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European Technical Assessment Body
for construction products



European Technical Assessment

ETA-05/0261
of 5 January 2026

English translation prepared by DIBt - Original version in German language

General Part

Technical Assessment Body issuing the European Technical Assessment:

Deutsches Institut für Bautechnik

Trade name of the construction product

ISO SPAN - shuttering blocks made of wood-chip concrete

Product family to which the construction product belongs

Non-load bearing permanent shuttering kit "ISO SPAN" based on shuttering blocks of wood-chip concrete

Manufacturer

ISO SPAN Baustoffwerk GmbH
Madling 177
A-5591 RAMINGSTEIN
ÖSTERREICH

Manufacturing plant

I1

This European Technical Assessment contains

5 pages including 3 annexes which form an integral part of this assessment

This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of

EAD 340309-00-0305

This version replaces

ETA-05/0261 issued on 10 September 2018

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Specific part

1 Technical description of the product

1.1 Definition of construction product

The shuttering system "ISO SPAN" is a non-loadbearing permanent shuttering kit based on standard shuttering blocks and ancillary shuttering blocks according to EN 15498, sections 3.1.1 to 3.1.4, applicable as shuttering for plain and reinforced concrete walls cast in-situ.

The shuttering blocks consist of shuttering leaves and webs of wood-chip concrete.

The shuttering blocks are generally used for non-loadbearing as well as load-bearing internal and external walls.

Finishes are not part of the shuttering system "ISO SPAN".

1.2 Shuttering elements

1.2.1 Standard shuttering elements

The standard shuttering blocks consist of inner and outer shuttering leaves and webs of mineral bonded wood-chips (wood-chip concrete) according to EN 14474. The standard shuttering blocks off wood-chip concrete are precast concrete products and may include factory installed thermal insulation according to the relevant harmonised European standards or European Assessment Documents (EADs) to improve the thermal resistance (see Figures 1 and 2), which are inserted into the shuttering blocks without additional gluing.

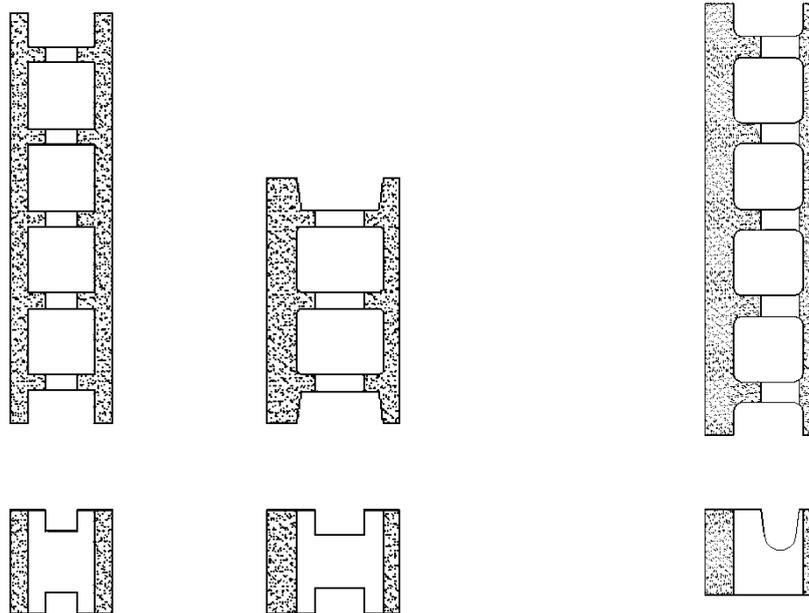


Figure 1: Examples for standard shuttering blocks off wood-chip concrete without supplementary thermal insulation

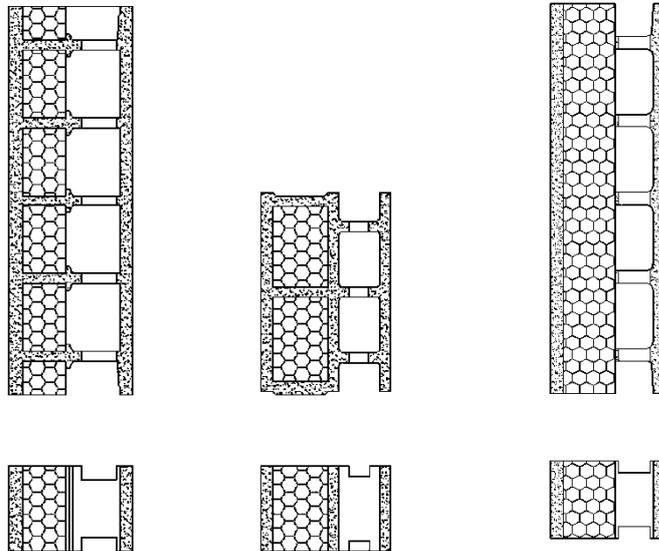


Figure 2: Examples for standard shuttering blocks of wood-chip concrete with supplementary thermal insulation

The shuttering leaves of wood-chip concrete are one-layered and are connected by webs of wood-chip concrete (see Figures 1 and 2). The main dimensions are in the following range:

| | |
|---|----------------|
| thickness of the concrete core | 90 to 220 mm |
| thickness of the whole wall without rendering | 150 to 430 mm |
| thickness of the inner shuttering leave | 25 to 90 mm |
| thickness of the middle shuttering leave (only for blocks with insulation chambers, see middle picture in fig. 2) | 25 to 90 mm |
| thickness of the outer shuttering leave | 25 to 90 mm |
| thickness of the supplementary thermal insulation | 30 to 230 mm |
| length of the standard shuttering blocks | 500 to 1250 mm |
| height of the standard shuttering blocks | 250 mm |

The shuttering blocks shall always have openings at the connecting webs which always have at least 6 cm opening width in each direction perpendicular to the wall.

The vertical ends of the standard shuttering blocks are either smooth or tongue and groove joints, depending on the type of standard shuttering blocks and form a tight joint. The top and bottom of each shuttering leave do not provide an interlocking arrangement to form a tight joint but the static friction between the top and the bottom surfaces ensure an adequate positional stability when building up the standard shuttering blocks and while placing the concrete.

It is possible to manufacture factory-prefabricated, storey-high wall elements (panels) from the standard shuttering blocks by gluing the standard shuttering blocks together in a bandage to form panels. The length of these panels is maximum 6 m and the height is maximum 3,50 m (see Annex A2). The adhesive used for this purpose is deposited with the DIBt.

1.2.2 Ancillary shuttering blocks

The ancillary blocks are specially shaped shuttering blocks for the execution of constructional details, such as corners, reveals, lintels, etc.

2 Specification of the intended use in accordance with the applicable EAD 340309-00-0305

The kit is intended to be used for construction of internal walls as well as external walls above or below ground which are load-bearing (structural) or non-load-bearing (nonstructural), including those which are subjected to fire regulations.

When using this type of construction below ground a waterproofing according to applicable national rules shall be provided depending on whether water not exerting pressure or water exerting pressure is to be dealt with. The waterproofing shall be protected from mechanical damage by a smash-resistant protective layer.

The performances given in Section 3 are only valid if the shuttering elements are used in compliance with the specifications and conditions given by the applicant.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the shuttering kit of at least 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

3 Performance of the product and references to the methods used for its assessment

3.1 Mechanical resistance and stability (BWR 1)

| Essential characteristic | Performance |
|------------------------------------|--|
| Resulting structural pattern | Grid type according to EAD 340309-00-0305, chapter 1.3.3 |
| Efficiency of filling | see Annex C1 |
| Possibility of steel reinforcement | see Annex C1 |

3.2 Safety in case of fire (BWR 2)

| Essential characteristic | Performance |
|---|---|
| Reaction to fire | |
| Shuttering blocks made off wood chip concrete without supplementary thermal insulation | |
| Shuttering blocks "ISO SPAN" according to figure 1 | Class A2-s1, d0 to EN 13501-1 requirements: see Annex C2, paragraph a) |
| Storey-high wall elements (panels) glued together of shuttering blocks | Class B-s1, d0 to DIN EN 13501-1 requirements: see Annex C2, paragraph b) |
| Shuttering blocks made off wood-chip concrete with supplementary thermal insulation | |
| Shuttering blocks "ISO SPAN" according to figure 2 | Class B-s1, d0 to DIN EN 13501-1 requirements: see Annex C2, paragraph c) |
| Storey-high wall elements (panels) glued together of shuttering blocks | Class B-s1, d0 to DIN EN 13501-1 requirements: see Annex C2, paragraph c) |
| Shuttering blocks "ISO SPAN" according to figure 2 dimensions within the range specified in paragraph 1.2.1 | see Annex C2, paragraph d). |

| Essential characteristic | Performance |
|--|--|
| Not covered by annex C2, paragraph c) | |
| Shuttering blocks with supplementary thermal insulation of reaction to fire class A1 | Class A2-s1, d0 to DIN EN 13501-1 requirements: see Annex C2, paragraph e) |

3.3 Hygiene, health and the environment (BWR 3)

| Essential characteristic | Performance |
|---|---|
| Content, emission and/or release of dangerous substances | |
| Substances classified as Carc. 1A/1B ^{a)} | None of these raw materials are actively used in the manufacture of the construction product. ^{b) c)} |
| Substances classified as Muta. 1A/1B ^{a)} | |
| Substances classified as Acute Tox. 1, 2, 3; Repr. 1A/1B; STOT SE 1 and STOT RE 1 ^{a)} | |
| Use scenarios regarding BWR 3: | |
| IA 3 | Product with no contact to indoor air |
| Water vapour permeability | water vapour resistance factor $\mu = 2$ (wet conditions) respectively $\mu = 8$ (dry conditions) see Annex C3 |
| Water absorption | No performance assessed |
| Water tightness | No performance assessed (finishes are not part of this ETA) |

^{a)} In accordance with Regulation (EC) No 1272/2008

^{b)} Assessment based on the detailed manufacturers' statements on dangerous substances

^{c)} Active use is the targeted use of substances to achieve specific product properties. Substances that are present as impurities and/or as a secondary component in the product are therefore not to be regarded as "actively used".

3.4 Safety and accessibility in use (BWR 4)

| Essential characteristic | Performance |
|--------------------------------|--|
| Bond strength | |
| leaf to leaf | see Annex C4 |
| leaf to concrete | $\geq 0.15 \text{ N/mm}^2$ |
| Resistance to impact load | |
| global resistance | see Annex C4 |
| local resistance | No performance assessed |
| Resistance to filling pressure | see Annex C4 |
| Safety to personal injuries | When delivered on site the shuttering elements do not have sharp or cutting edges. Due to a certain risk of abrasion or of cutting people on rough surfaces of the shuttering blocks handling on site shall be done with gloves |

3.5 Protection against noise (BWR 5)

| Essential characteristic | Performance |
|---------------------------|-------------------------|
| Airborne sound insulation | No performance assessed |
| Sound absorption | No performance assessed |

3.6 Energy economy and heat retention (BWR 6)

| Essential characteristic | Performance |
|--------------------------|---|
| Thermal resistance | See Annex C5 |
| Thermal inertia | $c = 1,50 \text{ kJ}/(\text{kg} \times \text{K})$ See Annex C5 |

3.7 Aspects of durability

Built-in finishes are not part of the assessed shuttering kit.

| Essential characteristic | Performance |
|-----------------------------|---|
| Resistance to deterioration | |
| Chemical agent | Built-in finishes are not part of the ETA |

4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

In accordance with EAD No 340309-00-0305, January 2019, the applicable European legal act is Decision 98/279/EC as amended by Commission Decision 2001/596/EC of 8 January 2001.

The system to be applied is: 2+

5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited with Deutsches Institut für Bautechnik.

Issued in Berlin on 5 January 2026 by Deutsches Institut für Bautechnik

LBD Dipl.-Ing. Andreas Kummerow
Head of Department

beglaubigt:
Groth

Characteristics of the shuttering kit

The shuttering kit "ISO SPAN" consists of the following shuttering blocks:

- standard shuttering blocks and
- ancillary shuttering blocks,

1. Standard shuttering blocks

The standard shuttering blocks (composed of shuttering leaves and webs of wood-chip concrete) correspond to the information and drawings according to section 1.2.1.

The requirements of the standard shuttering blocks regarding to geometric characteristics are given in EN 15498, clauses 4.2.1 and 5.2.1.

Only wood chip concrete according to EN 14474 shall be used according to the material data sheet deposited with DIBt for the production of wood chip concrete shuttering blocks.

The material oven dry density ρ_{dry} of wood-chip concrete of the standard shuttering blocks is between 480 and 1000 kg/m³.

The mean material oven dry density shall deviate by not more than $\pm 10\%$ from the declared value according to EN 15498, clauses 4.2.2 and 5.2.2.

Only thermal insulation inserts according to harmonized European standards or EADs may be used.

2. Ancillary shuttering blocks

The ancillary shuttering blocks are:

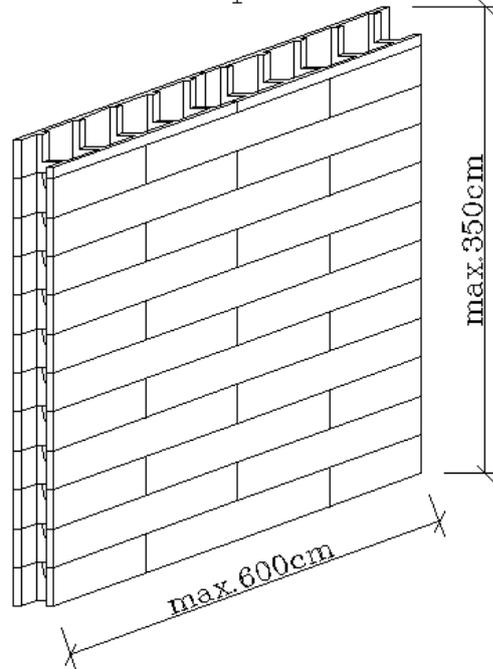
- stopper blocks / corner blocks / universal blocks and
- lintel blocks.

Ancillary shuttering blocks are designed in the same manner as the standard shuttering blocks described above, see clause 1.2.2.

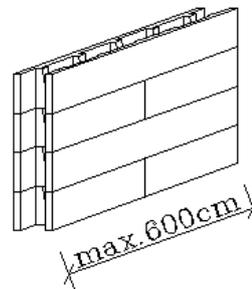
The ancillary shuttering blocks consist of shuttering leaves and webs of mineral bonded wood-chips (wood-chip concrete), it is the same material used for standard shuttering blocks specified in clause 1.2.1. Also the ancillary shuttering blocks may contain factory installed thermal insulation.

| | |
|---|----------|
| ISO SPAN - shuttering blocks made of wood-chip concrete | Annex A1 |
| Characteristics of the shuttering kit | |

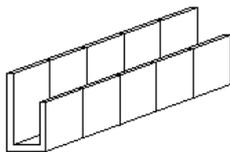
Standard panel



Parapet panel



Lintel panel



ISO SPAN - shuttering blocks made of wood-chip concrete

Panels made by pre-assembling the shuttering blocks

Annex A2

| standards and guidelines | | issue | title |
|---|----------------|--------------|--|
| EN | 206 | 2013+A1:2016 | Concrete – Specification, performance, production and conformity |
| EN | 1992-1-1 | 2004+AC:2010 | Eurocode 2: Design of concrete structures. – Part 1-1: General rules and rules for buildings |
| EN | 13162 | 2012+A1:2015 | Thermal insulation products for buildings – Factory made mineral wool (MW) products – Specification |
| EN | 13163 | 2012+A2:2016 | Thermal insulation products for buildings – Factory made products of expanded polystyrene (EPS) – Specification |
| EN | 13164 | 2012+A1:2015 | Thermal insulation products for buildings – Factory made extruded polystyrene foam (XPS) products – Specification |
| EN | 13165 | 2012+A2:2016 | Thermal insulation products for buildings – Factory made rigid polyurethane foam (PUR) products – Specification |
| EN | 13170 | 2012+A1:2015 | Thermal insulation products for buildings – Factory made products of expanded cork (ICB) – Specification |
| EN | 13171 | 2012+A1:2015 | Thermal insulation products for buildings – Factory made wood fibre (WF) – Specification |
| EN | 13501-1 | 2010-01 | Fire classification of construction products and building elements – Part 1: Classification using test data from reaction to fire tests |
| EN | 13501-2 | 2016 | Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services |
| EN | 14474 | 2004 | Precast concrete products - Concrete with wood-chips as aggregate - Requirements and test methods |
| EN | 15498 | 2008 | Precast concrete products – Wood-chip concrete shuttering blocks – Product properties and performance |
| EN ISO | 6946 | 2017 | Building components and building elements – Thermal resistance and thermal transmittance – Calculation method |
| EN ISO | 10211 | 2007 | Thermal bridges in building construction - Heat flows and surface temperatures - Detailed calculations |
| EN ISO | 10456 | 2010 | Building materials and products – Hygrothermal properties – Tabulated design values and procedures for determining declared and design thermal values (ISO 10456:2007 + Cor. 1:2009) |
| EN ISO | 13788 | 2013 | Hygrothermal performance of building components and building elements - Internal surface temperature to avoid critical surface humidity and interstitial condensation - Calculation methods (ISO 13788:2012) |
| EAD | 040083-00-0404 | 2019-01 | External thermal insulation composite systems (ETICS) with renderings |
| EAD | 340309-00-0305 | 2019-01 | Non load-bearing permanent shuttering kits/systems based on hollow blocks or panels of insulating materials and sometimes concrete |
| ISO SPAN - shuttering blocks made of wood-chip concrete | | | Annex B1 |
| List of standards and guidelines | | | |

Instructions for determining the fire resistance under end use conditions

The walls are exposed to the fire only on one side.

The fire resistance of non-load-bearing walls constructed with the shuttering blocks "ISO SPAN" may be determined under the following conditions according to EN 1992-1-2, Table 5.3 in conjunction with national annexes in force at the place of use:

- The reaction to fire class according to 3.1.6 of the shuttering blocks "ISO SPAN" corresponds to at least B-s1, d0.
- The concrete of the concrete core meets at least the concrete strength class C16/20.
- As wall thickness according to EN 1992-1-2, Table 5.3 is used the thickness of the concrete core.
- All requirements according to EN 1992-1-2, sections 5.1 and 5.2 with the national annexes in force at the place of use are fulfilled.

The fire resistance of load-bearing walls constructed with the shuttering blocks "ISO SPAN" may be determined under the following conditions according to EN 1992-1-2, Table 5.4, columns "wall exposed on one side" in conjunction with national annexes in force at the place of use:

- The reaction to fire class according to 3.1.6 of the shuttering blocks "ISO SPAN" corresponds to at least B-s1, d0.
- The wall was designed in accordance with EN 1992-1-1 only taking into account the load-bearing effect of the concrete or reinforced concrete.
- The concrete of the concrete core meets at least the concrete strength class C16/20.
- As wall thickness according to EN 1992-1-2, Table 5.4 is used the thickness of the concrete core
- All requirements according to EN 1992-1-2, sections 5.1 and 5.2 with the national annexes in force at the place of use are fulfilled.

If the class of reaction to fire according to 3.1.6 of the used "ISO SPAN" shuttering blocks is lower than B-s1, d0 the fire resistance of the therewith erected walls may be determined with regard to stability (structural safety criterion R) under the following conditions according to EN 1992-1-2, Table 5.4, columns "Wall exposed on two sides" in conjunction with national annexes in force at the place of use:

- The wall was designed in accordance with EN 1992-1-1 only taking into account the load-bearing effect of the concrete or reinforced concrete.
- The concrete of the concrete core meets at least the concrete strength class C16/20.
- As wall thickness according to EN 1992-1-2, Table 5.4 is used the thickness of the concrete core.
- All requirements according to EN 1992-1-2, sections 5.1 and 5.2 with the national annexes in force at the place of use are fulfilled.
- The fulfilment of the thermal insulation criterion I and integrity criterion E of such walls is not detectable in this case without additional investigations.

The preconditions for this classification are:

- The design of the building has to take into consideration the secondary effects of fire. Especially constraints, introduced by thermal strain, should be sufficiently low and appropriate building joints should be foreseen. The rules, valid in place of use, govern. Structural requirements on work in normal conditions, valid in the place of use, may require larger dimensions. Concrete cover for the reinforcement has to be observed according to the rules valid in the place of use.

ISO SPAN - shuttering blocks made of wood-chip concrete

Instructions for determining the fire resistance under end use conditions

Annex B2
Page 1 of 2

- A normal weight concrete as defined in EN 206 shall be used. As far as the European standard EN 206 is not in force, an equivalent concrete according to national rules, valid in the place of use, is acceptable. The strength class of concrete shall be between C16/20 and C50/60 according to EN 206.
- The shuttering blocks shall on both sides either be plastered/rendered or at least the joints on both sides shall be sealed with plastering/rendering mortar. The mortar for plastering/rendering or for sealing shall be based on inorganic aggregates, gypsum, cement or lime or on suitable combinations of these three binders.

Note: The classification of walls constructed with the shuttering system "ISO SPAN" regarding to fire resistance are valid only for walls without openings (for windows or doors for examples).

| | |
|---|-------------------------|
| ISO SPAN - shuttering blocks made of wood-chip concrete | Annex B2 Page 2 of 2 |
| Instructions for determining the fire resistance under end use conditions | |

Instructions for determining the thermal resistance under end use conditions

The declared value of thermal resistance $R_{D,wall}$ of walls made of shuttering blocks of wood-chip concrete in end use conditions (shuttering blocks with concrete columns and maybe thermal insulation inserts but without rendering) is the sum of the declared value of thermal resistance of the shuttering blocks of wood-chip concrete $R_{D,block}$, the concrete columns $R_{D,concrete}$ and maybe the thermal insulation inserts $R_{D,insulation}$. The declared value of thermal resistance of the shuttering blocks of wood-chip concrete $R_{D,block}$ shall be calculated in accordance with EN ISO 6946 with a declared value of thermal conductivity λ_D of the shuttering blocks of wood-chip concrete depending on the material oven dry density ρ_{dry} according to section 3.6.1, Table 1 of the "Special part". The declared value of thermal resistance of the concrete columns $R_{D,concrete}$ shall be calculated in accordance with EN ISO 6946 with a value of thermal conductivity λ of the concrete columns depending on the density ρ tabulated in EN ISO 10456. The declared value of thermal resistance of thermal insulation inserts $R_{D,insulation}$ shall be calculated in accordance with EN ISO 6946 with a declared value of thermal conductivity λ_D according to the declaration of performance of the used thermal insulation inserts.

Walls made of shuttering blocks consist of thermally homogenous and thermally inhomogeneous layers according to EN ISO 6946. The declared value of thermal resistance $R_{D,wall}$ of walls made of shuttering blocks of wood-chip concrete in end use conditions (shuttering blocks with concrete columns and maybe thermal insulation inserts but without rendering) shall be calculated according to one of the three following methods:

1. Determination of the wall as three thermally homogeneous layers according to EN ISO 6946, clause 6.1 without considering the webs:
 - inner shuttering leave of wood-chip concrete,
 - concrete column and
 - outer shuttering leave of wood-chip concrete.

This calculation leads to the minimum declared value of thermal resistance $R_{D,wall}$ of walls made of shuttering blocks of wood-chip concrete.

2. Determination of the wall as thermally homogenous and thermally inhomogeneous layers parallel to the surface of the wall according to EN ISO 6946, clause 6.2. For a simplified calculation it is possible to replace the horizontal concrete ribs A_R (web recess areas) between the chambers of the concrete columns by modelled rectangular areas A_R , see the following Figure 1.
3. Determination by calculation methods according to EN ISO 10211.

In case of shuttering blocks with thermal insulation inserts (see Figure 2 of the "Specific part"), the second or the third method has to be used.

| | |
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| ISO SPAN - shuttering blocks made of wood-chip concrete | Annex B3 Page 1 of 2 |
| Instructions for determining the thermal resistance under end use conditions | |

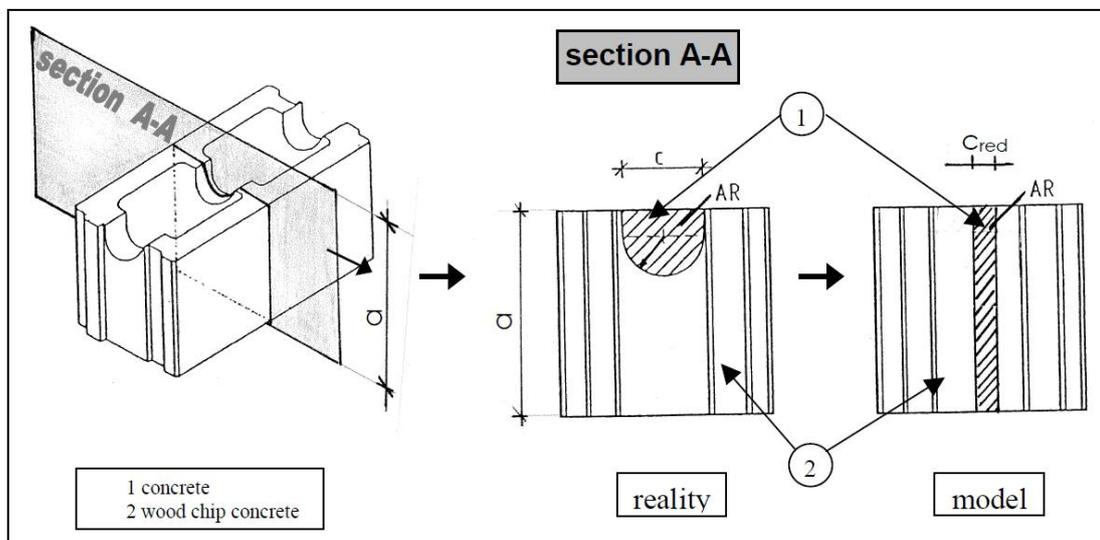


Figure 1: Replacing of the horizontal concrete ribs A_R (web recess areas) between the chambers of the concrete columns by modelled rectangular areas A_R

ISO SPAN - shuttering blocks made of wood-chip concrete

Instructions for determining the thermal resistance under end use conditions

Annex B3
Page 2 of 2

| Holder of approval | Designation of the manufacturing plant on the ETA covering page | Manufacturing plant |
|----------------------------|---|--|
| ISO SPAN Baustoffwerk GmbH | I1 | isospan Baustoffwerk GmbH Madling 177 5591 Ramingstein |

ISO SPAN - shuttering blocks made of wood-chip concrete

List of manufacturing plants

Annex B4

Description to BWR 1 – Mechanical resistance and stability

Efficiency of filling

Considering the instructions of Annex B1 and the installation guide of the ETA holder the efficient filling without bursting of the shuttering and without voids or any uncovered reinforcement in the concrete core is possible.

Possibility of steel reinforcement

The instructions in the installation guide of the ETA holder are appropriate to install steel reinforcement for walls according to EN 1992-1-1 or corresponding national rules.

ISO SPAN - shuttering blocks made of wood-chip concrete

Description of Performance to BWR 1
Mechanical resistance and stability

Annex C1

Description to BWR 2 – safety in case of fire

Reaction to fire

- a) This classification is valid for shuttering blocks made of wood chip concrete
 - in accordance with the material data sheet deposited at Deutsches Institut für Bautechnik
 - with gross densities of between 500 and 1000 kg/m³ and
 - a minimum wall thickness of 25 mm
- b) conditions:
 - density of wood chip concrete $\geq 480 \text{ kg/m}^3$,
 - thickness of the shuttering leaves $\geq 30 \text{ mm}$,
 - Application quantity of the adhesive for the connection of the shuttering blocks $\leq 300 \text{ g/m}^2$ wall surface.
- c) conditions:
 - The insulation insert is made of EPS of at least reaction to fire class E, a density of $15 \text{ kg/m}^3 \pm 10\%$ and a thickness of at most 165 mm.
 - The minimum thickness of the shuttering leave of the shuttering block "ISO SPAN" is at least 30 mm, the density of the wood chip concrete is at least 480 kg/m^3 .
 - Application quantity of the adhesive for the connection of the shuttering blocks $\leq 300 \text{ g/m}^2$ wall surface.
- d) Shuttering blocks "ISO SPAN" made off wood-chip concrete with supplementary thermal insulation according to Figure 2, the dimensions of which are in the ranges specified in section 1.2.1 and which are not covered by c), meet the requirements of the reaction to fire class of the respective insulation material.
- e) Shuttering blocks with supplementary thermal insulation of reaction to fire class A1 meet the requirements of Class A2-s1, d0, wherein for the shuttering blocks the requirements according to a) with respect to wall thickness and density of wood-chip concrete shall be complied with.

| | |
|---|----------|
| ISO SPAN - shuttering blocks made of wood-chip concrete | Annex C2 |
| Description of Performance to BWR 2 Safety in case of fire | |

Description of performance to BWR 3 – hygiene, health and environment

Water vapour permeability

The values of the water vapour resistance factor of wood-chip concrete are $\mu = 2$ (wet conditions) respectively $\mu = 8$ (dry conditions).

The values of the water vapour resistance factor of concrete columns depending on type and density and of the materials of supplementary thermal insulation are tabulated values in EN ISO 10456.

Using these values the verification of the annual moisture balance or the maximum amount of interstitial condensation according to EN ISO 13788 is on the safe side.

| | |
|--|----------|
| ISO SPAN - shuttering blocks made of wood-chip concrete | Annex C3 |
| Description of Performance to BWR 3 hygiene, health and environment | |

Description to BWR 4 – Safety and accessibility in use

Bond Strength

between shuttering leaves: The shuttering leaves are single layered, hence there is no determination of the bond strength between shuttering leaves.

between shuttering leaf and concrete

There is an adhesive bond between the shuttering leaf and the concrete [figure 2.2.10.2.1 (a) in EAD 340309-00-0305, chapter 2.2.10.2].

Resistance to impact load

Global resistance

Concrete walls (without consideration of the finishes), constructed with shuttering system "ISOSPAN" and designed according EN 1992-1-1 respectively in lack of availability of EN 1992-1-1 according national design rules, lead to the assumption that concrete core insures an adequate resistance of the complete wall to normal use impact loads.

Resistance to filling pressure

Flexural strength of the shuttering leaves

Assessment according to EN 15498, Annex C.4.2

the average value of bending tensile strength of the shuttering leaves of wood-chip concrete $f_{f,m}$ according to EN 15498, clause C4.3 shall be higher than the design value of bending tensile strength according to EN 15498, clause C4.2.

Tensile strength of the webs

Assessment according to EN 15498, Annex B.4.2

The average value of tensile strength of the webs off wood-chip concrete $f_{t,m}$ according to EN 15498, B4.3 shall be higher than the design value of the tensile strength of the webs $f_{t,min}$ according to EN 15498, section B4.2

Insulation

As supplementary insulation for the shuttering blocks according to Figure 2 only insulation materials according to harmonized European product standards or European Assessment Documents (EADs) may be used.

In addition, the compressive stress at 10 % compression strain or/and the compressive strength (if both are specified, the smallest value is decisive) shall not be less than 80 kPa. In addition, the fresh concrete shall not penetrate into the integrated thermal insulation, so that the thermal conductivity is not reduced.

If this is not guaranteed, a waterproof film must be applied to the inside of the integrated thermal insulation in such a way that it prevents the fresh concrete from penetrating into the integrated thermal insulation during concreting.

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| ISO SPAN - shuttering blocks made of wood-chip concrete | Annex C4 |
| Description of Performance to BWR 4 Safety and accessibility in use | |

Description to BWR 6 – Energy economy and heat retention

Thermal Resistance

The declared value of thermal resistance $R_{D,element}$ of the shuttering elements in end use conditions (, with concrete core without plaster/finishes) is the sum of

- the declared value of thermal resistance of the wood chip concrete shuttering leaves $R_{D,ISOSPAN}$
- and the concrete core $R_{D,concrete}$.

The declared value of the thermal conductivity λ_D of the wood-chip concrete of the shuttering blocks determined in accordance with EN ISO 10456, Annex B.2 is given in Table 1 as a function of the dry bulk density ρ_{dry}

The declared value of thermal resistance of the concrete core $R_{D,concrete}$ shall be calculated in accordance with EN ISO 6946 with a value of thermal conductivity λ of the concrete core depending on the density ρ tabulated in EN ISO 10456

Table 1: The declared value of the thermal conductivity λ_D of wood-chip concrete as a function of the dry bulk density ρ_{dry}

| Dry bulk density ρ_{dry} [kg/m ³] | Declared value of the thermal conductivity λ_D [W/(m × K)] |
|---|---|
| 475 | 0,100 |
| 550 | 0,114 |
| 650 | 0,123 |
| 800 | 0,200 |
| 1000 | 0,370 |

Heat capacity

The value of the heat capacity c of wood-chip concrete is $c = 1,50$ kJ/(kg × K) according to EN 15498, clause 5.2.8.2.

The values of the heat capacity c of the concrete columns and of the materials of supplementary thermal insulation are tabulated values in EN ISO 10456.

| | |
|--|----------|
| ISO SPAN - shuttering blocks made of wood-chip concrete | Annex C5 |
| Description of Performance to BWR 6 Energy Economy and heat retention | |