

GIVING NEW DIMENSIONS TO CONCRETE

EXTENSIA

LAFARGE
bringing materials to *life*



Extensia™: innovative technology in low shrinkage concrete for commercial and industrial floors.

Application

Extensia is a low shrinkage concrete for use in slab on grade applications, with **joint spacing up to 20 m x 20 m (400 m²)**, with **controlled cracking without the inclusion of wire mesh or steel fibres**.

Advantages

Extensia is a well adapted solution for commercial/industrial slabs allowing for **improved performance** through:

- ▶ **Increased flexibility in floor design:** the mechanical and shrinkage properties of Extensia™ allow design of thinner unreinforced slabs, with increased joint spacing.
- ▶ **Rapid execution of floor construction:** the floor construction sequence can be shortened with Extensia™, mainly due to the possibility of early power trowelling of the surface and early cutting of joints.
- ▶ **Early loading up to 14 days:** due to its superior mechanical performance
- ▶ **Reduction in joint construction/maintenance costs:** increased joint spacing and reduced joint curling at the joint combined with improved durability and abrasion resistance allow for substantial cost savings.

Characteristics

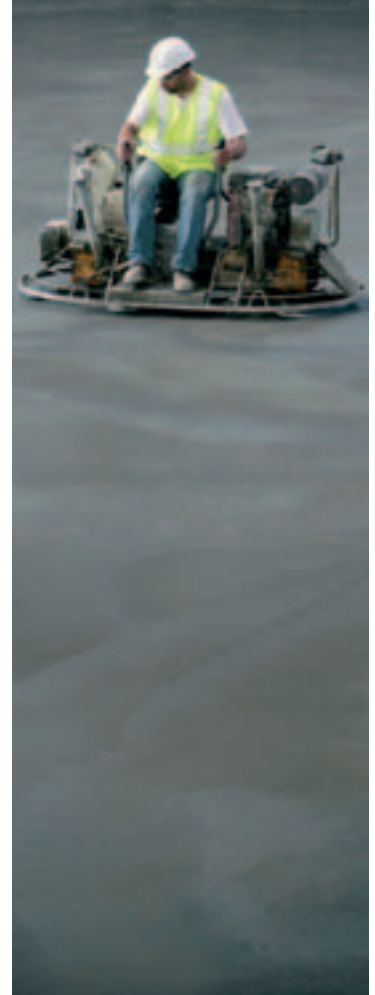
The Extensia™ mix design results in the **reduction of drying shrinkage**, typically 0.04% (modified ASTM C-157 as specified by CSA A23.1-04 clause 8.9.2). Distances up to 20 m between each joint is achievable without the use of wire mesh or steel fibers.

Extensia™ achieves a high level of mechanical performance:

- › **Compressive strength*** in the order of 20 MPa in one day, 45 MPa in 7 days, 60 MPa in 28 days
- › **Flexural strength** of 6 MPa in 28 days in accordance with CSA A23.2-8C and splitting tensile CSA A23.3-13C
- › The achievement of this high level of mechanical strength, allows:
 - **A reduction of slab thickness** compared to conventional concrete
 - Early loading up to 14 days
 - Improved abrasion resistance due to compressive strength achieved
 - Dry shake applications for increase abrasion resistance may be eliminated or reduced
- › Slump range: 175 mm to 225 mm
- › Slump flow range: 450 mm to 550 mm
- › Slump retention: 90 minutes

Workability achieved allows for conventional placement and compaction methods (including pumping). Extensia is highly durable due to low permeability and low water porosity.

	1 DAY	7 DAYS	28 DAYS
Compressive strength*	20 MPa	50 MPa	70 MPa



RECOMMENDATIONS

SUB-BASE PREPARATION

- › Sub-base preparation must meet the specifications of the design engineer.
- › Materials used for the sub-base should comply with those specified.
- › A plastic sheet slip membrane of at least 250 µm thickness is required.
- › Slip membrane shall be laid without creases and overlapped at the edges by at least 300 mm.

JOB-SITE PREPARATION

- › Walls and columns should be isolated to avoid restraint of concrete in deformation.

TRANSPORT

- › Check job site accessibility for trucks.
- › In case of low accessibility or sand-covered sub-base, plan to use a concrete pump.

PLACEMENT

- › Never add anything to the concrete (water or anything else) on the job site.
- › Extensia™ concrete can be placed using traditional methods.
- › Surface vibration is mandatory, either with a laser screed or a vibrating beam.
- › Extensia™ should be placed in enclosed conditions. In hot conditions evaporation rate should not exceed 1 kg/m²/h.
- › A minimum thickness of 125 mm can be used for slabs on grade (as per structural design)
- › As Extensia™ concrete exhibits expansion at an early age (0.01% of total length) a specific placement sequence should be used to ensure free movement.

FINISHING

- › Finishing can typically begin 4 hours after batching.
- › A suitable curing compound should be used to prevent surface moisture loss.
- › Slabs constructed should be saw cut as soon as possible and to a depth of at least one third of slab thickness.

As in any concrete floors, best practices regarding treatment of specific areas such as re-entrant corners should be applied.

