

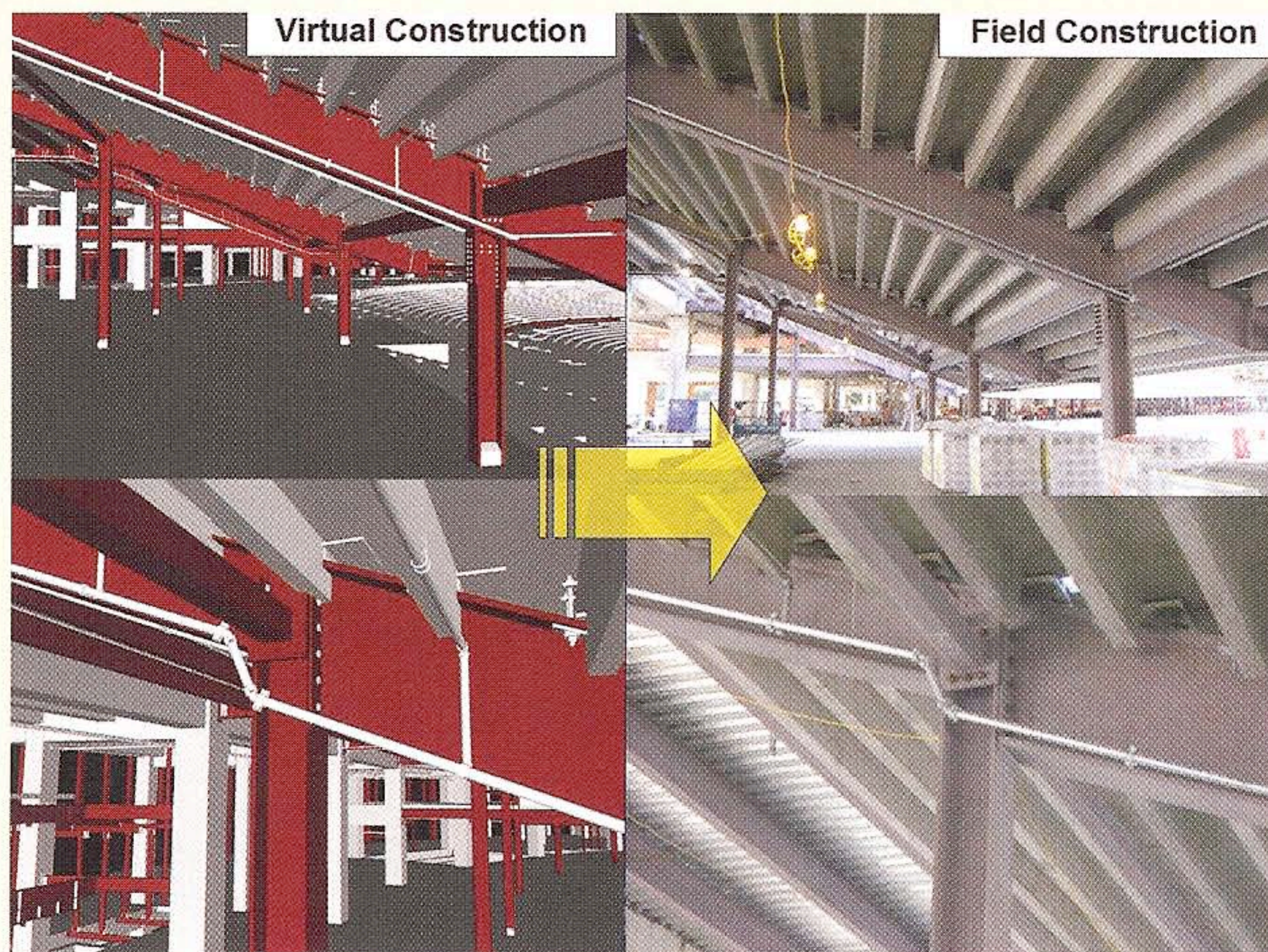
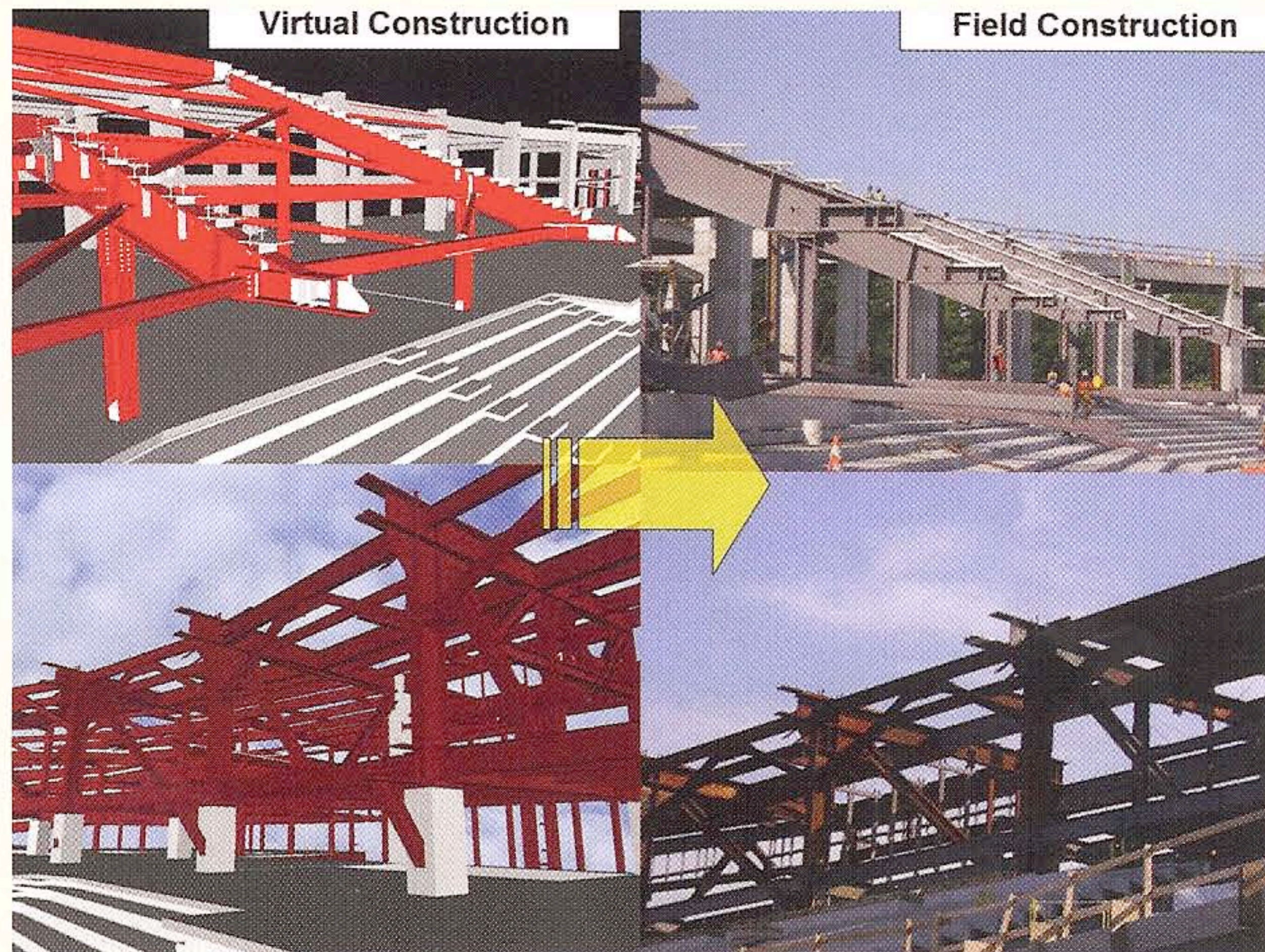
Turner Reaps the Rewards of BIM during Yankee Stadium Project

For Turner Construction Company, the completion of Yankee Stadium not only marked the end of a \$1 billion dollar plus project, it also marked a point in time where the use of building information modeling (BIM) “just clicked as a new way of life.”

Although Turner has been using computer-aided modeling on projects for the past 10 years, with the Yankee Stadium project, the company could truly reap the rewards of its past experiences using BIM. As a result of the use of BIM, there was a reduction in field initiated RFIs and change orders and an acceleration of the schedule, which is a monumental triumph in a project of this size. “That’s a tremendous benefit to our clients,” said Turner’s Vice President and Principal-in-Charge Mark Pulsfort.

With the use of a trademarked construction management process Turner calls, “Virtual Trade Coordination” (VTC) and Autodesk’s NavisWorks software, BIM was introduced at the design and development stage of the project long before the project started in the field. While software is an important aspect of BIM, the process by which it is used is even more important, said James Barrett, Manager of Virtual Construction Technologies for Turner.

With the use of BIM design software, 3D models were made of every major building component - from its architectural and structural elements to its HVAC, electrical, plumbing and fire protection systems. Combining these into a consolidated model, Turner can instantly identify 100% of the system’s spatial clashes and conflicts. For the Yankee Stadium project, the VTC process identified thousands of clashes and conflicts between trade systems. An on-site iRoom (an interactive BIM coordination room) was established in one of the jobsite trailers where subcontractors brought their laptops and interac-



tive SmartBoards were set up. For almost nine months Turner, its subcontractors, and the design team went through each clash one-by-one to resolve the conflicts. "This approach holds everybody's feet to the fire and also creates a more collaborative environment. Though it may not be a faster process, it's a better one because of the end result," Barrett said.

In the case of structural steel, engineers Thornton Tomasetti used the TEKLA software to develop the BIM for the steel structure, which was then shared with fabricator Canam Group, Inc. using a process called "direct digital exchange." By exchanging models and resolving conflicts, the process for getting shop drawing approvals was accelerated and steel mill orders were placed within weeks, rather

than months. "This saved us a significant amount of time right up front," Pulsfort said. "We needed every day we could get on this project. It was a very tight schedule."

Turner views BIM as a new frontier for the construction industry, and as a much-needed vehicle for innovation in a traditional field.

With the success of BIM on the Yankee Stadium and other projects over the past several years, Turner plans to continue its push for the widespread adoption of its use throughout the company as a standard business practice. Turner views BIM as a new frontier for the construction industry, and a much-needed vehicle for innovation in a traditional field. Barrett estimates that over

the past four years, BIM has been implemented on more than 100 Turner projects with an estimated value of \$20 billion. This widespread success has even

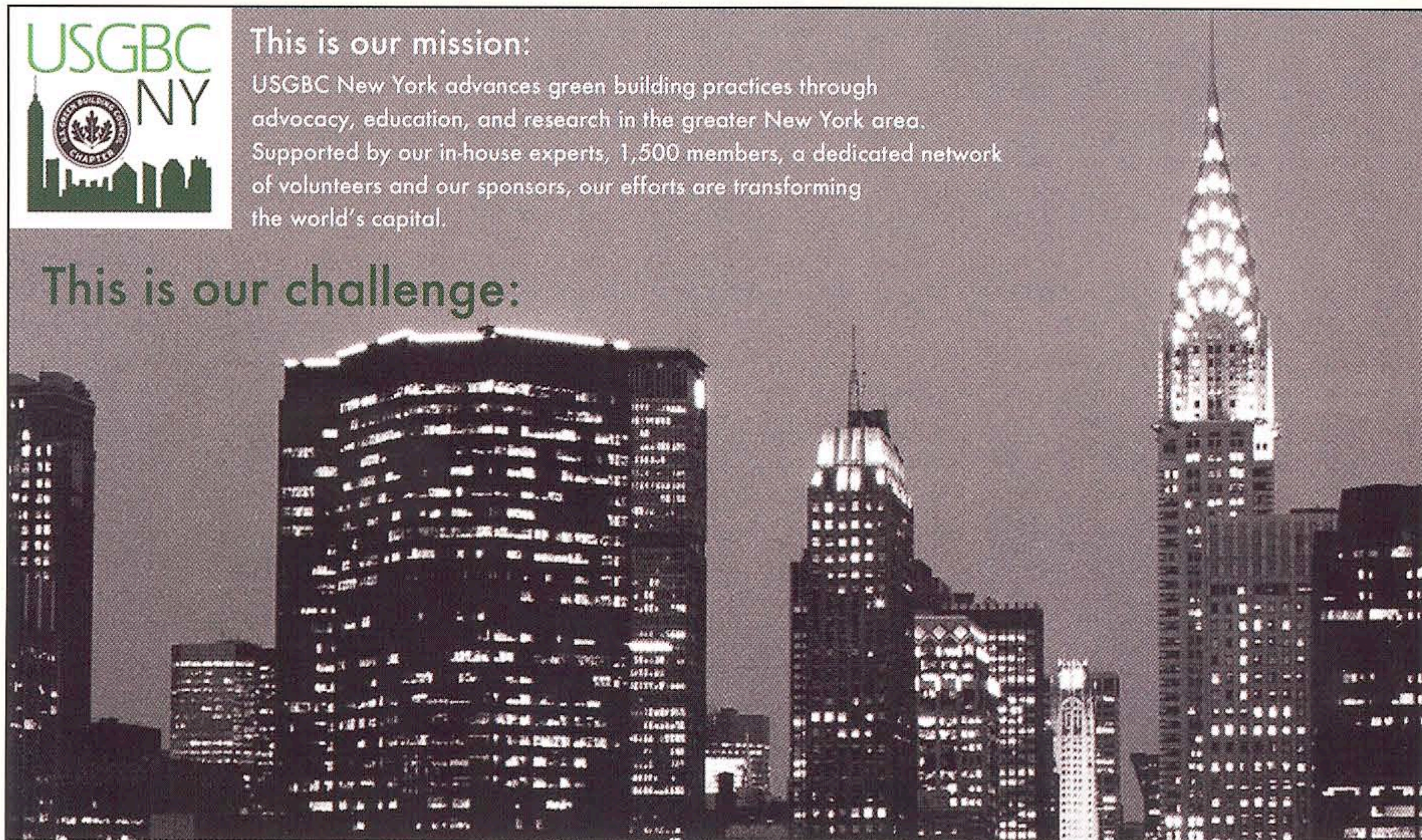
encouraged Turner's New York office to begin offering BIM services directly to external clients such as architects, engineers and subcontractors for implementation during the planning, design and construction phases of project. "BIM is the future of design and construction and Turner wants to be a national leader in ushering in a new era of 'computer aided construction,'" said Barrett.



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