

DATA SHEET

Curved Beams & Arches



Overview

The flexibility of Glulam beams allows for designers' creative imaginations to be realised. Factory made members can be formed into any practical shape and any desired size. It is important to bear in mind that best economics are achieved by using maximum radius, thus permitting thicker laminates (see table - next page)



Cranked Beams - These beams follow the roof pitch on their top edge while the bottom forms a radius curve. Cranked beams taper from the tangent point to a minimum end depth to provide maximum economy. They may be simply supported on timber or concrete posts.

Continuous Curves - Beams curved throughout their length provide consistent shapes for dome roofs and other complex forms. Elliptical or regular curvatures can be achieved. Connection details can be included making for simple on-site assembly.

Complex Curves - Beams that move from straight line into a curved section or from one radius to another; even reverse curves can be easily catered for in glulam beams. The thickness of the laminates will be governed by the tightest curvature. These members enable unique shapes to be formed that would not be possible with other materials.

Inverse Curves - Upward curving beams provide a popular variation and can be made to form inverted arches. These beams can taper through their length to cater for highly stressed areas. Care should be exercised in requesting a continuous lamination on the under surface if this is required for appearance.



Table: Minimum Radius of Curvature

Lamination Thickness (mm)	Member with constant - Radius (mm)	Member with tangent ends – Radius (mm)
10	1400	1200
13	2200	1800
16	3000	2300
19	3800	2800
45	12000	9700

Benefits

Aesthetics - Curved members in natural wood provide a structural system that would otherwise require camouflaging or disguising. Staining Glulam beams can bring added contrast to highlight the chosen ceiling form.

Pre-Fitting - Glulam members can be pre-fitted in factory so that once onsite, the members and their connecting brackets need only to be assembled. Complex angles, raking joints and circular compression ring fittings are all able to be supplied and pre-assembled, saving valuable on-site labour and craneage costs.

Ease of Installation - Light dry, timber beams arrive on site ready for speedy installation. Glulam members are confidently handled by carpenters and subcontractors. They require no specialist erection techniques.

Fire Resistance - For superior fire resistance ratings of Glulam beams see Red Stag TimberLab's Fire Resistance Data Sheet.

