

# Architectural PRODUCTS

January-February 2017

DESIGN & HEALTH

## office environments



### human-centric lighting

**Part of the greater picture:** As design priorities continue the shift toward health and well-being, natural light remains a big part of most projects. However, consideration needs to be given to electrical illumination to not only balance the space, but provide the proper levels needed to work comfortably. **[Page 34]**



## Function

Converging Architectural + Performance Goals



**Bob Marshall**, Senior Manager Technical Services for CertainTeed Ceilings, Malvern, Pa. The company's "green guru," he holds an "honorary" PhD in acoustic ceilings from more than 40 years in the field.



**Heather Whitaker**, Sales Training and Support Manager for CertainTeed Ceilings, Malvern, Pa. The company's architectural liaison, she provides resources for training and project coordination.



## Saint-Gobain U.S. Headquarters

Malvern, Pa.

With the arrival of the 21st century and return of the open office concept, acoustical control no longer can be designated a second-tier consideration. It certainly was not the case for Saint-Gobain when it came to designing its new North American headquarters. Being one of the world's major suppliers of building products, including many designated for sound control, the 300-year-old company and its U.S. subsidiary, CertainTeed, took on the challenge of creating a high-tech environment

that would not only be a next-generation workplace, but also a model for acoustic comfort. A 277,000-sq.-ft. living laboratory situated on 65 acres in an office park just outside of Philadelphia, the project involved a complete redesign and expansion of an abandoned '60s-era corporate facility. But making it quiet in this modern age was no simple task. Unlike lighting, which has a visible identity and programmable control techniques for managing its recognizable output, sound to the ultimate recipient, is

invisible. Architectural acoustics evolve from a source, a path and a receiver. Sounds from music, the birds or a pleasant conversation are typically individually selectable and controllable. In a working environment, however, when the perceived sound level can interfere with the employees' working habits, it can affect productivity.

A key performance characteristic in good acoustic design is to provide the right interior "mass" to dampen vibrations caused by

sound energy striking the environment. In this case, acoustical control techniques were analyzed for open areas where individual quiet concentration was required in spaces where conversation and collaboration would occur. Saint-Gobain's product line includes 20 different wall and ceiling products and they wished to put them to the test. For the project's designers—Bernardon on the core and shell, and Jacobs on the interior—it marked the first time they had worked on a project

using the client's own products. "It's not often we get to sit down and talk through the details of each solution with the architects," says Heather Whitaker, a support manager for CertainTeed Ceilings.

That may no longer be the case, however, due to one of the facilities more notable features, the on-site auralization lab, otherwise known as the "Listening Lounge." "It is a studio that allows us to acoustically simulate the use of different ceiling products to determine the most effective solu-

tion for a given space," says Bob Marshall, the company's senior manager of technical services.

In total, 50 of Saint-Gobain's products, including SageGlass' electrochromic glazing, were employed on the project.

The building received LEED Platinum certification by the U.S. Green Building Council and the Groundbreaker Organizational Award from The Delaware Valley Green Building Council.



Photos: Jeffrey Totaro

### Called to Action

To manage sound in the double-height main entryway, Decoustics Claro custom ceiling panels, installed with a Cellencio system, are paired with the company's custom wood wall panels—acoustically absorbing products that add to the building's "wow" factor. Sage's electrochromic glazing, which allows for three different zones in each pane, reduces the impact of glare and solar heat gain from the glassy façade which has 17,000 sq. ft. of the specialty glazing is installed on the western and southern façades.



### No HVAC Rumbblings

Sustainable R-13 and R-19 batt insulation create an environment that is quiet, comfortable and conserves energy and resources. To help contain unwanted crosstalk, air rush, equipment noise, moisture build-up and energy loss in the building, CertainTeed ToughGard TGR Rotary Duct Liner and SoftTouch Duct Wrap insulation are used throughout all of the HVAC systems.



**HVAC INSULATION**  
SoftTouch Duct Wrap  
[www.certainteed.com](http://www.certainteed.com)  
Circle 369



**DUCT LINER**  
ToughGard TGR  
[www.certainteed.com](http://www.certainteed.com)  
Circle 368

### Some Open Office History

The open office theory had been put to the test as early as the beginning of the last century. Two historically significant buildings with open office areas were both designed by Frank Lloyd Wright. While visually stunning, acoustic considerations probably did not play a major role in their design. The first was the Larkin Building of 1904 in Buffalo, where workers at rows of desks carried out their duties in a six-story-high skylit central hall. In 1939, the administration building at the headquarters for the S. C. Johnson Wax Co. opened in Racine, Wisc. Its centerpiece is the Great Workroom. Here employees at adjacent desks do their jobs beneath a series of thin white dendriform columns that rise and spread out at the ceiling. Custom furniture designed by Wright was manufactured by Steelcase. The introduction of open landscaping was hailed as the out-with-the-old and in-with-the-new rationale for modern workplace layouts. It quickly gained favor with major corporations and headquarters for municipal institutions. Design doyenne Florence Knoll became a leading proponent for its wide adoption.

While it wasn't referred to as a "disrupter" back in 1956, the Quickborner Team, then an adjunct to a Hamburg, Germany-based office furniture dealer, came up with the concept that they could sell more office furnishings if they did away with most of the private offices. They would clear the central work areas in the various departments and move the support staff into the now-open space utilizing a new type of system for work surfaces, seating and storage. The successful concept was called "open plan" and cubicles and "work stations" entered the office planning lexicon. Such "cubbies" were separated by free-standing dividers, usually no more than 6-ft. high and upholstered in fabric with sound-absorbing materials that represented the technology then available.

Early versions of large open office layouts date from Frank Lloyd Wright's 1904 Larkin Building, followed by his Great Workroom in 1939 for the S. C. Johnson Wax Co. In 1956, the Hamburg, Germany Quickborner Team eliminated most private offices and divided worker space with free-standing upholstered panels to create work stations, a concept adapted by major companies for its inherent flexibility.

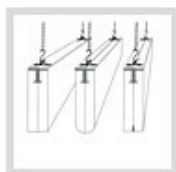


## Sound Stoppers

An entryway gathering space just off the main lobby. A variety of CertainTeed's acoustical products are featured throughout. This area features SilentFX Noise-Reducing Dry-wall for the walls and ceilings, while the exposed structure above features Decoustics Curved Baffles. Elsewhere with interior walls, AirRenewEssential IAQ Gypsum wall-board removes VOCs from the air, improving indoor air quality and promoting healthier living and work environments.



**DRYWALL**  
SilentFX  
[www.certainteed.com](http://www.certainteed.com)  
Circle 367



**BAFFLES**  
Decoustics Curved  
[www.decoustics.com](http://www.decoustics.com)  
Circle 366

**"We helped the design team understand that it is more than just a new building or a showroom for our products. Our main focus was the performance of our solutions and the change it would create for our employees."**

— Heather Whitaker, Sales Training and Support Manager, CertainTeed Ceilings



## CONTAINED COLLABORATION

In focal spaces like the secondary lobbies and seating areas, an assortment of Ecophon Focus Ds and Solo Hexagon ceiling tiles all work to create a quieter, more productive workplace.



**CEILING TILE**  
Ecophon Solo Hexagon  
[www.certainteed.com](http://www.certainteed.com)  
Circle 365

Based on an occupant's experience, if something isn't jibing for a client, the sound lab allows the team to go back and make a change.



## LISTENING LOUNGE

Developed with architectural acoustics consultants Acentech, the auralization lab is framed with high-performance Ecophon acoustic wall panels. It can be adjusted to demonstrate the impact of various noise reduction coefficient and ceiling attenuation class levels. "It is a virtual demonstration sound modeling tool to inform specifiers how ceiling design, materials and products specifications can perform in a space," Marshall points out. "They can actually hear how a specific design will sound like and be able to rate it for a building early in the planning process."



### Touch of Wood

In the cafeteria, to help soften the steel columns, the interior designers selected CertainTeed Cedar Impression roofing shingles—a 2016 PIA-winning product—and certainly a creative way to incorporate an exterior roofing product inside; in this case, CedarLife Color Blends.

Saint-Gobain and CertainTeed are partnering with Dr. Ihab Elzeyadi, of the University of Oregon, to assess the impact of the building's design on the occupant experience, measuring factors such as IAQ, visual, thermal and acoustic comfort.



### DOUBLE TEAM

To dissipate noise in more open spaces, CertainTeed's acoustical experts employed an innovative two-part solution offering exceptional sound absorption: Symphony f and Adagio ceiling panels.



**CEILING PANELS**  
Gyptone and Gyptone  
BIG Quattro  
[www.certainteed.com](http://www.certainteed.com)  
Circle 364

### GLASS ACT

One of Saint-Gobain's glazing products, specifically SGG STADIP, is featured in this training room. A laminated glass paired with Sekurit frameless safety glass, it offers a range of acoustic properties helping to keep the room quiet while permitting views to the outside. Gyptone and Gyptone BIG Quattro perforated panels and ceiling tiles further enhance acoustics to make this workspace more productive.



**CEILING PANELS**  
Symphony f and Adagio  
[www.certainteed.com](http://www.certainteed.com)  
Circle 363