



BRINGING THE DEFINITION OF NON-COMBUSTIBLE SUPERIOR CONSTRUCTION INTO THE 21ST CENTURY

A discussion of the need for Property & Casualty Insurance Industry to review their definitions of superior construction dwellings and buildings in view of 21st century technology and innovations.

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I. Executive Summary

- The Property & Casualty Insurance Industry has the opportunity to help promote a relatively new technology for the prevention and/or control of fires through the use of IFRCs or Intumescent Fire Resistant Coatings, as produced by No-Burn Inc. This technology has the ability to save lives, and significantly reduce fire losses for insurers in those single and multi family structures, as well as, commercial dwellings and buildings where it is used.
- The Property & Casualty Insurance Industry has been slow to recognize improvements made in technology and materials which can make buildings, dwellings and contents less susceptible to fires, and further decrease the spread should a fire actually begin. As a consequence, insurance companies are frequently missing an opportunity to properly identify a superior risk with respect to the potential loss presented to the company from the peril of fire.
- IFRCs are a relatively new form of fire protection for buildings. Applied topically like paint, IFRCs react upon the application of very high heat or flames, resulting in a chemical reaction that results in a “thick, puffy, burnt marshmallow-type coating” defined as intumescence which helps prevent fire.
- There are several advantages to the IFRC products produced by No-Burn Inc. These include:
 - Numerous performance-based tests completed by IAS-accredited laboratories including as an example, the ASTM E-84 Extended 30 Minute Test that produced a flame spread rating of 5, well below the minimum requirement of a flame spread rating of 25 and a reduction in smoke by as much as 80%. See Appendix A for a summary of all tests performed and Appendix B for the complete ASTM E-84 Extended 30 Minute Test.
 - Does not lose effectiveness if exposed to moisture such as FRTs. (FRTs, or pressure treated wood, is one of the typical products recognized in many insurance companies’ definition of superior or non-combustible construction, unfortunately, this is relatively old technology.)
 - Lasts for the lifetime of the residential or commercial dwelling under normal circumstances and is maintenance free.
 - No-Burn[®] issues a Fire Resistance Class Rating Certification after installation to the builder/homeowner which makes verification simple and easy for insurance companies.
 - Applications can be verified through a national database, which can be accessible through established technology of at least one rate making organization.
 - Some IFRC formulations also provide protection against mold, along with fire protection, in one application.
- The definition used by many companies for superior and/or non-combustible construction could already be interpreted as including IFRCs. However, there needs to be better knowledge on the part of insurance company specialists on what IFRCs are, how they are superior to many of the products and/or technologies already included in definitions for superior and non-combustible construction. Further these experts need to determine whether their current definitions for superior and/or non combustible construction already include IFRCs, or if they need to make a definition change such that it would include IFRCs.
- For those companies that feel that their current definition for superior construction and/or non-combustible materials does not include IFRCs, it is time to make changes to recognize No-Burn[®] and other modern products and technology.
- Not only do insurance companies fail to recognize these better risks, their lack of action can be considered poor public policy in that their lack of action indirectly encourages the use of inferior technologies in the construction of dwellings and buildings. **Insurance companies have the opportunity to potentially save lives, in addition to several millions of dollars in loss payments by promoting IFRCs, which in many cases also provide an economic advantage for the insurance company over previously mentioned older techniques.**

II. Introduction

The Property & Casualty (P&C) Insurance Industry has a long and proud history of using their influence to make great public changes, particularly in the areas of safety. Several examples can be found in the area of car usage and safety, where the P&C Insurance Industry was very instrumental in mandating such devices as safety belts and airbags. In homeowners insurance similar examples can be found. The willingness of companies to offer protective device discounts (although not always actuarially warranted) for items such as smoke detectors or central reporting burglar and/or fire alarms has helped spread the use of these devices in dwellings and commercial buildings. There are also examples of other industries attempting to move safety forward, which in turn can have an effect on insurance rates. For instance, a sprinkler mandate for all new single family construction recently passed through the International Code Council (ICC) code-making process through the support of the sprinkler industry with additional support from the fire service.

Unfortunately, there are other examples where the P&C industry has not been as responsive to technology and has missed opportunities to promote additional public safety. One area in particular where the industry is remiss in the promotion of public safety through the use of intumescent products in the construction of buildings and dwellings. Such products can significantly reduce both the number of fires to properly treated buildings, as well as significantly reduce the actual loss should a fire occur. See Appendices O through R for examples of fires that were averted through the use of intumescent products.

From the P&C Insurance Industry perspective, the main culprit inhibiting greater use of intumescent technology is antiquated definitions used by many companies and rating organizations with respect to non-combustible or superior construction. Typically many companies have definitions for non-combustible or superior construction that specifically recognizes items such as metal, masonry or pressure treated wood, but do not specifically recognize intumescent treated structures. Probably the main reason for not including intumescent treated structures is that this technology was created and commercialized around 1998, subsequent to the creation of the non-combustible definitions used by most companies, and those definitions have not kept up with the times. Within the International Building Codes for example, there are definitions relating to equivalency or superior products that may not be in the insurance company definitions and are still acceptable alternatives to what is in the codes. See Appendix C, IBC 104.1.1, and then as an example see Appendix D, NFPA 286 Testing where No-Burn[®] Plus outperforms a product that is part of the code, in this case FRT. See Appendix E for average temperatures during the NFPA 286 equivalency testing run by No-Burn[®].

The purpose of this paper is to help convince actuaries, underwriters and other insurance company executives that their current definitions can often be interpreted to include intumescent technology, and in particular, the products manufactured by No-Burn Inc. Or if an insurance company feels that their current definition does not include such products, then to convince such companies to adopt more versatile definitions that could more easily keep up with improvements in technology, such as the No-Burn[®] products. The belief here is that No-Burn[®] does have a product/technology that surpasses the requirements of most companies definition of superior and/or non-combustible structures, and it is why the author has taken the position within this paper and provided it as a guide to the Industry.

III. Definitions

Throughout the use of this paper you will note several acronyms or abbreviations with which the typical reader may not be familiar. To assist these readers we have included several examples below.

ASTM – American Society for Testing and Materials. Now known as International ASTM, this group is one of the largest voluntary standards development organizations in the world. They are a trusted source for technical standards for materials, products, systems and services.

FRCR – Fire Resistance Class Rating. Such a rating applies to the structure that was treated, how it was treated, when and by whom and the associated fire resistance rating. No-Burn Inc. and its dealer network use this as a relative measurement of the effectiveness of a product.

FRTW or FRT – Fire Retardant-Treated Wood. Also referred to as pressure treated wood.

IAS – International Accreditation Services, Accredits testing and calibration laboratories, inspection agencies, building departments, fabricator inspection agencies and related entities. IAS is a nonprofit public benefit corporation that has been a recognized accreditation body since 1975. Today, IAS is one of the leading accreditation bodies in the United States and a signatory to several international mutual recognition arrangements (MRAs) worldwide.

ICC – International Code Council. An association dedicated to building codes and safety, as well as fire prevention and safety. They develop the model codes used for construction of single and multi family structures and commercial buildings, as well as adult care facilities and schools.

ICC-ES – International Code Council Evaluation Services. An independent third party that performs product evaluations utilized by all national, state and local regulatory authorities in the United States.

IFRC - Intumescent Fire Resistant Coating. Coating applied to wood and steel structures or any paintable surface which chemically react upon the application of very high heat or flame to insulate and protect the substrate or structure.

NASPA – North American Safety & Preservation Association. A corporation comprised of loss control and insurance professionals dedicated to raising the insurance industry's awareness of new developments in technology that have the potential to benefit the insuring public and insurers by saving lives and reducing losses to property.

NFPA – National Fire Protection Association. An organization that publishes minimum standards and requirements for fire prevention and suppression activities.

UL – Underwriters Laboratories Inc. An independent product safety certification organization.

IV. Background

Early fire prevention technology focused on protective barrier coatings to increase ignition temperatures, and consequently avoid fires. The weakness of this methodology was that they were unable to achieve sustained resistance to high temperatures. Subsequent efforts were directed on fire retardant chemical solutions which would replace the air in wood. Unfortunately, those solutions included toxic chemicals that

would degrade over time, compromising the structural integrity of the wood. Further, in the event of combustion, these solutions would also produce dangerous “off-gasses.”

This in turn led to the development of intumescent products. IFRCs are applied like paint, and chemically react upon the application of heat. (This is why technically IFRCs should probably be referred to as fire reactants rather than fire retardants.) This chemical reaction results in what NFPA describes as a “thick, puffy, burnt marshmallow-type coating.” The coating results in one or all of the following effects:

- Insulates or protects the treated area (the fuel for the fire) from heat;
- Prevents oxygen from getting to the fuel;
- Reduction of toxic, flammable gases, and/or smoke;
- Development of diluent gases.

IFRCs have been subjected to rigorous testing standards as published by organizations such as the National Fire Protection Association and Underwriters Laboratories Inc. and have exceeded performance standards of FRT wood.¹ This is significant since FRT wood is one of the standards typically used by insurance companies in the definition of non-combustible or superior construction. See prior section and appendices for equivalency testing and the significant results. As discussed in the next section, one of the companies that have recognized the superiority of IFRCs as a fire retardant is No-Burn Inc.

V. No-Burn[®] Qualifications

A. No-Burn[®] Products

No-Burn[®] products currently consist of five different offerings: No-Burn[®] Original, No-Burn[®] Wood Gard, No-Burn[®] Wood Gard Mih, No-Burn[®] Plus and No-Burn[®] Plus Mih. As noted in the test results below, each of these products has been found to significantly improve materials’ resistance to catching on fire, and slowing down the spread of fire should it start. See Appendix A, Summary of Product Testing and Appendix D, NFPA 286 Video Voiceover.

Of equal value is the longevity of the No-Burn[®] products once they have been properly applied. This has been verified by an independent consultant, who stated, “In response to the questions of durability, conclusive evidence based on in-field experience and formal independent third party testing exists to validate the fact that the No-Burn Inc. products: No-Burn[®] Original, No-Burn[®] Wood Gard, No-Burn[®] Wood Gard Mih, No-Burn[®] Plus and No-Burn[®] Plus Mih when properly applied to various building materials substrates in interior conditioned and unconditioned spaces including attics, crawl spaces and concealed wall and floor cavities will remain in place for all moisture and temperature conditions normally encountered within the life of a building.” (See Appendix F, Letter from Traw Associates Consulting to Steven Shechter.) There is conclusive evidence that when these products are properly applied to various building substrates in interior conditioned and unconditioned spaces, the treatment will last for the ordinary life of the building, maintenance free and in many cases extend the life of the coated substrate.

¹No-Burn[®] Inc. has a video demonstrating live burn results on structures coated with IFRC and those constructed of FRT wood. To see a copy of the video see Appendix E.

B. Specific Test Results

The No-Burn[®] products have been specifically subjected to a number of tests. We have briefly described some of these tests and the results below. Note that this white paper is not intended to be a technical paper with respect to test qualifications and standards; rather we have relied on published reports.² However, some of the results we did review were impressive enough that we felt warranted in briefly mentioning them, albeit in our own somewhat simplified manner.

- **ASTM E84-04, Extended 30 Minute Test.** This test is designed for determining the comparative surface burning behavior of building materials extended for a total of 30 minutes. No-Burn[®] Plus achieved a Flame Spread Index of 5. Both the ICC and NFPA recognize building materials as eligible for Class A status, the highest available flame spread rating, if they achieve a Flame Spread Index under 25. (It should be noted that ISO recognizes that wood, when impregnated with certain chemicals, can achieve a Flame Spread Index of 25 or less, thereby qualifying the FRTW, as a slow-burning material. Thus, although not specifically noted in the ISO definitions, the No-Burn[®] products should be recognized similarly.) See Appendix B for complete test.
- **UBC 26 - 2 Test.** This is designed to demonstrate the “thermal barrier” properties of a material. In essence, how well the product prevents heat from passing through from one side to the other. The IFRC material tested provided the required 15 minute thermal barrier when applied over stucco. See Appendix G for complete test.
- **ASTM E 119 Test.** This is typically a one or two hour furnace test and is commonly used to demonstrate the fire resistance of a wall or ceiling assembly, this test displayed the ability of a thin-film application of IFRC to add greater than 20 minutes of rated fire protection over a gypsum board substrate. See Appendix H for complete details.
- **ASTM E-1623 ICAL Test.** This test method is used primarily to determine the heat release rate of materials, products and assemblies. The report indicated that “the results of those tests have demonstrated that No-Burn[®] Plus can be used as a method of producing significantly improved resistance to fire growth and spread to the various elements of a building.” For us laymen, this means that No-Burn[®] Plus can be applied to standard gypsum wallboard to achieve the equivalent fire resistive rating of Type “X” core wallboard. Type X wallboard has been formulated with additional materials to increase its level of rated fire protection. As an example, 5/8 inch regular wallboard with 14 mils No-Burn[®] Plus would be equivalent to, at least the 5/8 inch Type “X” wallboard in terms of the level of fire protection provided. Of even greater interest the report went on to say: “The results of those tests have demonstrated that *No-Burn[®] Plus* can be used as a method of producing significantly improved resistance to fire growth and spread to the various elements of a building. When used in conjunction with other *No-Burn[®]* products such as *No-Burn[®] Wood Gard* and *No-Burn[®] Fabric Gard*, also play a major role in increasing the amount of time the fire departments may have in reaching a fire scene in time to limit the potential for both life loss and property damage. In addition, giving the fire departments additional time to respond may in fact enhance both fire fighter safety and reduce the amount of time and resources necessary to control the structure fire. While the contents of this report are limited to reporting the results of the recent testing, the added benefits of an overall strategy for achieving better fire safety by improving the ability of limiting fire spread in its early stages should not be ignored.”³ See Appendix I for complete test.

² For more detailed information and background on any of these tests, or other potential tests performed on the No-Burn[®] products contact No-Burn Inc. at 1392 High Street, Wadsworth, Ohio 44281, 800-989-8577, info@noburn.com

³ From the “*No-Burn Inc. Testing and Code Application Report*” written by Jon Traw of Traw Associates Consulting, dated July 28, 2005. For a complete copy of the report contact No-Burn[®] Inc. at 1392 High Street, Wadsworth, Ohio 44281. 800-989-8577, info@noburn.com

- **ESR-1838 (from ICC-ES).** This report, which covered all five of the No-Burn[®] products, verified the durability of the No-Burn[®] products. Of particular interest was that No-Burn[®] was still effective even when overcoated with as many as seven coats of latex paint. See Appendix J for complete report and Appendix K for Acceptance Criteria.
- **NFPA 286.** This is the “Fire Test for Evaluating Contribution of Wall and Ceiling Interior Finish to Room Fire.” The objective of this test is to compare fire performance characteristics of room configurations constructed with various building materials. For the room constructed of untreated FRT wood studs and FRT plywood, the results of the test were recorded as a failure according to NFPA 286 requirements. However, the IFRC treated room tests were recorded as successful, even when run for a duration of double the 15 minutes required by the test standard. See Appendix D for NFPA 286 Video of the test and Appendix E for NFPA 286 Thermocouple Data.

C. Endorsements/Testimonials

Although relatively new, No-Burn[®] fire retardant products have received numerous endorsements and recommendations from various jurisdictions and organizations. A few examples are listed below and included in greater detail in the Appendix:

- Memphis and Shelby County (Tennessee) Office of Construction and Code Enforcement.
- Gregory Kraemer, president of Insurance Loss Control Consultants, Inc. stated: “the use of such product will soon change the way that the insurance industry will charge consumers for insuring their property.”
- Southwest United Industries, Inc. letter – Tulsa, Oklahoma.
- Scona Gardens project profile (a fire that didn’t happen), Alberta - Canada
- New single family home lightning strike – Huntsville, Alabama
- Outdoor kitchen fire averted – San Antonio, Texas
- Condo fire that didn’t happen – Alberta, Canada
- From an article in **Firehouse** magazine—the insurance industry officials feel the product could reduce the amount of fire claims by 30 to 50 percent, because homes treated throughout with No-Burn[®] do not experience damage to any structural components of the home.
- State of Maine Fire Marshal’s Office. White paper authorizing the use of No-Burn[®] specialty coating products in lieu of sprinkler protection in concealed, combustible spaces pursuant to exceptions outlined in NFPA 13, *Standard for the Installation of Sprinkler Systems*.
- City of San Antonio, Texas. Incorporated the use of No-Burn[®] specialty coatings into the building code for soffit assemblies in “zero-lot-line” building scenarios.

VI. Advantages Over Other Systems

A. Sprinklers

Over the past several years there has been considerable inertia on the part of several communities and organizations to require sprinkler systems in dwelling and building construction. While the intent of such legislation and regulation is noble, it is not always as practical as many authorities and lay people would assume. In particular sprinklers in residential dwellings and smaller commercial dwellings (fewer than 20 units) may not be as practical as IFRCs. Some of the considerations of a sprinkler system vs. IFRCs should include:

- ▶ Sprinkler systems are not always dependable. Some studies have indicated a failure rate in 1 of 6 systems⁴. If used extensively in residential properties this number can only be expected to increase, as witnessed by the number of inoperative smoke detectors in such residences. Once IFRC has been applied, it will remain effective for the life of the structure. Further, a firm such as No-Burn Inc. authenticates application of its products by providing a certificate which can be used as proof of the application.
- ▶ Sprinkler systems can be relatively costly in comparison to an application of No-Burn Inc. products.
- ▶ The potential for water damage due to sprinkler leakage or accidental discharges could potentially offset any savings. (This assumes that insurance companies actually attempt to properly monitor both fire and water losses.)
- ▶ Sprinkler systems are typically not included in an unheated attic in single-family residential structures, and if they were it would need to include either an “anti-freeze” loop or a separate dry system. Dry systems in particular need a high degree of maintenance to assure adequate air pressure.

B. FRTs

There are several advantages of IFRCs in comparison to FRTs. In particular FRT is much more expensive than simply applying an IFRC such as No-Burn[®]. Further, FRTs cannot be exposed to moisture and must avoid other breeches to the surface.

FRTs have also been known to be toxic, difficult to work with and, as a result of the impregnation process, actually weaken the cell structure of the wood. The process causes architects and engineering firms to have to over-engineer facilities to make up for the loss of structural strength when using these types of products, thereby inherently increasing construction costs.

In a report published on November 1, 2005 by NASPA entitled “Certification of Fire Retardant Coating”, NASPA stated “The unavoidable deficiencies in the post-manufacture certification of FRTW installations are best understood by examining the product disclaimers, as offered by one major manufacturer.

1. TRANSIT – Exposure to precipitation during shipping, storage or installation must be avoided. If material does become wet it must be replaced or permitted to dry to a maximum content of 19%

⁴ From “IFRC As An Alternative to Residential Sprinklers.” A presentation by Gregory J. Kraemer, President of Insurance Loss Control Consultants, LLC., and presented November 4, 2004.

- for lumber, and 15% for plywood, prior to covering or enclosure by wallboard, roofing, or other construction materials.
2. **JOB SITE STORAGE** – FRTW must be kept dry by covering bundles, storing material under shelter, elevating bundles from ground and allow for air circulation around the wood. Roof sheathing must be covered as soon as practical after installation.
 3. **FIELD FABRICATION** – No rip cutting or milling (resurfacing) is permitted, per UL specifications. Resurfacing, shaping, or planing must be done before the treatment process.
 4. **FINISHING TECHNIQUES** – For interior applications FRTW should only be finished after the structure is enclosed and mechanical equipment is placed in service. This allows the moisture content in the wood to stabilize at an acceptable level.
 5. **VENTILATION, MOISTURE AND HEAT** – Adequate airflow must be provided in wood roof systems to prevent moisture build-up in the wood. It is the sole responsibility of the building owner, or his agent (builder, architect, engineer, etc.) to assure that ventilation is provided. All interior fire retardant wood and plywood must have an equilibrium moisture content of not over 28%, at 92% F. relative humidity.

By contrast, IFRC has no such disclaimers.

C. Engineered Wood

One of the growing trends in construction is the use of engineered wood. Engineered wood includes a range of derivative wood products which are manufactured by binding together wood strands, fibers or veneers with adhesives to form composite materials. With the decreasing supply of mature lumber it is expected that the use of engineered wood will expand. The concern, or problems with engineered wood, is that such wood burns more quickly and thoroughly than traditional wood products.⁵ Further, recent research studies suggest that FRTs for conventional wood have been unsuccessful with engineered wood.⁶ The pressure impregnation processes used to produce FRT in conventional wood products are not effective with engineered wood. OSB used predominantly in construction today can be turned into a Class A substrate with the application of an IFRC. See NFPA 286 equivalency testing of FRT vs. OSB coated with IFRC in Appendix E.

VII. Additional Advantages of No-Burn[®]

The major advantage of the No-Burn[®] technology is the protection it provides against both the initiation of a fire to a dwelling or building, and the potential spread if a fire does start. However, there are other ancillary benefits provided by this technology as well. We have noted a few of these additional benefits below.

A. Mold Resistant

One of the additional advantages of the No-Burn[®] products is the resistance to mold that it provides to the products on which it has been applied. While we cannot comment on similar type products, we do know that the No-Burn[®] product provides considerable resistance to mold, as compared to unprotected wood.

⁵ For a more detailed discussion see the new release posted on February 7, 2006 at 1:56 pm EST on the ChannelCincinnati.com website, News 5 published new report, with associated video entitled "New Home Wood Can Be Worse in Fires" and "Newer Homes Use Wood That's Stronger, Cheaper – and More Flammable."

⁶ See the study published January, 2004 by Dr. Winandy and Dr. White, of the US Forest Service Lab, entitled "Physical and Mechanical Properties of Fire, Decay and Termite Resistance of Treated Oriented Strand Board (OSB)."

No-Burn[®] conducted a test to compare woods treated by their product to untreated woods. The results are shown on the following table:

Client Samples Identification	Number of Pieces Exposed	Resistance Rating on Monthly Basis (Observed Growth Ratings)			
		Month 1	Month 2	Month 4	Month 6
FIR Plywood (Untreated – Control)	#1	4	4		
	#2	2	4		
	#3	1	4		
Spruce (Untreated – Control)	#1	2	4		
	#2	2	4		
	#3	1	4		
FIR Plywood (Treated with No-Burn [®] Wood Gard Mih)	S 1-1	0	0	0	0
	S 1-2	0	0	0	0
	S 1-3	0	0	0	0
Spruce Plank (Treated with No-Burn [®] Wood Gard Mih)	S 2-1	0	0	0	0
	S 2-2	0	0	0	0
	S 2-3	0	0	0	0

Where the observed growth ratings are defined as follows:

Rating	Definition
0	None
1	Traces (<10%)
2	Light (10 – 30%)
3	Moderate (30 – 60%)
4	Heavy (>60%)

As can be seen from this table, a major side benefit of the No-Burn[®] application is its additional protection against mold. This obviously has further potential benefits to insurers.⁷

B. “Green” Product

These coating materials contain low volatile organic compounds (VOCs) and are non-toxic and non-carcinogenic. The use of these materials can provide Leadership in Energy and Environmental Design (LEED) credits to builders attempting to follow the U.S. Green Building Council’s prescribed methodology for building “green” structures. Similarly, green builders may also be awarded these credits for indoor air quality and/or innovation and design of a green building through the NAHB Green Building Standards program.

C. Ease of Verification

One of the concerns of any system for which insurance companies are going to offer a discount, which could potentially be rather significant, particularly in commercial dwellings, is for the insurance company to obtain appropriate documentation and verification that the process or materials are authentic. **The No-Burn[®] system is unique in that it makes verification simple by issuing a Fire Resistance Class Rating Certification.** Further it offers protection against false documentation by matching the FRCR numbered certificates and non alterable holograms placed in the structure that was treated prior to

⁷ For further information regarding this study contact No-Burn Inc. at 1392 High Street, Wadsworth, Ohio 44281. 800-989-8577, info@noburn.com

entering them in to the national database, against product shipments. See Appendix V for sample copies of No-Burn[®]'s FRCR Registration form, certificate and matching alpha numeric hologram.

D. Other Advantages

One of the other main advantages of IFRCs is that simply stated they produce 80% less smoke. Consequently there will be significantly less smoke damage in such a building. However, and more importantly, since smoke is the cause of most fire fatalities, there should be significantly less deaths.

VIII. Need for Insurance Company Recognition

Some companies are already offering a discount on their homeowners' policies if the home has been properly treated with the No-Burn[®] products. Examples include Motorists Mutual Insurance Company, State Auto and Westfield Insurance which recognize a home as superior construction if the owner presents a certificate of application of the No-Burn[®] product. For their commercial lines, superior construction eligible dwelling or apartment units would amount to a 15% discount.

Companies and rating organizations should make sure that their definitions of non-combustible and superior construction is flexible enough to include IFRCs. While verification is always a legitimate concern for insurance companies, No-Burn[®]'s policy of issuing a Fire Resistance Class Rating Certificate actually makes it easier to verify than many other methods or applications which are already considered by companies as non-combustible or superior construction.

The insurance industry has frequently been at the forefront of new technologies which encourages safer products and the potential to save lives. Over the past few years there has been considerable effort by those companies that insure homes and commercial dwellings in hurricane areas to make such dwellings and buildings less susceptible to loss from high wind. The improvements in new construction, and the regulations regarding such construction in many of these areas, have improved vastly over the past few years. The insurance industry should be proud of the role it played in these improvements. However, the insurance industry should also be encouraged to look at other technologies which can also have significant savings not only from potential losses that these insurance companies pay in the form of losses, but also in human lives. The greater use of IFRCs in construction should do this. Unfortunately, the antiquated definitions used by many companies with respect to non-combustible or superior construction not only do not encourage the use of these materials, but may actually discourage the use of such products by offering discounts for inferior products.

It is time for the insurance industry to step up and modernize their approach. We are confident that as companies begin recognizing this technology and studying the actual results they will find actuarial data to support significant discounts to the fire portion of their premium. Like many items in the property and casualty world, those companies that first recognize this technology are liable to realize some favorable bottom-line results as they are favorably selected by those risks with such characteristics.

IX. Summary

IFRCs have been found to be extremely effective in the prevention and control of fire losses. As this technology spreads in the construction industry it will be common for the owners of buildings which have been treated by such products to look for discounts from their insurers. One such company that produces IFRC products, No-Burn Inc. has even gone so far as to issue a Fire Resistance Class Rating Certificate to make the verification of the application of the product easy for insurance companies to determine.

One of the main drawbacks of greater use of products such as those of No-Burn Inc. has been the hesitancy of the insurance industry to recognize this technology in their definitions of non-combustible and/or superior construction. Although there are a significant number of tests which have been conducted on the No-Burn[®] products demonstrating their safety and superiority to products like pressurized wood, many companies and rating organizations have hesitated to recognize IFRCs and No-Burn[®] in their discounts.

We believe that the main reason for this lack of recognition is the dependency of companies on definitions of non-combustible and superior construction that have become somewhat antiquated, and in some cases have not kept up with modern technology.

It is time for the insurance industry to react as they have too many other technologies that have resulted in safer dwellings and buildings, and in saving lives, and that are simple to recognize in their rating by having them included as both non-combustible and superior construction. We are confident that as loss experience becomes readily available discounts for IFRCs, such as those produced by No-Burn Inc., will be actuarially justified, and may actually indicate that such discounts should be greater than for many of the other items already recognized in these definitions, or on items such as sprinklers which typically qualify for a protective device discount.

X. Disclaimer/Disclosure

EMB has been retained to assess the potential ramifications of this technology to the insurance industry. We have not been asked to comment on the accuracy of third party tests and as such this report should not be construed as a certification of those findings. In development of this paper the author relied on documentation and test results provided by North American Safety and Preservation Associates. We do not profess to be experts of the specific tests administered by the various testing agencies and laboratories. We have, however, relied on the expertise and knowledge of such agencies and laboratories, given that these entities are fully accredited by the International Accreditation Services (IAS) for performing test standards established by organizations such as NFPA, UL and ASTM, in reaching our conclusions. EMB does not warrant these or any other products and assert that companies should review these tests and draw their own conclusions as to their potential actions.

No-Burn[®] is a registered trademark of No-Burn Incorporated

Appendices

Note: To keep the size of this paper to a reasonable length the appendices have not been attached. You may request a Web link to the appendices through sending an email to info@noburn.com.

- A. Summary of Product Testing
- B. ASTM E-84 Extended 30 Minute Test
- C. IBC 104.1.1
- D. NFPA 286 Video with Voiceover
- E. NFPA 286 Thermocouple Test Data
- F. Letter from Traw Associates Consulting to Steven Shechter
- G. UBC 26-2 Test
- H. ASTM E 119 Test
- I. ASTM E-1623 ICAL Test
- J. ESR-1838 (From ICC-ES)
- K. ICC AC308
- L. Memphis and Shelby County (Tennessee) Office of Construction and Code Enforcement
- M. Letter from Gregory Kraemer, President of Insurance Loss Control Consultants, Inc.
- N. Southwest United Industries, Inc. Letter – Tulsa, Oklahoma
- O. Scona Gardens project profile (a fire that didn't happen), Alberta – Canada
- P. New single family home lightning strike – Huntsville, Alabama
- Q. Outdoor kitchen fire averted – San Antonio, Texas
- R. Condo Fire That Didn't Happen – Alberta, Canada
- S. Firehouse Magazine Article
- T. State of Maine Fire Marshal's Office Testimonial
- U. San Antonio Texas Soffit Assemblies
- V. Fire Resistance Class Rating Sample Form and Certificate