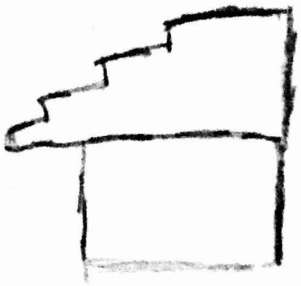
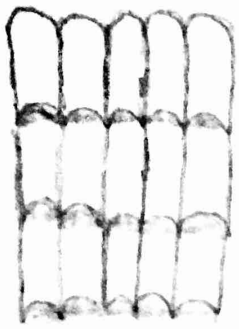
Roof Systems

- Primary Sheltering element for the interior spaces of a building
- Shingles



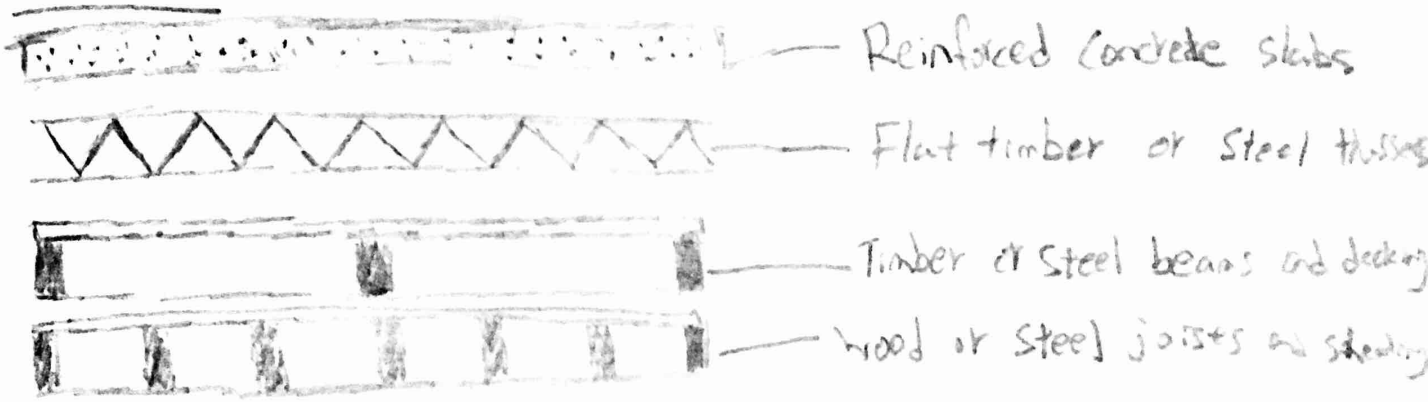
Tiles



Continuous membrane

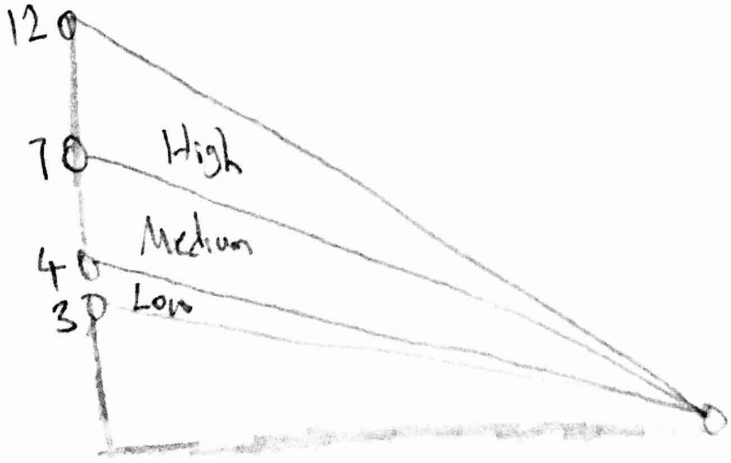
- Must be Constructed to span across space and carry its Own weight, attached equipment, and rain and Snow.
- Must resist lateral wind (horizontal), seismic forces (earthquake) and uplifting wind forces.

Flat roof



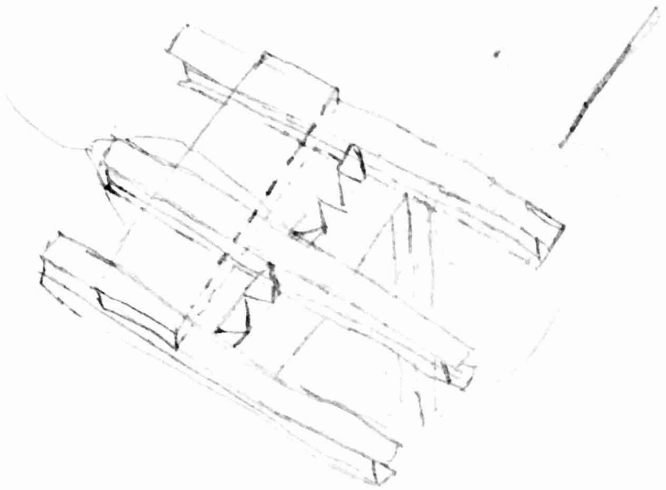
Sloping roofs

- Low slope - 3:12
- Medium to high - 4:12 to 12:12

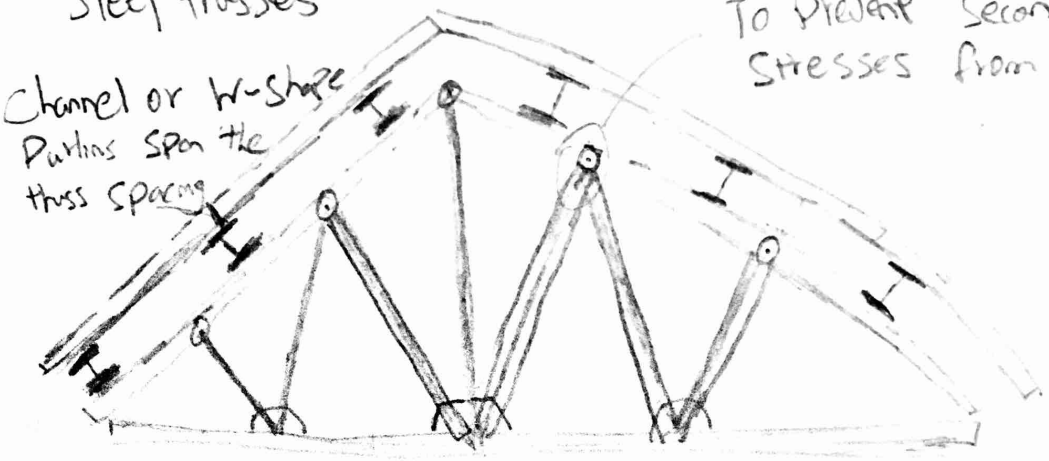


Structural steel roof framing

- The primary and secondary may support open web steel joists, metal roof decking, a site cast concrete slab, or precast concrete units.
- Roof overhang may be achieved by extending the secondary roof beams over their supports or by recessing the exterior wall construction



Steel trusses

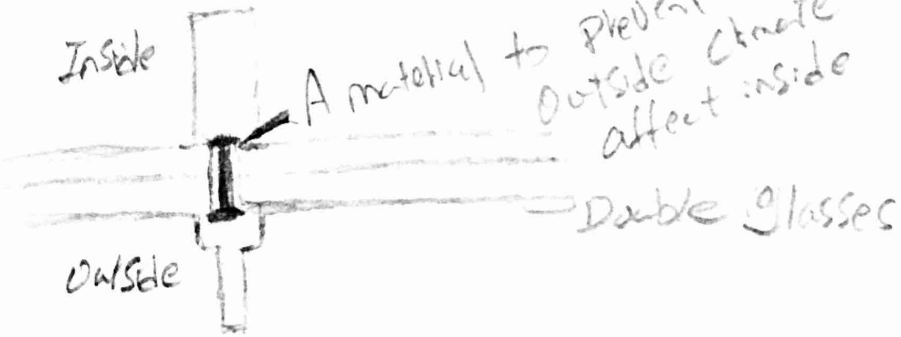


- Space Frame
- A long spanning three dimensional plate structure base on the rigidity of the triangles and composed of linear elemnt subject only to axial tension or compression.
- The supporting bay for a space frame should be square or nearly square to ensure a two-way structure

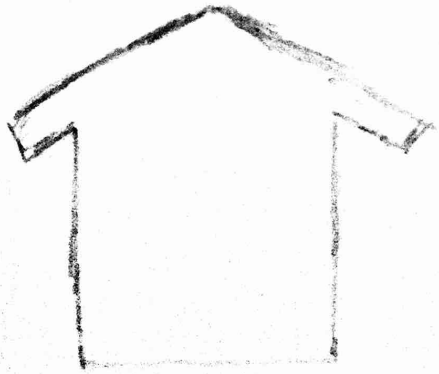
Structure Envelop _____ Gravity

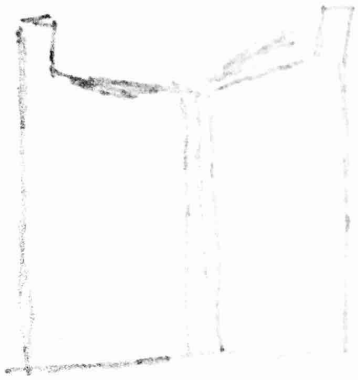
Spans + Roof

- Protect - Shelter
  - Water , - Rain/snow
  - Sun , Heat/cold - Radiation
  - Wind
- Membrane - materials used on roof to resist water



- Insulation
- Truss -  Structural Suppor (steel, wood)





- Ridge - rafter