should be used under the sealant to prevent this and to control the shape and depth of the joint. Tooling should be done immediately after application. Masking tape applied to the glass and removed while the sealant is wet will provide a neat attractive line.

To achieve good adhesion, clean the surfaces well with an appropriate solvent and, if necessary, seal with the correct primer. When cleaning, use clean portions of the rag, and pour the solvent onto the rag to avoid contamination of the reservoir. Wipe the surfaces dry so that contaminants are not redeposited when the solvent evaporates. Apply the sealant before surfaces have a chance to oxidize or collect fresh dirt.

When using glazing tapes—such a butyl or the newer PVC foam tapes—below the glass, choose a product with sufficient hardness. Butyl glazing tape has been used successfully for many years in vertical applications, but it has no structural properties. It will not absorb movement, nor will it return to its original shape if deformed. If overcompressed, it may run. Pre-shimmed butyl tape has a hard core designed to withstand the compression of glass weight and loads in sloped applications.

In dry systems, dense neoprene and EPDM (50 to 70 Durometer) have proven themselves. The material should comply with ASTM standards C-864 and C-509. The proper compression must be achieved, usually between 25 and 40 percent of the thickness of the gasket, for a watertight joint. Since both tapes and gaskets rely on a fairly narrow range of compression to be effective, a secondary wet seal is often a good idea.

SUGGESTED JOINT WIDTHS (D) X)

MOVEMENT CAPABILITY OF SEALANT	Movement in Shear  Dimension "D" must be at least:	Movement in Tension and Compression  Dimension "D" must be at least:
± 12.5% (Urethanes/ Polysulfides)	3 x 's expected movement	6 x 's expected movement
± 25% (Urethanes/ Polysulfides/ Acetoxy Cure Silicone Sealants)	4 x 's expected movement	2 x 's expected movement
± 50% (Low Modulus Silicones e.g. GE Silpruf/ Silglaze 2400)	Equal expected movement	2 x 's expected movement

Courtesy of the General Electric Company, Silicone Products Division.

For setting blocks, which support the weight of the glass at the bottom of the unit, dense neoprene or silicone rubber (80 to 90 Durometer) should be used. Two blocks should be used per unit, set at the quarter points. The blocks must support both lites well in double units. Otherwise the top or "outboard" lite may slip past the inboard lite and break the hermetic seal in the unit. In wet systems, the setting blocks should ideally bond to the sealant gunned in around it. The sealant should cover the top exposed edge of the setting blocks to avoid leaks here. The use of neoprene in contact with silicone sealants may cause discoloration of the silicone over time and bonding failure.

Finally, use common sense. Do not use sealants when there is moisture or frost on the surfaces. Find out the temperature range for application. Consult with the manufacturer about cleaners, primers, proper substrates, and compatability problems. Glass coatings, plastic glazings, and oily woods (e.g., redwood) can present problems. Do a test sample. See if the sealant peels off the prepared substrate.

Glass

Other than cost and thermal performance, the major issues in the choice of glass are breakage and the integrity of the hermetic seal.

As for breakage, most manufacturers will not guarantee their units for overhead use unless the inboard lite is laminated like auto safety glass. These units are quite expensive. Tempered glass is least prone to mechanical and thermal breakage, followed by heat-strengthened, then annealed. Tempered glass tends to break into small fragments when broken, which, though dangerous, are less so than large shards. Plastic films applied to the inboard lite are considered by some to increase safety. Surface scratches and edge nicks severely weaken any glass.

As for the hermetic seal, in sloped applications, these are only guaranteed on a case-by-case basis. A variety of single-and double-sealed units are available. The best choice for sloped glazing has a polyisobutylene inner seal for moisture protection and a silicone outer seal for strength. Polysulfide seals are not recommended where high UV exposure is anticipated. Single-sealed units are likely to fail over time with the increased live and dead loads in sloped applications.

Stopless glazing

Also called Structural Silicone Glazing, this is an attractive and conceptually simple glazing system that is gaining popularity in large-scale curtain wall construction. It uses no mechanical stops or battens, creating a flush, clean glass wall. A high-modulus silicone is used to bond the glass units to a metal framework. This system must be engineered and requires meticulous installation. For details contact the Silicone Products Division, General Electric Co., Waterford, N.Y. 12188 or Tremco, 10701 Shaker Blvd., Cleveland, Ohio 44104.

Wet/dry system

A complete glazing system designed for easy installation and long life in sloped or vertical applications of insulating glass has been developed by John Davy of Idea Development, Inc., P.O. Box 44, Antrim, N.H. 03440 (603) 588-6544. The company offers components including insulating-glass units, matched primers and sealants, pre-finished aluminum extrusions with EPDM gaskets, as well as glazing tapes, backer rods, gasketed screws, and other accessories. The system is geared to standard glass sizes and standard woodframe dimensions. Technical assistance is happily provided.