

May 25, 2025

Light Gauge Steel (LGS) Panels

Randy Woodard, CEO - Valience

Light Gauge Steel (LGS) panel construction offers a compelling combination of speed, strength, and cost efficiency. While actual savings vary depending on panel type and project scope, steel panels consistently deliver shorter build times and reduced labor costs compared to traditional framing methods.

Advantages Over Wood Framing

Unlike dimensional lumber, light gauge steel panels are lighter and easier to transport and install, yet strong enough to serve structural and load-bearing functions. Steel-framed structures also tend to retain their value better over time and are less susceptible to warping, rot, or pest damage.



Ideal Applications

LGS panels are especially well-suited for multi-story projects such as hotels, apartments, and dormitories. These panels can carry significant structural loads, often eliminating the need for concrete or iron columns. In cases of large spans or open spaces, I-beams may be integrated into the design for added support.

Precision Manufacturing

Steel framing is fabricated using roll formers, which have become more compact and affordable. Builders can now create custom-length studs directly from CAD or BIM-based designs, ensuring accuracy and minimizing waste.

Finish and On-Site Efficiency

Panelized construction means most work is completed off-site. Panels may arrive on-site unfinished or with factory-applied finishes such as sheathing, insulation, cladding, or even stucco. This significantly reduces on-site labor and streamlines installation.

Structural Integrity

Load-bearing LGS panels typically use 3 5/8-inch deep, 18-gauge steel studs, with heavier gauge and deeper profiles available to meet structural and code requirements. These panels support both vertical and lateral loads and provide a durable, stable envelope.

Energy Efficiency with Insulated Panels

Insulated panels incorporate materials such as fiberglass batts or expanded polystyrene (EPS) to improve thermal performance. Factory-insulated systems contribute to tighter building envelopes, reduced energy costs, and improved LEED certification potential.

Cladded Façade Panels

Cladded panels—comprising steel frames with plywood or OSB sheathing finished in stucco, brick, or other materials—are commonly used for the exterior of multi-story buildings. They can also offer a cost-effective cladding solution for smaller structures.

Offsite Insights

May 25, 2025

Design and Fabrication Collaboration

Engaging the panel manufacturer's engineer early in the design process is essential. This professional coordinates with the architect and structural engineer to ensure feasibility and efficiency. Design elements like recessed doors may require additional reinforcement or detailing, impacting project complexity and cost.

Once the design is finalized, fabrication software generates a precise list of materials. Roll formers then produce each stud and track to specification. Completed panels undergo quality control before being labeled and loaded for site-specific installation.



Logistics and Shipping

Panels can be shipped horizontally or vertically on standard 53-foot flatbed trailers, with typical capacity ranging from 7,000 to 12,000 square feet of panels, depending on panel thickness. Shipments comply with standard DOT height and width limits (8'6" wide and 13'6" high).

Installation Considerations

Panels are installed using cranes or manual labor, depending on size and weight. Efficient crane use requires staging panels close to installation zones and coordinating lifts with project sequencing. Proper planning yields substantial labor and schedule savings, particularly in high-cost labor markets.

Conclusion

Light gauge steel panel construction brings speed, flexibility, and structural integrity to a range of building types. With thoughtful design integration and smart logistics, LGS panels can significantly reduce both construction timelines and lifecycle costs, offering a resilient and scalable solution for modern building needs.



Offsite Insights highlights the benefits and value of offsite construction. Valience provides complimentary consulting, planning assistance, and direct connections to best-in-class offsite builders, contractors, and experts nationwide. To learn more contact Randy Woodard, CEO – Valience, randy@valience.net or visit valience.net.

Copyright 2025 - Valience