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Innovation Emerges from the Precast Concrete Industry

by Tessa Van Dyke

During the design and construction of an office, retail, multi-family living, manufacturing, or any other type of multi-level building, the main concern is getting the most out of the square footage that the owner is paying for. Architects, engineers, contractors, and subcontractors are always looking for a way to open up more space within the building's interior while at the same time staying within a budget of the owner. The largest problem within the interior of the building is column and beam penetrations that naturally divide up the building without much choice for the architect or engineer. This problem is largest when developers and owners are combining living, retail, and parking in the same space. It is essential that there is no space wasted in this process.

Imagine a building where every other floor is completely column free, providing absolutely endless possibilities when it comes to the design and construction of a building. This scenario was once virtually impossible. Now, with the help of Kerkstra Precast and Ericksen Roed, this open space is a reality. Introducing, precast-prestressed open space trusses. These trusses lend themselves to completely open spaces above and below the floors that contain trusses. The floors that do contain trusses have clear spans of up to 70'. Imagine the possibilities in an office, retail, hotel, or multi-family apartment or condominium building.

Not only do precast-prestressed trusses provide unlimited possibilities when it comes to open space and design, precast trusses provide all of the benefits of concrete construction and can be combined with precast exterior and interior wall panels and Hollowcore floors for a total precast design. All precast-prestressed concrete products including precast trusses are able to be erected in any weather condition including harsh winters. This creates a window for contractors, owners and architects to work with. Precast concrete products have a 2-3 hour fire rating which eliminates the costly process of fireproofing. Precast concrete is virtually soundproof and when combined with Thermomass insulation, are extremely energy efficient and LEED friendly. Grubb & Ellis reported in 2006 that, "(Precast Buildings) offer better ceiling heights, column spacing, insulation, and utility efficiency."

The precast truss system is also very economical. The price of steel has gone up over 60 % in the past two years alone, and this trend is expected to continue. This means that steel building structures are becoming increasingly expensive. Kerkstra Precast will begin erecting the Turtle Creek Hotel in Traverse City. This is Kerkstra's first project using the precast truss system. PCL construction is the general contractor working on the Turtle Creek project. Bart Bodray, of PCL Construction said this when asked why the precast truss system was chosen for this project, "The reason we used the precast truss system was schedule and winter conditions. By fabricating the structure off site, it gave us more time to design the foundations and get them in prior to having to start on the vertical structure, which the engineers needed. Also, since we would have been pouring concrete vertically in the middle of winter, it adds to the cost of the concrete and precast ended up being more economical."

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