



THE COMMERCIAL FLOORING REPORT

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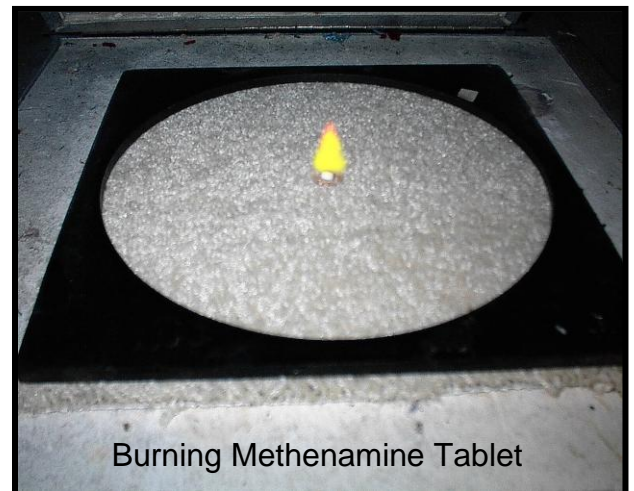
Flammability and Floor Covering

In light of past fire related tragedies nationwide, we believe flammability characteristics are extremely important and pertinent issues of discussion for floor covering materials. The lab we work with has seen or overseen about 100,000 flammability tests conducted over the last 22 years and makes us recognize and realize more every day, the importance of burn rates, smoke generation, and flame propagation of floor covering products. Flammability research identified two possible ways in which carpet might become involved in a fire situation. The first situation is where carpet is the first item ignited, and the possibility of propagating flame from a small igniting source; for example, where the flame from a dropped match would spread across the floor to ignite furniture, draperies, wall coverings, etc. As a result two tests are most important to carpet flammability testing, the pill test and the critical radiant flux test.

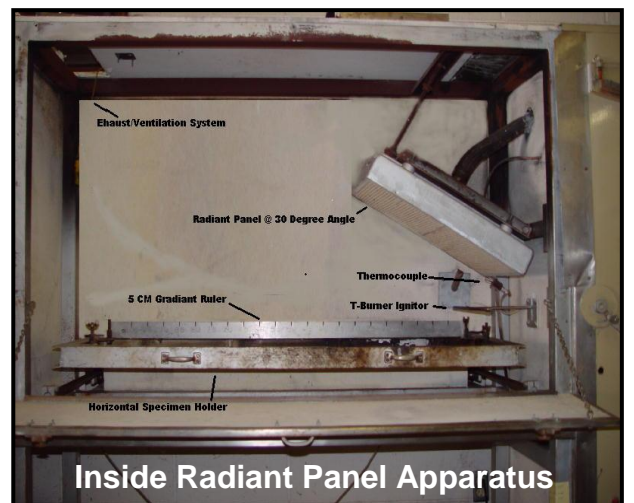
Every carpet and rug, over 24 square feet, must pass the “pill” test as required by the Consumer Products Safety Commission Standard 16 CFR 1630 FF 1-70 in order to be sold in the U.S. A small Methenamine tablet is placed in the center of a 9 “x 9” sample and ignited. After the material has self-extinguished, char length is measured to determine passability. 7 of 8 tested specimens must pass. Smaller carpets or rugs (less than 24 square feet) must be labeled if material fails this test according to the Code of Federal Regulations.

The second flammability situation associated with carpet is the behavior of the material in the presence of a fully developed fire radiating heat down onto the carpet in conjunction with an advancing flame front. The test that is most recognized and required by local governing agencies and that is truly appropriate is the ASTM E 648 Critical Radiant Flux test (Radiant Panel). While there are a few straggling requirements that list the ASTM E 84 Tunnel Test as the flammability method for floor coverings, it is our opinion and the published opinion of the National Fire Protection Agency (NFPA), International Building Code (IBC) and most large city local codes, that the tunnel test is for materials applied to walls and ceilings and should not be used to regulate flooring materials.

It has been determined that the propagation or continuance of flame spread is directly associated with the radiant heat readily available to the burning material. The Radiant Panel was created to simulate, in small scale, a corridor fire and the energy required to continue the flame on a flooring material. The angled heat source provides a CRF of up to 1.20 watts/cm² at the ignition source to less than 0.10 watts/cm² at the specimen end. The farther the burn length, the less radiant energy required to continue the flame spread.



Burning Methenamine Tablet



Inside Radiant Panel Apparatus

Normally three specimens measuring 42" x 10" are mounted on mineral fiber cement boards using the manufacturer's recommended adhesive and installation instructions. Samples can be tested with underlayment, if required. Samples should be tested as they are to be employed and exist at the installation site.

The NFPA Life Safety Code shows a table of requirements for material usage as a floor covering but most fire codes and local regulators require a **Class I** (CRF of 0.45 watts/cm² or higher) for non-sprinklered public building corridors such as access to exits (corridors) of health care facilities (hospitals, nursing homes, etc.), and new construction detention and correctional facilities and a **Class II** (CRF of 0.22 to 0.44 watts/cm²) for sprinklered buildings such as access to exits (corridors) of day care centers, existing detention and correctional facilities, hotels, dormitories, and apartment buildings. Materials receiving a CRF of less than 0.22 watts/cm² are considered failing or non-classifiable. It must be emphasized that the flooring radiant panel is applicable only to carpet installed in corridors and has no application to room installations. Carpet installed in rooms and all locations other than corridors should be regulated by FF1-70. All of these flammability tests are conducted daily on flooring products to help insure that these building materials do not play a major role in the continuance, propellant, or propagation of a fire or even as the ignition source.

Today, the flooring radiant panel concept has been adopted in the Basic Building Code of Building Officials and Code Administrators International, Inc. (BOCA), the Standard Building Code of Southern Building Code Congress International, Inc. (SBCC), the Life Safety Code of the National Fire Protection Association (NFPA), and the Uniform Fire Code of the International Conference of Building Officials (ICBO). The test method has also been accepted by the American Association of Testing and Materials (ASTM) and the National Fire Protection Association (NFPA) and is identified as ASTM E-648 and NFPA-253 respectively. Moreover, the test method has been adopted by virtually all federal agencies.

In conjunction with the radiant panel the ASTM E 662 Optical Smoke density is usually a required procedure. This test is very integral in determining the amount of smoke generated from a burning or smoldering material. If a product generates too much or even too toxic smoke (Bombardier SMP 700 test protocol), it can impede egress from a building or hamper authorities from performing duties during an emergency situation. The requirement for the Smoke Density Test is 450 DMC or less for acceptability in commercial use.



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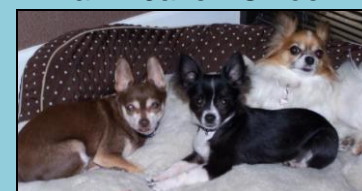
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As for carpeting being used as wall covering or wanes coating, the ASTM E 84 Tunnel Test is the appropriate test procedure. While there are many positive benefits to using carpet on the walls, it should be noted that over 99% of carpet styles sold in the U.S. would not produce acceptable flammability results (Class A or B) when tested under the ASTM E 84.



Wall Carpet in Classroom

Carpet is manufactured for use as a floor covering, and installation on other surfaces, such walls, is not recommended. Carpet manufacturers will not assume any liability, real or implied, when carpet is applied on surfaces other than floors. There are still a few carpet manufacturers that offer materials specifically created for wall usage but it is definitely a niche market. An important point to understand is that by the time the carpet is involved in a fire the rest of the space is pretty much fully engulfed.



Let's look at an example of how you could be misled by someone who thinks they know what they're talking about relative to fire and smoke but doesn't.

Recently we got a call requesting the California fire rating for carpet. The caller was bidding on the installation of broadloom into a local school and he

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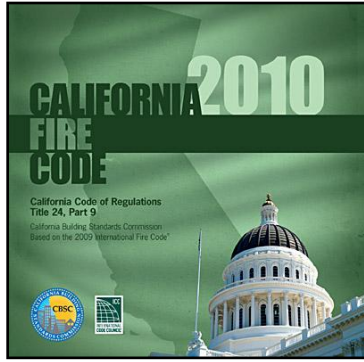
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was being required to meet California's standards even though the school is not located in that state. California does not have a state-wide fire code except for restrained areas such as state prisons and county and city jails. At this point, we determined that someone involved with the bid process and the selection of the carpet failed to get his facts straight and that requiring a fire code used in California was ill conceived.



The person probably thought that since California has such stringent regulations for so many things, if they said meet the state code, they would be subjecting the process to the most rigid of standards. The standard fire ratings a broadloom must meet are normal, and mentioned earlier, whether the state be California, New York or Idaho makes no difference. There is not a higher standard for any one state and no carpet or flooring material is made specifically for a particular state because it has to meet a more stringent fire code.

Floor covering manufacturers routinely have to have products they are selling into commercial environments tested and they know which products will meet the code and perform correctly. The manufacturer's rep could easily find this information out for him. All he'd have to do is ask.

It's obvious the person who was handling the bidding on the project doesn't have a clue about carpet and they sent this poor guy scrambling for what he thought was some special product, exclusive to the state of California.

Facilities in one state are no different, or more important, than anywhere else and the people who occupy them are no less important than occupants in other parts of the country. The flooring industry is very responsible when it comes to the safety of its products.

Whenever someone tells you that you have to provide a flooring product mandated by a particular state for a particular level of performance, whatever

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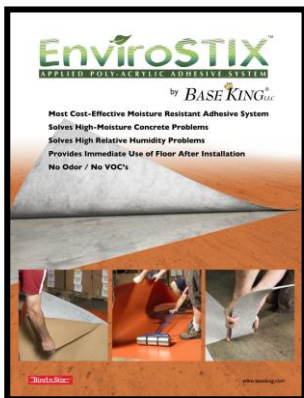
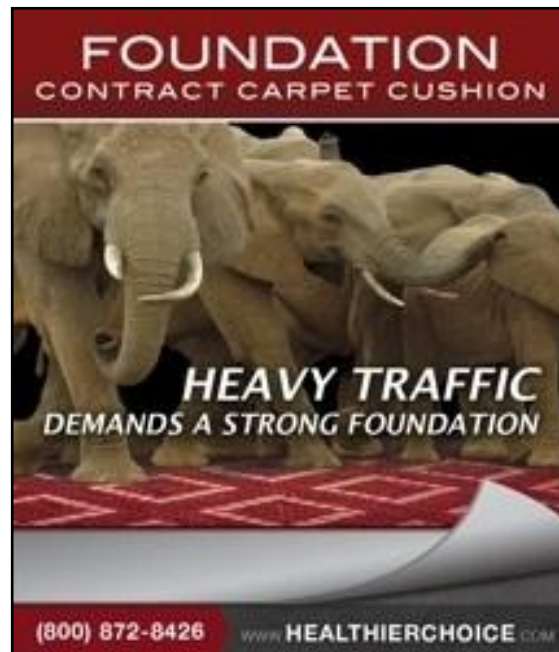
U.S. Patent 7,231,815. Additional patents pending

performance, whatever it may be, a red flag should go up. Either they don't know what they're talking about or you should run like the wind because they think they do.

That said there are municipalities who have more stringent codes, or criteria, for floor covering materials such as Boston or New York City. You should also be careful, when looking at manufacturers' specs, that they haven't "modified" the interpretation of the fire and smoke tests to make it look like they can comply. Remember, words never change the laws of science or physics.

Always make certain products being utilized have been tested by certified laboratories and include proper documentation before they are installed. Post installation testing sometimes ends up on the failing side of the tolerance and will, in finality, cost much more to remove and replace than having avoided the upfront research.

If you need help with fire and smoke matters, require testing or consulting or have other floor covering or substrate questions, concerns or issues, LGM and Associates can help. We'll give you the straight answers because we know what they are.



Systems like EnviroSTIX for hard surface and hard backed flooring materials and Bentley Prince Street Contact Release for carpet are systems that will help prevent the failure of flooring installations. There is more technology coming, most of which we are involved with. We'll keep you informed to help you. In the meantime understand that moisture, temperature and humidity have a profound effect on flooring materials and the integrity of their installation.



The new **Velcro Brand Carpet Protector** is ready to go. This product takes the place of clear plastic coverings with pressure sensitive adhesive that have created a host of problems for the industry. The new **Velcro Brand Carpet Protector** is made for use on loop and cut and loop carpet; the vast majority of commercial carpet. Bentley Prince Street is the first carpet manufacturer to offer this unique product. Contact Velcro for more information and samples.



Concrete Moisture Testing Technician Certification – Grade I

The International Concrete Repair Institute (ICRI) is pleased to introduce their Concrete Moisture Testing Technician Certification Program. The purpose of this program is to help improve the performance of concrete slab moisture testing in the U.S. to result in more consistent, accurate results that will help flooring manufacturers, architects, and contractors to make better decisions as to when a concrete floor is ready for a floor covering installation.

The certification program has 2 tiers. Tier 1 applicants are those who are not regularly engaged in moisture testing yet have an active interest in learning more about the tests, what the tests mean and how the tests should be performed. Tier 2 applicants are those who have applied for full certification. Both tiers require attendance at a 3 hour educational session followed by a written exam. Tier 2 full certification applicants will also be required to perform each of the 4 tests under the watchful eye of a qualified judge who will not provide any level of coaching. Prequalification for acceptance into full certification Tier 2 will be previous testing experience.

Tier 1 consists of a 3 hour educational session, a written exam and a training session. Those who complete the course and pass the exam will be issued an ICRI Letter of Education. Tier 2 consists of the same 3 hour educational session, the written exam and a field performance exam. By passing both the written and performance exams, an ICRI Concrete Moisture Testing Technician - Grade I certification will be issued to those who successfully demonstrate their knowledge and ability to properly perform and record the results of each of the four field moisture tests on hardened concrete. Those who pass both the written and performance exams will receive a certificate and wallet registration card.

Both the written exam and the field tests will be based on the following four (4) ASTM Standards, including all Annexes and Appendices:

F 710	Preparing Concrete Floors to Receive Resilient Flooring; Section 5.3 pH Testing
F 1869	Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride
F2170	Determining Relative Humidity in Concrete Floor Slabs Using <i>in situ</i> Probes
F2420	Determining Relative Humidity on the Surface of Concrete Floor Slabs Using Relative Humidity Probe Measurement and Insulated Hood

ICRI Certification for Slab Moisture Testing Technician– Grade I shall be valid for a period of five [5] years from the date of completion of all applicable certification requirements.

The two day certification program begins on the first day with registration from 8 - 9 am, followed by the 3 hour educational session. There will be a provided lunch and study break from 12 – 1 pm followed by the written exam from 1-2 pm. Following the written exam Tier 1 students will attend a training session where they may receive or observe hands on training on how to properly perform each of the four tests.

For those registered for the Tier 2 Certification, day two begins at 8 am, and each applicant will be required to perform all 4 ASTM tests listed above.

Houston —
Tuesday/Wednesday,
March 15/16
(with ICRI Convention)

Tampa —
Wednesday/Thursday,
April 6/7
(with ACI Convention)

St. Louis —
Tuesday/Wednesday,
May 17/18

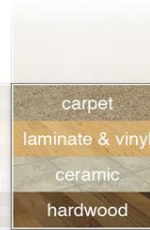
Cleveland —
Tuesday/Wednesday,
June 7/8

Denver —
Tuesday/Wednesday,
September 20/21

Baltimore/Washington
Tuesday/Wednesday,
October 25/26

Seattle —
Tuesday/Wednesday,
November 8/9

For more information on attending these ICRI events, call Caren Giles, ICRI Member Services, at 248-848-3809



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