

backdraft

The newsletter of Fire Protection Engineering / Code Consulting

Summer 2002



Fire Protection Engineering

viewpoint

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Introducing ESH Consultants

WELCOME TO THE FIRST ISSUE OF BACKDRAFT,

a web based newsletter on fire protection engineering from ESH Consultants. The goal of this publication is to educate, inform and help our readers navigate the complex issues of fire protection as well as providing a forum for ESH Consultants to express ideas and issues of interest. *Backdraft*, is designed to touch on many aspects of fire protection engineering and includes several sections including:

- *Viewpoint*
- *Code Discussions*
- *Applications*
- *Guest article or editorial*
- *From the Inbox*
- *Around the Industry*

Backdraft will help our readers determine when the services of a fire protection engineering consultant are needed, and be better prepared to make business decisions on how to mitigate fire losses, reduce risks and to prepare for business recovery should a loss occur.

LOSSES CAUSED BY MAJOR FIRES:

Most businesses do not recover from a major fire without substantial financial losses or reduction in their customer base due to operational interruptions. Smaller businesses or product lines will likely go out of business with-

in a year of the loss because their customers have changed suppliers. This is why having a thorough fire protection plan is critical.

EXPENSIVE CONSTRUCTION DELAYS:

With new construction projects or renovations, delays caused by permit rejections or hard-to-implement designs can result in direct financial costs as well as lost opportunity costs. ESH Consultants can help our clients move through the permit process faster because of our ability to manage unique fire protection codes and specifications up front.

REALITY BASED ENGINEERING:

ESH Consultants with both engineering and business education and experience, provides what we call "reality based engineering" for our client projects. In other words, ESH Consultants brings smart, practical and applicable solutions that save time, unnecessary costs or reduce future maintenance costs.

ESH CONSULTANTS

ESH, not to be confused with the acronym for Environmental Safety and Health, is the phonetic spelling for the biblical word for FIRE. ESH Consultants means Fire Consultants - we provide solutions to mitigate fire losses, prevent fire occurrences, and assist in the development of Business Continuity Plans.

fire protection

> viewpoint

ESH Consultants, formed in 2000 by Elliot Gittleman, FPE, MBA, CBCP, is a specialized practice based in San Francisco. With more than 25 years of experience as a Fire Protection Engineer, Elliot has worked for facilities engineering departments, consultants, and Corporate Environmental Health and Safety organizations.

Prior to starting ESH Consultants, Elliot worked for some of the top US corporations including The Boeing Company, Boeing Computer Services, and Raychem Corporation. He has been employed by government agencies such as, Naval Facilities Engineering Command and the University of Washington.

ESH Consultants has developed a track record and reputation of providing reality based solutions for clients with projects in Arizona, California, Colorado, Maryland, Oregon, Washington and Canada. Elliot is a professional engineer with a BS in Fire Protection Engineering from the University of Maryland and an MBA from Seattle University.

OUR CLIENTS ARE VARIED:

- Facilities Project Managers
- Building/business Owners
- General Contractors
- Architects
- Mechanical Engineers
- Electrical Engineers
- Fire Marshals
- Building Code Officials
- Fire Protection Equipment Vendors
- Insurance Company Engineers
- Corporate Risk Managers

fire protection

> code discussions

Cutting Through Code Confusion

The proper use and application of fire and building codes is not as simple as it appears. It is not a matter of applying the codes that are enforced where your company's headquarters is located, or simply following the recommendations of your property insurer.

CODE VARIATIONS:

In the United States there are a number of organizations that publish model fire and building codes. In the past these codes have been adopted by states on a regional basis.

EXAMPLES OF CODES AND INDUSTRY STANDARDS

- BOCA being used in the Eastern United States
- SSBCI being used in the Southeastern United States
- ICBO being used in most states west of the Mississippi
- In 2000 an international code was developed jointly by BOCA, SSBCI, and ICBO to replace the current regional codes
- The National Fire Protection Association (NFPA) is developing a competitive building code known as NFPA 5000
- Not every state has chosen which model standard they will adopt
- The industry practices and standards, published by Factory Mutual Global (FM), "[Loss Prevention Data Sheets](#)" and NFPA, "[National Fire Code](#)"

rejects your construction permit application. What would cause this rejection? Your insurer's recommendations may not meet the requirements identified in the locally approved building and fire code. To prevent this situation, input from the AHJ as well as a search of local codes and regulations should be conducted prior to establishing the project scope, and the preparation of the permit drawings and specifications. This is an area where ESH Consultants can help.

FOCUS ON CALIFORNIA:

To give you an idea of the complexity, let's look at California as an example. The California Building Standards Commission modified and adopted the 1997 editions of the Uniform Building (UBC) and Uniform Fire (UFC) codes. These modified editions are known as the 1998 edition of the California Building and Fire Codes

(CBC, CFC). These codes, by reference list standards by other organizations that are considered part of the regulations. FM and NFPA standards are amongst those that are referenced (not the entire FM or NFPA standard series but specific sections). The referenceman also indicate the specific editions such as NFPA

“Finding an acceptable solution to meet everyone's requirements is not as simple as following the regional code or your insurer's requirements.”

COMPLEXITY AND CONFUSION:

As an example of the complexity, let's assume your company has received a loss control recommendation for a new project or an existing operation from your insurer. Failure to comply with the recommendation may result in increased premiums, special reinsurance costs, partial or total cancellation of your fire and property insurance. Should you decided to implement the recommendations of the insurer, you may get an expensive surprise when the local Authority Having Jurisdiction (AHJ)

13-1996 versus NFPA 13-1999 which is the latest edition published by NFPA.

So now your designers use the latest edition from NFPA and once again your permit application is rejected. Why? Because the edition used has different criteria than the edition recognized in the local regulations. Once again, back to the drawing boards to start over, the project is delayed, operations are delayed, and the bottom line suffers.

Finding an acceptable solution to meet everyone's requirements is not as simple as following the regional code or your insurer's require-



ments. Your business needs to know exactly what codes are enforced at the project site, or understand how to approach all the parties with alternatives that will meet with the approval of the AHJ while providing a level of protection that is acceptable to your insurer and your budget. ESH Consultants lives with these variations and exceptions on a daily basis and can

help you avoid delays and costs associated with them.

In the next section, *Applications*, such a situation occurred. ESH Consultants worked with two AHJs to solve the problem thus providing a level of protection that met both the AHJs' and insurer's needs.

real world fire protection

> applications

Idle Pallet Storage Guidelines

This issue of *Applications* will discuss storage of idle pallets and alternative solutions:

- 1) A solution that is not hardware oriented, an alternative based upon business decisions involving real world business solutions, and
- 2) A solution developed while working with the

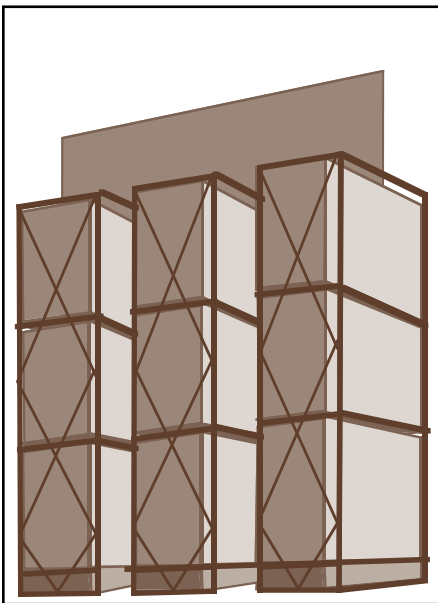
AHJ to accept a standard that is in conflict with a published approved regulation.

ESH Consultants was asked by a client to review their insurer's requirements for the protection of plastic pallets and trays, and to project manage the corrective action. The insurer's recommendation was to provide ESFR sprinkler protection for two different locations, one in the Northwest, and the

storage at the existing heights by providing the ESFR sprinkler solution.

The AHJ at both jurisdictions was contacted to determine which version of the code was used at their location. The Northwest jurisdiction uses the Uniform Building and Fire Codes (1997 editions), while the California jurisdiction uses the CBC/CFC (1998 adaptation of the UBC/UFC). The Northwest jurisdiction uses NFPA 13-1991 as the acceptable sprinkler standard. The California edition uses NFPA 13-1991 edition except for occupancies under the jurisdiction of the State Fire Marshal. In that instance the 1996 edition of NFPA 13 is applied. The 1990 edition of NFPA 231 is referenced in NFPA 13-1991 (as identified by one of the AHJ's as the author does not have access to NFPA 13-1991). NFPA 231-1995 is referenced by NFPA 13-1996. A review of NFPA 231-1995 does not indicate any changes to the idle plastic pallet requirements that were contained in the 1990 edition. In this situation, the insurer recommendation was less stringent than the NFPA 231 requirement.

According to NFPA 231, idle plastic pallets that are not stored in a cutoff room, may only be stored to a maximum height of 4 feet. The client needed 7 feet at the California location, and 17



High rack storage of various commodities

other in California. According to the insurer's inspection report, the client would meet the insurer's recommendation and could continue

feet at the Northwest location.

Strictly applying the code would indicate that a cutoff, 3 hour rated fire separation as well as increase automatic sprinkler protection would be required. ESH Consultants took another approach: Asking the Northwest AHJ to accept NFPA 13-1999 instead of NFPA 13-1991. The AHJ would not accept this alternative. The client was asked to verify if 17 feet of storage was needed for business operations. It turned out that the vendor was making one delivery per month for their convenience. The local manager contacted the vendor and had the deliveries scheduled on a weekly basis. This reduced the storage height to less than or equal to 4 feet, thus meeting the requirements of NFPA 231. The only other change needed involved the temperature ratings of the existing sprinklers. The reduction in height eliminated the insurer's concerns.

At the California location, the 7-foot storage height was required for daily operations. ESH Consultants contacted the AHJ to discuss the differences in protection requirements as indicated in NFPA 13-1999 versus NFPA 231-1990. The manufacturer of the ESFR sprinklers was contacted to determine if their sprinkler had been specifically tested for this application. The manufacturer provided test data from Factory Mutual indicating that their ESFR sprinkler was acceptable for 8-foot high storage of plastic pallets. The AHJ understood that there were many changes in the industry (equipment) since 1990. A request for a variance was prepared for the client, and was submitted to the AHJ for approval. The use of the requirements from NFPA 13-1999 were accepted for the project. Note *NFPA 231 was phased out with the publication of NFPA 13-1999. The information was incorporated into NFPA 13-1999.*

To illustrate Reality Based Engineering, here are examples of solutions that are considered by ESH Consultants

- 1 Do exactly as required by the code or insurer
- 2 Reduce the amount of materials to eliminate the need for additional protection
- 3 Identify the hazardous within the process and change the process to reduce or remove the hazard
- 4 Provide an alternative method of protection
- 5 Move the operation to a location that meets code requirements
- 6 Contract the process/operation to a contractor that has the proper facilities
- 7 Eliminate the process or product if it is not profitable

news from around

> the industry

California is trying to eliminate "Title" engineering registrations while maintaining "Practice" engineering registrations. Yes, you read that correctly.

The State of California is trying to eliminate all engineering registrations that are classified as Professional Engineers by title versus practice.

For those of you who are not residents of California, there is unique system applied to Professional Engineer registration. There are two classifications of Professional Engineers: Practice and Title. Practice engineers are those that can actually practice engineering for

Civil/Structural, Electrical, and Mechanical. All other disciplines are Title Engineers. The interesting part of this discrimination is that all applicants for Professional Engineering examinations must meet the same educational and experience requirements to qualify to take the exam in their specialty. The only exception might be Structural Engineers that may require additional years of experience and education in seismic issues.

A few years ago, after a "discussion" with the state board, permission was granted to allow Fire Protection Engineers to "practice" engineering on a limited basis as

long as it did not cross disciplines (such as electrical and mechanical). Fire Protection Engineers now have the option to stamp and sign their documents.

In 2002, California will make a final determination on the issue. So far it appears that only the Chemical Engineers and the Fire Protection Engineers

California legislation under consideration includes the reclassification of Fire Protection Engineers. In essence, the fire protection engineering field will no longer exist.

the general public (this does not apply to engineers covered under the state's industrial exemption which allows the title of engineer to be used only within a company). Title engineers are engineers by title only; they are not allowed to prepare engineering documents for clients, or produce engineering drawings, calculations, or similar services. The interesting point is that a contractor that is not an engineer can prepare construction drawings, however a Title Engineer cannot.

In California, the Practice Engineers are

undertaking an expensive and elaborate fight to convince a state appointed consultant to make a recommendation to maintain their respective engineering discipline.

For the Fire Protection Engineers, the battle is being led by Tim Callahan, FPE (Fire Protection Consultants, Inc.), with the assistance of members of the local chapter of the Society of Fire Protection Engineers. Examples of type of projects where Fire Protection Engineers were either in charge of the project or part of the engineering team have been



submitted to the State's consultant. The curriculums of Fire Protection Engineering programs versus that of other engineering disciplines, and the requirements for engineers to qualify for permission to take the national engineering boards for their specific field of specialty were also submitted.

The information was reviewed by the State's consultant at a public hearing on March 22, 2001 (To view the public hearing announcement and an example of the information requested by the study consultant, check the follow Internet URL: http://www.dca.ca.gov/whats_new/pels-forum.pdf). According to Tim Callahan, the consultant committee was favorably impressed by the educational and experience requirements.

