

Form Usage, Step-by-Step Instructions, and Definitions

Form Usage

IBC Program work (ESM calls all work “projects”) must receive preliminary determination from the Facility Design Authority Representative (FDAR).

- A. IBC/IEBC scope: First, determine whether proposed work is subject to LANL’s program within the rules and examples in ESM Ch. 16 (Tables IBC-GEN-1 & 2).
 - 1. If FDAR determines not in IBC Program, no documentation is required; project may exit chapter/PPD.
 - 2. If the FDAR has any uncertainty regarding this decision, they should consult the Chapter 16 POC.
- B. If in scope, continue with PPD completion (Note, if only Repair per definition later in these instructions, PPD form is not required).
- C. Once PPD is issued, its determinations should be included as **preliminary** design inputs somewhere in the statement of work and/or requirements & criteria document for the design (e.g., RCD or DCF), noting that the design agency is responsible for proposing more appropriate classifications as soon as they may become evident.
- D. File should be prepared as follows:
 - 1. Obtain a Preliminary Project Determination (PPD) document number from the CoE [site](#).
 - 2. Prepare the PPD in Microsoft Word.
 - 3. It is preferred that the Word file is converted to PDF and signed electronically. Alternatively, print the form, get manual signatures and scan to a PDF file.
 - 4. Use the document number for the Word and PDF file names: PPD-TA-BLDG-XXXX.docx and PPD-TA-BLDG-XXXX.pdf.
- E. Completed forms are project records. A copy of the form should be kept in the project/task file; e.g., if a DCF is present, it should reference the PPD as an input, and a PPD copy should be kept with the DCF files (Ventana and/or SharePoint). Send completed PPD form to EDRMS along with other project record documents.

Optionally, filing in FOD SharePoint in addition to the above is optional (at FDAR discretion). To do so:

- 1. Use the SharePoint sites for the FODs (e.g., ES-LFO, etc.). In each of the sites there is a library named “Preliminary Project Determination.”
- 2. Upload both files to the Preliminary Project Determination library for your organization.
- 3. Fill in the first 8 fields of attributes in the SP library: Type (filled automatically), Title, Name (filled automatically), Facility Name, Functional Organization, Doc Revision, and Date on Document.

These SharePoint sites are here <https://coe.lanl.gov/es/default.aspx>. The FOD sites for which a user has access will appear on the navigation list across the top. If you need access, contact POC(s) shown on the website (historically the CoE Qual program manager).

- F. Change Control: In addition to designer proposals noted above, Requester should submit a revised form if the scope increases, life safety improvements are descoped, stated use changes, or critical data or classification(s) change. Revised determinations may also be made by LANL via other documented method such as RCD, RFI, or during design review as “C” comments (with a basis).
- G. A PPD is by necessity preliminary; final determinations are documented by the final, permitted design.

Step-by-Step Instructions

1. Enter Task/Project Name/TA/BLDG and Location.
2. Enter System ID (ref. ESM Ch 1 Section 200 workbook's 210 listing). If multiple involved, enter MULT. If new and unknown, enter TBD. If infrastructure enter INFR, or UTIL for utility lines (some is in Bldg Program).
3. 3.a. Enter Statement of Work. Describe the proposed work with sufficient detail to allow proper classification per the choices given.
3.b. Enter proposed IEBC or IBC Ch. 6 Work Classification(s) – but based on the LANLized definitions later in these instructions. (E.g., Repair, Alteration Level 1, Alt Level 2A, Alt Level 2B, Alt Level 3, Use or Occupancy Change, Addition, Historic, Relocation, Demolition, and/or New Building.)
Check all proposed work classes that apply; if multiple, tie to the subtasks. Subtasks may have different classifications (e.g., may be altering one system as Level 1 and another as Level 2).
4. Fire Protection: Answer the questions, 'Are any of the review "Triggers" in that Ch. 2 and 16 reference involved? If all are minor, have they been dismissed by FP Office (i.e., FP review not required?'
5. SSI: Indicate tasks that may trigger the need for a Statement of Special Inspections (IBC 1704.3 as amended by IBC-IP Att B SSI template)
6. Drafting planned: Indicate plans or FDAR preference for design outputs, whether new or updates to existing, and whether sketches or drawings per CAD Standards Manual.
7. Risk level per IBC-GEN Graded Approach Table (Lowest [e.g., Level 1 Alt, low-risk demolition, or Repair]; Moderate [e.g., 2A], or Highest [e.g., 2B, new building, change of occupancy, addition, etc.]
8. Hazardous materials in occupancy: If yes, describe existing inventory and effect of project, or refer to and attach Form 2, HazMat Determination/Chemical Inventory. Strongly suggest getting architectural SME and/or Fire Protection help on determinations here.
9. Enter existing and proposed IBC Ch. 3 Use and Occupancy Class(es) with rationale if potentially changing from design basis or current levels (if Alt Level 1 or utilities only, may check N/A). Also, complete for new building or addition (if impractical for new building and leaving to design agency, enter TBD). Strongly suggest getting architectural and/or Fire Protection Office help on determinations here.
10. Existing facility mods: Indicate if work qualifies for code of record design per criteria in IBC-GEN Att. B, LANL Existing Building Code (LEBC). Some activities are preauthorized to use COR, others require LBO determination. Enter COR date, which is when existing SSCs were designed. See ARCHIBUS instructions below to obtain building date; SSCs in/on a building will have same COR date unless updated later in time.
11. Seismic: For Alt Level 2 and 3 adding additional loads on seismic-force-resisting SSCs, determine whether a feasibility study must be performed, or arrange for study prior to submission of this form. (For demand/capacity ratio, at IEBC-805.3 there's a 10%-latitude-exception for lateral-force-resisting systems with the 10% latitude to be considered cumulatively over the life of the building, and 5% for gravity loads at 805.2). Consult with structural engineer as needed.
12. NPH: RC or NDC/LS category (PC as last resort): See bold heading below ("Determining RC...").
13. PRID–Integrated Review Tool (IRT) and Permits and Requirements Identification (PRID). See [P351](#) for when required. E.g.:
 - Relocation or expansion of existing activities;
 - New, expanded, or relocated Research and Development (R&D) activities;
 - New facility construction;
 - Facility upgrades and/or modifications;
 - Expense funded construction activities;
 - Facility shutdown, decommissioning, demolition and/or decontamination;
 - Environmental clean-up, and/or restoration; and,
 - Outdoor activities that will result in a change to land use (i.e., addition or expansion of laydown or staging areas, parking lots, roadways, installation or relocation of structures [trailers, transportables, cellular towers], or significant modification to the natural terrain or ecosystems)
14. Sustainable design matters per ESM Ch. 14: Refer to criteria in ESM (and references posted there). As an example, "like-for-like" and "replacement-in-kind" HVAC replacement must meet IECC or ASHRAE 90.1 efficiencies, sometimes BAS connectivity. The Int'l Energy Conservation Code (see IECC-2018, Ch. 5 [CE]) mandates envelope upgrades at times (e.g., change of occupancy, conditioning unconditioned

space) — as does IEBC Ch 5 (Prescriptive), if used versus Ch. 7-9

15. Commissioning: Indicate if Cx required per ESM Ch 15 criteria (including FDAR desire).
16. Existing nuclear facility "major modification": Indicate if yes, or N/A. Extremely rare at LANL.
Major mod: Change to a nuclear facility that substantially changes the existing safety basis [adaptation of DOE-STD-1189-2008]. Determination is made through a checklist (see [SBP114-1, Safety Basis Development for Projects, Att 1](#)). Major mods must meet DOE O 420.1C. Other mods may qualify for code of record design per Block 11.
17. Optional Comments/Determinations: Examples are key requirements triggered—accessibility per IEBC, lateral bracing per IBC 1613.1, R&D or other equipment anchorage (and whether seismic or seismic-exempt), structural observation plan if required by IBC 1704.6.1 (rare), seismic retrofit per ESM Ch 5/ICSSC [RP 8](#), etc.)

RP-8 (2.1) gist: Building shall be evaluated and any unacceptable risks posed by the building shall be mitigated when any of the following occur:

- a. A change in the building's function that results in an increase...in the building's level of use, importance, or occupancy;
- b. For SDC C buildings, project will significantly extend the building's useful life through alterations or deferred maintenance that total more than 50% of the replacement value (RPV) of the building;
- c. For SDC D buildings, project would do so with alterations totaling more than 30% of the RPV.

ARCHIBUS has RPV values. Go to [ARCHIBUS Web Central](#), then Space Inventory, then LANL FIMS - FIMS Building Common Data)

Determining RC or NDC/LS (and/or PC) category of a structure from ARCHIBUS

These are natural-phenomena-hazard related design inputs.

1. Go to [ARCHIBUS Web Central](#)
2. Go to Space Inventory, then LANL Special Reports, then Define Seismic Data.
3. Type TA-BLDG: (i.e. _ _ - _ _ _ _) under Structure ID, then hit return.
4. You will see the newer RC or NDC/LS data should also be there under the "DOE 1020 Standard" heading and is preferred when present. The old system of PC category is shown under Seismic Essential as P_ (e.g., P1, P2) which means the building structure is PC-(whatever the number is following "P").

Note, if other Archibus help is needed for other reasons, there are links on the main page

<https://int.lanl.gov/services/facilities/archibus.shtml>

- [ARCHIBUS Data - Menu Driven \(pdf\)](#)
- [ARCHIBUS Hints \(pdf\)](#)
- [ARCHIBUS Navigation \(pdf\)](#)
- [Archibus FAQ Sheet](#)

NOTES:

1. ESM Chapter 5 Section I includes crosswalks from PC-to-RC or NDC. Consult with FDAR to resolve any NPH determination issues or Structural POC.
2. The Performance Category (PC) of the building structure is not necessarily the same as the PC of the systems & components inside of it.
 - What appears in ARCHIBUS is JUST the PC for a given structure.
 - CMMS Screen D031 may have equipment PC data (field: "Seismic"). If not, ESM Chapter 5 Section I details how to determine RCs and SDCs for structures, systems & components (SSCs).

LANL IEBC and IBC-related Definitions

Repair

Definition: The restoration to good or sound condition of any part of an existing building for the purpose of its maintenance. Repair includes the patching or restoration or replacement of damaged materials, elements, equipment or fixtures for the purpose of maintaining such components in good or sound condition with respect to existing loads or performance requirements. Limited to work on the item and does not include complete or substantial replacement (a majority of the original remains) or other new work. Repairs shall not include the cutting away of any wall, partition, or portion thereof, the removal or cutting of any structural beam or load-bearing support, or the removal or change of any required means of egress or rearrangement of parts of a structure affecting the egress requirements; nor shall ordinary repairs include addition to, alteration of, replacement, or relocation of any standpipe, water supply, sewer, drainage, drain leader, gas, soil, waste, vent, or similar piping, electric wiring, or mechanical or other work affecting public health or general safety. Must follow IEBC Ch. 4.

Work on non-damaged components that is necessary for the required repair of damaged components shall be considered part of the repair and shall generally not be subject to the other classification requirements (must describe in SOW; subject to LBO concurrence).

Level 1 alterations include the removal and replacement or the covering of existing materials, elements, equipment, or fixtures using new materials, elements, equipment, or fixtures that serve the same purpose. Most true like-for-like or replacement-in-kind is this category. Must follow IEBC Ch. 3 & 7.

Level 2 alterations: System reconfiguration, extension, additional equipment installation, or removal Must follow IEBC Ch. 3, 7, and 8. At LANL, **Level 2A** are those not meeting Level 2B. **Level 2B** generally includes possible egress aspects (workspace reconfiguration or door or window addition or elimination) and/or life safety or related systems affected; precise definition is in Section IBC-GEN Table GEN-3 Three-tiered Graded Approach.

Level 3 alterations apply when a major building renovation or reconfiguration work area exceeds 50 percent of the aggregate area of the building. Must follow IEBC Ch. 3 and 7-9, plus warrants an RP 8 review.

Work Area. That portion or portions of a building consisting of all altered spaces as indicated on the construction documents. Work area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by code. Applies to altered spaces, not systems.

Change of Occupancy. A change in the use of the building or a portion of a building. A change of occupancy

shall include any change of occupancy classification, any change from one group to another group within an occupancy classification or any change in use within a group for a specific occupancy classification. E.g., adding people or hazardous chemicals; must be analyzed for impact. Must follow IEBC Ch. 10 (as well as other chapters when also an alteration).

Demolition. Tearing down a system, structure, or portion of same. See IBC-GEN heading for this.

Addition. An extension or increase in floor area, number of stories, or height of a building or structure. Must follow IEBC Ch.11.

Historic Building. (LANL has a few, e.g., V-Site). Any building or structure that is listed in the State or National Register of Historic Places (ROHP); designated as a historic property under local or state designation law or survey; certified as a contributing resource within a National Register listed or locally designated historic district; or with an opinion or certification that the property is eligible to be listed on the National or State ROHP either individually or as a contributing building to a historic district by the State Historic Preservation Officer or the Keeper of the National ROHP. Must follow IEBC Ch. 12.

New Building. LANL term for any building or structure other than an IEBC "Existing Building" (one for which a building permit has been issued).

Relocated or Moved buildings provisions shall apply to relocated or moved buildings, including trailers. See IEBC Ch. 14.

Technically Infeasible. An *alteration* of a *facility* that has little likelihood of being accomplished because the existing structural conditions require the removal or *alteration* of a load-bearing member that is an essential part of the structural frame, or because other existing physical or site constraints prohibit modification or addition of elements, spaces or features which are in full and strict compliance with the minimum requirements for new construction and which are necessary to provide accessibility. [IEBC; a key concept that may allow for avoidance of some accessibility requirements (as might other provisions in ADA; discuss with Lead Architectural SME)].

NOTE on Energy Conservation: In addition to certain work triggered by IEBC:

1. The Int'l Energy Conservation Code (see IECC-2018, Ch. 5 [CE]) mandates envelope upgrades at times (e.g., change of occupancy, conditioning unconditioned space) — as does IEBC Ch 5 (Prescriptive), if used versus Ch. 7-9.
2. See also ESM Ch. 14 requirements.