

Liniar Roof Structural Guide
Issue 2.3, March 2017



Introduction & Contents

For specifications beyond this guidance contact the **Liniar Roof Technical Department**.

Introduction...

The guidance calculations detailed in this document assess the structure of the conservatory roof, it assumes and assume that the fabrication and installation is carried out in accordance with the Liniar roof current fabrication & installation manuals.

We have provided this information in a series of easy to read tables, illustrating the span capabilities of your individual roof pitch and rafter roof bar spacings.

Please ensure that when using this guidance document all the loading bearing elements, i.e. Eaves Beam, Roof Bars etc. are checked to determine the overall feasibility of the proposed roof assembly. Suitable lateral and vertical support must be provided within the window/wall structure. Liniar **can not** accept responsibility for the overall stability of the conservatory, unless a portal frame structure is supplied (by others).

When designing a conservatory, careful consideration must be made on the overall stability of the structure that you wish to create. Some roof styles can inadvertently create an unstable structure that has no vertical support at the end of the ridge and may therefore allow potential movement. This is particularly relevant to box gutter applications if a gable fronted roof style is incorporated into the design, please contact the Liniar's Technical Department as your roof maybe unstable. Any unstable roof design **must** be installed with a portal frame supporting structure.

Please note only conservatories up to 30m² floor area are **exempt** from Building Regulation approval.

Any designs requiring structural calculations or portal frame structures must be performed by a qualified structural engineer, we do not provide this service and additional charges will be incurred.

Please contact Liniar's Technical Department for guidance on Lantern roof styles

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1.1 - Guidance ...



Monopitch Roof Pitch Range...



Min pitch for a Hipped Lean-To : 5°

Standard Lean-To's

Hipped Lean-To's

Wallplate Pitch Range : **2.5° to 14°**
Half Ridge Pitch Range : **15° to 40°**

Duopitch Roof Pitch Range...



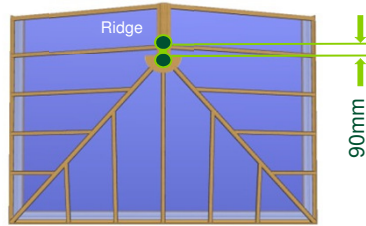
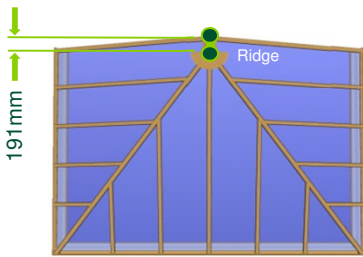
Edwardian's

Victorian's

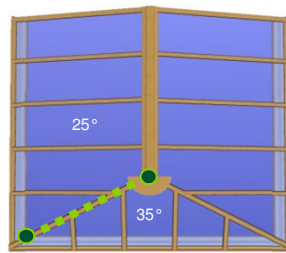
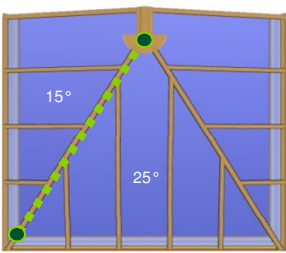
Gable Front's

Ridge Pitch Range : **15° to 40°**

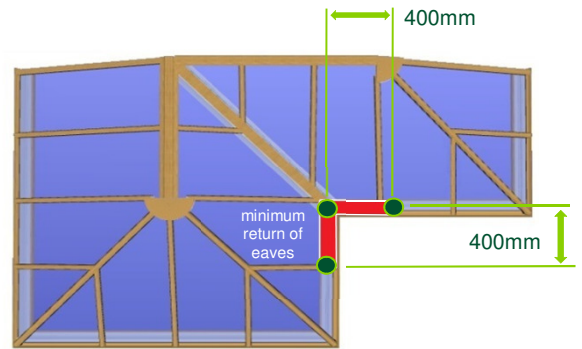
Limitations ...



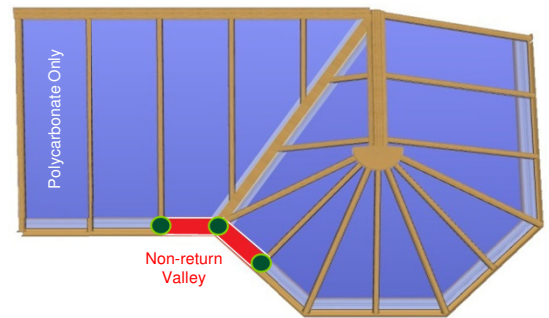
The minimum length of ridge for a duopitch roof is **191mm**, any ridge greater should extend beyond the first set of rafters by a minimum of **90mm**



The maximum pitch differential over a hip bar should be no greater than **10°**, this rule applies to hipped roof styles

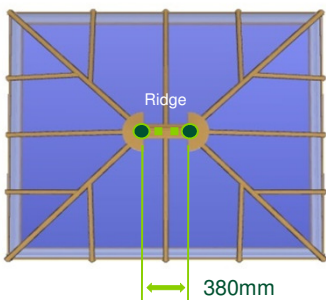


The minimum length of the supporting eaves beam should be no less than **400mm**



If the style constitutes a non-return valley (Victorian facets) assembly, the design will be only made available in **POLYCARBONATE** glazing and **WILL NOT** be supplied in **Glass**

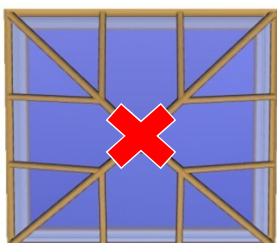
See section 9 for maximum valley lengths



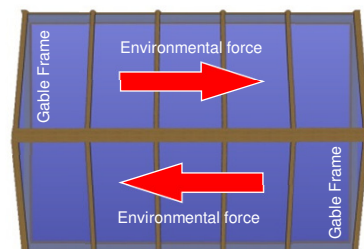
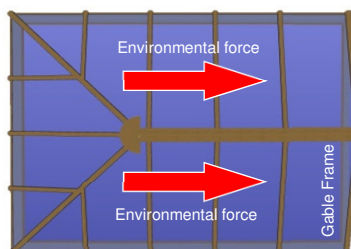
A minimum ridge length of **380mm** should be applied to double hipped roofs and must have at least one set of rafters to support the ridge

Unsuitable applications ...

We regret Gazebo styles will be unavailable until further notice



Please check the feasibility of the conservatory before proceeding



Gable fronted styles without a supporting host wall are deemed unstable, they are unable to withstand environmental forces acting on the gable ends and will allow movement of the ridge. These styles will only be made available if a supporting portal frame is specified

1.2 - How to use the guide

We have presented loading information into a series of tables, illustrating the span capabilities of your individual roof pitch and rafter/roof bar spacing's. It is essential that when you are assessing the feasibility of a conservatory structure all load bearing elements are checked for suitability

Step 1 : Environmental Loadings ...

There are many factors that need to be considered when assessing the feasibility of a conservatory roof layout. The first step of any conservatory design is to define the Environmental Loadings for the specific site installation.

We have collated typical geographical data for the majority of UK based cities and tabulated this information in Section 2 of this guide. Basic Snow Loading values are determined from the regional map, where loadings above 0.6 Kn/m² are shown in grey shade. Consult the Liniar Roof Technical Department regarding regions greater than 0.8 Kn/m².



see Section 2 for Environmental Loading

Step 2 : Transom Bars ...

The Transom bar loading capabilities are dependent on the style of the roof.

Section 3 of this guide has been allocated for Monopitch (Lean-to) style roofs, illustrating how far they travel in plan for a single span. Whilst Section 5 has been allocated for Duopitch (with a Ridge) style roofs, illustrating how far they travel in plan for a double span. Having determined the environmental loading requirements in Step 1, use the look up charts to determine the loading capabilities of the proposed roof bar. Simply determine the intended glazing material, along with the proposed roof pitch and intended rafter.



see Section 3 for Monopitch bars

see Section 5 for Duopitch bars

Step 3 : Remaining Bars ...

The overall span of the conservatory is not determined solely on the performance of the Transom bars, this is determined mainly by the style of a roof. Allowable deflection limits on Hip Bars will reduce the span of a Georgian roof whilst the addition and contribution of imposed wind loadings will have an influence on a Gable Fronted configuration. Please refer to the relevant configuration elements in Section 4 and Section's 6 to 8 of this guide. Again, all information is detailed and defined by the glazing material, loadings and roof pitches.

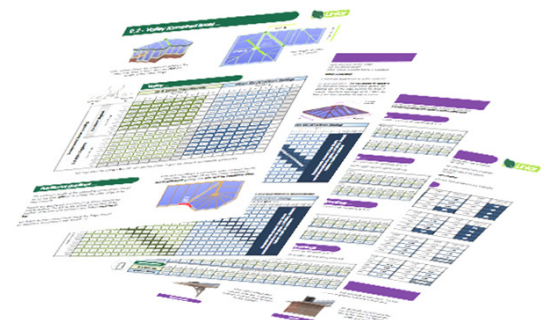


see Section 4 for Monopitch bars

see Section's 6 to 8 for Duopitch bars

Step 4 : Load Bearing Elements ...

The remaining sections within this guidance document covers Tie Bar requirements, Valley span checks, Eaves Beam Spans & Load Bearing Capacities of the proposed bay pole product range (check with the wall/window frame supplier).



see Section 9 for Valleys

see Section 10 for unsupported Eaves

see Section 11 for Tie-bars

see Section 12 for Structural Supports

2.1 - Environmental Loadings

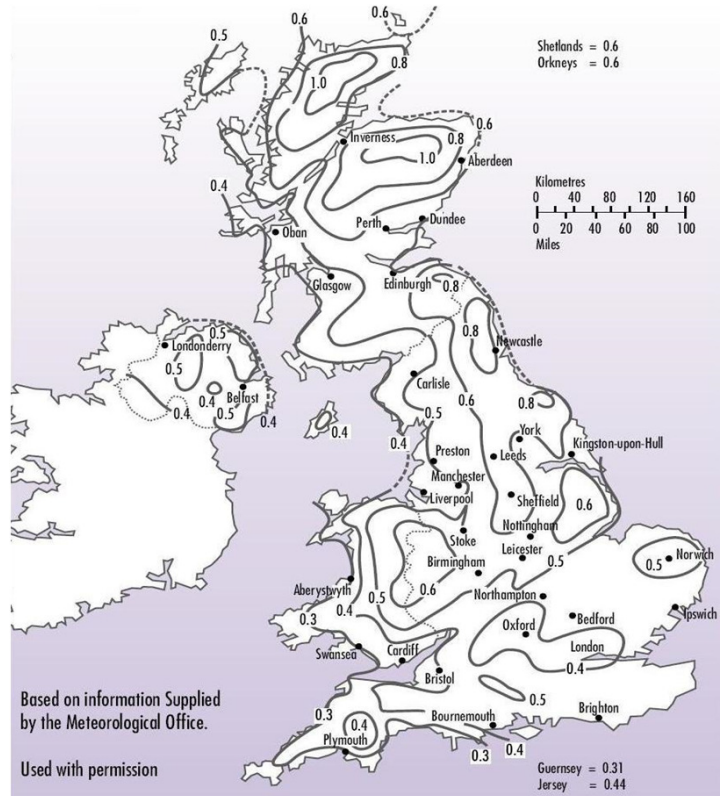


For specifications beyond this guidance contact the Liniar Roof's Technical

Key:

- Vb** - Basic Wind Speed (taken from BS 6399:Pt 2)
Units (m/s)
- Dist** - Closest distance to the Sea (approximate values)
Units (Km)

Basic Snow Load Map...



Great Britain...

	Vb	Dist		Vb	Dist
Aberdeen	24.3	0	Leeds	23.3	88
Abergavenny	21.0	78	Leicester	21.5	114
Aberystwyth	22.6	0	Lincoln	23.1	54
Berwick-upon-Tweed	24.8	0	Lisburn	23.9	25
Birmingham	20.4	152	Liverpool	22.3	16
Blackburn	22.8	38	Llandrindod Wells	21.5	62
Bournemouth	21.6	0	Llandundo	23.3	0
Bradford	23.2	84	Luton	21.0	115
Brighton	22.0	2	Maidstone	21.6	42
Bristol	20.6	86	Manchester	22.3	55
Burton-on-Trent	21.4	134	Middlesbrough	24.7	10
Cambridge	22.5	80	Milton Keynes	20.8	135
Cardiff	21.3	4	Newcastle-upon-Tyne	24.8	15
Carlisle	24.1	58	Newry	23.0	25
Chatham	21.5	20	Northampton	21.3	150
Chelmsford	21.9	33	Norwich	24.5	27
Chester	21.8	30	Nottingham	22.0	96
Coventry	20.5	158	Oxford	19.7	108
Colchester	22.7	13	Perth	22.8	48
Croydon	20.9	64	Peterborough	22.6	78
Dagenham	21.3	54	Peterhead	24.8	0
Darlington	24.6	29	Plymouth	23.0	3
Derby	21.6	118	Preston	22.9	23
Dorchester	21.7	10	Reading	19.8	82
Dumfries	23.7	37	Redhill - Surrey	21.0	50
Dundee	23.5	0	Salisbury	20.9	38
Edinburgh	23.5	3	Sheffield	22.5	102
Enfield	20.8	59	Shrewsbury	21.2	80
Exeter	22.2	16	Southampton	21.2	2
Falkirk	23.0	78	Southend-on-Sea	21.7	0
Glasgow	23.7	86	St Albans	20.7	104
Gloucester	19.9	136	Stevenage	21.4	110
Guildford	20.9	58	Stoke-on-Trent	21.4	84
Harrow	20.3	86	Sutton	20.7	60
Hastings	22.2	0	Swansea	22.3	2
Hereford	20.4	114	Swindon	19.7	96
High Wycombe	19.9	91	Taunton	21.5	21
Huddersfield	22.8	84	Telford	21.0	98
Inverness	24.1	2	Tonbridge	21.5	43
Ipswich	23.2	17	Uxbridge	20.0	82
Kilmarnock	24.0	13	Wakefield	23.2	90
Kingston-upon-Thames	20.5	68	Warrington	22.0	40
Kingston-upon-Hull	24.0	0	Watford	20.5	80
Kirkcaldy	23.3	0	Worcester	20.0	142
Lancaster	23.8	5	York	23.9	56

Northern Ireland...

	Vb	Dist
Armagh	23.5	10
Ballymena	24.2	27
Ballymoney	24.7	18
Bangor	24.2	1
Belfast	24.0	1
Coleraine	25.0	25
Drogheda	23.0	2
Enniskillen	23.7	1
Londonderry	25.0	8
Omagh	24.0	50

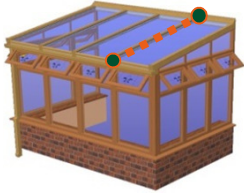
Republic of Ireland...

	Vb	Dist
Antrim	23.9	1
Athlone	23.5	110
Cork	24.3	20
Dublin	23.0	5
Galway	24.3	2
Limerick	24.0	65
Waterford	23.8	10

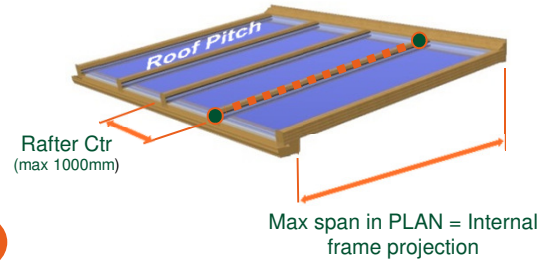
Scotland (Additional Guidance)...

For specifications in the 1.0 kN/m² snow loading region please contact the Liniar Roof's Technical Department.

3.1 - Std Transom Bars (Monopitch Roofs)

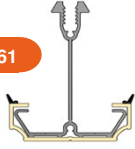


Note: Values shown are maximum distances each glazing bar can span in PLAN, they are **NOT** the length of the rafter!



Std Transom ...

LZAL0061



		25 & 32mm Polycarbonate									24mm IGU (4/16/4mm Glazing)										
		Max Rafter Ctr up to (mm)									Max Rafter Ctr up to (mm)										
		600	650	700	750	800	850	900	950	1000	600	650	700	750	800	850	900	950	1000		
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch up to	5°	2838	2763	2695	2633	2577	2525	2477	2424	2390	2336	2274	2218	2167	2120	2077	2037	2000	1965
		10°	2815	2741	2673	2612	2556	2504	2457	2412	2371	2336	2281	2220	2165	2115	2070	2026	1988	1952	1918
		15°	2777	2703	2637	2577	2521	2470	2423	2379	2338	2303	2253	2199	2145	2092	2040	1989	1940	1892	1846
		20°	2723	2651	2586	2527	2473	2423	2376	2333	2293	2253	2203	2153	2103	2054	2006	1959	1914	1870	1828
		25°	2654	2584	2521	2463	2410	2361	2316	2274	2235	2193	2153	2112	2072	2033	1994	1956	1919	1883	1848
		30°	2570	2502	2441	2385	2334	2287	2243	2202	2164	2123	2083	2044	2006	1969	1933	1897	1862	1828	1795
		35°	2470	2405	2346	2292	2243	2198	2156	2117	2080	2041	2003	1966	1930	1895	1861	1827	1794	1762	1730
		40°	2355	2293	2237	2185	2138	2095	2055	2018	1983	1945	1908	1872	1837	1803	1770	1737	1705	1674	1643
	0.8 kN/m ² Regions	Roof Pitch up to	5°	2594	2526	2463	2407	2355	2307	2263	2222	2184	2142	2101	2062	2024	1987	1951	1916	1882	1849
		10°	2572	2505	2444	2387	2336	2289	2245	2204	2166	2125	2085	2046	2008	1971	1935	1899	1864	1830	1797
		15°	2539	2472	2411	2355	2305	2258	2215	2174	2137	2096	2056	2017	1979	1942	1906	1871	1836	1802	1769
		20°	2490	2424	2365	2310	2260	2215	2172	2133	2096	2055	2015	1976	1938	1901	1865	1830	1795	1761	1728
		25°	2428	2364	2305	2252	2204	2159	2118	2079	2043	2001	1961	1922	1884	1847	1811	1775	1740	1706	1673
		30°	2352	2289	2233	2181	2134	2091	2051	2014	1979	1936	1895	1855	1816	1778	1741	1704	1668	1633	1599
		35°	2261	2201	2147	2098	2052	2011	1972	1936	1903	1861	1820	1780	1741	1702	1664	1626	1589	1552	1516
		40°	2157	2099	2048	2000	1957	1918	1881	1847	1815	1773	1732	1692	1653	1614	1575	1537	1499	1462	1426

LZAL0061

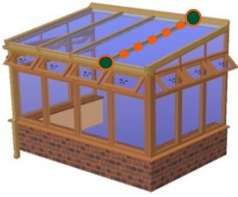


Bolstered Std Transom ...

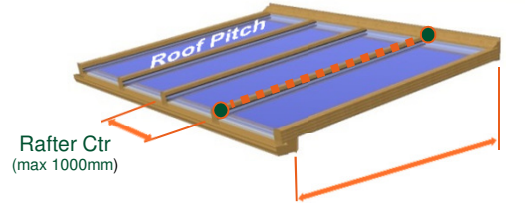
LZAL0072

		25 & 32mm Polycarbonate									24mm IGU (4/16/4mm Glazing)										
		Max Rafter Ctr up to (mm)									Max Rafter Ctr up to (mm)										
		600	650	700	750	800	850	900	950	1000	600	650	700	750	800	850	900	950	1000		
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch up to	5°	4541	4421	4312	4213	4123	4040	3963	3878	3824	3738	3638	3549	3467	3392	3323	3259	3200	3144
		10°	4504	4386	4277	4179	4090	4006	3931	3859	3794	3728	3628	3539	3457	3382	3313	3249	3190	3134	3080
		15°	4443	4325	4219	4123	4034	3952	3877	3806	3741	3675	3575	3486	3404	3329	3260	3196	3137	3081	3028
		20°	4357	4242	4138	4043	3957	3877	3802	3733	3669	3603	3503	3414	3332	3257	3193	3134	3075	3019	2966
		25°	4246	4134	4034	3941	3856	3778	3706	3638	3576	3509	3409	3320	3238	3163	3099	3040	2981	2925	2872
		30°	4112	4003	3906	3816	3734	3659	3589	3523	3462	3395	3295	3206	3124	3049	2985	2926	2867	2811	2758
		35°	3952	3848	3754	3667	3589	3517	3450	3387	3328	3261	3161	3072	2990	2915	2851	2792	2733	2677	2624
		40°	3768	3669	3579	3496	3421	3352	3288	3229	3173	3106	3006	2917	2835	2760	2696	2637	2578	2522	2469
	0.8 kN/m ² Regions	Roof Pitch up to	5°	4150	4042	3941	3851	3768	3691	3621	3555	3494	3427	3327	3238	3156	3081	3017	2958	2902	2849
		10°	4115	4008	3910	3819	3738	3662	3592	3526	3466	3399	3299	3210	3128	3053	2989	2930	2873	2818	2765
		15°	4062	3955	3858	3768	3688	3613	3544	3478	3419	3352	3252	3163	3081	3006	2942	2883	2824	2768	2714
		20°	3984	3878	3784	3696	3616	3544	3475	3413	3354	3287	3187	3098	3016	2941	2877	2818	2761	2706	2652
		25°	3885	3782	3688	3603	3526	3454	3389	3326	3269	3202	3102	3013	2931	2856	2792	2733	2674	2618	2564
		30°	3763	3662	3573	3490	3414	3346	3282	3222	3166	3099	2999	2910	2828	2753	2689	2630	2571	2515	2461
		35°	3618	3522	3435	3357	3283	3218	3155	3098	3045	2978	2878	2789	2707	2632	2568	2509	2452	2397	2343
		40°	3451	3358	3277	3200	3131	3069	3010	2955	2904	2837	2737	2648	2566	2491	2427	2368	2311	2256	2202

3.2 - HD Transom Bars (Monopitch Roofs)

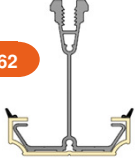


Note: Values shown are maximum distances each glazing bar can span in PLAN, they are **NOT** the length of the rafter!



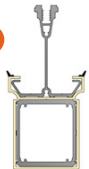
HD Transom ...

LZAL0062



		25 & 32mm Polycarbonate										24mm IGU (4/16/4mm Glazing)									
		Max Rafter Ctr up to (mm)										Max Rafter Ctr up to (mm)									
		600	650	700	750	800	850	900	950	1000	600	650	700	750	800	850	900	950	1000		
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch up to	5°	3349	3262	3182	3110	3044	2983	2926	2874	2825	2760	2687	2621	2561	2506	2456	2409	2365	2325
		10°	3322	3235	3157	3085	3019	2959	2903	2851	2802	2736	2664	2598	2539	2484	2434	2388	2344	2304	
		15°	3277	3191	3114	3043	2978	2919	2863	2813	2764	2695	2624	2560	2501	2447	2398	2352	2310	2270	
		20°	3214	3130	3054	2985	2921	2863	2808	2758	2711	2638	2568	2505	2448	2396	2347	2302	2261	2222	
		25°	3133	3051	2977	2909	2847	2790	2738	2688	2643	2565	2497	2436	2380	2329	2282	2238	2198	2160	
		30°	3033	2954	2882	2817	2757	2702	2651	2603	2559	2475	2410	2351	2297	2248	2202	2160	2121	2084	
		35°	2916	2840	2771	2708	2650	2597	2548	2502	2460	2369	2307	2250	2199	2151	2108	2068	2030	1995	
	40°	2780	2707	2642	2582	2527	2476	2429	2386	2345	2247	2188	2134	2085	2040	1999	1961	1924	1892		
	0.8 kN/m ² Regions	Roof Pitch up to	5°	3063	2983	2910	2843	2782	2726	2675	2626	2582	2567	2499	2438	2382	2330	2283	2239	2199	2161
		10°	3039	2959	2886	2821	2760	2703	2652	2604	2561	2545	2477	2416	2360	2310	2263	2220	2180	2142	
		15°	2998	2919	2848	2783	2723	2668	2618	2570	2526	2508	2441	2381	2327	2277	2230	2188	2148	2111	
		20°	2941	2863	2793	2730	2671	2611	2568	2521	2478	2456	2391	2332	2279	2229	2184	2142	2104	2067	
		25°	2868	2792	2723	2661	2604	2552	2503	2458	2416	2389	2326	2269	2217	2169	2125	2084	2045	2011	
		30°	2777	2704	2638	2578	2525	2472	2425	2381	2340	2308	2247	2191	2141	2095	2052	2013	1977	1942	
35°		2670	2600	2537	2479	2426	2377	2332	2290	2250	2211	2153	2100	2052	2007	1965	1929	1894	1861		
40°	2547	2480	2419	2364	2314	2267	2224	2184	2147	2100	2044	1994	1948	1906	1867	1831	1798	1767			

LZAL0062

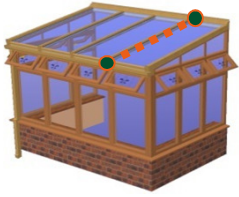


Bolstered HD Transom ...

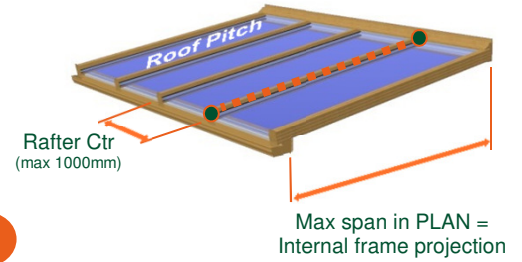
LZAL0072

		25 & 32mm Polycarbonate										24mm IGU (4/16/4mm Glazing)									
		Max Rafter Ctr up to (mm)										Max Rafter Ctr up to (mm)									
		600	650	700	750	800	850	900	950	1000	600	650	700	750	800	850	900	950	1000		
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch up to	5°	4856	4730	4614	4510	4414	4325	4243	4167	4096	4002	3896	3800	3713	3634	3561	3493	3429	3371
		10°	4817	4691	4578	4473	4378	4291	4209	4134	4063	3967	3863	3767	3682	3602	3529	3463	3399	3341	
		15°	4752	4627	4515	4412	4318	4233	4151	4079	4008	3908	3805	3712	3626	3548	3477	3410	3350	3292	
		20°	4660	4539	4428	4328	4235	4151	4072	3999	3931	3825	3724	3632	3550	3474	3403	3338	3278	3222	
		25°	4543	4424	4317	4218	4128	4046	3970	3898	3832	3719	3621	3532	3451	3377	3309	3245	3187	3132	
		30°	4398	4283	4179	4085	3998	3918	3844	3774	3711	3589	3495	3409	3331	3260	3193	3132	3075	3022	
		35°	4228	4118	4018	3927	3843	3766	3695	3628	3567	3435	3345	3263	3189	3119	3057	2999	2944	2893	
	40°	4031	3925	3831	3744	3664	3590	3522	3460	3400	3258	3173	3094	3023	2958	2899	2843	2790	2743		
	0.8 kN/m ² Regions	Roof Pitch up to	5°	4441	4325	4220	4122	4034	3953	3879	3808	3744	3722	3624	3535	3454	3379	3310	3247	3189	3133
		10°	4407	4291	4185	4090	4002	3919	3845	3776	3713	3690	3592	3503	3422	3350	3281	3219	3161	3106	
		15°	4347	4233	4130	4035	3948	3869	3796	3727	3663	3637	3539	3452	3374	3302	3234	3173	3115	3061	
		20°	4264	4151	4050	3959	3873	3786	3724	3655	3593	3561	3467	3381	3305	3232	3167	3106	3051	2997	
		25°	4159	4048	3948	3858	3776	3700	3629	3564	3503	3464	3373	3290	3215	3145	3081	3022	2965	2916	
		30°	4027	3921	3825	3738	3661	3584	3516	3452	3393	3347	3258	3177	3104	3038	2975	2919	2867	2816	
35°		3872	3770	3679	3595	3518	3447	3381	3321	3263	3206	3122	3045	2975	2910	2849	2797	2746	2698		
40°	3693	3596	3508	3428	3355	3287	3225	3167	3113	3045	2964	2891	2825	2764	2707	2655	2607	2562			

3.3 - XHD Transom Bars (Monopitch Roofs)

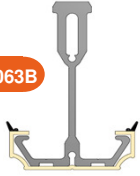


Note: Values shown are maximum distances each glazing bar can span in PLAN, they are **NOT** the length of the rafter!



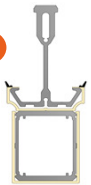
XHD Transom ...

LZAL0063B



		25 & 32mm Polycarbonate										24mm IGU (4/16/4mm Glazing)									
		Max Rafter Ctr up to (mm)										Max Rafter Ctr up to (mm)									
		600	650	700	750	800	850	900	950	1000	600	650	700	750	800	850	900	950	1000		
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch up to	5°	4086	3981	3887	3800	3721	3648	3580	3517	3458	3374	3287	3208	3135	3069	3008	2952	2899	2850
		10°	4053	3949	3855	3770	3691	3618	3551	3488	3430	3344	3258	3179	3108	3042	2982	2926	2874	2825	
		15°	3998	3895	3803	3718	3641	3569	3503	3441	3383	3294	3209	3132	3062	2997	2937	2882	2831	2783	
		20°	3920	3820	3729	3646	3570	3500	3436	3375	3318	3225	3141	3066	2997	2934	2875	2821	2770	2724	
		25°	3821	3723	3635	3552	3480	3412	3348	3289	3234	3130	3054	2981	2934	2882	2831	2783	2737	2694	2648
		30°	3699	3605	3519	3441	3370	3303	3242	3185	3132	3013	2947	2876	2822	2773	2726	2681	2637	2594	2556
		35°	3554	3464	3382	3307	3239	3175	3116	3061	3010	2875	2819	2753	2691	2635	2582	2534	2489	2447	
	40°	3388	3311	3224	3153	3083	3027	2971	2919	2870	2715	2663	2611	2552	2499	2449	2403	2360	2320		
	0.8 kN/m ² Regions	Roof Pitch up to	5°	3743	3646	3558	3478	3405	3338	3276	3217	3163	3141	3043	2985	2917	2859	2799	2746	2697	2651
		10°	3712	3617	3530	3450	3378	3311	3249	3191	3137	3114	3033	2959	2892	2831	2774	2722	2673	2628	
		15°	3661	3568	3482	3403	3332	3266	3205	3148	3095	3069	2989	2916	2850	2790	2734	2682	2634	2590	
		20°	3591	3499	3416	3339	3269	3203	3144	3083	3036	3005	2927	2856	2791	2732	2678	2627	2580	2536	
		25°	3502	3412	3330	3255	3187	3123	3065	3011	2960	2924	2847	2779	2716	2658	2605	2556	2510	2467	
		30°	3391	3304	3225	3153	3087	3025	2969	2916	2867	2824	2750	2684	2623	2567	2516	2469	2425	2383	
35°		3261	3177	3101	3032	2967	2909	2855	2803	2757	2706	2635	2572	2514	2460	2411	2366	2323	2284		
40°	3109	3030	2956	2891	2835	2775	2723	2675	2630	2569	2502	2442	2387	2336	2290	2247	2207	2163			

LZAL0063B

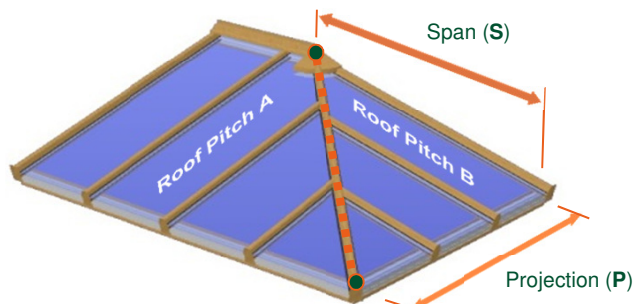
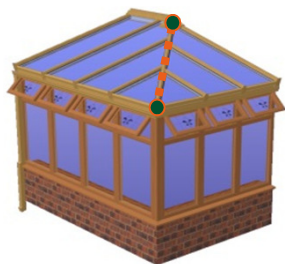


Bolstered XHD Transom ...

LZAL0072

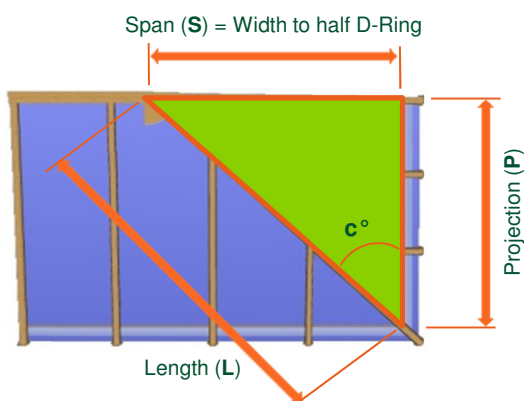
		25 & 32mm Polycarbonate										24mm IGU (4/16/4mm Glazing)									
		Max Rafter Ctr up to (mm)										Max Rafter Ctr up to (mm)									
		600	650	700	750	800	850	900	950	1000	600	650	700	750	800	850	900	950	1000		
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch up to	5°	5475	5335	5209	5092	4986	4888	4797	4713	4634	4521	4405	4299	4201	4112	4031	3956	3885	3819
		10°	5431	5292	5166	5052	4946	4848	4758	4674	4596	4481	4366	4260	4165	4076	3996	3921	3851	3786	
		15°	5357	5219	5096	4982	4879	4782	4694	4611	4533	4414	4300	4197	4103	4016	3936	3862	3794	3729	
		20°	5253	5119	4997	4886	4784	4690	4604	4523	4446	4322	4209	4108	4016	3932	3853	3780	3712	3650	
		25°	5120	4989	4871	4760	4663	4572	4486	4407	4334	4194	4092	3995	3932	3822	3745	3676	3610	3548	
		30°	4957	4831	4715	4611	4516	4426	4344	4268	4197	4037	3949	3854	3822	3689	3615	3547	3484	3425	
		35°	4762	4642	4532	4431	4340	4255	4175	4102	4033	3853	3777	3689	3606	3531	3460	3396	3335	3279	
	40°	4540	4437	4320	4225	4131	4056	3981	3911	3846	3638	3568	3499	3420	3349	3282	3220	3162	3109		
	0.8 kN/m ² Regions	Roof Pitch up to	5°	5016	4886	4768	4661	4563	4473	4390	4311	4238	4209	4078	4000	3909	3831	3751	3680	3614	3552
		10°	4974	4847	4730	4623	4527	4437	4354	4276	4204	4173	4064	3965	3875	3794	3717	3647	3582	3522	
		15°	4906	4781	4666	4560	4465	4376	4295	4218	4147	4112	4005	3907	3819	3739	3664	3594	3530	3471	
		20°	4812	4689	4577	4474	4380	4292	4213	4131	4068	4027	3922	3827	3740	3661	3589	3520	3457	3398	
		25°	4693	4572	4462	4362	4271	4185	4107	4035	3966	3918	3815	3724	3639	3562	3491	3425	3363	3306	
		30°	4544	4427	4322	4225	4137	4054	3978	3907	3842	3784	3685	3597	3515	3440	3371	3308	3250	3193	
35°		4370	4257	4155	4063	3976	3898	3826	3756	3694	3626	3531	3446	3369	3296	3231	3170	3113	3061		
40°	4166	4060	3961	3874	3799	3719	3649	3585	3524	3442	3353	3272	3199	3130	3069	3011	2957	2898			

4.1 - Hipped Lean-To Bars (Monopitch Roofs)

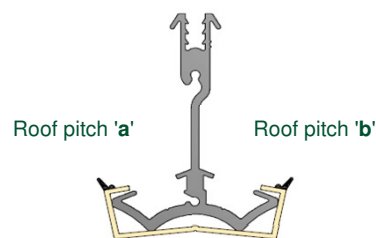


Note: Should the maximum span of the conservatory equal or exceed 6000mm (5200mm for Edwardian in glass), a portal frame structure must be installed (Please consult a Structural Engineer for further guidance). Values shown are maximum distances the valley can span in PLAN, they are NOT the length of the valley!

$$\text{Max length of hip in plan } (L) = \sqrt{(S^2 + P^2)}$$



Maximum pitch differential = 9°



Maximum roof pitch (a & b) = 40°

Minimum roof pitch for Monopitch = 5°

Minimum roof pitch for Duopitch = 15°

Hip Length in plan ...

Max length of hip in plan =

$$\text{Length} = \sqrt{(\text{Span}^2 + \text{Projection}^2)}$$

or $\text{Length} = (\text{Span} / \sin c^\circ)$

or $\text{Length} = (\text{Projection} / \cos c^\circ)$

Angle c in plan ...

Angle of hip in plan view =

$$\tan c^\circ = (\text{Span} / \text{Projection})$$

Span (roof a) ...

Span (to half D-Ring) =

$$\text{Span} = \sqrt{(\text{Length}^2 - \text{Projection}^2)}$$

or $\text{Span} = (\text{Length} * \sin c^\circ)$

or $\text{Span} = (\text{Projection} * \tan c^\circ)$

Projection (roof b) ...

Projection =

$$\text{Projection} = \sqrt{(\text{Length}^2 - \text{Span}^2)}$$

or $\text{Projection} = (\text{Length} * \cos c^\circ)$

or $\text{Projection} = (\text{Span} / \tan c^\circ)$

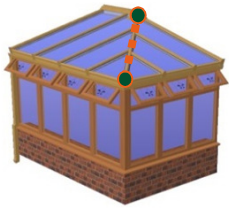
Angle 'c'	Roof pitch 'a' (for Monopitch roofs)								
	Roof pitch 'a' (for Duopitch roofs)								
	5°	10°	15°	20°	25°	30°	35°	40°	
Roof pitch 'b' (for Monopitch's)	5°	45.00	63.61	71.92					
	10°	26.39	45.00	56.65	64.15				
	15°	18.08	33.35	45.00	53.64	60.12			
	20°		25.85	36.36	45.00	52.03	57.77		
	25°			29.88	37.97	45.00	51.07	56.34	
	30°				32.23	38.93	45.00	50.49	55.47
	35°					33.66	39.51	45.00	50.16
	40°						34.53	39.84	45.00

Maximum roof pitch (a & b) = 35°

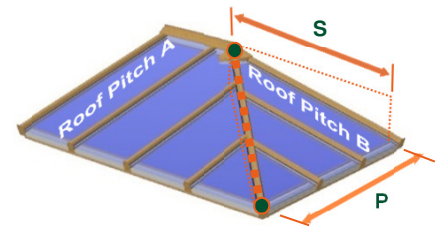
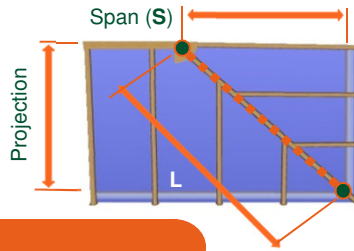
Minimum roof pitch for Monopitch = 5°

Minimum roof pitch for Duopitch = 15°

4.3 - HD Hipped Lean-To Bars (Monopitch Roofs)



Note: Values shown are maximum Length of Hip Bar can span in PLAN, they are **NOT** the length of the Hip !



$$\text{Max length of hip (L)} = \sqrt{(S^2 + P^2)}$$

HD Hip Bar ...

LZAL0007



		25 & 32mm Polycarbonate								24mm IGU (4/16/4mm Glazing)																				
		Roof Pitch 'B' up to								Roof Pitch 'B' up to																				
		5°	10°	15°	20°	25°	30°	35°	40°	5°	10°	15°	20°	25°	30°	35°	40°													
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch 'A' up to 5°	3584	3630	3690													3348	3391	3346										
		Roof Pitch 'A' up to 10°	3630	3571	3583	3613													3391	3335	3342	3371								
		Roof Pitch 'A' up to 15°	3690	3583	3551	3548	3564												3346	3342	3312	3307	3319							
		Roof Pitch 'A' up to 20°		3613	3548	3523	3510	3516												3371	3307	3280	3265	3268						
		Roof Pitch 'A' up to 25°			3564	3510	3483	3464	3462												3319	3265	3237	3216	3208					
		Roof Pitch 'A' up to 30°				3516	3464	3432	3407	3396												3268	3216	3182	3154	3138				
		Roof Pitch 'A' up to 35°					3462	3407	3369	3336													3208	3154	3113	3077				
	Roof Pitch 'A' up to 40°						3396	3336	3291															3138	3077	3028				
	0.8 kN/m ² Regions	Roof Pitch 'A' up to 5°	3356	3400	3457													3178	3221	3273										
		Roof Pitch 'A' up to 10°	3400	3345	3355	3385												3221	3167	3175	3202									
		Roof Pitch 'A' up to 15°	3457	3355	3326	3323	3339											3273	3175	3147	3142	3155								
		Roof Pitch 'A' up to 20°		3385	3323	3299	3290	3294											3202	3142	3117	3104	3107							
		Roof Pitch 'A' up to 25°			3339	3290	3264	3247	3244											3155	3104	3077	3059	3053						
		Roof Pitch 'A' up to 30°				3294	3247	3217	3194	3184											3107	3059	3028	3002	2988					
Roof Pitch 'A' up to 35°						3244	3194	3159	3129												3053	3002	2966	2931						
Roof Pitch 'A' up to 40°						3184	3129	3087														2988	2931	2888						

LZAL0007



Bolstered HD Hip Bar

LZAL0072

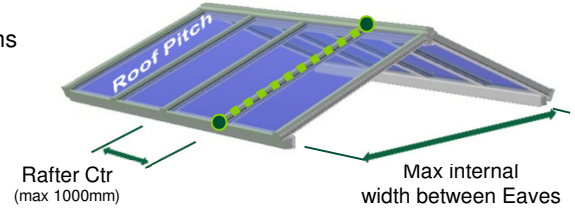
		25 & 32mm Polycarbonate								24mm IGU (4/16/4mm Glazing)																	
		Roof Pitch 'B' up to								Roof Pitch 'B' up to																	
		5°	10°	15°	20°	25°	30°	35°	40°	5°	10°	15°	20°	25°	30°	35°	40°										
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch 'A' up to 5°	4193	4247	4317												3917	3967	3915								
		Roof Pitch 'A' up to 10°	4247	4178	4192	4227											3967	3902	3910	3944							
		Roof Pitch 'A' up to 15°	4317	4192	4155	4151	4170										3915	3910	3875	3869	3883						
		Roof Pitch 'A' up to 20°		4227	4151	4122	4107	4114										3944	3869	3838	3820	3824					
		Roof Pitch 'A' up to 25°			4170	4107	4075	4053	4051										3883	3820	3787	3763	3753				
		Roof Pitch 'A' up to 30°				4114	4053	4015	3986	3973										3824	3763	3723	3690	3671			
		Roof Pitch 'A' up to 35°					4051	3986	3942	3903											3753	3690	3642	3600			
	Roof Pitch 'A' up to 40°						3973	3903	3850													3671	3600	3543			
	0.8 kN/m ² Regions	Roof Pitch 'A' up to 5°	3927	3978	4045											3718	3769	3829									
		Roof Pitch 'A' up to 10°	3978	3914	3925	3960										3769	3705	3715	3746								
		Roof Pitch 'A' up to 15°	4045	3925	3891	3888	3907									3829	3715	3682	3676	3691							
		Roof Pitch 'A' up to 20°		3960	3888	3860	3849	3854									3746	3676	3647	3632	3635						
		Roof Pitch 'A' up to 25°			3907	3849	3819	3799	3795									3691	3632	3600	3579	3572					
		Roof Pitch 'A' up to 30°				3854	3799	3764	3737	3725									3635	3579	3543	3512	3496				
Roof Pitch 'A' up to 35°						3795	3737	3696	3661										3572	3512	3470	3429					
Roof Pitch 'A' up to 40°						3725	3661	3612												3496	3429	3379					

5.1 - Std Transom Bars (Duopitch Roofs)



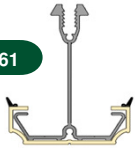
It should be noted that the capabilities of the Transom bars are illustrated below, however all loading bearing elements must be checked to determine the overall feasibility of the proposed roof assembly. This may reduce the size and the limitations of the conservatory, see relevant style sections and remaining component elements!

Note: Values shown are maximum span distances between Eaves Beams, they are **NOT** the length of the rafter!



Std Transom ...

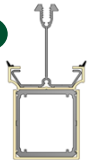
LZAL0061



		25 & 32mm Polycarbonate										24mm IGU (4/16/4mm Glazing)									
		Max Rafter Crs up to (mm)										Max Rafter Crs up to (mm)									
		600	650	700	750	800	850	900	950	1000	600	650	700	750	800	850	900	950	1000		
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch up to 15°	5004	4895	4793	4698	4608	4524	4444	4369	4297	4580	4459	4349	4249	4158	4073	3995	3923	3855	
		20°	4958	4853	4755	4663	4576	4495	4418	4345	4276	4484	4365	4257	4159	4070	3987	3911	3840	3773	
		25°	4875	4775	4681	4593	4511	4433	4359	4289	4222	4359	4243	4139	4044	3956	3876	3802	3733	3668	
		30°	4759	4665	4577	4494	4416	4342	4272	4205	4142	4207	4095	3994	3902	3818	3741	3669	3602	3540	
		35°	4612	4524	4442	4365	4292	4222	4157	4094	4035	4027	3920	3823	3735	3654	3580	3511	3449	3388	
		40°	4430	4350	4275	4204	4137	4074	4013	3956	3901	3819	3717	3625	3542	3465	3395	3330	3269	3212	
	0.8 kN/m ² Regions	Roof Pitch up to 15°	4647	4536	4432	4336	4246	4162	4083	4008	3937	4252	4138	4036	3943	3857	3779	3706	3638	3575	
		20°	4615	4508	4408	4315	4228	4146	4069	3997	3928	4163	4053	3952	3861	3777	3700	3629	3563	3501	
		25°	4549	4446	4350	4261	4177	4099	4025	3955	3888	4051	3943	3845	3756	3675	3600	3530	3466	3406	
		30°	4453	4356	4265	4180	4100	4025	3955	3888	3824	3912	3808	3713	3628	3549	3477	3410	3347	3289	
		35°	4328	4237	4152	4073	3998	3927	3860	3797	3737	3748	3648	3558	3476	3400	3331	3265	3207	3151	
		40°	4173	4090	4011	3938	3868	3803	3741	3682	3626	3559	3464	3378	3300	3228	3162	3101	3044	2991	

Bolstered Std Transom ...

LZAL0061



LZAL0072

		25 & 32mm Polycarbonate										24mm IGU (4/16/4mm Glazing)									
		Max Rafter Crs up to (mm)										Max Rafter Crs up to (mm)									
		600	650	700	750	800	850	900	950	1000	600	650	700	750	800	850	900	950	1000		
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch up to 15°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		20°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		25°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5973	5869	
		30°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5986	5870	5763	5664	
		35°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5976	5846	5728	5618	5518	5421	
		40°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5947	5800	5667	5544	5432	5328	5230	5139	
	0.8 kN/m ² Regions	Roof Pitch up to 15°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		20°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5920	5806	5701	5602	
		25°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5880	5760	5648	5546	5450	
		30°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5941	5805	5678	5563	5456	5355	5262	
		35°	6000	6000	6000	6000	6000	6000	6000	6000	5979	5997	5837	5693	5562	5440	5330	5224	5131	5042	
		40°	6000	6000	6000	6000	6000	6000	5986	5891	5802	5694	5542	5405	5280	5165	5059	4962	4870	4786	



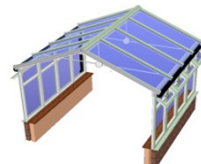
for Edwardian Hips ...
See Section 6



for Edwardian Hips ...
See Section 8



for Victorian Hips ...
See Section 7

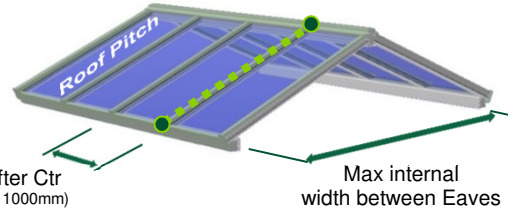


for Tie-Bars ...
See Section 9

5.2 - HD Transom Bars (Duopitch Roofs)

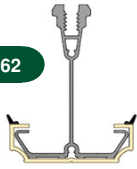
It should be noted that the capabilities of the Transom bars are illustrated below, however all loading bearing elements must be checked to determine the overall feasibility of the proposed roof assembly. This may reduce the size and the limitations of the conservatory, see relevant style sections and remaining component elements!

Note: Values shown are maximum span distances between Eaves Beams, they are **NOT** the length of the rafter!



HD Transom ...

LZAL0062



		25 & 32mm Polycarbonate										24mm IGU (4/16/4mm Glazing)									
		Max Rafter Ctr up to (mm)										Max Rafter Ctr up to (mm)									
		600	650	700	750	800	850	900	950	1000	600	650	700	750	800	850	900	950	1000		
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch up to 15°	5992	5873	5761	5656	5556	5463	5374	5289	5209	5408	5266	5137	5020	4913	4814	4723	4637	4558	
		Roof Pitch up to 20°	5925	5814	5707	5606	5511	5420	5335	5254	5176	5294	5155	5029	4914	4809	4712	4623	4540	4462	
		Roof Pitch up to 25°	5819	5711	5609	5513	5422	5337	5255	5177	5103	5148	5012	4890	4778	4676	4582	4495	4414	4338	
		Roof Pitch up to 30°	5669	5568	5473	5383	5298	5217	5140	5066	4996	4968	4837	4719	4612	4513	4422	4338	4260	4187	
		Roof Pitch up to 35°	5480	5387	5299	5216	5137	5052	4990	4922	4848	4756	4631	4518	4415	4320	4233	4153	4078	4008	
		Roof Pitch up to 40°	5249	5165	5085	5010	4938	4869	4804	4741	4682	4511	4393	4285	4187	4097	4015	3938	3867	3801	
	0.8 kN/m ² Regions	Roof Pitch up to 15°	5599	5476	5361	5253	5152	5056	4966	4881	4801	5023	4890	4770	4661	4561	4468	4383	4304	4230	
		Roof Pitch up to 20°	5553	5434	5324	5220	5122	5030	4943	4861	4783	4920	4789	4672	4565	4467	4376	4293	4215	4142	
		Roof Pitch up to 25°	5464	5351	5245	5146	5053	4965	4882	4803	4728	4786	4660	4545	4441	4345	4258	4176	4101	4030	
		Roof Pitch up to 30°	5339	5232	5132	5039	4950	4867	4788	4713	4641	4623	4501	4390	4290	4197	4112	4034	3961	3892	
		Roof Pitch up to 35°	5177	5078	4985	4898	4815	4737	4663	4593	4510	4430	4313	4207	4110	4022	3941	3865	3795	3730	
		Roof Pitch up to 40°	4976	4887	4802	4722	4637	4543	4457	4377	4302	4207	4096	3995	3903	3819	3742	3670	3604	3541	

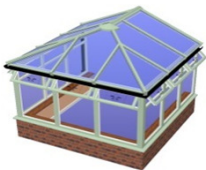
LZAL0062



Bolstered HD Transom ...

LZAL0072

		25 & 32mm Polycarbonate										24mm IGU (4/16/4mm Glazing)									
		Max Rafter Ctr up to (mm)										Max Rafter Ctr up to (mm)									
		600	650	700	750	800	850	900	950	1000	600	650	700	750	800	850	900	950	1000		
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch up to 15°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 20°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 25°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 30°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 35°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5913	5812	
		Roof Pitch up to 40°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5941	5822	5710	5607	5511	
	0.8 kN/m ² Regions	Roof Pitch up to 15°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 20°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 25°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5946	5844	
		Roof Pitch up to 30°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5962	5849	5743	5643	
		Roof Pitch up to 35°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5960	5832	5714	5604	5503	5409	
		Roof Pitch up to 40°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5939	5793	5659	5538	5426	5322	5226	5134	



for Edwardian Hips ...
See Section 6



for Edwardian Hips ...
See Section 8



for Victorian Hips ...
See Section 7



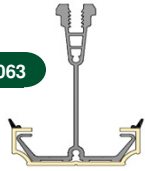
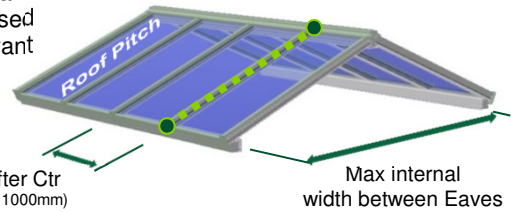
for Tie-Bars ...
See Section 9

5.3 - XHD Transom Bars (Duopitch Roofs)



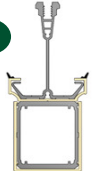
It should be noted that the capabilities of the Transom bars are illustrated below, however all loading bearing elements must be checked to determine the overall feasibility of the proposed roof assembly. This may reduce the size and the limitations of the conservatory, see relevant style sections and remaining component elements!

Note: Values shown are maximum span distances between Eaves Beams, they are **NOT** the length of the rafter!



XHD Transom ...

		25 & 32mm Polycarbonate										24mm IGU (4/16/4mm Glazing)									
		Max Rafter Ctr up to (mm)										Max Rafter Ctr up to (mm)									
		600	650	700	750	800	850	900	950	1000	600	650	700	750	800	850	900	950	1000		
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch up to 15°	6000	6000	6000	5992	5887	5788	5695	5606	5521	5788	5636	5499	5374	5259	5154	5056	4965	4881	
		Roof Pitch up to 20°	6000	6000	6000	5937	5837	5742	5652	5567	5485	5666	5517	5383	5261	5149	5045	4950	4861	4778	
		Roof Pitch up to 25°	6000	6000	5939	5838	5743	5652	5566	5485	5407	5509	5366	5234	5115	5006	4905	4812	4726	4645	
		Roof Pitch up to 30°	6000	5894	5794	5699	5610	5524	5444	5366	5293	5317	5178	5052	4937	4832	4735	4645	4561	4483	
		Roof Pitch up to 35°	5800	5702	5610	5522	5439	5360	5284	5212	5144	5090	4957	4836	4726	4629	4533	4447	4367	4292	
		Roof Pitch up to 40°	5555	5466	5383	5303	5228	5156	5087	5021	5958	4828	4701	4587	4483	4387	4299	4217	4141	4071	
	0.8 kN/m ² Regions	Roof Pitch up to 15°	5933	5802	5681	5568	5461	5361	5266	5177	5092	5377	5235	5107	4990	4883	4785	4694	4609	4530	
		Roof Pitch up to 20°	5882	5757	5640	5531	5428	5331	5240	5153	5071	5266	5127	5002	4887	4783	4686	4597	4514	4437	
		Roof Pitch up to 25°	5787	5668	5556	5452	5354	5261	5173	5090	5011	5124	4988	4866	4755	4653	4559	4472	4392	4316	
		Roof Pitch up to 30°	5653	5541	5436	5337	5245	5156	5073	4994	4919	4949	4819	4701	4593	4495	4404	4320	4242	4169	
		Roof Pitch up to 35°	5481	5377	5279	5187	5100	5018	4940	4866	4796	4743	4618	4505	4402	4307	4220	4140	4065	3995	
		Roof Pitch up to 40°	5268	5174	5084	5000	4291	4845	4772	4686	4607	4504	4385	4278	4180	4090	4008	3931	3860	3794	



Bolstered XHD Transom ...

		25 & 32mm Polycarbonate										24mm IGU (4/16/4mm Glazing)									
		Max Rafter Ctr up to (mm)										Max Rafter Ctr up to (mm)									
		600	650	700	750	800	850	900	950	1000	600	650	700	750	800	850	900	950	1000		
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch up to 15°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 20°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 25°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 30°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 35°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 40°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5904	5797	5699	
	0.8 kN/m ² Regions	Roof Pitch up to 15°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 20°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 25°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	
		Roof Pitch up to 30°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5939	5837	
		Roof Pitch up to 35°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5908	5796	5691	5593	
		Roof Pitch up to 40°	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	5989	5852	5726	5611	5503	5404	5312	



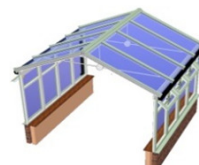
for Edwardian Hips ...
See Section 6



for Edwardian Hips ...
See Section 8

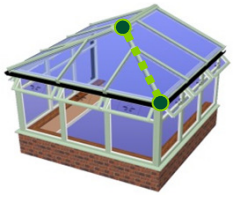


for Victorian Hips ...
See Section 7

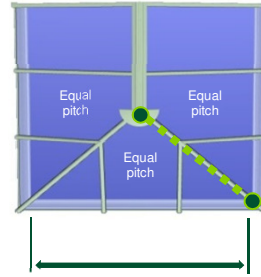


for Tie-Bars ...
See Section 9

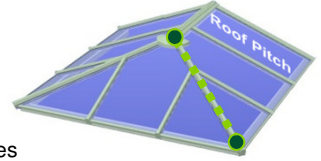
6.1 - Edwardian Hip Bars (Duopitch Roofs)



Note: Should the maximum span of a Edwardian conservatory with Polycarbonate equal or exceed 6000mm, or a Edwardian conservatory with Glass equal or exceed 5200mm, a portal frame structure must be installed. (Please consult a Structural Engineer for further guidance). Values shown are maximum internal width of the conservatory between Eaves Beams! Values shown have been based upon the assumption that are two or more Jack Rafter each side of the Hip Bar



Assuming Symmetrical Roof Pitches **a** & **b** (equal facet widths). For unequal pitches please see the maximum lengths of hip bars as detailed in section 4



Max internal width between Eaves

Std Hip Bars ...

LZAL0003



	25 & 32mm Polycarbonate						24mm IGU (4/16/4mm Glazing)					
	15°	20°	25°	30°	35°	40°	15°	20°	25°	30°	35°	40°
Snow loading												
0.6 kN/m ² Regions	4519	4481	4430	4365	4284	4185	4213	4170	4115	4044	3956	3849
0.8 kN/m ² Regions	4231	4196	4149	4090	4016	3925	4001	3963	3912	3847	3767	3669

Bolstered Std Hip Bars ...

LZAL0003



LZAL0072

	25 & 32mm Polycarbonate						24mm IGU (4/16/4mm Glazing)					
	15°	20°	25°	30°	35°	40°	15°	20°	25°	30°	35°	40°
Snow loading												
0.6 kN/m ² Regions	5378	5332	5272	5194	5098	4980	5013	4962	4897	4812	4708	4580
0.8 kN/m ² Regions	5035	4993	4937	4867	4779	4671	4761	4716	4655	4578	4483	4366

HD Hip Bars ...

LZAL0007



	25 & 32mm Polycarbonate						24mm IGU (4/16/4mm Glazing)					
	15°	20°	25°	30°	35°	40°	15°	20°	25°	30°	35°	40°
Snow loading												
0.6 kN/m ² Regions	5013	4971	4914	4843	4753	4643	4674	4628	4566	4488	4391	4272
0.8 kN/m ² Regions	4695	4656	4604	4539	4457	4356	4440	4398	4342	4270	4181	4072

Bolstered HD Hip Bars ...

LZAL0007

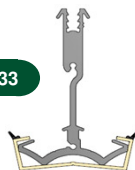


LZAL0072

	25 & 32mm Polycarbonate						24mm IGU (4/16/4mm Glazing)					
	15°	20°	25°	30°	35°	40°	15°	20°	25°	30°	35°	40°
Snow loading												
0.6 kN/m ² Regions	5865	5816	5749	5666	5561	5432	5200	5200	5200	5200	5137	4998
0.8 kN/m ² Regions	5493	5448	5387	5311	5215	5097	5195	5146	5080	4996	4892	4764

XHD Hip Bars ...

LZAL0033



	25 & 32mm Polycarbonate						24mm IGU (4/16/4mm Glazing)					
	15°	20°	25°	30°	35°	40°	15°	20°	25°	30°	35°	40°
Snow loading												
0.6 kN/m ² Regions	5571	5524	5461	5382	5283	5160	5195	5144	5076	4989	4881	4749
0.8 kN/m ² Regions	5218	5175	5118	5045	4954	4842	4936	4889	4827	4748	4649	4528

Bolstered XHD Hip Bars ...

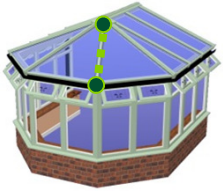
LZAL0033



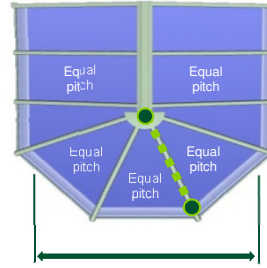
LZAL0072

	25 & 32mm Polycarbonate						24mm IGU (4/16/4mm Glazing)					
	15°	20°	25°	30°	35°	40°	15°	20°	25°	30°	35°	40°
Snow loading												
0.6 kN/m ² Regions	6000	6000	6000	6000	6000	5882	5200	5200	5200	5200	5200	5200
0.8 kN/m ² Regions	5949	5900	5835	5751	5648	5520	5200	5200	5200	5200	5200	5162

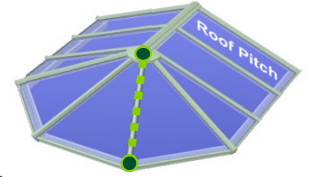
7.1 - Victorian Hip Bars (Duopitch Roofs)



Note: Should the maximum span of a Victorian conservatory equal or exceed 6000mm, a portal frame structure must be installed. (Please consult a Structural Engineer for further guidance). Values shown are maximum internal width of the conservatory between Eaves Beams!



Values shown cover both 3 & 5 Facet Roof Bar Configurations with **Equal roof pitches**



Max internal width between Eaves

Std Hip Bars ...

LZAL0003



	25 & 32mm Polycarbonate						24mm IGU (4/16/4mm Glazing)					
	15°	20°	25°	30°	35°	40°	15°	20°	25°	30°	35°	40°
Snow loading												
0.6 kN/m ² Regions	5297	5292	5284	5275	5263	5248	4943	4931	4914	4893	4866	4830
0.8 kN/m ² Regions	4965	4961	4955	4947	4938	4926	4699	4689	4676	4658	4638	4609

Bolstered Std Hip Bars ...

LZAL0003



LZAL0072

	25 & 32mm Polycarbonate						24mm IGU (4/16/4mm Glazing)					
	15°	20°	25°	30°	35°	40°	15°	20°	25°	30°	35°	40°
Snow loading												
0.6 kN/m ² Regions	6000	6000	6000	6000	6000	6000	5932	5917	5897	5872	5839	5796
0.8 kN/m ² Regions	5958	5953	5946	5936	5926	5911	5639	5627	5611	5590	5566	5531

HD Hip Bars ...

LZAL0007



	25 & 32mm Polycarbonate						24mm IGU (4/16/4mm Glazing)					
	15°	20°	25°	30°	35°	40°	15°	20°	25°	30°	35°	40°
Snow loading												
0.6 kN/m ² Regions	5706	5700	5692	5682	5670	5683	5325	5312	5294	5271	5242	5206
0.8 kN/m ² Regions	5348	5344	5338	5330	5320	5307	5062	5052	5038	5019	4996	4966

Bolstered HD Hip Bars ...

LZAL0007

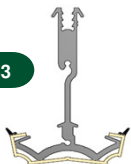


LZAL0072

	25 & 32mm Polycarbonate						24mm IGU (4/16/4mm Glazing)					
	15°	20°	25°	30°	35°	40°	15°	20°	25°	30°	35°	40°
Snow loading												
0.6 kN/m ² Regions	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
0.8 kN/m ² Regions	6000	6000	6000	6000	6000	6000	6000	6000	5995	5973	5945	5910

XHD Hip Bars ...

LZAL0033



	25 & 32mm Polycarbonate						24mm IGU (4/16/4mm Glazing)					
	15°	20°	25°	30°	35°	40°	15°	20°	25°	30°	35°	40°
Snow loading												
0.6 kN/m ² Regions	6000	6000	6000	6000	6000	6000	5864	5850	5830	5805	5774	5734
0.8 kN/m ² Regions	5890	5885	5879	5870	5859	5486	5575	5564	5548	5528	5503	5471

Bolstered XHD Hip Bars ...

LZAL0033



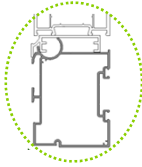
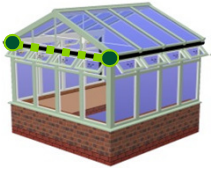
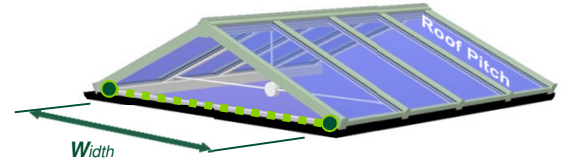
LZAL0072

	25 & 32mm Polycarbonate						24mm IGU (4/16/4mm Glazing)					
	15°	20°	25°	30°	35°	40°	15°	20°	25°	30°	35°	40°
Snow loading												
0.6 kN/m ² Regions	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000
0.8 kN/m ² Regions	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000	6000

8.1 - Gable End (Duopitch Roofs)

Installations with continuous Gable (support) Eaves Beams, read in conjunction with Section 2.1 for Environmental Loadings

Note: Recommendations shown are for **maximum conservatory width**, irrespective of the glazing material element being installed.



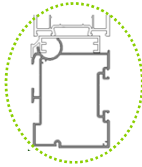
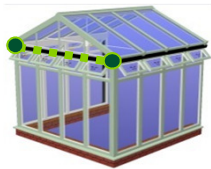
None Reinforced Eaves WITH Dwarf Walls ...

Span conditions: Multiple support conditions provided with the window frame structure (provided by client)

Based upon the following assumptions:
Height to Eaves = 2100mm, Height of dwarf wall = 600mm, Eaves = LZAL0070

LZAL0070

Site Basic Wind Speed		Up to 20m/s				Up to 22m/s				Up to 24m/s				Up to 26m/s					
		≤0.1km	2km	10km	≥100km	≤0.1km	2km	10km	≥100km	≤0.1km	2km	10km	≥100km	≤0.1km	2km	10km	≥100km		
Terrain Conditions	Site in Country	Roof Pitches up to	15°			3978	4146	3500	3656	3745	3904	3311	3459	3544	3694	3146	3287	3368	3511
			20°			3906	4069	3445	3594	3681	3835	3261	3403	3485	3631	3100	3237	3314	3454
			25°			3836	3995	3391	3534	3617	3767	3212	3348	3428	3570	3055	3186	3262	3398
			30°			3766	3921	3337	3473	3554	3700	3163	3293	3370	3509	3010	3135	3209	3342
			35°			3696	3846	3282	3412	3490	3633	3113	3237	3312	3447	2964	3084	3155	3284
			40°			3623	3770	3225	3348	3424	3563	3060	3179	3251	3383	2916	3030	3099	3225
	Site in Town	Roof Pitches up to	15°			4483	4698		4163	4223	4426		3942	3998	4192		3748	3802	3986
			20°			4386	4592		4077	4135	4331		3864	3919	4105		3677	3729	3907
			25°			4292	4489		3994	4051	4238		3788	3841	4020		3607	3658	3829
			30°			4200	4389		3912	3967	4147		3713	3765	3937		3538	3588	3753
			35°			4107	4289		3829	3883	4056		3637	3688	3853		3468	3517	3675
			40°			4012	4186		3743	3797	3962		3558	3609	3767		3395	3443	3595



None Reinforced Eaves WITHOUT Dwarf Walls ...

Span conditions: Multiple support conditions provided with the window frame structure (provided by client)

Based upon the following assumptions:
Height to Eaves = 2100mm, Height of dwarf wall = 0mm (N/A), Eaves = LZAL0070

LZAL0070

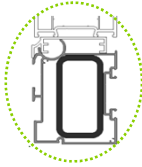
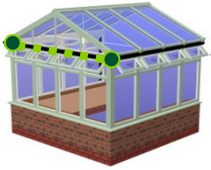
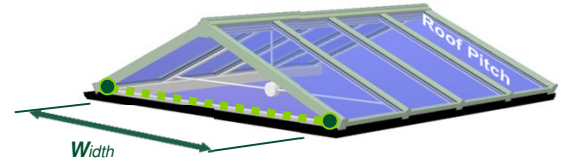
Site Basic Wind Speed		Up to 20m/s				Up to 22m/s				Up to 24m/s				Up to 26m/s					
		≤0.1km	2km	10km	≥100km	≤0.1km	2km	10km	≥100km	≤0.1km	2km	10km	≥100km	≤0.1km	2km	10km	≥100km		
Terrain Conditions	Site in Country	Roof Pitches up to	15°			3647	3803	3203	3348	3431	3578	3028	3165	3243	3383	2875	3006	3081	3213
			20°			3597	3750	3163	3305	3386	3530	2994	3127	3204	3340	2844	2971	3044	3174
			25°			3547	3697	3128	3263	3341	3482	2960	3088	3163	3297	2813	2936	3007	3135
			30°			3497	3643	3090	3219	3296	3434	2925	3049	3122	3253	2872	2900	2970	3095
			35°			3444	3588	3050	3174	3249	3384	2889	3008	3079	3208	2749	2863	2930	3053
			40°			3389	3530	3008	3127	3199	3332	2851	2965	3034	3160	2713	2823	2889	3009
	Site in Town	Roof Pitches up to	15°			4119	4320		3821	3876	4066		3615	3667	3848		3435	3485	3656
			20°			4049	4243		3760	3814	3998		3560	3611	3785		3384	3433	3600
			25°			3980	4167		3699	3752	3930		3504	3555	3724		3334	3382	3543
			30°			3911	4092		3637	3690	3861		3448	3498	3662		3283	3330	3486
			35°			3840	4014		3574	3626	3791		3391	3440	3598		3230	3277	3428
			40°			3766	3934		3508	3559	3719		3331	3379	3531		3174	3220	3366

8.2 - Gable Ends (Duopitch Roofs)



Installations with continuous Gable (support) Eaves Beams, read in conjunction with Section 2.1 for Environmental Loadings

Note: Recommendations shown are for **maximum conservatory width**, irrespective of the glazing material element being installed.



Reinforced Eaves WITH Dwarf Walls ...

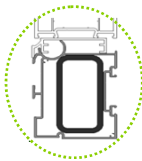
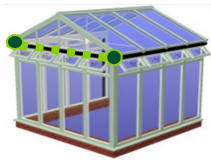
Span conditions: Multiple support conditions provided with the window frame structure (provided by client)

Based upon the following assumptions:

Height to Eaves = 2100mm, Height of dwarf wall = 600mm, Eaves = LZAL0070 + LZAL0071 (Steel Rein)

LZAL0070+LZAL0071

Site Basic Wind Speed		Up to 20m/s				Up to 22m/s				Up to 24m/s				Up to 26m/s					
		≤0.1km	2km	10km	≥100km	≤0.1km	2km	10km	≥100km	≤0.1km	2km	10km	≥100km	≤0.1km	2km	10km	≥100km		
Terrain Conditions	Site in Country	Roof Pitches up to	15°			5259	5479	4638	4839	4955	5163	4390	4582	4692	4889	4174	4357	4462	4650
			20°			5142	5354	4547	4738	4849	5050	4308	4490	4596	4787	4099	4272	4374	4556
			25°			5029	5235	4460	4640	4747	4942	4229	4401	4503	4688	4026	4191	4289	4465
			30°			4919	5119	4374	4545	4648	4837	4150	4313	4412	4592	3953	4110	4204	4376
			35°			4810	5004	4288	4449	4548	4732	4071	4226	4320	4495	3880	4029	4120	4287
			40°			4699	4887	4200	4351	4446	4625	3990	4136	4226	4396	3805	3946	4033	4195
	Site in Town	Roof Pitches up to	15°			5906	>6000		5491	5569	5832		5203	5277	5527		4951	5021	5260
			20°			5749	>6000		5351	5427	5676		5076	5148	5386		4834	4903	5131
			25°			5600	5851		5218	5292	5530		4954	5025	5252		4722	4789	5007
			30°			5457	5695		5089	5162	5388		4836	4905	5122		4613	4679	4887
			35°			5315	5542		4962	5032	5248		4718	4783	4993		4504	4568	4767
			40°			5172	5388		4832	4901	5009		4599	4664	4862		4393	4456	4646



Reinforced Eaves WITHOUT Dwarf Walls ...

Span conditions: Multiple support conditions provided with the window frame structure (provided by client)

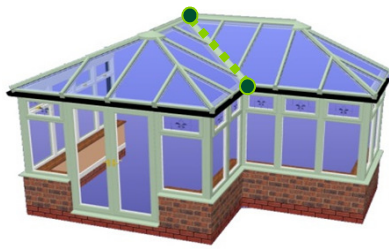
Based upon the following assumptions:

Height to Eaves = 2100mm, Height of dwarf wall = 0mm (N/A), Eaves = LZAL0070 + LZAL0071 (Steel Rein)

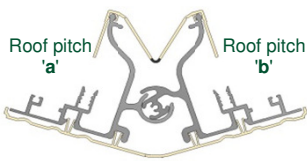
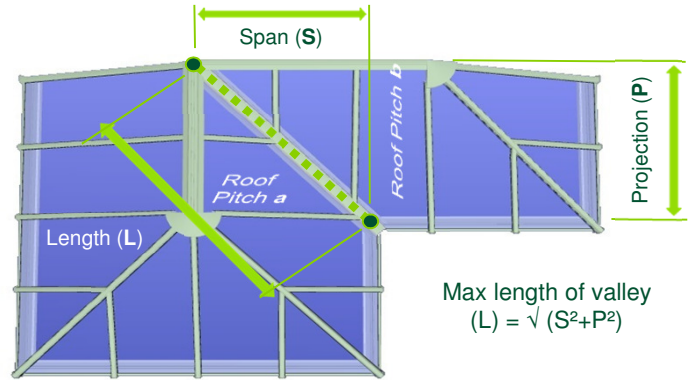
LZAL0070+LZAL0071

Site Basic Wind Speed		Up to 20m/s				Up to 22m/s				Up to 24m/s				Up to 26m/s					
		≤0.1km	2km	10km	≥100km	≤0.1km	2km	10km	≥100km	≤0.1km	2km	10km	≥100km	≤0.1km	2km	10km	≥100km		
Terrain Conditions	Site in Country	Roof Pitches up to	15°			4842	5047	4260	4449	4558	4751	4030	4209	4312	4496	3828	3999	4098	4272
			20°			4758	4958	4197	4377	4483	4672	3973	4144	4244	4424	3776	3940	4036	4206
			25°			4676	4872	4135	4307	4409	4593	3917	4080	4177	4352	3725	3882	3974	4141
			30°			4594	4785	4073	4236	4335	4515	3860	4016	4110	4281	3673	3823	3913	4076
			35°			4511	4697	4009	4164	4259	4435	3801	3950	4041	4208	3619	3765	3849	4009
			40°			4424	4606	3942	4089	4181	4352	3740	3881	3969	4132	3563	3699	3783	3939
	Site in Town	Roof Pitches up to	15°			5451	5712		5062	5135	5382		4792	4861	5096		4556	4622	4846
			20°			5336	5586		4959	5031	5268		4699	4767	4993		4471	4536	4751
			25°			5224	5463		4860	4930	5157		4609	4675	4892		4389	4452	4659
			30°			5113	5342		4761	4830	5048		4519	4584	4792		4306	4368	4567
			35°			5001	5221		4661	4728	4938		4427	4491	4691		4221	4282	4474
			40°			4887	5097		4558	4624	4824		4332	4395	4587		4134	4194	4378

9.2 - Valley (Combined Roofs) ...



Note: Values shown are maximum distance the valley can span in PLAN, they are **NOT** the length of the valley wings!



Valley ...

		25 & 32mm Polycarbonate								24mm IGU (4/16/4mm Glazing)							
		Roof Pitch a								Roof Pitch a							
		5°	10°	15°	20°	25°	30°	35°	40°	5°	10°	15°	20°	25°	30°	35°	40°
Environmental Snow Loading	0.6 kN/m ² Regions	Roof Pitch b 5°	3795	4014	4058					3719	3762	3810					
		Roof Pitch b 10°	4014	3961	3970	3990				3762	3704	3713	3733				
		Roof Pitch b 15°	4058	3970	3937	3931	3938			3810	3713	3681	3674	3677			
		Roof Pitch b 20°		3990	3931	3900	3885	3881			3733	3674	3646	3628	3619	3612	
		Roof Pitch b 25°			3938	3885	3851	3828	3792			3677	3628	3599	3573	2893	
		Roof Pitch b 30°				3881	3828	3788	3756				3619	3573	3540	3502	
		Roof Pitch b 35°					3792	3756	3708					2893	3502	3465	
	Roof Pitch b 40°																
	0.8 kN/m ² Regions	Roof Pitch b 5°	3730	3773	3826					3537	3578	3624					
		Roof Pitch b 10°	3773	3718	3729	3755				3578	3524	3532	3553				
		Roof Pitch b 15°	3826	3729	3697	3695	3707			3624	3532	3503	3497	3502			
		Roof Pitch b 20°		3755	3695	3668	3658	3659			3553	3497	3470	3445	3449		
		Roof Pitch b 25°			3707	3658	3629	3611	3604			3502	3445	3428	3404	3387	
		Roof Pitch b 30°				3659	3611	3578	3554				3449	3404	3373	3341	
Roof Pitch b 35°						3604	3554	3514					3387	3341	3304		
Roof Pitch b 40°																	

The max pitch for roof a & b is 35°, any pitches shown in grey are beyond acceptable parameters

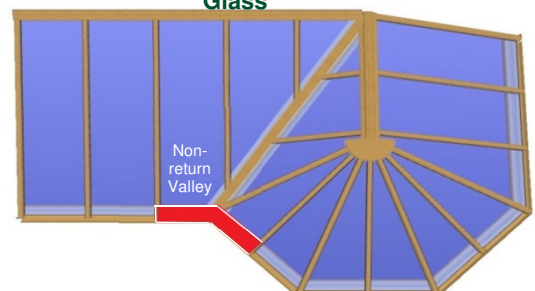
Additional guidelines ...

The minimum length of the supporting eaves beam should be no less than **350mm** to enable the valley wings to be sited correctly.

Position the glazing bar a minimum of 90mm behind the D-Ring (Radius). The first Tie-Bar should be located at this position. All tie-bars and Transom/Jack Rafters **must be in-line**.

Any further tie-bars requirements along the Ridge should be applied in accordance with Section 10

If the style constitutes a non-return valley (Victorian facets) assembly, the design will be only made available in **POLYCARBONATE** glazing and **WILL NOT** be supplied in **Glass**



10.1 - Tie Bar Guidelines ...

Suitable lateral & vertical support must be provided within wall/window structure at the edge of the opening by the conservatory designer/retailer to support the Eaves Beam
 Liniar Roof's can not accept responsibility for the overall stability of the conservatory unless a portal frame is supplied

TIE BARS DO NOT OFFER ANY RESISTANCE TO LATERAL WIND LOADING

Tie-Bar info provided with this guide is for Liniar roofs where...

The conservatory is fixed to a host wall of suitable construction.

Standard eaves beams/box gutters are used at a common level & the roof is symmetrical.

The roof angle is between 25° - 40° or 15° - 40° when tie bars are required.

Structural openings up to 1.85m are required.

The first tie-bar is in line with the first glazing bar on the ridge behind the finial, if required. If more tie bars are required spacings tie bar/tie bar and tie bar/wall should be equal.

Standard tie bar to transom bar and corner connections are used.

Tie bars should be correctly installed before glazing material & never more than 2.4m from another tie bar or corner joint/wall.

Fabricated special box gutters are not included in the design of the conservatory, if required contact the Zoom Technical Department for tie bar positions and special box gutter reinforcement details.

See specific notes for different roof styles.

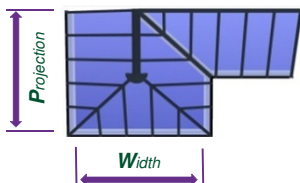
The snow load is less than 0.8kN/m², see Snow Load Map in section 2.1

For additional information on structural stability please refer to the Glass & Glazing Federation's glazing manual data sheet 5.7.10.

Combined Roofs - max dim's before Tie-Bars are required ...

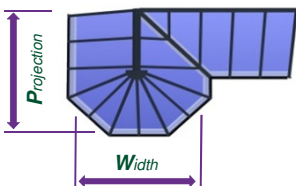
Tie-Bars are required in these basic designs when the dimensions illustrated (in mm's) are exceeded.

Most combination roofs will require Tie-Bars



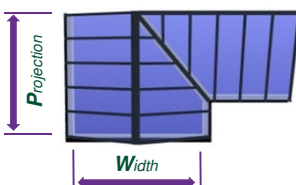
Edwardian's ...

Refer to section 10.2	Projection	Width
25 & 32mm Polycarbonate	3500	3250
24mm IGU (4/16/4mm Glazing)	3250	3250



Victorian's ...

Refer to section 10.4	Projection	Width
25 & 32mm Polycarbonate	3300	3250
24mm IGU (4/16/4mm Glazing)	3000	3250

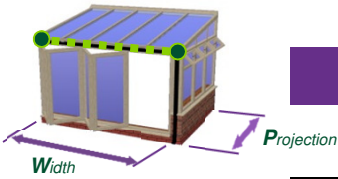


Gable's ...

Refer to section 10.6	Projection	Width
25 & 32mm Polycarbonate	3250	3250
24mm IGU (4/16/4mm Glazing)	3000	3250

11.1 - Unsupported Eaves Beam Widths

Suitable lateral & vertical support must be provided within wall/window structure at the edge of the opening by the conservatory designer/retailer to support the eaves beam
Values shown 5mm of deflection under maximum load must be confirmed as acceptable by the Bi-Fold door supplier (info related to bottom rolling doors)

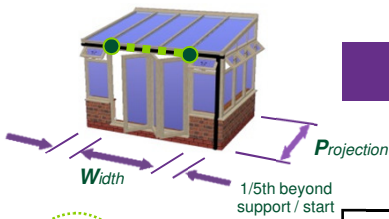


Monopitch Roofs - Full Openings ...

Based upon the following assumptions: Imposed Load = 0.6 kN/m² with roof pitches up to 15°

LZAL0070	Projection of Roof (mm)																	
	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	
(W) 25 & 32mm Poly	2720	2590	2490	2410	2330	2270	2220	2170	2120	2080	2050	2010	1980	1960	1930	1900	1880	
(W) 4/16/4mm Glazing	2550	2430	2330	2250	2180	2120	2070	2020	1980	1950	1910	1880	1850	1830	1800	1780	1750	

LZAL0070+LZAL0071	Projection of Roof (mm)																	
	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	
(W) 25 & 32mm Poly	3610	3470	3350	3250	3160	3080	3020	2960	2900	2850	2810	2760	2720	2680	2650	2620	2590	
(W) 4/16/4mm Glazing	3420	3270	3160	3060	2970	2900	2830	2770	2720	2670	2630	2590	2550	2510	2480	2450	2420	



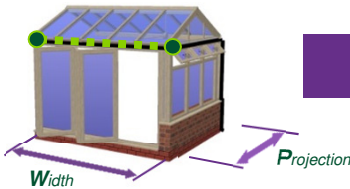
Monopitch Roofs - Partial Openings ...

Based upon the following assumptions: Imposed Load = 0.6 kN/m² with roof pitches up to 15°

Note: Eaves Beams in the Partial Opening must extend at least 1/5th beyond the support / start of the opening at both ends.
 The total length of Eaves Beam must therefore be at least 1.4 x Partial Opening

LZAL0070	Projection of Roof (mm)																	
	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	
(W) 25 & 32mm Poly	3540	3370	3240	3130	3040	2950	2880	2820	2760	2710	2660	2620	2580	2540	2510	2480	2450	
(W) 4/16/4mm Glazing	3310	3160	3030	2930	2840	2760	2690	2630	2580	2530	2490	2450	2410	2370	2340	2310	2280	

LZAL0070+LZAL0071	Projection of Roof (mm)																	
	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	
(W) 25 & 32mm Poly	4700	4510	4360	4230	4110	4010	3920	3840	3770	3710	3640	3590	3540	3490	3450	3400	3360	
(W) 4/16/4mm Glazing	4440	4260	4100	3980	3870	3770	3680	3610	3540	3470	3420	3360	3310	3270	3230	3190	3150	

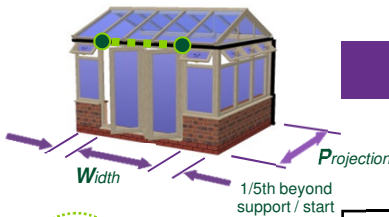


Duopitch (Gable Ends) Roofs - Full Openings ...

Based upon the following assumptions: Imposed Load = 0.6 kN/m² with roof pitches up to 25°

LZAL0070	Projection of Roof (mm)																	
	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	
(W) 25 & 32mm Poly	2720	2590	2490	2410	2330	2270	2210	2160	2120	2080	2040	2010	1970	1950	1920	1900	1880	
(W) 4/16/4mm Glazing	2530	2410	2320	2240	2170	2110	2060	2010	1970	1940	1900	1870	1840	1810	1790	1770	1740	

LZAL0070+LZAL0071	Projection of Roof (mm)																	
	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	
(W) 25 & 32mm Poly	3600	3460	3350	3240	3160	3080	3010	2950	2890	2840	2800	2750	2710	2680	2640	2610	2580	
(W) 4/16/4mm Glazing	3400	3260	3140	3040	2960	2880	2820	2760	2710	2660	2610	2570	2530	2500	2470	2440	2410	



Duopitch (Gable Ends) Roofs - Partial Openings ...

Based upon the following assumptions: Imposed Load = 0.6 kN/m² with roof pitches up to 15°

Note: Eaves Beams in the Partial Opening must extend at least 1/5th beyond the support / start of the opening at both ends.
 The total length of Eaves Beam must therefore be at least 1.4 x Partial Opening

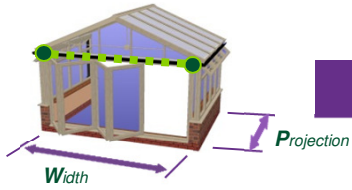
LZAL0070	Projection of Roof (mm)																	
	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	
(W) 25 & 32mm Poly	3530	3370	3240	3120	3030	2950	2880	2810	2760	2710	2660	2610	2570	2540	2500	2470	2440	
(W) 4/16/4mm Glazing	3300	3140	3010	2910	2820	2750	2680	2620	2570	2520	2470	2430	2400	2360	2330	2300	2270	

LZAL0070+LZAL0071	Projection of Roof (mm)																	
	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	
(W) 25 & 32mm Poly	4690	4500	4350	4220	4110	4010	3920	3840	3770	3700	3640	3580	3530	3480	3440	3400	3360	
(W) 4/16/4mm Glazing	4420	4240	4090	3960	3850	3750	3670	3590	3520	3460	3420	3350	3300	3250	3210	3170	3130	

11.2 - Unsupported Eaves Beam Widths



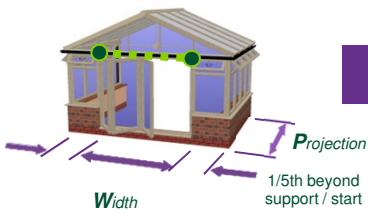
Suitable lateral & vertical support must be provided within wall/window structure at the edge of the opening by the conservatory designer/retailer to support the eaves beam
Values shown 5mm of deflection under maximum load must be confirmed as acceptable by the Bi-Fold door supplier (info related to bottom rolling doors)



Duopitch (Gable Fronts) Roofs - Full Openings ...

Based upon the following assumptions: Imposed Load = 0.6 kN/m² with roof pitches up to 15°

LZAL0070	Projection of Roof (mm)																
	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000
(W) 25 & 32mm Poly	1000	1250	1500	1750	2000	2250	2500	Wind load check required for gable eaves beams > 3.9m									
(W) 4/16/4mm Glazing	1000	1250	1500	1750	2000	2250	Wind load check required for gable eaves beams > 3.9m										
LZAL0070+LZAL0071	Projection of Roof (mm)																
(W) 25 & 32mm Poly	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	Wind load check required for gable eaves beams > 4.5m						
(W) 4/16/4mm Glazing	1000	1250	1500	1750	2000	2250	2500	2750	3000	Wind load check required for gable eaves beams > 4.5m							

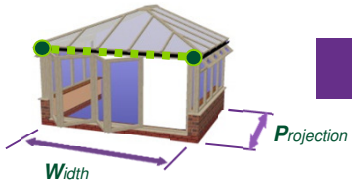


Duopitch (Gable Fronts) Roofs - Partial Openings ...

Based upon the following assumptions: Imposed Load = 0.6 kN/m² with roof pitches up to 15°

Note: Eaves Beams in the Partial Opening must extend at least 1/5th beyond the support / start of the opening at both ends.
 The total length of Eaves Beam must therefore be at least 1.4 x Partial Opening

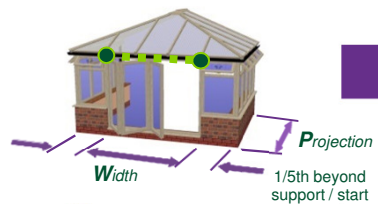
LZAL0070	Projection of Roof (mm)																	
	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	
(W) 25 & 32mm Poly								1960	2140	2320	2500	2680	2860	3000	2960	2920	2890	
(W) 4/16/4mm Glazing								1790	1960	2140	2280	2240	2210	2170	2140	2110	2090	2060
LZAL0070+LZAL0071	Projection of Roof (mm)																	
(W) 25 & 32mm Poly											2500	2680	2860	3000	3090	3050	3020	
(W) 4/16/4mm Glazing											2320	2500	2680	2860	3040	3210	3390	3570



Duopitch (Edwardian) Roofs - Full Openings ...

Based upon the following assumptions: Imposed Load = 0.6 kN/m² with roof pitches up to 25°

LZAL0070	Projection of Roof (mm)																
	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000
(W) 25 & 32mm Poly	1000	1250	1500	1750	2000	2250	2500										
(W) 4/16/4mm Glazing	1000	1250	1500	1750	2000	2250											
LZAL0070+LZAL0071	Projection of Roof (mm)																
(W) 25 & 32mm Poly	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250							
(W) 4/16/4mm Glazing	1000	1250	1500	1750	2000	2250	2500	2750	3000								



Duopitch (Edwardian) Roofs - Partial Openings ...

Based upon the following assumptions: Imposed Load = 0.6 kN/m² with roof pitches up to 15°

Note: Eaves Beams in the Partial Opening must extend at least 1/5th beyond the support / start of the opening at both ends.

LZAL0070	Projection of Roof (mm)																	
	1000	1250	1500	1750	2000	2250	2500	2750	3000	3250	3500	3750	4000	4250	4500	4750	5000	
(W) 25 & 32mm Poly								1960	2140	2320	2500	2680	2860	3000	2960	2920	2890	
(W) 4/16/4mm Glazing								1790	1960	2140	2280	2240	2210	2170	2140	2110	2090	2060
LZAL0070+LZAL0071	Projection of Roof (mm)																	
(W) 25 & 32mm Poly											2500	2680	2860	3000	3090	3050	3020	
(W) 4/16/4mm Glazing											2320	2500	2680	2860	3040	3210	3390	3570

12.1 - Structural Supports (Bay Poles) ...

The following 'load tables' have been calculated in accordance with the relevant BPF Code of Practice, and are only applicable for joint profiles restrained at their centre

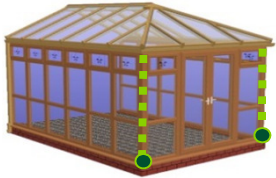
Liniar Roof's can not accept responsibility for the overall stability of the conservatory unless a portal frame is supplied

Suitable lateral & vertical support must be provided within wall/window structure at the edge of the opening by the conservatory designer/retailer to support the eaves beam

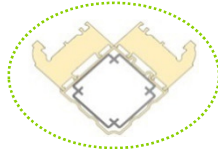
The load tables must not be applied to those joint profiles used in isolation

Key : N/A - The joint profile IS NOT suitable for load bearing situations at this length and above
Consult - The joint profile IS suitable for load bearing situations at this length and above, however please consult the Liniar Technical Department prior to fabrication

90° Corner Posts ...

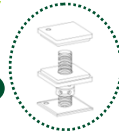


Edwardian, Gable & Lean-To



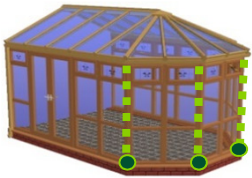
LAN253

LAN353 Pole Jack

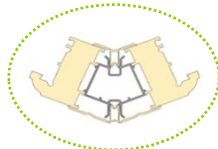


Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)
1100	3.67	1500	3.44	1900	3.13
1200	3.61	1600	3.37	2000	3.08
1300	3.55	1700	3.29	2100	3.03
1400	3.50	1800	3.21	2200	2.98

135° Corner Posts ...

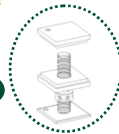


3-Facet Victorian



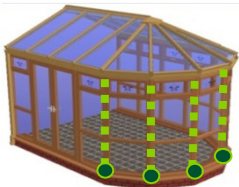
LAN251

LAN311 Pole Jack

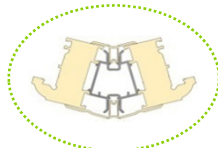


Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)
1100	2.85	1500	2.50	1900	2.05
1200	2.75	1600	2.41	2000	1.87
1300	2.68	1700	2.32	2100	1.67
1400	2.60	1800	2.23	2200	Consult

150° Corner Posts ...



5-Facet Victorian



LAN252

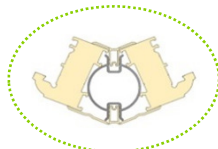
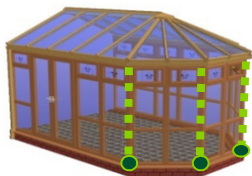
LAN311 Pole Jack



Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)
1100	2.48	1500	2.07	1900	1.34
1200	2.38	1600	1.87	2000	1.23
1300	2.3	1700	1.66	2100	1.13
1400	2.17	1800	1.49	2200	Consult

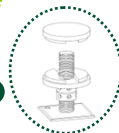
Bespoke Angles ...

Small Bay Pole



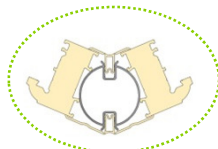
LAN231

LAN331 Pole Jack



Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)
1100	2.47	1500	2.15	1900	1.63
1200	2.35	1600	2.06	2000	1.48
1300	2.33	1700	1.96	2100	1.34
1400	2.23	1800	1.80	2200	Consult

Large Bay Pole



LAN232

LAN332 Pole Jack



Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)
1100	3.08	1500	2.74	1900	2.43
1200	2.98	1600	2.67	2000	2.35
1300	2.88	1700	2.59	2100	2.27
1400	2.81	1800	2.51	2200	Consult

12.2 - Structural Supports (Mullions) ...



The following 'load tables' have been calculated in accordance with the relevant BPF Code of Practice, and are only applicable for joint profiles restrained at their centre

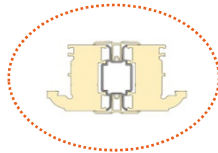
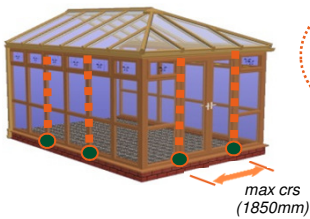
Liniar Roof's can not accept responsibility for the overall stability of the conservatory unless a portal frame is supplied

Suitable lateral & vertical support must be provided within wall/window structure at the edge of the opening by the conservatory designer/retailer to support the eaves beam

The load tables must not be applied to those joint profiles used in isolation

Key : N/A - The joint profile IS NOT suitable for load bearing situations at this length and above
Consult - The joint profile IS suitable for load bearing situations at this length and above, however please consult the Liniar Technical Department prior to fabrication

Structural Mullions...

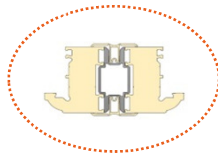


LAN211

LAN311 Pole Jack



Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)
1100	1.79	1500	1.06	1900	N/A
1200	1.62	1600	0.94	2000	N/A
1300	1.38	1700	0.83	2100	N/A
1400	1.18	1800	N/A	2200	N/A

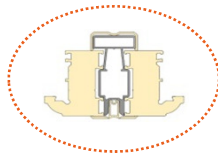


LAN212

LAN311 Pole Jack



Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)
1100	2.54	1500	1.43	1900	N/A
1200	2.16	1600	1.24	2000	N/A
1300	1.85	1700	1.09	2100	N/A
1400	1.61	1800	N/A	2200	N/A

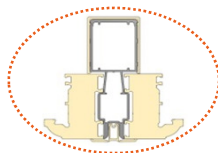


LAN213

LAN311 Pole Jack



Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)
1100	3.35	1500	2.30	1900	1.46
1200	3.17	1600	2.01	2000	1.30
1300	2.98	1700	1.82	2100	1.16
1400	2.62	1800	1.63	2200	Consult



LAN214

LAN311 Pole Jack



Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)	Length (mm)	Axial Load (Tonnes)
1100	5.48	1500	4.76	1900	3.57
1200	5.39	1600	4.59	2000	3.36
1300	5.18	1700	4.33	2100	2.89
1400	4.97	1800	3.74	2200	Consult

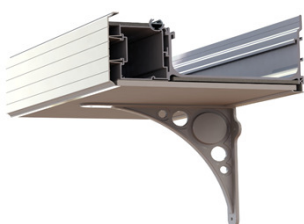
Structural mullions are required to provide vertical support for transferring roof loads from the eaves beam to the groundworks of the conservatory. This will prevent over stressing of the supporting window frames of the conservatory structure.

As a general rule Structural mullion spacings should be no greater than 1.85m crs unless loadings exceed the recommendations in Section 11 - Unsupported Eaves Beam Spans.

If in doubt, ask before proceeding !

12.3 - Structural Supports (Box Gutters) ...

The Box Gutter must be supported @ 2.25m Intervals along it's length, by means of either gallows brackets or brick piers. If a box gutter is supplied with an inline connector, additional support should be provided by means of gallows brackets or brick piers.



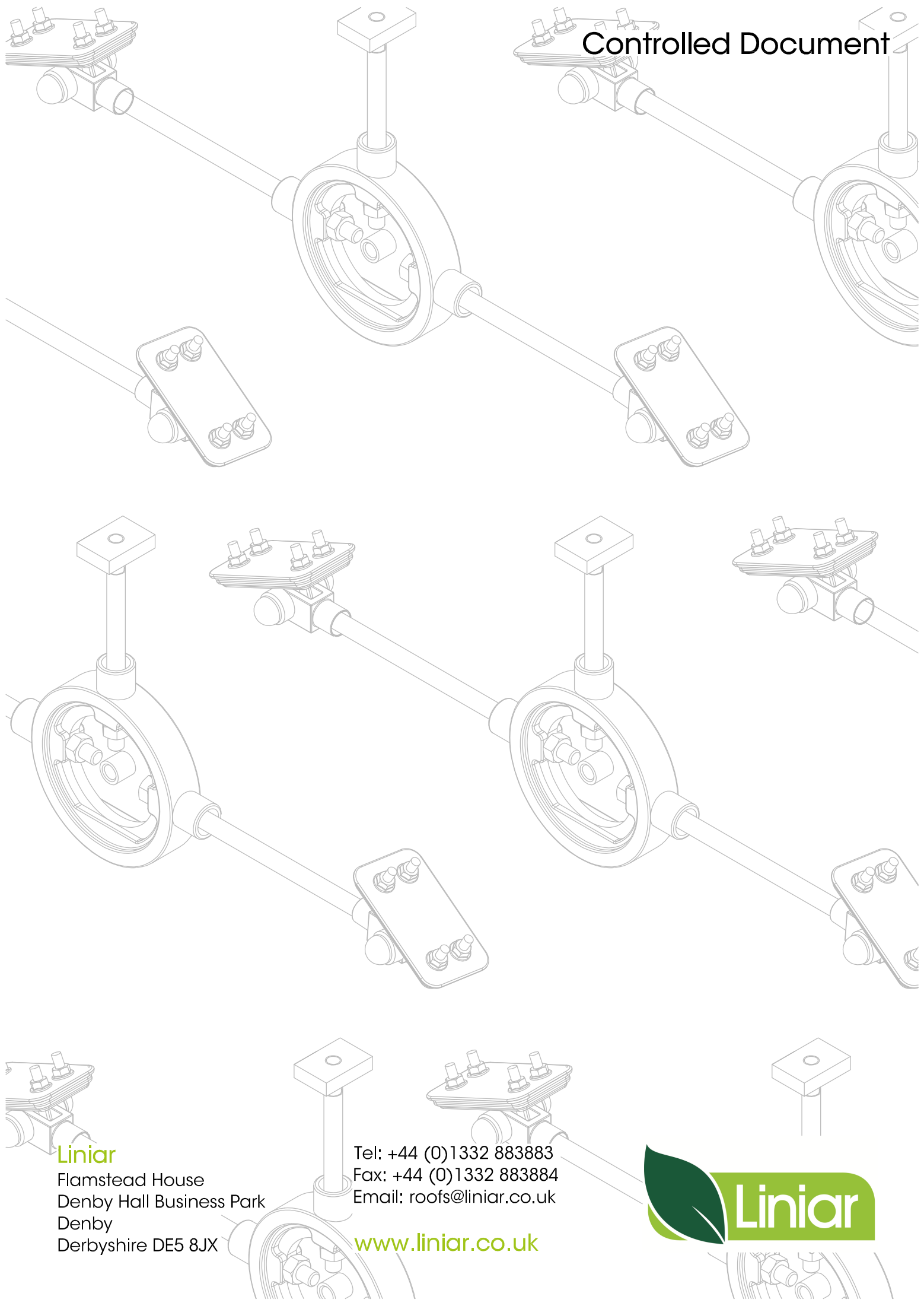
Gallows Brackets

If the roof configuration requires a Tie-Bar, a gallows bracket must be sited at each Tie-Bar position.



Brick Piers

We generally recommend the use of brick pier to support the box gutter when it is fitted to soffits and fascias



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