

# Attachment 5

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## SHoP Architects 290 Mulberry Project

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24. May 2008, 18:19 UhrProjectsDavid fano

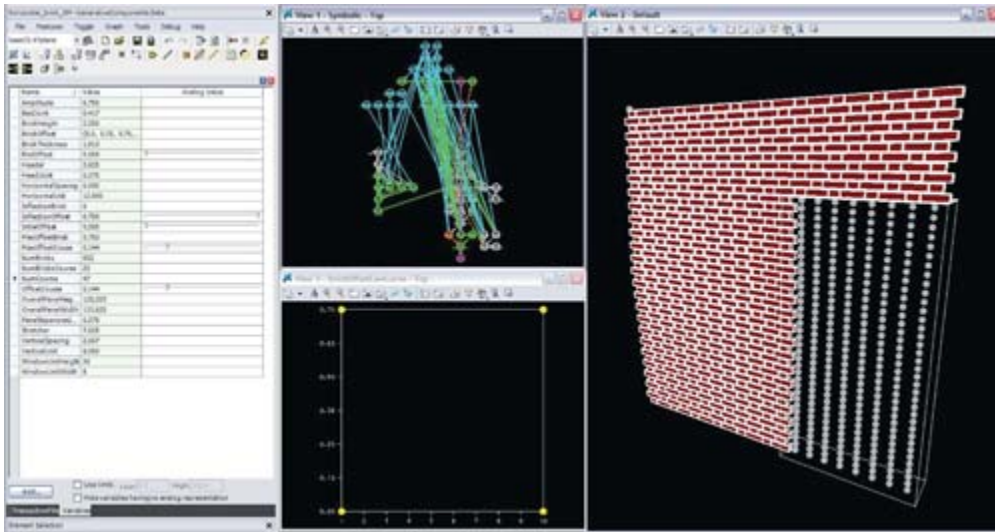




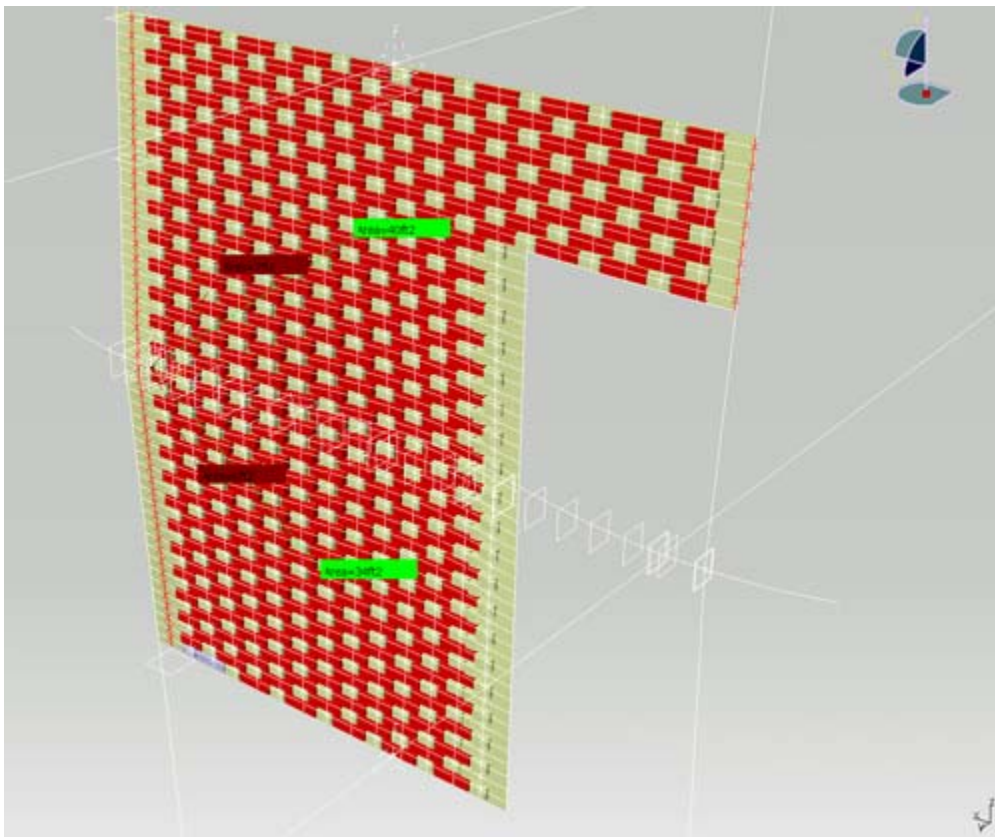
Since all the software conversation is really no fun unless we put it to use to build things. I figured I should post some of the latest images of the precast panels from the [290 Mulberry Project \(Project description PDF\)](#) by [SHoP Architects'](#) (just in case, that's where i work).

The real reason this project is applicable on this site is the explorations done in parametric modeling and BIM. As i said in an [earlier post](#) this was SHoP Architects Revit pilot project. Even though SHoP has been 3d modeling their projects for a while now this was the first time the drawing sets were integrally tied to the 3d model. The building was modeled in Revit 9.0 (now in 2008), the model was used for DD and CD and is now being used full time for CA.

Through out SD and DD various modeling packages were used 3ds Max, Rhino, Generative Components, Digital Project, and Revit (a some good old fashion Autocad). 3ds Max was used early to experiment with the affect of the brick, then again much later in the process to create photo real marketing imagery; Rhino has been used though out the process for explicit modeling as well as scripting the placement of the bricks in the model (this would have been tough without RhinoScript); Generative Components and Digital Project where used to explore the patterning of the brick; Revit was used to model the building (including the panels) and critical part of the MEP systems.



***Generative Components Model***



***Digital project model***



### ***Precast Panel***

The Precast panels on the project were explored through the use of parametric modeling software, in this case Digital Project and Generative components. Thinking about the problem more like digital prototyping, the team was able to test the limits of undulating the brick. The fabricators provided the material constraints of casting brick into panels, the team then built models to find the maximum amount of projection per panel.



### ***Revit Model***

The Revit model was used to resolve issues at the building level, from showing the MTA where the buildings pilings would be located to in relation to the subway to coordinating systems coordination as well as producing the drawing set.

This post is meant to be a very (VERY!) brief over view of how BIM was used on this project. More on this project will be available though up coming publications and an eventual SHoP blog (in the works). Please feel free to post questions and I will try to answer what i can.

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At SHoP Rhino is like the swiss army knife of modeling applications so it's used on all aspects of the project in different amounts based on things like staffing, time, and level of detail. Rhino, on this project was used though out the process for explicit modeling as well as scripting the placement of the bricks in the model (this would have been tough without RhinoScript);

Revit was used to model the building (including the panels) and critical part of the MEP systems. As well as do the drawing set and all coordination.

Generative Components and Digital Project where used to explore the patterning of the brick. The team built parametric panels in GC and DP to test the different coursing options such as running bond, stack bond and ultimately Flemish bond. Flemish bond allowed for the maximum inflection in the panels with out going beyond the material limits of casting bricks into concrete. That has to do with the key in the back of the half bricks used in the panels.

3ds Max was used early to experiment with the affect of the brick, then again much later in the process to create photo real marketing imagery. In the early stages the patterns were explicitly modeled in 3ds Max. Partly because of staffing and partly because it was the best for producing images from the model. it could have very easily been modeled in Rhino but there was a looseness that 3ds Max allows and that was needed at that stage of the design process. Something simple like an FFD box at the early design stages is a helpful tool.

Hope that answers your questions,

Dave