

M/s Godrej Properties Limited	Environmental Impact Assessment for the Residential cum Commercial Complex "Godrej Prakriti" at 187 F/1 (Old-150), B.T. Road, Sodepur, Dist. North 24 Parganas, Kolkata - 700 115, West Bengal
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RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

Risk assessment forms an integral part of EIA study. Risk assessment study deals with identifying and evaluating the magnitude of impending risks to which the neighboring population is exposed due to occurrence of accidents involved in the project construction and implementation. This assists in illustrating the guidelines for preparation of disaster management plan which will be executed to handle the situation, if any emergency occurs.

Following are the risks that are identified in high rise buildings.

1 FIRE RISK

Fire is mainly caused in residential & commercial complex due to carelessness, short circuits and malfunctioning of gas regulator, tube and such related products.

At the housing part of the project, hazard occurrence may result in on-site implications like:

- Fire and/or explosion;
- Leakage of flammable material and catching fire;
- Natural calamities like earthquake, cyclone etc.

There are two worst-case scenarios for fires in tall buildings:

- A fire burns out of control on the structure's lower floors at such a high intensity that, once extinguished, the structural damage is enough to cause the building to be considered a constructive total loss.
- A fire originating on the building's lower floors is able to spread throughout all the levels of the structure.

In spite of the clear gravity of the above scenarios, these types of fire have happened infrequently in tall buildings. More typically, fires in tall buildings yield only partial structural damage. However, losses of life and property can still be substantial.

Emergency prevention through good design, operation, maintenance and inspection are essential to reduce the probability of occurrence and consequential effect of such eventualities. However, it is not possible to totally eliminate such eventualities and random failure of equipment or human errors, omissions and unsafe acts cannot be ruled out. An essential part of major hazard control has

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therefore, to be concerned with mitigating the effects of such Emergency and restoration to normalcy at the earliest.

The overall objective of a disaster management plan is to make use of the combined resources at the site and outside services to achieve the following:

- To localize the emergency and if possible eliminate it;
- To minimize the effects of the accident on people and property;

Effect the rescue and medical treatment of casualties;

- Safeguard other people;
- Evacuate people to safe areas;
- Informing and collaborating with statutory authorities;
- Provide authoritative information to news media;
- Initially contain and ultimately bring the incident under control;
- Preserve relevant records and equipment for the subsequent enquiry into the cause and circumstances of the emergency; and
- Investigating and taking steps to prevent reoccurrence

The Disaster Management Plan (DMP) has therefore to be related to the identification of sources from which hazards can arise in the concerned area. The plan takes into account actions that can successfully mitigate the effects of losses. Disaster Management Plan needs to be well organized so as less effort and resources are required to control and terminate emergencies, should the same occur.

It is increasingly acknowledged by safety authorities, such as the Loss Prevention Council, that the use of curtain walls (versus traditional wall construction) in multi-story structures adds to the risk of fire spread in these structures. Filler material used in curtain walls is often not adequately fire-resistant, allowing the quick spread of fire throughout a structure. In structures fitted with curtain walls, significant losses have been reported in facilities without sprinkler.

In emerging economies where construction has outpaced infrastructural development, fire brigades may not be adequately equipped to deal with high-rise fires.

In the project fire safety issues have been adequately addressed. Hence, residual risk is at minimum.

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2 PUBLIC SAFETY

The incidence of fire or other disasters occurring in tall buildings often endangers the safety of the persons residing in the structure, in the event of an emergency. People present in such structures often do not know proper emergency procedures, aggravating the fire and/or causing injury and death.

The only way of reducing the damage to public life and property is by conducting fire safety drills and installing well equipped fire safety equipments such as smoke detectors, heat sensors, fire panels and fire alarms. The residents should be made well conversant with emergency procedures, such as closing doors when fleeing a fire, as well as staying in apartments, rather than attempting to escape.

It is recommended that mock-drills should be carried out at least once in six months.

3 EMERGENCY RESPONSE

3.1 Emergency Situations

These are defined as the following:

- Any fire or explosion in the premises
- Any smoke outside / inside premises
- Strong persisting smell of LPG within the residential units

3.2 Emergency Response in Case of Emergency

Basic Actions:

- Immediate action is the most important factor in the emergency control because the first few seconds count.
- Immediate steps to stop fire and raise alarm simultaneously.
- Personnel without any specific duties should assemble at the nominated place.
- All vehicles except those that are required for emergency use should be moved away from the operating area in an orderly manner at pre-nominated route.
- Electrical system except the lighting and fire fighting system should be isolated.

If the feed to the fire cannot be cut off, the fire must be controlled and not extinguished.

- Start the water spray systems in the areas involved in or exposed to fire risks.
- In case of leakage of LPG, without fire and inability to stop the flow, take all precautions to avoid source of ignition.

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- Block all roads in the adjacent area and enlist police support for the purpose, if warranted.

Actions in the Event of Fire:

Basic actions will be same as detailed above.

- Extinguishing fires: A small fire at a point of leakage should be extinguished by enveloping with a water spray or a suitable smothering agent such as CO₂ or DCP. However, fire should not, unless under exceptional circumstances, be extinguished until the escape of product (e.g. LPG) has been stopped.
- Fire fighting personnel working in or close to fire, must be protected continuously by water sprays. Fire fighters should advance towards the fire downwind if possible.

In case the only valve that can be used to stop the leakage is surrounded by fire, it may be possible to close it manually. The person attempting the closure should be continuously protected by water sprays, fire entry suit, water jet blanket etc. The person must be equipped with a safety belt and a manned lifeline.

Leakage from a LPG cylinder without fire:

- Cordon off the area around 30 meters radius so that no vehicle or source of ignition approached the area. Attempt to close the control/ manual valve.
- Open all windows to increase ventilation and hence prevent build up of vapour cloud.
- Avoid getting entrapped in the cloud vapour.
- Water sprays should be used to disperse the vapour cloud.
- Warn the surrounding areas to put off all naked flames.

Response sequence for dangerous situations:

Person noticing the fire should attempt to isolate and extinguish the fire with the available equipment and inform or arrange to inform the security regarding the following:

- Location of the fire
- What is burning
- The extent of fire
- Callers name and number
- Do not disconnect unless the person on the other side repeats the message or acknowledges it.

Security on duty coordinators will:

- Respond to the scene of the incident
- Arrange to send the necessary fire fighting equipment to the scene of the incident
- Extinguish the fire with the available equipment.

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3.3 Post Emergency Follow Up

- All cases of fire occurrence, no matter how small, must be reported promptly to the Coordinator for follow up.
- Under no circumstances should fire extinguishing equipment once used be returned to its fixed location before it is recharged/ certified fit by the Fire chief/ Safety Manager.
- Used fire extinguishers must be laid horizontally to indicate that they have been expended.

4 MEDICAL AID

The medical management for the possible emergency situations essentially consists of treatment for burns and maybe some asphyxiation cases. Help from the nearby city hospitals should be obtained.

5 RESPONSE EVALUATION, TESTING & UPDATING OF THE PLAN

Formulation of a Disaster Management Plan cannot possibly be an end by itself. It needs to be tested by holding of periodical mock emergency simulation and drill. Any shortcomings revealed during such exercise should thereafter be corrected by amending the plan. The plan should be for times to come; hence it must be reviewed at periodic intervals. The plan should be also reviewed and updated when:

- Major alteration or extension of existing structure is carried out.
- Major change in habitation or land use of the neighbourhood takes place.
- Important telephone numbers used are altered.

Mock drills activating the Disaster Preparedness Plan should be conducted periodically for ensuring its efficiency during emergency as well as for refinement and up gradation. These drills based on the plan will help achieve its objectives of the disaster management plan.

6 TERRORISM

Appropriate security measures should be taken in and around to ensure limited access to key areas, such as attached parking garages where bombs can be easily placed. Building management should carry out surprise checks.

7 FLOOD HAZARD

Flooding can be caused due to heavy and incessant rainfall, cyclones, etc. Flooding poses a great danger to the safety of property and individuals. The low lying areas are especially prone to this hazard. To minimize the risk of inundation of flood water the property developers and municipal authorities should consider the following measures during planning.

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- Blockage of existing natural drain of water should be avoided. Permission would not be given to any kind of construction that will hinder the natural flow of water in the area.
- Storm water drainage scheme should be planned with such a capacity so as to cater anticipated peak capacity in case of heavy down pour.
- Proper maintenance of storm water drains should be carried out and they should be cleaned periodically to prevent any blockage.

Flood prone areas and low lying areas should be distinguished and as far as possible building construction activities in these areas should be carried out with proper safety measures.

Effective flood management programme should be developed which will include accurate and before-hand weather forecast, evacuation of people from low lying areas prone to floods, safety of property. Provision of insurance for houses and property against floods should be taken care of.