

# UNDERSTANDING THE PRACTICAL DIFFERENCES BETWEEN PRE-ENGINEERED METAL AND MASONRY BUILDINGS

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PAT MUNGER CONSTRUCTION

When planning a new facility, owners often evaluate pre-engineered metal buildings (PEMBs) and traditional masonry construction. Both systems can meet modern building codes and performance requirements. The differences show up in how they are engineered, constructed, maintained, and adapted over time. Understanding these distinctions early helps avoid decisions based solely on first cost.

## Construction Schedule

Pre-engineered metal building systems are designed and fabricated off-site, with components delivered ready for bolt-up erection. This approach typically shortens the construction schedule and reduces weather-related delays.

Masonry construction is more sequential and labor-intensive. Wall construction, curing time, and cold-weather constraints can extend schedules, particularly in northern climates.

**Why It Matters: Schedule impacts general conditions, carrying costs, and the timing of occupancy or operations.**



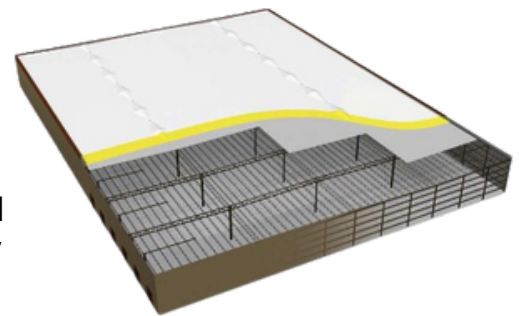
## Engineering Approach

PEMBs are custom engineered for each project based on site-specific wind, snow, seismic, and collateral loads. Structural framing is optimized through engineered tapered members, placing steel only where it is structurally required. This reduces unnecessary material while maintaining required performance.

Because PEMBs are engineered specifically for each location and use, they typically result in less steel tonnage overall compared to conventional framing approaches, supporting material efficiency and sustainability goals.

Masonry buildings rely on conventional wall systems paired with structural framing. While durable, these systems are generally less optimized on a per-project basis and often require more uniform material application regardless of localized load demands.

**Why It Matters: Custom engineering improves performance predictability while reducing material waste and supporting greener construction initiatives.**





## Clear Span Capability

Pre-engineered metal buildings are well suited for long clear spans, allowing large interior spaces without intermediate columns. This flexibility is ideal for manufacturing, warehousing, athletic facilities, and other operations that require open floor plans or adaptable layouts.

Masonry structures can achieve clear spans, but typically require additional structural systems, interior supports, which can limit flexibility and increase complexity.



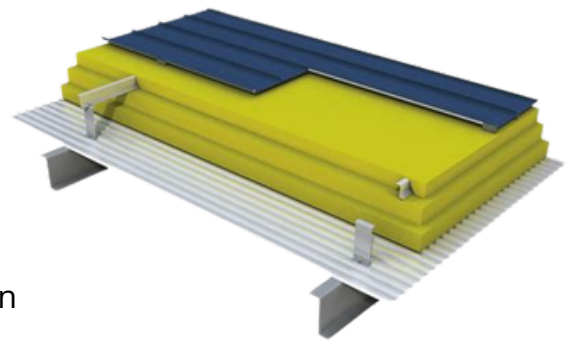
**Why It Matters: Clear span design enhances operational efficiency and allows buildings to adapt more easily to changing uses over time.**

## Energy Performance and Envelope Design

Both PEMBs and masonry buildings can meet IECC and ASHRAE energy requirements. Performance depends on detailing, not material alone.

Modern PEMBs offer a wide range of UL-rated insulation assemblies, roof systems, and wall and siding options. These systems can be tailored to each client's operational needs, climate zone, and energy goals. Continuous insulation strategies reduce thermal bridging, limit air infiltration, and support consistent thermal performance. Reflective metal roofing systems can further reduce solar heat gain.

Masonry buildings benefit from thermal mass but typically require additional insulation layers, joint sealants, and waterproofing to achieve comparable envelope performance.



**Why It Matters: Airtightness, insulation continuity, and system selection drive long-term energy performance and occupant comfort.**





## Maintenance and Lifecycle Considerations

Metal building systems with factory-applied finishes and standing seam metal roofs typically involve fewer routine exterior maintenance activities. Standing seam roofs can achieve multi-decade service life with periodic inspections and sealant maintenance.

Masonry buildings are structurally durable but require planned maintenance, including joint sealant replacement, waterproofing, and repointing. Roofing systems commonly require replacement within a 20-to-30-year timeframe.

**Why It Matters: Lifecycle costs often exceed initial construction cost over the building's service life.**



## Flexibility and Expansion

PEMBs can be designed with expandable end walls, allowing additional bays to be added later with minimal structural disruption. This makes future growth more predictable and cost-effective.

Masonry additions are common but typically require more demolition, structural tie-ins, and interface work.



**Why It Matters: Planning for growth early reduces future construction cost and operational disruption.**



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## How Munger Construction Supports This Process

Pat Munger Construction Company, Inc. is an authorized Varco Pruden builder. We offer custom engineered metal building systems, designed specifically for each site, application, and operational need.

This allows us to help owners:

- Evaluate building systems based on total cost of ownership
- Align structure and envelope design with operational goals
- Reduce schedule risk through integrated engineering and construction
- Support sustainability initiatives through efficient material use
- Plan intelligently for long-term performance and future expansion

### The Takeaway:

Both systems are proven and code-compliant. The right choice depends on schedule, maintenance expectations, energy goals, and long-term plans, not assumptions about materials.

If you're early in planning, comparing systems at this level helps prevent costly changes later.

### **Our Core Competency:**

Building Long Lasting Relationships With Customers and Partners.

### **We Add Value From Start to Finish:**

Convenience, Advice, Integration of High-quality Products, Design/Build Services, Support.

### **No Shortcuts:**

Built to the Highest Structural Standards Without Compromising Integrity, Quality or Professionalism.



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