

# Press Release

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**FOR IMMEDIATE RELEASE**  
*February 6, 2006*

## **The Penmark, South Boston, Massachusetts**

Extensive conversion of the former five-story Boston College High school into luxury loft condominiums. The structural design challenge required installation of new steel framed floors and lateral load support system while maintaining the existing exterior façade.

The difficulty in maintaining these exterior components while creating functional open space within the footprint of the building lead to the development of a full interior demolition and reconstruction scheme. The interior of the building was demolished and reframed with steel beams and composite steel deck one floor at a time starting from the fifth floor and working down through the building. Continuous steel channels connected to the exterior walls at each floor level facilitate the connection of the new floors to the masonry walls. As part of the reconstruction, a new lateral braced frame system in the long and short direction of the building was installed to replace the stiffness of the existing interior masonry walls that were removed.

The need to maintain the existing heavy timber roof truss system and create usable floor space involves supporting the existing roof system on the newly constructed fifth floor with a new steel framing system that allowed for the removal of the bottom chords and diagonals of the trusses.

The demolition and construction phasing for this renovation project was probably the most difficult component. Temporary bracing and access bays were developed to allow for the top down construction approach. Architect: Bruner/Cott & Associates, Inc.

## **Boston Medical Center's BCD Building - Boston, Massachusetts**

This 3-story structure is one of the few remaining original buildings from the Boston City Hospital campus, built in the 1860's. Named for wards B, C, & D, the building has been vacant for nearly 30 years. The wood floor and masonry bearing wall structure is slated to be renovated to create a new home for the Boston Medical Center's IT department. To meet programming requirements, two new mezzanine levels will be constructed, and the floor systems will consist of concrete slabs on metal deck with structural steel framing. In addition, the entire structure will be retrofitted to meet current code requirements for seismic forces. This will include the construction of steel braced frames and moment frames along with tube steel wall bracing. The design process included much coordination to maximize floor heights, integrate mechanical requirements, and minimize costs while maintaining the historic integrity of the original building. Architect: Burt, Hill.

### **Renaissance on the River – Lowell, Massachusetts**

The conversion of this historic mill complex consisted of renovating Buildings 16, 17 and 18 (each 3-stories) and Building 8 and 9 (each 6-stories). The original buildings are of mill-type construction, i.e., heavy timber beams and posts, tongue and groove wood planking, and exterior brick masonry bearing walls.

One significant challenge was to establish the structural properties of the wood members, since the existing structure served an industrial purpose for more than 100 years. Each and every structural member had to be inspected (and tested in some cases) to minimize the amount of strengthening or replacement.

Due to the seismic requirements of the Massachusetts State Building Code it was necessary to add new reinforced concrete masonry unit structural walls in the short direction of all buildings. The new walls were connected to the existing exterior brick masonry walls. The roof and the floors were also connected to the new or existing walls, further strengthening the buildings.

The construction process lead to additional changes, since many structural members could only be observed after the removal of existing decking, ceiling, covers, etc.

This overall conversion provided mainly residential usage, with commercial and public space usage as well. Architect: The Architectural Team, Inc.

### **Vineyard Christian Fellowship Church – Cambridge, Massachusetts**

Structural renovations to the Sanctuary which included: design of the 3-story glass partition wall and miscellaneous new lintels at new masonry openings; baptismal footing and floor reframing; handicap lift support and reframing of existing floor; new floor framing to lower the existing altar floor framing; reframing the floor above the kitchen; reframing the roof above the lobby and bathroom for removal of bearing walls; revisions to the canopy framing; and revisions to the baptismal support framing; and design of speaker support. Architect: CBT/Childs, Bertman, Tseckares, Inc.

Located in Needham, **DM Berg Consultants, P.C.** has been serving the industry since 1963 providing structural design for new construction, renovation/reuse, and historical preservation. [www.dmberg.com](http://www.dmberg.com)