

BUILDING RESTORATION USING PRECAST CONCRETE

Over time, building structures and façades may need restoration due to storm damage, weathering, water infiltration of façades causing widespread deterioration and corrosion of embedded steel components, code mandated modifications, or required building expansion. Precast concrete structural and architectural systems integrate easily with other building systems and inherently provide the structural design and aesthetic versatility needed to be the ideal building material for the restoration of existing building structures.

Precast concrete offers the aesthetic versatility of concrete mixtures that utilize a plethora of colors, forms, and textures. This aesthetic versatility provides superior façade integration with existing building systems and historic compatibility via the use of an infinite variety of sands, cements, aggregates, thin-brick, and stone veneers. Precast concrete also offers the structural design versatility of custom load bearing, integrated architectural and structural components, and economical standard product sections providing long open spans for building expansions.

Another facet of building restoration is adaptive reuse and deconstructive reuse of existing structures. Adaptive reuse is the process of revising an existing building for a purpose other than which it was originally built or designed. It is one way to breathe new life into old buildings, and at the same time, can conserve their historic value and local resources. High-performance structures should provide for changes in use since the functional use of a structure frequently expires before the structure's physical service life. Precast concrete structures are ideal for adaptive reuse by providing longer spans with larger open spaces and fewer interior columns allowing for easy building restoration as future occupancy needs change.

Deconstructive reuse is the ability to disassemble and reuse various building components in a project expansion or for a different project altogether. Precast concrete components are individually engineered and are ideal for this purpose. For example, non-loadbearing precast concrete wall panels can be easily relocated for future industrial or commercial building expansion.

A great illustration of deconstructive reuse is found in Atlanta, Georgia where four high school football stadiums were constructed by disassembling a large stadium that was originally built for the 1996 World Olympics. Another great example of deconstructive reuse occurred when the FIFA World Cup 2022 in Qatar used precast concrete components to build eight World Cup soccer stadiums. When the World Cup games were completed, some of these stadiums were turned into mixed-use residential and commercial centers. Others were completely converted into five-star hotels, shopping centers, sports medicine hospitals and more. This deconstructive reuse was only possible with precast concrete and would have been virtually impossible with a cast-in-place concrete structure.

