

Research paper on the united states history of building construction and fire saf...

[Countries](#), [United States](#)



The construction industry in the United States has undergone major changes in the recent past. There have been major improvements in the construction of modern buildings which has provided international architectural designs and strong construction materials that could assist buildings withstand fire hazards. The responsibility of ensuring safety in buildings and especially sky scrappers that have become the symbols of modern urban landscape lies squarely on engineers and architects.

In drawing the architectural designs, the safety of the building and its occupants must always be borne in mind. This results from the fact that we have construction codes and other safety measures and equipment to ensure that these buildings are free from dangers of either fire or earthquakes. That is why there are building codes and specific safety measures and devices to make the buildings safe from danger disasters in many parts of the world and especially china and the US result from either fire or earthquakes although other causes may be due to human factors like carelessness and terrorist attacks like the one witnessed in the US in September 11th 2001 in which two major building were brought down by terrorists. Building and construction planning in the United States has undergone tremendous improvements and adjustments to meet the internationally accepted safety standards in a bid to reduce loss of life and property in case of either a natural calamity or terrorist attacks.

Safety of people from fire disasters is of prime importance and has in fact been the most important challenge to the building and construction firms. The major objective of all stake holders in the construction industry is to

ensure conformity with the generally accepted codes of safety to avoid losses of lives and property in case of unforeseen disasters such as fire and the common earthquakes experienced in most parts of the world and especially the Middle East.

These fires are investigated and an analysis carried out on the factors that are responsible for such disasters. These investigations are instituted to establish the likely technical, operational or other probable causes of such failures. The objectives of such investigations are usually to ensure that improvements are made to these buildings either through their architectural designs or construction materials.

Historical changes in the building and construction in the context of fire safety and Prevention

Experts in fire protection have embraced technological developments in the designing of means to secure people and property from loss in the event of a fire. Architectural designs of new buildings or simply renovations of older existing buildings have laid more emphasis on fire protection as a result of the many incidents of fire damages that have occurred in the past in the US. In fact, fire protection engineering is one of the fastest growing disciplines in the 21st century.

Fire protection engineering has developed tremendously over the last couple of years. Early application of this discipline was centered on preventing conflagrations that had the potential of destroying a whole city. In the early 20th century, the major focus of fire protection engineering shifted to

limiting fire to the original building. Recent changes in this field have placed sprinkler systems in residential homes and the future could bring regulations to include sprinkler systems in all newly built houses and in houses that are to be renovated. All of these changes are due to past fire incidents that have destroyed property or even worse taken lives. Today, fire protection engineering deals not only with the prevention of fires but also carries out intensive campaigns on educating people on the measures that they could take at individual level to reduce chances of fire incidents.

The events of September 11th 2001

On September 11th 2001, the United States woke up to the most shaking news in the history of the US. Terrorists had attacked and destroyed the twin towers in pentagon and the world trade centre. The attacks were executed after the hijacking of four commercial airlines. With thousands of gallons of jet fuel aboard, these planes were turned into flying bombs. The destruction the impact caused alone to the structural integrity of the buildings was astronomical. However the major hot fire that burned for 2 hours and eventually helped to bring the buildings down caused the deaths of 343 of New York's bravest and subsequently killed a total of 2595 innocent victims.. This unfortunate event led to a revision of the fire protection rules, codes and practices. After the September 11th incident, A virtual High rise task force was created which included engineers, architects and for the first time fire personnel to discuss and create new regulations for high rise buildings and to come up with a solution to conform the over 900 existing high rise structures in NYC. The task force agreed that widespread but less costly

changes would be required in virtually every city high-rise. All buildings would have to meet a new and higher standard for things like the visibility of exit signs, emergency lighting and fluorescent markings in escape stairwells. The reliability of emergency radio communications within high-rise buildings would have to be improved, perhaps by allowing firefighters to tap into internal building radio systems. All buildings are also required to have pre installed fire alarm systems. These alarm systems should be installed above minimum requirements. Such systems will ensure that the slightest incidents of fire are detected. Smoke detectors are also required to be installed in every building under construction in the United States. There should be at least four smoke detectors per floor but there should never be any manual initiation devices. To avoid smoke recirculation, return grilles should be installed in all the buildings.

One novel measure would force all high-rise developers to create "refuges" in elevator vestibules where people trapped in a fire could safely congregate and await rescue. The measure would rely on fireproof walls and doors and a significant emphasis was placed on smoke control and removal using HVAC systems to control the movement of air. Emergency power should also be available for exit from the buildings and egress light must be present for fire fighting. These new codes also require the installation of class E alarms and also the presence of voice communication systems in all the buildings.

All the above measures have either been discussed or put in place as a result of the terrorist attack on the world trade Centre on September 11th 2001. . Laws have also been put in place to ensure that all the above codes

are adhered to. The events of September 11th opened a lot of eyes in the field of building construction and fire prevention.

On the other hand, the federal government and local jurisdictions have invested a lot into their fire fighting equipment to ensure that the impact of any fires is reduced to the minimum levels possible. Fire departments across the nation have focused a lot of their training on dealing with high rise fires due to the events of Sept 11th

Besides the above issues, the construction rules have been amended to ensure quality of the construction materials established before construction begins. The architectural designs must also be approved before construction begins to ensure that all the buildings constructed meet the fire and safety requirements as required by legislation.

Conclusion

The United States has made numerous amendments to the codes and practices relating to fire safety to ensure that everyone is safe from these hazards. Fire fighters with modern equipment are also available to contain any fires from which ever angle from the ground to the air, the have undergone vigorous training including administering first aid. With these measures in place, it's the responsibility of the citizens of this nation to ensure that they abide by the rules and regulations stipulated in the act and to notify the federal fire fighting department as soon as fire occurs in their residences or places of work so that sufficient action is taken to reduce loses of life and property and make America a safe place to live.