Project Profile

Oak Ridge Associated Universities

Background

The Occupational Safety and Health Administration (OSHA) and The International Window Cleaning Association (IWCA) delegate certain responsibility to building owners concerning window washing safety. The relevant standard, ANSI/IWCA I-14.1, requires periodic load testing for safety tie-back anchors. MC-100 Office Building is a four story facility owned by Oak Ridge Associated Universities (ORAU) in Oak Ridge, TN. ORAU conducted safety tie-back load testing before TCE Services had become involved. The results of the load testing were ambiguous. TCE Services was asked to retest the safety tie back anchors.

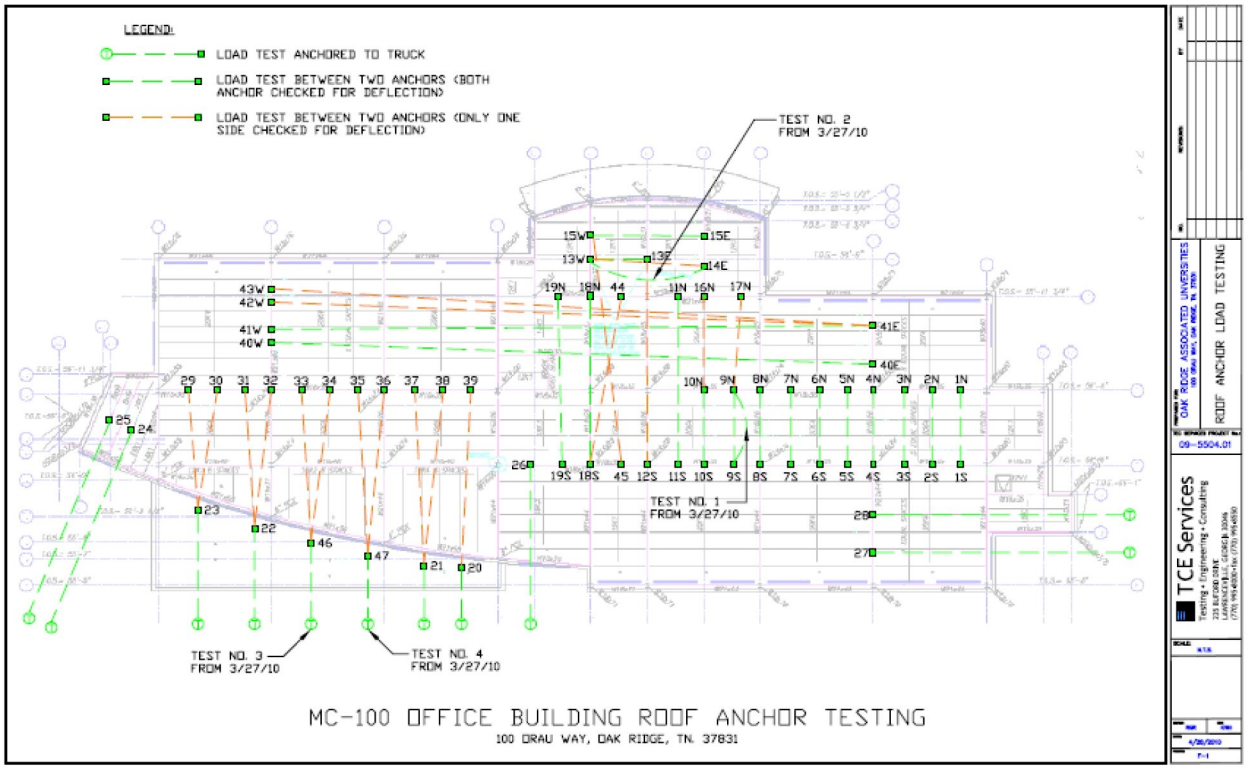
Load Testing

A cable attached to each anchoring location (approx. 65 locations) was subjected to a tension proof load of 2,500 lbs per paragraphs 8.1.3 and 9.1.1 of the ANSI/IWCA I-14.1 standard.

When possible, the load was anchored with a separate safety tie-back anchor, thus testing two anchors at once. Per the standard, the anchors should be load tested in the primary direction of intended use. A fraction of the proof load tests, in order to fulfill this requirement, had to be anchored from the ground. TCE Services' on grade pickup truck was used as a counter weight in these cases.

The tension loads were applied with an inline winch and steel cable. An in line calibrated 5,000 lb capacity load cell and digital interface (Model No. SSM-AF-5000) were used to monitor the cable winch tension load. The loads were applied in approximately ¼ load increments to the maximum tension test load of 2,500 lbs. The top side roof anchor deflections were monitored during the testing using a HILTI PD 42 digital laser. This device is reported to have an accuracy of +/- 1 mm.

TCE Services issued a written report stamped by a GA Registered Engineer documenting the proof load testing. The report disclosed information such that deflection recovery (rebound) ranged from 80 to 95% which typically indicates the members remained in their elastic range. The report also stated that the load tests and corresponding deflection monitoring indicate that the as built roof anchors and support members adequately support the 2,500 test load required by ANSI/IWCA I-14.1.



Drawing submitted showing orientation of loading.