

# CONCRETE FORMWORK

PRODUCTS AND  
TECHNICAL DETAILS

MAKE  
YOUR  
VISIONS  
WORK.

MADE IN GERMANY

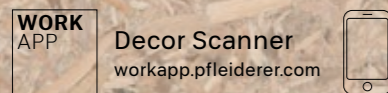
DUROPAL | thermopal

 PFLEIDERER

# MAKE YOUR VISIONS WORK.

## WOOD-BASED PANELS THAT OPEN UP NEW PERSPECTIVES.

From design to completed project, every step counts. After all, designs are only really appealing if they can also be realised. By choosing Pfleiderer, you're off to the right start. Aesthetic, functional and by design. In the 2021–2024 brochure, we introduce you to our extensive product range designed to make you more successful. Stylish, expressive and modern decors, innovative surface textures and core panels all come together perfectly to meet your technical, cost and user requirements. From high quality individual items to sector spanning concepts – you can turn your vision into reality with practical, high quality solutions from Pfleiderer.



Make work easier – with the Pfleiderer WorkApp! Simply scan decors with your smartphone, receive combination recommendations and request samples. Learn more at [workapp.pfleiderer.com](https://workapp.pfleiderer.com).



Our tip:  
scan the QR code  
and get started  
straight away.

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## CONCRETE FORMWORK WITH PFLEIDERER: THE BEST THAT CAN HAPPEN TO CONCRETE

Concrete formwork material is extremely challenged – in terms of strength, moisture resistance and surface quality. Our wood-based panels prove themselves to be precedent-setting under the hardest use conditions and if necessary, ensure the optimum look of the construction elements.

The advantages of cast in situ concrete construction can only be consistently used in practice with the right formwork. Achieving the desired shape, surface properties and evenness calls for high-quality, robust and tough wood-based materials. Pfleiderer's formwork panels make an important contribution to this as they can be worked precisely and used flexibly – and can also reliably withstand the demanding conditions on building sites.

- Available as raw board or as melamine faced
- Optimised for cutting, as it can be used in any direction

MADE IN  
GERMANY

SUSTAINABILITY

## UNCOMPROMISINGLY GOOD: AT PFLEIDERER QUALITY HAS A SYSTEM

### You can rely on security and transparency.

Producing wood-based materials sustainably and in the highest quality is a challenge. As a leading company in the wood industry, Pfleiderer faces up to this challenge at all levels – and with traditional entrepreneurial diligence. With modern production sites, an integrated management system for quality, environment, energy and safety, and a corporate culture that continuously develops these values. Because for us, the compatibility of quality and sustainability is a matter of course!

In concrete terms, this means that we certify our processes throughout the entire value chain – often far beyond what is legally required. We attach great importance to being as transparent as possible for our customers and partners. Our environmental management systems at our locations are certified according to DIN ISO EN 14001 and ISO 50001. Also we belong to the Quality Association for Wood-based Panels and have certifications according to FSC® (License Code: FSC® C011773) and PEFC (License Code: PEFC/04-32-0828). And if you want to know more, just contact us. We will be happy to give you detailed information!

MADE IN GERMANY

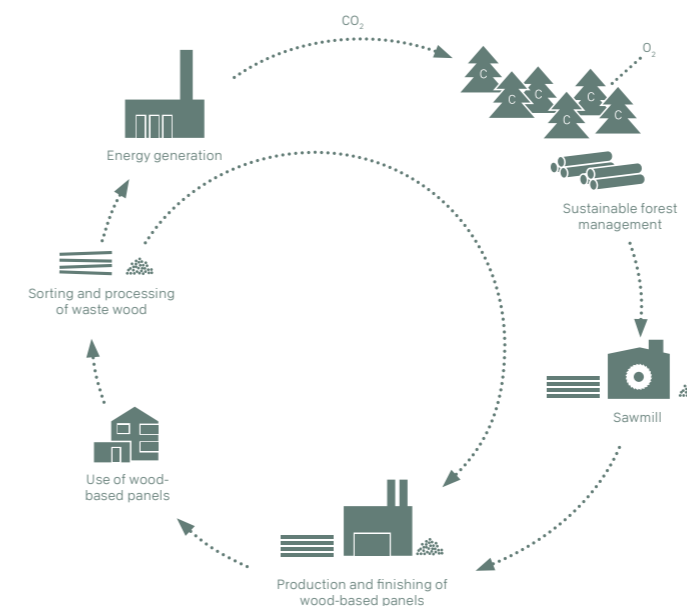
## DESIGNED FOR A FUTURE WORTH LIVING: SUSTAINABILITY AT PFLEIDERER

### Responsibility for tomorrow starts today.

Those who rely on wood as a raw material rightly expect an environmentally conscious “green” material. We at Pfleiderer want to do full justice to this and have therefore been offering an extensive range of low-emission and environmentally friendly products for many years. Sustainability – in addition to ecological, social and economic aspects – as well as careful use of natural resources are permanent pillars of our corporate philosophy. Consistent recycling management and wood recycling ensure that no trees are felled for our products. Through regular independent evaluation of our procurement and production processes, we are able to ensure that we are able to offer our customers the best possible service, manufacturing and logistics processes as well as a corporate culture of accountability. We ensure that you can use our products with a clear conscience and recommend them to your customers.

### A healthy full range of products.

Pfleiderer focuses on low-emission materials, e.g. F\*\*\*\* glued panels for interior design or LivingBoard with formaldehyde-free gluing. Many of our board materials have been awarded the Blue Angel for a healthy indoor climate for many years. At the beginning of 2020, we succeeded in obtaining this award – in addition to raw boards and directly coated products – also for large parts of the HPL range. This means that you can also fall back on a consistently sustainable full product range for demanding projects – and fulfil customer wishes without compromising on ecology and sustainability.



Through multi-stage wood utilisation (so-called cascade utilisation), wood recycling, and the use of forestry wood and industrial waste wood for high quality materials with a long service life, Pfleiderer conserves valuable resources and actively contributes to reducing carbon emissions, air, water and soil pollution and energy consumption. We control the wood mix individually, depending on the product, to achieve a perfect balance between quality requirements and resource conservation.



[www.blauer-enge.de/uz76](http://www.blauer-enge.de/uz76)

# DECOBOARD

Panel melamine-faced on both sides for multiple use in formwork construction

## Areas of application

- Ideally suitable as formlining
- Suitable for fair-faced concrete

## Properties

- Moisture resistant
- Low thickness and edge swelling
- Special impregnation of the facing

## Advantages

- Multiple use (re-use) possible
- No effect on the curing performance of concrete due to special impregnation
- Cutting waste optimisation due to isotropic strength properties
- Dimensionally stable, even in a damp environment
- Robust, for handling on the construction site

## Materials used

- Fresh forest wood and sawmill wood, recycled material
- Moisture-resistant amino resin
- Faced with melamine resin impregnated paper

# DecoBoard P5



Wood particleboard type P5 in accordance with EN 312, for structural purposes, for use in humid conditions, melamine-faced on both sides.

## AREAS OF APPLICATION



Due to the moisture-resistant bonding, DecoBoard P5 is ideally suitable for multiple use in formwork construction. Special impregnation of the facing, with a film weight of approx. 160 g per side, ensures that the curing performance of the concrete is not influenced and an optimum result is achieved.

## PRODUCT FEATURES



Low swelling /  
moisture  
resistant



Load-bearing

<b>Product standard</b>	EN 14322
<b>Core material</b>	PremiumBoard P5 Wood particleboard type P5 in accordance with EN 312, for structural purposes for use in humid conditions.
<b>Reaction to fire</b>	D-s2,d0 according to EN 13986 dependent on end use (Thickness: $\geq 9$ mm / Gross density: $\geq 600$ kg/m <sup>3</sup> )
<b>Formaldehyde emission class</b>	E1 E05
<b>Note</b>	FSC certification or PEFC certification available on request.

## MECHANICAL AND PHYSICAL PROPERTIES

Property	Test method	Unit	Requirement hickness / Range of thickness (mm, nominal dimension)	
Thickness in mm		mm	> 13 to $\leq 20$	> 20 to $\leq 25$
Mean density	EN 323	kg/m <sup>3</sup>	700–660	670–650
Bending strength	EN 310	N/mm <sup>2</sup>	16	14
Bending modulus of elasticity	EN 310	N/mm <sup>2</sup>	2,400	2,150
Internal bond	EN 319	N/mm <sup>2</sup>	0.45	0.4
Swelling in thickness, 24 h	EN 317	%	10	10
Internal bond after boil test	EN 1087-1	N/mm <sup>2</sup>	0.14	0.12

## FORMAT IN MM

Length	Width	Thickness
5,310	2,100	17.5   20.5

From a minimum order quantity of 100 m<sup>3</sup>. Other formats and thicknesses available on request.

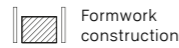


# DecoBoard P7 S



Wood particleboard type P7 in accordance with EN 312, heavy-duty, for structural purposes, for use in humid conditions, melamine faced on both sides.

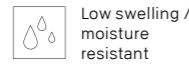
## AREAS OF APPLICATION



Formwork construction

Due to the moisture-resistant bonding, DecoBoard P7 S is ideally suitable for multiple use in formwork construction. Special impregnation of the facing, with a film weight of approx. 320 g per side, ensures that the curing performance of the concrete is not influenced and an optimum result is achieved.

## PRODUCT FEATURES



Low swelling / moisture resistant



Load bearing – particularly high bending strength

<b>Product standard</b>	EN 14322
<b>Core material</b>	ExtraBoard P7 S Wood particleboard type P7 in accordance with EN 312, heavy-duty for structural purposes for use in humid conditions.
<b>Reaction to fire</b>	D-s2,d0 according to EN 13986 dependent on end use (Thickness: $\geq 9$ mm / Gross density: $\geq 600$ kg/m <sup>3</sup> )
<b>Formaldehyde emission class</b>	E1 E05
<b>Note</b>	FSC certification or PEFC certification available on request.

## MECHANICAL AND PHYSICAL PROPERTIES

Property	Test method	Unit	Requirement Thickness / Range of thickness (mm, nominal dimension)	
Thickness in mm		mm	> 17 to $\leq 20$	> 20 to $\leq 25$
Mean density	EN 323	kg/m <sup>3</sup>	760	760
Bending strength	EN 310	N/mm <sup>2</sup>	23	23
Bending modulus of elasticity	EN 310	N/mm <sup>2</sup>	3,100	2,900
Internal bond	EN 319	N/mm <sup>2</sup>	0.7	0.65
Swelling in thickness, 24 h	EN 317	%	5	4
Internal bond after boil test	EN 1087-1	N/mm <sup>2</sup>	0.2	0.2

## FORMAT IN MM

Length	Width	Thickness
5,310	2,100	17.5   20.5

From a minimum order quantity of 100 m<sup>3</sup>. Other formats and thicknesses available on request.



# LIVINGBOARD

## LivingBoard P5



Formaldehyde-free glued particleboard, type P5 in accordance with EN 312, suitable for load-bearing purposes in damp areas.

### AREAS OF APPLICATION



Timber construction



Formwork construction

With its fine and sanded top layer, LivingBoard P5 is ideal for use as formlining. Due to the moisture-resistant PU bonding and low swelling values, LivingBoard P5 can be used reliably in a damp environment.

### PRODUCT FEATURES



Sanded



Low swelling / moisture resistant



Load-bearing



Direction-free application



Floor panel available



Particularly ecological



Particularly low emission

### Product-type

P5

### EC scope

EN 13986:2004 +A1:2015  
Load-bearing boards for use in humid conditions

### Reaction to fire

D-s2,d0 according to EN 13986 dependent on end use  
(Thickness:  $\geq 9$  mm / Gross density:  $\geq 600$  kg/m<sup>3</sup>)

### Formaldehyde emission class

E1 E05

### Service class

1 & 2 – Dry area & moist area (EN 1995-1-1)

### Note

FSC certification or PEFC certification available on request.

### MECHANICAL AND PHYSICAL PROPERTIES

Property	Test method	Unit	Requirement Thickness / Range of thickness (mm, nominal dimension)		
Thickness in mm		mm	> 10 to $\leq 13$	> 13 to $\leq 20$	> 20 to $\leq 25$
Mean density	EN 323	kg/m <sup>3</sup>	770–680	700–660	670–650
Bending strength	EN 310	N/mm <sup>2</sup>	18	16	14
Bending modulus of elasticity	EN 310	N/mm <sup>2</sup>	2,550	2,400	2,150
Internal bond	EN 319	N/mm <sup>2</sup>	0.45	0.45	0.4
Swelling in thickness, 24 h	EN 317	%	11	10	10
Internal bond after boil test	EN 1087-1	N/mm <sup>2</sup>	0.15	0.14	0.12

### FORMAT IN MM

Length	Width	Thickness
2,500	1,250	13   16   19   22   25
5,040	2,580	13   16   19   22   25

### FLOORPANELS: FORMAT IN MM (OVERALL DIMENSIONS INCL. TONGUE)

Length	Width	Thickness
2,510	635	16   19   22   25

Refer to price list for minimum order quantities. Other formats and thicknesses on request.

Fine particle and moisture-resistant particleboard for formwork construction

### Areas of application

- Unfaced formlining with fine top layer
- Ideal for stiffening the formwork structure

### Properties

- Formaldehyde-free and moisture resistant PU bonding
- Isotropic strengths in longitudinal and transverse direction
- Low thickness and edge swelling

### Advantages

- Reliable use due to homogeneous product properties
- Isotropic strength properties in all panel directions ensure optimised cut-to-size

### Materials used

- Fresh wood from sawmill byproducts such as slabs, wood chips, chippings and thinnings
- Formaldehyde-free PU binder

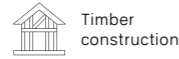


# LivingBoard P7



Wood particleboard type P7 in accordance with EN 312, heavy-duty, for structural purposes for use in humid conditions, unfaced and 100 % formaldehyde-free bonding.

## AREAS OF APPLICATION



Timber construction



Formwork construction

The heavy-duty solution: LivingBoard P7 is particularly suitable for applications in which high load-carrying capacity is required. Due to the moisture-resistant PU bonding and the low swelling values, combined with the fine, sanded top layer, LivingBoard P7 is particularly suitable as load-bearing formlining.

## PRODUCT FEATURES



Sanded



Low swelling / moisture resistant



Load bearing - particularly high bending strength



Direction-free application



Particularly ecological



Particularly low emission

## EC scope

EN 13986:2004 +A1:2015  
Heavy duty load-bearing boards for use in humid conditions.

## Reaction to fire

D-s2,d0 according to EN 13986 dependent on end use  
(Thickness:  $\geq 9$  mm / Gross density:  $\geq 600$  kg/m<sup>3</sup>)

## Formaldehyde emission class

E1 E05

## Service class

1 & 2 - Dry area & moist area (EN 1995-1-1)

## Note

FSC certification or PEFC certification available on request.

## MECHANICAL AND PHYSICAL PROPERTIES

Property	Test method	Unit	Requirement Thickness / Range of thickness (mm, nominal dimension)		
Thickness in mm		mm	> 10 to $\leq 13$	> 13 to $\leq 20$	> 20 to $\leq 25$
Mean density	EN 323	kg/m <sup>3</sup>	740-720	720-700	700-680
Bending strength	EN 310	N/mm <sup>2</sup>	22	20	18.5
Bending modulus of elasticity	EN 310	N/mm <sup>2</sup>	3,350	3,100	2,900
Internal bond	EN 319	N/mm <sup>2</sup>	0.75	0.7	0.65
Swelling in thickness, 24 h	EN 317	%	10	10	10
Internal bond after boil test	EN 1087-1	N/mm <sup>2</sup>	0.25	0.23	0.2

From a minimum order quantity of 70 m<sup>3</sup>. Other formats and thicknesses available on request.





# LIVINGBOARD FACE CONTIPROTECT

Coarse particle board with contiprotect surface for formwork construction

## Areas of application

- Unfaced formlining with coarse top layer
- Ideal for stiffening the formwork structure

## Properties

- Coarse top layer, natural look
- Formaldehyde-free and moisture resistant PU bonding
- Isotropic strengths in longitudinal and transverse direction
- Low thickness and edge swelling

## Advantages

- Isotropic strength properties in all panel directions ensure optimised cut-to-size
- Protection against short-term exposure to driving rain due to heat-finished contiprotect surface
- High screw pull-out resistance, even in the area of the edge

## Materials used

- Fresh wood from sawmill byproducts such as slabs, wood chips, chippings and thinnings
- Formaldehyde-free PU binder

## LivingBoard face contiprotect P5



Wood particleboard type P5 in accordance with EN 312, for structural purposes, for use in humid conditions, uncoated and 100 % formaldehyde-free bonding.

### AREAS OF APPLICATION



Timber construction



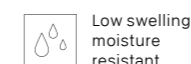
Packaging construction



Formwork construction

LivingBoard face P5 (sanded board) and LivingBoard face contiprotect P5 (unsanded board) are suitable for all areas of use, in which high load bearing values, moisture resistance and simultaneous formaldehyde-free bonding are important. Both types of board are ideally suitable as absorbent formlining and for stiffening the formwork structure. LivingBoard face contiprotect P5 with its unsanded contiprotect surface offers significantly delayed moisture absorption.

### PRODUCT FEATURES



Low swelling / moisture resistant



Load-bearing



Direction-free application



Floor panel available



Particularly ecological



Particularly low emission

<b>Product-type</b>	P5
<b>EC scope</b>	EN 13986:2004 +A1:2015 Load-bearing boards for use in humid conditions
<b>Reaction to fire</b>	D-s2,d0 according to EN 13986 dependent on end use (Thickness: $\geq 9$ mm / Gross density: $\geq 600$ kg/m <sup>3</sup> )
<b>Formaldehyde emission class</b>	E1 E05
<b>Service class</b>	1 & 2 – Dry area & moist area (EN 1995-1-1)
<b>Note</b>	FSC certification or PEFC certification available on request.

### MECHANICAL AND PHYSICAL PROPERTIES

Property	Test method	Unit	Requirement Thickness / Range of thickness (mm, nominal dimension)		
Thickness in mm		mm	> 10 to ≤ 13	> 13 to ≤ 20	> 20 to ≤ 25
Mean density	EN 323	kg/m <sup>3</sup>	770–680	700–660	670–650
Bending strength	EN 310	N/mm <sup>2</sup>	18	16	14
Bending modulus of elasticity	EN 310	N/mm <sup>2</sup>	2,550	2,400	2,150
Internal bond	EN 319	N/mm <sup>2</sup>	0.45	0.45	0.4
Swelling in thickness, 24 h	EN 317	%	11	10	10
Internal bond after boil test	EN 1087-1	N/mm <sup>2</sup>	0.15	0.14	0.12

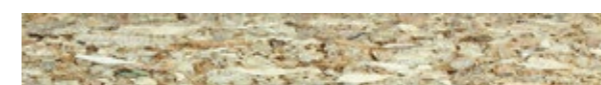
### FORMAT IN MM

Length	Width	Thickness
2,500	1,250	12   15   18   22   25
2,650   2,800   3,000   3,200	1,250	15
3,000	2,500	15
5,040	2,580	12   15   18   22   25

### FLOORPANELS: FORMAT IN MM (OVERALL DIMENSIONS INCL. TONGUE)

Length	Width	Thickness
2,510	635   1,260	12   15   18   22   25

Refer to price list for minimum order quantities. Other formats and thicknesses on request.



# LivingBoard face contiprotect P7



## AREAS OF APPLICATION



Timber construction



Formwork construction

LivingBoard face P7 (sanded board) and LivingBoard face contiprotect P7 (unsanded board) are suitable for all areas of use, in which high load bearing values, moisture resistance and simultaneous formaldehyde-free bonding are important. Both types of board are ideally suitable as absorbent formlining and for stiffening the formwork structure. LivingBoard face contiprotect P7 with its unsanded contiprotect surface offers significantly delayed moisture absorption.

## PRODUCT FEATURES



Low swelling / moisture resistant



Load bearing - particularly high bending strength



Direction-free application



Particularly ecological



Particularly low emission

<b>Product-type</b>	P7
<b>EC scope</b>	EN 13986:2004 +A1:2015 Heavy duty load-bearing boards for use in humid conditions.
<b>Reaction to fire</b>	D-s2,d0 according to EN 13986 dependent on end use (Thickness: $\geq 9$ mm / Gross density: $\geq 600$ kg/m <sup>3</sup> )
<b>Formaldehyde emission class</b>	E1 E05
<b>Service class</b>	1 & 2 - Dry area & moist area (EN 1995-1-1)
<b>Note</b>	FSC certification or PEFC certification available on request.

## MECHANICAL AND PHYSICAL PROPERTIES

Property	Test method	Unit	Requirement Thickness / Range of thickness (mm, nominal dimension)		
Thickness in mm		mm	> 10 to $\leq 13$	> 13 to $\leq 20$	> 20 to $\leq 25$
Mean density	EN 323	kg/m <sup>3</sup>	740-720	720-700	700-680
Bending strength	EN 310	N/mm <sup>2</sup>	22	20	18.5
Bending modulus of elasticity	EN 310	N/mm <sup>2</sup>	3,350	3,100	2,900
Internal bond	EN 319	N/mm <sup>2</sup>	0.75	0.7	0.65
Swelling in thickness, 24 h	EN 317	%	10	10	10
Internal bond after boil test	EN 1087-1	N/mm <sup>2</sup>	0.25	0.23	0.2

From a minimum order quantity of 70 m<sup>3</sup>. Other formats and thicknesses available on request.



# PREMIUM-BOARD

The versatile multi-functional board for formwork construction

## Areas of application

- Ideal for stiffening the formwork structure
- Unfaced formlining with coarse top layer

## Properties

- Moisture resistant
- Attractive natural wood look
- Isotropic strengths in longitudinal and transverse direction
- Sanded surface

## Advantages

- Isotropic strength properties in all panel directions ensure optimised cut-to-size
- Moisture resistant and dimensionally stable
- Nails, screws and staples sit perfectly, even in the edge area

## Materials used

- Fresh forest wood and sawmill wood, recycled material
- Moisture-resistant amino resin

## PremiumBoard MFP P5



Particleboard MFP, type P5 in accordance with EN 312, suitable for load-bearing purposes in damp areas.

### AREAS OF APPLICATION



Timber construction



Packaging construction



Formwork construction

From the concrete formwork to wall sheathing through to the floor construction: The multi-functional board is suitable for all kinds of different applications. It unites strength values and moisture resistance with stability, load-carrying capacity and a decorative look. PremiumBoard MFP P5 can be used non-directionally (in any direction), as it has the same strength values in the transverse and longitudinal direction.

### PRODUCT FEATURES



Sanded



Low swelling / moisture resistant



Load-bearing



Direction-free application



Floor panel available

### Product-type

P5

### EC scope

EN 13986:2004 +A1:2015  
Load-bearing boards for use in humid conditions

### Reaction to fire

D-s2,d0 according to EN 13986 dependent on end use  
(Thickness:  $\geq 9$  mm / Gross density:  $\geq 600$  kg/m<sup>3</sup>)

### Formaldehyde emission class

E1 E05

### Service class

1 & 2 – Dry area & moist area (EN 1995-1-1)

### Note

FSC certification or PEFC certification available on request.

### MECHANICAL AND PHYSICAL PROPERTIES

Property	Test method	Unit	Requirement Thickness / Range of thickness (mm, nominal dimension)			
Thickness in mm		mm	> 8.9 to $\leq 10$	> 10 to $\leq 13$	> 13 to $\leq 20$	> 20 to $\leq 25$
Mean density	EN 323	kg/m <sup>3</sup>	790–690	770–680	700–660	670–650
Bending strength	EN 310	N/mm <sup>2</sup>	18	18	16	14
Bending modulus of elasticity	EN 310	N/mm <sup>2</sup>	2,550	2,550	2,400	2,150
Internal bond	EN 319	N/mm <sup>2</sup>	0.45	0.45	0.45	0.4
Swelling in thickness, 24 h	EN 317	%	13	11	10	10
Internal bond after boil test	EN 1087-1	N/mm <sup>2</sup>	0.15	0.15	0.14	0.12

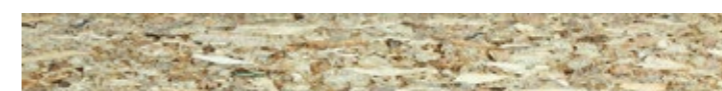
### FORMAT IN MM

Length	Width	Thickness
2,500	1,250	10   12   15   18   22   25
2,800	1,196	12
5,030	1,250   2,500	10   12   15   18   22   25

### FLOORPANELS: FORMAT IN MM (OVERALL DIMENSIONS INCL. TONGUE)

Length	Width	Thickness
2,500	615	12   15   18   22   25

Refer to price list for minimum order quantities. Other formats and thicknesses on request.



# STRUCTURAL CALCULATIONS

The CE-marked products of Pfleiderer have a national technical approval in accordance with the relevant Construction Products Regulation and EN 13986. The characteristic values for the design of timber structures for Pfleiderer wood-based panels are given in EN 12369-1.

## Wood-based construction materials made by Pfleiderer – approvals

DecoBoard P5	approved to CE EN 13986 – P5 / EN 312
DecoBoard P7 S	approved to CE EN 13986 – P7 / EN 312
PremiumBoard MFP P5	approved to CE EN 13986 – P5 / EN 312
LivingBoard P5, P7	approved to CE EN 13986 – P5, P7 / EN 312
LivingBoard face contiprotect P5, P7	approved to CE EN 13986 – P5, P7 / EN 312



# CHARACTERISTIC VALUES

For structural design.

Thickness $t_{nom}$	Strength values in N/mm <sup>2</sup>					Stiffness values in N/mm <sup>2</sup>		
	Bending $f_m$	Tension $f_t$	Pressure $f_c$	Shear across the board plane $f_v$	Shear in the board pane $f_r$	Bending $E_m$	Tension and compression $E_t, E_c$	Transverse shear $G_v$
<b>PremiumBoard MFP P5 / DecoBoard P5</b>								
> 6–13 mm	15.0	9.4	12.7	7	1.9	3,500	2,000	960
> 13–20 mm	13.3	8.5	11.8	6.5	1.7	3,300	1,900	930
> 20–25 mm	11.7	7.4	10.3	5.9	1.5	3,000	1,800	860
<b>LivingBoard P5 / LivingBoard face P5 / LivingBoard face contiprotect P5</b>								
> 6–13 mm	15	9.4	12.7	7	1.9	3,500	2,000	960
> 13–20 mm	13.3	8.5	11.8	6.5	1.7	3,300	1,900	930
> 20–25 mm	11.7	7.4	10.3	5.9	1.5	3,000	1,800	860
<b>LivingBoard P7 / DecoBoard P7 S / LivingBoard face P7 / LivingBoard face contiprotect P7</b>								
> 6–13 mm	18.3	11.5	15.5	8.6	2.4	4,600	2,600	1,250
> 13–20 mm	16.7	10.6	14.7	8.1	2.2	4,200	2,500	1,200
> 20–25 mm	15.4	9.8	13.7	7.9	2	4,000	2,400	1,150

The characteristic values are given in EN 12369-1 and apply to load-bearing structural use under service class 2 conditions.

# GLOSSARY

<b>Surface soundness</b>	The surface soundness describes the force required to separate the top layer of a chipboard. In the test, a steel pad is bonded with adhesive on the board, into which a circular groove has been cut. The steel pad is then drawn upwards with increasing force until the surface tears. The boards must achieve a value of at least 0.8 N/mm <sup>2</sup> . This applies to all thicknesses.
<b>Bending strength</b>	The bending strength describes the bending behaviour of a chipboard under loading and is measured in N/mm <sup>2</sup> . During the test a defined weight presses vertically in the middle of a chipboard, which is supported on the left and right only. The load is increased during the test, whereby the respective board deflection is measured and recorded. The value given in the technical tables indicates the minimum load a board can be exposed to without breaking. The bending strength depends on the board thickness; the thinner the board, the higher the bending strength. This apparent contradiction is related to the applied point load or greater stiffness of the thicker boards.
<b>CE marking</b>	The CE marking (CE stands for Communauté Européenne = French for European Community) is a marking under EU law related to product safety. Since 01/04/2004, CE marking has been mandatory for chipboards that are a construction product. With the CE marking, the manufacturer confirms the conformity of the product with the relevant EC directives and compliance with the “essential requirements” defined in them.
<b>DIN</b>	DIN stands for “Deutsches Institut für Normung e. V.” and is the German national standards organisation based in Berlin. Standards are used to rationalise, inform, for fitness for use, quality assurance, compatibility, replaceability, health and safety and environmental protection. Examples for standards in wood-based panel production: <ul style="list-style-type: none"> <li>a. DIN EN 312 (particleboards)</li> <li>b. DIN EN 622 (MDF)</li> <li>c. DIN EN 14322 (melamine faced boards)</li> </ul>
<b>Modulus of elasticity</b>	The modulus of elasticity in bending (flexural modulus) gives the ratio of stress and strain within the elastic range of a material and its units are N/mm <sup>2</sup> . The value describes the maximum force with which a board can be extended and, after the force has been removed, returns to its original shape.
<b>E1</b>	All wood-based panels produced or sold in Germany must comply with class E1 emission limits. E1 means that the maximum emission of formaldehyde is 0.1 ppm (parts per million). Measured according to DIN EN 16516. No other wood-based panels are permitted in Germany.
<b>ISO</b>	The “International Organization for Standardization” – or ISO for short – is the international association of standardisation organisations and draws up international standards in all areas except electrics and electronics.
<b>ISO 9001</b>	Quality management defines minimum requirements for the quality management system, which a company has to meet to achieve certification.
<b>ISO 14001</b>	Defines minimum requirements for an environmental management system. The objective is to minimise environmental impacts in line with economic, social and political requirements.
<b>Isotropic strength properties</b>	The mechanical strength properties are independent of the production or board direction and are therefore identical in all board directions.
<b>Kelvin</b>	The unit for the thermodynamic temperature T is the Kelvin K. The gradation of the Kelvin scale is the same as that of the Celsius scale. These scales are only shifted by the constant value 273.15, where the Celsius scale has its zero point at the freezing point of water (ice point) and the Kelvin scale has its zero point at the absolute temperature zero point (–273.15 °C).
<b>Melamine faced board</b>	Melamine resin overlay facing, DecoBoard: Paper impregnated with resin is pressed directly onto a raw board.
<b>MDF</b>	Medium density fibreboard

<b>Service class</b>	Service class 1: Dry conditions Service class 2: Humid conditions Service class 3: Exterior conditions
<b>ppm</b>	Parts per million (ppm) stands for the number 10 <sup>-6</sup> and is used in science to denote one millionth, in the same ways as percent (%) for the number 10 <sup>-2</sup> and for one hundredth. In the case of wood-based panels, the term is related to formaldehyde measurement and definition of emission classes. In Germany, only wood-based panels with at least emission class 1 (E1) may be produced and distributed. The formaldehyde content may not exceed 0.1 ppm maximum in the test chamber.
<b>PU glue</b>	PU glue, polyurethane glue
<b>Transverse tensile strength</b>	The transverse tensile strength indicates the force the board can withstand perpendicular to the board plane before it fails (tensile force). It is measured in N/mm <sup>2</sup> . The transverse tensile strength is also dependent on the thickness of a board. This value indicates the load a board can be exposed to before it cracks. The thinner a board, the higher the value of its transverse tensile strength. The reason for this is the higher density and thus the higher compaction in thin boards.
<b>RAL UZ 76 – “Blauer Engel” (Blue Angel)</b>	In the wood-based panel segment it is also possible to have particularly environmentally friendly products marked with the “Blauer Engel” (Blue Angel). Formaldehyde emissions are an important criterion for the award of the Blue Angel for chipboards. Boards with around 50 % lower emissions than standard boards due to the use of so-called formaldehyde scavengers are issued the environmental symbol RAL UZ 76 – the Blue Angel, because they are low-emission products. To receive this environmental symbol, the boards are certified by the RAL Institute.
<b>Relative humidity</b>	In most cases, air contains less water vapour than the quantity corresponding to the saturation content. Relative humidity $\Phi$ (phi) is used to identify the water content of air (pronounced: phi). The relative humidity results from the ratio of the actual water vapour quantity to the saturation quantity (this corresponds to a rel. humidity of 100 %).
<b>Density</b>	Density (aka apparent density, bulk density, dry density) is the mass (weight) per unit volume of a board. The weight is given in kg/m <sup>3</sup> . The density fluctuates depending on board thickness; the thicker a board is the lighter its weight.
<b>Fair-faced concrete</b>	Concrete elements, which are not plastered or clad and whose visible faces are part of the architectural or interior design of the building. The appearance of the concrete surface is partly determined by the formwork facing – the surface of the formwork in contact with the concrete.
<b>Air saturation level</b>	Air is mostly not dry, it contains water in a gaseous state. This gaseous water is invisible water vapour. Air cannot absorb an arbitrary quantity of water vapour; the absorbency is limited. The water vapour absorbency of air depends on the temperature. Warmer air can absorb more water vapour than colder air. The maximal absorbable water content of air is the saturation level of water vapour.
<b>Water vapour pressure</b>	The surface of the earth is enclosed by an air envelope. This air is heavy, it exerts a load on each body with its mass (with its weight). This is the air pressure. It is around 1 bar. The mass (weight) of the water vapour in air produces an additional pressure. This pressure is the water vapour partial pressure; it superimposes the air pressure. The water vapour partial pressure is, in practice, mostly called the “water vapour pressure”. The more humid the air, the greater the water vapour pressure. It depends on the temperature and relative humidity of air; it reaches its maximum value in water vapour saturated air. This is the water vapour saturation pressure.

# SERVICE

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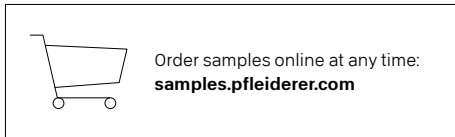
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