

## **Environmental Pollution Control Guidelines for Hotels, Hospitality Industry and Similar Establishments**

1. General establishments such as cafes, bars and restaurants should comply with the following guidelines :
  - 1.1 General Guidelines of Noise Pollution Control.
  - 1.2 Guidelines on Noise Pollution Control of Air-conditioning Ventilation System and Pumping System.
  - 1.3 Guidelines for the Pollution Control of Cooking Fume, Black Smoke and Odour from Food and Beverage Businesses and Similar Establishments.
  - 1.4 Guidelines for the Control of Light Pollution Caused by Billboards, Building Decorative Lights and Outdoor Electronic Displays.
  - 1.5 Guidelines of Water Pollution Control.
2. General establishments such as cafes, bars and restaurants which provide outdoor performances or facilitated with heavy sound equipment (the continuous output power of loudspeaker is above 150W) should comply with the following guidelines:
  - 2.1 General Guidelines of Noise Pollution Control.
  - 2.2 Special Guidelines of Noise Pollution Control.
  - 2.3 Guidelines on Noise Pollution Control of Air-conditioning Ventilation System and Pumping System.
  - 2.4 Guidelines for the Pollution Control of Cooking Fume, Black Smoke and Odour from Food and Beverage Businesses and Similar Establishments.
  - 2.5 Guidelines for the Control of Light Pollution Caused by Billboards, Building Decorative Lights and Outdoor Electronic Displays.
  - 2.6 Guidelines of Water Pollution Control.
3. Establishments such as karaoke, discos, clubs, pubs and bars which provide outdoor performances or facilitated with heavy sound equipment (the continuous output power of loudspeaker is above 150W) should comply with the following guidelines:
  - 3.1 General Guidelines of Noise Pollution Control.
  - 3.2 Special Guidelines of Noise Pollution Control.
  - 3.3 Guidelines on Noise Pollution Control of Air-conditioning Ventilation System

and Pumping System.

- 3.4 General requirements for sound insulation and absorption equipment sound and recommendations.
  - 3.5 Guidelines for the Pollution Control of Cooking Fume, Black Smoke and Odour from cafes, bars and restaurants and Similar Establishments.
  - 3.6 Guidelines for the Control of Light Pollution Caused by Billboards, Building Decorative Lights and Outdoor Electronic Displays.
  - 3.7 Guidelines of Water Pollution Control.
4. Meanwhile, above establishments should comply with Guidelines for the Pollution Control of Black Smoke and Particulates Emitted from Boilers or Furnaces if equipment such as Furnaces or Boiler is installed.

#### **General Guidelines of Noise Pollution Control**

- 1. It is suggested that assessment of the surrounding environment should be considered and incorporated at the planning stage in order to avoid the noise impact to the surrounding places (such as residential buildings, sanatoriums, nursing homes, hospitals and schools etc. ),and avoid complaints in the future.
- 2. The operations of such establishments must comply with the requirements of Law No. 8/2014 of *Environmental Noise Prevention and Control* as amended by Law No. 9/2019.
- 3. The noise generated from loudspeakers which will affect the surrounding residents should be highly concerned. If necessary, the relevant sound insulation / noise elimination and vibration isolation accessories should be installed to ensure the conformation with the requirements stipulated in Law No. 8/2014 of *Environmental Noise Prevention and Control* as amended by Law No. 9/2019.
- 4. Avoid installing outdoor loudspeaker so as not to affect the surrounding residents.
- 5. The noise from air conditioning and ventilation equipment which will affect the surrounding residents should be highly concerned. If necessary, the relevant sound insulation / noise elimination and vibration isolation accessories should be installed to ensure their operations to comply with the requirements of Law No. 8/2014 of *Environmental Noise Prevention and Control* as amended by Law No. 9/2019.

6. The placement of air conditioning, ventilation equipment, related machine room cooling system and venting outlets should be fully considered to avoid their impacts to surrounding residents. The appropriate spatial distance should be kept between the mentioned equipment and the sensitive receptors (such as residential buildings, sanatoriums, nursing homes, hospitals and schools etc.). They should be properly installed in order to conduce the diffusion of noise and heat in open area and to alleviate their impacts to the surrounding environment. The mentioned equipment should be avoided installing at patios, narrow alleys where is adverse to dissipation of noise.
7. It is suggested that inspection, repair and maintenance of air conditioning system, cooling tower, ventilation systems inlets and outlets and other relative facilities should be regularly done in order to ensure their operations to comply with the requirements of Law No. 8/2014 of *Environmental Noise Prevention and Control* as amended by Law No. 9/2019.

### **Special Guidelines of Noise Pollution Control**

1. The position of establishing a business should be fully considered to avoid the noise nuisance and complaints to the surrounding sound sensitive districts (such as residential buildings) in the future. Karaoke, bars, discos, pubs or similar establishments are tend to cause noise nuisance and human-caused disturbance. Therefore, such establishments are not recommended to be established in residential buildings but in hotels and buildings exclusively used for commercial or entertainment activities to minimize the possibility of nuisance and complaints in the future.
2. The environmental capacity of a district where the mentioned establishments are to be operated should be fully considered to avoid noise pollution caused by the excessive number of similar establishments at the same location, namely noise nuisance and human-caused disturbance.
3. It is suggested to address an acoustical assessment to the surrounding environment in prior to commence of the mentioned establishments. Effective measures should be taken to ensure the residents in the nearest residential buildings could not hear the musical sound from the loudspeakers, especially the music from outdoor performance, outdoor loudspeakers, and low frequency rhythm music.
4. The above establishments must install the relevant sound insulation, noise elimination and vibration isolation equipment or materials to ensure their

operations to comply with the requirements of Law No. 8/2014 of *Environmental Noise Prevention and Control* as amended by Law No. 9/2019. When choosing sound insulation or noise elimination materials, the sound insulation materials should be able to diminish or isolate the sound of different frequencies and can effectively moderate sound frequency from loudspeaker. Moreover, appropriate information such as the data of sound insulation amplitude, the coefficient of sound absorption under different frequencies of the sound insulation materials and maximum sound pressure output under different frequencies of the loudspeakers, etc. should be provided in the submitted data.

5. Audio equipment should not be installed directly onto the architectural structure, but vibration isolation measures/materials should be installed on the equipment and its brackets. It is advised to apply vibration isolation materials, and the specifications for such vibration isolation materials are: transfer ratio (T) of 0.01~0.05, vibration isolation efficiency ( $\eta$ ) of 95~99%, frequency ratio ( $f/f_0$  — the ratio between fixed frequency of vibration isolation system and driver frequency of vibration equipment) of 5.5~15. In order to reduce the noise nuisance caused by the vibration of the building structure being transmitted to the neighbors.
6. The speaker should be placed as far away from the corner as possible. And the volume of the speaker should be controlled and kept at a low sound level to avoid excessive noise nuisance to residents, and a volume limiter should be installed to prevent unauthorized changes to the volume.
7. The gates of such establishments should not be opened outward the buildings. The double-layer self-closing doors with sound insulation and sound-absorbing effect should be installed at the entrance (two doors are independent with a buffer area in the middle) to prevent the noise from spreading out. The doors and windows should be kept closed during the operation to prevent the adverse effect of the noise generated by loudspeakers to the surrounding environment, especially for the sound sensitive receptors. Notices or posters should be displayed prominently at entrances and passageways to advise that customers should not shout, speak loudly or make disturbing noise when they leave the establishments at night.
8. Appropriate measures should be taken to prevent the sound from spreading out through any channels/outlets (such as exhaust fan outlets, transoms, air troughs, etc.) to reduce noise affecting surrounding residents.
9. In case the installation of glass window is involved, effective sound isolation effect glass (such as vacuum glass, double-paned glass, etc.) should be considered

in the design to minimize the noise transmission (especially low-frequency rhythm noise), or take other effective measures to ensure a better achievement and comply with the requirements of Law No. 8/2014 of *Environmental Noise Prevention and Control* as amended by Law No. 9/2019. This also helps to reduce the adverse effect caused by noise to the surrounding sound sensitive receptors (such as residential buildings, nursing homes and schools etc.).

### **Guidelines of Water Pollution Control**

1. Suitable control equipment should be installed to ensure the sewage discharged has to comply with the requirements of Decree-Law 46/96/M dated on 19th August “Regulations on Water Supply and Drainage in Macao”.
2. Regular inspection, repair and maintenance of the relevant pollution control equipment should be done to ensure the efficiency of treatment.
3. Sewage and waste oil should not be discharged into the storm drainage and surrounding environment to avoid environmental pollution. The waste oil should be collected properly and be treated effectively.
4. In addition to the grease trap subject to IAM supervision and inspection, it should also be properly maintained on a regular basis and should be checking at least every three days. If the top 30% of liquid depth occupied by grease, it must be cleaned up, and appropriate measures should be taken during the removal process to avoid spillage of sewage and odor to ensure that the facility can effectively perform its functions and the sewage discharged from the site must comply with the requirements of Decree-Law 46/96/M dated on 19th August “*Regulations on Water Supply and Drainage in Macao*”, especially the relevant requirements in Annex 9 of Articles 92 and 93. In addition, the sewage pipes in the site should be connected to the corresponding sewage pipe network according to the original plan of the building to avoid the impact on the surrounding water environment caused by the wrong connection of the sewage pipeline of the site.
5. Under the feasible condition, it is advised to install appropriate water saving facilities such as water-saving taps, water-saving defrosting equipment and water saving flushers etc. Water saving measures should be implemented that include the prevention of continuous running tap while cleaning food or defrosting. It is suggested to recycle the used water, such as the water which had been used for

cleaning fruits and vegetables, the water from defrosting, etc. so as to save water and reduce the operation costs.

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(The English version is for reference only, The Chinese version or Portuguese version shall prevail.)