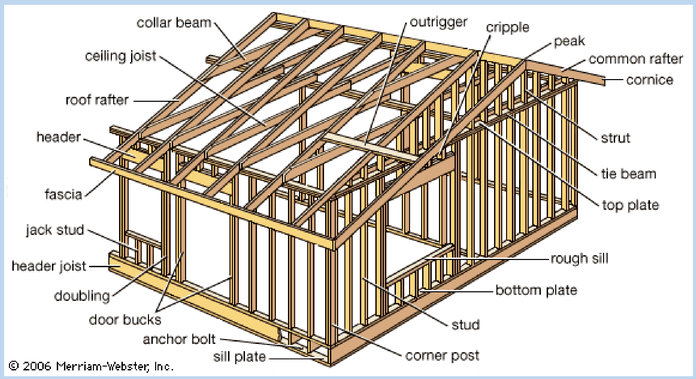
Reducing Wood Waste in Residential Construction

Carter Gjevre

Advisors: Troy Knight & Derek Larson

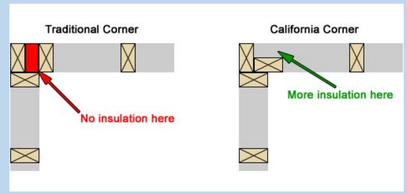
Introduction: **The objective of this thesis was to determine how to reduce wood waste in residential construction. Analysis of building methods, reclaimed materials and site management are of great concern as well as the efficiency of the system. Concentration on reduction of wood through various methods will be identified. The study will also discuss economic components and necessity to reduce waste. It will seek to determine the most feasible and practical solutions in todays industry.**



Methods: **I evaluated conventional framing techniques through various scholarly articles and books. I compared various figures and facts as well as processes that were currently in place throughout the country that sought to reduce wood waste. Interviews with various builders in the industry were conducted in order to understand how waste was produced, and how they felt about reducing waste. The United Kingdom's wood reduction programs and policies were also researched, used as a model for comparison to the United States.**

Results

Solutions	Description
Design	. Builders and homeowners can reduce waste by designing the home around the materials they have . Keeping in mind that building materials come in two foot increments
Alternative Framing techniques	. SEE studs . Eliminates headers in non-load-bearing walls . 24" on center wall framing . In-line framing technique
Modular Construction	. Factory produced home . Efficient use of materials . Constructed using modules or six sided boxes . Reduces overall waste
Regulation	. Altering building codes to reduce waste . Increase in landfill tipping fees . Applying EPA and LEED building methods to codes



Conclusion: **It has become increasingly clear that the construction industry is wasteful. Although wood is a renewable resource its waste in the end has an impact on our environment. Wood is only a small part of the total waste at a construction site, however it is a source that can be easily be reduced on site. In order to reduce waste a series of initiatives by both the builders and the homeowners is needed. To reduce waste in conventional construction such as platform framing the first step is in the design of the home. By utilizing the given dimensions (two foot increments) from lumber and sheet good suppliers, offcuts can greatly be reduced. Alternative framing techniques can be used whenever possible by eliminating double headers, framing corners with three studs, eliminating double top plates, etc. Modular construction may be the most plausible solution to decrease wood waste. The type of construction is conducted in a factory that promotes efficiency in the use of materials and cost. This type of construction cannot be competed with in terms of cost, efficient use of materials, and time. Modular homes would also be able to implement alternative framing techniques in some areas as well. Regulation can and should play a part in reducing waste. Introducing codes that require less wood in homes, as well in landfills would force the industry to reduce waste.**

Image Sources:
Forest Image - http://econews.com.au/wp-content/uploads/2011/11/timber-logging.jpg
Milling Image - http://images.wisegeek.com/sawmill-lumber-mill.jpg
Platform Frame Image - http://www.merriam-webster.com/images/concise/large/72165.gif
Corner Diagram -http://easterdayconstruction.com/wp-content/uploads/2010/05/california_corner.jpg
Modular Home Image - http://www.minimalisti.com/wp-content/uploads/2014/07/modular-home-assembly-and-construction-on-site.jpg