

STRUCTURAL BUILDING COMPONENTS MAGAZINE

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Ladder Concepts Promotes Positive Component Industry-Fire Service Rapport Rapport by John Vardian with Fred Dimas

John Vardian and Fred Dimas have fought fires for many years. Now, they are using that experience to fight “urban myths” about trusses, too.



When we, two ladder Captains with the Phoenix Fire Department (PFD), were asked to write an article for the magazine that serves the wood truss industry, we asked ourselves “what could firefighters say that would catch the interest of a bunch of wood truss guys, since most firefighters tend to not like the lightweight wood truss guys?”

Both Fred and I have nearly 60 years of combined experience in the fire service. The predominant building style in Phoenix and surrounding areas is lightweight construction—both residential and commercial buildings.

We formed a company called Ladder Concepts to try to help break some of the urban myths that run rampant in the fire service. Our belief is that we need to work with the wood components industry rather than ignore them. With the help of the Wood Truss Council America (WTCA), we have been able to obtain the technical background for the information we have been teaching for the past several years.

In the past, many of the members of the fire service were in or came from building trades. Recently, new recruit classes are composed of people who, for the most part, have little or no

knowledge of building construction and even less come from the trades. The testing process in Phoenix makes it very difficult for someone with a family and a full-time job to apply, because of the EMT and other schooling required as well as the time needed to enter the process. Due to the multitude of items to be taught at a fire academy and the time constraints of a six to twelve week training window, there is little time available to spend getting recruits thoroughly acquainted with building construction and building recognition. The time required to understand building construction that pertains to the fire service is a process that takes years to fully understand and be proficient at.

In forming Ladder Concepts, Fred and I recognized the need for training in the fire service in the Southwest and Sun Belt areas. We have taken our knowledge and applied it to develop training programs and procedures for ladder companies and department training in Phoenix and surrounding cities. These cities are reasonably young, with rapidly-growing populations. Consequently, their fire departments have relatively young members that, in certain cities, have few fires to develop their skills and experience.

Ladder Concepts has also developed a document on how to recognize buildings by age. In researching these buildings, Fred and I began to notice that buildings are built, and were built, with the materials and technology of the day. Each one of these buildings exhibits certain architectural features that can be recognized from the street. We classified those buildings into four styles and teach our classes to recognize these features within five to ten seconds. This time frame is roughly the amount of time a firefighter has to realistically scan a house or building before they go inside to fight a fire or to ladder a building for vertical ventilation. Each style of building has certain strengths and weaknesses in it, and this can help firefighters and chief officers to anticipate the structure's architectural characteristics that may need to be addressed. In essence, this gives fire crews X-ray eyes in recognizing how the building is constructed. It also must remind us that we have no control over what the previous or current occupants have done to that structure.

Ladder Concept's philosophy in teaching building construction to the fire service is that it is not necessary to know how to build walls or set trusses, but we must be able to understand the interdependency of the materials. If our students understand that, it will give them an understanding of how fire will destroy the ability of the building to support itself. A simplification of that is "...the fire coming out of the doors and windows is not the critical thing; it's what the fire is doing to the building that is critical."

Our mission is to get ladder companies and the fire service to make informed decisions and enable them to have the knowledge that has taken Fred and me a combined nearly 60 years to acquire. Hopefully this will help to prevent injuries or death to our firefighters and increase the property conservation of homeowners and lower the overall loss of life.

One problem is the construction industry is changing at an extremely rapid pace. It is a multi-billion dollar industry that is focused on making the best, most structurally sound, and most affordable products for its ultimate consumer—oftentimes, a homeowner. We acknowledge that most of these newer products are superior to older methods of construction. Superior, that is, until it burns. For firefighters, mass equals time. For the building industry, mass equals money.

Unfortunately, the fire service seems to have been focused on a few “urban myths” about building construction, most notably, gusset plates and lightweight trusses. It has been touted that these connectors curl up and pop off when they get hot. We have yet to see in our 60 years of experience, a gusset plate curl, pop, jump or anything else, when they are heated. What our research and experience has told us is the wood is burning away from the plates, a concept we have been teaching for nearly five years. We have also not seen trusses collapsing or failing because of one component failure, or one gusset plate burning off in a truss. The building component redundancy provides surprising resistance to catastrophic sudden collapse. This is not to say that any one component failure is not significant, especially if one is standing on that failed component. In many instances, buildings that have been said to have had truss collapse have, in fact, suffered sheathing failure. We have taught repeatedly that, all things being equal, the sheathing will burn through far earlier than the trusses will fail.

Recently, Ladder Concepts received the Carbeck Structural Components Institute CD on fire performance of trusses. The research and information on the CD, conducted by the Houston Fire Department (HFD) and WTCA, gave us the independent verification of the fire ground facts that we have observed throughout our career and have been teaching at Ladder Concepts for several years.

Ladder Concepts is eager to form a relationship with the building industry and manufacturers to get the information out to help save the lives of firefighters and the public. The building industry is changing so quickly that we need a working relationship to keep each other informed, instead of pointing fingers. We don't care what comes out—we just need to know it's out there! From that point, we can adapt or modify the way we do business in the fire service. Ladder Concepts is currently helping departments modify their operating procedures in response to information received from industry associations like WTCA, the Carbeck Structural Components Institute (CSCI) and several industry companies.

We hope that a growing relationship with component manufacturers, the fire service and companies like ours can help to make both of our industries a safer and more efficient partnership that will benefit both of our customers—the home buyers. While we realize that we cannot go back to building structures with 2x6, 2x8, 2x10 and 2x12 conventional framing and one-inch sheathing, we have also acknowledged the fact that constant education and familiarization with new products and methods of construction is essential for safe firefighting. Ladder Concepts is committed to the safety of firefighters and to develop safer ladder operations.

For more information on classes for your company, department or city, please contact Ladder Concepts, John Vardian or Fred Dimas at 602/319-0509, or visit the website at www.ladderconcepts.com.

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