
ENGINEERING STANDARDS UPDATE

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

Topics this month:

- Training & Qualification
- Code Adoptions: NEC; Download 2015 ICC and IAPMO Codes Now
- Concrete Mixes Changing. Again.
- ES-DO and ES-FE Personnel Changes
- LANL Standards Issued in Nov
- Engineering Processes News
- National Standards Action
- DOE Standards Action
- MSS Document Changes
- When Good Conduct of Engineering Isn't Followed

Note: This newsletter has hyperlinks all over but their formatting may not show, so please hover your cursor where you might expect one.

'Tis the season...

**TRAINING & QUALIFICATION****24140 Intro to LANL Engineering Standards – January**

Jan. 16 – 19 (must attend all 4 days), 2:00-4:00 PM (**NEW TIME**), MS TEAMS
Attend each day to receive credit (it's 8 contact hours, despite what UTrain may say). You'll need to block your own calendars. Register in UTrain. If that fails, contact Nick Jones (n.jones@lanl.gov) or Sadonna Tapia (squires@lanl.gov) with Z number (or Stan

Hayes). Provides familiarity with national and LANL engineering standards for anyone performing, reviewing, or managing design activities. **Required course for many LANL engineers**, recommended for those at local AE firms, and **only taught a few times a year--so try to attend.** **ALSO**, apologies on the time change from original set-up; if there are a lot of people on the East coast that can't make it, someone please let me know how many are involved. (Might accommodate in another session mid-March).

Instructor-Led Course Registration Guide (NEW!!!)

Nick Jones assembled a step-by-step guide to registering for courses that don't yet have a session set in UTrain.

It's posted to the [CoE T&Q "Resources" page](#)

Look under FAQs:



CODE ADOPTIONS: NEC; DOWNLOAD 2015 ICC AND IAPMO CODES NOW

Noted last month, we expect to adopt the 2021 International Building, Existing Building, and Fire codes this winter (e.g., January) via revision to the ESM (primarily Ch 2 Att 1; Ch 5; and Ch 16's IBC-GEN Att. A, that lists the major codes we use). Further news on codes is that LANL is adopting the 2020 NEC (NFPA 70) effective Jan 2, per the Electrical Safety Committee. As such, projects expecting to get "underway" with design in February or beyond should cite the above editions in their code of record listings.

Re downloads: LANL has used several 2015 ICC (I-code) editions in new projects since March 2015, so there are 100s of projects underway with design or construction for which the 2015s are part of the code of record. So people involved in those projects should probably have (download as needed) the pdf versions of the IBC, IEBC, and IFC now (in December) since LANL's IHS Eng Workbench subscription will likely be switching to the 2021 version of same in January, making the previous pdfs unavailable by that method. IHS search tip: Until the switchover to the 2021s, you can search for a specific code like "2015 IBC" but you must uncheck "most recent revision" in the filter criteria for it to appear in your results.

Also, projects from July 2018 until April 2022 were to use the 2015 IAPMO Uniform Plumbing and Mechanical codes, and users can still download those UPC and UMC editions through this month only.

Don't bother trying to download the 2017 NFPA 70 – IHS won't let you download any NFPA document; they're read-online only.



Because dogs get equal space with cats here.

CONCRETE MIXES CHANGING. AGAIN.

We just revised our concrete master spec sections to require Metaforce pozzolan (versus fly ash), but now that's also becoming unavailable so placements may cease sometime before the holiday break.

New mixes with are being developed and tested by LA Transit Mix but it'll be sometime in January before we know if the second recipes with Tephra NP pozzolan are fully successful. Then, once there are viable mixes, our masters will be revised again by POCs Carlos Coronado and Jon Stein (with the help of Mike Denlinger while on his pre-retirement terminal vacay) so placements can begin again, maybe mid-January.

As before, projects with issued designs with the unavailable materials will need to generate FCRs or otherwise adopt the Tephra-based mixes for placements (once the new masters are ready) and those in design utilize them.

ES-DO AND ES-FE PERSONNEL CHANGES

The essence of an announcement from Mike Richardson, ES-DO, on November 17: **Dan Tepley** was selected as our new ES Deputy Division Leader, responsible for the deployed facility system engineering groups and the Conduct of Engineering (CoE) as part of an institutional Safety Management Program (SMP). Dan has been the ES-FE Group Leader since November 2020 and a LANL employee for over 20 years. He has diverse management experience leading large groups and will be a key asset as we continue to streamline our CoE.

Tom Wando was selected as our Deputy Division Leader for the ES Project Delivery Groups. Tom brings a tremendous amount of value into this position with demonstrated success under PIE, as well as significant project management and facility engineering experience in both the commercial and military sectors. Tom has already made instrumental improvements in our

division by standing up our new Business Operations Group and supporting many of our initiatives.

Robert Abeyta will be the Team Leader for our IBC Inspectors under ES-FE. Robert brings 42 years of diverse experience in Project Management, Environmental Services, Field Inspection, and Materials Testing while working for multiple private and government customers. Robert has worked as a subcontractor for many LANL construction projects, but will be new to Triad, so please extend him a warm welcome. I'm confident that Robert will help us provide a graded approach to our LBO responsibilities in the field and will become a valuable partner for our subcontractors.

Also, announced later within CoE ;-(

Christine Honey, who joined the Engineering Standards team earlier in 2022, will be leaving to join the Defense Protection Program's Program Office (no relationship to the Department of Redundancy Department). She'll be around through the end of this week and will be greatly missed after that!

On that note, two **job positions (Engr 3 & 4) for standards work** will be posted soon to help fill the void and I'll note them next month.

LANL STANDARDS ISSUED IN NOV <https://engstandards.lanl.gov/>
Engineering Standards Manual ESM [STD-342-100](#)

ESM Chapter(s)	Section	Title	Rev.	Date	Comments
Chapter 6 – Mechanical	D30	HVAC			Reference posted: Multizone to Variable Volume HVAC Controls Retrofit Design & Implementation Suite (USCoE) https://www.wbdg.org/ffc/army-coe/design-guides/mz-vv-hvac-controls-retrofit
Chapter 9 - Security		Facility Protection and Security	5	11/4/2022	Incorporated VAR-10381 , Vault Door and X-ray Machine Purchase Approvals. Reduced signs listing. Minor change to VTR and SAPF construction (latter moved to new App I) and SAPF and SCIF intrusion detection (App F). Updated organization and Federal references, other minor changes throughout. Thanks to POC Jeff Mccale, SEC-PPO and others. Note, this document is CUI/OUO so must be requested from Jeff or via its webpage.

Master Spec Sections [STD-342-200](#)

Section Number	Rev.	Section Title	Effective	Summary
03 3053	9	Miscellaneous Cast-In-Place Concrete	11/9/2022	New Metaforce pozzolan-based pre-approved mix designs [Note, see concrete article above]. Thanks to POC Jon Stein.
28 4600	4	Fire Detection and Alarm	11/10/2022	<ol style="list-style-type: none"> 1. Revised in entirety to improve conciseness and clarity. Relocated requirements based on whether they were qualification, equipment, or execution requirements. Removed design requirements and added them to the ESM. 2. Added requirement for a points/address list as an action submittal. 3. Added requirements for area of refuge two-way emergency communication systems. 4. Added requirements for labeling inside terminal cabinets, and FACU/NAPPs. 5. Part 1.1.B: Added more fire alarm components. 6. Part 1.1.C: Added codes and standards. 7. Part 1.2: Added more related sections. 8. Part 2: Added and updated products and removed design descriptions. Thanks to POC Keenan Dotson, Marilyn Gauthier-Aguilar, others.

31 2323.33	6	Flowable Fill	11/9/2022	New aggregate mixture gradation, addition of pozzolan and removal of fly ash, and update to slump to align with NMDOT. Additional description of applicability of this spec for use under support/bearing of building foundations in the beginning author notes. Thanks to POC Jon Stein. [Note re article above: should be alright to use, no pozzolan normally].
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CAD Standards Manual [STD-342-300](#) POC Scott Richardson

Section	Section/Title	
100	General Requirements	Issued VAR-10066 Rev 2, Electronic Drawing Approval. Thanks to Tyson Cardon, POC Scott Richardson.
200	CAD Requirements -- References	<p>For LANL use only (for now): New tool for signing LBO or UNCI stamps issued; new README; Sign Drawings signature tool v3.1 posted; it:</p> <ul style="list-style-type: none"> • Incorporates optical character recognition (OCR) for drawing analysis. This makes all drawings “searchable”, eliminating the need for manual intervention. • Uses completely refactored code to provide better maintainability and program reuse. This also supports new tools being coded to sign “stamps” including the LBO and UNCI stamps. • Uses an internal calibration which precisely places signatures. This addresses scanned image files, especially those coming from contractor furnished drawings. These drawing files have been an issue because of scanner settings and various margins which present a challenge in correct signature placement. <p>Thanks to Raymond Henderson.</p>



ENGINEERING PROCESSES NEWS

From CoE Eng Process Manager (and acting Office Director) Sarah Murdock, smurdock@lanl.gov, 667-7788:

AP-341-602, Requirements and Criteria Document https://coe.lanl.gov/APs/AllAPs/Forms/APbyNumber.aspx	
Issued 11/28/2022	Issued Variance-10577, <i>RCD Template for Utility and Infrastructure Projects</i> (and new AP-341-602-R2-TMP02, Word file att to VAR)
Effective 11/28/2022	

Please enter issues with APs in the SharePoint issues database (Standards has this tool also). Use the button below, same one that's found in the upper right of the Processes SharePoint [homepage](#).



NATIONAL STANDARDS ACTION

New docs per IHS Eng Workbench (EWB) subscription via Research Library (link: [Online National Codes & Standards](#))

Document: [ACI 318](#), **Building Code Requirements for Structural Concrete (ACI 318-19) Commentary on Building Code Requirements for Structural Concrete (ACI 318R-19)**

Publication Date: **June 2019**

Reaffirmed/Reapproved Date: **(R 2022)**

Document: [IES RP-1](#), **Recommended Practice: Lighting Office Spaces**

Publication Date: **5/4/2022**

Type of Change: **Complete Revision**

Document: **NFPA 72 ERTA 1, National Fire Alarm and Signaling Code**

Publication Date: 9/21/2022

Type of Change: **Errata to 2022 Edition (note, LANL doesn't use this edition, won't for some time).**

NFPA matters – LANL Notes

- Required NFPA versions for projects are per ESM Ch 2 Att. 1 (revision targeted for Jan 2023)
- Access: Users can read online, not download pdfs. This occasionally causes an issue with LANL's three NFPA licenses occasionally being tied-up and denying access. Please help alleviate this by logging off when you're not actively using EWB (this goes for all societies). To log off, click your name (upper-right) and log off from drop-down. As another workaround, users can always register on NFPA.org and have read-only there just as they have it on EWB. If you need them a lot, you can subscribe to NFPA LiNK for \$89/year.

DOE TECHNICAL STANDARDS ACTION

[Tech Stds Program postings](#) in the past month:

[DOE-STD-1121-2008 Chg Notice 1 \(Reaffirmed 2022\), *Internal Dosimetry*](#)

This standard defines minimum levels of acceptable performance and provides basic procedural guidelines for evaluating the internal radiation equivalent and effective dose that may be received by radiation workers from intakes of radionuclides. Supersedes Change Notice 1 by reaffirmation November 2022.

[DOE-HDBK-1130-2022, *Radiological Worker Training*](#)

This Handbook describes the radiation safety training recommended to comply with 10 CFR part 835, DOE policies, and standards. Occupational DOE radiation safety training consists of fundamental core curriculum provided through the DOE National Training Center (NTC). Appropriate facility and site-specific instruction should also be completed before qualification.

MSS DOCUMENT CHANGES

Below are recent changes issued by Maintenance and Site Services Division per Jeremy vonHarders.

Access here:

<https://logistics.lanl.gov/MSS/layouts/15/start.aspx#/Policy%20%20Procedures/Forms/Public.aspx>

O&Ms: 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. If you have issues with SharePoint sites use a Microsoft browser to access them.

MSS-DO has issued the below O&M Document(s):

PMI 720-C Rev 5: Fire Alarm Systems Yearly Inspection, Testing and Maintenance for High-Hazard, High-Value, and Nuclear Facilities

- Added section 2.5 to streamline/minimize interaction with EOC. Updated to enforce documentation of auxiliary functions testing.
- Removed attachment 720-C.004, Radiant Energy Device Data Sheet.
- Added attachment 720-C.005, Auxiliary Shutdown Function Testing.
- Changed MC (maintenance coordinator) to BM (Building Manager) throughout.
- Added steps for Emergency Voice Alarm and Communication and Ground Fault Trouble Detection
- Updated sections 5.0, Post-Maintenance Testing, 6.0 Impairments, and 7.0 Post-Maintenance Testing to standardized steps.
- Updated to current template

WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED



LAST MONTH'S UPDATE TOPICS

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

- Training & Qualification
- Structural POC Changes
- 2021 Code Adoption Plans (IBC, IEBC, IFC)
- LANL Standards Issued in Oct
- National Standards Action
- DOE Standards Action
- MSS Document Changes
- When Good Conduct of Engineering Isn't Followed



Engineering Standards Update
Topics this month: December 2022

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To request a change to this newsletter's distribution, please contact me.

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them: <https://int.lanl.gov/org/ddops/aldfo/nuclear-safety/engineering-services/conduct-engineering/index.shtml>)