At Home with Concrete

A Guide to Residential Concrete
“Full-Wall Assembly Systems: Solutions Above and Below-Grade”

**Precast Concrete**

With precast concrete, large panels of wall are poured horizontally in a factory. Openings and conduit for electrical boxes and wiring are cast directly into the panels. Rigid foam insulation is placed between two layers of concrete. Once hardened, the panels are delivered by truck to the job site, lifted into place with a crane, and fastened together. The factory-controlled conditions produce panels that are so smooth that the interior surface can usually just be painted. The manufacturer can incorporate a simulated brick look, or any traditional finish can be attached—typically by screwing into wooden furring strips that are cast into the panels.

Precast wall systems are advancing with the use of “Thin-Shell” designs. These designs utilize a thin (1.5”-2”) precast concrete skin with some form of a stud system behind the skin. The stud systems are typically made of precast concrete as well; however, some systems use heavy-gauge metal studs. While there are similarities between systems, designs depend on their application (e.g. load bearing, non-load bearing). Most systems also include some grade of insulation attached to the rear side of the precast panel. Residents can benefit from these systems by utilizing all forms of precast panels including foundations, walls, floors and other accessories.

Between 20-30% of a home’s heat loss occurs through the basement, and 60% of homes in the United States have foundation leaks. Precast concrete foundation systems are specifically designed to provide a moisture-free and energy-efficient living space, reducing heat loss and eliminating the energy loss incurred by foundation leaks. Because precast concrete foundation systems are manufactured well in advance of installation, they are ready for transportation to the job site at a moment’s notice. This allows for quick enclosure and faster trade progression.

Precast concrete foundation systems make year-round construction possible in cooler northern regions while systems are also available to meet earthquake requirements in seismic areas. Foundations can include prefabricated openings for doorways, windows, electrical and other utilities. The stud systems for basement foundations usually contain a wood or steel stud attachment for ease of finishing the basement.