

Laguna becomes home of first BareBONE structure in OC: innovation down to the bone

Story by DIANNE RUSSELL

Photos by Mary Hurlbut

Imagine the difference between creating something out of Play-Doh and building something from an Erector Set or with Legos. One is messy and imprecise; the others are constructed to fit together precisely, with no variations, except in the design.

Chief Executive Officer and Founder of BONE Structure Marc Bovet says, “If you give a bunch of kids Play-Doh, they’re going to make something different every time, but if you give them materials that are precise and fit together only in certain ways, the design will be different, but the process will be the same.”

Based on the concept of process being inherent in the material, Bovet founded the company BONE Structure 15 years ago, and the company currently has offices in Montreal – where it began – and San Francisco.

First BareBONE in OC

The first BareBONE home in Orange County, located at 677 Coast Hwy, was designed by Laguna Beach Architect Anders Lasater, while Laguna Beach builder J. Kramer Corp. is managing the construction. There are three other BareBONE homes in Southern California – two in Malibu and one in Hancock Park.

BONE Structure has developed and patented a steel construction system that allows for custom design, manufacturing, and assembly of residential and light commercial buildings with unprecedented precision.

They have partnered with architects and builders to complete hundreds of custom projects across Canada and the company is now expanding operations to California using this proprietary technology.



[Click on photo for a larger image](#)

First BareBONE home in Orange County

Visitors to last week’s open house – still in its skeletal stages – got a peek at a truly fascinating, innovative and, for the average observer, just plain logical approach to home construction in the 346-year history of traditional home building.

So how is a BareBONE home different from a traditionally constructed one?

The name BONE Structure comes exactly from what you suspect it would –human anatomy. The concept is based on the human skeleton (which is composed of 206-208 bones at adulthood), and without a doubt is the best structure around. However, in this case, the bones are steel.

Construction

The BONE Structure® steel construction technology combines the advantages of a post-and-beam structure with an integrated energy efficient solution. The steel structure will withstand bending, buckling, or rotting over time, and is resistant to damage from termites and mold.

The right process for the right material – a unique idea that Bovet translated into a building process that’s earthquake proof, fire retardant, sustainable, net zero energy ready, eliminates construction waste, retards termites and mold, lasts indefinitely, is easily adaptable to moving inside walls...and the list goes on.

It wouldn’t be unreasonable to predict this might be the only house left standing in Laguna after “the big one.”

Subsequent to the design process, the 11-gauge galvanized steel components are designed with 3D software and laser cut with the same technology used to machine parts for aircrafts and automobiles.



Click on photo for a larger image

11-gauge galvanized steel components – laser cut per design

Their integrated combination of expanded polystyrene panels and closed cell polyurethane foam insulation reduces energy loads and provides superior comfort and energy savings of up to 90 percent compared to traditional construction.

There are also elements of the structure to accommodate electricity, ventilation, and heating already in place so they can be easily installed.

Bovet says, “The most important and costly investment you’ll make in your lifetime is your home.

“For 375 years, homes have been built in the same traditional way, stick frame wood construction. Forty percent of construction waste goes into the dumpster to landfill and comes from construction sites. With this new method, there is no waste. It is the ultimate in quality and control processes. It’s very detailed, down to the number of screws it will take to construct home.”

Components manufactured

“All BONE Structure components are manufactured locally in one of our 12 North American plants (as of 2016). Using the latest production technologies borrowed from the aerospace and automotive industries, each component is laser cut to precision for its particular design, and then it is screwed together –with one type of screw – with no room for mistakes or indecision by the installer. Each piece goes exactly where it was designed to go. The kit can be assembled using a battery pack.”

Bovet also explains that due to the 30 percent decline in the labor force and skilled construction workers, this method of assembly can be taught in a shorter period of time and takes one-third of the labor.



Click on photo for a larger image

Upstairs of Kippen home

Who's building these homes?

Mike Pollastro, who is in the process of building a 2,700-square-foot (including garage) BONE Structure home in Hancock Park, which was started in April, visited the open house. When asked why he chose BONE Structure, he said, "I started looking for alternative technology that was net zero energy ready. Also the reduction in construction vehicles and the short construction time was better for the neighbors."

This seems the perfect home for the environmentally conscious.

In alignment with his life's work, when professor Mark Z. Jacobson decided to build his house in Stanford, he pursued an energy-efficient design that generates all its own energy from renewable sources and chose BONE Structure.

Professor of Civil and Environmental Engineering and Director of the Atmosphere/Energy Program at Stanford University, Jacobson may be best known for his work as a founder of The Solutions Project. The mission of The Solutions Project is to show, with scientific research, the plausibility of transitioning every state in America to 100 percent renewable energy.

How the BONE Structure idea was born

As with most innovative ideas, this one was born of necessity and fueled by experience. Bovet, who worked for Bombardier in Montreal, a multinational manufacturer of regional airlines and jets, was facing a home construction project.

The short version of a longer story: Bovet's wife bought a tear-down property, and they embarked on the process of finding a builder, hired an architect, and then submitted the plans to five builders. The bids came back with a 72 percent difference, a huge variance, so Bovet began looking further into the traditional way of building a house.



Click on photo for a larger image

Looking into the house from the upstairs deck

Bovet applied the principles, techniques, and technology utilized in building aircraft and translated those to home construction. He laid it out as a trajectory project with line-by-line items, very detailed. They hired a builder, but Bovet ended up in a hotel with his wife and four children for months. It was then he realized that the building industry didn't have a linear process, but rather a circular process with imperfect materials.

Bovet says, "The industry needed an integrated design that involved –process, process, process, and the right material for the right job."

And BONE Structure was born.

Never satisfied, Bovet is constantly looking to improve. In the 15 years they've been in business, they are now on their 12th version.

The Kippens

During the open house last week, the owners of the 677 Coast Hwy home, Tim and Ileana Kippen, were on site. The structure is well on its way to becoming a spectacular home. The lower level will be a rental, and the upper level their home. Ileana is an artist and will have her own studio.

Ileana explained, "We enlisted Architect Anders Lasater, then we discovered the BONE Structure process, flew up to the BONE Structure San Francisco office to see it first-hand, came back and told him that we would be using this technology."

Before the tear down, the property was a duplex on top of a business. The planning process took three years. Christine Miller from Anders Lasater Architects, who is working with the Kippens, says, "There was a little pushback from neighbors regarding roof height, and we had some compromising."

The Kippens used to live in Laguna, then moved to Aliso Viejo and soon will be back in Laguna in this incredible new structure.

So now when someone says of their home, "This house has good bones," it won't be far from the truth.