

ROOF SYSTEMS

(Ref: The Building Illustrated,
Ching, Francis DK)

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1.0 Roof System

- Function as primary sheltering element for the interior spaces of a building.
- The form and slope of the roof must be compatible with the type of roofing.
- The construction of the roof should also control the passage of moisture vapor, the air flow, the heat flow and solar radiation.

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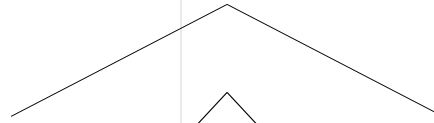
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2.0 Roof Slopes

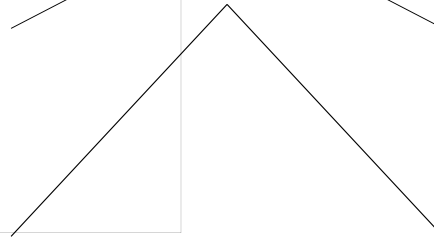
- Flat Roof



- Slope Roof



- Pitch Roof

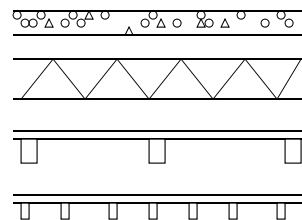


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3.0 Flat Roofing

- Minimum recommended slope: $\frac{1}{4}$ " per foot
- Can efficiently cover a building of any horizontal dimension, and may be structured and designed to serve as an outdoor space.
- The structure of a flat roof may consist of:
 - Reinforced concrete slabs
 - Flat timber or steel trusses
 - Timber or steel beams and decking
 - Wood or steel joists and sheathing

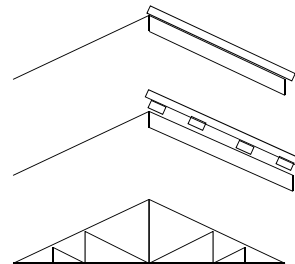


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4.0 Slope Roofing

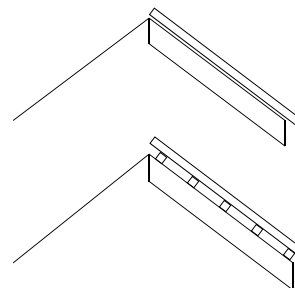
- Shed rainwater easily to eave gutters
- The space under sloping roof may be usable.
- Sloping roof planes may be combined to form a variety of roof forms.
- Sloping roof may have a structure of:
 - Wood or steel rafters and sheathing
 - Timber or steel beams, purlins and decking
 - Timber or steel trusses



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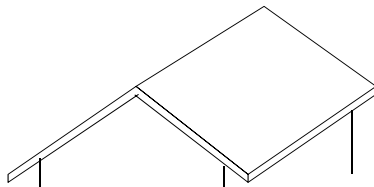
5.0 Pitch Roofing

- Easily shed snow
- The space under sloping roof may be usable.
- Sloping roof may have a structure of:
 - Wood or steel rafters and sheathing
 - Timber or steel beams, purlins and decking



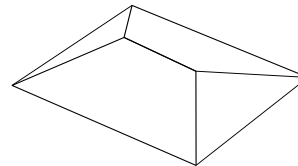
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6.0 Types of Roof Designs



Gable roof

Gable is the triangular portion of wall enclosing the end of a pitched roof from cornice or eaves to ridge



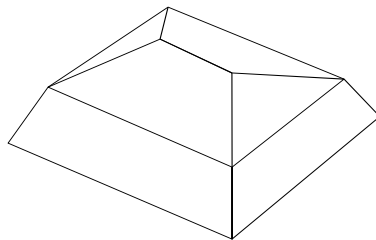
Hip roof

Sloping ends and sides with meeting at an inclined projecting angle

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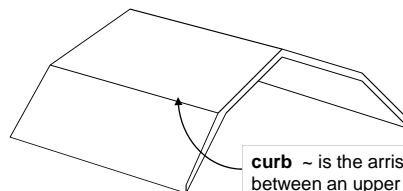
6.0 Types of Roof Designs



Gambrel roof

Having on each side a steeper lower part and a shallower upper part

Also called as mansard roof or curb roof

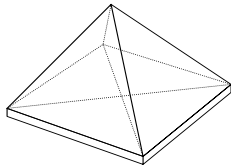


curb ~ is the arched transition between an upper and lower slope on a gambrel or mansard roof.

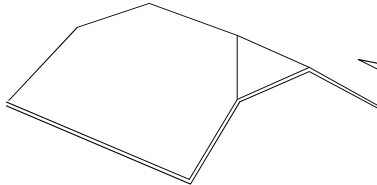
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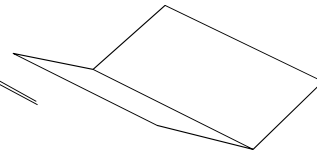
6.0 Types of Roof Designs



Pavilion roof
Pyramidal hip roof



Hipped gable roof
A roof having a hipped end truncating a gable.
Also called jerkinhead or shreadhead.

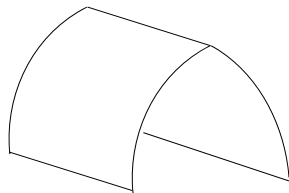


Butterfly roof
A roof having two slopes, each descending inwards from the eaves.

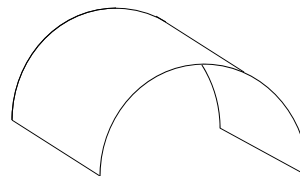
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Rainbow roof
A gable roof in the form of a broad Gothic arch, with gently sloping convex surface.

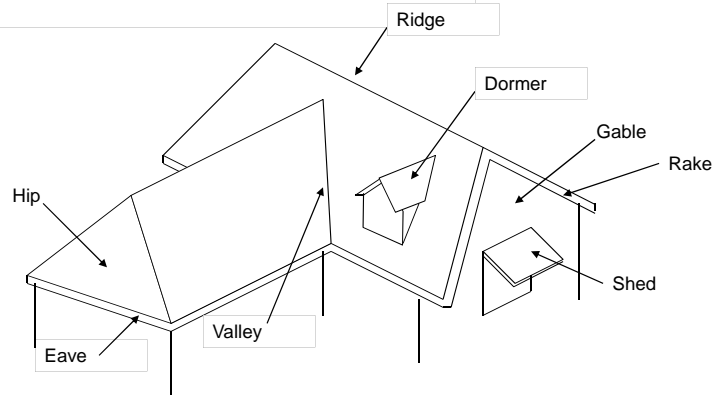


Barrel roof
A roof or ceiling having a semi-cylindrical form.

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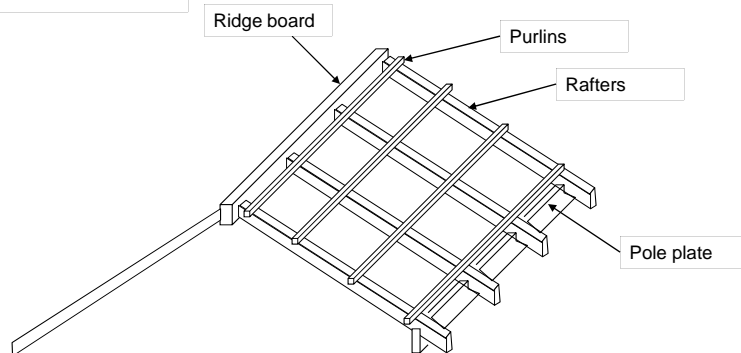
7.0 Roof Terminology



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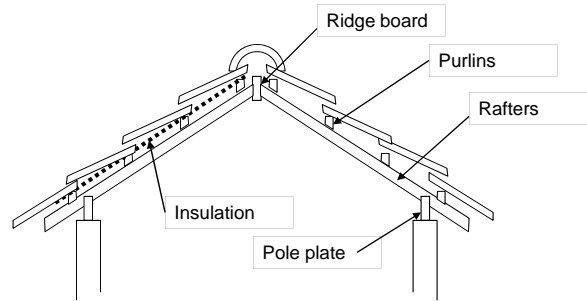
8.0 Roof Frames



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