

Questions and Answers (Examples)

1. Locate an example of a fire that caused a change in the fire codes and standards. Outline the specifics of the case (such as location, time, cause of the fire, etc.) as well as explain how the fire codes and standards were changed as a result. Do you feel that enough of a change was made to prevent other similar fires in the future? Why, or why not?

It has been quite a while since the first fire code appeared. Scientists believe that this happened during the time of king's Hammurabi's times. In accordance to the data provided by NFPA web site, this document is dated somewhere between 1955 and 1913 B.C. and it did not provide instructions on how to build in order to avoid dangers, dealing with fires. Instead, the document explained very clearly, what may happen to a builder of a house, the roof of which would fall on its owners.

Modern Regulations and codes pay more attention to the desired outcome and possible ways of achieving such results. Oftentimes codes and regulations appear as a result of a tragic fire. This is a normal state of things in human history - we learn by making mistakes. The formation of NFPA itself is a good illustration of this mechanism. After four great fires the committee appeared and began working on codes and regulations. The first one was the Building Exits Code. This code has gone through a number of adjustments over more than a hundred years, but it is the document, which tells the builders that each building needs to have emergency exits and which explains in what way such need to be constructed and where they have to be located.

It is really hard to say whether the code has been changed well enough. People still die in fires and, among other reasons, we sometimes meet their being unable to leave the burning construction. This underlines the fact, that there is space for development. Definitely, there will be new improvements, but overall results are quite satisfactory. Modern buildings are ready for emergencies and people on average, have an opportunity to leave them fast enough.

2. There are a variety of fire protection systems, which are installed based on function and purpose for the hazard protected. The systems are divided into five basic categories: automatic fire detection and alarm systems, automatic fire suppression systems, manual fire alarm systems, manual fire suppression systems, and smoke control/exhaust systems. Select one of these systems, define it, and provide an example. Describe how firefighters can benefit from the system you selected.

Among other systems I chose manual fire alarm systems. They seem to be the most reliable ones. Manual fire alarm systems are the systems that allow activating fire alarm by means of simple actions. However, the actions taken should not be as simple as to allow a person mistakingly start the alarm. Primitive manual fire alarm systems are not being used any more. For instance, simply pressing a button is not the way to do it, since the button may be pressed unintentionally, which may lead to the start of a fire alarm, and this will require the fire brigade to take off. This may cause a serious thread in large cities, where there may be a shortage of fire fighters at a particular moment, and such a loss of time is unacceptable.

Among other manual fire alarm systems there are so called EVACS - the alarm systems which utilize voice communication. Such are being used in theatres, in cinemas, and other public places, where it is important not only to notify the fire fighters about the fire, but also to inform the audience, the visitors, that they need to start evacuation, and how they need to behave during such actions (NFPA 72 – National Fire Alarm and Signaling Code, 118).

For fire fighters this sort of alarm systems is beneficial since it almost excludes occasional activation, and, while its activation is on the one hand simple enough to allow fast activation, it is, at the same time, complex enough for a person to do it occasionally. To prevent cases of vandalism. For instance, in some systems a person needs to break a window, behind which the activation mechanism is hidden. And once such window is broken, the person gets covered with some

substance, which will, in case of a mistakenly activated alarm will indicate at the person, who initiated the alarm's activation.

3. Compare the difference between bearing and non-bearing walls in a structure and how they influence firefighting tactics during a fire.

The main difference between bearing and non-bearing constructions is that bearing constructions bear loads of part of the entire construction and transfer this load to the foundation. Fall of a bearing wall has much more serious consequences than of a non-bearing wall. A bearing wall itself is much more massive and heavy, while non-bearing walls are thinner, oftentimes lighter and do not carry any load, therefore their fall is unlikely to cause serious damage to the entire construction or to the people inside it or near it. A bearing construction's fall may lead to fall of entire construction above it, or its major part. This may cause danger to the fire fighters themselves and the fragments of the destroyed constructions may cover people inside the construction.

This is why one of the primarily important tasks of the fire brigade is to cool down the bearing constructions. This may be done with the water or by means of separating of bearing walls from the fire with streams of water and so on. It is also very important to stay away from bearing constructions as much as possible

4. You are the fire chief of a small Mid-western city. You are in the process of completing the preplanning for a new building under construction on Main Street. This building will be used for retail shops on the first floor and the subsequent two floors will be divided into office space. The remaining two floors will be apartments. Describe the live load

When a building is being reconstructed, it is critically important to make sure, that all fire prevention norms are being observed. It is important to make sure, that old constructions are strong enough to support new loads. And this is where the live load needs to be closely considered. Live load is the weight of various objects, which will be present in the building, but are not parts of its

constructions or objects, permanently attached to such. For the case, described above, the live load will be: the furniture, people, visiting the store and the office centre, their staff, equipment. On the upper floors the load will not be as heavy. Apartments are not that frequently visited by large numbers of people, much less equipment is required and. However above the upper floors there is the roof, and on the roof there may be some equipment, there may be antennae, and, since it is not a warm country, it is likely to snow. Therefore, the weight of the snow will also be an element of live load. All this needs to be taken into consideration when conduction reconstruction in such a building. Bearing constructions must be prepared for the load.

References

National Fire Protection Association official web site

NFPA 72 – National Fire Alarm and Signaling Code – 2010 Edition. National Fire Alarm Association, 2009, Page 118, Subsection 24.4.17.

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