



GSA Building Information Modeling Guide Series

01 - GSA BIM Guide Overview

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United States General Services Administration (GSA)
Public Buildings Service (PBS)
Office of the Chief Architect (OCA)



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GSA Pilot Project Case Study

Project Type: New Courthouse Design and Construction

Project Phase: Concept Design

Technology: Riuska, Navisworks DOE-2

What are the project opportunities?

The goal of using BIM-related energy modeling techniques is to provide a prediction of building energy performance using a space-based modeling approach. The project is a New Courthouse Design and Construction. As a Federal Facility, it is required to meet the Facilities Standards for the Public Buildings Service (P-100). In particular, the project must demonstrate compliance with the prescribed energy conservation standards using computer simulations. Initial energy modeling was performed by a sub-consultant using traditional energy modeling practices (VisualDOE interface with a DOE-2 engine) to inform the design and to demonstrate compliance. Additional opportunities include using BIM technologies to input more detailed, space-based assumptions to verify performance estimates and provide additional information to inform design decisions.

What 3D, 4D, BIM solutions should the project team consider?

Traditional energy modeling relies on a zone-based input approach to create a thermal model of the building. A BIM-based approach was selected to create a flexible and comprehensive model based on the 3D geometry of the architectural design. The specific technology used was a Riuska interface with a DOE-2 engine.

How/when should the team implement the selected 3D-4D-BIM application?

OCA hired a separate consultant to perform the BIM-related energy modeling. The consultants performed these services over an 8 week period during the end of Concept Design / beginning of Schematic Design phase of the project to incorporate feedback regarding energy performance as early as possible into the design process. The scope of work included the creation of a 3D BIM model from 2D drawings provided by the architect, the creation of a spatially-based (Riuska) energy model, and iterative model simulations.



