

# SUSTAINABILITY IS THE FUTURE



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# WHAT IS SUSTAINABILITY



- A method of harvesting or using a resource so that the resource is not depleted or permanently damaged <*sustainable techniques*> <*sustainable agriculture*>
- A lifestyle involving the use of sustainable methods <*sustainable society*>
- Sustainability involves all aspects of life

# U.S. Green Building Council



## Green building practices:

- substantially reduce or eliminate negative environmental impacts
- improve existing unsustainable design, construction and operational practices.

## Green design measures:

- reduce operating costs
- increase building marketability
- increase worker productivity
- reduce potential liability resulting from indoor air quality problems.

# USGBC LEED



- UNITED STATES GREEN BUILDING COUNCIL LEADERSHIP IN ENVIRONMENTAL AND ENERGY DESIGN
- CREDIT RATING (CR)

# CR Sustainable Sites



- **SSp1: Construction Activity Pollution Prevention**
- **SSc1: Site Selection**
  
- **SSc2: Development Density & Community Connectivity**
- **SSc3: Brownfield Redevelopment**
  
- **SSc4.1: Alternative Transportation, Public Transportation Access**
- **SSc4.2: Alternative Transportation, Bicycle Storage & Changing Rooms**
- **SSc4.3: Alternative Transportation, Low-Emitting & Fuel-Efficient Vehicles**
- **SSc4.4: Alternative Transportation, Parking Capacity**
  
- **SSc5.1: Site Development, Protect or Restore Habitat**
- **SSc5.2: Site Development, Maximize Open Space**
  
- **SSc6.1: Stormwater Management, Quantity Control**
- **SSc6.1: Stormwater Management, Quality Control**
  
- **SSc7.1: Heat Island Effect, Non-Roof**
- **SSc7.2: Heat Island Effect, Roof**
  
- **SSc8: Light Pollution Reduction**

# CR Water Efficiency



- **WEc1.1: Water Efficient Landscaping: Reduce by 50%**
- **WEc1.2: Water Efficient Landscaping: No Potable Water Use or No Irrigation**
  
- **WEc2: Innovative Wastewater Technologies**
  
- **WEc3.1: Water Use Reduction: 20%**
- **WEc3.2: Water Use Reduction: 30%**

# CR Energy and Atmosphere



- EAp1: Fundamental Commissioning of the Building Energy Systems
- EAp2: Minimum Energy Performance
- EAp3: Fundamental Refrigerant Management
  
- EAc1: Optimize Energy Performance
- EAc2: On-Site Renewable Energy
- EAc3: Enhanced Commissioning
- EAc4: Enhanced Refrigerant Management
- EAc5: Measurement & Verification
- EAc6: Green Power

# CR Materials and Resources



- MRp1: Storage & Collection of Recyclables
- MRc1.1: Building Reuse, 75% of Walls, Floors, Roof
- MRc1.2: Building Reuse, 95% of Walls, Floors, Roof
- MRc1.3: Building Reuse, Maintain 50% of Interior Non-Structural Elements
- MRc2: Construction Waste Management
- MRc3: Resource Reuse
- MRc4: Recycled Content
- MRc5: Regional Materials
- MRc6: Rapidly Renewable Materials
- MRc7: Certified Wood



# CR Indoor Environmental Quality



- EQp1: Minimum IAQ Performance
- EQp2: Environmental Tobacco Smoke (ETS) Control
  
- EQc1: Outdoor Air Delivery Monitoring
  
- EQc2: Increased Ventilation
  
- EQc3.1: Construction IAQ Management Plan During Construction
- EQc3.2: Construction IAQ Management Plan, Before Occupancy
  
- EQc4.1: Low-Emitting Materials, Adhesives & Sealants
- EQc4.2: Low-Emitting Materials, Paints & Coatings
- EQc4.3: Low-Emitting Materials, Carpet Systems
- EQc4.4: Low-Emitting Materials, Composite Wood & Agrifiber
  
- EQc5: Indoor Chemical & Pollutant Source Control
  
- EQc6.1: Controllability of Systems, Lighting
- EQc6.2: Controllability of Systems, Thermal Comfort
  
- EQc7.1: Thermal Comfort, Design
- EQc7.2: Thermal Comfort, Verification
  
- EQc8.1: Daylighting & Views, Daylight 75% of Spaces
- EQc8.2: Daylighting & Views, Views for 90% of Spaces

# CR Innovation & Design Process



- IDc1.1: Innovation in Design
- IDc1.2: Innovation in Design
- IDc1.3: Innovation in Design
- IDc1.4: Innovation in Design
  
- IDc2: LEED Accredited Professional

# LATEST LEGISLATION



- Green Housing Bill Introduced in Senate  
*The Energy Efficiency in Housing Act of 2009*
- *Green Resources for Energy Efficient Neighborhoods Act (GREEN Act, HR 2336)*

# Latest Economic Trends

(Kiplinger Connection)



- U.S. manufacturing output will come back
- U.S manufacturing Jobs will not come back
- Only about two-thirds of the 2 million jobs lost since Jan. 2008 will return by 2013.

Leading the way back from the recession:

- Production of sophisticated high-tech goods
- Production of solar panels, wind turbines, and other green technology products.

# Green Housing is the Bright Spot on Otherwise Gloomy Market



- McGraw-Hill Construction and U.S. Green Building Council study findings:
- Green building represents a \$36 billion per year industry
- Within the last 3 years more than 330,000 homes with green features have been built in the United States
- The top two incentives for buying LEED certified and other green homes were cost savings and health benefits.

# EDUCATION LEADING THE WAY



Green and sustainability education is critical to the development of a forward thinking workforce, one that is able to protect the health and safety of communities around the globe.

- **Washington, D.C., Green Building Curriculum:**  
"green collar" job training program trains construction workers and students on environmentally friendly construction methods as well as on USGBC's [LEED](#) green building.
- **Cedar Valley College:**  
Residential Building Performance Technology program trains student to manage green construction standards such as LEED and Energy Star ® and to use a system approach to improve health, safety, comfort, environmental quality and energy efficiency of a home.
- **Arizona State University Global Institute of Sustainability:**  
Ph.D program prepares students to become scientists and leaders in research to investigate the urgent sustainability challenges of the 21st century.

# Training/Certification – LEED Accredited Professional (LEED AP)



- **LEED Accredited Professionals (LEED AP) have demonstrated a thorough understanding of green building practices and principles and the LEED Rating System.**
- **50% Success Rate for the Test**

# Certification Changes for 2009



## **Three levels of excellence that distinguish practitioners with basic, advanced, and extraordinary levels of knowledge:**

- LEED Green Associate
- LEED AP – Specialized in Building Design + Construction, Homes, Interior Design + Construction, Neighborhood Development, Operations + Maintenance
- LEED Fellow



# Cost Considerations



## The cost to add a LEED certification to the building depends on the rating:

- Certified: 26 – 32 Points
  - Silver: 33 – 38 Points
  - Gold: 39 – 51 Points
  - Platinum: 52 – 69 Points
- 
- 1% – 6% cost increase to achieve LEED certification.
  - Lauderdale Lakes Library
  - Lauderdale Municipal Complex



# Sustainable Sites Prerequisite 1



## Construction Activity Pollution Prevention

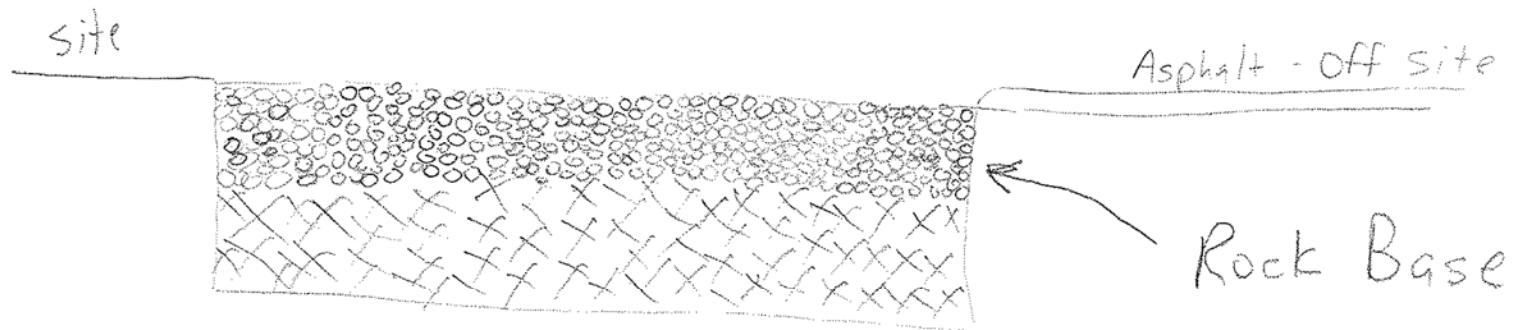
Create and implement an Erosion and Sedimentation Control Plan for all Construction Activities:

- Silt Fence
- Truck Wash

# Sustainable Sites Prerequisite 1



TRUCK WASH



# Sustainable Sites Prerequisite 1



# SS Credit 6.1



## Stormwater Design: Quantity Control

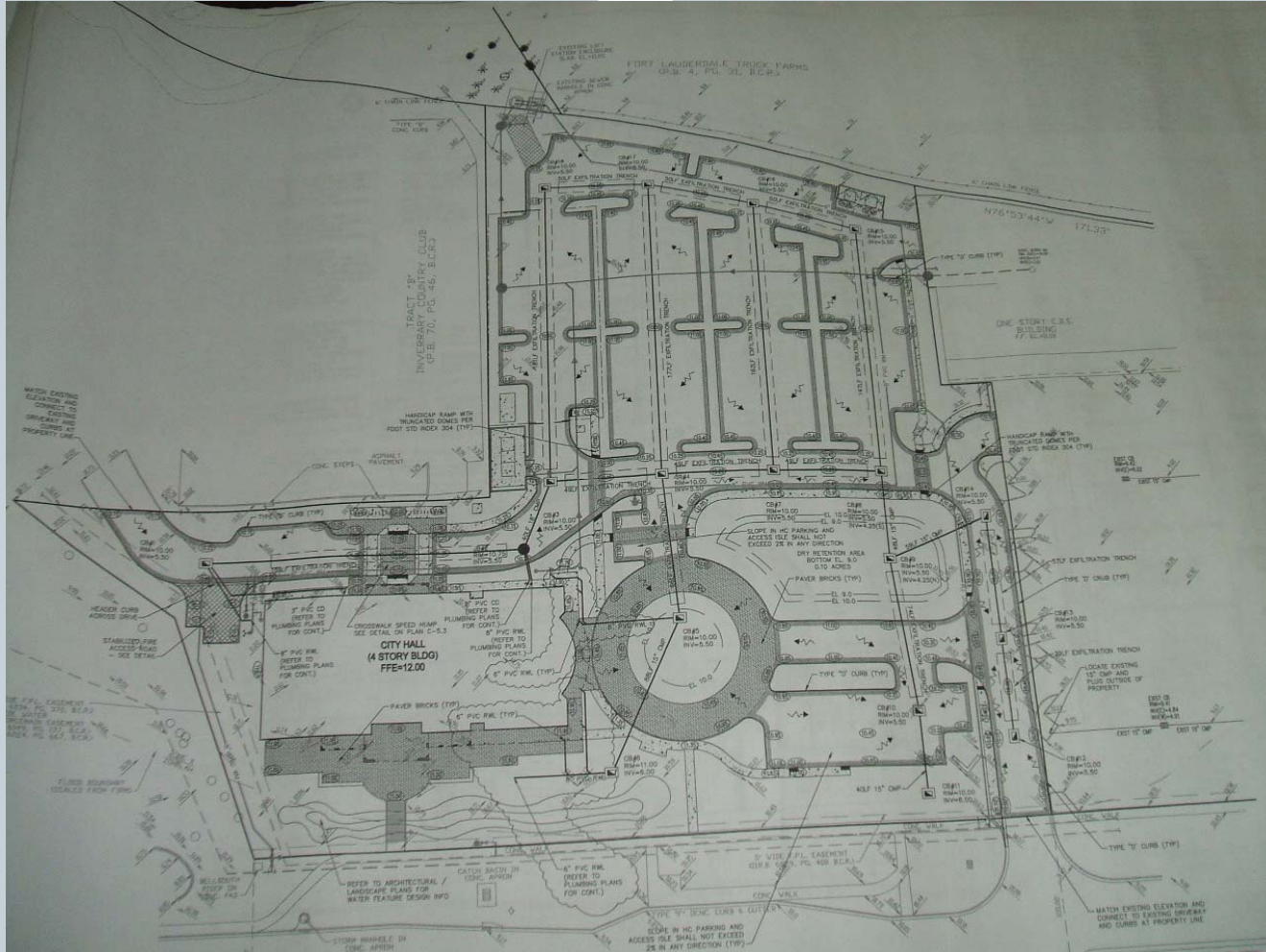
### Intent

Limit disruption of natural hydrology by reducing impervious cover, increasing on-site infiltration, and managing stormwater runoff.

- Exfiltration Trench
- Pervious Pavers
- Turf Block



# SS Credit 6.1



# SS Credit 6.1



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# SS Credit 6.1





# **WE Credit 3.1 Water Use Reduction: 20% Reduction**



- **Employ strategies that in aggregate use 20% less water than the water use baseline calculated for the building after meeting EPA fixture performance requirements**
- **Water Closets**
- **Urinals**
- **Lavatory faucets**
- **Showers**
- **Kitchen Sinks**
- **Conventional Water Closet – 1.6 Gallons/Flush**
- **Low-Flow Water Closet – 1.1 Gallons/Flush**
- **Ultra Low Flow Water Closet - .8 Gallons/Flush**
- **Conventional Urinal – 1.0 Gallons/Flush**
- **Waterless Urinal – 0.0 Gallons/Flush**

# WE Credit 3.1 Water Use Reduction: 20% Reduction



THE BOLD LOOK  
OF **KOHLER.**

## KOHLER® Waterless Urinals

**KOHLER.**  
CONFORTABLE. INNOVATION.

› Innovation/Integration   ▾ Features   › Functionality   › Maintenance

### Features

#### Waterless functionality

Can save up to 40,000 gallons of water per fixture per year and significantly reduces sewage and maintenance costs.

#### Cartridge-free integral trapway

Enhanced performance with no cartridges to plug or replace.

#### Optimized interior design

Virtually eliminates splashing.

#### Touch-free use

Added hygiene for all users; vandal-resistant due to absence of flush valve.

#### Large, clean footprint

Allows for easy installation without tiling or drainline changes.

#### ADA-compliant

Allows for specification in universal access installations.



VIEW PRODUCT DETAILS



View K-4918  
Steward™ Waterless Urinal



View K-4917  
Steward™ S Waterless Urinal

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# EA Credit 1 Optimize Energy Performance



- **Achieve increasing levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.**
- **Increase Efficiency (envelope, HVAC Sizing)**
- **Reflective Windows/Paint/Roofing Material**

# EA Credit 1 Optimize Energy Performance



Architectural & Protective Coatings

Approved

7-0-3-2009

## TEX-COTE® COOLWALL® SUPER-COTE™

### DESCRIPTION

COOLWALL® SUPER-COTE™ system is a superior heat reflective water based exterior coating. This highly breathable system has been formulated for superior salt spray, moisture, and mildew resistant properties. COOLWALL® SUPER-COTE™ uses

solar reflective, heat, and ultraviolet stable properties, yielding longer lasting cooler colors. The high reflectivity can lower energy usage by up to 21.9%. COOLWALL® SUPER-COTE™ is a low VOC, green building product. Available in satin finish.

### FEATURES

- Meets GS11 Green Seal requirements.
- Mildew and dirt resistant.
- Resists salt spray and moisture.
- Highly breathable.

### BENEFITS

- Long lasting colors
- Long term protection
- Heat reflective
- Easy to clean

### RECOMMENDED OVER

TEX-COTE® COOLWALL® SUPER-COTE™ is recommended over COOLWALL® Classic Primer (smooth) and COOLWALL® Textured Primer. May also be used over other manufacturer approved substrate.

### APPLICATION

#### Application Equipment

TEX-COTE® COOLWALL® SUPER-COTE™ can be applied by brush, roller, or commercial grade airless. Coverage rates will be between 175 to 225 square feet per gallon\*\* depending on surface porosity and texture. Commercial grade airless tip size .017 to .019. \*\*See comment at end of Page Two.

#### Surface preparation

All surfaces must be sound, clean and dry prior to application of TEX-COTE® COOLWALL® SUPER-COTE™. All loose, flaking or oxidized paint shall be removed from surface by sand blasting, water blasting, wire brushing or scraping. Large cracks, holes and voids must be filled in with cement patching compound which utilizes a bonding agent such as TEX-BOND. Texture of patch shall match existing surface. Cracks less than 1/8" (3.2 mm) shall be filled with FLEX-PATCH® compound. Cracks greater than 1/8" and less than 3/8" can be patched

with TEX-COTE® SKIM COTE.

All surfaces must be primed with COOLWALL® Classic or Textured Primer, or other manufacturer approved primers for non-masonry surfaces. See technical data for COOLWALL® Classic and Textured Primers.

#### Application Rate

Coverage rates will be between 175-225 square feet per gallon (4.9 to 6.0 square meters/liter) depending on surface porosity and texture.

#### Application

Over a dry, clean, properly prepared surface, apply the COOLWALL® SUPER-COTE™ at the specified application rate. Application shall be at uniform film thickness over the entire wall. A wet edge shall be maintained during spraying (brushing or rolling) at all times. To prevent lap marks, avoid starting and stopping midway on walls. On large areas, two (2) people spraying simultaneously

are recommended to avoid lap marks and spray patterns. If rolling on COOLWALL® SUPER-COTE™, with fully loaded roller, apply in vertical strokes initially, then cross roll for even film, ending with vertical strokes. To prevent lap marks proceed as above and continue to a "natural break" such as panel edge, seam or corner.

#### Drying/Curing Times

To touch: 2 hrs. approximately  
Hardness: 24 hrs. minimum  
Note: After 24 hours, residual matters in film will continue to cure with additional days of drying. Times are based on ideal weather conditions.

#### Clean Up

For wet material use water to clean up. For dry material use xylol, acetone or methyl ethyl ketone.

\*Percentage of cooling costs and surface temperature reductions will vary based on color chosen, geographical location, climate conditions, and substrate type. In some climates there may be a heating penalty. For more information, visit www.texcote.com.

### FOR BEST PERFORMANCE

1. Do not apply material when snow, rain or freezing conditions are imminent. Wet conditions combined with cold temperatures may cause

improper curing of product.  
2. Application temperature shall be between 45°F rising to 100°F (7°C to 38°C).

3. Do not apply if rain is imminent.  
AVOID FREEZING.  
4. Surfaces shall be clean, dry and properly prepared.

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# EA Credit 1 Optimize Energy Performance



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# EQ Credit 3.1 Construction IAQ Management Plan: During Construction



## Requirements:

- **Develop and implement an Indoor Air Quality (IAQ) Management Plan for the construction pre-occupancy phases of the building as follows:**
  - **During construction meet or exceed the recommended Control Measures or the Sheet Metal and Air Conditioning Contractors National Association (SMACNA) IAQ Guidelines.**
  - **Protect stored onsite or installed absorptive materials from moisture damage.**
  - **If permanently installed air handlers are used during construction, filtration media with Minimum Efficiency Reporting Value (MERV) of 8 shall be used at each return air grille and replaced prior to occupancy.**

# MR Credit 4.2 Recycled Content 20% (post-consumer + pre-consumer)

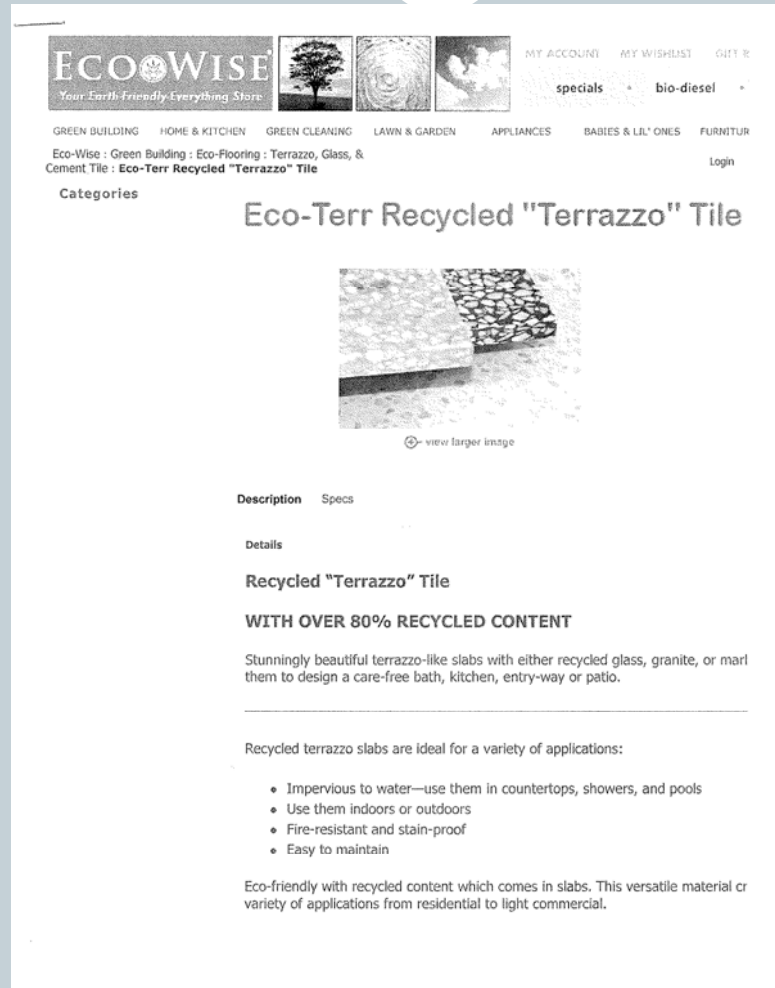


## Requirements:

- **Use material with recycled content such that the sum of post-consumer recycled content plus  $\frac{1}{2}$  of the pre-consumer content constitutes an additional 10% beyond MRc4.1 (based on cost) of the total value of material in the project.**
- **Include only permanently installed materials**
- **Recycled content value of a material assembly is determined by weight-the recycled fraction of the assembly is multiplied by the cost of the assembly to determine the recycled content value.**
- **Recycled content is defined in accordance with ISO 14021**
- **Not Included**
- **Mechanical, Electrical, and Plumbing components; Specialty items (e.g., elevators)**



# MR Credit 4.2 Recycled Content 20% (post-consumer + pre-consumer)



The screenshot shows the Eco-Wise website interface. At the top, the Eco-Wise logo is followed by navigation links: MY ACCOUNT, MY WISHLIST, and GET IT. Below this is a menu with categories: GREEN BUILDING, HOME & KITCHEN, GREEN CLEANING, LAWN & GARDEN, APPLIANCES, BABIES & LIL' ONES, and FURNITURE. A breadcrumb trail reads: Eco-Wise : Green Building : Eco-Flooring : Terrazzo, Glass, & Cement Tile : Eco-Terr Recycled "Terrazzo" Tile. A "Login" link is also present. The main heading is "Eco-Terr Recycled 'Terrazzo' Tile". Below the heading is a photograph of the tile slabs, with a "view larger image" link. Underneath the image are tabs for "Description" and "Specs". The "Description" tab is active, showing the following text: "Recycled 'Terrazzo' Tile", "WITH OVER 80% RECYCLED CONTENT", "Stunningly beautiful terrazzo-like slabs with either recycled glass, granite, or marl them to design a care-free bath, kitchen, entry-way or patio.", "Recycled terrazzo slabs are ideal for a variety of applications:", a bulleted list of benefits (Impervious to water, Use indoors/outdoors, Fire-resistant, Easy to maintain), and a concluding sentence about the material's eco-friendliness and versatility.

**Eco-WISE**  
Your Earth-Friendly Everything Store

MY ACCOUNT MY WISHLIST GET IT

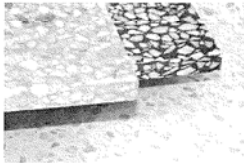
specials bio-diesel

GREEN BUILDING HOME & KITCHEN GREEN CLEANING LAWN & GARDEN APPLIANCES BABIES & LIL' ONES FURNITURE

Eco-Wise : Green Building : Eco-Flooring : Terrazzo, Glass, & Cement Tile : Eco-Terr Recycled "Terrazzo" Tile Login

Categories

## Eco-Terr Recycled "Terrazzo" Tile



[view larger image](#)

Description Specs

Details

### Recycled "Terrazzo" Tile

**WITH OVER 80% RECYCLED CONTENT**

Stunningly beautiful terrazzo-like slabs with either recycled glass, granite, or marl them to design a care-free bath, kitchen, entry-way or patio.

Recycled terrazzo slabs are ideal for a variety of applications:

- Impervious to water—use them in countertops, showers, and pools
- Use them indoors or outdoors
- Fire-resistant and stain-proof
- Easy to maintain

Eco-friendly with recycled content which comes in slabs. This versatile material or variety of applications from residential to light commercial.



## **MR Credit 2.2 Recycle and/or salvage an additional 25% beyond MRc2.1 (75% total) of non-hazardous construction and demolition**

- **Develop and implement a construction waste management plan that, at a minimum, identifies the materials to be diverted from disposal and whether the material will be stored on-site or commingled.**
- **Excavated soil and land – clearing debris does not contribute to the credit.**
- **Calculations can be done by weight or by volume but must be consistent throughout.**
- **Exemplary Performance.**
- **Divert 95% or better of total waste from disposal.**

# MR Credit 2.2 Recycle and/or salvage an additional 25% beyond MRc2.1 (75% total) of non-hazardous construction and demolition

<p><b>General Hauling Service</b> 1451 N.W. 20th St. • Miami, Florida</p>	<p><b>General Hauling Service</b> 1451 N.W. 20th St. • Miami, Florida</p>
Date <u>12/23/08</u>	Date <u>12/30/08</u>
Customer <u>D. S. STEPHENSON</u>	Customer <u>D. Stephenson</u>
Address <u>D.</u>	Address <u>Lauderdale Lakes</u>
<u>Lauderdale Community LIBRARY</u>	<u>Library.</u>
<p><u>25% wood</u> <u>25% rock</u> <u>20% DRIT</u> <u>25% METAL</u></p>	<p><u>70% wood</u> <u>20% Iron</u> <u>10% concrete</u></p>
<u>I CONTAINER</u>	<u>Full Metal</u>
<p><small>This is to inform you that your store has been serviced this date.</small></p>	<p><u>Confairset</u> <small>This is to inform you that your store has been serviced this date.</small></p>



**THANK YOU!**