

DIBt

National
Technical
Approval

Deutsches Institut für Bautechnik
Public-law institution

Approval body for construction products and construction types
Technical testing laboratory

Member of the European Organisation for Technical Approvals EOTA
and the European Union for the Agrément in construction UEAtc

Date:
18th March 2013

Reference number:
II 13-1.33.1-531/8

Approval number:
Z-33.1-531

Validity period until:
from: **18th March 2013**
until: **18th March 2018**

Applicant:
Moeding Keramikfassaden GmbH
Ludwig-Girnghuber-Str. 1, 84163 Marklkofen

Subject matter of the approval:

**Curtain wall, back-ventilated outer wall cladding “ALPHATON® Gen 95” and
“ALPHATON® Gen 06”**

The subject matter of the approval specified above is hereby granted the national technical approval.
This national technical approval comprises ten pages and thirteen attachment sheets.
This national technical approval replaces the national technical approval no. Z-33.1-531 dated 29th
March 2010, altered, added to and extended by decision 5th November 2010.
The first national technical approval of the subject matter dated 7th March 2002.

I. GENERAL PROVISIONS

- 1 With the national technical approval, usability and/or applicability of the subject matter of the approval in the sense of the state building regulations has been proven.
- 2 If requirements are made in the national technical approval on the special expertise and experience of the persons entrusted with the manufacture of construction products and construction types according to the state regulations corresponding to § 17 paragraph 5 Prototype Building Regulation, it must be noted that this expertise and experience can also be proven by equivalent evidence of other member states of the European Union. If applicable, this also applies to equivalent evidence presented within the scope of the agreement on the European Economic Area (EEA) or other bilateral agreements.
- 3 The national technical approval does not replace approvals, consents and certificates legally prescribed for the realisation of construction projects.
- 4 The national technical approval is granted irrespective of the rights of third parties, particularly private property rights.
- 5 Notwithstanding more far-reaching regulations in the “Special Provisions”, manufacturer and distributor shall make available to the user and/or operator of the subject matter of the approval copies of the national technical approval and they shall point out that the national technical approval must be available at the place of use. At request, the authorities involved must be provided with copies of the national technical approval.
- 6 The national technical approval may only be duplicated in whole. Publications in extracts require the approval by Deutsches Institut für Bautechnik. Advertising brochure texts and drawings must not contradict the national technical approval. Translations of the national technical approval must contain the note **“Translation of the German original version not examined by Deutsches Institut für Bautechnik”**.
- 7 The national technical approval is granted revocably. The provisions of the national technical approval can be amended and modified retroactively, particularly if this is required by new technical findings.

II. SPECIAL PROVISIONS

1 Subject Matter of the Approval and Area of Application

The national technical approval covers a curtain wall, back-ventilated outer wall cladding of types ALPHATON® Gen 95 and Gen 06 consisting of extruded hollow terracotta tiles - hereinafter referred to as ALPHATON® terracotta tiles - and their fastening on an aluminium substructure. Every ALPHATON® terracotta tile is fastened by means of four tile holders made of aluminium, which are either held on horizontally running aluminium profiles by means of positive locking or mechanically fastened on vertically running aluminium profiles.

The vertical joints between the terracotta tiles are backed with joint profiles made of aluminium.

The ALPHATON® terracotta tiles, the tile holders and the support profiles as well as joint profiles made of aluminium are non-combustible.

The building height admissible for the use of the back-ventilated façade cladding with the ALPHATON® terracotta tiles results from the proof of stability unless lower heights result from the relevant applicable fire protection regulations of the states. The substructure and its anchoring at the building are not the subject matter of this national technical approval.

Any thermal insulation that might exist must consist of non-combustible mineral wool insulation plates according to DIN EN 13162¹ and is to be directly fastened at the building, irrespective of the substructure.

2 Provisions for the Construction Products

2.1 General

The subject matter of approval and its components must comply with the Special Provisions and the attachments to this national technical approval as well as the specifications deposited with Deutsches Institut für Bautechnik

2.2 Properties and Composition

2.2.1 ALPHATON® Terracotta Tiles

The cross-section geometry and the dimensions of the ALPHATON® terracotta tiles must correspond to the specifications according to attachment 4, attachment 5 and attachment 6.

The following terracotta tiles are distinguished by their geometry:

- ALPHATON® terracotta tiles Gen 95 with even surface, maximum axis dimensions l/b 600/250 mm, an overall tile thickness of 30 mm and a fold thickness of 8 mm.
- ALPHATON® terracotta tiles Gen 95 with a special surface the visible face of which has a grooved or wavelike profile, maximum axis dimensions l/b 600/250 mm, maximum tile thickness of 30 mm and a fold thickness of 8 mm (see attachment 6).
- ALPHATON® terracotta tiles Gen 06 with even surface, maximum axis dimensions l/b 1500/400 mm, an overall tile thickness of 30 mm and a fold thickness of 11 mm (see attachment 4 and 5).
- ALPHATON® terracotta tiles Gen 06 with a grooved special surface, maximum axis dimensions l/b 1500/300 mm, maximum tile thickness of 30 mm and a fold thickness of 11 mm (see attachment 6).

¹ With regard to the fire behaviour, the provisions of the Building Rules List B, part 1, serial no. 1.5.1 are to be observed.

The ALPHATON® Gen 95 and Gen 06 terracotta files must have the following properties:

- Body bulk density (dry density):
Mean value $\geq 1.80 \text{ g/cm}^3$; smallest value $\geq 1.75 \text{ g/cm}^3$
- Failure bending moment in the three-point bending test:
The values according to attachment 13 are to be complied with.
- Frost resistance in the test according to DIN EN 539-2, procedure B or E

2.2.2 Fasteners (Tile Holders)

All tile holders must be made of the aluminium alloy EN AW 6060 or EN AW 6063 according to DIN EN 755, material condition T66.

2.2.2.1 Tile holders Gen 95 (for fastening on horizontal support profiles Gen 95)

The width of the tile holders Gen 95 must be 16 to 20 mm. The cross-section geometry according to attachment 7 and 8 is to be complied with.

2.2.2.2 Tile holders Gen 06 (for fastening on horizontal support profiles Gen 06)

The width of the tile holders Gen 06 for fastening of the terracotta tiles on horizontal support profiles Gen 06 must at least be 20 mm. The cross-section geometry according to attachment 9 and 10 is to be complied with.

2.2.2.3 Tile holders Gen 06 - soffit holders (for fastening on vertical support profiles Gen 06)

The width of the tile holders Gen 06 (for fastening on vertical support profiles Gen 06) - also referred to as soffit holders - must be at least 20 mm. The cross section geometry according to attachment 11 and 12 is to be complied with. The soffit holders are to be mechanically fastened on the vertical support profile using approved connection means (e.g. according to approval no. Z-14.1-14 or Z.14.1-537).

2.2.3 Substructure Support Profiles

All support profiles must be made of the aluminium alloy EN AW 6060 or EN AW 6063 according to DIN EN 755, material condition T66.

2.2.3.1 Horizontal support profiles Gen 95

The cross section geometry of the horizontal support profiles Gen 95 must comply with the specifications according to attachment 8.

2.2.3.2 Horizontal support profiles Gen 06

The cross section geometry of the horizontal support profiles Gen 06 (support profile Gen 06 - open or support profile Gen 06 - closed) must comply with the specifications according to attachment 10.

2.2.3.3 Vertical profiles Gen 06

The vertical aluminium support profiles Gen 06 must have a thickness of at least 2 mm.

2.2.4 Joint Profiles

The joint profiles for backing in the vertical joints between the ALPHATON® Gen 95 terracotta tiles must be pre-fabricated aluminium joint profiles (see attachment 1) and comply with the filings made with Deutsches Institut für Bautechnik.

2.2.5 Back-ventilated Façade ALPHATON®

The back-ventilated façade ALPHATON® Gen 95 must consist of the ALPHATON® Gen 95 terracotta tiles according to section 2.2.1 and the tile holders Gen 95 according to section 2.2.2.1 in connection with the horizontal support profiles Gen 95 according to section 2.2.3.1.

The back-ventilated façade ALPHATON® Gen 06 must consist of the ALPHATON® Gen 06 terracotta files according to section 2.2.1 and either the tile holders Gen 06 according to section 2.2.2.2 in connection with the horizontal support profiles Gen 06 according to section 2.2.3.2. or the soffit holders according to section 2.2.2.3 in connection with the vertical support profiles Gen 06 according to section 2.2.3.3.

2.3 Production, Packing, Transport, Storage and Labelling

2.3.1 Production

The construction products according to section 2.2 are to be produced in the factory.

2.3.2 Packaging, Transport, Storage

The construction products according to section 2.2 must be stored according to the manufacturer's specifications and protected against damage.

2.3.3 Labelling

The construction products according to section 2.2 or their packaging, package inserts or delivery notes must be marked with the compliance mark (Ü mark) according to the compliance mark regulations of the German federal states. The Ü mark may only be applied if the prerequisites according to section 2.4 are satisfied.

2.4 Proof of Compliance

2.4.1 General

2.4.1.1 Proof of compliance by means of certificate

Compliance of the ALPHATON® terracotta tiles according to section 2.2.1 with the provisions of this national technical approval must be confirmed for every production plant by means of a certificate of compliance on the basis of a plant-internal production control and regular external monitoring including an initial inspection of the construction product according to the following provisions.

For the granting of the certificate of compliance and the external monitoring including the product tests to be carried out in this context, the manufacturer of the ALPHATON® terracotta tiles must call in a certification authority² which is approved of for that purpose as well as a monitoring authority² which is approved of for that purpose.

The statement that a certificate of compliance has been granted has to be made by the manufacturer by marking the construction products with the mark of compliance (Ü mark) referring to the intended use.

The certification authority shall provide Deutsches Institut für Bautechnik with one copy of the certificate of compliance which it has granted for their attention.

2.4.1.2 Proof of compliance by means of manufacturer's declaration and initial inspection

Compliance of the tile holders according to section 2.2.2 and the support profiles according to section 2.2.3.1 and 2.2.3.2 with the provisions of this national technical approval must be confirmed for every production plant by means of a declaration of compliance of the manufacturer on the basis of a plant-internal production control and an initial inspection of the construction products by a monitoring authority² which is approved of for that purpose (including product test).

² Published in the notifications of Deutsches Institut für Bautechnik, issue no. 2012/1: "List of the test, monitoring and certification authorities according to the state building regulations; part IIa, serial no. 2.1/1 or serial no. 5/1.

Manufacturer shall make the declaration of compliance by marking the construction products with the mark of compliance (Ü mark), referring to the intended use. Deutsches Institut für Bautechnik shall be provided with one copy of the initial inspection report for their attention.

2.4.2 Plant-internal Production Control

In every production plant a plant-internal production control is to be set up and implemented. Plant-internal production control means the continuous monitoring of the production to be implemented by the manufacturer by means of which the latter ensures that the construction products produced by them comply with the national technical approval.

The plant-internal production control must at least comprise the measures listed in attachment 13.

The results of the plant-internal production control are to be recorded and analysed.

The records must at least contain the following information:

- Designation of the construction product and/or the raw material and the components
- Type of control or test,
- Date of production and test of the construction product or the raw material or the components
- Result of the controls and tests and, as far as applicable, comparison with the requirements
- Signature of the person responsible for the plant-internal production control.

The records are to be kept for at least five years and presented to the monitoring authority called in for the external monitoring. They are to be presented to Deutsches Institut für Bautechnik and the responsible highest building control authority on request.

In case of an insufficient test result, the manufacturer shall immediately take the necessary measures to remedy the defects. Construction products not complying with the requirements are to be handled in such a way that any confusion with complying components is excluded. After remedying the defect, the test concerned must be repeated immediately as far as this is technically possible and necessary for proving that the defects have been remedied.

2.4.3 External Monitoring

In every production plant the plant-internal production control is to be checked by external monitoring regularly, at least, however, twice per year.

Within the scope of the external monitoring, an initial inspection of the ALPHATON® terracotta tiles has to be carried out. You can also take samples for sampling inspections. The approved monitoring authority is in each case responsible for the sample taking and the tests.

For the ALPHATON® terracotta tiles, the tests according to attachment 13 are to be carried out.

The results of the certification and the external monitoring are to be kept for at least five years. The certification authority and/or the monitoring authority are to present them to Deutsches Institut für Bautechnik and the responsible highest building control authority on request.

2.4.4 Initial Inspection by an Approved Monitoring Authority

Within the scope of the initial inspection of the tile holders and support profiles of the substructure, the dimensions and material properties according to section 2.2.2 to 2.2.3 as well as according to attachments 7 to 12 are to be verified.

3 Provisions for Draft and Design

3.1 Proof of Stability

The proof of stability of the ALPHATON® Gen 95 and Gen 06 terracotta tiles according to section 2.2.1 and their fastening by means of the tile holders according to section 2.2.2 on the support profiles according to section 2.2.3 has been rendered for the area of application specified in section 1.2 of this national technical approval as well as for designs according to section 4 for admissible wind pressures w_e according to table 1 to 3 in the approval procedure. The partial safety factors γ_M and γ_F have already been considered.

The acting wind loads result from the generally approved and introduced Technical Building Regulations³.

Table 1: Admissible wind pressures for the back-ventilated façade ALPHATON® Gen 95 (see attachment 1)

Dimensions and support width of the ALPHATON® Gen 95 terracotta tiles			Admissible wind pressures w_e (negative or positive wind pressure) [kN/m ²]
Tile height (axis dimension b) [mm]	Tile length l [mm]	Support width [mm]	
200	400	240	2.6
250	450	270	2.6
250	600	360	2.2

Table 2: Admissible wind pressures for the back-ventilated façade ALPHATON® Gen 06 in case of assembly of the terracotta files on horizontal support profiles (see attachment 2)

Dimensions and support width of the ALPHATON® Gen 06 terracotta tiles			Admissible wind pressures w_e (negative or positive wind pressure) [kN/m ²]
Tile height (axis dimension b) [mm]	Tile length l [mm]	Support width [mm]	
150 to 300	400	240	3.8
	500	300	
	600	360	
	700	420	
	800	480	3.3
	900	540	2.9
	1000	600	2.7
	1100	660	2.4
	1200	720	2.2
	1300	780	2.0
	1400	840	1.9
1500	900	1.8	

³ www.dibt.de; category: >business segment; category: >Building Rules List/Technical Building Regulations

Table 3: Admissible wind pressures for the back-ventilated façade ALPHATON® Gen 06 in case of assembly of the terracotta files on vertical support profiles (see attachment 3)

Dimensions and support width of the ALPHATON® Gen 06 terracotta tiles			Admissible wind pressures w_e (negative or positive wind pressure) [kN/m ²]
Tile height (axis dimension b) [mm]	Tile length l [mm]	Support width [mm]	
150 to 300	400	300	3.8
	500	400	
	600	500	
	700	600	3.3
	800	700	2.9
	900	800	2.5
	1000	900	2.3
	1100	1000	2.3
	1200	1100	1.9
	1300	1200	1.6
	1400	1300	1.4
1500	1400	1.2	
400	1500	1400	1.2

* Deviations according to the specifications in attachment 5 are admissible

For the proof of stability of the connection elements (screws or rivets) between the soffit holders and the vertical support profiles the provisions of the relevant national technical approval are to be observed.

The stability of the aluminium substructure and its anchorage at the building is to be proven in an object-related form according to the Technical Building Regulations.

3.2 Heat Insulation and Climate-related Moisture Protection

DIN 4108-2 applies for the proof of heat insulation. The air layer (back-ventilation gap) and the terracotta tiles must not be considered in the calculation of the thermal resistance (R value) according to DIN EN ISO 6949 for the external wall construction. The rated thermal conductivity value according to DIN 4108-4⁴:2013-02, table 2, category I, is to be used for the insulation material used. A rated value according to category II applies to insulation boards for which a limit value γ_{limit} has been determined within the scope of proof of compliance on the basis of a national technical approval.

The thermal bridges caused by the substructure and its anchorage as the insulation layer is penetrated or its thickness is reduced have to be considered.

DIN 4108-3 applies for the proof of climate-related humidity protection.

⁴ DIN 4108-4:2013-02: Thermal insulation and energy economy in buildings - Part 4: Hygrothermal design values

3.3 Fire Protection

The ALPHATON® terracotta tiles, the tile holders and the support profiles as well as joint profiles are non-combustible (material class DIN 4102-A1 according to DIN 4101-4).

3.4 Sound Protection

DIN 4109 including supplementary sheet 1 to DIN 4109 applies for proof of sound protection (protection against external noise).

4 Provisions for Design and Assembly

4.1 General

The outer wall cladding is to be assembled without technical stress.
Damaged terracotta files may not be installed.

The vertical joints between the terracotta files are to be backed with aluminium joint profiles according to section 2.2.4.

Depending on the position in the façade, lower tile holders (e.g. at the tile edge above the building socket and over openings), medium tile holders (at tile joints in the surface area) or top tile holders (e.g. at the top roof edge and under window sills) are to be used.

4.2 Assembly of the Terracotta Tiles on Horizontal Support Profiles (Gen 95 and Gen 06)

The support width of the horizontal support profiles of the substructure is to be limited as follows:

- Support width of the horizontal profiles Gen 95: ≤ 1.25 m
- Support width of the horizontal profiles Gen 06 - open: ≤ 1.0 m
- Support width of the horizontal profiles Gen 06 - closed: ≤ 1.50 m

Every Gen 95 terracotta tile is to be fastened using four tile holders according to section 2.2.2.1 on horizontal support profiles according to section 2.2.3.1 according to the specifications of attachment 4.

Every Gen 06 terracotta tile is to be fastened with four tile holders according to section 2.2.2.2 on horizontal support profiles according to section 2.2.3.2 according to the specifications in attachment 4.

The lower longitudinal edge of the terracotta tile rests on the related profiling of the tile holders.

A minimum anchoring depth of the upper longitudinal edge of the terracotta tiles in the related profiling of the tile holder of 8.5 mm (for Gen 95 terracotta tiles) or 5 mm (for Gen 06 terracotta tiles) must be complied with.

Assembly is effected from bottom to top. The tile holders are fastened on the horizontal support profiles by means of positive locking (see attachments 1 and 2).

The lower edges of the terracotta tiles in the lowest row are in each case inserted into two tile holders; their upper edge is then also fixed by means of two tile holders. This procedure is then repeated for all subsequent terracotta tile rows.

The distance between the tile holder centre and the adjacent transverse edge of the terracotta tile must be $l/5$ (± 30 mm) with l = length of the terracotta tile.

4.3 Assembly of the Terracotta Tiles on Vertical Support Profiles (Gen 06)

The support width of the Gen 06 vertical support profiles is to be limited to a maximum of 1 m or it is to be proven that the bending of the support profile does not exceed the value $L/300$ (L = support width of the profile).

Every terracotta file Gen 06 is to be fastened with four tile holders Gen 06 according to section 2.2.2.3 (soffit holders) on vertical support profiles Gen 06 according to section 2.2.3.3 according to the specifications in attachment 5.

The lower longitudinal edge of the terracotta files rests on the related profiling of the tile holders.

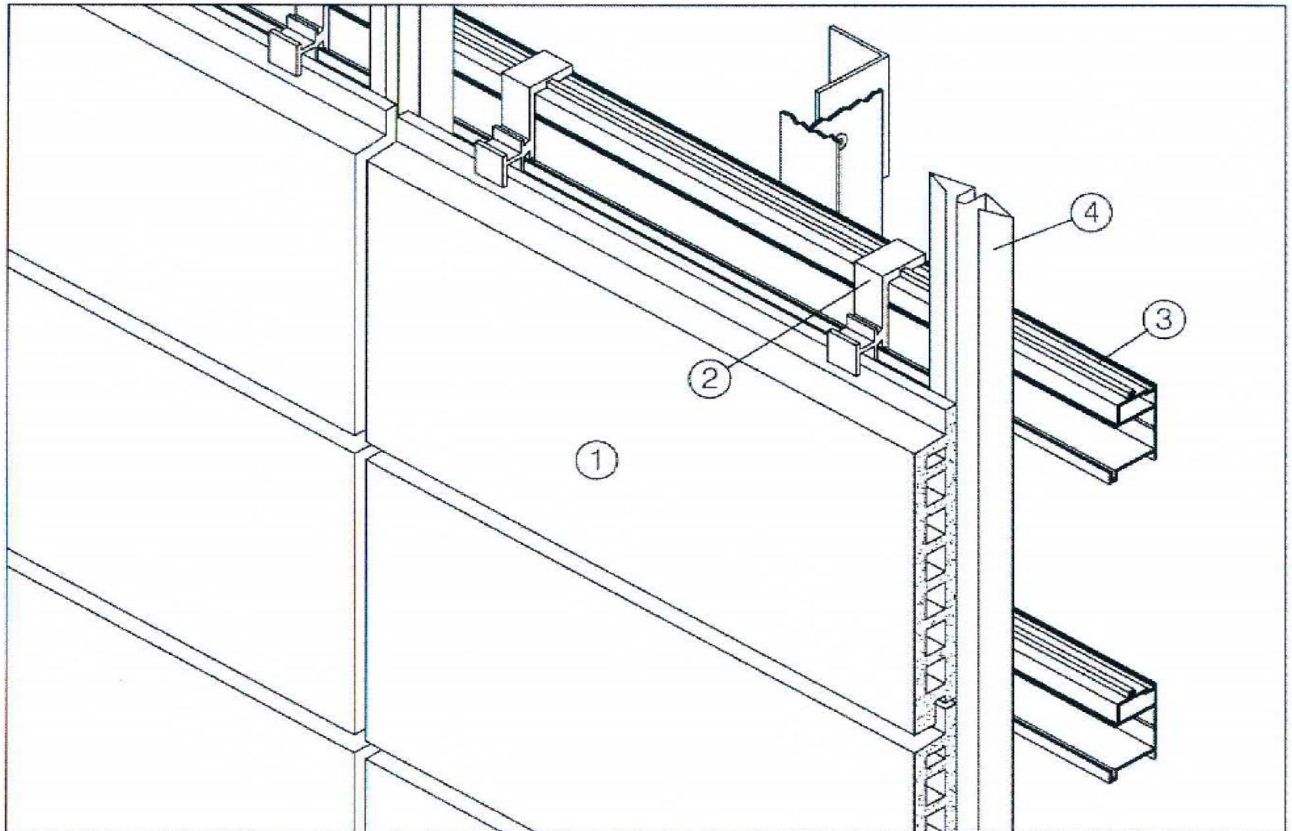
A minimum anchoring depth of the upper longitudinal edge of the terracotta tiles in the related profiling of the tile holder of 5 mm must be complied with.

Assembly is effected from bottom to top. First, the lower tile holders are mechanically fastened on the vertical profiles (see section 2.2.2.3). Then, the lower edge of the terracotta tiles is in each case inserted into two tile holders and finally, their upper edge is also held by means of two tile holders each. This procedure is repeated for the following terracotta file rows.

The distance between the tile holder centre and the adjacent traverse edge of the terracotta file must comply with the specifications in attachment 5 to this notification.

Manfred Klein
Head of division

Certified
<<Stamp: Deutsches Institut für
Bautechnik - Signature illegible>>



- (1) ALPHATON® terracotta tile
- (2) Tile holder
- (3) Horizontal support profile Gen 95 / support width ≤ 1250 mm
- (4) Joint profile

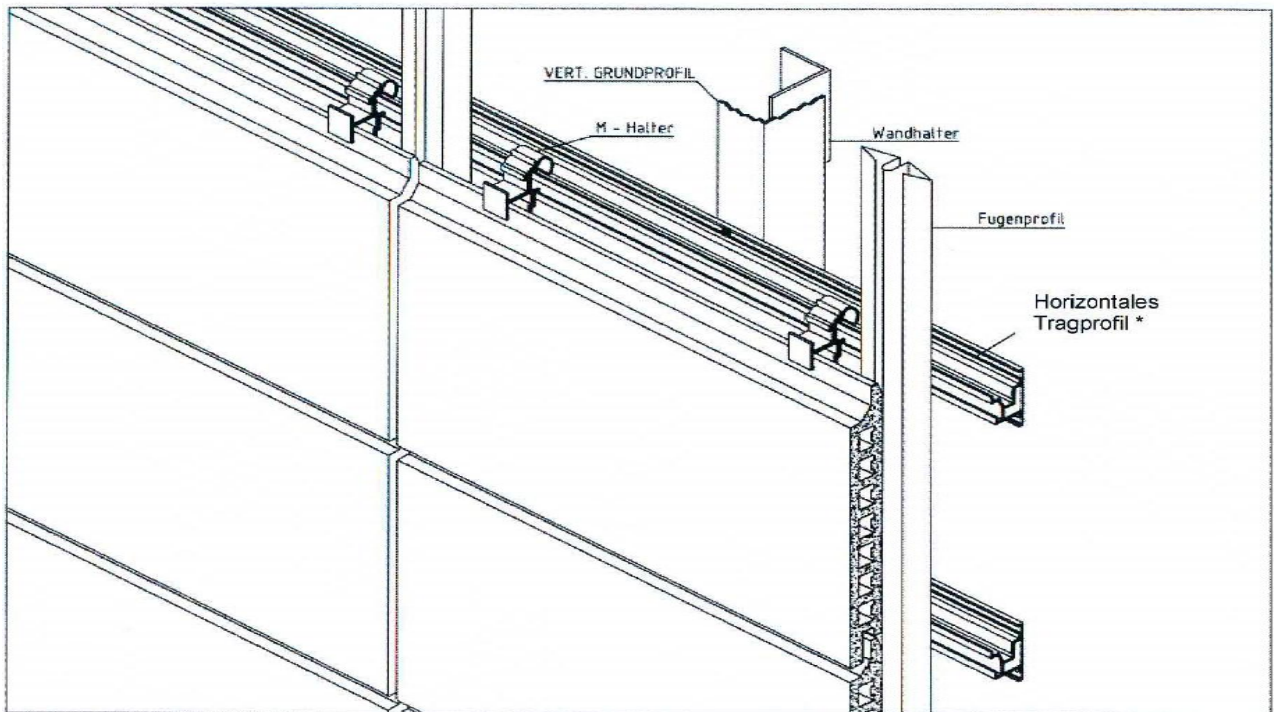
MOEDING Keramikfassaden GmbH
Ludwig Girnghuber Str. 1

84163 Marklkofen

Curtain wall, back-ventilated outer
wall cladding with the ALPHATON®
terracotta files

Fastening on horizontal profiles
(Gen 95)

ATTACHMENT 1
to the national technical
approval
no. Z-33.1-531
dated 18th March 2013



VERT. BASE PROFILE

M holder

Wall holder

Joint profile

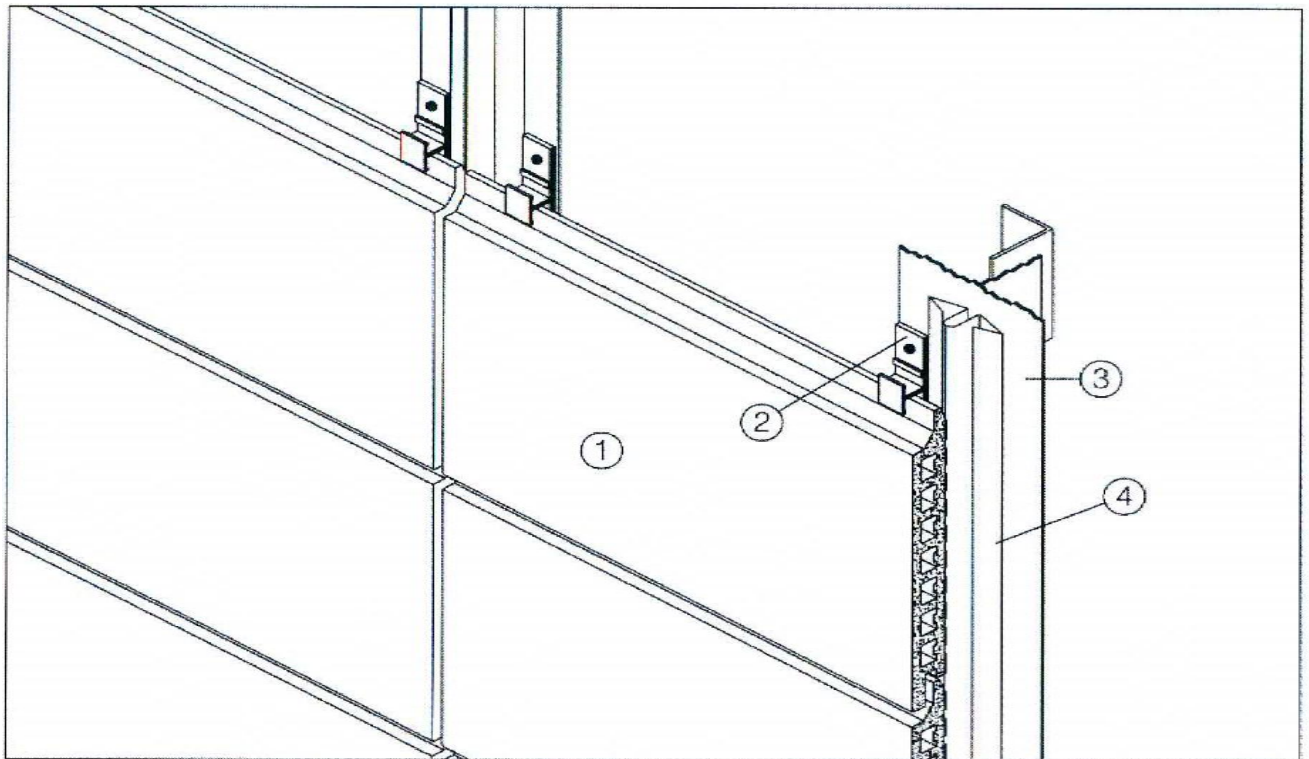
Horizontal support profile *

* Support profile
Gen 06 closed
Clamping width max. 1500 mm

Alternative:
Support profile
Gen 06 open
Clamping width max. 1000 mm

(see attachment 10)

<p>MOEDING Keramikfassaden GmbH Ludwig Girnghuber Str. 1 84163 Marklkofen</p>	<p>Curtain wall, back-ventilated outer wall cladding with the ALPHATON® terracotta files Fastening on horizontal profiles (Gen 06)</p>	<p>ATTACHMENT 2 to the national technical approval no. Z-33.1-531 dated 18th March 2013</p>
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- (1) ALPHATON® terracotta tile
- (2) Tile holder (soffit holder)
- (3) Vertical support profile
- (4) Joint profile

MOEDING Keramikfassaden GmbH
Ludwig Girnghuber Str. 1

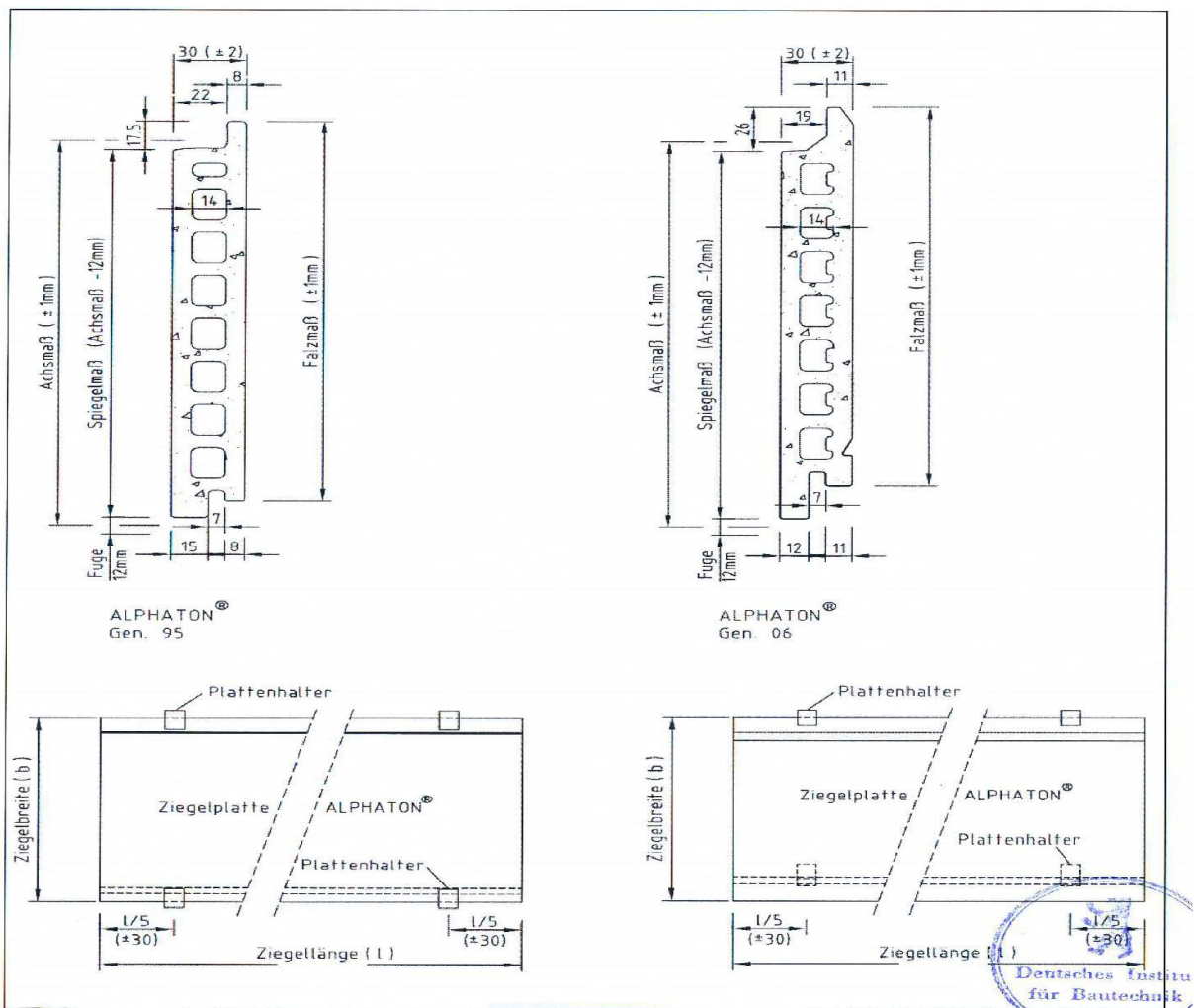
84163 Marklkofen

Curtain wall, back-ventilated outer
wall cladding with the ALPHATON®
terracotta files

Fastening on vertical profiles (Gen 06)

ATTACHMENT 3
to the national technical
approval
no. Z-33.1-531
dated 18th March 2013

Achsmaß (± 1 mm)	Axis dimension (± 1 mm)
Fuge	Joint
Spiegelmaß (Achsmaß -12 mm)	Mirror dimension (axis dimension - 12 mm)
Falzmaß (± 1 mm)	Fold dimension (± 1 mm)
ALPHATON® Gen. 95	ALPHATON® Gen. 95
ALPHATON® Gen. 06	ALPHATON® Gen. 06
Ziegelbreite (b)	Tile width (w)
Plattenhalter	Tile holder
Ziegelplatte ALPHATON®	ALPHATON® terracotta tile
Ziegellänge (l)	Tile length (l)

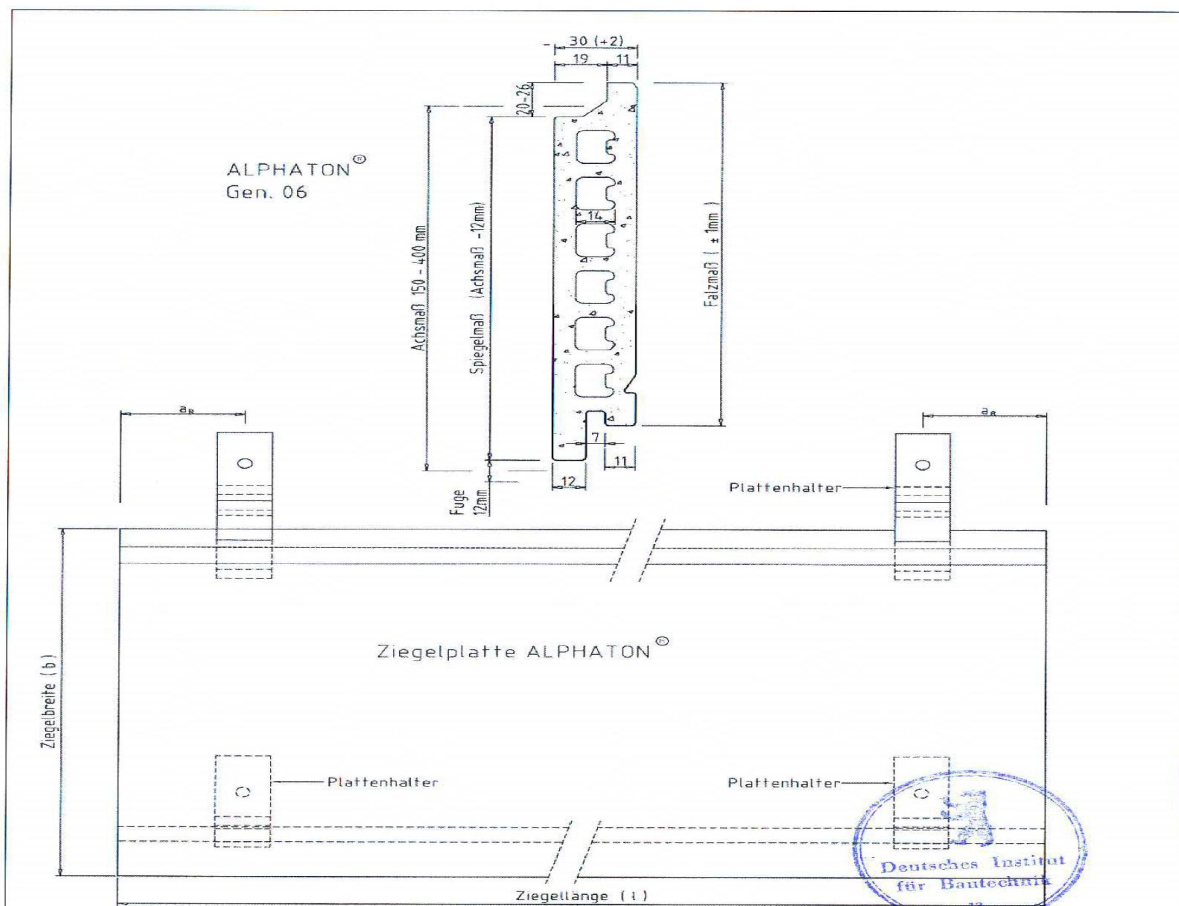


<p>MOEDING Keramikfassaden GmbH Ludwig Girnghuber Str. 1 84163 Marklkofen</p>	<p>Curtain wall, back-ventilated outer wall cladding with the ALPHATON® terracotta files</p> <p>Arrangement of the fasteners by means of tile holders</p>	<p>ATTACHMENT 4 to the national technical approval no. Z-33.1-531 dated 18th March 2013</p>
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ALPHATON® Gen. 06

Achsmaß 150 - 400 mm	Axis dimension 150 - 400 mm
Fuge	Joint
Spiegelmaß (Achsmaß -12 mm)	Mirror dimension (axis dimension - 12 mm)
Falzmaß (± 1mm)	Fold dimension (± 1 mm)
Ziegelbreite (b)	Tile width (w)
Plattenhalter	Tile holder
Ziegelplatte ALPHATON®	ALPHATON® terracotta tile
Ziegellänge (l)	Tile length (l)

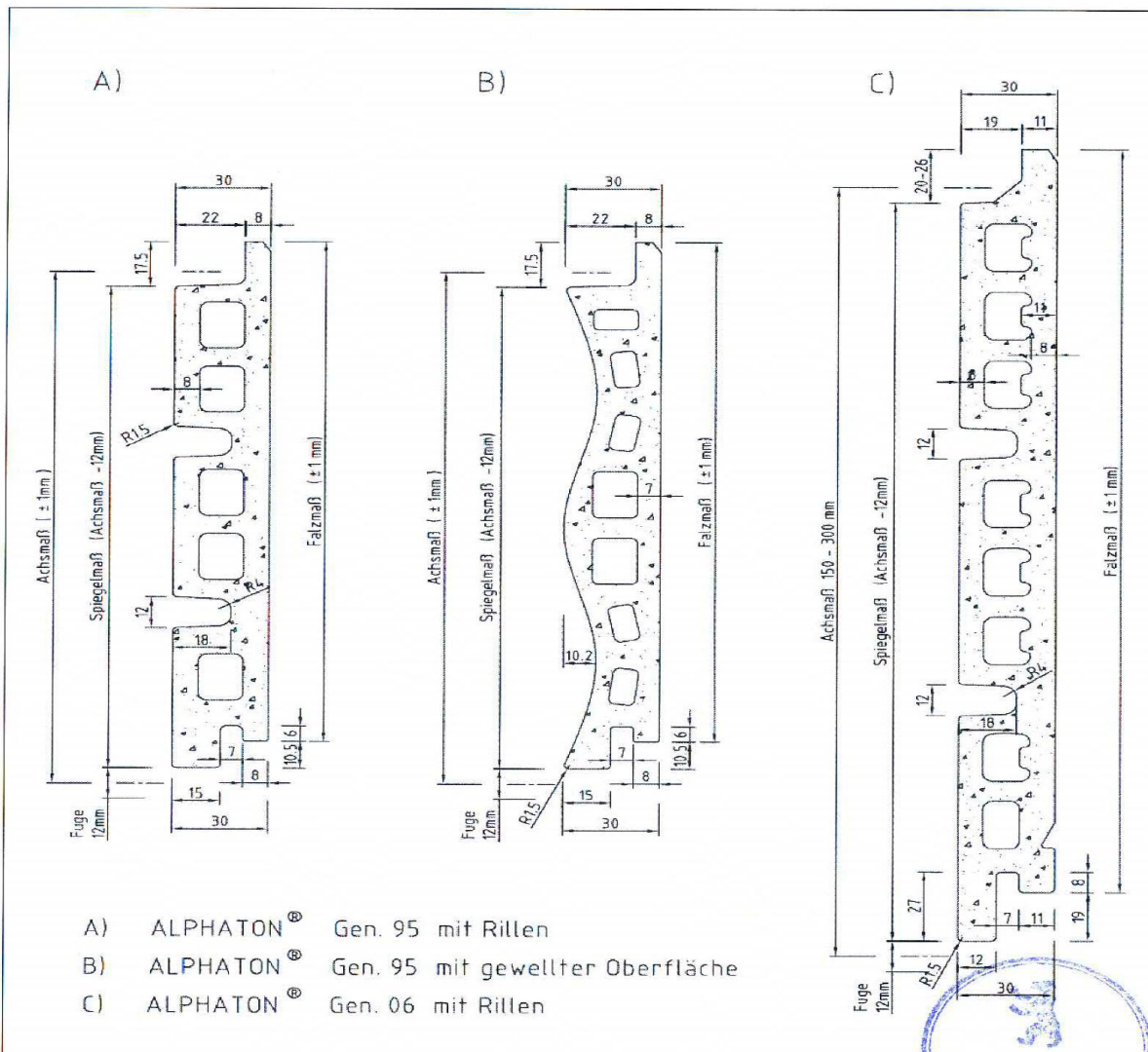
The edge distance a_R of the soffit holders to the adjacent transverse edge of the terracotta tile must be 36 mm to 50 mm. With special installation situations e.g. in building corners, the edge distance a_R of one side of the terracotta tile (top and bottom) may be larger, however not more than $1/5 l$ (l = tile length).



Moeding Keramikfassaden GmbH Ludwig-Girnghuber-Str. 1 84163 Marklkofen	ALPHATON® terracotta files, fastened on vertical profiles (Gen. 06) Arrangement of the fasteners by means of soffit holders	ATTACHMENT 5 to the national technical approval no. Z-33.1-531 dated 18 th March 2013
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Achsmaß (± 1 mm)	Axis dimension (± 1 mm)
Fuge	Joint
Spiegelmaß (Achsmaß -12 mm)	Mirror dimension (axis dimension - 12 mm)
Falzmaß (± 1 mm)	Fold dimension (± 1 mm)

- A) ALPHATON® Gen 95 with grooves
- B) ALPHATON® Gen 95 with wavy surface
- C) ALPHATON® Gen 06 with grooves



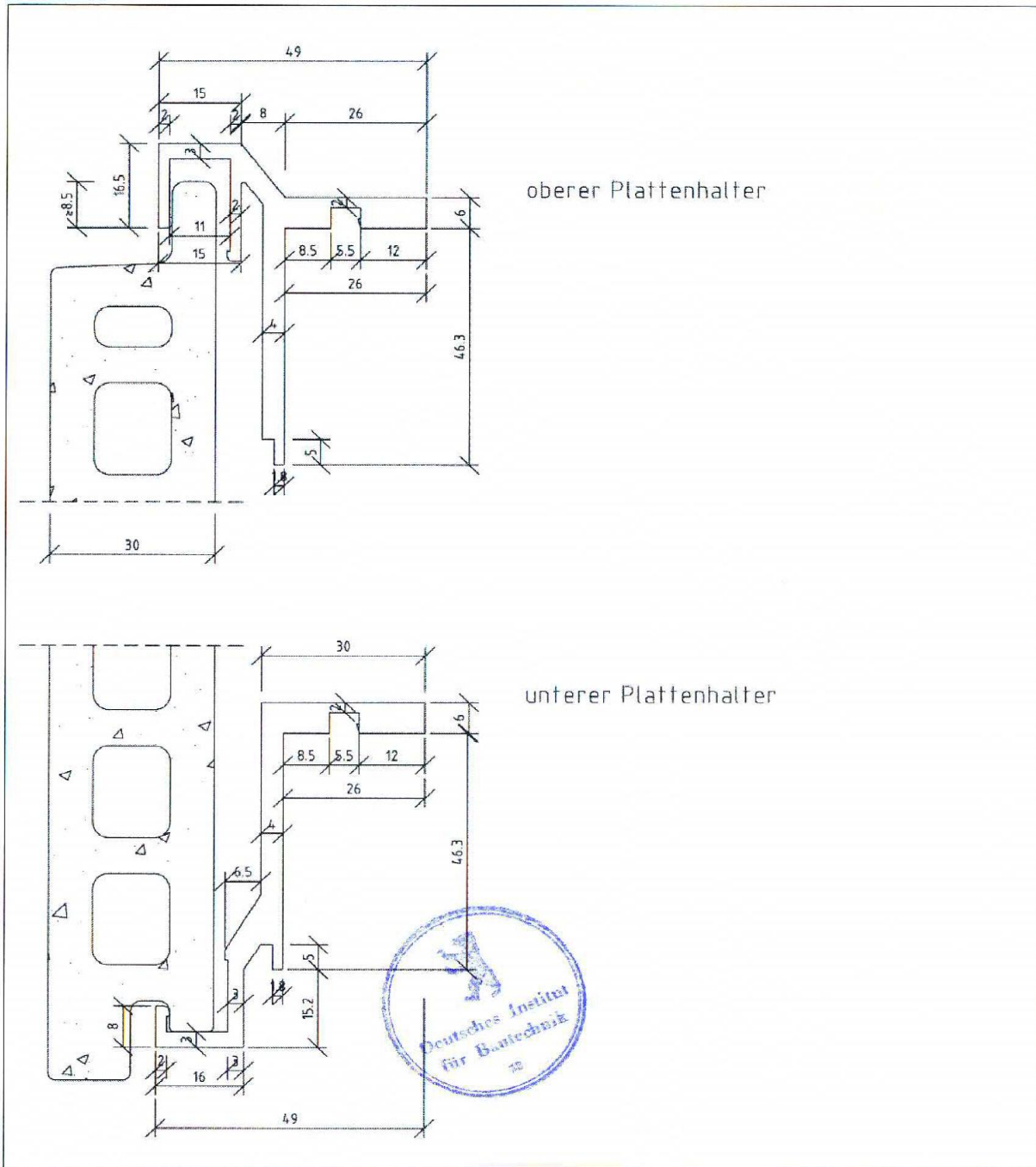
- A) ALPHATON® Gen. 95 mit Rillen
- B) ALPHATON® Gen. 95 mit gewellter Oberfläche
- C) ALPHATON® Gen. 06 mit Rillen

Moeding Keramikfassaden GmbH
Ludwig-Girnghuber-Str. 1
84163 Marklkofen

ALPHATON® terracotta files with
special surfaces

ATTACHMENT 6
to the national technical
approval
no. Z-33.1-531
dated 18th March 2013

upper tile holder



oberer Plattenhalter

unterer Plattenhalter

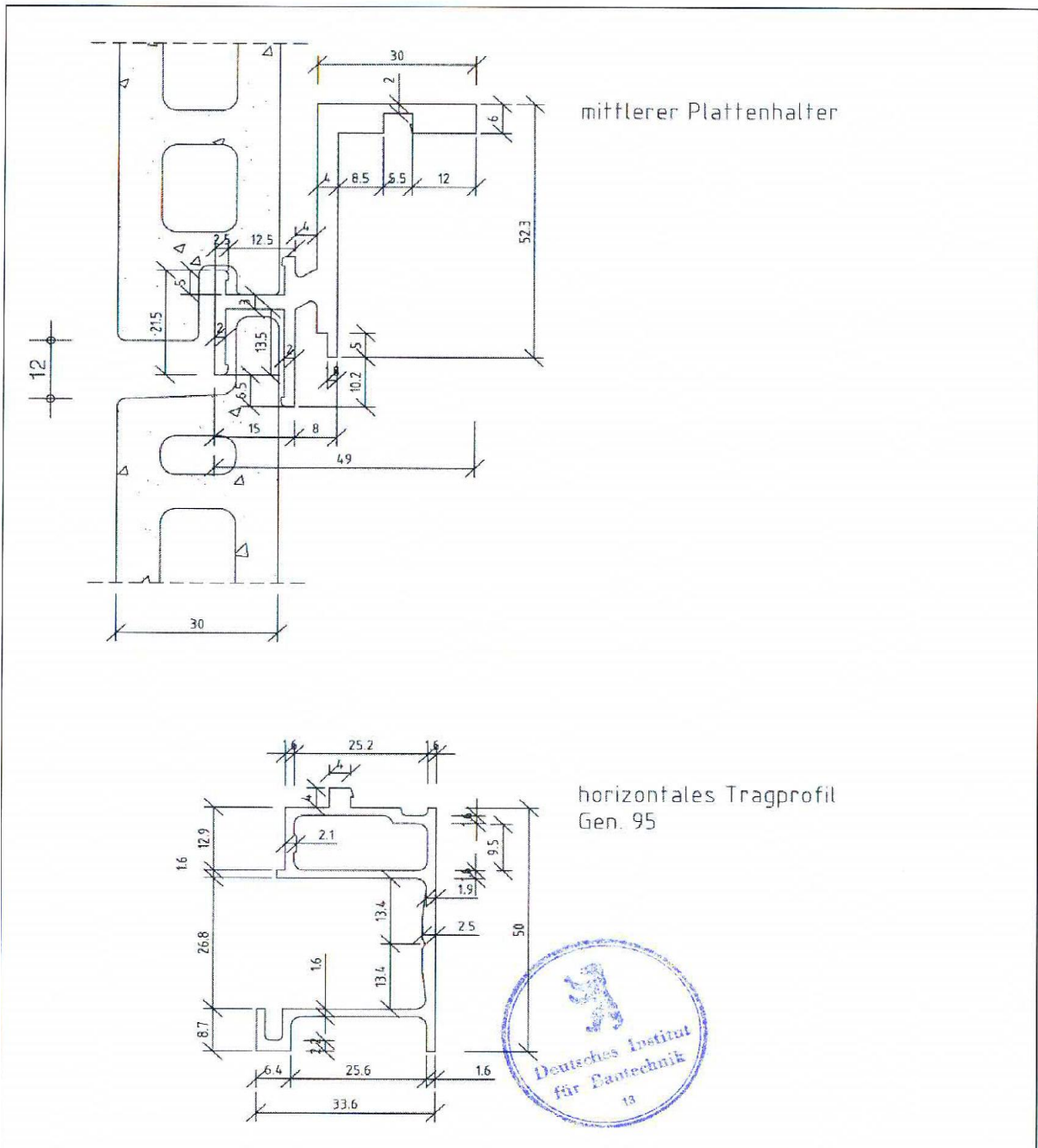
lower tile holder

Moeding Keramikfassaden GmbH
Ludwig-Girnghuber-Str. 1
84163 Marklkofen

Cross-section geometry of the upper
and lower tile holders (Gen. 95)

ATTACHMENT 7
to the national technical
approval
no. Z-33.1-531
dated 18th March 2013

Centre tile holder



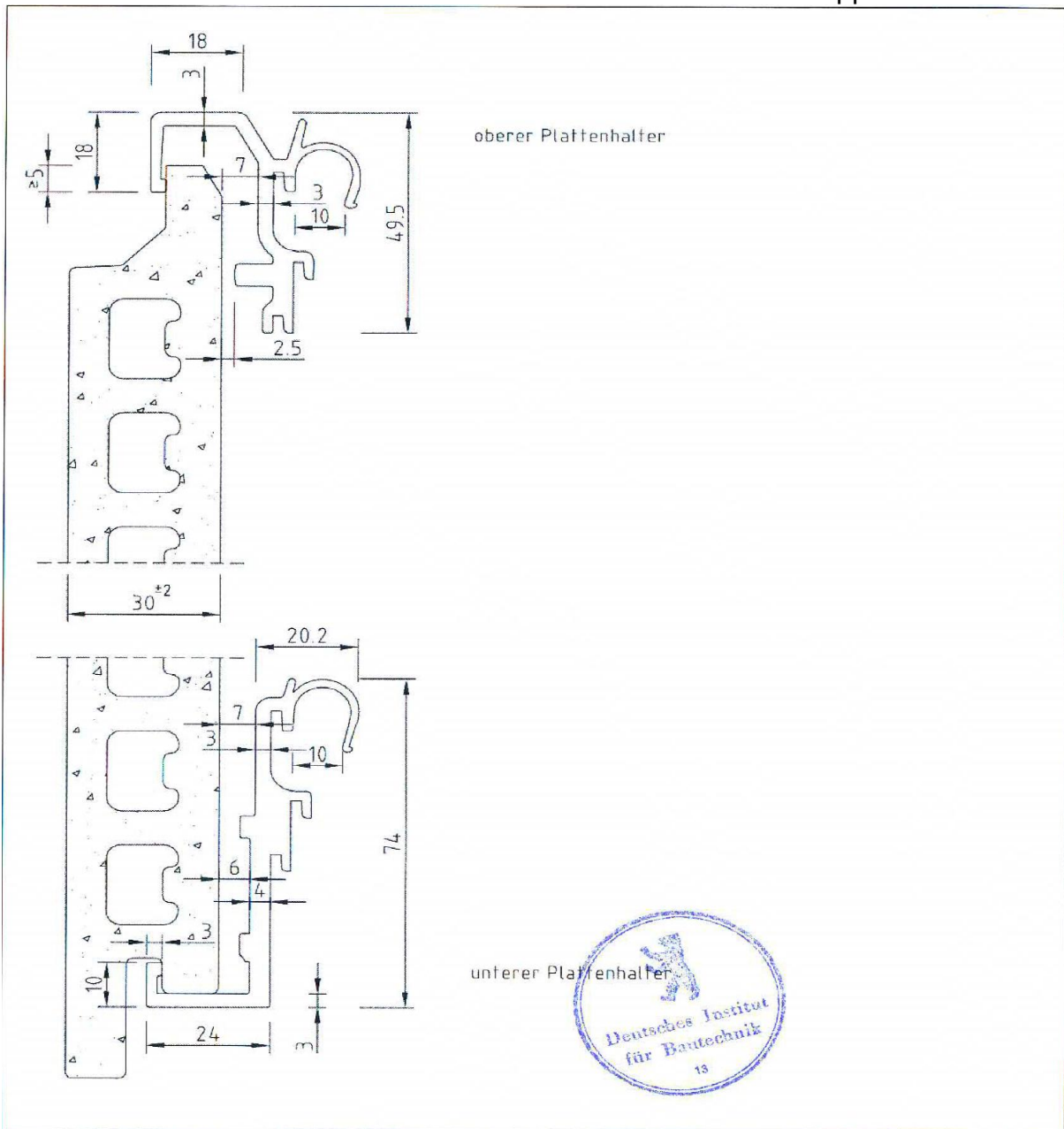
Horizontal support profile

Moeding Keramikfassaden GmbH
Ludwig-Girnghuber-Str. 1
84163 Marklkofen

Cross-section geometry of the centre
tile holders and the horizontal profiles
(Gen. 95)

ATTACHMENT 8
to the national technical
approval
no. Z-33.1-531
dated 18th March 2013

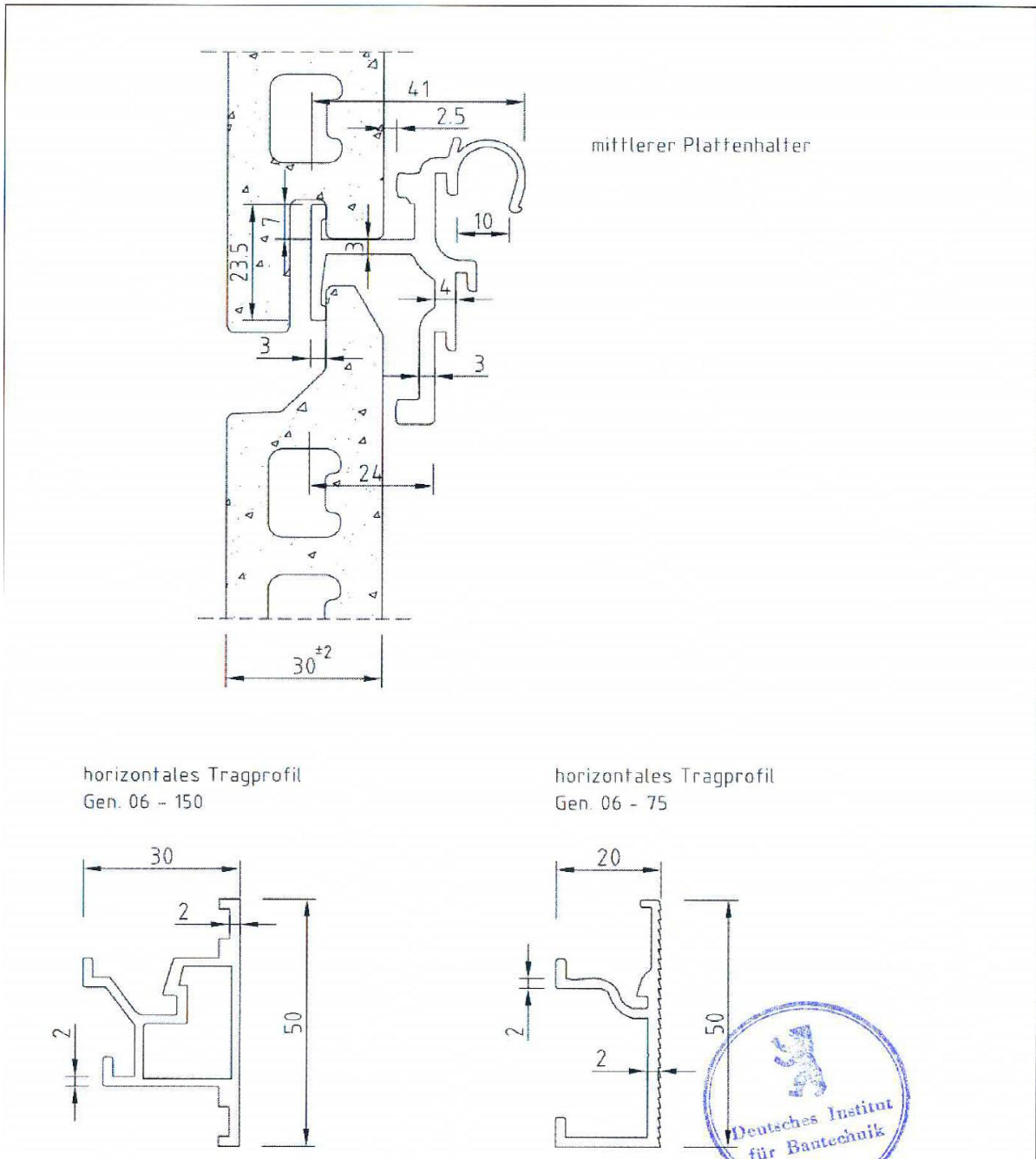
upper tile holder



lower tile holder

<p>Moeding Keramikfassaden GmbH Ludwig-Girnghuber-Str. 1 84163 Marklkofen</p>	<p>Cross-section geometry of the upper and lower tile holders (Gen. 06)</p>	<p>ATTACHMENT 9 to the national technical approval no. Z-33.1-531 dated 18th March 2013</p>
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centre tile holder



mittlerer Plattenhalter

horizontales Tragprofil
Gen. 06 - 150

horizontales Tragprofil
Gen. 06 - 75

horizontal support profile
Gen. 06 - closed

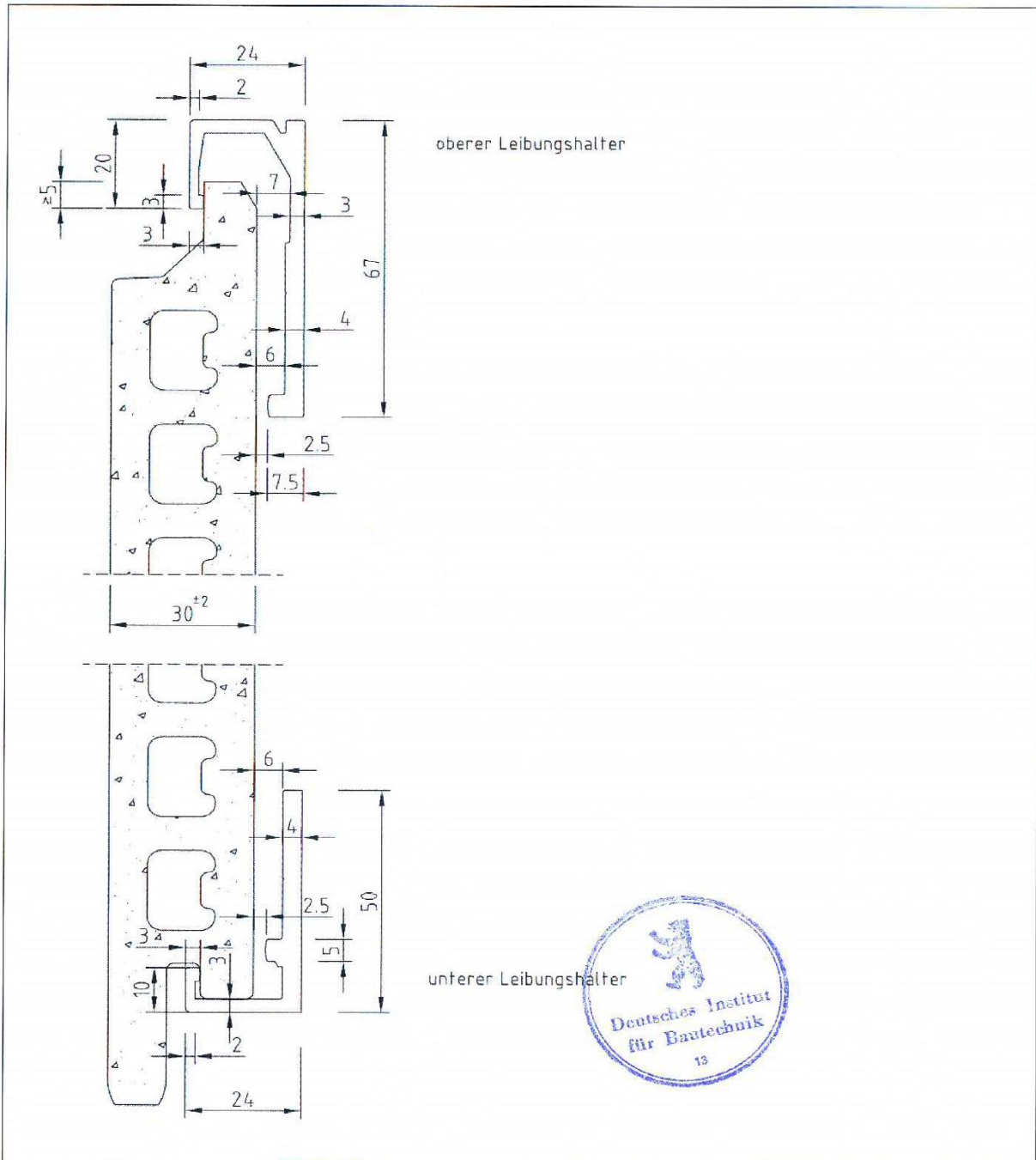
horizontal support profile
Gen. 06 - open

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Cross-section geometry of the centre
tile holders and the horizontal profiles
(Gen. 06)

ATTACHMENT 10
to the national technical
approval
no. Z-33.1-531
dated 18th March 2013

upper soffit holder



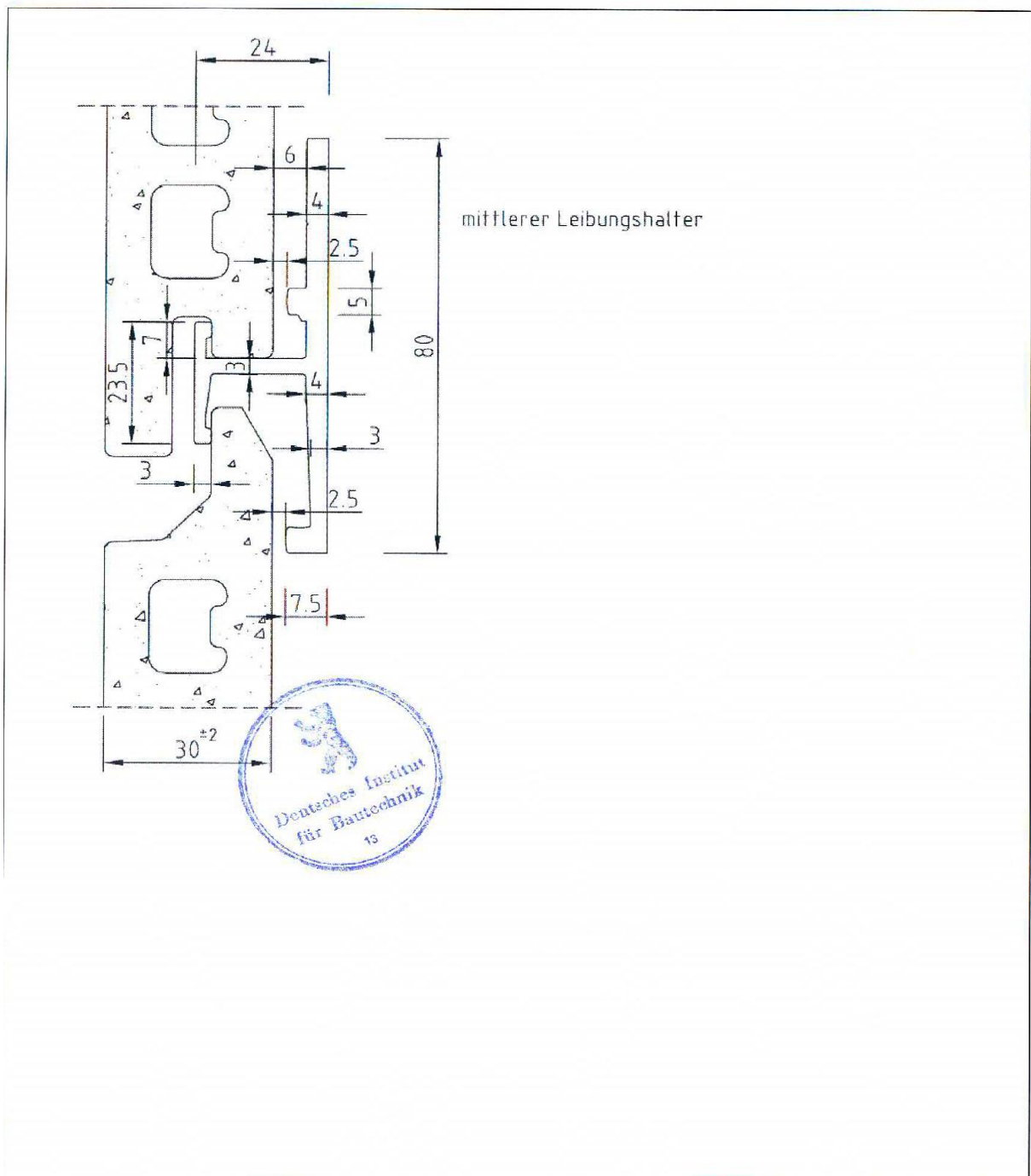
lower soffit holder

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Cross-section geometry of the upper
and lower tile holders (soffit holders)
(Gen. 06)

ATTACHMENT 11
to the national technical
approval
no. Z-33.1-531
dated 18th March 2013

centre soffit holder



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Cross-section geometry of the centre
tile holders (soffit holders) for vertical
profiles (Gen. 06)

ATTACHMENT 12
to the national technical
approval
no. Z-33.1-531
dated 18th March 2013

Scope, type and frequency of the factory-internal production control

Construction product	Type of examination	Test standard/ test procedure	Requirement	Frequency
"ALPHATON®" terracotta tiles	Evenness (except for wavy surface)	DIN EN 1024	DIN EN 1304	at least once per work day
	Tile length	DIN EN 1024	see attachment 4 to 6	
	Tile width	DIN EN 1024		
	Fold dimension, cross-section geometry			
	Tile thickness			
	Body bulk density (dry density)		see section 2.2.1	once per month/ per batch
	Bending load bearing capacity	Three-point bending test*	see below*	see below*
	Frost resistance	DIN EN 539-2	DIN EN 1304	twice per year
Tile holders, horizontal and vertical support profiles, joint profiles	Dimensions and characteristic material values		see section 2.2.2 to 2.2.4 as well as attachment 7 to 12	every delivery or specific test report according to DIN EN 10204

*** Test of bending strength**

The bending strength of all terracotta tile formats is to be determined on 10 samples each per batch using the three-point bending test. The load is to be applied with a load increase of 0.05 kN/s to the visible face.

The following values are to be complied with:

Terracotta tiles	Format l/w	Support width	Direction of loading	Failure moment
level terracotta tiles	400/200 or 400/250	250 mm	in production direction	Smallest value ≥ 1.05 kNm/m Mean value ≥ 1.20 kNm/m
	600/250	400 mm		
terracotta tiles with special surface				
- deep grooves	400/200	180 mm	diagonally to the production direction	Smallest value ≥ 0.41 kNm/m Mean value ≥ 0.44 kNm/m
- wavy surface	400/200	180 mm	diagonally to the production direction	Smallest value ≥ 0.93 kNm/m Mean value ≥ 1.19 kNm/m

Moeding Keramikfassaden GmbH Ludwig-Girnghuber-Str. 1 84163 Marklkofen	Plant-internal production control	ATTACHMENT 13 to the national technical approval no. Z-33.1-531 dated 18 th March 2013
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