



Fire Demonstration & Plant Tour Show off Truss Industry for NY Building Officials Conference

by Libby Maurer with Will Warlick & Melanie Birkeland

The effort to educate the market about our industry continues—this time in New York.

Since a May 2006 WTCA Board of Directors resolution encouraged component manufacturers to open their doors to professionals outside the industry, truss plant tours have worked in the industry's educational favor. So far, lawmakers, building inspectors and others have assembled at truss plants across the country to learn about the design and manufacture of structural building components. The response to this effort has been overwhelmingly positive, and important relationships have been formed.

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To us it's innate that structural components are the future of framing buildings because they provide the most affordable, efficient and technically advanced framing option possible. But to others, trusses and other building components are very new, non-traditional products that have unknown performance characteristics. Hence, they have attributes that can cause them to be viewed in a less than favorable light. Because there are widely varied messages about our products in the marketplace (in particular within the fire service), it reasonable to expect that it will take a great effort by our industry to inform the market that the use of engineered building products/components is quickly becoming standard across the country, and everyone will benefit from understanding their true performance and capabilities. The component manufacturers of WTCA-NY made a significant impression in the New York State Building Officials Conference's (NYSBOC) perception of trusses on October 17, 2006.

WTCA staff has a relationship with Sam Ricotta from the New York Department of State Codes Division because we had worked together to get some educational classes approved with the state. Ricotta contacted WTCA to collaborate on a truss plant tour and also requested a live fire demonstration as part of our presentation for their annual educational conference. We then worked together to get the tour and the fire demonstration approved for CEU credit as well.

WTCA-NY became very involved from a planning and logistics perspective. Bruce Hutchins, chapter president, offered that the chapter would sponsor the event and worked closely with everyone involved on the catering, the handouts, the buses for the attendees, and some of the raw materials for the burn demonstration.

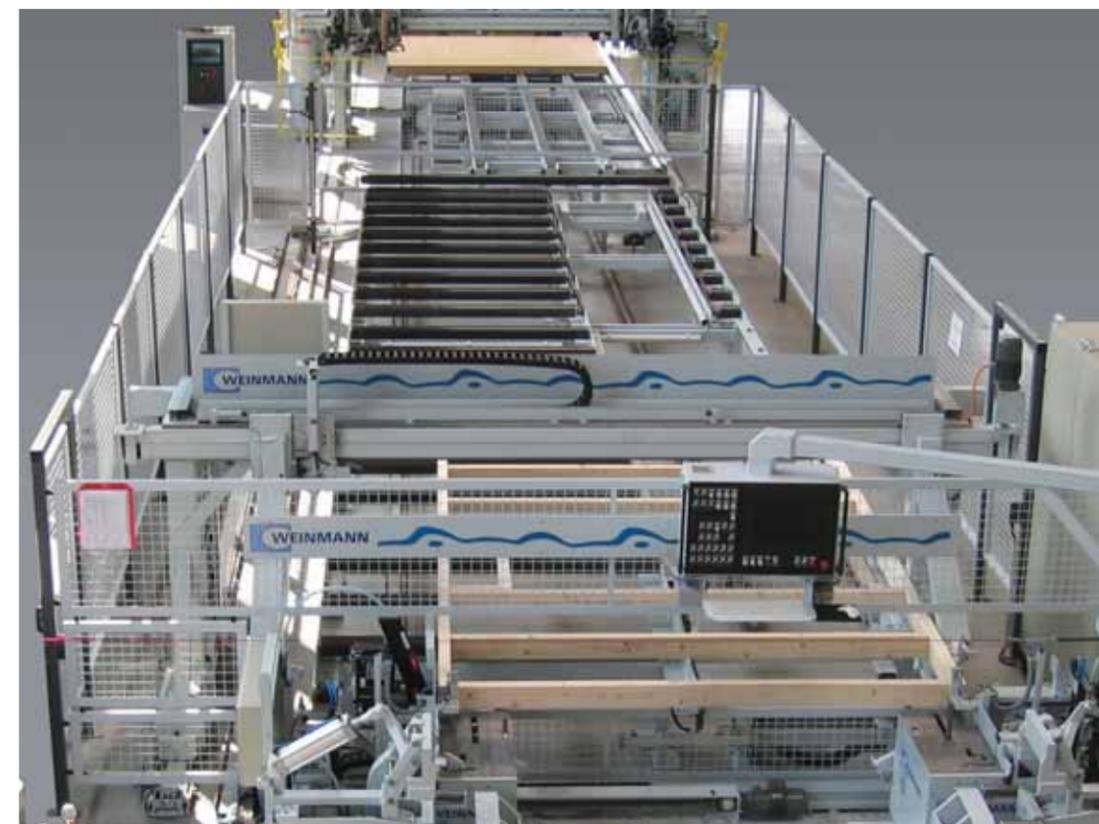
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at a glance

- ❑ Truss plant tours have worked in the industry's educational favor.
- ❑ The WTCA-NY made a significant educational impression in the New York State Building Officials Conference's (NYSBOC) perception in October 2006.
- ❑ The tour shed a lot of light on the truss industry for building code officials and fire service members.

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One Tour at a Time...

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Saratoga Lumber Traders, in Ballston Falls, NY, was one of the closest truss plants to the town of Colonie, NY, where the whole event was taking place so they were called to see if they would be willing to help with the opportunity. They stepped right in and took on the responsibility with passionate leadership. This is just another great example of WTCA Chapters and staff collaborating well together.

Plant Tour at Saratoga Lumber Traders

A total of 280 attendees (half of which were fire service members and half were building officials) were split into groups of 25 to tour Saratoga Lumber Traders.

Ricotta said, "The tour shed a lot of light on the truss industry for people on what they often see arriving banded at the jobsite. It was well-received by all, including new-comers and veterans alike, among the building and fire officials."

One retired building inspector said the plant tour was a great experience, especially for the younger firefighters. "The most interesting part was learning how the design is sent right out to the floor where the trusses are assembled," said John Flanigan, also a fire service commissioner.

Flanigan commented that there are many custom homes being built in this area of the state, and it's best to assume that there are trusses in these houses. "It's amazing all the different shapes they get in those homes," he said. Another firefighter/fire inspector/building inspector said it was really good to see how trusses are made, since most big houses now contain them. "I'm impressed with the quality of these products," he said.

As noted by one of the suppliers in attendance, it was important for the fire service to observe the quality and sophistication of the production equipment. "The point was made that the machinery isn't nickel and dime stuff, that these guys are making serious investments into this work," said Dennis Fleishman of Robbins Engineering. Ricotta said, "The component saws were very intriguing. I noticed a lot of people trying to figure out how [the saw] was cutting all those angles at the same time."

Hutchins said getting participants in the door can be a challenge, but in nearly every instance it fosters communication and builds goodwill.

Marc James of MiTek noted that firefighters took particular interest in the QC station at Saratoga. "It seemed to be the biggest eye opener of all. The way they check the joints with vellum for plate placement was impressive to many on the tour," he said.

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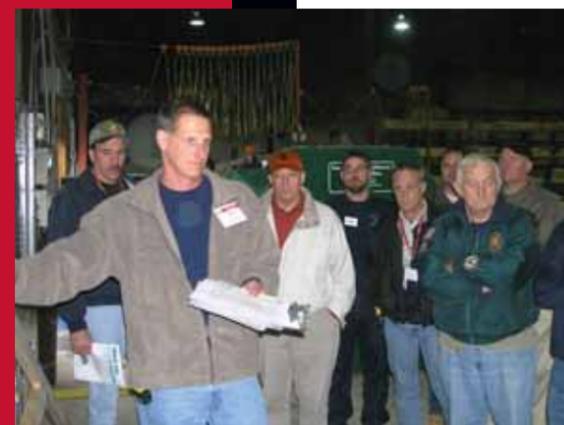
Tour participants watch as John Mulligan talks about assembling trusses on the gantry table at the Saratoga Lumber Traders (SLT) plant in Ballston Spa, NY.



The tour group watches the gantry. To manage the large numbers arriving at their plant, the participants were divided into groups of about 25.



The automated linear saw was interesting to many participants. People were trying to figure out how it could cut so many angles at once.



An SLT truss technician gave the design presentation. He showed the truss design process on his computer and discussed code issues that truss technicians consider.

John Mulligan and Mark Colbath of SLT present on Quality Control procedures.

John Mulligan answers questions at the QC station of the plant tour. Comments from participants indicated that this was an aspect of the industry that particularly impressed them.

Mark Colbath continues the presentation on Quality Control procedures.

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One Tour at a Time...

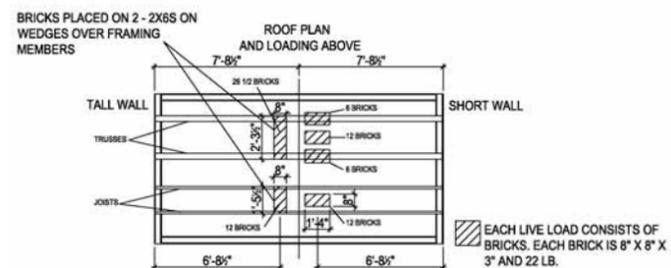
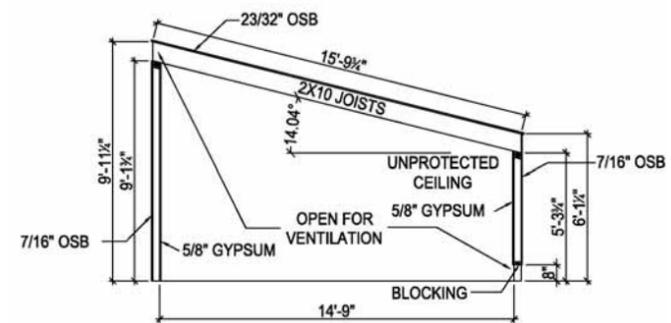
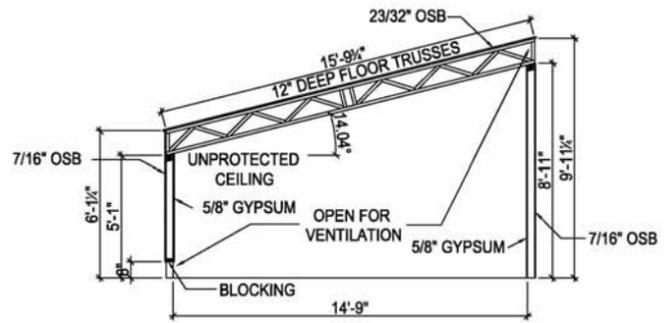
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Fire Test: NYSBOC Fire Demonstration

The objectives of the fire demonstration were as follows:

- The goal was to demonstrate the growth of fire and its effects on two typical unprotected floor structural elements included in a sheathed assembly.
- A floor assembly measuring approximately 8'x15' was placed on top of walls that enclose all four sides so that the fire will be unaffected by wind and the elements.
- The floor assembly included both traditional joists and trusses in the same structure so both structural elements experienced identical fire conditions.
- The floor was built at an angle so observers could view the effects of the fire on the concentrated loads that were applied directly onto the sheathing and onto both the trusses and 2x10 joists in the floor assembly.
- The load was applied so that both the 2x10 joists and the trusses were stressed to equivalent levels.

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The burn demonstration was provided at the request of the NYSBOC for its Capital District Educational Conference at the Town of Colonie, NY's Municipal Training Facility on Oct. 17, 2006. It was offered in conjunction with the truss plant tour.



280 firefighters and building officials attended. The observers were asked how long they thought the joists would last in the fire, and how long the trusses would last. Many thought the trusses would fail much sooner.



The demonstration assembly was an approximately 8'x15' unprotected floor assembly that was sloped to be viewed from the ground. The walls were panels provided by Saratoga Lumber Traders.



The floor assembly had 2x10 SPF joists and 12" floor trusses spanning from the low end to the high end. These were sheathed with 23/32" OSB. Joists and trusses were included in the same structure so they would be exposed to identical fire conditions.



The concentrated live loads were applied using 22-lb. bricks. The joists on the left carried 528 lbs, and the trusses on the right carried 1112 lbs. The joists and trusses were equivalently stressed under these loads. See www.fire.carbeck.org for a more detailed description of the demonstration design.



At 9 minutes, 31 seconds. The loads begin to tilt more noticeably as the floor assembly sags. Sag warns of impending collapse, but it is not always present, and is rarely so noticeable.



At 11 minutes, 23 seconds. The sag increased gradually during the burn as the structural members charred and lost strength. Before collapse, the floor assembly was sagging about 8-10".



At 12 minutes, 15 seconds, the fire penetrating the floor indicated significant gaps in the decking on the truss side. At 12 minutes, 51 seconds, both the joists and the trusses are still holding load.



At 13 minutes, 11 seconds. The concentrated loads bearing on the sheathing have now fallen through. One point made by the demonstration is that sheathing typically fails in fire before the structural members.

Comments

John Flanigan said the fire demonstration was a great experience. "In the fire service we are told that trusses are dangerous and don't go in the building if there are trusses. This shows that with some protections trusses will hold," said the 50+ year fire service veteran.

Dennis Fleishman also found it very valuable, but noticed that some members of the fire service were questioning the results of the burn. "It seems to me that some people are set in their opinions and when a demonstration does not show what they believe in it raises big question marks. It will probably take many demonstrations like this over many years to address the pre-set opinions," he said. Bruce Hutchins heard the same questioning from some in attendance. "The reactions I heard just shows how much educational work we have to do," he said. Fleishman encouraged future interactions with the fire service based on the fact that this made a real impact on those in attendance, something they will never forget: "The way the demonstration played out was not lost on anyone in attendance."

Marc James said he heard that a lot of the attendees were impressed with the performance of the trusses and joists and the fact that their performance was essentially the same.

There was a noticeable difference in how the veteran and young fire service attendees reacted to the demonstration. Sam Ricotta said, "The 'newbies' tended to be more in awe of the test. The 'old guard,' (older code officials and former firefighters who now do code enforcement) were more critical." Bob Cordell agreed that there was mixed reaction about the test: "We got comments—some said it was good, others not so good. It was good people could see it; they could make their own call."

The fire test and truss plant tour got the following rating from 86 participants who returned evaluation forms. [SBC](#)

NYSBOC Truss Plant Tour & Fire Demonstration Feedback

Excellent	36	42%
Good	39	45%
OK	6	7%
Not so good	3	3%
Poor	2	2%
Total	86	100%



At 13 minutes, 19 seconds, the trusses and joists collapsed simultaneously. This demonstrated that trusses and joists, when equivalently loaded, perform similarly in fire. It also showed that unprotected construction will not last long in fire.



After the collapse, firefighters extinguished the fire.



After the fire, severe charring was seen on all structural members. Even on the outside truss, charring reduced the size of the chords significantly. Without trying to make this point, the demonstration also showed the effectiveness of gypsum protection on the walls.

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