



University of Massachusetts Amherst
Department of Architecture

Sustainable and High-Performance Facades: Design Methods and Analysis / Summer 2020

Continuing Education Professional Course

Time and Location: Mon / Wed 11:00 AM – 2:00 PM ET/ Online (May 18 to June 26, 2020)

Instructor: Ajla Aksamija, PhD, LEED AP BD+C, CDT

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Overview: This professional continuing education course is intended to advance practitioners' skills in designing sustainable, high-performance building facades and to broaden their knowledge about sustainable facade materials, design methods, systems, simulation and modeling tools, and facade performance. The course is structured to allow professionals to learn about the design methods and approaches, analyze properties of facades, and also incorporate specific design strategies to develop viable solutions for innovative facades. The course will be delivered fully online, through real-time lectures and discussions.

Registered professionals will learn about the advances in technology, sustainable and high-performance facades, building simulations and energy modeling, materials and their environmental impact, design and technical documentation. The course will cover these following topics:

- What are the appropriate design strategies for different climate types?
- How to choose facade types and materials to improve their performance?
- How to treat different building orientations?
- What are the best passive design methods for improving the performance?
- What are the best methods for daylighting?
- How to improve thermal comfort with facade designs?
- How to balance opaque and glazed areas of the facade?
- What are the appropriate simulation tools and analysis procedures for sustainable facade systems?
- What are the emerging technologies and materials for facades?

What can professionals expect to learn by studying this course?

- Research methods
- Sustainable design methods for facades
- Building science, especially relating to building skins
- Heat and moisture transport in building facades
- Emerging facade technologies
- Methods for improving thermal performance, daylight and building occupants' comfort through facade design
- Advanced construction materials
- Environmental impact of facade systems
- Building performance tools and simulations
- Analytical processes for facade design
- Testing procedures for facades.

Textbook:

Aksamija, A., (2013). *Sustainable Facades: Design Methods for High-Performance Building Envelopes*, Hoboken, NJ: Wiley.