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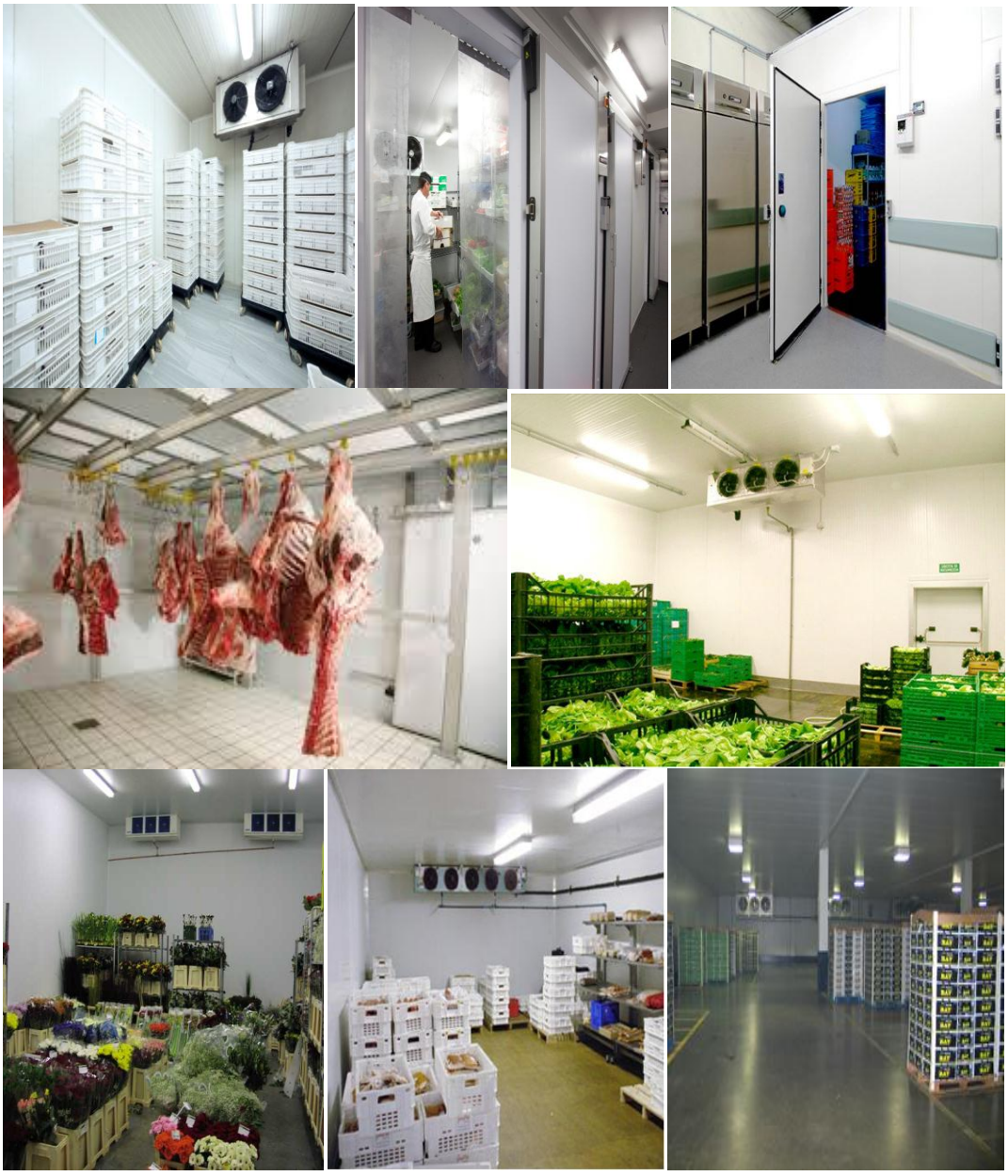
Environmental Guideline on Cold rooms and refrigeration plants



Department of Environment

The purpose of this environmental guideline is to provide guidance to prospective developers on the construction and operation of cold rooms and refrigeration plants on the basis of self-adherence and to assist Local Authorities at the Building and Land Use Permit stage.

1.0 Background

The application of cold rooms and refrigeration plants (including chillers, blast freezers) are numerous, including short and long term storage and freezing of various types of item (meat/poultry/fish, vegetables, fruits and flowers among others) to increase the shelf-life of perishable goods. In some instances, labeling and packaging of the above products are also carried out onsite premises.

The operation of cold rooms and refrigeration plants is associated with several impacts which need to be mitigated to avoid nuisances to the environment.

Major issues of environmental concern relate to:

- Site selection
- Noise
- Odour and sanitary nuisances
- Solid waste
  - Spoiled products
  - Packaging wastes (plastic, cartons)
- Wastewater
- Ozone-depleting substances
- Energy and water consumption

2.0 Objectives of the guideline

This guideline is meant to ensure that prospective developers:

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

3.0 Applicable Legislation

Cold rooms and refrigeration plants do not warrant a Preliminary Environmental Report (PER) Approval or an Environmental Impact Assessment (EIA) Licence. It requires, amongst others, a Building and Land Use Permit under the Local Government Act 2011. Cold rooms and refrigeration plants have to be in accordance with the provisions under the Planning Policy Guidance and Outline Planning Scheme.

Note:

The development 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, the Food Act 1998 and all applicable guidelines and regulations.

4.0 Location and Siting

(i) Cold rooms and refrigeration plants should preferably be located in commercial and industrial areas/SME Parks by virtue of its size and scale.

(ii) The existing development context of the site/land should be compatible with the activity.

(iii) Cold rooms and refrigeration plants 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.

(iv) 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.

(v) 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 Solid waste management

Solid wastes commonly generated from cold rooms and refrigeration plants are packaging wastes, spoiled products and domestic wastes from workers. Such wastes require proper handling and disposal as they may give rise to sanitary nuisances such as odours, flies, rodents and other pests.

Mitigating measures include:

- No waste of any type shall be disposed of in any watercourse including drains, canals and the surrounding environment.
- Spoiled products shall be stored in leak proof and airtight containers under chilled conditions until removal for disposal.
- Domestic solid wastes to be regularly collected in bins or waste handling receptacles and disposed of to the satisfaction of the Local Authority.
- Promotion of waste reduction (minimization of product loss), re-use and recycling (carton boxes, plastic bottles).

5.2 Wastewater management

Wastewater generated during washing of products and cleaning of cold rooms and refrigeration plants contain high quantities of organic material, biodegradables, residuals amongst others.

Mitigating measures include:

- Wastewater from washing should be disposed of to the satisfaction of the Wastewater Management Authority.
- Installation of grease traps or oil water separators for removal of floatable solids.

Note:- *Maintenance of the grease trap or oil water separator is to be carried out by the owner / promoter.*

- No wastewater shall be discharged either on the surface of the ground or into any watercourse.

5.3 Noise abatement

Noise can be generated from compressors, condensers, humidifiers and generators. Therefore, necessary precautions shall be taken to ensure noise emitted from the enterprise is within permissible limits as per the Environmental Standards for Noise Regulations under the Environment Protection Act(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:

- Appropriate noise abatement measures shall be taken to prevent nuisance to the surrounding environment.
- Provision of appropriate noise attenuating materials/structures to abate noise generated from equipment such as generators, compressors.
- Proper maintenance of equipment and use of exhaust silencers.

5.4 Odour and sanitary nuisances

Odour may be released from spoiled/ contaminated products, solid and liquid wastes. As such, necessary precautionary measures shall be taken to avoid any such nuisances.

Mitigating measures include:

- The premises should be kept in good operational order and clean at all times with good housekeeping and proper ventilation.
- The building and facilities of the enterprise shall satisfy the sanitary requirements as per the provisions of the Food Act 1998 and Public Health Act 1925.
- Installation of bait stations/traps to control pests and rodents.

5.5 Ozone depleting substances

Cold rooms and refrigeration plants make use of refrigerants which could be Ozone Depleting Substances such as Hydrochlorofluorocarbons (HCFCs). Appliances containing Chlorofluorocarbons (CFCs) and HCFCs have been banned under the Consumer Protection Regulations 2013. Refrigerants to be used in the air-conditioning and refrigeration appliances shall be energy efficient and environment friendly. The importation of refrigerants requires a permit under the Dangerous Chemicals Control Act 2004. Prior to importing same, a clearance shall be sought from the Ministry of Environment.

Mitigating measures include:

- Use of energy efficient and climate friendly appliances.
- Maintenance of the chiller/ freezers to be undertaken by registered companies.
- Cold rooms to be equipped with leak detectors in case of refrigerant escapes.
- Decommissioning and disposal of obsolete refrigerants to be carried out according to best practices and to be stored at the interim hazardous waste facility of the Solid Waste Management Division at La Chaumière.

5.6 Other mitigating measures

- Necessary precautions should be taken to avoid disturbance to the neighbourhood by way of odour, dust, noise or traffic 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.

5.7 Eco-friendly Measures and Sustainability

Prospective developers are advised to adopt best environment friendly practices such as water conservation practices (reduce, reuse), use of renewable energy sources, energy efficient devices and motors (LED lamps) and ozone and climate-friendly equipment.

Note:

a. Relevant organizations need to be consulted with regard to food hygiene, traffic implications, imports of refrigerants, amongst others prior to embarking on the project to ensure compliance with their respective laws/regulations/standards.
b. Contingency plans should be developed for unforeseen circumstances such as cyclones, unexpected power shortage/cuts and refrigerant leakage.

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.