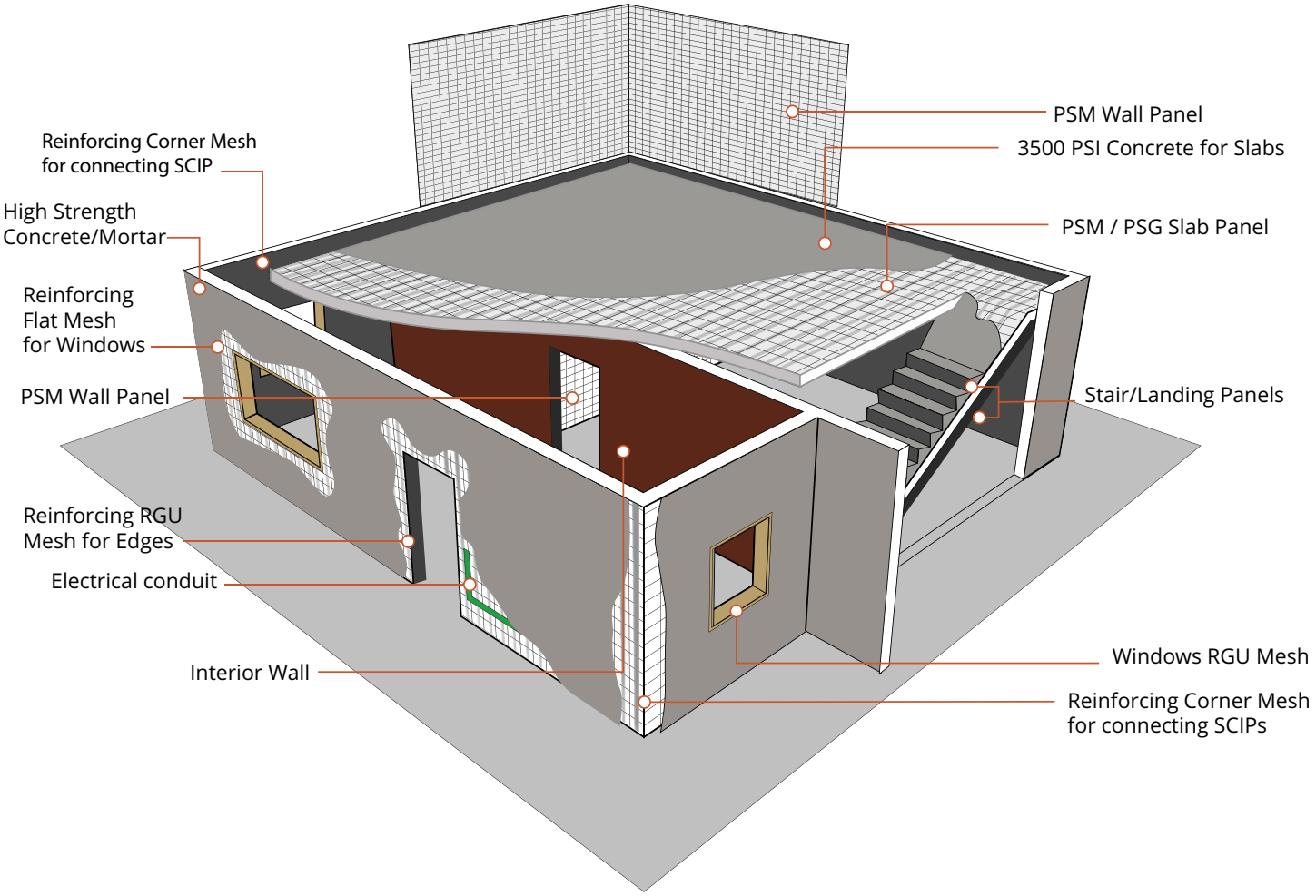
STRUCTURAL INSULATED PANEL COMPONENTS

SCIPs

Made in the USA



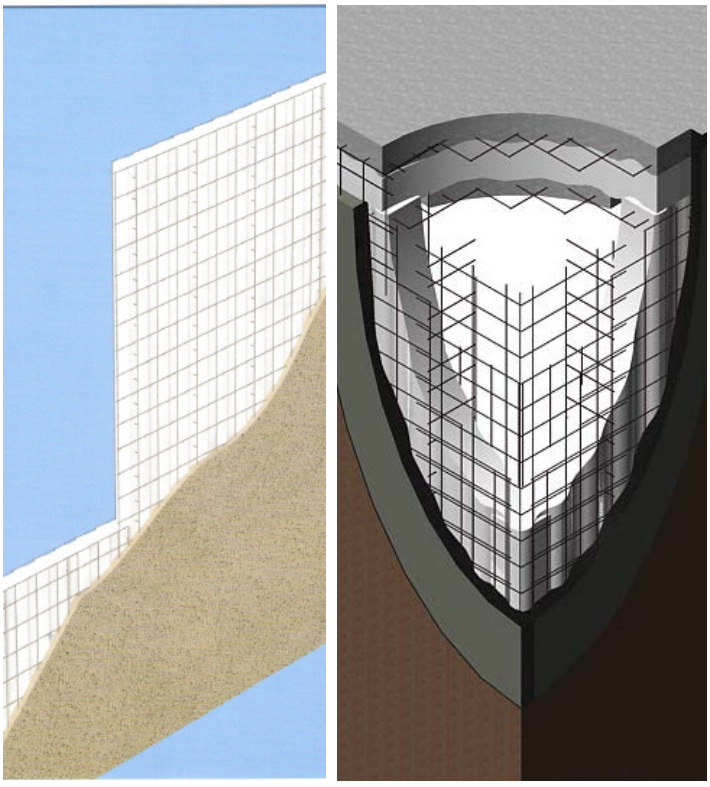
Structural Panels GCT

www.structuralpanelsgct.com

About the Structural Panels GCT System

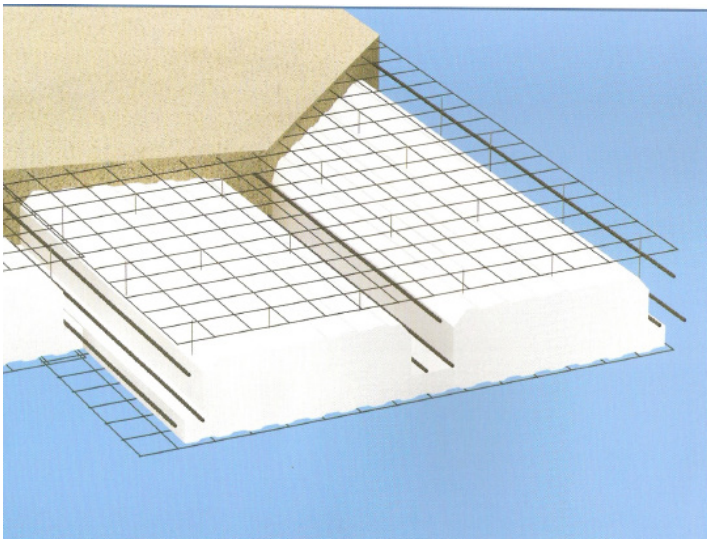
Our Structural Panels GCT System offers US and Caribbean markets access to innovative Structural Concrete Insulated Panels (SCIPs), so construction projects can be designed to withstand hurricanes, earthquakes, and water surges, with the added sustainable value of energy efficiency. We use M2 Machinery from Italy to manufacture the SCIPs. Our goal was and is to meet the needs of the customers and local construction challenges of homeowners and contractors. This led us to testing our panels with independent labs and obtaining a Technical Evaluation Report (TER) certification. We have been in operation for more than 12 years and are owned by Ecológica Carmelo, a leading company in the concrete building products and aggregates business for over 68 years located in Puerto Rico. Our innovative SCIP panels are changing the game for the construction industry by offering thermal insulation, quick installation, and architectural freedom for residential and commercial projects. We are enthusiastic to support you as you build your ideal project with GCT panels, alongside our team.

System Components

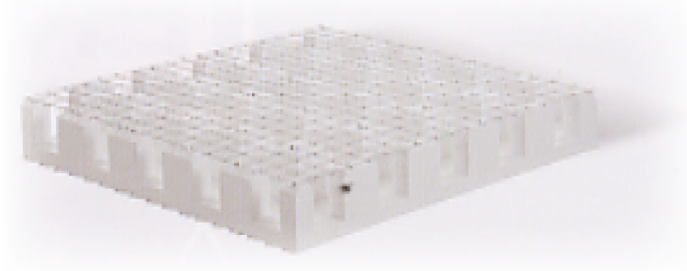


Single Mesh Wall - Perfect for walls, partitions, claddings, floors and roofing in civil or industrial constructions.

The single section covered with the high strength concrete mortar can be used as a loadbearing structure in up to four story buildings or more if accordingly designed.

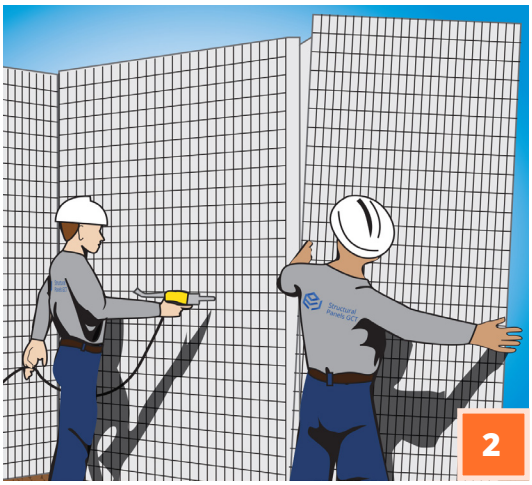


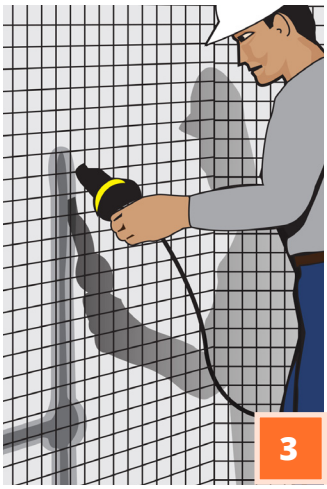
Structural Roof and Floor - The floor and roof components with or without concrete provides great advantages such as lighter structures, great insulation and fast assembly time.



Landing Section - A structure that connects two stair sections between floors. lt is used when there is not enough room for a continuous stair run.

Methods of Construction





(1-2) Ease of handling and simple assembling - The components can be manually positioned by just one person without the use of lifting equipment which speeds up the construction process without the need for specialized equipment.

(3-5) Chases for Plumbing and Electrical Conduits - Before the concrete mortar is placed on top of the panels, the insulation and steel wire can be easily cut to allow concealed placement of plumbing and electrical lines. A heat gun can be used to melt the polystyrene prior to the placement of the electrical, communications and/or plumbing lines. This process is easy, fast and clean, since it does not require any masonry work.

(6) Mortar Application - Once the components have been positioned and the electrical and plumbing is in place, Structural Mortar is applied to the panel surface with equipment such as the M-Tec Monomix. The finish coat may be troweled smooth or include a pattern as desired.

A more detailed video explaining how to assemble the structure can be seen in our **How to Build Structures Using GCT's Panels** section in the following link: https://structuralpanelsgct.com/technical-data/.

Concrete Mortar Application Products:

Structural Mortar Mix:

- Special design mix for all structural work
- **4000 psi strength**
- High adhesion
- Longer durability
- Smooth Finish
- High resistance to sulfate & carbonate attacks
- Perfect for brown and basecoats

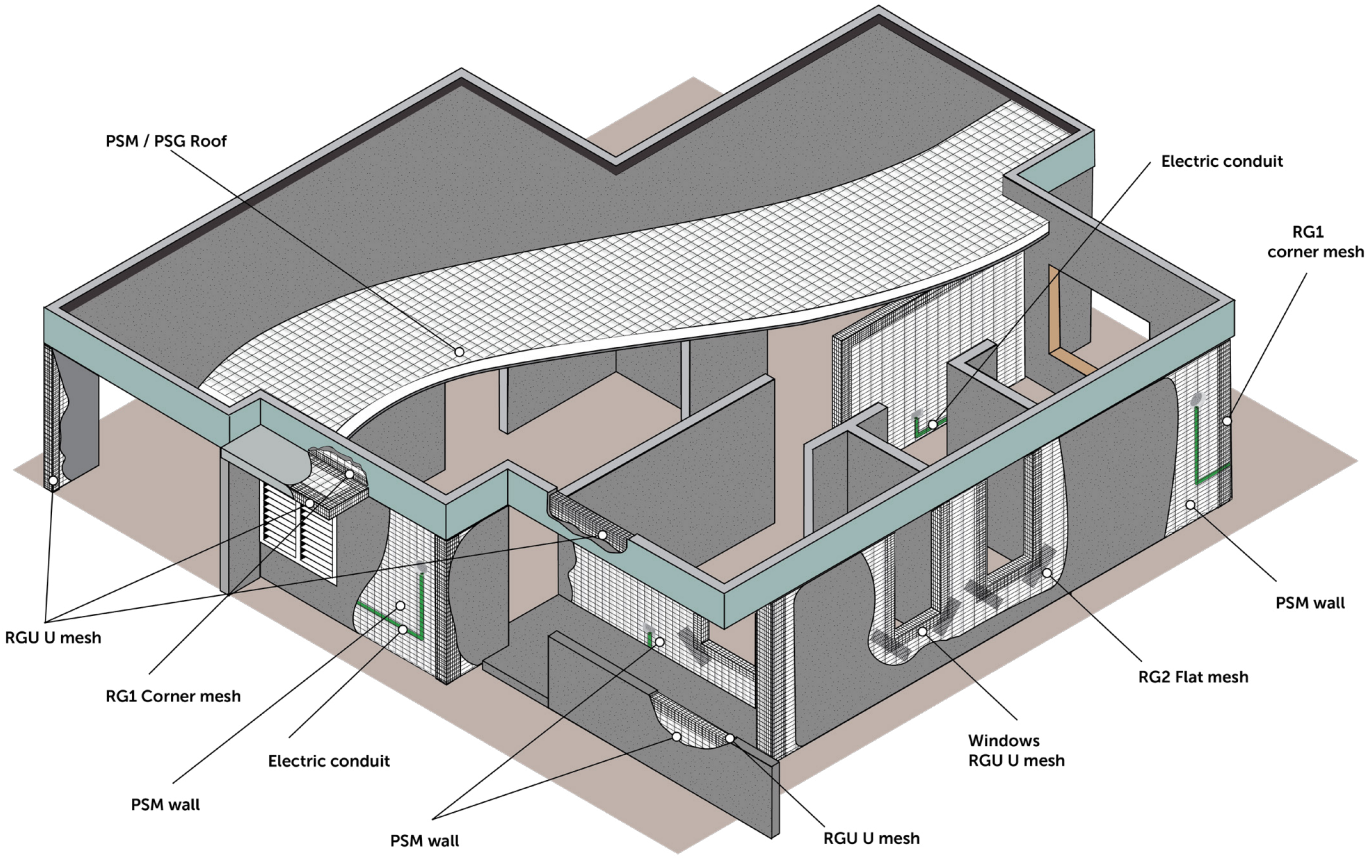
We recommend M-TEC application machine for Carmelo structural mortars, grouts, plasters/ stuccos and self-levelings.

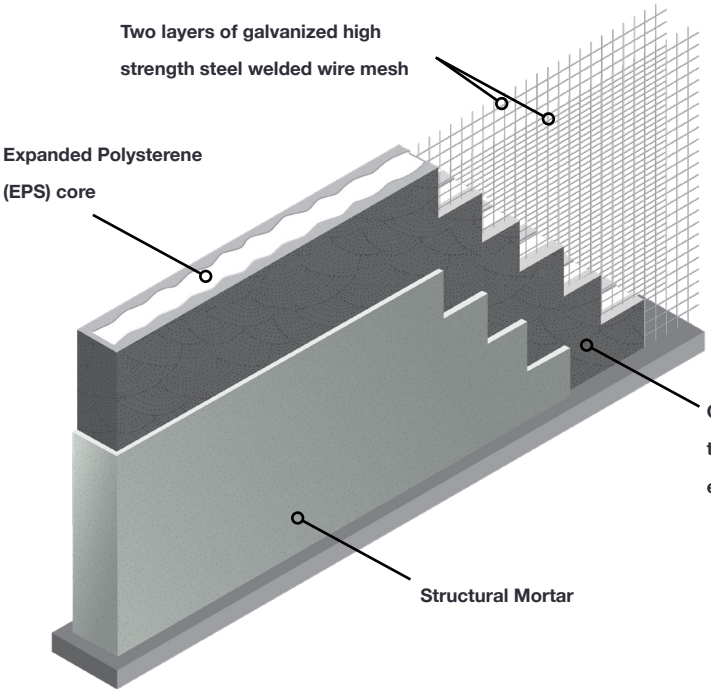
M-tec Mono Mix

- Quality Assurance
- Reduction in waste and loss of material
- Total control of material inventory
- Reduced dust emissions
- Over **200%** increase in productivity

Versatility of Materials

Breakdown of a structure built with Structural Panels GCT System





Structural Panel with Thermal Insulation

Technical Panel Specifications

One of the advantages of our panels is that they can also be used to construct angled roofs which have the added benefit of being conducive to less water retention in roofs.

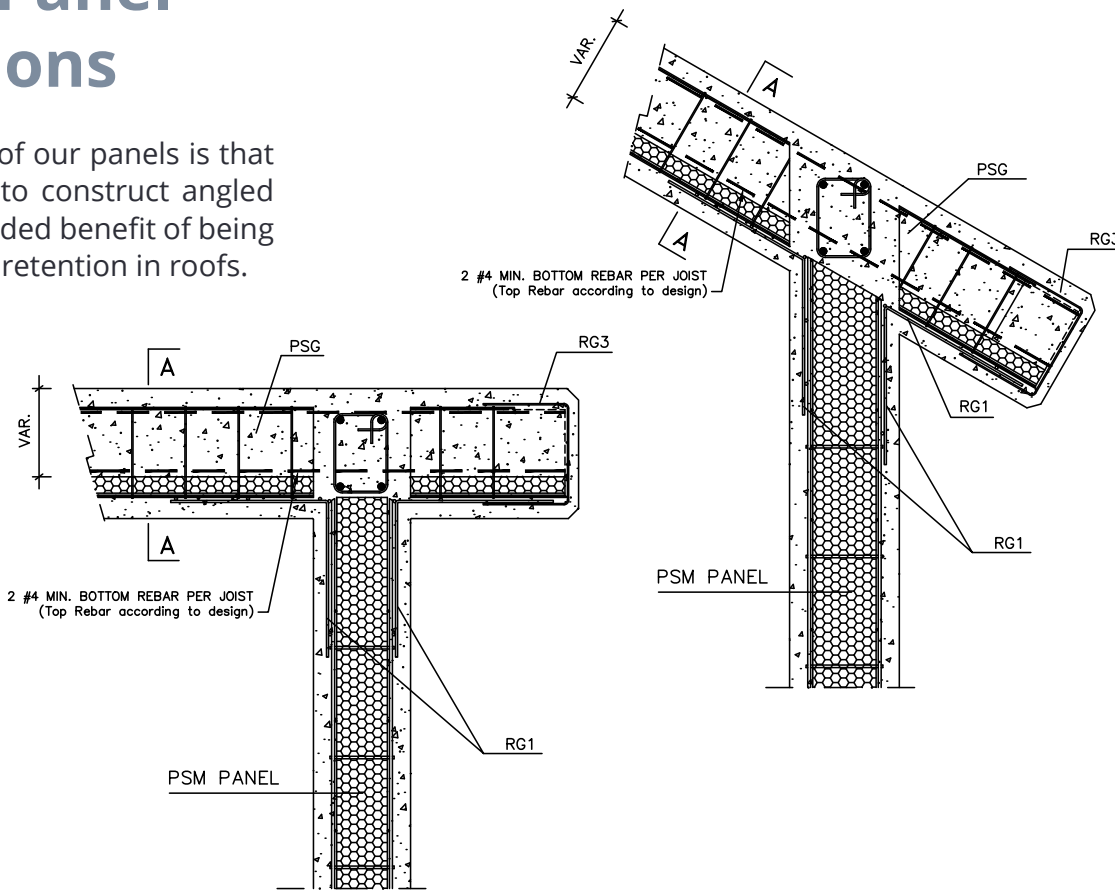
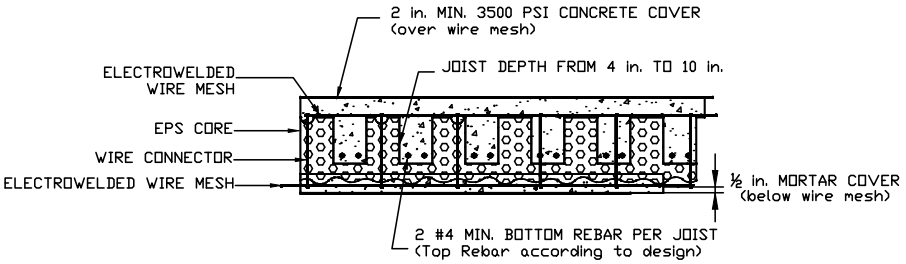


Fig. a)
PSG Roof Connection



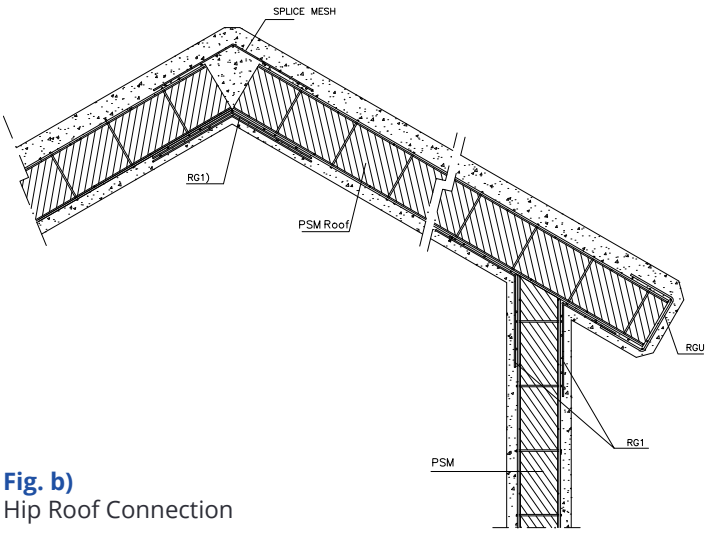


Fig. b)
Hip Roof Connection

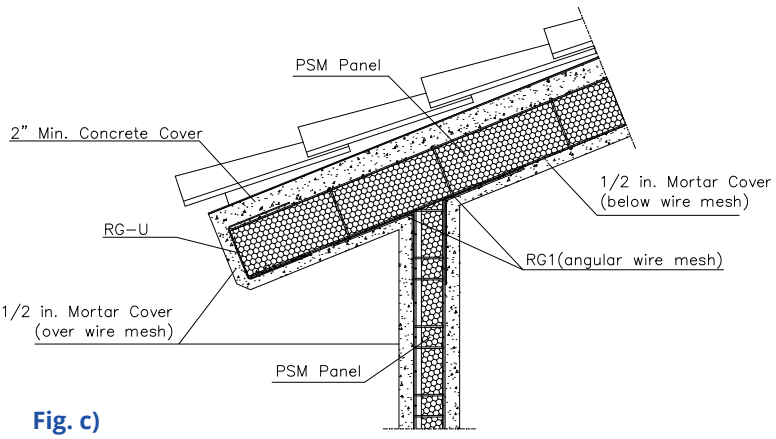


Fig. c)
Roof Connection with Tiles

Technical Characteristics and Advantages of GCT Insulated Structural Panels

Sustainability and Energy Savings

The panel's thermal insulation properties help regulate both hot and cold temperatures, creating a more energy efficient structure.

Cost Effective

Due to the eficiency of our system, projects need less crew to install the panels. Projects that incorporate our panels have been proven to take less time than standard construcion projects.

Lightweight and Quick Installation

The easy to use panel system optimizes the construction process and reduces labor cost.

Hurricane/Wind Resistant

Structures built with our system have proven their capacity to withstand the forces exerted by hurricanes and tornadoes when designed accordingly year after year.

Fire Resistant

The insulation (EPS) core used for the GCT is self-extinguishing and the concrete layers on each side protect it from combustion. A standard PSM80 Wall Component has been tested for one hour fire resistance rating according to the ASTM E-119. A two hour fire resistance, can be simply achieved with a thicker application of mortar.

Earthquake Resistant

Laboratory tests carried out on GCT Sturctural Panels have shown a Seismic Response Modification Factor R of 5 required when designing shear/ load bearing walls in seismic design category zones D, E & F.

Structural Capacity

Proven high load capacity tests of GCT Structural Panels. Compression tests with center load carried out on a finished single panel 10 ft high, have shown strengths in excess of 20,000 lbs. /ft.

Architectural Freedom

Our system offers a full range of building elements: load bearing walls, partition walls, floors, roofs, and stairs. Large spans and geometric shapes and curves are easily obtainable with our components. The structures endure more weight than conventional projects and are ideal for structures with limited areas. Customers can maximize space by having gardens, hot tubs or recreational areas on the roofs of their projects.

Soundproof

The GCT System offers a great barrier to sound.

Wide choice of finishing

Carmelo Mortar or Stucco finishes with superior bonding strength are easy to place and finish.

Structural Panels GCT

Additional explanations of the advantages can be found in the following link: https://structuralpanelsgct.com/about-us/

GCT Structural Insulated Panels (SCIP) are prefabricated lightweight structural sections for all building needs.

The sections consist of an EPS core that is sandwiched between two layers of galvanized high strength steel welded wire mesh. A galvanized steel connector wire is pierced through the EPS core and welded to each of the outer galvanized steel welded wire mesh layers.

This mesh-work grid is made from galvanized steel having a minimum yield of 87 ksi and a minimum fracture of 99 ksi. This configuration complies with **ACI**, section **3.5.3.5** and IBC, section **1903**. GCT Structural Panels SCIP are covered in the field, with a high strength mortar compliant to **ASTM C-387** and **ASTM C-270**, such as Carmelo Structural Mortar Mix. Manufactured with M2® Technology and our proprietary design meets the following requirements under the Technical Evaluation Report performed by DRJ Engineering:

Manufactured with M2® Technology and our proprietary design meets the following requirements under the **Technical Evaluation Report performed by DRJ Engineering**:

Applicable Codes and Standards:

- **IBC:** International Building Code®
- **IRC:** International Residential Code®
- **IECC:** International Energy Conservation Code®
- **FBC:** Florida Buidling Code - Building / Residential
- **PRBC-16/18:** Puerto Rico Building Code

Standards and Referenced Documents

- **ACI 318:** Building Code Requirements for Structural Concrete
- **ASCE/SEI 7:** Minimum Design Loads and Associated Criteria for Buildings and other Structures
- **ASTM C387:** Standard Specification for Packaged, Dry, Combined Materials for Concrete and High Strength Mortar
- **TAS 201/202:** Criteria and Impact Test Procedures

Applicable Codes and Standards

GCT Structural Panels meet IBC/IRC Building codes and have the Florida Product Approval (FPA). For additional code compliance, please refer to the Section 2 in page 2 of the **Technical Evaluation Report performed by DRJ Engineering.**

Zoning Codes and R-Value Requirements

- Our Panels meet Zone 1 codes for thermal insulation as well as other Zone requirements across all US states. They also meet the R-Value Requirements in accordance with the PRECC for walls and roofs*:
- According to the International Energy Conservation Code (IECC) some of our panels meet the ideal R-Value of 30 for roofs, necessary for Part of Climate Zones 1.
- The Puerto Rico Energy Conservation Code establishes that we are Zone 1 and in the region of Tropical Sun requires that roofs need to have a minimum insulation R-Value of 15 to follow the codes.
- In Chapter 4 on residential energy efficiency, section R401.2.1 on Tropical Sun in point number 6 it speaks about the R-Value of 15 for the roofs which should meet the requirements in table 402.3 and 402.1.1.
- Our Roof Panels meet these R-value requirements and have the capacity to reach R Values up to 36 as confirmed in our TER (Table 15 in page 23). This provides optimal insulation and cooling for homes, helping with residential energy efficiency.

Structural Panels GCT

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