Windows to Building Efficiencies

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Overview

CSI Division 8 manufacturers are part of every construction project. Providing views to the outside world, and working in tandem with whole building design concepts, window, door, frame & glass manufacturers are uniquely positioned to assist in building efficiencies. Using fenestration as a project guide, this course explores resource provision considerations, logistical improvement strategies for product provision, installation, service, and continuous improvement initiatives that address active and passive energy modeling to improve the built environment.
Learning Objectives

• Review window, door, frame, and glass manufacturing standards to help improve carbon action initiatives for the built environment

• Examine how technical consultations and product provisions improve installation, service, and operational enhancements

• Understand how effective fenestration addresses biophilic design, green building requirements, and innovations for construction

• Explore how product innovations and technologies are enhancing energy modeling as well as net zero and net positive initiatives
Fenestration Governance
Standards, Evolving Technologies, and Certifications
Meeting The Standards

• Evolution of the FGIA
• Third party testing agencies
• Certifying the results
Always On the Front Line

- Pivoting from metals
- Transitioning from vinyl
- Wood as a renewable resource
- Alternative Other material solutions
  - Mass Timber
  - Composites
Designing for Whole Building Performance

Performance of Components & Systems
- Glass & glazing innovations
- Improvements to frames & systems
  - R-Value vs U-Factor
  - SHGC makes a difference
  - The VLT trade-off

Meeting Operational Energy Needs
- Embodied carbon objectives
- Importance of product specificity to meet the need of each project
- Green building programs and initiatives
Meeting Operational Needs

- LCA developments
  - Resources
    - EPDs & HPDs
  - Improving energy efficiencies
    - Passive House
    - Energy Star 7.0
- Green building programs
  - USGBC LEED
  - ILFI LBC
  - WELL

*Over a tenth of global CO\textsubscript{2} emissions come from building materials.*
CSI Division 8 in All Structures
Technical Consultations and Emerging Innovations
Manufacturing Sector

- R&D Advancements and Innovations
- Architectural Services
- Engineering Strategies
- Construction Enhancements
- CE for All
Beyond Product Provisions

- Impact on our world
- Connections
  - Assembly
  - Within and on the structure
- Changes to logistics
Service After the Sale

- Value Propositions vs VE
- Reliance on LCA to improve EUIs
Effective Fenestration

Biophilic Design, Green Building Programming, and Construction Innovations
A Better View of Our World

- Corelative systems
- The importance of ventilation
- Enhancing a structure
- Increasing occupant comfort
Biophilic Design – From Concept to Occupancy

- Rachel Carson, *Silent Spring*
- Edward O. Wilson, *Biophilia*
- Janine Benyus, *Biomimicry*
Beyond LEED and Into a Living Future

- USGBC changed everything
- The ILFI stepping stone
- CI initiatives in code provisions and updates
A Place for Passive House

• The places where we:
  • Live
  • Work
  • Play
  • Learn
• The infrastructure that ties it all together
Windows to Building Efficiencies

Advancing Energy Modeling
Enhancing Passive Design

- Beyond metal substrates
- Future of frame & glass product integrations
- Think net zero, work towards net positive
Beyond The Looking Glass

- Glass is fenestration’s greatest asset *(and greatest weakness)*
- Evolving glass technologies
- A moment for Passive Building Standard
  - Adoptions in the U.S.
  - ASHRAE 227

*Fun fact! In Role Playing Games (RPGs), there are three passive strategies:*

*Defense, Dodge, and Resilience. Does this seem similar in concepts & strategies?*
Enhancements in Manufacturing

- Economies of scale
- Changes and challenges in the field
- Cross-Industry innovation sharing
- Building transparency

All structures depend effective fenestration and openings.
Energy Modeling for an Ever-Changing Planet

- Looking back 500 years
- Looking forward 500 years
- Advancing shared global goals

How do we ensure a just and equitable world?
What questions do you have for me?

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