

Engineering Standards Update

News from Engineering Standards Program

Oct 2, 2024



[Standards are serious business](#) but this newsletter isn't always.

Topics this month:

- [New BIM Standards Released!](#)
- [Update to Construction Submittal Code Definitions - Coming Early-Oct!](#)
- [Data Call for National Standards Committee Work](#)
- [Engineering Services Career Day](#)
- [Training & Qualification](#)
- [LANL Engineering Standards Issued in September](#)
- [LANL Engineering Processes Changes](#)
- [National Standards Action](#)
- [DOE Technical Standards Action](#)
- [MSS Document Action](#)
- [When Good Conduct of Engineering Isn't Followed](#)

Happy Halloween Ya'!!!

**Spooktober
is here!**

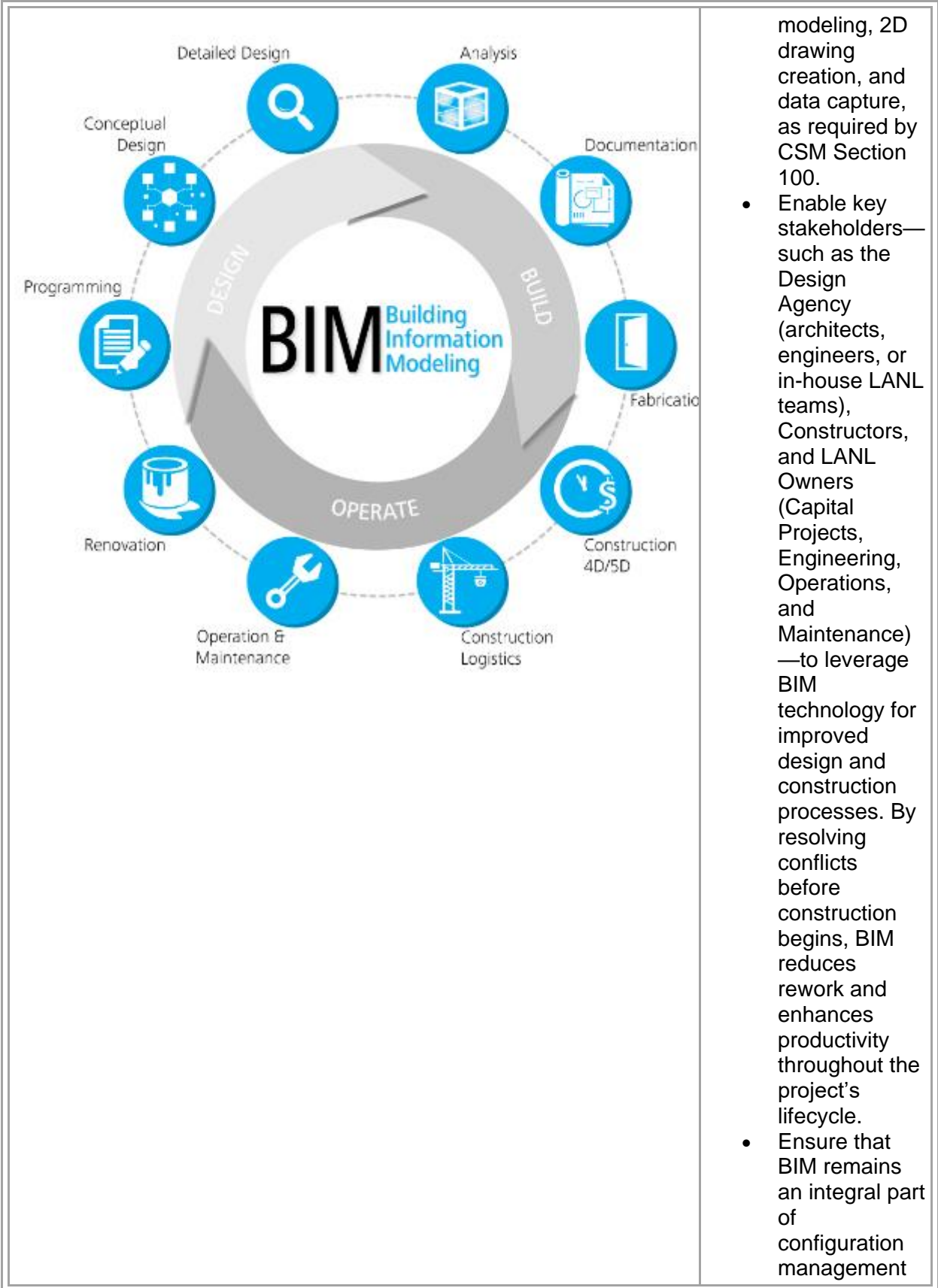


**NEW BIM STANDARDS
RELEASED!**

The long-awaited BIM (Building Information Modeling) Standards is finally here as Section 400 in the *STD-342-300 CAD Standards Manual (CSM)*! These standards will serve as the foundation for integrating BIM into LANL projects.

The purpose of these BIM Standards is to:

- Establish a formal system for 3D graphical



modeling, 2D drawing creation, and data capture, as required by CSM Section 100.

- Enable key stakeholders—such as the Design Agency (architects, engineers, or in-house LANL teams), Constructors, and LANL Owners (Capital Projects, Engineering, Operations, and Maintenance)—to leverage BIM technology for improved design and construction processes. By resolving conflicts before construction begins, BIM reduces rework and enhances productivity throughout the project's lifecycle.
- Ensure that BIM remains an integral part of configuration management

and supports long-term operations and maintenance, including integration with LANL's existing software systems.

- Define when and how BIM should be used in projects and introduce new roles and responsibilities . It will also formalize the BIM lifecycle with key terms such as Project BIM, Record BIM, and Master BIM, helping teams understand the different stages and uses of BIM throughout a project's life.

Additionally, a template file outlining the minimum requirements for project teams to create a BIM will be provided soon, along with clear expectations for BIM deliverables.

This is just the beginning of the BIM journey at LANL, and with continued effort

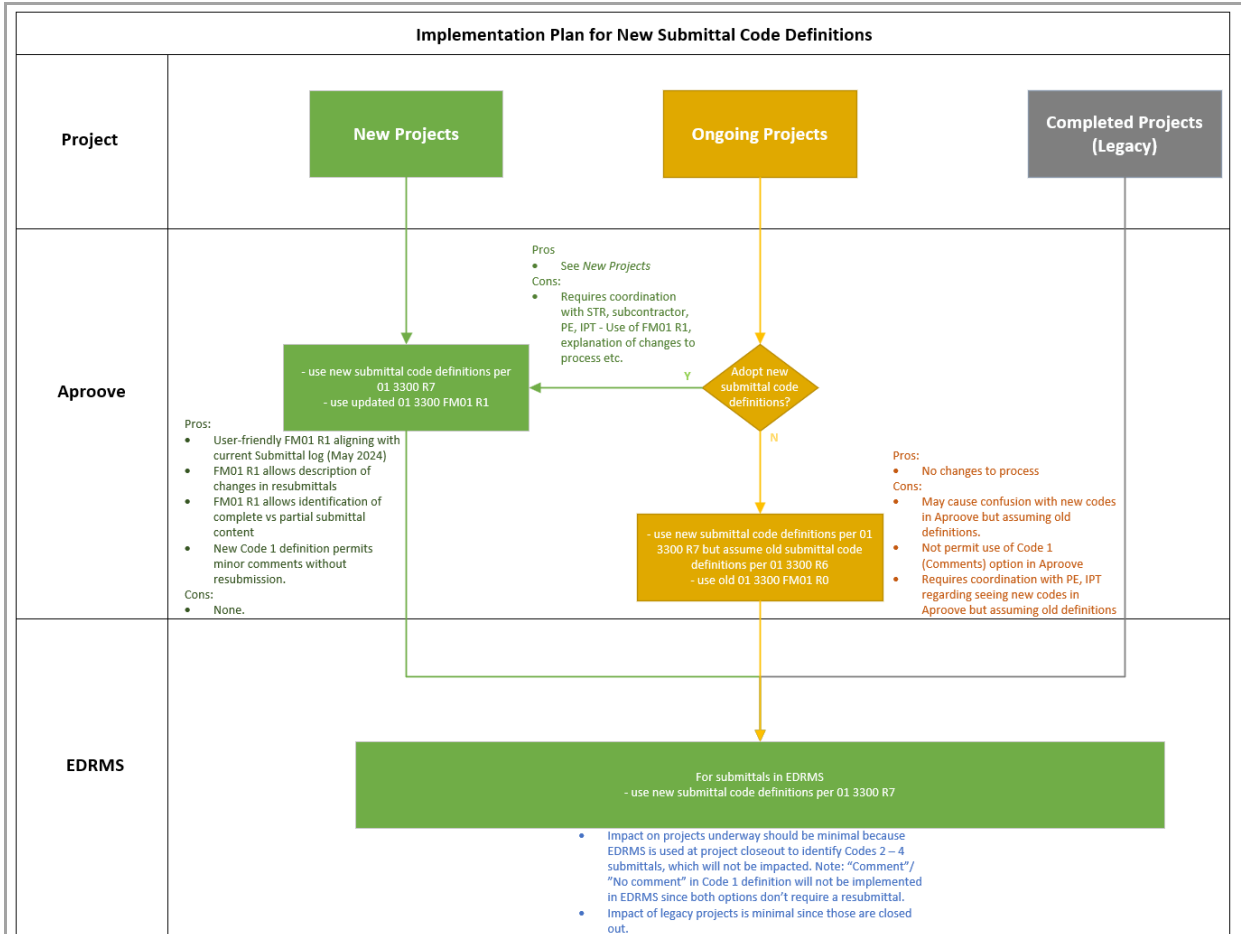
and adaptation, the results will only get better as we progress together.

UPDATE TO CONSTRUCTION SUBMITTAL CODE DEFINITIONS - COMING EARLY-OCT!

The Construction Submittal Code Definitions in LANL Master Specification (LMS) Section 01 3300, AP-341-720 (through site-wide VAR-10696), Aproove and EDRMS have been updated based on input from a committee of experts from ES, PFE, and PIE. The goal is to issue these changes on October 9th. The submittal code definitions have been streamlined to be more intuitive, include user notes and examples for guidance, and allow more flexibility in usage of *Code 1*. *Code 1* will now allow minor technical comments to be included without requiring a resubmittal (usage of this depends on project scope and risk). As a result of these changes, and to make other improvements including incorporating changes from the 01 3300 Construction Submittal Log from May of this year, LMS Section 01 3300 and all its associated forms (FM01, FM01-W and FM02) have been revised and the goal is to issue these on the Engineering Standards website on October 9th.

Below is an implementation plan for usage of the new submittal code definitions in Aproove and EDRMS. For new projects, the new code definitions in Aproove/EDRMS and revised 01 3300 FM01 R1 will be used. For ongoing projects, the Responsible/Project Engineer will determine whether to implement the new definitions or continue with the existing definitions (see below for more details). This will require coordination between the Responsible/Project Engineer, Integrated Project Team, STR (if present) and Subcontractor (if present). A PE Brownbag session will be hosted on October 23rd to go over these changes including the submittal process workflow; everyone affected is encouraged to attend.

Special thanks to Raeanne Clabeaux, Logan Tietjen, Karen Marsh, Tyson Cardon, Eric Stromberg, Thaddeus Kostrubala, Peter Lujan, Matt LaCome, Jacob Wirtes, Braidon Waggoner, Tobin Oruch, Azupuri Kaba, Amanda Bailon, Marcia Fraser, Thuan Minh Le, Jennifer Kusiak, and Ha Nguyen for your contributions and Neha Gidwani for coordinating this effort!



DATA CALL FOR NATIONAL STANDARDS COMMITTEE WORK

The annual effort to catalog the work being performed by LANL personnel for non-government standards has begun, led by Neha Gidwani. The approximately 53 known people's efforts have been updated, and a lab-wide solicitation for others in LANL Today was issued on September 30th. **Deadline to report to CoE office is October 15th!** Every year we report this volunteer work to DOE-HQ; it's then sent to the OMB per public law.

DOE also documents this work in "DOE-TSL-4, Directory of DOE and Contractor Personnel Involved in Non-Government Standards Activities."

LANL participation is among the highest of the DOE sites.

Below is a list of those doing such work. Please email updates to engstandards@lanl.gov.

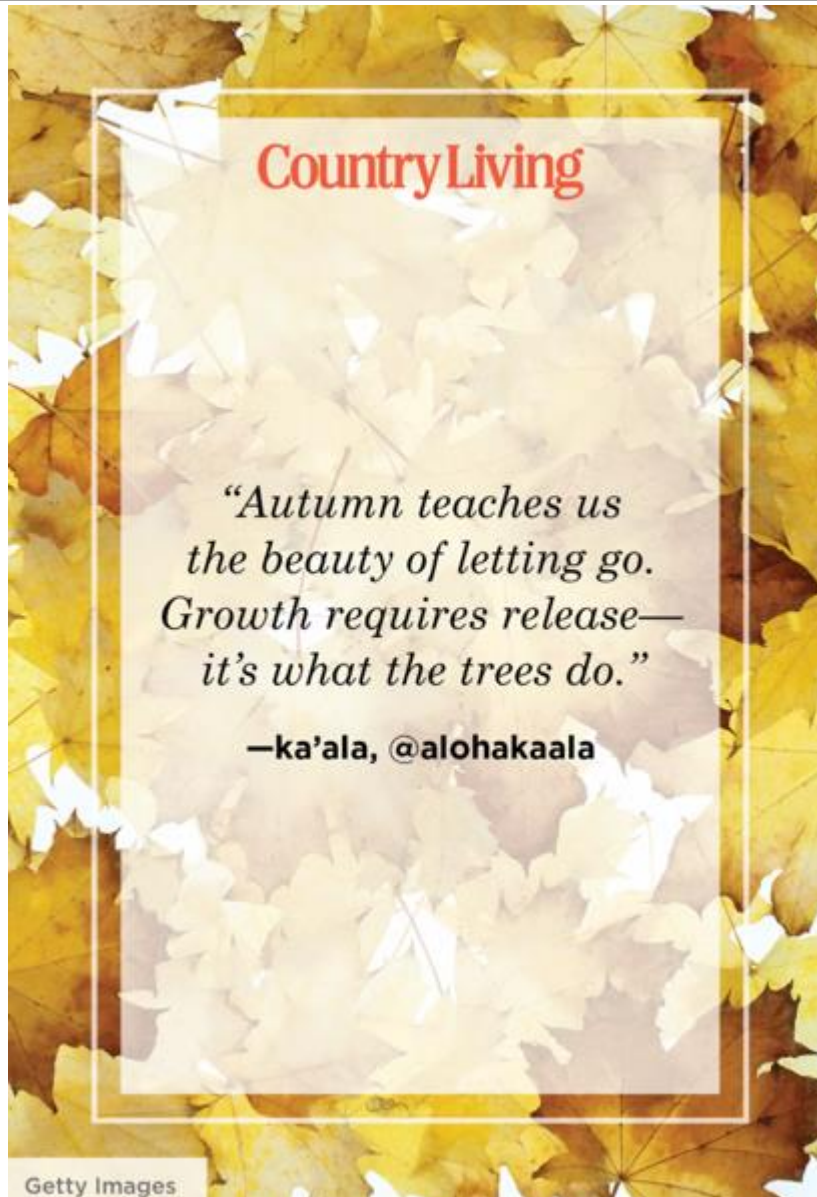
Amundson, Kelsey Bigger, Rory Black, Amber Bruggeman, David Budzien, Joanne Camarillo-Morris, Veronica	Gonzales, Dylan Harvey, David Hayward, Robert Herring, Stuart Hinton, Catherine Hochanadel, Patrick	McAllister, John Medina, Savannah Moore, Murray Nelson, Tony Porterfield, Donivan Ring, Emery
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Casson, Joanna Ciolek Jr., John Contreras, Paul Cutler, Theresa Dominguez-Trujillo, Jered Duffield, Andrew Dumit, Sara Diffey, Shannan Foley, Ari Fuehne, David Gadd, Milan Gibson, Joshem	Javernick, Daniel Keppner, Ted Klumpp, John Koskelo, Aaron Krueger, Brett Kulesza, Joel Kuropatwinski, James Little, Robert Lucchini, Jean-Francois MacFarlane, Eric Mallett, Michael Mazzola, Carl	Romero, Christopher Salisbury, Scott Sandquist, Taunia Silva, Michelle Stauffer, Phillip Stinnett, Jacob Stromberg, Eric Swartz, Ben Torrise, Alfio Wilson, Brandon Yeaman, Katelyn
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ENGINEERING SERVICES CAREER DAY

Engineering Services is hosting an Internal Career Day on October 29th from 9 a.m. to 10.30 am at the University of New Mexico – Los Alamos Campus. This career day will highlight six key professional areas within Engineering Services along with Capital Projects, Q-Division, and Maintenance & Site Services (MSS).

Join ES to explore your current career pathway and discover exciting opportunities across other professional fields represented at the event featuring nine professional areas across four divisions!



TRAINING & QUALIFICATION

Courses, Seminars, Programs

Note on Training Registration emails: When you sign up for a class in UTrain, you will receive an email that is generated by UTrain upon registration and again on the day of or before the class which will include the link to join the Teams meeting (for classes hosted online). **WARNING: To get the Teams link email you must register in UTrain. The email will NOT automatically enter an event on your calendar in Outlook. Please block your own calendar.** To receive credit for the course, you are required to log into the Teams meeting using a computer that has voice and chat capabilities (for classes

hosted online). Do not use a mobile device to join the class; if you do so you will not be able to receive credit. For any questions, please email the Training team at es-do-tng@lanl.gov.

CoE: LANL Engineering Standards Overview #52693 – Oct 7, 2:00-4:00 pm, Teams

If you're new, don't have 8-hour Course #24140 Intro to LANL Engineering Standards in your training plan, or just want to learn about the standards for 2 hours, then you can take this shortened course.

CoE Engineering Ethics, #59909 - Oct 15, 11:00 am - 12:00 pm, Teams

This course is designed to help professional engineers fulfill their professional development hour requirement. This interactive session will cover key ethical principles and real-world scenarios relevant to our work, ensuring that we uphold the highest standards of professionalism and integrity in all that we do.

Intro to LANL Engineering Standards, #24140 – Oct 28-31 (M-Tr, must attend all 4 days), 2:00-4:00 pm, Teams

Attend each day to receive credit (it's 8 contact hours, despite what UTrain may say). Provides familiarity with national and LANL engineering standards for anyone performing, reviewing, or managing design activities. **Required course for many LANL engineers and only taught a few times a year – so try to attend.**

CoE ASME B31.3 Process Piping Code, #53900 – Nov 4-7, 11-14, 18 (M-Tr, must attend all 9 sessions), 2:00-3.30 pm, Teams

Ari Swartz is leading this instructor-led course to familiarize participants with ASME B31.3 Process Piping Code as related to the duties of a Pressure Safety Officer.

CoE Submittal Review for Design Engineers, #57893 – Nov 7, 9:00-10:00 am, Teams

This training, led by Eric Stromberg, covers design submittal reviews.

Onboarding Training Courses by CoE Office, Teams:

- COE ES LANL Organization and Engineering Divisions Introduction #54659, Oct 9, Oct 23, Nov 20, 10.30 - 11.30 am
- COE Engineering Initial Onboarding #54864, Oct 18, Oct 30, 10 - 10.30 am
- AP Introduction and Common APs Deep Dive #54871, Oct 8, Nov 5, 9.30 - 11 am.

T&Q Admin matters

E-mail for CoE Training: es-do-tng@lanl.gov

Click e-mail address above for help with COE training issues like getting registered, missing credit, etc. Goes to the whole team: Stan Hayes, Nick Jones, Sadonna Tapia, Santana Quintana, and Chris Martinez. Alternatively, visit the Engineering Services Training and Qualifications webpage by clicking the button "[Email The Training Team](#)". The Training and Qualifications webpage contains information and tools on training requirements and copies of the various Qualification Standards maintained by the COE office.

E-mail for CoE Qual Program: COEQuals@lanl.gov

Click e-mail address above for any help with COE quals such as CSE, PrE, Design, Project, PSO, FDAR, and other qualified positions (and also SHR matters for CSEs). Goes to Deb Cushner, Jess Blea, and Barb Dela Cruz.

Instructor-Led Course Request/Registration Guide

For live courses without a session in UTrain, there's a [step-by-step guide](#) posted to the CoE T&Q "Resources" page on how to request a course. This places the requestor on the waitlist and notifies the training team of interest for the said live course.



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Are we there yet?

LANL ENGINEERING STANDARDS ISSUED IN SEPTEMBER

Engineering Standards Manual ESM [STD-342-100](#)

Chapter	Section	Title	Rev.	Date	Comments
ESM Chapter 3 - Civil	G10-30GEN, G10 and G20	Posted Variance: VAR-10468, Revised Storm Water Material (ESM Civil Chapter 3)	1	9/5/2024	Thanks to Brad Schilling, Terrill Lemke, and Civil POC Victoria Baca.
ESM Chapter 16 - Building Code Program	Chapter References and Resources	Listing of LBO-Approved IBC Testing, NDE and Inspection Agencies; Fabricators and Products	-	9/24/2024	Added preapproved concrete mix designs (Duke City and LATM). Thanks to Chief Inspector Robert Abeyta, Tobin Oruch, Carlos Coronado, and Neha Gidwani.

LANL Master Specifications [STD-342-200](#)

Section Number	Rev.	Section Title	Effective	Comments
01 9100	1	Commissioning	9/30/2024	Incorporates and supersedes LMS 23 0800, removes references to Electrical Acceptance Testing, and other minor editorial changes. Thanks to Commissioning POC Tom Gerike, Commissioning Alt POC Charles Richardson and Mechanical POC Michael Ladach.
03 3001	19	Reinforced Concrete	9/24/2024	Includes updates to concrete test submittals in Table A1, removal of pre-approved concrete mix designs and reference to <i>Listing of LBO-Approved IBC Testing, NDE and Inspection Agencies; Fabricators and Products</i> associated with ESM Ch. 16 and other minor editorial changes. Thanks to Structural POC Carlos Coronado and Neha Gidwani.
22 0529	7	Hangers and Supports for Plumbing Piping and Equipment	9/12/2024	Includes design notes on seismic supports, Article on Reference standards, standardized welding submittal requirements, NDE submittal requirements for custom fabrications, MSS SP-58 support types, hanger spacing requirements, product information for frame channel pipe supports and other minor editorial changes. Thanks to Pressure Safety Alt POC Rob Payment,

				Mechanical POC Michael Ladach and Pressure Safety POC Ari Swartz.
23 0800	0	Commissioning of HVAC	9/30/2024	Withdrawn and superseded by 01 9100 R1 per Commissioning POC Tom Gerike.

Updated 01 3300 and associated forms (01 3300 FM01, FM01-W & FM02) coming soon!

CAD Standards Manual ESM [STD-342-300](#)

Section	Title	Rev.	Date	Comments
400	BIM Standards	0	9/30/2024	Thanks to BIM Stds POC Bruce Gunderson, CSM Alt POC Brandon Rael, CSM POC Michael Gallegos, VBE Director Bill Crooks, Tobin Oruch, Neha Gidwani, Scott Bane, Robert Sanders, Thaddeus Kostrubala, Jeremy Valentine, Dan Tunney, TJ Gruetzemacher, Amy Hollabaugh, Jordan West for their contribution to this new revision; and Lisa Cantrup and Christina Salazar-Barnes for technical writing and formatting.

Standards Details and Example Drawings [STD-342-400](#)

Drawing Number	Title	Rev.	Date	Comments
ST-G30GEN-3	Tracer Wire Detail Non-Metallic & Ductile Iron	4	9/30/2024	Thanks to Civil POC Victoria Baca, Harold Salazar and Eric Stromberg

Engineering Standards Fiscal Year Wrap-Up:

FY 2024 major accomplishments include:

- CoE Glossary of Terms - NEW!!
- Revisions to ESM Chapter 1 General, Sections 200/210/230 Attachment 1, Form 2178-LIP
- Revision to ESM Chapter 14 Sustainable Design and Attachment 1; References and Resources
- Revisions to ESM Chapter 16 Building Code Program's Listing of LBO-Approved IBC Testing, NDE, and Inspection Agencies; Fabricators; and Products; Construction Subcontractor Office Trailer and Equipment Container - LANL Requirements & Application for Approval; IBC-GEN Attachment A, LANL Building Code (LBC); IBC-FAB, Attachment A; IBC-TIA, NEW FM01
- ESM Chapter 17 Pressure Safety - updated NASME Reputable Manufacturers List and Approval Process; issued NEW Requirements ID Log; issued NEW ASME Code Unlisted Component Evals folder of previous UCEs
- ESM Chapter 21 Software - updated Forms 2323, 2326, 23 28, 2329, 3046, 3055, and 3056
- Reduction of Duplicate Submittal Reviews for ML-4 Subcontracted projects
- RIB processed 162 of 195 LANL Master Specification Sections in SpecLink
- RIB provided multiple trainings to POCs and SpecLink Pilot testers on using SpecLink

- Updates to 23 LANL Master Specification Sections (new and revisions): 01 3300 Attachment A - Construction Submittal Log, 01 4115, 01 4525 - NEW!!, 01 4631, 01 4731, 01 9100, 03 3001, 07 0553 - NEW!!, 07 8400, 10 4400, 22 0529, 22 0713, 23 0593, 23 1123, 23 3101, 23 3300, 23 3816, 23 6200, 23 7413, 23 8123, 25 0533, 25 5911, and 26 0533
- BIM Standards - Section 400 of CSM - NEW!!
- Issue of NEW electrical standard drawings ST-G4090-1 to ST-G4090-6 on EV charging stations.

Thanks to all the POCs for their hard work!

LANL Engineering Standards Admin matters

E-mail for COE Eng Stds: engstandards@lanl.gov

Click e-mail address above for any general questions. Goes to the whole team: Tobin Oruch, Alan Yaeger, Neha Gidwani and Christina Salazar-Barnes. Alternatively, visit the [CoE](#) or [Engineering Standards](#) webpage and click on the email under the Engineering Standards team. Of course, if your need is discipline-specific, then it's best to contact the Standards POC for the corresponding ESM chapter shown on that [webpage](#).

LANL ENGINEERING PROCESSES CHANGES

Lookout for VAR-10696 which will be posted against AP-341-720, Engineering Construction Submittals soon!

LANL Engineering Processes Admin matters

E-mail for COE Eng Processes: COE-APs@lanl.gov

Click e-mail address above for any questions related to Administrative Procedures. Goes to Azupuri Kaba (Kaba), Gabriel Herrera, Beau Portillo, and Christina Salazar-Barnes. Alternatively, visit the [CoE](#) or [Engineering Procedures](#) webpage and click on the email under the Engineering Processes team.



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NATIONAL STANDARDS ACTION

[Online National Codes & Standards](#) (Accuris Eng Workbench [EWB], formerly IHS)

Research Library has added [Laser Safety Standards](#) to its Library collection.

[NEMA VE 1](#), Metal Cable Tray Systems

Publication Date: 2017

Type of Change: Withdrawn, superseded by NEMA BI 50015

[NFPA 30 AMD 1](#), Flammable and Combustible Liquids Code

Publication Date: 8/29/2024

Type of Change: Amendment

[NFPA 70 ERTA 8](#), National Electrical Code

Publication Date: 4/22/2024

Type of Change: Errata/Erratum to 2023 Edition (LANL uses 2020)

DOE TECHNICAL STANDARDS ACTION

[Tech Stds Program postings](#) are listed on the [Technical Standards Portal](#).

[DOE-STD-1173-2024, Criticality Safety Functional Area Qualification Standard](#)

[DOE-STD-1197-2024, Causal Analysis](#)



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No judgment

MSS DOCUMENT ACTION

[Operation and Maintenance Criterion and related Preventative Maintenance Instructions](#) (PMI) are standards with which system and plant engineers should be familiar. Implementation is required 30 days from issue date for non-nuclear facilities, 60 days for nuclear facilities. Questions? Contact the document author shown on its approval page.

Below are recent changes issued by Maintenance and Site Services Division per Jeremy Vonharders. Click [here](#) to access. If you have issues with SharePoint sites, use a Microsoft browser (e.g., Edge) to access them.

AP-MSS-002 Rev 4: Document Control

Major rewrite to update procedure to current document control process, including the following:

- Updated requirements basis/documents in Section 1.0, Purpose.
- Updated Section 2.2, *Applicability*, to current terminology and added reference to deployed organizations.
- Updated Section 3.0, *Procedure*, to reflect current document control practices.
- Added new roles and responsibilities to Section 4.0, *Responsibilities*.
- Included list of documents required to be maintained per document control policy to Section 8.0, *Required Documentation*.
- Updated Section 9.0, *Acronyms and Definitions*.
- Added missing references and deleted unused references from Section 10.0, *References*.
- Changed Attachment 1 to *Document Action Request* per guidance from SI-DCRM.
- Incorporated *Document and Comment Sheet* provided by SI-DCRM as Attachment 2.
- Modified Attachment 3, *Request to Cancel*, to enhance clarity.
- Updated Section 12.0, *Contact*, to Jeremy Vonharders.

PMI 403-A Rev 8: Low- and High-Pressure Steam Boiler and Low-Temperature Hot Water Heating Boiler Inspection, Testing, and Maintenance

- Updated Boiler Inspector's contact information in applicable sections.
- Updated references to the latest code updates.
- Removed LANL-STD 100, Chapter 17, *Pressure Safety*, Section QCSM – Quality Control Systems Manual (R Stamp Program) references and replaced with PSGEN-NBIC-FIA, *Quality Control Systems Manual* (Federal Inspection Agency), Exhibit 10-08. Removed Foreman Verification signature.
- Reordered checklist layout to separate Hot Water Boiler checklists from Steam Boiler checklists; revised related headers and footers.
- Removed 403.A.010, *Steam Boiler Weekly Log Sheet*.
- Added the following checklists:
 - 403-A.008, *Hot Water Heating Boilers Maintenance, Testing, and Inspection Log*
 - 403-A.016, *Steam Heating Boilers Maintenance, Testing, and Inspection Log*
 - 403-A.017, *Safety Shutoff Gas Valve Test*
 - 403-A.018, *Natural Gas Shut-Off Valves Diagram*,
 - 403-A.019, *Typical Leak Test Apparatus*.

- Revised gas valve leak test steps to adhere to current standards and include reference to 403-A.017 for annual completion of the test.
- Minor edits to multiple-action steps and minor technical edits.

PMI 506-B Rev 2: Backup Generator Level 1 Systems Inspection, Testing and Maintenance

- Template change.
- Updated to 2022 NFPA 110.
- Added block heater/jacket coolant heater note to Section 4.0, Cooling System, in all checklists.
- Added battery replacement note to Section 6.0, Battery System, in all checklists.
- Added Megger test to Section 8.0, Engine (Prime Mover) and Alternator, in checklists 506-B.005, *Yearly Inspection, Testing and Maintenance*, and 506-B.006, *3-Year Inspection, Testing, and Maintenance*.

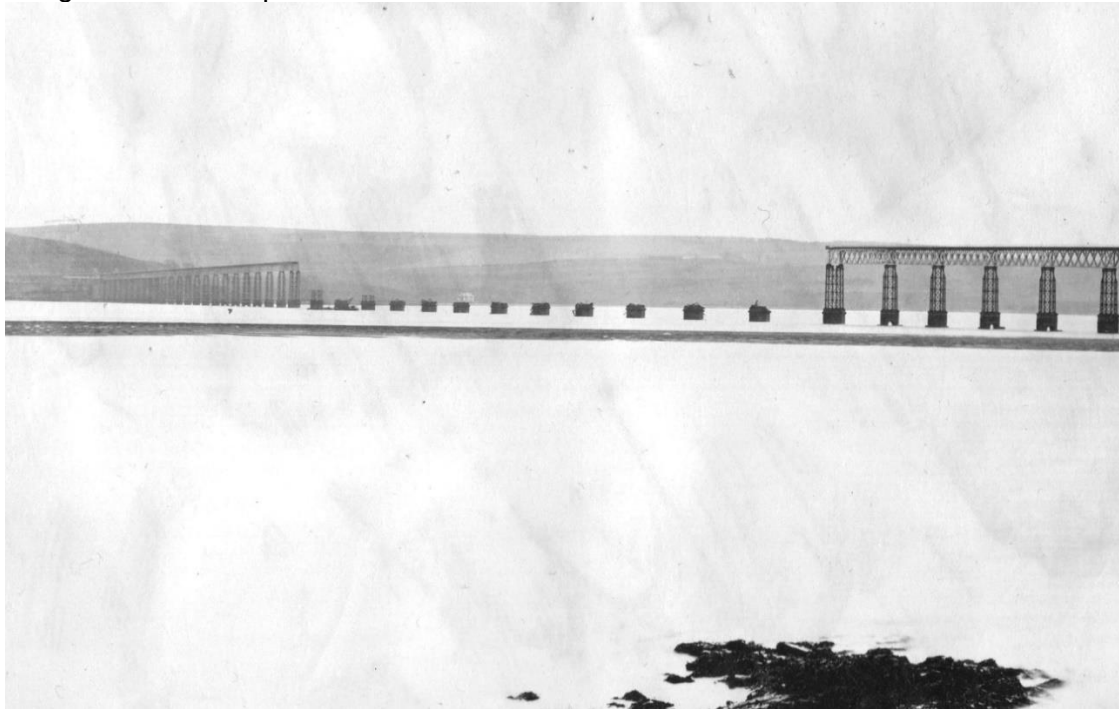
PMI 721-C Rev 3: Wet Automatic Sprinkler Systems Six-Month Inspection and Testing

- MSS-CE has rescinded Revision 4 of PMI 721-C Wet Automatic Sprinkler Systems Six-Month Inspection and Testing Rev 4 this reactivates PMI 721-C back to Rev 3

WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED

A brief look back in time: [Tay Bridge disaster - Wikipedia](#)

Bridge after its collapse



The Tay Bridge disaster occurred on December 28, 1879, when a section of the rail bridge over the River Tay in Scotland collapsed during a violent storm as a train was

crossing. The central spans of the bridge, weakened by design flaws, poor quality materials, and inadequate maintenance, gave way under the pressure of the wind. The train and its passengers plunged into the icy river below, resulting in the deaths of all 75 people on board. An investigation revealed critical errors in the bridge's design and construction, particularly in underestimating the wind loads the structure would need to withstand, leading to significant changes in engineering practices and safety standards.

LAST MONTH'S UPDATE TOPICS

[Miss an issue? The archive is at "Monthly Update" on the Standards homepage. Last month's topics:](#)

- Introducing Revit Training Tool: ProductivityNOW
- CPS Parking Lot Repaving
- Training & Qualification
- LANL Engineering Standards Issued in August
- LANL Engineering Processes Changes
- National Standards Action
- DOE Technical Standards Action
- MSS Document Action
- When Good Conduct of Engineering Isn't Followed

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engstandards@lanl.gov. This newsletter may contain content appropriate for LANL and business partners only, not intended for broad public release.

