Architectural Mesh Can Offer Aesthetic as Well as Sound Advantages—And Produce Profits, Too

At the Air Force Academy, architectural mesh is used as an acoustical paneling in the theater interior of Arnold Hall. The woven wire panels are affixed three inches from the wall, which is coated with a fibrous sound-absorbing material. Thus the sound-deadening value is obtained, while the wire cloth panels provide a handsome surface.

The Air Force Academy, in Colorado Springs, employs architectural mesh as an acoustical material on its auditorium walls. Chicago’s O’Hare Airport puts the unique wire cloth to use in sectioning-off individual gate areas.

Rice Hotel, in Houston, dresses up ballroom walls with it. New York’s Lincoln Center turns it into a combined acoustical/decorative surfacing. The United Bank of Denver covers columns with the woven screen.

What these examples illustrate is the transformation of a prosaic industrial material into a functional and, frequently, spectacularly-attrative mesh for a host of architectural applications.

Those who are familiar with steel wire cloth know it primarily as the ubiquitous industrial screening, used everywhere for filtering and sizing purposes. But few wall and ceiling contractors, architects, space planners, or interior designers are aware even now of its attributes and its vast potential for the interiors and exteriors of all types of buildings.

To the viewer, architectural mesh falls into two classifications. Each is an aesthetic improvement over standard industrial cloth.

In the first category, the base material is a woven metal fabric having either square or rectangular openings between the wires. Carbon steel—in diameters from .063" to .120"—is the most economical wire choice, and also gets the nod...
for strength and durability. After cloth manufacture, the rigid mesh is glamorized by plating it with chrome, nickel or copper, or dip coating (gold is a popular color) with vinyl paint, enamels, PVC plastic or rubber.

The second classification is literally unrecognizable as wire cloth. It encompasses custom designs for decorative effects, producing them with special weaves on large production looms. Quite often, they mix steel wire with aluminum, brass, bronze and monel to attain distinctive patterns, such as alternating metal squares in a checkboard motif.

**Various Tricks Used for Effects**

In fact, weaving companies employ a whole bag of tricks in manufacturing this type of mesh. They vary the percentage of open area and even the contours of the openings. They utilize steel wire shapes that are round, rectangular, square or other configurations. And they combine wires of different diameters in one screen. Sometimes, wire is crimped and flattened before weaving, or finished cloth is polished. Some meshes even have the topmost surface areas planed off to achieve a two-toned effect.

Says Ralph Ramer, vice president of sales for C-E Tyler, Mentor, Ohio, a major manufacturer of architectural mesh: “While custom patterns are used increasingly in commercial and institutional fields, our industry sees its greatest potential in the home building market, offering painted carbon steel wire mesh as the low-priced attraction. “The overall mesh market could zoom as much as ten-fold if we penetrate even 20 percent of new home construction in the $50,000-and-over class.”

Ramer foresees such residential applications as decorative wall mountings and room dividers. He suggests mesh grilles that are back ed by exhaust fans to remove smoke and odors. For decorative applications, mesh makers could affix the steel wire fabric to plywood panels at a cost of less than $5 per square foot, to embellish living and dining rooms, entrance areas and dens.

In addition to C-E Tyler, other architectural mesh producers include: Cambridge Wire Cloth, Cambridge, Md.; Ludlow-Saylor, St. Louis; and Newark Wire Cloth, Newark, N.J.

These firms are experiencing a consistent rise in wire cloth sales that are attributable to architectural applications. They find the material engendering us es where, heretofore, ornamental iron, glass and wood have been traditional.

By far, the No. 1 application to date has been in connection with elevators-on entrances as well as cab interior walls and ceilings. The durable surfacing has been used on

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thousands of such installations in office and other buildings throughout the U.S. and Canada.

Many Uses Being Found

Up-and-coming are applications as abstract sculpture, ceiling light diffusers, escalator balustrades, fencing, grilles, partitions, stair railing panels, signs, trim and wall coverings.

A typical example of commercial use is the counter surfacing in Braniff International’s nine-acre terminal at the Dallas-Fort Worth Airport. Here, architectural mesh with chrome-plated framing is used on ticket and baggage counters, and in food service areas and clubs.

Blending in with the modern decor, it provides a multi-layered look while affording even more rigidity than a sheet of flat steel. The rugged surfacing is tough enough to withstand, without denting, the scrapes and bangs of heavy luggage by the 400,000 passengers who pass through the terminal each month.

To further stimulate the growth of architectural mesh, producers offer a series of ideas to make its use more practical, efficient and desirable.

Architectural mesh, for one thing, is often selected to create a specific illusion. A vertical wall pattern, available in custom styling, will give the appearance of added height, making a room ceiling look higher than it really is.

By using a more open mesh in a divider (architectural wire cloth can range from 0 to 50 percent in open area), the greater see-through factor will make a room seem larger. On the other hand, a closer weave can imposingly mask an older building’s facade to give the structure a more modern look.

Whatever the effect desired, there are almost always production or finishing procedures to achieve it. Reversible meshes provide an identical look on both sides; mesh can be affixed on several planes for
a third-dimensional treatment; patterns exist which can be applied to flat or curved surfaces. In addition, mesh can be calandered, sprayed, ground, and even applied to different-hued backings to gain multi-color results.

Mesh is being used increasingly where graffiti vandalism is a problem. Because of its broken-up, textured surface, the steel cloth is almost impossible to scratch, gouge or mark.

Besides all the aforementioned applications, mesh is a possibility for virtually any surface need that calls for rigidity in material but flexibility in design. These can range from air vent covers to area enclosures, from equipment guards to solar screens.

Where an acoustical material is needed, the fabric, frequently with .084" openings, has been used in two fashions. Some simply place mesh panels approximately six inches from a back wall, without any intervening, sound-absorbing insulation. Others have backed the mesh with fiberglass or other attenuating mass, to achieve the maximum in sound deadening.

While architectural wire cloth is available as mesh alone, it can also be incorporated into a prefabricated and ready-to-install framed assembly, or adhered to a support of wood or other rigid backing. In some instances, the steel wire screen is fabricated into a frame in order to use it in other-than-flat shape. Baskets, cones, cylinders, discs, domes, grids and tubes are a few of the possibilities.

Mesh maintenance involves an occasional vacuuming or sponging to remove dust that may accumulate in the openings. Since most architectural mesh is employed for vertical applications, cleaning is required far less frequently than if the material were installed horizontally. Mesh can also be periodically repainted to achieve a quick change in decor simply by a change in color.

When wire cloth was bought strictly for industrial screening, it was ordered by specifying the metal, weave, wire diameter, and mesh count or the number of openings per linear inch. For architectural purposes, it is usually best to fully describe the intended applications and its requirements to the supplier, who can then suggest one or more meshes to fill the need. In many cases, the mesh maker can even weave a small sample of the recommended material so that the architect or designer will be able to evaluate the final product before purchase.