Appendix A
Advanced Framing

Advanced framing was derived from Optimum Value Engineering, a set of efficient framing practices developed and promoted by the National Association of Home Builders Research Center since 1974.

Advanced framing techniques include:

- Designing and engineering structures for efficient use of lumber and wood materials
- Framing one- and two-story walls at 24" on center rather than at 16"
- Aligning windows and other openings with framing layout
- Use of box headers designed for loading conditions
- Eliminating unnecessary studs, such as at corners and T-walls
- Eliminating redundant framing such as drywall backer studs and ceiling blocking by using drywall clips.

Advanced framing reduces the amount of framing material used in structures with no sacrifice in structural performance, while creating a more comfortable, durable and energy-efficient building.

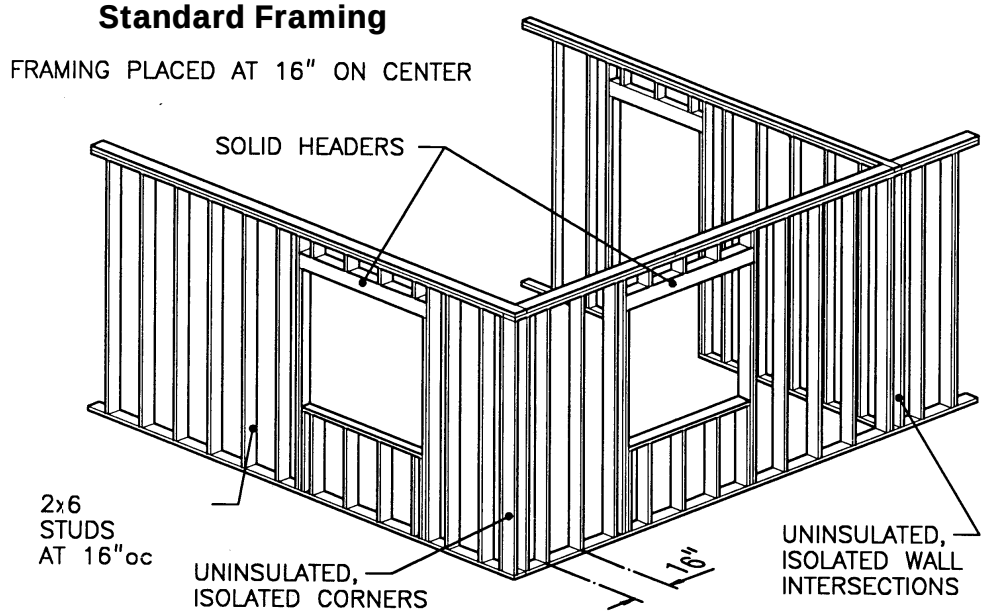
Designing and engineering for materials efficiency

- Designs based on a 24" module will reduce waste from off-cuts. Aligning windows and other rough openings with framing layout can eliminate studs.
- A framing plan can save money on framing costs by clarifying the structure and decisions that otherwise the framing crew may have to make on the job. When in doubt, the job-site solution is usually to add lumber. For example, a plan can show whether headers on gable end walls are necessary, or the number of studs in a column.

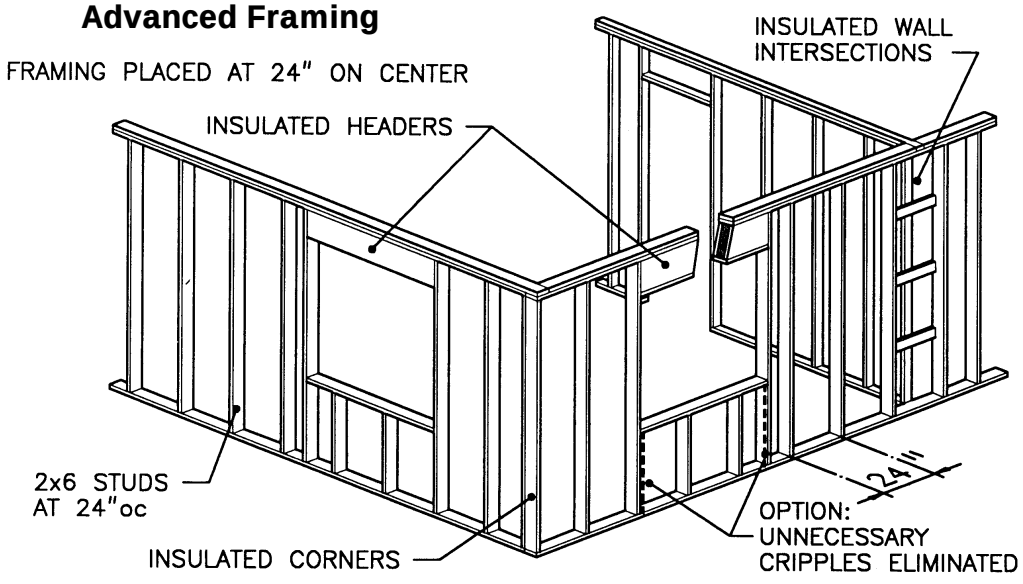
Framing at 24" on center rather than at 16"

- 2x6 walls can be framed at 24" on center for the top two floors of construction with normal roof and floor loads. 24" framing reduces material, labor and energy costs. It saves the most material on long straight wall runs.
- Standard half-inch drywall is span rated for 24". APA 303 rated sheet siding will span 24". Cementitious siding may span 24" with extra attention.
- 19.2" or 24" joist spacing with thicker plywood subflooring is a possibility for further savings.

Standard Framing



Advanced Framing

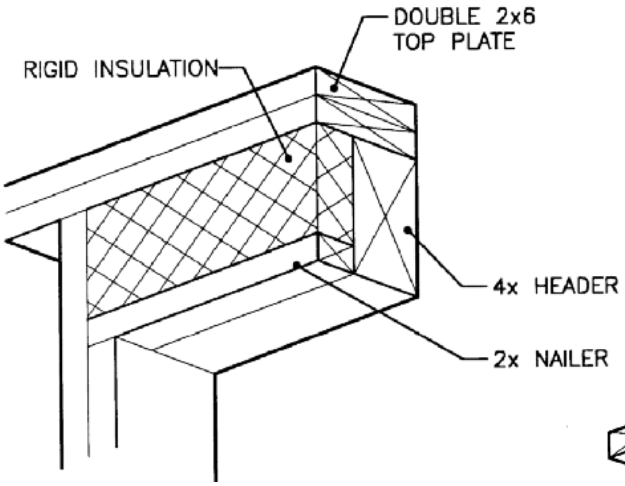


Use of box headers designed for loading conditions

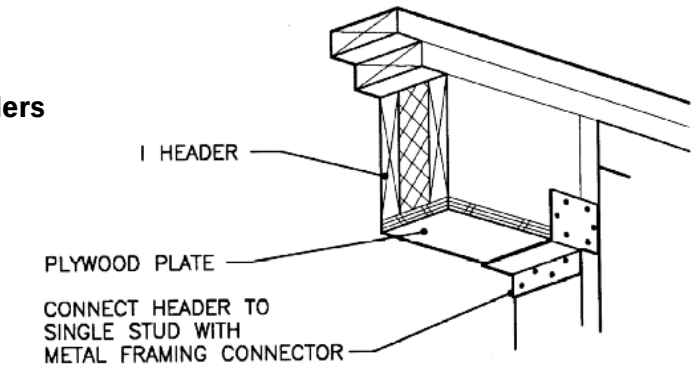
- Headers from solid lumber may be oversized and waste material. Smaller dimensional lumber and plywood can be used to assemble box headers.
- Box headers in exterior walls result in energy savings as well as material savings by creating more space for insulation. Manufactured/engineered insulated headers are easy to cut and very well insulated.
- Headers in non-load bearing walls should be reviewed to determine if they are needed.

Eliminating unnecessary framing at intersections

- Three-stud “partition-posts” and stud-block-stud channels at interior/exterior wall intersections are usually unnecessary unless expressly engineered.



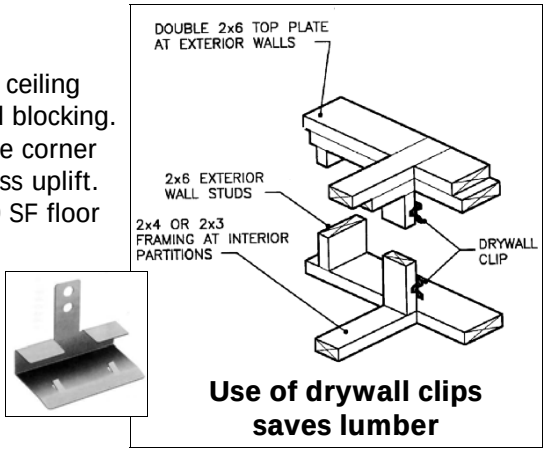
Insulating Solid Headers



Use of Box Header and Header Hanger

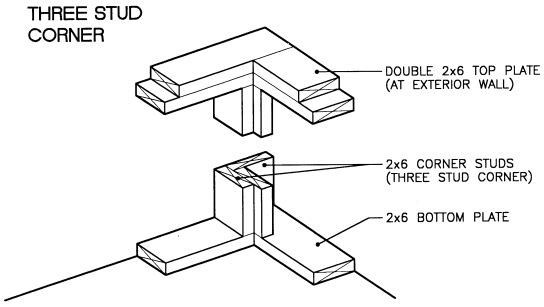
- Partitions can be nailed to flat blocks (esp. from off-cuts) inserted between studs or directly to exterior wall studs. This technique, known as ladder blocking, also allows more insulation to be placed in the exterior wall cavity.

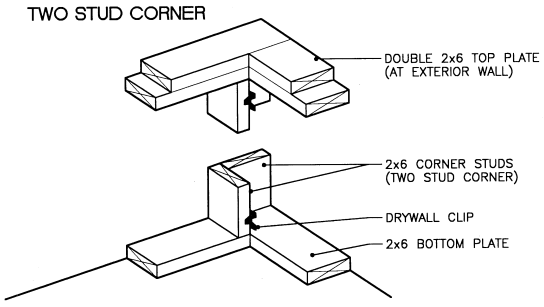
- Drywall clips or stops employed at wall and ceiling intersections also reduce the need for wood blocking. They create floating connections that reduce corner cracking caused by wood shrinkage and truss uplift. Drywall clips can save about $100 per 1000 SF floor area.



Use of drywall clips saves lumber

Intersection of Exterior Walls





Intersection of Interior Partitions