Article

Sustainable Design

Buildings That Use Less Energy, Last Longer and Are Environmentally Conscious

Sustainability is one of the most influential trends in the history of North American building and design. It is shaped around common-sense ideals—striving toward the design and construction of buildings that will last longer and have a low impact on the environment. These buildings will also provide a healthy and comfortable interior for occupants and use less energy, benefiting both the environment and the building owner, who will have lower utility bills as a result. All of these benefits have begun to resonate with the general public, as well as building and design professionals, helping carry the sustainability message throughout the United States and Canada.

For green building to continue to prosper, builders and designers must be environmentally responsible in their actions, as well as their words. There are many ways to meet the needs of a sustainable-minded public; however, three really stand out—building to (and exceeding) green standards, using building products with many green attributes and recycling jobsite waste.

GREEN BUILDING STANDARDS

LEED® certified buildings often provide healthier work and living environments.

One of the best ways for builders and designers to make their work more sustainable is to follow national green building standards such as LEED®, and aim for high levels of certification. LEED certified buildings are designed to use resources more efficiently when compared to conventional buildings, which are often simply built to national and provincial code. Employing such important concepts as energy and water efficiency and moisture management in their design, LEED certified buildings often provide healthier work and living environments. This, in turn, contributes to higher productivity and improved occupant health and comfort.

Most importantly, green building standards help lay the groundwork for building and design professionals, providing guidelines that show what goes into creating a sustainable building. Some of the most important information involves requirements and recommendations for building materials with the greenest attributes.

GREEN BUILDING PRODUCTS

Doing in-depth research during the specification process to find building products with green attributes is a very important step in designing a sustainable building. It is also recommended to think systemically, planning out how building components will work together as a system to produce the most sustainable results. When researching individual products, there are some key questions to ask:

- Will it help make the building more energy efficient?
- Does the product's manufacturing reduce demand on virgin resources?
- What is the product's recycled content? Is it recyclable at the end of its installed life?
- Does it contain an unsafe level of volatile organic compounds (VOC)?
- Does the product have a high performance rating for its intended function? Is it fire resistant? Is it moisture resistant?

In the realm of walls and ceilings, a variety of products are specified for most building projects. For example, take a look at a typical wall assembly. Fiber glass batt and loose-fill insulation are often used in sustainable building projects, as they increase thermal efficiency, are

FEATURED PRODUCTS

CertainTeed Sustainable Insulation™

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MemBrain™ Smart Vapor Retarder & Air Barrier Film

The U.S. Green Building Council certifies projects that meet the green building standards found in the various LEED® rating systems.

fire resistant, do not absorb moisture and are usually made with a combination of rapidly renewable natural resources and recycled glass (low usage of virgin materials). For moisture management, fiber glass insulation is typically paired with a vapor barrier — usually polyethylene or innovative new nylon smart vapor barrier film. Both work to keep the wall cavity dry by blocking the strong seasonal moisture drive from the building's interior. The smart vapor barrier also increases the cavity's drying potential if it should get wet — thereby reducing the risk of mold growth, a significant concern in sustainable projects.

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For interior walls, the most common choice is gypsum, which is manufactured from naturally occurring materials, has natural fire-resistance properties and is recyclable. In addition to standard paper-faced gypsum board, treated gypsum board products are now available that increase sustainability. Some of these products offer enhanced moisture resistance for moisture-heavy areas of a building, while others are noncombustible, making them ideal for stairwells and other areas that demand protection from fires.

For sustainable ceilings, it's often a good idea to consider fiber glass ceiling panels because of their many performance benefits. Fiber glass is a low-density material. Fiber glass ceiling panels have an unusually high resistance to humidity. They meet Class A flame spread requirements, offer high sound absorption and can provide an extremely high recycled content. Many of today's fiber glass ceiling panels also have a highly light-reflective finish that enables more daylighting of interiors, allowing a substantial reduction in the number of light fixtures required to illuminate a workspace.

Most building product manufacturers have worked hard in recent years to reduce the VOC emissions of their products to very low levels. However, it is still important to check individual product data to be certain. GREENGUARD® certification from the GREENGUARD Environmental Institute is one resource for determining if a product's VOC levels are within acceptable limits.

RECYCLING JOBSITE WASTE

For years, contractors have removed old building components from jobsites and taken them to landfills, where they occupy large amounts of space. Sustainable builders, however, recycle as much construction waste as possible, diverting it from the landfill. Most of today's building product manufacturers have drop-off sites for construction waste recycling and use the recycled material to make new products of equal or nearly equal quality. Gypsum board, fiber glass and mineral fiber ceiling panels, and metal and vinyl components are easily recycled and reused.

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CONCLUSION

By building and retrofitting more sustainably, building and design professionals are producing longer-lasting structures with a greatly reduced impact on the environment. As more contractors and specifiers join the sustainability cause, the message will continue to spread, helping us to preserve the environment for many generations to come.

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