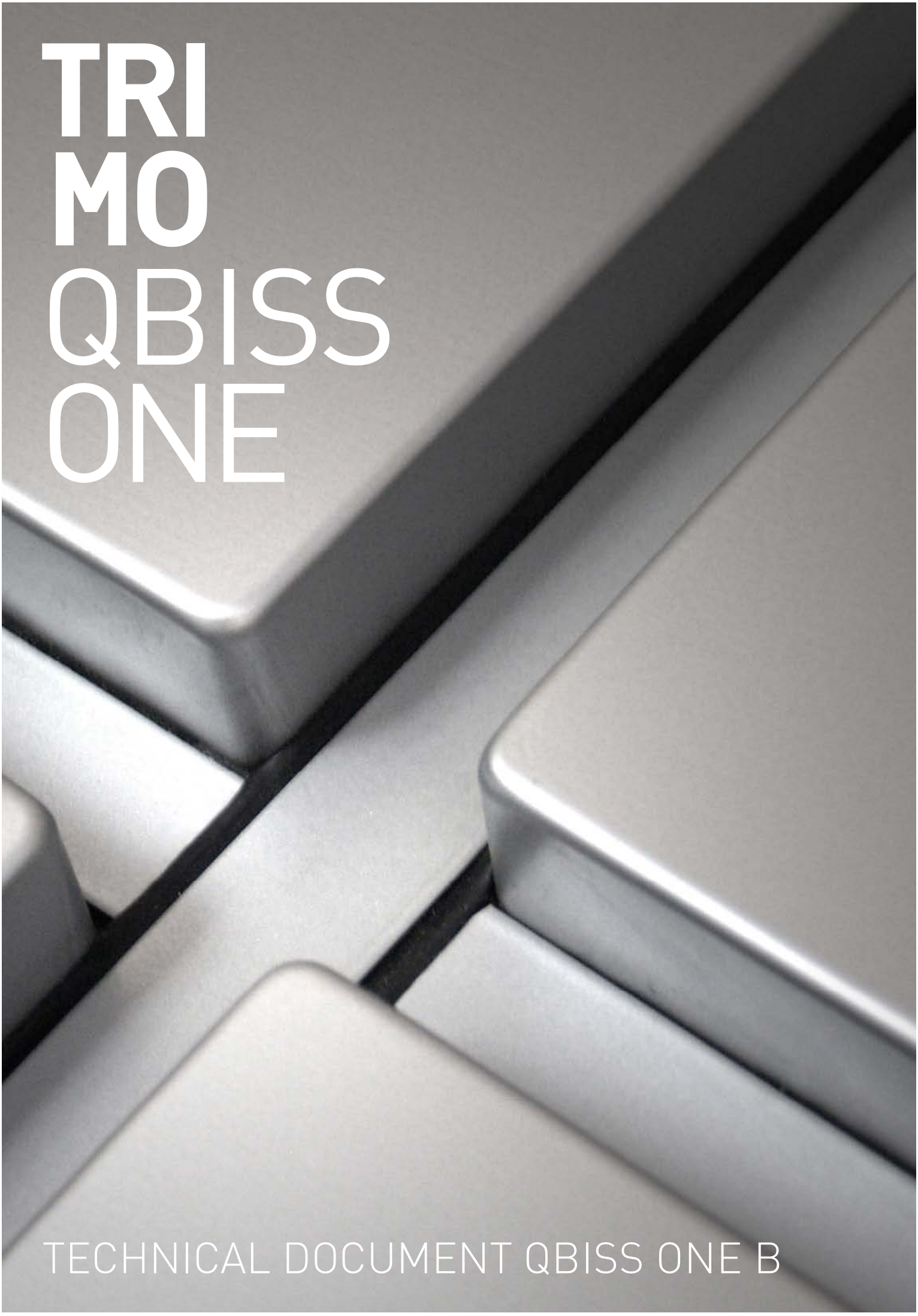


TRIMO QBISS ONE

TECHNICAL DOCUMENT QBISS ONE B

CONTENT

1.0 System Description

The Qbiss modular façade system is a self-contained, insulating, and fireproof façade, with a smooth and elegant external design, representing a significant advantage in comparison to other similar products. Such competitive products are usually not self-contained and developed only for the purpose of attractive design.

The Qbiss One B modular façade is a system with a shadow line joint and the longitudinal and transversal frame-struts are joined, to hold the complete façade elements in place, and enable modular construction and easy composition of desired façade designs.

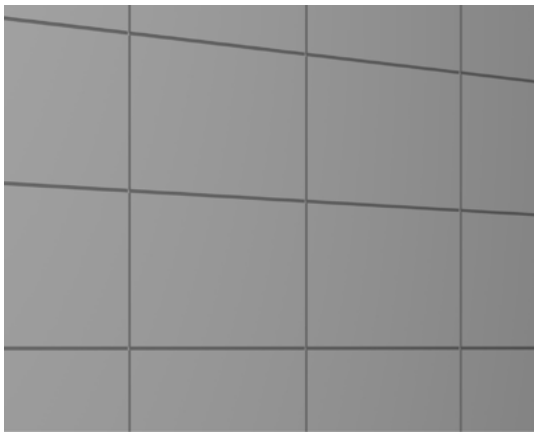
The system is based on Qbiss One B modular façade elements, available in different sizes and colours.

1.1 Installation Methods

Qbiss One B modular façade elements are same for all installation methods.
There are several differences regarding sealing methods and the sequence of assembly. The differences between the installation method are described in Chapter 1.5.2.

Horizontal Installation

Fig. 1.1: Horizontal installation method



The horizontal modular façade system is composed of individual façade elements, joined in a horizontal direction (longitudinal) with a tongue - groove system, and fixed to the supporting structure in a vertical direction (transversal).

Longitudinal sealing of joints is accomplished with gaskets, integrated in both longitudinal joints; transversal joints (vertical joints) are sealed with a specially profiled gasket.

Brick Structured Horizontal Installation (by shifting)

Fig. 1.2: Horizontal assembly by shifting (BRICK)

Horizontal installation by shifting or so-called ''Brick Structured Installation'' is the latest innovation in the façade elements market.

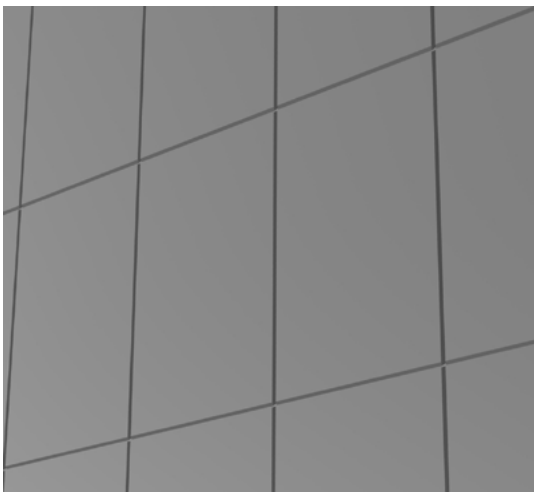
This solution not only enables the symmetrical shift (shifting of the vertical joint in the middle of the upper or lower façade element) but also means that the vertical joints can be located anywhere on the longitudinal axis of neighbouring horizontal façade elements.

The system of sealing and fixing is the same as in the system of the usual horizontal assembly of façade elements.

Additional information can be found in Assembly document Q 01 - Assembly Instructions - horizontal assembly.

Vertical Installation method

Fig. 1.3: Vertical installation



The vertical modular façade system is composed of individual façade elements, joined in a vertical direction (transversal) with a tongue - groove system and affixed to the supporting structure in a horizontal direction (longitudinal).

The system of sealing and fixing is specific and slightly different to that used for the classical horizontal method of assembly of façade elements.

1.2 System Composition

The system's main parts are façade elements, corner elements, windows, window and door frames, flashing. The modular façade system dimensions are defined by the distance between supports R and the façade module width by M. The façade elements form longitudinal and transversal joints of the façade system (Fig. 1.6).

The **longitudinal joint** is formed by a tongue and groove type of the façade element. The dimensions of the joint are 23 x 24 mm (width x depth).

The **transversal joint** consists of the façade element's transversal edges through which the façade elements are fixed to the structure, using screws.
The completion or sealing of the transversal joint is performed by inserting a sealing and decorative profile ensuring a waterproof and air-tight joint for the entire façade system.
The decorative profile is merely a decorative finishing element. It can be delivered in colours, different to the colours of the façade elements.

The Horizontal and Brick Structured Horizontal Installation

Fig. 1.4: Horizontal

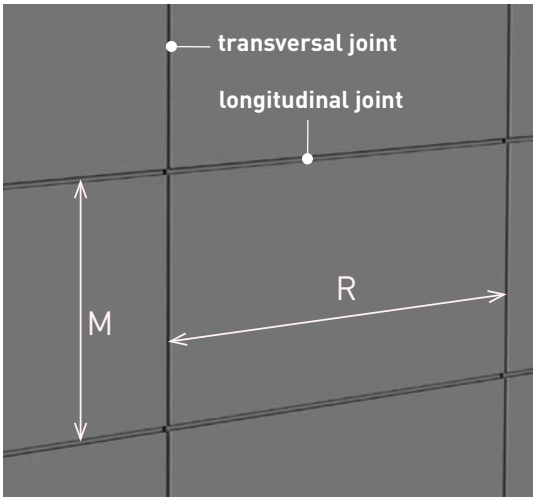
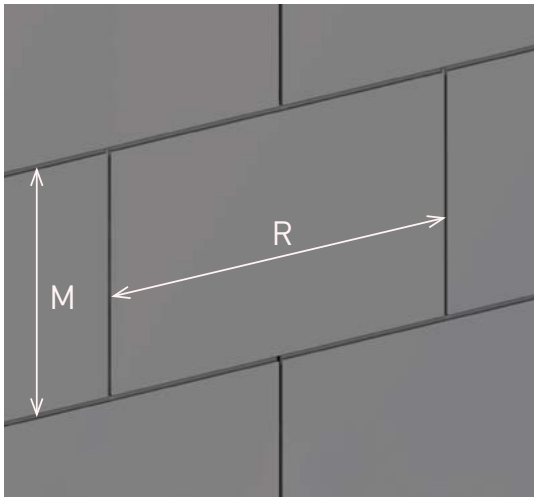


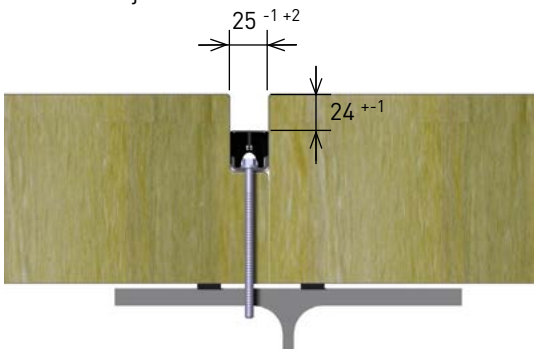
Fig. 1.5: Brick structured horizontal



R - distance between supports (facade element length)
M - module width

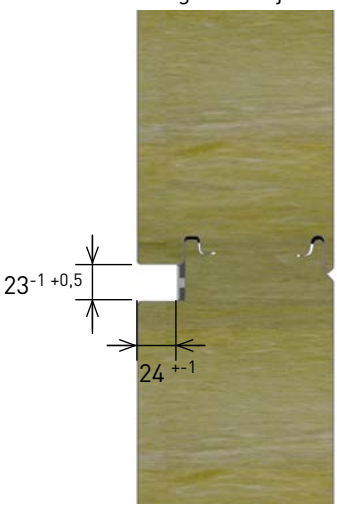
Fig. 1.6: TRANSVERSAL and LONGITUDINAL joint of both horizontal installation methods

Transversal joint



Transversal joint dimensions: 25 mm x 24 mm

Longitudinal joint



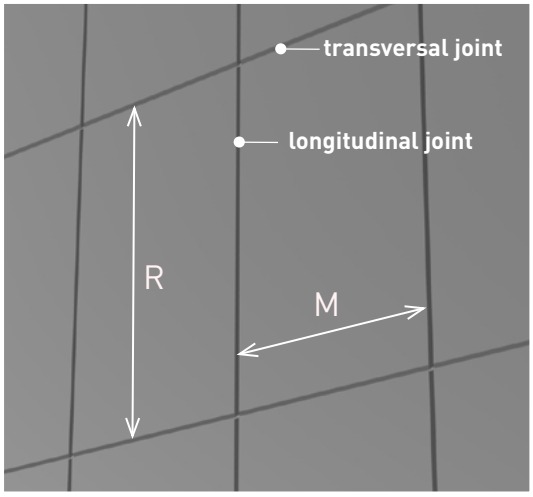
Longitudinal joint dimensions:
23 mm x 24 mm

Vertical Installation method

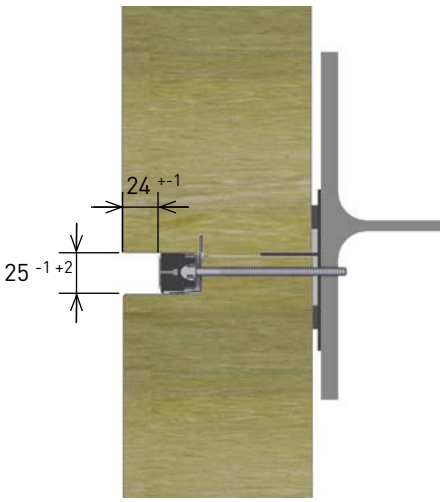
A pre-condition for the qualitative fixing system is the load bearing capacity of the façade elements - every element in the system must be adequately supported. Each horizontal joint (transversal joint) includes a load bearing profile, fixed to the internal side. This profile supports the façade element and provides stability for the entire façade system.

Functionality of the sealing system is subject to complete drainage of the horizontal (transversal) joint. This is achieved with an additional steel plate and the application of sealant.

Fig. 1.7: Longitudinal and transversal joints

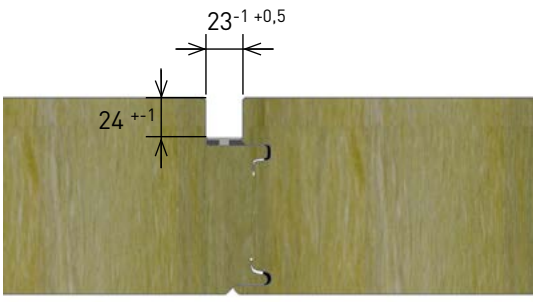


Transversal joint



Transversal joint dimensions:
25 mm x 24 mm

Longitudinal joint



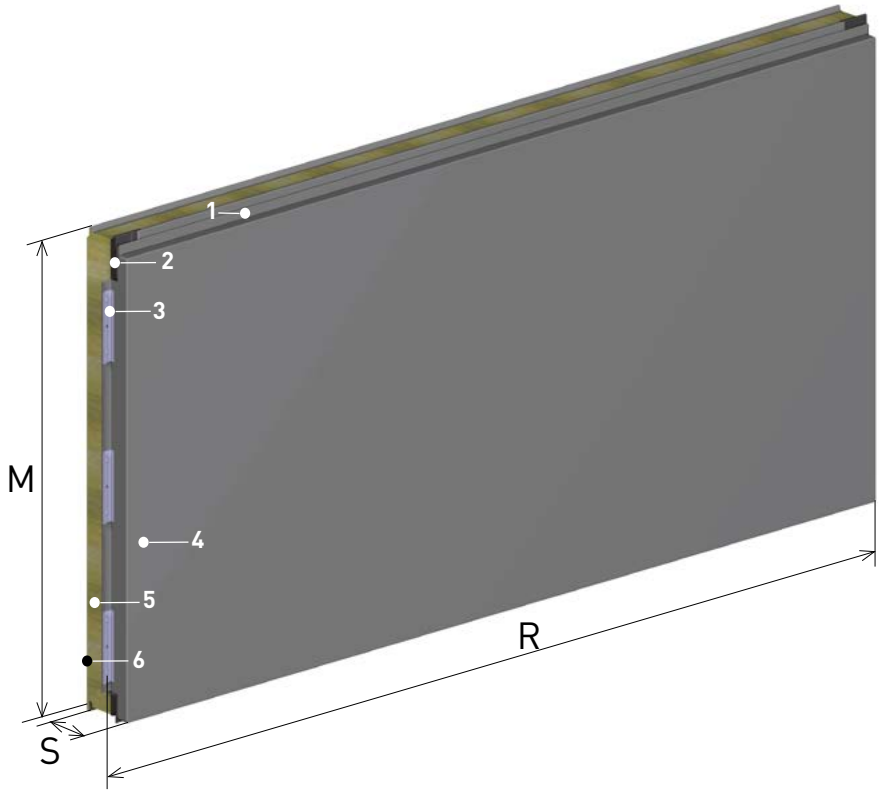
Longitudinal joint dimensions: 23 mm x 24 mm

R - distance between supports (façade element length
M - module width

1.3 Element Composition

The façade element is a basic element of the Qbiss One B modular façade system.

Fig. 1.8: Composition of modular façade element Qbiss One B



1. Decorative profile
2. Sealing element
3. Fixing profile
4. External sheet metal
5. Core (mineral wool A1)
6. Internal sheet metal

!

R - distance between supports (facade el. lenght)

M - module width

S - thickness

The Qbiss One B façade element consists of two galvanized and painted metal sheets. The metal sheets are bonded to the core made of non-combustible mineral wool (class A1, EN 13501-1), which ensures excellent thermal and sound insulation and the fire-resistance properties of the Qbiss One B façade element.

These three layers make a solid Qbiss One B façade element with a thickness of 80 - 240 mm. Such an element ensures the necessary load - bearing capacity, tightness, and required composure.

Protective polyethylene foil is applied to the element surface to protect it during handling, transport and assembly. The foil has to be removed after the assembly is completed.

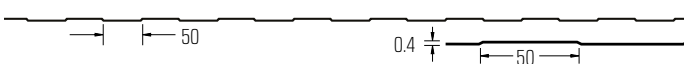
Table 1.1 : General Technical Data

Thickness (S)	**80, 100, 120, 133, 150, 172, 200, 240 mm**
Element width (M)	standard 1000 mm non-standardized widths available between 600 -1200 mm
Element length (R):	530 - 6500 mm
External surface (side A)	smooth
Core	mineral wool
Internal surface (side B)	G, g, s, v, v2, m2 - profile

1.4 Element Profiles

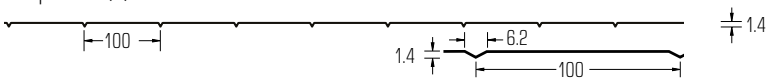
Fig. 1.9: Element profiles

Smooth profile (G, g)

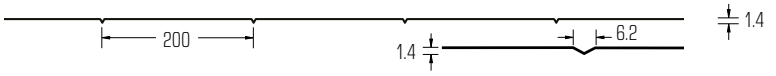


S - profile (standard profile)

V - profile (v)



V - profile (v2)



Profile Type	A	B
Smooth (G)	•	
Smooth (g, G)		•
S - profile (s)		•
V - profile (v, v2)		•

Side A is the external side of a panel.

1.5 Technical Data

1.5.1 General Technical Data

Table 1.2: Technical data for façade elements Qbiss One B

		Q - 80	Q - 100	Q - 120	Q - 133	Q - 150	Q - 172	Q - 200	Q - 240
Element thickness (mm)		80	100	120	133	150	172	200	240
Weight (kg/m²) Qbiss One C	Fe 0,7/Fe 0,6	20.7	23.1	25.5	27.4	29.1	31.8	35.1	39.9
U - Thermal conductivity (W/m²K)* [EN 14509] Qbiss One C		0.49	0.40	0.33	0.30	0.27	0.24	0.20	0.17
Fire resistance class [EN 1364-1]** [EN 13501-2] Qbiss One C		/	EI 30	EI 90	EI 120	EI 120	EI 120	EI 120	EI 120
Weight Qbiss One T(kg/m²)		18.3	20.2	22.0	23.4	24.7	26.7	29.2	32.8
U Thermal transmittance (W/m²K)* Qbiss One T		0.45	0.36	0.30	0.28	0.25	0.21	0.19	0.16
Fire resistance class Qbiss One T**		/	EI 30	EI 90	EI 120	EI 120	EI 120	EI 120	EI 120
Weight Qbiss One S (kg/m²)		20.2	22.5	24.8	26.6	28.2	30.8	33.9	38.5
U Thermal transmittance (W/m²K)* Qbiss One S		0.50	0.41	0.34	0.31	0.28	0.24	0.21	0.17
Fire resistance class Qbiss One **		/	EI 30	EI 90	EI 120	EI 120	EI 120	EI 120	EI 120
Core combustibility (EN 13501-1]		non-combustible mineral wool core, Class A1							
R_w Sound reduction (dB) [EN 10140-3]		30 (-1,3)							
Water permeability - Resistance to driving rain under pulsating pressure [EN 14509]		Class A (1200 Pa)							
Modular width (mm)		1000 (available from 600 to 1200)							
Length (mm)		530 - 6500							

* For specific project data refer to Technical CE specification data and contact Trimo Technical Support. Calculated according to EN 14509 standard without consideration of longitudinal joint losses.

** Admissible distances between the supports of the assembly of the façade system are calculated for each individual building by Trimo Technical Support.

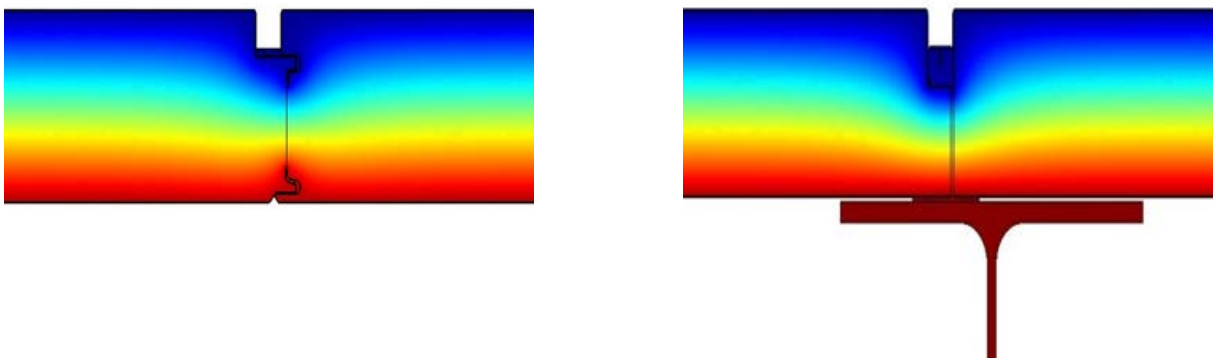
CWCT standard test for bulding envelopes:
Qbiss One composite cladding system with integrated windows has been fully tested to CWCT standards for wind loads, air-tightness, water-tightness and impact. The system was proven to meet the requirements for use in severe climatic conditions. Technical report number R10311 rev 1.

Values of the table may differ because of different legislation in individual countries.

Thermal Conductivity

The Qbiss One B modular façade system was designed to provide a comfortable living environment in accordance with the requirements of physical construction conditions in buildings. A stationary heat transfer calculation was made using the numerical modelling method in accordance with the guidelines and recommendations for heat transfer calculations, provided in Standard EN 14509.

Fig. 1.10 : Demonstration of the established temperature field in the longitudinal and transversal joints



1.5.2 Elements and Corner Design

Fig. 1.11: Example, BOTH-SIDED; L-R

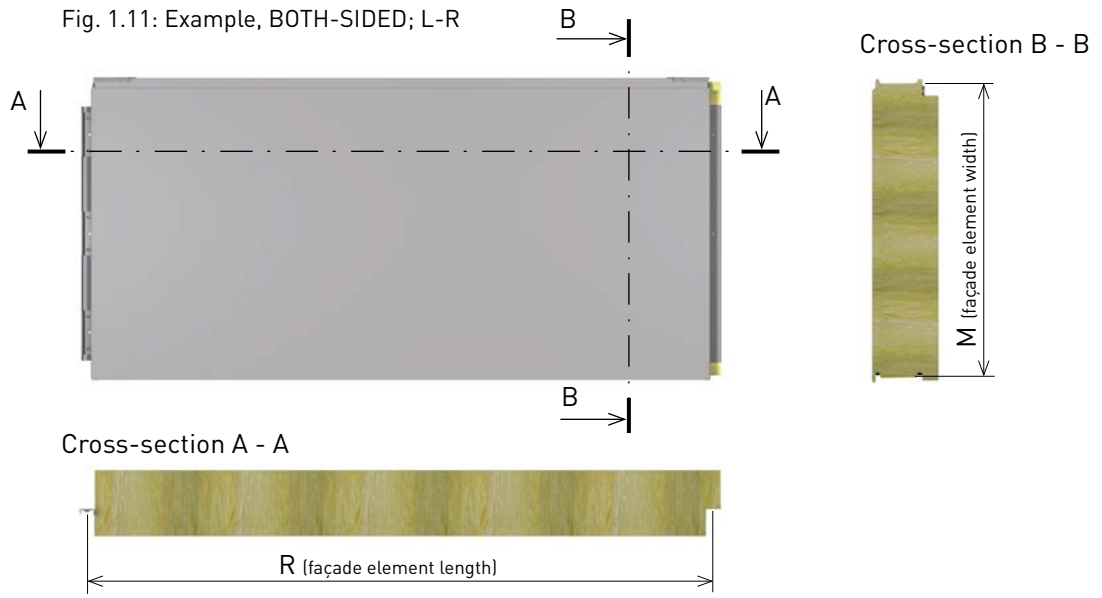
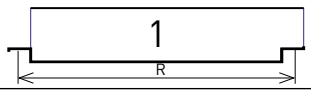
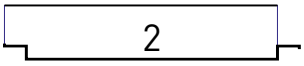
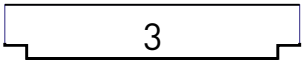
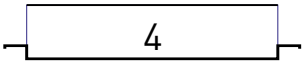
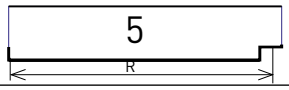
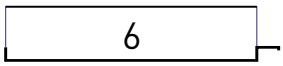
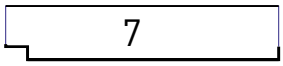
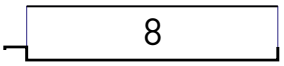
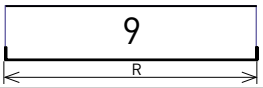
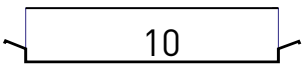
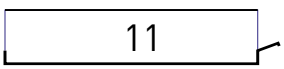
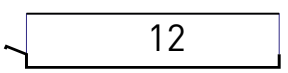


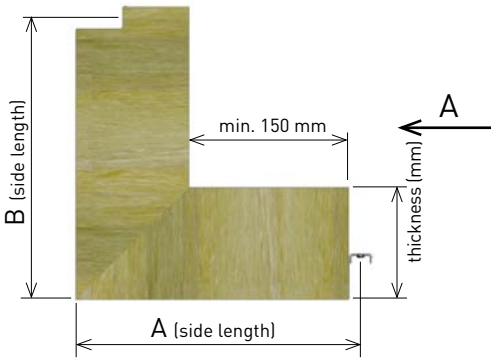
Table 1.3: Different types of finishing

ELEMENT TYPE	ELEMENT FORMAT	INSTALLATION DIRECTION	INSTALLATION METHOD
	BOTH-SIDED	L - R	HORIZONTAL SHIFTED HORIZONTAL (BRICK) VERTICAL
	BOTH-SIDED	R - L	HORIZONTAL SHIFTED HORIZONTAL (BRICK)
	BOTH-SIDED	INITIAL	HORIZONTAL SHIFTED HORIZONTAL (BRICK) VERTICAL
	BOTH-SIDED	TERMINAL	HORIZONTAL SHIFTED HORIZONTAL (BRICK)
	RIGHT	INITIAL	HORIZONTAL SHIFTED HORIZONTAL (BRICK) VERTICAL
	RIGHT	TERMINAL	HORIZONTAL SHIFTED HORIZONTAL (BRICK)
	LEFT	INITIAL	HORIZONTAL SHIFTED HORIZONTAL (BRICK) VERTICAL
	LEFT	TERMINAL	HORIZONTAL SHIFTED HORIZONTAL (BRICK) VERTICAL
	NONE	INITIAL TERMINAL L - R R - L	HORIZONTAL SHIFTED HORIZONTAL (BRICK) VERTICAL
	BOTH-SIDED	L - R R - L	HORIZONTAL FAÇADE RADIUS REQUIRED
	RIGHT	L - R R - L	HORIZONTAL FAÇADE RADIUS REQUIRED
	LEFT	L - R R - L	HORIZONTAL FAÇADE RADIUS REQUIRED

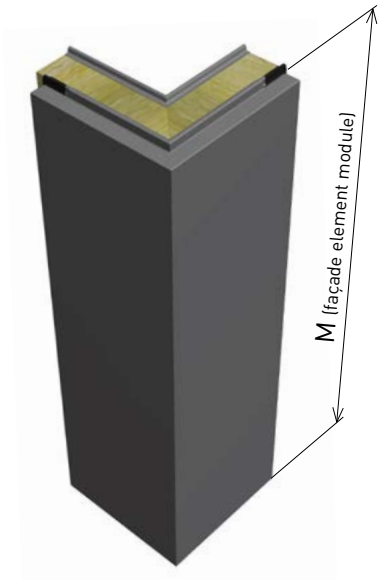
Corner elements shapes

Horizontal corner element

Fig. 1.12: L shape



Isometric view



View A

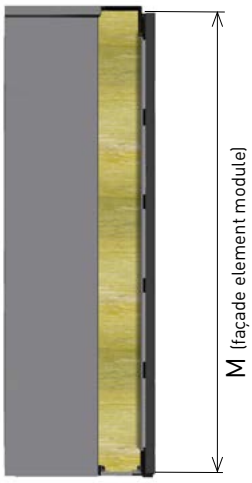


Fig. 1.13: The principle for designating the sides of corner elements - shown is a top-down view of four corners of a building with side designations

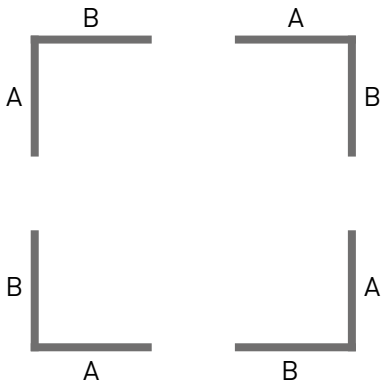
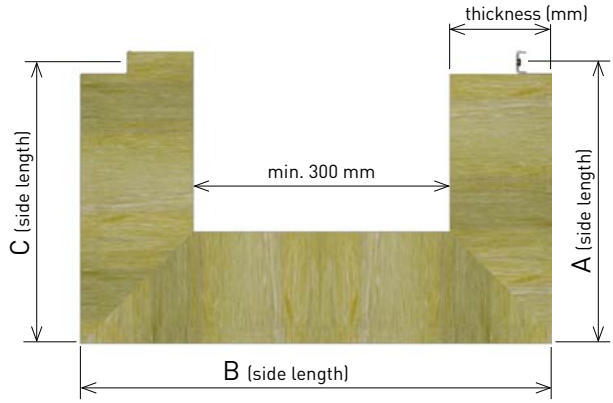


Fig. 1.14: U shape



NOTE:
The direction of installation and the element type do not affect the designation of legs (A, B, C) of the corner element. The scheme for designating the legs is shown in Figure 1.13.

Vertical corner elements

Fig. 1.15: A cross-section of the vertical corner element

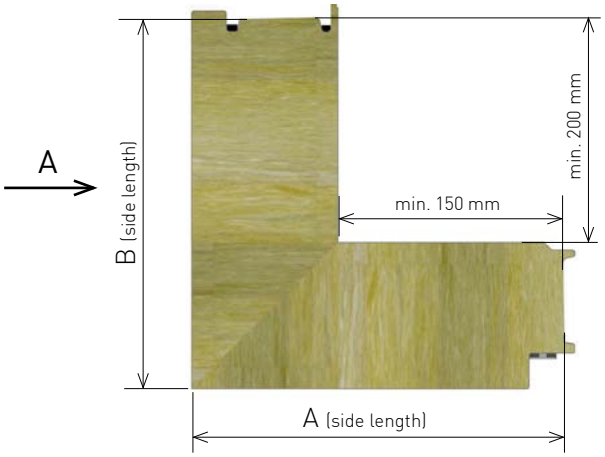
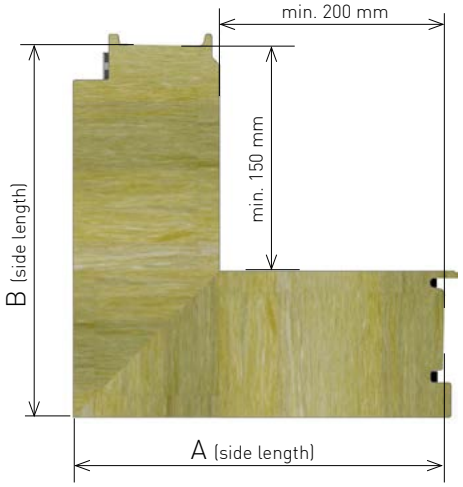
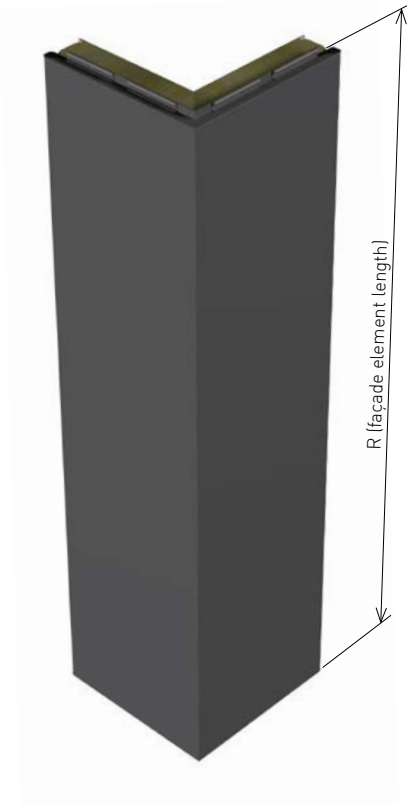


Fig. 1.16: A cross-section of the vertical corner element



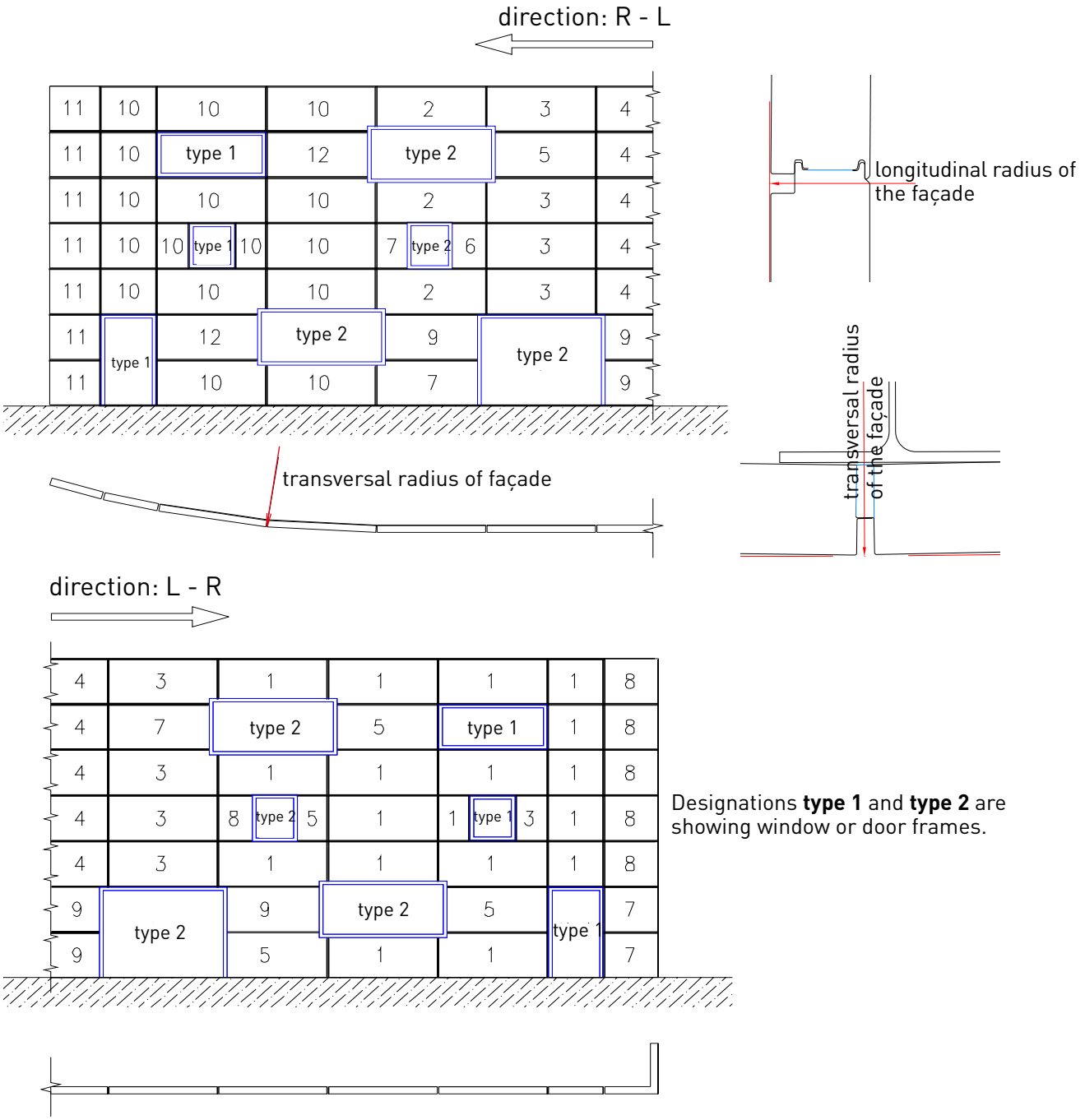
View A

Isometric view



1.5.3 Graphical Installation Demonstration

Fig. 1.17: Façade element type according to table 1.4.



1.6. System Characteristics, Requirements and Limitations

The chapter contains a summary of the modular Qbiss One B façade system with its requirements and limitations.

CHARACTERISTICS

Components of the modular façade system
- Modular façade elements
- Fixing and sealing material
- Standard metal sheet flashings
- Joint interface connection detail for windows and doors
- Corner elements
- Sub-structure (optional)
- Windows and doors (optional)

Installation Methods
- Horizontal assembly
- Shifted horizontal assembly (BRICK)
- Vertical assembly

Standardised assembly direction of Qbiss One B façade elements is from the LEFT to the RIGHT

Fixing material
- Self-tapping screws (stainless A2)
- Self-drilling screws (stainless A2)

Horizontal Qbiss One B Corner Façade Elements - L & U shape
- L shape: **- Restrictions on the length of the corner elements sides:**
  A_{max} (B_{max}) = 2500 mm
  $(A+B)_{min}$ = 530 mm
  $(A+B)_{max}$ = 2000 mm if A or B > 600 mm
  - Min length of the sides: $A_{min} = B_{min}$ = (150 mm + thickness); A + B = min 530 mm
  - Angles available from 60° to 175°
- U shape: - Max external dimensions (side x middle x side): 1000 x 1500 x 1000 mm
  - Min internal dimension: (side x middle x side): 150 x 300 x 150 mm

Vertical Qbiss One B Corner Façade Elements - L shape
- L shape:
  - A_{min} = (200 mm + thickness)
  - B_{min}= (150 mm + thickness)
  - (A+B) = min 600 mm
  - Modular width: 600 - 1200 mm
  - Element length: 530 - 6500 mm
  - Angles available: from 80° to 180°

Metal Sheet corner elements
- Available in different versions for horizontal and vertical assembly of Qbiss One B façade elements
- With continued corner flashings (rounded or sharp edges)
- Rounded-edge version available only with continued corner sheet metal flashing

Aluminium Windows, Doors, and other Openings

Aluminium serves as functional frame for spaces and openings such as:
- Windows or glass doors
- Light strips

We can supply individual frames up to 6.5 m long. We can make longer frames by joining individual frames, connected by a transversal joint.

Light strips without windows (for closing façade elements) can be installed by using one of the following options:
1. as frames (max. 6.5 m long) that are connected by a transversal joint, or
2. a continuous strip with expansion bonds at a minimum of 6.5 m, with an extension element.

Installing recessed windows/doors is possible by two methods:
1. with frames (up to 4 m long), connected by a transversal joint.
2. as an endless strip with an expansion joint at a minimum of 4 m, with an extension element.

Design possibilities
- Façade elements of the façade can be in different colour combinations.
- Standard colour of deep joints (longitudinal and transversal) is the same as colour of façade elements. Subject to prior order available also in different colours.

REQUIREMENTS

1. Ordering data, necessary for production

1. Static calculation (Building location and relevant data, geometry, and type of the building)
2. Specification of the façade system:
- Thickness of the façade elements
- Number of pieces
- Type of the façade elements (BOTH-SIDED, LEFT, RIGHT, NONE)
- Raster length R (distance between screws or, termination at single sided elements, respectively)
- Module - M (module width)
- Number of transversal joints
- Number of EPDM cubic seals for sealing of joints in cut-outs
- Number of drip flashings
- Colour of transversal and longitudinal decorative plates (if different from the colour of the façade element)
- Radius of the façade (in case of segmented assembly) measured on external sheet (fig. 1.16)

3. Assembly data:
- Assembly direction (LEFT to RIGHT, RIGHT to LEFT)
- Assembly type (HORIZONTAL, HORIZONTAL BY SHIFTING, VERTICAL)

2. Preparation of structure or sub-structure

Preparation of a suitable structure or sub-structure in accordance with the provisions of these instructions is required to ensure quality, tightness, and durability of the façade system. The levelling structure system (Trimo Quick-Assembling sub-structure) must be used in cases when the structure fails to meet the above-mentioned requirements.

A geodetic snapshot of the building (concrete or brick wall) or structure (steel, concrete, wood) is required to determine suitability of the structure.

LIMITATIONS

Segmented Assembly:
Apparent radius of segmented façade system:
- Minimal transversal radius: 10 m
- Minimal longitudinal radius: 60 m
- Check suitability of the desired façade elements length and thickness related building radius.

Production of the Qbiss façade elements on the construction site/object is not possible. In case of additional requirements, elements must be ordered in Trimo and delivered subsequently.

Inclined assembly:
- Admissible façade inclination inside building: 10°
- Admissible external façade inclination: without limitations, if inclination is not limited by static calculation
- Admissible inclination of the façade elements with regard to zero height (floor) 15°

2.0 Design Procedure

2.1 Thickness Selection

The thickness of the Qbiss One B façade element is determined with respect to the requirements of the client and in accordance with recommendations, stated in Section 1.5.1.The thickness of the Qbiss One B façade element influences directly on the load-bearing capacity, thermal insulation, fire resistance, and thermal stability of the façade system.

2.2 Structural Design Data and Fixing

Static evidence of Qbiss One B façade elements stability and their fixation is required in accordance with applicable legislation (EN 14509) and other national technical regulations, if applicable). Static evidence is a static calculation of the assembly conditions and load for each individual building and façade type.

NOTE:
Table of allowed distances cannot be used as static stability evidence. Stated values are calculated based on the most unfavourable combination of load and idealized assembly conditions and not on actual conditions. Trimo (Technical Support Department) can perform your individual static calculation with SandStat4 software application.

!

2.2.1 Defining Wind Effects

Possible wind conditions are a decisive factor for defining admissible assembly distances and determining fixing conditions. Wind conditions are defined in accordance with the provisions of EN 199-1-1-4:2005 Standard and other national standards (DIN 1055-4, NEN 6702, SniiP, ...), if applicable.

According to the provisions of the European Standard, used in most countries (also applied in similar national standards), a static calculation of loads for each individual building is required. Performance of such calculations require the following input data:

1. Building Location and Data Linked to Location
- Location and address
- Height (above sea level)
- Wind zone or basic wind speed
- Category of the surrounding location (categories 0, I, II, III, IV)
- Micro-location (building situated at very demanding locations, such as coastlines, hill-tops, ...)

2. Geometry and Type of the Building
- Building shape and dimensions (height, length, width, distribution; Warning: Attics!)
- Type of building (open / partially open / closed building, ceilings, projecting roofs...)
- Size of Qbiss One B façade elements
- Building purpose

Properties of wind conditions cannot be defined without the above data. Use of approximate values based on experience may lead to significant deviations and cause severe difficulties later when determining building façade static stability.

2.2.1.1 Edge Zones and their Effect on Façade Elements and Fixing Conditions

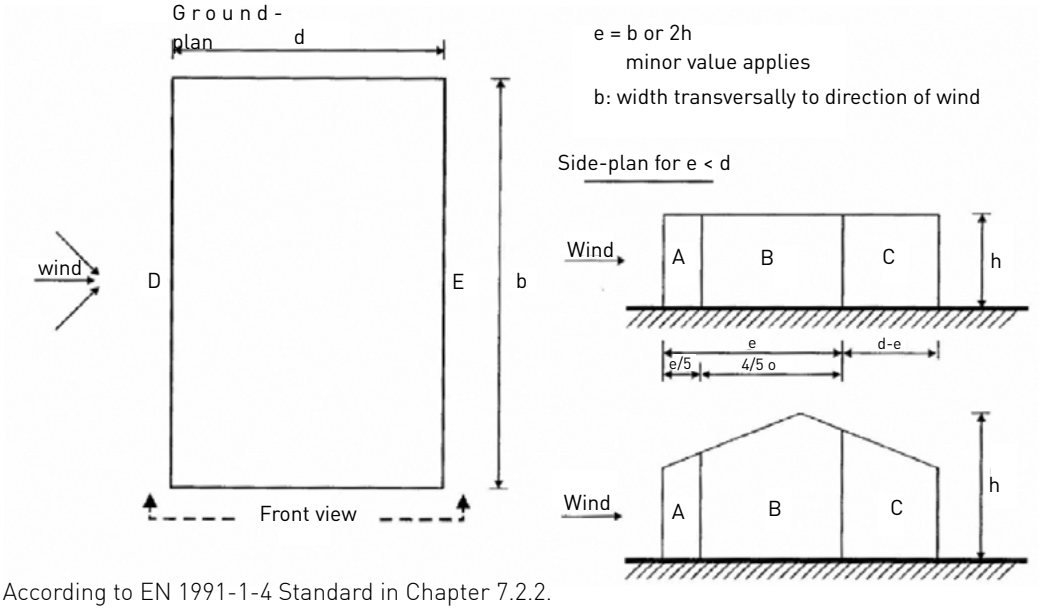
The effect of winds with regard to the direction of wind can be classified by:
1. Effect of wind directed towards the building (+) - wind pressure
2. Effect of wind directed away from the building (-) - wind suction

Wind suction, caused by whirling of wind on the edge zones (building edges), is particularly problematic. Suction load in these zones is greater than pressure load; it has a significant effect on façade elements and, therefore, directly determines the fixing conditions. Basic edge zones for simple buildings (e < d) are outlined in Figure 2.1. Table 2.1 gives the design coefficients for wind effects.
A detailed overview of the edge zones defining procedure is described in Chapter 7.2.2. of EN 1991-1-4 Standard.

Wind effects on edge zone A can be calculated by the following formula, providing that data on wind pressure ($w_{e,d}$) is available:

$w_{e,A} = -1,75 * w_{e,d}$

Fig 2.1: Determining edge zones on a simple rectangular building with proportions e < d



According to EN 1991-1-4 Standard in Chapter 7.2.2.

Table 2.1: Recommended outdoor pressure coefficient values for perpendicular walls of rectangular buildings

Area	**A**		**B**		**C**		**D**		**E**	
h/d	Cpe,10	Cpe,1	Cpe,10	Cpe,1	Cpe,10	Cpe,1	Cpe,10	Cpe,1	Cpe,10	Cpe,1
5	- 1.2	- 1.4	- 0.8	-1.1	- 0.5		+ 0.8	+1.0	- 0.7	
1	- 1.2	- 1.4	- 0.8	-1.1	- 0.5		+ 0.8	+1.0	- 0.5	
— < 0.25	- 1.2	- 1.4	- 0.8	-1.1	- 0.5		+ 0.7	+1.0	- 0.3	

2.3 Installation Directions

Façade assembly usually commences with the corner Qbiss One B façade element in the marginal axis of the facility (Fig.2.5). If there are no corner façade elements at the construction site yet, assembly may begin with the neighbouring façade element.

The direction of assembly for each façade (side of the building) is described in the project. If the assembly direction is not prescribed, **the standard assembly direction is from the LEFT toward to the RIGHT side.**

Fig 2.3: Assembly Direction from the LEFT to the RIGHT side

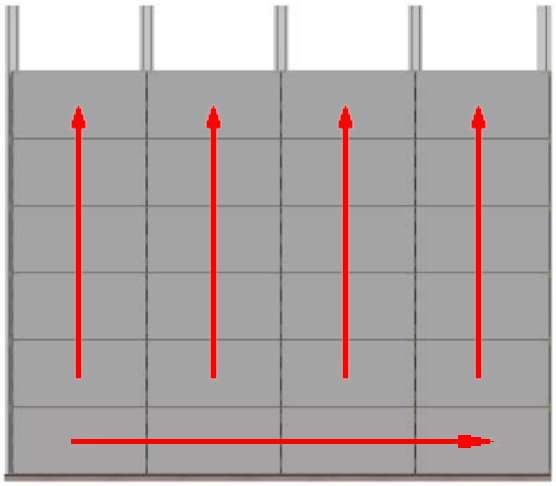
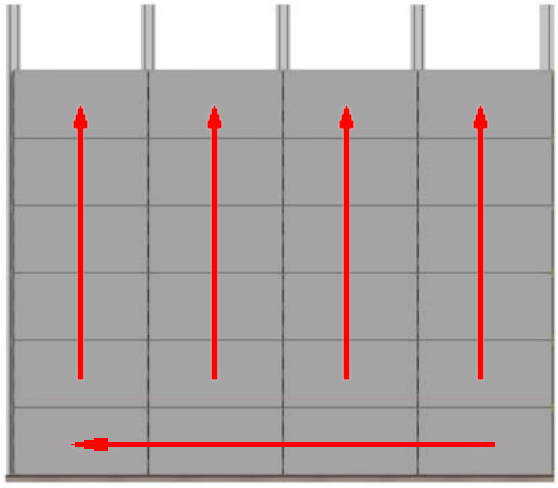


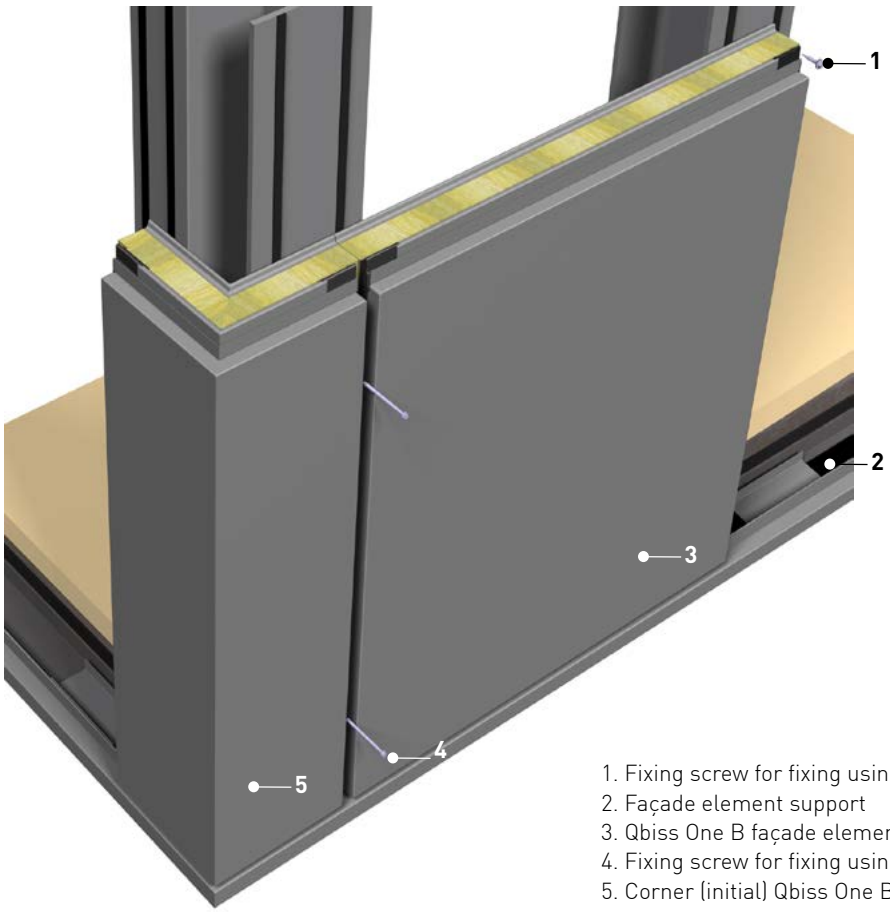
Fig 2.4: Assembly Direction from the RIGHT to the LEFT side



Installation Recommendations

Regardless of the assembly direction it is highly recommend to place at least three Qbiss One B façade elements in the first row on the main beam; after that it is possible to continue with the vertical direction of assembly.

Fig 2.5: Connection to the main beam



1. Fixing screw for fixing using the internal sheet metal
2. Façade element support
3. Qbiss One B façade element (left-to-right installation)
4. Fixing screw for fixing using the fixing profiles
5. Corner (initial) Qbiss One B element

2.4 Types of Structures or Sub-structures and Selection of Fixing Methods

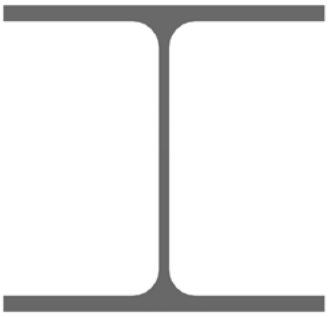
The classic steel sub-structure (Fig. 2.6a) is suitable for fixing Qbiss One B façade elements within the permissible tolerances (Chapter 3.1). If the sub-structure is not within the permissible tolerances an aligning sub-structure must be used (Fig. 2.6b)

The fixing method is selected according to the type of structure.
- Qbiss One B façade elements are fixed:
1. directly onto steel structures (if the structure is within permissible tolerances) or
2. if the sub-structure is not within the permissible tolerances an aligned sub-structure must be used.

- Two methods of fixing are used for concrete structures:
1. using levelling sub-structures
2. using a wide levelling profile

Fig. 2.6: Steel structure and steel structure with levelling sub-structure

a) steel



b) steel with quick-assembling levelling sub-structure

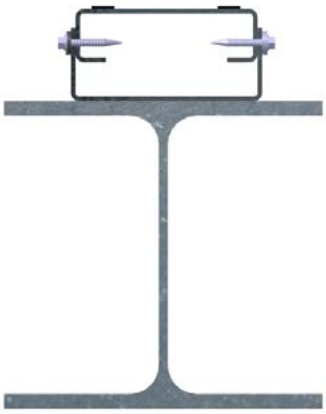


Fig. 2.7: Concrete structure with adjustable leveling substructure

NOTE:
- **The minimum required contact surface of the Qbiss One B modular façade system is given by static calculations for each separate project. In cases when there is no calculation, the minimal width of the contact surface is (b_{min}) is 80 mm per edge of façade element.**
- **A levelling structure must be used when the structure is not within permissible tolerances.**

2.5 Fixing and Required Number of Screws

The Qbiss One B façade elements are fixed on the façade structure or sub-structure with two types of screws through the internal and external metal sheet. The Qbiss One B façade element has pre-fabricated bores on the points of fixation. The required number of screws is given in the static calculation of the project. See Section 2.2 Structural Design Data and Fixing.

The Qbiss One B façade elements are fixed through internal and external metal sheet. For fixing using external sheet metal, screws WITHOUT washers are used.

Fixation through the internal metal sheet is carried out with special screws for fixation of thin metal sheets:

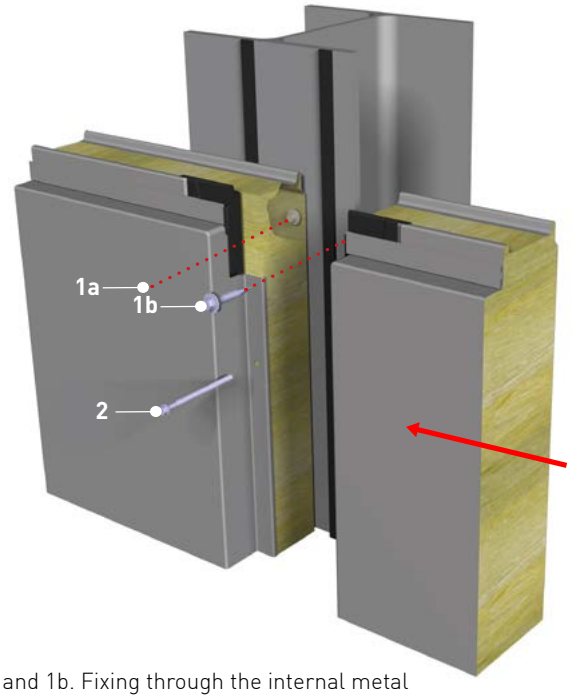
Table 2.3: Type of screw for fixation through internal sheet metal and drill bit

element thickness (mm)	Self-tapping screw (A2)	self-drilling screw (A2)
applies to all thicknesses	6.3 x 25	5.5 x 32 / 5.5 x 38

Fixing through the internal metal sheet:
1a: by element thickness up to 100mm ONE screw is required
1b: by element thickness from 100mm and above TWO screws are required

sub-structure thickness for screw φ 6.3 mm	nominal drill diameter (mm)
2.0 - 3.0 (tip A)	5.00
3.0 - 3.9	5.05
4.0 - 4.9	5.35
5.0 - 5.9	5.65
6.0 - 10.0	5.80
> 10.0	5.85

Fig. 2.8: Display of fixing through internal and external metal sheet



1a and 1b. Fixing through the internal metal sheet
2. Fixing through the external metal sheet

The Qbiss One B façade elements are fixed with self-tapping screws. Table 2.4 contains minimal required lengths of the screws.

Table 2.4: Required minimum lengths of SELF-TAPPING screws for thickness of subconstruction (max. 10 mm)

Element thickness (mm)	self-tapping screw (A2) WITHOUT washer	self-tapping screw (A2) WITH washer	drill length
	fixation in transversal joint (screw length in mm)	fixation through the element (screw length in mm)	minimum length in mm
80	51	100	100
100	76	127	120
120	100	152	140
133	115	152	155
150	127	178	170
172	152	200	200
200	178	265	220
240	215	265	260

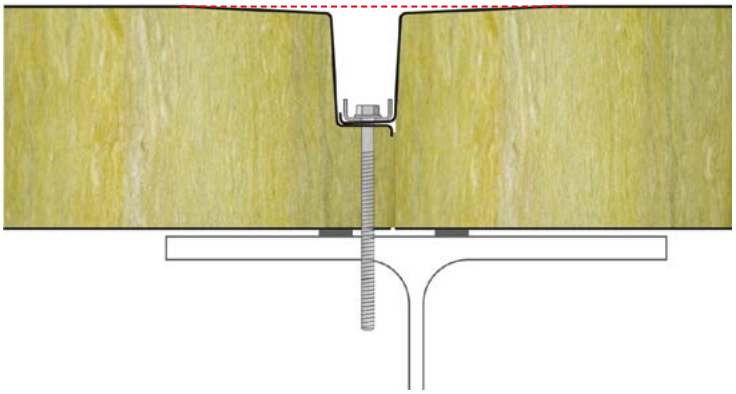
The Qbiss One B façade elements can also be fixed with self-drilling screws. Table 2.5 contains minimal required lengths of the screws.

Table 2.5: Required minimum lengths of SELF-DRILLING screws

element thickness (mm)	self-drilling screw (A2) WITHOUT washer		self-drilling screw (A2) WITH washer	
	fixation in transversal joint (screw length in mm)		fixation through the element (screw length in mm)	
	sub-structure thickness to 5 mm	sub-structure thickness between 4 and 14 mm	sub-structure thickness to 5 mm	sub-structure thickness between 4 and 14 mm
80	62	71	113	118
100	92	99	133	147
120	113	118	163	168
133	133	138	163	168
150	163	168	193	193
172	193	218	193	218
200	193	193	236	243
240	236	243	280	280

NOTE:
Pre-drilling is required in case of using of self-tapping screws. The small metal particles created by the drilling have to be completely removed from the Qbiss One B façade elements and other paint coated steel sheet immediately after the fixation of screws, since they may cause surface corrosion!

Fig. 2.9: Consequences of excessively tightened screw



NOTE:
Screws must not be over-tightened as this could lead to local deformations of the Qbiss One B façade element's external sheet metal.

2.6 Fixing to a STEEL Structure

Qbiss One B façade elements are fixed to a steel structure through integrated fixing profiles with screws. Such a solution enables a quick and attractive assembly without visible screws on the external side of the façade.

The classic steel structure (Fig. 2.10.a) is suitable for fixing Qbiss One B façade elements only when it meets the permissible tolerances (Chapter 3.1). Otherwise, a levelling sub-structure must be used (Fig. 2.10.b).

Fig. 2.10.a: Basic structure

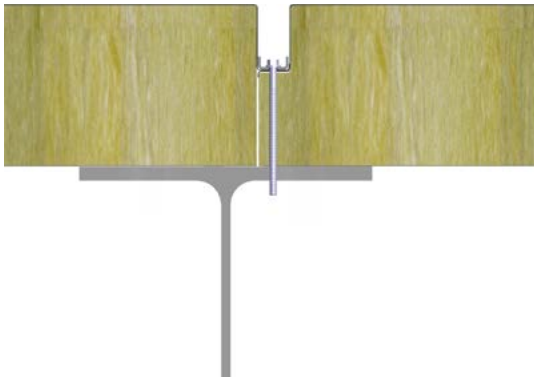
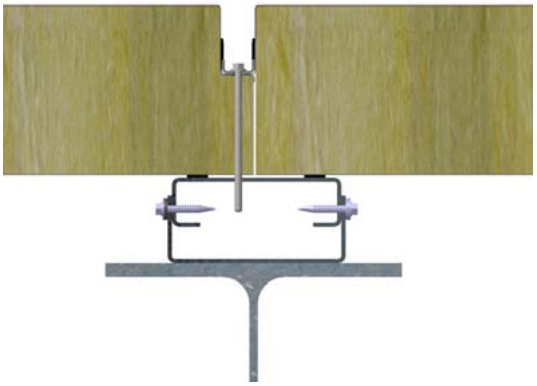


Fig 2.10.b: Levelling structure



NOTE:
- **A geodesic snapshot to check the level of the sub-structure is highly recommended (permissible tolerances chapter 3.1).**
- **If the sub-structure does not fit within permissible tolerances, the levelling sub-structure must be used.**
- **The supporting profile must be aligned with the Qbiss One B façade element support's on the main beam.**

2.7 Fixing to a CONCRETE Structure

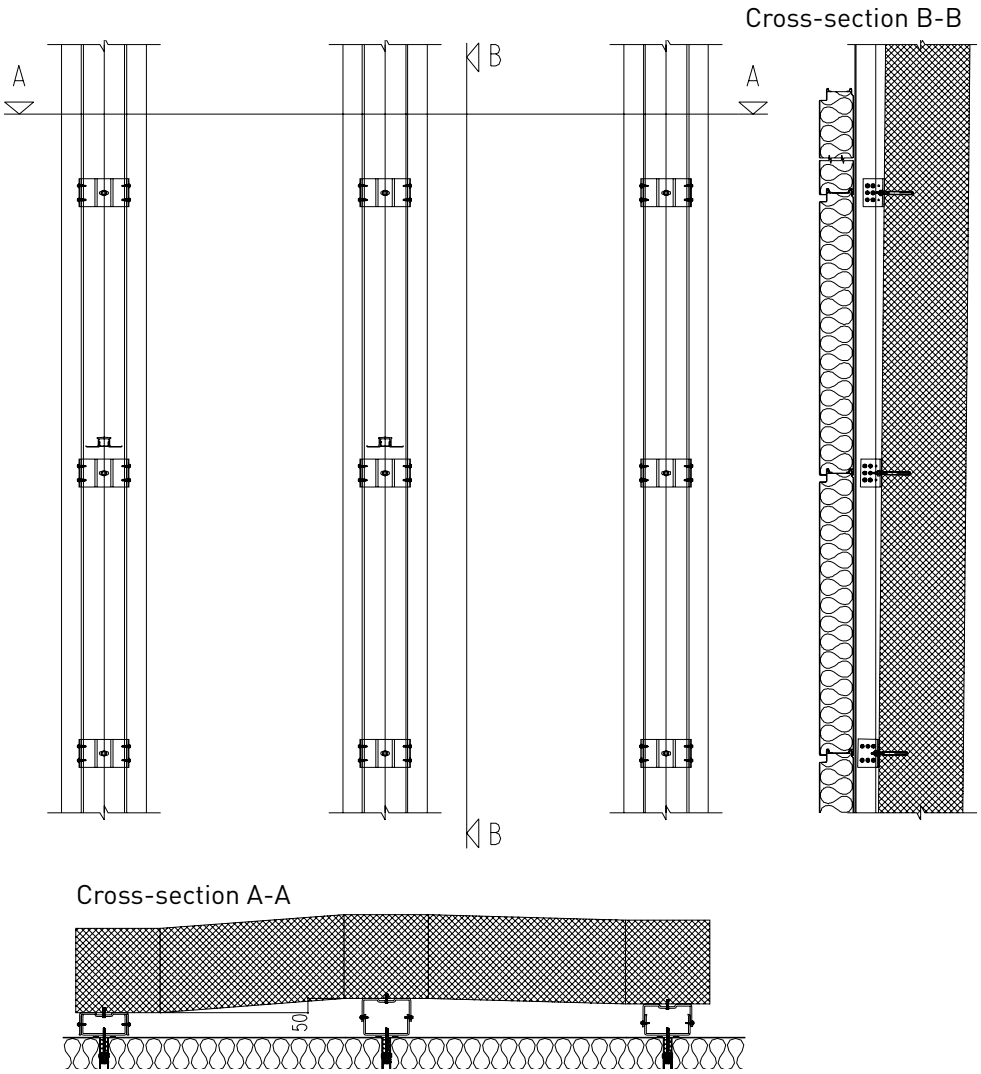
2.7.1 Fixing to concrete with the LEVELLING SUB-STRUCTURE

Fig. 2.11: Detail showing the fixing of elements to a levelling sub-structure

1. Support frames - wide are fixed to the structure using certified anchor screws.
2. The contact surface profile that defines the level of façade elements is fixed onto the prepared line of profiles using self-tapping screws.

The sub-structure adjustability is ±25 mm (Fig. 2.13).

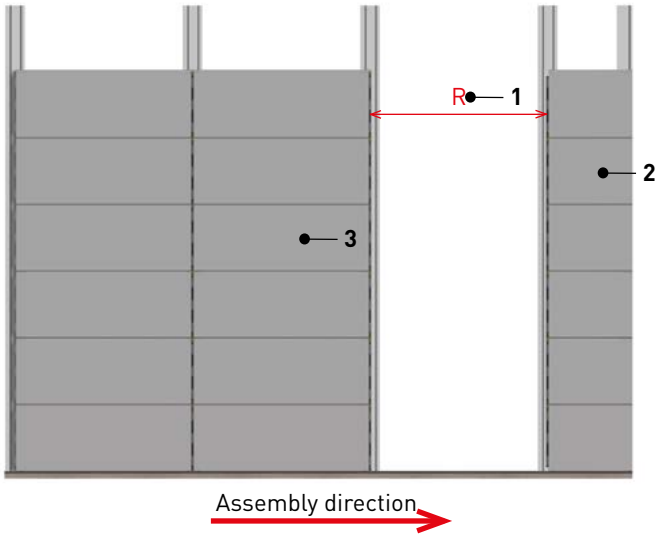
Fig. 2.12: Fixing the horizontal façade with a levelling sub-structure on concrete



2.8 Additional Qbiss One B Façade Elements, Required at Assembly

Usually, Qbiss One B façade elements are made and shipped for the whole building at once.
In case major deviations in building dimensions or facade lengths are anticipated, It has to be determined in the design phase, which elements will be produced with an exact measurements. For those subsequently manufactured need to be ordered. This can be done for any element column or corner.
It is recommended that the one-before-last column of façade elements is produced subsequently (Figure 2.13). It is also possible to produce corner elements subsequently.

Fig. 2.13: Production and assembly of penultimate column of façade elements; for example - a left-to-right assembly



1. Penultimate column – façade elements made to measure
2. Last column of façade elements
3. The second from last column of façade elements

During the designing process additional Qbiss One B façade elements needs to be defined.

3.0 Procedures and Recommendations for Qbiss One B Modular Façade System Assembly

3.1 Assembly and Control of Basic Structure or Sub-structure

Prior to assembly, it is obligatory to check whether the actual status of the steel sub-structure raster arrangement is compliant with the drawings.

A geodetic snapshot of Qbiss One B modular façade system structure is obligatory to ensure quality of the Qbiss One B façade system.

1. The Qbiss One B façade system base support must be horizontally levelled or else the vertical joints will not have identical widths

Fig. 3.1a

Allowed deviations for ground load-bearing support levelness must comply with the following conditions (A and B):

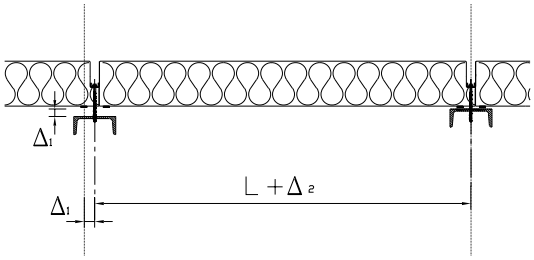
A. +/- 0.5 mm on the entire length of the individual Qbiss One B façade element;
B. The absolute deviation of levelness on the entire façade distance may not exceed 2 mm.

2. Permissible tolerances for façade structures apply for distances between vertical axes.

Fig. 3.1b

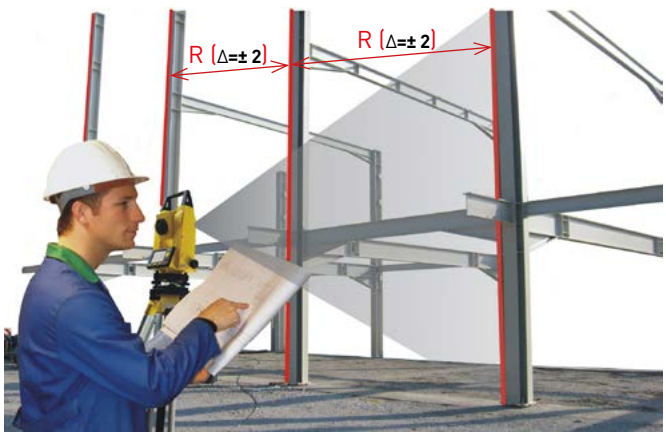
Δ1 = ± 2 mm vertical sub-structure deviation from the building axis in the ground plan.

Δ2 = ± 2 mm deviation from distances between two neighbouring verticals in the ground plan.



3. Even if the sub-structure is already assembled, the spans need to be rechecked - distances between vertical supports.

Fig. 3.1c



Allowed deviations between verticals are + - 2 mm, with the provision that the total sum of all separate errors may not exceed this value!

The transversal joint of the Qbiss One B modular façade system enables deviation of the façade structure or sub-structure in the area of +2 -1 mm.

4. Vertical alignment of the structure at the corners should not exceed a tolerance of 1 mm/1 m height.

3.2 Preparing Element Prior to Installation

The contractor is responsible for handling Qbiss One elements according to the directions contained in the technical and assembly documents.

Checking façade elements before installation

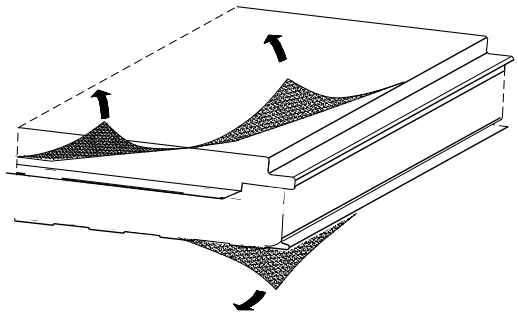
When opening a package, the condition of its contents needs to be checked. The elements must be clean, dry and undamaged and without signs of water penetration in the insulation and between the façade elements.

Removing Protective Foil

A protective foil for protecting varnished surfaces against minor scratches caused during transport, handling, and assembly, is applied on both sides to Qbiss One B façade elements.

Immediately before the placement of the Qbiss One B façade element to the assembly on the facade it is necessary to:
1. Completely remove the protective foil on the element's internal side
2. Partially remove the protective foil on the element's front side, that is on locations, both longitudinal joints, under edges, etc. (Fig. 3.2).
3. EACH DAY after installed the plastic foil must be COMPLETELY REMOVED from the Qbiss One B façade element.

Fig 3.2: Removal of the protective foil



NOTE:
- **If Qbiss One B façade elements are stored for a longer period of time, the foil should be removed within three months since the takeover at the building site.**
- **If the Qbiss One B façade elements are to be stored in the open, they should be protected against the sun; otherwise the complete removal of foil is no longer possible.**
- **During assembly, the foil must be removed from all joints of the Qbiss One B façade element.**
- **EACH DAY after installed the plastic foil must be COMPLETELY REMOVED from the Qbiss One B façade element.**
- **If adhesive remains on the surface it needs to be wiped off promptly with the detergent and cloth.**

Protecting the insulation from water penetration

NOTE!
Façade elements MUST be protected from water and other liquids seeping into the insulation during unloading right through to the end of the installation!

Open packages and/or installed façade elements must be covered with protective sheeting every day during the installation process.

Materials that provide suitable protection include protective tarpaulins or sheets of PVC, EPDM or similar material.

Tarpaulins or sheeting:
- must not affixed using adhesives or adhesive tapes as these can react with façade elements and cause permanent damage.
- must not damage the façade elements in any way.

Elements Cutting

Qbiss One B façade elements are made in accordance with project requirements and their cutting is generally not required! In case cutting is needed, only the use of sheet metal shears and saws that do not overheat the varnished steel sheet are allowed (Fig. 3.3). Use of a circular saw is recommended.

Fig. 3.3: Elements cutting is allowed only with sheet metal shears and saws

Recommended use



Restricted use

NOTE:

- **Marking and scratching with nails or similar sharp objects that can damage the protective paint layer is strictly prohibited.**
- **Use of any disc grinding machines and welding devices destroys the anti-corrosion protection.**
- **Small metal particles that appear as a result of cutting and drilling MUST be immediately removed from the surfaces of façade elements by completion of the day's work at the latest (metal particles exposed to moisture cause corrosion).**

Handling and Lifting of Façade Elements

Use of vacuum grippers or specially designed mechanical grippers, fixed to the longitudinal joint of Qbiss One B façade element (Fig. 3.4) is recommended for handling and lifting purposes.

1. Vacuum gripper, fixed to the Qbiss One B façade element external surface by means of vacuum.
2. Horizontal grippers, fixed to the tongue of Qbiss One B façade element longitudinal joint (Fig. 3.5).

Fig. 3.4: Vacuum gripper

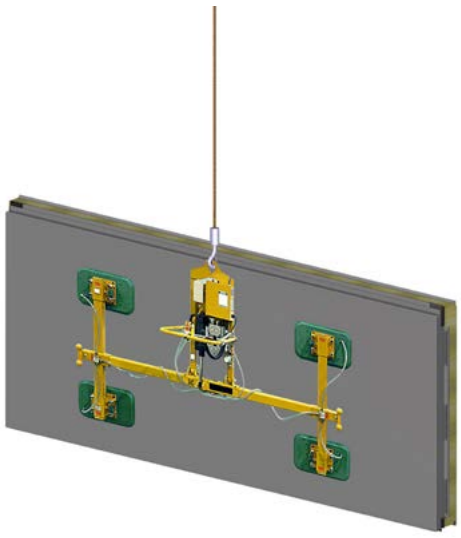


Fig. 3.5: Gripper for the assembly of a horizontal façade

Two grippers are needed when working with one crane (see Fig. 3.5). If ordered, grippers may be included in the delivery of Qbiss One B façade elements (with instructions for use).

Table 3.1: Gripper marking according to element thickness

Facade element thickness [mm]	Gripper marking	Gripper weight [kg]
80	PHQ - 80	2.0
100	PHQ - 100	2.3
120	PHQ - 120	2.5
133	PHQ – 133	2.8
150	PHQ - 150	3.0
172	PHQ - 172	3.2
200	PHQ - 200	3.5
240	PHQ - 240	3.8

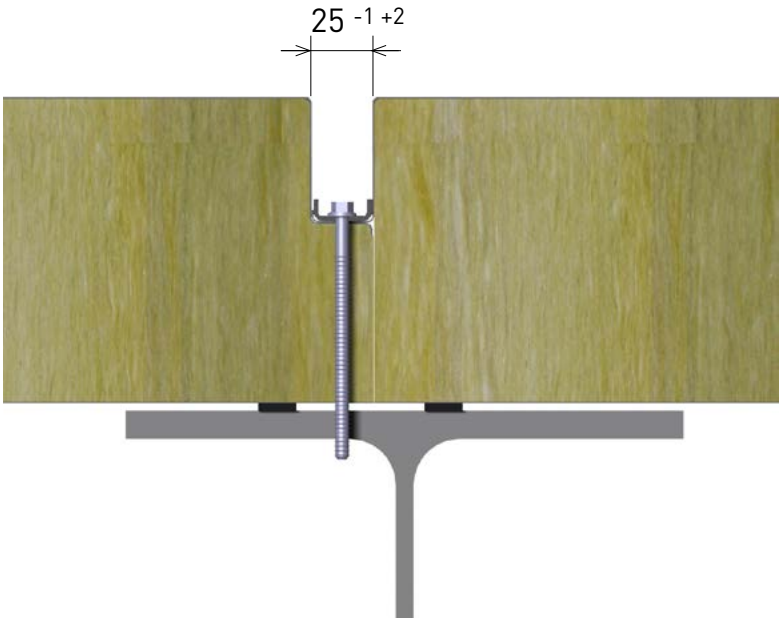
NOTE:
Handle with care!

3.3 Installation Recommendation

3.3.1 Adapting the Transversal Joint to Inaccurate Distances in Structure or Sub-structure

Inaccurate distances between supports may be compensated for during assembly by the width of the transversal joint. Nominal width of the transversal joint is 25 mm. Allowed deviations are +2 mm -1 mm (Fig. 3.6).

Fig. 3.6: Allowed tolerances of transversal joint width

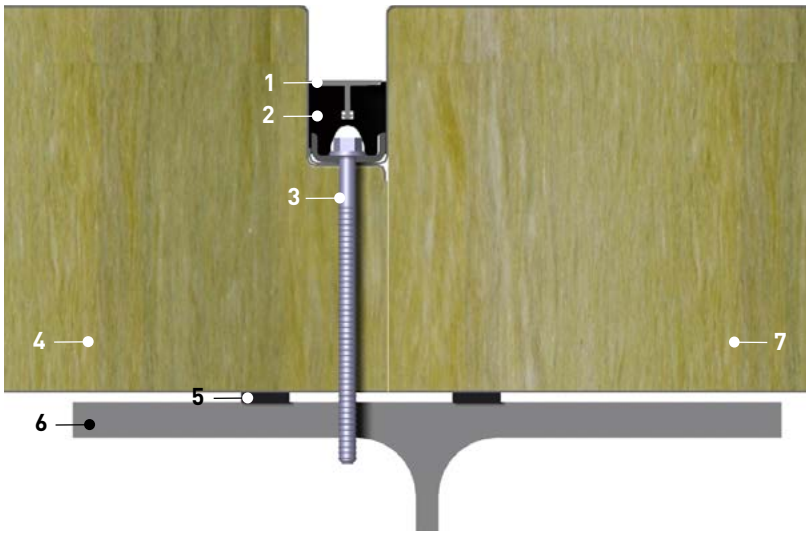


3.3.2 Design of Transversal (Fixing) Joint

Design of the joint is shown on Figure 3.7. An EPDM gasket and a decorative aluminium profile are inserted to complete the transversal joint. Loads from Qbiss One B façade element are carried through the profile, and fixed to the load-bearing structure with fixing screws.

Levelling sub-structure must be used (Fig. 2.6b and Fig. 2.7 a and b) if a sub-structure does not comply with permissible tolerances (Chapter 2.4).

Fig. 3.7: Transversal joint design



1. Decorative profile
2. Transversal gasket
3. Fixing screw
4. Qbiss One B Façade Element No. 1
5. Sealing profile
6. Steel Structure
7. Qbiss One B Façade Element No. 2

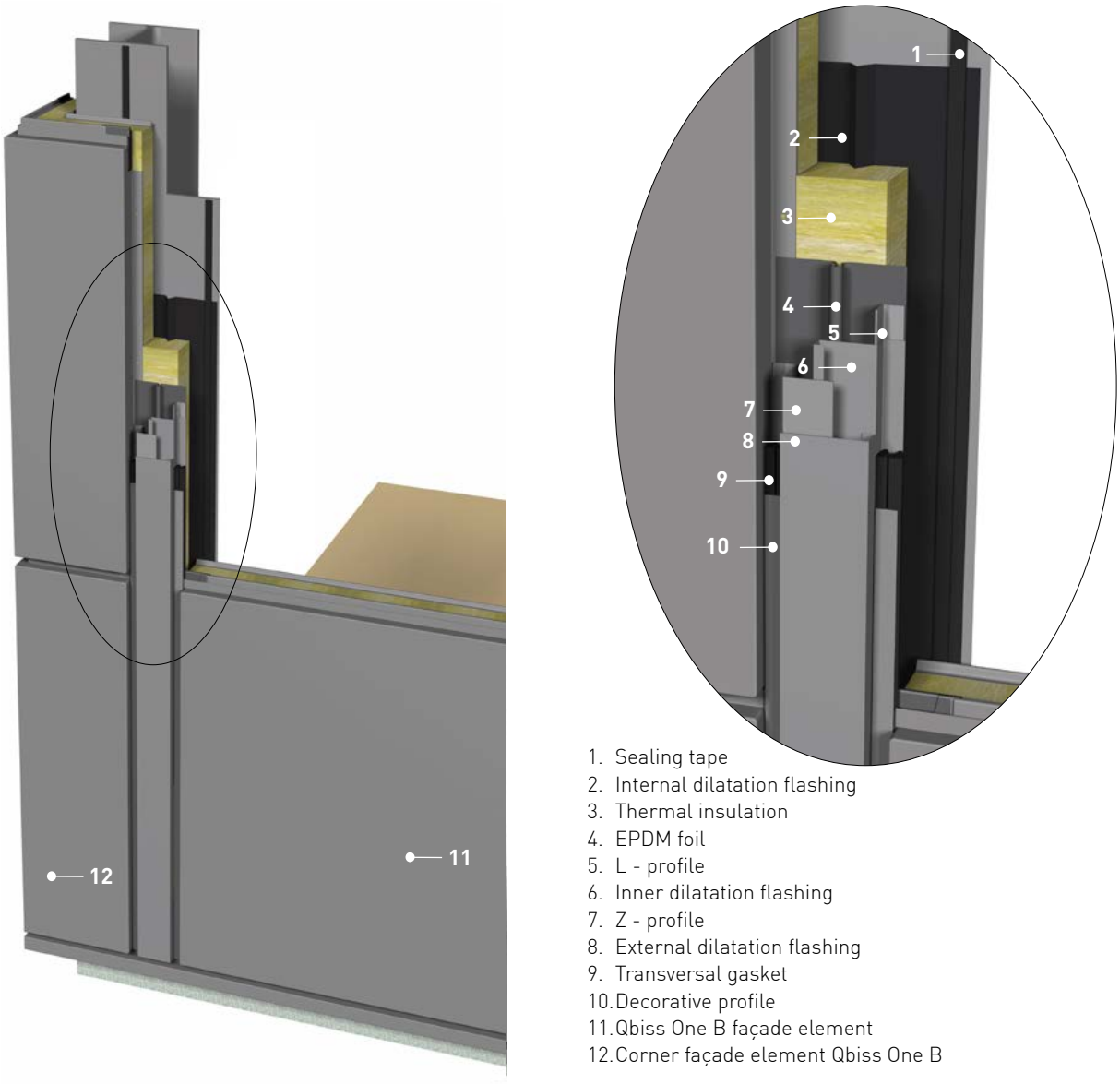
3.3.3 Dilatation

Dilatation detail is installed for following purposes:

1. To compensate for stretching/compression of the façades over 50 m it is highly recommended to install a dilatation detail every 50 m of façade length thus enabling compensation for the stretching and compression of the building in the longitudinal axis of the façade.

2. To permissible tolerances at the corner points of façade.

Fig. 3.8: Example of installing a dilatation detail, permissible tolerances at the corner points of façade



1. Sealing tape
2. Internal dilatation flashing
3. Thermal insulation
4. EPDM foil
5. L - profile
6. Inner dilatation flashing
7. Z - profile
8. External dilatation flashing
9. Transversal gasket
10. Decorative profile
11. Qbiss One B façade element
12. Corner façade element Qbiss One B

3.3.4 Performing Details in Accordance with Assembly Instructions

Performance of some details is described in continuation of this technical document. Standardized details are listed in the catalogue.

4.0 Sealing

4.1 Sealing of Longitudinal Joint

All Qbiss One B façade elements are equipped with gasket profiles in a longitudinal joint groove assuring proper physical construction conditions of the building according to project requirements.

The CORRECT ORIENTATION, to enable drainage of water - means the tongue of the longitudinal joint must be pointing upwards (Fig. 4.1) and TIGHT CONTACT without air gaps between neighbouring Qbiss One B modular façade elements on longitudinal joints (Fig. 4.2) must be assured.

Fig 4.1: CORRECT ORIENTATION of elements

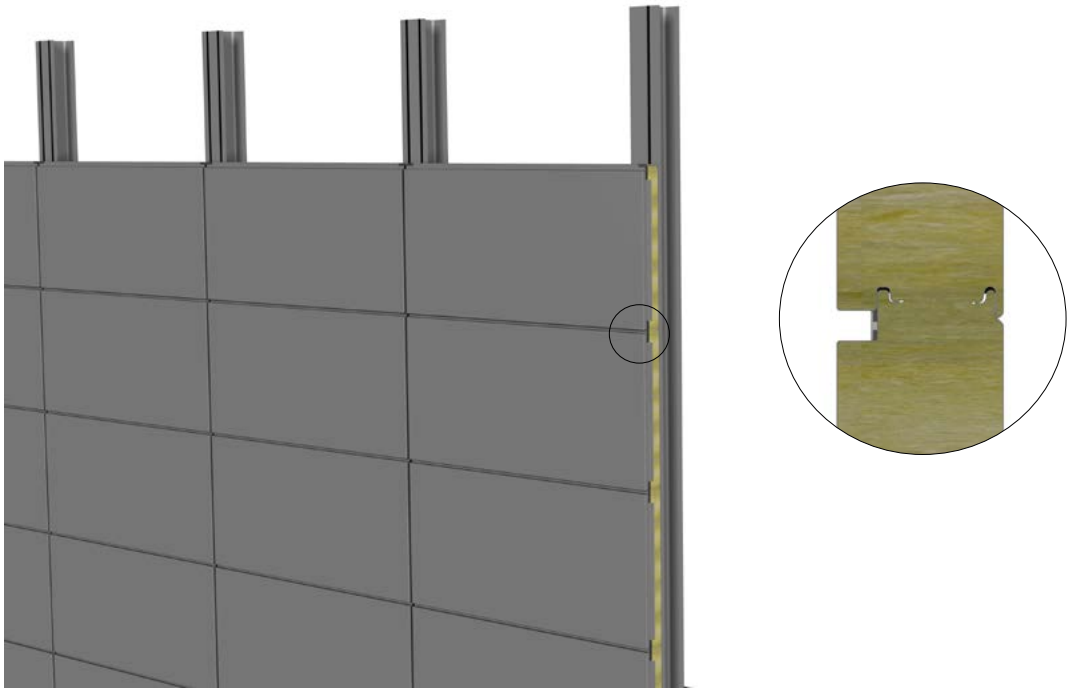


Fig 4.2: CORRECT sealing in both longitudinal joints

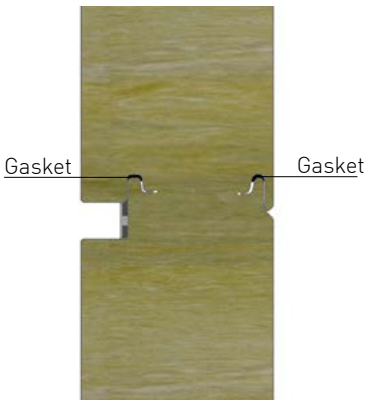
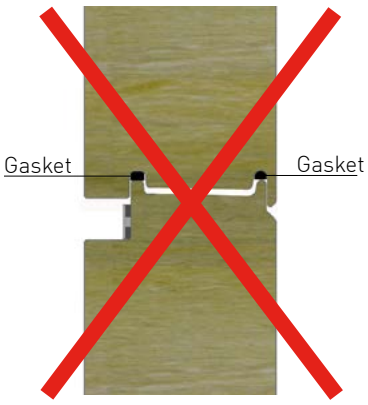
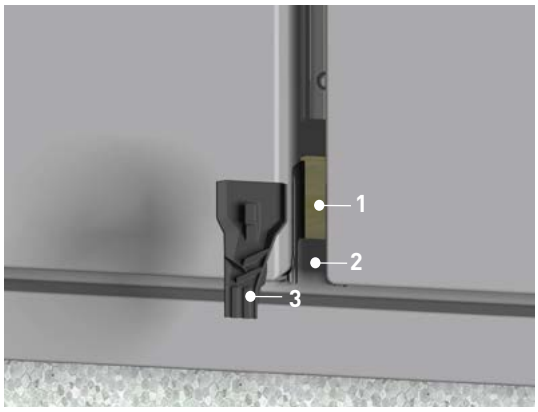


Fig 4.3: INCORRECT sealing in both longitudinal joints



4.2 Sealing of the Transversal Joint on Connection to the Main Beam

Fig. 4.4: Insertion of an EPDM wet-prevention clamp



An EPDM wet-prevention clamp is inserted into the lower part of the transversal joint, connected to the main beam or above the opening.

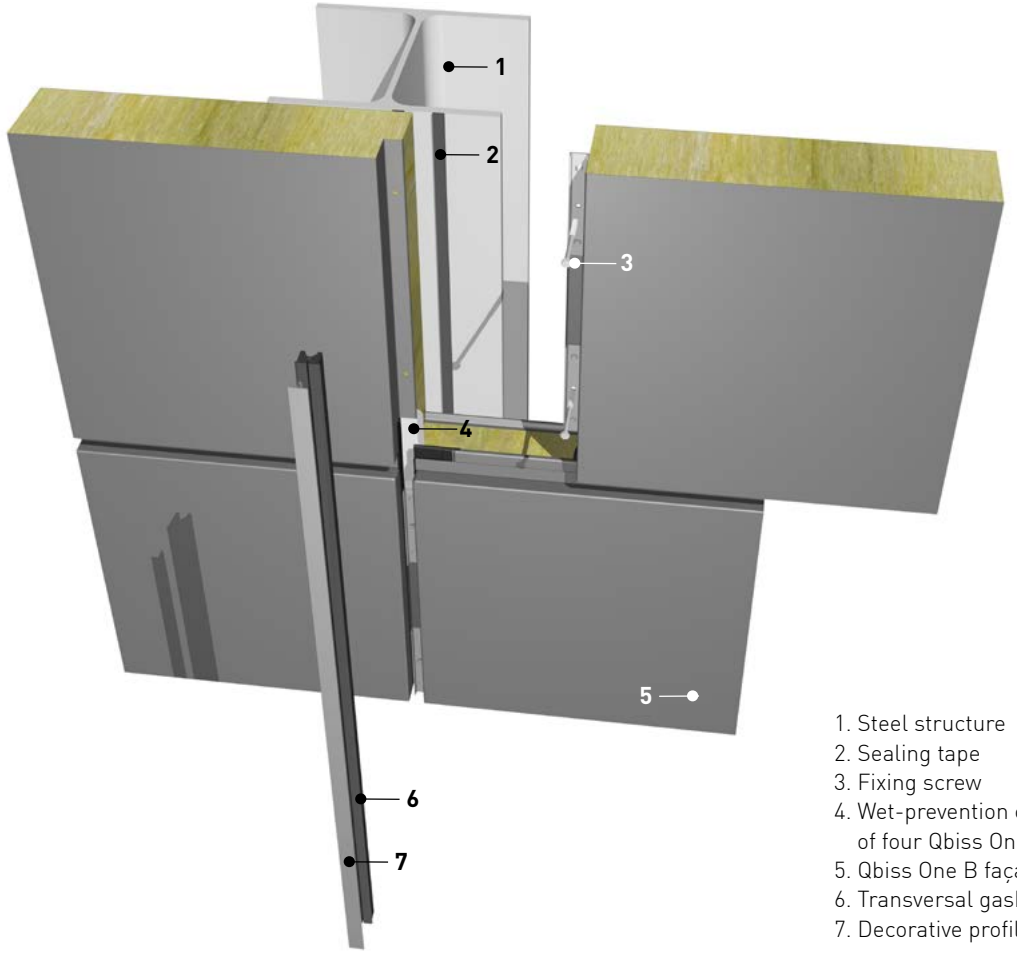
The EPDM wet-prevention clamp prevents the penetration of rain-water and enables the evacuation of possible water from transversal joint, thus functioning as a drainage channel.

1. Transversal joint
2. Connection to the main beam
3. EPDM wet-prevention clamp

NOTE:
ALWAYS insert the EPDM wet-prevention clamp before the transversal joint's rubber gasket profile.

4.3 Sealing of Transversal Joint

Fig. 4.5: Composition and sealing of the transversal joint of Qbiss One B modular façade system



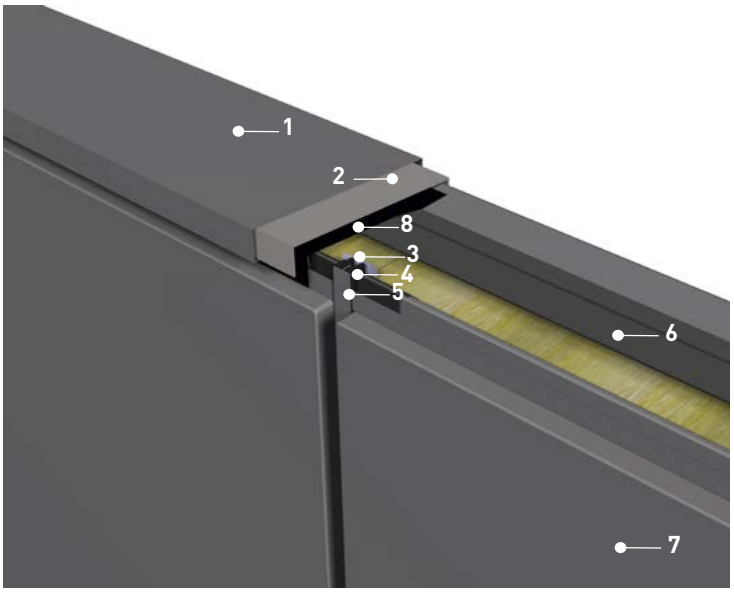
1. Steel structure
2. Sealing tape
3. Fixing screw
4. Wet-prevention clamp on joint of four Qbiss One B façade elements
5. Qbiss One B façade element
6. Transversal gasket
7. Decorative profile

NOTE:
The transversal joints must be sealed to prevent penetration of possible rainwater or increased air humidity into the joint and interior of the Qbiss One B façade elements!

4.4 Sealing in the Building Attics

Building attics are sealed by termination of all elements at the transversal joint and cutting the wet-prevention clamp at the joint of the four Qbiss One B façade elements at the longitudinal joint's level. The final termination of attics is achieved with an attics cover cap.

Fig. 4.6: Sealing in the attics of a building



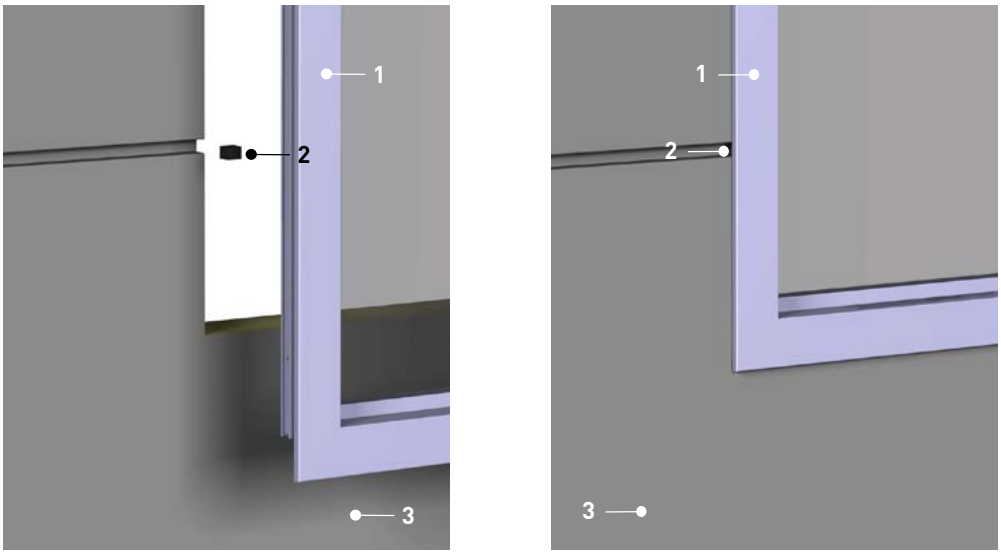
1. Attics cap
2. Attics cap support
3. Wet-prevention clamp of the joint of four Qbiss One B façade elements
4. Transversal gasket
5. Decorative profile
6. Welt support
7. Qbiss One B façade element
8. Hydro insulation membrane

4.5 Joints between Qbiss One B Façade Elements and Openings

This includes door, window and installation openings (power supply, air-ducts, etc.).
Their joints or contacts are usually sealed with original sealing profiles (already integrated in the product) of the doors, windows and other elements.

These elements are sealed with additional elements or sealants, depending on the purpose.

Fig. 4.7: Square gasket for sealing between the transversal joint and the opening



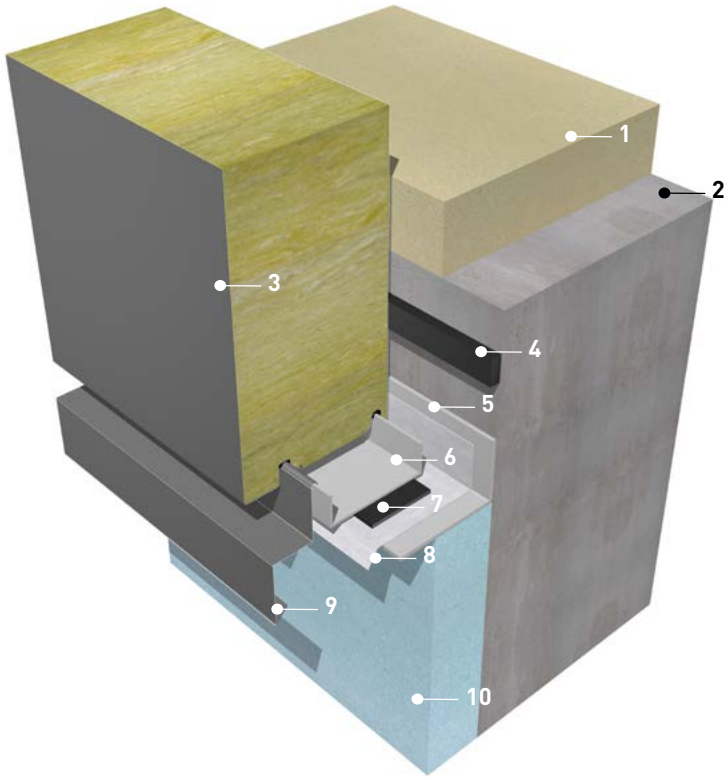
1. Opening (window)
2. Square EPDM gasket + sealing putty
3. Qbiss One B façade element

Other punctures between the transversal and longitudinal joints are sealed in the same manner.

5.0 Installation Details

5.1 Connecting to the Main Beam

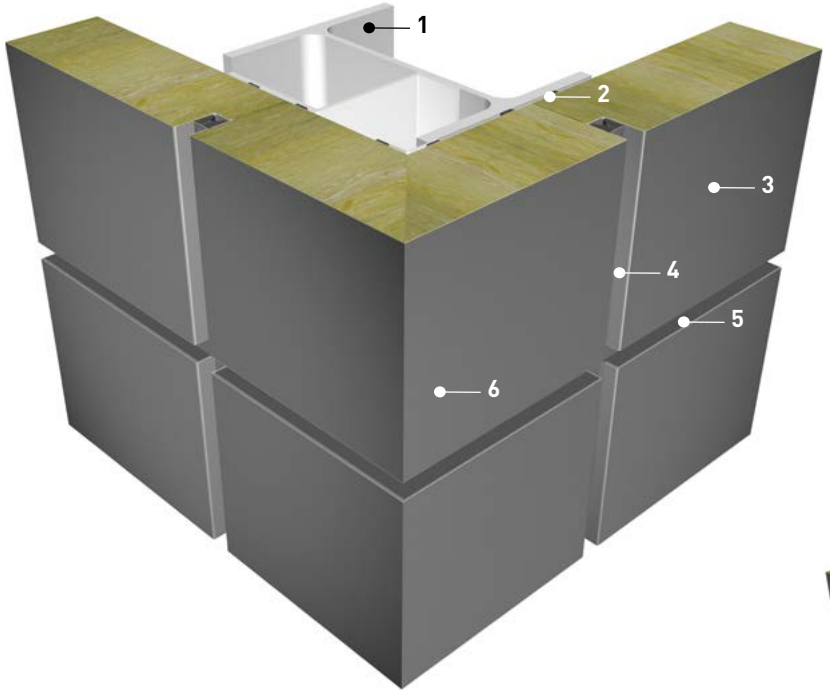
Fig. 5.1: Connection to the main beam



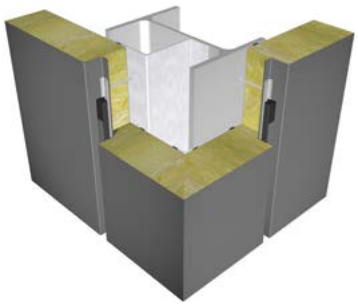
1. Avement thermal insulation (not included in detail)
2. Main beam (not included in detail)
3. Qbiss One B façade element
4. Sealing tape
5. Element's termination support
6. Element's support
7. EPDM sealing tape
8. Element's secondary wet-prevention clamp profile
9. Element's wet-prevention clamp profile
10. Perimetric cladding (not included in detail)

5.2 Pre-formed Corner Element

Fig. 5.2: Pre-formed sharp-edged corner



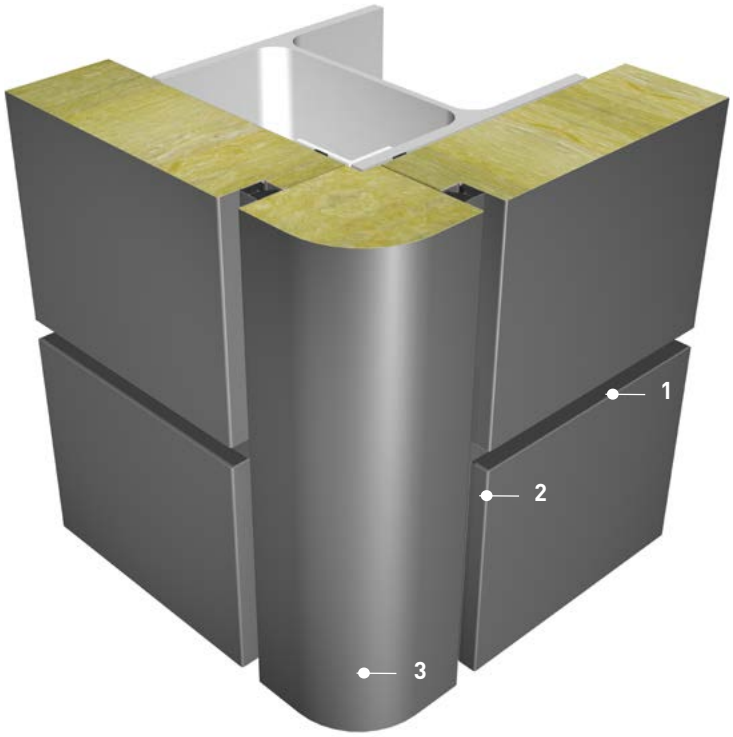
1. Structure (steel)
2. Sealing tape
3. Qbiss One B façade element
4. Transversal joint (transversal gasket + decorative profile)
5. Longitudinal joint
6. Corner element



THE FIRST corner façade element Qbiss One B

5.3 External Corner Closing Element with Flashing

Fig. 5.3: Rounded corner



1. Transversal joint
2. Longitudinal joint
3. Rounded corner element

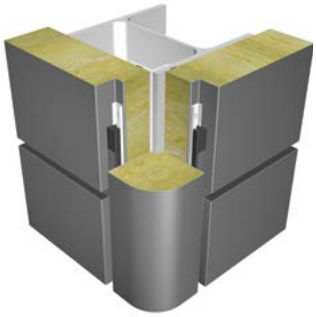
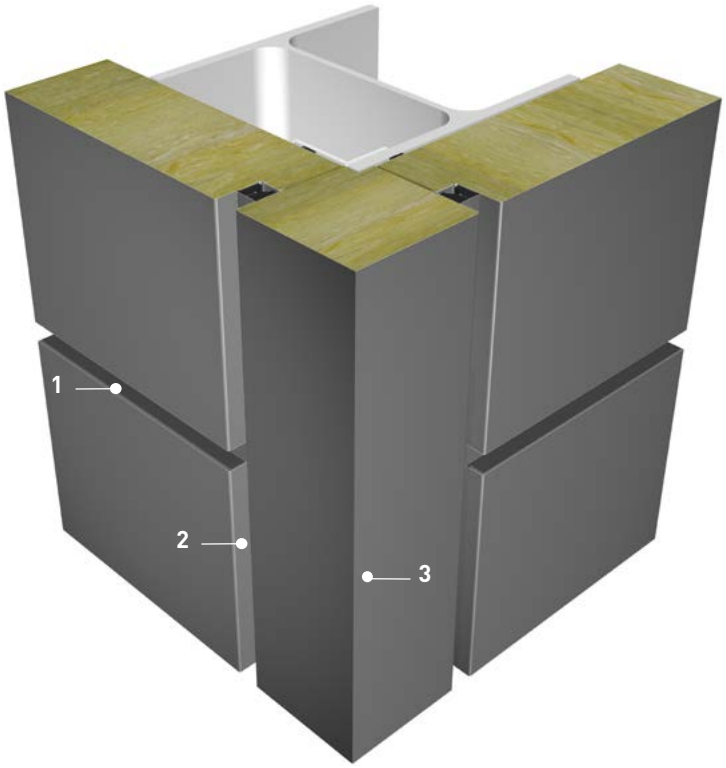
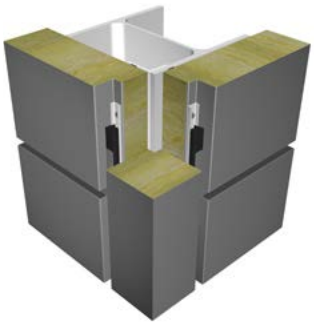


Fig. 5.4: Sharp-edge corner

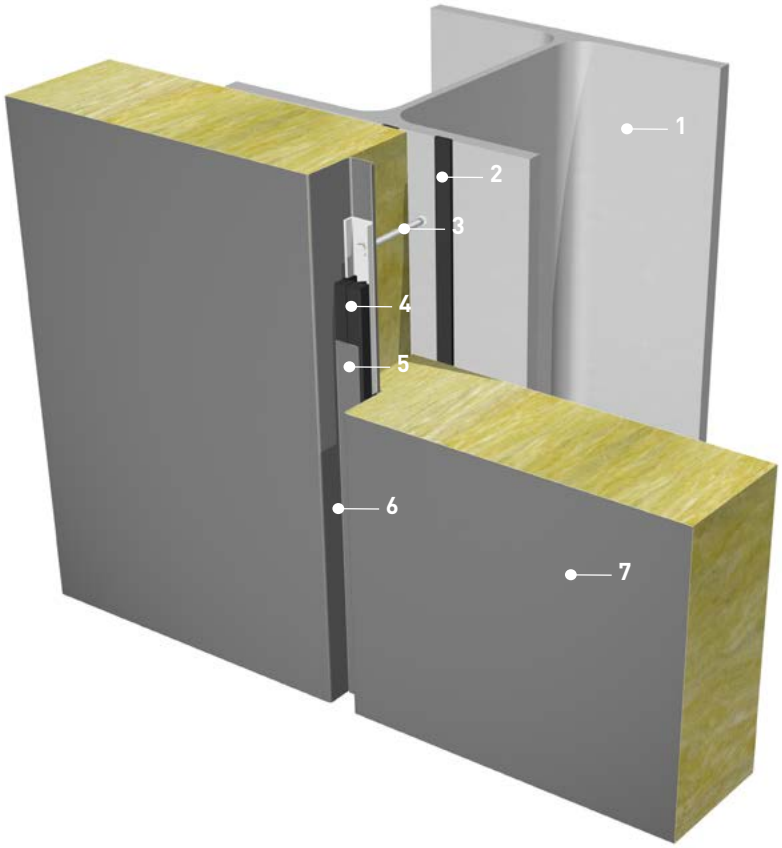


1. Transversal joint
2. Longitudinal joint
3. Sharp corner element



5.4 Fixing to a Steel Structure

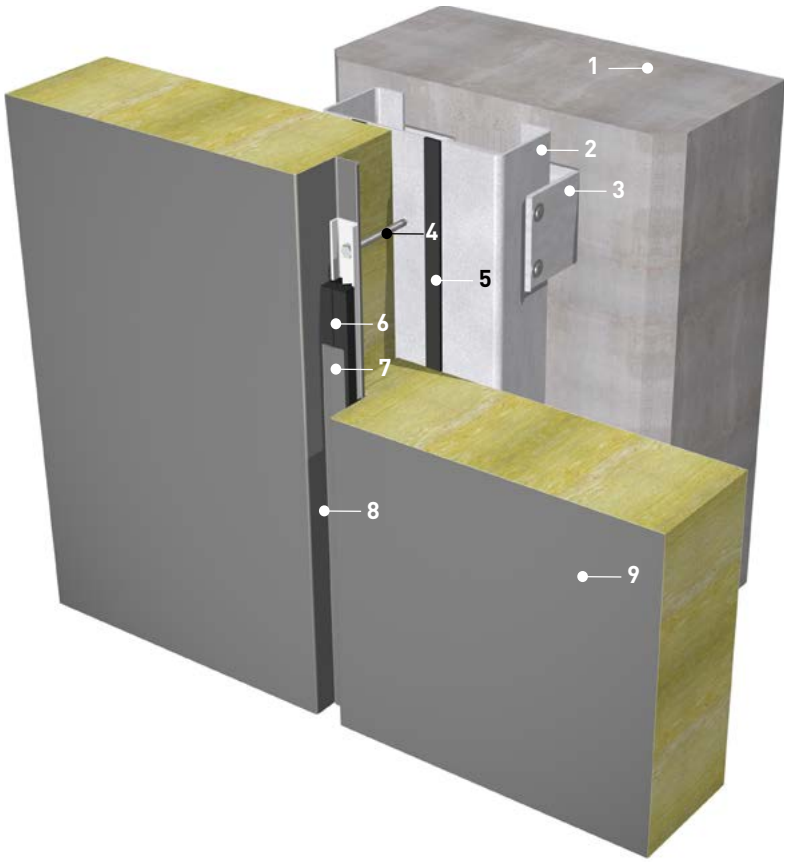
Fig. 5.5: Fixing to a steel structure



1. Structure (steel)
2. Sealing tape
3. Fixing screw
4. Transversal gasket
5. Decorative profile
6. Transversal joint
7. Qbiss One B façade element

5.5 Fixing to a Concrete Structure

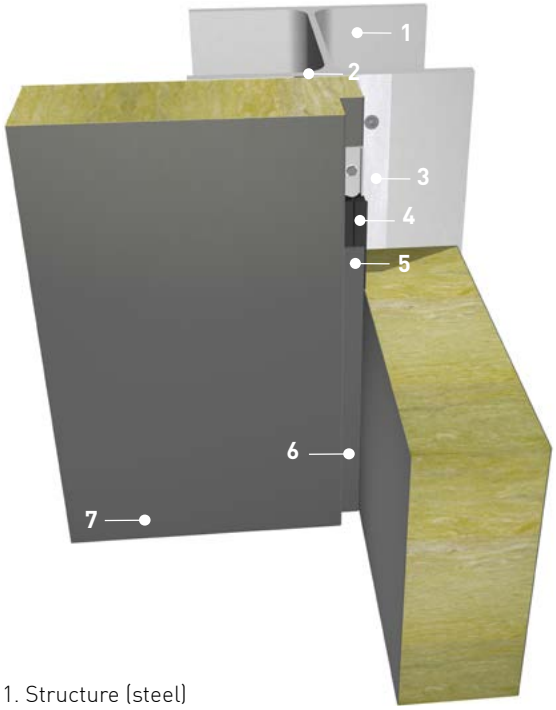
Fig. 5.6: Fixing to a concrete structure



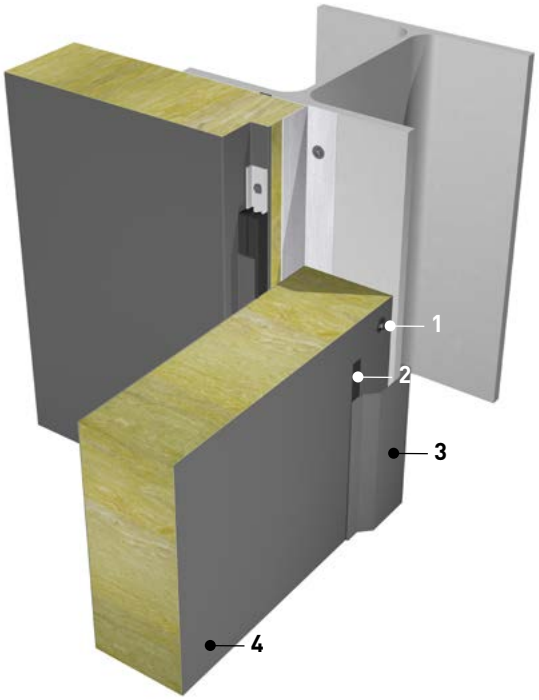
1. Structure (concrete)
2. Sub-structure (contact profile)
3. Sub-structure (Load bearing)
4. Fixing screw
5. Sealing tape
6. Transversal gasket
7. Decorative profile
8. Transversal joint
9. Qbiss One B façade element

5.6 Internal Corner Closing Element

Fig. 5.7: Inner corner closing element



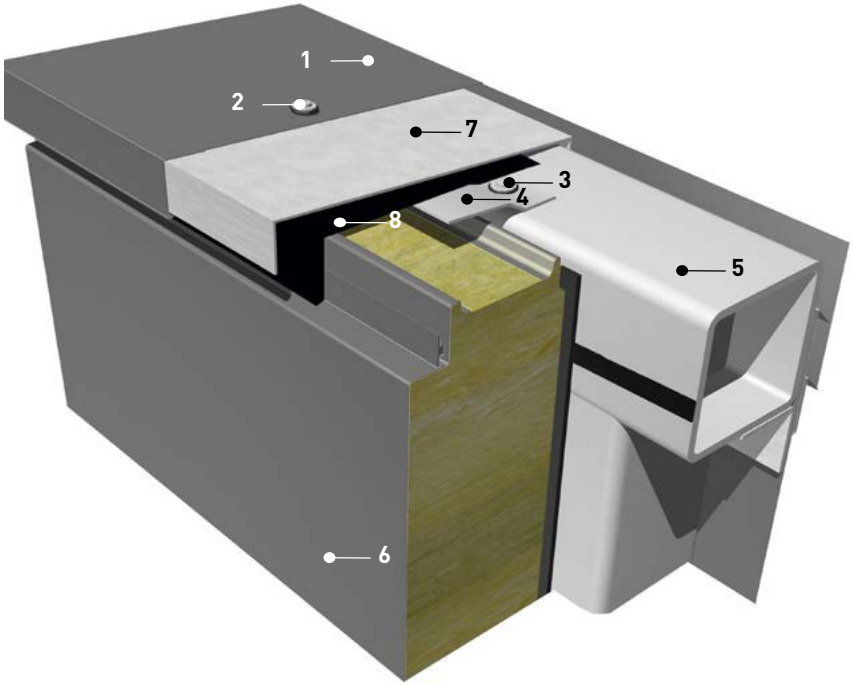
1. Structure (steel)
2. Sealing tape
3. Corner profile
4. Transversal gasket
5. Decorative profile
6. Transversal joint
7. Qbiss One B façade element



1. Fixing screw
2. Sealing tape
3. Corner rim
4. Qbiss One B façade element

5.7 Attics with sub-structure

Fig. 5.8: Attics with sub-structure



1. Attics cap
2. Fixing screw
3. Fixing screw
4. Parapet cap support profile
5. Sub-structure (steel)
6. Qbiss One B façade element
7. Attics cover cap support
8. Hydro insulation membrane

6.0 Windows, Window and Door Frames and other Openings

The Qbiss One B modular façade system offers a range of elegant and high-quality solutions for windows, doors and other openings. Frames are made of aluminium profiles with an integrated thermal transfer barrier that assures thermal stability of indoor environment. They enable quick assembly of openings and efficient repeatability of façade details. Unlike classic trims, aluminium profiles are prefabricated on the manufacturing line. They can be delivered to the site assembled or unassembled. The speed and quality of installation are improved markedly.
The modular assembly system enables the following types of frames and windows.

WINDOW and OTHER OPENINGS

Types (feasible assembly combinations: A, B, C, D, E, F):
TYPE 1 equal to façade element dimension
- Type 1.1 - visible joint
- Type 1.2 - visible joint by shift

TYPE 2 not in element dimension
- Type 2.1 - with covered edges
- Type 2.2 - in joint with covered side edges
- Type 2.3 - in top joint with covered side edges
- Type 2.4 - in lower joint with covered side edges

Combinations of window and glazing
- A - Aluminium frame (blind frame)
- B - Aluminium frame + fixed glazing
- C - Aluminium frame + glazing with opening function
- D - Aluminium frame + deepen version
- E - Aluminium frame + deepen version + window with fixed glazing
- F - Aluminium frame + deepen version + window with opening function

DOOR and OTHER OPENINGS

Types (feasible assembly combinations: A, B):
TYPE 1 in element dimension
- Type 1.1 - visible joint
- Type 1.2 - visible Joint by shift

TYPE 2 not in element dimension
- Type 2.1 - with covered edges
- Type 2.2 - in joint with covered side edges
- Type 2.3 - in top joint with covered side edges
- Type 2.4 - in lower joint with covered side edges

Combinations of doors frames and other openings
- A - Aluminium frame (blind frame)
- B - Aluminium frame + deepen version

Type of door and opening assembly combination are same as windov-see chapter 6.1.

Fig. 6.1: TYPE 1 - in element dimension

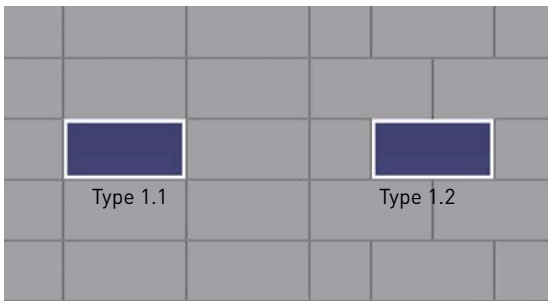
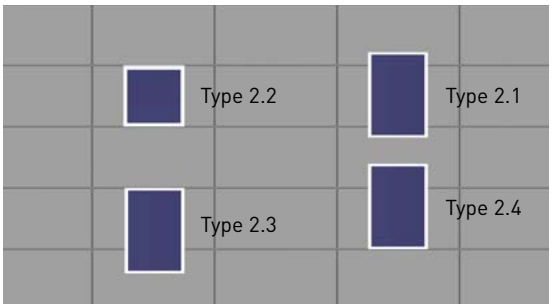


Fig. 6.2: TYPE 2 - not in element dimension



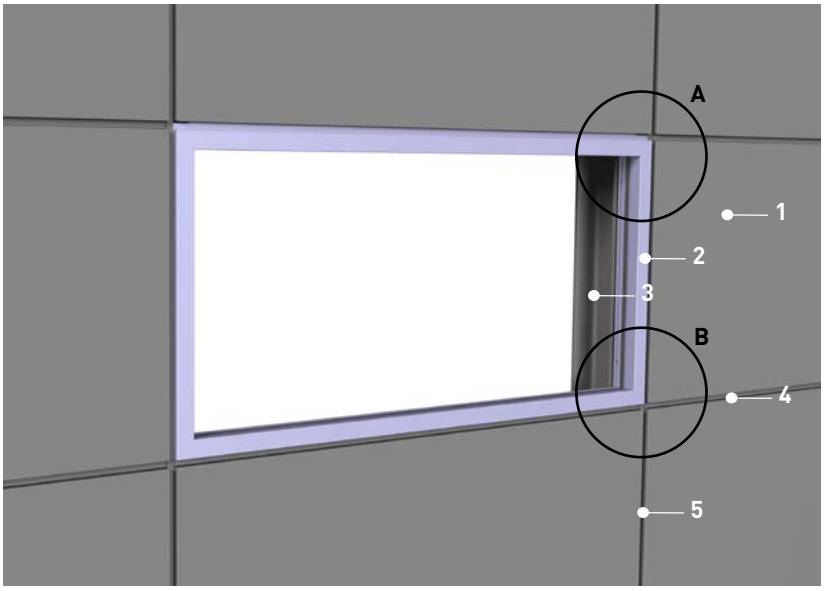
NOTE:
Supporting sub-structure on the location of opening must be defined by static calculation.

6.1 Window and other Openings

Type 1.1: Visible joint - the Window has the Same Width and Length as the Façade Element

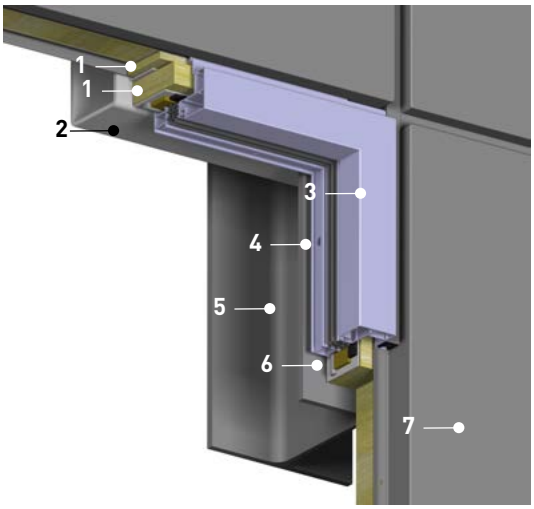
Combination: A - Aluminium frame (blind frame) **ALSO POSSIBLE IN DEEPER VERSIONS**

Fig. 6.3: Window frame in joint, levelled with surface of Qbiss One B façade elements



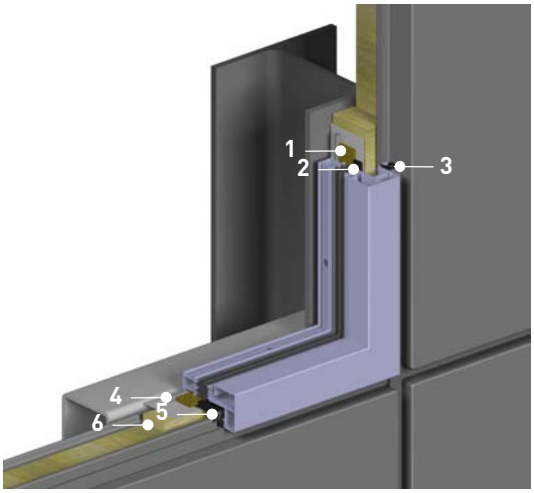
1. Qbiss One B façade element
2. Window frame
3. Sub-structure (steel)
4. Longitudinal joint
5. Transversal joint

Fig. 6.4: Section A



1. Thermal insulation
2. Sub-structure with supporting profile
3. Window frame
4. Fixing of window frame
5. Structure (steel)
6. Support frame
7. Qbiss One B façade element

Fig. 6.5: Section B

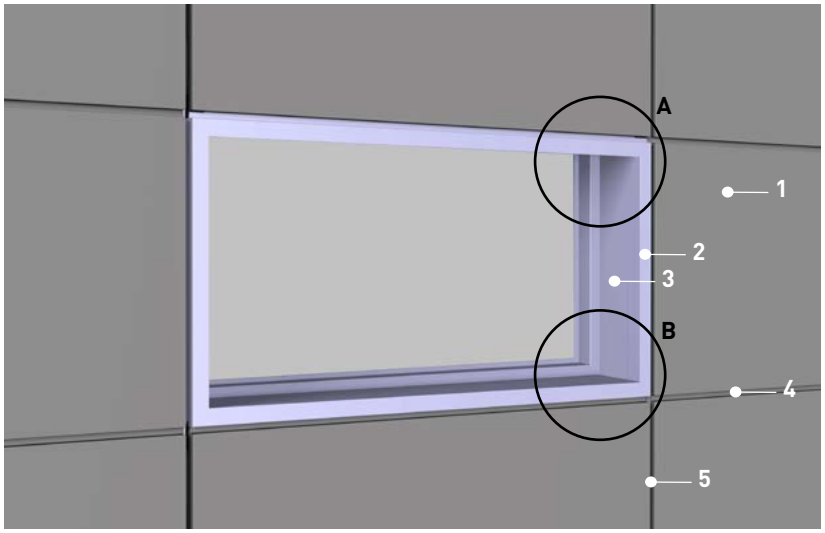


1. Insulation foam
2. Sealing tape
3. Transversal joint (transversal gasket + decorative profile)
4. Round PE gasket
5. Waterproof membrane
6. Thermal insulation

Type 1.1: Visible Joint - the Window has the same Width and Length as Façade Element

Combination: C - Aluminium frame (blind frame) + glazing with opening function

Fig. 6.6: Window frame on the joints, level with the surface of Qbiss One B façade elements - DEEP VERSION

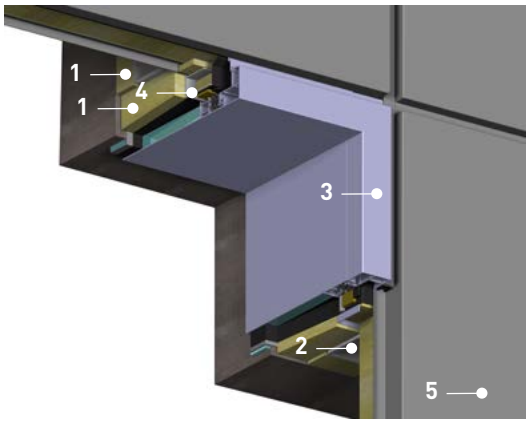


OBLIGATORY simultaneous assembly of at window and the façade elements

!

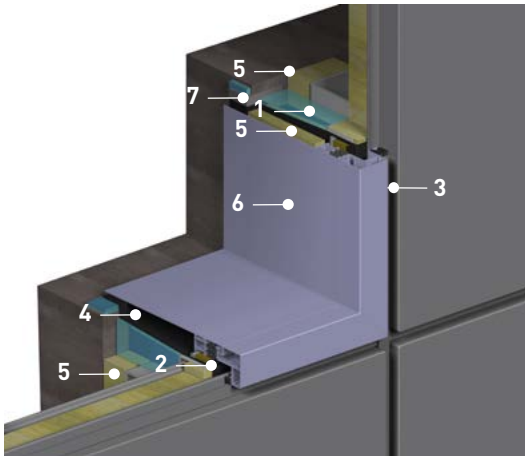
1. Qbiss One B façade element
2. Window frame
3. Deep profile with window
4. Longitudinal joint
5. Transversal joint

Fig. 6.7: Section A



1. Thermal insulation
2. Sub-structure with supporting profile
3. Window frame
4. Support frame
5. Qbiss One B façade element

Fig. 6.8: Section B

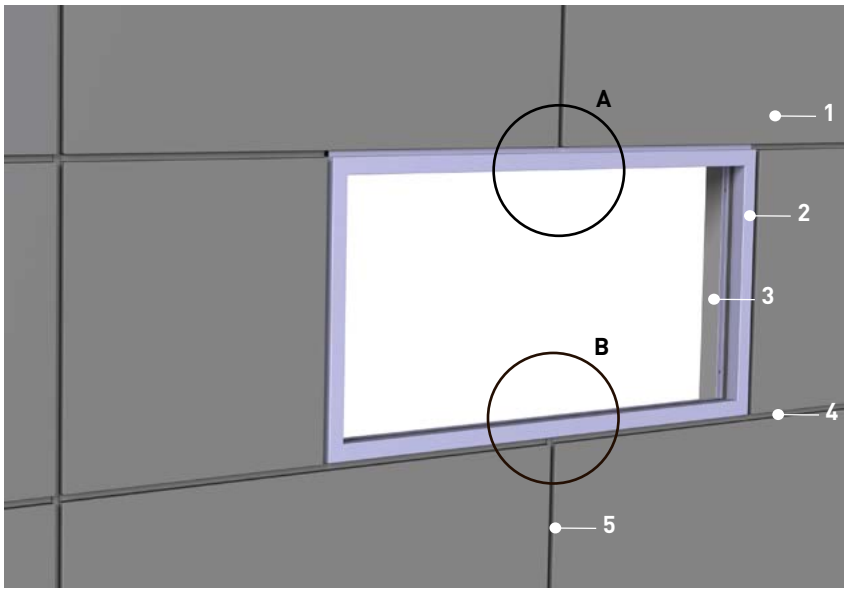


1. Insulation foam
2. Sealing tape
3. Transversal joint (transversal gasket + decorative profile)
4. Waterproof membrane
5. Thermal insulation
6. Deep profile
7. Fixing/levelling profile

Type 1.2: Visible Joint by Shift (Brick Building) - the Window has the Same Width (and length) as the Qbiss One B Façade Element

Combination: A - Aluminium frame (blind frame) **ALSO POSSIBLE IN DEEP VERSIONS**

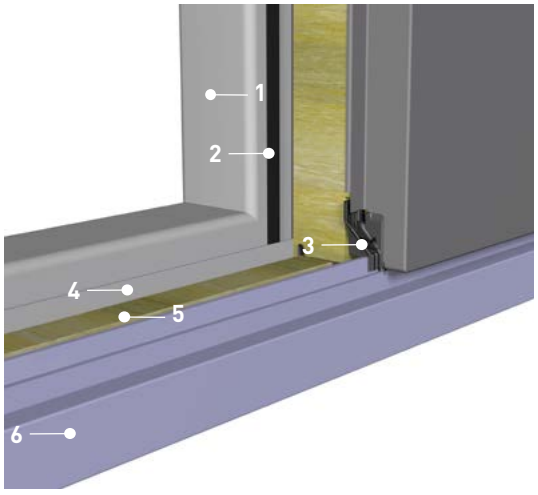
Fig. 6.9: Window frame levelled with the surface of the Qbiss One B façade elements, assembled in shifted joint



OBLIGATORY simultaneous assembly of the window and the façade elements

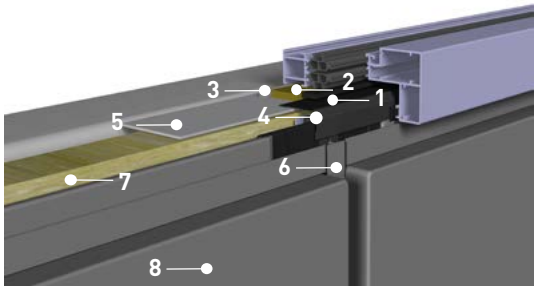
1. Qbiss One B façade element
2. Window frame
3. Sub-structure (steel)
4. Longitudinal joint
5. Transversal joint

Fig. 6.10: Section A



1. Sub-structure (steel)
2. Sealing tape
3. EDPM wet-prevention clamp
4. Support frame
5. Thermal insulation
6. Window frame

Fig. 6.11: Section B

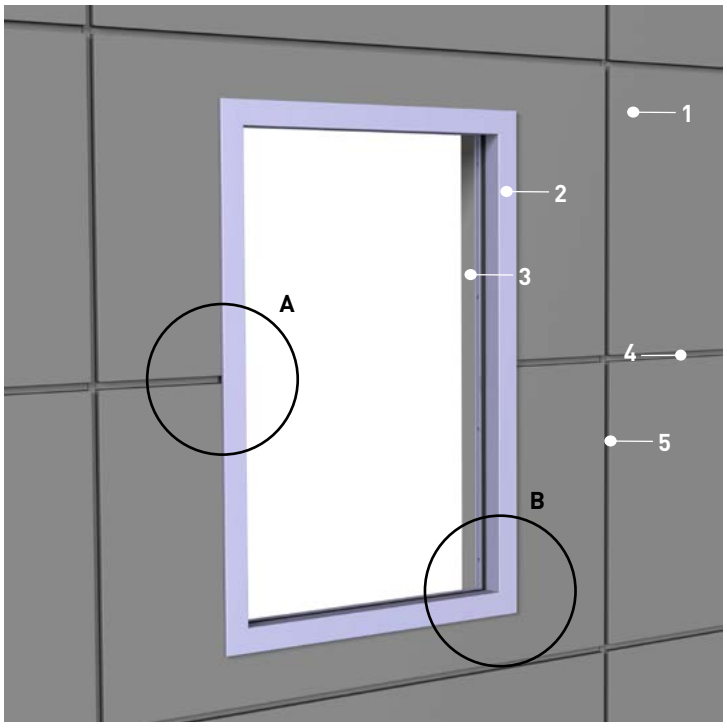


1. Sealing tape
2. Insulation foam
3. Round PE gasket
4. Waterproof membrane
5. Support frame
6. Transversal joint (transversal gasket + decorative profile)
7. Thermal insulation
8. Qbiss One B façade element

Type 2.1: With Covered Edges - Window is WIDER than Qbiss One B Façade Element

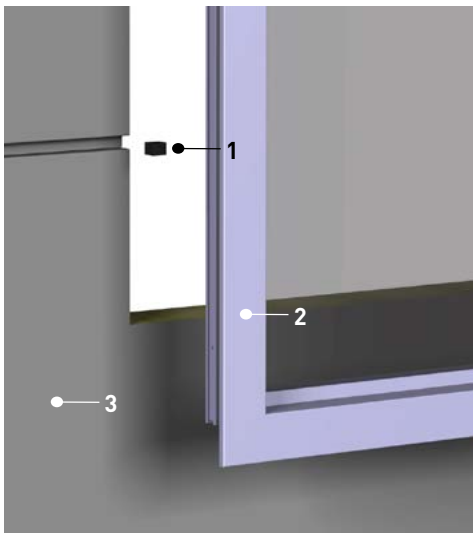
Combination: A - Aluminium frame (blind frame) **ALSO POSSIBLE IN DEEP VERSION**

Fig. 6.12: Window frame, installed above Qbiss One B façade element's surface



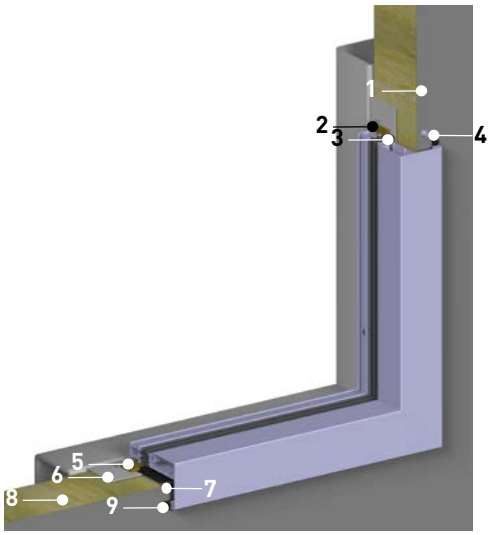
1. Qbiss One B façade element
2. Window frame
3. Sub-structure (steel)
4. Longitudinal joint
5. Transversal joint

Fig. 6.13: Section A



1. EDPM gasket + sealant
2. Window frame
3. Qbiss One B façade element

Fig. 6.14: Section B



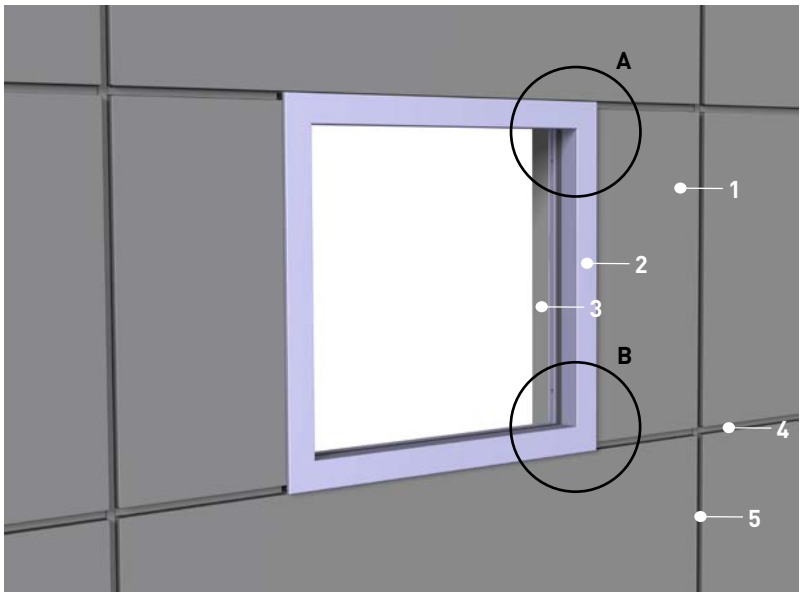
1. Qbiss One B façade element
2. Rounded PE gasket
3. Sealing tape
4. Fixing screw
5. Insulation foam
6. Support frame
7. Waterproof membrane
8. Thermal insulation
9. Gasket

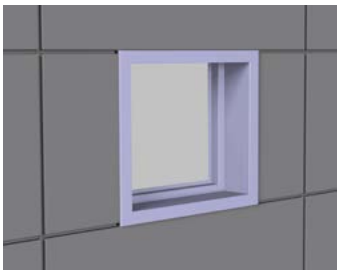
Type 2.2 - in Top and Bottom Joint with Covered Side Edges

Combination: A - Aluminium frame (blind frame)

ALSO POSSIBLE IN DEEP VERSION

Fig. 6.15: Window frame in the joint above and below and at the side on top

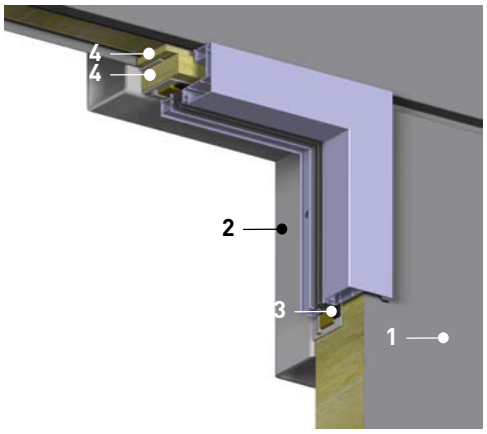




OBLIGATORY simultaneous assembly of the window and the façade elements

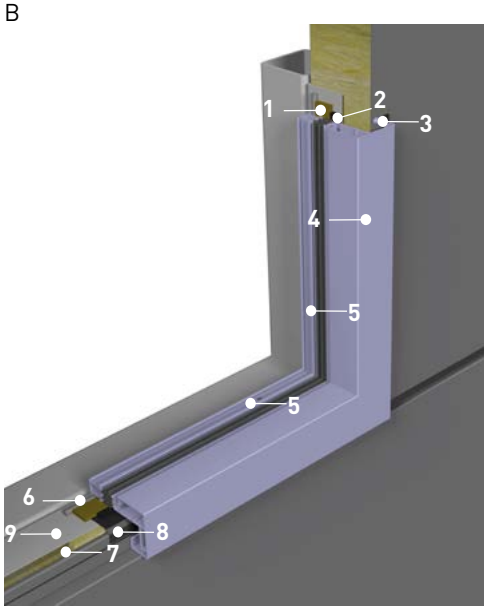
1. Qbiss One B façade element
2. Window frame
3. Sub-structure (steel)
4. Longitudinal joint
5. Transversal joint

Fig. 6.16: Section A



1. Qbiss One B façade element
2. Sub-structure with supporting profile
3. Sealing tape
4. Thermal insulation

Fig. 6.17: Section B



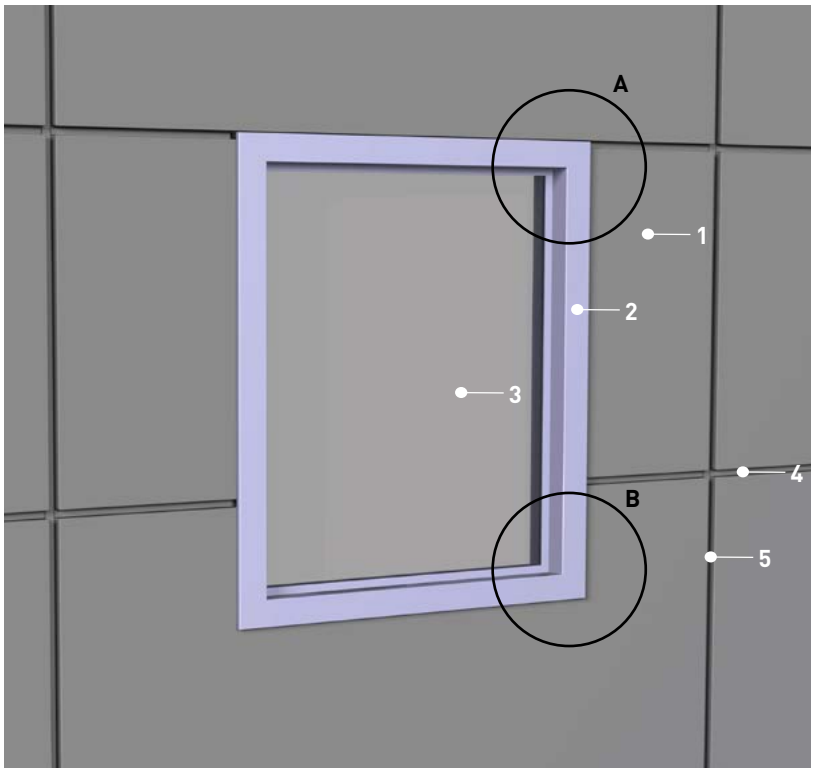
1. Insulation foam
2. Sealing tape
3. Fixing screw
4. Window frame
5. Fixing of the window frame
6. Round PE gasket
7. Thermal insulation
8. Waterproof membrane
9. Support frame

Type 2.3 - At Top Joint with Covered Side Edges

Combination: B - Aluminium frame + fixed glazing

ALSO POSSIBLE IN DEEP VERSION

Fig. 6.18: Window frame, installed at top joint; side edges above

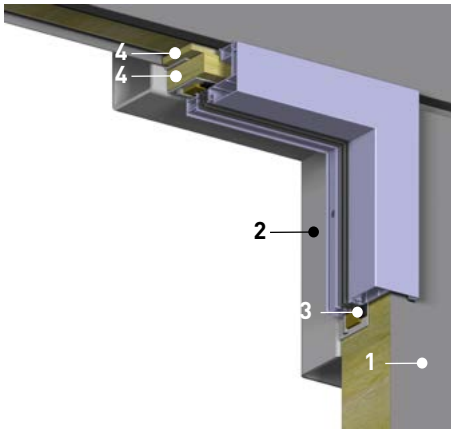


OBLIGATORY simultaneous assembly of the window and the façade elements

!

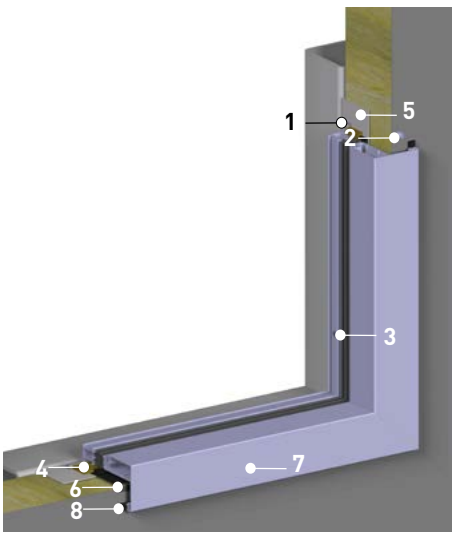
1. Qbiss One B façade element
2. Window frame - fixed glazing
3. Window-pane
4. Longitudinal joint
5. Transversal joint

Fig. 6.19: Section A



1. Qbiss One B façade element
2. Sub-structure with supporting profile
3. Sealing tape
4. Thermal insulation

Fig. 6.20: Section B

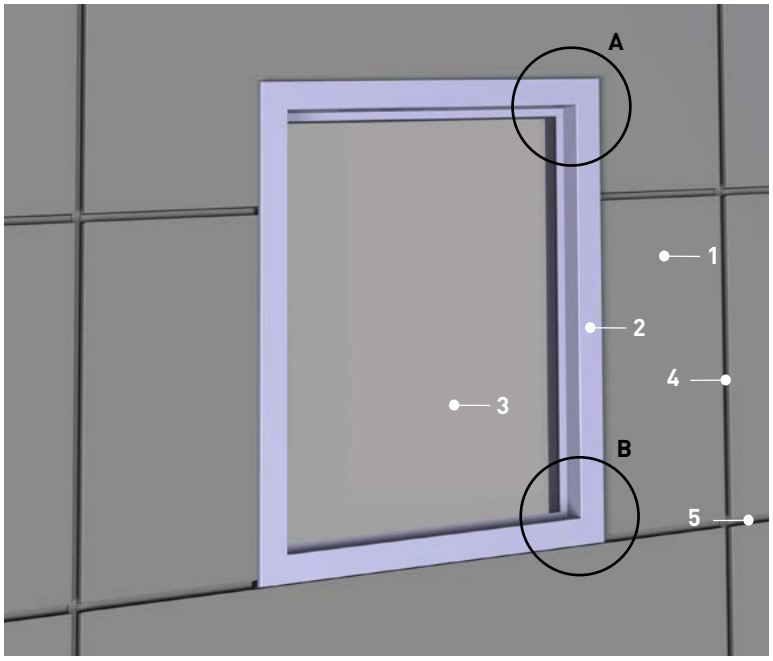


1. Round PE gasket
2. Fixing screw
3. Fixing of the window frame
4. Insulation foam
5 Support frame
6. Waterproof membrane
7. Window frame
8. Gasket

Type 2.4 - At Lower Joint with Covered Side Edges

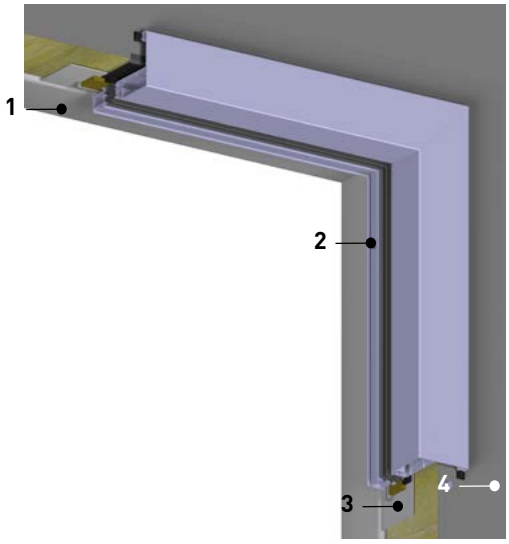
Combination: B - Aluminium frame + fixed glazing **ALSO POSSIBLE IN DEEP VERSION**

Fig. 6.21: Window frame, installed at lower joint; side edges above



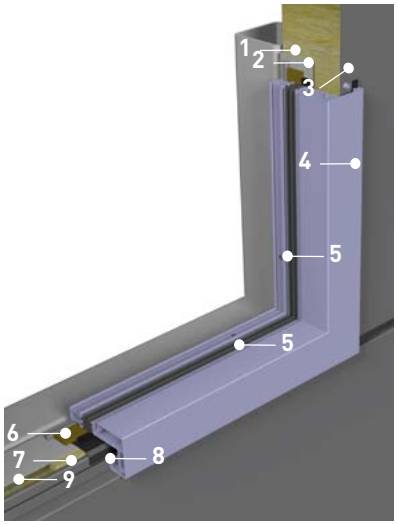
1. Qbiss One B façade element
2. Window frame - fixed glazing
3. Window-pane
4. Transversal joint
5. Longitudinal joint

Fig. 6.22: Section A



1. Sub-structure with supporting profile
2. Fixing of the window frame
3. Support frame
4. Qbiss One B façade element

Fig. 6.23: Section B



1. Insulation foam
2. Sealing tape
3. Fixing screw
4. Window frame
5. Fixing of the window frame
6. Round PE gasket
7. Thermal insulation
8. Waterproof membrane
9. Support frame

7.0 Packing, Transport and Storing

7.1 Packing

Qbiss One B façade elements are packed in standard packaging of heights between 200 and 1320 mm. They are usually stacked in 100 mm high polystyrene pads.
The varnished surface of the Qbiss One B façade elements is protected with self-adhesive protective foil that must be removed from each individual element prior to its assembly. Every package is protected with protective cardboard elements and wrapped in stretchable, waterproof, packaging foil.

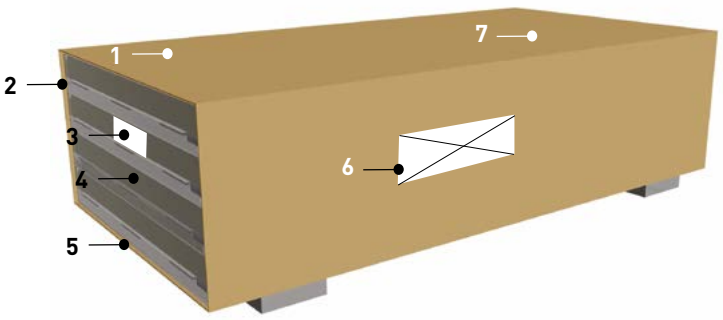
Possible types of packaging:
- truck transport (standard package),
- wagon transport (additionally strengthened) *
- container transport (packaging for overseas transport) *

* Type of packaging is specifically defined for each individual project

Table 7.1: Maximal package dimensions (including packaging)

package dimensions	net	packaging addition	gross
maximal width (mm)	1220	20	1240
maximal height (mm)	1200	120	1320
maximal length (mm)	6525	100	6600
maximal weight (kg)	2000		

Fig. 7.1: Side view of a stack prepared for transport by truck



1. Cover
2. Protective corner
3. Label
4. Front side
5. Polystyrene
6. Handling instructions
7. Façade elements and all protective elements wrapped in packaging foil

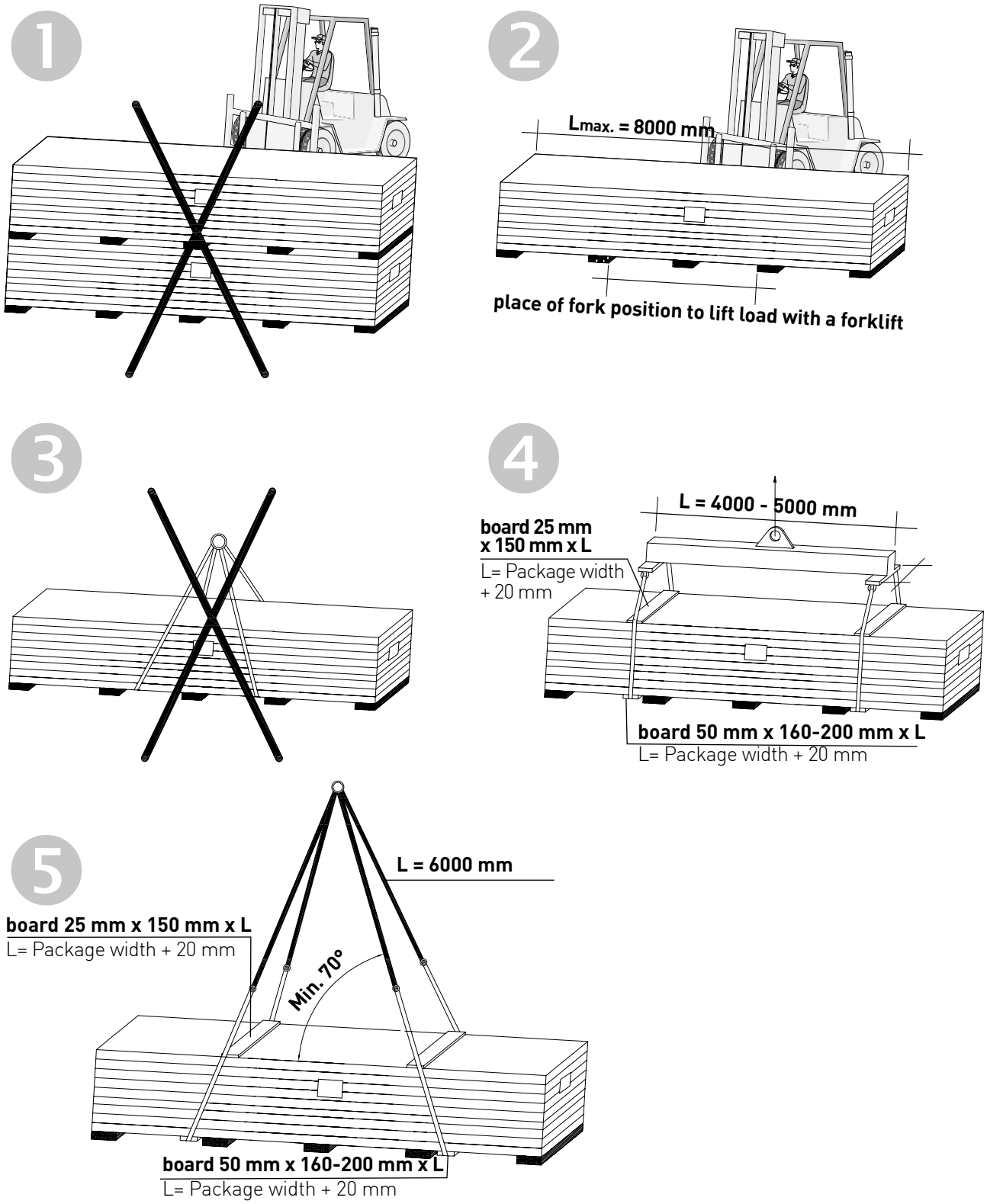
7.2 Transport

Qbiss One B façade elements can be transported from the factory to the construction site either by road or railway transport. The load-bearing textile bands with under-lying wooden battens must be used to attach the cargo to the means of transport.

7.2.1. Handling with fork-lift and lifting device (Unloading)

Unloading and transfer by a forklift truck is permitted only if individual packages are up to 8 m long (Fig. 2)!
When unloading by the lifting device the use of lifting bands of appropriate load-bearing capacity and load carriers in a length of 4 to 5 m (Fig. 4), or 4-ridge lifting element in a length of 6 m (Fig. 5) are to be used!
Suitable planks are to be placed under bands lined up with the edge of the package. Distance boards should be placed on the top (Fig. 4 and 5).

Fig. 7.2: Unloading procedure



During unloading, the truck cover must be fully open. Cover supports must be removed in such a manner that enables safe manipulation of packages and prevents Qbiss One B façade elements from damage during lifting of the truck.

NOTE:
- **Lifting more than one package at a time is not allowed.**
- **To prevent unnecessary damage, consistently follow the handling instructions attached to every package.**
- **The recipient is liable to report all visual damages to the carrier upon reception of packages at the construction site.**

7.2.2. Fastening Packages for Transport

Fastening Packages for Truck Transport

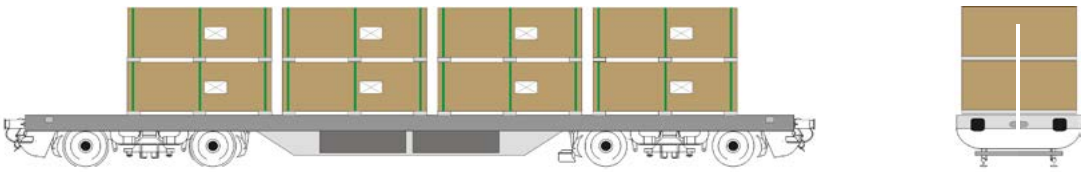
The packages must be fastened to the truck with textile bands at maximal distance 2.5 m or less (depending on package length). The use of steel wire rope is not allowed. While fastening the bands it is necessary to control the contact of the under-lying wood battens with the upper Qbiss One façade element in the package, to protectpossible deformation of the upper façade element's sheet metal.
During transport, the driver should occasionally check the stability of the cargo and to re-tighten the bands if Necessary.

Fig. 7.3: Loading the packages on truck

Fastening Packages for Wagon Transport

The packages must be fastened together and to the transport wagon.
The packages must be fastened together with steel bands at a maximum distance of 2.5 m, or at least twice for each package. Smaller packages must be bundled together and protected against possible movements.
The packages must be fastened to the wagon with textile bands. The use of steel wire rope is not allowed. It is necessary to exclude possibility of upper façade element deformation.

Fig. 7.4: Loading the packages on wagon



NOTE:
To prevent unnecessary damage during unloading, consistently follow the handling instructions, attached to every package.

The crane, mobile crane or fork-lift may be used for handling packages.
Moving or pushing of packages with forks of a fork-lift is strictly forbidden.
The use of steel wire ropes is not allowed during handling by crane. The packages priate load-bearing bands.
The centre of gravity must always be between forks or load-bearing bands.
IT IS STRICTLY FORBIDDEN TO LIFT MORE THAN ONE PACKAGE AT A TIME!

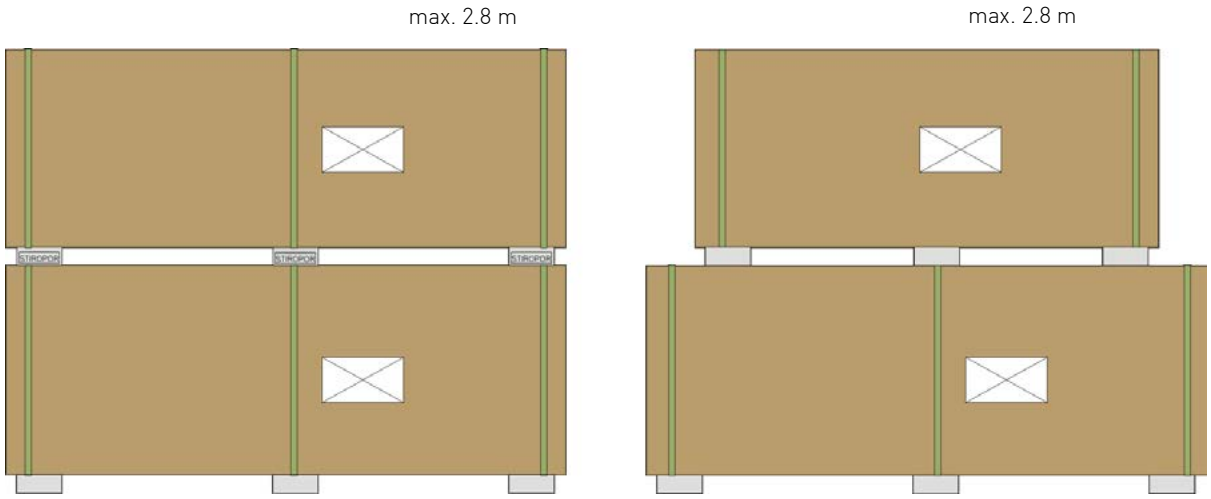
7.3 Storing

The following provisions must be considered when storing Qbiss One B façade elements:

- It is highly recommended Qbiss One B façade elements be stored in their original packaging in closed, covered, dry premises - they should not be exposed to the sun and other weather impacts.
- Packages are to be stored on a straight, stable, dry and clean supporting surface. Any damage to the protective foil should be repaired.
- The packages should be stocked on flat solid surfaces to prevent immersion, leaning, and falling of separate packages, especially in winter periods, when the package's protective foil is covered with ice.
- If storing outdoors, ensure that packages are drained and dry before being fully covered with a tarpaulin. The maximum height of stacking is 2.8 m.

The protective foil needs to be removed from both sides of the panel within three months since the delivery at the building site. The protective foil has to be completely removed from the panel or facade every day after the completed assembly to thereby prevent a negative effect of gathered water/condensation under the foil. If adhesive remains on the surface it needs to be wiped off promptly with the detergent and cloth.

Fig. 7.5: Stacking of packages



8.0 Maintenance of Buildings with Qbiss One B Façade Elements

8.1 Annual Service Inspection of Façade

A service inspection of the entire building and façade should be performed at least once per year. The purpose of the annual service inspection is detection and repair of eventual deficiencies thus prolonging the façade's life-span. The annual service inspection includes:

- Cleaning off all dirt and, if necessary, washing the façade.
- Eventual damage to the façade must be repaired immediately when noticed. The damaged spots are mechanically cleaned with fine abrasive cleaner (Scotch breit M600), dusted and degreased (cleansing alcohol, isopropyl alcohol). Then a layer of foundation paint is applied to the surface (air-dried coating based on epoxy binders and Zn pigments) and after that the final protection (air-dried coating based on polyurethane or acrylic binders).

8.2 General Recommendations

- Use of the aggressive substances for cleaning façades is not allowed since they may cause damage to the anti-corrosion protection.
- Disc grinding machines (disc-cutting machines) must not be used near Qbiss One B façade elements, hot particles can damage the varnish of the façade elements.
- Consult the Trimo Service Department for any additional questions regarding building maintenance or eventual necessity of damage repairs.

9.0 Warranty

Trimo's facade elements guarantee - see Trimo guarantee terms and conditions.

NOTES

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