

Foam Shapes

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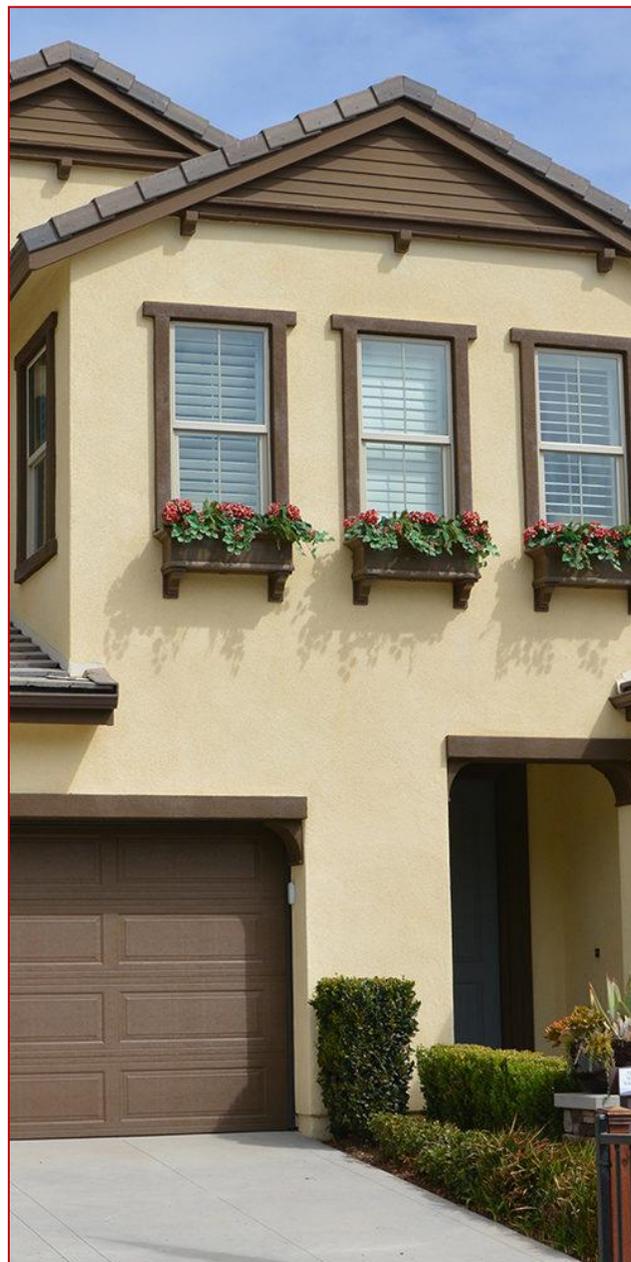
Best Practices for Architectural Foam Shapes

Architectural foam shapes (AFS) are a versatile and inexpensive option for adding decorative trims to buildings, which has resulted in their wide spread use. Currently, there are no third party or building code standards for architectural foam shapes¹. It is left to the design professional and/or applicator to determine the proper materials and installation requirements. As a result, the quality of the foam shapes can vary greatly. The following guide is intended to provide best practices for making and installing AFS. These are only guidelines, but, if followed, should help guarantee a high quality, long-lasting decorative trim.

Note, since there are no third party standards for architectural foam shapes, some design professionals specify that the shapes be made using EIF Systems. In theory this makes sense because both EIFS and AFS are generally adhesively attached, have an EPS foam core that is coated with base coat and mesh, and a finish. Though, in practice, specifying EIFS for foam shapes is not the best choice. EIFS is a wall system, so it has many additional requirements that are not necessary for foam shapes; including: special inspections, the use of acrylic finishes, sealants, etc. The better choice would be to develop a specification specifically for foam shapes based on the recommendations below.

Architectural foam shapes generally are composed of EPS foam cores that are adhesively attached to the substrate using a polymer-modified, cement-based adhesive. The EPS core is coated using a polymer-modified, cement-based base coat (often the same product as the adhesive) and mesh is embedded into the base coat. Then a finish coat is applied.

Note 1: In late 2015, a section on "ornamental features" was added to the mandatory annex of ASTM C926. This new section, A2.6, has some general requirements for decorative features and some specific requirements for field coated architectural foam shapes. This section does not apply to factory coated foam shapes. Also, it should be noted that while ASTM C926 is reference in the IBC/IRC codes, this new section will likely not become officially part of local code until at least 2019 assuming the 2018 version of the IBC/IRC reference a version of C926 that includes the new requirements.



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The following are general guidelines for coating and installing architectural foaming shapes.

- Foam requirements: EPS foam complying with ASTM C578. It should have a flame-spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL723. The foam's nominal density should be at least 1 pound per cubic foot. Preferably the density should be at least 1.5 pounds per cubic foot. The greater the density, the better the foam is able to resist impact damage.
- Mesh requirements: Fiberglass (preferred) or polypropylene mesh are typically used on foam shapes to provide improved impact resistance. These meshes are available in a variety of weights with 2oz and 4oz weights being the most common. The higher the mesh weight, the greater the impact resistance. Omega recommends generally using 4oz mesh. The mesh should be fully embedded in the foam coating by first applying a coat of foam coating then embedding the mesh into the coating and then applying another coat of foam coating. It is not recommended to adhere the mesh directly to the foam prior to applying the foam coating since this reduces the surface area for the coating to bond to the foam and the mesh is less effective at improving the impact resistance since it is not embedded in the coating.
- Adhesive/Base coat: Generally, the same product is used to adhere and coat the foam shape. The adhesive/base coat are typically polymer-modified, cement-based products. Omega foam adhesive/base coats include: FoamTek, DryBond, StyroGlue DryBond, and StyroGlue.
- Attachment: When applying adhesive to the back of the AFS, it should be continuous and have complete coverage. Larger foam shapes should have additional mechanical attachment to the wall, as required.
- Horizontal surfaces of the AFS should have sufficient slope away from the wall to prevent water, snow, or ice from accumulating or standing.
- Joints: Joints between AFS pieces should be treated with minimum 2-inch mesh covered with a tight coat of base coat to a feathered edge. Alternatively, a small amount of adhesive can be used between the shapes to adhere them together.

- Areas of Higher Impact: Areas where impact is likely, it is recommended to use higher weight mesh, a thicker application of base coat, and/or higher density foam (i.e. 2 lbs/ft³ density).
- Mesh should extend 2.5 inches onto the brown coat with foam coating applied over and feathered out onto brown coat.
- Cement-based finishes will dry lighter over the foam coat than standard brown coat.
- AFS should not interfere with function of control or expansion joints.
- High surface temperatures: EPS manufacturers recommend not to exceed a maximum sustained service temperature of 167°F (75°C) because the foam may begin to melt and deform at higher temperatures.
 - Dark colors absorb more heat than lighter colors. Omega Products recommends that colors with a minimum lightness value of 25 be used over foam shapes. All of Omega's standard colors meet this requirement. Contact Omega Products to obtain the lightness values of a desired color.
 - Heat reflected off of windows or other reflective surfaces can cause extremely high temperatures. Omega does not recommend using EPS foam in areas that will receive excessive reflected light.
- When applying ColorTek or other cement-based finishes over foam shapes coated with polymer-modified base coats, the use of a bonding agent or acrylic admix is strongly recommended to ensure proper bond. The recommended volume of admix is one to two quarts of Omega AkroLoc or two to three quarts of Omega Admix 500 per 90-lb sack of ColorTex. Omega BondCrete or AkroLoc are recommended bonders. See the applicable Omega data sheet for additional information.

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