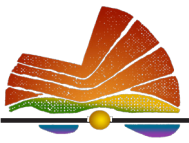




SAN LUIS SUSTAINABILITY GROUP

♦♦ ARCHITECTURE ♦ SUSTAINABLE PLANNING ♦♦
♦♦ LANDSCAPE DESIGN ♦ APPROPRIATE TECHNOLOGY ♦♦
PASSIVE SOLAR ♦ STRAW BALE ♦ PERMACULTURE ♦ LID

16550 ORACLE OAK WAY ♦ SANTA MARGARITA ♦ CA ♦ 93453 ♦♦ (805) 438•4452
SLOSG@SLONET.ORG ♦♦ SLOSUSTAINABILITY.COM



SAN LUIS SUSTAINABILITY GROUP

PROJECT TYPES

1

PROGRAMMING & PLANNING

2

INSTITUTIONAL & COMMERCIAL

3

LANDSCAPE DESIGN & APPROPRIATE TECHNOLOGY

4

COMMUNITY & RESIDENTIAL

5

INTERIORS & ARTIFACTS

6

RESEARCH & DEVELOPMENT

DESIGN PRINCIPLES

EACH OF THE FOLLOWING PRINCIPLES ARE A PART OF A COMMON
THREAD THAT INFORMS OUR WORK REGARDLESS OF SCALE OR CONTEXT

PLACE

The ecology of the site should be richer after construction than before construction.

RESOURCES

Construction should be part of a cyclic flow of resources without waste.

ENERGY

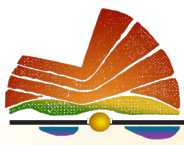
Buildings should be energy providers, not just energy consumers.

USE

The result should foster mindfulness of its operation as well as celebrate its place

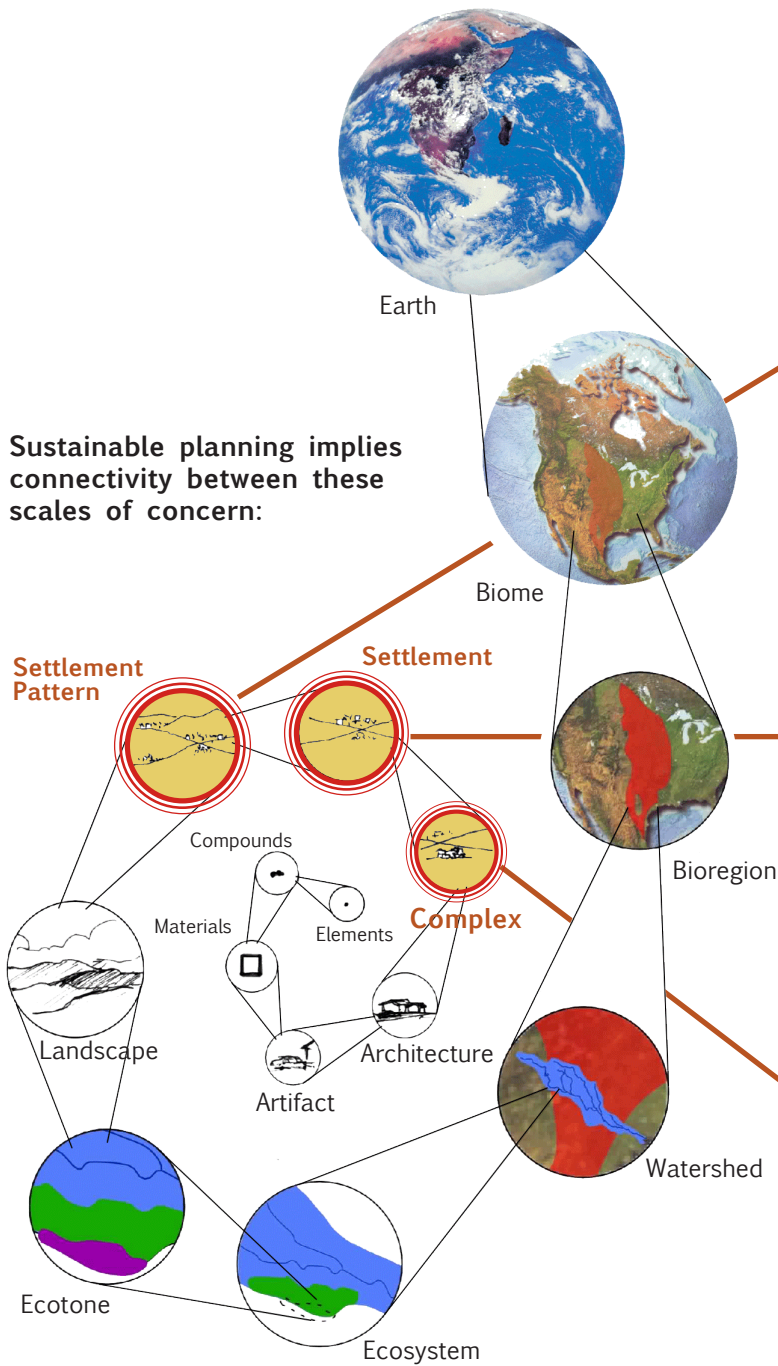
ECONOMY

Integrated design creates a synergy between parts, which allows green design to be more economical than standard construction.

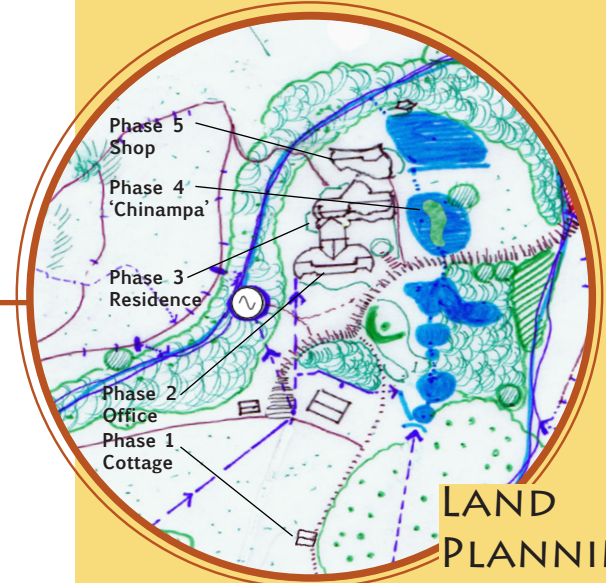


SAN LUIS SUSTAINABILITY GROUP

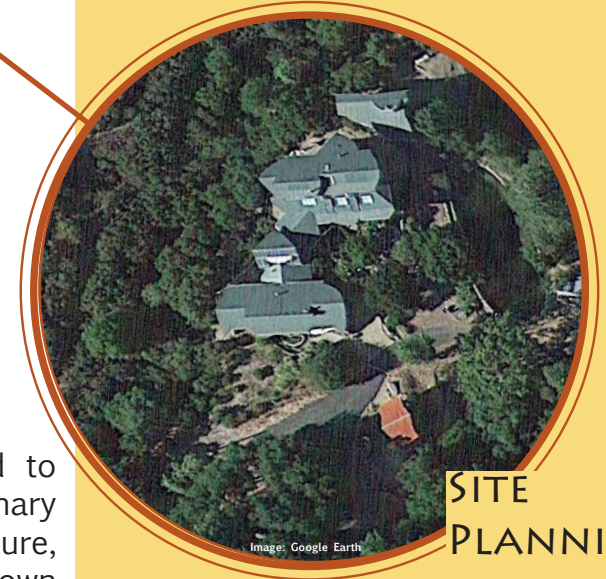
PROGRAMMING & PLANNING



CONTEXT & PROGRAMMING



LAND PLANNING



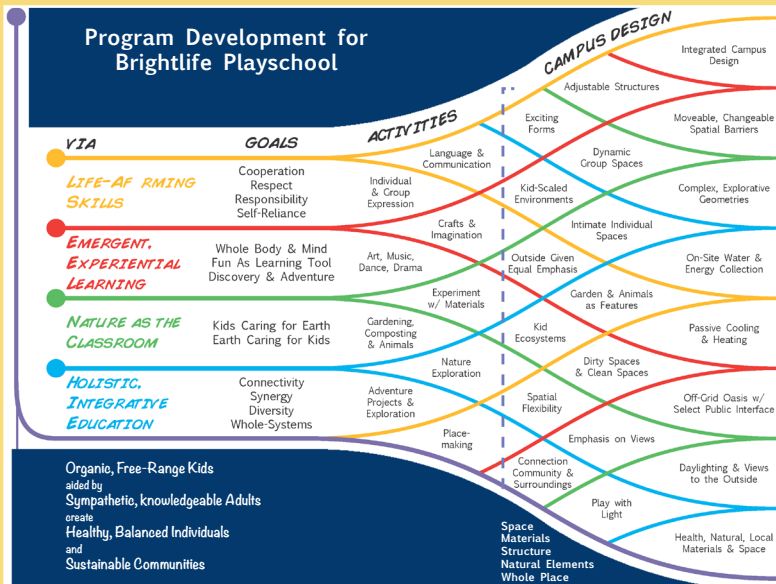
SITE PLANNING

San Luis Sustainability Group (SLOGS) is committed to contextual planning at multiple scales and cross-disciplinary practices that combine permaculture, architecture, landscape design and appropriate technology as shown in the following examples.

Trout Farm Complex

Santa Margarita, CA

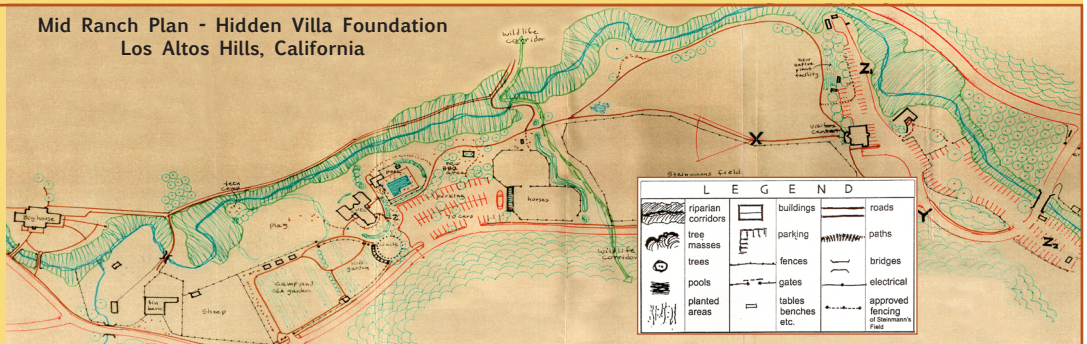
OTHER PLANNING PROJECTS



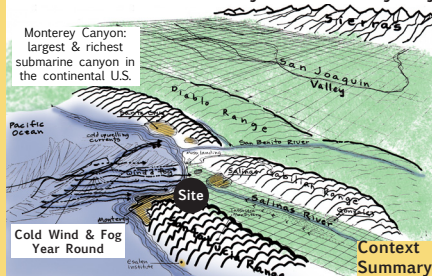
Plan for Hidden Villa

Our facilitation of a collaborative workshop of stakeholders plus planning and design studies created a comprehensive plan for the heart of the Hidden Villa Foundation. The result, an enhanced riparian corridor and valley integrating elements of existing facilities along with new buildings by SLOSG and others. Enhanced infrastructure and visual improvements also express the core identity of an organic farm in this open space preserve.

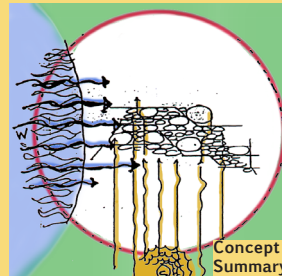
Mid Ranch Plan - Hidden Villa Foundation Los Altos Hills, California



California State University at Monterey Bay



The conversion of Fort Ord from an amphibious warfare base to a state university was begun in 1995. As sustainability consultants we advised on recognition of this 1300-acre site's natural features and opportunities for incorporation into the master plan.

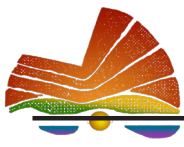


A Cellular Lattice of Optimized Flows

The campus is seen as a holistic entity in which flows are the generator. Visual flow of the regenerated dune landscape; thermal flows in building siting & design; resource flows of construction & use; cyclic flows of resources & waste management; flow of time in requiring flexibility; diverse flows of goods & people via transportation; flow of knowledge in response to the academic vision.

Trout Farm Home/Office Complex Santa Margarita, California

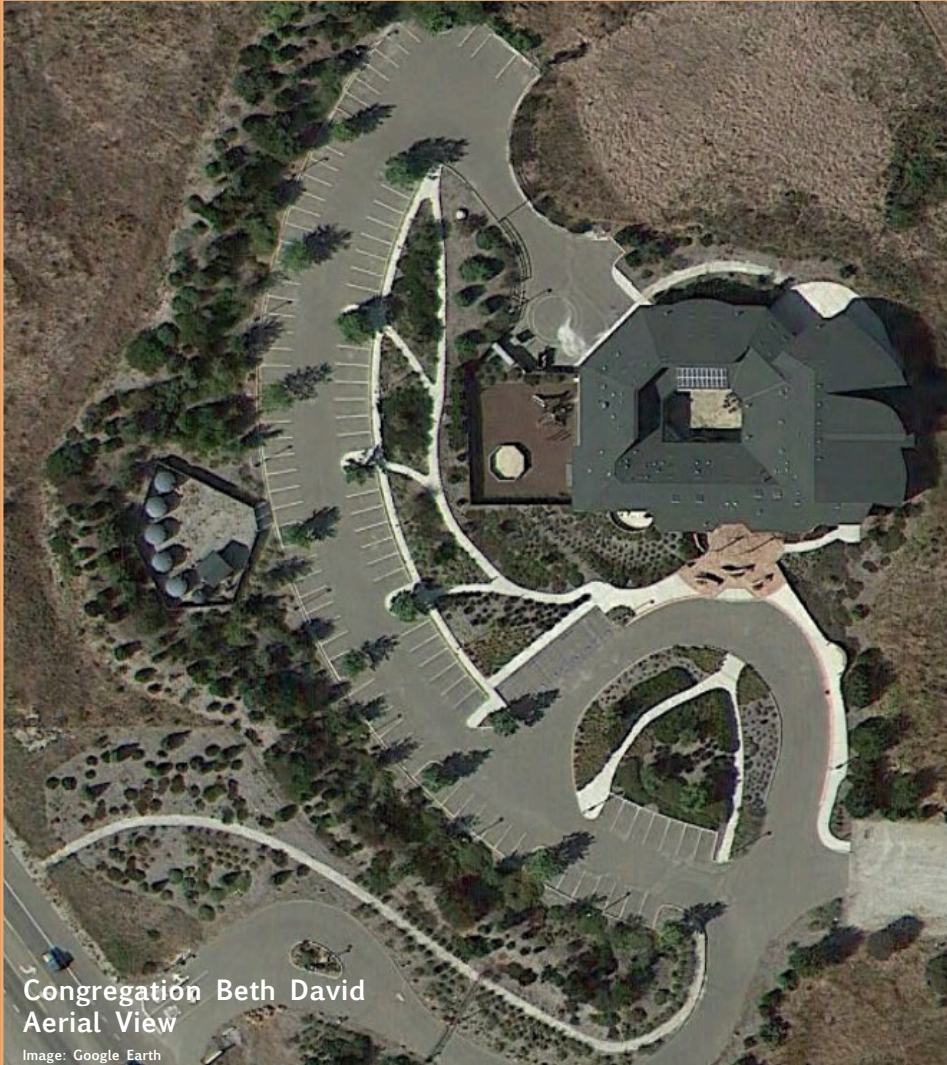




SAN LUIS SUSTAINABILITY GROUP

INSTITUTIONAL AND COMMERCIAL

Sustainability has become an integral part of institutional and commercial projects. SLOGS has been in the forefront of determining what this means. We designed the first net zero energy commercial scale building in California as well as the first LEED certified building on California's Central Coast.



Interior of the passively conditioned sanctuary.



Interior of the social hall looking toward the courtyard.

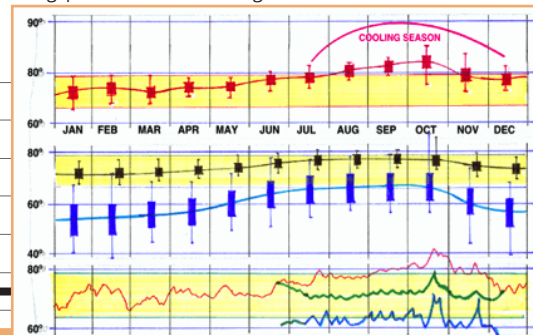
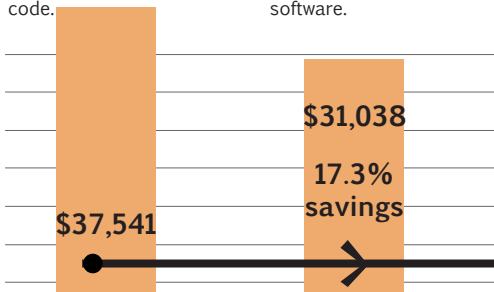
A commercial scale building with sustainable features should be more comfortable, healthier, aesthetically pleasing and, contrary to common belief, more economical to build and operate as is the case shown below.

Energy cost of comparable assembly building that meets California Energy code.

Predicted energy cost of Congregation Beth David using energy compliance software.

Predicted performance of Congregation Beth David building using performance modeling

Actual performance of Congregation Beth David building.



"The entire building performed beautifully for the high holy days (held during the height of the cooling season). We received many compliments about both the aesthetics and functioning from the over 600 people who attended the two services."
-Mike Blum, Chairman of the design & construction committee

**\$6,812
82.3%
savings!**

Construction costs:
\$233 per sq. ft. in
2007

Commissioning the completed building to insure the user operates the building to its capability enables the **82% savings** shown here.

Congregation Beth David
San Luis Obispo, CA

The first certified LEED Building on the Central Coast
and the First LEED Certified Synagogue in the United States

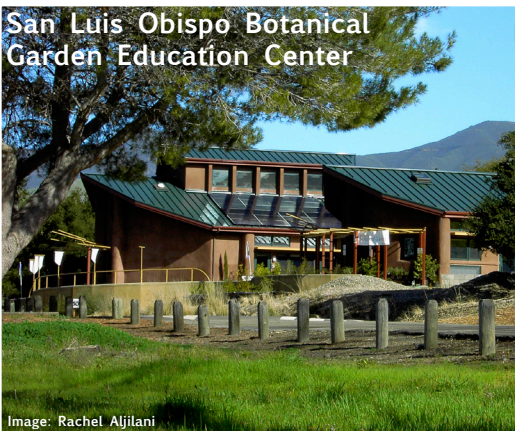
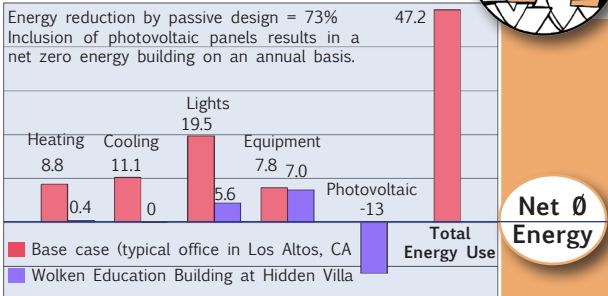
OTHER COMMERCIAL SCALE PROJECTS



Wolken Education Building
Hidden Villa Foundation
Los Altos Hills, CA

"This is probably the most sustainable commercial building in California. It is energy independent, non-toxic, and built with a high degree of sustainable materials."

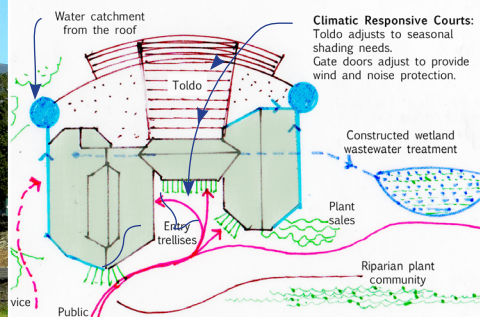
-Quote from a guide to green buildings in the bay area published by the San Francisco Institute of Architecture in 2006.



San Luis Obispo Botanical Garden Education Center

Image: Rachel Aljilani

Education Center Plan



The building fosters habitat & encourages water consciousness

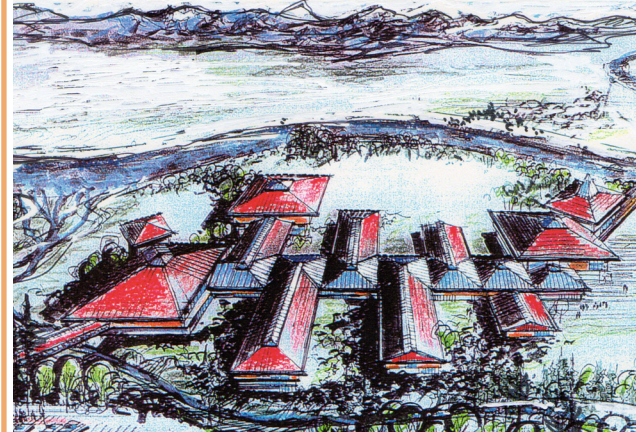
Meeting Hall



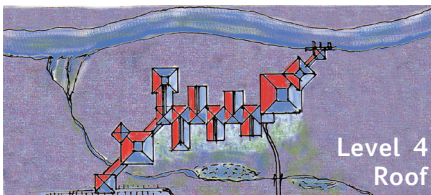
Integration of Interpretive Art



University of Washington, Everett

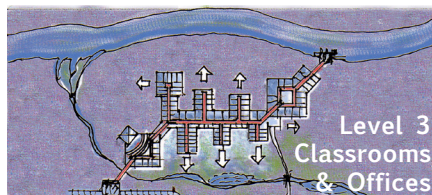


Everett Washington is the largest U.S. city without a four year University. This study, which was conducted for the city, illustrates what can be offered to the state for a university annex: a spectacular riverfront site on the location of a burned out saw mill, easy access, and opportunities for riparian restoration.



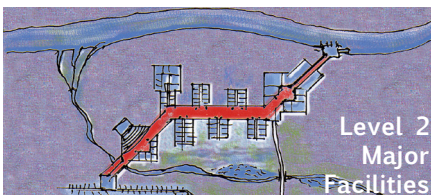
Level 4 Roof

All facilities have access to natural lighting via roof monitors and transparent insulation roofing tuned to the unique climate of the area.



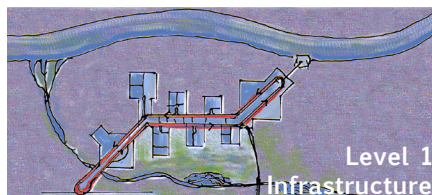
Level 3 Classrooms & Offices

Rooms have access to views of the river or marsh areas and individual buildings have expansion capability.



Level 2 Major Facilities

Facilities are structured along a covered academic street with river facing quads and marsh facing quads.

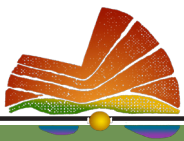


Level 1 Infrastructure

Service circulation, receiving and delivery, shops and maintenance facilities, laboratory and services for individual buildings occur here.



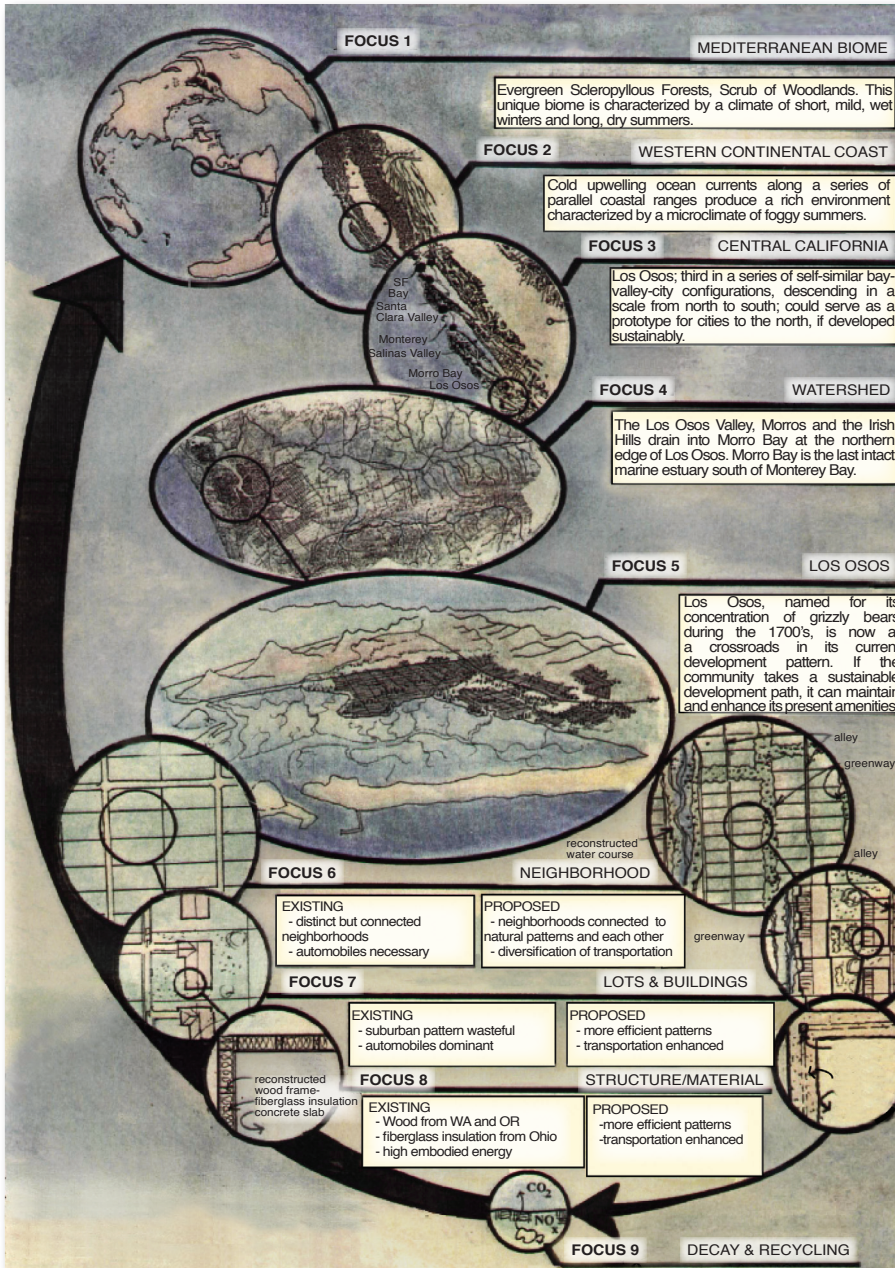
Image: Bethany Bandera



SAN LUIS SUSTAINABILITY GROUP

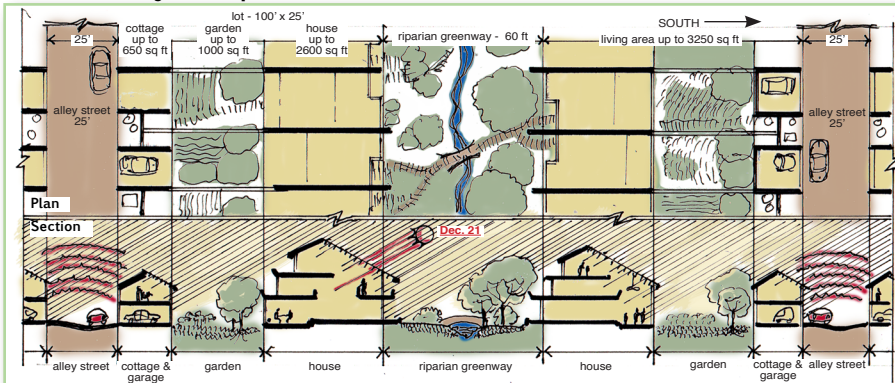
LANDSCAPE DESIGN & APPROPRIATE TECHNOLOGY

Landscape design and appropriate technology are key elements in providing the connectivity that allows sustainable design to be effective and affordable.



Los Osos -- A Sustainable Community in a Sustainable Watershed.

American Institute of Architects and the International Union of Architects Competition on Sustainable Communities **First Place Award** -- San Luis Sustainability Group



Landscape Design

Landscape design, optimized resources and the nexus between interiors, architecture, and site are all interconnected in sustainable design. This connection also reduces costs.



Haggard Ranch, outside San Antonio Texas

Using holistic management planning techniques over a 50 year period has created an ecological oasis from this former burned out peanut farm.



Appropriate Technology

Appropriate technology Optimizes the **nexus between resources** at the scale of the site. This can increase effectiveness while minimizing the cost of importing resources.



The "41" fire, which burned over 40,000 acres in SLO County, offered an opportunity for the application of appropriate technology to the regeneration of landscape and buildings.

LANDSCAPE & APPROPRIATE TECHNOLOGY EXAMPLES



Residential landscape examples



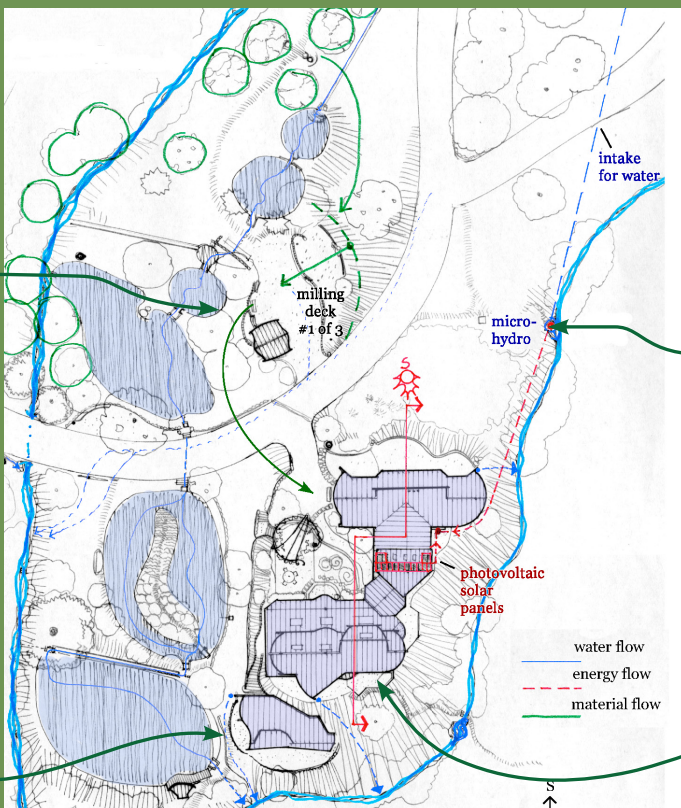
Haggard Ranch Congregation Beth David



Milling trees killed in the fire for construction lumber.
Nexus -- "waste" -- Materials



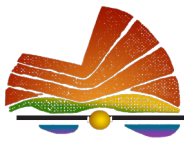
Utilizing straw bales to create fire resistant walls and expressive architectural form



Micro hydro energy production
Nexus -- Water -- Energy



Fire resistant construction
Nexus -- Materials -- Energy



SAN LUIS SUSTAINABILITY GROUP

COMMUNITY AND RESIDENTIAL

Our residential scale work has been with a wide variety of housing types and densities. We have dealt with very strong community context, such as with this cohousing project, as well as single family houses in a variety of settings as shown on the adjacent page.

Tierra Nueva Cohousing Community: Oceano, California



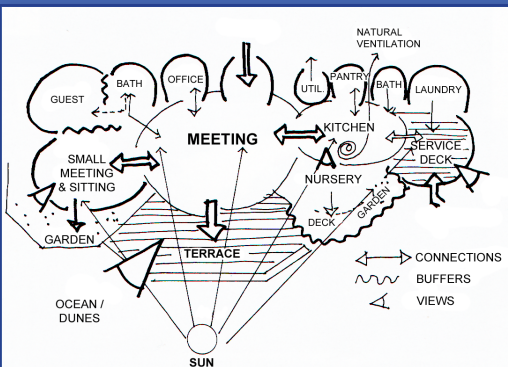
The overall site layout and the flexible building design encourages individual customization of interiors and exteriors as much as possible.



Interior of a typical unit

In cohousing, the neighborhood is formed first and physical planning and design follows. If successful, as in this case, many social and economic advantages are achieved because, to quote Cohousing Developer Jim Leach:

"Community is the hidden dimension of sustainability."



Common house functional relationships



Common house exterior



Common house interior

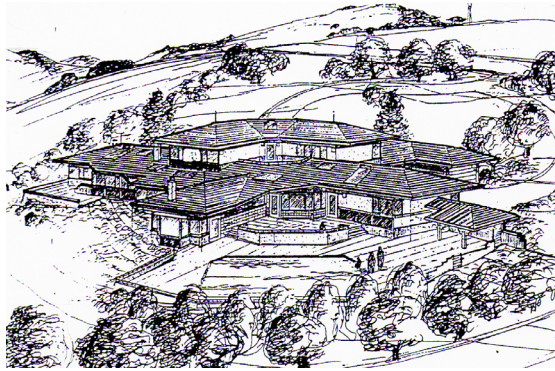
OTHER RESIDENTIAL PROJECTS



In addition to multi family and high density, we have designed over 200 single family residences for a variety of settings. The common elements in all of these projects are passive solar design for heating and cooling as well as daylighting, strong connection of interiors and exteriors, and honest expression of materials and form.



Image: Joseph Kasperovich



Single Family Residence, Avila Beach, California



Single Family Residence, Arroyo Grande, California



'Tower House'
Oceano, CA

A 3-story residence on a very tight urban lot in Oceano, CA



Farm House, Templeton, California



Image: Joseph Kasperovich



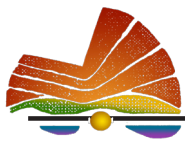
Image: Emily Hagopian

Trout Farm Residence, Santa Margarita, California



Anchor Ranch House, Lone Pine, California

This was the first permitted straw bale building in California



SAN LUIS SUSTAINABILITY GROUP

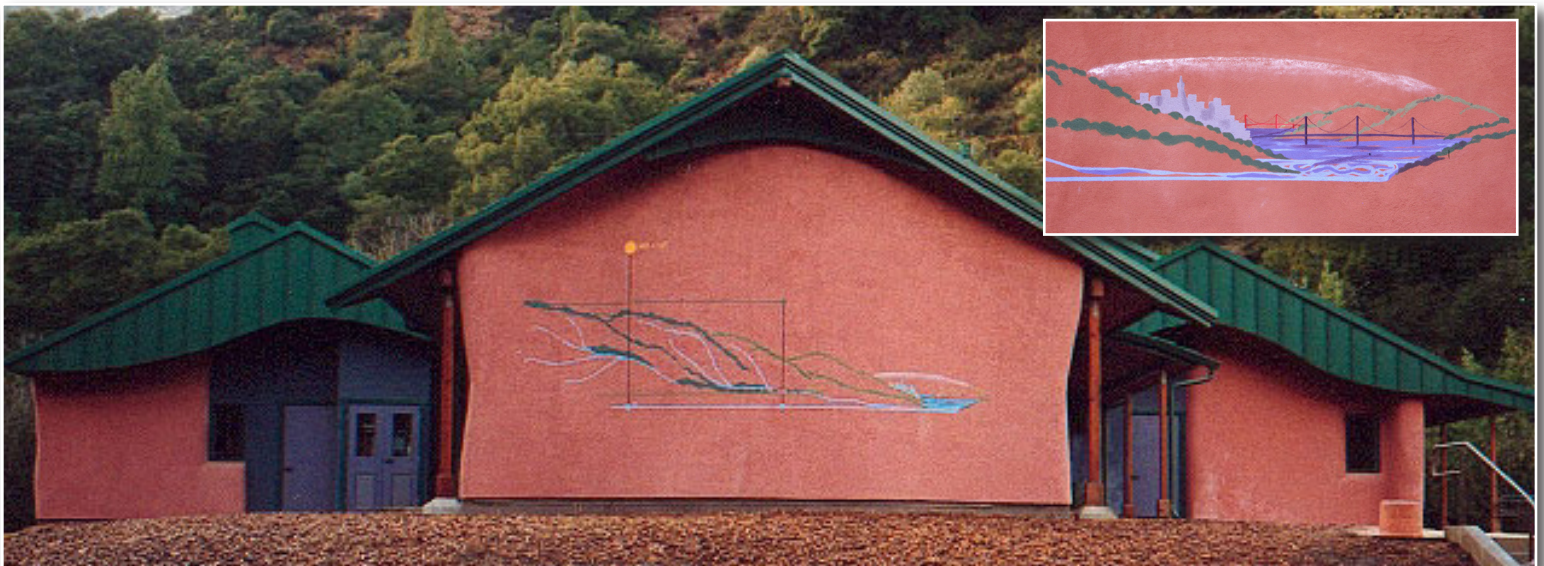
INTERIORS AND ARTIFACTS

The design scale that is the most intimate to the majority of users is interior design. We give special attention to this level of design to achieve an aesthetic that is integrated, powerful, and peaceful.



Image: Emily Hagopian

Design of artifacts that compliment the larger design is also given attention where applicable. This may take the form of architectural accessories, murals, small auxiliary buildings, trellises, etc.



This mural on the east wall of the Wolken Education Center in Los Altos illustrates the building's relation to its setting, the local watershed, and on a regional basis, its relationship to the San Francisco Bay.

OTHER INTERIORS AND ARTIFACTS



Single Family Residence, Paso Robles, California



Single Family Residence, Templeton, California



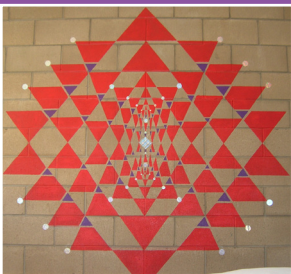
Image: Emily Haggopian

Interior stair railing



Entrance gate

Various artifacts and auxiliary buildings



Interior mandala



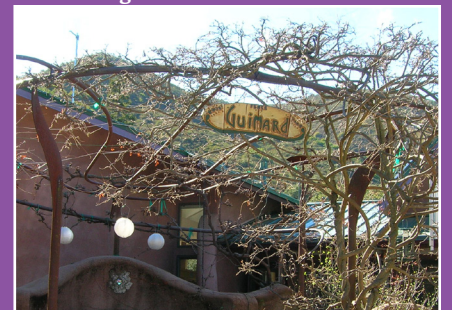
Aviary



Workshop and Sculpture



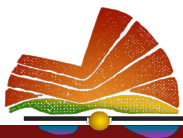
Mural illustrating site context



Trellis allowing winter sun and summer shade with deciduous vines



Zen meditation structure



SAN LUIS SUSTAINABILITY GROUP

RESEARCH AND DEVELOPMENT

Sustainable design is a new approach that requires research and development be integral parts of architectural practice. SLOG has been in the forefront of research, development, and application of affordability, regional considerations, passive design, green materials, and water resource issues as they affect sustainable design.



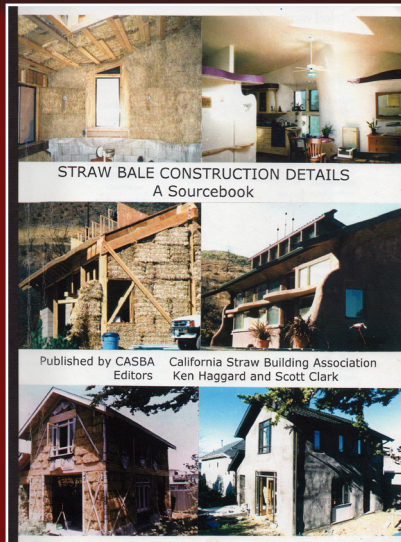
Camp Ocean Pines,
Cambria, California

AFFORDABILITY was the key to the rejuvenation of **Camp Ocean Pines** in Cambria, California. This old YMCA camp had worn out infrastructure and an extremely low budget for new buildings. For its transformation into a local arts and conservation camp we developed 12 twelve-person cabins at a very low cost by:

1. Research on camp regulatory and permitting issues, which streamlined the process and greatly reduced fees.
2. Reduction of materials costs by the use of site milled lumber from dead trees on site and straw bale shear walls.
3. Design and construction of a prototype cabin using a design-build process costing \$50 per square foot.
4. Construction of remaining cabins with volunteer workshops.

These efforts have resulted in the following SLOG milestones:

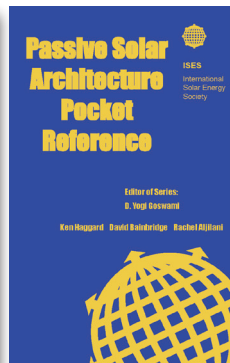
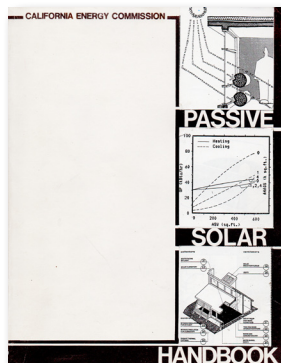
- First passive solar building in California
- First Place Award AIA International Competition on Sustainable Communities
- First Net Zero energy commercial building in California
- First LEED certified synagogue in the United States
- First book on straw bale construction details for the California Straw Bale Association
- Selection among the top ten green architectural firms by Natural Homes Magazine



Community workshop for cabin construction at Camp Ocean Pines in Cambria California shown left.

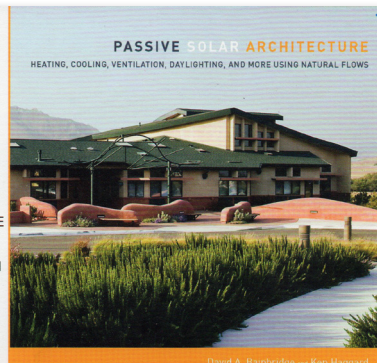
Rainwater catchment systems and a rain garden were later installed at Camp Ocean Pines through a similar community workshop led by SLOG in conjunction with SLO Green Build's Appropriate Technology Coalition.

San Luis Sustainability Group has been involved in the development of **Passive Design** from its beginning, designing over 200 passive buildings and developing technical publications such as: *The Passive Solar Handbook for California* for the Energy Commission, *The Passive Solar Architecture Pocket Reference* for the International Solar Energy Society, *Passive Solar Architecture*: a text book on the subject published by Chelsea Green in 2013.



CONTENTS
SUSTAINABLE BUILDINGS
PASSIVE HEATING
PASSIVE COOLING & VENTILATION
NATURAL LIGHTING
HARVESTING ON-SITE RESOURCES
INTEGRATED DESIGN
APPENDICES

Purchase a copy from:
chelseagreen.com or
fractalarchitecture.com



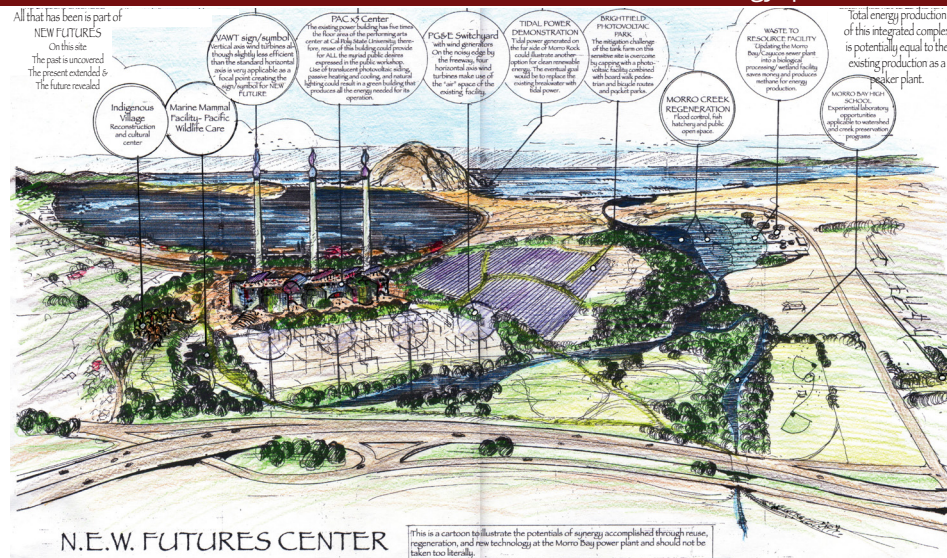
Poster graphic created by SLOG for the American Solar Energy Society.



OTHER RESEARCH AND PUBLICATIONS

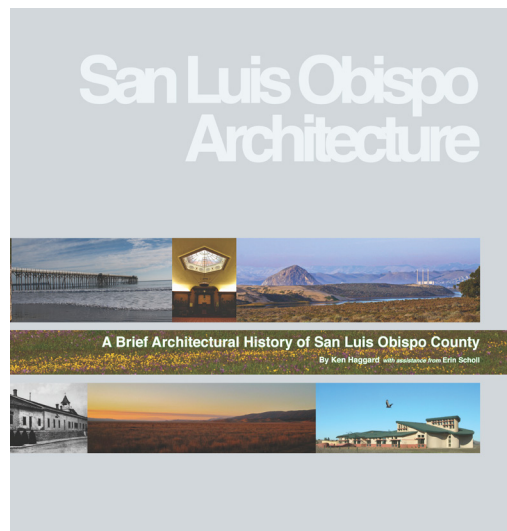


Sustainable design places a new emphasis on localism with less importation of energy and resources. SLOSG has been involved in the development of research that allows for this. For example, the N.E.W. Futures Center project shown below is a conceptual study for the conversion of the obsolete power plant in Morro Bay to a coastal energy/environmental cultural facility with efforts that allow sustainable approaches to water use and reclamation as well as sustainable energy production.



N.E.W. FUTURES CENTER

This new localism requires a deeper understanding of place. The book shown below about the architectural history of San Luis Obispo called *San Luis Obispo Architecture*, was produced to educate clients, planners, and politicians about the unique place in which we are privileged to live and build.



It is our opinion that sustainable design is not just modern architecture in 'green' clothing, but a new architecture for the 21st century. The implications of this on the architectural vocabulary of geometry, history, and aesthetics are explored in this book by SLOSG.



A. CONCEPTS				B. CONTEXTS			
1. Sustainability		2. Fractal Geometry		1. Time		2. Place	
definitions and concepts	11	definitions and concepts	53	fractal time & history	87	our dynamic fractal planet	109
conceptual problems & approaches	12	fractal primer	55	some patterns in environmental design	95	scaling of place	112
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general design principles for sustainability	57-75	changes in the design process via fractal geometry	83-84	the new millennium and cultural era	108	reconnecting human and natural processes in a planetary context	131-132



Various publications by SLOSG in combination with SLO Green Build's Appropriate Technology committee shown above.

Option 3 Rainwater Harvesting for Indoor Use				Option 4 Treated Graywater for Indoor Use			
Combining Option 3, which uses harvested rain water for indoor, non-potable uses, with direct use of graywater for landscape irrigation increases the water conservation advantages of the system.				Combining Option 4, which uses treated graywater for indoor, non-potable uses, with additional rainwater harvesting system for landscape irrigation, and reuse of the leach field to infiltrate stormwater makes this 3-way combination the most comprehensive.			
Benefits	Effectiveness Rating			Benefits	Effectiveness Rating		
Reduce Runoff	Less turbulent flow on your lot allows greater stormwater capture by directing rainwater from roof to cistern	6		Reduce Runoff	Directing stormwater into the leach field reduces community drainage cost by minimizing water flowing off your site	3	
Recharge Ground Water	Stormwater channeled from landscape into the leach field recharges groundwater	3		Recharge Ground Water	Stormwater channeled from roof and landscape into the leach field recharges groundwater	4	
Improve Water Quality	First flush and filter components increase water quality by eliminating ground contact and blocking debris from roof	6		Improve Water Quality	A Filter system improves water quality by active treatment of graywater	8	
Conserve Water	Harvested rainwater via the cistern reduces the use of potable water for non-potable indoor uses	6		Conserve Water	Constant source of water via graywater allows greater conservation of indoor use year-round	8	
Estimated Cost	Total 21			Estimated Cost	Total 25		
Estimated Savings				Estimated Savings			

A page from an informational pamphlet showing research conducted by SLOSG and SLO Green Build for the County of San Luis Obispo's Septic Decommissioning and Reuse Plan for the Los Osos Wastewater Project.

REFERENCES

Name and Contact Information	Context
Lori Atwater cell: (805) 215-8515 loriatwater@gmail.com	Head of Building Committee Mountain Brook Community Church San Luis Obispo, CA
Mike Blum cell: (805) 471-5009 mblum@calpoly.edu	Chairman of Construction Committee Beth David Synagogue San Luis Obispo, CA
Chris Cameron (805) 927-2054 / cell: (805) 441-9736 chriscameron@campoceanpines.org	Director & Construction Manager Camp Ocean Pines 1473 Randall Drive, Cambria, CA 93428
Paul E. Clark (805) 471-2346	Residential Design Client Shandon, CA
Frank DeWinter PO Box 8425, Santa Cruz, CA 95060 (831) 475-2210 / cell: (831) 295-1100 fdw@ecotopia.com	Chairman of the Board American Solar Energy Society Past Board Member International Solar Energy Society
Betsey Garties PO Box 160, Boulder Creek, CA 95006-0106	Construction Manager Wolken Education Center: Trust for Hidden Villa Los Altos Hills, CA
Frank & Stepphine Ricceri 1758 Tierra Nueva Lane, Oceano, CA 93445 (805) 481-6116	Founding members Tierra Nueva CoHousing Community Oceano, CA
Carla Rosen Global Solutions ~ Locally Sourced Santa Barbara, CA (805) 785-0248 carla@sbcplanet.org	Committee for the Bishop Ranch Food Hub Goleta, CA
John Reynolds 2495 Mission Avenue, Eugene, OR 97403 (541) 344-9440 jreyn@uoregon.edu	Professor Emeritus School of Architecture University of Oregon, Eugene
Paul Wolff (805) 544-3450 cell: (805) 471-3998 pwwolff@calpoly.edu	Building Committee Member Congregation Beth David Synagogue San Luis Obispo, CA

AWARDS

1. Award of Merit, California Energy Efficient Office Building Competition for Sacramento, CA 1978.
2. Best Paper Award - World Solar Congress, Denver, CO 1989.
3. 1st Place International Competition for the Design of Sustainable Communities. Sponsored by the Union of International Architects and the American Institute of Architects 1994.
4. Passive Pioneer Award - American Solar Energy Society 1996.
5. Selected Top Ten Green Architects - *Natural Home Magazine* 2005.
6. Pollution Prevention Award - San Luis Obispo County Air Pollution Control District 2006.
7. Award Winner Secondary Dwelling Unit Design Competition - County of San Luis Obispo, CA 2007.
8. Green Award - *Central Coast Magazine* 2010.
9. Founders Award - SLO Green Build 2010.
10. Innovative Design Green Award - US Green Building Council, consolidated Santa Barbara, Ventura, and San Luis Obispo Chapter 2012.