

Roundtable on Pre-engineered Buildings



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Pre-engineered buildings remain one of the key market segments in the metal construction industry, and as the economy has evolved, the building envelope must adapt to respond to developing trends and demands. Metal Construction News asked industry experts about the current issues and future trends facing this market segment.

MCN: Why should a builder choose a pre-engineered metal building over more 'traditional' alternatives? What are the advantages of one type of system over another?

Jeff White, President, Garco Building Systems: Pre-engineered metal buildings are increasingly recognized as reliable, aesthetically pleasing, energy efficient and cost-effective buildings with optimum functionality. The sustainable green attributes of a metal building system with recycled content and recyclability makes them a natural choice for today's 'Green Campaign.' When you look at life cycle costs, nothing beats a pre-engineered metal building.

Frank Fuca, Vice President of Sales & Marketing, Star Building Systems: "Pre-engineered metal building" is one of those phrases that has been around our industry since the 1950s and conjures up images of sock hops, black and white TV sets and box buildings with corrugated metal walls. Just as BlackBerrys and iPhones have superseded rotary-dial phones, custom engineered steel building systems designed to suit an owner's specific needs have replaced the old "pre-engineered" building.

Steel building systems appeal to architects and owners because they allow for cost-effective design versatility. While the majority of buildings in every city are a traditional rectangular shape, often an architect or builder or even the site layout itself will suggest geometric shapes, curved walls or imagination-forward details.

Precision manufactured in climate-controlled facilities, steel building system components are assembled quickly at the job site. Building owners can take occupancy sooner; some estimates show time savings of as much as one-third that of conventional construction time.

Phil Symes, Vice President of Sales & Marketing, Star Building Systems: The advantages of a Star custom engineered building include efficiency of design and the resulting cost efficiency. Star provides the structure in a short period of time and at a very competitive price. Metal buildings can be insulated to achieve extremely high R-values and also offer flexibility of design, durability and long life. The green attributes of steel are also high.

Ed Kohutek, President, Mid-West Steel Building Co.: Efficient design and fabrication of materials within a high-quality pre-engineered system result in a low-cost building project. The pre-engineered system allows much structural diversity along with an outstanding life cycle.

Delvin Warner, President, Metallic Building Co.: The flexibility of a pre-engineered system can have several application benefits. For example, the spanning capacity of a metal building is significantly more than that of a wood, concrete or even a conventionally framed structure. This results in much more flexibility concerning floor space.

Additionally, customizable column locations and depths offer adaptability to most floor plans. Overall, metal buildings give the end-user more flexibility and customization for their final design.

Bob Zabcik, Technical Director, NCI Green Building Initiative: The in-house engineering capability of the manufacturer sets the metal building model apart from the traditional construction process. This allows us to value-engineer the metal building system and save the owner material and labor cost over a less efficient alternative. You can think of this as a metal building provider being able to act as a consultant on their own product, adding a service to the owner not present in the traditional construction contract.

MCN: What are the newest innovations in pre-engineered metal buildings?

Fuca: Hybrid buildings take advantage of all the benefits of engineered steel buildings and add traditional construction elements like tilt-up walls or architectural elements made of light-gauge steel or wood.

Symes: Metal buildings offer integrity of design to maximize the efficient use of materials while providing a structure that handles the total environment. The integrated design utilizes all materials to maximum efficiency.

Kohutek: The green building movement is an on-going initiative in the construction industry that all segments are making serious investments in. We are always developing new products and are fortunate to have our own testing lab to aid in the development of these products.

Zabcik: New ways to manufacture insulated metal panels developed in Europe and brought to the US are bringing better cost to benefit ratios for these products. The mandate for higher R-Values of the building envelope in newer energy-efficiency codes will catalyze the demand for these panels in the near future. Likewise, Building Integrated Photovoltaic systems will gain popularity as the demand for on-site renewable energy increases.

MCN: Where does the growth for pre-engineered metal buildings lie? What new market segments are ripe for these building systems to enter and explore?

White: Growth lies in many areas, but one of the biggest is educating the public in the uses and advantages of metal building products. If we can get past the image of the old metal buildings, and create a new perception of the eye-pleasing metal buildings of today and of the future, the growth will come.

Symes: The potential for growth lies across all end uses as metal buildings continue to gain broader product acceptance. Growth can be found through providing structures that go beyond the typical industrial applications. We see great potential in schools, churches and commercial structures.

Kohutek: In these tough economic times, everyone is on a tight budget, looking for value, and more efficient ways to build without sacrificing quality. This has opened up new markets not only in the private sector but also in the government sectors of available projects.

Warner: In these difficult economic times, everyone is looking to save time and money. Metal buildings offer time and money savings and exceptional quality, all the while maintaining their flexibility, customizability and durability. All of these attributes make metal buildings an obvious choice in the current economic climate, especially projects such as schools and healthcare for which budgets can be predetermined.

Zabcik: As successful as metal buildings have been, they are still not considered as often as they should be for a great number of projects for which they are very well suited— large warehouses, large industrial buildings, low-rise office buildings, churches and schools. Capturing more of these opportunities would benefit the entire industry.

MCN: What role do pre-engineered metal buildings play in the “green” building movement?

Jon Heibel, Marketing Manager, Behlen Building Systems: As the importance of lowering energy costs, conserving natural resources and utilizing recycled materials becomes increasingly vital to building owners, Behlen Building Systems is positioned to meet this demand and the changing culture. More and more building owners are taking sustainability into consideration when constructing a new facility. These are important factors when seeking to achieve credits with LEED registration and in achieving an EPA Energy Star Cool Roof rating.

Metal is an inherently “green” building material, as it saves time on installation and requires minimal disruption to the job site; improves energy efficiency and comfort; reuses and recycles waste material—reducing landfills; does not produce off-gassing as no on-site painting is needed; and offers a better life cycle ROI.

White: Steel is the most recycled material in North America. However, green construction ideas go well beyond recycling. Among the many considerations that have changed the way Garco works with its builders and designers are a building's design and construction methods; its end use and occupants' productivity; and maintenance requirements throughout the life of the building.

Fuca: Robertson is definitely in the right time, the right place and the right industry for the green building movement. Steel is virtually 100 percent recyclable, so it does not usually end up in a landfill like other construction materials. Robertson steel buildings have 30 percent or more post-consumer recycled content, which helps building owners with LEED credits MR 4.1 and 4.2.

The economic benefits of building green are also getting a lot of attention. Robertson's proprietary software allows our engineers to optimize the weight of steel in a building. If you can reduce the amount of raw materials used, it makes sense that you achieve cost savings and a reduction in the impact on natural resources. That's a powerful combination.

Insulated metal panels for the architectural and commercial markets consist of two metal panels with a foamed-in-place core. Since the panel functions like a structural member, underlying supports can be spaced further apart, lowering initial construction costs and eliminating the need for an insulation sub-contractor. Attached to the structure by concealed clips, the interlocking design of insulated panels eliminates thermal breaks and creates an integrated system and a continuous unbroken seal around the building.

That's intelligent design today that will provide a great return on investment for the future.

Symes: Pre-engineered metal buildings are the best method of providing floating roof structures and economical insulated wall systems that meet the green requirements of today's customers. Plus, metal building products utilize a high percentage of recycled steel and are almost 100 percent recyclable.

Kohutek: A significant percentage of the steel in pre-engineered buildings can be made from recycled materials. In addition, the buildings can be built with efficient insulating systems utilizing materials like fiber glass or our own insulated panel systems. With our manufacturing facilities geographically located across the United States, our transportation costs are minimal, which also contributes to the green initiative.

Warner: Custom metal buildings play a tremendous role in the green building movement. A large percentage of the steel used to manufacture these buildings comes from recycled products. In addition, these buildings are long lasting, therefore they are more environmentally friendly. Metallic also offers panels by Insulated Panel Systems (IPS)—one of the industry's most environmentally conscious providers.

Zabcik: The inherent recycled content and recyclability of steel is well known and can't be understated. Metal building systems add a new twist to this due to the modularity of their individual pieces and the ease of disassembly. Quite often, these pieces can be reused in a future expansion. Even if they can't, they bring good value on the scrap market where they are recycled. Cool roof systems help green construction by mitigating the heat island effect and reduce cooling costs in cooling dominated climates, and insulated metal panels help save energy.

MCN: What advancements/changes do you expect to see in the pre-engineered metal buildings market over the next 12-24 months (materials, codes, demand, etc.)?

Symes: We expect to see a demand for buildings to meet the needs of infrastructure development and community service facilities.

Warner: Custom-engineered metal building designs may need to be enhanced or modified to allow for changing energy codes to meet greener requirements.

Zabcik: Building codes have long been a driver in the metal building business, and that trend will undoubtedly continue. The development of code language green building standards will be the next shift in paradigm.

ASHRAE has already entered this fold with the recent publishing of Standard 189.1. In 2011, the International Code Congress will release the International Green Construction Code, or IgCC. California's voluntary standard will become mandatory in 2011. Once adopted by a building official, these standards will literally make green construction the law of the land.

MCN: What sets your company's product(s) apart from your competitors?

Heibel: Behlen Building Systems provides all-steel construction for more strength and stability than a wood frame structure and coped eave/rake flashing for a superior finished look. The corrugation closure of our ZL-24 Standing Seam Roof Systems has three distinct advantages: made from high density polyethylene to help the mastic form a tighter seal than the standard metal closure other roof systems offer; has a subtle black finish to help create a clean, uniformed look; and helps maintain modularity.

Established in 1936, locally owned, and a charter member of the Metal Building Manufacturers Association, Behlen Building Systems was the first metal building firm in the United States to achieve IAS AC472 accreditation. In addition, Behlen has maintained ISO 9001 certification since achieving it in 1999. Achieving both IAS AC472 accreditation and ISO 9001 is the exception for a metal building systems manufacturer due to the intense scrutiny of having two different sets of third-party auditors.

Fuca: Robertson has been around since 1863. We place a lot of emphasis on providing our customers with ideas, education and solutions. Our people are focused on helping owners, builders and architects meet their goals whether it is energy efficiency, meeting LEED ratings or any other specifications or requirements. Robertson Building Systems has built our reputation on maintaining high quality products, adapting to the changing construction market and building a satisfying partnership with our customers.

Symes: Star Building Systems is set apart by our ability to provide total construction services through local contractors that understand how to design efficient and economical structures. Additionally, Star can provide the design and support to accomplish the goals of owners to meet green design and cost-effective structures. Star offers a high quality product, a broad product line and design excellence.

Kohutek: Mid-West strives to provide exceptional service along with a versatile, quality building structure at a competitive price. Our extensive product lines are manufactured in IAS-accredited facilities and we strive to deliver these materials based on the delivery schedules requested and/or required for the project. We offer our builders computer design driven software for pricing, enabling them to visualize their prospective building project in the planning process. Mid-West is more than capable of accommodating a vast array of end uses.

Warner: The Metallic difference is in its people. We are driven to be the best and exceed expectations. We pride ourselves on offering solutions, not excuses.

Zabcik: Without a doubt, the strength of NCI products is the infrastructure that creates them. We are the most vertically integrated manufacturer in the industry and our strategically located facilities enable us to minimize transport and maximize our ability to respond to the customer's needs.