CIVE 5810 – Wood Structures and Fire
Course Information
Fall Term 2017

Instructor
Dr. Sabah Ali, PhD, P.Eng, PMP
Senior Project Manager – Collier Project leaders
Professor at Algonquin College
Tel: 613-793-6126
Email: sabah.ali@carleton.ca

Lectures
Monday 6:05 pm to 8:55 pm (SA 404)

Course Description
This course provides an introduction into the fire safe design of wood buildings. The course includes a brief review of wood product and wood design as this is needed in order to calculate the response of the structure to fire. The current prescriptive code requirements with respect to wood structures will be reviewed as a starting point for alternative designs. Determination of fire-resistance of wood structures through testing, calculation methods and heat transfer/structural models will be studied in detail.

Textbooks
Students may acquire the Wood Design Manual directly from the Canadian Wood Council at These can be purchased online with 40% discount for students For more information, visit www.cwc.ca

Other References
4) Dr. Steven Craft – lectures – 2010.
Student Evaluation

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<tr>
<th>Problem Sets</th>
<th>Final Project</th>
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<tbody>
<tr>
<td>Selected problems assigned. A professional level of performance (clarity, legibility, presentation, neatness) is expected in all students’ submissions.</td>
<td>Projects involves development of spreadsheet for design of wood members in fire as per Canadian and Euro codes.</td>
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<td>40%</td>
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Lectures (May be modified during term)

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<tr>
<th>Week</th>
<th>Date</th>
<th>Lectures</th>
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| 1    | September 11 | - Course overview  
                    - Introduction to wood                                                   |
| 2    | September 18 | - Introduction to wood as a building material  
                    - Introduction to wood product  
                    - Fasteners and connection type                                          |
| 3    | September 25 | - Fasteners and connection type  
                    - Material properties of wood at elevated temperature  
                    - Construction methods (light-frame vs. heavy timber)                   |
| 4    | October 02   | - Loads, load factors  
                    - Wood member design –swan and glulam  
                    - Tensile, Compressive, Bending and combined Stresses                   |
| 5    | October 09   | - Thanks Giving                                                           |
| 6    | October 16   | - Review of NBCC prescriptive allowances for wood buildings               |
| 7    | October 23   | - Fall Break                                                              |
| 8    | October 30   | - Timber connections and Bolted connections Standard fire tests for fire resistance and flammability  
                    - Engineering models to predict fire-resistance ratings                  |
| 9    | November 06  | - Engineering models to predict fire-resistance ratings (T.T. Lie, NDSTR10)  
                    - Engineering models to predict fire-resistance ratings (Eurocode)      |
| 10   | November 13  | - Fire resistance of light-frame wood assemblies                           |
| 11   | November 20  | - Fire resistance of cross-laminated timber  
                    - Fire resistance of connections                                          |
| 12   | November 27  | - Computer models used to predict fire resistance                         |
| 13   | December 04  | - Final assessment TBD                                                    |

Problem Sets

There will be four problems sets which must be submitted for completion of the course.

- Assignment 1: Issued: September 25, Due: October 16
- Assignment 2: Issued: October 09, Due: October 23
- Assignment 3: Issued: October 23, Due: November 06
- Project: Issued: November 06, Due: December 04

Please note that the dates are tentative and sequence of lectures and assignments might change.

Special Accommodation

Pregnancy obligation: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website

http://www.carleton.ca/equity/accommodation/student_guide.htm
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**Students with disabilities requiring academic accommodations** in this course must register with the Paul Menton Centre for Students with Disabilities (PMC) for a formal evaluation of disability-related needs. Documented disabilities could include but are not limited to mobility/physical impairments, specific Learning Disabilities (LD), psychiatric/psychological disabilities, sensory disabilities, Attention Deficit Hyperactivity Disorder (ADHD), and chronic medical conditions. Registered PMC students are required to contact the PMC, 613-520-6608, every term to ensure that I receive your Letter of Accommodation, no later than two weeks before the first assignment is due or the first in-class test/midterm requiring accommodations. If you only require accommodations for your formally scheduled exam(s) in this course, please submit your request for accommodations to PMC by the deadlines published on the PMC website: [http://www2.carleton.ca/pmc/new-and-current-students/dates-and-deadlines/](http://www2.carleton.ca/pmc/new-and-current-students/dates-and-deadlines/)

**Appeals**

All appeals of marks assigned in this course must be made within 10 days of the posting date. Excused absences due to illness, compassionate reasons or personal emergencies must be supported by a doctor’s certificate or by discussion with the instructor. Students will not have access to the final examination paper after it has been marked at the end of term.