

# More than skin deep

## Metal has a myriad of uses for interiors

By Stefan Schumacher

Metal can sometimes be like that buddy of yours who you didn't really like when you first met, but once you got to know him, you became very close friends. While some may think of metal as a material for sheds and warehouses (and, of course, it is that too), Metal Architecture seeks to highlight the myriad of ways metal can be used, not just for its cost and maintenance advantages, but for its aesthetic beauty. From roofs to walls to canopies, metal can add a distinct flavor to a building, something that catches the eyes of people passing by.

Its beauty, though, is not only skin deep. Metal can often work just as well on the inside of a building. To that end, we talked with a few architects who have used metal interiors in unique and creative ways to demonstrate why this is a design choice worth considering. This Q&A is followed by two metal interior case studies substantiating the architects' comments.

**MA:** What factors have led you to choose metal for the interior of a project?

**Lendall W. Mains, AIA, FCSI, Lendall Mains Architect, Las Vegas:** I started using metal probably 25 years ago, and it's just kind of evolved—what type of space is it, how is it going to wear, the durability of it, the look of it ... does it fit with the space? Most spaces, we've found metal kind of enhances the look. When you're going for that class-A look, metal is kind of the topping. We've used it in airports, hotel casinos ... We'll use a perforated metal, and behind it we'll put coloring and then lighting.

**Jeff Murray, senior architect and design principal, CH2M Hill, Englewood, Colo.:** First of all, it is a durable, low-maintenance product that is going to age well over time. It is cost effective. And it has a wide variety of visual qualities. It can express a tectonic, industrial quality; it can be used in conservative corporate settings; or it can be used in playful, unexpected ways. Most metals also have a high recycled content and, for that reason, support sustainable design.

**Ashley O'Neil, associate, Fogarty Finger architecture I interiors, New York City:** Its aesthetic value and performance. Technology has played [a role] in producing new weaves, folds, forms and patterns and has brought metal to a new level as a finished interior product.

**Thomas E. Duke, AIA, LEED AP, Thomas Duke Architect P.A., Jacksonville, Fla.:** We've done several Japanese steakhouse restaurants. Besides the aesthetic value of the materials, anytime we do a restaurant like that we have to be aware of any materials that would get grease on them. You have grease that would coat everything in the restaurant. The metal seemed like the best product for something that could be wiped off but also give us the colors and the textures and some interesting contrasts that we were looking for.

**MA:** What does metal add to an interior design? How does it compare to other materials in this respect?

**Mains:** Cleanliness, fire ratings, the aesthetical look of it. A lot of times you can't get a fiberglass panel that will look and perform as well as a metal panel. Fiberglass will absorb some sound, metal will reflect it. If you're doing a club, you don't want the sound to just absorb in. [Editor's Note: Perforated panels can achieve a noise coefficient of 0.65, absorbing 65 percent of the sound that strikes them. Unperforated panels have an NRC of 0.10.]

**Murray:** Visual quality of interior space is established primarily through proportion and contrast. Metal is a great accent material; it contrasts and compliments both painted surfaces and natural finishes like stone and wood. Metals can be both cool [brushed stainless] and warm [hand rubbed bronze] and, if used properly, can add visual interest and make the other materials around them look better.

**O'Neil:** Metal adds a level of quality and depth not achieved by other products. For example, metal ceilings contain a quality of depth and subtle reflection of light that enhance and soften the space; fiberglass products absorb the light, flattening the atmosphere in the space. This quality in metal can also be used horizontally to give interiors the illusion of horizontal depth.

**MA:** Do you think architects often overlook metal as an interior design choice? If so, why?

**Mains:** I think it depends on the architect and the region. If you're in an area where there's a lot of wood indigenous to that area, a lot of time metal is overlooked. Architects are starting to be more aware of materials that aren't necessarily in their surrounding areas. There's also the influence of the magazines and other architects that are having an

effect on the use of metals. We're starting to see metals used again. Interior-wise, back in the 1930s metal was everywhere. The Art Deco period used a lot of metals. Because of the cost and [World War II], metal was used for other things, so it wasn't available. I think now people are looking at metal as an alternative material. People are becoming more aware of it; it's cyclical.

**O'Neil:** Metal has always been considered a building product, not necessarily a decorative product. With this in mind, I think architects have always considered metal as a product that can easily translate ideas from the exterior of a building to the interior, reinforcing a cohesive design. New techniques and finishes have brought metal to the attention of interior designers, who would have until more recent years thought of metal purely as an accent material.

**Duke:** I think in the past, whenever we thought of metal, we thought of stainless steel or the wire brush stainless-steel metal panels. Now there are a lot of decorative metal finishes with colors and panels on them.

**MA:** How versatile is metal when it comes to interiors? What are some of the different/creative ways it can be used?

**Mains:** Metal is used as walls, ceilings, doors, floors. We do a lot of custom light work in Las Vegas because of the casinos, and a lot of the lights are done with metal and glass. We've used mesh for ceilings and demising walls for

security—where it's sound transparent, visually somewhat transparent, HVAC-wise it's transparent—so you can get movement through a space that you wouldn't get with glass by using a mesh. If you light a mesh, what's on the other side of it, where it's darker, disappears, so it can cast shadows that give you this kind of cool ambient area behind it.

**O'Neil:** I have scored and folded metal to allow the material to transform from one plane to another; double curvatures can be created from flat metal panels cut from templates created through the use of the digital program Rhino. The introduction of digital design and production has opened up unlimited possibilities for the use of metal.

**Murray:** We often use it in guardrails and railings, as trim, as frames at door and window openings, as wall paneling, as ceiling panels, and as accent elements in flooring.


**MA:** Are there any new applications and/or trends with the use of metal in interiors?

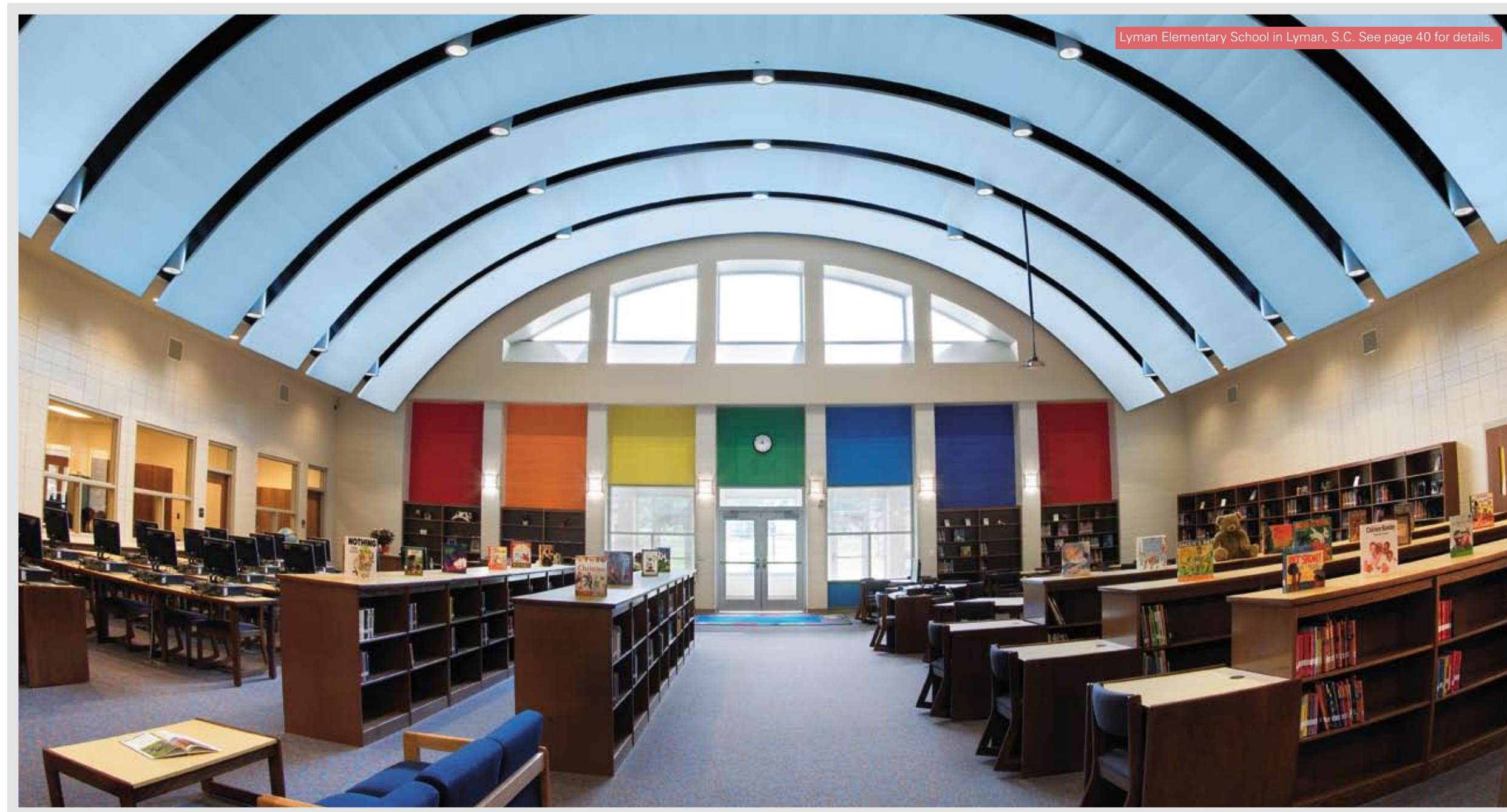
**Mains:** I think you're finding it more as decora-

tive finishes, metal canopies, free-flowing [forms]. It doesn't have to be flat.

**O'Neil:** One area I would like to see explored more is the use of metal as an interior flooring product. I've seen it used but never very successfully—scratching [and] installation are big issues. But can these issues be used to the materials' advantage to create a product that will give the qualities I've talked about to the surface we walk on? Etching, embossing, folding, scoring, cutting and mixing with other materials are areas that could be explored to create such a product.

**Murray:** One of our unique applications is to use brushed stainless steel as a wall base in public spaces. It is very durable, it adds a sense of permanence as well as refinement, and it picks up the color of the floor—say a wood floor—and reflects it in attractive ways.

**Duke:** Architects and interior designers are using light on the interior of office and restaurant spaces and using metal to screen the light and create some of the effects on the interior. I see that being done a lot more. 



Lyman Elementary School in Lyman, S.C. See page 40 for details.

# The difference maker

## Metal ceilings differentiate two otherwise identical elementary schools

Identical twins can often have very different personalities. The same can be said for a pair of schools in Spartanburg County, S.C. Newly constructed Lyman Elementary School, Lyman, S.C., and Abner Creek Elementary School, Duncan, S.C., both in the county's District Five, are identical in terms of layout and floor plan. However, walk into the cafeteria and media center of each and you would never know it.

One reason is two distinctly different metal ceiling designs top off each of these public spaces. The eye-catching Lyman ceilings feature a series of narrow arches that radiate left to right, while the Abner Creek ceilings feature a series of overlapping ceiling planes that radiate front to back and create the effect of one large arch.

### Dramatic and Different

Opened in fall 2008, each of the 92,000-square-foot (8,547-m<sup>2</sup>) schools houses 700 students in kindergarten through fourth grade. According to project architect Brian Deichman of Spartanburg-based McMillan, Smith & Partners Architects, creating a unique identity for each school was a key goal.

"We've designed schools for the district before and used ceilings and other architectural elements to provide each with its own identity, especially in public spaces," Deichman said. "And we've used curved ceilings in the past, but they were usually created us-

ing traditional mineral fiber acoustical lay-in tiles."

When it came to the new Lyman and Abner Creek schools, however, Deichman and project designer Norberto Gliozzi decided it was time for a change.

"We wanted to do something different," Gliozzi said. "We wanted to add an attractive and dramatic new visual that would be unique to each school and really differentiate them.

"Metal ceilings cost a little more initially, but they require very little maintenance and are very durable. As a result, they have a very long service life and will not have to be replaced for quite a while."

### Metal's Role

Chosen for use in the Lyman ceilings was a MetalWorks DH700 Custom Faceted Ceiling System from Armstrong Ceilings, Lancaster, Pa. Made from 0.028-inch- (0.7-mm-) thick electrogalvanized steel, the Lyman system features 16-inch- (406-mm-) wide planks in different lengths, depending on their position in the spaces.

The ceiling in the 5,100-square-foot (474-m<sup>2</sup>) Lyman cafeteria consists of 11 arches with a 39-foot (12-m) radius. Gaps between the arches allow for the placement of light fixtures, while the gypsum board surface above the arches is painted black for additional dramatic visual effect.

The ceiling in the 4,000-square-foot (372-m<sup>2</sup>)

Lyman media center consists of only eight arches but with a tighter 32-foot (10-m) radius because the space is narrower. Because the space is smaller and air demand not as high, diffusers are placed in the side walls, compared to the slot diffusers placed in the ceiling arches in the cafeteria.

For the Abner Creek ceilings, the design team selected MetalWorks Vector panels from Armstrong. These 2- by 2-foot (0.6- by 0.6-m) panels are also made from electrogalvanized steel but are only 0.021 of an inch (0.5 mm) thick. The Vector edge detail produces a sleek 1/4-inch (6-mm) reveal that minimizes the visible grid, creating a ceiling that is more monolithic in appearance than ordinary suspended ceilings.

The ceiling in the Abner Creek cafeteria is comprised of six overlapping ceiling planes, each of which measures 10 feet (3 m) wide by 76 feet (23 m) long, while the media center ceiling also consists of six 10-foot-wide overlapping planes that are only 60 feet (18 m) long. Like Lyman, air diffusers are placed in the side walls in the media center and in the ceiling in the cafeteria.

The ceilings in both schools are oriented to complement the arch of the stage in the cafeterias and the clerestory windows in the media centers. In addition, three shades of blue were selected for the metal ceilings in both schools.


While aesthetics played an important role in the design of the ceilings, acoustics was another con-

sideration. "Good acoustics in the media centers were required since they function as libraries," Deichman explained. "And, while they do not require concert hall acoustics, the cafeterias are used for student performances, and we wanted to make sure there were no echoes. Noise control during lunch periods was also a factor."

To achieve the desired acoustic environment, the metal ceiling planks and panels are perforated and backed by an acoustical fleece. The perforations are nearly invisible, yet they allow the ceilings to achieve a Noise Reduction Coefficient of 0.65, meaning they absorb 65 percent of the sound that strikes them.

### Reaction Has Been Positive

Deichman noted that while there was some hesitation about using metal ceilings in the beginning, reaction has all been positive from the school district, staff and parents alike.

"Aesthetically, the ceilings are definitely one of the more dramatic architectural features of each school," he said. "Their acoustics, low maintenance and long service life also add to their appeal. Plus, the overall project came in within budget, including the use of the metal ceilings." 

### Lyman Elementary School and Abner Creek Elementary School, Spartanburg County, S.C.

**Architect:**  
McMillan, Smith & Partners Architects, Spartanburg, S.C.

**Ceiling installer:**  
Bonitz Contracting Co., Greenville, S.C.

**General contractor (Abner Creek Elementary):**  
Martin Engineering of White Rock, S.C.

**General contractor (Lyman Elementary):**  
Melloul-Blamey, Greenville

**Metal ceiling system:**  
Armstrong Ceilings, Lancaster, Pa.,  
[www.armstrong.com/ceilings](http://www.armstrong.com/ceilings)

