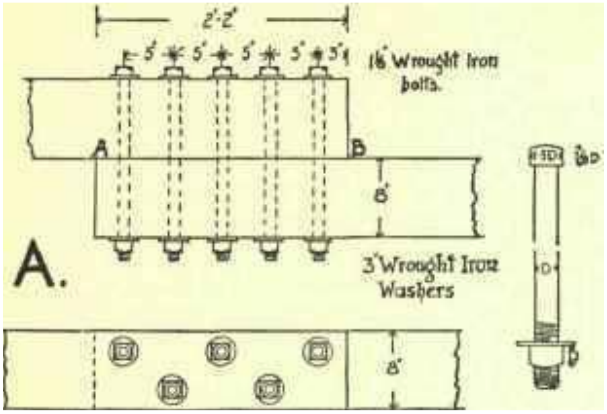
Learning Unit 1 Construct lengthening joints

LO 1.1 Identify types of lengthening joints

1 **Types of lengthening joints**

1.Lapped Joint. - This joint is of a very clumsy appearance, and is only used in work of a temporary nature or in small timber framings hidden from view. It is formed by overlapping the ends of two pieces of timber, and fixing them by means of nails or bolts as at A, or by straps as at B, Fig. 1. Nails are used when the timbers are small. It has been found also in practice that a bolted joint is more suitable for resisting a tensile stress than a strapped joint, the latter being a more satisfactory joint when the timbers are in a state of compression.



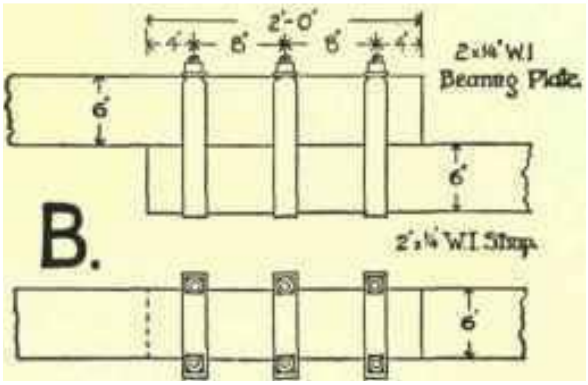
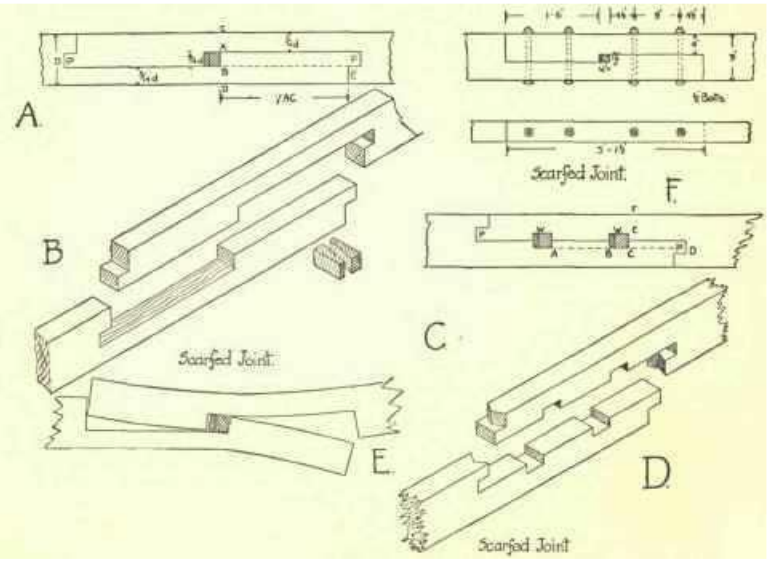


Figure 1. Labbed Joint Botted

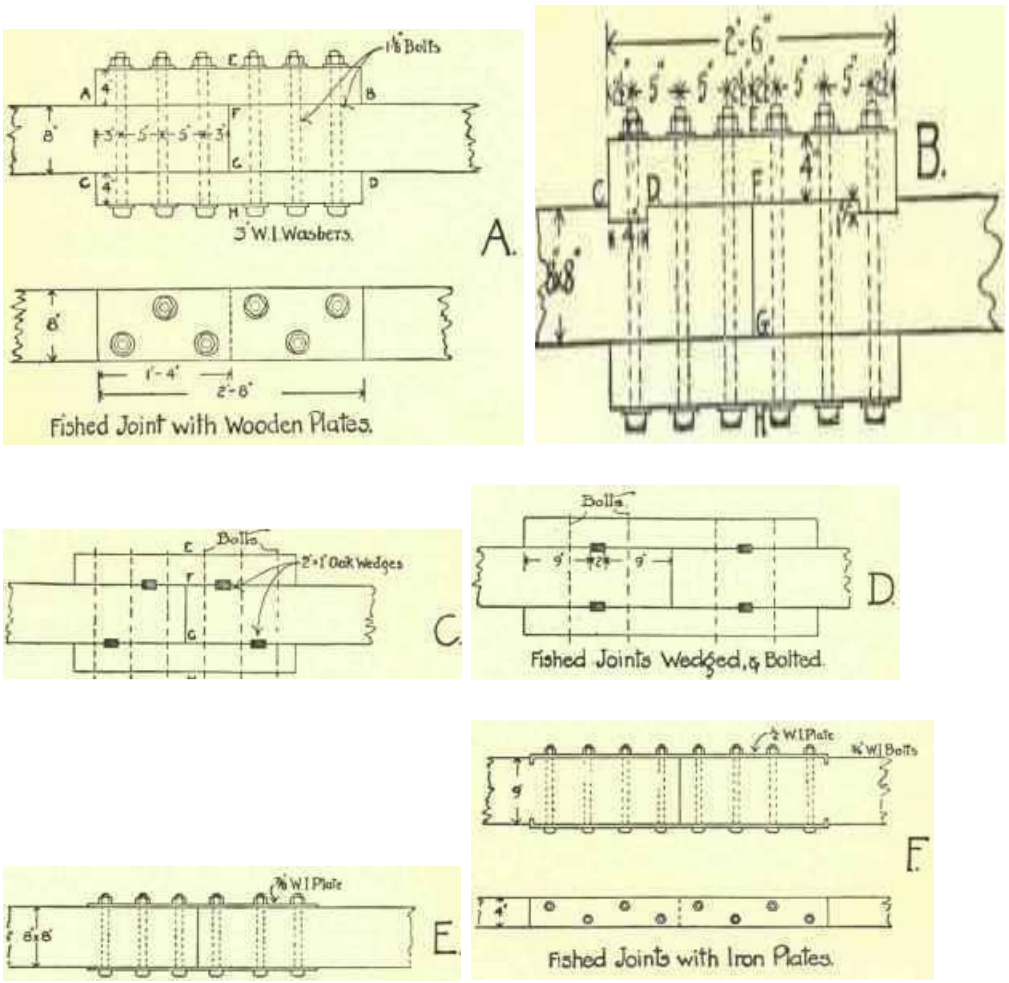
2 Scarfed joints

In this method of uniting timbers corresponding portions are cut away from the ends of each, and the remaining portions are overlapped and fitted together. This joint is used when appearance is the main object, for which reason great care should be taken in its designing and cutting, so that it may be as imperceptible as possible.



3. Fished Joints

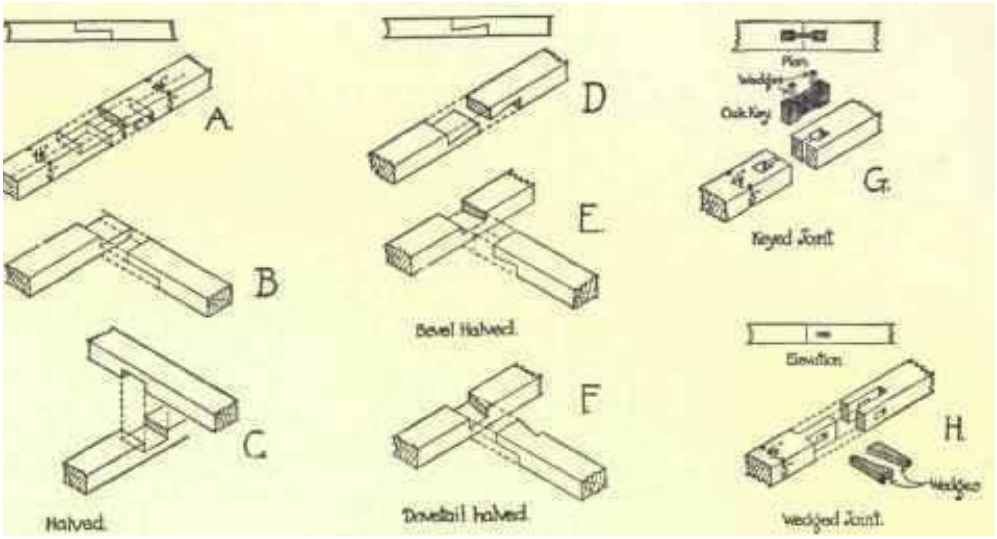
When it is desirable to join two timbers without reducing their section to the extent shown in Fig. 3, a joint known as a Fished Joint, and formed as shown in Fig. 3, is used. The simplest form of fished joint is that shown at A, Fig. 3. It is formed by butting the ends of the timbers and bolting wooden fish-plates on to two parallel sides.



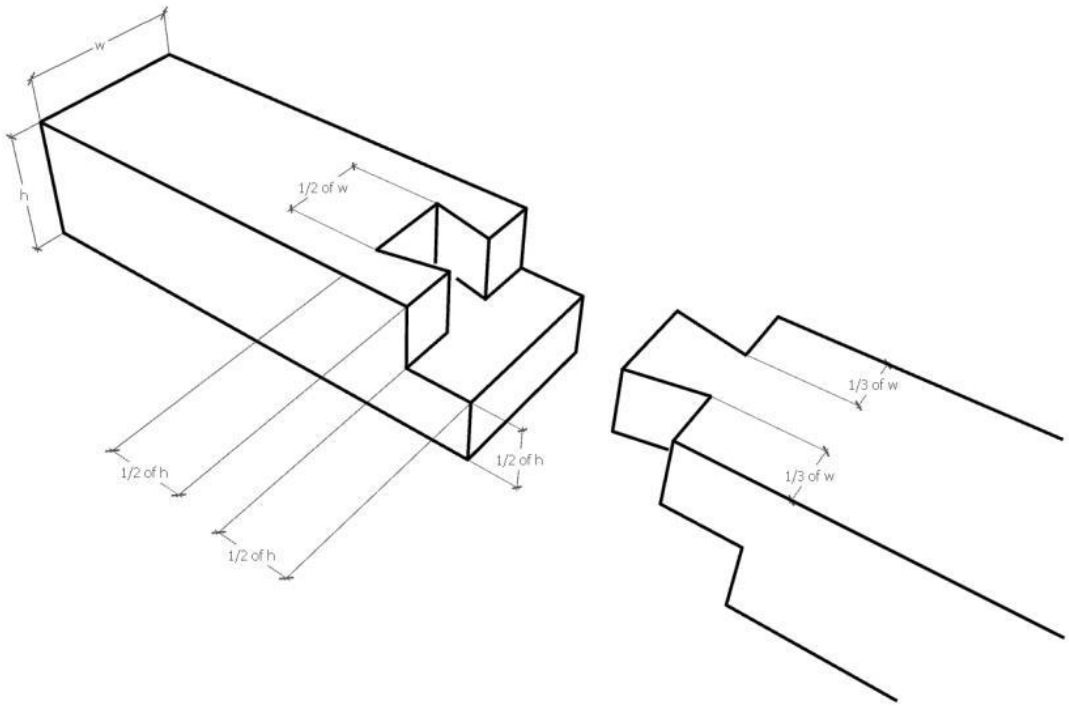
4. Joints for Lengthening Wall-Plates

1.Screwed Joint

A very useful joint is formed by butting the ends of the plates and securing them by means of a hand - rail screw,



2.DOVETAILED SCARF JOINT



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It plays an important role statically and simplifies the process of erecting.

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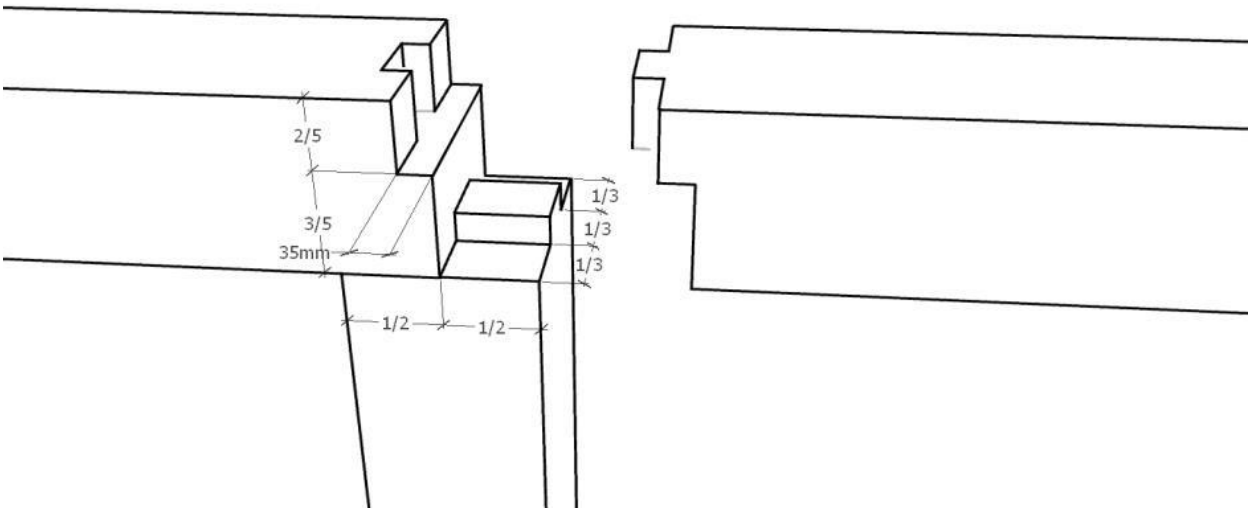
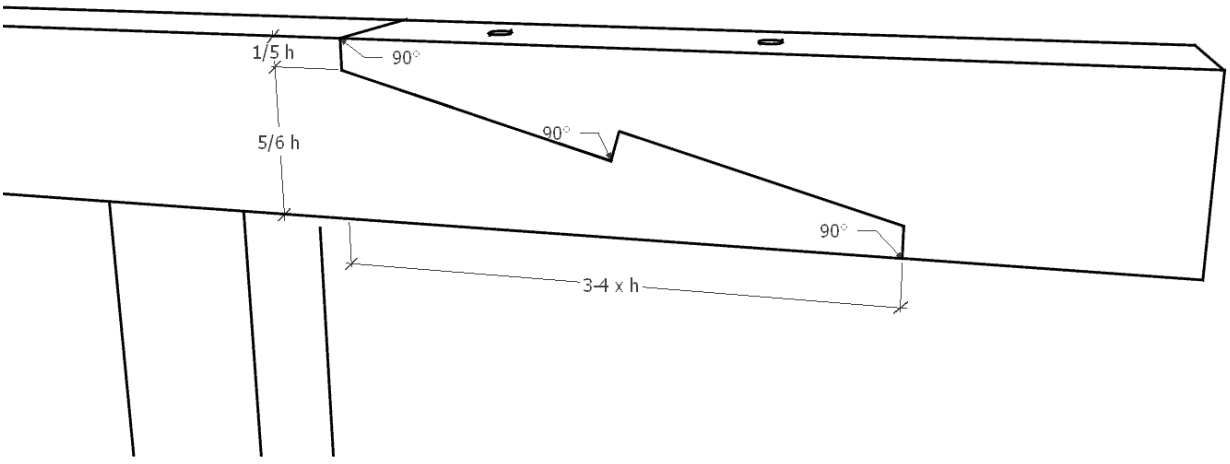
3. RABBETED STUB TENON



This is a much more detailed connection.

Many measurements are necessary to get this joint done.

4. OBLIQUE HOOKED SCARF JOINT



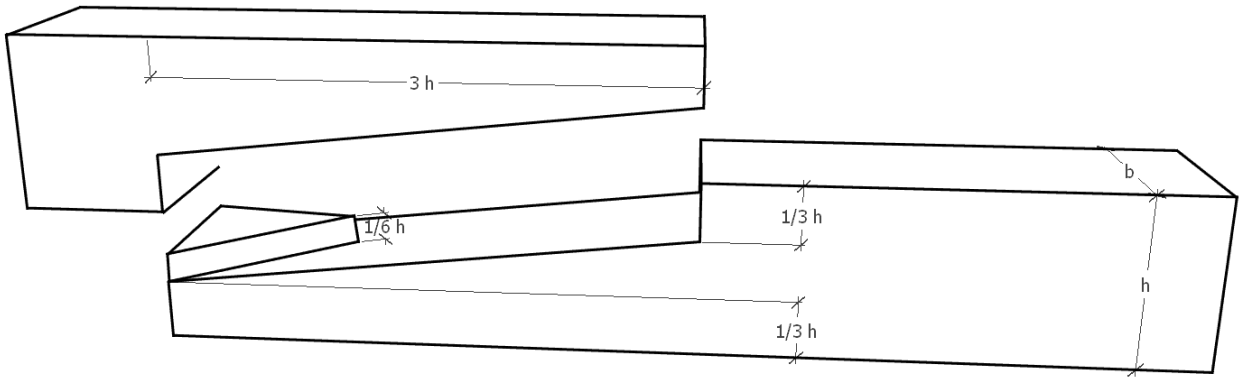
The hooked scarf joint is a very resiliant lengthening joint, it can handle both tension and compression forces.

These joints are common for the construction of timbered houses as well as in normal house construction.

There are different possibilities to recreate this connection, although it is not quite easy. You can find further help in my e-Book.

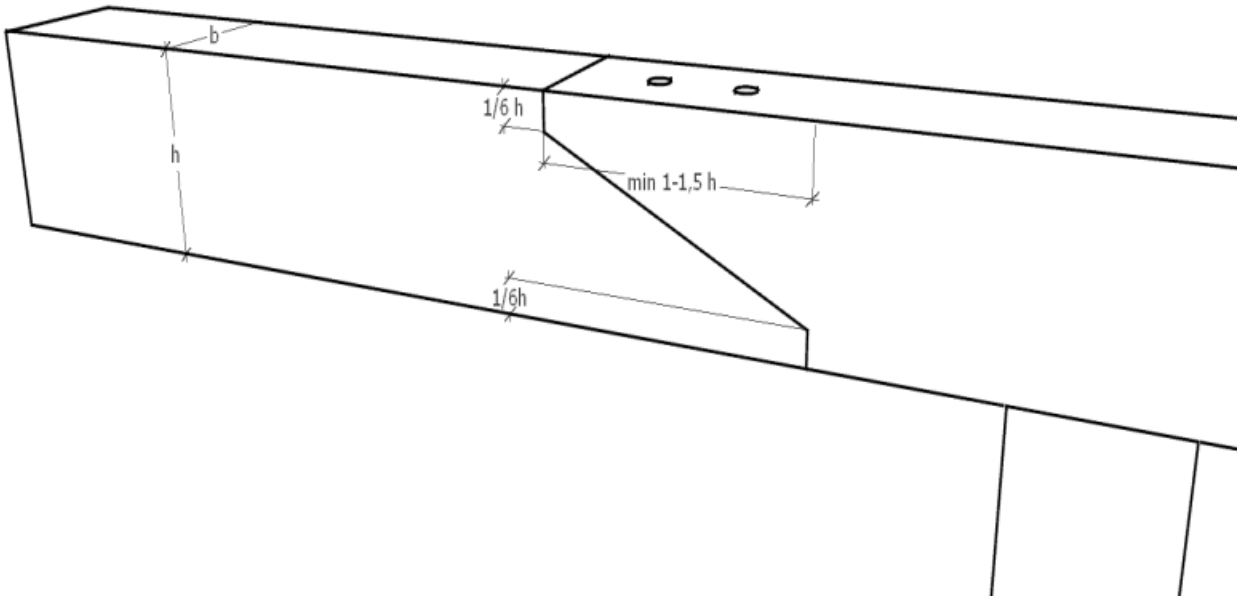
For more detailed information to this scarf joint look up this article.

5. OBLIQUE SCARF JOINT WITH HIDDEN HOOK



This joint is made almost like the hooked scarf joint. It is also quite similar to the pinned oblique scarf joint.

6. OBLIQUE PINNED SCARF JOINT



This lengthening joint is used for joining two timbers with larger cross-sections to form one longer piece. Examples are center purlins, ridge purlins or girders.

The main advantage of this joint is that the complete cross-section can be taken into account for bearing the load. For a simple half-lap joint this is not possible.

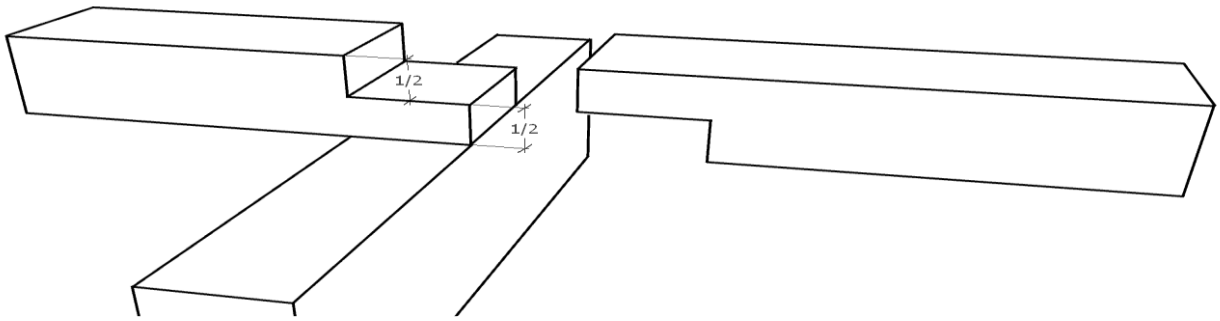
When drafting it must be remembered that the upper beam should rest on the bearing point and the lower beam is fixed underneath. The other way around it would lead to cracks.B oltsare used to secure against lateral movement and hold both pieces toge

LO 1.2 Construct lengthening joints

- **Procedures of constructing: lengthening joints:**

-**Read sketches**: the practice should start according to the readable sketch with scale, dimensions, sections and use actual size.

1. HALVED SCARF JOINT



- Prepare timber to the required size: by marking**,** ripping, planning, squaring and cutting

- Identify the tools required: tools used to make lengthening joint are divided into two groups Which are hand tools and wood working machines

Hand tools: ex: pencil, tape measures, saw clamp, try square, planer, chalk line, screw drivers, hand drill, bevel, work bench, bit, axe…etc

Wood working machine: ex: surface planer machine, thicknesses machine, panel saw, mitre saw, etc….

- Identify sides and edges Cutting joints to size: there are two sides and two edges that used to work in lengthening joints real side and off side start with real side and real edge.

LO 1.3 Assemble part of lengthening joints

● Types of assembly used in lengthening joints

- **Assembling test**: non-permanent) is the assembly made by joiner or carpenter without adhesive or another kind of materials for fastener.

- final assembling: (permanent) Traditional construction features permanent fixing with glue and also a mechanical fastening such as screws, pins or nails. When a more decorative finish is required, glue is used in combination with a more sophisticated joint.

More modern furniture with manufactured boards will use knock-down fittings so that parts can be easily replaced or flexibility in the modular construction and aesthetic of the items.

Glue is a chemical mixture that bonds wood surfaces together. The most common version of this is PVA (Poly Vinyl Acetate). It is very easy to apply and easy to clean off with water and there are other glue as follows: animal glue, contact glue…….

Pins are a metal fastening that is driven into two pieces of wood to connect them. The pins can be hammered or driven below the surface of the wood so that they can't be seen.

Nails are a thicker version of pins. They typically have a large striking surface so that it can be driven into the material.

Screws, like nuts and bolts, are a metal fastening that connects two bits of material together. Screws do this by carving a thread into the material that holds them secure. Unlike nails and pins, screws can be easily removed.