



NATIONAL TEST CERTIFICATE  
(ABP)

# EASY GLASS<sup>®</sup> MAX SYSTEMS

TOP MOUNT	(MOD.6926)
F-PROFILE	(MOD.6929)
FASCIA MOUNT	(MOD.6935)
Y-PROFILE	(MOD.6936)

---

Labor für Stahl- und Leichtmetallbau GmbH  
(Laboratory for Steel and Light Metal  
Construction)

Director: Professor Dr in Engineering Ö. Bucak  
at the University of Munich

02 Faculty of Civil Engineering / Steel Construction  
Karlstraße 6, 80333 Munich

Tel.: 0049/ (0)89/ 1265- 2611; FAX 0049/ (0)89/ 1265- 2699; email: info@laborsl.de



Bay 27

---

## General Building Inspection Test Certificate

**Test certificate number:** P-2014-3079

**Subject:** Linearly mounted laminated safety glazing  
according to  
Building Rule List A Part 3 - Issue 2014/2  
Building type according to serial number 2.12

**System:** EASY GLASS MAX

**Envisaged application:** Fall protection according to the technical rule for  
the use of fall protection glazing (TRAV)

**Fall protection category:** B

**Client:** Q-railing Europe GmbH & Co. KG  
Marie-Curie-Straße 8 - 14  
46446 Emmerich am Rhein

**Date of issue:** 12/12/2014

**Valid until:** 11/12/2019

On the basis of this general building inspection test certificate, the above-cited subject is applicable according to the regional building code.

The general building inspection test certificate extends to 11 pages and 4 annexes.



I.	General provisions.....	3
II.	Special provisions.....	3
1	Subject and application area .....	3
1.1	Subject.....	3
1.2	Application area .....	3
2	Requirements for the building type .....	4
2.1	Description of the construction.....	4
2.2	Applicable test procedures .....	5
2.3	Usage, maintenance and repair.....	5
3	Applicable area for the measurement.....	6
3.1	Applicable area .....	6
3.2	Rating .....	9
4	Proof of compliance.....	9
4.1	General.....	9
4.2	Production checks .....	10
5	Applicable provisions.....	10
III.	Legal bases .....	11
IV.	Legal remedies .....	11



## I. General provisions

1. The general building test inspection certificate does not replace approvals, permits and certificates required for the execution of construction projects.
2. The general building test inspection certificate is without prejudice to the rights of third parties, in particular private property rights.
3. Manufacturers of building types have to make copies of the test certificate available to the user of the building type, notwithstanding further regulations in the "Special Provisions", and it should be noted that the general building test inspection certificate must be available at the point of use. On request, the relevant authorities must be provided with copies of the general building test inspection certificate.
4. The general building test inspection certificate may only be reproduced in its entirety. The publication of excerpts requires the consent of the Labor für Stahl- und Leichtmetallbau GmbH. Texts and drawings of advertising brochures shall not contradict the general building test inspection certificate. Translations of the general building test inspection certificate must contain the words "From Labor für Stahl- und Leichtmetallbau GmbH, unaudited translation of the original German version".

## II. Special provisions

### 1 Subject and application area

#### 1.1 Subject

Subject of the test certificate are the glass balustrades sold by Q-railing Europe GmbH & Co. KG, glass according to Building Rule List a Part 3 - Issue 2014/2. The glass sheets are clamped in a linear manner on the bottom edge and connected at the upper edge of the glass by a handrail section. The panes should be installed at an angle up to 10° from the vertical.

#### 1.2 Application area

The above cited subject is used in accordance with the technical rule for the use of safety glazing (TRAV) according to **category B**.

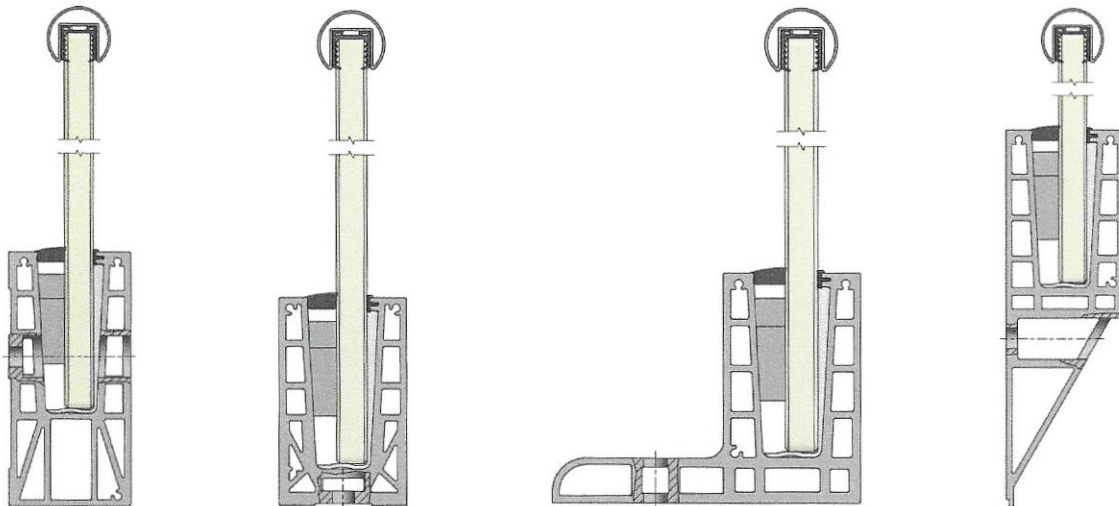


## 2 Requirements for the building type

### 2.1 Description of the construction

#### 2.1.1 Fixing

The glazing is mounted linearly on the lower horizontal edge of the glass. The allowable mounting sections are shown in Annexes 1 to 4. All EASY GLASS MAX series sections can be used. In the following illustrations, the four section types are shown as an example.



**Illustration 1 to 4:** Easy Glass MAX; fascia, Top, F top mount and Y side mount

The glass clamp is achieved by inserting plastic wedges.

The aluminium sections are fixed with chemical anchors from Q-railing (Q VMZ-IG A4 90 M12). The system Top F can be fixed with mechanical anchors (Q SZ S12) in reinforced concrete or in steel structures with screws A4 70 M12.

The screws are connected at the top edges of the glass panes with a continuous handrail section. The section must meet the requirements of the structural design according to TRAV, Section 5.5.



### 2.1.2 Glazing

The following glass assemblies are possible:

#### Glass structure ESG:

	Structure 1	Structure 2	Structure 3	Structure 4	Structure 5
Reinforced safety glass (RSG)	6,00 mm	8,00 mm	10,00 mm	12,00 mm	15,00 mm
Polyvinylbutyral film (PVB film) minim	0,76 mm	0,76 mm	0,76 mm	0,76 mm	0,76 mm
Reinforced safety glass (RSG)	6,00 mm	8,00 mm	10,00 mm	12,00 mm	15,00 mm
<b>Total glass thickness, approx.</b>	<b>12,8 mm</b>	<b>16,8 mm</b>	<b>20,8 mm</b>	<b>24,8 mm</b>	<b>30,8 mm</b>

#### Glass structure TVG:

	Structure 6	Structure 7
Partially stressed glass	8,00 mm	10,00 mm
Polyvinylbutyral film (PVB film) minim	0,76 mm	0,76 mm
Partially stressed glass	8,00 mm	10,00 mm
<b>Total glass thickness, approx.</b>	<b>16,8 mm</b>	<b>20,8 mm</b>

Only glass products according to Building Rule List A Part 1 or with general building inspection approval for use according to TRAV should be used. Instead of ESG, ESG-H also may be used. The thickness of the specified intermediate layers may be exceeded in an arbitrary way. Instead of PVB, interlayers also with general building inspection approval by TRLV [b] may be used.

The glass quality is confirmed by the manufacturer or supplier of factory certificates or declarations of conformity.

### **2.2 Applicable test procedures**

The test of the fall protection function of the glazing was carried out in accordance with Section 6 of TRAV. The detection of resistance under shock loading was tested on the relevant dimensions of the glazing described by means of pendulum impact tests. The results of the tests are documented in the test report 2014-3032.

### **2.3 Usage, maintenance and repair**

The construction in the building is to be used in such a way, assured through appropriate measures, that it permanently meets the requirements in terms of fall protection. When



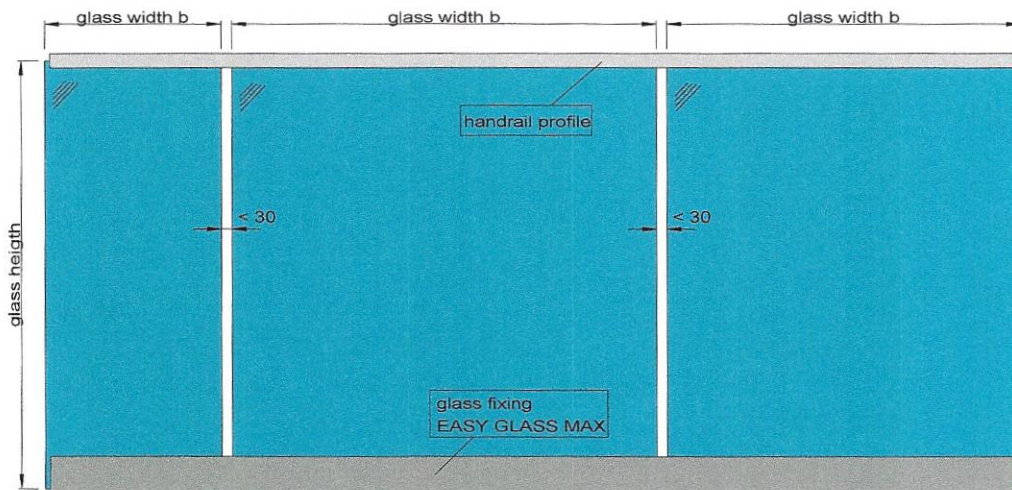
demonstrating safe anchorage of glazing constructions on the building, the relevant technical building regulations must be observed.

### 3 Applicable area for the measurement

#### 3.1 Applicable area

The general building inspection test certificate is valid for the building type described in item 2. The glazing has a fall-preventing function according to category B. In the following tables and figures, the permitted dimensions of the respective installation situations are given.

#### More precise installation:



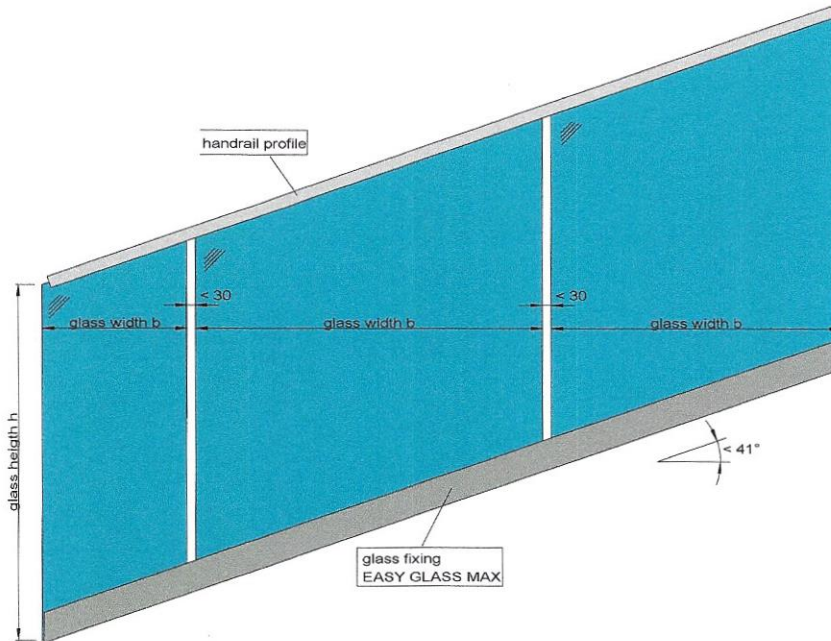
The following dimensions are demonstrated by technical experimentation:

**Table 1: allowable dimensions of a more precise installation**

	Glass structure	Glass width b [mm]		Glass height [mm]
		min	max	max
1	2 x 6 mm ESG	800	any	1100
2	2 x 8 mm ESG	500	any	1500
3	2 x 10 mm ESG	500	any	1500
4	2 x 12 mm ESG	500	any	1500
5	2 x 15 mm ESG	500	any	1500
6	2 x 8 mm TVG	500	any	1200
7	2 x 10 mm TVG	500	any	1200



Deviation from the rectangular shape (staircase):



The following dimensions are demonstrated by technical experimentation:

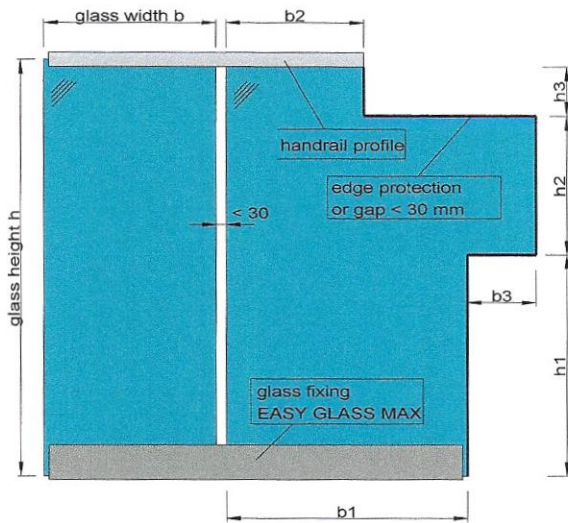
**Table 2:** allowable dimensions staircase

	Glass structure	Glass width b [mm]		Glass height [mm]
		min	max	max
1	2 x 6 mm ESG	800	any	1100
2	2 x 8 mm ESG	500	any	1500
3	2 x 10 mm ESG	500	any	1500
4	2 x 12 mm ESG	500	any	1500
5	2 x 15 mm ESG	500	any	1500
6	2 x 8 mm TVG	500	any	1200
7	2 x 10 mm TVG	500	any	1200





**Model section:**

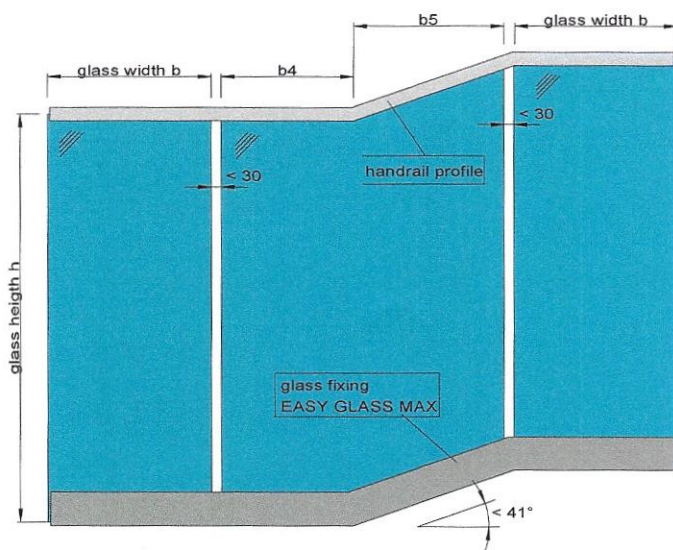


The following dimensions are demonstrated by technical experimentation:

**Table 3:** allowable dimensions model section

	Glass structure	b1 [mm]		b2 [mm]		b3 [mm]	Glass height [mm]		h2 [mm]	h3 [mm]
		min	max	min	max		max			
2	2 x 8 mm ESG	700	any	400	b1 + b3	200	1250	any	any	300
3	2 x 10 mm ESG	700	any	400	b1 + b3	200	1250	any	any	300
4	2 x 12 mm ESG	700	any	400	b1 + b3	200	1250	any	any	300
5	2 x 15 mm ESG	700	any	400	b1 + b3	200	1250	any	any	300

**Transitional section:**



The following dimensions are demonstrated by technical experimentation:



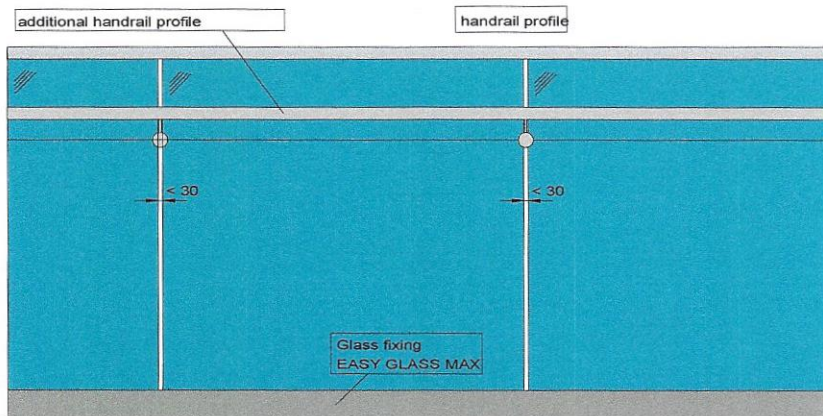
**Table 4:** allowable dimensions transitional section

Glass structure		b4 [mm]		b5 [mm]		Glass height [mm] max
		min	max	min	max	
2	2 x 8 mm ESG	400	any	460	any	1200
3	2 x 10 mm ESG	400	any	460	any	1200
4	2 x 12 mm ESG	400	any	460	any	1200
5	2 x 12 mm ESG	400	any	460	any	1200

Other design requirements:

- There must be always at least 3 sections of the smallest glass width installed
- If the handrail is anchored at the end, the glass railings may also consist of a section.
- In the arrangement of plastic wedges, the requirements of the company Q-railing must be observed
- An additional constructive handrail can be used, which is attached via a terminal holder to the section spaces (see the following illustration).

Additional constructive handrail



**3.2 Rating**

For the application case, a mathematical proof of resistance under static exposure for glazing and supporting structure according to TRAV Section 5 is to be provided.

**4 Proof of compliance**

**4.1 General**

The building type which appears in this general building inspection test certificate requires according to Building Rules List A Part 3, the proof of compliance by the user (contractor).



The contractor declares herein to the client that the type used matches in all details this certificate.

#### 4.2 Production checks

At each application of the building type, a production check is to be set up and performed. Under the production check, the contractor agrees to continuous monitoring of production, with which is ensured that the building type made by him complies with the provisions of this certificate.

The production control shall contain the description and verification of raw materials and components.

The results of the production control are recorded and evaluated. The records shall contain at least the following information:

- Identification of the building type comprising description of the components
- Date of manufacture and testing of construction
- Results of the review and comparison with the requirements
- Signature of person responsible for the production check

The records shall be kept for at least five years and be made available on the request of the competent overall building inspection authority.

#### 5 Applicable provisions

For the applications, the provisions of the technical rules for the use of fall protection glazing (TRAV) -version January 2003 are to be observed. Reference is also made to the following standards and codes:

- [a] Building rules List A, List B and List C; Issue 2014/2
- [b] Technical rules for the use of linearly installed glazing (TRLV), version 2006-08
- [c] EN 12600; Glass in building - pendulum impact test - Impact test method and classification for flat glass, version 2003-04
- [d] EN 14449; Glass in building - Laminated glass and laminated safety glass, version 2005-07
- [e] DIN 572, Part 1-2; Glass in building - Basic products from soda lime silicate, version 2004-09
- [f] DIN 12150, Part 1; Glass in building - Thermally toughened soda lime silicate safety glass, version 2000-11



- [g] DIN 18008 Part 1-2; Glass in building - Design and construction rules, version 2010-12
- [h] Test report 2014-3032; Pendulum impact tests according to the technical regulations for the use of safety glazing (TRAV) of Labor für Stahl und Leichtmetallbau GmbH

### III. Legal bases

This general building inspection test certificate is provided on the basis of Article 17 and 19 of the Bavarian Construction Regulations (BayBO) of 14 August 2007 in association with the building rules list A.

According to § 25 Clause 2 of the MBO in association with Article 23 Clause 2 of the Bavarian Construction Regulations (BayBO) of 14 August 2007, a provided general building inspection test certificate applies in all regions of the German Federal Republic.

### IV. Legal remedies

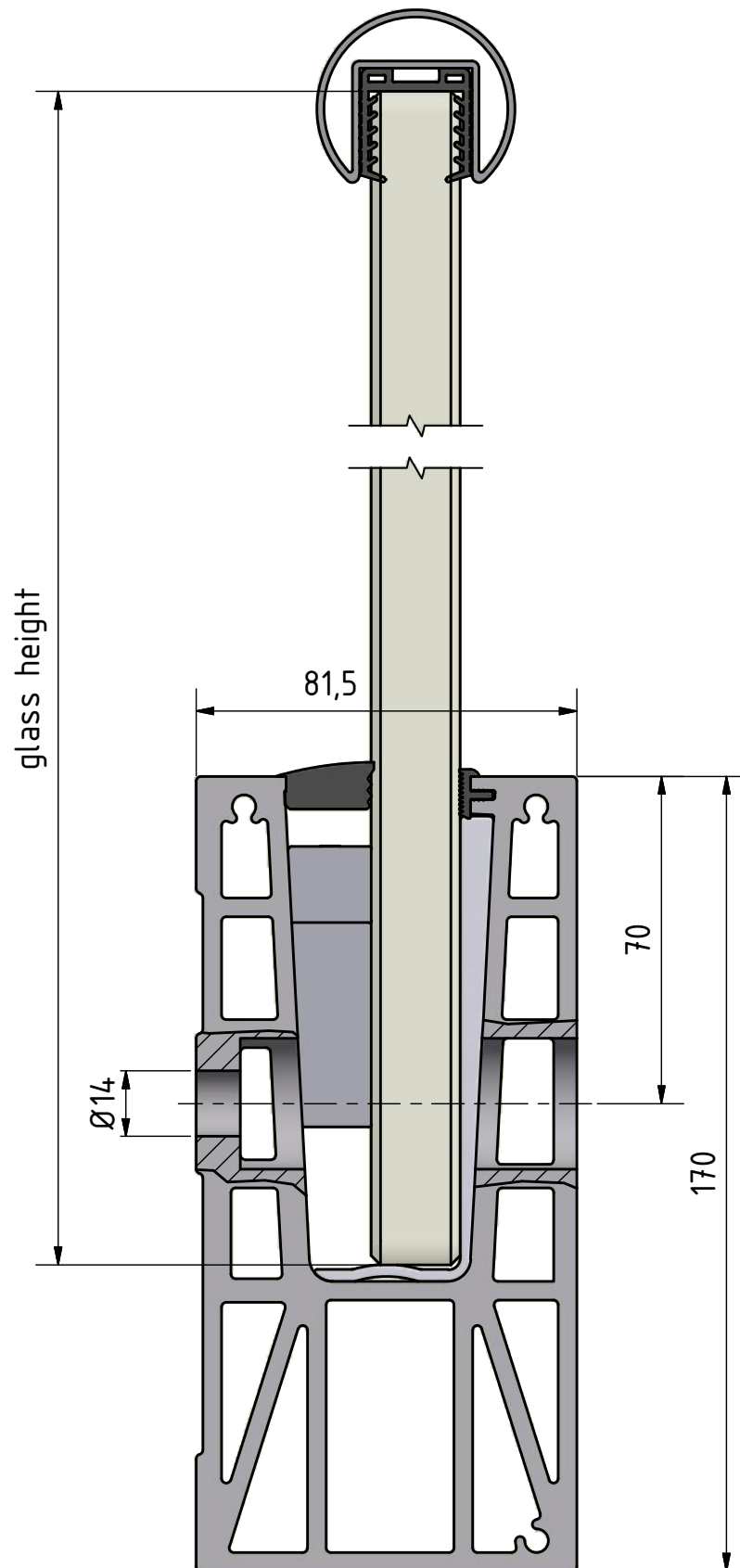
Legal objections to this general building inspection test certificate may be filed within one month after publication. The objection must be filed in writing or in transcript at Labor für Stahl- und Leichtmetallbau GmbH.


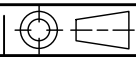
Munich, 16/12/2014

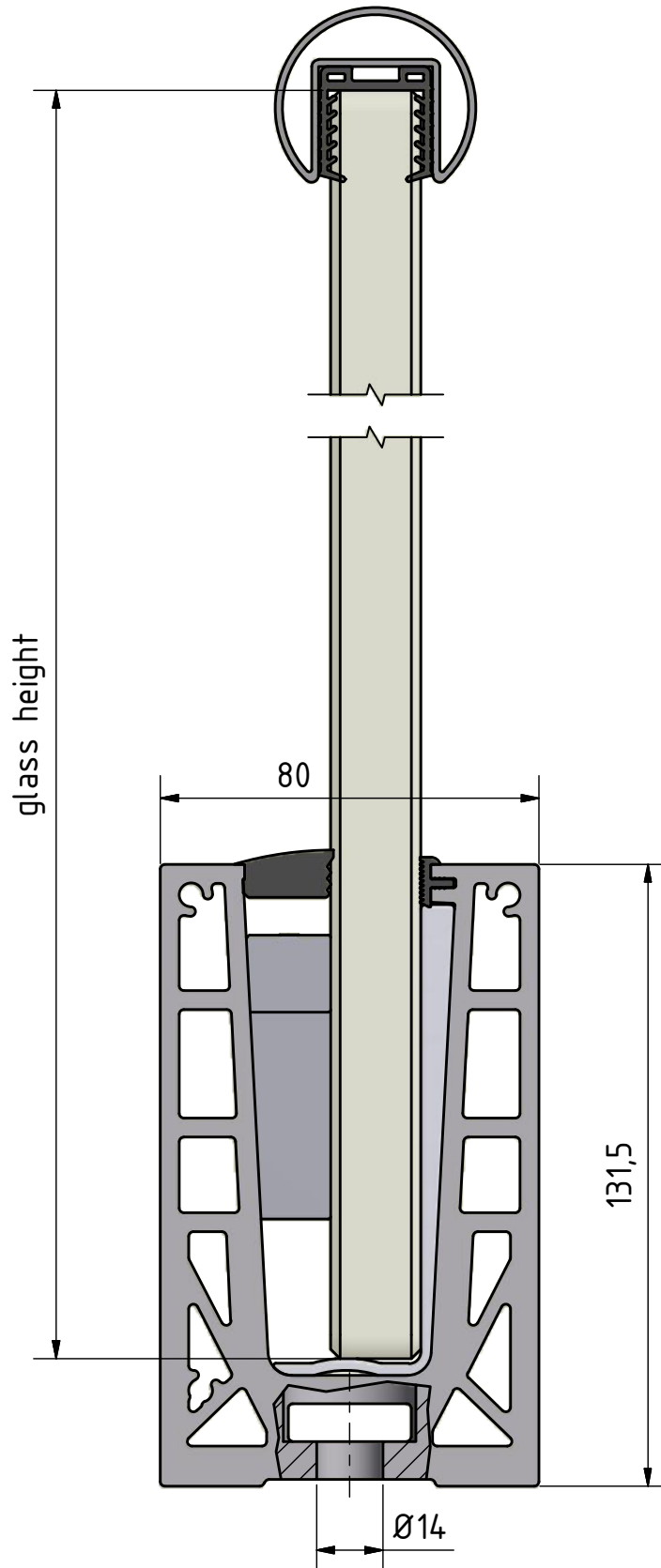
For the management and experts


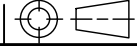


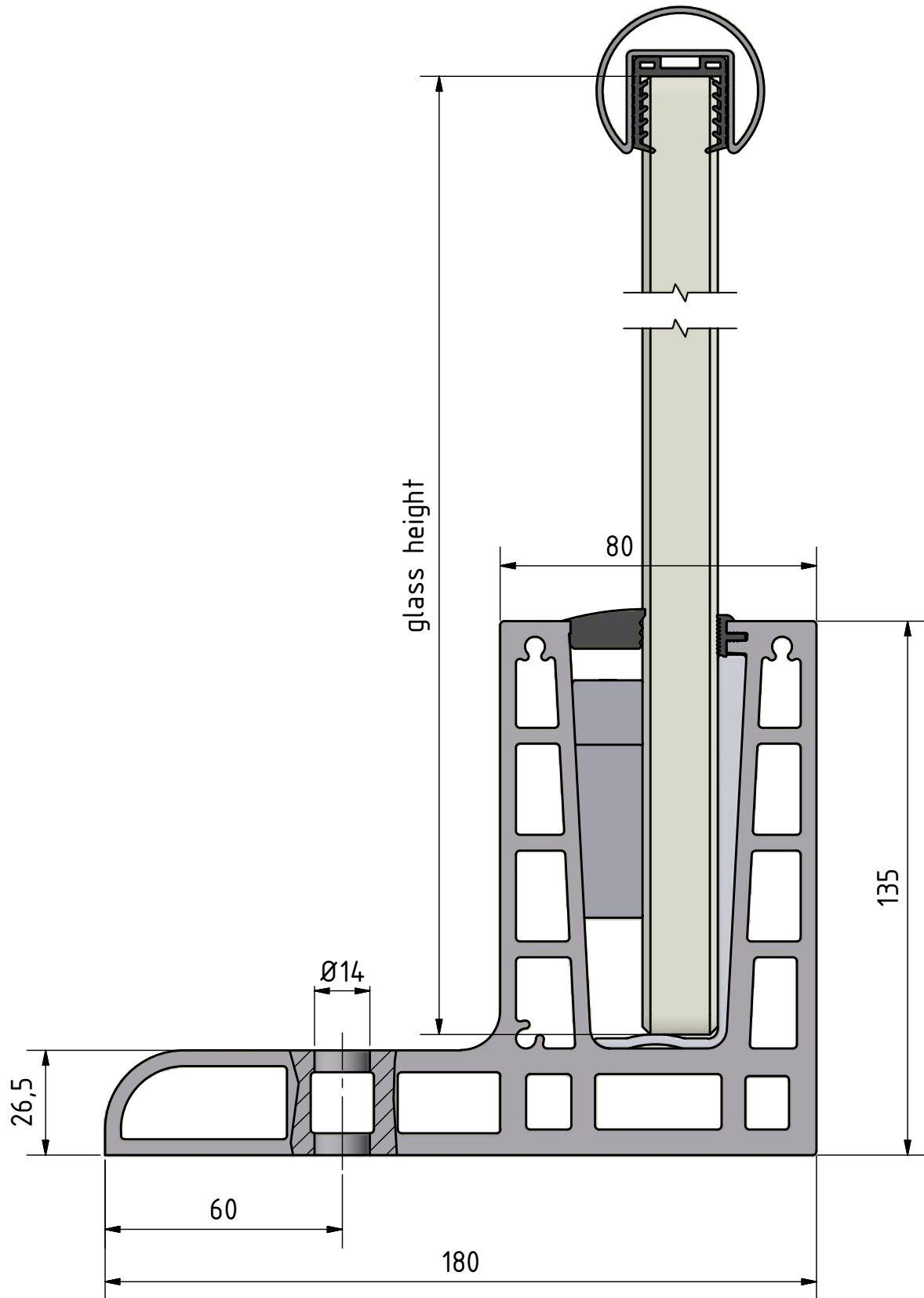
Qualified Engineer (FH) A. Lorenz  
(Representing PÜZ Office Director)



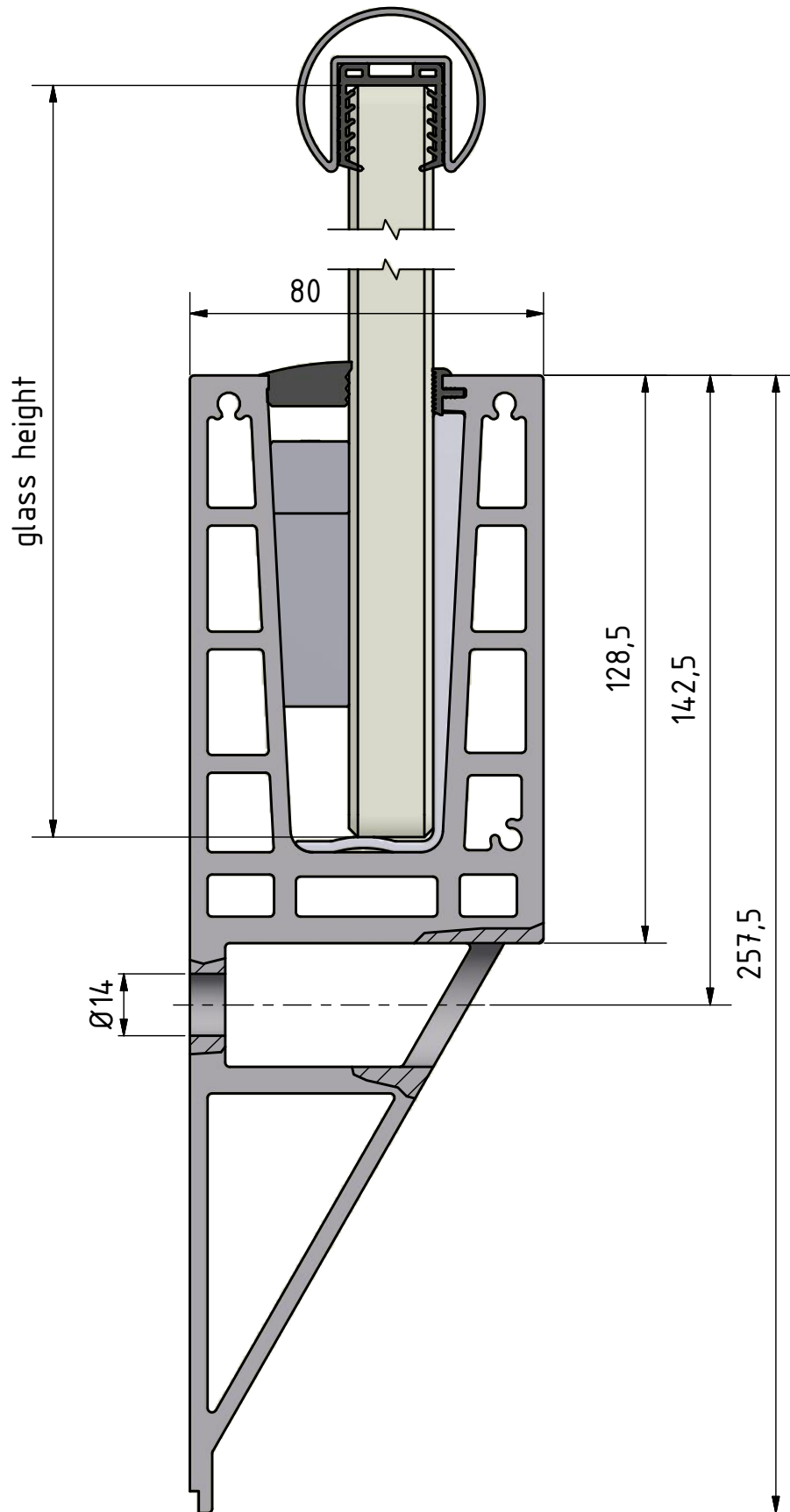
		Scale: 1 : 1,5   Weight: N/A		Rev.No.: 0
		Material: Finish: Product line: <b>EASY GLASS MAX</b>		
<small>THIS DRAWING IS PROPERTY OF Q-RAILING EUROPE GmbH &amp; Co KG ALL RIGHTS RESERVED. It may not be submitted for perusal to third parties, either whole nor partly, unless granted. It is not permitted to alter this drawing unauthorised, in any way.</small>		Description: <b>Base shoe fascia mount</b>		
Drawn	Date	Name	Drawing no.: <b>16693500018</b>	
Checked	15.12.2014	JUTH		
			Sheet: <b>1 / 1</b> A4	


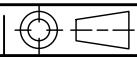


		Scale: 1 : 1,5   Weight: N/A		Rev.No.: 0
		Material: Finish:		
<small>THIS DRAWING IS PROPERTY OF Q-RAILING EUROPE GmbH &amp; Co KG                  ALL RIGHTS RESERVED. It may not be submitted for perusal to third parties, either whole nor partly, unless granted. It is not permitted to alter this drawing unauthorised, in any way.</small>		Product line: <b>EASY GLASS MAX</b>		
Drawn Checked	Date 15.12.2014	Name JUTH	Description: <b>Base shoe top mount</b>	
Drawing no.: <b>16692600018</b>			Sheet: 1 / 1 A4	



		Scale: 1 : 1,5   Weight: N/A		Rev.No.: 0
		Material: Finish: Product line: <b>EASY GLASS MAX</b>		
<small>THIS DRAWING IS PROPERTY OF Q-RAILING EUROPE GmbH &amp; Co KG ALL RIGHTS RESERVED. It may not be submitted for perusal to third parties, either whole nor partly, unless granted. It is not permitted to alter this drawing unauthorised, in any way.</small>		Description: <b>Base shoe F mount</b>		
Drawn	Date	Name	Drawing no.: <b>16692900018</b>	
Checked	15.12.2014	JUTH		
			Sheet:	1 / 1
				A4



		Scale: 1 : 1,5   Weight: N/A		Rev.No.: 0
		Material:		Product line:
<small>THIS DRAWING IS PROPERTY OF Q-RAILING EUROPE GmbH &amp; Co KG ALL RIGHTS RESERVED. It may not be submitted for perusal to third parties, either whole nor partly, unless granted. It is not permitted to alter this drawing unauthorised, in any way.</small>		Finish:	EASY GLASS MAX	
Drawn	Date	Name	Description:	
Checked	15.12.2014	JUTH		
Drawing no.:			Base shoe Y mount	
16693600018			Sheet:	
			1 / 1	
			A4	



GOOD LUCK WITH  
YOUR INSTALLATION!

VIEL ERFOLG MIT  
IHRER MONTAGE!

SUCCES MET  
DE INSTALLATIE!