CONCRETE TECHNOLOGY · CAPABILITY STATEMENT

Concrete Technology Consulting

Evidence-led review for concrete materials, production, performance, and troubleshooting

> Evidence-led technical review with assumptions, limitations, verification needs, and responsible project decisions kept visible.

Materials	Production	Performance

Hossein Barzegar is a concrete technology specialist, technical educator, author, and consultant focused on concrete admixtures, mixture proportioning, quality control, durability, and troubleshooting.

Consulting engagements begin with a defined technical question and the decision the review needs to support. Available material data, mixture records, production information, test methods, and observations are assessed together. Findings identify assumptions, data gaps, plausible causes, practical options, and the verification required before implementation.

Who the work is for

- Ready-mixed concrete producers
- Precast concrete manufacturers
- Contractors and project teams
- Consulting engineers
- Quality-control and laboratory managers
- Concrete admixture and construction-material teams
- Technical directors and industry professionals

Core capability areas

Mixture review and proportioning

Review project requirements, constituent properties, current mixture proportions, moisture corrections, trial data, and production constraints to define technically justified options and a controlled verification plan.

Concrete admixture performance

Assess compatibility, dosage response, workability retention, setting behaviour, batching sequence, and observed fresh and hardened performance within the actual cementitious and production system.

Production quality control

Connect material, batch, delivery, sampling, specimen, testing, nonconformity, and corrective-action records to identify variability, traceability gaps, and priority controls.

Fresh concrete troubleshooting

Investigate workability loss, segregation, bleeding, temperature-related behaviour, delivery inconsistency, and placement concerns by separating observations from assumptions.

Durability and performance assessment

Frame cracking, deterioration, moisture-related performance, honeycombing, and repair-material questions; identify plausible mechanisms and define proportionate investigation and verification steps.

Technical training

Develop focused technical learning for production, laboratory, technical, and project teams, matched to the audience, reference framework, and decisions participants need to make.

Working method

1. **Define the decision.** Clarify the application, performance question, applicable requirements, constraints, and timeline.
2. **Review the evidence.** Examine authorised material data, mixture records, test methods, production information, and site observations.
3. **Assess plausible causes and options.** Compare competing explanations with the evidence and distinguish immediate controls from changes that require trials.
4. **Document the next steps.** Provide findings, assumptions, limitations, priority actions, and a verification plan.

Typical inputs

- Concrete application and performance requirements
- Applicable specification or standards
- Mixture proportions and material technical data
- Aggregate grading, absorption, and moisture records
- Admixture dosage and batching sequence
- Fresh and hardened concrete test results
- Production, delivery, placement, and curing information
- Photographs and records authorised for disclosure
- Known changes, nonconformities, and corrective actions

Typical deliverables

- Technical review memorandum
- Evidence and data-gap register
- Plausible-cause assessment
- Option or risk matrix
- Trial and test plan
- Priority control recommendations
- Implementation considerations
- Limitations and escalation triggers
- Technical briefing or workshop when included in scope

Engagement model

Remote technical review is the default starting point. It allows the scope, evidence, and immediate data gaps to be established before further work is proposed. Selected on-site assignments may be considered by arrangement after responsibilities, access, safety, confidentiality, logistics, and deliverables are agreed.

Important limitations

Recommendations depend on the completeness and reliability of the project information. Concrete materials, proportions, test results, and operating conditions can vary between projects and production systems.

The work does not replace the responsibilities of the project's licensed design professional, concrete producer, contractor, testing laboratory, approving authority, or other responsible parties. It does not constitute structural certification, statutory inspection, product certification, laboratory accreditation, legal opinion, or a performance guarantee. Proposed changes should be verified through suitable trials, testing, approval, and production controls.

Start with a clear technical brief

Describe the concrete application, observed problem, performance target, available records, applicable requirements, and decision timeline. Do not send confidential formulations, personal data, contracts, or files you are not authorised to disclose. Sensitive records require an agreed confidential transfer and retention method.

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