Engineering Standards Update

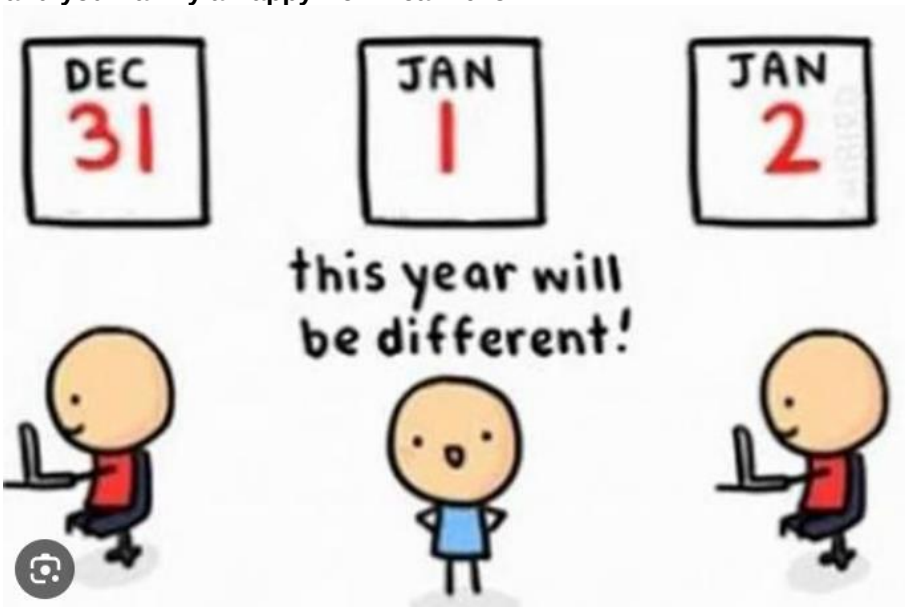
News from Engineering Standards Program

Jan 9, 2025

Standards are serious business but this newsletter isn't always.

Topics this month:

Wishing you and your family a Happy New Year 2025!



GRADUATE SCHOOL FUNDING AVAILABLE FOR WOMEN ENGINEERS

Women at the Lab interested in pursuing a graduate degree in engineering should apply for Athena Engineering Scholars Program before Jan 15. The program funds tuitions and fees and is open to all women at the Lab. For more details, see article: Funding available for women engineers to attend graduate school.

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 ESM Chapter 21 Software – Overview and Owners Courses – series is Jan 14 and 16, Teams
A few of you are new "Owners" of nuclear safety or other ML-1, -2, or -3 software (installed in a system, or maybe for design/analysis). If you follow ESM Chapter 21 Software, then you need to take training on the chapter. The managers (including FDARs) of Owners only need the overview.

So…if you, in fact, need training, please register in UTrain for the course(s) below. If you're not sure what you need, contact SME/instructor Jared Harris. **Note the UTrain notification states 2 hours. Block 3 hours in your calendar.**

- 38047 CoE ESM Chapter 21 Software Overview, 3 hours. (RLMs and Owners): Tuesday, Jan 14, from 9 am - 12 pm.
- 34048 CoE ESM Chapter 21 Software Owners (3 additional hours, just Owners return for this): Thursday, Jan 16, also from 9 am - 12 pm.

CoE: Design Engineer ES-EPD Article 250 Conductors Duty Area 9, #55880 – Jan 16, 9:00-11:00 am, Teams
Eric Stromberg is leading this instructor-led course. It is required for completion of Duty Area 9 for DE qualification of Electrical Engineers (per UTrain curricula 14186).

CoE Commercial Grade Dedication (CGD) - Preparers Course #30727 – Jan 30, 8:00 am - 4:00 pm, Teams
For those of you who will serve as LANL CGD Preparers including Procurement engineers, select CSEs and Quality SMEs, Course #30727 is required (#30726 is a prerequisite). **NOTE: Historically, this course is only offered twice a year, so plan accordingly!**
For any questions, contact instructor John Lamendola.

CoE: Design Engineer Over-Current Protection Duty Area 9, #58192 – Jan 30, 9:00-11:00 am, Teams
Eric Stromberg is leading this instructor-led course. It is required for completion of Duty Area 9 for DE qualification of Electrical Engineers (per UTrain curricula 14186).

CoE ASME B31.3 Process Piping Code, #57784 – Feb 3-7, 10-13 (M-Tr, must attend all 8 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: LANL Engineering Standards Overview #52693 – Feb 10, 1:00-3:00 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 Design Engineer Conductor Sizing Duty Area 9, #58408 – Feb 13, 9:00-11:00 am, Teams
Eric Stromberg is leading this instructor-led course. It is required for completion of Duty Area 9 for DE qualification of Electrical Engineers (per UTrain curricula 14186).

Intro to LANL Engineering Standards, #24140 – Feb 24-27 (M-Tr, must attend all 4 days), 1:00-3:00 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 Design Engineer Transformers Duty Area 9, #58417 – Feb 27, 9:00-11:00 am, Teams
Eric Stromberg is leading this instructor-led course. It is required for completion of Duty Area 9 for DE qualification of Electrical Engineers (per UTrain curricula 14186).

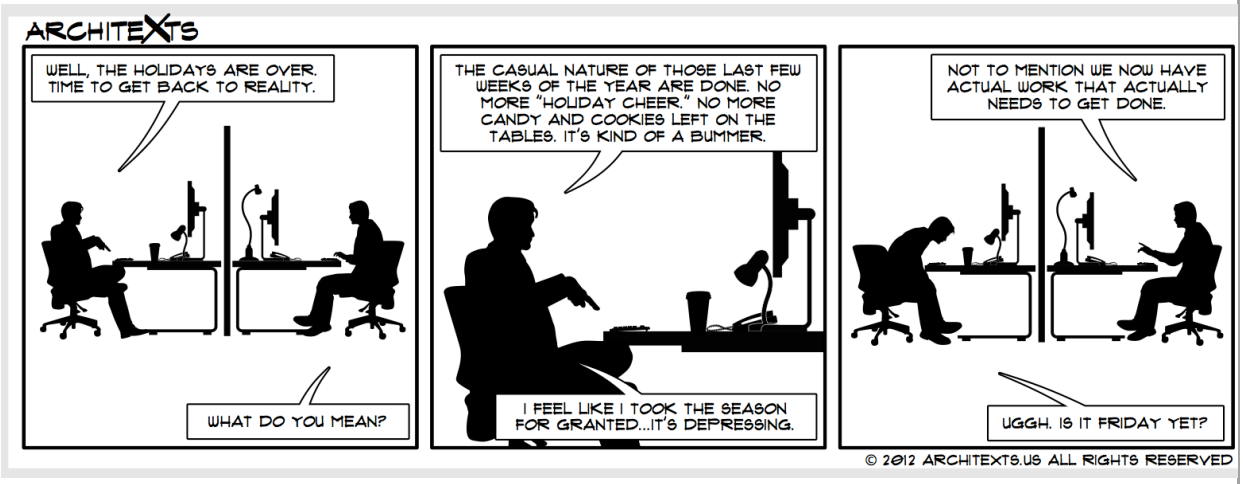
Onboarding Training Courses by CoE Office, Teams:

- AP Introduction and Common APs Deep Dive #54871, Jan 9, Feb 13, 10 - 11.30 am
- COE Engineering Initial Onboarding #54864, Feb 6, 10 - 10.30 am
- COE ES LANL Organization and Engineering Divisions Introduction #54659, Feb 12, 10.00 - 11.00 am.

Training by IQPA, Teams (Instructor led):

- Nonconformance Control & reporting Coordinator (NCRC), #57109, 1st Wed each month, 1.00 - 3.00 pm
- Nonconformance Control & Reporting Owner Manager (NCR OM), #58013, 2nd Wed each month, 1.00 - 3.00 pm.

Pre-requisites for the courses are UTrain Course #44790, Nonconformance Reporting Overview & Required Reading #56362, Nonconformance Control and Reporting.



Who else is ready for another long weekend?

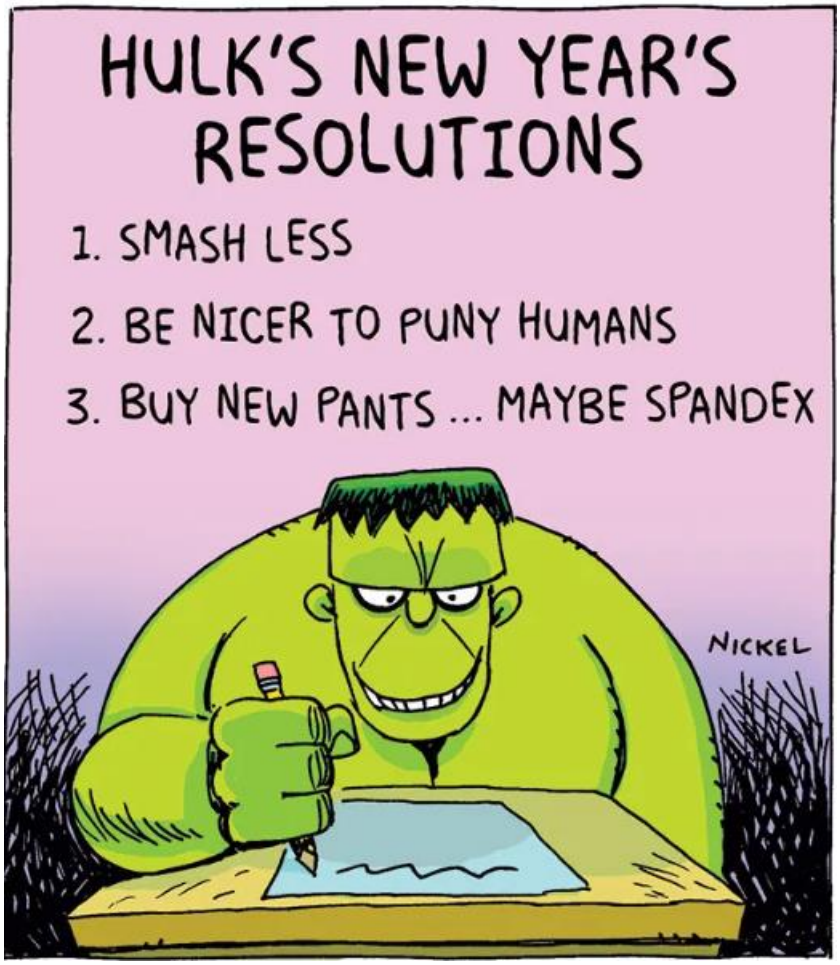
T&Q Admin matters

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.



What's yours?

LANL ENGINEERING STANDARDS ISSUED IN DECEMBER OR SO

Engineering Standards Manual ESM STD-342-100

Chapter	Section	Title	Rev.	Date	Comments
ESM Ch 5 - Structural	Section II	Commercial Design and Analysis Requirements	13	12/24/24	Updated II.1.8.A.1 to incorporate S_{DS} and S_{D1} seismic design parameters presented in Table 1 of memo ES-DO-Memo-24-022, Rev. 1; these coefficients apply to new designs that establish their Code of Record beginning 12/11/2024. Deleted II.1.8.A.2, which previously permitted the use of Seismic Design Category (SDC) C). Together, these changes incorporated VAR-10711. Added footnote 2 to clarify the scope. Other minor changes. Thanks to Structural POC Carlos Coronado and Neha Gidwani.
ESM Ch 5 - Structural	Chapter References and Resources	Requirement ID Log	-	12/24/24	Aligned to ESM Ch 5, Section II R13. Thanks to Structural POC Carlos Coronado and Neha Gidwani.
ESM Ch 16 - Building Code Program	IBC-GEN, Att. B	LANL Existing Building Code (LEBC)	11	12/24/24	Incorporated VAR-10711, thus updated Sections 304.3.1 and 304.3.2 to incorporate S_{DS} and S_{D1} seismic design parameters in Table 1 of memo ES-DO-Memo-24-022, Rev. 1. Deleted SDC-C Exception to 304.3.1 and 304.3.2, which previously permitted the use of Seismic Design Category (SDC) C. Thanks to Structural POC Carlos Coronado and Neha Gidwani.
ESM Ch. 14 Sustainable Design	Att. 2	Utility Metering Requirements	1	12/24/24	Minor clarifications throughout. Thanks to Sustainable Design POC Dee Bangert, Eric Stromberg, Michael Ladach, Maura Miller, Tobin Oruch, others.

LANL Master Specifications STD-342-200

Thanks to Christina Salazar-Barnes for formatting these specification sections and Neha Gidwani for coordinating all these updates with the POCs!

Section Number	Rev.	Section Title	Date	Comments

21 1313 21 1316 21 1319 21 1326	11 8 8 8	Wet-Pipe Sprinkler Systems Dry-Pipe Sprinkler Systems Preaction Sprinkler Systems Deluge Fire-Suppression Sprinkler Systems	12/16/24	These sections are withdrawn and superseded by 21 1300 per Fire Specs POC Todd Smith.
22 0813	12	Testing Piping Systems	1/8/25	This revision includes citing other sections for test pressure and durations, updates to Articles *Submittals* in Part 1, specific requirements for Flexible Hose Restraints in Article *Field Quality Control* in Part 3, corrected ESM Ch 17 references and other minor editorial changes. Thanks to Pressure Safety POC Ari Swartz, Pressure Safety Alt POC Rob Payment, Mechanical POC Michael Ladach and Pressure Safety Program Manager Derrick Velasquez.
22 1500	6	Compressed-Air Systems	1/8/25	This revision includes updates to Articles *Related Sections* and *References*, and *Submittals* to standardize across piping sections. Includes clarification when unlisted component evaluations are required in submittal space. Revised piping, fittings, and components throughout Part 3 to ensure template is ASME B 31.9 compliant. Added Article on *Seismic Performance Requirements* in Part 2, clarified some items in Article *Installation*, corrected ESM Ch 17 references, updated Part 3 to standardize across piping sections and other minor editorial changes. Thanks to Pressure Safety Alt POC Rob Payment, Pressure Safety POC Ari Swartz, Mechanical POC Michael Ladach and Pressure Safety Program Manager Derrick Velasquez.
23 2113	7	Hydronic Piping	1/8/25	This revision includes deletion of Article Summary, updates to Articles Related Sections and References, and Submittals to standardize across piping sections. Includes clarification when unlisted component evaluations are required in submittal space. Revised piping, fittings, and components

				throughout Part 3 to ensure template is ASME B 31.9 compliant. Added Article on *Seismic Performance Requirements* in Part 2, clarified some items in Article *Installation*, corrected ESM Ch 17 references, updated Part 3 to standardize across piping sections and other minor editorial changes. Thanks to Pressure Safety Alt POC Rob Payment, Pressure Safety POC Ari Swartz, Mechanical POC Michael Ladach and Pressure Safety Program Manager Derrick Velasquez.
23 2215	4	Steam and Condensate Heating Piping and Specialties	1/8/25	This revision includes updates to Articles *Related Sections* and *References*, and *Submittals* to standardize across piping sections. Includes clarification when unlisted component evaluations are required in submittal space. Revised piping, fittings, and components throughout Part 3 to ensure template is ASME B 31.9 compliant. Updated Article on *Seismic Performance Requirements* in Part 2, clarified some items in Article *Installation*, corrected ESM Ch 17 references, updated Part 3 to standardize across piping sections and other minor editorial changes. Thanks to Pressure Safety Alt POC Rob Payment, Pressure Safety POC Ari Swartz, Mechanical POC Michael Ladach and Pressure Safety Program Manager Derrick Velasquez.
23 2300	6	Refrigerant Piping	1/8/25	This revision includes updated description in Article *Section Includes*, references to NDE specification section, updates to *Submittals* to standardize across piping sections. Includes clarification when unlisted component evaluations are required in submittal space. Updated designer notes and significant revisions to Articles *Refrigerant Piping* and *Piping Fittings*. Added Article on *Seismic Performance Requirements* in Part 2, clarified use of approved alternatives for ASME B31.5 Leak Testing in Article *Examination, Inspection and Testing,* updated Part 3 to standardize across piping sections and other minor editorial changes.

				Thanks to Pressure Safety Alt POC Rob Payment, Pressure Safety POC Ari Swartz, Mechanical POC Michael Ladach and Pressure Safety Program Manager Derrick Velasquez.

Tailored Standards Manual STD-342-600

Section	Title	Rev.	Date	Comments
TSM	Tailored Standards Manual	2	12/24/24	Updated to adopt IBC 2021. Aligned ESM Chapter 5, Section II to Rev 13, incorporating VAR-10711 (updated seismic design parameters S_{Ds} and S_{D1}). Chapter 14 aligned to ESM Ch 14 R12.1. GLOS-COE-1 referenced vice App. A. Thanks to Structural POC Carlos Coronado, General POC Tobin Oruch and Neha Gidwani.

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

No updates this month.

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.

NATIONAL STANDARDS ACTION

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

IEEE C37.13, Low-Voltage AC (1058 V and Below) Power Circuit Breakers Used in Enclosures
Publication Date: 11/12/2024
Type of Change: Complete

NFPA 12, Standard on Carbon Dioxide Extinguishing Systems
Publication Date: 2025
Type of Change: Complete Revision

NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems
Publication Date: 2025
Type of Change: Complete Revision

These amendments are NFPA TIAs which are effective when issued, just as ASHRAE amendments are, per ESM Ch. 1 Z10.

NFPA 70 AMD 16, National Electrical Code
Publication Date: 12/4/2024
Type of Change: Amendment

NFPA 80 AMD 1, Standard for Fire Doors and Other Opening Protectives
Publication Date: 12/4/2024
Type of Change: Amendment

DOE TECHNICAL STANDARDS ACTION

Tech Stds Program postings are listed on the Technical Standards Portal.

DOE-STD-1212-2025, Explosives Safety
DOE-STD-1239-2024, Chemical Safety Management Program

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.

AP-MSS-011: Quality Review Team Process

- Initial Issue

AP-WORK-003 Rev 9: Work Scheduling

Major rewrite to change format of the AP from step-based to requirement-based:

- Updated per 2022 Conduct of Maintenance Assessment Part 0 (IM-2022-7311).
- Defined basic components of a T-week schedule (Soft/Hard/POW/POD/status update)
- Added requirement for each MM to develop a T-week Milestone document
- Simplified language, deleted redundant content, expanded requirements/details, and clarified responsibilities

O&M 504 Rev 8: Low-Voltage Electrical Equipment

- Moved to current template.
- Modified standard references to current editions.
- Added transfer switches to equipment list.
- Changed the testing of all feeder conductors to only conductors 1/0 and above.
- Removed requirement for testing Neutrals.
- Removed definitions for “Load Centers” and “Substation.”

O&M 603 Rev 4: Roofing Systems

- Moved to current O&M template.
- Updated Section 3.1, *Acronyms*.
- Added missing basis statements to Sections 5.1, *Precautions*; 6.0, *Requirements*; and 7.0, *Recommendations*.
- Updated Section 7.1.4, *Roof Top Equipment Mounting and Penetrations*, to indicate personnel should contact RAMP to ensure the roof has an active warranty or falls under their purview before mounting and/or penetrations are performed.
- Deleted *Required Documentation* section.
- Updated Section 9.0, *References*, and corrected reference citations throughout.

WHEN GOOD CONDUCT OF ENGINEERING ISN’T FOLLOWED

Huge Math Error Corrected in Black Plastic Study

A recent study published in the journal *Chemosphere* reported that black plastic household items, such as kitchen utensils, contain toxic flame retardants like BDE-209, raising health concerns. The authors

initially estimated that daily exposure from these utensils was close to the Environmental Protection Agency's (EPA) reference dose for safety. However, a mathematical error was later identified: the EPA's safe level for a 60 kg adult is 420,000 nanograms per day, not 42,000 as originally stated. This correction indicates that the estimated exposure is significantly below the EPA's safety threshold. Despite this error, the study's authors maintain that the presence of such flame retardants in household items remains a concern, emphasizing the need for caution regarding black plastic products.

This article highlights the importance of self-checking and having one's work checked by an independent checker to avoid bloopers such as what happened above. At LANL, there is a process for engineering work to be checked and reviewed to ensure quality work.

LAST MONTH'S UPDATE TOPICS

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

- Standards Spotlight: VAR-10694, Project Drawing Package Approvals on Title Sheet; Fewer Signatures
- Seismic Design Parameters Update
- Training & Qualification
- LANL Engineering Standards Issued in November or so
- LANL Engineering Processes Changes
- National Standards Action
- DOE Technical Standards Action
- MSS Document Action
- When Good Conduct of Engineering Isn't Followed