IAQ & The Law

How Green is My Building?

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We all love green. Greenbacks, green trees, green Jell-O, lawyers named "Greene" – Well, at least my wife and daughter love me. Green tea is claimed to be a panacea for many ills. And now, we have green buildings.

Whether green buildings achieve the same level of affection in the real estate market as greenbacks remains to be seen. To quote that famous green thespian, Kermit the Frog, "It's not easy being green."

What makes a building "green"? Just like the many shades of my favorite color (located in the spectrum at a wavelength of approximately 5200 angstroms), there are many shades of what constitutes a green building. How green is green? Is your building forest green, kelly green, lime green or 1950s kitchen avocado green? The particular shade of your building will likely depend on who "makes" the box of environmental "crayons."

Several organizations and governmental agencies have developed either detailed certification programs or guidelines for what constitutes a green building. The details differ, but the general concept remains the same. A green building is one that is constructed with energy efficient, local, and sometimes global, environmentally friendly and people-safe design concepts, materials and components.

Let's look at some of these groups' views on what this means.

The U.S. Green Building Council is the largest and most well known of green building organizations. It has created parameters and guidelines for buildings in order to determine, and certify, what buildings meet their view of what is environmentally friendly and safe.

The council has adopted its Leadership in Energy and Environmental Design standards, both for new construction (described as LEED 2.0) and for existing buildings (LEED-EB). These standards were developed by the council's steering committee and technical advisory board. LEED-EB is in its pilot program to address operating system upgrades and other improvements to buildings. Both standards are performance-based, meaning that they tend to seek an outcome rather than promote a specific product or means to accomplish the outcome.

The LEED standards break down the evaluation of a particular building into five categories: sustainable sites, water efficiency, energy and atmosphere, materials and resources and indoor environmental quality. Certification is based on four categories of compliance with 71 point-scored elements. To be certified platinum, a project must achieve 80 percent of the possible 71 points, gold must achieve 60 percent, and silver must achieve half. A project could achieve only 40 percent and still receive a certification plaque.

While the LEED standards do not provide for certification of specific building products, the inclusion of certain products does affect the point score for a project. Use of recycled building products, reuse of building materials, use of certified sustainably harvested wood and rapidly renewable materials (those that can be planted and harvested in a 10-year period) and use of low-chemical emitting materials all add to the score. A building that meets the percentage criteria noted above can display the LEED logo and the standard (platinum, gold or silver) achieved.

In connection with indoor environmental issues, some of the USGBC-certified projects do show that attention is being given to mold prevention and protection from chemicals. Points have been awarded for construction materials being protected from contamination during construction, filters being replaced after completion of construction, and low-emission components (such as carpets in compliance with the CRI Green Label standards) being installed.

In comparison, the Florida Green Building Coalition has created very detailed standards for homes. The selection of specific materials or design choices determines points awarded in its system for achieving the "Green Home" designation. Green homes have the right to display the green seal, evidencing their compliance with the Florida coalition's building standards.

The Florida Green Home Standard Reference Guide for calendar year 2003 provides alternative details of residential construction components including such diverse categories as spa sanitation systems, solar heating, rainwater harvesting and storage, fresh air introduction and general moisture prevention. For example, points are awarded for either a salt alternative or ionization system alternative to the traditional "eye-itching" chlorine pool products. Most of the points are awarded for "outdoor" environmental protections, as in the example noted above, using less chlorine in a pool immediately benefits the local environment. Solar heating reduces electric usage. Rainwater harvesting reduces the burden on nearly depleted aquifers. But what about the indoor environment?

Let's take a look at the Florida coalition's point system as applied to indoor environmental matters.

One point is awarded for properly-sized HVAC systems. The Florida guide recognizes that HVAC systems are often oversized, thereby resulting in excess humidity problems. Manual J of the Air Conditioning Contractors of America provides the basis for determining the correct sizing of these components. Similarly, one point is awarded for cross-ventilation or ceiling fans, in order to reduce dependence on air conditioning systems, both saving energy and providing additional fresh air intake.

Two points will be awarded for having sealed recessed light fixtures to reduce air conditioning loss from conditioned spaces into the attic. This has the additional benefit of preventing cross-contamination between these spaces.

Concern for contamination by carbon monoxide has resulted in three points being awarded for detached garages and two points for garages separated from living areas by an air barrier. This first item reveals that some green guidelines do not reflect the reality of the current home sales market. Despite the advent of the "new urbanism" in residential projects, the likelihood of a developer marketing houses with detached garages in a subdivision, particularly in Florida, is remote at best. The average homeowner is more concerned with not getting wet in one of Florida's late afternoon monsoons than with infiltration from the garage.

The Florida guide does, in part, recognize the current concern with mold contamination. A separate section addresses moisture control in residential construction and that, by properly managing moisture, the potential for growth of mold, mildew and dust mites will be reduced. Components for which points are awarded include moisture-proofed slabs (through drain systems, gravel substrates, and sealed openings) and the elimination of interior vapor barriers (including vinyl wallpaper). Two points are awarded for a central dehumidification system. Four significant points will be awarded for a residence that has a "whole house positive ventilation strategy" based on controlled mechanical ventilation systems that reduce the uncontrolled introduction of humid, outside air. One point is awarded for radon or soil gas venting systems. Whole house filtration is awarded two points while efficient HVAC filters are awarded one point.

While none of the moisture reduction measures will prevent a leak or pipe break, they do address many of the common sources of excess humidity and the need to dehumidify indoor spaces, both common sources of mold contamination. If HVAC is properly designed and common sources of humidity are prevented, the occurrence of mold will be reduced.

The Florida guide also looks at potential risks to home occupants from chemicals in building components. Incorporating materials that release volatile organic compounds, formaldehyde particleboard, carpets that release VOCs and chromated copper arsenate-treated lumber will not help you achieve the green seal. Carpets are recognized both for their chemical content concerns and their tendency to accumulate dust and other contaminants.

Maintainability also earns points. Wide grout lines are thought to harbor bacteria and other indoor air pollutants due to their porous nature and are recommended not to exceed 3/16 of an inch.

Many of the Green Home points awarded are tied to the use of recycled or recyclable components. As long as guidelines recognize both the need to protect occupants in the indoor environment and as well as the outdoor environment, there is potential for wider acceptance. The focus of the average consumer will always be on potential health risks to themselves and their families more so than on the more amorphous goals of saving energy or the earth itself.

Both the U.S. Green Building Council and the Florida Green Building Coalition seek to promote the development and adaptation of green buildings by the use of the marketing benefits of being "green" for its own sake. Ultimately, only the market can decide whether this is enough to sell the benefits of green buildings. While most of us agree that energy savings, reducing cutting of old growth forests and reduction in water use are important, when it comes to reducing up-front capital costs most companies must look to profits for shareholders first.

One change in the past three years that may assist green building promoters is the attention being paid to the indoor environment and the risk to occupants. As the number of suits continue to rise due to toxic mold and other indoor environmental concerns, the elements of the green building programs that focus on the indoor environment and safe construction materials and systems become a bonus that cannot be ignored. The costs due to such suits may offset some of the costs of "green" construction methods if such can be shown to reduce the risk of contamination.

If groups such as the Green Building Council and Florida's coalition focus on an inside-out strategy, (i.e., promoting the net savings achieved by protecting the occupants), success may ultimately be achieved in achieving recognition of the benefits to the overall environment as well. Both groups should seize upon the current attention being paid to mold to market the benefits of the "green" home-building seal of approval.

Dark Green

On the surface, there seem to be few downsides to being green. We must remember, though, that green sometimes can have a dark side. Think of the sickly green mold growing on ancient leftovers in the fridge – or that lovely avocado-colored fridge that refused to die and be replaced by a new high-tech streamlined number. Pretty ugly, eh? Well the same ugliness may arise in connection with green buildings from a legal perspective.

When marketing "green" it is possible that some consumers of homes or occupants of commercial buildings may perceive that the safety afforded by "green" construction affords some reduced level of risk. Indeed, part of the goal of the green building standards discussed above is to reduce risk to occupants of buildings from chemicals, excess humidity and mold. If a developer markets the benefits of purchasing a green

home or renting a green apartment, will an uneducated consumer be successful in claiming a higher standard of safety? Will employees of a company stricken by exposure to mold be able to successfully argue that the green building should have prevented such contamination?

The arguments a buyer, renter or employee can raise are not so different from those that have been raised in connection with such other "green" products such as natural or organic foods, or herbal or natural health cures (Ephedra, anyone?). Unlike green buildings, the definitions of "organic" or "100 percent organic" are regulated under the Organic Foods Production Act of 1990 making it somewhat easier for a certified organic food producer to escape liability for using the "organic" label. As these terms are expressly defined by law, it is more difficult for a consumer to argue that they did not know what they meant.

Currently, green buildings are more like herbal supplements, or even natural spring water. There are no regulations, only industry guidelines as to what they mean, what's safe and what type of quality controls should exist. Just like the sale of herbal supplements often generates the attitude among consumers that "if it's natural, it must be safe," an unclear green building standard may result in the attitude that "if it's received the green medal, it must be safer than that other house, apartment building or office building."

Terms such as "natural," like the term "green," are not always what they seem. A recent study by the Natural Resources Defense Council found that some "natural" spring waters contained chemicals at concentrations that would not have been permitted in tap water and that one-third of the bottled waters tested contained synthetic organic chemicals, bacteria, and arsenic.

It is therefore important that the adoption of green standards for buildings and the use of green awards of merit be clear and unambiguous as to the goals to be achieved and be understandable by the target market. Failing to do so will generate at least allegations of liability for misrepresentation or result in a higher standard of care being imposed on those developing green buildings or projects.

Another concern is the certification of individual components of a building as meting certain green standards. While each product may satisfy the applicable guidelines of concern to that certifying organization, improper use of that product or use without thought as to location or condition may result in the intended benefits of the product being undermined.

As an example, a particular vinyl wall covering may be determined to exhibit reduced VOC emissions. However, the design choice by an architect or interior designer to have the product applied to the inside of exterior walls without considering the vapor barrier effect may lull an uneducated consumer or design professional into believing that the "green" wallpaper solves other problems such as mold growth as well, in a situation where the exact opposite effect will result.

The development of green indoor environmental standards mandates a holistic approach. Design professionals, developers, contractors, consumers and building users, as well as certifying organizations, must understand the interlocking nature of all aspects of building components and materials and maintenance products and methods so that they can truly improve the conditions in which we all live and work. This will reduce the potential for unintended consequences – and liability – and achieve a truly "green" result.