



The *ReZist-It*® System

Frequently Asked Questions and Answers:

Q: How are your products environmentally friendly or Green?

A: The *ReZist-It*® System is comprised of light gauge cold formed steel, polyurethane insulating foam and magnesium oxide board (MgO). These materials are all commonly known throughout the building industry to be sustainable and environmentally friendly materials.

Cold Formed Steel:

- All components are precision fabricated in a controlled, dedicated environment, avoiding the possibility of errors commonly associated with site-build components which leads to land fill waste.
- Cold-formed steel is manufactured using 100% recycled/recyclable steel and can assist in the accrument of LEED points. Steel is infinitely recyclable with no compromise of material properties.
- Cold-formed steel has the highest strength to weight ratio of any typical framing material. Its light weight means shipping costs are reduced and handling and installation are more straightforward.
- Cold-formed steel is inorganic and will NOT:
 - emit harmful or toxic off-gasses into the building envelope
 - crack, shrink, twist or warp
 - become infested with rot, mould, termites, rodents or insects
- Cold-formed steel is 100% non-combustible and will contribute AERO fuel to the spread of a blaze.
- Modern steel refining techniques are more ecology friendly than traditional lumber harvesting and reforestation.

Q: How is the steel frame protected from corrosion?

A: The metal frame of the *ReZist-It*® System is designed to virtually eliminate direct contact to the outside weather, however as a standard we use a G90 galvanized zinc coating (90 ounces of zinc per square foot) which exceeds typical light gauge steel construction coatings.

Polyurethane Insulating Foam:

Q: Do urethanes "outgas" and are they toxic?

A: No. Urethanes are non-toxic and only require protection for our operators during manufacturing, but the finished product is completely safe and has no formaldehydes.

Q: What is the difference between CF, HCFC and HFC blowing agents in polyurethane foams?

A: These "Flouro-carbons" have different amounts of chlorine or are designed to prevent chlorine release into the atmosphere.

Q: Does polyurethane foam contain formaldehyde?

A: No.

Q: What type of polyurethane foam do you use?

A: We use a two part medium density closed cell polyurethane foam that is greenhouse gas neutral and uses 60 percent fewer fossil fuel resources than conventional Polyol technology.

Q: What is the difference between open-cell and closed-cell foams?

A: Open-cell foam is soft, has a structure more like a very fine-grained sponge. The cured material consists of areas of tiny interconnected passageways. These open cells are too small to permit the passage of much air, but they are more permeable to water vapor than closed cell foams. Low-density open-cells R-Value from 3.5 to 3.81 per inch.

Closed cell, medium density foams have what is known as a closed-cell structure, which means that the gas bubbles that form during the application process remain permanently locked into the cured foam. The result is something like a three dimensional bubble wrap with extremely tiny bubbles. Because there are no interconnections between individual bubbles, the foam absorbs little water and also resists the passage of water vapor. The cells are full of a special gas, selected to make the insulation value of the foam as high as possible. The best R-Value per inch for Medium density foam is 7.1 per inch.

Q: How does Polyurethane foam compare to Expanded Polystyrene (EPS) Foam?

A: **Value - Polyurethane** is the highest rated insulation in the world. Per inch of insulation it has no equal. EPS has a value of R-2 to R-5 per inch. Polyurethane has an R-Value of R-7 to R-8 per inch.

Moisture Resistance - With all the problems of mold and mildew, moisture resistance is today a very important factor. Polyurethane has one of the lowest moisture permeability ratings of any product manufactured for the building industry today. The permanence rating on polyurethane is 1.2. The permanence rating on EPS is 2.0 to 5.0.

This difference in a high humidity area would warrant another moisture barrier for EPS panels. In calculating R-Values, some EPS manufactures use these additional moisture barriers in their calculations.

Fire Resistance - Polyurethane is a UL Class 1 rated foam. This means that polyurethane is not a source for fire. On its own, polyurethane will not burn. When left on its own, it will extinguish itself. A Class 1 rating is the highest rating a building product can obtain. Also, polyurethane is a thermal-set plastic. This means, that it will not melt. Polyurethane is not affected until temperatures reach 1000° F, and at that time it will only char. EPS, on the other hand, is not a thermal-set plastic and will begin to soften at temperatures of 180° F, and melt at temperatures of 240° F. Polyurethane has a distinct advantage.

Density - The density of a product will determine the strength of it. EPS has a density of 1 lb. The polyurethane has a density of 2.2lb.

Chemical Resistance - Polyurethane is resistant to most counter chemicals. EPS react violently to petroleum based products. PL 400 and liquid nail will literally burn through EPS.

Comparison - We believe that there is no comparison between Polyurethane panels and those of EPS for these key reasons:

R-Value			
Polyurethane		EPS	
4.5" polyurethane panels	R-31	4.5" EPS panels	R-22
6.0" polyurethane panels	R-43	6.0" EPS panels	R-27

Fire Rating

Polyurethane

EPS

Polyurethane resists and helps to quench a fire and will only char at 1,000° F EPS melts and fuels a fire at 280° F

Wind Load

Polyurethane

EPS

260 MPH

140 to 160 MPH

Note: Category 5 winds are greater than 155 MPH

Q: What is LEED?

A: The **Leadership in Energy and Environmental Design (LEED) Green Building Rating System™** is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance. LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

LEED Rating - The GloPac proprietary panel system also has the possibility of contributing up to 16 points under the U.S. Green Building Council's LEED for New Construction 2.2 rating system in the following categories:

- Credit EA1 - Optimize Energy Performance (up to 10 points) As already states, the GloPac panel gives much higher thermal energy performance values over standard construction method baselines greatly increasing the number of points available under this credit.
- Credit MR4 - Recycled Content (up to 2 points) The GloPac panel can be manufactured using recycled content in the panel and metal channels. We will work with our resource suppliers for verification of recycled content in our raw materials to streamline the submittal process for this credit.

- Credit MR5 - Regional Materials (up to 2 points) GloPac strives to be a worldwide local company. As we develop our global factory network we will eventually be able to provide a panel factory within 500 miles of any job site seeking these credits.
- Credit EQ7 - Thermal Comfort (up to 2 points) Having well insulated buildings make it easier to design structures to meet the ASRAE Standard 55-2004 resulting in spaces that are more comfortable for building occupants.

Using the GloPac panel instead of other materials indirectly contributes to other credits by eliminating many of the hassles associated with alternate construction methods. Wood framed and metal construction methods, for example, result in large amounts of waste that make earning credits MR2.1 and MR2.2 much more difficult. Our in house LEED accredited professionals will gladly work with project architects to help identify possible ways the GloPac panel can make their projects more green and sustainable.

Q: What is ICC Certification?

A: ICC-ES refers to the International Code Council Evaluation Service

ICC-ES is a nonprofit, public-benefit corporation that does technical evaluations of building products, components, methods, and materials. The evaluation process culminates with the issuance of technical reports that, because they directly address the issue of code compliance, are extremely useful to both regulatory agencies and building-product manufacturers. Agencies use evaluation reports to help determine code compliance and enforce building regulations; manufacturers use reports as evidence that their products (and this is especially important if the products are new and innovative) meet code requirements and warrant regulatory approval. ICC-ES evaluation reports are public documents, available free of charge on the Worldwide Web, not only to building regulators and manufacturers, but also to contractors, specifiers, architects, engineers, and anyone else with an interest in the building industry. All of these people look to ICC-ES evaluation reports for evidence that products and systems are code-compliant.

INTERNATIONAL CODE COUNCIL

ICC founders include BOCA, ICBO and SBCCI. ICC works to develop a single, comprehensive, fully coordinated set of national model construction codes. Current ICC standards address a wide range of topics, including codes for international building, plumbing, mechanical systems, and energy conservation.

Q: What is ICBO Certification?

A: ICBO is an acronym for International Conference of Building Officials. This entity has now been changed to the International Code Council Evaluation Service or ICC-ES. Neither of these entities actually certifies a product, however most people in the industry tend refer to it generically as a certification.

Q: Do you have testing data to show how strong your panels are?

A: Yes, the *ReZist-It*[®] System has been tested by Intertek, ETL Semko, an internationally recognized and accredited testing service. Transverse and compression load tests were carried out in general conformance with ASTM Internationals Test Methods of Conducting Strength Tests of Panels for Building Construction, designation E72-02. In addition, shear resistance tests were performed in general conformance with ASTM Internationals Practice for Static Load Test for Shear Resistance of Framed Walls for Buildings, designation E564-00.

Test Results:

The *ReZist-It*[®] System test results are summarized in Table 1 below. A more comprehensive set of data is compiled in the complete testing data and is available upon request.

Table 1. Strength Test Results of the <i>ReZist-It</i>[®] System			
Appendix	Property	System Configuration	Test Results
B	Transverse Load	1A - One 4' x 10' panel (cement fiberboard in tension)	124850
		<ul style="list-style-type: none"> • Apparent bending Stiffness, lbs/ft² • Maximum bending moment, lbs/ft - width 	1373
		2A - One 4' x 10' panel (cement fiberboard in tension)	122125
		<ul style="list-style-type: none"> • Apparent bending stiffness, lbs/ft² • Maximum bending moment, lbs/ft - width 	1331

		1B - One 4' x 10' panel (gypsum board in tension) <ul style="list-style-type: none"> • Apparent bending stiffness, lbs/ft² • Maximum bending moment, lbs/ft - width 	91830 1543
		2B - One 4' x 10 ft. panel (gypsum board in tension) <ul style="list-style-type: none"> • Apparent bending stiffness, lbs/ft² • Maximum bending moment, lbs/ft - width 	91620 1574
	Compressive Load	1A - One 4' x 10' panel (gypsum board in tension) <ul style="list-style-type: none"> • Compressive strength, lbs/ft. - width 	8325
		2A - One 4' x 10' panel (gypsum board in tension) <ul style="list-style-type: none"> • Compressive strength, lbs/ft. - width 	10252
		1B - Two 2' x 10' panel (cement fiberboard in tension) <ul style="list-style-type: none"> • Compressive strength, lbs/ft. - width 	12199
	Shear Resistance	1A - One 2' x 10' panel <ul style="list-style-type: none"> • Ultimate shear strength, lbs/ft. - width • Global Shear Stiffness, lbs/in. 	767 6089
		1B - Two 4' x 10' panel <ul style="list-style-type: none"> • Ultimate Shear Strength lbs/ft. - width • Global Shear Stiffness, lbs/in 	805 9398
		1C - Two 2' x 10' panel <ul style="list-style-type: none"> • Ultimate Shear Strength lbs/ft. - width • Global Shear Stiffness, lbs/in. 	841 6089

Note: No safety factory applied to the above test results.