



Wood Frame

STUDENT HOUSING

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

Learning Objectives

- At the end of this program, participants will be able to:
 - Identify reasons why wood is a good choice for student housing construction using actual project examples.
 - Discuss the characteristics of wood student housing projects and view the pros and cons from the perspective of the builder.
 - Examine typical objections to using wood instead of the alternatives whether real or perceived.
 - Evaluate the carbon footprint of an actual wood building project.

Economics - Inexpensive vs. "Cheap"

- Materials are less expensive and readily available
- Labor cost tend to be lower
- With proper supervision there is no lost quality
- Lower testing/threshold inspection costs
- Put the money where it really matters
- Most colleges & universities have constrained budgets
- Lighter – lower foundation expense
- Faster return on investment



- ???
- ???



- ???
- ???



- Exposed Timber Framing
- Arched Ceiling Joists
- Exposed Tongue and Groove
- Timber Roof



Flexibility

- Late design revisions can be accommodated
- Open web floor joists allow for ease of mechanical installation
- I-joists allow longer spans, often creating stiffer floors with the ability to customize lengths in the field
- Standard sizes of nominal lumber are readily available
- Can be engineered to create columns, beams and girders from standard, readily available material

Speed

- Bureaucracies don't move quickly – but they do expect miracles
- When the framing on a floor is done - its done
- Able to start in wall rough-ins and overhead sooner than in many other types of construction
- Prefabrication/assembly of door and window openings
- Pre-cut custom lengths from mills
- Ability to panelize off-site
- Almost all material is readily available – standard sizes, lengths and quantity





HARDIN

YOUNG HARRIS COLLEGE
THE VILLAGE PHASE II
Young Harris, Georgia

Date: AUG 13 2012
View: South

Truth about Wood Frame

- Natural resource - renewable
- Readily available – Lumber is everywhere
- Speed – can accommodate compressed schedules
- Flexibility for field modifications
- Economical
- High Seismic and Wind Performance
- Durable
- Beautiful



Hurdles to Overcome

- Natural product: inconsistent material
- Waste
- Logistics and inventory control
- Complexity: tie-down and seismic requirements
- Perception that wood framed structures are an inferior product
- Labor intensive: requires specialized supervision

This house was not built properly!!

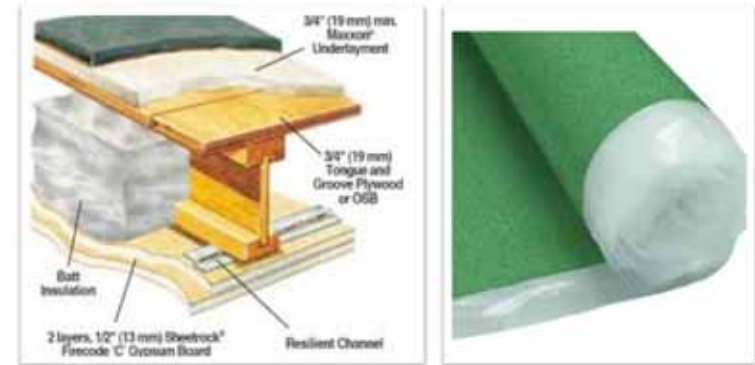


Break up long hallways!



Myths about Wood Frame

- Poor sound attenuation



Myths about Wood Frame

- Poor structural/seismic performance
 - Tie-down systems and mud sill anchor (MSA)
 - Continuous load path systems (CLP/Hurry-Bolt)



Myths about Wood Frame

- Code compliance/Fire resistance
 - Fire blocking
 - Fire treated wood products
- Durability
 - Termite treatment
 - Climate control and mold










Carbon Summary





Results

-  Volume of wood products used:
721 cubic meters (25451 cubic ft) of lumber and sheathing
-  U.S. and Canadian forests grow this much wood in:
2 minutes
-  Carbon stored in the wood:
584 metric tons of carbon dioxide
-  Avoided greenhouse gas emissions:
1242 metric tons of carbon dioxide
-  Total potential carbon benefit:
1825 metric tons of carbon dioxide

Project Name: YHC Village Phase 1
Date: September 7, 2012

Results from this tool are estimates of average wood volumes only. Detailed life cycle assessments (LCA) are required to accurately determine a building's carbon footprint. Please refer to the References and Notes' for assumptions and other information related to the calculations.

Equivalent to:

-  349 cars off the road for a year
-  Energy to operate a home for 155 years

Questions?

This concludes the American Institute of Architects Continuing Education Systems Course.



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Design Changes

- Ledger size and corridor framing attachment
 - Increase the member frequency so that the size can be decreased and allow more space for systems
- Pop-Up in the Roof truss bottom chord
 - Allows the fourth floor MEP systems to stay on the climate controlled side.
 - Eliminates the need for pipe insulation unless otherwise specified
 - Provides elevated framing for a catwalk system
- Gable Truss at draft stop locations
 - Have the manufacturer provide a structural truss with verticals to attach sheathing or drywall for the draft stop
- Two-Hour shaft requirement
 - Should be able to become a one hour rating if you do not span more than three floors
 - Have your architect verify this requirement
- Stair and Elevator tops
 - UL-L511 With system 3 is acceptable 2 hour rated system for the top of shafts
- High tension lag screws in lieu of through bolting of corridor framing ledger.
 - Ledgerlok LL005 by Fasten Master
- Drywall fire hats over can lights
 - Maintains the fire rating of the floor ceiling assembly
- Extend 2x corridor floor joists into the corridor mechanical closets
 - Allows higher elevation of duct into the corridor
 - Drywall turned into these closets could eliminate the need for fire dampers as the 1 hour rating has now moved around the closet.
- Floor Truss web design
 - Allow room for your Mechanical trunk line to pass through
- Resilient Channel does not develop shear
 - Do your RC channel walls conflict with the shear walls?
- Shearwall plywood should not be installed on the finish side of the wall.
 - Restricts the installation of the MEP Rough-In
- Are your shower heads and valves located in rated walls?