

Frequently Asked Questions (FAQ)

You will find answers to most of your queries/questions here. However, if you have any question not answered in the FAQs, you may [contact us](#).

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1 What is the StrongBuilt System? How is it made? What is it made of?

The StrongBuilt System is a patented, high performance concrete building system. This extremely strong structural system consists of a super-insulated core of rigid expanded polystyrene sandwiched between two-engineered sheets of steel welded wire fabric mesh. To complete the panel form process a nine-gauge galvanized steel truss wire is pierced completely through the polystyrene core, and welded to each of the outer layer sheets steel welded wire fabric mesh. We then cast our proprietary, high performance concrete mix on both sides of the foam panels. This creates an airtight, and high strength system that is used to monolithically cast the walls and ceilings of a structure. The roofs can also be made using the system.

2 How is the StrongBuilt System used?

StrongBuilt System is used for numerous building applications. It may be used in place of wood framed walls, metal-framed walls, and masonry block walls or in place of pre cast panels. StrongBuilt System may also be used for floor systems, ceilings and to provide a roof structure. The StrongBuilt System is an excellent product for building privacy walls around the home or building structure. StrongBuilt System is being used by many landscape companies in place of masonry block. With handsome good looks and great flexibility, StrongBuilt System can be used in conjunction with all of the building trades above.

3 What choices of StrongBuilt System core density and steel mesh styles are available?

Dimensions of the panels are manufactured from a starting width of (4') x (8') length. The panels can be prefabricated up to (40' in length) in (8" increments). Truss wire gauges available are 11, 12.5 and 14. Polystyrene Core Outer Layer Wire Thickness Mesh to Mesh 1.5" 2.5" 2.0" 3.0" 2.5" 3.5" 3.0" 4.0" 3.5" 4.5" 4.0" 5.0" 4.5" 5.5" 5.0" 6.0". The density of the EPS foam is 1lb per cubic foot.

4 How does StrongBuilt System compare in cost to other building systems?

The cost is dependent upon the design and finish of your project. Every structure is unique like a fingerprint; no two are alike. This makes analyzing the cost on a square foot basis difficult. Our product is not price competitive with (2x4) stick framing. The StrongBuilt System is competitive with (2x6) stick framing, metal stud framing and our product is more competitive than block. Keep in mind the StrongBuilt System is extremely versatile and can be used with any of the above systems. For return on investment, StrongBuilt System beats stick framing as well as most other building systems readily. The StrongBuilt Systems account for a fraction of your structure's cost. The dollars you spend on the StrongBuilt System can be made up very quickly in energy savings alone. Over the life of the structure, the savings are quite staggering.

Here is a list of attractive benefits of the StrongBuilt System:

- Fast, High Quality Construction Time saved - 50% faster than standard construction
Speedy occupancy - Saves money on construction loan dollars - Enhanced resale and marketability value. Reduces the need for heavy equipment on job. Fewer trades on job site.
- Strength, Durability, Greater Structural Integrity, Virtually maintenance-free building system, that saves on long term replacement cost of the structure. Polystyrene panel or concrete will not decay. Monolithic design and construction for superior strength.
- Safety, Security, Excellent performance in seismic zones (Earthquake Resistance), Non-combustible structure, Savings of 18% to 30% on fire insurance, Excellent high wind protection-up to 225mph. Insect Termite Rodent Resistant Mold, mildew, and fungi resistant.
- Pro Environment, Energy Efficient, Maximum Conservation of forestry products. Structure durability offers value for generations, and saves many Earth resources. Dramatically reduces consumption of fossil fuels. Reduces the size and cost of HVAC systems. Save 50 to 80% of utility costs on heating and cooling the structure.
- Quality, Comfort, Design Flexibility, Virtually eliminate outdoor noises, Reduce drafts and wide temperature fluctuations. Enjoy air quality; virtually free of dust, pollen and allergens; with use of an air exchanger. Create an acoustical environment for full advantage of sophisticated sound systems and home theaters.

5 What code's do StrongBuilt System conform with?

StrongBuilt System meets the CABO one and two-story family dwelling codes (Compliance Report No. NER-454, 1/01/1993) which satisfies all SBCCI, ICBO and BOCA requirements for standard buildings. The StrongBuilt System also has HUD compliance covered under SEB# 1120. CABO-Council of American Building Officials ICBO-International Conference Building Officials SBCCI-Southern Building Code Congress International, Inc. BOCA-Building Officials and Code Administrators HUD-Housing Urban Development (SEB# 1120) NES- National Evaluation Service, Inc. (NER-454) Miami-Dade County Building Code Compliance Office American Society for Testing and Materials American National Standards Institute copies of the above reports available upon request.

6 What is the insulation (R) Value factors for the StrongBuilt System?

R-Value is a rating of the material resistance to thermal penetration. The higher the number the better the protection value. Many circumstances change the R-Value rating. R-Values change with the different thickness and density of the polystyrene panel core, various thickness of the concrete applied to the interior and exterior, as well as fluctuation of ambient temperatures. Chart shown below shows the minimum R-Value Ratings you can expect using the StrongBuilt System. 2lb. Polystyrene Core will provide an additional 10-12% R-Rating Polyisocyanurate Core is optional when panels are ordered. 2.5" 1.0 LB Polystyrene Core-R-Value 11.00 2.5" 1.0 LB Polyisocyanurate Core-R-Value 21.00 4.0" 1.0 LB Polystyrene Core-R-Value 18.00 4.0" 1.0 LB Polyisocyanurate Core-R-Value 33.00 5.0" 1.0 LB Polystyrene Core-R-Value 23.00 5.0" 1.0 LB Polyisocyanurate Core-R-Value 41.00 Polyisocyanurate is a special order foam core used primarily for refrigeration purposes or specialty items. R-Values stated is within FTC guidelines.

7 What about thermal value heat loss?

The StrongBuilt System System has been designed with maximum environmental comfort in mind. A wood structure simply cannot compare to the comfort level available with the outstanding energy savings created by using the StrongBuilt System System. StrongBuilt System will keep you cooler in summer and warmer in winter. The modified expanded polystyrene core meets all VA, FHA and HUD thermal requirements.

The StrongBuilt System offers valuable savings: (See **Figures 1 & 2**)

1. No wood studs to transfer or conduct heat or cold through the exterior walls
2. The incorporation of minimum (3") density of shotcrete and variable thickness of polystyrene ranging from 2" through 5" offers an excellent thermal barrier.
3. Electrical and plumbing is through the interior side of the StrongBuilt System, so there are fewer wall penetrations, which keeps thermal loss at a minimum.
4. Save 50% to 80% of heating and cooling costs.
5. Reduces size and cost of HVAC System.

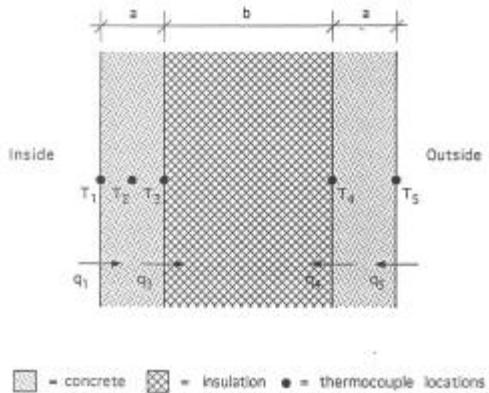


Figure 1

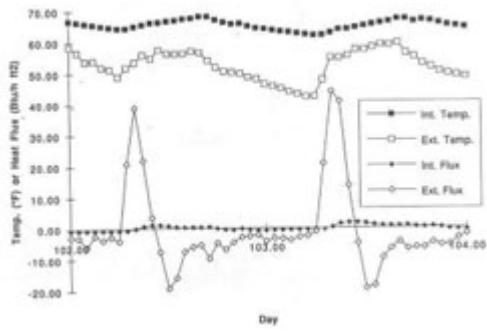


Figure 2

8 What is the (S.T.C.) Sound Transmission Coefficient?

The S.T.C. (Sound Transfer Coefficient) attenuation is excellent. The double shell configuration of the concrete plus polystyrene plus concrete sandwich minimizes sound transmissions. Typical S.T.C. expected is as follows: 3" Concrete (1.5" each side) = [0.1304 x 38] + 43.48 [4.9552] + 43.48 = S.T.C of 48.4352 4" Concrete (2.0" each side) = [0.1304 x 50] + 43.48 [6.52] + 50.00 = S.T.C. of 50.0000 Calculated from the PCI Pre-cast Manual Note: We are currently working on a new polystyrene panel, which will have an integrated air pocket that will greatly improve this rating.

9 What is the fire rating of StrongBuilt System?

The StrongBuilt System has the following fire-resistance ratings, (Ratings are valid for fire exposure from either side) Fire-rating is derived from the wire mesh gauge in combination with concrete thickness. See chart below. The insulation core Type I polystyrene foam demonstrated a flame-spread index of 25 or less and a smoke developed rating of 450 or less when tested in accordance with ASTM -E84. The modified polystyrene core does not contain ozone-damaging chlorofluorocarbons (CFC's) in the manufacturing process or products. 2.5" EXP-Core with 1.50" concrete each side = 1.5 Hours 2.5" EXP-Core with 2.00" concrete each side = 2.0 Hours

2.5" EXP-Core with 3.1/8" concrete each side = 4.0 Hours The fire rating increases with greater quantities of cement applied to each side. Polystyrene core will not burn.

10 How is the StrongBuilt System secured into the slab?

The rebar is embedded within the concrete slab. The panel is placed over the rebar, through the open space between the polystyrene core and the wire mesh. Once set, the rebar is fastened directly to the wire mesh by hand with tie wire. It is critical the rebar be installed in a straight line so the rebar fits easily into the cavity between the polystyrene and the wire mesh. It is important to make sure the rebar is completely exposed so it becomes monolithically enclosed with the concrete. Should the building department or engineer require additional tie downs, the polystyrene core can be removed from the base of the panel. The panel is then set in place over the required tie-down and cemented in place. Another option for placing the rebar in the concrete slab is to drill the concrete slab and pour epoxy in the cavity placing the rebar within its confines. Typically, the spacing of the rebar is (24") on center.

11 How is a bond beam made with the StrongBuilt System?

A bond beam is used to create large openings, or to strengthen large areas of ceiling or to help support roof structures. All bond beams created should be pre approved by a certified engineering firm. Removing the polystyrene core and installing rebar creates the bond beam. The best method for removing the polystyrene core is a high-pressure water blaster, it takes only a matter of minutes. For further information please see instruction manual.

12 How is the electrical and plumbing installed?

The installation of electrical or plumbing is achieved by removing the polystyrene core to create a cavity that electrical conduit or plumbing piping may be installed into. The polystyrene is approximately 3/4" off the wire mesh so that you have a space to install these products. If this opening needs to greater the polystyrene core can be removed with a small keyhole saw or butane torch. The polystyrene will not burn it will shrink or melt leaving a cavity. The electrical or plumbing is then installed into the cavity. For further information please see instruction manual.

13 How are windows and doors installed?

The window and door openings may be cut out with the use of three primary tools, a reciprocating saw, a set of 18" bolt cutters or pneumatic cutter, and a small hand saw to remove the polystyrene. It is recommended that a caulking sealant compatible with the polystyrene core be used to seal the jamb to the polystyrene core. For residential construction, wood jambs of treated material are then fitted into the openings. The windows and/or doors are then fastened to the treated jambs. For commercial use, pre-finished concrete openings are created. The windows and doors are then installed into the openings, as they would be into a typical masonry block structure. For further information please refer to instruction manual.

14 How do you build curved or radius walls with the StrongBuilt System?

You can build curved or radius walls by cutting the wires on one side of the panel. This will allow the panel to bend to the desired shape or radius. It is very important not to cut through the truss wire so that wall strength and integrity remain intact.

15 How does the StrongBuilt System hold up under adverse conditions of Hurricanes, Tornadoes, Earthquakes and Fires?

The StrongBuilt System excelled in rigorous test given by Mother Nature. In Laboratory testing, the StrongBuilt Systems have been tested and will withstand wind loads of 226 miles per hour. Laboratory testing results available upon request. Complete (Earthquake) structural testing report from certified engineering firm available on above upon request. The StrongBuilt System is an ideal building product for structures in dry adverse climates where fire is always a constant threat. Areas which are heavily forested, high grass and brush, and other similar areas where structures may be prone to fires. A structure built with the StrongBuilt System is non-combustible and has a minimum 1.5-hour fire rating and a higher rating can easily be attained. Structures built with the StrongBuilt System are virtually fire resistant. Full test report from certified engineering firm available upon request along with photos.

16 What is the wind load capacity of StrongBuilt System?

The brief synopsis which follows, is from the test results report dated 1994 from Dade County, Miami Florida pertaining to the wind load capacity of the special panels used in the StrongBuilt System. Three typical StrongBuilt Systems panels 4' wide and 10' high with 1-1/2" of shotcrete on each face were installed vertically, side-by-side, on a concrete slab, several inches in front of a rigid backup wall with space between the panels and the backup wall. The panels were tested per static-wind load test (PA202-94 manner of testing). Summary: The specimens tested herein were fully tested in accordance with the Dade County Building Code Compliance Office Protocols PA 201-94, PA 202-94 and PA 203-94. No failures occurred to the specimens nor their fastenings nor anchorage. The products described in this report comply with SFBC Sections 2309 and 2315. The panels tested at 126 lbs per Sq. Ft. pressure, which represents over 225mph-wind factor. Please see wind load chart Exhibit 1.

17 What are the load bearing capabilities of StrongBuilt System?

The load bearing weights that a typical StrongBuilt System wall will support is amazing. The typical wood frame and metal frame wall cannot compare to StrongBuilt System strength. A typical StrongBuilt System with 2.5" polystyrene core using eleven-gauge wire, 8' in height has been tested at a structural load of over 78,000 lbs. Full load bearing chart available upon request.

18 Is the polystyrene waterproof? Is the foam waterproof?

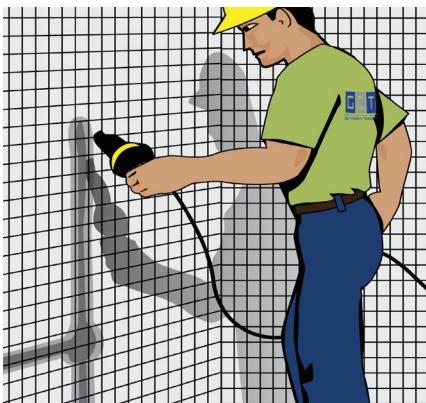
The polystyrene and the foam are one in the same. The polystyrene core is water-resistant. The ASTM test proved maximum water absorption of (2.5%) for (1lb density). E.P.S. is an inert, organic material. Polystyrene provides no nutritive value to plants, animals, or microorganisms.

The polystyrene will not rot and is highly resistant to mildew. Aging has no effect upon the performance of the polystyrene E.P.S. is able to withstand the abuse of temperature cycling 180° assuring long term performance. Please refer to fire rating for flame spread information.



Typical Panel Section erected to allow plumbing
and electrical conduit to be installed

PLUMBING, ELECTRIC INSTALLATION & OTHER SYSTEMS



The flexible piping for the electrical system, as well as the rigid piping for the plumbing and HVAC systems, is installed after the complete assembly of the panels and before the application of structural mortar.

- Chases for running the plumbing and electrical lines are created by using a properly sized heat gun to remove the EPS. Care should be taken to avoid creating voids that are larger than needed for the application. In all cases, a minimum of 1.6" of the EPS core shall remain in the wall. Do not use an open flame (torch) for this process as it is difficult to control the size of the chases.
- Flexible pipes are easily placed under the meshwork, whereas rigid ones are placed after cutting the mesh to allow access. Flexible plastic water lines are recommended for the water system due to the fact that a galvanic reaction will not occur. Once the supplemental systems have been installed, the meshwork needs to be restored by placing additional reinforcing mesh at each location where it has been cut and connecting it to the panel meshwork.
- Copper pipes must be insulated from the panel steel meshwork with felt, PVC or similar materials to prevent corrosion due to galvanic action. (See Photo 15.)
- Where pipes, conduit, electrical boxes, etc are too large to fit between the mesh and the EPS, cut the mesh and create a void in the wall by removing a portion of the EPS. Remove only the amount necessary to place the material. If an opening is cut too large, use a spray foam to fill in the voids. Any cuts on the mesh shall be replaced with flat reinforcement mesh (RG2) before applying the structural mortar. (See Photo 16.)



Photo 15.

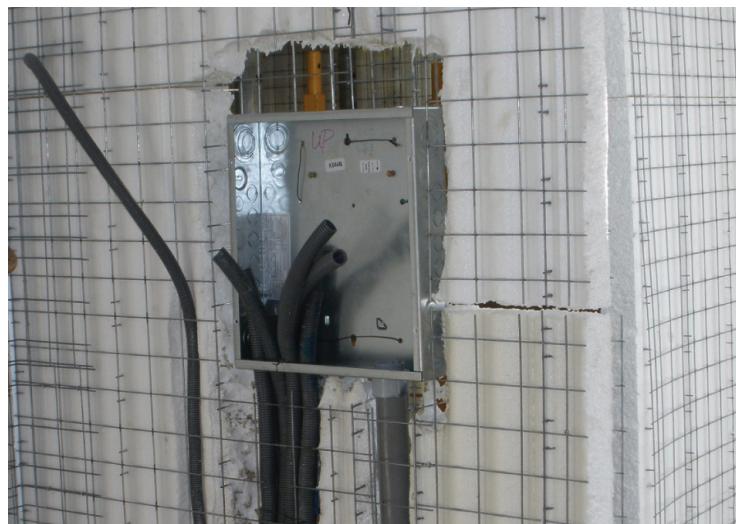


Photo 16.