



THE BENEFITS OF USING MODULAR
BUILDINGS FOR CLASSROOM SPACE

Abstract

Wilmot Modular Structures provided design-build services for Hearst Elementary School in the District of Columbia Public Schools district. The original plan for the classroom expansion project was to provide a one-story building that would allow a second story to be added at a later date. Through team collaboration and value engineering we are able to design the structure to meet all program requirements on a single floor. Site, budget, and schedule constraints were all addressed, and the facility was planned to fit in with other campus buildings with limited site disturbance.

The project met district energy efficiency requirements by using a cool roof and low-E tinted windows. Interior technology was fully integrated with campus-wide systems, allowing for a seamless learning experience for students and staff.

Wilmot was able to save the school district almost \$600,000 over their original design and shorten the construction schedule by 18 months.

Introduction

The Hearst Elementary School is a public school located in Washington, DC. It is focused on providing a rigorous curriculum integrated with exposure to the arts and prides itself on reaching a diverse audience of students. Wilmot Modular was hired to consult and provide what was originally a two-story classroom expansion project. The school district wanted the building to match nearby buildings on the campus, and fit in a steeply graded, small site. There were also budget constraints that had to be managed.



Wilmot worked with the District's design team to design and furnish a one-story modular building that met all the District's needs. The building was completed as a design-build project to save both time and money - reducing approximately 18 months from the original two-story project schedule. The building includes six 32-person classrooms and restroom facilities. Due to the siting and construction of the building, the requirement for fire sprinklers was waived, saving the District about \$100,000. Sprinklers may be required in new structures for a variety of reasons. Because of the new building's proximity to existing structures, a 1HR fire-rated assembly was needed on the left and right elevations and a main corridor. A historic building was within close proximity to the new structure that could not be moved or modified. It's consideration was taken into account and instrumental to meet code requirements



Through collaboration with the Civil Engineer, architect, and design professionals Wilmot was able to site and orient the building to fit within critical setbacks distances. The square footages of both buildings, occupancy, and uses were taken into account for the structures to be considered as one. As a result, Wilmot did not have to install fire suppression sprinkler system.



The modular structure is designed specifically to fit in with the rest of the campus, both in architectural style and technologically. Exterior color and material selections aesthetically blend with surrounding buildings and interior tech ensures that the classrooms remain connected to the school's infrastructure.

Architecture and Design

Due to site size constraints and the topography of the land, Wilmot revised the District's plan for a two-story building to a one-story modular building, saving the District approximately \$400,000 and about 18 months of construction time. A two-story building would have required too much disturbance to the school's operations, as well as cost significantly more. The resulting modular building was designed to match nearby buildings and fit in with the overall campus. To address the extreme slope of the site (about 12 feet of elevation change sloping down from front to back), the foundations utilized poured concrete footings and formed piers with steel reinforcement to minimize site disturbance. A traditional foundation would have cost the District significantly more in concrete and excavation costs.

The exterior design included Hardipanel siding, recessed entries, and seamless gutters and downspouts to give the building a permanent look. In addition, metal canopies and ADA ramps were included at both entry points, with a central corridor for efficient access to classrooms and facilities.



The interior finishes included site-installed Corlon flooring, vinyl gypsum wallboard, and acoustical T-grid ceilings with LED lighting. Security cameras and card readers were installed for added security, and integrated with the school's existing systems.



The central egress corridor and availability of egress windows throughout the building were key to this savings.

Technical Innovation

The Hearst Elementary classroom building was designed with an exterior envelope that was energy efficient to meet both code and District requirements. Measures included a reflective white membrane roof and low-E tinted windows to help prevent solar heat gain and prevent glare.



The design included state-of-the-art technology, including digital communication, IT, and security/access controls. The building systems were integrated with the main school building and adjacent classrooms, including smart boards, ensuring that teachers had access to the necessary resources and technology for modern learning. The design included high-quality HEPA filtration in the restrooms, in addition to touchless sanitary items as per COVID-19/school guidelines.

The lighting system is made up of high-efficiency LED fixtures with adjustable controls, conserving energy and providing natural lighting when possible.



Estimated Savings

- ▶ Site and stormwater management improvements that weren't required due to building siting - \$80,000
- ▶ Fire rated exterior walls, removing the need for a fire sprinkler system - \$100,000
- ▶ Value engineering two-story plan to one-story - \$400,000 + 18 months from schedule

Conclusion

Wilmot Modular provided Hearst Elementary School with a classroom expansion project on a tight site with a compressed schedule and limited budget. To save time and money the project was changed from two-story to one-story with minimal site disturbance. The building was given a permanent look without the loss of versatility and speed from a modular design. In addition, the design met both program and energy efficiency goals, including State Building and Energy Efficiency requirements and local jurisdiction COM checks.

Modular or prefabricated buildings can help reduce construction costs and project completion time when compared to expanding a school using traditional construction methods. Existing modular classrooms can be relocated or expanded upon or built new to accommodate the growth of your school district, ensuring that you have the space you need for your enrolling students. When school systems are growing faster than they can accommodate new students in existing facilities, temporary or permanent modular solutions can help support the influx of students and faculty.

Why are modular buildings quicker? Concurrent Construction. While the site development and foundations are being completed the modular building is being built at the factory in a controlled environment. This can save approximately 50% in schedule completion dates for owners.

From a single classroom to a multi-classroom facility, Wilmot can design and deliver the right custom modular space to meet your operational requirements. Some examples include classrooms, libraries, science labs, administrative offices, health suites, press boxes, locker rooms, and more.

Watch the full story
<https://youtu.be/JntQKpM5mO4>

**Contact us for more information or if you'd like to
request a quote**

5812 Allender Road, White Marsh, MD 21162

1-800-966-8883

sales@wilmotmodular.com