

**A Concrete Technology engineered to
achieve unprecedented mechanical
performance and durability**

A special ready-mix concrete solution
addressing challenges where high strength
and high ductility are required.

Resilia
Reinforced by design



The engineering of the future, today.

CEMEX Solution

Concrete Technology based on a novel Hyper-Performance Fiber Reinforced Concrete

- Novel particle packing principles to accommodate aggregate and fiber particles
- Innovative approach in fiber reinforcement – adoption of fiber combinations

Added Value Propositions

A concrete-based fiber-reinforced composite that offers:

- Cost savings:
 - Significant reduction or elimination of steel reinforcement in structures
 - Low long-term maintenance
- High strength coupled high ductility
- Material-Efficient structural design – more slender elements
- Sustainable construction practices

Technical Characteristics

FRESH PROPERTIES

- Self consolidating Concrete: Slump flow > 65cm
- Workability retention of at least 1h30min
- Viscosity: V funnel between 10s and 20s

PLACING/HANDLING

- Pumpable concrete
- Easy to place and form filling

HARDEN PROPERTIES

- Compressive strengths from: 30MPa to 150MPa @ 28 days
- Flexural Strengths from: 3MPa to 30 MPa @ 28 days
- Modulus of Elasticity from 25 to 50 GPa
- High ductility – strain hardening behavior

DURABILITY

- Low permeability / high density
- High resistance to abrasion and corrosion
- High resistant to freeze-thaw damage

Performance Advantages



Combination of fibers and concrete design that increases tensile strength and ductility



Resilient materials that will endure high mechanical, chemical, and environmental stress



Self compacting and consolidating materials with high fiber loading ($> 60 \text{ kg/m}^3$)



Thinner and joint-less industrial floors

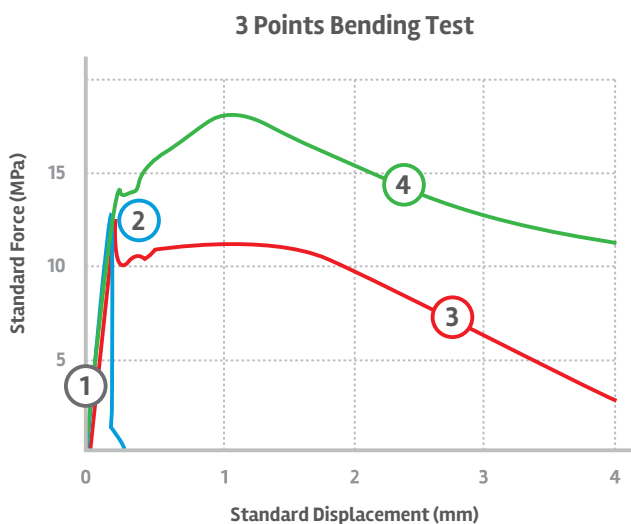


Bullet-proof materials

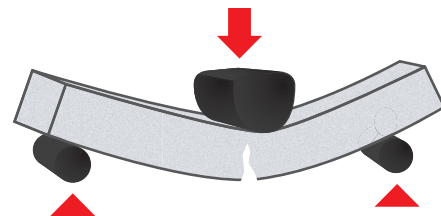
Applications

- High rise buildings / sky scrapers
- Architectural
- Bridges
- Narrow supports
- Thin concrete elements
- Buttresses for high pressures
- Industrial flooring and pavements
- Pre-cast

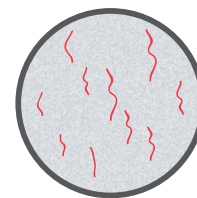
Toughening mechanisms induced by mix design coupled with special mixture of fibers.



Fiber Distribution



= 1



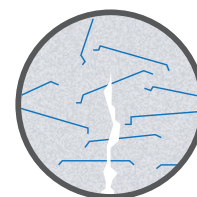
Microcracking
(typical in concrete)

= 2



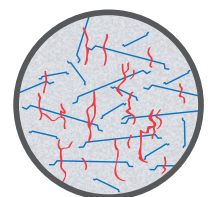
Macrocrack
(at material failure)

= 3



Conventional
Fiber Reinforced
Concrete

= 4



Resilia



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THAT PROVIDES HIGH-QUALITY PRODUCTS AND RELIABLE
SERVICE TO CUSTOMERS AND COMMUNITIES IN MORE THAN
50 COUNTRIES THROUGHOUT THE WORLD. CEMEX HAS A
RICH HISTORY OF IMPROVING THE WELL-BEING OF THOSE
IT SERVES THROUGH ITS EFFORTS TO PURSUE INNOVATIVE
INDUSTRY SOLUTIONS AND EFFICIENCY ADVANCEMENTS
AND TO PROMOTE A SUSTAINABLE FUTURE.

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