



819 Garden Street

Sustainability Goals  
&  
Green Building Guidelines

# 819 Garden Street

## Green Building Guidelines



### Index

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Project Directory

Project Vision

Sustainability Goals

1. Sustainable Site
2. Water Efficiency
3. Energy + Atmosphere
4. Indoor Environmental Quality
5. Materials + Resources

Green Building Resources



819 Garden Street  
Green Building Guidelines

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Project Directory



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Santa Barbara, CA 93101  
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T.B.D.

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## 819 Garden Street Green Building Guidelines

### Project Vision

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819 Garden Street represents an exciting opportunity for mixed-use development in the City of Santa Barbara and a regional case study in pioneering sustainable development. With the extraordinary design of Architect Jeff Shelton and creative interiors inspired by developer Steve Shulem, Garden Street will showcase the integration of high-performance ecological design with extraordinary architecture.

819 Garden Street will incorporate the current best practices in green building, demonstrating leadership in the building community. Through water and energy efficiency, green and sustainable materials selection, construction recycling, and good design, Garden Street will set the new green building standard for Santa Barbara.

The project will incorporate high performance mechanical systems such as radiant heating. Passive cooling shall take precedence over air conditioning. Reclaimed and locally manufactured materials will be selected for their low embodied energy. Finish materials will be selected for not only for beauty, but also for high recycled content and low VOC emissions. The primary structural materials, such as concrete, shall be specified with high volume fly ash. All wood framing shall be FSC Certified. Pioneering systems, such as reclaimed water cisterns under the parking deck and gray water recycling, shall be designed into the structure where budget and code allows. 819 Garden Street will be the most sustainable building it can be.

819 Garden Street will produce as much of its own electricity as possible given the orientation and footprint of the site. Building integrated photovoltaics, micro-turbines, and fuel cells will be investigated as potential on-site energy generation systems to power the building.

As one of the world's premier travel agents, Steve Shulem experiences the most exotic locations and accommodations in the world. It is only fitting that the international headquarters for his company, Strictly Vacations, exemplifies the level of design of world class vacation properties and the environmental sensitivity of the greenest architecture possible today. As a testament to his integrity and vision, Steve Shulem demonstrates that sustainable development is good business.

# 819 Garden Street Green Building Guidelines



## Sustainability Goals + Benchmarks

The following goals and benchmarks are pre-selected for 819 Garden Street in order to establish priorities for the Owner and Project Team. Goals are divided into five categories: Sustainable Site, Water Efficiency, Energy & Atmosphere, and Indoor Air Quality. The intention of this list is to identify the “low hanging fruit” such as low-emitting materials, as well as set high aspirations such as on-site renewable energy. Many goals allow the Owner and Team to choose one of three levels of sustainability benchmarks based on percentage of construction cost. Other goals, such as Light Pollution Reduction, are common industry wide practice. Prerequisites listed as “Required” may be challenging, but with some effort can be readily achieved. The Owner and Project Team shall review the list and assess each category for level of achievement. The Architect shall incorporate these goals and benchmarks into the design, drawings, and specifications for the project, and shall insure that the Owner’s intentions are met by the Contractor.

Sustainable Site	Achievement Level		
	Platinum	Gold	Silver
<b>Rainwater Harvesting</b> Capture all stormwater runoff and store on site in underground poured-in-place concrete or prefabricated cisterns.	___100%	___75%	___50%
<b>Light Pollution Reduction</b> Only light exterior areas for safety and comfort. Provide full cut-off luminaries for all exterior lighting.	___100%		
Water Efficiency	Platinum	Gold	Silver
<b>Water Use Reduction</b> Install low-flow dual flush toilets, waterless urinals, water-conserving faucets and shower heads.	___50%	___30%	___20%
<b>Innovative Wastewater Technologies - Rainwater</b> Capture and reuse rainwater for irrigation and sewage conveyance in plumbing fixtures. Install either poured in place concrete or prefabricated water cisterns under parking deck for water reuse. ‘Double plumb’ fixtures as necessary to comply with code requirements.	___100%	___50%	___25%
<b>Innovative Wastewater Technologies - Greywater System</b> Capture and reuse greywater for sewage conveyance in plumbing fixtures. Install poured in place concrete or prefabricated cisterns under parking deck for water recycling. ‘Double plumb’ fixtures as necessary to comply with code requirements.	___100%	___50%	___25%
<b>Zeriscape Landscaping</b> Landscaping shall require no irrigation.	___100%		

# 819 Garden Street Green Building Guidelines

## Energy + Atmosphere

Platinum Gold Silver

### Fundamental Commissioning

Verify that the building's energy related systems are designed, installed and calibrated to perform according to the owner's requirements. Designate an individual to lead, review, and oversee the completion of all energy-related systems as well as train the owner/users in the proper operation and thermal cycles of the building.

Required

### Optimize Energy Performance

Through Whole Building Energy Simulation (Mechanical & Electrical combined), demonstrate calculated improvement above California Title 24 requirements.

\_\_\_ 50% \_\_\_ 40% \_\_\_ 25%

### On-Site Renewable Energy

Generate electricity on site through a combination of one or more systems, such as Bi-PV, microturbine, wind generator, fuel cell.

\_\_\_ 20% \_\_\_ 10% \_\_\_ 5%

### Green Power Credits - Operations

Owner will purchase Green Tags to compensate for carbon emissions from traditional power suppliers. [www.greentagsusa.org](http://www.greentagsusa.org) / [www.carbonfund.org](http://www.carbonfund.org)

\_\_\_ 100% \_\_\_ 50% \_\_\_ 25%

### Carbon Credits - Construction

Owner will purchase Green Tags to compensate for carbon related emissions resulting from the construction of the building.

\_\_\_ 100%



# 819 Garden Street

## Green Building Guidelines

Materials + Resources	Platinum	Gold	Silver
<p><b>Construction Waste Management</b> Divert percentage of construction waste (by weight) from landfill. Contractor to provide all receipts for verification.</p>	___ 100%	___ 90%	___ 75%
<p><b>Concrete</b> High Volume Fly Ash (HVFA) mix design Substitute fly ash for cement in all poured-in-place concrete.</p>	___ 50%	___ 30%	___ 20%
<p><b>Grout</b> High Volume Fly Ash (HVFA) Substitute fly ash for cement in all masonry grout.</p>	___ 30%	___ 25%	___ 15%
<p><b>Materials Reuse</b> Use salvaged, refurbished, or reused materials so that the sum of these materials constitutes at least 5% of the cost of all materials on the project. Do not include mechanical, electrical, elevator, or plumbing components in this calculation.</p>	___ 10%	___ 5%	___ 2%
<p><b>Recycled Content Materials</b> Use materials with recycled content so that the sum of recycled content constitutes at least 10% of the total value of materials in the project. Recycled content shall be determined by weight. The recycled fraction of the assembly is then multiplied by the cost of the assembly to determine the content value.</p>	___ 30%	___ 20%	___ 10%
<p><b>Regional Materials</b> Use building materials or products that have been extracted, harvested, or recovered, as well as manufactured, within 250 miles of the project site for a minimum of 10% (by cost) of the total material value. Mechanical, electrical, plumbing, and elevators are not included in this calculation.</p>	___ 30%	___ 20%	___ 10%
<p><b>Rapidly Renewable Materials</b> Use rapidly renewable building materials and products that are typically harvested within a 10 year cycle (or shorter) for at least 2% of the total value of all building materials.</p>	___ 5%	___ 2%	
<p><b>FSC Certified Wood</b> All wood-based materials and products, including framing, dimensional, and finish lumber, casework and custom furniture, shall be FSC Certified.</p>	___ 100%	___ 75%	___ 50%



## 819 Garden Street Green Building Guidelines

### Indoor Environmental Quality

Platinum

Gold

Silver

#### Indoor Air Quality Management

Required

After construction ends, prior to occupancy and with all interior finishes installed, perform a building flush-out by supplying a total air volume of 14,000 cu.ft. of outdoor air per sq.ft. of floor area while maintaining a temperature of at least 60 degrees F and relative humidity no higher than 60%.

#### Low-Emitting Materials: Adhesives and Sealants

Required

Specify low-VOC materials in construction documents. All adhesives, sealants and sealant primers must meet South Coast Air Quality Management District Rule #1168 VOC limits. All Aerosol Adhesives must meet Green Seal Standard GS-36.

#### Low-Emitting Materials: Paints & Coatings

Required

Paints and coatings used on the interior of the building shall be low or no-VOC content per Green Seal Standards GS-11, GC-03, and South Coast Air Quality Management District Rule #1113.

#### Low-Emitting Materials: Carpet Systems

Required

Reduce or eliminate the use of carpet.  
All carpet installed shall meet the testing and product requirements of the Carpet and Rug Institute's Green Label Plus program. All carpet cushion installed shall also meet the Green Label Plus program. All carpet adhesives must be low, or no-VOC.

#### Low-Emitting Materials: Wood & Agrifiber Products

Required

Composite wood and agrifiber products used on the interior of the building shall contain no added urea-formaldehyde resins. Laminating adhesives used to fabricate on-site and shop-applied composite wood assemblies shall contain no added urea-formaldehyde resins. These products include: particle board, MDF, plywood, wheatboard, strawboard, panel substrates, and door cores. Fixtures, furniture, and equipment are not included.

#### Indoor Pollutant Source Control

Required

Employ permanent entryway systems to capture dirt and particulates from entering building in all entryways directly connected to the outdoors. Acceptable entryway systems include permanently installed grates or grills that allow for cleaning.

# 819 Garden Street Green Building Guidelines



## Green Building Resources

The following resources were specifically selected for consideration in the design and construction of 819 Garden Street. While this report holds considerable references, we do not claim to be exhaustive in our search for products and manufacturers. Please call Michael Heacock + Associates at 415-845-5326 with questions, or for additional information.

### 03 - CONCRETE

#### High Volume Fly Ash

*Making Better Concrete*, by Bruce King

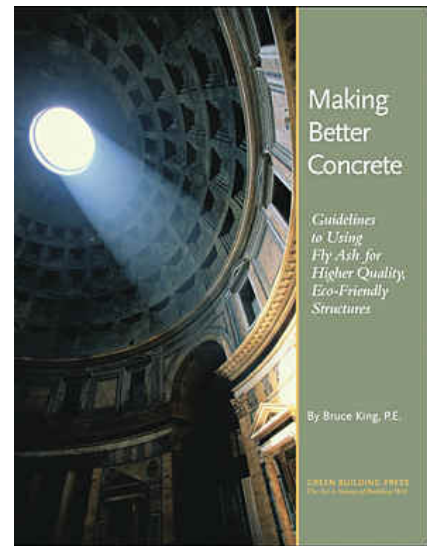
The most recent and up-to-date information regarding HVFA Concrete. Bruce King is one of the foremost experts in HVFA, as well as straw bale, rammed earth and pise construction.

Bruce King, PE

[ecobruce@sbcglobal.net](mailto:ecobruce@sbcglobal.net)

[www.ecobuildnetwork.org](http://www.ecobuildnetwork.org)

[www.buildersbooksource.com](http://www.buildersbooksource.com)



### 06 – WOOD + PLASTICS

#### FSC Certified Wood

[www.fscus.org](http://www.fscus.org)



#### FSC Certified Wood Flooring

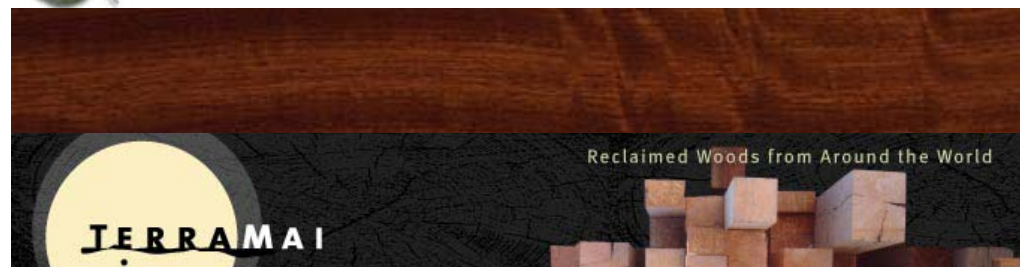
[www.ecotimber.com](http://www.ecotimber.com)



Beautiful Floors | Environmentally Sound

#### Reclaimed Lumber

[www.terramai.com](http://www.terramai.com)





## 06 – WOOD + PLASTICS (cont'd)

### Formaldehyde-free MDF

Medite II, MedEx

[www.sierrapine.com](http://www.sierrapine.com)

### Wheatboard

MDF made from wheat.

[www.environmentalcomposites.com/products.php](http://www.environmentalcomposites.com/products.php)



## 07 – THERMAL & MOISTURE PROTECTION

Wood and steel framing insulation comes in many varieties and cost levels. Starting with the cheapest, Johns Manville makes formaldehyde-free batt insulation, which can be found at Home Depot. The next step up would be either wet or dry blown cellulose insulation, made from 100% recycled newspaper and treated with fire retardant. Michael Heacock + Associates prefers dry blown with the idea of keeping moisture out of the framing. The highest end insulation would be UltraTouch, from 100% recycled cotton blue jeans.

### Cellulose Insulation

100% Recycled newspapers

[www.nuwool.com](http://www.nuwool.com)

### Blue Jean Insulation

100% Recycled blue jeans

[www.bondedlogic.com](http://www.bondedlogic.com)

### Rigid and Sound Insulation

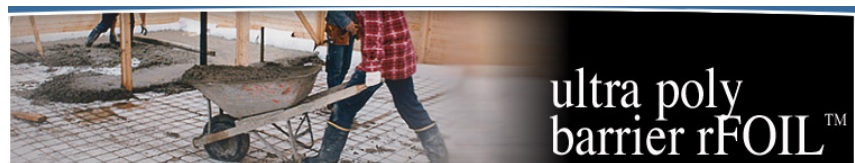
100% Recycled newspapers

[www.homasote.com](http://www.homasote.com)

### Radiant Concrete Floor Insulation

Michael Heacock + Associates highly recommends to add barrier insulation between the 2" radiant topping slab and the structural slab.

TVM Barrier Insulation [www.tvmi.com](http://www.tvmi.com)



# 819 Garden Street

## Green Building Guidelines

### 09 – FINISHES

Agrifiber products are among the most sustainable of all construction materials. In the same way Fly Ash is an industrial 'waste' product, agrifiber materials are the result of agricultural processes. Straw Bale is a classic example; the rice straw would normally be burned off after the harvest. Instead, rice straw can be made into bales for building homes and businesses.



#### Sunflower Board

This beautiful agrifiber board is manufactured from the hulls of sunflower seeds.

[www.environmentalcomposites.com/products.php](http://www.environmentalcomposites.com/products.php)

#### Kirei Board

Kirei is an extremely beautiful panel product for walls, casework and furniture. Made from the waste hulls of the Sorghum plant, this material would otherwise be burned into the atmosphere. Using this material reduces global warming.

[www.kireiusa.com](http://www.kireiusa.com)



#### Agrifiber Doors

Solid core interior doors can be specified to be made from agricultural waste fiber.

[www.greencorcomposites.com](http://www.greencorcomposites.com)



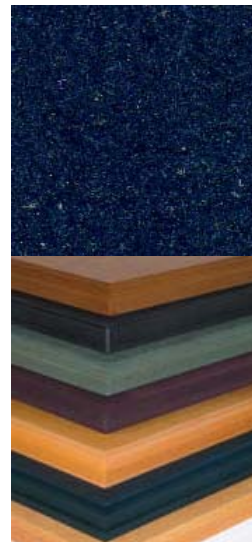
#### Agrifiber Panel & Counter Materials

[www.environmentalcomposites.com/products.php](http://www.environmentalcomposites.com/products.php)

#### Richlite

100% recycled material from paper. Used for decades in high school chemistry labs.

[www.richlite.com](http://www.richlite.com)



#### Slatescape

Fiber cement countertop material with the look and feel of stone.

[www.americanfibercement.com](http://www.americanfibercement.com)

#### Recycled Glass Tile

Made from Tecate and Corona bottles in Tijuana.

Oceanside Glass

[www.glasstile.com](http://www.glasstile.com)



## 09 – FINISHES (cont'd)

Rapidly renewable materials are those that can be harvested within a maximum 10 year period. Cork and bamboo are among the most popular materials in this category.

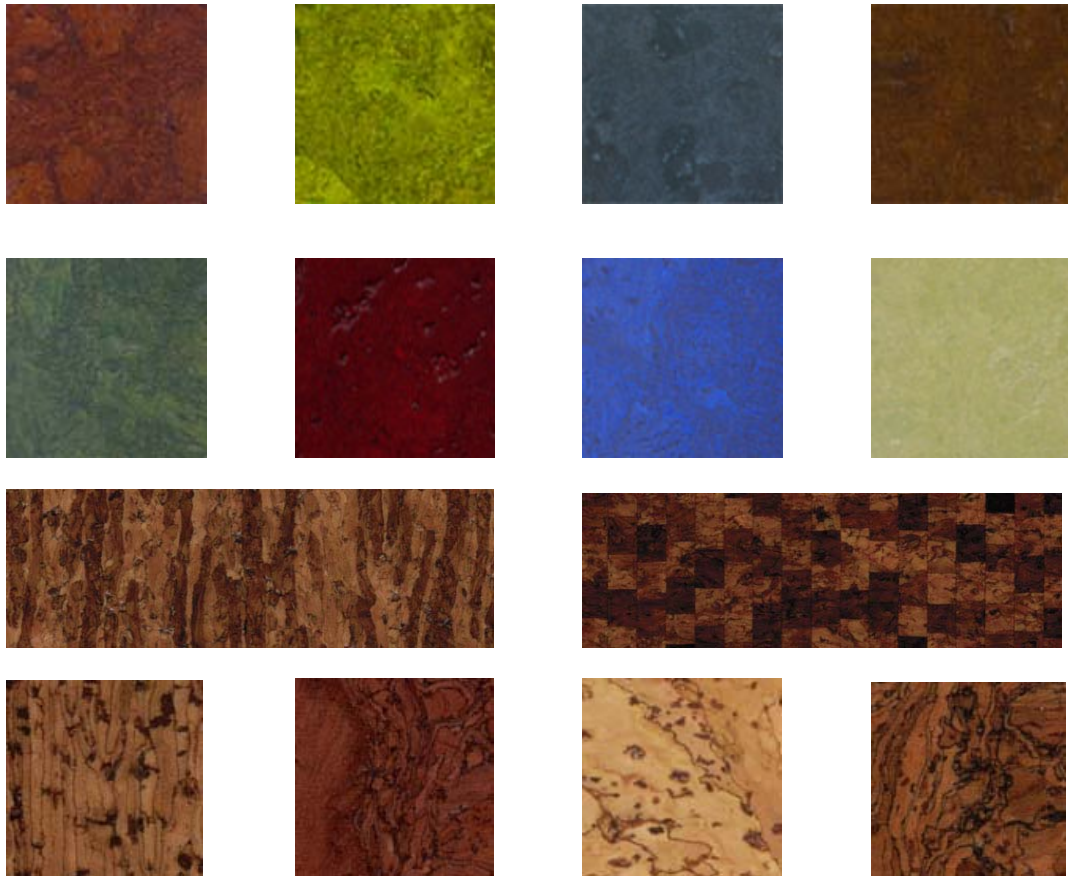
### Cork Flooring & Panel Products

The use of cork for floor and wall applications has broadened over recent years. Cork is now considered durable enough for commercial spaces. Additionally, cork comes in many colors and texture combinations.

(Note: Moisture issues at concrete, test prior application)

[www.corkfloor.com](http://www.corkfloor.com)

[www.expanko.com](http://www.expanko.com)



### Bamboo

Bamboo is widely recognized as a green material due to its nine month growth cycle. Bamboo is increasingly used now with different stain options for more variety and exotic appearances.

[www.ecotimber.com](http://www.ecotimber.com)



## 15 – MECHANICAL + PLUMBING

Decisions regarding HVAC equipment and systems can be challenging depending on the Owner's project requirements, budget, building orientation and type, and climate. Operable windows are a key ingredient to any green building. However, forced air mechanical systems often function improperly when air balancing is cannot compensate for open windows. Passive and radiant systems are preferred not only to allow for operable windows, but also to reduce indoor air pollution and the potential for sick building syndrome. In temperate climates, such as Santa Barbara, mechanically assisted cooling may only consist of ceiling fans. Building design may also accommodate thermal stacks vertically through the building, which allow hot air to rise and escape naturally. Attic fans are also an economical way of mechanically assisting the passive cooling process. In some cases, radiant flooring has included a cool water loop as a means of assisting the passive cooling process.

### Radiant Concrete Flooring

The Project Team is very strongly encouraged to design a 1-1/2" to 2" topping slab, separated from the structural slab by barrier insulation. For an attractive and sometimes exotic appearance, radiant concrete floors are commonly left exposed and simply stained with Scofield products.

Warm Floors

[www.warmfloors.com](http://www.warmfloors.com)

[www.scofield.com](http://www.scofield.com)

### Radiant Concrete Floor Insulation

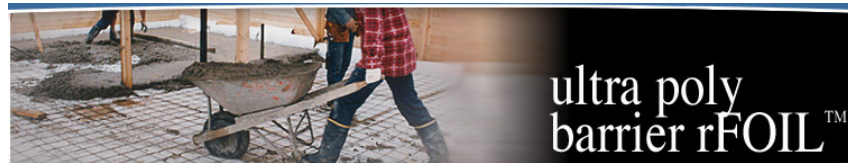
The Project Team is strongly encouraged to add barrier insulation between the radiant topping slab and the structural slab.

TVM Barrier Insulation

[www.tvmi.com](http://www.tvmi.com)

### Radiant Flooring – Wood Framing

[www.warmboard.com](http://www.warmboard.com)



warmboard® RADIANT SUBFLOOR



### High efficiency gas fired boilers

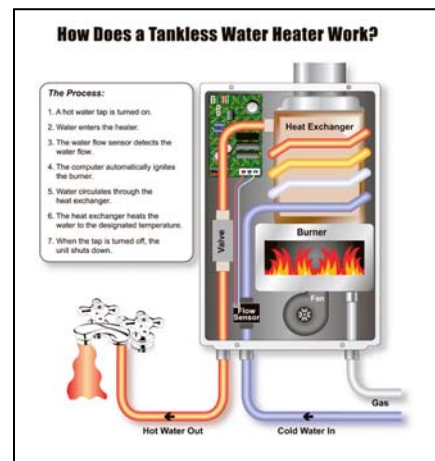
Munchkin [www.munchkinboiler.net](http://www.munchkinboiler.net)  
[www.htproducts.com](http://www.htproducts.com)

### High efficiency water heaters

Voyager [www.htproducts.com](http://www.htproducts.com)

### Instant fired hot water heaters

Takagi TK-2 [www.takagi.com](http://www.takagi.com)  
Rinnai [www.foreverhotwater.com](http://www.foreverhotwater.com)  
Bosch [www.boschhotwater.com](http://www.boschhotwater.com)



### Ceiling Fans

The Modern Fan Company  
[www.modernfan.com](http://www.modernfan.com)

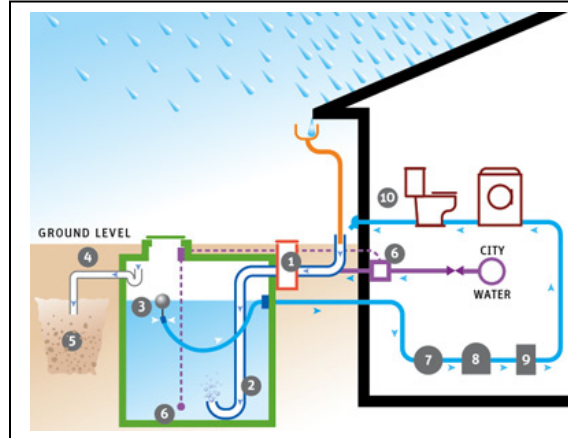


15 – MECHANICAL + PLUMBING (cont'd)

**Rainwater Harvesting**

Harvesting rainwater typically requires the installation of a cistern either below grade due to site constraints, or above grade for gravity feed. 819 Garden Street will most likely require a poured in place concrete cistern below the structural parking deck at grade. At nearby Hayward Design Center, prefabricated concrete septic tanks were used below the parking area. In other projects, large polyethylene tanks are buried below grade where structural requirements are less significant.

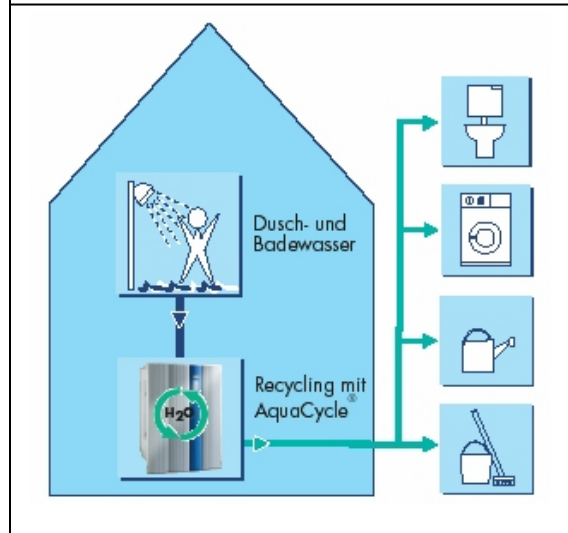
Rob Millar, San Luis Obispo  
Local Installer for commercial projects.  
T. 805.594.6880



**Greywater Systems** (for flushing toilets)

Hansgrohe makes an innovative greywater filtration system called, "Pontos AquaCycle 900." This system collects greywater from the shower, bath and washbasin, and then processes the water for use in toilets and potentially washing machines. Greywater recycling is not code compliant in most jurisdictions, and should be addressed with the building department early in schematic design. When approved, building departments accept a double plumbed system, which allows toilet fixtures to use primary municipal water as they would normally, or a valve can be switched to accept greywater when available. Strategic planning with regard to building codes is required to get a legal greywater system approved.

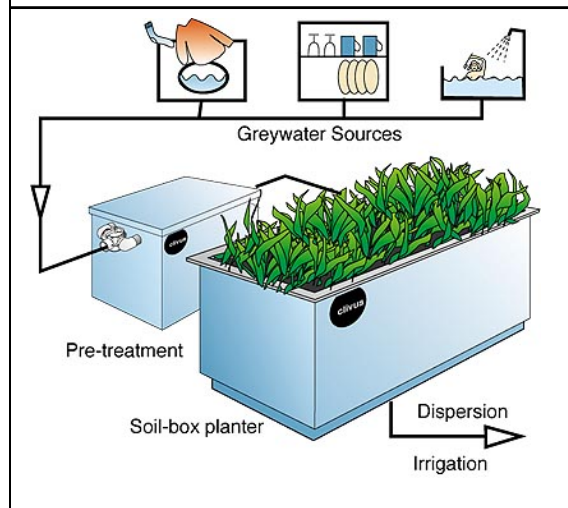
[www.pontos-aquacycle.com/pontos/en/index.html](http://www.pontos-aquacycle.com/pontos/en/index.html)



**Traditional Greywater Systems**

Traditional greywater systems redirect water from the sewer or septic line into a pre-treatment basin and then into a vegetated treatment area. Art Ludwig is the regional expert for residential scale projects happens to live in Santa Barbara. These systems are not typically legal in California.

[www.oasisdesign.net](http://www.oasisdesign.net)





## 16 – ELECTRICAL

### Micro-turbine

The most likely system for on-site energy generation at 819 Garden Street is a natural gas powered microturbine. A microturbine could provide a very high percentage of power to the building; potentially between 25% to 100% if enough space can be provided. The microturbine would likely be installed on the roof of the building, or in a basement area with ventilation.

[www.microturbine.com](http://www.microturbine.com)

[www.microturbine.com/prodsol/global/index.asp](http://www.microturbine.com/prodsol/global/index.asp)



### Building Integrated Photovoltaics (BiPV)

Amorphos PV

Unisolar makes flexible PV panels that can adhere to clean metal surfaces. These panels can be mounted on flat or curved surfaces

[www.uni-solar.com](http://www.uni-solar.com)



Mono-crystalline + Bi-crystalline PV

REC Solar is the primary local installer of small to medium scale PV systems in Santa Barbara county.

Gabe Davis

[www.recsolar.com](http://www.recsolar.com)

### Fuel Cell Energy Generation

In 2004 Santa Barbara's El Estero Wastewater Treatment Facility installed a stand-alone fuel cell, which runs on natural gas. Fuel cells provide a continuous source of electricity from a small supply of propane or natural gas, independent of the utility grid. Facilities requiring energy even when the power grid is down typically install one or more fuel cells on site. Due to the site constraints, a fuel cell is an unlikely solution for energy generation at 819 Garden Street.

[www.fce.com](http://www.fce.com)



# 819 Garden Street Green Building Guidelines



Michael Heacock + Associates is  
proud to collaborate on  
819 Garden Street with  
Steve Shulem, Jeff Shelton, and  
the project team.