Course Description
Continuing study of materials and practice in document preparation for construction of multi-floor buildings of a more complex nature, contemporary materials, components, systems, steel and concrete framing systems using short- and long-span steel joists, steel pans, pretensioned, post-tensioned, and precast components. Correlation with electrical, mechanical, and structural work is also incorporated.

Lecture: 3 hours. Laboratory: 6 hours.
Prerequisites: Arch 242, Arch 219, and major in Arch. Studies or consent of Arch. Study’s coordinator.
Prerequisite to: Architecture 451

Instructor Information

Name: Thad Heckman, Architect, Senior Lecturer
Office: 401 Quigley Hall
Telephone Numbers: 453-3734 (Voice), 453-1129 (Fax), Office Direct: 453-1944
Office Hours: 10:30 am to 11:50 am and 1:15 p.m. to 1:50 p.m. M/W 1:50 - 2:50 Tu/Th, Other times by appointment
E-mail: thadhkmn@siu.edu  thad2@frontier.com (preferred)

Textbooks/Supplies


Metric architect’s scale, metric templates, and other drafting equipment as required.
Flash Drive, Computer disks, plotting paper, and other electronic and physical media.
Course Objectives

1. Develop an understanding of the construction of fire-resistive structural steel buildings.
2. Become familiar with current building codes and classifications of buildings and structures.
3. Become familiar with the coordination and techniques of contract document production.
4. Execute plans, sections, elevations, details and schedules for a building of steel frame construction.
5. Understand the process of researching building materials, apply the research to development of construction details, and execute those details.
6. Gain a working knowledge of the metric system as it applies to contract document preparation.
7. Gain a working knowledge of the Uniform Drawing System.

Topical Outline

I. Construction Principles, Materials, and Methods (approximately 25%)
   a. Substructure, superstructure, exterior & interior materials, and roofs.
   b. Development of massing, void, rhythm, etc. in architectural projects.
   c. Relationships of architectural to structural systems including use of structural drawings.
   d. Relationships of architectural to mechanical, electrical, and plumbing systems.
   e. Understanding construction sequence, responsibility, and coordination in a multi-story steel framed building.

II. Architectural Design Development & Working Drawings (approximately 75%)
   a. Floor plans, foundation plans, elevations, sections, and referencing using UDS.
   b. Applying the metric system to architectural drawings.
   c. Applying sketching techniques to resolve architectural problems.
   d. Applying advanced uses of AutoCAD/REVIT software to complete working drawings.
   e. Working with MasterFormat to research building materials.
   f. Understanding the uses of Contract Documents in architecture.

Expectations of Students

1. Students are expected to actively participate in each session by asking and answering questions, exploring solutions by discussing notes, concepts, and ideas in an informal manner. During lecture and discussion periods, students may not use computers to complete any work. Computers are to be used ONLY during the lab time.
2. Attendance at ALL lecture and lab sessions is mandatory. Two absences will be excused. Each absence beyond two will result in a student’s final grade in the course being lowered by 5% and after the fifth unexcused absence, the student’s grade will be lowered by 10%. Please arrive on time so as not to disrupt class. Tardy will include late arrival and early class departure without permission. Three tardies constitutes and absence. PLEASE advise the instructor of extenuating circumstances. A Doctor’s note, Police Report or other vetted certification will be required to document extenuating circumstances.
3. During lab, students are expected to use only software appropriate to the goals of the course. Use of instant messaging programs, music sharing programs, etc. is NOT appropriate to the goals of the course and is not permitted.
4. Students are expected to research building materials in advance to prepare for the lab problems. Material catalogs are available in Quigley 005 for this purpose. Internet access is available in Quigley 106 for researching materials; manufacturers’ or using Sweet’s On-line. Information gathered is to be used only for appropriate research activities or as described in class. Copying information, except when students have been told to make use of files or other media for class purposes, is considered plagiarism.
5. Students are expected to submit all projects on time. Only projects submitted at the specified time and place will be considered for full credit. Projects will be accepted up to one (1) day late, subject to a penalty of twenty (20) grade points. For purposes of computing the late penalty all days of the week are used, including Saturday & Sunday. Projects more than one (1) day late will not be accepted, resulting in the student receiving a zero (0) on that project. You must ask the secretary to initial and date/time stamp any project submitted outside regular class hours, unless given directly to the instructor. The late penalty of twenty points is assessed for one day or a portion thereof.
6. Students are expected to comply fully with the policies of Southern Illinois University Carbondale.
7. Disable cell phones, paging devices, etc. so as not to disrupt class. Due to a history of students "tuning out" with the use of headphones or ear buds, they are no longer permitted while working in lab. Your attention during impromptu questions and clarifications in lab is paramount.

8. Students are expected to keep all work areas clean. No food or drink will be permitted at any time in Quigley 106.

9. Students are expected to work in class during the scheduled time, in addition to work completed outside class. Students who prefer to work outside class will need to learn to work in class on the assigned projects during the scheduled time. This is in keeping with the practices of a professional office, and will help the student to develop good work habits – habits that are expected in an architect's office, while also available to the Instructor for progress reviews of work.

10. A break is a maximum of ten (10) minutes long. Students are entitled to two (2) breaks during each lab session. The two breaks may be combined into one twenty (20) minute break taken during the lab. Breaks can be taken at any time during the lab session, unless students begin to disappear for extended periods of time. If that occurs, break time will be dictated for all students at a specified time during the lab session.

11. The use of any tobacco product is forbidden in class. This includes tobacco in all of its forms and extends to all rooms and spaces in which any portion of the class is conducted, as well as those spaces necessary to access classroom areas. It also includes any field trip or outside activity that is a part of the class’ activities. Failing to comply with this class policy will be considered a violation of the Student Conduct Code of Southern Illinois University Carbondale, article II, section 4. Students are directed to article III, section B, which states that the punishment shall be: “A failing grade (F) may be assigned for the course in which the violation occurred.”

12. No visitors are permitted in class.

13. Unless work is assigned as a team, each student shall do his or her own work. Please review the Student Conduct Code of Southern Illinois University Carbondale – especially those areas related to University policy regarding acts of academic dishonesty and the definition of plagiarism.

14. Drawings, details, articles, and files or media found on web sites, CD ROMs, other electronic media, or from students who have previously completed all or a portion of this course MAY NOT BE USED FOR ANY PURPOSE IN THIS CLASS. The instructor will provide students with appropriate materials or with references to where materials may be located when it is permissible to access such materials. Using the work of another student for any purpose is NEVER PERMITTED and will always be regarded as an act of academic dishonesty.

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**Plagiarism**

Computer software makes it very easy to copy information from one file to another. For this reason, this additional information is provided to help students understand what constitutes plagiarism in ARC 342. In addition to the description given in the Student Conduct Code (http://www.siuc.edu/~policies/policies/conduct.html), these activities are counted as plagiarism:

- Permitting your work to be used by another student even as a review example,
- Granting access to your CAD file,
- Reviewing the work of another person except as provided in class,
- Copying any portion of another file into your ARC 342 solution except for those files provided in class for this purpose, and
- Presenting as your own work any solution that is not created by you.

If there are doubts about whether to use a file, portion of a file, or other information as part of your class project, ASK before doing it! Students who are found to have committed plagiarism in ARC 342 will fail the class.

**Coursework**

Architecture 342 will consist of completing design development research and construction drawings on an assigned multi-story building. The drawings will be representative of typical drawings completed in an architect's office on a project of this size, but the assignments will not form a complete set of drawings for the building. All students must complete class projects using Revit Architecture software.

Original plot media are required of all students with each project. The costs of plots will be borne by the student. Photocopies are not acceptable. Students must also submit an electronic copy of each project in AutoCAD format. The process for providing these files to the instructor using the department network will be reviewed in class.
There will be only two exams, one at midterm and the other during finals week. Both exams will be comprehensive in nature. Exams in this class are difficult. Some of the questions used on the exams are taken directly from past NCARB Architect's Registration Exams. Others are taken from lecture and the lab problem. Because of the nature of the three building technology classes at SIUC, the exams in Architecture 342 build on knowledge from the other two building technology courses.

**Grading**

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<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>BIM Model</td>
<td>20</td>
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<td>Five projects*, each at 10%:</td>
<td>50</td>
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<tr>
<td>Sketchbook/ Digital Booklet (5%), Reading (5%)</td>
<td>10</td>
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<tr>
<td>Midterm exam:</td>
<td>10</td>
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<td>Final exam:</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100%</strong></td>
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*Projects may consist of several submissions as part of one course grade as described in class handouts provided with each project.

Grade Scale:  
A = 100 - 90  
B = 80 - 89  
C = 70 - 79  
D = 60 - 69  
F = 59 & below.

Since the 10-point scale will be used in Architecture 342 this semester, students should expect the grading scale to be APPLIED STRICTLY. For example, 89.999 is a B. Students should also NOT expect bonus points to be available in this class.

Individual grades will not be curved in this class. If a curved grading method is used, it will be applied at the end of the course only. (In all of the past years of teaching this class, grades have never required an adjustment.) The grade of INC will not be assigned unless all the requirements of the University and the Department are met. Those requirements include: 1) an extraordinary circumstance outside the student’s control that interfered with completion of the course, 2) the student was passing the course at the time the INC grade is issued, and 3) an approved INC grade agreement has been executed between the student and the instructor. Students given an INC may not enroll in any course for which this course is a prerequisite until the INC has been satisfied.

See the attendance requirement under Student Expectations in this document for the attendance policy.

**Additional Information**

A note on Revisions in Architecture 342: Revisions are not a required element of coursework in this class. Class discussion regarding revisions will take place at midterm. If offered, revisions may be completed as a replacement grade for any lower project grade, but not as a replacement for a zero, the grade that would be received for failing to complete a project at the required time. Revisions must include all of the work discussed in class. The maximum grade that may be earned on each project is based on this formula: ((100 – Original Project Score) / 2 * Percentage of Revisions completed on the project) + Original Project Score. More discussion of the topic of revisions will be given in class as appropriate.

**NATIONAL ARCHITECTURE ACCREDITING BOARD**  
**PART TWO (II): SECTION 1-STUDENT PERFORMANCE**  
**EDUCATIONAL REALMS & STUDENT PERFORMANCE CRITERIA**

The accredited degree program must demonstrate that each graduate possesses the knowledge and skills defined by the criteria set out below. The knowledge and skills are the minimum for meeting the demands of an internship leading to registration for practice. The school must provide evidence that its graduates have satisfied each criterion through required coursework. If credits are granted for courses taken at other institutions or online, evidence must be provided that the courses are comparable to those offered in the accredited degree program.

The criteria encompass two levels of accomplishment:

- **Understanding** - The capacity to classify, compare, summarize, explain and/or interpret information.

- **Ability** - Proficiency in using specific information to accomplish a task, correctly selecting the appropriate information, and accurately applying it to the solution of a specific problem, while also distinguishing the effects of its implementation.
The NAAB establishes performance criteria to help accredited degree programs prepare students for the profession while encouraging educational practices suited to the individual degree program. In addition to assessing whether student performance meets the professional criteria, the visiting team will assess performance in relation to the school's stated curricular goals and content. While the NAAB stipulates the student performance criteria that must be met, it specifies neither the educational format nor the form of student work that may serve as evidence of having met these criteria. Programs are encouraged to develop unique learning and teaching strategies, methods, and materials to satisfy these criteria. The NAAB encourages innovative methods for satisfying the criteria, provided the school has a formal evaluation process for assessing student achievement of these criteria and documenting the results. For the purpose of accreditation, graduating students must demonstrate understanding or ability as defined below in the Student Performance Criteria (SPC) assigned to this course:

B.3. Codes and Regulations: Ability to design sites, facilities, and systems that are responsive to relevant codes and regulations, and include the principles of life-safety and accessibility standards.

B.4 Technical Documentation: Ability to make technically clear drawings, prepare outline specifications, and construct models illustrating and identifying the assembly of materials, systems, and components appropriate for a building design.

B.5 Structural Systems: Ability to demonstrate the basic principles of structural systems and their ability to withstand gravitational, seismic, and lateral forces, as well as the selection and application of the appropriate structural system.

B.7 Building Envelope Systems and Assemblies: Understanding of the basic principles involved in the appropriate selection and application of building envelope systems relative to fundamental performance, aesthetics, moisture transfer, durability, and energy and material resources.

B.8 Building Materials and Assemblies: Understanding of the basic principles used in the appropriate selection of interior and exterior construction materials, finishes, products, components, and assemblies based on their inherent performance, including environmental impact and reuse.

B.9 Building Service Systems: Understanding of the basic principles and appropriate application and performance of building service systems, including lighting, mechanical, plumbing, electrical, communication, vertical transportation, security, and fire protection systems.

Source: National Architecture Accrediting Board

**Recommended Reading for Further Study & Reference**


SEE ATTACHED BERT EMERGENCY PROCEDURES

NOTES: