Precast Concrete Innovations

Spell Success In

The Residential Market

For centuries, Europeans have constructed a much greater percentage of their housing structures with concrete systems as compared to the United States. Europe’s significant technological advancements in cements, admixtures, production equipment, and finished coatings are now heavily influencing America’s selection of building components. This phenomenon is exemplified by the introduction of Dukane Precast’s new Double-wall precast concrete system to the Chicago area. This revolutionary method of manufacturing, erecting and finishing walls and floors, representing some of Europe’s greatest precast concrete innovations, are now being embraced by numerous architects, developers and contractors in the residential market.

The use of precast concrete for residential buildings has evolved slowly over the decades. For many years the only precast concrete product used in housing applications was for floors. Typically, masonry and steel-framed buildings would utilize hollow-core floors to provide for excellent sound attenuation, fire resistance and swift speed of construction at every floor level. The increased use of architectural precast cladding panels were another progressive step towards the goal of constructing a quality building in a timely manner. These combinations of materials provided a good structure at a fair price.

As the marketplace started to adopt the use of precast concrete panels as structural load-bearing walls along with the precast floors, owners better appreciated the value of a total precast building. Buildings could now be enclosed more rapidly without sacrificing beauty, quality and durability. For residential applications, however, the conventional exterior precast wall panels still needed to be framed out, insulated and drywalled. An even better way to build with precast was desired.

Recently a new precast concrete approach to housing arrived—and it is dramatic. It took many trips to Europe (touring over a hundred manufacturing plants), adapting American ingenuity to existing European production processes, and a lot of hard work to ultimately design, construct and put into operation the nation’s first Double-wall precast concrete plant. Located in Naperville, the manufacturing facility produces insulated precast concrete sandwich wall panels that have a smooth form finish on both sides, no drywall needed, and concrete floor panels that do not require a leveling topping after they are installed.

For owners concerned about valuable floor space, the double-wall insulated precast sandwich panels can deliver something that no other building system can equal. In wall sections as thin as 8 inches (total finished width) these panels exceed the new Chicago Energy code requirements (R-21) and can achieve a 4-hr. fire rating. Another advantage of this innovative wall and flooring system is the significant energy savings for the owner. Tremendous thermal mass properties inherent with concrete also make the system ideal for radiant floor heating.

The Double-wall precast concrete system is suitable for every residential market sector, as evidenced by several recent jobs ranging from a 9-story condominium on Chicago’s north side, to a 4-story, 84-unit senior living facility in the western suburbs. Single-family homes and multi-family buildings (6 and 8-unit) have been completed and are under construction throughout the suburbs and Chicago. The next evolution of precast concrete is here!