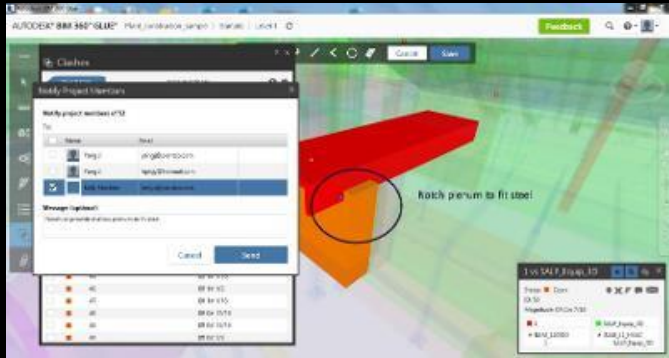
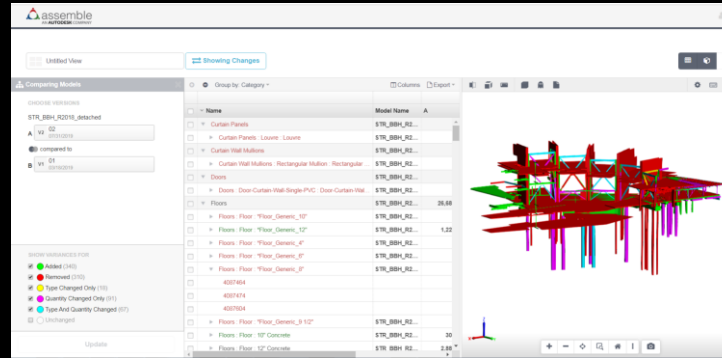


Effectiveness of Building Information Modeling in Existing Structure Construction Compared to New Structure Construction

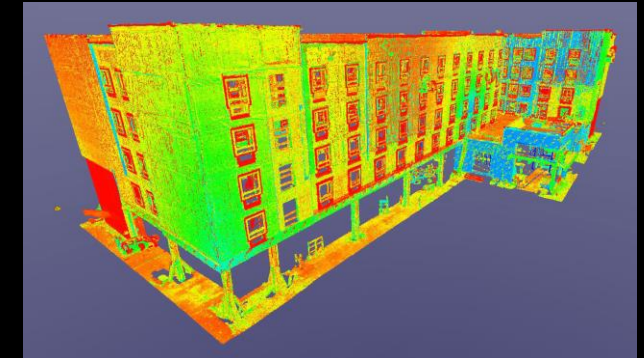
Over the last decade Building Information Modeling has become a crucial aspect of the construction project for larger construction firms in the United States. BIM has many different facets and can be used to effectively manage construction projects in various ways. Modeling a structure in a virtual setting in preconstruction allows for adequate preparedness for the construction process and has been shown to be effective, on a broad scale, to reduce cost, compress schedules, and allow for a more fluid construction process overall. The goal of this paper is to look more closely at BIM and its effectiveness on existing structures as it compares to new structure construction. A qualitative analysis survey was conducted with a single construction company in San Francisco, California. The company is a commercial general contractor that completes work in both the existing and new construction areas. The company's unique experience with both types of construction processes and the use of BIM, made the company a good candidate for conducting a comparison on the challenges that are presented with utilizing BIM in existing construction. It was found that a lack of formal timeline structure for executing BIM on projects more greatly impacts successful timely completion of existing structure projects. Furthermore, the additional costs of laser scanning for existing structure projects create a greater barrier to entry in executing BIM.



Example of BIM 360 Glue Clash Detection solving discrepancies in two different trade models

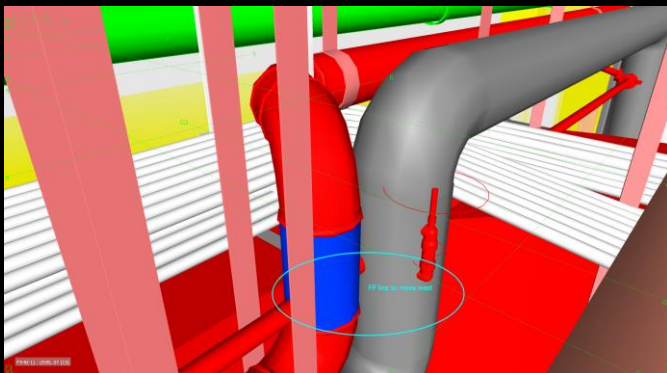


3D Assemble model showing structural building elements



https://www.bing.com/images/search?view=detailV2&ccid=XR2XRUp&id=4FF5628EAE84DF50D0D423A399AF1D28525737DF&thid=OIP.XR2XRUpZ69bk2oOViwoAHaEU&mediarurl=https%3a%2f%2fwww.cei.composites.com%2fcm%2fdp%2fimages%2farticles%2f43%2fShop_Talk_3D_Laser_Scanning_CEI_Materials_2.jpg&exph=823&expw=1411&q=building+user+scanner&simid=608041985873349970&ck=6C2F3F56B5ACE32194EBFCE2398E12AC&selectedIndex=42&ajaxhist=0

Representation of laser scanning for an existing structure



Example of a "hard clash" between fire sprinkler and plumbing lines



Final rendering of BIM model



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