

Sustainable Building in Portola Valley



Planning your project with green in mind

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Often, when the term “Green Building” comes up, images of aesthetically-challenged, industrial-like structures that lack warmth, comfort and light come to mind. However, there is no such thing as “green architecture;” design expression utilizing sustainable building elements and products is as limitless as traditional architecture.

Also, *there are no rules to building green*; it does not have to be “all or nothing.” You can integrate as many sustainable elements as you desire into your design to contribute to a healthier environment and a more durable, high-quality, energy efficient space for you and your family.

What exactly does it mean to “build green”?

Green Building (or sustainable building) means considering the environment and impacts to it when designing and building a structure. There are many elements to building green, including architectural design that maximizes natural light and ventilation, installing energy efficient fixtures and equipment, and selecting durable, recycled, and/or non-toxic construction materials. In general, homes constructed using green building practices are energy efficient, resource conserving, have better indoor air and light quality, and utilize construction materials wisely.



Planning ahead is key.

Being informed and aware of green building options is a key component of the project design phase. The decisions made in design have impacts for the life of the project. It is important to develop a clear idea of your project’s vision, goals, and priorities and how you can integrate sustainable features into the design.

Portola Valley and Sustainable Building

The Town of Portola Valley Town Council, Planning Commission, and Architectural & Site Control Commission (ASCC) strongly encourage the use of sustainable building products, designs, and practices in all residential and commercial construction projects in town. We seek to educate our residents, local architects, and contractors on the benefits of building greener and the products available to accomplish this goal. As an incentive for solar photovoltaic energy generation, Portola Valley offers a flat-rate building permit fee of \$50 for all solar applications. To encourage salvage/deconstruction over demolition and to meet State requirements for landfill waste reduction, we require that at least 60% of both new construction and demolition debris be recycled.

In 2004, Portola Valley led the way in participating with San Mateo County Recycle-works to develop and promote the San Mateo Countywide Sustainable Building Guidelines Booklet and Checklist. The Sustainable Guidelines Booklet is still available and offers detailed, well-organized and easy to understand information on green building strategies and how to integrate them into your project design. Sustainable features involving building siting, wood framing, exterior treatments, plumbing and electricity, and non/less toxic materials among others are clearly addressed by category so that you can quickly identify sustainable elements for each aspect of your design.

As of July 1, 2010, Portola Valley’s Green Building Ordinance went into effect requiring all projects being reviewed by the ASCC to complete the Build It Green Checklist and meet a minimum point threshold based on the scale of the project, and that the project be professionally certified. Smaller addition/remodel projects not requiring ASCC review must include the checklist with the building permit application, however, it need not be professionally certified.

Building Green Can Be Cost Effective

While most consumers believe that using green building products and designs is a benefit to the environment, they commonly perceive them to be considerably more expensive and possibly not worth the extra cost. This misconception is usually based on examining the *up-front price* of a *single* green product, for example, the installation of solar photovoltaics.



The initial cost to install solar panels is certainly expensive, however financial (and environmental) benefits are gained over the *long-term*. Similar statements can be made when purchasing and installing a tankless water heater, energy efficient windows, or a hydronic radiant heating system. Therefore, when deciding whether to install a green product in your home, it is important to consider not only the initial cost, but to take into account the overall lifecycle costs (initial cost combined with the operational costs over the product's lifetime). Keep in mind also that sustainable products are just that; they generally have longer lifespans than their conventional counterparts.

Product	*Typical Cost	Durability/Lifespan
Asphalt Comp Roofing (G)	~\$12,000 for 3,000sf	~40 years
Medium Wood Shake (T)	~\$20,000 for 3,000sf	~25 years
Recycled Glass Countertop (G)	~\$40/sf	similar
Basic Granite Countertop (T)	~\$4—\$15++/sf	similar
Bamboo Flooring (G)	~\$4—\$8/sf	similar hardness
Red Oak Hardwood Flooring (T)	~\$5—\$10/sf	similar hardness
6.3 g/min Tankless Water Heater (G)	~\$900	20+ years
40 g Tank-type Water Heater (T)	~\$400	~10—15 years
Low/No VOC Paint (G)	~\$30—\$50/gal	**
Standard Interior Paint (T)	~\$30—\$50/gal	**
Recycled Content Insulation (cotton, cellulose) R13 (G)	~\$0.50—\$0.70/sf	**
Fiberglass Insulation R13 (T)	~\$0.15—\$0.30/sf	**

*Typical cost does not include installation

** "G" = greener option; "T" = traditional option



Another way of looking at the financial costs of building green is to design green as a *whole* from the beginning and not just piece-mealing in Energy Star appliances or low-e windows at the end of construction. Designing your project with green concepts doesn't mean you will lose conventional design needs, in fact you will likely enhance your building design and ultimately end up with a healthier, more comfortable, and functional living environment. Planning ahead and considering environmental issues such as site orientation (passive heating, cooling, and natural lighting), energy efficiency, use of durable construction materials, etc. will result in a more cost-effective design and a home that will be more energy/water efficient and constructed to require less maintenance and have a longer lifetime than a traditionally built structure.

A recent cost-benefit analysis of green building conducted for the State of California's Sustainable Building Task Force found that the design and construction of green buildings (recognized by the LEED rating system– the Leadership in Energy and Environmental Design award from the U. S. Green Building Council) amounted to about a 2% increase in *overall* project costs (although other studies have produced figures between 2% and 7% in increased costs depending on project specifics). Investigating further into the long-term financial benefits of green building, the study determined that green design can result in about a 20% savings of total construction costs over a 20-year period.

While you may not want to design an award-winning green building, you can achieve long-term savings (as well as short-term!) by incorporating as many sustainable features and techniques into your home design in the planning stage as you feel you can accommodate. Many green design features can be accomplished at no- or low-additional initial costs, such as siting your building to optimize solar orientation, using recycled content insulation, adding fly ash to concrete, minimizing irrigated lawn areas, choosing energy/ water efficient fixtures, and using cement as a finished floor.

As consumers, we often have difficulty seeing past the initial higher costs of some individual energy saving and environmentally sound building strategies. As you design your home, remember to focus on how the entire building can incorporate greener concepts, that when combined with the individually higher cost components (e.g., solar photovoltaics, radiant hydronic heating, etc.) will prove cost-effective in the long-term. Sustainable building is both an environmentally responsible and cost-effective investment. It is an attainable goal for your building project, and the Town of Portola Valley can help you get started.



We are here to assist you!

Information is the first step to designing with green in mind, and the Town of Portola Valley has several ways to help you get started in the right direction. As mentioned above, the Sustainable Building Guidelines Booklet and Checklist are a good place to start researching what options and technologies are available and applicable to your project's needs. Both documents are available at Town Hall and on the Town website at www.portolavalley.net under the Building and Planning section. Our website also posts "Carol's Green Feature" quarterly which explores specific green building topics, such as bamboo flooring and tankless water heaters. You will also find quarterly "Did You Know's" to help you think about our everyday impacts on the environment and how we can lessen them.

In addition to the Town's website, you can obtain handouts and brochures on building green, deconstruction and salvaging, and recycling at Town Hall. Planning Technician, Carol Borck, is available at (650) 851-1700 x11 or by email at cborck@portolavalley.net if you need further assistance.