



SELECTED PROJECTS

# PIUR PANELS



PIUR Panels are the structural system of choice for this DWELL Home II competition winner project. PIUR Panels were a perfect fit for this green home as wall, roof and floor system, since PIUR Panels are made from recycled foam and steel wires, and are fully recyclable.. PIUR Panels exceptional insulation capability is another reason for being part of this DWELL Home II competition winner project. One of the main advantages of PIUR Panels is that they are engineered panels, which means, they can be

designed and manufactured to specific strength, insulation and soundproofing capabilities at no extra cost. In this particular project, PIUR Panels have been designed to carry the weight of the soil and vegetation of the green roof. They also serve as the retaining walls for this hillside house.

Architect: Escher GuneWardena Architecture  
Engineer: ARKA International



This house, located on the hills of San Bernardino county, is a replacement to the original wood house that was lost to wildfire. Since PIUR Panels are employed for both walls and roof, this house is virtually fireproof, and is guaranteed to withstand the next wildfire.

The inherit insulation properties of PIUR Panels have provided R42 and R25 insulation for roof and walls, respectively. This has eliminated the need for extra insulation, hence saving money while providing comfortable living both during the winter cold as well as the heat in summer in this modern high mountain getaway house.

Architect: KFN design  
Engineer: ARKA International





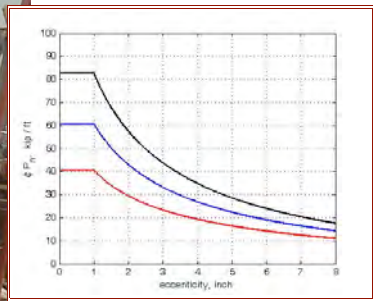
FEATURES & ADVANTAGES

# PIUR PANELS



PIUR Panels are the-state-of-the-art in green construction. Our patent pending technology has revolutionized the SCIP construction by offering solutions to all the problems that have held back this technology for decades. PIUR Panels are different in several ways:

- Since PIUR panels are engineered panels, and our patent pending manufacturing process can produce panels of any size, shape and configuration. This allows production of panels that meet stringiest requirements of architects and engineers for every single project in the most cost effective way.
- PIUR Panels has in house team of engineers that provide full technical support both during the design, as well as construction. We also train and certify our installers, and offer ongoing technical support.
- Since PIUR Panels' insulation is enclosed by concrete shells on all sides, PIUR panels resist pests, mold, and vermin. Homeowners never have to worry about termites and alike.



**STRENGTH:** PIUR Panels engineering team has developed special connections and unique engineering solutions, that while simplifying the construction process they also guarantee that the panels and their connections are strong and durable. Thanks to its engineered approach, PIUR Panels can withstand wind loads in excess of 200 mph, thus they will easily withstand hurricanes and even F-3 tornadoes. Since all of the walls in a PIUR building can be load bearing shear wall at no extra cost, structures built with PIUR Panels can withstand magnitude 8.0+ earthquakes.

The test results have shown that even the merely 5 inch thick PIUR wall with 1.125 inch concrete shells could withstand loads in excess of 100 kip per foot. And even at this loading level the panel did not even develop any large crack, but the test was terminated since the testing machine reached its ultimate loading capability.

**SPEED:** A single PIUR panel can be manufactured to have any width between 4 inches and 8 feet in ¼ inch increments. This gives the flexibility to manufacture panels that match the sizes of wall piers and spandrels, eliminating the time consuming

process of cutting and stitching panels at the job site. PIUR Panels construction process itself is very fast, since it has fewer steps than conventional construction. Buildings that employ PIUR Panels can be built in approximately half the time versus conventional construction. This allows the projects to go from blueprint design to finished structure in half the time, cutting the costs and reducing the risk.

**FLEXIBILITY:** With an unlimited number of finishes and design configurations, the PIUR Panel System can be used for both residential, commercial and industrial applications. PIUR Panels are a complete building system, and can be used for floors, roofs, ceilings, insulated pools, interior and exterior walls, retaining walls, fences and privacy walls, as well as sound barrier walls.

**SUPERIOR SOUNDPROOFING:** PIUR Panels transfer about 65% less noise than wood-frame or steel-framed walls. It is very easy to achieve STC-50 and superior soundproof rating by PIUR panels. But STC rating does not demonstrate the full power of PIUR Panels, especially its unmatched ability to reduce the low frequency sounds. Its superior sound insulation characteristics makes PIUR Panels an excellent choice for urban housing, hospitals, theaters, schools, and even sound recording studios where sound quality is an issue.

**SUPERIOR TEMPERATURE INSULATION:** PIUR Panels provide an insulated concrete structure for both hot and cold climates, delivering an R-40+ performance. PIUR Panel insulation performance is nearly four times that of conventional construction. In addition, due to its heavy concrete weight, PIUR panels store the energy during the hot day and emit heat during cold night. This damps the hot and cold peaks and provides much comfortable living environment. A typical PIUR Panel homeowner can save up to 60% on energy costs.

**ENVIRONMENTAL FRIENDLINESS:** PIUR Panels contain approximately 60% recycled/reclaimed materials by volume, 40% by weight. All waste is 100% recyclable, making the PIUR Panels one of the *greenest* structural building product available.

**SUPERIOR FIRE RATING:** Thanks to its multi-layer construction with outer concrete shells PIUR Panels have the highest fire rating in the industry.

**COST SAVINGS:** Despite its superior characteristics PIUR Building System competes very favorably when compared to conventional construction methods. In addition PIUR panels offer 40-60% energy savings over the life of the building.



**P**erfect  
**I**nsulation  
**U**ltimate  
**R**esistance

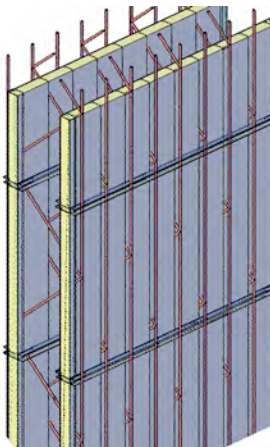
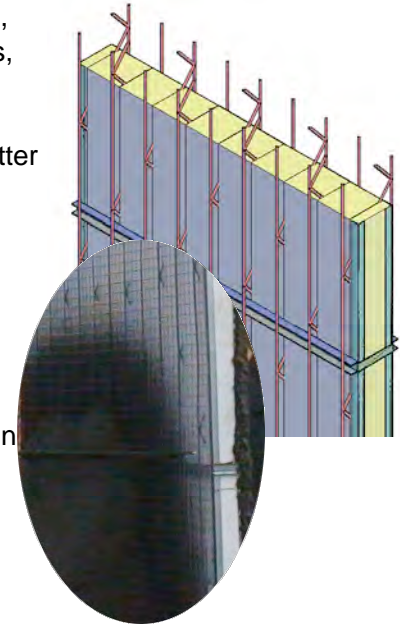


TYPES OF PANELS

# PIUR PANELS

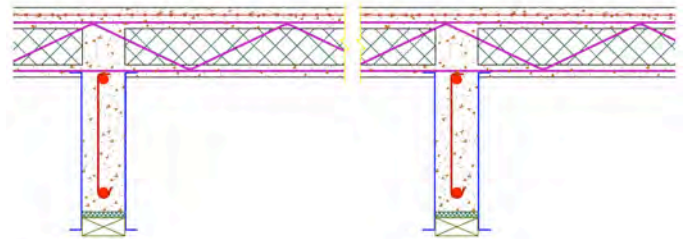


**STANDARD PIUR PANEL** is very versatile, it can be used for walls, floors, roofs, pools, etc. As an engineered product, PIUR Panels come in all shapes and sizes, and can be designed and manufactured to carry high loads due to gravity of multistory building, 200+ mph tornado wind or magnitude 8.0 earthquake, and provide comfortable living with high level of insulation, be it in extreme heat or bitter cold. PIUR Panels can be engineered to meet even the strictest sound proofing criteria required by sound recording studio built right next to a freeway. Made of 60% recycled material by volume, this feature packed panel is also one of the most environmentally friendly structural systems available.



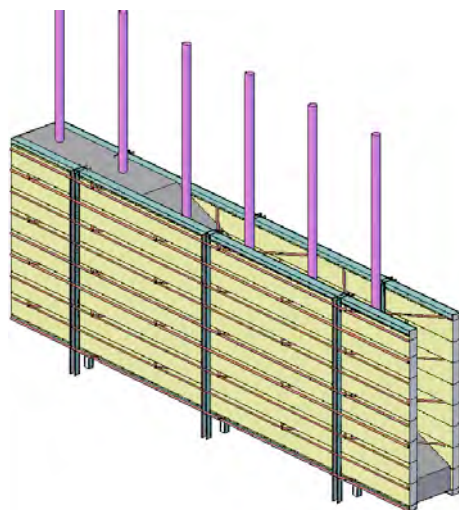
**HOLLOW PIUR PANELS** are mainly used for walls which inclose utility lines. The inherent open space within the panel, inclosed by layers of foam from each side, allows builders to easily install utilities (plumbing, electrical, HVAC, etc.) internally in any direction. Since the wire mesh on PIUR panels can be installed at very end, it is very easy to pass the utility lines, eliminating the need to cut and re-stitch the wire mesh or fish through the conduits behind the wire mesh. There are places were architects would like to show thicker walls, like 18 inch or more. With Hollow PIUR Panels this is easy to achieve without any extra cost. Since there is no extra foam needed to make the thick walls they are very cost effective and environmentally

friendly.



**PIUR RIBBED FLOOR SYSTEM.** This patent pending system is a breakthrough in constructing floors and roofs with SCIPs. The ribs are formed with bent sheet metals, designed to carry the shoring loads. This solves the de-lima of shoring the SCIP floors in multistory construction, gives the flexibility to span the panels in any direction, and create a space between the ribs to pass utilities, install recessed lighting etc. PIUR Ribbed Floor System eliminates the most expensive part of the SCIP construction - plastering and finishing the ceiling. PIUR Ribbed floor ceiling can be as simple as in wood frame construction.

Note that PIUR floors do not have to have ribs, even without ribs the PIUR panels can cover floor spans of 20 feet and more. Ribbed floor system is just an attractive alternative method with many advantages.



**PIUR INSULATING CONCRETE FORM (ICF)** is a great way to build walls that require high load bearing capacity, like the walls of buildings that have 10 or more stories. PIUR ICF also have wide application as firebreak walls. Although PIUR SCIP walls have high fire rating themselves (2+ hour for standard walls), the PIUR ICF fire rating is superior and could be in excess of 4-hour rating.

PIUR SCIP walls have many advantages over ICF walls, therefore the ICF walls should be used only when high load or firebreak wall is required. PIUR Panels have developed a complete set of connection details that makes it simple to use the PIUR ICF with PIUR SCIP walls in and construction.



FREQUENTLY ASKED QUESTIONS

# PIUR PANELS



## What are the load-bearing capabilities of PIUR Panels?

PIUR Panels load bearing capacity is superior to that of typical wood frame and comparable to bearing capacity of metal frame buildings. A typical 9 feet high and 4 feet wide PIUR Panel with 3.0" polystyrene core and 1.125" concrete shell on each side has been tested at a load of over 450,000 lbs.

## Why are PIUR Panels Green?

PIUR Panels' foam core is 70 to 100% re-ground foam, depending upon local manufacturer's capacity. The wire mesh is 40% recycled steel (autos, etc.) and the concrete skins are a minimum of 40% coal fly ash. The insulation (core) and exterior concrete skin isolate the interior skin from the effects of the outdoor temperature, permitting a true thermal flywheel behavior by the interior skin.

## How do I purchase PIUR Panels?

Architects, designers and builders can purchase PIUR Panels from our network of PIUR Panel Certified Builders. If you do not see a certified builder in your area call our office at 818-252-1360 and ask for our sales department.

## What is the fire rating on PIUR Panels?

PIUR Panels have reinforced concrete skins of a minimum thickness of 1" (25mm), which means that our panels will have a minimum 90-minute fire rating. In other words, PIUR Panels will resist 1800 degrees Fahrenheit for up to 90 minutes. The concrete skins can be thickened to increase this rating up to four hours.

## Are PIUR Panels Waterproof?

PIUR Panels can be waterproofed. The most common methods are either with crystallizing additives in the mix such as Xypex, Kryton, or surface treatments. The surface treatments range from membranes (elastomeric, rubber, etc.) to surface applied materials that result in a change in the concrete to create a waterproof skin.

## What codes do PIUR Panels comply with?

PIUR Panels are designed in conformance with the American Concrete Institute ACI 318 standard. This means that designs employing PIUR Panels will comply with just about any building code, IBC, SBCC, BOCA, etc.



## How are pests controlled in PIUR Panels?

None of the materials in PIUR Panels provide food for pests and vermin. Although the plastic EPS core can provide habitation and/or nesting material, because it is fully enveloped in concrete it is generally inaccessible to pests and vermin.

## Can shotcrete or gunite be used to apply the concrete skins to PIUR Panels?

Dry-mix pneumatically placed concrete is the preferred method of applying concrete skins to our panels; however, the concrete skins can also be applied by hand, machine plastering techniques, or shotcrete, wither wet-mix or dry-mix (gunite).

## How are electrical and plumbing installed in PIUR Panels?

PIUR Panels can have open space in the foam layer, which is ideal for passing electrical conductors and pipes in any direction within the wall.

## What is the insulation R-Value for PIUR Panels?

The "R" system is a method of calculating the resistance of building materials to the transmission of heat. Because PIUR Panels are heavier than wood frame and they can store and emit heat, for the same R-Value their performance is superior to that of the wood frame construction. The R-Value of PIUR Panels is usually 25+ for walls and 40+ for roofs.