

Why Do We Need Movement Joints

Movement (Expansion) Joints

The Architect or Structural Engineer should have incorporated movement joints at the design stage.

Generally with larger floors the tiling will be divided up into sections (bays) and movement joints placed approximately every 8 - 10m. On walls at all internal vertical corners and at 3 - 4.5m centres vertically & horizontally.

Movement joints should be located in the tiling installation to coincide, and be continuous with, all existing structural movement joints, although they will actually be formed as separate joints isolated by a suitable thickness of back-up materials. Essentially, any movement joints within the substrate should be followed through to the surface.

In addition to movement joints to coincide with those in the concrete sub-base the Designer will normally specify that additional movement joints within the tiling be positioned at the following locations:

- Over existing structural movement joints.
- Where tiling abuts other materials.
- Where tiling is continuous across a junction of different materials or backgrounds.
- In large tiled areas and at all vertical internal corners and at 3m to 4.5m centres vertically and horizontally.
- Where any stresses are likely to be concentrated.
- Where large degrees of thermal movement or vibrations could be experienced.

Ensure that any internal corner joints have at least 1.5 - 2.0 times the normal grout joint width and preferably use a flexible compound.

In terms of the provision of movement joints the following is taken from BS 5385-1, 1995, section 3&5. Movement Joints.

Where large degrees of thermal movement or vibration are expected, the

frequency of movement joints should be increased to accommodate the movement.

Where the building finishes are bonded via screeds to the building structure, placing of the movement joints requires a thorough appraisal of the underlying structure; it's beams, slabs and expansion joints. Tension and compression will affect the tiling.

Most movement joints are suitable for use with ceramic, marble, natural stone and terrazzo. They are designed to accommodate movement control, provide edge protection and ensure consistent quality and presentation.

Floor tiles can be considered as light, medium or heavy duty in the usual ranges of fully vitrified, porcelain and natural stones, with a thickness of 9 to 15mm. Heavier vitrified tiles and, quarries generally range from 15mm to 22mm. Most marble, travertine's, slates, granites or natural stones are around 20mm. Beyond this terrazzo range from 28mm to 32mm to allow for the process of grinding off the surface to present large attractive level surfaces.

General

Consideration should be given at the design stage to the provision of movement joints. The type and location of movement joints involve considerations of construction materials, bedding systems, anticipated temperature and humidity conditions, areas concerned and the setting out of the tiling.

Stresses occur in the tiled installation as a result of movement due to such factors as drying shrinkage and moisture and thermal changes. These stresses can sometimes cause loss of adhesion, bulging or cracking of the tiling, but can be localized by incorporating movement joints.

Where the background is mature and stable, e.g. existing rendering or plaster, the movement joints in the tiling, which are not to be confused with structural movement joints, may need to extend only through the tiling and its bed, and **should be a minimum of 6mm wide.**

Location

Movement joints should be located in the tiled installation to coincide and be continuous with all existing structural movement joints, although they will actually be formed as separate joints isolated by suitable thickness of back-up material.

Owing to the complexity of this subject please consult the British Standards for internal & external floor tiling BS5385 Part 3 : 1989, Sections 19.1.1 to 23.6.4. Exterior wall tiling BS5385: Part 2: 1991: clauses 13 & 20. Interior wall tiling BS5385: Part 1: clauses 2 to 10 & 3 to 5.