

ENGINEERING STANDARDS UPDATE

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

Topics this month:

- **Mel Burnett—18 Days and a Wake Up**
- **Engineering Processes Changes**
- **PC and NPH Category – Get on the 'Bus**
- **Training & Qual**
- **LANL Standards Issued in June**
- **DOE Technical Standards Inaction**
- **National Standard Actions**
- **NM Code Action**
- **When Good Conduct of Engineering Isn't Followed**

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

MEL BURNETT—18 DAYS AND A WAKE UP

Mel's retiring, with his last workday at the end of July.

He's been the CoE Office Director and Deputy Division Leader for Facilities Engineering since February 2014. And he's been in the division for 15+ years as team or group leader. He was at the powerhouse for a stint before that and still tells sea stories about it (it's a Navy thing).

For his many contributions to—and support of—the Standards Program over these years, as well as CoE and LANL in general, we thank him and wish him the best in retirement. He seems convinced he won't come back to consult, but many people far less dedicated than he have reconsidered that. We can only hope.

ENGINEERING PROCESSES CHANGES

The following VARs against Administrative Procedures have been posted on the AP [SharePoint site](#) (and [VAR Central](#))

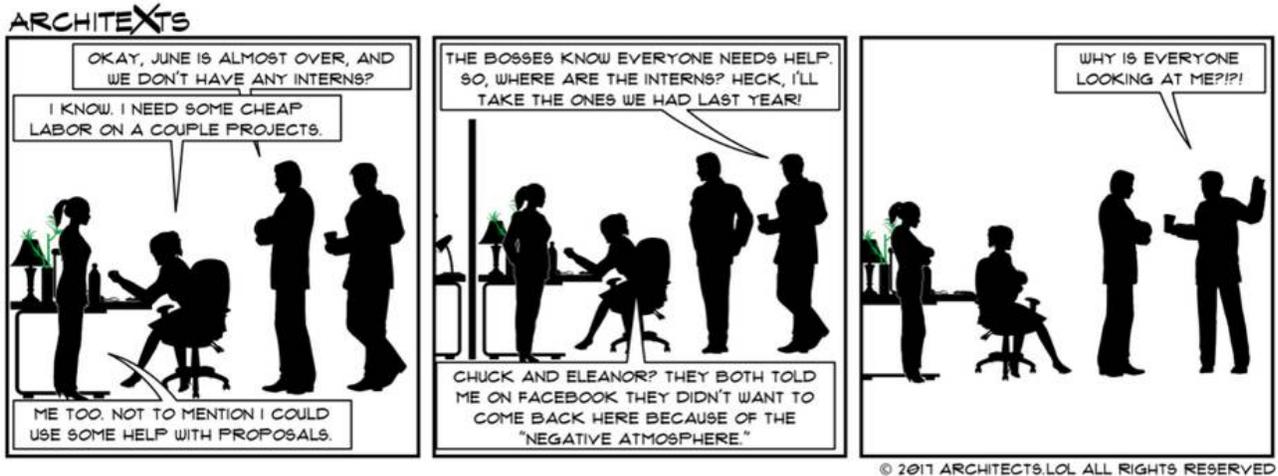
Design Change Form Modifications - Simple DCF [VAR-16-005R3](#)

Allow Electronic and Web-based Document Review Processes [e.g., DRS] [VAR-10151](#)

Extension of AP-341 Procedure Review Dates [VAR-10158](#)

Rescind the Requirement for VSSAs on Passive Safety Systems [VAR-10161](#)

For questions about CoE processes, please contact [Jeff Fauble](#) (5-0595).



Sure, sometimes we give our summer students [scut work](#), but we do want them to come back. So don't be "that guy"...

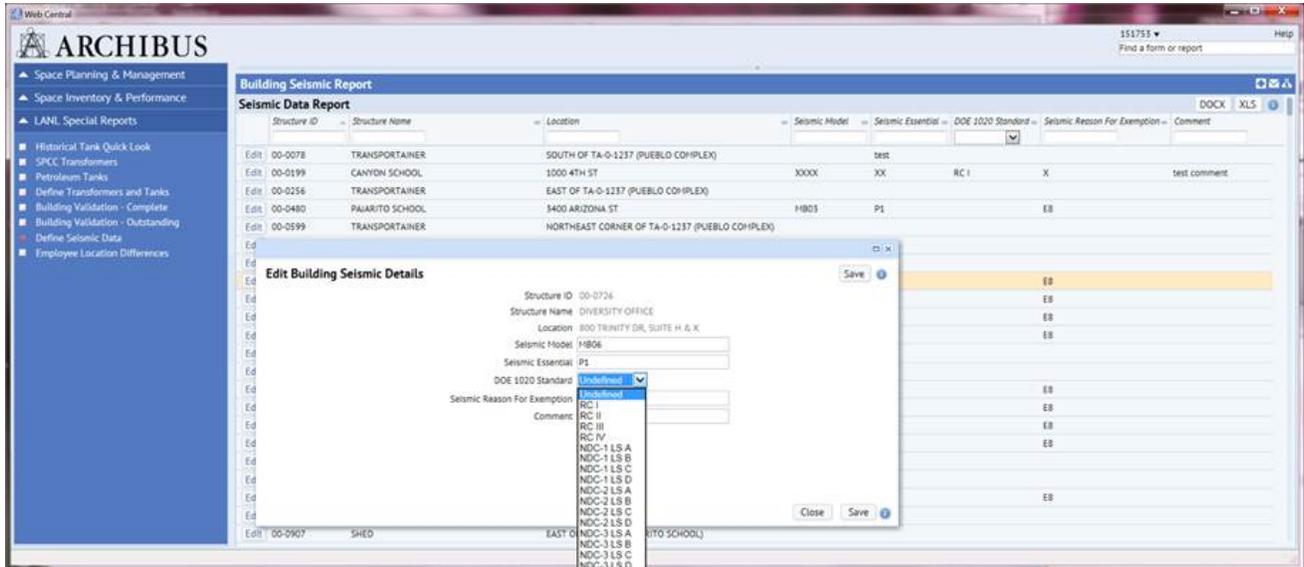
PC AND NPH CATEGORY—GET ON THE 'BUS

Here's a good-news update to the [February Update](#) topic, "Who Moved My PC Category?"

Building PC data is once again available in [ARCHIBUS](#). Access it with cryptocard; select Space Inventory & Performance/LANL Special Reports/Define Seismic Data.

In addition, the data page has a second column for capturing the new natural phenomena hazard (NPH) designations from DOE-STD-1020-2012. These designations have been assigned to new buildings and a few existing ones since March 2015 when [ESM Ch. 5](#) Structural was revised to adopt them versus PC category.

To update the ARCHIBUS data contact [Kenny Feller](#) (primary) or [Scott Richardson](#). A more robust process for determinations and data updates is planned.



As for NPH data at the equipment/component level, it's captured in CMMS (D031 screen). The old PC data is still there now, but the field pulldown now offers only the new RC & NDC choices and the system highlights the opportunity to update it.

Code Value	Description
N1A	NPH DESIGN CATEGORY 1 - LIMIT STATE A
N1B	NPH DESIGN CATEGORY 1 - LIMIT STATE B
N1C	NPH DESIGN CATEGORY 1 - LIMIT STATE C
N1D	NPH DESIGN CATEGORY 1 - LIMIT STATE D
N2A	NPH DESIGN CATEGORY 2 - LIMIT STATE A
N2B	NPH DESIGN CATEGORY 2 - LIMIT STATE B
N2C	NPH DESIGN CATEGORY 2 - LIMIT STATE C
N2D	NPH DESIGN CATEGORY 2 - LIMIT STATE D
N3A	NPH DESIGN CATEGORY 3 - LIMIT STATE A
N3B	NPH DESIGN CATEGORY 3 - LIMIT STATE B
N3C	NPH DESIGN CATEGORY 3 - LIMIT STATE C
N3D	NPH DESIGN CATEGORY 3 - LIMIT STATE D
RC1	RISK CATEGORY I
RC2	RISK CATEGORY II
RC3	RISK CATEGORY III
RC4	RISK CATEGORY IV

TRAINING & QUAL

LANL courses get top billing, then late July vendor courses.

To register for LANL courses, sign up via [UTrain](#). Enter course number in search field, assign to yourself. Disenroll a similar way if you have to bail. AEs can also register; contact Yolanda Trujillo at 665-5696 or ytrujillo@lanl.gov with Z number

Software ESM Chapter 21 – THIS WED, July 12 – NEW!!!

Most of the managers with facility affecting software (SRLMs) are attending a 2–2.5 hour overview course 38047 on the chapter from 8:00-10:30 in the C-Div auditorium (TA-46-535, Room 103). In addition, owners of said software will be staying a few more hours for more detail in Course 34048. I've missed anyone for either, please contact me. You'll need to print your own handout and bring it; I'll email the files today. Most ES-Div folks not attending will be waitlisted for the next offering (date TBD); we're videoing and may deliver it that way. And we'll be assigning some required reading for those in ES not attending the above (e.g., users).

Electrical Standards Course – Tues, Aug 1

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, White Rock Training Center - 00-1308 - Room 118.

Standards Intro Course 24140 – Wed, August 23 -- INFREQUENT

Don't miss this rare offering. Provides familiarity with national and LANL engineering standards for anyone performing, reviewing, or managing design activities. Also recommended for those at local AE firms. Given at TA-55 Building 0400 RLOUB Classroom 4502, runs 8 a.m.– 4 p.m. by yours truly. You'll need to print your own handout and bring it; we'll email the slides to print a few days prior. Waitlisters are already enrolled.

IFC and IEBC Code Courses – Sept 20, 21 -- INFREQUENT

We're bringing in an Int'l Code Council trainer to teach two, all-day courses. If relevant to your job, please sign up for one or both ASAP to ensure a spot and so we order enough workbooks. Both courses will be in the MSL Auditorium, TA3-1698-A103, 8:30 a.m.-4:30 p.m. When you enroll, don't worry about 2017 being in the course title, that's training logic.

International Fire Code 2015 Essentials, Wed, Sept 20, UTrain 37744

This course will introduce 2015 IFC administrative requirements, occupancy classification, general precautions against fire, emergency planning and preparedness, fire service features, interior finish, decorative materials and furnishings, fire protection systems, means of egress, and provide an introduction to hazardous materials. Activities and discussions will further enhance participant learning. 6 PDHs. Upon completion of this seminar, participants will be better able to:

- Explain the fundamental provisions of the IFC
- Describe the intent and scope of the IFC

- Identify common fire hazards and understand how the IFC addresses correction, or elimination, of the hazards
- Identify how life safety and fire protection issues are addressed in building design and construction
- Identify how the IFC applies to maintenance of building design and components to maintain fire and life safety
- Identify how the IFC addresses hazardous materials

International Existing Building Code 2015 Overview, Thurs, Sept 21, UTrain 37738

This course will introduce critical concepts of the 2015 IEBC. It will provide a basis for the correct use and application of the code. It will build an understanding of the intent of the code through detailing basic tables, categorizations, and a case study. 6 PDHs.

Upon completion of this seminar, participants will be better able to:

- Recognize the limitations and extent of the codes related to existing buildings.
- Recognize the classifications of work associated with existing buildings.
- Identify fire protection systems that need to be upgraded.
- Recognize vertical openings that need partial or complete enclosure.
- Identify unsafe interior finishes that need to be replaced.
- Determine adequate means of egress.
- Identify needed accessibility improvements.
- Identify improvements to structural systems.
- Describe the compliance alternative tabular method of evaluating existing buildings.

ICC courses above subject to space available and can't buy workbooks for AEs.

Swagelok Training Classes Jul 25, 26, or 27 (Non-LANL)

To the uninitiated, Swagelok is a brand of tubing and piping system components. Assembling the swaged fittings can be a little tricky, so if you're involved with this, completion of a course is required.

Per Randy Huggard, Randy.Huggard@swagelok.com, 505.379.7300 mobile:

I am hosting a free Swagelok Seminar that will be held in Los Alamos at the Holiday Inn Express (60 Entrada Dr, Los Alamos, NM) on July 25th and 26th, and 27th. Below is an outline of the seminars and you can attend any or all of the classes you want, we will be teaching for three days with each day being a mirror of the others so that hopefully scheduling conflicts can be avoided. I am sending you this email because I thought you or your coworkers/students might have an interest in one or more of these classes.

These seminars are designed for all levels of experience and include hands on learning which will help to ensure trouble free system performance. We will also share trade secrets with the group in order to have more efficient installations. We do these classes to help educate our customers.

Please let me know if you would be interested in one or more of the classes listed below and feel free to welcome others to the class. We do try to limit the classes to about 16 people per session and these classes tend to fill up pretty quickly. If interested, drop me an email at randy.huggard@swagelok.com or call on my cell (505)379-7300 and let me know which classes you would like to attend.

Improve the overall safety of the work environment, increase productivity and keep abreast of the latest fluid system technologies.

Outline of Classes (light breakfast and lunch to be provided):

The same material will be presented on Tuesday July 25th, Wednesday July 26th, and Thursday July 27th:

9am-11am: Swagelok Safety Installation Seminar for Fittings and VCR, Thread Identification. This seminar is intended to familiarize end users and purchasing professionals about the proper use of tube fittings and VCR fittings installation, trouble shooting and mechanical function of the fittings are discussed. We will familiarize students with techniques to identify threads.

11am-12pm: Swagelok Valve Selection & Safety Installation Seminar
This seminar is intended to familiarize end users and purchasing professionals about valve selection, evolution of design, design advantages, and installation.

12pm-1pm: Lunch

1pm-2pm: Swagelok Regulator Safety & Selection Seminar
This seminar is an overview of common regulator types and will also discuss proper operation, sizing, and safety concerns.

2pm-230pm: Swagelok Hose Safety & Installation Seminar
This seminar is an overview of hose products available in industry and how to properly install, troubleshoot and assemble hoses on site.

230pm-4:00pm: Swagelok Tube Bending Seminar
This seminar will discuss proper setup of the Swagelok Tube Bender, layout, and bending techniques. The user will be exposed to tube bending techniques that will allow them to install tubing runs more efficiently and confidently.

LANL STANDARDS ISSUED IN JUNE

Thanks to SI-DC's Christina Salazar-Barnes for another super-busy month of document work:

ESM STD-342-100	
Ch. 1, General—Section 210, Attachment 1: Systems List	Now defines all acronyms, preferences for usage as Opsys or Sys, and R/P/U usage.
Ch. 16, IBC Program—Listing of Approved IBC Testing Agencies and Fabricators	updated 6/28/17
Ch. 17, Pressure Safety, Section ADMIN-3 , Procurement, Fabrication, and Assembly: Subsection O. Flanged Joint Assemblies (pg.7)	Posted VAR-10119 Rev. 1 , Owner Acceptance of ASME B16.5 Flange Design (e.g., Bolt Stress)

Master Specifications STD-342-200	
Thanks to Architectural POC Scott Richardson for these:	
01 7700 R3, Closeout Procedures	Updating/correcting of references, incorporation of lessons learned, and general formatting
07 5213.13, Atatic-Polypropylene Modified-Bitumen Roofing, Cold-Applied	Minor change to the material callout on page 15 and 16
08 1100 R2, Metal Doors and Frames	Major updating/correcting of references, general updating to current industry standards based in part on generic templates, and general formatting
08 1213 R3, Hollow Metal Frames	Major updating/correcting of references, general updating to current industry standards based in part on generic templates, and general formatting
Thanks to Structural Specs POC Glen Pappas for these:	
21 2200 R4, Clean Agent Fire-Extinguishing Systems	Added seismic requirements in 1.2.B and 1.3.C. based on NFPA 13, since NFPA 2001 lacks direction but is heading in that direction for 2018 edition
22 0548.23, Vibration and Seismic Controls for Mechanical Systems	Initial issue, supersedes 22 0548 (retitled/numbered to conform to the MasterFormat2016 scheme and updated to IBC-2015 and latest industry examples).
Thanks to Electrical POC Eric Stromberg for these:	
26 0533 R7, Raceway and Boxes for Electrical Systems	Added requirements for seismic. Changed "conduit" to "raceway" in many locations. Changed raceway sizes from 'inches' to trade sizes. Included references to conduit bodies. Corrected listing requirements. Added blue color for Building Automation systems and red color for fire alarm systems. Removed "malleable iron" from certain specifications (no longer made). Changed general sealing to not require classified area boundary fittings. Removed Square D as acceptable manufacturer of wireways and replaced with Hoffman. Removed specific depth requirements for outlet boxes. Removed requirement for underground raceways to slope 4 inches per 100 feet and incorporated VAR-16-004, Underground Fire Alarm; Trench and Conduit Design. Added instructions on how to install expansion joints. Modified height for light switch boxes to conform to ADA.

26 0548.16 R1, Seismic Controls for Electrical Systems	Minor corrections and clarifications. Tx to Glen Pappas.
26 0700 R3, Induction Motors - 500HP and Smaller	Added seismic requirements. Added DOE-STD-1212 as a reference for requirements. Changed requirements for testing to "only when specified" Changed specific requirements of when to use single-phase vs three-phase to "as shown on drawings" Cleaned up editorial verbiage Added preference for IEEE-841 motors. Removed requirement to remove abandoned motors.
26 2923 R3, Variable Frequency Motor Controllers	Added new seismic requirements. Changed all occurrences of AFC to VFD. Deleted warranty requirement (this is already covered by purchasing) Reordered referenced standard section. Deleted 9001 requirement. Deleted 36 hour turn around requirement for supplier repair (VFDs are now a commodity). Deleted bypass language. Deleted requirements for removing abandoned.
Deleted Specs:	
08 9100 R2, Louvers	Cancelled and archived due to their being seldom utilized.
10 1100 R1, Visual Display Surfaces	
10 5113 R1, Metal Lockers	
11 1313 R1, Loading Dock Bumpers	
13 4800 R2, Sound, Vibration, and Seismic Control	Cancelled and archived, need met by new 22_ and 26_0548.XX sections and recent revisions to Div 09 sections
22 0548 R3, Vibration and Seismic Controls for Plumbing Piping and Equipment	Cancelled and archived, superseded by 22 0548.23

Std Drawings & Details STD-342-400	
Mechanical	Thanks to Mech POC Michael Ladach, CAD by Scott Richardson, Ed Seawalt, Emily...
D2010-1-1 Rev. 3, Safety Shower with Drench Hose	Admin. changes to CAD STD Rev.#5 Format and Sheet was 1 of 5
D2010-1-2 Rev. 4, Safety Shower with Eyewash	Admin. changes to CAD STD Rev.#5 Format and Sheet was 2 of 5
D2010-1-3 Rev. 4, Eyewash	Admin. changes to CAD STD Rev.#5 Format and Sheet was 3 of 5
D2010-1-4 Rev. 4, Design Notes	Admin. changes to CAD STD Rev.#5 Format and Sheet was 4 of 5
D2020-1-1 Rev. 2, Site/building Water Component Detail	Admin. changes to CAD STD Rev.#5 Format and Sheet was 1 of 3
D2020-2-1 Rev. 4, Building Service	Admin. changes to CAD STD Rev.#5 Format and Sheet was 1 of 3
D2020-2-2 Rev. 4, Misc. Service	Admin. changes to CAD STD Rev.#5 Format and Sheet was 2 of 3
D10-30GEN-3-1 Rev. 4, Pipe/Electrical Conduit Penetration	Admin. changes to CAD STD Rev.#5 Format and Sheet was 1 of 5
D10-30GEN-3-2 Rev. 4, Duct Penetration	Admin. changes to CAD STD Rev.#5 Format and Sheet was 2 of 5

D10-30GEN-3-3 Rev. 4, Duct Penetration with Silencer, Preferred	Admin. changes to CAD STD Rev.#5 Format and Sheet was 3 of 5
D10-30GEN-3-4 Rev. 4, Duct Penetration with Silencer, Alternative	Admin. changes to CAD STD Rev.#5 Format and Sheet was 4 of 5
D20GEN-1-1 Rev. 4, Screwed Ends	Admin. changes to CAD STD Rev.#5 Format and Sheet was 1 of 3
D20GEN-1-2 Rev. 4, Flanged Ends	Admin. changes to CAD STD Rev.#5 Format and Sheet was 2 of 3
D20GEN-3 Rev. 2 Variable Flow through Coil, Fail to Full Heat	Admin. changes to CAD STD Rev.#5 Format and Sheet was 1 of 4
D20GEN-3 Rev. 2 On/Off Flow through Preheat Coil	Admin. changes to CAD STD Rev.#5 Format and Sheet was 2 of 4
D30GEN-2-1 Rev. 2 Chilled Water, Variable Flow, Fail to No Cooling	Admin. changes to CAD STD Rev.#5 Format and Sheet was 1 of 11
D30GEN-2-2 Rev. 2 Chilled Water, Variable Flow, Fail to Full Cooling	Admin. changes to CAD STD Rev.#5 Format and Sheet was 2 of 11
D30GEN-2-4 Rev. 2 Hot Water, Variable Flow, Fail to No Heat	Admin. changes to CAD STD Rev.#5 Format and Sheet was 4 of 11
D30GEN-2-5 Rev. 2 Hot Water, Variable Flow, Fail to Full Heat	Admin. changes to CAD STD Rev.#5 Format and Sheet was 5 of 11
D30GEN-2-7 Rev. 2 Hot Water, On/Off Flow, Fan to Full Heat	Admin. changes to CAD STD Rev.#5 Format and Sheet was 7 of 11
D30GEN-2-8 Rev. 2 Hot Water, On/Off Flow, Fail to Full Heat	Admin. changes to CAD STD Rev.#5 Format and Sheet was 8 of 11
D30GEN-2-9 Rev. 2 Chilled/Hot Water, Stacked Coils	Admin. changes to CAD STD Rev.#5 Format and Sheet was 9 of 11
D2090-1-1 Rev. 4 Lubricated Compressor, Tank Mounted	Admin. changes to CAD STD Rev.#5 Format
D2090-1-2 Rev. 4 Oil-Less/Oil Free Compressor, Tank Mounted	
D2090-1-3 Rev. 4 Lubricated Compressor, Remote Receiver	
D2090-1-4 Rev. 4 Oil-Less/Oil Free Compressor, Remote Receiver	
D3020-2-1 Rev. 4 Steam (PRV) Station-Single Stage	
D3020-2-2 Rev. 4 Steam (PRV) Station-Dual Stage	
D3020-2-3 Rev. 4 Steam (PRV) Station-Parallel	
D3020-2-4 Rev. 3 Design Notes	
D3020-3-1 Rev. 2 Along Piping Run	
D3020-3-2 Rev. 2 End of Main	
D3030-1 Rev. 1 Cooling Tower & Chiller Component Detail	Admin changes to CAD STD. Rev.#5 Format and Sheet was 1 of 2
Deleted Drawings (Mechanical)	
ST-D30GEN-3-R1, Sheet 4 of 4, Design Notes	Design notes incorporated into D30GEN-2 Sheet 2
ST-D3030-1M2 R1, Design Notes	Design notes incorporated into other sheets.
ST-D2010-1M5 R3, Design Notes	

DOE TECHNICAL STANDARDS INACTION

DOE Tech [Stds](#) activity (beta [here](#)) in the past month: None. Past almost 6 months: None. See why in the last [Update's](#) rant.

NATIONAL STANDARDS ACTIONS

This month, LANL's [IHS online standards service](#) reports that the ASHRAE Fundamentals have been completely revised.

National Electrical Safety Code, IEEE NESCIR582-2017 Interpretation added.

Also, per Kelly at the library, the platform for accessing certain standards (Z136.1 on lasers and ISO's EMS and imaging stds) changed from the ANSI Site License Portal to ANSI Standards Connect. To view our subscribed standards directly, go to <https://asc.ansi.org/> (then click the "View My Documents" link on the right side of the page). The library's [standards page](#) links have been updated so it's fairly transparent except for the "View My Documents" step.

NM CODE ACTION

As an FYI not directly affecting LANL, the State of NM began requiring that several of the 2015 I-Codes be followed when applying for permit effective last week (July 3 onward). LANL normally follows the state's lead on this, but we needed to adopt IBC-2015 early this cycle so began requiring it (and others) as design code of record beginning Mar 27, 2015.

WHEN GOOD CONDUCT OF ENGINEERING ISN'T FOLLOWED

London's Grenfell fire left at least 24 dead, perhaps more than 100.

<http://thecodecoach.blogspot.com/2017/06/why-is-london-burning.html>

The initial cause of the fire hasn't been determined, but it apparently spread quickly to all floors due to flammable exterior cladding that's not used in the U.S. for high rises.

From contributor Kevin Krank:

I know you have seen this, didn't know if you saw the first link below, they saved \$6,400 dollars in material which contributed to this disaster.

<http://www.independent.co.uk/news/uk/home-news/grenfell-tower-fire-latest-london-cladding-banned-us-flammable-a7792711.html>

[Cladding in London tower fire cited in other fires](#)

[Cladding a possible culprit in London tower fire that killed at least 6](#)

And more recently:

[May orders national inquiry after 100% failure rate in high-rise cladding tests](#)



LAST MONTH'S UPDATE TOPICS

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

- **ESM Chapter 21 Software**
- **Training & Qual**
- **IESL Pre-Approved OEM List**
- **LANL Standards Issued in May**
- **DOE Technical Standards Inaction**
- **National Standard Actions**
- **When Good Conduct of Engineering Isn't Followed**

To request a change to this newsletter's distribution, please contact me.
The views expressed in this email are not necessarily those of my employer.

Tobin Oruch, Engineering Standards Mgr
Los Alamos Nat'l Lab, Conduct of Eng Program Office
ph (505) 665-8475 oruch@lanl.gov <http://engstandards.lanl.gov/>
Please consider the environment before printing this or any email