

Firm *overview*

consulting services

- Building Performance Assessment
- Building Sustainability
- Failure Investigation
- Mass Concrete Consulting
- Materials Consulting
- Metallurgical & Mechanical Consulting
- Nondestructive Evaluation
- Repair & Rehabilitation
- Structural Engineering
- Structural Evaluation
- Structural Health Monitoring

testing services

- Chemical Testing
- Fatigue Testing
- Mechanical Behavior Testing
- Nondestructive Testing
- Petrography
- Physical Testing
- Sensors & Structural Monitoring
- Specialized Testing

key facts

- ▶ 15% of staff hold PhD degrees
- ▶ ACI certified technicians
- ▶ Licensed in all 50 states
- ▶ 60,000 SF of material and structural testing laboratories
- ▶ Laboratories are validated by US Army Corps of Engineers
- ▶ IAS ISO 17025 accredited
- ▶ AASHTO accredited
- ▶ 10 CFR 50, Appendix B/NQA-1 Compliant
- ▶ ISO 9001:2008 Bureau Veritas Certified
- ▶ Stadium® certified user

HEADQUARTERS | LABORATORIES

847.965.7500
5400 Old Orchard Road
Skokie, IL 60077

AUSTIN TX **NAPERVILLE IL**
512.219.4075 630.995.3949

BRADENTON FL **DOHA QATAR**
941.238.1000 +974.4037.0130

HORSHAM PA
267.282.5380

CTLGroup is an internationally-recognized expert consulting engineering and materials science firm that provides engineering, testing and scientific services to our clients across the globe. Our engineers, scientists, architects and technical specialists deliver a multi-disciplinary approach to solve the most complex problems. With a corporate history that spans nearly 100 years, we serve clients across the following markets:

- ▶ Buildings & Facilities
- ▶ Emergent Solutions
- ▶ Energy & Resources
- ▶ Materials & Products
- ▶ Litigation & Insurance
- ▶ Transportation
- ▶ Green Solutions
- ▶ Water & Wastewater

Our engineering expertise is complemented by one of the largest and most comprehensive private material and structural testing laboratories in the world. Our experts can address problems from the materials and structural perspectives to deliver an integrated solution.

We have been involved in the development of some of the most advanced materials, authored testing standards, contributed to the construction of global landmarks and have been called on as experts for some of the most notorious catastrophes and disasters.

Across the construction life-cycle, CTLGroup experts help define problems, avoid issues and provide repair resolutions.

REPRESENTATIVE CLIENTS

BP Amoco
CH2M Hill
Dow Chemical Company
HDR
HNTB
Holcim
Kiewit & Sons
Lafarge
Michael Baker
Mintz Levin
NYC Department of Buildings
Parsons Brinckerhoff
Raytheon
Skidmore Owings Merrill
US Army Corps of Engineers
Winston & Strawn

REPRESENTATIVE PROJECTS

Burj Khalifa Tower Materials Testing & Consulting
Frank Lloyd Wright's Unity Temple Restoration
Hurricane Katrina Damage Investigation
Luling Bridge Stay-Cable Replacement Design
World Trade Center Collapse of 9/11
Safeco Field Performance Monitoring

CODES & STANDARDS DEVELOPMENT

IgCC
ACI
ASHRAE 189.1
ASTM

CREATIVE SOLUTIONS TO COMPLEX PROBLEMS

IN ENGINEERING AND MATERIALS SCIENCE

LEADING SOLUTIONS IN MATERIALS SCIENCE



testing services

- Analytical Chemical Testing
- Fatigue Testing (Stay Cable, AREMA, AAR)
- Mechanical Behavior Testing
- Mortar | Cement | Concrete Testing
- Nondestructive Testing
- Petrography
- Physical Testing
- Specialized Testing

quality management system (QMS)

CTLGroup has one of the most demanding QMS for laboratory testing of materials and structural components.

Through our QMS, our firm has achieved various accreditations and certifications:

- IAS ISO 17025 accredited
- AASHTO accredited
- 10 CFR 50, Appendix B/NQA-1 Compliant
- ISO 9001:2008 Bureau Veritas
- ACI certified technicians
- Association of American Railroads
- Laboratories are validated by US Army Corps of Engineers
- Stadium® certified user

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Laboratories *overview*

CTLGroup’s world-class laboratories are designed and staffed to provide the most demanding Quality Management System for routine and complex analysis testing of materials and structural components.

Our scientists and engineers regularly help solve a wide range of problems in cementitious materials, aggregates, building systems, and metals, and develop specialized testing programs for unique challenges.

For decades, our experts have been involved in the development of nationally recognized tests and standards, giving them unique insight and ability to create solutions. With 60,000 square feet of laboratory facilities on campus, it enables the firm to provide a combination of testing, research and engineering services rarely matched in the industry.

We have an unparalleled capability to not only perform tests and evaluations, but to also interpret the data and translate them into meaningful results and action plans.

Laboratory Facilities & Resources

CTLGroup’s laboratory facilities are internationally respected as one of the most comprehensive testing and research facilities in cementitious materials, chemical admixtures, mortars, construction products and structural systems. The firm’s 60,000 square feet of facilities consist of industry-leading:

- ▶ Materials Laboratories (Analytical Chemical, Mortar, Cement, Concrete, Physical Testing)
- ▶ Petrography Laboratory
- ▶ Creep & Shrinkage Laboratory
- ▶ Structural & Transportation Laboratory
(One of the largest private structural labs in the U.S., conducting static or dynamic testing of full-scale engineered systems and components.)

CTLGroup’s laboratory staff comprises several PhDs, registered professional engineers and accredited technicians. Our team includes chemists, process engineers, chemical engineers, a metallurgist, pavement engineers, civil engineers and materials engineers, many of whom are world-recognized authorities in their fields. We are multi-disciplinary professionals accustomed to working together to meet our clients’ needs.

Testing Areas of Scope:

- ▶ Materials analysis & characterization
- ▶ Materials performance assessment
- ▶ Research & product development
- ▶ Failure Analysis
- ▶ Construction materials optimization
- ▶ Service life prediction and modeling
- ▶ Specialized Testing

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IN ENGINEERING AND MATERIALS SCIENCE**

Buildings & Facilities

PRACTICE | *at-a-glance*

services highlights

- Structural systems
- Façades
- Roofs
- Flooring
- Finishes
- Foundations & shoring
- Structural design evaluation & peer review
- Smart buildings & structural health monitoring
- Nondestructive testing
- Failure & service deficiency investigations
- Green building

key facts

- 15% of our staff hold PhD degrees
- Licensed in all 50 states
- Staff includes LEED accredited professionals
- Staff includes Licensed Air Barrier Field Auditors

CTLGroup's Buildings & Facilities Practice Group helps clients with complex structural and materials issues affecting:

- ▶ University & education buildings
- ▶ Healthcare & laboratory buildings
- ▶ Municipal buildings
- ▶ Historic buildings & landmarks
- ▶ High-rise commercial & residential buildings
- ▶ Parking garages & structures
- ▶ Stadiums
- ▶ Cultural & religious facilities
- ▶ Manufacturing & industrial plants
- ▶ Special non-building structures

The needs of our Buildings & Facilities clients vary considerably. However, CTLGroup expertise consistently brings value to each project, providing innovative and cost effective solutions. Our primary areas of practice include:

- ▶ Building envelope studies, maintenance, rehabilitation & repair programs
- ▶ Design & installation of structural monitoring systems
- ▶ Failure & forensic investigations
- ▶ Nondestructive field testing of structural assemblies & components
- ▶ Strength & service evaluation of existing building structures
- ▶ Development of practical solutions to address structural deficiencies
- ▶ Troubleshooting construction problems & techniques leading to improvements in safety and efficiency
- ▶ Geological & geotechnical considerations
- ▶ Concrete moisture investigations
- ▶ Flooring consulting & testing
- ▶ Green building, infrastructure, pavement & materials practices

REPRESENTATIVE ENGAGEMENTS

- National Institute of Health Parking Structure *performed field evaluation, laboratory testing, engineering analysis and cost estimating activities for parking structure comprised of cast-in-place reinforced concrete*
- Western Illinois University Thompson Hall *condition assessment of existing façade and design of exterior cladding replacement*
- New York City High Risk Construction Oversight *reviewed high risk construction operations, including high-rise concrete construction, excavations & hoisting operations*
- Safeco Field *real-time structural monitoring of retractable roof system*
- ASHRAE Standard 189.1 and the IgCC *key participation in development of next generation green building code*
- Burj Khalifa *advanced materials performance evaluation for supertall structures*
- Federal Courthouse Retrofit *complete analysis, design & construction oversight of major structural retrofit*
- Frank Lloyd Wright Unity Temple *award-winning historic renovation*
- Deep Space Antenna Pedestal *condition assessment of concrete deteriorated by alkali-silica reactions*
- Puerto Rico Aqueduct & Sewer Authority *confined space inspection and repair procedure development for cracking & deterioration*

CONTACTS

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CREATIVE SOLUTIONS TO COMPLEX PROBLEMS

IN ENGINEERING AND MATERIALS SCIENCE