



# SAN LUIS SUSTAINABILITY GROUP

## RESEARCH AND DEVELOPMENT

Sustainable design is a new approach that requires research and development be integral parts of architectural practice. SLOGG 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

A good example of **affordability** is 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 SLOGG 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



STRAW BALE CONSTRUCTION DETAILS  
A Sourcebook



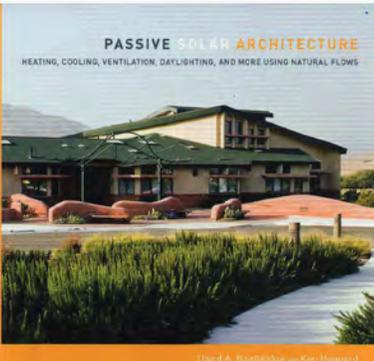
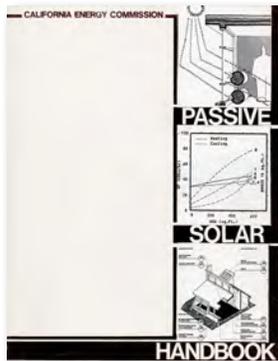
Published by CASBA California Straw Building Association  
Editors Ken Haggard and Scott Clark



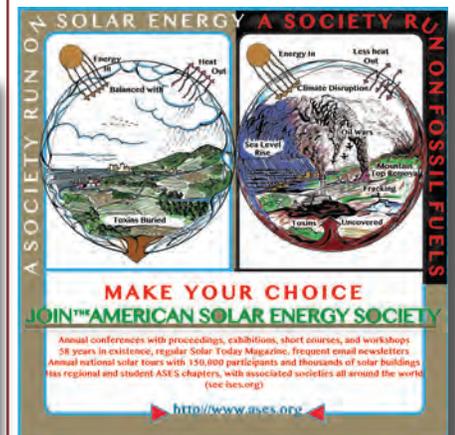
RAIN-BARREL + RAIN GARDEN

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 SLOGG 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.



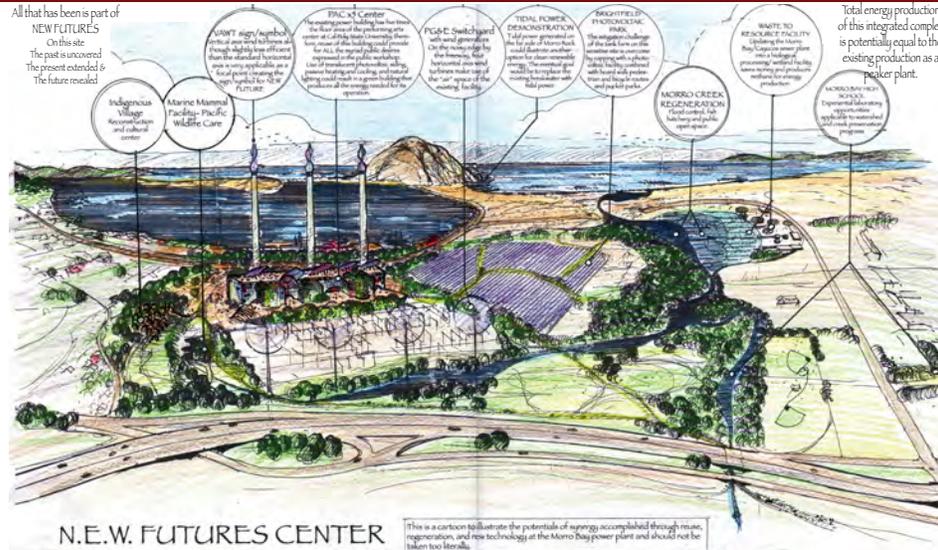
Poster graphic created by SLOGG for the American Solar Energy Society.



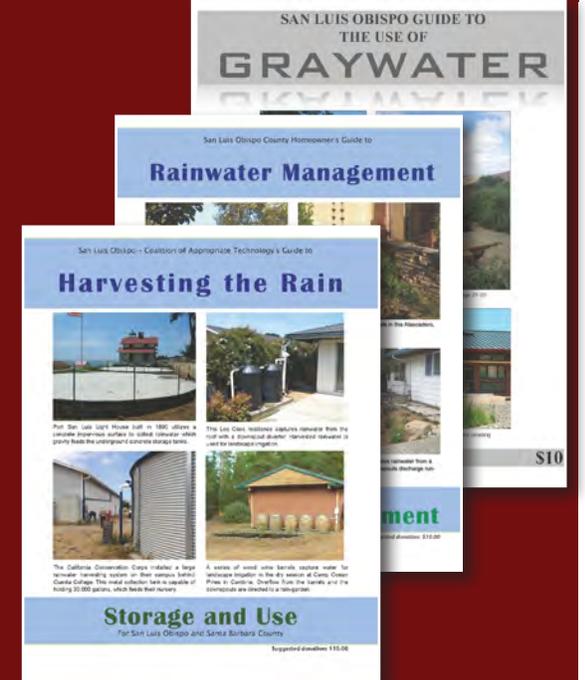
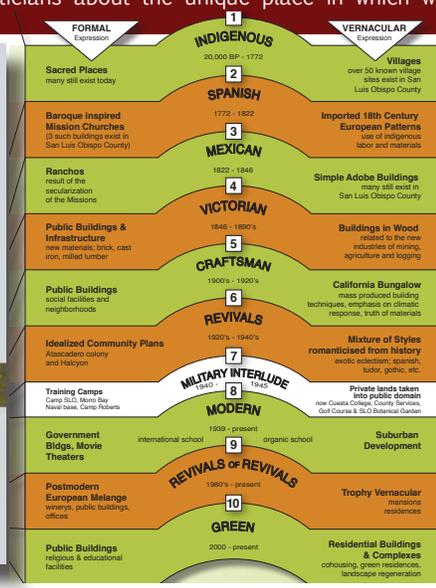
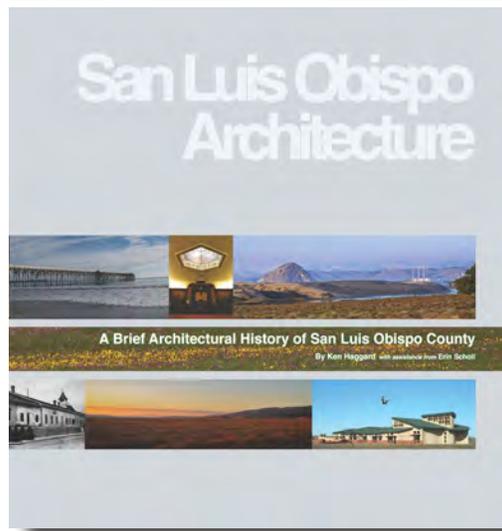
# OTHER RESEARCH AND PUBLICATIONS



Sustainable design places a new emphasis on localism with less importing of energy and resources required. SLOG has been involved in the development of materials that allow 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.

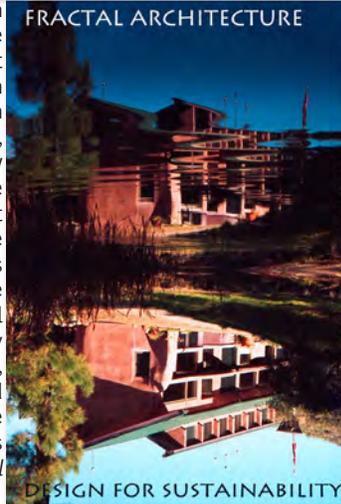


This new localism requires a deeper understanding of place. The book shown below about the architectural history of San Luis Obispo called *San Luis Obispo Architecture*, was produced to educate clients, planners, and politicians about the unique place in which we are privileged to live and build.

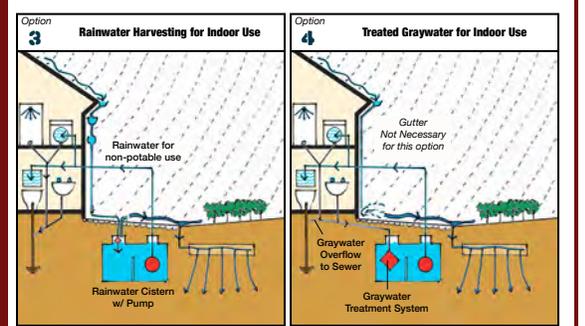


Various publications by SLOG in combination with SLO Green Build's Appropriate Technology committee shown above.

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 *Fractal Architecture*.



A. CONCEPTS		B. CONTEXTS	
1. Sustainability	2. Fractal Geometry	1. Time	2. Place
definitions and concepts 11	definitions and concepts 51	fractal time & history 97	our dynamic fractal planet 111
conceptual problems & approaches 18	fractal primer 51	some patterns in environmental design 95	scaling of place 111
language for a sustainable era 31	tools for reintegration 73	historical transformation 97	dynamics of place 119
aesthetics of sustainability 25	aesthetics and geometry 73	aesthetics and symbolism 98	aesthetics of place 123
sustainable systems 24	fractal architecture 75	prototypes of sustainable design 100	regenerative, and life cycle design 127
Los Osos 35	a small cottage 78	Libud region of Sall 107	Trout Farm Complex 125
37-54 general design principles for sustainability	81-84 changes in the design process via fractal geometry	108 the new millennium and cultural era	107-124 reconnecting human and natural processes in a planetary context



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, an 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 hardscape into the leach field recharges groundwater	3	Recharge Ground Water	Stormwater channeled from roof and hardscape 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
Estimated Savings				Estimated Savings	Total
					2.5

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