

# Anchorage Fasteners

CTLGroup and its' experts have been serving the anchorage industry for over 20 years. Our team, comprised of civil, structural and mechanical engineer, metallurgical engineers and highly skilled technicians, works closely with anchorage system manufacturers, contractors, municipalities and other end-users through a wide variety of pre- and post- use concerns and testing services.

## Qualification Testing and Evaluation

The Structural & Transportation Laboratory at CTLGroup is recognized throughout the world as a diverse, state-of-the-art facility providing services to many industries. Pre- and post-installed anchorage system qualification and evaluation programs have a dedicated area within the laboratory that has been recently retrofitted to address the new and upcoming test methods, including more aggressive seismic testing (AC510 & EOTA C2) and a synopsis of test standards followed include:

- **ICC-ES Acceptance Criteria**  
AC 01, 58 60, 70, 106, 118, 193, 232, 308, 446, 510, and more
- **American Concrete Institute Standards**  
355.2 & 355.4
- **ASTM Standards**  
E488, 1190, 1512, F606 and many others
- **European Organization for Technical Approvals**  
ETAG001, TR 049 (C2 Seismic), and more
- **Others**

## Product Development / Prototyping

Our experts, including structural engineers, manufacturing engineers, metallurgists, and chemists, possess unique knowledge that can be leveraged to assist a product manufacturer. By utilizing a wide knowledge base, we can support a manufacturer and allow them to quickly move from an idea to a product, troubleshoot production discrepancies, assess quality control issues and assist through an iterative prototyping phase.

## Failure Investigation & Analysis

CTLGroup can assist you through a failure investigation and determine the root cause through rigorous analyses and testing. This could be in the form of analytical investigations such as finite element analysis, physical testing to determine potential batch / lot issues, or through metallurgical/ chemist variations. Through collaboration and communication, CTLGroup can assist you in projects small to large, internal or external.

