

THE MASONRY EDGE

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Reinforced Masonry: One simple system for warehouse construction

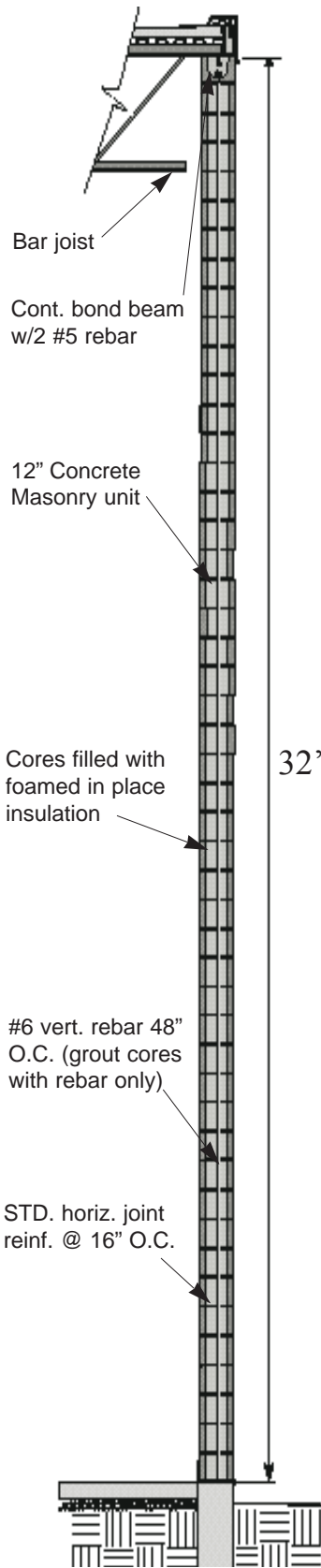


Figure 1

The All Concrete Masonry Warehouse	
Project:	32,000 ft ² warehouse with 32' tall walls, 10 garage doors, and a double cantilever corner entry.
Construction:	12" C.M.U. with #6 rebar @ 48" O.C. per figure 1.
Avg. lead time:	8.7 days
Avg. duration:	24 days
Average cost of walls:	\$8.25 - \$8.50 / ft ² (reg. med. wt.) \$9.25 - 9.50 / ft ² (l.w. split face)
	Add \$0.45 / ft ² for foamed in place insulation
<small>Costs are averaged from Chicago area mason contractor's estimates</small>	



Choosing a building system is not a simple process. It should be one single answer to several important questions. One must consider all the desired characteristics, such as economy, durability, appearance and structural stability to name a few. The goal is an economical building system that will look good, perform well, and stand the test of time. The best choice for a building system is one that satisfies all of the desired characteristics at the lowest cost. Reinforced concrete masonry walls provide all of the desired characteristics with one simple and cost-effective load-bearing wall, thus providing the the greatest effect with the least effort.

Sometimes when exposed to a complex question, we see an even more complex answer. A solution we see in the Chicago market is a steel structure with attached precast panels as a system. This separation of structure and finish is not a new idea. It was one of the main ideas which sparked the modernist movement in architecture at

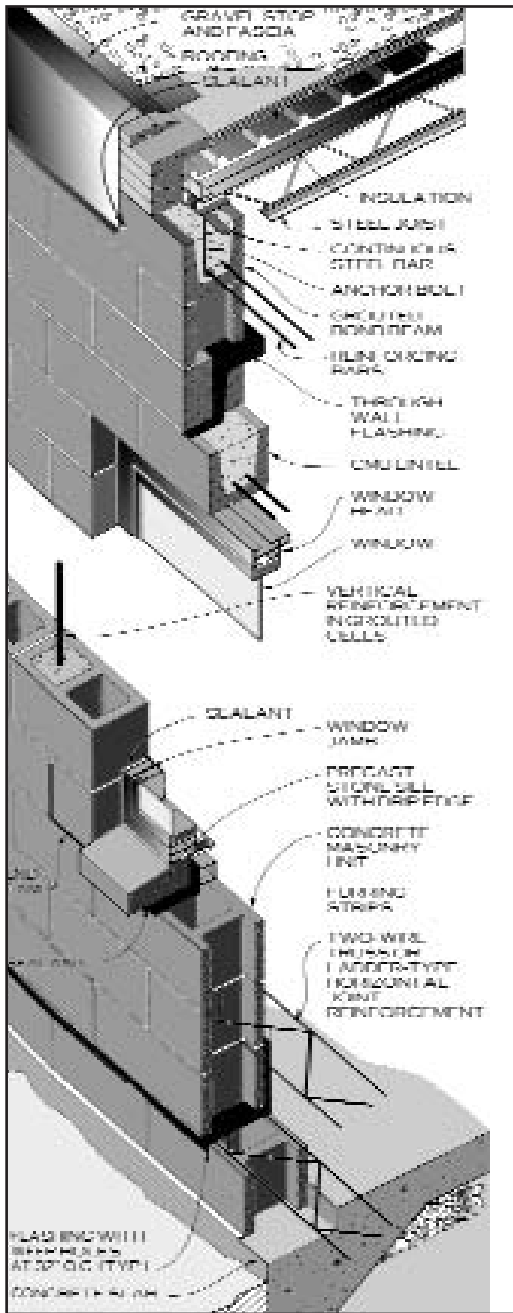
the turn of the century. With another turn of the century upon us, perhaps we should observe the benefits of integrating structure and finish into one element again.

In a steel/precast system the need for structure is satisfied by steel. The need for cladding is satisfied by precast panels. Fire proofing (if necessary) is applied over steel members. The nature of this type of building is a complex array of dissimilar materials which must all be fabricated off site and organized into one complete system.

The best wall system is one that can perform several functions simultaneously. A reinforced masonry wall provides the structure and the skin at the same time. Insulation can simply be foamed into the cores of the units, or attached to the inside face. Fire and sound resistance are built right into the wall, along with impact resistance and security. Aesthetics, of course, are subjective, but masonry has always been considered one of the most beautiful building materials available. Furthermore, the concrete masonry industry offers virtually unlimited styles and textures of blocks, and this style and texture is not just a painted on finish, it's built right into the wall.

The Chicago industrial market is seeing a significant increase in build to suit and speculative warehouse development. Naturally, developers would like to provide the highest quality building at the most competitive price possible. Building with concrete masonry provides an economical building, with unsurpassed

(Over)



quality, looks, and durability, without the potential 20 - 24 week lead time associated with other systems.

A good designer should know the facts about concrete masonry's potential in warehouse construction. For this reason we have designed a 32,000 sq. ft. all masonry warehouse and obtained estimates from several prominent mason contractors in the Chicago Area. The average bid for the 32' tall, regular, mediumweight 12" reinforced block was between \$8.25 - \$8.50 /ft², with an average lead time of only 9 days. For a 12" lightweight split face architectural block, costs averaged between \$9.25 and \$9.50 / ft².

Why is concrete masonry an excellent choice for commercial warehouses?

■ Initial costs:

The way that one can create an economical warehouse with masonry is by virtue of simplicity. By taking advantage of the inherent compressive strength of concrete, and the tensile strength of reinforcing steel, one can use this simple system of reinforced masonry to create tall slender load bearing walls in excess of 40 feet. With the deletion of the perimeter steel framing, additional cost savings can be realized with load bearing concrete masonry walls. The headaches associated with designing and fabricating a steel frame and incorporating an exterior cladding system to match it can be replaced by one simple system.

■ Durability & Security:

The durability advantage of masonry is quite clear. Well designed masonry walls can last for centuries, and can sustain years of wear and tear. Durability is an important factor in warehouses where walls may be subjected to impact and abrasion from machinery, forklifts, trucks, etc. After Hurricane Andrew in south Florida, where block is often used, researchers investigated the integrity of several building systems. They found that the masonry walls out performed all other types of construction. This is a clear example of the inherent strength of concrete masonry walls.

■ Lead time:

The effective lead time for a masonry building usually only takes 1 - 2 weeks. For a more complex steel or precast concrete product, lead time could be 20 - 24 weeks of stagnation while costing \$8 - \$12 / ft².

■ Aesthetics

The human scale and textural qualities of masonry make it one of the most aesthetically pleasing building material available. The myth of boring concrete blocks has long been shattered by the concrete masonry industry. The vast array of different shapes, sizes, colors and styles of architectural concrete block" place no limits on aesthetic creativity.

■ Fire resistance

By using masonry walls, you provide your clients with maximum fire protection. When a wood frame house is destroyed by fire, the only thing left standing is the masonry chimney. Block doesn't burn, melt, twist, or warp when exposed to fire. The concrete block wall is a fire barrier able to contain a fire to a small area, protecting the buildings occupants, not to mention the potential 40% savings on annual fire insurance premiums.

When planning your next industrial building, or any building for that matter, consider reducing the problem down to one simple solution - Concrete Masonry. For more information contact the Masonry Advisory Council at (847)297-6704/ www.maconline.org