



## Building with Concrete

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Typical Southern residential construction can be covered by the commonly used phrase “Stick and Brick”. Wood is a very poor insulator and becomes a large part of the structure. Over the years we have seen many attempts to insulate the Stick and Brick home with products from blown fiberglass to recycled paper. Air infiltration has been attacked by using tar paper, tyvek and many other products. At best, this has been like placing a finger in the leaking dike. Another unsupportable practice has been to place the HVAC unit and its ducts in the attic of the home, the vary place, the home experiences the most extreme swing in temperature and humidity.

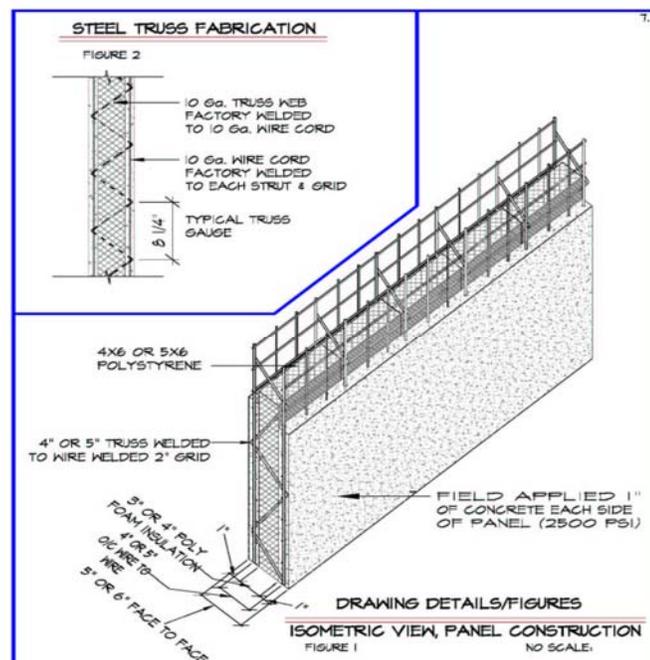
For years the term and information referring to insulating a home has been the “R-Value” of the material used. The “R-Value” is the term applied to an insulating product based on lab conditions and not real life functionality.

The solution lies in a paradigm shift in the “That’s how we have always built” and lab based “R-Values”.

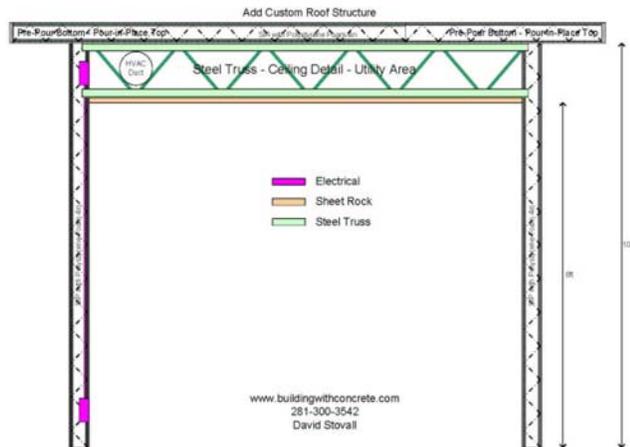
How does the entire Building System actually perform? What is the “Performance Factor” of the structure the day construction is complete, and then 5, 10 and then 20 years later.

Using Polystyrene Foam as an insulating foam core and an application of 1” of concrete on the exterior of the home seals and insulates the structure. There is a product providing the foam core and the structural strength to be used for walls and flooring, the Concrete SIP (Structural Insulated Panel).

The Concrete SIP is a 4ft wide panel using 3” to 6” Polystyrene foam core. Galvanized steel mesh is held ½” away the foam on each side of the panel by galvanized steel wire truss cross members.



The development of a Building System using the Concrete SIPs and a Light Weight Galvanized Steel Truss System provides a structure virtually eliminating air infiltration in the walls and the attic floor while providing a completely insulated shell. Using the trusses to support the attic floor the Air Conditioning and Heating ducts are moved inside the living envelope.



One of the best benefits of using the Building with Concrete – Building System is found in the concrete on the interior of the living space. Concrete, as with wood, is a very poor insulator but it does have a very beneficial property referred to as “Thermal Mass”. Long after the sun has set, a concrete sidewalk will hold the heat well into the night. The same is true with the concrete facing the living area in the walls and attic floor. Once it is warmed up in the winter it stays warm and once cooled in the summer, it stays cool.

The true “Thermal Performance” of a structure is not based on each individual part of the construction but determined by how well the complete structure performs over time.

The “Thermal Performance” of the Building System could be the best available today.

The next step was to find the best way to Heat and Cool the home. Looking at how we cool a home today, the 2 major components are located in the hot attic and in the outside heat. The heating side uses oil, gas or electricity which all effects our environment and come with rapidly increasing pricing.

Between 8 feet and 250 feet below the surface of the ground the earth has a constant temperature around 60 degrees. A Geo-Thermal Heating and Cooling System takes advantage of the constant temperature and uses it to provide Heating/Cooling and Hot Water to the home at a much better price than the traditional systems.

The Building System teamed with Geo-Thermal delivers savings for the life of the home. The structure is resistant to Fire, High Winds, Raising Water, Insects, and Mold & Mildew and most importantly Rising Energy Costs.