



H C Fennell Consulting, LLC

Applied Foam Technologies and Commissioning

Achieving low-cost high-performance building envelopes

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Course Description

This program introduces a proven approach for designing and constructing high-performance building envelopes/enclosures at a lower overall up-front construction cost than conventional multi-family and commercial construction. It highlights the importance of an integrated design process and performance guarantees in the construction of more sustainable, energy-efficient buildings that reduce energy use, fossil fuel emissions, and have much lower operating costs.

It provides an overview of a comprehensive cost-reduction protocol (CRP) that takes economic advantage of the energy performance realized in building envelope designs with guaranteed low air leakage rates. Key elements of this protocol include air barrier system detailing and specifications, a "right-sizing" mechanical system design approach, building enclosure commissioning, and the tracking of long-term energy use. Case studies with documented construction costs, air barrier performance data, and post-construction energy use are featured.

Learning Objectives:

1. Participants will be able to design high-performance commercial building enclosures for future projects that will cost less to build than conventional structures.
2. Participants will be able to tailor and incorporate the key elements of a cost-reduction (CRP) protocol into the designs of their future projects.
3. Participants will be able to model the air barrier systems in order determine the air tightness standard that should be established for their projects.
4. Participants will be able to specify a superior but achievable airtightness performance standard in their future commercial projects, including maximum leakage rates for each air barrier component.
5. Participants will be able to defend the CRP approach, which includes the use of an integrated architectural and mechanical design process to reduce overall construction costs and energy use.
6. Participants will be able to specify the advanced quality assurance and test protocols that are required to achieve cost reduction and performance goals in their future commercial projects.
7. Participants will be able to guarantee, during the design phase, the specified energy performance of their future commercial projects.
8. Participants will be able to quality control and rank their enclosure design strategies by tracking the energy use of their completed projects.

Can be provided as a 1.5-hour session, a 3-hour session, or as a full-day workshop