# **Global Panel Solutions**



"Building Buildings That Last"



"Building Buildings That Last!"

Welcome to Global Panel Solutions. Global Panel Solutions "GPS" was formed having been introduced to the space frame method of construction.

Natural disasters due to earthquakes, hurricanes, fires and other catastrophes of nature demand new systems that are technologically advanced that can withstand these natural disasters and are environmentally friendly. The exposure of toxic molds & fungi from conventional construction materials and methods necessitate an urgency to reliable alternative construction methods.

Global Panel Solutions shares with you a formless concrete building system providing benefits one would expect only applies to a custom design. Yet, our building system is simple in method allowing our system to be applied to any building project. Comprised of welded wire panels with a core of polystyrene insulation we are able to provide a super-strength monolithic structure.

Our panel system construction is truly without exception one of the most proficient methods of construction. Our system provides for resistance to nature's terrors and the daily environmental challenges buildings endure while also providing additional resistances to mold, termites & fungi.

Our system is 50% faster than conventional construction with added savings in material raw costs and construction funding debt service.

Architectural benefits utilizing panel construction are virtually unlimited.

Having spent 20 years rebuilding homes that had deteriorated due to rot from water, termites, and mold and had sustained damage from earthquakes, our group made a decision to build buildings that last while preserving the environment at the same time.

GPS offers you a combined 50 years experience in the panel construction and building industry. Panel products offered have been perfected and are patented.

Take a few moments to review our unique building system and visit our website at www.globalpanelsolutions.com

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## PRODUCT PROFILE

The GPS Building System is a tried and proven construction process utilizing space frame / concrete sandwich panel engineering technology. This construction process has evolved over the past 30 years, and has been perfected by the patented system.

The core foundation of the system is a welded wire space frame manufactured in variable wire gauges with insulating foam located in the middle of the panel. The panels are manufactured in four-foot widths and specific lengths as required for the application. Panel thickness is also variable to accommodate insulation requirements, load bearing capacities, and architectural design.

The wire/foam panels are installed at the project site to create load bearings walls, floors, and roofs as designed for the structure, and then coated with 1 ¼" of 2000 PSI Portland cement plaster. The finished product is a monolithic structure with no cold joints. This can be achieved by using a plaster gun, hand-trowled application, shotcrete, or gunite.

### **BENEFITS WITH USING GPS**

Building construction costs are always a concern, and the GPS system is cost competitive against conventionial construction processes such as masonry block, wood-framed, poured in place concrete, and concrete tilt up. While the cost in place is competitive versus conventional means, the added benefits relate to exceptional total value. Advantages to using G P S include:

- Earthquake resistance Seismic Zone 4
- Hurricane resistance (withstands winds over 200 mph)
- Fire Resistant ratings up to 3 hours
- Excellent sound transmission barrier
- No wood or associated threat of termites or dry rot
- Adaptable to all architectural designs
- Built to last

All of these benefits are achievable while also utilizing low cost skilled labor to construct the project. Low labor costs combined with competitive product costs result in an aggregate construction cost less than comparable methods while achieving a structure with a multitude of performance advantages.

# PANEL CORE OPTIONS

GPS technology is capable of utilizing many different core materials specifically tailored to the end use of the product. For instance, exterior walls of homes may use insulating polyurethane foam in the core of the panel, while interior walls would use a low-density foam or other optional void core.

Typical panel core include:

- High Insulation wet foam urethane (R value = 6.8/inch)
- Medium insulation closed cell styrene (R value = 4/inch)
- Low insulation / void EPS or low density urethane
- Additional economical void cores
- Zero toxicity

# **GLOBAL PANEL SOLUTIONS APPLICATIONS**

- Load bearing walls, floors and roofs
- Single and multi residential units
- Industrial buildings
- Commercial buildings
- Perimeter walls
- Sound walls
- Silos and tanks
- Architectural spandrel panels
- Docks and barges
- Precast modules
- Display units and foliage trellises
- Mining bulkheads

The examples above represent applications that have been utilized for panel construction, and the list could easily be expanded with new applications. There are no relative constraints on the applications and usage of this building technology. The variable wire size, panel thickness, and panel length allow for significant versatility with design applications.

#### **MANUFACTURING MACHINERY**

G P S manufacturing machinery is compromised of a component-based system where additional manufacturing units can be added to increase product output as demand requires. The basic manufacturing module includes a wire truss machine and a panel assembly machine. Additional equipment can include a foam line for polyurethane (wet foam application) and /or hot wire cutting equipment for polystyrene (dry foam application). GPS will continue Research & Development to provide the most technologically advanced panel machinery for optimum panel application. This type of construction originated on the light end of the scale using 14-gauge wire in 1" and 2" thick panels. GPS will produce panels to 6" in thickness.

#### TRUSS MACHINE

G P S technology is capable of producing various truss configurations base on the engineering and design needs of the usage. There is considerable technology and data in-house which covers the various manufacturing methods and truss designs. This includes five wire 3-dimensional trusses and flat three wire warren trusses with both available in variable wire gauge combinations and truss dimensions.

Truss machines are designed to produce product from light wire to heavy wire combinations. This machine uses resistance welding to fabricate the wire trusses. One truss machine has the manufacturing capacity to produce product for 7,500 square feet of panel. This is achieved in a normal 8-hour work shift with one operator.

#### PANEL MACHINE

The panel utilizes the wire trusses mentioned above for the fabrication of 3-dimensional space frames. This production process can be easily defined, as two-plan wire mesh welders since cross wires are resistance welded to truss chords wires to form a grid. The truss web wires connect the two planes of mesh and provide the panel with its specified thickness.

Panels are manufactured in four-foot widths, with lengths up to 40 feet, and thick nesses from 3" to 6". These dimensional variables are G P S standards, but the machinery can be modified to accommodate some dimensional requirements, which are different from these. The panel machine matches the production output of the truss machine with a one-shift capacity of 7,500 square feet of panel.

## **COMPLETED PROJECTS - SPACE FRAME PANEL CONSTRUCTION**

Space frame panel construction has been in existence for over 30 years, with applications throughout the world.

# **United States**

#### **Residential Housing Developments – California**

264-Fontana	126-San Bernardino
124-Sunnymead	138-Palm Desert
112-Lancaster	112-Santa Maria
107-Ontario	75-Rialto
40-Perris	35-Chino
21-Coachella	18-Victorville
18-Bakersfield	13-Sacramento
75-Chino Hills	
74-Bungalow Units Warner	Springs Ranch

#### Single-Family Homes:

Sierra Madre, CA Santa Barbara, CA Anza Borrego, CA Malibu, CA Palm Dessert, CA Houston, TX Key Largo, Fl Palm Beach, FL Winterpark, FL Hopedale, FL Homestead, FL 25 Homes Arizona

#### Industrial & Commercial Buildings:

Atwater, CA Apple Valley, CA Ramona, CA Palm Springs, CA Orange, CA Anaheim, CA Durango, CO West Haven, CT Houston, TX Rochester, NY Prisons: Montgomery Co., MD

Greenville, VA

Casa Grande, AZ Palm Desert, CA Castorville, CA

\*\*Residential projects totaling approximately 100 units have been constructed by other builders in the states of Arizona, Colorado, Hawaii, Texas, Nebraska, Alaska & California

H U D approvals have been issued for panel construction in various areas HABITAT FOR HUMANITY approvals have been issued for panel construction in various areas

#### Sound-Wall, Free-Standing Walls & Screenwall Projects:

Del-Mar, CA \*\*Award – CalTrans "Millennium Wall Award" Anaheim, CA Chino, CA Pomona, CA Palm Springs, CA Riverside, CA Coral Springs, FL Pompano Beach, FL Englewood, CO

# **International**

- Saudi Arabia: 35,000 sq ft factory building with 60 ft clear span roof (folded plate design)-600 homes at Camp 10 Jabail
- Indonesia: 1,200 oil camp housing units built by unskilled labor
- Guam: Military housing units built. Structures withstood Typhoon Pamela (1978) with winds exceeding 180 mph
- Marshall Islands / South Pacific: 250 housing units built under HUD section 8 program
- Egypt: All types of construction, many military uses, some industrial projects with 60 ft clear span roofs
- Israel: Nazareth- 70 two-story units
- People's Republic of China All types Residential, Commercial & Hospitality 35-storey Residential Bldng Hong Kong Housing Authority Bldng Ningbo Hotel Talien Int'l Hotel Hong Kong Television Company Bldng
- St Lucia-Caribbean 3500 sq ft Custom Hillside Home
- Mexico: All types Residential, Commercial & Hospitality including social interest housing Approximately 5,000 houses constructed to date Approximately 3,000 panels used to replace damaged walls in Mexico City damaged in September 1985 earthquake
- Venezuela approx. 600 residential homes
- Panama- All types Residential, Commercial & Hospitality including social interest housing
- Costa Rica All types Residential, Commercial & Hospitality including social interest housing
- Nicaragua All types Residential, Commercial & Hospitality including social interest housing
- Canada: Mining bulkheads
- England Refurbishment-Council Houses built after World War II-Misc Residential/Commercial
- French Polynesia: Single Family home with several hundred planned

Agency approvals for all areas referenced are in place for continued use of space-frame panel construction.

Disclosure: The aforementioned projects are a compilation of completed projects by different builders utilizing the space-frame panel construction. GPS does not represent to have built all of these referenced projects.

#### A TRUE STORY

#### THE SIMPLICITY OF BUILDING A PANEL HOUSE

In the jungles of South America Natives leave their villages with hand-made goods and come by river in a dugout canoe with the objection to use the Native hand-made goods for barter.

The Natives barter for cement and money to purchase panel product.

The cement is loaded into the canoe (as much as the canoe will carry without sinking) the panel product is double-banded and tied behind the canoe to floating in the water.

The Natives return to their villages, erect the panel, hand mix the cement, apply to the panel. When they are finished, they have constructed a reinforced, monolithic, insulated structure.

These structures are capable of withstanding torrential rain, harsh sun and other varied elements of nature for many years to come.

NOTE: If we were to relate these structures to a Fleetwood type trailer home being placed in these environments, the trailer would deteriorate within 3 years time.

Environmentally we use the elements to their highest and best use forming a composite and using a minimum of those elements.

Since we only use a 4:1 mix of cement, this provides for a mere 2" of structural concrete required for the structure.



# Global Panel Solutions, Inc.

# "Building Buildings That Last!"

Hurricane Andrew Photographs

Housing – Homestead, Florida

The following photographs show a panel-constructed home in Homestead, Florida after Hurricane Andrew in 1992. This home utilized panel constructed methods for all of the walls and the roof.

Wind velocities exceeded 160 mph in this area literally destroying conventionally built homes surrounding the panel home. The panel walls and roof held without any structural damage, loosing only the roof tiles.

The home was completely habitable following the hurricane.

Global Panel Solutions, Inc. <u>www.globalpanelsolutions.com</u> <u>sales@globalpanelsolutions.com</u> 818.332.1440 Fax: 818.710.1952 Housing Damage - Post Hurricane Andrew, Florida 1992 Wind Velocity exceeding 160 MPH



Conventional Wood Frame Home – Destroyed, Uninhabitable



Panel Constructed Home – Intact - Habitable



Panel Constructed Home – Fully Habitable



Storm Damaged Neighborhood, Homestead, Florida Panel Constructed Home with Roof Structure Fully Intact Only Missing Roof Tiles



Panel Constructed Home Interiors Fully Intact Cabinetry & Tile Undisturbed Doors & Windows Intact Habitable





Exhibit 2-1 "Cut – Section of Panel"



Lippincott Residence – Sierra Madre, California Interior



Lippincott Residence – Sierra Madre, California Rear Exterior



Lippincott Residence – Sierra Madre, California



Lippincott Residence – Sierra Madre, California



Private Residence & 6-Unit Hillside Apartment Building – Malibu, California



Sound Wall – Del Mar, California



# CALTRANS "WALL OF THE YEAR AWARD 2000"

Del Mar, California





Del Mar, California Sound Wall – In Progress



# CALTRANS WALL OF THE YEAR AWARD 2000

Del Mar, California Sound Wall – Residential Barrier - Completed





2-Level Residence, Hawaii



Custom Residence, Nicaragua



Custom Residence, Latin America



Commercial Residence, Latin America



# Moderate Housing Tract



Low Cost Housing Tract



Marina Restaurant, Latin America



Resort, Latin America



Los Sueños Marriott, Costa Rica



Los Sueños Marriott, Costa Rica



"Stilt" Type Houses – Costa Rica





Tahiti, French Polynesia "Plaster Ready"



Tahiti, French Polynesia In Progress



Tahiti, French Polynesia In Progress-Stage 1



Tahiti, French Polynesia Windows & Electrical



Multi-Family Living Complex



Low-Cost Housing Tract – Ready for Plaster



Low-Cost Housing Tract - Completed



Commercial Buildings, Latin America





Resort - Manzanillo, Mexico



35 - Story Residential Hi-Rise - Hong Kong

#### **CLOSING WORD**

The Portland Cement Association provides our industry the following information that confirms and allows us to further promote panel constructed, plastered buildings providing safer homes and structures for our communities.

#### Why a Concrete Home?

Concrete homes are quieter, more energy efficient, and more disaster resistant than their wood-framed counterparts. Add in infinite flexibility in design and built-in durability and longevity, and it is easy to see why concrete homes have been popular in the housing market for years.

It is these same qualities that make concrete the perfect choice for all types of new residential construction. Concrete homes are easily adaptable to fit right into any standard development plan and cost less to heat, cool and maintain. In fact, concrete homes can really be the cornerstone of a strong community

Some historical facts of buildings already constructed using the panel method.

Panel homes constructed in Homestead Florida with Habitat for Humanity prior to the fury of Hurricane Andrew withstood the disaster with no structural damage.

When the volcano eruption of Mt. St Helen occurred in Oregon, a cabin stood in the path of the mud slide destroying all in it's path. This cabin was filled completely with mud that entered through a 6' window. The cabin itself, the complete structure, remained standing. The residents removed the mud, sandblasted, cleaned and moved back into the cabin.

Typhoon Pamela came through Guam with 180 + mph wet winds, yet houses constructed of the panel system remained standing.

The above noted disasters are only a few to make mention of the tried and proven capabilities of the panel construction method.

In closing, we believe in our mission to participate in providing structures that will last for generations to come.

# Thank you for your interest in Global Panel Solutions

We look forward to hear from you

Contact Annie Reynaud, Marketing Director 818.332.1440 sales@globalpanelsolutions.com