AGC OF CONNECTICUT (AGCCT)
2018 BUILD CONNECTICUT AWARDS PROGRAM

ENFIELD CONSOLIDATED HIGH SCHOOL

ENFIELD, CONNECTICUT

December 15, 2017

Gilbane

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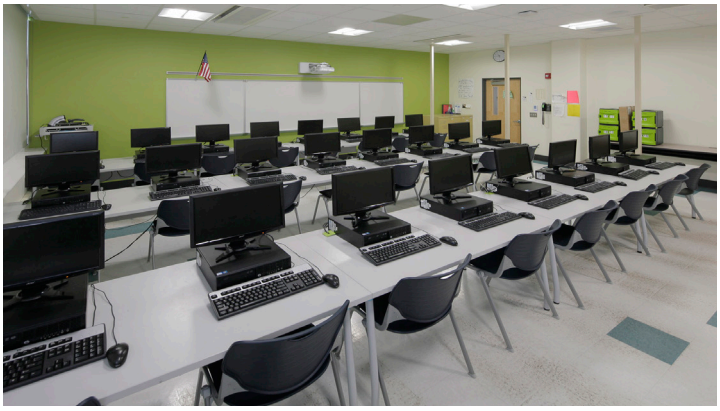


APPLICATION FORM

APPLICATION – 2018 Build CT Awards

Project Name Enfield Consolidated High School

Address 1264 Enfield Street

City Enfield **State** CT **Zip** 06082

Date of Completion January 2017

Project Type (check one):	_____	**CM/GC New Large Construction (>$30 m.)**
	_____	**CM/GC New Mid-Size Construction ($10 m. to $30 m.)**
	_____	**CM/GC New Small Construction (<$10 m.)**
	X	**CM/GC Large Renovation (>$30 m.)**
	_____	**CM/GC Mid-Size Renovation ($10 m. to $30 m.)**
	_____	**CM/GC Small Renovation (<$10 m.)**
	_____	**Specialty Contracting: Electrical**
	_____	**Specialty Contracting: Mechanical**
	_____	**Specialty Contracting: Concrete**
	_____	**Specialty Contracting: Interiors (Drywall, ceilings, flooring, wall coverings)**
	_____	**Specialty Contracting: Exteriors (Exterior walls, roofing, building envelopes)**
	_____	**Specialty Contracting: Sitework/Landscape**
	_____	**Other Specialty Construction (Other construction not included in above categories)**

Applicant

Firm name Gilbane Building Company

Contact name Jodi Brennan

Phone 860-368-5110 **Email** jbrennan@gilbaneco.com

Please List Project Participants (owner, designer, subcontractors, major suppliers etc.) Use additional pages if needed

Owner

Firm name Town of Enfield

Address 820 Enfield Street

City Enfield **State** CT **Zip** 06082

Contact name Randy Daigle, Building Committee

Phone 860-657-9947 **Email** rdaigle@enfield.org

Designer/Architect

Firm name Silver/Petrucelli + Associates, Inc.

Address 3190 Whitney Ave.

City Hamden **State** CT **Zip** 06518

Contact name Dean A Petrucelli, AIA

Phone 203-230-9007 x207 **Email** dpetrucelli@silverpetrucelli.com

Other

Firm name _____

Address _____

City _____ **State** _____ **Zip** _____

Contact name _____

Phone _____ **Email** _____

This completed form is the cover sheet of your application package. Application packages must be received no later than 5:00 p.m., Friday, December 15, 2017. **Return to: AGC/CT, 912 Silas Deane Hwy, Suite 112, Wethersfield, CT 06109 or to jwilhelm@ctconstruction.org (Up to 5 mg file).**

JUDGING CRITERIA

A. STATE-OF-THE-ART ADVANCEMENT

State-of-the-art advancements and features are found throughout the renovation and addition to Enfield High School. The existing building was significantly modified to accommodate the increased student population due to the consolidation of the existing Enfield High School and Enrico Fermi High School. The new consolidated school, which can hold 1,500 students, features:

- 113 classrooms
- a school store
- a career center
- conference rooms
- weight training spaces
- an outdoor patio
- a cafeteria
- the Fermi Wing, a new, four-story 120,00 SF addition houses the science, technology, engineering, arts and math (STEAM) classrooms including 16 science labs
- a music wing and an auditorium
- computer labs
- wireless projectors in the classrooms
- full-service kitchen for culinary arts students
- wood shop and six-bay automotive work shop

In addition to fresh paint, new floors and windows, the entire building now has air conditioning, new lighting and HVAC systems that are code-compliant and energy-efficient.

B. EXCELLENCE IN PROJECT MANAGEMENT

Budget Leadership

Gilbane was engaged during the SD level of the design as the project budget was developed by the Town and A/E during the referendum / programming phase of the project. Early on, Gilbane developed a budget check estimate to ensure that the SD level design was affordable. This quickly revealed that certain aspects of the design had to be modified and reprogrammed to move forward. Gilbane worked closely with the Design Team and Owner in developing various schemes and design options to maximize State reimbursement rates, as well as to ensure the design aligned with the budget as set by the Town and State of Connecticut

Gilbane's estimating group maintained trend reports during each phase of the design. The team utilized our key lessons learned data base and reviewed historic pricing and project bid data base for the purposes of validating and confirming the project budget. Gilbane also leveraged relationships with subcontractors that provided real time pricing and design feedback.

Adding Value During the Design Phase

During the design phase, Gilbane maintained a collaborative relationship with the Design Team, Owner and end-users. We conducted several Design Team meetings with the architects and their consultant, reviewed alternative materials, and offered constructability reviews. This was a challenging project from a phasing stand point as the building required abatement and all construction was executed while the school remained open and occupied. Many of the existing building systems were in need of replacement and some were not functioning, including heating, electrical and low voltage systems. Gilbane provided expertise and value in evaluating each and every system and how these systems would be maintained during the construction phase. For example, during the design of the cafeteria addition, the Owner's goal was to expand the school's existing cafeteria to accommodate their new combined population. However, the building's existing three-story chimney that served the existing heating plant had to be relocated to allow for the cafeteria

expansion. Gilbane guided the Design Team through a phased construction allowing the addition to be constructed while maintaining the existing chimney during the heating season. This effort resulted in avoidance of significant costs associated with installing a temporary heating plant.

Gilbane also added value through development of appropriate site phasing. The project requirements, renovations and expansion required disturbing the entire site, but had to be completed while the school was occupied, and accounting for school bus drop offs and pickups during the construction phase. During the design phase, Gilbane conducted several interview sessions of the school administration, faculty, maintenance group, as well as the bus companies. We developed site-specific phasing plans that included temporary bus loops and temporary utilities to ensure the existing site and building was maintained while providing a safe learning environment.

C. PROJECT TEAM EFFECTIVENESS

Fostering Trade Contractor Relationships

At Gilbane, we realize our continued success on projects directly relates to the strong relationships we have built with the subcontracting community. One of our added values as a leader in the school construction market in the State of Connecticut is our strong working relationship with the trade contracting communities and unions that provide a distinguishable advantage over the competition. The Enfield High School project was subject to public procurement and bidding procedures. Through our relationships with trade contractors, we secured quality, competitive coverage on the project. Gilbane also conducted a trade contractor outreach to the local minority and small business groups to encourage their involvement and participation on the project. The project goals of 25% SBE and 6.25% MBE were exceeded; **we achieved 11% MBE ($8,715,000) and over 30% SBE ($25,251,000).**

Project Team Collaboration

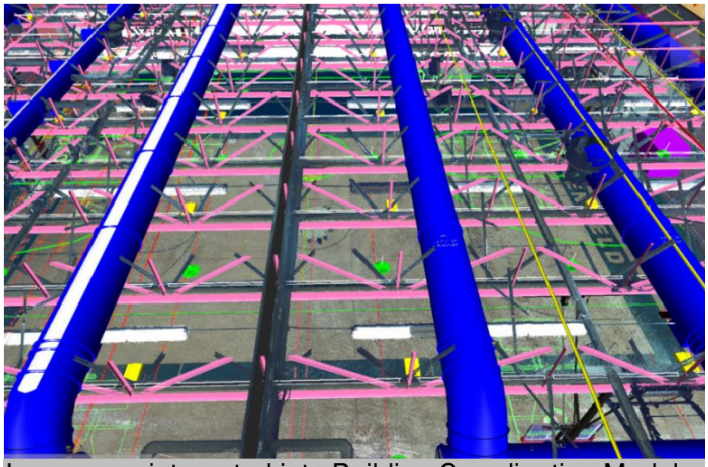
Collaboration between Gilbane, the Owner, and A/E commenced at the design phase and continued though the construction phase and further into closeout. During the design phase, at the SD level of the project, following the kick off meeting with the A/E and Owner, the Gilbane team immediately identified the design timeline for deliverables was significantly behind schedule. This initial diagnosis was critical as the number one goal for the project was to ensure the two high schools were consolidated by August 2016. With a focus on solutions, the Gilbane team immediately engaged the A/E and Owner's team into several scheduling sessions and developed a path forward for the project by accelerating the design for the main addition, and bid early site, utilities, steel and concrete packages to get a jump start on the project. This early start not only saved the project schedule, but also avoided approximately six months of extended General Conditions and additional escalation, totaling approximately $2 million in avoided costs. Also during the design phase, Gilbane worked closely with the Design Team, geotechnical engineers, Owner and site contractors to evaluate the option of re-using on site soils. The geotechnical engineers called for all new imported soils at the fill areas. The team worked collaboratively, evaluating existing soils conditions and determining that the existing soil was suitable for re-use in parking lots and landscape areas, avoiding significant import of soils and resulting in approximately $500,000 in savings.

D. INNOVATION IN CONSTRUCTION TECHNIQUES, MATERIALS OR DESIGN

The Enfield High School was a multi-phased, occupied site that needed to open on schedule; there could be no delays. Gilbane utilized building information modeling (BIM) for digital layout and visualizations, clash detection, and trade contractor coordination. BIM was critical on this project because the mechanical contractor who owned the ductwork, mechanical piping, plumbing and electrical scopes of work relied on Trimble for layout and prefabrication to reduce cost and meet schedule deadlines. Not a stick of pipe or piece of ductwork was hung without the use of Trimble and every piece of duct or fitting that deviated from the model had to be accounted for. This would not have been achievable without the accurate 3D model generated by BIM.

Another critical area where BIM was used was the gymnasium. The design required 36" diameter spiral ducts to be threaded through the roof joist openings. These large ducts had a

long lead time and were costly to fabricate. We had only one chance to install these ducts and could not afford the time nor the cost of refabrication. To ensure that these ducts arrived onsite correctly, we laser scanned the existing roof joists to obtain a highly accurate as built 3D model. We inserted this into our building coordination model and were able to successfully install the spiral ducts avoiding clashes with both the roof joists and existing skylights to remain. From the photo below, you can see the existing joist openings (shown in gray) was wildly different from the structural model (shown in pink) that was provided to us by the Engineer.



Laser scan integrated into Building Coordination Model

Due to the accuracy and completeness of the coordinated model, we were able to transform this information into a valuable reference tool for the Owner's maintenance staff. We converted the equipment layouts to PDF documents for ease of use. Now, instead of just knowing that an FCU is in room E310, they know exactly where in the room it's located. This is especially helpful down a long corridor. In addition, the floor plan lists the manufacturer and model number for each piece of equipment with hyperlinks to the O&M manual, manufacturer's website, and warranty information. A master spreadsheet accompanied the floor plans as an additional reference resource. To emphasize the value of this effort, the Owner's Commissioning Agent wrote, "With a project this size, using the floor plan to link the equipment was perfect! The Town facilities staff would likely be lost without this manual through the years of servicing the building."

Prefabrication

The project included several prefabricated components, including:

- MEP systems, including but not limited to fire protection, ductwork, mechanical and plumbing piping, and HVAC equipment. The mechanical package on this project was approximately $15 million, and involved careful and precise coordination between the BIM group and the shop fabrication group to support the project's aggressive phasing and schedule. There were real time fabrications on certain elements of the project. This careful coordination and collaboration resulted in limited number of change orders on these systems.

- Architectural and structural systems, including but not limited to, curtainwall and storefront systems, structural steel and miscellaneous iron systems. There were challenges with the structural steel during the early phase; this was due to the early release of the structural steel fabrication without having the HVAC equipment information available to the team. The steel fabricator fabricated certain structural steel components that could be adjusted later to meet the selected HVAC equipment requirements. Gilbane, the Design Team, the Owner and the steel fabricator worked collaboratively to develop a process that minimized schedule impacts and change orders

E. EXCELLENCE IN CLIENT SERVICES

Gilbane Leadership

The Enfield Consolidated High School project was the largest construction project in Enfield town history. As a result of the size and scope, the Owner's staff assigned to this project had limited experience in large complex addition and renovation projects. The Building Committee retained a part-time Owner Representative to help manage the State of Connecticut School Construction Grants application process with a focus on several intensive administrative-related tasks. Although a much-needed resource, this staff person also had limited experience in managing the design and construction phases of a project of this magnitude which as a result presented "on-the-job learning curve" challenges.

The Enfield High School project also had a fast-track schedule, and was identified as the Town's top educational priority to consolidate the two high schools by August 2016. The Town

of Enfield had made commitments to the State of Connecticut that both high schools would be combined for August 2016; otherwise, the Town could face accreditation issues. In short, the primary challenge was an immediate need of expertise. Gilbane leveraged our best-in-class resources as the largest high school CM at-Risk firm in the State and dispatched an all-star team on the project. We provided the Owner the guidance and support needed during both the design and construction phases, ensuring the Owner and State objectives were achieved.

Cost Savings

The use of CM contingency was very well managed throughout the life of this project. Gilbane returned approximately $1.2 million of CM contingency savings to the Owner, providing them with the ability to purchase additional FF&E for the project.

F. CONTRIBUTION TO THE COMMUNITY

As mentioned previously, the consolidated high school project was the largest construction project in Enfield town history. Gilbane ensured a smooth and successful experience for the students, staff, Owner, and residents by maintaining the project schedule and budget, with safety as our number one priority.

Gilbane encouraged participation from the kindergarten/ daycare located on-site by , and also having our project team visit them to provide learning opportunities when possible.

While the Town of Enfield made the difficult decision to close Fermi High School, Gilbane memorialized both schools by adding ceremonial bricks and benches on the school grounds.

At a town presentation, Councilor Donna Szewczak commended Gilbane, "The original structure is still there. You have modernized it and brought it up to today's standards without losing that heritage that the building has."

G. MEETING THE CHALLENGE OF A DIFFICULT JOB

The Enfield High School project presented distinct challenges in both the design and construction phases. One such challenge was the removal of a 30,000-gallon buried oil tank that was encountered at the cafeteria addition site during the excavation and foundation installation. The undisclosed, abandoned oil tank was not noted on the contract documents. The team immediately engaged an environmental firm to remove the oil tank and remediate the surrounding soil. Again, displaying an unmatched ability to pivot in the field and efficiently allocate resources, the team re-sequenced the foundation work to maintain progress while removing the oil tank. The result was a demonstration of Gilbane team commitment by working extended hours and weekends to recover the schedule impact and deliver the addition on time.

Another project challenge occurred during the gut renovations of the A wing (existing 100,000 sf, 4 story 1950s classroom wing). The team encountered significant structural challenges and deficiencies, full PCBs and ACM abatement. Despite these unanticipated conditions, the team had to complete the renovation of this classroom wing in seven months and be ready for occupancy in August 2016, all while the school was fully occupied and with active utilities. Action plans were developed and the team deployed its expertise again and active utilities were contained within existing building tunnels. The tunnels span along the entire length of the existing building that was being renovated and certain sections of the tunnel had to be structurally modified to allow for a new four-story stair tower to serve the renovated classroom wing. During this phase, the team's commitment was again on display as they maintained the long work hours, including double shift and weekends to maintain progress and stay on course to open in August 2016 . The team maintained high sprit and confidence and worked collaboratively with the Owner, the Design Team and trade contractors in developing solutions and recommendations to overcome all obstacles in their path. The result was a successful project delivery but also an illustration of the benefits of a comprehensive team effort and open communication during all facets of construction.

H. SENSITIVITY TO THE ENVIRONMENT AND THE SURROUNDINGS

Safety is always Gilbane's first priority, and it is even more critical on occupied school sites. We developed a site-specific safety plan to ensure the safety of students, staff, visitors, and construction personnel.

Additionally, as discussed previously, Gilbane encountered some environmentally concerning conditions on the site. This included significant structural challenges and deficiencies, full PCBs and ACM abatements as well as an undetected 30,000-gallon buried oil tank. Upon discovery of these conditions, Gilbane immediately sought the expertise of environmental firms to properly abate and remediate the PCBs and ACMs, and to remove the oil tank while remaining in compliance with Town and State codes.

SUMMARY

Gilbane served as construction manager at-risk for the consolidation of the Town of Enfield's two public high schools into one school. Facing an enrollment reduction, the Town chose to renovate Enfield High School to accommodate the combined student body and close Enrico Fermi High School.

The consolidated high school was the largest project in Enfield town history. It includes a new 106,000 SF addition for science, technology, engineering, art, and math (STEAM), a 14,000 SF music addition, an expansion of the cafeteria, kitchen, physical education and health departments. The remainder of the school was fully renovated under the State's renovate-like-new requirements which requires all aspects of the building and site to be brought up to meet current codes, including the State's high performance standards for energy. The "like new" statute mandates a minimum life expectancy of 20 years for the entire building.

The project was executed while the school was occupied and operational. Our first priority was the safety of the community in and around the construction site, while ensuring uninterrupted education and activities at the facility.

The project team overcame a number of challenges in bringing the project to a successful on-time completion. One of the biggest challenges was performing the multi-phased complex addition and renovation on an aggressive timeline. The renovation included a significant amount of interior abatement and demolition while the school was in full session. The team's number one priority was maintaining a safe job site for students, staff, public, and trade workers. The Gilbane team worked extended hours, nights, and weekends to meet the deadlines and phasing requirements. The team's commitment was unmatched in delivering the project on time and under budget, while maintaining a safe job site with a high level of quality that exceeded the Town of Enfield's expectations.


ENFIELD HIGH SCHOOL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EHS


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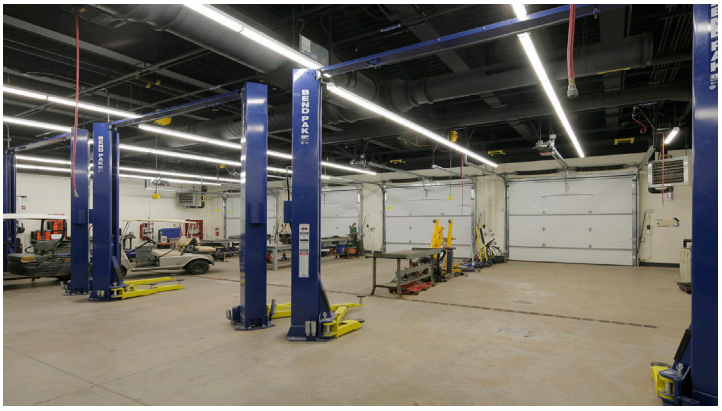
BEND PAK


ShopBot



OPTIONAL SUBMISSIONS

January 14, 2016

Gilbane Building Company
208 New London Turnpike
Glastonbury, CT

Re: Enfield High School

Greetings John and Jodi and Happy New Year…

I wanted to take the opportunity following the recent completion of both the new FERMI and the Cafeteria wings and thank you as well as the entire onsite Gilbane team for their hard work and dedication in taking on this challenge head on and getting it done for the Town of Enfield and for all Enfield High School students and staff. This team led by the Gilbane project Executive, Amar Shamas who has proven himself to be a top performer for Gilbane and for our project. He has been dedicated to the project from day one and continues to do so. I am very impressed with his professionalism and strong knowledge of the project. I believe that I can speak for the entire building committee that Amar is true project leader. He is dedicated, hardworking and very responsive to the Owner and Architect needs. He has taken on a very challenging project as well as challenging trades and is able to maintain a perfect balance in getting the project done while protecting the Owner and Architects interest in making sure we get the value the project deserves.

What impressed me the most is Amar's ability to take on more responsibility and still be able to deliver. Also his abilities in this is particularly true during the last 6 months, where the project did not have an Owner's rep due to Art Pongratz medical leave/retirement. This was a very critical part of the project as we were closing in on the completion of both the FERMI and Cafeteria wings turn over to the school. Amar went well above and beyond his role and was able to take on the additional challenges by taking on additional Owner responsibilities, truly helping me and the building committee to make the transition smooth to the new Owner rep that is currently on board.

Sincerely,

Randy Daigle
Chairmen Enfield High School
Building Committee

December 8, 2014

William Gilbane, Jr.
Vice Chairman
Gilbane Building Company

John Hawley
District Manager
Gilbane Building Company

Re: Amar Shamas

Dear Mr. Gilbane and Mr. Hawley;

My name is Randy Daigle and I am the Chairman for the Enfield High School Building Committee for the Town of Enfield CT., in which your company Gilbane Building Company is our CMR for the $103 million dollar Renovation and Additions to the Enfield High School. I've been in the construction field as a builder and as an Architect for residential and commercial buildings for over 35 years.

I have never met or had the privilege of working with an individual so committed to the success of a project like Amar Shamas. I know I speak for the entire Building Committee as while as for the Town of Enfield, in saying Mr. Shamas has truly made a positive difference with this project. His understanding of the school and project needs, his personal commitment to the success of this project and his manner in which he conducts himself with all the committee members and Town staff goes beyond our expectations. By value engineering the contract documents before issuing the trade bid packages and the way he broke apart the trade bid packages to get the best prices from the trades contributed to a savings of over $4 million dollars and he continues to stay on schedule even with the project being a fast track project. I contribute the cost savings and project schedule do to Mr. Shama due diligence to all aspect of this project.

I would like the opportunity to sit with either one of you and personally express the Building Committee's and Town's appreciation. I also would like to express my appreciation for the efforts of Peter Manning, Jodi Brennan. I have received nothing but exceptional customer service from all of your staff and look forward to working with your firm for the next several years.

Truly a pleasure working with your company!

Sincerely,

Randy Daigle
Enfield High School Building Committee Chairman

Enfield High School Students Get First Look At Renovated School

By **Kathleen McWilliams**

AUGUST 25, 2016, 11:49 PM

ENFIELD — With 12 days left before the first day of school, school officials are working around the clock to put the finishing touches on the newly renovated consolidated Enfield High School.

Preparation for the school's opening is continuing, with furniture still being moved around and unpacking to be done. But on Thursday, school officials led tours around the building for students and residents to showcase the nearly complete changes.

"It looks a lot brighter," said student Ashley Greer, one of about 100 people who took the tour on Thursday. "It used to look really dark and lockers were broken."

The $103 million renovation corresponds with the closure of Enrico Fermi High School this summer. The consolidated school will house about 1,500 students when classes begin on Sept. 6.

The renovation includes 113 classrooms, a school store, a career center, conference rooms, weight training spaces and an outdoor patio and cafeteria. A new, four-story 120,000-square-foot wing will house science, technology, engineering, arts and math classes. The new wing — called the Fermi Wing — will also feature 16 new science labs.

A music wing, with an auditorium that is twice the size of the old facility, will open in January.

Resident Diane Andrews said the school looks newer and the amenities — including the cardio and weight training room — were impressive additions.

"It looks really cutting edge," she said. "I don't know how many districts have those kind of features for their students."

Aside from a face-lift including new paint, new floors and windows, the school added new computer labs, wireless projectors, a full service kitchen for culinary arts students and new wood shop and automotive tech class areas.

"There's a lot for these kids," Andrews said.

The cafeteria, however, drew some criticism from parents about its size. The area can seat about 700 of the school's 1,500 students, assistant dean of students Jason LaMesa said.

Instead of lunch waves, with students eating in staggered groupings, the whole school will eat at the same time, but isn't confined to doing so in the cafeteria, La Mesa explained.

"The idea is that students can eat anywhere in the building. If they see there is a long line in the cafeteria they can go do something else in the building," he said.

Principal Andrew Longey, who served as the high school's interim principal for two years and accepted the position officially last week, said the work will be done in time for school to open on Sept. 6.

"It looks great now, but it's very much a work in progress. The staff is doing so much every day to get it ready," he said Thursday.

Tours for students and community members will again be offered on Monday and Tuesday from 5 to 7 p.m.