TCKI
Stichting Technisch Centrum voor de Keramische Industrie

Dilatation advice
Dilatation joints in masonry are applied to prevent stresses resulting from deformation caused by temperature differences, shrinkage, creep and/or limit support point settlement, in order to prevent cracking.

TCKI provides project advice in this field on the basis of the calculation rules set up by the Koninklijk Verbond van Nederlandse Baksteenfabrikanten (KNB – Royal Association of Dutch Brick Manufacturers). **Visit KNB website**.

Knowledge, skills and craftsmanship define the overall result of a building structure. The facade is an important part of the design, which relies on the experience, vision and creativity of the designer.

Is the architect aware that failure to resort to the necessary know how at the right time could result in a brick masonry facade being cracked or spoiled?

Designers and constructors need to discuss during the tender stage how they will define, and limit, the number of dilatation joints and their locations in a brick masonry facade. CUR recommendation 71 (Constructive aspects for the design, calculation and detailing of masonry facades) and CUR recommendation 82 (Management of cracking in stone structures), and project advice, such as dilatation advice from the brick industry, play an important part in this process.
Consultations during the tender stage will prevent additional costs associated with lintel modifications, the implementation of dilatations, extra wall ties and/or masonry reinforcements during the implementation stage. The location and number of dilatations can be controlled during the tender stage by focusing on the correct details and tools (lintels, masonry reinforcement).

Dilatation joints will have to be inserted in locations where undesirable cracking might occur as a result of excess stress caused by temperature fluctuations. Undesirable cracks may also occur in locations where masonry is hampered by deformation in the structural components it is linked to it, or protruding components that provide local support for the masonry such as balconies, loggias and gallery plates.

Dilatation joints provide scope for possible deformations. It should be noted that a dilatation joint (5 mm) is not a vertical joint (0 mm).

Lintels have a major impact on the appearance of a facade. The wrong type of lintel above façade openings can easily spoil an aesthetic façade design. The use of lintels freely incorporated in the outer surface, in combination with/not in combination with masonry reinforcement instead of façade support, can limit the number of dilatation joints.
If lintels are connected to the rear structure they will act as façade support. Dilatation joints are always inserted at the start and end of a façade support.

Less dilatation joints will be required if the façade support continues across the piers. The fact that the façade support is fixed to a concrete wall (rigid) or floor structure (flexible) also plays an important part. Deformation caused by masonry supports and

gallery plates can lead to a need for additional dilatation joints.
The eventual result will have to meet the requirements of the architect's original design.

Dilatation joints can be concealed by hiding them behind rainwater discharges in the outer surface, colour transitions or steps in the facade. They can be an actual feature of the design by introducing a link or rhythm in the appearance of the facade. Dilatation joints must be taut.
Co-operation and consultations must be focused on the mutual objective, i.e. to improve the quality of the façade architecture.

Dilatation advice order form
Our dilatation advice order form can be downloaded from this website.