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Using Technology to Teach Technology

Design-Build and New Jersey's High Tech High School

BY KIM WRIGHT



When the New Jersey legislature expanded the use of design-build in 2015, Hudson County school leaders wasted no time in beginning work on what could prove to be one of the nation's most innovative high schools. The Hudson County School of Technology's High Tech High School broke ground just a year later, in June of 2016, and is slated to open its doors in September 2018. The 340,000 sf project will serve 1,200 to 1,500 students and is budgeted at \$160 million. However, those numbers don't even begin to tell the whole story about what makes the High Tech High School project so unique. This is a story of how innovation and collaboration are being leveraged to ensure that technology not only provides building efficiencies, but also plays an integral role in the day-to-day learning experience for students.



SNAPSHOT

High Tech High School

Secaucus, New Jersey

OWNER

► Hudson County Improvement Authority

CONTRACTOR

► Terminal Construction Corporation

DESIGNER

► DMR Architects

BRIDGING ARCHITECT

► RSC Architects

CONSTRUCTION MANAGER

► MAST Construction

High Tech High School is one of three vocational-technical schools in the selective Hudson County Schools of Technology cluster. Students study in one of four major academies on campus: Architecture & Design, Performing Arts, Science Lab Technologies, or Technology & Visual Arts. Joseph Sirangelo, EdD, Hudson County Schools of Technology assistant superintendent, says it's absolutely critical the school's design fully utilizes the latest technology. "We believe in anytime, anywhere learning. The entire school campus has enhanced Wi-Fi for student, staff and visitor use. The technology in every classroom space includes smart boards, voice enhancement and charging stations," Dr. Sirangelo explained. Technology plays a dual role on this project, according to the owner's construction manager, Mast Construction. "The High Tech High School is being constructed as a teaching and demonstration venue. Geo-thermal wells, cogeneration and traditional absorption chillers are all used as the physical plant and for demonstration," said Mast owner Ted Domuracki. "LEED Gold sustainable design and construction elements are also a core objective with the additional goal

of obtaining platinum certification." DMR Architects' President, Lloyd Rosenberg, predicts High Tech High School will be one of the most advanced high schools in the country: "It is a very high-tech building in terms of the facilities as well as the construction. We are using solar panels on the roof and geothermal in the building. We have green roofs, a wind-generating turbine on site and just about every conceivable environmental or sustainable element that could be used is being used on this project."

While building a high-tech, eco-friendly campus made sense environmentally and financially, there were also mission-driven reasons behind those choices for the design-build team. "The advanced eco-friendly sustainable features were designed for several important reasons. First, it made economic sense on a cost-benefit basis that energy efficiency is built in," said Dr. Sirangelo. "Second, we needed to honor the existing park surroundings and be good environmental stewards. Finally, we want the building to provoke inquiry and understanding among those who teach and learn there. Everything will be labeled so that when we are conserving



FAR LEFT: A hydroponics lab allows students to grow produce to be used by the culinary arts program.

LEFT: A state-of-the art theatre space provides performing arts students a first-class venue.

energy and using water efficiently we can help students understand the local, regional and global interconnections of the ecosystems.” As Rosenberg explained, the school buildings themselves provide teaching opportunities: “For example, we have a hydroponics lab where students can grow plants and their own food for their spectacular culinary arts program. So, they can use the food they grow to cook in the kitchen right in the building. We’re going to conserve water to support that, either on a green roof or holding tanks, to then water the plants and the grounds. These are all teaching elements.”

Many in New Jersey are watching the High Tech High School project as a bellwether for future design-build public projects in the state. Mast Construction’s Domuracki said this project opens the way for others: “It is possible and highly likely that municipalities with improvement authorities would implement the design-build project approach on specific projects that fit a profile for all the advantages we know a design-build approach offers.”

The High Tech High School design-build team believes this complicated and expedited project would not have



High Tech High School’s project team says design-build was critical to this project’s success.

been successful using the traditional design-bid-build delivery process. The collaboration inherent in design-build has, so far, allowed the project to stay on track to meet next year’s expedited delivery date. “Now, 35% into the project’s construction, I totally understand the advantages of the design-build methodology,” Dr. Sirangelo elaborated. “The team collaboration process – we meet every two weeks at the site – has led to many great options and clearer choices. I find there is an environment of mutual trust and respect.”