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Rethinking Specifications: The Value of Early Contractor Engagement for Lower Carbon Concrete Solutions

The drive to reduce embodied carbon is reshaping the construction landscape. While material innovation plays a critical role, a less discussed but equally powerful lever is early contractor engagement. Early involvement of construction material suppliers can unlock lower carbon alternatives, bringing new innovations to light and working to improve outdated specifications.

Early contractor engagement unlocks the full depth of technical expertise, enabling optimisation of mix designs, constructability, and durability while leveraging insights from highly experienced laboratory and technical teams.

The Problem with Over-Specification
Many traditional concrete specifications include conservative safety margins well beyond project requirements. While these are typically well-intentioned, they can result in:

- Over-designed mixes with unnecessarily high cement content
- Missed opportunities to incorporate supplementary cementitious materials (SCMs)
- Higher embodied carbon per cubic metre of concrete
- Reduced flexibility for innovation or performance-based solutions

Why Early Contractor Engagement Matters
Engaging concrete suppliers and contractors during the project design and specification phase creates opportunity to:

- Utilise new innovative materials and services
- Design bespoke, fit-for-purpose solutions to meet performance and sustainability goals
- Introduce lower carbon binders such as EvoCem™ Type GL cement
- Evaluate performance-based alternatives over prescriptive requirements
- Optimise the structural design for material efficiency
- Collaborate on constructability, placement, curing, and delivery methods that support lower carbon outcomes

Early contractor engagement facilitates value engineering during the design and planning stages, when design modifications remain practical, cost-effective and most feasible.

Case for Performance-Based Design

Switching from prescriptive to performance-based specifications is key to enabling innovative mix designs. For example, specifying compressive strength at 56 or 90 days (rather than 28) can allow for:

- Greater use of SCMs like slag and fly ash
- Lower clinker content and reduced carbon intensity
- Tailored durability and strength development aligned to project needs

Recommendations for Design and Procurement Teams

- **Engage early.** Bringing in concrete specialists during planning and design unlocks technical capability, supported by advanced laboratory testing and highly experienced engineering teams.
- Review specs. Re-examine assumptions behind specified strength, curing time, durability classes, and cement type.
- **Allow alternatives.** Build flexibility into specifications to enable bespoke mix designs that meet project requirements while considering lower-carbon binders and innovative concrete solutions.
- **Prioritise outcomes.** Focus on in-place performance, not just mix constituents.
- **Document decisions.** Where lower carbon options are selected, record the carbon savings achieved.

Early contractor engagement is not just good practice, it’s a strategic pathway to lower embodied carbon. With growing demand for greener outcomes, revisiting specifications and enabling low carbon concrete solutions should become standard procedure in project planning.

Adbri boasts a highly qualified team of technical experts who can support customers with mix optimisation, performance data, and specification guidance to help realise these benefits from the outset.