

ENGINEERING STANDARDS UPDATE

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

Topics this month:

- **Spotlight on Pressure Safety**
- **Training & Qualification**
- **LANL Standards Issued in July or so**
- **Engineering Processes News**
- **DOE Technical Standards Action**
- **National Standards Action**
- **When Good Conduct of Engineering Isn't Followed**

The LANL Engineering Standards: <http://engstandards.lanl.gov/>

SPOTLIGHT ON PRESSURE SAFETY

Last week, alternate method VAR-10281 Rev. 1 – Certification of Pressure Systems was approved and posted to ESM Ch 17, ADMIN-1. For certain new and modified systems, it reduces the documentation, review, and approval requirement to gain certification to operate. Gotta like that.

This certification streamlining initiative goes along with the resurrection of the Pressure Safety Committee, a body that existed until about 10 years ago and is needed once again. The PSC, much like the Electrical Safety Committee, will leverage SMEs and PSOs from across the Lab to help ensure that only safe systems are installed and operated. Jason Apperson is the current chair. The operational charter is in review; more to come!

Finally, ES-EPD is gaining strength in pressure safety. Along with CPSO Ari Ben Swartz, there's Matt Cover, Larry Padilla at TA-55, and others—and, most recently Erin Mavis, Robert Payment, and student Zeke Smouse.

That was pressure safety. Don't miss the revisions to Structural, Electrical, and Sustainable Design chapters listed below, too.

Pardon this interruption:

From an Amazon listing for an action camera. Another illustration of why engineers are frustrated by the world—and frustrate others...

Customer questions & answers

Q: Which Video/Audio codecs it support?

A: I have no idea what you are talking about.....codecs.....? I just use the darn thing, it works like a charm. What are you, an engineer?

By [Natalia Meyer Jurkowski](#) on March 6, 2019

TRAINING & QUALIFICATION

If links fail with Firefox, try IE.

Electrical Standards – Changed to Thurs, Aug 29

Four-hour course [17998](#) covers the electrical engineering standards in Chapter 7 of the LANL Engineering Standards Manual and discusses mandatory requirements and good practices for those involved in electrical design. Strongly suggested for electrical designers, electrical engineers, electrical safety officers, and facility managers. AEs are also encouraged to attend. Taught by Electrical Standards POC Eric Stromberg from 7:30–11:30 am, at Canyon Complex Room 165 (00-0199-165). Also planned for 11/14 if you can't enroll in this session.

Standards Intro Course [24140](#) – Tues/Wed, Sept 17-18 mornings only C-Div Auditorium TA-46-535

For the first time, we're going to deliver this course as two half-days instead of one full day and see how it goes. Course 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. Don't wait for your slacker manager to assign it to you—bring it up! Presented 8 a.m.– noon by yours' truly. Next offering will be several months from now.

[ES-FP Assessment of Egress and Fire Doors \(Course 46507\) Sept 24, 25, or 26 8:30- ~3:00, location TBD](#)

This course was developed by the Door Hardware Institute (DHI) and National Fire Protection Association (NFPA) for authorities having jurisdiction (AHJs), facility managers, and facility maintenance personnel to better understand the basic and critical features of doors and hardware that provide life and fire safety. The course is taught by a DHI credentialed Fire and Egress Door and Assembly Inspector (FDAI). Upon completion of this **five-hour session**, facility maintenance personnel will better understand the working components of fire and egress doors assemblies, how to properly assess and functionally test the condition of them, interpret inspection reports in order to conduct or oversee repair, and perform ongoing maintenance for continued compliance with code requirements. The session will include a walk-through of the facility to review existing opening assemblies as examples of possible non-compliance and deficiencies. Topics Include:

- The specific types of components required for the fire door assemblies.
- A review of the door frames, doors, and builder's hardware that must be utilized on fire door assemblies.
- Directions on how to review and determine if the products are installed correctly, and for the maintenance personnel, note how to repair products in conformance with NFPA 80 requirements.
- Walk the facility and conduct a mock inspection on a few of the fire rated door assemblies and conclude with a seminar wrap-up. Create a focus on maintenance for the facility personnel and awareness of the doors, frames and builder's hardware for the AHJ.
- This mock inspection will familiarize the attendees on how fire door inspections should be performed and what type of documentation will be required to be given to the AHJ who will be performing the formal inspections.

Sign up via U-Train using links above and then please email Keenan Dotson (667-5219) in ES-FP: kdotson@lanl.gov

REGISTERING for UTrain Courses: Go to [UTrain](#), search on course, select and enroll. Disenroll if you have to bail. AEs can also register; use token (CryptoCard) or contact ES T&Q coordinator Yolanda Trujillo at 665-5696 or yjtrujillo@lanl.gov with Z number.

LANL STANDARDS ISSUED IN JULY OR SO
Engineering Standards Manual ESM [STD-342-100](#)

ESM-Chapter	Section	Title	Rev.	Date	Summary of latest Revision
Chapter 1 - General	210	Attachment 1: Systems List	–	7/15/2019	See log appended to document. Thanks to Charlie Nuss et al.
Chapter 5 - Structural	III	Nuclear SSCs Design and Analysis Requirements	8	8/5/2019	Added Hilti KB-TZ and HIT-RE 500 V3 to App A, KB-TZ as App. C. App C–D became D–E. Thanks to author Glen Pappas, POC Mike Salmon.
Chapter 7 - Electrical	D5000	General Electrical Requirements	8	7/24/2019	Revised applicability; made NECA and NETA reference-only; made NEC edition per Ch 16; revised calculation/software requirements and added new App A on software. Revised future load growth percentage, equipment location, and labeling and marking. Eliminated seismic controls, demolition, and acceptance testing. Streamlined some content where addressed in Ch 1, 19, CAD Manual, NEC, P101-13, or specs. Thanks to POC Eric Stromberg and reviewers.
Chapter 14 - Sustainable Design	–	Sustainable Design of Facilities	10	7/31/2019	Aligned HPSB and LEED requirements to NNSA Federal Green Buildings Training, stressed Smart Labs, other minor changes throughout. Updated Attachment 1, Environmentally Preferable Products for Design Agency Created Specifications. Thanks to Monica Witt for much input.
Chapter 16 - IBC Program	–	Reference: Listing of Approved IBC Testing Agencies and Fabricators	–	7/26/2019	Changes for Bridge Brothers, Premier Steel, Wood.

Chapter 17 - Pressure Safety	ADMIN-1	VAR-10281-R1, Certification of Pressure Systems	1	7/29/2019	For certain new and modified systems, reduces the documentation, review, and approval requirement to gain certification to operate. Thanks to POC Ari Swartz.
	QCSM	Quality Control System Manual – R Stamp and Federal Inspection Agency sections	1	7/31 and 7/30/2019	Revised and accepted by the National Board of Boiler and Pressure Vessel Inspectors. Thanks to Randall Austin and POC Ari Swartz. Webposting soon.

Master Specs [STD-342-200](#)

Spec Number	Rev.	Spec Title	Effective	Summary of latest Revision
05 0521	3	Post-Installed Concrete Anchors Purchase – Nuclear Safety	8/5/2019	Added Hilti KB-TZ. Title Changed. Thanks to POC Glen Pappas.
13 4713	0	Cathodic Protection	7/1/2019	Initial issue!!! Thanks to POC Michael Ladach, Misha Gallegos.
21 1313	9	Wet-Pipe Sprinkler Systems	8/1/2019	Provision for IBC or later NFPA 13 (1.3), added office trailer exceptions, clarified zoning requirements (1.3.B.) and submittals, added waterflow motor alarm and inspector's test connection, updated switch models, antifreeze requirements, and numerous other minor changes throughout. Thanks to POC Mark Rosenberger and his tech committee.

ENGINEERING PROCESSES NEWS

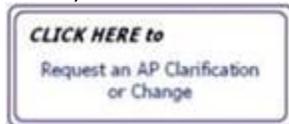
The following Administrative Procedure has been revised and posted on the [SharePoint site](#).

AP-341-402-R1	Engineering Document Management in Operating Facilities (Course 25002)	Issued: 7/22/19
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Always ensure you are working to the latest revision being implemented by your facility.

For questions this AP, please contact Jeff Fauble at 665-5832. He's half-time-ish, more often at ifauble@lanl.gov; (if it bounces, click Outlook's "To" button and select him from the directory; after that the autocomplete will work). Jeff's co-conspirator is Sarah Terrill sterrill@lanl.gov, 7-7788.

When ideas for AP change come, please enter them in the SharePoint database. Use the live button below, same one that's found in the upper right of the Processes [homepage](#).



Blown Away: Revisiting a Famous Engineering Case

By Dat Duthinh, a research structural engineer at NIST

Were secret emergency repairs for NYC's Citicorp Building in the late 1970s actually unnecessary?

One of the undergraduate engineering courses that left a deep and lasting impression on me was a course on innovation and aesthetics in engineering taught by David Billington at Princeton University. So, when I read the story of a skyscraper in New York City that had to undergo secret emergency repairs because of a question from an engineering student in New Jersey, I knew that the student had to be one of Billington's. And I knew then that I wanted to come back and investigate this issue in greater detail someday...

[READ MORE](#)

DOE TECHNICAL STANDARDS ACTION

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

DOE-HDBK-1230-2019, [Commercial Grade Dedication Application Handbook](#), Jul 16, 2019

DOE-STD-1232-2019, [U.S. Department of Energy Voluntary Protection Program \(links to all four Volumes\)](#), Jul 12, 2019

NATIONAL STANDARDS ACTION

LANL's [IHS](#) online codes & standards subscription reports these changes. We generally follow latest edition unless it conflicts technically with IBC-2015 or is not in a project's code of record.

Document number: **NFPA 780**

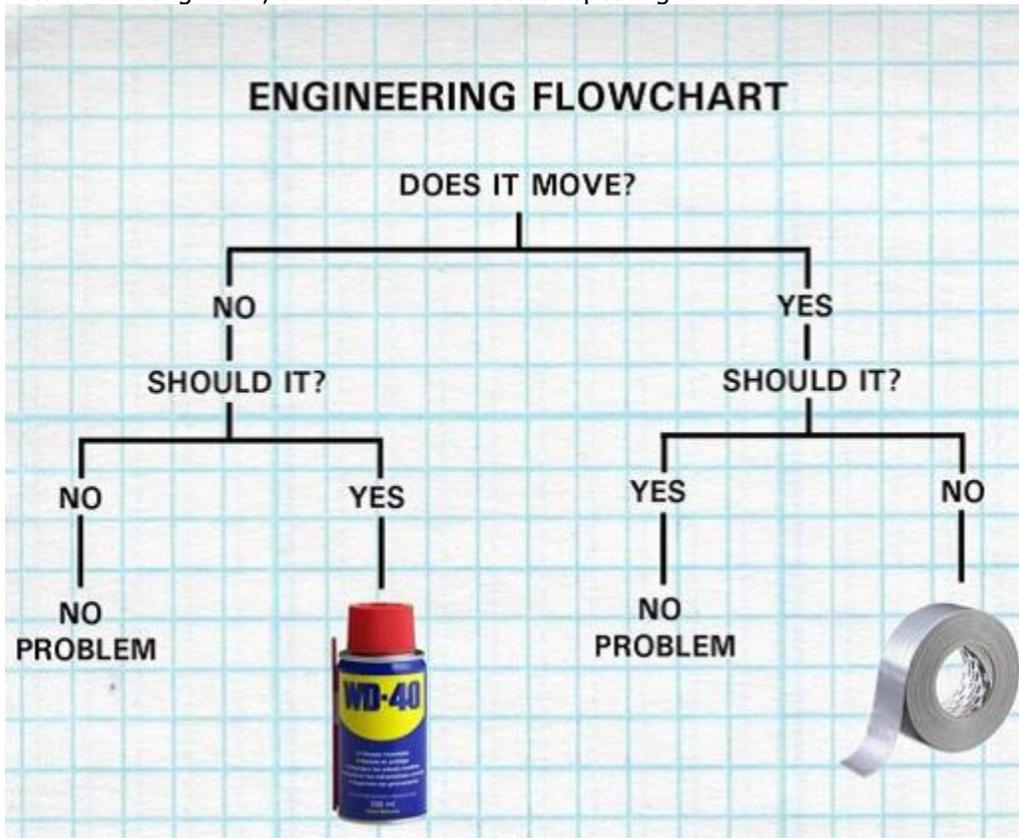
Publication Date: **1/1/2020**

Title: **Standard for the Installation of Lightning Protection Systems**

Type of Change: **Complete Revision**

WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED

Lots of new engineers, so this old meme bears repeating:



It's great if this logic is how you choose to maintain your personal stuff—even your family if that works. The problem comes when people take this literally at LANL. Keeping with the pressure safety theme:

Duct tape on the leaky joints below is the least of the problems; the LANL team that found this also reported non-code and potentially dangerous use of a reducing elbow and little clearance on the top to allow lever lifting (or replacement).



LAST MONTH'S UPDATE TOPICS

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

- **Training & Qualification**
- **LANL Standards Issued in June or so**
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Tobin Oruch, Engineering Standards Mgr
Los Alamos Nat'l Lab, Conduct of Eng Program Office
(505) 665-8475 oruch@lanl.gov <http://engstandards.lanl.gov/>
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