



ARCH 2430

BUILDING TECHNOLOGY IV

September 2013

Concrete research assignment

Each student team will select on one of the following concrete systems to research:

1. Site cast flat slab construction
2. Site cast beam and slab
3. Precast solid slab and hollow core
4. Precast structural shapes (double tee, single tee)
5. Thin shell structures

Research topics

Each team will select one team member to research the following topics (two topics per team member):

1. System spans and effective spans
2. Construction time and cost
3. Flexibility of the system diversity of forms available
4. Architectural finishes available
5. Connection details
6. Systems strengths and weaknesses

Each member will select one building that is constructed with that type of concrete system as a case study and show the building and its properties

System spans and effective spans:

Research minimum and maximum distance the systems can support. Most importantly investigate the the optimal efficient distance system can span

Construction time and cost:

Investigate the following issues how quickly can the system be built in the field. What are the elements that contribute to the cost of the system? Does the system require a specialized labor force?

Flexibility:

What kind of structures can be built with the system? Describe the type of shapes can the system be created. What are massing implications of these shapes?

Architectural finishes:

Be sure to include the following information what kind of surface treatment what kind of precision what kind of colors and textures are available

Connection details:

Document and show the typical connection details between the supporting floors and their vertical structure. You should have sketches, diagrams and pictures describing these details.

Systems strengths and weaknesses:

Create a list of outlying the system's strengths and its typical applications. You should describe which types of structures the system is typically used for and why. We should also describe which types of structures the system will not be the most effective system and why.

Case study (all team members must do one case study):

Select the building of architecture note to document. Document the building and show where and how the concrete system was used. Describe why you think that particular system was selected for this project. Consider using your case study to help describe your particular research topics.

Submittals

Each team member must present a quality and in-depth examination of the topics. Quality and depth of it in information is more important than quantity however at least four 11x17 sheets explaining in text and graphics what they have researched should be created by each team member. The each team will present their work together to describe the advantages and disadvantages of system they are investigating. The team as a whole needs to create at least one conclusion sheet, that sheet needs to outline the most interesting and useful aspects of that particular system.

The team will also need to produce a PowerPoint to present the class. The project will be evaluated both as a team effort and per the individuals work. (30% of the grade from teamwork 70% for individual achievement)

The research project must be posted up to the open lab site before the presentation due date of the project. You will be asked to present your research from the posted team project on the open lab.

This project is due in approximately 2 weeks. You may have a rough draft due before the final.