

The Facts About True Zero Energy Green Home Development

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ITS TRUE MANY BUILDERS CALL THEMSELVES GREEN ENVIRONMENT FRIENDLY BUILDERS, BUT ARE THEY REALLY?

I BUILD THE HOME OF THE FUTURE TODAY!

In today's world people expect products that are high-tech, high-speed, inexpensive, highly durable and very safe! The goal of "**Blue Ocean Homes**" (BOH) is to not only meet these expectations but to far exceed them. To accomplish this requires a departure from the common myths and standard beliefs of traditional home building.

BOH has embraced concepts and innovative approaches that depart from traditional methods and materials used in home construction. BOH is not a part of the crowd therefore, we are not hampered by traditional or status quo ways of building single family homes.

Several things set us apart from the crowd, we are solution oriented, innovative and creative in the areas where it makes sense but we do not re-invent the wheel where proven standards are the standard for excellence.

Our homes are being **designed for the future**, keeping in step with needs known and anticipated for the 21st century. The major element for our home construction is the use of "Insulating Concrete Form Panel System" or **ICF building blocks**, but we go much further than that. The key is to **employ materials that work together** that synergistically far exceed all expectations and traditional notions.

Our use of a specific insulated concrete form or ICF is a building system comprised of a mixture of Portland cement and recycled polystyrene creating a stay-in-place concrete form. A series of channels run horizontally, vertically and diagonally throughout the forms. The channels, spaced 15 inches on center, are filled with structural concrete grout and rebar effectively **creating a post and beam matrix** inside a "sandwich" of the composite **stay-in-place concrete forms**, giving the walls an exceptional high R rating as

well as other extraordinary benefits!

Although there is no magic formula, success comes from leaving a lighter footprint on the environment through conservation of resources, while balancing energy-efficient, cost-effective, low-maintenance homes for our customers.



Interior Wall View
without block



Block waiting for cement



Filling the hollow wall with grout



After pour is completed

Using ICF to build eliminates an extraordinary amount of wood previously used to build traditional stick structures. Insulating concrete form stays in place, allowing all labor and materials expended while building to remain within the wall, creating very little waste, creating even more cost effectiveness.

The goal at BOH is to build low to no energy, technologically superior homes at an affordable price.

A Green House

Recycled polystyrene creating a stay-in-place concrete form that is hollow cored, reinforced with deformed steel reinforcement bars with a minimum yield stress of 40 KSI complying with ASTM A 615. Eliminating the need for additional insulation, sheer support, paper or wire for exterior coating placement, etc.

A Greenbuild home designed for Energy efficiency.



A revolutionary building block today in the future and beyond. "Perform Wall"

The Energy



Flexible solar electric panels giving clean energy to our system reducing or even may eliminate electrical energy costs all together.

The Testing

Perform Wall material meets or far exceeds all building standards.

All tests performed by:
American Society for Testing and Materials

Water transmission
ATI-03-30070.02, 4/01
ATI-03-30305.02, 4/01

Meets requirements ASTM E331,
ASTM E 514, meets UBC 14-1
(grade "C" craft paper)



Rugged water testing standards



Actual fire rating test on Perform Wall
After four hours test was halted – wall is impervious to fire, water,
insects and mold

Fire rating tests establish the fire resistant nature of our building system.

Fire Endurance
UL-R20638, 6/01
U915, 5/01

4 hour rating (ASTM E119)

The endurance rating of this material makes it one of the safest building materials available to the average home owner at an affordable price.

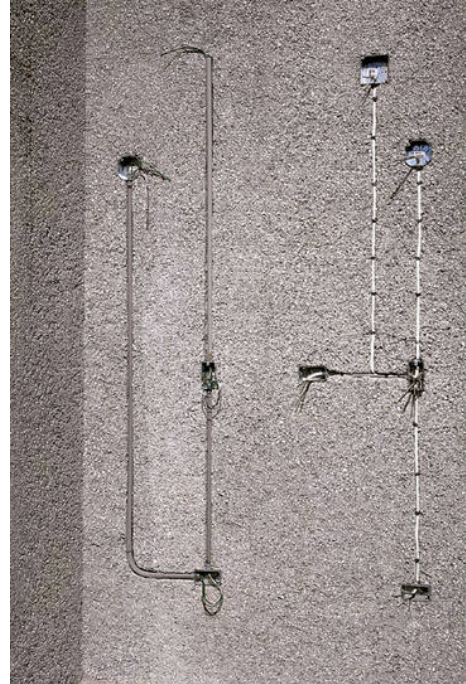
BOH takes this endurance material one step further by eliminating all most all of the combustibile material required for construction with exception of doors, cabinets and modeling.

The homeowner's furnishings remain a point of available fuel for a fire but should a fire breakout our building will not assist the fire in spreading from room to room consuming building material.

Installation

Placement of electrical lines, outlets, switches, boxes and wiring.

The installation of electrical lines in our building block is simple and requires no pulling of wire simplifying the installation process. Combining solar will increase value and savings from future energy costs.



Solar Emerging Energy

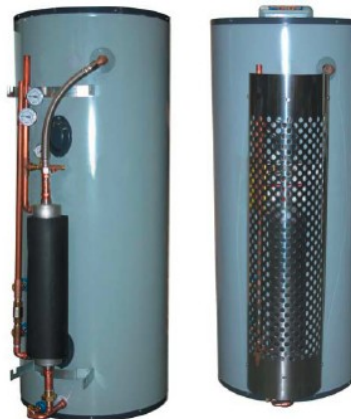


Plumbing lines, drains and control knobs are installed similarly to electrical lines.

Placement of water pipes, facets and control knobs.

All plumbing pipes are inserted into the wall system by routing out a small section of the wall which doubles to insulate the pipes.

Solar Water



Solar water heater providing additional savings reducing energy costs for the home owner.

The superiority of Perform Wall block

Construction methods, cutting, and placement of blocks. Shaping molding and placing of the block is made easy due to the versatile nature of the block. Having the ability to cut, angle cut and round the edges makes construction and desired effects simple.



Perform Wall ICF

ICF Styrofoam Block

Do not confuse straight Styrofoam block construction with pre-cast "Perform Wall block" also an ICF block system.

These blocks are worlds apart in construction, stability and versatility But hold similar insulation values.



Straight Styrofoam Block system

Our block is pre-formed during manufacturing and does not require any type of plastic holding pins

Coating or finish Application

Applying exterior and interior material coverings and coatings.

The porous nature of the product allows the application of most materials to be placed directly on the exposed surface of the block.

The block material will absorb the material being applied causing a stronger bound with the block.



Recessing

Almost everything can be recessed into our block material creating a more aesthetically pleasing signature on the structure.

Additionally the block insulates the item from extreme exposure to elements increasing the life expectancy of most quality items.



Once filled and seated concrete matrix will resist most seismic activity

Seismic Events

Structural

RAL#20177-IP, 9/96
In-plane cyclic shear
RAL#23940-SW, 10/97
Slender wall
RAL#25683-NSW, 11/98
Narrow shear wall
RAL#20177-L, 9/96
Flexural/Lintels

Approved for multi-story use in all four seismic zones

No small block

During the construction phase blocks are placed by a crane. A block that has integrity.

This system of construction does not require highly skilled framing labor during the erecting process additionally; several other trades can be removed from the equation since they are no longer required in the construction process.



Actual ICF Block Home

Imagination and inspiration

Traditional



Actual ICF Block Home



Actual ICF block home

Mediterranean

Desert Oasis



Actual ICF Block Home



Actual ICF Block Home

Travertine Place

The Blue Ocean Homes Approach!

It is one thing to add a little solar and call yourself **Green**,
it all together something else to truly build
cost effective **Green** zero
energy homes!

Wood vs. Steel Framing

BOH on the other hand has **designed the wood out of our residential properties** using in stead steel products with only a small exception of cabinets, doors and floor molding where needed. When our block has a four hour fire rating why would anyone want to fill the house with wood products? **BOH is implementing light gauged steel interior wall framing** to provide the structural integrity and fire retardant or more over the non-fire fuel properties of steel.

Energy

The **energy efficiency of our construction far exceeds traditional track homes** and most spec home construction could ever hope to achieve and still make a profit on their product. While our homes will **actually eliminate several trades during construction** one of which is **wall insulation** causing a natural progression toward emerging energy systems like solar.

A study, conducted by Dr. Pieter VanderWerf of the Boston School of Management and sponsored by the Portland Cement Association revealed that homes built with insulating concrete forms (ICFs) consume, on average, **44% less energy to heat** and **32% less energy to cool** than conventional wood-frame homes. Adding solar to the equation further enhances the savings to near zero energy consumption for optimally located properties where sunshine is in abundance for most of the year.

BOH implements **solar energy to generate electricity, hot water and in some cases utilizes solar power for evaporative cooling** of the home. These system are currently available for use, although, initial cost may be higher, designing these products into new construction saves thousands and some of these costs will be offset by tax credits and

home design savings but when proper estimate calculations are employed it is easy to see how the savings will exceed the slightly higher initial costs.

Building Design & Features

The design of a building makes a huge difference in energy efficiency. All builders of desert homes use the traditional high pitched roof systems with huge surface areas sporting the square footage of a small basket ball court. Additionally, these designs have huge volumes of wasted space in the attics that requires large amounts of insulation to protect the interior of the house of the built up heat which gathers in the attic all day as the sun beats down on the concrete tile roof.

BOH has designed its homes so the volume between the roof and ceiling is on only 24 inches. This design aspect does not allow for super heated air to accumulate in the attic space which then wants to penetrate into the house requiring additional air-conditioning for cooling to make the home habitable.

Highly pitched roofs in the desert are of little value, designers are neglecting the fact that very little accumulating snow falls in the desert requiring that steep of a pitch. To create these pitches in modern construction mandates the use of intricate trusses to support the large volume roofs sporting the enormous weight of concrete roof tiles.

BOH's design has dispatched the use of high pitched trusses even though our roof have a substantial pitch creating water run off sufficient to handle rain generated by desert thunder storms.

All of our homes feature these enhancements:

1. Recycled Polystyrene & Concrete ICF Block Outer Walls
2. Steel Stud interior wall construction
3. Vinyl Dual Glazed Windows with low E glass
4. Solar Hot water and Central Heating System
5. Whole House Air Exchange/Filtration System
6. Low Voltage/Solar Back up Central Air Conditioning
7. Photovoltaic Net Metering Electrical System
8. Water Saving Showers and Toilets
9. Exterior Wall Coatings utilize PermaCrete for Superior Strength

10. Gray water recovery system

Benefits from a Blue Ocean Home:

- Impervious to Fire Damage
- Impervious to Water Damage
- Impervious to Mold
- Impervious to Insect Damage
- Impervious to Earthquake Damage
- Impervious to Wind Damage (if windows and doors are properly protected)
- A Very Quite Home, Sounds are Deadened by ICF Block

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