City of San Gabriel

Founded 1771

Design Guidelines

Sustainable Materials Appendix

Appendix: Table of Contents

Appendix: Use of This Document

This Design Guideline Appendix is to be used in conjunction with all three "City of San Gabriel Design Guidelines", updated May 5, 2010. This document provides information on City pre-approved sustainable materials and systems, so the applicant may understand how sustainable materials can also meet the design goals of these guidelines. The listed materials and systems also provide a means to compare substitute materials to submit for approval. As such, the listed materials are not intended to exclude other qualified materials that meet the sustainability and design requirements of the City.

SUSTAINABLE MATERIALS SYSTEMS CRITERIA LIST

GREEN MATERIAL CRITERIA			DIVERSION *Avoid landfill disposal, reuse whole product*	RECYCLED CONTENT *Made from recovered or waste material*	RECYCLABLE *Potential for being recycled; product elements make be used in the manufacture of new product*	CO2 EMISSIONS *Reduce climate warming effect*	INDOOR AIR QUALITY *Minimize VOCs*	ENERGY *Energy is saved for raw material extraction, manufacturing, distribution and transportation*	ENERGY EFFICIENCY *Improve total building thermal envelope (e.g. cool roof)*	RAPIDLY RENEWABLE *Material may be replenished relatively quickly*	LIFE CYCLE *Material will last more then 20 years with only cleaning and light maintenance*	3RD PARTY CERTIFIED OR RECOGNIZED *Independent organizations for verifying material compliance*
EXTERIOR BUILDING MATERIALS	MANU-FACTURERS	PRODUCT TYPES OR NAMES										
MASONRY												
Concrete Block (CMU)	Kingston Block & Masonry Supply	Pozzotive	**X**	**30% recycled glass**		**X**		**X**			**X**	**1, 2**
Brick	Kingston Block & Masonry Supply	Pozzotive	**X**	**30% recycled glass**		**X**		**X**			**X**	**1, 2**
Brick - Fly Ash	Calstar Products	FAB	**X**	**40 % fly ash**		**X**		**X**			**X**	**1**
Stone Cladding	Stone Panel, Inc.	StoneLite	**X**	**X**	**X**	**X**			**X**		**X**	**1**
ROOFING												
Built-up Roofing (BUR)	Johns Manville	GlasKap CR						**X**	**X**			**2, 4**
Single-Ply Membrane Roofing- PVC	Sika Sarnafil	EnergySmart		**X**	**X**				**X**		**X**	**1, 9**
Metal Roofing - Aluminum	Firestone	Uni-Clad Snap on	**X**	**X**	**100%**				**X**		**X**	**1**
Stone coated steel roofing	Metro	Tile, Shingle, & Shake style	**X**	**X**	**30% metal**			**X**			**X**	**2, 4, 8**
Fiberglass Shingle Roofing	CertainTeed	Landmark Solaris		**25%**					**X**	**X**		**1, 2, 4, 5**
Clay Tile Roofing	US Tile	Cool Roof		**70%**	**100%**			**X**	**X**		**X**	**1, 4, 5**
Vinyl/Wood Shingle Roof	Re-New Wood	Eco-Shake	**X**	**100% vinyl & cellulose fiber**							**X**	
Rubber Tile Roofing	Costar	Majestic Slate & Seneca Cedar Shake	**X**	**80% rubber**				**X**			**X**	**1**

ECO-LABEL LEGEND
1 Leed
2 US Green Building Council
3 NAHBGREEN - National Green Building Program
4 Energy Star
5 CRRC - Cool Roof Rating Council
6 Green Seal
7 Green Building Initiative
8 FSC - Forest Stewardship Council
9 Energy Smart Roof

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EXTERIOR BUILDING MATERIALS	MANU-FACTURERS	PRODUCT TYPES OR NAMES										
DOORS & SASH												
Wood Windows and Doors	Edwin	AuraLast Wood & Low E glass		**Wood waste for interior doors**			**X**	**X**	**X**	**X**	**X**	**1. 2, 4**
Wood Windows & Exterior Doors	Andersen	Fibrex & Low E glass	**X**	**40% wood fiber**			**X**		**X**		**X**	**1, 6**
Steel Windows and Doors	Torrance Steel Window Company	Steel Doors and Sash		**100% steel sections**	**X**		**X**				**X**	**1**
Aluminum Windows and Doors	EDCO	Storefront, windows, doors		**57.50%**	**23.50%**		**X**	**X**	**X**			
Vinyl Windows and Doors	Milguard	Windows, doors		**10.00%**	**X**				**X**			**1, 2**
SIDING												
Fiber-cement Wall Siding	CertainTeed	WeatherBoard	**X**	**20% fly ash**				**X**			**X**	**2, 8**
Fiber-cement Wall cladding	Nichiha	Exterior Cladding - shake, brick, stone, siding	**X**	**X**			**X**	**X**			**X**	**1 & 3**
Aluminum Wall Panel	Varco Pruden Buildings	Panel Rib	**X**	**X**	**100%**			**X**	**X**		**X**	
Aluminum Wall Panel	Metl Span	Insulated panel - ThermalSafe	**X**	**X**	**Steel - 31%**	**X**			**X**	**X**		**1, 2, 4, 5**
Stucco	Expo Stucco Products	GX2 Premium		**X**	**X**			**X**				**1**
Stucco	ParexLahabra	EIFS, Stucco			**Lath & paper**			**X**	**X**			**1**

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EXTERIOR BUILDING MATERIALS	MANU-FACTURERS	PRODUCT TYPES OR NAMES										
Vinyl Fencing	CertainTeed	Selects Vinyl Fencing System		**40%**	**X**					X	X	8
Vinyl Decking	GAF	Correct Deck CX		**80%**	**X**			**X**		X	X	8
Awnings	Sunbrella	Sun Shading Fabric				**X**			**X**			
Photovoltaic Solar Panels	Abolutely Solar	Integrated Electric Solar Panels				**X**			**X**			
Solar Hot Water	Solar Roofs	Skyline 10-01, 20-01				**X**			**X**			
Wind Power Generation	Skystream	Wind Turbine and interface system				**X**			**X**			

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Masonry

CMU, BRICK & SONE CLADDING

The materials presented in this Appendix section are pre-approved for use by the City of San Gabriel.

The criteria for each material or system selected is:

- That it is environmentally sustainable, with recyclability and recycled content, renewability, energy extended for manufacturing, transportation and erection, air quality, and the installed energy savings as a part of the selection
- That it is a material or system of quality, substance, and has the ability to last many years
- That the materials are appropriate in form, color, and texture to the style of architecture they are being applied to.

Materials not contained within this list may be reviewed by the city and approved for use based on this criteria.

Note that buildings registered as historic, or buildings located in designated historic districts, or which in the opinion of the City of San Gabriel are deemed to have historic value, are not permitted to use substitute or imitation materials, such as may be described in this list. Authentic materials shall be used, except under extraordinary circumstances as reviewed by staff and approved by the City Design Review Commission, and only because the original building material and/or construction technique cannot be properly supplied or replicated.

KINGSTON
BLOCK & MASONRY SUPPLY, LLC

An Authorized Manufacturer of Pozzotive® Sustainable Concrete Products

Pozzotive® and Pozzotive Plus™ CMU

As an innovative leader in the concrete and masonry industries, Kingston Block & Masonry Supply, LLC has taken a profound role in manufacturing a sustainable concrete product line. Pozzotive® and Pozzotive Plus™ Concrete Masonry Units (CMU) and Architectural Concrete Masonry Units offer structural soundness, durability, and fire resistance in a variety of aesthetically appealing finishes. Our line of sustainable CMU contains up to 30% post-consumer Supplementary Cementitious Material (SCM). Pozzotive® is the only white, post-consumer pozzolan that lends itself to the creation of white CMU, taking advantage of its high solar reflectance and high albedo effect. Pozzotive Plus™ CMU contains up to 50% regionally recycled post-consumer aggregates in lieu of virgin mined aggregates. Pozzotive® is a high performance SCM derived from post-consumer waste glass recovered within the U.S.A., thus saving valuable landfill space. It can replace up to 30% of both white and gray Portland cement. Replacing a portion of the Portland cement component in CMU with Pozzotive® yields a better quality product that is environmentally sound, the quintessential sustainable CMU.

2009 Top-10
Green Building Product
GreenSpec® LISTED
www.BuildingGreen.com

Pozzotive Plus™ Concrete Brick and CMUs from Kingston Block

BENEFITS OF POZZOTIVE® AND POZZOTIVE PLUS™ CMU

Potential LEED™ Credits
Significant Environmental Benefits
Consistent, Vibrant Color
Exceptional Strength & Durability
Quality & Reliability

POTENTIAL LEED™ CREDITS

The United States Green Building Council (USGBC) created a system to evaluate the effects of building design and construction within the environment—Leadership in Energy and Environmental Design (LEED™). The use of Pozzotive® and Pozzotive Plus™ CMU can potentially help you obtain the following credits toward LEED™ certification for your project:.

POTENTIAL LEED™ CREDITS

	Pozzotive® CMU	Pozzotive Plus™ CMU
Materials & Resources (MR CREDIT 2) - Construction Waste Management (*Project Based*)	✓	✓
Materials & Resources (MR CREDIT 4) - Recycled Content	✓	✓
Materials & Resources (MR CREDIT 5) - Regional Materials	✓	✓

* Pozzotive® CMU Pozzotive Plus™ CMU can potentially contribute to additional LEED™ points beyond the sections listed above.

SIGNIFICANT ENVIRONMENTAL BENEFITS

Significant Energy Savings vs. Cement Production—Cement manufacturing involves mining and transporting raw materials to the cement plant and then crushing and firing them in a kiln. For every ton of Portland Cement that is replaced by Pozzotive®, approximately 95% of coal Btu energy equivalent is saved.

• **Reduction in CO2 Emissions -** The combustion of fossil fuels used to generate heat in Portland cement kilns releases large quantities of carbon dioxide (CO2), a greenhouse gas that traps heat energy in the atmosphere and is suspected of causing global warming. According to the United States EPA, every ton of Portland cement produced releases + / - one ton of CO2. Therefore, for each ton of Pozzotive® used in the manufacturing of Pozzotive® and Pozzotive Plus™ CMU, approximately one ton of CO2 is saved from being released into the atmosphere.

• **Saves Valuable Landfill Space -** Over 77% of post-consumer recycled glass is land filled annually. Since glass is not biodegradable, landfill disposal is not a sustainable option. Pozzotive®, derived from post-consumer recycled glass, recovered within the U.S.A., is however, the sustainable solution.

By using up to 30% post-consumer recycled glass in our product, we're reducing landfill volume, and fossil fuel emissions that are produced by trucks and equipment used to transport and compact landfill garbage.

EXCEPTIONAL STRENGTH & DURABILITY

• **Exceeds Design Standards -** Pozzotive® and Pozzotive Plus™ CMU meets and exceeds the requirements of ASTM C-90 (Specification for Loadbearing Concrete Masonry Units) and ASTM C-129 (Specification for Nonloadbearing Concrete Masonry Units). Pozzotive® has a consistent chemical and color composition, while containing no contaminants harmful to concrete quality.

• **Tighter Physical Composition -** Typically, CMU contains small voids which allow for the permeation of water and chemicals. Unlike common Portland cement, Pozzotive® particles are smaller and minimize the size of these voids, reducing the permeability of water and chemical attack on the CMU.

QUALITY & RELIABILITY

At Kingston Block & Masonry Supply, LLC responsible manufacturing is our cornerstone philosophy. We strive to be innovative but always remain sensitive to our environment. Our integrity and determination is reflective in our ecologically sound product line. We are committed to providing the highest quality product and customer care. Our experienced team offers new design options for architects, LEED™ consultants, designers and builders. When clients are faced with new creative and structural challenges for a specific project, our technical support professionals can assist in developing custom manufactured solutions that are ecologically sensitive.

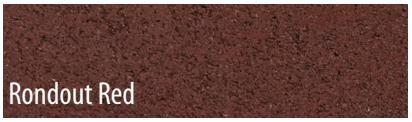
THINK pozzotive® CMU

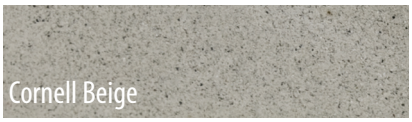
KINGSTON
BLOCK & MASONRY SUPPLY, LLC

An Authorized Manufacturer of Pozzotive® Sustainable Concrete Products

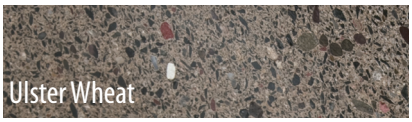
Pozzotive® and Pozzotive Plus™ Sustainable Concrete Masonry Unit

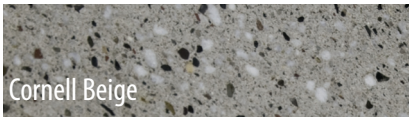
SUEDE COLLECTION

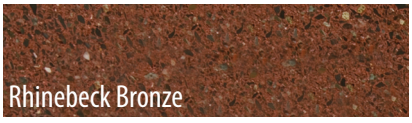


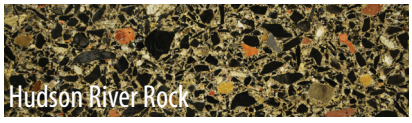


GROUND FACE COLLECTION









Our ground face finish reveals the beauty of the recycled content while our suede finish has a more monochromatic look. In addition, an integral pigment can be applied to our mix design to further enhance the concrete masonry unit which would complement any green building project by offering endless design possibilities. The ground face and suede finishes are both extremely durable and can withstand highly trafficked areas. Due to the nature of recycled aggregates, slight color variations should be expected.

Please contact a sales representative for more information:
info@kingstonblock.com

KINGSTON
BLOCK & MASONRY SUPPLY, LLC

An Authorized Manufacturer of Pozzotive® Sustainable Concrete Products

Pozzotive® and Pozzotive Plus™ Brick

We at Kingston Block and Masonry Supply, LLC view the current renaissance of the construction industry as an opportunity to transform conventional methods and materials into sustainable alternatives recovered within the U.S.A.. As a responsible manufacturer we have implemented our guiding principles and developed a truly sustainable concrete brick line. The very essence of our product promotes a better environment through recycling. With the EPA's exposure of the harmful effects of process related emissions, our focus was to help the concrete industry reduce harmful emissions generated from the production of Portland cement.

Pozzotive® and Pozzotive Plus™ Brick is manufactured with Pozzotive®, a newly invented post-consumer Supplementary Cementitious Material (SCM) derived from post-consumer recycled glass. According to the EPA, in 2008, American's generated 12.2 million tons of post-consumer glass that was land filled and only about 23% of that glass was recovered for recycling. Glass does not biodegrade. By using up to 30% post-consumer recycled glass in our product we are saving valuable landfill space. In addition, our product line promotes construction waste management which is responsible for the more than 136 million tons of building-related construction and demolition (C&D) debris the EPA estimated was generated in the U.S. in a single year. By using up to 50% of regionally recycled, post-consumer concrete aggregates in lieu of virgin mined aggregates, we are literally rebuilding the North East with North East recyclables. By using over 97% regionally harvested, extracted and manufactured material in our product, we are cutting down on the impact of transportation from extraction to manufacturing to project site, further reducing the impact of this product on the environment.

A Healthy Alternative

Pozzotive® and Pozzotive Plus™ Brick offer an attractive green alternative to traditional clay brick. In analyzing the energy used to fire clay bricks in a kiln to the sum of the energy used to cure concrete bricks, plus the energy embodied in the manufacturing of the cement used in the concrete, the findings reveal it takes 12% of the energy to produce a Pozzotive Plus™ Concrete Brick compared to a clay brick. That equates to an 88% savings in Btu energy. Unlike conventional clay brick which has absolutely no post-consumer value and in most cases little or no post-industrial, pre-consumer content, our concrete brick offers architects and LEED™ consultant's post-consumer content and regional material benefits. Unlike other SCM's, such as fly ash and slag, Pozzotive® contains no harmful contaminants. The design matrix of our Pozzotive® and Pozzotive Plus™ Brick can be colorized at our manufacturing facility offering endless design possibilities at the same time reducing harmful Volatile Organic Compounds (VOCs).

A non-VOC coating can be factory applied. The result – an interior/exterior facade or partition with a graffiti resistant finish that ensures it stands up to high trafficked areas without deterioration.

THINK pozzotive®

EXCEPTIONAL STRENGTH & DURABILITY

Pozzotive® and Pozzotive Plus™ Brick meets and exceeds the requirements of ASTM C-1634, ASTM C-90, and ASTM C-129. Pozzotive® has a consistent chemical and color composition, while containing no contaminants harmful to concrete quality.

POTENTIAL LEED™ CREDITS

	Pozzotive® Brick	Pozzotive Plus™ Brick
Materials & Resources (MR CREDIT 2) - Construction Waste Management (Project Based)	✓	✓
Materials & Resources (MR CREDIT 4) - Recycled Content	✓	✓
Materials & Resources (MR CREDIT 5) - Regional Materials	✓	✓

* Pozzotive® CMU Pozzotive Plus™ CMU can potentially contribute to additional LEED™ points beyond the sections listed above.

QUALITY & RELIABILITY

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Our state-of-the-art manufacturing facility produces sustainable concrete products in virtually any color, standard shape and size in order to inspire endless design possibilities for your building projects.

Kingston Block & Masonry Supply, LLC is staffed by industry professionals whose experience in manufacturing, technical support, dispatch and on-time delivery make your job, easier.

We welcome your business and look forward to working with you.

2009 Top-10 Green Building Product GreenSpec® LISTED www.BuildingGreen.com

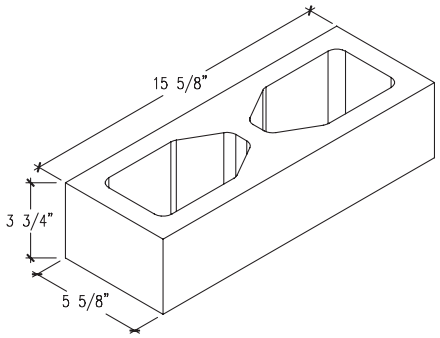
Pozzotive Plus™ Concrete Brick and CMUs from Kingston Block

KINGSTON
BLOCK & MASONRY SUPPLY, LLC

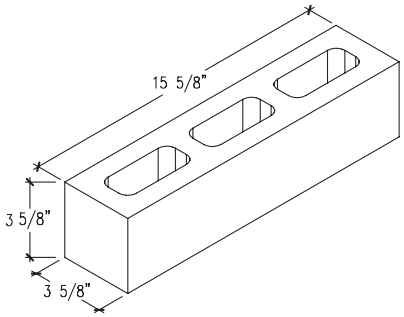
An Authorized Manufacturer of Pozzotive® Sustainable Concrete Products

Pozzotive® and Pozzotive Plus™ Brick

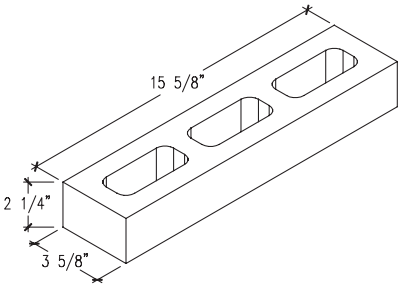
SUSTAINABLE BRICK LINE



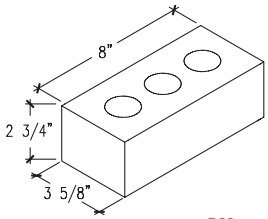
PARTITION



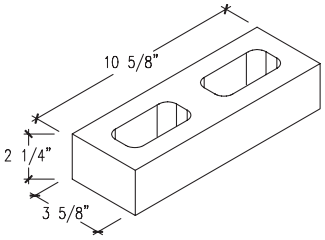
ROYAL



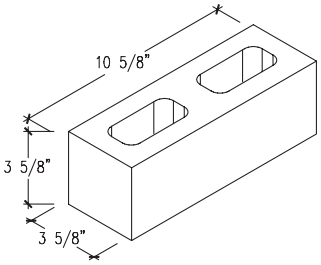
LEDGE



ECO



CONSERVE



RECLAIM

SUEDE COLLECTION

GROUND FACE COLLECTION

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Please contact a sales representative for more information:
info@kingstonblock.com

- Fly Ash Brick (FAB)™
- Holland Fly Ash Paver (FAP)™

Fly Ash Brick (FAB)™

With FAB's smooth texture and earth-tone color palette, you can't tell by looking at it that is has just 85% the energy of a fired clay brick. CalStar's architectural FAB is quickly becoming the product of choice for architects who love the look and performance of masonry and want to reflect their commitment to sustainable design in every material detail.

A residential project incorporating 20,000 clay bricks is wearing 12 months of operational energy on its exterior, just from the energy content of the brick. Specifying CalStar's FAB can help launch a new green building off on the right foot, close to net-zero energy from the start rather than burdened with more than a year's equivalent operating energy embodied in the cladding alone.

In commercial construction, the impact is even bigger. For a 100,000-unit project, the commercial specifier that chooses CalStar's FAB makes a real difference:

- Avoids 167,000 pounds — over 83 tons — of landfilling, and an equivalent amount of new raw material mining
- Reduces CO2 emissions:
  Over 100,000 lbs — 5 tons — of that would have been produced in the manufacture of traditional materials
- Saves energy:
  Nearly 140,000 kWh due to the relative energy efficiency of the CalStar's manufacturing process

Your clients will know that you put their LEED goals first when you specify FAB masonry.

Check out our two initial brick sizes
The architectural FAB comes in Modular and Utility size units.

Review our beautiful earth tone color palette
Colors available for the FAB.

Our brick perform like clay brick
FAB test results from CTL Group
FAB performance versus Clay Brick and Concrete Brick based on Modular size

Commercial portfolio
Mocha Utility FAB portrayal
Red Modular FAB portrayal

Download CalStar Fly Ash Brick Guide Specification
Download CalStar Fly Ash Brick Technical Data Sheet

CalStar directly addresses global climate change and CO2 emissions.

Environmental facts and information on fly ash.

- Learn more »

LEED Calculator

- Get the documentation necessary for your LEED project.
- View CalStar's LEED Calculator »

Stay updated

- Sign up for periodic updates from CalStar Products.
- Subscribe »

News

- CalStar Products Raises Additional Capital: *CalStar Products*
- SNAP Experts Call Fly Ash Brick and Paver Top 2010 Building Product: *McGraw-Hill's Sweets News and Products*
- Gov. Doyle and CalStar CEO Pounds Talk Green Jobs: *Office of Wisconsin Governor Jim Doyle*
- More news »

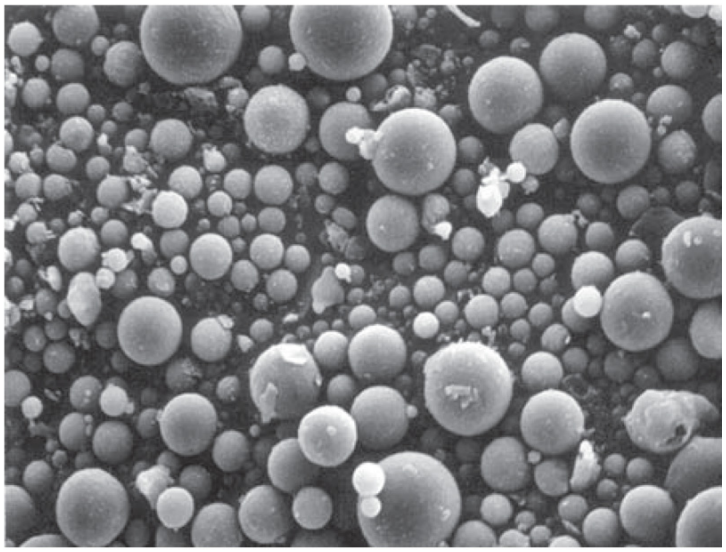
Fly Ash Brick Tech Data Sheet

SIDEBAR: SUSTAINABLE BRICK

CalStar® fly ash brick adds great environmental value to projects, just by being a brick. Brick's durability gives it long service life. Its thermal mass can stabilize indoor temperatures, saving energy and improving thermal comfort.

CalStar fly ash brick is a revolution in masonry. Instead of mining virgin clay and firing it, CalStar reclaims fly ash, a byproduct of burning coal, and converts it to a strong, beautiful building material. By using fly ash, CalStar:

- saves production energy
- preserves natural materials
- reduces pollution and landfill space
- reduces carbon emissions
- provides a market for recycling



1. PRODUCT NAME

CalStar® Fly Ash Brick

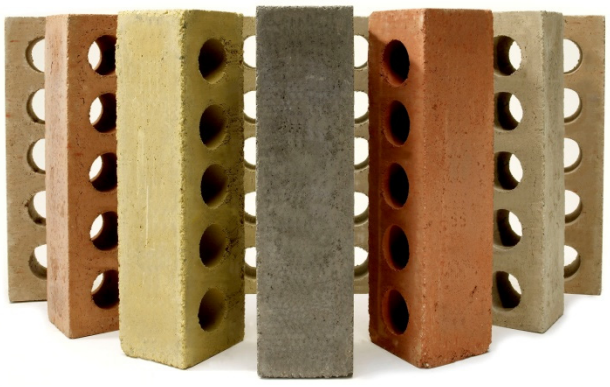
2. MANUFACTURER

CalStar Products, Inc.
www.CalStarProducts.com

Headquarters
CalStar Products, Inc.
6851 Mowry Avenue
Newark, CA 94560
Phone: 510-793-9500
Fax: 510-793-9501

Technical Center:
Contact: Gene Guetzow, LEED AP
Phone: 262-877-2369
E-mail: gguetzow@calstarproducts.com
Factory:
2825 4 Mile Road
Caledonia, WI 53404

3. PRODUCT DESCRIPTION



Basic Use: CalStar fly ash brick is used to build in the time-honored tradition of masonry construction. Masonry's inherently sustainable qualities include its acoustical performance, high thermal mass and exceptional durability.

Composition and Materials: Unlike fired clay brick, CalStar is a non-fired brick. Its main ingredient is ASTM C 618 Class C fly ash, a self-cementing byproduct of coal combustion. Fly ash, aggregates, mineral oxide pigments, and proprietary ingredients are mixed with water, vibro-compacted, and cured into a stable cementitious solid.

Grades: Meets or exceeds the requirements of ASTM C216 Grade SW, Severe Weathering, suitable for face brick in severe and freeze-thaw conditions.

Types: Meets or exceeds the requirements of ASTM C 216 Type FBX, the most precise dimensional tolerance criteria.

Sizes: inches (mm)
Modular, 3 5/8 w, 2 1/4 h, 7 5/8 l (92 w, 57 h, 194 l)
Utility, 3 5/8 w, 3 5/8 h, 11 5/8 l (92 w, 92 h, 295 l)
Contact CalStar for special shapes.

Colors: Standard and earth-tone colors are available, alone and in blends. Mineral oxide pigments impart permanent, through-body color to each brick. Precise dosing of the pigments provides consistent color, with no need to specify lot numbers or to retain significant quantities of attic stock.

Textures: Smooth texture is standard.

Limitations: Do not use as chemical-resistant brick flooring or for fire box and chimney construction.

4. TECHNICAL DATA

Applicable Standards:

ASTM C 216 — Standard Specification for Facing Brick (Solid Masonry Units Made from Clay or Shale)

CSA A82 — Fired Masonry Brick Made from Clay or Shale

- **Void Area:** Solid brick, less than 25 percent void area.
- **Efflorescence:** CalStar fly ash brick meets or exceeds the rating "Not Effloresced" when tested according to ASTM C67.
- **Strength:** Meets or exceeds performance of ASTM C216 for SW Clay Brick
- **Dimensional Stability:** Meets or exceeds performance of ASTM C216 for SW Clay Brick
- **Initial Rate of Absorption:** 1–14 g/min/30 in^2.

Sustainability:

- **Recycled Material:** 40% fly ash by weight. Fly ash, a byproduct of coal combustion, is considered post-industrial (pre-consumer) waste for LEED credits.
- **Embodied Energy:** estimated 1.01 MJ (1000 BTUs) per brick.
- **CO_2 Footprint:** estimated production footprint of 0.045 kg (0.1 lb) of carbon dioxide per brick.

5. INSTALLATION: Comply with BIA Technical Notes applicable to the project design, such as BIA TN28 "Anchored Brick Veneer, Wood Frame" and BIA TN28B "Brick Veneer/Steel Stud Walls".

Comply with BIA Technical Note 20 for progress cleanings and final cleaning.

6. AVAILABILITY AND COST: Availability: CalStar fly ash brick is manufactured in Caledonia, WI and available throughout the Midwest US and southern Ontario.

Cost: Cost is competitive with clay bricks of similar quality.

Shipping Cost: CalStar is 75 miles from downtown Chicago, several hundred miles closer than the next nearest commercial brick plant, saving shipping costs.

7. WARRANTY

TBD

8. MAINTENANCE

Regular Maintenance: CalStar fly ash brick should be maintained according to BIA Technical Note 46.

Coatings: CalStar fly ash brick's low absorption helps prevent staining, making coatings unnecessary in many designs. Follow BIA Technical Note 6A, which recommends a delay of one month to one year between close-in of the building envelope and application of any coating.

9. TECHNICAL SERVICES

www.CalStarProducts.com

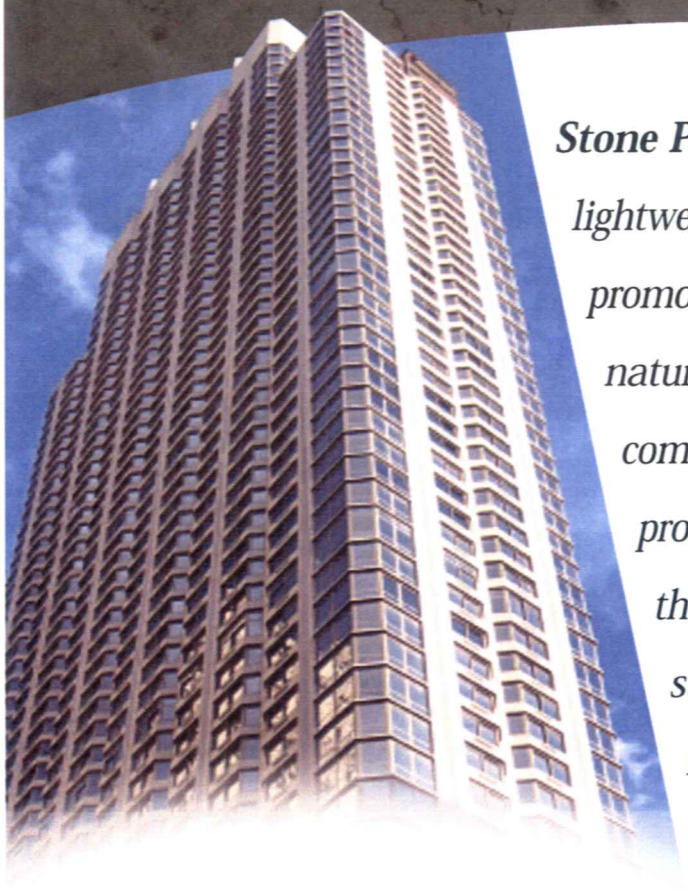
10. OTHER RESOURCES

- Guide specification 04 20 00
- www.GreenFormat.com

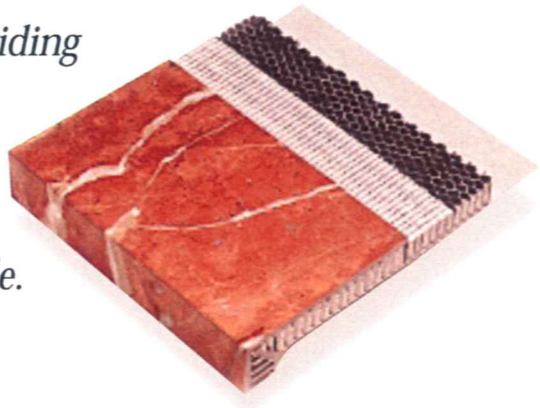
Additional product information available upon request.

CalStar Products, Inc.
6851 Mowry Avenue
Newark, CA 94560
Phone: 510.793.9500
www.calstarproducts.com

OUR ENVIRONMENTAL COMMITMENT IS SET IN STONE.



Stone Panels, Inc. *pioneered the development of lightweight authentic stone cladding through a process promoting the most efficient architectural use of natural resources. We maintain our strict commitment to environmentally responsible building products, while providing the highest quality stone cladding material available.*



A STRONG SOLUTION FOR ECOLOGICALLY RESPONSIBLE BUILDING

StoneLite® natural stone panels have been proven as a strong and lightweight cladding solution, providing the unmatched beauty of authentic, quarried stone, while also delivering unique **"Green Building"** qualities unavailable from many other materials – including dimensional stone:

- Sustainability
- Resistance to Thermal Transmission
- Reduced Structural Requirements
- Preservation of Limited Natural Resources
- Reduced Fuel Requirements for Transportation
- Weather Resistance
- Use of Recycled Raw Materials

Using **Stone**Lite® on new or renovation building projects – for either exterior or interior cladding – ***assures you of the aesthetics only natural stone can provide combined with the ecologically responsible innovations developed by Stone Panels, Inc.***

StoneLite®

BUILDING GREEN WITH STONELITE® NATURAL STONE CLADDING

PRESERVE NATURAL RESOURCES

StoneLite® provides the timeless beauty of authentic natural stone, while using the least amount of this natural resource to achieve the architectural and aesthetic impact.

Utilizing a thin layer of natural stone veneer reinforced with an aluminum honeycomb backing, **Stone**Lite® achieves your design effect with minimal impact on the environment.

The innovative design of **Stone**Lite® panels' savings of limited natural resources can play a role in achieving USGBC LEED (Version 2.2) ID Credits.

RECYCLED CONTENT CREDITS

The **Stone**Lite® cladding system, installed with our exclusive mounting channels, is composed of more than 10% recycled raw material – post-consumer and pre-consumer.

This revolutionary process is designed to help you achieve LEED MR Credit 4.1 for recycled content.

COOL ENERGY SAVINGS

StoneLite® provides improved resistance to thermal transmission (R=2.0 rather than R=0.7) compared to dimensional stone, meaning energy savings good for the environment, and for the utility expenses.

For new construction or renovation projects, this benefit can contribute to LEED EA Credit points.

CLEANER, HEALTHIER AIR QUALITY

StoneLite® is manufactured without Volatile Organic Compounds – contributing to a cleaner environment free of air contaminants harmful to both installers and facility occupants. Additionally, **Stone**Lite® requires no finishing or painting, and can be cleaned without solvents.

Using **Stone**Lite® may play a role toward LEED EQ Credits 4.1 and 4.2.

RE-CLAD, RE-USE

On renovation projects, **Stone**Lite® can be installed over existing wall materials, eliminating construction waste – saving both the environment, as well as time and money!

This unique feature will contribute toward LEED MR Credits 1.1 and 1.2.

Plus, **Stone**Lite® panels can be re-used on future construction projects – a key element in some cases for achieving LEED MR Credit 2.1.

LIGHTER MEANS CLEANER

StoneLite® is 80 percent lighter than dimensional stone, which means lower transportation emissions required in the delivery to the job site. This light-weight stone cladding system can also be installed faster, and with far less equipment, than dimensional stone, contributing to lower construction emissions during construction.

StoneLite®

100 S. ROYAL LANE
COPPELL, TX 75019
PHONE: 469.635.5000
FAX: 469.635.5555
TOLL FREE: 800.328.6275
www.stonepanels.com

Roofing

FLAT ROOFING SYSTEMS, METAL, STONE COATED METAL, FIBERGLASS SHINGLES, CLAY TILE, RUBBER TILE

The materials presented in this Appendix section are pre-approved for use by the City of San Gabriel.

The criteria for each material or system selected is:

- That it is environmentally sustainable, with recyclability and recycled content, renewability, energy extended for manufacturing, transportation and erection, air quality, and the installed energy savings as a part of the selection
- That it is a material or system of quality, substance, and has the ability to last many years
- That the materials are appropriate in form, color, and texture to the style of architecture they are being applied to.

Materials not contained within this list may be reviewed by the city and approved for use based on this criteria.

Note that buildings registered as historic, or buildings located in designated historic districts, or which in the opinion of the City of San Gabriel are deemed to have historic value, are not permitted to use substitute or imitation materials, such as may be described in this list. Authentic materials shall be used, except under extraordinary circumstances as reviewed by staff and approved by the City Design Review Commission, and only because the original building material and/or construction technique cannot be properly supplied or replicated.

Johns Manville

LEED® 3.0 CREDITS GUIDE FOR JM PRODUCTS
NEW CONSTRUCTION AND MAJOR RENOVATION

Join us in building a more sustainable future.

Johns Manville

JM products can also help earn credits under other LEED programs.
*For more information, **visit JM.com/buildgreen**.*

		LEED Version 3 Criteria																
		SS				EA		MR					ID	IEQ				
		Prerequisites or Credits Where JM Products Contribute																
		CREDIT 5.1	CREDIT 5.2	CREDIT 7.1	CREDIT 7.2	PREREQUISITE 2	CREDIT 1	CREDIT 4	CREDIT 5: 10%	CREDIT 5: 20%	CREDIT 6	CREDIT 1	CREDIT 3.2	CREDIT 4.1				
ROOFING SYSTEMS																		
Roofing Membranes																		
GlasKap® CR	SRI 93 Reflective, emissive white mineral-surfaced acrylic-coated, fiber glass cap sheet that is CA Title 24-compliant and is eligible for LEED credits.	+	+	+	+	+	+		✦	⬢		+						
JM PVC 50, 60 and 80 mil	SRI 109 Flexible, thermoplastic membrane of UV-resistant PVC and Elvaloy® ketone ethylene ester. Reinforced with non-wicking polyester fabric (needs no edge sealant).	+	+	+	+	+	+	✦	✦	⬢								
JM PVC Fleece Backed 50, 60 and 80 mil	SRI 109 Flexible, thermoplastic membrane of UV-resistant PVC and Elvaloy® ketone ethylene ester, reinforced with polyester fabric and backed with lightweight polyester fleece.	+	+	+	+	+	+	✦	✦	⬢								
JM TPO 45, 60, 72 and 80 mil	SRI 101 Thermoplastic polyolefin (TPO) membranes reinforced with polyester fabric, and designed for use in mechanically fastened and adhered roofing applications.	+	+	+	+	+	+	✦	✦	⬢								
Cements and Coatings																		
TopGard® 4000	SRI 102 Reflective, 100% acrylic, elastomeric, bleed-blocking coating for use over asphalt, single-ply and metal roofing.	+	+	+	+	+	+		✦	⬢								
TopGard® 5000	SRI 102 Reflective, 100% acrylic, elastomeric coating for smooth or granulated surfaced roofing systems in colder climates.	+	+	+	+	+	+		✦	⬢								
Roof Insulation																		
½" Retro-Fit™ Board	High-density board made of expanded perlite and cellulosic fibers. Top surface is sealed with TopLoc® coating to ensure good attachment in bituminous applications.	+	+			+	+											
DuraBoard® Cover Board	High-density, low-thermal rigid insulation board. For new and recover applications or over closed cell foam insulations using SBS or APP membrane roofing systems with torch application.	+	+			+	+	✦	✦	⬢								
ENRGY 3® (ENRGY 3® Foil Face Roof Insulation, ENRGY 3® Roof Insulation, ENRGY 3® Plus Roof Insulation or ENRGY 3® 25 PSI)	Rigid insulation board that provides high thermal insulation value over metal, nailable and non-nailable roof decks in built-up, modified bitumen and single-ply membrane roofing systems. Polyisocyanurate foam factory-bonded to fiber glass reinforced facers.	+	+			+	+	✦	✦	⬢								
FesCant Plus Cant Strip	High-density, laminated board that provides an excellent way to transition from the deck to the wall of the roof.	+	+					✦	✦	⬢								
Fesco® Board	Expanded perlite rigid insulation board. Ideal as a low-thermal roof insulation board and general-purpose cover board over closed cell-foam insulation boards in some roofing systems.	+	+			+	+	✦	✦	⬢								
Fesco® Board HD	High-density expanded perlite rigid insulation board. Ideal to use over wide flute or metal deck applications.	+	+			+	+	✦	✦	⬢								
Invinsa® Roof Board	Resilient, lightweight polyisocyanurate roof board that maximizes membrane performance and protects insulation below.	+	+			+	+											
Tapered ENRGY 3® Roof Insulation	Rigid polyisocyanurate insulation board designed to be directly applied to and promote positive drainage for steel and other roof decks.	+	+			+	+	✦	✦	⬢								
Tapered Fesco® Board	Expanded perlite panel that's pre-cut to several slopes.	+	+			+	+	✦	✦	⬢								
Tapered Fesco® Edge Strip	Ideal for transitioning from membrane to nailer or transitioning from Tapered Fesco, Tapered ENRGY 3 or Tapered Fesco.	+	+					✦	✦	⬢								
BUILDING INSULATION																		
Batts and Rolls																		
ComfortTherm® Plastic-wrapped Fiber Glass Insulation Batts and Rolls	Wrapped in plastic for twice the moisture control of kraft facings.					+	+	✦	✦	⬢		+	+					
FSK-25 Faced Fiber Glass Insulation Batts	Foil-scrim kraft-faced insulation provides superior moisture control and light reflectivity.					+	+	✦	✦	⬢		+	+					
Kraft-Faced Fiber Glass Insulation Batts and Rolls	Kraft facing serves as a vapor retarder to control moisture in concealed wall applications.					+	+	✦	✦	⬢		+	+					
MR® Faced Mold- and Mildew-resistant Fiber Glass Insulation Batts	Facing treated with a U.S. EPA-registered agent to protect the insulation from mold and mildew.					+	+	✦	✦	⬢		+	+					
Panel Deck FSK-25 & PSK Faced Fiber Glass Insulation Batts	Foil-scrim kraft-faced or polypropylene-scrim kraft-faced insulation with extended side tabs for use beneath roofing panel decks.					+	+	✦	✦	⬢		+	+					
Unfaced Fiber Glass Insulation Batts and Rolls	Bonded fiber glass building insulation for use where no vapor retarder is needed or where a separate vapor barrier is applied.					+	+	✦	✦	⬢		+	+					
Blow-in and Spray-in Insulation																		
Climate Pro® Loose Fill Fiber Glass Insulation	Blow-in fiber glass for attics and other hard-to-reach areas. Can be used in walls and ceilings as part of the Blow-in-Blanket System®.					+	+	✦	✦	⬢		+	+					
JM Spider® Spray-in Custom Fiber Glass Insulation	Spray-in fiber glass achieves up to R-15 in 2x4 framing and up to R-25 in 6-inch steel framing. Treated with a U.S. EPA-registered agent to protect the insulation against mold.					+	+	✦	✦	⬢		+	+					
Rigid and Semi-rigid Boards																		
Insul-SHIELD® Unfaced Boards	Fiber glass insulation boards designed for curtain wall applications.					+	+	✦	✦	⬢								
Insul-SHIELD® FSK-25 & PSK Panel Boards	Faced boards for applications where a vapor barrier is needed. FSK facing is fire resistant and helps maximize lighting efficiency.					+	+	✦	✦	⬢								
COMMERCIAL BUILDING WRAP																		
Gorilla Wrap®	Translucent, non-perforated, non-woven polymeric material designed to reduce air and water infiltration.							+	✦	⬢								

+ JM products contribute to this prerequisite or credit. ✦ Contact JM to find out how JM products can contribute to credits at your project site. ⬢ JM is in the process of auditing material extraction locations.

Johns Manville

JM products can also help earn credits under other LEED programs.
For more information, ***visit JM.com/buildgreen****.*

		LEED Version 3 Criteria	SS				EA		MR				ID	IEQ		
		Prerequisites or Credits Where JM Products Contribute	CREDIT 5.1	CREDIT 5.2	CREDIT 7.1	CREDIT 7.2	PREREQUISITE 2	CREDIT 1	CREDIT 4	CREDIT 5: 10%	CREDIT 5: 20%	CREDIT 6	CREDIT 1	CREDIT 3.2	CREDIT 4.1
MECHANICAL INSULATION																
Pipe, Tank & Equipment Insulation																
Micro-Lok® Pipe Insulation	Reinforced vapor retarder facing. Ideal for piping systems with operating temperatures up to 850°F.						+	+								
Micro-Lok® *HP* Pipe Insulation	The next generation of Micro-Lok pipe insulation.						+	+								
Micro-Flex® Large Diameter Pipe & Tank Insulation	High-temperature, semi-rigid fiber glass blanket bonded to a flexible facing. Ideal for pipes, tanks, ducts, vessels and other round or irregular shapes.						+	+								
800 Series Spin-Glas® Duct & Equipment Insulation	Can be used in plain or faced form to insulate commercial and industrial heating, air conditioning, power and process equipment.						+	+								
1000 Series Spin-Glas® High Temperature Equipment Insulation	Semi-rigid board insulation ideal for insulating furnaces, boilers, heated vessels, ducts, tanks and other heated equipment operating at temperatures up to 850°F.						+	+								
Zeston® PVC Fitting Covers & Jacketing	Heavy-duty fitting covers and jacketing with Formaldehyde-free™ fiber glass inserts for chilled water, hot water, steam and other piping systems.															
Ceel-Co® PVC Fitting Covers & Jacketing	Heavy-duty fitting covers and jacketing with Formaldehyde-free™ fiber glass inserts for chilled water, hot water, steam and other piping systems.															
Insulations for Rectangular Steel Ducts																
Linacoustic® RC Duct Liner	Flexible duct liner featuring JM's exclusive Reinforced Coating System to protect the airstream surface.						+	+					+	+		
Linacoustic® R-300 Rigid Duct Liner	Airstream surface and long edges are coated with a tough, smooth, acrylic polymer. Designed for HVAC plenums and air distribution ductwork with air velocities up to 6,000 fpm and temperatures up to 250°F.						+	+					+			
LinaTex™ Duct Liner	Flexible liner with airstream surface protected by a black, high-density glass mat. For lining sheet metal ducts with air velocity up to 6,000 fpm and operating temperatures up to 250°F.						+	+					+			
Microlite® Duct Wrap	Lightweight, highly resilient blanket-type thermal and acoustical insulation available plain or with factory-applied foil-skrim-kraft facing and white Class 1 vinyl.						+	+								
Microlite® XG™ Duct Wrap	Made without formaldehyde, this is a lightweight, highly resilient blanket-type thermal and acoustical insulation for the exterior of HVAC systems or other spaces or surfaces.						+	+					+	+		
800 Series Spin-Glas® Duct & Equipment Insulation	Can be used in plain or faced form to insulate commercial and industrial heating, air conditioning, power and process equipment.						+	+								
Insulations for Round & Spiral Steel Ducts																
Spiracoustic Plus™ Duct Liner	This system is a comprehensive group of duct lining products engineered to provide very high acoustical and thermal performance in round air ducts of virtually any size.						+	+					+			
Microlite® Duct Wrap	Lightweight, highly resilient blanket-type thermal and acoustical insulation available plain or with factory-applied foil-skrim-kraft facing and white Class 1 vinyl.						+	+								
Microlite® XG™ Duct Wrap	Made without formaldehyde, this is a lightweight, highly resilient blanket-type thermal and acoustical insulation for the exterior of HVAC systems or other spaces or surfaces.						+	+					+	+		
Self-insulated Duct Products																
EnviroAire™ Duct Board	The only fiber glass duct board for residential and commercial air handling systems that is made without formaldehyde.						+	+					+	+		
Mat-Faced Micro-Aire® Duct Board	Airstream side features a fiber glass mat for use at velocities up to 5,000 fpm. The opposite side features a fire-resistant foil-skrim-kraft facing. Ideal for fabrication into rectangular ductwork.						+	+					+			
SuperDuct® RC Duct Board	Male/female joints are factory-made on the transverse edges of each board and a tough foil-skrim-kraft facing is laminated to the exterior surface of the board.						+	+					+			
Duct Adhesives & Sealants																
SuperSeal® Edge Treatment	Sprayable liquid for high-volume shop applications. May also be applied with a brush.															+
SuperSeal® HV	High-viscosity version of the Permacote® coating for spot or edge repair.															+

Currently, mechanical systems, components and associated pipe, duct and HVAC equipment thermal and acoustical insulations are excluded from MR credit calculations under LEED-NC.

WALL COVERINGS																
Scandatex® Wall Covering	Durable woven glass textile in an extensive range of textures and patterns. Easy to clean, repaint and repair.											+		+		
Tassoglas® Wall Covering	Glass textile with fine or heavy textures and Jacquard-woven, classic-woven and relief-printed patterns. Available pre-primed, pre-glued and strippable and for wet rooms and shower rooms.											+		+		
Textra™ Wall Covering	Woven glass textile in a variety of textures that can be repainted up to 10 times. Breathable when painted with a low-sheen latex paint.											+		+		

LEED Version 3 Criteria.

SUSTAINABLE SITES (SS)				ENERGY AND ATMOSPHERE (EA)		MATERIALS AND RESOURCES (MR)			INNOVATION & DESIGN (ID)	INDOOR ENVIRONMENTAL QUALITY (IEQ)	
CREDIT 5.1 Site Development – Protect or Restore Habitat	**CREDIT 5.2** Site Development – Maximize Open Space	**CREDIT 7.1** Heat Island Effect – Non-Roof	**CREDIT 7.2** Heat Island Effect – Roof	**PREREQUISITE 2** Minimum Energy Performance	**CREDIT 1** Optimize Energy Performance	**CREDIT 4** Recycled Content: 10% or 20% (Post-consumer + ½ pre-consumer)	**CREDIT 5** Regional Materials: 10% or 20% Extracted, Harvested or Recovered and Manufactured Regionally	**CREDIT 6** Rapidly Renewable Materials	**CREDIT 1** Innovation in Design	**CREDIT 3.2** Construction IAQ Management Plan OPTION 2: Air Quality Testing	**CREDIT 4.1** Low-emitting Materials

Printed on recycled paper.

Insulation Systems
717 17th Street
Denver, CO 80202
(800) 654-3103
JM.com/buildgreen

HIG-1231 06/09 (Replaces 12/08)

Sustainability | LEED

Cool Roofs
Life Cycle
LEED
LEED V 2.2
LEED V 3
Green Globes
Urban Heat Islands
Green Roofs
EPA Energy Star
Energy Savings Calculator
Californias Title 24
Related Links
Recycling

LEED®

Developed by the U.S. Green Building Council (USGBC), LEED provides building owners and operators a framework for identifying and implementing measurable green building design, construction, operations and maintenance solutions.

LEED certification consists of a number of different rating systems that apply to many building types – commercial as well as residential and measures how well a building performs across many sustainability metrics including: energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental quality, and stewardship of resources and sensitivity to their impacts.

Whether your project is new construction or renovation, energy efficient roofing, water run-off management and renewable energy are all important points to consider - and Sika Sarnafil makes it easy. A Sika Sarnafil roof can qualify for the attainment of 1 point under Sustainable Sites Credit 7.2 and contribute towards the attainment of up to 28 additional Points as described below.

With over 40 years experience providing long lasting, energy efficient roofing and waterproofing systems combined with the knowledge gained from working on dozens of LEED certified buildings, Sika Sarnafil is uniquely qualified to assist you with your LEED project.

Sika Sarnafil's Roofing and Waterproofing Systems Play a Role

LEED V 2.2

Sustainable Sites
Sika Sarnafil's EnergySmart Roof® membranes and Green Roof systems can contribute to multiple points in LEED's Sustainable Sites category. This is done by replacing natural landscape removed in the construction process with a green (vegetated) roof, encouraging regionally appropriate landscaping, controlling stormwater runoff; and helping reduce the heat island effect. Below are the sections where Sika Sarnafil products can help you obtain points towards LEED certification:

- Sustainable Sites Credit 5.1 (Site Development: Protect or Restore Habitat) – A Green Roof contributes to the possible 2 points (one point is for Exemplary Performance under the Innovation in Design Credits Section).
- Sustainable Sites Credit 5.2 (Site Development: Maximize Open Space) – A Green Roof contributes to the possible 2 points (one point is for Exemplary Performance under the Innovation in Design Credits Section).
- Sustainable Sites Credit 6.1 (Stormwater Design: Quantity Control) – A Green Roof contributes to the 1 point.
- Sustainable Sites Credit 6.2 (Stormwater Design: Quality Control) – A Green Roof contributes to the 1 point.
- Sustainable Sites Credit 7.2 (Heat Island Effect: Roof) – An EnergySmart roof can obtain 1

point and a Green Roof can obtain up to 2 points (one point is for Exemplary Performance under the Innovation in Design Credits Section).

Energy & Atmosphere

Sika Sarnafil's EnergySmart Roof membranes, Sarnatherm Insulation and Solar Roof systems can contribute to multiple points in LEED's Energy & Atmosphere category. This is accomplished by helping optimize energy performance and the use of renewable and clean sources of energy, generated on-site. Below are the sections where Sika Sarnafil products can help you achieve points towards LEED certification:

- Energy and Atmosphere Credit 1 (Optimize Energy Performance) – An EnergySmart roof and/or Sarnatherm Insulation can contribute to the possible 10 points available.*
- Energy and Atmosphere Credit 2 (On-Site Renewable Energy) – A Solar Roof contributes to the possible 4 points (one point is for Exemplary Performance under the Innovation in Design Credits Section).**

* For the "Core & Shell" system, an EnergySmart roof and/or Sarnatherm Insulation can contribute to the possible 8 points available under "Energy and Atmosphere" Credit 1.

** For the "Core & Shell" system, a Solar Roof contributes to the possible 2 points available under "Energy and Atmosphere" Credit 2 (one point is for Exemplary Performance under the Innovation in Design Credits Section).

Materials & Resources

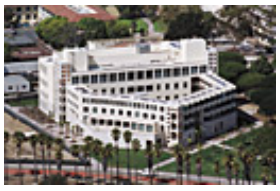
Sika Sarnafil's EnergySmart Roof membranes and Roof Recycling Program can be used to obtain multiple points in LEED's Materials and Resources category. A mechanically attached vinyl roof at the end of its useful life can be recycled by Sika Sarnafil into new roofing membrane products and replaced with a roof membrane that is made with pre and post consumer recycled waste. Below are the sections where Sika Sarnafil can help with points towards LEED certification:

- Materials and Resources Credit 2.1 and 2.2 (Construction Waste Management) – Sika Sarnafil's Roof Recycling Program contributes to the possible 3 points (one point is for Exemplary Performance under the Innovation in Design Credits Section).
- Materials and Resources Credit 4.1 and 4.2 (Recycled Content) – Any Sika Sarnafil membrane containing recycled content contributes to the possible 3 points (one point is for Exemplary Performance under the Innovation in Design Credits Section).

Indoor Environmental Quality

Sika Sarnafil's Low or No VOC emitting roof membrane adhesives can be used to obtain a point in LEED's Indoor Environmental Quality category. This is accomplished by not contributing to possible fumes and/or odors during building construction. Below is the section where Sika Sarnafil products can help you achieve LEED points:

- Indoor Environmental Quality Credit 4.1 (Low-Emitting Materials: Adhesives & Sealants) – Sika Sarnafil's Low or No VOC emitting membrane adhesives contribute to the 1 point




LEED Certified Buildings with Sarnafil Roofing or Waterproofing Systems

- Photo 1 – PLATINUM Certified: **The Donald Bren School** of Environmental Science and Management, UC Santa Barbara, California
- Photo 2 – GOLD Certified: **The William and Flora Hewlett Foundation**, Menlo Park, California.
- Photo 3 – Certified: **Olympic Oval Speed Skating Arena**, Kearns, Utah – one of the first 12

LEED certified buildings in the U.S.

- Photo 4 – Certified: **Premier Automotive Group's** North American headquarters for Ford Motor Company's Jaguar, Volvo, Land Rover and Lincoln brands – includes vegetation over 75 percent of its 60,000 square foot roof.

Why Choose Sika Sarnafil?

- Experienced technical staff
- Proven long-term performance
- Low life cycle costs
- Energy efficient roofing systems
  - Highly reflective EnergySmart Roof membranes
  - Green roofs
  - Solar roofs
- Authorized applicators
- Design flexibility
- ENERGY STAR® rated membranes
- Roof recycling program

View a PDF of our LEED brochure to learn more about Sarnafil's LEED experience.

Download our LEED/Green Globes products spreadsheet to help you complete your LEED submittal documents.

Contact us to learn more about Sarnafil's LEED experience and our sustainable roofing and waterproofing solutions.
Go to www.usgbc.org for more information about LEED.

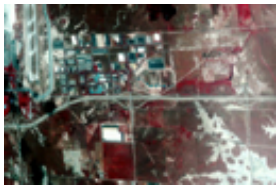
The EnergySmart Roof® Cool Colors Saves Money and Energy

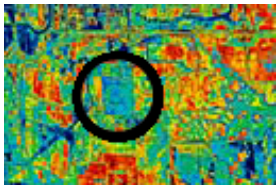
Did you know that national, independent testing has shown that Sika Sarnafil's **EnergySmart Roof® Cool Color Family** can reduce energy consumption, abate urban heat and help slow the reaction of smog forming pollutants?

Sika Sarnafil's EnergySmart Roof® system includes a white, tan, light grey or patina green highly reflective, lacquer coated surface that has been proven to reduce the amount of energy required to maintain comfort in an air-conditioned building by decreasing heat flow through the building envelope. A "cool roof" such as Sika Sarnafil's, can save money, improve occupant comfort, increase a roof's longevity, and reliably protect a building and its contents.

Sika Sarnafil was the first single-ply membrane manufacturer to label roofing products under the EPA's Energy Star Roof Products program. The program is a voluntary partnership between the EPA and a select group of roof product manufacturers. The focus of the program is to promote the environmental and economic benefits of reflective roofing. As a Charter Partner of the program, Sika Sarnafil's EnergySmart Roof® cool color family has gained much attention in the media and with well-known research institutes.

NASA Investigates the Heat Island Effect





In July, 1998, two NASA scientists, Dr. Jeff Luvall and Dr. Dale Quattrochi conducted research to see if they could identify surfaces that exacerbate oppressive urban air temperatures and accelerate the formation of smog. The NASA team used a specially equipped airplane to record photographic and thermal infrared images in order to detect all the "hot spots" in Salt Lake City, Utah.

The photos above are of the RC Willey building. This 865,000 square foot roof utilizes a Sarnafil white reflective roof membrane. The green color of the building in the thermal image proves it is absorbing less solar radiation than the surrounding structures shown in red.

The physical and reflective properties of the roofing membrane on the RC Willey building illustrate the specific cooling impact that reflective roofs can have in reducing air temperatures within “urban heat islands.“ The air temperature in a heat island is typically 5 to 10 degrees (F) warmer than in surrounding rural areas. Higher temperatures foster an increase in energy demand to run air-conditioning equipment. Consequently, a rise in energy demand leads to a corresponding increase in power-plant generation. Studies have shown that the urban heat island effect costs the United States in excess of $2 billion a year and represents five to 10 percent of the peak electric demand across the country (*“Urban Heat Islands and the Roofing Industry,”* RSI magazine, 1998).

The Department of Energy has developed an energy savings calculator for projecting the potential savings associated with installing a cool roof instead of a black one, such as an EPDM (ethylene propylene diene monomer) or traditional asphalt roof. Go to the Energy Calculator to see how much energy your building can save.

Learn More

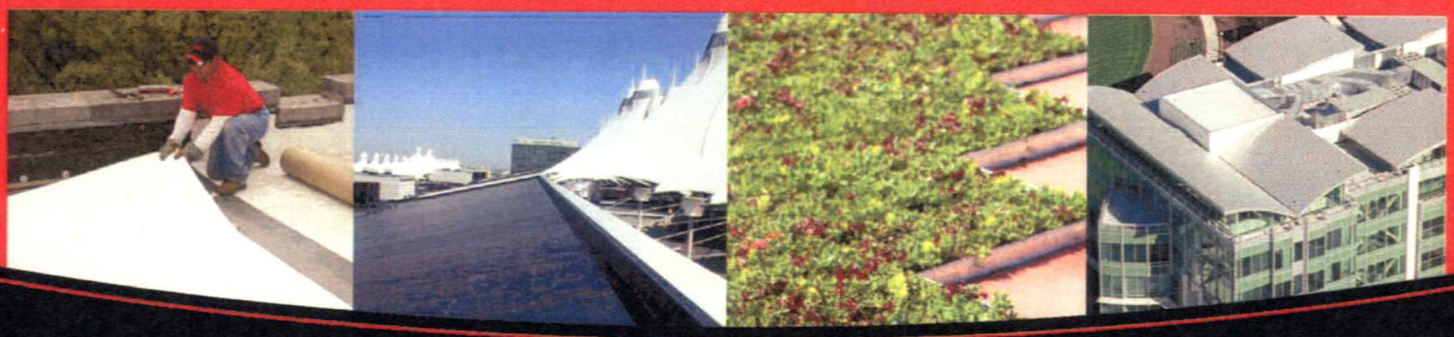
Study Proves White Thermoplastic Roof Saves Money

Read more about the NASA research RC Wiley Distribution Center in our two-page Project Profile

Learn more about Sarnafil’s EnergySmart Roof® by viewing our comprehensive brochure (six pages).

To learn about how EnergyStar, Title 24, Green Globes and LEED define a "Cool Roof" and how Sika Sarnafil's EnergySmart Cool Color Family meets and/or exceeds these requirements, click here.

"Benefits of Cool Roofs on Commercial Buildings" appeared in the July 2009 issue of RCI Interface. The article discusses the energy and carbon savings associated with reflective roofs, considers the CO2 generated to manufacture reflective roofing systems, and introduces the concept of a measurable "return" on environmental investment. For reflective roofs in the U.S., this time period for CO2 "payback" averages just 1.7 years. To view the article, click here.



Nobody covers you better. Nobody covers you greener.

As a leading manufacturer of roofing products and part of an international company, Firestone Building Products plays a global role in protecting the environment. We focus on four key areas:

Recyclability

- All Firestone UNA-CLAD™ Metal Roofing Systems are 100% recyclable—and use recycled content.
- Our UltraPly™ TPO membrane can be used in the next TPO manufacturing cycle—or down-cycled into our Firestone ECO Walkway.
- Firestone RubberGard™ EPDM membrane is recyclable in many situations.

Reflectivity

- Firestone Building Products is a member of the Cool Roofs Rating Council® (CRRC). Our products' solar-reflectance values have been tested by the CRRC and are available at coolroofs.org.
- We are a partner of the Energy Star® program, administered by the Environmental Protection Agency and the Department of Energy. We have earned the Energy Star label for AcryliTop™ Coated EPDM, White UltraPly TPO, several UNA-CLAD Metal colors and others.
- The reflectivity of RubberGard Eco White™ EPDM and UltraPly TPO membranes help reduce building cooling costs.
- We are a member of the U.S. Green Building Council® (USGBC), helping to promote and earn points in the USGBC's LEED® (Leadership in Energy and Environmental Design) program.
- RubberGard EcoWhite™ EPDM, White and Tan UltraPly TPO membranes and several UNA-CLAD Metal roofing colors meet LEED criteria for reducing "heat-island" effects.

Conservation

- Our polyiso products have the industry's highest R-value per inch of thickness, as well as recycled content and the potential for re-use with a Firestone membrane.
- Our systems' thermal performance reduces energy consumption and the demand for natural resources.
- We are the world's largest manufacturer of "polyiso" (polyisocyanurate) roofing insulation—a rigid, closed-cell board product with excellent thermal performance.
- We use ISOGard™ Foam technology, which utilizes an HCFC-free blowing agent that does not contribute to ozone depletion.
- With eight polyiso manufacturing and distribution plants throughout the United States, we conserve fuel during distribution.

Sustainability

- Our UNA-CLAD metal roofing systems feature a high percentage of recycled content—along with the durability and complete recyclability of metal.
- We stand behind our products' longevity with the industry's most substantial warranty: the Firestone Red Shield™ Warranty of up to 20 years with our EPDM, TPO, asphalt and metal roofing systems. We also offer 25-year Red Shield Medallion™ warranties for certain Firestone EPDM, TPO, Metal and SBS systems, and the Platinum™ 30-year warranty utilizing our Premium Platinum EPDM and TPO roofing systems.
- We have voluntarily withdrawn from the PVC market, refocusing our efforts on TPO, a "greener" option.
- We are a founding member of the Center for Environmental Innovation in Roofing.

Firestone
BUILDING PRODUCTS
NOBODY COVERS YOU BETTER™

Alliances and partnerships

Alternative systems: Key alliances for 21st century approaches

Firestone is pleased to align our tradition of innovation with other companies who share our concern for the environment. These relationships help us pursue our commitment to eco-friendly products with organizations who have demonstrated their expertise in providing solutions.

Garden Roofing Systems

For instance, garden roofing moves the green advantages of vegetation to the top of the building. Firestone facilitates this innovative solution by manufacturing the EPDM and TPO membranes that give the system a durable, reliable foundation. As a result, installation and maintenance also become easier and more cost-effective.

Photovoltaic Roofing Systems

Similarly, our partnerships allow us to provide a proven roofing system for photovoltaic (or "PV") panels. PV panels offer solar-energy solutions for small- and large-scale construction. Our EPDM and TPO membranes also come with the traditional assurances that only a leading roofing manufacturer can offer.

Green at a glance

EPDM	RubberGard	RMA RubberGard System	RubberGard Platinum	AcryliTop Coated	EcoWhite
Reflective				●	●
Recyclable	●	●	●	●	●
CRRC rated				●	●
Energy Star certified				●	
LEED points	●	●	●	●	●
Warrantied	●	●	●	●	●
TPO	**UltraPly**	**Platinum**	**ReflexEON**	**UltraPly XR**	
Reflective	●	●	●	●	
Recyclable	●	●	●	●	
Recycled content	●	●	●	●	
CRRC rated	●	●	●	●	
Energy Star certified	●	●		●	
LEED points	●	●	●	●	
Warrantied	●	●	●	●	
Modified Bitumen	**SBS**	**APP**	**BUR**	**Self-Adhered Base**	**AcryliTop Coated**
Reflective	SBS White	APP 180 White			●
Recyclable	●	●			
Recycled content	●	●			
CRRC rated	●	●	●	●	●
Energy Star certified					●
LEED points					●
Warrantied	●	●	●	●	●
Metal *	**UC-3**	**UC-4**	**UC-6**	**UC-14**	**Other panels**
Reflective	●	●	●	●	●
Recyclable	●	●	●	●	●
Recycled content	●	●	●	●	●
CRRC rated	●	●	●	●	●
Energy Star certified	●	●	●	●	●
LEED points	●	●	●	●	●
Warrantied	●	●	●	●	
Miscellaneous	**Ballasted roofing**	**Garden roofing**	**PV roofing**	**ECO Walkway Pads**	**ISO 95+**
Reflective	●				
Recyclable	●				
Recycled content				●	●
LEED points		●	●		●
Warrantied	●	●	●		●

* Only specific colors meet all guidelines.

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www.firestonegreen.com

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This green product printed on recycled paper.

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UltraPly TPO InvisiWeld System
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UltraPly TPO XR Roofing Systems

Firestone UltraPly TPO XR combines the durability of a single-ply membrane with the heat welding properties of thermoplastic in an adhered application. Installation flexibility enables the roofing system to be installed with either hot asphalt or Firestone UltraPly TPO XR Bonding Adhesive.

With an external backing of eight-ounce, non-woven polyester, Firestone UltraPly TPO XR offers an additional internal and external reinforcement for remarkable puncture resistance.

UltraPly TPO XR is ideal for direct applications over many different roofing substrates for both new and reroof applications. Available in white, tan or gray and in thicknesses of 45- or 60-mil, UltraPly TPO XR provides excellent weatherability and strong resistance to UV rays and common rooftop chemicals.

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UltraPly TPO XR Flyer - Item 1154 (554.9Kb)

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2003 UC-3	03/22/10
RubberGard EcoWhite Pl...	03/18/10
Energy Star Manufactur...	03/18/10

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- **RubberGard EcoWhite**
- EcoWhite Platinum EPDM
- RubberGard R.M.A.

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2003 UC-3	03/22/10
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Energy Star Manufactur...	03/18/10

RubberGard EcoWhite EPDM Roofing System

Utilizing the same characteristics and benefits of Firestone's established line of RubberGard EPDM membranes, RubberGard EcoWhite EPDM membrane offers a highly reflective EPDM solution to coated membranes and thermoplastics. The environmentally friendly white membrane provides building owners with the proven performance of traditional EPDM, while offering the ease of installation roofing contractors need.

Available in a .060" (1.52mm) thickness, RubberGard EcoWhite EPDM membrane is a bi-laminate, white-on-black cured membrane that can be used in conjunction with the comprehensive EcoWhite line of accessories for rapid, consistent and cost-effective fully adhered installations. It is available for UL- and FM-rated systems, exceeds ASTM D 4637 standards, and is eligible for a 15-year Firestone Red Shield Warranty.

RubberGard EcoWhite membrane's initial solar reflectance is 0.80, when tested in accordance with the Cool Roof Rating Council (CRRC) program. Also, based on recent CRRC testing, EcoWhite has a solar reflectance index (SRI) of 99, making it one of the industry's most reflective white membranes. Plus, EcoWhite EPDM can help achieve points in the Leadership in Energy and Environmental Design (LEED) rating system, a voluntary national standard established by the U.S. Green Building Council.

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EcoWhite Brochure - Item 1199 (610.7Kb)

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  - **Non-Warranted UC Panels**
  - CLAD-GARD
- Green Systems
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Non-Warranted UNA-CLAD UC Panels

Firestone offers a line of non-warranted UNA-CLAD UC roofing panel profiles for architectural and specific structural applications.

Firestone **UNA-CLAD UC-1 Snap-On Cover Standing Seam Panel** offers a distinctly different look to enhance architectural design with its 1 3/4" high standing seam. This system uses a concealed clip fastening system which provides excellent movement capabilities while meeting current wind-load regulations for metal roofing systems.

Firestone **UNA-CLAD UC-2 Snap-On Batten Seam Roofing Panel** provides the same 1 3/4" height and performance as the UC-1 but this system presents a bolder look with a 1 1/2" or 2" wide batten cover.

Firestone **UNA-CLAD UC-7 Snap-On Standing Seam Roofing Panel** provides a 1" profile which offers the designer the ability to specify and create high-profile features. These panels come in rolls, have high radius capabilities and can be curved for radius applications.

RECENT INFORMATION

2006 UC-6	03/22/10
2004 UC-4	03/22/10
2003 UC-3	03/22/10
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Metal Products Brochure - Item 1181 (4561.5Kb)

Metal Color Selection Chart - Item 1185 (1377.8Kb)

Quick Reference Guide - Item 1185 (3454.4Kb)

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Energy Star Manufactur...	03/18/10

Warranted UNA-CLAD UC Panels

Available in copper, zinc, and 31 standard PVDF-painted aluminum and steel colors, Firestone UC Roofing System Panels can be used with all Firestone Roofing Systems and Firestone ISO 95+ polyiso insulation. Firestone offers a wide selection of accessories for all metal roofing systems. Select UC Roofing System Panels are also backed by Firestone's Red Shield Warranty coverage when used in an architectural application.

Firestone **UNA-CLAD UC-3 Roofing Panel** is a factory formed double-lock, architectural standing seam metal roof panel that provides a traditional look and utilizes mechanical seaming to enhance design needs. With its proven high wind performance capabilities, UC-3 Roofing Panel can be curved and tapered and accommodate complex architectural geometry.

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Firestone **UNA-CLAD UC-4 Roofing Panel** is a patented self-locking, architectural standing seam metal roof panel that completely eliminates the need for clips. UC-4 Roofing Panel's unique integral fastening flange accommodates thermal movement, and its easy snap-together seam saves installation time and money. Firestone's 25-year Millennium Warranty may be available for this system as well.

Firestone **UNA-CLAD UC-6 Double-Lock Standing Seam Roofing Panel** utilizes the proven seaming process of Pittsburgh Locking in conjunction with the floating action of a concealed clip assembly. This design allows for expansion and contraction caused by natural elements to provide a virtually leak proof roof with exceptional uplift ratings. UC-6 Roofing Panels have the ability to span open purlins, please see non-warranted systems.

The Firestone **UNA-CLAD UC-14 Roofing Panel** is a factory formed architectural standing seam metal roof panel with a proven 1 3/4" tall continuous interlocking seam that snaps together for ease of installation. The system uses a concealed clip fastening system for added protection and is able to accommodate very long panels and virtually unlimited thermal expansion.

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Product Literature

- Red Shield Metal Products Warranty Brochure - Item 1180 (1502.8Kb)
- Metal Products Brochure - Item 1181 (4561.5Kb)
- Metal Color Selection Chart - Item 1185 (1377.8Kb)
- Quick Reference Guide - Item 1186.pdf (3454.4Kb)
- UNA-CLAD UC-14 Product Flyer - Item 1197 (334Kb)

Stone Coated Metal Roofs

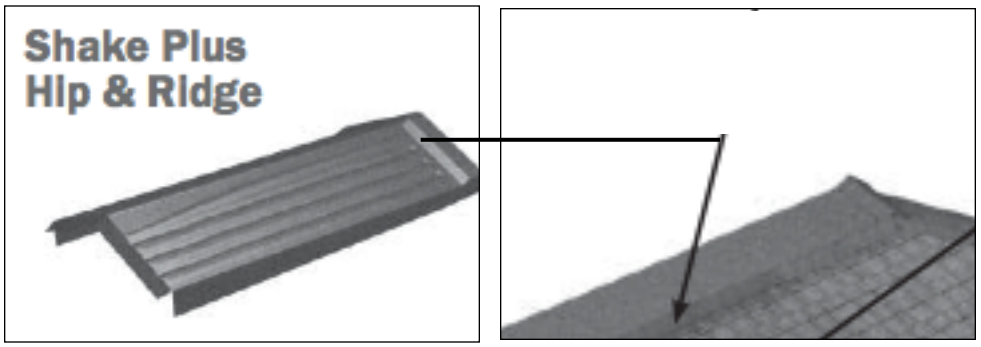
The selection of materials and the execution of details are very important in the use this material. Three details are crucial for a proper appearance in the installation of this building system:

- The Ridge
- The Valley
- 'Shake' edge trim

Other elements of the roof (jacks, vents, other accessories) are to be installed plumb, and in a workmanlike manner.

The Ridge:

- The ridge 'shake' shingle pieces lie down flat and neat along the profile of the ridge and in the way that they overlap the adjacent field shakes
- The slope of the ridge trim shall come close to matching the slope of the roof itself (<10%)
- All gaps in the ridge junctions shall be filled by a system piece, or carefully cemented in



Detail Above:
Profile of ridge pieces hug (<1/2") the profile of the shingle itself, and they follow the same slope as the roof itself

Acceptable:
Ridge pieces lay down flat, and are sloped to match the surrounding roof

Not Acceptable:
Ridge pieces are more then twice as high in profile as the profile of the shingles themselves

Stone Coated Metal Roofs

The selection of materials and the execution of details are very important in the use this material. Three details are crucial for a proper appearance in the installation of this building system:

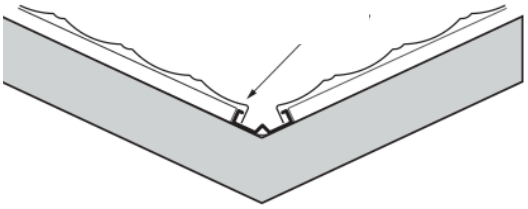
- The Ridge
- The Valley
- 'Shake' edge trim

Other elements of the roof (jacks, vents, other accessories) are to be installed plumb, and in a workmanlike manner.

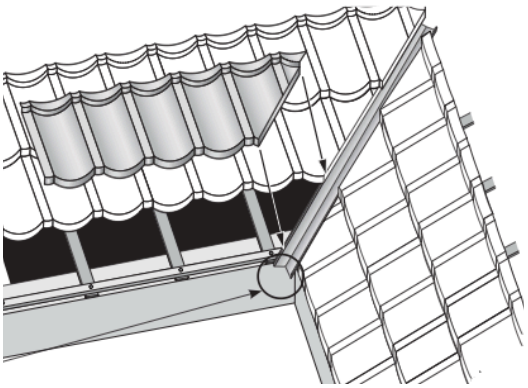
The Valley:

- The roof shingles shall turn down into a valley flashing at all valley roof transitions
- The turn-down shingle cut must be executed per the manufacturer's detailed requirements
- All gaps in the valley junctions shall be filled by a system piece, or carefully cemented in

Detail:
Shingles stop and turn down precisely into the valley flashing



Verify batten spacing along the valley to ensure accuracy.



Acceptable Below:
Distinct and recessed valley

Not Acceptable:
An attempt is made to close the valley gap and blend the tiles

Stone Coated Metal Roofs

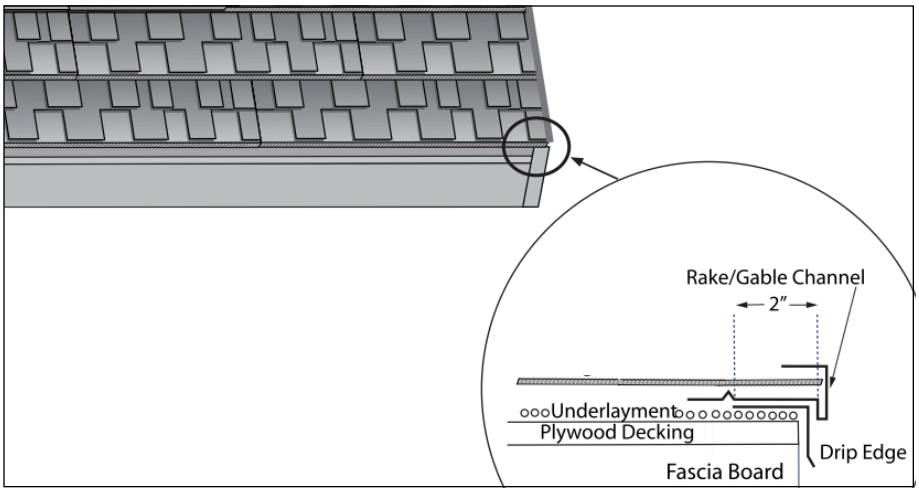
The selection of materials and the execution of details are very important in the use this material. Three details are crucial for a proper appearance in the installation of this building system:

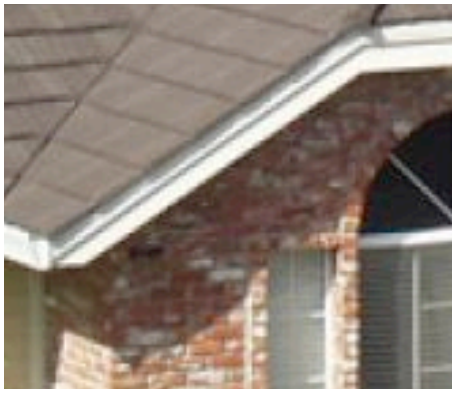
- The Ridge
- The Valley
- 'Shake' edge trim

Other elements of the roof (jacks, vents, other accessories) are to be installed plumb, and in a workmanlike manner.

'Shake' Edge Trim:

- The Edge Trim shall make the profile of the 'shake' shingles appear natural; it shall not be an oversized 'coverall' to bridge over the fascia
- All gaps in the ridge junctions shall be filled by a system piece, or cemented in

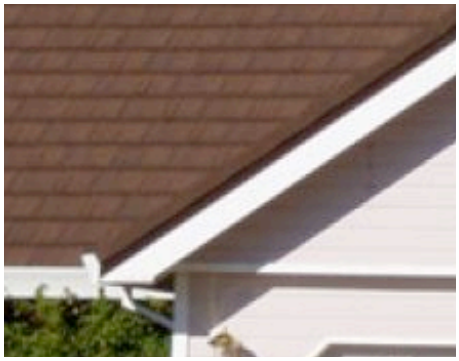




Detail Above:
Profile of ridge pieces hug (<1/2") the profile of the shingle itself, and they follow the same slope as the roof itself

Acceptable:
Singles are trimmed to the apparent thickness of the material they are trying to copy

Not Acceptable Below:
Large trim pieces are used to lap over the fascia board, calling attention to the limitations of the metal roof, and the fact that this roof is an imitation



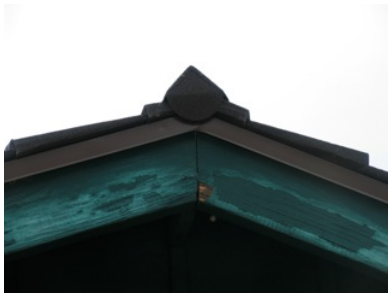
STONE COATED METAL ROOFS
ADDITIONAL IMAGES:

UNACCEPTABLE:

Flashing is unacceptably wide, transitions are poor workmanship, use of corner end-caps








STONE COATED METAL ROOFS
ADDITIONAL IMAGES:

ACCEPTABLE:

Neat, flat ridge caps, open valleys, 2" maximum edge metal, clean turned-in edges; experience and workmanship very important!












innovate sustain

Benefits of recycled steel

Steel is the most recycled material in North America:

- Every ton of steel that is recycled saves 2,500 pounds of iron ore, 1,400 pounds of coal, and 120 pounds of limestone
- New steel made with recycled material uses as little as 26% of the amount of energy that would be required to make steel from raw materials extracted from nature
- According to the Steel Recycling Institute, on average, the total recycled content of steel is 25 to 30%

Durability and low maintenance

DECRA products are durable and require little to no lifetime maintenance. All profiles are made from steel, a Class "A" fire rated material, have a Class 4 impact resistance to UL 2218 and a 50-year limited warranty with a 120-mph wind warranty.

Environmentally managing existing roofing materials

St. Anthony's Retreat Center in Marathon, Wisconsin was built in 1919. The building had a failing fiber cement asbestos roof. The removal, handling and dumping are a hazard to people and the environment.

Weighing in at 500 lbs per square, the fiber cement tiles were heavy. Any additional weight added to the roof structure had to be minimal. DECRA Shingle was chosen for the project. Weighing only 125 lbs per square, the added weight of the product was minimal and did not compromise the roof structure. The existing asbestos roof was encapsulated and the material diverted from the local landfill. The metal shingle completely encapsulated the failing asbestos tile, and was considered an acceptable solution by the EPA. Although not required, an ice and water shield was applied over the cement tile for the added safety of the installers. Screws were used to secure the stone coated steel roof panels to the deck through the tiles.

evolve impact

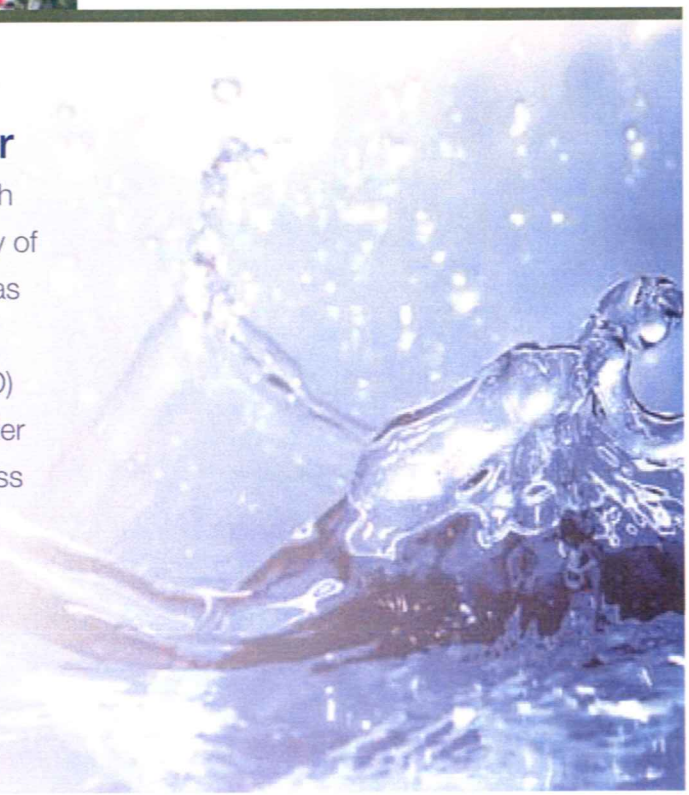
"Metal roofing's durability can virtually eliminate the need to use future raw materials to produce roofing… Metal is the product of choice for sustainability."

— Metal Construction Association

Preserving our drinking water

DECRA products work well in conjunction with rain-catch systems. The drinking water quality of rainwater in contact with DECRA products was tested by a third-party laboratory. The run-off water meets World Health Organization (WHO) physical and chemical criteria for drinking water quality; the run-off would be odorless, tasteless and colorless with an extremely low turbidity.

For more information and test results, please visit our web site www.decra.com.



Roofing Product Comparisons

Protection / Benefits	DECRA Roofing Systems	Concrete & Clay Tile	Fiber Cement	Architectural Shingles	Wood Shake	Synthetic Composite	Standing Seam
Lightweight	**Lightest** 1.25-1.5 lbs./sq.ft. Ave. roof: 3,700-4,500lbs	6 -15 lbs/sqft Avg. Roof: 18,000 to 45,000 lbs	6 lbs./sq.ft. Average roof: 18,000 lbs.	2.5 - 4 lbs/sqft Avg. Roof: 7,500 to 12,000 lbs	1.5 - 2 lbs/sqft Avg. Roof: 4,500 to 6,000 lbs	2.5 – 3 lbs/sqft Avg. Roof: 7,500 to 9,000 lbs.	.7-1.5 lbs/sqft
Fire	**Class A Rated Material**	Class A Rated Material	Class A Rated Material	Class A Rated Material	Class B or C or no rating if untreated	Class A or C – underlayment requirements	Class A Rated Material
Wind Warranty	**120 mph Warranty**	Wind damage not covered	75 mph warranty	60 to 110 mph warranty ▪ Special restrictions ▪ Warranty period may vary	Wind damage not covered	70 to 110 mph ▪ Not all have wind warranty ▪ Not all wind warranties are for full warranty term	UL Tested
Hail Resistant Impact Resistant UL2218	**Class 4 Impact Resistant** ▪ Qualifies for Insurance discounts in many states ▪ Warranted against hail penetration.	Cracks very easily, hail can cause severe damage.	Class 4	Class 3 or 4 ▪ Not all meet 2218	Class 3 or 4	Class 4	Class 4
Snow / Ice	**Freeze/Thaw Resistant**	Not waterproof, When wet will absorb 15% of weight in water	Freeze / Thaw Resistant	Freeze / Thaw Resistant	Limited Freeze / Thaw Cycles	Freeze/Thaw Resistant	Freeze/Thaw Resistant (snow guards recommended)
Earthquake	**Lightweight + Added Shear Strength**	Moderate to Heavy weight with no added shear strength	Moderate weight with no added shear strength	Moderate weight with no added shear strength	Light to Moderate weight with no added shear strength	Moderate weight with no added shear strength	N/A
Warranty	**50 - Year Limited Warranty**	25-50 Year Limited Warranty	50 Year Limited Warranty	25-Year to LifetimeLimited Warranty	25-40 Year Limited Warranty	50 Year Limited Warranty	Coverage varies by manufacturer. Check with manufacturer.
Environmental Impact	**Very Friendly** ▪ Often no tear-off needed ▪ Recycled material ▪ End of life recyclability	▪ High embodied energy ▪ Tear off is required in reroof ▪ Limited recycling use	▪ Not virgin material ▪ Tear off is required in reroof ▪ Limited recycling use	▪ High embodied energy in relation to life cycle ▪ Tear off usually required in reroof ▪ Very limited recycling use	▪ Lowest embodied energy – renewable resource ▪ Tear off required in reroof ▪ End of life recycling - compost	▪ Limited information - on market about 10 years ▪ Some synthetic products made of recycled rubber & TPO ▪ Tear off required in reroof ▪ Not all are recyclable	▪ Recycled material ▪ Often no tear-off needed ▪ End of life recyclability
Life Cycle Costs	**Low Life Cycle Costs** ▪ Long Use Cycle + ▪ Lifespan is 2-3 times longer than other roofing products	High Costs Lifespan is 20-50 years	High Costs + lifespan is 25-40 years	High Costs + lifespan is approx. 20 years	High Costs + lifespan is 20-30 years	High Costs + lifespan is unproven, expect 50 years	Low Life Cycle Cost Long Use Cycle + Lifespan is 2-3 times longer than other roofing products

Information gathered from manufacturer's specifications, promotional literature, websites, Independent testing laboratories and published Industry statistics.

R-060409

Sustainable Materials and Systems criteria list

Roofing: Other Sloped Roofing Systems

CertainTeed

Understanding the role of CertainTeed **Residential** Roofing in meeting Green Building Standards

CertainTeed produces roofing products that help reduce environmental impact and CO_2 emissions from homes. CertainTeed manufactures numerous ENERGY STAR® and Cool Roof Rating Council certified products such as Landmark Solaris™, Symphony™, and CT™20, XT™25AR, XT™30 (Star White) shingles for steep slope and CoolStar™ systems for low slope roofing.

LEED®

LEED (Leadership in Energy and Environmental Design) for Homes is a standard for the design and construction of high performance "green" homes. A green home uses less energy, water and natural resources; creates less waste; and is healthier and more comfortable for the occupants. The benefits of a LEED home include lower energy and water bills; reduced greenhouse gas emissions; and less exposure to mold, mildew and other indoor toxins. In addition, a LEED rating can give homeowners confidence that their home is durable, healthy and environmentally friendly.

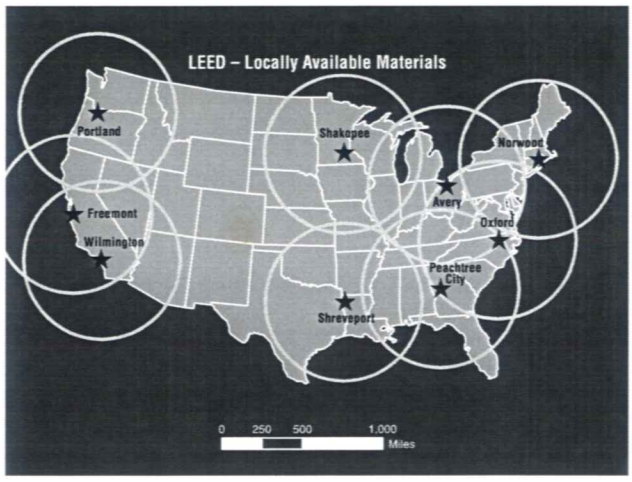
ROOFING PRODUCT CONTRIBUTIONS TO LEED-H*	Possible Points
Energy and Atmosphere	
Exceptional Energy Performance (credit 1.2): Improve the overall energy performance of the home. Points are earned by exceeding a base HERS Index (85 for southern states, 80 for northern states).	1-34
Materials and Resources	
Environmentally Preferable Materials (credit 2.2): Use products that are environmentally preferable (EPP) and/or materials that have been extracted, processed and manufactured within 500 miles of the home ("local").	0.5 (EPP) and 0.5 (Local)

*LEED-H January 2008

CertaSpec

For detailed product information on the green aspects CertainTeed's roofing products, including recycled content, regional materials, and solar reflectance, use the downloadable CertaSpec tool. This program generates LEED documentation letters as well as complete job submittal packages for all of the products offered by CertainTeed Roofing. CertaSpec is available for download at www.certainteed.com/CertaSpec.

Before a home can be LEED certified, it must meet the standards set by the U.S. Green Building Council (USGBC). Individual products are not LEED certified, but choosing environmentally responsible products can contribute to the overall LEED points gained on a project.



CERTAINTEED ROOFING PLANT LOCATIONS

Avery, OH
Birmingham, AL
Fremont, CA
Norwood, MA
Oxford, NC
Peachtree City, GA
Portland, OR
Shakopee, MN
Shreveport, LA
Wilmington, CA

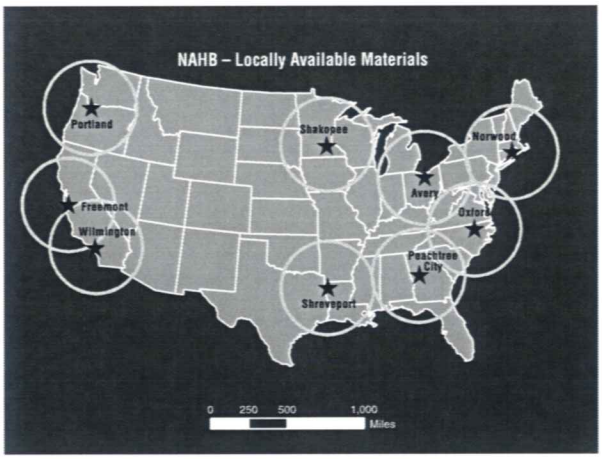
NAHB NATIONAL GREEN BUILDING STANDARD

This Washington, D.C.-based trade association focuses on enhancing the climate for housing and the building industry, with an emphasis on the well being of the consumer. Among their guiding principles are resource efficiency and the promotion of energy-efficient building materials and construction practices. Builders who use CertainTeed roofing products can earn points for green building ratings under the NAHB National Green Building Standard.

ROOFING PRODUCT CONTRIBUTIONS TO NAHB	Possible Points
Resource Efficiency	
602.13 Roof Surfaces – ENERGY STAR® or Cool Roof Council Certified: A minimum of 90% of roofs are constructed of products that are (1) in accordance with the ENERGY STAR® or Cool Roof Council certification or equivalent, or (2) a green roof system.	3
604.1 Recycled Content Materials (Underlayment Products Only): Use recycled-content building materials for two minor and/or two major components of the building with a recycled content of 25% or greater.	2 to 4
608.1 Locally Available, Indigenous Materials: Use indigenous materials for major elements of the building.	2
Energy Efficiency – Performance Path	
702.2 Energy Cost Performance: Energy efficiency features are implemented to achieve energy cost performance that exceeds ICC IECC by 15-60%.	30 to 120
Energy Efficiency – Prescriptive Path	
703.1.1 Building Envelope: Total building thermal envelope UA improved by 10-20% over that required by IECC. Insulation must receive a Grade 1 rating.	10 to 36

CERTAINTEED ROOFING GREEN FACTS

- Many CertainTeed roofing products are manufactured with pre- and post-consumer recycled content including slag, stone granules, corrugated mixed paper and sludge. The overall pre- and post-consumer recycled content of our roofing products is between 1 – 89%. Integrating these materials into our products reduces landfill waste and carbon emissions.
- CertainTeed diverts over 250,000 tons/year of slag, stone granules, corrugated mixed paper and sludge from landfills by recycling these materials into our products.
- In addition to landfill waste reduction, the use of recycled materials in our products reduces the release of CO_2 from the extraction and processing of virgin raw materials that are used to manufacture the roofing products.
- CertainTeed is committed to resource conservation. Our roofing manufacturing facilities recycle close to 90% of production waste into asphalt materials used for the construction of roads.
- We also integrate recycled content into many of our packaging materials, including corrugated rolls and kraft paper.



For complete details on the LEED or NAHB rating systems and certification processes, contact your LEED or NAHB professional, or visit www.usgbc.org/LEED or www.nahbrc.org/greenguidelines. To learn more about CertainTeed roofing products, please visit www.certainteed.com.

ENERGY STAR AWARD 2009
PARTNER OF THE YEAR

LEARN MORE AT energystar.gov

CRRC COOL ROOF RATING COUNCIL CHARTER MEMBER

buildingresponsibly™

ASK ABOUT OUR OTHER CERTAINTEED PRODUCTS:

EXTERIOR: ROOFING • SIDING • WINDOWS • FENCE • RAILING • TRIM • DECKING • FOUNDATIONS • PIPE
INTERIOR: INSULATION • GYPSUM • CEILINGS

CertainTeed Corporation
P.O.Box 860
Valley Forge, PA 19482

Professional: 800-233-8990
Consumer: 800-782-8777
www.certainteed.com

CertainTeed

USTile
Authentic Clay Roofing Tile

The Authentic Green Solution

. . . Without Compromising Aesthetics, Performance or Cost

Made from the earth, US Tile clay roofing products are all natural, 100% recyclable, with a recycled material content of up to 70%, minimizing the environmental footprint and maximizing LEED credits. Our raw materials are sourced locally, insuring minimal transportation footprints as well.

Featuring a wide variety of kiln-fired colors and styles, US Tiles clay roofing products are unsurpassed in aesthetics and durability, and are covered by a transferable lifetime limited warranty that includes fade* and labor* coverage.

Our Cool Roof compliant colors are made from the same, kiln-fired natural materials and do not compromise on superior aesthetics, performance or cost. In fact, all of US Tiles' environmentally conscious products are standard and do not have any cost premiums associated with them.

US Tile, the Authentic Green Solution for all Your Roofing Needs:

- 100% Recyclable
- LEED Qualifying
- Cool Roof Rated
- Energy Star

*Please refer to US Tile's Transferable Lifetime Limited Warranty for details.

	RECYCLED CONTENT	SOLAR REFLECTANCE	THERMAL EMITTANCE
Standard Red	59%	.42	.85
Bermuda Blend	49%	.30	.86
Mallorca	49%	.53	.86

BORAL ENERGY STAR CRRC MEMBER LEED QUALIFYING

US TILE

Find a Distributor | Find a Contractor

- PRODUCTS
- GREEN SOLUTIONS
- GALLERIES
- RESOURCES
- COMPANY
- CONTACT
- ARCHITECTS
- CONTRACTORS
- HOMEOWNERS

Green Solutions > Cool Roof

Green Solutions

CRRC COOL ROOF RATING COUNCIL® MEMBER

US Tile is an active member of the Cool Roof Rating Council with over 75% of our domestically produced tile meeting Cool Roof criteria.

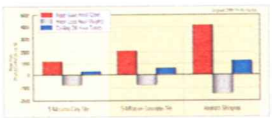
Cool Roof

"US Tile offers the deepest, most vibrant CRRC rated Cool Roof colors of any manufacturer in the nation, without the use of paints, dyes or special coatings."

Why You Want a US Tile Cool Roof

1. **Lower Utility Bills:** PG&E expects a typical home will experience a reduction of 10% to 20% in air conditioning-related energy consumption.
2. **Lower Energy Costs During Peak Periods:** US Tile Cool Roof products will help you save on high energy costs during peak "time-of-metering" demand periods.
3. **Cool Roof Rebates:** US Tile Cool Roof products qualify for PG&E and SCE Cool Roof Rebate Programs that can rebate you as much as $.20 per square foot of installation.
4. **A Longer-Lasting Roof:** US Tile Cool Roof Rated products protect your roof underlayment by reducing heat stress which can cause premature failure.

What Makes a Cool Roof a Cool Roof?



Cool Roofs don't "heat up" like other types of roofs. That's because Cool Roofs have two properties non-rated roofs do not: they reflect the sun better and dissipate heat more efficiently.

1. **High Solar Reflectance:** The ability to reflect solar energy rather than convert that energy to heat. Authentic clay US Tile Cool Roof tiles reflect up to 53% of the sun's solar energy. By comparison, asphalt shingles reflect less than 10% of the sun's energy.
2. **High Thermal Emittance:** Cool Roofs have the ability to give off heat rather than absorb and hold it. US Tile Cool Roof tile products perform better than most products on the market today and have a thermal emittance of up to 86%.

Additional Benefits of a US Tile Clay Roof versus other Non-Clay Products

1. **Heat Flux:** US Tile Cool Roof products deliver 36% less ceiling heat fluctuation than concrete tile. Minimizing dramatic swings in ceiling temperatures saves energy and reduces strain placed on your home cooling systems, especially during expensive peak periods.
2. **Concrete Holds Heat:** US Tile Cool Roof products absorb less heat and release the heat faster than asphalt shingles and concrete tile for greater energy efficiency.

Cool Roof Rating Council Approved US Tile Colors

Palermo	0.31	0.81	29	59%
Madera	0.29	0.86	29	59%
Turino	0.43	0.84	47	49%
Carmel	0.42	0.84	45	49%
Rustic Carmel	0.31	0.84	31	49%
ClayLite / ClayMax				
Viejo	0.33	0.78	31	59%
Corona De Oro	0.51	0.78	56	49%
Chaparral	0.35	0.77	33	59%
Bermuda	0.46	0.78	49	49%
ProSlate				
ProSlate Light Gray	0.31	0.90	33	N/A
ProSlate Dark Gray	0.30	0.90	32	N/A
Cielo				
Sangria	0.37	0.79	37	N/A
Anejo	0.60	0.78	69	N/A
Fuego	0.40	0.80	41	N/A

LEED Cool Roof - SRI of 29 or Greater

Energy Star Cool Roof - Reflectivity of .25 or Greater

909 Railroad Street, Corona, California 92882 | 800.252.9548 | F:951.734.9591 | Email: roofgreen@ustile.com

US Tile LEED Qualifying Point Opportunities

US Tile clay roofing products meet the requirements for a wide variety of LEED point credits. Our products can be used to earn LEEDS points for construction projects in a wide range of areas throughout the United States. Points may vary based on the location, type of building, colors and products used.

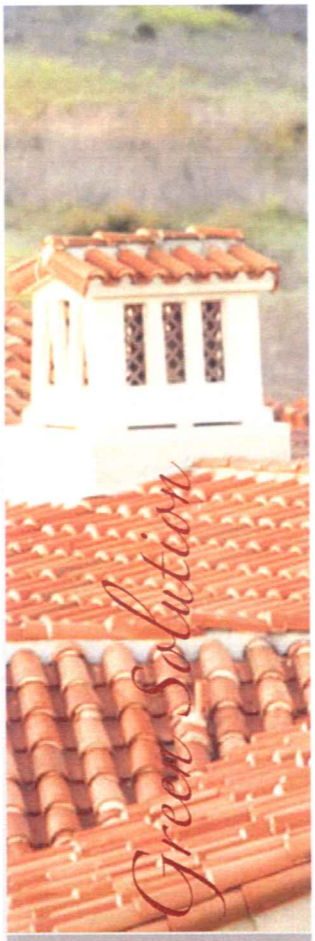
Heat Island Effect - Sustainable Site Credit 7.1 and 7.2: (1 point each) - Reduce heat island to minimize impact on microclimate and human and wildlife habitat.

Optimize Energy Performance - Energy & Atmosphere Credit: (1-10 points) - Achieve increased levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impact associated with excessive energy use.

Recycled Content - Materials and Resources (MR) Credit 4.1 and 4.2: (1 point each) - Building products that incorporate recycled content materials to increase impact associated with extracting and processing virgin materials.

Regional Materials: Materials and Resources Credit 5.1 and 5.2: (1 point each) - Use of building materials and products that are extracted and manufactured within the region, supporting the use on indigenous resources and reducing the environmental impact resulting from transportation.

Design: Innovation in Design Credit 1.1 - 1.4: (1- 4 points) - Design teams and projects have the opportunity to be awarded points for exceptional performance above the requirements set by the LEED-NC Green Building System and/or innovative performance in Green Building categories not specifically addressed by the LEED-NC Green Building Rating System.



US Tile – The Authentic

US Tile COOL ROOF Rated Products

US Tiles CRRC COOL ROOF compliant products and colors are made from the same kiln-fired natural materials as our standard tiles and do not compromise on superior aesthetics, performance or cost. The following are benefits US Tile Cool Roof products offer….

High Solar Reflectance: Authentic clay US Tile Cool Roof tiles reflect up to 53% of the sun's solar energy. By comparison, asphalt shingles reflect less than 10% of the sun's energy.

High Thermal Emittance: One property of US Tile authentic clay Cool Roofs is the ability to give off heat, rather than absorb and hold it. US Tile Cool Roof tiles have an 86% thermal emittance.

Heat Flux: US Tile Cool Roof products deliver 36%[1] less ceiling heat fluctuation than concrete tile. Minimizing dramatic swings in ceiling temperatures not only increases the comfort level of your home, it saves energy and reduces strain placed on your home cooling systems during expensive peak periods.

Lower Energy Bills: PG&E expects a typical home will experience a reduction of 10% to 20% in air-conditioning related energy consumption with a US Tile Cool Roof.

Cool Roof Rebates: US Tile Cool Roof products qualify for PG&E, SCE, and Federal Cool Roof Rebate programs that can rebate as much as $20 per square of material installed each.

1. Oak Ridge and National Laboratory for CEC.

USTile
Authentic Clay Roofing Tile

Please visit our web site www.ustile.com or consult our customer service department for more details regarding LEED point credits, Cool Roof products, or any other technical information you may need for the planning of your next project.

WWW.USTILE.COM • TELEPHONE: 951.737.0200

EcoStar® 2009 LEED® v3

MR Credit 2 - Construction Waste Management

- Divert 50% from landfill – 1 pt.
- Divert 75% from landfill – 2 pts.

Examples:

- Reuse or redirect Board-stock Insulation such as:
  - Nail Board - Vent Board - Foam insulation boards
- If the existing EcoStar products are carefully removed, they can be reused.

MR Credit 3 - Materials Reuse

- Reuse 5% of materials – 1 pt.
- Reuse 10% of materials – 2 pts.

Examples:

- Reuse insulation if board stock
- If the existing EcoStar products are carefully removed, they can be reused.

MR Credit 4 - Recycled Content

- Use 10% recycled content – 1 pt.
- Use 20% recycled content – 2 pts.

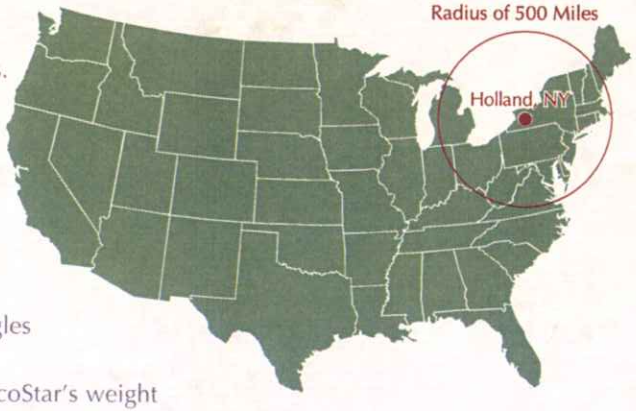
Examples:

- Class A rated tile – 70% post-industrial recycled content
- Class C rated tile – 80% post-industrial recycled content

MR Credit 5 - Regional Materials

Based on cost of qualifying [local] materials as a percentage of overall material cost. Regional materials are those that are extracted, harvested, or recovered, as well as manufactured, within 500 miles of the project site.

- Use 10% regional materials – 1 pt.
- Use 20% regional materials – 2 pts.



Note: Projects outside the 500-mile radius – remember:

- 73% less weight than tile per sq. ft. – minimum
- 67% less weight than slate per sq. ft. – minimum
- Equal in weight to laminated shingles and shake per sq. ft.
- As seen above in specific cases, EcoStar's weight advantage equates to more square footage on a truckload requiring less trucks.

EcoStar CARLISLE

P.O. Box 7000 • Carlisle, PA 17013 • Tel: (800) 211-7170
Fax: (888) 780-9870 • www.ecostar.carlisle.com

RECYCLED

Majestic Slate

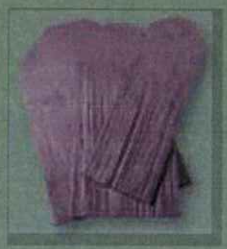
Traditional

Beaver Tail

Chisel Point

Beveled

Seneca Cedar Shake Tiles & Seneca Plus



EcoStar roofing for your lifestyle

EcoStar® Sustainability

Dedicated to improving the environment, EcoStar manufactures roofing tiles that are composed of up to 80% recycled post-industrial rubber and plastic. These post-industrial materials consist of waste that includes car bumpers and baby diaper production remnants. The manufacture of EcoStar tiles prevents these materials from ending up in landfills. Because of their recycled content, EcoStar roofing tiles feature incredible strength and flexibility and provide long-lasting performance.

The use of EcoStar products also preserves valuable natural resources, as no trees are used and no stones are quarried in the production of EcoStar's Seneca Cedar Shake Tiles™ and Majestic Slate™ Tiles.

Because of their eco-friendly efficiency, EcoStar products can significantly contribute toward LEED® credit requirements. Leadership in Energy & Environmental Design (LEED) is the national standard for the development of high-performance sustainable buildings.

Resources

LEED Submittal Sheet

Windows and Doors

The materials presented in this Appendix section are pre-approved for use by the City of San Gabriel.

The criteria for each material or system selected is:

- That it is environmentally sustainable, with recyclability and recycled content, renewability, energy extended for manufacturing, transportation and erection, air quality, and the installed energy savings as a part of the selection
- That it is a material or system of quality, substance, and has the ability to last many years
- That the materials are appropriate in form, color, and texture to the style of architecture they are being applied to.

Materials not contained within this list may be reviewed by the city and approved for use based on this criteria.

Note that buildings registered as historic, or buildings located in designated historic districts, or which in the opinion of the City of San Gabriel are deemed to have historic value, are not permitted to use substitute or imitation materials, such as may be described in this list. Authentic materials shall be used, except under extraordinary circumstances as reviewed by staff and approved by the City Design Review Commission, and only because the original building material and/or construction technique cannot be properly supplied or replicated.

JELD-WEN WINDOWS & DOORS

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RESOURCES
Environmental Stewardship

overview | recycling & reuse | carbon footprint | low-VOC products

green building | partnerships | energy efficient products | product certifications

JELD-WEN's commitment to resource-responsible manufacturing is rooted in our beginning. Historically, netting full utilization from a log simply made good economic sense. Almost 40 years ago, JELD-WEN perfected a proprietary process for using wood waste to make facings for our Molded interior door.

Today, JELD-WEN uses recycled materials to produce high-value doors and windows every day. Our window glass and aluminum cladding contain post-consumer recycled content. JELD-WEN® Vinyl windows feature up to 15 percent recycled vinyl content. We have also earned thirdparty certification through Scientific Certification System (SCS) of products made from recycled wood.

- JELD-WEN® Molded hollow core slab interior doors are SCS certified to include at least 60 percent recycled content. The facings themselves are made from 80 percent recycled content.
- JELD-WEN® Wood Composite garage door facings are SCS certified to include 80 percent recycled content.
- JELD-WEN® Molded Bifold hollow core interior doors are SCS certified to include at least 25 percent recycled content.

Certified Recycled Content

At every opportunity we will encourage our customers to minimize the use of wood pallets and to recycle the packaging material used by JELD-WEN for our window and door products, including cardboard and plastic wrap.

If you have questions about our commitment to the environment or green practices, please contact us.

- Download our Environmental Statement
- JELD-WEN Environmental Brochure (pdf)

CHOOSE ANOTHER RESOURCE
Environmental Stewardship

RELIABILITY *for real life*

JELD-WEN WINDOWS & DOORS

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RESOURCES
Environmental Stewardship

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For many years, JELD-WEN has enacted a strategy of minimizing how far our products travel from factory to job site. JELD-WEN windows and doors can be designed and manufactured for specific regions, frequently within a 300-mile radius of their final destinations. This localized approach helps minimize greenhouse gas emissions involved in transportation and often help a building project earn credits toward third-party green building certifications.

Part of being good stewards of the environment involves designing and constructing our buildings and production processes to use as little energy as possible. We will strive to reduce the amount of energy we must purchase to operate our plants and offices, and emphasize efficient use of energy and natural resources throughout our operations.

If you have questions about our commitment to the environment or green practices, please contact us.

- Download our Environmental Statement
- JELD-WEN Environmental Brochure (pdf)

CHOOSE ANOTHER RESOURCE
Environmental Stewardship

RELIABILITY *for real life*®

JELD-WEN WINDOWS & DOORS

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RESOURCES
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overview | recycling & reuse | carbon footprint | low-VOC products

green building | partnerships | energy efficient products | product certifications

JELD-WEN is a leader in the reduction of volatile organic compound (VOC) emissions. When creating solid pine AuraLast® wood, we developed a proprietary, water-based wood protection process that results in a 96 percent decrease of VOCs released during production (compared to the dip treatment process typical in the industry). AuraLast wood originated in response to a huge industry problem—wood rot and fungal infestation in wood doors and windows, which significantly reduces product life. AuraLast wood not only addresses a growing concern about VOC emissions, but it also dramatically extends the useful life of the door and window. All U.S.–produced JELD-WEN pine wood windows are made from AuraLast wood as well as a selection of patio doors, exterior doors, and door frames. Learn more about AuraLast wood.

If you have questions about our commitment to the environment or green practices, please contact us.

- Download our Environmental Statement
- JELD-WEN Environmental Brochure (pdf)

CHOOSE ANOTHER RESOURCE
Environmental Stewardship

AuraLast THE WORRY-FREE WOOD

RELIABILITY *for real life*

JELD-WEN WINDOWS & DOORS

visitors outside the U. S., click here

home | about | resources | design center | where to buy | brochures | newsroom | architectural toolbox

Windows | Patio Doors | Exterior Doors | Interior Doors | Garage Doors | Replacement

Search

RESOURCES
Environmental Stewardship

overview | recycling & reuse | carbon footprint | low-VOC products

green building | partnerships | energy efficient products | product certifications

JELD-WEN is a board member of the Green Building Initiative (GBI). GBI is a nonprofit organization that administers Green Globes®. Green Globes is an online, interactive green rating and assessment tool that is an affordable way to identify strategies that help improve a new or existing building's overall environmental performance. Green Globes focuses 35 percent of the overall available points on energy efficiency, a number that is substantially higher than other green rating tools currently in use in the U.S. JELD-WEN has many products that can help a building project earn Green Globes certification.

JELD-WEN is also proud to be a member of the United States Green Building Council and creates many windows and doors that can help a building project earn LEED certification.

Responsible Forest Management

Wood is a durable, versatile and beautiful building material that is nontoxic and recyclable. Its growth and replanting remove carbon dioxide from the environment. In terms of construction purposes, it is the only fully sustainable resource. We believe sustainability means meeting the needs of the present without compromising the ability of future generations to meet their needs. JELDWEN's future success in wood products manufacturing is dependent on responsible and sustainable forest management.

- We encourage our suppliers to manage forests consistent with sustainable, renewable forest practices and watershed and wildlife habitat protection.
- JELD-WEN is committed to preserving the beauty, value and productivity of the forest land owned and managed by our company. We have planted nearly three million trees in the past two decades, and our timber harvests never exceed timber growth. We manage for species and size diversity and restock areas damaged by fire and other natural events. Being a responsible and respectful steward of forestland ensures that wildlife and habitat is protected and that there is wood available for use well into the future.
- We support the land stewardship ethics of Sustainable Forestry Initiative (SFI). We hold SFI Chain of Custody certification, which governs all changes of custodianship of our forest-based products during the harvesting, transportation, processing and distribution from the forest to the end-use, and third-party inspections were conducted by PricewaterhouseCoopers, an independent auditing firm. As a result we now offer optional Sustainable Forestry Initiative (SFI)-certified AuraLast wood for our Custom Wood windows and patio doors.

If you have questions about our commitment to the environment or green practices, please contact us.

- Download our Environmental Statement
- JELD-WEN Environmental Brochure (pdf)
- Green Building Initiative (video)

CHOOSE ANOTHER RESOURCE
Environmental Stewardship

- JELD-WEN has earned and maintained Forest Stewardship Council Chain of Custody certification at certain facilities, allowing us to regionally offer selected varieties of FSC-certified wood stile and rail doors. FSC promotes environmentally appropriate, socially beneficial and economically viable management of the world's forests. JELD-WEN strives to utilize suppliers who adhere to these practices in their harvest and replanting operations.

Energy Star

Producing an energy-efficient product that conserves vital natural resources is one of the most significant ways to positively impact our environment. JELD-WEN products are designed to save energy, reduce home heating and cooling costs, and keep homes comfortable year-round.

JELD-WEN is proud to offer many ENERGY STAR®-qualified windows and exterior doors. We have been an ENERGY STAR Partner since 1998 and were honored as the only window or door manufacturer to be the U.S. Department of Energy's 2003 ENERGY STAR "Partner of the Year."

We also strive to meet, and often exceed, the energy efficiency standards of the countries where we manufacture doors and windows around the world. In fact, JELD-WEN of Canada was honored as 2009 ENERGY STAR "Participant of the Year."

JELD-WEN WINDOWS & DOORS

visitors outside the U. S., click here

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Windows | Patio Doors | Exterior Doors | Interior Doors | Garage Doors | Replacement

Search

RESOURCES
Environmental Stewardship

overview | recycling & reuse | carbon footprint | low-VOC products

green building | partnerships | energy efficient products | product certifications

JELD-WEN will continue to participate in the development and implementation of green building certification programs that promote credible and practical green building approaches for residential and commercial construction products. We are proud that our products are recognized as an integral part of a new revolution in healthier, lower ecological impact, and resource-saving building construction.

JELD-WEN offers beneficial products that meet many local green building provisions and the top nationally recognized programs such as the Green Building Initiative's Green Globes®, the U.S. Green Building Council's LEED, and the NAHB National Green Building Program.

Here are a few ways JELD-WEN may help earn credits/points or satisfy criteria within many of these programs:

- Energy-efficient windows
- Windows made from SFI-certified wood sources
- Molded interior door skins with *No Added Formaldehyde*
- Wood Composite garage doors, Molded interior doors and Bifold doors that have earned SCS certification for recycled content
- Locally manufactured products
- Windows made from AuraLast® Pine without the use of high VOC solvent-based dip treatments.
- Durable, high performance products to reduce the impact associated with frequent replacement

JELD-WEN's commitment to green building certification is also demonstrated by a 2007 LEED Gold Certification granted to our Community Discovery Center at Brasada Ranch by the U.S. Green Building Council.

If you have questions about our commitment to the environment or green practices, please contact us.

- Download our Environmental Statement
- JELD-WEN Environmental Brochure (pdf)
- Five Pillars of Sustainable Construction (pdf)

CHOOSE ANOTHER RESOURCE
Environmental Stewardship

RELIABILITY *for* real life®

JELD-WEN WINDOWS & DOORS

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Windows and Patio Doors

WINDOWS & PATIO DOORS
Materials

WOOD AND CLAD-WOOD

See wood and clad-wood collections

LUXURIOUS CHOICES & OPTIONS

- Solid pine AuraLast® wood protects against wood decay, water saturation and termite infestation
- 20-year warranty
- Energy efficient Low-E glass is standard
- Low-maintenance aluminum-clad exteriors available in a range of lasting colors

VINYL

See vinyl collections

ENERGY EFFICIENT

- ENERGY STAR® qualified with Low-E glass
- Lifetime warranty
- Virtually maintenance-free and never needs painting
- Many designs and options

ALUMINUM

See aluminum collections

GREAT VALUE

- Low-maintenance, especially in mild climates
- Durable and reliable performance
- Resists rust and mildew

RELIABILITY *for real life*®

JELD-WEN WINDOWS & DOORS

visitors outside the U. S., click here

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Windows | Patio Doors | Exterior Doors | Interior Doors | Garage Doors | Replacement

Search

Exterior Doors

EXTERIOR DOORS
Materials

With just a little attention over time, you can extend the life of your exterior door—and uphold your home's curb appeal. Learn how.

WOOD

See wood exterior doors

NATURAL WARMTH WITH A RICH APPEARANCE

- Natural warmth and rich appearance to match any architectural style.
- Wood species include mahogany, walnut, oak, hemlock, pine, alder cherry and juniper.
- Consistent maintenance required.
- Designed to meet strict code requirements in hurricane-prone areas.
- Available with fire ratings up to 90 minutes.

FIBERGLASS

See fiberglass exterior doors

SUPERIOR DURABILITY IN NEARLY ANY CLIMATE

- Superior, virtually maintenance-free durability for nearly any climate.
- Will not warp, rot, crack or split.
- Available in authentic woodgrain finishes such as oak, mahogany, alder and paint finish.

STEEL

See steel exterior doors

A PRACTICAL CHOICE THAT OFFERS LASTING STRENGTH

- Practical, low-maintenance and strong choices in 24- or 25-gauge galvanized steel.
- Available with fire ratings up to 90 minutes.
- Designed to meet strict code requirements in hurricane-prone areas.
- Custom-fitted polystyrene core for stable insulation, making them ENERGY STAR® qualified.

RELIABILITY *for* real life®

Andersen WINDOWS • DOORS

Windows

WINDOW DESIGN TOOL

See the difference Andersen windows and doors can make in your home. Use our interactive design tool to create window and door combinations that you can save and share.
Start Designing

Casement Windows
Have a hinge at the side and crank out to open.

Awning Windows
Have a hinge at the top and open outward.

Double-Hung Windows
Open by sliding one sash vertically past another.

Gliding Windows
Open by sliding one sash horizontally past the other.

Picture & Transom Windows
Picture & transom windows are stationary windows designed to match double-hung or casement windows.

Specialty Windows
Are stationary windows with curved shapes or angles other than 90°.

Bow & Bay Windows
Bow & Bay windows are window combinations that project outward from a home.

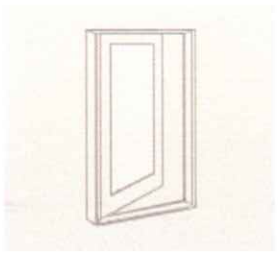
COMPARE OUR REPLACEMENT WINDOWS

Before you select your Andersen replacement window, watch the video installation process, compare insert and full-frame windows, then choose the one that's right for you.
Learn more about Replacement Windows

Doors

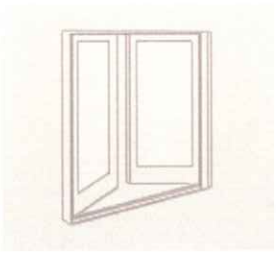
WINDOW DESIGN TOOL

See the difference Andersen windows and doors can make in your home. Use our interactive design tool to create window and door combinations that you can save and share.
Start Designing



Hinged Patio Doors - Single Panel

Have one panel that swings in or out.

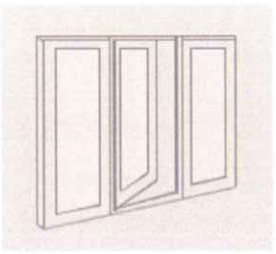


Hinged Patio Doors - Multiple Panels

Have multiple panels with at least one of the panels swinging in or out.

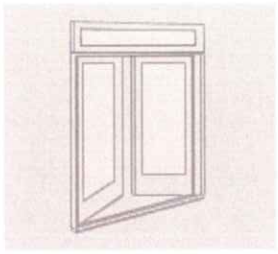
Gliding Patio Doors

Have two or more panels, with at least one panel sliding past the other.



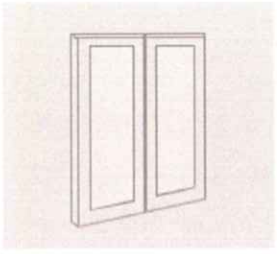
Sidelights and Stationary Panels

Complement Andersen patio doors and are used to create a larger wall of light.



Transoms

Are stationary windows that are placed above a patio door.



Commercial Entry Doors

Are made to fit standard and custom commercial entries.

LOOKING FOR A SPECIAL PATIO DOOR FEATURE?

Explore all options and find the patio door that fits your style and needs.
Patio Door Advisor

Storm Doors & Screen Doors

LOOKING FOR A STORM DOOR OR SCREEN DOOR?

Find the door that meets your style and needs by selecting one of the options below.

Storm & Screen Doors
Available at The Home Depot®

Storm & Screen Doors
Available at other
Andersen dealer locations

Andersen WINDOWS • DOORS

Sustainability

Our Commitment

Respect for the environment isn't the latest corporate initiative at Andersen. For over a century, it's been part of who we are. As an environmentally responsible citizen of the global community, Andersen Corporation is committed to environmental stewardship. We will continuously strive for our facilities, processes and products to meet or exceed all applicable government regulations relating to the environment, and we support these environmental goals:

Minimize pollution at the source.
Conserve natural resources through reduction, reuse and recycling of materials.
Promote energy conservation.
Develop long-lasting products that have a minimal adverse effect on the environment.
Continuously improve our environmental performance.

Learn More About Andersen's Sustainability Initiatives

Environmental Certifications & Partnerships

Learn about the major environmental initiatives we support.

support only

ALLIANCE TO SAVE ENERGY

Andersen is a member of the Alliance to Save Energy, an organization promoting energy efficiency. The alliance is made up of members of Congress and corporate executives committed to promoting energy efficiency.

ENERGY STAR

Andersen was one of the first window companies in the nation to meet ENERGY STAR performance requirements in all geographical regions. We've won several ENERGY STAR awards, including Manufacturer Ally of the Year and the National Window Partner of the Year.

FOREST STEWARDSHIP COUNCIL

Sustainable Forestry is defined as the practice of managing forest resources to meet the long-term forest product needs of humans while maintaining the biodiversity of forested landscapes. The U.S. Green Building Council (USGBC) encourages sustainable forestry and recognizes the Forest Stewardship Council (FSC) standards. Wood-based components can be certified in accordance with FSC principals and criteria for wood building components.

Andersen worked with Scientific Certification Systems (SCS) to achieve FSC Chain of Custody certification (COC). By obtaining this COC certification, Andersen is able to manufacture and deliver FSC wood-based products to help achieve LEED Materials & Resource credits, or in other

in our nature.

Read about our energy efficiency and environmental commitments.

InOurNatureBlog.com

LEED and ICC 700 Credits

Andersen® products can help assist in achieving USGBC LEED and ICC 700 credits.

Learn More

Fibrex® material is a durable blend of wood fibers reclaimed directly from our manufacturing processes and synthetic material.

Learn More About The Highly Sustainable Fibrex Material

Andersen was the first company in Minnesota to achieve an EPA XL Permit, and only the thirteenth nationally.

Learn More About Project XL

sustainable building programs where applicable.

SCS-COC-001337 (PDF)
Certified Products (PDF)
View Press Release

GREEN SEAL

Andersen was the first window, door and skylight manufacturer with Green Seal certified products. Our products meet Green Seal energy efficiency requirements and are manufactured and packaged in a consistent, environmentally responsible manner.

METAFORE

Andersen supports Metafore, formerly the Certified Forest Products Council, a non-profit organization that collaborates with business and society to create market-based approaches to support forests and communities.

NATIONAL GREEN BUILDING STANDARD ICC 700-2008

The National Association of Home Builders and International Code Council have collaborated on a new National Green Building Standard. The Standard is a comprehensive Sustainable Building program of multiple sections and guidelines to consider during design, construction and function of a building for residential projects consisting of: new construction, remodeling or renovation. For a complete list of guidelines where Andersen products can be leveraged to assist design team strategy, please click on the link below.

National Green Building Standard ICC (PDF)

PRE-CONSUMER RECYCLED CONTENT

Efficient use of materials reduces overall resource consumption and demands for additional material supply. Recycling materials in construction and recycled content in building components helps reduce the demand for natural resources. Andersen Corporation employs key strategies to leverage recycled content.

The U.S. Green Building Council defines Pre-consumer Recycled Content as: "Material diverted from the waste stream during the manufacturing process". Excluded in USGBC assessment is "the reutilization of materials such as rework, regrind or scrap generated in a process and capable of being reclaimed within the same process that generated it."

Per USGBC's definition, Andersen is able to claim a percentage of Fibrex® material, which uses reclaimed wood fiber, and a percentage of glass as pre-consumer recycled content. Working with Scientific Certification Systems (SCS), Andersen has certified this content to ISO 14021 standards for products in our architectural, 400 Series and 200 Series products. These percentages can be used to help achieve points in portions of LEED Material & Resource credits, or they can be used in other Sustainable building programs where applicable.

View Andersen Certified Recycled Content (PDF)

*Certified recycled content varies by product line.

THE NATIONAL FENESTRATION RATING COUNCIL

The NFRC is a voluntary third-party certification program designed to ensure accurate window performance rating and labeling.

INDOOR AIR QUALITY

Providing a healthy indoor environment is an important element of sustainable design. Attaining this goal requires identification and specification of building materials that do not negatively impact indoor air quality.

Working with Scientific Certification Systems (SCS), Andersen's architectural, 400 Series and 200 Series products have received the SCS Indoor Advantage™ Gold certification. This program conforms to the Collaborative for High Performance Schools (CHPS) – CA Section 01350 specifications. Andersen® windows and doors were tested and certified under this program to support providing improved indoor air quality.

Windows: SCS-IAQ-01638 (PDF)
Doors: SCS-IAQ-01639 (PDF)

U.S. GREEN BUILDING COUNCIL

Andersen is a charter member of the U.S. Green Building Council (USGBC). Andersen products can assist project teams with commercial and residential building designs to achieve one of USGBC's Leadership in Energy & Environmental Design (LEED) certification levels.

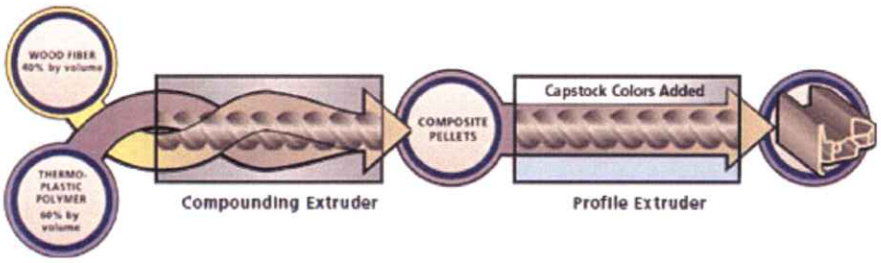
USGBC LEED-New Construction v2.2
USGBC LEED-New Construction v3
USGBC LEED-Homes v2008

This information is accurate as of December 15, 2008.

Fibrex® Material

Engineering New, Sustainable Solutions

In 1993, Andersen finished development of the revolutionary and highly sustainable Fibrex® material with its now wholly-owned subsidiary, Aspen Research Corporation. Fibrex material is a patented composite made of reclaimed wood fiber from Andersen manufacturing operations and a special thermoplastic polymer, some of which is also reclaimed.



Fibrex combines the strength and durability of wood with the maintenance ease of vinyl. It is a technology that is leveraged across Andersen Corporation's product portfolio.

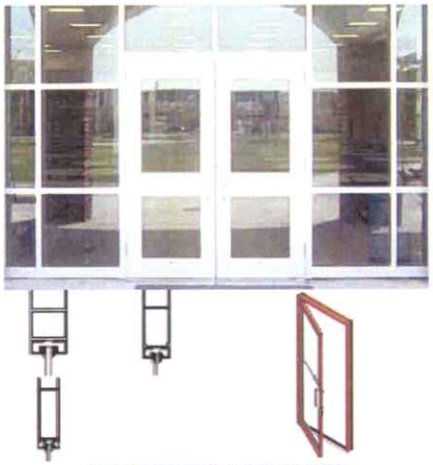
Fibrex and Sustainability

Andersen Corporation became the first and only Green Seal® Certified window manufacturer in large part due to the environmental benefits of how we make Fibrex. But did you know that the sustainability of Fibrex extends to the home as well?

Insulation
Because of its superior thermal insulating properties, Fibrex can help reduce heating and cooling requirements.

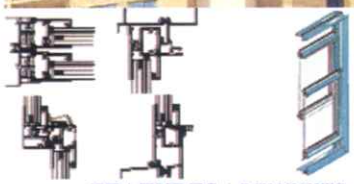
Durability
The thermoplastic polymer in Fibrex resists rot, decay, and fungal growth, ensuring a longer lifetime and reducing manufacturing demand. Warranted not to flake, blister, peel, pit or corrode.

VOC Reduction
Fibrex also helps reduce VOC emissions, since no wood preservative treatment or painting is required.



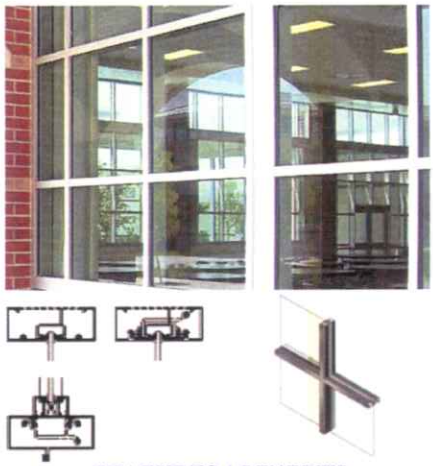
FEATURES / *BENEFITS*
PROJECTS

EFCO entrance doors are designed for educational facilities, shopping centers, offices and other facilities requiring security and egress capability. These doors are joint plug welded at every corner to provide superior strength in all applications. Offered in narrow, medium and wide stiles, EFCO entrance doors can accommodate a wide range of applications. Multiple glazing options provide flexibility



FEATURES / *BENEFITS*
PROJECTS

Series 671 hung window retains all the characteristics of the 670 family of window products with the added benefit of an impact grade rating. This window product is approved for use in High Velocity Hurricane Zone (HVHZ) as large missle impact resistant. Florida product approval # **9475.1** Double hung installation drawings - Double Hung Evaluation Report



FEATURES / *BENEFITS*
PROJECTS

Series 401 is an economical flush glaze system available in both shear block and screw spline fabrication methods. Series 401 storefront can accommodate all standard 1 3/4" entrances as well as WV410 vents. Vertical mullions will accept steel reinforcement to enhance structural performance.

Optional Roto-Vent ventilator

TORRANCE STEEL WINDOW CO., INC.

MEMBER OF STEEL WINDOW INSTITUTE

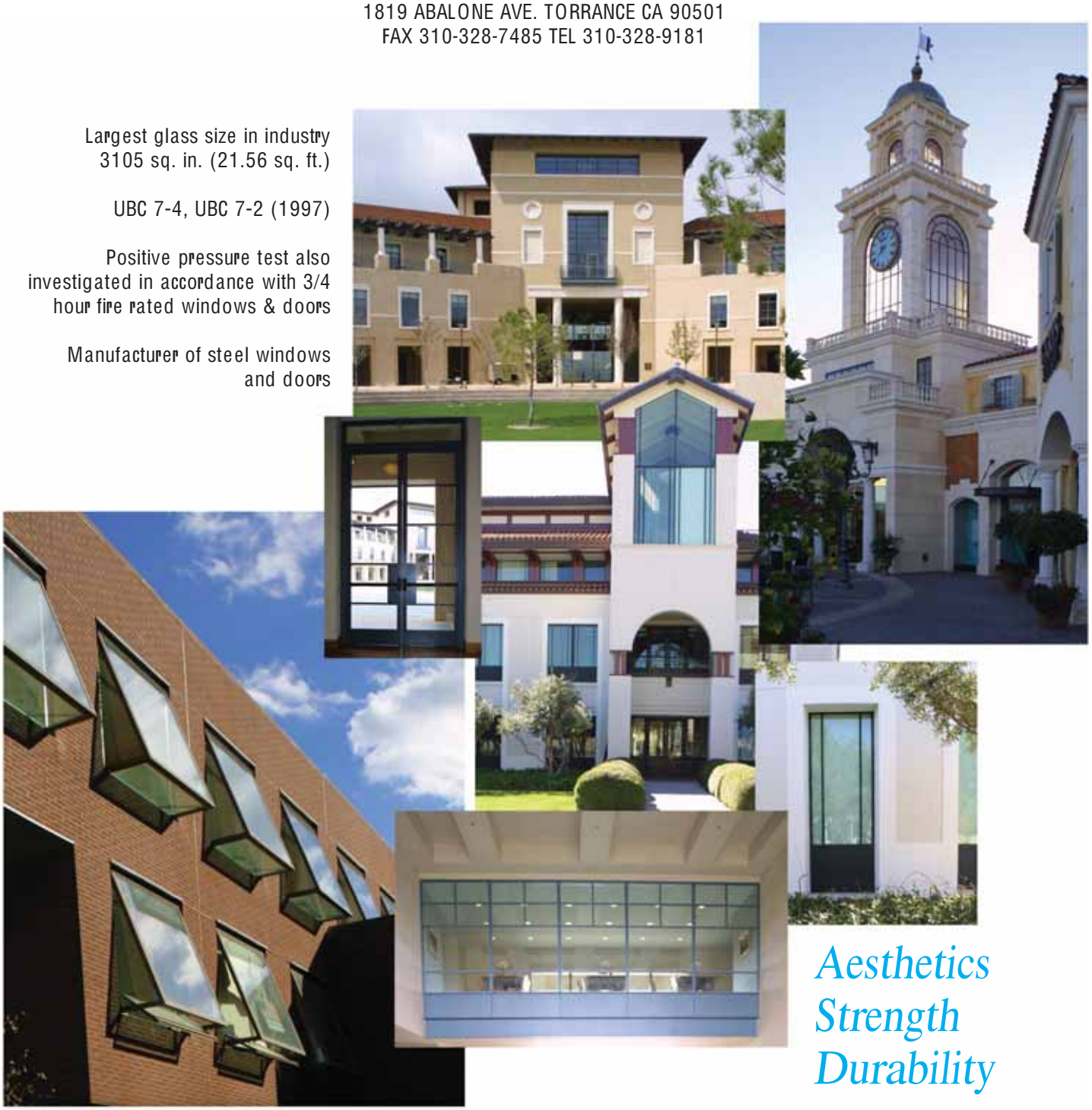
1819 ABALONE AVE. TORRANCE CA 90501
FAX 310-328-7485 TEL 310-328-9181

Largest glass size in industry
3105 sq. in. (21.56 sq. ft.)

UBC 7-4, UBC 7-2 (1997)

Positive pressure test also investigated in accordance with 3/4 hour fire rated windows & doors

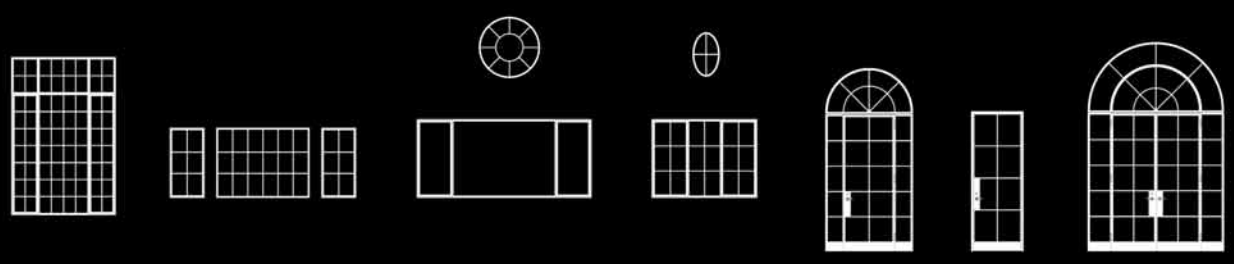
Manufacturer of steel windows and doors



Aesthetics
Strength
Durability

FIXED • AWNING • HOPPER • CASEMENT • STEEL FRENCH DOORS

e-mail: info@torrancesteelwindow.com
www.torrancesteelwindow.com



Steel Takes LEED® with Recycled Content

steel beams and columns

steel studs

steel roofing

steel decking

steel doors

ductwork

steel siding

corrugated steel pipe

other steel components

Designers and builders have long recognized and lauded steel for its strength, durability, and functionality. Increasingly, however, architects are recognizing steel's important environmental attributes—especially its high recycled content and high reclamation rate.

For many years, there has been a strong economic motive to incorporate recycling into the process for making steel, but today's environmental concerns make recycling even more important. Recycling saves money while conserving energy and resources, as well as reducing solid, liquid, and gaseous wastes. Recycling also helps to spread the energy impact of the original extraction and manufacturing of the material over infinite generations of new steel.

The efficiency with which a material is recycled can be measured by either its ***percentage of recycled content*** or its ***reclamation rate.*** Recycled content is a measure of how much recycled material is contained in a finished product. The reclamation rate is a measure of how often a product is actually recycled at the end of its useful life. Steel is an exceptional performer by both measurements. In the construction industry, recent interest in recycling has been driven largely by the U.S. Green Building Council's ***Leadership in Energy and Environmental Design*** (LEED®) rating system. The LEED rating system only promotes the use of materials with high levels of recycled content. The equally important reclamation rate of the materials is not currently considered.

Scrap consumption in the United States is maximized between the two types of modern steel mills, each of which generates products with varying levels of recycled content. One type of mill produces much of the steel for light flat-rolled steel products with about 30% ***recycled content***. The other type of mill makes steel for a wide range of products, including flat-rolled, but is the only method used domestically for the production of structural shapes, which have about 80% ***recycled content.*** (These processes are covered in detail on the following pages.)

The amount of recycled content in steel products varies over time, both as a function of the cost of steel scrap and its availability. As the world-wide demand for steel increases, the available scrap will be stretched between more and more steel products, meaning that more raw steel will have to enter the production stream to meet the demand. Fortunately, steel is the country's most widely recycled material, and as more steel is used for construction and other products, more scrap is available for future recycling. At the end of their useful life, about 88% of all steel products and nearly 100% of structural steel beams and plates used in construction are recycled into new products—an amazing reclamation rate!

In addition to recycled content, steel can contribute toward several other LEED credits, either directly or indirectly. Steel is dimensionally stable and, when properly designed, can provide an exceptionally tight building envelope for less air loss and better HVAC performance over time. Steel is made to exact specifications, so on-site waste is minimized. Material from demolition or construction can be easily recycled, with the magnetic properties of steel greatly facilitating its separation from other materials. Thus, in addition to steel's outstanding recycled content and an enviable reclamation rate, steel's other functional properties contribute to the material's solid environmental performance.

As with any building process or material, there are areas for improvement. A great benefit of LEED is that it can help the steel industry recover even more scrap as contractors improve their recycling collection methods at the job site, so less incidental iron and steel scrap escapes to landfills. Similarly, commercial buildings and residential housing can have better disciplined recycling systems for increased recovery.

As steel products reach the end of their useful life, we want to see even more recycled into new steel products for future service to society.

On-Line Steel Recycling Resources

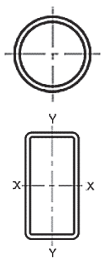
www.recycle-steel.org
Includes detailed information on recycling rates, recycling databases, and the environmental benefits of steel for homes, buildings, steel roofing, and bridges.

www.aisc.org/sustainability
Includes detailed information on how steel factors into the LEED® rating system, steel mill recycled content documentation, and articles about the use of steel in sustainable projects.

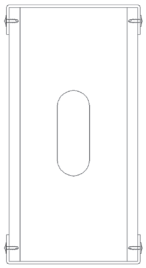
American Iron and Steel Institute

Modern Steel Production Technologies

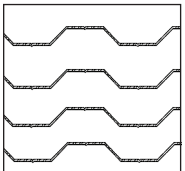
Typical BOF Products



hollow structural sections



steel studs



steel deck

plate

purlins

Steel is the most recycled material in North America and in the world, and in the United States alone, almost 83 million tons of steel were recycled or exported for recycling in 2007. This is done for economic as well as environmental reasons. It is always cheaper to recycle steel than to mine virgin ore and move it through the process of making new steel. However, it should also be clearly understood that many steel applications are durables, and even though two out of every three pounds of new steel are produced from old steel, the fact that cars, appliances, and bridges last a long time makes it necessary to continue to mine virgin ore to supplement the production of new steel. Economic expansion, domestically and internationally, creates additional demand that cannot be fully met by available scrap supplies.

Unlike other competing industries, recycled content in the steel industry is second nature. The **North American steel industry** has been recycling steel scrap for over 170 years through the growth of 2,500 scrap processors and some 12,500 auto dismantlers. Many of them have been in the business for more than 100 years. The pre-consumer, post-consumer, and total recycled content of steel products in the United States can be determined for the calendar year 2007 using information from the American Iron and Steel Institute (AISI), the Institute of Scrap Recycling Industries (ISRI), and the U.S. Geological Survey. Additionally, a study prepared for the AISI by William T. Hogan, S.A., and Frank T. Koelble of Fordham University is used to establish pre- and post-consumer fractions of purchased scrap.

Individual company statistics are not applicable or instructive because of the open loop recycling capability that the steel and iron industries enjoy, with available scrap typically going to the closest melting furnace. This open loop recycling allows, for example, an old car to be melted down to produce a new soup can, and then, as the new soup can is recycled, it is melted down to produce a new car, appliance, or perhaps a structural beam used to repair some portion of the Golden Gate Bridge.

Basic Oxygen Furnace

The basic oxygen furnace (BOF) facilities consumed a total of 14,552,500 tons of ferrous scrap in the production of 44,503,000 tons of raw steel during 2007. Based on U.S. Geological Survey statistics, 950,000 of these ferrous scrap tons had been generated as unsalable steel product within the confines of these steelmaking sites. In the steel industry, these tons are classified as "home scrap," but are a mix of runaround scrap and pre-consumer scrap. Estimates by the Steel Recycling Institute identify about 80% of this home scrap as pre-consumer scrap, equating to 760,000 tons (950,000 × 80%). Additionally, these operations reported that they consumed 10,000 tons of obsolete scrap (buildings and warehouses dismantled on-site at the mill) during this timeframe. This volume is classified as post-consumer scrap.

As a result of the above, based on the total scrap consumed, outside purchases of scrap equate to 13,592,500 tons [14,552,500 – (950,000 + 10,000)]. According to the Fordham University study, the post-consumer fraction of the purchased ferrous scrap would be 83.4%, while 16.6% of these purchases would be pre-consumer. This equates to 2,256,400 tons of pre-consumer scrap (13,592,500 × 16.6%). This "prompt scrap" is mainly scrap generated by manufacturing processes for products made with steel.

Therefore, the **total recycled content** to produce the 44,503,000 tons of raw steel in the BOF is:

14,552,500 / 44,503,000 = 32.7%
(Total Tons Ferrous Scrap / Total Tons Raw Steel)

Also, the **post-consumer recycled content** is:

(13,592,500 – 2,256,400) + 10,000 = 11,346,100

and

11,346,100 / 44,503,000 = 25.5%
(Post-Consumer Scrap / Total Tons Raw Steel)

Finally, the **pre-consumer recycled content** is:

(760,000 + 2,256,400) / 44,503,000 =
3,016,400 / 44,503,000 = 6.8%
(Pre-Consumer Scrap / Total Tons Raw Steel)

Electric Arc Furnace

The electric arc furnace (EAF) facilities consumed a total of 57,199,300 tons of ferrous scrap in the production of 61,329,700 tons of raw steel during 2007. Based on U.S. Geological Survey adjusted statistics, 15,403,700 of these ferrous scrap tons had been generated as unsalable steel product within the confines of these steelmaking sites. Again, in the steel industry, these tons are classified as "home scrap," but are a mix of runaround scrap and pre-consumer scrap. Estimates by the Steel Recycling Institute identify about 80% of this home scrap as pre-consumer scrap, equating to 12,323,000 tons (15,403,700 × 80%). Additionally, these operations reported that they consumed 85,000 tons of obsolete scrap (buildings and warehouses dismantled on-site at the mill) during this time frame. This volume is classified as post-consumer scrap.

As a result, based on the total scrap consumed, outside purchases of scrap equate to 41,710,600 tons [57,199,300 – (15,403,700 + 85,000)]. According to the Fordham University study, the post-consumer fraction of the purchased ferrous scrap would be 83.4%, while 16.6% of these purchases would be pre-consumer. This equates to 6,924,000 tons of pre-consumer scrap (41,710,600 × 16.6%). This "prompt scrap" is mainly scrap generated by manufacturing processes for products made with steel.

Therefore, the **total recycled content** to produce the 61,329,700 tons of raw steel in the EAF is:

57,199,300 / 61,329,700 = 93.3%

(Total Tons Ferrous Scrap / Total Tons Raw Steel)

Also, the **post-consumer recycled content** is:

(41,710,600 - 6,924,000) + 85,000 = 34,871,600

and

34,871,600 / 61,329,700 = 56.9%

(Post-Consumer Scrap / Total Tons Raw Steel)

Finally, the **pre-consumer recycled content** is:

(12,323,000 + 6,924,000) / 61,329,700 = 19,247,000 / 61,329,700 = 31.4%

(Pre-Consumer Scrap / Total Tons Raw Steel)

The above discussion and calculations demonstrate conclusively the inherent recycled content of **today's steel in North America**. To buy steel is to "Buy Recycled."

Understanding the recycled content of BOF and EAF steels, one should not attempt to select one steel producer over another on the basis of a simplistic comparison of relative scrap usage or recycled content. Rather than providing an enhanced environmental benefit, such a selection could prove more costly in terms of total life cycle assessment energy consumption or other variables. Steel does not rely on "recycled content" purchasing to incorporate or drive scrap use. It already happens because of the economics. Recycled content for steel is a function of the steelmaking process itself.

After its useful product life, regardless of its BOF or EAF origin, steel is recycled back into another steel product. Thus steel with more than 80% recycled content cannot be described as environmentally superior to steel with 30% recycled content. This is not contradictory because they are both complementary parts of the total interlocking infrastructure of steelmaking, product manufacture, scrap generation and recycling. The recycled content of EAF relies on the embodied energy savings of the steel created in the BOF.

Steel is truly the most recycled material.

Contact Us

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680 Andersen Dr. • Pittsburgh, PA 15220-2700
412.922.2772 • sri@recycle-steel.org
www.recycle-steel.org

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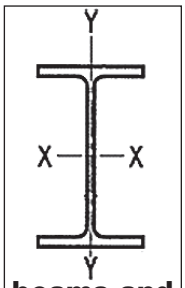
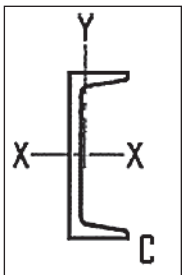
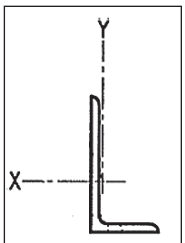
Typical EAF Products



beams and columns



channels



angles

plate

steel deck

piling

To: Architects, Engineers, Designers, and Specifiers
Re: LEED®-NC Version 2.2 and LEED®-NC 2009 Recycled Content Value of Steel Building Products

The U.S. Green Building Council Leadership in Energy & Environmental Design (LEED®) Green Building Rating System aims to improve occupant well-being, environmental performance and economic returns of buildings using established and innovative practices, standards, and technologies.

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Materials & Resources Credit 4: Recycled Content intends to increase demand for building products that incorporate recycled content materials, therefore reducing impacts resulting from extraction and processing of new virgin materials. As discussed and demonstrated below, **North American** steel building products contribute positively toward points under Credits 4.1 and 4.2. The following is required by LEED-NC Versions 2.2 and 2009:

> **Credit 4.1 (1 point)** "Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project."
>
> **Credit 4.2 (1 point)** "Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 20% of the total value of the materials in the project."

American Institute of Steel Construction
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Suite 700
Chicago, IL
60601
866.ASK.AISC
solutions@aisc.org

"The recycled content value of a material assembly shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value." Since steel (the material) and steel (the building product) are the same, the value of the steel building product is directly multiplied by steel's recycled content, or:

Steel Recycled Content Value = (Value of Steel Product) (Post-Consumer % + ½ Pre-Consumer %)

The information contained within this brochure provides post-consumer and pre-consumer recycled content percentages for **North American steel building products**. These percentages and values of steel building products are easily entered into LEED Letter Template spreadsheet for calculation. To illustrate the application of these steel recycled content values to LEED, manual calculations are shown below for typical Basic Oxygen Furnace (BOF) and Electric Arc Furnace (EAF) steel building products with nominal $10,000 purchases, using 2007 data. Steel building products include steel stud framing, structural steel framing (wide-flange beams, channels, angles, etc.), rebar, roofing, siding, decking, doors and sashes, windows, ductwork, pipe, fixtures, hardware (hinges, handles, braces, screws, nails), culverts, storm drains, and manhole covers.

American Iron and Steel Institute
1140
Connecticut
Ave., Suite 705
Washington, DC
20036
202.452.7100

BOF Steel Recycled Content Value for Typical Product:
Steel Stud Framing
Value = ($10,000) (25.5% + ½ 6.8%) = ($10,000) (28.9%) = $2,890
(Positive net contributor to 10% and 20% goals)

EAF Steel Recycled Content Value for Typical Product:
Wide-Flange Structural Steel Framing
Value = ($10,000) (56.9% + ½ 31.4%) = ($10,000) (72.6%) = $7,260
(Positive net contributor to 10% and 20% goals)

EFCO
a Pella Company

WHERE WINDOWS ARE JUST THE BEGINNING

U.S. GREEN BUILDING COUNCIL MEMBER

THE NATURE OF STEWARDSHIP AND LEED® CERTIFICATION

The creation of energy efficient products is one area that has set EFCO apart from other heavy commercial fenestration manufacturers. From the introduction of thermally improved framing and accessories in the 1970's to the new E-Strut™ technology of today, EFCO is in the forefront of the fenestration industry. EFCO is committed to improving global attitudes concerning the health of our planet by improving designs and manufacturing processes which eliminates waste, supports recycling and improves energy efficiency. When paired with the use of locally recycled aluminum, this "stewardship" attitude ultimately enables the reduction of greenhouse emissions and our Carbon Footprint.

EFCO encourages participation in the LEED® rating system (Leadership in Energy and Environmental Design). The U.S. Green Building Counsel's latest version of their rating system (LEED 2009) clearly defines each of the credit areas in which the owner / architect can gain LEED points. For more information on LEED, you can read more at www.usgbc.org .

- **Sustainable Sites** – Construction Activity Pollution Prevention, Site Selection, Development Density & Community Connectivity, Brownfield development, Alternative Transportation, Site Development, Storm Water Design, Heat Island Effect and Light Pollution Reduction. (26 Points Possible)
- **Water Efficiency** – Water Efficient Landscaping, Innovative Wastewater Technologies, Water Use Reduction. (10 Points Possible)
- **Energy and Atmosphere** – Fundamental Commissioning of the Building Energy Systems, Minimum Energy Performance, Fundamental Refrigerant Management, Optimum Energy Performance, On-Site Renewable Energy, Enhanced Refrigerant Management, Measurement and Verification, Green Power. (35 points Possible)
- **Materials and Resources** – Storage and Collection of Recyclables, Building Reuse, Construction Waste Management, Materials Reuse, Recycled Content, Regional Materials, Rapidly Renewable Materials, Certified Wood. (14 Points Possible)
- **Indoor Environmental Quality** – Minimum IAQ Performance, Environmental Tobacco Smoke Control, Outdoor Air Delivery Monitoring, Increased Ventilation, Construction IAQ Management, Low Emitting Materials, Indoor Chemical & Pollutant Source Control, Controllability of Systems, Thermal Comfort and Daylight and Views. (15 points Possible)
- **Innovation and Design Process** – Innovation in Design and LEED Accredited Professional. (6 Points Possible)
- **Regional Bonus Credits** – Regional specific environmental priority (4 points possible)

110 Points Possible. 80-110 points = Platinum, 60-79 = Gold, 50-59 = Silver, 40-49 = Certified

Three of the six LEED areas in which EFCO can directly and indirectly help gain points are Energy and Atmosphere (EA), Materials and Resources (MR), and Indoor Environmental Quality (EQ).

Energy and Atmosphere:

Credit EA Prerequisite 2 – Minimum Energy Performance, is obtained by providing a minimum energy performance level for the entire building envelope. Specifying the use of EFCO's energy efficient window framing, curtain wall or storefront / door framing along with high efficiency glazing products, is an important part of not only the building aesthetics but also for energy consumption through lighting, heating and cooling.

Credit EA 1 – Optimize Energy Performance. This credit is obtained by optimizing the building's energy consumption and performance. EFCO's product line allows you the freedom to expand into higher levels of energy reduction. (1 to 19 points are available)

Credit EA 2 – On-Site Renewable Energy, credits are obtained by implementing systems in the building design that allow for On-Site renewable energy. EFCO has been involved with many projects which included Photovoltaic panels glazed into our thermal framing. These power generating units have been used as aesthetic spandrel panels and provide for a significant part of the building's electrical needs. As technology and the availability of renewable energy products increases, EFCO will be ready to incorporate them into our product lines. (1 to 3 points available)

Materials and Resources:

Credits MR 1.1 (75%) and 1.2 (95%)– Building Reuse, credits are obtained by the reuse of existing buildings. EFCO has many window and window accessories specifically designed for retro-fit applications. Our "Trim-All" panning system and many sub-frame accessories allow for easy retrofit into existing building wall sections. (Three points possible)

Credits MR 4.1 (10%) and 4.2 (20%) – Recycled Content, credits are obtained by using building materials that contain recycled content. EFCO's historical and ongoing commitment to our environment, includes our many energy efficient product lines which are comprised mainly of aluminum and glass – two of the most abundant and recyclable materials in the world. EFCO manufactures our framing products with aluminum that contains 81% recycled material. (57.5% post consumer and 23.5% pre consumer) Job specific recycled content letters are provided by EFCO through our customer service department during the project submittal process. (One point each)

Credits MR 5.1 (10%) and 5.2 (20%) – Regional Materials. In order for materials to be eligible for credits 5.1 & 5.2 they must not only be manufactured within 500 miles of the site, but must be built from materials that have been extracted, harvested, or recovered from within the same 500 miles. This is a significant revision from version 2.0 of the LEED rating system. EFCO acquires aluminum billet from our supplier which is less than ¼ mile from our manufacturing facility and recovers scrap from less than a 500 mile radius. (One point each)

Indoor Environment Quality:

Credit EQ 2 – Increased Ventilation, is obtained by providing additional outdoor air ventilation to improve indoor air quality for improved occupant comfort, well being and productivity. EFCO can provide a wide range of vent configurations that allow for occupant ventilation. EFCO can also provide designs which include occupant controlled passive ventilators which provide only a "Trickle" of air circulation in lieu of opening a window. (One point)

Credit EQ 6.1 – Controllability of Systems-Lighting, is obtained by providing the building occupant the controllability of light needed for productivity, comfort or well-being. Even though this credit is mainly pointed toward the lighting systems in the building, EFCO can provide integral blinds in many of our window products that can enhance the controllability of the lighting for building occupants. (One Point)

Credit EQ 6.2 – Controllability of Systems-Thermal Comfort, is obtained by providing building occupants the ability to adjust their individual comfort. Operable windows can be considered a method of adjustment. (One point)

Credits EQ 8.1 (75%) and 8.2 (90%) – Daylight and Views, are obtained by providing the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building. EFCO window and light shelf products can provide solutions to your daylight and viewing needs. (One point each)

Misunderstood LEED Credits:

Credits MR 3.1 and 3.2 – Materials Reuse, - These credits are gained by using materials that are salvaged from an existing structure and then reused in a new building or left in place during a refurbishing project. New window products using recycled materials do not qualify for this credit.

Credits MR 5.1 and 5.2 – Regional Materials. The version of LEED 2.0 is very different from LEED 2.2 and LEED 2009 in their requirements for this credit. Be sure to request documentation proving the manufacturer uses raw materials that are regional to the job site as well as the fabrication.

Credits EQ 4.1 and 4.2 – Low Emitting Materials. These credits are meant for adhesives, sealants, paints and coatings that are applied "on site". New window products manufactured in the factory do not qualify for this credit.

Credit EQ 7.1 – Thermal Comfort, this credit area is meant for the design of the Heating, venting and Air Conditioning system. New window products do not qualify here.

Note: ONLY BUILDINGS ARE CERTIFIED. The USGBC does not certify, promote, or endorse any products, companies, or individuals. Products may only contribute to the requirements needed to gain points that are given toward a building's LEED rating.

THE NATURE OF STEWARDSHIP AND LEED® CERTIFICATION

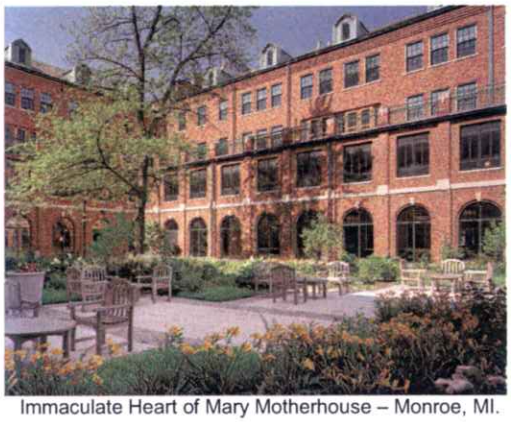
This is a partial gallery of LEED certified projects that utilize EFCO products. For more information, please contact you local representative or call EFCO at 1-800-221-4169.

The Solaire – New York, NY

The Verdisian –New York, NY

Ballard Library –Seattle WA

Pfizer Inc. Clinical Research Unit – New Haven CT



Immaculate Heart of Mary Motherhouse – Monroe, MI.

EFCO
a Pella Company

U.S. GREEN BUILDING COUNCIL MEMBER

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Milgard
Clearly the best.™

Contact Us

1.800.MILGARD (1.800.645.4273)

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Architect Contacts >

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Learn about our newest products and technologies, including designs for aging in place and improved energy efficiency. Learn More >

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Milgard's Family of Offerings

Wood	Vinyl	Fiberglass	Aluminum

Replacement windows and patio doors that deliver energy efficiency, smooth operation and a traditional look with even sight lines.

New construction windows and patio doors that provide energy efficiency, smooth operation and a broad range of styles and sizes.

A full line of windows and patio doors with a slimmer frame profile to provide a more contemporary look and maximize views.

Sound control windows that provide excellent noise reduction, as well as superior energy efficiency.

New Essence Wood Windows

A re-imagining of the wood window, featuring a full-wood interior and durable fiberglass exterior. See this superior alternative to wood, composite and clad products. Learn More >

In The News

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Innovative Smartcase™ Installation System Fills Gap Between Building Construction & Window Installation >

See all >

New Premium Vinyl Exterior Finishes

Order Tuscany® and Style Line™ Series windows and doors in four new Premium Vinyl Exterior Finishes (ivory, chocolate, taupe and light grey). Coming soon. Find out more >

11/5/2009

Milgard Products can help earn LEED v 3.1 credits in the categories below.

ENERGY & ATMOSTPHERE

EA Prerequisite 2 MINIMUM ENERGY PERFORMANCE

All Milgard Vinyl and Fiberglass Products can meet the ASHRAE/IESNA Standard 90.1-2004. All Milgard products have Milgard's SunCoat® low-E glass, and additional energy upgrades are available to meet or exceed the minimum standard. Milgard windows and door performance values are NFRC certified.

EA Credit 1 OPTIMIZE ENERGY PERFORMANCE

Milgard offers many products that meet ENERGY STAR® qualifications standard. In addition, Milgard offers 3D™ and 3D MAX™ energy package upgrades that meet or exceed ENERGY STAR® qualifications with dual-glazed windows. More recently, Milgard has begun to offer triple glazed vinyl and fiberglass products which can achieve u-factors that exceed ENERGY STAR qualifications by up to 50%. For specific u-factor and SHGC performance values of all Milgard products, visit the product details section on Milgard.com.

EA Credit 2 ON-SITE RENEWABLE ENERGY

As referenced above, Milgard window and door performance values are NFRC certified and can be used in building envelope modeling to achieve desired goals of this section.

MATERIALS AND RESOURCES

MR Credit 4.1 and 4.2 RECYCLED CONTENT *(1 or 2 pts if project materials are 10% or 20% of post-consumer + ½ pre-consumer recycled content)*

For all Milgard windows and doors, glass is 42% -72% of the weight of the average window or door. The majority of glass used in fenestration contains cullet, or in-process recycled glass, which does not contribute toward the recycled content calculations (as it is considered Industrial recycled content and would not normally enter the waste stream).

Milgard Vinyl Windows contain 8%-10% pre-consumer recycled content of vinyl. Vinyl is approximately 35% of the weight of the average window and 31% of the weight of the average door. Therefore, as a weighted percentage, Milgard vinyl windows contain 2.8-3.5% in pre-consumer recycled content in windows and 2.4%-3.1% pre-consumer recycled content in doors.

Milgard Fiberglass windows and patio doors contain filament made up of a minimum of 90% postconsumer recycled content. The fiberglass filament comprises 25% of the weight of the window and 31% of the weight of the door. Therefore, as a weighted percentage, Milgard fiberglass windows contain 22.5% post-consumer recycled content and doors contain 27.9%.

Milgard Aluminum Windows and Doors contain a minimum of 25% pre-consumer recycled content in the aluminum extrusions. Aluminum is approximately 27% of the weight of the windows and 23% of the weight of the doors. Therefore, as a weighted percentage, Milgard aluminum windows contain 6.8% of recycled content and Milgard aluminum doors contain 5.9% recycled content.

MR Credit 5.1 and 5.2 REGIONAL MATERIALS *(1 or 2 pts if 10% or 20% of materials are extracted, processed and manufactured within 500 miles of project)*

Milgard currently manufactures windows and doors in 3 facilities in the Pacific Northwest (Tacoma, WA and Portland, OR), 4 facilities in California (Sacramento, Hollister, Simi Valley and Temecula CA), 1 facility in Phoenix, AZ, 1 facility in Aurora (Chicago Metro Area), IL, and 1 facility in Aurora (Denver Metro Area), CO. This geographical footprint covers approximately better than 25% of the nation in terms of sourcing of Regional Materials for LEED projects.

Glass makes up 42%-72% of the weight of the window, and the majority of glass is sourced locally to our window manufacturing facilities. Please see your local Milgard rep for estimations of locally extracted products based on your project location.

INDOOR EVIRONMENTAL QUALITY

EQ Prerequisite 1

In order to meet the Indoor Environmental Quality prerequisite of meeting the ASHRAE standard 62.1-2004, and 62.2-2004 in low-rise commercial projects seeking LEED 2.2 Certification, windows play an integral role.

EQ Credit 2 INCREASED VENTILATION *(1 pt. possible)*

In order to receive credit for the section EQ Credit 2, operable windows can play an integral role.

EQ Credit 3.1 CONSTRUCTION IAQ MANAGEMENT *(1 pt possible)*

The intent of this credit is to maintain acceptable indoor air quality during construction and demolition activities. Milgard fiberglass windows are factory-painted with water-based paints with low to no-VOC's. The adhesives and resins in the fiberglass pultrusion and veneer applications emits low to no odor or off-gassing. Milgard vinyl products do not off-gas.

EQ Credit 4.1, 4.2 and 4.4 LOW-EMITTING MATERIALS *(1 pt for all adhesives, sealants, and sealant primers complying with SCAQMD Rule #1168 and 1 additional pt for all applied architectural paints, coatings and sealants, 1 pt for No added Urea-Formaldehyde in Composite Wood products)*

Milgard fiberglass WoodClad™ products are delivered unsealed. Adhesives used in the manufacture of these products meets the SCAQMD Rule (reference page 339 for VOC limits), and contain no added urea-formaldehyde. Milgard fiberglass Ultra™ products are delivered with factory applied water based paint with low VOCs, meeting Green Seal Standard GS-11.

EQ Credit 6.2 CONTROLLABILITY OF SYSTEMS/THERMAL COMFORT *(1 pt possible)*

Milgard operable windows can play an important role in contributing to earning this credit.

EQ Credit 8.1, 8.2 DAYLIGHT AND VIEWS *(1 pt for 75% and 1 additional pt for 90% of spaces)*

Milgard windows and doors play an integral role in achieving this credit and maximizing interior daylighting.

Siding and Cladding

The materials presented in this Appendix section are pre-approved for use by the City of San Gabriel.

The criteria for each material or system selected is:

- That it is environmentally sustainable, with recyclability and recycled content, renewability, energy extended for manufacturing, transportation and erection, air quality, and the installed energy savings as a part of the selection
- That it is a material or system of quality, substance, and has the ability to last many years
- That the materials are appropriate in form, color, and texture to the style of architecture they are being applied to.

Materials not contained within this list may be reviewed by the city and approved for use based on this criteria.

Note that buildings registered as historic, or buildings located in designated historic districts, or which in the opinion of the City of San Gabriel are deemed to have historic value, are not permitted to use substitute or imitation materials, such as may be described in this list. Authentic materials shall be used, except under extraordinary circumstances as reviewed by staff and approved by the City Design Review Commission, and only because the original building material and/or construction technique cannot be properly supplied or replicated.

Understanding the role of CertainTeed FiberCement Siding in meeting Green Building Standards.

GREEN BUILDING STANDARDS:

Green Building Standards, including LEED and NAHB, provide specific criteria for determining whether a building qualifies as green or not. These organizations then certify that the building is green according to their standards. The tables below show the credits that FiberCement Horizontal Siding, Simulated Shingle, Vertical Siding and Soffit can contribute to in both the LEED and NAHB Green Building Standards.

As well as being durable and low maintenance, CertainTeed FiberCement Siding products are environmentally sustainable. Our proprietary formula includes fly ash, providing the green benefits of recycled material. After several years of research and development, this new formulation contains more than 30% post-industrial recycled material.

Because of the enhanced green component of fly ash, CertainTeed uniquely contributes to LEED (Leadership in Energy and Environmental Design) project certification points in the Materials and Resources category. Additionally, when building to the NAHB National Green Building Standard, CertainTeed FiberCement products uniquely contribute to the Resource Efficiency category of this guideline.

LEED

The LEED Rating System was developed by the U.S. Green Building Council to provide a national benchmark for the design, construction and operation of high performance sustainable buildings. CertainTeed is a member of the U.S. Green Building Council and supports the LEED program.

In order for a building to become LEED certified, it must meet certain prerequisites and achieve credit requirements to qualify for rating points. There are a maximum of 69 points available in six categories. For the LEED NC (new construction) standard, the most relevant for fiber cement is Materials & Resources. The other categories are: Sustainable Sites, Water Efficiency, Energy & Atmosphere, Indoor Environmental Quality and Innovation & Design Process. Please note that individual products cannot be LEED certified, but they can contribute to the overall LEED points obtained on a given project.

LEED-NC (New Construction)

CERTAINTEED FIBERCEMENT SIDING PRODUCT CONTRIBUTIONS TO LEED CREDIT*	POSSIBLE POINTS
Materials & Resources	
Recycled Content (credit 4.1 & 4.2): Use materials with recycled content that constitutes at least 10% (for 1 point) or 20% (for 2 points) of total value of materials in project (based on cost).	1-2
Regional Materials (credit 5.1 & 5.2): Use building materials/products that have been extracted, harvested or recovered as well as manufactured within 500 miles of project site for a minimum of 10% (for 1 point) or 20% (for 2 points) of total value of materials in project (based on cost). Depends on location of project site.	1-2

*Based on LEED NC Version 2.2

LEED-H (Homes)

CERTAINTEED FIBERCEMENT SIDING PRODUCT CONTRIBUTIONS TO LEED-H CREDIT*	
Materials & Resources	
Environmentally Preferable Products – Local Materials (credit 2): Use materials that were extracted, manufactured, and processed within 500 miles of the home.	.5

*Based on LEED H 2008

NAHB

Resource Efficiency is one of the guiding principles that have been identified by NAHB in their National Green Building Standard. Material selection plays a major role in the design of a successful green home and in maximizing its sustainability. The NAHB National Green Building Standard offers multiple opportunities for a homebuilder to achieve points for the use of CertainTeed FiberCement.

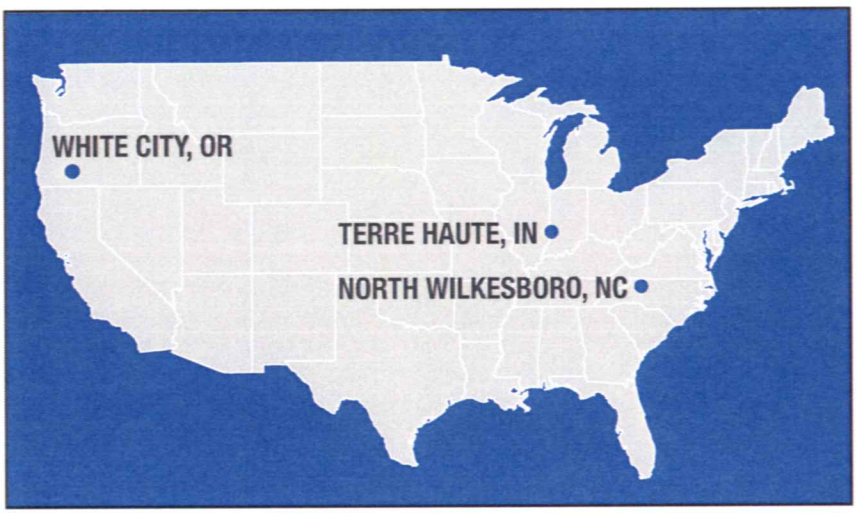
CERTAINTEED FIBERCEMENT SIDING PRODUCT CONTRIBUTIONS TO NAHB*	POSSIBLE POINTS
Resource Efficiency	
No Additional Finish Required 601.7 (2.1.5): Use building materials that do not require additional site applied material for finishing. (ColorMax Only)	2 – 5
Termite-Resistance 602.8 (2.2.8): Use termite-resistant materials for exterior claddings of walls, floors, concealed roof spaces not accessible for inspection, and exterior decks in geographical areas that have slight to moderate or greater subterranean termite infestation potential.	2 – 6
Recycled Content 604.1 (2.4.1): Use recycled-content building materials for two minor and/or two major components of the building with a recycled content of 25-75%.	1 – 2
Resource-Efficient Material 607.1 (2.7.1): Use products that contain fewer resources than traditional products.	3
Locally Available 608.1 (2.8.1): Use indigenous materials for major elements of the building.	2

*Based on NAHB Green Building Standards - 12/21/07
Numbers in ( ) are a cross reference to the NAHB National Green Building Standard 2006

CERTAINTEED FIBERCEMENT GREEN FACTS:

- Contains more than 30% post-industrial recycled material in the form of fly ash.
- Fly ash is a post-industrial by-product of electric generation at coal-fired facilities.
- CertainTeed is committed to resource conservation. Our manufacturing facilities recycle the water used in our plants, resulting in a savings of more than 1.5 billion gallons per year.
- Most of the wood fiber pulp used in our fiber cement products is supplied from sustainably managed forests. We are currently working with suppliers to ensure certification of 100% of our wood pulp fiber in the near future.
- CertainTeed FiberCement products have excellent durability characteristics. These products are impervious to wood boring insects, resistant to UV radiation, have a Class 1(A) Fire Rating, will not rot, and have superior impact resistance. FiberCement products also have a 50 year warranty, demonstrating CertainTeed's confidence in the durability of their product.
- By using fly ash in our product, over 50,000 tons of fly ash are diverted from landfills each year.
- Fly ash comes in many varieties. The type used in CertainTeed's FiberCement products allows the creation of a stable chemical matrix, resulting in optimum product performance.
- Our innovative use of fly ash in our formulation has not only improved the strength and durability of our products, but has also resulted in a more flexible and easy to install product, as compared to the competition.
- Fly ash has not changed our fiber cement products' superior paintability properties. We continue to use our FiberTect® sealant on our entire product line.
- This new formulation has ICC Building Code approval (reference report #ESR-1668).
- As a result of this innovation, we are able to offer a lighter weight board without sacrificing quality and integrity. Boards made with fly ash are about 5% lighter than our old formulation, which translates into less energy used to produce and transport.

CERTAINTEED FIBERCEMENT SIDING PLANT LOCATIONS:



For complete details on the LEED or NAHB rating systems and certification processes contact your LEED or NAHB professional, or visit www.usgbc.org/LEED or www.nahbrc.org/greenguidelines. To learn more about CertainTeed FiberCement Siding products, please visit www.ctfibercement.com.

FSC
Mixed Sources
Product group from well-managed forests, controlled sources and recycled wood or fibre
Cert no. SW-COC-002315
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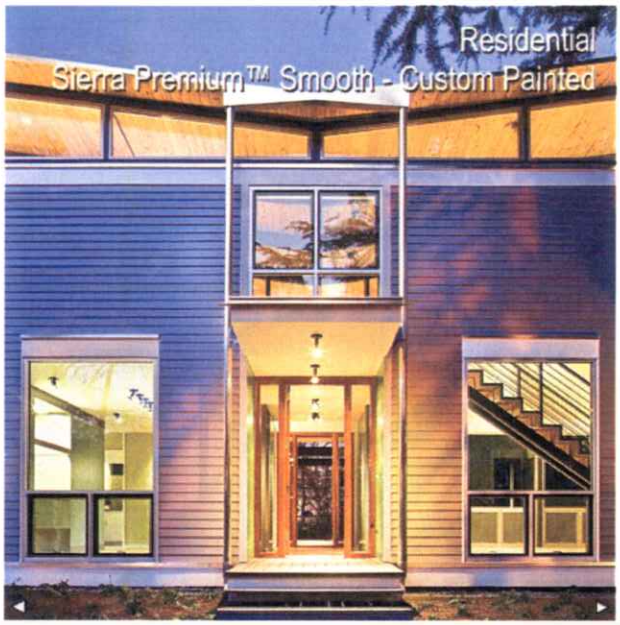
NICHIHA

Fiber Cement At Its Best™



Nichiha Fiber Cement

Sierra Premium™ Shake & Smooth	
Brick Panels	
Stone Panels	
Illumination Series & Block Panels	
NichiProducts™ Lap Siding & Trim	

NICHIHA NEWS

First PLATINUM CERTIFIED Home in S.E USA

Nichiha USA

- Revit Files
- Company Information
- Build Green with Nichiha
- Fly Ash
- News and Press Room
- Career Opportunities

Integrated Value

- Multifamily
- Light Commercial
- Hospitality
- Self Storage
- Residential

Architects, Designers, Specifiers | Builders & Contractors | Installers | Homeowners | National Hospitality, Restaurant & Retail | Dealer & Installer Locator

NICHIHA
fiber cement

Sustainable Stewardship

Sustainable Stewardship Of Our Resources

NICHIHA
fiber cement

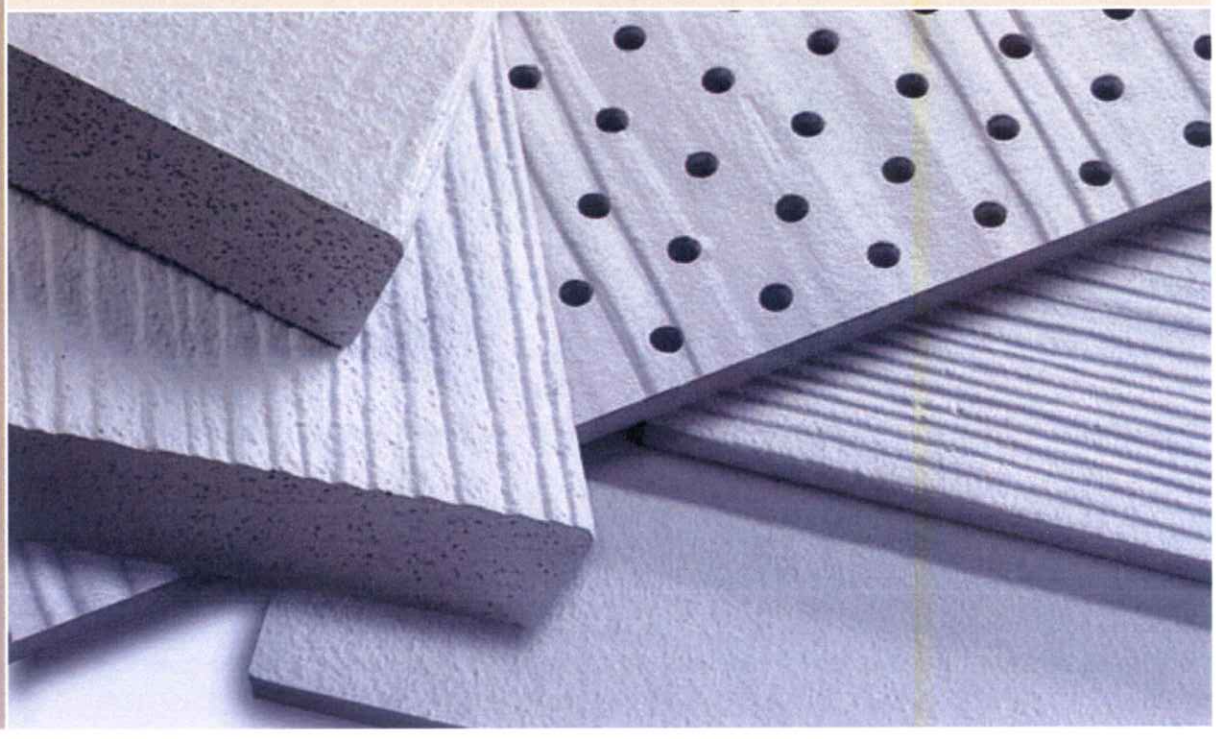
The responsible and respectful stewardship of our natural resources has always been and will always continue to be at the forefront of our corporate objectives.

At Nichiha our mission for over 50 years has been to utilize the natural resources entrusted to us with the utmost environmental diligence and which maximizes recyclability, all in an effort to ***reduce our world wide impact*** on the environment; while maintaining the highest product performance standards.

We have focused our efforts of minimizing our impact on the environment in every phase of manufacturing and material handling, thus reducing our energy and water usage. Nichiha is the world leader in fiber cement materials research and development, which has led us to substitute non recyclable materials with recycled ***post-consumer and post-industrial waste.***

At Nichiha, utilizing the best and latest technology to produce our fiber cement products means; that we provide a product to the construction industry, which is intrinsically ***better for the environment.*** Since building "Green" has emerged as one of the most important issues of the construction industry today, developing and utilizing products that are sustainable to the environment has never been more impactful.

This is the world wide environmental vision for Nichiha. We not only embrace this vision but continually seek ways to improve our processes that will further reduce our impact on the environment. Since 1956 and long before being "Green" was important, the responsible and respectful stewardship of our natural resources has always been and will always continue to be at the forefront of our corporate objectives.



Environmental Impact

Recycled Materials Impact

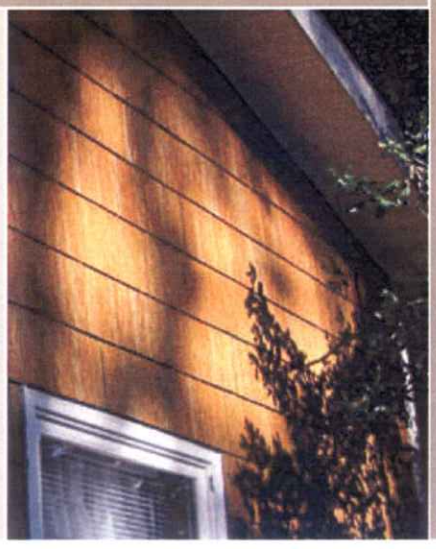
Beginning with the raw materials that make up NichiProducts exterior claddings, we use a combination of recycled pulp fiber, fly ash and recycled fiber cement products. By using recycled products in the manufacturing of our fiber cement exterior claddings, Nichiha supports the sustainable and conscientious use of our natural resources.

- NichiProducts contain 55% fly ash, a post-industrial waste material generated at coal-burning, electric generating facilities. Normally this material is sent to landfills, and by using fly ash in our products, Nichiha diverts over 66,000 tons of fly ash from ending up in landfills annually.
- Using fly ash not only affords a greener product for the environment, it improves our products performance characteristics; allowing for a stronger more durable exterior cladding that is easier to handle and install.
- Pulp is also a material used in the composition of NichiProducts. Nichiha uses over 3,000 tons annually of post-consumer newspaper waste that would normally end up in landfills.
- Utilizing advanced material management techniques, NichiProducts use 100% of its pre-cured fiber cement scrap.
- Using recycled materials and regional materials resources, can contribute up to 2 LEED's credits.

Local Impact

- Water impact - The Nichiha manufacturing facility in Macon, GA, includes an on-site water treatment plant. This facility not only recycles 95% of the water used in the manufacturing process, it treats the 5% water discharged back into the system.
- NichiProducts use local material resources (90% of our materials are less than 200 miles from our facility), reducing the environmental impact and carbon emissions of long-haul transportation.
- The Macon plant releases odorless emissions totaling less than 90 tons of VOC's per year, which is within all state, federal and local regulations for outdoor air quality.

Site Impact



- Sierra Premium™ Shake boards are offered pre-stained or pre-painted, eliminating on-site finishing resources and VOC's. The finish on Sierra Premium Shake boards is backed by a 15-year warranty, further reducing the need for re-finishing resources (possible LEED's points – 4).
- Using products that are termite and insect resistant contribute to the sustainability of any structure. The reduction of material replacement in addition to not contributing to a structure's maintenance, aids in environmental impact reduction. All Nichiha fiber cement exterior claddings are termite and insect resistant.

NICHIHA
fiber cement

Using fly ash not only affords a green product for the environment, it improves our products performance characteristics.

Nichiha uses 100% of its pre-cured fiber cement scrap.

"Nichiha is committed to social responsibility and makes every effort to reduce its carbon footprint by instituting ecologically-minded manufacturing techniques," states Darrin Haugan, senior vice president of sales and marketing for Nichiha. "A highlight of our effort can be seen in the engineering of our on-site water treatment and reuse system that enables our plant to recycle 95 percent of all water used in the manufacturing process."

Nichiha Fiber Cement Exterior Cladding Building Credits

Leed Credit

Recycled Content 10% (credit 4.1): Use material with recycled content that constitutes at least 10% (based on cost) of total value of material in project. Possible Points: 1
Nichiha fiber cement exterior claddings can contribute to these credits.

Recycled Content 20% (credit 4.2): Use materials with recycled content that constitutes at least 20% (based on cost) of total value of materials in project. Possible Points: 1
Nichiha fiber cement exterior claddings can contribute to these credits.

Regional Materials 10% (credit 5.1): Use building materials/products that have been extracted, harvested or recovered as well as manufactured within 500 miles of project site for a minimum of 10% (based on cost) of the total materials. Possible Points: 1
Nichiha fiber cement exterior claddings can contribute to these credits dependant upon project site.

Regional Materials 20% (credit 5.1): Use building materials/products that have been extracted, harvested or recovered as well as manufactured within 500 miles of project site for a minimum of 10% (based on cost) of the total materials. Possible Points: 1
Nichiha fiber cement exterior claddings can contribute to these credits dependant upon project site.

NAHB Green Home Building Guidelines

No Additional Finish (2.1.5): Using materials that require no additional finish resources to complete application on site. Possible Points: 4
Nichiha Sierra Premium™ Shake boards can apply.

Termite Resistance (2.2.8): Use termite resistant materials for walls, floor joists, trusses, exterior decks and other exterior wood in regions known to be termite infested.
Possible Points: 7
All Nichiha fiber cement exterior claddings apply.

Recycled Content (2.4.1): Use at least 2 recycled-content materials for 3 points. Each additional material will add a point in addition to the three. Possible Points: 3-6
All Nichiha fiber cement exterior claddings apply.

Resource-Efficient Material (2.7.1): Use products that contain fewer resources than traditional products. A project must use resource-efficient materials or at least 2 different types of components to receive the 3 points. Possible Points: 3
All Nichiha fiber cement exterior claddings apply.

Local Availability (2.8.1): Use at least 1 type of locally available, indigenous material in the project construction to obtain 3 points. Possible Points: 3
NichiProducts™ cement exterior claddings apply.

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fiber cement

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Item # NG-5000 01/08

VARCO PRUDEN BUILDINGS

SEARCH

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EXAMPLES PRODUCT DESCRIPTIONS ECONOMIC BENEFITS GREEN BUILDINGS 4-6 WEEK DELIVERY

PRODUCTS PRE-ENGINEERED TO FIT YOUR NEEDS

Our steel systems construction products include frames, roofs, walls, and panels, as well as finishes and accessories. All are precisely manufactured to meet or exceed the highest standards of testing and certification.

Using our proprietary, state-of-the-art VP Command computer system, an Authorized Builder designs your project's systems and components to meet your exact specifications. The pre-engineered materials are then delivered to the construction site ready to be assembled using high-strength, bolted connections.

For a final touch, you can create just the look you want for your building with an exterior of glass, masonry, metal, stone or numerous other cladding materials.

VARCO PRUDEN BUILDINGS

SEARCH

THE GROWING POSSIBILITES OF BUILDING GREEN

When choosing materials for a sustainable design/green building project, steel is a natural choice. VP Buildings was a founding member of the Metal Building Manufacturers Association... we KNOW STEEL. We are also active participants in the US Green Building Council and the Cool Roof Rating Council... two of the leading organizations in the development of sustainable design standards. Moreover, VP Buildings Systems Construction process, combined with many of VP's alternative wall and roof products can make VP Buildings the perfect partner for your next sustainable design/green building contract. Here are just some of the reasons why...

- **Recycled Materials**—VP's steel frames, secondary and sheeting contain recycled steel. This is one of the components of LEED point eligibility.
- **Reusable or Recyclable Materials**—All of VP's steel components are made of 100% reusable/recyclable alloy. VP metal buildings can be relocated and reused, providing expanded adaptability for different end uses and greatly extending their usable life.
- **Energy Efficient**—VP Buildings offers an ever-expanding range of code compliant, efficiency-enhancing structural components.
  - Our ThermalClad Insulated Wall & Roof Panels are ideal for controlled-environment buildings where temperature and insulation are critical. And their superior insulating value is maintained throughout the life of the building (R-values to 32.3 available).
  - VP buildings are compatible with a large variety of insulation options to achieve maximum thermal efficiency.
- **Cool Roof colors...** VP Buildings was one of the very first manufacturers to introduce "Cool" colors for roofing panels. VP's SSR roofing system (when ordered with Cool Regal White color coating) meets even California's stringent title 24 code parameters.
- **Designs And Building Systems That Reduce Materials Use AND Waste**—The VP Command® Computer System is the most advanced computerized design system in the industry. What does that mean for your next sustainable design/green building project? It means that you can notably reduce design and estimating time... accurately detail the building structure, and efficiently process the material through manufacturing.

With VP Command, you can see into the future of the entire building project, including site-specific code parameters (especially vital for a successful point accumulation toward certification). In addition, with the VP Command design system, materials use AND waste are reduced significantly over many conventional building processes. You can even explore alternative design scenarios within your specific sustainable design parameters.

VP Buildings offers a variety of energy-saving components to improve airflow. We also offer ventilation insulated window and door products and roof ventilation systems.

With natural lighting options, from our Tuf-Dome skylights, featuring a durable, high-clarity polycarbonate composition... to our translucent Tuf-Lite & Wallite panels, which provide the interior of the building with 60% natural light transmission. Increased natural lighting... decreased power usage... notable savings on energy costs. This adds points to the overall sustainable design score.

- **Proximity Points**—If you're building green, chances are there is a VP manufacturing facility well within the 500-mile radius stipulated in the LEED standards for receiving "proximity points". In most cases... a lot closer than that.
- **VP Builder Network**—VP Buildings' independent Authorized Builder network ensures building owners and designers that their projects can be completed on time and within budget, without compromising quality. Over 1,000 professional contractors throughout the United States and Canada form an alliance with VP Buildings as independent Authorized VP Builders. This partnership is committed to providing quality building systems from VP Buildings and quality construction services from professional VP Builders.

The trend toward sustainable design/green building is growing. You can grow with it... VP can be the perfect partner!

Insulated Metal Panels

ENVIRONMENTALLY SMART

For Sustainability & Energy Efficiency

METL SPAN®

A BlueScope Steel Company

METL SPAN
A BlueScope Steel Company

Architectural, Commercial & Industrial Panels

Metl-Span's Architectural, Commercial & Industrial panels serve as walls, ceilings and roofs for commercial and industrial buildings, in new and retrofit construction. →

Cold Storage Panels

Metl-Span's Cold Storage panels function as walls, ceilings and roofs for cooler, freezer and food processing buildings, in new and retrofit construction. →

CFR Roof Panels

The CFR insulated metal standing seam roof panel is a truly unique answer to many deficiencies common with more traditional roofing materials of the past. →

ThermalSafe® Fire Resistive Panels

Metl-Span's ThermalSafe® panel is the latest development in fire resistive wall construction technology achieving one, two & three hour fire resistive ratings. →

Metl-Vision® Window System

Metl-Span's Metl-Vision® window system complements the exceptional architectural aesthetics and function of Metl-Span's CF horizontal wall panels. →

Latest News and Events

Green News and Information

Metl-Span has introduced CFR Insul-Solar™, a comprehensive insulated solar standing seam roof system. The system utilizes a thin-film solar laminate fused to the surface of the roofing panel substrate. The panel/laminate bond has been proven to withstand winds of 160 mph.

January Construction Retreats One Percent
The value of new construction starts slipped 1% in January to a seasonally adjusted annual rate of $419.3 billion, according to McGraw-Hill Construction, a division of The McGraw-Hill Companies. The slight loss of momentum was due to a pullback for nonbuilding construction (public works and electric utilities), after this sector's elevated performance in December. Meanwhile, residential building in January held steady, and nonresidential building was able to register growth as the result of gains for a few structure types.

A Few Bright Spots for AEC Firms in 2010
The AEC industry is heading into 2010 in better shape than was the case a year ago, according to the 2010 AEC Industry Outlook: Strategy and Insight for Design & Construction Firms, a new forecast released by ZweigWhite this month.

Metl-Span Panels Clad Clean, Green Urban Retail Development Design
The new Ballard Blocks development in the Ballard area of Seattle offers 366,000 sq. ft. of commercial and retail space

Metl-Span is dedicated to manufacturing and marketing the finest insulated building panel products.

We are a recognized leader in the advancement of insulated panel technology, serving the Commercial and Industrial and Cold Storage industries with energy efficient and cost effective insulated metal wall and roof panels.

For the past forty years, we have not only helped shape our industry; we have set the standard for product design innovations and technology improvements. In order to maintain this focus on quality, we continue to pioneer new research and expand our process capabilities.

Continuing Education Courses

Metl-Span has partnered with AEC Daily to create two Continuing Education Courses entitled "Insulated Metal Wall and Roof Panels" and "Mineral Wool Core Panels: Innovative Fire Resistive Wall Construction."

FREE on-line continuing EDUCATION
www.aecdaily.com
Learn More

• Are Free • Provide AIA & State Credit • Qualify for HSW & SD

Environmentally Smart

Metl-Span's LEED® Support material is being provided to help architects, specifiers, and design professionals in analyzing and the sustainability benefits, attributes and performance criteria of insulated metal panels relative to qualifying for credits...
Click here to download

From the Metl-Span Photo Gallery of Past Projects

Click here to view more photos.

Locate a Metl-Span Sales Representative

Commercial and Industrial

Cold Storage

Upcoming Events

Apr. 21 - 22, 2010 - Buildex Vancouver

Apr. 24 - 29, 2010 - IARW

Jun. 07 - 09, 2010 - NFPA Conference & Expo

Jun. 10 - 12, 2010 - AIA National Convention & Design Exposition

Aug. 11 - 13, 2010 - COAL-GEN

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METL-SPAN® ENVIRONMENTALLY SMART

Metl-Span's LEED® Support material is being provided to help architects, specifiers, and design professionals in identifying the sustainability benefits, attributes and performance criteria of insulated metal panels relative to qualifying for credits within the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED®) Green Building Rating System.

LEED® SUPPORT (v.3)

Heat Island Effect: Roof (1 point)

SS **CREDIT 7.2**
WE
EA
MR
IEQ
ID

Roofing materials with a Solar Reflectance Index (SRI) greater than or equal to 78 for low-sloped roof applications and 29 for steep-sloped roof applications, used on at least 75% of the roof's surface, will qualify for this credit. Metl-Span® CFR Insulated Metal Roof Panels coated in any color from our standard color chart for steep-sloped roof and one color for low-sloped roof applications meet or exceed the SRI requirements to claim one point in SS Credit 7.2.

Building Reuse: Maintain Existing Walls, Floors & Roof (1-3 points)

SS
WE
EA
MR **CREDIT 1.1**
IEQ
ID

Metl-Span Insulated Metal Wall Panels and/or ThermalSafe® Fire-Resistive Panels used in an existing building's envelope or structure can be disassembled, moved, and reused for the envelope/structure of a new project, contributing to points for maintaining at least 55% of the surface area of existing building structure and envelope in MR Credit 1.1.

Building Reuse: Maintain Interior Non-Structural Elements (1 point)

SS
WE
EA
MR **CREDIT 1.2**
IEQ
ID

Metl-Span Insulated Metal Panels and/or ThermalSafe® Fire-Resistive Panels used in a building's interior can be disassembled, moved, and reused for the interior of a new project, contributing to points for using existing interior non-structural elements in at least 50% (by area) of the completed building in MR Credit 1.2.

Materials Reuse (1 or 2 points)

SS
WE
EA
MR **CREDIT 3**
IEQ
ID

Metl-Span Insulated Metal Panels, both interior and exterior, can be disassembled, moved, and reused for a new project, contributing to points for using salvaged, refurbished or reused materials such that the sum of these materials constitute at least 5% (based on cost) of the total value of materials on the project in MR Credit 3.

Recycled Content (1 or 2 points)

SS
WE
EA
MR **CREDIT 4**
IEQ
ID

Steel faces on Metl-Span Insulated Metal Wall Panels, ThermalSafe® Fire-Resistive Panels and CFR Roof Panels contain a total recycled content of 31.0%. Of this, post-consumer recycled content is equal to 23.0% and pre-consumer recycled content is equal to 7.3%. The polyurethane foam core has a pre-consumer recycled content of 7.32% and 0% post-consumer; while the mineral wool core contains 40% pre-consumer and 0% post-consumer recycled content. These percentages of recycled content contribute to using materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% (based on cost) of the total value of the materials in the project in MR Credit 4.

Rapidly Renewable Materials (1 point)

SS
WE
EA
MR **CREDIT 6**
IEQ
ID

The foam core in Metl-Span Insulated Metal Wall Panels and CFR Roof Panels contains a component that contributes to one point for using rapidly renewable building materials and products (made from plants that are typically harvested within a ten-year cycle or shorter) for 2.5% of the total value of all building materials and products used in the project (based on cost) in MR Credit 6.

METL-SPAN® ENVIRONMENTALLY SMART

Low-Emitting Materials: Adhesives and Sealants (1 point)

All adhesives and sealants must comply with the standards of the South Coast Air Quality Management District, Rule #1168. For architectural sealants, the VOC maximum limit is 250 grams/liter. The sealants supplied with Metl-Span® Insulated Metal Wall Panels, ThermalSafe® Fire-Resistive Panels and CFR Roof Panels have VOC contents below the maximum limit, contributing to one point for all adhesives and sealants used on the interior of the building complying with stated standards in IEQ Credit 4.1.

SS
WE
EA
MR
IEQ CREDIT 4.1
ID

Daylight & Views-Daylight (1 point)

The use of the fully integrated Metl-Vision™ Window System with horizontal Metl-Span Insulated Metal Wall Panels can significantly contribute to points for demonstrating that a minimum daylight illumination level of 25 footcandles has been achieved in a minimum of 75% of the regularly occupied area in IEQ Credit 8.1.

SS
WE
EA
MR
IEQ CREDIT 8.1
ID

Minimum Energy Performance (REQUIRED)

Metl-Span Insulated Metal Panels will contribute to higher energy efficiency of a building that must comply with a 10% improvement in the performance compared to benchmark rating based on ASHRAE/IESNA Standard 90.1-2007 (with errata but without addenda) in EA Prerequisite 2.

SS
WE
EA PREREQ 2
MR
IEQ
ID

Optimize Energy Performance (1-19 points)

Metl-Span Insulated Metal Panels have been independently tested using the ASTM C1363 Hot Box method for thermal transmittance. The results meet or surpass the minimums outlined in the ASHRAE/IESNA Standard 90.1-2007. Using Metl-Span Insulated Metal Panels will considerably contribute to points for the building demonstrating a percentage improvement in the proposed building performance rating compared to the baseline performance rating by a whole building project simulation in EA Credit 1.

SS
WE
EA CREDIT 1
MR
IEQ
ID

On-Site Renewable Energy (1-7points)

The use of Metl-Span CFR Insul-Solar™ roof panels creates a source of on-site renewable energy that will offset a portion of a building's energy cost. The energy produced by the renewable system must be expressed as a percentage of the building's annual energy cost calculated using the ASHRAE/IESNA Standard 90.1-2007 or the U.S. Department of Energy's Commercial Buildings Energy Consumption Survey database as outlined in EA Credit 2.

SS
WE
EA CREDIT 2
MR
IEQ
ID

Water Efficient Landscaping (2-4 points)

Metl-Span CFR Insulated Metal Roof Panels, integrated into a building's rainwater harvesting system, can contribute to a point for reducing potable water consumption for irrigation by 50% from a calculated mid-summer baseline case or using captured rainwater for non-potable uses for irrigation in WE Credit 1.

SS
WE CREDIT 1
EA
MR
IEQ
ID

Innovative Wastewater Technologies (2 points)

Metl-Span CFR Insulated Metal Roof Panels, integrated into a building's rainwater harvesting system, can help to reduce potable water used for building sewage conveyance by 50% as described in WE Credit 2.

SS
WE CREDIT 2
EA
MR
IEQ
ID

Water Use Reduction (2-4 points)

Metl-Span CFR Insulated Metal Roof Panels, integrated into a building's rainwater harvesting system, can contribute to points for employing a strategy that in aggregate uses at least 20% less water than the water use baseline calculated for the building (not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements in WE Credit 3.

SS
WE CREDIT 3
EA
MR
IEQ
ID

Innovation in Design (1-5 points)

Metl-Span® Insulated Metal Wall Panels, ThermalSafe® Fire-Resistive Panels, CFR Roof Panels and/or the Metl-Vision™ Window System integrated into a building's overall design can contribute to points if the building's design team applies strategies or measures that demonstrate performanace above the requirements in categories and /or innovative performance not specifically adddressed by LEED® in ID Credits 1.1 to 1.4.

SS
WE
EA
MR
IEQ
ID CREDIT 1.1 to 1.4

PANEL CORE & STEEL FACES

VOC (Volatile Organic Compound)

Metl-Span Insulated Metal Wall Panels, CFR Insulated Metal Roof Panels and ThermalSafe® Fire-Resistive Panels contain no VOCs and do not contribute to smog. Metl-Span butyl sealing tape contains no VOCs. Tube sealant is available that is VOC compliant and HAPs free (hazardous air pollutant).

ODP (Ozone Depleting Potential)

HFC-134a and HFC-245fa as well as Metl-Span's mineral wool core have zero ODP and have no EPA limits for its use today and into the future.

GWP (Global Warming Potential)

HFC-134a and HFC-245fa have a small aggregate *radiative forcing impact* and have no EPA limits on their use today and into the future. Metl-Span's mineral wool core does not add to global warming potential.

Recycled Content of Steel Faces

Total recycled content of 31.0%
Post-Consumer recycled content of 23.0%
Pre-Consumer recycled content of 7.3%

R-Values with Air Films for Metl-Span Panels

	75° Mean	40° Mean
2" Panel	15.14	17.03
2 1/2" Panel	18.71	21.29
2 3/4" Panel	20.49	23.42
3" Panel	22.27	25.55

	75° Mean	40° Mean
4" Panel	29.42	34.06
5" Panel	36.56	42.58
6" Panel	43.71	51.09

R-Values include the air films on each side of the panel.

75° Mean based on ASTM C-518 Thermal Testing. 40° Mean based on ASTM C-1363 Thermal Testing (Values for C-1363 based on 4" panel testing. All values for other thicknesses extrapolated.).

The R-value of the polyurethane core used in Metl-Span Insulated Metal Panels provides the highest insulating value per inch thickness of any building material available today.

LEGEND

SS = SUSTAINABLE SITES

WE = WATER EFFICIENCY

EA = ENERGY & ATMOSPHERE

MR = MATERIALS & RESOURCES

IEQ = INDOOR ENVIRONMENTAL QUALITY

ID = INNOVATION IN DESIGN

METL SPAN®
A BlueScope Steel Company

Exterior Color Reflectivity and Emissivity Values

	Initial Reflectivity	Initial Emissivity	Solar Reflectance Index
Available Standard Exterior Colors			
PVDF POLAR WHITE	.65	.86	78
SP POLAR WHITE	.59	.85	69
SANDSTONE	.51	.85	69
REGAL GRAY	.44	.84	48
DESERT BEIGE	.35	.86	37
Cool SCULPTURE BRONZE	.31	.87	32
Premium I Exterior Colors			
Cool BRICK RED	.34	.85	35
Cool ZINC GRAY	.39	.85	30
Cool BRIGHT RED	.41	.86	44
Cool PARCHMENT	.53	.83	60
Cool TERRA-COTTA	.36	.86	38
Cool WEATHERED COPPER	.32	.86	33
EMPIRE BLUE	.26	.85	23
AEGEAN BLUE	.29	.85	28
REGAL BLUE	.26	.86	27
POCONO BLUE	.25	.84	23
Cool TAHOE BLUE	.29	.85	25
SPRINGFIELD GREEN	.25	.85	23
HEMLOCK GREEN	.26	.88	26
Cool NOBLE GREEN	.26	.88	26
Cool ACADIAN GREEN	.34	.88	36
Premium II Metallic & Pearlescent Exterior Colors			
Cool ZINC METALLIC	.32	.89	34
Cool COPPER PENNY	.43	.85	47
Cool METALLIC SILVER	.49	.88	56
Cool METALLIC CHAMPAGNE	.45	.85	50
Cool WEATHERED ZINC	.30	.81	50

ENERGY STAR REQUIREMENT: Initial Reflectivity of .65 Low Slope & .25 Steep Slope
LEED-NC v.3 (SS 7.2): Minimum SRI of 78 Low Slope & 29 Steep Slope
Contact Metl-Span® for information regarding 3-Year Solar Reflective Exposure for all exterior colors.

Energy Star®

Metl-Span CFR Insulated Metal Roof Panels are Energy Star labeled with unpainted Galvalume® exterior face.

Initial Reflectivity	3-Year Aged Reflectivity
.68	.55

Cool Roof Rating Council (CRRC)

Metl-Span CFR Insulated Metal Roof Panels with a Regal White Fluropon® exterior skin are listed in the CRRC directory and meet the prescriptive definition of "cool" roofing for low-sloped roofing applications under Title 24, Part 6 of the 2005 California Energy Code.

	Initial Reflectivity	Initial Emissivity
TITLE 24 REQUIREMENTS	.70	.75
REGAL WHITE FLUOROPON®*	.70	.85

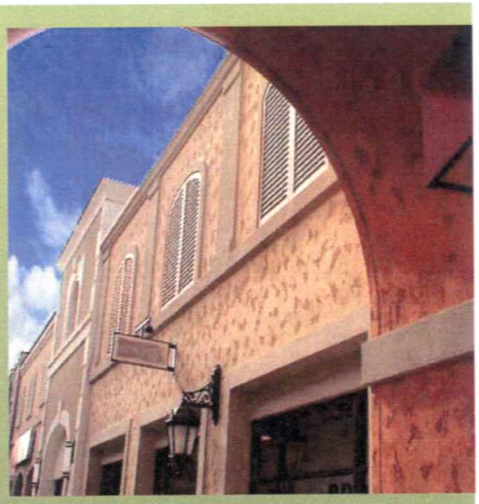
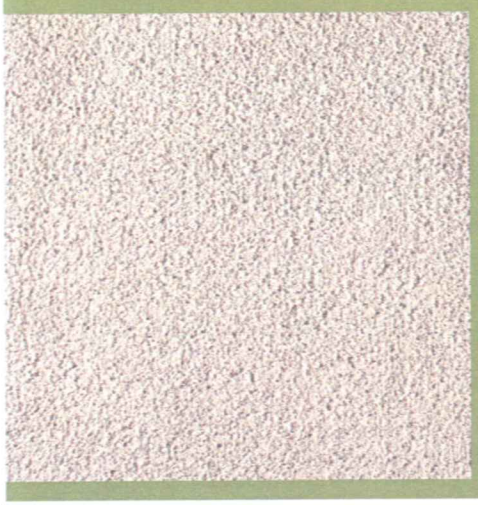
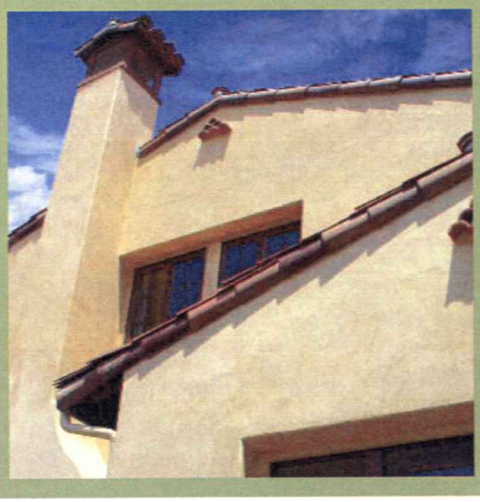
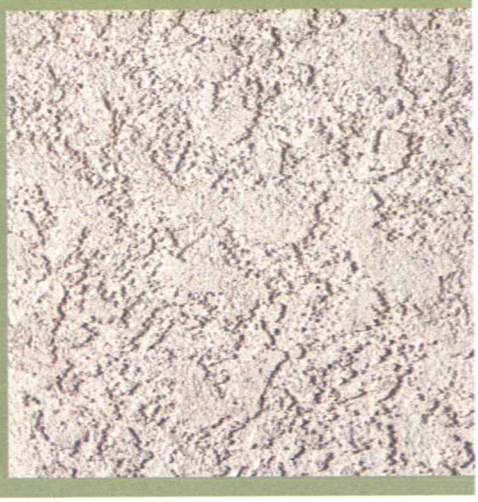
* AS RATED BY CRRC

For complete information about Metl-Span Products, consult metlspan.com.

METL SPAN®
A BlueScope Steel Company

Where environmental responsibility
meets **product superiority**



GX^2 *Premium Exterior Stucco*

GX^2 Premium Exterior Stucco is Expo Stucco Products' newest arrival. GX^2 incorporates 10% post-consumer recycled content and is 90% sourced within 500 miles, which qualifies it for LEED points. This environmentally friendly product provides 25% more coverage than traditional stucco and also comes in a light weight bag. It is available in a variety of textures and colors.

minimum **10%** post-consumer content

As a member of the United States Green Building Council, we are proud to offer a product that will benefit future generations.

helping build better communities

For more information contact Tim Green
tgreen@expoind.com or (858) 518-7027

Expo Stucco Products

Expo GX²
Premium Exterior Stucco

DESCRIPTION

USE:
Provides a lasting durable color finish for exterior walls and ceilings over hand or machine applied portland cement plaster and a permanent base for subsequent applications of exterior stucco wall and ceiling finishes.

COVERAGE:
One 69 pound sack covers from 15 to 18 square yards at 1/8 inch nominal thickness, depending upon the type of texture and the condition of the substrate.

COMPOSITION:
Expo GX2 Premium Exterior Stucco is a mechanically blended compound of portland cement, hydrated lime, inert aggregates, pigment, proprietary additives and a minimum of 10% Post Consumer Recycled Content, packed in sealed, water- resistant multi-wall bags.

ADVANTAGES:
Uniform, maintenance-free color does not need painting and can be applied in a variety of textures. GX2 is 25% lighter than traditional stucco finishes. Downstream potential savings include increased productivity, freight and fuel savings. GX2 incorporates post consumer recycled content replacing the use of non renewable natural resources. 90% of raw materials used in GX2 Premium Exterior Stucco are sourced within 500 miles. GX2 Qualifies for LEED points in the recycled content and product sourcing categories.

COLOR:
Available in integrally mixed stucco pigment or as Expo Box Color System. Expo offers a wide variety of standard colors with custom colors available upon request.

SHELF LIFE:
Three (3) months if kept in dry condition.

JOB PROCEDURE

SUBSTRATE:

HAND APPLICATION OVER PORTLAND CEMENT BASE:
Uniformly spray the base coat with clean water prior to the application of exterior color coat in order to control and equalize water absorption and for optimum uniformity.

MACHINE APPLICATION OVER PORTLAND CEMENT BASE:
Base coat should be dry. (It is not necessary or desirable to dampen basecoat before applying finish by machine).

MIXING:
Power mix with clean water for at least 15 minutes. Use within one hour after mixing.

EXPO STUCCO

GX² Premium Exterior Stucco

a green product

GX² Premium Exterior Stucco is Expo Stucco's newest arrival. GX² incorporates 10% post-consumer recycled content. This environmentally friendly product provides 25% more coverage than traditional stucco and also comes in a lightweight bag. It is available in a variety of textures and colors.

- Qualifies for LEED points in two areas
- 10% Post-Consumer Recycle content
- Regional materials - 90% sourced within 500 miles
- Recycled content replaces non-renewable natural resources (aggregates)
- Lightweight, 26% lighter than traditional stucco
- Fuel and freight savings, trucks can carry 26% more product per load
- Bags weigh 69 pounds vs. 90 pounds
- Less fatigue on labor force
- Less chance of back injury
- Increased productivity
- Increase spread yield up to 25%
- Less land fill from empty bags

LIGHTWEIGHT GLASS

U.S. GREEN BUILDING COUNCIL MEMBER

Minimum 10%
post-consumer content

Where environmental responsibility ***meets*** product superiority

EXPO STUCCO
7455 Carroll Road
San Diego, CA 92121

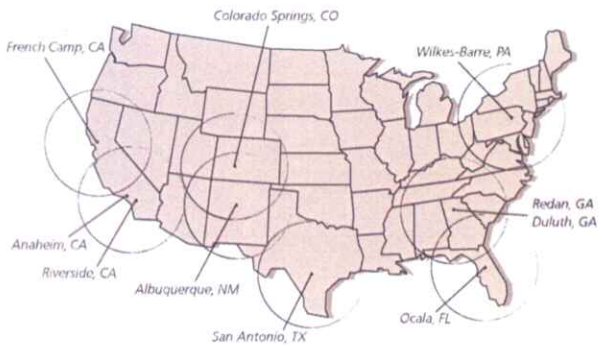
(858) 566-3110
www.expostucco.com

Helping Build Better Communities

LEED and GREEN as Specific to Home Building

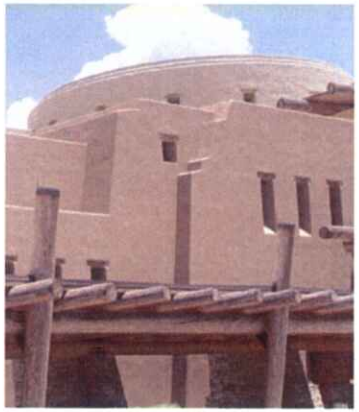
We have manufacturing facilities across the United States to ensure prompt delivery of locally manufactured products. In addition, we have a complete line of products including traditional cement based finishes, EIFS, stucco, weather barriers, air barriers, and coatings. With ParexLahabra you have a single source manufacturer from start to finish.

- Regional Materials and Manufacturing Sites
- Use of Recycle Content in Materials and Packaging
- Optimize Energy Performance
- Material Selection and Resource Efficiency
- Low Maintenance
- True SUSTAINABLE Construction Material-Long Material Life Span
- Responsible Global Impact



Area within 500 miles of manufacturing: LEED MR 5.1, 5.2

Our responsibility to future generations and concern for the planet is clear. We all must seek and adopt smarter methods of sustainable construction. ParexLahabra is the largest stucco manufacturer in the USA, operating manufacturing facilities across the country. ParexLahabra is part of a global family of companies committed to quality and industry leading technological innovations as well as conscientious environmental responsibility.



ParexLahabra®

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French Camp, CA 95231
Phone: 209-983-8808
Fax: 209-983-8873

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Redan, GA 30074
Phone: (770) 482-7872
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San Antonio
220 Burleson
San Antonio, TX 78202
Phone: (210) 472-2935
Fax: (210) 472-2946

Colorado Springs
3225 S. Drennan Industrial Loop
Colorado Springs, CO 80910
Phone: (719) 392-9003
Fax: (719) 392-6346

Albuquerque Plant
4100½ Broadway SE
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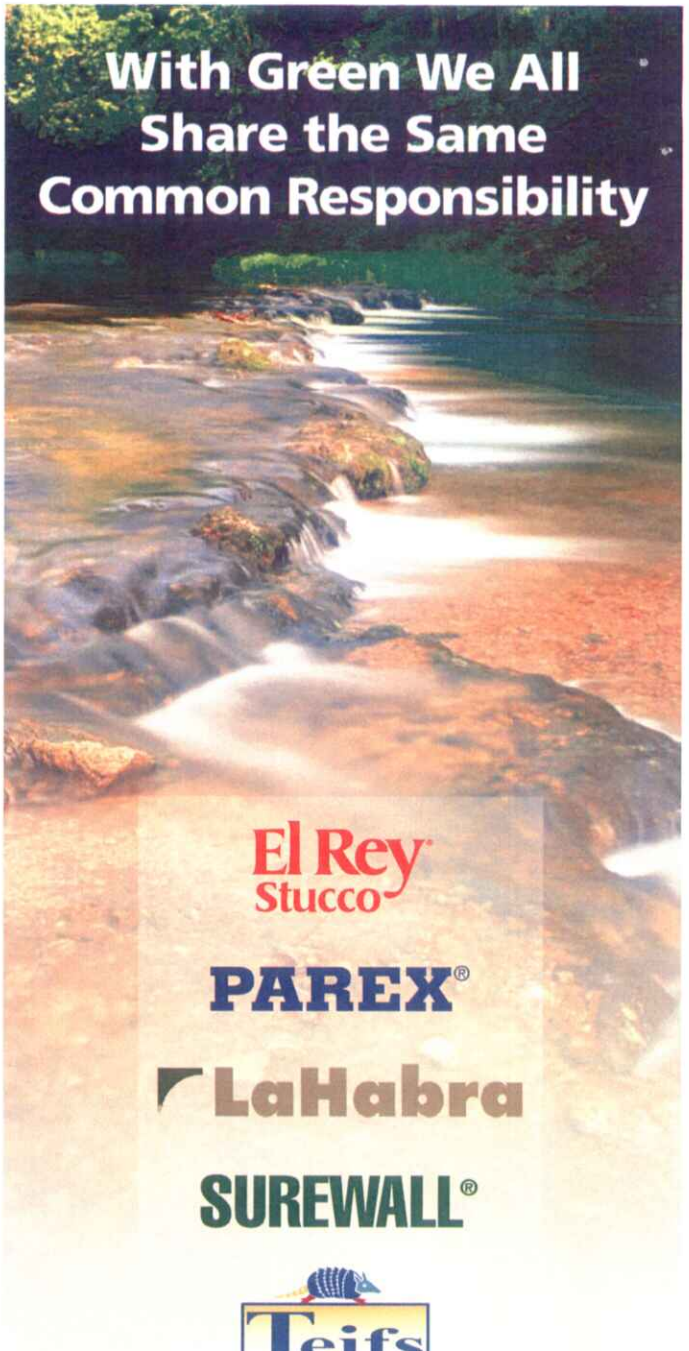
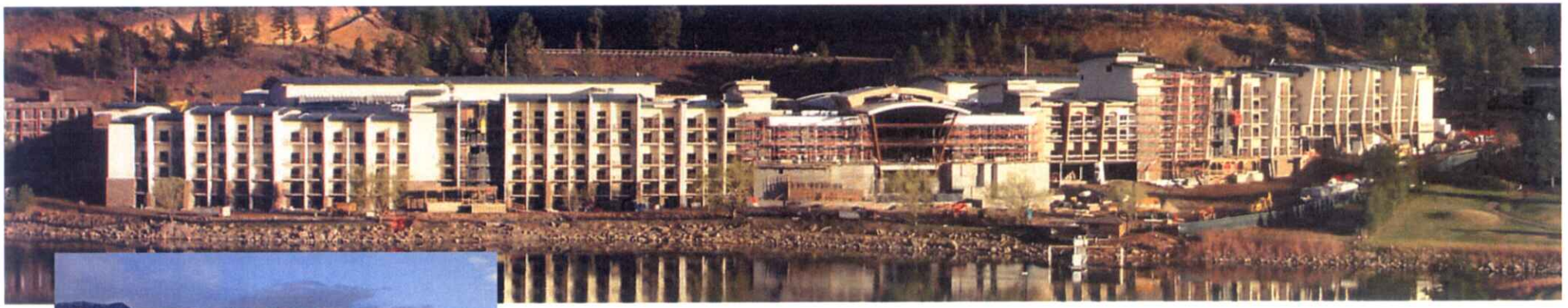
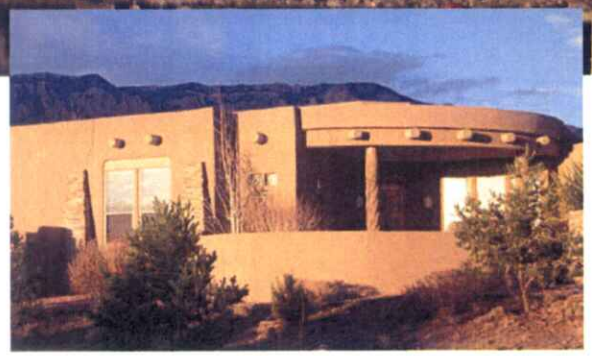


Brands of ParexLahabra





Defining LEED

LEED (Leadership in Energy and Environmental Design) is the US Green Building Council's (USGBC) rating system. LEED is a voluntary and consensus-based national standard for developing high performance, sustainable new buildings based on accepted energy and environmental principles. LEED certification for any new construction project acknowledges those projects that have shown their commitment to sustainability. You can explore LEED requirements in greater detail at www.usgbc.org.

LEED and ParexLahabra

ParexLahabra is an innovative and responsible manufacturer of exterior wall claddings. We sell our stucco and EIFS products through 5 brands: Parex, Surewall, TEIFS, El Rey and LaHabra.

Design and construction professionals need to find ways in which to qualify projects for LEED certification. Here is how ParexLahabra products can enable design and construction professionals to earn LEED points (in Green Building Rating System for New Construction & Major Renovations, Version 2.2) in the following categories:

Energy & Atmosphere, Materials & Resources and Indoor Environmental Air Quality

Energy & Atmosphere (Category total of 17 LEED points)

ParexLahabra's El Rey, TEIFS, Parex and Surewall brands provide EIFS to ensure that your project will optimize its energy performance while reducing energy loss. For example, ParexLahabra brands offer levels of EIFS and accessories that provide not only superior insulation, but also minimize problems associated with moisture intrusion and air movement that can directly affect energy costs. ParexLahabra brands and products can help contribute to earning points associated with LEED Optimize Energy Performance [EA Credit 1].

Materials & Resources (Category total of 13 LEED points)

ParexLahabra materials are manufactured in 7 regional manufacturing locations (Riverside, CA; French Camp, CA; Colorado Springs, CO; Redan, GA; Albuquerque, NM; San Antonio, TX; and Wilkes Barre, PA) sourcing local raw materials (extracted regionally). This can help contribute to a project earning LEED Regional Materials [MR Credits 5.1 and 5.2] points.

Locally sourced sand used with our field sanded stucco bases qualifies for LEED credit. Metal stucco lath and building paper, used as wall assembly components in stucco claddings, typically include post consumer recycled content that qualifies for LEED credits [MR Credits 4.1 and 4.2]. Contact the suppliers of these materials for further information.

Indoor Environmental Air Quality (Category total of 15 LEED points)

The coatings and finishes that we make have low VOC content, with VOC emissions that fall well below the limits established by Green Seal Standard GS11. They can help designers gain LEED Environmental Quality credits [EQ Credit 4.2]

The following matrix stipulates how each ParexLahabra brand/product can contribute to LEED points:[1]

Brand and Product Type	Product	LEED Section Category	LEED Credit Category	LEED Point Contribution Range
Parex EIFS	Standard, Water Master™	Optimize Energy Performance Regional Materials[2]	EA Credit 1 MR 5.1, 5.2	1-10 1-2
Parex Basecoats	210 One Coat, Fiber-47™	Regional Materials[2]	MR 5.1, 5.2	1-2
Surewall EIFS	Standard, Drainage	Optimize Energy Performance Regional Materials[2]	EA Credit 1 MR 5.1, 5.2	1-10 1-2
El Rey EIFS	Insul-Flex® Standard, Insul-Flex® VR Drainage	Optimize Energy Performance Regional Materials[2]	EA Credit 1 MR 5.1, 5.2	1-10 1-2
El Rey Basecoats	FastWall® One Coat, Fiber-47™	Recycled Content[3] Regional Materials[2]	MR 4.1, 4.2 MR 5.1, 5.2	1-2 1-2
LaHabra Basecoats	LaHabra Wall® BasiC926	Regional Materials[2]	MR 5.1, 5.2	1-2
LaHabra Finishes	Exterior Stucco Color Coat	Regional Materials[2]	MR 5.1, 5.2	1-2
TEIFS	EIFS	Optimize Energy	EA 5.1, 5.2	1-10 1-2
All Brands	All Finishes	Low VOC	EQ 4.2	1

Contact ParexLahabra for more information regarding LEED. See how we can help with earning LEED credits!

1 ParexLahabra products only contribute to these LEED points, along with the project's other supplied products. This chart does not guarantee nor imply that ParexLahabra products/brands alone can earn all LEED points.

2 Presumes that the project site is within 500 miles of where product is manufactured/harvested/extracted/recovered.

3 Product contains a certain percentage by weight of recycled material that can contribute to earning LEED point(s).

Other:

DECKS & FENCING / SHADING / ALTERNATIVE ENERGY SOURCES

The materials presented in this Appendix section are pre-approved for use by the City of San Gabriel.

The criteria for each material or system selected is:

- That it is environmentally sustainable, with recyclability and recycled content, renewability, energy extended for manufacturing, transportation and erection, air quality, and the installed energy savings as a part of the selection
- That it is a material or system of quality, substance, and has the ability to last many years
- That the materials are appropriate in form, color, and texture to the style of architecture they are being applied to.

Materials not contained within this list may be reviewed by the city and approved for use based on this criteria.

Note that buildings registered as historic, or buildings located in designated historic districts, or which in the opinion of the City of San Gabriel are deemed to have historic value, are not permitted to use substitute or imitation materials, such as may be described in this list. Authentic materials shall be used, except under extraordinary circumstances as reviewed by staff and approved by the City Design Review Commission, and only because the original building material and/or construction technique cannot be properly supplied or replicated.

Fence, Railing & Decking

Understanding the role of CertainTeed Fence/Railing/Decking in meeting Green Building Standards

CertainTeed supports sustainable building and manufacturing practices with our comprehensive line of environmentally friendly fence, railing and decking products. CertainTeed fence, railing and decking is 99% recyclable and does not require chemical treatment or painting. Our composite railing is made of 40-75% recycled material, and our vinyl products contain at least 10% internally recycled material. In addition, CertainTeed fence, railing and deck products feature a long life span and low maintenance, which helps to conserve natural resources.

Green Facts:

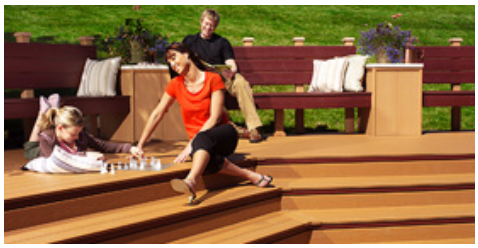
- CertainTeed fence, railing and decking products are 99% recyclable.
- Our composite railing is made of 40-75% recycled material.
- Our vinyl fence, railing and decking products contain at least 10% internally recycled materials.
- CertainTeed's vinyl fence, railing and decking products feature a minimum 30-year product life and low maintenance.
- CertainTeed's composite products feature a minimum 25-year product life and low maintenance.
- None of our fence, railing and decking products require chemical treatment or painting.
- All CertainTeed fence, railing and decking products are non-porous, and will not develop mold or rot.
- Our fence, railing and decking manufacturing facility in Buffalo, New York, is built on a brownfield site and uses 100% hydropower.
- The Buffalo plant uses a closed loop water system that saves more than 372,000,000 gallons of water per year. Water used in the manufacturing process is self-contained and re-used; it is not released into the environment.
- CertainTeed has a strong recycling program that includes cardboard, paper, oil, metals (i.e., steel and aluminum), plastics and wood.

Collapse Facts

LEED Credits – Fence, Railing & Decking

LEED_H CREDITS (Based on LEED-H January 2008)	Possible Points
Materials & Resources	
Environmentally Preferable Products (credit 2.2/Environmentally Preferable Materials): Use products that are environmentally preferable.	0.5

LEED-NC CREDITS (Based on LEED-NC Version 3)	Possible Points
Materials & Resources	
Recycled Content (credit 4): Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% or 20% (based on cost) of the total value of the materials in the project.	1-2



Request a Product Brochure! Email to a Friend

Product Information
- Decking
- Railing System
- Docks & Marinas
- Decking Accessories
- Colors & Texture
- Product Warranty
- Product FAQ's
- Technical Information
- Spacing Calculator

CorrectDeck CX Decking

CorrectDeck CX

CorrectDeck CX features enhanced anti-microbial protection that adds resistance to mold and mildew for ultra-low maintenance. Its co-extruded top layer fully encases the exposed wood fibers on the top and sides of each board providing added resistance to color fade and staining.

WHY CHOOSE CORRECTDECK CX OVER ALL OTHER DECKING?
STRENGTH. PERFORMANCE. AESTHETICS.

- Tougher plastic, to withstand more use and abuse
- Built-in resistance to staining, fading, mold & mildew
- We have rich colors that last, a deeply embossed woodgrain, and offer a unique hidden fastening system
- No exposed wood fibers

View Product Colors	Download Product Brochure
Watch Video	Comparison Chart

Stain Resistant:
There's protection from all kinds of grease and environmental stains.

Fade Resistant:
We've concentrated UV inhibitors close to the surface for maximum color retention.

Mold Resistant:
Antimicrobial product protection provides an added layer of defense against a deck's worst enemies.

A Guide to Ultra-Low Maintenance Decking

Martin Grohman
Correct Building Products, LLC

CORRECT
BUILDING PRODUCTS LLC®

Correctbp.com

INTRODUCTION

Composite decking has been around for many years now, but the old problems of stains, color fade, and mold & mildew growth still persist. Consumer demand for solutions to these common problems led to the development of a new generation of high performance decking. CorrectDeck CX was introduced in 2005 and was the first composite decking to address the growing ultra-low maintenance decking marketplace.

As deck owners have become aware of the advantages of ultra-low maintenance decking, this category has started to expand to meet market demand. There have been recent additions to this field, primarily deck boards composed of vinyl/PVC that are trying to compete as ultra-low maintenance.

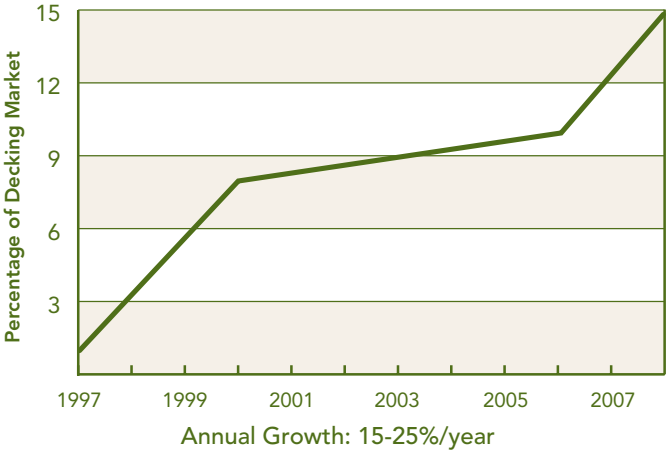
In this white paper, we'll review recent history of the composite decking market, discuss the properties that ultra-low maintenance decking materials should have, and evaluate tests of CorrectDeck CX versus recent vinyl/PVC competitors.

THE EVOLUTION OF THE DECKING MARKET:

Pressure treated wood was the start of the decking market years ago, with the advent of CCA (chromated copper arsenate) preservatives. However, even chemically treated wood has many properties that do not lend themselves to a long lasting, attractive deck. These drawbacks of required annual upkeep, splitting, cupping, and warping (not to mention the use of heavy metals) opened the door for alternate materials to gain market share.

Wood Polymer Composites (WPCs) were introduced as a sustainable, higher performing option to wood, and have been gaining market share steadily over the past ten years.

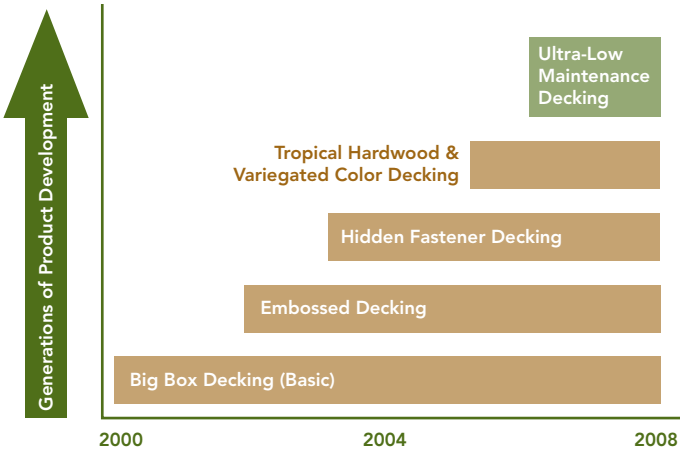
GROWTH OF THE COMPOSITE DECKING MARKET



Conventional wisdom has been that the composite decking market will consolidate, as the more than 70 producers sell, close, or buy each other. There just isn't room in the marketplace for that many brands, and the sheer volume of products has made choosing a composite decking product difficult.

However, an interesting trend is developing as well—the market is fragmenting to serve smaller niches, with a variety of looks, fastener systems, and material types finding a market.

There are at least five distinct niches within the composite decking market: big-box decking, embossed decking, hidden fastener decking, tropical hardwood & variegated color decking, and ultra-low maintenance decking.



One of the most interesting niches, and the most advanced in terms of product development, is the ultra-low maintenance decking segment. Ultra-low maintenance composite decking is defined as material that comes as close to maintenance-free as possible, striving to meet the expectations of the most demanding decking consumer.

This consumer has very high expectations of composite decking—essentially, one expects an easy to clean material that will go on looking good for a very long time with little-to-no upkeep, looks like wood, but doesn't contain any potentially harmful chemicals or splinters. That is the expectation that built the composite decking business.

This high expectation presents an opportunity—the opportunity to meet it. And this expectation is what led to the development of the ultra-low maintenance composite decking category, and the introduction of CorrectDeck CX.

Decking in this category includes some kind of additive, extrusion, or material technology (or perhaps all three) to resist the common offenders and biggest sources of complaints: grease stains, mildew spots, and color fade. Generally it does not have any exposed natural fiber, or any other material whose properties and durability might be unpredictable or hard to control.

WHAT IS ULTRA-LOW MAINTENANCE?

To aid in understanding the ultra-low maintenance category, we have listed the properties we believe the materials should be evaluated against:

Stain Resistance: Outdoor living provides countless staining opportunities; food and condiments, greases, muddy paws, lawn chemicals, or natural organics from leaves. The harder it is to stain your deck, the less cleaning it will require.

Exposed wood (or other organic) fibers can allow stains to penetrate the decking material, and can be difficult to clean. CorrectDeck CX utilizes a tough co-extruded top layer that does not leave any exposed fibers. This layer, combined with a stain resistant additive, forms a practically impenetrable barrier that helps CorrectDeck CX boards resist stains.

Fade Resistance: Your deck exists in the sun, and UV rays can damage many materials. Your deck should be designed to minimize fading of its color.

Color consistency is difficult with recycled plastics, but CorrectDeck CX solves this problem by capping the recycled wood fiber and plastic substrate with a patented co-extrusion process which reduces or eliminates fading, improves color retention, and dramatically improves lot-to-lot color consistency.

Mold/Mildew Resistance: Mold and mildew are huge challenges for outdoor materials, especially on decks, where pollen and pollutants collect and water can sit for long periods of time.

In addition to its wipe clean surface, CorrectDeck CX is the only decking product that features Microban® antimicrobial product protection that inhibits the growth of mold and mildew for ultra-low maintenance.

Eco-Optimized: We believe that any building product being designed today should keep an eye towards the environment, be sustainable, and recyclable.

Most high-end decking products use fewer recycled ingredients than their low-end counterparts. This is because the use of recycled plastics introduces opportunities for color variation that the high-end consumer will not tolerate.

Unique among top-end decking products, CorrectDeck CX contains our highest level of recycled raw materials. We are able to achieve this due to our co-extrusion process, which fuses a high-performance surface layer of new plastic to the structural substrate.

Additionally, we have addressed cradle-to-cradle considerations in the development of CorrectDeck CX in the following ways:

- All of our materials are labeled with their resource content, which facilitates recycling
- We are always developing our network of composite decking recycling bins, which are intended to provide opportunity for recycling jobsite scrap (end cuts, etc.)

Easy Installation: An ultra-low maintenance decking product should reduce visible fasteners both for aesthetics and ease of installation, and to reduce the chances of collecting debris and dirt.

Only CorrectDeck CX can boast an ultra-low maintenance decking product with an easy to use hidden fastener system, The Fastenator®.

High Impact Resistance: Your deck will see traffic from people and things like lawn furniture, grills, and sporting equipment. Impact resistance ensures that daily wear doesn't mean premature deck repairs.

CorrectDeck CX has been designed with a hardwood fiber and polypropylene core that is structurally stiff, dense and resistant to impact. The core of cellular PVC decking products is created by a foaming process that generates air bubbles to expand the core. This type of core can dent and crush relatively easily when impacted.

TESTING[1]

Having defined our parameters for ultra-low maintenance decking, we tested CorrectDeck CX against a leading vinyl/PVC competitor using ASTM (American Society for Testing and Materials) standards to accurately compare test results.

Chart 1: Testing according to ASTM D6109 for Flexure. This chart shows the relative stiffness of CorrectDeck CX as compared to PVC decking at different temperatures.
What it means: Code sets a minimum limit of 175,000 psi for decking set at 16" o.c. The PVC decking tested fails this minimum at approximately 77 degrees F.

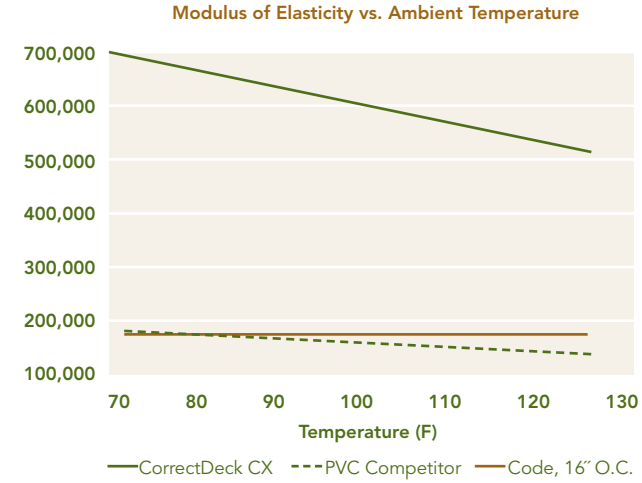


Chart 2: Testing according to ASTM D4060 for Abrasion Resistance. This chart shows how much material is removed from the decking over the course of multiple "scuffs".
What it means: CorrectDeck CX is roughly twice as tough against wear as the PVC decking.

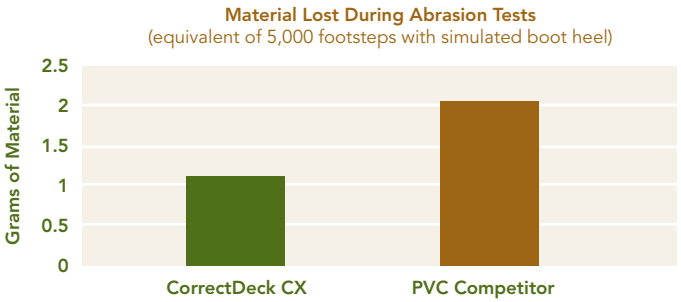
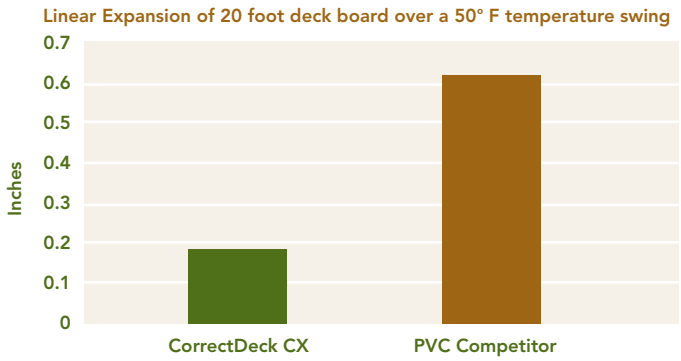


Chart 3: Testing according to ASTM D696 for Coefficient of Thermal Expansion. This chart shows how much longer a twenty foot section of decking would get over a temperature increase of 50 degrees F.
What it means: PVC is prone to lengthening as it gets hot, and shrinking as it cools. A PVC board that was cool in the morning could be 5/8" longer in the evening after it has been lying in the hot sun all day. The CorrectDeck CX board would be just over 1/8" longer.



CONCLUSIONS

Ultra-low maintenance decking is the fastest growing segment of the outdoor living market. There are finally products that live up to customer expectations, and deliver high performing exterior spaces while reducing maintenance and environmental impact.

When choosing a deck, there are many factors to consider, and our testing shows that CorrectDeck CX outperforms any material currently available in the ultra-low maintenance decking category while maximizing sustainability.

Greater Strength: Based on ASTM D6109 testing CorrectDeck CX is more than 3 times stronger than typical PVC based decking products. This makes CorrectDeck CX significantly firmer underfoot, and eliminates the "trampoline effect" that is present with PVC decking materials.

Further, many PVC products require additional framing materials, such as being framed 8" on-center to receive code approval on stair applications.

Abrasion Resistance: Based on ASTM D4060 testing, CorrectDeck CX is roughly twice as tough against wear as PVC decking.

Available Colors: CorrectDeck CX's co-extruded top layer incorporates UV inhibitors to resist fading from the sun's rays, and was designed to incorporate a wide range of both dark and light colors not possible with thermally sensitive PVC. CorrectDeck CX is currently available in 8 different colors.

Sustainable Solution: CorrectDeck CX is composed of 80% recycled material (hardwood fiber and polypropylene), is labeled for recycling, and can generate up to 3 LEED points if an under-deck drainage system is used.

PVC-Free: Our CorrectDeck CX composite decking is 100% PVC-Free. CorrectDeck CX is a 100% polypropylene and recycled hardwood fiber composite which delivers ultra-low maintenance without vinyl.

Mold & Mildew Resistance: CX features a special co-extruded coating that has Microban® antimicrobial protection to repel stains, mold and mildew.

Time on the Market: Unlike the newer PVC based decking materials, CorrectDeck's composite product has been on the market since 1999.

Why PVC-Free is important to Correct Building Products:

PVC, or polyvinyl chloride, commonly known as vinyl, is a plastic commonly used in consumer products including building supplies, cars, toys and other goods. Correct Building Products has never used PVC in any of its products, including the ultra-low maintenance CorrectDeck CX.

WHY PVC-FREE:

U6iiiiiVVi
stream—it should be separated. However, there is currently no infrastructure to recycle PVC in most municipalities.
U6'V'LiLiiii'Vi
content in order to aid in cradle-to-cradle recycling, but most are not.
U6Viiii'ViVi
environment when burned.
U6iiViiVLi'iv
dark colors.
ULViV'fi
Honda, Target, Sears, Nike, and Herman Miller are phasing out PVC due to the above concerns.

If you do choose a PVC product, please consider the proper disposal of jobsite scrap and do not allow it to be burned on your jobsite.

[1] ***Testing References:*** *All tests performed at University of Maine Advanced Engineered Wood Composites Center using ASTM standards.*

LEED Credits – Fence, Railing & Decking

LEED_H CREDITS (Based on LEED-H January 2008)	Possible Points
Materials & Resources	
Environmentally Preferable Products (credit 2.2/Environmentally Preferable Materials): Use products that are environmentally preferable.	0.5

LEED-NC CREDITS (Based on LEED-NC Version 3)	Possible Points
Materials & Resources	
Recycled Content (credit 4): Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the pre-consumer content constitutes at least 10% or 20% (based on cost) of the total value of the materials in the project.	1-2

Print preview

In harmony with the environment

Decades before today´s "green" movement, Glen Raven, Inc. committed to exceeding industry benchmarks for environmental stewardship. Through ongoing initiatives with our vendors, trade partners and customers, we will stay in the forefront of protecting our environment. Below are some of the ways Glen Raven continues to protect air, earth and water while producing quality, high-performance textiles.

Sunbrella® offers recycling service for customers.

The Recycle My Sunbrella program reclaims pre- and post-consumer Sunbrella waste and re-purposes it for incorporation into a variety of recycled products.

Sunbrella creates no wastewater from dyeing.

Sunbrella fabric's unique coloring process avoids harmful effluents associated with conventional dyeing processes. It also dramatically reduces water and energy consumption.

Sunbrella fabrics are extremely durable.

Sunbrella fabrics are engineered for a serviceable lifespan two to ten times longer than conventional fabrics. The impact of producing cotton canvas, for example, must be multiplied many times to compare it with Sunbrella's extended longevity.

Sunbrella fabrics offer significant sun protection.

The Skin Cancer Foundation recommends Sunbrella* as an aid in the prevention of sun-induced damage to the skin. Please use shading products featuring Sunbrella as a part of your complete sun protection regimen, including regular use of sunscreen.

* Does not apply to styles of Sunbrella that are designed for transparency, such as Sunbrella Sheers.

Fabric awnings reduce energy consumption.

A recent study by the University of Minnesota illustrated that awnings made of fabric reduce home cooling energy consumption by 10% to 60% and peak cooling loads by as much as 40%, depending on geographic location. Cooling requires less energy because the awning's shade prevents the sun's heat from entering the home through windows.

Sunbrella furniture fabrics are GREENGUARD certified for indoor air quality.

Sunbrella furniture fabrics are certified by the GREENGUARD® Institute's Children and Schools standard as contributing to healthy indoor air by being a very low emitting interior product.

Click here to download the Environmental Statement (PDF)

1831 North Park Avenue, Glen Raven, NC 27217-1100 USA

Designers and Installers of
Photovoltaic Systems in the greater Los Angeles Area

In today's climate of growing energy needs and increasing environmental concerns, millions of homeowners and businesses are seeking alternatives to the use of non-renewable and polluting fossil fuels. One such alternative is Solar Energy - Solar Power.

Some Californians are turning to solar power to protect themselves from the types of blackouts that resulted from California's recent energy disaster. Others, frustrated by the prospect of forever being at the mercy of local and state utility providers are anxious to enjoy energy autonomy and are realizing how quickly an investment in a solar system will pay off as energy rates rise at a meteoric pace.

Of all the energy sources available, solar has perhaps the most promise. Technically, the sun is capable of producing the raw power required to satisfy the energy needs of every human being on earth. Environmentally, it is the least destructive of all possible sources of energy. Practically, it can be adjusted to power nearly everything. For these reasons, solar power is clearly the energy resource of the future.

News & Events

AbsolutelySolar will be at the 5th Annual 2008 Alternative Building and Design Expo at the Santa Monica Civic Auditorium on April 25th and 26th... Read More

AbsolutelySolar will be at the Green Living Expo at the LA Convention Center April 12th and 13th... Read More

Solar Santa Monica is proud to announce that it has selected AbsolutelySolar as one of four "Package Providers"... Read More (PDF, 540K)

In August of 2006, the **Los Angeles Department of Water and Power (LADWP)** initiated an incentive program to help promote solar power by making solar systems more affordable... Read More

The California Energy Commission (CEC) recently approved rebates ranging from $2.60 per watt to $4 per watt, or 50 percent off the system purchase price... Read More

We prefer to work with professional material from the industry's leading manufacturers such as

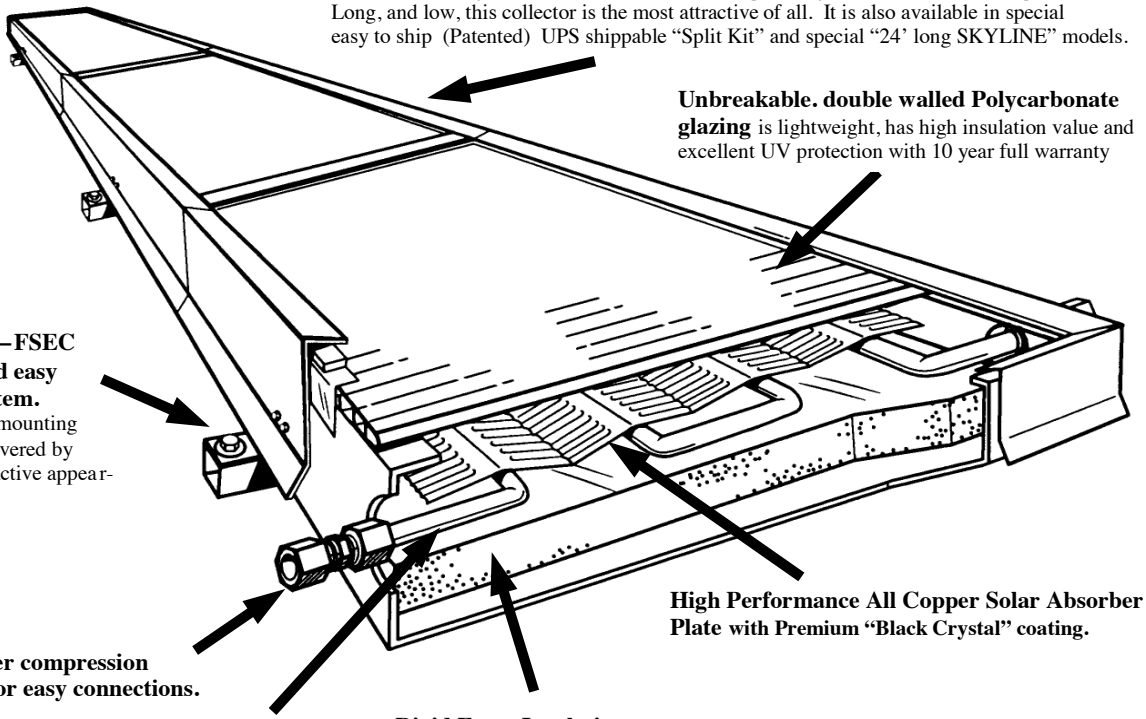
SUNPOWER

Frequently Asked Questions

How Does Solar Power Work?
Benefits of Solar Energy
What is the Cost?
Company Information

About AbsolutelySolar
Renewable Energy Services
Testimonials

SolarRoofs "Skyline" 10-01 and 20-01 Solar Collectors: These rugged, powerful 10 and 20 Square foot collectors weigh only 19 and 38 pounds. They are easy to carry by one person and are much safer to get on the roof to install. They are available in architectural colors and have an attractive appearance on the roof. No soldering is required to install the collector (s).



Architecturally Attractive Collector Designed by an Award Winning Inventor. Long, and low, this collector is the most attractive of all. It is also available in special easy to ship (Patented) UPS shippable "Split Kit" and special "24' long SKYLINE" models.

Unbreakable. double walled Polycarbonate glazing is lightweight, has high insulation value and excellent UV protection with 10 year full warranty

150 MPH—FSEC wind tested easy mount system. Easy install mounting bracket is covered by trim for attractive appearance.

High Performance All Copper Solar Absorber Plate with Premium "Black Crystal" coating.

No Solder compression unions for easy connections.

Patented "Floating Fin" prevents damage by allowing the tube to disappear into the collector during shipment.

Rigid Foam Insulation, Aluminum foil faced, glass reinforced, Polyisocyanurate, 1" on the bottom and 1/2" on the sides provides quality heat retention.

COLLECTOR SPECIFICATIONS:

Trim & Frame Materials:	Finished 27 mil Aluminum Trim and Frame = Total 54 mil (1.37 mm)
Absorber Material:	"Black Crystal" or Black Chrome coated absorber with all copper 1/2" od tube
Glazing:	Twinwall Polycarbonate UV Treated .236" (6.0 mm)
Dimension / Weight:	72" / 144.1"x 20"x 3" 19 / 38 lb = 1.9 lb. s/f (3.67 m x 0.51 m x 0.076 m 17.24 Kg) 18.4 net s/f (1.71 m^2)
Recommended Flow Rate:	.20 to .6 GPM
Maximum Working Pressure:	150 PSI (10.21 atm) Maximum Stagnation Temp: 250 °F (121.11 °C).
Heat Transfer Fluid:	Potable water or Propylene glycol - Fluid Capacity: 10-01 = .15 gal. / 20-01 = .3 gal.
Standard Components:	Mounting Ell brackets with tech screws and 2 1 1/4" washers.
Color:	Standard: Musket Brown or Dove Gray. Optional trim colors are available.

SolarRoofs 20-01 SRCC OG 100 Collector Rating:

COLLECTOR THERMAL PERFORMANCE RATING

SOLAR COLLECTOR CERTIFICATION AND RATING

SRCC OG-100

CERTIFIED SOLAR COLLECTOR

SUPPLIER: **ACR Solar International**
5840 Gibbons Dr.
Suite G
Carmichael, CA 95608

MODEL: Fireball Fireball 2001
COLLECTOR TYPE: Glazed Flat-Plate
CERTIFICATION #: 100-2001-002A

	Thousands of Btu Per Panel Per Day		
CATEGORY (Ti-Ta)	CLEAR DAY 2000 Btu/ft^2-d	MILDLY CLOUDY 1500 Btu/ft^2-d	CLOUDY DAY 1000 Btu/ft^2-d
A (-9 °F)	23	17	12
B (9 °F)	20	15	9
C (36 °F)	17	11	6
D (90 °F)	10	6	1
E (144 °F)	6	2	

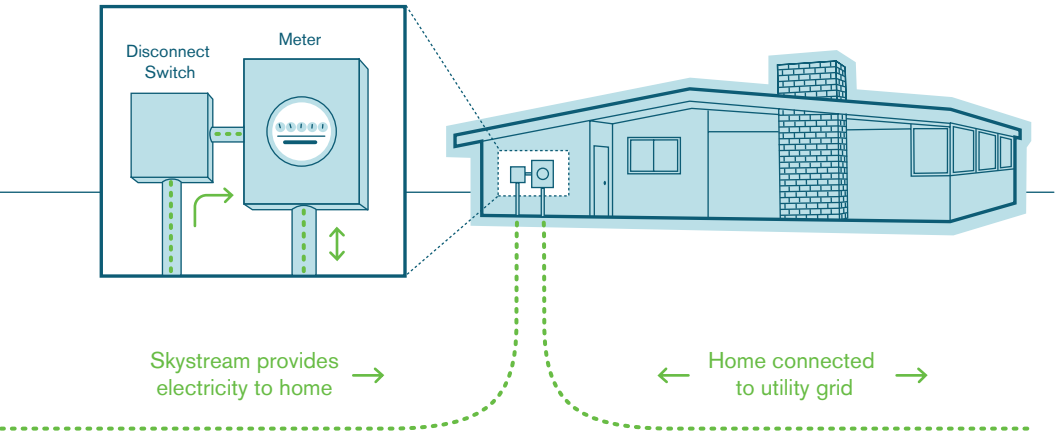
Web: www.SolarRoofs.com Email: richsolar@aol.com Phone: (916) 481-7200
Fax: (916) 481-7203 Address: 5840 Gibbons Drive Suite G, Carmichael CA 95608

SKYSTREAM 3.7®

2.4 KW DISTRIBUTED WIND ENERGY SYSTEM

Produce electricity in your own backyard.

MADE IN THE USA



Will Skystream Work For You?

Our goal from the start was to make the free energy in the wind accessible to more people than ever before. Skystream's compact design and high-efficiency energy production has opened up that opportunity to millions of homes around the world. If your site fits the following criteria, chances are Skystream will work for you:

- At least 10 mph (4.5 m/s) average wind speed. Best results at 12 mph (5.4 m/s) or more*
- Your property is at least 0.5 acre (0.2 hectare) and has unobstructed views
- The local zoning allows a structure that is at least 52 ft (16 m) tall
- Your local utility has an existing interconnection agreement for homeowners (Your local Skystream dealer can help determine this)

* Visit www.skystreamenergy.com for wind maps for your area, or consult your local Skystream dealer.