

ENGINEERING STANDARDS UPDATE Trying to Make Standards Exciting Since 2001

This is the monthly newsletter of the LANL Conduct of Engineering Office's Engineering Standards Program. The Standards define the minimum technical requirements for the design, fabrication, construction, commissioning, repair, and replacement of both new and existing equipment and facilities, including both maintenance and modification, for programmatic and facility work at LANL [[PD340](#)].

Topics this month:

- **Electrical Standards Course this Thurs, Mar 3**
- **IHS Online Codes and Standards Changing**
- **New Welding POC and IBC Chief Inspector**
- **CM and 1189 Courses in Vegas**
- **Coming Soon**
- **CoE Quotes of the Month**
- **LANL Standards Issued in Feb**
- **What Happens When Conduct of Engineering Isn't Followed**
- **DOE Technical Standards Actions**

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

ELECTRICAL STANDARDS COURSE THIS THURS, MAR 3

David Powell, Electrical Standards Point-of-Contact, retiring in less than a year (Alternate POC Joseph Sanchez will be transitioning in), but he'll teach his famous course 17998, "[LANL Electrical Engineering Standards](#)" from 8-5 at the White Rock Training Center a couple more times. 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. Enroll (or disenroll) using link above or call 667-0059 or e-mail Central Training at esh-registration@lanl.gov.

IHS ONLINE CODES AND STANDARDS CHANGING

Any day now, the Research Library's IHS [subscription](#) will renew for CY2011. Once that happens, LANL personnel will have access to all previous societies plus the following:

- Association For Manufacturing Technology standards (machine tool safety mostly)
- TIA wiring stds (telecommunications)
- IAPMO Plumbing and Mechanical Codes (2009)
- The 2009 ICC Codes (we use IBC, IEBC, IFC, and IECC) vice the 2006 editions. These 2009 editions will be formally adopted for new work starts by ESM Chapters 5 and 16 in the next few weeks. In the meantime, download the 2006 today if you might need them.

NEW WELDING POC AND IBC CHIEF INSPECTOR

The Bingham Dynasty began here in the 1960's with Keith Bingham (Z. No. 6844) and the Zia Company's excellent welding program. Son Kelly became the first LANL-wide Welding Program Administrator in 2006 with the issuance of ESM Chapter 13, and we haven't had a new PAAA problem with welding since. Today, the torch has been passed to youngest son David. David can be reached at dbing@lanl.gov (4-0416). Kelly, now with CMRR-QA, is an alternate POC as is older brother Dick.

CM AND 1189 COURSES IN VEGAS

Two courses previously taught by the DOE National Training Center in ABQ and Los Alamos are being offered simultaneously May 2-3 (Mon/Tues, 8-5) in Las Vegas before the May 4-6 DOE FacRep/SSO [Conference](#) at the Alexis Park Resort (EPWOG System Engineering [Subgroup](#) also meeting there).

There is no cost for these courses. Courses are open to DOE and Contractor personnel with DOE having priority (enrollment low, not an issue at this point). If a project or group wants to train a large number of people, it may be possible to have the NTC teach onsite.

SAF-272V Configuration Mgmt: This course provides the students with an introduction to the content and intent of the information contained in DOE-STD-1073-2003, Configuration Management Program. AUDIENCE: Personnel who will be involved with, or develop and implement Configuration Management. Upon completion of the course students will be able to describe the following: 1) The objectives of configuration management 2) Configuration management requirements 3) The five elements of the configuration management process 4) Change control. Maximum Number of Students: 30 (now at 8, need at least 15)

SAF-280 Integration of Safety into the Design Process Course: Application of DOE-STD-1189 is required for line-item projects under DOE Order 413.3A and represents best practices for all nuclear and high-hazard projects and modifications. The target audience for this course includes: Project Directors, Engineering Managers, Design Authority Representatives (DARs), Project Engineers, and Authorization Basis personnel. The instructors for this course were part of the team that developed DOE-STD-1189 and provide valuable insight into the intent and application of this important DOE Standard. Maximum Number of Students: 30 (now at 5, need at least 15)

Register through LANL's NTC POC Janet T. Martinez, janetm@lanl.gov, 664-0269.

COMING SOON

The following revisions are expected in March:
Post-installed concrete anchor specs
Chapter 7 Section D5090 Other Electrical
Chapter 14 Sustainable Design

Then or soon after (adopting most 2009 building codes):
Chapter 5 Structural
Chapter 16 IBC Program
Chapter 1 Section Z10 General All Disciplines

COE QUOTES OF THE MONTH

Something complimentary in honor of National Engineers Month, which just ended:
[“Scientists dream about doing great things. Engineers do them.” James A. Michener quotes](#)
(U.S. novelist and short-story writer, 1907?-1997)

Something less complimentary:

Clothes are the lowest priority for an engineer, assuming the basic thresholds for temperature and decency have been satisfied. If no appendages are freezing or sticking together, and if no genitalia or mammary glands are swinging around in plain view, then the objective of clothing has been met. Anything else is a waste. Unknown

LANL STANDARDS ISSUED IN FEB

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

Chapter 12, Nuclear Rev. 2 Eliminated App A in lieu of APs; update for 1189;
renumbered doc from F1030.3

[LANL Master Specifications](#) (STD-342-200)

22 3700 R0 Domestic Water
Heaters Initial issue.

23 8239 R0 Unit Heaters Initial issue.

26 0529 R3 Hangers and
Supports for Electrical Systems

- Revised to address requirements in ASCE 7-2010. ASCE-7-2010 is not yet a required document for LANL, but the seismic design requirements for nonstructural (e.g. electrical) components are MUCH clearer than in the 2005 edition. It makes sense to incorporate these changes into Section 26 0529: the overall reduction of ambiguity and the reduction of some requirements more than balances the increase in some seismic design requirements in ASCE 7-2010.
- Revised specifiers' notes to clarify that this specification section only applies to hangers and supports for electrical components that are EXEMPT from requirements for seismic designed anchors. Revised specifiers' notes to more clearly indicate the attributes of electrical components that would exempt them from requirements to have seismic designed anchors in light of ASCE 7-2010. Relocated and revised specifiers' notes that identify the kinds of electrical components that typically require seismic designed anchors.
- Added ASCE 7 to the list of codes and standards in QUALITY ASSURANCE.
- Added requirement for swivel hangers to eliminate inelastic bending of hanger rods that are not seismically braced.
- Added requirement that beam clamps have a locknut on the setscrew and an NRTL-listed restraining strap.
- Added reference to applicable GSA specification for hollow wall anchors and clarified permitted uses.
- Added reference to applicable GSA specification for toggle bolt anchors and clarified permitted uses.
- Clarified the permitted uses for power-actuated fasteners.
- Increased minimum thickness for reinforced concrete equipment pads to 4 inches.
- Added requirement for a locknut at every hanger rod connection.

26 0548 R1 Vibration and
Seismic Controls for Electrical
Systems

- Revised to address requirements in ASCE 7-2010. ASCE-7-2010 is not yet a required document for LANL, but the seismic design requirements for nonstructural (e.g. electrical) components are MUCH clearer than in the 2005 edition. It makes sense to incorporate these changes into Section 26 0529: the overall reduction of ambiguity and the reduction of some requirements more than balances the increase in some seismic design requirements in ASCE 7-2010.
- Re-arranged and updated opening specifier's notes to clarify application of this Section using ASCE 7-2010.

- Added reference to Section 28 0529 for components that do not need seismic anchorage.
- Added QUALITY ASSURANCE article referencing codes and NRTL listing.
- Relocated Component Certifications into SUBMITTALS article.
- Added RECEIVING, STORING AND PROTECTING article.
- Added BEAM CLAMPS article.
- Added HANGER RODS material and installation article.
- Added FRAMING CHANNEL SYSTEMS material and installation articles.
- In the Seismic Relative Displacements article indicated that conduits 2-1/2" trade size and smaller are considered "flexible" for seismic purposes.
- In the CONCRETE BASES article set minimum concrete thickness and level requirements.
- In the FASTENING article added installation requirements for masonry screw anchors, beam clamps, bolts, etc.
- Added PAINTING article.

33 0513 R5 Manholes and Structures

Revised HDPE PPI designation, added manhole waterstop grouting ring requirement, added alternate to manhole coating.

33 1000 R4 Water Utilities

Revised HDPE PPI designation, added manhole waterstop grouting ring requirement, added alternate to manhole coating.

33 3000 R5 Sanitary Sewerage Utilities

Revised HDPE PPI designation, added manhole waterstop grouting ring requirement, added alternate to manhole coating.

33 3200 R6 Wastewater Utility Pumping Stations

Revised HDPE PPI designation, added manhole waterstop grouting ring requirement, added alternate to manhole coating.

33 5100 R4 Natural Gas Distribution

Revised HDPE PPI designation, added manhole waterstop grouting ring requirement, added alternate to manhole coating.

DOE TECHNICAL STANDARDS ACTIONS

New or Revised DOE [Tech Stds](#) this past month:

[DOE-STD-1095-2011](#) - Department of Energy Laboratory Accreditation for External Dosimetry

[DOE-STD-1063-2011](#) - Facility Representatives

WHAT HAPPENS WHEN 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:

- **Electrical Standards Course Thurs, Mar 3**
- **Engineers Week Main Event Thurs, Feb 24**
- **Contract Mod 157**
- **New ESM Chapter 18 -- Secure Communications**
- **Engineering Processes Changes**
- **Coming Soon**
- **10 in '10: Innovations from the Past Year**
- **CoE Quote of the Month**
- **LANL Standards Issued in Jan**
- **What Happens When Conduct of Engineering Isn't Followed**
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To request a change to this newsletter's distribution, please contact me.

Tobin Oruch, Engineering Standards Mgr
Los Alamos Nat'l Lab, Conduct of Eng Program Office
TA-16-200 M/S P948 ph (505) 665-8475 fx 667-5405
oruch@lanl.gov <http://engstandards.lanl.gov/>
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