

CASE STUDY OF FIRE IN RESIDENTIAL BUILDING

Executive Summary:

This case study revolves around a recent fire in a residential building, its probable cause and the role of agencies to prevent them.

Incident:

A fire broke out in a penthouse of a building in Thane area. The cause of the fire is unknown, but certain tell tale marks lead to probable cause of loose contact in the plug circuit, which has gone unnoticed for a long period.

This fire has left behind two dead persons who were trapped in the apartment, and destroyed completely the two floor apartment. Certain pictures from the web are attached to show the extent of damage.

Disaster management personnel said the monstrous blaze could not be controlled as the entire furniture, flooring and the staircase connecting the duplex apartment was wooden. The house fire spread quickly and in the blink of an eye the entire apartment was up in flames. There was no way to douse these flames at that point of time as the entire apartment was decorated up with wooden furniture. The house flooring was wood-based, the staircase that led to the duplex apartment was made of wood and so were all the wardrobes and other furniture.

Fire brigade pressed into service four fire tenders and a bronto skylift. The firefighting operations were delayed as the skylift could not be positioned properly due to the trees in the compound.





Observation of the above Electric Fire:

*** Cause of electric fire is not known, but news item attributes to short in plug circuit.***

Probable Cause of Electric Fire:

- At that time no equipment may be ON except the Air Conditioner, as the point of fire is reported in the plug circuit.
- Are Plug Socket dangerous in India? Yes as the prefabricated plug which comes with the equipment do not have a tight contact within the socket, resulting in loose contact. Loose contact, results in localized heating and if not noticed in time end up in fire.
- Earlier days electric equipments be it iron, heater or toaster were not supplied with plug. Consumers would purchase plug of the brand whose socket is used in the house. Hence chances of loose contact in the plug socket was rare. Now it is common. No pre fabricated plug fits tight in the socket, due to absence of standardization of the plugs.
- During 1985 to 1995, while installing UPS for Computers, it was noted that the prefabricated imported plugs were loose in Indian sockets. Lose contacts in these cases also use to cause computer rebooting – data loss etc and there was a trend to blame UPS for all that !!!

- Despite reluctance from heavyweights in computer manufacturing like WIPRO, HCL etc, it formed necessary to cut imported PLUGS which use to be part of mains cords and reconnect with proper size Indian plugs ---- just to avoid lose contacts. But many were afraid of loss of warranty from the OEM.

How Such Fires can be prevented:

- All should periodically inspect the plug socket of equipments when loaded. A touch will reveal whether the plug is warm or normal. If found to be warm or hot, there will be tell tale marks of loose contact by blackening of pins. In this case both the plug and the socket needs replacement.
- Extension boards should not be used for high current equipments like Water heater, Refrigerator, Cooking heater, Air conditioner etc.
- This penthouse was full of fashionable interiors with lavish use of wood, varnish etc. So the fire was of massive scale. Avoid massive use of wood, veneer, polish, oil paint, these are only ornamental.
- All interior wiring needs change every 15-20 years depending on the additional equipment load one adds to his comforts.

How Utilities can Contribute to prevent these fires:

- Supply undertakings some times take short cut to maintain service/power supply . When old cables get defect on one phase they merrily shift total load on two or even one phase. This results in over loading and resultant failure of insulation & fire. The meter board is made of wood. That catches fire. Volunteers use sand to quench fire. Which is not effective. Fire extinguishers are rarely available. If available no body knows whether this can be used for fires on electrical equipment. Rarely one knows how to use if suitable. By the time fire flames become visible and chaos prevails.
- All old buildings have meter board under the ground floor staircase and mounted on Wood. The condition of the meter board and the incomer is alarming. Utilities should undertake disconnection of Power supply and its restoration only after the meter board is set right.

How Architects, Building Contractors can contribute to prevent these type of Fires:

- Insist on low smoke halogen free wires/cables, in residences.
- Architects and builders should note that grills if used in the façade of building shall have one open window to aid fire escape. Every building should have free

access around for fire tenders. The movement of emergency vehicles should not be hindered by trees. Safety audits shall be periodic and comprehensive.

- Architects through change in government rules will have to be told to relocate meter rooms away from staircase.
- The incidents of fire are on the rise even when tech advances providing heat , smoke sensors, fast acting isolators and protectors, advanced fire fighting systems are drummed up daily at various platforms. Fires in all types of establishments are on the rise.
- There has to be standardization of internal wiring used by builders to keep in mind the probable equipments which every one can use. Also the ignorance of use of these equipments by inmates should be considered and sufficient safety measures taken.

How Manufacturers can contribute to prevent these type of fires:

- Some standardization is desperately required, to match Indian sockets with prefabricated plugs which comes with the equipments which are manufactured in India or abroad.

Compiled By

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