



BUILDING HOMES. BUILDING RELATIONSHIPS.

GREEN AND HEALTHY HOMES

SITE PLANNING AND DESIGN



ENERGY EFFICIENCY



WATER EFFICIENCY
AND CONSERVATION



MATERIAL CONSERVATION
AND RESOURCE EFFICIENCY



HEALTH AND
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INNOVATION AND TECHNOLOGY



SAFETY AND PREPAREDNESS



BUILDING RESPONSIBLY

At Structure Home, we take our responsibility to our clients, neighbors and local community seriously. It is simply not enough to build a beautiful new home, it is also important to build it responsibly by using environmentally friendly products, resource efficient materials, and consciously working towards reducing the overall carbon footprint of the home.



Building responsibly also means we consider and accommodate the very specific needs of our diverse clientele, including their lifestyles, budget and health concerns. We strive to create durable, healthy homes that nurture families within the budget parameters set by each client.

Structure Home incorporates the fundamentals of building science, health science and green building to suit the changing needs of our clientele. At the same time, we work to ensure that we create designs that are sustainable and in harmony within our neighborhoods, communities and global environment.

HEALTHY HOMES

A healthy home nourishes both the body and soul of its occupants. Some of the major considerations in designing a healthy home include indoor air quality, mold prevention, natural lighting and ventilation. Working with clients, we can incorporate such features as a wiring system that minimizes electro-magnetic fields, practical and beautifully balanced natural and artificial lighting, as well as state of art air filtration and water purification systems.

GREEN BUILDING

At its core, green building is the practice of increasing the efficiency of buildings and their consumption of *water, energy, building materials*. It is also a commitment to reducing the building impact on human health and the environment through thoughtful consideration and planning of home orientation, design, construction, operation and maintenance.

STRUCTURE HOME

Structure Home has been building fine custom homes since 1996. Headquartered in Warner Center, Structure Home builds in areas throughout the Los Angeles basin. Our approach to design begins with looking at each home as a complete operating system, the products and technology it contains and how it will perform over time. To accomplish this objective the entire design and construction team must work collaboratively, in a well-organized process. We call this approach "Whole Lot Living" and we believe that the thoughtful consideration of the entire structure, as well as its' relationship to the natural environment, is the only way we can be responsible stewards of our client's most valuable asset.

SITE PLANNING AND DESIGN



Site planning and design is represented by a collaborative approach to address “Whole lot living”, giving primary consideration to the client’s needs and wishes but also to the environment and the neighborhood. We bring a group of consultants together from the beginning of a project to focus on the cornerstones of building science and to maximize the strengths of a particular piece of land within the context of its current and intended use. These consultants include, but are not limited to, the architect, engineer, landscape architect, lighting designer, mechanical engineer, interior designer and project manager. A home, new or old, impacts demand for limited resources and new construction has a great responsibility to minimize its taxation of the existing Infrastructures and to ensure the construction of sustainable systems for the earth and its inhabitants.

Intelligent site planning and design incorporates careful thought about house orientation, taking advantage of passive solar opportunities, placement of windows, lot topography, soils conditions, climate zone, building envelope, the neighborhood, construction waste management, exterior/interior finishes, mechanical systems, insulation, City infrastructure, and energy saving opportunities.



ENERGY EFFICIENCY



Currently buildings are responsible for more than 40% of the global energy used. Much of which comes from the burning of fossil fuels such as coal, natural gas or petroleum which heats water, generates steam, turns turbines in a generator and produces electricity. Additionally, fossil fuels are a finite resource being depleted and our dependency and supply of them comes from some pretty unstable countries around the world.

If the status quo continues, the outdated technologies in our vast inventory of aging homes, combined with the energy needs of new housing developments and infrastructure demands, will create the need to produce 50% more energy by the year 2030.

Thus, in order to reduce pollution and improve our air quality we must first build homes that consume less energy and second build homes that have the ability to produce their own energy. The ultimate goal is to build a Net Zero home that produces as much electricity as it consumes.

Through sustainable building technologies we can reduce the amount of energy used per dwelling and cut down on the need for coal burning and nuclear power plants. We can commit to a low carbon future and slow down the impacts and effects of Global Warming. Furthermore, the cost of solar energy has never been cheaper and the technology has never been more reliable than it is today.



ENERGY EFFICIENCY continued

STEP ONE: ENERGY CONSERVATION

- Passive solar design refers to utilization of the sun's energy for the heating and cooling of living spaces. In this approach, the building itself or some element of it takes advantage of natural energy characteristics in materials and air created by exposure to the sun via non-mechanical means. Large south-facing windows for example allow the winter sun to heat the home as it moves low across the horizon while allowing indirect light into the home during the summer season when the sun moves higher across the horizon.
- Day lighting, another passive solar strategy, optimizes natural sunlight entry into a home to minimize the need for artificial lighting produced by electricity. Energy-efficient lighting is the use of artificial light to receive the optimal level of light for the lowest energy investment.
- Radiant barrier roof decking is a layer of metallic foil that blocks over 95% of the sun's radiant radiated heat from entering the attic this, assisting in the energy performance of a home.
- A well sealed and insulated duct system with minimum twists and turns can greatly minimize energy loss from ductwork. Leaks in ductwork can contribute 20% to 60% of the air leakage in a house. The system should be airtight, sized and designed to deliver the correct airflow to each room. Good system design, improved duct and sealing materials combined with proper installation reduce energy losses.

- The traditional method for creating comfort in hot/humid climates is through air movement. The modern home can use this traditional method readily with ceiling fans. Ceiling fans move air in individual rooms, and whole house fans pull in cooler outside air. Moving air with ceiling fans allows building occupants to feel comfortable at higher temperatures. Remember fans cool people not rooms!
- Appliances can vary widely in their energy consumption and windows vary greatly in their allowable heat loss. Energy Guide labels are present on all major appliances and windows to help you select the most efficient models.

STEP TWO: ENERGY PRODUCTION

- The word "photovoltaic" combines two terms —"photo" means light and "voltaic" means voltage. A photovoltaic system uses photovoltaic cells to directly convert sunlight into electricity. The primary strategy for use of PV's as the electrical power source for a residence is reducing the need for electricity. PV's are a cost-effective, proven and reliable technology to heat your water and produce electricity for your home.



WATER EFFICIENCY AND CONSERVATION



As the Los Angeles area population increases each year the burden on our water resources increases exponentially. Water demands from new housing, farmlands and commercial needs are all tapping the same sources: the Sacramento-San Joaquin Delta, Colorado River and Mono Lake. The cost of this resource will continue to go up with increased demand. Since supply cannot outpace our demand, the current percentage of water allocated to Los Angeles County from the sources mentioned above will decrease as we move through periods of drought and unpredictable weather patterns. For these reasons Structure Home has become an EPA WaterSense builder and can use their expertise to ensure you and your family have the latest WaterSense certified products both inside and outside your home at no extra cost. WaterSense is a partnership program by the U.S. Environmental Protection Agency, that seeks to protect the future of our nation's water supply by offering people a simple way to use less water with water-efficient products, new homes, and services without compromising performance.

WATER CONSERVATION CONSIDERATIONS:

Typical Residential Water Use

- Showers and baths - 20%
- Potable Uses - 9%
- Clothes and dishwashing - 16%
- Toilets - 19%
- Lawns and gardens - 36%



What methods can we employ to help conserve this resource?

- Reduce water consumption through brand name fixtures and appliances that meet Water Sense certification standards.
- Use devices that divert and capture water that is normally lost waiting for hot water.
- Water Sense certified irrigation fixtures for your yard.
- Fully insulated hot water lines.
- Fully functional low flow toilets are standard at a variety of price points suitable to any style home.
- Installation of a water circulating pump and the thoughtful placement of the water heater as close as possible to the point(s) of use for hot water will conserve water that is lost while waiting for hot water to come from the tap.
- On average, 36% of the water consumed at a single-family residence is attributable to outside watering. From a water conserving perspective, xeriscape landscapes are very valuable. Additionally, xeriscape landscapes can be designed to aid in energy conservation and reduce the need for chemical and fertilizer use. Efficient irrigation is perhaps one of the easiest principles to achieve, but has much to do with the water user's habits and system design.
- Careful landscape selection; plants and shrubbery native to southern California that can survive periods of drought and still thrive and look beautiful.

MATERIAL CONSERVATION AND RESOURCE EFFICIENCY



Now more than ever we need to renew, reuse and recycle as our landfills are quickly running out of space and the toxic waste that is dumped therein pollutes our groundwater and can create an unhealthy environment for all.

Most U.S. homes are constructed with wood framing and although wood is renewable, the amount of wood required for construction purposes is taxing the regenerative capabilities of this resource, as well as depleting a critical component in our ecological balance. Yet, trees positively affect water quality, rainfall, and air quality, both in the immediate region and on a global scale.



Although the long term benefits of wood as a renewable resource in home construction is debated by some, it is clear that expanding demand simply due to population growth has or will have an impact on its long-term viability. The reduction of primary forest cover has spurred further debate on the management of the forests as balanced ecosystems.

And because there is a high demand for lumber to create a wide variety of products used in the building your home, if we use higher quality engineered products that are derived from recycled wood we can help preserve our forests. Employing such sustainable products with very high performance values decreases our need to replace aging materials, thereby reducing construction waste going into our landfills.



New management approaches are based upon holistic sustainable principles. The principles of sustainability at the heart of the Green Builder Program favor forest management practices that retain natural forest ecosystems. And because these products have higher strength to weight ratios and offer greater dimensional stability, it's a win-win for everyone!

HEALTH AND INDOOR AIR QUALITY (IAQ)



Indoor pollution sources that release gases or particles into the air are the primary cause of indoor air quality problems in homes. Inadequate ventilation can also increase indoor pollutant levels by not bringing in sufficient outdoor air to dilute emissions from indoor sources and by not carrying indoor air pollutants out of the home. High temperature and humidity levels can also increase concentrations of certain pollutants.

Some examples of pollutants that contribute to poor indoor air quality are (CO) Carbon Monoxide, (NO₂) Nitrogen Dioxide and VOC's or Volatile Organic Compounds from paints, building materials or chemicals in the home and cigarette, cigar and fireplace smoke.

Steps we offer to improve IAQ include sealed combustion fireplaces, high capacity ventilation fans, state of the art air filtering equipment, low and no voc paints and sealers and Green Guard certified carpet and pads. Our HVAC systems are balanced to ensure an equal amount of air is exhausted to the outdoors as is being replaced with fresh air. Installing carbon monoxide monitors is a standard specification.



INNOVATION AND TECHNOLOGY



At Structure Home we try to help “Future-Proof” your home with the latest affordable and proven technologies. Innovative technology can be implemented to help improve your ability monitor and control the mechanical systems to ensure the highest efficiency possible. It may also provide you with comfort and joy as you listen

uninterrupted to your favorite music as you walk from room to room. Closed circuit television cameras tied to your tv will let you know who is at the front door or coming up the driveway without you even having to get out of bed-just change channels and you will see who your visitors are!



These technologies may also include wall sensors and smart thermostats that interface with smart phone applications to remotely manage the heating and cooling needs of your home. Other devices like PowerHouse Dynamics by Nexia serve to monitor the performance of specific devices and mechanical systems to allow you to determine if adjustments, repairs or replacement are necessary. This can inform you of real time energy consumption and trouble-shooting if a problem is related to a device or a result of how often that device is used by the inhabitants.

Integrating components that communicate can help create a more comfortable living environment and empower you to invest more forethought and have more control on how you will use the home and the systems that support it.

Programmable finger print and keypad technology integrated into door locks has been used for years to restrict home access by service personnel and care takers. “Tomorrows” technology is already available today!



SAFETY AND PREPAREDNESS



Because natural and man made disasters can occur at any time, it is beneficial if your home has been equipped with certain safety features. All of these technologies and programs are either standard features or options in every home we build:



- Exterior step lights to create a safe path off your property
- Generator for back up power during blackouts
- Keypad entry from garage to house
- Emergency Package
 - Family and neighborhood communications plan
 - First Aid kit
 - Radio with batteries
- Rope Ladder for second story escape route in a fire event
- Survival kits that are easily accessed in the home and also kept in the your vehicle (s)
- Specially designated and constructed safe-room
- Relocation of overhead electrical underground
- Fire-risk assessment report by professional analyzer
- Flashing "911" front porch light
- Smart home remote monitoring
- Fire Sprinklers
- Automatic Gas shut off valves
- Smoke detectors and Carbon Monoxide detectors



DEFINITIONS

Blown-in Insulation: Insulation typically made from fiberglass or cellulose that is blown into construction assemblies dry or wet that inherently fills the entire framed assembly without any gaps, voids, compression or misalignment.

California Advanced Home Program (CAHP): Through a pay-for-performance incentive structure and a whole building approach, CAHP is designed to increase market demand for energy efficient multifamily and single-family homes by encouraging builders to exceed Title 24 building efficiency standards by 15 to 45%.

California Green Building (CALGreen) Standards Code: The purpose of CAL Green is to improve public health, safety and general welfare through enhancement of design and construction of buildings using building concepts reducing negative impacts or having positive environment impacts and encouraging sustainable construction practices.

Energy Efficiency Ratio (EER): the ratio of output cooling (in Btu/hr) to input electrical power (in watts) at a given operating point. EER is generally calculated using a 95F outside temp and an inside (actually return air) temp of 80F and 50% relative humidity.

Energy Star: a program of the U.S. Environmental Protection Agency and Department of Energy that identifies energy efficient products and buildings. Computers, kitchen appliances, and other products with an Energy Star label generally use 20% - 30% less energy than required federal standards.

Environmental Impact: Any change that would affect the environment, good or bad, wholly or partially from industrial/manufacturing activities, products or services.

Life Cycle Assessment: The process of analysis from raw materials extraction through manufacturing, delivery, use, and disposal or reuse of a product's entire life.

Leadership in Energy and Environmental Design (LEED): provides independent, third-party verification that a building, home or community was designed and built using strategies aimed at achieving high performance in key areas of human and environmental health: sustainable site development, water savings, energy-efficiency, materials selection and indoor environmental quality.

Optimal Value Engineering (OVE) or Advanced Framing: A strategy for reducing thermal bridging by minimizing wall framing needed for structural support. Common techniques include 2x6 framing with 24" on-center spacing, single top plates where trusses align with wall framing below, properly sized headers, two-stud corners, lattice strips at exterior/interior wall intersections, and the elimination of excessive fire blocking and window framing. This results in much more open framing for insulation to improve energy efficiency and comfort.

PEX (crosslinked polyethylene): a specially designed plastic tubing with distinctive properties that make it ideal for radiant floor heating and plumbing systems.

R-Value: A measure of the thermal resistance of a material. Higher R-values indicate better resistance to heat flow through material. The effective R-value of an insulation material will be reduced by gaps, voids, compression or misalignment.

Seasonal Energy Efficiency Ratio (SEER): the efficiency rating of air conditioner which is defined by the Air Conditions, Heating and Refrigeration Institute in its standard ARI 210/240, Performance Rating of Unitary Air-Conditioning and Air-Source Heat Pump Equipment. Instead of being evaluated at a single operating condition, it represents the expected overall performance for a typical year's weather in a given location. The SEER is thus calculated with the same indoor temperature, but over a range of outside temperatures from 65 to 104 degrees F, with a certain specified percentage of time in each of 8 bins each spanning 5 degrees F. There is no allowance for different climates in this rating. It just gives an indication of how the actual EER is typically affected by different outside temperatures over the course of a cooling season.

Thermal Bypass: The movement of heat around or through insulation. This typically occurs when gaps exist between the air barrier and insulation or where air barriers are missing.

U-Value: A measure of the flow of heat through an insulating or building material: the lower the U-value, the better the insulating ability.

Vapor Barrier: Any material that restricts the flow of moisture. In hot climates, a vapor barrier would be installed on the exterior surface and in cold climates on the interior surface.

WEB RESOURCES

USGBC (United States Green Building Council)

<http://new.usgbc.org/>

Introduction to LEED

<http://new.usgbc.org/leed>

EPA WaterSense

<http://www.epa.gov/watersense/>

EnergyStar

<https://www.energystar.gov/>

CalGreen

<http://www.bsc.ca.gov/home/calgreen.aspx>

CAHP (California Advanced Homes Program)

<http://www.socalgas.com/for-your-business/builders-and-construction/cahp/>

Create Healthy Homes

<http://www.createhealthyhomes.com/>

Green Builder Magazine

<http://www.greenbuildermag.com/>

BuildIQ

<http://www.buildiq.com/>

Building Science

<http://www.buildingscience.com/>

EcoNest Co.

<http://www.econesthomes.com/>

EEBA (The Energy and Environmental Building Alliance)

<http://www.eeba.org/>

Building Green

<http://buildinggreen.com/>

US Department of Energy

<http://BuildingAmerica.gov>

NAHB (National Association of Home Builders)

<http://www.nahb.org/>

California Energy Commission

<http://www.energy.ca.gov/>

HERS (Home Energy Rating System Program)

<http://www.energy.ca.gov/HERS/>

Environments for Living

<http://www.eflhome.com>

Healthy Building Network

<http://www.healthybuilding.net/>

PATH (Partnership for Advancing Technology in Housing)

<http://www.pathnet.org/>

Architecture 2030

<http://architecture2030.org/>

Consol Energy Consultants and Solutions

<http://www.consol.ws/>

Global Green USA

<http://www.globalgreen.org/>

Go Solar California

<http://www.gosolarcalifornia.org/>



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Honesty, Integrity, Respect, Responsibility, Thoughtfulness
And a passion for Quality Custom Homebuilding

