



ARCH 2330

BUILDING TECHNOLOGY III

March 2012

Assignment Number: viii, collaborative research exterior façade

Computer Program(s): Revit, Web Browser, Excel and or Word, and Blackboard

Student Learning Objectives:

Upon successful completion of this assignment, the student will:

1. Create an appropriate enclosure system for your model
2. Gain an understanding of researching building assemblies
3. Learn the requirements for exterior cladding
4. Gain an understanding of a particular cladding assembly.

Assessment:

To evaluate the student's achievement of the learning objectives, the professor will do the following:

1. Assess quality and appropriateness of the exterior assemblies researched
2. Evaluate the students comparative assembly chart
3. Check that the required drawing details have been researched and included.
4. Evaluate the drawings study drawings to see if they show understanding of the assembly.
5. Check the quality and completeness of the assembly created for their BIM models.

Project Description:

Students will be divide into groups of three. Group students will research a exterior wall system. The research system will be used develop your projects enclosure and façade details. All work must be shared among them members. The project will consist of four parts.

Part one: Each student will identify a different manufacturer of their exterior wall system. They will then take the details and specifications of a particular enclosing system. This comparison should include at least the typical wall section detail, a typical corner detail, and a (window) head detail.

Part two: The students will compare their three systems and weigh the merits and disadvantages of each. This analysis should look at the systems in the context of the building they will be covering. Each team must create a chart with your three systems and rating at least four at your attributes for comparison. A good example of attributes would be insulation rating, ease of construction, assembly cost, availability of construction details, and damp proof./waterproof details. At the end of the analysis one manufacturer for all teams member's exterior wall assembly needs to be selected. All research and detail material should be archived for your own use as you develop your drawings/projects.

Part three: Take the system that you have researched and selected use it to clad your building project. Construct a new wall system from scratch in Revit. Use your research material to make it as specific as possible to the selected manufacture. Include manufacturer information and model types in your Revit wall type. Create a 3D oriented view detail of your wall assemblies and post it.

Part four: Each individual student will go into the neighborhood and sketch a building that uses a wall assembly identical (or as close as possible) to the system type they have selected for their project. Look for the buildings under construction as sketching opportunities. These buildings may allow you to see inside the wall assemblies. Include the address of your building subject on your drawing(s).

Wall types: (to be assigned to groups by the professor)

1. EIFS (Exterior Insulation and Finish Systems)
2. Glass curtain wall
3. Masonry wall system; brick veneer
4. Masonry wall system; CMU
5. Metal panel
6. Precast; brick panel
7. Precast; concrete panel
8. Terra-cotta rainscreen
9. Thin stone veneer panels

Process:

1. Divide into research teams assigned by the Prof.
2. Each team member researches a specific manufacturer
3. Each team member collects general data and required details
4. Teams compare the wall systems and chart their results.
5. The teams chart is submittal (indicate clearly the selected system).
6. Each team selects one assembly manufacture/system for use in their projects.
7. Document the following details of your assembly for your project:
 - a. the typical wall section detail (how the system attaches to your structure)
 - b. a typical corner detail
 - c. (window) head detail w/ flashing
 - d. (window) Jamb detail w/ flashing
 - e. (window) Sill detail w/ flashing
8. Option Consider include the following recommended:
 - a. Interface between interior and exterior wall
 - b. Vertical expansion joint
 - c. Typical round penetration
 - d. Typical square penetration
 - e. Through wall flashing
 - f. Outside corner detail
 - g. Wall to balcony transition
 - h. Horizontal interface between barrier and drained wall
 - i. Vertical interface between barrier and drained wall
9. Save the research in a research folder with your project
10. User research to construct a new Revit wall type for your project
11. Draw a detail callout on your plan of your new exterior wall type.
12. Use the call out to create a 3D oriented view detail of your wall assemblies and post it.
13. Search the university or your home neighborhood for examples assembly under construction (if you cannot locate a building under construction sketch it completed example)
14. Sketch the assembly (sketch address on your drawing)
15. Optional add additional sketches
16. Post your completed sketch(s)

Submittals:

System comparison chart
3D view detail of your wall assembly
Research hand sketch

Optional submittals:

Additional analytical research sketches

Reading assignment:

http://www.wbdg.org/design/env_wall.php