

AIA Houston Presents



Professional Training For The Sustainable Design Work Force

The AIA + 2030 Series program is the result of a partnership between the American Institute of Architects Seattle, Architecture 2030, BetterBricks, and the City of Seattle. AIA Seattle and Architecture 2030 are now bringing the Series to other AIA chapters.

AIA+2030 trains green-collar workers in the architecture and engineering fields to design buildings that use 60% less energy. The AIA+2030 Professional Series™ is a comprehensive, ground-breaking curriculum that includes ten, 4-hour sessions teaching strategies to reach 60% reduction in fossil fuel greenhouse gas emissions. AIA+2030 gives design professionals the knowledge and leverage to create next-generation, super-efficient buildings—and provide firms with the skills that will set them apart in the marketplace. The AIA+2030 program was launched in Seattle in 2009, and has been extremely successful.

The Goals

Buildings produce almost half of US greenhouse gas emissions. In fact, US buildings are responsible for 10% of total greenhouse gas emissions. Building are an important part of the climate change solution. Training architects and engineers to significantly reduce the energy use of their buildings is a critical step on the path towards energy independence and climate change reduction. AIA's architect members are serious about climate change solutions. AIA Seattle's AIA+2030 program is a significant step toward impacting GHG emissions in buildings with proven success in the Seattle area. By franchising the AIA+2030 professional series nationally, AIA Seattle and its partners hope to:

- Impact climate change: give architects and design professionals the tools they need to design for the future of the planet
- Position architects: demonstrate the leadership of the architecture community on energy efficiency and carbon issues
- Support continued R&D: expand AIA+2030 reach and resources to fuel continual improvement

Series Sessions

AIA+2030 Kickoff: The 2030 Challenge

Architecture Center Houston

Wednesday, July 22, 2015

5:30 – 7:00 PM

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AIA+2030 Learning Objectives

- Demonstrate the leadership of the architecture community on energy efficiency and carbon issues
- Expand AIA+2030's reach and resources to fuel continual improvement
- Identify how the Integrated Design Process is a means of testing multidisciplinary impacts of design decisions prior to implementing them
- List how the Integrated Design Process helps to avoid missed opportunities and unforeseen circumstances or conditions

Credits 1.5 HSW (SD)

Session I:

July 24, 2015

8:00 AM - Noon

The 2030 Challenge: Setting + Achieving Energy Goals with Integrated Design

Integrated design is an important element in the creation of next-generation 2030 Challenge compliant buildings. In this session, we will explore the Integrated Design Process (IDP) and Integrated Project Delivery (IPD). We will explore collaborative strategies that can achieve the targets outlined in the 2030 Challenge, and how this process can be used as a roadmap throughout the design process. In particular, we will examine the utility of IDP in defining core, early design decisions such as building form and orientation.

AIA+2030 Learning Objectives

- Explain how the Integrated Design Process differs from traditional design.
- Identify specific characteristics of Integrated Design and its implications building energy performance.
- Summarize the potential benefits gained by employing the Integrated Design Process.

Credits: 4.0 HSW (SD)

Session II:

August 7, 2015

8:00 AM - Noon

Getting to 60: The Power of Targets + Load Reduction

The goal of the 2030 Challenge® is to create buildings that are designed to meet a fossil fuel, greenhouse gas emitting, energy performance standard of 60% less than the regional (or national) average for that building type now, with the standard rising to a 70% reduction in 2015 and incrementally increasing 10% in efficiency every five years until 2030, when the goal of zero emissions is met. One of the more compelling aspects of dramatic energy reductions is the mounting evidence that if done well, such ambitious goals can actually be done with little or no added costs. This session will explore the use of EPA's Target Finder (ENERGY STAR) to establish design targets and metrics, such as Energy Use Intensity (EUI). The session will include multiple examples of projects that have achieved exemplary energy performance, offer approaches for incorporating targets into the design process, and explore how providing targeting and EUI information can be a value-added service for design firms.

AIA+2030 Learning Objectives

- Describe the energy/carbon objectives of the 2030 Challenge.
- Use the Energy Star Target Finder tool to set an Energy Use Intensity target for a project.
- Summarize the concept of Energy Use Intensity (EUI) and describe why it is an important tool for setting energy targets.

Credits: 4.0 HSW(SD)

Session III:

August 21, 2015

8:00 AM - Noon

Accentuate the Positive: Climate Responsive Design

Conventional building design presumes that a building's energy will be imported in the form of electricity and fuel. Integrated design accounts for on-site resources, as well as minimizing unwanted environmental conditions. In this session, we'll explore using climate data and site characteristics to conduct a Site Resource Inventory to inform building design and lower building energy loads. This will set the stage for future sessions that will address specific strategies in more detail.

AIA+2030 Learning Objectives

- Produce a building form and orientation strategy that is responsive to site and climatic factors.
- Explain why climate responsive design reduces the energy load of a building.
- List the site and climate factors that impact a building's performance.

Credits: 4.0 HSW(SD)

Session IV:**September 4, 2015****8:00 AM - Noon****Skins: The Importance of the Thermal Envelope**

The building skin is the critical interface between occupant comfort and outdoor climatic conditions. A high performance building requires a high performance envelope, one that responds to exterior environmental impacts at various times of the year. This session will explore design, material and technology approaches to wall and window assemblies, from straightforward low cost methods to advanced double skinned wall applications. We will also address moisture issues associated with various wall insulation approaches.

AIA+2030 Learning Objectives

- Identify critical elements of the thermal envelope responsible for building energy consumption.
- Specify strategies for minimizing thermal bridging.
- Understand the architectural elements, materials, and construction opportunities for designing a high performance thermal envelope.

Credits: 4.0 HSW(SD)

Session V:**September 18, 2015****8:00 AM - Noon****Aggressively Passive: Employing Passive Systems for Load Reduction**

Properly designed, a building captures existing site resources such as light, wind, and solar radiation to provide for the comfort and needs of occupants. Passive systems work in concert with site resources to manage building energy demand through design. This session will build upon the concepts introduced in Sessions 3 and 4 and explore a holistic strategy for designing passive systems.

AIA+2030 Learning Objectives

- Define passive systems and identify specific elements of a passive design.
- Evaluate the effectiveness of various passive strategies based on available site resources.
- Determine the most successful strategies for a given site.

Credits: 4.0 HSW(SD)

Session VI:**October 2, 2015****8:00 AM - Noon****Illuminating Savings: Daylighting and Integrated Lighting Strategies**

Lighting constitutes 29 percent of a typical American office building's energy load. Proper lighting is critical to occupant comfort and productivity—and an exploration of daylighting and efficient artificial lighting is an exploration of integrated design. This session will explore natural light as part of a site's resource inventory, and identify strategies for maximizing its application while controlling for glare and unwanted heat gain. It will couple this discussion with the latest research and application of artificial lighting choices designed to meet residual lighting needs.

AIA+2030 Learning Objectives

- Evaluate various building forms and orientations for optimal daylighting potential.
- Compare competing designs to determine the most effective approach to daylighting.
- Assess a lighting scheme for its compatibility with an accompanying daylighting design.

Credits: 4.0 HSW(SD)

Session VII:**October 16, 2015****8:00 AM - Noon****Right-sized: Equipment and Controls for Super-efficient Building System**

After designing for maximum passive use of site resources and mitigating energy loads, the next step to a breakthrough building is properly sized equipment and employment of advanced controls. This session will explore the concept and application of designing and specifying equipment and controls for buildings that need mechanical intervention only during periods of peak demand. Systems such as hybrid natural-mechanical ventilation systems and other approaches to engineering a mechanical system to be as small (efficient) and effective as possible will be explored.

AIA+2030 Learning Objectives

- Apply right-sizing after passive energy conservation strategies.
- Utilize controls to optimize the efficiency of equipment.
- Enumerate energy efficient strategies to maintain occupant comfort.

Credits: 4.0 HSW(SD)

Session VIII:**October 30, 2015****8:00 AM - Noon****Site Power: Renewable Energy Opportunities**

The ultimate goal of the 2030 Challenge is fossil fuel free buildings by the year 2030. As buildings approach zero for their carbon footprint, on-site renewable energy sources become a key element to realizing that goal. As the lower-up-front-cost conservation and efficiency measures are exhausted, renewable energy emerges as the final step to reaching aggressive carbon elimination goals. This session will explore the relationship between conservation and renewable energy, and investigate current renewable energy opportunities, both onsite and offsite systems, such as combined heat and power and local district energy (valuable for load sharing).

AIA+2030 Learning Objectives

- Identify the major on-site renewable energy strategies for buildings.
- Propose an appropriate renewable energy strategy based on site characteristics and resources.
- Enumerate the life cycle costs and benefits of on-site renewable energy.
- Understand how district energy can provide thermal and electric services and balance neighborhood loads.

*Credits: 4.0 HSW(SD)***Session IX:****November 13, 2015****8:00 AM - Noon****The Hand-off + Staying in Shape: Operations, Maintenance + Education**

Design intent is important, but at the end of the day, how the building actually performs is really what matters. The closer the match between predicted and observed performance, the more likely a client will be happy. This session will explore the tools available to an architect to help match performance with expectations, including building commissioning, maintenance staff and occupant training, and building performance monitoring. Using building performance data to validate and improve on design and construction decisions will also be explored—providing a strong tool for iterative learning and innovation.

AIA+2030 Learning Objectives

- Explain the benefits of monitoring, evaluation, and education to design firms, clients, and building occupants.
- Explain and advocate for commissioning on projects.
- Instruct building maintenance and operations staff on optimizing building performance.

Credits: 4.0 HSW(SD)

Session X:

December 11, 2015

8:00 AM - Noon

Putting It All Together: Achieving 2030 Goals On The Project and At The Office

Success with advanced energy performance projects requires not only a detailed understanding of the individual strategies involved, but also a strategic understanding of the architect's role in the design and construction process and how to orchestrate an already dauntingly complex process. This session revisits the integrated design and target creating process, and then looks outward to contextualize the architect in the larger environment of the project and—equally important—the firm. Key to the success of the 2030 Challenge is movement from learning to action. This session will examine the movement from in-class exercise to on-site implementation. Additionally, the session will provide tools for helping your firm institutionalize the creation of high-performance buildings and becoming a change agent within your community.

AIA+2030 Learning Objectives

- Set energy performance targets early to inform design objectives.
- Justify the inclusion of integrated energy efficiency strategies in projects.
- Teach other design professionals in their firm and community about advanced energy efficiency strategies for buildings.

Credits: 4.0 HSW(SD)

Session Information

All regular sessions will meet on Fridays from 8:00 AM - Noon (breakfast provided).

A total of 40 AIA learning units may be earned with 4.0 HSW (SD) hours earned per session. An additional 1.5 HSW (SD) credits will be earned by attending the kickoff session. You may self-report your credits for GBCI.

Pricing

- Members – \$350
- Government – \$350
- Non-Members – \$500
- Member 3-Pack – \$900 (includes 10 session registration for three participants from the same firm)

Student Scholarships

A limited number of scholarships are available for full-time students to attend at a 50% discount for \$175. Please download and submit completed scholarship applications to rashida@aiahouston.org July 10, 2015 at 5PM.

Contact

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