

ENTRY FORM



DVASE 2010 Excellence in Structural Engineering Awards Program

PROJECT CATEGORY (check one):

New Building under \$30M		Other Structures Under \$10M	
New Building over \$100M		Other Structures Over \$10M	X
New Building \$30M - \$100M	X	Free Style	

Approximate construction cost of facility submitted:	\$150 Million
Entry Fee:	FREE
Name of Project:	Yale University - Morse and Stiles Colleges Existing Renovations and Addition
Location of Project:	New Haven, Connecticut
Date construction was completed (M/Y):	January 30, 2009 (Construction Documents Issued)
Structural Design Firm:	CVM Engineers
Affiliation:	All entries must be submitted by DVASE member firms or members.
Architect:	Kieran Timberlake - Philadelphia, PA
General Contractor:	Turner Construction

Company Logo (insert .jpg in box below)



Provide a concise project description in the following box (one page maximum). Include the significant aspects of the project and their relationship to the judging criteria.

The Renovations and Addition to the Samuel Morse and Ezra Stiles Colleges on the campus of Yale University in New Haven, Connecticut is a project consisting of renovations at two existing residential colleges and the construction of a new two story underground addition that will service both colleges. The Morse College building is a 125,000 sq. ft. existing building that is mirrored by a very similar 123,000 sq. ft. Ezra Stiles College building, both of which are constructed of reinforced concrete. Between the two buildings an additional 15,000 sq. ft. of shared space houses dining halls and a kitchen that service each college. The new 25,000 sq. ft. Addition rests inside the crescent shape formed by the two existing buildings and sits two stories underground hidden from students who congregate on the grassy knoll above. The program in the Addition includes a kitchen and food storage in the sub-basement along with 3 exercise rooms, multiple art/digital media rooms, theater, and several mechanical rooms in the basement. The Addition is covered by 30 in. of soil that supports pedestrian paths and congregation areas, with select areas of 7 ft. of soil for planted trees.

Due to several factors including a sandy soil site condition, the proximity of the new Addition to the existing building, and an aggressive project schedule, an early package was completed in the fall of 2008. This package entailed extensive jet grouting and underpinning for the entire length of the existing building footings. An innovative process of jet grouting accompanied by targeted areas of underpinning was selected to facilitate foundation support, excavation support for the new Addition, and to meet the demanding project schedule. The jet grouted piers extend as much as 30 ft. below the existing footings and allow for the new Addition to be built within 10 ft. of the existing building exterior face.

In the Addition, concrete pan joists, sloping concrete slabs, and concrete filled metal deck with heavy steel framing on reinforced concrete piers support large loads from the soils and trees on the roof. The client wanted to clear span the theater space without utilizing pan joists to support large soil loads on the roof, so a 22 in. thick concrete slab spans 30 ft. to a 96 in. wide x 42 in. deep concrete beam on either side creating a large uninterrupted space, free of columns or walls. The perimeter of the Addition is surrounded by architecturally exposed board formed reinforced concrete walls that support the many framing systems utilized.

Since the sub-basement of the Addition is approximately 18 ft. below the design water table, a 20 in. thick mat slab with an additional 6" topping slab held down by a 10 ft. x 10 ft. grid of 25 ton soil/rock anchors to resist the hydrostatic uplift forces. Continuous site dewatering must occur until the full structure weight of the addition in combination with the anchors at the sub-basement are in place to keep the building from rising out of the ground due to the hydrostatic pressure.

Close coordination with Yale University and Turner Construction was required during the construction phase to integrate a 48 in. thick mat footing with the Addition footings to accommodate a tower crane used for erection on the project site.

At localized areas within the existing building, intricate jet grouting and underpinning was completed to support the existing building for new tunnels from the Addition that pass beneath and service elevator/stair shafts that rise up through the existing building. An in-depth analysis of all the existing building roof slabs was completed to accommodate the installation of a green roof system on both colleges without having to reinforce the existing roof slabs, which would have caused additional costs to the owner as well as an extended scheduled. Throughout the two buildings, new openings/penetrations in the existing concrete walls were created to accommodate program as well as mechanical needs.

Please attach your photos as previously described in the call for entries document and insert captions for the photos in the following boxes.

Photo 1:



Addition – View of tower crane mat footing with integrated building footing

Photo 2:



Existing Building/Addition – View of jet grouting/underpinning for footing support and excavation support

Photo 3:



Existing Building – View of jet grouting and underpinning extending under existing building

Photo 4:




Addition – View of addition being built from the existing building

Photo 5:

By signing, signatory agrees to the following and represents that he or she is authorized to sign for the structural design firm of record:

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Submitted by:

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