

Hichborn Consulting Group

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CURRICULUM VITAE FOR GEOFFREY HICHBORN, SR, PE

Expertise:

General Civil Design with specialties featuring:

- Forensic Investigations of Concrete Work and Concrete Products
- Concrete, Cement and Related Materials Expertise
- Construction Practices & Materials Evaluation
- Repair Recommendations, Construction Observation
- Public Works / Residential / Commercial / Industrial
- Batch Plant Inspection, Aggregate Suitability Studies
- Specially Designed Tests of Distressed Materials

Experience:

In twenty five years of construction materials testing and problem solving, Mr. Hichborn has performed a wide variety of laboratory and field evaluations of structural, architectural and coating materials, specializing in those containing hydraulic cements. His investigations have included laboratory tests of chemical, physical and optical (microscopic) properties of concrete and its separate ingredients addressing their effect on fresh and hardened concrete properties, with particular interest in durability. Additionally, he has devised and directed specialized tests and evaluations for research and development of new products and for solving complex field problems. Concrete analysis includes residential and public works, and pre-cast, pre-stressed, cast-in-place and post-tensioned structural work. Field investigations encompass exterior portland cement (wall) plaster and swimming pool plaster, concrete pipe, gunite, concrete masonry units ('cmu's or 'block'), mortar and grout. Other investigations involve concrete flatwork, plain and architectural concrete, debonding of coatings, concrete pumping problems and recommendations for appropriate repair procedures. Mr. Hichborn is experienced in structural inspection and testing for commercial and industrial construction and for quality assurance of civil works, both public and private.

Project Examples:

- * Performed numerous **field condition surveys** of both recently constructed and existing distressed/damaged **concrete structures**. Analyses includes evaluation of design intent, nature of distress, effect of site environment and service use on concrete, properties and type(s) of ingredient materials, and other factors as appropriate. Characterized mechanism(s) of distress and **recommended remediation /repair** as required.
- * Experienced in **coating and repair materials**, including preparation, application, specification, and general material properties.

- * Performed numerous visual and destructive **post earthquake assessments of concrete and exterior plaster to discern distress age, causation and nature** of damage, and recommend appropriate repair techniques.
- * Extensive experience involving analysis of claims involving construction distress from **sulfate attack, alkali silica reaction, freeze thaw distress and concrete pumping** incidents considering waterproofing and issues of concrete durability and required mix proportioning.
- * Performed extensive evaluations of several thousand feet of extruded, low slump, portland cement **concrete curb and gutter**.
- * Several exhaustive investigations of distressed/failed concrete commercial and industrial warehouse **concrete slabs on grade per ACI Criteria, including extensive repair recommendation**, cost estimates, review and analysis.
- * Performed comprehensive evaluations of numerous **parking areas and pavements constructed per ACI requirements for portland cement concrete** and various Asphalt Industry standards for **asphaltic cement concrete**. Services included analysis of **drainage slopes and construction tolerances** of pavements and flatwork, and remediation.
- * Investigation, analysis distressed **concrete construction** and framing **anchorage**, particularly **residential structures** and related ingredient materials. Headed and investigated numerous tracts in Ventura, Los Angeles, Orange and Riverside Counties exhibiting **soils, waterproofing and other coatings, concrete foundation and flatwork, plaster, framing, and related distress including repair recommendations and cost estimates**.
- * **Directed** all technical activities for **testing and inspection laboratory** and reported on material properties of concrete, concrete repair materials, specialized coatings, masonry, grout, rebar, prestress strand, high strength aircraft parts and soil.
- * Proposed, supervised and reported results of various testing programs to **characterize the effects of mix proportions**, ingredients and steam curing on strength development over time, for ready-mix, masonry block, precasting and pre-stressed concrete operations.
- * Evaluation of leaking, cracked and distressed **swimming pools shells** (gunited and cast-in-place) from earthquake, construction defects, soil actions and other causation.
- * Evaluation and **approval of concrete and concrete repair and coating materials** for use in various sulfated and other aggressive environments.
- * Extensive experience on **construction permitting, inspections**, and related requirements.
- * Developed **product criteria, special tests, unique properties, and unusual ingredients** for new cement product for asbestos-cement (A/C or 'Transite') pipe and oil well cement.
- * Comprehensive evaluation of 30 plus distressed **swimming pools** where the gunite pool shell and white pool plaster was disintegrating due to sulfate reactions, Las Vegas NV.

- * Revision, re-implementation and execution of a **comprehensive internal quality assurance program** designed to ensure compliance of laboratory technicians and inspectors, equipment, facilities, procedures, supplies and reports.
- * Serves as **expert witness** in cases involving all manner (flood, fire, earthquake, etc.) of distressed concrete in public, commercial, industrial and residential construction; including related materials of construction. Work includes cases on behalf of plaintiffs, defendants, and cross-complainants. Extensive experienced with multi-disciplined claims.
- * **Teaches** on testing, proportioning and performance characteristics (sulfate, alkali aggregate and freeze thaw durability) of **concrete and materials** used in making concrete.

Education:

B.S. Civil Engineering, University of California, Irvine, 1979. Various ongoing specialized training in engineering and materials with emphasis on portland cement, portland cement concrete, concrete-making materials, cement-containing products, repair and coating products and testing and inspection of structural materials used in construction.

Affiliations & Registrations:

American Concrete Institute (**ACI**, Local & National) Member - Responsibilities in Concrete Construction Sub-Committee, Geotechnical Grouting Sub-Committee
American Society of Civil Engineers (**ASCE**) LA Section, Orange County Group, Member - Forensic Engineering Technical Group
International Concrete Repair Institute (**ICRI**, National and Charter Local Member, Geotechnical Grouting Sub-Committee)
American Society for Testing and Materials (**ASTM**, including Committees **C-1 Cement**, and **C-9, Concrete, Various Sub-Committees**), and Structural Engineers Association of Southern California (**SEAOSC**)
Member, Concrete Sub-Committee Since 1988
Pre-Cast Concrete Manufacturers Association of California (**PCMAC**) Professional Member
Pre-Cast Concrete Institute (**PCI**) Professional Member
Post-Tensioning Institute (**PTI**) Professional Member
Forensic Consultants Association of Orange County, (**FCAOC**)
Registered Civil Engineer (CA C-45208 granted 1/1990, next expires 9/30/2006)
Registered Disaster Worker - Residential Construction

Other Activities:

From 1984 to 1999, taught P.E. (Civil) License Review course at Cal State Long Beach, Dept. of Continuing Education, School of Engineering, since 1984, on "Concrete-Making Materials", and previously taught Principles of Inspection of Concrete and Masonry. Various speaking engagements on testing, inspection and construction materials and related subjects. Examples include: ACI Hot and Cold Weather Concreting Practices Seminar in Phoenix & Sacramento 10/91, ACI Residential Concrete Construction Seminar 3/92, Fly Ash Seminar to Arizona Municipal Building Officials through ARPA 6/92, Concrete Durability Seminar, entitled "Sulfate Attack of Concrete". Sulfate reactions in Maricopa County AZ; Phoenix 5/93; Two ACI Concrete Sub-Contractor Liability Identification Seminars 5/94.