

COUNCIL MEETING OF
November 21, 2006

Honorable Mayor and Members
of the Torrance City Council
City Hall
Torrance, California

Members of the Council:

Subject: Introduction of the Torrance Green Building Program

Recommendation

The Community Development Department and the Environmental Quality Commission recommend that the City Council review the plans for the introduction of the Torrance Green Building Program.

Background and Analysis

The City has been studying various Green Building Programs throughout the country over the past two years. While Green Building is strongly established in Northern California, particularly through the work of Alameda County, it has been slower to take root in Southern California. Santa Monica has a Green Building Program, and other jurisdictions are beginning to move in the direction of establishing programs as well.

In that regard, several local jurisdictions have joined together to form a local Green Building Consortium, in order to work together on Green Building Programs that will be uniform from jurisdiction to jurisdiction, allowing developers to become familiar with a single program rather than a number of different programs. The Consortium has chosen to use the Alameda County Green Building Program as a template. In that way, the area jurisdictions have the advantage not only of uniform programs, but are able to draw on the expertise of a program that has been successful for a number of years. Included in the program is a Green Points program, designed specifically for conditions in California. This program allows residents to assess the relative "greenness" of their existing residence, proposed additions or new dwellings by assigning points to a number of green practices.

To introduce Torrance residents to Green Building, certain portions of the Green Building booklet have been chosen. The book as a whole is extensive and somewhat intimidating, however, there are sections discussing green remodeling tips for various rooms in the home. We have chosen to take those sections and will make them

available at our building counter for residents looking for remodeling information along with the other informational handouts already in stock.

Green Building is already being used for some of the new construction in the commercial/industrial sector. Toyota has an award-winning green building, and Honda will be constructing their newest facility using Green Building practices. As part of our endorsement of Green Building, the Environmental Quality Commission would like to provide recognition of those projects that make use of Green Building practices.

This first step is informational only. In the future, we hope to expand the program by providing more detailed information on our web site, through informational outreach both to the residential community and to the development community and looking at the potential for incentives for projects that choose to build Green. In addition, as the community becomes more familiar with Green Building, we can look at adopting voluntary guidelines based on the Alameda County Program.

Respectfully Submitted,

Jeffery W. Gibson
Community Development Director

By 
Linda Cessna
Deputy Community Development Director

CONCUR:


Jeffery W. Gibson
Community Development Director

NOTED:


LeRoy J. Jackson
City Manager

Attachments:

- A. Green Building Informational Handouts
- B. Environmental Quality Commission Green Building Item

HOME REMODELING

3400 N. 10th St., Suite 100, Phoenix, AZ 85016
Tel: 602.955.1234

Introduction

Green building is just applied common sense. To demystify the process and move forward with your construction project, it is helpful to think of green building as the convergence of three fundamental objectives:

- 1 Conserve natural resources**
- 2 Increase energy efficiency**
- 3 Improve indoor air quality**

Conventional building practices consume large quantities of wood, plastic, cardboard, paper, water and other natural resources that lead – unnecessarily – to their depletion.

For example, wood is one of the most common building materials, but is often used wastefully. We have already harvested 95% of the nation's old-growth forests – a trend that simply cannot continue. Engineered lumber products such as wood I-joists, wood fiber laminates and oriented strand board, utilize fast growing farm trees as an alternative to old-growth forests. These products can use as little as 50% of the wood fiber to perform the same structural functions and are typically stronger, straighter and lighter than solid-sawn lumber.

Remodelers have a rapidly expanding range of green building materials from which to choose. Recycled-content decking, insulation, reclaimed lumber and other products divert waste from landfills, while providing quality and durability that often exceed conventional materials. For example, decking material made out of recycled plastic resins mixed with wood waste fibers can last up to five times longer than wood decks, and never need to be treated or painted.

Water conservation is another important issue. Wise water usage reduces the strain on resources as well as lowers expenses. Today, remodelers can take advantage of a new generation of high-efficiency washers, dishwashers, and landscape water management systems.



The San Francisco Bay Area chapter of the National Association of the Remodeling Industry (SFBA NARI), in coordination with the Alameda County Waste Management Authority, offers a comprehensive certification class for California licensed building professionals. The class consists of a four session course on how to apply green building methods and materials in remodeling. Consumers can locate a Certified Green Building Professional at www.sfbnari.com. Building professionals interested in becoming certified can contact NARI at 415-982-9200 or visit their website at www.sfbnari.com.

Energy efficiency is a cornerstone of any green building project. Generation and use of energy are major contributors to air pollution and global climate change. Improving energy efficiency and using renewable energy sources are effective ways to improve air quality and reduce the impacts of global warming.

Improving energy efficiency is also an economically effective choice for consumers. Lowering utility expenses allows residents to enjoy the financial benefits year after year.

The first step to increase energy efficiency is to add insulation and weather stripping wherever possible, install double-glazed/low-E windows and upgrade to high-efficiency appliances. Other energy upgrades/choices include installing solar water heaters, photovoltaic panels, and purchasing “green power” generated from renewable sources like the sun, wind and biomass (when available).

The United States Environmental Protection Agency (EPA) reports that the air in new homes can be ten times more polluted than outdoor air. According to the *New England Journal of Medicine*, 40% of children will develop respiratory disease, in part, due to the chemicals in their homes. Poor indoor air quality is caused by the offgassing of chemicals found in many building materials as well as mold and mildew that build up in homes due to poorly designed and maintained heating and cooling systems.

One of the most common indoor pollutants is formaldehyde, a suspected human carcinogen. Kitchen cabinets, countertops, shelving and furniture are typically made from particleboard held together by formaldehyde-based adhesives. The formaldehyde is released into the home for years after these products have been installed. Many paints and floor finishes also contain unhealthy volatile organic compounds (VOCs). That “new house smell” is actually the odor of these volatile compounds offgassing and is a telltale sign that there are harmful chemicals in the indoor environment.

The building products industry has responded to these indoor pollution problems by developing alternative paint, finish, and adhesive products. For example, solvent-free adhesives used in flooring and countertops can eliminate many of the suspected and known human carcinogens. Paints, varnishes, and cleaners that don’t utilize volatile compounds are now commonly available from most major manufacturers at costs comparable to conventional products.

In addition to the growing number of readily available and cost-effective green materials – an increasing number of builders and remodelers are also using natural building materials such as straw-bale, rammed earth, adobe and cob. While less common in their use, natural building products have a positive impact on the environment as they are renewable and abundant; energy-efficient in production, transport and use; non-polluting; durable and long lasting.



Graduates of the NARI Certified Green Building Professional class have formed a new trade group called the Green Remodelers Guild. Their mission is to provide continuing education in green building practices as well as a forum for discussion of green building materials and methodologies. For more information, visit www.build-green.org.

Benefits of Green Building

There are many reasons to build green. These include a concern for the environment, an interest in building more efficiently, health considerations or a desire to create an environmentally friendly image for your business. By applying a sustainable perspective to design, construction and remodeling, green building brings the benefits of resource conservation, energy savings and healthy living.

Each of the features listed in these Green Building Guidelines benefit the environment by addressing one or more of the following: resource conservation, energy efficiency, indoor air quality.

The following is a list of green building features that convey the benefits of building green:

Resource Conservation

Most green building products and materials were developed to do something better than their conventional counterpart. These products usually perform better and are manufactured in an environmentally sound manner, thus protecting and restoring our natural resources. Consider using the following:

- Recycled-content decking
- FSC Certified wood
- Engineered lumber
- Interior steel studs
- Solvent-free adhesives
- Natural linoleum flooring
- Recycled-content ceramic tile
- Flyash in concrete
- Bamboo flooring

Energy Efficiency and Indoor Air Quality

Next to quality, durability and reduced maintenance are very important. There is never enough time to do what needs to be done and home maintenance is never high on the list of how to spend time away from work. Consider using the following:

- Fiber-cement siding
- Recycled-content decking
- Exposed concrete flooring
- Natural linoleum flooring

- Recycled-content ceramic tile
- Resource-efficient landscapes and gardens
- 40 year roofing

Indoor Air Quality and Thermal Comfort

Comfort is what drives high energy use. When it gets hot, we turn on the air conditioning. By increasing the insulation and providing for natural cooling, the electricity demand can be reduced with no compromise in occupant comfort.

Consider incorporating the following:

- Foundation/slab insulation
- Increased wall and ceiling insulation
- Spray cellulose insulation
- Advanced infiltration reduction practices
- Low-e windows
- Hydronic heating
- All ducts located in conditioned spaces
- Ceiling fans
- Whole house fans
- Passive solar heating
- Natural cooling
- ENERGY STAR® appliances
- Attic ventilation systems

Indoor Air Quality and Health

What is more important than the health of our children? The public health community has identified homes as one of the most significant threats to children's health. It is only common sense to reduce the use of products that are known to have health impacts. Consider offering the following:

- Low/No-VOC paints
- Natural linoleum in place of vinyl flooring
- Formaldehyde-free medium density fiberboard (MDF)
- Solvent-free adhesives
- Water-borne wood finishes
- Clean ducts before occupancy
- Exhaust fan in attached garages
- Recycled-content fiberglass insulation with no added formaldehyde
- Seal all particleboard and MDF

Green Points

When remodeling, it is important to look carefully at the type of project and incorporate as many green features as possible. The Green Points is a rating system that has been developed to offer building professionals and homeowners a tool to assess how environmentally friendly or “green” a home is. The items listed on the Green Points represent a variety of green building opportunities, however; not all of them may apply to your project. Each measure is assigned to a specific category – Resources, Energy and IAQ/Health – to give you an idea of the impact of each measure. Although some measures may fit into more than one category, they have been assigned to the category where they have the greatest impact.

Green Points

Due to the diversity of remodeling project types, assigning a “total points” value to a project to be considered environmentally friendly is not feasible. However, 25 measures have been highlighted to signify that every effort should be made to incorporate them into your projects. These items have been chosen based up on their impact on the environment and the health of the home in coordination

with ease of implementation and relative low cost. These measures can be used as a starting point for “greening” your project. You can download an electronic version of the Green Points at www.stopwaste.org.

	Available Points
A. Site	
1. Recycle Job Site Construction and Demolition Waste 65% = 1 point; 75% = 2 points; 80% = 4 points	up to 4 Resource pts.
2. Salvage Reusable Building Material	4 Resource pts.
3. Remodel for Mixed Use, Adaptive Reuse, and Historic Preservation	4 Resource pts.
4. Protect Native Soil	2 Resource pts.
5. Minimize Disruption of Existing Plants and Trees	1 Resource pt.
6. Implement Construction Site Stormwater Practices	2 Resource pts.
7. Protect Water Quality with Landscape Design	2 Resource pts.
8. Design Resource-Efficient Landscapes and Gardens	4 Resource pts.
9. Reuse Materials/Use Recycled-Content Materials for Landscape Areas	2 Resource pts.
10. Install High-Efficiency Irrigation Systems	2 Resource pts.
11. Provide for On-Site Water Catchment / Retention	2 Resource pts.
	Subtotal from this section <input type="text"/> <input type="text"/> <input type="text"/>
B. Foundation	
1. Incorporate Recycled Flyash in Concrete 25% Recycled Flyash = 2 points; Add 1 point for every 10% increase of flyash, up to 5 points	up to 5 Resource pts.
2. Use Recycled-Content Aggregate	2 Resource pts.
3. Insulate Foundation Before Backfill	3 Energy pts.
	Subtotal from this section <input type="text"/> <input type="text"/> <input type="text"/>
C. Structural Frame	
1. Substitute Solid Sawn Lumber with Engineered Lumber	3 Resource pts.
2. Use FSC Certified Wood for Framing (For every 10% of FSC lumber used = 2 points, up to 10)	up to 10 Resource pts.
3. Use Wood I-Joists for Floors and Ceilings	2 Resource pts.
4. Use Web Floor Trusses	2 Resource pts.
5. Design Energy Heels on Roof Trusses 6" or More	2 Energy pts.

Available Points

C. Structural Frame (continued)

- | | |
|--|-----------------|
| 6. Use Finger-Jointed Studs for Vertical Applications | 2 Resource pts. |
| 7. Use Engineered Studs for Vertical Applications | 2 Resource pts. |
| 8. Use Recycled-Content Steel Studs for Interior Framing | 2 Resource pts. |
| 9. Use Structural Insulated Panels (SIPs) | |
| a. Floors | 3 Energy pts. |
| b. Walls | 3 Energy pts. |
| c. Roof | 3 Energy pts. |
| 10. Apply Advanced Framing Techniques | 4 Resource pts. |
| 11. Use Reclaimed Lumber for Non-Structural Applications | 3 Resource pts. |
| 12. Use OSB for Subfloor and Sheathing | |
| a. Subfloors | 1 Resource pt. |
| b. Sheathing | 1 Resource pt. |

Subtotal from this section

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D. Exterior Finish

- | | |
|---|------------------|
| 1. Use Sustainable Decking Materials | |
| a. Recycled-Content | 3 Resource pts. |
| b. FSC Certified Wood | 3 Resource pts. |
| 2. Use Treated Wood That Does Not Contain Chromium or Arsenic | 1 IAQ/Health pt. |
| 3. Install House Wrap Under Siding | 1 IAQ/Health pt. |
| 4. Use Fiber-Cement Siding Materials | 1 Resource pt. |

Subtotal from this section

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E. Plumbing

- | | |
|--|-------------------------|
| 1. Install Water Heater Jacket | 1 Energy pt. |
| 2. Insulate Hot and Cold Water Pipes | 2 Energy pts. |
| 3. Retrofit all Faucets and Showerheads with Flow Reducers | |
| a. Faucets (1 point each, up to 2 points) | up to 2 Resource pts. |
| b. Showerheads (1 point each, up to 2 points) | up to 2 Resource pts. |
| 4. Replace Toilets with Ultra-Low-Flush Models
(1 point each, up to 3 points) | up to 3 Resource pts. |
| 5. Install Chlorine Filter on Showerheads | 1 IAQ/Health pt. |
| 6. Convert Storage to Tankless Water Heater | 4 Energy pts. |
| 7. Install Water Filtration Units at Faucets
(2 points each, up to 4 points) | up to 4 IAQ/Health pts. |
| 8. Install On-Demand Hot Water Circulation Pump | 4 Resource pts. |

Subtotal from this section

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F. Electrical

- | | |
|--|---------------------|
| 1. Install Compact Fluorescent Light Bulbs (CFLs)
(6 bulbs=2 points, 10 bulbs =3 points, 12 bulbs = 4 points) | up to 4 Energy pts. |
| 2. Install IC-AT Recessed Lighting Fixtures with CFLs
(1 point each, up to 5 points) | up to 5 Energy pts. |
| 3. Install Lighting Controls (1 point per fixture, up to 4 points) | up to 4 Energy pts. |
| 4. Install High Efficiency Ceiling Fans with CFLs
(1 point each, up to 4 points) | up to 4 Energy pts. |

Subtotal from this section

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Available Points

G. Appliances

- | | |
|--|-----------------|
| 1. Install Energy Star® Dishwasher | 1 Energy pt. |
| 2. Install Washing Machine with Water and Energy Conservation Features | 1 Energy pt. |
| 3. Install Energy Star® Refrigerator | 1 Energy pt. |
| 4. Install Built-In Recycling Center | 3 Resource pts. |

Subtotal from this section

H. Insulation

- | | |
|---|-------------------|
| 1. Upgrade Wall and Ceiling Insulation to Exceed Title 24 Requirements | |
| a. Walls | 2 Energy pts. |
| b. Ceilings | 2 Energy pts. |
| 2. Install Floor Insulation Over Crawl Space | 4 Energy pts. |
| 3. Install Recycled-Content, Fiberglass Insulation with No Added Formaldehyde | 3 IAQ/Health pts. |
| 4. Use Advanced Infiltration Reduction Practices | 2 Energy pts. |
| 5. Use Cellulose Insulation | |
| a. Walls | 4 Resource pts. |
| b. Ceilings | 4 Resource pts. |
| 6. Install Alternative Insulation Materials (Cotton, Spray-Foam) | |
| a. Walls | 4 Resource pts. |
| b. Ceilings | 4 Resource pts. |

Subtotal from this section

I. Windows

- | | |
|---|---------------|
| 1. Install Energy-Efficient Windows | |
| a. Double-Paned | 1 Energy pt. |
| b. Low-Emissivity (Low-E) | 2 Energy pts. |
| c. Low Conductivity Frames | 2 Energy pts. |
| 2. Install Low SHGC Window Film on Single-Glazing | 1 Energy pt. |

Subtotal from this section

J. Heating, Ventilation and Air Conditioning

- | | |
|---|-------------------|
| 1. Use Duct Mastic on all Duct Joints | 2 Energy pts. |
| 2. Install New Ductwork within Conditioned Space | 3 Energy pts. |
| 3. Vent Range Hood to the Outside | 1 IAQ/Health pt. |
| 4. Clean all Ducts before Occupancy | 2 IAQ/Health pts. |
| 5. Install Solar Attic Fan | 2 Energy pts. |
| 6. Install Attic Ventilation Systems | 1 Energy pt. |
| 7. Install Whole House Fan | 4 Energy pts. |
| 8. Install Sealed Combustion Furnaces and Hot Water Heaters | |
| a. Furnaces | 3 IAQ/Health pts. |
| b. Water Heaters | 3 IAQ/Health pts. |
| 9. Replace Wall-Mounted Electric and Gas Heaters with Through-the-Wall Heat Pumps | 3 Energy pts. |
| 10. Install 13 SEER and 11 EER or Higher AC with TXV | 3 Energy pts. |
| 11. Install AC with Non-HCFC Refrigerants | 2 Resource pts. |
| 12. Install 90% Annual Fuel Utilization Efficiency (AFUE) Furnace | 2 Energy pts. |
| 13. Retrofit Wood Burning Fireplaces | |
| a. Install EPA certified wood stoves/inserts | 1 IAQ/Health pt. |
| b. Install/Replace Dampers | 1 Energy pt. |
| c. Install Airtight Doors on Fireplaces | 1 Energy pt. |

Available Points

J. Heating, Ventilation and Air Conditioning (continued)

14. Install Zoned, Hydronic Radiant Heating	3 Energy pts.			
15. Install High Efficiency Filter	4 IAQ/Health pts.			
16. Install Heat Recovery Ventilation Unit (HRV)	5 IAQ/Health pts.			
17. Install Separate Garage Exhaust Fan	3 IAQ/Health pts.			
Subtotal from this section		<input type="text"/>	<input type="text"/>	<input type="text"/>

K. Renewable Energy and Roofing

1. Pre-Plumb for Solar Water Heating	4 Energy pts.			
2. Install Solar Water Heating	10 Energy pts.			
3. Pre-Wire for Future Photovoltaic (PV) Installation	4 Energy pts.			
4. Install Photovoltaic (PV) System (1.2 kw = 6 points, 2.4 kw = 12 points, 3.6 kw = 18 points)	up to 18 Energy pts.			
5. Select Safe and Durable Roofing Materials	1 Resource pt.			
6. Install Radiant Barrier	3 Energy pts.			
Subtotal from this section		<input type="text"/>	<input type="text"/>	<input type="text"/>

L. Natural Heating and Cooling

1. Incorporate Passive Solar Heating	5 Energy pts.			
2. Install Overhangs or Awnings over South Facing Windows	3 Energy pts.			
3. Plant Deciduous Shade Trees on the West and South Sides	3 Energy pts.			
Subtotal from this section		<input type="text"/>	<input type="text"/>	<input type="text"/>

M. Indoor Air Quality and Finishes

1. Use Low/No-VOC Paint	1 IAQ/Health pt.			
2. Use Low VOC, Water-Based Wood Finishes	2 IAQ/Health pts.			
3. Use Low/No-VOC Adhesives	3 IAQ/Health pts.			
4. Use Salvaged Building Materials for Interior Finish	3 Resource pts.			
5. Use Engineered Sheet Goods with No Added Formaldehyde	6 IAQ/Health pts.			
6. Use Exterior Grade Plywood for Interior Uses	1 IAQ/Health pt.			
7. Seal all Exposed Particleboard or MDF	4 IAQ/Health pts.			
8. Use FSC Certified Materials for Interior Finish	4 Resource pts.			
9. Use Finger-Jointed or Recycled-Content Trim	1 Resource pt.			
10. Install Whole House Vacuum System	3 IAQ/Health pts.			
Subtotal from this section		<input type="text"/>	<input type="text"/>	<input type="text"/>

N. Flooring

1. Select FSC Certified Wood Flooring	8 Resource pts.			
2. Use Rapidly Renewable Flooring Materials	4 Resource pts.			
3. Use Recycled-Content Ceramic Tiles	4 Resource pts.			
4. Install Natural Linoleum in Place of Vinyl	5 IAQ/Health pts.			
5. Use Exposed Concrete as Finished Floor	4 Resource pts.			
6. Install Recycled-Content Carpet with Low VOCs	4 Resource pts.			
Subtotal from this section		<input type="text"/>	<input type="text"/>	<input type="text"/>

	TOTAL	Resources	Energy	IAQ/Health
Total Available Points	327	140	130	57
Points Achieved	<input type="text"/>			

GREEN POINTS

GREEN BUILDING GUIDELINES FOR HOME REMODELING

Green Remodeling Illustrations

New Addition

Consider the following green remodeling options in a new addition.

Site

- Recycle Job Site Construction and Demolition Waste
- Salvage Reusable Building Materials
- Design Resource-Efficient Landscapes and Gardens
- Provide for On-Site Water Catchment / Retention
- Remodel for Mixed Use, Adaptive Reuse, and Historic Preservation
- Install High Efficiency Irrigation Systems
- Reuse Materials or Use Recycled-Content Materials for Landscape Areas
- Protect Native Soil
- Minimize Disruption of Existing Plants and Trees
- Implement Construction Site Stormwater Practices

Foundation

- Incorporate Recycled Flyash in Concrete
- Use Recycled-Content Aggregate for Backfill Drainage
- Insulate Foundation Before Backfill

Structural Frame

- Substitute Solid Sawn Lumber with Engineered Lumber
- Use FSC Certified Wood for Framing
- Use Wood I-Joists for Floors and Ceilings
- Use OSB for Subfloor and Sheathing
- Use Finger-Jointed, Engineered or Steel Studs for Vertical Applications
- Use Reclaimed Lumber
- Use Web Floor Trusses
- Design Energy Heels on Roof Trusses 6" or More
- Apply Advanced Framing Techniques

Exterior Finish

- Use Sustainable Decking Materials
- Use Treated Wood that Does Not Contain Chromium or Arsenic for Decking and Sill Plates
- Use Fiber-Cement Siding Materials
- Install House Wrap Under Siding

Plumbing

- Install Hot Water Jacket Insulation
- Convert Storage to Tankless Water Heaters
- Insulate Hot and Cold Water Pipes
- Retrofit all Faucets and Showerheads with Flow Reducers
- Replace Toilets with Ultra-Low-Flow Models
- Install Chlorine Filter on Showerhead
- Install Water Filtration Units at Faucets
- Install On-Demand Hot Water Circulation Pump

Light colored 40-year composition shingles

Existing ceiling insulated to exceed Title 24

Solar hot water heating system

Engineered lumber in roof

High performance glazing

Low/No VOC interior paint

Finger-jointed or Engineered studs

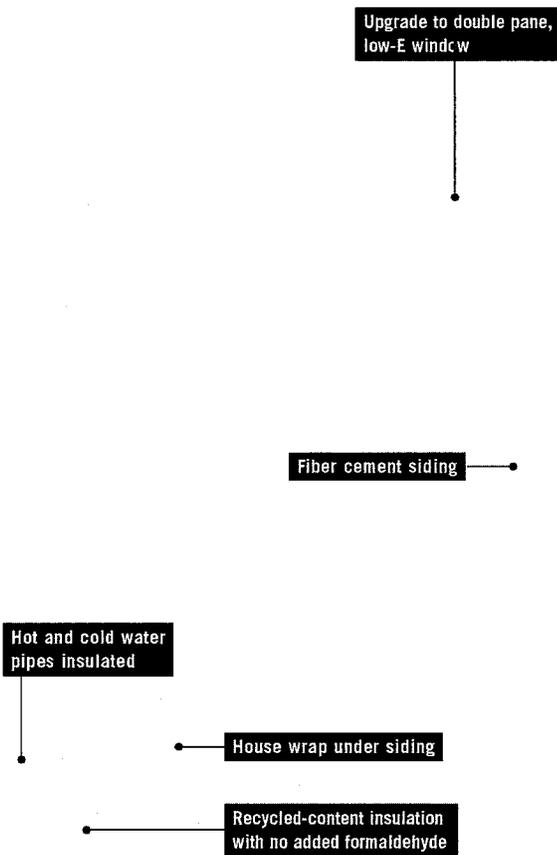
Low-VOC finish

Flyash concrete

Sustainable flooring

Electrical

- Install Compact Fluorescent Light Bulbs
- Install Lighting Controls
- Install High Efficiency Ceiling Fans with CFLs
- Install Insulation-Compatible, Air-Tight Recessed Lighting Fixtures with CFLs



Insulation

- Upgrade Wall and Ceiling Insulation to Exceed Title 24 Requirements
- Install Recycled-Content Fiberglass Insulation with No Added Formaldehyde
- Use Advanced Infiltration Reduction Practices
- Use Cellulose Insulation
- Install Floor Insulation Over Crawl Space

Windows

- Install Energy-Efficient Windows
- Install Low Solar Heat Gain Coefficient Window Film on Single-Glazing

Heating, Ventilation and Air Conditioning (HVAC)

- Use Duct Mastic on all Duct Joints
- Install New Ductwork within Conditioned Space
- Install 90% or Greater Efficiency Gas Forced Air Furnace
- Install Attic Ventilation Systems or Solar Attic Fan
- Clean all Ducts Before Occupancy
- Install Whole House Fan
- Replace Wall-Mounted Electric and Gas Heaters with Heat Pumps
- Install Zoned, Hydronic, Radiant Heating
- Retrofit Wood Burning Fireplaces
- Install Heat Recovery Ventilation Unit (HRV)
- Install High Efficiency Filter
- Install 13 SEER and 11 EER (or higher) Air Conditioning with Non HCFC Refrigerant with a TXV
- Install Sealed Combustion Units

Renewable and Solar Energy

- Pre-Plumb or Install Solar Water Heating System
- Pre-Wire or Install Photovoltaic (PV) System
- Install Radiant Barrier
- Select Safe and Durable Roofing Materials

Natural Heating and Cooling

- Incorporate Passive Solar Heating
- Install Overhangs or Awnings over South Facing Windows
- Plant Deciduous Shade Trees over the West and South Sides

Indoor Air Quality / Finishes

- Use Low/No-VOC Paint
- Use Low VOC, Water-Based Wood Finishes
- Use Low/No VOC Adhesives
- Use Exterior Grade Plywood for Interior Uses
- Use FSC Certified Materials for Interior Finish
- Seal all Exposed Particleboard or MDF
- Use Finger Jointed or Recycled-Content Trim
- Use Salvaged Building Materials for Interior Finish
- Use Engineered Sheet Goods with No Added Formaldehyde
- Install Whole House Vacuum System

Flooring

- Select FSC Certified Wood Flooring
- Use Rapidly Renewable Flooring Materials
- Use Recycled-Content Ceramic Tile
- Install Natural Linoleum in Place of Vinyl
- Use Exposed Concrete as Finished Floor
- Install Recycled-Content Carpet with low VOCs

Second Floor

Consider the following green remodeling options in a second floor.

Site

- Recycle Job Site Construction and Demolition Waste
- Salvage Reusable Building Materials
- Implement Construction Site Stormwater Practices

Structural Frame

- Substitute Solid Sawn Lumber with Engineered Lumber
- Use FSC Certified Wood for Framing
- Use Wood I-Joists for Floors and Ceilings
- Use OSB for Subfloor and Sheathing
- Use Finger-Jointed, Engineered or Steel Studs for Vertical Applications
- Use Web Floor Trusses
- Design Energy Heels on Roof Trusses 6" or More
- Apply Advanced Framing Techniques

Exterior Finish

- Use Treated Wood that Does Not Contain Chromium or Arsenic for Decking and Sill Plates
- Use Fiber-Cement Siding Materials
- Install House Wrap Under Siding

Plumbing

- Insulate Hot and Cold Water Pipes
- Install Chlorine Filter on Showerhead
- Install Water Filtration Units at Faucets
- Install On-Demand Hot Water Circulation Pump

Electrical

- Install Compact Fluorescent Light Bulbs (CFLs)
- Install Lighting Controls
- Install High Efficiency Ceiling Fans with CFLs
- Install Insulation-Compatible, Air-Tight Recessed Lighting Fixtures with CFLs

40 year composition roofing

Whole house fan

Double pane,
Low-E window

Recycled-content carpet
with low VOCs

Fiber cement siding

90% AFUE furnace

Insulation

- Upgrade Wall and Ceiling Insulation to Exceed Title 24 Requirements
- Install Recycled-Content Fiberglass Insulation with No Added Formaldehyde
- Use Cellulose and Other Alternative Insulation
- Install Floor Insulation Over Crawl Space

Engineered wood I-joist



FSC certified wood



Finger-jointed or
Engineered studs



Oriented Strand Board in subfloor



Low VOC finish



Windows

- Install Energy-Efficient Windows
- Install Low Solar Heat Gain Coefficient Window Film on Single-Glazing

Heating, Ventilation and Air Conditioning (HVAC)

- Use Duct Mastic on all Duct Joints
- Install New Ductwork within Conditioned Space
- Clean all Ducts Before Occupancy
- Install Whole House Fan
- Install 90% or Greater Efficiency Gas Forced Air Furnace
- Install Heat Recovery Ventilation Unit (HRV)
- Install High Efficiency Filter
- Install 13 SEER and 11 EER (or higher) Air Conditioning with Non HCFC Refrigerant with a TXV
- Install Sealed Combustion Units
- Install Attic Ventilation Systems or Solar Attic Fan

Renewable Energy and Roofing

- Install Radiant Barrier
- Pre-Wire or Install Photovoltaic (PV) System
- Select Safe and Durable Roofing Materials

Natural Heating and Cooling

- Incorporate Passive Solar Heating
- Install Overhangs or Awnings over South Facing Windows

Indoor Air Quality / Finishes

- Use Low/No-VOC Paint
- Use Low VOC, Water-Based Wood Finishes
- Use Low/No VOC Adhesives
- Use Exterior Grade Plywood for Interior Uses
- Use FSC Certified Materials for Interior Finish
- Seal all Exposed Particleboard or MDF
- Using Finger Jointed or Recycled-Content Trim
- Using Engineered Sheet Goods with No Added Formaldehyde

Flooring

- Select FSC Certified Wood Flooring
- Use Rapidly Renewable Flooring Materials
- Use Recycled-Content Ceramic Tile
- Install Natural Linoleum in Place of Vinyl
- Install Recycled-Content Carpet with low VOCs

Bathroom

Consider the following green remodeling options in a bathroom.

Site

- Recycle Job Site Construction and Demolition Waste
- Salvage Reusable Materials

Structural Frame

- Substitute Solid Sawn Lumber with Engineered Lumber
- Use FSC Certified Wood for Framing
- Use Wood I-Joists for Floors and Ceilings
- Use OSB for Subfloor and Sheathing
- Use Finger-Jointed, Engineered or Steel Studs for Vertical Applications
- Apply Advanced Framing Techniques

Plumbing

- Install Water Heater Jacket
- Convert Storage to Tankless Hot Water Heaters
- Insulate Hot and Cold Water Pipes
- Retrofit all Faucets and Showerheads with Flow Reducers
- Replace Toilets with Ultra-Low-Flow Models
- Install Chlorine Filter on Showerhead
- Install Water Filtration Units at Faucets
- Install On-Demand Hot Water Circulation Pump

Electrical

- Install Compact Fluorescent Light Bulbs
- Install Lighting Controls
- Install High Efficiency Ceiling Fans with CFLs
- Install Insulation-Compatible, Air-Tight Recessed Lighting Fixtures

Insulation

- Upgrade Wall and Ceiling Insulation to Exceed Title 24 Requirements
- Install Recycled-Content Fiberglass Insulation with No Added Formaldehyde
- Use Advanced Infiltration Reduction Practices
- Use Cellulose and Other Alternative Insulation
- Install Floor Insulation Over Crawl Space

Windows

- Install Energy-Efficient Windows
- Install Low Solar Heat Gain Coefficient Window Film on Single-Glazing

Heating, Ventilation and Air Conditioning (HVAC)

- Use Duct Mastic on all Duct Joints
- Install New Ductwork within Conditioned Space
- Clean all Ducts Before Occupancy
- Install Sealed Combustion Units
- Install High Efficiency Filter

Compact fluorescent bulbs



Flow reducers

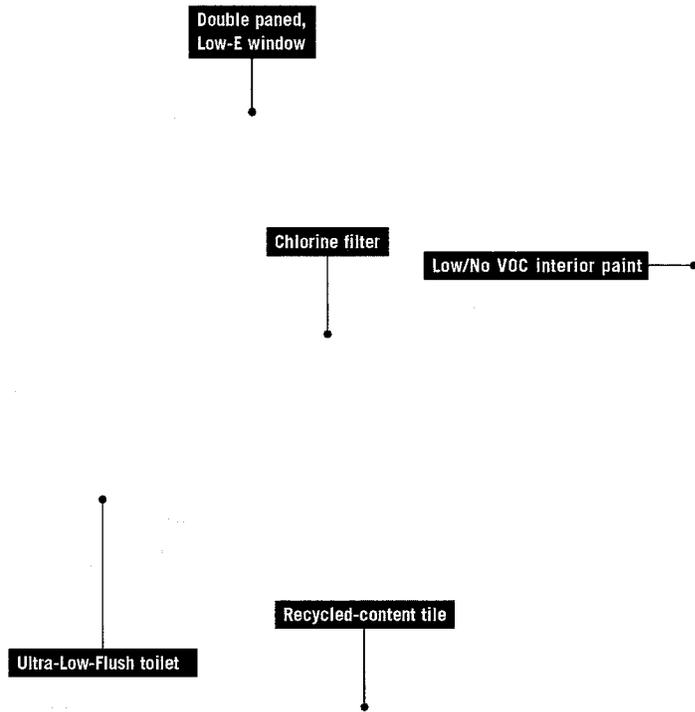


Formaldehyde-free
MDF substrate



FSC certified wood





Indoor Air Quality / Finishes

- Use Low/ No-VOC and Formaldehyde-Free Paint
- Use Low VOC, Water-Based Wood Finishes
- Use Low/No VOC Adhesives
- Use Exterior Grade Plywood for Interior Uses
- Use FSC Certified Materials for Interior Finish
- Seal all Exposed Particleboard or MDF
- Using Finger Jointed or Recycled-Content Trim
- Use Salvaged Building Materials for Interior Finish
- Use Engineered Sheet Goods with No Added Formaldehyde

Flooring

- Use Recycled-Content Ceramic Tile
- Install Natural Linoleum in Place of Vinyl
- Use Exposed Concrete as Finished Floor
- Install Recycled-Content Carpet with Low VOCs

Kitchen Remodel

Consider the following green remodeling options in a kitchen remodel.

Site

- Recycle Job Site Construction and Demolition Waste
- Salvage Reusable Materials

Plumbing

- Insulate Hot and Cold Water Pipes
- Retrofit all Faucets with Flow Reducers
- Install Water Filtration Units at Faucets
- Install On-Demand Hot Water Circulation Pump

Electrical

- Install Compact Fluorescent Light Bulbs
- Install Lighting Controls
- Install High Efficiency Ceiling Fans with CFLs
- Install Insulation-Compatible, Air-Tight Recessed Lighting Fixtures

Appliances

- Install Energy Star® Dishwasher
- Install Washing Machine with Water and Energy Conservation Features
- Install Energy Star® Refrigerator
- Install Built-In Recycling Center

Insulation

- Upgrade Wall and Ceiling Insulation to Exceed Title 24 Requirement
- Install Recycled-Content Fiberglass Insulation with No Added Formaldehyde
- Use Advanced Infiltration Reduction Practices
- Use Cellulose and Other Alternative Insulation
- Install Floor Insulation Over Crawl Space

Windows

- Install Energy-Efficient Windows
- Install Low Solar Heat Gain Coefficient Window Film on Single-Glazing

Heating, Ventilation and Air Conditioning (HVAC)

- Use Duct Mastic on all Duct Joints
- Vent Range Hood to the Outside
- Install Sealed Combustion Units
- Install High Efficiency Filter

Natural Heating and Cooling

- Install Overhangs or Awnings over South Facing Windows
- Plant Deciduous Shade Trees on the West and South Sides

Upgraded insulation

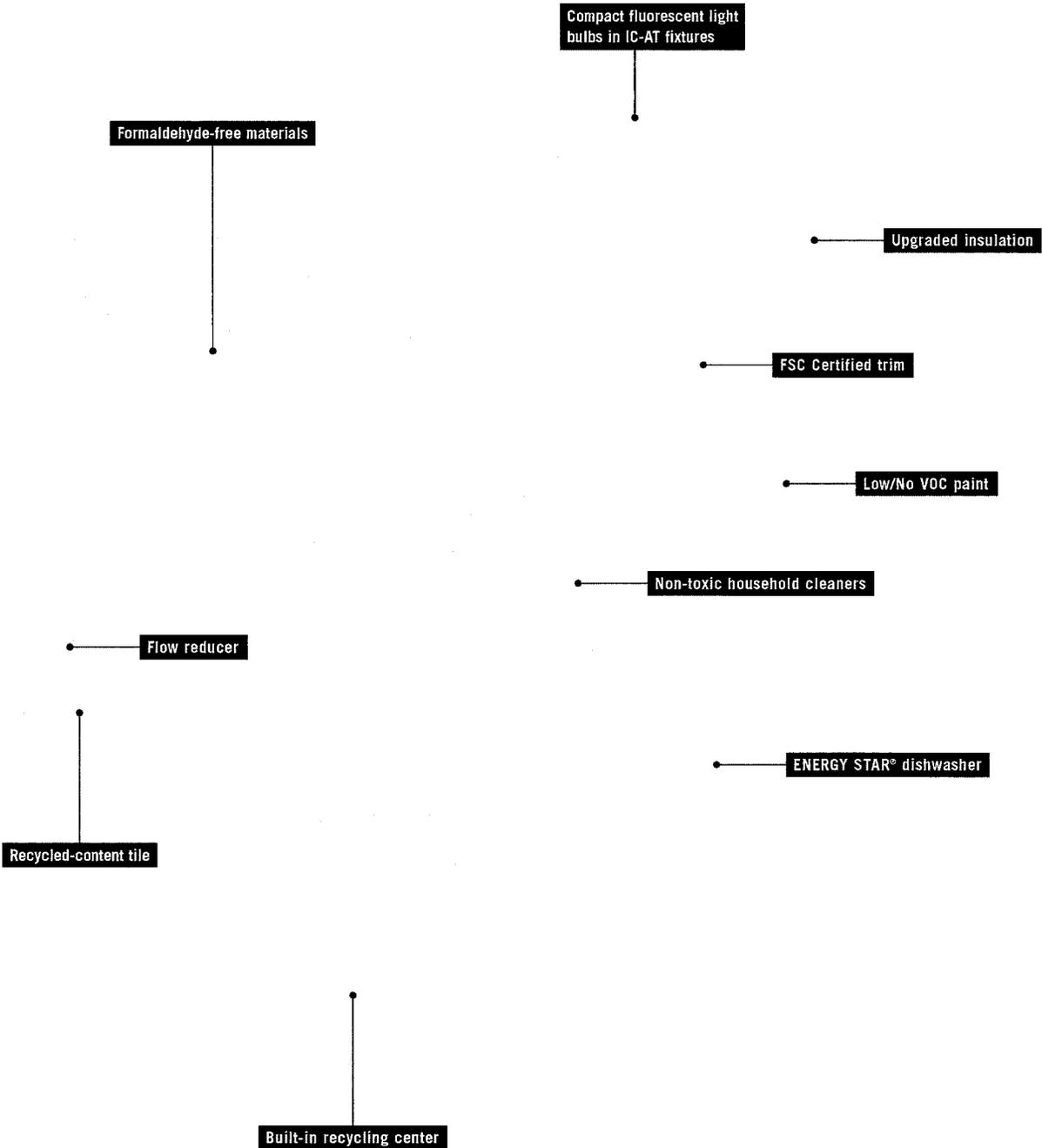
Range vented outside

Energy Star®
refrigerator

Sustainable flooring with
Low/No VOC Adhesives

Indoor Air Quality / Finishes

- Use Low/No-VOC Paint
- Use Low VOC, Water-Based Wood Finishes
- Use Low/No VOC Adhesives
- Use Exterior Grade Plywood for Interior Uses
- Use FSC Certified Materials for Interior Finish
- Seal all Exposed Particleboard or MDF
- Using Finger Jointed or Recycled-Content Trim
- Use Salvaged Building Materials for Interior Finish
- Use Engineered Sheet Goods with No Added Formaldehyde



Flooring

- Select FSC Certified Wood Flooring
- Use Rapidly Renewable Flooring Materials
- Use Recycled-Content Ceramic Tile
- Install Natural Linoleum in Place of Vinyl
- Use Exposed Concrete as Finished Floor

A Green Home Checklist Make Your Existing or Future Home a Greener Place to Live

A green home is an earth and people-friendly home, protecting the health of your family and the environment. It's a more comfortable, durable, higher quality home. It's easier and more economical to live in, because it's low-maintenance, and energy and water efficient.

This checklist will help you make a more informed choice about your present or future home. Review your home (since there's always room for improvement) or a home you are interested in with this checklist in hand.

THE RIGHT SITE

A site with smart landscaping is important to help make your home comfortable, affordable and attractive.

- ***Water-efficient buffalo grass or other drought tolerant ground cover is planted in sunny areas.***
- ***Gutters and downspouts direct water away from house.***
- ***Plants, shrubs and trees that grow successfully in California are chosen. Use The Garden Spot on bewaterwise.com as a guideline.***
- ***An irrigation system conserves water by using devices such as manual flow-control valves, a rain shut-off, and a timer with multiple start times.***

THE RIGHT DESIGN

Comfort and economy is possible when a house is designed for its site and climate.

- ***Longest walls face north and south.***

Minimal Solar Heat Gain:

- ***Most windows face north and south.***
- ***Most windows are shaded on the outside by overhangs, covered porches, awnings, trees, trellises, or pergolas.***
- ***Garage and least-used rooms are positioned on west side as buffers from the west sun.***

Maximum Ventilation:

- ***Most windows are operable and positioned for cross breezes.***
- ***Most rooms have windows on two walls.***

- *High, centrally-located, operable windows enable hot air to move up and vent to the outside.*

THE RIGHT EXTERIOR

Cool Shell and Attic:

- *A continuous vent strip runs underneath the roof overhang to let air into the attic.*
- *Light colored paint, siding, and roofing are used.*
- *Roof ridge has a continuous strip of venting or several passive vents close to the ridge.*
- *Attic insulation does not block air flow path between roof overhang vents and ridge vents.*
- *Attic has a radiant barrier below the roof decking or between the rafters (looks like aluminum foil). Radiant barrier is especially effective when ductwork is in the attic.*

Minimum Maintenance:

- *Exterior wall material is low maintenance (brick, stone, stucco, cement board).*
- *Roof has forty-year life (metal or tile).*
- *Decks are made of materials that have at least a 10-year life (not solid wood).*

Maximum Insulation:

- *Insulation is at least 10 inches deep and evenly distributed.*
- *Wall insulation is a type that fills every nook and cranny, such as wet-blown cellulose.*

Optimal Windows:

- *Unshaded windows have solar screens or low-e glass (except on the north side).*
- *No skylights except solar tubes. (Solar tubes are okay.)*

- *Window frames are wood, vinyl or fiberglass.*

THE RIGHT INTERIOR

Using the right materials can improve indoor air quality and increase comfort. Choosing energy efficient appliances will save you money.

Healthy Materials:

- *Flooring is mostly a hard surface, such as concrete, tile or wood.*
- *Other flooring materials are natural wool, jute, sea grass, cork or true linoleum.*
- *No vinyl wallpaper is used in the home.*
- *Bath has exhaust fan vented to outside.*
- *Cook top has exhaust fan vented to outside.*
- *Laundry/utility room has exhaust fan vented to outside.*

Efficient Appliances and Lights:

- *Water heating has a 10-year warranty.*
- *An Energy Guide Label that indicates the appliance is in the top 25% of the efficiency scale.*
- *Exterior lights have light and motion detectors to conserve energy.*
- *Fluorescent bulbs and tubes are used for lighting.*

Efficient Heating and Cooling:

- *Ceiling fans in all major rooms.*
- *Home has a whole-house fan to exhaust heat.*
- *Home has a programmable thermostat.*
- *Home has an A/C with a cooling efficiency is 12.0 SEER or higher.*
- *Cooling system is "the right size" for the house.*

Well-sealed Ducts:

- ***Ducts have been pressure-tested for leaks by a qualified technician. Remember, most houses lose about 25% of conditioned air due to leaky ducts. Leaks cause air quality and safety problems, too.***
- ***With AC running, no cold air drafts at the duct joints and other connections.***

Air Filters:

- ***The filter is accessible and easy to change.***
- ***The system has a 6" wide filter cabinet with pleated-media or electronic filter (not electrostatic).***

THE RIGHT ECONOMY

Using local businesses and products keeps the local economy healthy, while reducing the affects of transportation on Torrance's air quality.

- ***Regional materials, such as local brick, limestone and granite, are used.***
- ***Services of local artists and artisans are used for items such as cabinetry, wall murals, and decorative metal work.***

THE RIGHT LIFESTYLE

The right location of your home improves your quality of life.

- ***The home is conveniently located for activities, such as work, school, entertainment, recreation, and public transportation.***
- ***Traffic allows safe walking and biking.***
- ***The home has a front porch big enough to use.***

Thank you for your interest in Torrance's Green Building Program

TORRANCE ENVIRONMENTAL QUALITY COMMISSION

August 3, 2006

To: Chairman McCabe and Members
of the Torrance Environmental Quality Commission

Subject: Green Building

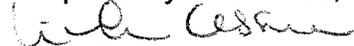
The local Green Building Consortium has chosen to use the Alameda County Green Building program as a template. This includes a lengthy Green Building booklet, with fairly detailed information regarding Green Building practices and methods as well as a Green Points program.

For the initial phase of Green Building in Torrance, staff recommends that the attached introductory portions of the booklet be printed and made available at the Building Counter for those who are interested. The Green Points checklist would be included with these materials, and they would be available on the website along with links to the longer booklet for those who want additional information.

In addition, staff has begun suggesting that green building be explored during plot plan meetings with upcoming projects, and has requested that, if green building techniques are used, that the builder let us know so that they can be recognized by the Commission.

The Commission has indicated that they would like to have some kind of formal recognition for Green Building and other environmental concerns. Currently, we have the "Pride in Torrance" recognition, which could be expanded to include "Green Pride in Torrance" during the initial phases of the project, recognizing green building as well as other environmental accomplishments. In that regard, we have attached a notice from the County Sanitation District, discussing Certificates of Recognition that have been given to local businesses for compliance with industrial waste requirements.

Respectfully Submitted,



Linda Cessna
Environmental Services Administrator

Attachments:

1. Green Building Guidelines
2. Green Remodeling Illustrations
3. Green Points checklist
4. Green Home Checklist
5. County Sanitation District Letter