# Chapter Four:

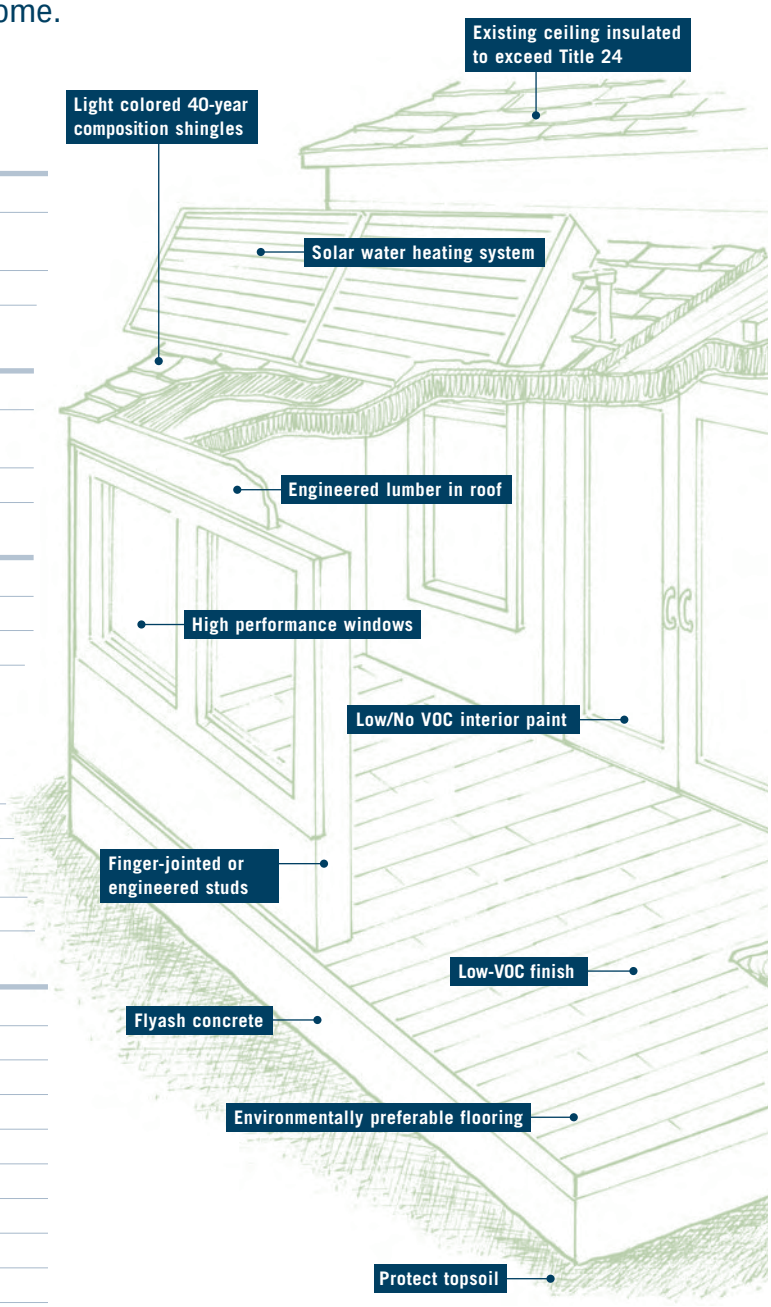
# Green Remodeling Illustrations

*"We believe that homeowners deserve a home that is not only beautiful, but one that is more energy-efficient, comfortable and healthier for the family."*

**—Fred Brecht, Brecht Construction, Lafayette, CA**

# Addition or Major Remodel

Consider these green remodeling options when building an addition or renovating a major portion of the home.




## Site

- Protect Existing Topsoil and Minimize Disruption of Existing Plants and Trees
- Deconstruct Instead of Demolish
- Recycle Construction and Demolition Waste

## Foundation

- Replace Portland Cement in Concrete with Recycled Flyash or Slag
- Retrofit Crawl Space to Control Moisture
- Design and Build Structural Pest Controls

## Landscape

- Construct Resource-Efficient Landscapes
- Use Fire-Safe Landscaping Techniques
- Minimize Turf
- Plant Shade Trees
- Group Plants by Water Needs (Hydrozoning)
- Install High Efficiency Irrigation Systems
- Add Compost to Promote Healthy Topsoil
- Use Salvaged or Recycled-Content Materials for Landscape Elements
- Reduce Light Pollution
- Collect and Retain Rainwater for Irrigation

## Structural Frame

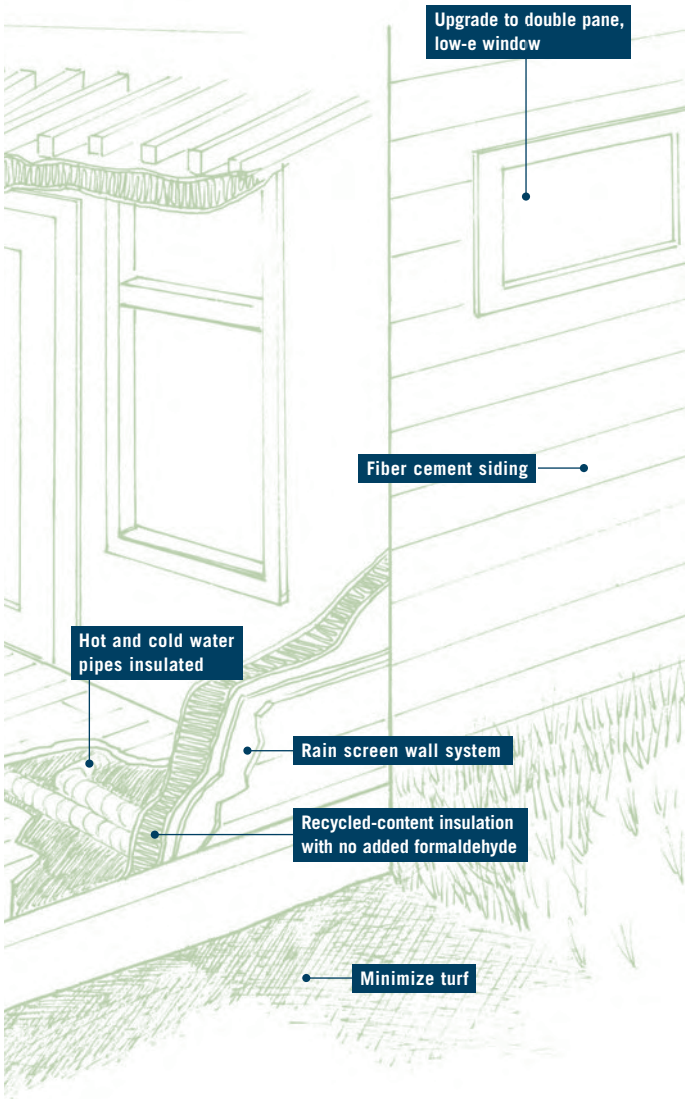
- Apply Optimal Value Engineering
- Use Engineered Lumber
- Use FSC-Certified Wood
- Design Energy Heels on Roof Trusses
- Use Solid Wall Systems
- Install Reflective Roof and Radiant Barrier
- Replace Single-Pane Windows with Double-Pane Windows
- Retrofit with Storm Windows
- Install Low-SHGC Window Film on Single-Pane Windows
- Retrofit Structure for Earthquakes
- Reduce Pollution Entering the Home from the Garage

## Exterior Finish

- Use Recycled-Content or FSC-Certified Decking
- Install Rain Screen Wall System
- Use Durable and Noncombustible Siding Materials
- Use Durable and Noncombustible Roofing Materials

## Plumbing

- Choose High Efficiency Water Heaters
- Distribute Domestic Hot Water Efficiently
- Replace Toilets with High Efficiency Toilets
- Install Water-Efficient Faucets and Showerheads




### Heating, Ventilation and Air Conditioning

- Design and Install HVAC System to ACCA Recommendations
- Install High Efficiency Heating System
- Install High Efficiency Air Conditioning with Environmentally Responsible Refrigerants
- Install Effective Ductwork
- Install High Efficiency HVAC Filter
- Retrofit Wood-Burning Fireplaces to Improve Energy Efficiency and Air Quality
- Install Whole House Fan, Ceiling Fans or Air-to-Air Heat Exchanger for Ventilation
- Install Effective Exhaust Systems in Bathrooms and Kitchen

### Renewable Energy

- Install Solar Water Heating System
- Install Photovoltaic (PV) System

### Insulation

- Install Recycled-Content Insulation
- Install Insulation That Emits Zero/Low Levels of Formaldehyde and VOCs
- Weatherize the Home
- Upgrade Insulation to Exceed Current Title 24 Requirements

### Building Performance

- Conduct Whole House Inspection/ Diagnostic Testing and Make Improvements

### Finishes

- Design Entryways to Reduce Tracked-In Contaminants
- Use Low/Zero-VOC Interior Paint
- Use Low-VOC, Water-Based Wood Finishes
- Use Low-VOC Construction Adhesives
- Use Recycled-Content Paint
- Use Environmentally Preferable Materials for Interior Finishes
- Reduce Formaldehyde in Interior Finishes
- Use Environmentally Preferable Flooring

### Appliances

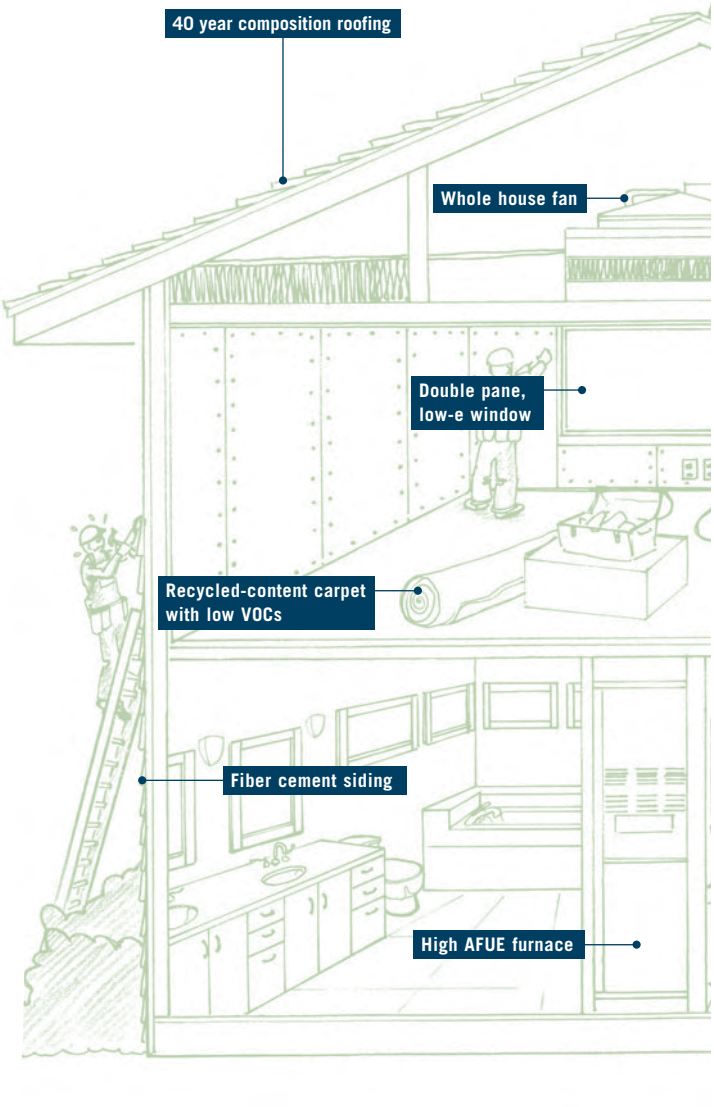
- Install Water- and Energy-Efficient Dishwasher
- Install ENERGY STAR® Clothes Washing Machine
- Install ENERGY STAR® Refrigerator
- Install Built-In Recycling and Composting Center
- Upgrade to Energy-Efficient Lighting
- Install Low-Mercury Fluorescent Lighting
- Install Lighting Controls

### Other

- Incorporate Green Remodeling Checklist in Blueprints
- Develop Homeowner Manual of Green Features and Benefits

# Second Floor

Consider these green remodeling options in a second floor addition.




## Site

- Deconstruct Instead of Demolish
- Recycle Construction and Demolition Waste

## Structural Frame

- Apply Optimal Value Engineering
- Use Engineered Lumber
- Use FSC-Certified Wood
- Design Energy Heels on Roof Trusses
- Install Reflective Roof and Radiant Barrier
- Replace Single-Pane Windows with Double-Pane Windows
- Retrofit with Storm Windows
- Install Low-SHGC Window Film on Single-Pane Windows
- Retrofit Structure for Earthquakes

## Exterior Finish

- Install Rain Screen Wall System
- Use Durable and Noncombustible Siding Materials
- Use Durable and Noncombustible Roofing Materials

## Plumbing

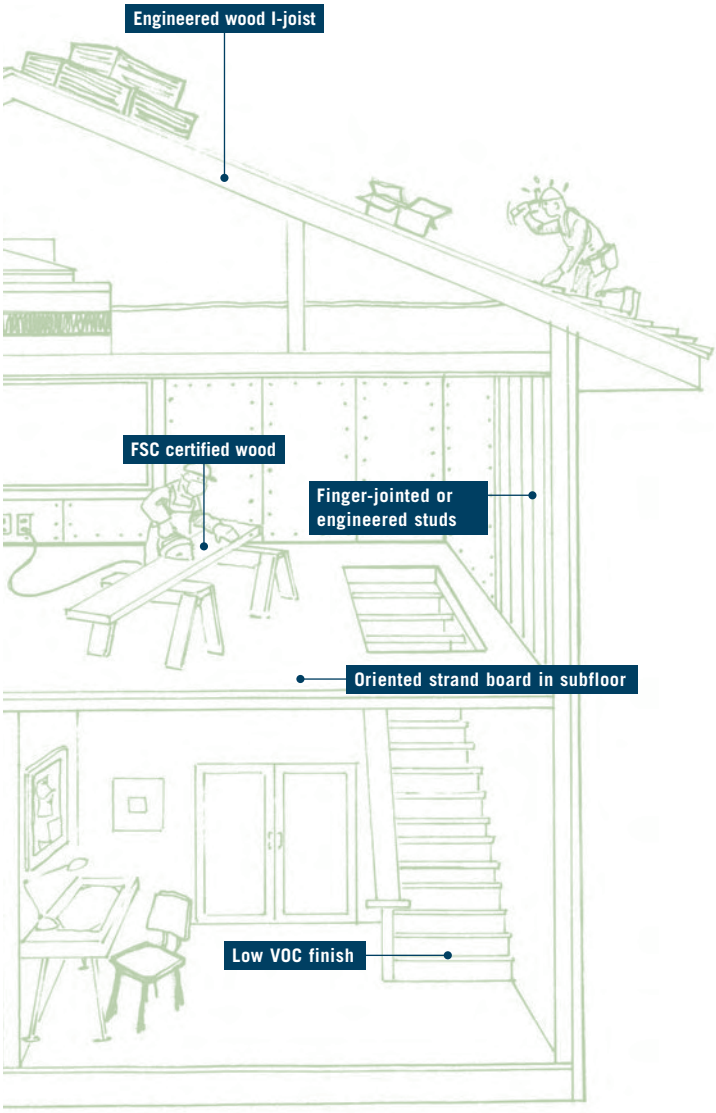
- Choose High Efficiency Water Heaters
- Distribute Domestic Hot Water Efficiently

## Heating, Ventilation and Air Conditioning

- Design and Install HVAC System to ACCA Recommendations
- Install High Efficiency Heating System
- Install High Efficiency Air Conditioning with Environmentally Responsible Refrigerants
- Install Effective Ductwork
- Install High Efficiency HVAC Filter
- Retrofit Wood-Burning Fireplaces to Improve Energy Efficiency and Air Quality
- Install Mechanical Ventilation System for Cooling

## Renewable Energy

- Install Solar Water Heating System
- Install Photovoltaic (PV) System




## Insulation

- Install Recycled-Content Insulation
- Install Insulation That Emits Zero/Low Levels of Formaldehyde and VOCs
- Weatherize the Home
- Upgrade Insulation to Exceed Current Title 24 Requirements

## Building Performance

- Conduct Whole House Inspection/ Diagnostic Testing and Make Improvements

## Finishes

- Use Low/Zero-VOC Interior Paint
- Use Low-VOC, Water-Based Wood Finishes
- Use Low-VOC Construction Adhesives
- Use Environmentally Preferable Materials for Interior Finishes
- Reduce Formaldehyde in Interior Finishes
- Use Environmentally Preferable Flooring

## Appliances

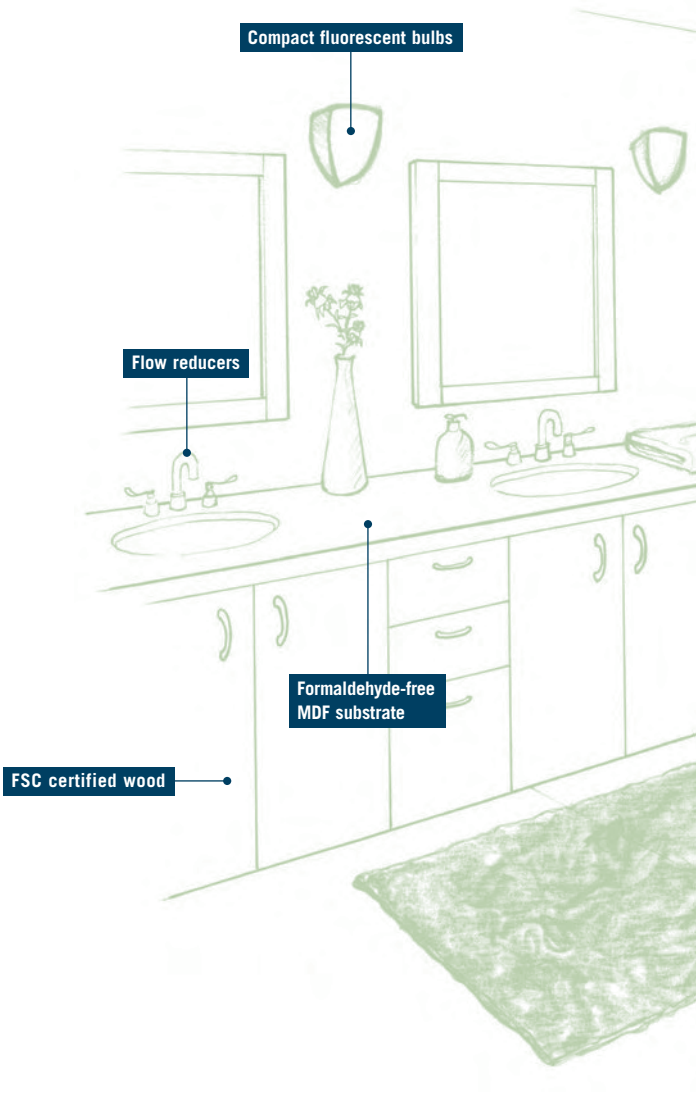
- Install ENERGY STAR® Clothes Washing Machine
- Upgrade to Energy-Efficient Lighting
- Install Low-Mercury Fluorescent Lighting
- Install Lighting Controls

## Other

- Incorporate Green Remodeling Checklist in Blueprints
- Develop Homeowner Manual of Green Features and Benefits

# Bathroom Remodel

Consider these green remodeling options in a bathroom.




## Site

- Deconstruct Instead of Demolish
- Recycle Construction and Demolition Waste

## Structural Frame and Building Envelope

- Apply Optimal Value Engineering
- Use Engineered Lumber
- Use FSC-Certified Wood
- Replace Single-Pane Windows with Double-Pane Windows
- Retrofit with Storm Windows
- Install Low-SHGC Window Film on Single-Pane Windows

## Plumbing

- Choose High Efficiency Water Heaters
- Distribute Domestic Hot Water Efficiently
- Replace Toilets with High Efficiency Toilets
- Install Water-Efficient Faucets and Showerheads

## Heating, Ventilation and Air Conditioning

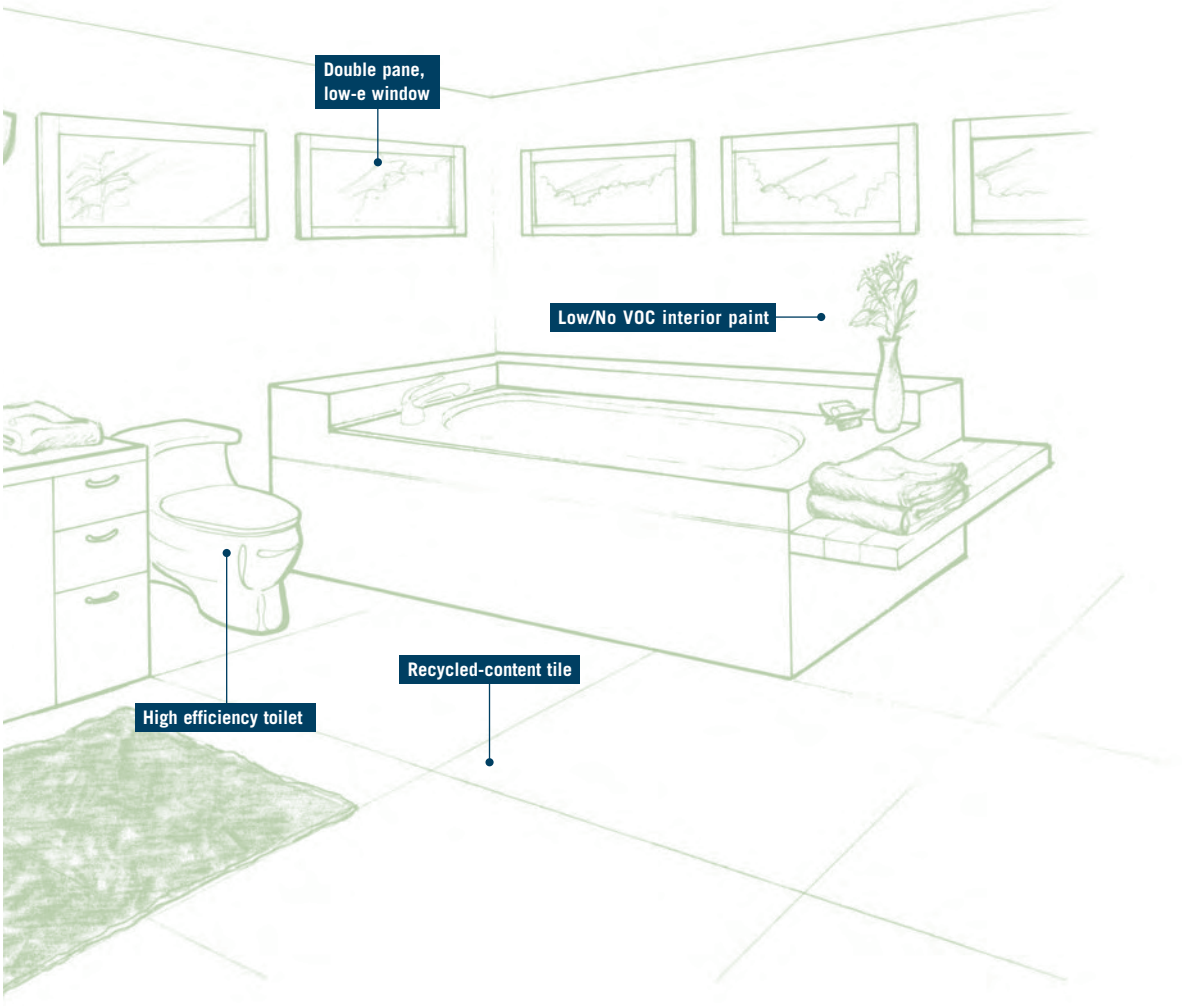
- Install Effective Ductwork
- Install Effective Exhaust System

## Insulation

- Install Recycled-Content Insulation
- Install Insulation That Emits Zero or Low Levels of Formaldehyde and VOCs
- Weatherize
- Upgrade Insulation to Exceed Current Title 24 Requirements

## Finishes

- Use Low/No-VOC Interior Paint
- Use Low-VOC, Water-Based Wood Finishes
- Use Low-VOC Construction Adhesives
- Use Environmentally Preferable Materials for Interior Finishes
- Use Environmentally Preferable Flooring




## Appliances

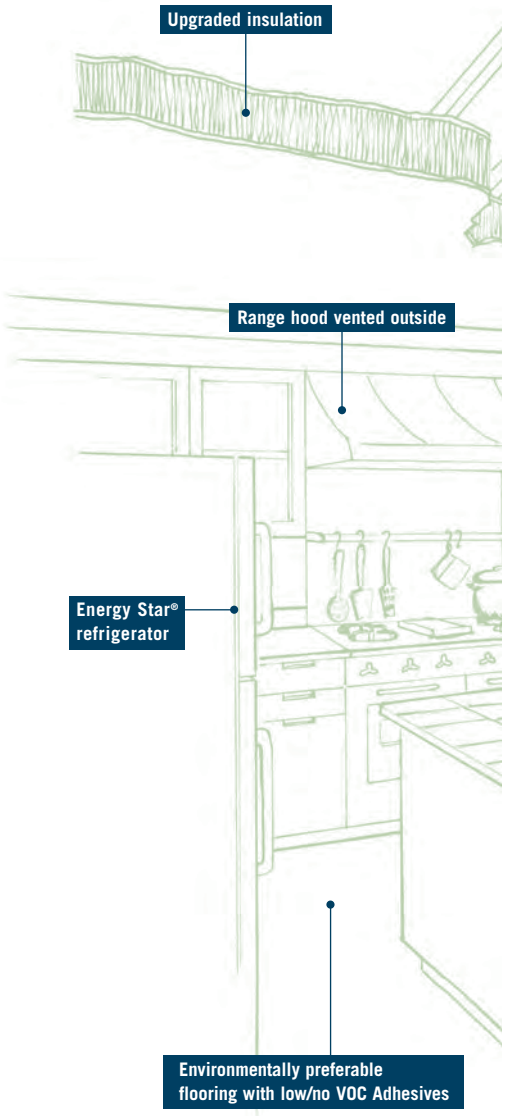
- Install ENERGY STAR® Clothes Washing Machine
- Upgrade to Energy-Efficient Lighting
- Install Low-Mercury Fluorescent Lighting
- Install Lighting Controls

## Other

- Incorporate Green Remodeling Checklist in Blueprints
- Remodel for Universal Design

# Kitchen Remodel

Consider these green remodeling options in a kitchen.




## Site

- Deconstruct Instead of Demolish
- Recycle Construction and Demolition Waste

## Landscape

- Plant Shade Trees on West and South Sides

## Structural Frame and Building Envelope

- Replace Single-Pane Windows with Double-Pane Windows
- Retrofit with Storm Windows
- Install Low-SHGC Window Film on Single-Pane Windows

## Plumbing

- Distribute Domestic Hot Water Efficiently
- Install Water-Efficient Faucets

## Heating, Ventilation and Air Conditioning

- Install Effective Exhaust System
- Install Mechanical Ventilation System for Cooling

## Insulation

- Install Recycled-Content Insulation
- Install Insulation That Emits Zero or Low Levels of Formaldehyde and VOCs
- Weatherize
- Upgrade Insulation to Exceed Current Title 24 Requirements

## Building Performance

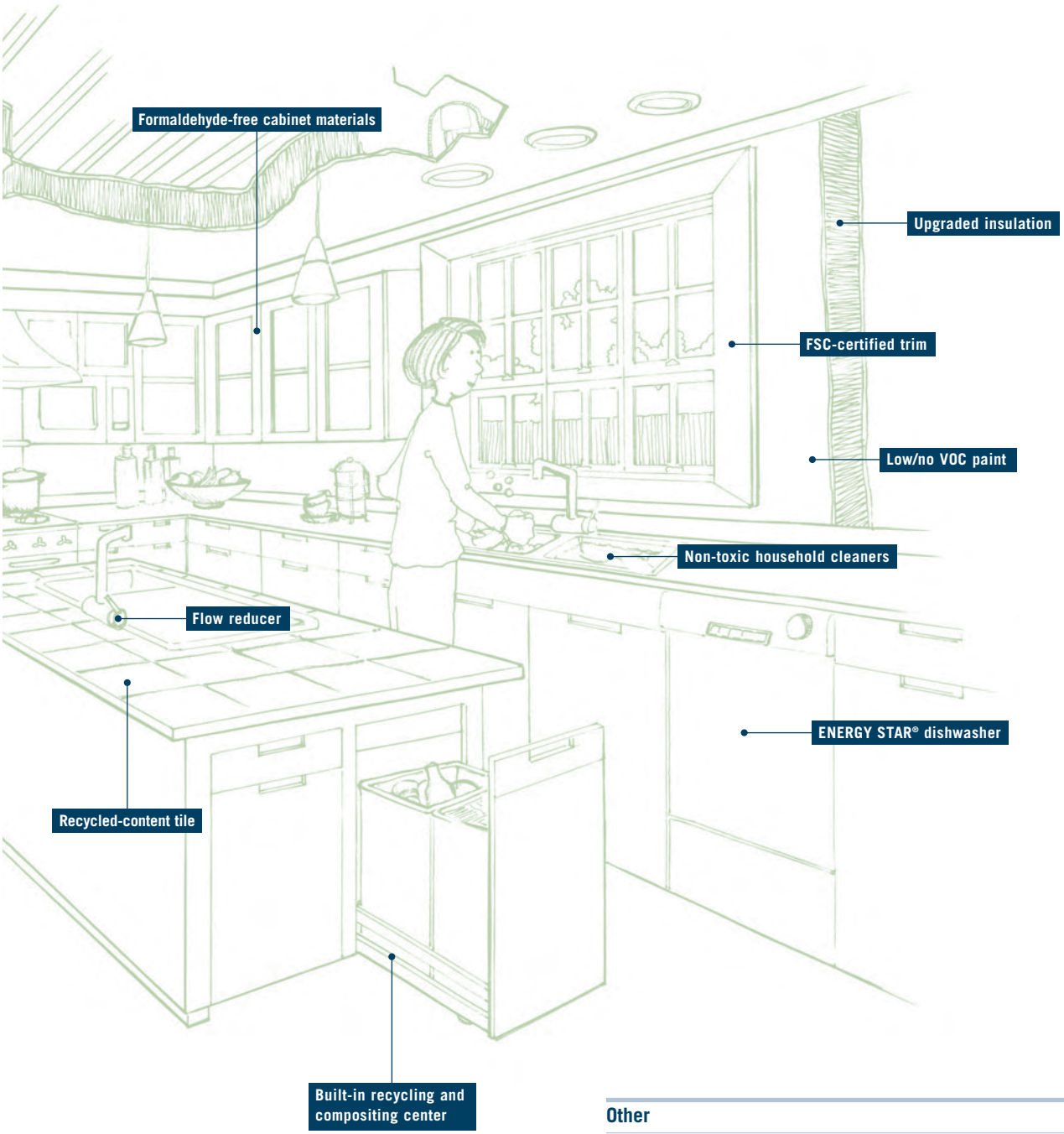
- Conduct Whole House Inspection/ Diagnostic Testing and Make Improvements

## Finishes

- Design Entryways to Reduce Tracked-In Contaminants
- Use Low/No-VOC Interior Paint
- Use Low-VOC, Water-Based Wood Finishes
- Use Low-VOC Construction Adhesives
- Use Environmentally Preferable Materials for Interior Finishes
- Use Environmentally Preferable Flooring

## Appliances

- Install Water- and Energy-Efficient Dishwasher
- Install ENERGY STAR® Clothes Washing Machine
- Install ENERGY STAR® Refrigerator
- Install Built-In Recycling and Composting Center
- Upgrade to Energy-Efficient Lighting
- Install Low-Mercury Fluorescent Lighting
- Install Lighting Controls




## Other

- Incorporate Green Remodeling Checklist in Blueprints
- Develop Homeowner Manual of Green Features and Benefits

## Notes

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Build It Green™

*Smart Solutions From The Ground Up*