

Alpha Mass

Temperature-controlled concrete for mass pours that demand discipline.

Grades	Temperature	Lead Time	Pour Duration	Certifications
M30-M50	≤ 25°C	Pre-book 7+ days	4-8 hrs continuous	BIS, IS 456, IS 7861

Key Features

- Concrete temperature ≤25°C.** Chilled water (10-15°C), ice integration (up to 30% of mix water), and shaded aggregates ensure target temperature even at 38°C ambient.
- Heat of hydration controlled.** 40-60% SCM replacement (GGBS or fly ash). Lower cement clinker content. Engineered to reduce peak temperature in mass element by 30-40%.
- Pre-cooled with ice + chilled water.** Ice plant integration at our Ramohalli plant. Chilled water tanks at 10-15°C. Aggregate pre-cooling for critical pours.
- Retarder for extended workability.** Calibrated retarder dosage extends initial setting time to 6-8 hours. Single mass pour can extend to 8 hours without cold joints.
- SCM blend (GGBS/fly ash).** 40-60% mineral admixture replacement. Lower heat, higher long-term strength, better durability. Approved SCM sources with MTCs.
- Continuous pour 4-8 hours.** Dedicated dispatch coordination. Multiple TMs scheduled at 8-12 minute intervals. Real-time tracking via BuildX Live (Q3 2026).

Technical Specifications

Parameter	Value
Compressive Strength (28-day)	30 – 50 N/mm ² (per grade)
Cement Type	OPC 53 + GGBS (40-60%) or PPC + Fly Ash
Cement Content (clinker only)	200 – 280 kg/m ³
Total Cementitious Content	320 – 420 kg/m ³
Mineral Admixture	GGBS 40-60% or Fly Ash 30-50%
W/C Ratio	0.38 – 0.45
Concrete Temperature at Delivery	22 – 25°C
Peak Hydration Temperature (in-mass)	55 – 65°C controlled
Slump	100 – 150 mm
Slump Retention	120 minutes minimum
Setting Time (initial)	6 – 8 hours
Heat of Hydration	30-40% lower than OPC concrete
Ice Replacement Capability	Up to 30% of mix water
Code Reference	IS 456:2000, IS 7861, IS 12089, IS 12330

Applications

Raft Foundations. Single continuous pour 100-2000 m³. Hospital basements, commercial high-rise foundations, infrastructure piers.

Transfer Slabs. Mid-rise structural transfer slabs 1-3m thick. Mass pours requiring controlled temperature.

Mat Foundations. Industrial machinery foundations, generator platforms, heavy equipment bases. Where thermal cracking would compromise structural integrity.

Mass Concrete (Dams, Walls). Retaining walls 1m+ thick. Mass concrete dams. Bridge piers and abutments.

Available Grades

M30 — Foundation rafts, retaining walls, large footings.

M35 — Mid-rise transfer slabs, mass elements with moderate strength.

M40 — Standard high-rise raft foundations, transfer slabs.

M45 — Heavy-duty mass elements, bridge structures.

M50 — Premium high-rise rafts, infrastructure mass concrete.

Disclaimer: The specifications shown represent typical ranges. Actual mix designs are project-specific and subject to verification by Alpha Concrete's QC team. Quoted specifications must be confirmed against actual lab results before commercial commitment.