# CHAPTER 7

# ADDITIONAL STUDIES

## 7.1 INTRODUCTION

This chapter requires the following to be covered

1. Public consultation
2. R&R Action Plans or Social Impact Assessment
3. Risk Assessment

In this case, being a category B project of serial no. 8(b) of Schedule to EIA Notification dated 14.09.2006, the project does not require public consultation. R&R action plan is also not applicable for this project as the land has been directly purchased from the land owners at mutually acceptable rates.

The risks assessed for the project are with respect to the occurrence of disasters as follows:

***Natural disasters***

- Earthquake
- Flood
- Cyclone
- Landslide
- Tsunami
- Drought

In the proposed project, landslides, cyclone and tsunami are not applicable.

***Manmade disasters***

- Fire
- Chemical Hazard
- Accidents

Thus, disaster management has been covered in detail in the subsequent sections.

## 7.2 DISASTER PREVENTION AND MANAGEMENT

### 7.2.1 Natural disasters

#### *(A) Earthquake*

***Designing for earthquake resistance***

The study area falls within seismic zone III as per seismic zone map of Indian Standard IS 1893:1984. Therefore, at the time of designing and construction of the buildings, the design parameters shall be considered in compliance with IS 1893:1984 (Criteria For Earthquake Resistant. Design of Structures) with due consideration of prevailing housing construction & development guidelines together with National Building Code. The other BIS codes that shall be considered are as follows:

- IS 1893 (Part 1):2002 Criteria for Earthquake Resistant Design of Structures : Part 1 General provisions and Buildings
- IS 1893 (Part 4):2005 Criteria for Earthquake Resistant Design of Structures: Part 4 Industrial Structures Including Stack Like Structures
- IS 4326:1993 Earthquake Resistant Design and Construction of Buildings - Code of Practice
- IS 13827:1993 Improving Earthquake Resistance of Earthen Buildings – Guidelines
- IS 13828:1993 Improving Earthquake Resistance of Low Strength Masonry Buildings – Guidelines
- IS 13920:1993 Ductile Detailing of Reinforced Concrete Structures Subjected to Seismic Forces– Code of Practice
- IS 13935:1993 Repair and Seismic Strengthening of Buildings – Guidelines
- IS 6922:1973 Criteria for Safety and Design of Structures Subject to Underground Blasts
- IS 4991:1968 Criteria for Blast Resistant Design of Structures for Explosions Above Ground

The mitigation of earthquake will be assessed and ensured in the construction of hi-rise buildings and structures under following parameters:

***Seismic parameters***

| | | |
|---|---|---|
| Seismic zone | = | III |
| Zone Factor ‘Z’ | = | 0.24 |
| Response Reduction factor ‘R’ | = | 5 |
| Importance Factor ‘I’ | = | 1.0 |
| Damping Ratio | = | 5% |

As Per table 8 of IS -1893 : 2002, while calculating lumped mass and total base shear, only 25% live load will be considered. Seismic analysis will be done in both the direction (X Direction and Z direction) without taking into account stiffness of brick partition walls.

***Design parameters***

| | | |
|---|---|---|
| Concrete Grade | = | M 25 to M 30 |
| Reinforcement | = | Fe 415 (HYSD) |
| Clear Cover to main reinforcement in beam | = | 30 mm |
| Clear Cover to main reinforcement in Column | = | 40 mm |
| Clear Cover to main reinforcement in Slabs | = | 20 mm |

***Additional earthquake preparedness measures***

- A common meeting point inside the group housing complex and a contact outside the complex will be identified and known to all residents and workers.
- List important telephone numbers and torch, water, transistor, first-aid kit and non-perishable food will be kept at a designated place. An emergency kit shall be ready at all times.
- Train workers in basic first aid. Teams for first-aid; search and rescue etc. will be formed in the area and preparedness drills will be conducted for what to do in case of an event.

***Measures during an earthquake***

In case of occurrence of the earthquake, every individual would be made aware of the following:

- Keep calm and help others to keep calm. Do not panic.
- If you are inside of a building: Protect yourself by ducking under a sturdy table, and staying there until the shaking stops. Turn off electricity and gas.
- If you are on the road in a built up area: Immediately move away from buildings, slopes, streetlights, power lines, hoardings, fly-overs etc. into open spaces. Do not run or wander; keep the roads free for movement.
- If you are driving: Stop the vehicle away from the buildings, slopes and electric cables; come out of the vehicle, hold it and stay by its side
- Keep calm and expect aftershocks.
- Check if you or anyone else is hurt. Use first-aid and wait for medical help.

- Do not move seriously injured people.
- Do not turn-on electrical appliances and gas.
- Check your building for damages.
- Do not waste water and do not block telephone lines.
- Do not spread rumours and don't panic.
- Volunteer to help.
- Keep the streets clear for emergency services.
- Do not use matches, lighters, camp stoves or electrical equipments, appliances until you are sure there are no gas leaks. They may create a spark that could ignite leaking gas and cause an explosion and fire.
- Do not use your telephone except for a medical or fire emergency. You could tie up the lines needed for emergency response. If the phone doesn't work send someone for help.

### *(B) Floods*

- The project area is not prone to river floods, since the distance from the Yamuna River is 2.7 km in its NE direction. The elevation of core zone varies from 175 to 179 m above mean sea level (amsl). The elevation of the flood plain is 169-170 m, much lower than the project site.

- Besides there are no drains, canals, minors passing through the project site that can effect the project site during monsoon season.

- There are few nalas, drains, distributaries etc. in 10 km radius that are local, previous records of flood levels are not available.

- Satellite pictures as well as the surveyed map of the area show no low-lying areas in or around the project.

- Water logging can occur for which proper storm water drainage will be made within the project site and that in turn connected with the drainage system at the Township Level. In case of water logging, an epidemic might emerge due to vector breeding. Thus, measures to ensure water drainage are necessary.

- Additionally, rainwater harvesting will be done in the project, which will further reduce the risk of local water logging.

### *(C) Drought*

Drought is a seasonal phenomenon depending on various characteristics of seasonality, water availability, rainfall patterns, intense summer heat etc. With proper water conservation plan in place and since the water source is dependent on ground water, the availability of water at least for normal

human consumption will be available all round the year. Recycled water will be used for watering green area, landscape etc. to minimize the consumption of the fresh water as far as possible.

***(D) High winds***

So far as the wind hazard is concerned, design wind in the entire region is 169 km/h as per IS 875 (Part 3), which attains this value occasionally. Building in this region will be designed keeping in mind the above wind speed. The damage occurring in wind storm would not result in disaster in the region.

### 7.2.2 Man made accidental disasters

***(A) Fire hazard***

Fast growing cities like Mathura-Vrindavan are threatened by fire hazards, which may be attributed to the following main reasons.

- Non-implementation of fire safety norms as part of building byelaws.
- Illegal and loose electric connections.
- Sub-standard wiring and over loading of electricity system.
- Illegal storages and hazardous commercial activities.
- Inadequate availability of special fire fighting equipments.

Precautions & safety measures proposed against fire hazards are:

- Fire safety will be taken into account and all the safety norms and regulations will be followed up, which have been provided by National Building Code and other related Indian Standards;

- Following Fire fighting codes and standards shall be followed in the complex:

| Title | Important Indian Standards for Fire Fighting Work |
|---|---|
| IS 1239-1968 (Part-I) | Specifications for mild steel tube, tubular and other steel pipe fittings. |
| IS 1239-1968 (Part-II) | Specifications for mild steel tube, tubular and other steel pipe fittings. |
| IS 1536-1976 | Specification for centrifugally Cast (Spun) Iron pressure pipes with flanges for water, gas and sewage. |
| IS 1538 (Part 1 to 23) | Specification for Cast Iron fittings for pressure pipes for water, gas and sewage. |
| IS 1726-1960 | Code for cast iron manhole frame and cover. |
| IS 3589-1981 | Specification for electrically welded steel pipes for water, gas and sewage. |
| IS 4736-1986 | Galvanizing G.I. Pipes |

| Title | Important Indian Standards for Fire Fighting Work |
|---|---|
| IS 636-1988 | Non percolating flexible fire fighting delivery hose (third revision) |
| IS 694-1990 | PVC insulated cables for working voltages upto and including 1.100 volts (third revision) |
| IS 778-1984 | Copper alloy gate, globe and check valves for water works purposes (fourth revision) (Amendment 2) |
| IS 780-1984 | Sluice valves for water works purposes (50 to 300 mm) size (sixth revision) (Amendment 3) |
| IS 884-1985 | Specification for first-aid hose-reel for fire fighting (for fixed installations) (first revision) (with Amendment 1) |
| IS 900-1992 | Code of practice for installation and maintenance of induction motors (second revision) |
| IS 901-1988 | Specification for couplings, double male and double female, instantaneous pattern for fire fighting (third revision) |
| IS 902-1992 | Suction hose coupling for fire fighting of purposes (third revision) |
| IS 903-1984 | Specification of fire hose delivery couplings branch pipe, nozzles and nozzle spanner (third revision) (Amendment 5) |
| IS 937-1981 | Specification for washers for water fittings for fire fighting purposes (revised) (with Amendment 1) |
| IS 1520-1980 | Horizontal centrifugal pumps for clear cold, fresh water (second revision) |
| IS 1536-1976 | Horizontally cast iron pressure pipes for water, gas & sewage (first revision) (with Amendments 1 to 4) |
| IS 1554-1988 | Part I PVC insulated (heavy duty) electric cables (working voltage upto and including 1100 volts (third revision) |
| IS 1554-1988 | Part II PVC insulated (heavy duty) electric cables (working voltage from 3.3 KV upto and including 11 KV (second revision) |
| IS 1648-1961 | Code of practice for fire safety of buildings (General) Fire fighting equipment and its maintenance (with Amendment 1) |
| IS 3624-1987 | Pressure and vacuum gauges (Second revision) |
| IS 4736-1968 | Hot-dip zinc coatings on steel tubes (with Amendment 1) |
| IS 5290-1983 | Specification for landing valves (second revision) (with Amendments 6) |
| IS 5312- 1984 | Part I Swing check type reflux (non return) valves Part I-single door pattern (with Amendments 1 & 2) |
| IS 5312- 1986 | Part II Swing check type reflux (non return) valves Part II-Multi door pattern (with Amendments 1 & 2) |

| Title | Important Indian Standards for Fire Fighting Work |
|---|---|
| IS 7285 | Seamless cylinders for storage of gas at high pressure |
| IS 2189-1962 | Code of practice for Automatic Fire alarm system |
| IS 2195-1962 | Specification for heat sensitive fire detectors |
| IS 732-1973 | Code of practice for electrical wiring installation |
| UL 168 | Underwriters Laboratory specification for smoke detector |

- Following Fire Alarm System codes and standards shall be followed in the complex as :

(1) IS:2189 - 1962 Code of Practice for Automatic Fire Alarm System.

(2) IS:2195 - 1962 Specifications for Heat sensitive Fire Detectors.

(3) IS:732 - 1973 Code of practice for Electrical Wiring installation
(4) UL 168 Under writers laboratory specifications for smoke detectors.

- All electrical cables will be underground and sophisticated modern electrical distribution system will be used, which will further reduce risk of fire. Applicable Indian standards for electrification works as follows shall be followed:

| Sl. No. | Standards | Title |
|---|---|---|
| 1. | IS:732 - 1989 | Code of practice for electrical wiring installations |
| 2. | IS:4648 - 1968 | Guide for electrical layout in residential buildings |
| 3. | IS:8061 - 1976 | Code of practice for design, installation and maintenance of service lines upto and including 650V |
| 4. | IS:8884 - 1978 | Code of practice for installation of electric bells and call system |
| 5. | IS:5578 - 1985 | Guide for marking of insulated conductor |
| 6. | IS:11353- 1985 | Guide for uniform system of marking and identification of conductors and apparatus terminals |
| 7. | IS:5728 - 1970 | Guide for short-circuit calculations |
| 8. | IS:7752(Part-1)-1975 | Guide for improvement of power factor in consumer installation : Low and medium supply voltages |
| 9. | IS:3646(Part-1)-1966 | Code of practice for interior illumination: Principles for good lighting and aspects of design. |
| 10. | IS:3646(Part-2)-1966 | Code of practice for interior illumination: Schedule of illumination and glare index |
| 11. | IS:2672 - 1966 | Code of practice for library lighting |
| 12. | IS:10118(Part-1)-1982 | Code of practice for selection, installation and maintenance of switchgear and control gear : |

| Sl. No. | Standards | Title |
|---|---|---|
| | | General. |
| 13. | IS:10118(Part-2)-1982 | Code of practice for selection, installation and maintenance of switchgear and control gear |
| 14. | IS:10118(Part-3)-1982 | Code of practice for selection, installation and maintenance of switchgear and control gear: Installation. |
| 15. | IS:10118(Part-4)-1982 | Code of practice for selection, installation and maintenance of switchgear and control gear: Maintenance. |
| 16. | IS:2309 - 1989 | Code of practice for the protection and allied structures against lightning. |
| 17. | IS:3043 - 1987 | Code of practice for earthing |
| 18. | IS:5216(Part-1)-1982 | Guide for safety procedures and practices in electrical work: General |
| 19. | IS:4237 - 1983 | General requirements for switchgear and control gear for voltages not exceeding 1000 V AC or 1200 V DC. |
| 20. | IS:6875(Part-1)-1973 | Control switches (switching devices for control and auxiliary circuits including contractor relays) for voltages upto and including 1000 V AC and 1200 DC : General requirements and tests. |
| 21. | IS:4064(Part-1)-1978 | Air break switches, air break dis- connectors, air-break switch disconnectors and fuse-combination units for voltages not exceeding 1000 V AC or 1200 DC : General requirements |
| 22. | IS:8828 - 1978 | Miniature airbreak circuit breakers for voltages not exceeding 1000V |
| 23. | IS:13032 - 1991 | Miniature circuit breaker boards for voltages upto and including 1000 volts AC. |
| 24. | IS:12640 - 1988 | Residual current operated circuit breakers |
| 25. | IS:2959 | 1985 Contactors for voltages not exceeding 1000VAC or 1200V DC. |
| 26. | IS:8623(Part-1)-1977 | Factory built assemblies of switchgear and control gear for voltages upto and including 1000 V AC and 1200 V DC: General requirements. |
| 27. | IS:8623(Part-2)-1980 | Factory assemblies of switchgear and control gear for voltages upto and including 1000 V AC and 1200 V DC : Particular requirements for busbar trunking system (busways). |
| 28. | IS:694 - 1990 | PVC Insulated cables for working voltages upto and including 1100V |
| 29. | IS:1554(Part-1)- | PVC insulated (heavy duty) electric cables : For |

| Sl. No. | Standards | Title |
|---|---|---|
| | 1988 | working voltages upto and including 1100 V. |
| 30. | IS:3961 (Part-5)-1968 | Recommended current ratings for cables: PVC insulated light duty cables. |
| 31. | IS:9537(Part-1)-1980 | Conduits for electrical installations :General requirements. |
| 32. | IS:9537(Part-2)-1981 | Conduits for electrical installations Rigid steel conduits |
| 33. | IS:3480 - 1966 | Flexible steel conduits for electrical wiring. |
| 34. | IS:2667 - 1988 | Fittings for rigid steel conduits for electrical wiring |
| 35. | IS:3837 - 1976 | Accessories for rigid steel conduits for electrical wiring |
| 36. | IS:5133(Part-1)-1969 | Boxes for enclosure of electrical accessories :Steel and cast iron boxes |
| 37. | IS:371 - 1979 | Ceiling roses |
| 38. | IS:3854 - 1988 | Switches for domestic and similar purposes |
| 39. | IS:4615 - 1968 | Switch socket outlets (non-interlocking type). |
| 40. | IS:4160 - 1967 | Interlocking switch socket outlet. |
| 41. | IS:1293 - 1988 | Plugs and socket outlets of rated voltage upto and including 250 volts and rated current upto and including 16 amperes. |

- Earthing systems and lightening arrestors shall be provided
- Ample stocks of first aid fire fighting gadgets shall be kept;
- The maintenance agency will have trained Fire Officers and Fire Men on their contract, who will conduct mock drills to educate the general public in the group housing about the fire preventive measures and total watch on systems will be kept. People will be trained for fire safety drill. Fire safety drill shall take place at least every 6 months;
- This activity shall be controlled and monitored from a centralized control room and will work in close co-ordination with local Fire Authorities;
- All buildings will be having their own fire fighting systems approved by the regulatory agencies.
- Provision has been made for fire fighting plan as per norms of UP Jal Nigam/ Fire Department/ Bye laws/ LDA/ NBC.
- A reserve for Fire fighting has also been kept as norms & specifications adopted in the storage capacity of reservoirs to meet out this demand as and when required.
- The water hydrant will be provided at sufficient locations to cater fire fighting services.

- Provision of fire extinguishers and buckets of sand will be done in the fire-prone area and elsewhere.
- Installation of fire extinguisher will be mandatory near storage of hazardous wastes
- A fire station has been provisioned in the Omaxe Eternity Township area

***Accidents***

**During construction:** The workers will trained and made aware of risks and hazards. They shall be provided with personnel protective equipment like hard hat, safety boots, rubber boots, gloves, goggles, aprons, welders glass, ear muffs, etc as per requirement. Activity specific precautions during cutting and welding process, road making, working at heights, etc will be followed.

**During operation:** Proper arrangements shall be made at all identified accident-prone areas in terms of signal, signage, speed breaker and design consideration. They would be implemented with respect to rules and regulations of traffic movement.

### 7.2.3 Disaster Management Cell

A disaster management cell will be established, which will take care of post disaster. It will be a volunteer kind of set-up and professionals can also be hired in case of eventuality. It will also help to promote awareness towards disaster management. Disaster mitigation and recovery resources will be invested to improve the quality of life in the areas of public health and safety, environmental stewardship and social and economic security. The maintenance agency will prepare an integrated, comprehensive emergency management plan that meets immediate needs and provides for long-term recovery and mitigation.

The disaster management cell have following members to share the responsibility:

I. Site Controller (Administrator of complex)
II. Incident Controller (Asstt. Administrator)
III. Personal Manager
IV. Communication Officer
V. Fire Officer
VI. Security Officer
VII. Engineering Incharge
VIII. Fire pump attendant
IX. First Aid Team

### 7.2.4 Disaster Management Plan

The disaster management plan identifies the risks to the building at site and addresses facility emergency response and recovery plans for building utilities, systems and services. This process includes:

- Risk Identification
- Risk Quantification
- Risk Mitigation
- Emergency Response
- Crisis Management
- Business Recovery
- Plan Exercising, Monitoring and Improving

The **Table 7.1** gives the potential hazard, its proposed control measures, additional control measures, recovery and time line at both township level as well as building level including centrally air conditioned buildings, if any that are likely to come up in commercial/ PSP zones.

**TABLE 7.1**
**HAZARD IDENTIFICATION AND CONTROL MEASURES**

| Sl. No. | Type of Hazard (Internal/ External) | Hazard | Proposed Control Measures | Additional control Measures, if any | Recovery | Time Line |
|---|---|---|---|---|---|---|
| 1 | Internal | Widespread Building Fire | Fire Hydrants, Fire Extinguishers, Training and Awareness | Call for External Help from Fire Brigade | 1. Find rehabilitation accommodation 2. Reconstruct & restore | 1. Immediate 2. 3-4 Months |
| 2 | External | Power Failure External | Back -up power available - DG Sets | - | Run DG Sets | Immediate |
| 3 | Internal | Power Failure Internal | Preventive Maintenance Schedule and Dry Runs for Testing | Additional Potable DG Sets for running Critical operations | Arrange for Standby | One Day |
| 4 | Internal | Water Supply Domestic Use Failure | Adequate storage tank for 24 hrs supply | Arrange for Additional water supply through Tankers | Use Onsite Storage, Arrange Tankers | 8 Hrs |
| 5 | Internal | Drinking Water Supply Failure | External Vendors are available locally | | Opt with other vendors | 8 Hrs |
| 6 | Internal | Fire protection system Burst- Sprinkler and Fire hydrant | Pressure testing, Preventive maintenance schedule | Controlled Hot work at site till rectified | | 8 Hrs |
| 7 | Internal | AHU Failure | Preventive Maintenance Schedule, Daily Checking and Corrections | | Interconnect AHUs | 8 hrs |
| 8 | Internal | Other AC Unit failures | Preventive Maintenance Schedule, Daily Checking and Corrections | | Arrange for Standby | 8 Hrs |
| 9 | Internal | Chilling water | Preventive Maintenance | | Standby | 1 Day |

| Sl. No. | Type of Hazard (Internal/ External) | Hazard | Proposed Control Measures | Additional control Measures, if any | Recovery | Time Line |
|---|---|---|---|---|---|---|
| | | system failure | Schedule, Daily Checking and Pressure testing for piping in case of pipe leakage | | Available, Replace piping in case of piping burst | |
| 10 | Internal | structure | Structural Inspection | | Find Backup Site | 3-4 Months |
| 11 | External | Outbreak of Major Illness (e.g. Avian Flu etc) | Tie up with local Hospital, Minimal protective supplies available follows Global EHS Guidelines | Screening before entering facility, Control travellers | As per Global Guidelines for Screening and/ or shutdown if outbreak is national | Immediate |
| 12 | Internal | Chemical Accidents (employee exposure to chemicals) | Small Quantities in use, PPEs and administrative controls | | Isolate, Decontaminate; Monitor residual presence & Health Surveillance of affected employee | 1 Day |
| 13 | Internal | Toxic Spills (Alkali & Acids) | Limited use in isolated process only. | | Isolate, Decontaminate; Monitor residual presence & Health Surveillance of affected employee, if any | 1 Day |
| 14 | Internal | Hazardous contamination (air, water, soil) | Limited use, secondary contained. | | Isolate, Decontaminate; Treatment ; Monitor residual presence | 1 Day |
| 15 | Internal | Gas Leaks (flammable) | Daily Checks on leakage, Bubble test, pressure test | | Cutoff, forced ventilation. | Immediate |
| 16 | External | Terrorism | Tightened Security, Stringent security checks, Inform Local Police | | NA | Immediate |
| 17 | External | Civil or Political disturbance | Tightened Security, Inform Local Police, Activate Crisis Management Team on site | | NA | Immediate |
| 18 | External | Bomb Threat | Security procedures in place to asset threats. Preparedness on Emergency situation, Evacuation and External help from Police | Inform and take Help from Police | If not recovered immediately, follow as for Hazard-1 | 1. Immediate 2. 3-4 Months |
| 19 | External | Earth Quake | Emergency Response plan activated, CMT Activated | Assessment of building for stability and operations to continue | If damage substantial, follow as for Hazard-1 | 1. Immediate 2. 3-4 Months |

| Sl. No. | Type of Hazard (Internal/ External) | Hazard | Proposed Control Measures | Additional control Measures, if any | Recovery | Time Line |
|---|---|---|---|---|---|---|
| 20 | External | Rain/Cyclone | Adequate Drainage, Cleaning of storm drains | | If damage substantial, follow as for Hazard-1 | 1. Immediate<br>2. 3-4 Months |
| 21 | Internal | Theft of Assets | Internal Control Procedures & Security Surveillance | | NA | Immediate |
| 22 | External | Transport Accidents | Approved Vendors, GPS systems tracking of vehicles, Trained Drivers, Awareness programs | Inform Fleet helpline and WPS, Arrange for alternate transportation and hospitalization of injured | | Less than 1 hour |
| 23 | Internal | Fire in Kitchen | • No use of flammable/ explosive material in kitchen<br>• Shut off valves for LPG lines<br>• Fire extinguishers in kitchen<br>• Regular checking of kitchen | | Alternate food arrangements | 8 Hrs |

During any of the above mentioned hazards, the evacuation will be as follows:

Inform Control Room → Inform Concerned Agency

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Suggest Evacuation Plan

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Shifting Residents To Internal Safe Area

↓

First Aid → Transport Injured To Nearest Hospital

↓

Transport People To Safe Place

↓

Call Necessary Help

### 7.2.5 Security Plan

The practices as per ISO 27001 and 27002, which are the international best practice information security management standards, defining and guiding Information Security Management System (ISMS) development shall be adopted. These will provide the necessary benchmarking for individual users to know the type of cover and the responsibilities that are defined and provided by that institution for its guests. Most importantly, training according to staff needs to be regularly imparted in dealing with such situations.

- **Manual Checks:** At all gates the visitors and guest shall be manually checked and asked for ID's.

- **CCTV:** At all important location with a remote viewing facility and record back up. With highest resolution and picture quality. DVR being the back bone, its recording and replaying capabilities will be considered.

- **Checks at Entrances:** All car entering will be checked thoroughly inclusive of Bonnets, Luggage Hold with hand held, metal detectors, mirrors and other checking stuffs.

- **Central Control Room:** This will control the security system from inside.

- **Communication Systems:** Proper communication system to security staff shall help them to coordinate better during emergencies.

### 7.2.6 Provisions made for safety in storage of materials, products and wastes may be described

***During construction***

- Storage of raw materials such as aggregate, sand etc shall be done in designated place with a demarcated boundary to prevent spillage and contamination of surroundings
- Storage of cement and other material sensitive to rain and atmosphere shall be stored in a covered shed
- Security guards shall control the entry of trucks and manpower
- Trucks will also be checked during exit to avoid pilferage
- Diesel storage for DG sets shall be within barrels
- Power backup for easier maintenance of security shall be there so that pubic areas remain well lit even during power failure at night
- Waste bins will be provided with covers

***During operation***

- Storage of materials required for maintenance shall be done in designated stores
- Store keeper shall keep track of goods received and issued/ consumed for maintenance
- Goods will be issued to only authorised personnel
- Security of the entire complex shall be maintained as per security plan
- Diesel storage for DG sets shall be within barrels
- Power backup for easier maintenance of security shall be there so that pubic areas remain well lit even during power failure at night
- Waste bins will be provided with covers