## Fire Protection Engineering Design and Sustainability

Fire protection engineering design and sustainability is an area covering relevant strategic plans at evacuation and prevention stage in order to ensure there is little or no loss of human life or property. The platform of engineering, as far as fire protection goes, is highly prolific in determination of lives of victims (Meacham 78). As such, proper strategies should be put into place through very high innovations in order to make sure developed projects complement already existing equipment, processes and methods of fire protection. In majority of the developing nations, there are no plans that are properly installed in order to ensure there is re-growth after a tragedy (Meacham 78). This demands accurate measures of protection so as to keep equipment, animals and people safe in the event of a fire.

There are several studies conducted revealing among the developed nations, the US face the highest fire losses in every sector of growth. As a technology hub, US maintains high innovative plans that include different institutions that help in reduction of property loss and deaths in the event of instantaneous fire break out (Sustainable Engineering Practice 103). The innovative requirements that are initiated by increase of fire instances that affect a nation must respond by setting up new facilities in different department. The facilities re-innovated should be highly responsive and efficient, cost effective as well as extremely passive and automatic fire protection equipment’s. Strategies of fire management involve detection, fire containing, control and fire extinguishing. Provision of these requires systems that are highly responsive and effective at an early stage of the fire breakout (Sustainable Engineering Practice 105).

The stage of designing fire protection equipment requires the involvement of fire protection engineers. The work carried out by these engineers is designing processes and equipment that can provide reasonably high protection levels for both human lives and ensuring instant eviction processes. On that same note, the design stage should be given priority to processes and equipment that can reduce potential losses through clearance of fire products. In most cases, there is significant loss of personal property, real property, organizational operations and important information (Sustainable Engineering Practice 106).

The stage of engineering and protection stage require that one is supposed to be equipped well with necessary knowledge. The most significant pre-requisite knowledge in the planning and design stages of fire protection includes having an idea of the four fire sources which might be incidental, wildfire, natural or human. Once the source is established, the designer gets the opportunity to use an integral system in the control process. The approach that is given in such as instance would permit protection designer to carry out an analysis of all components of building, disintegrate every part of the building as well as initiate the most ideal control strategy. The entire protection and management processes gives priority to high levels of maintenance code compliances so as to meet the required minimum legal industrial accountability and responsibility in the course and after protection, of, for instance a building.

In other terms, the building in question as well as fire codes must have materialistic goals; goals to ensure protection against deaths and injuries, to enhance limited fire impact to neighboring community or buildings and to identify victims as well as create a gap between them and non-victims for compensation measures that are accurate (Sustainable Practice 103). The process of control looks at individual life as more important than assets as such, no obligations to necessarily protect personal assets, or individual mission or to participate in solving different kinds of problems created by new projects that do not have any unique circumstances and low processes of operation. As such, for the investigation, it is very critical for the designers of the project and firework engineers to work more efficiently and creatively to coalesce fire protection codes together with other measures and highly designed strategic plans so as to create a design that is well balanced. The balanced design provides fire interception processes and provides high levels of safety as they are desired. As mentioned, the safety measures under fire protection processes revolves around evacuation processes as well as fire extinguishing plans.

Most nations have made great improvements in the type of equipment they use. With such improved delivery of service to fire victims, sustainable equipment installation becomes importance since it ensure there is continued protection against fire incidences. With the major objective being that of reducing fire losses by more than 50% within the global generation, the report regarding global fire losses brings to the forefront the issue of the governments, researchers attention, the public as well as a coordinated approach to the center as the tool for innovative developments and processes that can provide complete protection designs in according to the increasing expectations.

The issues that are most complicating include incorporation of green plans of protection in the processes of engineering that are less advanced and advocating for limited efforts in provision of fire protection (Sustainable Engineering 110). The response that is given by the engineers is that fire measures of fire safety are changing alongside changes in actual building environment, as such, arising the need for adaptive techniques to make it possible for engineers to address rising challenges proactively. In relation to this, challenges that are present in the fire safety community come with different ever present task of staying at the forefront of building design in order to keep large scale disasters and dangerous trends at bay. Just in the same manner fire community responded to new hazards by using equipment’s like foam plastic insulation during the 1970s in construction, the community is presented with challenge of adapting new hazards that are introduced by sustainable engineering designs.

A report documented and released by the National Association of State Fire Marshals (NASFM) revealed there is lack of knowledge regarding green buildings in the fire safety community. Limited knowledge about green building is triggered by the fact most of the fire officials are yet to handle green buildings in their work and introduce some high level technologies within their endeavors to provide protection. Potential scenarios like passive airflows, double-walled glass interiors, photovoltaic cells, integrated radiant systems, new insulation materials and removal of fire retardants in furniture are some of the increasing protection measures. Use of these materials as well as building plans are the strategic plans projected in order to create flexible means of fire protection. The projects engineers are running currently are focused on inclusion of some of the following pacts at design stage as a means of reducing chances of fire incidences.

* Considering provisions of equivalency or performance-based design options in order to solve the issues that exist between green initiatives and codes.
* Recognizing developing issues that are related to interaction between existing codes and green initiatives.
* Recognition of the value of early addition of fire protection professional as part of sustainable design team.

Sustainability in buildings as well as other constructions is something that has gained prominence among real property owners. As for site elected officials, marketplace managers and building owners who are energy conscious are adopting various kinds of regulations so as to cement the direction that the building industry is supposed to go. Now, it is the mandate of the fire protection community through the work of engineers to address such challenges as well as maintain high levels of protection at operation costs that are vitally reduced.

Buildings, notably contribute more than 70% of CO2 emissions. This count is 3 times high than emissions from cars or other automobiles. Sustainability and technology should be integrated in the process of building a design instead of being added to a product design while at the same time, being economically viable. This can include modifying the building’s direction of wind through 3 fuselages at 3 levels and converting wind into electricity while reducing structural load on the building. This process aids in reduction of chances of a fire spreading to other areas of the building. This examples follows harnessing concept environmental assets that are available and using them in an efficient manner and not simply reducing costs of operations. Other structures highlighted include incorporation of wind cones in the design building that span the height of the building and use passive ventilation such that the environment within the cone is 20 degrees cooler compared to the outside temperature without air conditioning while also providing courtyard green space in the building (Sustainable Engineering Practice 116). Selection of this protection design is focused on reduction of energy consumption of the existing buildings instead of continuing to find alternative sources of energy in order to provide energy needs of the buildings.

### Works Cited

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