



## ENVIRONMENT GUIDE

### CHAPTER 5: GREEN CONSTRUCTION

# INTRODUCTION TO GREEN CONSTRUCTION

### *What is Green Construction?*

Green construction looks beyond the readily apparent aspects of the office or building to create a space that addresses the comfort, health and broader environmental impacts of the construction/remodeling process. The Leadership in Energy and Environmental Design (LEED) Green Building Rating System™, developed by the U.S. Green Building Council, is the primary certification used to measure and designate green buildings.

### *Why do Green Construction?*

Buildings, infrastructure and the environment are inextricably linked. Energy, materials, water and land are all consumed in the construction and operation of buildings and infrastructure. Green construction aims to create the balance between what we seek to build and what our environment can ultimately support.

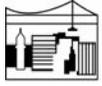


Construction of green buildings/spaces is good for companies' bottom lines. It can increase productivity by making employees more comfortable and healthy. In some cases it is more cost effective, saving money on utility bills and operating costs. Beyond the financial rewards, green construction helps the larger environment. Green building/spaces consume less energy and natural resources and reduce the waste and pollution we create.

### *How to do Green Construction*

The following six steps are adapted from the [\*HOK Guidebook to Sustainable Design\*](#):

1. Project Definition: Construction Manager, Tenant (if it is a tenant improvement project), and Architect should establish sustainable construction tasks in the scope of work, contract agreement, and project schedule.
2. Team Building: Select design team members with experience in sustainable design.
3. Education and Goal Setting: Gather team and discuss the project, identify challenges and opportunities for greening the project, and set measurable sustainability goals.



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4. Documents and Specifications: Carefully document all project requirements and ensure that the goals are reflected in all construction documents and specifications.
5. Bidding and Construction: Engage design team and owners in collaborative approach to bidding, construction and commissioning.
6. Post Occupancy: Engage entire team and occupants in discussion and conduct a post occupancy evaluation to evaluate the project and identify lessons learned.



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# ELEMENTS OF GREEN CONSTRUCTION

### *Elements of Green Construction*

#### I. Materials

Work with your architect to specify materials that are sustainable and healthy for building occupants. Here are some key factors that make some materials more sustainable and healthy than others:

- Durable/long life – does not have to be replaced quickly
- Materials with a high recycled content
- Low VOC (Volatile Organic Compounds) adhesives, paints and flooring
- Formaldehyde-free composite wood and laminates
- Rapidly renewable materials such as bamboo and linoleum flooring
- Sustainably harvested, FSC certified wood products (FSC is the [Forest Stewardship Council](#), an international organization that promotes sustainable forestry)
- Locally sourced materials



#### II. Construction Waste Management

Require that your general contractor develop a Construction Waste Management Plan with a requirement of at least 50% waste diversion for the project ([65% in Oakland](#)). This is mandated by many [local jurisdictions in Alameda County](#) and throughout the Bay Area. This plan can include the following elements:

- Identify opportunities for reuse of materials elsewhere in the building or within your company.
- Identify [haulers and recyclers](#) that are able to recycle a large percentage of your waste.
- Use salvaged or reused furniture in your project.

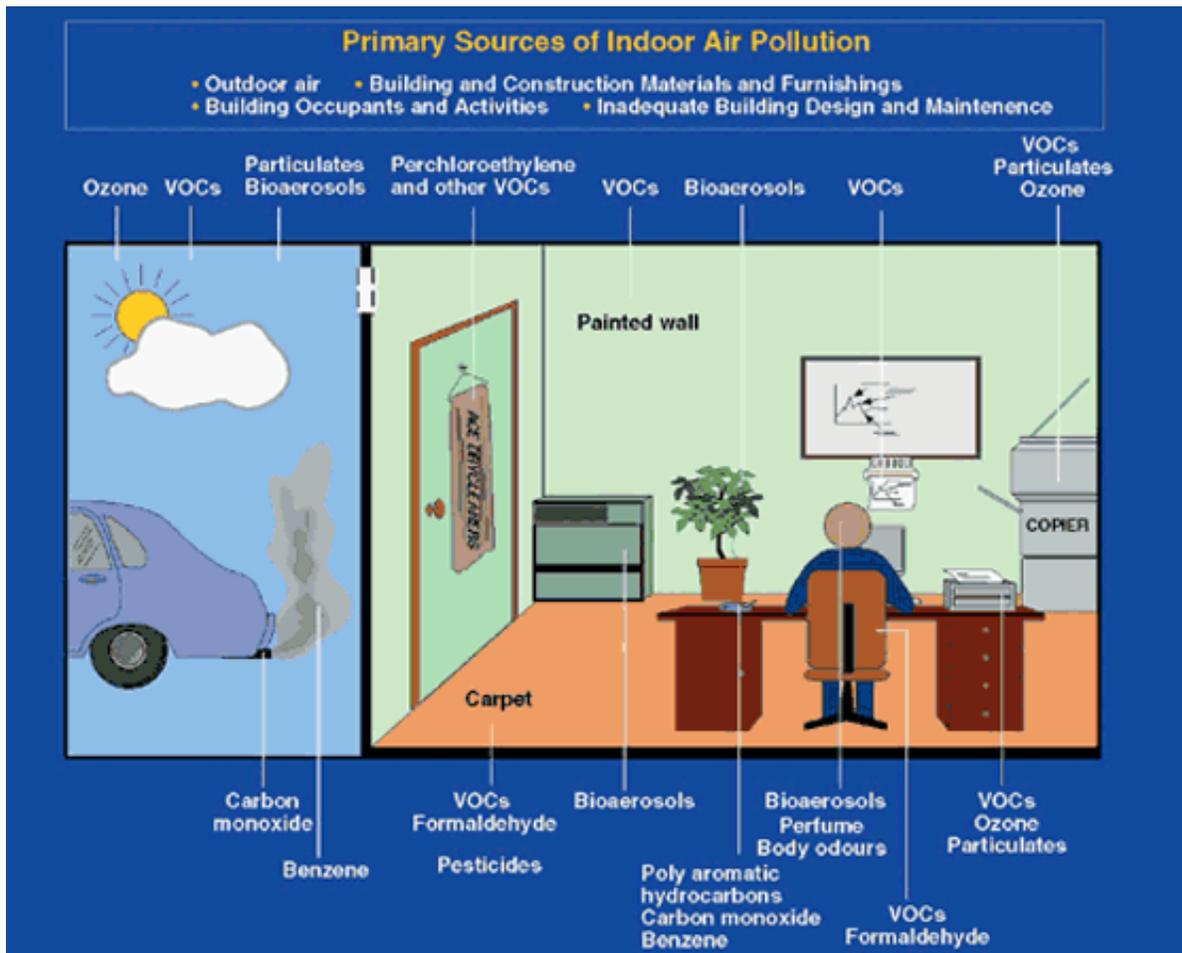
#### III. Indoor Air Quality

You know that “new car smell” that permeates a new suite? That is mainly due to the off-gassing of VOC's from new carpets, paint and vinyl composition tile (VCT). Formaldehyde and other chemicals contribute to poor air quality and lower the productivity of incoming tenants. In order to reduce the risk, follow the following strategies:

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- Develop a plan to minimize levels of hazardous dust and chemicals in suite
- Spec materials such as carpet, paint, and VCT with low VOC's
- Spec materials such as composite wood and laminate that are formaldehyde-free
- Locate copiers and printers by ventilation and away from workstations
- Flush completed suite completely before occupancy



**IV. Energy Efficiency**

See Energy Efficiency Chapter



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**V. Water Efficiency**

See Water Efficiency Chapter

**VI. HVAC**

Design for Efficiency

Use Energy Star Appliances and Equipment

See Energy Efficiency Chapter



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**ADDITIONAL  
RESOURCES**

***ADDITIONAL RESOURCES***



**U.S. Green Building Council's Leadership in Energy & Environmental Design (LEED) Rating System: [www.usgbc.org](http://www.usgbc.org)**

LEED Rating Systems are available for:

- New Construction and Major Renovations - designed to guide and distinguish high-performance commercial and institutional projects.
- Commercial Interiors - a benchmark for the tenant improvement market that gives the power to make sustainable choices to tenants and designers.
- Core & Shell - aids designers, builders, developers and new building owners in implementing sustainable design for new core and shell construction.
- Existing Buildings - provides a benchmark for building owners and operators to measure operations, improvements and maintenance.

LEED Rating Systems are also available for Schools, Retail, Healthcare, Homes and Neighborhood Development. See the website for project profiles, reference guides for each rating system, and many other resources.



**Green Building in Alameda County: [www.BuildGreenNow.org](http://www.BuildGreenNow.org)**

StopWaste.Org (the Alameda County Waste Management Authority and Recycling Board) offers technical assistance and resources to Alameda County residents, businesses and institutions. This website offers practical, easy-to-use publications, directories and other tools for green renovation and new construction.



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# ADDITIONAL RESOURCES



**Build It Green™**  
Smart Solutions From The Ground Up

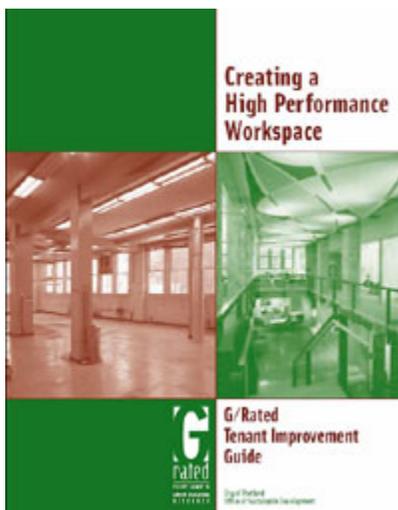
Build it Green, a Bay Area Resource Center for Green Building:  
[www.BuildItGreen.org](http://www.BuildItGreen.org)

[The AccessGreen Directory](#) lists suppliers and service providers of green building products within the 9-County San Francisco Bay Area and Anaheim.



[Green Building 101 articles](#) at [www.Inhabitat.com](http://www.Inhabitat.com)

### [Creating a High Performance Workspace, G/Rated Tenant Improvement Guide - Portland's Guide to Greening Tenant Improvements](#)



Tenant improvements (TI) are the largest area of commercial construction activity throughout the US. The City of Portland Office of Sustainable Development's *G/Rated's Tenant Improvement Guide* is an all-in-one resource to help a first timer or savvy project manager implement a high performance commercial tenant improvement project from start-to-finish.