FORESTIA

TECHNICAL MANUAL

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LOAD CAPACITY FOR 22MM FORESTIA FLOORING
Permitted load calculations

LOAD CAPACITY FOR UNIFORMLY DISTRIBUTED LOADS

Assuming that the load duration is classified as long-term and that construction is in climate class 1 (in accordance with NS-EN 1995-1-1), the boards are calculated as able to carry the following characteristic uniformly distributed loads (in accordance with NS-EN 1991 1-1):

Board type	Maximum characteristic load in kN/m ^{2}		
	Joist spacing		
	c/c 600 mm	c/c 400mm	c/c 300mm
Standard/Extra	6.0	12.6	16.8
Elite	6.9	14.9	19.9

This results in the following deflection of the board:

Board type	Deflection (mm)		
	Span		
	c/c 600 mm	c/c 400mm	c/c 300mm
Standard/Extra	1.4	0.6	0.2
Elite	1.4	0.6	0.2

Load capacity for point loads
With characteristic loads according to NS-EN 1991-1-1 and the above load duration and climate class, the following permitted point loads are obtained:

Standard and extra: **2.7 kN**
Elite: **3.2 kN**
With cross joints within the joist span: **2.1 kN**

JOIST TABLES
Important points for using the tables

GENERAL
In lightweight suspended storey partitions in residential construction, etc., maximum joist spans will generally be determined by the requirement to avoid distracting vibrations and shaking rather than the strength of the joists. In buildings with larger floor loads, joist strength may determine the joist span dimensions. The joist span is the distance between the supporting structures. As vibration often determines the dimensions, in many cases the joist spans may remain the same even when the floor load is increased.

What is perceived as distracting vibration or shaking varies widely depending on persons and usage, furnishings and adjacent structures.

To prevent distracting vibration, tables dimensioned according to "Comfort Criteria" have been compiled in recent years. Comfort has also been employed in recent years for the Masonite joist; this calculation method is described in Byggforsk series 522.351.

The deadload of partition walls is not included in the tables, but can be taken into account by using correction factor, k for deadloads.

The table collection also contains tables with herringbone struts, which gives a potential for a slight increase in joist span dimensions. It is assumed that herringbone struts are mounted as noggings between the Masonite floor joists; these must have the same height as the floor joist; also that a lengthways panel is glued and nailed/screwed under the noggings. The figure shows how the herringbone strutting is carried out. The execution is further described in our construction detail B10-100

CONDITIONS AND CORRECTIONS
In addition to checking requirements for vibrations, the tables are also for checking strength and deflection under uniformly distributed loads less than or equal to 3.0 and 4.0 kN/m ².
The tables with concrete screeding have an additional 50 mm reinforced layer of and 10 mm tiling included in the deadload.

The calculations are carried out according to NS-EN 1995-1-1 and NS-EN 1990, reliability class 1-3.
Loads lower than 3.0 kN/m² give the same joist span dimensions as for 3.0 kN/m², as the vibration requirements are independent of the floor load. Maximum (final) deflection is set to L/250 for frequently occurring load combinations; as the vibration requirement and strength are what generally determine the table readings, the maximum deflection in most cases will be less than L/250.

By tradition, Norway does not include shear deformation in joist tables; the same applies to tables for the Masonite joists. In cases where a check on this is required, separate calculations can be done or the call centre can be contacted. For floor loads up to and including 3.0 kN/m ², shear deformation is very rarely a determining factor for the most common table options, but for loads of 4.0 kN/m², this happens slightly more frequently.

For centre distances of c/c 400 between the floor joists, there are no separate table values, but these can be found by interpolating between c/c 300 and c/c 600 and multiplying the interpolated joist span by 0.98.

JOIST TABLES
important points for using the tables

The deadload, G, is stated above the tables, with different deadloads depending on the type of joist. For a deadload G1 differing from
the prescribed G, the joist span dimension is multiplied by $(G1/G)^{-0.176}$

Example:

Increase of deadload from 0.5 to 0.8 kN/m ². $(G1/G)\ -0.176 = (0.8/0.5)^{-0.176} = 0.92$

Corrected joist span dimensions for H300, c/c 600, floor load 3.0 kN/m² over one joist span, lightweight suspended floor: 4.43*0.92 = 4.08 metres

Reduction of deadload from 0.5 to 0.4 kN/m². $(G1/G)\ -0.176 = (0.4/0.5)^{-0.176} = 0.92$

Corrected joist span dimensions for H300, c/c 600, floor load 3.0 kN/m² over one joist span, lightweight suspended floor: 4.43x0.92 = 4.60 metres

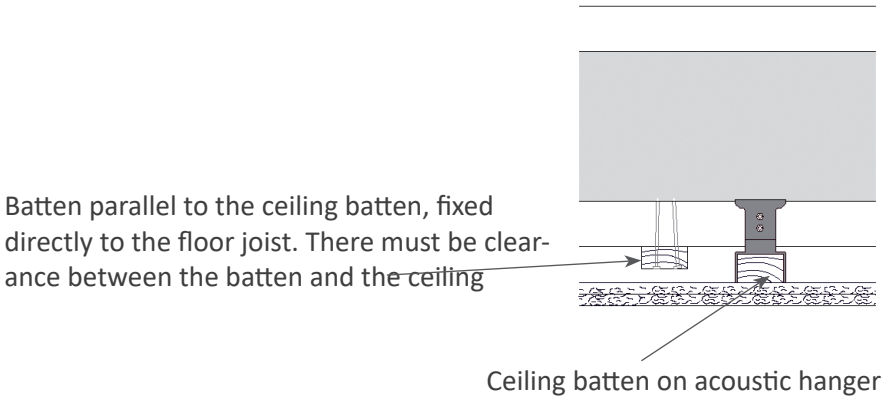
The tables specify:

• Joist span in metres

The tables include:

The tables include:
Joists over one and two joist spans. For two joist spans, the spans are assumed to be approximately the same size. Joists over more than two spans are dimensioned as for joists over two spans.

- Floor joists with centre distance - c/c - 300 and 600 mm.
- Suspended floors with 22mm chipboard or 19 mm plywood. Follow the panel manufacturer's instructions. It is assumed that the panels are nailed or screwed to the joists.
- For subfloors of slotted 22 mm chipboard such as Forestia Slissegulv or equivalent from other suppliers or 22 mm flooring boards, joist span dimensions should be multiplied by 0.95.
- If a continuous ceiling is not mounted directly to the underside of the joists, the joist span dimensions must be multiplied by 0.95, for example, where ceiling battens mounted on acoustic hangers are used. The use of acoustic bars fixed directly to the floor joists, or mounting battens directly on the floor joists which are parallel to the ceiling battens, avoids reducing the joist span dimensions. See figure showing bracing battens parallel to the ceiling battens. Maximum c/c distance between bracing battens is 600 mm.

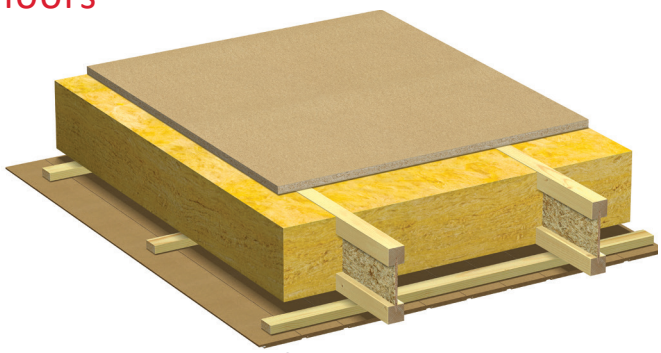


INSTALLATION AND EXECUTION

The floor joists have the necessary bracing to prevent axial displacement on top of the supporting structures. If the suspended floor is to be tiled, a maximum c/c of 300 mm is recommended between the joists, where no concrete screed is used, see the recommendations in Byggforsk series 541.805.

Construction details for the Masonite joist can be found at*: www.masonite.no*

JOIST TABLES lightweight suspended floors



Example of structure of lightweight suspended floor:
Floor covering or parquet, 22mm chipboard underlay, Masonite floor joists, mineral wool, ceiling battens and ceiling panels. With a 50mm layer of concrete, the ceramic tile is included in the deadload.
See "important information for using the tables".

The tables specify the joist span dimensions in metres.

Lightweight suspended floors

Deadload of suspended floor, G, rounded to 0.60 and 0.50 kN/m² for 300 and 600 mm cc- distance + floor load
For a different deadload (G1) than the prescribed G, the joist span dimension is multiplied by: $(G1/G)^{-0.176}$

Floor load	3.0 kN/m² floor load type A and B: Residential and offices				4.0 kN/m² floor load C and D: Assembly halls, shops			
Number of joist								
c/c distance mm	300	600	300	600	300	600	300	600
H - 200	3.87	3.40	4.06	3.57	3.87	3.15	4.06	3.20
H - 250	4.51	3.93	4.73	4.13	4.51	3.73	4.73	3.73
H - 300	5.10	4.43	5.36	4.65	5.10	4.15	5.36	4.15
H - 350	5.67	4.92	5.95	5.15	5.67	4.53	5.95	4.53
H - 400	6.22	5.39	6.53	5.54	6.22	4.92	6.53	4.92
H - 450	6.72	5.82	7.05	5.91	6.72	5.25	7.05	5.25
H - 500	7.21	6.23	7.57	6.23	7.21	5.52	7.57	5.52
HI - 200	4.28	3.73	4.49	3.92	4.28	3.63	4.49	3.20
HI - 220	4.57	3.98	4.80	4.18	4.57	3.94	4.80	3.51
HI - 250	5.00	4.33	5.25	4.55	5.00	4.33	5.25	4.02
HI - 300	5.66	4.90	5.95	5.15	5.66	4.90	5.95	4.81
HI - 350	6.29	5.44	6.60	5.71	6.29	5.44	6.60	5.57
HI - 400	6.88	5.95	7.22	6.25	6.88	5.95	7.22	5.98
HI - 450	7.44	6.44	7.81	6.76	7.44	6.37	7.81	6.37
HI - 500	7.98	6.91	8.38	7.25	7.98	6.73	8.38	6.73
HI - 250	5.45	4.71	5.72	4.95	5.45	4.71	5.72	4.32
HI - 300	6.18	5.34	6.48	5.60	6.18	5.34	6.48	5.03
HI - 350	6.85	5.92	7.20	6.22	6.85	5.92	7.20	5.74
HI - 400	7.50	6.48	7.87	6.80	7.50	6.48	7.87	6.48
HI - 450	8.10	7.00	8.51	7.35	8.10	7.00	8.51	7.19
HI - 500	8.69	7.51	9.12	7.89	8.69	7.51	9.12	7.88

Lightweight suspended floors, herringbone struts

Deadload of suspended floor, G, rounded to 0.60 and 0.50 kN/m² for 300 and 600 mm cc- distance + floor load
For a different deadload (G1) than the prescribed G, the joist span dimension is multiplied by: $(G1/G)^{-0.176}$

Floor load	3.0 kN/m² floor load type A and B: Residential and offices				4.0 kN/m² floor load C and D: Assembly halls, shops			
Number of joist								
c/c distance mm	300	600	300	600	300	600	300	600
H - 200	4.38	3.69	4.60	3.69	3.96	3.15	4.57	3.20
H - 250	5.08	4.25	5.34	4.25	4.78	3.73	5.26	3.73
H - 300	5.68	4.73	5.97	4.73	5.56	4.15	5.86	4.15
H - 350	6.24	5.17	6.55	5.17	6.24	4.53	6.39	4.53
H - 400	6.78	5.61	7.12	5.61	6.78	4.92	6.94	4.92
H - 450	7.25	5.98	7.61	5.98	7.25	5.25	7.39	5.25
H - 500	7.71	6.29	8.09	6.29	7.71	5.52	7.78	5.52
HI - 200	4.86	4.29	5.10	4.17	4.54	3.63	5.10	3.20
HI - 220	5.16	4.56	5.42	4.58	4.93	3.94	5.42	3.51
HI - 250	5.59	4.93	5.87	5.18	5.49	4.38	5.87	4.02
HI - 300	6.25	5.51	6.57	5.78	6.25	5.09	6.57	4.81
HI - 350	6.86	6.04	7.20	6.34	6.86	5.57	7.20	5.57
HI - 400	7.42	6.54	7.79	6.82	7.42	5.98	7.79	5.98
HI - 450	7.94	7.01	8.34	7.26	7.94	6.37	8.34	6.37
HI - 500	8.44	7.45	8.87	7.67	8.44	6.73	8.87	6.73
HI - 250	6.06	5.33	6.36	5.60	6.06	4.90	6.36	4.32
HI - 300	6.77	5.96	7.10	6.25	6.77	5.69	7.10	5.03
HI - 350	7.41	6.53	7.78	6.85	7.41	6.43	7.78	5.74
HI - 400	8.02	7.06	8.42	7.41	8.02	7.06	8.42	6.48
HI - 450	8.58	7.56	9.01	7.94	8.58	7.51	9.01	7.19
HI - 500	9.11	8.03	9.57	8.44	9.11	7.92	9.57	7.88

Lightweight suspended floors with 50mm layer of concrete

Deadload of suspended floor, G, rounded to 2.00 and 1.90 kN/m² for 300 and 600 mm cc-dist. + floor load
For a different deadload (G1) than the prescribed G, the joist span dimension is multiplied by: $(G1/G)^{-0.176}$

Floor load	3.0 kN/m² floor load type A and B: homes, offices				4.0 kN/m² floor load type C and D: assembly halls, shops			
Number of joist								
c/c distance mm	300	600	300	600	300	600	300	600
H - 200	3.11	2.69	3.27	2.83	3.11	2.69	3.27	2.53
H - 250	3.63	3.11	3.81	3.27	3.63	3.11	3.81	3.18
H - 300	4.12	3.51	4.32	3.68	4.12	3.51	4.32	3.68
H - 350	4.58	3.89	4.81	4.08	4.58	3.89	4.81	4.04
H - 400	5.03	4.26	5.28	4.48	5.03	4.26	5.28	4.38
H - 450	5.43	4.60	5.70	4.83	5.43	4.60	5.70	4.67
H - 500	5.83	4.94	6.12	5.19	5.83	4.87	6.12	4.92
HI - 200	3.45	2.96	3.62	3.11	3.45	2.96	3.62	2.84
HI - 220	3.69	3.16	3.88	3.31	3.69	3.16	3.88	3.07
HI - 250	4.04	3.44	4.24	3.61	4.04	3.44	4.24	3.42
HI - 300	4.57	3.88	4.80	4.08	4.57	3.88	4.80	3.99
HI - 350	5.08	4.31	5.34	4.52	5.08	4.31	5.34	4.52
HI - 400	5.56	4.71	5.84	4.95	5.56	4.71	5.84	4.95
HI - 450	6.02	5.10	6.32	5.35	6.02	5.10	6.32	5.35
HI - 500	6.46	5.47	6.79	5.74	6.46	5.47	6.79	5.74
HI - 250	4.40	3.74	4.62	3.93	4.40	3.74	4.62	3.42
HB - 300	5.00	4.23	5.25	4.44	5.00	4.23	5.25	3.99
HI - 350	5.55	4.69	5.83	4.93	5.55	4.69	5.83	4.56
HI - 400	6.07	5.13	6.37	5.39	6.07	5.13	6.37	5.14
HI - 450	6.57	5.55	6.90	5.83	6.57	5.55	6.90	5.71
HI - 500	7.04	5.95	7.39	6.25	7.04	5.95	7.39	6.25

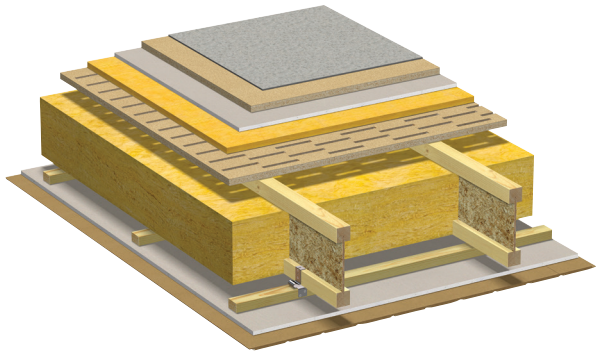
Lightweight suspended floors with 50mm layer of concrete, herringbone strutting

Deadload of suspended floor, G, rounded to 2.00 and 1.90 kN/m² for 300 and 600 mm cc-distance + floor load
For a different deadload (G1) than the prescribed G, the joist span dimension is multiplied by: $(G1/G)^{-0.176}$

Floor load	3.0 kN/m² floor load type A and B: homes, offices				4.0 kN/m² floor load type C and D: assembly halls, shops			
Number of joist								
c/c distance mm	300	600	300	600	300	600	300	600
H - 200	3.23	2.77	3.39	2.91	3.23	2.77	3.39	2.53
H - 250	3.72	3.18	3.90	3.33	3.72	3.18	3.90	3.18
H - 300	4.16	3.55	4.37	3.72	4.16	3.55	4.37	3.69
H - 350	4.57	3.89	4.79	4.08	4.57	3.89	4.79	4.04
H - 400	4.96	4.22	5.21	4.43	4.96	4.22	5.21	4.38
H - 450	5.30	4.51	5.57	4.74	5.30	4.51	5.57	4.67
H - 500	5.64	4.80	5.92	5.04	5.64	4.80	5.92	4.92
HI - 200	3.56	3.04	3.74	3.19	3.56	3.04	3.74	2.84
HI - 220	3.79	3.23	3.98	3.39	3.79	3.23	3.98	3.07
HI - 250	4.10	3.49	4.31	3.67	4.10	3.49	4.31	3.42
HI - 300	4.59	3.90	4.81	4.10	4.59	3.90	4.81	3.99
HI - 350	5.03	4.28	5.28	4.49	5.03	4.28	5.28	4.49
HI - 400	5.44	4.63	5.71	4.86	5.44	4.63	5.71	4.86
HI - 450	5.83	4.96	6.12	5.20	5.83	4.96	6.12	5.20
HI - 500	6.19	5.27	6.50	5.53	6.19	5.27	6.50	5.53
HI - 250	4.45	3.78	4.67	3.97	4.45	3.78	4.67	3.42
HI - 300	4.97	4.23	5.22	4.44	4.97	4.23	5.22	3.99
HI - 350	5.45	4.63	5.72	4.86	5.45	4.63	5.72	4.56
HI - 400	5.89	5.01	6.18	5.26	5.89	5.01	6.18	5.14
HI - 450	6.30	5.36	6.62	5.63	6.30	5.36	6.62	5.63
HI - 500	6.70	5.70	7.03	5.98	6.70	5.70	7.03	5.98

Frequently occurring loads situations are used for checking immediate deformation. Tables compiled by Nils Ivar Bovim

JOIST TABLES lightweight soundproof suspended floors



Example of structure of lightweight soundproof suspended floor:

Parquet, 16 mm chipboard, 20 mm acoustic underlay, 22 mm subfloor of slotted chipboard, Masonite floor joists, mineral wool, ceiling battens and two layers of ceiling panels. With a 50mm layer of concrete, a ceramic tile is included in the deadload. See "important information for using the tables". The tables indicate the joist span dimensions in metres.

Lightweight soundproof suspended floors

Deadload of suspended floor, G, rounded to 0.85 and 0.75 kN/m² for 300 and 600 mm cc- distance + floor load
For a different deadload (G1) than the prescribed G, the joist span dimension is multiplied by: $(G1/G)^{-0.176}$

Floor load	3.0 kN/m² floor load type A and B: homes, offices				4.0 kN/m² floor load type C and D: assembly halls, shops			
Number of joist								
c/c distance mm	300	600	300	600	300	600	300	600
H - 200	3.63	3.16	3.81	3.32	3.63	3.07	3.81	3.06
H - 250	4.24	3.66	4.45	3.84	4.24	3.64	4.45	3.64
H - 300	4.80	4.13	5.04	4.33	4.80	4.06	5.04	4.06
H - 350	5.33	4.57	5.60	4.80	5.33	4.43	5.60	4.43
H - 400	5.85	5.02	6.14	5.27	5.85	4.81	6.14	4.81
H - 450	6.32	5.42	6.63	5.69	6.32	5.13	6.63	5.13
H - 500	6.78	5.82	7.12	6.11	6.78	5.40	7.12	5.40
HI - 200	4.02	3.48	4.22	3.65	4.02	3.48	4.22	3.43
HI - 250	4.70	4.04	4.93	4.24	4.70	4.04	4.93	4.13
HI - 300	5.33	4.56	5.59	4.79	5.33	4.56	5.59	4.79
HI - 350	5.91	5.06	6.21	5.32	5.91	5.06	6.21	5.32
HI - 400	6.47	5.54	6.79	5.81	6.47	5.54	6.79	5.81
HI - 450	7.00	5.99	7.35	6.29	7.00	5.99	7.35	6.19
HI - 500	7.51	6.43	7.88	6.75	7.51	6.43	8.38	6.54
HI - 250	5.12	4.39	5.38	4.61	5.12	4.39	5.38	4.13
HI - 300	5.81	4.97	6.10	5.22	5.81	4.97	6.10	4.81
HI - 350	6.45	5.51	6.77	5.79	6.45	5.51	6.77	5.49
HI - 400	7.06	6.03	7.41	6.33	7.06	6.03	7.41	6.19
HB - 450	7.63	6.52	8.01	6.85	7.63	6.52	8.01	6.85
HB - 500	8.18	7.00	8.59	7.35	8.18	7.00	8.59	7.35

Lightweight acoustic suspended floors, herringbone struts

Deadload of suspended floor, G, rounded to 0.85 and 0.75 kN/m² for 300 and 600 mm cc- distance + floor load
For a different deadload (G1) than the prescribed G, the joist span dimension is multiplied by: $(G1/G)^{-0.176}$

Floor load	3.0 kN/m² floor load type A and B: homes, offices				4.0 kN/m² floor load type C and D: assembly halls, shops			
Number of joist								
c/c distance mm	300	600	300	600	300	600	300	600
H - 200	4.03	3.52	4.24	3.58	3.86	3.07	4.24	3.16
H - 250	4.64	4.04	4.87	4.13	4.64	3.64	4.87	3.64
H - 300	5.19	4.51	5.45	4.60	5.19	4.06	5.45	4.06
H - 350	5.70	4.95	5.99	5.01	5.70	4.42	5.99	4.42
H - 400	6.19	5.38	6.50	5.38	6.19	4.75	6.50	4.75
H - 450	6.62	5.74	6.95	5.74	6.62	5.06	6.95	5.06
H - 500	7.04	6.06	7.40	6.06	7.04	5.35	7.40	5.35
HI - 200	4.44	3.86	4.67	4.06	4.43	3.53	4.67	3.43
HI - 250	5.11	4.44	5.37	4.66	5.11	4.27	5.37	4.13
HI - 300	5.72	4.96	6.00	5.21	5.72	4.95	6.00	4.81
HI - 350	6.27	5.44	6.58	5.71	6.27	5.43	6.58	5.43
HI - 400	6.78	5.88	7.12	6.18	6.78	5.82	7.12	5.82
HI - 450	7.26	6.30	7.63	6.62	7.26	6.19	7.63	6.19
HI - 500	7.72	6.70	8.11	7.04	7.72	6.54	8.11	6.54
HB - 250	5.54	4.80	5.82	5.04	5.54	4.78	5.82	4.13
HB - 300	6.19	5.36	6.50	5.63	6.19	5.36	6.50	4.81
HB - 350	6.78	5.88	7.12	6.17	6.78	5.88	7.12	5.49
HB - 400	7.33	6.36	7.70	6.68	7.33	6.36	7.70	6.19
HB - 450	7.85	6.81	8.24	7.15	7.85	6.81	8.24	6.87
HB - 500	8.34	7.24	8.75	7.60	8.34	7.24	8.75	7.57

Lightweight soundproof suspended floors with 50mm layer of concrete

Deadload of suspended floor, G, rounded to 2.10 and 2.00 kN/m² for 300 and 600 mm cc-dist. + floor load
For a different deadload (G1) than the prescribed G, the joist span dimension is multiplied by: $(G1/G)^{-0.176}$

Floor load	3.0 kN/m² floor load type A and B: homes, offices				4.0 kN/m² floor load type C and D: assembly halls, shops			
Number of joist								
c/c distance mm	300	600	300	600	300	600	300	600
H - 200	3.09	2.67	3.24	2.80	3.09	2.67	3.24	2.80
H - 250	3.60	3.08	3.78	3.24	3.60	3.08	3.78	3.24
H - 300	4.08	3.48	4.28	3.65	4.08	3.48	4.28	3.65
H - 350	4.54	3.85	4.76	4.05	4.54	3.85	4.76	3.99
H - 400	4.98	4.23	5.23	4.44	4.98	4.23	5.23	4.30
H - 450	5.38	4.56	5.65	4.79	5.38	4.56	5.65	4.58
H - 500	5.78	4.90	6.07	5.14	5.78	4.84	6.07	4.84
HI - 200	3.42	2.93	3.59	3.08	3.42	2.93	3.59	2.80
HI - 250	4.00	3.41	4.20	3.58	4.00	3.41	4.20	3.37
HI - 300	4.54	3.85	4.76	4.04	4.54	3.85	4.76	3.93
HI - 350	5.04	4.27	5.29	4.48	5.04	4.27	5.29	4.48
HI - 400	5.52	4.67	5.79	4.90	5.52	4.67	5.79	4.90
HI - 450	5.97	5.05	6.27	5.30	5.97	5.05	6.27	5.30
HI - 500	6.41	5.42	6.73	5.69	6.41	5.42	6.73	5.69
HI - 250	4.37	3.71	4.58	3.89	4.37	3.71	4.58	3.37
HB - 300	4.95	4.19	5.20	4.40	4.95	4.19	5.20	3.93
HB - 350	5.50	4.65	5.78	4.89	5.50	4.65	5.78	4.49
HB - 400	6.02	5.09	6.32	5.34	6.02	5.09	6.32	5.07
HB - 450	6.51	5.50	6.84	5.78	6.51	5.50	6.84	5.63
HB - 500	6.98	5.90	7.33	6.20	6.98	5.90	7.33	6.20

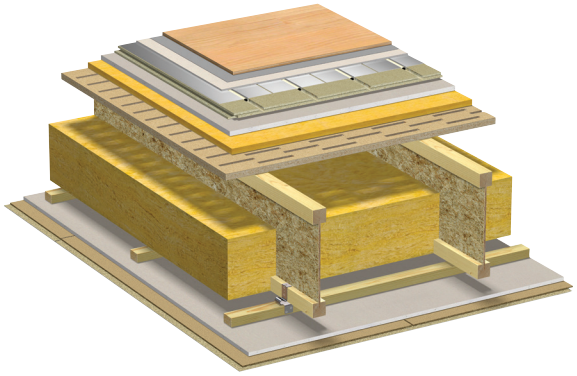
Lightweight soundproof suspended floors with 50 mm layer of concrete, herringbone struts

Deadload of suspended floor, G, rounded to 2.10 and 2.00 kN/m² for 300 and 600 mm cc-distance + floor load
For a different deadload (G1) than the prescribed G, the joist span dimension is multiplied by: $(G1/G)^{-0.176}$

Floor load	3.0 kN/m² floor load type A and B: homes, offices				4.0 kN/m² floor load type C and D: assembly halls, shops			
Number of joist								
c/c distance mm	300	600	300	600	300	600	300	600
H - 200	3.19	2.73	3.35	2.87	3.19	2.73	3.35	2.80
H - 250	3.67	3.13	3.86	3.29	3.67	3.13	3.86	3.29
H - 300	4.11	3.50	4.31	3.67	4.11	3.50	4.31	3.67
H - 350	4.51	3.84	4.73	4.03	4.51	3.84	4.73	3.99
H - 400	4.90	4.16	5.14	4.37	4.90	4.16	5.14	4.30
H - 450	5.24	4.45	5.50	4.67	5.24	4.45	5.50	4.58
H - 500	5.57	4.74	5.85	4.97	5.57	4.74	5.85	4.84
HI - 200	3.52	3.00	3.69	3.15	3.52	3.00	3.69	2.80
HI - 250	4.05	3.45	4.25	3.62	4.05	3.45	4.25	3.37
HI - 300	4.53	3.85	4.75	4.04	4.53	3.85	4.75	3.93
HI - 350	4.97	4.22	5.21	4.43	4.97	4.22	5.21	4.43
HI - 400	5.37	4.57	5.64	4.79	5.37	4.57	5.64	4.79
HI - 450	5.76	4.89	6.04	5.14	5.76	4.89	6.04	5.14
HI - 500	6.12	5.20	6.42	5.46	6.12	5.20	6.42	5.46
HB - 250	4.39	3.73	4.61	3.92	4.39	3.73	4.61	3.37
HB - 300	4.91	4.17	5.15	4.38	4.91	4.17	5.15	3.93
HB - 350	5.38	4.57	5.65	4.80	5.38	4.57	5.65	4.49
HB - 400	5.82	4.94	6.11	5.19	5.82	4.94	6.11	5.07
HB - 450	6.23	5.29	6.54	5.56	6.23	5.29	6.54	5.56
HB - 500	6.61	5.62	6.94	5.90	6.61	5.62	6.94	5.90

Frequently occurring load situations are used to check for immediate deformation. Tables compiled by Nils Ivar Bovim

JOIST TABLES heavyweight soundproof suspended floors



Example of construction of heavyweight soundproof suspended floor:

Parquet, 12 mm chipboard, 22 mm Thermofloor, 20 mm acoustic underlay, 22 mm subfloor of slotted chipboard, Masonite floor joists, mineral wool, ceilings battens and two layers of ceiling panels. With a 50-mm of layer of concrete, ceramic tiling is included in the deadload. See "important information for using the tables". The tables indicate the joist span dimensions in metres.

Heavyweight soundproof suspended floor

Deadload of suspended floor, G, rounded to 1.05 and 0.95 kN/m² for 300 and 600 mm cc- distance + floor load
For a different deadload (G1) than the prescribed G, the joist span dimension is multiplied by: $(G1/G)^{-0.176}$

Floor load	3.0 kN/m² floor load type A and B: homes, offices				4.0 kN/m² floor load type C and D: assembly halls, shops			
Number of joist								
c/c distance mm	300	600	300	600	300	600	300	600
H - 200	3.50	3.04	3.67	3.19	3.50	3.02	3.67	3.10
H - 250	4.08	3.51	4.28	3.69	4.08	3.51	4.28	3.58
H - 300	4.62	3.96	4.85	4.16	4.62	3.96	4.85	3.99
H - 350	5.13	4.39	5.39	4.61	5.13	4.34	5.39	4.34
H - 400	5.63	4.81	5.92	5.05	5.63	4.67	5.92	4.67
H - 450	6.09	5.20	6.39	5.46	6.09	4.98	6.39	4.98
H - 500	6.53	5.58	6.86	5.86	6.53	5.25	6.86	5.25
HI - 200	3.87	3.34	4.07	3.50	3.87	3.34	4.07	3.31
HI - 250	4.52	3.87	4.75	4.07	4.52	3.87	4.75	3.99
HI - 300	5.13	4.38	5.39	4.60	5.13	4.38	5.39	4.60
HI - 350	5.70	4.86	5.98	5.10	5.70	4.86	5.98	5.10
HI - 400	6.23	5.31	6.55	5.58	6.23	5.31	6.55	5.58
HI - 450	6.75	5.75	7.08	6.04	6.75	5.75	7.08	6.04
HI - 500	7.24	6.17	7.60	6.48	7.24	6.17	7.60	6.43
HB - 250	4.94	4.21	5.18	4.42	4.94	4.21	5.18	3.99
HB - 300	5.60	4.77	5.88	5.01	5.60	4.77	5.88	4.65
HB - 350	6.22	5.29	6.53	5.56	6.22	5.29	6.53	5.30
HB - 400	6.80	5.79	7.14	6.08	6.80	5.79	7.14	5.98
HB - 450	7.35	6.26	7.72	6.57	7.35	6.26	7.72	6.57
HB - 500	7.88	6.71	8.28	7.05	7.88	6.71	8.28	7.05

Heavyweight soundproof suspended floor, herringbone struts

Deadload of suspended floor, G, rounded to 1.05 and 0.95 kN/m² for 300 and 600 mm cc- distance + floor load
For a different deadload (G1) than the prescribed G, the joist span dimension is multiplied by: $(G1/G)^{-0.176}$

Floor load	3.0 kN/m² floor load type A and B: homes, offices				4.0 kN/m² floor load type C and D: assembly halls, shops			
Number of joist								
c/c distance mm	300	600	300	600	300	600	300	600
H - 200	3.82	3.31	4.01	3.48	3.79	3.02	4.01	3.10
H - 250	4.39	3.80	4.61	3.99	4.39	3.58	4.61	3.58
H - 300	4.92	4.24	5.16	4.46	4.92	3.99	5.16	3.99
H - 350	5.40	4.66	5.67	4.89	5.40	4.34	5.67	4.34
H - 400	5.86	5.05	6.15	5.27	5.86	4.67	6.15	4.67
H - 450	6.27	5.41	6.58	5.61	6.27	4.98	6.58	4.98
H - 500	6.67	5.75	7.00	5.92	6.67	5.25	7.00	5.25
HI - 200	4.21	3.64	4.42	3.82	4.21	3.46	4.42	3.31
HI - 250	4.84	4.18	5.08	4.38	4.84	4.18	5.08	3.99
HI - 300	5.41	4.67	5.68	4.90	5.41	4.67	5.68	4.65
HI - 350	5.94	5.11	6.23	5.37	5.94	5.11	6.23	5.30
HI - 400	6.42	5.53	6.74	5.81	6.42	5.53	6.74	5.72
HI - 450	6.88	5.93	7.22	6.23	6.88	5.93	7.22	6.09
HI - 500	7.31	6.30	7.68	6.62	7.31	6.30	7.68	6.43
HB - 250	5.25	4.52	5.51	4.75	5.25	4.52	5.51	3.99
HB - 300	5.86	5.05	6.15	5.30	5.86	5.05	6.15	4.65
HB - 350	6.42	5.53	6.75	5.81	6.42	5.53	6.75	5.30
HB - 400	6.95	5.98	7.29	6.28	6.95	5.98	7.29	5.98
HB - 450	7.44	6.41	7.81	6.73	7.44	6.41	7.81	6.64
HB - 500	7.90	6.81	8.29	7.15	7.90	6.81	8.29	7.15

Heavyweight suspended floor with 50 mm layer of concrete

Deadload of suspended floor, G, rounded to 2.20 and 2.10 kN/m² for 300 and 600 mm cc-distance + floor load
For a different deadload (G1) than the prescribed G, the joist span dimension is multiplied by: $(G1/G)^{-0.176}$

Floor load	3.0 kN/m² floor load type A and B: homes, offices				4.0 kN/m² floor load type C and D: assembly halls, shops			
Number of joist								
c/c distance mm	300	600	300	600	300	600	300	600
H - 200	3.06	2.65	3.21	2.78	3.06	2.65	3.21	2.76
H - 250	3.57	3.06	3.75	3.21	3.57	3.06	3.75	3.21
H - 300	4.05	3.45	4.25	3.62	4.05	3.45	4.25	3.62
H - 350	4.50	3.82	4.72	4.01	4.50	3.82	4.72	3.97
H - 400	4.94	4.19	5.19	4.40	4.94	4.19	5.19	4.27
H - 450	5.34	4.52	5.60	4.75	5.34	4.52	5.60	4.55
H - 500	5.73	4.86	6.02	5.10	5.73	4.80	6.02	4.80
HI - 200	3.39	2.91	3.56	3.06	3.39	2.91	3.56	2.76
HI - 250	3.97	3.38	4.17	3.55	3.97	3.38	4.17	3.33
HI - 300	4.50	3.82	4.72	4.01	4.50	3.82	4.72	3.88
HI - 350	5.00	4.23	5.25	4.45	5.00	4.23	5.25	4.43
HI - 400	5.47	4.63	5.74	4.86	5.47	4.63	5.74	4.86
HI - 450	5.92	5.01	6.22	5.26	5.92	5.01	6.22	5.26
HI - 500	6.35	5.38	6.67	5.64	6.35	5.38	6.67	5.64
HB - 250	4.33	3.68	4.55	3.86	4.33	3.68	4.55	3.33
HB - 300	4.91	4.16	5.16	4.37	4.91	4.16	5.16	3.88
HB - 350	5.46	4.61	5.73	4.84	5.46	4.61	5.73	4.43
HB - 400	5.97	5.05	6.27	5.30	5.97	5.05	6.27	5.00
HB - 450	6.46	5.46	6.78	5.73	6.46	5.46	6.78	5.55
HB - 500	6.93	5.85	7.27	6.14	6.93	5.85	7.27	6.11

Heavyweight suspended floor with 50 mm layer of concrete, herringbone struts

Deadload of suspended floor, G, rounded to 2.20 and 2.10 kN/m² for 300 and 600 mm cc-distance + floor load
For a different deadload (G1) than the prescribed G, the joist span dimension is multiplied by: $(G1/G)^{-0.176}$

Floor load	3.0 kN/m² floor load type A and B: homes, offices				4.0 kN/m² floor load type C and D: assembly halls, shops			
Number of joist								
c/c distance mm	300	600	300	600	300	600	300	600
H - 200	3.15	2.70	3.31	2.83	3.15	2.70	3.31	2.76
H - 250	3.63	3.09	3.81	3.25	3.63	3.09	3.81	3.25
H - 300	4.06	3.45	4.26	3.63	4.06	3.45	4.26	3.63
H - 350	4.45	3.79	4.68	3.98	4.45	3.79	4.68	3.97
H - 400	4.84	4.11	5.08	4.32	4.84	4.11	5.08	4.27
H - 450	5.17	4.40	5.43	4.62	5.17	4.40	5.43	4.55
H - 500	5.50	4.68	5.78	4.91	5.50	4.68	5.78	4.80
HI - 200	3.48	2.96	3.65	3.00	3.48	2.96	3.65	2.76
HI - 250	4.00	3.40	4.20	3.57	4.00	3.40	4.20	3.33
HI - 300	4.47	3.80	4.70	3.99	4.47	3.80	4.70	3.88
HI - 350	4.91	4.17	5.15	4.38	4.91	4.17	5.15	4.38
HI - 400	5.31	4.51	5.57	4.73	5.31	4.51	5.57	4.73
HI - 450	5.69	4.83	5.97	5.07	5.69	4.83	5.97	5.07
HI - 500	6.05	5.14	6.35	5.39	6.05	5.14	6.35	5.39
HB - 250	4.34	3.69	4.56	3.87	4.34	3.69	4.56	3.33
HB - 300	4.85	4.12	5.09	4.32	4.85	4.12	5.09	3.88
HB - 350	5.32	4.51	5.58	4.74	5.32	4.51	5.58	4.43
HB - 400	5.75	4.88	6.03	5.12	5.75	4.88	6.03	5.00
HB - 450	6.15	5.23	6.46	5.49	6.15	5.23	6.46	5.49
HB - 500	6.54	5.55	6.86	5.83	6.54	5.55	6.86	5.83

Frequently occurring load situations are used to check for immediate deformation. Tables compiled by Nils Ivar Bovim

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