

The Southern Fried Architect

(A clear, complete, concise, and mostly correct, view of stuff happening in the design/construction industry)

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Celebrate National Engineers Week (Take an engineer out to lunch and make him buy)



February 16-22 is National Engineers Week, the time of the year when we “officially” make fun of engineers. Yeah, like we need an excuse to do that. Created in 1951 by the National Society of Professional Engineers, National Engineers Week is celebrated each year in February around George Washington’s birthday. George, in addition to being our first President, was a military engineer and a land surveyor (an engineer-wanna-be with pretty cool toys). For more information on National Engineers Week, contact National Engineers Week Headquarters at 1420 King Street, Alexandria, VA 22314 or at 1.703.684.2852 or at eweek@nspe.org.

For more discussion on engineers in general, see *SFA* Section C: Technically Speaking.

MasterFormat Expansion Task Team Receives (More) Hate Mail

Having finally come to the end of the development process for MasterFormat 2004, the MasterFormat Expansion Task Team once again is receiving hate mail from all segments of the industry. As we have said in the past, “why should we just make one group mad when we can make everyone angry?” And while we understood why we got the letters from the mechanical contractors and the e-mails from the architectural specifiers, what we didn’t count on was all the letters we got from the general contractors. After all, these are the guys who demanded a seat on the task team and then when they got one, hardly had a negative thing to say.

Here’s a (more or less) typical letter:

Dear CSI:

*I am the owner of a design/build firm and I just learned that for the last 2 ½ years CSI has had a task team of 17 representatives from all segments of the construction industry considering expansion of MasterFormat. I understand that you conducted 3 national industry symposia, had four draft documents for public review, wrote articles for more than 80 national publications, conducted more than 150 presentations, had 4 web-based discussion forums, and received more than a thousand comments. How **dare** you not inform me or provide adequate opportunity for me to have my say about this? I am appalled at the proposed changes that actually intend to address the needs of the entire construction industry and that you have not personally asked for or taken note of my opinion, which I’m about to give you anyway.*

If it ain’t fixable, don’t break it. Besides, do you realize the cost? I will have to buy a new book and remember an additional digit in the numbering system. You don’t realize how expensive it is to operate a design/build firm and I can’t afford this change.

We just upgraded to new 3.4 gig computers with 42" flat panel plasma screens that also required us to update our operating systems to the latest Windows system, and upgrade to AutoCAD 2004 with special desktop functions. All these new computers now come with WordPerfect and we just got finished changing everything over to Word two years ago, and now we have to change back. Our client expects us to have the latest 3D software to market our services, and a project web site

for each of their projects. The old plotter wouldn't work with all this new software and we had to get a network laser plotter for about \$20K that could work with our new wireless network and high-speed Internet service. On top of that, our state just changed to the International Building Code and we had to purchase all those new code books and will be training our staff for years. Each year Sweets comes out with a set of books with new products we have to learn about, manufacturers are constantly changing product formulations, and ARCOM sends me a new MasterSpec update every quarter that has to be incorporated into our office masters. AIA is again making major changes to their documents and have just released Version 4 of their software that I have to buy and learn. Of course, that will only be good for 3 years until the new 2007 AIA documents are published. And then there's new estimating software to learn, and, well, I could just go on and on.

And now you tell me that CSI is going to change its 16 Division system just because a few people think a few things may have changed over the last 40 years? Well, enough is enough!!! This is where I put my foot down. When is CSI going to stop this outrageous change for change's sake? Even though it may have cost you a lot of money to work on developing this new MasterFormat carefully and try to listen to and balance everyone's needs, please reconsider. Just think of all us poor design/build firms and the cost to change our work.

Bubba Hardhat, PE

I'm sure you all have empathy for Bubba; I never realized that he was facing these kinds of challenges. I know I sometimes wish things wouldn't change, too.

New Civil Engineering Poster Under Close Review

In an attempt to improve their image, civil engineers are contemplating the release of a new series of civil engineering reference posters and computer wallpaper that combines both aesthetic and technical issues. The graphics are currently undergoing close scrutiny to ensure the math is correct.

Personally, I think they're on to something. I'm starting to have a higher opinion of civil engineers already.

VERTICAL CURVES

IN ANY VERTICAL CURVE:

$$E = \frac{AL}{8}$$

$$y = (D)^2 \frac{E}{(1/2 L)^2}$$

$$y = D^2 \frac{A}{2L}$$

WHERE:

G_1, G_2 = TANGENT GRADES, IN %

E = ORDINATE FROM P.I. TO CURVE, IN FEET.

$A = G_1 - G_2$, THE ALGEBRAIC DIFFERENCE IN GRADE

L = LENGTH OF CURVE, IN STATIONS

y = ORDINATE FROM TANGENT TO CURVE, IN FEET

D = DISTANCE FROM NEAREST P.C. OR P.T. TO ANY POINT ON CURVE

Civil Engineering Reference Wallpaper

www.engineeringnot.netfirms.com

If you stared at the graphics for a few seconds and then tilted your head 45 degrees to the right, don't worry. This seems to be the normal reaction from both architects and engineers. It's a geometry thing.

Canadian Specifications Website Debuts

Tom Dunbar, FCSC, and Manager for the National Master Specifications for Canada, has informed us that the NMS Secretariat Internet site is finally alive. Like all Canadian government sites, it is completely bilingual. We are hoping that they will someday include "redneck" as an official language and make it trilingual. But until then, we are trying to learn English. BTW: Tom is not an engineer.

Visit them at: <http://www.pwgscc.gc.ca/nms/> or <http://www.tpsgc.gc.ca/ddn/>

Sticks + Stones

SFA - Section B

Welcome to another issue of *Sticks + Stones*, where we examine some of the technical issues in the construction industry that have caused architects, engineers, contractors, and owners all sorts of problems. *S+S* is organized by those darn ol' MasterFormat 04 numbers and titles, except we have placed spaces between the paired numbering to assist you, our valuable readers, with the transition. Isn't that just like us, always thinking of others?

05 40 00 – Cold-Formed Steel Framing

We see a lot of problems with cold-formed steel framing, particularly in coastal environments. Believe it or not, this stuff just goes away in oceanfront structures. What is the correct specification for galvanized cold-formed steel? Well, in short, it depends, but the Light Gauge Steel Engineers Association has just released a new standard to help you go wrong with confidence. Their Technical Note 140: "Corrosion Protection for Cold-Formed Steel Framing in Coastal Areas," discusses the five Classes of Exposure and provides you guidance on the galvanizing thickness for framing material depending on location and exposure class.

This document can be ordered for \$5 from the LGSEA. You won't find it on their web site, so you will have to call them directly at **1.866.GO.LGSEA**. You can also get good information from the GalvInfo Center on the various types of hot-dipped galvanizing. Gary Dallin is the Director of the GalvInfo Center and a very helpful guy. He can be reached at **1.888.882.8802** for all your galvanizing questions on light gauge framing.

SPEC-AGRA

Are your specifications not up to the job? Do they lack that "edge?" Having problems with your construction documents not being able to go the distance? Then you may need **SPEC-AGRA**, the new project manual review service from the editors of *The Southern Fried Architect*. We won't just review your performance and tell others behind your back. We will give you that little bit of help that you may need to get ahead. Don't be fooled by other so-called "peer review" or specification services. Get the original **SPEC-AGRA** and **perform** with **confidence**.

Side effects may include confusion, dizziness, drowsiness, headache, stomach pain, nausea, and vomiting. We accept cash and certified checks from firms and professional liability insurance carriers.

For-real advertisement, don't laugh. This service is not connected with any other product or service with similar name or claims.

07 60 00 – Flashing and Sheet Metal

The industry standard for sheet metal flashing is the SMACNA Architectural Sheet Metal Manual. SMACNA just released the 6th edition of this standard in December. This is one of those "must have" books for architects. Just about everything you need to know about detailing something made out of sheet metal is covered. We plan to do a review of the book in an upcoming issue of *SFA*, but until then, the best place to buy the document is online at www.smacna.org. Even with the architects' discount it's expensive, but well worth it.

32 17 10 – Paving Markings



www.engineeringnot.netfirms.com

The location of Paving Markings in the Project Manual has always been an issue for some folks. Is it specified in Division 02 or Division 09? In MasterFormat 2004, we have tried to make it clear this is a site issue and belongs in 32 17 10.

In writing this spec, we highly recommend that under Part 3 - Execution, you include a few words in the "Preparation" article about the removal of dead possums and other road kill, prior to the placement of the paving markings. All good Southern specifiers already know to do this, so this advice is for the rest of you.

If you have a good recipe for possum stew, we'd appreciate it if you could send it to us, and we'll include it in next month's issue. Please hurry, as we've had a warm winter and these things won't keep forever.

We want to hear from you

If it weren't for YOU, we would quickly run out of material to write about. Please write and let us know how you are doing. We love to hear from our readers and learn what you have screwed up recently.

Legal Disclaimer

The opinions expressed in this section represent only those opinions of the writer and are based purely on our ignorance, which is unlimited. Any contrary opinions based on facts, which are limited, are of little concern to us; however, we reserve the right to change our opinion in the face of lawsuits. Although all the stuff in this publication is really good information, each project is different and requires the skill of a semi-competent design professional to carefully craft the construction documents to meet the unique requirements of your project, and a truly skilled construction professional to execute those requirements in accordance with industry standards. Since this rarely happens on any construction project we have seen, reading and following the advice in this publication may keep you out of trouble. Then again, it may not. Actual reading of this disclaimer is considered acceptance of the conditions both stated and implied, as well as forfeiture of all legal rights you may have. Gotcha! Ha ha.

Technically Speaking

SFA - Section C

Tar and Feathering: On the Road for a better MasterFormat

Based on our speaking schedule one would think we liked Florida. (4 trips in three months) Well, we do. We have lots of good friends from the Sunshine State and where else can we see so many of our Yankee friends in the winter? We do take one trip in March to the frozen northland to meet with even more of our really good friends from the Mechanical Contractors Association of Canada. (Yeah, I'm trying to suck up to them before I walk into *that* hornet's nest)

Feb. 16	CSI Charlotte	Charlotte, NC
Feb. 21	Florida International University	Miami, FL
Mar 6	Mechanical Contractors Assoc. of Canada	Toronto, Ontario
Mar 9	CSI Palm Beach/CSI Ft. Lauderdale	Ft. Lauderdale, FL
Mar 16	CSI Jacksonville	Jacksonville, FL

CSI Offers “MasterFormat for Manufacturers” Presentation

Have you seen the Educational Program for the CSI Convention in April? Wow! After a retreat from education at last year's convention, this year's program is packed with some *really* good stuff. I wish I could attend them all, okay maybe not *all* of them, as a few look a little boring, but most look to be very good. And along with all these great speakers, CSI has also decided to offer a special, double-secret presentation entitled “MasterFormat for Manufacturers,” for free! One little catch, you have to be an exhibitor to attend. As you know, we have no problem insulting all segments of the industry, and, despite their importance to the success of the Convention, manufacturers are no exception. Expect me to preach the gospel of MasterFormat to them and shed light on their sins. And all you professional types aren't exempt from the hellfire and brimstone either; the Reverend Hall will be in the bully pulpit with an educational presentation that's open to all on Friday, April 23 from 2:15 pm – 3:15 pm. Can I hear an “Amen”?

Why Engineers Are Not Normal People

Each year in February, I pull out my copy of “Engineers Explained” written by former CSI Institute President, Jane Baker, FCSI, just to help me better understand how these folks think. And then I send it to the one or two of my engineering buddies who will still work with me. Below is an excerpt from this wonderful document for your reading enjoyment. I hope it helps you as much as it has me.

ENGINEERS EXPLAINED

People who work in the fields of science and technology are not like other people. (Editor's Note: AMEN!) This can be frustrating to the nontechnical people who have to deal with them. The secret to coping with technology-oriented people is to understand their motivations. This chapter will teach you everything you need to know. I learned their customs and mannerisms by observing them, much the way Jane Goodall learned about the great apes, but without the hassle of grooming.

Engineering is so trendy these days that everybody wants to be one. The word engineer is greatly overused. If there's somebody in your life who you think is trying to pass as an engineer, give him this test to discern the truth....

ENGINEER IDENTIFICATION TEST

You walk into a room and notice that a picture is hanging crooked. You....

A. Straighten it.

B. Ignore it.

C. Buy a CAD system and spend the next six months designing a solar-powered, self-adjusting picture frame while often stating aloud your belief that the inventor of the nail was a total moron.

The correct answer is 'C' but partial credit can be given to anybody who writes "It depends on the margin of the test or simply blames the whole thing on Marketing.

SOCIAL SKILLS

Engineers have different objectives when it comes to social interaction. Normal people expect to accomplish several unrealistic things from social interaction:

- *Stimulating and thought-provoking conversation*
- *Important social contacts*
- *A feeling of connectedness with other humans*

In contrast to normal people, engineers have rational objectives for social interaction:

- *Get it over with as soon as possible.*
- *Avoid getting invited to something unpleasant.*
- *Demonstrate mental superiority and mastery of all subjects.*

DATING AND SOCIAL LIFE

Dating is never easy for engineers. A normal person will employ various indirect and duplicitous methods to create a false impression of attractiveness. Engineers are incapable of placing appearance above function.

Fortunately, engineers have an ace in the hole. They are widely recognized as superior marriage material: intelligent, dependable, employed, honest, and handy around the house. While it's true that many normal people would prefer not to date an engineer, most normal people harbor an intense desire to mate with them, thus producing engineer-like children who will have high-paying jobs long before losing their virginity.

Male engineers reach their peak of sexual attractiveness later than normal men, becoming irresistible erotic dynamos in their mid thirties to late forties. Just look at these examples of sexually irresistible men in technical professions:

- *Bill Gates*
- *MacGyver*
- *Etcetera*

Female engineers become irresistible at the age of consent and remain that way until about thirty minutes after their clinical death. Longer if it's a warm day.

RISK

Engineers hate risk. They try to eliminate it whenever they can. This is understandable, given that when an engineer makes one little mistake, the media will treat it like it's a big deal or something.

EXAMPLES OF BAD PRESS FOR ENGINEERS

- * Hindenberg.*
- * Space Shuttle Challenger*
- * SPANet™*
- * Hubble space telescope*
- * Apollo 13*
- * Titanic*
- * Ford Pinto*
- * Corvair*

The risk/reward calculation for engineers looks something like this:

RISK: Public humiliation and the death of thousands of innocent people.

REWARD: A certificate of appreciation in a handsome plastic frame.

Being practical people, engineers evaluate this balance of risk and reward and decide that risk is not a good thing. The best way to avoid risk is by advising that any activity is technically impossible for reasons that are far too complicated to explain.

If that approach is not sufficient to halt a project, then the engineer will fall back to the second line of defense: "It's technically possible but it will cost too much."

AIA Document Update

As promised, we bring you the first in our discussion of changes needed to AIA documents, which we begin with a complete dissection of AIA Document B151-1997: Abbreviated Form of Owner-Architect Agreement. Below is an annotated copy of the text that we recommend needs modification. Since MasterFormat 04 will be released later this year, you will need to modify the AIA documents to keep pace with the changes until the AIA gets around to updating the documents in 2007. We are working with Barbara Heller, CSI, FAIA, Chairperson of the AIA Documents Committee to ensure coordination is more than a concept. Here are our recommendations as sent to Barbara.

AIA Document B151-1997

2.4 CONSTRUCTION DOCUMENTS PHASE

2.4.2 The Architect shall assist the Owner in the preparation of the necessary **Procurement and Contracting Requirements** ~~bidding information, bidding forms, the Conditions of the Contract, and the form of Agreement between the Owner and Contractor.~~

2.5 CONSTRUCTION PROCUREMENT ~~BIDDING OR NEGOTIATION~~ PHASE

The Architect, following the Owner's approval of the Construction Documents and of the latest preliminary estimate of Construction Cost, shall assist the Owner in obtaining bids or negotiated proposals and assist in awarding and preparing contracts for construction.

5.1 DEFINITION

5.1.2 The Construction Cost shall include the cost at current market rates of labor and materials furnished by the Owner and equipment designed, specified, selected or specially provided for by the Architect, including the costs of management or supervision of construction or installation provided by a separate construction manager or contractor, plus a reasonable allowance for their overhead and profit. In addition, a reasonable allowance for contingencies shall be included for market conditions at the time of **construction procurement** ~~bidding~~ and for changes in the Work.

5.2 RESPONSIBILITY FOR CONSTRUCTION COST

5.2.3 If the ~~Bidding or Negotiation~~ **Construction Procurement** Phase has not commenced within 90 days after the Architect submits the Construction Documents to the Owner, any Project budget or fixed limit of Construction Cost shall be adjusted to reflect changes in the general level of prices in the construction industry.

Next month, look for our in-depth discussion of AIA Document B141-1997: Owner-Architect Agreement.

Other Stuff

SFA - Section D

Engineering Exam

Former CSI President, Phil McDade, FCSI, FASLA sent me this engineering exam from the University of Tennessee. Now, how a landscape architect and graduate of Mississippi State University got a hold of this confidential document, I couldn't begin to guess.

Tennessee Engineering Exam: We are sick and tired of hearing about how dumb people are in the South. We challenge any so-called smart Yankee to take this exam administered by the University of Tennessee Engineering Department:

1. Calculate the smallest limb diameter on a persimmon tree that will support a 10-pound possum.
2. Which of these cars will rust out the quickest when placed on blocks in your front yard? A '65 Ford Fairlane, a '69 Chevrolet Chevelle or '64 Pontiac GTO.
3. If your uncle builds a still which operates at a capacity of 20 gallons of shine produced per hour, how many car radiators are required to condense the product?
4. A woodcutter has a chainsaw which operates at 2700 RPM. The density of the pine trees in the plot to be harvested is 470 per acre. The plot is 2.3 acres in size. The average tree diameter is 14 inches. How many Budweisers will be drunk before the trees are cut down?
5. If every old refrigerator in the state vented a charge of R-12 simultaneously, what would be the percentage decrease in the ozone layer?
6. A front porch is constructed of 2x8 pine on 24-inch centers with a field rock foundation. The span is 8 feet and the porch length is 16 feet. The porch floor is 1-inch rough sawn pine. When the porch collapses, how many hound dogs will be killed?
7. A man owns a Tennessee house and 3.7 acres of land in a hollow with an average slope of 15%. The man has five children. Can each of his grown children place a mobile home on the man's land and still have enough property for their electric appliances to sit out front?
8. A 2-ton truck is overloaded and proceeding 900 yards down a steep slope on a secondary road at 45 MPH. The brakes fail. Given average traffic conditions on secondary roads, what is the probability that it will strike a vehicle with a muffler?
9. A coalmine operates a NFPA Class 1, Division 2 Hazardous Area. The mine employs 120 miners per shift. A gas warning is issued at the beginning of the 3rd shift. How many cartons of unfiltered Camels will be smoked during the shift?
10. At a reduction in the gene pool variability rate of 7.5% per generation, how long will it take a town which has been bypassed by the Interstate to breed a country-western singer?