

ENTRY FORM



DVASE 2019 Excellence in Structural Engineering Awards Program

PROJECT CATEGORY (check one):

Buildings under \$5M	☒	Buildings Over \$100M	☐
Buildings \$5M-\$15M	☐	Other Structures Under \$1M	☐
Buildings \$15M - \$40M	☐	Other Structures Over \$1M	☐
Buildings \$40M - \$100M	☐	Single Family Home	☐

Approximate construction cost of facility submitted:	\$2,000,000
Name of Project:	222 Rittenhouse
Location of Project:	222 West Rittenhouse Square, Philadelphia, PA
Date construction was completed (M/Y):	February 2018
Structural Design Firm:	J&M Preservation Studio
Affiliation:	DVASE Member
Architect:	J&M Preservation Studio
General Contractor:	PULLMAN SST, Inc.

Company Logo (insert .jpg in box below)



Important Notes:

- Please .pdf your completed entry form and email to bkoroncai@barrpino.com.
- Please also email separately 2-3 of the best .jpg images of your project, for the slide presentation at the May dinner and for the DVASE website. Include a brief (approx. 4 sentences) summary of the project for the DVASE Awards Presentation with this separate email.

- Provide a concise project description in the following box (one page maximum). Include the significant aspects of the project and their relationship to the judging criteria.

The slender building located at 222 West Rittenhouse Square was designed by Horace Trumbauer to be the tallest of its kind in Philadelphia, and it became a focal point of Rittenhouse Square when it was constructed in 1929. The historically significant apartment-hotel soared 27 stories above ground, dwarfing the neighboring rowhomes. The steel framed structure clad in yellow brick recently underwent its first major restoration campaign. At first glance, the building appeared to be in good condition requiring some repointing, window sill repairs, and lintel replacement; however, during the first hands-on inspection from a high-reach, several cracks were discovered along the terra cotta oriels that projected several feet outward from the fourth floor along the above Locust Street. Portions of terra cotta were missing, and the remainder of the material had the potential to collapse, leading the engineer to report an Unsafe Structure, closing off the sidewalk, and designing repairs for new steel framing and replacement panels.

As the design professional gained additional access to the building, more issues were revealed, and trends were tracked across the façades. It became evident that the building was not as well maintained as was previously thought, and poorly-executed repairs were causing damage to the building. Specifically, joints within the terra cotta band stone and along the steel floor plate above the spandrel beams were caulked shut, trapping water beneath the surface causing corrosion. This phenomenon repeated throughout the façade, with corrosion jacking at the balconies, parapets, and spandrel beams; requiring brick reconstruction and steel reinforcement.

What started with a simple façade inspection, turned into a massive restoration project involving a phased approach to prioritize the immediate repairs. Multiple mast-climber platforms, as well as swing stage scaffolds, were erected to conduct brick reconstruction and localized steel repairs. As each existing condition was revealed, the design professional prepared repair details and construction documents as soon as possible in order to minimize disruption to the occupants and reduce the duration of sidewalk closures and scaffolding rentals.

Major cracking was discovered at the 27th floor, and steeplejacks were used to repel down the façade to install temporary shoring. The design team developed details to install an interior counterweight system to support the roof cornice so that the entire unstable area, a two-story masonry panel, could be removed and replaced. Another significant issue was observed at the south elevation parapet. From the coping stones continuing downward to the attic floor level, the parapet was found to be bowing and bellied outward. The wall was stabilized by installing CMU pilasters inside the attic with a series of threaded rods and galvanized plates to securely brace the wall. The brick was rebuilt between the bottom of the window lintel at the attic level to the bottom of the terra cotta coping stone of the parapet. This proved to be an effective solution without having to remove and reconstruct the entire wall which would have threatened the valuable, newly replaced elevator machinery, located just inside this wall, just inches away from the instability.

The most notable condition of this façade inspection was the condition of the terra cotta tile roof. With such a high level of difficulty to obtain access for the needed inspection, a specialized crew, consisting of professional vertical access rope technicians, were able to conduct a hands-on inspection. Over thirty loose tiles were removed from the roof and a temporary roofing membrane was applied at the location of missing tiles. Since the budget for Phase 2 concentrated on the façade restoration, there was little left for a roof replacement. The missing roof tiles were replaced and temporary roof netting was installed so that a full replacement could be planned for in the next phase.

Ultimately, access covered 74,000 SF of façade area; 270 window sills were repaired, 300 corroded steel lintels were replaced, and over 2,000 LF of steel spandrel beams were repaired with new steel framing. The repair methodologies utilized helped minimize disturbance to the private residences within the building and its surrounding neighbors. The successful realization of this project showcases how a collaborative team effort, a committed owner and qualified restoration contractor, all with a common goal, can successfully address large, systemic, problems facing our historic resources. Through detailed surveying, thoughtful design, and carefully applied restoration construction techniques, this venerable building has been preserved and will continue to contribute to the vibrancy of the neighborhood and the city for years to come.

- The following 5 pages (maximum) can be used to portray your project to the awards committee through photos, renderings, sketches, plans, etc...



Figure 1: 222 West Rittenhouse Square, ca. 1928.



Figure 2: 222 West Rittenhouse Square, ca. 2017.



Figure 3: Mast Climber and pipe scaffolding along upper levels of north elevation.



Figure 4: Caulk along spandrel beam mortar joint, brick and terra cotta cracking, parapet jacking.



Figure 5 & 6: Cracking at building corners and between panel setbacks.



Figure 7: Corrosion jacking at spandrel joint and brick spalling.



Figure 8: Spandrel beam repair with new steel plate and web brackets.



Figure 9: Reconstruction of the top two wall panels below the roof cornice.



Figure 10: Detached roof tiles.



Figure 11: Replacing roof tiles along the hip.

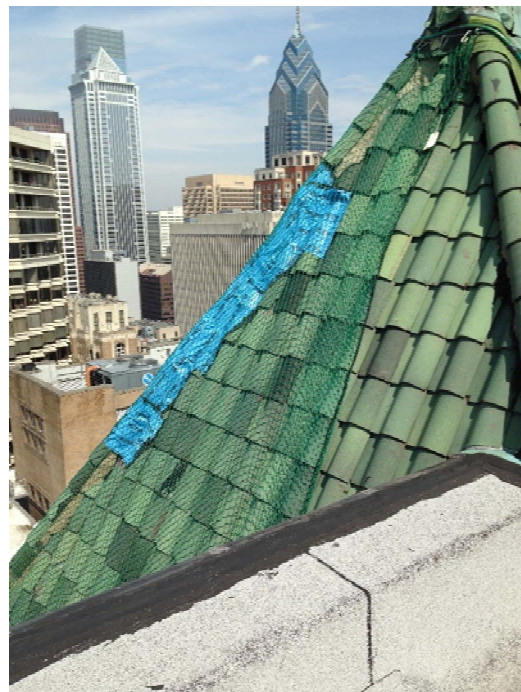


Figure 12: Temporary roof netting.



Figure 13: North elevation between Phase 1 & 2.

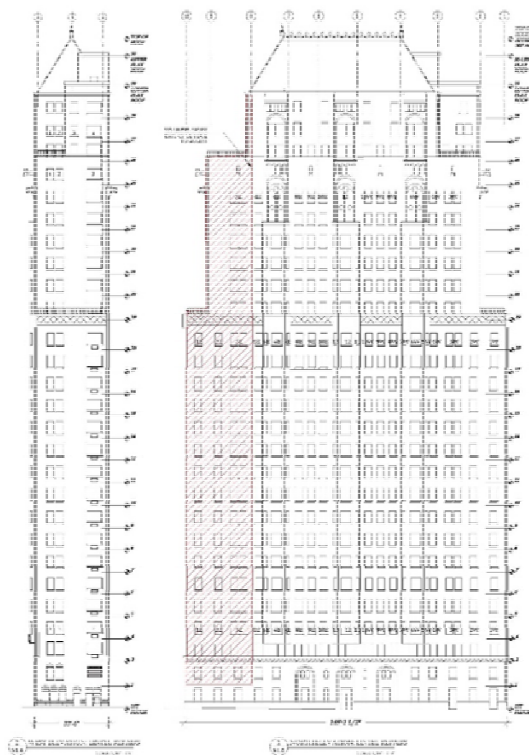


Figure 14: Drawing elevations to show the size and slenderness of the building.

By signing, signatory agrees to the following and represents that he or she is authorized to sign for the structural design firm of record.

All entries become the property of DVASE and will not be returned. By entering, the entrant grants a royalty-free license to DVASE to use any copyrighted material submitted.

If selected as an award winner, you may be offered the opportunity to present your project at a DVASE breakfast seminar. Would you be willing to present to your colleagues? ☒ **YES** ☐ **NO**

Submitted by:

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