

# ENTRY FORM



## DVASE 2021 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: | \$35M                                                                  |
| Name of Project:                                     | Free Library of Philadelphia Stacks Renovation                         |
| Location of Project:                                 | 1901 Vine Street<br>Philadelphia, PA 19103                             |
| Date construction was completed (M/Y):               | April 2019                                                             |
| Structural Design Firm:                              | <b>Thornton Tomasetti</b>                                              |
| Affiliation:                                         | <b>All entries must be submitted by DVASE member firms or members.</b> |
| Architect:                                           | Safdie Architects; Kelly Maiello Architects                            |
| General Contractor:                                  | LF Driscoll                                                            |

Company Logo (insert .jpg in box below)



### Important Notes:

- Please .pdf your completed entry form and email to [bsagusti@barrhorstman.com](mailto:bsagusti@barrhorstman.com).
- Please also email separately 2-3 of the best .jpg images of your project, for the slide presentation at the annual virtual presentation 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.

Originally opened in 1927, the Free Library of Philadelphia contained a six-story stacks structure that served as the primary storage system for the Library's books. Fast forward to the present and storage for over a million books was no longer an efficient use of the space in today's digital age. Seeking to add public space to the current program, the Library acquired off-site storage for the contents of the stacks in order to re-purpose the multi-story volume of space into 41,000 sq ft of new community spaces. The renovation included converting the six-story stacks into three stories of programming that also required reconfiguration of the main grand staircase and new elevator shafts. All while the existing facility remained operational and open to the public, requiring noise and construction vibration levels to be kept to a minimum.

### **Renovation Project Scope**

- Demolition of six-story steel stack structure comprised of a series of tightly spaced angle and WT members
- New three-story conventional steel framed structure to create 41,000 sq ft of new public programming
- Modifications of the main grand stair to add three new flights to connect the new levels to the existing staircase
- Renovation of an adjacent space for new Teen Library
- Re-purposing of an existing elevator shaft and addition of a new elevator

### **Project Highlights**

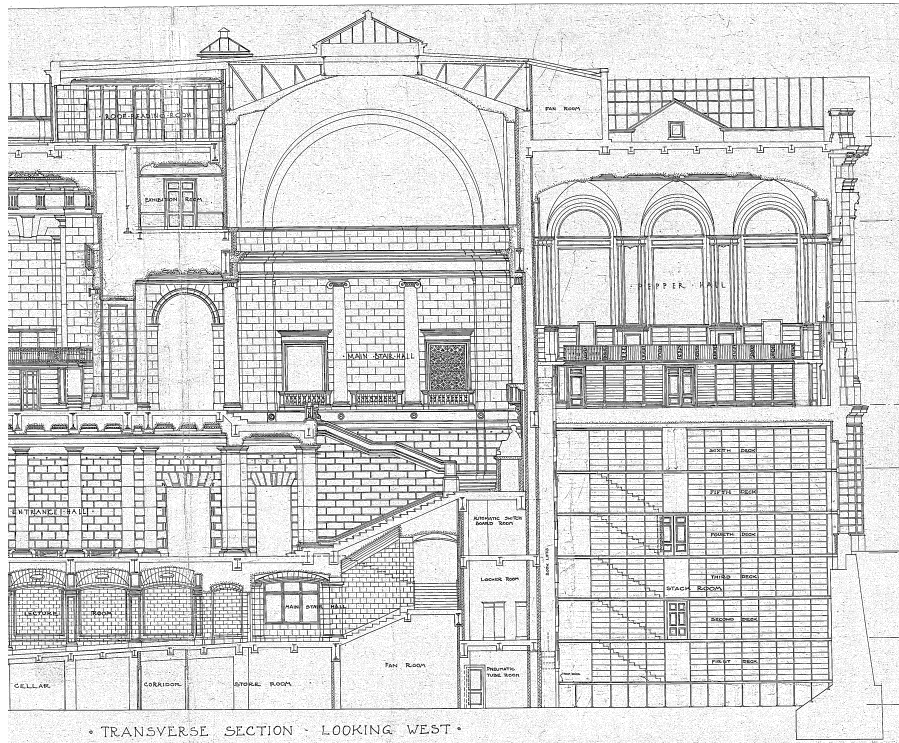
The project began with demolition of the existing stacks, but rather than immediately demolish the stacks, the structural frame was used as temporary support for installation of prefabricated soffits around the existing 30" deep plate girders that support iconic Pepper Hall and are spaced at 48" on center, spanning 55'-0". The soffits are part of the new trellis ceiling, that is a defining architectural feature of the new space and is carried down to other ceilings above the lower level public spaces. The ceilings required close coordination of beam locations with planned architectural trellis soffits and required shallow depth framing while still maintaining AISC vibration criteria for open public gathering space.

Close coordination between the design team and the GC became a constant theme of the project as demolition continued and uncovered the existing structure. The new steel framed structure ties into the existing structure on all four sides and also at the new additions to the main grand stair. Existing conditions were not visible until demolition began and although fortunate to have any, the 90-year old existing drawings were often inaccurate of the as-built conditions. Open lines of communication between design team and GC with daily calls and multiple site visits per week to resolve problems as they arose helped keep the project on track.

The modernization of an existing elevator shaft and construction of a new elevator shaft within the footprint of the new work presented challenges, both foreseen and unforeseen. Unforeseen challenges had to do with existing foundations encroaching into the new elevator pits. The existing foundations were analyzed to allow for selective local demolition of concrete to achieve required clearances and others were incorporated into the pit mat slab design. A foreseen challenge was the heading off of one of the existing 30" deep plate girders in order to achieve the required shaft overrun clearances without damaging the existing slab/floor above. The new permanent support of the slab was required to be achieved with a 3" structural framing depth across the 7'-4" length of the shaft to maintain the clearances.

Finally, because of the historic nature of the building, reuse of existing materials was a desire from the onset. This was achieved by re-purposing the existing marble from the stacks flooring to serve as the treads of the new grand stair connections and reusing portions of the stack structure for new shelving on the upper floor.

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



• TRANSVERSE SECTION • LOOKING WEST •  
Library Cross Section From Existing Architectural Drawings (existing stacks at right; main grand stair at center)



Renovation Rendering Showing New Public Space and Reconfiguration of Main Grand Stair COURTESY OF SAFDIE ARCHITECTS





*Upper Level*

HALKIN MASON PHOTOGRAPHY; COURTESY OF KELLY MAIELLO ARCHITECTS



*Upper Level*

HALKIN MASON PHOTOGRAPHY; COURTESY OF LF DRISCOLL





Lower Level Rendering

COURTESY OF SAFDIE ARCHITECTS



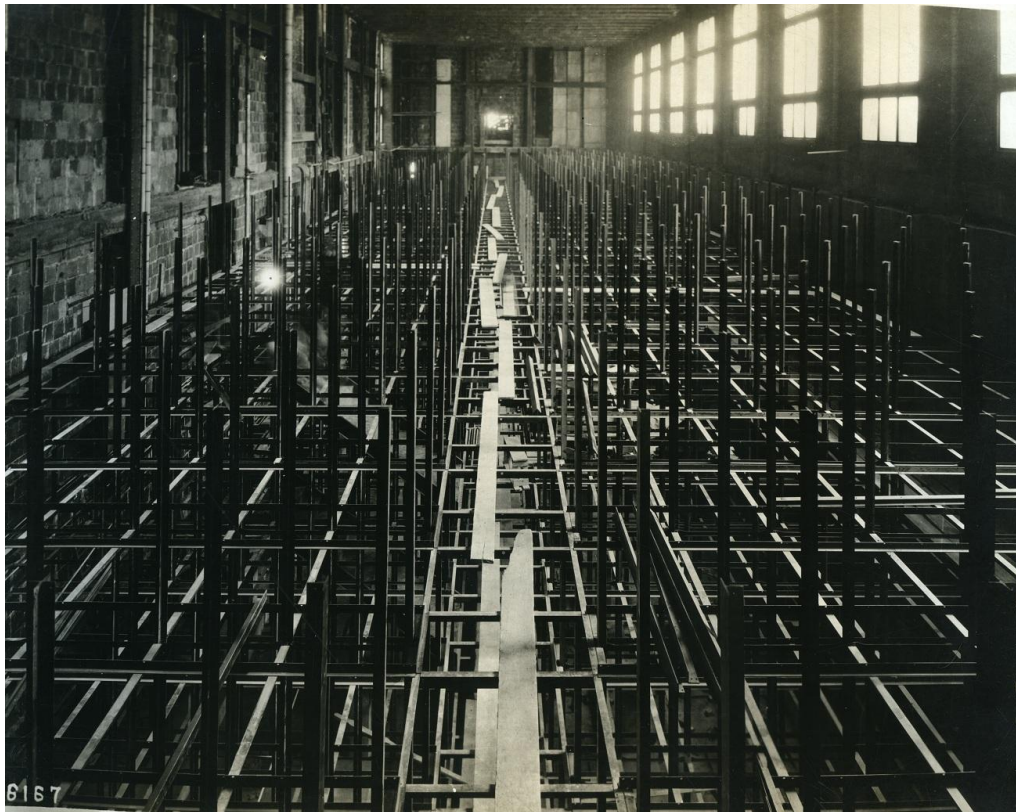
Lower Level



HALKIN MASON PHOTOGRAPHY; COURTESY OF KELLY MAIELLO ARCHITECTS



*Existing Stacks Construction - March 24, 1926*



*Existing Stacks Construction - April 15, 1926*





*Library Renovation Space Following Stacks Demolition*



*Lower Level Steel Framing Erection*



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:

|                                                    |                                                          |                                                                                                         |                        |
|----------------------------------------------------|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------|
| <b>Print name:</b><br>Jason Reither, P.E., LEED AP |                                                          | <b>Signature:</b><br> | <b>Date:</b><br>4/2/21 |
| <b>Submitting Firm:</b>                            | <b>Thornton Tomasetti</b>                                |                                                                                                         |                        |
| <b>Mailing address:</b>                            | 1700 Market Street, Suite 1750<br>Philadelphia, PA 19103 |                                                                                                         |                        |
| <b>Telephone:</b><br>267-238-4006                  | <b>Fax:</b><br>267-238-4001                              | <b>Email:</b><br>jreither@thorntontomasetti.com                                                         |                        |