ENGINEERING STANDARDS UPDATE

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

Topics this month:

The Standards Homepage: http://engstandards.lanl.gov/

IBC AND IEBC TRAINING MONDAY AND/OR TUES 8/3, 8/4 – TIME CHANGE/LAST CHANCE!

*****NOTE: START TIME IS NOW 8:30.*****
Hopeless procrastinators can still enroll for either or both courses – or just show up. The IBC course is Monday, so this will test some attendees' ability to take a reminder note home today or Friday about where to go Monday morning (late arrivers may be berated).

Classes are in the TA-53-1 Rosen Auditorium (lunchroom in building). Contact Mike Brazile or Yolanda Trujillo for the handout file(s) you'll need to print and bring, or pray we have a spare for you.

International Building Code (IBC) 2009 to 2015 Transition - Course 29203 -- Mon, Aug 3, 8:30 a.m. to 5 p.m. (7 CEUs)
Reviews the changes from the 2009 edition to the 2015 International Building Code. The background behind many of the changes will be discussed to provide the participant with an understanding of the intent of the changes and how to apply it to their everyday work. Subjects covered will include the code change process, mixed occupancies, atriums, accessible means of egress and many more. Free to participants.

International Existing Building Code (IEBC) 2015 - Course 29204 -- Tues, Aug 4, 8:30 a.m. to 5 p.m. (7 CEUs)
Focuses on the fundamental requirements of 2015 IEBC for existing structures that undergo repair work, alterations, renovation activity or construction of an addition, and the effect of a change in the building's occupancy classification. The class discusses the prescriptive requirements, work area requirements and compliance alternatives method of evaluating work in an existing building. Free to participants.

To register: Sign up via UTrain (AEs without crypocard via Yolanda Trujillo at 665-5696 or yjtrujillo@lanl.gov.)

- On UTrain click on the "catalog" tab and select "advanced catalog search"
- Enter Item Number (29203 and/or 29204) as the "ID", then "search"
- Add-to-do-list
- Go to your to-do-list and click on 'register'

2012 UNIFORM CODES ADOPTED

Discussed in June, we've now adopted the 2012 IAPMO Uniform Plumbing, Mechanical, and Solar Energy Codes (for new project starts) through a revision to ESM Ch 16 IBC Program Att A, LANL Building Code.

LANLites and clever CrypoCard holders can access by searching for UPC, UMC, or USEC on the IHS Subscription using a non-Microsoft browser.

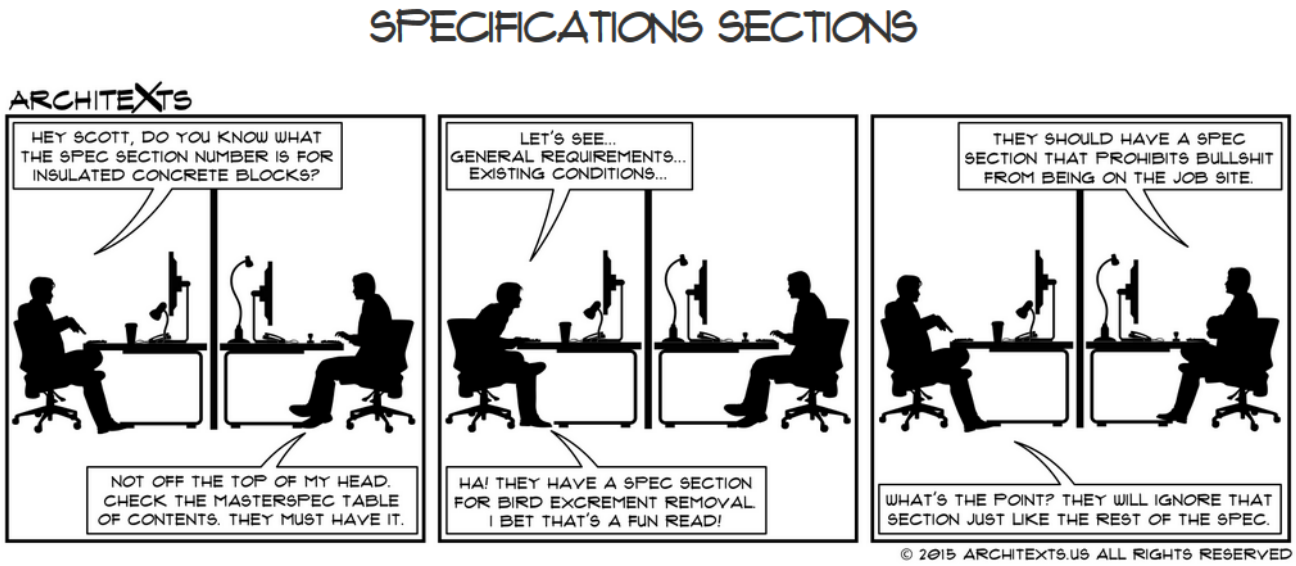
While not adopted, we have access to the Swimming Pool and Spa Code also. If anyone has one of these at LANL I'd like to know (and I promise to keep quiet about it).

CIRCUIT ADDITION IBC ADMIN CONTROL CHANGE

In July we issued an alternate method to the ESM Ch 16 IBC Program that allows a little less administrative burden when adding new ML-4 electrical circuits in panels of existing buildings provided they do not exceed 230V, 50A, or 75 KVA per circuit.

The VAR, webposted under Section IBC-GEN, has the details. Directly: VAR-2015-058, Circuit Addition

The remaining required admin controls are: The grounding system must be sound. In lieu of the normal Level 2-driven "High Risk" administrative requirements in IBC-GEN, the following alternate methods are allowed: Design work shall be performed and checked by technically competent individuals and bear signatures of both. Permitting will consist of the PRID and/or work control processes. Inspection shall be done by a qualified electrical worker or P101-13 qualified inspector, and shall include a polarity check. Final acceptance and evidence of inspection shall be by way of the completed post-mod testing (PMT). Panel schedule shall be updated.



RISK ASSESSMENT, DESIGN QUALITY AND CONSTRUCTABILITY

Joni Weamer, ES-EPD, has launched the Risk Assessment, Design Quality and Constructability Process through issuance of a desk instruction. EPD DIs aren't mandates like Standards and APs. Also, users won't be audited against them, but failing to use them will bring the wrath of Joni down upon you – which may be worse.

Excerpts from the announcement:

It is document DI-ES-EPD-003 at this link. For all projects requiring an RCD, the project engineer is expected to complete the Risk Assessment Worksheet per the desk Instruction. All Project Engineers in ES-EPD will incorporate this Worksheet per the implementation schedule. Project specific worksheets will be prepared and maintained in the project specific folder. The worksheets are to be shared with ES-EPD Design Managers, Team Leaders, Project Managers, and using organizations. Please forward questions or concerns to Joni's or my attention.

The Design Quality and Constructability (DQC) checklist is included in the same Desk Instruction. For all in-house design projects, the design manager, or designated individual performing that role, will complete the DQC checklist at both the 60% and 90% stage of design deliverable development. Completed checklists will be maintained in the project specific folder. On a related matter, completeness of design packages will receive additional scrutiny. As such, deferred design references in Title II packages to be accomplished in Title III should be avoided, except for situations where industry practices typically require this type of design approach, such as for fabrications, certain fire protection applications, manufactured product designs, etc. Please look for deferred designs language during the checklist review on design drawings or in specifications to determine if this should be accomplished in Title II instead of title III.

It is recognized that there may be some exceptions to using the Design Risk Assessment and/or the Design Quality and Constructability Checklist. On a case-by-case basis, contact Joni or Doug to determine where exceptions can and should be made. Finally, please be aware that David Smith is modifying his LBO checklist to require Design Risk Assessment and the Design

Quality and Constructability Checklist documentation as a submittal for LBO approval and stamping.

Implementation Schedule

In-House Designs…Implement this Desk Instruction for all projects at the 60% or 90 % deliverable stage beginning Monday, July 20, 2015.

IDIQ AE Contracts… Implement the Risk Assessment portion of this Desk Instruction for all projects in a pre-90 % stage of development beginning Monday, August 3, 2015. Beginning Monday, August 3, 2015, implement the Design Quality and Constructability Checklist as part of the Exhibit D to be submitted at the 60% and 90% stage of design development by the AE.

Design-Build Contracts…Implement the Risk Assessment portion of this Desk Instruction for all projects in a pre-90 % stage of development beginning Monday, August 31, 2015. Beginning Monday, August 31, 2015, implement the Design Quality and Constructability Checklist as part of the Exhibit D to be submitted at the 60% and 90% stage of design development by the AE for the Design-Build Contractor. [this probably means adding a requirement with ESM Ch 1 Section Z10].

FCR/FCN/DCN LOG DATABASE

Excerpts from another Weamer initiative email this month:

Project Engineers,
The FCR/FCN/DRN log database is now up and running…It is my expectation that all ES-EPD staff use this tool for new and ongoing projects in lieu of the individually kept logs. (It is also my expectation that you keep a log as procedurally required.) This expectation does not apply to projects which are considered construction complete or very nearly complete. You'll notice that the reporting tool provides a project report which mimics the logs required by AP-341-519, *Design Revision Control.* A project specific report can be produced and located in project specific folders as needed. The database is also capable of producing reports that categorize everything from TA to cause. I recognize that there will be some exceptions to using the database which will be warranted. Please bring them to my and/or Doug's attention and we'll make the call about whether it will be required or not.

The link to the portal can be found at the link below. You'll log into the tool with your crypto card. Note that the instructions are provided on the opening page. There are also several future modifications to the database listed on the front page. http://eswebserver.lanl.gov/esim/login.aspx

NUKING YOUR SWAGELOKS

From a quality pedigree standpoint, when using Swagelok products in nuclear service, there's no need to do commercial grade dedication since the supply chain is nuclear-qualified.

The QPA-IQ group has approved Swagelok locations in Solon, Ohio as a nuclear-qualified manufacturer and distributor of Swagelok brand items; it has also approved Swagelok Southwest

(Albuquerque location) as a qualified distributor of same. The listings appear on both Institutional (IESL for ML1, ML2) and, for the bomb squad, Weapons Supplier (NAP-24) qualified vendors lists. The listing is for Swagelok fluid system components and other well-known product groups, and the capabilities of the Solon, OH location include nuclear reactor use certifications. A listing restriction in the IESL stipulates that issuance of "nuclear-grade" product Certificates of Conformance (CoCs) is from the Solon manufacturing location.

Based on a LANL supplier evaluation review of Swagelok Southwest (Albuquerque location) internal material controls, purchase orders for ML1 or ML2 are deemed adequately controlled to be passed through to Swagelok Solon, OH for shipment to SSW Albuquerque and subsequently to LANL. This determination resulted in the recent IESL listing change to remove the requirement that Swagelok products be always drop-shipped from Solon directly to LANL.

Thanks to Mark MacInnes for this input. Our QA concerns on this should now be assuaged.

From an engineering standpoint, a little more on Swagelok at LANL:
ESM Chapter 17 Pressure Safety includes requirements and guidance on use of Swagelok components in piping systems at LANL. Although a majority of Swagelok products are not listed in the B31 piping codes, the codes allow for analysis and subsequent use of such products. LANL has done this for a number of Swagelok components including tubing, fittings, valves, and hoses. See ADMIN-2, Article Z – Unlisted, Specialty, or Unique Components.

Finally, LANL has Master Spec Section 40 0511 Compression Fittings on Copper and Stainless Steel Tubing. It has detailed installation and re-installation procedures. While I wrote this story, complaints (and questions) on the engineering advice should be directed to Ben Swartz. He may not deserve it, but he's probably getting immune to it.

ENGINEERING PROCESSES NEWS

The following Administrative Procedure has been revised and posted on the SharePoint site. Gurinder Grewal is still working most Tuesdays and Thursdays.

AP-341-801-R2	**Post Modification / Post Maintenance Testing**	**Issued:** 07/24/15

FACILITY ENGINEERING TRAINING AND QUALIFICATION MANUAL P343 (REV. 5) REVISED

Summary of Changes: Revised Attachment C, Facility Engineering Position-Specific Curricula Requirements Matrix, to reflect the replacement of selected classroom training courses with web-based training courses with quizzes. Revised Facility Engineering position titles throughout document to be consistent with updates to Attachment C. Added "web-based training courses with quizzes" where applicable. Added the new position of Process Engineer.

LANL STANDARDS ISSUED IN JULY
Eng Standards Manual STD-342-100

ESM Chapter 1 General Requirements for all Disciplines	
Chapter 1 Section Z10 Rev. 13	New authority delegation table (Z10-3). As-built requirements reverted to those in Rev. 11. Re sealing, added NICET Mark for fire shop drawings and other minor changes.
Chapter 1 Section 210 Att. 1 7-30-15	Update and expansion of list, controlling document unchanged.
Chapter 1 Section 230 Att. 1 7-30-15	Update and expansion of list, controlling document unchanged.
ESM Chapter 13 Welding, Joining, and NDE	
Chapter 13 GWS 1-03 Rev. 6	Excluded oxygen & acetylene from gas requirements. Clarified when LANL supplies stock filler material. Removed reference to SSS.
ESM Chapter 16, IBC Program	
IBC-GEN, Att. A - LANL Building Code Rev. 9	Adopted 2012 Uniform codes including USEC.
VAR-2015-058, Circuit Addition	
LBO Approved Agencies Listing	revised July 13, 2015
DI-ES-EPD-001-LBO-DPR Review Procedure Form 2	revised

Master Specifications STD-342-200

01 3300 Att. A - Construction Submittal Log 7-27-15	Updated from revised spec requirements.
01 4455 R1 Onsite Welding & Joining Requirements	Corrected 01 4455 Onsite Welding & Joining to reflect standardization for issue of LANL Stocked Filler material
05 2100 R4 Steel Joist Framing	Rewritten and updated for compliance with latest revision to ESM Ch. 5 Sect. II (which was revised to comply with DOE O 420.1C, DOE-STD-1020, IBC 2015, etc.)
22 0813 R7 Testing Piping Systems	Minor revision to Part 3.2.C for testing the higher pressure natural gas piping to bring in line with standard requirements.
28 3100 R10 Fire Detection and Alarm	Added that painting is at the direction of the FOD (based on aesthetics, environmental conditions, etc.
28 3110 R3 Fire Detection and Alarm - Addition to existing	Added that painting is at the direction of the FOD (based on aesthetics, environmental conditions, etc.

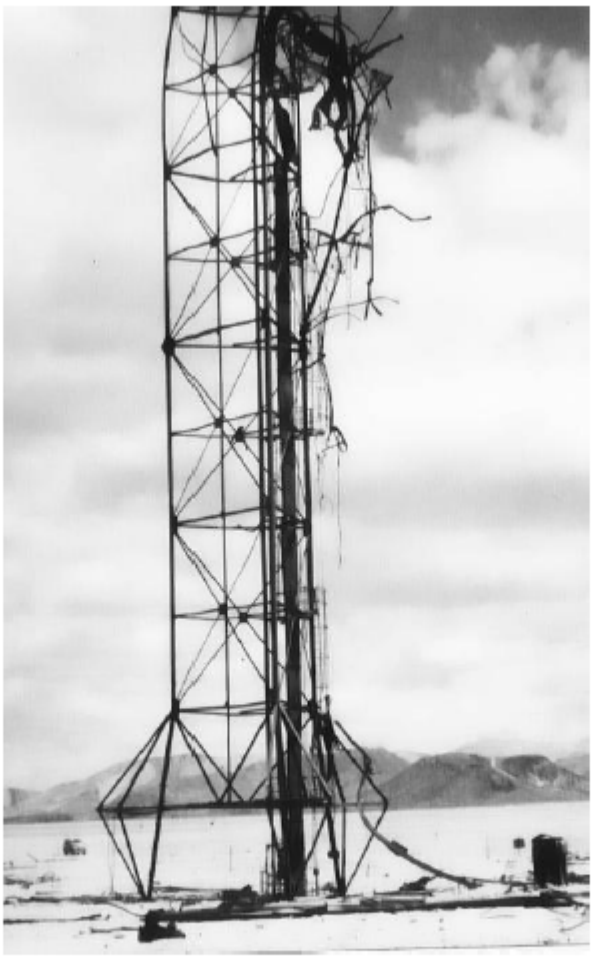
DOE TECHNICAL STANDARDS ACTIONS

DOE Tech Stds activity in the past month through 7/30: None.

WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED

Conduct of weapon physics?

Given the recent 70th anniversary of the successful Trinity test, reprinting a little jab at our sister lab.



Aftermath of "Ruth" -- Livermore's first nuclear test, 1953. Los Alamos weaponeers suggested that next time, their rivals use either a bigger bomb or a smaller tower.

Photo and caption from "Brotherhood of the Bomb, the Tangled Lives and Loyalties of Robert Oppenheimer, Ernest Lawrence, and Edward Teller" by Gregg Herken, 2002.

LAST MONTH'S UPDATE TOPICS

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

- **Z10 Revised**
- **Variance Form 2137 Going Gates**
- **IBC Permit Log Online**
- **So Long, Mell Smithour**
- **Allwyn (was Kleinfelder) now NV5**
- **IFC Training July 22 – Last Chance!**
- **IBC and IEBC Training Aug 3 and/or 4 – Last Chance!**
- **LANL Standards Issued in June**
- **DOE Technical Standards Actions**
- **When Good Conduct of Engineering Isn't Followed**

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The views expressed in this email are not necessarily those of my employer.

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