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RECORD OF REVISIONS

Rev	Date	Description	POC	RM
0	10/27/06	Initial issue.	Tobin Oruch, *CENG-OFF*	Kirk Christensen, *CENG-OFF*
1	6/19/07	Some testing excluded in scope. ML level changes. Minor changes to Att B.	Tobin Oruch, *CENG-OFF*	Kirk Christensen, *CENG-OFF*
2	7/21/08	Removed exclusions for metals, geotech; clarified accreditations required, avenues for approval. Re-ordered. Minor Att changes.	Tobin Oruch, *CENG-OFF*	Kirk Christensen, *CENG-OFF*
3	9/15/09	Clarified LBO approval of testing agencies. Added fire coatings to qual guidelines Att B.	Tobin Oruch, *CENG-OFF*	Gary Read, *CENG-OFF*

PLEASE CONTACT THE ESM IBC PROGRAM POC
for upkeep, interpretation, and variance issues

Section IBC-TIA	IBC Program POC and Committee

LANL Engineering Standards including this one: http://engstandards.lanl.gov

1.0 Purpose and Scope

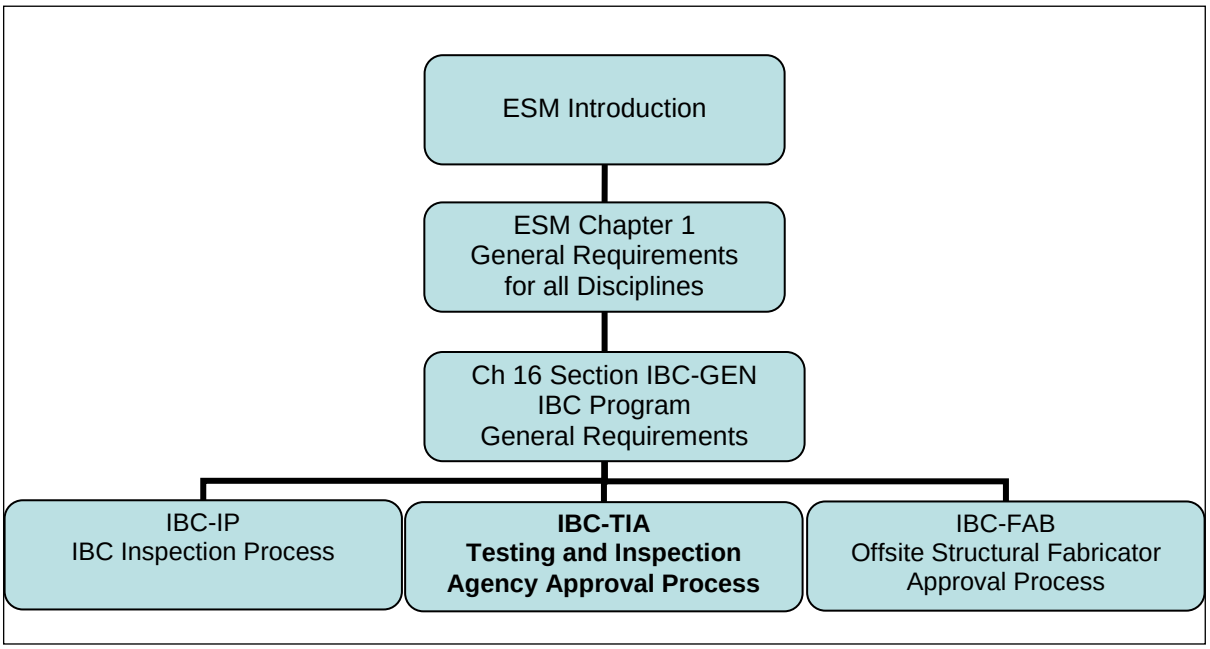
A. The purpose of this Section is to identify the process for LANL Building Official approval of Testing and Inspection agencies to perform IBC-related work for LANL. It also includes responsibilities for passing down related requirements to the test or inspection agency, evaluating their performance, and other activities associated with maintaining agency approval.

B. This Section shall be used in conjunction with Section IBC-GEN.

C. The scope of this procedure includes field testing, laboratory testing, and inspection agency approval to perform this type of work within the purview of IBC and IEBC. Soils labs supporting geotechnical investigations are included[1].

D. Additional requirements beyond the IBC are typical for ML-1 and ML-2 (nuclear) and ML-3 work, but such higher-quality processes cannot reduce IBC levels of quality or inspections unless specifically authorized by the LBO in writing.

2.0 Chapter Hierarchy



[1] This work is per ESM Ch 5 Structural Section IV. Jurisdictions tend to exclude investigations because they are done pre-permit (therefore not controllable) and generally done by firms that are BO-approved according to Clark Co., NV 4/30/07. Because LANL controls all work onsite including pre-permit geotechnical, it can and should require associated soils work be done by an LBO-approved agency. Initial RLUOB soils work pedigree issues confirm need.

3.0 Acronyms /Definitions

ACI	American Concrete Institute
ASNT	American Society for Nondestructive Testing
ASTM	ASTM International
AWS/ACWI	American Welding Society/Associate Certified Welding Inspector
AWS/CWI	American Welding Society/Certified Welding Inspector
IAS	International Accreditation Service of ICC
IBC	International Building Code (by ICC)
ICC	International Code Council http://www.iccsafe.org/
IEBC	International Existing Building Code (by ICC)
LBO	LANL Building Official
NICET	National Institute for Certification of Engineering Technologists
project	Any type of work/job/task/or any other terminology that is performed under the purview of IBC regardless of funding source or facility arrangement.

4.0 Responsibilities and Duties

A. The LBO (or assigned Chief Inspector) will evaluate the agency information and determine the acceptability of the agency to perform applicable duties for LANL. Approval of an agency will stay current unless withdrawn by the LBO. Withdrawal will normally be done based on LBO re-evaluations or when information arises related to qualifications/certifications, accreditation, or performance that necessitates negation of LBO approval.

The approval or rescission of approval shall be in writing to the specific agency, the LANL project manager or person-in-charge, and to the applicable LANL QA organization.

B. The LBO will keep evaluation, approval, and disapproval records related to any testing, laboratory, or inspection agencies.

C. An approved inspection agency must notify the LBO via the Project Manager, Contract Administrator, or Subcontract Tech Rep of any non-conformances or deficiencies and any cases where the subcontractor they are inspecting does not honor inspection hold points, test hold-points, or witness points in regard to conditions of irreversibility (e.g., embedment in concrete). This responsibility also includes notification of conditions where funding is not allowed for the inspection agency personnel to perform their required duties. Examples include but are not limited to the following:

- Not allowing funding to pick up cylinders within the 48-hour limit of ASTM.
- Directing the agency personnel to not perform required tests specified in the job requirements or applicable national standards.
- Not providing agency personnel with necessary design and inspection information; normally this would be in regard to design changes.

- The addition of water to the concrete delivery truck after the sample concrete was taken.

5.0 Procedure

A. Field Testing and Laboratory Agencies

1. Field Testing and Laboratory testing agencies shall be accredited by a nationally recognized accreditation program such as AASHTO's AMRL program, AWS QC-4 for welding qualification testing facilities, A2LA for NDE laboratory testing, and additional specific accreditation programs based on IBC or associated national standards such as ACI and ASTM.
Guidance: As an example, ACI 301 Section 1.6.2 states that testing agencies that test concrete materials shall meet the requirements of ASTM C1077 and agencies that test reinforcing steel shall meet ASTM E329[2]. ASTM E329 requires the testing agency to be accredited by a recognized qualified accreditation authority that meets the guidelines of ASTM Guide E994. ASTM C1077 requires similar accreditation. In addition, testing agencies involved in soils testing and masonry testing shall be in compliance with ASTM D3740 and ASTM C1093 respectively.

   Note: The intent is that testing agencies be accredited to perform the type of testing that applies to the LANL IBC work. The LBO reserves the right to determine acceptability of accreditation or determine acceptable equivalency through visits, acceptability to IAS, or other means.

2. Field Testing and Laboratory testing agencies shall have a quality control or quality assurance manual that addresses everything necessary to govern their operations including organization, qualifications of personnel, accreditation, sampling programs, calibrations of equipment, notification of out of tolerance "as-found" condition during re-calibrations, controls for non-conformances, documentation, records, and other elements that are required to operate a testing laboratory.

3. The LBO may also choose to approve a testing agency based on a current national accreditation to the appropriate national standard and confirmation that the specific agency is under the direct supervision of a licensed professional engineer.

[2] ASTM E329 covers material testing agencies for concrete, steel, soil and rock, NDE testing, bituminous material testing, masonry testing, and sprayed fire-resistive testing. LBO has authority to waive aspects of standard when approving agencies.

B. Field and Laboratory Testing Agency Assessment (if required by the LBO)

1. ASTM E329 will be the foundational guideline whenever assessments are performed.[3] The assessment should include, as a minimum, the following:
   - Verification of national accreditation and direction of work under the supervision by a licensed professional engineer.
   - Sampling of calibrated devices for proper calibration and traceability to appropriate standards or calibration services.
   - Evaluation of the test agency's quality manual to assure that necessary controls, documentation requirements and records are included.
   - Verify that qualified and certified personnel, as required by the applicable standards are being utilized. This is particularly focused on the certifications required by the applicable ASTM or other applicable nationally recognized standard. Equivalency can be accepted based on the applicable ASTM if the testing agency is properly accredited.
   - Applicable codes and standards are readily available to the field and laboratory personnel.
   - Proper training has been provided to the testing personnel.
   - Documentation of the results of field and laboratory tests meeting the applicable ASTM or other national standard for the test(s) performed.
   - Sample documentation of recent tests showing that the test agency personnel are implementing the correct process.
   - Conformance to ICC-IAS AC89, Accreditation Criteria for Testing Laboratories.

C. Special Inspection Agencies

1. Inspection agencies will be evaluated to confirm that they are fully accredited by the *International Accreditation Service* (IAS) (http://www.iasonline.org/) or other nationally recognized accreditation organization. See Attachment A -- IAS Testing and Special Inspection Agency Approval Information (Guidance).
   a. If they are not nationally accredited, then the LBO can evaluate them based on their quality manual or approve individual inspectors on a case-by-case basis and have those inspectors work under the LANL program. This latter option would equate to evaluating each inspector as a LANS staff-augmentation special inspector.

2. The program requires special inspection agencies to operate under a quality management system that is documented in a manual, and also requires the agency to be assessed in the field to determine if it is competent to perform specific inspections or types of inspections. Exception: When the LBO or designee chooses the augmented option as addressed in 1.a directly above.

3. The inspection agency is responsible for:
   - Hiring and training qualified special inspectors;

[3] Good quality depends on a reliable assessment of field and laboratory agencies. Accurate test and calibration results are vital for design safety, and the protection of public and workers health and safety.

- Supervision of inspectors;
- Filing of accurate and complete inspection reports to the LBO and other recipients;
- In-house development of procedures and the distribution of these procedures to applicable personnel.
- Developing and maintaining a current library of applicable codes and standards and making them readily available to their inspection personnel.

4. Good quality depends on a reliable LBO evaluation of inspection agency capabilities. Excellence in inspection is vital for design safety, and the protection of public and workers' health and safety. The assessment should include, as a minimum, the following:
    a. Verification of national accreditation
    b. Adequate tools to perform inspections, such as welding fillet gauges, etc.
    c. Evaluation of the inspection agency's quality manual to assure that necessary controls, documentation requirements and records are included
    d. Verify that qualified and certified personnel, as required by the applicable standards are being utilized. This is particularly focused on the certifications required by IBC and applicable nationally recognized standards. Equivalency can be accepted based on the determination of the LBO.
    e. Applicable codes and standards are readily available to the inspection personnel.
    f. Proper training has been provided to the inspection personnel.
    g. Documentation of the results of inspections should be sampled to verify adequate implementation.
    h. Conformance to ICC-IAS AC291, Accreditation Criteria for IBC® Special Inspection Agencies
    i. Other attributes from ASTM E329

D. LBO Completion of Agency (both Test and Inspection) Assessment/Evaluation

1. The LBO designee performing the evaluation will draft a letter to the agency assessed to notify them that they are approved as an IBC/IEBC approved agency or the letter shall identify the weaknesses that need to be corrected before approval can be granted. The letter indicating disapproval will be written in the context that places the decision to make the correction on the test agency. If Project management or procurement decide (due to contract or other reasons) to direct corrective action or authorize funds to acquire personnel or equipment, they will direct via a separate official letter.

2. LBO will provide approval letters that will specifically identify the scope of the approval, such as, "approved to perform concrete testing per ASTM C1077," or "soils testing per ASTM D3740," and any restrictions that the LBO applies to the approval. An example might be that a test agency is approved to perform laboratory testing for concrete but not field testing due to the lack of certified field testing personnel.

3. The LBO or designee's approval or rejection letter shall include distribution as follows:
   - LBO record file
   - Quality assurance supplier evaluation team leader (unless the IBC evaluation is combined with an ML-1 and ML-2 evaluation lead by this QA group).
   - Project management
   - Procurement

4. The LBO or designee should perform follow-up checks annually to assure agencies retain national certification and more in-depth assessments at least every two (2) years for agencies that were approved unless information or trends indicate a more immediate evaluation is warranted.[4] Re-approval shall be no less than every three (3) years.[5]

   Note: The LBO can extend the approval for an additional year based on his/her discretion. This re-evaluation may only require online reconfirmation of current national accreditation and supervision under a licensed PE unless information or trends indicate a more expansive evaluation.

5. Records of these assessments will be retained by the LBO or designee in accordance with the Records Inventory and Disposition Schedule (RIDS).

6. Individual special inspectors may be approved by the LBO who may refer to Attachment B, *Special Inspector Qualification Guidelines.*

6.0 Attachments

Attachment A -- IAS Special Inspection and Testing Agency Approval Information (Guidance)
Attachment B – LANL IBC Inspector Qualification Guidelines

[4] ICC-IAS uses a two-year re-evaluation minimum.
[5] NQA-1 states 3 years, so this is a good practice. If this is exceeded, should delist until firm can be reassessed.