



CASE STUDY

BENJAMIN FRANKLIN CLASSICAL CHARTER PUBLIC SCHOOL





Located in the town of Franklin, Massachusetts the Benjamin Franklin Classical Charter Public School is a free, high-achieving, kindergarten to eighth grade, public charter school. The school values strong partnership with families, the pursuit of a classical body of knowledge, and responsibility for self and the community. In order to reduce its waiting list and potentially double its enrollment within 10 years, the school that opened in 1995 and is one of the original 13 charter schools in Massachusetts that has never had a building of its own, chose a Nucor Building Systems pre-engineered metal building for their new facility.

The project consists of a 3-building complex designed in a U-shape, including two classroom wings and a center connecting section housing the cafeteria and auditorium with general offices located in the front of the building. Construction entailed the use of metal stud framed walls, with a combination of wood and metal siding. In the classroom wings, two full mezzanines were incorporated, and a half mezzanine was integrated in the connector building. In addition, Nucor suspended mezzanines were used in the attic hung from the roof steel, which were utilized in order to support and house HVAC units. This allowed for all the mechanical units to be supported internally, offering pleasing aesthetics for the steep roof.

The structure, inspired by the local landscapes and traditional forms with modern interpretation, features unique aspects including acoustical cloud ceilings and the use of natural light.



Large punched windows and opaque walls permit the educational and social spaces to be flooded with natural light. Metal was exposed in some locations in the building as a design element.

“The design intent for the school was to provide a modern interpretation of a traditional form within the town’s built landscape,” said Daniel Snider, architect at Arrowstreet Architectural & Design. “The simple, gabled masses of the school’s design respond to a style of architecture that has been around for centuries. The white metal cladding provides clean, modern skin while the wood accents on the gable ends mirror the wooded environment that surrounds the site.”

Several types of metal cladding were used on the exterior of the building, including corrugated sheet steel and aluminum composite metal panels on the walls and standing seam roof panels. In addition to Nucor’s framing and mezzanines, Nucor’s Loc Seam roof system and Nucor’s A-Panel wall system was employed. Also used on the walls were vertical cedar wood siding as an accent.



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In the cafeteria space, the exposed steel structure can be seen in the ceiling behind preformed art shapes — acoustical cloud ceilings. “The design of the ceiling clouds arose from form and function,” explained Snider. “The clouds create the illusion of a continuous ceiling surface, but are broken at each main structural frame to highlight the overall building form.”

The panels used for the ceiling clouds are microperforated and filled with insulation, as well as designed in a chevron-style orientation, to increase noise reduction in a densely populated area. Their wood grain finish distributes warm light throughout the otherwise monotone space in the cafeteria and reflect the natural wood tones of the cladding on a terraced learning stair (stepped bleacher seating).

Utilizing a pre-engineered metal structure for a school, initially planned as a conventional structure, was the ideal solution as metal building systems are more cost effective than conventional construction. “Designing this school, we did things slightly less custom to be able to deliver this school on a more cost-

effective budget,” said Snider. “Saving money for the Ben Franklin Classical Charter Public School meant owning their own building versus renting, as well as having more space and special programming such as a science or art curriculum.”

Few challenges were found during the building process with Steeltech Building Products. “One of the challenges our team worked through with this facility was constructing a steep roof design — a 6/12 pitch and using a long tab insulation system between significant rainstorms in the area,” explained Tom Zabel, manager of sales at Steeltech Building Products, Inc., a Nucor Authorized Builder.

For Nucor, overcoming challenges and therefore continuously building relationships with Builders is paramount to the success of the project. “Nucor is a great company to work with — we love Nucor,” said Zabel. “We describe Nucor as the Marines of pre-engineered buildings. Our district sales manager and the entire support team are very astute in coming up with unique solutions to solve design solutions.”



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