synseal®

Conservatory Roof Structural Information Guide

Effective from August 2008

Useful Information

This guide displays data on the permissible roof member spans and centres for different roof loadings; it should be used in conjunction with the rules within the 'Conservatory Roof Design Guide' (Ref: CAT.70) for designing individual roofs.

General Limitations
A lean-to (mono pitch) style roof can be up to 5m in depth with no restriction on the width, the pitch of the roof can be between 5° and 30°. A Gable style (duo pitch) roof can be up to 6m in width with no restriction on the projection or ridge length, the pitch of the roof can be between 15° and 35°. These limits are reduced when the roof is glazed in glass.

When a roof exceeds the permissible spans it is the customers responsibility to design and supply the extra support required for the roof. In any event the maximum length of any component cannot exceed 6.5m.

It is the customers' responsibility to determine the suitability of the roof supporting structure (including gable window frame combinations) and host walls/gables/fascias that the conservatory abuts.

Accreditations
BSI
Registered to BS EN ISO 9001:2000, Certificate No. FM 31451
Manufacture of conservatory roofing systems to customer specified requirements

Independent Assessment - Wintech Engineering Limited
Test to Method Statement PSR/M1678/08/1555
Combined dynamic and static pressure of 90mph + 600 pa
Snow Loading of 3700 pa

Colour
Shield white PVC-U profiles nearest colour match is C121.

For powder coating the nearest colour matches are:

Synseal White	RAL9016
Blue-White	P1000
Light Brown (Caramel)	RAL8003
Dark Brown	RAL8017

Fire Rating
Roofs cannot achieve timed fire ratings but the PVC-U extrusions and polycarbonate roof sheets can achieve a Class 1 surface spread of flame when tested to BS476 Part 7.

Thermal Expansion
The rate of linear thermal expansion of materials within a roof varies; polycarbonate expands more than the PVC-U that expands more than the aluminium sections. These rates of expansion can be catered for within the roof but allowances should be made for the higher solar heat gain within the dark (wood-grain) profiles.

Condensation
The conservatory envelope can typically be the coldest part of a house and thus display any shortcomings caused by high humidity and the lack of ventilation in the property. The provision of background heating, adequate ventilation and humidity control can mitigate the effects of condensation.

Heat Loss
Conservatory components exhibit different abilities in being able to resist the transference of heat energy. To calculate the overall heat loss of a conservatory is a specialist operation and uses the areas of each different material and their u-values.

These are the common values (Wm-2K-1):

25mm polycarbonate	1.70
35mm polycarbonate	1.50
24mm clear glass unit	2.74
24mm Low 'E' glass unit	1.40
24mm Low 'E' Argon filled	1.20
Hip rafters	0.42
Other rafters	0.80
Ridge beam	1.50

Guttering
The box gutter and perimeter gutter systems supplied as part of the Synseal conservatory roof have been designed to be level. Rainwater is drawn toward the downpipe when the water inside the gutter reaches a certain volume. Therefore once it has stopped raining a residual amount of rainwater will remain in the gutter until it has evaporated.

The relevant British Standard that permits this practise is BS 6367: 1983 (British Standard Code of Practises for Drainage of Roofs and Paved Areas – Formerly CP 308).

Roof Access/Egress
Access onto the roof should only be attempted once the individual load can safely be spread across the rafters of the roof and not directly onto the glazing panels. It is the individual's responsibility to carry out their own assessment of risk when attempting to gain access onto the roof. Conservatory roofs are not designed or should not considered to be a safe means of escape from routes above.

Contents

Introduction

Conservatory roofs can be subjected to 2 very different types of external loading, these being the weight of snow and the force of the wind.

Depending on their location within the United Kingdom, the majority of conservatory roofs are subjected to the most dominant of these loads which is a snow load of 0.6 or 0.8kN/m^2.

There will be certain locations of extreme altitude or exposure where the wind load can become dominant, this dominant wind load could wield a force upon the conservatory roof in excess of the 0.8kN/m^2 load.

The ability to determine what load a conservatory will be subject to is quite complex and the full procedures for it are laid down in the British Standard BS6399. The aim of this Guide is to simplify these procedures allowing the user to determine what load the conservatory roof could be subject to.

The flow chart opposite shows the required steps to calculate the roof load. This roof load '**L**' is an accumulation of the pressure on the roof '**DP**' and the self weight of the roof '**W**' see Step 7.

The self weight of the roof depends on the type of glazing, these are:

0.02kN/m^2	25 and 35mm polycarbonate
0.20kN/m^2	4mm glass units
0.30kN/m^2	6mm glass units

Using the Load Tables

We have provided tables that cover 0.6, 0.8, 1.0, 1.2 and 1.4kN/m^2 roof loads for 25mm and 35mm polycarbonate and 4mm and 6mm glass units.

Each chart will show the distance a glazing bar can travel on plan dependant on the rafter spacings regardless of pitch. There are also charts showing how wide standard Victorian and Georgian roofs can be using different grades of rafters.

All calculations and tie bar requirements are based on internal frame sizes for standard geometry Lean to, Gable ended, Victorian and Georgian roof styles or combinations of these roof styles.

This Guide should only be used for conservatory roof design (refer to the Building Regulations for the current definition of a conservatory).

Roof designs that are not covered in this guide should be referred to the Synseal Roof Technical Department.

Flow Chart for determining the appropriate conservatory roof load

Read Map wind speed V from Figure 1

Step 1: Read windspeed **V** from Figure 1 for site location.

↓

Use site wind speed V in Table 1 to determine Basic Wind Pressure P

Step 2: Using windspeed **V** and your judgement on the Category of Ground roughness, establish the Basic wind pressure from Table 1.

↓

Find the topographic zone for the site from Figure 2 and obtain factor T from Table 2

Step 3: Use Figure 2 to determine which topographic zone the site is situated in and use Table 2 to determine the value of the Factor **T** for the appropriate topographic zone and average ground slope around the site.

↓

Obtain value of factor A from Table 3

Step 4: Use Figure 3 or refer to contour lines on Ordnance Survey map to establish altitude of site in metres.
Visit http://getamap.ordnancesurvey.co.uk/getamap/frames.htm for free Ordnance data. Use Table 3 to determine the value of **A**.

↓

Obtain value of factor R from Table 4

Step 5: From the style and pitch of the conservatory roof, establish Factor **R** from Table 4.

↓

Calculate Design Pressure DP

Step 6: Calculate Design Pressure **DP** as follows:
DP = P x T x A x R

↓

Calculate the conservatory roof load L

Step 7: Calculate the conservatory roof load **L** by adding the self weight of the conservatory **W** from Table 5 to the Design Pressure **DP**.
L = DP + W

↓

Use the roof load L to select the next appropriate Load Table of 0.6, 0.8, 1.0, 1.2 or 1.4kN/m^2

Step 8: Refer to the appropriate Load and Design Tables to select the grade of rafters for the roof skeleton.

Wind Maps

Figure 1

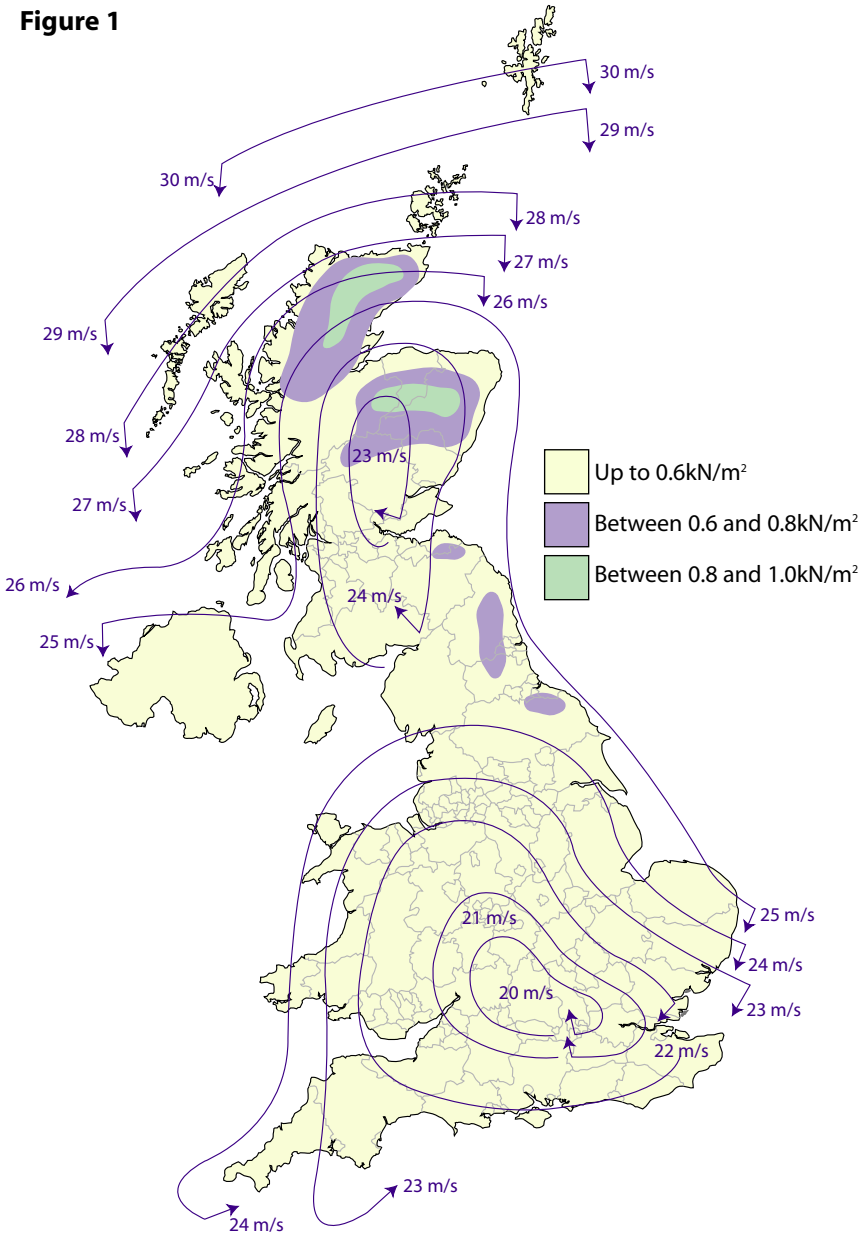


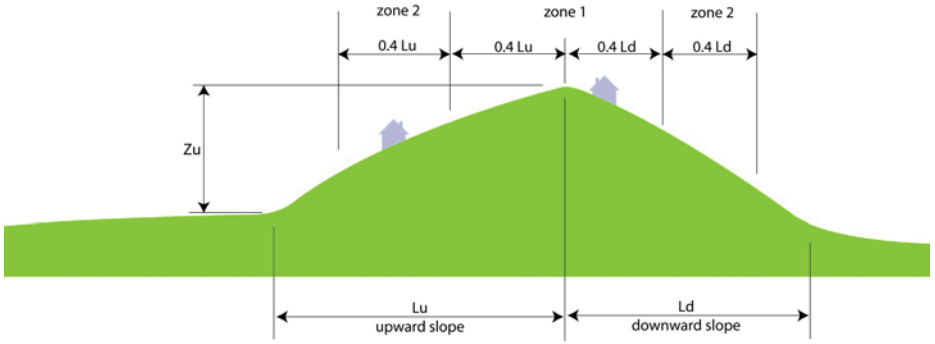
Table 1

Wind Speed. Taken from Figure 1.	**Ground roughness Category 3**		**Ground roughness Category 2**	**Ground roughness Category 1**
	Town and urban areas where distance to nearest building in the upwind direction < 20m	Town and urban areas where distance to nearest building in the upwind direction > 20m and < 100m	All terrain not defined as sea or town, i.e. Countryside and buildings > 100m from urban areas	Where conservatory within 1km of Sea or Inland areas of water where and water extends for a distance greater than 1km
V = m/s	**P** = kN/m²			
20	0.38	0.45	0.58	0.63
21	0.41	0.49	0.65	0.69
22	0.46	0.54	0.71	0.76
23	0.50	0.59	0.77	0.84
24	0.54	0.64	0.85	0.91
25	0.59	0.70	0.92	0.99
26	0.63	0.76	0.99	1.07
27	0.69	0.82	1.07	1.15
28	0.74	0.88	1.15	1.24
29	0.79	0.94	1.23	1.33
30	0.85	1.00	1.32	1.42

Note: If required; for full definition of Ground roughness Categories refer BS 6399.
Wording above to give practical interpretation.
Category 4 for woodland take as **Category 3**.

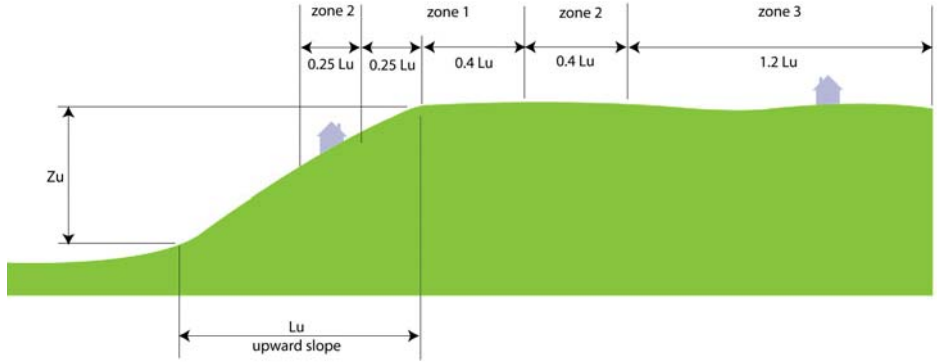
Figure 2

Hills and Ridges



Lu = slope length on upwind side Ld is slope on downwind side.

Cliffs and Escarpments



Slope = Zu/Lu e.g 10m/200m = 1/20 slope

Table 2

Topographical category and average slope of whole hillside, ridge cliff or escarpment	Factor T		
	Zone 1	Zone 2	Zone 3
Nominally Flat terrain, average slope < 1/20	1.0	1.0	1.0
Moderately steep terrain, average slope < 1/5	1.24	1.13	1.10
Steep terrain, average slope > 1/5	1.36	1.20	1.15
Note: < = less than, > = greater than			

Altitude

Table 3

Altitude taken from OS map	Altitude factor (A)
0-50 m	1.00
51-100 m	1.10
101-150m	1.21
151-200m	1.31
201-250m	1.42
251-300m	1.53

Table 4

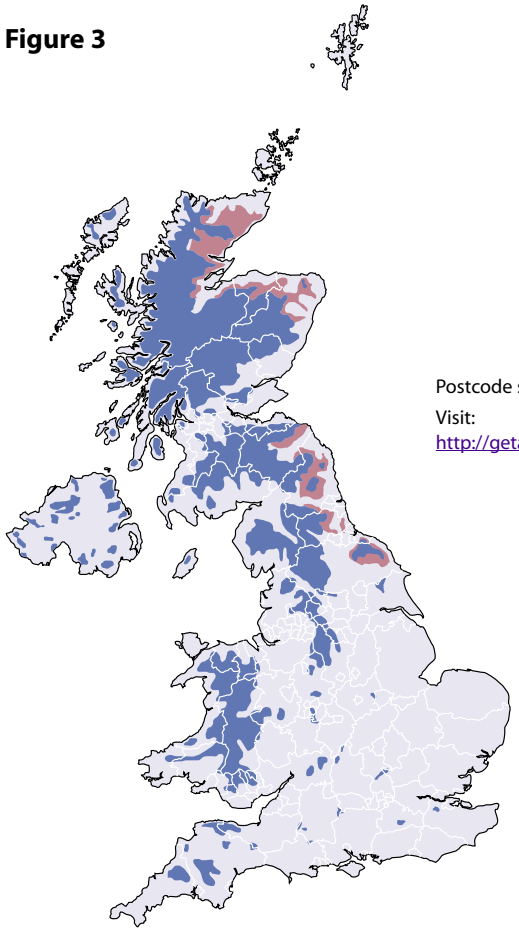
Roof style	Roof pitch	Factor R
Mono pitch roof	5° to 15°	-0.9
	16° to 25°	-1.1
	26° to 30°	-1.3
Duo pitch on worst case slope	Up to 30°	-0.9
	31° to 35°	-1.3

Wind pressure values vary depending on roof slope and configuration of roof members. The factors given apply to load consideration to structural elements of roof for the purpose of the design of the element. The pressure coefficient derived for Factor **R** take into account both Cpe and Cpi i.e. the external and internal pressure coefficients.

Table 5

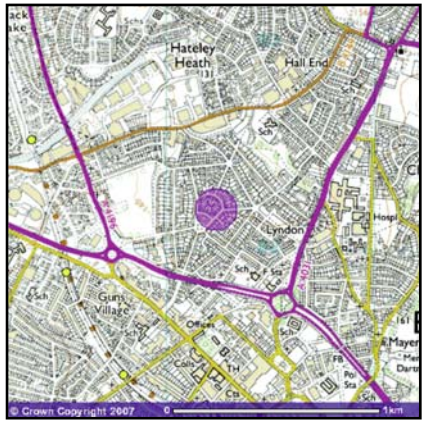
Factor W	Type of roof glazing
0.02kN/m²	25 and 35mm polycarbonate
0.20kN/m²	4mm glass units
0.30kN/m²	6mm glass units

Figure 3



Postcode specific altitudes are available for free on the web.
Visit:
http://getamap.ordancesurvey.co.uk/getamap/frames.htm

Example 1



Lean to with polycarbonate and 5° roof pitch at B71 1LS, West Bromwich

Step 1 **V** = 21 m/s
Step 2 **P** = 0.41 kN/m²
Step 3 **T** = 1.0
Step 4 **A** = 1.21 (145m altitude)
Step 5 **R** = -0.9
Step 6 **DP** = 0.41 x 1.0 x 1.21 x -0.9
Step 7 **L** = -0.45 + 0.02

The value of **L** is -0.43 which is a negative value (uplift). Use the closest appropriate load table which is 0.6 kN/m².

Example 2

Victorian with glass roof and 35° roof pitch at DG9 0BD, Stranraer

Step 1 **V** = 25 m/s
Step 2 **P** = 0.99 kN/m²
Step 3 **T** = 1.2
Step 4 **A** = 1.0 (15m altitude)
Step 5 **R** = -1.3
Step 6 **DP** = 0.99 x 1.2 x 1.0 x -1.3
Step 7 **L** = -1.54 + 0.3

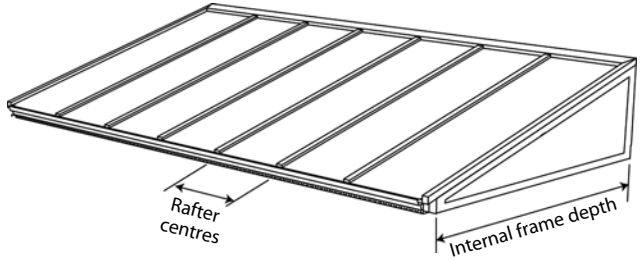
The value of **L** is -1.24 which is a negative value (uplift). Use the closest appropriate load table which is 1.4 kN/m².

25mm Polycarbonate 0.6kN/m² Load Tables

Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XJR1	2058	2121	2192	2274	2371	2486
XT1	2481	2568	2669	2788	2931	3109
XT2	2737	2833	2944	3075	3232	3427
XT3	2988	3092	3212	3353	3522	3732
XT4	3640	3761	3900	4062	4255	4490
XT3 + XB2	5200	5200	5200	5200	5200	5200

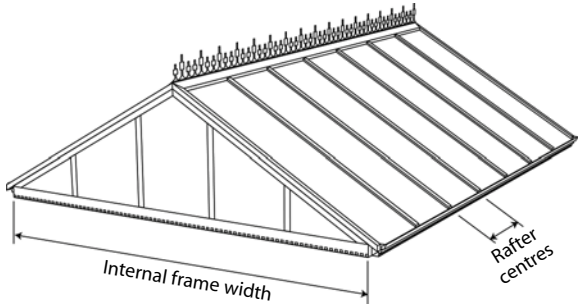
Maximum Lean to internal frame depth (mm)



Duo pitch Rafter Spacings

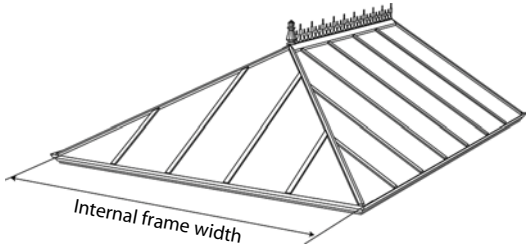
Rafter type	1000	900	800	700	600	500
XT1	4908	5136	5338	5576	5862	6000
XT2	5474	5666	5888	6000	6000	6000
XT3	5976	6000	6000	6000	6000	6000
XT4	6000	6000	6000	6000	6000	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Duo pitch internal frame width (mm)



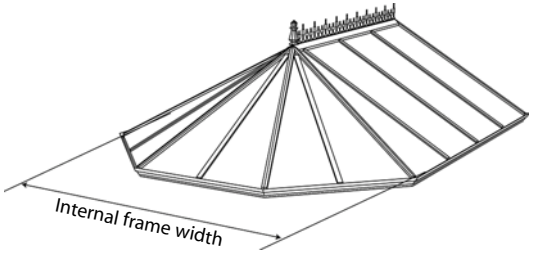
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	4483
XGH2	4777
XGH3	5094
XGH4	5754
XGH3 + XB2	5754



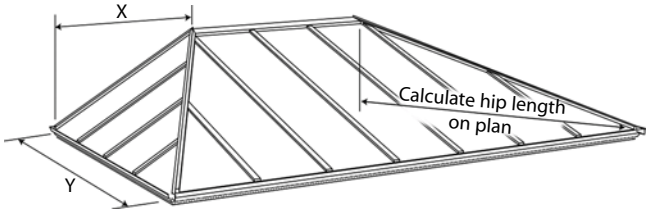
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	4740
XVH2	5104
XVH3	5597
XVH4	6000
XVH3 + XB2	6000



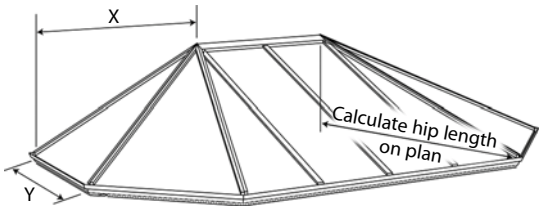
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	3170
XGH2	3378
XGH3	3602
XGH4	4167
XGH3 + XB2	5577



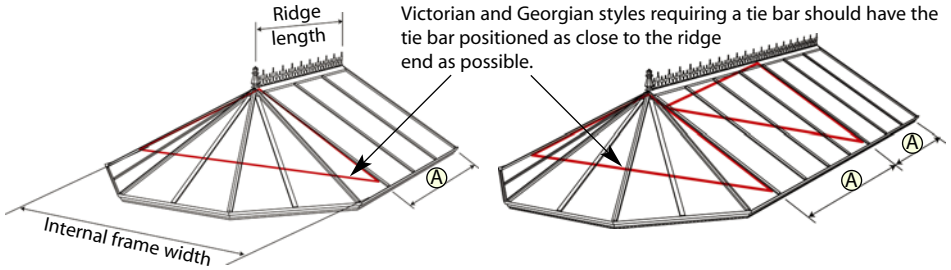
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	2571
XVH2	2741
XVH3	2926
XVH4	3243
XVH3 + XB2	4225



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	3000	2400	1800	200	15° to 24.9°
	3000	2800	2400	200	25° to 35°
Max. between tie bars	4100	3500	3200	2900	ALL

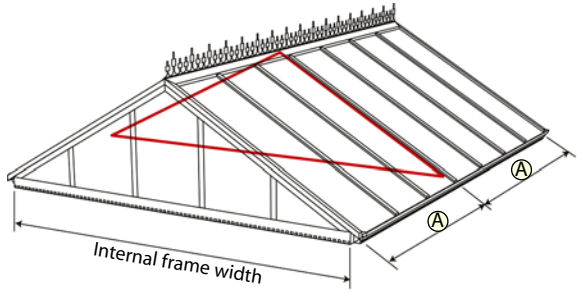


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	4100	3500	3200	2900	ALL



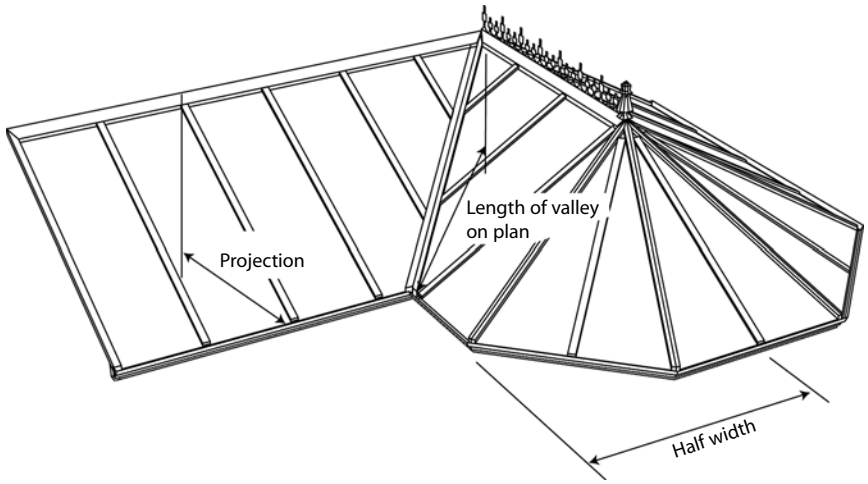
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	4000
Maximum valley plan length	4600

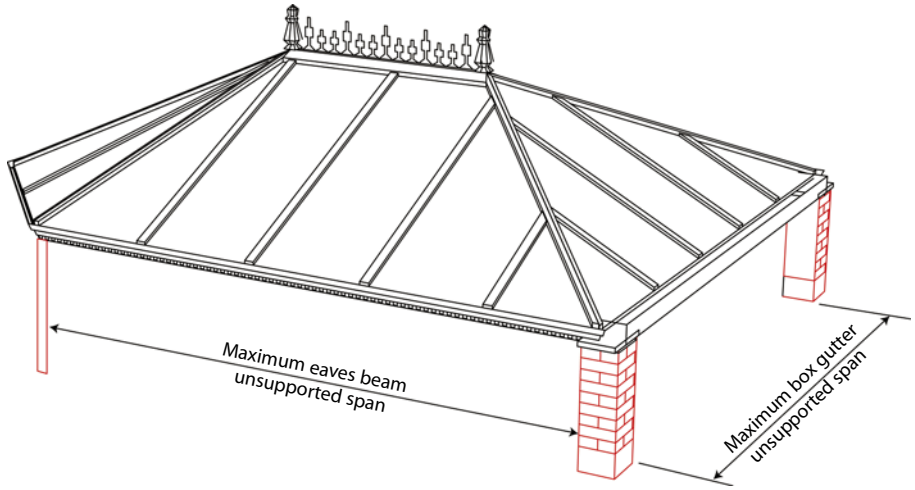


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	2103
Box Gutter	3496

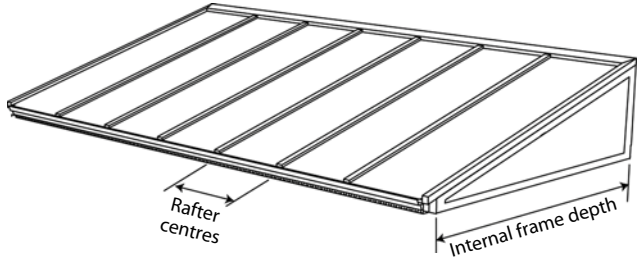


25mm Polycarbonate 0.8kN/m² Load Tables

Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XJR1	1845	1933	2030	2110	2203	2316
XT1	2247	2350	2443	2553	2685	2849
XT2	2506	2594	2696	2816	2961	3142
XT3	2737	2832	2943	3073	3230	3425
XT4	3344	3457	3587	3739	3921	4145
XT3 + XB2	5200	5200	5200	5200	5200	5200

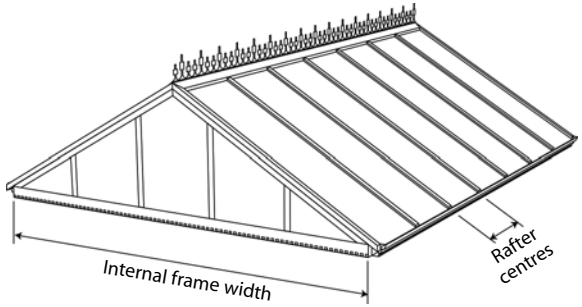
Maximum Lean to internal frame depth (mm)



Duo pitch Rafter Spacings

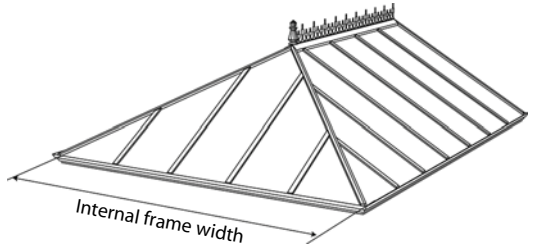
Rafter type	1000	900	800	700	600	500
XT1	4274	4512	4793	5106	5370	5698
XT2	4883	5153	5392	5632	5922	6000
XT3	5474	5664	5886	6000	6000	6000
XT4	6000	6000	6000	6000	6000	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Duo pitch internal frame width (mm)



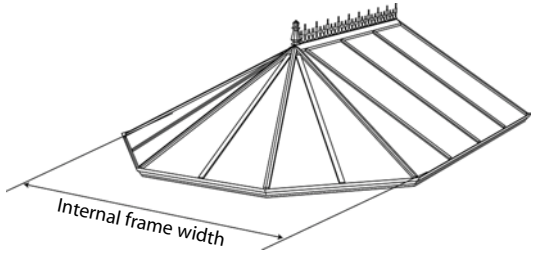
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	4189
XGH2	4472
XGH3	4770
XGH4	5250
XGH3 + XB2	5250



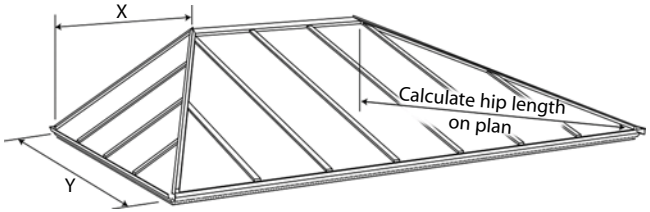
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	4334
XVH2	4668
XVH3	5236
XVH4	5696
XVH3 + XB2	6000



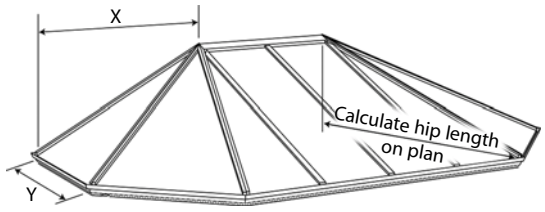
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2963
XGH2	3162
XGH3	3373
XGH4	3913
XGH3 + XB2	5238



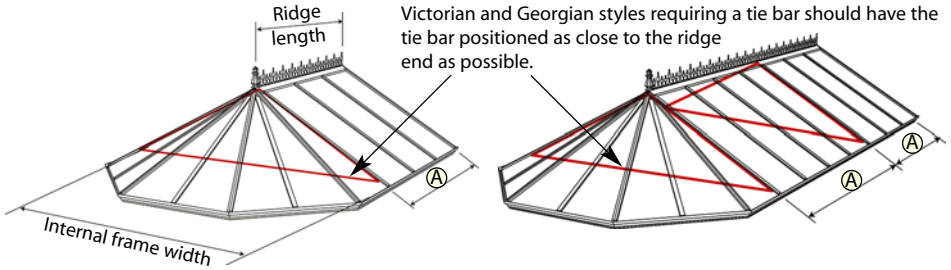
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	2406
XVH2	2565
XVH3	2740
XVH4	3043
XVH3 + XB2	3967



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	2400	1600	1000	200	15° to 24.9°
	3000	2400	1600	200	25° to 35°
Max. between tie bars	3600	3100	2800	2500	ALL

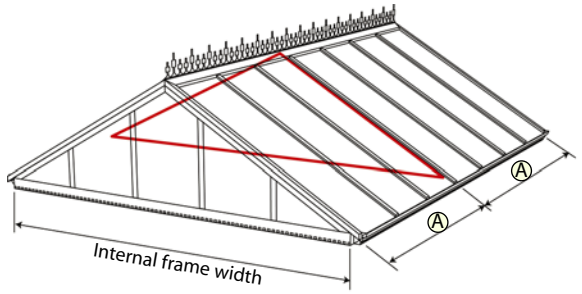


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	3600	3100	2800	2500	ALL



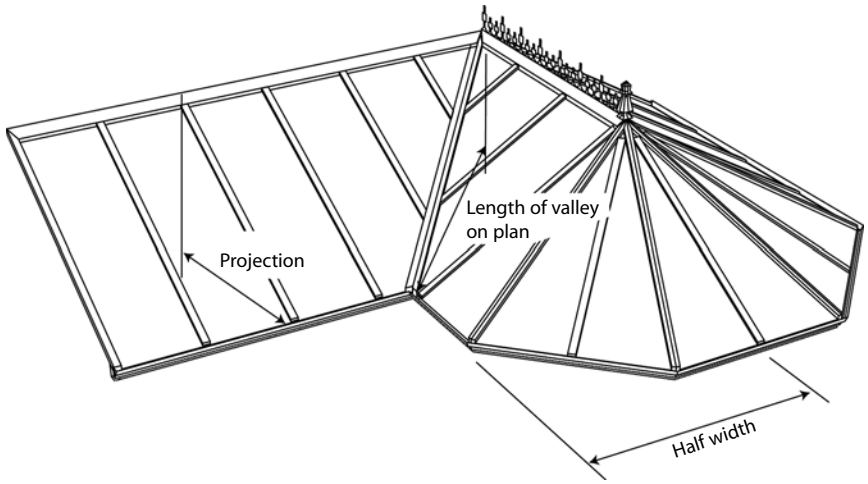
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3800
Maximum valley plan length	4400

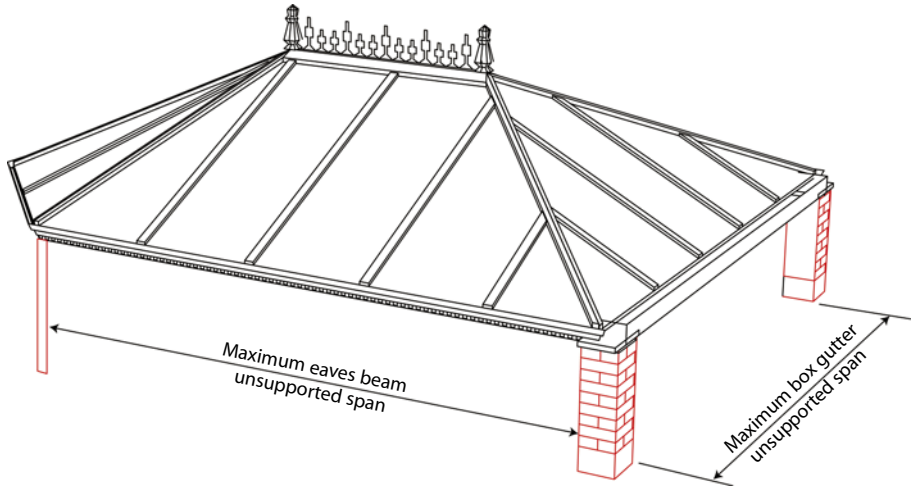


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1847
Box Gutter	3210

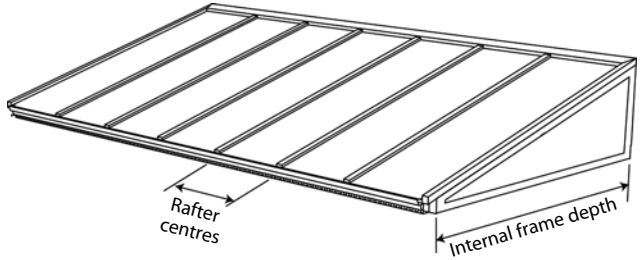


25mm Polycarbonate 1.0kN/m² Load Tables

Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XJR1	1676	1758	1854	1967	2075	2185
XT1	2023	2131	2259	2381	2504	2659
XT2	2305	2420	2515	2628	2764	2933
XT3	2553	2643	2747	2869	3016	3199
XT4	3126	3233	3356	3500	3673	3886
XT3 + XB2	5200	5200	5200	5200	5200	5200

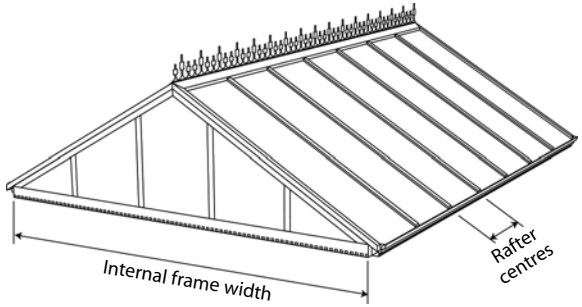
Maximum Lean to internal frame depth (mm)



Duo pitch Rafter Spacings

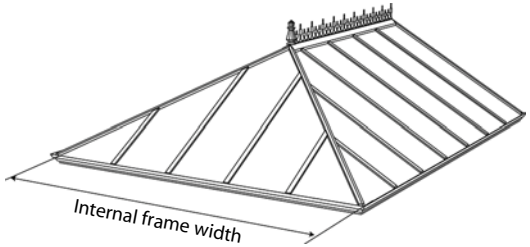
Rafter type	1000	900	800	700	600	500
XT1	4046	4262	4518	4762	5008	5318
XT2	4610	4840	5030	5256	5528	5866
XT3	5106	5286	5494	5738	6000	6000
XT4	6000	6000	6000	6000	6000	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Duo pitch internal frame width (mm)



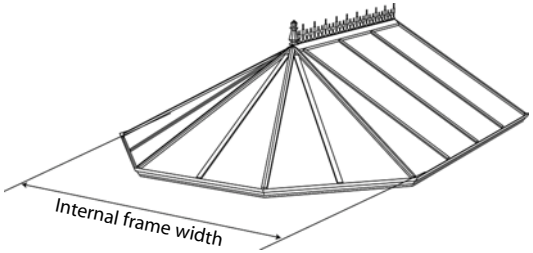
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	3915
XGH2	4180
XGH3	4460
XGH4	4900
XGH3 + XB2	4900



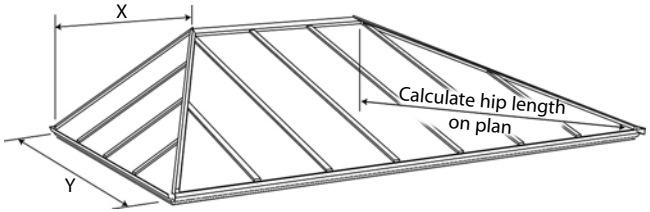
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	3975
XVH2	4280
XVH3	4800
XVH4	5225
XVH3 + XB2	5225



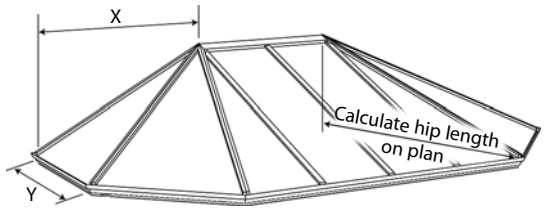
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2763
XGH2	2972
XGH3	3202
XGH4	3319
XGH3 + XB2	4981



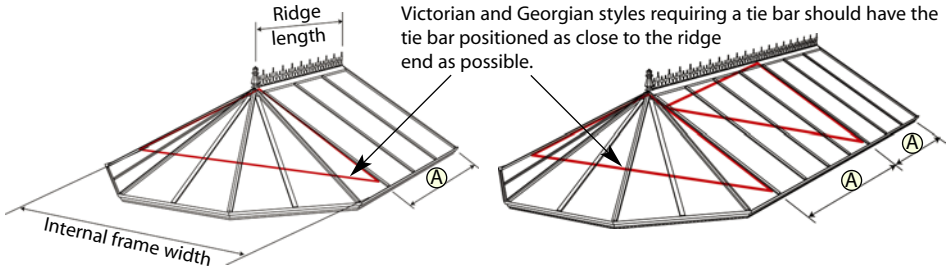
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	2283
XVH2	2435
XVH3	2601
XVH4	2890
XVH3 + XB2	3773



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	1400	800	200	200	15° to 24.9°
	2200	1400	800	200	25° to 35°
Max. between tie bars	3200	2800	2500	2300	ALL

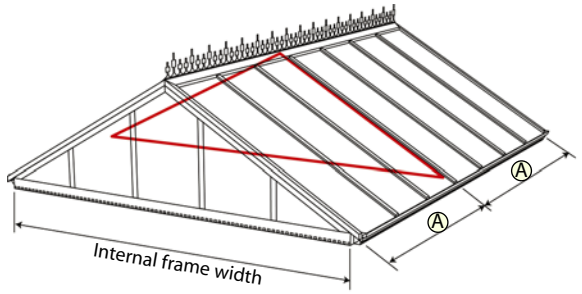


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	3200	2800	2500	2300	ALL



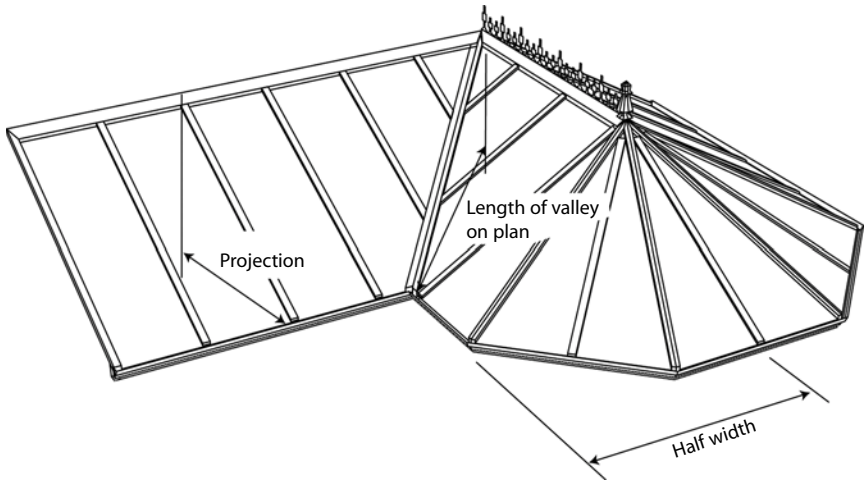
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3400
Maximum valley plan length	4000

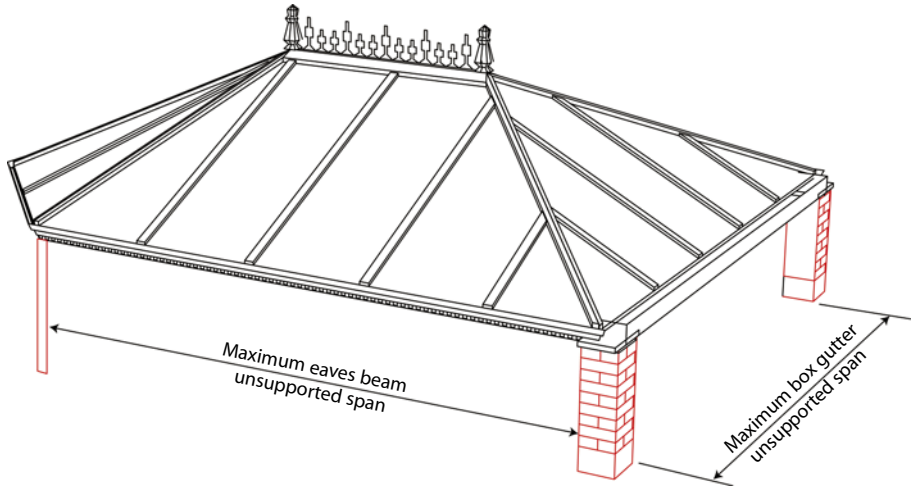


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1671
Box Gutter	3000

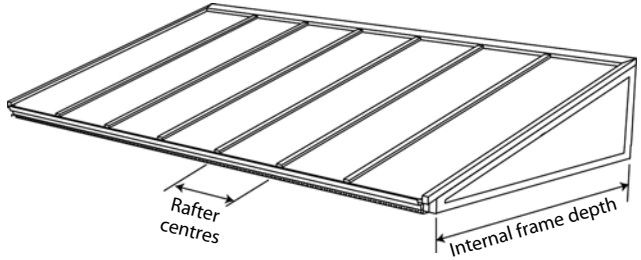


25mm Polycarbonate 1.2kN/m² Load Tables

Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XJR1	1547	1624	1714	1820	1949	2079
XT1	1855	1955	2072	2213	2365	2511
XT2	2114	2228	2361	2481	2610	2770
XT3	2411	2495	2594	2710	2849	3023
XT4	2955	3057	3174	3312	3477	3681
XT3 + XB2	5125	5200	5200	5200	5200	5200

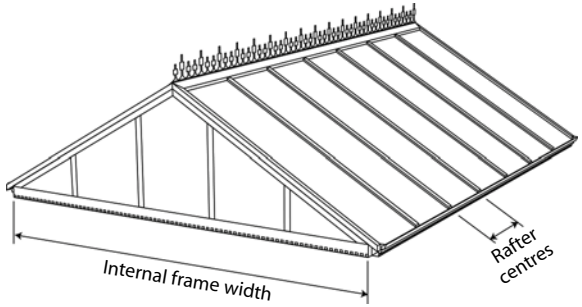
Maximum Lean to internal frame depth (mm)



Duo pitch Rafter Spacings

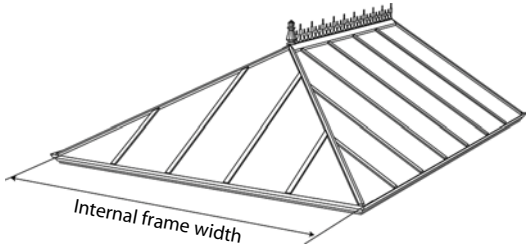
Rafter type	1000	900	800	700	600	500
XT1	3710	3910	4144	4426	4730	5022
XT2	4228	4456	4722	4962	5220	5540
XT3	4822	4990	5188	5420	5698	6000
XT4	5910	6000	6000	6000	6000	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Duo pitch internal frame width (mm)



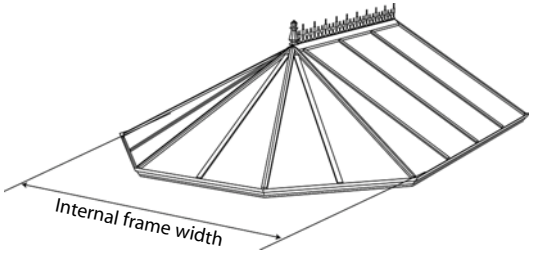
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	2985
XGH2	3905
XGH3	4170
XGH4	4580
XGH3 + XB2	4580



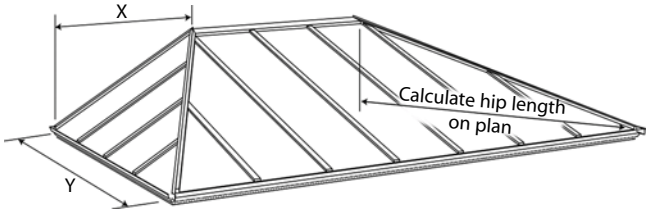
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	3598
XVH2	3874
XVH3	4346
XVH4	4728
XVH3 + XB2	4728



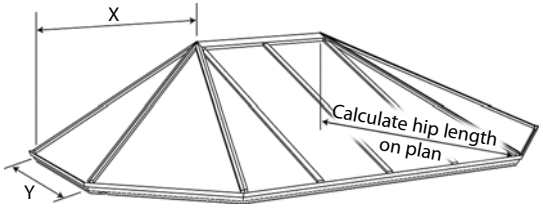
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2608
XGH2	2805
XGH3	3067
XGH4	3461
XGH3 + XB2	4777



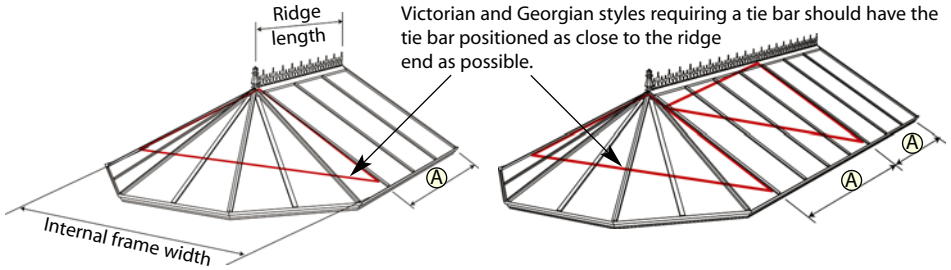
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	2186
XVH2	2332
XVH3	2491
XVH4	2770
XVH3 + XB2	3619



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	800	200	200	200	15° to 24.9°
	1600	800	200	200	25° to 35°
Max. between tie bars	2900	2600	2300	2100	ALL

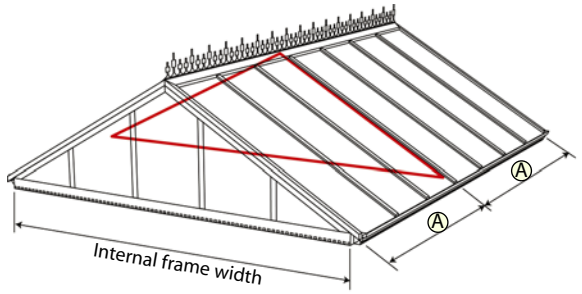


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	2900	2600	2300	2100	ALL



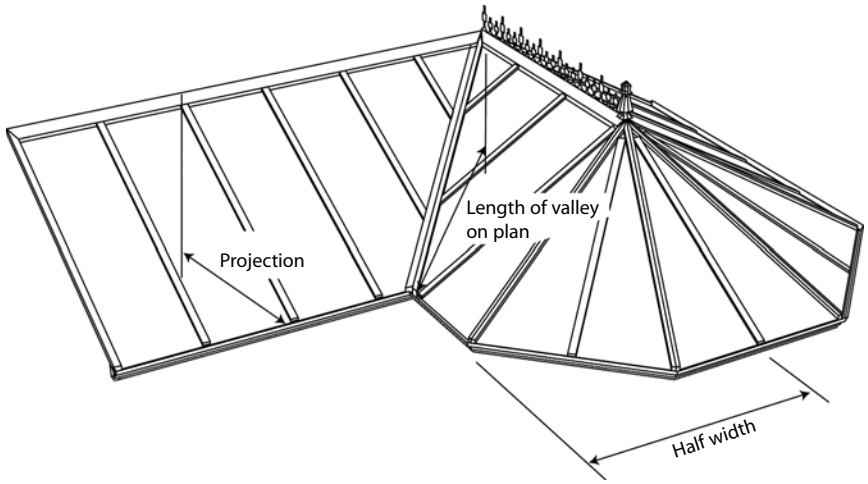
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3200
Maximum valley plan length	3800

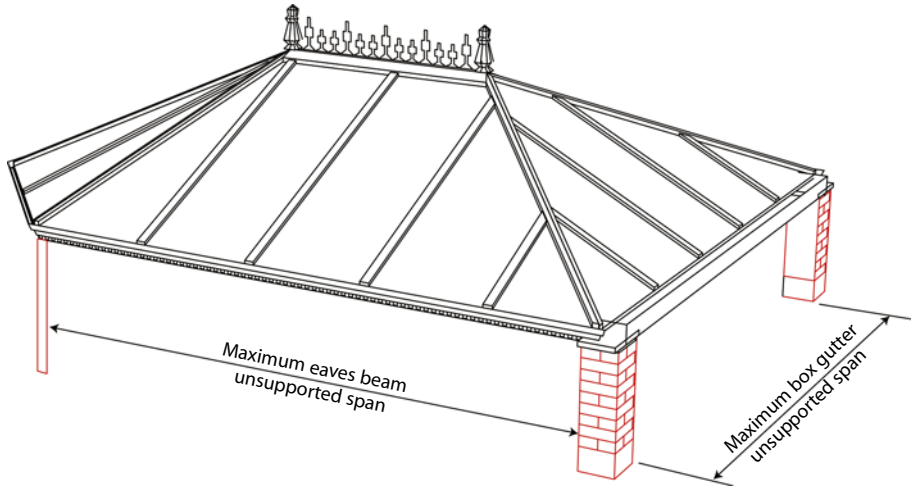


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1530
Box Gutter	2835

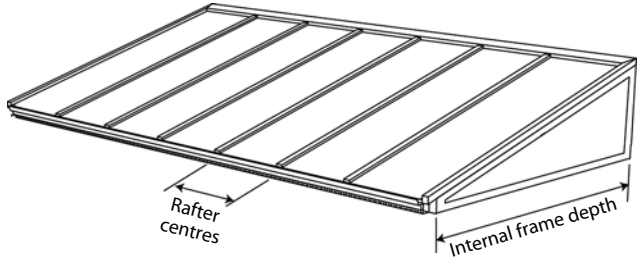


25mm Polycarbonate 1.4kN/m² Load Tables

Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XJR1	1443	1516	1601	1702	1824	1978
XT1	1723	1816	1925	2056	2219	2391
XT2	1964	2069	2194	2343	2485	2639
XT3	2295	2376	2470	2581	2714	2881
XT4	2817	2914	3027	3159	3318	3514
XT3 + XB2	4886	5054	5200	5200	5200	5200

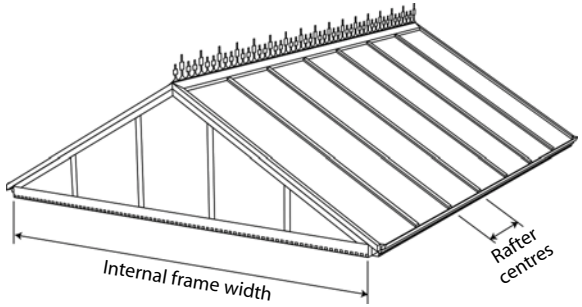
Maximum Lean to internal frame depth (mm)



Duo pitch Rafter Spacings

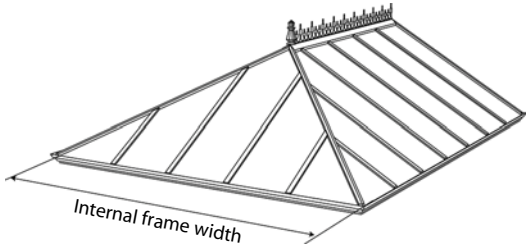
Rafter type	1000	900	800	700	600	500
XT1	3446	3632	3850	4112	4438	4782
XT2	3928	4138	4388	4686	4970	5278
XT3	4590	4752	4940	5162	5428	5762
XT4	5634	5828	6000	6000	6000	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Duo pitch internal frame width (mm)



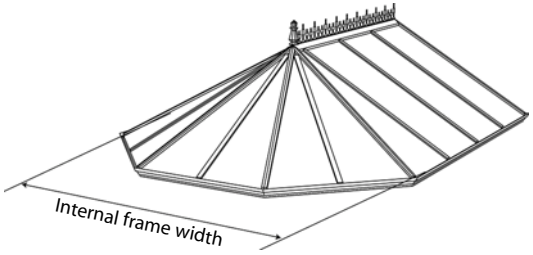
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	2790
XGH2	3650
XGH3	3900
XGH4	4280
XGH3 + XB2	4280



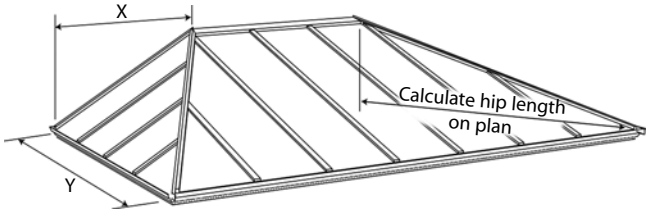
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	2860
XVH2	3080
XVH3	3456
XVH4	3760
XVH3 + XB2	3760



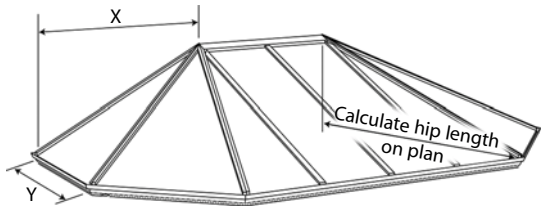
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2483
XGH2	2671
XGH3	2957
XGH4	3069
XGH3 + XB2	4610



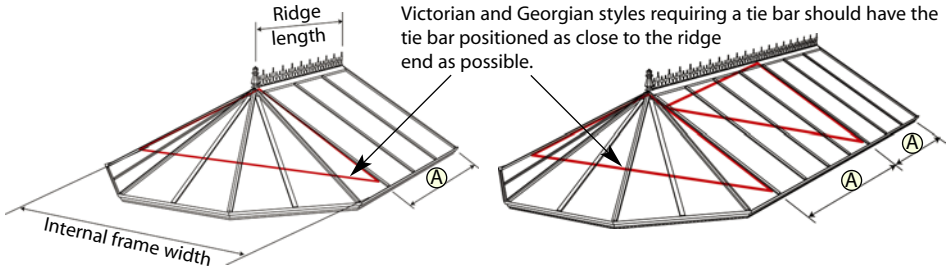
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	2107
XVH2	2247
XVH3	2401
XVH4	2671
XVH3 + XB2	3491



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	200	200	200	200	15° to 24.9°
	800	200	200	200	25° to 35°
Max. between tie bars	2700	2400	2100	1900	ALL

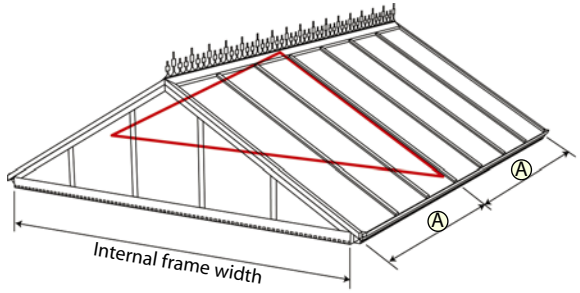


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	2700	2400	2100	1900	ALL



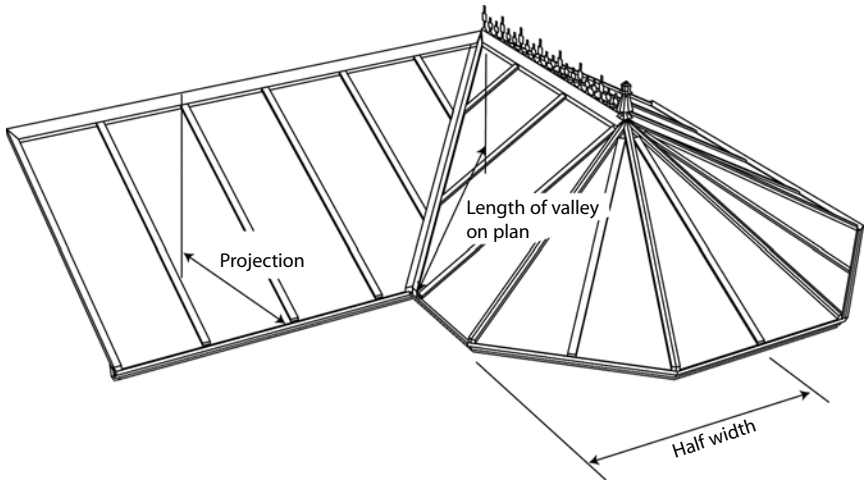
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3050
Maximum valley plan length	3600

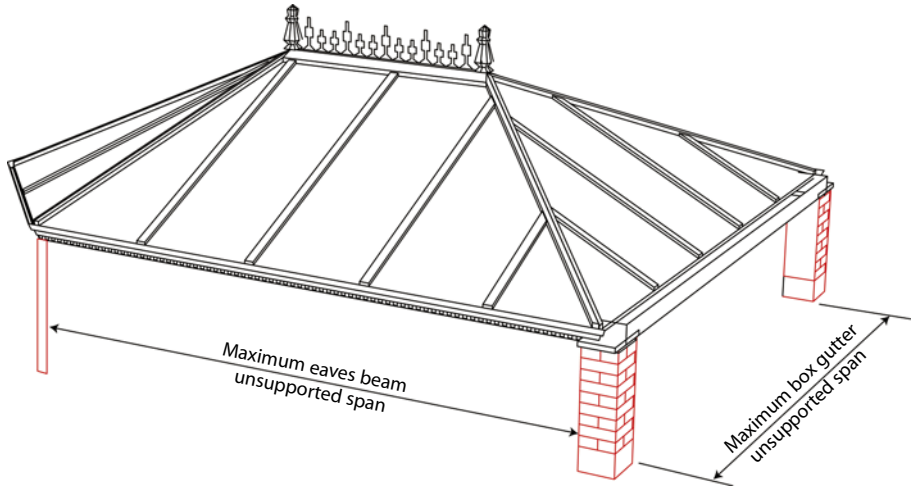


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1391
Box Gutter	2703

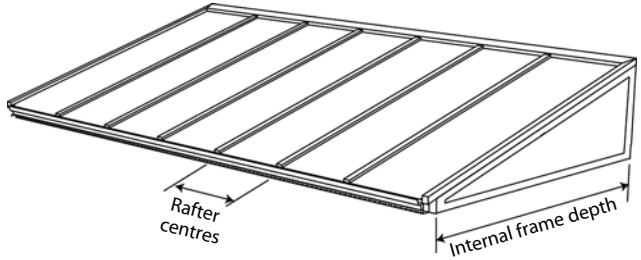


35mm Polycarbonate 0.6kN/m² Load Tables

Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XLT1(jack)	2137	2203	2277	2362	2462	2582
XT1(jack)	2481	2568	2669	2788	2931	3109
XT2(jack)	2737	2833	2944	3075	3232	3427
X35T1	2763	2862	2976	3112	3276	3481
X35T2	3049	3158	3284	3434	3615	3842
X35T3	3333	3452	3590	3753	3951	4199
X35T4	4091	4237	4407	4607	4850	5154

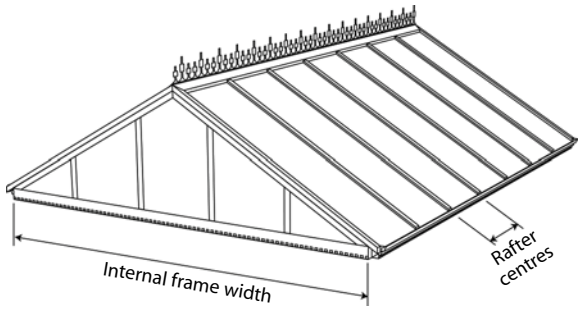
Maximum Lean to internal frame depth (mm)



Duo pitch Rafter Spacings

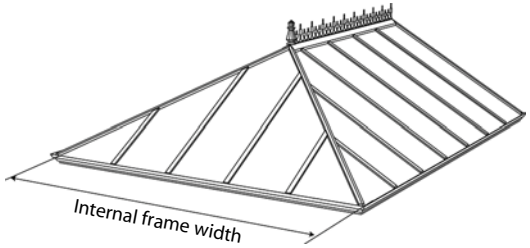
Rafter type	1000	900	800	700	600	500
X35T1	5448	5717	5941	6000	6000	6000
X35T2	6000	6000	6000	6000	6000	6000
X35T3	6000	6000	6000	6000	6000	6000
X35T4	6000	6000	6000	6000	6000	6000

Maximum Duo pitch internal frame width (mm)



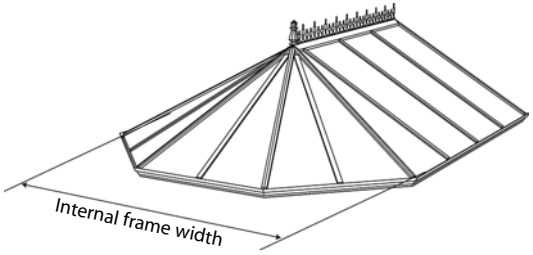
Maximum Georgian internal frame width (mm)

Rafter type	
X35GH1	4850
X35GH2	5500
X35GH3	5800
X35GH4	6000



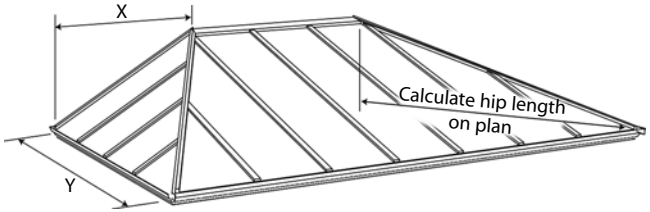
Maximum Victorian internal frame width (mm)

Rafter type	
X35VH1	5033
X35VH2	5545
X35VH3	5991
X35VH4	6000



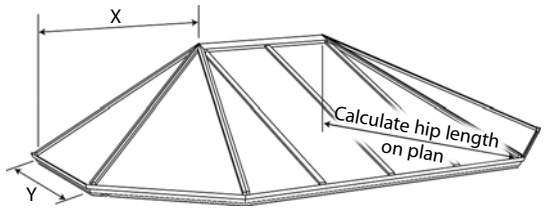
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
X35GH1	3333
X35GH2	3639
X35GH3	3877
X35GH4	4371
X35GH3+XB2	5578



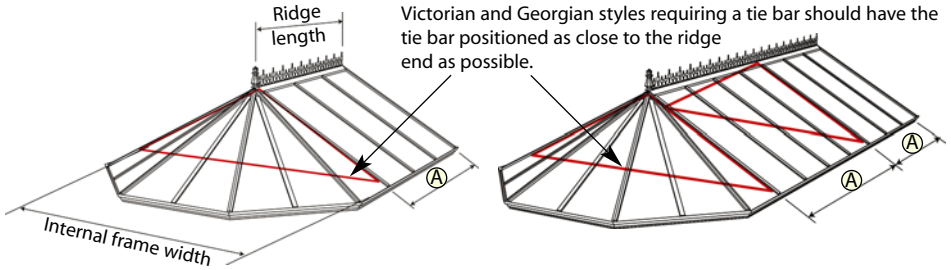
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
X35VH1	2727
X35VH2	3088
X35VH3	3298
X35VH4	3549
X35VH3+XB2	4979



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	3000	2600	2000	200	15° to 24.9°
	3000	3000	2600	600	25° to 35°
Max. between tie bars	4600	4000	3600	3300	ALL

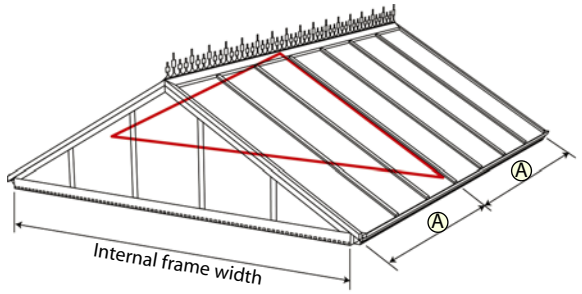


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	4600	4000	3600	3300	ALL



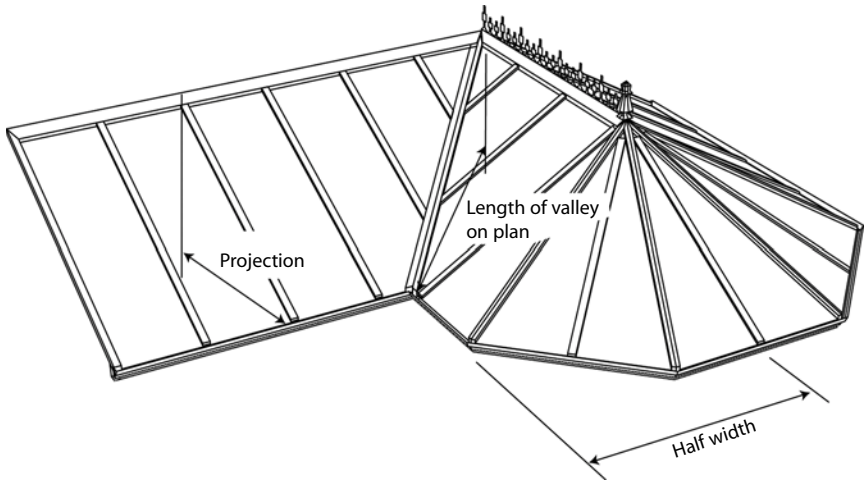
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	4000
Maximum valley plan length	4600

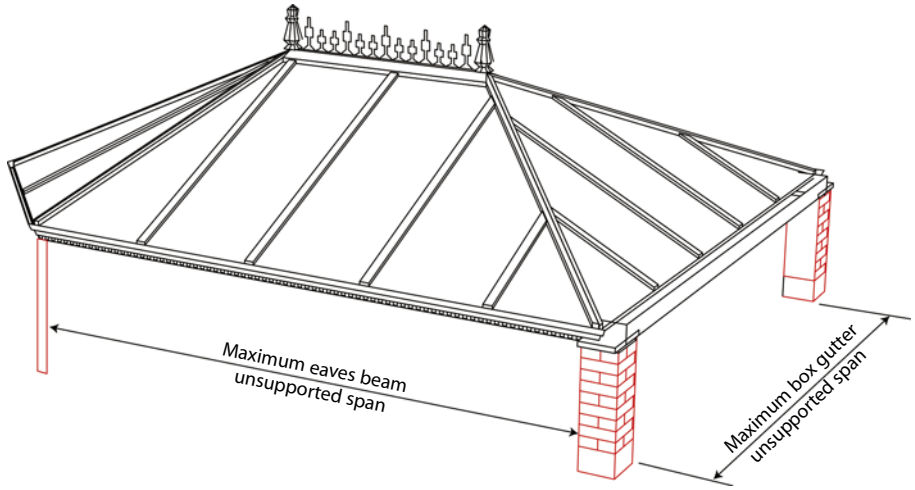


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	2103
Box Gutter	3496

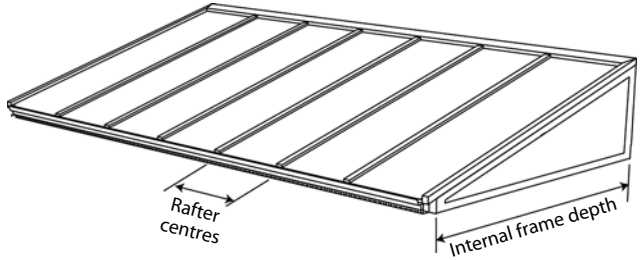


35mm Polycarbonate 0.8kN/m² Load Tables

Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XLT1(jack)	1942	2036	2109	2191	2288	2406
XT1(jack)	2247	2350	2443	2553	2685	2849
XT2(jack)	2506	2594	2696	2816	2961	3142
X35T1	2497	2619	2724	2848	2998	3186
X35T2	2792	2891	3007	3144	3310	3517
X35T3	3053	3162	3289	3439	3620	3847
X35T4	3761	3895	4051	4236	4459	4738

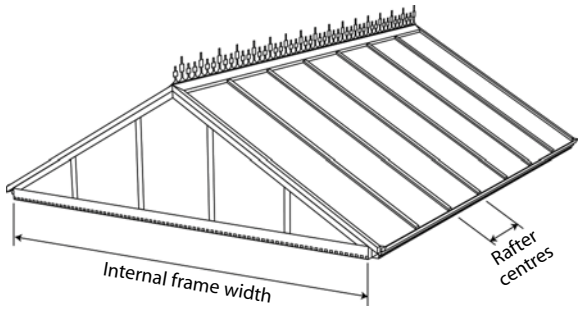
Maximum Lean to internal frame depth (mm)



Duo pitch Rafter Spacings

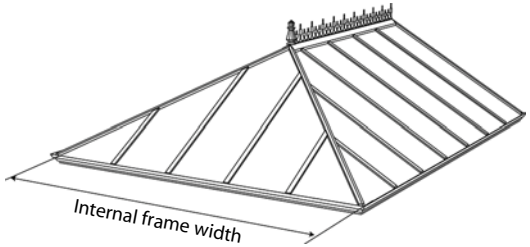
Rafter type	1000	900	800	700	600	500
X35T1	4745	5009	5320	5683	5976	6000
X35T2	5468	5771	6000	6000	6000	6000
X35T3	6000	6000	6000	6000	6000	6000
X35T4	6000	6000	6000	6000	6000	6000

Maximum Duo pitch internal frame width (mm)



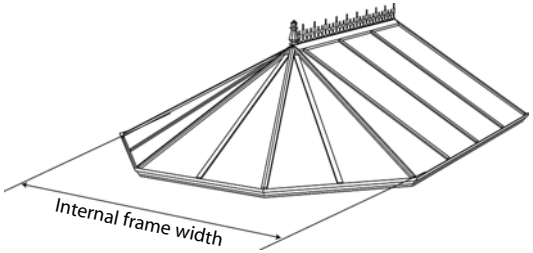
Maximum Georgian internal frame width (mm)

Rafter type	
X35GH1	4450
X35GH2	5200
X35GH3	5350
X35GH4	5400



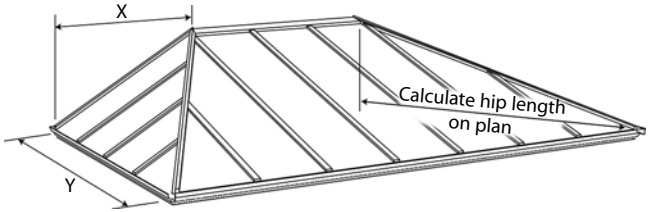
Maximum Victorian internal frame width (mm)

Rafter type	
X35VH1	4602
X35VH2	5072
X35VH3	5482
X35VH4	6000



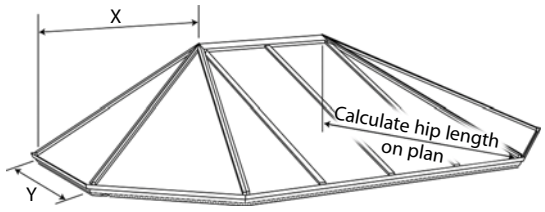
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
X35GH1	3117
X35GH2	3407
X35GH3	3631
X35GH4	4088
X35GH3+XB2	5130



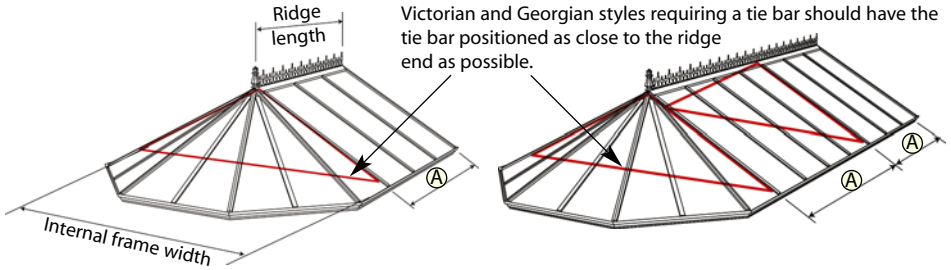
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
X35VH1	2518
X35VH2	2843
X35VH3	3073
X35VH4	3283
X35VH3+XB2	4579



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	2600	1800	200	200	15° to 24.9°
	3000	2600	1800	200	25° to 35°
Max. between tie bars	4000	3500	3100	2900	ALL

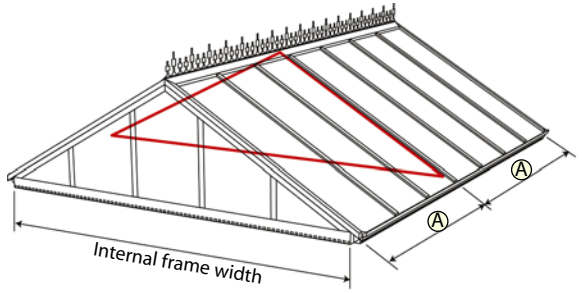


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	4000	3500	3100	2900	ALL



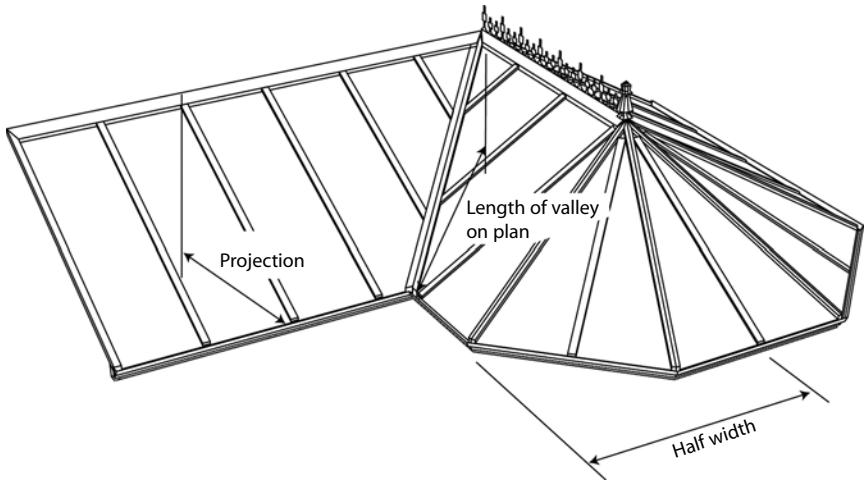
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3800
Maximum valley plan length	4400

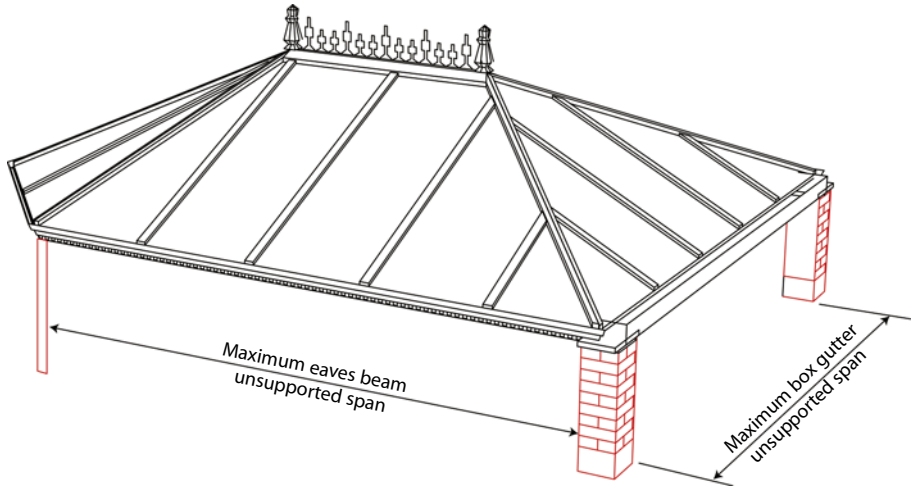


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1847
Box Gutter	3210

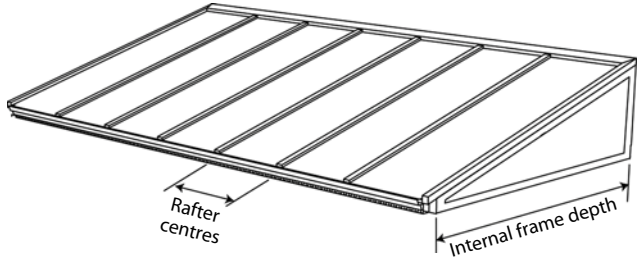


35mm Polycarbonate 1.0kN/m² Load Tables

Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XLT1(jack)	1765	1851	1952	2061	2155	2270
XT1(jack)	2023	2131	2259	2381	2504	2659
XT2(jack)	2305	2420	2515	2628	2764	2933
X35T1	2248	2370	2514	2655	2795	2971
X35T2	2583	2697	2805	2932	3087	3280
X35T3	2849	2951	3069	3209	3378	3589
X35T4	3517	3643	3778	3961	4170	4431

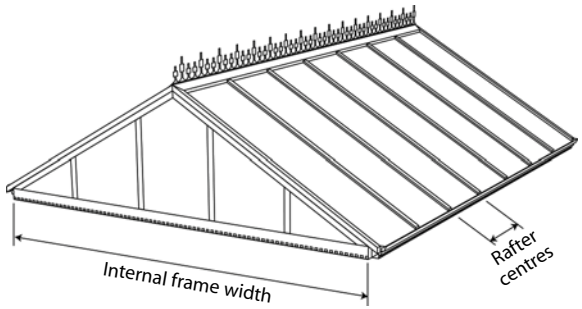
Maximum Lean to internal frame depth (mm)



Duo pitch Rafter Spacings

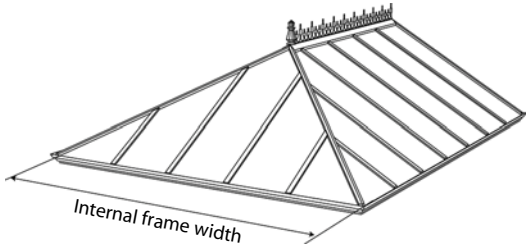
Rafter type	1000	900	800	700	600	500
X35T1	4496	4740	5028	5310	5590	5942
X35T2	5166	5394	5610	5864	6000	6000
X35T3	5698	5902	6000	6000	6000	6000
X35T4	6000	6000	6000	6000	6000	6000

Maximum Duo pitch internal frame width (mm)



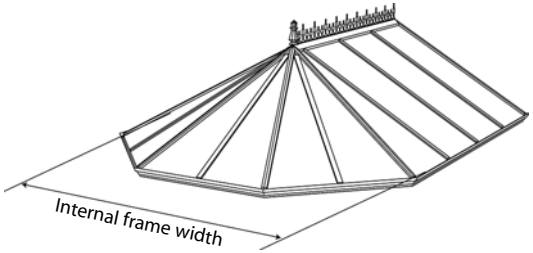
Maximum Georgian internal frame width (mm)

Rafter type	
X35GH1	4050
X35GH2	4770
X35GH3	4910
X35GH4	4955



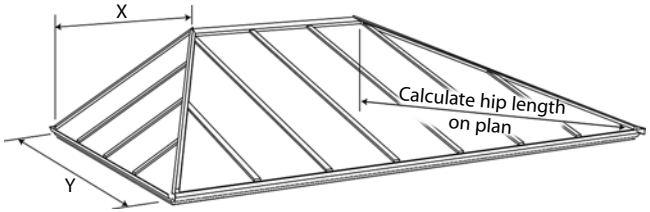
Maximum Victorian internal frame width (mm)

Rafter type	
X35VH1	4288
X35VH2	4650
X35VH3	5030
X35VH4	5500



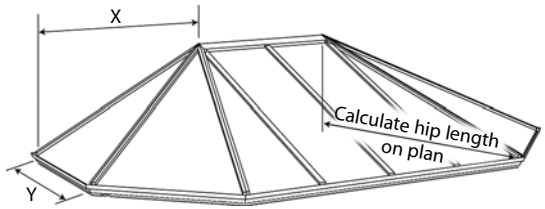
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
X35GH1	2917
X35GH2	3212
X35GH3	3447
X35GH4	3821



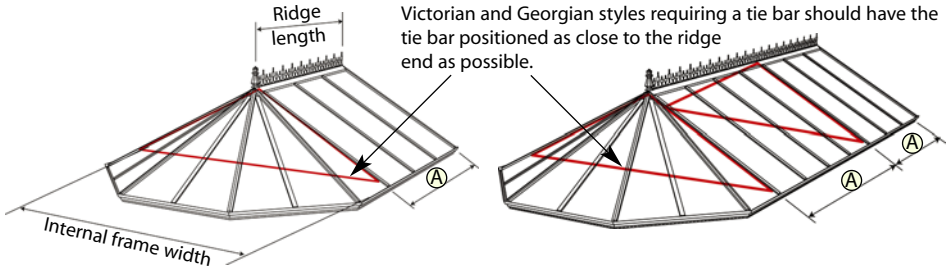
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
X35VH1	2347
X35VH2	2678
X35VH3	2895
X35VH4	3179



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	1800	1000	200	200	15° to 24.9°
	2600	1800	1000	200	25° to 35°
Max. between tie bars	3600	3200	2800	2600	ALL

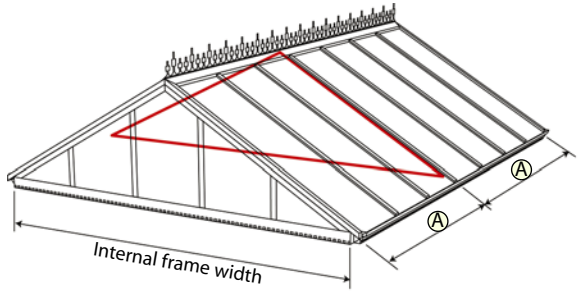


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	3600	3200	2800	2600	ALL



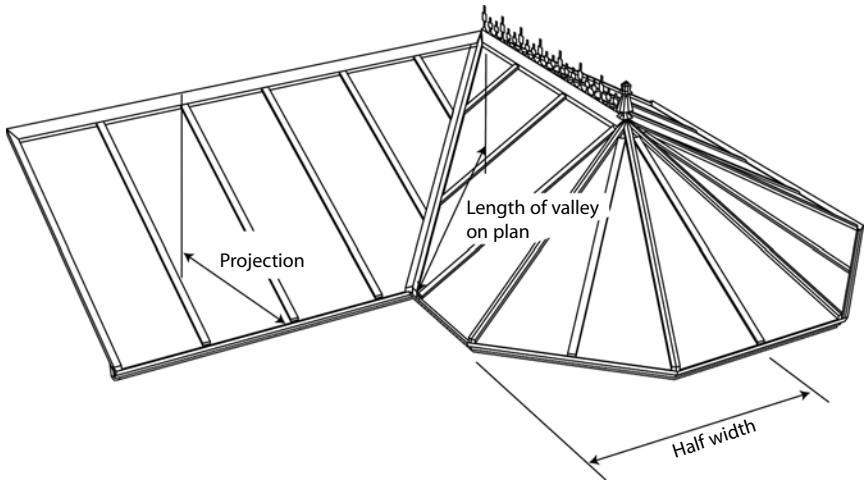
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3400
Maximum valley plan length	4000

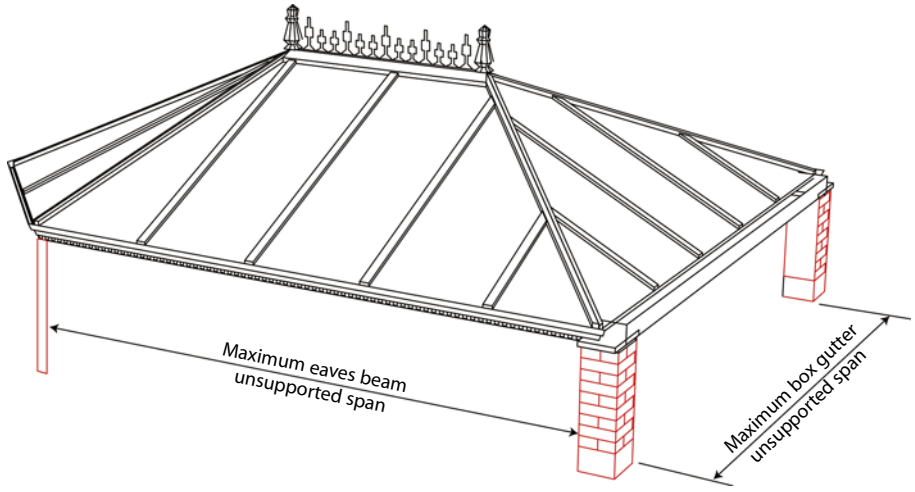


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1671
Box Gutter	3000

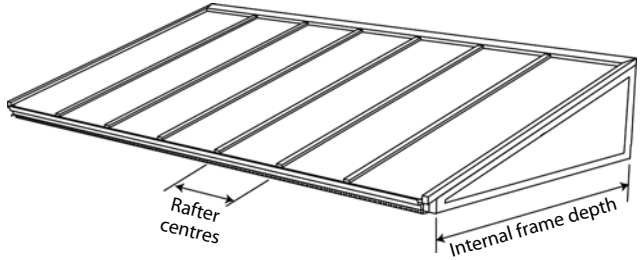


35mm Polycarbonate 1.2kN/m² Load Tables

Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XLT1(jack)	1629	1710	1804	1916	2048	2160
XT1(jack)	1855	1955	2072	2213	2365	2511
XT2(jack)	2114	2228	2361	2481	2610	2770
X35T1	2062	2173	2305	2464	2639	2804
X35T2	2369	2498	2648	2768	2914	3097
X35T3	2690	2786	2898	3030	3190	3389
X35T4	3326	3445	3583	3746	3943	4190

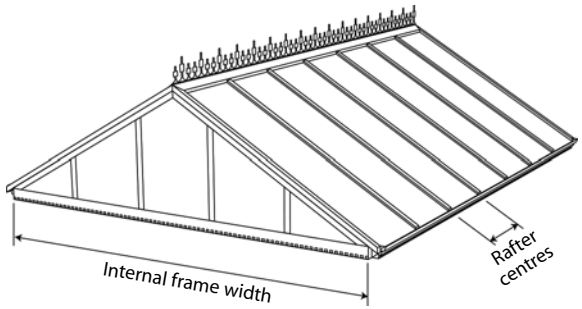
Maximum Lean to internal frame depth (mm)



Duo pitch Rafter Spacings

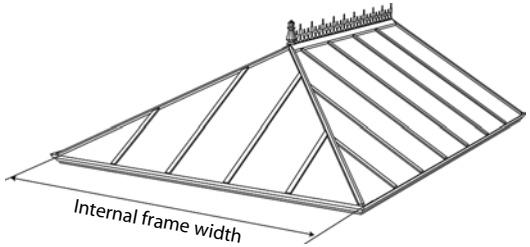
Rafter type	1000	900	800	700	600	500
X35T1	4124	4346	4610	4928	5278	5608
X35T2	4738	4996	5296	5536	5828	6000
X35T3	5380	5572	5796	6000	6000	6000
X35T4	6000	6000	6000	6000	6000	6000

Maximum Duo pitch internal frame width (mm)



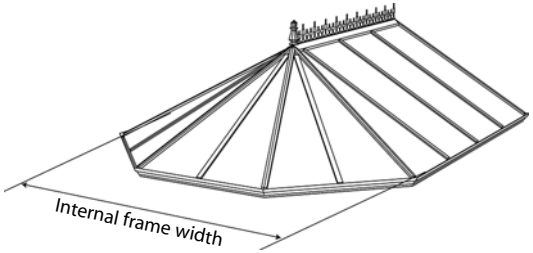
Maximum Georgian internal frame width (mm)

Rafter type	
X35GH1	3750
X35GH2	4375
X35GH3	4505
X35GH4	4545



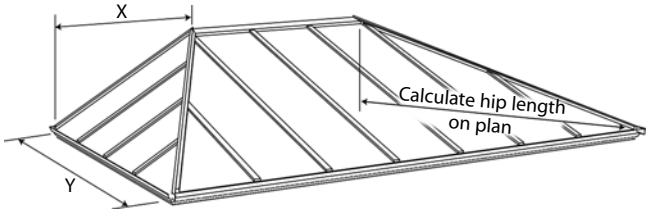
Maximum Victorian internal frame width (mm)

Rafter type	
X35VH1	4046
X35VH2	4270
X35VH3	4615
X35VH4	5050



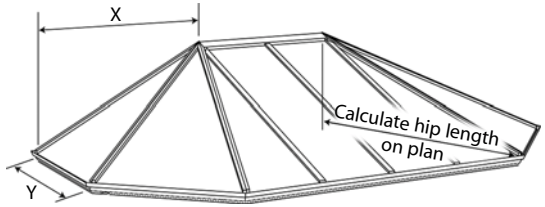
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
X35GH1	2753
X35GH2	3033
X35GH3	3284
X35GH4	3613



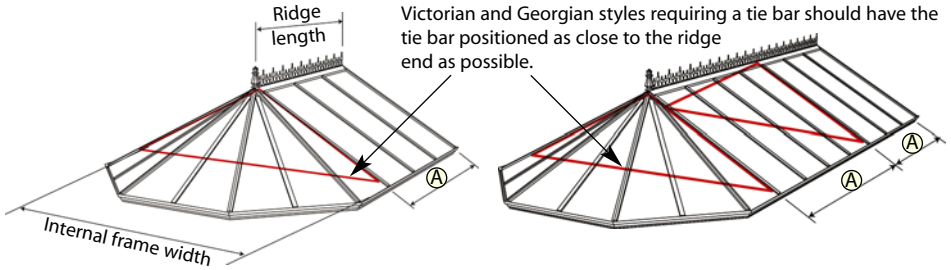
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
X35VH1	2214
X35VH2	2528
X35VH3	2733
X35VH4	3005



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	1000	200	200	200	15° to 24.9°
	1800	1000	200	200	25° to 35°
Max. between tie bars	3300	2900	2600	2400	ALL

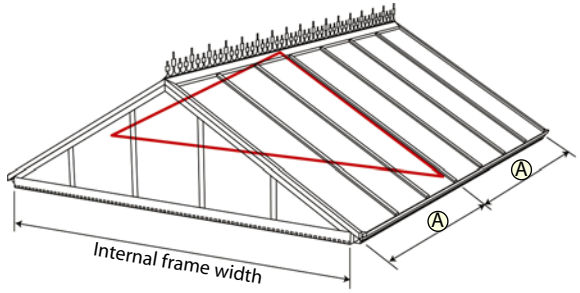


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	3300	2900	2600	2400	ALL



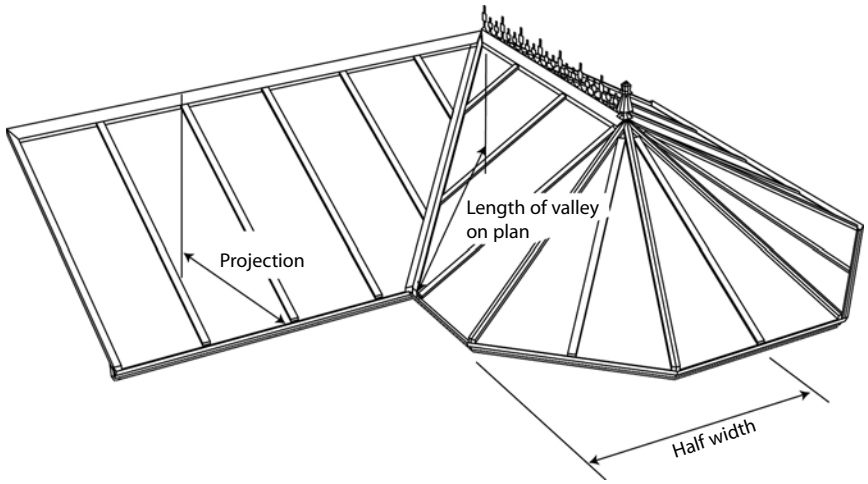
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3200
Maximum valley plan length	3800

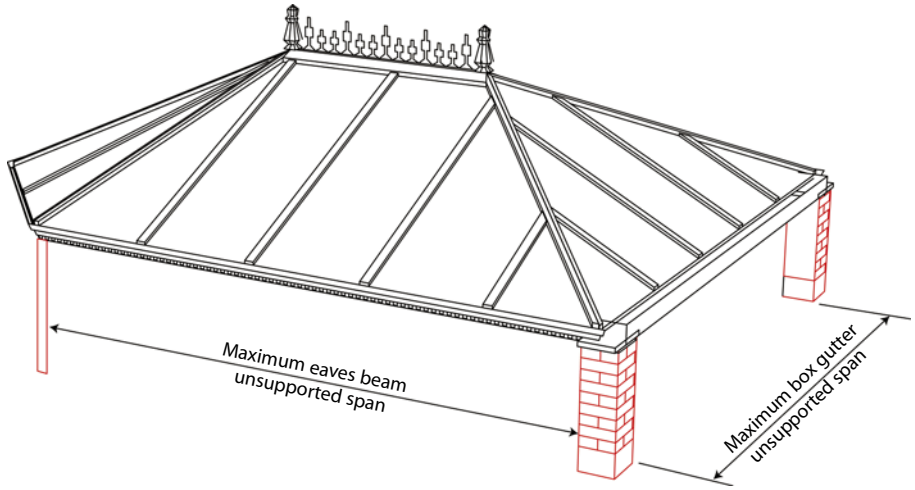


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1530
Box Gutter	2835

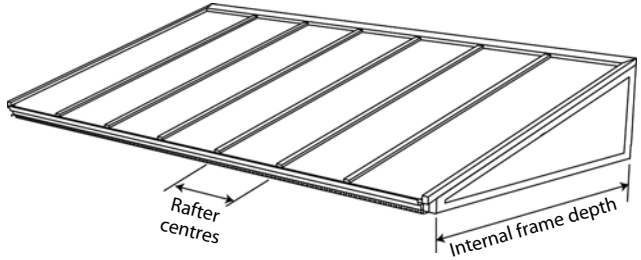


35mm Polycarbonate 1.4kN/m² Load Tables

Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XLT1(jack)	1520	1596	1685	1792	1921	2069
XT1(jack)	1723	1816	1925	2056	2219	2391
XT2(jack)	1964	2069	2194	2343	2485	2639
X35T1	1915	2018	2141	2289	2472	2669
X35T2	2201	2320	2461	2631	2774	2948
X35T3	2525	2653	2760	2885	3037	3228
X35T4	3171	3284	3415	3571	3759	3995

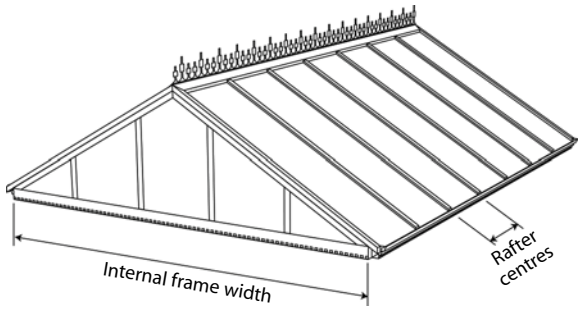
Maximum Lean to internal frame depth (mm)



Duo pitch Rafter Spacings

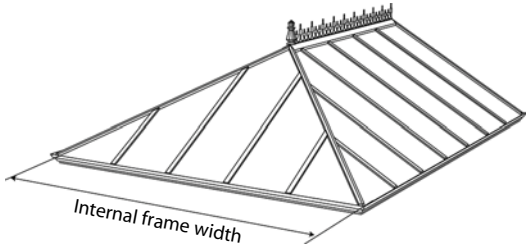
Rafter type	1000	900	800	700	600	500
X35T1	3830	4036	4282	4578	4944	5338
X35T2	4402	4640	4922	5262	5548	5896
X35T3	5050	5306	5520	5770	6000	6000
X35T4	6000	6000	6000	6000	6000	6000

Maximum Duo pitch internal frame width (mm)



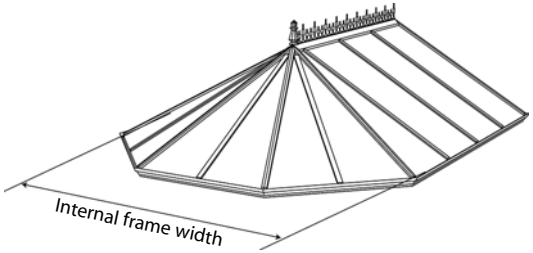
Maximum Georgian internal frame width (mm)

Rafter type	
X35GH1	3400
X35GH2	4015
X35GH3	4135
X35GH4	4170



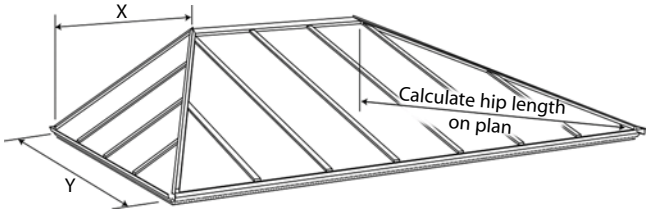
Maximum Victorian internal frame width (mm)

Rafter type	
X35VH1	3850
X35VH2	3920
X35VH3	4235
X35VH4	4635



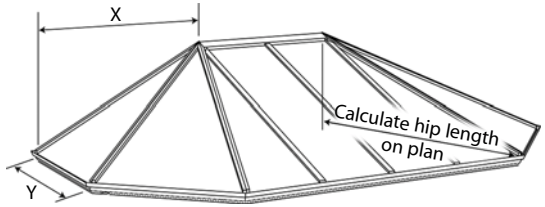
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
X35GH1	2621
X35GH2	2888
X35GH3	3127
X35GH4	3444



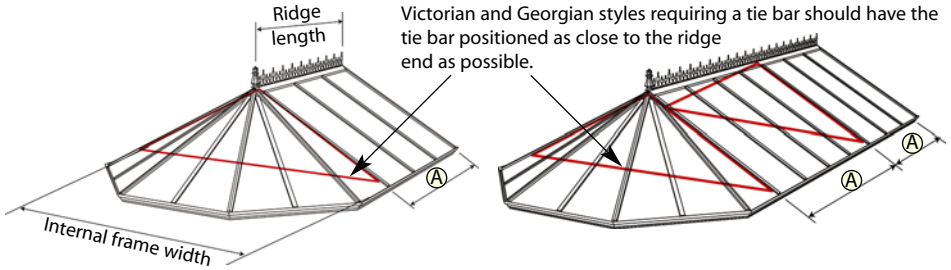
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
X35VH1	2108
X35VH2	2407
X35VH3	2603
X35VH4	2864



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	200	200	200	200	15° to 24.9°
	1000	200	200	200	25° to 35°
Max. between tie bars	3100	2700	2400	2200	ALL

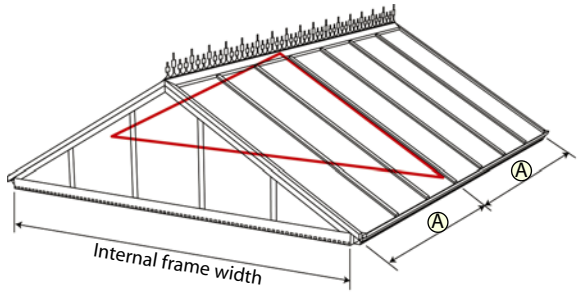


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	3100	2700	2400	2200	ALL



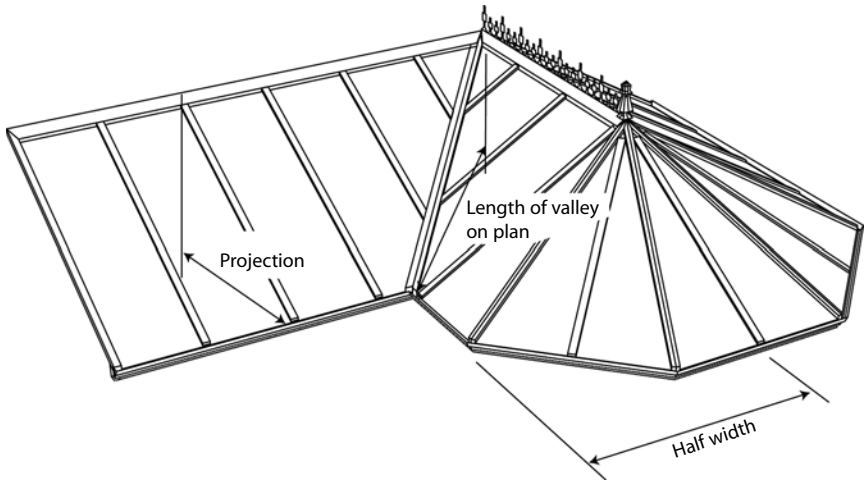
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3050
Maximum valley plan length	3600

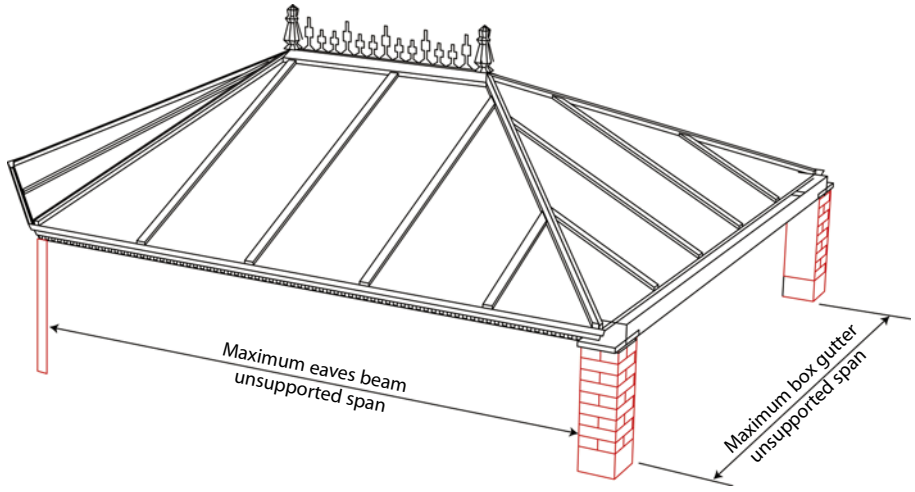


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1391
Box Gutter	2703



4mm Glass Unit 0.6kN/m² Load Tables

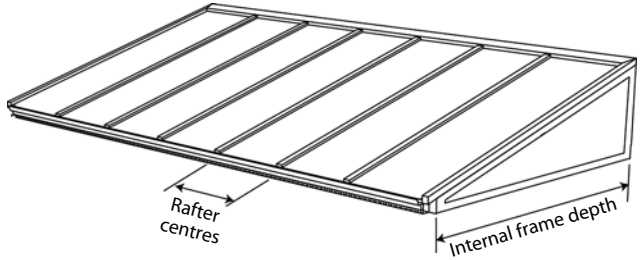
Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	2042	2114	2197	2295	2414	2562
XT2	2254	2333	2424	2533	2663	2825
XT3	2461	2547	2646	2764	2905	3080
XT4	3007	3108	3225	3362	3525	3725
XT3 + XB2	5200	5200	5200	5200	5200	5200

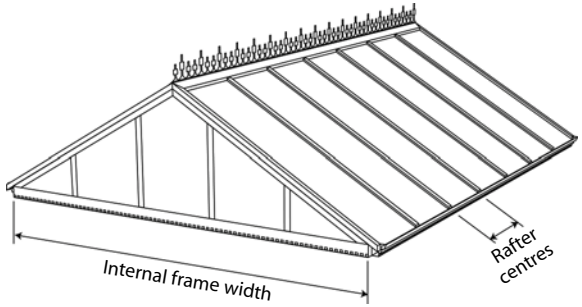
Duo pitch Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	4084	4228	4394	4590	4828	5124
XT2	4508	4666	4848	5066	5326	5650
XT3	4922	5094	5292	5528	5810	6000
XT4	6000	6000	6000	6000	6000	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Lean to internal frame depth (mm)

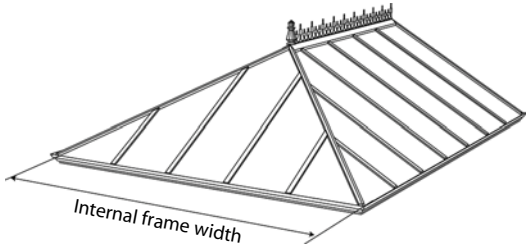


Maximum Duo pitch internal frame width (mm)



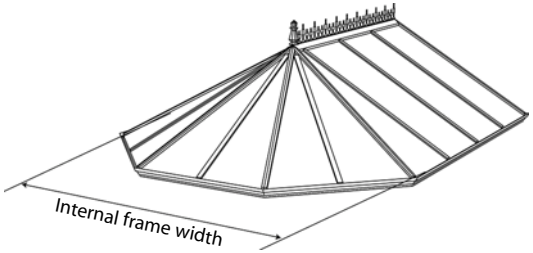
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	3462
XGH2	3723
XGH3	4320
XGH4	5000
XGH3 + XB2	5000



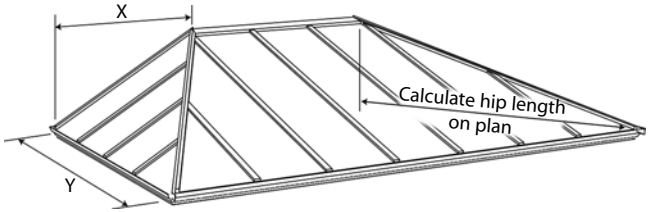
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	4255
XVH2	4538
XVH3	4846
XVH4	5404
XVH3 + XB2	6000



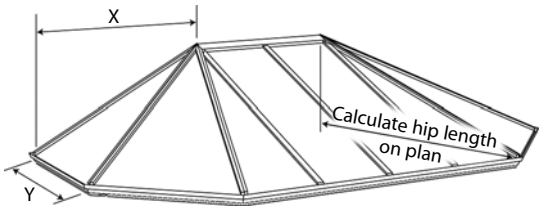
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2740
XGH2	2920
XGH3	3115
XGH4	3613
XGH3 + XB2	4836



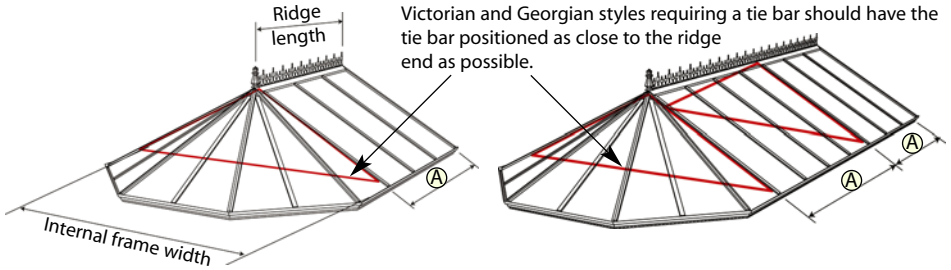
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	2222
XVH2	2369
XVH3	2530
XVH4	2808
XVH3 + XB2	3663



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	2000	1200	200	200	15° to 24.9°
	2600	2000	1200	200	25° to 35°
Max. between tie bars	3600	3100	2800	2600	ALL

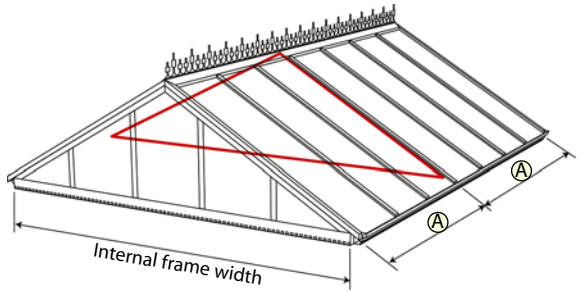


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	3600	3100	2800	2600	ALL



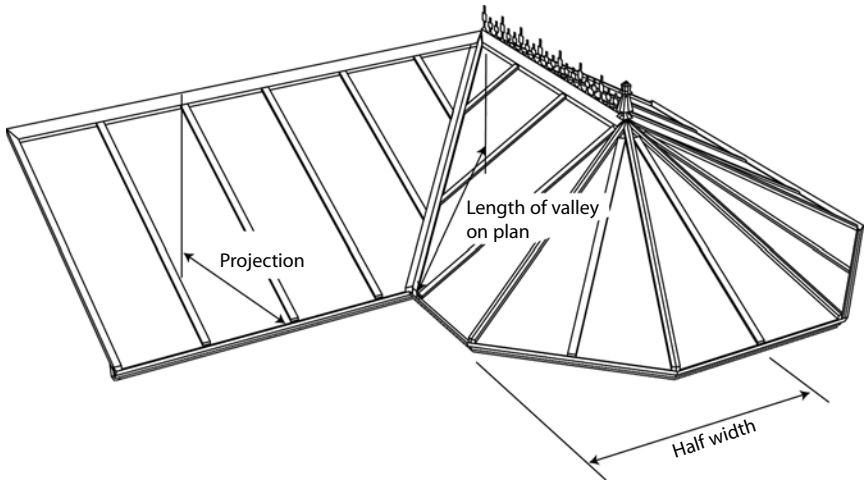
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3600
Maximum valley plan length	4200

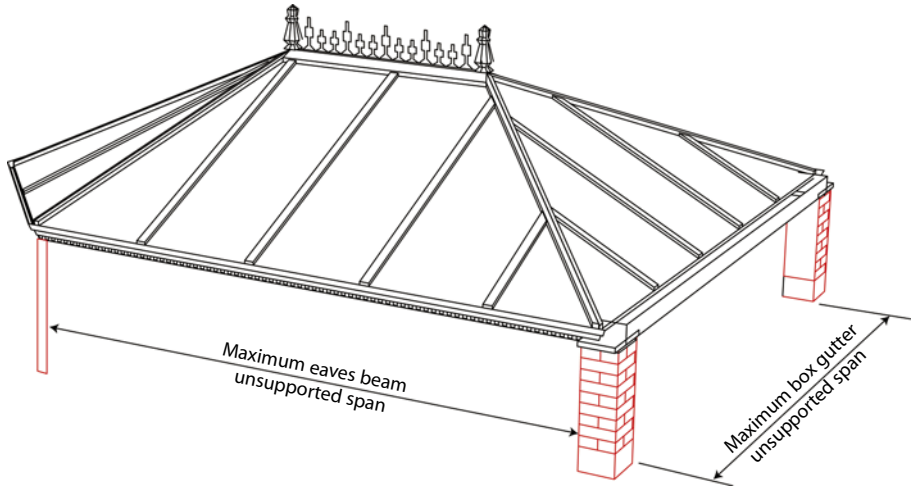


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1864
Box Gutter	3229



4mm Glass Unit 0.8kN/m² Load Tables

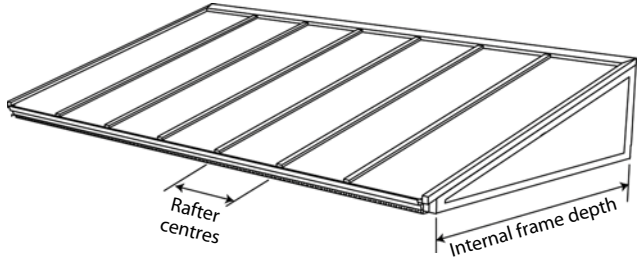
Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	1902	1969	2047	2139	2250	2388
XT2	2099	2173	2259	2360	2482	2634
XT3	2293	2374	2467	2577	2709	2874
XT4	2807	2903	3014	3143	3298	3489
XT3 + XB2	4866	5031	5200	5200	5200	5200

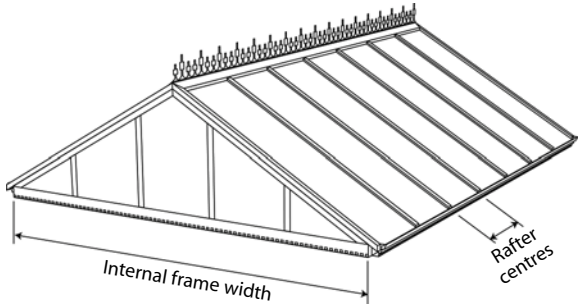
Duo pitch Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	3804	3938	4094	4278	4500	4776
XT2	4198	4346	4518	4720	4964	5268
XT3	4586	4748	4934	5154	5418	5748
XT4	5605	5797	6000	6000	6000	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Lean to internal frame depth (mm)

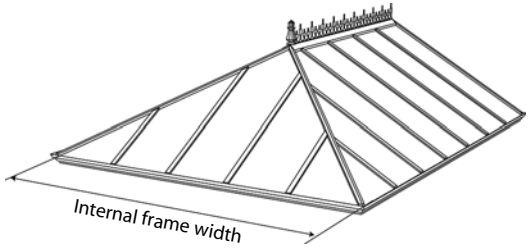


Maximum Duo pitch internal frame width (mm)



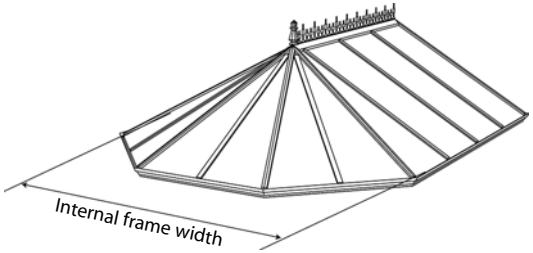
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	3241
XGH2	3486
XGH3	4112
XGH4	4750
XGH3 + XB2	4750



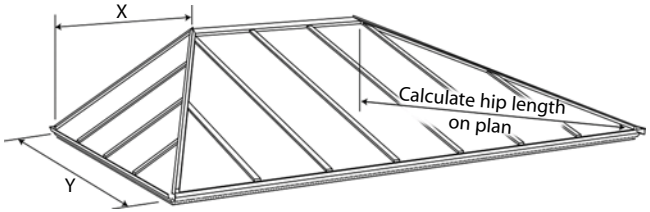
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	4034
XVH2	4303
XVH3	4596
XVH4	5123
XVH3 + XB2	6000



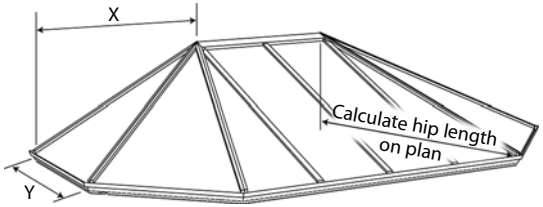
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2598
XGH2	2769
XGH3	2955
XGH4	3434
XGH3 + XB2	4595



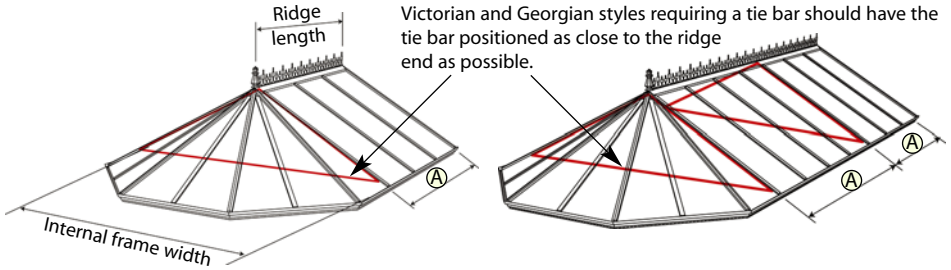
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	2106
XVH2	2246
XVH3	2400
XVH4	2808
XVH3 + XB2	3481



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	1600	1000	200	200	15° to 24.9°
	2500	1600	1000	200	25° to 35°
Max. between tie bars	3200	2800	2500	2300	ALL

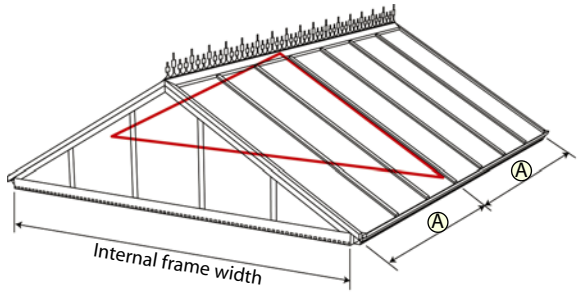


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	3200	2800	2500	2300	ALL



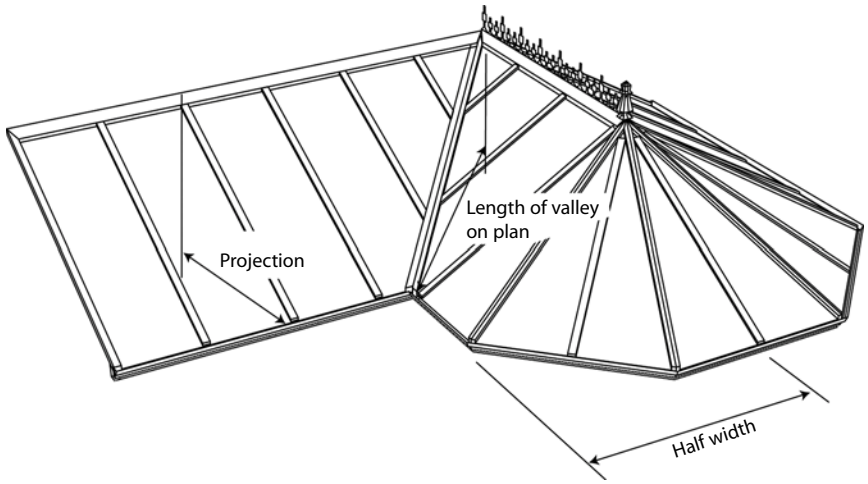
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3400
Maximum valley plan length	4000

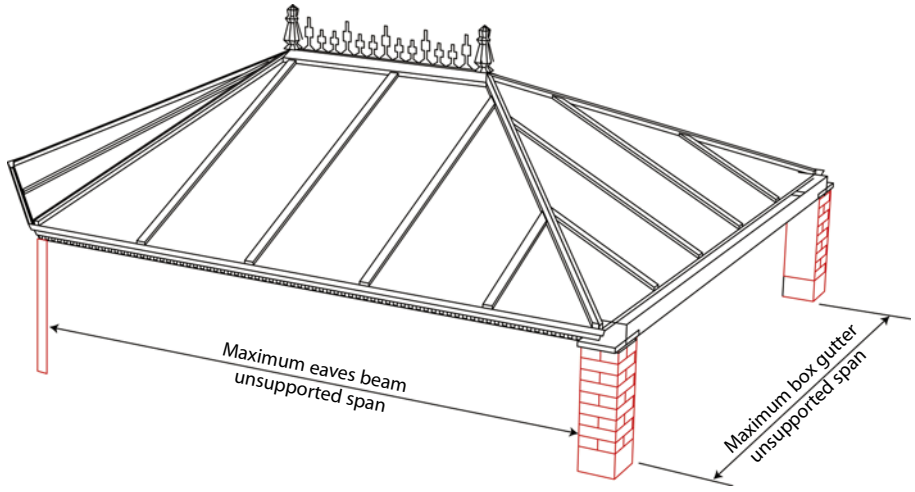


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1679
Box Gutter	3014



4mm Glass Unit 1.0kN/m² Load Tables

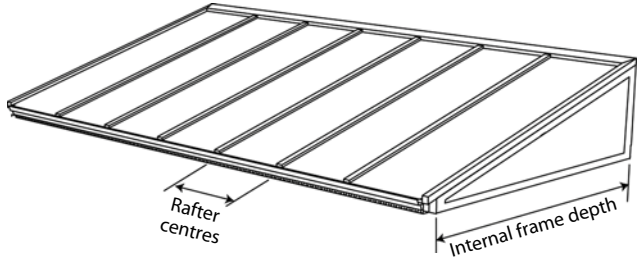
Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	1793	1857	1931	2017	2122	2253
XT2	1980	2050	2131	2227	2342	2486
XT3	2164	2240	2328	2432	2557	2713
XT4	2652	2743	2849	2972	3120	3303
XT3 + XB2	4599	4756	4937	5149	5200	5200

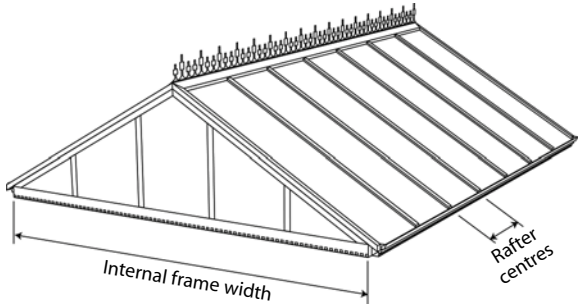
Duo pitch Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	3586	3714	3862	4034	4244	4506
XT2	3960	4100	4262	4454	4684	4972
XT3	4328	4480	4656	4864	5114	5426
XT4	5304	5486	5698	5944	6000	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Lean to internal frame depth (mm)

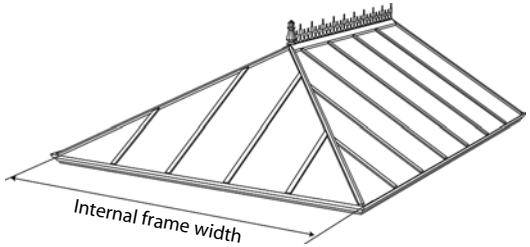


Maximum Duo pitch internal frame width (mm)



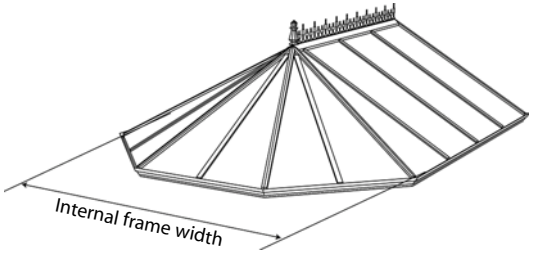
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	3030
XGH2	3260
XGH3	3840
XGH4	4440
XGH3 + XB2	4440



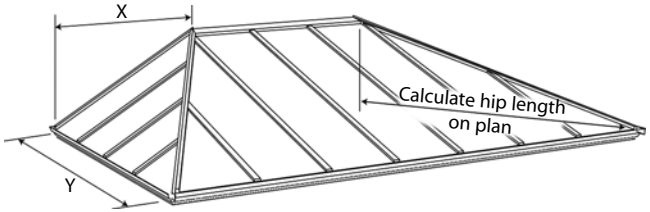
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	3805
XVH2	4060
XVH3	4335
XVH4	4835
XVH3 + XB2	5660



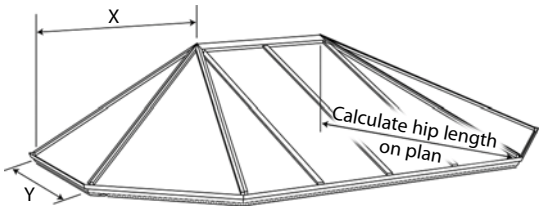
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2486
XGH2	2651
XGH3	2828
XGH4	3191
XGH3 + XB2	4405



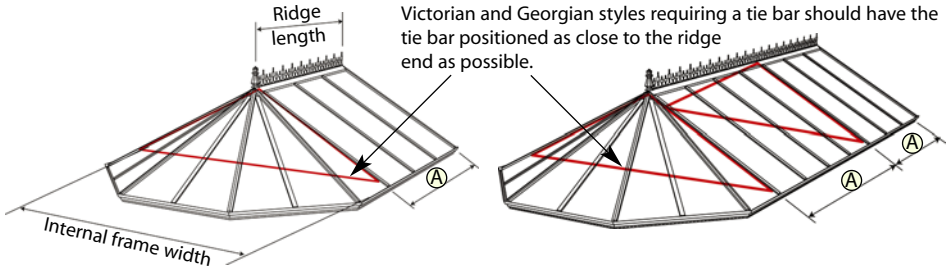
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	2016
XVH2	2150
XVH3	2297
XVH4	2554
XVH3 + XB2	3336



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	800	200	200	200	15° to 24.9°
	1800	800	200	200	25° to 35°
Max. between tie bars	3000	2600	2300	2100	ALL

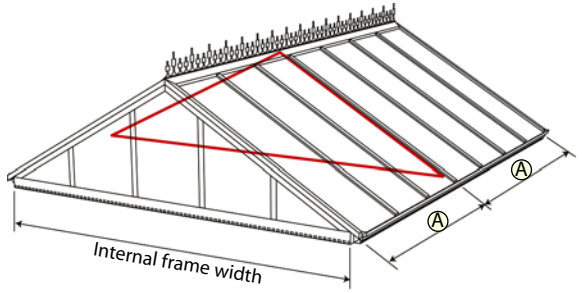


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	3000	2600	2300	2100	ALL



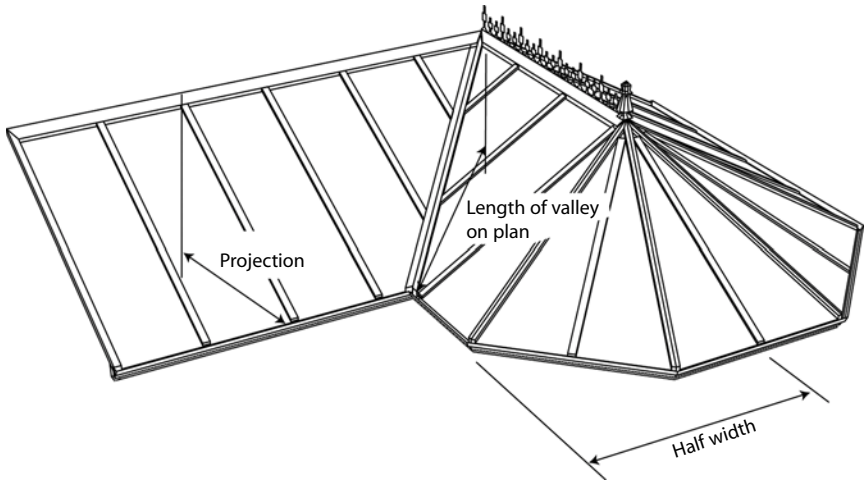
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3200
Maximum valley plan length	3800

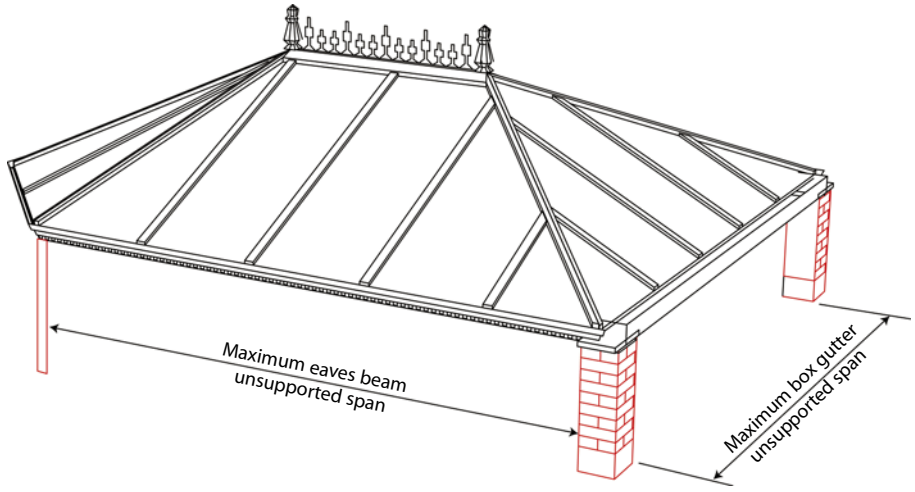


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1540
Box Gutter	2847



4mm Glass Unit 1.2kN/m² Load Tables

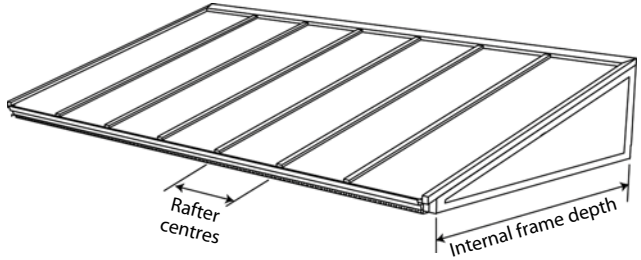
Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	1752	1846	1942	2030	2135	2268
XT2	1884	1951	2028	2119	2229	2367
XT3	2059	2132	2216	2315	2435	2584
XT4	2527	2614	2715	2833	2976	3152
XT3 + XB2	4382	4533	4707	4911	5155	5200

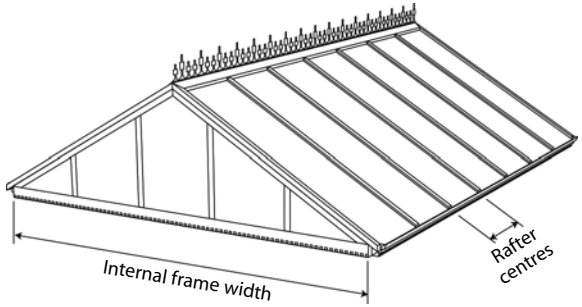
Duo pitch Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	3504	3692	3884	4060	4270	4536
XT2	3768	3902	4056	4238	4458	4734
XT3	4118	4264	4432	4630	4870	5168
XT4	5054	5228	5430	5666	5952	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Lean to internal frame depth (mm)

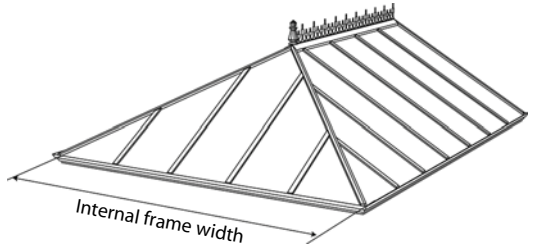


Maximum Duo pitch internal frame width (mm)



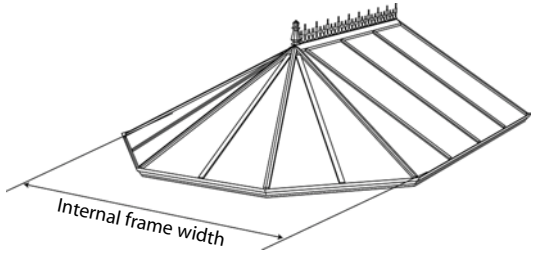
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	2830
XGH2	3045
XGH3	3590
XGH4	4150
XGH3 + XB2	4150



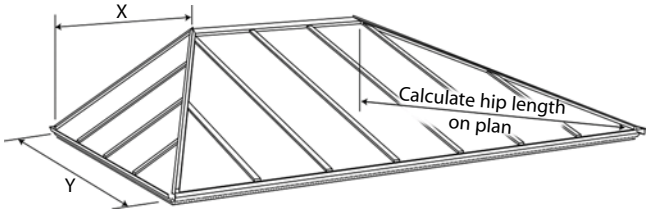
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	3590
XVH2	3830
XVH3	4090
XVH4	4560
XVH3 + XB2	5340



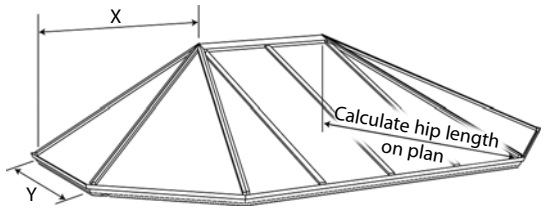
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2395
XGH2	2554
XGH3	2725
XGH4	3077
XGH3 + XB2	4248



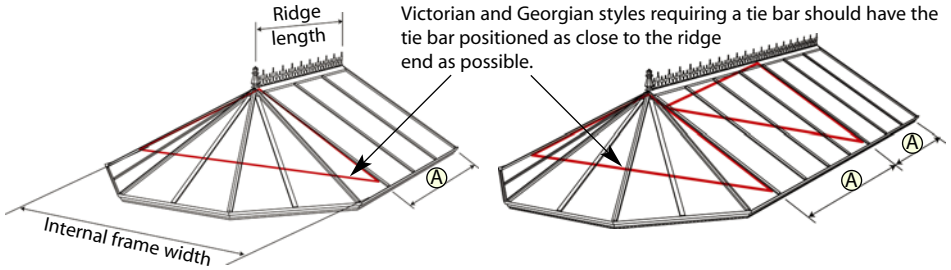
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	1942
XVH2	2071
XVH3	2213
XVH4	2462
XVH3 + XB2	3218



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	200	200	200	200	15° to 24.9°
	1000	200	200	200	25° to 35°
Max. between tie bars	2800	2400	2100	1900	ALL

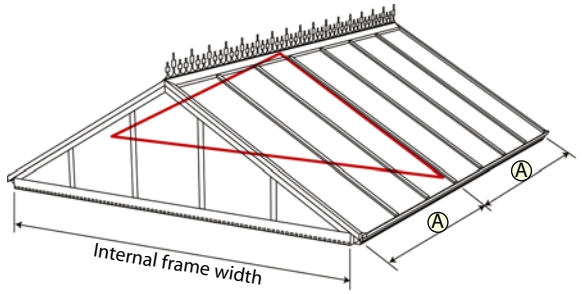


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	2800	2400	2100	1900	ALL



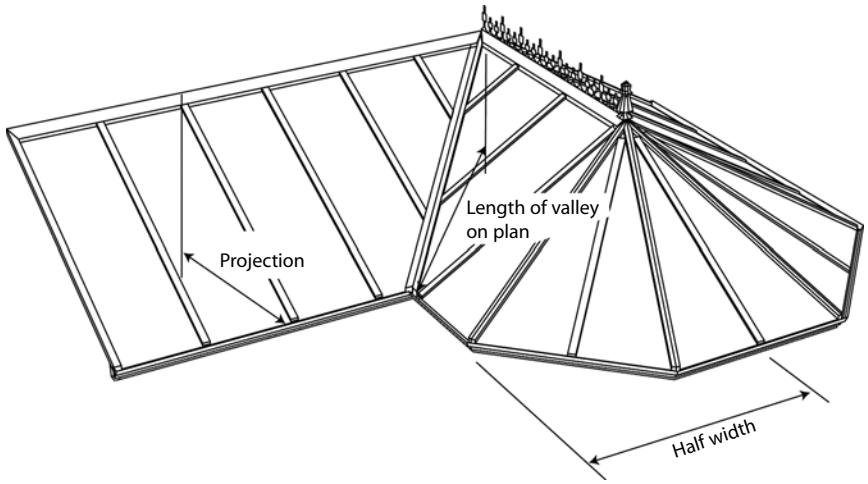
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3050
Maximum valley plan length	3600

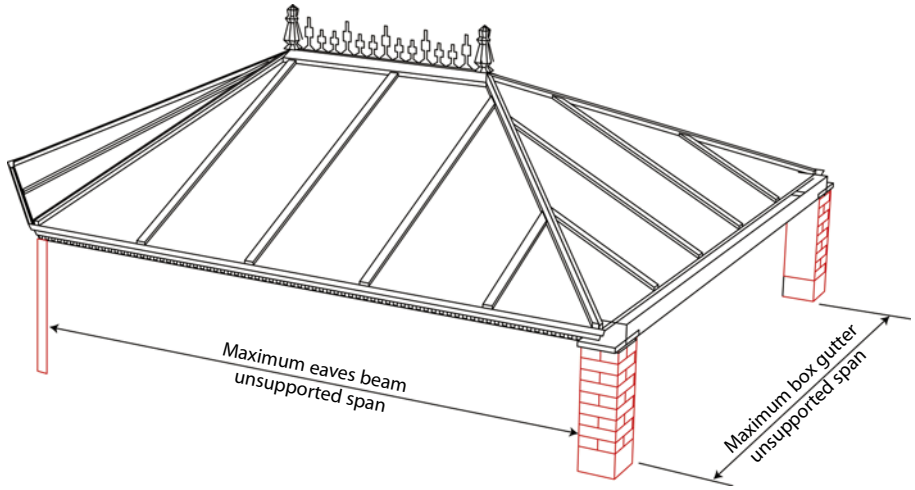


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1430
Box Gutter	2700



4mm Glass Unit 1.4kN/m² Load Tables

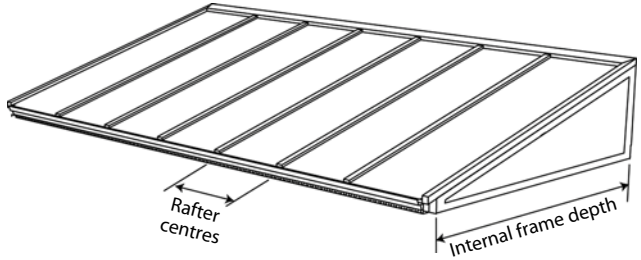
Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	1623	1692	1759	1839	1935	2054
XT2	1804	1868	1942	2030	2136	2267
XT3	1972	2042	2123	2218	2333	2476
XT4	2422	2506	2603	2717	2854	3024
XT3 + XB2	4202	4347	4514	4711	4947	5200

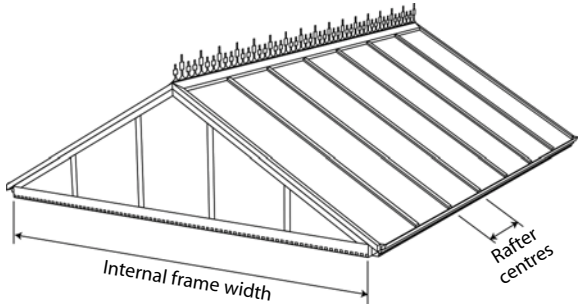
Duo pitch Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	3246	3384	3518	3678	3870	4108
XT2	3608	3736	3884	4060	4272	4534
XT3	3944	4084	4246	4436	4666	4952
XT4	4844	5012	5206	5434	5708	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Lean to internal frame depth (mm)

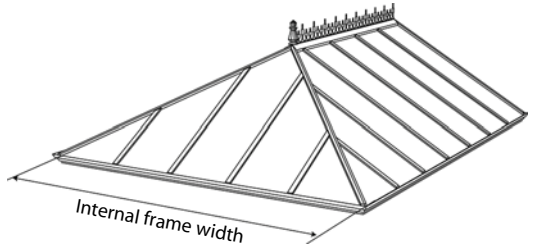


Maximum Duo pitch internal frame width (mm)



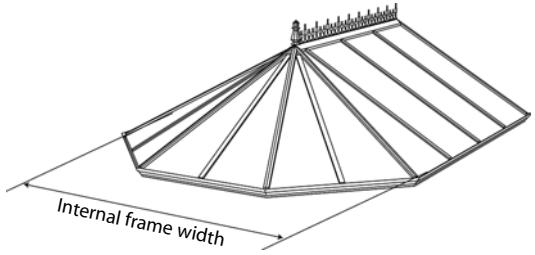
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	2225
XGH2	2845
XGH3	3355
XGH4	3875
XGH3 + XB2	3875



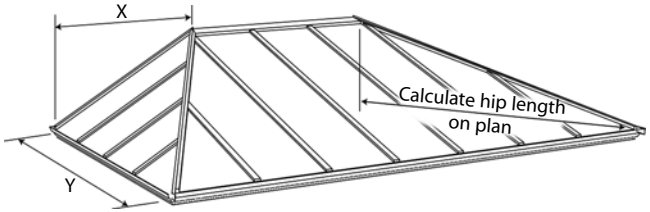
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	3390
XVH2	3615
XVH3	3860
XVH4	4300
XVH3 + XB2	5040



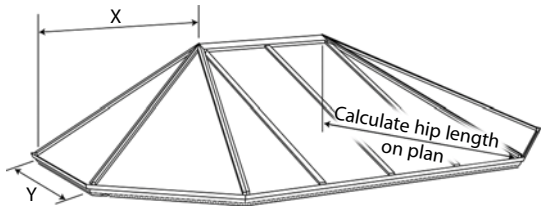
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2319
XGH2	2472
XGH3	2639
XGH4	2980
XGH3 + XB2	4116



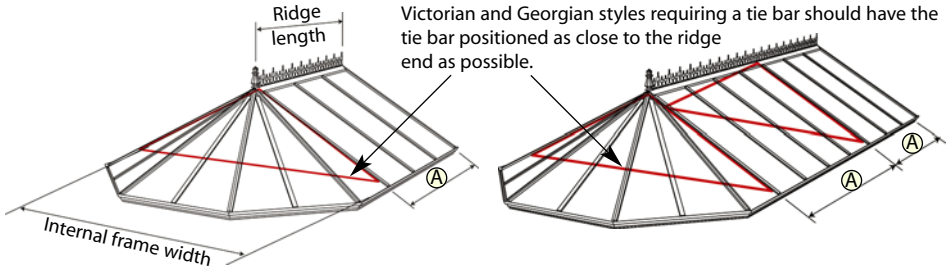
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	1880
XVH2	2005
XVH3	2143
XVH4	2385
XVH3 + XB2	3118



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	200	200	200	200	15° to 24.9°
	200	200	200	200	25° to 35°
Max. between tie bars	2600	2200	2000	1800	ALL

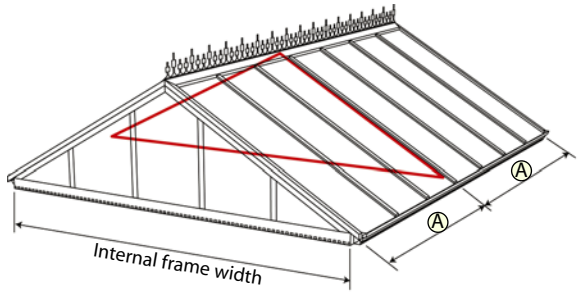


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	2600	2200	2000	1800	ALL



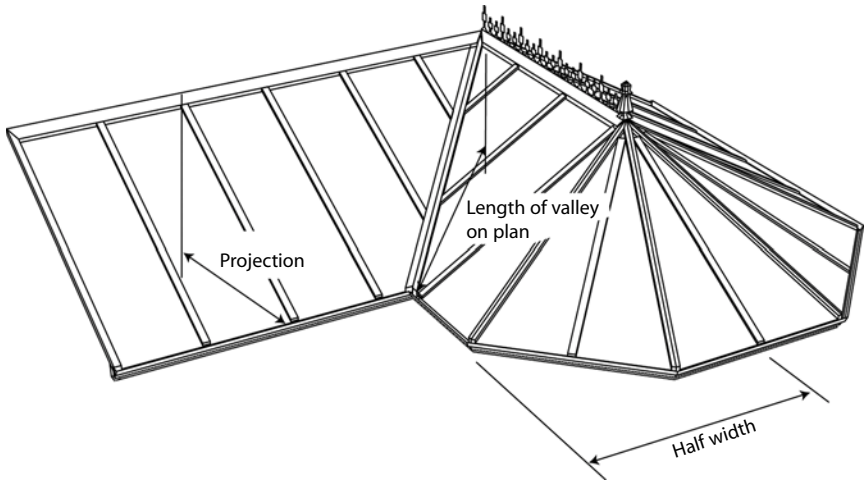
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	2900
Maximum valley plan length	3400

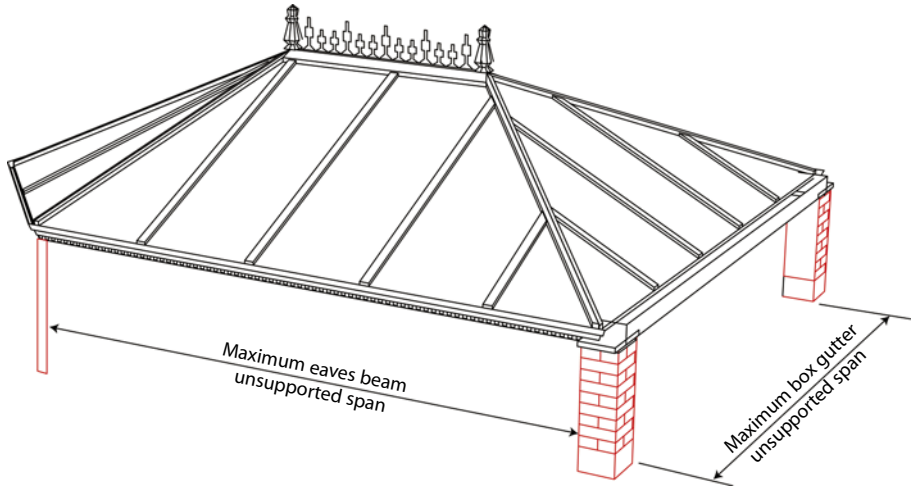


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1342
Box Gutter	2599



6mm Glass Unit 0.6kN/m² Load Tables

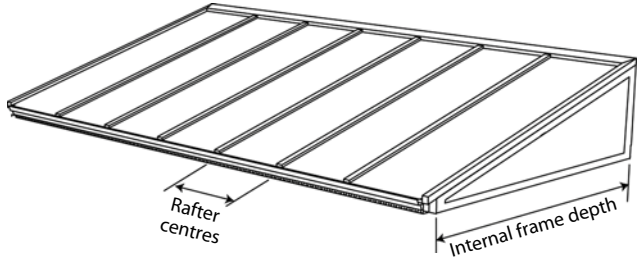
Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	1988	2059	2140	2236	2352	2496
XT2	2195	2272	2362	2467	2594	2753
XT3	2397	2481	2578	2693	2831	3002
XT4	2926	3025	3140	3273	3433	3630
XT3 + XB2	5079	5200	5200	5200	5200	5200

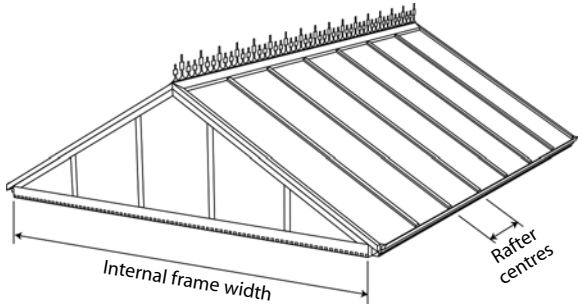
Duo pitch Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	3976	4118	4280	4472	4704	4992
XT2	4390	4544	4724	4934	5188	5506
XT3	4794	4962	5156	5386	5662	6000
XT4	5852	6000	6000	6000	6000	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Lean to internal frame depth (mm)

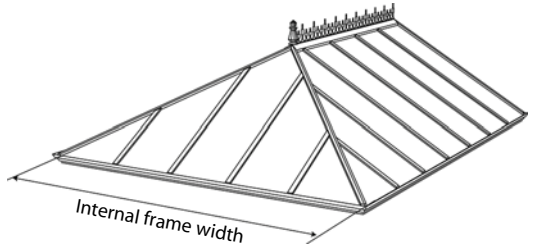


Maximum Duo pitch internal frame width (mm)



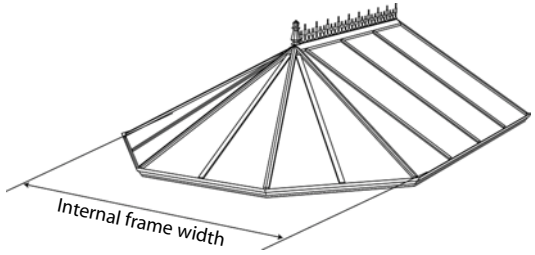
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	3462
XGH2	3724
XGH3	4320
XGH4	4750
XGH3 + XB2	4750



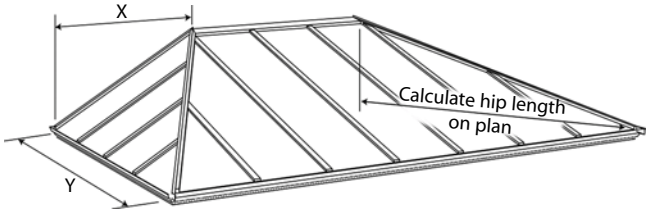
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	4175
XVH2	4450
XVH3	4750
XVH4	5308
XVH3 + XB2	6000



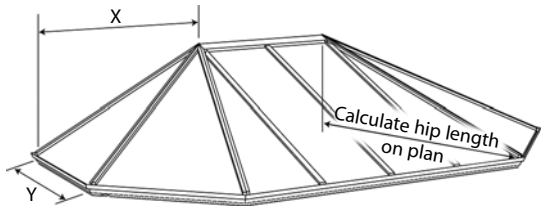
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2686
XGH2	2863
XGH3	3054
XGH4	3546
XGH3 + XB2	4745



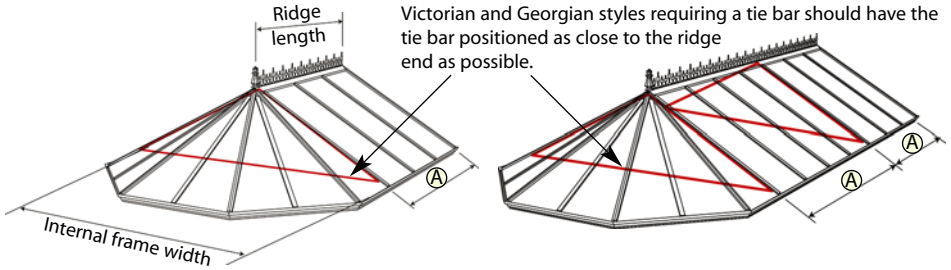
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	2178
XVH2	2323
XVH3	2481
XVH4	2755
XVH3 + XB2	3594



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	1800	1000	200	200	15° to 24.9°
	2400	1800	1000	200	25° to 35°
Max. between tie bars	3500	3000	2700	2500	ALL

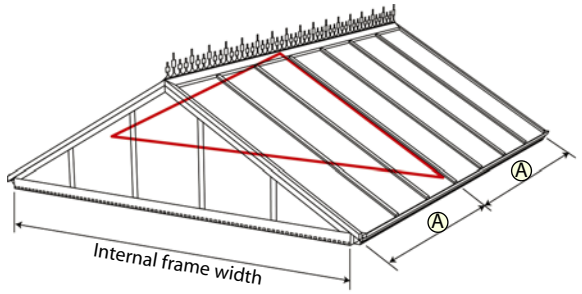


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	3500	3000	2700	2500	ALL



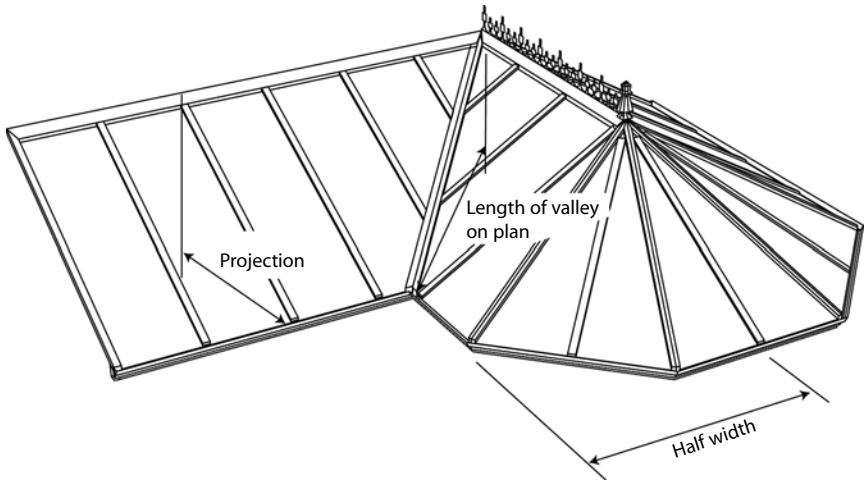
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3400
Maximum valley plan length	4000

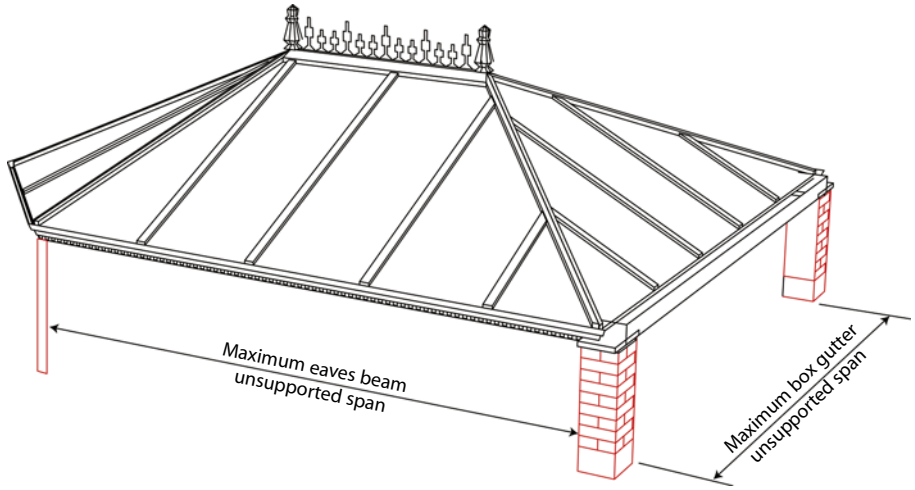


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1793
Box Gutter	3148



6mm Glass Unit 0.8kN/m² Load Tables

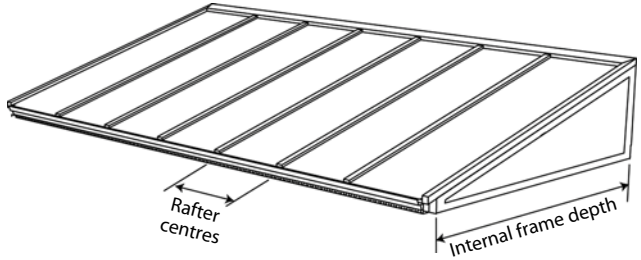
Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	1861	1927	2003	2093	2202	2338
XT2	2055	2127	2211	2310	2430	2579
XT3	2245	2324	2415	2523	2652	2814
XT4	2745	2839	2947	3074	3225	3414
XT3 + XB2	4767	4929	5115	5200	5200	5200

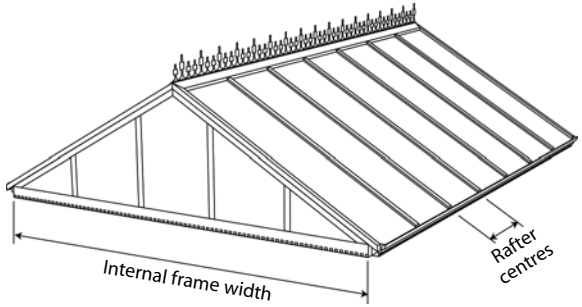
Duo pitch Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	3722	3854	4006	4186	4404	4676
XT2	4110	4254	4422	4620	4860	5158
XT3	4490	4648	4830	5046	5304	5628
XT4	5490	5678	5894	6000	6000	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Lean to internal frame depth (mm)

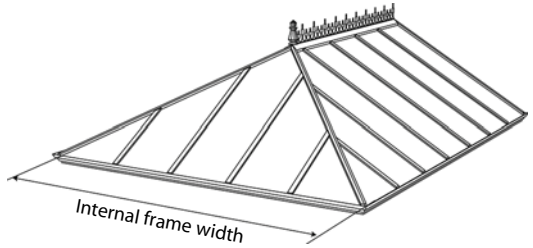


Maximum Duo pitch internal frame width (mm)



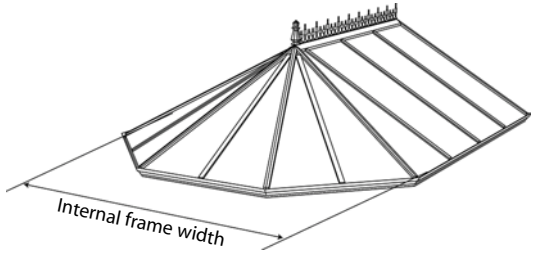
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	3241
XGH2	3486
XGH3	4113
XGH4	4500
XGH3 + XB2	4500



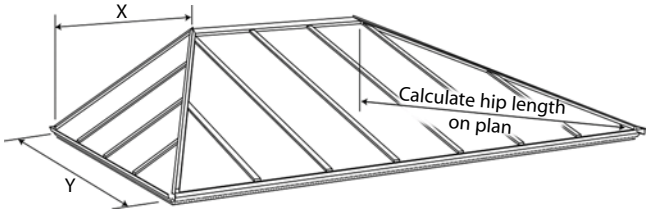
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	3970
XVH2	4234
XVH3	4523
XVH4	5049
XVH3 + XB2	6000



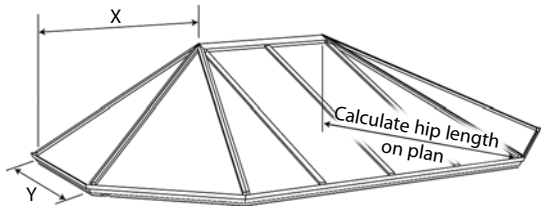
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2556
XGH2	2725
XGH3	2908
XGH4	3381
XGH3 + XB2	4525



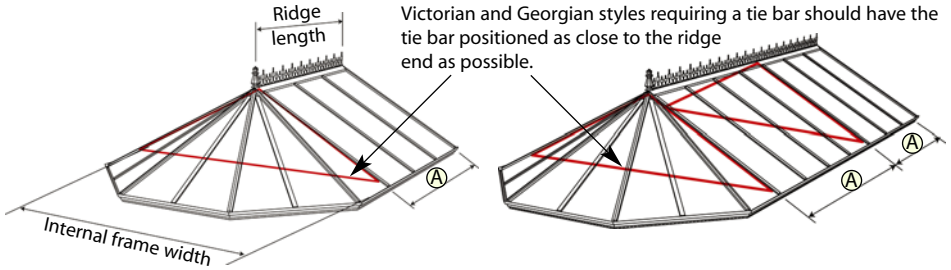
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	2073
XVH2	2211
XVH3	2361
XVH4	2625
XVH3 + XB2	3427



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	1400	800	200	200	15° to 24.9°
	2200	1400	800	200	25° to 35°
Max. between tie bars	3100	2700	2400	2200	ALL

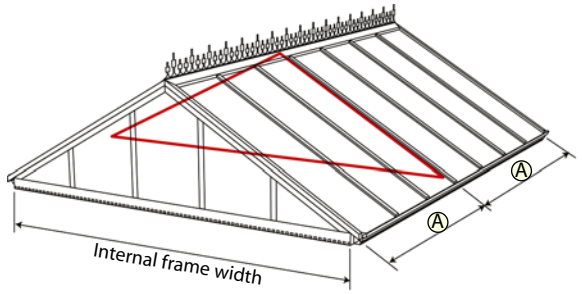


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	3100	2700	2400	2200	ALL



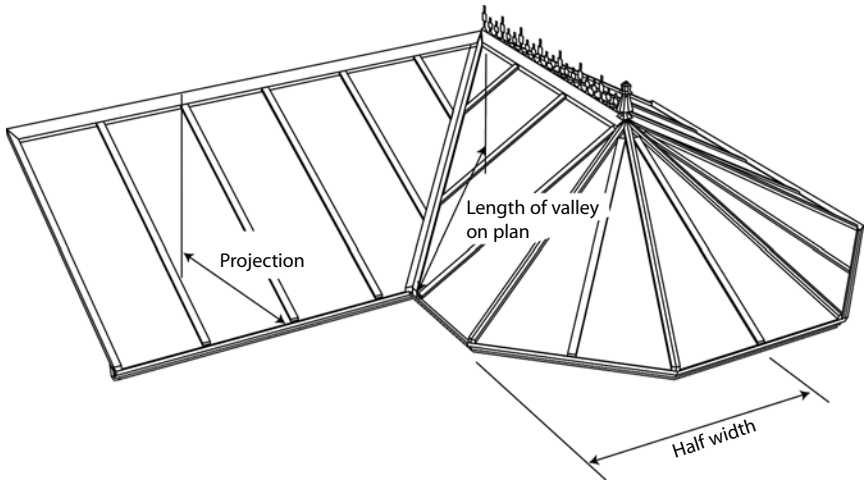
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3200
Maximum valley plan length	3800

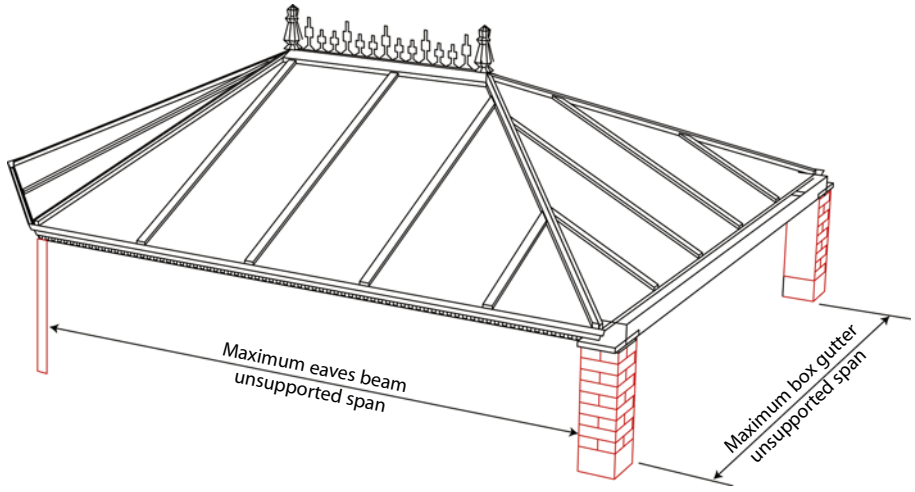


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1626
Box Gutter	2952



6mm Glass Unit 1.0kN/m² Load Tables

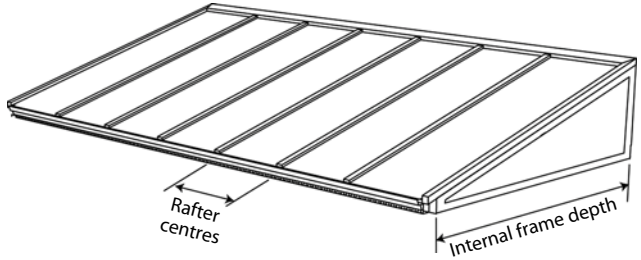
Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	1761	1824	1896	1981	2084	2213
XT2	1945	2013	2093	2187	2301	2442
XT3	2125	2200	2287	2389	2512	2666
XT4	2601	2691	2795	2916	3062	3242
XT3 + XB2	4519	4674	4852	5062	5200	5200

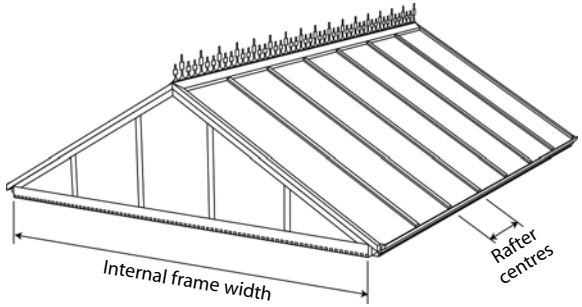
Duo pitch Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	3522	3648	3792	3962	4168	4426
XT2	3890	4026	4186	4374	4602	4884
XT3	4250	4400	4574	4778	5024	5332
XT4	5202	5382	5590	5832	6000	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Lean to internal frame depth (mm)

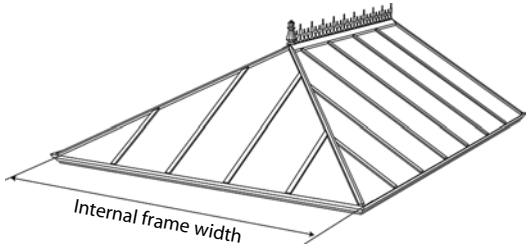


Maximum Duo pitch internal frame width (mm)



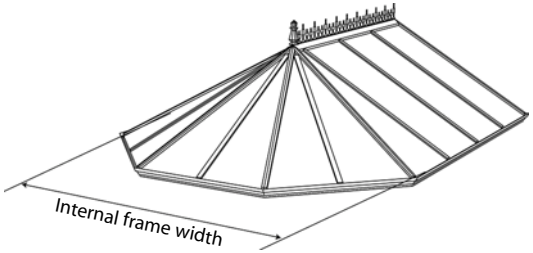
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	3055
XGH2	3290
XGH3	3880
XGH4	4245
XGH3 + XB2	4245



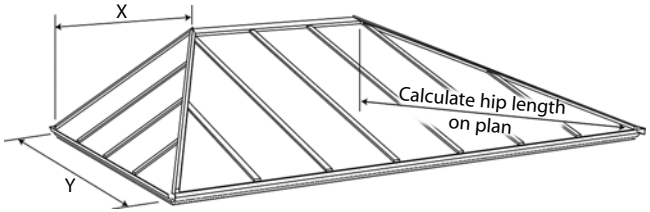
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	3745
XVH2	3995
XVH3	4265
XVH4	4765
XVH3 + XB2	5660



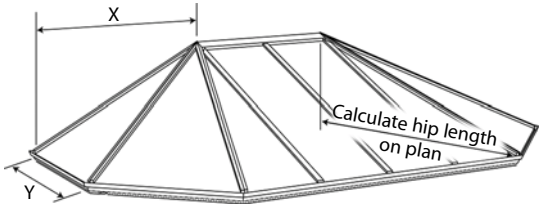
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2453
XGH2	2615
XGH3	2791
XGH4	3248
XGH3 + XB2	4348



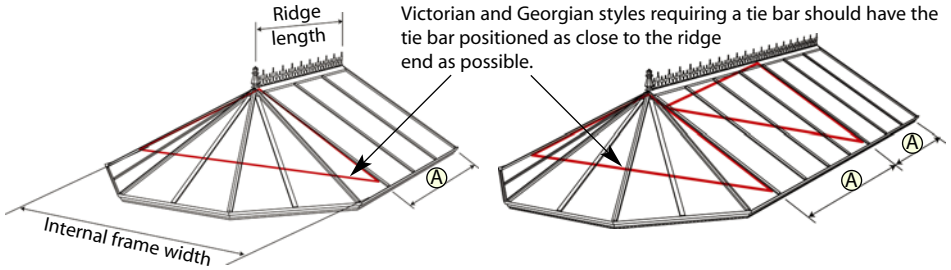
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	1989
XVH2	2121
XVH3	2266
XVH4	2520
XVH3 + XB2	3293



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	800	200	200	200	15° to 24.9°
	1400	800	200	200	25° to 35°
Max. between tie bars	2900	2500	2200	2000	ALL

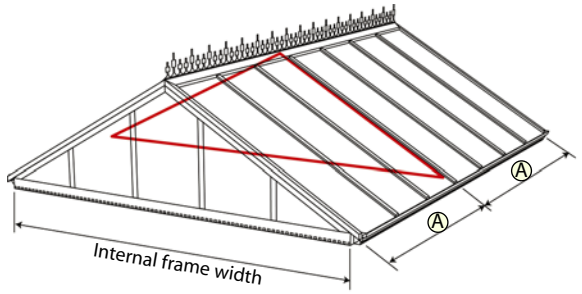


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	2900	2500	2200	2000	ALL



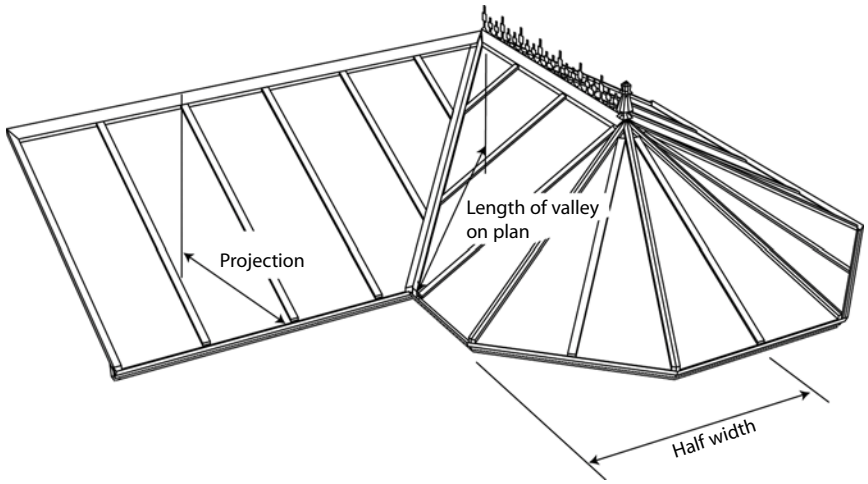
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	3050
Maximum valley plan length	3400

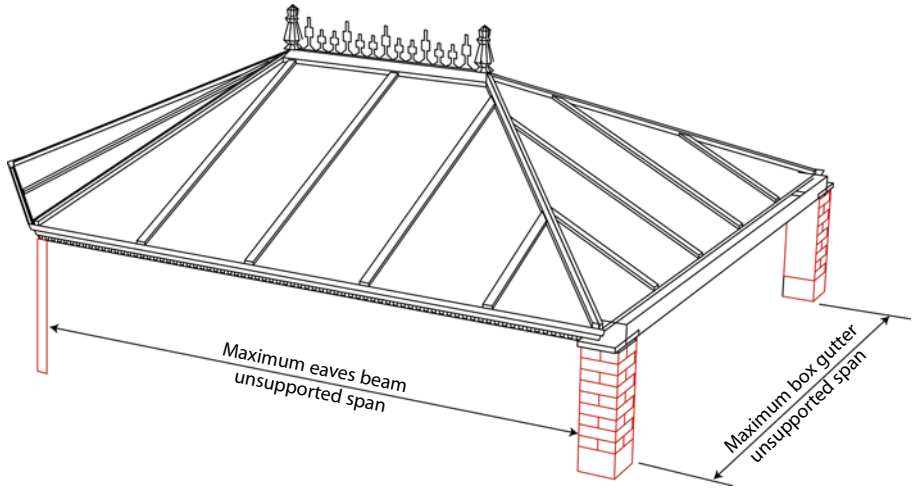


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1499
Box Gutter	2798



6mm Glass Unit 1.2kN/m² Load Tables

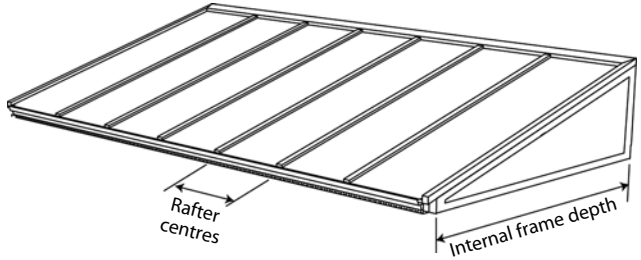
Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	1680	1739	1808	1890	1989	2112
XT2	1855	1921	1997	2087	2195	2330
XT3	2027	2099	2182	2279	2397	2544
XT4	2484	2570	2669	2786	2926	3100
XT3 + XB2	4316	4465	4636	4838	5079	5200

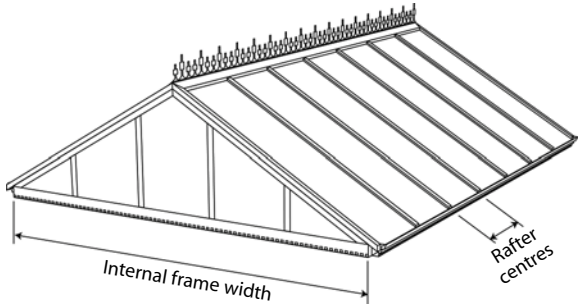
Duo pitch Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	3360	3478	3616	3780	3978	4224
XT2	3710	3842	3994	4174	4390	4660
XT3	4054	4198	4364	4558	4758	5088
XT4	4968	5140	5338	5572	5852	6000
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Lean to internal frame depth (mm)

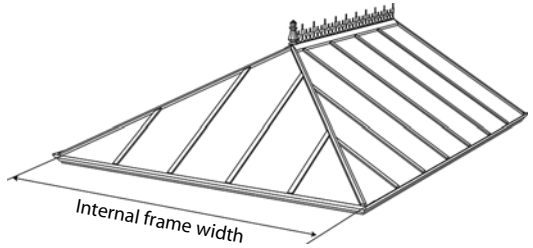


Maximum Duo pitch internal frame width (mm)



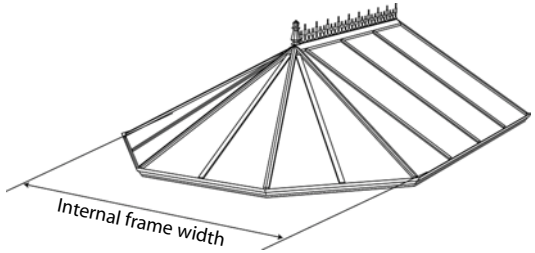
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	2882
XGH2	3100
XGH3	3660
XGH4	4000
XGH3 + XB2	4000



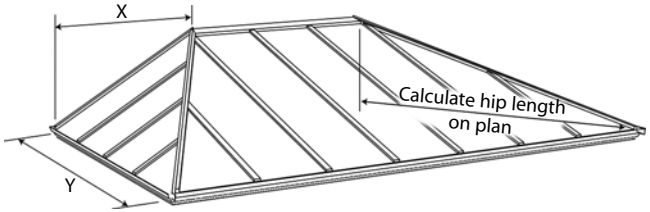
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	3533
XVH2	3770
XVH3	4025
XVH4	4495
XVH3 + XB2	5340



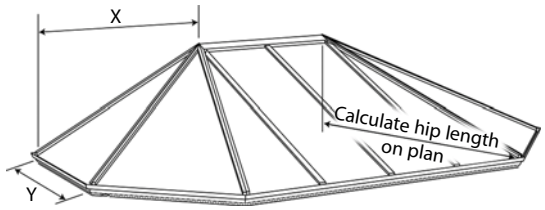
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2367
XGH2	2524
XGH3	2694
XGH4	3138
XGH3 + XB2	4200



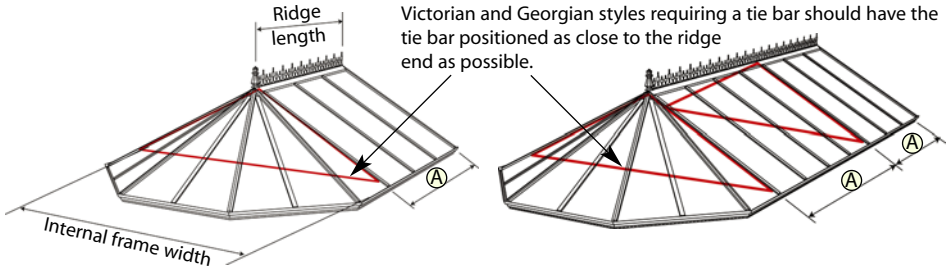
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	1919
XVH2	2047
XVH3	2188
XVH4	2434
XVH3 + XB2	3181



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	200	200	200	200	15° to 24.9°
	800	200	200	200	25° to 35°
Max. between tie bars	2700	2300	2100	1900	ALL

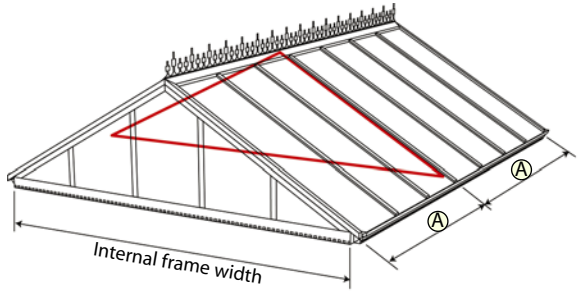


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	2700	2300	2100	1900	ALL



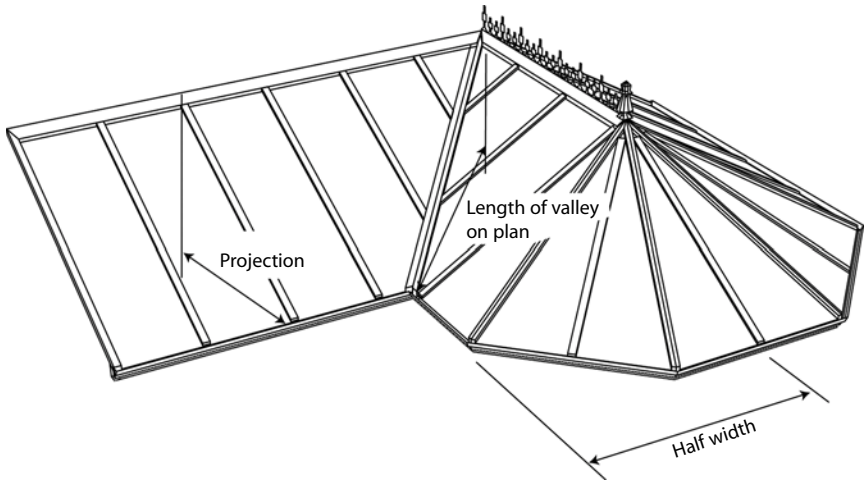
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	2900
Maximum valley plan length	3200

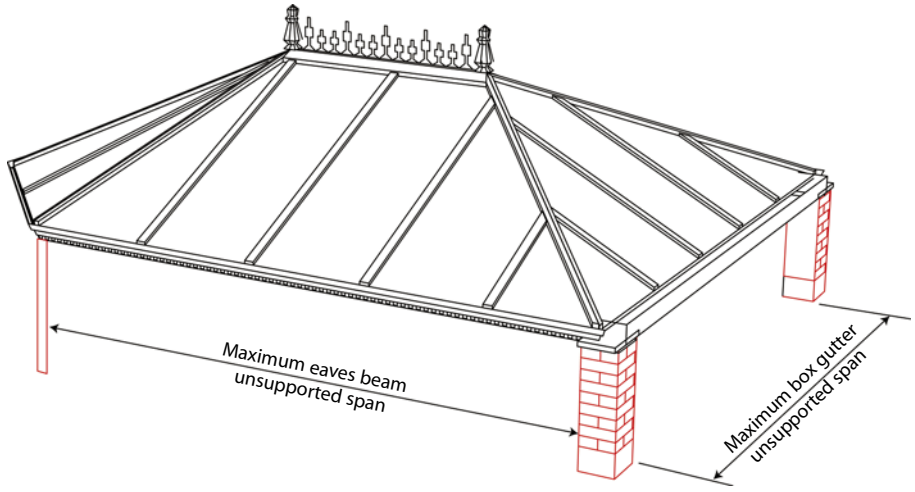


Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

Eaves Beam	1398
Box Gutter	2671



6mm Glass Unit 1.4kN/m² Load Tables

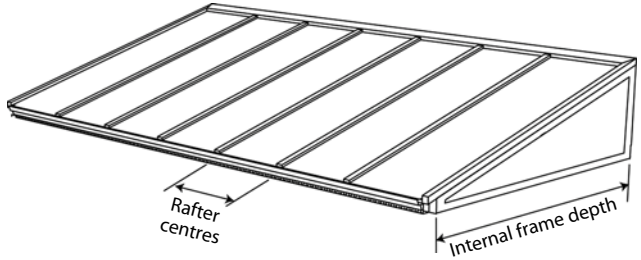
Lean to Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	1590	1669	1735	1813	1908	2026
XT2	1780	1843	1916	2002	2107	2237
XT3	1945	2014	2094	2188	2301	2443
XT4	2385	2468	2564	2676	2812	2980
XT3 + XB2	4146	4289	4454	4649	4882	5171

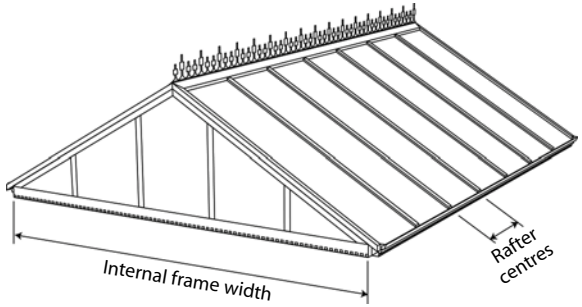
Duo pitch Rafter Spacings

Rafter type	1000	900	800	700	600	500
XT1	3180	3338	3470	3626	3816	4052
XT2	3560	3686	3832	4004	4214	4474
XT3	3890	4028	4188	4376	4602	4886
XT4	4770	4936	5128	5352	5624	5960
XT3 + XB2	6000	6000	6000	6000	6000	6000

Maximum Lean to internal frame depth (mm)

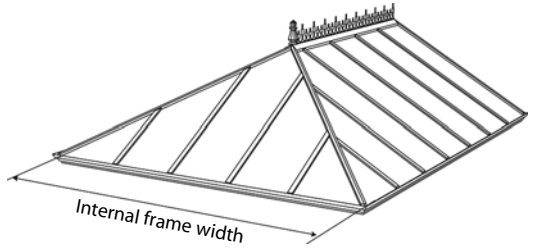


Maximum Duo pitch internal frame width (mm)



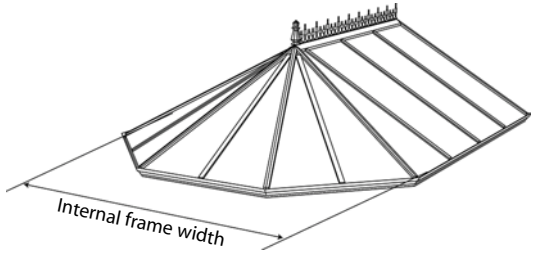
Maximum Georgian internal frame width (mm)

Rafter type	
XGH1	2720
XGH2	3925
XGH3	3450
XGH4	3775
XGH3 + XB2	3775



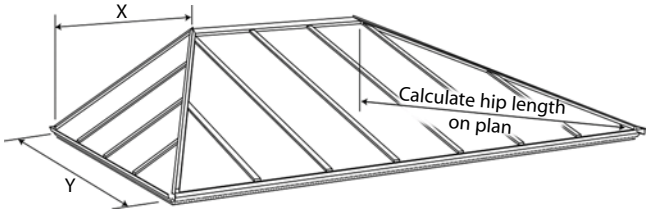
Maximum Victorian internal frame width (mm)

Rafter type	
XVH1	3335
XVH2	3555
XVH3	3800
XVH4	4240
XVH3 + XB2	5035



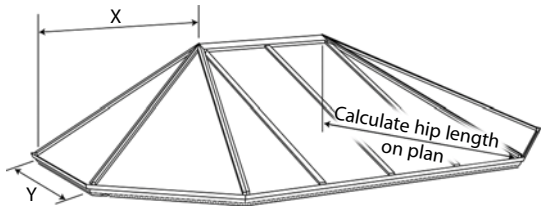
Maximum Georgian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XGH1	2295
XGH2	2447
XGH3	2612
XGH4	3045
XGH3 + XB2	4075



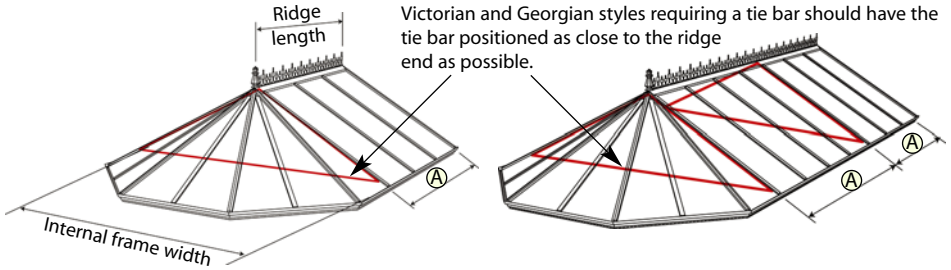
Maximum Victorian hip length (on plan) for hip ended lean to (mm)

Rafter type	
XVH1	1861
XVH2	1985
XVH3	2121
XVH4	2361
XVH3 + XB2	3086



Tie Bar requirements for Victorian and Georgian Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. Ridge Length without tie bars (mm)	200	200	200	200	15° to 24.9°
	200	200	200	200	25° to 35°
Max. between tie bars	2500	2200	1900	1800	ALL

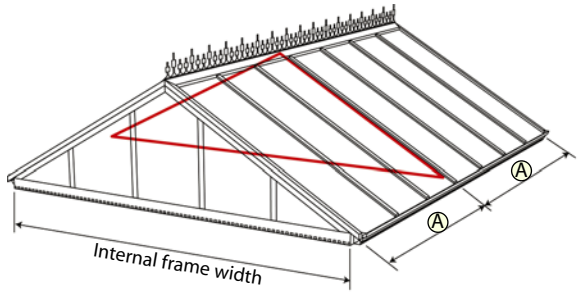


Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Tie Bar requirements for Gable Styles

Internal Frame Width	Up to 3000	3001-4000	4001-5000	5001-6000	Roof Pitch
Max. between tie bars	2500	2200	1900	1800	ALL



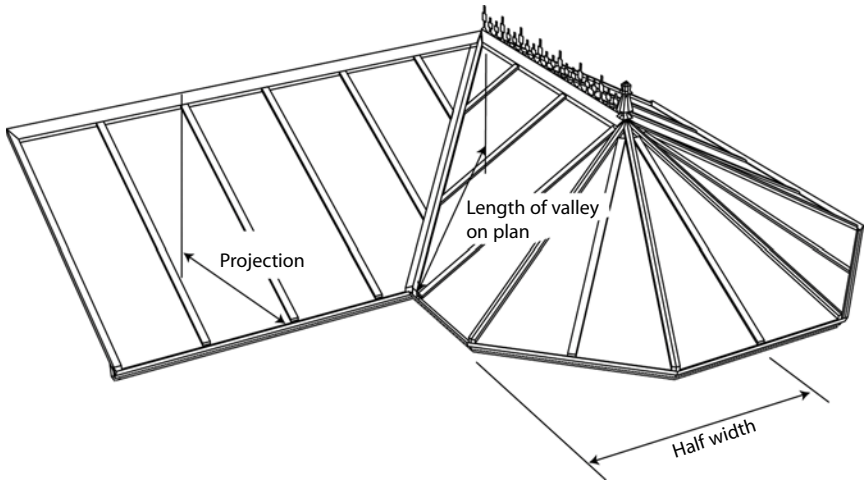
Ⓐ = Maximum distance between tie bars.

Note: for design purposes the house wall is considered to be a tie bar

Maximum length of valley on plan (mm)

Calculate the plan length of the valley using the projection of the lean to and the Victorian half width.

Maximum Lean to Projection	2750
Maximum valley plan length	3050

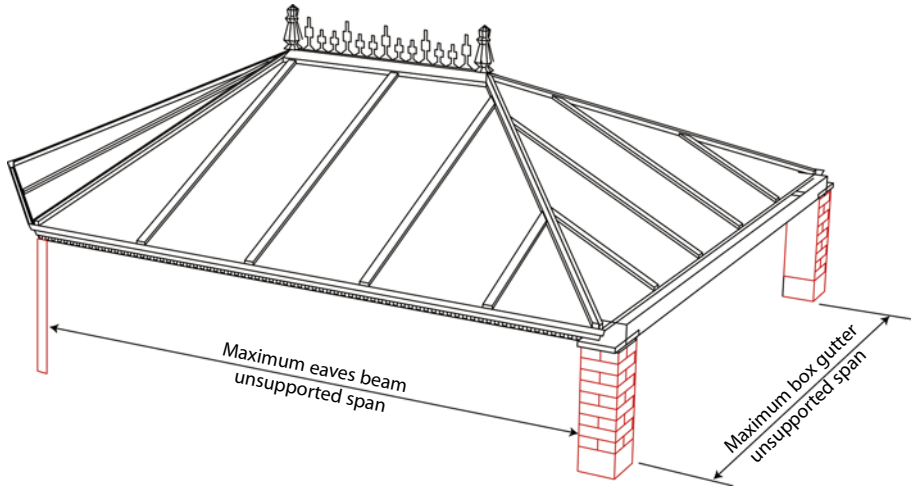


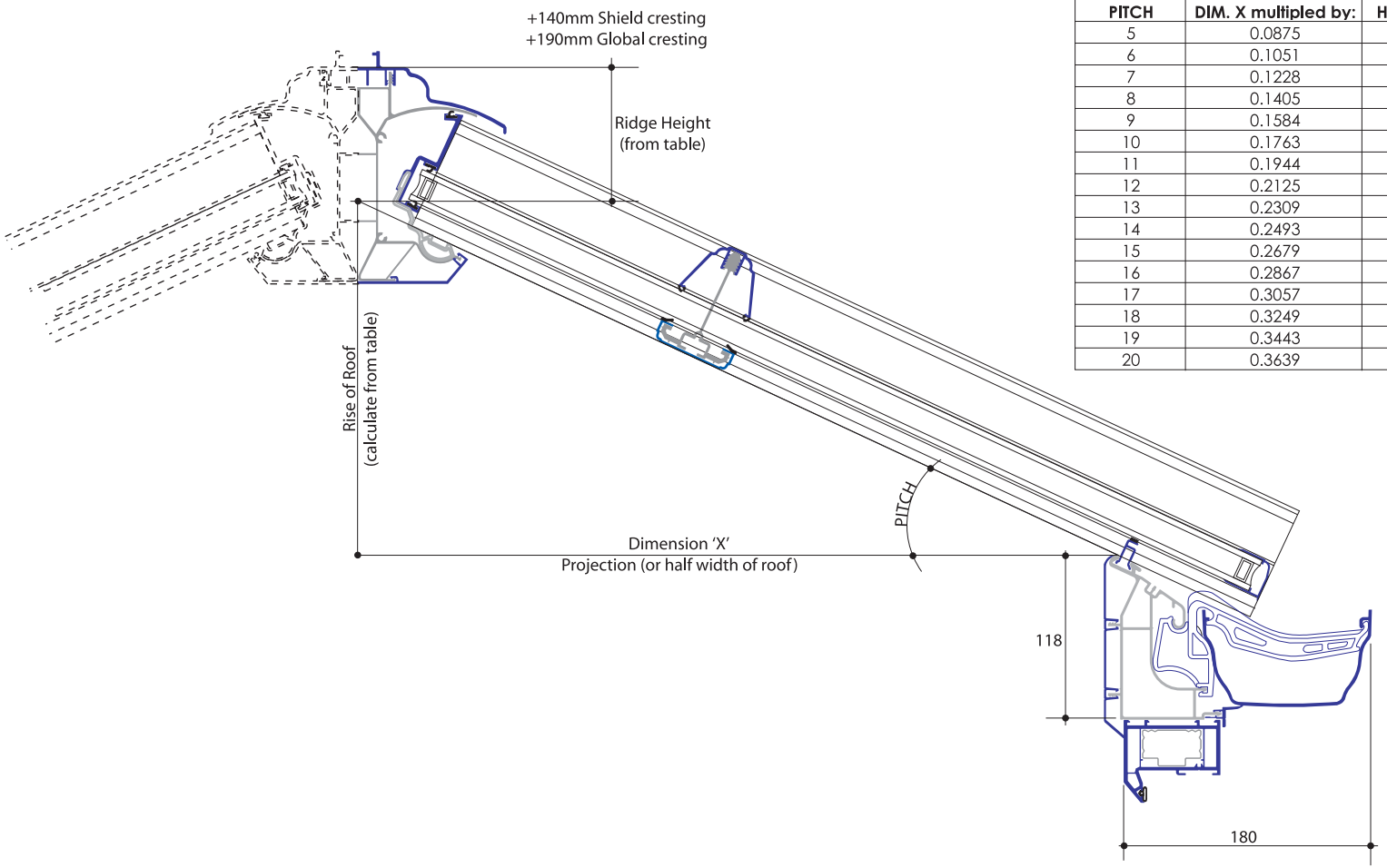
Maximum span of eaves beam and box gutter between supports (mm)

The eaves beam and box gutter must be supported at both ends, this can be achieved using brick piers, frame couplings, corner posts etc.

The maximum span of the eaves beam and box gutter between supports is as follows:

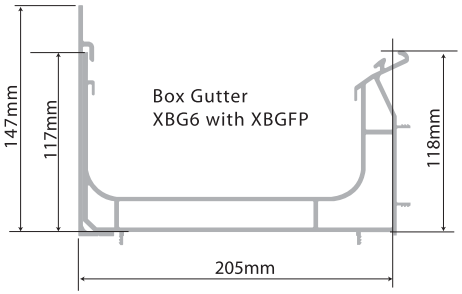
Eaves Beam	1314
Box Gutter	2564





ROOF PITCH	RISE OF ROOF DIM. X multipled by:	RIDGE HEIGHT (mm)
5	0.0875	119
6	0.1051	118
7	0.1228	117
8	0.1405	116
9	0.1584	115
10	0.1763	114
11	0.1944	113
12	0.2125	112
13	0.2309	111
14	0.2493	110
15	0.2679	109
16	0.2867	108
17	0.3057	107
18	0.3249	106
19	0.3443	104
20	0.3639	102

ROOF PITCH	RISE OF ROOF DIM. X multipled by:	RIDGE HEIGHT (mm)
21	0.3839	101
22	0.4041	99
23	0.4245	98
24	0.4452	97
25	0.4663	96
26	0.4877	95
27	0.5095	94
28	0.5317	92
29	0.5543	90
30	0.5773	88
31	0.6009	87
32	0.6249	86
33	0.6494	85
34	0.6745	84
35	0.7002	82



SYNSEAL EXTRUSIONS LIMITED, COMMON ROAD, HUTHWAITE, SUTTON-IN-ASHFIELD, NOTTS. NG17 6AD

TEL: (01623) 443200 FAX: (01623) 443305

www.synseal.co.uk

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