

University of Waterloo School of Architecture
Arch 173: Building Construction II // Winter 2020
Tuesdays from 10 a.m. — 1 p.m. // ARC 1101

SYLLABUS

Instructor and TA Information

Adjunct Professor
Justin Forrest Breg
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Teaching Assistant
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Office Hours: To Be Determined

Course Description

This course is concerned with questions of ‘how’ in architecture:

- How are materials placed and joined?
- How are assemblies layered?
- How can we achieve desired forms?
- How can we control aesthetic and tactile qualities of a built work through construction processes?

We are especially interested in sectional drawings, as we peel away the layers of contemporary and historically significant buildings.

The first portion of the course is focused on major techniques for the assembly of structure: principally concrete, steel and wood.

Subsequently, we study the bread-and-butter of architectural drawings: details of air-tightness, thermal and moisture control, claddings, and fenestration.

In March, we will explain the logic of the Building Codes, and introduce basic principles of fire separation and barrier-free design. We will discuss options for controlling the interior environment of a building, and offer some basic strategies for coordinating the services that that weave through buildings.

Near the end of term, we will take on more challenging aspects of building construction, including building in extreme environments, retrofitting historical buildings, and constructing very large buildings.

We will regularly review examples from architects who have managed these complex requirements in clever and novel ways.

Course Requirements

Quizzes

Three quizzes will be held throughout the term as 'checks' to test comprehension. Quizzes will be held at the end of class, on the dates noted in the schedule below.

Assignments

Two assignments will be required. Instructions will be provided via Learn. Assignments will be due at the start of class, on the dates noted in the schedule below.

Final Project

A final project will assess your mastery of building construction concepts. Further details will follow later in the course. A hardcopy of your final project will be due to the Main Office at 3:00 p.m. on Wednesday 22 April. A digital submission will be required by 10:00 p.m. on the same day.

The term mark will be proportioned as follows:

(3) Quizzes @ 10% each	30%
(2) Assignments @ 15% each	30%
(1) Final Project	40%

Objectives

Through this course, students will acquire the following:

- familiarity with major techniques for erecting structures;
- an understanding of key principals for detailing enclosures;
- a general sense of how to manage building systems efficiently;
- an appreciation for accessibility in architecture;
- vocabulary to communicate ideas and intentions;
- skill to innovate intelligently when designing increasingly complex projects.

Students will be equipped to resolve challenges and control the qualities of their architecture, as they become better aware of how their ideas and drawings will actually be given form through construction.

Schedule

Structure

January 14 Introduction / Review of Light Construction / Concrete

January 21 Steel / Mass Wood

Skin

January 28 Building Modules: Introduction to Assembly *Full Day Class*

February 4 Air Tightness / Thermal and Moisture Control *Quiz*

February 11 Cladding and Roofing

February 25 Glazing / Curtain Wall *Quiz*

Systems

March 3 Building Codes / Fire Protection / Barrier Free

March 10 HVAC / Plumbing *Assignment*

Complexity

March 17 Building for Extreme Environments / Heritage

March 24 Building Really Big *Assignment*

March 31 Detailing Advice. Mini-crits for Final Studio Project *Quiz*

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April 22 *Final Project Deadline*

Academic integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect and responsibility. [Check [the Office of Academic Integrity](#) for more information.]

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read [Policy 70, Student Petitions and Grievances, Section 4](#). When in doubt, please be certain to contact the department's administrative assistant who will provide further assistance.

Discipline: A student is expected to know what constitutes academic integrity to avoid committing an academic offence, and to take responsibility for his/her actions. [Check [the Office of Academic Integrity](#) for more information.] A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the undergraduate associate dean. For information on categories of offences and types of penalties, students should refer to [Policy 71, Student Discipline](#). For typical penalties, check [Guidelines for the Assessment of Penalties](#).

Appeals: A decision made or penalty imposed under [Policy 70, Student Petitions and Grievances](#) (other than a petition) or [Policy 71, Student Discipline](#) may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to [Policy 72, Student Appeals](#).

Note for students with disabilities: [AccessAbility Services](#), located in Needles Hall, Room 1401, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

Turnitin.com: Text matching software (Turnitin®) may be used to screen assignments in this course. Turnitin® is used to verify that all materials and sources in assignments are documented. Students' submissions are stored on a U.S. server, therefore students must be given an alternative (e.g., scaffolded assignment or annotated bibliography), if they are concerned about their privacy and/or security. Students will be given due notice, in the first week of the term and/or at the time assignment details are provided, about arrangements and alternatives for the use of Turnitin in this course.

It is the responsibility of the student to notify the instructor if they, in the first week of term or at the time assignment details are provided, wish to submit alternate assignment.