

ENGINEERING STANDARDS UPDATE

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

Topics this month:

- **Larry Goen Retirement Party**
- **Training & Qualification**
- **When Good Conduct of Engineering Isn't Followed**
- **LANL Standards Issued in February**
- **Engineering Processes News**
- **DOE Technical Standards Action**
- **National Standards Action**

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

LARRY GOEN RETIREMENT PARTY

Retirement party? Heck, it's been a party nearly every day since Larry announced his retirement back in January. A signing party that is, since Larry's imminent (March 22) departure has spurred many to try to complete a number of pending documents. Better-the-devil-you-know thinking? No, once Larry's gone the plan is that ES-55OUT's Jason Apperson will become acting Division Leader and signing documents that relate to that position.

Since most (all?) are sad he's leaving, there's a real retirement party planned for Thursday, March 21 from 12:30-3:30 in the Engineering Services Division Office. Please drop in if you can. It'll be the culmination of a month of parties including Shrove Tuesday/Mardi Gras (tomorrow, 3/5), Pi Day (3/14), St. Patrick's Day (the drinking/puking o' the green, 3/17), and the beginning of spring and March Madness (3/20).

TRAINING & QUALIFICATION

Guiding Principles for Federal Sustainable Buildings Workshop – THIS WED, Mar 6
8:30 – 12:00 pm, MSL Auditorium (03-1698), pre-register for UTrain 45093 and **bring a way to take notes.**

Per Monica Witt, LANL's Sustainability Program Manager:
NNSA is hosting this training for LANL Project Managers, Project Engineers, Engineers, Infrastructure Program Managers, Environmental Managers, Procurement Managers, and other DOE/NNSA interested parties.

Per ESM Chapter 14, the Laboratory is required to follow DOE's 2016 Guiding Principles for Federal Sustainable Buildings for new construction and modernization of existing buildings. Attend the training if you are involved in:

- New facility construction
- Major modernization projects in existing buildings

Learning Objectives:

- The broad Guiding Principle (GP) policy and reporting framework;
- The elements and sub-elements of each GP metric;
- The GP's relationship to third-party certifications and standards such as LEED and ASHRAE Standard 189.1;
- Documentation examples and strategies to achieve the GPs and;
- Best practices and lessons learned.

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



HPSB Training

HIGH PERFORMANCE SUSTAINABLE BUILDINGS

The Laboratory is required to follow DOE's 2016 Guiding Principles for Federal Sustainable Buildings for new construction and modernization of existing buildings. Attend the training if you are involved in:

- New facility construction
- Major modernization projects in existing buildings

Wednesday, March 6th
MSL Auditorium, 8:30 am – 12:00 pm

This training is intended for:

- Project Managers
- Project Engineers
- Engineering Standard owners
- Program Managers
- Design Engineers, and anyone else interested or involved.

HPSB Training

HIGH PERFORMANCE SUSTAINABLE BUILDINGS

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CEU Credits Available
Register through U-Train: 45093
<https://ustrain.lanl.gov>

For additional information, please contact Sonia Ballesteros Rodriguez (soniab@lanl.gov or 505-412-1762).



WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED

I was relieved to hear that Mike Williams didn't lose any kin in yesterday's tornado tragedy in Alabama, but the "redneck ingenuity" trailer ideas below sure do lose any luster (that they could only have had among the inebriated) after such events—especially the [un-anchored ones](#).

UT fans that they are, it's still probably not true that the upper-right one is Bill Kerley's new retirement home, or that Dennis Graves is interested in it.



This last one is actually the set for a play. Cool.

LANL STANDARDS ISSUED IN FEBRUARY

Pretty good given the short month with a snow day.

ESM	Title	Rev.	Date	Notes
Chapter 4 – Architectural Thanks to POC Scott Richardson.	B-C GEN, General Architectural Requirements	4	2/7/19	Reorganization to increase clarity and logic of order. Expanded design documentation section and deleted non-passenger/freight conveying equipment section. Deleted handling material now in Mechanical Ch 6. General update of information, references, URL links, codes and standards throughout.
	B Shell, Building Shell			Incorporated VAR-2013-113 Fall Protection. Removed CSPE membrane roofing from list of approved systems except for patching. General update of information, references, URL links, codes and standards throughout.
	C Interior, Building Interiors			Updated office space guidance per OI-PO. General updating including all references and listed organizations. Corrected title and content of Section C1010.6.0 from “Computer/Control Rooms” to “Control Rooms/Operation Centers”. Moved room numbering to Appendix A .
Chapter 6 - Mechanical	HVAC, Heating, Cooling, HVAC Distribution and TAB	-	-	Issued/posted VAR-10298, ASME AG-1 and DOE-HDBK-1169 Applicability to Non-Credited Ventilation Systems . Thanks to Jason Apperson, POC Michael Ladach.
Chapter 7 - Electrical	Electrical Service & Distribution	5	2/11/19	Changed “13.2kV” to “15kV class”; added note that primary fault current is usually 9kA on a single feed, 18kA when tied; allowed for high-resistance grounded systems with POC approval; added that transformers 500kVA and larger will require special attention due to incident energy issues; substantial revisions to metering; edited voltage drop so that the overall voltage drop is no more than 5%; added concept to consider fuses when appropriate; added requirement that isolated ground systems may only be used with the permission of the POC; removed requirement for secondary protection of transformers; removed resistance requirements for grounding electrode systems; now only requiring concrete encasement of underground conduit where shown on drawings with warning tape everywhere else; edited color coding; allowed aluminum conductors in sizes 8 AWG and larger; removed conductor on rooftop rules to align with NEC changes. Thanks to POC Eric Stromberg and his tech committee.
Chapter 13 -	Vol 6 Welding Inspection &	-	-	Added reference to MSS procedures for 800-B: Infrared Thermography [e.g., for

Welding, Joining & NDE	General NDE			electrical equipment] and 800-C: Equipment Vibration Data Collection and Analysis below index
Chapter 17 – Pressure Safety Thanks to POC Ari Ben Swartz.	ADMIN-1 Administrative Requirements	-	-	Added reference PSIP/Pressure Safety Implementation Plan - TLW Example (LANL only/by request)
	ASME and ADMIN-2 Unlisted component subpage	-	-	Added new B31.5-2016 Form 5MM for metallic material

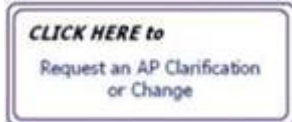
Master Spec Section	Title	Rev.	Date	Notes
23 2215	Steam and Condensate Heating Piping and Specialties	1	2/11/19	Added Seismic requirements, updated Model Numbers, Updated Code References, added designer notes. Thanks to John Sur, POC Michael Ladach.
Thanks to structural specs POC Glen Pappas:				
03 3021	Reinforced Concrete—High Confidence	3	2/5/19 (and noted in last month's Update)	Streamlined Nonstructural/Cosmetic Defects/Deficiencies at 3.14 and created new article Structural Concrete Repair at 3.15 (and updated VIT numbering and added related hold point for structural damage review at 1.6.I.15). Invoked new 03 6021, Grouting – High Confidence (versus 03 6000, Grouting) throughout. Added Subcontractor and Testing Agency responsibilities for strength-test-cylinder curing at 3.1 and 3.16.
03 6000	Grouting	4		Added concrete repair material, plus other minor changes based on 03 6021 (high confidence) development (which was first issued concurrently with r4 of 03 6000).
03 6021	Grouting -- High Confidence	0		New!
13 3419	Metal Building Systems	5	2/5/19	For roof panels: revised wind, fire, and hail resistance (2.3 K/L and 2.5) based on ESM Ch 4; added lap-seam specs and installation (2.5 and 3.5). Thanks also to Scott Richardson.

ENGINEERING PROCESSES NEWS

The following Administrative Procedures have been revised and posted on the [SharePoint site](#):

For questions about an AP, please contact Jeff Fauble at 665-5832. Jeff is the Eng Processes Manager and here every other week or so (and planning on ~Mar 4-14). Many times he's reachable by email at jfauble@lanl.gov; (if emails to him bounce, the sender needs to click the Outlook "To" button and select his name from the LANL directory. After that first time, the autocomplete option will work fine).

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



O&M CRITERION CHANGES

Below are recent [O&M Criterion](#) and related Preventative Maintenance Instruction (PMI) changes issued by MSS-MP, the Maintenance Programs Group of Maintenance and Site Services Division. Implementation is required 30 days from issue date for non-nuclear facilities, 60 days for nuclear facilities.

It's best to use Internet Explorer to access them on the SharePoint site to avoid authentication issues.

The PMIs listed below have been revised to show only the Checklists. You must refer to the associated O&M to obtain the administrative portion. Any questions, please contact the document author.
Also, Work Orders that reference the below PMIs shall also reference the below forms such that it is included in the work package:

Ref: O&M 506: Emergency and Standby Power Systems

<p>PMI 506-B R1: Backup Generator Level 1 Systems Inspection, Testing, and Maintenance</p>	<ul style="list-style-type: none"> · Major rewrite for performance efficiency · Updated to 2016 NFPA 110 · Cancelled 506-B.007, 5-Year Visual Inspection, Check, and Maintenance · Cancelled 506-B.008, Yearly Alternate Diesel Generator Exercise Test
<p>PMI 506-C R1: Backup Generator Level 2 Systems Inspection, Testing, and Maintenance</p>	<ul style="list-style-type: none"> · Major rewrite for O&M adherence and performance efficiency · Updated to 2016 NFPA 110 · Canceled 506-C.006: Alternate Yearly Diesel Generator Exercise Test (moved to yearly) · Fillable Checklists
<p>PMI 506-D R1: Backup Generator Optional Standby Systems</p>	<p>Reinstated: Although Level 2 and Optional Standby Systems have identical inspection requirements, they</p>

Inspection, Testing, and Maintenance	<p>have different testing requirements. Therefore, they need separate PMIs, not one conjoined PMI like previously thought.</p> <ul style="list-style-type: none"> · Major rewrite for performance efficiency · Updated to 2016 NFPA 110 · Fillable Checklists
PMI 602-A R5 : Hydraulic Elevator Inspection, Testing, and Maintenance – O&M 602: Elevators, Dumbwaiters, and Lifts	<ul style="list-style-type: none"> · Replaced LO/TO references to 602-C with references to P101-3 · Converted document to fillable PDF form (can be found as individual fillable forms in Sharepoint)
PMI 800-B R1: Infrared Thermography – O&M 800: Predictive Maintenance	<p>Added description and qualifications for Thermal Imaging Equipment Operator and for Level III Certified Infrared Thermographer. General updates to references, etc.</p>

DOE TECHNICAL STANDARDS ACTION

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

DOE-STD-1153-2019 [A Graded Approach for Evaluating Radiation Doses to Aquatic and Terrestrial Biota](#)

NATIONAL STANDARDS ACTION

LANL's [IHS](#) online codes & standards subscription underwent these changes:

From Elisa Baker in FP-DO:

Good news from the Research Library – they have increased their subscription to now include **historic NFPA Standards**, instead of the previous “latest edition” only subscription. The link to IHS is included in the email below, but if you ever need to find it, from the library home page <http://lanl.gov/library/> click on How to Find -> Standards and from there, IHS Engineering Workbench. From there, type in the name of the code you're interested into the search bar and hit search. If you want historical codes, look on the left sidebar for **Standards Revisions** and **uncheck** “Most Recent Revision” - I tried it out for NFPA 13 and was able to pull up a pdf of the 1987 edition! It's a manually scanned document but it seems like basic OCR has been done, so it's even searchable. Aside from CoR questions, more common applications will probably include access to the 2013 editions of codes cited by the 2015 IBC, and the 2016 editions that we see a lot of designs come in under, since the Most-Recent-only subscription option would only deliver the 2019 codes once they are released, even if we aren't ready to use them.

From related article in the recent [Research Library News](#):

Standards from NFPA are important for safety at the lab and are made available to Los Alamos staff through [IHS Engineering Workbench](#). The library's subscription includes not only the latest NFPA standards, but historical NFPA standards, documenting the codes in effect over time.

Tip: Looking for a list of standards available at LANL through IHS Engineering Workbench? Hover over your name in the upper right corner of the interface and click My Subscriptions.

Another RLN article notes that LANL now has access to many ASME journals and conference proceedings. Mechanical engineers rule! Clearly fire protection engineers, too.

LAST MONTH'S UPDATE TOPICS

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

- **Larry Goen Retiring**
- **When Good Conduct of Engineering Isn't Followed**
- **Training & Qualification**
- **LANL Standards Issued in January or so**
- **Engineering Processes News**
- **Engineers Week and Feb 20**
- **DOE Technical Standards Action**
- **National Standards Action**

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

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