Construction
Rough Framing

Mr. Kalka

Lumber

- Grades of lumber- The National Grading Rule for Dimension Lumber contains four grades of Structural Joists and Planks:
  - SELECT STRUCTURAL
  - NO. 1
  - NO. 2
  - NO. 3.
- What determines grade:
  - Bark on edges
  - Machining defects
  - Species
  - Number, size, and position of knots and holes
  - Decay
  - Bowing, warping, and twisting

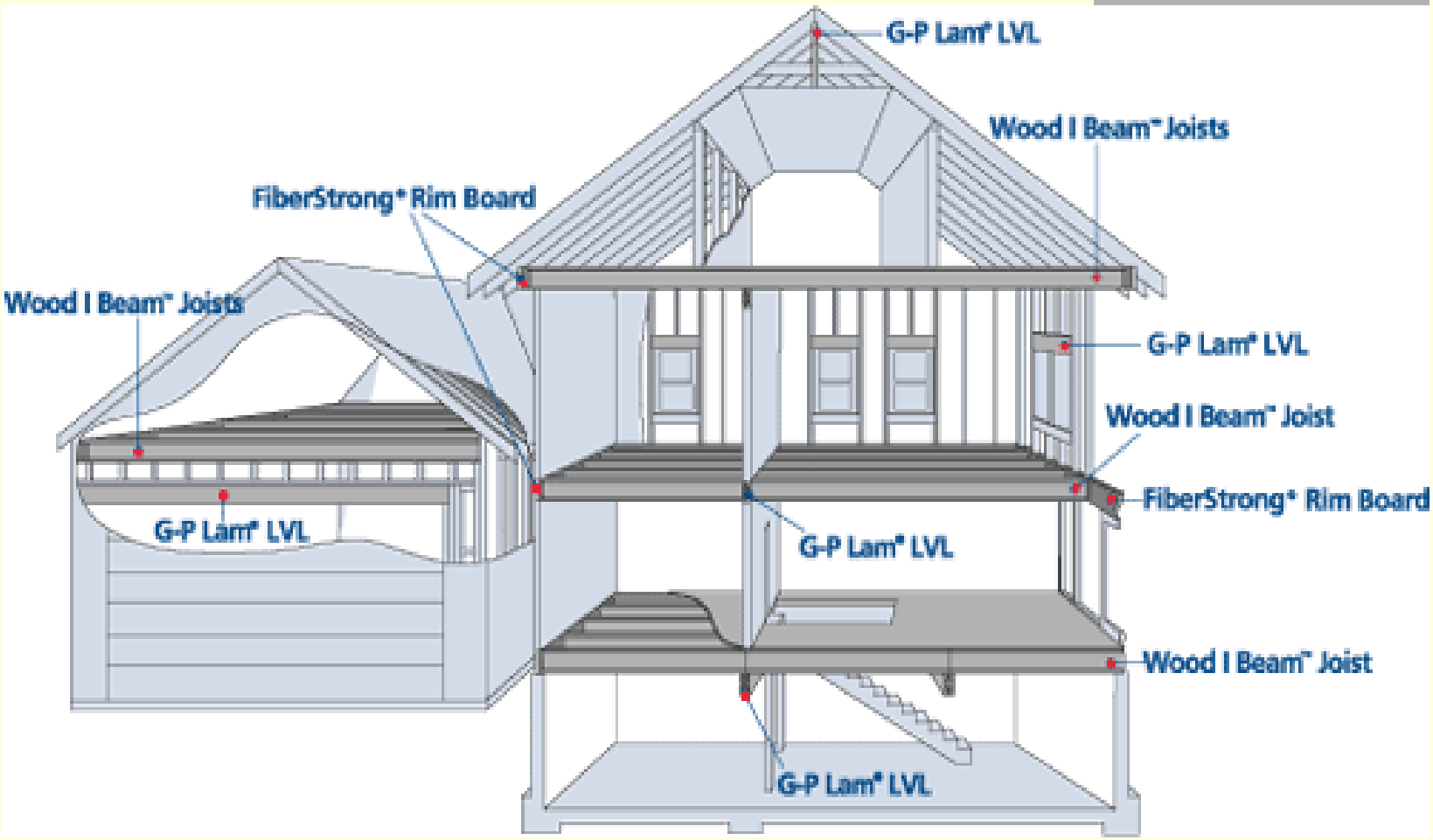
Manufactured Materials

- Laminated Veneer Lumber (LVL)- used for long unsupported spans. LVL's are ideal for floor beams, garage doors, window and door headers, and ridge and hip beams.
- Wood I-Beams- used for heavy loads, or extended spans. Wood I Beam joists are lighter and easier to handle than ordinary lumber, Wood I Beam joists offer high strength and stiffness in lengths up to 60'.

Manufactured Materials

- Rim Boards- are ideally suited for floor systems configured with I-joists of the same height.
- Floor trusses-
  - **Longer clear spans.**
  - **In many cases, elimination of support beams.**
  - **Virtual elimination of squeaks.**
  - **Wider spacing.**
  - **Lower costs for sub-contractors.**
  - **Greater nailing area for sub-flooring.**
  - **Finished basement ceilings.**
  - **Elimination of unsightly electrical wires, plumbing, and heating materials**

Manufactured Products



Floor Framing

- Loads- two types of loads
  - Dead load- the weight of the building
    - Min 10 psf
  - Live load- the weight of objects in the building
    - Min 40 psf
- Spans tables- Different materials can span different distances

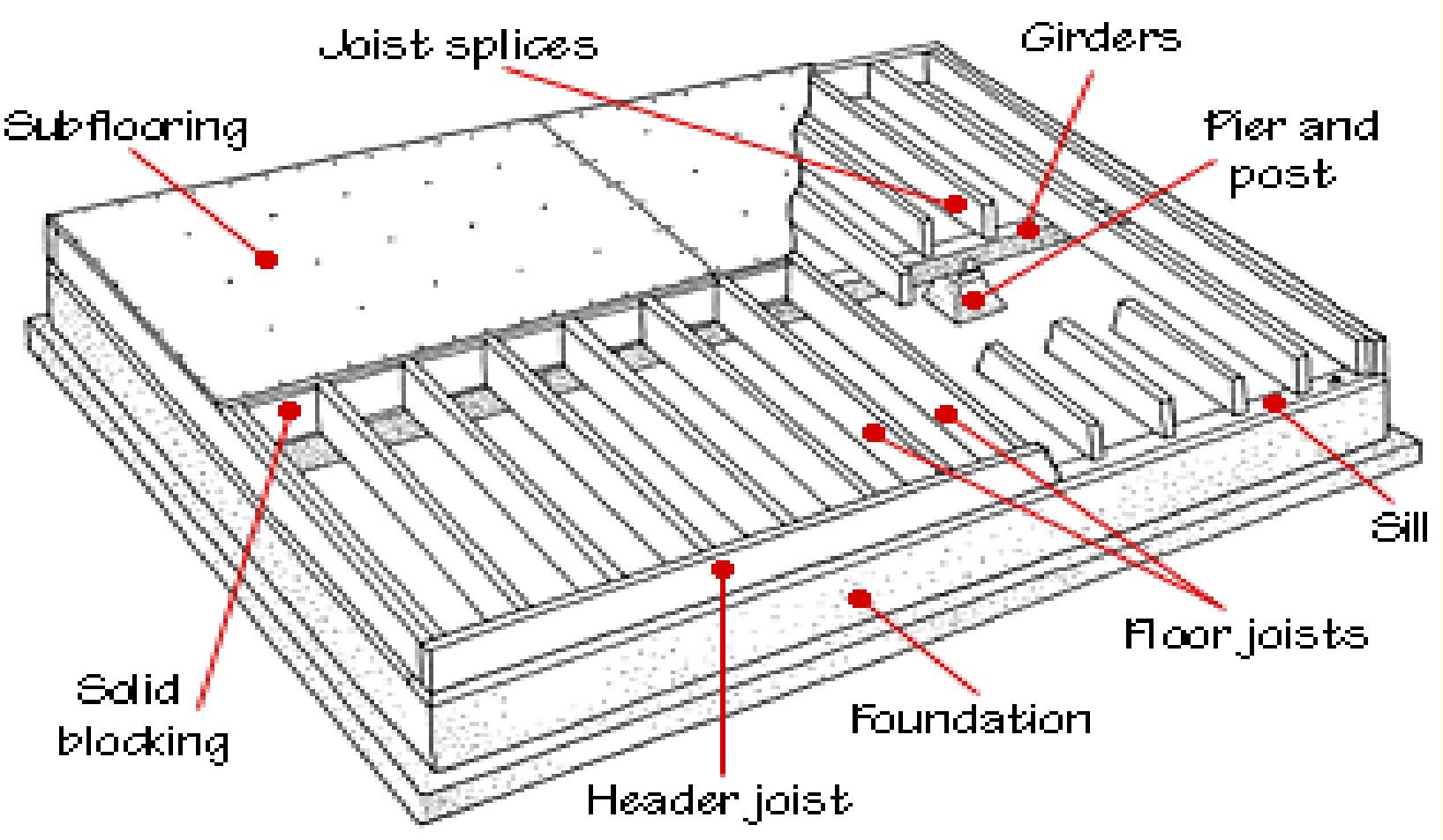
Floor Framing

- Posts (columns)- Wooden or steel member which supports a girder or beam.
- Girder or Beam- Steel or wood, used to support floor joists. (3” minimum bearing)
  - Built up
  - LVL
  - Cut timber
  - Steel
- Sill plate – Attaches super structure to sub structure. (treated lumber)
- Floor joists- Dimensional lumber or manufactured material, 16’ oc. Support live load of the house. (1-1/2” bearing min)

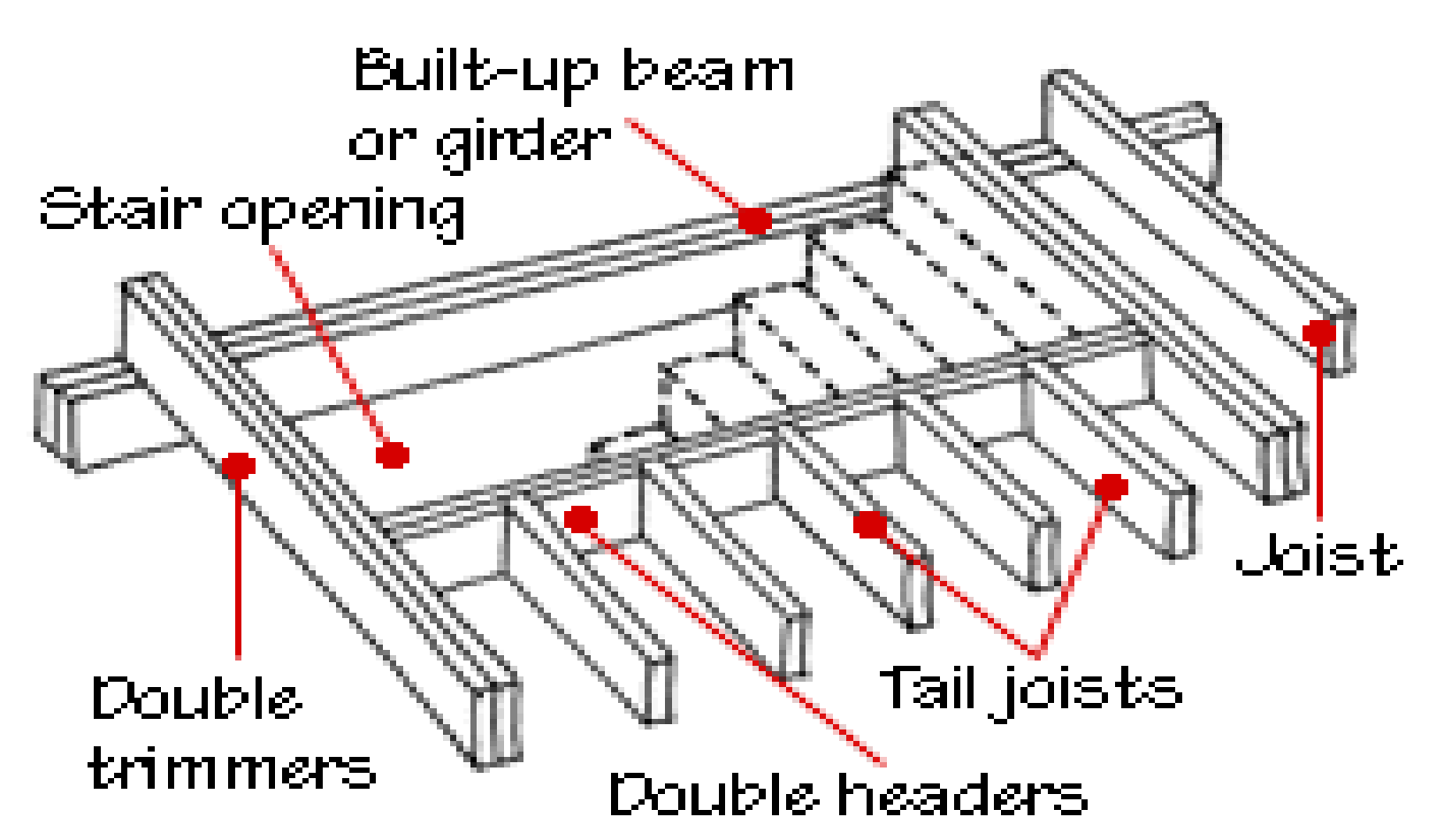
Floor Framing

- Rim Board- OSB, Plywood, or LVL that ties the end of joists together.
- Bridging- Method of bracing between joists
- Cantilever- Unsupported section of floor extending past the foundation wall.
- Stair openings- Double joist headers, or LVL
- Sheeting- T&G ¾” OSB glued and nailed

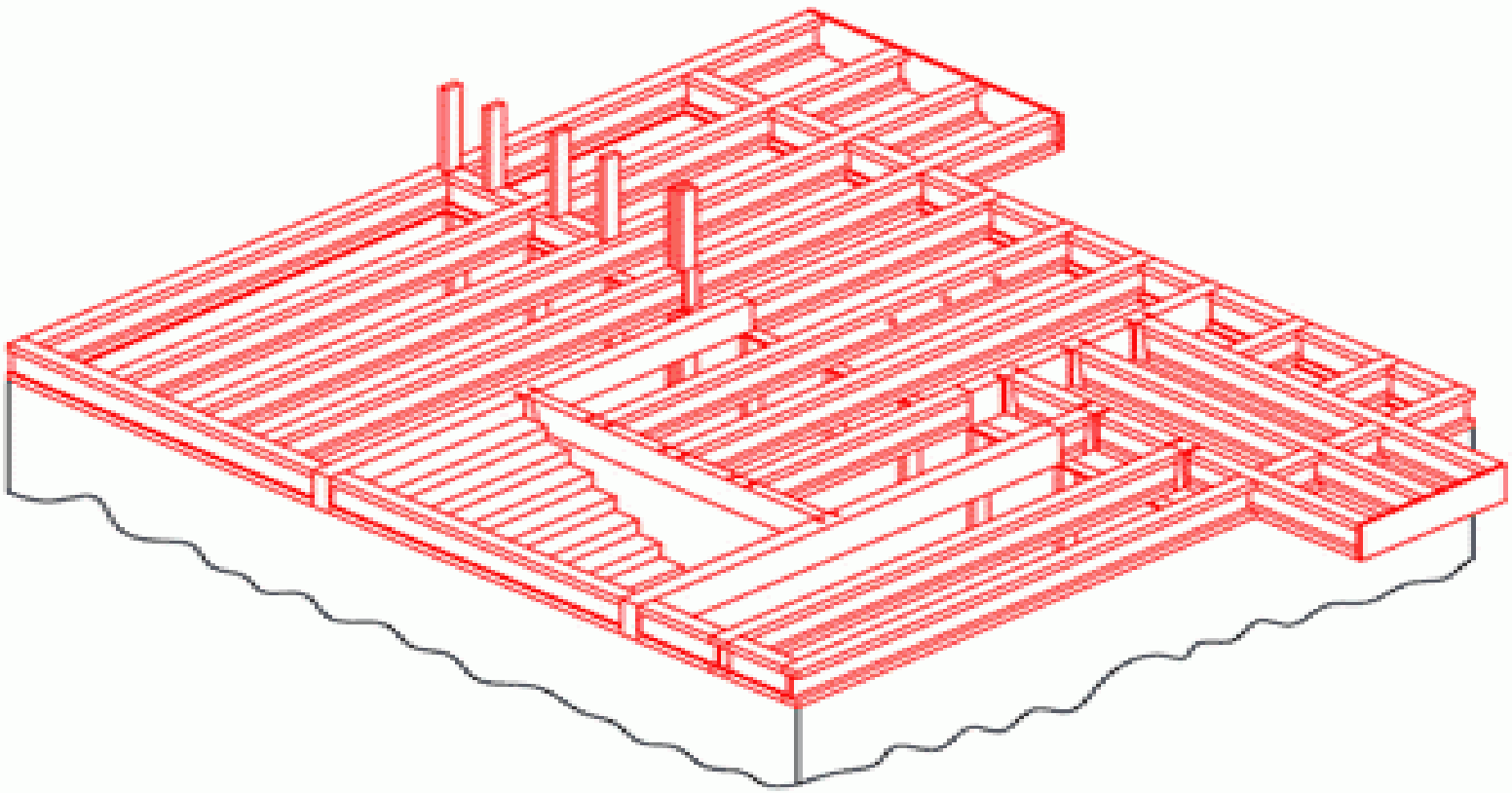
Floor Framing



Stair Opening



Floor Framing



Overview of floor layout

Wall Framing

- Two types of framing
  - Balloon
  - Platform
- Two types of walls
  - Load bearing- Designed to support the weight of a floor or roof system above it
  - Non-Load bearing- Serves no structural support just for separation
- Typical stud spacing
  - 16” O.C.- Most common, load bearing
  - 24” O.C.- Usually non load bearing

Wall framing components

- Sole Plate- Ties the bottom of studs together and attaches wall to sub floor.
- Common stud- Primary vertical members of wall that transfer the weight of the roof or floor above to the foundation wall.
- Top plate- Ties top of studs together.
  - Joint in center of a stud
- Double top plate- Added support at top of wall, connection for floor or roof system
  - Must offset joint at least 2 stud spaces

Wall framing components

- Header- Beam above an opening in a wall (door or window). Transfers the weight of the floor or roof above to the trimmer or shoulder studs.
- Trimmer or Shoulder Stud- Supports the header.
  - Openings over 6’ require 2 on each side.
- King Stud- Full length stud along side of the trimmer or shoulder studs
- Rough Sill- Bottom of a window opening (supports the window)
- Cripple Stud- Stud below the rough sill of a window or above a door header

Wall framing components

- Corners- 2 types
  - Outside corner
    - Solid lumber
      - 3 2x4
      - 5 2x6
  - Inside corner
    - L shape with 2x6
- Header configurations
- Exterior Wall Sheathing
  - 7/16” OSB
  - ½” OSB or plywood
  - Main purpose is to brace wall

Wall Construction

Standing Walls