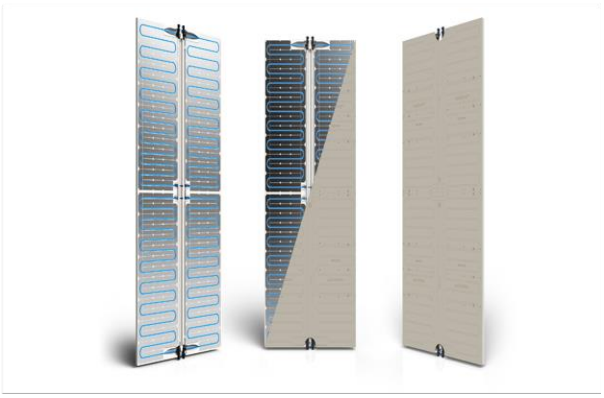
DRYWALL



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Important Facts

- **Use:** key finishing component of walls, sound control, fire protection
- **Key structural benefits:** versatile, fire-resistant, easy to install, absorbs moisture

Solar Decathlon 2013

The team chose to implement a radiant heating and cooling system provided by Messana Air-Ray Conditioning LLC. The company is part of the US Green Building Council and creates products that help builders attain LEED certification. Their drywall panels are 100% recyclable and they encourage their radiant technology to be integrated with solar or geothermal power. Their primary appeal to customers is that radiant conditioning is a more comfortable, natural way to control the temperature of a home.

Ethical Issues Raised

Gypsum board is a common construction material popularly known as drywall or plasterboard. The average American home contains more than 15,000 pounds of drywall. A drywall board consists of gypsum plaster surrounded by a liner made from recycled newspaper.

The plaster is produced by crushing, heating, and dehydrating raw gypsum. Gypsum is a soft, abundant mineral mined around the world. It is typically mined by blasting mineral deposits in a quarry.

Drywall production has a noticeable environmental impact. Processing the gypsum releases particulates from the gypsum powder in addition to sulfur dioxide, nitrous oxide, and carbon monoxide. Heating the gypsum also has a high energy cost.

One way to reverse these effects is to produce gypsum synthetically from factory waste products. Synthetic gypsum is made by trapping and converting sulfur dioxide emitted by power plants in a process known as flue gas desulfurization. Producing gypsum helps cover the cost of installing this capture technology, encouraging factories to actively work to reduce their polluting impact. However, by itself, flue gas desulfurization is not sufficient to meet the needs of the construction industry, which includes 15 million tons of gypsum board produced annually in the US alone.

One significant problem with drywall is that it produces smelly and potentially lethal hydrogen sulfide gas when left to decompose in landfills. It can also leach dangerous sulfates into the groundwater supply. An estimated 75% of drywall ends up in landfills, but efforts are increasing to promote recycling. Recycled drywall can be converted to new drywall or it can be added to enrich soil. Another solution is careful construction planning, which can cut down on waste.

Recent controversy regarding drywall stemmed from a Chinese plant that sold millions of pounds of damaged drywall to the US starting in 2001. The panels gave off toxic gases and led to pipe corrosion, causing health problems in unsuspecting homeowners. Major US retailers refuse to sell Chinese drywall today.