

ENGINEERING STANDARDS UPDATE

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

Topics this month:

- **Training & Qualification -- TOMORROW**
- **LANL Standards Issued in Oct or so**
- **Engineering Processes News**
- **DOE Technical Standards Action**
- **National Standards Action**
- **O&M Criteria Changes**
- **When Good Conduct of Engineering Isn't Followed**

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

Note: This newsletter has hyperlinks all over but the blue/underlined formatting may not show. Hover your cursor where you might expect one.

• **TRAINING & QUALIFICATION -- TOMORROW**

For upcoming courses via Webex (registrants will receive Webex invitation by the day before class). **So if just enrolling now, best contact instructor to get that good stuff.**

Electrical Standards – TOMORROW Wed, Nov 4, 8:00-noon

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 participate. Taught by Electrical Standards POC Eric Stromberg.

COE Safety Basis Overview for Engineers Course [39564](#), , from 5 to 7 PM (yes, pm)

TOMORROW Wednesday, 11/4/2020 am via Webex. POC: Joy Getha, 5-9586, jlgetha@lanl.gov. Evening, because LANL has a few engineers working that shift.

...and a reminder: [free LinkedIn Learning subscriptions for all](#)

See how you can sign up for individualized, self-paced and online professional development program with thousands of relevant courses delivered by industry experts.

For UTrain Courses: Registering: 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 664-0118 or yjtrujillo@lanl.gov with Z number.

Last month's Update was mask themed, but here's another on that. Full story at <https://interestingengineering.com/bacon-scented-face-mask-now-up-for-grabs>

INNOVATION / WEARABLES

Bacon-Scented Face Mask Now Up For Grabs

This is the motto: "Don't just eat bacon. Inhale it."



By Fabienne Lang

October 16, 2020



LANL STANDARDS ISSUED IN OCT OR SO

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

ESM-Chapter	Section	Title	Date	Summary of latest Revision
Ch. 16 IBC Program	References	LBO Listing of Approved IBC Testing Agencies, Fabricators, and Products	10/26/20	Added Bauman NDE

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

Spec Number	Rev.	Spec Title	Effective	Summary of latest Revision
03 3021	4	Reinforced Concrete - High Confidence	10/1/20	Changes made are typo fixes in formwork submittals and rebar shipping tags added to rebar-CMTR submittal. Thanks to POC Glen Pappas.
03 4100	3	Precast Structural Concrete	10/7/20	Streamlined welding-related submittals and QC/QA requirements. Major revisions include the addition of the following: an article listing references, an erection-plan submittal, an article on Design Change, a para. on fabrication of temporary anchors, and some new Field QC requirements. And there are numerous minor revisions, typo fixes, etc. Thanks to POC Glen Pappas, Mike Denlinger, Jerome Aigner, Tadz Kostrubala, others.
Thanks to Fire Chapter POC Keenan Dotson, Tadz Kostrubala, others for the these revisions (Todd Smith leading fire spec maintenance from here out):				
07 8400	6	Firestopping	11/3/20	Aligned definitions with those in the IBC and clarified QA and QC expectations in comment to the authors. Broadened scope to include smoke barriers and fire-

				resistant joints. Removed unnecessary information (weren't requirements).
10 4400	2	Fire Protection Specialties	11/3/20	Added Amerex as preferred extinguisher. Added provisions for exterior installations of fire extinguishers, either in cabinets or with covers.
21 1313	10	Wet-Pipe Sprinkler Systems	11/3/20	Revised to provide consistency with other 21 13XX specifications and LANL expectations for welding and storage of material. Provided options for design performance requirements, and clarified designer qualifications and expectations for a PE stamp. Added additional flexibility for air vent type and installation.
21 1316	8	Dry-Pipe Sprinkler Systems	11/3/20	Revised to provide consistency with other 21 13XX specifications, and clarified LANL expectations for welding and storage of material. Provided options for design performance requirements, and clarified designer qualifications and expectations for a PE stamp. Added additional flexibility for means of forward-flow test.
21 1319	8	Preaction Sprinkler Systems	11/3/20	Revised to provide consistency with other 21 13XX specifications, and clarified LANL expectations for welding and storage of material. Provided options for design performance requirements, and clarified designer qualifications and expectations for a PE stamp. Added additional flexibility for means of forward-flow test. Referenced 28 4600 for detectors and controls.
21 1326	8	Deluge Fire-Suppression Sprinkler Systems	11/3/20	Revised to provide consistency with other 21 13XX specifications, and clarified LANL expectations for welding and storage of material. Provided options for

				design performance requirements, and clarified designer qualifications and expectations for a PE stamp. Added additional flexibility for means of forward-flow test. Referenced 28 4600 for detectors and controls.
21 2200	6	Clean Agent Fire-Extinguishing Systems	11/3/20	Changed manual release stations and notification appliance requirements to different from fire alarm devises. Added requirements for separated pre-discharge and discharge alarms. Added pipe hanging requirements. Referenced 28 4600 for detectors and controls.
For the Mech spec sections, thanks to POC Michael Ladach, Tadz Kostrubala, and the Mech Tech Committee:				
22 0529	6	Hangers and Supports for Plumbing Piping and Equipment	10/21/20	Updated Submittals. Updated table for refrigeration pipe support spacing
22 0554	4	Identification for Plumbing, HVAC, and Fire Piping and Equipment	10/21/20	Added reference to ASME A13.1. Added diesel fuel ID tags. General edits for clarity
22 0713	6	Plumbing and HVAC Insulation	10/21/20	Added underground pipe insulation. General edits for clarity.
22 1100	5	Facility Water Distribution	10/21/20	Updated Submittals. Updated Model numbers for small PRVs. Added testing pressure and durations for pipe
22 1316	5	Sanitary Waste and Vent Piping	10/21/20	Removed references to welding and certified welders. Added testing pressure and durations for pipe

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

Section	Section/Title	Rev.	Date	Summary of Revision
100	General Requirements	-	10/21/20	Issued VAR-10066 R1, Electronic Drawing Approval . Excerpt: A modified drawing title block, similar in appearance to the standard title block but with approval blocks large enough to accommodate digital signatures utilizing validated certificates, will supersede all previous drawing title blocks that only supported “wet” signatures, including sketches...Should the need arise, new templates can be printed, wet-signed, and scanned; however, this is discouraged due to loss of legibility and the maximum allowable number of scans is one time—i.e., once during the entire signature routing process (typically at the end). Additionally, if “wet” signatures are to be used, all signers must use the “wet” signature method...The CAD Standards Manual POC may allow alternatives to use of this approach by email permission. Thanks to POC Scott Richardson.
200	CAD Requirements	-	8/3/2020	References added re Digital Signature Software: Template updates, Acro Pro upgrade instrux, Portfolio help link. Thanks to Ray Henderson, POC Scott Richardson.

13 Engineering Apps That Are a Must for All Engineers (Interesting Engineering) <https://interestingengineering.com/13-engineering-apps-that-are-a-must-for-all-engineers>

I’m not endorsing any of these although I’ve tried some for personal use. The pedigree of apps can vary so for important work one might better use those posted by the Library like <https://www.onlineconversion.com/> or the equations and converters in Knovel via the library (<https://lanl.libguides.com/engineering> , under Mechanical tab); also Mark’s Handbook and the like.

Check out these 13 awesome must-have apps for engineers!



ENGINEERING PROCESSES NEWS

Per CoE Eng Processes Manager is Sarah Terrill, 667-7788, sterrill@lanl.gov:

AP News

The following Administrative Procedures have been revised and posted to the COE Administrative Procedures [SharePoint site](#). Always ensure you are working to the latest version of all Engineering Administrative Procedures adopted at your location.

AP-341-802 Rev. 5	System Health Reporting	issued 10/14/2020, effective 11/13/2020. Key changes: <ul style="list-style-type: none"> ▪ Created the System Health Monitoring Package which includes the SHB and the template for approval ▪ Clarified link between SHB parameters and the parameters in the SHR
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		<ul style="list-style-type: none"> ▪ Allowed the SHR template to be adjusted to meet the system’s methods for tracking but added requirement that the template be approved similar to the SHB and then maintained with the SHB. ▪ Emphasized need to update SHB/SHR template when modifications occur on the system.
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If you have been identified as requiring additional training on an AP you will see an assignment on your UTrain “to do” list.

Other notes:

- AP-341-705 Make or Buy Determination for Design Engineering – in approval process
- AP-341-405 Identification and Control of Technical Baseline in Operating Facilities – going through final review stages

Please enter issues with APs in the SharePoint issues database. Use the live button below, same one that’s found in the upper right of the Processes SharePoint [homepage](#).



A webpage of the AP pdfs can be reached from LANL Internal with any browser/machine combo (also, you can easily get to int.lanl.gov from mymail.lanl.gov). Once in, you can navigate from the top of the [CoE home page](#) or directly [here](#). On the other hand, if you need the AP Word forms, open a terminal session and use IE for SharePoint for best results. When all else fails, email Christina Salazar-Barnes.

DOE TECHNICAL STANDARDS ACTION

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

DOE-HDBK-1163-2020, [Integration of Hazard Analyses](#)

The handbook incorporates best practices and lessons learned from performing and integrating hazard analysis at various DOE facilities since initial issuance in 2003. This revised handbook is intended to support mission success by describing best practices in hazard analysis that apply to less-than-hazard-category 3 (Less than HC-3) nuclear facilities, chemical facilities, industrial facilities, and other facilities at DOE sites across the country.

NATIONAL STANDARDS ACTION

Document number: [ACI 305R](#)

Publication Date: **September 2020**

Title: **Guide to Hot Weather Concreting**

Type of Change: **Complete Revision**

Document number: [ASME A13.1](#)

Publication Date: **10/7/2020**

Title: **Scheme for the Identification of Piping Systems**

Type of Change: **Complete Revision**

For the following:

Like AWS, NBBI, and some others, NFPA has instituted digital rights management (DRM) software. Per library's FAQ: This requires a free Adobe Acrobat plug-in that "locks" the PDF file to the computer on which it was first opened. With admin rights on your computer, [Click here to download the plug-in](#). Once FileOpen is working, you can view, print or download the file.

Document number: [NFPA 17](#)

Publication Date: **2021**

Title: **Standard for Dry Chemical Extinguishing Systems**

Type of Change: **Complete Revision**

Document number: [NFPA 70E](#)

Publication Date: **2020**

Title: **Standard for Electrical Safety in the Workplace**

Type of Change: **Complete Revision**

Document number: [NFPA 90A](#)

Publication Date: **2021**

Title: **Standard for the Installation of Air-Conditioning and Ventilating Systems**

Type of Change: **Complete Revision**

Document number: [NFPA 220](#)

Publication Date: **2021**

Title: **Standard on Types of Building Construction**

Type of Change: **Complete Revision**

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 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:

PMI: 504-B R5: Low Voltage Electrical Equipment Maintenance

- Section 8.2.2, replaced CT/PT language with Solid State language.
- Section 8.4, Added instruction for non-serviceable defective equipment that must be put back in service due to extenuating circumstances.
- Section 9.4, Added specifics to "Equipment tested list".
- **General Form Changes:**
 - Layout revised so similar content was grouped together in Forms 1 and 3-8.
 - Layout revised to create separate section for grounding in Forms 1, 4, 5, 7.

- Added automation features to the fillable PDF versions in Forms 1-9.
- Added Serviceable/Non-serviceable and Returned to Service to Forms 1-8.
- **Specific Form Changes:**
- **504-B.001**
 - Created separate sections for Metering and Switchgear,
 - Added numerous Inspection Criteria for Grounding
- **504-B.003**
 - Added calculations for Contact Resistance Difference and Deviation %
- **504-B.004**
 - Added numerous Inspection Criteria for Grounding,
 - Changed Testing requirement for transformers to only require One (1) PI test and Five (5) DAR Tests,
 - Changed data recording criteria for TTR Test
- **504-B.005**
 - Added numerous Inspection Criteria for Grounding,
 - Changed Testing requirement for motors to allow One (1) Test from All Phase Windings to Ground without separating any internal windings – this has evolved into the customary test performed
- **504-B.006**
 - Added calculations for Contact Resistance Difference and Deviation %
- **504-B.007**
 - Added Inspection Criteria for Grounding
- **504-B.008**
 - Added numerous Inspection Criteria for Grounding, Added calculations for Contact Resistance Difference and Deviation %

WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED

One can't be alarmist about everything nuclear and work in this business. But there are some things that one needs to get right, and reactor power level control is surely one of those things.

NRC to Conduct Special Inspection at Purdue University

Excerpt from <https://www.nrc.gov/reading-rm/doc-collections/news/2020/20-053.pdf>

The Nuclear Regulatory Commission will conduct a special inspection to evaluate reactor calibration and power level issues at Purdue University's research reactor in West Lafayette, Ind. Purdue notified the NRC earlier this month of an **error during calibration of recently installed nuclear instrumentation, resulting in the reactor operating significantly above its licensed power level at times during the past few months.**

An inspector from the agency's headquarters in Rockville, Md., along with an inspector from the Region III office in Lisle, Ill., will begin this inspection on Oct. 27. They will evaluate the adequacy of Purdue's response to the situation, the root cause of the problem, corrective actions, radiation monitoring data, and determine if there are generic implications for similar facilities...



By Soviet Authorities, Fair use, <https://en.wikipedia.org/w/index.php?curid=4866476>

Ok, this photo is of Chernobyl reactors No. 4 and No. 3 after the disaster, which isn't a fair conflation. Alarmist, even.

LAST MONTH'S UPDATE TOPICS

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

- **Training & Qualification**
- **Report Non-Gov't Standards Work**
- **LANL Standards Issued in Sept or so**
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[The views expressed in this email are not necessarily those of my employer.](#)

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