

# Masonite I-Joists

## Service Class 1 Design Properties

Beam Series	Depth mm	Moment kN-m	Shear kN	EI Nmm <sup>2</sup> x10 <sup>9</sup>	GA N x 10 <sup>6</sup>	Max end reaction kN	Max Int reaction kN	Weight kg/m	Flange Width
HL	220	2.18	4.77	306	1.43	3.69	7.61	3.1	47
HL	240	2.42	5.01	380	1.61	4.05	8.06	3.2	47
HL	300	3.17	5.74	657	2.16	4.83	7.86	3.7	47
H	220	4.26	4.77	438	1.43	4.10	8.46	3.1	47
H	240	4.74	5.01	541	1.61	4.50	8.95	3.2	47
H	300	5.02	5.74	798	2.16	4.83	7.86	3.7	47
H	350	6.02	6.34	1154	2.61	4.79	7.86	4.1	47
H	400	6.97	6.94	1580	3.07	4.83	7.86	4.5	47
HI	220	6.16	4.77	638	1.43	4.10	8.46	4.8	70
HI	240	6.97	5.01	808	1.61	4.50	8.95	5.0	70
HI	300	7.25	5.74	1150	2.16	4.83	7.86	5.3	70
HI	350	8.62	6.34	1654	2.61	4.79	7.86	5.6	70
HI	400	9.95	6.94	2256	3.07	4.83	7.86	5.9	70
MP	220	7.53	7.75	778	2.39	8.23	18.28	5.2	90
MP	240	8.48	7.93	976	2.72	8.54	19.02	5.4	90
MP	300	9.05	8.48	1563	3.69	9.45	19.37	6.2	90
MP	350	10.85	8.96	2279	4.50	9.45	19.37	6.9	90
MP	400	12.65	9.40	3139	5.31	9.45	19.37	7.6	90

### Notes

The above design properties are for permissible stress design to BS5268-2 and incorporate factors  $k_3 = 1.00$  (for long term load duration) and  $k_8 = 1.1$  (for load-sharing – members no greater than 610mm between centres).

Values are derived from ETA 04/0012. Conditions for Service Class 1 (as defined in BS5268-2) are dry and frequently heated.

The average moisture content of timber will be not more than 12%.

End and intermediate reactions are based upon bearing lengths of 45mm and 70mm respectively.

Deflection calculations for members should include an allowance for shear deflection – for a simply supported span carrying uniform load the total deflection will be:

$$\delta \text{ (mm)} = \frac{5 \times w \times L^4}{384 \times EI} + \frac{w \times L^2}{8 \times GA} \quad \text{where} \quad \begin{array}{l} w = \text{uniform load in kN/m} \\ L = \text{span in mm} \\ EI \text{ \& GA are from table} \end{array}$$

# Masonite I-Joists

## Service Class 2 Design Properties

Beam Series	Depth mm	Moment kN-m	Shear kN	EI Nmm <sup>2</sup> x10 <sup>9</sup>	GA N x10 <sup>6</sup>	Max end reaction kN	Max Int reaction kN	Weight kg/m	Flange Width
HL	220	2.18	3.18	283	1.21	2.48	5.10	3.1	47
HL	240	2.42	3.34	352	1.36	2.72	5.40	3.2	47
HL	300	3.17	3.82	608	1.83	3.24	5.26	3.7	47
H	220	4.26	3.18	405	1.21	2.75	5.67	3.1	47
H	240	4.74	3.34	501	1.36	3.02	5.99	3.2	47
H	300	5.02	3.82	739	1.83	3.24	5.26	3.7	47
H	350	6.02	4.23	1068	2.21	3.21	5.26	4.1	47
H	400	6.97	4.63	1462	2.6	3.24	5.26	4.5	47
HI	220	6.16	3.18	591	1.21	2.75	5.67	4.8	70
HI	240	6.97	3.34	748	1.36	3.02	5.99	5.0	70
HI	300	7.25	3.82	1064	1.83	3.24	5.26	5.3	70
HI	350	8.62	4.23	1531	2.21	3.21	5.26	5.6	70
HI	400	9.95	4.63	2088	2.6	3.24	5.26	5.9	70
MP	220	7.53	5.16	720	1.22	5.51	12.25	5.2	90
MP	240	8.48	5.29	903	1.39	5.72	12.74	5.4	90
MP	300	9.05	5.65	1447	1.88	6.33	12.98	6.2	90
MP	350	10.85	5.97	2109	2.29	6.33	12.98	6.9	90
MP	400	12.65	6.27	2905	2.71	6.33	12.98	7.6	90

### Notes

The above design properties are for permissible stress design to BS5268-2 and incorporate factors k3 = 1.00 (for long term load duration) and k8 = 1.1 (for load-sharing – members no greater than 610mm between centres).

Values are derived from ETA 04/0012. Conditions for Service Class 2 (as defined in BS5268-2) are dry but not frequently heated.

The average moisture content of timber will be not more than 20%.

End and intermediate reactions are based upon bearing lengths of 45mm and 70mm respectively.

Deflection calculations for members should include an allowance for shear deflection – for a simply supported span carrying uniform load the total deflection will be:

$$\delta \text{ (mm)} = \frac{5 \times w \times L^4}{384 \times EI} + \frac{w \times L^2}{8 \times GA} \quad \text{where} \quad \begin{array}{l} w = \text{uniform load in kN/m} \\ L = \text{span in mm} \\ EI \text{ \& GA are from table} \end{array}$$