

# Fire Safe Mumbai

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## ‘Mumbaikars should be vigilant about hazards’

**Ajoy Mehta, IAS, Commissioner, MCGM, explains the rising significance of Mumbai Fire Brigade and key aspects that citizens need to be focused on**

**What is the significance of the Fire Brigade department for the city of Mumbai?**

Mumbai Fire Brigade (MFB) is one of the oldest municipal fire services rendering the service of saving the life and property of citizens from fire and other calamities.

This brigade has a long legacy of dedicated and selfless service. The motto of this brigade is “Valour, Abnegation and Sacrifice.”

Mumbai city is a financial capital of this country and spread over area of 437 sq. km. with vast coastal line, high rise buildings, petrochemical refineries, multinational companies, multiplexes, malls, hospitals etc., and MFB is providing services to all these establishments.

**How vast is the scope of operations?**

The scope of MFB’s operations is quite vast. Mumbai Fire Brigade has to tackle fire, building collapse, bird / animal rescue, tree collapse, chemical accidents, drowning cases, beach safety, flood relief etc.

This city has large airports, docks, industrial belt, refineries, BARC, plus road and railway transportation network.

Any emergency arises in these places, Mumbai Fire Brigade has to respond and render the service. There are complications due to mixed occupancy, in South Mum-



bai there are very old structures so building collapses need to be managed, MFB has to tackle forest fires as well.

So the Mumbai Fire Brigade has to be versatile by all means, capable of tackling all kinds of emergencies.

**What fire hazards does Mumbai face?**

Mumbai being India’s financial capital, having opportunities for employment, constantly attracts people from all walks of life across the country.

Every day new people are migrating to this city. Due to this, it has become the most congested city with very high population density per sq. km.

Being an island city, the availability of land for horizontal growth is limited and hence development has happened in vertical manner in the form of high rise buildings.

Fire fighting and rescue in high rise buildings is always difficult task. Apart from this, multiplexes and malls have created additional hazards which MFB needs to tackle.

Due to the large number of slums and heavy vehicular traffic, MFB vehicles face difficulties in reaching the location where a fire has taken place in the shortest possible time.

**How can Mumbaikars do their part to ensure fire safety in the city?**

Mumbai has a vast population belonging to a cross-section of economic strata of society. It is important for citizens from each and every segment to realise the need for giving greater attention to aspects like fire safety.

Therefore, we have a number of campaigns that are targeted at different segments so as to get the message across in a proper manner.

Mumbaikars need to follow the adage ‘prevention is better than cure’ when it comes to fire hazards and also be vigilant about reporting fires as well as cooperating with MFB to facilitate the process of putting out fires.

**How is Mumbai Fire Brigade leveraging technology for emergency response?**

For enhancement of emergency response and better services to the citizen of Mumbai, strengthening of MFB with infrastructure and manpower is in process, which includes the following:

- Replacement of old fire appliances.
- Procurement of highly sophisticated special appliances (90 metres, 81 metres and 68 metres hydraulic platforms will be procured.)
- Highly sophisticated control room - The existing control room of Mumbai Fire Brigade will be replaced and integrated command and control room in very short time with GIS / GPS integration.
- Public Awareness Program – Already 500 volunteers are trained, poster for fire safety awareness is already published.
- Fire Presentation and Safety – Software for compliance of fire safety from various establishments will be ready with department.
- Manpower- Reorganisation and filling of the vacant post as well as creation of new post is in process.

## ‘Citizens must follow basic precautions’

**Snehal Ambekar, Mayor, Mumbai, outlines the role of building occupants to meet the new challenges that their island city faces**

**Given the growth of high rises in Mumbai, do you feel there needs to be a greater emphasis on fire safety?**

Definitely, while Mumbai being an island city and financial capital of the country makes vertical growth essential, we have to ensure that fire safety awareness and facilities also rise in tandem.

While the Mumbai Fire Brigade is gearing up to manage the new challenges that arise due to the growth of high rises, it is equally important for the occupants of these buildings to ensure that they too follow basic precautions and avoid creating fire hazards.

**How has the importance of Mumbai Fire Brigade grown?**

The MFB is a century old service which needs to be dynamic because this city is changing every day.

To deal with this situation, a constant endeavour must be made to facilitate its development and empower it to provide better services. Constant endeavours must be done to upgrade the skills of fire personnel, infrastructure, training and acquire new technology to face the current and upcoming challenges.



**What advice would you like to give the citizens of Mumbai in particular where fire safety is concerned?**

I would appeal to all citizen of the city to maintain in-built fire fighting system all the time and carry out necessary inspection and testing through licence agency.

Every building should devise a fire escape plan and practice it on regular interval.

In the event of fire or any emergency, don’t panic, keep cool and inform fire brigade immediately.

After safe escape kindly identify yourself to fire brigade or police for proper account of all the people living in the building.

In the house, the inflammable material shall be kept out of the reach of children.

The electrical sockets shall not be overloaded and effort shall be made to check electrical installations at regular interval through authorised person.

Fire brigade has started programme of training volunteers to help in case of emergency.

I appeal to all the citizens of this city to participate in fire volunteer programme to ensure better service in case of an emergency.

## ‘The infrastructure of MFB has evolved’

**Sanjay S Deshmukh, IAS, Additional Municipal Commissioner (Western Suburbs), MCGM, points out why ensuring fire safety is a greater challenge in Mumbai**



**Given the high volume of structural development, population and traffic, how have the Mumbai Fire Brigade’s challenges increased over the years?**

Ensuring fire safety is a challenge for every urban area, but it is particularly greater in Mumbai as it is a unique city in terms of the small lanes, parked vehicles blocking access to buildings, the number of commuters that traverse it especially during peak hours hampering swift response and so on.

Residents of many buildings do not make the necessary effort to maintain fire safety equipment and there are instances where refuge areas are used for storage or some other purpose other than intended.

**In what manner and how often is fire safety awareness being created among the citizens**

**of Mumbai?**

It is definitely important to disseminate information at a basic level as well as leverage technology. Fire drills and demonstrations are conducted to convey messages to a wider audience. Social media platforms are also an effective way to convey relevant messages and campaigns. Given its effectiveness as a facilitator, connecting us with the citizens of Mumbai, we envisage utilising technology to an even greater extent going forward.

**How does Mumbai Fire Brigade do scientific evaluation of manpower, infrastructure and resources for proper safety and response coverage?**

MFB has a distinction of serving this city for over a century. During this tenure, the Brigade has acquired sufficient experience for the scientific valuation of manpower on the basis of population density, response time and fire risk analysis. On the basis of this parameters, the infrastructure for the MFB has been evolved and efforts are been made to achieve the proper fire safety coverage for everybody. In the coming years, 26 new fire stations will be set up for better response time and to deal the situation more effectively in terms of ever increasing population density and infrastructural development.

Also concept of mobile mini fire tender will be introduced shortly for swift response in crowded areas.

**“Social media platforms are also an effective way to convey relevant messages and campaigns. Given its effectiveness as a facilitator, we envisage utilising technology to an even greater extent going forward.”**

## ‘MULTIPLE INITIATIVES TO BOOST AWARENESS’

**Ram Dhas, Deputy Commissioner, MCGM, shares the progress made while engaging Mumbaikars in fire safety and related efforts**

**How has the role of Mumbai Fire Brigade expanded over the years?**

Ever increasing population, infrastructure and rising number of buildings has been putting extra workload on fire brigade.

Initially, the Fire Brigade was set-up as per the provision of Mumbai Municipal Corporation act 1888 to discharge the obligatory duty of saving the life and property from fire.

However over a period of time, the Fire Brigade has been called to render the services for other emergencies such as Building collapse, accidents, birds rescue, animal rescue, chemical hazards, oil spillages, tree collapse, drowning cases or any other incidences where the life is in trouble.

**What are some of the key initiatives taken to increase awareness about fire safety among Mumbaikars? What has been the response to them?**

We have prepared posters in Marathi and English consisting of the information regarding fire safety of high rises, malls, multiplexes, residential and commercial buildings etc dos and don’ts are mentioned in the posters.

These posters are already given to each ward and under the leadership of Assistant Commissioner of every ward these posters will be printed, distributed and posted at the locations.

For awareness, the programme of creation of “Fire Volunteers” is started from 15.08.2015 under 06 Regional Command Centres and it was decided



to train more than 5000 volunteers. These volunteers will be from the respective locality and will be available immediately in case of disaster to help people at initial stage and also to help fire brigade once reached on scene of incident.

Also an appeal is published in news paper and on MCGM website to carry out timely fire audit and inspection of building through licenced agency and facility has been given to upload required Form B on MCGM website.

**What is the role of Mumbai Fire Brigade in case of disaster management?**

In case of the disaster, the first responder is fire brigade. Mumbai Fire Brigade in conjunction with the

**“For awareness, the programme of creation of “Fire Volunteers” is started from 15.08.2015 under 6 Regional Command Centres and it was decided to train more than 5000 volunteers.”**

Disaster Management Cell of MCGM has designed to provide a fundamental document outlining the Department’s response to a wide range of emergency situations.

It is intended to provide a single basic operational plan, which may be expanded to meet any disaster situation regardless of whether the cause is manmade or by natural forces.

Specialized services of Mumbai Fire Brigade include Ambulance services with Emergency Medical System, Flood rescue team, Beach safety unit, Search and Rescue team.

These specialised unit have been trained under professional guidance and the advance training is imparted time to time to mitigate the disaster in more effective way in the changing lifestyle.

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# Fire Safe Mumbai

## How does the Mumbai Fire Brigade plan to leverage technology going forward?

We are procuring more equipment, which is user friendly and easy to operate. We are in process of getting drones for fire fighting as well as to get the information through surveillance of the particular area and understand how strong the fire is.

We plan to get robots that can actually go into the fire and do the fire fighting especially in areas like basement where a person cannot go inside without the ventilation. The project report is done and we are working on the feasibility. Robots will be ideal for situations where there are explosives, detonations etc.

## Are there any other developments on the anvil?

We are planning to introduce mini fire engines for densely populated area so that quick response can be taken care of. With that fire engine even small, narrow by lanes would be accessible.

We are also procuring more advance aerial ladders of 90 and 68 metres for better operation in city and suburb areas, specifically skyscrapers and high rise buildings.

## How is the need for fire safety emphasised by Mumbai Fire Brigade in different forums?

As part of Fire Safety Week, each year from April 14-20 we organize demonstrations, presentations and lectures to the commercial institutions, residential colonies. There are 34 fire stations and the officer in charge, higher officer, staff conduct these sessions during this week in the areas within their jurisdiction. The public awareness campaign becomes extensive during this period.

In multiplexes and cinema theatres we are launching a short film about fire safety within premises, outside locality, etc. Maharashtra Fire Prevention and Life Safety Measures Act 2006-2008 has been implemented in Mumbai called as Fire Act under which guidelines have been issued to the owner and the occupier. It is the sole responsibility of the owner and the occupier to get the system installed in the premises certified.

During Diwali this year we instructed people that they should not keep anything combustible on terraces and balconies, we conveyed this message at cinema halls also.

## How is Mumbai Fire Brigade gearing up to meet new challenges?

Decentralization of MFB has been done, 6 regional command centres are in operation so that the work is distributed region wise. There are two regional command centres in the eastern suburbs, two in the western suburbs and two in the city. People will get faster services in case of fire due to this.

Mumbai Fire Brigade is also responsible for beach safety. We are managing beaches like Girgaon, Juhu, Versova, Gorai and Aksa. These beaches are manned by the Mumbai Fire Brigade personnel along with the contractual and permanent life guards as well as the local NGOs. On weekends and public holidays, these beaches are manned by MFB and life guard. The initial rescue is done by lifeguards and the backup is provided by Mumbai Fire Brigade. We have beach safety units located at all command centres, consisting of high speed power boats, jet skis, rescue equipment, etc. manned by highly trained officers.

## What are the initiatives taken by Mumbai Fire Brigade to involve citizens in fire safety to a greater extent?

Under the Volunteer Fireman Program we have already prepared 500 plus volunteer firemen who are readily available with the department now. This will increase within a short time. We have given training to these volunteer firemen in 6 regional command centres - Wadala, Byculla, Borivali, Vikhroli, Marol and Mankhurd. We called these volunteers, enrolled, registered them and provided training of basic fire safety, fire extinguisher handling and assisting fire fighters in case of fire in their areas.

These volunteer firemen will report to the site of fire, inform the control room having database of all these volunteer firemen so they will be contacted and dispatched. Before the fire department vehicles arrived they will clear the traffic, in case of evacuation help children and the elderly to safety. They do not get into direct operation of fire fighting, as that is not their job.

The strength has to go up to around 7000 and for that steps are being taken. We are conducting these programs in all these command centres on regular basis.

Since training and accom-

# 'We are procuring more equipment'

PS Rahangdale, Chief Fire Officer, Mumbai Fire Brigade, shares his vision, strategic approach and future plans



Prabhat Rahangdale, Chief Fire Officer, Mumbai Fire Brigade lighting the lamp at the inaugural ceremony of the 'Fire Safe Mumbai - International Conclave' held on November 7, 2015

modating such volunteers will entail some expenditure, it has been proposed to conduct this activity through Corporate Social Responsibility (CSR) initiatives.

The volunteers will be trained in batches of 30 each. This being the first initiative of this kind, we are working on various major and minor requirements with a view to making this arrangement attractive, safe and responsible.

Another major initiative will be to create a Fire Party in each slum. Members of such a group will be the first response to any fire. The nature of this scheme will be similar to that of Fire Volunteers. It will be implemented with the association of NGOs working in slums. The volunteers for Fire Party will be inducted for basic training. To make their job easier, a public area in each slum will be identified to store basic fire fighting material like

empty buckets, sand, electric plug pullers, wire cutters and preventers to extinguish small fires. First aid boxes, too, will be supplied. This activity will be called Slum Emergency Mitigation Programme.

## How can steps be taken to ensure fire preparedness?

To make a building fire safe, passive measures need to be taken into account before the construction starts in consultation with the building's architect and mainly pertain to selecting proper construction material. The focus of this step is the confinement of a fire and its products like heat and smoke. There are three basic elements for this. (A) Use of fire-resistant material for doors and walls. (B) Use of dampers to segregate fires, and (C) To stop spread of a fire by compartmentalization. If these measures are taken, a fire would not easily pass from one area to another.

All escape routes will have to be secured. Any occupied area facing escape routes must have fire-resistant doors. The routes must be properly ventilated, mechanically and naturally. Proper lighting and back-up support is another requisite. Exit signs need to be properly marked. Residents of a building should ensure that no obstructions clutter the escape routes. A much-required but hardly followed precaution is to seal off vertical utilities like building ducts at each floor level. Staircases should have natural light and ventilation. When central staircases are installed in structures like posh hotels, positive pressure should be provided to prevent ingress of smoke, which travels upwards.

## What steps can be taken to ensure early detection?

People notice fire in the form of smoke, heat, or light. It can be a combination of two or all three

factors also. Since smoke goes in the upward direction, smoke detectors can play a vital role in fire detection. When heat, due to a fire, reaches a temperature of 60-70 degree Celsius, the sprinkler system in the ceiling starts working. Thus, smoke detectors and sprinkler systems perform their duty till the arrival of the Fire Brigade. When all the systems in a building are synchronized, it is the most effective way to fight a fire.

## What are the responsibilities at a society level as per the law?

The Maharashtra Fire Prevention & Life Safety Act, 2006, has come into force. Section 3 of the Act entrusts the responsibility for fire fighting measures to the secretary of the building. The Act provides for issuing a Fire Fitness Certificate to every building twice a year in January and in July.

If any shortcomings are noticed in the fire fighting system of a building, these are conveyed to the building secretary, with a notice that these should be rectified within a specific time frame. If there is no compliance, action can be taken against the defaulters.

The Maharashtra government has issued licenses to over 400 agencies to inspect private and public buildings from the point of view of fire fighting preparedness. These agencies will visit various buildings and issue certificates accordingly. Mumbai FB has plans to outsource the work of maintaining a list of the buildings inspected and the time frame prescribed for each building to rectify the shortcomings. This way, it will be able to keep track of the notices issued, compliances received and action to be taken in case of defaulting societies.

## How does Mumbai Fire Brigade plan to leverage technology for fire awareness and response?

To contact residents of the buildings in a locality where a mishap like a fire has taken place, social media tools like emails, blogs, SMS and What's App will be used. It has been observed that people react to a potential tragedy in a more alert manner if such an accident has taken place in their proximity. We plan to cover the buildings in at least a kilometre's periphery after any such mishap happens. This will generate awareness among the people more effectively.

## Do you feel there is a need to emphasise fire safety in a systematic manner right from the school level itself? Are there any plans to conduct programs in educational institutions?

School children are an asset in building up any society. Sensing this, it has been planned to organize their periodic visits to nearby Fire Brigade Stations so as to acquaint them with the working of fire fighting and the perils involved. An allied effort will be to include a chapter or two about fires and their prevention in school curriculum.

## What are your future plans for Mumbai Fire Brigade?

- Develop new 26 fire stations and 10 mini fire stations over the next decade
- Addition of specialised vehicles like 90 m Hydraulic Platform and 68 m turn table ladders in the near future
- Hazardous Materials emergency handling van
- Implementation of "Integrated Command and Control System with GPS and GIS based automatic vehicle tracking system"
- Emergency-related information to be available easily.
- State of the training facility such as BA Gallery, Petroleum fire simulator, CSSR simulator etc.
- Procurement of latest Personal Protective Equipments for all fire brigade personnel.
- Development of Fire Management System (FMS) for effective implementation of Fire Act 2006.
- Revision of Standard Operating Procedure (SOP) for all types of emergency calls.
- Reorganisation of fire brigade department.
- Replacement of old communication system with latest Digital Mobile Radio system. (DMR)
- Setting up of gymnasium at Regional Command Centre and fire stations for the fitness of firemen.

## Fire Inspection Certification is a must for all buildings

Every structure in Mumbai, commercial or residential, needs to obtain a Certification of Compliance of Fire Prevention and Life Safety (FPLS) measures twice, in January and in July, every year. This has been mandated by the Directorate of Maharashtra Fire Services. The Directorate has outsourced the work and to carry it out, has issued licenses to over 400 firms to act as Licensed Agencies under the Maharashtra FPLS Act in the state. This Act entrusts the liability on owners and occupiers of a structure to install FPLS measures as per its provisions.

In cases of non-compliance with the provisions of the Act, notices are issued for compliance/rectification. Failure to comply or rectify will result in legal action against the defaulter under the Act. It may comprise a fine or imprisonment, as the case may be.

In the wake of the massive Mantralaya fire, the Brihanmumbai Municipal Corporation (BMC) has tightened safety norms for all residential, commercial and highrise structures in the metropolis.

The Maharashtra Government, too, is now strict on stringent implementation of all Fire Act provisions.

The fire department inspects all State and Central government offices to ensure that proper fire safety systems are in place. The enlisted licensing agencies empowered to undertake fire safety inspections should be approached by the owners/occupiers of buildings to conduct safety inspections in their buildings.

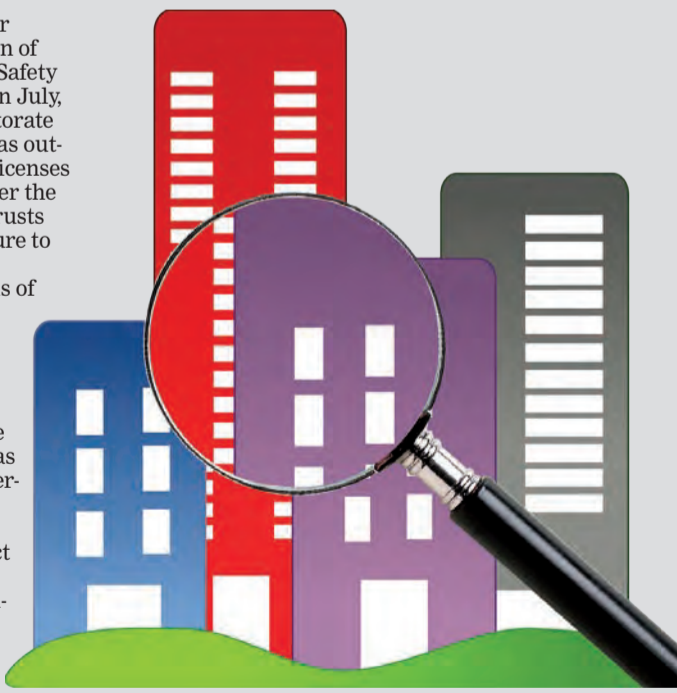
The Maharashtra FPLS Measures Act, 2006, provides for all residential and commercial buildings to follow a series of fire safety norms. Currently, fire services are empowered to impose a penalty of Rs 20,000 to Rs. 50,000 or suggest imprisonment of building owners who don't follow the fire safety law.

On January 9, 2012, a massive fire had erupted at AMRI hospital in Kolkata which had claimed at least 80 lives and had left many injured. The blaze exposed the vulnerability of hospital buildings to such disasters. The BMC has declared that it will ensure that fire safety inspections of all multi-storey buildings are completed promptly, owing to the death of a fireman during the Andheri fire a few months ago.

To ensure that such incidents are not repeated in the future, I have directed the administration to ensure that safety inspection of residential, commercial and state administrative buildings is completed, a top BMC official said.

An independent fire inspection cell has been created for the purpose and strict action will be initiated against those who fail to comply with the safety norms put in place by the civic administration, he said.

A recent survey by the fire department revealed that only a very few buildings in Mumbai have conducted their structural or fire inspection reports and submitted the results to the BMC.



If all these rules and norms are observed, the incidence of fire will come down drastically.

The Fire Inspection Cell (FIC) with 99 officials will be operative soon. Recruitment has been completed and the candidates have been undergoing intensive training imparted by distinguished faculty drawn from the IIT, VJTI and other reputed academic institutions. The training consists of basic knowledge of various disciplines like chemical hazards, wind currents, electronic waste, electric wiring and evacuation techniques, to name a few.

The Mumbai Fire Brigade has been equipped with details of about 35,000 buildings. FIC officials will be provided with email addresses of owners/occupiers of buildings so that the officials can contact them prior to an inspection. The time and date of inspection will be notified to the recipient in advance. Each inspection area in a building will be photographed as evidence and stored in the tablet provided to the official.

Thus, neither the owner/occupier nor the official will be able to tamper with it later. Each official, after each inspection, will be required to file the inspection report within 24 hours.

This will be monitored by higher officers and inability to adhere to this deadline will be immediately pointed out. The inspection assignments will be on the municipal ward basis. The FIC will operate under the Deputy CFO.

## MUMBAI FIRE BRIGADE: A truly glorious journey of 238 years

Fire protection in Mumbai is now 238 years old. The first fire fighting in Bombay began in 1777. Local residents were drafted to do this job and were paid a token amount of four rupees daily. The Bombay Fire Brigade was initially a function of the police department. It began functioning in 1855. For this purpose, a regular fire service began under control of the Commissioner of Police. As no motorized vehicles existed at the time, fire fighters used to travel in horse-drawn carriages.

After the 1857 uprising, Mumbai began to grow in leaps and bounds. To cater to its needs, a Commission was appointed to report the organisation of fire services in 1864 and a police officer was sent to England to qualify himself as captain of the Fire

Brigade. Next year, in 1865, the Bombay Fire Brigade was placed under the joint control of the government and the municipality. As civic government went on spreading its operations, fire protection was made the responsibility of the municipality with effect from 1 April 1887. The Bombay Municipal Corporation (BMC) Act was enacted in 1888, marking a watershed development in India's history. Accordingly, protection of life and property from fire became the duty of the BMC. The first Chief Fire Officer was W. Nicholls, brought from the London Fire Brigade, in 1890. The Fire Brigade acquired its first motorized fire engine in 1907. In the same year, the Bombay Salvage Corporation was established, making it responsible for fire protection and salvage operations.



Fire alarms were installed on major streets in 1913. The Fire Brigade was completely motorised in 1920, bidding goodbye to horse-drawn steam engines. The next major development came in 1920 when the Bombay Fire Brigade launched an ambulance service. For this, it began using six donated ambulances. After Independence, the Fire Brigade was placed in local hands and in 1948, M.G. Pradhan was appointed Chief Fire Officer.

The role and jurisdiction of the Mumbai Fire Brigade are defined by the Maharashtra Fire Prevention and Life Safety Measures Act, 2006. Vide this Act, its jurisdiction is set as the geographical borders of the Municipal Corporation of Greater Mumbai.

## MUMBAI FIRE BRIGADE CALL STATISTICS

Period	Region	Fire	OS	RS	HC	GIFA	MFA	Total
Jan- Dec 2014	City	1989	2052	2256	151	16	4	6468
	Suburbs	2657	3316	6025	155	19	5	12177
<b>Total</b>		<b>4646</b>	<b>5368</b>	<b>8281</b>	<b>306</b>	<b>35</b>	<b>9</b>	<b>18645</b>

OS : Other Services ; RS : Rescue Services; HC : House Collapse; GIFA : Good Intention False Alarm; MFA : Malicious False Alarm

## MUMBAI FIRE BRIGADE OVERALL STRENGTH

Fire Vehicles Total	Nos.
No. of Fire Stations	33
No. of Fire Engines	56
No. of Jumbo Tankers	17
No. of Water Tankers	11
No. of Ambulances	22
No. of EMS Ambulances	6
No. of Special Appliances	
1) Aerial Ladder platform	10
2) Turn Table Ladder	6
3) Hydraulic Platform	2
4) Volvo	1
5) Foam Tender	3
6) Hose Lorry	2
7) High Pressure Light Vehicle	4
8) Rescue Van	5
9) Breathing Apparatus Van	3
10) Control Post	1
11) Motor Lorry	2
12) Mini Bus	2
13) Education Van	1
14) Mobile Diesel Van	1
15) Delivery Van	1
16) Breakdown Van	1
17) House Collapse Van	1
18) Tractor Pump	4
No. of Cars	7
No. of Jeeps (Including Trailer Jeep)	43

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# Fire Safe Mumbai

## Prevention is better than cure

LPG is an eco friendly, efficient and safe fuel if it is used properly, here are some of the crucial aspects that we need to keep in mind to avoid hazards and accidents

tube to be used. Buy the 'Suraksha' hose from a gas distributor only, as genuine one is not available in the open market.

Switch off the knob of regulator when not in use. Kitchen should be well ventilated. Do not keep naked flame like diya/ agarbatti, etc in the kitchen.

Allow the distributor's mechanic to carry out mandatory inspection every two years. Do not take services from unauthorised and/ or roadside mechanics.

Ensure electrical fittings are in good working condition and not faulty to avoid fire incidents. Do not store any other highly flammable product in the kitchen.

Ensure gas installation is not being operated by too young or too old members of the family or people who do not have proper knowledge about usage of LPG.

Educate domestic helpers regarding safe usage of LPG. Do not loan or borrow cylinders from anyone.

Use the gas installation at the registered address only. Use only one gas stove/ hot plate and do not use 'T' or 'Y' piece for using multiple equipment from one cylinder. Use appropriate size utensils, which are suitable for the burner size.

Use only approved means to ignite the burner, preferably with recommended lighter.

**Commercial customers should ensure the following:**

Gas installation to be designed and executed by approved agencies of the

oil companies with standard material and fittings. Get the gas installation checked/ audited by authorised person of the distributor / agency of oil company every quarter and get it pressure tested every year. Keep all the cylinders in an upright position, well supported and all the time connected to the manifold whether full or empty. Switch off the main isolation valve in the night or when not in use.

Do not keep flammable material inside the gas bank. All necessary safety equipment/ gadgets must be provided in the gas installation. Adequate quantity of fire extinguishers, as per IS 6044 Part I, should be placed near the gas bank.

Dos and don'ts and operating practices of the facility to be displayed. Numbers of fire brigade, ambulance, emergency cell, number of mechanic and concerned distributor should be displayed.

Emergency response plan to be available with all such establishments in case of exigencies. People operating gas installation should acquire basic knowledge of LPG and its operations.



Commercial customers should avail the services of trained mechanic of distributors only for preventive maintenance of their gas installation and not from any unauthorised outside mechanics. Do not heat the cylinder in case it starts freezing; cylinder should not be kept in hot water or laid horizontally, should always kept only upright position.

Bigger gas installation must compulsorily have auto safety shut off valve and leak detecting system.

**What are the systems and safety standards set up at an organisational or federation level? What has been the response to awareness initiatives?**

Distributors are regularly conducting Safety Clinics to grow the awareness. Regular training is imparted by company officials to the delivery man for safe delivery and to mechanics to handle leakage complaints safely. Emergency Service Cell is operating after office hours and on holidays to attend leakage complaints. It is difficult to get consumers to attend Safety Clinics program and

thus our efforts to educate customers about safety gets defeated.

The conventional one-way track communication during Safety Clinics should be made more interactive and maximised. Numbers of feedback and question taker should be facilitated.

Safety Clinics to be made more interactive and customer asking giving maximum number of feedback to the question taker should be facilitated

**How do you see the role of technology in promoting and ensuring fire safety in LPG distribution and its usage?**

Consumer Cards having validity of two years should be introduced, which will get renewed only after mandatory inspection has been carried out.

There should be some star ratings, which will distinguish between better and inferior quality product from safety features point of view.

Auto shut off valve and gas leak detecting sensors should be made compulsory for bigger commercial gas installations.

Refill booking apps should have an option to solve safety quiz having credit point accumulation facility.

Make use of technology to monitor and capture PDI check done at customer premises at the time of delivering the cylinder.

Mobile app to be developed to help customer to connect to the nearest mechanic available by just clicking emergency icon, to be used in case of emergency only.

### IN CASE OF LEAKAGE

- 1 Close the regulator knob.
- 2 Open doors and windows
- 3 Do not use electric switches/ buttons.
- 4 Put off all the naked flames like diya, agarbatti, etc.
- 5 Do not try to detect gas leak with naked flame.
- 6 Call your distributor during office hours and emergency service cell after office hours/ holidays.
- 7 Emergency service cell printed behind refill cash memo.
- 8 If possible, vacate the premises till help arrives.
- 9 In case of heavy leakage take the cylinder out of the house and keep it in open area. Cordon off the area. Call Fire Brigade.
- 10 Distributors and oil industry take out third party liability insurance policy for benefit of customers in case of accident arising out of usage of LPG. Customers should inform their distributor in case of such incident to avail benefit.
- 11 A friendly pictorial ready reckoner, in sticker form, with safety messages on how to deal in case of leakage be pasted in kitchens near gas installation for visibility.
- 12 Report LPG accident to your distributor and avail insurance cover taken by him and oil company.

Guidelines courtesy: All India Bharat Gas Distributors Association-Mumbai and HP Gas Dealers Association-Mumbai.

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## How to avoid fire hazards

**Careless disposal of cigarette butts, burning embers and other smoking materials.**

- PRECAUTIONS**
- Forbid smoking in common and hazardous areas where smoking is permitted, provide sufficient receptacles (say ashtrays) for safe disposal of cigarette ends and matches.
  - These receptacles should be non-combustible and should not be used for any other purpose. They should be emptied at the end of each working day.
  - Apply a 'No Smoking' rule half an hour before the work ceases for the day.
  - Premises should be inspected at the close of each day by the concerned staff.

**Electrical fire risk**

- PRECAUTIONS**
- Do not overload, tap or over heat electrical equipment.
  - Electrical installations should be inspected and tested periodically.
  - Test the insulation of all circuits.
  - Check the efficiency of earthing.
  - Renew all perished or damaged flexible wiring.
  - Check that pilot lamps are incorporated in all non-luminous appliances and these lamps are in good conditions.
  - Repair or renew all defective apparatus.
  - Keep temporary extension wiring to a minimum.
  - Switch off from the mains when equipment is not in use
  - Use connectors, instead of insulation tape, for joints.
  - Do not permit loose and hanging electrical wires.
  - Prevent physical damage to the electrical wiring I installations.
  - Use only I.S.I. certified electrical wiring, appliances and

- equipment.
- Necessarily use E.L.C.B. (Earth Leakage Circuit Breakers).
- Replace old wiring and installations periodically.
- Provide adequate ventilation to the room areas where electric switch boards/ distribution boards are housed.

**Leakage of LPG from cylinders**

- PRECAUTIONS**
- Guard against leaking gas cylinders.
  - Do not keep stove / any heating appliances very close to the gas cylinder
  - Do not use substandard tubing. Replace it before it develops cracks or broken.
  - Be alert about slightest smell of leaked gas before lighting burner
  - Cylinder should not be kept in horizontal position.

**Bad housekeeping**

- PRECAUTIONS**
- The side open spaces provided around the building to be maintained free from encroachments and obstruction.
  - Maintain good housekeeping throughout the premises by keeping materials and articles in a methodical and orderly manner.
  - Do not obstruct Escape Routes such as passages, common lobbies and staircases by any construction of storage of any combustible or flammable materials.
  - While doing renovations, ensure that the wooden shavings are sawdust are removed daily before closing for the day.
  - Avoid large scale use or storage of timber or wood in the renovation.
  - Do not accumulate garbage or waste materials, dispose them daily.

## FIRE INSURANCE DEMYSTIFIED

It gives your finances breathing space and puts you in a position to regain lost ground

Insurance as a principle is not new to mankind, as it has been practiced since Second or Third century BC. Since evolution has struck every practice in this universe, the evolution of insurance as a practice cannot be neglected. But the principle engraved in it has never changed, that is 'risk transfer.' Among the various forms of insurance that are prevalent today, the traces of fire insurance can be seen in the Great Fire of London in the 17th Century, where this catastrophe destroyed 13000 households, claiming heavy loss to property and life. A need to insure the property was felt as it was undoubtedly (and still today is) among the most valuable possession of mankind.

A lot of work has been done since then, to bring out the best policy cover for property. Today fire cover is provided with various add-ons to a range of policy seekers belonging to various sections of the economy. The **New India Assurance Company**, which has been the leading general insurer for decades, also provides a range of products in fire segment to its valued clients depending on their need and other factors.

In technical terms, a standard fire policy covers not only fire but a range of perils like fire, lightning, explosion/implosion, aircraft damage, riot, strike, malicious and terrorism damage, storm, tempest, flood, inundation, hurricane, cyclone, typhoon and tornado, impact by rail/road vehicle or animal, missile testing operation, bush fire, etc. This standard fire policy covers all properties on land (excluding cost of land) moveable or immovable at various locations against named perils.

The **New India Assurance Company** provides long-term policies (minimum of three years) for dwellings. These policies can be taken in two ways; either the insured can ask for a greater discount or can opt for an escalation clause (increase in sum insured). These policies are designed in consideration to the growing demand of customers at affordable price.

Also, special policies are designed for stocks (declaration and floater), building, plant and machinery keeping in mind the nature of property, proposer requirement and basis of indemnification. The special policies for stocks are made especially to take care of frequent fluctuations in stock and/ or frequent changes in value of stock at various locations.

The policy can also be extended to cover certain additional perils and expenses at additional premium. In addition to the perils/expenses covered, the proposer can opt to seek add-on cover (Like deterioration of stocks in cold storage, forest fire, impact damage, spontaneous combustion, earthquake, spoilage material, leakage and contamination, temporary removal of stock, etc.) at inception or during the currency of policy on payment of additional premium. By default, the policy coverage is for one

year which can be renewed on expiry. Taking in view the global economic condition and the recent 'Make In India' initiative by Government of India, the **New India Assurance Company** understands the need of the growing corporate/manufacturing sector and provides for an **IAR (Industrial All Risk)** policy. It is an 'all risk' policy, which is very comprehensive, convenient, and cost effective. It gives considerable savings to the insured due to its lower rates and its provision of allowing under-insurance up to 15%. It covers both material damage and business interruption losses along with machinery breakdown, burglary and with an optional cover of machinery loss of profit. Both, standard fire and all risk policy can be cancelled at any time during the coverage with suitable refund of premium for the unexpired period.

The premium for the policy is calculated and charged on the basis of risk ratings that are done by the assigned underwriters of company, who identify and assign occupancy type to the risk. The sum insured as declared by the insured is taken into consideration and appropriate rate for the identified occupancy is charged. After the company receives premium, the policy (which is a legal agreement, where insurer agrees to protect the insured financially against the named perils) is generated. A **Government of India owned** company like **New India Assurance** believes in providing maximum support to the customer (within the boundaries and purview of the principles of Insurance and the issued policy) in case of their financial crisis at a very nominal rate.

Today, we are living at the mercy of nature. With increased human interference, the frequency and intensity of natural calamities has increased, causing intense damage to life and property. Life is irreplaceable and the same goes with property without insurance. Keeping in view the global financial scenario, growing volatility and competition in the market, one cannot take the risk to lose the existing infrastructure (be it tangible or intangible) because of such events.

The effective loss caused by one single event/ calamity is so much that it can break the financial backbone of not only a particular individual or organization but even of a country. The advantage of having fire and allied peril insurance is that it gives your finances a breathing space out of a catastrophe, which has destroyed everything. It puts you in a position to regain your lost ground. Recent events have shown the significance of being risk (financial) immune and for that insurance is very important. This risk transfer mechanism that includes a minimal cost (premium) is the best return to investment in current scenario and people should understand the importance of fire insurance. As it is well said, 'Good things come at a price' and that price is 'premium.'



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# Fire Safe Mumbai

## '360° volumetric analysis is a must'

### How do architects incorporate fire safety aspects through design concepts and the use of materials?

Life and safety is a major concern and mandate for any architect for designing any space.

In present day context, it is of utmost importance that the buildings shall be designed with due importance to fire safety.

During evolution of concepts a thorough study of surroundings and accessibility to the site under reference needs to be evaluated. A 360° volumetric analysis of the surrounding is a must.

For site planning, architect must take into account the ingress and egress of the fire engine, as well as its movement inside the plot, with focus of having a simplified layout planning.

Internal circulation spaces with respect to heights of the structure form initial design parameters to ensure fire safety. The location of fire fighting tanks, fire pumps with their capacity of supply and capacities form an important data for any designer.

Planning for fire protection in and around the building, involves analyzing the risks of various sources of fire which thereby helps in understanding and suitably designing the building envelope and its internal detailing.

It becomes necessary to creatively and efficiently integrate the code requirements with other fire safety measures as well as other design strategies to achieve a balanced design that will provide desired levels of safety.

A fact needs to be underlined that the project has to be self-compliant in terms of fire fighting equipments like hydrants, sprinklers, smoke de-

tectors, compartmentalization methodology, drenches, materials used in construction, materials used for interior works, detailing incorporating smoke seals, façade material, etc.

According to NBC, the types of construction according to fire resistance are classified into four categories, namely, Type 1, Type 2, Type 3 and Type 4 construction. The fire resistance rating for various types of construction for structural and non-structural members is already specified in the NBC and BIS. The same needs to be followed.

The fire rating for structural and non-structural members, including their construction methodology, prescribed in the code shall be adhered to.

For the building, having height more than 15 m, non-combustible materials shall be used for construction, with internal staircase walls in brick work or RCC.

Materials in general can be categorized into various grades depending upon their fire fighting capacities. They may start from 30 mins to 6hrs. This can be achieved by changing specifications and by altering the design mix, use of specialized paints and coatings can also enhance the fire resistance of various materials.

The exterior walls, internal walls, fire walls, fire separation assemblies like fire check doors, the fire enclosures of exit ways, exit way access corridors, floors and roofs shall comply to the fire standards and norms prescribed in the BIS.

Staircases, lifts, fire lifts and egress points are of utmost importance and thus shall be properly located in a building.

The fire ratings of the elements like walls of lifts, motor room, landing doors, lift care door, collapsible gates, lift

**Architect Hiten Sethi** shares with Vijay Pandya perspectives on how fire safety aspects are incorporated while planning buildings, the various challenges faced while designing them and new aspects that need to be considered for growing high rises in Mumbai while providing recommendations for simplifying clearances as well as the standardisation of applicable norms



lobbies, shall strictly conform to the fire ratings as mentioned in the codes of practice.

Air conditioning systems should be installed and maintained so as to minimize the danger of spread of fire, smoke or fumes from one area to another. Care shall be taken that escape routes like staircases, corridors lift lobbies should not be used as return air passage. The ducts shall be sealed with fire resisting materials wherever they pass through walls or floors.

Provisions for venting of smokes and hot gases shall be made. Natural drafts of air should be created wherever possible. Staircase landings should be ventilated.

All electrical services shall



be laid in a separate duct with proper floor seals with good fire sealant details.

### Basic challenges faced while designing the building with respect to fire safety in current scenario

- The basic challenges faced, while designing are**
- 1) Improper access to the site
  - 2) Fire tank with ample water storage and pump capacity.
  - 3) Simplified layout planning
  - 4) Non-adherence to the safety measures as prescribed in the codes
  - 5) Lack of smoke extraction measures
  - 6) Design features incorporating fresh air intakes
  - 7) Improper width of fire cor-

ridors and escape routes

- 8) Use of combustible materials and finishes
- 9) Outdated fire systems with no maintenance
- 10) Accessibility of the site from fire station
- 11) Availability of water supply
- 12) Availability of electrical supply and alternative source
- 13) Lack of fire drills
- 14) Lack of maintenance of existing fire fighting infrastructure.

**With buildings in Mumbai going higher and higher, what are the new fire safety aspects that need to be taken into consideration while designing them?**

The major concern in high

rise building is apart from the basic norms and standards for firefighting, one needs to take into account the following new aspects of fire safety:

- Considering the terrorist attacks, perimeter protection measures, as employed nowadays must be planned, and designed so that the buildings would be properly accessible by the fire tenders.
- Another point to be considered is, the integration of the fire system with the HVAC system of the building with Building Management to have rescue at least possible time.
- Adequate rescue areas in form of refuge areas, with proper accessibility shall be provided.
- Specifying high fire resistant and sustainable materials.
- Judicious use of firefighting services like detection, notification and survivability of the systems
- Allocation of exit ways and stairways at required locations
- Providing helipads as alternative rescue mode.
- Providing escape devices like lowering devices and fire escape chutes
- Conducting fire drills

### What is the procedure to be followed for getting fire safety clearances for new buildings at present?

Present system for fire safety clearance is carried out in following way:

- On submission of file to the CFO, thorough scrutiny is carried out by the competent authority in co-ordination with the MEP consultant / Architect and the whole scheme is reviewed and documented.
- After the grant of the initial NOC, architects, MEP consultants prepare the final detail drawings for execution.
- After construction is over, the

registered fire contractor gets the complete system re-evaluated by physical inspection and testing.

- Necessary documentation regarding fire pumps, fire doors and other equipments is submitted to the fire department with their test certificates and performance guarantee.
- Once it is done the final fire NOC is released by the fire department.
- Also, a fire audit, after every 6 months is mandatory.

### What suggestions or recommendations would you give to simplify the clearances procedure and standardize norms?

Though the overall process is streamlined in present scenario, the approvals from the fire department should not be a mandate to start the work at site.

Although, architect/ fire consultant can submit an undertaking along with owner, taking the responsibility of the proposed planning. Any changes in laws should be done on annual basis.

In order to ease procedure standardization of materials and equipments needs to be evolved. A detail manual needs to be prepared as the basic directives acceptable to the fire department.

Standard guidelines for all design processes can be simplified in form of standardized softwares for recommendation and scrutiny, online submission of other technical details.

Architect/ specialized fire consultants can be empanelled for carrying out the design and its documentation for the initial start of the project. During the process, necessary scrutiny can be done along with the fire department for the formal approval.

## Safety is a priority at MGL

**Susmita Sengupta**, Technical Director, Mahanagar Gas Limited (MGL) speaks about the company's emphasis on safety while supplying environment-friendly fuel Compressed Natural Gas (CNG) and Piped Natural Gas (PNG) to the city of Mumbai and its neighbouring areas.

### What are the key procedures MGL has implemented to ensure safety in its operations across Mumbai and its adjoining cities?

MGL considers safety as a priority. To ensure safety, MGL has established systems and processes and has adopted Health, Safety, Security and Environment (HSS&E) Management System which provides a framework for continual improvement in its performance.



**Susmita Sengupta**  
Technical Director, MGL

### For ensuring safety in its operations MGL has adopted following procedure/processes:

- Cathodic Protection is conducted on steel pipelines to ensure protection from corrosion.
- The District Regulating Station (DRS), the Service Regulator (SR) device placed inside the Housing Societies and the meter control valve, meter regulators inside the kitchen ensure that adequate pressure of gas is maintained for safe use.
- Implemented Supervisory Control and Data Acquisition (SCADA) for effective monitoring and control over select installations.
- "Dial before Dig" initiative to monitor road digging activities of various agencies
- Regular surveillance of pipelines by patrolling team to ensure that no unsafe digging activities are carried out near MGL's gas pipelines.
- In case of an emergency the Control Room can be contacted on toll free number 1800 22 9944 offering 24 x 7 services for consumers.
- Fully equipped emergency vans are available round the clock for handling any gas related emergency.
- MGL has established Codes of Practice (COPs) governing all its critical operation based on national and international standards and guidelines of ASME, Oil Industry Safety Directorate (OISD) and PNGRB Regulations.
- We follow technical specification guidelines issued by PNGRB and work together for improvement in the system.

### Can you explain the safety measures involved right from City Gas station to the household?

Piped gas network is laid as per guidelines stipulated by Petroleum and Natural Gas Regulatory Board. The District Regulating Station (DRS), the Service Regulator (SR) device (placed inside the housing societies), the meter control valve, meter regulators inside the kitchen ensures that adequate pressure of gas is maintained. Besides, in case of an emergency, gas supply can be stopped by shutting the DRS / SR valve from outside the premise and the gas supply can be stopped inside the house by shutting the meter control valve, meter regulator

inside the kitchen.

### What are the safety measures implemented for MGL's CNG stations?

In-principle approval of the drawing for the CNG filling station is obtained from CCOE (Chief Controller of Explosives now PESO-Petroleum and Explosive Safety Organisation). While operating the CNG stations necessary measures such as safety audit checks and other emergency precautions are adhered to.

### How has MGL made use of technology to improve service, safety and connectivity?

Laying and commissioning of gas distribution network is carried out in compliance with the statutory guidelines and regulations. MGL's business is integrated through ERP-SAP system. The company has several customer friendly services for the convenience of its customers. The customers can reach MGL through e-mail and sms, social media (Facebook and Twitter). There is also a dedicated round the clock telephone line made available to the customers.

In addition to these, MGL has also launched a mobile app 'MGL Connect' for its customers for sending and viewing their meter reading, logging complaints/service request, downloading relevant forms/documents, etc. The app also enables the CNG customers to locate CNG stations, calculate savings by using CNG.

### What are the education/measures used to educate its PNG and CNG customers across the city?

For continuous improvement in safety, MGL has taken various steps to raise general awareness in the relevant community and operating environment as follows:

#### PNG customers:

- Awareness campaign in residential societies, MGL Emergency Management Systems awareness for local Fire Brigade officials, District Disaster Management Cells, local Police Personnel.
- Safety awareness through PNG bill inserts, release of safety message in print and electronic media.

#### CNG customers:

- Safety awareness campaign at various auto stands, public transport undertakings and gas safety awareness programs in public schools.
- Distribution of booklets on CNG safety. Mobile vans imparting CNG safety awareness at CNG filling stations across Mumbai and its neighbouring areas.

## Fire safety FAQs

### How to prepare yourself for a fire?

- > Memorize the Fire Brigade telephone numbers 101
- > Familiarize yourself with the exit staircase and the route leading to the staircase.
- > In case of invalids, plan for their safe exit in case of a fire.
- > Fix a place outside your building where people (occupants) can assemble in case of fire. This way it would help you in finding out any one missing and yet to be rescued.
- > Summon the Fire Brigade even on slightest suspicion of fire or minor fires. Find out how to operate the manual fire alarm. Learn to distinguish between the fire alarm and other bells in your building.
- > Discover the location of the first-aid firefighting equipment (hose reels, fire extinguishers etc.) in your building. Learn how to operate them.
- > On arrival of the Fire Brigade, give the details of fire, such as its location, extent, nature etc. and co-operate with them for carrying out effective fire fighting and rescue operations.

### What to do in case of a fire?

If you smell something burning, or spot a wisp of smoke where you would not normally expect it, or if you spot even a small fire, raise the fire alarm in your building. Security personnel or the personnel manning the Fire Control room of the building should inform Fire Brigade simultaneously.

Fight the fire by using portable fire extinguisher and the first aid hose reel. All fires start small. These can be easily put out by using fire extinguishers and the first aid hose reel in time.

In case, if you feel the fire is too big for you to handle, get out of the room/section yourself. Close the door of the room after ensuring that everyone has come out of the room, thus confining the fire and smoke to one room only till the arrival of the fire service.

Use the staircase to go down. On no account, should you use the lift. Please ensure that fire door of the staircase is kept closed (not locked). Assemble at the predetermined or refuge area. Count the number of people and find out if anyone is missing. On arrival of Fire Brigade, give details as accurately as possible.

### What to do when trapped by a fire?

- > if the fire happens to be your floor and there is considerable amount of smoke (or the floor is smoke-logged), drop to the floor and try to crawl out. Don't ever try to walk through heavy smoke.
- > Activate the Manual Fire Alarm located on the floor if possible.
- > If the fire is outside your office room and the exit is blocked by intense heat and smoke, close the door and seal the crevices around the door with wet clothes. Keep putting water on clothes to maintain wetness.
- > Go to the balcony or external window and shout for help. In case you have a telephone in your office inform Fire Brigade and building security personnel.
- > Above all, keep calm, it will help you think clearly and act quickly.

QUOTE CORNER



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