The University of Texas at Austin
Department of Civil Engineering

ARE 335 Materials and Methods of Building Construction – Spring 2005

UNIQUE NUMBER: 13735

INSTRUCTOR: Dr. Carlos H. Caldas
ECJ 5.436
Phone: 471-6014    Fax: 471-3191
e-mail: caldas@mail.utexas.edu
http://www.ce.utexas.edu/prof/caldas/

MEETINGS: Wednesday – 9:00AM-11:00AM; Friday – 9:00AM-10:00AM
Room ECJ 5.406

OFFICE HOURS: Wednesday – 11:00AM-12:00PM; Friday – 10:00AM-12:00PM
or by appointment.

I encourage students to come see me to address any questions or concerns about
the course material or other issues. I have an open door policy – if my office door
is open, I will see students without an appointment. If I am busy, we will
schedule a convenient time for both of us. I will respond to most emails, but
owing to problems that can occur in sending and receiving electronic messages, it
is much better to come to my office or call me.

WEB PAGE: You will find the online materials for this course at the Blackboard web site at:
https://courses.utexas.edu

GRADER: Seok Ho Chi (shchi@mail.utexas.edu) – ECJ 5.404

COURSE OBJECTIVES:

The objective of this course is to introduce students to the fundamentals of building materials and related
construction methods. The class will involve lectures, videos, class discussion, group projects, and
student presentations. By taking this class you will be able to:

1) Recognize and understand the technical vocabulary related to materials and methods of building
   construction;
2) Identify and analyze different components, their properties, and their three-dimensional
   configurations;
3) Understand manufacturing/fabrication and site construction processes.

Two team semester projects will serve as the primary mechanisms for further developing problem-solving
and technical communication skills.

TOPICS COVERED:

This course will cover general building material properties, codes and standards, and material
properties/construction methods pertaining to soils, foundations, concrete, metals, wood, masonry,
closure systems, plastics, and moisture control. In the context of buildings, emphasis is on engineered
systems and materials, rather than those designed primarily by architects.
OVERVIEW OF COURSE CONTRIBUTIONS TO ABET ARE PROGRAM OUTCOMES:

Critical contribution: Design project elements with a good understanding of associated safety, quality, and schedule aspects.

Important contribution: Undertake field data collection efforts to support study of significant processes; Practice teamwork skills; Appreciate the constantly evolving nature of ARE design and practice and recognize the need to stay abreast of recent developments.

Moderate contribution: Understand realistic ARE project problem conditions, identify significant contributing factors, and generate alternative solutions; Integrate structural engineering and construction management concepts into a creative engineering solution that reflects environmental sensitivities.

Some contribution: Employ CAD to support project solutions; Present technical solutions through oral, written, and graphical communication; Be aware of sources of guidance for professional decision-making.

CATALOG PREREQUISITES:

Registration in this course requires admission to the ARE major course sequence and credit for CE 314K Properties and Behavior of Engineering Materials.

TEXTBOOKS:

- CPS remote and enrollment code. The attached “Getting Started with CPS” handout provides information on how to obtain a CPS remote and purchase an enrollment code.

Supplemental course PowerPoint lectures, announcements, and other supplemental materials will be accessible through the course Blackboard website.

GRADING:

Grade components will be weighted as follows in the computation of the final course grade:

- Student photo/background sheet (due Jan. 28) 2 %
- Mid-Term Exam 22 %
- Final Exam (1 hour) 22 %
- Design Project Submittal #1 12 %
- Design Project Submittal #2 12 %
- Design Project Oral Presentation 4 %
- Site Visits Research/Oral Presentation 20 %
- Attendance and Participation 6 %

100 %

COURSE LETTER GRADES:

The correspondence of letter grade to numerical grade is:

A: grade ≥ 90
B: 80 ≤ grade < 90
C: 70 ≤ grade < 80
D: 60 ≤ grade < 70
F: grade < 60
Students are expected to actively participate and contribute to class discussions and the team semester projects. In order to assist the instructor in learning student names please add a photo of yourself to the attached student background form and turn it in to the instructor by or before Jan 28 (this is worth 2%).

The instructor reserves the right to adjust letter grades, upward only, based on individual attendance and class participation if the numerical grade warrants such consideration.

COURSE/INSTRUCTOR EVALUATIONS:

Each student will be given the opportunity to evaluate the course using the standard course/instructor evaluation form during the last week of classes. Feedback from students will be requested throughout the semester.

POLICIES:

Exams and Group Assignments:

Exam dates are listed on the syllabus. Make-up exams will only be available to those with legitimate, documented medical reasons (as verified with a note from a physician). Please note the date of the final exam - no early exams will be given.

This course, by necessity, involves the introduction of a large number of new technical terms. Exams will emphasize both concepts discussed in class and technical vocabulary. Acquiring a technical vocabulary does not come easy for most of us and doesn’t result from last minute exam “cramming.” Learning theory has proven that mental retention of new terms occurs best with repetitive study and usage/application. Accordingly, please read assignments prior to class, review course notes periodically, ask questions for any clarifications needed, and try to make the terms part of your class projects, presentations, and “everyday” working technical vocabulary.

The student is responsible for all reading assignments and class handouts whether or not covered in class or listed on the syllabus.

There will be two group projects. Project deliverables’ due dates are posted on the syllabus. All deliverables are due at the beginning of the period assigned and those turned in late will count off 10% per day. (no exceptions!--except those listed for the exam make-up)

My goal is to return all exams and project deliverables to students within two course-weeks from the date submitted.

Class Participation and Attendance:

It is important that you are familiar with the course material as the course evolves. Your ability to answer questions and discuss the material will be part of the overall participation evaluation. Therefore, you should review class material ahead of time. Regular attendance is expected and encouraged. The CPS system will be used to assess your attendance. Your attendance will be used to evaluate your participation grade. I consider a student missing more than one week of class lectures without excuse to be a serious participation problem. In some cases, I will petition the Office of Student Affairs to drop students from the course who have excessive absences and may withhold the entire participation grade at my discretion for participation problems. Each student is responsible for all material and administrative instructions given during the lecture period.
Personal Problems:

If you have illness or personal problems that will affect your performance during the course of the semester, please let me know as soon as possible. “After the fact” provides little protection unless there are extreme circumstances. I have an answering machine, a fax machine, and an e-mail address if you need to get in touch with me after hours. Do not hesitate to use them.

Scholastic Dishonesty:

IMPORTANT! Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from The University. Since dishonesty harms the individual, all students, and the integrity of The University, policies on scholastic dishonesty will be strictly enforced. For further information, visit the Student Judicial Services web site http://deanofstudents.utexas.edu/sjs/. Remember, individual assignments are not group projects and do not build on the efforts of others without due reference. It is considered a violation of University rules on scholastic dishonesty to use another student’s CPS remote.

Students with Disabilities:

The University of Texas at Austin provides, upon request, appropriate academic adjustments for qualified students with disabilities. Any student with a documented disability (physical or cognitive) who requires academic accommodations should contact the Services for Students with Disabilities area of the Office of the Dean of Students at 471-6259 as soon as possible to request an official letter outlining authorized accommodations. For more information, contact that Office, or TDD at 471-4241, or the College of Engineering Director of Students with Disabilities at 471-4321.

Privacy – Web Based Class Sites:

Web-based, password-protected class sites may be associated with all academic courses taught at the University. Syllabi, handouts, assignments and other resources are types of information that may be available within these sites. Site activities could include exchanging email, engaging in class discussions and chats, and exchanging files. In addition, electronic class rosters will be a component of the sites. Students who do not want their names included in these electronic class rosters must restrict their directory information in the Office of the Registrar, Main Building, Room 1. For information on restricting directory information, see: http://www.utexas.edu/student/registrar/catalogs/gi00-01/app/appc09.html.

Dropping the Class:

Undergraduate Students: From the 1st through the 4th class day, an undergraduate student can drop or add a course on ROSE or TEX. From the 5th through the 12th class day, a student can drop through ROSE or TEX; adds must be done in the department offering the course. For any drops beginning with the 13th class day, a student must initiate the drop process in the office of the Dean (ECJ 2.200). Departmental advisor and instructor approval may be required.

Graduate Students: From the 1st through the 4th class day, graduate students can drop or add a course on Rose or TEX. Beginning with the 5th class day, graduate students must initiate any adds or drops in their department. Graduate students can drop a class until the last class day with permission from the departmental Graduate Advisor and the Dean. Graduate students with GRA/TA/Grader positions or with Fellowships may not drop below 9 hours in a long session.
Computer Usage:

Students are expected to be proficient on a personal computer and to be able to use CAD, word processing, and spreadsheet programs. Familiarity with the Civil Engineering Learning Resources Center (LRC) is assumed. The web-based UT Blackboard system will be used extensively to coordinate class assignments and disseminate course information, including class notes.

GROUP PROJECTS:

Group Project #1: Design & Construction Planning of a Facility

This semester project will be executed by teams comprised of two students. Your team is to design and provide some construction planning for one of the following project options:

- A prototype neighborhood commuter station for the light rail system in Austin. The structure should provide for approximately 4,000 s.f. of covered yet open space.
- An open-air yet covered UT student assembly/performance structure. The structure should provide for between 500 and 700 s.f. of covered stage floor space. In addition, the structure should cover between 3,000 and 4,000 s.f. of audience seating (design of audience seating will be by others).

Student design teams may select any appropriate UT or near-UT site for their selected project. In addition to the space described above, both options should also provide for approximately 80 s.f. of secureable storage space and a set of Men’s/Women’s public restrooms (each approximately 200 s.f. in size).

For either option, the primary project design objectives are two-fold:

- Design a facility where the structural system is creatively and visibly expressed; and
- Prepare a highly constructable solution which optimizes the amount of work that is modularized or preassembled.

Your drawings and construction plans should show how this is to be accomplished. In order to demonstrate the different possibilities and to diversify the design challenges, different student design teams will work with different types of primary structural materials and systems. Thus, teams are to work within the confines of a selected/assigned primary structural material/system. The attached Project Option Preference Form presents the optional material systems available for consideration. Teams should rank-order their top 5 preferences (by indicating 1st choice, 2nd choice, etc.) and submit this completed form to the instructor by Jan 28. The instructor will make every effort to satisfy those preferences.

Per the attached syllabus, each team should schedule two team appointments with the instructor. Please arrange these with the instructor before/after class or by email (caldas@mail.utexas.edu).

Submittal #1: Due on March 23; Should include all of the following:

- 1 floor plan/site plan (minimum scale for all drawings: to be announced)
- 2 building elevations
- 2 building sections
- 1 structural framing plan (similar to a reflected ceiling plan)
- Statement on the advantages and disadvantages of this particular structural material
- Statement of constructability issues and modularization scope and plan
This submittal will be graded on the following basis:

- Technically complete & technically reasonable 20 %
- Effective use of modularization/preassembly 20 %
- Creativity of solution 20 %
- Professional presentation 20 %
- Completed on time 20 %

Grades for this submittal will be assigned on a team basis rather than on an individual basis. Work effort should be equitably distributed among each team member and the instructor should be notified if/when this is not the case.

**Something to think about: Constructability**

What makes one facility design "more constructable" than another? What are the features or characteristics of a "constructable" design? Key ideas: technical feasibility, design simplification, design standardization (including use of repetitive elements), modularization/preassembly, accessibility for constructors, selection/use of efficient technologies, effective integration between systems, integration between permanent & temporary facilities, compatibility with local labor/equipment/tool capabilities, ...

For the Design Project, students should keep the following in mind:

- show the most informative views for elevations and sections;
- seek reasonable/realistic sizes & construction connections;
- avoid line weights that are too light; differentiate section from elevation line weights;
- shade solid elements in section; indicate material & paving patterns;
- use dashed lines to indicate major overhead elements in plan (e.g., beams, skylights, etc.);
- ensure technical compatibility between all drawings;
- seek consistent level of quality among all drawings (including sheet size);
- include North arrow and scale on each drawing or sheet.

The detailed assignment for Design Project Submittal #2 will be distributed in Week #9.

The team oral presentation of the project at the end of the semester (and accounting for 4% of the total course grade) will cover both submittals and will be evaluated on extent and quality of information conveyed either orally or through the drawings, and on the accuracy of statements made. Please note: your student peers will view the drawings from a distance and since the presentations usually last less than 5 minutes, the instructor’s impressions happen quickly.

**Group Project #2: Site Visits Research and Oral Presentation/ Witnessing & Analysis of Manufacturing & Field Installation Processes**

This semester project will also be executed by teams comprised of two students (students may keep the same teams for both projects – or not). The intent of this team assignment is to increase students’ awareness of the details of manufacturing, fabrication, and site construction with a more “hands-on” approach. As with the Design Project, topic preferences should be indicated on the attached form (due Jan 28). The instructor will formally announce assigned team topics during the third week of class.

For each assigned topic, each team should visit a minimum of two construction job sites and/or material manufacturing/fabrication facilities to gain first-hand knowledge on the selected topic. In addition, some research into technical consensus standards, building codes, and manufacturer literature is required. This knowledge should then be shared with fellow students via a highly visual slide presentation.
Thus, each team is expected to independently take several field trips, to acquire relevant information, to document the visits and findings with the use of Powerpoint, 35 mm slides, and/or overhead transparencies, and to present the findings to the class in an informative presentation to last approximately 20 minutes. Regarding the development of PPT visuals: please do not include multiple (smaller) images on a single slide or screen.

The specific optional topics for consideration include the following:

| Retaining wall construction, earthmoving, and/or compaction; | Fabrication and site erection of wood trusses |
| Tunneling, micro-tunneling, directional drilling, pipe jacking, and/or other trenchless technology; | Brick masonry manufacture and site erection. |
| Pile driving and pile cap construction; | CMU masonry manufacture and site erection. |
| Cement plant and concrete batch plant; | Stone masonry manufacture and site erection. |
| Precast concrete fabrication and site erection (excluding tilt-wall); | Site installation of EIFS |
| Tilt-wall construction and erection; | Glass curtain wall (not store-front constr.) fabrication and site erection. |
| Cast-in-place concrete formwork, shoring, pumping, and finishing; | Site construction of utility piping; include 2 of 3 different piping materials: concrete, metal, plastic |
| Structural steel shop fabrication and site erection; | HVAC ductwork fabrication and site erection |
| Fabrication and site erection of a “premanufactured metal building”; | Roofing; include 2 of 4 different systems: metal, single ply, built-up, tile. |
| Metal process piping/plumbing shop fabrication and site erection; |

Presentations should explicitly address each of the items in the attached evaluation form. Please note the point values allocated for each of these items.

Presentations will be scheduled by the instructor so as to complement the lecture material presented in class (see the attached schedule of topics and designated Site Visit Presentation Periods). In addition, a copy of the slides (on CD) should be turned in to the instructor at the time of the team class presentation.

A major component of the presentation is the Site Inspector’s Checklist handout. This checklist should include a minimum of 8 assessment items that would be highly relevant to a construction site inspector (and pertaining only to the topic of the overall presentation). The presenting team should pass copies of the checklist out during the presentation and quickly go over its contents. The technical issues should be stated in question format and should be drawn from a variety of source types:

- Building codes (e.g., UBC, IBC, etc.)
- Consensus standards (e.g., ASTM, ISO, etc.)
- Material technical societies (e.g., ACI, AISC, AITC, BIA, Masonry Society, etc.)
- Manufacture’s literature (specific to each manufacturer)
- Standard or project specifications (e.g., US Army Corps of Engineers, TxDOT, TCEQ, etc.)

The content of each checklist should be drawn from no fewer than three such sources. Checklists will be graded on the basis of quality of content as indicated by relevance, significance, meaningfulness, accuracy, and completeness. Appropriate subheadings should be used to effectively structure the checklist.
**Also: Think Safety!!** As you make your site visits, please adhere to all safety cautions and recommendations.

As a reminder, for both the Design Project and the Site Visits Research Project, student teams should inform the instructor of team membership(s) and declare their preferred ranked material options by Jan. 28 via the one-page submittal form attached at the end of this syllabus.

**Operation and Cleanliness of the Design Studio:** ECJ 5.406 hours of operation are approximately 7 am to 11 pm Monday through Friday. Weekend hours will be scheduled on an as needed basis and posted. Please assist in keeping the design studio clean and uncluttered. Please clean up after yourself. No food or drink is permitted. When cutting materials, please use a cutting board in order to protect drafting surfaces. Return reference materials to their proper location. No spray-based fluids are to be used indoors. Thank you for helping to maintain this facility.

**IMPORTANT DATES:**

No classes on March 16 and 18 due to Spring Break. February 2 is the last day to drop a class for a possible refund. February 14 is the last day to drop a class without a possible academic penalty. March 28 is the last day to change the course to/from credit/no credit or pass/fail. May 6 is the last day a graduate student may, with the required approvals, drop a course or withdraw from the University. Midterm: Friday, March 11.
SCHEDULE:

**Note:** The course schedule is subject to changes. Any changes in the course schedule will be communicated in advance and posted in the course Blackboard web page.

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Reference Material (Simmons)</th>
<th>Assignment Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 19</td>
<td>Introduction; Team formation and project selection; Building Big: Skyscraper Video</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jan 21</td>
<td>Going Metric; General Material Properties</td>
<td>1.8, 1.10</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Jan 26</td>
<td>General Material Properties; Codes &amp; Standards</td>
<td>1.5, 1.6, 1.10</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Jan 28</td>
<td>Soils, Foundations &amp; Earthworks</td>
<td>2.1 – 2.4</td>
<td>Student Photo/Background Sheet; Team Project Preferences</td>
</tr>
<tr>
<td>3</td>
<td>Feb 02</td>
<td>Soils, Foundations &amp; Earthworks</td>
<td>2.1 – 2.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feb 04</td>
<td>Soils, Foundations &amp; Earthworks</td>
<td>2.1 – 2.4</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Feb 09</td>
<td>Concrete</td>
<td>All of Chapter 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feb 11</td>
<td>Design Team Appointments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Feb 16</td>
<td>Concrete</td>
<td>All of Chapter 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feb 18</td>
<td>Concrete</td>
<td>All of Chapter 3</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Feb 23</td>
<td>Metals</td>
<td>5.1 – 5.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feb 25</td>
<td>Site Visit Presentation Period #1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Mar 02</td>
<td>Metals</td>
<td>5.1 – 5.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mar 04</td>
<td>Site Visit Presentation Period #2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Mar 09</td>
<td>Wood</td>
<td>6.1 – 6.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mar 11</td>
<td>Midterm Exam</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Mar 16</td>
<td>SPRING BREAK</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mar 18</td>
<td>SPRING BREAK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Mar 23</td>
<td>Wood</td>
<td>6.1 – 6.7</td>
<td>Design Project Submittal #1</td>
</tr>
<tr>
<td></td>
<td>Mar 25</td>
<td>Site Visit Presentation Period #3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Mar 30</td>
<td>Masonry</td>
<td>4.1 – 4.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apr 01</td>
<td>Site Visit Presentation Period #4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Apr 06</td>
<td>Design Team Appointments</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apr 08</td>
<td>Video</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Apr 13</td>
<td>Masonry; Plastics/FRP</td>
<td>4.1 – 4.8; 6.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apr 15</td>
<td>Site Visit Presentation Period #5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Apr 20</td>
<td>Exterior Envelope</td>
<td>7.4; 8.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apr 22</td>
<td>Site Visit Presentation Period #6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Apr 27</td>
<td>Moisture Control</td>
<td>7.1, 7.2, 7.11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apr 30</td>
<td>Site Visit Presentation Period #7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>May 04</td>
<td>Design Project Presentation Period #1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>May 06</td>
<td>Design Project Presentation Period #2; Course Wrap-up</td>
<td></td>
<td>Design Project Submittal #2</td>
</tr>
<tr>
<td></td>
<td>TBD</td>
<td>Final Exam</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Site Visit & Research Presentation Evaluation Form

Team: ____________________________  
Topic: ____________________________  
Date: ____________

<table>
<thead>
<tr>
<th>#</th>
<th>Required Item</th>
<th>Max. Pts.</th>
<th>Your Score</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Evidence of a minimum of two site visits; List sites visited, dates of visits, and primary contacts</td>
<td>2 X 10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2A</td>
<td>Resources: Human skills</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2B</td>
<td>Resources: Equipment &amp; tools</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2C</td>
<td>Resources: Materials</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2D</td>
<td>Resources: Temporary facilities/ utilities</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Illustrations of design configurations; Please do not repeat material contained in course notes</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Flow chart showing sequence of the manufacture/fabrication process</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Flow chart showing sequence of the site construction process</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Site inspector’s checklist (a separate handout provided to all students and instructor)</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Quantitative estimates and supportive computations of field productivity unit rates for a defined crew/equipment mix; see example calculation worksheet</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Identification &amp; estimation of the weight of the heaviest item to be lifted at the job site</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Identification &amp; estimation of the size of the largest item to be transported/installed at site</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Identification and description of specific and real hazards or threats to constr. quality</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Identification and description of specific and real hazards or threats to job site safety</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Quality of visuals &amp; figures shown</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Logic of the sequence of technical content</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Presented on schedule as originally scheduled</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Team Project Preferences (Due Jan. 28)

For Design Project:

Team Members: (in alpha order by last name)

____________________________________

Which project?  
Commuter Station  
Student Assembly/Performance Structure

Indicate your team's preferences for primary structural system material (1st, 2nd, 3rd, etc.):

_____ Cast-in-place concrete
_____ Pre-cast concrete
_____ Steel
_____ Aluminum
_____ Heavy timber or Wood trusses
_____ Gluelam
_____ Reinforced, load-bearing masonry (for columns/walls)

For Site Visit Research Project:

Team Members (if different from Design Project): (in alpha order by last name)

____________________________________

Indicate your team’s preferences (1st, 2nd, 3rd, etc.) for topic:

• Retaining wall construction, earthmoving, and/or compaction;
• Tunneling, micro-tunneling, directional drilling, pipe jacking, and/or other trenchless technology;
• Pile driving and pile cap construction;
• Cement plant and concrete batch plant;
• Precast concrete fabrication and site erection (excluding tilt-wall);
• Tilt-wall construction and erection;
• Cast-in-place concrete formwork, shoring, pumping, and finishing;
• Structural steel shop fabrication and site erection;
• Fabrication and site erection of a “premanufactured metal building”;
• Metal process piping/plumbing shop fabrication and site erection;

• Fabrication and site erection of wood trusses
• Brick masonry manufacture and site erection.
• CMU masonry manufacture and site erection.
• Stone masonry manufacture and site erection.
• Site installation of EIFS
• Glass curtain wall (not store-front constr.) fabrication and site erection.
• Site construction of utility piping; include 2 of 3 different piping materials: concrete, metal, plastic
• HVAC ductwork fabrication and site erection
• Roofing; include 2 of 4 different systems: metal, single ply, built-up, tile.
Student Background Sheet (Due Jan. 28)

Your Photo Here

Name:

Hometown:

Industry Work Experience:

Please circle classes that you've already completed:

ARE 320K       ARE 320L       ARE 323K       CE 329       CE 335       CE 331       CE 357