

- **Owner:**  
Sugar Valley Rural Charter School
- **Services:**
  - Site Feasibility Study
  - Site Design
  - Structural Feasibility Study
  - Structural Design
  - Land Development Submission
  - Construction Administration
- **Size:**  
20,000 SF
- **Year Completed:**  
2021

*Watch a brief video on the groundbreaking ceremony:  
<https://youtu.be/tBzJ9jk-BKg>*



**Engineering Design for New Gymnasium**  
*Renderings Courtesy of Hoffman-Leakey Architects*

# Charter School New Gymnasium



## Sugar Valley Rural Charter School, Loganton, PA

Stahl Sheaffer provided site and structural engineering and construction administration services on an architect-led design team for the addition of a new multipurpose building to the K-12 campus of the Sugar Valley Rural Charter School (SVRCS). The project includes a stand-alone gymnasium building with integrated stage, offices, and locker rooms with a total approximate area of 20,000 SF.

Stahl Sheaffer conducted a site feasibility study for the new gymnasium in conjunction with the development of a Campus Master Plan. The existing school campus had been previously developed over a series of projects, but a master plan had not been completed to properly site future buildings and development while planning for the current gymnasium project. Working closely with school representatives and the project architect, the site was studied to determine how future programming goals can be achieved while accommodating vehicular and pedestrian circulation, zoning requirements, utility access and limitations, and existing site layout and topography. Special considerations, such as a future outdoor agricultural learning space and administration building, were incorporated into the plan while still providing a functional and desirable short term layout. A final master plan was established and used for the basis of design during the gymnasium project, allowing a smooth transition into final design and construction documents. Stahl Sheaffer completed the layout and grading, parking lot design and layout, stormwater management, Erosion and Sedimentation Control Plan, PennDOT Highway Occupancy permit, NPDES permit, site landscaping, and site lighting to comply with ordinance requirements and submission of the land development package. Construction administration was included, providing oversight of the site work and amenities through project closeout.

After completing a structural feasibility study comparing various construction material options for cost, schedule impacts, and constructability, insulated metal panel was selected for both exterior wall and roof construction attached to a steel framed structure, inspired by the surrounding agricultural architecture. Shallow concrete spread footings were used to support the superstructure. Custom scissor trusses were designed to clearspan the gymnasium and to support equipment and stage lighting. An elevated concrete slab supported by steel beams was used at the stage to create space for chair storage underneath. A similar elevated concrete slab supported by steel beams was used to create a mechanical mezzanine over the auxiliary gymnasium, which allowed for minimal exterior equipment around the building. Equipment for the industrial kitchen at the concession counter was hung from the roof purlins above the ceiling. The glass-front at the lobby was stick-framed with steel beams to create an exposed vaulted ceiling. The multi-faceted roof created challenges in distributing and resisting the required wind and seismic loading. Stahl Sheaffer provided construction administration for the structural work, including shop drawing review and site visits.