December 2015
Volume 18, Issue 1

INSPEC.NWZ

In This Issue

Dear,

Wishing everyone Happy Holidays and a Prosperous New Year

THANKS FOR ANOTHER GREAT YEAR!

INSPEC: BIG NEWS & BRIGHT FUTURE

by Doug Hartman

As the holidays are upon us, we once again reflect back on an incredibly busy year, filled with our efforts to meet and exceed our client's expectations. 2015 was another record setter, with specification projects at nearly 550, accessibility projects numbering over 150, and we assisted clilents with sustainability goals and needs on 27 projects. We are, as always, thankful for the confidence our clients place in us for providing timely, accurate, and cost effective consulting in each of these areas of our practice.

So, here's the big news - after 31 years of leading the *INSPEC* team, I am proud to announce that, effective January 1, a new group of young, energetic professionals are taking over the daily management of these areas of the *INSPEC* practice.

INSPEC Specifications Group

Now in his 12th year with *INSPEC*, Kevin Wang CSI SCIP has been promoted to managing principal of the *INSPEC* Specifications Group. With 14 years of specifications production under his belt on a wide range of project types, Kevin is well suited to continue the tradition of providing specifications consulting services to our 65 architectural and owner clients.

INSPEC Accessibility Group

After 25 years with *INSPEC*, Mike Ranalletta, RAS, has been promoted to managing principal of the *INSPEC* Accessibility Group. Mike has effectively served in this role for the last several years, but now has the well-deserved recognition. Mike's background and expertise in not only TAS plan reviews and inspections, but also ADA compliance for commercial facilities, makes him a great choice to oversee the accessibility services.

INSPEC Sustainability Group

Having completed over 8 years with *INSPEC*, Allen Cornett CSI CCCA has been promoted to president of the *INSPEC* Sustainability Group. Allen has effectively managed the sustainability work load for the last several years, and now has the recognition that is due. With broad experience in LEED and Green Globes certifications, as well as serving as a City of Dallas Green Building Provider Contractor, Allen's unique ability to manage all of the contributors to the certification process makes him a great asset to any sustainability effort.

Please join me in congratulating these colleagues and wishing them every success in their new positions. As for me, I will still be around providing advice and pounding the keys to help with the specifications load for a while longer. Not ready to hang it up just yet.

SUSTAINABILITY TOOLS AND TIPS

-Unit Masonry Mortars: Proportion Method or Property Method?

INSPEC Construction Administration and Specifications, Inc.

www.inspeconline.com
1-972-331-9080
Fax 972-769-9636

dhartman@inspeconline.com

sbrown@inspeconline.com

kwang@inspeconline.com

wwoods@inspeconline.com

sbliss@inspeconline.com

acornett@inspeconline.com

mranalletta@inspeconline.com

mhartman@inspeconline.com

jblankenship@inspeconline.com

RATING SYSTEM? WHICH RATING SYSTEM?

by Allen Cornett, LEED®, Dallas Green Consultant

In the early 2000's when it came to LEED, the rating systems available were basically New Construction, Commercial Interiors, Core and Shell or Existing Building. As time has gone by the rating systems have evolved and increased to suit different project types. Technically there are only 5 rating systems; **LEED for Building Design and Construction (BD+C), LEED for Interior Design and Construction (ID+C), LEED for Building Operations and Maintenance (O+M), LEED for Neighborhood Development (ND), LEED for Homes Design and Construction, but there many checklist available to cover different project types within these 5 rating systems. Under the LEED 2009 rating system there are 10 project types, and under the LEED v4 rating system there are 21 project types available. The link below will take you a chart created by the USGBC that list the project types as well as shows how the LEED 2009 project types fit within the LEED v4 project type's structure:**

http://www.usgbc.org/articles/how-match-leed-2009-rating-systems-leed-v4

With all these options and building types that include multiple project types how does a project team determine which rating system best fits a project? USGBC has provided some guidance to walk project teams through a three step process to help determine which rating system should be used. The steps are as follows:

1. What is your construction type?New construction? Core and shell? Commercial interiors? Existing building?
2. What is your space type? School? Healthcare? Retail? Homes? Commercial interiors? New construction that does not included one of the listed project types?
3. If multiple rating systems may be applicable use the 40/60 rule to make a selection.If less than 40% of the building square footage fits a project type do not use that rating system.If greater than 60% of the building square footage fits a project type do use that rating system.If 40% - 60% of the building square footage fits a project type then the project team can make a selection from the rating systems with square footages falling within the 40% - 60% range.

The link below will take you to a rating system selection guidance document created by the USGBC:

http://www.usgbc.org/resources/leed-2009-rating-system-selection-guidance

There are building types that must use specific rating systems:

- **LEED for Schools must be used for the construction or major renovation of an academic building on K–12 school grounds.**
- **LEED for Healthcare was designed primarily for and as of January 1, 2012 must be used for licensed and federal inpatient and outpatient care facilities and licensed long term care facilities.**

With all the rating systems and project types it still may not be clear which rating system and checklist to use on certain project. In circumstances where confusion prevails USGBC and/or your LEED Accredited Professional can be contacted to assist with making this determination.

LEED® Update – Projects can be registered under the LEED® 2009 rating systems until 10/31/16.

G40 GALVANIZING AND CONTINUOUS COATINGS

by Kevin Wang

Corrosion protection is vital to the longevity and sustainability of construction projects. As industry professionals, we have to take into account a number of factors which can contribute to the deterioration of building materials. While there are numerous conditions that can cause materials to deteriorate, one of the most prevalent is damage from moisture infiltration. This is why it has been standard design practice to use galvanized steel stud framing. Galvanizing coats steel with a protective layer of zinc, a non-corrosive, malleable metal, which makes it a suitable treatment to prevent corrosion of the steel. For interior, non-load bearing steel framing, the standard of G40 coating per ASTM A 653, "Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process" is permissible under ASTM C645, "Standard Specification for Nonstructural Steel Framing Members," which is the designated governing standard under the International Building Code (IBC) 2012. The "G" galvanizing designation is a measure of the weight of the zinc deposited on the steel, which is the weight of zinc per square foot of steel. For instance, G40 means that for one square foot of sheet steel, the weight of the total coating applied to both sides must be a minimum of 0.40 ounce, comprised of 0.20 ounce applied to each face.

An alternative to G40 galvanizing is the use of equivalent, or EQ coatings. While considered to be a newer solution, EQ coatings have been in use in the industry for several decades. While there are still many individuals who will not use EQ coatings on their projects, it helps to understand exactly what these coatings are in order to make an informed decision on your projects. EQ coatings, also known as conversion, organic, and reactive-polymer coatings, are applied to zinc-coated sheet steel prior to being formed into stud framing members. These coatings should not be mistaken for paints or primers,

though. This is due to the EQ coatings physically bonding to the galvanizing layer that surface paints do not. While galvanized steel may look smooth to the naked eye, magnification reveals cracks and imperfections through which moisture can reach the steel surface underneath. EQ coatings fill in these nooks and crannies. The resultant bonded composite surface is a sealed layer of protection, which allows the zinc to remain in place and protect the steel without requiring additional measurable zinc.

With G40 being a known, measurable standard, ASTM C645 has also allowed a coating with minimum "equivalent corrosion resistance" to G40 under ASTM A653 since 1992. What this means is that the equivalent performance allows for some flexibility in sourcing the steel from which metal framing members are manufactured. For instance, unused steel from automobile manufacturing may be used with an EQ coating, since it would not otherwise conform to G40 galvanizing. This provides a more sustainable source of reused materials, instead of having to source raw materials to produce the framing. Another advantage of EQ coatings is the quality of protection. While EQ coating formulations vary from manufacturer to manufacturer, in general their performance presently exceeds that of G40 galvanizing under salt-spray corrosion testing under ASTM B117 "Standard Practice for Operating Salt Spray (Fog) Apparatus." Of course, it is important to verify the performance of EQ coatings, should you decide to allow their use on your projects, in the form of a product data submittal.

With more acceptance of EQ coatings in the construction industry, there are now more sources than ever for this alternative to G40 galvanizing. In the constant effort to provide affordable, sustainable, appropriately performing projects, it is definitely worth considering the inclusion of EQ coatings in addition to traditional G40 galvanized steel framing.

RESTAURANTS AND BARS: ACCESSIBILITY ISSUES

by Mike Ranalletta, RAS, TAS/ADA Specialist

226 Dining Surfaces and Work Surfaces

226.1 General states that at least 5 percent of the seating or standing spaces at dining surfaces shall comply with 902. 226.2 Dispersion states that accessible dining surfaces shall be dispersed throughout the space or facility containing dining surfaces and work surfaces.

Specifically, let's discuss bar counters in restaurants and bars.

The Texas Department of Licensing and Regulation (TDLR) uses the distance of 1'-6" per person to determine how many persons can sit or stand at a dining surface of any particular length. Take the length of the bar (let's say 12'-0") and multiply it by the linear feet of bar required per person (1'-6" or 1.5 feet) and you get 8 seating/standing spaces. Multiplied by 5 percent, .4 percent of the spaces are required to be accessible. But, as noted in 104.2 Calculation of Percentages, percentages shall be rounded up to the nearest whole number. Thus, at least one accessible space is required at a 12'-0"

long bar.

Easy enough. But how to determine the configuration of the accessible seating/standing space(s) and where do I locate it/them along the length of the bar? Let's tackle the configuration part.

My interpretation of 226 and 902 until now has been that the accessible dining surface shall extend the full depth of the bar. In a recent communication with AB Tech Info, they clarified: "There are no depth requirements for the dining surface in TAS 902. However, TAS 201.1(iv) requires that the depth be the same as provided for non-accessible dining surfaces." For instance, if the non-accessible bar counter is 24" deep then the accessible portion of the counter must also be at least that deep. The parameters of the accessible surface must still meet the minimum requirements of 305 Clear Floor or Ground Space and 306 Knee and Toe Clearance. If the accessible counter surface projects greater than 4" from the front of the bar, it will have to comply with the requirements of 307 Protruding Objects.

Location. The physical element of a "bar", as most people know it, is this traditional oak and brass monolith or even something with a more modern design, but it still retains that consistent height along the entire length, interrupted only by the waitress station and/or flip-up door for the bar tender. More often than not, when an accessible space is provided at a bar it's located around the side, or even worse. It's important to note the location of the accessible space is subject to 201.1(iv) as well.

As always please feel free to call me with any questions you may have regarding this or any section of the 2012 TAS you may have questions about. I look forward to working with all of you in the new year.

Best regards and Seasons Greetings!

IN THE KNOW: THE TEXAS ACCESSIBILITY STANDARDS WERE REVISED IN 2012. www.tdlr.texas.gov/ab/abtas

SHEET METAL GAGES....STILL CONFUSING?

by Susan Lincoln

It has been years and we are all still struggling to remember the appropriate measurements for sheet metal thickness. The transition from gages just doesn't sit well with our brains. We still think in gages. We want our gages back, right? Well, that's not happening.

A gage is not a precise measurement. Sheet metal is manufactured in minimum base metal thicknesses, and that is how it is specified and ordered. There is good information available to read providing the standards, references, testing, etc. There is no need for me

to repeat or quote what others have written and explained well. An Internet search will provide numerous articles, discussions, and conversions.

Here is a simple chart that you can keep handy as a general guide.

BASE METAL THICKNESS FOR STUDS AND RUNNERS

Gage is included below for reference only.

GAGE	CONVENTIONAL STEEL MEMBERS	EMBOSSED STEEL MEMBERS
16	0.0538 inch / 1.367 mm	
18	0.0428 inch / 1.087 mm	
20 (structural, cold-formed metal framing)	0.0329 inch / 0.836 mm	0.0220 inch / 0.560 mm
20 (non-structural metal studs)	0.0296 inch / 0.752 mm	0.0190 to 0.0292 inch / 0.483 to 0.5312 mm
22	0.0269 inch / 0.683 mm	
25	0.0179 inch / 0.455 mm	0.0147 to 0.0150 inch / 0.373 to 0.381 mm

BASE METAL THICKNESS FOR METAL PANELS

Gage is included below for reference only.

GAGE	METALLIC-COATED STEEL NOMINAL
16	0.064 inch / 1.63 mm
18	0.052 inch / 1.32 mm

20	0.040 inch / 1.02 mm
22	0.034 inch / 0.86 mm
24	0.028 inch / 0.71 mm
26	0.022 inch / 0.56 mm

NFPA 285 AND ITS EFFECT ON EXTERIOR WALL CONSTRUCTION

by Doug Hartman

Many are confused by the impact of NFPA 285 and its impact on the building code and ultimately how we specify exterior wall materials.

Here is a synopsis:

NFPA 285 is a standard fire test method for evaluation of fire propagation characteristics of exterior non-load-bearing wall assemblies containing combustible components.

The 2012 IBC has adopted portions of this test into the code and now includes six of its provisions as follows:

- **Section 1403.5:** Applies to combustible water-resistive barriers in buildings over 40 feet in height of Type I, II, III, or IV construction.
- **Section 1407.10.4:** Applies to metal composite materials (MCM) used on buildings of Type I, II, III, and IV construction.
- **Section 1409.10.4:** Applies to high-pressure decorative exterior-grade laminates (HPL) exterior wall coverings used on buildings of Type I, II, III, and IV construction.
- **Section 1509.6.2:** Applies to combustible mechanical equipment screens used on buildings of Type I, II, III, and IV buildings.

- **Section 2603.5.5:** Applies to exterior walls of buildings of Type I, II, III, and IV construction of any height incorporating foam plastic insulation, except for one-story sprinklered buildings.

- **Section 2612.5:** Applies to fiberglass-reinforced polymer (FRP) exterior wall coverings.

The code requirements apply primarily to the use of these materials on buildings over 40 feet in height.

It is important to note that NFPA 285 tests an assembly and not a material component test. With the introduction of new exterior wall coverings, rain screen principles, and the requirements for improved thermal performance, the building exterior envelope suddenly became a very complex assembly with a multitude of possible combinations, thus making it cost-prohibitive for a manufacturer to test every probable wall assembly. If an assembly can be found that has passed the NFPA 285 test, then the assembly must be designed and built exactly as it was tested - any change in the assembly, regardless of how minor, will require a new test.

As for specifications, we now include requirements for non-combustibility for insulations, weather barriers, and exterior wall claddings like MCM, phenolic panels, and FRP based panels

.

UNIT MASONRY MORTAR: PROPORTION METHOD OR PROPERTY METHOD?

by Steve Brown

The accepted method for specifying unit masonry mortar utilizes ASTM C270 "Standard Specification for Mortar for Unit Masonry," to identify both the "mortar type" ("M", "N", "S" or "O"), and the "mortar mix design", property method or proportion method to achieve the mortar strength required for the specified mortar type. ASTM C780 "Preconstruction and Construction Evaluation of Mortars for Plain and Reinforced Unit Masonry" provides methods for sampling and testing mortar produced in the laboratory and in the field to evaluate both the mortar's composition and properties.

ASTM C270 and Industry guidelines (BIA Tech Notes) empirically dictate what "mortar type" is required for various construction conditions. For example, if reinforced masonry is used then Type S mortar is typically recommended. To achieve this the specification states use of either the property or proportion method for the mortar mix design. The property specification is a "performance specification", which allows the Contractor to choose the ingredients and proportions as long as the tested mortar has the required compressive strength. The proportion specification is based on mix proportions for the various mortar types that have been historically used and have been shown to

provide adequate strength for various types of construction. It would appear that the property specification would be preferable for the construction documents since it states clearly what is required in terms of the mortar's strength however, use of the property specification has led to problems in the field when field quality assurance test results are submitted that do not meet required compressive strengths. Traditionally this has always been "rationalized" by the argument that the required compressive strength (property method) is for mortar mixed to a standard consistency in a laboratory while field-mixed mortar will generally have a lower compressive strength, because additional water must be used to obtain a workable consistency. This leaves the reviewer with making a decision to reject or accept based on professional and empirical judgment…not acceptable.

Recently in reviewing this issue for a project and I noticed Note 1 in the "Scope" paragraph of ASTM C780 regarding Guide C1586, (ASTM C1586 "Standard Guide for Quality Assurance of Mortars"), and how it provides "guidance" for evaluating mortar and "clarifying" the tests done in ASTM C780 and the "use" of ASTM C270. This is significant considering C1586/6.3 states "properties of mortars measured by Test Method C 780 are not required nor expected to meet the Property Requirements of Table 2 in Specification C 270". Further, ASTM C1586 defers to the "Proportion Method" for specifying mortar……per C1586/4.1, "If neither the Proportion nor Property specification is specified, then specification C 270 the proportion specification (method) is to be used". This is acceptable since the requirements of the proportion specification are conservative enough that mortar made to its requirements should have at least the compressive strength of that produced by the property specification. Further, per C1586/4.2, "…..the proportion specification doesn't require sampling and testing of mortar, and hence, no measurement of mortar properties in the laboratory or the field is required." All that is necessary is field confirmation of the proper proportions of the mixes used in construction and preconstruction verification of the mix design through test result submittals.

INSPEC
3701 Plano Parkway #310
Plano Texas 75075
United States