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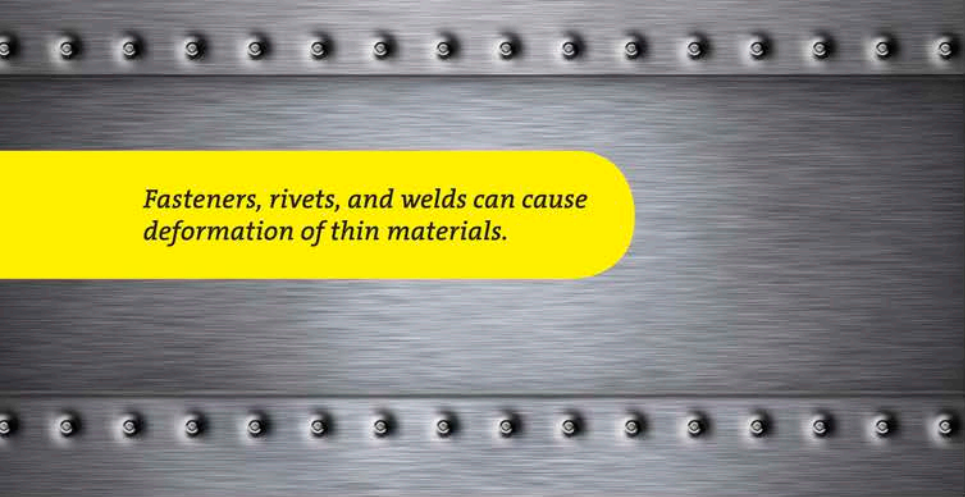
Structural adhesives increase design flexibility in sign making.

Structural adhesives have been used in the sign industry for more than thirty years. They help to improve sign durability and aesthetics, and they are a practical alternative to traditional bonding methods such as welding, tapes, and mechanical fasteners.

The advantages of using structural adhesives over other joining methods are especially notable in the design process. In addition to the benefits of parts reduction, reduced weight, simplified application techniques, and a cleaner finish, structural adhesives offer the ability to bond different materials, such as: plastics, brass, aluminum, cold rolled steel, copper, fiberglass, foam, painted metals, stainless steel, and wood.

ALL PHOTOS COURTESY OF LORD CORPORATION

Sign manufacturers are using structural adhesives as an alternative to traditional bonding methods.



Fasteners, rivets, and welds can cause deformation of thin materials.

Sign Design

"Today's sign manufacturers are looking for more cost-effective methods of producing their products," says Michael Verdi, senior technical representative for LORD Corporation (www.lord.com), a manufacturer of specialty structural adhesives. "Structural adhesives allow the sign manufacturer to provide the same end products, [while] utilizing less expensive materials and saving both time and money."

Because structural adhesives are compatible with so many different materials, the sign designer has the freedom to use and/or source a variety of substrates without having to be concerned with stocking a variety of adhesives. A designer can choose less-expensive materials or use materials that are readily available, since structural adhesives will bond dissimilar materials of all thicknesses.

"Sign makers must contend with complex shapes and styles in the sign-making process," says Verdi. "With structural adhesives, you have the flexibility to match difficult shapes and bond intricate parts, something that is not possible with tapes or welding."

Different Chemistries

The key to success when using structural adhesives is applying the appropriate chemistry to the specific application and process. The substrates to be bonded are the key indicator in determining which adhesive chemistry is chosen.

Acrylic-based adhesives are primarily used to bond metals. Acrylics offer anti-corrosion properties and cure at room temperature. They can be used on sign boxes, raceways, brackets, hinges, and metal letters or trim caps.

"Sign designers like to use acrylics because they are perfect for bare metal bonding, especially on aluminum materials," notes Verdi. "Aluminum is used extensively in the sign industry, due to its lightweight properties. It offers the look and feel of heavier metals but reduces the sign's weight."

Urethanes are a good choice for bonding plastics, wood, and foam. They will bond painted or metal surfaces and can be used with engineered plastics and foam or composite materials. As designers experiment with three-dimensional techniques for signs, they are finding that urethanes

are also good for bonding 3D sign images to a sign's surface.

Epoxyes are ideal for metal, plastic, concrete, wood, and foam bonding, as well as bonding in masonry applications. They offer long open times, can be heat-cured (most epoxyes), and can be used for adhering anchor bolts, ceramics and stone, and rubber and leather.

Meeting Standards

With an increasing number of sign installations requiring an Underwriters Laboratories (UL) approval, sign manufacturers must make sure that their finished products are UL Certified.

A UL Listed sign means that it was fabricated with UL Recognized components and tested by the UL's service. A UL Recognized component, such as an adhesive, defines a product that can be placed as a component in a UL Listed sign but cannot be used on its own.


A sign manufacturer cannot receive a UL Listing for a sign without using UL Recognized components.

Final Thoughts

As sign manufacturers look to decrease their costs while keeping on-trend with new design techniques, they are finding that structural adhesives are a practical alternative to traditional bonding methods.

As material costs rise, it is a distinct advantage to have one bonding product that will adhere to dissimilar materials, while providing durability in an aesthetically pleasing design. **SBI**

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Welding can cause burn through, corrosion sites, discoloration, and other problems for sign building.