





# Applied Studies (APST) 470

## Building Envelope and Assemblies (Revision 3)

**Status:** Replaced with new revision, see the [course listing](#)  for the current revision 

**Delivery mode:** Individualized study online  with [eText](#) 

**Credits:** 3

**Area of study:** Applied Study


**Prerequisites:** None

**Precluded:** None

**Challenge:** APST 470 is not available for challenge.

**Faculty:** [Faculty of Science and Technology](#) 

### Notes:

APST 470: Building Envelope and Assemblies is intended for students enrolled in the BSc (Architecture) program at the RAIC Centre for Architecture at Athabasca University. For those students interested in pursuing a career as a registered architect, this course also contributes to the [RAIC Syllabus Diploma](#) .

## Overview

*APST 470: Building Envelope and Assemblies* focuses on the application of building science principles to the design of building enclosures. This course examines various elements that mediate between the interior and exterior environments, both above and below the ground, in manners appropriate to their intended function and performance. Case studies of building enclosures and their components illustrate the importance of having a comprehensive understanding of building materials and building processes. Wall sections and other building details are used to identify strategies to achieve sustainable and high-performance buildings in various climates.

## Outline

### Part One: Principles of Building Envelope Design

- Unit 1: Building Envelope Design Basics
- Unit 2: Management of Heat, Air, and Water Vapour

### Part Two: Detailed Building Design – Wall Systems

- Unit 3: Management of Water Movement
- Unit 4: Rainscreen Wall Assemblies with Heavyweight Cladding
- Unit 5: Rainscreen Wall Assemblies with Lightweight Cladding
- Unit 6: Glazed Curtain Wall Assemblies

- Unit 7: Wall Assemblies: Other Wall Systems and Elements

### **Part Three: Detailed Building Design – Other Systems**

- Unit 8: Windows and Doors
- Unit 9: Roof Assemblies
- Unit 10: Managing Building Movement and Connections 1
- Unit 11: Managing Building Movement and Connections 2
- Unit 12: Construction Documents and Specifications

## **Learning outcomes**

After you have completed APST 470, you should be able to

1. design a complete high-performance building envelope system, at a conceptual level, for a given set of conditions
2. design a building envelope assembly through the application of qualitative and quantitative analysis of proposed performance
3. evaluate methods and materials of construction in a range of applications
4. illustrate the appropriate application of construction materials and methods for a range of building design scenarios
5. evaluate existing buildings' conditions and identify methods for their improvement


You will find that the assignments and the focus questions in this course are formulated to challenge you to respond in a manner that demonstrates the ability and level of understanding stipulated in these overall objectives.

## **Evaluation**


To receive credit for APST 470, you must achieve a minimum overall grade of C+ (67%) for the entire course. Students who wish to be certified by the CACB must achieve and maintain a final grade point average of 2.3 (67%) or greater.

Your work in this course will be evaluated based on five assignments. Each assignment is worth 20% of your final course grade. This information is summarized in the table below.



Activity	Weight
Assignment 1	20%
Assignment 2	20%
Assignment 3	20%
Assignment 4	20%
Assignment 5	20%
<b>Total</b>	<b>100%</b>

To learn more about assignments and examinations, please refer to Athabasca University's [online Calendar](#) .

## Materials

Brock, L. (2015). *Designing the exterior wall: An architectural guide to the vertical envelope*. Hoboken, NJ: Wiley.  (eText)



## eText

Registration in this course includes an electronic textbook. For more information on [electronic textbooks](#) , please refer to our [eText Initiative site](#) .

**Course Home Page:** The course home page houses all the online components of your course.

**Forms:** Forms you may need are available through the [myAU](#)  portal.

## Important links

- › [Academic advising](#) 
- › [Program planning](#) 

› [Request assistance](#) 

› [Support services](#) 

Athabasca University reserves the right to amend course outlines occasionally and without notice. Courses offered by other delivery methods may vary from their individualized study counterparts.

*Opened in Revision 3, February 7, 2019*

*Updated March 25, 2024*

View [previous revision](#) 

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