

CHAPTER 9

Interior Walls and Trims

Drywall provides a huge time- and weight-saving product, compared to the plaster walls that were prevalent in the United States prior to World War II. With 30 billion to 40 billion square feet of drywall produced each year, however, drywall (which requires baking to cure) uses a significant amount of energy (roughly 1% of US annual energy consumption) and creates a huge carbon footprint.



Alternative interior wall systems can be made from agricultural waste such as straw. Some products contain as much as 100 percent agricultural waste product, are fire resistant, avoid toxic binders, and do not require structural studs.

If using gypsum board, look for drywall or gypsum with recycled content that is locally available. The gypsum board scraps should be separated on the job site and recycled as part of your recycling plan. If you do not recycle all of your gypsum board content, it can be ground up and used for soil amendment (as long as the gypsum scraps do not contain toxic paints or remnants of wall coverings). Alternatives to gypsum board include straw bale, adobe, and cobb. New, non-heat dried drywall products are also becoming available (EcoRock, which uses 80% fly ash and a very low-carbon finishing process, or DensArmor), but as of Spring 2010 have not entered production scale due to the slowdown in new construction. Keep looking for these greener products.

Note: Sheetrock® is a trade name for gypsum wall board, or drywall. “Greenboard” is a drywall product with water-resistant paper coatings, not a “green” environmentally preferred type of drywall.

Implementation of Green Interior Walls and Trim


- Install 24" off-center studs.
- Install finger-jointed studs or high-recycled content metal studs.
- Use straw panel walls, such as strammit panels.
- As alternative, low energy density drywall becomes available, price and consider installing it in your homes.
- Use certified wood trim.
- Use finger-jointed trim.
- Utilize a wood interior panel system.

Wood Interior Panel System

The wood paneling system is designed for interior finishes. Each panel has a hardwood veneer bonded to an engineered wood substrate such as medium-density fiberboard (MDF) or wheatstraw board.

Wood paneling can reduce the cost when compared to custom millwork by as much as two-thirds.

The paneling system is used exactly like any hardwood paneling in interior finish applications. It is a pre-cut system where pre-machined stiles, rails, and panel pieces are assembled and installed with minimal cutting and sanding. This allows the appearance of custom-built paneling at significantly lower cost of materials and labor. Panels and rails can be stacked to create full wall-paneling options.

MDF is made from highly refined wood fibers combined with a binding agent and pressed into a composite wood product that is uniform and dimensionally stable. Unfortunately, MDF has a high formaldehyde content, and you should therefore seal all edges and the material itself to minimize off-gassing. 

Wheatboard is made with discarded wheat straw from farming operations. The straw material is processed into substrate panels that have excellent stability and strength. Wheatboard panels usually cost \$10–\$35 per square foot.

Benefits of Wood Interior Panel Systems

- Wood interior panel systems help extend scarce hardwood resources and use recycled materials.
- Panel systems use less wood and recycled material, and *they cost much less* than a similar product using actual wood.
- These products are made of compressed straw and recycled manufactured wood products, and use significantly less wood than authentic wood wall décor.
- Wood panels hold up as long or longer than other actual wood decor due to their treatment and manufacture. They can usually be cleaned with conventional cleaning agents, and are rather strong for their cost as well.



Link and Learn

Minnesota Building Materials Database- A Tool for Selecting Sustainable Materials:

<http://www.buildingmaterials.umn.edu/>

Austin Energy Green Building Program: Casa Verde Builders Case Study:

<http://www.austinenergy.com/Energy%20Efficiency/Programs/Green%20Building/Resources/Casa%20Studies/index.htm>

BobVila.com: *The Energy Wise House: Building with Insulated Concrete Forms:*

http://www.bobvila.com/HowTo_Library/EnergyWise_House_Building_with_Insulated_Concrete_Forms-New_Walls-A1627.html

Johnston, David and Kim Master, LEED AP. *Green Remodeling, Changing the World One Room at a Time*. New Society Publishers

California State Guide to Recycled content drywall:

<http://www.calrecycle.ca.gov/RCP/ProdByType.asp?ProductTypeID=134&QRY=&CATID=257>

EcoRock:

<http://www.seriousmaterials.com/html/ecorock.html>

US Green Building Council's "Green Home Guide" site:

<http://greenhomeguide.com/>