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getragene Anstalt des öffentlichen Rechts

**Zulassungs- und Genehmigungsstelle
für Bauprodukte und Bauarten**

Datum: 20 January 2026 Geschäftszeichen:
61-1.17.25-72/24

**Allgemeine
bauaufsichtliche
Zulassung/
Allgemeine
Bauartgenehmigung**

**Nummer:
Z-17.25-1331**

Antragsteller:
IsoHemp SA - NV
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B-5380 Fernelmont
BELGIUM

Geltungsdauer
vom: **20 January 2026**
bis: **20 January 2031**

Gegenstand dieses Bescheides:
Fill masonry made from IsoHemp hemp stone

The above-mentioned subject matter is hereby generally approved/authorised by the building
authorities.
This decision comprises ten pages and two appendices.

DIBt

I GENERAL PROVISIONS

- 1 This decision proves the usability and applicability of the subject matter within the meaning of the state building regulations.
- 2 This decision does not replace the approvals, consents and certificates required by law for the implementation of construction projects.
- 3 This notice is issued without prejudice to the rights of third parties, in particular private property rights.
- 4 Copies of this notice must be made available to the user or applicant of the subject matter of the regulation, without prejudice to further provisions in the "Special Provisions". In addition, the user or applicant of the subject matter of the regulation must be informed that this notice must be available at the place of use or application. Copies must also be made available to the authorities involved upon request.
- 5 This notice may only be reproduced in its entirety. Publication of excerpts requires the consent of the German Institute for Building Technology. Texts and drawings in advertising material must not contradict this notice; translations must contain the note "Translation of the original German version not checked by the German Institute for Building Technology".
- 6 This notice is issued revocably. The provisions may be supplemented and amended at a later date, in particular if new technical findings so require.
- 7 This notice refers to the information provided and documents submitted by the applicant. Any changes to these basic principles are not covered by this notice and must be disclosed to the German Institute for Building Technology without delay.

II SPECIAL PROVISIONS

1 Subject matter and scope of application

1.1 Subject matter of approval and scope of use

- (1) The subject of the general building authority approval is:
- masonry blocks made from a hemp-lime mixture – referred to as IsoHemp hemp blocks – and
 - , a lime-gypsum mortar – referred to as IsoHemp adhesive mortar.
- (2) The building blocks have the following dimensions:
- e length [mm]: 596
 - width [mm]: 360
 - height [mm]: 200
- (3) The bricks may only be used for infill masonry in accordance with section 1.2.

1.2 Subject of approval and scope of application

- (1) The subject of the general type approval is the planning, dimensioning and execution of infill masonry using the thin-bed method with
- IsoHemp hemp blocks and
 - IsoHemp adhesive mortar
- (2) The infill masonry may only be used for buildings with a height of ≤ 18 m and in wind zones I to III inland.
- (3) The masonry is constructed as unreinforced masonry using the thin-bed method in accordance with DIN EN 1996-1-1 in conjunction with DIN EN 1996-1-1/NA and DIN EN 1996-2 in conjunction with DIN EN 1996-2/NA.
- (4) The bricks are laid in a bond without joint mortar.

2 Provisions for the construction product

2.1 Properties and composition

2.1.1 Composition

- (1) The bricks consist of a mixture of hemp shives and a calcareous binder.
- (2) The mortar consists of a mixture of air lime, natural gypsum and sand.
- (3) The compositions must comply with the specifications filed with the German Institute for Building Technology.

2.1.2 Dimensions, tolerances, shape and design

- (1) The bricks are solid bricks.
- (2) Table 1 applies to the nominal dimensions and permissible dimensional deviations. Within a production run and within a delivery, the dimensions of the largest and smallest blocks may differ by no more than the dimensional range specified in Table 1.

Table 1: Nominal dimensions and permissible dimensional deviations

	Length [mm]	Width ¹ [mm]	Height [mm]
Nominal dimensions	596	360	200
Limit dimensions	±4	±4	+1/-1.5
¹ Equal wall thickness			

(3) The individual values and average values for height must be determined and specified to an accuracy of 1.0 mm.

2.1.3 Compressive strength and raw stone density

(1) The compressive stress σ_{10} at 10% compression is at 5 hemp bricks in accordance with DIN EN ISO 29469. The value must not fall below 400 kPa.

(2) The stones do not need to be aligned. Tongue and groove joints may be removed for testing.

(3) The moisture content of the bricks must be ≤ 15 M-% when determining the compressive stress.

(4) The average raw density of the bricks, according to DIN EN 772-13; Section 5.1, must be 270 kg/m^3 . Individual values may exceed or fall short of the average value by ± 5 %.

2.1.4 Stone tensile strength

(1) The stone tensile strength must be determined in accordance with DIN EN 1607.

(2) Two test specimens with a side length of 150 mm must be cut out of 10 bricks in a dry state. The tensile strength must be determined for each brick on one test specimen in the direction of the brick thickness and on one test specimen in the direction of the brick height.

(3) The mean value of the stone tensile strength must correspond to at least the values in Table 2. Individual values must not fall below the values in Table 2.

Table 2: Average stone tensile strength

Direction	Average stone tensile strength [N/mm ²]	Individual value of stone tensile strength [N/mm ²]
Stone thickness	0.053	0.042
Stone height	0.018	0.009

2.1.5 Flexural strength

(1) The flexural tensile strength must be determined using a three-point bending test.

(2) At least 6 bricks with a width of 380 mm must be tested in the direction of the brick height and width.

(3) The test specimens must be dried until their mass is constant.

(4) The support spacing must be 450 mm.

(5) The supports and the bending edge must be equipped with rollers. One support and the bending edge must be designed to be tiltable. A 50 mm wide flat steel bar must be provided on the rollers of the supports and the bending edge to distribute the load. In addition, the load-bearing surfaces must be levelled with mortar or 50 mm wide felt strips must be placed between them when the load is applied.

(6) The load must be applied continuously and without jolts until failure, with the speed selected so that failure occurs within 30 s to 90 s.

(7) The mean value of the flexural strength R_{ff} must correspond to at least the values in Table 3. Individual values may be 15% below the mean value.

Table 3: Mean value of flexural strength R_{ff}

Load direction	Average value of flexural strength R_{ff} [N/mm ²]
Stone height	0.12
Stone thickness	0.13

2.1.6 Fire behaviour

The hemp blocks are flame-retardant (class B, s1, d0 according to DIN EN 13501-1).

2.2 Labelling

(1) Each delivery unit of hemp blocks (e.g. block package) must be labelled on the packaging or on an accompanying leaflet of at least A4 size by the manufacturer with the conformity mark (Ü mark) in accordance with the conformity mark regulations of the federal states. The labelling may only be applied if the requirements of section 2.3 are met.

(2) The delivery note, packaging or package insert for the hemp blocks must contain the following information:

- Designation of the approved product
- Approval number: Z-17.25-1331
- Dimensions of the
 - Bulk density
 - Fire behaviour
 - Manufacturer's mark
- Manufacturer and manufacturing plant

2.3 Confirmation of conformity

2.3.1 General

(1) Confirmation that the construction product complies with the provisions of the general building approval covered by the notice must be provided for each manufacturing plant by means of a manufacturer's declaration of conformity based on factory production control (FPC) and a certificate of conformity from a recognised certification body, as well as regular external monitoring (FÜ) by a recognised monitoring body in accordance with the following provisions.

(2) For the issuance of the certificate of conformity and external monitoring, including the product tests to be carried out in this context, the manufacturer of the construction product must engage a recognised certification body and a recognised monitoring body.

(3) The manufacturer must issue the declaration of conformity by marking the construction product with the conformity mark (Ü mark) and indicating its intended use.

(4) The certification body must provide the German Institute for Building Technology with a copy of the certificate of conformity it has issued.

(5) A copy of the initial test report must also be submitted to the German Institute for Building Technology.

2.3.2 Factory production control

(1) An in-house production control system must be set up and implemented in every manufacturing plant. In-house production control refers to the continuous monitoring of production by the manufacturer to ensure that the construction products manufactured by him comply with the provisions of the general building authority approval covered by this notice.

(2) The factory production control for hemp blocks must include at least the tests specified in Annex 2.

(3) The results of the factory production control must be recorded and evaluated. The records must contain at least the following information:

- Designation of the construction product or raw material and components,
 - Type of control or test,
- Date of manufacture and testing of the construction product or raw material or components,

- Results of the inspections and tests and, where applicable, comparison with the requirements,
- signature of the person responsible for factory production control.

(4) The records must be kept for at least five years and presented to the external monitoring body responsible for external monitoring. They must be presented to the German Institute for Building Technology and the competent supreme building supervisory authority upon request.

(5) If the test result is unsatisfactory, the manufacturer must immediately take the necessary measures to remedy the defect. Construction products that do not meet the requirements must be handled in such a way that confusion with compliant products is ruled out. Once the defect has been remedied, the relevant test must be repeated immediately, insofar as this is technically possible and necessary to prove that the defect has been remedied.

2.3.3 External monitoring

(1) In every hemp brick manufacturing plant, the plant and its own production control must be regularly inspected by an external monitoring body, at least twice a year.

(2) As part of the external monitoring, an initial test (EP) of the hemp blocks must be carried out and samples may also be taken for random testing.

(3) Sampling and testing are the responsibility of the recognised monitoring body.

(4) External monitoring of the construction product must include at least the tests specified in Annex 2.

(5) The results of the certification and external monitoring of the construction products must be kept for at least five years. They must be submitted by the certification body or the monitoring body to the German Institute for Building Technology and the competent supreme building supervisory authority upon request.

3 Provisions for planning, design and execution

3.1 General

Unless otherwise specified below, masonry must be planned, designed and executed in accordance with the technical building regulations.

3.2 Planning

(1) The first layer of bricks (base layer) of infill walls must either be planned with bricks made of waterproof building materials or protected against moisture penetration by structural measures. The compressive strength of the base layer must be at least equal to that of the hemp brick.

(2) The infill masonry must be planned with an overlap of approx. half a brick length. On the wall sides, at least every second brick layer must have a half-brick overlap with the brick layer above and below.

(3) The infill walls must be anchored to adjacent components in a force-fit manner using suitable measures. The anchoring must be planned in full and shown in the implementation plan. Examples of the structural design of the anchoring can be found in the brick manufacturer's application rules.

(4) If a two-axis load-bearing effect of the infill wall is to be taken into account, the hemp blocks must also be anchored to the frame construction at the top of the wall. The maximum horizontal anchor spacing is 60 cm. The hemp blocks located in the outer corners may be installed without connection at the top of the wall.

(5) A fastening element must be installed at least every second bed joint on the wall sides. The maximum vertical anchor spacing is 40 cm.

(6) Slots and recesses in the middle of the wall are not permitted within a range of $L/2$ and $H/2$.

(7) In the case of single-axis load-bearing capacity, individual vertical slots with a depth of ≤ 30 mm may be arranged on the long sides of the wall at a maximum distance of 30 cm from the wall edge if the anchoring forces can be absorbed by the remaining cross-section of the substructure.

(8) For two-axis load-bearing capacity, vertical slots with a length of max. 50 cm may be arranged at the wall head and wall foot in every second brick with a depth ≤ 30 mm.

(9) In the case of two-axial load-bearing action, horizontal slots at the top of the wall at a distance of max. 30 cm from the wall edge with a depth ≤ 20 mm are permissible. Horizontal slots are not permitted at the bottom of the wall.

(10) Horizontal slots with a depth ≤ 20 mm are permitted at the top of the wall.

(11) Individual vertical slots with a depth of ≤ 30 mm are permitted on the long sides of the wall if the anchoring force of the fasteners to the substructure can still be absorbed.

(12) For larger recesses (e.g. windows and doors), a suitable substructure is required for load transfer.

3.3 Dimensioning

3.3.1 General

(1) For the verification of the infill area, the minimum weight of the hemp blocks of 270 kg/m^3 must be taken into account.

(2) When dimensioning the substructure, an upper limit value of 500 kg/m^3 must be taken into account for the dead load of the infill area (including mortar board, without plaster).

(3) The anchoring of the infill surface must be statically verified for the transverse and bearing forces to be absorbed.

3.3.2 Design for single-axis load-bearing effect in the horizontal direction

(1) If the infill area is not supported at the top of the wall, the design shall take into account a single-axis load in the horizontal direction. In this case, the maximum permissible distance L_{zul} between the posts of the frame construction is:

$$L_{zul} = t * \sqrt{\frac{4}{3} * \frac{f_{s2,d}}{w_{Ed}}} = 6.7 * t * \sqrt{\frac{1}{w_{Ed}}} \quad (\text{Eq. 1})$$

With: Flexural strength of the wall in the horizontal direction $f_{s2,d} = 51/1.5 = 34.0 \text{ kN/m}^2$;

L_{zul} in [m]; wall thickness t in [m]; design value of wind load w_{Ed} in [kN/m^2]

3.3.3 Design for biaxial load

(1) When considering a two-axial load-bearing effect with the infill area supported at the wall head, the infill area is designed by determining the permissible infill area A_w using equation 2.

$$A_w = \frac{A_{w0}}{w_{Ed}} \quad (\text{Eq. 2})$$

A_w – permissible infill area [m^2]

A_{w0} – infill area of the standard wind load [m^2]

w_{Ed} – design value of wind load [kN/m^2]

(2) The permissible infill areas A_{w0} [m^2] for the standard wind load $w_{Ed} = 1.0 \text{ kN/m}^2$ are given in Table 4. For intermediate values, the smaller value for A_{w0} shall be used.

Table 4: Infill area A_{w0} [m²] for $w_{Ed} = 1.0$ kN/m²

Support	Infill area of the standard wind load A_{w0} [m ²]						
	Aspect ratio H/L						
	0.4	0.50	0.75	1.0	1.5	2.0	2.50
4-sided	15.00	11.90	8.90	8.30	9.40	11.90	15.00
3-sided	2.35	2.95	4.40	5.90	8.80	11.75	14.80

(3) The maximum permissible wall height $H_{perm.}$ and wall length $L_{perm.}$ are to be determined using equations 3 and 4.

$$H_{zul.} = \sqrt{A_w \cdot \frac{H}{L}} \quad (\text{Eq. 3})$$

$$L_{zul.} = \sqrt{A_w \cdot \frac{L}{H}} \quad (\text{Eq. 4})$$

(4) The design value of the shear force acting at the wall head $v_{ED,head}$ is to be determined as a function of H/L using equations 5 and 6.

$$\frac{H}{L} \leq 1 \quad v_{Ed,Kopf} = w_{Ed} \cdot H \cdot \frac{1}{2 \cdot F} \quad (\text{Eq. 5})$$

$$\frac{H}{L} > 1 \quad v_{Ed,Kopf} = w_{Ed} \cdot H \cdot \frac{1}{4} \cdot \left(\frac{L}{H} + 2 \cdot \left(1 - \frac{L}{H} \right) \cdot \left(1 - \frac{1}{F} \right) \right) \quad (\text{Eq. 6})$$

(5) The design value of the shear force acting on the wall side $v_{ED,side}$ is to be determined as a function of H/L using equations 7 and 8.

$$\frac{H}{L} \leq 1 \quad v_{Ed,Seite} = w_{Ed} \cdot H \cdot \frac{1}{4} \cdot \left(1 + 2 \cdot \left(\frac{L}{H} - 1 \right) \cdot \left(1 - \frac{1}{F} \right) \right) \quad (\text{Eq. 7})$$

$$\frac{H}{L} > 1 \quad v_{Ed,Seite} = w_{Ed} \cdot H \cdot \frac{L}{2 \cdot H \cdot F} \quad (\text{Eq. 8})$$

(6) The factor F is to be determined as a function of H/L using equations 9 and 10.

$$\frac{H}{L} \leq 1 \quad F = 1 + \left(\frac{H}{L} \right)^4 \quad (\text{Eq. 9})$$

$$\frac{H}{L} > 1 \quad F = 1 + \left(\frac{L}{H} \right)^4 \quad (\text{Eq. 10})$$

3.3.4 Determination of the forces to be anchored

(1) For walls supported on two or three sides with a free wall head (load transfer in the horizontal direction), the force to be anchored per running metre on the wall sides is calculated according to equation 11.

$$V_{Ed,Seite} = w_{Ed} * \frac{L}{2} \quad (\text{Eq. 11})$$

(2) For walls supported on four sides, the forces to be anchored at the top and sides of the wall are calculated per linear metre according to equations 5 to 8.

3.4 Weather protection

(1) The hemp blocks must be protected from increased moisture exposure during the construction and use phases.

(2) The exterior walls must be protected against moisture penetration – especially from driving rain and splashing water – by means of a suitable plaster. The joint areas must be permanently bridged.

3.5 Sound insulation

(1) The mathematical verification of sound insulation may be carried out in accordance with DIN 4109-2.

(2) For masonry, the rated sound insulation value R_w according to Table 5 must be used.

Table 5: Rated sound reduction index R_w for masonry according to section 1.2

Wall construction type	Rated sound reduction index R_w in dB
Wall thickness (unplastered): 360 mm plastered on one or both sides Area-related mass of the wall including plaster $\geq 150 \text{ kg/m}^2$	43

3.6 Fire resistance

(1) The provisions of standards DIN EN 1996-1-2 in conjunction with DIN EN 1996-1-2/NA and DIN 4102-4, sections 9 and 10, apply unless otherwise specified below.

(2) The infill masonry is classified as non-load-bearing masonry in fire resistance class 1, *fire-retardant* (F30-B), up to a maximum height of 4000 mm.

(3) , , infill masonry, , adjacent components, , must be at least be *fire-retardant*.

3.7 Execution

(1) Unless otherwise specified below, the provisions of standards DIN EN 1996-1-1 in conjunction with DIN EN 1996-1-1/NA and DIN EN 1996-2 in conjunction with DIN EN 1996-2/NA apply to the execution of the masonry.

(2) The infill masonry must be constructed as single-layer masonry with IsoHemp adhesive mortar without joint mortar and anchored in the adjacent components in accordance with the construction plan.

(3) The mortar manufacturer's processing guidelines must be observed.

(4) The stone manufacturer's execution rules must be observed.

(5) The infill masonry must be constructed with an overlap of approximately half a brick length. The required overlap must be maintained, particularly in the middle of the wall length. At the side edges of the wall, the bricks must be cut in such a way that a minimum overlap of 25 cm is maintained.

(6) Slots and recesses may only be constructed in accordance with section 3.2 (6) ff.

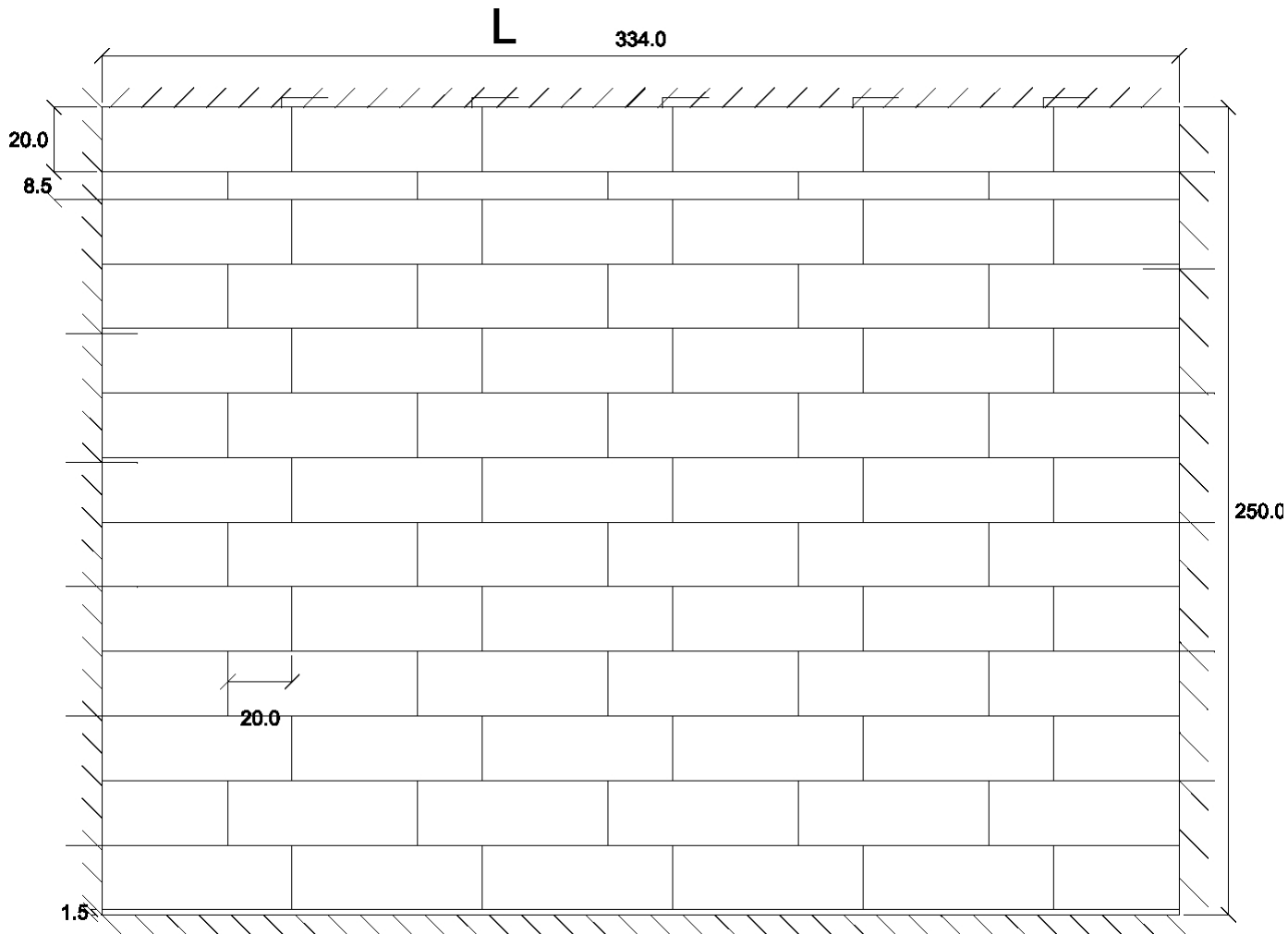
¹ Building inspection requirements, classes and required performance specifications in accordance with Technical Rule A 2.2.1.2 (Appendix 4) of the Model Administrative Regulation Technical Building Regulations (MVV TB), Edition 2025/1, see, www.dibt.de

List of standards

DIN EN 772-13:2000-09	Test methods for masonry units – Part 13: Determination of net and gross dry bulk density of masonry units (except natural stones); German version EN 772-13:2000
DIN EN 1607:2013-05 industry -	Thermal insulation materials for the construction determination of tensile strength perpendicular to the slab plane; German version EN 1607:2013
DIN EN 1996-1-1:2013-02	Eurocode 6: Design and construction of Masonry structures - Part 1-1: General rules for reinforced and unreinforced masonry
DIN EN 1996-1-1/NA:2019-12	National Annex - Nationally determined parameters - Eurocode 6: Design and construction of masonry structures - Part 1-1: General rules for reinforced and unreinforced masonry
DIN EN 1996-2:2010-12	Eurocode 6: Design and design of Masonry structures - Part 2: Design, selection of materials and execution of masonry
DIN EN 1996-2/NA:2012-01	National Annex - Nationally determined parameters - Eurocode 6 Design and construction of masonry structures - Part 2: Design, selection of building materials and execution of masonry
DIN 4102-4:2016-05	Fire behaviour of building materials and building components – Part 4: Combination and use of classified building materials, components and special components
DIN 4109-2:2018-01 of	Sound insulation in building construction – Part 2: Calculated verification compliance with requirements
DIN EN 13501:2007+A1 2009 according to their	Classification of construction products and types of construction fire behaviour – Part 1: Classification using the results of fire behaviour tests on construction products;
DIN EN ISO 29469:2023-02 Determination of	Thermal insulation materials for the construction industry - behaviour under compressive stress

Bettina Hemme
Head of Department

Certified
Zander



Filling masonry made from IsoHemp hemp stone	Appendix 1
Infill area – schematic diagram	

Test		Test standard or test specification	WPK	EP	FÜ ²⁾ 2 x annually	Value/tolerance
1. Hemp bricks						
1.1	Composition	¹	1 x per production day	x	x	Stored composition
1.2	Dimensions	See 2.1.2	1 x per week ³⁾	x	x	2.1.2
1.3	Compressive stress σ_{10}	EN ISO 29469	1 x per week ³⁾	x	x	2.1.3 (1)
1.4	Stone density	EN 772-13, 7.3	1 x per week ³⁾	x	x	2.1.3 (4)
1.5	Stone resistance	EN 1607	Twice a year	x	x	2.1.4
1.6	Flexural strength of hemp stone	see 2.1.5	-	x	-	2.1.5
1.7	Fire behaviour	EN 13501-1	5 years			B,s1,d0
1.8	Marking	Visual	x	x	x	see 2.2
1) The composition must be determined on an ongoing basis by means of appropriate measures using a test method to be agreed between the manufacturer and the external monitoring body in accordance with the mortar composition. 2) The frequency may be reduced to once a year if continuous compliance with the requirement has been demonstrated for at least two years. 3) or at least every 500 m ³ of hemp blocks; for daily production > 500 m ³ of hemp blocks, once a day on 3 test specimens						

Filling masonry made of IsoHemp hemp blocks

Properties and control plans of the factory production control (FPC), external monitoring (EM) and initial testing (IT)

Appendix 2