

FREQUENTLY ASKED QUESTIONS

I.) What is the Paneling System? How is it made? What is it made of?

The Paneling System is a prefabricated panel. This extremely strong structural product consists of a super-insulated core of rigid expanded polystyrene sandwiched between two-engineered sheets of eleven-gauge 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 at off set angles for superior strength and welded to each of the outer layer sheets of eleven-gauge steel welded wire fabric mesh. Once these three elements are joined by EVG's state of the art manufacturing equipment, you end up with a THREE-DIMENSIONAL lightweight panel that due to their characteristics makes them one of the strongest building materials you can find.

II.) How is the Paneling System used?

Paneling 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. Paneling System may also be used for floor systems, ceilings and to provide a roof structure. Paneling System is an excellent product for building privacy walls around the home or building structure. Paneling System is being used by many landscape companies in place of masonry block. With handsome good looks and great flexibility, Paneling System can be used in conjunction with all of the building trades above.

III.) What choices of Paneling 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". Please request a price list and information on custom made panels to meet special requirements you may have on up future projects.

IV.) How does Paneling 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. Paneling System is competitive with (2x6) stick framing, metal stud framing and our product is more competitive than block. Keep in mind Paneling System is extremely versatile and can be used with any of the above systems. For return on investment, Paneling System beats stick framing as well as most other building systems readily. The Paneling Systems account for a fraction of your structure's cost. The dollars you spend on the Paneling Systems 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 Paneling 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 wall system Saves on long term replacement cost of structure Polystyrene panel or concrete will not decay Monolithic design 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 225 mph 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.

V.) What code's do Paneling System conform with?

Paneling 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. Paneling 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.

VI.) What is the insulation (R) Value factors for the Paneling 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 shotcrete 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 Paneling 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.

VII.) What about thermal value \ heat loss?

The Paneling 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 Paneling System System. Paneling System will keep you cooler in summer and warmer in winter. The modified expanded polystyrene core meets all VA, FHA and HUD thermal requirements.

Paneling System offers valuable savings: (see graphs, fig1 and fig 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 Paneling 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.

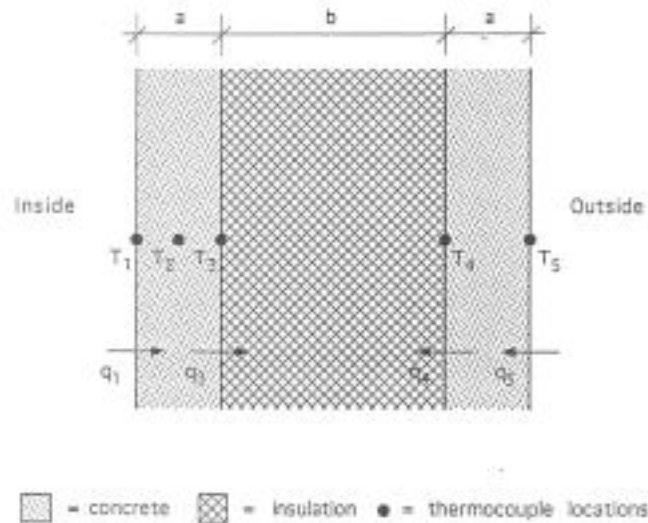


Fig 1 - Click Graph to Enlarge

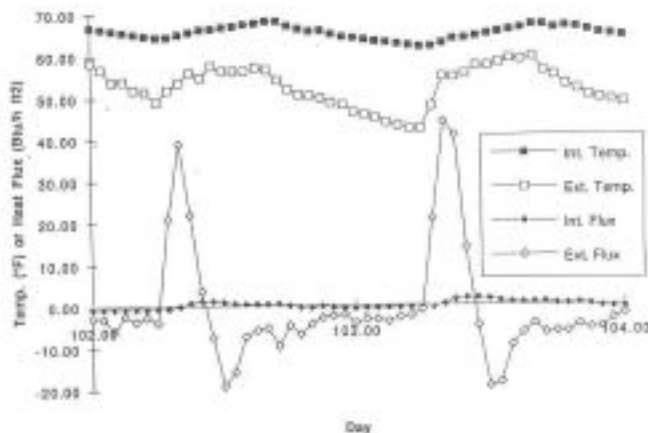


Fig. 2 - Click Graph to Enlarge

VIII.) 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) = $[0.1304 \times 38] + 43.48$ $[4.9552] + 43.48 =$ S.T.C of 48.4352 4" Concrete (2.0" each side) = $[0.1304 \times 50] + 43.48$ $[6.52] + 50.00 =$ 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.

IX.) What is the fire rating of Paneling System?

Paneling 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" Shotcrete each side = 1.5 Hours 2.5" EXP-Core with 2.00" Shotcrete each side = 2.0 Hours 2.5" EXP-Core with 3.1/8" Shotcrete each side = 4.0 Hours The fire rating increases with greater quantities of cement applied to each side. Polystyrene core will not burn.

X.) How is the Paneling 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 shotcrete or cement application. 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.

XI.) How is a bond beam made with Paneling 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.

XII.) 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 be 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.

XIII.) 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.

XIV.) How do you build curved or radius walls with Paneling System?

You can build curved or radius walls by cutting the eleven gauge 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 heavier nine-gauge truss wire so that wall strength and integrity remain intact.

XV.) How does Paneling System hold up under adverse conditions of Hurricanes, Tornadoes, Earthquakes and Fires?

Paneling System excelled in rigorous test given by Mother Nature. For the last ten years, numerous homes have been constructed with the Paneling System on the East Coast, Caribbean and Gulf areas of Mexico and the United States. The homes were built to withstand hurricane force winds. In Laboratory testing, the Paneling Systems have been tested and will withstand wind loads of 226 miles per hour. Laboratory testing results available upon request. In the southwestern area of the United States, a two-story Paneling System research complex jointly funded by the National Science Foundation, Southern California Edison, Inc., and the University of California withstood California's worst earthquake in forty years was struck twice a (6.5) and (6.9) Richter Scale. According to Dr. Philippe Cohen who resides at the site in the Mojave Desert, the area at one point was subjected to a continuous shake lasting over a full minute. The structure went through the quakes with zero structural effects. Complete (Earthquake) structural testing report from certified engineering firm available on above upon request. Paneling 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 areas in Southern California during Santa Ana Wind Conditions, and other similar areas where structures may be prone to fires. We have had numerous fires in Southern California during Santa Ana Wind Conditions. A structure built with Paneling System is non-combustible and has a minimum 1.5-hour fire rating and a higher rating can easily be attained. Structures built with Paneling System are virtually fire resistant. Full test report from certified engineering firm available upon request along with photos.

XVI.) What is the wind load capacity of Paneling 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 Paneling System. Three typical Paneling Systems 4' wide and 10' high with 1 ½" 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 225 mph-wind factor. Please see wind load chart Exhibit 1.

XVII.) What are the load bearing capabilities of Paneling System?

The load bearing weights that a typical Paneling System wall will support is amazing. The typical wood frame and metal frame wall cannot compare to Paneling System strength. A typical Paneling 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.

XVIII.) How are various shotcrete or cements applied to the Paneling System?

The shotcrete is applied either by hand or machine application on both sides of the panel. This part of the operation is very specialized. We recommend a licensed Gunnite or Stucco Contractor or a combination of both Contractors for this part of the operation depending upon the desired finish. For architects with a special finish in mind we would like to mention that the architectural molds or metal trim could be incorporated into your design to achieve the desired finish. A few of the above-mentioned might be fry reglets, point to point reveals, parting screed

etc. The versatility of numerous types of plaster finishes or stucco finishes will work on interior and/or exterior walls all of the newly created EIFS systems will also work. Additional products you may apply are brick, mini-brick, stone, stone facing, tile almost any type of finish your imagination can conceive will work.

XIX.) 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.

