Next time you’re in an airport, take a look up. Not necessarily at the sky or planes but at the ceiling above your head. Today, more than ever, chances are it’s a metal ceiling.

Long popular in European commercial applications, metal ceilings now are taking off in the United States, as well. Why? Because of their unique combination of aesthetics, acoustics, durability and functionality.

Most metal ceiling systems are manufactured from electro-galvanized steel though aluminum is also available. They usually are white, silver gray or gun metal gray with custom colors offered. Shapes include panels, planks, vaults and curved systems. The curves either can be concave, convex or serpentine.

Metal ceilings also are offered in a wide variety of finishes that coordinate with other interior metal finishes while imparting a very high-tech look to a space. The sophisticated look of metal ceilings make them ideal for use in high-visibility areas, such as transportation terminals, as well as lobbies, entryways, corridors, conference rooms, theaters, and a wide variety of corporate, retail and hospitality environments.

Long service life is another reason for metal’s popularity. A metal ceiling panel generally will outlast a traditional mineral fiber panel, especially in areas where access to the plenum is frequent. Metal ceilings often feature a factory-applied powder finish, as well, for added durability.

Attributes

Although they are made of steel or aluminum, metal ceilings can provide acoustical control. To achieve the acoustic benefits, however, the panels must be perforated. Perforated panels usually...
are supplied with a sound-absorbent acoustical fleece liner behind the perforations. The perforations vary in size and pattern, depending on aesthetic appeal, though today it’s possible to have perforated panels in which the holes are so small they essentially are invisible.

For example, perforations in Armstrong Extra Microperforated MetalWorks™ ceilings measure only 0.03 of an inch (0.7 mm) in diameter. Yet, they allow the panels to achieve a noise reduction coefficient (NRC) of 0.65, meaning the panels absorb 65 percent of the sound that strikes them. Unperforated panels have an NRC of 0.10. An even higher NRC of 0.90 is possible with the use of an acoustical infill.

Some architects, building owners or contractors may think metal ceilings are difficult to work with. However, metal ceilings easily can be installed in standard grid systems and integrate with standard light fixtures, including high hats. Many metal ceilings can be installed in a 15/16-inch (24-mm) exposed tee suspension system, which makes them ideal for renovation applications, as well as new construction. Because there is no need to replace an existing grid system, renovation projects can be completed quickly with minimal disruption. Other metal systems can be installed in a narrower 9/16-inch (14-mm) grid system.

The emergence of metal ceiling systems during the past few years has resulted in the need for more collaboration between architect, contractor and ceiling manufacturer, especially in the case of custom installations. And to help meet this need, a number of manufacturers now offer consultative design services that provide complete project management for the ceiling system, from concept to completion.

Two representative examples of the use of metal ceilings in airport terminals are the San Antonio International Airport in Texas and Tulsa International Airport in Oklahoma.

San Antonio International Airport

The San Antonio Airport has two terminals serving the public. Terminal 1 was built in 1984, and Terminal 2 was constructed in 1953 with a satellite concourse added in 1968. As a result of an extensive passenger survey, the city decided it was time to bring the “look” of the airport out of the 1980s and into the 21st century. Consequently, the city decided to build a new Terminal 2 during the next five years to replace the original terminal and renovate the interior of Terminal 1.

Marmomok, a well-established San Antonio-based architectural firm that provided the design for the original Terminal 1, was awarded the contract for the interior renovation in association with DBR Architects Inc., San Antonio. Steve Souter of Marmomok was the partner in charge of the project. Senior Associate Herbert Denny was the renovation project architect, and Senior Associate Angel Garcia was the project designer.

The Marmomok design team notes the terminal was a standout facility when originally built, as evidenced by the 11 national, state and local design awards it received. Twenty years later, however, it appeared too dark, dim and worn to satisfy current expectations. As a result, one of the primary goals was to brighten the terminal and open it up. One of the ways that was accomplished was by changing the ceilings.

Terminal 1 is a long, T-shaped, 384,000-square-foot (35674-m²) facility that features two 18-foot- (5.5-m-) wide by 700-foot- (213-
Denny adds the same curved metal ceiling clouds used in the passenger holding areas also are used above the carousels in the baggage claim areas. “Use of the curved metal ceilings here separates the carousels from other areas and makes it easier for passengers to find them.”

He also points out airport officials are pleased with the new metal ceilings not only from a standpoint of aesthetics and acoustics but also maintenance. “Even though the panels are installed in floating clouds, there still is easy access to the plenum without the use of special tools,” he says.

Tulsa International Airport

Metal ceilings also can be found in the newly constructed terminal addition that connects Concourse A and Concourse B of Tulsa International Airport. Prior to the construction, each concourse had its own security checkpoint. Now, security is centralized in a recently renovated area located between the two concourses. Once passengers have cleared the checkpoint, they enter the portal, which opens onto connectors leading to each concourse. The new terminal addition features a 600-foot (183-m) long glass wall that offers a panoramic view of the airfield. The terminal expansion project also includes the addition of restaurants and retail stores in the areas connecting the checkpoints with the concourses.

Oklahoma City-based The Benham Companies LLC, an architectural, engineering, design-build, environmental and performance contracting firm with offices around the country, partnered with San Francisco-based Gensler, a global design, planning and strategic consulting firm with 28 offices, on the design of the terminal renovation and expansion.

Molly A. Jones, AIA, project architect for Benham, explains the design team created a ceiling that features a lower horizontal portion as it proceeds away from the checkpoint area and then dramatically slopes up as it approaches the glass wall. “We wanted the transition to be clear,” Jones states. “By lifting the ceiling plane up as it approaches the glass wall, we were able to capitalize on that view for the passengers.”

A combination of MetalWorks custom RH200 plank and custom fasttrack ceiling systems from Armstrong was chosen for the portal area and northernmost sloped portion of the ceiling in the connectors to the “The Armstrong metal ceiling systems were chosen because they offered the largest color selection,” Jones states.

The gun metal gray planks are made of electrogalvanized steel and provide full downward accessibility to the plenum above. The “hook-on” feature of the planks offers an extensive range of ceiling options for increased design and installation flexibility. The system also accommodates a wide variety of lighting systems and sizes and offers a choice of a tight or reveal joint detail.

According to Jones, a metal ceiling was chosen for a number of reasons. “The exterior of the terminal expansion is clad in metal, so this allowed us to marry the interior with the exterior. Metal also engineering aesthetics, acoustics, durability and functionality will ensure that.”

Dave Lewandowski is vice president of Al Paul Lewis Co. Inc., Philadelphia.

Other Examples

More examples exist of how metal ceilings are changing the look and feel of airports across the United States. Included among them are the Armstrong MetalWorks custom grated ceiling that was recently installed in Terminal 3 of Chicago’s O’Hare International Airport and the new Armstrong MetalWorks Extra Microporated Ventilated Ceiling in Terminal C of Tampa International Airport in Florida.

And there is no sign of turbulence ahead slowing this trend. Metal ceilings’ aesthetics, acoustics, durability and functionality will ensure that.