

Bearing Details

The greatest loads to which normal trusses are subjected are the upward forces/reactions from the support through the bearings. Except for very small trusses, the line of action of these forces should be close to the centre of a joint, or a structural penalty, in the form of very large timber sizes, will be incurred owing to large bending moments.

The standard eaves detail (figure 84a) is satisfactory if the shift is not greater than 50mm, or not greater than one third of the scarf length. The 'Alternate' or 'French' heel (figure 84b) is considered in the same way but the key position is where the line of the underside of the rafter intersects the underside of the ceiling tie.

Another point to note is that as a truss ends at a vertical chord, (figure 84c) there is little scope for tolerance on length or verticality.

Where trusses are to be supported off the face of a wall (figure 84d), placing a nib at the heel of the truss is the most common solution. It is good practice to allow a nominal gap between the vertical chord of the truss and the masonry, for constructional tolerance (figure 84e and 84f). Depending on the reaction, and the grade and size of the timber in the bottom chord, a simple extension of the bottom chord may suffice (figure 84e) to form a 'nib'.

Should the bending or shear stress in the nib be excessive the whole joint can be reinforced. (figure 84f). At greater spans it is possible to use the detail in figure 84g to locate the point of intersection of the principle forces vertically over the bearing.

Figure 84a

Standard heel joint

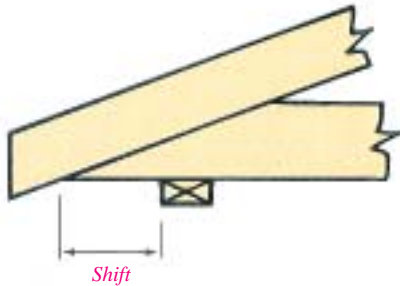


Figure 84b

French heel joint (Girder Heel)

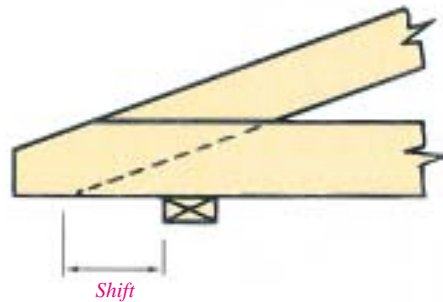


Figure 84c

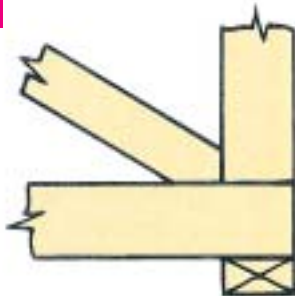


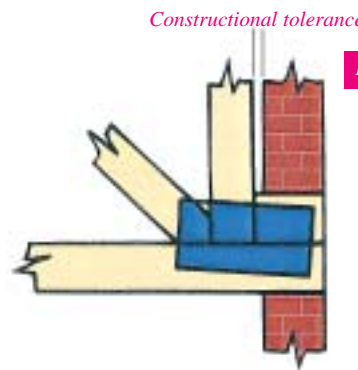
Figure 84d



Figure 84e



Figure 84f

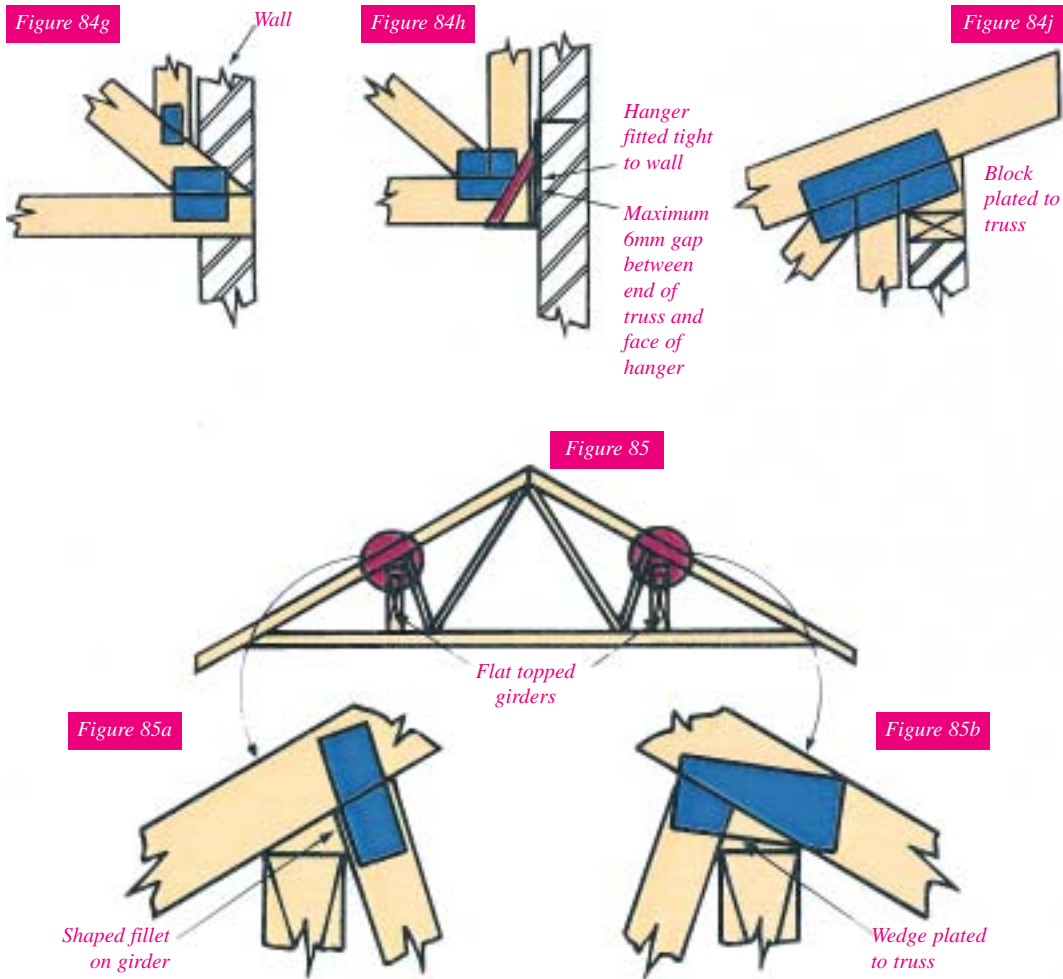


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Consideration should also be given to protecting the timber and fasteners against dampness and aggressive ingredients in the mortar by using a dpc between truss and masonry.

the minimum height of masonry above the hanger flange and the maximum gap between the end of the trusses and the back plate of the hangers. The effect of the eccentric loading on walls loaded in this way should also be assessed.

Trusses can also be supported off the face of a wall by use of suitable hangers. The installation instructions should be noted especially concerning



Top hung fixings (figure 84j) are not common since, at ceiling level, the wall generally needs lateral restraint from the roof against wind and the ceiling ties need to be stabilised.

Flat topped girders supporting trusses (figure 85) can be supplied with a shaped fillet (figure 85a); or trusses may have a wedge or block plated into the joint to provide a horizontal bearing surface (figure 85b).