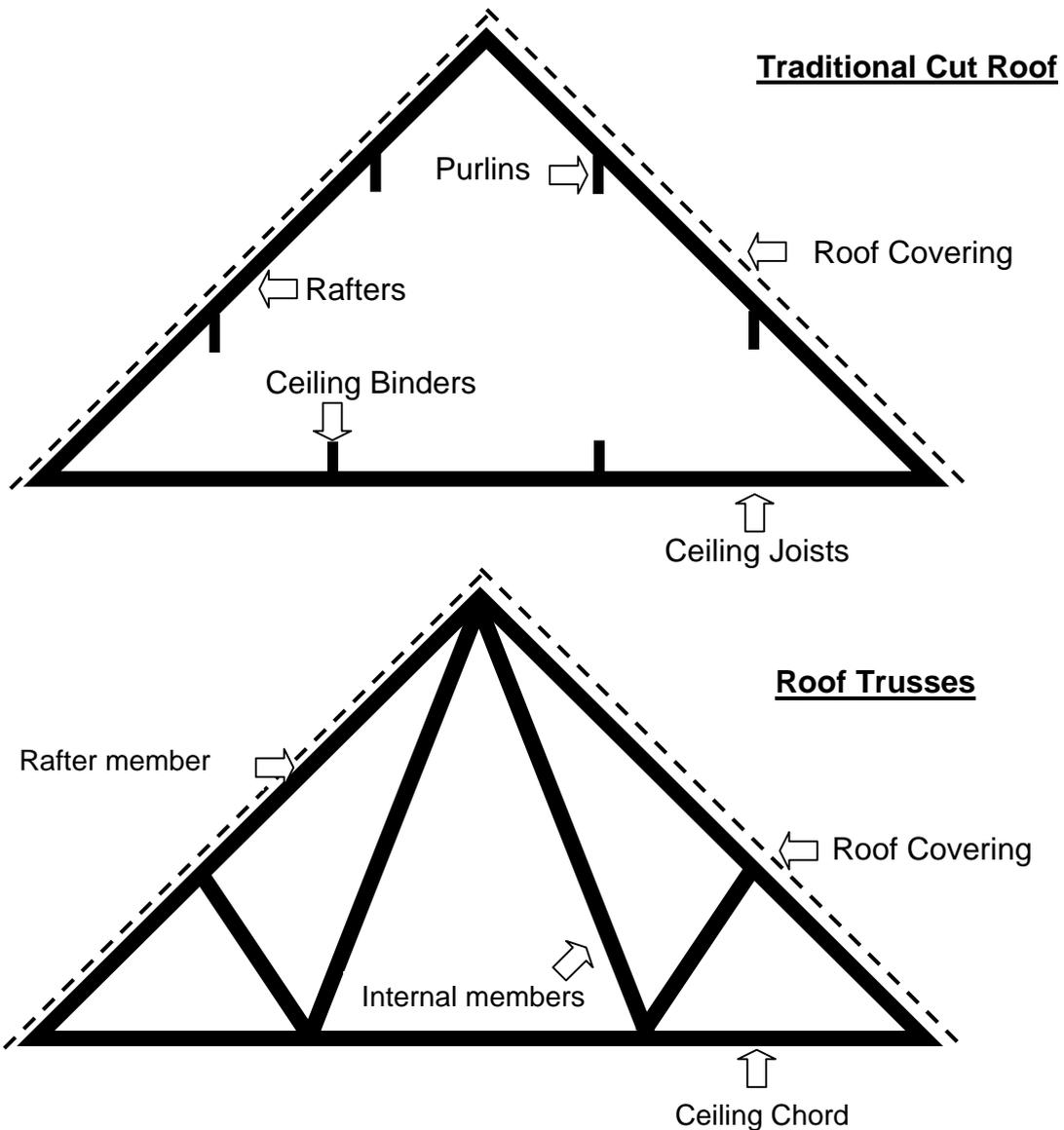


## Pitched Roofs



When constructing a pitched roof please consider the following:

### **Traditional Cut Roofs**

Traditional Cut Roofs are generally constructed by forming rafters and ceiling joists into triangles. Purlins and ceiling binders can be added to help support the structure.

Traditional Cut Roofs are fabricated on site where they are fixed to the wall plate. Wall plates should be fixed to the supporting walls.

Rafters and Ceiling Joists are normally placed at 400mm centres along the wall plate.

The overall stability of the roof and prevention of roof spread is vital. This can be achieved by forming the roof members into triangles and by connecting the roof members to each other and to ridges, wall plates and purlins satisfactorily. The use of birdsmouth joints etc helps. In some cases, bolted connections of structural timbers may be necessary to ensure total stability of the roof construction.

Sizes of roof timbers can be obtained from tables within Approved Document A 1992 edition or Trada Span Tables. Sizes will vary depending on roof pitch, weight of roof tile, span of roof members and whether intermediate supporting walls can be used to prop members etc.

## **Roof trusses**

Roof trusses are generally constructed by joining timber members together with galvanised steel plate connectors at junctions. The plates are inserted in factory conditions under heavy pressure on both faces.

Roof trusses are delivered to the site as prefabricated components where they are fixed to the wall plate with suitable metal plates. Wall plates should be fixed to the supporting walls.

Trusses are normally placed at 600mm centres along the wall plate. Trusses do not require any ridge board or purlin.

To ensure overall stability trusses are fixed together with longitudinal, diagonal and chevron timber braces. These are normally fixed to rafter members, internal members and ceiling chords. Please contact us for advice.

All water storage tanks must be adequately supported and the truss design should allow for this extra load.

If trusses are used you must supply calculations to us. You can normally get these from your supplier (free of charge), when you place an order.

## **Roof Covering**

Pitched roofs are normally covered with tiles, supported on battens, with a roof felt or other underlay.

When tiling please refer to the manufacturer's details. For example specific tiles, may be needed for different pitch roofs and methods of fixing tiles may also vary.

It is good practice for all battens to be treated with an appropriate wood preservative.

Battens should be fixed to suit the tile lap. Batten sizes vary depending on weight of tile and spacing of rafters and trusses. Generally for concrete interlocking tiles with spacing of rafters and trusses up to 600mm they can be 38mm wide by 25mm deep. Joints should be staggered.

Replacing an existing roof covering with a different material (e.g. tiles in place of slates) requires Building Regulation consent. This is because you are increasing the loads imposed on the roof structure. It is important that you submit your application and have work inspected as it is carried out. Consideration must be given to the strength and adequacy of the existing roof structure and its ability to withstand additional loads. In addition to this triangulation, fixings, lateral restraint, holding down straps, ties, ventilation and insulation of roof voids are checked.

## Ventilation

Pitched roofs with insulation at ceiling level and those insulated at rafter level where a void exists above the top of the insulation need to be provided with adequate ventilation.

These roofs are classed as cold roofs. Cross ventilation of the roof void by providing vents at eaves and sometimes ridge level is essential. This creates an air flow and removes excessive condensation.

By using special underlays in cold roofs, ventilation of the roof void can be omitted. Please refer to manufacturer's details.

Pitched roofs with insulation above the rafter level, where no void is created, are classed as warm roofs. Ventilation is not required, as condensation is unable to form within the structure.

## Insulation

All roofs should be insulated. The thickness of insulation will depend on the type of insulant used and whether you are constructing a cold or warm roof.

Insulation levels have increased dramatically. Typical details being used at the moment include:

**Pitched Roofs (insulation at ceiling level)** - 100mm of fibreglass between joists and a further 170mm across joists.

**Pitched Roofs (insulation at rafter level)** - 150mm of Celotex double - R GA2000 between rafters or 90mm between and a second 40 or 45mm layer beneath rafters. A 50mm vented airspace above insulation is required.

**Pitched Roofs to loft conversions (insulation at rafter level)** - 100mm of Celotex double - R GA2000 between rafters or 50mm between and a second 25mm layer beneath rafters. A 50mm vented airspace above insulation is required.

All water storage tanks and pipes within the roof space should be insulated.

For further information contact the Building Regulations Division

**Please note that these guidance notes are for advice only and may not cover all situations. It is your responsibility to ensure that they are appropriate for use in your particular circumstance.**