

## (1) Specification points for Dramix® steel fibre reinforced cellar walls

### 1. Fibres

- Fibres to comply with European Standard EN 14 889-1
- Fibres with CE-marking system 1
  - i. Fibres out of drawn wire, with a tensile strength of steel wire > 1000 Mpa min.
  - ii. Dimensional tolerances according to CE
- Minimum fibre length: 2 times the maximum coarse aggregate size

### 2. Performance

- Minimum total fibre length for crack control  
In order to ensure the minimum network effect to provide a specific multicrack process and so a redistribution of the loads through the crack bridging steel, for cellar walls, a minimum total steel fibre length of 3.800 meter/m<sup>3</sup> concrete is required
- Equivalent flexural strength in accordance with the design note
- Concrete quality and additional reinforcement in accordance with design note

### 3. Steel Fibre concrete

- Glued fibres for improved and risk-free pumpability and mixing. Handling, dosing and mixing is in line with the recommendations of the steel fibre producer
- Loose fibres with a length/diameter ratio of more than 50, which can cause concrete balling, are forbidden to use

## (2) Construction recommendations

- The concrete must be produced by a nationally certified batching plant. The material properties of the concrete must be assured by the testing program laid down in EN 206 or similar. The minimum concrete strength class shall be C20/25. Bekaert recommends the use of low shrinkage concrete mixes and correct curing to avoid shrinkage cracking.
- The wall is to be constructed using steel fibre concrete, combined with conventional bar reinforcement at the top and bottom of the wall section. It might be necessary to add more bar reinforcement to restrict crack width.
- Wall thicknesses must lie between 200 mm and 350 mm. For inner walls, subject to no external loading, the minimum thickness may be reduced to 150 mm.
- The wall concrete is to be placed in one pour, full height, onto the pre-existing basement or cellar floor. This construction joint should be roughened by mechanical means.
- The wall shall be connected to the floor above by a single layer of reinforcing bar and, at the foot, by two layers of reinforcing bar fixed into position.
- It is assumed, for design, that the top of the wall is pin jointed and the foot of the wall is fixed.
- Diaphragm action of a floor, or ring beam is needed to provide support to the top of the wall.
- The project manager should consider waterproofing against groundwater and damp.
- Bar reinforcement will be needed at door and window openings.