



**PROFIDECK™**



**MM profideck**  
BRETTSCHICHTHOLZDECKE

**arcon**  
HOUTCONSTRUCTIES

A close-up photograph of a person's hands, wearing a light brown long-sleeved shirt, cupping a small evergreen seedling. The seedling has dark green needles and a thick, dark brown soil ball at its base. The person's hands are positioned to support the seedling from below, with fingers slightly curled. The background is a soft, out-of-focus light brown color, matching the shirt. A dark red rectangular box is overlaid on the left side of the image, containing white text.

## In safe hands

Mayr-Melnhof Holz is committed to sustainable and ecological practices. Informed and responsible management of natural resources – regrowth and expansion of our forests – lies at the heart of our business.



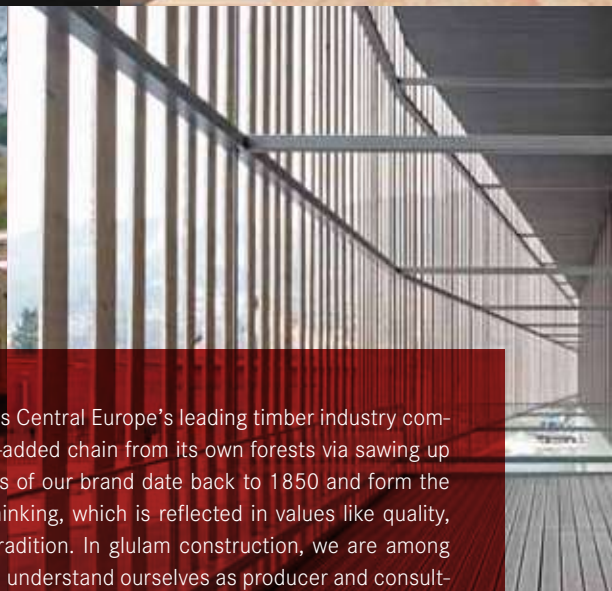
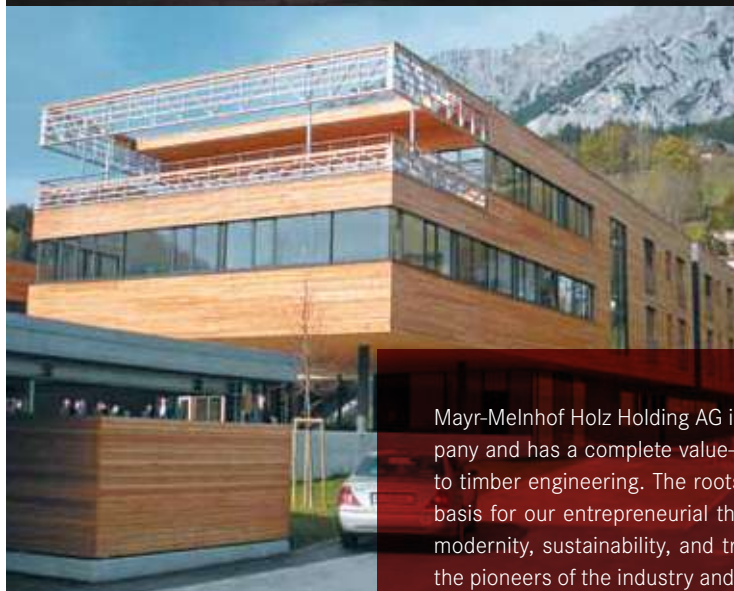
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WHERE  
IDEAS  
CAN  
GROW.



Mayr-Melnhof Holz Holding AG is Central Europe's leading timber industry company and has a complete value-added chain from its own forests via sawing up to timber engineering. The roots of our brand date back to 1850 and form the basis for our entrepreneurial thinking, which is reflected in values like quality, modernity, sustainability, and tradition. In glulam construction, we are among the pioneers of the industry and understand ourselves as producer and consultant for perfect solutions in timber from a single source. Our business partners are based in timber trade, timber processing and the construction or packaging industry, respectively. The sawmill locations for the sawn timber area are located in Leoben (Austria), Frankenmarkt (Austria), Paskov (Czech Republic) and Efimovskij (Russia). Timber processing is undertaken in Gaishorn (Austria), Kalwang (Austria), Reuthe (Austria) and Richen (Germany). With a biomass power station at the Leoben site as well as pellet and briquette production at individual locations, Mayr-Melnhof is furthermore active in the area of bio-energy.



## Products of Mayr-Melnhof Holz



**MM masterline**  
Glulam beams



**MM vistaline**  
Duo-/Trio beams



**MM profideck**  
Laminated ceiling elements



**MM blockdeck**  
Floor and wall beams



**MM crosslam**  
Cross-laminated timber



**K1 multiplan**  
3-ply structural panels



**K1 yellowplan**  
Formwork panels



**HT 20plus**  
Formwork beams



**MM sawn timber**



**MM royalpellets**



**MM royalbriquettes**

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## MM profideck

LAMINATED CEILING ELEMENTS

### The ceiling for a better living environment

**MM profideck** elements are laminated, profiled glulam panels that fulfil both the economic and ecological aspects of the high requirements in residential and commercial buildings.

**MM profideck** elements are produced in thicknesses from 8 to 26 cm, in a standard width of 62.5 cm and in lengths up to 18 m at all factories of the Group. Depending on the structural requirements and the technical capabilities of our factories, the elements are available with double or multi-groove and tongue, single-grooved or square-edged profiles. Every ceiling that leaves our factory is loaded in the correct assembly sequence and delivered directly to the construction site.



### Areas of application

- Residential houses and apartment buildings
- Hotel and restaurant buildings
- Commercial buildings, warehouses
- Schools, nurseries, sports halls
- Agricultural buildings, barns, stables
- Office buildings
- Bridges
- Renovation

### Properties

- Exact fit and inherently stable
- Simple and quick to assemble
- Dry construction, ready to use
- Lower dead load than concrete ceilings
- Lower ceiling height than I-joist or beam ceilings
- Suitable for shear diaphragm construction
- Joint-free and snug, no nails or dowels
- Easy to machine with carpentry tools
- Excellent thermal insulation values
- CO<sub>2</sub> reservoir, environmentally friendly
- Pleasant ambient living environment



EC Certificate of  
Conformity  
EN 14080



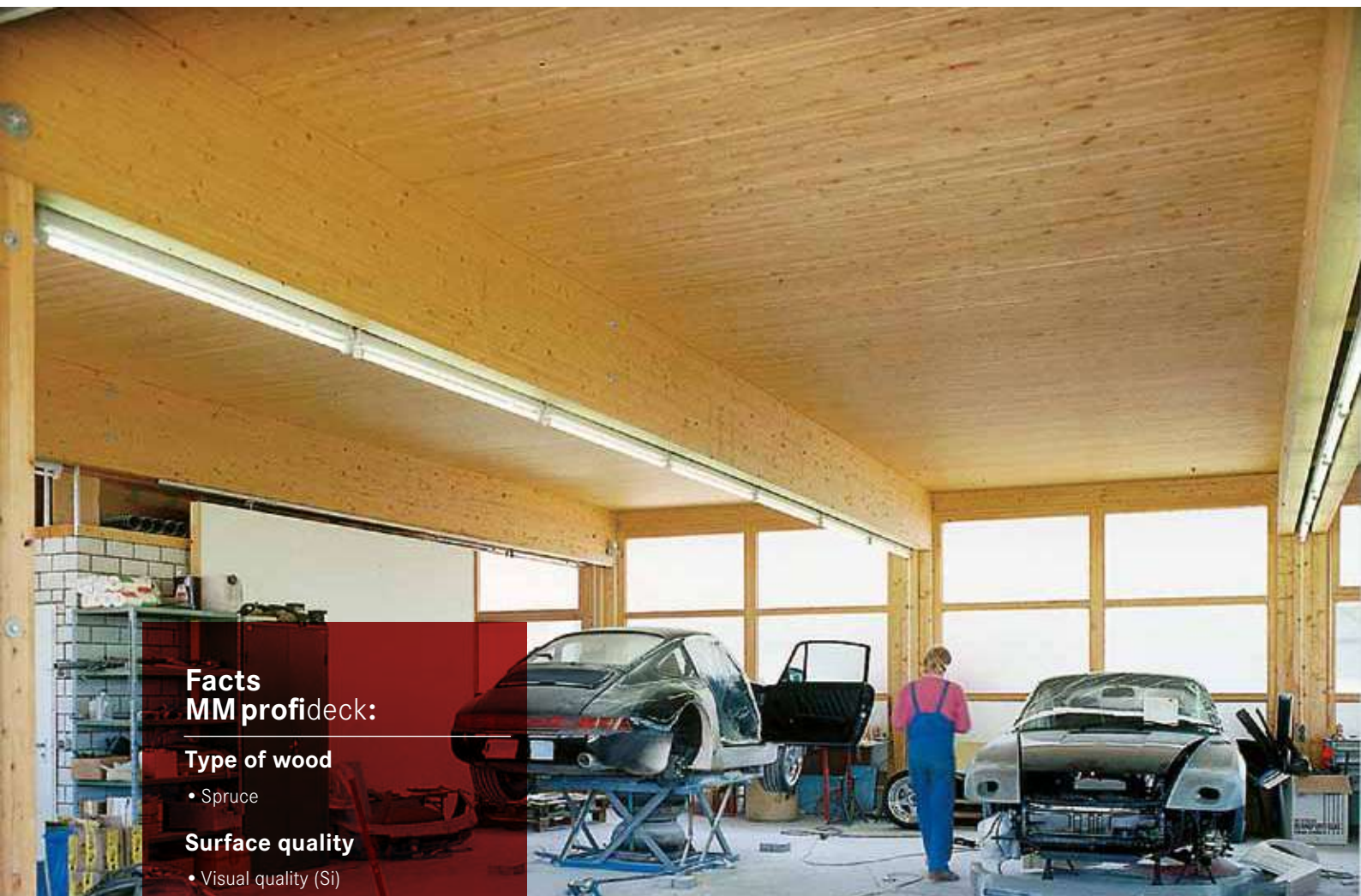
Certificate of  
Compliance  
DIN 1052



Chain of Custody



ISO 9001  
Quality management



## Facts MM profideck:

### Type of wood

- Spruce

### Surface quality

- Visual quality (Si)
- Industrial quality (NSi)

### Dimensions

- Thicknesses: from 8 to 26 cm
- Widths: to 120 cm
- Lengths: from 4 to 18 m

### Product standard

- EN 14080, DIN 1052
- DIN 1052:2008

### Strength class

- GL 24h

### Profiles

- Double and multiple groove and tongue
- Only for connecting tongues
- Lapped joints
- Square-edged

## The fastest ceiling in the world

An immediately load-bearing ceiling permitting any type of flooring or roof construction and simultaneously providing a visible quality ceiling ready for use can be assembled in record time using the **MM profideck**. Thanks to the pleasant surface temperature of timber, the **MM profideck** creates a comfortable living environment.

The high level of pre-assembly and the perfect fitting accuracy of the individual elements enable rapid installations on site. The short assembly time and ease of machining along with the relatively low weight make it an exceptional alternative to conventional reinforced concrete ceilings and wooden beam ceilings in every respect.

# Technical data

## Product

Profiled glulam ceiling elements

## Types of wood

Spruce (visible quality), spruce/fir (industrial quality) from domestic forests

## Grading

Visual sorting acc. to EN 14081/DIN 4074  
Sorted on the narrow side of the lamella

## Product standard

EN 14080 or DIN 1052:2008

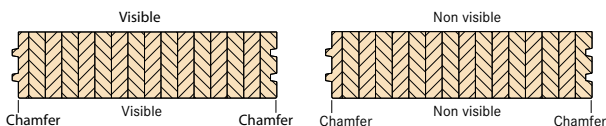
## Strength class

GL 24h

## Surface quality

Visual quality (Si):

Industrial quality (NSi):



For detailed description of quality:  
see p. 10 of **MM masterline** chapter

## Edges

Chamfered under side, sharp-edged top side

## Service classes

**MM profideck** elements must only be used in service classes 1 or 2 pursuant to EN 386:1996-07 without climatic cycling, i.e. in indoor areas or under the roof.

## Material properties

Characteristic values of strength class GL 24h according to EN 1194

Characteristic density	$\rho_k$	[kg/m <sup>3</sup> ]	380
Bending strength	$f_{m,k}$	[N/mm <sup>2</sup> ]	24
Tensile strength II	$f_{t,0,k}$	[N/mm <sup>2</sup> ]	16.5
Tensile strength $\perp$	$f_{t,90,k}$	[N/mm <sup>2</sup> ]	0.4
Compressive strength II	$f_{c,0,k}$	[N/mm <sup>2</sup> ]	24
Compressive strength $\perp$	$f_{c,90,k}$	[N/mm <sup>2</sup> ]	2.7
Shear strength	$f_{v,k}$	[N/mm <sup>2</sup> ]	2.7
Average modulus of elasticity	$E_{0,g,mean}$	[N/mm <sup>2</sup> ]	11,600
Modulus of elasticity 5% percentile	$E_{0,g,05}$	[N/mm <sup>2</sup> ]	9,400
Average modulus of elasticity	$E_{90,g,mean}$	[N/mm <sup>2</sup> ]	390
Shear modulus	$G_{g,mean}$	[N/mm <sup>2</sup> ]	720



## Dimensioning

The **MM profideck** elements are dimensioned according to Eurocode 5 or DIN 1052 as a single-axis stressed bending beam over one or more spans. For horizontally installed glulam, a bending and shear strength increased by up to 20% can be applied in the load-bearing capacity calculation.

## Design of diaphragm

- The **MM profideck** elements can be combined to become structurally effective diaphragms and contribute to horizontal reinforcement of the building. This lateral bracing effect must be demonstrated in any case.
- Strips of engineered wood (e.g. **K1 multiplan**) nailed on by the customer connect the individual elements into one overall plate.
- Alternatively, diagonally nailed-on spiked bands can be used for the horizontal reinforcement.

## Gluing

Melamine resin-based adhesive, adhesive type I acc. to EN 301 approved for gluing load-bearing timber components, for both interiors and exteriors.

## Colour of glue line

Light coloured glue lines (melamine adhesive)

## Lamella thickness

40 - 70 mm





### Moisture content

10 to 12%  $\pm$  2%

### Density

ca. 450 kg/m<sup>3</sup>

### Thermal conductivity

$\lambda = 0.13 \text{ W/(mK)}$

### Diffusion resistance value

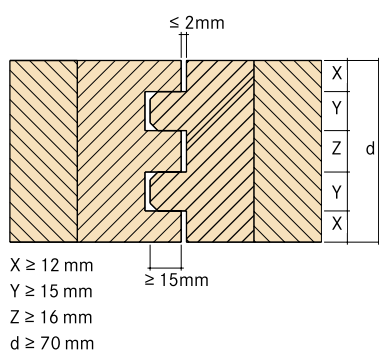
$\mu = 20$  to 40

### Equivalent air space thickness

$s_d = \mu \times \text{element thickness}$

### Behaviour in case of fire

only applies to grooves up to 2 mm



Classification of **MMprofideck** elements:

#### Nach EN 13501

Euro class D  
Smoke class s2  
Drip class d0

#### Nach DIN 4102-1

B2 standard inflammable

Charring rate  $\beta_0$  is 0.7 mm/min acc. to EN 1995-1-2. For proof of fire resistance class, e.g. REI 30 or REI 60, the double groove and tongue profile of the **MMprofideck** meets the minimum requirements of the joint geometry.

### Emission class

**MMprofideck** clearly falls below the limit values of emission Class E1 ( $\leq 0.1 \text{ ppm HCHO}$ ).

### Shrinkage and swelling behaviour

**MMprofideck** elements have an average shrinkage and swelling tolerance of 0.24% in both width and height per 1% change in the wood moisture. Changes in length of 0.01% can generally be ignored.

An equilibrium moisture content of approx. 9% is to be anticipated in closed, normally ventilated rooms. This corresponds to the equilibrium moisture content at a room temperature of 20°C and a relative humidity of 50%.

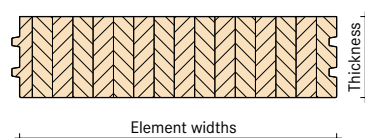
Small shrinkage cracks may arise due to the natural and thus unavoidable shrinkage and swelling behaviour of the timber depending on the ambient conditions.

The shrinkage and swelling behaviour of the **MMprofideck** elements must be taken into account in all joints and details of the design.

### Dimensional tolerances

The dimensional tolerances for glulam are regulated in EN 390. The reference moisture measurement is 12%.

Element thickness	60 mm $\leq$ b $\leq$ 300 mm	
Thickness tolerance	$\pm 2 \text{ mm}$	
Element widths	100 mm $\leq$ h $\leq$ 400 mm	400 mm $<$ h $\leq$ 1,000 mm
Width tolerance	+ 4 mm / - 2 mm	+ 1% / - 0.5%
Element lengths	4.0 m bis $<$ 20 m	$>$ 20 m
Length tolerance	$\pm 0.1\%$	$\pm 20 \text{ mm}$









## Product range

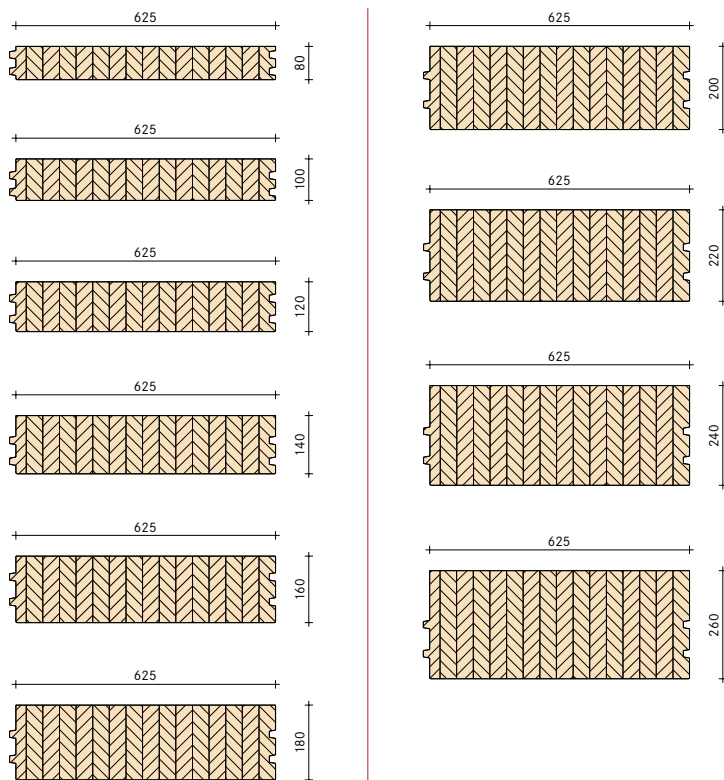
### Dimensions

Thicknesses: 8 to 26 cm, in 2 cm intervals  
Standard width: 64 cm (net width covered)  
Special widths: from 40 cm to 120 cm on request  
Lengths: from 4 m to max. 18 m

### Dimension definition

Invoiced width: Covered width + 15 mm  
Element width (64 cm)

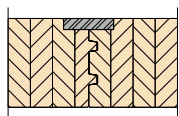
### Element dimensions



### Longitudinal joints

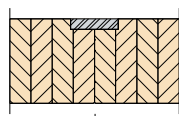
The longitudinal joints are normally realised as double or multiple tongue and groove profiles.

Double T & G with  
engineered timber strip



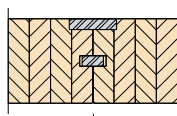
Chamfer

Butt-jointed with  
engineered timber strip



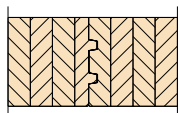
Chamfer

Double groove with 2 loose  
tongues and engineered  
timber strip



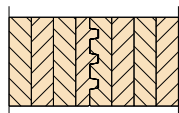
Chamfer

Double T & G without  
engineered timber strip



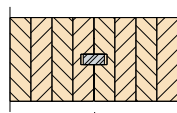
Chamfer

Multiple T & G without  
engineered timber strip



Chamfer

Single groove with  
loose tongue



Chamfer



### Minimum order quantity

A minimum order quantity of 60 m<sup>2</sup> is required due to the **MM**profideck elements being manufactured on an order basis.

### Custom joinery

Ready-to-mount beam according to your design specifications incl. fixed lengths, recess areas, drillholes, cavities, longitudinal rebates and laying plans on request.

### Longitudinal joints with rebate

Factory produced rebate 20 x 45 mm or 20 x 60 mm possible on request (above 10 cm thickness). An engineered wood panel made from **K1 multiplan** for joining the individual elements can also be delivered on request.

### Packaging

Individually wrapped packages, in assembly sequence upon request

### Storage

The elements may not be exposed to weathering at any time.

### Assembly

- Delivery directly to the building site, subject to arrangement
- Rapid assembly due to clearly marked elements and easy identification of the elements on the fabrication as well as on assembly drawings

- Secure assembly by screwing eye bolts or assembly loops into premounted threaded «Rampa» inserts (type BL, external diameter 22 mm, internal thread M12, length 60 or 100 mm) on request. 4-eye bolts are supplied per commission.
- Effortless assembly and connection of the elements by specially undercut T & G profile. The difficult insertion of centred loose strips (separate tongue) is avoided.
- No delays during the construction period as the ceiling can be loaded immediately.

### Coatings

- Optionally, we brush-treat the elements with a water-soluble primer to minimise any absorption of moisture during the assembly phase.
- Small shrinkage cracks may arise due to the natural and thus unavoidable shrinkage and swelling behaviour of the timber depending on the ambient conditions.
- It is recommended that coatings should not be applied until the equilibrium moisture content has been reached.

### Quality assurance

In-house production is subject to constant controls as well as external monitoring by independent institutes from Austria and Germany twice a year. Continuous product tests and documentation of the processes form the basis of the Mayr-Melnhof quality assurance.

## Certified quality



EG-conformity certificate



Certificate of compliance



PEFC certificate



ISO 9001 certificate

# Floor build-ups

## Acoustic values

Noise reduction in multi-storey buildings is an extensive and complex field which requires a high level of specialist know-how and detailed planning.

The sources listed in the following provide detailed information on this subject:

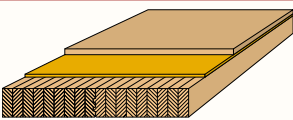
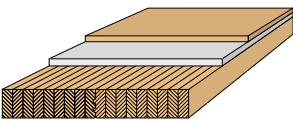
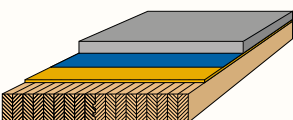
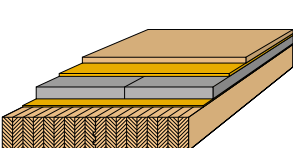
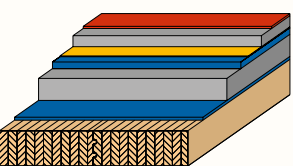
**Deckenkonstruktionen für den mehrgeschossigen Holzbau**, (Ceiling constructions for multi-storey timber constructions), Volume 20, Holzforschung Austria series, May 2009

**Schallschutz von Decken**, (Soundproofing of ceilings), Lignatec 22 / 2008, LIGNUM July 2008

For depictions of ceiling structures, please visit [www.dataholz.com](http://www.dataholz.com)



## Floor build-ups

		Weight [kg/m <sup>2</sup> ]	Build-up floor height [mm]	Airborne noise R <sub>w</sub> dB	Impact noise L <sub>N,w</sub> dB
	<ul style="list-style-type: none"> <li>• Particle board, 25 mm</li> <li>• Mineral fibre sound insulation board, 12/10 mm, 80 to 110 kg/m<sup>3</sup></li> <li>• <b>MM profideck</b> 120 mm</li> </ul>	72	155	49	67
	<ul style="list-style-type: none"> <li>• Particle board, 25 mm</li> <li>• Dry fill, 30 mm</li> <li>• <b>MM profideck</b> 120 mm</li> </ul>	76	175	49	70
	<ul style="list-style-type: none"> <li>• Cement supporting floor, 50 mm</li> <li>• Waterproof layer, 0.2 mm</li> <li>• Mineral fibre board, 12/10 mm, 80 to 110 kg/m<sup>3</sup></li> <li>• <b>MM profideck</b> 120 mm</li> </ul>	164	180	53	66
	<ul style="list-style-type: none"> <li>• Particle board, 25 mm</li> <li>• Mineral fibre sound insulation board, 12/10 mm, 80 to 110 kg/m<sup>3</sup></li> <li>• Concrete slab, dry 500/500/50 mm, 120 kg/m<sup>2</sup>, slab gap approx. ca. 2 mm</li> <li>• Noise impact insulation fleece, 3 mm</li> <li>• <b>MM profideck</b> 140 mm</li> </ul>	182	228	56	61
	<ul style="list-style-type: none"> <li>• Flooring 10 mm</li> <li>• Cement screed 50 mm</li> <li>• Waterproof layer 0.2 mm</li> <li>• Sound insulation board 30 mm, s' ≤ 9 MN/m<sup>3</sup></li> <li>• Grit fill, 100 mm loose, ρ &gt; 1400 kg/m<sup>3</sup></li> <li>• Membrane</li> <li>• <b>MM profideck</b> 160 mm</li> </ul>	328	350	≥ 65	≤ 47

Source: Informationsdienst Holz: Holzbauhandbuch 3rd series, part 3, issue 3 and Schweizer Lignum: IP Holz 933 d: Schalldämmung von Geschossdecken aus Holz».



# Span tables

## Example: Calculation of a load

- Loading on a field by field basis is not taken into account
- Allowance must be made for the dead load of the **MM profideck**
- Uniform loading
- Creep deformations are not taken into account
- The deflection criteria must be selected according to requirements: either  $l/300$  or  $l/400$ .
- Tables can be used for:  
GL 24h = DIN 1052:2004, SIA 265  
BS 11 = DIN 1052:1988, ÖNORM B 4100-2



## Requirements

Vertical working load acc. to DIN 1055	=	2.00 kN/m <sup>2</sup>
Lightweight partition walls	=	0.75 kN/m <sup>2</sup>
1 cm tiling	=	0.20 kN/m <sup>2</sup>
Flooring material: 6 cm floor finish	=	1.50 kN/m <sup>2</sup>
Dead weight, <b>MM profideck</b> 12 cm	=	0.55 kN/m <sup>2</sup>
<hr/>		
Load q	=	5.00 kN/m <sup>2</sup>

## Single span beam

Load q [kN/m <sup>2</sup> ]	Deflection $f = l/300$ Element thickness [mm]								Deflection $f = l/400$ Element thickness [mm]							
	100	120	140	160	180	200	220	240	100	120	140	160	180	200	220	240
2.5	4.54	5.45	6.36	7.27	8.18	9.08	9.99	10.90	4.12	4.95	5.78	6.60	7.43	8.25	9.08	9.90
3	4.27	5.13	5.98	6.84	7.69	8.55	9.40	10.26	3.88	4.66	5.43	6.21	6.99	7.77	8.54	9.32
3.5	4.06	4.87	5.68	6.50	7.31	8.12	8.93	9.75	3.69	4.42	5.16	5.90	6.46	7.38	8.12	8.85
4	3.88	4.66	5.43	6.21	6.99	7.77	8.54	9.32	3.53	4.23	4.94	5.64	6.35	7.06	7.76	8.47
4.5	3.73	4.48	5.23	5.97	6.72	7.47	8.21	8.96	3.39	4.07	4.75	5.43	6.11	6.78	7.46	8.14
5	3.60	4.32	5.05	5.77	6.49	7.21	7.93	8.65	3.27	3.93	4.58	5.24	5.89	6.55	7.21	7.86
5.5	3.49	4.19	4.89	5.59	6.28	6.98	7.68	8.38	3.17	3.80	4.44	5.07	5.71	6.34	6.98	7.61
6	3.39	4.07	4.75	5.43	6.11	6.78	7.46	8.14	3.08	3.70	4.31	4.93	5.55	6.16	6.78	7.40

## Double span beam and triple span beam (equal spans)

Load q [kN/m <sup>2</sup> ]	Deflection $f = l/300$ Element thickness [mm]								Deflection $f = l/400$ Element thickness [mm]							
	100	120	140	160	180	200	220	240	100	120	140	160	180	200	220	240
2.5	5.64	6.77	7.90	9.02	10.15	11.28	12.41	13.54	5.12	6.15	7.17	8.20	9.22	10.25	11.28	12.30
3	5.31	6.37	7.43	8.49	9.55	10.62	11.68	12.74	4.82	5.79	6.75	7.72	8.68	9.65	10.61	11.58
3.5	5.04	6.05	7.06	8.07	9.08	10.08	11.09	12.10	4.58	5.50	6.41	7.33	8.25	9.16	10.08	11.00
4	4.82	5.79	6.75	7.72	8.68	9.65	10.61	11.58	4.38	5.26	6.13	7.01	7.69	8.76	9.64	10.52
4.5	4.63	5.56	6.49	7.42	8.35	9.27	10.20	11.13	4.21	5.05	5.90	6.74	7.58	8.43	9.27	10.11
5	4.47	5.37	6.27	7.16	8.06	8.95	9.85	10.75	4.06	4.88	5.69	6.51	7.32	8.13	8.95	9.76
5.5	4.33	5.20	6.07	6.94	7.81	8.67	9.54	10.41	3.94	4.73	5.51	6.30	7.09	7.88	8.67	9.46
6	4.21	5.05	5.90	6.74	7.58	8.43	9.27	10.11	3.82	4.59	5.36	6.12	6.89	7.65	8.42	9.19

This table is used for pre-dimensioning. A precise structural analysis must be made prior to implementation.

# 8 Locations

- 4 Sawmills
- 4 Timber processing plants
- 2 Pellets production sites
- 3 Briquettes production sites



**arcon**  
HOUTCONSTRUCTIES

Arcon bv  
Collseweg 23  
5674 TR Nuenen  
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E : [info@arconbv.nl](mailto:info@arconbv.nl)  
W : [www.arconhoutconstructies.nl](http://www.arconhoutconstructies.nl)



HET HOUTBOUW COLLECTIEF

Arcon bv participeert in het  
Houtbouw Collectief.