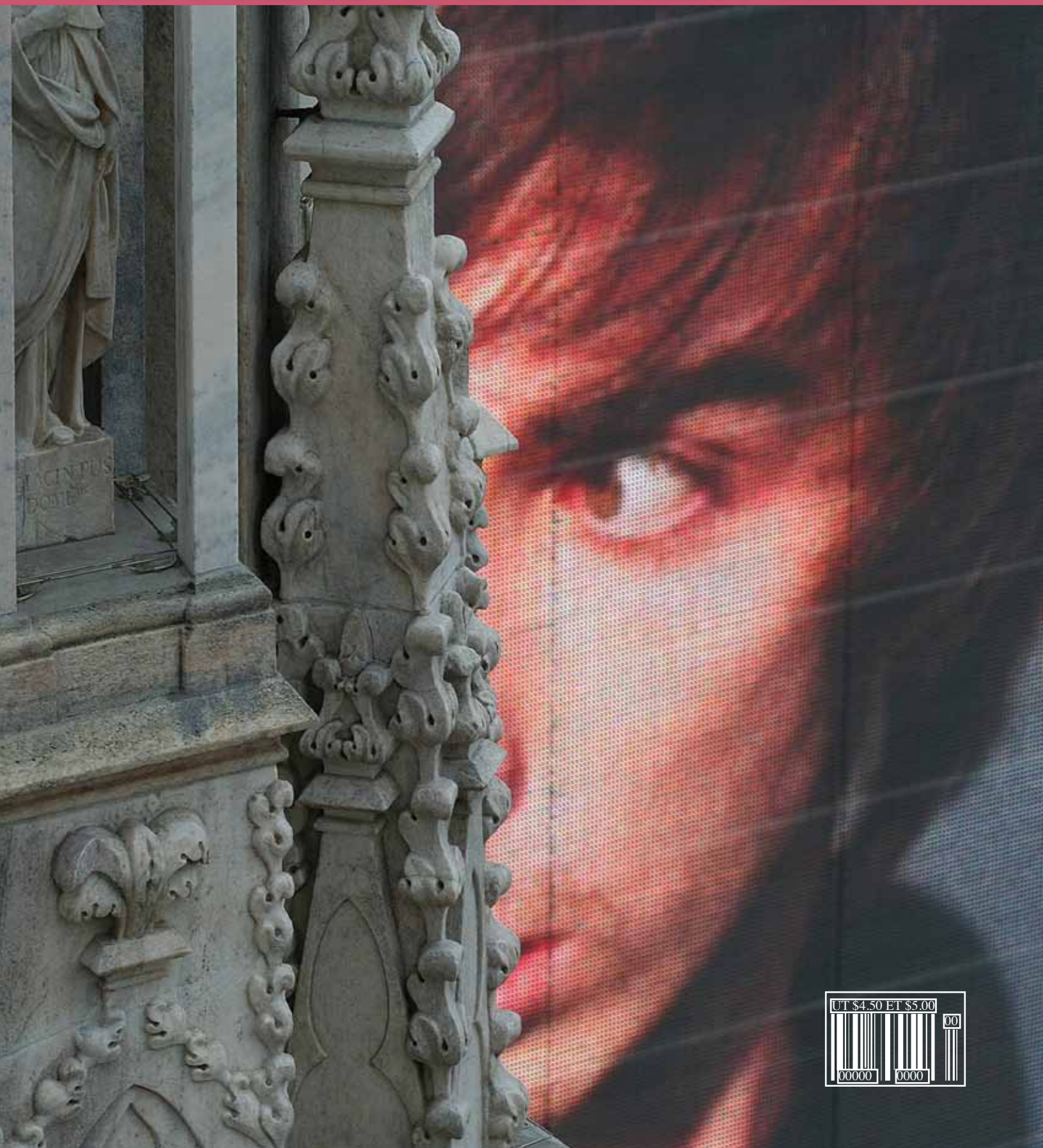


Specialty Fabrics

REVIEW MAGAZINE



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MESH ILLUMINATES THE FUTURE

A courtyard at the University of Arizona features this Cambridge Architectural Solucent™ metal mesh awning that provides shade from the summer sun.

Imagine a future in which surfaces manifest themselves as translucent, receptive membranes, shimmering with light and movement. Our everyday lives will be transformed by walls, ceilings and floors that respond to movement and changes in the weather. Building façades will come alive with floating, abstract forms and moving images capturing our attention and imaginations. Clothing and furniture will glow with animated information, fascinating us with color and motion.

Emerging and existing innovations in fabric technology promise just such a future as they redefine the meaning of fabric. Terms like medialization (the addition of programmable elements to fabric) and mediatecture (the fusion of

architecture and media) signal a new awareness of fabric's potential for illumination and interactivity. While this sounds almost magical, it is also a carefully considered, skillfully designed product evolution that makes sustainability, functionality and economy of resources an essential part of the equation.

The versatility of metal mesh fabrics, already used as wall coverings, furniture, suspended ceilings, sunshades, displays and a host of other industrial products is expanding even further to include architectural and illuminated metal mesh. These fabrics have the ability to "clad" architectural surfaces in transparent, light reflecting-metal skins. With the addition of embedded, programmable LED

lights or "profiles", the mesh becomes a media wall, capable of delivering graphics, text and video on a massive scale day or night. In addition to adding distinctive aesthetic qualities to building structures, metal mesh can withstand the harshest weather conditions, is extremely durable, recyclable and high in recycled content. It can display multiple types of information, respond to motion, sound or environmental changes and reduce energy costs. Demand for medialized metal mesh is on the rise as commercial, civic and cultural entities seek new ways of branding products, enhancing public space and delivering information to a growing public audience.

Particularly intriguing is the ability of metal mesh fabrics

to act as environmental shading systems. Solucent™ Mesh Shading Systems, from Cambridge Architectural in Maryland are a low maintenance, durable and sustainable category of stainless steel mesh fabrics that offer significant energy savings by reducing solar heat gain. When used as building façades, these systems provide exterior shading, optimizing the building As outside temperature and decreasing its energy consumption. As interior screens, they manage daylight within the building, reduce heat and glare, increase interior

space usage and maximize views – greatly enhancing the comfort and productivity of the building’s inhabitants. Heather Collins, marketing executive for Cambridge praises the beauty and strength of stainless steel mesh. “Metal mesh allows complete visibility from inside and outside the building, the surface can be etched, illuminated or embedded with LED lights, and it lasts for decades, surviving all types of weather.” All of which, Collins says, makes these materials cost effective as well as energy efficient. Available in a wide variety of

weaves, metal mesh is flexible and highly customizable, offering a wide range of applications from awnings to furniture. The medialization of fabric

The open weave and light-reflecting surface of metal mesh also lends itself beautifully to illumination. Architectural engineers and fabricators worldwide are working together to devise new and better ways of illuminating the surface of metal mesh with embedded, programmable LED lights. Mediatecture company Ag4 in



“Gossamer Galaxies”, an interactive media sculpture in Fort Worth, Texas, programmed by the Lighting Science Group, responds to movement with holographic a display of changing light.

Cologne, Germany, pioneered the exploration of transparent media walls for architectural use in the early 1990s and began research on combining LED lighting and metal mesh in 2002. Their award-winning, programmable illuminated products, Mediamesh® and Illumesh®, have transformed building façades around the world into informational and artistic masterpieces of light, color and movement. Mediamesh radiates light outward for high image

resolution, visible even in daylight while Illumesh shines light inward onto the mesh surface for a lower resolution nighttime display. Ag4 has been recognized for the sustainability and integrity of these fabrics with the Design Award of the Federal Republic of Germany, the country's highest distinction in the field of design.

Oliver Ebert, Media Architect at Ag4 media facade GmbH says "One of the many advantages of these products is their

transparency. When the lights are off, you can see through the mesh to the architecture behind it. The LED illumination has an extremely long lifetime of 90,000 hours of operation at 100% brightness - 10 years of continuous light. And the material is light and flexible, so it's easy to transport and install. These products have a bright future because the need to put images and information in large areas is increasing."

GKD Metal Fabrics in Maryland has created a special

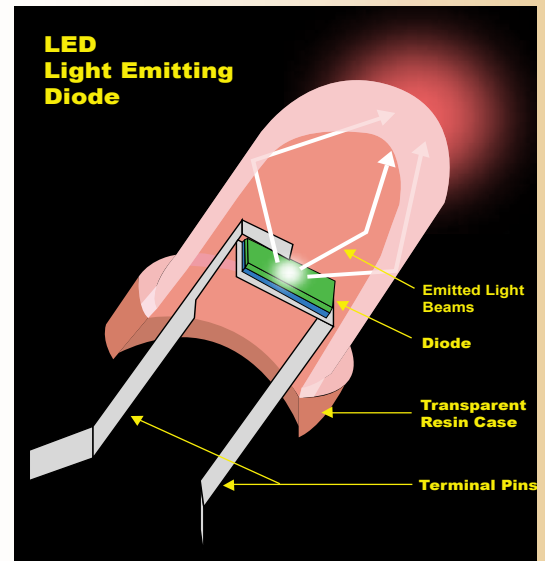


This rendering demonstrates the ability of Traxon Technologies' RGB Mesh to enhance the mood of interior space with a translucent wall of moving light.

loom to accommodate the size demands of Ag4's architectural metal mesh designs. Shawn Crismond, GKD's Regional Sales Director says it's important to understand that media mesh walls are not simply giant television screens, but integrated architectural elements that can transmit information and images. Exterior grade stainless steel fabrics are open systems that need no cooling and tolerate all temperatures including extreme heat. When used indoors, medialized mesh can function as illuminated walls, advertising panels or dynamic informational backdrops. Crismond says "Applications for metal mesh are limitless – billboards, signage, furniture, awnings, stair panels, sunscreens and floor coverings are just a few. The potential of illuminated mesh fabrics hasn't even been scratched. It's a lifetime material with endless possibilities."

The Lighting Science Group (LSG), an internationally based lighting design company, can create virtually anything in the realm of illuminated architectural solutions from a simple sketch. Their projects vary widely from major museum installations to exterior media cladding. LSG's Cool Grid™ is made up of strings of programmable LED lights, woven like luminous fibers into a modular wire grid to create lighting effects and media sculptures limited only by the imagination. Megan Carroll of LSG says programming know-how is at the heart of the company's success in turning innovative ideas into reality. "We approach each job as a unique artistic collaboration," Carroll says, "Creativity drives the process of commercial enterprise in this new technology." The demand for these products is growing, she says, "it will grow because architectural applications for LED lights are increasingly being used as an energy efficient means of creative expression and community engagement."

As evidence of this growth, Traxon Technologies in New York City has recently added an illuminated stainless steel mesh called IMAGIC WEAVE to their product lines. Traxon also offers an indoor / outdoor system called RGB Mesh, strings of LED lights encased in clear plastic modular grids. Fully programmable for low to medium resolution video, RGB Mesh is virtually transparent when unlit and suitable for a wide variety of applications including digital billboards. Boyd Corbett, Traxon-USA Sales Director says these systems can cost 60-70% less than conventional digital billboard installations. "Medium resolution is more than adequate for billboard viewing distance, and can represent a substantial savings to the customer." In addition to trade show exhibits, restaurants, offices, clubs and even residences,



LED's - Light Emitting Diodes Are

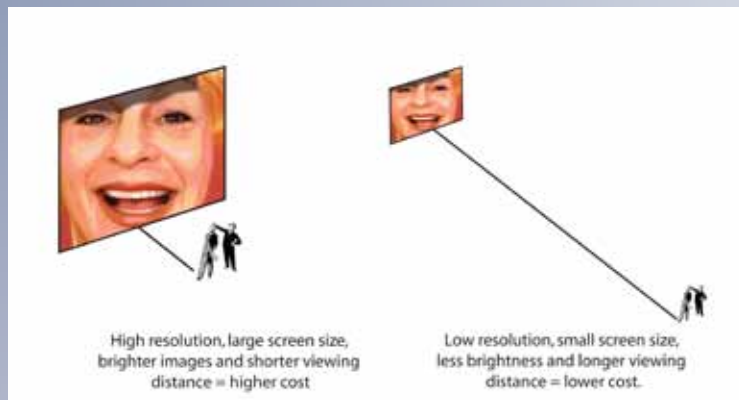
- Long lasting - LEDs can last up to 10 years at full brightness.
- Energy efficient - LEDs generate very little heat, so a much higher percentage of electrical power goes directly to generating light, reducing power usage.
- Capable of generating a larger spectrum of colors than other forms of lighting.
- More robust than regular light sources because they are encased in resin.
- More adaptable to modern electronic circuits.



The stainless steel mesh surface of this Illumes® installation in Torce, France, shines with reflected sunlight during the day and glows with an ever-changing display of light and color at night.



Lumalive, a light-emitting textile from Phillips Technology, uses embedded programmable LED lights to display animated text and graphics on wearable products ideal for trade shows and events.



Media Screen Viewing Guidelines

The factors that determine the cost and functionality of media mesh screens are:

- Viewing distance
- Size of the media surface
- Required brightness of the display
- Desired image resolution.

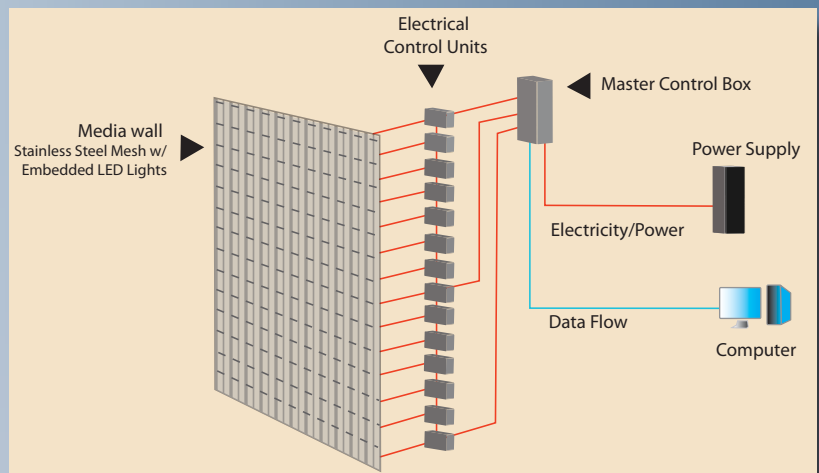
Lower resolution media screens are better for abstract forms or cycling color displays, while higher resolution screens are able to display bright, clear moving images and text.

Corbett says these systems are in demand as “architainment”, architecture as entertainment, meaning illuminated spaces that are compelling in themselves. According to Amy Meredith, Traxon’s Marketing and Sales Manager, the energy efficiency of LED lighting combined with the versatility and maintenance-free life of mesh systems gives these products a great advantage in today’s marketplace.

Luminated, wearable fabrics are an exciting new technology that promise to revolutionize not only fashion but our living and working environments as well. Lumalive from Phillips Technology is a light-emitting textile embedded with programmable LED lights, powered with rechargeable batteries and controlled by software that allows users to upload graphics via a USB connection. Because the electronic components are removable, Lumalive garments are washable, making them practical as well as eye-catching. The strength of Lumalive lies in its potential for multiple uses from garments and curtains to furniture. Lumalive Event Gear is the first Lumalive product to become commercially available, but according to Gerrit-Willem Prins, Commercial Director of Lumalive, Philips Technology, future plans include increasing the product’s sustainability through the addition of re-cycled materials, and its availability in response to “increasing demands for products that combine fabric, creativity and emotion.”

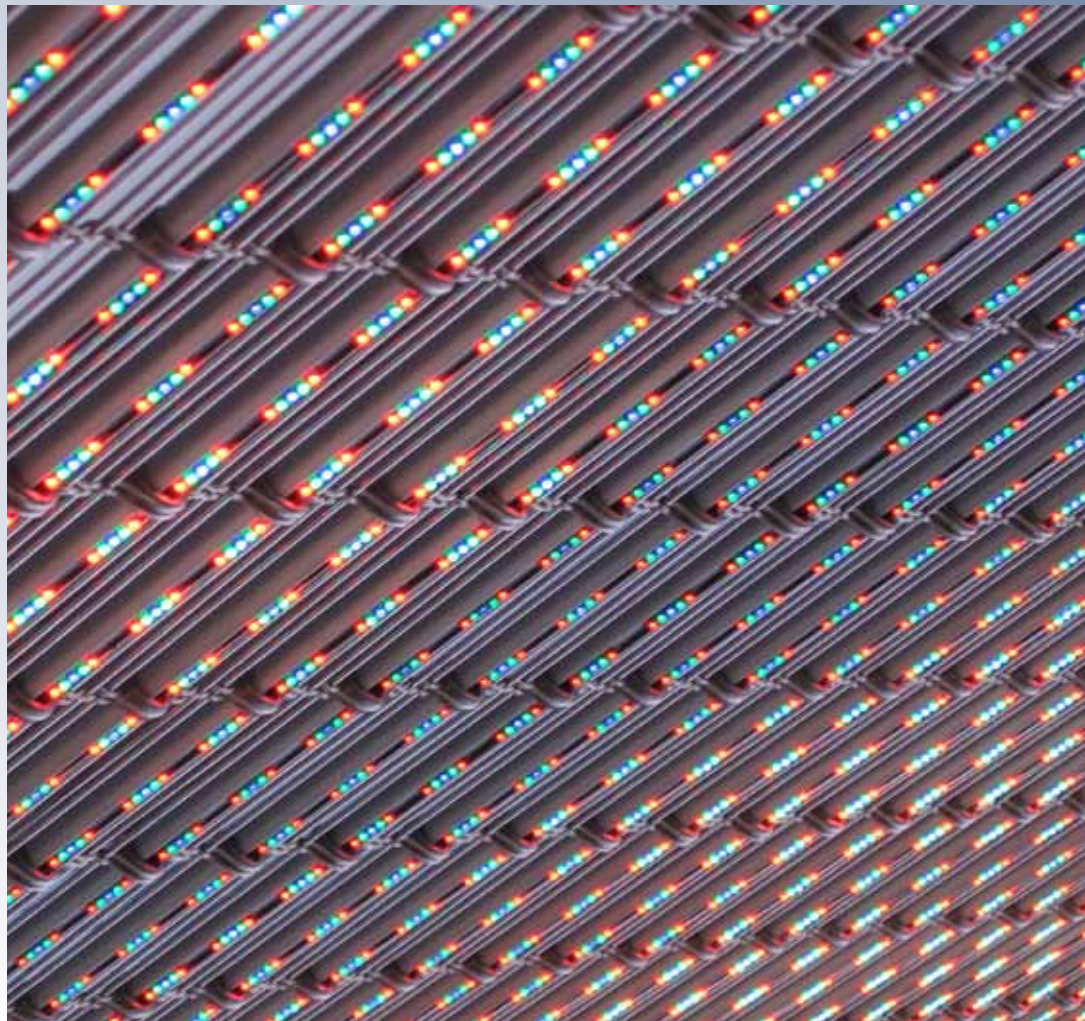
Creativity is clearly in the forefront of new fabric and media technologies. As the lines between tradition and technology blur, lines between artistic and commercial vision blur as well. In a courtyard in Arizona, gauzy architectural mesh panels shimmer with reflected light as they provide refuge from the summer sun. At California State University in Fresno, a vast, translucent media wall is alive with moving images of traditional weaving done in real time. Gossamer Galaxies, an ethereal interactive media sculpture in Fort Worth Texas changes its holographic light display in response to movement as each visitor passes by. And at the Piazza del Duomo in Milan, a transparent media mesh wall elegantly integrates modern technology with the historic façade beneath, creating an instant link between the past and future.

Boundaries are disappearing as creativity and commerce merge through new technologies. Mesh does, indeed illuminate the future, with a skillfully woven, technologically advanced fabric of communication, sustainability, innovation and creativity.



How Medialized Mesh Screens Work

LED lights or “profiles” are woven into intelligent cabling and inserted into the metal mesh fabric, becoming almost invisible. Power and display data are supplied via cables connected either to control units installed near the media wall, or to a remote server, allowing the screen to display a variety of programmed or streaming internet content controlled locally or from a remote location.



Mediamesh®, designed by Ag4, is a transparent stainless steel mesh fabric with interwoven weatherproof LED profiles capable of displaying graphics, animated text and video, visible even in daylight.



Specialty Fabrics Review Magazine
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