

DISASTER MANAGEMENT PLAN

Local flood	Increase in the Finished Ground Level as part of construction stage to prevent rain water accumulated on surrounding areas to enter into the project area.
	Provision of storm water drains at all entry/ exit point to prevent entry of rain water into basement.
	Provision of adequately sized storm water drains to discharge the storm water from the project area into the external storm water drainage system. External Storm water system is sufficient to cater to this additional discharge.
Earthquake	As per the Seismic Zoning Map of India, region falls under Seismic Zone-III. The structural design is certified for Seismic Zone – 3 criteria for earthquake resistant design of structures.
Lightening	Provision of Lightening arrestor
Fire	All necessary active & passive Fire Protection Measures shall be provided to the building
Power failure	Provision of DG sets
Terrorist/ Bomb Threat	All necessary measures shall be provided
	Manual Security & CCTV Screening at all Entry Point
	Controlled Entry Point for all Vehicular Entry Point: Boom Barriers, Security Mirrors, Metal Detectors, Manual Security & CCTV Screening at all Entry Point.

RISK ASSESSMENT

CONSTRUCTION PHASE

1 Risk assessment and Vulnerability analysis of possible disasters

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 development.

Hazard Identification: Physical, Chemical, Mechanical, Electrical, Vibration & occupational health hazards during construction phase

Risk of body injury, Injury to eyes, fatal accident, Fire and explosion, Hearing loss etc.

▪ Are you using (Tick Boxes)

[☒] plant/equipment

[☒] portable electrical equipment

[☒] scaffolding

[☒] ladders

☒ hazardous substances
machinery

☒ lifts/hoists/cranes /load shifting

▪ **Does the project/task involve (Tick boxes)**

☒ using tools/equipment with
moving part(s)

☒ using tools/equipment that
vibrate

☐ working with x-rays ,or lasers

☒ electrical wiring

☐ asbestos removal

☒ welding

☒ hazardous waste

☒ excavation / trenches (>1.5m)

☒ working around electrical installations

☒ working near traffic

☒ working at a height (>3m)

☒ working in isolation.

☒ working in a confined space

☒ manual handling

☒ repetitive or awkward movements

☒ lifting or moving awkward or heavy objects

☐ demolition work

▪ **Is there (Tick boxes)**

☒ noise

☒ dust/fumes/vapours/gases

☒ extreme temperatures

☒ risk of fire/explosion

☒ slippery surfaces/trip hazards

☐ poor ventilation/air quality

☐ a poorly designed work area for the project/task

Vulnerability analysis: During Construction Phase:

	Air Pollution	Water Pollution	Noise Pollution	Soil Pollution	Occupational Hazard
A. Material Handling:					
Cement	+H	+M	-	+M	+M
Steel	-	-	+	-	+L
Sand	+L	-	-	-	+M
Stone	-	-	+M	-	+L
Plywood dust	-	-	+M	-	+L
Glass	-	-	-	-	+M
Hardware	-	-	-	-	+L
Paint /varnish Colour	-	+H	-	+M	+M
B. Construction Machinery					
JCB Excavation	+M	-	+H	-	+L
Tower crane	+H	-	+M	-	+H
Material Lift	-	-	+M	-	+H

Risk Factor:

+ : Positive
- : Negative
L : Low
M : Medium

H : High

2. Mitigation Measures & preparedness

For any projects/tasks that present a high or extreme risk, a Safe Work Method Statement must be completed.

- ***Note how you will control the risk following the priorities listed to the right. This may include controls like redesigning the workplace, using guards or barriers, ventilation, using lifting equipment or personal safety equipment.***

1. Eliminate the hazard
2. Installing Safety net for height fall
3. Keep the hazard and people apart
4. Change work methods
5. Conducting induction training, safety training & mock drills.
6. Use personal protection

- ***Note any specific risk assessments required for high-risk hazards. Check whether any hazards noted in step 2 require further assessment or action***

☒ hazardous substance risk assessment ☒ confined spaces risk assessment
☒ test and tag electrical equipment ☒ sound level test
☒ Inspection of scaffolding

- ***Note Permits/Licenses/Registration required***

☒ Demolition work ☒ Friable asbestos removal
☒ Electrical wiring ☒ Ionizing radiation sources
☒ RMC pumps ☒ registers for chemicals, Personal protective Equipment, training, ladders, lifting gear

- ***Note certificates of competency/licenses for operators***

☒ Scaffolding ☒ Pesticide application
☒ Rigging ☒ Crane operation
☒ Load shifting machinery operation ☒ Hoist operation

- ***Note emergency systems required***

☒ first aid kit ☒ Fire control
☒ extended first aid kit ☒ remote communication mechanism
☒ emergency stop button ☒ BMS System
☒ additional emergency procedures

Table: Risk and Mitigation measures

Sr. No.	Operations	Risk	Mitigation Measures
1.	Construction/material Hoists	Personal injury Accidents	Only approved hoist to be used by trained employees with safe area

Sr. No.	Operations	Risk	Mitigation Measures
			demarcation Inspection by competent person, Safe work instruction, Correct Use, Training, Testing before use for SWL Use of PPE/PPA, Fencing Use of PPA/PPE
2.	Portable electrical equipment	Burn/fatal	To be checked before use by Approved Electrical safety official/Use of PPA/PPE
3.	Rock breaking machine	Pressure air Rupture	Compressors, For Jack Hammer, AHU (Air conditioning)Ice Plant, Inspection of Safety valve, proper rubber fittings, Vibration to be avoided Use of PPE/PPA, Training
4.	Hazardous substances	Fire, explosion Toxic release Unhygienic Dust	Storage of Bulk Fuel. Paints, Plastic Plywood Combustible, Store as per HAZMST Rules. PPE/PPA Training
5.	Scaffolding	Fall from Height Fatal accident	Introduction of Working on Height permit system, PPE/ PPA/ safety belt /Training
6.	Ladders	Accident, Injury	Proper selection, Inspection, PPE/PPA, Training
7.	Using tools/equipment with moving part(s)	Nipping, Injury to Hand , Electrical Shocks Leg Injury	Proper selection of Hand tool, Periodic Inspection, Use of proper hand glove, PPE/PPA, Training, Safety guard in case of Grinder
8.	- Using tools/equipment that vibrate - Electrical wiring - Welding	- Vibration hazard - Electrical shocks - Asbestosis - Eye, Body Burns Toxic gases inhalation	Inspection by competent person, Ergonomic training, Use of PPE/PPA, Safety Guards
9.	Working around electrical installations/working near traffic / working at a height (>3m) / Working in isolation. Working in a confined space	Electrical shocks, Injury, Fatal accident, Hazard of toxic, Gases inhalation	Work by Authorized trained person, Indian electrical safety rules to be followed, Work permit system, Work environment in confined space, Use of PPE/PPA
10.	Work environment 1. Noise 2. Dust/fumes/vapours/ gases 3. Extreme températures	Accidental Injury, Occupational Hazards, Rashes, Burn ,	Enclose noise source, Lubrication, Min time exposure, Use of PPE/PPA, Good Housekeeping,

Sr. No.	Operations	Risk	Mitigation Measures
	4. Slippery surfaces/ trip hazards 5. Poor ventilation/ air quality 6. A poorly designed work area for the project/ task	Skin deceases	Illumination survey, Trainings