



Floor panel CETRIS[®] PDI

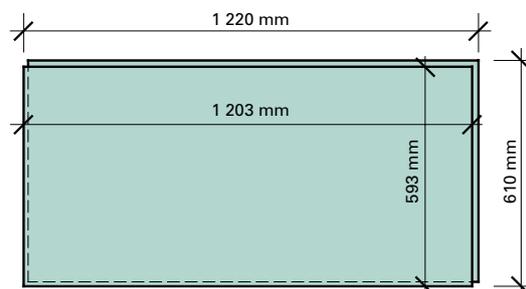
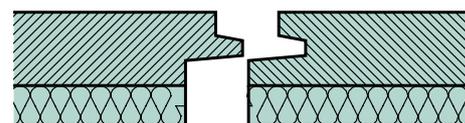
CETRIS[®] PDI is a two-ply panel used in dry floor technology. It consists of a 22 mm thick cement bonded CETRIS[®] particleboard glued to 12 mm insulating fibreboard (hardboard). The size is 1,220 × 610 mm (including the tongue) and it is 34 mm thick; it has a tongue and groove along the perimeter, the surface is smooth. The panels should be laid on a level surface area (ceiling structures, cladding). They are great for a quick and exact installation. They also spread spot-load stress over a larger area.

Technical specification

Basic size	1,220 × 610 mm (with tongue), 1,203 × 593 mm (without tongue). Panel size after laying: 0.713 m ²
Rough dimensional tolerance	±1.5 mm
Thickness	34 mm
Weight	ca 33.5 kg/m ²
Features	Tongue & groove shaped edges
Surface finish	Without surface finish

Packing

Panel thickness	Weight approx.	Approx. weight of the panel	Number of panels on the pad	Size of the panels on the pad	Total approximate weight of panels including the pad
34 mm	33.5 kg/m ²	24 kg/pc	30 pcs	22.32 m ²	750 kg



CETRIS[®] PDI floor panels are laid on wooden transport pallets, which enable forklift manipulation. The boards are secured with straps. CETRIS[®] PDI panels are protected against atmospheric influences by PE foil. Wrapping in PE foil, however, does not satisfy conditions for

long-lasting exposure to atmospheric influences when stored in an open area.

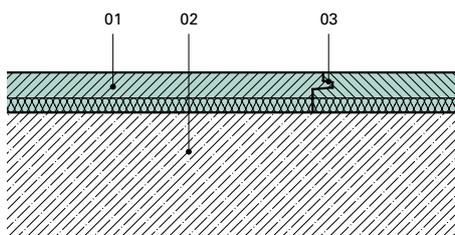
CETRIS[®] PDI panels must be stored in a sheltered dry area so that they do not get wet before laying (especially the fibreboard). When

storing, CETRIS[®] PDI panels on the pallets can be stacked two layers high. The boards should be placed on the pallets when handled. They should be hand-carried in a vertical position.

Floor structures with CETRIS[®] PDI panels

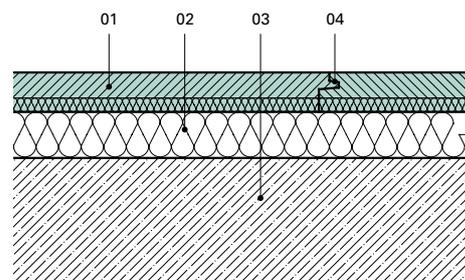
CETRIS[®] PDI panels can be laid directly on the base – a ceiling structure or cladding. The base must be level, supporting and dry. In this way, a new load spreading and insulating layer only 34 mm thick can be made with a high load capacity and resistance against spot stress.

If a higher structural height has to be achieved, or if the floor structure must reach a higher thermal resistance value, we recommend laying insulation boards under the CETRIS[®] PDI panels. Polystyrene based insulation boards (min. class EPS S 70), or boards with stone or mineral wool or fibreboards are suitable. However, they must always be designed for light floating floors. The



01 CETRIS[®] PDI floor panel
02 ceiling structure
03 glued joint (polyurethane glue)

maximum recommended thickness of the insulation board is 50 mm.



01 CETRIS[®] PDI floor panel
02 insulation board, max. 50 mm
03 ceiling structure
04 glued joint (polyurethane glue)

Properties of floors with CETRIS® PDI panels

Floor loading capacity

The loading capacity of CETRIS® PDI panels was determined by tests specified for light floor structures as per EN 13 810-1. The testing was performed in an acoustic chamber of the SCI (Zlín branch) on 3.6 × 3.0 m samples. The floor was always laid on a 140 mm thick reinforced concrete ceiling structure.

The test loading methods were as follows:

- **Concentrated load** – action of a spot load 130 kg (260 kg) in a circular area 25 mm in diameter. The critical sag value under the loading arm is 3 mm.
- **Impact load** – a 40 kg load was dropped from the height of 350 mm; the critical sag after ten drops is 1.0 mm. This load simulates a falling object, a tripping person, jumping and dancing.

The obtained results show that a floor made with CETRIS® PDI panels laid directly on the

base (without inserted insulation) is suitable for all load categories:

- C1 – areas with tables, e.g. schools, cafés, restaurants, dining halls, etc.
- C2 – areas with fixed seats, e.g. churches, theatres, cinemas, meeting rooms, waiting rooms, etc.
- C5 – areas with gathering people, e.g. buildings for public events such as concert halls.

The floor composition with an inserted insulation board (max. 50 mm) under the CETRIS® PDI panel is suitable for the following load categories:

- A – dwelling areas and areas for household activities
- B – office areas

The loading method was performed as per EN 1991-1-1 Eurocode 1: Actions on structures - Part 1-1: General actions – Densities, self-weight, imposed loads for buildings.

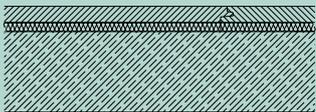
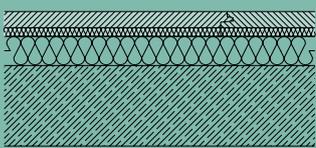
When designing dry floor structures, it is necessary to take into account the maximum allowed sags and load capacity of the base.

The dry lightweight CETRIS® PDI floor is not suitable for areas with greater nominal load than specified for this type of floor and for wet areas such as saunas, laundries, showers, etc.

Sound-insulating properties

Acoustic properties of a dry floor made with CETRIS® PDI were determined by a laboratory method as per EN ISO 10140-2, EN ISO 10140-3 on a standardised ceiling board (reinforced 140 mm concrete ceiling structure). The thermal-technical properties of a floating floor made with CETRIS® PDI panels are determined mainly by the insulation board properties; values of increased thermal resistance were found by calculation.

Sound and thermal insulating properties

STRUCTURE PATTERN	FLOOR COMPOSITION	AIRBORNE-TRANSMISSION LOSS INDEX R_w	INDEX OF STANDARDIZED IMPACT NOISE L_{nw}	REDUCTION OF STANDARDIZED IMPACT NOISE LEVEL ΔL_w	IMPROVEMENT OF THERMAL RESISTANCE R ($Wm^{-2}K^{-1}$)
	<ul style="list-style-type: none"> • CETRIS® PDI Floor panel, 34 mm • Reinforced concrete slab, 140 mm 	57 dB	60 dB	21 dB	0.33
	<ul style="list-style-type: none"> • CETRIS® PDI Floor panel, 34 mm • Polystyrene EPS S 70, max. thickness 50 mm • Reinforced concrete slab, 140 mm 	58 dB	55 dB	26 dB	1.65

Preparation of the base before laying the floor

Load bearing base, requirements and preparation

It is important to prepare the supporting surface to ensure the final quality of the floating floor for laying down the wear layer. The load bearing base can be either massive ceiling structures (reinforced concrete slabs, ceramic ceilings, HURDIS ceilings, etc.) or wooden beam ceilings with plank cladding, wooden timber ceilings or a concrete foundation slabs.

The load bearing base should be able to transfer load at a minimum load stress = normative (utility) load + floor weight, while observing the maximum sag of the ceiling structure according to the given specifications.

The base must be dry and supporting with a maximum surface unevenness of 4 mm per

2 metres. Unless the allowable tolerances of the base are observed, the allowable unevenness tolerances under the final wear surface and reduction of the impact noise cannot be guaranteed. The local unevenness can reach 5 mm (e.g. protruding filler, concrete joints, knots in a wooden base), because the insulation layer can reshape. If the base is not sufficiently flat, it must be levelled.

Levelling of the supporting base

The base can be levelled by application of two methods:

1. **Wet method** – application of cement mortar with sand or a layer of self-levelling compound according to the producer's instructions.

2. **Dry sub-base** – it is possible to use dry self-levelling compounds based on crushed aerocrete or perlite. The minimum height of the sub-base is 10 mm, the maximum is 40 mm. We recommend FERMACELL or BACHL BS Perlit or Siliperl as the sub-base.

When levelling the surface of a wooden beam ceiling, first inspect the quality of the bearing structure for warps and wears (unevenness above 5 mm) and replace damaged boards. Put paper cardboard on the cladding as a protection against sub-base dropping through knot-holes and gaps between the planks.

Make the sub-base according to the producer's instructions.

Moisture of the base

The maximum allowable specific moisture of the base:

- wooden base 12 %
- silicate base 6 %

Insulation against moisture

To eliminate transport of moisture into the thermal and sound insulation layer, this layer must be separated from the floor structure by a protective foil. This protection concerns mainly a support ceiling structure, which contains residual moisture or areas where increased penetration

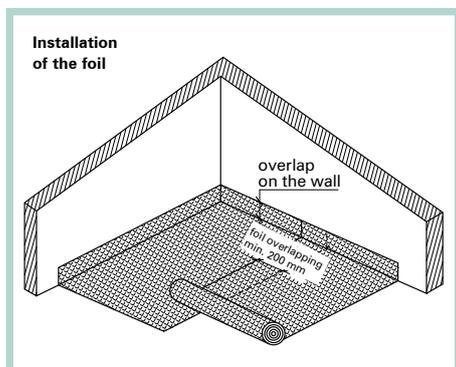
Laying CETRIS® PDI floor panels

1 Floating floors made with CETRIS® PDI are laid as a final layer after finishing «wet» building works (after finishing walls, plastering, etc.).

2 Floating floors made with CETRIS® PDI are laid on a dry, clean base.

3 Before laying, the floor panels must be allowed to acclimatise for at least 48 hours at a minimum temperature of 18° C and relative humidity of 70 % max. The acclimatisation adapts the production moisture in the board to the balanced moisture during application, thus reducing problems with future dimensional and shape changes.

4 If the base contains a high level or residual moisture or if penetration of moisture through the ceiling structure is anticipated, a PE foil should be laid on the base with a 200 mm overlap of the strips and pulled up along vertical structures to the anticipated level of the floor.



5 If necessary, the base can be levelled with dry sub-base – spread it always only over a part of the surface.

6 If insulation boards are used together with CETRIS® PDI panels, the laying direction of the boards must be determined before their application. When laying individual layers, make sure they are laid crosswise over each other.

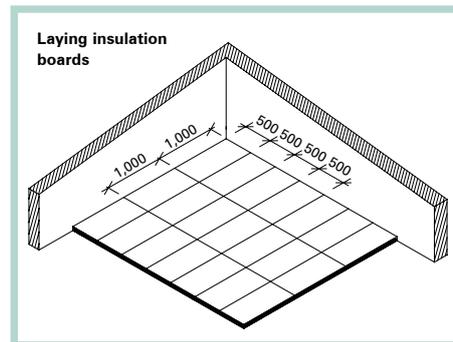
of moisture through the ceiling structure is anticipated. Spread a hydro-insulating foil (e.g. 0.2 mm PE foil) with overlaps of at least 200 mm (or plaster the joints with adhesive tape) over a cleaned surface and pull it up to vertical structures above the intended floor level.

When using a self-levelling compound, lay the moisture insulation film on the finished compound; if using a sub-base, lay it between the bearing structure and the sub-base.

When laying the floor on a wooden structure or an original ceiling structure, application of PE film

Joints between insulation boards and the CETRIS® PDI sections must not mate.

7 The insulation boards should be set to the vertical structures so that they touch a dilatation insert, without dilatation gaps in the surface.



When a dry floor structure passes across a door-sill, take care of installation of the doorframe. It must be levelled and propped into a precise height by the central cross-beam. When fixing the threshold, use longer screws to connect the frame to the base section.

If an insulating board is used, we recommend installation of an underlying batten under the CETRIS® PDI panel along both sides of the door-sill. The recommended size of an underlying batten is 80 x 30 mm; it can be supplemented with an EPS board of an appropriate thickness (see the detail). The loss of impact noise reduction of the entire floor is negligible because of a local application. We also recommend using an underlying batten for dilatation of the floor in the surface (area larger than 6 x 6 m), floor transitions, etc.

8 Make a 15 mm wide dilatation gap along vertical structures (walls, columns, etc.). We recommend inserting a 15 mm strip of mineral wool or polystyrene in the dilatation gaps to eliminate clogging during the subsequent operations. Cut this strip to the required height after finishing

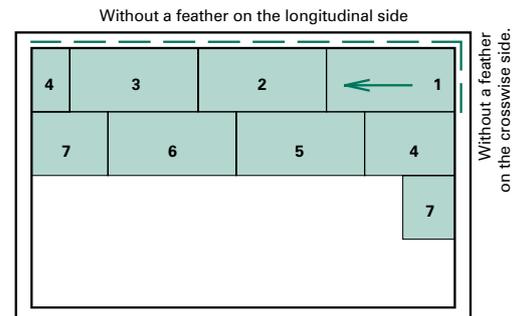
is not recommended to ensure the breathing of the ceiling. If a room with higher air humidity (bathroom, kitchen) is located below the ceiling, it is necessary to prevent the transport of humidity into the structure or ensure its free evaporation.

Moisture insulation must be addressed within the complete structure of the ceiling or the floor.

A micro-ventilating layer (e.g. OLDROYD, TECHNODREN) or a studded foil can be used for venting wet structures.

the surface of the floating floor before laying the flooring material.

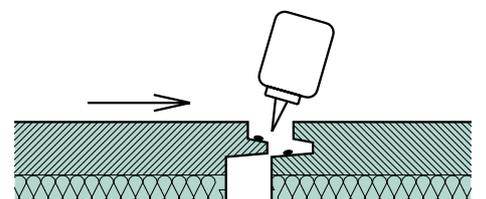
9 Start the laying with a full CETRIS® PDI panel opposite the door. The panels are laid on the butt.



10 CETRIS® PDI panels are usually laid from the right to the left; no cross-joints may appear; the minimum overlap between joints is 200 mm. The protruding tongue on the first panel in the first row must be cut both on the long (longitudinal) and short (transverse) side. The tongue on the longer side must be cut on the remaining panels in the first row.

Apply glue to the top side of the tongue of the inserted panel and in the groove (bottom part) of the already laid panel.

Use polyurethane glue for wood (e.g. Den Braven D4, Soudal PRO 45, etc.). The approximate glue consumption is 40 g/m² of a laid area (500 ml packaging = ca. 12 m² of floor).



The floor panels must be glued at a maximum relative air humidity of 80 % and a minimum room temperature of 5° C. The CETRIS® PDI panels must be in full contact with each other.

11 When laying down the final panel, first cut it to the required length, then cut the tongue on the longitudinal side. You can use the cut-off piece (minimum length 200 mm) for starting the second row.

12 After laying a floor with CETRIS® PDI panels, cut an edge strip and the insulation foil to the required height with a knife.

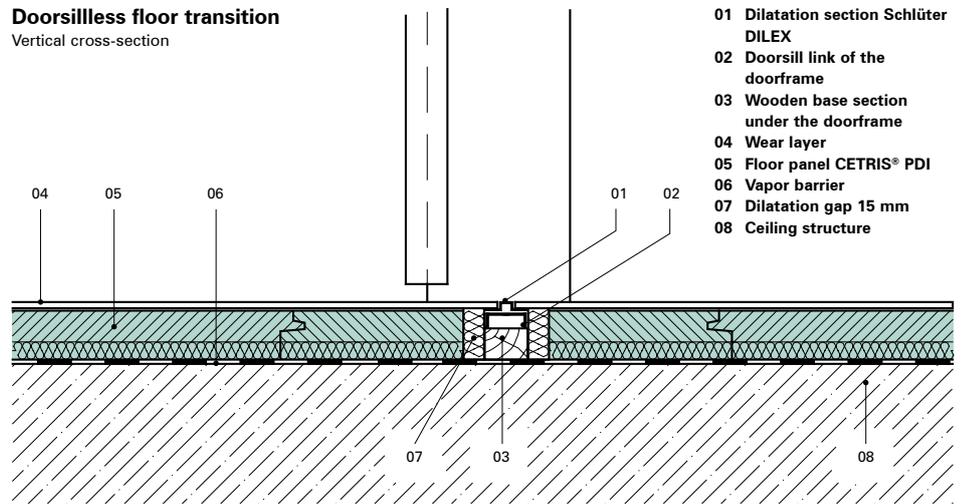
13 When laying a large floor area, we recommend a sequential installation of insulation and panels in individual areas of the dilatation zone. This will reduce damage to the insulation boards by worker activity.

14 The floor can be fully loaded and other operations can be performed (laying floor covering) after complete setting of the polyurethane glue (min. 24 hours). Remove the excessive glue with a spatula after the setting.

15 For laying the final flooring, we recommend the principles described in Chapter 7.9 Flooring (Materials for designing and implementation of CETRIS® boards).

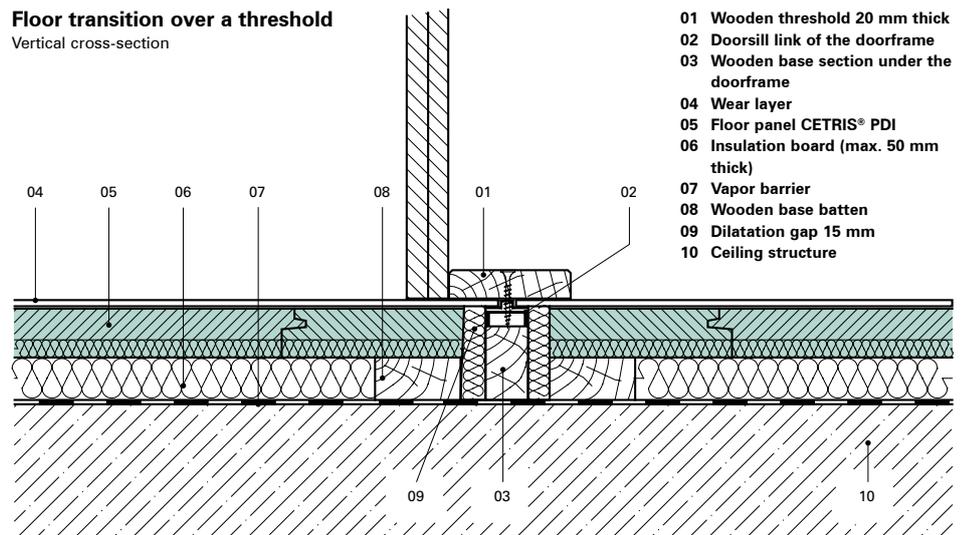
Note: As a result of drying and gradual adaptation of CETRIS® PDI panels, free edges may rise (along walls, in corners) after laying a floor especially during winter months. This effect can be eliminated by local fastening of CETRIS® PDI panels to the base (cladding, ceiling).

Doorsillless floor transition
Vertical cross-section



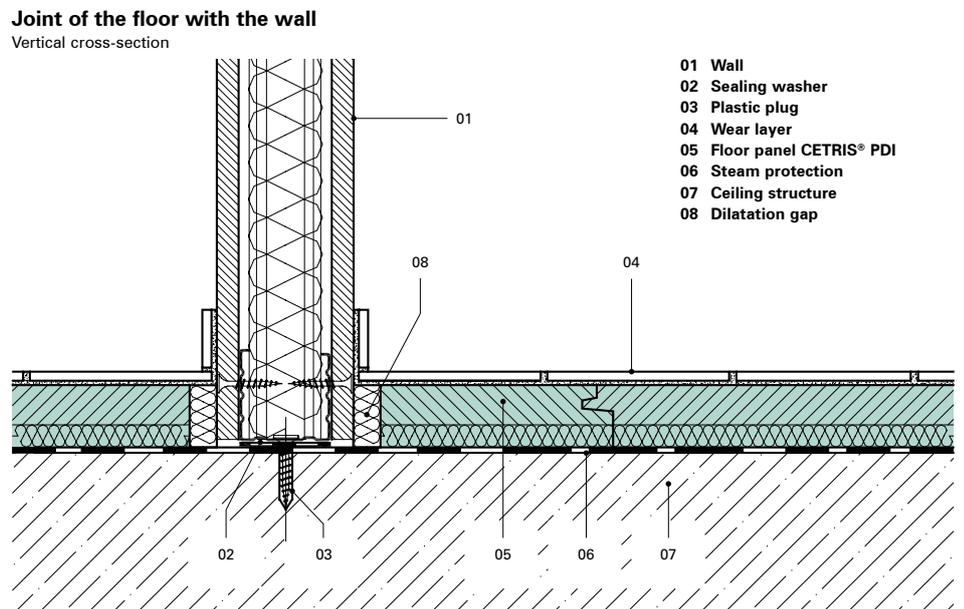
- 01 Dilatation section Schlüter DILEX
- 02 Doorsill link of the doorframe
- 03 Wooden base section under the doorframe
- 04 Wear layer
- 05 Floor panel CETRIS® PDI
- 06 Vapor barrier
- 07 Dilatation gap 15 mm
- 08 Ceiling structure

Floor transition over a threshold
Vertical cross-section



- 01 Wooden threshold 20 mm thick
- 02 Doorsill link of the doorframe
- 03 Wooden base section under the doorframe
- 04 Wear layer
- 05 Floor panel CETRIS® PDI
- 06 Insulation board (max. 50 mm thick)
- 07 Vapor barrier
- 08 Wooden base batten
- 09 Dilatation gap 15 mm
- 10 Ceiling structure

Joint of the floor with the wall
Vertical cross-section



- 01 Wall
- 02 Sealing washer
- 03 Plastic plug
- 04 Wear layer
- 05 Floor panel CETRIS® PDI
- 06 Steam protection
- 07 Ceiling structure
- 08 Dilatation gap