News Release

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Helen Sanders Explains FTI Research and Details Blueprint for Adopting High-Performance Commercial Fenestration at FGIA Annual Conference

SCHAUMBURG, IL – Participants learned about the barriers to adopting high-performing fenestration in both non-residential and multi-family buildings, as well as a blueprint for market transformation, at the Fenestration and Glazing Industry Alliance (FGIA) Annual Conference in Orlando, FL. Presented by Helen Sanders ([Technoform](https://url.avanan.click/v2/___https://www.technoform.com/___.YXAzOmN0Zy1mZ2lhOmE6bzplZGNkMWZiNzVjZmVhNWQ0MjZiYWRiZTRlMmY3ZDVjMTo2OjRjNDc6YWM4YTlhNmExOTdmMmNjNGIyZTVhYmNjYzgxOGU2ZjM3MzcxOTEwNWUyZDUwODc5MWVmOWE1YWJmM2NiNzM3NDpwOlQ6Tg)), this session reviewed a yearlong study conducted by the [Façade Tectonics Institute](https://url.avanan.click/v2/___https://www.facadetectonics.org/___.YXAzOmN0Zy1mZ2lhOmE6bzplZGNkMWZiNzVjZmVhNWQ0MjZiYWRiZTRlMmY3ZDVjMTo2OmRjNjE6ZmMyN2I5M2UyODAxOTQzN2RjZjc3MTU0MmViMGNjZDI1MTVmZWY1MmRiZjIwN2I4YmViYmM5ODYxM2ZjYjlhNDpwOlQ6Tg) (FTI) on the topic. “Why do we care that high-performance facades and fenestration are not used?” asked Sanders. “What is used today performs worse than widely available options and far worse than the best available designs. But facades do, in fact, have an impact on energy in terms of building loads, heating and cooling, and on many other critical areas: electrical grid resilience, first cost of HVAC systems, occupant comfort and a building’s passive survivability during power outages.”

Sanders noted that if all windows in commercial buildings were replaced, the market could see $20 billion in costs turn to $15 billion in savings. “We can change markets, but we can't wait 30 years,” she said. “If we want to enable heat pumps in our buildings, we want to make sure those buildings are as efficient as possible. The cost tradeoff is glazing versus perimeter heating. If the glazing is well insulated, you won't need to pay the cost of heating.”

Sanders said FTI's study was meant to identify reasons why high-performance fenestration and facades are not routinely installed in non-residential buildings. “Residential window adoption is further ahead because of the combination of the ENERGY STAR program and homeowner tax credits,” she noted. One major barrier for the adoption of higher performance fenestration in commercial buildings is the fact that there is not really a definition for "high-performance" when it comes to commercial, said Sanders. A significant cost increase over the cost of business-as-usual performance, which is typically what codes call for. “Since current codes have relatively low performance requirements and widespread adoption of the latest model codes is slow, the cost baseline is low,” she said.

Additional high-level barriers include:

* Model codes do not take an envelope-first approach
* Insufficient return-on-investment (ROI) on first cost increase
* Risk aversion to new and different and the typical design-bid-build delivery method act to maintain the status-quo
* HVAC-focused design practices
* Lack of capacity, time and resources in design firms to focus on façade design and implementation
* Poor code enforcement

“There is a significant increase in first cost over business as usual,” said Sanders. “High-performance includes a risk premium on price. It's not like changing a light bulb. And there is no incentive to be the first to market or to do research and development.” On top of this, Sanders said, “There is no sufficient ROI or payback on that initial first cost increase. Tenants are unaware of the benefits of high-performance façades and so owners can't get a lease rate premium.”

Also, developers want a design that often doesn't align with low carbon and low energy, according to Sanders. “There is a lack of knowledge of the non-energy benefits and their value,” she said. “Project design is often HVAC driven.” And finally, Sanders explained there is insufficient capacity at architect/consultant firms to design better facades because there is insufficient budget allocated. “There is not enough money in projects to support focused facade design and verification,” said Sanders. “The result is architects can't advocate to their clients for above code facade performance, nor can they consistently deliver it.”

Sanders offered a blueprint for change, which includes 10 concepts:

1. Developing a certification program for façades
2. Creating tools and programs that improve the ability to communicate the overall economic value of high-performance façades to owners
3. Making windows the next “marble countertop,” or a must-have for owners and tenants alike
4. Ensuring there is sufficient selection of high-performance curtain wall and window wall systems and trained installers available for a competitive market
5. Creating and/or identifying certification programs for practitioners to verify competence, build capacity and improve façade simulation, design and execution
6. Increasing façade knowledge and education across the full value chain
7. Creating façade-related incentive programs
8. Deploying FTI’s code-related recommendations
9. Implementing the identified strategies to solve the retrofit challenge
10. Enhancing domestic supply chain competitiveness to facilitate domestic fabricators meeting the needs of high-performance façades

Sanders’ recommendations for immediate next steps included:

* Defining high-performance facades
* Scoping work for non-energy benefit quantification
* Initiating research of high-performance commercial buildings to understand drivers
* Detailing requirements for high-performance curtain walls and window walls
* Scoping an installer training program for high-performance facades
* Evaluating and scoping a façade engineering certification program
* Scoping a cross-cutting educational program on facades
* Engaging the insurance industry to explore opportunities to de-risk new façade products
* Evaluating visibility of façade carbon credits
* Developing an awareness campaign for building owners for secondary glazing retrofits
* Evaluating how the Department of Energy can enhance its role in code development and adoption to change its structure and align with an envelope-first approach

Sanders said change in happening in places such as Vancouver, BC, Seattle, WA and Massachusetts. The changes in these jurisdictions have these common ingredients: political will; use of codes and regulation to drive performance; financial support for code development and validation; flexible cost-effectiveness criteria; and market support/training for capacity building.

“A recipe for success for developer-led high-performance buildings has been shown by PAE engineers to include achieving a 10% rent premium, a 10-year holding period and accepting a 10% internal rate of return, which is slightly lower than the typical 12%,” said Sanders.

For more coverage about the FGIA Annual Conference, visit [FGIAonline.org/news](https://url.avanan.click/v2/___https://fgiaonline.org/news___.YXAzOmN0Zy1mZ2lhOmE6bzplZGNkMWZiNzVjZmVhNWQ0MjZiYWRiZTRlMmY3ZDVjMTo2OjQyNDI6YjFjOWE1Nzc4MDVlYzQyOTFjMDE3ZmVmNWRmYWRjZDMzOTJmNmU0MjViNjgwOTNlNTZlZjEzNGE0OGUyZTY2NTpwOlQ6Tg).

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