

Technical Note No. 20
DESIGN OF SEALANT JOINTS



Introduction

A joint may be defined as a discontinuity in the fabric located in a predetermined position between either similar or dissimilar materials. Joints take many forms and are required to fulfil different functions. General requirements for joints are described in Technical Note 16 *Joints in the building envelope*.

This Technical Note gives guidance on the design of joints that are to be sealed with a wet applied sealant.

Design requirements

The requirements for a sealant joint are generally as follows:

- Provide a weathertight seal;
- Accommodate variations in joint size arising from induced deviations (tolerances);
- Accommodate inherent deviations (movement);
- Durable;
- Aesthetically acceptable;
- Buildable.

The key steps in the joint design process are as follows:

- Selecting the joint locations;
- Choice of sealant;
- Determining the geometry of the joint.

The design process may require assumptions to be made to allow an initial joint design to be

carried out followed by checking against the assumptions and if necessary repeating the design with modified values until all requirements are satisfied.

Joint location

The location of joints is often dictated by:

- The aesthetic requirements of the façade;
- Materials (e.g. dimensional changes that must be accommodated);
- The size of individual panels/components.

A design may rely on a small number of widely-spaced joints designed to accommodate large movements, or a large number of more closely-spaced joints which demand less of each individual sealant joint. The decision will be influenced by the factors above, for example, closer spacing generally permits narrower and hence less conspicuous (but more numerous), joints.

Choice of sealant

There are four generic types of high performance sealant currently in use as follows:

- Acrylic,
- Polysulfide,
- Polyurethane,
- Silicone.

Technical Note 19 *Selection and use of sealants* describes their properties.