

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	X	Other Structures Over \$1M	
Buildings \$40M - \$100M		Single Family Home	

Approximate construction cost of facility submitted:	\$30 million
Name of Project:	Lynnewood Elementary
Location of Project:	Havertown, PA
Date construction was completed (M/Y):	
Structural Design Firm:	Mainstay Engineering Group, Inc.
Affiliation:	All entries must be submitted by DVASE member firms or members.
Architect:	KCBA Architects
General Contractor:	C. Erickson & Sons, Inc.; Owner's Rep: CB Development Services, Inc.

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 Haverford Township School district needed to replace an aging and undersized school building with a new, state-of-the-art elementary school. The existing school building would remain in place and occupied while the new building was constructed, approximately 30ft away. After the new building was complete and occupied, the existing facility would be demolished.

The new building resembles a “V” with the longer northern leg a three-story classroom wing and the shorter southern leg containing gym and cafeteria spaces along with two story office and support spaces with four separate and distinct roof elevation levels.

The topography and position on the site required the south side of the building to be cut a full story into the side of the hill. A 12ft tall cast in place cantilever retaining wall was incorporated into this side of the building and extending over 60ft along the east side of the building to create access to the first-floor support spaces.

The classroom wing is comprised of composite steel framed floors and metal deck roof supported on open-web steel bar joists. In order to maximize space above ceilings for utilities while minimizing the building’s height, floor beams were limited to W14s and girders to W18s. To provide maximum flexibility in the current and future classroom layouts, steel moment frames were chosen to comprise the lateral force resisting system.

In order to conceal the rooftop mechanical units, a 10ft tall cantilevered screen wall is located over a large section of the classroom wing. The screen wall was designed and documented to conceal the North, East and West sides of the units. The design of the steel framing included provisions to allow the wall to be constructed along on the south side as an alternate to fully conceal the units if needed.

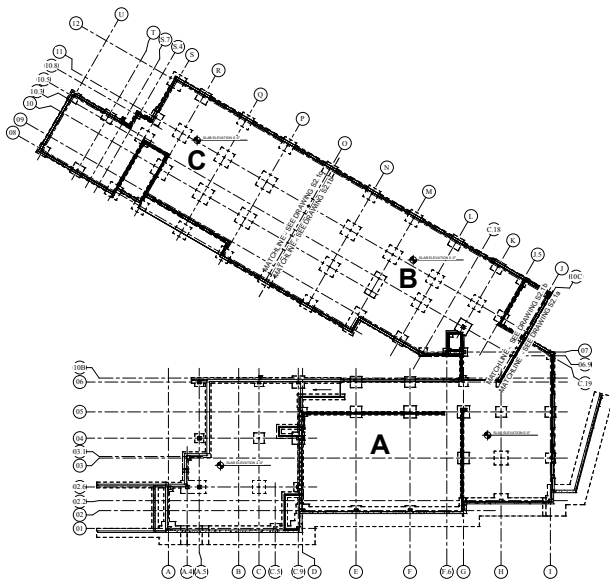
Similar to the classroom wing, the office and support area is comprised of a composite steel framed floor and open-web steel bar joist roof. With less ceiling space restrictions in this area, floor beams and girders were able to grow a bit to more economical W16s and W21s respectively.

The gym and cafeteria area roofs are framed with open-web steel bar joists similar to the rest of the roofs. The main design challenge of this single-story area is that it is comprised of four different roof elevations. Exterior walls at the high-low roof conditions were comprised of brick on steel stud backup which further complicates framing as brick support with its strict deflection limitations was necessary. A side effect of the varied roof elevations was the need for 42 joist loading diagrams to ensure that the open web bar joists were correctly design for the loading conditions that were created.

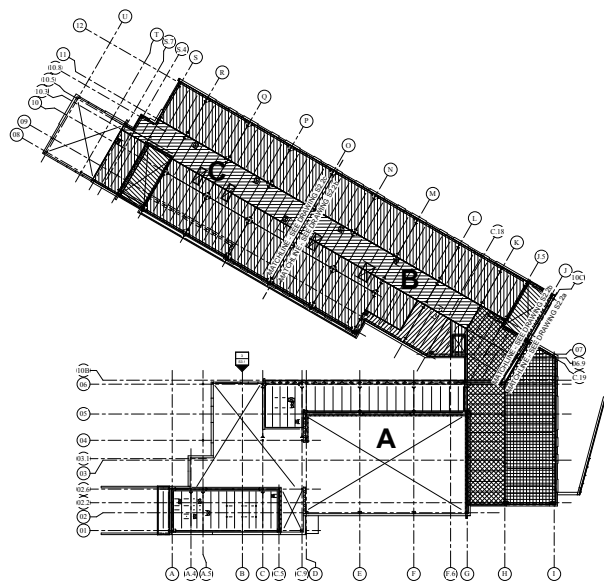
In keeping with the idea of maximum flexibility, but also out of necessity, moment frames were again chosen to provide lateral load resistance. In total there was one elevated floor and five different roof levels that required lateral support in the non-classroom wing of the school. Moment frames were the ideal system as they are unobtrusive in the spaces and provide the lateral stability needed for 4 different roof elevations with irregular diaphragm shapes.

The use of BIM technology was critical to our ability to understand and properly design and coordinate the architect’s vision for this school. There was quite a bit of variation in the location and type of exterior cladding where the ability cut whatever sections, elevations and 3D views that were necessary to understand the condition was critical to our success on the project.

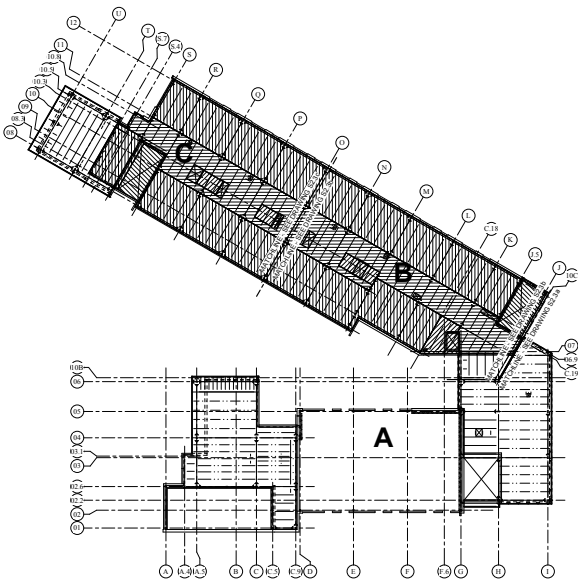
- The following 5 pages (maximum) can be used to portray your project to the awards committee through photos, renderings, sketches, plans, etc...



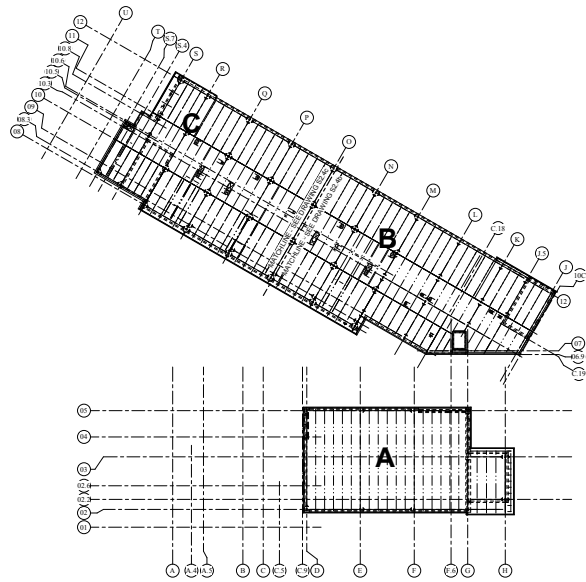
OVERALL PLAN
FOUNDATIONS



OVERALL PLAN
2ND FLOOR / LOW ROOF FRAMING



OVERALL PLAN
3RD FLOOR / LOW ROOF FRAMING



OVERALL PLAN
ROOF FRAMING



Rendering Courtesy of KCBA Architects

RENDERING - MAIN ENTRANCE



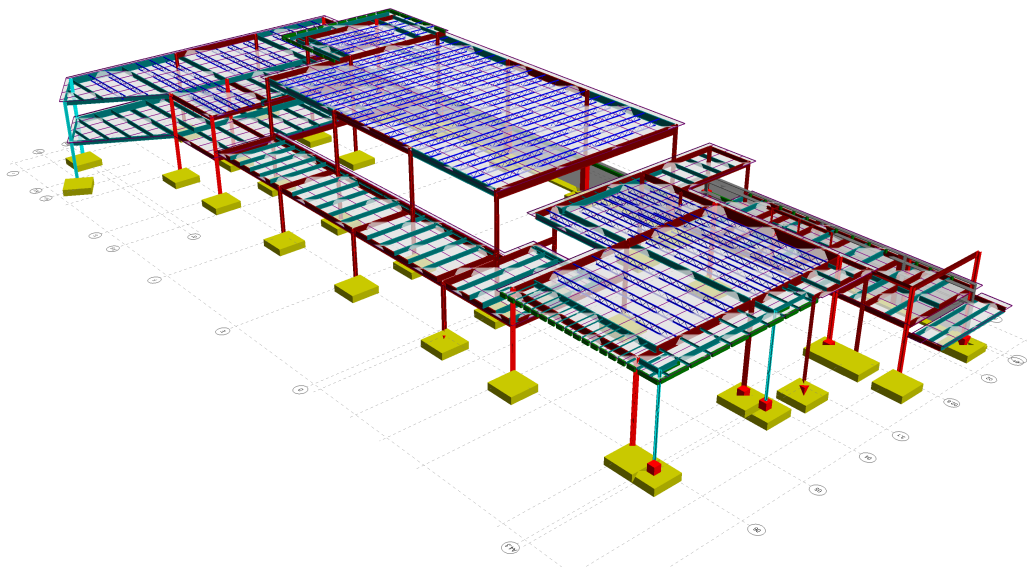
Rendering Courtesy of KCBA Architects

RENDERING - CLASSROOM WING

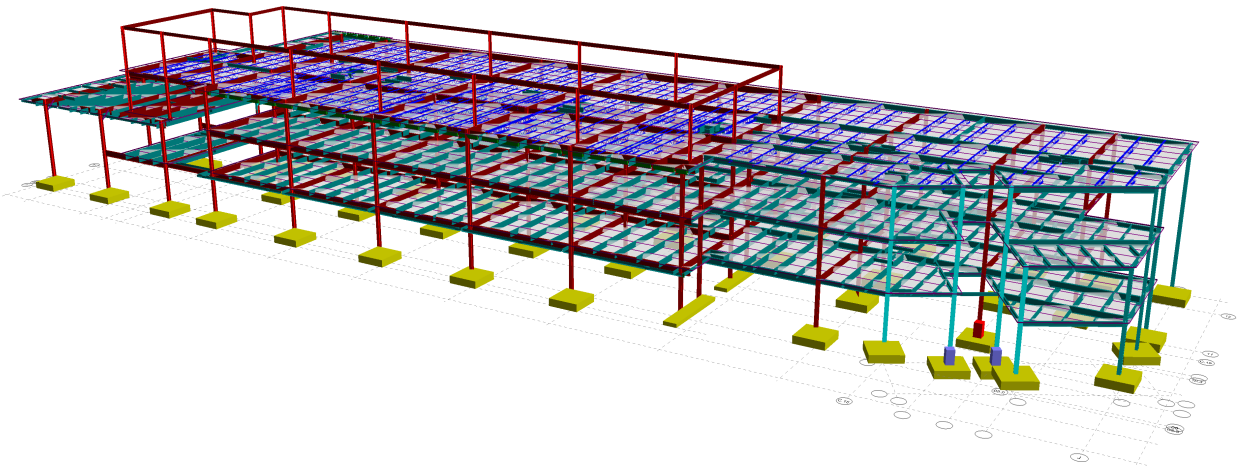


Rendering Courtesy of KCBA Architects

RENDERING - MULTIPURPOSE ROOM



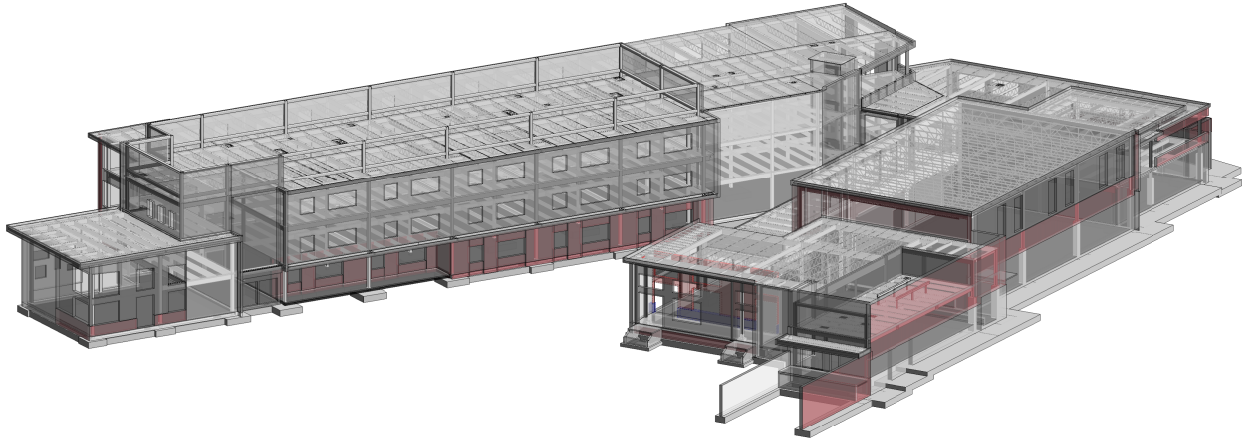
ISOMETRIC VIEW - ANALYSIS MODEL - MULTIPURPOSE - CAFETERIA WING



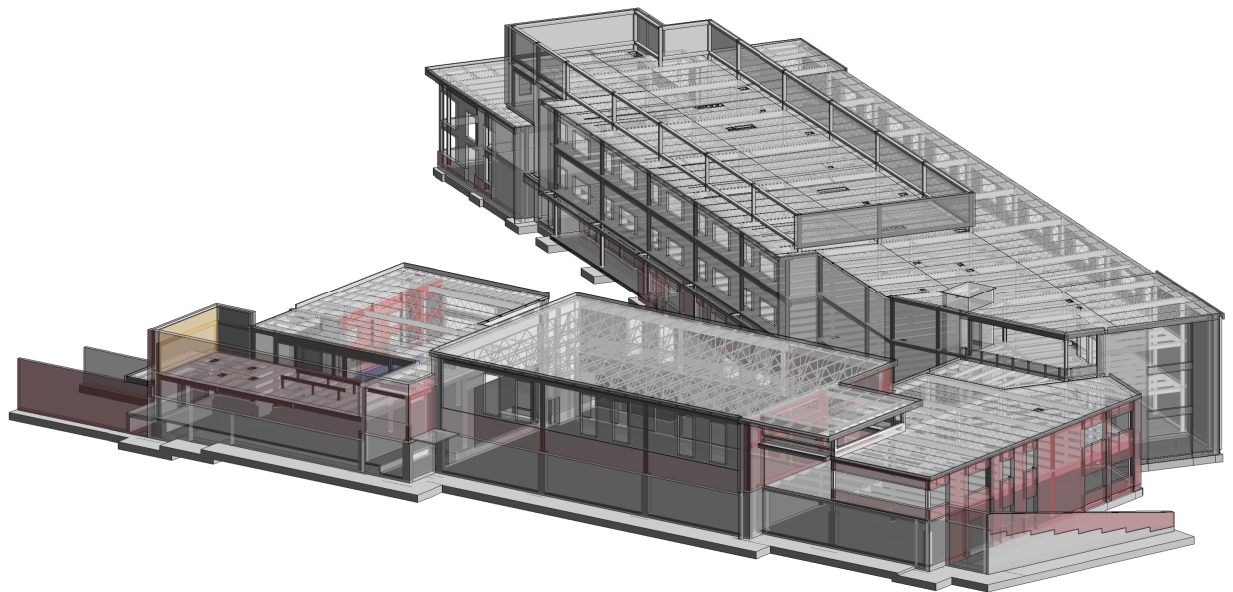
ISOMETRIC VIEW - ANALYSIS MODEL - CLASSROOM WING



ISOMETRIC VIEW - REVIT MODEL - CLASSROOM WING



ISOMETRIC VIEW - REVIT MODEL - SOUTHWEST VIEW



ISOMETRIC VIEW - REVIT MODEL - SOUTHEAST VIEW

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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