



Building Information Modeling Problem

ASC Student Competition

Sparks, Nevada

February 10-13, 2010

Introduction

This year Webcor Builders is proud to sponsor the fourth National Building Information Modeling (BIM) problem in the ASC Region VI & VII Annual Student Competition Open Division.

A key feature of Webcor's approach to construction is "Value through Innovation" – the relentless search for better ways to build. BIM tools and Virtual Design and Construction (VDC) processes enable dramatically improved collaboration between all participants in a project, saving money and producing better projects.

Building Information Modeling is standard practice now for large-scale projects and consistently provides more efficient coordination, scheduling, cost estimating and construction. To meet this growing need, the construction managers in highest demand are those skilled in leveraging this technology to improve construction processes.

Problem Statement

Team will be required to create a complete Building Information Model and utilize it to solve construction problems. The teams will create the BIM, using the platform of their choice and apply it to the problem presented. Some **suggestions** for BIM related software are as follows:

- Vico Constructor, Revit, Tekla
- Vico Control, Microsoft Project, Primavera
- Navisworks, Synchro, 5D Presenter
- Green Building Studio, Ecotect, IES

Teams will receive project documents (electronically) in 2D or 3D format (dwg, pdf, model) and a project description from which the model will be created. Some additional program or use information will be provided.

Some BIM concepts teams will need to be familiar with in order to succeed are:

- Level of Detail (LOD) – Some areas of the model will be required to contain more or fewer elements to provide the necessary information. Please reference the article relating BIM to the Model Progression Specification (MPS).
<http://www.aecbytes.com/feature/2008/MPSforBIM.html>
- CPM and Line of Balance schedules with 4D animation
- Production Control and Schedule Management
- Architectural and Structural Coordination
- Logistics Planning – Ex.: crane location, manlift requirements, staging areas, jobsite ingress and egress, fencing, etc.
- Utilities coordination and relocation sequencing
- Estimate derived from quantities in the model
- Integration of survey and layout points for construction and location of the building model within a site
- Building Lifecycle analysis
- Energy model

Deliverables:

May include the following:

- Building Information Model
- Model Based Estimate
- Model Based Schedule
- Logistics Plan
- Carbon Footprint or Life Cycle Analysis
- Coordinated Utility Relocation Plan
- Constructability/Discrepancy Report
- Survey and layout points

* Deliverables will be required in native format, as well as NWD (Navisworks Document), 3D DWG or IFC for Model and PDF for all other documents.

Presentation:

Students will be given 20-30 minutes for presentations with 5-10 minutes for questions and answers. A demonstration of the model, processes and how it is incorporated into the deliverables listed above will be required.

Teams will be allowed to attend other team's presentations only after completion of their own presentation.

Scoring:

Teams will be scored on the following (not equally weighted):

- Completeness of deliverables
- Accuracy of BIM in relation to documents provided
- Architectural and structural coordination
- Schedule accuracy
- Estimate accuracy
- Logistics feasibility
- Utility coordination
- Presentation
- Ability to adapt to changes
- Demonstration of innovative uses of BIM for all aspects

Rules and Requirements:

- Please reference the ASC Student Competition rules <http://asc67.org/rules.html>.
- Internet usage will be allowed as RFI's will be accepted by e-mail.
- Due to software and laptop compatibility issues, teams will be required to supply their own computer and projector. Teams will be given 5-10 minutes to setup. A table, screen, and power strip will be supplied by Webcor Builders.

Questions:

Please be aware that this is a guideline only. Details and requirements are subject to change.

Additional questions may be directed to Matt Ryan at Webcor Builders via email (matty@webcor.com). They may or may not be answered depending on the nature of the question. All answers will be posted on the website for all teams to review.

Good Luck.