

Old General Land Office Building/Capitol Visitors Center

Exterior Preservation and Roof Replacement

Project Update: 9-18-2023



This Exterior Preservation project repairs stucco, casement windows and transoms, and replaces the GLOB's slate roof, copper elements, and gutter systems.

Stucco:

Laborers have been formally trained on project specific application standards by an American Society for the Testing and Materials (ASTM) Certified 5th generation Preservation mason. Their training program and high level of preservation standards help maintain consistency and rigor of application to assure the highest quality of bond possible.



ASTM Written Testing
The participants gathered in the classroom to complete their written tests after the test panel work. The tests were discussed and answers completed at the conclusion of the training.

At any given time you will find a few of the workers applying the base scratch and finish coats, mixing mortar, sounding out delaminated stucco with a chisel, repointing historic stone, and shading/watering the stucco throughout the process.



One of the most important parts of the stucco application process is managing the moisture and temperature during application and curing. The masons are using constant water sprayers and a layered burlene fabric to shield the stucco from direct sun during the day.



We have encountered a variety of different unique conditions on the building including severe mortar loss in the historic limestone walls, random bricks/dirt/rubble near exterior face, and even exposed timbers just $\frac{3}{4}$ " shy of the outside wall. We've found large 1'-2' voids in the 3' thick walls that were filled with large quantities of black dirt. We think this was a historic black clay used as a binder along with mortar during the original construction.



The workers use a variety of masonry repair techniques depending on what they encounter. Large irregular masonry joints that are cracking have to use *galleting*, a process of pushing small stones into large wet mortar joints to help balance the proportion of stone and mortar to reduce cracking.



The masons are also using DHL Crack Injection for cracking in the walls that exceed 1mm in width. This is masonry technology that uses dispersed hydrated lime, a lime based putty formed as a concentrate in a lab centrifuge, injected with a syringe into small holes drilled every $\frac{3}{4}$ " for the length of the crack. The intent of the lime is to help bridge the crack, dissolving and re-depositing calcium crystals to fill any gaps created as the building continues to move with changes in the exterior environment and underlying substrate.



Paint

The existing paint had to be stripped wherever it was loose on the building and also be pressure washed before testing any new coatings.



Extensive testing has been completed to select the best coating, with the need to provide durability, breathability, and colorfastness, while being applied over remaining paints and repairs.

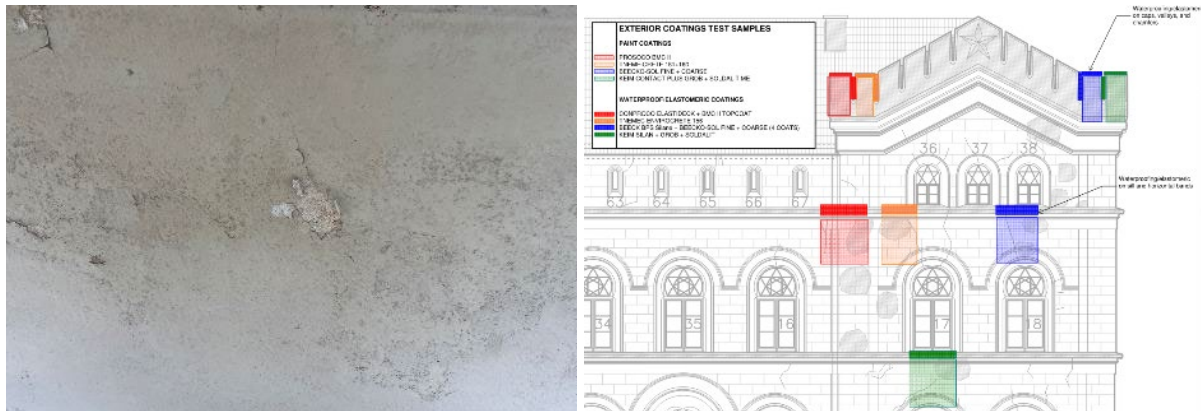
Acrylic, silicon emulsion, and mineral based were tested on vertical surfaces.

Flat projecting surfaces with high exposure to weather were tested with elastomeric, cementitious acrylic emulsion, and silane water repellants.



We tested all of the products on the various conditions in locations depicted in the drawing below and ultimately went with a mineral based paint for its high performance, breathability, colorfastness, and complementary material makeup for stucco/stone applications. The mineral-based paint also allows for an endless number of future preservation maintenance paint coatings.

We decided to use a highly durable and impact/uv resistant elastideck on the projecting horizontal courses at each floor and the skyward facing surfaces of the character defining crenellations, to protect against rainfall, running water and hail, in these locations which had shown the most stucco deterioration since the 1993 building restoration.



Historic Wood Repair

The slate roof has been showing signs of leaks since the 1990's. Several areas along the edge of the roof near the downspouts and the chimneys have evidence of leaks that have damaged the historic 1850's underlying timber structural elements.

Four locations and types of repairs were used to rehabilitate the historic timber structure. In the areas where replacement was necessary we provided old growth yellow pine as a complementary in-kind material. For larger members the contractor had to laminate smaller members together to achieve the desired matching profile for replacement.



Water damaged or splitting historic wood decking was replaced with old growth lumber sourced from a North Carolina mill.



SPB is salvaging historic timbers, deck boards, and original hand wrought nails.

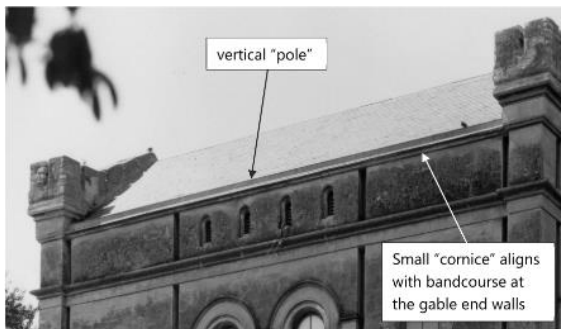
Roof

Process: SPB worked with an industry leading roofing and waterproofing consultant who had a slate specialist to specify and design a system that works with some of the complex details we have encountered. We are relocating the roof hatch and providing an OSHA-accessible hatch access platform in the building's attic.

We've also been able to survey the existing single wythe historic brick chimneys. This work provides rare access to the interior of the chimneys; the contractor was able to repoint and repair some of the deteriorating joints.



The roofing consultant has historic experience and was able to uncover lost architectural features from historic photographs from the 1870's and 1880's. There was originally a pole gutter design used on the building during its period of significance between 1880 and 1920. This type of gutter is more common in Europe and the northeast United States. The pole gutter is essentially a gutter that sits on top of the roof near the lowest point, unlike a hanging gutter which is mounted to the top of the façade near the base of the roof. The pole gutter design also allowed us to recover a lost stucco projecting band that wrapped the façade like a hat. Although it's a small detail it will be one more step further into properly restoring and interpreting the building to its 1880's period of significance.



1920s historic photograph before the addition of the hanging gutter.



2021 photograph