Pathway to Survival

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INTRODUCTION

Occupant Egress and Emergency Response

- Implementations of recommendations would make buildings safer for occupants and emergency responders.

Human Behaviour in an Evacuation Situation

- Systematic evacuation of all occupants in various types of buildings (e.x. office towers, hotels, hospitals, schools, etc.)

Using Photoluminescent Materials in Buildings

- Will aide in occupant evacuation and to simplify Firefighting procedures.

IMPROVING BUILDING EVACUATION

Building Evacuation should be Improved by:

- Including system designs that facilitate safe and rapid egress.
- Implementing methods for ensuring clear and timely emergency communications to occupants.
- Having better occupant preparedness for evacuation during emergencies.
- Incorporating appropriate egress technologies.

EVACUATING A BUILDING

SUCCESS in Evacuating a Building in an Emergency Situation can be characterized by two factors:

- **The time that people need to evacuate**
- **The time that is available for them to do so**

- All agencies must be working for a common goal.
- Proper evacuation procedures must be in place.
- Fire Fighters need to be informed of the evacuation procedures.

N.I.S.T. RECOMMENDATION #16

The following points should be included to improve this recommendation:

- Occupants should be better trained and self-prepared.
- A system of floor wardens and building safety personnel should be implemented.
- Standards should be improved, such as a system of clear communication and co-ordinated effort between emergency responders, building representatives, and occupants.

Case Study: 1993 Terrorist Bombing in New York City

The following improvements were made to stairwells in the World Trade Centre buildings in New York after the 1993 terrorist bombing:

- Battery-operated emergency lighting.
- Photoluminescent paint on the handrails.
- Explicit LED signs on doorways to indicate where they lead.

Case Study: Sept. 11th, 2001 Terrorist Attacks in New York City

- Surviving occupants most commonly stated that they received the greatest amount of assistance from co-workers, emergency responders, and the photoluminescent markings in the stairwells.

- However, most occupants were often unprepared to encounter transfer hallways during stairwell decent because of a lack of clear markings and signage, causing them to hesitate and waste valuable time.

Photoluminescent Markings

- Photoluminescent marking systems must be implemented in buildings to allow for quick and safe egress and to aid and protect rescue workers.
- They are crucial building safety features during an evacuation, especially when regular power and back-up power supplies fail.
- Photoluminescent material is charged by exposure to light and will emit luminance after the activating light source becomes unavailable.

Local Law 26 Reference Standard 6-1 in New York City

This law should include the following applications of photoluminescent markings that would help aide in a successful evacuation of a building in an emergency situation:

- Marking common or transfer areas so that occupants can find the exits and stairwells.
- Marking firefighting equipment and fire alarms so that they may be located easily.
- Having directional signage that shows occupants where a stairwell or exit leads.

International Organization for Standardization (ISO)

- ISO 16069 deals with Safety Way Guidance Systems (SWGS).
- SWGS improve provisions for speedy and orderly egress along escape routes during an emergency situation.

CONCLUSION

- Standardized Safety Guidance System similar to that of the ISO.
- Photoluminescent markings in common or transfer areas so that occupants can find the exits and stairwells.
- Photoluminescent markings on firefighting equipment and fire alarms so that they may be located easily.
- Having directional signage that shows occupants where a stairwell or exit leads.