

INTEGRATING UTILITY SYSTEMS WITH PRECAST CONCRETE

The most common and efficient method to integrate and install utility systems (such as electrical, plumbing, and HVAC) with precast concrete construction is to locate and position utility lines and openings in precast wall panels at the plant during production. With early involvement and coordination with the architect, general contractor and MEP engineers, electrical conduit, wiring, outlet boxes, and plumbing opening locations can be carefully planned to avoid any design or construction site conflicts. Integrating electrical and plumbing systems during precast production at the plant saves time and money on the jobsite and improves overall project speed of construction and lowers risk with fewer trades on the jobsite.

On projects that utilize precast concrete hollow-core slabs for floors and roof structure, the extruded cores of the slabs can be used for ducting air distribution for heating, ventilation, and air-conditioning (HVAC), thereby eliminating the need to supply and install conventional ductwork. Thermal energy can be stored in the concrete which helps to reduce peak heating and cooling loads on the HVAC system, resulting in a reduction in the sizing of mechanical equipment and tonnage required to heat and cool the building. The elimination of conventional ductwork and smaller required mechanical equipment will result in a significant cost savings on the project as well as a reduction in future energy costs due to the thermal mass efficiency of precast concrete.

By integrating pre-glazing of precast wall panel window openings in the plant, precast concrete construction can provide an entire building enclosure system including glazing, sealants, integral insulation, electrical wiring, conduit and outlet boxes, plumbing openings, smooth interior



wall panel and ceiling slab finishes ready for painting, and HVAC air distribution in one highly efficient building system. Precast concrete construction, prefabricated off-site, delivered just-in-time, and installed by PCI-Certified erectors is

the most versatile, efficient, and resilient high performance building construction method available when compared with conventional wood frame, steel or cast-in-place concrete construction.