SAFETY AND DISASTER MANAGEMENT PLAN

India has been traditionally vulnerable to natural disasters on account of its unique geo climatic conditions. Floods, droughts, cyclones, earthquakes and landslides are regular phenomenon.

A disaster is defined as a serious disruption of the functioning of the society, causing wide spread human, material or environmental losses which exceed the ability of the affected society to cope using its own resources. Risk is a measure of the expected losses due to hazard of a particular magnitude striking in a given area.

Risk can be reduced in two ways:

A. Preparedness: It encompasses all those measures taken before a disaster event which are aimed at minimizing loss of life, disruption of critical services and damage when the disaster occurs. Thus, preparedness is a protective process which enables governments, communities and individuals to respond rapidly to disaster situation and cope with them effectively.
B. Mitigation: It encompasses all measures taken to reduce both the effect of hazards itself and the vulnerable conditions in order to reduce the losses in future disaster.

A group housing involves installation of various structures and machineries that meet the comfort and needs of its population but may also pose serious threat to the occupants in case of an accident. It is thus considered necessary to carry out a risk assessment and disaster management

plan for the project. It is attempted to plan and construct the buildings following all safety norms.

However, it is not always possible to totally eliminate such eventualities and random failures of equipment or human errors. An essential part of major hazard control has therefore, to be concerned with mitigating the effects of such emergency and restoration of normalcy at the earliest.

Accidental risks involved during construction or operation of the Project, which could affect human health or the environment are discussed below:

(a)	Explosions, spillages, fires etc. from storage, handling, use or production of hazardous substances	Fire Fighting: Safety measures for the potential sources of Fire hazards, like diesel storage for DG sets etc. will be taken into consideration from safety point.
(b)	Effect of natural disasters causing environmental damage e.g. floods, earthquakes, landslides, cloudburst etc. on project	The project falls under seismic active Zone IV indicating High damage risk zone. The buildings will be designed as earthquake resistant and comply with the required IS specifications.

(a) Emergency Response Plan (ERP)

The overall objective of an Emergency Response Plan (ERP) 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;
- 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;
- Investigating and taking steps to prevent reoccurrence

The ERP is therefore related to identification of sources from which hazards can arise and the maximum credible loss scenario that can take place in the concerned area. The plan takes into account the maximum credible loss scenario - actions that can successfully mitigate the effects of losses/ emergency need to be well planned so that they would require less effort and resources to control and terminate emergencies, should the same occur. Main hazards identified for the project include hazards pertaining to fires in buildings and fire in diesel storage areas, earthquake and LPG leakage and an ERP pertaining to these is described in the following section.

FIRE FIGHTING SYSTEM

The project site falls under residential occupancies according to National Building Code 2005. Following provisions are required to be made according to National Building Code 2005. The fire-fighting system has been designed considering the following codes, manual and guidelines;

- National Building Code of India (NBC);
- As per requirement of fire officer/local fire approving authorities; and
- As per Indian Standard Code for Fire Protection (IS Codes)

RESPONSES IN CASE OF EARTHQUAKE:

Response Procedures for Occupants

If indoors*:*

1. Take cover under a piece of heavy furniture or against an inside wall and hold on.

2. Stay inside: The most dangerous thing to do during the shaking of an earthquake is to try to leave the building because objects can fall on you.

If outdoors*:*

Move into the open, away from buildings, streetlights, and utility wires. Once in the open, stay there until the shaking stops.

If in a moving vehicle*:*

Stop quickly and stay in the vehicle. Move to a clear area away from buildings, trees, overpasses, or utility wires. Once the shaking has stopped, proceed with caution. Avoid bridges or ramps that might have been damaged by the quake.

After the quake

1. After the quake be prepared for aftershocks.

2. Although smaller than the main shock, aftershocks cause additional damage and may bring weakened structures down. Aftershocks can occur in the first hours, days, weeks, or even months after the quake.

Help injured or trapped persons*.*

1. Give first aid where appropriate. Do not move seriously injured persons unless they are in immediate danger of further injury. Call for help.

2. Remember to help those who may require special assistance--infants, the elderly, and people with disabilities.

3. Stay out of damaged buildings.

4. Use the telephone only for emergency calls.

Response Procedure for Emergency Team

1. Formulate an Emergency Response Team for earthquake response.
2. Using the public address system, inform residents of response procedures discussed above.
3. Inform the necessary authorities for aid.
4. Ensure no residents are stuck beneath any debris, in case of a structural failure.
5. Ensure that all residents standing outside near the buildings are taken to open areas.
6. Ensure that the first aid ambulance and fire tender vehicles are summoned if necessary.
7. Inform the nearby hospitals if there are any injuries.
8. Check the utilities and storage tanks for any damage.

Response for LPG Leakage

1. The affected area should be evacuated and cordoned off immediately
2. Initiate an Emergency Response Team for LPG leakage.
3. Shut down the main valves in the gas bank.
4. Ensure that only concerned personnel are present in the affected area and all other personnel and visitors are moved to the nearest assembly points.
5. Rescue trapped personnel, also check if any personnel are unconscious in the area and immediately move them outside and provide first aid. Ambulance should be summoned to take injured personnel to the nearest hospital.
6. Personnel in the nearby buildings to close all doors and windows to prevent entry of the leaked gas.
7. Source of leakage to be traced and isolated from all the other areas. And if required use pedestal fans to bring down the gas concentration.
8. In case of a fire follow the instructions in case of fire.

Response in case of Fire:

1. Required response during in the event of a fire should be described in signs located in the lobby.
2. On sighting a fire, it should be immediately informed to the environment manager giving the exact location and type of fire in detail.
3. Initiate the Emergency Response Team for fires.
4. If the fire is small, engage in extinguishing the fire using the nearest fire extinguisher.
5. Guide the Emergency Response Team staff to the emergency assembly point.
6. The Emergency Response Team should immediately inform the nearest dispensary and security force. If required a fire tender should be summoned.

7. The response team should immediately move to the point of fire and take all necessary steps to stop the fire. If the fire is not controllable and spreads then the manager in charge should inform the district authorities and call for external help.
8. The Emergency Response Team will provide immediate relief to the injured residents at the scene of incident. Any injured persons should be evacuated on priority to the dispensary or one of the nearest hospitals based on their condition.

Instructions for Residents

1. Get out of buildings as quickly and as safely as possible.
2. Use the stairs to escape. When evacuating, stay low to the ground.
3. If possible, cover mouth with a cloth to avoid inhaling smoke and gases.
4. Close doors in each room after escaping to delay the spread of the fire.
5. If in a room with a closed door.
6. If smoke is pouring in around the bottom of the door or if it feels hot, keep the door closed.
7. Open a window to escape or for fresh air while awaiting rescue.
8. If there is no smoke at the bottom or top and the door is not hot, then open the door slowly.
9. If there is too much smoke or fire in the hall, slam the door shut.
10. Stay out of damaged buildings.
11. Check that all wiring and utilities are safe.

A state of the art firefighting system is proposed for the project to prevent and control fire outbreaks. The firefighting system will consist of portable fire extinguishers, hose reel, wet riser, yard hydrant, automatic sprinkler system, and manual fire alarm system. The proposed buildings will also be provided with automatic fire detection and alarm system.