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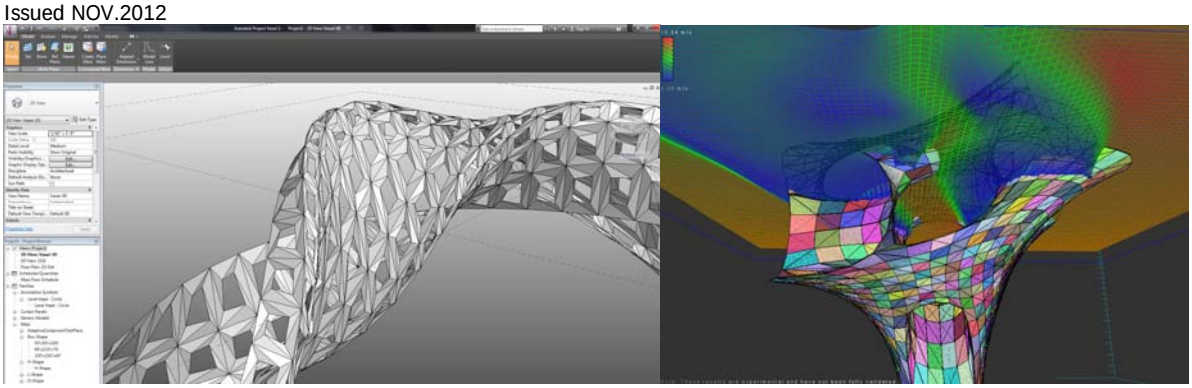

## DESCRIPTION

Parametric and information-based modeling is the current evolution in design and construction documentation processes. We have only recently switched from teaching conventional 2d CAD and 3d modeling in favor of teaching Building Information Modeling, rapid analysis, and data extraction methodologies. This is rapidly changing (both enlightening and challenging) the design professions and has a far greater impact than the advent of CAD alone. A designer is able to easily navigate the complexities of building, establish performance-based evaluation systems, and develop designs with greater speed and efficiency. More importantly, integrated modeling systems put the designer back into the three dimensional medium and offers a highly collaborative and multidisciplinary environment for design and project delivery.

Assignment 3 asks you to construct and document an intelligent parametric assembly within a Building Information Modeling environment. You are asked to design a pedestrian bridge which spans the Missouri river and connects downtown Omaha with Council Bluffs:

1. **Concept:** Use Rhino to create an initial bridge concept using basic modeling techniques. *Use curves and surfaces to define an overall form.*
2. **Design:** Within Revit or Vasari's conceptual massing environment import Rhino Geometry and develop the design using custom *Adaptive Component Families and Pattern-Based Curtain Systems.*
3. **Analyze:** Produce analytical visualizations for studying environmental conditions using Autodesk Vasari's conceptual analysis tools (solar and wind)
4. **Document:** After you have composed the assembly, you will create a document set within Revit composed of orthographic line drawings, 3D hidden line drawings, and perspective renders. You will also create schedules which communicate the parametric information embedded within the custom Revit Family components. All documentation should occur within the Revit environment and be communicated on sheets.

### OBJECTIVES

Upon completing this assignment students should:

- Convert critical geometry between Rhino and Revit/Vasari for design development.
- Have a basic to intermediate understanding of creating parametric assemblies using within a BIM environment.
- Be able to extract relevant representational information and extract parametric data.
- Be able to manage files and rework models to operate within appropriate file sizes
- Be able to produce legible 2D documentation from 3D parametric information
- Be able to produced basic information tables from three dimensional models
- Utilize environmental analysis tools.
- Compose and organize a digital documentation "sheet set" (PDF)
- Submit digital models as part of design deliverables.

## SUBMISSION REQUIREMENTS

For all DIGITAL SUBMISSIONS, A PDF of the Documentation AND the Revit Model should be uploaded to Nathan's Dropbox

- **ARCH223_F12_SEC15??_ A1_LastnameFirstname.pdf** (or LARC223 / IDES223)
- **ARCH223_F12_SEC15??_LastnameFirstname.rvt** (or LARC223 / IDES223)

**DIGITAL SUBMISSION 1** (minimum requirements)

- PDF "Cartoon Set" Set Showing *In-Progress* model views:
  - 1 cover sheet showing main perspective view of the project.
  - 1 sheet showing 4 perspective views
  - 1 sheet for site plans showing orientation and annotation.
  - 1 sheet containing analysis information for sun and wind (screen captures from Vasari)
  - 2 sheets for elevation drawings showing North, South, East, and West views
  - 1 Sheet for East/West and North/South sections with annotations and references
  - 2 Sheet containing 3D hidden line drawings and family schedules.
  - 1 Sheet for detail views for parametric components.
- In-Progress Revit model

**DIGITAL SUBMISSION 2** (minimum requirements)

- PDF "70%" Documentation Set with Placed Views and Annotation:
  - 1 cover sheet showing main perspective view of the project
  - 1 sheet showing 4 perspective views.
  - 1 sheet for site plans showing orientation and annotation.
  - 1 sheet containing analysis information for sun and wind (screen captures from Vasari)
  - 2 sheets for elevation drawings showing North, South, East, and West views
  - 1 Sheet for East/West and North/South sections with annotations and references
  - 2 Sheet containing 3D hidden line drawings and family schedules.
  - 1 Sheet for detail views for parametric components.
- In-Progress Revit model

**FINAL SUBMISSION** (minimum requirements)

- PDF Documentation Sheet Set with Placed Views and Annotation:
  - 1 cover sheet showing a perspective rendering of the project.
  - **1 3D PDF Page allowing for model rotation.**
  - 1 sheet showing 4 perspective renders.
  - 1 sheet for site plans showing orientation and annotation.
  - 1 sheet containing analysis information for sun and wind (screen captures from Vasari)
  - 2 sheets for elevation drawings showing North, South, East, and West views
  - 1 Sheet for East/West and North/South sections with annotations and references
  - 2 Sheet containing 3D hidden line drawings and family schedules.
  - 1 Sheet for detail views for parametric components.
- Final Revit model

Projects will be evaluated on the basis of:

- Model complexity
- Model accuracy and completeness
- Layout design/elegance
- Annotations and clarity
- LINE WEIGHTS and RENDER QUALITY.

Title Block on all printed sheets should include:

- Project Name,
- Assignment Name
- ARCH, LARC, or IDES 223, Fall 2012
- Your Name, TA Name, Lab Time & Section Number, and Professor.
- Please use Ariel 9-14pt font with 3 different sizes (max) OR as instructed by your lab instructor. All work must be pinned up BEFORE the start of Lecture.

Tools used in this Assignment:

- Rhinoceros 3D
- Autodesk Vasari Beta 1 (Conceptual Modeling)
- Autodesk Revit 2013
- CASE Import OpenNURBS for Vasari (http://www.case-inc.com/apps)