ENTRY FORM

DVASE
2022 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	X
Buildings $40M - $100M		Single Family Home	

Approximate construction cost of facility submitted:	$2M FOR TEMPORARY STEEL STRUCTURE ABOVE SKYLIGHT
Name of Project:	NATIONAL GALLERY OF ART - GANTRY
Location of Project:	WASHINGTON, D.C.
Date construction was completed (M/Y):	MARCH 2021
Structural Design Firm:	PLAN B ENGINEERING
Affiliation:	**All entries must be submitted by DVASE member firms or members.**
Architect:	HARTMAN - COX ARCHITECTS
General Contractor:	GRUNLEY

Company Logo (insert .jpg in box below)

Important Notes:

- Please .pdf your completed entry form and email to 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.

The centerpiece of I.M. Pei's masterful East Building is the stunning main atrium skylight, which nests groupings 3D pyramid shaped glass panels together to cover the 16,000 sq-ft space. Restoration efforts focused on replacing the dozens of individual glass panels and restoring the tubular aluminum structural frame.

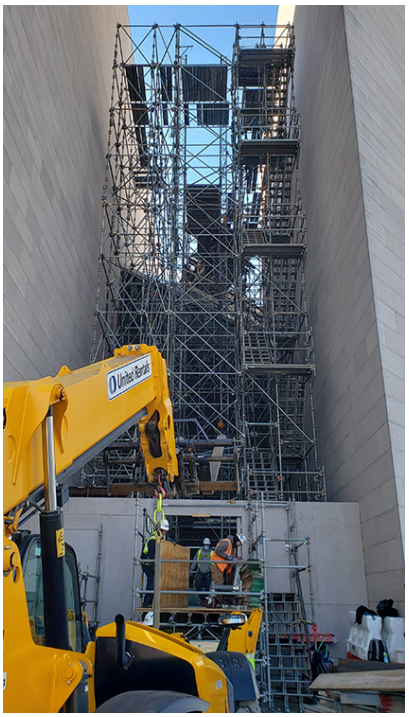
Plan B was asked to design a rail system to support a series of work platforms that could act as access and material staging for workers, transport debris and new material to/from the work area, and also support mini cranes needed to remove the large glass panels and reset restored ones.

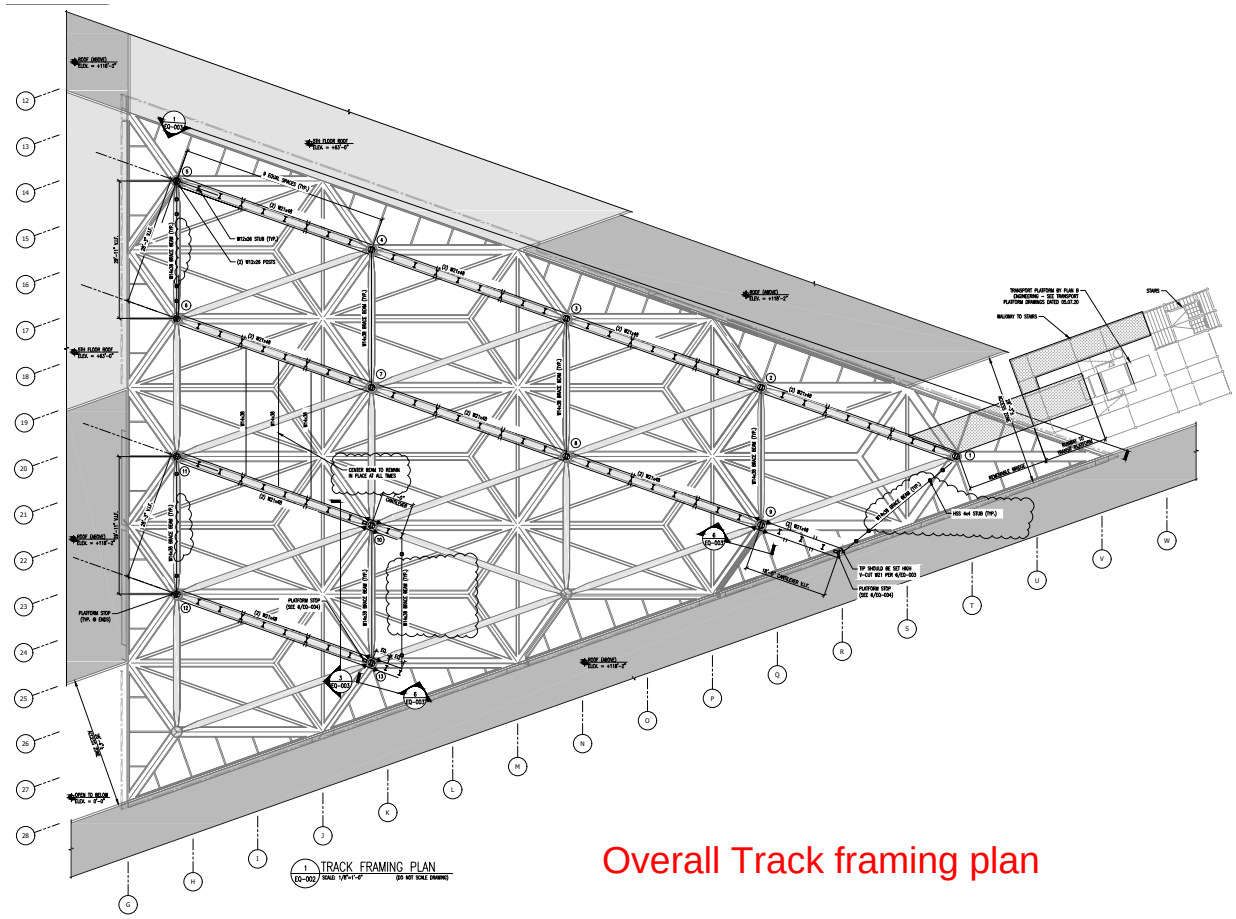
To do this, panB decided to land the rail system on a series of space frame "nodes" that were located at the apex of the pyramid shaped space frame modules. The rail beams "clamped" onto the nodes without the need for field welding or bolting. Working closely with the EOR to limit the weight of the system and with the contract to limit the complexity of on-site erection, light W21 sections were chosen as the primary rail members. One complication that arose was that the required bracing to the W21's blocked access to some skylight panels. Thus, a sequence was provided to swap braces in and out as the project moved along.

The design and layout of the moving platforms had to be coordinated with the contractor, glazing sub, and supplier of mini cranes. The pick radius was limited by the weight of crane permitted by the EOR to be supported by the space frame, so a sequence of platform positioning and a strategy of allowing the cranes to "daisy chain" themselves onto different platforms as work progressed. Ultimately, the system successfully eliminated the need for prolonged street closures for mobile cranes and provided much needed space for staging on the congested site.

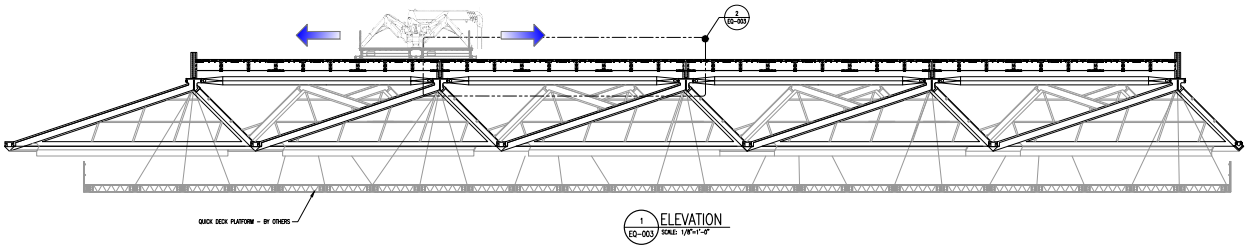
With limited access to the atrium, a material hoist was also needed for worker and material access. Located in a small courtyard adjacent to the atrium, a custom systems scaffold tower was designed to support a material hoist that had no ties to the building (lateral ties were not permitted because the facade recently underwent a high profile restoration). Using a steel dunnage mat and concrete counterweights, the scaffold "cage" was successful designed to fit in the odd geometry of the courtyard and have a "hole" in the middle for a transport platform. Ultimately, this transport platform delivered all new glass panels to the roof top and brought all debris to grade without the need for large ground base mobile cranes.

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


United Rentals

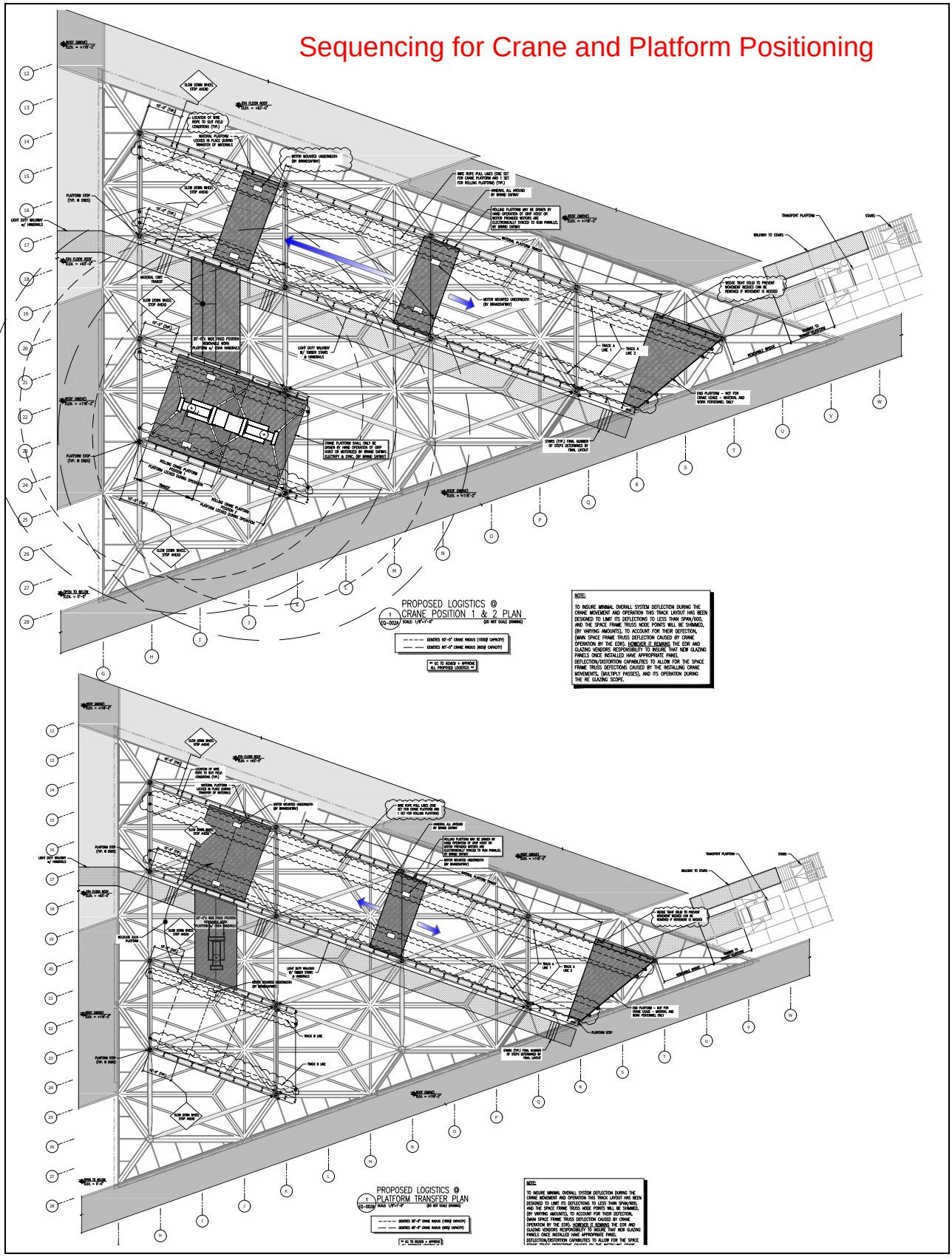


Overall Track framing plan

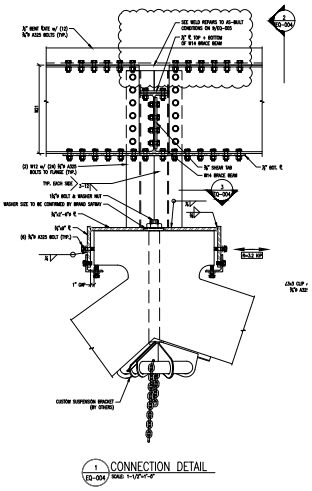


Overall Track Elevation

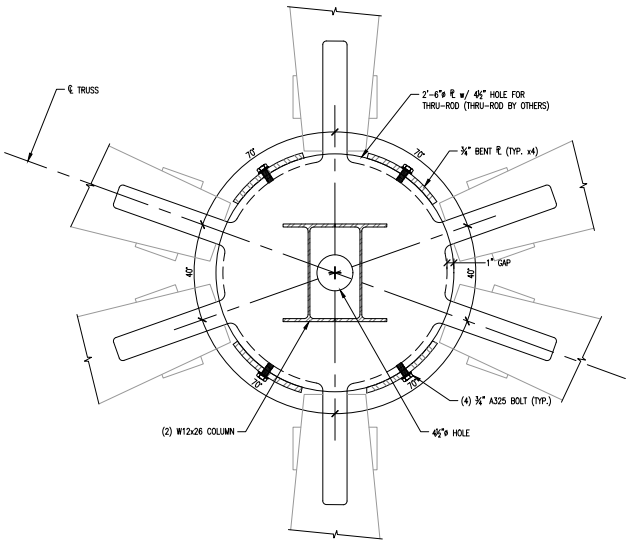
Sequencing for Crane and Platform Positioning



Rail beam attachment to Space frame Nodes

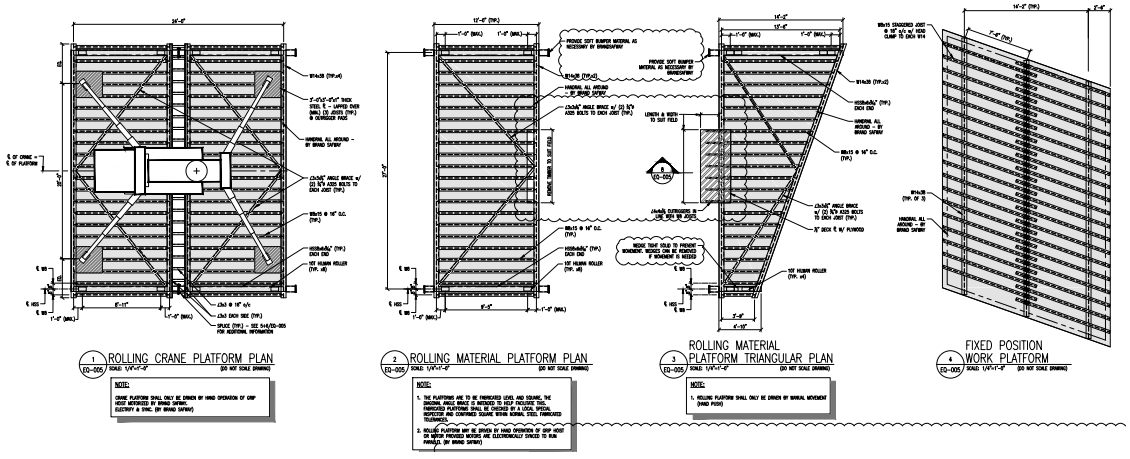


1 CONNECTION DETAIL
EQ-004 SCALE: 1-1/2"=1'-0"



3 CONNECTION DETAIL
EQ-004 SCALE: 1-1/2"=1'-0"

Unique Platform designs, dictated by function and location on space frame (thus the odd geometries)



1 ROLLING CRANE PLATFORM PLAN
EQ-005 SCALE: 1/4"=1'-0" (DO NOT SCALE DRAWING)

2 ROLLING MATERIAL PLATFORM PLAN
EQ-005 SCALE: 1/4"=1'-0" (DO NOT SCALE DRAWING)

3 ROLLING MATERIAL PLATFORM TRIANGULAR PLAN
EQ-005 SCALE: 1/4"=1'-0" (DO NOT SCALE DRAWING)

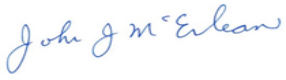
4 FIXED POSITION WORK PLATFORM
EQ-005 SCALE: 1/4"=1'-0" (DO NOT SCALE DRAWING)

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:

Print name: John McErlean	**Signature:** 	**Date:** 4/9/22
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