

**TABLE OF CONTENTS**

1.0 Purpose and Scope ..... 2  
 2.0 Chapter Hierarchy ..... 3  
 3.0 Acronyms /Definitions ..... 3  
 4.0 Responsibilities and Duties ..... 3  
 5.0 Process ..... 4  
 6.0 Attachments (Records)..... 7  
 Attachment A – LANL Offsite Structural Fabricator Application Form ..... 7  
 Attachment B – Offsite Structural Fabricator Certificate of Compliance ..... 7

This mandatory functional series document is available online at <http://engstandards.lanl.gov>.

It derives from P342, Engineering Standards, which is issued under the authority of the Associate Director of Engineering and Engineering Sciences (ADE) as part of the Conduct of Engineering program implementation at the Laboratory.

**RECORD OF REVISIONS**

| <b>Rev</b> | <b>Date</b> | <b>Description</b>   | <b>POC</b>                      | <b>RM</b>                            |
|------------|-------------|--|---------------------------------|--------------------------------------|
| 0          | 10/27/06    | Initial issue.   | Tobin Oruch,<br><i>CENG-OFF</i> | Kirk Christensen,<br><i>CENG-OFF</i> |
| 1          | 6/19/07     | ML level changes.  | Tobin Oruch,<br><i>CENG-OFF</i> | Kirk Christensen,<br><i>CENG-OFF</i> |
| 2          | 7/21/08     | Title change to include prefab concrete. Added additional assessment criteria related to welding, etc. Title change to Att A, added Att B. | Tobin Oruch,<br><i>CENG-OFF</i> | Kirk Christensen,<br><i>CENG-OFF</i> |
| 3          | 9/15/09     | Clarified to include metal building fab, but not bending or mild steel burning.  | Tobin Oruch,<br><i>CENG-OFF</i> | Gary Read,<br><i>CENG-OFF</i>        |
| 4          | 3/1/10      | Clarified wind- and seismic-resisting always requires special inspection; LBO delegations to Chief Insp.                                   | Tobin Oruch,<br><i>CENG-OFF</i> | Larry Goen,<br><i>CENG-OFF</i>       |
| 5          | 8/25/10     | Corrected that fabricator approval can eliminate all special inspection.   | Tobin Oruch,<br><i>CENG-OFF</i> | Larry Goen,<br><i>CENG-OFF</i>       |
| 6          | 6/20/11     | Clarified that spot checks may be done anytime.  | Tobin Oruch,<br><i>CENG-OFF</i> | Larry Goen,<br><i>CENG-OFF</i>       |

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

|                 |                                       |
|-----------------|---------------------------------------|
| Section IBC-FAB | <a href="#">IBC Program Committee</a> |
|-----------------|---------------------------------------|

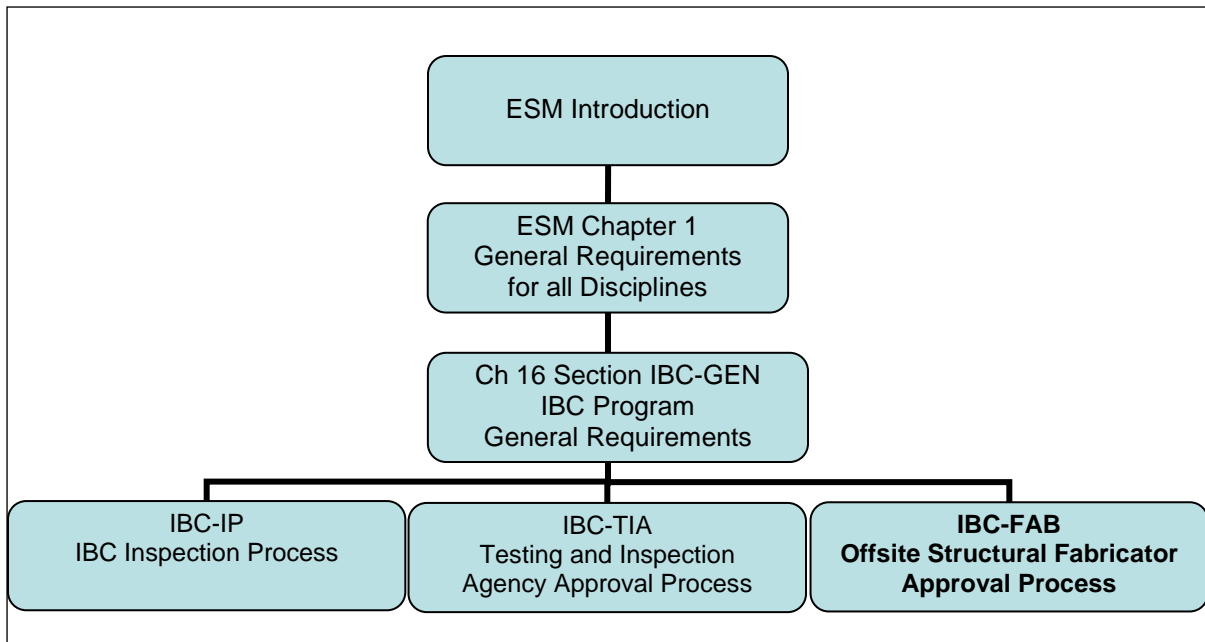
## 1.0 Purpose and Scope

- A. This document's purpose is to identify the process for evaluating and approving offsite structural steel, wood, and reinforced concrete shop fabricators to perform certain IBC Chapter 17-related work for LANL without in-shop special inspection.
1. Note: Seismic and wind-resisting element will be identified by the DPIRC in the design and/or Test and Inspection Plan created per Section IBC-IP.
  2. The approval authority shall be the LANL Building Official (LBO). The process also includes responsibilities for passing-down related requirements to the fabricator, evaluating their performance, and other activities associated with maintaining agency approval.
- B. The scope of this process includes fabricator approval to perform the types of work listed above within the purview of IBC and IEBC. Additional requirements are expected for ML-1 and ML-2 (nuclear) and ML-3 work, but such higher-quality processes cannot reduce IBC-required quality or inspections unless specifically authorized by the LBO in writing.
- C. The specific scope applies to fabrication activities of structural steel, wood, and reinforced concrete involving load-bearing members and assemblies that are performed on the premises of a fabricator's shop.
1. Steel work includes welding, thermal cutting, or any kind of heating operation including any fabrication of structural steel members and assemblies (IBC Sections 1704.2-1704.3); it does not include cold bending that can be field-verified.
  2. Special inspection or shop approval not required for burning and cutting of mild steel (e.g., ASTM A36)<sup>1</sup>
  3. Manufacturers of metal building systems are included.<sup>2</sup>

<sup>1</sup> Removal of mild steel should not affect strength/quality in the same way as welding, so LANL takes exception for this activity

<sup>2</sup> LBO may refer to AC172 and AC472 Accreditation for Inspection Programs for Manufacturers of Metal Building Systems and ICC-IAS evaluations to same in considering vendor approval.

## 2.0 Chapter Hierarchy



## 3.0 Acronyms /Definitions

| Acronym/Term | Description   |
|--------------|---|
| IBC          | International Building Code   |
| ICC          | International Code Council  |
| IEBC         | International Existing Building Code  |
| LBO          | LANL Building Official  |
| IAS          | International Accreditation Service, a division of the ICC  |
| project      | Any type of work/job/task/or any other terminology subject to the IBC regardless of funding source or facility arrangement. |

## 4.0 Responsibilities and Duties

- A. It is the LANL project’s responsibility to assure that fabrication within the scope of this procedure either be done by an LBO approved fabricator or have an inspection plan that includes special inspection at the fabricator’s shop. The term project management includes any group or individual, regardless of name, that oversees new or modification work that is under the purview of IBC or IEBC. This LANL group or individual has the duty to act as the conduit to provide the LBO the necessary information and lead-time to evaluate the agency in a timeframe that does not impact the schedule.
- This requirement also extends to subcontractors and sub-tier companies used in support of LANL IBC work.

- B. It is the LANL project's (via Subcontract Technical Representative) responsibility to assure that applicable IBC requirements are properly passed-down contractually to any subcontractor or engineering firm that is responsible for or sub-contracts steel fabrication or testing activities that are under the purview of IBC. These pass-down requirements include assuring that these fabricators fully comply with this procedure in order to obtain LBO approval prior to performance of work.
- C. LANL procurement departments involved in bid packaging, contracts, and subcontract processes shall ensure that applicable IBC procedure controls are contractually imposed on those subcontractors that perform IBC work for the site. This pass-down requirement includes applicable portions of this procedure and specifically mandates that language in the contract identifies that shop fabrication within the scope of this procedure only be done by an LBO-approved fabricator or they will be subjected to special inspection in their shop.
- D. LANL projects shall formally request an evaluation of a fabricator from the LBO's Chief Inspector when precertification is desired.
- E. LANL projects shall assure that applicable IBC records are submitted to the LBO.
- F. The Chief Inspector will evaluate the fabricator information and determine the acceptability of the fabricator to perform adequately without in-shop special inspection. Approval of an agency will stay current unless withdrawn by the LBO. Withdrawal will normally be done based on Chief Inspector re-evaluations or when information arises related to performance that necessitates negation of LBO approval.
- G. The approval or rescission of approval shall be in writing to the specific fabricator, the LANL project manager or person-in-charge, and to the applicable LANL QA organization.
- H. Once the Chief Inspector receives a request to evaluate a fabricator he/she will schedule the evaluation with the fabricator, evaluate the fabricator (approve or disapprove), and provide a written report to the fabricator and associated LANL Project manager. In addition, the LBO will be responsible for any required re-evaluation or follow-up and maintain records related to the fabricators' evaluation and/or approvals. The exception to this step is when a fabricator submits an application form to the Chief Inspector with acceptable national certification(s); see Subsection 5.0 below.
- I. An approved fabricator performing work for LANL must notify the Chief Inspector and LANL project representative of any non-conformances or deficiencies and any cases where the subcontractor does not honor inspection hold points, test hold-points, or witness points identified on the approved inspection plan for the job or project.

## 5.0 Process

- A. The fabricator may request an evaluation from the Chief Inspector using Attachment A, Steel Fabricator Application Form.

- B. The fabricator/manufacturer will complete the application and return it to the LBO's Chief Inspector along with a controlled copy of their Quality Manual and objective evidence that their facility is currently approved by one or more of the following organizations:
- ACI (American Concrete Institute)
  - Precast/Prestressed Concrete Institute (PCI) (e.g., Plant Cert Program, Plant Quality Personnel Cert Program, Certified Erector Program)
  - AISC (American Institute of Steel Construction)
  - ASME (American Society of Mechanical Engineers)
  - AWS (American Welding Society)
  - IAS – International Accreditation Service of International Code Council  
<http://www.iasonline.org/>
  - ISO -- International Standards Organization
  - Other as approved by the LBO
- C. If the manufacturer does not have a current approved fabricator certification from one of the authorized agencies above, then the Chief Inspector will follow the process below to determine whether the fabricator can be approved to perform certain fabrications without Special Inspection in their shop.<sup>3</sup> (Special Inspection in the fabricator's shop is an alternative to obtaining LBO shop fabrication approval)
- D. The LBO or designee will notify the fabricator to request a date to perform the evaluation of their operation. The purpose of this contact is also to inform the company of the general scope of the evaluation and establish the time period for the evaluation.
- E. Fabricators will be evaluated by an LBO designee to determine if they have adequate:
- Detailed fabrication procedures (including code compliance)
  - Detailed quality control procedures (including code compliance)
  - Equipment that is sufficient to perform the work involved
  - Qualified and/or certified personnel as appropriate
  - Calibrated equipment
  - Adequate inspection program to meet project and code requirements including qualification of inspectors, inspection documentation detail, and control and processing of NCRs.
  - Quality control program to govern the fabrication
  - Controls for subcontractor testing services such as use of sub-contracted NDE services
  - Adequate equipment to comply with fabrication specifications and associated codes
  - Material control to assure traceability of materials (including electrodes) to CMTRs

#### Structural Steel Fabrication

- Electrode ovens, etc as appropriate to the fabrication

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<sup>3</sup> LANL interpretation of IBC 2003 Section 1707 is that this section does not negate LANL's ability to approve a fabricator in lieu of special inspection in the shop.

- Example, equipment to check pre-heat, interpass temperature, weld gauges, control of grinders/wire brushes for dissimilar materials, etc.
- Proper WPSs for various welding operation including demand-critical welding when appropriate.

Note: For fabricators involved in seismic steel fabrication (IBC Sections 1707 and 1708), they will also be evaluated to those sections including testing and special inspection per AISC 341.

- F. The results of the evaluation will be provided to the fabricator in writing by formal correspondence from the LBO or designee. If the results are not a full approval then the letter will identify the deficiencies that require correction. Any work by the fabricator during the period without LBO approval must be done under an inspection plan requiring in-shop special inspection.
- G. If the evaluation requires corrective action by the fabricator then a follow-up evaluation will be scheduled unless the items for correction only relate to procedural or other attributes that can be verified by correspondence.
- H. Soon after a fabricator is approved, the newly approved fabricator will be placed on the LANL approved supplier listing website.
- I. 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
- J. An approved fabricator will operate in accordance with their procedures and applicable paragraphs of Subsection 4.0 above. They will be subjected to a re-evaluation at intervals determined by the LBO or at other times if there are indications (such as poor performance) that warrant. Spot checks for compliance on LANL work may be performed by LANL. If shop maintains national certification then LBO may choose not to re-evaluate.
- K. Approved fabricators are required to submit a Fabricator/ Manufacturer Certificate of compliance (Att B) to the LANL Chief Inspector for any shop fabrication. The certification shall cover all materials and workmanship supplied by the fabricator/manufacturer, including all products fabricated by others that become part of the total product furnished to the project. In addition, the certification shall indicate that all weld filler material and other materials used were obtained from suppliers that obtained these materials from U.S. mill sources.
- L. Records of the assessments will be retained by the LBO or designee in accordance with the Records Inventory and Disposition Schedule (RIDS).

## **6.0 Attachments (Records)**

Attachment A – LANL Offsite Structural Fabricator Application Form

Attachment B – Offsite Structural Fabricator Certificate of Compliance