

European Technical Assessment ETA-22/0549

fermacell® Powerpanel TE



Approval body for construction products
and types of construction

Bautechnisches Prüfamt

An institution established by the Federal and
Laender Governments



European Technical Assessment

ETA-22/0549
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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

fermacell Powerpanel TE

Product family
to which the construction product belongs

Thermal and sound insulating dry screed systems with
prefabricated flooring elements

Manufacturer

James Hardie Europe GmbH
Bennigsen-Platz 1
40474 Düsseldorf
DEUTSCHLAND

Manufacturing plant

Plant 10

This European Technical Assessment
contains

11 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 190013-00-0502

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Specific Part

1 Technical description of the product

This European Technical Assessment applies to the thermal and sound insulating dry screed systems consisting of prefabricated flooring elements with the designation "FERMACELL Powerpanel TE".

The prefabricated flooring elements are made of two cement bonded boards each with a thickness of 12,5 mm according to ETA-07/0087 with a density of $1000 \pm 100 \text{ kg/m}^3$ glued together with a 50 mm overlap.

The cement bonded boards have the following characteristics according to ETA-07/0087:

- Tolerance in length: $\pm 5 \text{ mm}$
- Tolerance in width: $\pm 5 \text{ mm}$
- Tolerance in thickness: $\pm 1,25 \text{ mm}$
- Squareness: $2,0 \text{ mm/m}$
- Bending strength: $\geq 6,0 \text{ N/mm}^2$
- Thermal conductivity: $\lambda_{10,\text{tr}} = 0,173 \text{ W/(m}\cdot\text{K)}$

The prefabricated flooring elements have the following dimensions:

Nominal length: to 3010 mm

Nominal width: to 1250 mm

The prefabricated flooring elements have the following mass per unit area:

$m' = 25 \text{ kg/m}^2 \pm 5 \%$

The following additional layers are covered:

- mineral fiber impact sound insulation board (dynamic stiffness $s' \leq 30 \text{ MN/m}^3$)
- mineral fiber board (dynamic stiffness $s' \leq 150 \text{ MN/m}^3$)
- wood fiber impact sound insulation board (dynamische Steifigkeit $s' \leq 22 \text{ MN/m}^3$)
- wood fiber board (dynamic stiffness: $s' \leq 205 \text{ MN/m}^3$ for a 20 mm layer; $s' \leq 150 \text{ MN/m}^3$ for a 10 mm layer)
- polystyrene rigid foam board (dynamic stiffness $s' \leq 150 \text{ MN/m}^3$)
- loose fill honeycomb infill made of limestone split filled in a honeycomb board (mass per unit area: $42 - 48 \text{ kg/m}^2$ for a 30 mm layer)
- loose dry levelling compound made of aerated concrete with a bulk density of $430 \pm 40 \text{ kg/m}^3$

The kits covered by the ETA are formed by the prefabricated flooring elements and the additional layers underneath the flooring elements according to Table 1.

Table 1: Kits covered by the ETA

Number of the kit	Additional layers
1	- 20 mm mineral fiber impact sound insulation board
2	- 20 mm mineral fiber impact sound insulation board on
	- 30 mm loose fill honeycomb infill in a honeycomb board
3	- 30 mm loose fill honeycomb infill in a honeycomb board on
	- 20 mm wood fiber board
4	- 30 mm loose fill honeycomb infill in a honeycomb board on
	- 20 mm mineral fiber impact sound insulation board
5	- 22 mm mineral fiber impact sound insulation board
6	- 10 mm wood fiber board
7	- 22 mm wood fiber impact sound insulation board on
	- 30 mm loose fill honeycomb infill in a honeycomb board
8	- 20 mm polystyrene rigid foam board
9	- 22 mm wood fiber impact sound insulation board on
	- 20 mm loose dry levelling compound
10	- 11 mm mineral fiber board on
	- 30 mm loose fill honeycomb infill in a honeycomb board
11	- 11 mm mineral fiber board
12	- 22 mm wood fiber impact sound insulation board

The European Technical Assessment has been issued for the product on the basis of agreed data/information, deposited with Deutsches Institut für Bautechnik, which identifies the product that has been assessed. The European Technical Assessment applies only to products corresponding to this agreed data/information.

English translation prepared by DIBt

2 Specification of the intended use in accordance with the applicable European Assessment Document

The thermal and sound insulating dry screed systems are intended to be used for thermal and / or sound insulation on floors inside buildings. The insulating dry screed systems can also be used for raising the height of floors or levelling out uneven floors.

For levelling out uneven floors the additional layers mentioned in section 1 are used. The insulating dry screed systems are only exposed to static loads.

The insulating dry screed systems are always used with a floor covering. In wet rooms the insulating dry screed systems are lined with a waterproof floor covering.

The insulating dry screed systems are laid completely supported on an even floor structure (if necessary unevenness is leveled off). Cross joints are avoided.

The flooring elements are laid with edges tightly abutted in such a way that no gaps will occur in the joint area. The joints are glued and fastened with flooring screws or staples.

Appropriate edge insulating strips are used at the boundary area on rising walls in order to avoid sonic bridges.

In case of using a loose dry levelling compound / loose fill honeycomb infill a trickle protection sheet can be laid before the insulating dry screed system will be built in.

The performance according to section 3 only applies if the insulating dry screed system is installed according to the manufacture's installation instructions and if it is protected from precipitation, wetting or weathering during transport, storage and installation.

The design value of the thermal conductivity shall be laid down according to relevant national provisions.

The verifications and assessment methods on which this European Technical Assessment is based lead to the assumption of a working life of the insulating dry screed system of at least 25 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

For sampling, conditioning and testing the provisions of the EAD No 190013-00-0502 "Thermal and sound insulating dry screed systems with prefabricated flooring elements" apply.

3.1 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire of the prefabricated flooring elements test acc. to EN ISO 9239-1:2010 test acc. to EN ISO 1716:2018	Class A1 _{fl} acc. to EN 13501-1:2018
Reaction to fire of the additional layers	No performance assessed

3.2 Hygiene, health and the environment (BWR 3)

Essential characteristic	Performance
Water vapour permeability	No performance assessed
Water absorption of the gypsum fibre boards	No performance assessed

3.3 Safety and accessibility (BWR 4)

Essential characteristic	Performance
Surface hardness of the gypsum fibre boards	No performance assessed
Resistance to functional failure from concentrated load	No performance assessed

3.4 Protection against noise (BWR 5)

Essential characteristic	Performance
Impact sound reduction of the kit on a heavyweight standard floor test according to the relevant parts of EN ISO 10140 (category II according to EN ISO 10140-1, Annex H) rating according to EN ISO 717-2	see Annex A
Airborne sound insulation of the floor in which the kit is used test according to the relevant parts of EN ISO 10140 rating according to EN ISO 717-1	see Annex B
Impact sound insulation of the floor in which the kit is used test according to the relevant parts of EN ISO 10140 (category II according to EN ISO 10140-1, Annex H) rating according to EN ISO 717-2	see Annex C

3.5 Energy economy and heat retention (BWR 6)

Essential characteristic	Performance
Thermal resistance	No performance assessed

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

In accordance with EAD No. 190013-00-0502, the applicable European legal act is: 2000/273/EC.

The system to be applied is:

3 for any use except for uses subject to regulations on reaction to fire

For reaction to fire the system to be applied is:

1

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 3 November 2022 by Deutsches Institut für Bautechnik

Frank Iffländer
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beglaubigt:
Meyer

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ANNEX A

Tabelle A.1 Impact sound reduction of the kit on a heavyweight standard floor

Number of the kit	Weighted impact sound reduction of the kit on a heavyweight standard floor: ΔL_w [dB]
1	26
3	28
4	32
5	27
6	18
8	18
9	26
11	22

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ANNEX B

Table B.1 Floor build-ups used to measure the airborne sound insulation of the kit (from the top down)





 <p>Floor build up a)</p> <ul style="list-style-type: none"> - 160 mm reinforced concrete 	 <p>Floor build-up b)</p> <ul style="list-style-type: none"> - 22 mm wood-based board - 220 mm joist (laminated timber or solid timber; center distance ≥ 625 mm) - 50 mm cavity insulation - 30 mm wood-based batten (center distance 333 mm) - 10 mm gypsum fibre board
 <p>Floor build-up c)</p> <ul style="list-style-type: none"> - 22 mm wood-based board - 220 mm joist (laminated timber or solid timber; center distance ≥ 625 mm) - 50 mm cavity insulation - 30 mm resilient bar Protektor TPS (center distance 333 mm) - 10 mm gypsum fibre board 	 <p>Floor build-up d)</p> <ul style="list-style-type: none"> - 22 mm wood-based board - 100 mm cavity insulation - 220 mm joist (laminated timber or solid timber; center distance ≥ 625 mm) - direct hanger sound decoupled for CD-profiles (center distance 1250 mm) - 27 mm basic and supporting battens made of metal (CD-ceiling profile center distance 500 mm) - 2 x 10 mm gypsum fibre board

Table B.2 Airborne sound insulation of the kits according to table 1 on floor build-ups a) to d) according to table B.1

Number of the kits	Floor build-up			
	a)	b)	c)	d)
	weighted sound reduction R_w and spectrum adaptation terms C and C_{tr} [dB] ($R_w(C_{100-3150}; C_{tr,100-3150})$)			
1	66 (-3;-10)	-	-	-
2	-	-	-	78 (-8;-17)
3	67 (-3;-8)	-	-	-
4	67 (-2;-8)	-	-	-
5	-	48 (-4;-10)	60 (-2;-7)	-
6	-	46 (-4;-10)	60 (-2;-7)	-
7	-	-	62 (-2;-7)	-
10	-	55 (-4;-12)	63 (-2;-6)	-
11	-	44 (-4;-10)	60 (-2;-7)	-
12	-	-	59 (-2;-7)	-

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ANNEX C

The floor build-ups mentioned in Annex B, table B.1 where also used to measure the impact sound insulation of the kit.

Table C.1 Impact sound insulation of the kits according to table 1 on floor build-ups a) to d) according to table B.1

Number of the kit	Floor build-up		
	b)	c)	d)
	weighted normalized impact sound pressure level $L_{n,w}$ and spectrum adaptation term C_i [dB] ($L_{n,w}(C_{i,100-2500})$)		
2	-	-	38(2)
5	67(0)	53(1)	-
6	70(0)	54(0)	-
7	-	44(2)	-
10	62(2)	44(2)	-
11	68(0)	53(1)	-
12	-	55(0)	-

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