

Tall Orders



Photo courtesy of Consigli Construction.

ONE RESTORED CAPITOL, PLEASE.
HOLD THE EXPENSES AND PUT A RUSH ON IT.

BY STEVEN H. MILLER

THE RESTORATION OF THE NEW YORK State Capitol building in Albany, N.Y. was a complex, multi-pronged project, a long overdue effort to turn back the clock on decades of deterioration and damage to a legendary building. In 2009, Consigli Construction of Milford, Mass., an AGC of Massachusetts member, began work on the fourth and final phase of the project, when the recession hit hard. It became the target of political pressure to save the taxpayers money, and by the spring of 2010, Consigli found itself producing estimates of the cost to shut the project down.

Then a new governor, Andrew Cuomo, took office in January 2011, and announced a different strategy to save money: accelerate the schedule.

The completion date was moved from July 2014 to Dec. 31, 2012. In May 2011, Consigli agreed to the challenge, slashing its remaining construction time nearly in half.

Despite the numerous complexities of a large project performed in a building that was open and in operation on a 24/7 basis during construction, an approval process that involved heavy consultation from the state Office of Government Services, and a requirement of 118 unique mockups (many of which were modified several times), Consigli actually shaved an additional two months off construction, completing in October 2012 with a 99.6 percent safety score. Without decreasing the scope of the project, they saved the taxpayers \$2.4 million. For this difficult accomplishment, Consigli Construction won the Alliant Build America award in the category of Best Building Renovation.

A PROBLEM BUILDING

The state Capitol is a structure of historical and architectural significance, a designated National Landmark, the second largest

load-bearing masonry building in the U.S., and a magnificent piece of architecture.

It has also been a ‘problem building’ from its earliest days. Begun in 1867 and re-worked by a succession of architects (seven in all), it first opened, incomplete, in 1879. Almost immediately the roof began to leak. The exceedingly heavy structure settled (its masonry walls are 16-ft. thick at the base), twisting the entire structure. In the 1890s a massive exterior staircase was added to the east side to prevent the building from sliding closer to State Street. The grand design still had not been completed by the end of the century and was often the target of accusations of waste, graft, and political corruption. In 1899, then-Gov. Theodore Roosevelt abandoned plans for a dome and another tower and called it done. A large fire destroyed much of the west side of the building in 1911, including the library where the building’s designs were stored. Over the years, water infiltration damage occurred, artistic and architectural treasures were covered over with drywall, and large skylights were blacked out for World War II (and never reopened).

RESTORATION

By 2000, when restoration began, it was badly needed.

Consigli’s phase of the project included some of the oldest and most deteriorated parts of the building’s roof and interior spaces. Repair of the 130-year-old roof included replacement of ornamental terra cotta, slate and copper elements. Exterior granite required repair, waterproofing, and flashing. The large skylights over the Senate and Assembly stairs and the laylights beneath them needed restoration, and the grand staircases themselves required complete renovation. In addition, there was work to the Tower Hall and the much-remodeled fifth floor, and massive asbestos removal.

Accomplishing these tasks involved solving complicated logistical problems of getting people and materials in and out of the building, coordination with trades halfway around the world, and other feats of project-management derring-do, even before the schedule change.

LOGISTICAL TALL ORDERS

Access to the site was a significant challenge. The building was open to the public, but they passed through a security screening gate that would not be practical for construction workers. Instead, all workers including subcontractors had to be on a clearance list 72 hours in advance to allow for background checks. They passed through an electrified gate manned by New York State Police. Workers did not access the site through the main entrances, or use internal stairs or elevators. They climbed up a 200-ft. tall stair tower and entered through an unoccupied office on the fifth floor.

Building materials were moved by a 275-ft.-tall tower crane, erected on a structurally engineered 32 ft. by 32 ft. by 5 ft. concrete and rebar slab during the snowiest January-February in Albany’s history. It hoisted (and removed) all roofing, interior, and exterior elements for the job, including monumental pieces of terra cotta, granite, sandstone, and steel. Materials were received through 20 ft. by 20 ft. hatches strategically located in roofs above Tower Hall, and the Senate and Assembly staircases. Delivery locations were divided into numbered grids so materials

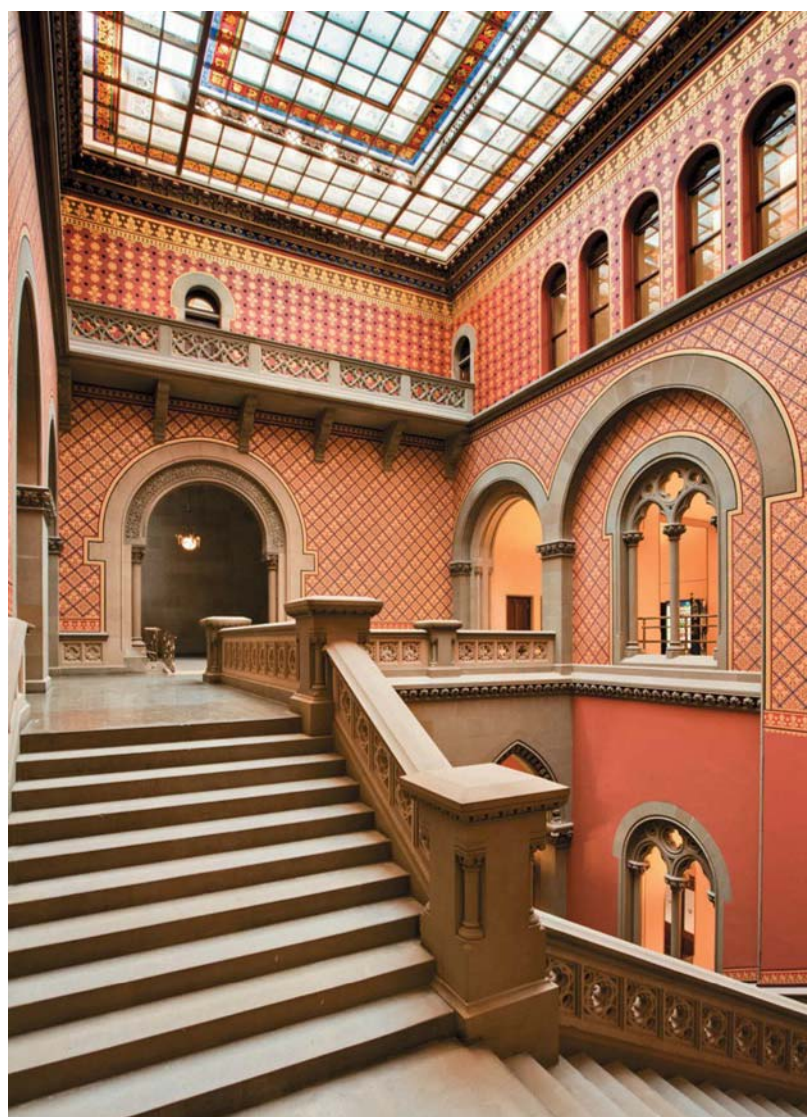


Photo courtesy of Consigli Construction.

could be deposited in the correct place by the crane operator and thus tracked. During work on the staircases, the crane often had to deliver materials down through three levels of scaffolding sight unseen.

CRANK UP THE SPEED

When the governor requested schedule acceleration without reducing the scope, Consigli rose to the challenge. Having been on the project for over a year, the company had solved basic logistical problems and, more importantly, knew what was needed to make the project work more smoothly and quickly.

“We’re always looking for ways to reduce schedule and save money for our clients,” explains project manager Phil Brault. But the schedule was built into the specs, phasing work in each areas in a strict succession to minimize disruptions. “We were saying, there’s opportunity to get into two of those spaces, even though the spec says we can’t do that until we do this. We knew from the get-go that we could cut down on the schedule and get the project done quicker.”

To meet the new schedule, Consigli requested clear access to the entire fifth floor, and other modifications of the phasing to allow them to move as fast as they were able. By working closely with the Office of General Services (OGS) architects who were overseeing the project for the state, they were able to identify and

PROJECT TEAM

Construction Manager	Consigli Construction Co.
Lead Architect	New York State Office of General Services
Lead Engineer	Simpson Gumpertz & Heger



Photo courtesy of Consigli Construction.

obtain approval on numerous strategies to improve construction speed. In many cases, it simply involved looking past “the way things are usually done” and finding solutions that were specific to the project.

The laylights over the two grand staircases provide a good example. These large (40 ft. by 40 ft. and 50 ft. by 50 ft.) assemblies of intricate glasswork were reconstructed with only the barest evidence of how they originally looked. They were also among the items needing the longest lead-time for fabrication. The spec required an off-site 12 ft. by 12 ft. mockup to be built in a location with natural light (or else a lightbox had to be constructed to mimic natural light) in order to approximate the conditions of the Capitol staircases. Doing it off-site, however, would be a time drain for both Consigli and the OGS architects who needed to approve the mockup. Moreover, it would not necessarily reflect the final look or the actual installation issues. “You can do a mockup off-site,” comments Brault, “but it’s not going to tell you the conditions you’re actually going to encounter in the staircase.” Instead, Consigli proposed building the mockup in the actual staircase space, underneath the skylight mockup, replicating as closely as possible the eventual light and site conditions. This cut time during mockup review and in the actual work. “It helped us identify numerous issues, so when we did the final installation, there was not one hiccup.” It also saved money on site search and construction to make a site suitable for the mockup.

Numerous glass artists on the approved list of subcontractors were reviewed, and none were acceptable. Consigli went beyond the list, and found world-renowned stained glass manufacturer Franz Mayer of Munich, Germany. Franz Mayer was unused to

working with lump-sum low-bid contract conditions, but Consigli made daily phone calls and frequent trips to Munich to coordinate and keep things flowing smoothly.

INNOVATIONS

There was technological innovation as well. Interior brick on the fifth floor had acquired years of paint and dirt. Rather than the expensive and messy chemical cleaning called for in the specifications, Consigli proposed dry-ice blasting. In addition to cost savings and cleanliness, dry ice provided overall “gentle cleaning” benefits.

Lacking documentation about the conditions of the roof (because of the losses from the 1911 fire), Consigli employed 3-D scanning. Original roof steel and rafters were also scanned to make sure they were aligned, critical details since the skylights would attach to the rafter steel.

To replace interior and exterior granite and match the original stone, Consigli persuaded Hollowell Granite from Maine to drain and reopen a quarry that had been closed for 80 years.

Where interior brick had to be replaced, Consigli got lucky: The company found similar architectural brick for sale on the side of a country road. It is difficult to discern 1885 brick from 2012.

Consigli’s 99.6 percent safety score is all the more notable in light of some of the project conditions. The roof, 220 ft. above the ground, had an intimidating pitch. Sometimes it had as many as 120 men on it.

In the end, Consigli completed the project two months earlier than agreed, in mid-October 2012, saving the taxpayers \$2.4 million, and returning to them their storied state Capitol in perhaps better condition than at any point in history. ♦