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Conduct of Engineering Glossary

1.0	Purpose and Scope	1
2.0	Authority	2
3.0	Assistance, Suggestions, and Exception or Variance	2
4.0	Common CoE Abbreviations	3
5.0	Glossary Definitions and Usage	9
6.0	Glossary of Terms	10
7.0	Change Control	110
8.0	History	111
9.0	Contact	111

The controlled version of this document is currently online [here](#).

1.0 Purpose and Scope

This Conduct of Engineering Functional series document (FSD) provides a single location for the most-common abbreviations and definitions of terms used in other CoE FSDs (e.g., Engineering Standards, Administrative Procedures–APs, Qualification Standards), whose purpose is to ensure that definitions in these documents are consistent and centrally accessible.

As such, the over 600 definitions contained herein govern across all Functional and Local Documents issued by the [PD340](#) institutional Facility Conduct of Engineering (CoE) program¹, superseding definitions in those where they may conflict.

Finally, while not its main purpose, it may be useful to other engineering activities at LANL as well, such as non-nuclear programmatic or R&D engineering.

Scope details:

- A. CoE: Not included are terms in The LANL Engineering Standards Manual, Master Specifications, and similar documents judged too narrow interest to include herein.
- B. LANL: Many other listings and sources exist; however, follow GLOS-COE-1 preferentially to them where they conflict. Examples: LANL Style Guide [App. A](#); Policy's

¹ I.e., documents implementing PD340, *Conduct of Engineering and Configuration Management for Facility Work*, but not its subordinate P-series policy procedures, nor any formal "Institutional" level policy document (PD, SD, P, or RN).

LANL [Definition of Terms](#)²; [P315-4](#), *Conduct of Operations Glossary of Terms and Acronyms*; and LANL *ASM Procurement Policy and Procedure Manual*, 2024-7-17 (click “procurement policies and procedures” [here](#)) and *Acquisition Dictionary* [here](#).³

1. Exception: Terms from Institutional Policy documents (i.e., SD, PD, P, RN) are included herein for convenience; however, those sources govern as terms and definitions herein may not align. In the case of meaningful difference, follow the most conservative and/or contact CoE for direction per Section 3.0.
- C. DOE/NNSA: Many DOE directive definitions are [here](#) (paired with the Definitions tab), NNSA ones [here](#). Additional definitions exist within the mandates themselves (Orders, CFRs) and guidance (Guides, Standards, Handbooks). The Project Management [Lexicon of Terms](#) exists for that scope. All such sources govern when they are contractual for LANL, with some terms included herein for convenience.⁴
- D. Beyond-DOE sources used or useful: The [American Heritage Dictionary](#) (LANL standard); the NRC’s [Glossary](#).

2.0 Authority

This functional document is issued by the Conduct of Engineering program implementation at the Laboratory. This document derives from PD340, *Conduct of Engineering and Configuration Management for Facility Work*.

- Issuing Authority: Engineering Services Division Office (ES-DO)
- Responsible Manager: Conduct of Engineering Office Director
- Responsible Office: Conduct of Engineering Office (CoE or CENG)

3.0 Assistance, Suggestions, and Exception or Variance

For suggestions or clarification, enter request into the “CoE Glossary and Engineering Standards Comments/Suggestions” SharePoint [tool](#) (tool links also atop each [ESM](#) chapter webpage) with GLOS-COE-1 as the “Chapter or Document” number.

Otherwise (e.g., if outside firewall), contact the most appropriate [Conduct of Engineering Office](#) program team:

- Engineering Standards, P342, and general terms: engstandards@lanl.gov
- Engineering Processes (e.g., APs and P341): coe-aps@lanl.gov
- Engineering Training (e.g., Qualification Standards and P343): es-do-tng@lanl.gov.

For formal variance or exception — and only with prior concurrence of the manager of the most-affected program given above — use LANL Form 2137, *Conduct of Engineering Request for Variance or Alternate Method* to request formal [exception](#) or variance from definitions herein.⁵

² LANL *Definitions* is maintained by the Policy Office, informal (e.g., without bases, change control), and outside COE purview

³ *ASM Dictionary* (2013) appears legacy but may be useful, especially for historical understanding

⁴ Prime contract supersedes implementing contractor policy. Otherwise, definitions herein are mandatory regardless of source, including when not via prime contract. When further direction is needed, contact CoE per Section 3.0.

⁵ Variance authority is at the same level as the program document, thus ES-DO via Form 2137 only required for requirement/direction matters at the AP, ESM, or TSM level (and CENG may opt to revise Glossary instead of 2137 approach).

For derivative documents (e.g., master specs, Std. details, CSM, many forms and templates), Section 3.0 manager written direction is sufficient (aligns with ESM Ch. 1 Z10 on “Clarifications...”). Guidance (typically italics) is not requirement/directive in nature so formal relief is not necessary.

4.0 Common CoE Abbreviations⁶

The two-column-layout listing below is generally useful and entries will often refer to a term in the glossary of terms table that follows this one in Section 6.0 (some are hyperlinked to that general area of the glossary, others to a relevant webpage external to the glossary). The abbreviation meanings herein are generally the CoE-preferred usage.

Useful (and mandatory in some cases) listings elsewhere include:

- A. LANL (some LANL-specific): LANL Acronym [database](#) or [web app](#) from [CEA-TEC](#); [P315-4](#), *Conduct of Operations Glossary of Terms and Acronyms*. *The CoE meanings herein are generally preferred over the more general LANL ones.*
- B. LANL (not LANL-specific): LANL Style Guide [App. D](#): Technical Abbreviations;
- C. LANL CoE (mandatory):
 - 1. CoE/EDRMS “document type” abbreviations such as “MLD” in [AP-341-402](#) Att. A (with centrally assigned doc number subset [here](#)),
 - 2. Item numbering and labelling IDs for Op System & System — and Equipment/Component — per ESM [Ch. 1](#) Section 200 Att. 1 workbook’s 210 and 230 tabs respectively, and
 - 3. Drawing abbreviations, e.g., [Standard Detail ST-Z1040-1](#) and [CSM](#) Section 300.
- D. DOE: Directives-based [Acronyms](#) (paired with the Definitions tab); 10 CFR 830, *Nuclear Safety Management, Definitions* [830.3](#); OPM Project Management [Lexicon of Terms](#); various other documents (e.g., for safety basis, [DOE-STD-3009 Master Acronyms List](#)). *Normally mandatory when document is.*
- E. NRC: [NUREG-0544](#), “[Collection of Abbreviations](#)”.
- F. VCS: Those in voluntary consensus codes & standards (e.g., [ASME Y14.38](#), [IEEE 803.1-1992](#)).

Term	Meaning
ADDIE	Analyze, Design, Develop, Implement, and Evaluate
AdSTR	Administrative Subcontract Technical Representative
A/E or AE	architect/engineer firm
AHJ	Authority Having Jurisdiction
ALD	Associate Lab Director (or Directorate)
AP	Administrative Procedure
ASM	Acquisition Services Management
ASME	American Society of Mechanical Engineers
AWS	American Welding Society
BAS	building automation system

Term	Meaning
BOM	Bill of Materials
BOP	balance of plant
BIM	building information model, or modeling
CAD	Computer-aided design (or drawing)
CD-#	Critical Decision
CENG	Conduct of Engineering
CFR	Code of Federal Regulations
CGD	commercial grade dedication
CGI	commercial grade item
CGS	commercial grade service
Ch.	Chapter
CI	Commercial Implementation

⁶ An acronym is an abbreviation of a phrase that usually consists of the initial letter of each word in all caps with no punctuation. For some, initialism or alphabetism connotes this general meaning, and acronym is a subset—pronounced as a word rather than as letters. In this sense, NASA is an acronym, but USA is not. [Wikipedia, 2024-9-16]. LANL discussion [here](#).

Term	Meaning
CM	configuration management, corrective maintenance, or Construction Management Division
CMMS	Computerized Maintenance Management System
CMOS	The Chicago Manual of Style
CMTR	Certified Material (or Mill) Test Report
CNCR	Construction Non-Compliance Report
COA	Condition of approval (from NNSA)
C of A	Certificate of Analysis
CoC	Certificate of Compliance
C of C	Certificate of Conformance
CoO	Certificate of Occupancy
COO	Conduct of Operations (ConOps), or Chief Operations Officers or Office (in ALDWP)
COE or CoE	Conduct of Engineering
CoP	Community of Practice
CR	Conditional Release
COR	Code of Record
COTS	commercial off-the-shelf
CRA	Contractor Readiness Review
CRD	Contractor Requirements Document (in a Directive)
CSE	Cognizant System Engineer
CSED	Criticality Safety Evaluation Documentation
CSI	Construction Specifications Institute
CSM	LANL CAD Standards Manual
CUI	Controlled Unclassified Information
Cx	commissioning
CxA	Commissioning Agent
CY	calendar year
D&D	deactivation (aka decommissioning, possibly with decontamination) and demolition
DA	Design Authority
DACUM	Developing a Curriculum
DAR	DA Representative (or document action request at TA-55)
DB (or D-B)	Design-build
DBB	Design-Bid-Build

Term	Meaning
DBIA	Design-Build Institute of America
DCE	Discovered Condition Evaluation
DCF	Design Change Form
DCRM	Document Control and Records Management
DD&R	deactivation, decommissioning & removal
DEAR	Department of Energy Acquisition Regulation
DI	Desktop Instruction
DID	defense in depth
DIF	difficulty, importance, and frequency (analysis)
DNFSB	Defense Nuclear Facilities Safety Board
DOE	Department of Energy
DOE G	Department of Energy Guide
DOE O	Department of Energy Order
DOE-STD	Department of Energy Standard
DPIRC	design professional in responsible charge
DRN	Design Revision Notice
DPBPS	Defense Programs Business Process System
DPR	Design Package Reviewer
DSA	Documented Safety Analysis
DV	design verification
DWG	drawing (also, AutoCAD files extension is .dwg)
ECHO	Engage, Communicate, Hear, and Observe
EDA	External Design Agency
EDRMS	Electronic Document and Records Management System
EIL	Equipment and Infrastructure List
EJCDC	Engineers Joint Contract Documents Committee®
EMC ²	NNSA's Enhanced Minor Construction and Commercial practices initiative
EO	Executive Order
EOR	Engineer of Record
EPP	Environmentally Preferable Products
EPSCG	Engineering Practices Subgroup (in EFCOG)

Term	Meaning
ERFI	Engineering Request for Information
ES	Engineering Services Division
ESC	Electrical Safety Committee
ESR	Engineering Service Request
ESS	Evaluation of Safety of the Situation [SBP-112-3-R5.3]
ESM	Engineering Standards Manual, STD-342-100 (LANL)
EWB	Engineering Workbench
EX	Doc number prefix for Example drawing or design in STD-342-400 set
Ex.	Exhibit (ASM subcontracts)
EXID	Excavation/Fill/Soil Disturbance Permit Request
FA	Functional Assessment
FAC-COE	Facility Conduct of Engineering
FACREP	Facility Representative (NNSA)
FAR	Federal Acquisition Regulation
FCR	Field Change Request
FD	Functional Document aka FSD
FDA	Facility Design Authority
FDAR	FDA Representative
FDD	Facility Design Description
FEM	Facility Engineering Manager
FIE	Foreign Intelligence Entity
FIMS	Facilities Information Management System (DOE site here)
FM	Form (LANL CoE), or Factory Mutual Insurance Company (FM Global)
FMEA	failure modes and effects analysis
FOD	Facility Operation Directorate (or Director)
FOM	Facility Operations Manager
FORR	Federal Operational Readiness Review
FPD	Federal Project Director
FPE	Fire Protection Engineer
FPSR	Fire Protection Service Request
FRA	Federal Readiness Assessment
FRD	Functional and Requirements Document
FSA	Facility Safety Analysis

Term	Meaning
FSD	Functional Series Document aka Functional Document
FSR	Facility Service Request
FY	fiscal year
G	Guide (DOE document type)
GFE	government furnished equipment
GPP	General Plant Project
GSI	Form 2033 Graded Software Inventory
GSSO	Government SAP Security Officer
HA	Hazards analysis
HAR	Hazard Analysis Report
HC	Hazard Category
HR-ITS	Human Resources – Institutional Talent Management Services (<i>Training</i>)
HVAC	heating ventilation and air conditioning
IAPMO	International Association of Plumbing & Mechanical Officials
IAS	Integrated Assessment Schedule
IAW	in accordance with
IBC	International Building Code
IBR	Incorporated by reference
ICC	International Code Council
ICC-ES	ICC Evaluation Service
ICE	Independent Cost Estimate
IDID	Important to Defense-in-depth
IDIQ	Indefinite Delivery, Indefinite Quantity (contract)
IEBC	International Existing Building Code
IESL	Institutional Evaluated Suppliers List
IFC	issued for construction
IHS	Industrial Hygiene and Safety (ESH group); also, former name of Accuris online standards
IM	Issues Management (in iLINK)
IOD	Immediate Operability Determination
IPT	Integrated Project Team
IQPA	Institutional Quality & Performance Assurance (LANL)
IRT	Integrated Review Tool
ISD-TS	Infrastructure Service Division Telecommunications Services

Term	Meaning
iSoMS	Intelligent System of Management Systems (iSoMS)
ITR	interdisciplinary technical review
IVR	implementation verification review
IWD/WCD	Integrated Work Document / Work Control Document
JCO	Justification for Continued Operations
KSA	knowledge, skills, and abilities (analysis)
LA-FO	See NA-LA
LANL	Los Alamos National Laboratory
LANS	Los Alamos National Security (M&O that preceded Triad/TNS)
LAP4	Los Alamos Plutonium Pit Production Project
LEBC	LANL Existing Building Code
LEED	Leadership in Energy and Environmental Design
LBC	LANL Building Code
LBO	LANL Building Official
LCA	LANL Commissioning Authority
LCC	life-cycle cost
LCO	Limiting Condition of Operations
LIHSM	Laboratory Industrial Hygiene and Safety Manual (ESH OSH)
LMS	STD-342-200 , the LANL Master Specifications
LOG	Logistics Division (LANL)
LS	limit state (structural)
LSME	Lead SME
M&O	Management & Operating [DOE contract(or)]
M&TE	measuring and test equipment
MATOC	Master Task Order Contract
MCT	minor construction threshold
MCSE	Magic Cyber Systems Engineering
MDI	Mission Dependency Index
MEL	Master Equipment List
ML	Management Level
MOCA	M&O Contractor Agreement
mod	modification
MIE	Major Item of Equipment
MM	Minor Maintenance

Term	Meaning
MPCL	Metrology Program and Calibration Laboratory
MSA	Management Self-Assessment
MSS	Maintenance and Site Services , or Manufacturers Standardization Society for mech/pressure safety
MTOA	Master Task Order Agreement
MW	mixed waste
N/A	Not applicable
NA-LA	National Nuclear Security Administration (NNSA) Los Alamos
NAR	new activity review request; FNAR may be facility NAR
NCR	Nonconformance Report
NCS	Nuclear Criticality Safety (Div or concept) or National CAD Standard ; rarely National Codes & Standards (VCS preferred)
NDC	NPH Design Category
NDE	nondestructive examination
NDT	nondestructive testing
NEC	National Electrical Code (NFPA 70)
NFAR	No Further Action Required
NFPA	National Fire Protection Association
NI	New Information (safety basis)
NIE-TS	see ISD-TS
NMAC	New Mexico Administrative Code
NMC&A	Nuclear Material Control & Accountability
NNSA	National Nuclear Security Administration (<i>DOE org is NA</i>)
NPH	natural phenomena hazard
NSE	Nuclear Security Enterprise
NTC@LANL	National Training Center (DOE) at LANL
NTP	Notice to Proceed
NTS	Noncompliance Tracking System (DOE) <i>not Firefox browser</i>
NZE	net-zero emissions (building)
O	Order (DOE directive)
O&M	operations and maintenance
OBE	Overcome by events
OBI	Owners Building Inspector
OE	objective evidence

Term	Meaning
OFI	Opportunity for Improvement
OHC	Other Hazard Controls
ORR	Operational Readiness Review
OSH-ISH	Occupational Safety and Health, Industrial Safety and Hygiene (LANL Group)
OTS	over-the-shoulder (review)
OUO	Official Use Only (now CUI)
P&A	Process and Automation
P&ID	process & instrumentation diagram
PAA	Price-Anderson Act (<i>was PAAA</i>)
PAR	Project & Activity Review (<i>system</i>)
Para	paragraph
PC	Performance Category (NPH)
PdM	predictive maintenance
PE	Project Engineer, but may be Professional Engineer
P.E.	Professional Engineer
PEEP	Project Engineering Estimating Program
PEI	PF-4 Equipment Installation (project for LAP4)
PEL	Project Equipment List
PFE	Plutonium Facilities Engineering
PID (was PI#)	Project Identification Number
PIE	Plutonium Infrastructure Engineering
PISA	Potential Inadequacy of the Documented Safety Analysis
PIT	Post-Installation Testing
PM	Project Manager or Management, or Preventive Maintenance
PMI	Preventive Maintenance Instruction
PMRC	Project Management Resource Center
PMT	post-modification and/or post-maintenance testing
POC	Point- of- Contact
POD	Prompt Operability Determination
PPD	Preliminary Project Determination
PQR	Procedure Qualification Record(s) or Process Qualification Report
P-QSME	Procurement Quality Subject Matter Expert

Term	Meaning
PRD	project record document, or (for large projects) Program Requirements Document
PrE	Process Engineer
PRID	Permits and Requirements Identification (becoming PAR)
PRV	pressure relief valve
PSE	Plant System Engineer
PSE-IM	Program Strategy and Execution–Information Management
PT	dye-penetrant testing
PtE	Procurement Engineer
P-QTSME	Procurement Quality Technical Subject Matter Expert
PWHT	post-weld heat treatment
QA	quality assurance
QF	Quick Fix (maintenance)
QC	quality control
QE	Quality engineer (IQPA)
QIA	Qualified Inspection Agency (or Agent)
QS	Qualification Standard
QVD	Quality Verification Document
R&D	research and development
R2A2s	roles, responsibilities, authorities, and accountability
RA	Readiness Assessment
RC	Risk Category (IBC Ch. 16)
RCD	Requirements and Criteria Document
RE	Responsible Engineer
RFP	Request for Proposal
RFI	Request for Information
RLM	Responsible Line Manager
RP&IE	Real Property and Installed Equipment
RPP	reduced-pressure-principle (e.g., backflow preventer)
RT	radiographic examination
RVM	Requirements Verification Matrix
SAC	Specific Administrative Control or System Alignment Checklist
SAD	Safety Assessment Document
SAP	Special Access Program

Term	Meaning
SAT	systematic approach to training, or Satisfactory (i.e., versus UNSAT)
SB	safety basis (org or document set)
SBT	Submittal Transmittal (form), or very casually, a submittal in general
S/CI	suspect or counterfeit item
S&CL	Standards & Calibration Lab, now Metrology Program and Calibration Laboratory (MPCL)
SAPF	Special Access Program Facility
SC	Safety Class (SSC)
SCIF	Sensitive Compartmented Information Facility
SD	Supplemental Directive (NNSA), or possibly sustainable design
SDC	Seismic Design Category
SDD	System Design Description
SDDR	Subcontractor Deviation Disposition Request (Form 2178)
SE	Systems Engineer(ing)
Sect or §	Section (§ is Alt+0167)
SEMP	Systems Engineering Management Plan
SEP	Systems Engineering Plan
SER	Safety Evaluation Report
SHR	System Health Report
SI	special inspection
SIA	Special Inspection Agency
SI-DCRM	Service Innovation-Documents Control Records Management (now PSE-IM)
SIS or SSIS	safety significant instrumented system
SLC	SpecLink Cloud
SME	Subject Matter Expert
SMPO	Safety Management Program Owner
SNM	Special Nuclear Material
SSC	structure, system, or component
SSI	Statement of Special Inspections
SSO	Safety System Oversight (NNSA)
ST	Standard (Standard drawing or design in STD-342-400)
STD	Standard (DOE or LANL document type)
STR	Subcontract Technical Representative

Term	Meaning
UL	Underwriters Laboratories
UT	ultrasonic examination
T&Q	training and qualification
TAC	test acceptance criteria
TIA	Test & Inspection Agency
TEAP	Technical Evaluation and Acceptance Plan
TEC	Total Estimated Cost
TLA	three-letter abbreviation
TIP	Test & Inspection Plan
TNS	Triad National Security, LLC
TPC	Total Project Cost
TPP	Training Program Plan
TPS	Technical Project Specialist
TRB	Test Review Board
TS&R	Technical Specification & Requirements
TSM	Tailored Standards Manual
TSRs	Technical Safety Requirements
U	Unclassified
UCNI	Unclassified Controlled Nuclear Information
UMC	Uniform Mechanical Code (IAPMO)
UPC	Uniform Plumbing Code (IAPMO)
UOS	unless otherwise specified
USI	Unreviewed Safety Issue
USQ	Unreviewed Safety Question
USQD	USQ Determination
VAR	Variance or Alternate Method Form 2137's document type
VBEO	Virtual Built/Build Environment Office
VCS	voluntary consensus standard
VFD	variable frequency drive
VSS	Vital Safety System
VT	visual examination
VTR	Vault-type Room
WI	Work Instruction
WPS	Welding Procedure Specifications
WQAS	Worker Qualification Authorization System

5.0 Glossary Definitions and Usage

- A. Source citations (e.g., “[AP-341-703]”) generally capture the main, historical location(s) of the definition and/or usage of same. Going forward, most of the CoE-issued documents will be revised to reference this glossary as follows:
1. Mirroring of glossary definitions in certain construction documents and their CoE templates may be appropriate when end-user reference to GLOS-COE-1 may not be preferable (e.g., drawings, specifications, inspection plans).
 - a. In CoE-issued documents, mirroring of glossary definitions in addition to referencing it will be avoided unless determined necessary (e.g., in “b” below); instead, inclusion of a list of relevant terms that are defined in the Glossary is helpful and preferable.
 - b. In lieu of the simple list, definitions may be included in design output templates such as the LANL [Standard Details](#); Master Spec (LMS) [01 4216 Definitions](#) and [01 4000 Quality Requirements](#); and ESM Ch. 16’s *Statement of Special Inspections and Test & Inspection Plan* so they appear in the issued construction document. *These should not conflict with the Glossary.*
- B. Usage notes, generally in italics (as are many titles) and document/source citations (e.g., [...]) are normally not part of the definition per se.
- C. Hyperlinks often lead to the general area of a related term or webpage. LANL-internal links will fail outside the firewall, but linked documents may be provided by the LANL’s project interface personnel as appropriate.
- D. A few of the most-common shortened citation terms in Section 6.0 follow.

Most-Common Citations	Full Title and/or Meaning
10 CFR 830	10 CFR 830, <i>Nuclear Safety Management (Definitions 830.3)</i>
ESM	STD-342-100 , the <i>Engineering Standards Manual</i> , chapter (Ch.) and sections (e.g., Z10) as indicated
LMS	STD-342-200 , the <i>LANL Master Specifications</i>
NQA-1	ASME NQA-1-2008 with the NQA-1a-2009 addenda, <i>Quality Assurance Requirements for Nuclear Facility Applications. Both available via Accuris EWB.</i>
SD330	<i>LANL Quality Assurance Program</i>

6.0 Glossary of Terms

[A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [Q](#) | [R](#) | [S](#) | [T](#) | [U](#) | [V](#) | [W](#) | [X](#) | [Y](#) | [Z](#)

Term	Definition
A	
Acceptable	Considered by the authority having jurisdiction as adequate for satisfying the goals, performance objectives, and/or performance criteria. [DOE-STD-1066-2023]
Acceptance Method	A dedication method used to verify that the Commercial Grade item or service meets the acceptance criteria for the identified critical characteristics. (Paraphrased from ASME NQA-1a-2009 Subpart 2.14.) The acceptance methods used in the Commercial Grade Dedication (CGD) process are: <ul style="list-style-type: none"> • Method 1: Inspections, tests, or analysis performed after delivery. • Method 2: Commercial grade survey of the supplier. • Method 3: Source verification of the item or service. • Method 4: Acceptable supplier/item performance record. [AP-341-703]
Acceptance Plan	Document that includes necessary tasks and criteria for a procurement or other work to be approved. <i>For procurement quality, per P841-1, if the P-TSME determines that the item/service being procured has a Quality Level (QL) then an Exhibit H and Acceptance Plan must be created in the Procurement Quality Document (PQD) Tool here. These plans replace Form 1952 on receipt insp.</i>
Acceptance Testing (and software validation)	The process of exercising or evaluating a system or system component by manual or automated means to ensure that it satisfies the specified requirements, and to identify differences between expected and actual results in the operating environment. [ESM Ch. 21, SOFT-GEN]
Accuracy	The capability of an instrument to consistently indicate the true value of a measured quantity. [ESM Ch. 15; LMS 01 9100]
Accuris	Provider of most online national and international codes and standards mostly commonly used at LANL via their Engineering Workbench (EWB) product. Formerly "IHS." See also available non-EWB standards including IEEEExplore for non-NFPA electrical, electronics, software . LANL Research Library catalog search will also yield a few full-text standards and reports not in above from Knovel and other databases they provide.
Active SSC	An SSC that includes one or more components that must change state to perform its safety function. [AP-341-901]
Analyze, Design, Develop, Implement, and Evaluate (ADDIE)	An instructional systems design framework that many instructional designers and training developers use to develop courses. [Wikipedia]
Addition	An extension or increase in floor area, number of stories, or height of a building or structure. [ESM Ch. 16 IBC-GEN PPD form FM01.] <i>Must follow IEBC Ch. 11.</i>

Term	Definition
Administrative Change	<ol style="list-style-type: none"> 1. A change to a document that is correcting typographical errors, grammar, punctuation, and clarifying instructions. Updating organizational names, hyperlinks, and reference document numbers also is considered an administrative change. [AP-341-401]. <i>Others are a Major Change.</i> 2. In DOE orders, changes that do not alter requirements or responsibilities in the affected directive. Examples of such changes are: <ol style="list-style-type: none"> a. typographical errors; b. nomenclature changes such as changes to organization names or titles of officials; c. clarifications that do not alter requirements or responsibilities; or d. changes to legal citations or references. [DOE O 251.1D AdmChg1]
Administrative Controls	<ol style="list-style-type: none"> 1. Provisions relating to organization and management, procedures, record keeping, assessment, and reporting necessary to ensure safe operation of a facility. [10 CFR § 830.3; ESM Ch. 21, SOFT-GEN] 2. Work procedures such as written safety policies, rules, supervision, schedules, and training with the goal of reducing the duration, frequency, and severity of exposure to workplace hazards. [DOE G 450.4-1C, Integrated Safety Management System Guide]
Administrative Procedure (AP)	<ol style="list-style-type: none"> 1. Prescribes the steps to be used by personnel in carrying out administrative work activities. Procedures implement policy, requirements, and good business practices. CoE APs are a type of Functional Document. [AP-341-401] 2. Defines the communication and coordination activities necessary to carry out a facility's technical programs, management control programs, and design control programs. These procedures are not directly used to operate or maintain equipment or facilities. [archived PD311] <p><i>In CoE, the AP-341 series is ubiquitous; the project management AP-350 series is accessible from here, while MSS's AP-MNT and AP-WORK APs here are also relevant to CoE.</i></p>
Administrative Subcontract Technical Representative (AdSTR)	Appointed to perform Technical Oversight of low-consequence subcontracts, engages LANL SMEs as appropriate and provides feedback to their [Procurement Specialist (PS)], Requesting Organization, and RLM with issues pertaining to subcontract performance. [P850]
ALARA	As Low as Reasonably Achievable. An approach to radiological control to manage and control exposures (individual and collective) to the work force and to the public at levels that are as low as is reasonable, taking into account social, technical, economic, practical, and public policy considerations. ALARA is not a dose limit but a process which has the objective of attaining doses as far below the applicable limits of 10CFR835 as is reasonably achievable. [ESM Ch. 11]
Alteration	Any construction or renovation to an <i>existing structure</i> other than a <i>repair</i> or <i>addition</i> . [IEBC-2021]. <i>See also Level 1, 2, and 3 Alterations.</i>

Term	Definition
Applicable Standard	An applicable DOE technical standard or industry code or standard is one for which it has been determined by the contractor [LANL] that it will be used or will be applied for a specific facility/site to meet the design, construction, and operational requirements described in this Order. [DOE O 420.1C Chg 3, Section 7]. <i>The LANL Engineering Standards, including ESM and TSM, provide the minimum required codes and standards derived from contractual DOE and NNSA directives; projects should add other others where appropriate.</i>
Associate Laboratory Director for Facilities & Operations (ALDFO)	LANL organization home of the Facility Design Authorities and their respective divisions [e.g., Engineering Services (ES) and Plutonium Facilities Engineering (PFE)], Plutonium Infrastructure Engineering (PIE), and others. <i>Of the ~17 ALDs, ALDFO engineers have the most frequent interaction with ALDICP (Infrastructure and Capital Projects) and/or ALDPI (Plutonium Infrastructure) depending on role.</i>
All-the-Time Functions	Those that identify actions that must be considered at each precursor-level function as drivers for the identification of applicable requirements. These functions are generated based on performance or operational needs but are also based on programmatic drivers. Typical areas that result in all-the-time functions are Safety, Environment, Security, and Quality Assurance. [AP-341-601]
Alternate Calculation	A Design Verification method that uses an alternate calculation method to verify correctness of the original calculation or analysis. (ASME NQA-1) [AP-341-620]
Alternate Method	Alternative to how a requirement is met in cases where the “how” is specified, as granted by the requirement owner. These represent acceptable, alternative approaches to achieving the goal of a requirement. [adapted from DOE O 252.1D Chg 1]. <i>Applies to Form 2137, Conduct of Engineering Request for Variance or Alternate Method. See also Exception and Variance.</i> [ESM Ch. 1 Z10]
Alternate Study	See Trade Study
Alternative	A system, condition, arrangement, material, or equipment submitted to the authority having jurisdiction as a substitute for a criterion in a standard. [DOE-STD-1066-2023]
Applicable Standard	Per DOE O 420.1C, an applicable DOE technical standard or industry code or standard is one for which it has been determined by the contractor [e.g., LANL/Triad] that it will be used or will be applied for a specific facility/site to meet the design, construction, and operational requirements described in this Order. <i>The Order provides the process for determining which standards will be applicable; the LANL Engineering Standards provide the broad minimums while a project-specific code of record list focuses on and may add to them.</i>
Approved	<ol style="list-style-type: none"> 1. Acceptable to the <i>building official</i>. [IBC-2021] 2. Acceptable to the authority having jurisdiction. [DOE-STD-1066-2023]

Term	Definition
Approved for Release	Design output signature accepting for LANL. <i>It may and should also be attesting that the output accurately reflects the design basis and followed a technically adequate design process and appropriate design control; however, where permitted by CoE, these design authority (FDAR) responsibilities from DOE-STD-1073-2016 (§2.5) may be indicated by FDAR signature elsewhere (e.g., a drawing set G sheet or DCF signature at FM01/19 §8.0 Modification Final Design Approval). When not the FDAR on individual documents, outputs should be signed by the person with the best knowledge to affirm the above as chosen by the FDAR — this may be the system engineer, project engineer, or Modification Manager heading the effort. LANL Building Code Permitting Authority signature field on SSIs (e.g., IBC-IP Att. B r15) is a similar concept attesting to adequacy of SME review and comment resolution. [CSM Table 202-1; P341 (§3.0, 3.4)]</i>
Approved for Use (AFU)	New or modified system review/approval process in P101-34 , Pressure Safety. Process replaces Certification approach of ESM Ch. 17 former Section ADMIN-1 before 9/22/2023.
APROOVE or Aproove	Online (electronic) document review software application (replaced DRS). Resource page here .
Archibus Web Central	Space management tool used at LANL. <i>Besides employee hoteling support, contains structure data including seismic: Go to Space Inventory, then LANL Special Reports, then Define Seismic Data. Type TA-BLDG: (i.e. __-__-__) under Structure ID, then return. The newer RC or NDC/LS data will be there under the “DOE 1020 Standard” heading. The legacy PC category is under Seismic Essential as P_ (e.g., P1, P2 ..., where P2=PC2) for the building structure.</i>
Architect/Engineer (A/E) or Architect-Engineer (AE)	A design agency of record, normally external to LANL. Generally synonymous with Engineer of Record (EOR), Architect of Record, and Design Professional in Responsible Charge (DPIRC). [ESM Ch. 1, Z10]
Ariba®	ASM 's procurement software tool from SAP.
As-Built	<p>Important documentation (e.g., electrical one-line diagrams, database records) that is (1) verified by physical inspection as depicting the actual physical configuration and (2) verified as consistent with the design requirements. [based on DOE-STD-1073-16 and AP-341-405; AP-341-610].</p> <p>These are a subset of the entirety of Project Record Documents (PRDs). PRDs not an as-built are therefore just as-designed; however, inspection provides some assurance of design/field alignment. [ESM Ch. 1, Z10].</p> <p><i>“As-built” term is frequently misused at LANL and within DOE. True as-built verification steps are very formal, with discrepancies appropriately dispositioned in a process that ensures every deviation from original design is acceptable and the field precisely matches the design/intent; see Z10 for more information. “Verified as-built” means the same and highlights the formal process involved.</i></p>

Term	Definition
As-Found	Information often in the form of marked-up documents that reflects the actual physical configuration and identifies any discrepancies with currently approved facility documentation. [DOE-STD-1073-2016; AP-341-405] <i>Note: As-founds are generally the product of a walkdown (e.g., tech baseline reconstitution). If high pedigree is needed, then Step 2 in As-Built process is also required.</i>
Asset	A general term used to refer to a system, facility, structure, or component. This term is commonly used in the SE tool to refer to the block object type used to represent SSCs. [ESM Ch. 20]
Authenticated Electronic Signatures (aka Digital Signature)	<ol style="list-style-type: none"> 1. Digital Signature: An electronic signature comprised of encrypted identification certificates. When properly implemented, provides a mechanism for verifying origin authentication, data integrity and signatory non-repudiation (e.g., PIV/CAC certificates). [DOE O 243.1C CRD; P1020-1] 2. These include Entrust and Adobe digital signatures with certificates, and embedded signatures in online tools such as SharePoint, Delta, or other engineering-approved document system. Authenticated electronic signatures are acceptable for engineering documents (versus wet-signing paper). <i>For drawings, the CAD Standards Manual may provide additional direction.</i> [AP-341-402 r2] <p><i>For LANL personnel, who have certificates inherent in their PIV (badge), use of authenticated signatures is expected.</i></p> <p><i>For subcontractors, there is a similar expectation for those doing ML-1, ML-2, or UCNI work because of its importance and since UCNI transmittal necessitates encryption (e.g., Entrust software) and thus such capability is inherent.</i></p> <p><i>When a pdf file is a QA record, the last signer before transmittal to PSE-IM should click the "Lock document after signing" button in the Acrobat dialog box during signing (this is generally the Authentication of records task defined below). This is especially true of NQA-1 QA records (see Record definition).</i></p>
Authentication (identity, credential, and access management)	The process of verifying a person's identity using a credential (password, PIN, smartcard, badge, etc.). The Physical Access community may use the term "validate & verify" a credential, which is an equivalent operation. [DOE O 206.2]
Authentication (of records)	Approval of QA records by an authorized individual by providing signature (or initials) and date that indicate a record has been reviewed for technical accuracy and administrative requirements. Authentication confirms the completeness of a record. Various forms of authentication may be used, e.g., e-mail sent by an authenticated user, electronic or handwritten signature, or a completed and accepted form. [P1020-1, r14] See also <i>Project Record Document (PRD)</i> .

Term	Definition
Authority Having Jurisdiction (AHJ)	<ol style="list-style-type: none"> 1. An organization, office, or individual responsible for enforcing the requirements of a code or standard, or for approving equipment, materials, an installation, or a procedure. In DOE, the Head of the Field Element is the AHJ, but responsibility can be delegated to another federal official and routine activities can be assigned to a contractor. [DOE-STD-1066-2023] 2. Technical authority in NFPA, explosives safety, and Uniform Plumbing and Mechanical documents, but sometimes applied more broadly to other code officials. This and similar terms are known generically as SMPOs at LANL (search SMPO). [ESM Ch. 1, Z10; Ch. 2, D40GEN; Ch. 6 D10-30] <i>Generally, NNSA is the default code official by Order or CFR and assigns some or all the day-to-day duties to LANL by way of letter or other method. ESM Ch. 1 Z10 r15 includes a table (Z10-2) with a snapshot of this.</i>
B	TOP
Balance of Plant (BOP)	Those auxiliary or support systems that enable the primary process systems to operate. <i>E.g., the plutonium facility has an Essential Balance of Plant Group.</i>
Baseline	<ol style="list-style-type: none"> 1. In project management, a quantitative definition of cost, schedule and technical performance that serves as a base or standard for measurement and control during the performance of an effort; the established plan against which the status of resources and the effort of the overall program, field program(s), project(s), task(s), or subtask(s) are measured, assessed, and controlled. Once established, baselines are subject to change control discipline. [Directives definitions] 2. In another sense, a specification or product that has been formally reviewed and agreed upon, that thereafter serves as the basis for use and further development, and that can be changed only by using an approved change control process. [ESM Ch. 21, SOFT-GEN; Ch. 20] 3. In a support to operations, maintenance, or mod sense, a set of operating readings and/or parameters taken when a system or equipment is operating under known conditions (usually new or rebuilt) used for comparing future readings to troubleshoot or assess the system/equipment health. DOE G 433.1-1A Chg 1 (Admin Chg)
Basic Component	A structure, system, component, or part thereof that affects its safety function, that was designed and manufactured in accordance with the requirements of ASME NQA-1, or commercial grade items which have successfully completed the dedication process. [ASME NQA-1a-2009 Subpart 2.14, AP-341-607, AP-341-610, AP-341-610, AP-341-703]
Basis of Design	A controlled set of validated requirements that define the envelope of functional, performance, safety, and interface requirements with which a completed design must comply. This may also be called the Functional Specification. [ESM Ch. 20]

Term	Definition
Beneficial Occupancy (or “Mechanical Completion” or “Use and Possession prior to Completion”)	Terms used to describe the procedure when LANL occupies or makes use of any part of the work prior to Substantial Completion or Final Completion. <i>This does not refer to LANL Project Team members including inspectors but could include installers of LANL-furnished/installed equipment or building tenants. The presence of such personnel at the project site may cause disruption of the Subcontractor's activities and is discouraged; furthermore, such occupancy is subject to conditions set forth in the construction contract. LANL is not required to take such occupancy and may wait for Final Completion to use or occupy the site; however, if LANL decides to occupy any portion of the project space prior to Final Completion, LANL is required to issue a <u>Certificate of Beneficial Occupancy</u>. A Certificate of Beneficial Occupancy must not be issued without concurrence of the LBO if Beneficial Occupancy will occur prior to Substantial Completion.</i> [Adapted from UC Office of President Facility Managers Manual. “Use and Possession” is a FAR term. ADPMSS Proc 606 used many of these terms. Mechanical and physical (full) completion are terms used in CM-Div CMP 300 rev 0. Concepts but not terms above are used in LANL subcontract documents (e.g., GC-29); ESM Ch. 16 IBC-GEN FM05; Ch. 15]
Bill of Materials (BOM); Consolidated Bill of Materials (CBOM)	A listing to procure items based on item's make and model number, not an item's performance specifications. [AP-341-517; LMS 01 1117] <i>May be a form (e.g., in AP-341-517) or a table on a drawing. Bills of Materials are typically on drawings while a Consolidated Bill of Materials (CBOM) is a project's compilation of all BOMs.</i>
Bounding Set Points	These are set points to satisfy safety basis requirements, protect equipment/systems from operational damage, or other limiting values for the proper intended operation of the software. Changes to operational set points within the minimum or maximum values would not constitute a change, but rather would be considered operational use of the software. Example: Bounding set points may be minimum or maximum pressure or tank level values. [ESM Ch. 21, SOFT-GEN]
Brazing	A group of joining processes that produces coalescence of material by heating them to the brazing temperature in the presence of a filler metal having a liquidus above 840° F and below the solidus of the base metal. The filler metal is distributed between the fitted faying surfaces of the joint by capillary action. [ESM Ch. 13, Vol. 1, 1-99]
brownbags	Short seminars, typically during the noon hour. <i>ES-Div's are historically sponsored by the PE Lead SME; recordings on Ventana server here.</i>
BUILDER™ Sustainment Management System	NNSA's authoritative data source for information related to condition and functionality assessments. [SD 430.1C]. <i>Engineering doesn't access the database normally, but it is used by NNSA for funding decisions and its scope affects CMMS/MEL scope decisions in ESM Ch. 1 Section 200.</i>
Building	Any structure utilized or intended for supporting or sheltering any occupancy. [IBC-2021 defines Structure as “That which is built or constructed.”]. <i>LANL buildings are all considered Federal buildings in CFR, DOJ, and other contexts, per EMRef-81.</i>

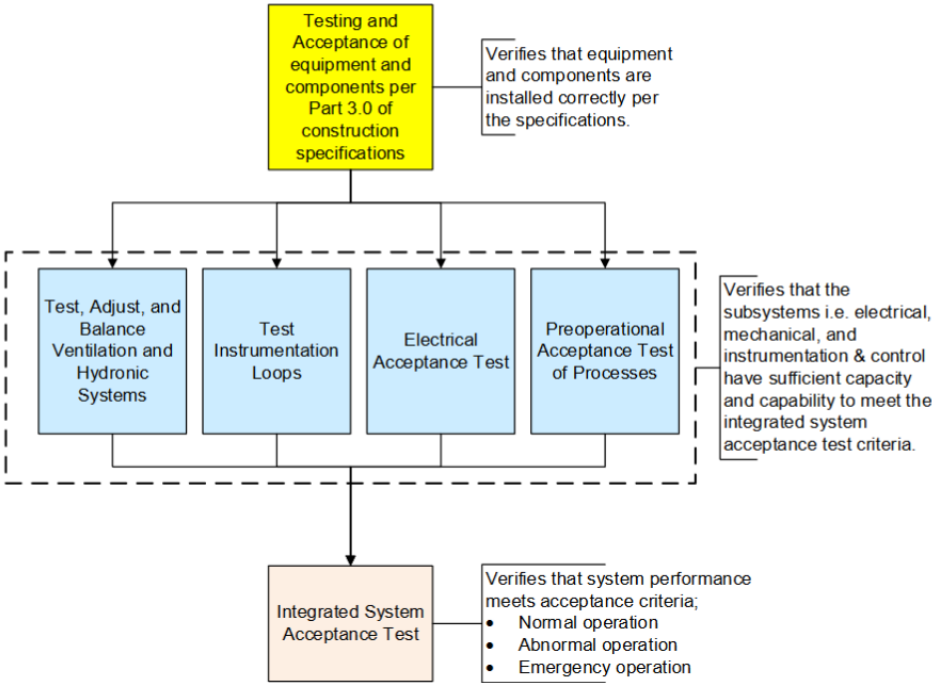
Term	Definition
Building Automation System (BAS)	Building Automation System - A control system that provides temperature control to normally occupied portions of a facility. This may include, but is not limited to: HVAC equipment, power metering equipment, lighting controls, etc. It does not include Safety Significant (ML-2) or Safety Class (ML-1) control systems. [ESM Ch. 8 D3060.90] <i>Some in industry call this building management system (BMS).</i>
Building Code Program	LANL's administrative and technical provisions and amendments to the IBC and related codes and standards. [ESM Chapter 16] <i>Related definitions not in this glossary may be Ch. 16 IBC-GEN or its referenced documents, including adopted/amended model codes such as the IBC, IEBC, NEC, UMC, and UPC. Program webpage within ES Division is here.</i>
Building Code Official (BCO)	The officer or other designated authority charged with the administration and enforcement of the building code, or a duly authorized representative. The DOE Head of the Field Element or designee is the BCO, but responsibility can be delegated to another federal official or as otherwise directed by the Cognizant Secretarial Officer. [DOE-STD-1066-2023]. <i>Also used in DOE O 420.1C but little otherwise at LANL since LANL Building Official (LBO) is preferred here.</i>
Building core	A three-dimensional space, permeating one or more floors, and is used for the extension and distribution of utility services (e.g., elevators, washrooms, stairwells, mechanical and electrical systems, and telecommunications) throughout the building. [ESM Ch. 19, D60]
Building Information Model, or Modeling (BIM)	A digital representation of physical and functional characteristics of a facility, facility systems in or around them, or infrastructure systems. A BIM is a shared knowledge resource for information about a facility, forming a reliable basis for decisions during its life cycle; defined as existing from earliest conception to demolition. [CSM Section 400 r0] Typically, BIM is authored by 3D CAD software with interactive ("smart") objects that includes or may interface with a database of object attribute data. This is the key component of a virtual build environment (VBE). Autodesk Revit® is currently the BIM standard software within LANL.
Building Official	See LANL Building Official (LBO) herein.
Building Services	Plumbing, heating, electrical, ventilating, air conditioning, refrigerating, controls, fire alarm and suppression, elevators, boilers, pressure vessels, telecom/data, building security systems, and other mechanical and electrical systems or components required to make a facility fully functional for the required occupancy. [ESM Ch. 16 IBC-GEN]
C	TOP
CAD Standards Manual (CSM or LCSM)	LANL's criteria for drawings (computer aided design) and sketch guidance, webposted as STD-342-300 . <i>BIM direction beyond that in ESM Ch. 1 Z10 is being developed.</i>
Calculation	Formal procedure of calculating (i.e., determining something by mathematical or logical methods) and/or problem-solving that involves numbers or quantities. Analysis to support design and operability of SSCs, technical baseline, or the facility safety basis. [AP-341-605]

Term	Definition
Certificate of Occupancy (CoO)	Process/Form for LANL Building Official acceptance of projects (generally only the highest risk category of same). [ESM Ch. 16 IBC-GEN; Form 5]. <i>A detailed pre-CoO checklist is posted with it.</i>
Certification	The act of determining, verifying, and attesting in writing to the qualifications of personnel, processes, procedures, or items in accordance with specified requirements. [NQA-1, Part I, Introduction, 400]
Certification Document	A document, regardless of title, signed or otherwise authenticated by an authorized representative of the certifying entity, certifying that a particular batch, lot, item, or service was manufactured/performed in accordance with and/or meets specific requirements contained in applicable codes, standards, specifications, or other published requirements. Examples include Certificate of Test and Certificate of Compliance (CoC). [aligns with IQPA-IQ-FD-105 r1 Ex. H – Part 1 (associated with P841-1)]. [LMS 01 4216r3] <i>Certification documents should be based on applicable codes or standards whenever possible (some have specific content requirements). For nuclear applications see NQA-1 Certificate of Conformance (C of C)</i>
Certified (person)	Possessing a certificate or certification document issued by a recognized authority attesting that a worker has been trained and/or tested and is competent and qualified to perform specific tasks or operate specific equipment. [adapted from LANL Definition of Terms]
Certified Material (or Mill) Test Report (CMTR)	Report detailing physical and chemical properties of the material(s) for which they are required, and in accordance with the applicable national or international material standards (e.g., ASTM, ANSI) for the material type. CMTRs (material or mill) must be the results of test performed by the material manufacturer or by a material verification process, if such a process is allowed by the standard governing the material type and must specify the test method and the source of the acceptance criteria. Each CMTR must be signed by an authorized representative of the testing entity, be traceable to the materials delivered via heat, lot, or other identification, and must meet any content requirements of the applicable national or international standards invoked for the material type. [adapted from P841-1, IQPA-IQ-FD-105 QD-05]. <i>Usage guidance: When CMTRs are requested through Exhibit H – Part 1 for Standard Procurements (or otherwise), requestor should indicate the material(s) for which they are required and the consensus standard(s) to be met or provide references to Statement of Work (SOW) or specification section(s) where information is provided. If/when spelling out term, choose “Material” or “Mill” coinciding with referenced standard usage, with Mill typically for metals and Material generically or when unsure. CMTRs are evidence (data), and generally superior to CoC-type certification documents that are merely attestations.</i> [LMS 01 4216r3; ESM Ch. 13, Vol. 1, 1-99]
Certificate of Analysis (C of A)	A certified report for gases or other chemicals, detailing chemical properties of the material(s) for which they are required, and in accordance with the applicable consensus standards (e.g., ISO 6141, 8573.1; ANSI/CGA stds). [adapted from P841-1, IQPA-IQ-FD-105 QD-18] <i>Gas purity refers to the percentage of a single gas in a mixture, while quality encompasses factors like contamination levels, delivery, and consistency. See also and adapt usage notes for CMTR.</i>

Term	Definition
Change of Occupancy	Any of the following shall be considered as a change of occupancy where the [currently adopted] IBC requires a greater degree of safety, accessibility, structural strength, fire protection, means of egress, ventilation or sanitation than is existing in the current building or structure: <ol style="list-style-type: none"> 1. Any change in the occupancy classification of a building or structure. 2. Any change in the purpose of, or a change in the level of activity within, a building or structure. 3. A change of use. [IEBC-2021; ESM Ch. 16 IBC-GEN PPD form FM01] <i>Must follow IEBC Ch. 10 (as well as other chapters when also an alteration).</i>
Chicago Manual of Style , The (CMOS)	Lab standard for grammar and punctuation (except for news stories that follow the Associated Press Stylebook). [CEA Guides + Templates website]
Chief Inspectors (LBO)	Selected individuals assigned by the LBO to oversee inspection functions day-to-day. [ESM Ch. 16 IBC-GEN] <i>These may be reflected on the Building Code program website (e.g., organization chart) or elsewhere such as the Listing of LBO-Approved IBC Testing, NDE, and Inspection Agencies; Fabricators; and Products (in which the Welding and NDE program owners for ESM Ch. 13 may also serve as Chief Inspectors for those specialty needs).</i> <i>By March 2025, there should be an LBO for inspection/occupancy and another for permitting (design “plan” examination).</i>
Child Documents	Some engineering documents (primarily design revision documents) have a child relationship to a parent document. They are given names with sequential numbers that are paired with their parent documents. <i>Examples of child documents are Field Change Requests (FCRs), Design Revision Notices (DRNs), and Design Information Transmittals (DITs).</i> [AP-341-402]
C number (C#)	CXXXXX- is the unique alphanumeric construction drawing number [CAD Stds Manual Section 200 r5 Table 202-1] <i>Usage is described by Table 202-2, and the SharePoint Eng Document numbering page assigns/logs them.</i>
Code	National or international consensus document amended and adopted as an ordinance relating to building construction and occupancy, and administered for the protection of health, safety, and welfare. [ESM Ch. 13, Vol. 1, 1-99] <i>LANL does this through the Engineering Standards primarily, not ordinance.</i>
Code of Federal Regulations (CFR)	The official legal print publication containing the codification of the general and permanent rules published in the <i>Federal Register</i> by the departments and agencies of the Federal Government. <i>LANL follows DOE-related (Title 10; see NNSA site under DOE heading) and others. Clarifications issued on Title 10 CFRs searchable at EHSS PC Portal.</i>

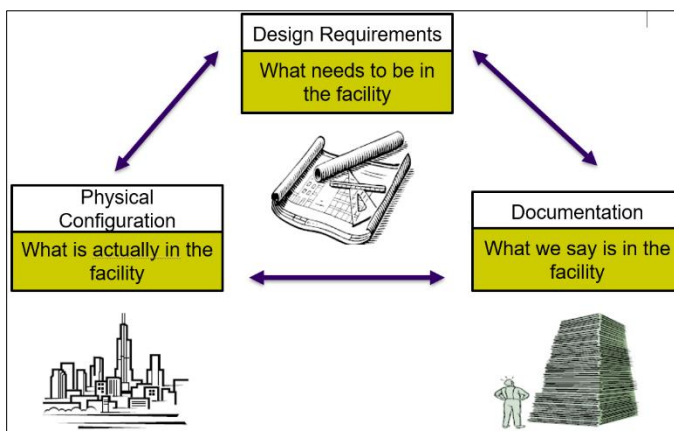
Term	Definition
Code of Record (COR)	<p>A set of design and operational requirements, including Federal and state laws, in effect at the time a facility or item of equipment is designed and accepted by DOE. The COR is (i) initiated during the conceptual design phase, placed under configuration control to ensure it is updated to include more detailed design requirements as they are developed during preliminary design, (ii) controlled during final design and construction with a process for reviewing and evaluating new and revised requirements to determine their impact on project safety, cost, and schedule before a decision is taken to revise the COR, and (iii) maintained and controlled through facility decommissioning. The COR may be defined in contracts, Standards, or Requirements Identification Documents (or their equivalent), or project-specific documents. [DOE-STD-1189-2016].</p> <p><i>For fire COR, see also DOE O 420.1C, Chg 3, Att. 2 Ch. II, 3.a.(2)(a) and ESM Ch. 2, Att. 1, Adopted Editions of NFPA Fire Protection Codes, Standards, and Recommended Practices.</i></p> <p><i>DOE Orders and CFR should generally not be listed except as follows:</i></p> <p><i>DOE and NNSA Directives (For Reference Only)</i></p> <p><i>Following the COR listing above will implement the design and quality criteria of the Contractor Requirements Documents of the following DOE or NNSA mandates. As such, they are not part of the formal COR, nor do they directly impose design criteria on the project.</i></p> <p><i>Re any requirement or law, it is only those being followed by the project.</i></p> <p><i>See also ESM Ch. 1, Z10 article on this topic for LANL usage. In the future, Z10 will be clearer that LMS and Std Details current on COR date are to be followed; however, these collections should generally not be listed in the COR as later editions are often acceptable/preferred and such detail is not appropriate for the COR.</i></p>
Cognizant System Engineer (CSE)	<p>Involved in the planning and execution of maintenance activities affecting their assigned systems. Must have knowledge of the assigned system's safety design basis and operating limits from safety analysis. Lead responsibility for configuration management of design. Each Vital Safety System (VSS) is assigned a qualified CSE, some may require an assignment of more than one based on a graded approach. A single CSE may be assigned to multiple systems. Applies to Safety Class and Safety Significant systems (active and passive) as defined in the facility's NNSA-approved safety basis, as well as to a subset of Other Hazard Controls (OHC) systems. [P341; DOE O 420.1C] CSEs have been determined to be "Technical Staff" positions as per DOE O 426.2, having increased training and qualification versus a Plant System Engineer. [CSE-QS-004-R3] CSE Assignment/ Qualification Listing on CoE Resources webpage.</p>
Comma – serial, Oxford, or Harvard	<p>The final comma in a list of things. In the comma usage to the left, the Oxford comma is the one right after Oxford. [adaptation of What Is the Oxford Comma (or Serial Comma)? Grammarly] <i>Because LANL uses the Chicago Manual of Style for technical (non-news) writing, the Oxford comma should be used. Ref. CMOS 6.140 Run-in Lists. Only news stories don't use it (following AP or NYTimes style).</i></p>

Term	Definition
Commercial	Practices for non-nuclear, non-complex real property capital asset design and construction that are more like those commonly associated with non-DOE practices. [concluded from NNSA SD 413.3-7] <i>These would include inspection and oversight processes, standards, quality, and expectations regarding these.</i>
Commercial construction implementation	LANL's implementation approach to NNSA's SD 413.3-7 and previous Enhanced Minor Construction and Commercial practices initiative (EMC ²). <i>CoE-related practices are being addressed by the ES-led Commercial Implementation (CI) initiative including the "Commercial Implementation Handbook." CI documents currently found on LBO webpage, directly here.</i>
Commercial Grade Item (CGI)	A structure, system, or component (SSC) or part thereof that affects its safety function that was not designed and manufactured in accordance with the requirements of ASME NQA-1. [AP-341-607, AP-341-610, AP-341-703] See also Dedication .
Commercial Grade Service (CGS)	A service that was not provided in accordance with the requirements of ASME NQA-1 that affects the safety function of a basic component. (ASME NQA-1a-2009 Subpart 2.14) [AP-341-703]
Commingleing	The ability of an individual in or from a radiologically controlled area and an individual in an uncontrolled area to come in contact with each other. [ESM Ch. 11]

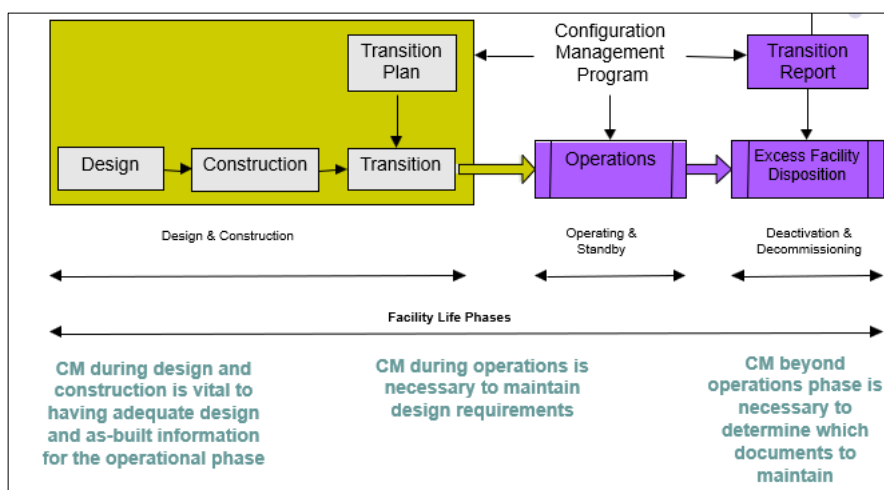
Term	Definition
Commissioning (Cx)	<p>1. A collaborative, quality-driven, systematic process that focuses on verifying and documenting that a building and all its commissioned systems are planned, installed, inspected, tested, operated, and managed as designed. [ESM Ch. 15]</p> <p>2. A systematic process of assuring, by verification and documentation, from the pre-design phase to a minimum of one year after construction, that all facility systems perform interactively in accordance with the design documentation and intent, and in accordance with LANL's operational needs [ESM Ch. 1, Z10]. <i>Beyond a year, systems can be periodically recommissioned. Or, if Cx was never performed, retro-commissioned.</i></p> <p><i>Typical steps for commissioning a system (credit: P341 r7):</i></p>  <pre> graph TD A[Testing and Acceptance of equipment and components per Part 3.0 of construction specifications] --> B[Test, Adjust, and Balance Ventilation and Hydronic Systems] A --> C[Test Instrumentation Loops] A --> D[Electrical Acceptance Test] A --> E[Preoperational Acceptance Test of Processes] B --> F[Integrated System Acceptance Test] C --> F D --> F E --> F subgraph DashedBox [Verifies that the subsystems i.e. electrical, mechanical, and instrumentation & control have sufficient capacity and capability to meet the integrated system acceptance test criteria.] B C D E end </pre>
Competent	Individuals or groups who have the necessary ability, knowledge, and/or skill to complete a task successfully. [NQA-1; AP-341-605]
Component	Part or assembly of parts within a structure, system, or piece of equipment. [ESM Ch. 1, 200; AP-341-502] <i>In the CMMS/MEL, these can/should generally be handled as spawned from Equipment.</i>
Component Configuration Datasheet (CCD)	The document used for documenting both the component nameplate data and the independent verification. The CCD is also the mechanism for identifying missing nameplates or for transferring acquired data into the SSC technical baseline documents. [AP-341-510]

Term	Definition
Component Testing (Pre-functional testing)	Tests performed to demonstrate specific equipment functionality and documentation of results via formal test records or installation data sheets. [ESM Ch. 15; LMS 01 9100] <i>The individual pieces of equipment are confirmed to be capable of performing in accordance with the specifications, drawings, and manufacturer's requirements. The information recorded on the data sheet provides baseline data for future re-evaluation of the components or systems.</i>
Compliance	The act of complying with a wish, request, or demand; acquiescence. [Am. Heritage Dictionary]. <i>In conduct of operations, engineering, and maintenance, the expectation is "thinking compliance" whereby directive is either met verbatim or, when it appears unsensible, user stops for clarification or change. "Malicious compliance" is complying verbatim while suspecting there is a better way.</i>
Computerized Maintenance Management System (CMMS)	Computerized maintenance management system that includes the Master Equipment List (MEL) and facilitates work, history-keeping, and other functions. LANL's CMMS includes the primary application of Asset Suite EAM v9 [AS9] from Hitachi ABB Power Grids and also ABB's eSOMS (many life safety inspections) which in total capture the MEL. [ESM Ch. 1, 200] <i>Access from MSS homepage's AssetSuite button. MSS has AS9 and CMMS Desk Guides here.</i>
Conceptual Design Phase	<ol style="list-style-type: none"> 1. Project design phase that culminates in the development of the design basis for the preferred design concept to proceed into preliminary design. (Paraphrased from DOE-STD-1189). <i>The end of conceptual design is marked by CD-1 approval for large projects and is approximately equivalent to 30% design completion for smaller projects.</i> [AP-341-620] 2. The phase of system/facility acquisition that develops a conceptual design package that fully specifies the final product to be developed and provides concept-level designs for facility and process. During this phase, the number and type of facilities and systems are identified for further development, with preliminary requirements being developed for each. (Begins when Critical Decision 0 [CD-0] is received, ref. DOE O 413.3). [ESM Ch. 20]
Conditional Release (CR)	A CR is a controlled, documented, and approved release of a nonconforming item by the [Owning Manager (OM)] for limited use (pending final disposition and closure of the NCR), which permits the continuation of construction, installation, maintenance, operations, or modification. Items conditionally released continue to be nonconforming and must be controlled and dispositioned. P330-6 r17.

Term	Definition
Conduct of Engineering (CoE)	<ol style="list-style-type: none"> 1. Formality of operations program focused on appropriate engineering conduct (e.g., function, activities, standardization, rigor); a corollary to conduct of operations, maintenance, and training programs. [derived from INPO usage, e.g., ConOps term and 90-009, <i>Guidelines for the Conduct of Design Engineering</i>] 2. Relating to “the processes and procedures affecting conduct of engineering, engineering technical support, and configuration management ... the processes, procedures, and appropriate training modules that apply cost effective applications to meet DOE requirements for the execution and control of nuclear and commercial/industrial designs and the methods to maintain those designs.” [archived DOE G 440.1-8, Att. 1 Charter 6.32] 3. A process of disciplined management of engineering technical resources and processes to meet the customer’s design, operational, environmental, safety, and security objectives in a responsible and quality manner. <i>This discipline is achieved through execution of engineering principles, policies, programs, standards, training/qualifications, and meeting management expectations. Foundations of CoE are Design Authority, Configuration Management, Integrated Safety Management, Design Process, and Graded Approach.</i> [EFCOG EPSG CoE course slides 9/2020]
Conduct of Engineering Office (CENG)	<p>The CoE Office, officially CENG-OFF in organizational listing. In the context of approvals this refers to the CENG Office Director. [ESM Ch. 1, Z10] <i>CENG manages the three traditional CoE programs — Engineering Standards (supporting engineering throughout LANL) and the Engineering Processes and Engineering Training and Qualification programs (facility and hazardous process work). Currently, it also manages other technical programs: Pressure Safety; Welding, Joining, and NDE; and Building Automation and Data Acquisition Systems.</i></p>
Configuration Item	<p>A collection of hardware or software elements treated as a unit for the purpose of configuration control. [ESM Ch. 21, SOFT-GEN]</p>
Configuration Management (CM)	<ol style="list-style-type: none"> 1. In general, a disciplined process that involves both management and technical direction to establish and document the design requirements and the physical configuration of the facility or activity and to ensure that they remain consistent with each other and the documentation. [DOE-STD-1073; PD340 r8]. <i>DOE-STD-1073 is required for nuclear projects per DOE O 413.3B and a safe harbor for CSE Program per DOE O 420.1C.</i> 2. In software quality, the process of identifying and defining the configuration items in a system (i.e., software and hardware), controlling the release and change of these items throughout the system’s life cycle, and recording and reporting the status of configuration items and change requests. [ESM Ch. 21, SOFT-GEN] <p><i>See graphics that follow.</i></p>



Basic Configuration Management: Maintaining Agreement Among the Three



CM in the Facility Life Cycle

Credits: P341 and EFCOG EPSG CoE course slides 9/2020

Confirmatory Testing	Confirmatory testing consists of laboratory or field measurements conducted in accordance with P330-8, <i>Inspection and Test</i> that investigate the properties of interest (e.g., physical, chemical, geologic, mechanical, electrical, etc.) [AP-341-513]
Consolidated Bill of Materials (CBOM)	Product bill of materials defining process materials, calibrated items, floor stock/shop aids, and tooling used for procurement and product planning.
Constraints	Defining factors and requirements that limit the design flexibility. Constraints are normally provided in the form of laws, regulatory standards, national consensus codes, and LANL Engineering Standards. [AP-341-602]

Constructability	<p>A project management concept that measures how easily, efficiently, and environmentally friendly a building can be constructed. It's a way to evaluate a project's design to ensure it's feasible, practical, and effective. Constructability is typically assessed during the preconstruction phase of a project ...</p> <p>Constructability reviews are typically conducted by a team of construction experts who review a project's drawings, specifications, and other documentation. The goal is to identify any problems that might make the project difficult or impossible to build. [Google AI Overview]. <i>ES Div has DI-ES-EPD-003, Risk Assessment, Design Quality & Constructability.</i></p>
Construction Administration	<p>At LANL, the tasks normally performed by the design agency during Title III.</p> <p><i>Examples: review and approval of submittals; RFI and SDDR review, disposition, and incorporation as part of the design or design changes; review/comment on change order requests affecting design scope or quality; processing of non-conformance reports; creation, review, disposition and incorporation of design revision documents including DRNs and FCRs; seismic anchorage and bracing design of non-structural (e.g., architectural, mechanical and electrical) components (if not completed in design phase) and assistance with IBC Ch. 17 Special Tests per structural observation where required by ESM Chapter 16, and typical standard-of-care observation of work in general for other disciplines for conformance to design; project close-out activities which include participating in the final inspection; preparation of record documents including updated drawings. [ESM Ch. 1 Z10]</i></p> <p><i>Note: This is related to but not identical to the CSI-defined role of Construction Contract Administrator since that often also includes the owner relying more heavily on the A/E for contract-cost-related matters that LANL may reserve for the STR or ASM procurement specialist.</i></p>
Construction Industry Institute (CII)	<p>CII, based at the University of Texas at Austin, is the research and development center for the capital projects industry. To join here, you can directly "add an account" and use the company name, Triad National Security, LLC.</p>
Construction Non-Compliance Report (CNCR)	<p>Like a nonconformance report (NCR) but used in projects under the Commercial Construction initiative. <i>Used by design-build team in lieu of 2276 - Subcontractor Nonconformance Report (NCR) with LANL copied. There will be or is an accompanying CI-CNCR Guidance Document.</i></p>
Construction Specifications Institute (CSI)	<p>A national not-for-profit association of more than 6,000 members dedicated to improving the communication of construction information throughout continuous development and transformation of standards and formats, education, and certification of professionals to improve project delivery processes. [CSI]</p> <p>CSI specification format means the division/section numbering per MasterFormat (defined here and linked here), the 3-part/heading outline defined by SectionFormat, and generally the formatting guidance in PageFormat. [ESM Ch. 1, Z10 Att. F]</p>
Constructor	<p>Entity performing fabrication or physical construction activity. When not LANL self-performed, this is the Subcontractor. <i>Term used primarily in the Engineering Standards but not in contract pro forma (boilerplate), which uses SUBCONTRACTOR. [ESM Ch. 1, Z10; LMS 01 4216]</i></p>

Contract	A mutually binding, legal agreement in which the seller furnishes supplies or services (including construction) and the buyer pays for them. Contracts include (but are not limited to) awards and notices of awards, job orders or task letters issued under basic ordering agreements (BOAs), letter contracts, or purchase orders. [LANL ASM Procurement Policy and Procedure Manual , 2024-7-17]
Contractor	<p>Any entity under contract with the Department of Energy (DOE)/National Nuclear Security Administration (NNSA) with the responsibility to perform activities at a DOE/NNSA site or facility.</p> <p>At LANL, this is Triad, the prime contractor to NNSA. <i>ASM's procurement terms and conditions aka pro forma (sometimes "proforma" aka boilerplate) formats as CONTRACTOR; this may be a Triad employee or someone in Triad employ — as opposed to a constructor or vendor engaged by LANL, and thus a subcontractor to NNSA (i.e., SUBCONTRACTOR).</i></p> <p><i>In very old LANL Standards documents, Contractor may still be in use as the entity performing the work which may be design, offsite fabrication, onsite construction, and/or maintenance; correct to Subcontractor. When the intention is that task is performed by Triad, then the term LANL is preferred over Triad or Contractor in design outputs since timeless and clear. [ESM Ch. 1, Z10]</i></p> <p>If uncorrected or unclear in issued design, seek clarification by RFI.</p>
Contractor Readiness Review	In the readiness processes of PD115, upon completion of the MSA, the Contractor RR, either a Contractor Operational Readiness Review (CORR) or a Contractor Readiness Assessment (CRA), is performed.
Contractor Requirements Document (CRD)	An attachment to a directive that states the parts of the directive that apply to contractors. Where required, a CRD is included as [an attachment] to a directive. CRDs can be unilaterally inserted into contracts that include DEAR 970.5204-2, <i>Laws, regulations, and DOE Directives</i> , in accordance with that clause. The clause requires the Government to give the contractor time to identify the effect on the contract, including any increased costs or need for revision to the contract's incentives. For contracts not subject to DEAR 970.5204-2, the CRD may be bilaterally (that is, with the contractor's agreement) incorporated into the contract. [DOE O 251.1D AdmChg1]
Corroborating Data	Corroborating data are existing data or newly developed data that are used to support or substantiate other existing data. [AP-341-513]
Credited	An adjective to describe a control that has been applied in hazard or accident analysis to reduce the likelihood of an event or mitigate the consequences (e.g. safety class SSCs, safety significant SSCs or SACs). [DOE O 421.1 draft 2023-11-16]
Critical Characteristics	<p>An item's identifiable and measurable attributes that are necessary for the item to perform its intended safety function. Includes item's part number, identification markings, physical characteristics, and performance characteristics.</p> <p>Important design, material, and performance characteristics of a commercial grade item that, once verified, will provide reasonable assurance that the item will perform its intended safety function. [NQA-1, AP-341-607, AP-341-610, AP-341-703]</p>

Critical Decision (CD)	<p>DOE/NNSA approval for a line-item project to proceed to the next phase.</p> <ol style="list-style-type: none"> 0. CD-0 is Approve Mission Need [conceptual design can then begin; that represents about 30% of the overall design effort]. 1. CD-1 is Approve Alternative Selection and Cost Range. [Thus, preliminary design can begin; this results in 60% maturity]. 2. CD-2 is Approve Performance Baseline (definitive scope, schedule and cost baselines have been developed, and the project is ready for implementation. [This authorizes Detailed Design, which progresses design to a 90% complete level] 3. CD-3 is Approve Start of Execution [e.g., construction], [Design is 90% complete] 4. CD-4 is Approve Start of Operations or Project Completion. [Design is 100% complete] <p>[DOE O 413.3; ESM Ch. 1, Z10] <i>Summary of major CD tasks here: Bp259 Capital Asset Preplanning CRC Checklist</i></p>
Cross-connect	<ol style="list-style-type: none"> 1. In telecommunications, enables the mechanical termination and interconnection of premise cabling and backbone cabling. [ESM Ch. 19 D60] 2. In piping, the ability for two systems or fluids to intermingle (undesirable in some cases). [ESM Ch. 6 D20]
D	TOP
Data Qualification	A formal process to provide a desired level of confidence that data are suitable for their intended use. [AP-341-513]
Dedicating Entity	The organization that performs the dedication process. Dedication may be performed by the manufacturer of the item, a third-party dedicating entity, or by the facility (LANL). [ASME NQA-1a-2009 Subpart 2.14; AP-341-703]
Dedication	An acceptance process performed in accordance with ASME NQA-1 to provide reasonable assurance that a commercial grade item or service will perform its intended safety function and, in this respect, is deemed equivalent to an item or service designed and manufactured or provided under the requirements of ASME NQA-1. This assurance is achieved by identifying the critical characteristics of the item and verifying their acceptability by inspections, tests, or analyses performed by the purchaser or third-party dedicating entity after delivery, supplemented as necessary by one or more of the following: commercial grade surveys, product inspections or witness hold-points at the manufacturer's facility, and analysis of historical records for acceptable performance. In all cases, the dedication process must be conducted in accordance with the applicable provisions of Part I of ASME NQA-1. [ASME NQA-1a-2009 Subpart 2.14; AP-341-703]. <i>More commonly referred to as Commercial Grade Dedication/CGD. See Guidance on Technical Evaluations and Item Dedication in the Engineering Learning Guide collection.</i>
Defense-in-Depth	An approach to hazard control for nuclear facilities that is based on several layers of protection to prevent the release of radioactive or other hazardous materials so that no one layer by itself, no matter how effective, is completely relied upon. [DOE O 421.1 draft 2023-11-16]

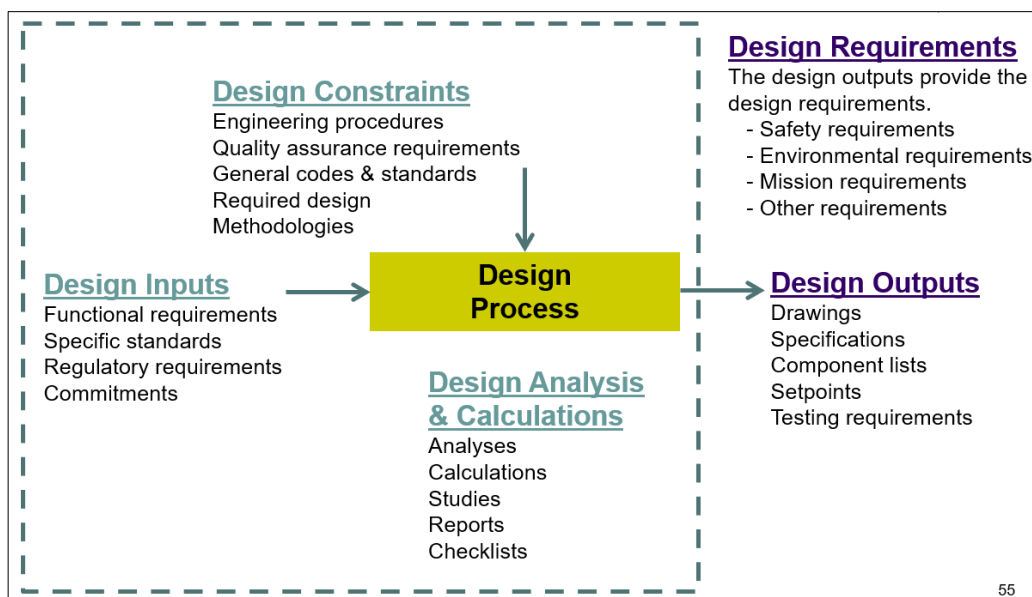
Defense-in-Depth (DID) or Other Hazard Controls (OHC)	<p>Preventive or mitigative controls that do not rise to the level of SC or SS but still enhance the safety of the facility. These controls are identified in the hazard evaluation table, but not explicitly credited with a SC/SS designation as identified in the DSA. Such controls are maintained in accordance with safety management programs.</p> <p>Other hazard controls are expected to be designed to the applicable industry code/standard for the given type of non-safety SSC. [DOE-STD-3009-2014; AP-341-502].</p> <p><i>See graphic that follows the “Z” definitions.</i></p>
Defense Nuclear Facilities Safety Board (DNFSB)	<p>An independent organization within the executive branch chartered with the responsibility of providing recommendations and advice to the President and the Secretary of Energy regarding public health and safety issues at DOE (Department) defense nuclear facilities. In operation since in October 1989, the Board reviews and evaluates the content and implementation of health and safety standards, as well as other requirements, relating to the design, construction, operation, and decommissioning of the Department's defense nuclear facilities. [DOE's very comprehensive website] DNFSB site.</p>
Deferred Design	<p>Design performed post-permit [IBC-2021 107.3.4.1 and 202; ESM Ch. 16 IBC-GEN]. <i>Often, deferred design is the DPIRC waiting until procurement to perform design such as anchorage of chosen model or support of field-routed piping. The LBO normally permits construction start with a package that lacks final design for specialties such as structural detailing, HVAC, fire alarm and suppression, and equipment anchorage (i.e., this detail submission is <u>deferred</u>, and often delegated to the constructor as well). Limited portions of the design may proceed this way.</i></p>
Degraded Condition	<p>A condition of an SSC, potentially affecting operability, in which quality or functional capability has been reduced by mechanisms such as aging, erosion, corrosion, or improper operation or maintenance. (P330-6) [AP-341-514]</p>
Delegated Design	<p>Design performed by a design agency other than the DPIRC, one serving either the DPIRC directly (normally during design phase, by a partnering firm or consultant) or engaged by the constructor (thus also deferred, defined above).</p>
Delegated Design Submittals	<p>Products and systems complying with specific performance and design criteria prepared by a design professional. Delegated design submittals require Design Agency EOR's responsive action. Delegated design submittals are indicated in individual Specification Sections and in Attachment A - Construction submittal log. [LMS 01 3300 r7]</p>
Delta	<p>Online software for developing and approving several CoE forms. <i>Currently supports DCFs per AP-341-517, FCRs and DRNs per AP-341-519, ERFIs per AP-341-627, and PPDs per ESM Ch. 16.</i></p>
Demolition; also D&D and DD&R	<p>Tearing down a system, structure, or portion of same. [ESM Ch. 16 IBC-GEN; PPD form FM01; LMS Div 02]. D&D is deactivation/decommissioning (sometimes preceded by characterization and/or decontamination), followed by demolition/dismantling, then disposal and/or salvage. DD&R, sometimes used by DOE-EM, is deactivation, decommissioning & removal. [AP-WORK-001 Att. 1] <i>See ESM Ch. 16 IBC-GEN heading for this.</i></p>

Demolition Instructions	Part of the Design Change Form (AP-341-517-FM01). High-level engineering inputs necessary for modification implementation. Provides the minimum necessary guidance for controlling unusual activities or activities that directly affect demolition of modification or operation of equipment. [AP-341-517]
Department of Energy Acquisition Regulation (DEAR)	Standardized procurement clauses for DOE/NNSA contracting. DEAR 901.1 states "...uniform acquisition policies which implement and supplement the Federal Acquisition Regulation (FAR) (Chapter 1 of title 48 of the Code of Federal Regulations (CFR)... The FAR and DEAR apply to all DOE and NNSA acquisitions of supplies and services which obligate appropriated funds unless otherwise specified in this chapter." <i>LANL's prime contract includes some DEAR and FAR clauses verbatim, others with modification, in its Part II Section I (wherein DEAR clause numbers are 9XX.#). DEAR authority is from 42 U.S.C. 7101 and 50 U.S.C. 2401. U.S.C. here.</i>
Deputy Building Officials	Persons assigned total or partial authority to act for the LBO. <i>Historically, the LANL Fire Marshal is a Deputy acting for fire and life-safety related matters. See ES-DO LBO organization chart.</i> [ESM Ch. 16 IBC-GEN and Att. A (LBC) 103.3]
Derivative Classifier (DC)	An individual authorized to confirm that an unmarked document or material is unclassified or determine that it is classified as allowed by his or her description of authority. A Derivative Classifier may also upgrade a document or material. (In RD/FRD/TFNI subject areas, a Derivative Classifier is equivalent to the Restricted Data Classifier referred to in 10 CFR part 1045.) [DOE O 475.2B] <i>A Reviewing Official (RO) performs a similar role for Controlled Unclassified Information (CUI); when DC or Unclassified term is used, it generally means that document was also reviewed for CUI (as it should be), and DC/RO is used to clearly indicate this.</i>
Derived Requirement	A lower-level function or performance metric that is deduced or inferred to fill in detail, gaps, or to subdivide an upper-level requirement amongst multiple SSCs. Derived requirements are generally determined through functional analysis, trade studies, or calculations. These can be changed by a project through additional analysis. [ESM Ch. 20]
Design Agency	The LANL organization or external subcontractor (A/E) responsible for the preparation of engineering design and documentation [P342]. <i>See also Designer, DPIRC, and EOR.</i> [ESM Ch. 1, Z10; Ch. 2 D40GEN, ESM Ch. 8 D3060.90]
Design Analyses	Calculations and/or experiments associated with design. [ESM Ch. 21, SOFT-GEN] <i>See graphic at Design Process.</i>

Design Authority (DA)	<ol style="list-style-type: none"> 1. The organization having the responsibility and authority for approving the design bases, the configuration, and changes thereto. [NQA-1] 2. The person or group responsible for the final acceptability of and changes to the design of a system or component and its technical baseline. [based on DOE-STD-1073] <p><i>A DA Representative (DAR) is qualified to perform certain DA functions.</i></p> <p><i>For facilities, DA is not a group or organization but individuals, typically the Division Leads of Engineering Services and Plutonium Facilities Engineering. See Facility Design Authority Representative for related information. (See PD340) [ESM Ch. 2 D40GEN; Ch. 12]</i></p> <p><i>Elsewhere, this term is also used for programmatic operations/facilities such as DARHT and Packaging & Transportation, and for the DAs over weapons designed by LANL. Complete listing of DARs is here.</i></p>
Design Basis	<ol style="list-style-type: none"> 1. The set of requirements that bound the design of systems, structures, and components within the facility. Those design requirements include consideration of safety, plant availability, efficiency, reliability, and maintainability. [DOE G 413.3-12 Chg 1 (Admin Chg)] 2. Information which identifies the specific functions to be performed by an SSC of a facility and the specific values or ranges of values chosen for controlling parameters as reference bounds for design. These values may be restraints derived from generally accepted 'state-of-the-art' practices for achieving functional goals or requirements derived from analysis (based on calculations and/or experiments) of the effects of a postulated accident for which an SSC must meet its functional goals. Consists of the Design Inputs, the Design Analysis and Calculations, and the Design Outputs. Explains why a design requirement has been specified in a particular manner or as a particular value. [DOE-STD-1073-2016; ~DOE G 420.1-1A; AP-341-405, AP-341-605] <p><i>The <u>design basis</u> establishes the boundaries of the design process, provides the technical and analytical basis for the design requirements, and documents <u>why</u> a requirement was specified. The <u>design requirements</u> specify <u>what</u> is required. [EFCOG EPSG CoE course slides 9/2020]</i></p>
Design Change	Any revision or alteration of the technical requirements defined by approved and issued design output documents and approved and issued changes thereto [NQA-1; AP-341-517; 620] <i>Refers to SSC configuration management, not design revision control per AP-341-519.</i>
Design Change Form (DCF)	A form/traveler which identifies engineering workflows and documents key activities associated with making permanent physical modifications to the Los Alamos National Laboratory (LANL) site configuration. [AP-341-517]
Design Criteria	<p>Those design or technical requirements that define the item's form, fit, capabilities, applicable codes and standards, operational limits, and functional requirements defined in the item's design output documents. [AP-341-703]</p> <p><i>These are depicted as Design Requirements in the graphic at Design Process.</i></p>

Design Documents	<p>Design documents define either the design requirements or the design basis of the facility or activity. Design documents include design specifications, design change packages, design drawings, design analysis, setpoint calculations, summary design documents, correspondence with DOE or other regulator that provides design commitments, and other documents that define the facility or activity design. [DOE-STD-1066-2016; ESM Ch. 8 D3060.90]</p> <p><i>These are any or all of the categories shown in the graphic at Design Process.</i></p>
Design Feature	<p>The design features of a nuclear facility specified in the technical safety requirements that, if altered or modified, would have a significant effect on safe operation. [10 CFR § 830.3]</p>
Design Inputs	<ol style="list-style-type: none"> 1. Those specific criteria, limits, performance requirements, bases, or other initial requirements (i.e., specific operational requirements, design bases, and commitments), as well as general restrictions and limits to the engineering design process that ensure consistency and quality of design (i.e., quality assurance or QA requirements, applicable codes and standards, regulatory requirements, and required design methodologies) upon which the detailed final design is based. [DOE-STD-1073-2016] <p>P341, AP-341-517, AP-341-620:</p> <ol style="list-style-type: none"> 2. Information such as contractual requirements, customer expectations, functions and performance requirements, requirements derived from hazard analysis, requirements derived from prototype testing, safety requirements, security requirements, interface requirements, operating environment, health and safety considerations, design life, codes and standards requirements, and reliability requirements. 3. Requirements and criteria required to permit the design to be carried out in a correct manner and to provide a consistent basis for making design decisions, accomplishing design verification, and evaluating design changes. <p><i>Examples: Permits and Requirements Identification (PRID), Mission Needs Statement, Project Functions and Requirements document (FRD), Requirements and Criteria Document (RCD), Preliminary Project Determination (PPD), alternative studies, Conceptual Design Reports (CDRs), LANL Reviewing Organizations Form AP-341-620-FM02, Scope of Work (SOW), preliminary safety analysis documents, preliminary fire hazard evaluations, environmental reports, etc.</i></p> <p><i>See graphic at Design Process.</i></p>
Design Input Specification	<p>A design document prepared for safety related systems, with emphasis on conditions unique to the facility and subject process. [ESM Ch. 8 D3060.90]</p>
Design Manager (DM)	<p>A role to coordinate internal design work, provide project coordination support, ESR management, primary POC for design modifications to facility and programmatic groups. <i>An optional, business role, not addressed in CoE APs but in DI-ES-EPD-006, Design Manager Roles and Responsibilities (pdf).</i></p>

Design Output	<ol style="list-style-type: none"> 1. Design outputs include documentation such as drawings, design change packages, specifications, load lists, valve lists, design reports, and setpoint lists. They are the composite result of the engineering organization's consideration of the design inputs and the design analysis and calculations. The design outputs specify the requirements of the design basis, e.g., the necessary functions, capabilities, capacities, physical sizes and dimensions, limits and setpoints. They include the operational requirements, as well as procurement requirements, QA requirements, construction/installation specifications and instructions, post-installation testing, post-maintenance testing, and periodic surveillance/testing requirements. [DOE-STD-1073-2016] 2. Product of the design process that specifies the requirements of SSCs and dictate their physical configuration. Documents specify which requirements are essential to support the design bases. Procurement specifications establish suitability of procured items by invoking design codes and standards; specifying functional requirements; and identifying test, inspection, and certification requirements. <p>Examples: Calculations, Drawings/Sketches, Specifications, Bills of Material (BOM), Demolition and Installation Instructions, Post Modification Test Forms, Electrical Investigation Worksheets, Quality Inspection Plans, Management level Determination (MLD) Forms, Master Equipment List (MEL) revisions, Facility Design Description (FDD), System Design Description (SDD), Hazard Analysis/Safety Analysis documents, Vendor Information, Engineering Studies, Technical Reports, etc. [P341, AP-341-517, AP-341-620]</p> <p><i>See graphic below Design Process.</i></p>
Design Process	<p>Translates design inputs into design output documents using design analysis and calculations. Analysis requires sufficient detail in the purpose, method, assumptions, design input, references, and units so that a person technically qualified in the subject can review and understand it and verify the adequacy of the results without recourse to the originator. [P341]</p> <p><i>See graphic which follows.</i></p>



Design Process

Credit: EFCOG EPSG CoE course slides 9/2020

Design Professional in Responsible Charge (DPIRC)	<ol style="list-style-type: none"> 1. In general terms, the lead engineer or architect in the Design Agency with overall responsibility for the correctness and coordination of all agents, interfacing with LANL project engineer, and sealing (stamping) as required and delivering the design. 2. For external AEs, IBC-2021 202 defines Registered DPIRC as: A <i>registered design professional</i> engaged by the owner or the owner's authorized agent to review and coordinate certain aspects of the project, as determined by the <i>building official</i>, for compatibility with the design of the building or structure, including submittal documents prepared by others, deferred submittal documents and phased submittal documents. <i>Thus, if an engineer, a P.E.; if an Architect, a registered one.</i> 3. For LANL-performed design, the lead discipline engineer. <p><i>Term is used by IBC (e.g., 107.3.4) and ESM Chapter 16, Ch. 1, Z10. DPRIC is designated to LBO by IBC-GEN Form 3.</i></p>
Design Requirements	<p>Those engineering requirements reflected in design output documents that define the functions, capabilities, physical sizes and dimensions, limits and set points, etc. specified by design engineering for a structure, system, and component (SSC). The design requirements provide the results of the design process. The objective of the design control element of configuration management is to document and maintain the design requirements for configuration management SSCs and credited controls to ensure that they are consistent with the as-built facility or activity. (From DOE-STD-1073-2016) [AP-341-405, AP-341-703]</p> <p><i>See graphic at Design Process.</i></p>
Design Review	<p>A critical review to provide assurance that the final design is correct and satisfactory (ASME NQA-1). [AP-341-620]</p>

Design Revision Notice (DRN)	Form/process used to process complex changes that introduce new design requirements which initiate new functions or requirements that exceed those defined in the project definition documents (Functions and Requirements Document, Requirements and Criteria Document, etc.). DRNs are also used to process changes that require substantial reanalysis or new analysis. When new design functions and requirements are added to the project, the Responsible Engineer shall update affected project definition and scoping documents. [AP-341-519]
Design Verification (DV)	<p>Documented process for ensuring that the design and the resulting items comply with the project requirements [(e.g., <i>inputs, constraints</i>)]. Design verification methods can include design reviews, alternate calculations, qualification testing, and peer review of experimental design. When appropriate, the verification process may include consideration of previous verifications of similar designs or verifications of similar features of other designs. [DOE G 414.1-2B Chg 2 §4.6.5 <i>since not in NQA-1 or 414.1D</i>]</p> <ol style="list-style-type: none"> Who (NQA-1): Quality achievement is verified by those not directly responsible for performing the work [Req.1, §201.c] ... Design verification shall be performed by any competent individual(s) or group(s) other than those who performed the original design but who may be from the same organization. This verification may be performed by the originator's supervisor, provided the supervisor (1) did not specify a singular design approach or rule out certain design considerations and did not establish the design inputs used in the design; or (2) the supervisor is the only individual in the organization competent to perform the verification. cursory supervisory reviews do not satisfy the intent of this Standard. [NQA-1 Req.3 §500.a] What/Who (DOE O 414.1D, Att. 2, 6.d): Verify or validate the adequacy of design products using individuals or groups other than those who performed the work. <p><i>This may preclude a sealing P.E. (i.e., in Responsible Charge) from performing as Verifier if they performed work on the output depending on the governing mandate and its conditions. See Professional Engineer.</i></p> <p><i>DV concept in SD330, DOE-STD-1073/1189, P341, AP-341-605, AP-341-620].</i></p>
Designer	Anyone working in a design agency capacity, whether engineer, architect, drafter, or designer. See also Design Agency, DPIRC, and EOR. [ESM Ch. 1, Z10] <i>Within LANL engineering line organizations, may be a job title.</i>
Desktop Instruction (DI)	<ol style="list-style-type: none"> A Local Document that applies to workers within one ALD or one facility. The document is only used by one organization or facility to define and implement their processes. [SD311 Policy System] Information suitable for use at or on a desk or computer (such as a background area of a computer screen or monitor) that guides or aids a worker to perform specific tasks. [LANL Definitions for archived PD311] <p><i>ES DIs and forms are here. See also Work Instruction herein. DIs and WIs are largely the same idea, but by definition DIs are not really appropriate for non-desk location work whereas WIs could serve almost any procedural need not rising to an AP or policy. Note: In the past, some WIs and DIs were considered guidance; going forward, each new or revised WI or DI should be clear on expectations.</i></p>

Developing a Curriculum (DACUM)	A method that allows training teams to tailor managerial expectations to the printed job descriptions. [DOE-HDBK-1076-94 (Reaffirmed 1999), Table-Top Job Analysis]
Difficulty, Importance and Frequency (DIF) analysis	Once the task inventory, performance, conditions and standards have been identified, tasks and sub-tasks in the Role Performance Statement (RPS) will be subject to a DIF Analysis. The DIF analysis will be carried out in conjunction with SME to determine the priorities for learning design and development
Directives	Documents in which DOE sets, communicates, and institutionalizes policies, requirements, responsibilities and procedures for Departmental elements and contractors. Directives include Policies, Orders, Notices, Manuals, and Guides. Manuals are currently being phased out. [DOE O 251.1D AdmChg1]. <i>Mandatory DOE and NNSA directives are listed and hyperlinked in the LANL Prime contract. Links: All DOE directives and Guides; NNSA directives.</i>
Discovered Condition Evaluation and Closure (DCE)	A DCE process is initiated upon completion of Immediate Operability Determination (IOD) and/or Prompt Operability Determination (POD) after discovery of degraded or nonconforming condition in Safety Class (SC) or Safety Significant (SS) SSCs of Hazard Category 2 or 3 nuclear facilities. [AP-341-516 r3.1]
Document	At the Laboratory, a document includes information, regardless of medium or characteristics, received or created in the course of business, including but not limited to procedures, work instructions, specifications, drawings, plans, forms, and change documents. Informal and preliminary working notes are generally not document, unless specifically designated by program, QAP, or other requirements. Documents (NQA-1 definition)—Any written, pictorial, or electronic information describing, defining, specifying, reporting, or certifying activities, requirements, procedures, or results. A document is not considered to be a QA record until it satisfies the definition of a QA record (as defined by NQA-1, <i>Quality Assurance Requirements for Nuclear Facility Applications</i>). [P1020-2 r7]
Document Control and Records Management	LANL organization responsible for maintaining documents and records (defined terms), or the function of doing so. <i>DCRM is one of the Management Systems in SD309, LANL's System of Management Systems (and iSoMS), and the function is currently in Program Strategy and Execution—Information Management (PSE-IM). RM webpage here.</i>
Documented Safety Analysis (DSA)	A documented analysis of the extent to which a nuclear facility can be operated safely with respect to workers, the public, and the environment, including a description of the conditions, safe boundaries, and hazard controls that provide the basis for ensuring safety. [10 CFR § 830.3]. For the purposes of answering USQ Screening Questions and USQD Questions, the DSA is understood to include DOE-approved and implemented amending documents, such as, Safety Basis Amendments and SERs containing Conditions of Approval. Changes associated with USQ determinations and associated safety analyses, including supporting safety analyses for any DOE-approved changes to a facility, and JCOs, are treated as part of the safety basis until incorporated into the approved DSA. [DOE O 421.1 draft 2023-11-16]
Document Name	Document's unique identifier. Also, can refer to the concatenation of abbreviations and numbers that make up the document's unique identifier. Can be equivalent to 'document number'. [AP-341-402]

Document Number	Document's unique identifier. Also, can refer to the concatenation of abbreviations and numbers that make up the document's unique identifier. Can be equivalent to 'document name.' [AP-341-402]
DOE Enterprise	The entirety of DOE/NNSA facilities and functions including Headquarters plus Offices, Labs, and sites . Phonebook for many personnel here or via Powerpedia here .
DOE Order	See Directive herein (which includes Guides, Notices, Manual).
DOE Standard	Document issued by the DOE Technical Standards program (TSP). <i>May be a DOE-STD, handbook (DOE-HDBK-), NNSA standard (DOE-NA-STD-), or DOE-SPEC. Some are mandated, some adopted, and others not applicable; see the Applicable and Invoked Standard topics herein. The TSP includes provisions for topical committees which are fairly similar to communities of practice (CoP).</i>
Drawings	The part of the Subcontract that graphically shows the scope, extent, and character of the Work to be performed by Subcontractor. [CoE adaptation of EJCDC® C-700, <i>Standard General Conditions of the Construction Contract</i> (2013), Para 1.01.A.] <i>National CAD Std v6 defines as: Graphic and pictorial portions of the documents showing the design, location, and dimensions of the project, generally including plans, elevations, sections, details, schedules, and diagrams.</i>
E	TOP
Electrical Investigation Worksheet	Part of the Design Change Form. For modifications involving Electrical Distribution System (EDS) panels and circuits. Identifies EDS panels and circuits and other safety systems affected by the modification. Assists in defining lockout/tag out requirements. [AP-341-517] <i>System IDs other than EDS are also present; see ESM Ch. 1 Sec. 200.</i>
Electrical Temporary Modifications	Temporary cables, jumper wires, lifted leads, pulled fuses, open terminal blocks, disabled annunciators, and temporary set point changes not part of routine maintenance, testing, or operating procedures. [AP-341-504]
Electric Power Research Institute (EPRI)	EPRI conducts R&D relating to the generation, delivery, and use of electricity (with a strong nuclear focus). <i>Membership is very costly, and LANL/DOE lacks such, but some (mostly older) documents have been publicly released; CoE has a partial collection.</i>
Electronic Document and Records Management System (EDRMS)	A system that provides document control and records management services to organizations throughout the Laboratory. The EDRMS is used to access work control documents, such as procedures, drawings, and specifications, enabling workers to obtain the most recently approved version of a document needed to perform work. [P1020-1 , r14] <i>LANL homepage link is under Top Tools. Supports PDF previews, advanced searching, to locate and view records. The Centralized Repository is the most used by engineering. Guides and help may be available from UTrain course 38870 and es-edrms@lanl.gov Access to some cabinets is controlled by request; contact above or EDRMS support helpdesk at 667-3367 or AskIT. Runs on Documentum D2 software.</i>

EMRef-XX	An engineering manual reference ID; a document type used within the Standards Program (primarily Engineering Standards Manual bases) and this Glossary to sequentially number obscure references such as memos to allow organized storage on the server and simplified referencing. [ESM Ch. Z10].
Energy Facility Contractors Group (EFCOG)	Collaborative group of DOE contractors. <i>Of CoE interest, includes (1) Engineering Practices Subgroup (under Ops WG; includes Fire Protection and Pressure Safety Communities of Practice; LANL participates) and (2) Procurement Engineering CoP under Safety WG's QA Subgroup. Groups sometimes produce meeting minutes, "Best Practices," or other documents that get posted.</i>
Engineer of record (EOR)	Often the same as DPIRC but term may also be used for the designer for a portion of the whole (e.g., structural). [ESM Ch. 1, Z10, IBC-GEN]
Engineered (or Engineering) Controls	Controls that eliminate or reduce exposure to a hazard through the use or substitution of engineered machinery or equipment. Examples include self-capping syringe needles, ventilation systems such as a fume hood, sound-dampening materials to reduce noise levels, safety interlocks, radiation shielding, process set points, and operating limits. [DOE G 450.4-1C , Integrated Safety Management System Guide; ESM Ch. 21, SOFT-GEN]
Engineered Safety Feature (ESF)	SSCs that prevent and/or mitigate the consequences of potential accidents described in the Documented Safety Analysis (DSA). [DOE O 426.2A] <i>At LANL, these would be part of a Vital Safety System; see that definition and graphic that follows the "Z" definitions.</i>
Engineering Service Request (ESR)	Online request/tracking program for Facility CoE-using line organizations. <i>Submit Request. Agent Login. Project Engineer ESR User Guide (pdf)</i>
Engineering	The <u>application of science and mathematics</u> by which the <u>properties of matter</u> and the <u>sources of energy</u> are <u>made and maintained useful to humans</u> in <u>structures, systems, components, and processes</u> ...in an efficient, safe, and secure manner through (1) the appropriate application of regulations, industry codes and standards, DOE Orders and standards, and (2) the education, skills, training, and judgment of engineering professionals. [CoE circa 2010] <i>Note: The "practice of engineering," however, which triggers the need for the sealing (PE stamping) of design by an external-to-LANL engineer, is based in adopted New Mexico law and defined by ESM Ch. 1 Z10.</i>
Engineering Leadership Council (ELC)	"A leadership group with diverse representatives from almost all engineering organizations at the Laboratory. The ELC is focused on fostering, assuring, and championing engineering capabilities at LANL." CY25 goals are (1) <i>improve quality of life (mentoring, inclusion, retention)</i> ; (2) <i>increase visibility (recognition, strategy and opportunities, professional development)</i> , and (3) <i>enable infrastructure (innovation hub/sprints, engineering software, common processes)</i> . Webpage includes top tabs and links for new hires, mentoring, Engineers Week (February), news, other things.
Engineering LibGuide	LANL Research Library compendium webpage of resources of interest to engineers. <i>Has both discipline-specific and resource-centric (e.g., ebooks, databases of documents) webparts to help locate needed information. Note, for a specific document, a Library Catalog search on their homepage may yield results more comprehensively.</i>

Engineering Manager (EM)	A supervisor of staff providing engineering in the line organization (per an organization chart). See also Facility Engineering Manager.
Engineering Request for Information (ERFI)	Form that may be used when design information is being requested either from within the design team or from external interfaces. The ERFI may be used during any phase of the project. The ERFI is not a design revision document (see AP-341-519 <i>Design Revision Control</i>) but may be used as a vehicle to clarify design within the bounds of the design requirements and scope. The ERFI is not to be confused with the Request for Information from AP-850-300 <i>Technical Subcontract Management</i> . The ERFI is for internal LANL use, while the RFI is for use between subcontractors and LANL. [AP-341-627r2] <i>Provides for controlled identification, notification, and resolution of technical questions initiated by project personnel (Project Management, Design Engineering, Procurement, etc.). Per SD350, when self-perform, Field Engineers handle form/liaison between engineering and Superintendents.</i>
Engineering Service Request (ESR)	Web-based system that “provides a single process to capture all work into the Engineering Services Division, as well as offers our customers a mechanism to track the status of their projects.” <i>Request and agent links are on the ES Division homepage and those of other facility engineering organizations. Project engineers, see DI-ES-EPD-007, Project Engineer ESR User Guide (pdf).</i>
Engineering Services (ES Division)	LANL division that is home to groups for Facility Operations (LANL-wide except for plutonium and waste facilities), Fire Protections, and Project Delivery, as well as the Conduct of Engineering and LANL Building Code program offices. “Provides facility-engineering support for our customers in an innovative, effective, and customer-focused manner. ES maintains a wide array of subject matter expertise in Architectural, Electrical, I&C, Mechanical, Pressure Safety, Welding, Fire Protection, Civil, and Structural Engineering.” [2024-11-125].
Engineering Standards	The manuals and collections that constitute the LANL technical standards mandated by P342, <i>Engineering Standards</i> .
Engineering Standards Manual (ESM)	STD-342-100 , the primary LANL Engineering Standards document containing the comprehensive design criteria and a few technical/administrative programs for all project types. See also Tailored Standards Manual .
Engineering Standards Discipline POC aka Standards POC	Every document in the Standards set has one person responsible for its upkeep and user assistance. The LANL Site Chief Engineer designates a POC for most subject areas of the Engineering Standards including civil, architectural, structural, mechanical, pressure safety, etc. The Owners (SMPOs) of other LANL Safety Management Programs (e.g., fire protection, radiation protection , electrical safety) and Security designate POCs in their areas of responsibility. [P342; ESM Ch. 1, Sections Z10 and 100] <i>It is generally all a discipline’s documents; however, there may be POCs for different scopes (e.g., Specs & Details). Listed on the ESM, Standard Detail, and POC/Technical Committee webpages along with any Alternate POCs and the SMPO. Described by ESM Ch. 1 Section 100. <i>This is not the same role as Lead SME (search “LSME”), although often that person is also the POC.</i></i>
Engineering Standards SME	Assists the POC role as requested. Often listed on the POC/Technical Committee webpage .

Environmentally Preferable Products (EPP)	Products with specific environmental or energy attributes. <i>Sustainable acquisition, or "green purchasing," refers to purchasing same. ESM Chapter 14 (e.g., Section G), its Attachment 1, and the chapter resources include requirements and guidance for the required sustainable acquisition.</i>
Environmental qualification (EQ)	A process to ensure SSCs perform intended function under normal and off-normal conditions. [ESM Ch. 1, Z10] <i>See Z10 subsection by this title.</i>
Ergonomics	Also known as human factors or human factors engineering, is the application of psychological and physiological principles to the engineering and design of products, processes, and systems. [Wikipedia]
Equipment	Assembly of components viewed as a functional entity within a system for providing a specific function within it. <i>Equipment is listed in LANL CMMS with a unique equipment tag.</i> [ESM Ch. 1 Section 200; AP-341-502]
Equipment and Infrastructure List (EIL)	A database developed to track work/upgrade activities for TA-55. <i>Segments of such work, and corresponding asset, will have an associated EIL number (e.g., 0787 or simply 787).</i>
Equipment Important to Safety	For the purposes of answering USQD questions, equipment important to safety includes the SC/SS SSCs identified in the DSA and any equipment whose function, malfunction, or failure can affect safety functions of safety Structures, Systems, and Components (SSCs) or Specific Administrative Controls (SACs) described in the DSA. [DOE O 421.1 draft 2023-11-16] <i>At LANL, this is typically called a Vital Safety System.</i>

Equivalencies	<p>Alternatives to how a requirement in a directive is met in cases where the “how” is specified. These represent acceptable, alternative approaches to achieving the goal of a directive’s requirement. [DOE O 251.1D Chg 1 (Admin Chg), Departmental Directives Program; ESM Ch. 1 Z10; P310-1] <i>In CoE, this term is used when DOE/NNSA-directive-based matters arise; generally from and discussed in DOE O 420.1C 3.c.; otherwise, CoE uses “Alternate Method.” For fire matters, see DOE-STD-1066 also.</i></p> <p><i>DOE G 420.1-1A, 5.4.16 provides the following:</i></p> <p><i>Justification of equivalent codes and standards should demonstrate that the proposed design of the SSCs meets, or exceeds, the level of safety (e.g., meets, or exceeds, the level of protection) provided by the normally applied codes and standards. Evaluation of the level of safety should address:</i></p> <ul style="list-style-type: none"> • <i>Critical safety attributes of the SSCs;</i> • <i>Critical characteristics of the SSCs that are important to design, material, and performance of the SSCs;</i> • <i>The reliability of safety SSCs; and,</i> • <i>The margins of safety to failure of the SSCs (e.g., pressure, temperature, environmental conditions, and other design loads) provided by application of the code.</i> <p><i>For individual components, equivalency should be demonstrated by defining and verifying that the substitute component meets or exceeds these characteristics. Equivalencies should be well documented with a technical basis and should receive peer review by a technically capable and experienced designer.</i></p> <p><i>From DOE EHSS PC Portal FAQs [2024-8]:</i></p> <p><i>Requests for variances from the requirements of 10 CFR Part 851 must be made in accordance with 10 CFR Part 851, Subpart D. More information on variances are found at the eVariance website.</i></p> <p><i>Interpretive rulings regarding 10 CFR Part 851 that are binding on DOE may only be made by the Office of the General Counsel. Those who wish to request such a ruling must follow the procedures described in 10 CFR Part 851, Section 851.7.</i></p> <p><i>Requests for exemptions or equivalencies for DOE Directives requirements must follow the procedures in the specified Order, or if there are no such procedures in the specified Order, the procedures for exemptions or equivalencies in DOE O 251.1D must be followed. Requests for exemptions from DOE Nuclear Safety Requirements must be submitted in accordance with the requirements of 10 CFR Part 820, Subpart E, and requests for interpretations of the Atomic Energy Act, Nuclear Statutes, and DOE Nuclear Safety Requirements must be submitted in accordance with the requirements of 10 CFR Part 820, Subpart D.</i></p>
Equivalency Evaluation	<p>A technical evaluation performed to confirm that a replacement item (not identical to the original) can satisfactorily perform its intended functions, including its safety functions. [AP-341-503] See Guidance on Technical Evaluations and Item Dedication in the Engineering Learning Guide collection.</p>
Equivalent Quality Assurance Program	<p>An equivalent quality assurance program that is alike in scope and implementation to SD330. [AP-341-513]</p>

Equivalent Replacement	A replacement item not physically identical to the original. These items require equivalency evaluation to ensure that the intended functions, including its safety functions will be maintained. [AP-341-503] See Guidance on Technical Evaluations and Item Dedication in the Engineering Learning Guide collection.
Examination	<ol style="list-style-type: none"> 1. In ASME pressure safety work, <u>quality control</u> work performed by the manufacturer, fabricator, or erector. <i>Inspection is a second layer of QA over this.</i> 2. In nondestructive examination, a procedure for determining a property (or properties) or other conditions or characteristics of a material or component by direct or indirect means. [ASTM E1316-24]
Examiner	In ASME pressure safety work, an “individual with the training and experience commensurate with the needs of the specified examinations. It is the person who performs the <u>quality control</u> examinations and is performed by the manufacturer, fabricator, or erector.” [ASME B31.3; ESM Ch. 17]. <i>Oversight of such examinations is by an Inspector.</i>
Example Design	<p>A multi-discipline set (as opposed to a single-drawing-type example) in the LANL Engineering Standards STD-342-400 collection illustrating a package that met expectations (e.g., completeness, quality, formality, professionalism).</p> <p><i>While such a package might be acceptable when issued, one should not assume that all aspects of it would be acceptable today. Expectations change with time, including required codes and standards, title blocks, and other matters.</i></p>
Example Drawing	<p>A depiction of acceptable content and format for a given construction drawing type in the LANL Engineering Standards STD-342-400 collection. [ESM Ch. 1, Z10] (<i>The STD-342-400 collection also includes Standard Details (repeatable design templates).</i>)</p> <p><i>They depict acceptable content and format for various construction drawing types such as electrical one-lines, floor plans of record, and various other diagrams. Projects must meet these expectations; however, the systems depicted are fictitious and not templates to be used like the ST series. As such, only pdfs are provided.</i></p> <p><i>Example Drawings are generally numbered “X-YYYY” (becoming “EX-X-YYYY”). In the string “X-YYYY”, the X is generally the Discipline Code for the sheet given by CAD Standards Manual Section 209, §2.0 (e.g., A=Architectural, M=Mechanical). The YYYY generally refers to the Sheet Type designator, for example, the 6YYY series is for diagrams, so 6000, 6001, and so on (or similar) is used for uniqueness. Thus, the LANL ID roughly corresponds to how a project’s similar sheet might be identified in a drawing package. Notes: Example Drawing numbers are gradually being prefaced with “EX.” Also, for electrical, not all existing numbers follow the CAD sheet approach but are being made to do so over time.</i></p>
Excavation/Fill/Soil Disturbance Permit Request (EXID)	Excavation/fill/soil disturbance request tool includes utilities locates, and may be accessed through the Integrated Review Tool/ IRT . [P101-17]

Executive Order (EO)	Directive from the White House to heads of departments. <i>These are not self-invoking to DOE contractors; direction to implement them is normally through directives (e.g., DOE orders incorporated into contract or from field office contracting officer letter). Can be searched here.</i>
Exemption	A release from compliance with one or more requirements in a directive, as granted by the exempting organization's Head of the Departmental Element. [DOE O 251.1D Chg 1 (Admin Chg), Departmental Directives Program ; ESM Ch. 1 Z10; P310-1] <i>In CoE, this term is used when DOE/NNSA-directive-based matters arise; generally from and discussed in DOE O 420.1C 3.c.; otherwise, CoE uses "Variance." For fire matters, see DOE-STD-1066 also. See also EHSS PC Portal FAQ info at Equivalencies.</i>
Exhibits	<p>Segments of a LANL procurement contract. <i>From approximately 2006–2022, the following exhibits were employed (since then, generally only exhibits F–H, maybe I, and the SOW present with other (e.g., A–E) content included but not as exhibits):</i></p> <ul style="list-style-type: none"> • General Conditions (was Exhibit A) • Special Conditions (was Exhibit B) <ul style="list-style-type: none"> ◦ Latest are in Ariba and ASM's limited-access googledocs directory (current terms & conditions here); older versions of above here. • Technical Requirements (was Exhibit D) -- see Statement of Work (SOW) in Glossary. (Ex. D–I, but more likely D&E is considered the SOW per P850). • List of Drawings or Subcontract Reference Documentation (was Ex. E) <p><i>For the following, follow links included:</i></p> <ul style="list-style-type: none"> • Environmental, Safety and Health Requirements (aka Exhibit F) • Physical Security Requirements (aka Exhibit G-Physical) • Cyber Security Requirements (aka Exhibit G-Cyber) • Quality Assurance Requirements (aka Exhibit H, see definition below) • Subcontractor Submittal Requirements (aka Exhibit I) which works with LMS 01 3300 Submittal Procedures (for engineering and quality submittals)
Exhibit H	Procurement document prepared by the P-TSME and approved by a P-QSME. This Exhibit contains the QA requirements applicable to the procurement of items and/or services. [P841-1] Online: Exhibit H .
Existing Data	<p>Data determined to be necessary for activities specified in Part I (of ASME NQA-1) but developed prior to the implementation or outside of Part I; or data published in scientific publications. Existing data does not include information that is accepted by the scientific and engineering community as an established fact (e.g., engineering handbooks, density tables, gravitational laws, etc.). [NQA-1; NQA-1 App. 3.1, AP-341-511, AP-341-513]</p> <p><i>Note: LANL adopted a site-wide ASME NQA-1 program with the issue of SD330, R2, (eff. 9/25/2012), LANL Quality Assurance Program, as such, data older than 9/25/2012 may be indeterminate. More recently, SD330 allowance for non-NQA-1 consensus standards or tailored NQA-1 usage still maintains assurance of data quality.</i></p>

Extent of Condition Evaluation	An analysis used to determine the actual or potential applicability for a same or similar causal factor, condition, and/or issue to exist in other activities, projects, programs, facilities, or organizations. [P322-4 r18 Chg. 2]
External Design Agency (EDA)	An organization independent from LANL that provides design products to LANL (Architect-Engineers, design-build contractors, other DOE sites, equipment fabricators, and vendors). [AP-341-620]
F	TOP
Fabricator	The firm fabricating structural elements of concrete, steel, or other metal (and generally offsite). [ESM Ch. 16 IBC-GEN]
Facilities Information Management System (FIMS)	DOE/NNSA's Real Property Database of Record. [SD 430.1C]

Facility

Improvements, structures, and fixtures located thereon (including prefabricated movable structures, such as Butler-type storage warehouses and Quonset huts, and house trailers with or without undercarriages), and appurtenances thereto. [adapted from 41 CFR 102-71.20 definition of real property].

At LANL, utilities are defined as separate from facilities, but both are real property by above definition. Other than real property, the other major category of SSCs in DOE/NNSA/LANL context is Personal Property.

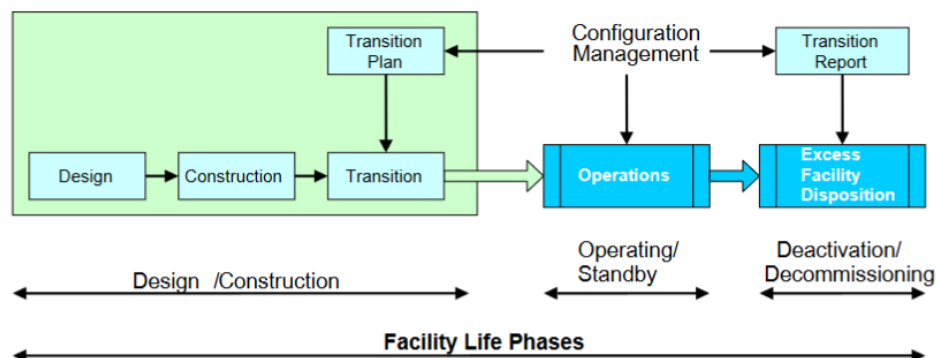
Historical definitions for facility:

From former DOE Order 4330.4B: A synonym for Real Property and Installed Equipment. RP&IE is the land, improvements on the land such as buildings, roads, fences, bridges, and utility systems and the equipment installed as part of the basic building construction that is essential to normal functioning of a building space, such as plumbing, electrical, and mechanical systems. This property/equipment is also referred to as institutional or plant and was formerly known as Class A.

Note: In nuclear space, DOE O 420.1 and 10CFR830 uses facility to include all activities that occur within the facility also.

From old *Acquisition and Project Management Glossary of Terms Handbook*: Any building, structure, or other improvement to real property including their functional systems and equipment; site development features such as landscaping, roads, walks, and parking areas; outside lighting and communications systems; central utility plants; utility supply and distribution systems; and other physical plant features. [compiled from DOE O 430.1; NA SD 430.1; 10 U.S.C. Sec. 2801(c)(1); and DOE G 413.3.21] *Note: ESM Ch. 1 Z10 and Section 200 consider utilities and site/horizontal infrastructure to be distinct from facilities.*

From DOE-STD-1066-2023 and former DOE-HDBK-1188, *Glossary of Environment, Safety and Health Terms*: FACILITY. Any equipment, structure, system, process, or activity that fulfills a specific purpose. Facilities do not have to be structures. Examples include accelerators, storage areas, fusion research devices, nuclear reactors, production or processing plants, coal conversion plants, magneto-hydrodynamics experiments, windmills, radioactive waste disposal systems and burial grounds, environmental restoration activities, testing laboratories, research laboratories, transportation activities, and accommodations for analytical examinations of irradiated and unirradiated components. [ESM Ch. 1, Z10; Ch. 13, Vol. 1, 1-99]



Credit: P341 r7

Facility Conduct of Engineering (FAC-COE)	The LANL program devoted to the LANL Engineering Standards and CoE for facilities, and when nuclear facilities, certain processes within them, as set forth in PD340 .
Facility Design Authority (FDA)	There is one LANL Site Chief Engineer Facility Design Authority and may be one or more Facility Specific Facility Design Authority; they are appointed by ALDFO to implement Conduct of Engineering within their designated scopes. [PD340 r8]. <i>Design Authority is defined separately; FDAR is below.</i>
Facility Design Authority Representative (FDAR)	Responsible for approving design inputs, implementing design control, approving design outputs, approving design requirements and design configuration, and identifying and maintaining technical baseline documents for a facility or project. Has the primary responsibility of assuring integration of safety and security into the design process. Qualified individuals are designated by the LANL Design Authority (or Site Chief Engineer) for each facility or project. <i>Complete listing of DARs is here. The CoE Training and Qualification program with P343 describes the training and qualification requirements for the FDAR position.</i> [P341; ESM Ch. 1, Z10]
Facility Design Description (FDD)	A document that defines the facility, its systems and functions. Provides links between design documents, safety basis, and implementing procedures. The FDD focuses on facility structures, systems and components (SSCs), systems that are facility-wide, that are not subject of a System Design Description (SDD), and information that is common to multiple systems. [ESM Ch. 1, Z10, Att. D new facility template . AP-341-612 <i>intended for reconstitution of an existing facility where some bases may not be recoverable.</i>]
Facility Engineering Manager (FEM)	A supervisor in the technical organizational line (i.e., on an org chart). FEMs are generally in ES, PFE, or PIE divisions. <i>Most FEMs are also FDARs and vis-a-versa; however, they are different R2A2s and have different qual standards.</i>
Facility Operation Director(ate) (FOD)	One of about six managers responsible for the operation, engineering, and maintenance of facilities and tenants for a functional or geographical portion of LANL. Described here . <i>FOD-by-building, Eng Mgr, and other assignments are in LANL Locator (also Archibus Web Central).</i> [SD900; ESM Ch. 1, 200]
Facility Representative (NNSA)	An individual assigned responsibility by the Field Element Manager (or designee) for monitoring the safe and efficient performance of the site/facility and its operations. This individual is the primary point of contact with the contractor for operational and safety oversight and is responsible to the site's/facility's DOE Line Manager. [DOE O 422.1 Chg 4 (LtdChg) , Conduct of Operations]
Facility Service Request (FSR)	Online system that provides a mechanism for any LANL employee to identify and request work to a facility or SSC. This may include technical services, facility repairs, replacement or modification to real property or programmatic assets. [P950]
Failure Modes and Effects Analysis (FMEA)	An evaluation of an item's credible failure mechanisms and their effect on system and/or component functions. (DOE-HDBK-1230-2019 CGD Application) [AP-341-703] See " A Guide to FMECA " in the Engineering Learning Guide collection.

Federal Acquisition Regulation (FAR)	The primary regulation for use by all executive agencies in their acquisition of supplies and services with appropriated funds. The FAR also contains standard solicitation provisions and contract clauses and the various agency FAR supplements. [GSA] <i>The LANL Prime contract includes selected FAR and DEAR provisions verbatim or modified (and some are passed down to subs in ASM pro forma). While the official prime contract includes such clauses by reference only in Part II Section I, the link below directs you to PCM's working document with full text of all such contractual clauses. Prime Contract I Clauses with full text (modifications included) (pdf). FAR numbering is 52.2XX.</i>
Field Change Request (FCR)	Form used to process field changes for design changes that do not rise to the level of a Design Revision Notice. FCRs may affect multiple disciplines, may affect multiple design documents, may generate new design documents, and may require reviews by multiple organizations. FCRs should not introduce new functions or requirements that exceed those defined in the project definition documents. [AP-341-519]
Field Engineer (FE)	LANL role responsible for ensuring that the technical aspects of construction and maintenance projects are in full conformance with the Approved Project Documents by monitoring facility maintenance and construction activities. This is accomplished by providing input during scoping, design, execution, and project closeout to ensure baseline documents are accurate, design documents are adhered to, and as-built configurations are verified. Field Engineers expedite project execution by identifying issues, coordinating technical solutions, and providing timely guidance to the constructor through approved procedures. [SD350; ESM Ch. 16] SD350 r12 lists detailed R2A2s in section 4.15. ES Div has DI-ES-PD-310 , Field Engineering Design Support. Note: It's possible for a Subcontractor to have personnel with same FE job title.
Final Acceptance	The written acceptance issued to the constructor by the after project has achieved final completion. [ESM Ch. 15]
Final Completion	Occurs when the work is fully and finally completed in accordance with the construction subcontract documents and all deficiencies have been corrected. [ESM Ch. 16 IBC-GEN FM05; Ch. 15]
Final Design	The approved design output documents and approved changes thereto (ASME NQA-1). [AP-341-620] Project design phase marked by completion of the design effort and production of approved design documentation necessary to permit procurement, construction, testing, checkout, and turnover to proceed. (From DOE O 413.3B). The end of final design is marked by CD-3 approval for large projects and is equivalent to 90% review and 100% design completion for smaller projects. [AP-341-620]. Also referred to as Title II .
Final Design Phase	The phase of system/facility acquisition that develops component-level detailed designs that can be procured, manufactured, and constructed. (Begins when Critical Decision 2 [CD-2] is received, ref. DOE O 413.3B) [ESM Ch. 20]
Final Product Validation	The process of confirming that a completed final product meets stakeholder and/or mission requirements and is suitable for its intended use in the actual operational environment – the right final product was built. [ESM Ch. 20]
Finding	A validated violation of a document or codified requirement regardless of the source. [AP-341-901]

Fire Hazard Analysis (FHA)	A comprehensive assessment of the hazards of and potential damage from fire in a building or group of buildings, which takes one of the following forms: (a) Building/Facility FHA that establishes the fire safety of the facility at the time it is issued; (b) Preliminary/Project FHA which establishes the fire protection requirements for a new building or a modification to an existing building; or, (c) Transitional FHA which evaluates the minimum fire protection needs during a major transition from an operating status to some other status. [DOE-STD-1066-2023]
Fire Protection	The concept of reducing injury and loss due to fire. This includes an administrative program (PD 1220 , and definitions therein) and design and construction requirements (ESM Ch. 2, with definitions primarily in D40GEN).
Fire Protection Design Analysis (FPDA)	An engineering analysis for non-nuclear facilities during or preceding the preliminary design to establish fire protection design criteria, including applicable national codes and consensus standards. Updated during the design process, the FPDA provides a comprehensive design review that ensures the fire protection requirements are incorporated into the design. [DOE-STD-1066-2023]
Fiscal year (FY)	The U.S. government financial year that runs Oct–Sept. <i>FY example usage: FY24 or FY2024; 1QFY24 the first quarter of the FY, Oct–Dec. LANL FY closing effort necessitates that some accounting end the last full timecard week of Sept and some purchase accruals even sooner. CY means calendar year, Jan-Dec.</i>
Form 410	Shorthand for ASM document 3041.00.0410, <i>Goods or Services Requiring Special Review and Approval</i> , a listing of items and services that need additional approval to purchase. Found on EDRMS website or ASM Procurement webpage, or directly here . Includes items and/or services controlled by engineering programs including buildings and structures, pressure safety, and welding.
Formality of Operations	The aggregation of the conduct of operations, maintenance, engineering, training & qualification, and any/all other “conduct of” programs.
Function	A task that must be performed. A function statement describes the capability necessary for a facility, system, or component to fulfill its mission. Describe a function using verb/noun combination such as “filter particulate.” A function transforms inputs to desired outputs. In the example of “filter particulate,” the function transforms an input fluid containing particulates into two outputs, the fluid without particulates and the particulates. A function describes what must be done, not how. Every function has at least one requirement associated with it. [AP-341-601, -602; ESM Ch. 21, SOFT-GEN]
Functional	The SSC is functional when it can perform its specified functional requirements and performance criteria. [AP-341-514]
Functional Analysis	A systematic process for determining the capabilities necessary to achieve the desired operational objectives and contract requirements. This process is iterative in nature, generating a hierarchy of functions that can be allocated to implementing SSCs. Also included is a process for decomposing [parsing or separating] a requirement into distinct parts that the project can satisfy through engineering of facilities physical systems and technological elements. [ESM Ch. 20]

Functionality Assessment (FA)	A disciplined evaluation of the ability of an SSC to perform its specified functional requirements and performance criteria upon discovery of degraded condition. [AP-341-514]
Functional Document	[Provides] a subset of workers with greater detail to implement institutional documents. Functional documents must be described in a parent institutional document. Functional documents must not conflict with other institutional or functional documents, unless an exception is approved by the Policy Lead and the IA of the conflicting institutional document. [SD311 r0.1 <i>Policy System</i>]; AP-341-401. <i>Sometimes called Functional Series Documents (FSD). CoE examples are this glossary, the APs, the Engineering Standards, and qual standards.</i>
Functional and Requirements Document (FRD)	Functional and Requirements Document, formerly Functions & Operating Requirements. Required for large projects, FRDs are developed from the Mission Need, Program Requirements Documents, and specific facility characterization data to quantify and qualify project requirements more concisely. [AP-341-601]. <i>Not required in some cases and, when present, a precursor to the RCD, although this may be changing in 2025.</i> [ESM Ch. 11]
Functional Requirement	Requirements assigned to safety related SSCs that will ensure the Safety Function is met. Derived from hazard analysis and/or accident analysis and are defined and documented in facility safety analysis documents. [AP-341-607, AP-341-610, ESM Ch. 20]
Functional Specification	A document that specifies the final product to be delivered by a project. The definition identifies, in quantifiable terms, the final product boundaries, interfaces, functionality, performance, constraints and other specific requirements. At LANL, the functional specification need is met by the FRD and RCD. [ESM Ch. 20]
Functional Testing	Testing of a component or subsystem against prescribed acceptance criteria, based on the owner's project requirements, vendor documentation, or industry standards to ensure that the SSC's functions and follows a prescribed sequence of operations according to the predetermined design requirements. [ESM Ch. 15]
G	TOP
General Documents	Technical documents that are not categorized as Priority or Support Documents but provide engineering details to support work activities within a facility. [AP-341-405; ESM Ch. 1, Z10. Supersedes VAR-10642]
General Plant Project (GPP)	See Minor Construction Project

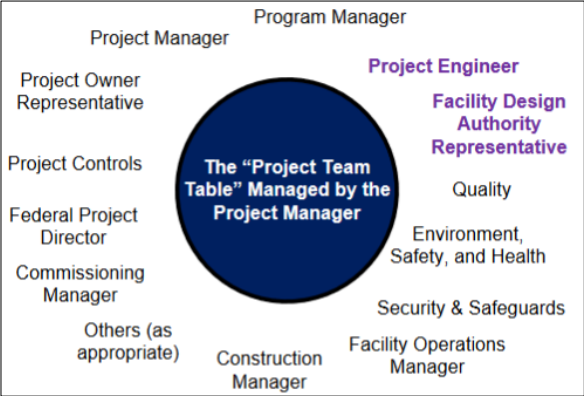
General Test Criteria (GTC)	<p>A set of parameters that are observed or measured during a test: (1) to determine if functional or performance requirements are met for a non-safety or non-permitted component, system, or integrated set of systems; or (2) to confirm an assumption used as a basis for design of such items.</p> <p>GTC can be either qualitative or quantitative. They are established only for those parameters that need verification through test and have a set of limits that are established by design. GTC specify the location of measurement or the conditions for a test if it is necessary to provide a context for validation of the parameter. GTC can be expressed as an upper limit, lower limit, or a range (e.g., not to exceed 40 ft per minute, not less than 40 feet per min, or 40 feet per min $\pm 10\%$). GTC is the term applied to test criteria used to confirm compliance with requirements other than nuclear safety and regulatory permit requirements. [ESM Ch. 20]</p>
Glovebox (GB)	A controlled environment work enclosure providing a primary barrier from the work area. The operation is performed through sealed, gloved openings to protect the worker, the ambient environment, and/or the product. [DOE-STD-1066-2023]
Government Furnished Equipment (GFE)	LANL-furnished property, products or in general to describe any LANL-furnished equipment for installation by the Construction Subcontractor in the work or used in its performance. [LMS 01 4216] <i>ASM's Subcontract documents use "CONTRACTOR-furnished" so that is potentially preferable (while not typical in government work).</i>
Graded Approach	The process of ensuring that the level of analysis, documentation, and actions used to comply with a requirement in this part are commensurate with: (1) The relative importance to safety, safeguards, and security; (2) The magnitude of any hazard involved; (3) The life cycle stage of a facility; (4) The programmatic mission of a facility; (5) The particular characteristics of a facility; (6) The relative importance of radiological and nonradiological hazards; and (7) Any other relevant factor. [10 CFR 830.3; SD330; ESM 15, Ch. 5 Section I]
Guide	A document that provides recommended non-mandatory methods for accomplishing a task. Guides use terms such as "should" to express an expectation or "may" to identify a permitted method rather than compliance terms such as "must", "shall", or "will". [AP-341-401] <i>The DOE directives program includes Guides here.</i>
Guiding Principles, The (GP)	The group of criteria defined by Guiding Principles for Sustainable Federal Buildings and Associated Instructions issued by the Council on Environmental Quality in December of 2020. Often referred to as "The Guiding Principles," the document outlines a set of sustainable principles and practices to guide agencies in designing, locating, constructing, maintaining, and operating Federal buildings in a sustainable manner. [ESM Ch. 14]
H	TOP
Hazard	A source of danger (i.e., material, energy source, or operation) with the potential to cause illness, injury, or death to a person or damage to a facility or to the environment (without regard for the likelihood or credibility of accident scenarios or consequence mitigation). [DOE-STD-3009-2014]

Hazard Category (HC)	<p>A designation relating to risk to worker or public yielding DOE and/or LANL requirements to prevent and/or mitigate those risks. [SBP111-1 r7]</p> <ol style="list-style-type: none"> 1. <i>For non-nuclear, the categories are Accelerator, Biological, Chemical (with 4 levels), Explosives, Firing Range, Nature of Process, and Standard Industrial. Standard Industrial Hazard means under the thresholds in Figure A-1 of DOE-HDBK-1163-2020, Integration of Hazards Analyses. Some of the above HCs refine the former system (High, Medium, Low, Less-than-low, etc).</i> 2. <i>For nuclear, HC is per 10 CFR Part 830, Subpart B, App. A Table 1; DOE-STD-3009; and the DOE-STD-1027 category (1, 2, or 3) or “Below (less than) Hazard Category 3 (<HC-3) or Radiological.”</i> <p><i>From 10 CFR 830.3: Nuclear facilities meet the criteria for their respective HC consistent with the provisions of DOE-STD-1027-92, Chg 1. HC 1, 2, and 3 DOE nuclear facilities are required to have safety bases established in accordance with Subpart B of this part. Hazard categories are based on their radioactive material inventories and the potential consequences to the public, workers, and the environment. HC 1 represents the highest potential consequence and HC 3 represents the lowest potential consequence of the facilities required to establish safety bases.</i></p> <p>[ESM Ch. 1, Z10; Ch. 5; Ch. 13, Vol. 1, 1-99]</p>
Hazardous material	<p>Any solid, liquid, or gaseous material that is toxic, explosive, flammable, corrosive, or otherwise could adversely affect the health and safety of the public or workers or harm the environment. [DOE-STD-3009-2014, ESM Ch. 5 Section I]</p>
Hazards Controls	<p>Hazard controls mean measures to eliminate, limit, or mitigate hazards to workers, the public, or the environment, including:</p> <ol style="list-style-type: none"> 1. Physical design, structural, and engineering features. 2. Safety structures, systems, and components. 3. Safety management programs. 4. Technical safety requirements; and 5. Other controls necessary to provide adequate protection from hazards. <p>[10CFR830; ESM Ch. 21, SOFT-GEN]</p>
High-Hazard Work	<p>When maintenance, work involving a high-hazard environment and/or an extensive planning effort. This work process is further described in AP-WORK-002, <i>Work Planning</i>. [P950]</p>
High-level Requirement	<p>Functional and performance requirements and mission objectives that are normally defined by the customer in their technical requirements documents. Also included are technical requirements from regulations, directives, policies, and other customer and corporate documents. [ESM Ch. 20]</p>
Hold Point (Inspection, Test, or Other)	<p>A mandatory verification point in the sequence of work that is designated for review, which work must be held pending arrival of the designated organization. It cannot be bypassed without the specific release by an approved Hold Point Waiver. [P330-8; LMS 01 4000] <i>When QD-09 Hold Points is invoked in Exhibit H Part 1 / IQPA-IQ-FD-105, constructor must notify LANL within 7 days for offsite work, 2 days for onsite. See also Witness Point in this glossary.</i></p>

Hold Point Waiver	As described in applicable work control documents (e.g., field change, design change process), documentation approved by authorized personnel that govern the configuration management for the item and state that a specified Hold Point may be waived. [P330-8].
Horizontal infrastructure	Structures that are longer than they are tall (e.g., roads, parking lots, bridges, tunnels). This is opposed to vertical infrastructure (e.g., shelters, benches, bicycle racks, trash receptacles, bus stop signs and poles, accompanying vegetation and landscaping, and park & ride facilities). <i>LANL may refer to vertical construction, a general term for buildings and such, as vertical infrastructure.</i>
I	TOP
ICC-IAS	ICC International Accreditation Service, Inc. [IBC; ESM Ch. 16.]
Identical item	An item that exhibits the same technical and physical characteristics (physically identical). [AP-341-503]
Identification String (IDS)	The system-subtype-sequence number ID-string used for numbering and labelling. Formerly called component location identifier (CLI). [ESM Ch. 1, 200]
Immediate Operability Determination (IOD)	<ol style="list-style-type: none"> 1. Process performed immediately or soon after discovery of a degraded or nonconforming condition relating to an in-service safety SSC. [AP-341-516 r3.1] 2. An operability determination made immediately and in a controlled manner using the best available information upon discovery of a degraded or nonconforming condition of an operational safety SSC. While IOD is based on limited information, the information should be sufficient to conclude that there is a reasonable expectation that the SSC is operable. Reasonable expectation does not mean absolute assurance that the SSC is operable. Reasonable expectation means that from the evidence collected, the SSC is operable and a Prompt Operability Determination (POD) will support this expectation. [LANL Definition of Terms, 2024-8-15] <p><i>Satisfactory performance of Surveillance Requirements (SRs) is usually sufficient to demonstrate operability. However, if conformance to criteria in the approved safety basis documentation that are both necessary and sufficient to establish operability cannot be established with reasonable expectation, then performance of SRs may not, by itself, be sufficient to demonstrate operability. An example of when a successful surveillance would not be sufficient to establish operability is the satisfactory completion of SRs but with results showing a degrading trend and indicate that the acceptance criteria might not be met before the next surveillance test. In such a case, a Prompt Operability Determination (POD) is necessary following the IOD. [AP-341-516 r3.1]</i></p>
Important to Defense in Depth (IDID)	An SSC who's preventive or mitigative function is a contributor to multiple layers of safety as determined from safety analyses. Adapted from 10CFR830.3; DOE-STD-3009-2014; AP-341-802. <i>See graphic that follows the "Z" definitions herein, and Defense in Depth.</i>

Implementation Verification Review (IVR)	A FOD or independent review of the implementation (or partial implementation) of safety basis changes, including page changes, new safety basis documents, safety basis revisions, NNSA conditions of approval, positive unreviewed safety question determinations, discovery condition Unreviewed Safety Question Determinations, justifications for continued operation, and Laboratory recommended actions approved by the NA-LA. [PD115]
Implemented Changes	Changes posted against facility technical baseline documents that have been implemented, tested, and accepted by Operations. [AP-341-402]
Implementing Document	A document (e.g., procedure, specification, drawing, etc.) that satisfies a requirement. [ESM Ch. 20]
Important to safety (ITS)	See <i>Equipment Important to Safety</i> , also see Other Hazard Controls . [ESM Ch. 12]
Informational Submittals	Written or graphic information and physical samples that do not require the Design Agency EOR's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are indicated in Attachment A - Construction Submittal Log or may also be indicated in the individual Specification Sections. [LMS 01 3300 r7]
Information Handling Services	The IHS Engineering Workbench online code and standard service was the predecessor product name of Accuris's EWB . Access here .
Infrastructure	Horizontal constructions (e.g., roads, parking lots, bridges, tunnels, sidewalks, fencing, stormwater management) and, in some cases, vertical construction (buildings and other structures). [ESM Ch. 1 Z10] <i>Use of INFR in document metadata instead of a building number is appropriate for roads and UTIL for such not associated with a structure (and MULT for multi-structure).</i> [AP-341-402]
In-Service Inspection (ISI)	<ol style="list-style-type: none"> 1. Inspections of design features to ensure that the operability and quality of design features and their support systems are maintained. [DOE O 421.1 draft 2023-11-16] 2. The in-service inspection program ensures the performance of design features in safety basis documents. An ISI procedure is used to ensure that these passive design features are inspected to satisfy the intended safety function. [ALDWP PA-AP-01000 Document Control Processes r27]
Inspection	<p>Examination or measurement to verify whether an item or activity conforms to specified requirements [ASME NQA-1/P330-8].</p> <p><i>Includes inspections done by LANL or LANL-approved party for conformance to the design and LANL Standards, including those required by the IBC and ASME.</i></p> <p><i>In offsite IBC structural work, LANL (as Owner) may allow for much of their verifier/QA Inspector role for IBC Ch. 17 special inspection to the fabricator given sufficient independence (third party company or corporate autonomy), ref. IBC 1704.2.5 and ESM Ch. 16 IBC-GEN, IBC-IP, and IBC-FAB].</i></p> <p><i>Note: Examination as used above and below is in a generic sense; in ASME pressure safety codes, Examination has specific expectations.</i></p>

Inspector	<ol style="list-style-type: none"> 1. In ASME pressure safety codes, a “qualified person who verifies all required examinations and testing have been completed and inspects to the extent necessary to be satisfied that the design of the system conforms to all applicable examination requirements of the code and of the engineering design. [ASME B31.3; ESM Ch. 17 Att. GEN-1] <i>This is QA scope (second level), not QC (first level), and should therefore be independent of fabricating organization.</i> 2. In structural steel codes & standards, Inspector term is used for the (sub)contractor fabricator (QC), erector (QC), and verifier (QA) scopes.
Installation Instructions	Part of the Design Change Form. High-level engineering inputs necessary for modification implementation. Provide the minimum necessary guidance for controlling unusual activities or activities that directly affect installation of modification or operation of equipment. [AP-341-517]
Installation Verification	The initial portion of the commissioning process includes observations and punch-lists recorded and performed by the field engineer to confirm that all equipment is installed in accordance with the specifications and drawings. [ESM Ch. 15]
Institutional Document	[Provides] the entire LANL workforce, or a broad cross-section of it, with requirements to perform work consistently, safely, securely, and efficiently in accordance with the Prime Contract and its Governing Policies... Applies to the entire Laboratory workforce or a broad cross section of workers. Assigns responsibilities to workers in multiple ALDs. The requirements in institutional documents may flow down to functional or local documents, where more detail is provided to a subset of workers. [SD311 Policy System]; AP-341-401. <i>CoE examples are PD340, P341, P342, and P343.</i>
Institutional Evaluated Suppliers List (IESL)	A list of suppliers whose QA management systems, performance history, and/or quality records have been evaluated and determined to have the capability to supply items or services in accordance with established requirements. [P841-1, <i>Quality Procurements</i>]. <i>Suppliers listed on the IESL are currently approved to provide LANL with products and/or services within their stated scope of supply, and for the stated location(s). It is the responsibility of both the procurement requester and the buyer to ensure the products/services needed reasonably match those listed in the IESL as well as ensuring compliance to any listed restrictions. The IESL does not attempt to provide exact legal business entity names or a comprehensive list of approved products and/or services.</i>
Institutional Quality & Performance Assurance (IQPA)	Provides critical, expert, and timely services to ensure operational excellence is achieved and sustained by providing trustworthy and transparent continuous improvement and quality systems in support of LANL. IQPA Procedure Links.xlsx on SharePoint.
Institute of Nuclear Power Operations (INPO)	Organization tasked with monitoring and evaluating appropriate safety standards — including those for management, quality assurance, and operating procedures and practices at nuclear facilities. <i>Many documents produced were the basis for conduct of engineering practice nationally and within DOE; while not all publicly available, DOE was affiliated in the past and LANL CoE has a partial collection of older ones.</i>
Integrated Assessment Schedule (IAS)	The schedule of assessments. An initial version of the schedule exists at the beginning of each fiscal year. [AP-341-901]

Integrated Project Team (IPT)	<p>A team formed and led by a LANL project manager (when assigned) and comprised of functional experts needed to execute capital asset work, such as engineering, procurement, construction, etc. [SD350; AP-350-100, 101; AP-341-620; ESM Ch. 1 Z10] <i>When ES, formed per DI-ES-EPD-010.</i></p> <p><i>Composition of a typical, large IPT (credit: P341):</i></p> 
Integrated Work Document (IWD)	<p>Hazard control documentation that integrates work definition, hazards and controls for work authorization and user-friendly communication to workers. <i>The IWD may be a subset of a larger work package that includes other documents and information relating to an activity but not addressing hazard controls.</i> [P300, Integrated Work Management]</p>
Interdisciplinary Coordination	<p>Squad checks to ensure a quality design is submitted to LANL's Stakeholders. [AP-341-627, Design Coordination]</p>
Interdisciplinary Technical Review (ITR)	<p>A technical review of the proposed design change to assess the impacts of the change to the facility, activity, or operation that involves all potentially affected disciplines and organizations. [DOE-STD-1073; AP-341-620; ESM Ch. 1 Z10 Att. C]. <i>Sometimes also known as the Owner's Review. Team to support IPT per DI-ES-EPD-010.</i></p>

Interface Requirement	<ol style="list-style-type: none"> 1. A functional or performance requirement, or a constraint, imposed on the boundary between two SSCs. An interface requirement can address boundary design details, location, connections, input/output characteristics, controls (engineered and administrative), physical interactions (e.g., vibration) or functional interactions. Interface requirements are typically imposed by joint decisions between two organizations, by pre-existing conditions or decisions, or imposed by the Customer or Stakeholder (e.g., existing external facility). A project may not change interface requirements unilaterally. [ESM Ch. 20] 2. Relates to the boundary between two systems. The two interfacing systems may be within the same facility or in different facilities. When two different facilities are involved, the interface is referred to as an external facility interface. There are three types of interface requirements: <ul style="list-style-type: none"> • Performance interface specifies how well a function is performed at a system boundary. • Interface constraints specify codes and standards applicable to the system interface, specific design, operating or maintenance configuration and essential features, etc. • Physical interface specifies characteristics at the system boundary. Those characteristics may include materials, dimensions, tolerances, finish size, weights, component type, dynamic limits, equipment envelopes, layout locations, etc. [AP-341-602]
International Building Code (IBC)	Primary model building code published by International Code Council (ICC). <i>LANL adopts and amends through the Engineering Standards (e.g., ESM Ch. 16 and others). Before LANL adopted the IBC in the early 2000's, the UBC was used. IBC Chapter 2 is Definitions.</i>
International Existing Building Code (IEBC)	Model building code for existing structures published by ICC. <i>LANL adopts and amends as it does with the IBC and other codes.</i>
Invoked Technical Standard	<p>A DOE or other Technical Standard that is called upon, in part or in whole, as a required method in a DOE Directive based on a clear requirement statement. The following is an example of an invoking requirement statement: "Safety analysis and supporting design must be developed and integrated in accordance with DOE-STD-1189-2016." (DOE Order 420.1C) [DOE O 251.1D Chg 1 (Admin Chg), Departmental Directives Program; ESM Ch. 1 Z10; P310-1]</p> <p><i>This category of standard has the highest bar for gaining formal equivalency or exemption (versus "Applicable Technical Standard" per DOE O 420.1C, which has lower requirements for equivalency.)</i></p>
Issue	<p>A broad term describing a condition that negatively impacts performance or could potentially degrade performance. Issues can include a condition that is affecting, or could affect, the Laboratory's ability to sustainably achieve simultaneous mission, ST&E, or operations excellence. [P322-4 r18 Chg. 2]</p> <p><i>The institutional issues management (IM) tool is in iLINK here.</i></p>

Item	An all-inclusive term used in place of any of the following: appurtenance, assembly, component, equipment, material, module, part, structure, product, software, subassembly, subsystem, system, unit, or support systems. [DOE Order 414.1D, Admin. Chg. 2]; ESM Ch. 1 200; AP-341-502, AP-341-703, AP-341-901] <i>CMMS captures “equipment” and their “components” differently; “item” is used in Section 200 to refer to both and some structures generically.</i>
J	TOP
	reserved for future use
K	TOP
Key Performance Parameters	Required facility or system characteristics for the final product to be delivered to the client (e.g., integrated facility or system), relating to the ability to achieve the operational mission when used by trained operators in the intended operational environment under specified conditions. KPPs are used to focus development and associated decisions in a manner that ensures these parameters are met by the final product. They are used as part of the performance baseline at CD-2. [ESM Ch. 20]
L	TOP
Laboratory	When capitalized means LANL. Otherwise, a space usage for analytical and/or R&D work.
Laboratory Implementation Requirements (LIR)	Laboratory Implementation Requirements [ESM Ch. 13, Vol. 1, 1-99]. <i>Obsolete Institutional Policy document type, now a PD, P, or SD series.</i>
LANL Building Code (LBC)	The IBC as amended by LANL (e.g., in ESM Ch. 16, IBC-GEN Att. A). Where the LANL Standards invoke the IBC, interpret to mean the LBC (except in obvious references to the source document; the term “IBC” is used currently due to higher recognition). [ESM Ch. 16 IBC-GEN]
LANL Building Official (LBO)	The LANL individuals, as assigned by NNSA, who administer and enforce the International Building Code (IBC), International Existing Building Code (IEBC), and other building-related codes and standards invoked by the Engineering Standards. <i>The role includes performance or oversight of design (aka plan) reviews and approval (permitting) of design documents and selected changes thereto, testing and inspection (QC, QA), and walkdown/certificate of occupancy (CoO). [ESM Chapter 16, Building Code Program] Except for most inspections, the FDAR is authorized to perform the administrative functions for many lower risk modifications in operating facilities when allowed by the program. The IBC term is Building Official; LANL was added to be specific (e.g., neither NM nor LA County is involved). By March 2025, there should be an LBO for permitting (design “plan” examination) and another for occupancy (and including inspection).</i>
LANL Building Official Design Package Reviewer (LBO-DPR)	Person performing the final process/quality review and permitting of the Highest Risk projects per the Building Code Program. [ESM Ch. 16 IBC-GEN]

LANL Building Office Plan Examiner	Design reviewer SMEs chosen to review Highest Risk ESM Ch. 16 IBC-GEN projects. <i>Primary reviewers are shown in the organizational chart on the ES-Division's LANL Building Official webpage.</i>
LANL Commissioning Authority (LCA)	An independent commissioning process person designated by the Construction Management Division to manage the commissioning at LANL and, for facilities, to represent the LANL Building Official's interests in matters related to commissioning. If required by ESM Ch. 15, LCA shall meet Level III qualifications of NQA-1 Part III, Subpart 3.1, Non-Mandatory Appendix 2A-1. [ESM Ch. 15]
LANL Existing Building Code (LEBC)	Amendments to the IEBC for buildings and systems in ESM Ch. 16 IBC-GEN, App. B.
LANL Inspector	A LANL (e.g., Triad) or LANL-subcontracted employee performing duties approved by the LANL Building Code Program Chief Inspector. May be written simply as inspector. [ESM Ch. 16 IBC-GEN]. <i>See also Qualified Inspection Agency.</i>
LANL Master Specifications (LMS)	The approximately 200 specification section templates in the STD-342-200 collection, organized and formatted to Construction Specifications Institute (see definition) standards. [ESM Ch. 1 Z10 Att. F]. <i>Each section is an administrative or general (Division 01) or work-result-specific (Divs 02-43) template to be finalized and combined into a specification which is a construction output document addressing construction-type work, fabrication, and/or maintenance (maintenance examples: piping repairs and testing, carpeting, and other similar replacements).</i>
Leadership in Energy and Environmental Design (LEED)	A green building rating system developed by United States Green Building Council (USGBC) and certified by Green Business Certification Inc. (GBCI). [ESM Ch. 14]

Lead SME (LSME)	<p>Within ES Division, an SME responsible for fulfilling many of the technical and administrative tasks formerly performed by the discipline-focused EPD Team Leaders. The LSMEs are designated by the Division Leader and are assigned to one of the ES groups but have responsibilities for ES broadly. <u>The ES organization chart lists the LSMEs.</u> The creation of LSMEs does not affect the use of the “SME” concept or term in other matters such as ESM SMEs (or POCs), or SMEs in a very general sense — these remain. [They are not synonymous with Engineering Standards POC.]</p> <p>LSMEs are responsible for the following tasks. This list is not all-inclusive but represents most routine responsibilities and tasks are specific to the individual’s respective discipline. A major thrust is developing our employees.</p> <ul style="list-style-type: none"> • Identify candidates and participate interviews for applicants within their discipline, as needed • Help maintain the Training and Qualification program for their discipline (with CoE) • Lead periodic (monthly minimum) meetings for their respective discipline across the three design groups. Topics should include: <ul style="list-style-type: none"> ○ General continuing education topics ○ Emerging technologies within their field ○ Discipline-specific qual training ○ Dissemination of changes in Lab policy and Conduct of Engineering documents that pertain to their discipline • Lead or support updates to the ESM chapters and master specifications applicable to their discipline (many LSMEs will also be Standards POCs) • Support questions and issues on behalf of the LANL Building Official • Review and comment on relevant CoE AP revisions • Lead or support initiatives within their discipline • Participate in Oral Checkouts for applicants within their discipline • Provide feedback to managers during performance reviews • Participate in mentoring • Approve calculations, as needed • Support management self-assessments • Be design/analysis software Owners/gatekeepers, both safety and non-safety (https://edwebapps.lanl.gov/essoftwareinventory/inventory.aspx) • Ensure work produced across the Project Delivery groups are consistent and look like they are produced from the same division • Approve memos that pertain to their discipline. <p>[ES-DO-Memo-22-019, 9/29/2022 (with minor updates)]</p>
Lessons Learned	<p>The capture of what went badly or well in a project, operations, maintenance, or other context for near-term process improvement action and future consideration. <u>DOE OPEXShare</u> is headquarters’ system for operating experience, lessons learned, best practices, reports, other useful items; LANL has its own OPEX site in <u>iLINK</u> within Devonway via Miramar interface. ES Div has <u>DI-ES-EPD-009</u>, LL Best Practices Program.</p>

Level 1 Alteration (IEBC)	Includes 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. <i>Must follow IEBC Ch. 3 & 7.</i> [ESM Ch. 16 IBC-GEN PPD form FM01.]
Level 2 Alteration (IEBC)	System reconfiguration, extension, additional equipment installation, or removal. <i>Must follow IEBC Ch. 3, 7, and 8. LANL has subdivided Level 2 for administrative matters only (IEBC met regardless). Level 2B generally includes possible egress aspects (workspace reconfiguration or door or window addition or elimination) and/or life safety or related systems affected; complete 2B definition is in Section IBC-GEN Table GEN-3 Three-tiered Graded Approach. Level 2A is Level 2 work not meeting Level 2B.</i> [ESM Ch. 16 IBC-GEN PPD form FM01.]
Level 3 Alteration (IEBC)	Applies when a major building renovation or reconfiguration work area exceeds 50 percent of the aggregate area of the building. <i>Must follow IEBC Ch. 3 and 7-9, plus warrants an RP 8 review.</i> 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. [ESM Ch. 16 IBC-GEN PPD form FM01.]
Levels of Rigor	The level of strictness, detail, validation, and judgment to be applied to a specific task or evaluation. [ESM Ch. 15]
Life-cycle Cost (LCC)	The sum total of all direct, indirect, recurring, nonrecurring and other related costs incurred or estimated to be incurred in the planning, design, development, procurement, production, operations and maintenance, support, recapitalization and final disposition of real property over its anticipated life span for every aspect of the program, regardless of funding source. [DOE O 413.3B Chg 7] <i>Discussed in ESM Ch. 1 Z10 Attachment E, Life Cycle Cost Methodology Guidance; Ch. 14 for energy decisions per 10CFR436, and shared Life-Cycle Cost Analysis (LCCA) Calculator and Resources webpage. LCCE means life-cycle cost effective.</i>
Like-for-Like Replacement	The replacement of an item with an item that is identical. [AP-341-503] <i>See also "Identical Item," Guidance on Technical Evaluations and Item Dedication in the Engineering Learning Guide collection.</i>
Limiting Condition for Operation (LCO)	Represent the lowest functional capability or performance level of safety structures, systems, and components (SSCs) and/or specific administrative controls (SACs) required for safe operations. [10 CFR § 830.3]

Line Item	A distinct design, construction, betterment and/or fabrication of real property for which Congress will be requested to authorize and appropriate specific funds. A full-scale test asset or other pilot/prototype asset primarily constructed for experimental or demonstration purposes, but planned to become DOE property and continue to operate beyond the experimental or demonstration phase is included in this definition. [DOE O 413.3B Chg 7 (LtdChg), Program and Project Management for the Acquisition of Capital Assets; SD350] <i>An entry (appropriation line) in a presidentially signed congressional bill. Below line item in cost is a minor construction (aka GPP) project (see that topic).</i>
Listed	Equipment, materials, or services included in a list published by an organization that is acceptable to the AHJ and concerned with evaluation of products or services, that maintains periodic inspection of production of listed equipment or materials or periodic evaluation of services, and whose listing states that either the equipment, material or service meets appropriate designated standards or has been tested and found suitable for a specified purpose. This definition applies to products that are Underwriters Laboratories listed, FM Global, American Society of Mechanical Engineers (AMSE) approved, or certified by another nationally recognized testing laboratory as defined in the Occupational Safety and Health Administration (OSHA). [DOE-STD-1066-2023] <i>The OSHA "Current List of NRTLs" is here. In ASME codes, products not listed as acceptable (e.g., certain fittings, pipe, plate) are considered "unlisted" and their use justified by a defined process. Electrical items at LANL similarly.</i>
Local Document	Defines processes, operations, or other information needed to perform certain work within one ALD or one facility...Examples: Desktop Instructions, Handbooks, IWDs, Job Aids, Work Instructions, Building Evacuation Plans... [SD311, Policy System] .
Long-Lead Procurement	Equipment, services and/or materials that must be procured well in advance of the need because of long delivery times. If long-lead procurements are executed prior to CD-3 approval for the project, this will be designated as CD-3A and require a stand-alone decision by the PME, outside of the CD process [DOE O 413.3B Chg 7] .
Los Alamos National Laboratory (LANL)	A government-owned, contractor-operated (GOCO) site in the U.S. Dept. of Energy's NNSA enterprise and a Federally Funded R&D Center (FFRDC). <i>There's a separate contract for legacy cleanup with N3B through the DOE Environmental Management (DOE-EM) Los Alamos Field Office since April 2018.</i>
Los Alamos National Security, LLC (LANS)	The prime management & operating (M&O) contractor at LANL from June 1, 2006, to October 31, 2018 [prior to Triad Nuclear Services (TNS)]. Take all references to LANS in CoE documents to mean the current prime M&O contractor except when it is a historical reference such as this is. [ESM Ch. 1 Z10] <i>Before LANS was the Univ. of California alone dating to the 1940's.</i>
Low-Hazard Work	When maintenance, work requiring minimal planning. Low-hazard work may be routinely accomplished using FSRs, unplanned work orders, or standing work orders. This work process is further described in AP-WORK-002, Work Planning . [P950]
M	TOP
Maintenance & Site Services (MSS)	LANL division that provides infrastructure maintenance and utilities support. <i>Has numerous groups, some centralized programs and others deployed to each FOD.</i>

Maintenance Instruction (procedure; MNT)	Document that provides instructions for programmatic corrective, preventative, and destructive maintenance work activities, and requirements for operations (non-MSS) personnel responsible for managing, operating, inspecting, testing, and maintaining Structures, Systems and Components (SSCs). [P950, Conduct of Maintenance]
Major Item of Equipment	Capital equipment with a cost that exceeds \$2M. In most cases, capital equipment is installed with no construction cost. However, in cases where the equipment requires provision of supporting construction such as foundations, utilities, structural modifications, and/or additions to a building, the associated construction activities must be acquired through a line item construction project or a minor construction project if the cost is below the minor construction threshold stated in 50 U.S.C. 2741(2). [DOE O 413.3B Chg7]. <i>See also minor construction threshold topic.</i>
Major Modification	Changes to a nuclear facility that “substantially change the existing safety basis for the facility.” [adaptation of 10CFR830 and DOE-STD-1189]. <i>Determination is made through a checklist (see SBP114-1, Safety Basis Development for Projects, Att. 2) [ESM Ch. 1, Z10; Ch. 5]</i>
Major Revision	A change in the intent, scope, purpose, responsibilities, safety, or technical content described in document. [AP-341-401] <i>Other changes are therefore Administrative.</i>

Management Level (ML)	<ol style="list-style-type: none"> 1. Reflects the consequence of failure portion of the risk. Conduct of Engineering requirements are graded per the level to reduce risk. ML-1 is most stringent, and ML-4 are the least stringent. All levels have some level of quality controls. [SD330; P341] 2. Grading based on an estimation of consequence of failure to LANL as an institution, which helps in establishing the degree of technical/ administrative oversight and control required to ensure that SSCs can meet their required function in the protection of the public, the worker, the environment, classified and SNM assets, or their ability to support meeting high-level institutional mission requirements. [AP-341-502; ESM Ch. 1, Z10] <p><i>The concept, as of release of this glossary edition:</i></p> <p>ML-1:</p> <ul style="list-style-type: none"> • An SSC and activity of Hazard Category 2 or 3 Nuclear Facility that performs Documented Safety Analysis (DSA) credited Safety Class (SC) function(s). • An SSC and activity of Accelerator Facility that performs Safety Assessment Document (SAD) or Accelerator Safety Envelope (ASE) designated public protection function(s). • An SSC and activity of High Hazard Nonnuclear Facility that performs function(s) identified in the Facility Safety Analysis (FSA) for protection of the public. <p>ML-2:</p> <ul style="list-style-type: none"> • An SSC and activity of Hazard Category 2 or 3 Nuclear Facility that performs DSA designated Safety Significant (SS) function(s) • An SSC and activity of Accelerator Facility that performs SAD or ASE designated worker protection function(s) • An SSC and activity of High Hazard Nonnuclear Facility that performs function(s) identified in the FSA for protection of the uninvolved or noninvolved worker. <p>ML-3: See SD330, LANL Quality Assurance Program, Attachment C Screening Criteria for ML-3; also AP-341-502.</p> <p>ML-4: SSCs and activities that do not meet the requirements of ML-1, 2, or 3.</p>
Management Self-Assessment (MSA)	<p>In the readiness process of PD115, following preparation, the Line Management uses a MSA to determine the adequacy of their preparations.</p>
Master Equipment List (MEL)	<ol style="list-style-type: none"> 1. A subset of CMMS data used for configuration management of items including data for unique identification such as system and key attributes such as safety information. [ESM Ch. 1, Section 200; ESM Ch. 8 D3060.90] 2. A detailed listing of SSCs that are a part of the safety basis. Typically, the MEL includes additional facility equipment with the safety items flagged for identification. [DOE G 433.1-1A Chg 1 (Admin Chg), Nuclear Facility Maintenance Management Program Guide for Use with DOE O 433.1B] See III.C of the Guide for details. <p>At LANL, the Project Equipment List is a precursor to MEL data entry.</p>

MasterFormat®	The architecture, engineering, and construction (AEC) industry's gold standard for organizing and communicating specifications and work results for construction projects. [CSI]. <i>The 48-division and section numbering/naming scheme used by LANL's Master Specification (LMS) collection. Not to be confused with MasterSpec, a proprietary collection of generic, AIA-affiliated office master templates from Deltek (previously ARCOM) in their SpecPoint product.</i>
Master Specifications	See LANL Master Specifications
Master Task Order Contract (MATOC)	Streamlined procurement agreement whereby the overall expectations for a generic work scope are initially established, then individual tasks orders for a specific, well-defined result are released/let, often without competition. [derived from LANL ASM Procurement Policy and Procedure Manual , 2024-7-17]. <i>Construction-related MATOC currently includes Jaynes and Hensel Phelps.</i>
May	Denotes permission, neither a requirement nor a recommendation. [DOE O 426.2]. A directive term that indicates an optional action or expectation. [PD115]
Mechanical Temporary Modifications	Jumpers, blind flanges, blocked (gagged) valves or dampers, system additions (additional pumps, instrumentation, controllers, etc.), and temporary set point changes not part of a routine maintenance, testing, or operating procedure. [AP-341-504]
Manhole (MH)	A vault located in the ground as part of an underground telecommunications duct system and used to facilitate placing, connecting, and maintenance of cables as well as the placing of associated equipment, in which it is expected that a person will enter to perform work. [ESM Ch. 19 G50] <i>Increasingly preferable is maintenance hole, utility hole, person hole, or people hole (sewer hole when such).</i>
Measuring and Test Equipment (M&TE)	Devices or systems used to calibrate, measure, gage, test, or inspect to control or acquire data to verify conformance to specified requirements. [LMS 01 4000] <i>Generally portable; such installed devices are "instrumentation."</i>
Minor construction threshold (MCT)	Cost limit for a minor construction (aka GPP) project set by 50 U.S.C. 2743. [adapted from DOE O 413.3B Chg 7 (LtdChg), Program and Project Management for the Acquisition of Capital Assets] <i>The U.S.C. stated \$30M in FY22 and is adjusted periodically; as of February 9, 2024, the minor construction threshold was \$34M.</i>
Minor Maintenance (MM)	A list of work activities preapproved by the Facility Operations Director (FOD), characterized by low hazards, and requiring no detailed planning (e.g., relamping). FOD preapproval assures that facility hazards and program priorities are appropriately factored into grading decisions. This is further described in AP-WORK-001, <i>Work Initiation, Screening, and Acceptance</i> . [P950]

Minor Construction Project	<p>Miscellaneous minor construction project, of a general nature, for which the total estimated cost may not exceed the minor construction threshold stated in 50 U.S.C. 2741(2). These projects, sometimes called General Plant Projects or GPPs, are necessary to adapt facilities to new or improved production techniques, to effect economies of operations, and to reduce or eliminate health, fire and security problems. These projects provide for design, construction, additions, and/or improvements to land, buildings, replacements or additions to roads, and general area improvements. (Refer to 50 U.S.C. 2743)</p> <p>General Plant Projects: [Those] for maintaining infrastructure at a site...miscellaneous, minor, new construction projects of a general nature, the total estimated costs of which may not exceed the Congressional authorizations ... These projects provide for designs or construction (or both); other capital alterations and additions; and improvements to land, buildings, and utility systems. They may include the construction of small new buildings, replacements or addition to roads, and general area improvement.</p> <p>Institutional GPP (i.e., IGPP) meet all normal GPP requirements but are of a general institutional nature benefiting multiple cost objectives and required for general purpose site-wide needs. IGPPs do not include projects whose benefit can be directly attributed to a specific or single program. [LANL Glossary, refers to Project Management Terms that may no longer exist]. <i>Above usage of "infrastructure" includes utilities, roads, buildings. These are smaller than line-item projects.</i></p> <p>DOE O 413.3B Chg 7 (LtdChg), Program and Project Management for the Acquisition of Capital Assets</p> <p><i>As of February 9, 2024, the minor construction threshold in 50 U.S.C. was \$34M and is periodically adjusted.</i></p>
Mission Dependency Index (MDI)	<p>NNSA's risk-based, <i>consequence to mission</i> metric that assigns a quantitative score to a real property asset. This score informs decision makers on the potential impact the loss of the asset would have on NNSA's mission. [SD 430.1C].</p> <p>The MDI score is a 1-100 score calculated for each facility to measure its impact to the mission by combining the consequences if the facility was lost, the difficulty to replace it, and the interdependency of it to other facilities. MDI also links assets to the core capabilities they support which provides greater insight for understanding risks. [SD330 <i>LANL Quality Assurance Program</i>] [AP-341-405, AP-341-502].</p> <p><i>MDI Scores are published in Archibus Web Central. For a single list, however, go to MSS-DATA Group and open the most recent FY's Official MDI, RN, DM, & RPV file. The MDI score is the last column.</i></p>
Mission Need Statement (MNS)	<p>[For a large project,] the primary document supporting the acquisition executive's decision to initiate exploration of options to fulfill a capability gap including but not limited to acquisition of a new capital asset. The mission need statement document identifies a capability gap between the current state of the program's mission and the mission plan. It is the first step in the identification and execution of a DOE project. [AP-350-101]</p>

Mixed Waste (MW)	MW contains both hazardous waste (as defined by RCRA and its amendments) and radioactive waste (as defined by AEA and its amendments). It is jointly regulated by NRC or NRC's Agreement States and EPA or EPA's RCRA Authorized States. The fundamental and most comprehensive statutory definition is found in the Federal Facilities Compliance Act (FFCA) where Section 1004(41) was added to RCRA: "The term 'mixed waste' means waste that contains both hazardous waste and source, special nuclear, or byproduct material subject to the Atomic Energy Act of 1954." [ESM Ch. 10]
Model	Simplifications of the real world constructed to gain insights into select attributes of a particular physical, biological, economic, engineered, or social system. [ESM Ch. 21, SOFT-GEN]
Moderate-Hazard Work	When maintenance, work requiring a moderate level of planning, cost estimation, and research before execution. This work process is further described in AP-WORK-002 , <i>Work Planning</i> . [P950]
Modification	<ol style="list-style-type: none"> 1. In a general CoE sense, a change to an existing SSC, document, or activity. <i>The IEBC terms these Alterations. Control of modifications, known as change control, is a major pillar of configuration management and thus CoE. PFE has a Modification Eng. Manager overseeing such work at TA-55.</i> 2. In the 2021 IBC and IEBC (104.10), where code official allows equivalent alternatives. <i>See also Alternate Method.</i>
Must	Denotes a requirement [DOE O 426.2]. A directive term that indicates a required action or expectation [PD115]. <i>Shall means the same.</i>
N	TOP
Nameplate	The plate or label attached to a component by the manufacturer to provide applicable component identification and design data, such as temperature, pressure, flow, etc. [AP-341-510]
National Nuclear Security Administration (NNSA)	A semi-autonomous agency of the Department of Energy (DOE); NNSA is headed by the Administrator. <i>LANL is operated under contract to the Department of Energy and NNSA. NNSA uses DOE directives plus additional ones (see Directive). NNSA's DOE organization code is NA and the Los Alamos field office is NA-LA.</i>
National Training Center (NTC)	Through the NTC, the Office of Enterprise Assessments (EA) performs the mission-critical support function of developing, maintaining, and delivering standardized health, safety, safeguards, security, and protective force training for DOE and NNSA Federal and contractor employees. The mission of the NTC, as a direct report organizational element of EA, is to provide and facilitate quality training for Federal and contractor personnel in support of DOE's mission. [About webpage]
Native file	An electronic file type normally manipulated by the software program by which it was developed (and not saved to an alternative that may not allow easy manipulation by the original program). Example native file format/type extensions are .docx, .xlsx, and .dwg; while a common non-native type is a .pdf. LANL default expectation of design deliverables and construction submittals is both native and pdf. <i>EDRMS can store both native and pdf files, with native format more readily modifiable for revision purposes (conversion of unlocked pdfs is often possible but may introduce errors).</i>

Natural phenomena hazard (NPH)	An act of nature (e.g., earthquake, wind, tornado, flood, precipitation, volcanic eruption, or lightning strike) that poses a threat or danger to workers, the public, or to the environment by potential damage to structures, systems, and components. [DOE-STD-1020]
Natural phenomena hazard (NPH) Design Category (NDC)	Refers to the DOE/LANL five (1–5) category system for design/analysis of nuclear SSCs. [DOE-STD-1020; ESM Ch. 5 Section I, III] <i>SDC is for the seismic design category and most well-known (caution this is NOT the IBC's SDC A–F categorization); WDC is for wind, FDC flood, and PDC precipitation. Used along with Limit State (LS). Ch. 5 Section I includes a sometimes-conservative crosswalk from old PC to NDC. See also Performance Category.</i>
Net-zero emissions (NZE) building	A highly efficient building, connected to any combination of on-building, on-site, local utility-scale, or purchased carbon pollution-free energy, designed, and operated such that its scope 1 and 2 greenhouse gas emissions from all operational end uses are zero on an annual basis. [ESM Ch. 14] <i>Chapter 14 contains other definitions related to sustainable design.</i>
New Information (NI)	Information that could indicate a PISA in the current facility safety basis. NI can result from discovery of errors, inaccuracies, or omissions in the current safety basis, discovery of a discrepant as-found condition, vendor information, or occurrence of an event. In order for the information to be considered “NI”, the information must be applicable to one or more onsite HC-2 or HC-3 facilities/activities, valid (reliable, accurate, and traceable), and related to questioning the adequacy of a facility's implemented safety basis. [SBP-112-5-R6] Discussed in AP-341-516, <i>Operability Determination</i> .
New Mexico Administrative Code (NMAC)	Regulations issued by the state. LANL follows as appropriate. https://www.srca.nm.gov/nmac-home/nmac-titles/ or https://nmonesource.com/nmos/en/nav.do
Nonconformance	A deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate. (NQA-1). <i>Triggers use of P 330- 6, Nonconformance Control and Reporting, and normally an NCR form.</i>
Nonconforming Condition	A deficiency in characteristic, documentation, or procedure that renders the quality of an item or activity unacceptable or indeterminate. [P330-6; AP-341-514]
Nondestructive Examination (NDE)	The development and application of technical methods to examine materials or components in ways that do not impair future usefulness and serviceability to detect, locate, measure, and evaluate flaws; to assess integrity, properties, and composition; and to measure geometrical characteristics. NDE/NDT typically includes radiographic testing (RT), magnetic particle (MT), ultrasonic testing (UT), liquid penetrant (PT), electromagnetic testing (ECT), neutron radiographic, leak testing (LT), acoustic emission testing, and visual testing (VT). [ASTM E1316-24; ~P330-5; ESM Ch. 13, Vol. 1, 1-99; Vol. 6, 6-02 Att. 1] <i>“NDE,” is generally preferred by ASME and LANL but NDT (T=testing; ASTM/original term) and NDI (I = Inspection, often DoD/aerospace) essentially mean the same. Regarding visual examination, depending on the application, this may require control as an NDE process (VT) versus weld inspection per ESM Ch. 13. ESM Ch. 13, Vol. 6, 6-02 and its Att. 1 contain additional NDE definitions.</i>

Non-NQA-1 qualified supplier	A supplier that did not develop, produce, store/maintain, and ship the item in accordance with an ASME NQA-1 quality assurance program. [generalized from ESM Ch. 21, SOFT-GEN r1]
Nonreactor Nuclear Facility	A facility, activity, or operation that involves or will involve radioactive and/or fissionable materials in such a form and quantity that a nuclear or a nuclear explosive hazard potentially exists to workers, the public, or the environment, but does not include accelerators and their operations and does not include activities involving only incidental use and generation of radioactive materials or radiation such as check and calibration sources, use of radioactive sources in research, experimental, and analytical laboratory activities, electron microscopes, and X-ray machines. [10 CFR 830.3; ESM Ch. 1, Z10]
Noteworthy Practice	A positive condition that is beyond normal performance expectations or standard practices and is worthy of emulation, commendation, and communication to others as a good example. [AP-341-901]
Notice to Proceed (NTP)	As soon as required site and facility access is granted, work control documents are developed, and required notifications and approvals are complete, [an NTP] is issued to the subcontractor which marks the date when subcontractor's construction, installation and/or project work commences. [AP-350-300 r2]
NQA-1 Certificate of Conformance (C of C)	A document signed or otherwise authenticated by an authorized individual certifying the degree to which items or services meet the specified requirements. NQA-1 C of C's must meet the criteria of NQA-1 2008 Part I, Requirement 7, Section 503 <i>Certificate of Conformance</i> . [P841-1 based on NQA-1; Ex. H QD-01; LMS 01 4216 r4]. <i>For nuclear safety items (e.g., QL-1) primarily. [AP-341-703]. See Certification Document for other CoC-related documents.</i>
Nuclear Facility	Reactor and non-reactor nuclear facilities where an activity is conducted for or on behalf of DOE that includes any related area, structure, facility, or activity to the extent necessary to ensure proper implementation of the requirements established by 10 CFR 830 (see DOE-STD-3006). [PD115]
Nuclear Regulatory Commission (NRC)	Organization focused on commercial nuclear (versus DOE/NNSA) — reactor safety oversight and reactor licensing, materials safety oversight and materials licensing for a variety of purposes, and waste management of both high-level waste and low-level waste. <i>A few NRC documents and notices are useful in a DOE context and are publicly available.</i>
Nuclear Security Enterprise (NSE)	The NNSA organizations that manage nuclear weapon data (NWD) and/or design, manufacture, or test nuclear weapons or nuclear weapon components. [source] <i>NNSA HQ and every NNSA office, lab, and site. Part of the greater DOE Enterprise.</i>
O	TOP
Objective Evidence (OE)	Any documented statement of fact, other information or record, quantitative or qualitative, pertaining to the quality of an item or activity based on observation, measurement, or test that can be verified. [P322-4 r18 Chg. 2]
Off-site	Describes work that may be performed at the subcontractor's site. Work will not be performed on LANL, Laboratory-leased property, or at a third-party site. [LANL ASM Procurement Policy and Procedure Manual , 2024-7-17]

OmniClass®	A comprehensive classification system for the construction industry, encompassing key elements of both MasterFormat® and UniFormat® for building lifecycle and project management. [CSI]
On-site	Distinguishes work that will be performed at LANL, on Laboratory-leased property, or where LANL has liability for actions occurring at a third-party site. [LANL ASM Procurement Policy and Procedure Manual , 2024-7-17]
Operating Facility	A facility that is post-startup/turned over from construction phase and thus managed by an operations organization. [ESM Ch. 1 Z10]
Operation Requirements	Qualitative or quantitative statements that identify the essential capabilities needed to accomplish the Functional Requirements. [AP-341-602]
Operational Readiness Review (ORR)	A disciplined, systematic, documented, performance-based examination of facilities, equipment, personnel, procedures, and management control systems for ensuring that a facility can be operated safely within its approved safety envelope as defined by the facility safety basis plan. The ORR provides the basis for the Department to direct startup or restart of the facility, activity, or operation. [DOE O 413.3B]. See also Readiness Assessment .
Operations and Maintenance (O&M) Criterion	Functional documents that define criteria and comprise the LANL O&M Manual for SSCs as required by MSS's P950, <i>Conduct of Maintenance</i> . LANL O&Ms here . See also <i>Preventive Maintenance Instructions (PMI)</i> . Some <u>non-LANL</u> O&M guides here (WBDG).
OPEX	See Lessons Learned herein.
Opportunity for Improvement (OFI)	A situation, event, or product where an opportunity exists for preventive, corrective, or proactive actions to be taken to reach a desired outcome. Typically, an OFI is not a violation or a requirement, but could lead to one. An OFI may also cover a condition that is outside the scope of quality issues, such as repeated slippage or scheduled activities. [AP-341-901]
Oral Checkout	<p>An oral assessment of a trainee's mastery of the operational knowledge and organizational awareness required to do a job. Although an oral checkout may be similar in scope and format to the oral exam required for certified positions by DOE O 426.2A, <i>Personnel Selection, Training, Qualification and Certification Requirements for DOE Nuclear Facilities</i>, an oral checkout is not the same as this oral exam and is not intended to meet the same requirements. [CoE-specific]</p> <p><i>The questions, the candidate's responses, and the evaluation of responses are documented; the result may be pass, pass-with-lookups, fail, or reboard. CoE previously used the terms Oral Examination generically, Oral Board for CSE role, and Oral Checkout for PrEs and other, non-CSE roles. Oral Evaluation and Oral Board are no longer used since CoE engineers are not in certified positions (also, "evaluation" is used by Federal personnel per DOE O 426.1B, Department of Energy Federal Technical Capabilities), although "board" is sometimes used to describe a multi-member judging team.</i></p>
Order	Most prevalent form of DOE directive (see <i>Directive</i>).

OrgEx	DOE's Organizational Excellence website. A "platform for transferring relevant knowledge throughout the DOE complex. It will become a useful centralized tool for sharing best practices, news, information, and insights to support the pursuit of organizational excellence...It will allow sharing the practices developed inside an organization with other organizations so that those organizations can adapt those practices to their specific cultural and organizational settings. The website also will allow managers and employees to look outside their organization for global standards and best practices to improve the performance and reliability of their organizations." <i>A lot of content is Federal-specific, but perhaps most useful to LANL are the Communities of Practices (CoPs) tab, including Electrical Safety and Fire Protection, and the Forum tab, including Pressure Safety and others. Registration required. Some CoPs also have EFCOG presence. (NNSA also has a Fed-only portal that includes CoPs).</i>
OSTI.gov	The primary search tool for DOE-funded science, technology, and engineering R&D results and the organizational hub for information about the DOE Office of Scientific and Technical Information.
Other Hazard Controls (OHC)	Preventive or mitigative controls that do not rise to the level of SC or SS but still enhance the safety of the facility. These controls are identified in the hazard evaluation table, but not explicitly credited with a SC/SS designation as identified in the DSA. Such controls are maintained in accordance with safety management programs. Such controls are maintained in accordance with safety management programs and the Unreviewed Safety Question process. Other hazard controls may also include specific controls required by DOE in its Safety Evaluation Report (see DOE-STD-1104-2009 for further guidance) ... Other hazard controls are expected to be designed to the applicable industry code/standard for the given type of non-safety SSC... (from DOE-STD-3009-2014). <i>OHCs (and DIDs for non-3009-2014 DSAs) are <u>SSCs</u> that <u>have specific safety functions</u> (not credited) that are specifically identified in the <u>DSA (in the hazard tables)</u>. They are not a functional element of an SMP like CAMs for Rad Protection or a Fire Alarm Panel for Fire Protection would be. Term used in SD330, P341, AP-341-502, and many other documents. The vast majority are ML-3 per SD330 r15 and AP-341-502 FM01 r7.2 (I), although there may be a few that are ML-4 because they are passive AND NOT identified as an OHC or DID control in the HA tables of a safety basis document for providing a barrier between the facility worker and the hazard (e.g., radioactive material, chemical exposure), but do require procurement quality level QL-3 per SD330 Table 7. See graphic that follows the "Z" definitions.</i>
Over-the-shoulder review (OTS)	Design review process considered less formal and more interactive and real-time than that normally associated with AP-341-620 and -517 and use of Aproove or similar system. See ESM Ch.1 Z10, Att. C 30-60-90/100 schedule; new work instruction being developed in Jan 2025.
Owners Building Inspector(s), OBI	A LANL or LANL-employed construction inspector (ESM Ch. 16 IBC-IP). Scope includes building (ESM Ch. 16) and piping (ESM Ch. 17) code inspections. Special Inspectors (SI, IBC Ch. 17) are a subset of OBI. See also Qualified Inspection Agency herein for other types. Similar to OBIs are Owner's Inspector or ASME Owner's Inspector (or delegates) addressed in ESM Ch. 17 Pressure Safety Att. GEN-1 and listed here .

P	TOP
Parent Documents	Documents with unique names and filed as unique documents in records management software. Examples: calculations, Design Change Forms (DCFs), and System Design Descriptions (SDDs). Also known as Stand-alone Documents. [AP-341-402]
Part	Items from which a component or equipment is assembled (e.g., resistors, capacitors, wires, embedded software, transistors, modules, O-rings, springs, bearings, gaskets, belts, bolting, seals). Parts are not assigned unique identification tag in LANL CMMS. They are identified by manufacturer/vendor assigned part number. [AP-341-502, AP-341-703]
Partial Occupancy	LBO approval to utilize part of a system or structure. [ESM Ch. 16 IBC-GEN FM05]
Passive SSC	An SSC that does not change state to perform its safety function; a non-moving, unpowered, design feature (as opposed to active). [AP-341-901] <i>Examples: Confinement and containment barriers such as walls, barriers, piping, vessels.</i>
Peer	A person having technical expertise in the subject matter to be reviewed to a degree at least equivalent to that needed for the original work. [AP-341-513]
Peer Review	<ol style="list-style-type: none"> 1. An in-depth critique of assumptions, calculations, extrapolations, alternate interpretations, methodology, and acceptance criteria employed, and of conclusions drawn in the original work. Peer reviews confirm the adequacy of work. [AP-341-513] 2. A formal review process in which an external party (independent from the project) will review the methodology, results, and process by which a design is developed. [ESM Ch. 5]
Pending Changes	<p>There are two types of pending changes posted against facility Technical Baseline documents:</p> <ul style="list-style-type: none"> • Yet to be Implemented Changes: design changes that are either in the design development phase, or the design has been approved but not yet implemented, or the implementation is in progress. • Implemented Changes: changes that have been implemented, tested, and accepted by Operations. <p>[AP-341-402]</p>
Performance Category	Natural phenomenon hazard rating used at LANL circa 1993–2003, first defined by DOE-STD-1021-93 . <i>ESM Ch. 5 Section I includes a sometimes-conservative crosswalk from old PC category to current ones. See also ESM Ch. 16 PPD instructions and/or ESM Ch. 5 website's Resources regarding legacy building and SSC PC data.</i>
Performance Criteria	Criteria imposed on the SSC so it can meet functional requirement(s) and, thereby, satisfy its safety function. Characterizes the specific operational responses and capabilities necessary to meet functional requirements. Performance criteria are defined and documented in facility safety analysis documents. [AP-341-607, AP-341-610]

Performance Function	A function that is required to satisfy item performance. [ESM Ch. 21, SOFT-GEN]
Performance Requirements	<p>Quantified statements that define how well or to what degree functions need performing. There are three types of performance requirements that should always be considered for each function (not all three necessarily apply to each function):</p> <ul style="list-style-type: none"> • Output magnitude or capacity (i.e., how much) • Process throughput (i.e., number of products per time) • Output product characteristics (i.e., parameter limits) <p>Performance requirements are directly measurable (e.g., pressure, temperature, voltage, transfer frequency, miles per hour, gallons per minute, purity, number of containers stored, etc.) and provide specific parameters that the design must meet. [AP-341-602]</p>
Performance Specification	A description of the required end result of a product or system and includes the criteria to be used for verification of proper installation. It is generally written to encourage the use of innovative techniques. [The Project Resource Manual—CSI Manual of Practice, PRM Glossary of Terms, circa 2004]
Performance Testing	Performance tests are conducted to verify performance of entire systems and multiple systems against a defined set of requirements and parameters. Examples of systems which typically require performance tests are HVAC systems, process systems, critical capacity mechanical equipment and integrated operation of systems. [ESM Ch. 15]
Permitting Authority	The LANL Building Official (LBO) is the NNSA-assigned building code authority, but to avoid confusion, Permitting Authority is sometimes used for the person granting design approval/release. This will be either the LBO (via the Design Package Reviewer [LBO-DPR]) or the FDAR (under the annual permit provision) depending on the risk level (e.g., per ESM Ch. 16 Table IBC-GEN-3). <i>Permitting Authority signature ensures complete package, acceptable quality, code SME concurrence, and other IBC and Engineering Standards expectations.</i>
Periodic Review	A planned review to assess a document's continued necessity, usability, and accuracy (e.g., document references, organizational references, etc.) [AP-341-401]
Permits Requirements Identification (PRID)	Project planning tool to identify potential project permits, requirements, and facilitate SME reviews for the successful completion of a project. <i>Part of Integrated Review Tool/IRT</i> [P351 ; ESM Ch. 1 Z10; Ch. 16 IBC-GEN] <i>PRID becoming Project & Activity Review (PAR).</i>

Personal Property	Includes all equipment, material, and supplies not classified as real property (Refer to DOE O 580.1A [now 41 CFR 109, plus DOE G 580.1-1A Chg 1] and to 41 CFR Chapter 102-71). NNSA also considers personal property to be items that are not permanently affixed to the real property asset and can be removed without serious impact either to the real property or to the items themselves. Personal property may include items necessary for the course of normal administrative or business operations, such as office furniture, as well as science and engineering equipment. [SD 430.1C, Real Property Asset Management] <i>The useful wording in parenthetical references above are incorporated in this Glossary under Real Property.</i>
Plant System Engineer (PSE)	An engineer responsible for one or more systems. <i>Some systems may be with a nuclear facility (e.g., plutonium facility's Essential Balance of Plant group); however, most support non-nuclear ones. Cognizant System Engineer (CSE) and Process Engineer (PrE) is similar but has increased training and qualification. Systems Engineer(ing)/SE is very different.</i>
Plutonium Facilities Engineering Division (PFE)	PFE's mission is to "provide [system] engineering support to operations and maintenance activities to the TA-55 Facility Operations Director (FOD) and to provide design and project engineering services in support of Facility Operations and the Plutonium Facility enduring mission." [2025-1-27]
Plutonium Infrastructure Engineering Division (PIE)	PIE "delivers high-quality engineering services to the plutonium national security mission by providing a diverse set of engineering resources to support the modernization of the TA-55 infrastructure and capabilities. These multi-disciplined engineering and technically skilled resources are key to successfully delivering engineering design and executing the plutonium infrastructure project portfolio during construction." [2025-1-27]
Point-of-Contact (POC)	See Engineering Standards Discipline POC.
Post-Installation Testing (PIT)	Activities conducted after installation of a commercial grade item to verify required critical characteristics prior to placement in operation. [AP-341-703]
Post-Modification/Post-Maintenance Testing (PMT)	Validates that the system or component performs as intended and operates within the design requirements after the change is installed (or maintenance) and before turnover to operations [DOE-STD-1073; AP-341-801; ESM Ch. 15]
Post Weld Heat Treatment (PWHT)	The process of removing or reducing residual stresses in welds using heat applied in accordance with an approved procedure. [ESM Ch. 13, Vol. 1, 1-99]
Potential Inadequacy of the Documented Safety Analysis (PISA)	<ol style="list-style-type: none"> 1. A situation that arises that indicates that the ...DSA... potentially may not be bounding or may be otherwise inadequate typically as the result of discrepant as-found conditions, operational events, or the discovery of other new information. (Note: all three conditions are referred to as "new information.") [DOE O 421.1 draft 2023-11-16] 2. A condition in which the safety basis may be inadequate or the physical condition may not be accurate because the documented safety analysis may not match the current physical configuration of the facility, or the safety analysis may be inappropriate, inadequate, or contain errors [SBP-112-5-R6; AP-341-802]

Powerpedia	A non-public, employee-created encyclopedia of information about DOE. It uses the same technology that powers Wikipedia (Mediawiki) and can be accessed and edited by any DOE employee or contractor . Powerpedia's mission is to help employees share information on topics while improving communication and coordination between DOE organizations. <i>Registration required. Useful info includes some DOE organization charts.</i>
Precedence	In contracts, but also the LANL Engineering Standards, the hierarchy of documents – which governs (dominates) in the event of conflict or difference. <i>When using the Standards for design, the ESM & TSM have precedence over the specs and std. details. In ASM contracts, the SOW has precedence over the specs and, historically, the specs over the drawings. [ESM Ch. 1 Z10]</i>
Precision	The ability of an instrument to produce repeatable readings of the same quantity under the same conditions. The precision of an instrument refers to its ability to produce a tightly grouped set of values around the mean value of the measured quantity. [ESM Ch. 15; LMS 01 9100] <i>See also Accuracy.</i>
Preconceptual Design Phase	The phase of system/facility acquisition that examines alternate approaches to satisfying a mission need, establishes high-level requirements, confirms feasible alternatives exist, and selects the preferred alternative approach. Results are used to decide to pursue conceptual design. [ESM Ch. 20]
Predictive Maintenance (PdM)	Techniques designed to help determine the condition of in-service equipment to estimate when maintenance should be performed. <i>Vibration analysis is an example. Maybe be done on periodically or when a problem is suspected (i.e., predictive diagnostics aka non-recurring PdM.</i>
Preliminary Design Phase	<p>The phase of system/facility acquisition that advances the conceptual design by fully specifying the facilities and systems that will be design and constructed to meet the mission need. It details the system and facility-level design by identifying the required components and structures. This phase provides sufficient detail to enable procurement of long-lead items. (Begins when Critical Decision 1 [CD-1] is received, ref. DOE O 413.3B) [ESM Ch. 20]</p> <p>Project design phase where design concepts are developed into facility layouts, P&IDs, electrical one-lines, and equipment selection. (Paraphrased from DOE-STD-1189 and DOE O 413.3B). The end of preliminary design is marked by CD-2 approval for large projects and is roughly equivalent to 60% design completion for smaller projects. [AP-341-620] <i>Also referred to as Title I.</i></p>
Preliminary Project Determination (PPD)	LANL Building Code Program process/form for establishing related design criteria prior to project going underway. [ESM Ch. 16 IBC-GEN, Form 1; also available via “Delta” web program]
Pre-qualified Welding Procedures	A written welding procedure with the ranges taken from a set of pre-qualified variables as defined in the AWS codes. These procedures shall be written by the LANL WPA and can be authorized for use without further procedure qualification testing. [ESM Ch. 13, Vol. 1, 1-99]
Pressure Safety	The program to reduce injuries, equipment damage, and lost productivity due to pressurized (or vacuum) system failure to meet 10CFR851. <i>This includes design and construction requirements (ESM Ch. 17, with definitions in Attachment GEN-1, Definitions and Abbreviations) and an administrative program (P101-34, P101-5, and definitions therein).</i>

Preventive Maintenance Instruction (PMI)	Procedures that implement MSS's Operations and Maintenance (O&M) Criteria. Posted here .
Primary Function	The driving mission of the project itself. It provides a link between the higher order function and the project. [AP-341-601]
Priority Documents	Technical documents that are required to perform Technical Safety Requirements (TSRs) in Hazard Category 2 or 3 (HC-2 or HC-3) nuclear facilities or Operational Safety Requirements (OSRs) in accelerator facilities and high and moderate hazard nonnuclear facilities. [AP-341-405, ESM Ch. 1, Z10; CAD Standards Manual, Section 100. Supersedes VAR-10642] <i>"Priority" is LANL's renaming of Essential in older (late 1990's) editions of DOE-STD-1073.</i>
Priority Drawing	The most common form of Priority document; <i>see above</i> .
Procedure Qualification Records (PQR)	A record of welding variables used to produce an acceptable test weldment and the results of the tests conducted on the weldment to qualify a welding procedure specification. [ESM Ch. 13, Vol. 1, 1-99]
Process	Manufacturing, process, or production equipment of tenant organizations, as distinguished from utilities or building services equipment. [ESM Ch. 16 IBC-GEN]
Process and Automation (P&A)	Former team of I&C SMEs within ES, now decentralized in ES project delivery groups. [ESM Ch. 8 D3060.90]
Process Engineer (PrE)	Programmatic system engineer responsible for one or more systems of a programmatic process that is typically a long-life system with formal configuration control (not rapidly changing R&D experimentation; e.g., by a Principal Investigator) and, when nuclear safety is involved, subject to PD340 and the P341–3 series including P343 for training and qualification. <i>The PrE supports and acts as the owner of their assigned system which may interface with an Engineered Safety Feature and acts as the responsible Engineer for all CoE-related documentation and activities involving their assigned system rated at the ML3 (not a VSS) or the ML4 level. PrEs have been determined to be "Technical Staff" positions as per DOE Order 426.2, having increased training and qualification versus a Plant System Engineer.</i> [CSE-QS-004-R3]
Procurement	The act of acquisitioning goods or services, or the LANL entity doing so (e.g., ASM). ASM Procurement page .

Procurement Engineer (PtE)	<p>Ensures the proper acquisition of SSCs and services by specifying and implementing the appropriate technical and quality requirements in the procurement process. Interfaces with the Design Engineer, Project/System Engineer, Project/Facility Manager, Quality Assurance Engineer, and Procurement Specialist. [P341]. <i>Preferred abbreviation is PtE. Member of Procurement Engineering (PIE-3) group, tasked to produce accurate, technically strong, and compliant procurement packages, and solutions for both nuclear and non-nuclear (commercial) equipment and materials. Additionally, the group develops Commercial Grade Dedication plans and packages, both for onsite dedication, and in support of CGD that occurs during fabrication subcontracts with nuclear suppliers.</i></p> <p><i>There is an EFCOG Community of Practice for PtEs under Safety WG's QA Subgroup.</i></p>
Procurement Quality	<ol style="list-style-type: none"> 1. Graded application of quality approaches to acquisition. 2. At LANL, the process of verifying that the technical and quality aspects of a quality related procurement meet the requirements of P841-1 and legacy P840-1 Policies [IQPA Procurement Quality Team]
Procurement Quality Subject Matter Expert (P-QSME)	The quality assurance expert assigned by the IQPA-IQ Group Leader to review and approve quality-affecting procurements. [P841-1, <i>Quality Procurements</i> , r5]
Procurement Technical Subject Matter Expert (P-TSME)	The technical and quality expert for the item and/or service being procured who establishes the technical and quality requirements for the item and/or service being procured and who is authorized in accordance with Section 6.0, <i>Training</i> , of this document. [P841-1, <i>Quality Procurements</i> , r5]
Professional Engineer (P.E.)	<p>A design professional registered in one or more states. [ESM Ch. 1 Z10] A P.E. must (1) earn a four-year degree in engineering from an accredited engineering program(link is external), (2) pass the Fundamentals of Engineering (FE) exam, (3) complete four years of progressive engineering experience under a PE, and (4) pass the Principles and Practice of Engineering (PE) exam (NSPE).</p> <p>A P.E.'s application of their stamp and signature to a work product is "sealing."</p> <p>Per the NM Engineering and Surveying Practice Act (2023), a signing/sealing P.E. must "be in responsible charge of and directly responsible for the work." Also, "responsible charge" means "responsibility for the direction, control and supervision of engineering ... to assure that the work product has been critically examined and evaluated for compliance with appropriate professional standards by a licensee in that profession, and by sealing or signing the documents, the professional engineer ... accepts responsibility for the engineering ... work ... represented by the documents and that applicable engineering ... standards have been met."</p> <p><i>This does not mean the P.E. did any of the work personally, only that they take responsibility for it.</i></p> <p>See also Engineer of Record and Design Professional in Responsible Charge.</p>
Pro forma (not proforma)	The content of a procurement routinely included with the statement of work (e.g., conditions, exhibits), the majority of which is unchanging. <i>Less formally called boilerplate.</i>

Programmatic	<p>For SSCs, current terms are Programmatic Real Property (below) and, at least within NNSA, Personal Property instead, so refer to those definitions herein.</p> <p><i>Historical definitions of programmatic were:</i></p> <ol style="list-style-type: none"> 1. A synonym for Personal Property and Programmatic Equipment. PP&PE is equipment used purely for programmatic purposes, such as reactors, accelerator machinery, chemical processing lines, lasers, computers, machine tools, etc., and the support equipment dedicated to the programmatic purpose. This property/equipment is also referred to as organizational, research, production, operating or process and was formerly known as Class B. [former DOE Order 4330.4B]. 2. Work or equipment that is tenant, R&D, or process – not facility, utility, infrastructure, or environmental program related. [ESM Ch. 1, Z10; Ch. 8 D3060.90; Ch. 16, IBC-GEN]
Programmatic Real Property	<p>Refers to reactors, accelerators, and similar devices used by programmatic personnel and listed in the Facilities Information Management System as “Other Structures and Facilities” under the 3000 series usage codes, such as 3009, 3209, 3221, 3251 and 3261. [DOE O 430.1 Chg 2, Real Property Asset Management]</p> <p><i>ESM Ch. 1 Z10 r15 and previous referred to such as Programmatic–Process.</i></p>
Program Requirements Document (PRD)	<p>[For a large project, i.e., over \$50M, a line item] the document that translates the “need” in the Mission Need Statement into initial top-level requirements addressing such concerns as performance, supportability, physical and functional integration, human integration, security, test and evaluation, implementation and transition, quality assurance and configuration management. [AP-350-101 r1] <i>Note, PRD abbreviation may also mean project record document.</i></p>
Program Strategy and Execution–Information Management (PSE-IM)	<p>LANL organization supporting document control and records management (formerly SI-DCRM). <i>RM webpage here.</i></p>
Project	<ol style="list-style-type: none"> 1. An undertaking that encompasses a set of tasks or activities having a definable starting point and well-defined objectives. Usually, each task has a planned completion date (due date) and assigned resources. 2. A set of related activities needed to produce specific products or services to meet a customer’s requirement. In contrast to programs, projects are finite (have a definite beginning, middle, and end). <i>LANL projects are typically a subset of, and funded by, a LANL program.</i> 3. In the Engineering Standards, ANY task or activity involving the installation, modification, or permanent removal of an SSC at LANL managed formally or otherwise. Includes related fabrication, construction, procurement — and maintenance activities where required — and may not be a formal project or subproject, nor subject to Project Management’s SD350 and related procedures. “Task” means the same. [ESM Ch. 1, Z10; Ch. 16 IBC-GEN] <p><i>PM process per SD350 categorize small projects as \$50M and below, above which are line-item projects.</i></p>

Project Engineer (PE)	<ol style="list-style-type: none"> 1. Individual assigned by engineering management as the single point of contact for design activities. [AP-341-610, ESM Ch. 1, Z10] 2. The person who directs, leads, and manages assigned engineering personnel and engineering support including engineering subcontractors (EOR), manages technical resources and ensures that proper engineering processes are followed, and ensures project owner needs and technical requirements are followed. [D-B Construction SOW Template 21NOV2022] <p><i>Note, "PE" may mean professional engineer in a sealed design context, but "P.E." may be more common for that role and is preferred.</i></p>
Project Equipment List (PEL)	An equipment/component listing the project delivers as a turnover document (xls). LANL finalizes and uploads the PEL to become the Master Equipment List (MEL) in CMMS for the operating facility. [ESM Ch. 1 Z10]
Project Identification Number (PID, formerly PI#)	For projects subject to SD350, "a unique tracking number used to reference documents, establish document numbering, and ensure roll-up of any associated work orders to give complete project information over the entire project lifecycle. If a PID has not been assigned to the project, the PM submits the PID request at pid.lanl.gov . [AP-350-100, R9.1; AP-350-105] <i>The website has a useful project lookup page directly here.</i>
Project Lead	Project manager (assigned by organization), project leader (assigned by PM Division) or other designated individual responsible for the management and overall design effort of the project. [ESM Ch. 11]
Project Management	General term for activities related to the execution of projects. <i>In CoE documents, this normally means the LANL functional project manager overseeing the scope, schedule, and budget. LANL has many organizations dedicated to this (ALDICP, others); the Project Management Resource Center (PMRC) Procedures, Training & Development Project/Program (PM-PTD) website has selected SD350-series APs, WI, and other documents linking to EDRMS. Latest DOE PM directives may be here. The DOE-OPM Lexicon of Terms also exists for that scope. Briefing slide sets on the key DOE guides on PM here: EFCOG PDWG's Training Express Some outside-DOE PM terms here.</i>
Project Manual	The written documents prepared for, or made available for, procuring and constructing the Work, including but not limited to the Bidding Documents or other construction procurement documents, geotechnical and existing conditions information, the Agreement, bond forms, General Conditions, Supplementary Conditions, and Specifications. The contents of the Project Manual may be bound in one or more volumes. [EJCDC® C-700]

Project Phases	<p>Per SD350 r12, phase gates for small projects (not over \$50M/not a line item):</p> <ul style="list-style-type: none"> • Phase 1 – Initiation (Conceptual Design) • Phase 2 – Definition (Preliminary/Final Design) • Phase 3 – Execution (Construction/Installation) • Phase 4 – Startup, Testing, and Turnover • Phase 5 – Closeout <p>For those over \$50M (line items, tied to DOE O 413.3B):</p> <ul style="list-style-type: none"> • Phase 1 – Initiation • Phase 2 – Definition (Conceptual Design) • Phase 3 – Execution -Design (Preliminary and Final Design) • Phase 4 – Execution -Construction • Phase 5 – Execution -Startup, Testing, and Turnover to Operations • Phase 6 – Closeout <p><i>See also Critical Decisions herein for related project milestones.</i></p>
Project Record Document (PRD)	<p>Final (e.g., closeout) documents that incorporate all field changes. “As-builts” are generally a small, critical subset of these. PRDs are QA records (while Issued-for-Construction precursors are not, per DCRM), so the signature(s) on PRDs are attesting that it reflects the installed condition to the best of their knowledge and thus fulfill the requirement for “authentication” (see that definition) before EDRMS storage. [based on CSI MasterFormat 01 7839 and DPIC’s 1999 Contract Guide (risk management handbook for AEs), pgs III-23 thru 25; ESM Ch. 1 Z10]</p>
Prompt Operability Determination (POD)	<p>In Safety Class (SC) or Safety Significant (SS) SSCs of Hazard Category 2 or 3 nuclear facilities:</p> <p>Operability determination of a Structure, System, and Component (SSC) as a follow up to an Immediate Operability Determination (IOD). A POD is warranted when additional information, such as supporting analysis, is needed to confirm the results of an IOD. [LANL Definition of Terms, 2024-8-15]</p> <p><i>A CSE process normally completed within 72 clock hours of its initiation unless the FEM requires different period. [AP-341-516 r3.1]</i></p>
ProtoSTAR	<p>“The ProtoSTAR Common Design Pilot is an initiative to develop a common scalable design for administrative space that could be deployed at various NNSA Sites. The common design will be developed utilizing three Pilot Sites...” [ProtoSTAR Pilot Project Feasibility Study, r0]</p>

Public	<ol style="list-style-type: none"> 1. For nuclear safety, "All individuals outside the DOE site boundary." [DOE-STD-3009-2014 and DOE G 420.1-1A, Nonreactor Nuclear Safety Design Guide for use with DOE O 420.1C, Facility Safety] 2. Otherwise, IBC-2021 includes these public-related definitions. LANL interpretation guidance follows each. PUBLIC ENTRANCE. An entrance that is not a <i>service entrance</i> or a <i>restricted entrance</i>. <i>At LANL, this definition generally works as written, entrance leads to public-use areas (see below)</i> RESTRICTED ENTRANCE. An entrance that is made available for common use on a controlled basis, but not public use, and that is not a <i>service entrance</i>. <i>At LANL, works as written; most entrances are of this type, have a badge reader.</i> PUBLIC WAY. A street, alley or other parcel of land open to the outside air leading to a street, that has been deeded, dedicated or otherwise permanently appropriated to the public for public use and which has a clear width and height of not less than 10 feet (3048 mm). <i>At LANL, no such deeding has occurred, but designers should follow the intent and consider such land a public way.</i> PUBLIC-USE AREAS. Interior or exterior rooms or spaces that are made available to the general public. <i>At LANL, the unbadged areas of Otowi and the Research Library, and the Bradbury Science Museum, may fall into this category.</i>
Public Building	<p>(1) Any building that is suitable for office and/or storage space for the use of one or more Federal agencies or mixed-ownership corporations, such as Federal office buildings, post offices, customhouses, courthouses, border inspection facilities, warehouses, and any such building designated by the President. It also includes buildings of this sort that are acquired by the Federal Government under the Administrator's installment-purchase, lease-purchase, and purchase-contract authorities.</p> <p>(2) Public building does not include buildings:</p> <p>...</p> <p>(v) On or used in connection with river, harbor, flood control, reclamation or power projects, or for chemical manufacturing or development projects, <u>or for nuclear production, research, or development projects.</u></p> <p>[41 CFR 102-71.20 (2023)]</p> <p><i>At LANL, the nuclear exclusion is likely applicable to most or all of the LANL site; however, for the rare building that's entirely public-use (e.g., Bradbury Science Museum if not leased space), it might be considered "public;" Legal Counsel might be consulted if warranted.</i></p>
Q	TOP
Qualification, Personnel	<p>The characteristics or abilities gained through education, training, or experience, as measured against established requirements, such as standards or tests that qualify an individual to perform a required function. [NQA-1, Part I, 400]</p>

Qualification Standard (QS)	The formal documentation of qualification or certification requirements [for] an individual assigned to the position. Information in the QS is extracted from the approved Qualification Program developed for that position. [adapted from LANL Definition of Terms ; P781-1; P343]
Qualification Tests	Testing that demonstrates adequate performance of items under conditions that simulate the most adverse design conditions. (ASME NQA-1) [AP-341-620]
Qualified Inspection Agency (or Agent), QIA	LANL-Qualified Inspection Agency (or Agent) acceptable to the LANL Building Official. This is most often the ES Chief Inspector's Owners Building Inspectors (OBIs) which includes the ASME Owner's Inspectors but also includes any others when approved by the Chief such as third-party inspectors, QC inspectors (<i>in IQPA</i>), or MSS-MP SMEs (e.g., <i>boilers, elevators</i>). It also includes these organizations that maintain a separate qualification program accepted by the LBO: (1) for electrical safety/NEC, the ES&H OSH-HEO Chief Electrical Inspector's Office/Team (EIT), (2) Fire Protection, (3) CWIs approved by the Welding Program Administrator and NDE examiners approved by the Responsible Level III per ESM Ch. 13 Vol. 6 and in the associated database . [ESM Ch. 16, IBC-GEN; IBC-IP]. <i>See also definitions of Inspection, Inspector, LANL Inspector, and Owners Building Inspector.</i>
Quality Assurance (QA)	<ol style="list-style-type: none"> 1. All those actions that provide confidence that quality is achieved. [10 CFR 830; LMS 01 4000]. 2. Measurable systematic actions to assure confidence that the implementation of planned activities result in meeting objectives, goals, and contract documents. [ICC's Accreditation Criteria and Special Inspection Manual] 3. All the planned and systematic activities implemented within the quality system that can be demonstrated to provide confidence that a product or service will fulfill requirements for quality. [ASQ.org] <p><i>In LANL construction work, this is the overall quality approach that normally includes QC (see below) with QA by LANL or a LANL (e.g., LBO)-approved third party and being a second, overlayed, higher level of verification sufficiently independent of work organization to verify work/QC is performed properly. Such QA has two parts: (1) prior to work, LANL reviews the constructor's quality program to ensure acceptability (e.g., might require editing of QC forms described below to add/delete data capture, steps, or checks), and (2) during or after work, inspectors perform checks on items and QC forms in the field (during work being a Hold or Witness Point).</i></p>
Quality Assurance Subject Matter Expert (QA SME)	A person who performs the quality assurance role defined in P341 Facility Engineering Processes Manual and administrative procedures (e.g., AP-341-513, AP-341-601, AP-341-602, AP-341-610, AP-341-703). <i>When role is in the procurement process, see Procurement Quality SME (P-QSME).</i>

Quality Control (QC)	<p>The act of examination, testing, or measurement that verifies processes and services, or documents conform to specified criteria. [ICC's Accreditation Criteria and Special Inspection Manual; LMS 01 4000; ESM Ch. 16 IBC-IP Att. I TIP]]</p> <p><i>In LANL construction work, QC is the constructor's responsibility. It is the in-process or soon-after, first level of verification of quality that's not necessarily financially independent of the work-performing entity. The constructor will have a quality program (normally termed Quality Assurance or Quality Control). For QC, each equipment item type and important installation activity should have an individualized QC sheet (e.g., anchor install, cable pulling). A QC person (there might be one per 25 workers) checks such installations and watches such actions, completes a sheet for each, signs, and dates. The sheets are reviewable by QA personnel and become a part of the project records.</i></p> <p><i>In ASME code work, such QC is termed Examination. With structural steel fab, both QC and QA is normally termed Inspection. See also Examination, Inspection, and QA usage note above.</i></p>
Quality Inspection Plans	<p>Indicates examinations or activities that are designated as witness and hold points during a modification implementation. Specifies examination method, acceptance criteria, and testing procedures. <i>Part of the Design Change Form. Quality inspection requirements required by ESM Chapter 16. [AP-341-517] Sometimes is a TIP, other times a PMT, ref. Ch. 16 IBC-IP Att. J.</i></p>
Quality Level (QL)	<p>Grading structure which is used to establish the level of rigor used to implement quality assurance controls for the procurement of items and/or services. [P841-1, R5, AC2] <i>Per P841-1, Table 1, QL-1 is Nuclear Quality, QL-2 is Enhanced Quality, and QL-3 is Standard Quality. Applies to purchases by LANL, not its subcontractors.</i></p>
Quality Verification Document (QVD)	<p>A document, or collection of documents, providing objective evidence that specified requirements have been satisfied, to the extent required by an approved Purchase Order. Documents include but are not limited to, inspection reports, test reports, nondestructive examination reports, certificates of compliance, material test reports, and the like. [24590-WTP-GPG-AS-008, Rev 0]. <i>A QVD is typically required to be completed prior to shipment. PF-4's LAP4 project uses them and has developed a work instruction for them.</i></p>
Quality Verification Record (QVR)	<p>Documents and verifies the quality of a product, process, or service. Quality verification records are part of a company's Quality Management System (QMS). [Google AI 2025-1-29]. <i>See also Records/ NQA-1 QA Records herein.</i></p>
R	TOP
Readiness Assessment (RA)	<p>An assessment to determine a facility's readiness to startup or restart when an ORR is not required or when a contractor's standard procedures for startup are not judged by the contractor or DOE management to provide an adequate verification of readiness. [DOE 413.3B]. <i>This is the less rigorous of two DOE/NNSA approaches defined by DOE O 425.1D — the other being an Operational Readiness Review (ORR, called FORR by PD115). Both are preceded by a Contractor Readiness Review step (see that term). LANL site.</i></p>

Real Property	<p>(1) Any interest in land, together with the improvements, structures, and fixtures located thereon (including prefabricated movable structures, such as Butler-type storage warehouses and Quonset huts, and house trailers with or without undercarriages), and appurtenances thereto, under the control of any Federal agency, except ... [snip, n/a to LANL].</p> <p>(2) Improvements of any kind, structures, and fixtures under the control of any Federal agency <u>when designated by such agency for disposition</u> without the underlying land (including such as may be located on the public domain, on lands withdrawn or reserved from the public domain, on lands reserved or dedicated for national forest or national park purposes, or on lands that are not owned by the United States) excluding, however, prefabricated movable structures, such as Butler-type storage warehouses and Quonset huts, and house trailers (with or without undercarriages).</p> <p>[Management Regulation 41 CFR 102-71.20 (2023)]</p> <p>See Facility for related discussion.</p>
Reasonable Assurance	<p>In the context of commercial grade item acceptance, reasonable assurance is an engineering determination premised upon a justifiable level of confidence based on objective and measurable facts, actions, or observations from which adequacy of the item for its intended purpose can be inferred. (DOE-HDBK-1230-2019) [AP-341-703]</p>
Recommended	<p>Not required, suggested method only. [National CAD Std v6]</p>

Records	<p>In accordance with 44 U.S.C. 3301, <i>Definition of Records</i>, records include all books, papers, maps, photographs, machine-readable materials, or other documentary materials, regardless of physical form or characteristics, made or received by an agency of the United States government under federal law or in connection with the transaction of public business and preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the government or because of the informational value of data in them.</p> <p>Note: At the Laboratory, records include information—regardless of medium or characteristics— created or received in connection with the transaction of Laboratory programs and operations, and preserved as evidence of policies, decisions, procedures, and operations because of their informational and evidential value. Examples include, but are not limited to, official correspondence and memoranda (including e-mail); LANL-produced or -controlled publications (such as Los Alamos Unlimited Release [LA-UR] documents); project plans and reports; technical reports; calculations; as-built specifications; completed Laboratory forms; project-acceptance reports; test/inspection reports; and stack emission filter raw data.</p> <p>NQA-1 QA Records—Consist of two categories: Lifetime and Nonpermanent. Lifetime QA Records meet one of the following criteria: 1) records that would be of significant value in demonstrating capability for safe operation; 2) records that would be of significant value in maintaining, reworking, repairing, replacing, or modifying an item; 3) records that would be of significant value in determining the cause of an accident or malfunction of an item; or 4) records that provide required baseline data for in-service inspections. Lifetime Records must be retained for the life of the item. Nonpermanent QA Records provide evidence that an activity was performed in accordance with applicable requirements, but do not meet the criteria for Lifetime Records. Nonpermanent Records must be maintained for the identified retention period. [P1020-1, r14]</p> <p><i>See also Project Record Documents.</i></p>
Redline	Design revision control process with less formality than a field change request (FCR). <i>Being introduced for non-nuclear projects by Alternate Method VAR-10715 to AP-341-519 in early 2025.</i>
Redundant Path	An installation of secondary or alternate path or system so that if one system goes down, the connection between other systems will not be broken [ESM Ch. 19, G50]
Reference Document	<ol style="list-style-type: none"> 1. One related to — and either mentioned or invoked by — the referring document. <i>Simply referencing is not invoking/mandating. “Invoked by reference” requires a clear statement that the referenced document must be followed.</i> 2. In a construction sense, one provided in and referenced by a procurement or work package because it supports completion of the task (but is itself generally not the main design). <i>Examples: (1) a useful existing site or building plan; (2) a geotechnical report provided to a design agency to facilitate adequate foundation design.</i>

Relocatable Structure	Facilities including manufactured structures, mobile homes, trailers, semi-trailers, modular type structures, factory assembled structures, cargo containers, hazardous materials or flammable liquid storage containers, air supported/inflated structures, tent/membrane, and cloth/rib structures. This term does not apply to (a) trailers and cargo containers that are being used in the transportation mode for conveying materials while on-site, or to (b) prefabricated buildings designed for a permanent location, or to (c) structures placed on a slab and intended for permanent installation. [DOE-STD-1066-2023] <i>Note, 2023 edition may not yet be implemented; see ESM Ch. 2.</i>
Repair	<ol style="list-style-type: none"> 1. In all contexts, the process of restoring a nonconforming characteristic to a condition such that the capability of an item to function reliably and safely is unimpaired, even though that item still does not conform to the original requirement. [NQA-1/P330-6] 2. In the context of existing-SSC IEBC categories, 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. <i>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).</i> [adaptation of IEBC; ESM Ch. 16 IBC-GEN PPD FM01.]
Replicable Building	A building or structure utilizing a replicable design. [IBC-2021, App. N] <i>Many prefabricated buildings are of this type; see ESM Ch. 16, IBC-GEN.</i>
Replicable Design	A prototypical design developed for application in multiple locations with minimal variation or modification. [IBC-2021, App. N]
Request for Impact (RFI)	LANL Prime Contracts process for Management Systems Sponsors and Leads to perform an impact assessment on NA-LA proposed new/revised directives per SD310. <i>See below for more common use of RFI in engineering.</i>
Request for Information (RFI)	<p>A document that presents a technical question initiated by the subcontractor when:</p> <ul style="list-style-type: none"> • The Subcontractor is unable to understand the technical document (e.g., scope, specification, drawings, or data). • Discovers or perceives a conflict, ambiguity, error, or omission in or among the technical documents. [STR AP-850-300 r6] <p><i>See also Engineering Request for Information (ERFI) for LANL-internal corollary.</i></p>
Request for Proposal (RFP)	A solicitation to bidders that includes the technical scope of work. [ESM Ch. 1 Z10]

Requirements	Expectations that the facility, system, or component must meet for successful performance of its mission. Requirements should be traceable, measurable, and testable. [AP-341-602]
Requirements and Criteria Documents (RCD)	Requirements and Criteria Document. Establishes design requirements and maintains the technical baseline for a project. Required for line item, GPP, and complex projects. Will be based on FRD, if present. [AP-341-602, ESM Ch. 1, Z10]
Requirements Verification Matrix (RVM)	A document that is used to identify, plan and track completion of V&V activities, by requirement. The RVM is typically developed for each system using the requirements in the system specification. [ESM Ch. 20]
Research and Development (R&D)	Any creative systematic activity undertaken in order to increase the stock of knowledge, and the use of this knowledge to devise new applications. (SD601).
Research and Development Engineering	Experimental or creative engineering work effort that contributes to the scientific or engineering body of knowledge or results in a tangible product meeting a mission need. Includes both engineering research and technology development, and engineering activities performed in support of R&D. [PD370, Conduct of Engineering for Research and Development (R&D)]
Responsible Engineer (RE)	Assigned by Engineering Management. The following may be assigned the role of RE: Design Engineer, Plant System Engineer, Cognizant System Engineer, Process Engineer, Project Engineer, External Design Agency Engineer. [AP-341-517]
Responsible Line Manager (RLM)	Manager role assigned duties, authorities, and accountability by one or more policy documents.
RevCom	The online review, comment, and approval system for draft documents (e.g., directives , standards , and LANL policy and some CoE documents). Review is generally by invitation from a POC. The document is parsed into small segments to which comments are entered. REVCOM (portmanteau of review & comment) tool is maintained by "doxcelerate," a LANL spinoff.
Risk Category (RC)	A categorization of buildings and <i>other structures</i> for determination of <i>flood</i> , wind, snow, ice, and earthquake <i>loads</i> based on the risk associated with unacceptable performance. [2021 IBC; ESM Ch. 5, Section I]. <i>One of four survivability grading levels for non-nuclear structures defined by IBC Chapter 16 Table 1604.5. LANL began using around 2004 with IBC adoption, replacing PC for new non-nuclear NPH determinations. See also Performance Category.</i>
Risk-Based Graded Approach	Involves grading based on consideration of consequence of SSC failure and its probability of failure to perform assigned function(s). Provides the basis for establishing the degree of technical and administrative oversight and control required to ensure that the SSC can meet its required function(s) for protection of the public, the worker, the environment, classified assets, or its ability to support LANL mission commitments. [P341]

S	TOP
Safety Basis	<p>The documented safety analysis and hazard controls that provide reasonable assurance that a DOE nuclear facility can be operated safely in a manner that adequately protects workers, the public, and the environment. [10 CFR § 830.3]</p> <p><i>The Design, Authorization, and Safety Bases (and CM helping protect them):</i></p> <p style="text-align: right;">82</p> <p>Credit: EFCOG EPSG CoE course slides 9/2020</p>
Safety Class (SC) SSCs	<p>Structures, systems, and components, including portions of process systems, including portions of process systems who's preventative or mitigative function is necessary to limit radioactive hazardous material exposure to the public, as determined from the safety analyses. (From 10 CFR 830.3 and SBP-114-2) [AP-341-502, ESM Ch. 1, Z10, ESM Ch. 8 D3060.90]</p>
Safety Evaluation Report (SER)	<p>The report prepared by DOE to document:</p> <ol style="list-style-type: none"> (1) The sufficiency of the documented safety analysis for a Hazard Category 1, 2, or 3 DOE nuclear facility; (2) The extent to which a contractor has satisfied the requirements of Subpart B of this part; and (3) The basis for approval by DOE of the safety basis for the facility, including any conditions for approval. [10CFR830.3] <p><i>Effectively the authorization basis; see graphic at Safety Basis above.</i></p>
Safety Function	<p>The performance of an item necessary to achieve safe, reliable, and effective utilization in a nuclear context. Safety functions are defined and documented in facility safety analysis documents. [AP-341-607, AP-341-610] <i>Function in general is defined more fully here.</i></p>
Safety Limit	<p>A limit on process variables associated with safety class physical barriers that are necessary for the intended facility function and that are required to guard against the uncontrolled release of radioactive materials. [10 CFR § 830.3]</p>

Safety Management Program Owner (SMPO)	<ol style="list-style-type: none"> 1. Broadly, the responsible manager of a program that helps keep a nuclear facility within its authorization basis [10CFR830 plus DOE O 450.2] <i>These include maintenance, rad protection, fire protection, others.</i> 2. Within CoE, the technical authority on issues relating to national codes and standards, DOE Orders, and the Engineering Standards. LANL has assigned individuals as SMPOs for each of the LANL SMPs, and security programs have similar individuals. [P342; PD340 r8] <i>The LANL Site Chief Engineer is the SMPO for the engineering and pressure safety functional areas and has designated the Engineering Standards Points of Contact (POCs) as the SMPO representatives for opinions on the disciplines within them; this includes general, civil, architectural, structural, mechanical, instrumentation and control, hazardous process, nuclear, welding, sustainable design, commissioning, pressure safety, systems engineering and software. The SMPOs of other SMPs and programs (e.g., fire protection, radiation protection, electrical safety, etc.) and security programs designate SMPO representative authority in their areas of responsibility.</i> <p><i>Some SMPOs may also use the alternate title of Authority Having Jurisdiction (AHJ), particularly when this latter term is recognized in their technical documents (e.g., National Fire Protection Association [NFPA] standards.</i></p>
Safety Related (Item)	<ol style="list-style-type: none"> 1. Item that has been designated Management Level (ML) 1 or 2 in Hazard Category 2 and 3 nuclear facilities. [AP-341-607] <i>Note: Only ML-1 and 2 in nuclear excludes ML-1/2 that may be elsewhere.</i> 2. A term meaning safety class, safety significant, and those ML-1 and ML-2 SSCs that could potentially impact public or worker safety or the environment in the same way as safety class or safety significant systems respectively. [ESM Ch. 8 D3060.90] <i>Thus effectively all ML-1 and ML-2.</i> <p>Use definition based on document intent until it is eliminated or made consistent and term itself clarified to be less ambiguous.</p>
Safety Significant Instrumented System (SIS)	<p>An SS system or 29 CFR 1910.119 hazardous process independent protection layer that requires instrumentation, logic devices and final control elements to monitor and detect a ML-2/SS event, and which will result in automatic or operator action that will bring the facility or process system to a safe state. [ESM Ch. 8 D3060.90]</p>
Safety Significant (SS) SSCs	<p>Those structures, systems, and components which are not designated as safety-class structures, systems, and components, but whose preventive or mitigative function is a major contributor to defense-in-depth and/or worker safety, as determined from safety analyses. Support systems have the potential to be Safety Significant as well. (From 10 CFR 830.3 and SBP-114-2) [AP-341-502, ESM Ch. 1, Z10]</p>

Safety Software	<ol style="list-style-type: none"> 1. Includes safety system software, safety and hazard analysis software and design software and safety management and administrative controls software. [DOE G 414.1-4, Safety Software Guide for Use with 10 CFR 830, Subpart A, Quality Assurance Requirements, and DOE O 414.1C, Quality Assurance] 2. Software that includes any of the following: SSS, SHADS, or SMACS. Both SSC software and non-SSC software can be safety software. [P1040; Form 2033 Graded Software Inventory; ESM Ch. 21, SOFT-GEN]
Safety System Oversight (SSO)	SSO personnel oversee contractor management of safety systems at DOE defense nuclear facilities and are responsible for overseeing assigned systems to ensure they will perform as required by the safety basis and other applicable requirements. <i>DOE O 420.1C, Facility Safety, requires Field Element Managers to provide oversight of the implementation of the cognizant system engineer (CSE) program and the operability of associated safety systems within the CSE program. The personnel who are assigned this responsibility are typically referred to as SSOs.</i> [DOE-STD-8000-2021]
Sampling Plan	A plan developed to determine the definition of appropriate lot and sample size to achieve reasonable assurance that the sample size chosen provides an adequate representation of the item(s) quality. (DOE-HDBK-1230-2019) [AP-341-703]
Schedule of Values	A statement furnished by Subcontractor allocating portions of the Subcontract sum to various portions of the Work and used as the basis for reviewing Subcontractor's Applications for Payment (i.e., Subcontractor's proposed payment schedule based on milestones). [LMS 01 3300 r7]
Sensitive Compartmented Information Facility (SCIF)	An accredited area(s), room(s) or building(s) where Sensitive Compartmented Information (SCI) is stored, used, processed or discussed. [UFC 4-010-05; ESM Ch. 9]
Secondary Function(s)	Functions that are precursor requirements for the Primary Function. [AP-341-601]
Security Areas	<ul style="list-style-type: none"> • General Access Areas (GAA) will never contain classified matter and are accessible to all workers and the public. • Property Protection Areas (PPA) may contain CUI, UCNl and up to Category IV Special Nuclear Material, and require active badges to access. • Limited Areas (LA) may contain CUI, up to Secret Restricted Data and up to Category III SNM and require L or Q clearance to access. • Protected Areas (PA) may contain up to CUI, SRD and Category II SNM, and require an L or Q clearance to access. • Material Access Areas (MAA) may contain up to Category I SNM and Category II SNM with credible rollup to Category I. Unescorted access requires a Q clearance and enrollment in the Human Reliability Program. <p><i>ESM Ch. 9 Security, provided when needed, includes this and other details.</i></p>

Server Equipment Room	An equipment room that houses mainly computer servers. In information technology circles, the term “server equipment room” is generally used for groups of servers housed in data centers. Server equipment rooms may also house headless systems that are controlled remotely via keyboard/video/mouse (KVM) devices, Virtual Network Computing (VNC), or other terminal emulation software to the desktop. [ESM Ch. 19, D60]
Service	The performance of activities such as design, fabrication, inspection, nondestructive examination, repair, or installation. (ASME NQA-1) [AP-341-703] <i>In a building electrical supply, service entrance is a physical place.</i>
Service Innovation-Document Control Records Management (SI-DCRM)	Former name of LANL organization supporting these functions, now Program Strategy and Execution–Information Management (PSE-IM). <i>RM webpage here.</i>
Shall	Denotes a requirement (versus “should”) [DOE O 6430.1A and DOE Std Style Guide]. “Must” denotes the same and is the preferred term in DOE orders and LANL policy documents [P311-1]. (<i>“Will” is sometimes used to convey future LANL intended actions in specifications that direct constructors with “shall” type directive language</i>).
Shall Consider	Requires that an objective assessment be performed to determine to what extent the specific factor, criterion, guideline, standard, etc., will be incorporated into or satisfied by the design. The results and basis of this assessment shall be documented. Such documentation shall be retrievable and can be in the form of engineering studies, meeting minutes, reports, internal memoranda, etc. [archived DOE O 6430.1A, 0101-3.2]. Such documentation shall be submitted to LANL for approval where directed by the contract or upon request. “Shall analyze” and similar “shall XYZ” directive statements mean the same — do so and document having done so (<i>if it isn’t documented it didn’t happen by the old QA adage</i>).
Shop Drawings	All drawings, diagrams, illustrations, schedules, and other data or information that are specifically prepared or assembled by or for Subcontractor and submitted by Subcontractor to illustrate some portion of the Work. Shop Drawings, whether approved or not, are not Drawings and are not Subcontract Documents. [LANL adaptation of EJCDC® C-700] <i>Note that “Shop Drawings” are specifically not part of the main Subcontract Documents, rather are often required submittals during Title III (or possibly references for a subsequent subcontract). They are a detailed drawing directing fabrication and/or installation. Term is generally limited to the detailed implementation of engineering design drawings (sometimes preliminary in nature) and/or calculations. As such, shop drawings are generally not engineering outputs necessitating professional engineer sealing, but when an engineering output they must be sealed. Search “sealing” in ESM Ch. 1 Z10.</i>
Should	Denotes a recommended action or expectation. [DOE O 426.2, PD115]
Significant Modification (fire protection/life safety)	An addition, alteration, renovation, or repair to an existing facility that involves a change in floor area, number of stories, size of rooms, use of the area or occupancy of the structure. A significant modification does not include replacement with a like structure or equipment. [DOE-STD-1066-2023] Note, <i>LANL may not fully utilize 2023 currently; see ESM Ch. 2 to determine.</i>

Site	May refer to the entire LANL property or the location of a project (take meaning from context).
Software Quality Assurance (SQA)	The process of ensuring software works as intended. <i>Those responsible for this must follow either ESM Chapter 21 or P1040 (assistance from IQPA-IQ here) depending on scope. Both have many SQA-specific definitions.</i>
<i>Software Standards definitions not shown herein</i>	See ESM Chapter 21 , e.g., Section SOFT-GEN Appendix A: Chapter 21 Definitions, Responsibilities, and Acronyms . Others are in P1040 .
Special Inspection	A process of inspection, testing, and reporting by LBO-approved special inspectors and testing agencies to assure the LBO that the construction of critical elements, materials, and life safety systems is being performed in accordance with the approved construction documents and IBC Ch. 17. The Statement of Special Inspections (see IBC-IP and its Att. B) describes the tasks for a given project. [ESM Ch. 16 IBC-GEN]
Special Inspection Agency (SIA)	Organization providing special inspectors and managing their training and qualification in accordance with this Chapter. Also known as Inspection Agency. This is LANL or Subcontractors it may approve to perform this work [ESM Ch. 16 IBC-GEN]
Special Inspector (SI)	Individual who has specialized knowledge, training, experience, and certification(s) for one or more of the types of construction subject to special inspection [ESM Ch. 16 IBC-GEN, IBC-IP]
Special Process	A process, the results of which are highly dependent on the control of the process or the skill of the operators, or both, and in which the specified quality cannot be readily determined by inspection or test of the product. [NQA-1 2008/9; SD330; P330- 5]. <i>Examples include, but are not limited to, welding, heat-treating, nondestructive examination (NDE), application of critical coatings, and specialized cleaning and must be performed by qualified personnel using qualified procedures in accordance with specified requirements.</i>
Specific Administrative Control	An administrative control that is identified to prevent or mitigate a hazard or accident scenario and has a safety function that would be safety significant or safety class if the function were provided by a structure, system or component. [DOE-STD-3009-2014; DOE-STD-1186-2016]
Specifications	<ol style="list-style-type: none"> 1. The part of the Subcontract that consists of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable to the Work. [LANL adaptation of EJCDC® C-700, <i>Standard General Conditions of the Construction Contract</i> (2013), Para 1.01.A.] 2. Written technical description of materials, equipment, systems, codes, standards, inspections, tests, and workmanship that complement the engineering drawing's graphical descriptions of scope, extent, and character of the work to be performed by the work provider. [AP-341-610; ESM Ch. 1 Z10 Att. F] <p><i>See ESM Z10 Att. F for requirements related to spec development.</i></p>
SpecLink	Brand of project specification development software. <i>Software sold by RIB (formerly by BSD). LANL CoE is implementing a cloud-based version (SLC) for use by ES Division and selected others with LANL and RIB masters in FY24.</i>

Stand-alone Documents	Documents with unique names and filed as unique documents in records management software. Examples: calculations, Design Change Forms (DCFs), and System Design Descriptions (SDDs). Also known as Parent Documents. [AP-341-402]
Standard	A set of guidelines and criteria against which a product can be judged. (WBDG) [They] include the common and repeated use of rules, conditions, guidelines, or characteristics for products or related processes and production methods. [OMB, Circular A-119]. <i>This may refer to LANL Engineering Standards, national or international standards, DOE Technical Standards, or other standards. Abbrev. "STD" is used in DOE and LANL document numbers.</i>
Standard Detail	<p>The repeatable details (ST-) in the LANL Engineering Standards collected as STD-342-400. [ESM Ch. 1, Z10] <i>(The collection also includes Example Drawings.)</i></p> <p><i>Standard Details are CAD corollaries to LANL Master Spec Sections — templates of repeatable design or legends that implement LANL design and construction expectations. They are intended to be copied onto a project's drawing file (using latest title block template) and finalized there (e.g., square bracket choices made, and designers notes considered). Editing expectations are the same as the specs (see ESM Ch. 1, §Z10 Att. F, Specifications). They are provided as AutoCAD .dwg files, along with a pdf for simple viewing.</i></p> <p><i>Numbering: In the character string ("ST-XXXXY-Z"), the XXXXY generally refers to the ESM chapter section to which the equipment most relates; for example, ST-G2010-1 under Civil relates to the G20 section of ESM Ch. 3 (specifically the G2010 subsection of it). The "-1" is a sequence number for uniqueness now or in the future.</i></p> <p><i>Standard Designs are similar to Details but are multi-discipline and more complex. Numbering may be similar to typical drawing set numbering.</i></p>
Standard Welding Procedure Specifications (SWPS)	A welding procedure prepared as an industry standard, such as AWS, and adopted for use by a manufacturer or contractor as permitted by the applicable fabrication or construction code. [ESM Ch. 13, Vol. 1, 1-99]
Statement of Special Inspections (SSI)	An inspection plan exclusively for the requirements of IBC Chapter 17. <i>General purpose is to prevent a catastrophic failure. Details at Sec. 1704.3 (IBC-2021); LANL template per ESM Chapter 16, IBC-IP, Att. B. [LMS 01 4000]</i>
Statement of Work (SOW)	A description of the outcome LANL wants delivered. <i>Formerly ASM Exhibits D and E (see Exhibits definition herein and P850). Some new Labwide templates here, and ES-Div SOW template for IDIQ AE task orders here. New templates for commercial construction coming in 2025.</i>
<i>Structural Standards definitions not shown herein</i>	See ESM Chapter 5 , Section I.
Structural Temporary Modifications	Includes temporary shielding, temporary supports (piping, electrical, mechanical, etc.), temporary enclosures or load-bearing partitions, general civil-type bracing, or structural members, and if using an SSC for safety – temporary rigging, lifting, or arrangements. [AP-341-504]

Structure	Structures are elements that provide support or enclosure such as building, freestanding tanks, platforms, towers, dikes, and stacks. For the purposes of management level determination, structures (if free standing) are treated as systems. [AP-341-502]
Structure, System, and Component (SSC)	Physical items designed, built, or installed to support the operation of the facility. A structure is an element or a collection of elements to provide support or enclosure such as a building, freestanding tank, basin, dike, or stack. A system is a collection of components assembled to perform a function such as piping; cable trays; conduits; or heating, ventilation, and air conditioning. A component is an item of equipment such as a pump, valve, or relay or an element of a larger array such as a length of pipe, elbow, or reducer. [DOE G 433.1-1A Chg 1]. <i>Thus, SSCs include facilities, not just equipment.</i> <i>This glossary includes alternate definitions for each term in SSC as well.</i>
Structures, Systems, and Components (SSCs) that are part of the safety basis	Safety-Class and Safety-Significant SSCs; other systems that perform important defense-in-depth functions; and equipment relied on for the safe operation and safe shutdown of the nuclear facility, and for maintaining the facility in a safe shutdown condition as documented in the safety basis (e.g., DSA). Support systems to Safety SSCs that are required for the safety functions are also included. [DOE G 433.1-1A Chg 1]
Subcontract	Any contract (see "Contract") entered into by a subcontractor to furnish supplies or services for performance of the Prime Contract or a subcontract requirement. [LANL ASM Procurement Policy and Procedure Manual , 2024-7-17 (click " procurement policies and procedures ")]
Subcontract Documents	<ol style="list-style-type: none"> 1. Denotes this Subcontract and those appendices and exhibits referenced thereon. [Master Fixed-Price D-B Construction template, Rev. 4 26FEB24] 2. Documents through which LANL procures work (e.g., design and/or construction services). [LMS 01 3300 r7] <p>See "Exhibits" and <i>Statement of Work</i> for more on some of these documents.</p>
Subcontractor	<ol style="list-style-type: none"> 1. Any supplier, distributor, vendor, or firm that furnishes supplies or services to or for a prime contractor or another subcontractor. [LANL ASM Procurement Policy and Procedure Manual, 2024-7-17(click "procurement policies and procedures")] 2. The individual or legal entity that has entered into a subcontract with Triad for delivery of goods and/or services (P850). Subtier Subcontractors (Subtiers) work for Subcontractors. <i>Prime Subcontractor term may used occasionally, perhaps informally and internal at LANL, to reinforce responsibility of that entity (versus subtier responsibilities) but is not defined/preferred.</i> [ESM Ch. Z10] 3. A legal entity that assumes by contract, obligations for delivery of a specified scope of work (product or service). As used herein, the term includes vendor, equipment vendor, fabricator, or constructor, and their sub-tier suppliers. [ESM Ch. 13, Vol. 1, 1-99] <p><i>Usage: See also Constructor and Contractor for additional information. ASM subcontracts use CONTRACTOR and SUBCONTRACTOR. For self-perform construction, use of "01 1117, Work by Owner—Self Perform" in a specification effectively modifies Subcontract-related terms to LANL ones.</i></p>

Subcontractor Deviation Disposition Request (SDDR), Form 2178	Form/process to document, disposition, review, and reject or approve deviations to subcontract requirements (i.e., procurement of items or services). Also identifies LANL actions resulting from subcontractor deviation such as the identification of changes to LANL design documents, identification of changes to the project baseline, and SDDR closure requirements. <i>Because it is initiated by the vendor, it is web posted on the Standards Homepage as well as the Forms Center, plus the ASM external Supplier Forms/Exhibits page (updates are manual and sometimes lag). ALDPI LAP4 LIP projects should use 2178-LIP. Some PFE design change SDDRs may require a USQ and FCR.</i>
Subcontract Technical Representative (STR)	[LANL-appointed-person] to perform Technical Oversight of subcontracts, engages LANL SMEs as appropriate and provides feedback to [identified LANL stakeholders] with issues pertaining to subcontract performance. [P850] <i>There are four types of STR, including AdSTR (Administrative/low-consequence), HSTR (High-consequence), PSTR (Programmatic), and STR (all others). The STR has no authority to direct commercial or technical changes to the subcontract. When work is self-performed by LANL, take to mean the Superintendent(s). [LMS 01 4216]</i>
Subject Matter Expert (SME)	The person (e.g., Responsible Engineer, System Engineer, Process Engineer, Principal Investigator, Scientist, other Professional Specialist, etc.) who has demonstrated and documented competence and expertise in a specific process, service, or item and is authorized to determine technical or performance adequacy, specifications, codes, standards, and/or quality-related requirements. [clarification of P850 r9]. <i>ES Division has Lead SMEs that mentor and assist discipline-specific functions across group lines. The Standards Program has POCs for each discipline with some overlap with Lead SME people.</i>
Submittal	In a LANL procurement using Exhibit I , term includes commercial (e.g., bonds), quality (e.g., qualifications), and/or engineering (e.g., intended product choice, shop drawings) for project AE and/or LANL review. [Exhibit I]. <i>Of these, engineering submittals (many also concern quality) are generally required by the Specification, transmitted and processed per its Section 01 3300 Submittal Procedures, and summarized by 01 3300 Att. A log for Design Agency and project action or information. Submittal formats include written and/or graphic information and occasionally physical samples or maintenance materials. [ESM Ch. 1 Z10 Att. F; LMS 01 3300]</i> <i>Transmittal to LANL document control currently via project-dcrm@lanl.gov (default), aldpi-dcrm@lanl.gov (TA55/PIE), or another inbox).</i> <i>When Design Agency is not LANL, only a subset is reviewed by LANL (deferred design being one example). All submittals are project records. LANL review process is AP-341-720.</i>

Submitted (signature field or line on design outputs such as drawings and Statements of Special Inspection)	<p>Design Agency signature affirming that the document was (1) <u>coordinated</u> among potentially affected disciplines and design entities and (2) required <u>checks, verifications, and reviews</u> were performed and review <u>comments resolved</u> per required processes. “Submitted by” may be same individual as Verifier.</p> <p><i>External (AEs): Should be signed by the Design Professional in Responsible Charge or possibly another lead in the firm. P.E. sealing may be by different person.</i></p> <p><i>LANL: Should be signed by the person with the best knowledge to affirm the above—the Responsible Engineer. For larger projects, this may be the lead or only Project Engineer, or the Group Leader. For very small tasks, it may be a design or system engineer. It could also be the FDAR (even when also “Accepting”). Note, AP output coversheets often don’t include “Submitted By” — e.g., calcs (AP-341-605), drawings (608), and specs (610) — for those, follow the instructions for the blocks present.</i></p>
Substantial Completion	<ol style="list-style-type: none"> 1. The point when the Work or a designated portion of the Work is sufficiently complete, in accordance with the Subcontract Documents, so that CONTRACTOR may use or occupy the Work or designated portion thereof for its intended purpose, as determined by CONTRACTOR. Additional requirements for achieving Substantial Completion are provided in the Statement of Work. [Master Fixed-Price Design-Build Construction template, Rev. 4 26FEB24] 2. A legally recognized point in time that allows the owner to take occupancy of the facility even though there is work yet to be completed and documentary, regulatory, and contractual closeout requirements yet to be met. [ESM Ch. 15] 3. That stage in the progress of the work, as determined by the STR, when the work is complete and in accordance with the subcontract documents except only for completion of minor items which do not impair LANL's ability to occupy and fully utilize the work for its intended purpose (this may require limiting access by the Subcontractor to the site for security or safety reasons). <i>Any liquidated damages are calculated. A <u>Certificate of Substantial Completion</u> must not be issued until after a <u>Certificate of Occupancy</u> is issued by the LBO, all work is in place, all required agency approvals have been received, and all systems and equipment are fully functioning as verified by commissioning. Minor items (punch list) may include only patching, repair or replacement, and clean-up. Examples of acceptable punch list items include replacement of light switches, touch-up painting, repair of scratches on walls or floors, replacement of locks which do not function properly, replacement of filters or light bulbs, and other similar items.</i> [ESM Ch. 16 IBC-GEN FM05]

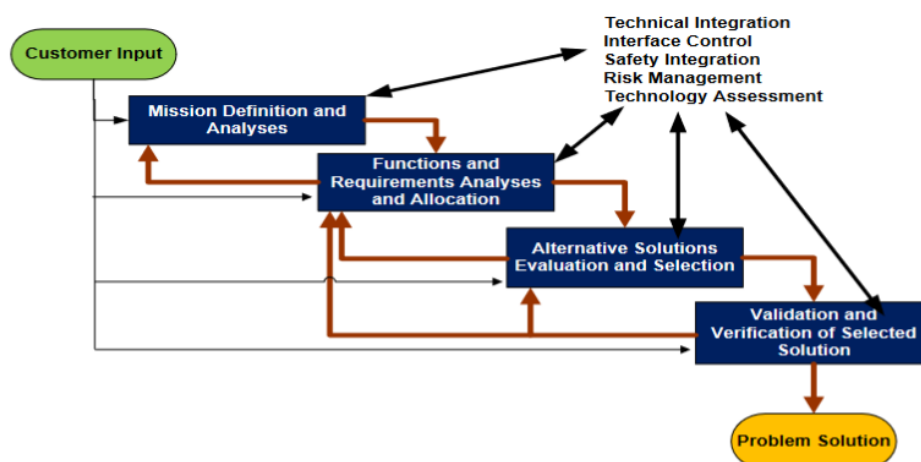
Substitution	<p>Changes in products, materials, equipment, and methods of construction from those required by the Subcontract Documents. There are two types:</p> <ol style="list-style-type: none"> 1. Substitutions for Cause: Changes proposed by Subcontractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms. 2. Substitutions for Convenience: Changes proposed by Subcontractor or Contractor that are not required to meet other Project requirements but may offer advantage to either party. <p>No Substitution: Phrase after a make/model in a design document to indicate that substitution requests almost certainly will not be accepted. [LMS 01 2500, <i>Substitution Procedures</i>]</p> <p><i>Section 01 2500 must be followed for products not meeting a Specification's salient features or when other than the "No Substitution" product. Likewise, when the Drawings specify a proprietary product, thus the basis for design, constructor must treat that as "No Substitution" and either provide said product or submit alternative per 01 2500, since other products require A/E evaluation for comparable features and potential anchorage/bracing design impacts. [ESM Ch. 1 Z10 Att. F]</i></p>
Supplier	<p>Any individual or organization who furnishes items or services in accordance with a procurement document. An all-inclusive term used in place of any of the following: vendor, seller, contractor, subcontractor, fabricator, consultant, and their sub-tier levels. (ASME NQA-1) [AP-341-703] <i>LANL procurements including the design or construction processes use "SUBCONTRACTOR" rather than supplier.</i></p>
Support Documents	<p>Technical documents that are necessary for hazard controls during the performance of work activities within a Facility. These documents are used to support operational and maintenance activities such as SSC troubleshooting, system alignments, Lock Out / Tag Out (LO/TO) development and/or system walkdowns, and abnormal response procedures. [AP-341-405; ESM Ch. 1, Z10. Supersedes VAR-10642]</p>
Support Services Subcontractor (SSS)	<p>Obsolete term/concept for LANL captive maintenance and support services company (e.g., Johnson Controls, KSL) that was insourced years ago; take to mean LANL. <i>May still appear in a few ESM Ch. 13 documents.</i></p>
Surveillance Requirement (SR)	<p>Requirements related to test, calibration, or inspection of equipment to ensure that operability and quality of safety SSCs/SACs and their support systems are maintained, that facility operation is within safety limits, and that LCSs and LCOs are met.</p>
Sustainable Design	<p>A building design (or design process) that aims to minimize the use of energy and resources to reduce environmental impact. <i>ESM Ch. 14 includes several additional, related definitions not in this glossary.</i></p>
System	<p>An interrelated set of equipment and items that can perform a specified function or set of functions that fulfill a purpose. [AP-341-502]</p>

System Acceptance Test or Testing	<p>Test(s) by which specific components, equipment, assemblies, systems, and system interfaces are confirmed to comply with the criteria described in the project requirements. This includes all modes and sequences of control, safety interlocks, conditional control responses and all specified responses in accordance with design basis requirements. [ESM Ch. 15; LMS 01 9100]</p> <p><i>System acceptance testing is the process of performing the test or tests.</i></p>
Systematic Approach to Training (SAT)	<p>A logical process for identifying and acquiring the knowledge, skills, and abilities [KSA] required to safely perform the duties of a specific position. It includes the following elements: (a) an analysis of the jobs to be performed; (b) design of learning objectives derived from the analysis of the job that describe desired performance after training; (c) development of lesson plans and other training materials; (d) implementation of the developed training; (e) evaluation of trainee mastery of the objectives during training; and (f) evaluation and revision of the training based on the performance of trained personnel in the job setting. [DOE O 426.2A Chg 1 (AdminChg), Personnel Selection, Training, Qualification, and Certification Requirements for DOE Nuclear Facilities] See also DOE-HDBK-1078, <i>Training Program Handbook: A Systematic Approach To Training</i>.</p> <p><i>SAT is an aspect of Training Needs Analysis (TNA) and can involve Role Performance Statement (RPS); Difficulty, Importance, and Frequency (DIF) analysis; Knowledge, Skills, and Abilities (or Attitude) (KSA) analysis; and Training Gap Analysis. [Resource Learning Design]</i></p>
System Design Description (SDD)	<p>Identifies the requirements associated with structures, systems, and components (SSCs); explains why those requirements exist (that is, provides the bases for the requirements); and describes the features of the system design provided to meet those requirements. [DOE-STD-3024]</p> <p><i>Purpose is to collect system information to facilitate efficient design, maintenance, operation, and training. It also provides coordination between the engineering documents, facility safety basis, and procurement and construction documents. [AP-341-611, ESM Ch. 1, Z10, ESM Ch. 8 D3060.90] When required for new systems, they should follow DOE-STD-3024; AP-341-611 was intended for reconstitution of an existing system where some bases may not be recoverable.</i></p>
System Health Report (SHR)	<p>Periodic assessment report of an active structure, system, or component (SSC). Required for Vital Safety Systems in Hazard Category 2 and 3 nuclear facilities. Assessment report addresses areas that may affect the system health (i.e., maintenance, configuration, material condition, vendor communications). System Health Report template is created as part of the System Health Monitoring Package for the SSC. [AP-341-802]</p>
System Verification	<p>The process of confirming that systems and structures fulfill specified design requirements, that the requirements were properly rolled into the design [ESM Ch. 20]</p>

Systems Engineering (SE)

1. A proven, disciplined approach that supports management in clearly defining the mission or problem; managing system functions and requirements; identifying and managing risk; establishing bases for informed decision-making; and verifying that products and services meet customer needs [DOE O 413.3B]
2. SE is an integrative approach to realize, use, and retire engineered systems using systems principles and concepts, and scientific, technological, and management methods. The goal of the SE approach is to transform mission and operational requirements into system architecture, performance parameters, and design details. An interdisciplinary field of engineering and engineering management, it focuses on how to design and manage complex systems over their life cycles. *Its application underlies the development of a project's scope.* [DOE G 413.3-X draft 2024-2-3]
3. A systematic approach used for developing solutions for complex technical problems. An applied process for developing a preferred technical solution in response to a specific set of requirements. Involves mission analysis, requirements identification and analysis, development of engineering solutions, assessment of developed solutions, selection of a preferred solution, and verification that the solution meets the requirements. [P341; ESM Ch. 20]

SE is a specific engineering discipline and role [not the same as a Cognizant System Engineer (VSS) or Plant System Engineer (PSE, non-VSS)]. ESM Ch. 20 r0 uses SE for both Systems Engineering and Engineer (discipline and its practitioner). Process overview:



Credit: P341 r7

T	TOP
Tailored Standards Manual (TSM), STD-342-600	<p>A distillation of the LANL Standards that are applicable and limited to non-nuclear projects of low risk. <i>The TSM invokes applicable codes and standards, meeting the requirements of LANL's prime contract with NNSA. Where applicable, specific aspects of the ESM, Master Specification requirements, or Standard Details are incorporated by reference. The most important LANL preferences for safety, operability, and maintainability are included but extensive guidance is not.</i></p> <p><i>This streamlined document is expected to help produce buildings more quickly and at a lower initial cost, and that this saving will offset any long-term issues associated with loss of some preferential aspects. Projects not meeting TSM applicability criteria must use the entire Standards set (ESM, LMS, etc.)</i></p>
Technical Baseline	All documents and data used to identify, justify, and demonstrate the physical, functional, or operational requirements of Structures, Systems, and Components (SSCs). [AP-341-405, AP-341-605]
Technical Evaluation and Acceptance Plan (TEAP)	Document to identify the safety functions, critical characteristics (CCs), acceptance criteria, and acceptance methods that are sufficient to demonstrate that the item or service will perform its safety function. [NQA-1; DOE-HDBK-1230-2019; AP-341-703] <i>Document number being "TEA-..."</i>
Technical Project Specialist (TPS)	Assists project engineers (PEs) by taking on nontechnical tasks such as project setup, records management, data management, document management, issues tracking, and more. <i>In ES, TPSs are deployed from the ALDICP's Project Management Office.</i>
Technical Requirement	Characteristics (functional, performance, and operational) that define the key item attributes necessary to ensure that the item will meet technical requirements. Technical requirements for services describe the conditions under which the service must be provided. [P841-1 r4]
Technical Safety Requirements (TSRs)	The limits, controls, and related actions that establish the specific parameters and requisite actions for the safe operation of a nuclear facility and include, as appropriate for the work and the hazards identified in the Documented Safety Analysis for the facility: safety limits, operating limits, surveillance requirements, administrative and management controls, use and application provisions, and design features, as well as a bases appendix. [10 CFR 830.3]
Technically Qualified	ASME NQA-1 for an individual with the ability to successfully perform a task based on technical knowledge, experience, and/or education (as opposed to an individual qualified through a certification or testing program). [AP-341-605]
Technical Specifications & Requirements (TS&R)	A specifications document produced by operations or programmatic staff, focused on defining characteristics of an asset. A TS&R describes capabilities, capacities, process parameters, and other requirements. <i>Used by several TA-55 projects (e.g., PEI2) in conjunction with other technical requirement sources (e.g., DSA, FHA) for the development of the RCD. Considered a spec within ALDWP PA-AP-01000 Document Control Processes.</i>
Technology Assessment Report (TAR)	A report produced by operations or programmatic staff focused on process technology (e.g., at TA55). <i>Not a typical FAC-COE document, which does, however, have trade studies (see that topic).</i>

Temporary	In the context of structures and building codes (and LANL amendments to same), those installed for three years or less. [ESM Ch. 16 IBC-GEN; see Temporary heading]
Temporary Modification (TM)	Operating facility modifications installed for less than six months and are usually minor modifications to facility SSCs with respect to approved drawings or other design documents. Examples of temporary modifications include lifted electrical leads; electrical jumpers; temporary electrical loads; pulled circuit breakers; disabled annunciators; temporary set point changes; mechanical jumpers; bind or blank flanges; disabled relief or safety valves or vacuum breakers; installed or removed filters or strainers; plugged floor drains; temporary pipe supports; temporary repairs that allow equipment to remain, or be returned to service, in a condition that is not the same as the technical baseline; or modifications to establish an interface between an operating system and a system lay-up. [AP-341-504, <i>Temporary Modification Control (TMC)</i>]
Test & Inspection Plan (TIP)	<p>A summary level plan identifying all applicable tests and inspections for a project as well as how those tests and inspections integrate into a Work Breakdown Structure or Construction Schedule, submitted by the constructor. [LMS 01 4000]</p> <p><i>TIP Template: A comprehensive list of tests and inspections invoked by LANL's adopted codes, standards, and DOE directives. The Template is not specific to a project and is available electronically as ESM Ch. 16, IBC-IP, Att. I.</i></p> <p><i>VIT: In the past, a Verification of Inspection and Test (VIT) Plan was developed to document and approve inspection and testing requirements for nuclear facilities including acceptance criteria, implementing organizations, and whether the inspection or test was a Hold or Witness point. VIT Plans are no longer used. Test and inspection requirements and associated documentation can now be achieved using a combination of the TIP, ESM Ch. 15 Commissioning test reports, and Ch. 20 Systems Engineering V&V documents such as the Requirements Verification Matrix.</i></p>
Test Acceptance Criteria (TAC)	A set of parameters that observed or measured during a test: (1) to determine if nuclear safety and regulatory permit functional or performance requirements are met for a component or system, or an integrated set of systems; or (2) to confirm an assumption used as a basis for design of such items. TAC can be either qualitative or quantitative. They are established only for those parameters that need verification through test and have a set of limits that are established by design. TAC specifies the location of measurement or the conditions for a test if it is necessary to provide a context for validation of the parameter. TAC can be expressed as an upper limit, lower limit, or a range (e.g., not to exceed 40 ft per minute, not less than 40 feet per min, or 40 feet per min $\pm 10\%$). TAC is the term applied to test criteria used to confirm compliance with nuclear safety and regulatory permit requirements. [ESM Ch. 20]
Test Case	A set of test inputs, execution conditions, and expected results developed for a particular objective, such as to exercise a particular program path or to verify compliance with a specific requirement. (ASME NQA-1) [AP-341-703, ESM Ch. 21, SOFT-GEN]
Testing	An element of verification for the determination of the capability of an item to meet specified requirements by subjecting the item to a set of physical, chemical, environmental, or operating conditions [ASME NQA-1].

Testing Agency	A firm providing independent, certified test results. [ESM Ch. 16 IBC-Gen, IBC-TIA] <i>For IBC-type work, must be on a listing maintained by the LBO.</i>
Testing (Sub)Contractor	The person, company, or agent responsible to the prime subcontractor for: <ul style="list-style-type: none"> • Making inspections required for Cx. • Coordinating, scheduling, and managing Cx activities of the Subcontractor, sub-tier subcontractors, and suppliers. • Obtaining documentation required for Cx from the Subcontractor, sub-tier subcontractors, and vendors. [ESM Ch. 15]
Test Plan (procedure)	A document that describes the approach for testing a system or component. Typical contents identify the items to be tested, tasks to be performed, and responsibilities for the testing activities. (ASME NQA-1) [AP-341-703, ESM Ch. 21, SOFT-GEN]
Title I Preliminary Design	The preliminary stage of project design. In this phase, the design criteria are defined in greater detail to permit the design process to proceed with the development of alternate concepts and a Title I design summary, if required. DOE G 430.1-1, Cost Estimating Guide <i>Continues the design effort utilizing the conceptual design and the project design criteria as a basis for project development. Title I design develops topographical and subsurface data and determines the requirements and criteria which will govern the definitive design. Tasks include preparation of preliminary planning and engineering studies, preliminary drawings and outline specifications, life-cycle cost analysis, preliminary cost estimates, and scheduling for project completion. Preliminary design provides identification of long lead procurement items and analysis of risks associated with continued project development. [Superseded DOE 4700.1 (Chg 1 Attachment 3, 6-2-92)]</i>
Title II Design	The definitive stage of project design. The approved Title I concept and the supporting documentation prepared for Title I forms the basis of all activity in Title II. Definitive design includes any drawings, specifications, bidding documents, cost estimates, and coordination with all parties that might affect the project; development of firm construction and procurement schedules; and assistance in analyzing proposals or bids. DOE G 430.1-1, Cost Estimating Guide <i>This continues the development of the project based on approved preliminary design (Title I). Definitive design includes any revisions required of the Title I effort; preparation of final working drawings, specifications, bidding documents, cost estimates, and coordination with all parties which might affect the project; development of firm construction and procurement schedules; and assistance in analyzing proposals or bids. [Superseded DOE 4700.1 (Chg 1 Attachment 3, 6-2-92)]</i>

Title III Services	<ol style="list-style-type: none"> 1. The inspection portion of project engineering design & inspection (ED&I). The activities identified in DOE Order 4700.1, <i>Project Management Systems</i>, for inclusion in Title III can be separated into two categories: office support and field services. DOE G 430.1-1, Cost Estimating Guide 2. Those activities required to assure that the project is constructed in accordance with the plans and specifications (e.g., construction inspection), and that the quality of materials and workmanship is consistent with the requirements of the project (e.g., materials testing). <i>[Superseded DOE 4700.1 (Chg 1 Attachment 3, 6-2-92)]</i> <p><i>Design Agency services in Title III normally include review and approval of submittals; RFI and SDDR review, disposition, and incorporation as part of the design or design changes; review/comment on change order requests affecting design scope or quality; processing of non-conformance reports; creation, review, disposition and incorporation of design revision documents including DRNs and FCRs; seismic anchorage and bracing design of non-structural (e.g., architectural, mechanical and electrical) components (if not completed in design phase), assistance with IBC Ch. 17 Special Tests, structural observation where required by ESM Chapter 16, and typical standard-of-care observation of work in general for other disciplines for conformance to design; project close-out activities which include participating in the final inspection; preparation of record documents including updated drawings. [ESM Ch. 1 Z10]</i></p>
Total Project Cost (TPC)	<p>All costs between CD-0 and CD-4 specific to a project incurred through the startup of a facility, but prior to the operation of the facility. Thus, TPC includes Total Estimated Cost (TEC) plus Other Project Costs (OPC).</p> <p>TEC: All engineering design costs (after conceptual design), facility construction costs and other costs specifically related to those construction efforts. TEC will include, but is not limited to project, design, and construction management; contract modifications (to include equitable adjustments) resulting in changes to these costs; design; construction; contingency; contractor support directly related to design and construction; and equipment rental and refurbishment.</p> <p>OPC: All other costs related to a project that are not included in the TEC. OPCs will include but are not limited to: research and development; conceptual design and conceptual design report; startup and commissioning costs; NEPA documentation; PDS preparation; siting; and permitting requirements.</p> <p>[DOE O 413.3B Chg 7 from here]</p> <p><i>Where the LANL Standards requirement thresholds use TPC or TEC, for projects below 413.3B/CD use the closest-equivalent SD350 project phases and equivalent estimates.</i></p>
Traceability	<p>The ability to trace history, application, or location of an item and like items and activities by means of recorded identification. (ASME NQA-1) [AP-341-703]</p>
Tracing	<p>A process to relate the source of requirements with implementing documents in a manner that is transparent, stable, and auditable. Tracing is bi-directional, meaning that a requirement can be traced to all implementing documents, and each requirement of an implementing document can be traced back to its source. [ESM Ch. 20]</p>

Trade Study	An analysis of alternatives, normally performed early in the design process. See AP-341-603 , <i>Alternative Studies and the Alternative Studies Learning Guide in the Engineering Learning Guide collection</i> . See also ESM Ch. 20.
Training and Qualification (T&Q)	Within CoE, the program ensuring workers subject to PD340 have the knowledge, skills, and abilities to perform their jobs safely and effectively. Some worker positions are qualified (see definition for same) T&Q website here .
Training Program Plan	Describe how the organization will implement training that is effective, compliant, and meets the mission support needs of the organization. [PD781r4]. <i>Each Laboratory directorate must develop a TPP appropriate for their regulatory requirements and for providing the training necessary for their operational needs. Refer to P781-1, Conduct of Training, for procedures for training implementation plan development and Implementation. Nuclear facilities are required to follow P781-4, Training Implementation Matrices, for the development and maintenance of training implementation matrices.</i>
Triad National Security, LLC (TNS)	The limited liability company that began managing and operating LANL under contract with the NNSA on 11/1/2018. In CoE documents, take all occurrences of "LANS," the previous M&O contractor, to mean Triad except when LANS is in a clearly historical usage like this sentence.
U	TOP
Underground line	Any active or inactive buried pipe, duct, conduit, or cable. <i>If it is owned by LANL-UI, it is referred to as a "Utility." If it is owned by a FOD, it is referred to as a "FOD-owned underground line."</i> See also Utility .
UniFormat	A format for classifying building elements and related sitework. Elements, as defined here, are major components common to most buildings. Elements usually perform a given function, regardless of the design, specification, construction method, or materials used. [UNIFORMAT II <i>Elemental Classification for Building Specifications, Cost Estimating, and Cost Analysis</i> , NISTIR 6389 (1999), which is based on ASTM E1557-97 <i>Uniformat II Classification for Building Elements</i>]. LANL may stay with the 1997/98/99 (not 2010) version of this work breakdown structure for system/subsystem level numbering in ESM sections and RCDs because NNSA uses it in BUILDER asset management database. R. S. Means also uses UniFormat. Ex. no.: D5020.
Unreviewed Safety Issue (USI)	For an accelerator, a significant increase in the probability of, or consequences from (1) a planned modification to documentation, systems, or components (including new activities) that creates a previously unanalyzed postulated accident or condition that could result in a significant adverse impact; or (2) discovery of a previously unanalyzed condition. [SBP-113-3-R4]
Unreviewed Safety Question (USQ)	A situation where (1) the probability of the occurrence or the consequences of an accident or the malfunction of equipment important to safety previously evaluated in the documented safety analysis could be increased; (2) the possibility of an accident or malfunction of a different type than any evaluated previously in the documented safety analysis could be created; or (3) the documented safety analysis may not be bounding or may be otherwise inadequate. [10 CFR 830.3(a); SBP-112-3-R5.3]

USQ Determination	An evaluation performed for the situations identified in 10 CFR § 830.203(c) to determine whether the proposed change, test, or experiment, or potential inadequacy creates a USQ and therefore requires DOE approval prior to implementation. [DOE O 421.1 draft 2023-11-16]
USQ Screening	An optional process of reviewing potential work activities and changes against the criteria in 10 CFR 830.203(c) to identify activities/changes that do not materially affect the approved DSA and to identify when a USQ Determination needs to be performed. [DOE O 421.1 draft 2023-11-16]
Utilities	<p>Services to and from structures such as potable and fire water, sanitary sewer, steam & condensate, natural gas, telephony, and electrical transmission and distribution, and owned by LANL Utilities FOD (UI). [ESM Ch. 1, Z10]</p> <p><i>These, and the service points (interface) to the FOD (e.g., after the water meter, final gas pressure reducing valve and, for electrical, secondary lugs of pad-mount transformer or barrel splices outside the weather head on an overhead system) are defined by the Utilities, Traffic, and Open Space Interface Agreement, UIDO-AGMT-001 (r1 or later). The ESM and TSM address utilities primarily in Chapters 3-Civil, 7-Electrical, and 17-Pressure Safety. For power, UI has historically been considered a public service utility through the Los Alamos Power Pool (LAPP) and by registration under NERC/WECC as a Distribution Provider that supplies services not only to LANL but external customers as well.</i></p> <p><i>See also “Underground Line” herein.</i></p>

V	TOP
Validation (including for software and final products)	<ol style="list-style-type: none"> 1. The process of exercising or evaluating a system or system component by manual or automated means to ensure that it satisfies the specified requirements and to identify differences between expected and actual results in an operating environment (Ref. NQA-1); and, for software, providing evidence that the software, and its associated products, satisfies system requirements allocated to software at the end of each life cycle activity, solves the right problem (e.g., correctly models physical laws, implements business rules, uses the proper system assumptions), and satisfies the intended use and user needs (Ref. DOE O 414.1D). [ESM Ch. 21, SOFT-GEN] 2. Final product validation is the process of confirming that a completed final product meets stakeholder and/or mission requirements and is suitable for its intended use in the actual operational environment – the right final product was built. [ESM Ch. 20] <i>V-diagram depicts this and verification:</i> <p><i>Requirements Validation</i> <i>Final Product Validation</i> (Use in actual environment)</p> <p>Conceptual Design Baseline → Functional Specifications → Final Product Validation</p> <p>Preliminary Design Baseline → Major Element Specifications → Major Element Verification</p> <p>Final Design Baseline → Detailed Design/Mat'l Requisition → Component Level Verification</p> <p><i>Design Verification</i> <i>Item Verification</i></p>
Value Engineering (VE)	<p>A structured technique commonly used in project management to optimize the overall value of the project. Often, creative strategies will be employed in an attempt to achieve the lowest life-cycle cost available for the project. The VE effort is a planned, detailed review/evaluation of a project to identify alternative approaches to providing the needed assets. [Directives Definitions] SMEs are generally a member of SAVE International and rare within the DOE enterprise.</p>

Variance	<p>A release from compliance with one or more requirements, as granted by the requirement owner. [adapted from DOE O 252.1D Chg 1]. [ESM Ch. 1 Z10]</p> <p><i>Main usage:</i> Form 2137, “Conduct of Engineering Request for Variance or Alternate Method.” <i>When a DOE or NNSA order is involved, it is also an Exemption.</i></p> <p>See also Alternate Method.</p> <p><i>Release from 10CFR81 is also a Variance:</i> “The process for requesting and approving variances from the provisions of 10 CFR Part 851 is delineated in Subpart D of Part 851 and in supplemental guidance promulgated by DOE.” [DOE-STD-1066-2023] eVariance website</p>
Verification (including for software)	<p>The act of reviewing, inspecting, testing, checking, auditing, or otherwise determining and documenting whether items, processes, services, or documents conform to specified requirements (Ref. NQA-1); and, for software, providing objective evidence that the software and its associated products conform to requirements (e.g., for correctness, completeness, consistency, and accuracy) for all life cycle activities during each life cycle process (e.g., acquisition, supply, development, operation, and maintenance); satisfy standards, practices, and conventions during life cycle processes; successfully complete each life cycle activity; and satisfy all the criteria for initiating succeeding life cycle activities (e.g., building the software correctly) (Ref. DOE O 414.1D). [AP-341-605, ESM Ch. 21, SOFT-GEN]</p> <p><i>This process step appears in many contexts, including design verification, installation (e.g., QC, QA, inspection), testing and commissioning, and readiness/startup (e.g., Implementation Verification Review); see those terms and the V-diagram in Validation above.</i></p>
Verification Document	<p>Evidence supporting the verification process. <i>Verification will always entail the signature of the authorized individual attesting to acceptability. Where warranted by the scope of the change or the importance of the facility or SSC, provide a statement of observations or more extensive objective evidence documents (e.g., results, reports, photos).</i> [AP-341-519 FM01]</p>
Virtual Build Environment Office (VBEO)	<p>Team or office within Engineering Services (e.g., Operations Group) who's mission is to collaboratively implement VBE workflows in stages across the ALDFO and ALDICP directorates. [CSM Section 400 r0] <i>Goals include (1) defining BIM standards; (2) facilitating technology adoption through communication and training (3) centralizing VBE service requests into a single system for streamlined coordination; (4) establish and maintain an on premise data management solution, (5) managing data, including the establishment of an approved enclave with appropriate partitions segregating non-sensitive from sensitive data on a central server; and (6) laying the groundwork for the compliant and secure implementation of industry-standard cloud-based environments in the next phase.</i></p>

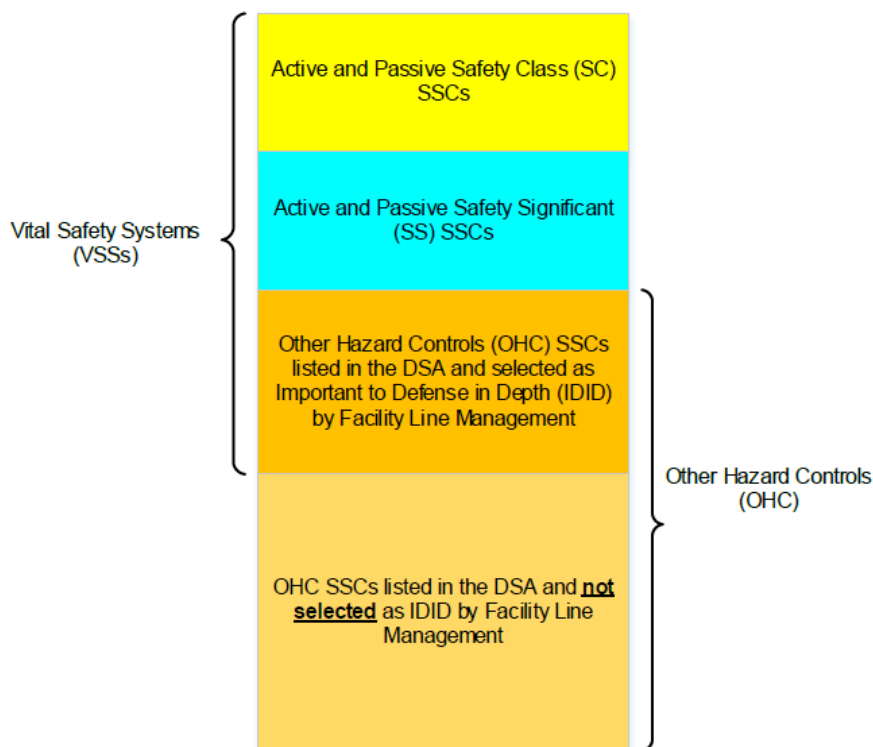
Vital Safety System (VSS)	Safety Class (SC) or Safety Significant (SS) SSCs as defined in a nuclear facility's DOE-approved safety basis documentation, plus Other Hazard Controls (OHC) SSCs listed in the facility Documented Safety Analysis and selected as Important to Defense in Depth (IDID) by facility line management. [P341, AP-341-101] See <i>graphic that follows the “Z” definitions</i> . Includes Engineered Safety Feature(s). Each VSS will have a Cognizant System Engineer (CSE) assigned; see CSE Assignment/Qualification Listing on CoE Resources page. Term traces to March 8, 2000 or earlier — e.g., Board letter forwarding “Recommendation 2000-2, Configuration Management -- Vital Safety Systems.”
Voltage (Low, Medium, High)	LANL-specific voltage range definitions are in ESM Ch. 7 , Section D5000 and “low” differs from homeowner-typical.
Voluntary Consensus Standard (VCS)	VCS are technical documents, such as test methods, specifications, and terminology, that are developed or adopted by VCS bodies using procedures that have safeguards to ensure that the standards development process is open to all interested parties, and that all input and viewpoints are taken into account and treated fairly. VCS bodies are generally private sector, not-for-profit entities such as organizations, associations, or technical societies. [EPA] LANL subscribes to Accuris EWB services for most VCS. Click for non-EWB ones including IEEEExplore for non-NFPA electrical, electronic, software. VCS bodies are also called standards developing organizations (SDOs).
W	TOP
Walk-down	A visual inspection of the structure, system, and component (SSC) to identify physical configuration and discrepancies with currently approved SSC documentation. [AP-341-510]
Walk-down Team	Personnel responsible for gathering information during the walk-down and verifying and documenting the accuracy and completeness of this information. Each walk-down team consists of at least two members (i.e., preparer and verifier). [AP-341-510]
Welder	One who performs manual or semiautomatic welding. Within the LANL Welding Program, the term Welder also applies to welding operator, brazer, and brazing operator, as appropriate to the context of use. [ESM Ch. 13, Vol. 1, 1-99]
Welder Certification	Written Certification that a welder has produced welds meeting a prescribed standard of welder performance. (See also Welder qualification) [ESM Ch. 13, Vol. 1, 1-99]
Welder Qualification	The demonstration of a welder's or welding operator's ability to produce welds meeting prescribed standards. (Normally by hands on test) [ESM Ch. 13, Vol. 1, 1-99]
Welding Consumables	Materials required by a Welding Procedure Specification (WPS), Welding Fabrication Procedure (WFP), or Welding Technique Sheet (WTS) to produce a welded or brazed joint. These materials include, but are not necessarily limited to coated electrodes, bare filler rods and wire, flux-cored spooled wire, metal core electrodes, fluxes, gasses, and pre-placed consumable inserts, etc. [ESM Ch. 13, Vol. 1, 1-99]

Welding Operator	One who operates adaptive control, automatic, mechanized, or robotic welding equipment. [ESM Ch. 13, Vol. 1, 1-99]
Welding Procedure Specifications (WPS)	A written document that provides the required welding variables for a specific application to assure repeatability by a properly trained welders and welding operators and provides direction to the welder or welding operator for making production welds in accordance with Code requirements. [ESM Ch. 13, Vol. 1, 1-99; Vol. 3]
Welding Processes	Common processes: flux-core arc welding (FCAW aka flux-core), gas metal arc welding (GMAC aka MIG), gas tungsten arc welding (GTAW aka TIG), oxygen fuel welding and brazing (OFW), plasma arc welding (PAW), stud welding-resistance and captive discharge (SW), submerged arc welding (SAW aka sub-arc welding), shield metal arc welding (SMAW aka stick), torch brazing (TB), and thermite welding. [ESM Ch. 13, Vol. 1, 1-99]
Welding Qualification Technique Sheet (WQTS)	Contain the specific test requirements which will provide standardization for testing and are designed to provide best ranges for limits of qualifications. [ESM Ch. 13, Vol. 1, 1-99; Vol. 4]
Welding Qualification Test (WQT)	Welder Qualification Test – A set of standard tests designed and used for welder qualification (see GWS 1-05, Welder Performance Qualification/Certification) [ESM Ch. 13, Vol. 1, 1-99]
Welding Technique Sheet (WTS)	Documents that contain the specific requirements for welding various thicknesses of materials utilizing various welding processes. These WTS requirements apply to a limited number of specific welding operation or welding conditions (e. g, critical, costly) and are used in conjunction with the requirements of the WPS, WFP, and GWS. [ESM Ch. 13, Vol. 1, 1-99]
Whole Building Design Guide (WBDG)	Website touting integrated “whole building design techniques and technologies.” <i>Under Federal facility Criteria, useful material includes current specs from the VA and the military’s Unified Facilities Guide Specifications (UFGS), and archived NASA specs; many DoD, VA, and NASA standards; and non-LANL O&M approaches.</i>
Witness Point	A point in the process where an inspection, test, or activity point is reached that requires notification of the designated individual that the items are available for the designated inspection, test, or activity. Work may proceed past the point and work is not required to stop if the requester is not present. [P330-8; LMS 01 4000] See also <i>Hold Point</i> .
Worker Qualification and Authorization System (WQAS)	LANL mainframe application for entitled WQ Authorizers to authorize one or more workers, and for reporting.
“Work,” “Goods” or “Services”	All the stated or implied activities to be performed by SUBCONTRACTOR as required by this Subcontract, including the furnishing and supervision of all technical personnel and labor, and the supply of equipment, materials, and supplies necessary to perform this Subcontract. [Master Fixed-Price Design-Build Construction template, Rev. 4 26FEB24]

Work Instruction (WI)	<p>1. A [Local Procedure type] document that provides specific instructions on how an organization will perform a specific work task. A Work Instruction (WI) may be called a Desk Manual, Performance Standard, or have another appropriate title. [LANL Definitions for archived PD311]</p> <p>2. An implementing document that provides detailed steps for accomplishing specific tasks. [AP-341-401, which has a template for WIs]</p> <p><i>WI is preferred template/term for CoE-issued — versus Desk(top) Instruction (DI) which has long been used in engineering. DIs and WIs are largely the same idea, but by definition DIs are not really appropriate for non-desk location work whereas WIs could serve almost any procedural need not rising to an AP or other policy. Note: In the past, some WIs and DIs were considered guidance; going forward, each new or revised WI or DI should be clear on expectations.</i></p>
X	TOP
	reserved for future use
Y	TOP
Yet to be Implemented Changes	Design changes posted against facility Technical Baseline documents that are either in the design development phase, or the design has been approved but not yet implemented, or the implementation is in progress. [AP-341-402]
Z	TOP
	reserved for future use

VSS, OHC, and IDID Graphic

referenced by those terms and others; credit: P341



Quick links to defined terms:

[A](#) | [B](#) | [C](#) | [D](#) | [E](#) | [F](#) | [G](#) | [H](#) | [I](#) | [J](#) | [K](#) | [L](#) | [M](#) | [N](#) | [O](#) | [P](#) | [Q](#) | [R](#) | [S](#) | [T](#) | [U](#) | [V](#) | [W](#) | [X](#) | [Y](#) | [Z](#)

7.0 Change Control

The Conduct of Engineering Office is responsible for maintaining this document and will do so on the same maximum interval as APs.⁷

See Section 3.0 for suggestion processes.

⁷ Per AP-341-401 r6, five years maximum, but anticipating at least annually. As the governing CoE definitions document, revisions affecting requirements or their satisfaction must follow CoE document reviews and approvals commensurate with same, including IQPA and Issuing Authority (ES-DO) where applicable. All other changes (e.g., merely helpful entries, usage note or reference changes, hyperlink maintenance) may be performed without a formal review process or IQPA approval and issued by the Responsible Manager (CoE Office Director). Purely administrative issues may also be simply fixed while significant ones will be indicated by revision number incrementation (e.g., r1.1, r1.2...; r2...; or Chg 1).

8.0 History

Date	Revision ⁸	Description
5/06/2024	0	Original issue as LA-UR-24-24095, often using definitions in current COE documents, plus many others. Incorporated VAR-10642 , <i>Priority, Support, and General Document Definitions</i> .
02/10/2025	1	Numerous changes and additions. Deleted definitions more appropriately contained in ESM chapters 19–21.

9.0 Contact

[Conduct of Engineering Office](#), via methods in Section 3.0.

⁸ Decimal increments indicate largely informative updates while integer updates are more extensive and/or include more directive changes (requirement change).