STRUCTURAL BUILDING COMPONENTS MAGAZINE
September/October 2003

The "Other" Building Code: NFPA 5000 by Kelly Gutting, TPI TPI Technical Director

Could NFPA 5000 be coming soon to a jurisdiction near you?

Just when you thought you'd figured out what you need to know about the International Building Code (IBC) and how it differs from its predecessors (SBC, UBC and BOCA), there's suddenly a new code making its way into the news, which means your learning curve could start all over again. This newcomer to the scene is NFPA 5000.

According to recent news stories, the city of Phoenix has announced (effective May 2003) it is in the final stages of adopting NFPA 5000, making it the "first major community to adopt the alternative national building code." Despite this claim, NFPA 5000 was already officially adopted as of March 2003 in Pasadena, TX, apparently "less major" than Phoenix with a population of 135,000.

WHAT IS NFPA 5000?

Simply put, NFPA (National Fire Protection Association) 5000, Building Construction & Safety Code is a competitor of the IBC. It is competing against the IBC to get adopted by any one jurisdiction as the enforceable building code for that jurisdiction; be it a city, county or state.

NFPA 5000 is the end result of a decision NFPA made in 2000 to undertake the development of a model building code. And specifically, to develop it using their consensus-based procedures accredited by the American National Standards Institute (ANSI). Two years later, NFPA 5000 was approved by NFPA, and now it is the alternative model building code.

Additionally, NFPA 5000 is part of the "Comprehensive Consensus Codes" (C3) set, which involves a partnership with the International Association of Plumbing and Mechanical Officials (IAPMO), the American Society of Heating, Refrigerating, and Air Conditioning Engineers (ASHRAE), and the Western Fire Chiefs Association (WFCA). The C3 set is intended to completely cover the built environment (every

A FEW FACTS ABOUT NFPA:

- NFPA was organized in 1896.
- NFPA's mission (condensed) is to reduce the worldwide burden of fire and other hazards on the quality of life via safety codes and standards.
- NFPA maintains nearly 300 different consensus codes and standards (NFPA's very first document was the currently-titled NFPA 13 "Standard for the Installation of Sprinklers").
- NFPA 5000 marks the first model building code developed by NFPA.

A FEW COMMENTS ON NFPA 5000

- "They (NFPA) have promoted property protection over first-time cost and housing affordability." —National Association of Home Builders (NAHB)
- "NFPA 5000 takes much more of a 'loss-mitigation' (reduced insurance payouts) approach than the other model building codes, which clearly take a life-safety approach in their code requirements." —National Roofing Contractors Association (NRCA)
- "(NFPA 5000) has serious technical flaws which are of particular concern if it should be adopted and applied. The provisions of Chapters 1 and 4 of NFPA 5000 make it difficult, if not impossible, to imagine how the code can be effectively used by an

building, process, service, design and installation). NFPA 5000 is based on the EPCOT (Walt Disney World) Building Code, which was made available to NFPA by the Reedy Creek Improvement District. NFPA 5000 is also modeled on the existing NFPA 101, Life Safety Code.

THE BIG QUESTION: WHY?

Why did NFPA develop another model building code in spite of the International Building Code? Recall that the whole idea behind the IBC was to move away from three separate model building codes to a single set of codes in U.S. Well, the introduction to the NFPA 5000 code calls itself the "first" model building code developed through "full and open consensus-based procedures accredited by the American National Standards Institute." In short, NFPA opted to develop a model building code using the same ANSI-based procedures that are used to develop many of the referenced standards within model building codes, simply because the IBC was not developed using ANSI procedures.

That doesn't seem to explain very well why there is a competing code to the IBC.

What it boils down to is a philosophical difference regarding how codes should be developed, not the technical merits of the codes themselves. NFPA 5000 uses industry consensus procedures and ANSI letters, while IBC uses governmental consensus procedures. Both are consensus and, contrary to some misunderstandings, ANSI is not the only acceptable consensus process.

architect in order to meet the requirements for life safety as administered by a building code. These shortcomings in the code create significant problems for owners, architects, and the entire construction industry...." And, regarding NFPA's refusal to cooperate with ICC and move towards the goal of one code, "AIA continues to believe that such a position (by NFPA) is solely based on economic self interest." —American Institute of Architect's (AIA) C3 Report

- "The first edition of the NFPA code was completed in a harried basis, with one code development cycle in an 18-month period. The accessibility provisions need to be revised to current standards and inadvertent technical changes were made during the code compilation. The code needs to be coordinated with other NFPA standards and standards published by partner organizations. More important are the myriad of changes that still need to be made to make the code workable, enforceable and acceptable to the apartment industry." — National Multi Housing Council (NMHC)/ National Apartment Association (NAA) Position

Unfortunately, many people don't see process and procedure as enough justification to develop a competing building code, which has led some to make their own conclusions as to the "why" behind NFPA 5000. For example, in a report to the National Council of Structural Engineers Association (NCSEA), the opinion was given that, "The desire of NFPA to develop a competing code is not over a disagreement with technical issues of IBC, it is over organization, power, and money by NFPA."

In fact, very little has been written on the technical differences between the two codes (see below for the NFPA 5000 structural provisions). Differences that have been cited have more to do with the style and layout of each code, or their general approach to defining a set of minimum requirements for safety. NFPA 5000 has been described as an occupancy-oriented code while the IBC tends more toward a systems/fire code orientation. What remains to be seen now is how state and local jurisdictions will choose between NFPA 5000 and the IBC. Among other things, jurisdictions must consider the ease of transition to the new code from their existing code, which makes even style, layout and general approach to model code development

important.

AN OVERVIEW OF NFPA 5000 & ITS IMPACT ON MPCWT

With the recent news of NFPA 5000 making its way onto the jurisdictional adoption radar screen, it is appropriate to look at how, if adopted, NFPA 5000 would impact wood truss design and construction as compared to the IBC. Below is an overview of the significant portions of NFPA 5000.

Structural Design (Chapter 35)

- NFPA 5000 references ASCE 7-2002 for all design loads (dead, live, wind, snow, seismic, etc.) and load combinations. Most of this information is not duplicated within the body of the NFPA 5000 code (i.e., there are no "simplified" loading procedures in NFPA 5000).
- NFPA-5000 (2003) and IBC 2003 are virtually the same with regards to loading & structural provisions affecting MPCWT (particularly as IBC is moving likewise toward more references to ASCE 7 and fewer deviations from it).

Wood (Chapter 45)

- Trusses (Section 45.5.16) shall be manufactured in accordance with ANSI/TPI 1 (Note: In Chapter 2 "Referenced Publications," reference is made to ANSI/TPI 1-1995 instead of 2002)
- Third party inspections are required ("inspections shall cover all phases of truss operations, including lumber storage, handling, cutting fixtures, presses or rollers, manufacturing, bundling, and handling")

Quality Assurance During Construction (Chapter 40)

- Wood Construction—Table 40.3.11: "Wood Trusses: Inspect size and location of nail plates, split rings, bolts, or other connection devices for conformance to responsible RDP-approved submittals and the construction documents. Verify that nails, bolts, hold-down anchors or clips, or other devices are tight and otherwise properly installed. Verify that permanent web bracing, including X-bracing, has been installed." (RDP = registered design professional)
- Detached one- and two-family dwellings and buildings in Occupancy Category I are exempt from this portion of the code.

One- & Two- Family Dwellings (Chapter 22)

- NFPA 5000 does not appear to have residential (prescriptive) design provisions; only "life safety" requirements (things such as alarms and means of escape, etc.) are given in Chapter 22.
- However, per Section 35.1.2.3, one- and two- family dwellings are permitted to be designed and constructed in accordance with the referenced material standards. [International Residential Code (IRC) and the Wood Frame Construction Manual (WFCM) are both referenced here.]

ARE THERE ANY CONCERNS?

Although the preceding section did not report much difference between NFPA 5000 and IBC from a structural standpoint (and since NFPA 5000 points to the IRC and other codes for residential needs), it should be noted that there are organizations that have voiced serious concerns about and opposition to NFPA 5000. Among them are: the National Association of Home Builders (NAHB), Building Owners Managers Association (BOMA), National Roofing Contractor's Association (NRCA), American Institute of Architects (AIA), National Multi Housing Council (NMHC) and National Apartment Association (NAA).

Some of the general concerns voiced by these organizations have to do with the process used to develop NFPA 5000 (under-representation, inability to have input, too much influence by special groups). Other concerns relate to NFPA's interference with the International Code Council's (ICC) efforts to have a single set of comprehensive and coordinated model codes and overall goal to resolve the complexity and multiplicity of codes used in the U.S. See sidebar for examples of specific concerns of these organizations.

> [The ICC was founded in 1994 as a nonprofit organization dedicated to developing a single set of comprehensive and coordinated national model construction codes. The founders of the ICC are Building Officials and Code Administrators International, Inc. (BOCA), International Conference of Building Officials (ICBO), and Southern Building Code Congress International, Inc. (SBCCI). Since the early part of the century, these nonprofit organizations have developed the three sets of model codes used throughout the United States.]

CONCLUSION

The industry will continue to watch the progress of NFPA 5000 adoptions by jurisdiction, as well as the impact of NFPA in those jurisdictions where it does get adopted and enforced.

Clearly, everyone would benefit from the adoption of a single family of model building codes in the U.S., including the metal plate connected wood truss industry. We will wait to see what action, if any, we should undertake as an industry to help this cause.

Kelly Gutting has been the Technical Director of the Truss Plate Institute since 1999. She is responsible for carrying out TPI's methods for developing consensus standards for the wood truss industry and assisting TPI's Technical Advisory Committee on technical issues. Gutting holds a B.S. degree in Civil Engineering from the University of Wisconsin–Madison.

SBC HOME PAGE

The mission of Structural Building Components Magazine (SBC) is to increase the knowledge of and to promote the common interests of those engaged in manufacturing and distributing of structural building components to ensure growth and continuity, and to be the information conduit by staying abreast of leading-edge issues. SBC will take a leadership role on behalf of the component industry in disseminating technical and marketplace information, and will maintain advisory committees consisting of the most knowledgeable professionals in the industry. The opinions expressed in SBC are those of the authors and those quoted solely, and are not necessarily the opinions of any of the affiliated associations (SBCC, WTCA, SCDA & STCA).