Building Inspection Office Policy
Seismic Anchorage of Experimental Equipment

Policy Overview (Revised and Updated):

In an effort to streamline our ES&H Building Inspection Office (BIO) business processes, while providing value added services, BIO was requested to take a “graded approach” to the review of seismic anchorage calculations of experimental equipment. This process change was approved by the SLAC Chief Engineer and Building Code Official. The scope involves only experimental equipment weighing equal or less to 5,000 lbs, maximum center of gravity of 72”, and to be anchored to concrete slabs on grade.

Structural anchorage calculations for experimental equipment meeting these criteria will be performed by a Responsible Engineer (RE) in charge of project, documented in a calculation package, and peer reviewed by the Line Organization member who has passed SLAC training courses 133 and 133PRA. The calculation package must be submitted to BIO using Plan Review System (PRS) for archiving with only “QA spot checks” performed by BIO structural subject matter expert (SME).

The prerequisite for the RE (see Process below) to perform these calculations is successful completion of ES&H Course 133 (classroom) and 133PRA (practical test project). Refresher training is required every 3 years to coincide with CBC Code cycle publications. Training material will reflect any relevant code section changes.

Process (Revised and Updated):

(1) The RE will be designated by Line Management. The RE will have sufficient experience performing engineering calculations using free-body diagrams to be able to determine the loads at the anchors.

(2) After completion of the classroom portion of the training, the RE will submit a structural calculation package to the ES&H BIO for review (preferably of an actual proposed installation as the 133 practical test project). A licensed Civil Engineer, assigned as Subject Matter Expert (SME) for seismic and structural review aspects for the BIO office, will check the calculation package. He or she will then evaluate the RE’s understanding of course 133 concepts, design, and analyses requirements. Finally, the SME will advise the RE and the ES&H Training Department if the RE has successfully completed the training course 133 and its practical test portion. The Training Department will also send a notification to the RE and ES&H BIO Plan Review Coordinator.

(3) Upon successful training, the RE will perform the seismic anchor calculation using the methodology stated in the class training material.
(4) The results of these calculations will be documented in a serialized engineering note or other serialized and achieved document format. The serialized calculation will be peer reviewed by an equally trained engineer actively designing at SLAC. Upon successful peer review, the RE will submit the engineering note and peer-reviewer signed off package to the ES&H BIO for inclusion in their records using the PRS system.

(5) The submitted calculation package must include the latest edition of SAofEE coversheet with all required signatures (RE and peer reviewer). The purpose of the BIO coversheet is to flag the submittal package to the BIO Plan Review Coordinator and SMEs, as so to distinguish it from other routine BIO calculation submittals.

(6) The ES&H BIO will request the SLAC seismic and structural SME to perform a QA “spot check” of these calculations on an expedited timeline. As for the non-structural/seismic reviews related to the experimental equipment, the RE must submit and follow-through with the relevant assigned SMEs to resolve all non-structural comments using the PRS.

(7) Anchorage installations must be documented by the Line Organization using the appropriate Experimental Equipment Anchor Inspection Checklist depending on anchor types (mechanical or adhesive).

(8) Every SAofEE project must include the completed coversheet (document titled “Seismic Anchorage of Experimental Equipment (SAofEE) Cover Sheet”) containing information & signatures of engineer of record as well as peer-reviewer before it can be accepted by BIO.

(9) The SAofEE process pertains only to the structural/seismic review portion of projects. Other Subject Matter Expert (SME) reviews may be required; and, must be followed-through by using PRS portal by Responsible Engineer (as it is done typically for all non-SAofEE-type projects). The RE can contact the BIO Plan Check Coordinator to coordinate and verify the SMEs that must be assigned to review non-structural aspects of the project.

(10) Once the project has been reviewed by the affected SMEs and is accepted by the BIO office, the RE will need to inspect the anchorage installation; and, complete the form titled Science/SAofEE Anchor Checklist (either adhesive or mechanical).

(11) The completed anchorage checklist must be sent via email to BIO Plan Check Coordinator, Cheryl Nadler, cnadler@slac.stanford.edu.

(12) If needed, BIO can be utilized when the responsible engineer of the SAofEE project desires to have BIO inspector verify the completed installation work. Please send a request to: BIO-inspection@slac.stanford.edu (inspection distribution list); and, use the below link to schedule; an inspection: http://www-group.slac.stanford.edu/esh/groups/psd/BIOrequestprocess.pdf