

JJI-JOIST TECHNICAL BULLETIN

SUBJECT: Alternative JJI-Joist Span Tables

Bulletin Number:

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Sheet 1 of 9

10 Rev A

06.10.2004

Introduction

The aim of this Technical Bulletin is to provide the JJI-Joist Floor Designer with additional quick reference JJI-Joist span tables similar to those found in the JJI-Joist Technical Manual. It is the intention of the Timber Systems Division to constantly review and where appropriate include additional tables within this document.

This Document tabulates the maximum single spans for JJI-Joist & GL32h Glulam components when used in the following constructions:

- Domestic Intermediate Floors with & without partitions – 12mm max deflection
- Intermediate Compartment Floors – Flats up to 4 per storey with and without partitions
- Flat Roof Joist – 3 Layer Felt and Asphalt construction
- Pitched Rafters – 600 and 400 c/c span tables and typical tile weights
- Trimmer Joist Specification + worked examples
- Trimming Joist Specification + worked examples

Additional span charts can be found in TB 20 'Glue Laminated Beams' for:

- GL32h Glulam Bolting Requirements – Page 4

The span dimensions referred to in the following tables, are the maximum clear spans for single span JJI-Joist applications - **Do not use these tables for multi-span JJI-Joists**. All the span dimensions are in millimetres, and are referenced from the inside face of the supports as found. Do not use these tables for any other found span orientation such as *Overall* or *Engineering*, see figure 1.

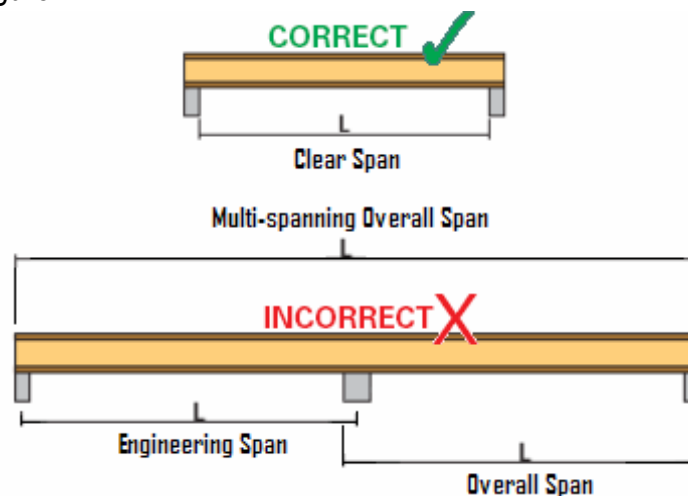


Figure 1
Span definition

Reference Number: TB 10 Rev A

Issued By : - Mark Tilston BA (Hons)

Domestic Intermediate Floors with and without partitions

Joist Type/ Flange	Dead load up to 0.50kN/m ² [1]				Dead load up to 0.75kN/m ² [2]				Most Economical Solution [1-100]			
	Joist Spacing (mm)				Joist Spacing (mm)				C24 Flanges-Joists at Centres			
	300	400	480	600	300	400	480	600	300	400	480	600
JJI 145A	3274	2933	2732	2500	3130	2802	2608	2383				
JJI 195A	4200	3873	3616	3319	4067	3705	3456	3170	50	23	10	1
JJI 195B	4502	4159	3954	3642	4358	4025	3794	3477	60	33	17	4
JJI 195C	4702	4342	4126	3861	4551	4201	3991	3684	64	37	19	6
JJI 195D	5043	4653	4419	4145	4879	4500	4272	4006	80	54	38	16
JJI 220A	4540	4199	3994	3699	4397	4065	3850	3534	57	30	13	2
JJI 220B	4866	4497	4276	4018	4711	4353	4137	3877	68	41	22	8
JJI 220C	5082	4694	4462	4190	4920	4543	4316	4052	79	53	36	15
JJI 220D	5450	5031	4778	4484	5275	4866	4621	4334	88	69	49	28
JJI 235A	4734	4378	4165	3916	4585	4239	4032	3746	58	32	14	3
JJI 235B	5073	4689	4459	4190	4912	4539	4315	4053	71	43	25	9
JJI 235C	5298	4895	4653	4370	5129	4737	4501	4226	83	56	42	20
JJI 235D	5682	5245	4983	4676	5499	5074	4818	4520	92	75	55	35
JJI 245A	4859	4495	4276	4021	4706	4352	4139	3884	61	34	18	5
JJI 245B	5207	4813	4577	4301	5042	4659	4429	4161	73	45	27	11
JJI 245C	5438	5024	4776	4486	5265	4862	4621	4339	84	62	46	24
JJI 245D	5832	5384	5115	4800	5644	5208	4946	4640	94	81	65	44
JJI 300A	5504	5092	4845	4557	5331	4931	4691	4411	67	39	21	7
JJI 300B	5895	5451	5184	4873	5709	5277	5017	4715	76	47	31	12
JJI 300C	6154	5688	5408	5081	5959	5505	5233	4915	87	66	48	26
JJI 300D	6598	6093	5790	5436	6387	5896	5600	5255	97	85	74	52
JJI 350C	6745	6235	5929	5572	6532	6036	5738	5390	89	70	51	29
JJI 350D	7230	6678	6346	5959	6999	6461	6139	5762	98	91	82	63
JJI 400C	7293	6742	6412	6026	7062	6527	6205	5830	93	77	59	40
JJI 400D	7814	7218	6860	6442	7565	6985	6637	6230	99	95	86	72
JJI 450D	8360	7723	7341	6894	8094	7474	7102	6667	100	96	90	78

Table 1 Maximum Clear Span for JJI-Joists in Domestic Intermediate Floors (mm)

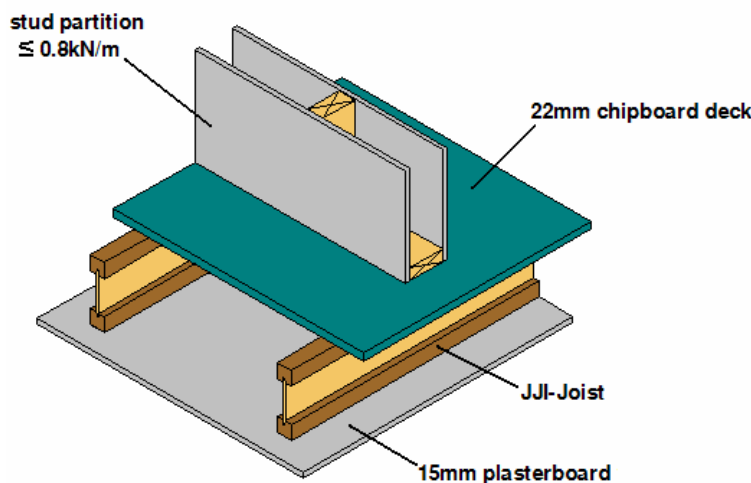


Figure 2 Typical intermediate domestic JJI floor

Figures in Bold indicate that web stiffeners are required.

[1] The self-weight of an intermediate domestic floor

[2] The effect of the dead weight of non-load bearing partitions can be assumed to be included in the design where the self-weight of the partition does not exceed 0.8kN/m run and the self-weight of the floor construction does not exceed 0.5kN/m², as shown in figure 2

Designs based on the dead load as shown + 1.5kN/m² imposed live load

Designs based on a deflection limit of 0.003 x span, but not more than 12mm

Permissible web holes to be drilled in accordance with JoistMaster software

Intermediate Compartment Floors - Flats up to 4 per storey with and without partitions

Joist Type/ Flange	Dead load up to 0.90kN/m ² [1]				Dead load up to 1.15kN/m ² [2]				Most Economical Solution [1-100]			
	Joist Spacing (mm)				Joist Spacing (mm)				C24 Flanges-Joists at Centres			
	300	400	480	600	300	400	480	600	300	400	480	600
JJI 145A	3054	2732	2541	2321	2940	2627	2442	2228				
JJI 195A	3996	3615	3372	3091	3882	3481	3245	2972	50	23	10	1
JJI 195B	4282	3954	3700	3389	4166	3822	3560	3257	60	33	17	4
JJI 195C	4470	4126	3919	3590	4349	4012	3772	3449	64	37	19	6
JJI 195D	4792	4418	4194	3932	4661	4295	4076	3783	80	54	38	16
JJI 220A	4321	3993	3756	3447	4205	3877	3616	3316	57	30	13	2
JJI 220B	4629	4275	4063	3780	4504	4159	3952	3635	68	41	22	8
JJI 220C	4833	4462	4239	3978	4702	4339	4121	3850	79	53	36	15
JJI 220D	5181	4778	4536	4254	5039	4645	4409	4133	88	69	49	28
JJI 235A	4505	4165	3960	3654	4385	4053	3832	3516	58	32	14	3
JJI 235B	4826	4458	4238	3980	4697	4337	4121	3854	71	43	25	9
JJI 235C	5039	4652	4420	4149	4903	4525	4298	4033	83	56	42	20
JJI 235D	5401	4982	4731	4436	5254	4844	4598	4310	92	75	55	35
JJI 245A	4625	4276	4066	3789	4502	4161	3956	3646	61	34	18	5
JJI 245B	4954	4577	4350	4086	4821	4452	4231	3973	73	45	27	11
JJI 245C	5172	4776	4538	4260	5032	4645	4413	4141	84	62	46	24
JJI 245D	5544	5114	4856	4554	5393	4973	4720	4425	94	81	65	44
JJI 300A	5239	4845	4608	4332	5100	4715	4484	4214	67	39	21	7
JJI 300B	5609	5184	4928	4630	5459	5043	4794	4502	76	47	31	12
JJI 300C	5855	5408	5139	4826	5697	5261	4998	4692	87	66	48	26
JJI 300D	6274	5790	5499	5159	6104	5630	5346	5013	97	85	74	52
JJI 350C	6418	5929	5635	5293	6246	5768	5481	5146	89	70	51	29
JJI 350D	6875	6346	6028	5656	6689	6171	5860	5497	98	91	82	63
JJI 400C	6939	6411	6095	5725	6753	6237	5928	5566	93	77	59	40
JJI 400D	7431	6860	6517	6116	7230	6672	6336	5944	99	95	86	72
JJI 450D	7951	7341	6974	6546	7736	7139	6781	6362	100	96	90	78

Table 2 Maximum Clear Spans for JJI-Joists in Domestic Intermediate Compartment Floors (mm)

Figures in Bold indicate that web stiffeners are required.

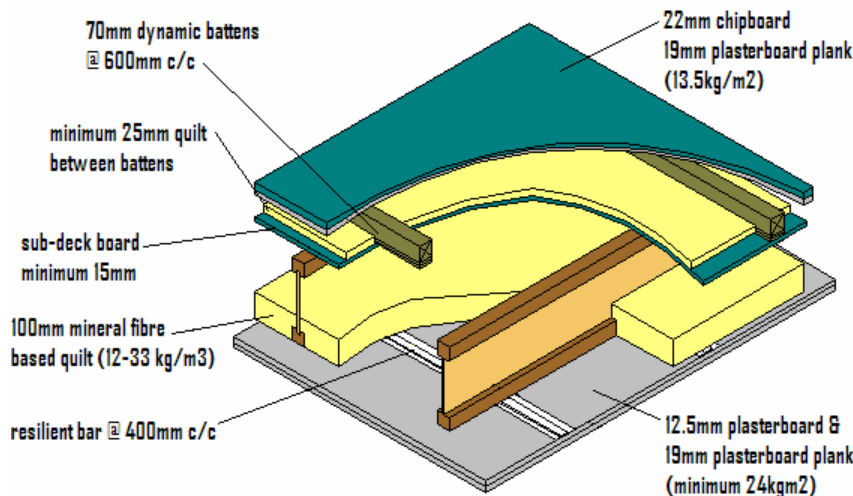


Figure 3 Typical compartment JJI floor

[1] The self-weight of an intermediate compartment domestic floor, as shown in figure 3

[2] The effect of the dead weight of non-load bearing partitions can be assumed to be included in the design where the self-weight of the partition does not exceed 0.8kN/m run and the self-weight of the floor construction does not exceed 0.9kN/m²

Designs based on the dead load as shown + 1.5kN/m² imposed live load

Designs based on a deflection limit of 0.003 x span, but not more than 12mm

Permissible web holes to be drilled in accordance with JoistMaster software

Flat Roof Joists – 3 Layer Felt and Asphalt

Joist Type/ Flange	Dead load up to 0.75kN/m ²				Dead load up to 1.0kN/m ²				Most Economical Solution [1-100]			
	Joist Spacing (mm)				Joist Spacing (mm)				C24 Flanges-Joists at Centres			
	300	400	480	600	300	400	480	600	300	400	480	600
JJI 145A	2960	2810	2710	2585	2810	2655	2545	2410				
JJI 195A	4255	4020	3860	3580	4020	3770	3605	3375	50	23	10	1
JJI 195B	4795	4515	4275	3930	4515	4220	4030	3705	60	33	17	4
JJI 195C	5175	4860	4540	4175	4860	4535	4280	3930	64	37	19	6
JJI 195D	5835	5350	4995	4585	5465	5050	4710	4320	80	54	38	16
JJI 220A	4865	4580	4330	3980	4580	4285	4085	3760	57	30	13	2
JJI 220B	5475	5080	4755	4370	5340	4805	4490	4130	68	41	22	8
JJI 220C	5990	5400	5045	4640	5670	5095	4760	4375	79	53	36	15
JJI 220D	6605	5945	5560	5105	6245	5615	5245	4810	88	69	49	28
JJI 235A	5430	4890	4580	4215	5130	4625	4325	3980	58	32	14	3
JJI 235B	5970	5380	5035	4635	5650	5080	4750	4370	71	43	25	9
JJI 235C	6345	5710	5345	4920	5995	5395	5045	4640	83	56	42	20
JJI 235D	6990	6290	5880	5410	6610	5950	5550	5100	92	75	55	35
JJI 245A	5620	5070	4745	4370	5320	4790	4480	4125	61	34	18	5
JJI 245B	6180	5570	5210	4795	5845	5270	4920	4530	73	45	27	11
JJI 245C	6570	5920	5535	5090	6215	5595	5230	4805	84	62	46	24
JJI 245D	7245	6520	6095	5600	6850	6160	5750	5460	94	81	65	44
JJI 300A	6650	5995	5620	5180	6295	5670	5310	4895	67	39	21	7
JJI 300B	7305	6595	6170	5690	6920	6240	5835	5375	76	47	31	12
JJI 300C	7770	6995	6550	6040	7340	6620	6195	5695	87	66	48	26
JJI 300D	8560	7720	7220	6640	8105	7290	6820	6270	97	85	74	52
JJI 350C	8770	7910	7410	6835	8305	7480	7010	6450	89	70	51	29
JJI 350D	9670	8720	8160	7520	9145	8245	7715	7100	98	91	82	63
JJI 400C	9760	8800	8255	7610	9240	8340	7805	7195	93	77	59	40
JJI 400D	10735	9680	9070	8355	10160	9165	8580	7900	99	95	86	72
JJI 450D	11760	10620	9940	9170	11140	10050	9400	8660	100	96	90	78

Table 3 Maximum Clear Spans for JJI-Joists in Flat Roof Applications

Figures in Bold indicate that web stiffeners are required.

Designs based on the dead load as shown + 0.75kN/m² imposed snow load.

Typical 3 Layer Felt Construction, see figure 4

Typical Asphalt construction, see figure 5

Permissible web holes to be drilled in accordance with JoistMaster software

Design in accordance with BS 6399:Pt 3 – 4.3.1 (Minimum imposed load on roof with no access)

No allowance for rafter overhangs within table

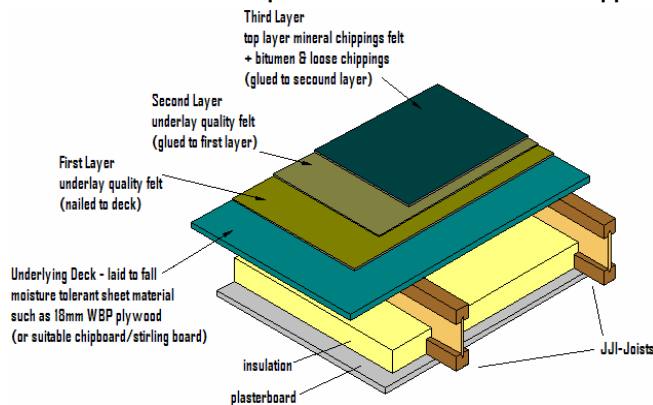


Figure 4
Typical 3 layer felt construction

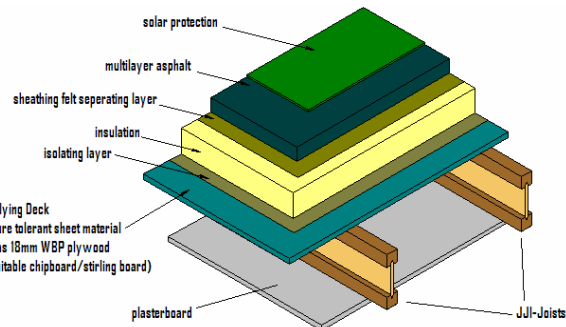


Figure 5
Typical asphalt construction

Pitched Rafter Design – 600mm & 400mm c/c

Joist Type/ Flange	Lightweight Tile ≤ 0.434kN/m ²				Standard Tile ≤ 0.685kN/m ²				Heavy Tile ≤ 0.878kN/m ²			
	Maximum Rafter Span @ 600c/c				Maximum Rafter Span @ 600c/c				Maximum Rafter Span @ 600c/c			
	15°	30°	35°	45°	15°	30°	35°	45°	15°	30°	35°	45°
JJI 145A	2835	2675	2600	2400	2590	2440	2370	2185	2445	2305	2235	2060
JJI 195A	3855	3680	3700	3400	3585	3405	3340	3065	3415	3240	3140	2880
JJI 195B	4235	4045	4100	3825	3935	3745	3740	3430	3750	3555	3505	3215
JJI 195C	4495	4295	4355	4120	4180	3975	3995	3685	3980	3780	3760	3450
JJI 195D	4950	4735	4800	4635	4595	4380	4400	4130	4375	4160	4160	3855
JJI 220A	4285	4085	4140	3870	3985	3785	3790	3475	3800	3600	3555	3260
JJI 220B	4710	4495	4555	4345	4380	4165	4180	3885	4175	3960	3955	3635
JJI 220C	5000	4770	4840	4670	4650	4415	4440	4165	4430	4200	4200	3895
JJI 220D	5510	5255	5335	5250	5115	4870	4890	4665	4870	4630	4625	4350
JJI 235A	4535	4325	4380	4140	4220	4010	4020	3715	4020	3815	3800	3480
JJI 235B	4985	4755	4820	4645	4635	4410	4425	4150	4420	4190	4185	3880
JJI 235C	5295	5055	5120	4995	4920	4680	4695	4450	4690	4450	4445	4155
JJI 235D	5835	5570	5640	5610	5415	5155	5180	4975	5160	4900	4900	4635
JJI 245A	4695	4480	4535	4320	4370	4155	4165	3870	4170	3955	3945	3625
JJI 245B	5165	4930	4985	4845	4800	4565	4580	4320	4580	4345	4340	4040
JJI 245C	5480	5235	5300	5205	5095	4845	4865	4635	4860	4610	4610	4325
JJI 245D	6040	5770	5845	5845	5615	5340	5365	5180	5345	5080	5075	4825
JJI 300A	5560	5305	5365	5275	5180	4920	4935	4700	4940	4685	4675	4390
JJI 300B	6110	5830	5905	5895	5690	5410	5420	5235	5430	5145	5135	4880
JJI 300C	6495	6195	6265	6330	6045	5745	5760	5605	5755	5465	5455	5220
JJI 300D	7145	6830	6915	6990	6650	6330	6345	6255	6340	6020	6015	5815
JJI 350C	7335	6995	7080	7150	6835	6495	6510	6420	6520	6180	6175	5975
JJI 350D	8085	7720	7805	7890	7525	7155	7175	7080	7180	6805	6800	6625
JJI 400C	8170	7795	7880	7955	7615	7235	7250	7140	7265	6880	6870	6695
JJI 400D	8985	8570	8670	8020 L	8370	7945	7980	7870	7980	7570	7560	7360
JJI 450D	9845	9395	9390 L	7985 L	9170	8720	8740	7985 L	8750	8295	8285	7985 L

Table 4 Maximum Clear Spans for JJI-Joist Pitched Rafters @ 600mm c/c

Tile Manufacturer & Type	Weight on slope (inc SW allowance of 0.11kN/m ²)
Eternit Duchess	0.316
Marley Feature	0.826
Modern	0.659
Bold Roll	0.63
Redland Renown	0.565
Cambrian	0.306
Plain	0.877
Thatching 305mm Thick	0.518

Figure 6 Typical tile types & weights

Figures in Bold indicate that web stiffeners are required.

XXXL denotes clear spans limited to maximum manufactured JJI-Joist length of 12m

Designs based on the dead load as shown + 0.75kN/m² imposed snow load up to 30° pitch reducing linearly thereafter to zero at 60° pitch (alternative imposed loads may apply – seek Roof Designer guidance)

The tabulated tile design loads include an allowance of 0.11kN/m² for felt, battens and the JJI rafter self weight. If the ceiling finish is directly applied to the JJI rafter then we suggest an additional load of 0.25kN/m² (Design in accordance with JoistMaster software)

Spans assume rafter top flange restrained using battens at c/c ≤ 400mm

Permissible web holes to be drilled in accordance with JoistMaster software

Design in accordance with BS 6399:Pt 3 – 4.3.1 (Minimum imposed load on roof with no access)

No allowance for rafter overhangs within table

For typical tile types & weights see figure 6

Spans measured on plan see figure 7

Pitched Rafter Design – 600mm & 400mm c/c (Continued)

Joist Type/ Flange	Lightweight Tile ≤ 0.434kN/m ²				Standard Tile ≤ 0.685kN/m ²				Heavy Tile ≤ 0.878kN/m ²			
	Maximum Rafter Span @ 400c/c				Maximum Rafter Span @ 400c/c				Maximum Rafter Span @ 400c/c			
	15°	30°	35°	45°	15°	30°	35°	45°	15°	30°	35°	45°
JJI 145A	3025	2860	2780	2570	2810	2650	2575	2375	2675	2525	2450	2260
JJI 195A	4375	4120	3995	3680	4015	3780	3660	3365	3805	3580	3465	3185
JJI 195B	4920	4655	4515	4155	4515	4250	4115	3780	4270	4015	3885	3570
JJI 195C	5225	4985	4875	4490	4865	4575	4430	4070	4595	4315	4180	3835
JJI 195D	5755	5495	5510	5070	5355	5095	4985	4580	5105	4840	4690	4305
JJI 220A	4965	4715	4570	4200	4580	4305	4170	3825	4335	4070	3940	3610
JJI 220B	5465	5205	5155	4740	5080	4830	4680	4295	4850	4560	4415	4045
JJI 220C	5795	5530	5555	5110	5395	5130	5030	4615	5150	4880	4735	4340
JJI 220D	6395	6100	6180	5765	5945	5655	5655	5185	5670	5380	5310	4865
JJI 235A	5250	5000	4905	4505	4890	4610	4465	4095	4640	4355	4215	3860
JJI 235B	5770	5500	5525	5075	5375	5105	5005	4590	5130	4860	4715	4320
JJI 235C	6140	5850	5920	5475	5710	5430	5385	4935	5455	5170	5065	4640
JJI 235D	6770	6450	6530	6170	6295	5980	6000	5540	6010	5695	5670	5195
JJI 245A	5435	5180	5125	4710	5070	4805	4660	4270	4835	4545	4395	4025
JJI 245B	5985	5700	5770	5300	5570	5295	5220	4785	5320	5035	4915	4500
JJI 245C	6350	6055	6125	5710	5920	5620	5610	5145	5650	5350	5275	4830
JJI 245D	7005	6680	6765	6435	6520	6200	6220	5770	6220	5900	5885	5405
JJI 300A	6430	6120	6190	5780	5995	5685	5690	5210	5720	5420	5355	4895
JJI 300B	7070	6740	6810	6485	6595	6255	6270	5825	6295	5965	5940	5460
JJI 300C	7510	7165	7245	6975	7000	6645	6665	6245	6680	6330	6315	5850
JJI 300D	8280	7890	7990	7840	7720	7335	7355	6995	7370	6985	6970	6535
JJI 350C	8480	8085	8180	8050	7905	7510	7520	7180	7560	7155	7140	6715
JJI 350D	9360	8920	9020	8055L	8720	8285	8295	8025	8320	7895	7870	7490
JJI 400C	9445	8995	9095	8020 L	8810	8360	8375	8020 L	8405	7970	7945	7560
JJI 400D	10385	9895	9420 L	8020 L	9680	9195	9220	8020 L	9245	8770	8745	8020 L
JJI 450D	11295L	9985L	9390 L	7985 L	10610	9985 L	9390 L	7985 L	10125	9595	9390 L	7985 L

Table 5 Maximum Clear Spans for JJI-Joist Pitched Rafters @ 400mm c/c

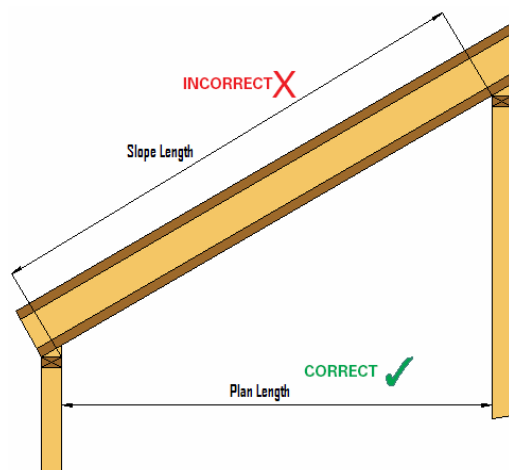


Figure 7 Typical JJI rafter detail

Figures in Bold indicate that web stiffeners are required.

XXXL denotes clear spans limited to maximum manufactured JJI-Joist length of 12m

Designs based on the dead load as shown + 0.75kN/m² imposed snow load up to 30° pitch reducing linearly thereafter to zero at 60° pitch (alternative imposed loads may apply – seek Roof Designer guidance)

The tabulated tile design loads include an allowance of 0.11kN/m² for felt, battens and the JJI rafter self weight. If the ceiling finish is directly applied to the JJI rafter, then we suggest an additional load of 0.25kN/m² (Design in accordance with JoistMaster software)

Spans assume rafter top flange restrained using battens at c/c ≤ 400mm
Permissible web holes to be drilled in accordance with JoistMaster software

Design in accordance with BS 6399:Pt 3 – 4.3.1 (Minimum imposed load on roof with no access)

No allowance for rafter overhangs within table

For typical tile types & weights see figure 6

Spans measured on plan see figure 7

Trimmer Specification

Floor Depth (mm) & Trimmer Material	Return span or 'oncoming span' (mm) L									
	2000	2500	3000	3500	4000	4500	5000	5500	6000	
	Maximum overall trimmer span (mm) S									
195 JJI-Joist 'A'	2500	2280	1970	1700	1500	1350	1225	1120	1025	
2ply JJI-Joist 'A'	3260	3000	2800	2630	2500	2385	2280	2175	2000	
38mm GL32h	2975	2750	2585	2460	2350	2250	2175	2075	1900	
45mm GL32h	3150	2915	2740	2600	2485	2385	2300	2230	2160	
76mm GL32h	3750	3475	3275	3110	2970	2850	2750	2670	2590	
45mm Kerto S	3050	2820	2650	2510	2390	2290	2205	2130	2065	
75mm Kerto S	3640	3370	3160	3000	2860	2750	2650	2560	2480	
220 JJI-Joist 'A'	2775	2540	2170	1875	1650	1475	1340	1225	1125	
2ply JJI-Joist 'A'	3560	3270	3050	2875	2720	2600	2490	2390	2200	
38mm GL32h	3340	3100	2910	2760	2630	2530	2440	2300	2100	
45mm GL32h	3510	3250	3050	2895	2760	2650	2560	2475	2400	
76mm GL32h	4160	3885	3650	3465	3310	3175	3070	2975	2880	
45mm Kerto S	3435	3180	2980	2820	2690	2580	2480	2300	2125	
75mm Kerto S	4085	3820	3590	3400	3250	3120	3000	2905	2820	
235 JJI-Joist 'A'	2925	2675	2250	1925	1700	1520	1375	1255	1160	
2ply JJI-Joist 'A'	3790	3490	3250	3070	2910	2780	2660	2520	2320	
38mm GL32h	3530	3275	3075	2915	2780	2670	2575	2425	2225	
45mm GL32h	3750	3475	3255	3085	2950	2830	2730	2640	2560	
76mm GL32h	4360	4125	3890	3690	3530	3400	3275	3170	3075	
45mm Kerto S	3690	3415	3205	3035	2895	2775	2675	2580	2500	
75mm Kerto S	4310	4070	3830	3630	3460	3320	3200	3100	3005	
245 JJI-Joist 'A'	3015	2760	2325	2000	1765	1565	1425	1295	1200	
2ply JJI-Joist 'A'	3925	3610	3370	3180	3010	2880	2760	2640	2420	
38mm GL32h	3675	3410	3200	3030	2890	2775	2675	2500	2330	
45mm GL32h	3900	3615	3390	3215	3070	2950	2840	2750	2670	
76mm GL32h	4500	4250	4050	3850	3675	3535	3410	3300	3200	
45mm Kerto S	3845	3560	3340	3160	3010	2890	2785	2685	2605	
75mm Kerto S	4445	4200	3990	3780	3605	3460	3340	3230	3130	
300 JJI-Joist 'A'	3570	3270	2750	2370	2080	1860	1675	1525	1420	
2ply JJI-Joist 'A'	4470	4210	3980	3760	3570	3410	3270	3100	2850	
45mm GL32h	4570	4315	4115	3925	3745	3595	3460	3350	3250	
76mm GL32h	5220	4925	4710	4525	4375	4250	4130	4025	3900	
45mm Kerto S	4520	4270	4070	3850	3670	3520	3390	3275	3175	
75mm Kerto S	5150	4870	4645	4465	4310	4180	4070	3935	3815	

Designs based on a deflection limit of 0.003 x span, but not more than 12mm + a **minimum SI (serviceability Index) of 1.3.**

Trimmer joist requirements over 300mm joist depth to be calculated using JoistMaster software.

Overall trimmer joist span 'S' based on a design dead load of 0.75kN/m² + an imposed load not exceeding 1.5kN/m².

Where trimmer span (S) or return span (L) falls outside the range of table 6, trimmers should be calculated using JoistMaster software.

Permissible web holes to be drilled in accordance with JoistMaster software

Return span (L) & overall trimmer span (S) as detailed - see figure 8.

Figures in Bold indicate that web stiffeners are required.

Table 6 Trimmer Joist Specification 195 – 300mm Joist Depth

- Example 1 220mm Floor Depth 'L' 2800mm, 'S' 3075mm
Trimmer = 75mm Kerto S
- Example 2 300mm Floor Depth 'L' 3100mm, 'S' 3400mm
Trimmer = 2ply JJI-Joist 'A'

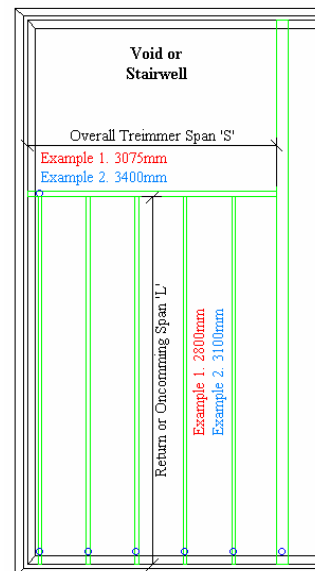


Figure 8 Example Floor. Trimmer and return span joist definition

Trimming Specification

To define the trimming joist specification we need to undertake two simple calculations to determine the applied load from the trimmer joist, and the position of the trimmer joist support, see figures 9 and 10. The trimming joist specifications found in Table 7 are based on a floor load of 2.25kN/m² (Std. Domestic inc. partitions).

Applied Load

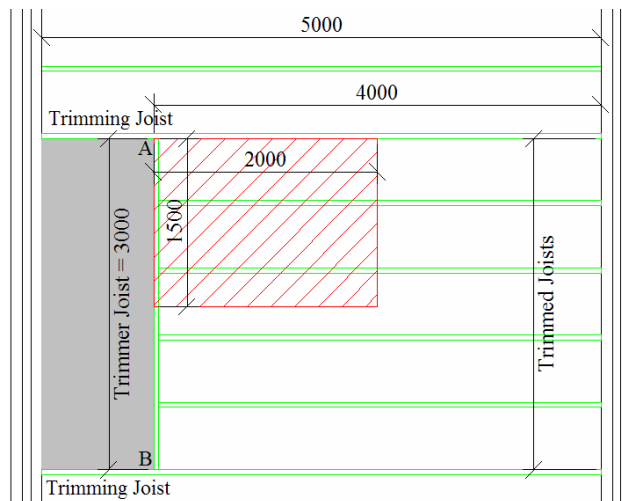


Figure 9
Example Floor. Proportion of floor load applied to trimming joist

Applied Point Load = Area (m²) x Load (kN/m²)

Area = (4m/2) x (3m/2) = 3m²

Load = 2.25kN/m² (1.5kN/m² (live) + 0.75kN/m² (dead)) x 3m² = **6.75kN**

Trimmer Position

This is determined by another simple calculation based on the avoidance bay opening divided by the span of the trimming joist, see figure 9.

Avoidance bay opening = 1.0m, trimming joist span 5.0m = 1/5 = 0.2 x 100 = **20%**

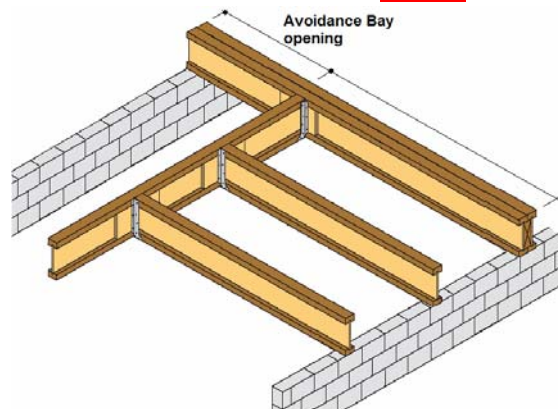
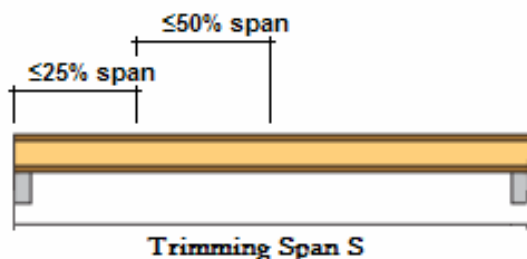


Figure 10
Position of trimmer joist

Example 3 245mm Floor Depth, Joists @400c/c, 5m span. Trimmer = 6.75kN PL@ 20% position
Trimming = **135mm GL32h**

Trimming Specification - Continued

Floor Depth / Trimming Spas S	Trimmer position	Trimming Joist @ 400mm c/c - JJI / GL32h Glulam / Kerto S (mm)				Trimming Joist @ 600mm c/c - JJI / GL32h Glulam / Kerto S (mm)					
		Point Load				Point Load					
		≤5kN	≤6kN	≤7kN	≤8kN	≤5kN	≤6kN	≤7kN	≤8kN		
195mm	3 - 3.5m	≤25%	2x'C' / 76 / 75	3x'B' / 90 / 90	3x'B' / 90 / 120	3x'B' / 114 / 120	3x'B' / 90 / 90	3x'B' / 114 / 120	3x'C' / 114 / 120	- / 114 / 120	
		25-50%	3x'B' / 114 / 120	3x'C' / 114 / 120	- / 135 / 135	- / 135 / 150	3x'C' / 114 / 120	- / 135 / 135	- / 135 / 150	- / 152 / 150	
	3.5 - 4m	≤25%	3x'B' / 114 / 120	3x'C' / 114 / 120	3x'C' / 135 / 135	- / 135 / 135	3x'C' / 114 / 120	- / 135 / 135	- / 152 / 150	- / 152 / 165	
		25-50%	- / 135 / 135	- / 152 / 150	- / 180 / 165	- / 180 / 180	- / 152 / 150	- / 180 / 165	- / 180 / 195	- / 225 / 225	
	4 - 4.5m	≤25%	- / 152 / 150	- / 180 / 180	- / 180 / 180	- / 190 / 195	- / 180 / 180	- / 190 / 195	- / 225 / 225	- / 225 / 225	
		25-50%	- / 180 / 195	- / 225 / 225	-	-	- / 225 / 225	-	-	-	
	4.5 - 5m	≤25%	- / 225 / 225	- / 225 / -	-	-	-	-	-	-	
		25-50%	-	-	-	-	-	-	-	-	
	220mm	3 - 3.5m	≤25%	2x'B' / 76 / 75	3x'A' / 76 / 75	3x'B' / 90 / 90	3x'A' / 76 / 75	2x'B' / 76 / 75	3x'A' / 76 / 75	3x'A' / 76 / 75	3x'B' / 90 / 90
			25-50%	2x'C' / 76 / 75	2x'D' / 76 / 90	3x'B' / 90 / 90	3x'C' / 114 / 120	2x'D' / 76 / 90	3x'B' / 90 / 90	3x'C' / 114 / 120	- / 114 / 120
3.5 - 4m		≤25%	2x'C' / 76 / 75	3x'B' / 76 / 90	3x'B' / 90 / 90	3x'B' / 114 / 120	3x'B' / 90 / 90	3x'B' / 90 / 120	3x'C' / 114 / 120	3x'C' / 114 / 120	
		25-50%	2x'D' / 90 / 90	3x'C' / 114 / 120	- / 114 / 120	- / 135 / 135	3x'C' / 114 / 120	- / 114 / 120	- / 135 / 135	- / 152 / 150	
4 - 4.5m		≤25%	3x'C' / 114 / 120	3x'C' / 114 / 120	- / 135 / 135	- / 135 / 150	- / 135 / 135	- / 135 / 135	- / 152 / 150	- / 180 / 165	
		25-50%	- / 135 / 135	- / 152 / 150	- / 180 / 165	- / 180 / 195	- / 152 / 165	- / 180 / 180	- / 180 / 195	- / 190 / 195	
4.5 - 5m		≤25%	- / 152 / 150	- / 180 / 165	- / 180 / 180	- / 190 / 195	- / 180 / 180	- / 190 / 195	- / 225 / 225	- / 225 / 225	
		25-50%	- / 180 / 195	- / 225 / 225	- / 225 / -	-	- / 225 / 225	-	-	-	
235mm		3 - 3.5m	≤25%	2x'A' / 45 / 45	2x'A' / 76 / 75	3x'A' / 76 / 75	3x'A' / 76 / 75	2x'A' / 76 / 75	3x'A' / 76 / 75	3x'A' / 76 / 75	3x'A' / 76 / 75
			25-50%	2x'B' / 76 / 75	2x'C' / 76 / 75	2x'D' / 76 / 75	2x'D' / 90 / 90	2x'C' / 76 / 75	2x'D' / 76 / 75	2x'D' / 90 / 90	3x'C' / 90 / 90
	3.5 - 4m	≤25%	2x'B' / 76 / 75	2x'C' / 76 / 75	3x'A' / 76 / 75	3x'B' / 76 / 90	2x'C' / 76 / 75	3x'B' / 76 / 90	3x'B' / 90 / 90	3x'B' / 90 / 90	
		25-50%	2x'D' / 76 / 75	2x'D' / 90 / 90	3x'C' / 114 / 120	- / 114 / 120	2x'D' / 90 / 90	3x'C' / 114 / 120	- / 114 / 120	- / 114 / 120	
	4 - 4.5m	≤25%	2x'D' / 114 / 120	3x'C' / 114 / 120	- / 135 / 135	- / 135 / 135	- / 135 / 135	- / 135 / 135	- / 152 / 150	- / 180 / 165	
		25-50%	- / 135 / 135	- / 152 / 150	- / 180 / 165	- / 180 / 195	- / 152 / 165	- / 180 / 180	- / 190 / 195	- / 225 / 225	
	4.5 - 5m	≤25%	- / 135 / 120	- / 135 / 135	- / 152 / 150	- / 180 / 165	- / 152 / 150	- / 180 / 165	- / 180 / 180	- / 190 / 195	
		25-50%	- / 152 / 165	- / 180 / 180	- / 190 / 195	- / 225 / 225	- / 180 / 180	- / 225 / 225	- / 225 / 225	-	
	245mm	3 - 3.5m	≤25%	2x'A' / 38 / 45	2x'A' / 45 / 45	3x'A' / 76 / 75	3x'A' / 76 / 75	2x'A' / 45 / 45	3x'A' / 76 / 75	3x'A' / 76 / 75	3x'A' / 76 / 75
			25-50%	2x'B' / 76 / 75	2x'C' / 76 / 75	2x'C' / 76 / 75	2x'D' / 76 / 75	2x'B' / 76 / 75	2x'C' / 76 / 75	2x'D' / 76 / 75	- / 76 / 90
3.5 - 4m		≤25%	2x'B' / 76 / 75	2x'B' / 76 / 75	3x'A' / 76 / 75	3x'A' / 76 / 75	2x'B' / 76 / 75	3x'A' / 76 / 75	3x'B' / 76 / 75	3x'B' / 90 / 90	
		25-50%	2x'C' / 76 / 75	2x'D' / 76 / 75	3x'B' / 90 / 90	3x'C' / 114 / 120	2x'D' / 76 / 90	3x'B' / 90 / 90	3x'C' / 114 / 120	- / 114 / 120	
4 - 4.5m		≤25%	2x'D' / 76 / 75	2x'D' / 90 / 90	3x'B' / 90 / 120	3x'C' / 114 / 120	2x'D' / 90 / 90	3x'C' / 114 / 120	3x'C' / 114 / 120	- / 114 / 120	
		25-50%	3x'C' / 114 / 120	- / 114 / 120	- / 135 / 135	- / 135 / 135	- / 114 / 120	- / 135 / 135	- / 135 / 150	- / 152 / 150	
4.5 - 5m		≤25%	3x'C' / 114 / 120	- / 114 / 120	- / 135 / 135	- / 152 / 150	- / 135 / 135	- / 152 / 150	- / 152 / 165	- / 180 / 165	
		25-50%	- / 135 / 135	- / 152 / 165	- / 180 / 180	- / 190 / 195	- / 180 / 180	- / 180 / 180	- / 190 / 195	- / 225 / 225	
300mm		3 - 3.5m	≤25%	2x'A' / 45 / 45	2x'A' / 45 / 45	2x'A' / 76 / 75	2x'A' / 76 / 75	2x'A' / 45 / 45	2x'A' / 76 / 75	2x'A' / 76 / 75	3x'A' / 76 / 75
			25-50%	2x'A' / 45 / 45	2x'A' / 45 / 45	2x'A' / 76 / 75	2x'A' / 76 / 75	2x'A' / 45 / 45	2x'A' / 76 / 75	2x'B' / 76 / 75	2x'B' / 76 / 75
	3.5 - 4m	≤25%	2x'A' / 45 / 45	2x'A' / 76 / 75	2x'A' / 76 / 75	3x'A' / 76 / 75	2x'A' / 45 / 45	2x'A' / 76 / 75	3x'A' / 76 / 75	3x'A' / 76 / 75	
		25-50%	2x'A' / 45 / 45	2x'B' / 45 / 45	2x'B' / 76 / 75	2x'C' / 76 / 75	2x'B' / 45 / 45	2x'B' / 76 / 75	2x'C' / 76 / 75	2x'C' / 76 / 75	
	4 - 4.5m	≤25%	2x'A' / 76 / 75	2x'B' / 76 / 75	2x'B' / 76 / 75	3x'A' / 76 / 75	2x'B' / 76 / 75	2x'B' / 76 / 75	3x'A' / 76 / 75	2x'B' / 76 / 75	
		25-50%	2x'B' / 76 / 75	2x'C' / 76 / 75	2x'D' / 76 / 75	2x'D' / 76 / 90	2x'D' / 76 / 75	2x'D' / 76 / 75	3x'B' / 76 / 90	3x'C' / 90 / 90	
	4.5 - 5m	≤25%	2x'C' / 76 / 75	2x'C' / 76 / 75	2x'D' / 76 / 75	3x'B' / 76 / 90	2x'D' / 76 / 75	2x'D' / 76 / 90	3x'C' / 90 / 90	3x'C' / 90 / 120	
		25-50%	2x'D' / 76 / 75	3x'C' / 90 / 90	3x'C' / 114 / 120	- / 114 / 120	3x'C' / 90 / 90	- / 114 / 120	- / 114 / 120	- / 114 / 120	

Table 7 Trimming Joist Specification 195 – 300mm Joist Depth

Designs based on a deflection limit of 0.003 x span, but not more than 12mm + a **minimum SI (serviceability Index) of 1.3.**

Trimming joist requirements over 300mm joist depth to be calculated using JoistMaster software.

Overall trimming joist design dead load of 0.75kN/m² + an imposed load not exceeding 1.5kN/m².

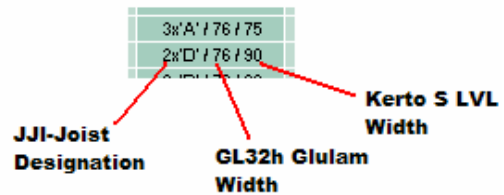
Where trimming span or incoming load falls outside the range of table 7, trimming joists should be calculated using JoistMaster software.

Figures in Bold indicate that web stiffeners are required.

Multiple JJI-Joists to be secured together in accordance with details F19, 20 & 21 found in the JJI-Joist Technical Manual.

Permissible web holes to be drilled in accordance with JoistMaster software

Multiple GL32h beams to be secured together in accordance with page 4 of TB 20 'Glue Laminated Beams'



Glulam Widths

- 76mm = 2x38mm
- 90mm = 2x45mm
- 114mm = 3x38mm
- 135mm = 3x45mm
- 152mm = 4x38mm
- 180mm = 4x45mm
- 190mm = 5x38mm
- 225mm = 5x45mm

Kerto Widths

- 90mm = 2x45mm
- 120mm = 45mm+75mm
- 135mm = 3x45mm
- 150mm = 2x75mm
- 165mm = 2x45mm+75mm
- 180mm = 4x45mm
- 195mm = 2x75mm+45mm
- 225mm = 3x75mm