



**PROFILE**

**MNA ENGINEERING LTD.** was established in February 1999 as a civil engineering consultancy firm providing services in the field of geotechnical engineering, environmental engineering, building science and quality control testing of construction materials. We have been providing services for the municipal governments in Southern Ontario and working on MTO projects and Airports, developers, prime consultants and landlords for the past fifteen years.

**SUMMARY OF SERVICES PERFORMED**

Geo-environmental investigations, Quality control testing of construction materials, environmental assessments, Condition survey of reinforced concrete structures and building envelopes and Quality verification engineering.

**GEOTECHNICAL ENGINEERING**

- Subsoil investigation and consultation
- Soil and rock anchor installation, proof loading test
- Compaction control testing of Soil and Aggregates
- Geotechnical Laboratory Services. ( CCIL Certified Laboratory Soil & Aggregate: Type C& D)
- Load tests on piles and caissons
- Shallow foundation and Deep foundation

**CONCRETE**

- CSA Certified Concrete Laboratory: - Category II
- Air Void Analysis of Hardened Concrete
- Failure Analysis of materials and systems
- Sampling control at pre-cast concrete
- Bond Test between old and new concrete
- Testing of aggregates, cement replacements and admixtures
- Quality control at pre-cast concrete yards
- Condition survey of Concrete and Cover meter survey
- Concrete mix design, trial mix, theoretical review

**ASPHALT**

- CCIL certified laboratory: Type A,B & E
- Pavement investigation and pavement design
- Design and quality control of cold mix
- Failure analysis
- Asphalt concrete mix design, specialized mixes
- Admixture research for use in asphalt concrete
- Testing of aggregates, bitumen and reclaimed asphalt materials
- Rubberized and mastic asphalt, waterproofing systems
- Quality control Testing in the Field and Laboratory

**MASONRY**

- Testing of burned clay materials and concrete masonry units
- Failure analysis of masonry products
- Water performance tests and analysis of water penetration
- Analysis of masonry cements and admixtures

**ENVIRONMENTAL**

- Phase I Environmental Site Assessment
- Phase III Site Remediation Plan
- Phase II Environmental Site Assessment
- Record of site condition

**BUILDING RENOVATION AND RESTORATION**

- Preparation of contract documents
- Project Management
- Pre-construction condition survey
- Condition survey of reinforced concrete structures
- Condition survey of parking structures and building envelope

**ROOFING AND WATERPROOFING**

- Analysis of existing roof membrane, failure analysis
- Re-roofing and restoration of proposal
- Evaluation of proposed roofing system (conventional/inverted roofing: built-up bituminous roofing, modified bitumen and single ply systems, EPDM, PVC etc.)
- Laboratory testing of roof membranes and waterproofing materials
- Below grade waterproofing design (cold applied, hot applied, pre-formed sheet and bentonite)

**QUALITY VERIFICATION ENGINEERING**

- False Work and Form work
- Reinforcement Steel, Structural Steel
- Caisson Inspection
- Excavation for structures and back filling, foundation inspection, Frost Taper
- Structural demolition
- Monitoring of Pile Driving
- Roadway Protection

