

Environmental Guideline on Block Making Plant manufacturing up to 10,000 blocks per day



Department of Environment

The purpose of this environmental guideline is to provide guidance on the construction and operation of a block making plant to prospective developers on the basis of self-adherence and to assist Local Authorities at the Building and Land Use Permit stage.



1.0 Background

A **block making plant** is involved in the manufacture of concrete blocks. This guideline applies for block making plants manufacturing up to 10,000 blocks per day.

The basic processes comprise:-

- Mixing the right proportions of cement, water and aggregates, namely rock sand and gravel.
- Conveying the mixed aggregates into a block making machine, where they are compressed and moulded to give the blocks, the desired shape.
- Curing of the blocks for a reasonable period of time to gain the desired strength and durability. The curing process is designed primarily to keep the concrete block moist by controlling the loss of moisture normally by the use of water sprayers or accelerated curing can also be carried out by the use of steam in curing chambers.

The block making plant layout usually comprises the:-

- Block production and curing platform
- Batching plant
- Feeding cement silos
- Raw material storage area

The construction and operation of a block making plant is associated with several environmental issues, namely:-

- Site selection
- Dust and air emissions
- Noise
- Wastewater and storm water run-off
- Solid wastes
- Waste Oil, hydrocarbon and oil spills from vehicles and equipment
- Energy and water consumption

2.0 Objectives of the guideline

This guideline is meant to ensure that prospective developers:-

- adopt appropriate mitigating measures to safeguard the environment.
- comply with provisions of relevant laws/ regulations/standards.
- adopt eco-friendly practices to optimize use of resources.

3.0 Applicable Legislation

A block making plant manufacturing up to 10,000 blocks per day does not warrant a Preliminary Environmental Report (PER) Approval or an Environmental Impact Assessment (EIA) Licence. It requires a Building and Land Use Permit under the Local Government Act 2011. The construction and operation of a block making plant has to be carried out in accordance with the provisions under the Planning Policy Guidance and Outline Planning Scheme.

Note:-

1. *The block making plant must comply with relevant provisions of the Local Government Act 2011, the Town and Country Planning Act 1954, the Building Control Act 2012, the Planning and Development Act 2004, as subsequently amended and all applicable guidelines and regulations.*

2. According to Part B of the Fifth Schedule of the Environment Protection Act (EPA), item 3 “**Block making plant manufacturing above 10,000 blocks per day**” warrants an Environmental Impact Assessment (EIA) Licence.

4.0 Location and Siting

- (i) The site should be located in industrial areas or at a suitable site outside the defined settlement boundary/residential areas or within the buffer of bad neighbourhood activities/ development.
- (ii) The existing development context of the site should be compatible with the activity.
- (iii) At the design stage of new block making plants, consideration should be given to the site lay-out, with a view to avoiding disturbances to the surrounding environment. In particular, attention should be paid to the location of entrances, exits, car parks, access roads and amenities.
- (iv) The site should not be located within any Environmentally Sensitive Area (ESA) and its prescribed buffer zone as per ESA Study 2009 such as wetland, steep slope and in areas that are likely to be affected by hazards such as inland flooding, landslide and storm surges, amongst others.
- (v) On-site wastewater disposal facility such as septic tanks and absorption pits/leaching fields shall be located not less than 30 m from any water course as per Rivers and Canals Act 1863.
- (vi) Existing natural drains and watercourses on or in the vicinity of the site shall not be tampered with.

5.0 Mitigation of Environmental Impacts

5.1 Dust nuisances and air pollution

The main sources of dust nuisances are:-

- fugitive dust from cement storage silo
- Dust from vehicular movement within the premises

Air emissions are from operation of the equipment and exhaust of vehicles.

Necessary abatement measures should be taken such that all emissions from the plant comply with the Environment Protection (Standards for Air) Regulations 1998.

Mitigating measures include:-

- Fitting the silo with dust-restraining bag filters
- Sprinkling of the premises with water, preferably harvested rain water
- The premises and access roads should be kept clean and free of dust at all times.

5.2 Noise abatement

Noise from the block making plant arises from:-

- Use of mechanical equipment and electric motors (compressor, vibrator, hammer)
- Compaction / compression of cement mortar within the block moulds in the block laying machine

As such, necessary precautions shall be taken to ensure noise emitted from the plant is within permissible limits as per the Environmental Standards for Noise Regulations under the EPA which stipulates:-

Industrial Noise		Neighborhood Noise	
Time	Noise exposure limits	Time	Noise exposure limits
07.00-21.00 hrs.	60 dB (A) L_{eq}	07.00-18.00 hrs.	60 dB (A) L_{eq}
21.00-07.00 hrs.	55 dB (A) L_{eq}	18.00-21.00 hrs.	55 dB (A) L_{eq}
		21.00-07.00 hrs.	50 dB (A) L_{eq}
A tonal character adjustment of +5 dB (A) should be applied to the measured value where the noise has a definite continuous note such as a whine or hiss.			

Mitigating measures include:-

- All operations should be carried out during normal working hours as determined by the respective Local Authority.
- Noise generating equipment should be provided with appropriate noise attenuating materials/ structures.
- Proper and regular maintenance of equipment and use of exhaust silencers
- Provision of protective equipment and regular medical screening for staff to the satisfaction of Ministry of Labour, Industrial Relations, Employment and Training.

Noise monitoring using calibrated noise meter should be carried out on a regular basis.

5.3 Wastewater management

Wastewater generated on-site is of both domestic and industrial nature.

- Domestic wastewater is generated by staff employed at the plant
- Industrial wastewater comprises effluents from cleaning of equipment and sprinkling of water for dust abatement

Mitigating measures include:

- Provision of appropriate domestic wastewater treatment and disposal facility to the satisfaction of the Wastewater Management Authority.
- Installation of grease traps or oil water separators for removal of floatable solids from water.
Note:- *Maintenance of the grease trap or oil water separator is to be carried out by the owner / promoter.*
- Wash water should be channeled into a sedimentation tank. The effluent from the sedimentation tank should be treated and reused for dust abatement and the settled solids be reused.

5.4 Solid wastes

Solid wastes are mainly domestic wastes generated by the staff as well as cracked/ broken blocks.

Mitigating measures include:-

- Domestic solid wastes to be regularly collected in bins or waste handling receptacles and disposed of to the satisfaction of the Local Authority.
- No waste of any type to be disposed of in any watercourse including drains, canals and the surrounding environment.
- The cracked/ broken blocks to be reused for backfilling purposes.

5.5 Waste Oil, hydrocarbon and oil spills from vehicles and equipment

Where fuelling is proposed on site, a dedicated platform/ bay must be provided. Necessary measures need to be taken to prevent any hydrocarbon and oil spill at the fuelling bay or from storage tanks.

Where servicing is proposed on site, a dedicated workshop must be provided for such activity.

Mitigating measures include:-

- Waste oil shall be collected and disposed of as per the provisions of the Environment Protection (Collection, Storage, Treatment, Use and Disposal of Waste Oil) Regulations 2006.
- Proper disposal of waste oil at approved oil recycling companies
- Hazardous wastes shall be collected and disposed as per the provisions of the Environment Protection (Standards for hazardous wastes) Regulations 2001.
- Necessary bunded wall to be provided around any fuel storage tank

- Provision of a separate collector drain with an oil interceptor to properly manage wastewater from washing of any workshop area
- Contingency plans should be developed for any accidental spillage of petroleum products or any other unforeseen circumstances.

5.6 Other mitigating measures

- Necessary precautions should be taken to avoid disturbance to the neighbourhood by way of mud, traffic or other nuisances during construction and operation phase.
- Provision to be made for adequate parking, loading and unloading facilities.
- Safe storage of materials on site and stored materials not unduly visible or intrusive in the street scene.
- Provision for a proper drainage scheme for evacuation of stormwater to avoid any risks of flooding/water-logging of site and adjoining areas to the satisfaction of the Local Authority.
- Installation of bait stations/ traps to control pests and rodents.

5.7 Eco-friendly Measures and Sustainability

Best environment friendly practices and initiatives need to be adopted such as rain water harvesting for washing of premises, energy efficient appliances and energy-saving devices (LED lamps); sensor lights.

Note:

- a. Relevant organizations need be consulted with regard to traffic implications, amongst others prior to embarking on the project to ensure compliance with their respective laws/regulations/standards.
- b. Non-compliance with environmental laws namely standards for air and noise is an offence under the EPA.

Copies of this guideline are available at the Department of Environment and on the website of the Ministry at <http://environment.govmu.org>; the government's portal at <http://www.govmu.org>, including the websites of Local Authorities.