

Fire Safety in Green/Sustainable Buildings

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Our research aims to identify the key areas requiring further analysis and development, regarding the interlinking of fire safety and green buildings. Literature review, interviews with concerned parties, and numerical modeling is being conducted in the following areas:

- ❑ **Materials** - new types of flooring, insulation, furnishing, and the like will alter heat release rates, flame travel, and other fire characteristics. Furthermore, new framing materials may undermine the structural integrity of the building under heat loads.
- ❑ **Windows/skylights/solar tubes** - various changes in window manufacturing (e.g. Number of panes, glazing) may affect their response to fire loads. Radiant heat can break windows and subsequently oxygenate the fire.
- ❑ **HVAC** - traditional air duct conditioning vs. ductless liquid conditioning systems may vary fire spread rate.
- ❑ **Smart sensors** - meters, smoke alarms, appliances, etc. may be used in diagnostics for risk assessment as well as allow faster response times from first responders.
- ❑ **Energy Production & Storage** - the intermittent supply of solar and wind generated power creates the need for batteries or other storage devices. Not only may the on-site power production pose a shock risk to firefighters, but storage may significantly increase the risk and intensity of the fire.
- ❑ **Water collection & Reuse** - conservation techniques such as rain harvesting and greywater reuse systems can also serve as firefighting mechanisms if designed as integrated parts of sprinkler networks.