristic features include horizontally oriented trusses with a gutter



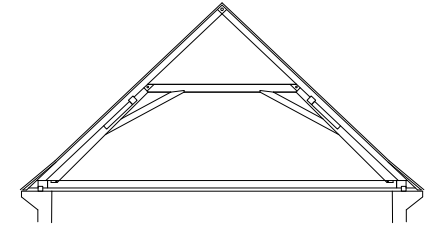
## queen post truss

with three hanging trusses; characteristic features include horizontally oriented trusses with a gutter



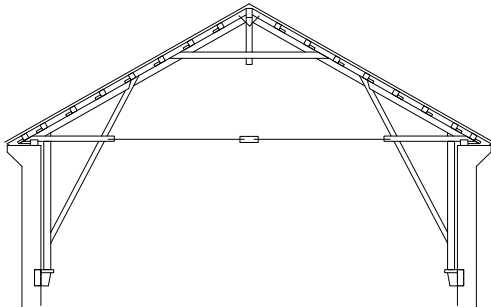
## scissor truss

inclined posts fixed by horizontal struts



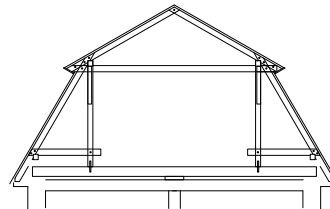
## ardant truss

principle of struts and hanging truss – for roofing spans larger than 20 m



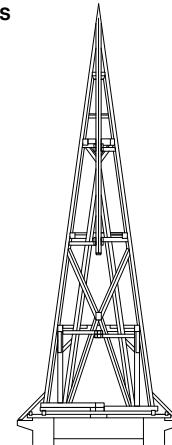
## mansard truss

from two roof planes of different inclinations



## tower trusses

truss derived from a purlin system

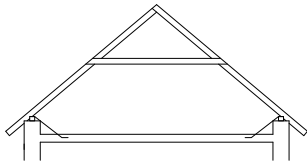


# 1.1 / Overview of roof design

Roof trusses – the most commonly used trusses in new buildings

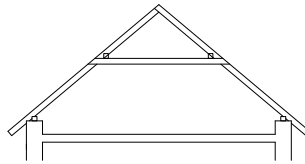
## collar beam truss

with anchoring of the wall beam to the ceiling structure, suitable for family houses with residential attics and span in the range of 6–9 m



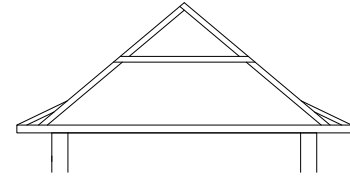
## collar beam truss

with hanger rod, suitable for family houses with a residential attic and a span of 6–11 m



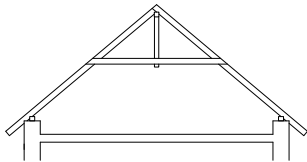
## collar beam truss

with flared eaves, suitable for family houses with a residential attic with a span of 6–11 m



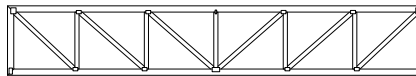
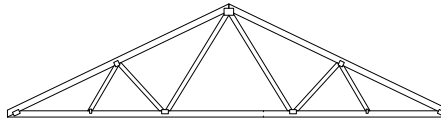
## collar beam truss

with hanger rod, suitable for family houses with a residential attic with a span of 6–11 m



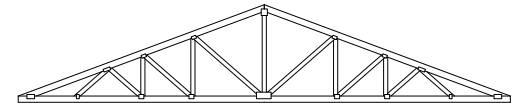
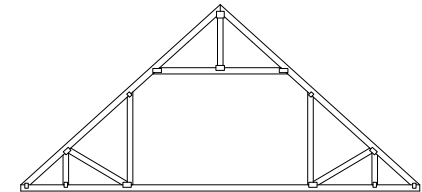
## frame system

suitable for family houses with a non-residential/partially used attic with a span of 6–30 m



## frame system

suitable for family houses with a non-residential/partially used attic with a span of 6–30 m



# 1.2 /Basic requirements

Recomendation of floor area with a sloping ceiling

## Floor area in Residential buildings

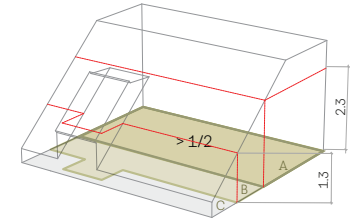
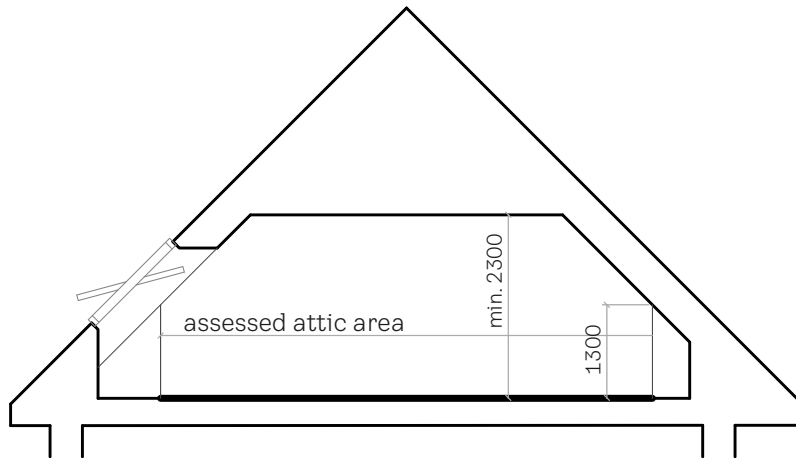
The living room should have an area of at least 8 m<sup>2</sup> / if the apartment consists of a single room, it should have an area of at least 16 m<sup>2</sup> / a room with sloping ceilings should have a height of min. 2.3 m at least above half of the floor area / this is defined by an imaginary plane 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 m<sup>2</sup>, volume of at least 20 m<sup>3</sup> / for sleeping of two people a volume of at least 30 m<sup>3</sup>.

### Floor space area and statement of the area

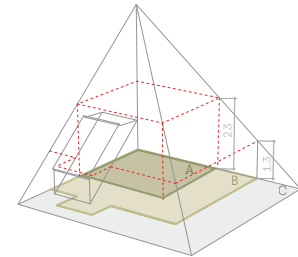
We distinguish two areas of floor space / to assess whether it is a living room or not / for the purposes of the statement of area, i.e. to determine the actual floor covering needs for a given room.

### 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

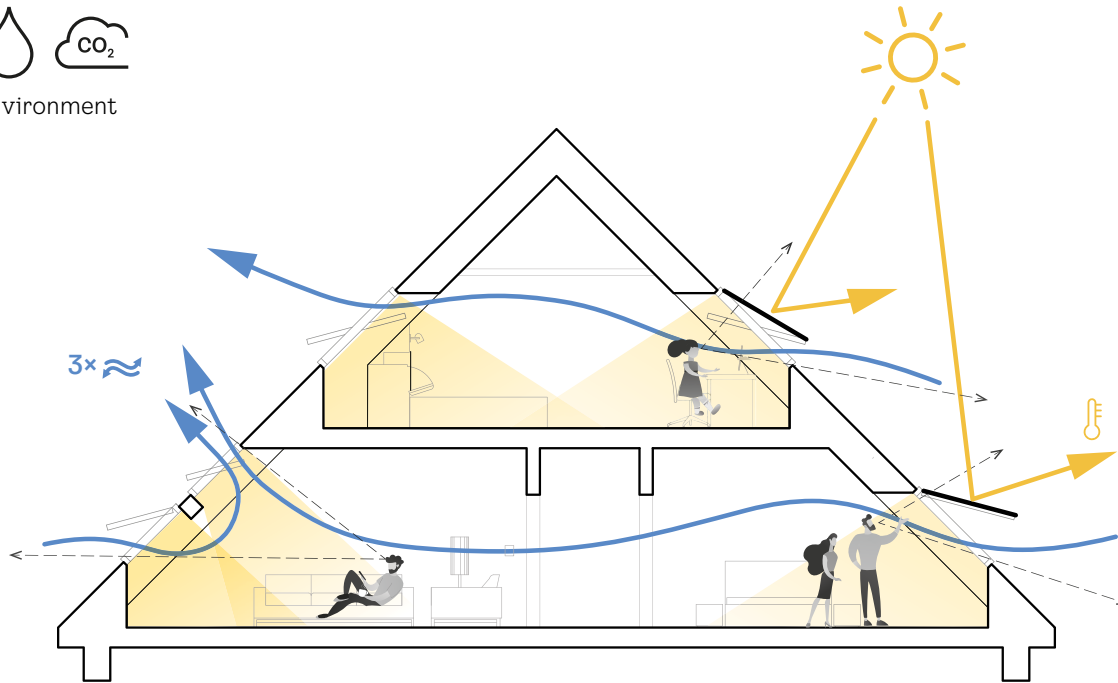


# 1.3 /Optimal use of the attic

Requirements and recommendations for achieving quality indoor climate



indoor environment  
sensor



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

# 1.3 /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<sup>3</sup>/h per person must be delivered / minimum ventilation intensity 0.5 l/h / the indicator of the quality of the indoor environment is CO<sub>2</sub> concentration / the concentration in the indoor air must not exceed 1500 ppm / the CO<sub>2</sub> 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

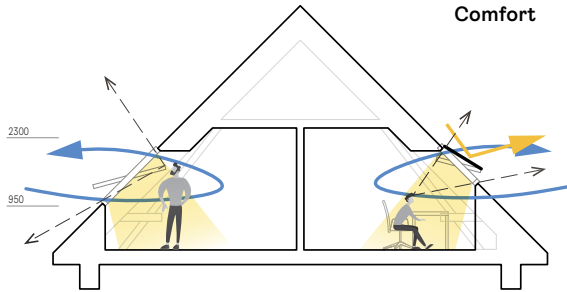
Reduction of outdoor noise by noise absorbing structures / eliminate internal noise by using materials with noise attenuation / design the layout of the room so that it allows good listening / on the street side, the roof window has an 8 dB lower noise level than the facade window / roof window to the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

# 1.3 /Optimal use of the attic

Recommendations for optimising indoor comfort

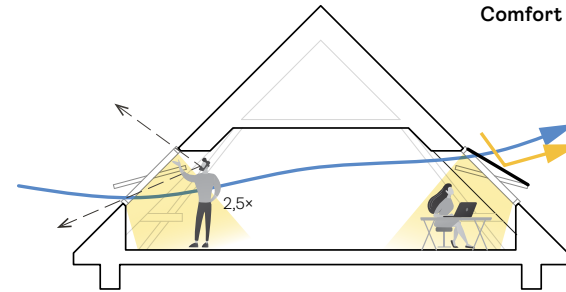
## attic in single family home

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



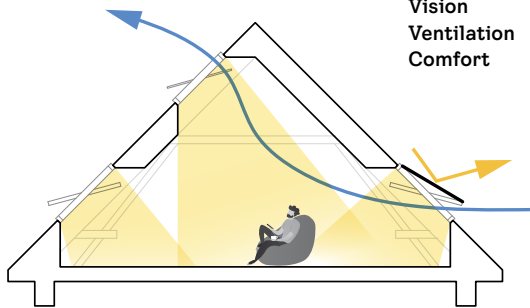
small rooms in the attic / lowered ceiling / high attic knee wall / manual control of windows and shading

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



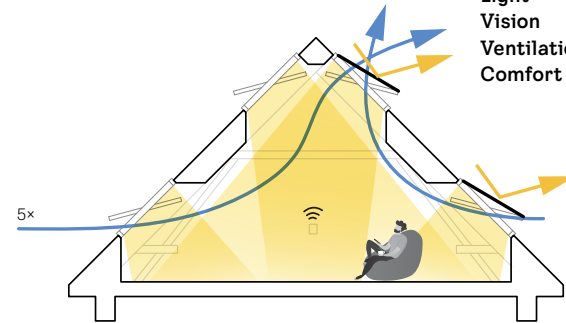
larger room / cross ventilation / lowered ceiling / manual control of windows and shading

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	■ ■ ■ ■ ■

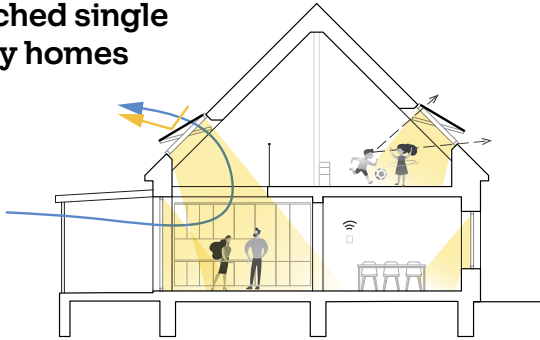


larger room / lighting of the entire depth of the room / open ceiling for a larger volume of air in the room / cross ventilation and chimney effect / automatic window control and shading

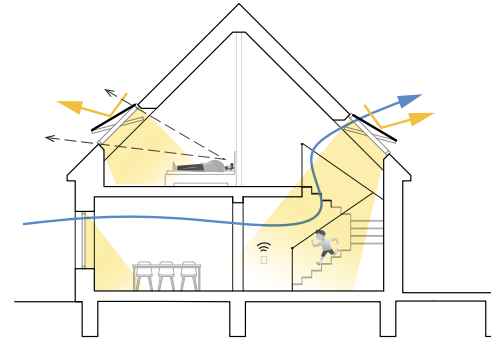
# 1.3 / Optimal use of the attic

Recommendations for optimising indoor comfort

## detached single family homes

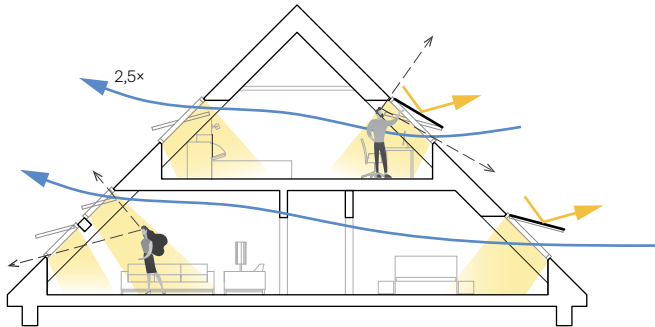


ground floor daylight through roof / daylight in the middle of the layout / efficient ventilation / design element / unique atmosphere / automatic window control

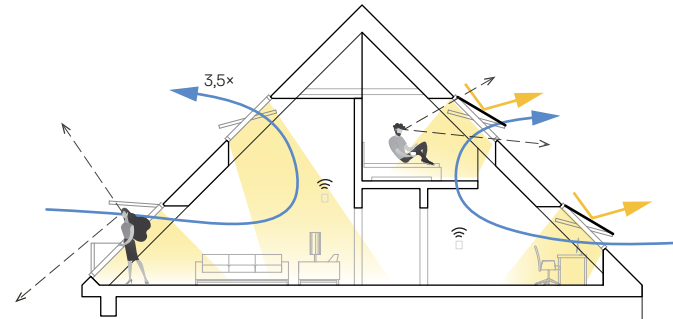


stairwell / effective natural ventilation of the family home / increased safety of movement on the staircase / design element / unique atmosphere / automatic window control

## 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

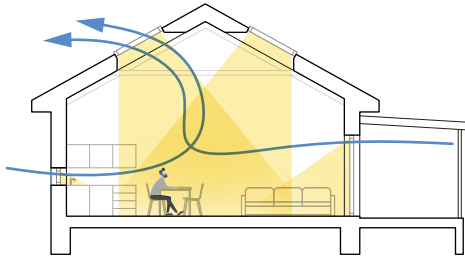


two-storey living space / larger air volume / better lighting / ventilation chimney effect / atmosphere / room with mezzanine / remote control of high windows

# 1.3 /Optimal use of the attic

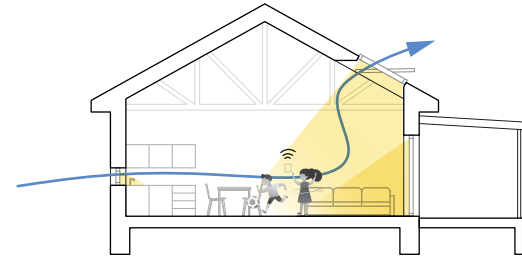
Recommendations for optimising indoor comfort

## single story, open structure



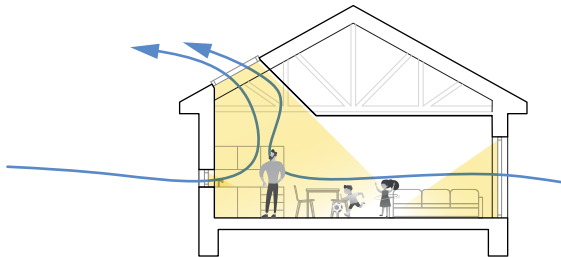
visual construction of trusses over a selected part of the layout / unique atmosphere / enough light in the entire depth of the room / effective ventilation

## single story, exposed trusses



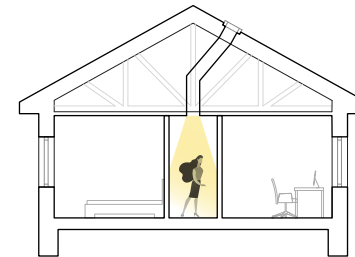
creation of a great visual impression by opening into the truss space / optical enlargement of the space with sufficient daylight intensity / even lighting of the room from above / larger volume of air in the room / controlled natural ventilation with chimney effect

## 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

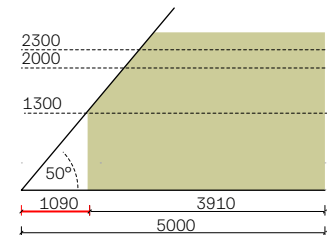
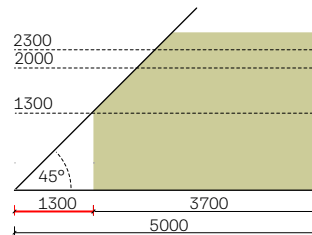
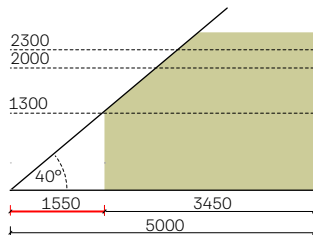
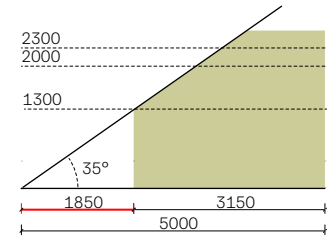
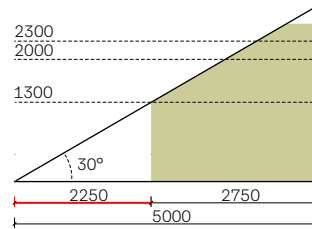
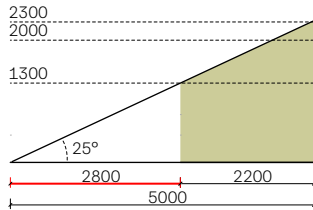


bright impression of otherwise dark, internal spaces / simple way to naturally illuminate small, central rooms / design solution

# 1.3 /Optimal use of the attic

Useable attic space dependent on roof slope

attics with a higher roof pitch are more easily utilised.

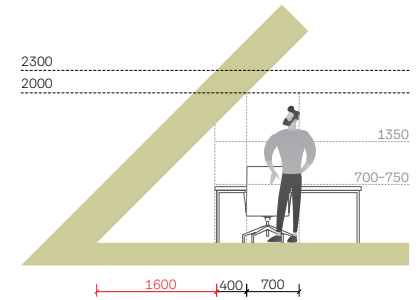
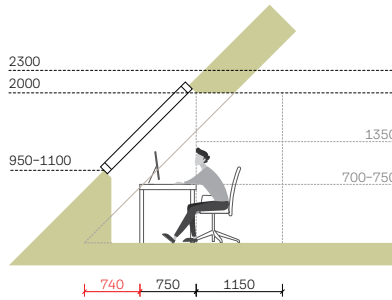
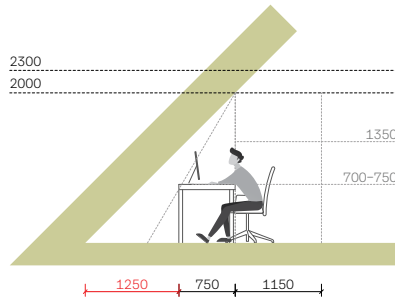




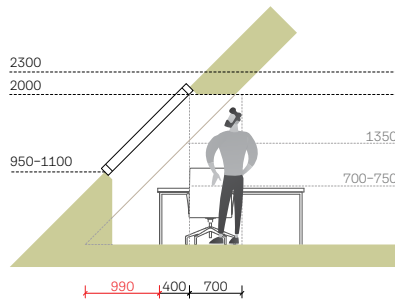
# 1.4 / Attic ergonomics

Basic ergonomics for placing furniture under a 45° slope

## desk location

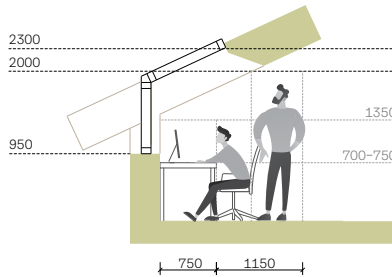


better use of space / targeted lighting of the work surface / perfect view

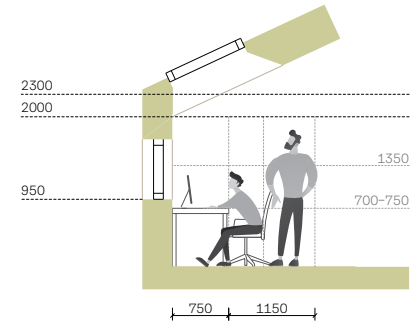


extension of usable space increased by depth of lining to roof window / pay attention to the direction of the light falling on the desk

## 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

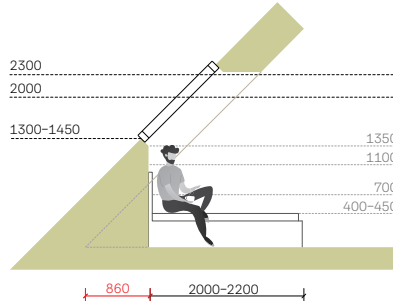
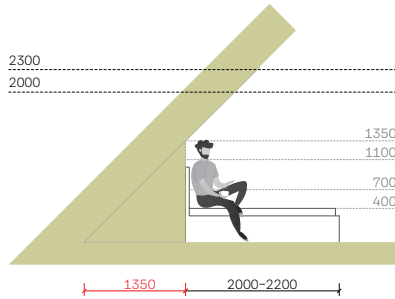


solution of undersizing of facade windows in buildings with low roof pitch / addition of roof lighting

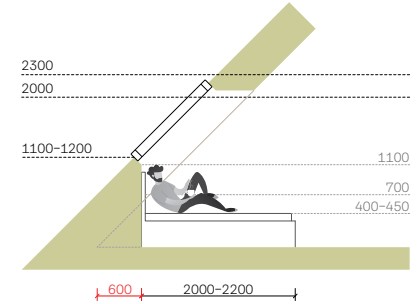
# 1.4 /Attic ergonomics

Basic ergonomics for placing furniture under a 45° slope

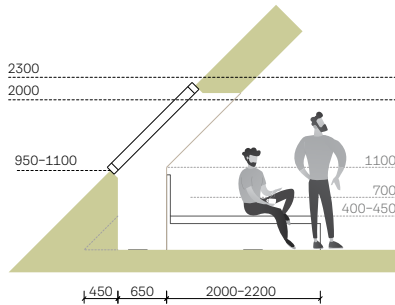
## bed location



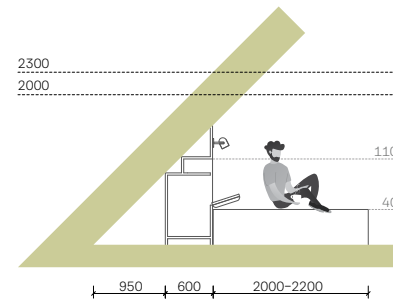
better use of layout / increase of usable area / higher attic knee wall



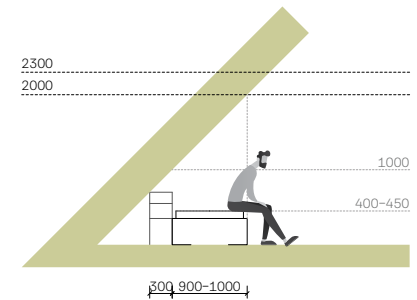
creation of a space with a minimum height for placing the bed under the window



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

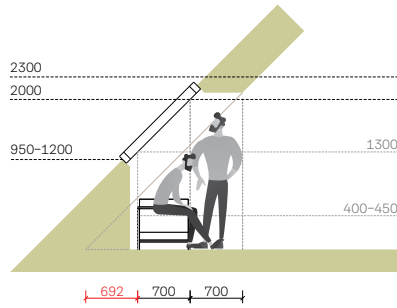
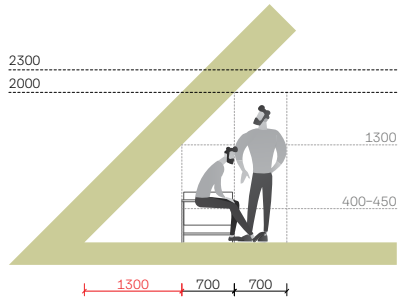


placement of the furniture by the bed parallel to the inclined wall

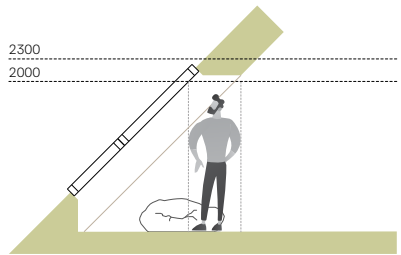
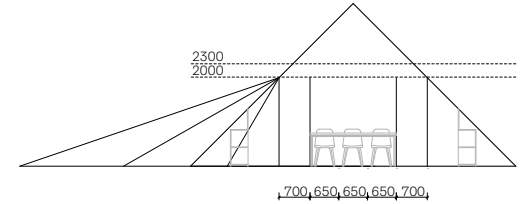
# 1.4 /Attic ergonomics

Basic ergonomics for placing furniture under a 45° slope

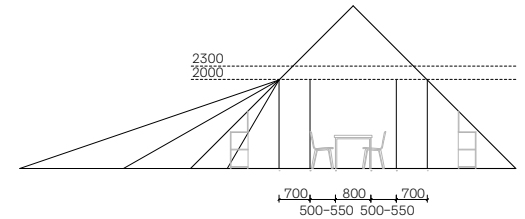
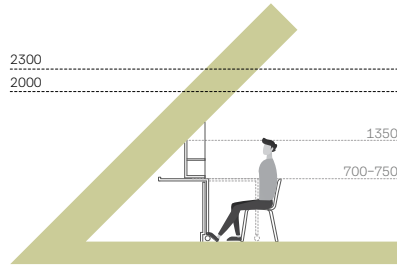
## seating location



increase the headroom by the depth of the lining



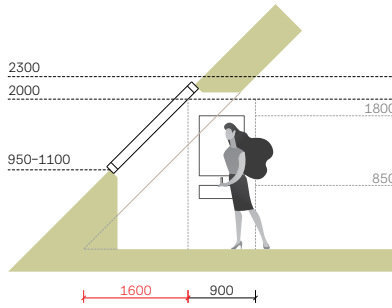
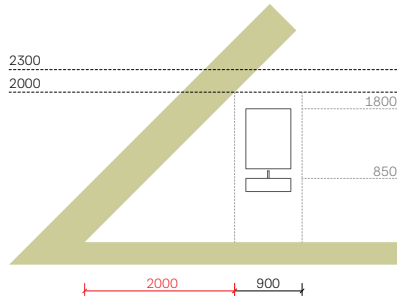
knee wall pushed back to allow lower level fixed windows / glazing to the ground as an attractive element of a modern interior



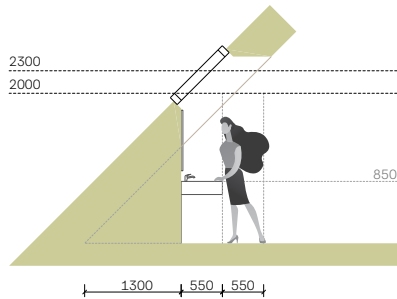
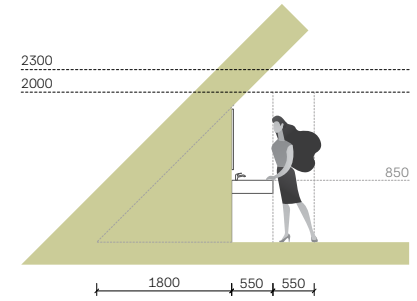
# 1.4 /Attic ergonomics

Basic ergonomics for placing furniture under a 45° slope

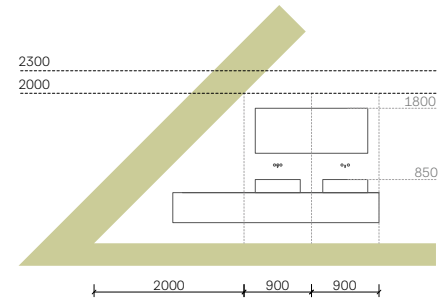
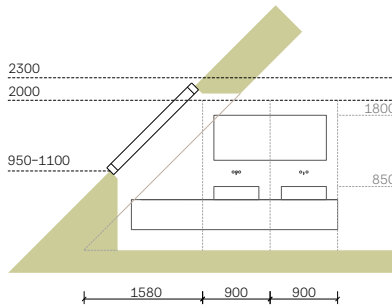
## basin location



more space / natural light near the mirror



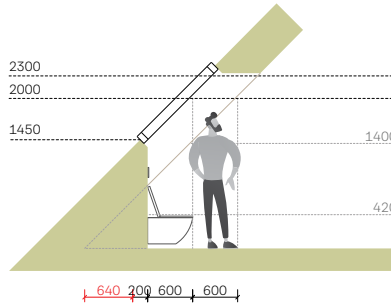
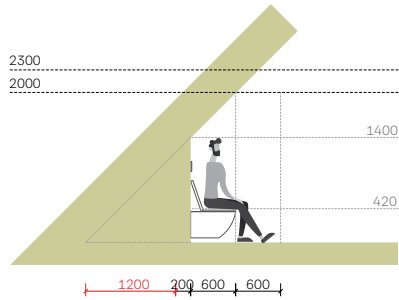
more space / natural light near the mirror



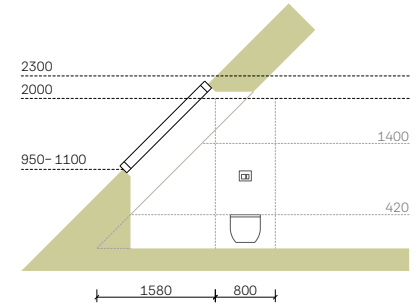
# 1.4 /Attic ergonomics

Basic ergonomics for placing furniture under a 45° slope

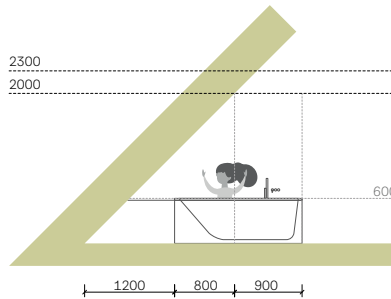
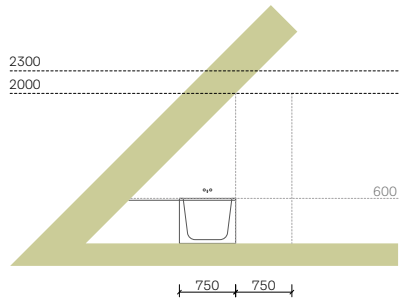
## toilet location



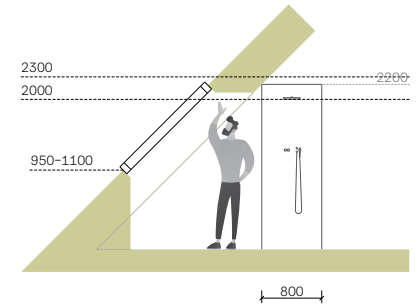
higher headroom / ventilation / lighting



## bath/shower location



## shower location

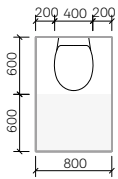


# 1.4 /Attic ergonomics

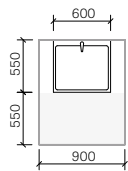
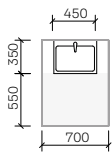
Clear access recommendations

## bathroom

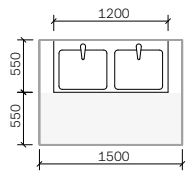
toilet



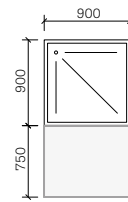
small washbasin washbasin



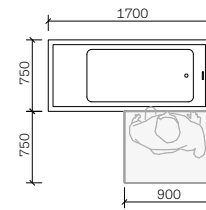
double washbasin



shower

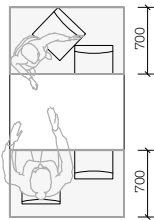


bath

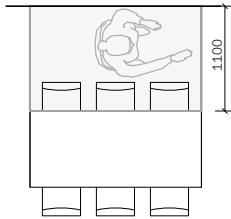


## kitchen, dining room

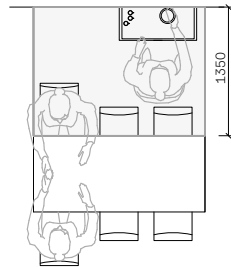
space for moving the chair



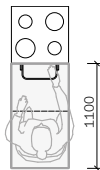
space from a fixed obstacle



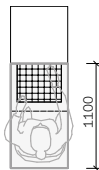
space from the handling obstacle



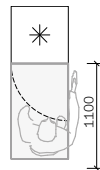
classic oven



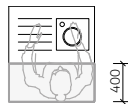
dishwasher



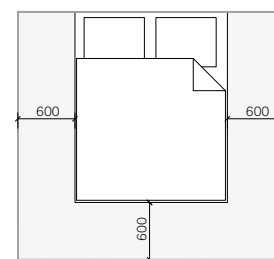
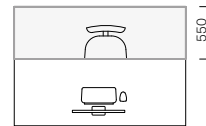
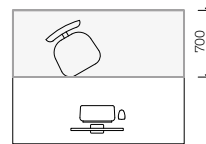
fridge



kitchen sink



## study/bedroom

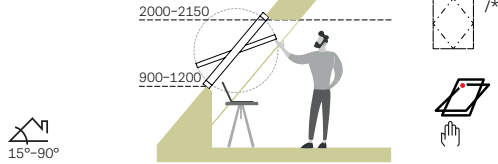




# 1.5 /Roof windows

Types, methods of control

## centre pivot window GLL / GLU / GGL / GGU

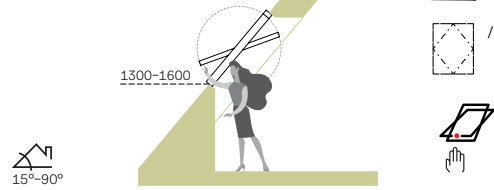


Top operated window

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

\* / display in floor plan

## centre pivot window GLL B / GLU B

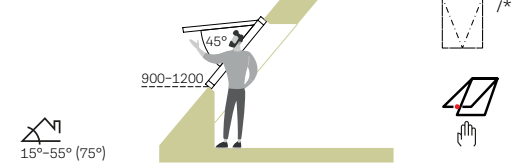


Bottom operated window

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

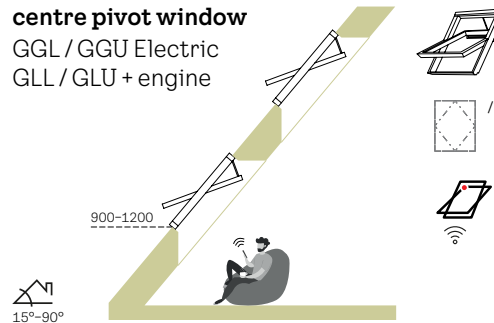


Bottom operated window

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 throughout the day. This greatly impacts our well-being – we all thrive best in daylight.

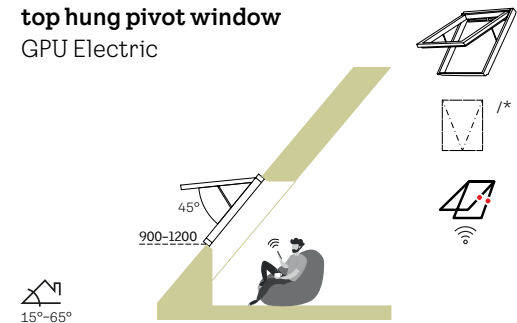
## centre pivot window GGL / GGÜ Electric GLL / GLU + engine



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



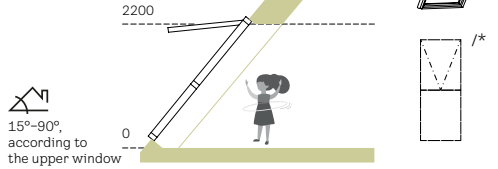
Photographer: Jaroslav Hejzlar  
Architect: Radek Sládeček

# 1.5 /Roof windows

Types, methods of control

## fixed additional element

GIL / GIU



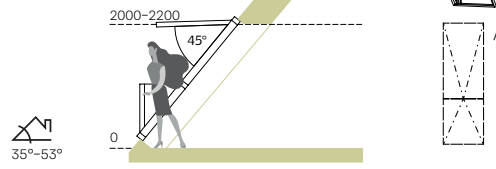
Non-opening, window sill function

install only in combination with roof window above / laminated glass

\*/ display in floor plan

## roof balcony

GDL

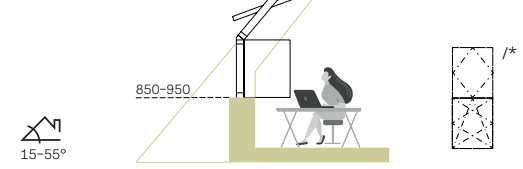


Balcony created by opening both parts of the window

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

VFA / VFB / VFE

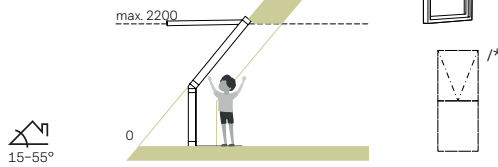


Openable vertical additional window

view from the facade window / Install only in combination with roof window above / well suited to attic spaces with a high parapet wall / VFA – right hinged (seen from outside) / VFB – left hinged (seen from outside) / VFE – bottom hung window / laminated glass

## vertical window element

VIU

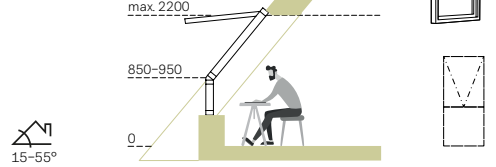


Non-opening vertical additional window

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



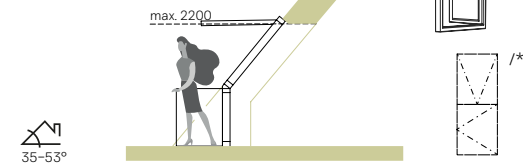
Non-opening vertical additional window

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



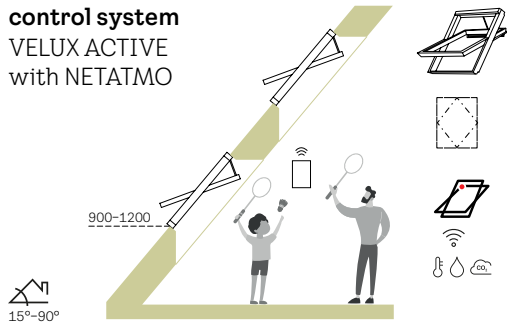
Creates full height access to roof terrace

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

# 1.5 /Roof windows

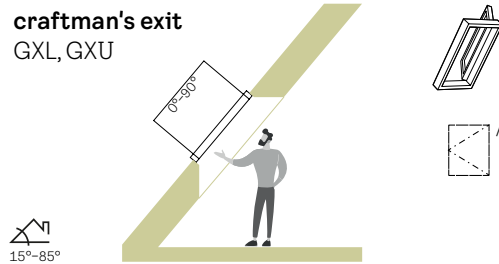
Types, methods of control

## control system VELUX ACTIVE with NETATMO



Automatic control of the VELUX ACTIVE indoor environment sensors monitor humidity, temperature & CO<sub>2</sub> levels and automatically control window operation, shading devices to ensure optimal indoor climate / smart home / for electrically and solar powered windows and blinds

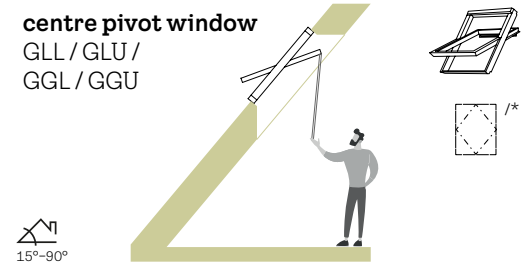
## craftman's exit GXL, GXU



Openable with side hinges  
for insulated roof / fixing of the open section

\*/ display in floor plan

## centre pivot window 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

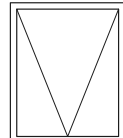
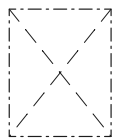
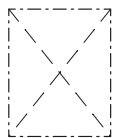
Rules for representation – Lines in construction drawings (Needs to be checked for each country)

Roof windows in floor plan

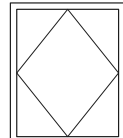
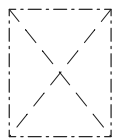
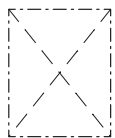
Structural Plan

Attic Plan

Roof Plan & Elevation

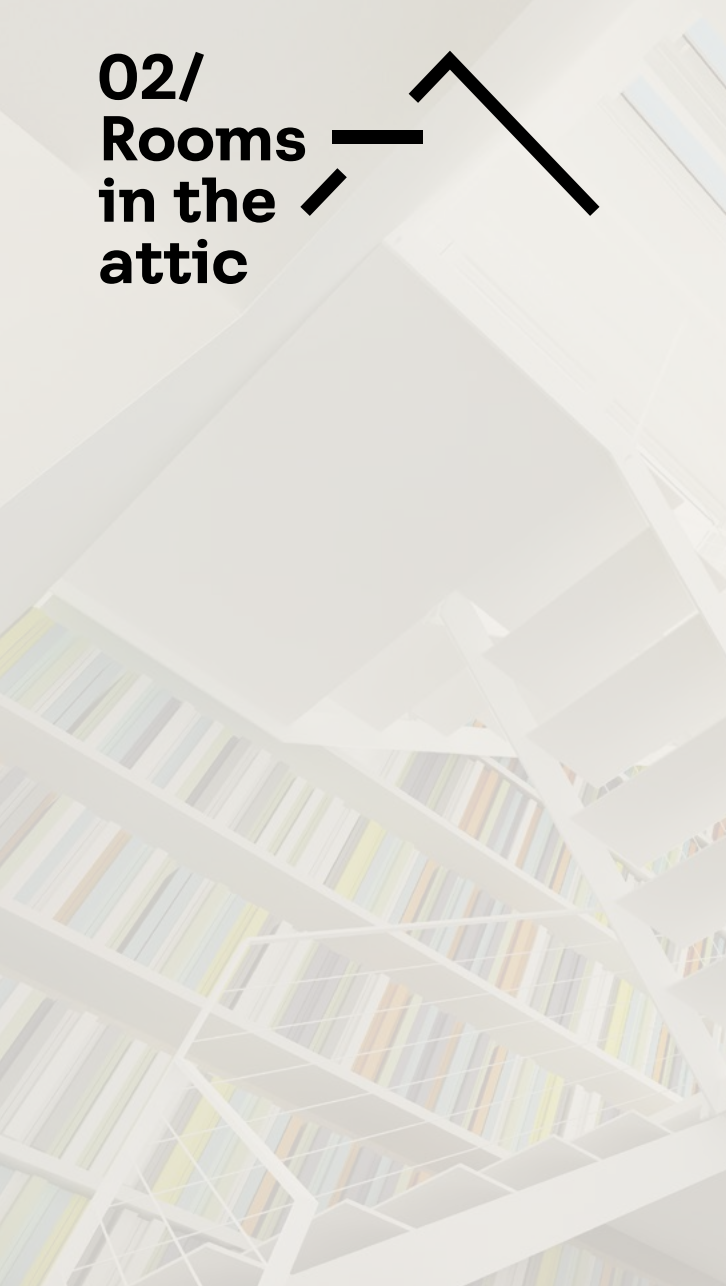


top hung pivot roof window



centre pivot roof window

**02/  
Rooms  
in the  
attic**

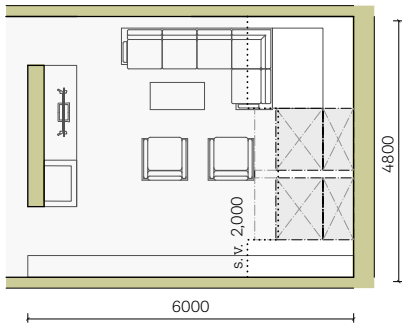
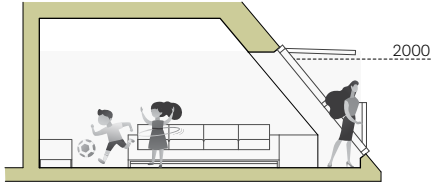




# 2.1 /Living room

Lighting recommendation is 500 LUX.

## living room with roof balcony



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



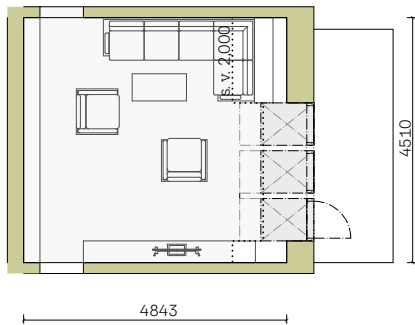
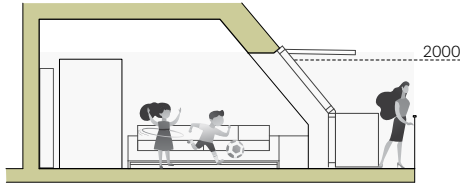




# 2.1 /Living room

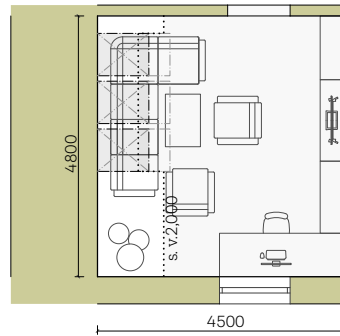
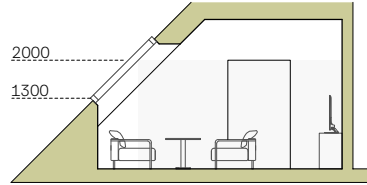
Lighting recommendation is 500 LUX.

## 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



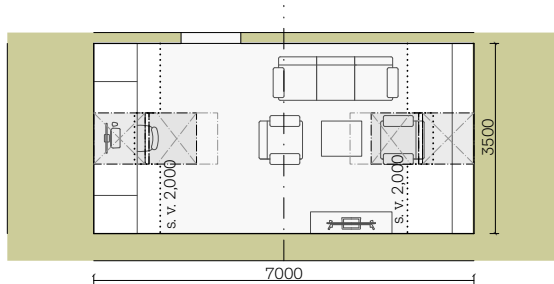
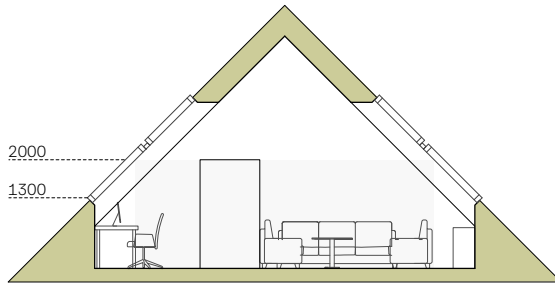
sitting under the roof window / increase in the headroom

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.

# 2.1 /Living room

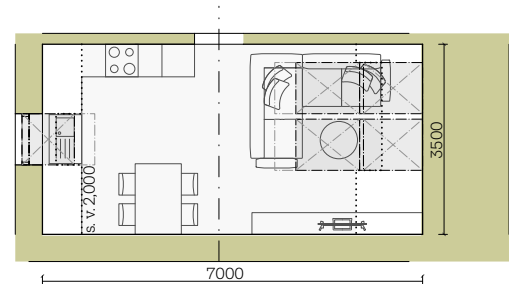
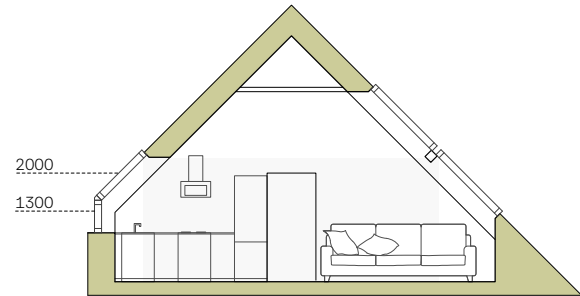
Lighting recommendation is 500 LUX.

## 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



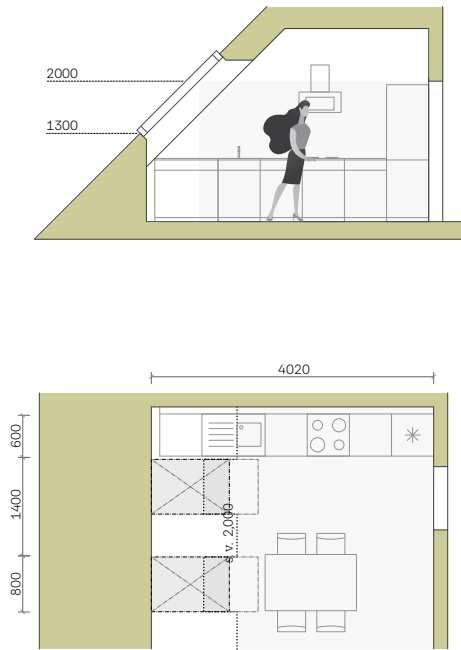
economical layout / combination of inclined walls with vertical windows in the kitchen / combination of windows in the living area optically enlarges the space



## 2.2 /Kitchen

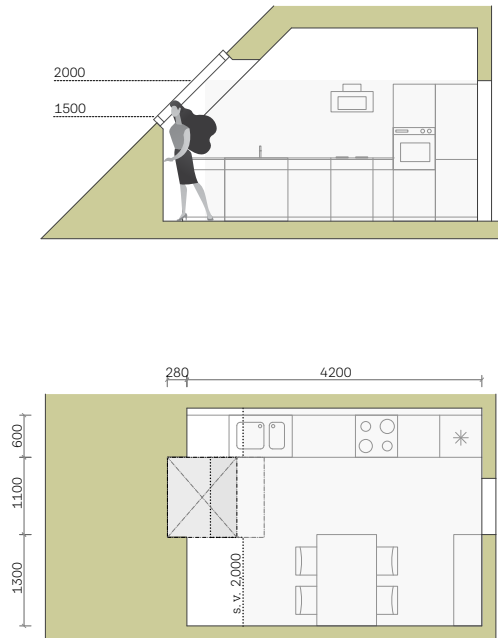
The lighting recommendation for food preparation is 500 LUX, for dining 300 LUX is recommended.

### 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



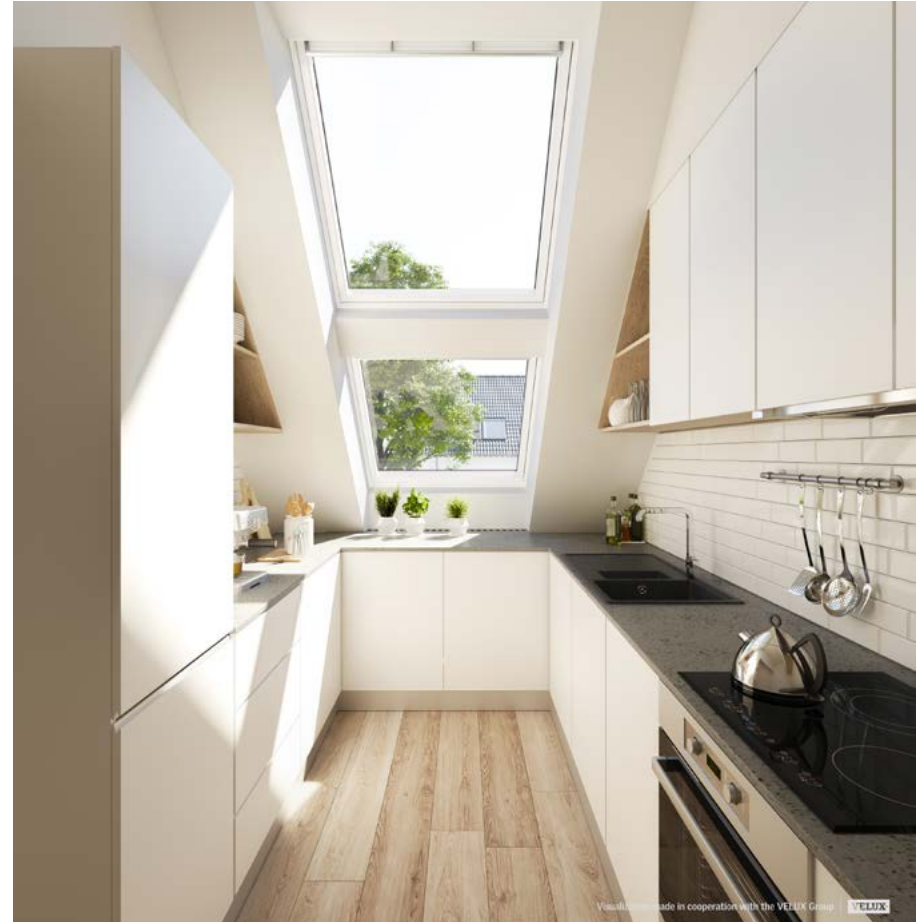
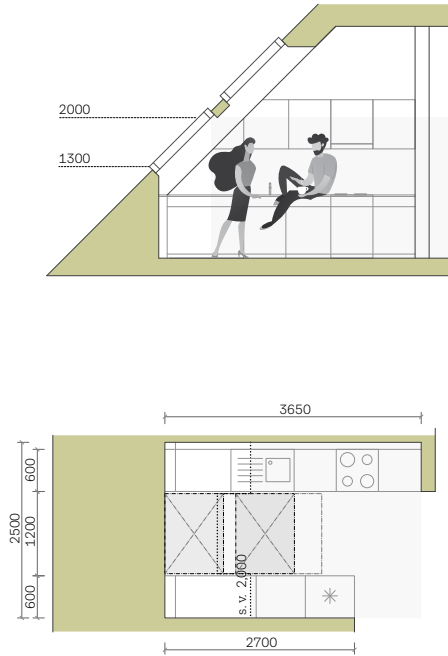
the roof window extends the usable space with the required height

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

# 2.2 /Kitchen

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

## double row kitchen



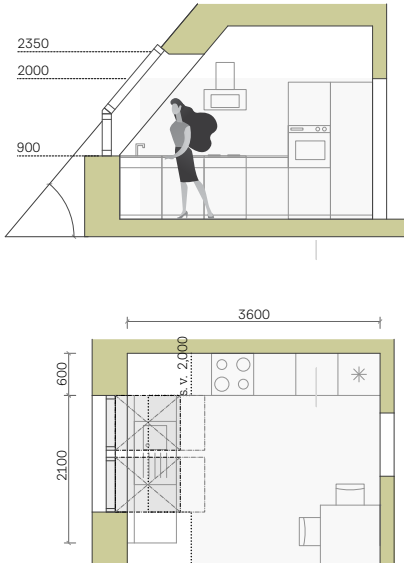
roof windows illuminate both work surfaces / windows above each other look great both from the interior and the exterior and bring light deep into the floor plan



## 2.2 /Kitchen

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

### L-shaped kitchen

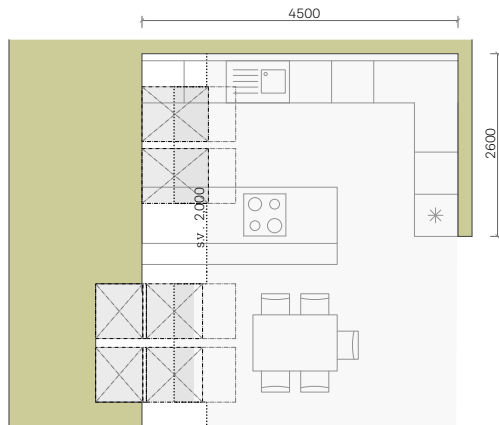
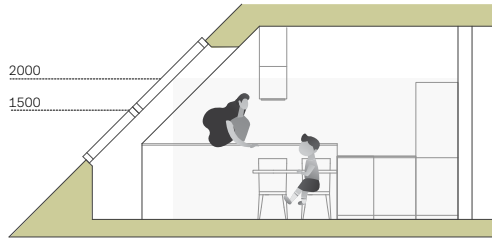


the view from the attic with a high attic parapet is provided by a combination of a roof and a vertical window

# 2.2 /Kitchen

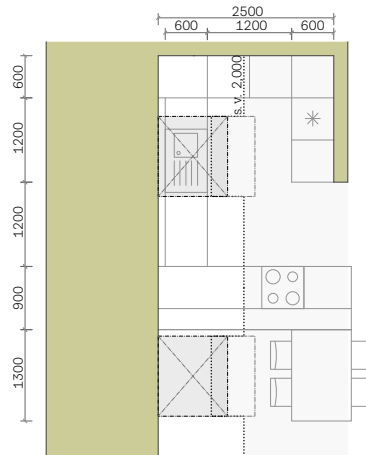
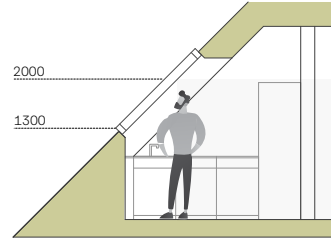
The lighting recommendation for food preparation is 500 LUX, for dining 300 LUX is recommended.

## L-shaped kitchen with an island



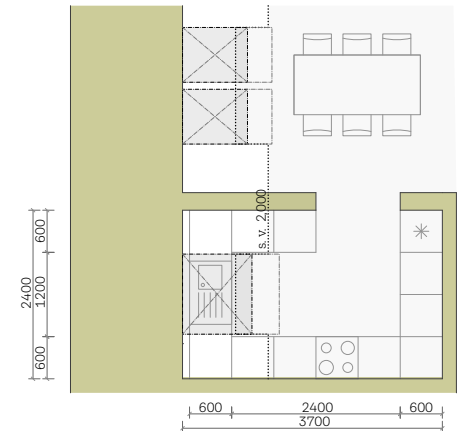
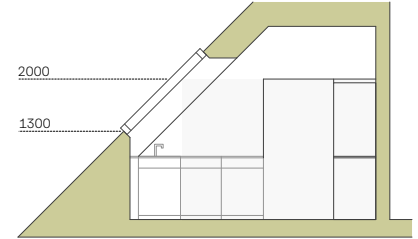
the set of roof windows in the dining room will bring a unique experience with the view / placing the windows in the recess will allow us to lower the window sill for view whilst seated

## 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

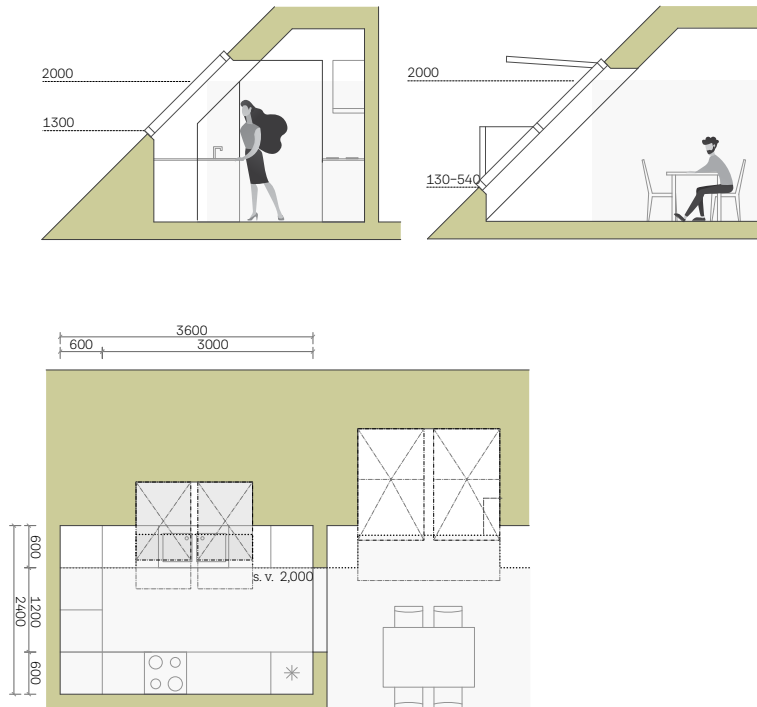


## 2.2 /Kitchen

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

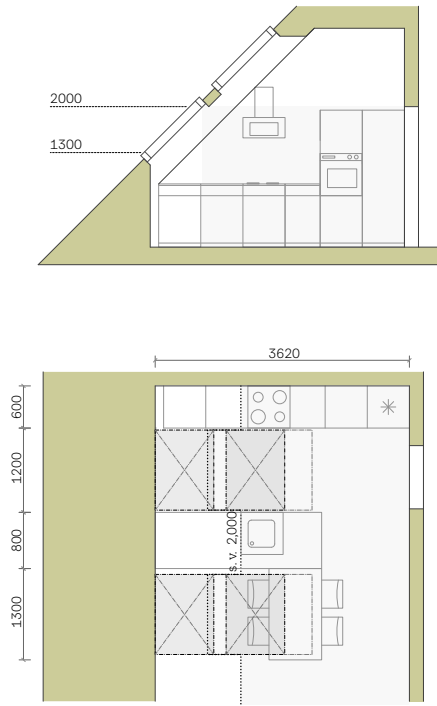


The lighting quality of an interior has a major impact on the value of the property.

## 2.2 /Kitchen

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

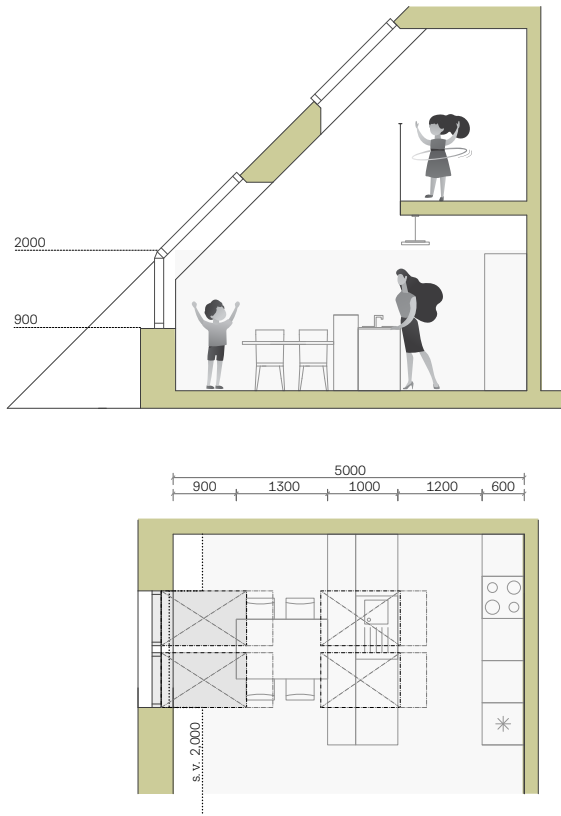
### single row kitchen with an island



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 chimney effect and natural ventilation through high windows is very effective.

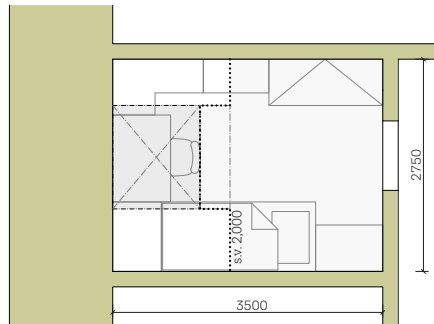
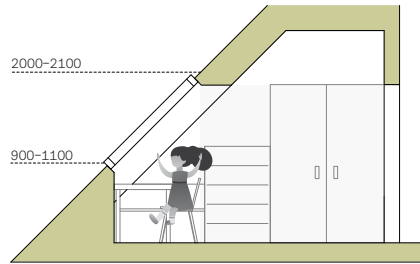


the best attic spaces open over two floors / attractive space / even lighting and deeper lines / faster ventilation

## 2.3 /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

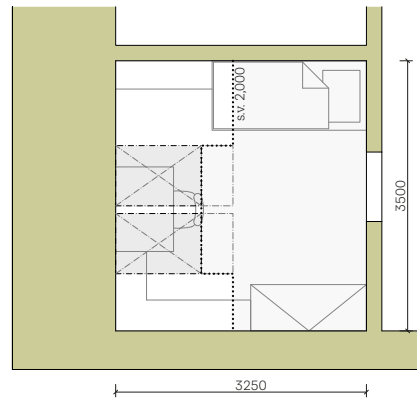
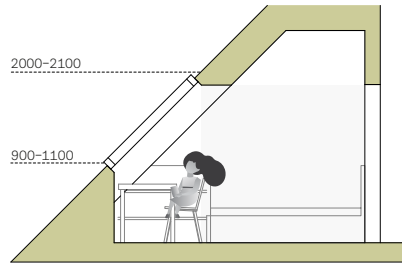


Visualization made in cooperation with the VELUX Group | VELUX

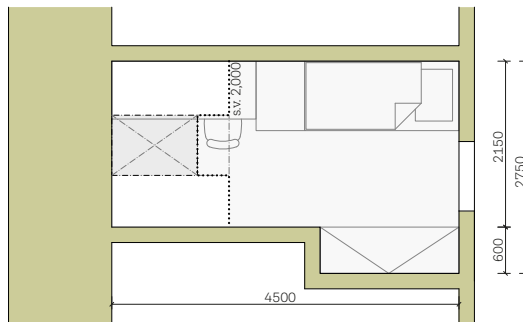
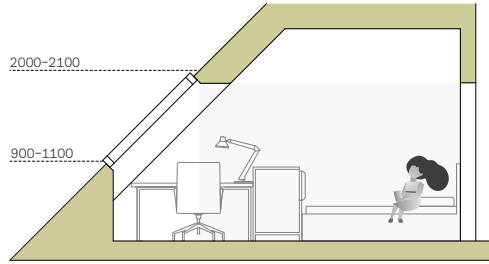
# 2.3 /Children's rooms

The lighting recommendation for reading and writing is 500 LUX

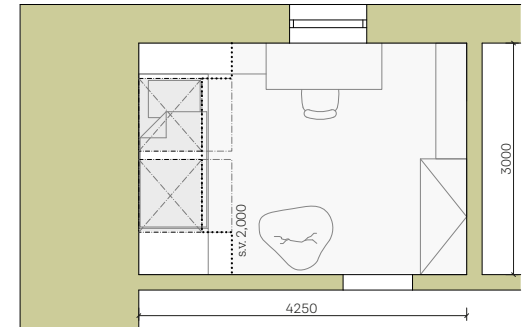
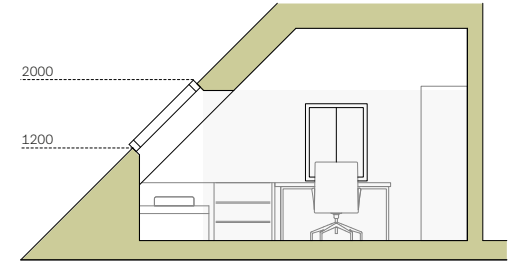
## children's rooms for one child



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



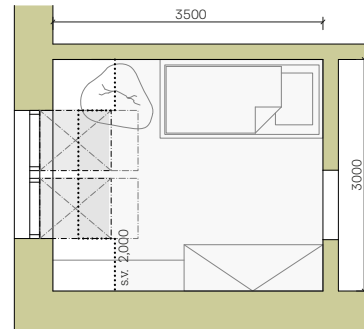
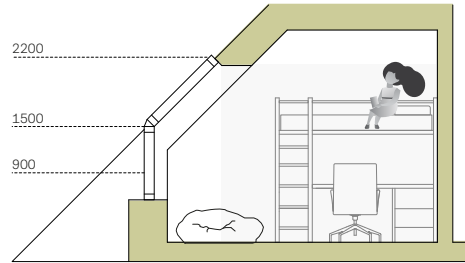
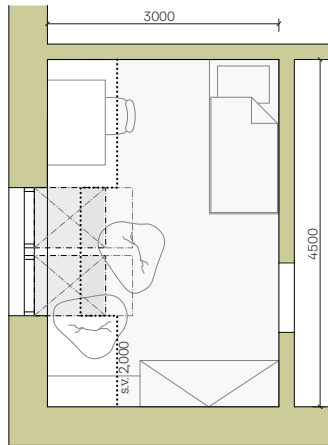
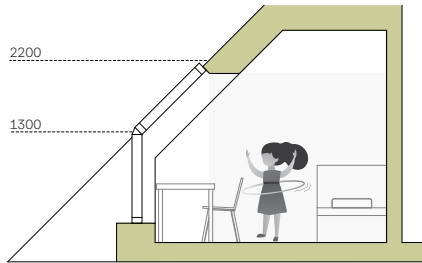




## 2.3 /Children's rooms

The lighting recommendation for reading and writing is 500 LUX

### children's room for one child



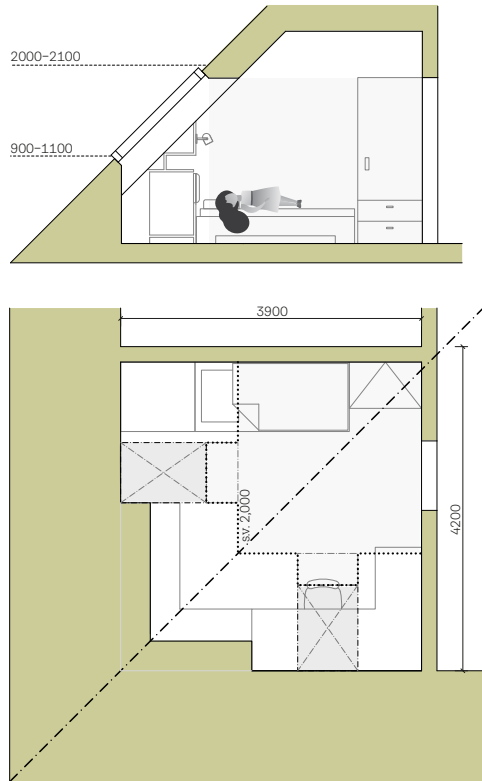
The children's room is used for work, study, play and sleep. The right intensity and distribution of natural daylight improves sleep and the ability to learn.



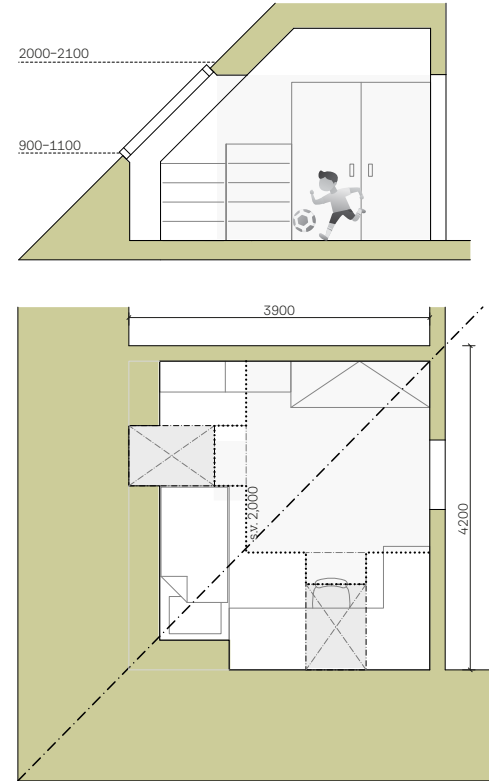
## 2.3 /Children's rooms

The lighting recommendation for reading and writing is 500 LUX

### children's room for one child

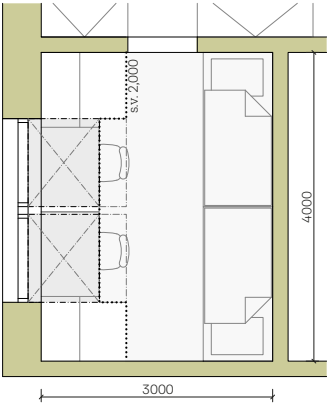
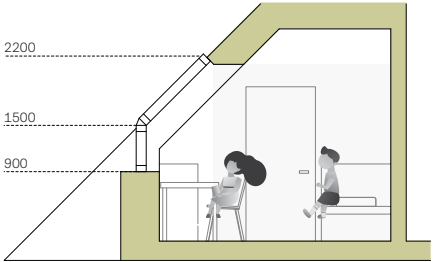


placement of roof windows in opposite parts of the roofs / even lighting / effective ventilation / changing height of the attic knee wall according to the function / integrated storage system effectively uses the space under the inclined wall



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 room for two children

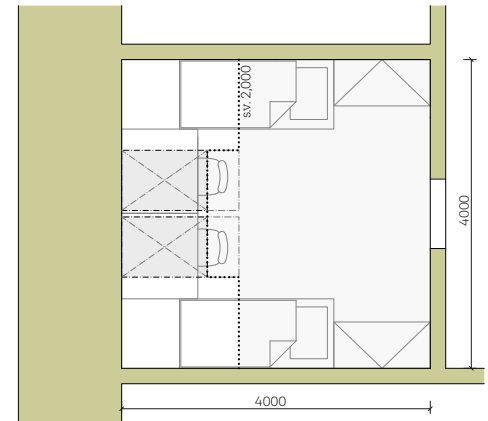
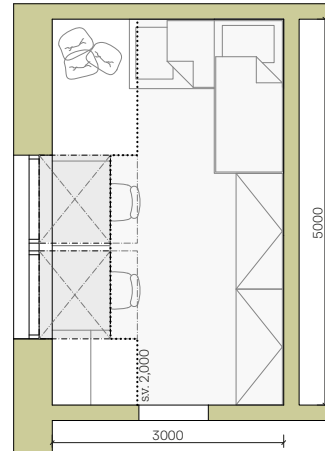
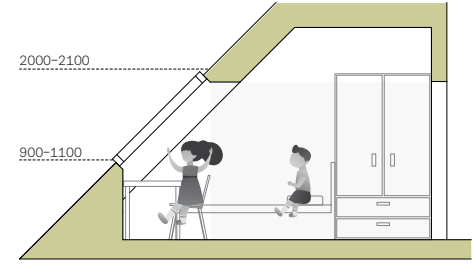
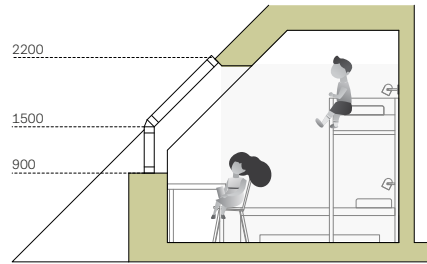


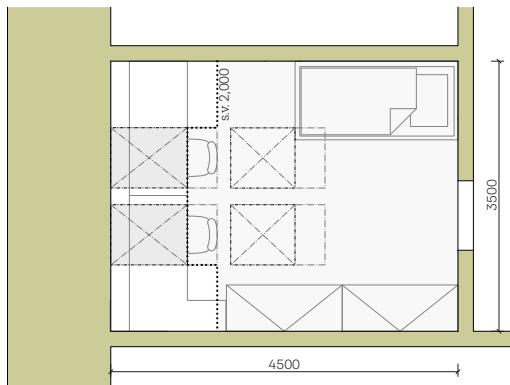
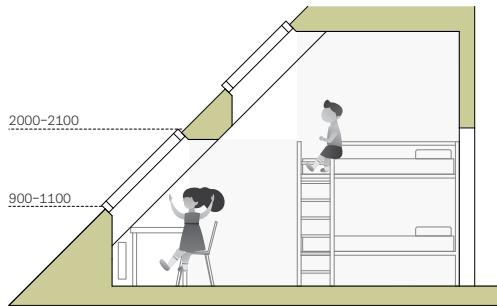
## 2.3 /Children's rooms

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





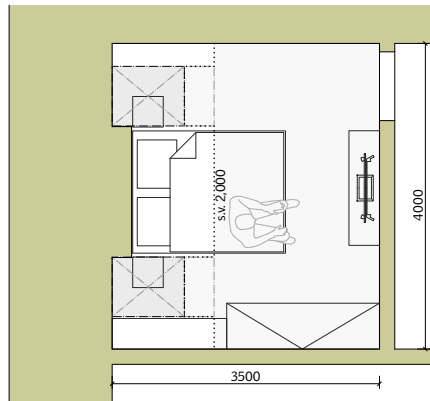
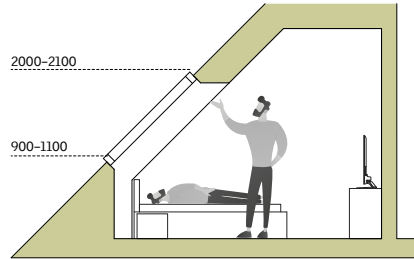
the attic open to the truss will allow better use of the beds above each other / larger air volume / better lighting / better use of space on a smaller floor area



## 2.4 /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

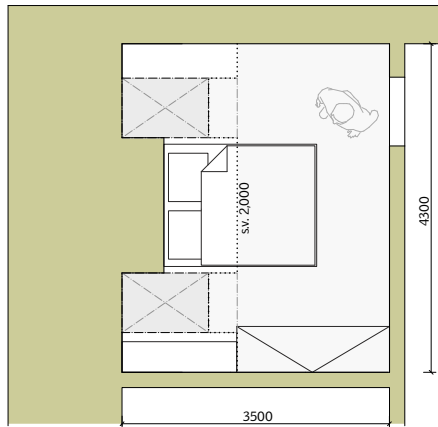
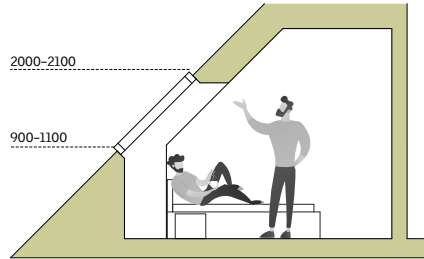


# 2.4 /Bedroom

Lighting recommendation is 500 LUX.

## small attic bedroom

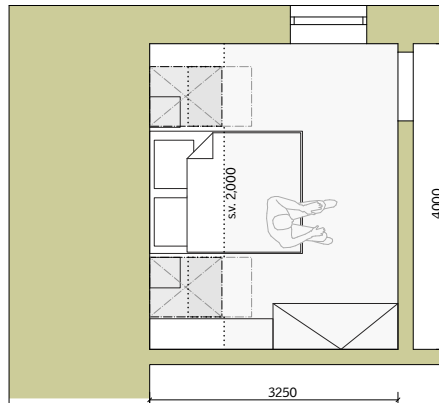
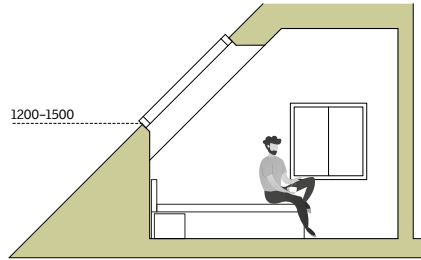
with attic knee wall and recess for the roof window



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



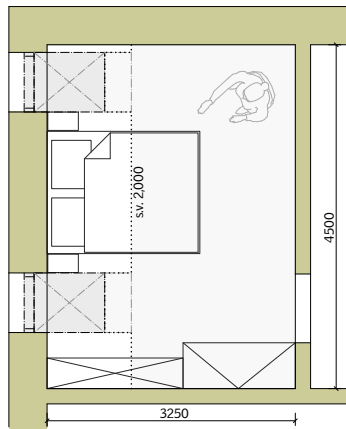
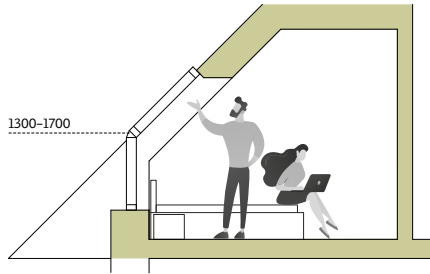
placement of the bed between the windows / with a high knee wall the optimal view is ensured by the facade window

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

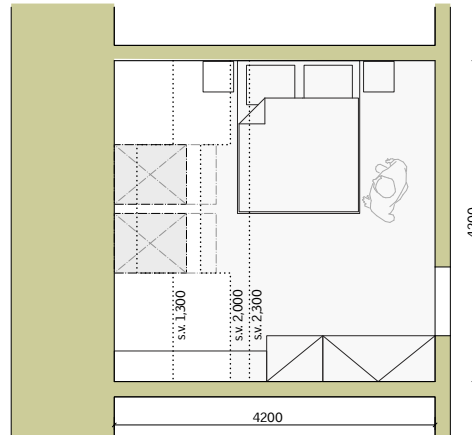
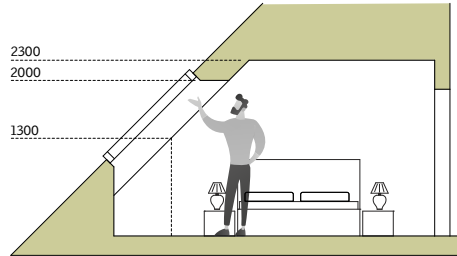
# 2.4 /Bedroom

Lighting recommendation is 500 LUX.

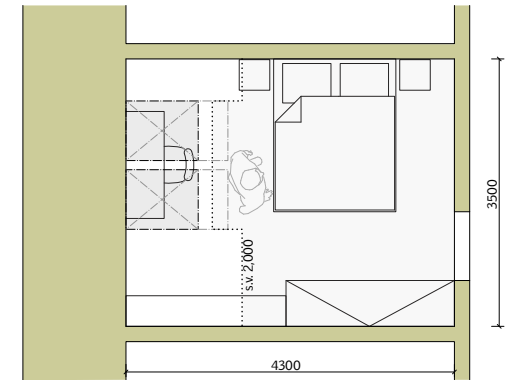
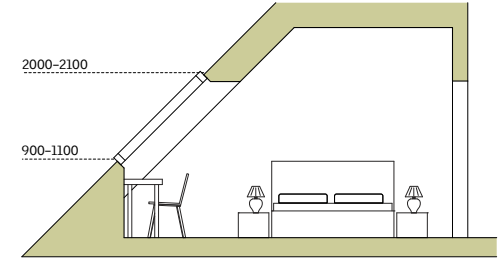
## small bedroom



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





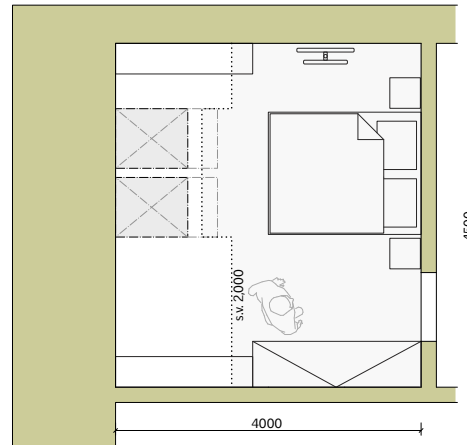
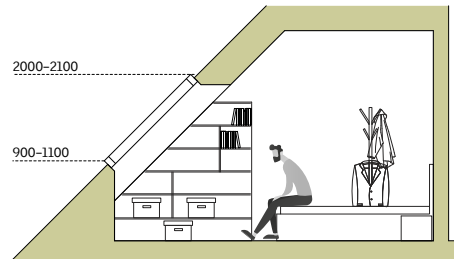


## 2.4 /Bedroom

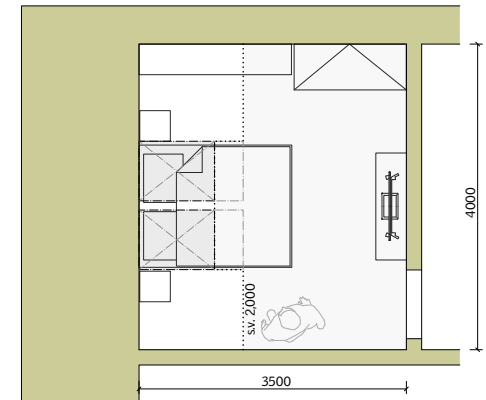
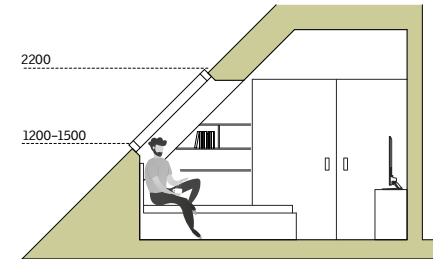
Lighting recommendation is 500 LUX.

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



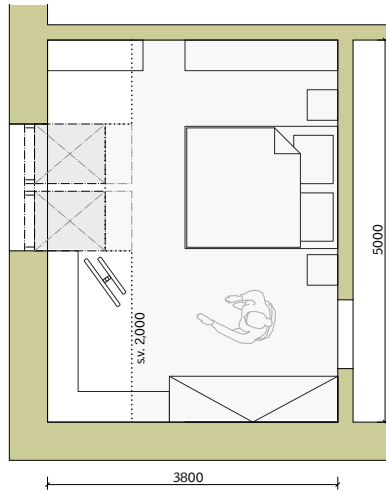
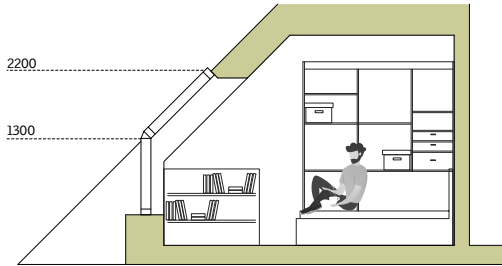
bed located under the windows / economy version layout / star view



# 2.4 /Bedroom

Lighting recommendation is 500 LUX.

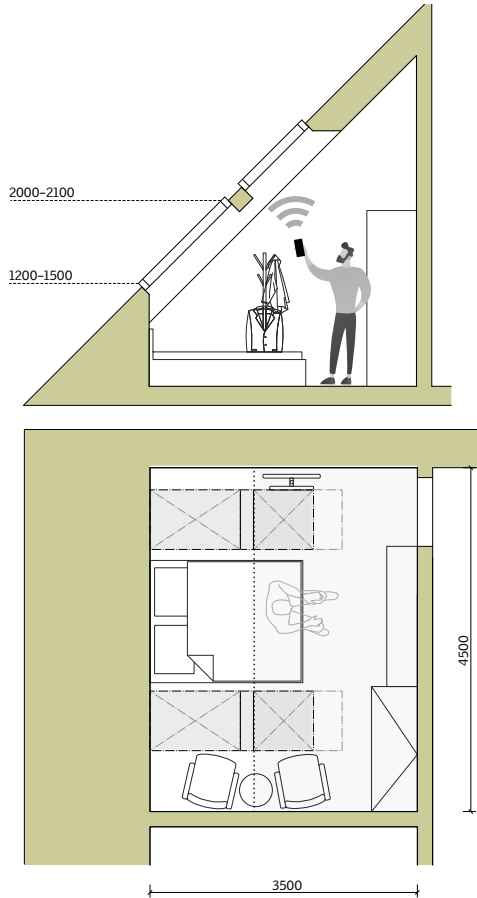
## bedroom with a view



angled glazing for the best view

## 2.4 /Bedroom

Lighting recommendation is 500 LUX.



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

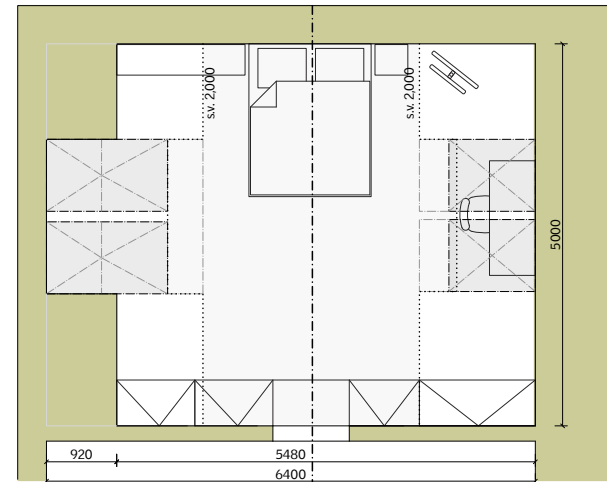
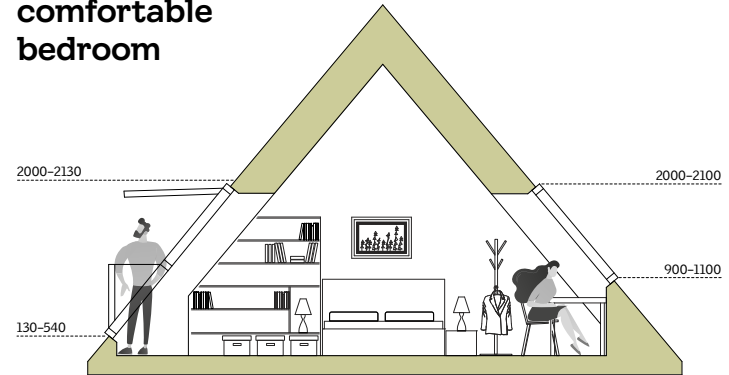


## 2.4 /Bedroom

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.

### comfortable bedroom



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

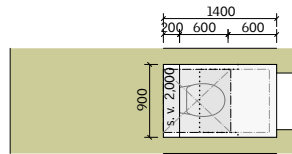
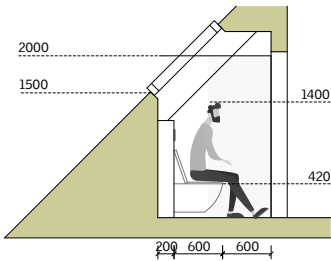




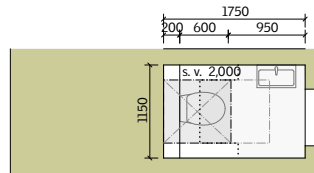
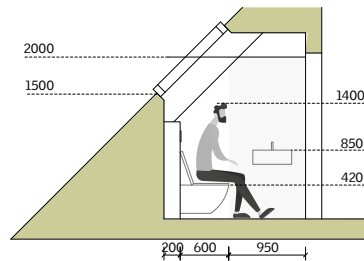
# 2.5 / Bathroom, toilet

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

### minimum toilet size



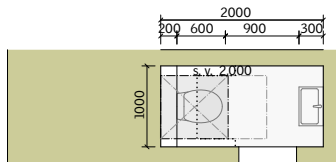
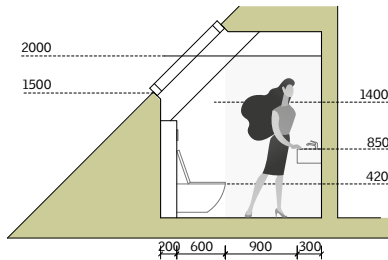
### toilet with washbasin



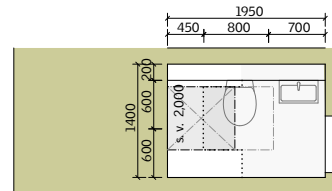
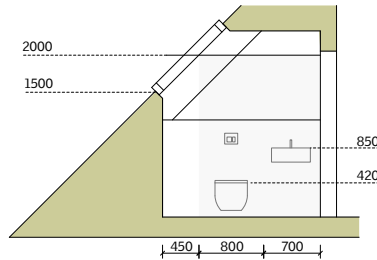
## 2.5 /Bathroom, toilet

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

toilet with washbasin  
and side entrance



toilet with a washbasin



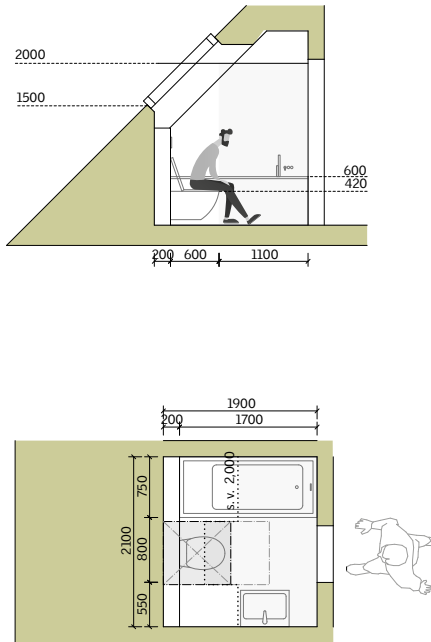
The first 15 to 20 minutes of morning light help to “set” the biological clock of our body, higher intensity will start us up for the whole day.



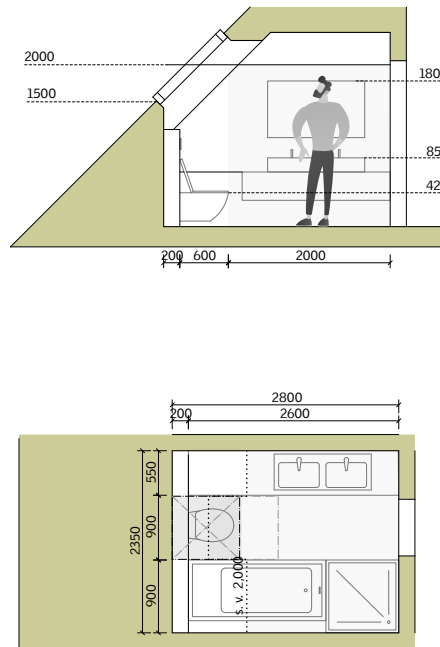
# 2.5 / Bathroom, toilet

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

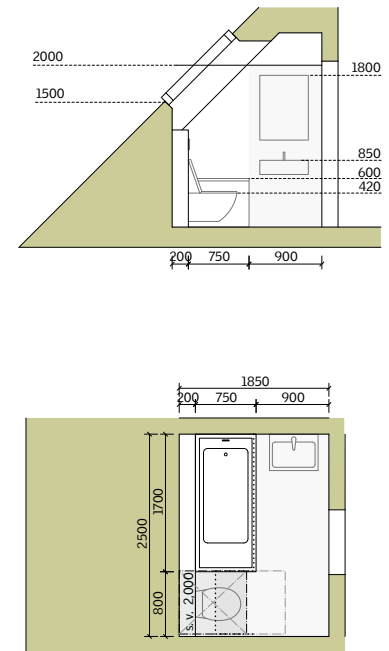
### small bathroom with a bath



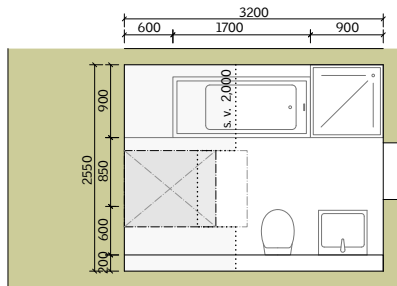
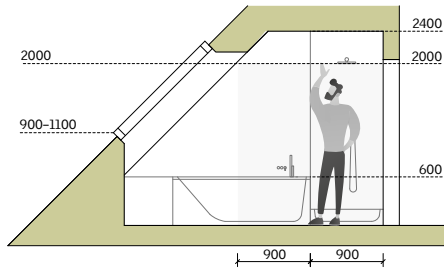
### small bathroom with a bath, shower, double washbasin and toilet



### small bathroom with high ceiling



## bathroom with low knee wall



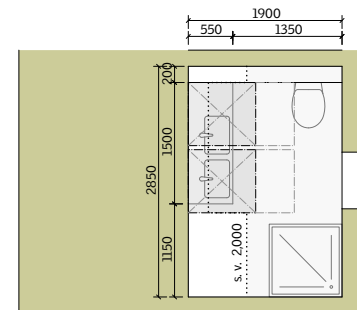
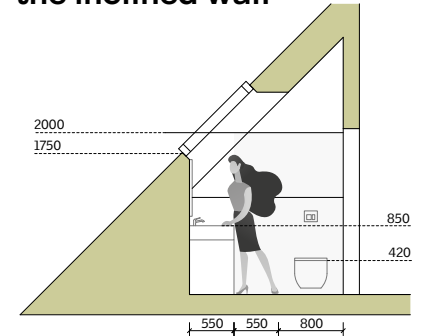
## 2.5 / Bathroom, toilet

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.



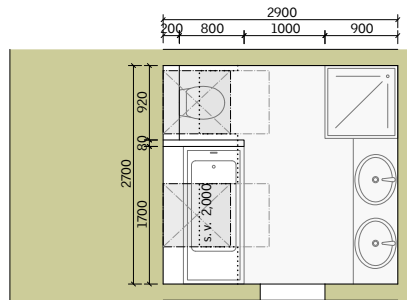
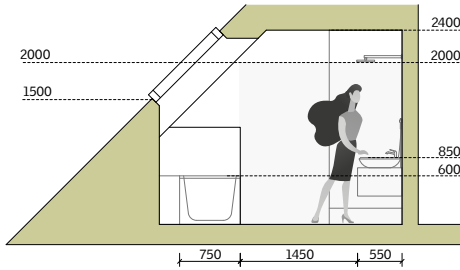
with washbasin below the inclined wall



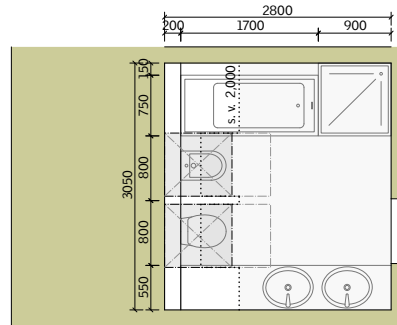
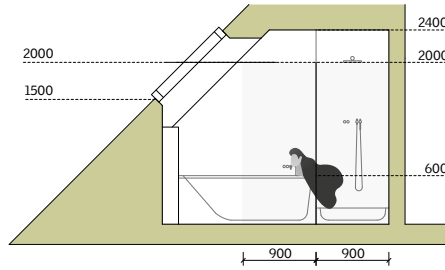
# 2.5 / Bathroom, toilet

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

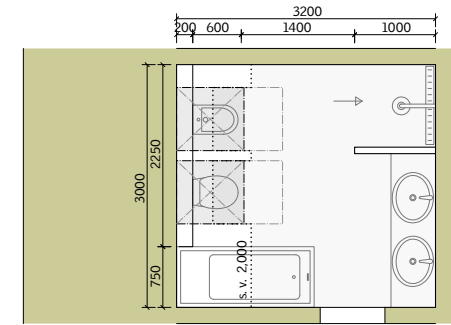
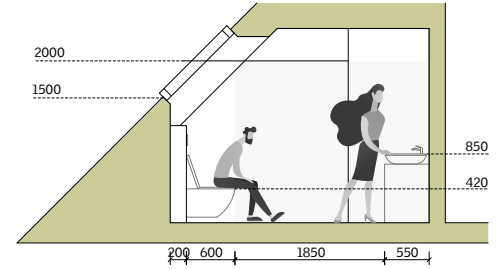
### comfortable bathroom with a side entrance



### comfortable bathroom with a toilet and bidet



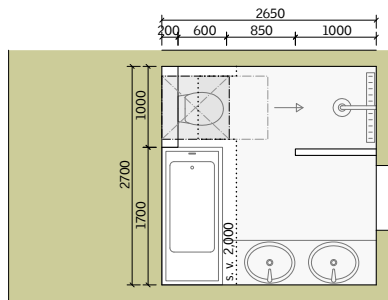
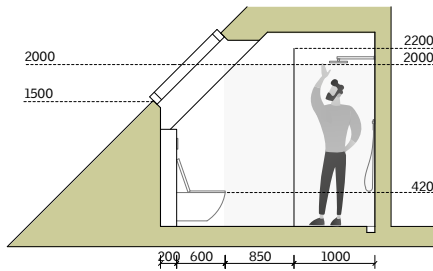
### comfortable bathroom with a walk-in shower



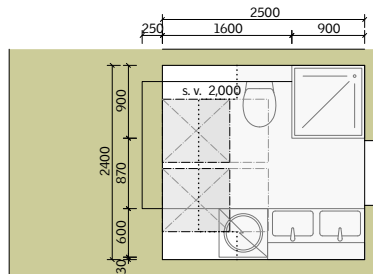
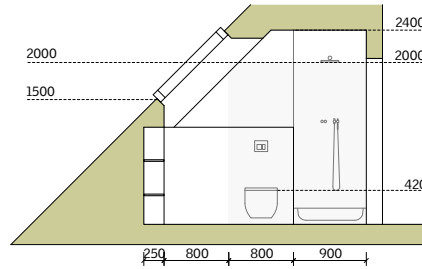
# 2.5 / Bathroom, toilet

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

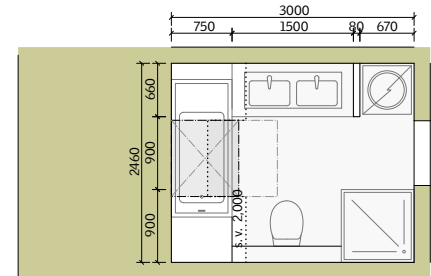
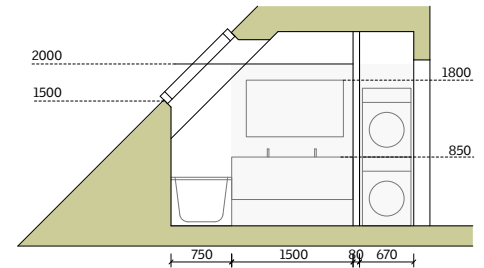
### small bathroom with a walk-in shower



### small bathroom with a washing machine



### bathroom with a bath under the window



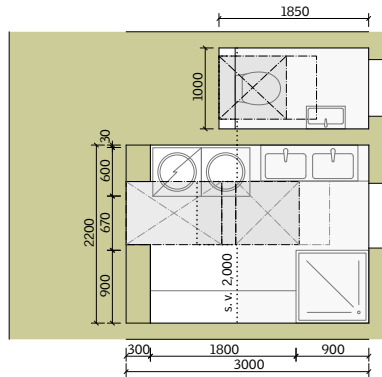
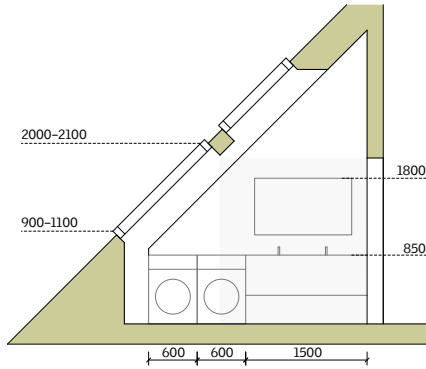
Humidity will be vented as necessary by the automatically operated roof window.



# 2.5 /Bathroom, toilet

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

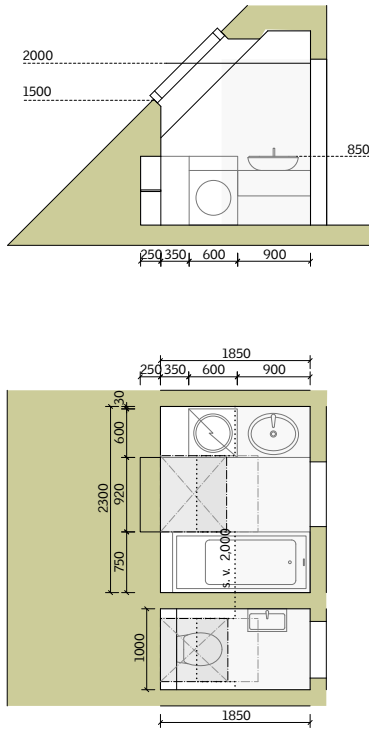
**bathroom with a separate toilet, washer and dryer**



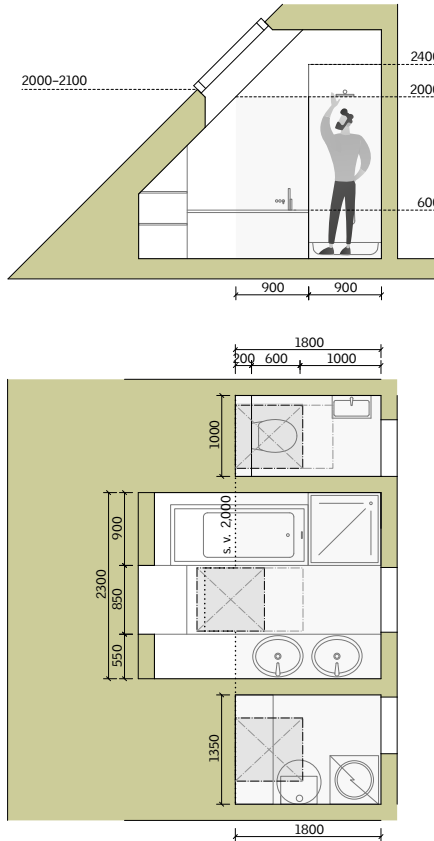
# 2.5 /Bathroom, toilet

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

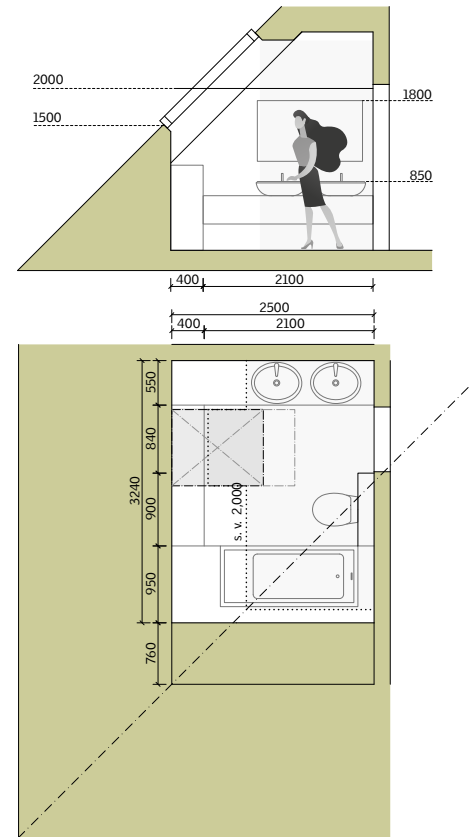
### small bathroom with a separate toilet and high attic knee wall



### comfortable bathroom with a separate toilet and laundry



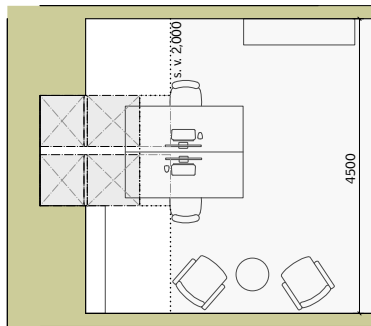
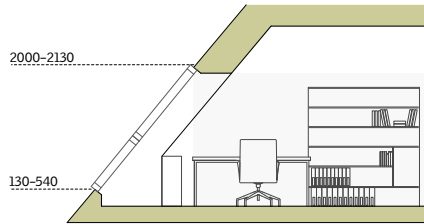
### bathroom in the hipped roof





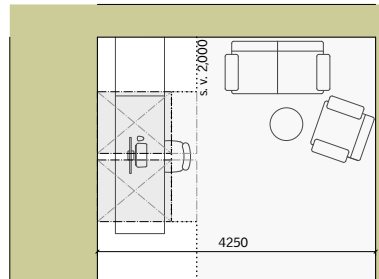
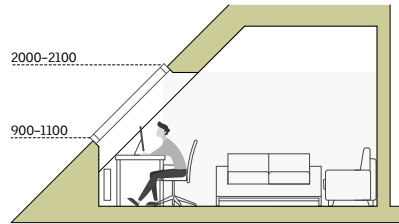
# 2.6 /Study / work position

study for two people



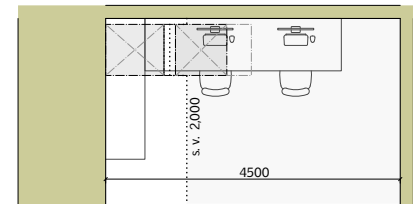
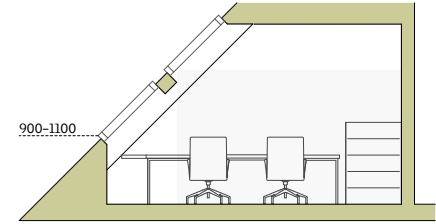
targeted desktop lighting / attractive view

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



# 03/ Technical solutions



# 3.1 /Roof windows

## Dimension tables

### Roof windows

550					GGL (0,27) PK25		
624			GGL (0,26) MK27				
698	GGL (0,19) CK01					GGL (0,48) SK01	
778	GGL GZL GGU GLU GLL						
	(0,22) CK02						
978	GGL (0,23) BK04	GGL GZL GPL GLL GGU GTXU GPU GLU GLLB	GGL GZL GGU GLU GLLB	GGL GZL B GPL GLU GGU GLU B GPU GLU B GXL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GXL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GXL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GXL
	(0,29) FK04	(0,38) FK04	(0,47) MK04	(0,60) PK04	(0,91) UK04		
1178	GGL GZL GGU GLU GXL GTXU	GGL GZL B GPL GLU GGU GLU B GPU GLU B GXL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GXL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GXL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GXL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GXL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GXL
	(0,37) CK06	(0,47) FK06	(0,59) MK06	(0,75) PK06	(0,95) SK06	(1,15) UK06	
1398		GGL GZL GGU GLU GLL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GLL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GLL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GLL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GLL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GLL
	(0,58) FK08	(0,72) MK08	(0,92) PK08	(1,16) SK08	(1,40) UK08		
1600		GGL GZL B GGU GLU GLL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GLL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GLL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GLL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GLL	GGL GZL B GPL GLU GGU GLU B GPU GLU B GLL
	(0,85) MK10	(1,07) PK10	(1,35) SK10	(1,63) UK10			
1800		GGL (0,97) MK12					
mm	472	550	660	780	942	1140	1340

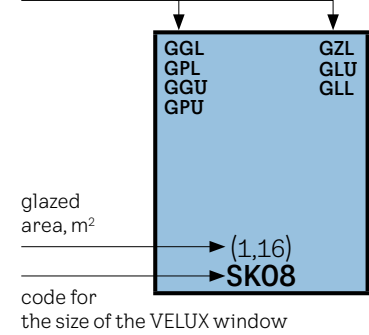
### Additional windows

920		GIL (0,44) MK34	GIU (0,56) PK34	GIL (0,70) SK34	GIU (0,85) UK34
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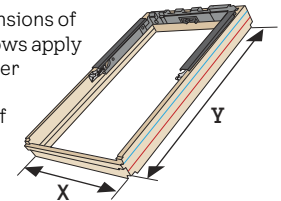
### Vertical additional windows

601		VFE VIU (0,22) MK31	VFE VIU (0,28) PK31	VFE VIU (0,36) SK31	VFE VIU (0,43) UK31		
955		VFE VFA VFB (0,44) MK35	VFE VFA VFB (0,56) PK35	VFE VFA VFB (0,70) SK35	VFE VFA VFB (0,85) UK35		
1155		VFE VFA VFB (0,56) MK36	VFE VFA VFB (0,71) PK36	VFE VFA VFB (0,89) SK36	VFE VFA VFB (1,08) UK36		
1375		VFE VFA VFB (0,69) MK38	VFE VFA VFB (0,87) PK38	VFE VFA VFB (1,10) SK38	VFE VFA VFB (1,33) UK38		
mm	472	550	660	780	942	1140	1340

### VELUX roof window type



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



### Roof balcony GDL

2520	GDL MK19	GDL PK19	GDL SK19
mm	780	942	1140

### Roof terrace GEL

1398	GEL (0,69) M08
1093	VEA VEB VEC (0,56) M35
mm	780

### VELUX GGLS 3 in 1

1178	GGLS (3x0,47) FFKF06
1398	GGLS (3x0,58) FFKF08
mm	1880

### Suntunnels

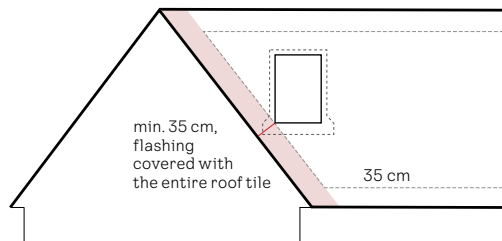
OK10	OK14
← 250 mm →	← 350 mm →
← 10" →	← 14" →



# 3.2 /Installation of a window in the roof structure

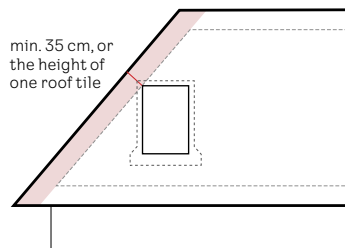
## Distances

### minimum distances of the roof window from the valley



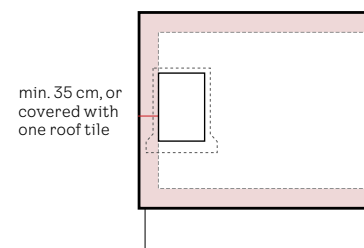
\* applies to roof tiles of 30 cm long

### minimum distances of the roof window from the hip

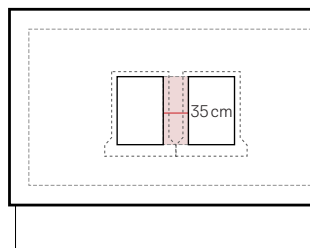


\* applies to roof tiles of 30 cm long

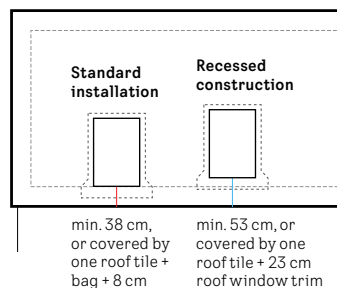
### minimum distances of the roof window from the roof edge



### minimum distances of two separately installed windows

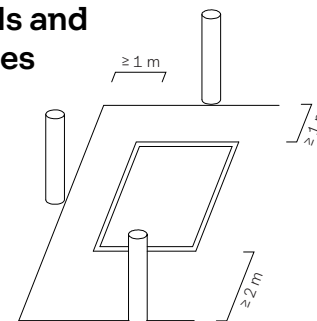


### minimum distances of the roof window from the gutter



\* 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



juni troy architects  
Architektur fotografie Romana Fürnkranz

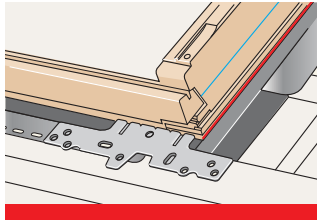


# 3.2 / Installation of a window in the roof structure

Standard installation

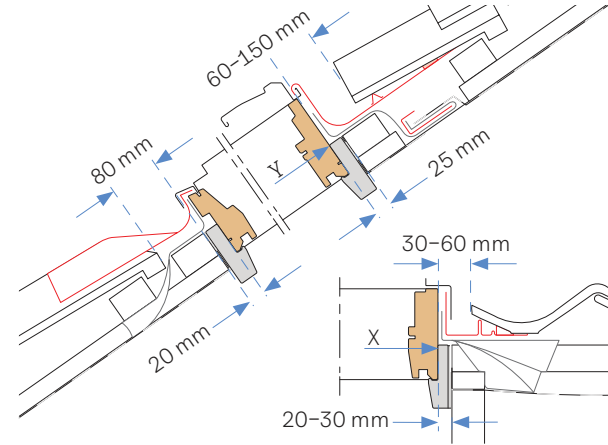
## standard installation

between rafter insulation

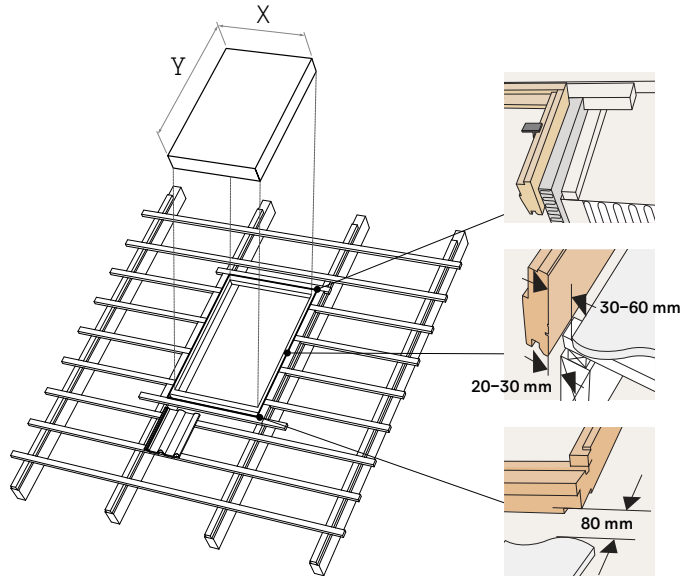


### Red level

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



Installation hole size  
standard installation  
flashing EDW, EDS



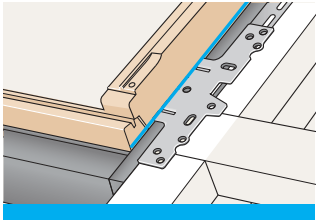
	X	X+60	Y	Y+45
CK02	550	610	778	823
CK04	550	610	978	1023
FK06	660	720	1178	1223
FK08	660	720	1398	1443
MK04	780	840	978	1023
MK06	780	840	1178	1223
MK08	780	840	1398	1443
MK10	780	840	1600	1645
PK06	942	1002	1178	1223
PK08	942	1002	1398	1443
PK10	942	1002	1600	1645
SK06	1140	1200	1178	1223
SK08	1140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

# 3.2 /Installation of a window in the roof structure

Recessed installation

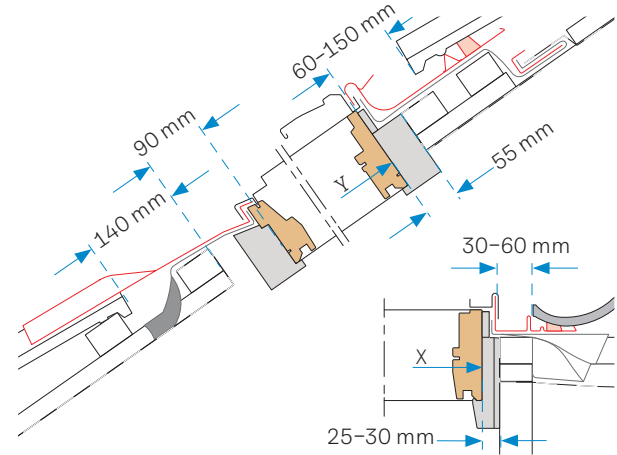
## recessed installation

between rafter insulation



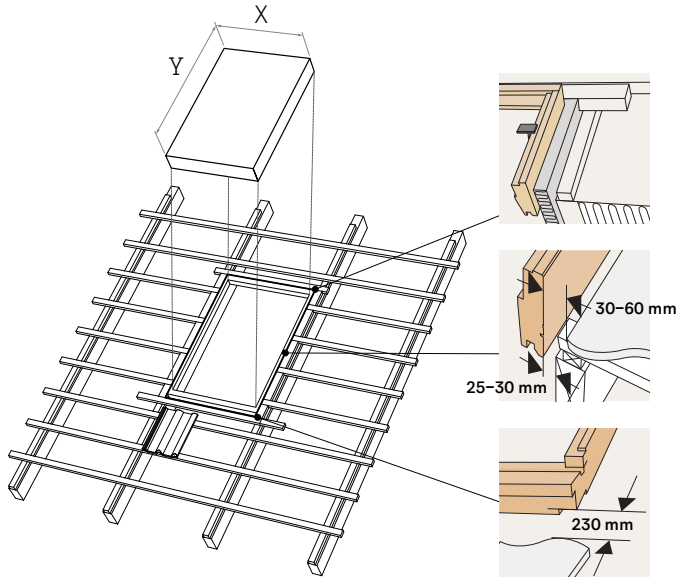
### Blue level

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



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

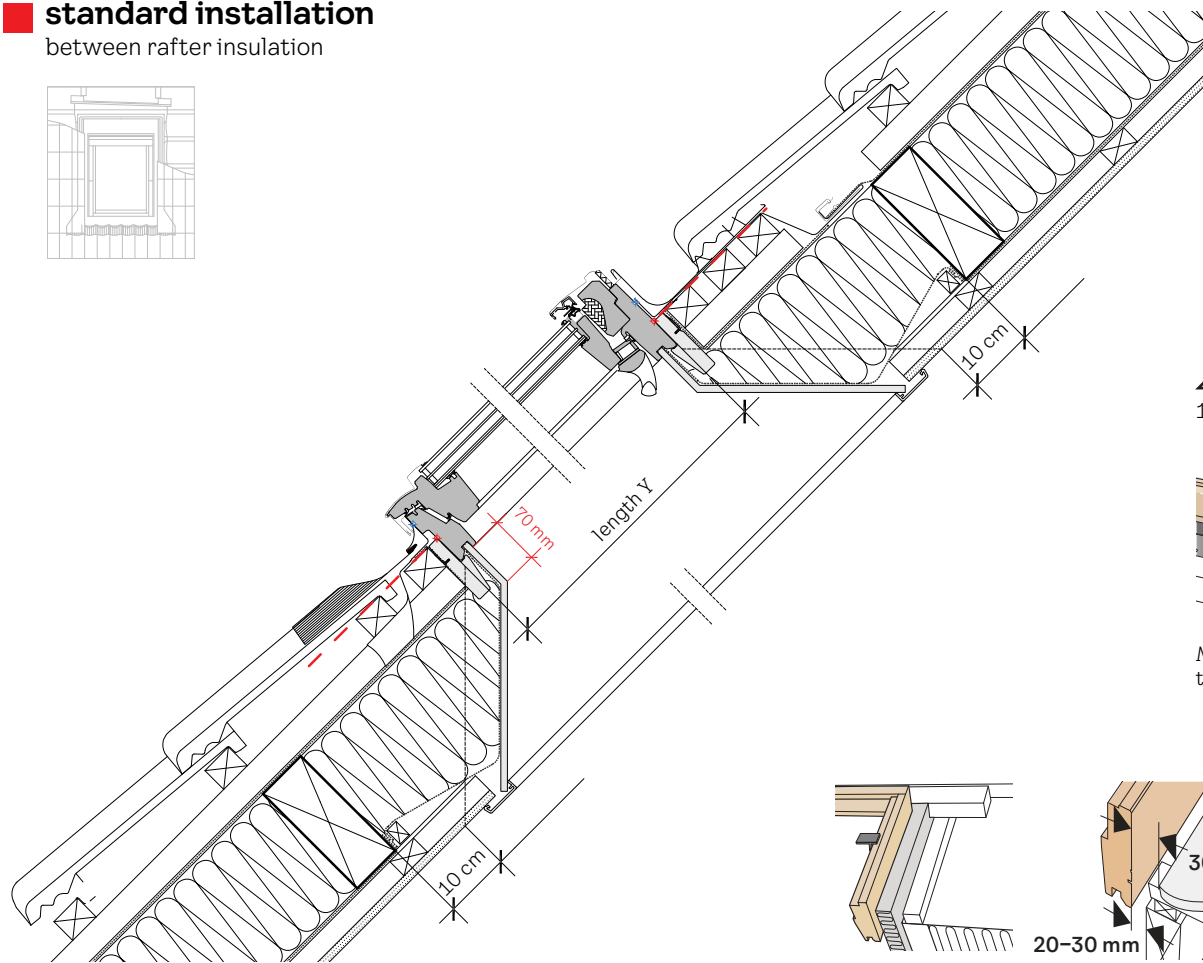




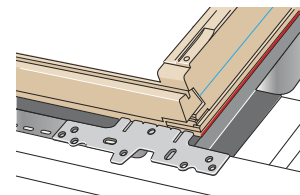
# 3.2 /Installation of a window in the roof structure

Standard installation

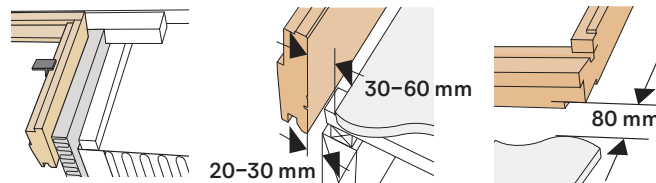
**standard installation**  
between rafter insulation



  
15°-90°



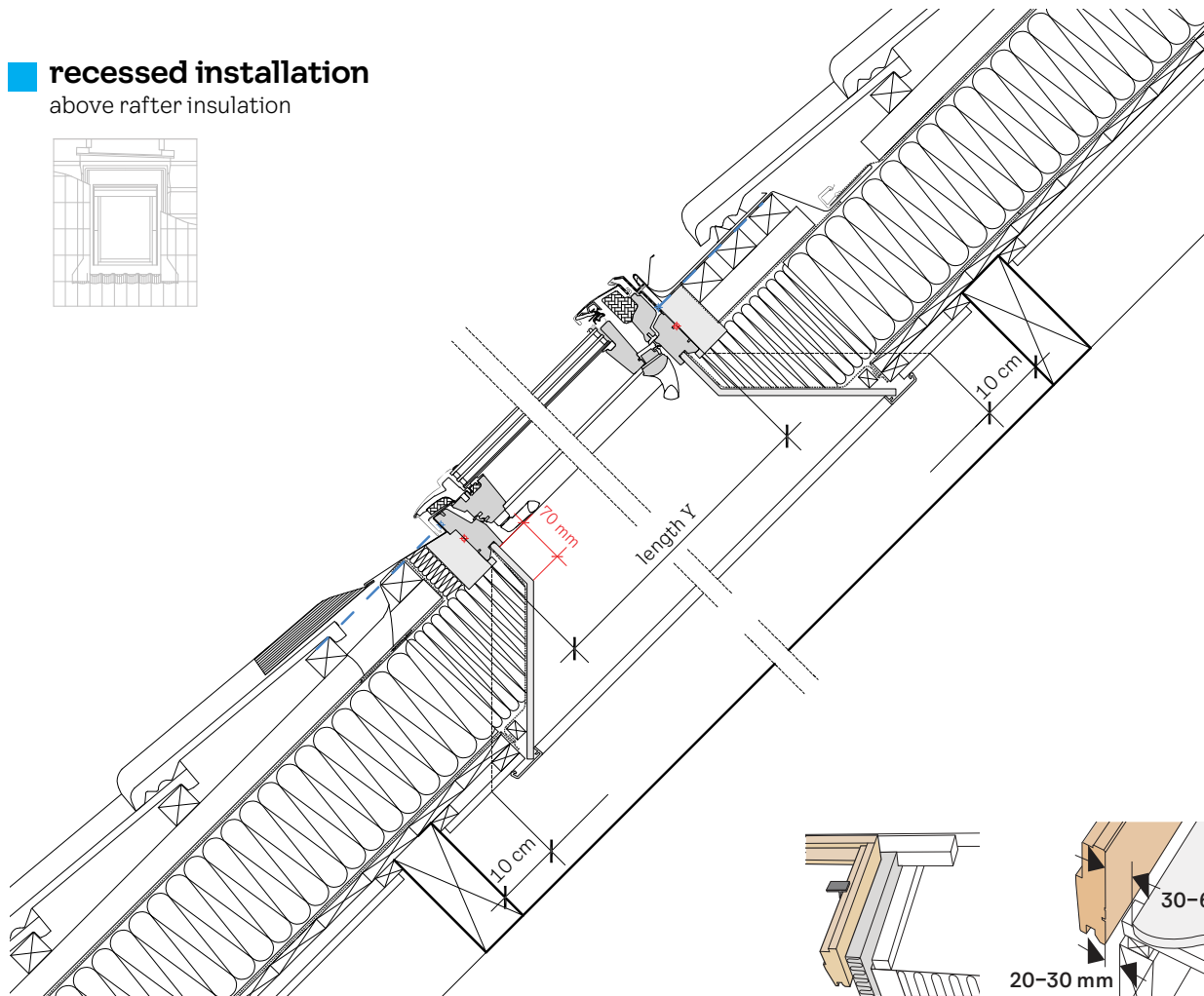
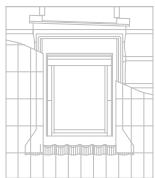
Mounting brackets are fixed to the bottom and top frames.



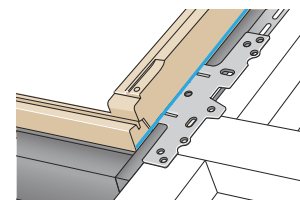
# 3.2 /Installation of a window in the roof structure

Recessed installation

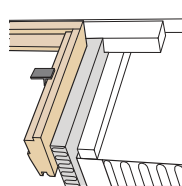
**recessed installation**  
above rafter insulation

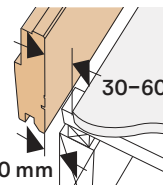


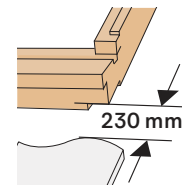
  
20°-90°



Mounting brackets are fixed to the side frames.



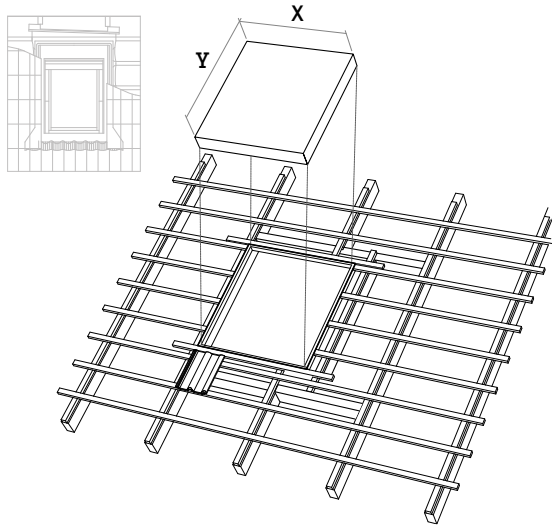
  
30-60 mm  
20-30 mm

  
230 mm

# 3.2 /Installation of a window in the roof structure

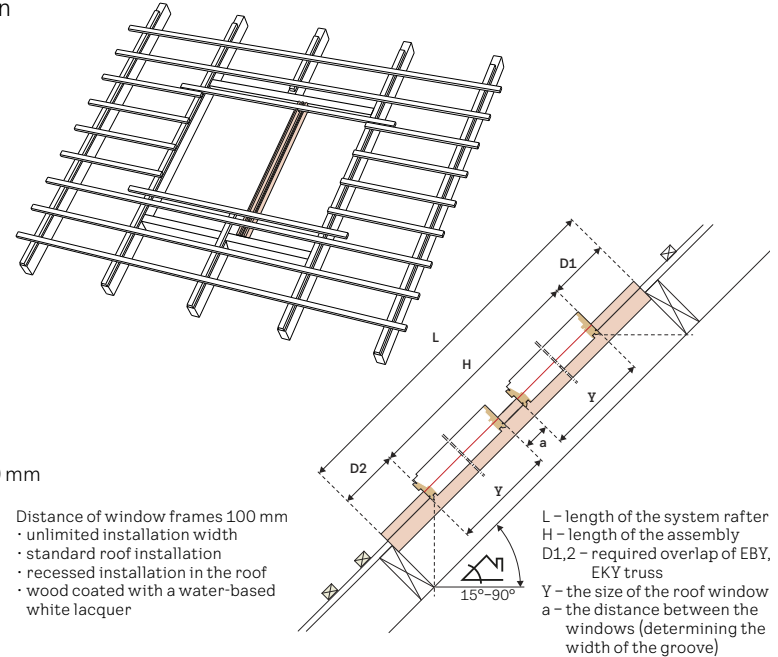
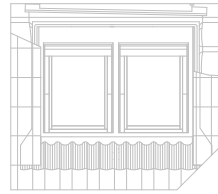
## rafter replacement

standard installation



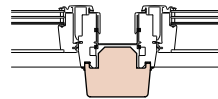
## rafter replacement – EBV/EKY

standard installation



### Interior rafter EKY

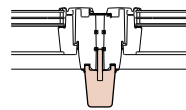
EKY W35 – length 3500 mm



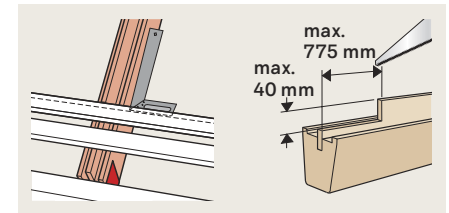
- Distance of window frames 100 mm
- unlimited installation width
- standard roof installation
- recessed installation in the roof
- wood coated with a water-based white lacquer

### Interior truss EBV

EBV W35 – length 3500 mm

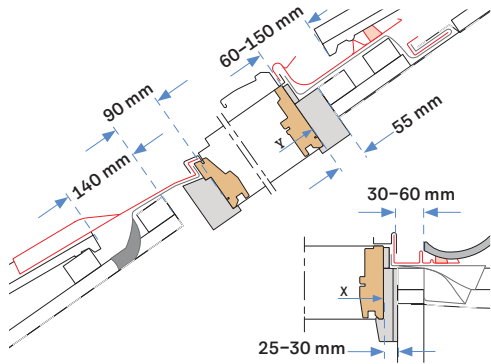
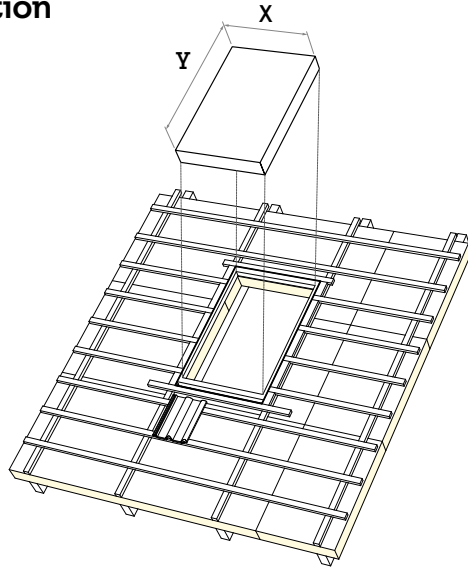


- Distance of window frames 18 mm
- maximum assembly width 2780 mm
- standard roof installation
- wood coated with a water-based white lacquer

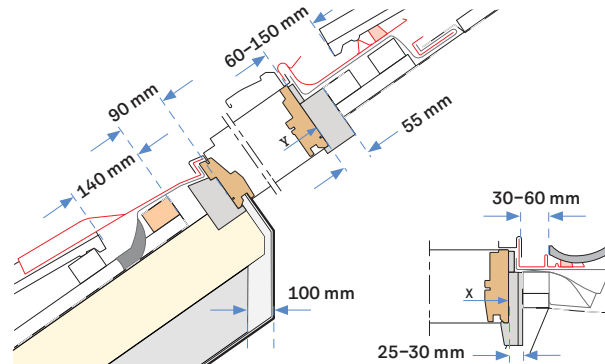
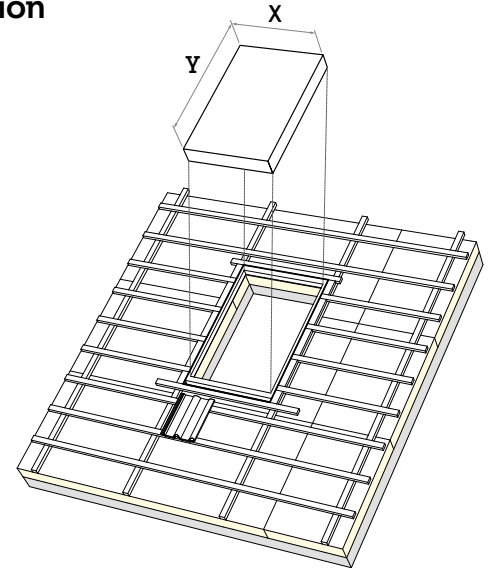


# 3.2 / Installation of a window in the roof structure

**recessed installation**  
above rafter insulation

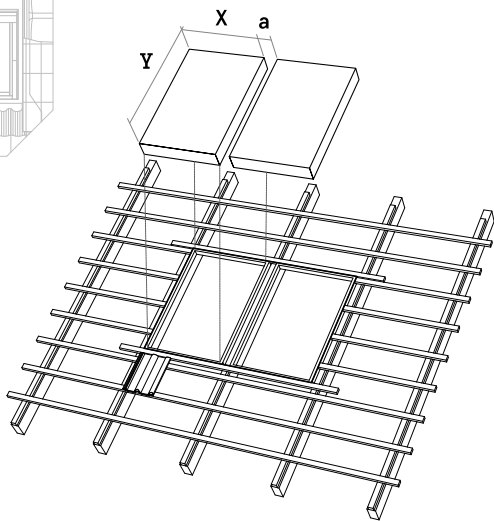
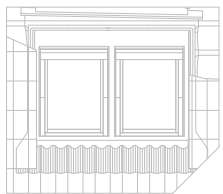


**recessed installation**  
- concrete roof



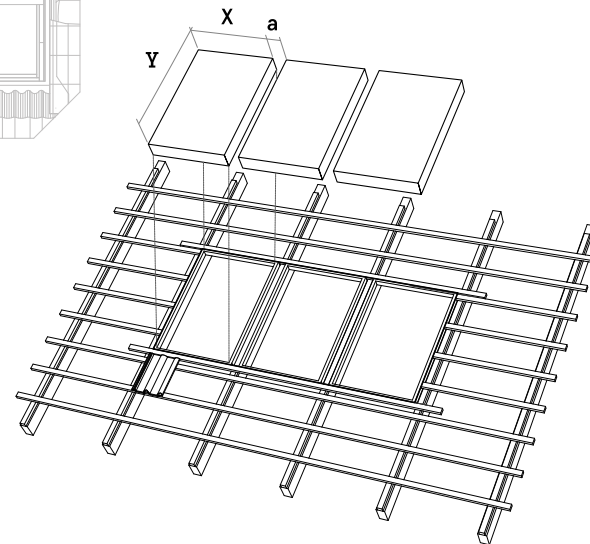
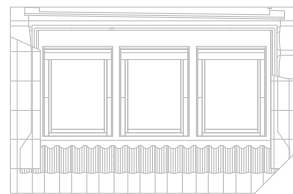
# 3.2 /Installation of a window in the roof structure

## twin or coupled combination solution



clear distance between window frames:  
a = min. 60 mm, max. 400 mm

standard frame distances of  
100 mm, 120 mm, 140 mm and 160 mm

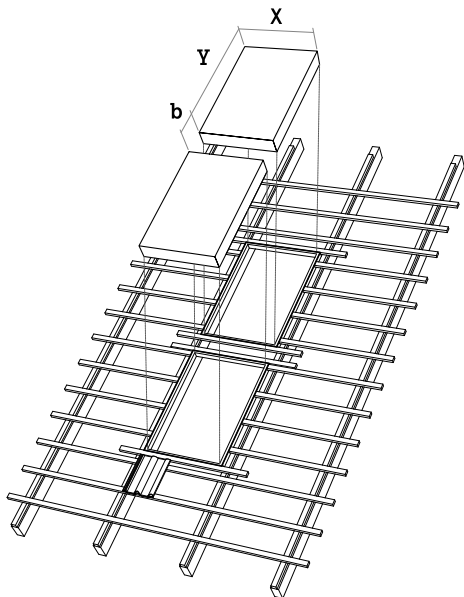
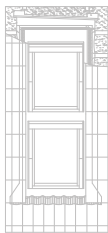


clear distance between window frames:  
a = min. 60 mm, max. 400 mm

standard frame distances of  
100 mm, 120 mm, 140 mm and 160 mm

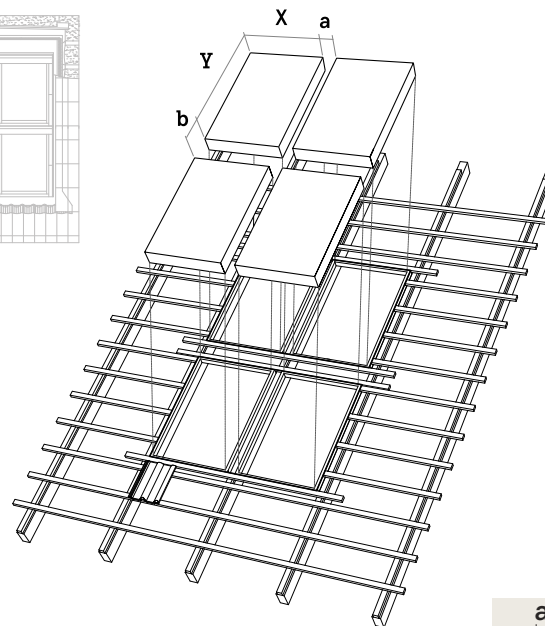
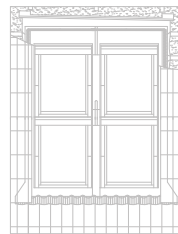
# 3.2 /Installation of a window in the roof structure

## vertical duo solution



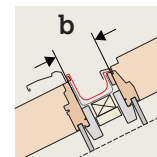
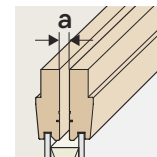
clear distance between window frames on top of each other:  $b = 100 \text{ mm}$  or  $250 \text{ mm}$

## quattro solution



clear distance between window frames next to each other:  $a = \text{min. } 60 \text{ mm, max. } 400 \text{ mm}$

clear distance between window frames on top of each other:  $b = 100 \text{ mm}$  or  $250 \text{ mm}$



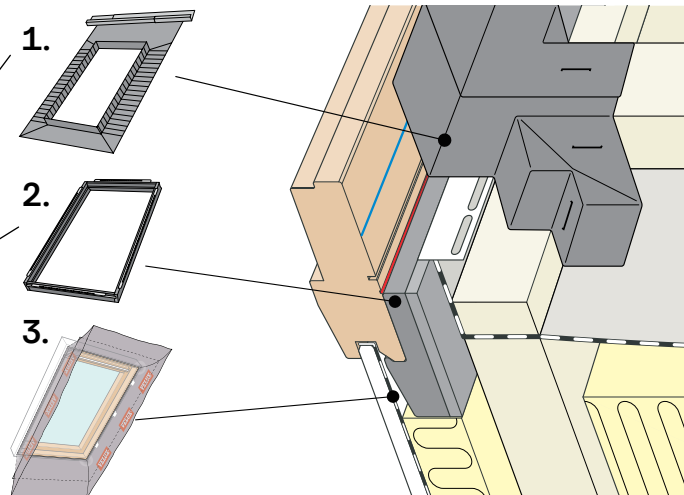
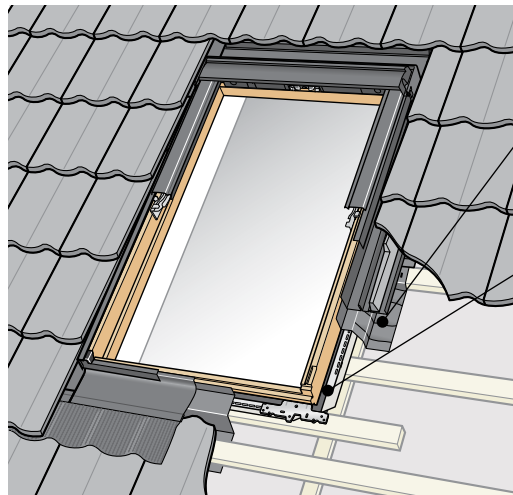
# 3.2 /Installation of a window in the roof structure

## roof window installation system

solution for connection joints in all planes of the roof

### Roof window flashing

Depending on the type of roofing, we choose the right type of roof window flashing.



1.

**Underfelt collar BFX**  
for watertightness of the roof window. It includes a drainage gutter for connecting the waterproofing layer of the roof.

2.

**Insulation collar / insulation / set BDX**, for the correct connection of the window frame to the roof insulation.

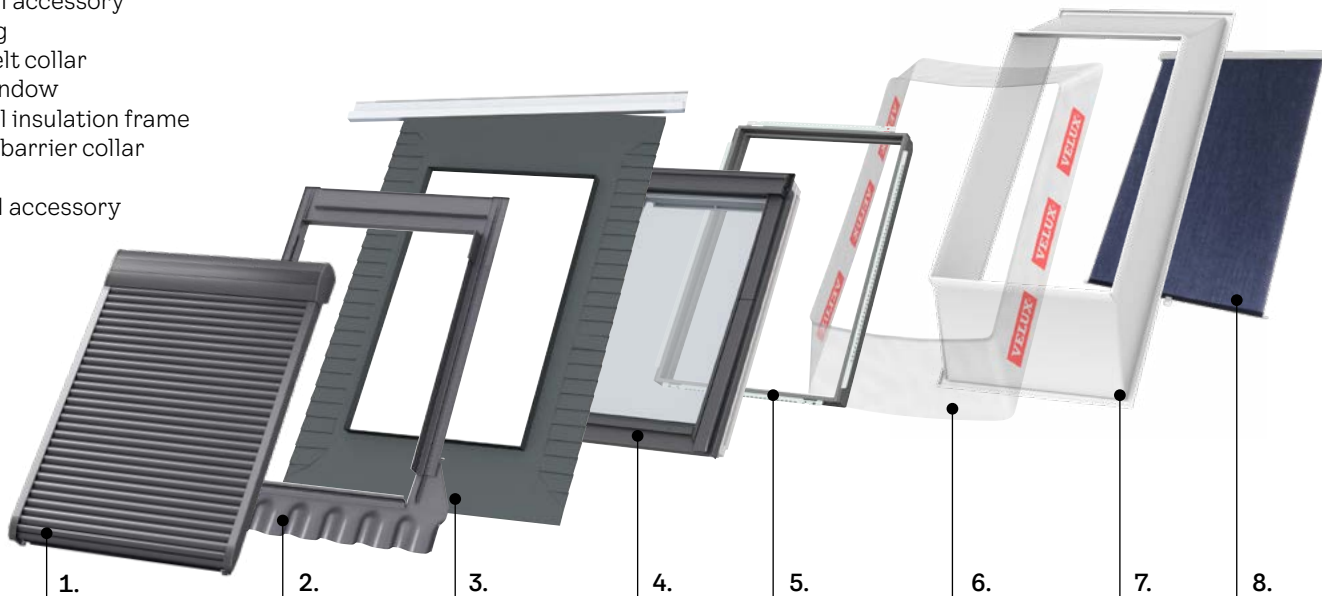
3.

**VELUX vapour barrier BBX**  
for vapour-tight connection of the roof window.



# 3.2 /Installation of a window in the roof structure

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



## Available materials for window cladding and flashing



Aluminum,  
dark grey

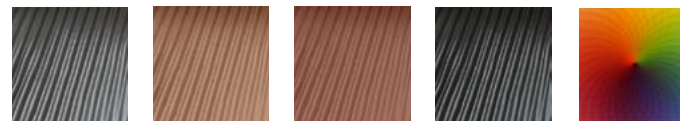
Aluminum,  
black

Zinc

Copper

Aluminum,  
any colour

## Cuff materials



Dark grey

Ochre

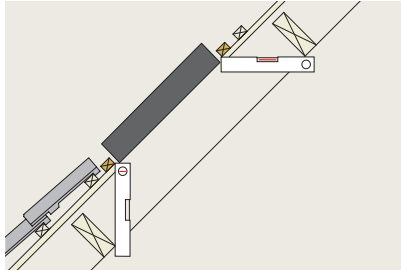
Brick

Black

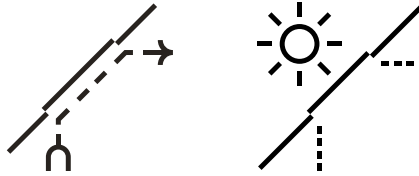
Any colour

# 3.2 / Installation of a window in the roof structure

## Roof window lining

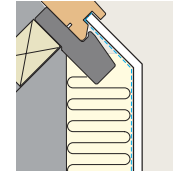


air circulation around the inner surface of the glazing / horizontal upper lining / vertical lower lining / replacements not interfering with oblique lining



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**



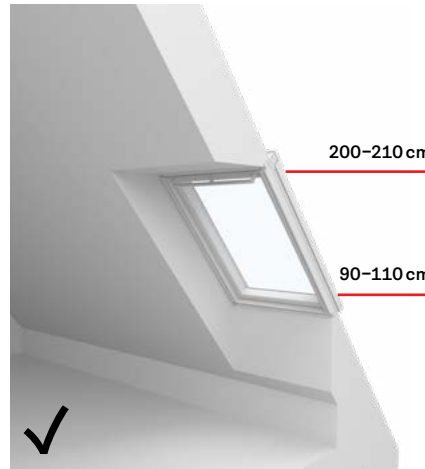
Rise of the lining from the roof window frame towards the ceiling 7-8 cm.

## roof window installation height

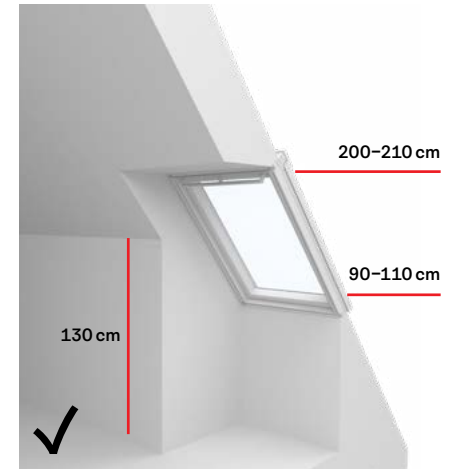
Too high attic knee wall



## Optimum height of attic knee wall



## Solution of attic knee wall and recess for the roof window

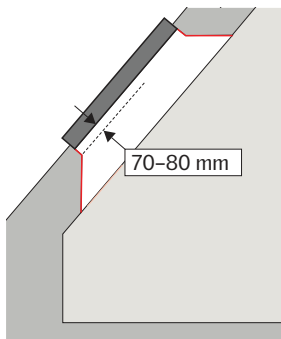
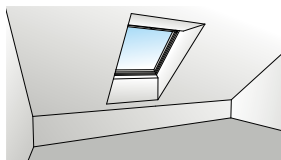


# 3.2 /Installation of a window in the roof structure

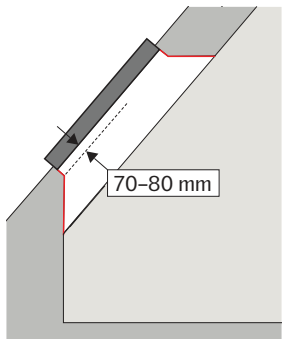
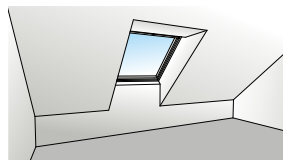
Roof window lining

## lining shapes

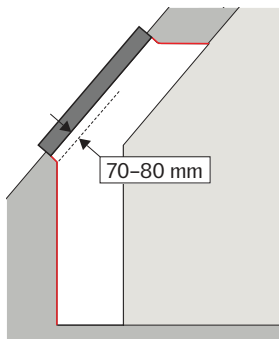
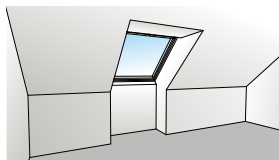
Standard installation



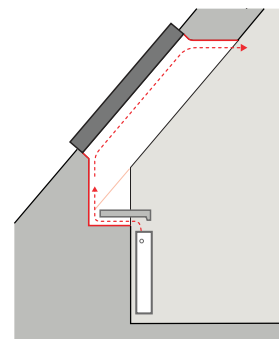
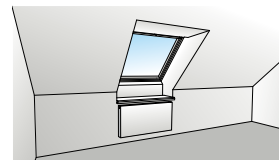
In the plane of the attic wall



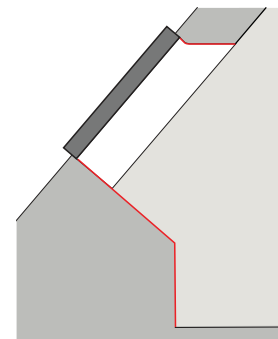
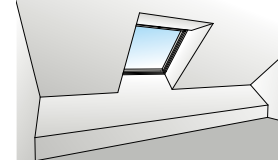
Lining niche in the wall



Ventilated window sill


































Deep lining

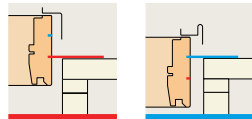


**Note:** Not suitable for rooms with a higher risk of condensation.

# 3.3 /Roof window installations

## Flashing

	 120 mm 15°-90°	 2x8 mm 15°-90°	 2x8 mm 15°-90°	 16 mm 15°-90°	 25-40 mm 15°-90°	 15°-90°	 2x19 mm 25°-90°	 2x8 mm 20°-90°	 90 mm 20°-90°
Roof windows									
	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	
	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**						
	EAW (10°-75°)	EAS (20°-75°)							
	EAW 6-21E/6-31E (10°-75°)	EAS 6-21E/6-31E (20°-75°)							



### Red level

VELUX standard since 2001.

Mounting brackets are fixed to the bottom and top frames.

### 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.

\* MK08/PK19/SK19  
\*\* M08



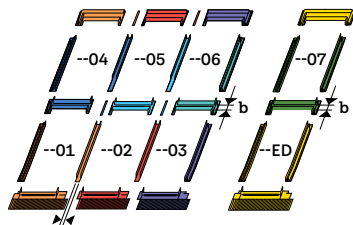


# 3.3 /Roof window installations

## Flashing

EK-

Codes for parts in assembly --W/S/J/N



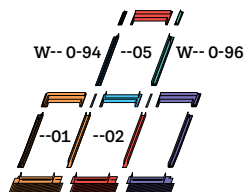
- 00 Part 0
- 01 Part 1 (a)
- 02 Part 2 (a)
- 03 Part 3 (a)
- 04 Part 4 (a) (b)
- 05 Part 5 (EKX) (a) (b)
- 06 Part 6 (b)
- 07 Part 7 (b)
- 21 Part 1 and 3 together

frame distance a = 100, 120, 140 or 160 mm  
(min. 60 mm, max. 400 mm)  
b = 100 or 250 mm

EK-

Asymmetric combination

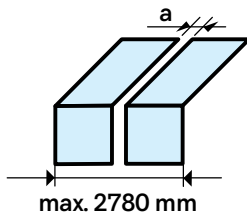
only in standard installation



# 3.3 /Roof window installations

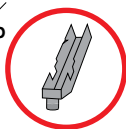
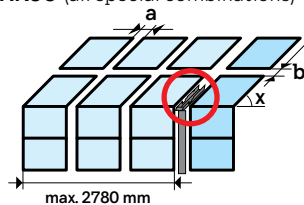
## Flashing

EF-  
--W/S



frame distance a = 18 or 100 mm  
b = 0 mm

EF-  
XK99 (all special combinations)



Maximum width 2780 mm  
a = 100 mm  
b = 100 mm or 250 mm  
x° = roof pitch 15-55°

Number of roof windows = 2 to ∞  
a = min. 60 mm, max. 400 mm  
b = 100 mm or 250 mm  
x° = roof pitch 15-55°

Combinations with a total width of more than 2780 mm require drainage between the windows.

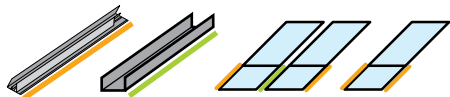




# 3.3 /Roof window installations

## Flashing

ET-



**Single installation with GIL/GIU:**

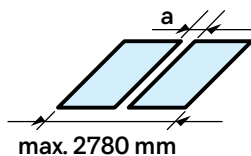
ET- side parts right and left

**Combination with GIL/GIU:**

ET- +ET- --00- medium gutter for GIL/GIU  
frame distance a = 100, 120, 140 a 160 mm

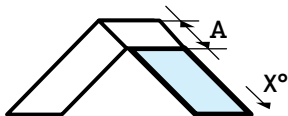
EB-

only in standard installation



special frame distance a = 18  
with prefabricated EBY rafter

EKX  
Roof ridge



A – “ridge measurement”. This is the distance  
from the top frame of the window to upper  
side of battens on the opposite roof surface.  
X – roof pitch



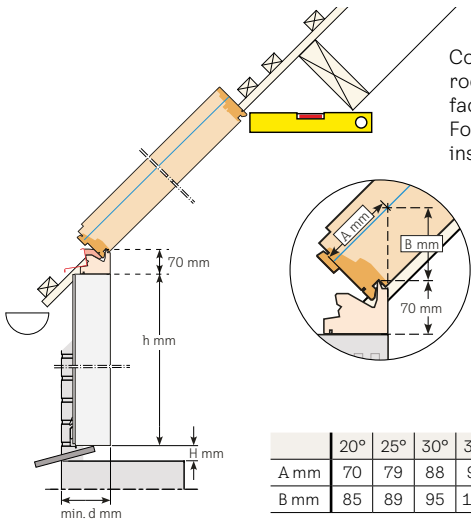
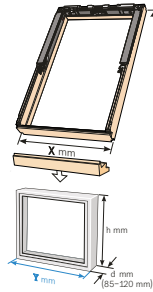
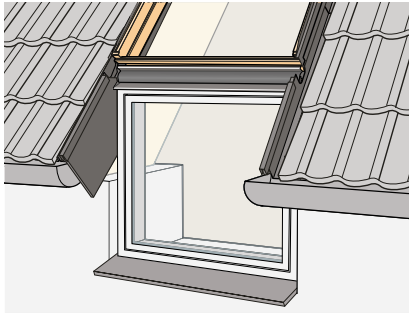
## 3.3 /Roof window installations

Flashing



# 3.4 /Tips and tricks

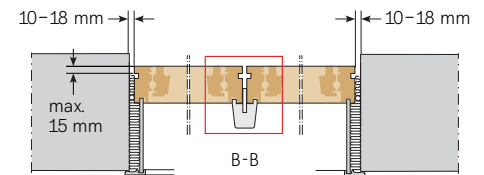
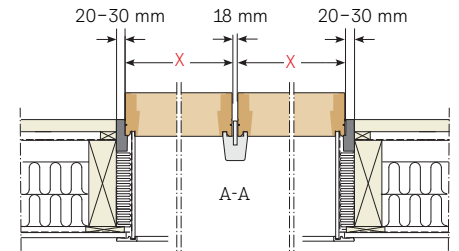
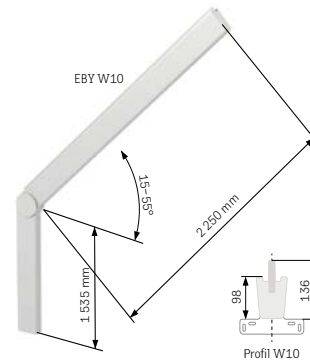
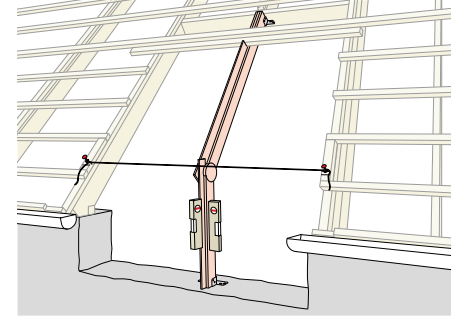
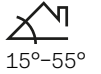
## connection of roof and facade window with installation element



Connecting element for roof windows and facade panels EFY 3012. For 2 different installation types ■ ■.

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

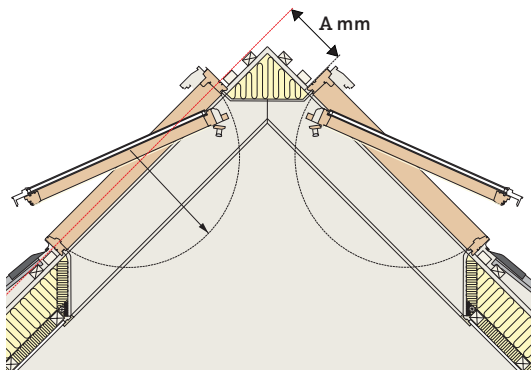
## Installation with adjustable s Vertical window elements upport rafter EBW W10



# 3.4 /Tips and tricks

## Installation along roof ridge

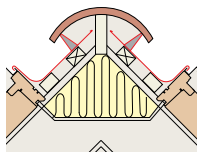
When installing roof windows at the ridge of the roof, it is important to know the “ridge dimension”. This is the distance from the upper frame of the window to the upper edge of the battens on the inside surface of the roof. In the following text, this distance is referred to as “A” mm.



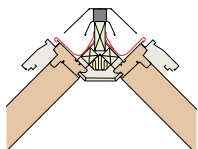
When fitting pivot hung roof windows with upper frames near the roof ridge, keep in mind that their location must allow them to open without the sash interfering with each other.

This can be achieved by following the degree “A” according to the following table:

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



If the dimension “A” is 200 mm or larger, standard flashing can be used without special modifications.

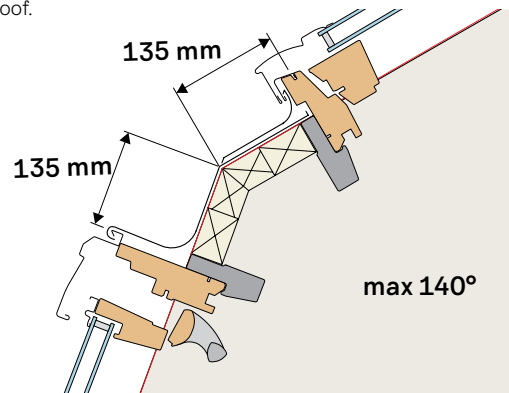


Whether it is one pair or more pairs of roof windows, the top flashing sections must be adjusted according to the distance “A” to the roof ridge. Follow the instructions supplied with the roof ridge kit.

In a roof with a slope of less than 30°, roof windows can be installed right next to each other without the risk of sash collisions (degree of “A” must always be at least 80 mm).

## Mansard roof

Even with a mansard roof, it is possible to fit roof windows on both sides of the roof plane break. It is necessary to observe the basic distances of the window flashing and the maximum slope of the roof.



# 3.4 /Tips and tricks

## development of roof window installation

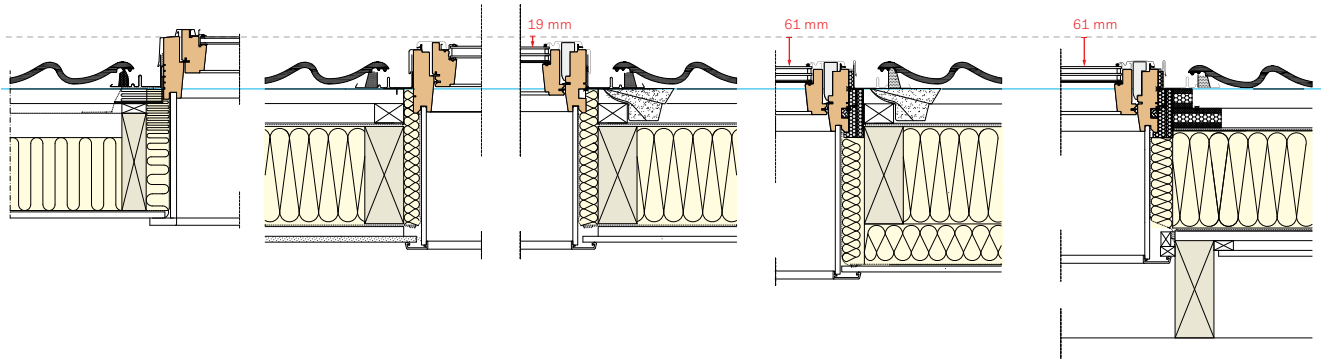
installation of windows in the years 1990–2002 / standard installation

installation of windows in the years 2002–2013 / standard installation

installation of windows since 2013 / standard installation

recessed installation

installation of windows in above rafter insulation / recessed installation

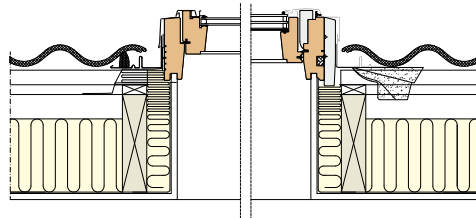


## replacement of roof windows

replacement of roof windows without interfering with the lining

1990–2002 window installation

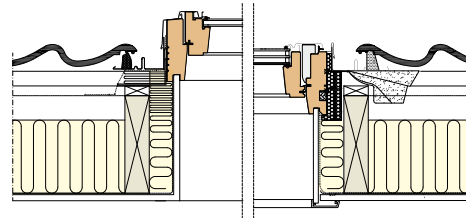
new roof window with special flashing for window replacement EDW 6000



replacement of roof windows with intervention in the lining

1990–2002 window installation

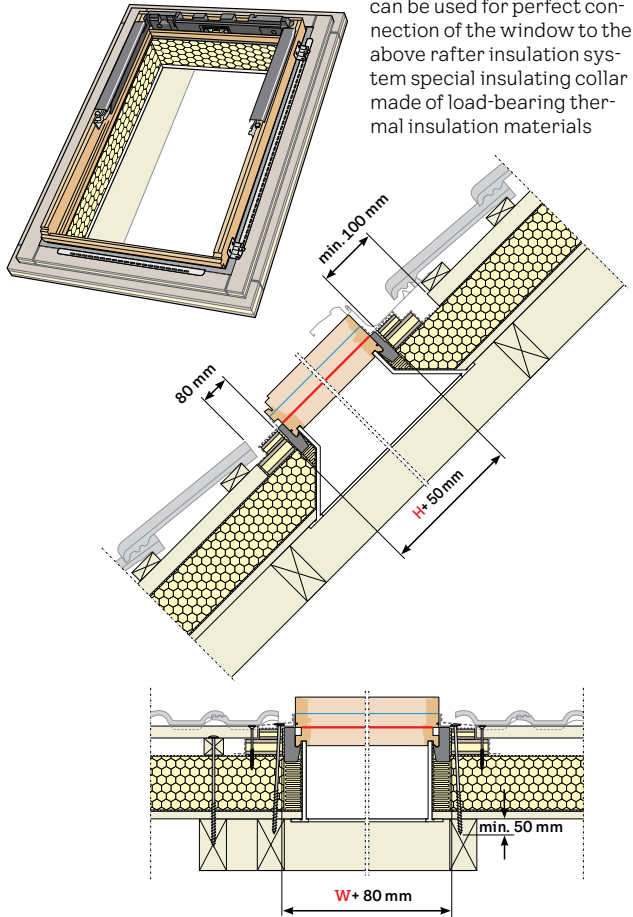
new roof window, recessed installation





# 3.4 /Tips and tricks

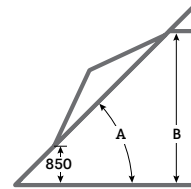
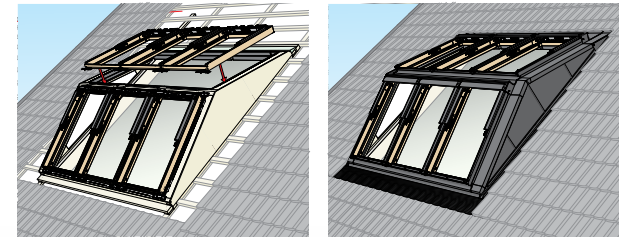
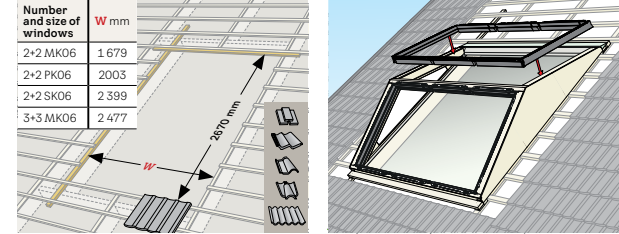
## insulating frame/above truss insulation



## VELUX dormer solution EBW

Dormer flashings allow for installing VELUX roof windows to be lifted out of the roof, creating extra space inside. The dormer flashings come in the exact size and shape to create a perfect, watertight fit to the VELUX roof window of your choice. The dormer flashings also come in kits that make it possible to combine multiple roof windows.

Number and size of windows	W mm
2+2 MK06	1 679
2+2 PK06	2 003
2+2 SK06	2 399
3+3 MK06	2 477



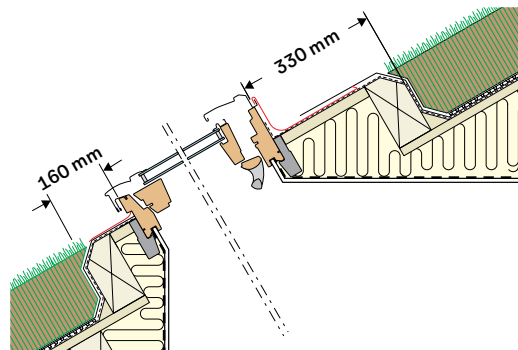
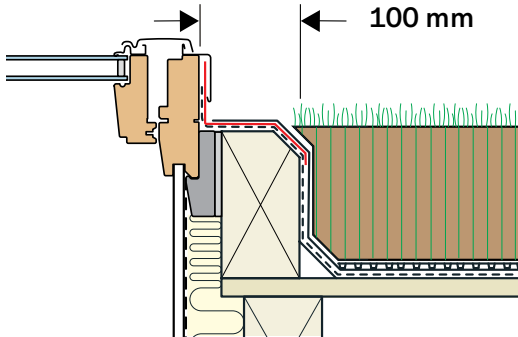
A	min. B mm
35°	2 003
40°	2 171
45°	2 328
50°	2 470
55°	2 600
60°	2 714
65°	2 815
70°	2 900



# 3.4 /Tips and tricks

## 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.

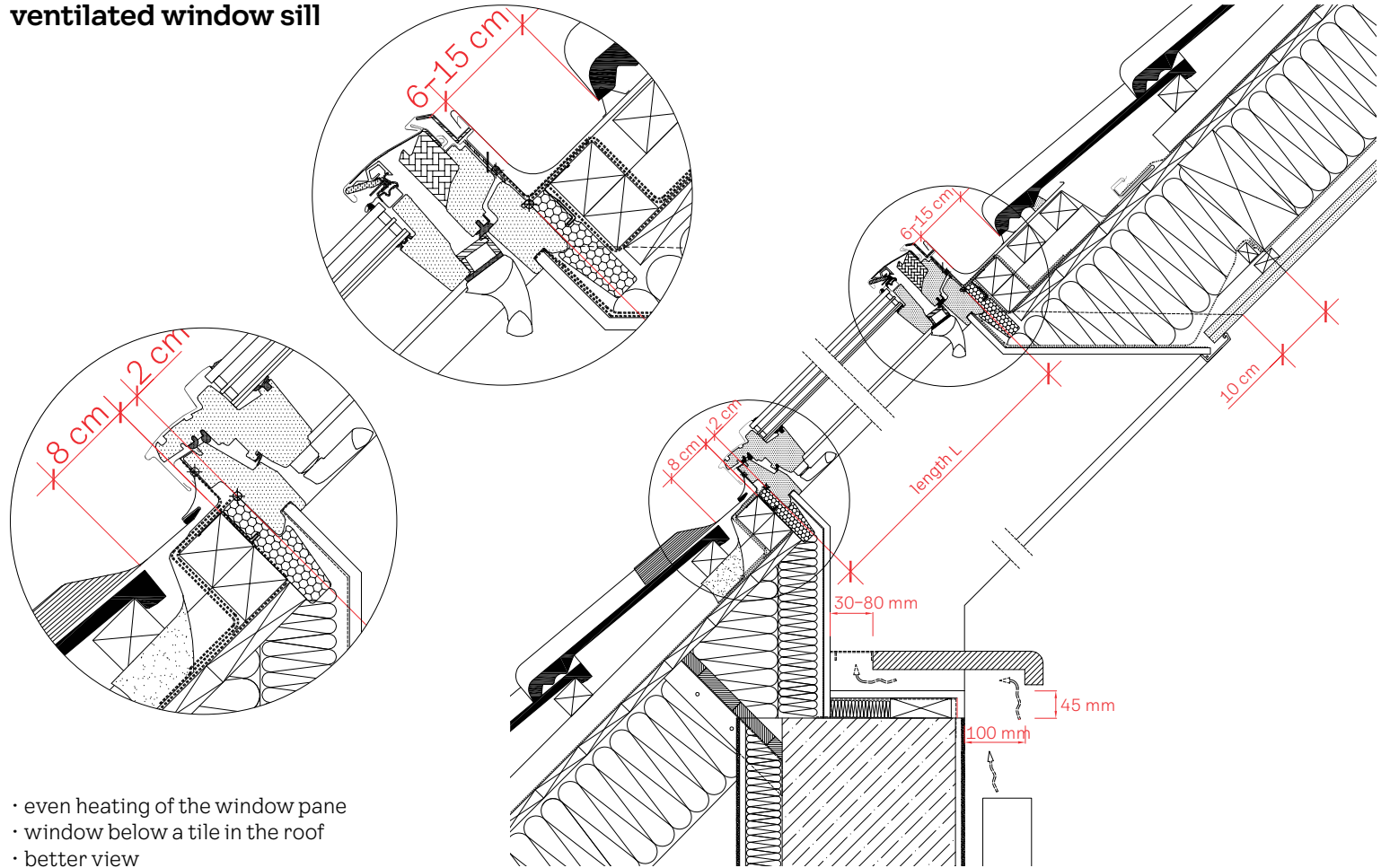




# 3.4 /Tips and tricks

— Drawing of roof windows

## ventilated window sill

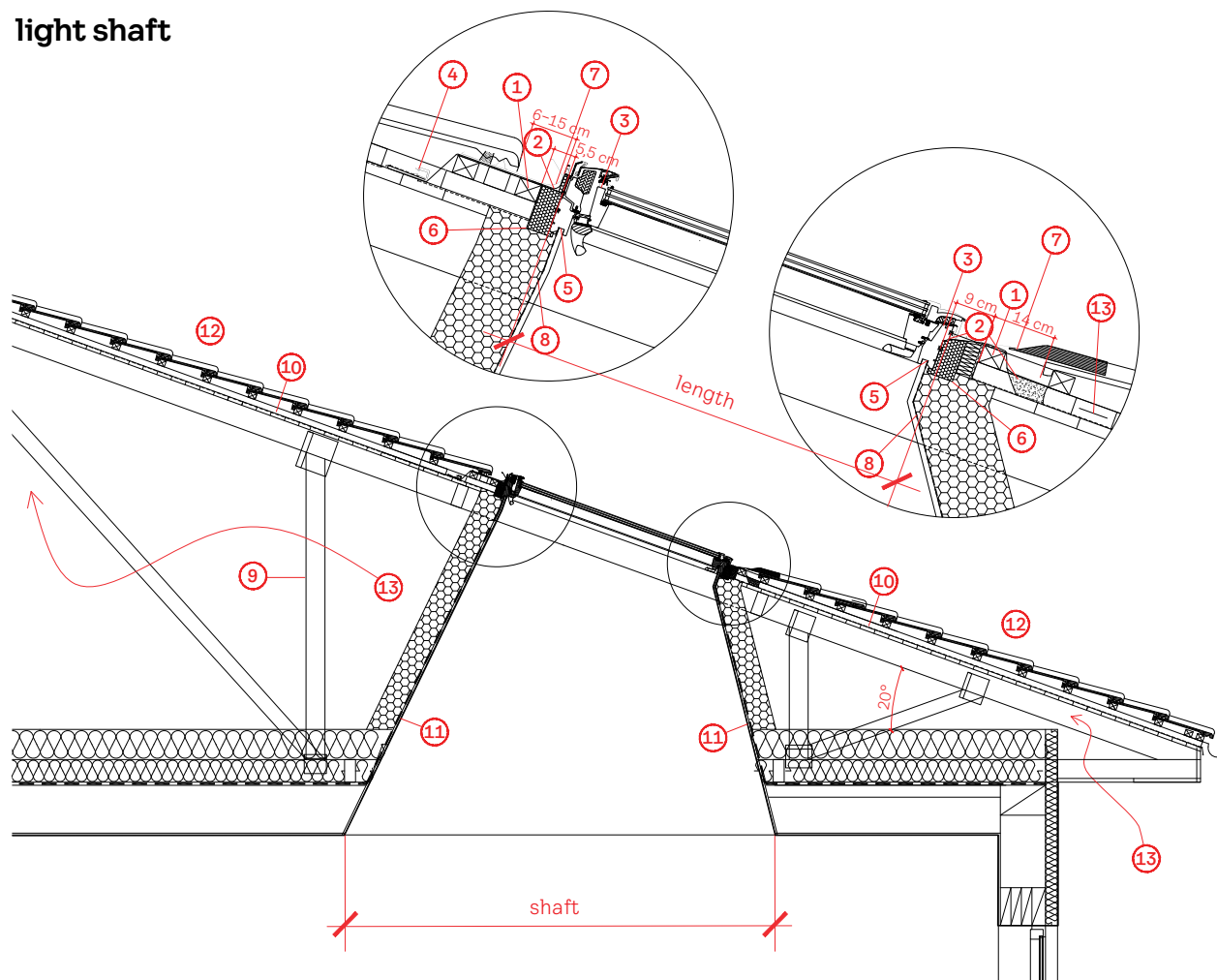


- even heating of the window pane
- window below a tile in the roof
- better view

# 3.4 /Tips and tricks

— Drawing of roof windows

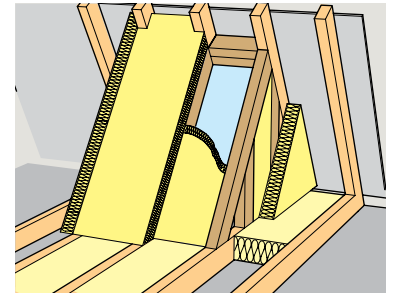
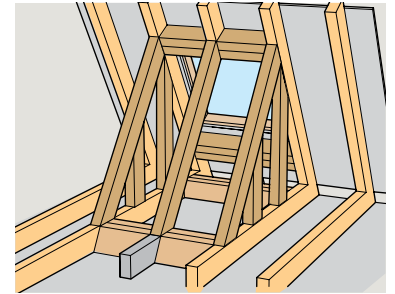
## light shaft



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

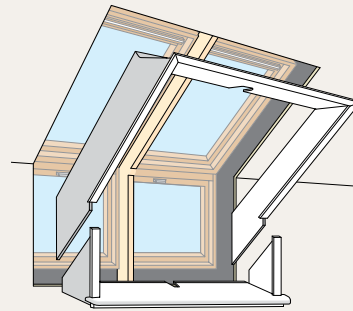
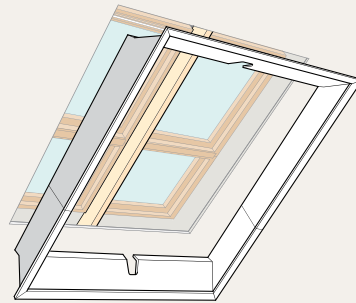
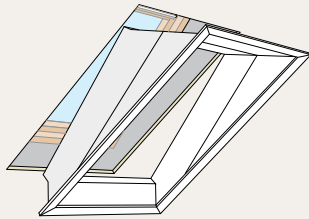
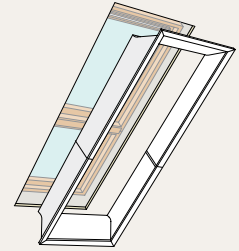
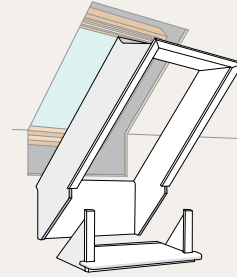
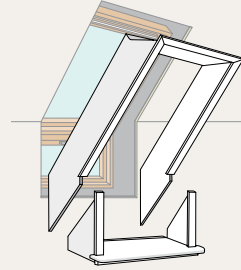
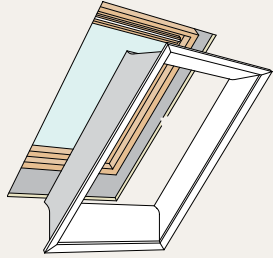
## 3.4 /Tips and tricks

— Drawing of roof windows



# 3.4 /Tips and tricks

— Prefabricated roof window linings





Transforming Spaces