The Dangers of Lightweight Steel Trusses

Captain Robert Stacey
Vista, California Fire department
Metal Roof and Steel Trusses

- Two Firefighters injured....
- Risk versus benefit
- What do you gain by putting firefighters on the roof?
- Do not do it!
Examples of Open Web Steel Bar Joist Roofs

- Target On Sycamore
- Open Web Metal Steel joist
More Examples Of Steel Bar Truss Roofs

- Business park area
- Notice the sky light
- Notice the wood (OSB) roof
Business park area

This OSB is scary stuff...

The resins and glue used to make this pre-fab OSB is very flammable...

The OSB begins to delaminate when exposed to temp. at or above 300 degrees.
Examples
Steel Truss or Metal bar
Joist
Steel Trusses or Metal Bar Joist

- More examples
- Open web construction
- Metal roof
Foam Covering On Metal Roofs

- Common on Q-decked roofs
- When heated turns to a liquid fire or a “Liquid Goo”
Where do we go from here: Discussion Points...

- Our I/C’s need to be very aware of these roofs and have a real need to do vertical ventilation.
- How do “YOU” stay safe on these types of roofs?
- How do we get the smoke out of these buildings? Hot or cold?
- Any thing else???
Tactical Considerations.. Interior crew

- Drop ceilings, also referred to as: T-bar, false or suspended ceilings, need to be removed to check for smoke or fire.
- Also to review roof construction and layout...
- Radio findings to Roof division, example: roof from interior...the roof is metal deck, open web, metal bar joist...beams run “B” to “D” side and purlins run “A” to “C” side.
Tactical considerations.. Truck functions, roof operations

- Consider burn and exposure time... IFSTA Essentials 5th edition page 156 states “that unprotected lightweight steel and wooden trusses can fail after 5 to 10 minutes of exposure, these trusses can fail from exposure to heat alone (smoke)”. 
Tactical considerations. Truck functions, roof operations cont...

- Things to consider if assigned to the roof:
  - Building construction
  - Fire conditions
  - Exposure time
  - Set-up time
  - Benefit factors
Tactical considerations... Truck functions, roof operations cont...

- Dispatch time, travel time and Truck set time can take more than 10 minutes... in this type of situation, strong consideration should be given to horizontal ventilation...