

PRE-APPROVAL PROCEDURE FOR MECHANICAL EXPANSION AND CAST-IN-PLACE ANCHORS

All Mechanical Expansion and Cast-in-Place Anchor systems to be used by the State of California Department of Transportation shall be pre-approved before incorporation into any construction project. Approval of the system requires the following:

- I. Manufacturer provides:
 - A. Drawing or product brochure with detailed information about the anchorage system (concrete anchorage device name, product number, dimensions, and material specifications)
 - B. Source Information for all the materials used on each system.
 - C. Evaluation reports by an ISO 17025 Certified Independent Testing Laboratory for each system submitted for prequalification
 - D. Proof of compliance with Caltrans Standard Specifications, Section 75-1.03 (13th paragraph):

“The anchorage devices shall be a complete system, including threaded studs, hex nuts, and cut washers. Thread dimensions for externally threaded concrete anchorage devices prior to zinc coating shall conform to the requirements in ASME Standard: B1.1 having Class 2A tolerances or ASME Standard: B1.13M having Grade 6g tolerances. Thread dimensions for internally threaded concrete anchorage devices shall conform to the requirements in ASTM A 563.”
 - E. Proof of compliance to California Test 681 “Method for Testing Creep Performance of Concrete Anchorage Systems” for shell and stud mechanical anchorage devices
 - F. Proof of compliance to California Test 682 “Method for Determining Ultimate Tensile Strength of Concrete Anchorage Devices” for cast-in place concrete inserts
 - G. Manufacturer’s installation instructions for each concrete anchoring device submitted for prequalification
 - H. Materials Test Report and Certificate of Compliance for Steel Rod
 - I. Material Test Report and Certificate of Compliance for Nut and Washer
 - J. Description of Quality Control Procedures
 - K. Description of Material Tracking

- L. A copy of the following information (actual testing):
- i. Concrete mix certificate. Must meet requirements of California Tests 681 and 682
 - ii. Concrete compressive strength no greater than 4,000 psi at the time of testing the concrete anchoring device. Provide compressive strength test results with dates and mix number
 - iii. Pictures and Drawings with dimensions of concrete slab meeting minimum requirements of California Tests 681 and/or 682
 - iv. Pictures and drawing of testing apparatus used on each test (California Test 681 and/or California Test 682 and/or proposed testing apparatus)
 - v. Actual installation torque applied
 - vi. Actual pre-load applied to the installed concrete anchoring device
 - vii. Actual sustained tension load, loading rate, and length of time load was sustained
 - viii. Actual concrete temperature, when applicable
 - ix. Actual ambient temperature, when applicable
 - x. Actual displacement values when applicable
 - xi. Actual ultimate strength of the concrete anchorage device, when applicable
 - xii. Actual mean creep value calculation, when applicable
- M. Ship the required paperwork to Caltrans' Transportation Laboratory in Sacramento:
- California Department of Transportation
Materials Engineering And Testing Services – MS #5
Structural Materials Testing Branch
5900 Folsom Boulevard
Sacramento, CA 95819-4612**
- II. Caltrans will:
- A. Ensure all required documentation are received.
 - B. Review the technical information.
 - C. Upon evaluation of the technical information, issue an acceptance letter valid for two years or a rejection letter.
 - D. Update the Caltrans Pre-qualified list, if applicable.
- III. Request re-submittal of the pre-qualification package from the manufacturer every two years.
- IV. For more information, you may contact the Structural Materials Testing Branch at (916) 227-7251.