

# Eagle Green

Solar solutions and energy saving roofing



*Saving money and the environment. Eagle Understands. That's what makes us different.*



# Eagle Roofing Products. The Company of Choice.



## American Made. American Owned.

Eagle Roofing Products is a division of Burlingame Industries, a California based privately held, family-owned organization that has been in the roofing industry for over 40 years. From these family roots, our business philosophy and vision have blossomed. Eagle began operations in the fall of 1989 with one high-pressure concrete tile extrusion machine. Today, Eagle operates concrete tile and lightweight synthetic roofing material plants across the country. With this expansion, however, Eagle's goal remains the same—providing superior customer service and innovative roofing products to each of our valued customers, large and small.

Eagle Roofing Products wants to be the company of choice for:

- Our team members and their families
- Our customers and their customers
- Our suppliers

## The Eagle Way.

Over the years, Eagle has grown due to a philosophy that revolves around growing personal relationships. Our vision starts with our

employees and is reflected in our relationships with our customers and our business partners. Having built a reputation as the preferred company to do business with, we listen to our customers and react quickly to satisfy their needs. Each and every person in our company is a Customer Service Representative—from field personnel, to our Order and Shipping departments, to our experienced manufacturing staff—each team member performs with the singular goal of customer satisfaction.

Eagle's long experience in the roof tile industry and dedication to prompt personal response to its customers' needs have resulted in a well-deserved reputation for quality and service—a reputation that is unmatched. Eagle is customer service.

## Eagle is Choices.

No other roofing material manufacturer offers the range of styles and colors that Eagle offers. Options. Eagle has them, and they give you the ability to differentiate your projects while increasing their value. From concrete roof tile to lightweight synthetic wood shakes, Eagle has developed regionally specific product lines with the help of professional colorists who understand industry trends.

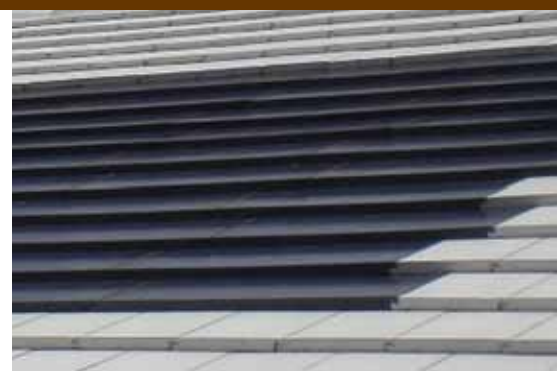
Quality starts with the people who founded the company.



Selection of premium raw materials is essential to guaranteeing a quality concrete roof tile.



Eagle's efforts to offer innovative products have resulted in the Eagle Solar Roof and Eagle Energy Saving Roof.



1989

1998

1999

2000

2004

*Eagle Roofing Products is founded by Burlingame Industries. Eagle's Rialto, California Plant opens servicing all of California, Arizona and Nevada.*

*The Irvine, California Design Center opens. It is the first of its kind in the tile roofing industry.*

*Additional production lines are added to the Rialto plant providing the capacity to produce tile for over 83,000 homes per year.*

*Eagle's first Phoenix, Arizona plant opens servicing the Southwest, Texas and the Great Plains areas. A second plant opens in 2004 adding the capacity to protect over 83,000 homes per year.*

*Eagle's Stockton, California plant opens with the capacity to produce enough tile to protect 60,000 homes per year. Northern California and the Pacific Northwest areas are covered.*

# Why Eagle Green?



- Energy-efficient, environmentally responsible products and processes
- Reduce waste and preserve needed resources
- Differentiate your homes, buildings and neighborhoods

## Eagle Solar Roof

- Solar System Design and Permit Packages from Eagle
- Federal, state and utility rebates and incentives available
- Net-of-Rebate Pricing:
  - Eagle discounts state/utility rebates up-front where applicable
  - Eagle takes care of rebate paperwork
- Most advanced "Solar Tile" on the market fits with Eagle roof tiles
  - Integrates seamlessly with Flat and S-tile roofs
- Maintain roof warranty with qualified installers
- 25-year Power Output Warranty
- Rack-mounted panels for flat and non-tile roofs
- Harness clean electricity from the sun

## Cool Roof Tile

- ENERGY STAR approved products
- Cool Roof Rating Council approved products
- Can help projects Qualify for LEED®
- Wide selection of colors available

## Energy Saving Roof

- Installation method that allows for tile space ventilation
- Reduces heat transfer into home thereby reducing cooling costs
- Helps to cool solar panels for optimal performance

## Eagle Manufacturing Process

- Recycling, re-use and energy conservation at all Eagle plants
- Purchase energy efficient equipment
- Reduce haul-off from all facilities

**Eagle Roofing Products. The company of choice.**

Eagle Design Centers are located throughout the United States to make your tile selection an easy process.

Another innovative product, CE DUR, a lightweight shake replacement product.



The Eagle Solar Roof creates clean energy from the sun.

Eagle's Cool Roof Tile is ENERGY STAR rated.

Eagle is serious about recycling at our plants.



2005

2006

2007

2008

*The Roseville, California Design Center opens to serve Northern California customers.*

*Eagle's Sumterville, Florida plant opens servicing Florida and the Southeast, and is capable of producing enough tile to protect 60,000 homes per year. Eagle's Phoenix, Arizona Design Center opens.*

*The Boca Raton and Orlando, Florida Design Centers open; they are the first facilities of this kind in the Florida market. Eagle enters the solar energy business.*

*The Clearwater, Florida Design Center opens to serve Northern Florida customers. EagleTech plant opens in Rialto, California producing a very lightweight alternative roofing material. Eagle appointed distributor of SolarBlend™ from Suntech in the U.S., Canada and Mexico.*

# Table of Contents

## Eagle Green Program and Products

- Eagle Solar Roof, ENERGY STAR approved Cool Roof Tile, the Energy Saving Roof, environmentally friendly manufacturing
- Provide environmentally responsible and energy saving products to our builders, contractors, distributors and homeowners
- Eagle also offers durable, beautiful concrete tile and lightweight roofing materials
- Eagle provides superior customer service



## Residential Solar Services Page 7

- Engineering, roof layout, rebate paperwork processing
- Net-of-rebate pricing (where applicable)
- For tract homes, custom homes or retrofit applications



## Eagle Solar Roof with SolarBlend™ from Suntech Page 9

- Safe, quiet, beautiful and environmentally responsible energy production
- Integrates seamlessly with Eagle concrete roof tile
- Maintains the aesthetics of the roof and helps to maintain the integrity of the roof system



## Eagle Solar Roof with BlackLabel Modules Page 18

- Specifically designed to blend with asphalt shingles
- Black solar cells, black backing and black aluminum frame



## Commercial Solar Services Page 19

- Engineering and design packages
- Rebate paperwork processing
- Access to PPA financing

## Eagle Solar Roof Rack-Mounted Solar Page 21

- Designed and engineered for large and small commercial applications
- Excellent efficiency to maximize payback



## Cool Roof Tile Page 26

- Cool Roof Tile colors available for reroof and new construction projects
- Approved by the Cool Roof Rating Council
- Approved by ENERGY STAR
- Help a project qualify for green building requirements, like LEED®
- Provide cost savings benefits for owners and help protect the environment



## Energy Saving Roof Page 30

- Combines the inherent insulating properties of Eagle concrete tile with an installation method that allows for ventilation between the tile and the roof deck
- Less heat transfer into the attic and therefore into the home
- Air conditioning use is curtailed resulting in lower energy bills



## Eagle's Complete Roofing System Page 31

- Create a superior roof by incorporating the Eagle Solar Roof along with Cool Roof Tile and the Energy Saving Roof
- Create a roof that produces clean energy, reflects heat away from the home, and allows for tile space ventilation that reduces energy consumed for cooling the home

## Environmentally Responsible Manufacturing Page 32

- Eagle is serious about environmentally responsible manufacturing
- Eagle makes a concerted effort to reduce haul-off from all of its plants
- Eagle purchases the most energy efficient and environmentally safe equipment it can find



## Green Building Agencies

There are many green building programs and agencies in existence across the country, several of the most influential are presented here.

### Leadership in Energy and Environmental Design (LEED®)

#### Page 34

- Provides a set of guidelines for the creation of buildings and residences that are kind to the environment and beneficial to their inhabitants.
- From reducing heat islands to improving indoor air quality, LEED approved projects strive to implement a comprehensive set of sustainable green building practices (Source: [www.usgbc.org](http://www.usgbc.org))



### ENERGY STAR Page 35

- ENERGY STAR approved products save money by using less energy
- They are beneficial to the environment in terms of reducing the amount of smog inducing chemicals in the air and helping to reduce heat islands. (Source: [www.energystar.gov](http://www.energystar.gov))



### Cool Roof Rating Council (CRRC) Page 36

- The CRRC has established a rating system that details the solar reflectance and material emittance for roofing products
- The goal of CRRC approved products is to improve energy efficiency of the buildings they cover while positively impacting the environment (Source: [www.coolroof.org](http://www.coolroof.org))



### NAHB Model Green Home Building Guidelines Page 36

- Guidelines created to provide a manual for building single family homes that protect the environment while seeing to the comfort of the inhabitants



### National Green Building Standard Page 36

- Joint standard of The National Association of Home Builders (NAHB) and International Code Council (ICC)
- Created to provide green guidelines for building single and multifamily homes, for residential remodeling and for site development
- Developed in compliance with the American National Standards Institute (ANSI), these guidelines are nationally applicable, but allow for regional differentiation

### California's Title 24 Page 38

- Energy Efficiency Standards for Residential and Nonresidential Buildings
- The main goal is to reduce energy consumption of these buildings (Source: [www.energy.ca.gov/title24/](http://www.energy.ca.gov/title24/))

### GreenPoint Rated Page 38

- A third party rating system based on the Green Building Guidelines
- From water efficient landscaping to durable roofing products to on-site electricity generation,
- The goal is to guide the design of energy and resource efficient homes in the state of California ([www.builditgreen.org](http://www.builditgreen.org))



### California Green Builder Page 39

- A voluntary partnership program between builders and city governments
- The goal is to build affordable, energy efficient homes
- Homeowners benefit from lower energy costs and the knowledge that their home was built to preserve nature's resources ([www.cagreenbuilder.org](http://www.cagreenbuilder.org))



### Eagle Solar Roof Case Studies Page 43

- The Gatsby at Hollywood includes the Eagle Solar Roof as a major part of its green townhomes
- The daVinci Arts Middle School chooses the Eagle Solar Roof to contribute to LEED certification

“According to a survey conducted by the National Association of Home Builders and McGraw-Hill Construction, 85% of homeowners said they were more satisfied with their new green homes than with their previous, traditionally-built homes... nearly 50% of those surveyed said that concern for the environment was a reason to buy a green home...63% stated lower operating and maintenance costs motivated their purchases.”

Source: "How to Differentiate Yourself with Earth Friendly Green Products", Ingrid Weir

# Eagle Solar Roof

## The Power of the Sun

Thinking of investing in a roof top solar system for your home or business? With tax credits and grants, utility rebates and the decreasing cost of solar products, now is an ideal time. In addition to financial incentives, choosing solar for electricity production makes sense—especially when you consider the power of the sun compared to our energy needs.

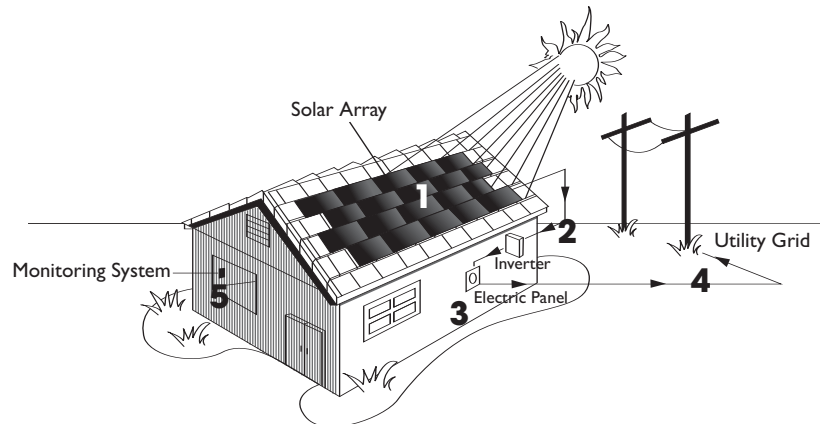
- The average price of electricity in the U.S. has quadrupled in the past 30 years due in large part to the expense of finding and processing fossil fuels.
- Only 20 days of sunshine produce an amount of energy equivalent to all of the energy produced by all the Earth's supply of coal, oil and natural gas.
- Solar energy can be produced anywhere the sun shines and can be transformed into usable power on-site.
- On average, 16 million tons of carbon dioxide are emitted into the atmosphere every 24 hours by human use worldwide. (Source: U.S. Department of Energy)
- Each square meter of the Earth's surface can collect the approximate equivalent of 1 barrel of oil per year.

## Net Metering

### Sell by day. Buy by night.

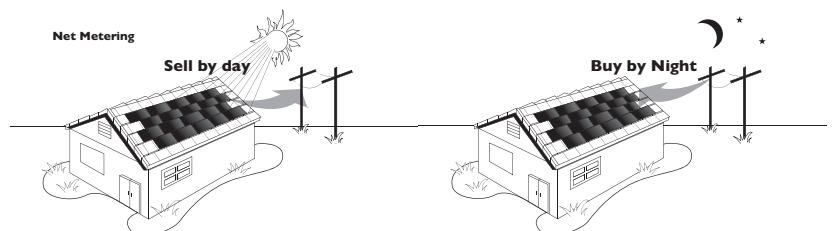
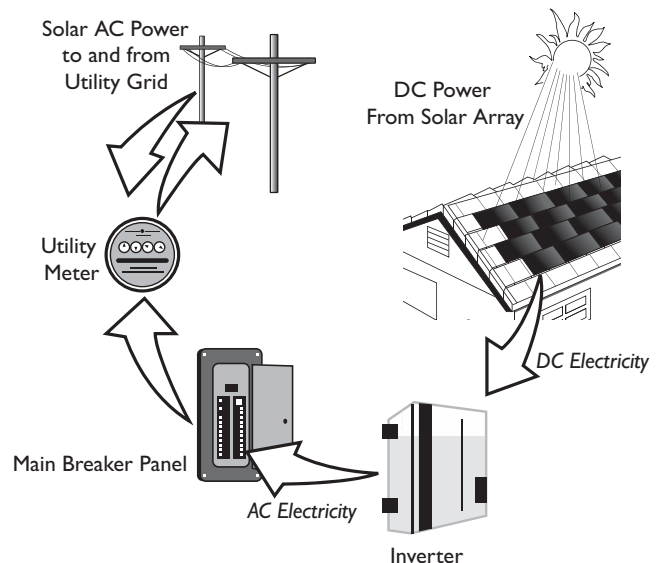
Your utility will credit you for the excess energy that your solar system produces. You may actually be able to watch your meter turn backwards during the day. During the night, when your solar system is not producing electricity, your meter will run forwards because you are drawing energy from the utility grid. Your system can be sized so that your annual electricity usage through your utility can net out to zero. However, many homeowners choose to install a system that prevents usage of electricity at the highest rates thereby greatly reducing their bill instead of eliminating it entirely. Your meter's movement backwards and forwards tracks your production and consumption of energy.

## Sunlight to Energy



1. The sun's light produces energy that is collected by the solar system.
2. The energy collected is channeled to the inverter.
3. The inverter changes the DC electricity to AC electricity for household use.
4. AC electricity not used by the house is fed into the grid.
5. System performance can be monitored over the internet.

## NET METERING



## Factors Affecting System Performance

### Location

Knowing what factors affect your solar system performance will help you to create the right system for your area and your home or business. The important thing to know is that all areas can benefit from a solar system. You simply need to adjust your system size to account for the following factors.

### Geography

- Lower latitudes increase solar energy output
- Your latitude will determine the best roof pitch for your home to achieve the highest energy output from your solar system

### Weather

- Clear sunny skies increase solar energy output

### Orientation of Solar Panels

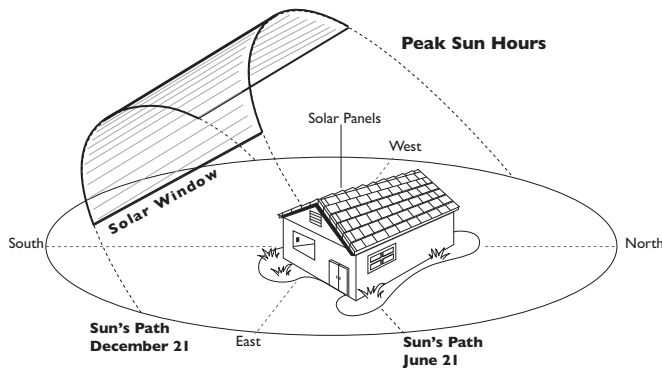
- Solar panels should face south for highest energy output
- East and west facing arrays are also acceptable

### Absence of Shade

- Solar panels should not be shaded by trees, neighboring buildings, etc

### Time of Day

- There is an optimal solar window every day. It is during this window that your solar system will produce the most energy.



## Rebates & Incentives

Federal, state and utility rebates and incentives are available for almost all areas.

### Federal Rebates & Incentives

For both new construction and existing homes, a 30% federal tax credit is available for residential solar systems. A 30% federal grant is also available for commercial solar systems. Visit [www.irs.gov](http://www.irs.gov) or contact [solar@eagleroofting.com](mailto:solar@eagleroofting.com) for more information.

### State Rebates and Incentives

State rebates and incentives vary greatly and can change frequently. To find the most up to date information about solar rebates and incentives in your area, please visit the Database of State Incentives for Renewable Energy at [www.dsireusa.org](http://www.dsireusa.org), or contact [solar@eagleroofting.com](mailto:solar@eagleroofting.com)

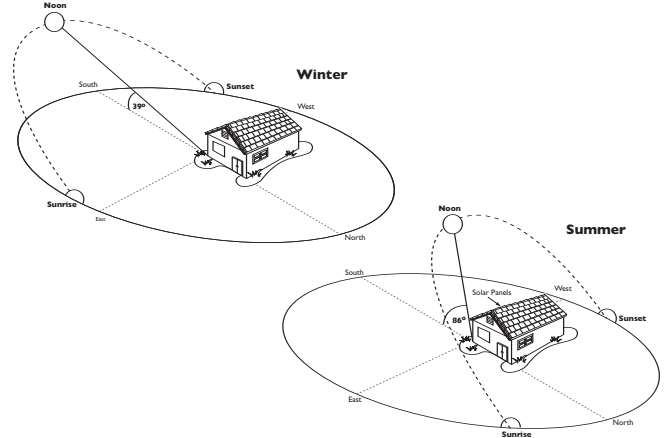
### Utility Company Rebates & Incentives

Many utility companies offer rebates and incentives for solar systems used in residential applications. It is best to check with your local utility company to determine what is available to you.

### Time of Year

- Because the sun is higher in the sky during the summer months compared to the winter months, the solar system produces more energy during the summer.

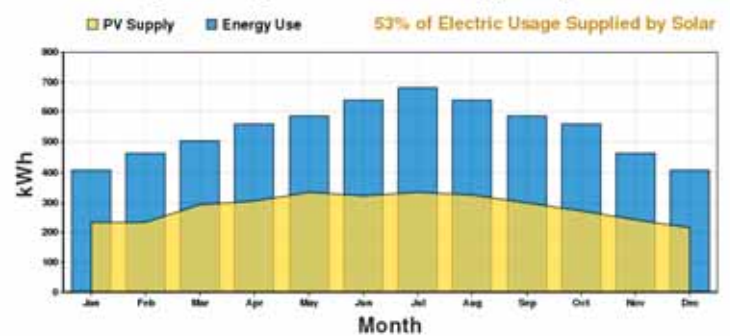
(Illustrations depict summer sun position versus winter sun position for a home at a latitude of 28°.)



## Energy Savings Example

The graph below compares a home's energy use against the estimated amount of energy produced by a 2.312 kW DC solar system. As the graph illustrates, the Eagle Solar Roof can produce 53% of the electricity used in the home.

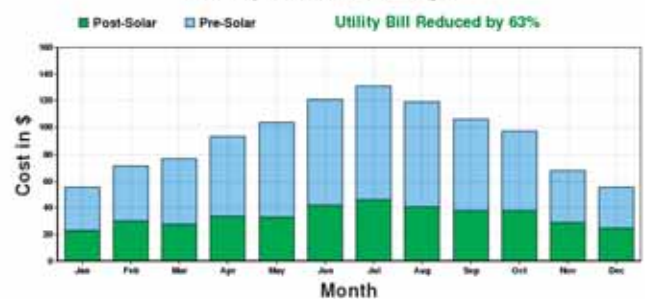
### Monthly Electricity Use and Amount Supplied by Solar



Assumptions: Post-Solar Electric Rate Schedule for San Diego Gas & Electric (SDGE) is Residential Electric - Coastal (Rate Code: DR) Annual utility inflation: 5.50% (assumed). Energy Bill Savings are actual, without any tax effects applied.

The estimated monthly electric bill savings provided by a 2.312 kW DC solar system is shown in the graph below. Comparing pre-solar bills to estimated post-solar bills shows the possibility of a 63% reduction in energy costs due to the solar system.

### Monthly Electric Bill Savings

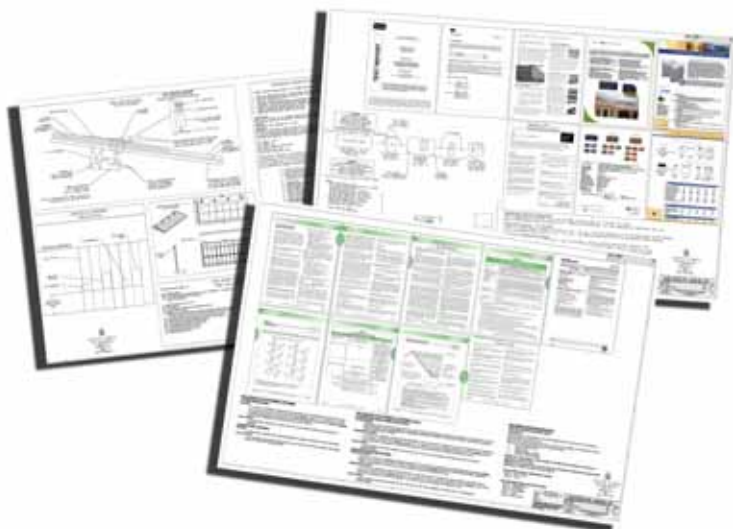


# Residential Solar Services

Eagle understands the process for designing, purchasing and installing a residential solar system is daunting. That's why we have experienced professionals who work with you and your solar installer to provide a truly turn-key solar solution whether you are an owner, builder, roofer, or architect.

## Design & Engineering

Eagle's professional Design and Engineering Team creates complete Building Permit packages that include electrical line diagrams and roof layout plans—everything necessary for submittal to the local building department.



## Rebate Paperwork

As allowed by your state and/or utility, dedicated Eagle Rebate Processors will collect the appropriate information and submit the appropriate forms to state, utility and other authorities to ensure rebates are received for your solar installation.



## Net-of-Rebate Price

By discounting the rebate, Eagle helps our valued customers financially in the acquisition of solar systems where rebates are re-assignable to a third party. You won't need to wait months to realize your rebate savings. Eagle will deduct the expected rebate from your system cost up front, and Eagle will wait for rebate reimbursement from the state or utility so that you don't have to. Rebates can be substantial and Eagle wants to financially support our valued customers in the acquisition of clean, safe and environmentally responsible solar systems.

## Solar Product Options

Building Integrated Photovoltaics (BIPV) or traditional rack-mounted panels are the product options that Eagle offers to ensure your solar system suits your needs, desires and pocketbook. From BIPV solar panels that integrate into Eagle's concrete roof tile to rack-mounted panels that can be installed over any roofing material, we design the right Eagle Solar Roof for your home or development. All of our solar products come with 25 year warranties backed by strong manufacturers who take pride in producing quality photovoltaic modules.



The panels alone don't create energy your home can use without the inverters which change the DC electricity generated by your panels into AC electricity used by your home.

Eagle has partnered with PV Powered to offer a variety of inverters to fit your specific solar system. PV Powered inverters come with an industry leading 10 year warranty and are manufactured to last for years with a minimal number of internal parts that can be easily replaced if repair is required, instead of necessitating the replacement of the entire inverter as is the case with competing brands.





Monitoring the success of your solar system helps you to understand the financial and environmental impact of your investment. Eagle offers 10 years of free internet monitoring on all residential solar systems. Upgraded monitoring systems are also available; please ask your representative for more details.



If you've chosen a BIPV solar system, Eagle can also provide you with a complete roof system that includes our Cool Roof Tile and Energy Saving Roof systems. This complete roof system allows for your roof



and solar array to perform optimally by reducing heat transfer into the home and helping to maintain the ideal operating temperature for the solar panels to keep them producing energy efficiently. Please see page 34 of this brochure for more information on Eagle's Complete Roof System.

### Free Installation Training

Training roofers, solar integrators and electricians in the proper installation of Eagle's BIPV and traditional rack-mounted solar systems is essential to ensure that homeowners are provided with properly and efficiently installed solar roofs. Free training courses are offered regularly around the country. These day long courses culminate with exams that test the knowledge acquired during the day. Those who pass the exams are ready to sell and install solar systems; those who do not are asked to retake the training course until they do pass the exam.

For homeowners looking to add solar to their new or existing homes, a simple call to Eagle will put you in touch with a solar installer who's passed the training exam. For builders who already

have roofers and electricians that they prefer to continue to use, sign your trade partners up for the next solar training by asking your local Eagle representative.

### On-Site Technical Support

Once the training courses have been taken and the exam passed, solar installers will continue to be supported during the actual installation of the solar system. Eagle's experienced Technical Team will be on-site as requested and always available for questions by phone and email.

### Sales & Marketing Support

Eagle also provides sales training for roofers and builder's sales teams as well as co-branded marketing materials for interested builders and roofers. We know how to sell and market the Eagle Solar Roof and will provide these tools to our trade partners at no charge. Please discuss the available options with your local Eagle representative.



### Contact Us for a Quote

To get started budgeting and planning your solar system, email us at [solar@eagleroofing.com](mailto:solar@eagleroofing.com) for more information.



# Eagle Solar Roofs

with SolarBlend™  
from **SUNTECH**

## Elegant, Efficient, Economical Solar Power Systems

Eagle Roofing Products is the distributor of SolarBlend™ roofing tiles in the U.S., Canada and Mexico. A Building Integrated Photovoltaic (BIPV), SolarBlend™ from Suntech is part of the Eagle Solar Roof, a solar system that maintains the aesthetics of a tile roof while generating clean, safe, efficient electricity from the sun. The Eagle Solar Roof is easy to install on residential, commercial or institutional pitched roofs and is appropriate for use in new construction or reroof.

- 25 Year power warranty
- Free internet monitoring system for 10 years
- No grounding required
- Wind rated to 80 mph with standard installation
- Most advanced building integrated photovoltaic solution available
- Beautifully and unobtrusively integrates with concrete tile roof
- Designed to help prevent leaks
- Provides quiet, safe and reliable power generation
- Significantly reduces monthly energy bill
- Lightweight and quickly installed
- Integrates with both flat and s-tiles
- Adds significant resale value to the home/building
- Protect yourself from utility cost increases
- Rest assured in your low maintenance, state-of-the-art system
- Customer service is a phone call away should you experience issues

## Environmental Responsibility

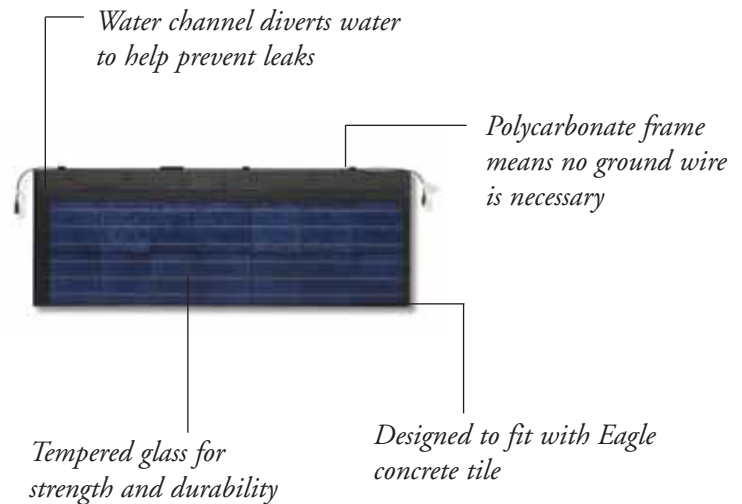
Each month, a two kilowatt solar roof can:

- Prevent 300 lbs. of coal from being mined
- Prevent 600 lbs. of CO<sub>2</sub> from entering the atmosphere
- Prevent 210 gallons of water from being consumed
- Prevents NO and SO<sub>2</sub> from being released into the environment
- Help you preserve precious resources for your grand children
- Allow you to feel good about being environmentally responsible
- Help guard against future utility price increases

Source: Solar Energy International Organization



*Integrates seamlessly with concrete roof tile.*



*"A solar electric system increases home value by \$20,000 for each \$1,000 in annual reduced operating costs, according to the Appraisal Institute. ... That is to say, if a solar system can reduce the electric bill by \$1,000 per year, the home is worth about \$20,000 more in increased appraisable value."*

*"A solar electric system compares very favorably with other home improvements in percentage of cost recovered. Often, a solar system can recover much more than 100% of its cost, and this percentage actually increases over time as electric rates rise."*

**Why Is A Solar Electric Home Worth More?**

**Andrew J. Black**

Copyright 2004, Andy Black & The American Solar Energy Society [www.ongrid.net](http://www.ongrid.net)

# Recommended Colors



Suggested Eagle roof tile colors and styles to pair with **Gray** SolarBlend™ roofing tiles.



**Gray**



Bel Air 4357 Sierra Ridge\*



Bel Air 4503 Sierra Madre



Ponderosa 5503 Sierra Madre



Bel Air 4697 Slate Range



Double Eagle Bel Air 4097 Slate Range



Golden Eagle 1699 Charcoal Range



Ponderosa 5699 Charcoal Range



Double Eagle Ponderosa 5099 Charcoal Range



American Heirloom SHE8704 Lehigh Blend

Suggested Eagle roof tile colors and styles to pair with **Terracotta** SolarBlend™ roofing tiles.



**Terracotta**



Malibu 2697 Slate Range



Capistrano 3697 Slate Range



Bel Air 4241 Sun Valley\*



Bel Air 4388 Coconut Creek\*



Bel Air 4118 Terracotta Gold\*



Capistrano SMC8404 San Juan



Bel Air 4560 Caliente



Bel Air 4598 Ocotilla



Ponderosa 5522 Terracotta Flashed



Bel Air 4520 Weathered Terracotta Flashed



Bel Air 4646 Sunset Blend



Ponderosa 5646 Sunset Blend



Bel Air 4621 Tehachapi Blend

Suggested Eagle roof tile colors and styles to pair with **Brown** SolarBlend™ roofing tiles.



**Brown**



Bel Air 4203 San Fernando\*



Bel Air 4258 Ridgecrest\*



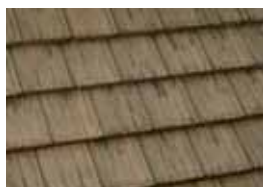
Bel Air 4159 Imperial Dunes\*



Bel Air 4794 Coronado



Bel Air 4502 Arcadia



Ponderosa 5502 Arcadia



American Heirloom SHP8705 Coastal Blend



Ponderosa 5504 New Cedar



Bel Air 4689 Brown Range



Ponderosa 5689 Brown Range



Ponderosa 5678 Light Brown Range

\*Surface colored tiles not recommended in locales subject to repeated freeze-thaw cycles.  
 Notice: To ensure your satisfaction with your tile choice, we request that you obtain an actual tile sample or samples from your roofing contractor

# SolarBlend™

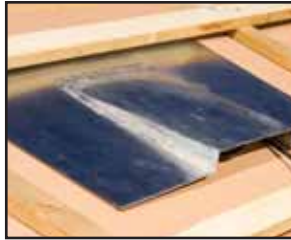
## Balance of Systems & Accessories

### INVERTERS & AC/DC DISCONNECT



PV Powered inverters provide the most reliable power generation available. Inverters change DC electricity that solar panels provide into AC electricity that your home/building will use. Backed by an industry best 10 year warranty, PV Powered Inverters have a built-in AC/DC disconnect switch.

### ROOF PENETRATION FLASHING



The home run cables will be fed through the roof deck into the attic and finally to the inverter. The hole in the roof deck must be flashed to help prevent any water from entering the attic. This roof penetration flashing is made to specifically fit with Eagle concrete roof tile.

### HOME RUN & JUMPER CABLES



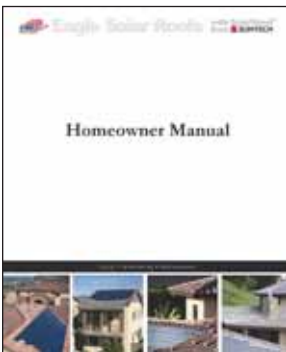
Home run cables connect strings of solar tiles to the inverter box. Jumper cables can be made in custom lengths specifically for your project.

### CAPISTRANO & MALIBU FLASHING SYSTEM



The Eagle Solar Roof can be installed on Capistrano and Malibu roofs. This can be accomplished by either installing flat tile around the solar system and transitioning to high profile tile on the adjacent roof planes or by flashing the solar system in a similar manner to a skylight. Please contact your Eagle technical representative for product and installation options.

### REQUIRED DOCUMENTATION



To help ensure a safe and proper installation and to share important information with homeowners, Installation Guides, Warning Labels and Homeowner Manuals are available.

### MONITORING SYSTEM



Monitor the performance of your Eagle Solar Roof with this easy to use monitoring system. Standard residential monitoring is free for 10 years. The monitoring system provides energy output graphs that illustrate the success of your solar roof. (Internet access not included.)

# SolarBlend™ Technical Specifications



## SolarBlend™ Roofing Tiles

### 50 Watt Panel

Product description	High efficiency crystalline Photovoltaic cells encapsulated in multi-layered lamination of glass, EVA, Tedlar and polycarbonate plastic.
Colors available	Gray, Terracotta & Brown
Installation Weight	325 lbs. per 100 sq. ft.
Applications	New construction and retrofit; residential and commercial sloped roofs
Actual Size	17" x 47" x 1.25"
Exposed Size	13.5" x 46" x 1.25"
Weight	14 lbs.
Connector Type	Multi contact M/F
Roofing Info.	Head lap: 3.5 in. Exposure: 13.5 in.
Area per kWp (AC)	100 sq. ft.
Max. Power at STC (Pmax):	50 Wp DC
Output Tolerance:	+/- 5%
Max. Power Current (Imp):	7.36 A
Max. Power Voltage (Vmp):	6.8 V dc
Short Circuit Current (Isc):	7.95 A
Open Circuit Voltage (Voc):	8.6 V
Bypass Diode:	1 per tile
Max. System Voltage	600 V dc
Operating Temperature	-40 to +85° C
Nominal Operating Cell Temperature (NOCT):	45° C +/- 2° C
Temp Coefficient of Pmax:	0.255 W/C
Temp Coefficient of Voc:	0.088 %/°C
Temp Coefficient of Isc:	-0.409 %/°C
CEC Listing	Gray: STP050D-5/ZCB, Brown: STP050D-5/ZCF, Terracotta: STP050D-5/ZCG

STC: Irradiance 1000 W/m2, Module temperature 25°C, AM=1.5

<b>PV Powered Inverters</b>	<b>PVP5200</b>	<b>PVP4800</b>	<b>PVP3500</b>	<b>PVP2500</b>
Continuous Output Power (watts)	5200	4800	3500	2500
Weighted CEC Efficiency (%)	96	96	95.5	94.5
Maximum DC Input Voltage (VOC)	500	500	500	500
DC Voltage Operating Range (V)	240-450	200-450	200-450	140-450
DC Isc Maximum Current (A)	48	48	26	26
DC Imp Nominal Current (A)	25	26	18	20
AC Nominal Voltage (V)	240	240	240	240
AC Operating Range (V)	211-264	211-264	211-264	211-264
AC Frequency Range (Hz)	59.3-60.5	59.3-60.5	59.3-60.5	59.3-60.5
AC Maximum Continuous Current (A)	23	23	15	11

**SolarBlend™ Certifications**  
Class A Fire Rated, FSEC Listed  
600 VDC, CSA certified to UL 1703

**PVP Powered Inverter Agency Approvals**  
UL 1741 Nov 2005 revision, IEEE 1547  
Compliant, FCC Class A & B

**Warranty**  
Tile Warranty: 12 years for 90% power output, 25 years for 80% power output  
Inverter Warranty: 10 years, one of the most reliable inverters available

# SolarBlend™ Special Applications

## HIGH WIND



Wind clip installation for high wind applications.



Polyfoam installations are also recommended for high wind applications.

Please note: It is the responsibility of the installer to ensure that tile and components are installed according to the appropriate roofing/building codes and best roofing practices.

## UNDER TILE VENTILATION



Installing your solar system with the Eagle Energy Saving Roof will create an air current that draws air in at the eave level and out at the ridge. This ventilation of the roof deck helps to reduce heat transfer into your attic and keeps your solar panels cool which allows them to perform optimally.

## MALIBU AND CAPISTRANO INSTALLATIONS



Special flashing techniques are required when integrating SolarBlend™ tiles into Malibu and Capistrano installations. Consult the Installation Guide or ask your sales representative for more information.



Alternately, Bel Air can be mixed with Capistrano. Capistrano can make up the majority of the field tile, while Bel Air may be installed around the solar roofing tiles.

# SolarBlend™ FAQ's



## WHAT MAINTENANCE DOES THE SYSTEM REQUIRE?

Solar systems require minimal maintenance. An annual inspection of the electrical components should be performed by an authorized installer. The Eagle Solar Roof can be periodically cleaned if necessary with a garden hose from the ground.

## WHAT HAPPENS ON CLOUDY DAYS?

The best energy production is in full sun. The solar system will continue to function on cloudy days, but the output will be reduced depending on how thick the cloud cover is and what time of day it occurs. Annual production estimates used to size the system take into account the climate in your area and the typical number of cloudy days per year.

## IN WHAT TEMPERATURES WILL AN EAGLE SOLAR ROOF OPERATE?

Your system will operate in all normally expected temperatures. However, the best energy production will be on colder, clear days. Solar panels are actually more efficient in colder weather. Solar systems installed in very warm climates may produce less energy than those in cooler climates. This is taken into account when designing and sizing your solar system.

## HOW DURABLE IS AN EAGLE SOLAR ROOF?

Tempered glass and polycarbonate construction give the SolarBlend™ Tiles outstanding durability, including the ability to withstand a snow load of over 200 pounds per square foot and a class A fire safety rating. The manufacturer's 25-year warranty assures that your system will perform reliably, year after year. SolarBlend™ Roofing Tiles are designed to last for up to 40 years.

## ARE SOLAR SYSTEMS SAFE?

As long as solar systems are professionally installed they are very safe. There are no moving parts, and no exposed electrical wiring. All components of The Eagle Solar Roof carry appropriate electrical certifications, including testing to Underwriters Laboratory (UL). As with any electrical appliance, proper care should be taken when servicing and/or handling solar components. Only properly trained solar energy professionals should service your system.

## WHAT HAPPENS IF THE SOLAR SYSTEM IS SHADED?

If even a part of the solar array is in the shade the efficiency of the entire system can be affected. A properly designed and installed system should not have significant shading of the tiles during daylight hours, particularly in the summer. Any shading of the system should be taken into account when planning the system size.

## CAN I DISCONNECT MY HOUSE FROM THE POWER GRID?

Your Eagle Solar Roof is designed to function together with the utility grid to serve the power needs of your home. It will not work without utility power, and will shut off in the event of a grid power outage. When the sun is out, your system generates power to first serve your home's needs and sends the rest to the grid, running your meter backwards. At night, the Eagle Solar Roof shuts off, and the utility takes over. If you want to completely disconnect from the power grid, a stand-alone system with batteries is required.

## WILL MY LOCAL UTILITY NEED TO ALLOW MY SOLAR SYSTEM TO BE CONNECTED?

Most utilities require an interconnection agreement to be signed before allowing a solar system to be connected to their grid. They may also require an inspection, special metering or have other requirements. Your installer or Eagle will assist in fulfilling any and all requirements to connect your system to the grid.

## WHAT ABOUT MY HOMEOWNERS' ASSOCIATION AND/OR CCR'S?

Many Homeowners' Associations (HOA's) have strict requirements about adding any equipment to roofs, including solar panels. This may also apply to non-HOA neighborhoods with Covenants, Conditions and Restrictions (CCR's). The Eagle Solar Roof is designed to blend into the roof of your home, minimizing the visual impact and addressing the concerns of even the strictest HOA. Many states prohibit HOA's and CCR's from restricting the installation of solar panels.

## Where can I learn more about solar power?

### Visit the following sites for more information:

**Database of State Incentives for Renewable Energy:** [www.dsireusa.org](http://www.dsireusa.org)

**Internal Revenue Service:** [www.irs.gov](http://www.irs.gov)

**Solar Pathfinder:** [www.solarpathfinder.com](http://www.solarpathfinder.com)

**Solmetric:** [www.solmetric.com](http://www.solmetric.com)

**PV Watts:** <http://redc.nrel.gov/solar/calculators/PVWATTS>

**Clean Power Estimator™:** <http://www.consumerenergycenter.org/renewables/estimator/index.htm>

**Find Solar:** <http://www.findsolar.com/index.php?page=rightforme>

# SolarBlend™ System Sizing & Payback

## Sizing a solar system, a California residential example

### 1. Use your past electric bills to estimate annual kilowatt hour (kWh) usage.

Example: A California household used 8,600 kWh AC last year.

### 2. What do you want your solar system to do? How many kWh will your system need to produce to fulfill this goal?

- Zero out electric bill (if possible)
- Remove most expensive tiers on electric bill
- Install the largest solar system possible

Example: The homeowner wants to offset all of their energy usage, or as much as possible given roof space and other factors. The goal is to produce 8,600 kWh AC per year with the solar system.

### 3. Determine which roof plane is facing the optimal direction (south). Determine the tilt of this roof plane and the square feet available for the solar system.

Example: This home has approximately 300 square feet of unobstructed, un-shaded south facing roof available for solar panels. To produce 8,600 kWh AC per year, this home would need a 4.7 kW AC (5.75 kW DC) solar system.

8,600 kWh AC / 365 days = 23.5 kWh AC per day  
 23.5 kWh AC / 5 sun hours per day = 4.7 kW AC (5.75 kW DC)  
 or 8,600 kWh AC / 1,500 kWh DC = 5.75 kW DC

### 4. Determine the system size and annual kW AC production.

Example: As only 300 square feet of roof space is available for the solar system, the largest system that can be installed is a 2.45 kW AC (3 kW DC) system.

100 square feet = 1 kW DC  
 300 square feet = 3 kW DC (2.45 kW AC)

This 3 kW DC solar system will produce approximately 4,500 kWh AC per year which is a more than half of the 8,600 kWh AC that the home uses annually.

2.45 kW AC x 5 sun hours per day x 365 days = 4,475 kWh AC per year or 3 kW DC x 1,500 kWh = 4,500 kWh AC per year

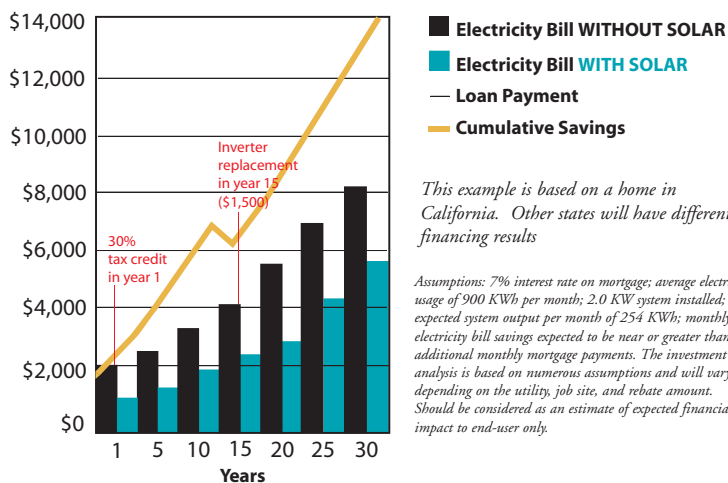
Here's a simple payback example to demonstrate why an Eagle Solar Roof is a good investment.

**Building:** 2,200 sf California residence  
**Solar Solution:** 5.3kW DC system; 156 SolarBlend™ Tiles; generating about 70% of electricity demand of the household.

### Financial Analysis

Total Installed Cost:	\$37,000
California Cash Rebate:	(\$10,500)
Federal Tax Credit:	(\$7,950)
Net Cost to Homeowner:	\$18,550
Annual Energy Savings:	\$2,450

**Payback:** 7 1/2 years, plus high resale value of the home. Payback will actually be even shorter given rising electricity prices; less than 7 years with 5% annual electricity price



### Ways to look at a solar investment:

- Solar electricity is cheaper than utility electricity over time when considering the cost of a solar system spread over 30 years divided by its electric production.
- Solar is a great investment when adding the system cost to a mortgage.
- The increase to a mortgage or loan is often less than electricity costs would be without the solar system. For example: If the mortgage increases by \$90, the electric bill may actually decrease by \$100 due to the solar system.
- Total household expenses may actually be less each month for a solar home than a traditional home.



# SolarBlend™ Results\*



**Product:** 50 Watt SolarBlend Roofing Tiles  
**System Size:** 8.2 kW DC  
**Building Type:** Residential  
**Location:** Mesa, Arizona  
**Gross Cost:** \$53,924  
**Rebate:** (\$24,888)  
**Tax Credit:** (\$9,411)  
**Net Cost:** \$19,625  
**Payback:** 13 years  
**Annual Energy Production:** 12,884 kWh (estimated)  
**Green House Gas Emissions:** This system will prevent 221 tons of CO<sub>2</sub> from entering the atmosphere over 25 years which is the equivalent of planting 8,824 trees.

*Assumptions: Post-Solar Electric Rate Schedule - Average Fixed Base Rate. Annual utility inflation: 5.5% (assumed). Energy Bill Savings are actual, without any tax effects applied.*



**Product:** 50 Watt SolarBlend Roofing Tiles  
**System Size:** 4 kW DC  
**Building Type:** Residential  
**Location:** Pueblo, Colorado  
**Gross Cost:** \$26,078  
**Rebate:** (\$18,054)  
**Tax Credit:** (\$2,407)  
**Net Cost:** \$5,617  
**Payback:** 10 years  
**Annual Energy Production:** 5,925 kWh (estimated)  
**Green House Gas Emissions:** This system will prevent 102 tons of CO<sub>2</sub> from entering the atmosphere over 25 years which is the equivalent of planting 4,060 trees.

*Assumptions: Post-Solar Electric Rate Schedule for Black Hills Energy (fmr Aquila Inc) is Residential Electric (Rate Code: RS-1) Annual utility inflation: 5.50% (assumed). Energy Bill Savings are actual, without any tax effects applied.*



**Product:** 50 Watt SolarBlend Roofing Tiles  
**System Size:** 2 kW DC  
**Building Type:** Residential  
**Location:** Hollywood, California  
**Gross Cost:** \$14,544  
**Rebate:** (\$6,475)  
**Tax Credit:** (\$2,421)  
**Net Cost:** \$5,648  
**Payback:** N/A (included in mortgage)  
**Annual Energy Production:** 2,979 kWh (estimated)  
**Green House Gas Emissions:** This system will prevent 51 tons of CO<sub>2</sub> from entering the atmosphere over 25 years which is the equivalent of planting 2,040 trees.

*Assumptions: Post-Solar Electric Rate Schedule for Los Angeles City of (LADWP) is Residential (Rate Code: R-1). Annual utility inflation: 5.5% (assumed). Energy Bill Savings are actual, without any tax effects applied.*



**Product:** 50 Watt SolarBlend Roofing Tiles  
**System Size:** 5.1 kW DC  
**Building Type:** Residential  
**Location:** Tampa, Florida  
**Gross Cost:** \$33,150  
**Rebate:** (\$20,000)  
**Tax Credit:** (\$3,945)  
**Net Cost:** \$9,205  
**Payback:** 7 years  
**Annual Energy Production:** 7,139 kWh (estimated)  
**Green House Gas Emissions:** This system will prevent 122 tons of CO<sub>2</sub> from entering the atmosphere over 25 years which is the equivalent of planting 4,892 trees.

*Assumptions: Post-Solar Electric Rate Schedule for Tampa Electric Co is stan Fields Annual utility inflation: 5.50% (assumed). Energy Bill Savings are actual, without any tax effects applied.*

\*The results included are for specific examples in specific areas as noted. Individual results will vary.

# SolarBlend™ Results\*



**Product:** 50 Watt SolarBlend Roofing Tiles  
**System Size:** 2.3 kW DC  
**Building Type:** Residential  
**Location:** Boise, Idaho  
**Gross Cost:** \$15,028  
**Rebate:** N/A  
**Tax Credit:** (\$4,508)  
**Net Cost:** \$10,520  
**Payback:** 36 years  
**Annual Energy Production:** 3,107 kWh (estimated)  
**Green House Gas Emissions:** This system will prevent 53 tons of CO<sub>2</sub> from entering the atmosphere over 25 years which is the equivalent of planting 2,128 trees.

*Assumptions: Post-Solar Electric Rate Schedule - Average Fixed Base Rate. Annual utility inflation: 5.5% (assumed). Energy Bill Savings are actual, without any tax effects applied.*



**Product:** 50 Watt SolarBlend Roofing Tiles  
**System Size:** 2.3 kW DC  
**Building Type:** Residential  
**Location:** Las Vegas, Nevada  
**Gross Cost:** \$15,028  
**Rebate:** N/A  
**Tax Credit:** (\$4,508)  
**Net Cost:** \$10,520  
**Payback:** 17 years  
**Annual Energy Production:** 3,573 kWh (estimated)  
**Green House Gas Emissions:** This system will prevent 61 tons of CO<sub>2</sub> from entering the atmosphere over 25 years which is the equivalent of planting 2,448 trees.

*Assumptions: Post-Solar Electric Rate Schedule for Nevada Power Company is Residential Service (Rate Code: RS). Annual utility inflation: 5.5% (assumed). Energy Bill Savings are actual, without any tax effects applied.*



**Product:** 50 Watt SolarBlend Roofing Tiles  
**System Size:** 2.3 kW DC  
**Building Type:** Residential  
**Location:** Salt Lake City, Utah  
**Gross Cost:** \$15,028  
**Rebate:** N/A  
**Tax Credit:** (\$4,508)  
**Net Cost:** \$10,520  
**Payback:** 28 years  
**Annual Energy Production:** 3,210 kWh (estimated)  
**Green House Gas Emissions:** This system will prevent 55 tons of CO<sub>2</sub> from entering the atmosphere over 25 years which is the equivalent of planting 2,200 trees.

*Assumptions: Post-Solar Electric Rate Schedule - Average Fixed Base Rate. Annual utility inflation: 5.5% (assumed). Energy Bill Savings are actual, without any tax effects applied.*



**Product:** 50 Watt SolarBlend Roofing Tiles  
**System Size:** 1.7 kW DC  
**Building Type:** Residential  
**Location:** Seattle, Washington  
**Gross Cost:** \$11,271  
**Rebate:** N/A  
**Tax Credit:** (\$3,381)  
**Net Cost:** \$7,890  
**Payback:** 36 years  
**Annual Energy Production:** 1,682 kWh (estimated)  
**Green House Gas Emissions:** This system will prevent 29 tons of CO<sub>2</sub> from entering the atmosphere over 25 years which is the equivalent of planting 1,152 trees.

*Assumptions: Post-Solar Electric Rate Schedule for Seattle City of is Residential - City (Rate Code: RSC) Annual utility inflation: 5.50% (assumed). Energy Bill Savings are actual, without any tax effects applied.*

# Rack-Mounted Panels



## Mono-Crystalline Solar Panel

**Suntech Black Label™ modules are exclusively designed and engineered for homeowners who seek a rooftop solar solution that combines visual aesthetics with excellent efficiency.**

### Features

- Specifically designed to blend with asphalt shingles, but can be installed over other roofing materials as well.
- High reliability with guaranteed +/-3% power output tolerance, enhancing return on investment
- Withstands high wind-pressure and snow load, and extreme temperature variations
- Enhanced BIPV Aesthetics in a standard rack mounted module.
- Combines Suntech's black solar cells, black backing and black aluminum frame
- The panel provides more field power output through an advanced cell texturing and isolation process, which improves low irradiance performance
- Unique design on drainage holes and rigid construction prevents frame from deforming or breaking due to freezing weather and other forces

### Quality and Safety

- 25-year power output transferable warranty
- Rigorous quality control meeting the highest international standards
- ISO 9001:2000 (Quality Management System) and ISO 14001:2004 (Environmental Management System) certified factories manufacturing world class products
- UL listings: UL1703, cULus, Class C fire rating, conformity to CE

### Recommended Applications

- Residential roof top systems
- On-grid utility systems
- On-grid commercial systems

### Temperature Coefficients

Nominal Operating Cell Temperature (NOCT)	45°C±2°C
Temperature Coefficient of Pmax	-0.48 %/°C
Temperature Coefficient of Voc	-0.34 %/°C
Temperature Coefficient of Isc	0.017 %/°C

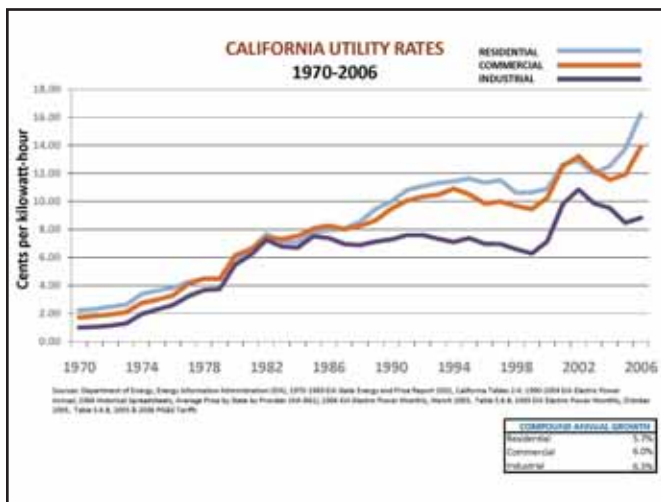


# Commercial Solar Services

Large commercial solar installations require the right experience and knowledge for success. Eagle has this expertise and will assist building owners in crafting the ideal solar system for their business and ensuring the system is financed to the benefit of the owner.

## Solar Power Purchase Agreement (PPA)

For customers unable to pay cash or use traditional financing to purchase solar systems, Eagle offers Solar Power Purchase Agreements (PPA's) on commercial rack-mounted solar installations that are typically 200 kilowatts and larger. PPAs allow building owners to make an investment in solar energy with no up-front costs. Eagle will help you negotiate a 20-25 year PPA with a fixed electricity price and favorable buyout options. PPAs allow commercial building owners a sound financing option for adding solar to their building and controlling their energy costs without the up front cost of the solar system. This is possible because a PPA provider and the building owner agree that the PPA provider will own the solar system on the building's roof. Power generated by the solar system will then be sold back to the building owner who

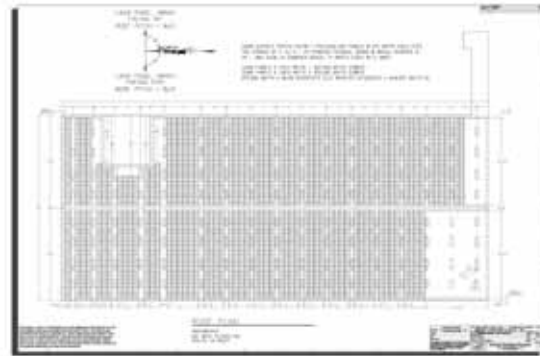


pays for the electricity per kWh at a predetermined and fixed rate. PPA providers pay for all upfront costs of materials and installation and also take any available rebates, tax credits and the accelerated depreciation of the system cost. Energy costs have trended up since 1970 with steep increases over the last few years. (Please see graph on this page.) The PPA option

makes financial sense for commercial building owners who have roof-top real estate that can be transformed into their own solar energy utility. (Buyout options and terms vary by PPA provider. PPAs are only offered on a limited basis in the residential sector.)

## Design & Engineering

Eagle's professional Design and Engineering Team creates complete Building Permit packages that include electrical line diagrams and roof layout plans—everything necessary for submittal to the local building department.



## Rebate/Grant Paperwork

Dedicated Eagle Rebate Processors will help collect the appropriate information and submit the appropriate forms to state, utility and other applicable rebates and grants are received for your solar installation.



### Solar Product Options

Building Integrated Photovoltaics (BIPV) or traditional rack-mounted panels are the product options that Eagle offers to ensure your solar system suits your needs, desires and pocketbook.



From rack mounted panels that can be installed at any pitch and over any roofing material to BIPV solar panels that integrate into Eagle's concrete roof tile on pitched roofs, we design the right solar system for your business. All Eagle solar products come with 25 year warranties backed by strong manufacturers who take pride in producing quality photovoltaic modules. Properly trained contractors can ensure a water resistant roof installation.



Eagle also offers racking systems for the efficient installation of our rack-mounted panels. These racking systems are designed to allow for installation that does not void a building owner's existing warranty.



The panels themselves don't create energy your business can use without the inverters which change the DC electricity generated by your panels into AC electricity used by your business. Eagle has partnered with PV Powered to offer a variety of inverters to fit your specific solar system. PV Powered inverters come with an industry leading 10 year warranty and are manufactured to last for years with a minimal number of internal parts that can be easily replaced if repair is required, instead of necessitating the replacement of the entire inverter as is the case with competing brands.



Monitoring the success of your solar system helps you to understand the financial and environmental impact of your investment. Low cost internet monitoring is available on all commercial solar systems.

If you've chosen a BIPV solar system, Eagle can also provide you with a complete roof system that includes our Cool Roof Tile and Energy Saving Roof systems. This complete roof system allows for your roof and solar array to perform optimally by reducing heat transfer into the building and helping to maintain the ideal operating temperature for the solar panels to keep them producing energy efficiently. Please see page 34 of this brochure for more information on Eagle's Complete Roof System.

### Free Installation Training

Training roofers, solar integrators and electricians in the proper installation of Eagle's BIPV and traditional rack-mounted solar systems is essential to ensure that building owners are provided with properly and efficiently installed solar roofs. Free training courses are offered regularly around the country. These day long courses culminate with exams that test the knowledge acquired during the day. Those who pass the exams are ready to sell and install solar systems; those who do not are asked to retake the training course until they pass the exam.

### On-Site Technical Support

Once the training courses have been taken and the exam passed, solar installers will continue to be supported during the actual installation of the solar system. Eagle's experienced Technical Team will be on-site as requested and always available for questions by phone and email.

### Contact Us for a Quote

To get started budgeting and planning your solar system, email us at [solar@eagleroofting.com](mailto:solar@eagleroofting.com) for more information.

# Rack-Mounted Panel

## Product Options:

- Poly-crystalline solar panels are available in a variety of sizes (depending on availability):  
190 watt, 200 watt, 210 watt, 260 watt, 270 watt, 280 watt
- Large Poly-crystalline panels are best suited to large, flat roof commercial applications

## Features

- High conversion efficiency based on innovative photovoltaic technologies
- High reliability with guaranteed  $\pm 3\%$  power output tolerance
- Withstands high wind-pressure and snow load, and extreme temperature variations

## Quality and Safety

- 25-year power output transferable warranty
- Rigorous quality control meeting the highest international standards
- ISO 9001:2000 (Quality Management System) and ISO 14001:2004 (Environmental Management System) certified factories manufacturing world class products
- UL listings: UL1703, cULus, Class C re rating, conformity to CE

## Recommended Applications

Rooftop systems  
Commercial systems  
Ground mounted systems



**210 Watt Poly-Crystalline Solar Panel**

**270 Watt Poly-Crystalline Solar Panel**



# Rack-Mounted Panels Balance of Systems & Accessories



## RACKING SYSTEMS

### SolarMount Racks

SolarMount is the most versatile PV mounting rail system on the market today. It provides installer-friendly components for maximum flexibility, allowing you to solve virtually any PV mounting challenge. The universal SolarMount rail system has three options which can be assembled into a wide variety of PV mounting structures to accommodate any job site. From ground mount to roof mount, from concrete tile to asphalt to metal and membrane roofing, SolarMount is the most flexible racking system available.

### Ground Mount



### Roof Mount



### CLICKSYS Racks

The CLICKSYS Racking system is engineered for flush roof mounting applications. Ask your sales representative for more information.



## INVERTERS

### Inverters

PV Powered commercial inverters combine the benefits of high reliability, low lifetime cost and leading efficiency into one easy-to-install system. Their cutting edge design features the latest advances in power technology including an intelligent power module that uses fifth generation, self-protecting IGBT silicon, the most efficient and reliable silicon technology available.

System reliability is ensured by superior quality components including an integrated 98%-efficient Energy Star-rated transformer with field-configurable AC voltage output; acid-free, long-life, film-type capacitors; and a medical-grade DC power supply that provides clean, reliable power to system control components.



# Rack-Mounted Panels Technical Specifications

Electrical Characteristics	175 watt	210 watt	270 watt
Characteristics	STP175S-24/Ab-1	STP200-18/Ub-1	STP270-24/Vb -1
Open - Circuit Voltage (Voc)	44.2V	33.4V	44.5V
Optimum Operating Voltage (Vmp)	35.2V	26.2V	35V
Short - Circuit Current (Isc)	5.2A	8.12A	8.2A
Optimum Operating Current (Imp)	4.95A	7.63A	7.71A
Maximum Power at STC (Pmax)	175Wp	200Wp	270Wp
Operating Temperature	-40°C to +85°C	-40°C to +85°C	-40°C to +85°C
Maximum System Voltage	600V DC	600V DC	600V DC
Maximum Series Fuse Rating	15 AMPS	20 AMPS	20 AMPS
Power Tolerance	±3 %	±3 %	±3 %

STC: Irradiance 1000W/m<sup>2</sup>,  
Module temperature 25°C, AM=1.5

## Mechanical Characteristics

Solar Cell	Mono-crystalline 125x125mm (5inch)	Poly-crystalline 156x156mm (6 inch)	Poly-crystalline 156x156mm (6 inch)
No. of Cells	72 (6x12)	54 (6x9)	72 (6x12)
Dimensions	1580x808x35mm (62.2x31.8x1.4inch)	1482x992x35mm (58.3x39.1x1.4 inch)	1956x992x50mm (77.0x39.1x2.0 inch)
Weight	15.5kg (34.1lbs.)	16.8kg (37.0lbs.)	27 kg (59.5 lbs.)
Front Glass	3.2 mm (0.13inch) tempered glass	3.2 mm (0.13inch) tempered glass	4mm(0.16 inch) tempered glass
Frame	Anodized aluminium alloy	Anodized aluminium alloy	Anodized aluminium alloy
Junction Box	IP65 rated	IP65 rated	IP65 rated
Output Cables	AIW (12AWG), asymmetrical lengths (-) 1200mm (47.2inch) and (+) 800mm (31.5inch), MC Plug Type IV connectors	LAPP (4.0mm2), asymmetrical lengths (-) 1200mm (47.2inch) and (+) 800mm (31.5inch), MC Plug Type IV connectors	AIW(12AWG), asymmetrical lengths (-) 1200mm (47.2 inch) and (+) 800mm (31.5 inch), MC Plug Type IV connectors

## Temperature Coefficients

Nominal Operating Cell Temp(NOCT)	45°C±2°C	45°C±2°C
Temperature Coefficient of Pmax	-(0.47 ± 0.05) %/°C	-(0.47 ± 0.05) %/°C
Temperature Coefficient of Voc	-(0.34 ± 0.01) %/°C	-(0.34 ± 0.01) %/°C
Temperature Coefficient of Isc	(0.055 ± 0.01) %/°C	(0.055 ± 0.01) %/°C

## Solar Mount

6061-T6 and 6063-T5

- SolarMount ballast frame 6105-T5 aluminum extrusion
- SolarMount® rails
- Mounting clips and clamps
- Tilt legs and L-feet
- Two-piece aluminum standoffs
- One-piece zinc plated steel standoffs
- Fasteners

## CLICKSYS

Beam:	6005-T5 aluminum
Slider:	6005-T5 aluminum, anodized
Mounting Clamps:	6105-T5 aluminum, anodized
Connection:	6005-T5 aluminum
1/4-20 bolts:	300 series stainless steel meeting ASTM F593
1/4-20 nuts:	300 series stainless steel meeting ASTM F594
Butyl:	Polyisobutylene and a cross-linked butyl
Lag Bolts:	Electroplated zinc on AISI 1006-1022 or equivalent steel
Concealor Screws:	Steel coated with an epoxy finish that exceeds FM4470

CLICKSYS is PE certified.

PV Powered Inverters	PVP30kW-LV	PVP75kW	PVP100kW	PVP260kW
Continuous Output Power (watts)	30	75	100	260
Weighted CEC Efficiency (%)	208 - 93.0, 480 - 93.5	208 - 95.5, 480 - 95.5	208 - 95.5, 480 - 96	97
Maximum DC Input Voltage (VOC)	600	600	600	600
DC Peak Power Tracking Range (V)	295 - 500	295 - 500	295 - 500	295 - 500
DC Imp Nominal Current (A)	109	267	356	925
AC Nominal Voltage-Field Configurable (V)	208 and 480	208 and 480	208 and 480	480
AC Operating Range (V)	208 183 - 228, 480 422 - 528	208 183 - 228, 480 422 - 528	208 183 - 228, 480 422 - 528	422 - 528
AC Frequency Range (Hz)	59.3 - 60.5	59.3 - 60.5	59.3 - 60.5	59.3 - 60.5
AC Maximum Continuous Current (A)	83 (208V), 36 (480V)	83 (208V), 36 (480V)	278 (208V), 120 (480V)	316
Standby Losses (W)	17	42	42	67
Harmonic Distortion (%THD)	<3%	<3%	<3%	<3%
Power Factor	>.99	>.99	>.99	>.99



## **Can rack-mounted panels be used on homes and businesses?**

Yes, rack-mounted panels can be installed on homes and businesses as well as on public or institutional buildings. Purchasing a solar system through Eagle gives you the peace of mind of knowing that the solar product chosen for your building is optimal for your needs and budget. Eagle's solar services include design, engineering and electrical diagrams customized to your building and your needs.

## **How do I find a solar installer?**

There are many ways to find a solar installer: call your local Eagle Representative; ask friends, family and neighbors who've installed solar systems in your area; or check with your local Chamber of Commerce. Always be certain that you are working with a licensed and insured contractor and check the contractor's references.

## **How large of a solar system do I need?**

The size of your solar system is dependent on what you'd like the system to do, how much energy you need, how much you're able to invest and how much space is available on your roof.

A solar system does not necessarily have to cover 100% of your energy needs. Eagle's design team will work with you to determine the optimal system size to meet your needs.

## **How much does a rack-mounted system cost?**

Please see the Rack-Mounted Solar System Results page of this brochure for examples of system costs. You'll find an example of a cash purchase as well as a system financed through Power Purchase Agreement (PPA). Eagle's design and sales teams will work with you to design an affordable system for your budget.

## **What financing options are available for large commercial solar system?**

For those building owners seeking an alternative to either cash purchases or traditional financing, Eagle has developed relationships with Power Purchase Agreement (PPA) Providers. PPA's are typically available on systems larger than 200 kW DC. These agreements would allow you to invest in a solar energy system with no up-front costs. Eagle will help you negotiate a 20-25 year PPA with a fixed electricity price and favorable buyout options. Basically, you contract with a PPA provider who will own the solar system on your roof. Power generated by the solar system will then be sold back to you, and you'll pay for the electricity per kWh at a predetermined and fixed rate—especially important as energy costs have trended up 6% since 1970 with steep increases over the last few years. PPA providers pay for all upfront costs of materials and installation and also take any available rebates, tax credits and the accelerated depreciation of the system cost. (Buyout options and terms vary by PPA provider.)

## **What are the product Warranties?**

All products that Eagle sells as part of its Eagle Solar Roof come with industry leading manufacturer warranties. The solar panels come with 25 year power output warranties. The inverter and racking systems are covered by 10 year warranties. (Installation/workmanship warranties will be provided separately by the contractor who installs your solar system.)

## **How are the racks that hold the solar panels attached to the roof?**

Racks are typically attached to roof via flashed standoffs which are similar to flashing around a plumbing vent.

## **What type of racking system do you use?**

Eagle recommends using the SolarMount racking system from Unirac®. This is a very versatile racking system that can be used for roof mounting, ground mounting or for open structure installations. In addition to flexible application, it's an ideal racking system because it can be installed without voiding a pre-existing roofing warranty.

## **Is there a way to install a rack mounted solar array on a membrane roof (flat roof) without penetrations?**

Yes, there are racking solutions that use a ballast system to counteract wind uplift, vs. roof penetration attachments.

## **What comes with the solar panels?**

Eagle sells complete solar systems that include the solar panels, racking systems, connecting cables, inverters, AC/DC disconnects and several low cost system monitoring options.

## **Do the solar panels have to be tilted on the roof?**

Typically, solar panels installed on sloped roofs are installed flush to the roof plane. For example, if the roof is sloped at 5:12 pitch (22.6°) the solar array will be at this same tilt. Racking systems on flat roofs will typically tilt away from the roof 10° to 15° for optimal performance.

# Rack-Mounted Solar System Results

## Example 1:

### 786 kW DC Commercial System - PPA Agreement

**Product:** 270 Watt DC Poly-crystalline Rack-Mounted Panels

**System Size:** 786 kW DC

**PPA rate:** \$0.1195 per kWh

**PPA Escalator:** 3%

**Utility Inflation Rate:** 5.25%

**PPA Term:** 20 years

**Building Type:** Commercial

**Location:** San Diego, California

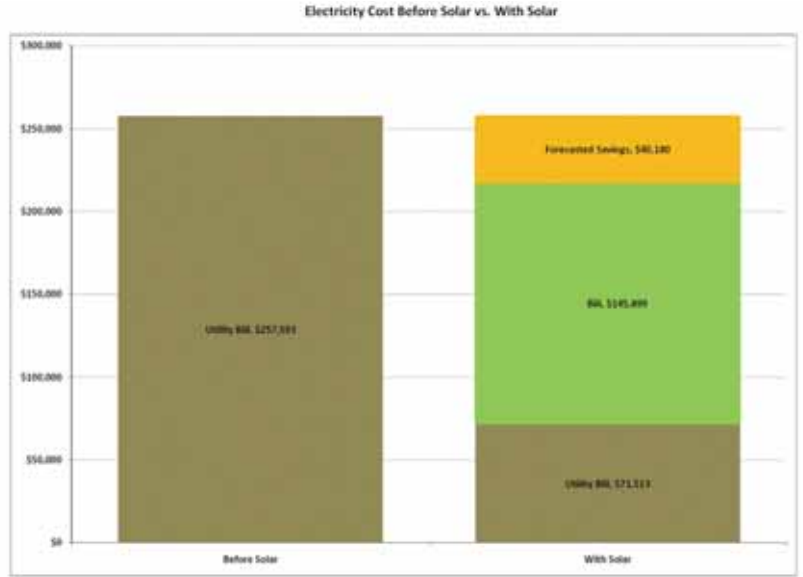
**Gross Cost:** \$0 to building owner

**Annual Energy Production:** 1,229,913 kWh (est.)

**First Year Savings:** \$40,810

**20 Year Savings:** \$2,090,649

**Green House Gas Emissions:** This system will prevent 19,000 tons of CO<sub>2</sub> from entering the atmosphere over 20 years which is the equivalent of planting 760,000 trees.



## Example 2:

### 1,009.8 kW DC Commercial System - Cash Payment

**Product:** 270 Watt DC Poly-crystalline Rack-Mounted Panels

**System Size:** 1,009.8 kW DC

**Building Type:** Commercial

**Location:** Carlsbad, California

**Gross Cost:** \$4,443,120

**Incentives/Tax Grant:** (\$1,584,368)

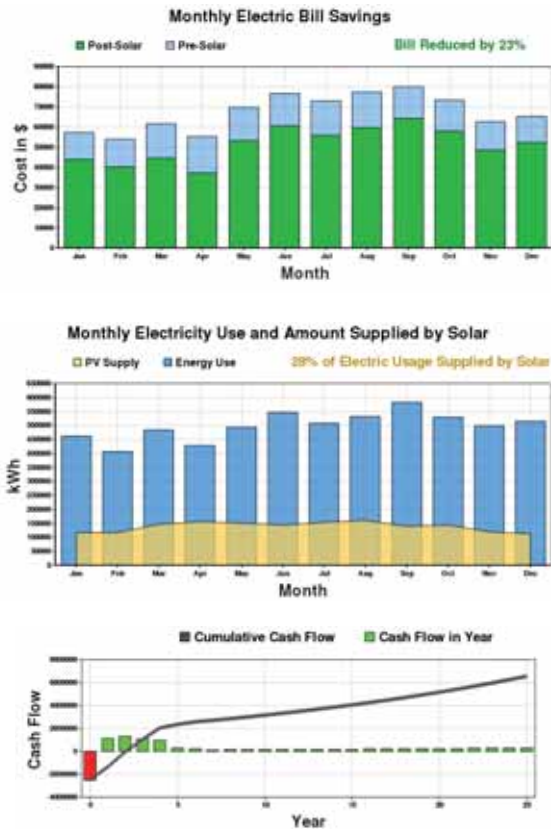
**Net Cost:** \$2,858,752

**Payback:** 3.5 years

**Annual Energy Production:** 1,664,908 kWh (est.)

**Green House Gas Emissions:** This system will prevent 28,512 tons of CO<sub>2</sub> from entering the atmosphere over 25 years which is the equivalent of planting 1,140,460 trees.

*Assumptions: Post-Solar Electric Rate Schedule for San Diego Gas & Electric (SDGE) is General Service TOU Demand (0-500kW) (Rate Code: AL-TOU) Annual utility inflation: 5.50% (assumed). Energy Bill Savings are actual, without any tax effects applied.*



Commercial Results - Cashflow Example	Year 0	Year 1	Year 2	Year 3	Year 4
Installation, Operation & Maintenance Costs	(\$4,443,120)	(\$2,299)	(\$2,379)	(\$2,463)	(\$2,549)
CA Performance-Based Incentive	\$359,188	\$355,596	\$352,040	\$348,517	\$345,034
Federal Grant Commercial/Home Office (30%)	\$1,225,180	\$0	\$0	\$0	\$0
MACRS 5-year Accelerated Depreciation (Fed & State Tax Avoided)	\$0	\$306,379	\$490,686	\$294,412	\$176,647
Annual Utility Savings (Includes Rate Inflation with tax effects applied)	\$0	\$107,904	\$112,700	\$112,700	\$122,942
Loan Receipts and Payments	\$0	\$0	\$0	\$0	\$0
Tax Savings from Interest Paid	\$0	\$0	\$0	\$0	\$0
Total Annual Cash Flow	(\$2,858,752)	\$767,880	\$953,047	\$758,176	\$642,074
Cumulative Cash Flow	(\$2,858,752)	(\$2,090,873)	(\$1,137,826)	(\$379,650)	\$262,424

# Cool Roof Tile



Eagle has a selection of Cool Roof Tile colors available for reroof and new construction projects. Approved by ENERGY STAR and the Cool Roof Rating Council, these colors not only help a project qualify for green building requirements, they also provide superior benefits for owners and the environment.

According to the Cool Roof Rating Council, buildings using reflective roofing can expect a 7%-15% savings on cooling costs when compared to non-cool-roof products—that's a monthly savings of \$35-\$75 on a \$500/month electricity bill or \$420-\$900 savings per year. Possible additional rebates may also be available through local utility companies as shown in the examples to the right. Beyond these benefits, Cool Roof Tile is also kind to the environment. Its use helps to reduce heat islands, the dissemination of smog producing chemicals and the production of CO<sub>2</sub>.



Per ENERGY STAR, a reflective roofing product like Eagle's Cool Roof Tile can lower roof surface temperatures by up to 100°F. This level of temperature reduction prevents the transfer of heat into the home or building meaning much less work for the air conditioner which directly results in energy savings for the owner. Individual results are dependent on many factors like local climate and building insulation, but typically an owner can expect to reduce peak cooling demand by 10-15% when compared to non-cool-roof products leading to the purchase of smaller, less expensive HVAC systems.



Reflective roofing products can also help reduce the "heat island effect." Heat islands develop in cities and result in temperatures that can be 2°F to 8°F warmer than the surrounding countryside. Such heat islands occur, in large part, because many buildings and paved surfaces are designed with dark materials that absorb heat from the sun. This heat is released at night, causing the air temperature to remain high. The resulting elevated temperature leads to an increased demand for air conditioning in buildings, increased fuel use for vehicle air conditioning, increased levels of smog, and associated increased levels of heat-related and smog-related health problems. Choosing reflective roofing products helps contribute to a safe and healthy environment by reducing the "heat island effect".

In addition to CRRC and ENERGY STAR ratings, Eagle's Cool Roof Tile may also help a project qualify for Leadership in Energy and Environmental Design (LEED®) points ultimately allowing that project to qualify for LEED certification. LEED is a program that assists design professionals in the creation of buildings that affect a minimal and beneficial as possible impact on the environment. See the following pages for more information. Eagle Cool Roof Tile is also an important part of the Eagle Energy Saving Roof

## Rebate Example:

### Pacific Gas & Electric Energy Efficient-Cool Roof Program

Active PG&E customers that choose a CRRC approved Cool Roof Tile and are in climate zones 2, 4, 11, 12, and 13 can apply for a rebate.

### Rebate of \$.10 per square foot for Tier 1 products with Initial Solar Reflectance between .25 and .39 and Initial Thermal Emittance greater than or equal to .75.

- Homeowner chooses Bel Air Imperial Dunes 4159 with an Initial Solar Reflectance of .34 and an Initial Thermal Emittance of .77.
- The roof size is 3500 square feet.
- The rebate from Pacific Gas & Electric is \$350.

## Rebate Example:

### Florida Power & Light Company Building Envelope Program

### Rebate of \$325 for reroofing with products that have a Reflectivity greater than or equal to 0.73.

- Homeowner chooses to reroof with Bel Air White on White 4800 with a Reflectivity of 0.79 (79%).
- The rebate from Florida Power & Light is \$325.

## Energy Savings Example:

### ENERGY STAR Roofing Calculator ([www.roofcalc.com](http://www.roofcalc.com))

Reroofing with ENERGY STAR approved Bel Air San Fernando with a 55% reflectance will result in an annual energy savings of almost \$100.

Assumptions: Residence built prior to 1908; A/C SEER Moderate (1982-1992); R-11 roof insulation; asphalt shingle roof was replaced; 3000 square feet of conditioned space, energy cost of 15 cents per kWh, 92377 zip code

“Green design not only makes a positive impact on public health and the environment, it also reduces operating costs, enhances building and organizational marketability, potentially increases occupant productivity, and helps create a sustainable community.”

*LEED for New Construction and Major Renovations Version 2.2*

# Cool Roof Tile

Legend: **Ref** = Reflectance **Emi** = Emittance **SRI** = Solar Reflectance Index **A.Ref** = Aged Reflectance **A.SRI** = Aged Solar Reflectance Index



Malibu  
Product No: 2800\*\*\*  
Name: White on White\*  
Description: White on White\*



Ref	Emi	SRI	A.Ref	A.SRI
.77	.91	96	.60	72

LEED†



Bel Air  
Product No: 4800\*\*\*  
Name: White on White\*  
Description: White on White\*



Ref	Emi	SRI	A.Ref	A.SRI
.77	.91	96	.60	72

LEED†



Capistrano  
Product No: 3800\*\*\*  
Name: White on White\*  
Description: White on White\*



Ref	Emi	SRI	A.Ref	A.SRI
.77	.91	96	.60	72

LEED†



Malibu  
Product No: 2241  
Name: Sun Valley\*  
Description: Almond, Double Peach Flash



Ref	Emi	SRI	A.Ref	A.SRI
.68	.89	83	.54	64

LEED†



Capistrano  
Product No: 3241  
Name: Sun Valley\*  
Description: Almond, Double Peach Flash



Ref	Emi	SRI	A.Ref	A.SRI
.68	.89	83	.54	64

LEED†



Bel Air  
Product No: 4241  
Name: Sun Valley\*  
Description: Almond, Double Peach Flash



Ref	Emi	SRI	A.Ref	A.SRI
.68	.89	83	.54	64

LEED†



Malibu  
Product No: 2388  
Name: Coconut Creek\*  
Description: White, Two Beige Flashes



Ref	Emi	SRI	A.Ref	A.SRI
.66	.91	81	.52	66

LEED†



Capistrano  
Product No: 3388  
Name: Coconut Creek\*  
Description: White, Two Beige Flashes



Ref	Emi	SRI	A.Ref	A.SRI
.66	.91	81	.52	66

LEED†



Bel Air  
Product No: 4388  
Name: Coconut Creek\*  
Description: White, Two Beige Flashes



Ref	Emi	SRI	A.Ref	A.SRI
.66	.91	81	.52	66

LEED†



Malibu  
Product No: 2325  
Name: Sand Creek\*  
Description: Light Beige, Two White Flashes



Ref	Emi	SRI	A.Ref	A.SRI
.65	.90	79	.52	61

LEED†



Capistrano  
Product No: 3325  
Name: Sand Creek\*  
Description: Light Beige, Two White Flashes



Ref	Emi	SRI	A.Ref	A.SRI
.65	.90	79	.52	61

LEED†



Bel Air  
Product No: 4325  
Name: Sand Creek\*  
Description: Light Beige, Two White Flashes



Ref	Emi	SRI	A.Ref	A.SRI
.65	.90	79	.52	61

LEED†



Malibu  
Product No: 2247  
Name: Sonora Vista\*  
Description: Almond, Pink, Gray Flashed



Ref	Emi	SRI	A.Ref	A.SRI
.55	.83	63	.45	49

LEED†

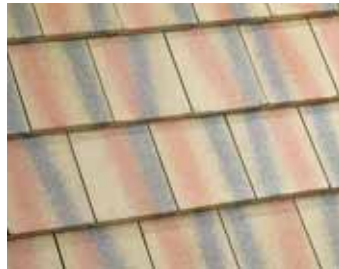


Capistrano  
Product No: 3247  
Name: Sonora Vista\*  
Description: Almond, Pink, Gray Flashed



Ref	Emi	SRI	A.Ref	A.SRI
.55	.83	63	.45	49

LEED†



Bel Air  
Product No: 4247  
Name: Sonora Vista\*  
Description: Almond, Pink, Gray Flashed



Ref	Emi	SRI	A.Ref	A.SRI
.55	.83	63	.45	49

LEED†



Malibu  
Product No: 2203  
Name: San Fernando\*  
Description: Tan, Cream, Gray Flashed



Ref	Emi	SRI	A.Ref	A.SRI
.48	.79	52	.40	41

LEED†

# Cool Roof Tile



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Capistrano  
Product No: 3203  
Name: San Fernando\*  
Description: Tan, Cream, Gray Flashed

Ref	Emi	SRI	A.Ref	A.SRI
.48	.79	52	.40	41



LEED<sup>†</sup>



Bel Air  
Product No: 4203  
Name: San Fernando\*  
Description: Tan, Cream, Gray Flashed

Ref	Emi	SRI	A.Ref	A.SRI
.48	.79	52	.40	41



LEED<sup>†</sup>



Malibu  
Product No: 2258  
Name: Ridgecrest\*  
Description: Tan, Cream Flashed

Ref	Emi	SRI	A.Ref	A.SRI
.44	.93	51	.37	42



LEED<sup>†</sup>



Capistrano  
Product No: 3258  
Name: Ridgecrest\*  
Description: Tan, Cream Flashed

Ref	Emi	SRI	A.Ref	A.SRI
.44	.93	51	.37	42



LEED<sup>†</sup>



Bel Air  
Product No: 4258  
Name: Ridgecrest\*  
Description: Tan, Cream Flashed

Ref	Emi	SRI	A.Ref	A.SRI
.44	.93	51	.37	42



LEED<sup>†</sup>



Malibu  
Product No: 2159  
Name: Imperial Dunes\*  
Description: Dark Tan, Cream Flashed

Ref	Emi	SRI	A.Ref	A.SRI
.34	.77	31	.30	31



LEED<sup>†</sup>



Bel Air  
Product No: 4159  
Name: Imperial Dunes\*  
Description: Dark Tan, Cream Flashed

Ref	Emi	SRI	A.Ref	A.SRI
.34	.77	31	.30	31



LEED<sup>†</sup>



Malibu  
Product No: 2118 (418 - Lightweight)  
Name: Terracotta Gold\*  
Description: Terracotta, Gold Flashed

Ref	Emi	SRI	A.Ref	A.SRI
.35	.76	32	.31	27



LEED<sup>†</sup>



Capistrano  
Product No: 3118 (518 - Lightweight)  
Name: Terracotta Gold\*  
Description: Terracotta, Gold Flashed

Ref	Emi	SRI	A.Ref	A.SRI
.35	.76	32	.31	27



LEED<sup>†</sup>



Bel Air  
Product No: 4118  
Name: Terracotta Gold\*  
Description: Terracotta, Gold Flashed

Ref	Emi	SRI	A.Ref	A.SRI
.35	.76	32	.31	27



LEED<sup>†</sup>



Malibu  
Product No: 2357  
Name: Sierra Ridge\*  
Description: Tan, Black, Cream Flashed

Ref	Emi	SRI	A.Ref	A.SRI
.35	.77	33	.31	27



LEED<sup>†</sup>



Bel Air  
Product No: 4357  
Name: Sierra Ridge\*  
Description: Tan, Black, Cream Flashed

Ref	Emi	SRI	A.Ref	A.SRI
.35	.77	33	.31	27



LEED<sup>†</sup>



Malibu  
Product No: 2209  
Name: Arrowhead Gray\*  
Description: Gray, Smoke Gray Flashed\*

Ref	Emi	SRI	A.Ref	A.SRI
.34	.76	31	.30	31



LEED<sup>†</sup>



Bel Air  
Product No: 4209  
Name: Arrowhead Gray\*  
Description: Gray, Smoke Gray Flashed\*

Ref	Emi	SRI	A.Ref	A.SRI
.34	.76	31	.30	31



LEED<sup>†</sup>



Malibu  
Product No: 2233 (433-Lightweight)  
Name: Cayenne\*  
Description: Red Slurry over Red Through Color

Ref	Emi	SRI	A.Ref	A.SRI
.30	.91	32	.27	28



LEED<sup>†</sup>



Capistrano  
Product No: 3233  
Name: Cayenne\*  
Description: Red Slurry over Red Through Color

Ref	Emi	SRI	A.Ref	A.SRI
.30	.91	32	.27	28



LEED<sup>†</sup>

\*Surface colored tiles not recommended in locales subject to repeated freeze-thaw cycles. †This product may help a project fulfill LEED® requirements. \*\*\*This product may be manufactured with gray cement and a white color coat in some areas.  
**Notice: To ensure your satisfaction with your tile choice, we request that you obtain an actual tile sample or samples from your roofing contractor**

# Cool Roof Tile

Legend: **Ref** = Reflectance **Emi** = Emittance **SRI** = Solar Reflectance Index **A.Ref** = Aged Reflectance **A.SRI** = Aged Solar Reflectance Index



Bel Air  
Product No: 4233  
Name: Cayenne\*  
Description: Red Slurry over Red Through Color



Ref	Emi	SRI	A.Ref	A.SRI
.30	.91	32	.27	28

LEED†



Capistrano  
Product No: SMC8404 (LMC8404 - Lightweight)  
Name: San Juan  
Description: Peach, Tan, Terracotta Blend



Ref	Emi	SRI	A.Ref	A.SRI
.30	.85	30	.27	26

LEED†



Capistrano  
Product No: 3560  
Name: Caliente  
Description: Red, Yellow Streaks



Ref	Emi	SRI	A.Ref	A.SRI
.25	.88	24	.24	23



Bel Air  
Product No: 4560  
Name: Caliente  
Description: Red, Yellow Streaks



Ref	Emi	SRI	A.Ref	A.SRI
.25	.88	24	.24	23



Capistrano  
Product No: 3794  
Name: Coronado  
Description: Tan, Charcoal, Cream Streaks



Ref	Emi	SRI	A.Ref	A.SRI
.27	.94	30	.25	27

LEED†



Bel Air  
Product No: 4794  
Name: Coronado  
Description: Tan, Charcoal, Cream Streaks



Ref	Emi	SRI	A.Ref	A.SRI
.27	.94	30	.25	27

LEED†



Malibu  
Product No: 2698  
Name: Kona Red Range  
Description: Red Range



Ref	Emi	SRI	A.Ref	A.SRI
.25	.83	22	.24	21



Capistrano  
Product No: 3698 (598 - Lightweight)  
Name: Kona Red Range  
Description: Red Range



Ref	Emi	SRI	A.Ref	A.SRI
.25	.83	22	.24	21



Bel Air  
Product No: 4698  
Name: Kona Red Range  
Description: Red Range



Ref	Emi	SRI	A.Ref	A.SRI
.25	.83	22	.24	21



Malibu  
Product No: 2598  
Name: Ocotilla  
Description: Peachy Tan, Charcoal, Cream Streaks



Ref	Emi	SRI	A.Ref	A.SRI
.25	.80	21	.24	19



Capistrano  
Product No: 3598  
Name: Ocotilla  
Description: Peachy Tan, Charcoal, Cream Streaks



Ref	Emi	SRI	A.Ref	A.SRI
.25	.80	21	.24	19



Bel Air  
Product No: 4598  
Name: Ocotilla  
Description: Peachy Tan, Charcoal, Cream Streaks



Ref	Emi	SRI	A.Ref	A.SRI
.25	.80	21	.24	19

Additional color options are shown in your regional product brochure.

“According to EPA, about \$40 billion is spent annually in the US to air condition buildings — one-sixth of all electricity generated in a year! ENERGY STAR qualified roof products reduce the amount of air conditioning needed in buildings, and can reduce energy bills by up to 50 percent.”

Source: [www.energystar.gov](http://www.energystar.gov)

# Eagle Energy Saving Roof



## The Energy Saving Roof

The Energy Saving Roof combines the inherent insulating properties of Eagle concrete tile with an installation method that allows for ventilation between the tile and the roof deck. The result is less heat transfer into the attic and therefore into the home. This means that air conditioning use is curtailed, and less energy is consumed. When less energy is consumed, energy bills will decrease.

- Ventilating the air space between the roof deck and the concrete roof tile has been shown to reduce the amount of heat that is transferred into the attic.
- When less heat is in the attic, less heat is transferred into the home.
- This means the air conditioner works less and utility bills are reduced.
- Studies have shown that when you compare an Energy Saving Concrete Tile Roof to an asphalt roof that is nailed directly on to the roof deck, you will see almost a 50% reduction in the amount of heat that is transferred into the attic.



## How can your roof help you to save money?

By keeping hot air moving out of your roof instead of into your attic. With the Eagle Energy Saving Roof, an air current is created that draws air in at the eave level and out at the ridge. This ventilation of the roof deck helps to reduce heat transfer into your attic and thus into your home or building. The Eagle Energy Saving Roof is an installation method that utilizes Eagle concrete roof tile and several Eagle accessory products to install the roof in an energy efficient manner. The result means less work for the air conditioner, less expenditure of energy and lower electrical bills for the end user.

## There are only four simple products required to create the Energy Saving Roof:

1. **Eagle Cool Roof Tile** -- Eagle Roofing Products has a selection of ENERGY STAR and Cool Roof Rating Council approved tile products available. These products can not only help you meet code requirements, they also provide superior benefits for owners and the environment. Eagle's Cool Roof Tile products can provide 7%-15% savings on cooling costs as well as possible additional rebates through local utility companies.



## 2. Ventilated Bird Stop

In addition to elevating the eave course to the proper height and helping to prevent bird nesting, the Ventilated Bird Stop design allows for air to enter the space between the tile and the roof deck contributing to the convection current that will ventilate this space.

- 28 Gauge metal
- Capistrano: 7-1/2" net free airflow per linear foot
- Malibu: 4" net free airflow per linear foot
- Flat: 3" net free airflow per linear foot



## 3. Scalloped Battens

Eagle's Scalloped Battens are a simple solution to raised or counter battens. They are durable wood battens with a scalloped cut along the deck facing edge that allows for ventilation under the tile. Air that is taken in at the eave through the Ventilated Bird Stop passes under the tile and under the Scalloped Battens and is exhausted at the ridge through the FlexVent



Please ask your sales representative for product details.

## 4. FlexVent™

FlexVent provides the ridge ventilation that allows hot air to escape from between the tile and the roof deck. Beyond the venting function, FlexVent also works as a weather seal helping to prevent water intrusion at the ridge.

- 9" to 10" net free airflow per linear foot
- U.V. resistant
- ICC-ES ESR 1787
- Passed Miami-Dade County wind driven rain test, PA 100(A)-95
- Passed ICC dust test, AC 132



## Research Studies Show the Energy Saving Roof Helps Prevent Heat Transfer

According to Dr. Miller of Oak Ridge National Laboratories, a 1995 study by Beal and Chandra essentially showed:

- A 48% reduction in heat transfer into the attic with tile roofs installed using ASV (above sheathing ventilation like the Energy Saving Roof) when compared to a direct nailed asphalt shingle roof.
- A 39% reduction of heat transfer into the attic in comparing concrete tile and asphalt shingles when both products were installed in a direct deck application.

This means that an Eagle Energy Saving Roof can reduce heat transfer into the attic by almost 50% when compared to an asphalt roof. The result is a significant reduction in the amount of energy required to cool a building and that results in lower electricity bills for the owner.

# Eagle Complete Roofing System



## Eagle's Complete Roofing System

Create a superior roof by incorporating the Eagle Solar Roof along with Cool Roof Tile and the Energy Saving Roof. The combination of these three product lines creates a roof that produces clean energy, reflects heat away from the home, and allows for tile space ventilation that further reduces energy consumed for cooling the home.



### Eagle Solar Roof with SolarBlend™

Safe, quiet, beautiful and environmentally responsible energy production is the result of the Eagle Solar Roof. It is a solar system that not only harnesses the sun's energy it also integrates seamlessly with Eagle concrete roof tile. This fit not only maintains the aesthetics of the roof, it also helps to maintain the integrity of the roof system. With the potential of federal tax credits, state rebates and the knowledge that solar homes and buildings appraise for significantly more than the cost of investing in one, the solar choice makes sense financially as well.



### Cool Roof Tile

Eagle has a selection of Cool Roof Tile colors available for reroof and new construction projects. Approved by the Cool Roof Rating Council and ENERGY STAR, these colors not only help a project qualify for green building requirements, they also provide superior benefits for owners and the environment.



Bel Air  
Product No: 4794  
Name: Coronado  
Description: Tan, Charcoal, Cream Streaks

Ref	Emi	SRI	A.Ref	A.SRI
.27	.94	30	.25	27



### Energy Saving Roof

The Energy Saving Roof combines the inherent insulating properties of Eagle concrete tile with an installation method that allows for ventilation between the tile and the roof deck. The result is less heat transfer into the attic and therefore into the home. This means that air conditioning use is curtailed, and less energy is consumed. When less energy is consumed, energy bills will decrease.



**Ventilated Bird Stop**



**Scalloped Battens**



**FlexVent™**



# Responsible Manufacturing

## Environmentally Responsible Manufacturing

Eagle Roofing Products takes its commitment to environmental responsibility seriously. That's why Eagle leads all other concrete tile manufacturers in its recycling and re-use activities. Eagle makes a concerted effort to reduce haul-off from all of its plants while purchasing the most energy efficient and environmentally safe equipment it can find.

The pre-consumer recycled content of Eagle's standard weight tile is 2-1/2%. This percentage is comprised of reject tiles that are reintroduced into the manufacturing process Eagle's facilities in Rialto, California, Stockton, California, Phoenix, Arizona and Sumterville, Florida. Eagle's Phoenix, Arizona plant also utilizes recycled fly ash as part of the total 2-1/2% recycled content of standard weight tile produced at that plant location.

The pre-consumer recycled content of Eagle's lightweight tile is 65%. This percentage is comprised of expanded shale that has

been re-claimed from other industrial operations. Eagle produces lightweight tile at its plants in Rialto, California and Stockton, California.

## Eagle also employs the following practices at its manufacturing plants:

- Energy efficient air compressors reduce energy use by 25% in our Stockton plant.
- Energy efficient fluorescent lights reduce electrical demand by 68% in our Stockton and Rialto plants.
- Modifications to the tile production line in Stockton resulted in 16% reduction in energy use.
- Trash that cannot be recycled is compacted to reduce landfill volume.
- All Eagle tile sealers are water based.



Wood tile pallets are repaired and re-used whenever possible.



The tile mold release oil purchased is recycled from restaurant fryers. The oil is vegetable based.



A low-NOx process is employed in our tile curing chambers.



All wet-mix materials are re-introduced into the manufacturing process, including water and oxides. Industrial wash-down water is recycled and re-used.



• Engine oil and filters from plant equipment are recycled.



• Synthetic oils are used on machinery when possible due to their longer life-span.



**Capistrano 3646 Sunset Blend  
50 Watt Terracotta SolarBlend™ Roofing Tiles**

# Green Building Agencies



## Green Building Agencies and Code Requirements

There are many agencies, organizations and code bodies that impact green building projects. Several such programs are described below. It is best to familiarize yourself with local green building initiatives and requirements as well.

## What is Leadership in Energy and Environmental Design (LEED)?

“LEED is a third party certification program and the nationally accepted benchmark for the design, construction and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings’ performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. LEED Rating Systems are developed through an open, consensus-based process led by LEED committees. Each volunteer committee is composed of a diverse group of practitioners and experts representing a cross-section



of the building and construction industry. The key elements of USGBC's consensus process include a balanced and transparent committee structure, technical advisory groups that ensure scientific consistency and rigor, opportunities for stakeholder comment and review, member ballot of new rating systems, and a fair and open appeals process.”

(Source: [www.usgbc.org](http://www.usgbc.org))

## How does LEED impact me?

### As an architect:

LEED rating systems provide guidelines to create the energy efficient buildings that positively impact their inhabitants. LEED accreditation sets your firm apart as a company that has the desire and will to invest the time and money in healthy and environmentally friendly project design.

Eagle Green products may help qualify a project for LEED points. The following are a few examples. For more detailed information on current LEED programs for Homes, Schools, etc., please contact your local Eagle Sales Representative or visit [www.eagleroofing.com](http://www.eagleroofing.com).

### Commercial New Construction & Major Renovation

**LEED Credit:** Sustainable Sites Credit 7.2 Heat Island Effect: Roof - 1 point possible

**Eagle Product:** Eagle Cool Roof Tile with Solar Reflectance Index (SRI) value of 29 or higher. Must be installed on roofs with pitches greater than 2:12 and must cover 75% of roof surface.

**LEED Credit:** Energy & Atmosphere Credit 2 On-Site Renewable Energy - 1-7 points possible

**Eagle Product:** The Eagle Solar Roof with SolarBlend™ from Suntech may help to qualify for this credit. Local utility net metering programs should be taken advantage of. Points are awarded according to the percentage of renewable energy produced.

“A new study by CoStar Group has found that sustainable "green" buildings outperform their peer non-green assets in key areas...According to the study, LEED buildings command rent premiums of \$11.24 per square foot over their non-LEED peers and have 3.8 percent higher occupancy.”

Source: *CoStar Study Finds LEED, Energy Star Bldgs. Outperform Peers*, Andrew C. Burr, CoStar Group, March 26, 2008

# Green Building Agencies

## **As a home or building owner:**

Know that your home or commercial building has been designed to be as energy efficient and environmentally responsible as possible. From indoor air quality to water conserving landscaping to heat island reducing cool roofs, your office, residence, school or healthcare facility is designed to perform optimally for you and the environment.

## **As a builder:**

Offering your clients what they want is the best way to get your projects noticed and sold. Energy efficient homes and buildings that take responsibility for the surrounding environment while positively impacting pocket books are at the top of your clients' target list. Building a LEED certified project is an ideal way to meet these needs.

## **What is ENERGY STAR?**

"ENERGY STAR is a joint program of the U.S. Environmental Protection Agency and the U.S.



Department of Energy helping us all save money and protect the environment through energy efficient products and practices.

Results are already adding up. Americans, with the help of ENERGY STAR, saved enough energy in 2007 alone to avoid greenhouse gas emissions equivalent to those from 27 million cars — all while saving \$16 billion on their utility bills."

(Source: [www.energystar.gov](http://www.energystar.gov))

## **How Does ENERGY STAR impact me?**

### **As a homeowner:**

Energy efficient choices can save families about a third on their energy bill with similar savings of greenhouse gas emissions, without sacrificing features, style or comfort. ENERGY STAR helps you make the energy efficient choice. Some ENERGY STAR rated products also qualify for Federal Tax Credits.

If looking for new household products, look for ones that have earned the ENERGY STAR. They meet strict energy efficiency guidelines set by the Environmental Protection Agency (EPA) and US Department of Energy. Calculate your annual energy savings using the ENERGY STAR Roofing Calculator at [www.roofcalc.com](http://www.roofcalc.com).

## Rental rates in Energy Star buildings

represent a \$2.38 per square foot premium over comparable non-Energy Star buildings and have 3.6 percent higher occupancy.

And, in a trend that could signal greater attention from institutional investors, Energy Star buildings are selling for an average of \$61 per square foot more than their peers, while LEED buildings command a remarkable \$171 more per square foot.

*Source: CoStar Study Finds LEED, Energy Star Bldgs. Outperform Peers, Andrew C. Burr, CoStar Group, March 26, 2008*

### **As a business owner:**

Because a strategic approach to energy management can produce twice the savings, for the bottom line and the environment, EPA's ENERGY STAR partnership offers a proven energy management strategy that helps in measuring current energy performance, setting goals, tracking savings, and rewarding improvements.

EPA provides an innovative energy performance rating system which businesses have already used for more than 62,000 buildings across the country. EPA also recognizes top performing buildings with the ENERGY STAR.

**As an architect:**

Differentiate your firm by qualifying your plans as Designed to Earn ENERGY STAR. The process is simple:

- Rate your designs using the Target Finder available through the ENERGY STAR web site. You must receive a rating of 75 or higher based on the EPA energy performance requirements.
- Complete the application and send it to the EPA. The application form can be found on the ENERGY STAR web site.
- Once approved, the EPA will send an electronic file containing the “Designed to Earn ENERGY STAR” graphic for use on plans and project documents.

**As a residential builder:**

Builders looking to separate themselves from the crowd in the minds of consumers increasingly interested in green building and energy savings can design and build ENERGY STAR Qualified Homes or incorporate specific Energy Star qualifying products..

ENERGY STAR Qualified New Homes are 20-30% more energy efficient than standard homes. Any home three stories or less can earn the ENERGY STAR label if it has been verified to meet EPA's guidelines. Learn more at [www.energystar.gov](http://www.energystar.gov)

**What is the Cool Roof Rating Council (CRRC)?**

“The Cool Roof Rating Council was created in 1998 to develop accurate and credible methods for evaluating and labeling the solar reflectance and thermal emittance (radiative properties) of roofing products and to disseminate the information to all interested parties.



The CRRC is incorporated as a non-profit educational organization for the following purposes:

- To implement and communicate fair, accurate, and credible radiative energy performance rating systems for roof surfaces.
- To support research into energy related radiative properties of roofing surfaces, including durability of those properties.

- To provide education and objective support to parties interested in understanding and comparing various roofing options

At the core of the CRRC is its Product Rating Program, in which roofing manufacturers can label various roof surface products with radiative property values rated under a strict program administered by the CRRC. Code bodies, architects, building owners and specifiers can rely on the rating information provided in the CRRC Rated Products Directory.” (Source: [www.coolroofs.org](http://www.coolroofs.org))

**How does the CRRC impact me?**

**As a homeowner:**

The CRRC approves and lists roofing products that can help to save 7%-15% on cooling costs. Many local utility companies also offer rebates when reroofing with CRRC approved products that meet given requirements.

**As an architect:**

LEED credits for heat island reduction through roofing materials can be earned by using products listed on the CRRC web site with a Solar Reflectance Index (SRI) of 29 or higher.

**As a builder or roofer:**

Find out which products can help your clients save money on energy costs by viewing the approved products on the CRRC website and incorporating them into your value propositions. Helping your clients save money while saving the environment will differentiate you from your competitors.

Learn more at [www.coolroofs.org](http://www.coolroofs.org)

**What are the NAHB Model Green Home Building Guidelines?**

The Model Green Home Building Guidelines as established by the



National Association of Homebuilders were created to provide a nationally recognized guide to building single family homes that protect the environment while seeing to the comfort of the inhabitants. Builders will find considerations for everything from site development to energy efficiency--all geared towards creating a home that has a positive impact on the neighborhood and the families who live there.

# Green Building Agencies

## How does the NAHB Model Green Home

### Building Guidelines impact me?

#### As a builder:

The NAHB guidelines pull together many smaller, local and regional green building guidelines into one easy to understand source.

There are three levels that a home can qualify for: Bronze, Silver and Gold. Points are awarded for meeting criteria in each of seven sections ranging from Lot Design to Energy Efficiency. The following are a few of the requirements for which Eagle products and services may qualify.

**NAHB Credit:** 2.4.1 Use recycled-content building materials. 3 points

**Eagle Product:** Eagle's concrete roof tile is comprised of 2-1/2% pre-consumer recycled material.

**NAHB Credit:** 2.8.1 Use locally available, indigenous materials. 5 points

**Eagle Product:** Eagle's four concrete tile roof manufacturing plants draw approximately 90% of the raw materials from local sources. Eagle's plants are located in Rialto and Stockton, California, Phoenix, Arizona and Sumterville, Florida.

### What is the National Green Building Standard™ (ICC 700-2008)?

The National Association of Home Builders (NAHB) and International Code Council (ICC) established a consensus committee of building industry and associated professionals to create the National Green Building Standard to consolidate many disparate local and regional green building programs into a nationally applicable, officially recognized method for the building and remodeling of resource and energy efficient and environmentally responsible dwellings. Crafted in compliance with the American National Standards Institute (ANSI) and approved as an American National Standard on January 29, 2009, these guidelines are nationally applicable, but allow for regional differentiation. The National Green Building Standard applies to single family and multifamily dwellings, lot and site development for residences, renovation/additions and remodeling of homes.

Covering resource efficiency to energy efficiency to indoor air quality, the National Green Building Standard is a comprehensive set of guidelines. A tiered point accumulation system will allow a building to be recognized as Bronze, Silver, Gold or Emerald rated. Each successive tier exceeds baseline ENERGY STAR requirements with Bronze being greater than 15%, Silver greater than 30%, Gold greater than 50% and Emerald greater than 60%. Citing third party codes and regulations from agencies such as the U.S. Department of Energy, the National Fire Protection Association and the Underwriters Laboratories, Inc.,

The National Green Building Standard uses the third party certification that these entities provide to ensure that the green buildings it recognizes have a definitive and positive impact on the environment.

### How does the National Green Building Standard™ (ICC 700-2008) impact me?

#### As a homeowner:

Methods for building a greener home or remodeling your current home to be more environmentally responsible are frequently discussed these days, and it's often difficult to decide which direction to take. Knowing that the steps which you and your builder or remodeling contractor have taken to ensure that your home is positively impacting your precious family and the environment results in peace of mind that will last for years. The NAHB, ICC and ANSI are nationally recognized entities that created these guidelines to provide you with just such peace of mind. Understanding what products and processes you can employ to achieve a Bronze, Silver, Gold or Emerald rating is easy with the online Green Scoring Tool ([www.nahbgreen.org/ScoringTool.aspx](http://www.nahbgreen.org/ScoringTool.aspx)). Breathe easy with the knowledge that your newly built or newly remodeled home is performing to national recognized resource and energy efficiency standards.

#### As a builder/remodeling contractor:

With so many local, regional and national green building programs available, it can be confusing to know which one to follow. With the National Green Building Standard, the NAHB, ICC and ANSI have developed a set of guidelines that have been verified to

result in homes that are green. Easy to use online tools are also available through the NAHB green website. The Green Scoring Tool ([www.nahbgreen.org/ScoringTool.aspx](http://www.nahbgreen.org/ScoringTool.aspx)). makes it simple to understand the requirements of the program and your product and process options for obtaining a solid rating.

**What is California's Title 24?**

"The Energy Efficiency Standards for Residential and Nonresidential Buildings were established in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. California's building efficiency standards (along with those for energy efficient appliances) have saved more than \$56 billion in electricity and natural gas costs since 1978. It is estimated the standards will save an additional \$23 billion by 2013."

(Source: [www.energy.ca.gov/title24/](http://www.energy.ca.gov/title24/))

**How does California's Title 24 impact me?**

**As a homeowner:**

California homeowners can rest assured that their new homes are constructed to meet some of the highest national energy consumption standards. More energy efficient homes result in more dollars in your pocket.

**As a builder or contractor:**

California builders will be the experts on creating energy efficient homes. The requirements outlined in Title 24 will ensure that your developments positively impact the environment and your homeowners. There are many energy consultants available to help builders understand and meet all Title 24 requirements, one such company that Eagle recommends is ConSol ([www.consol.ws](http://www.consol.ws)). When the builder has installed solar and the home is built to exceed local energy efficiency codes by 35%, the builder may qualify to receive a \$2,000 rebate from participating California utilities. (This rebate is only available in California.)

When the builder has built a home to exceed local energy efficiency codes by 15%, the builder may qualify to receive a \$500 rebate from participating California utilities. (This rebate is only available in California.)

A \$2,000 Federal Tax Credit per home may be available to builders that build homes which exceed International Energy Conservation Code IECC® standards by 50%.

In particular, many of Eagle's CRRC listed concrete tile products will help a project meet Title 24 requirements. Ask your Eagle Sales Representative for our informative tool that explains how our tile helps new construction and reroofing projects qualify for Title 24.

The new construction tool shows the how much a builder can save by using less expensive window, wall insulation and other products due to the installation of an Eagle tile of a certain solar reflectance. The reroof tool provides annual energy savings estimates for homes that reroof with Eagle tile of a certain solar reflectance. Both the new construction and the reroof tools described above provide data for each of California's 16 climate zones.

Learn more at [www.energy.ca.gov/title24/](http://www.energy.ca.gov/title24/). or by contacting the Title 24 Energy Efficiency Hotline at :

E-mail: [title24@energy.state.ca.us](mailto:title24@energy.state.ca.us)

Phone: 916-654-5106 (toll free in California) or

Phone: 1-800-772-3300

**What is GreenPoint Rated?**

"Build It Green is a membership supported non-profit organization whose mission is to promote healthy, energy- and resource-efficient homes in California. Established in 2003, we offer a comprehensive package of local government support, professional training, collaboration forums, consumer education, and green product marketing to a range of stakeholders.



# Green Building Agencies

## GreenPoint Rated Checklists & Manuals

GreenPoint Rated is a third party rating system for homes based on a set of green building measures pulled from the Green Building Guidelines and used to evaluate a home's environmental performance.

## Green Building Guidelines

The Green Building Guidelines are a great resource, full of best practices for green building developed by experts and stakeholders throughout the state." (source: [www.builditgreen.org](http://www.builditgreen.org))

### How does GreenPoint Rated impact me?

#### As a homeowner:

California residents that choose a GreenPoint Rated home know that it's been built to a set of green building measures that result in environmental responsibility. The knowledge that a non-profit organization committed to ensuring our planet's future is behind the rating system results in confident application of its requirements.

#### As an architect:

For exacting California architects, a green rating system that has been developed in their own backyard simply makes sense. Designing a project that qualifies as GreenPoint Rated brings with it recognition of sound, environmentally conscious design thus helping to set these professionals apart from their peers.

### What is California Green Builder

"The California Green Builder (CGB) program features homes that annually save thousands of kilowatts of energy, thousands of gallons of water and acres of trees. The program encourages voluntary partnerships between builders and local governments to build cost-effective, green homes that benefit homebuyers and the community at large. Builders who embrace CGB differentiate themselves in the marketplace through resource efficiency. Documentable savings is a plus for local officials who must record greenhouse gas emissions and water conservation efforts. The California Green Builder homebuyers benefit from lower energy costs while their home makes less impact on the environment." (Source: [www.cagreenbuilder.org](http://www.cagreenbuilder.org))



### How does California Green Builder impact me?

#### As a builder:

The California Green Builder designation show prospective homeowner and local governments that the designated company has taken the time to educate itself about green building options and chosen to implement this knowledge in the creation of quality, affordable and low impact homes—a true differentiator from the competition. From increased energy efficiency through high performance windows to water conservation through low flow toilets to improved indoor air quality through MERV 6 filters, the California Green Builder program requires consideration for many aspects of a modern, green home. Builders can rest assured that the CGB program also includes California's Title 24 requirements. Local governments may provide benefits to CGB builders during the planning and construction phases of CGB homes. The CGB itself provides marketing support, recognition on its website and the ability to enter the CBIA Golden Nugget Award as a California Green Builder.

#### As a homeowner:

Homeowners looking for reduced energy costs and positive environmental impact in a new home will find the solution in a California Green Builder home. The program requires that homes meet Title 24 2008 (officially effective on January 1, 2010) standards which are 15-22% more stringent than the existing 2005 program. These homes also meet ENERGY STAR requirements. The California Green Builder program requirements also cover energy efficiency, water conservation, indoor air quality and wood conservation methods and products in the development of qualifying homes. Construction site waste management including recycling is also considered by the program. Finally, each home is inspected by third party Home Energy Rating System (HERS) raters to verify the stipulations of the program have been met.





**Eagle Solar Roof Rack-Mounted Solar System  
Black Label™ Mono-crystalline Solar Panels over asphalt shingles**



Capistrano 39507 Moss Creek  
50 watt Gray SolarBlend™ Roofing Tile

Ponderosa 5699 Charcoal Range  
50 watt Gray SolarBlend™ Roofing Tile



# Case Study

## Eagle Roofing Products



### The Eagle Solar Roof enhances the green homes of The Gatsby Hollywood

**Project Name:** The Gatsby Hollywood  
**Project Location:** Hollywood, CA  
**Builder Name:** MasterCraft Homes  
**Rofer Name:** DRI Residential  
**Tile Product:** Ponderosa Gray Brown Range 5687  
**Solar Product:** Eagle Solar Roof with SolarBlend™ from Suntech (34 Watt Panels)  
  
(Eagle now offers 50 Watt Panels instead of 34 Watt Panels.)



Profile: Ponderosa  
Product No: 5687  
Name: Gray Brown Range  
Description: Gray Brown Range



SolarBlend™ Roofing Tile Gray 34 Watt

MasterCraft Homes' newest development, The Gatsby Hollywood, is a study in the future of residential new construction. Metro L.A.'s first certified green, all-solar Smarthome™ community is not only being noticed by potential homebuyers, but was also recognized by the city of Hollywood and the state of California for its pioneering sustainable design and materials.

MasterCraft understands that the way to differentiate their company and their homes in today's market is to

give homeowners something extraordinary. With The Gatsby Hollywood, not only are homeowners purchasing a uniquely beautiful home with all of the amenities they expect today, they're purchasing a home with the amenities of the future as well. That means a home that saves them money every month while having minimal impact on the environment. The Eagle Solar Roof with SolarBlend™ from Suntech was vital in the creation of these innovative, energy and resource efficient and attractive residences.

## Solar Roofing Tiles





The choice of the Eagle Solar Roof was made based on several factors. The quality of the concrete tile and solar products is superior and backed by the stable and successful companies of Eagle Roofing Products and Suntech, respectively. Eagle warrants its concrete tile for a lifetime, and Suntech stands behind the power output of the SolarBlend™ panels for 25 years. Selecting building integrated photovoltaics (BIPV) helps to maintain the aesthetics and integrity of the roof unlike traditional rack-mounted solar panels. With 10 years of free internet monitoring and help with questions or concerns only a phone call away, the support for MasterCraft's homeowners is substantial. Finally, the benefits offered to MasterCraft were numerous. Eagle provides a turn-key solution that includes on-site technical support and training to ensure successful installations, paper work processing of applicable state and utility rebates and net-of-rebate materials pricing, full permit packages including electrical line diagrams and roof layouts, assistance with acquiring city approval, and sales and marketing support to help sell the benefits of the solar system to potential homeowners.

It is estimated that an individual homeowner at The Gatsby Hollywood who purchases a home with a 2.006 kW DC Eagle Solar Roof will reduce his/her monthly electric bill 23% while reducing green house gas emissions by preventing 51 tons of CO<sub>2</sub> from entering the atmosphere—the equivalent of planting 2,040 trees. Add to this the fact that solar homes appraise for significantly more than the cost of investing in one, and homeowners are covered even if they end up selling.

“At MasterCraft Homes, we build quality homes based on unique forward thinking designs,” said Ray Dorame, vice president of operations at MasterCraft Homes Group LLC. “Choosing the

Eagle Solar Roof for The Gatsby Hollywood allowed us to realize our vision for an award winning green community. We know that solar electric systems are intrinsic to our success—success that is not only measured through home sales, but through a strong reputation for caring for our environment and our homeowners.”

In addition to the solar system, The Gatsby Hollywood offers a host of other state-of-the-art green building materials and practices including: high performance windows; properly sealed ductwork that prevents leaks and saves hundreds of dollars on heating and cooling costs; improved insulation installation that maintains even temperatures throughout the home; 92% Efficiency Furnaces; tankless hot water heaters; and high efficiency dishwashers, faucets, shower heads and toilets. Also recognized as a ComfortWise® community, The Gatsby Hollywood exceeds California's Energy Code requirements by at least 15%. Its use of Smarthome™ technology also allows residents to monitor energy usage, security and lighting systems from their PDA or office computer.

“For Eagle's part, we are proud to be chosen as the solar solution for The Gatsby Hollywood,” said Jay Banister, national solar and marketing manager for Eagle Roofing Products. “The level of commitment required to create such truly green dwellings proves that MasterCraft Homes is one of the builders of the future.”

The Gatsby presents approximately 1,525-square-foot floorplans with two bedrooms, a den, three baths, attached two-car garages, and private rooftop decks. Prices start at \$749,000. For more information, visit [TheGatsbyHollywood.com](http://TheGatsbyHollywood.com).



*E n v i r o n m e n t a l l y R e s p o n s i b l e*



# Case Study

## Eagle Roofing Products



### Eagle Solar Roof Contributes to LEED® Certification and Net-Zero Energy Recognition for Portland School

- Project Name:** Evans-Harvard High Performance Classroom at da Vinci Arts Middle School
- Project Location:** Portland, OR
- Architect:** SRG Partnership, Portland, OR
- Tile Product:** Ponderosa Coronado #5794
- Solar Product:** SolarBlend™ Roofing Tile Gray 34 Watt, 5.27 kW DC solar system
- (Eagle now offers 50 Watt Panels instead of 34 Watt Panels.)



Profile: Ponderosa  
Product No: 5794  
Name: Coronado  
Description: Tan, Charcoal, Cream Streaks



SolarBlend™ Roofing Tile Gray 34 Watt

The da Vinci Arts Middle School prides itself on making the best and most environmentally responsible choices for its facilities. When it needed to replace portable classrooms that were at the end of their life-spans, da Vinci's biology teacher, Dan Evans, suggested a permanent high performance classroom be built. The school anticipates this new classroom will receive both LEED® Platinum certification and be recognized as a Net-Zero Energy building. The Eagle Solar Roof was an integral feature in the application for both certification programs.

Extensive green building and energy conservation plans were created by the architectural firm, SRG Partnership, to create the high performance classroom which would house da Vinci's music program. In addition to the solar energy system, the classroom also boasts a large central skylight that provides 95% of the lighting needs, energy efficient heat recovery ventilation and super-insulated walls for passive cooling. Additionally, the storm water will be channeled to da Vinci's existing rain garden.

## Solar Roofing Tiles



The choice of the Eagle Solar Roof was made based on several factors. The quality of the concrete tile and solar products is superior and backed by the stable and successful companies of Eagle Roofing Products and Suntech, respectively. Eagle warrants its concrete tile for a lifetime, and Suntech stands behind the power output of the SolarBlend™ panels for 25 years. Selecting building integrated photovoltaics (BIPV) helps to maintain the aesthetics and integrity of the roof. The Eagle concrete tile installed on the roof is also an energy efficient, economical and durable product. Concrete tile is highly emissive meaning that it acts as an insulator helping to prevent heat transfer through the roof into the building on hot summer days. The recycled content of the concrete tile and the fact that it qualified as a locally produced building material helped contribute to LEED® certification. With a Class A fire rating, the assurance that it passes freeze/thaw tests, exceeds current seismic load requirements and is protected by a Lifetime Transferable Limited Product Warranty\*, the concrete tile was also a very durable and long lasting roofing choice.

A 5.27 kW DC Eagle Solar Roof was added to the south facing side of the high performance classroom roof. This solar system was funded in large part by the Bonneville Environmental Foundation (BEF), the Energy Trust of Oregon and Portland General Electric (PGE). The system is grid-tied and the school has entered into a net-metering contract with the electrical utility. As the solar system produces electricity during the day, that which is not used by the school will be fed back into the grid as a credit on the school's account and available for future use. It is this energy production feature of the high performance classroom's solar roof that will significantly contribute to the school's achieving Net-Zero Energy recognition. Producing 5,430 kWh per year, the Eagle Solar Roof will reduce monthly electric bills by an estimated 18-20%. This system will prevent 93 tons of CO<sub>2</sub> from entering the atmosphere which is the equivalent of planting 3,716 trees.

"All of these [energy saving features] will combine to create a really excellent teaching and learning opportunity for our community," said Nancy Bond of Portland Public Schools.

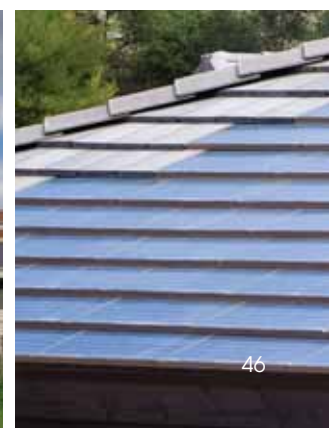
The students of da Vinci will be able to visit [www.solar4RSchools.org](http://www.solar4RSchools.org) to see and track the actual energy production of the Eagle Solar Roof that protects their music classroom. Solar4RSchools is provided by the Bonneville Environmental Foundation. The whole of the high performance classroom project has been a joint effort between students and parents, school staff and administrators and the community at large, a model for other public schools across the country.

"Eagle was very proud to be a part of the development of the Evans-Harvard High Performance Classroom at da Vinci Arts Middle School," said Jay Banister, national solar and marketing manager for Eagle Roofing Products. "This project illustrated the way in which green building efforts can positively impact not only the building and building owners, but the occupants and local community as well. This project will hopefully be an example to other school districts across the country."

The 1500 square foot high performance music building has a main classroom and two practice rooms. Ground broke on the project's construction in October of 2008. Construction wrapped up in June 2009. For more information on the da Vinci Middle School music classroom, please visit <http://www.facilities.pps.k12.or.us>.

\* Warranty must be registered.

## *E n v i r o n m e n t a l l y   R e s p o n s i b l e*





## Eagle Roofing Products Design Centers

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17875 Sky Park Circle  
Suite F  
**Irvine, CA 92614**  
Phone 949 553 8333  
Fax 949 553 9556

*Southwest*  
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Fax 602 447 0674

*Northern California*  
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**Roseville, CA 95747**  
Phone 916 789 4555  
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*Northern Florida*  
402 Northlake Blvd.  
Suite 1028  
**Altamonte Springs, FL 32701**  
Phone 407 691 7100  
Fax 407 691 5117

*Northwest Florida*  
13921 Icot Boulevard,  
Suite 704  
**Clearwater, FL 33760**  
Phone 727 531 2266  
Fax 727 531 7711



\*When installed properly, this product will help reduce energy costs. Actual savings will vary based on geographic location and individual building characteristics. Consult your product manufacturer, roofing contractor, or call 1-888-STAR-YES(1-888-782-7937) for more information.

“Ninety percent of the energy in the United States is generated by burning fossil fuels, which creates the air pollution associated with smog, acid rain, and global climate change. By reducing the amount of energy needed to cool buildings, ENERGY STAR qualified roof products help to reduce the production of these air pollutants.”

[www.energystar.gov](http://www.energystar.gov)



Front Cover Photos (top): 5699 Ponderosa Charcoal Range  
50 Watt Gray SolarBlend™ Tiles

(bottom, from left to right):  
Capistrano 3794 Coronado, Cool Roof Tile  
Eagle Solar Roof with Rack-Mounted Panels  
Eagle Energy Saving Roof  
Eagle Solar Roof with Rack-Mounted Panels



### Manufacturing, Showrooms and Stocking Yards

*Southern California*  
2352 N. Locust Ave.  
Rialto, CA 92377  
Phone 800 300 3245  
Fax 909 854 7181

*Northern California*  
4555 S. McKinley  
Stockton, CA 95206  
Phone 800 998 3245  
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