



Revolutionizing Construction with Modular Prefabricated Aluminum Post and Beam Assembly: A Sustainable Solution for Modern Architecture



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As the construction industry evolves, architects, engineers, and contractors face growing demands for sustainable, efficient, and resilient building systems. MHS Building Systems' Structural Aluminum Framing Design offers an innovative solution that combines modular prefabrication, structural integrity, and environmental consciousness. Here, we explore the transformative impact of this cutting-edge system on residential and commercial construction.

1. From Concept to Certification: MHS and Seismic Design

The journey of MHS Building Systems Structural Aluminum Framing Design began with a vision to create a lightweight yet robust alternative to traditional construction materials. Designed to meet seismic design categories A-F, the system underwent rigorous testing guided by ASCE 7-05 standards.

At Smith Emery Laboratory in Los Angeles, the system was validated for shear racking, diaphragm, and transverse loading, demonstrating resilience under seismic forces. With certified seismic response values (R: 6.5, Ω_0 : 3, Cd: 4), the MHS aluminum frames paired with insulated panels (SIPs) offer exceptional energy efficiency and durability. These achievements, including LADBS Research Report No. 25703, position MHS as a leader in modular construction for seismic zones worldwide.

2. Revolutionary Strength: Interlocking Connector System

One of the defining features of the MHS system is its interlocking connector design, which is 20 times stronger than conventional wood or light steel framing. This breakthrough addresses limitations of traditional materials, such as susceptibility to mold, fire, and seismic activity, by leveraging aluminum's superior strength-to-weight ratio and corrosion resistance.

The system's resilience has been proven through extensive testing, with MHS structures capable of withstanding winds up to 170 mph and extreme seismic loads. Additionally, its reduced dead load and streamlined installation process lower costs while enhancing structural safety, making it a game-changer in modern construction.

3. Sustainability at the Core

MHS prioritizes sustainability by focusing on recyclability, relocatability, and reduced environmental impact:

- Recyclability: Components are made from 100% recyclable aluminum, supporting a circular economy.



- Relocatability: Modular prefabrication enables structures to be disassembled and reused, reducing waste.

- Environmental Impact: Lightweight materials minimize transportation emissions, while integrated energy-efficient systems align with green building standards.

This commitment to sustainability offers architects and developers a framework that meets contemporary environmental goals without compromising quality.

4. Design Flexibility with Modular Construction

The modular grid-based construction of MHS Building Systems allows for unparalleled design flexibility. Architects can adapt the system to various layouts, from simple single-story homes to complex multi-story commercial buildings. The prefabricated aluminum components integrate seamlessly with SIPs and sustainable technologies, enabling eco-friendly designs with shorter construction timelines.

5. Overcoming Challenges to Deliver Excellence

Developing the MHS system required overcoming significant technical challenges:

- Ensuring aluminum's suitability for load-bearing roles through advanced testing.
- Designing interlocking bolting systems for dynamic and static loads, especially in seismic applications.
- Integrating energy-efficient SIPs for superior thermal performance.
- Balancing flexibility for diverse designs with the strength required for extreme weather resilience.

These challenges led to a highly adaptable, sustainable, and efficient framing system that meets the needs of modern construction.

6. Enhanced Efficiency and Comfort

By combining MHS aluminum framing with SIPs, the system delivers a high-performance building envelope that enhances energy efficiency and occupant comfort. Key benefits include:

- Thermal Insulation: Reduced energy consumption and consistent indoor temperatures.
- Durability: Resistance to extreme weather, pests, and decay.
- Indoor Air Quality: Airtight construction minimizes drafts and prevents mold or pollutants.

7. Shaping the Future of Urban Development

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MHS is well-positioned to meet emerging challenges in urbanization and climate resilience. Its lightweight, scalable, and modular design is ideal for dense urban environments, while its resilience to natural disasters addresses the growing need for climate-adaptive infrastructure.

8. A Legacy of Innovation

MHS's achievements have been recognized with awards such as the A' Design Award, highlighting its contributions to advancing sustainable building materials. By prioritizing modular construction, recyclability, and durability, MHS sets a new standard for eco-friendly, efficient building systems.

9-Conclusion

MHS Building Systems Structural Aluminum Framing Design represents the future of construction—sustainable, efficient, and resilient. By addressing modern challenges with innovative materials and design, MHS empowers architects, engineers, and contractors to create structures that are not only strong and adaptable but also environmentally responsible. For those seeking to lead in modern architecture, MHS offers the ultimate solution for light, sustainable building in residential and commercial applications.



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