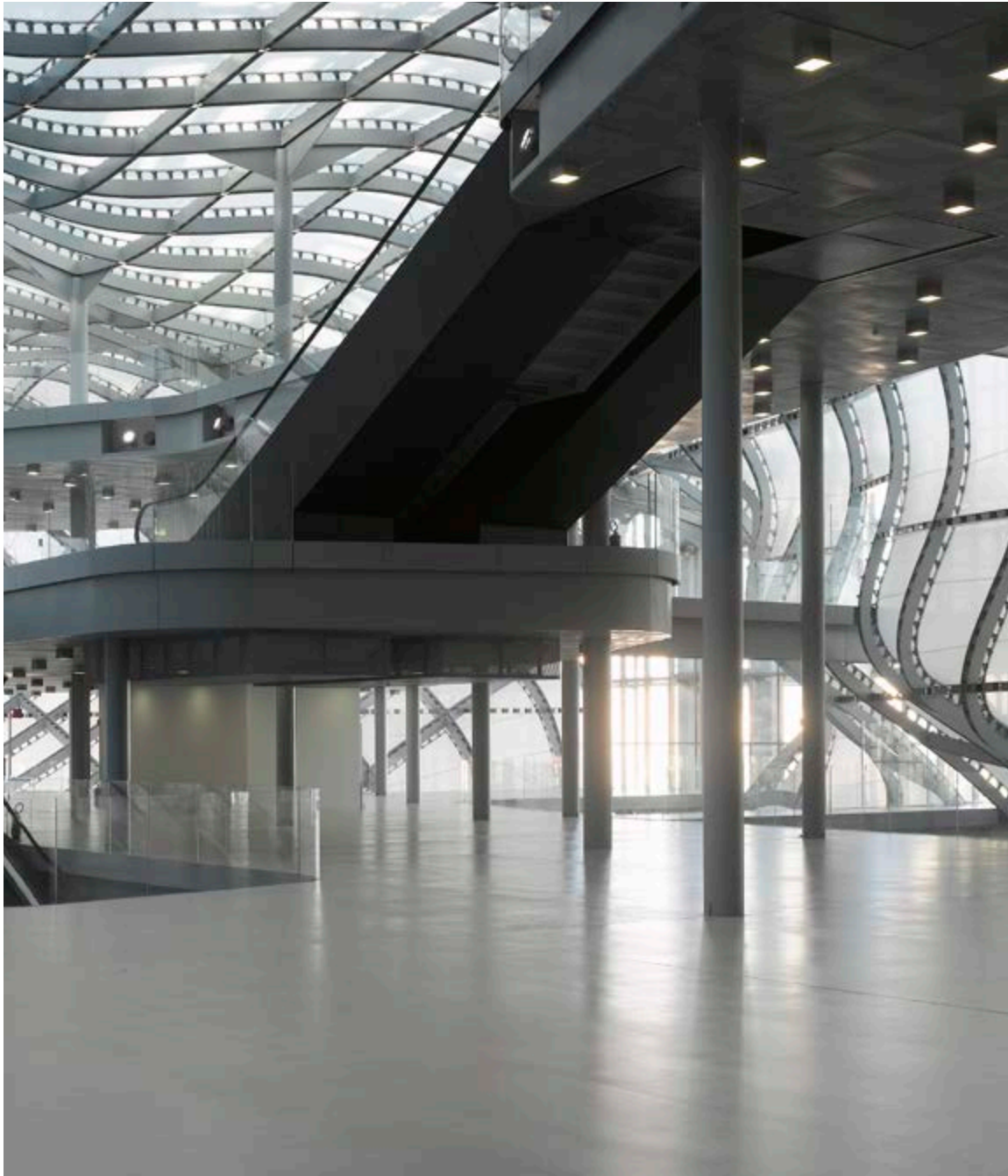


nesite

raising your projects

**TETRIS**  
**FLOOR**





## TETRIS FLOOR

dry raised floor system  
tongue and groove edge  
partially accessible

### SAFETY

Tetris Floor is a tongue and groove edge floor system, made up of the innovative plaster material calcium sulphate, the only building material of its kind that is classified throughout Europe with building materials class A1. It is also non-combustible according to EN 13501-1 (reaction to fire) and offers REI 30 fire protection according to EN 13501-2 (fire resistance).

### STRENGTH AND FLEXIBILITY

Mechanical resistance and durability are key features of Tetris Floor. The manufacturing process determines the structural homogeneity of the material, which is then subjected to a high compression process in order to obtain a product with a density of more than 1500 kg/m<sup>3</sup>.

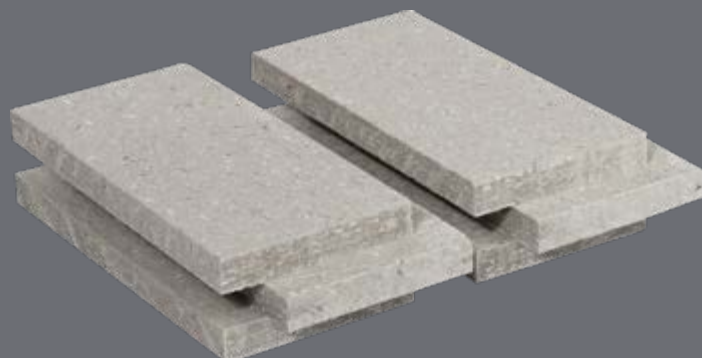
The panels are supplied ready for installation, with a layer of primer that provides high abrasion resistance and protection during transport and installation. Tetris Floor is also available in various thicknesses and sizes and can be combined with any type of finish for a wide range of applications.

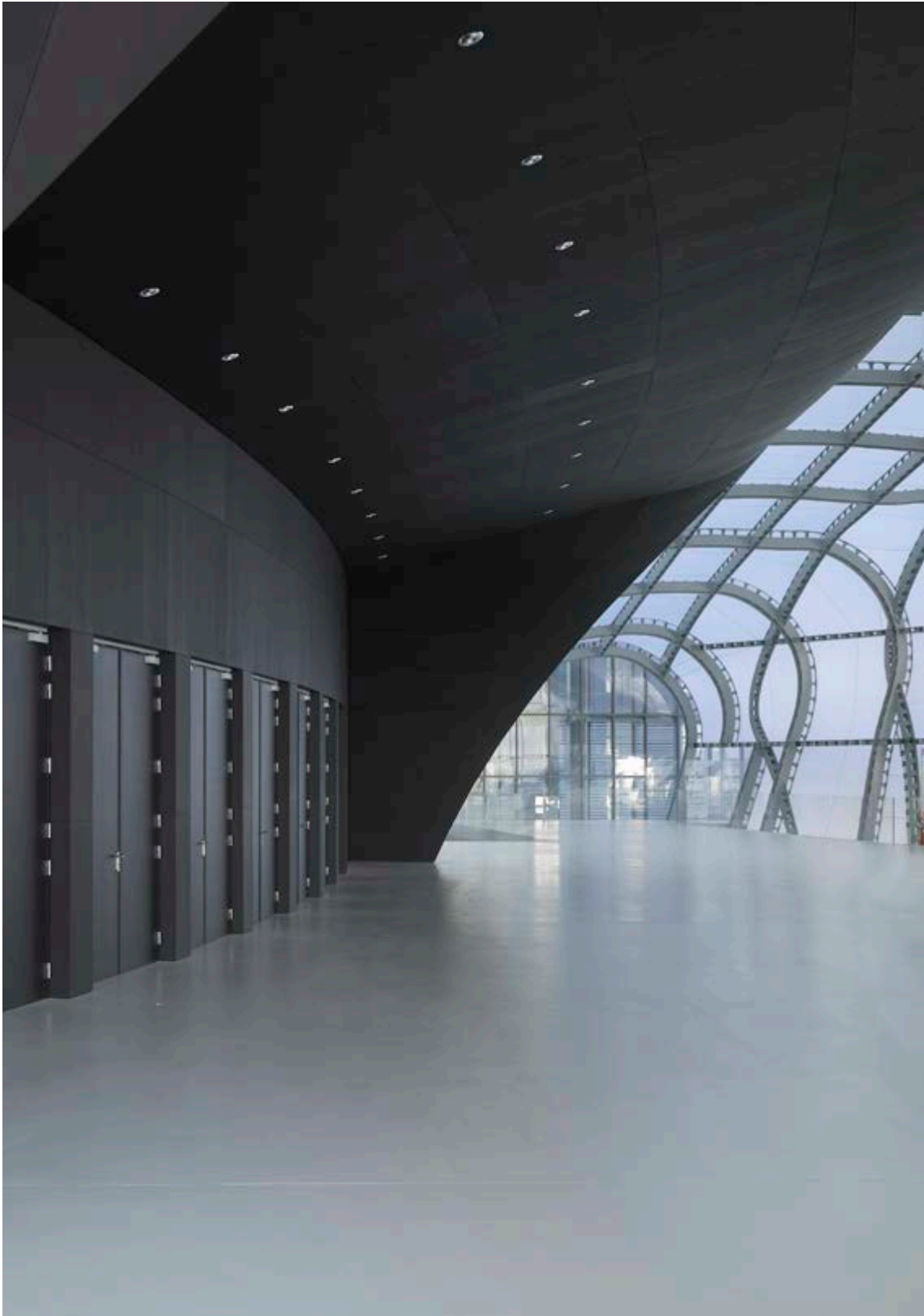
### COMFORT

Tetris Floor, thanks to the dry laying, offers numerous advantages compared with wet flooring systems. No additional moisture is added to the construction during installation. That is the important thing: Tetris Floor requires no drying time at all.

So, depending on the project, you can save several weeks of construction time. Moreover, we like to walk quietly and here is a further plus point of Tetris Floor: the good insulation against transmitted impact sound. And, when it comes to floor covering options, surface finishing and handling Tetris Floor always turns out to be the right choice.

With appropriate accessories like supports, system adhesive, transition profiles or inspection frames, laying is as simple as never before. Flexibility, increased laying efficiency, more advantages. We think you'll like that.





Tetris Floor - "The Cloud" Rome

## General characteristics

- Surface uniformity
- Upon request, in areas where frequent access to the underfloor plenum is required, Tetris Floor system can be combined with removable panels, supported by special aluminium connection profiles.
- It is supplied as a multiple of the standard 600x600 mm format with standard thicknesses from 13 to 42 mm.
- Systems with fire resistance class up to F60 (according to DIN 4102) are available.
- It can be installed in control rooms, research centres, office and/or residential areas.

## Types

TETRIS FLOOR FHB	TETRIS FLOOR BAT
<p>Increased laying efficiency on account of board dimensions 1200 x 600 mm.</p> <p>High laying security due to bracing.</p> <p>Greater loading capacity also with comparatively less board thickness (stabilizing effect on account of glued tongue and groove fixing).</p> <p>Level evenness thanks to the calibrated board thickness and tongue and groove structure.</p> <p>High security on account of system components that are coordinated to one another and inspected.</p> <p>Fire resistance class at least F30 (acc. to DIN 4102). Possible to erect dry walls (stud partition systems) directly on the Tetris Floor sheet-panelled access floor.</p> <p>Ramps, slopes and terracing possible. Can be combined with Tetris Floor panelled access floors, and the appropriate transition profiles can be supplied upon request.</p> <p>Possible position inspection openings, electrants and other outlets at any point in the floor, appropriate inspection frames can be supplied upon request.</p> <p>Application areas: installation-intensive buildings, throughout surfaces for individual floor coverings.</p> <p>Board dimensions: 1200 x 600 mm and 600 x 600 mm with tongue and groove.</p> <p>Standard board thickness: 25 mm, 28 mm, 32 mm.</p>	<p>High-performance installation on account of the dimension 600x1200mm of the panels.</p> <p>Load bearing area non-combustible.</p> <p>Installation of floor coverings could be prefabricated in a workshop.</p> <p>High level of prefabrication.</p> <p>Short term for installation.</p> <p>Easy to uninstall.</p> <p>Noticeable reduction of weight.</p> <p>Surface areas and risers made of the same material. Straight and curved forms are feasible.</p> <p>Direct fixing of the chairs to the Tetris Floor panels.</p> <p>High resistance thanks to the toughness of the material.</p>

## Technical data

Tetris Floor, standard panel (other thicknesses of the FHB panels on request, observe special delivery time)

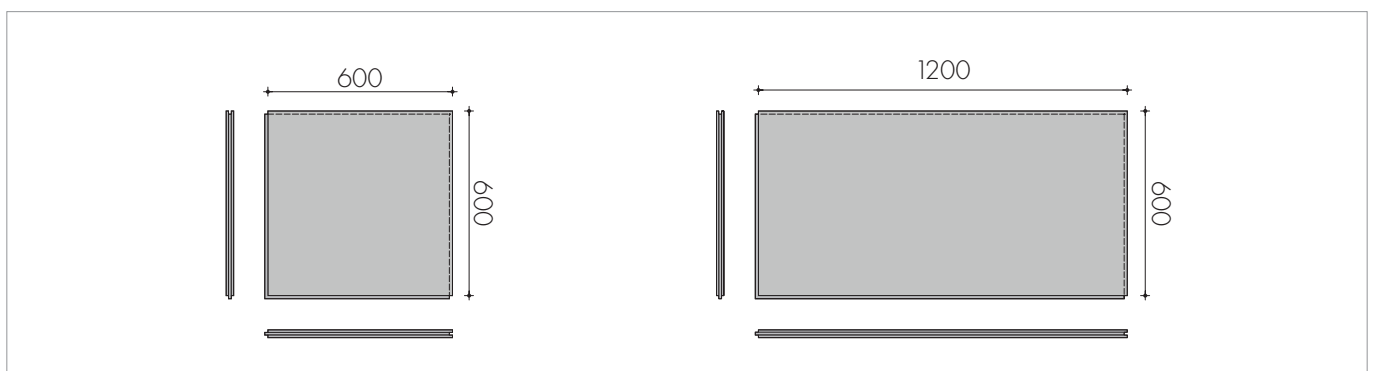
Name	Nominal dimensions mm	Panel thickness mm	Weights (Density $\geq 1500 \text{ kg/m}^3$ ) Panel		Unit pcs./palett
			c. kg/pc.	c. kg/m <sup>2</sup>	
<b>FHB 25</b>	1200x600	25	27.0	37.5	35 pcs./pal.
GF-W1DIR1/1200/600/25-C1/NF					
GF-W1DIR1/600/600/25-C1/NF					
<b>FHB 28</b>	1200x600	28	30.2	42.0	30 pcs./pal.
	600x600	28	15.1	42.0	60 pcs./pal.
GF-W1DIR1/600/600/28-C1/NF					
<b>FHB 32</b>	1200x600	32	34.6	48.0	25 pcs./pal.
GF-W1DIR1/1200/600/32-C1/NF					
	600x600	32	17.3	48.0	50 pcs./pal.
GF-W1DIR1/600/600/32-C1/NF					
<b>FHB 38</b>	1200x600	38	41.2	57.0	20 pcs./pal.
GF-W1DIR1/1200/600/38-C1/NF					
GF-W1DIR1/600/600/38-C1/NF					

To increase the working load and in case of damageable floor coverings to be put onto the Tetris Floor FHB panels

<b>LEP 13</b>	1200x600	13	14.1	19.5	70 pcs./pal.
GF-W1DIR1/1200/600/13-C1/SF					
<b>LEP 18</b>	1200x600	18	19.5	27.0	50 pcs./pal.
GF-W1DIR1/1200/600/18-C1/SF					

DLH panels not to be combined with the above mentioned Tetris Floor panels with density  $1500 \text{ kg/m}^3$

<b>DLH 25</b>	1200x600	25	21.6	30.0	35 pcs./pal.
<b>DLH 13</b>	1200x600	13	11.2	15.6	70 pcs./pal.



## Raw material and production / Building biological data

### Raw material and production

Tetris Floor is produced from natural gypsum and a portion of FGD-gypsum mixed with cellulose fibres made of sorted recycled paper and cardboard. The natural gypsum is extracted in an area c. 30 km around the factory in open-cast minings. The natural-chemical identical clean FGD gypsum is calcined with the natural gypsum to stucco. The papers are soaked in big tanks. After processing time they are mixed with processing water and the stucco to a mush. This mush is put on a transport belt, reaching a thickness of c. 2mm by absorbing the surplus water. On the forming cylinder it is wound up to the needed thickness, roughly cut and after a setting

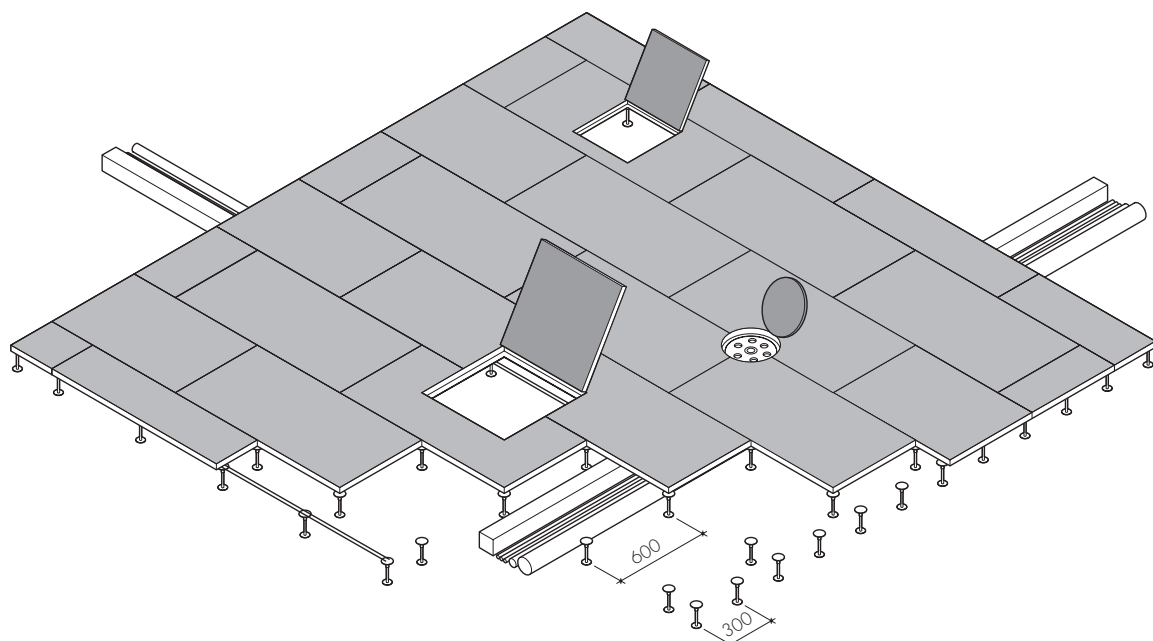
period dried in a 12-layer dryer. The Tetris Floor large-sized panels are been sanded and than shaped in a format station to become Tetris Floor panels. After priming the top and back side of the panels they are packed on pallets. This kind of production of gypsum fibre material ensures the unique homogeneous density through the whole thickness of the Tetris Floor panel.

### Valuation of the eurofins emission test results

Cancerogene	after 3 and 28 days	not detectable
TVOC**	after 3 and 28 days	below the limit
SVOC***	after 28 days	below the limit
VOC*-value R	after 28 days	below the limit
VOC*-value without NIK-value	after 28 days	below the limit
Formaldehyde	after 28 days	below the limit

\* VOC = volatile organic compounds    \*\* TVOC = sum of the volatile organic substances  
 \*\*\* SVOC = sum of the less volatile organic substances

### Laying and processing



Physical/technical data of the material

	Tetris Floor FHB / LEP	Tetris Floor DLH	
<b>FIRE PROTECTION</b>			
Building material class according to EN 13501-1	A1	A1	non-combustible
Building material class according to DIN 4102-1	A2	A2	non-combustible
<b>HYGROTHERMAL VALUES</b>			
Conductivity of heat $\lambda_R$	0.44	0.38	W/(mK)
For floor heating systems $\lambda_{10}$	0.30	-	W/(mK)
Value of vapour diffusion resistance $m$	30 / 50	17	-
Specific heat capacity $c$	>1000	>1000	J/(kgK)
Thermal extension coefficient $\alpha$	$12.9 \times 10^{-6}$	$12.9 \times 10^{-6}$	1/K
Expansion / shrinkage by rise / drop in temperature	$\leq 0.02$	$\leq 0.02$	mm/(mK)
Expansion / shrinkage by changing the rel. air humidity on 30% at 20°C	0.6	0.6	mm/m
Hygrothermal installation conditions (stationary)	+10° to +35°C	+10° to +35°C	c. 45-75% r.h.
Hygrothermal using conditions (stationary)	-10° to +35°C	+1° to +35°C	c. 35-75% r.h.
Surface water absorption capacity acc. to EN20535 (acc. Kopp)	<300	<300	g/m <sup>2</sup>
<b>STRENGTH VALUES</b>			
Surface hardness acc. to Brinell	$\geq 40$	$\geq 20$	N/mm <sup>2</sup>
Pull off bond strength	$\geq 1.0$	$\geq 0.6$	N/mm <sup>2</sup>
<b>OTHER</b>			
Surfaces with transport protecting primer to bond dust and for reduction of water absorption capacity	si	si	-
Ability of taking vertical dynamic maximum working load acc. to EN 13964 without additional treatment	$\geq 100\ 000$	-	endurance

Fire protection

Class	Support height (=clear dimension)	Support thread dimension	Wall thickness sleeve outside Ø	Panel thickness
F 30 AB*	$\leq 1150$ mm	M 20	3.0 mm	$\geq 22$ mm
	$\leq 1000$ mm	M 20	2.5 mm	e.g. FHB25
	$\leq 600$ mm	M 20	1.5 mm	
	$\leq 218$ mm	M 12	17.5 mm	
F 60 AB*	$\leq 598$ mm	M 20	2.0 mm	$\geq 32$ mm
	$\leq 168$ mm	M 16	2.0 mm	e.g. FHB32

\*= The classification is also valid if drywalls (non-loadbearing internal partitions acc. to DIN 4103) are set on the Tetris Floor FHB.



## Acoustic insulation

	Tetris Floor FHB 22			Tetris Floor FHB 25			Tetris Floor FHB 28			Tetris Floor FHB 32		
	without finish	with finish	without finish with separ. joint with separation	without finish	with finish	without finish with separ. joint with separation	without finish	with finish	without finish with separ. joint with separation	without finish	with finish	without finish with separ. joint with separation
Stand. flanking sound val. diff. $D_{n,f,w,P}$ [dB]	42	51	52	~40	~48	~52	39	45	52	46	49	55
Weighted normalized flanking impact sound pressure level $L_{n,f,w,P}$ [dB]	86	50	70	~90	~51	~65	94	52	60	79	49	61
Reduction in impact sound pressure level $\Delta L_{w,P}$ [dB]	15 (17)*	27 (27)*	-	~13	~26	-	12	25	-	16**	29**	-
	Measurement by Kurz und Fischer, (KuF) Pb No. 0247-1			Expectation values calculated by KuF No. 0247-5			Measurement by Kurz und Fischer, (KuF) Pb No. 0247-2			Measurement ita, Pb No. 0102.01-P358/00		
*) with 6mm insulation sheets    **) with PGR-insulation sheets The measurements were taken according to ISO 140. The vertical sound insulation is set by the solid ceiling and is influenced positively by installing a Tetris Floor FHB.												

## Loading class according to EN 13213

Load class	1	2	3	4	5	6
Breaking load	≥4	≥6	≥8	≥9	≥10	≥12
Safety factor	2	2	2	2	2	2
The EN 13213 hollow floors defines the test procedures and classifications of hollow floor systems. Area loads should not be taken as criterion, only the point load is the determining factor. Test by an intendor 25x25mm (simulation of a point load) until fail of the panel at specimens weakest position.						

**Loading class according to EN 13213**

Allowable bearing capacities (working loads) for sheet-panelled access floors single-layer F181 <sup>1)</sup> (acc. to EN 13213)

Floor	FHB 19 <sup>2)</sup>	FHB 22 <sup>2)</sup>	FHB 25	FHB 25	FHB 25	FHB 28	FHB 28	FHB 28	FHB 32	FHB 32	FHB 32	FHB 38	FHB 38
Support	600x600	600x600	600x600	425x425	300x300	600x600	425x425	300x300	600x600	425x425	300x300	600x600	425x425
Working load [kN] <sup>3)</sup>	1.0	2.0	3.0	4.0	4.5	4.0	4.0	4.5	5.0	6.0	6.0	6.0 <sup>5)</sup>	7.0
Loading class <sup>4)</sup>	nessuna	1	2	3	4	3	3	4	5	6	6	6 <sup>5)</sup>	6
Load [kN]	Deflection while load initiating with a stamp 25x25mm for sheet-panelled access floors single-layer F181												
1	n/a	n/a	0.8	0.6	0.4	0.7 <sup>5)</sup>	0.5	0.4	0.6 <sup>6)</sup>	0.4	0.3	0.4	0.2
2		n/a	1.3	1.1	0.8	1.2	1.1	0.7	1.0 <sup>6)</sup>	0.9	0.6	0.8	0.6
3			1.8	1.5	1.2	1.5	1.3	1.1	1.4	1.2	0.9	1.1	0.8
4				2.0	1.5	1.8	1.8	1.4	1.7	1.5	1.2	1.5	1.1
4,5					1.8			1.6	1.8	1.6	1.3	1.6	1.2
5									2.0	1.8	1.4	1.8	1.4
6										2.0	1.6	2.3 <sup>5)</sup>	1.7
7													2.0

Allowable bearing capacities (working loads) for sheet-panelled access floors single-layer F182 <sup>1)</sup> (acc. to EN 13213)

Pavimento	FHB plus 25+13	FHB plus 25+13	FHB plus 25+18	FHB plus 25+18	FHB plus 28+13	FHB plus 28+13	FHB plus 28+18	FHB plus 28+18	FHB plus 32+13	FHB plus 32+13	FHB plus 32+18	FHB plus 32+18	FHB plus 38+18	FHB ultra 38+38	DLH 25+13	DLH 25+13
Support	600x600	425x425	600x600	425x425	600x600	425x425	600x600	425x425	600x600	425x425	600x600	425x425	600x600	425x425	600x600	425x425
Working load [kN] <sup>3)</sup>	4.5	5.0	4.5	5.0	5.0	6.0	6.0	6.0	6.0	7.0	9.0	10.0	12.5	2.0	3.0	4.0
Loading class <sup>4)</sup>	4	5	4	5	5	6	6	6	6	6	6	6	6	6	2	3
Load [kN]	Deflection while load initiating with a stamp 25x25mm for sheet-panelled access floors single-layer F181															
1	0.7	0.5	0.6 <sup>6)</sup>	0.4 <sup>6)</sup>	0.6 <sup>6)</sup>	0.4 <sup>6)</sup>	0.5 <sup>6)</sup>	0.4 <sup>6)</sup>	0.5	0.3	0.3	0.2	0.3	due to special finishing the deflection is not specified	0.7	0.5
2	1.2	1.0	1.1 <sup>6)</sup>	0.9 <sup>6)</sup>	1.1 <sup>6)</sup>	0.9 <sup>6)</sup>	1.0 <sup>6)</sup>	0.8 <sup>6)</sup>	0.9	0.8	0.5	0.3	0.5		1.2	0.9
3	1.5	1.3	1.4 <sup>6)</sup>	1.2 <sup>6)</sup>	1.4 <sup>6)</sup>	1.2 <sup>6)</sup>	1.3 <sup>6)</sup>	1.1 <sup>6)</sup>	1.3	1.1	0.7	0.5	0.7		1.4	1.4
4	1.8	1.6	1.7 <sup>6)</sup>	1.5 <sup>6)</sup>	1.7 <sup>6)</sup>	1.5 <sup>6)</sup>	1.6 <sup>6)</sup>	1.4 <sup>6)</sup>	1.6	1.4	0.9	0.6	0.9		1.8	
4,5	1.9	1.8	1.8 <sup>6)</sup>	1.7 <sup>6)</sup>	1.8 <sup>6)</sup>	1.7 <sup>6)</sup>	1.7 <sup>6)</sup>	1.6 <sup>6)</sup>	1.7	1.5	1.0	0.7	1.0			
5		1.9		1.9 <sup>6)</sup>	2.0 <sup>6)</sup>	1.9 <sup>6)</sup>	1.9 <sup>6)</sup>	1.8 <sup>6)</sup>	1.9	1.7	1.1	0.8	1.0			
6						2.0 <sup>6)</sup>	2.0 <sup>6)</sup>	2.0 <sup>6)</sup>	2.0	1.9	1.3	1.0	1.1			
7										2.0	1.5	1.2	1.2			
8											1.7	1.4	1.4			
9											1.9	1.6	1.5			
10												1.9	1.6			
11													1.8			
12													1.9			
12,5													2.0			

The load bearing capacity of the tested double-layer systems is mainly affected by the thickness of the lower bearing panel. Reducing the thickness of the lower panel reduces the load bearing capacity of the complete system, even the total thickness of the system is equal. If the upper panels are weakened by milling (e.g. for heating pipes), the load bearing capacity of the lower panel is equal to the load bearing capacity of the single-layer system F181 with adequate panel thickness.

If the lower panel is milled the thickness below the milling solely has to be estimated. Support, fillings / self levelling full area mastic compound coatings and floor finishings have to be designed for the specific loads.

Special kind of supports for fire protection from bottom side are required.

Further heavy load floors on request.

<sup>1)</sup> The grid system 425x425mm is generated by additional supports put in the middle of the standardized grid 600x600mm

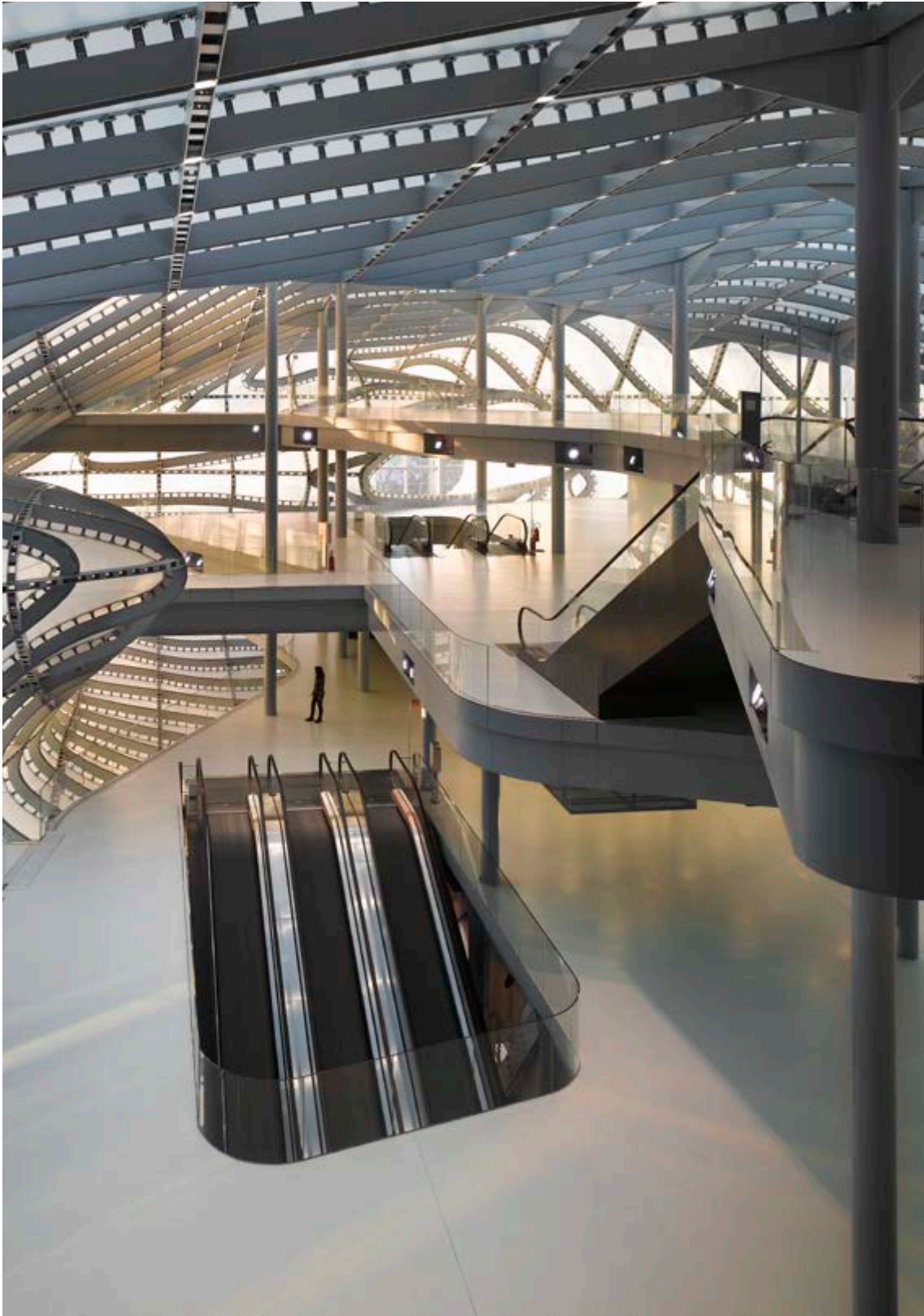
<sup>2)</sup> Special thickness available on request

<sup>3)</sup> (= Ultimate load / safety factor 2)

<sup>4)</sup> acc. EN 13213

<sup>5)</sup> only according breaking load criterion

<sup>6)</sup> Values interpolated



Tetrakis Floor - "The Cloud" Rome

**n e s i t e**

raising your projects

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