## **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 cell and digital interface (Model No. SSM-AF-5000) relevant standard, ANSI/IWCA I-14.1, requires periodic were used to monitor the cable winch tension load. The load testing for safety tie-back anchors. MC-100 Office loads were applied in approximately 1/4 load increments 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 testing using a HILTI PD 42 digital laser. This device TEC Services had become involved. The results of the is reported to have an accuracy of +/- 1 mm. load testing were ambiguous. TEC 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. TEC 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 to the maximum tension test load of 2,500 lbs. The top side roof anchor deflections were monitored during the

TEC 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.