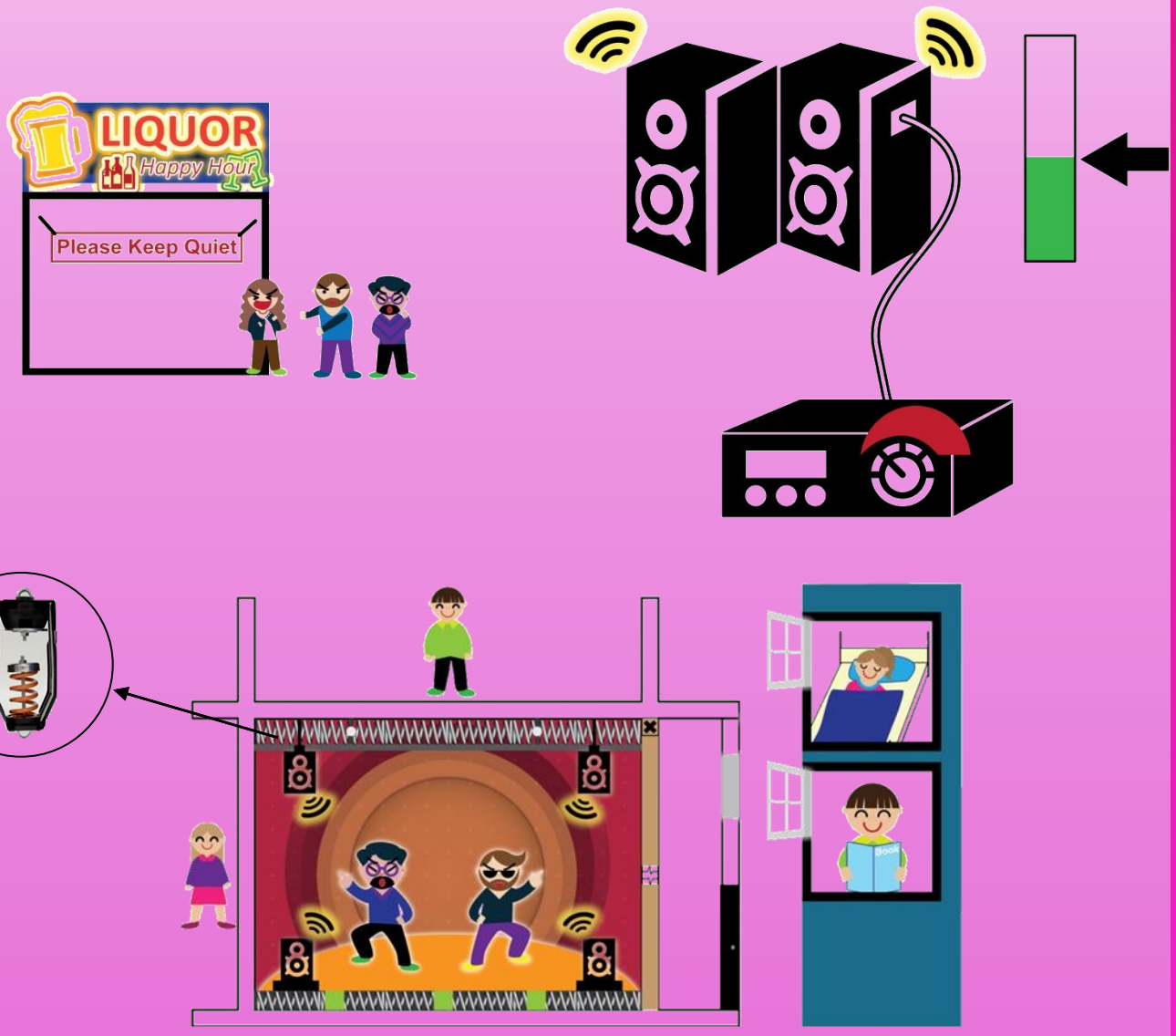
# GOOD PRACTICES
# ON
# THE CONTROL OF NOISE FROM LIQUOR LICENSED ESTABLISHMENTS




Environmental Protection Department
The Government of the Hong Kong
Special Administrative Region

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**Acknowledgments**

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## 1. INTRODUCTION

In a vibrant and densely populated metropolitan city like Hong Kong, it is not uncommon to find liquor licensed establishments in close proximity to nearby residential areas, or even in the same building, thus causing grave concern on the noise impact arising from these premises particularly after 2300 hours, when most people expect a tranquil environment for their rest/sleep. As such, it is paramount important to maintain good neighbourliness to ensure adequate and effective noise mitigation measures in place to avoid jeopardizing people's living quality.

Under the Noise Control Ordinance (NCO), noise generated from industrial or commercial activities shall comply with the relevant noise standards. It is generally recognized that operation of liquor licensed premises would include many activities that may generate noise. This practical guide highlights the importance of prior planning to design out noise problems. It also gives a brief description of potential noise problems associated with liquor licensed premises and provides guidelines and examples on practical noise control measures that may be applicable for new liquor licensed premises to avoid any potential noise impact and for existing liquor licensed premises to mitigate the noise problems.

The reader is reminded that fulfilling the recommendation of this practical guide does not necessarily mean compliance with the legislative requirements. Besides, the recommendations made in this booklet are not exhaustive. There may have other alternative solutions to achieve the same or better result. The reader is therefore recommended to consult independent experts for ensuring the use of proper and cost effective noise control measures.

This practical guide aims at reminding potential liquor licensees to seek early acoustical expert's opinions in a) selecting proper licensed premises location, b) identifying any noise impact to nearby residents and c) providing mitigation solution before making their applications to the Liquor Licensing Board. This booklet is also designed for reference by existing liquor licensees who may not be aware of the noise concerns or does not have sufficient noise control knowledge. Architects, interior designers, building services engineers or other relevant professional parties may also use it as a checklist to ensure that proper mitigation measures have been taken to mitigate potential and existing noise problem at the licensed premises. The main contents are illustrated by schematic diagrams for easy understanding.

Potential noise sources arising from liquor licensed premises that may affect nearby residents include noise from musical activities , ventilation and pumping noise, construction, decoration and renovation noise and noise from patrons entering and leaving the premises and noise from patrons having social interaction activities at public place outside the premises.. Those types of noise are all regulated under the NCO. Details of the control are described in part 2 of this practical guide.

The reader may note that there are other guidelines, such as "Good Practices on the Control of Noise from Electrical & Mechanical Systems" which deal with noise problems and possible solution for E&M Systems. For noise arising from construction, decoration and renovation work, please refer to the "Technical Memorandum on Noise from Construction Work other than Percussive Piling" and the "Technical Memorandum on Noise from Construction Work in Designated Areas".

## 2. NOISE CRITERIA AND NOISE LIMIT LEVEL

Common sources of noise annoyance from liquor licensed premises are come from amplified music, singing, instrument playing or variety shows performance. This type of musical noise is controlled by means of a Noise Abatement Notice (NAN) system under the Noise Control Ordinance (NCO). In general, if the noise emanating from the licensed premises does not comply with the noise criteria stipulated in Table 1 and Table 2 below when assessed at any noise sensitive receiver e.g. a domestic premises, a NAN may be served to the operator requiring them to abate the noise and to comply with the requirements specified therein within the set time periods. Failing to comply with the requirements as specified in the said NAN is an offence and would be liable to prosecution.

Given the nature and characteristics of the noise from musical activities, including the amplified music, singing, instrument playing or variety shows performance within the liquor licensed premises, the "annoyance" approach under section 13(1)(a) of the NCO would be adopted for the control. Under the NCO, "annoyance" means annoyance that would not be tolerated by a reasonable person. To determine whether the sound will cause an annoyance to a reasonable person, it is necessary to take into consideration factors like the characteristics, the intensity and the period of time that the sound occurs. In general, the noise criteria adopted as requirement in NAN serving to liquor premises against emitting musical sound are shown in Table 1 and Table 2.

**Table 1 Acceptable Noise Level at NSR, dB(A) at 1 m from Exterior Building Façade[1][2]**

| Time / Type of Area Containing the NSR | Day and Evening (0700 to 2300 hours) | Night (2300 to 0700 hours) |
|---|---|---|
| Urban Area | 65 – 70 | Not applicable |
| Rural Area | 60 – 65 | |

**Table 2 Acceptable Noise Level at NSR, dB(A) at an Internal Location[1][2]**

| Time / Type of Area Containing the NSR | Day and Evening (0700 to 2300 hours) | Night (2300 to 0700 hours) |
|---|---|---|
| Urban Area | 55 – 60 | Not Audible |
| Rural Area | 50 – 55 | |

Note:

[1] For details of determination of appropriate Acceptable Noise Levels, the reader is advised to make reference to "Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites" or consult competent persons.

[2] The noise levels shall be measured in terms of 15-minute A-weighted equivalent continuous sound pressure level, $L_{eq(15min)}$

Apart from musical noise, there are other noises arising from the operation of a licensed premises that are also regulated under the NCO such as:

a) Noise generated from machinery and equipment (e.g. chiller units, ventilation plants and water pumping systems) may also cause significant noise disturbances. For details of the noise control requirements and/or the Acceptable Noise Levels, please refer to the "Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites" and the website "Good Practices on the Control of Electrical & Mechanical Systems".

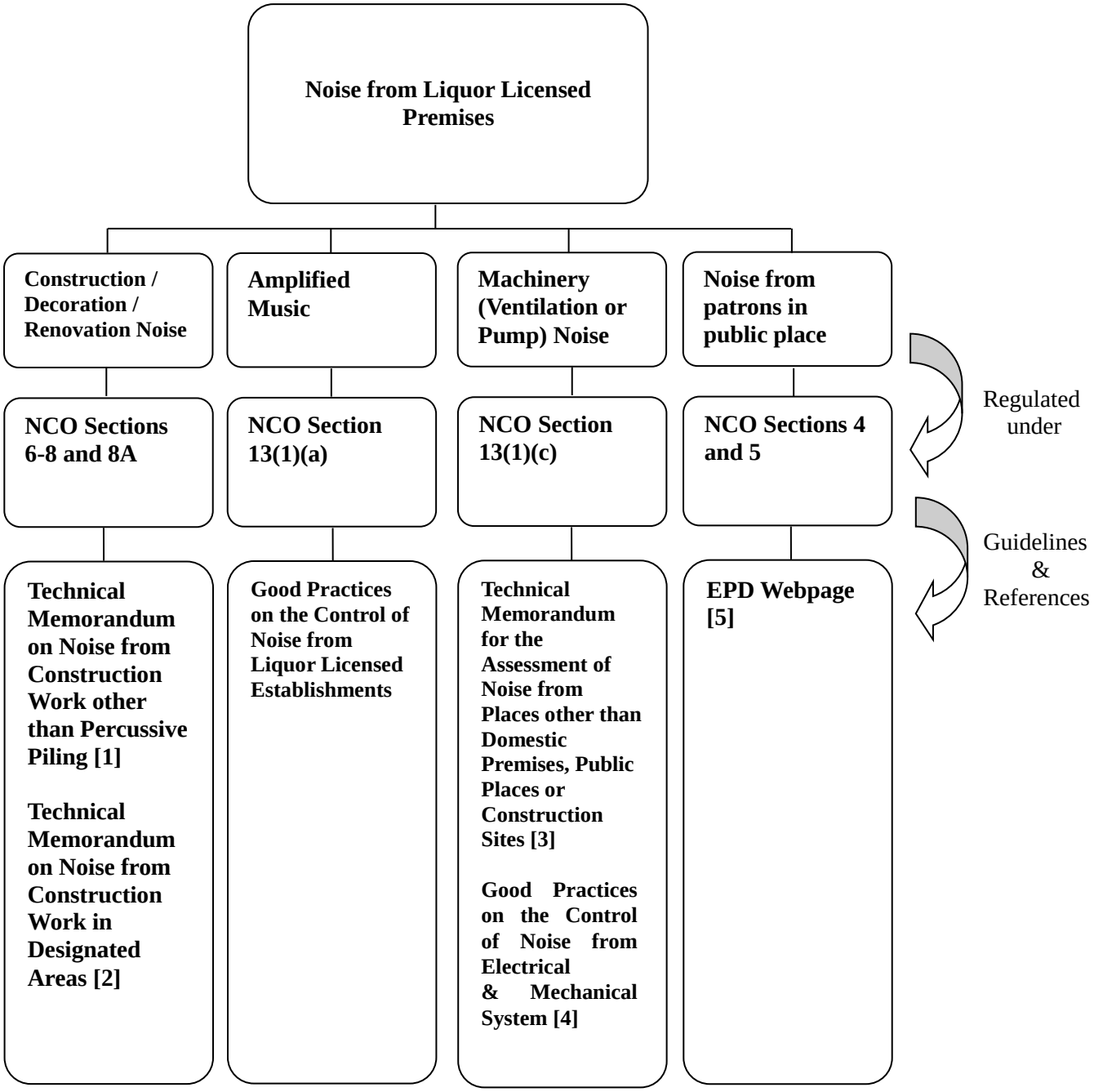
b) Noise generated during construction/decoration/renovation stage of the premises may cause other significant noise disturbances. For more details of the noise control requirements, i.e. the requirements of having a valid Construction Noise Permit and/or the Acceptable Noise Levels, please refer to "Technical Memorandum on Noise from Construction Work other than Percussive Piling" and "Technical Memorandum on Noise from Construction Work in Designated Areas".

c) Noise due to musical or related activities undertaken at the open areas (e.g. balcony, verandah or open / front / rear court(s) of the licensed premises) may also cause significant noise disturbance to nearby residents. It is also controlled by "annoyance" approach under section 13(1)(a) of the NCO. Liquor licensees should refrain from using those areas for such activities and should not offer services to patrons in those open areas.

d) Noise from patrons leaving and entering the licensed premises and noise from patrons with anti social behaviours in public place outside the licensed premises are also another source of annoyance and may also cause significant noise disturbance to nearby residents. Liquor licensees should notify and remind patrons to be a considerate customer. The Police will handle noise concerns in public places based on a "reasonable man" approach depending on the circumstances.

Figure 1 gives a summary of different types of noise that can be emanated from a liquor licensed premises, the respective legal provisions for the control, and the relevant guidelines available in tackling them.

**Figure 1 Relevant Noise Regulations and Guidelines**




Note:
[1] Technical Memorandum on Noise from Construction Work other than Percussive Piling
[2] Technical Memorandum on Noise from Construction Work in Designated Areas
[3] Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites
[4] Good Practices on the Control of Noise from Electrical & Mechanical System
[5] EPD Webpage

## 3. GOOD DESIGN DURING PLANNING STAGE

### 3.1 Good Location Selection of Licensed Premises

Prevention is always better than cure as far as noise nuisance is concerned. Selecting a good site location will save a lot of financial expenditure / burden caused by providing additional noise mitigation measures at later days, potential loss of business revenue for carrying out modification, mitigation measures and even standing against prosecution. If liquor licensed premises are chosen at non-noise sensitive location (e.g. within a commercial building without any residence around), fewer residents will be affected by noise from the activities undertaken at the licensed premises and hence fewer noise concerns or complaints will be anticipated

If the licensed premises is located in a noise sensitive location (e.g. surrounded by many residential buildings or within a mixed commercial /residential building), local residents may be adversely affected by noise generated from activities within the premises. Under such circumstance, the owner or applicant may need to pay extra effort and financial expenditures to mitigate the noise nuisance. In some situations, the licensed premises even may not have sufficient space for carrying out effective remedial mitigation measures.

Therefore, it is highly recommended that applicants for liquor licence should seek prior advice from acoustic experts in siting the premises in a non-noise sensitive location. For more information, applicant can refer to "DOs and DON'Ts for applying liquor or club liquor licence " published by the Liquor Licensing Board (http://www.fehd.gov.hk/english/LLB_web/llb_appy_dodont.pdf) and "A Guide to Application for Liquor Licences and Club Liquor Licences" published by the Food and Environmental Hygiene Department (http://www.fehd.gov.hk/english/forms/ll-nt.html).

### 3.2 Good Acoustic Design for Licensed Premises

A good licensed premises design is essential to prevent noise arising from breakout/transmission from the premises from disturbing the nearby residents. Common causes of noise breakout include opened doors, opened windows and vent openings which, because of holes, gaps and openings offer no resistance to noise leakage. Many potential problems can be avoided by proper designs of windows, doors and ventilation systems. Also, the "Box-in-box" design (e.g. an independent structure (the inner box) isolated from the main building structure (the outer box) using resilient mountings) can achieve high degree of isolation efficiency for airborne and structure-borne noise. Therefore, it is highly recommended that liquor licence applicants should seek advice from acoustic experts helping them to suitably design the noise mitigation measures. The acoustic expert could also help check and verify the compliance of mitigation measures with the relevant EPD's noise criteria. Good noise mitigation design of licensed premises would support the applicant's application for the appropriate liquor licence.

### 3.3 Good Quality Noise Impact Assessment

A good quality noise assessment can determine the impact of noise emanating from a premises to the affected nearby residents. The acoustic expert could help identify what noise sources of a licensed premises would have; where the affected noise sensitive receivers would be situated; and how the noise would be transmitted and mitigated. Corresponding mitigation measures thus can be developed after carrying out the assessment. Once the assessment is completed, the applicant should consider the necessary measures which can reduce noise levels to meet the noise criteria.

If the noise impact assessment indicates that noise from the operation of the establishment would inevitably cause annoyance to the neighbouring community or the premises is not viable for holding activities like entertainment performance taking account of the layout of the premises, the liquor licensee is advised to consider an alternative location for the premises. If the premises has already been licensed, retrofitting mitigation measures and additional noise management measures should be implemented to reduce the noise impact to the nearby residents.

## 4. GOOD PRACTICES ON MANAGING NOISE FOR LIQUOR LICENSING PREMISES

### 4.1 Noise from Activities held inside Licensed Premises

Noise from musical activities, (e.g. amplified music, singing, instrument playing or live show performing, etc) undertaken inside the licensed premises if not properly contained or insulated, may be leaking out through the building openings and become a major source of annoyance to the nearby residents. Noise leakage is usually found in the following situations:

Noise due to dancing and disco music with strong bass beats, if not properly insulated and/or isolated can easily be transmitted through building structures to the neighbouring dwellings and cause noise annoyance.

Another common cause of noise nuisance is the vibration of equipment (e.g. loudspeaker body, amplifier or other musical instrument) mounted to building structures without proper isolation. The sound wave generated by the large power loudspeakers may set the floor in vibration. This vibration may excite the building structure and transmit / radiate noise which will cause noise disturbance to residents inside the adjoining premises.

### 4.2 Recommended Good Practices to Achieve Best Acoustic Insulation Effect

To tackle noise from coming out through building openings and structures, common good practices are recommended as follows:

- Install sound trap lobby
- Increase the sound insulation properties of the walls and ceiling of the structure
- Adopt good design of windows, doors and ventilation systems to avoid noise leakage
- Close doors and windows during operation hours
- Seal acoustically doors and windows, and maintain them in good condition
- Install acoustically sealed double-glazed noise insulation windows, where necessary
- Install acoustically sealed double doors which are made of sound insulations or absorption materials, where necessary
- Avoid placing loudspeakers or TV that direct music or sound to doors or windows of the premises
- Apply integrated noise mitigation measures e.g. “double” and composite ceiling, composite wall and floating floor design of the premises structure
- Apply floating floor and vibration isolator systems
- Use anti-vibration pad for floor-standing loudspeakers
- Use properly designed spring isolators for overhung or wall-mounted loudspeakers

Before applying noise mitigation measures

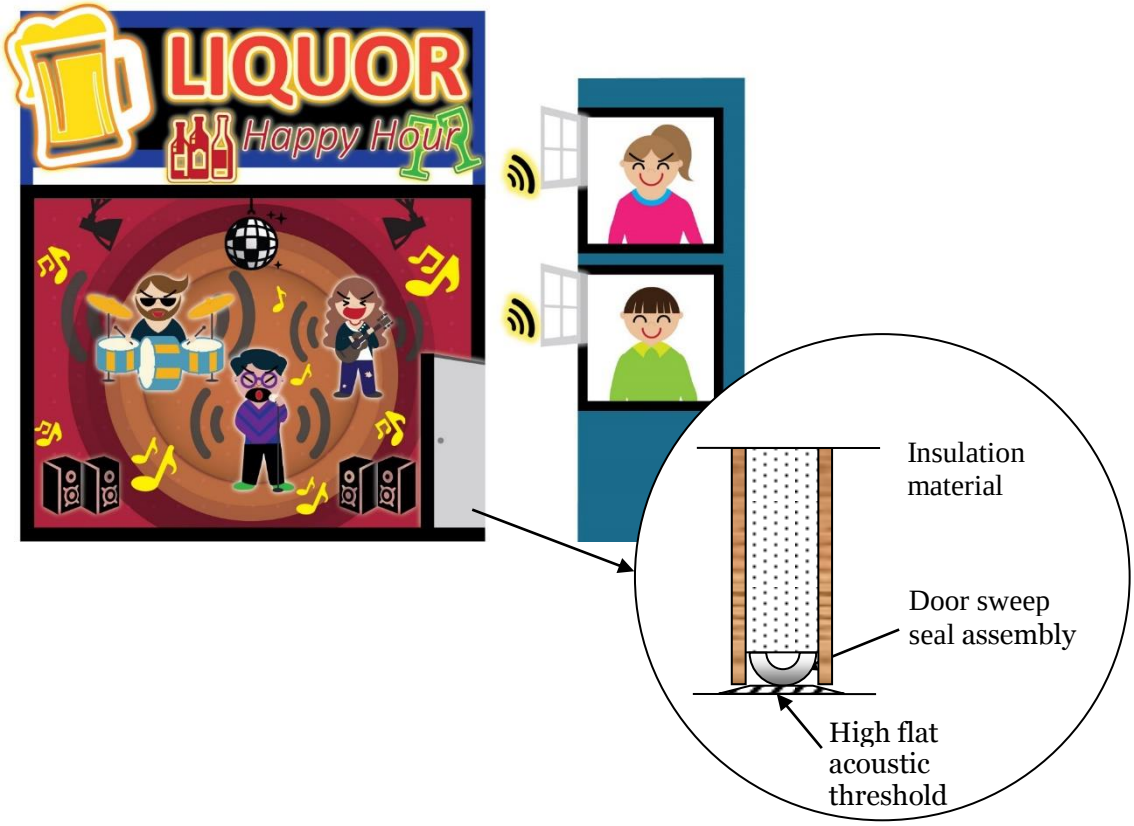
After applying noise mitigation measures

## 4.3 Airborne Noise from Musical Activities inside Licensed Premises

### (A) Good Practices

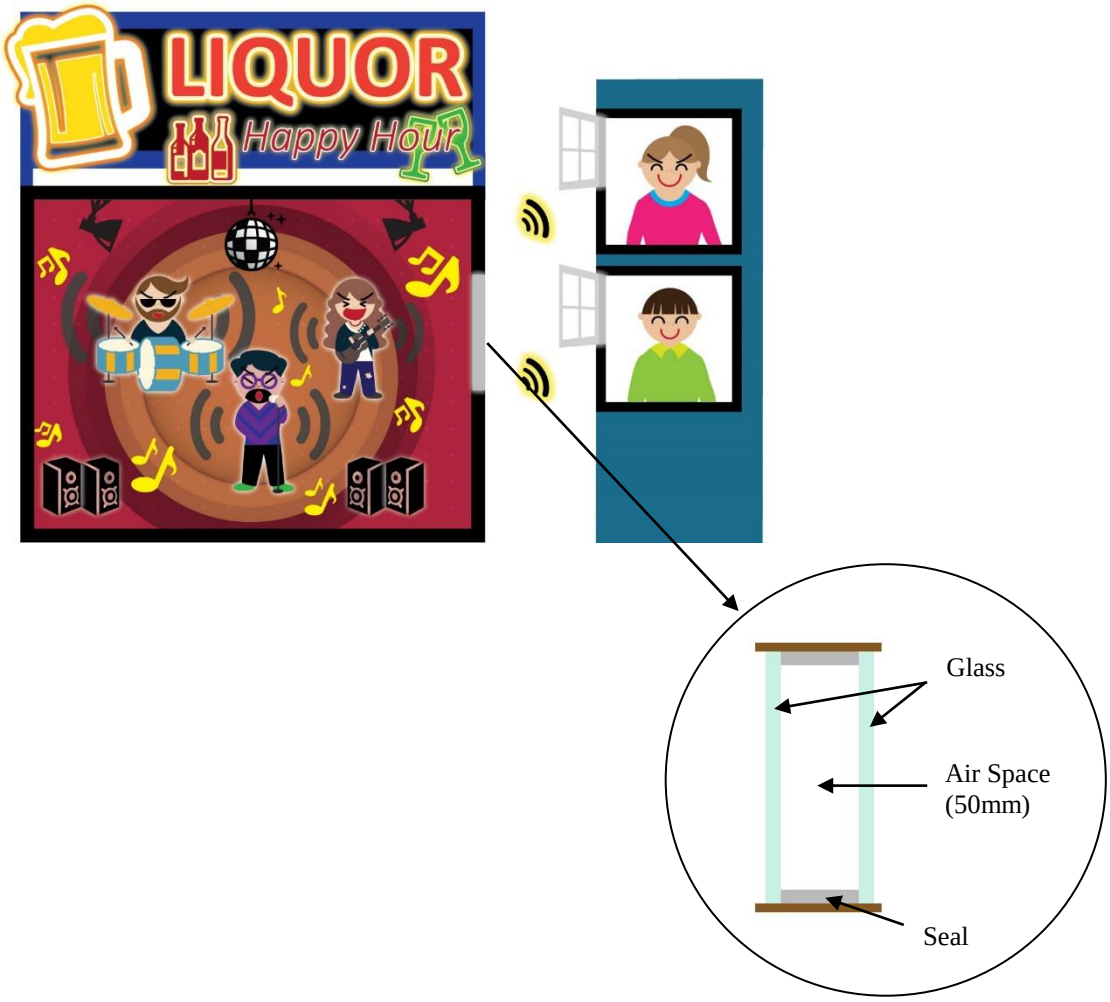
Scenario (i) Airborne noise through opened doorway


- Close all doors
- Install acoustic doors, and maintain them in good condition to prevent noise escapement from the premises
- Appoint a staff as door supervisor to keep the doors closed
- Equip doors with self-closing mechanism
- Install a visual alarm equipment to alert the premises-in-charge if the doors are opened
- Install double doors incorporated with sound trap lobby (see Glossary of Acoustic Terminology in Section 5 for details)

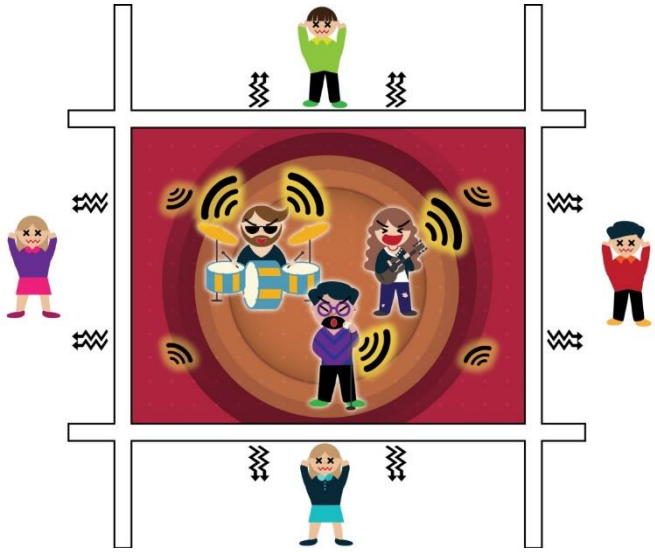


Scenario (ii) Airborne noise through opened windows

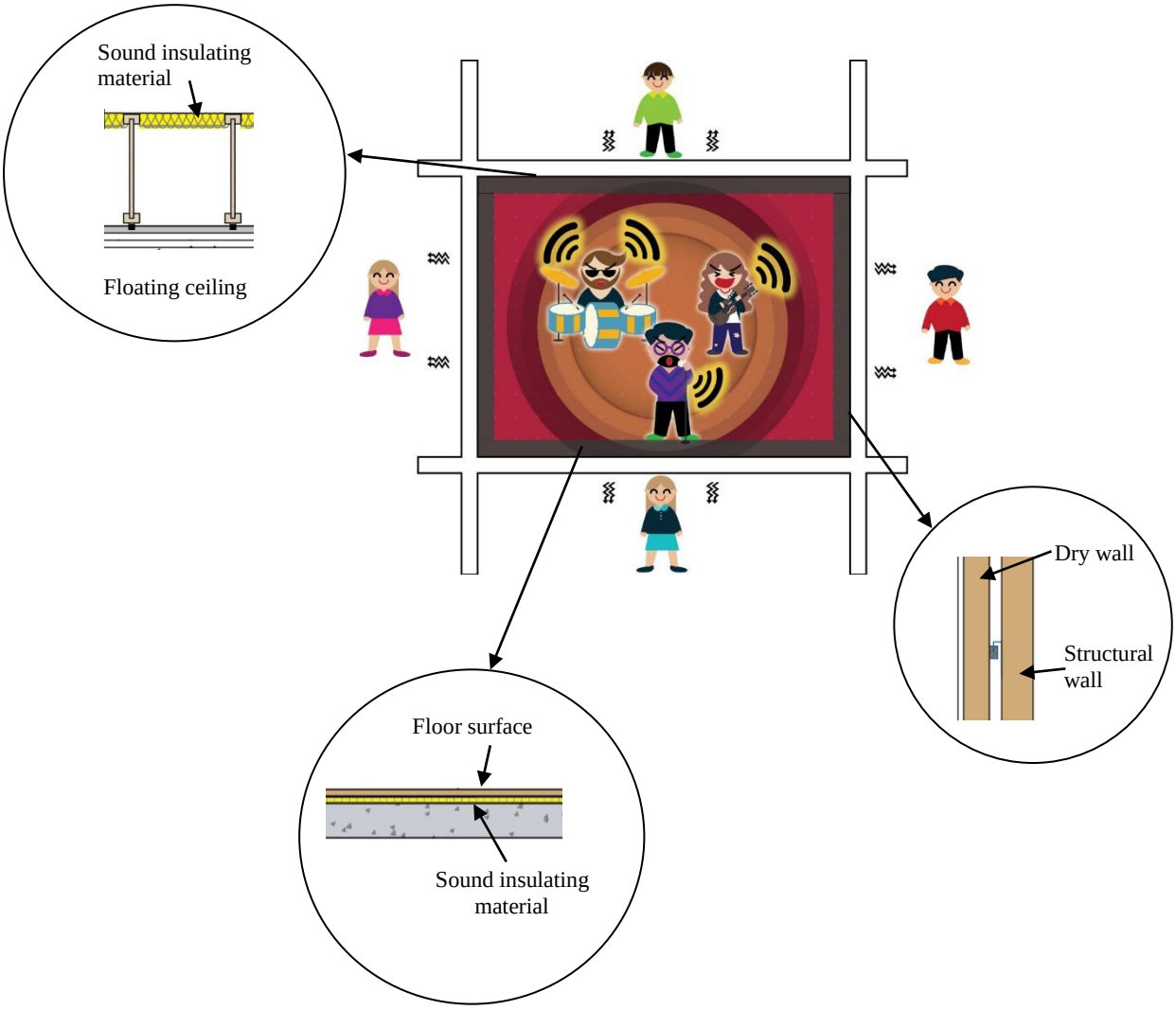

- Close all windows
- Install double-glazed or acoustically sealed (e.g. distance between 2 layers of glass should be more than 50mm) windows



Scenario (iii) Airborne noise transmitted through partitions

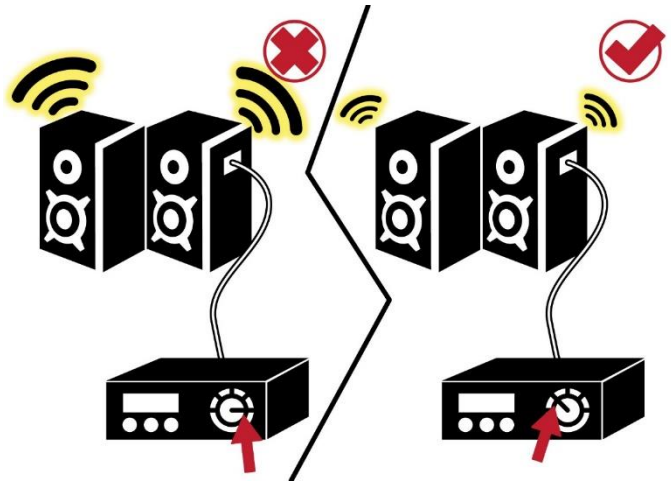


- Reinforce the sound insulation properties of the walls and ceiling of the structure, such as construction of drywalls and floating ceiling, or the addition of sound insulation or wall linings

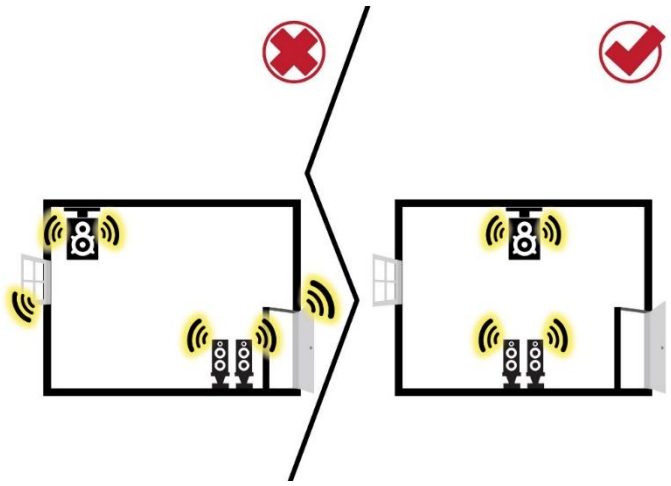


**(B) Other Good Practices**

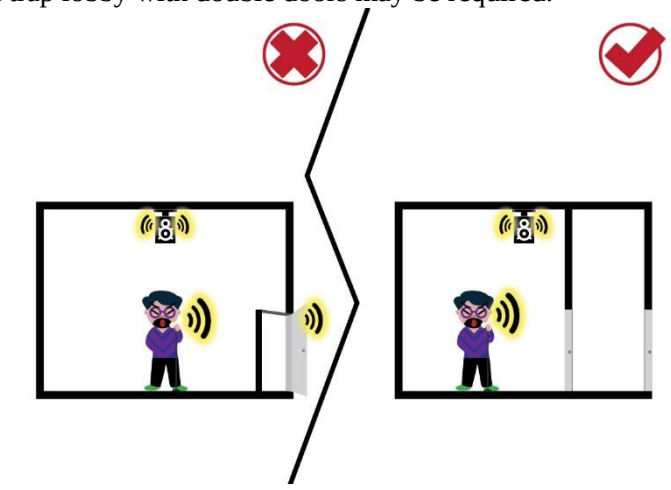
- Maintain the volume of your sound systems at low levels to avoid causing nuisance to neighbours. Install a sound limiter so as to prevent tampering with the sound volume setting



- Place speakers away from windows, doors and party wall



- Install double doors which are made of sound insulations or absorption materials to avoid noise leakage to outside. Where the entertainment area opens directly onto the exterior of the premises, a sound trap lobby with double doors may be required.

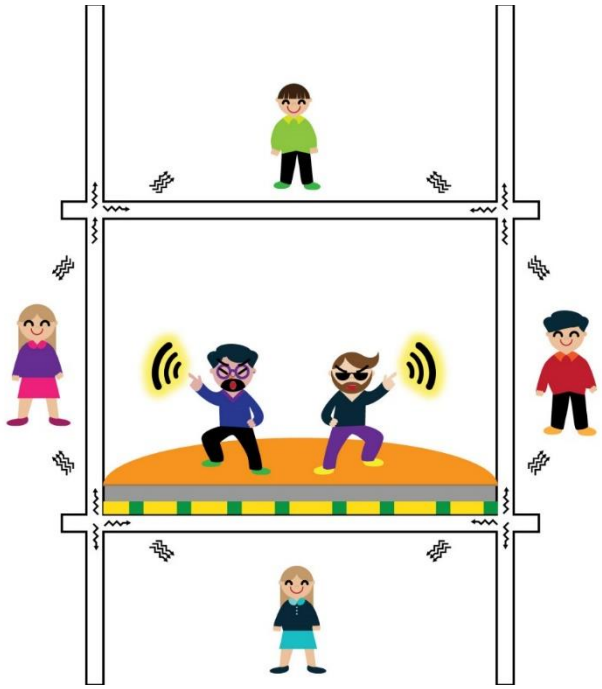


## 4.4 Structure-borne Noise from Vibration

### Good Practices

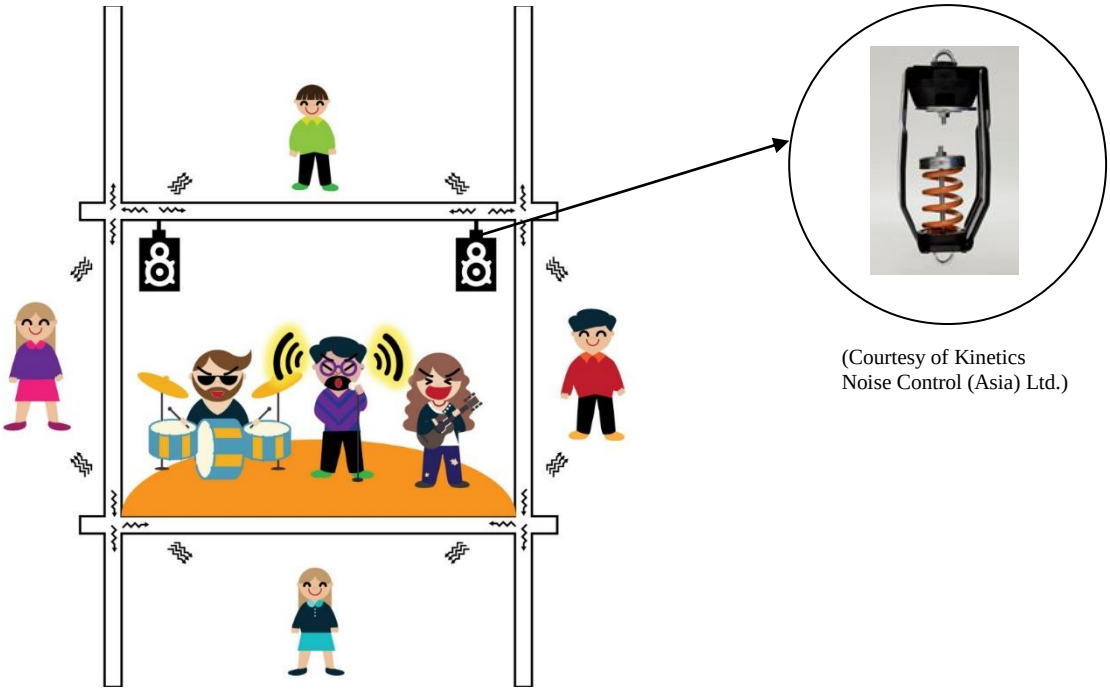
Scenario (i) Vibration from dancing and strong bass

- Apply integrated noise mitigation measures in building design, e.g. decoupling of floors



Scenario (ii) Vibration of loudspeakers (Mounted loudspeakers)

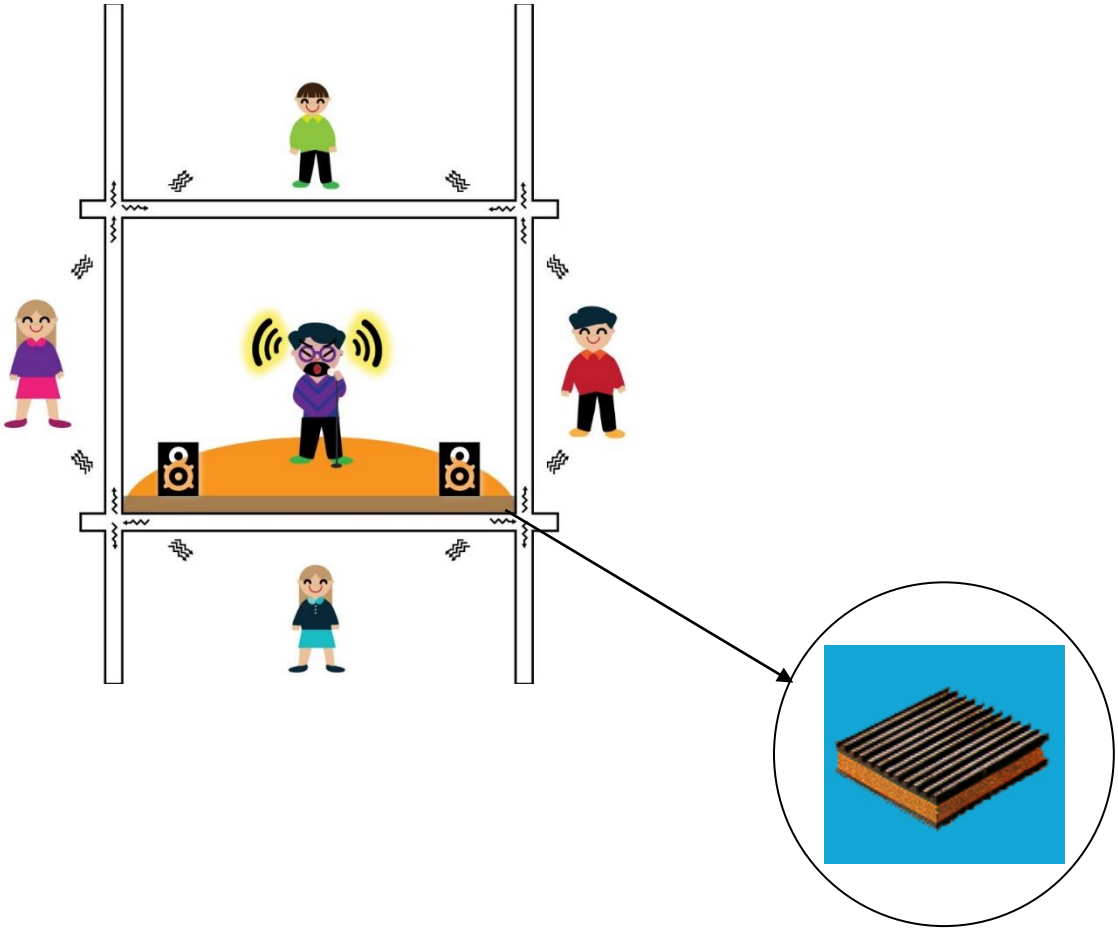
- Use spring isolators for overhung or wall-mounted loudspeakers.



(Courtesy of Kinetics Noise Control (Asia) Ltd.)

Scenario (iii) Vibration of loudspeakers (Loudspeakers on floor)

- Use anti-vibration pad for floor-standing loudspeakers.

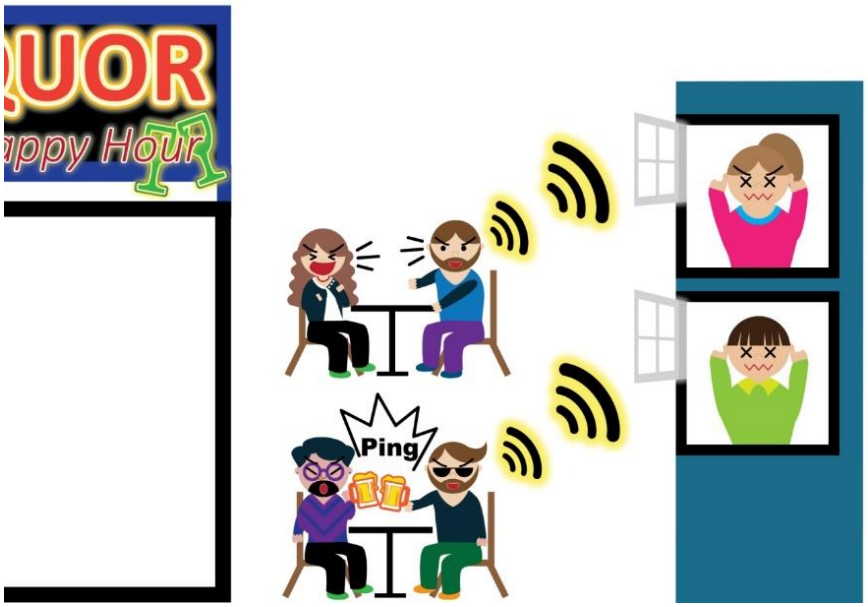


## 4.5 Airborne Noise at Outside Areas

The use of balcony, verandah, courtyard gardens and/or any exposed external areas by patrons with antisocial behaviours (shouting, screaming or heated debate under the influence of alcohol) will definitely cause great disturbance to local residents. Noise from exposed external areas and/or public places outside the licensed premises, usually rowdy behavior (e.g. shouting or loud voices), is likely to be a concern especially during night time, when the ambient noise levels are relatively low. Moreover, noise from patrons arriving at and leaving the premises may also cause noise nuisance to nearby residents.

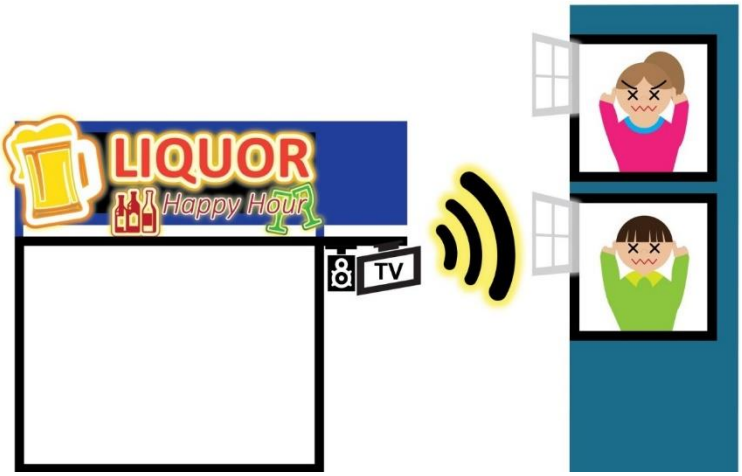
### (A) Good Practices

Scenario (i) Human Voice




- Avoid outside activity

Scenario (ii) Amplified Music or Sound




- Avoid placing loudspeakers or TV that direct music or sound to doors or windows of the premises. Avoid placing loudspeakers or TV outside the premises.


**(B) Other Good Practices**

- Post notices to advise patrons to be considerate and have a responsible behavior.

## 4.6 Fixed Plant and Machinery

Most premises will have mechanical ventilating units, air conditioning units, chiller-units, water or beer pumps. These items will often consist of external units mounted outdoor that may be operated round the clock. If the premises are located near residential properties, the noise from these machinery items may cause disturbance to the nearby noise sensitive receivers and/or exceed the statutory Acceptable Noise Levels. The situation is more acute when such units are operating in the late evening and at night time.

**Good Practices**

Scenario (i) Outdoor Units / Chiller


- Erect a barrier between the outdoor units/chiller and the nearby residential buildings so to block the noise propagation path


- Fabricate a complete enclosure so as to contain and absorb noise energy radiated by the sources

Scenario (ii) Ventilation Fans

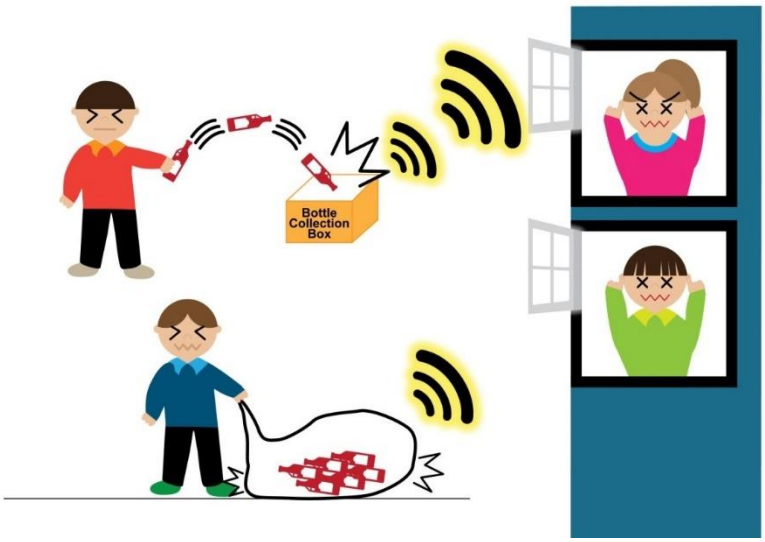

- Install acoustic louver to prevent excessive noise emission towards outdoor environment


For more information, please refer to the website “Good Practices on the Control of Noise from Electrical & Mechanical Systems” (https://noiseenm.epd.gov.hk).

## 4.7 Good Management Practices

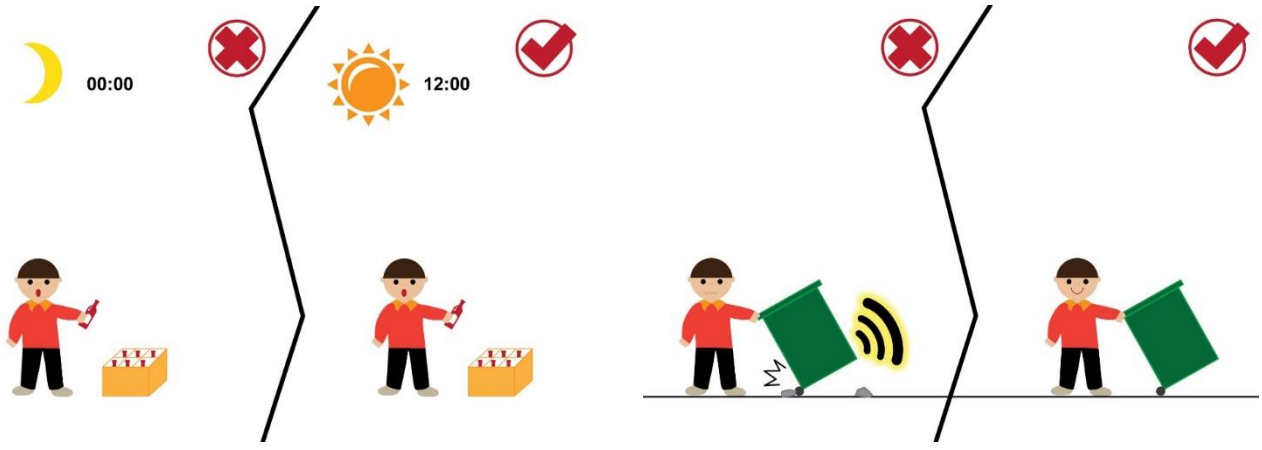
### (A) Handling the Waste and Rubbish, e.g. Cleaning and Emptying the Bottles

Staff handling the waste / rubbish e.g. emptying bottles into bins or moving bins around during the sensitive hours after daily closing of business will definitely cause noise nuisance and sleep disturbance to nearby residents.




- Avoid cleaning and handling bottles at night or early morning

- Provide a smooth pathway between the consumer area and storage area, to reduce noise while moving bins
- Use rubber wheeled bins
- Handle bins and rubbish with care and gently




### (B) Communication Hotline

Establish a hotline to facilitate the liaison and communication between the local residents or stakeholders and the person-in-charge of the licensed premises. The person-in-charge could response quickly to deal with the noise concerns reported.

## 5. RECOMMENDED GOOD PRACTICES FOR DIFFERENT NOISE SOURCES

The following recommended good practices for different noise sources are for reference purpose only. No guarantee is given to the performance of the application of the recommended practices. The reader is advised to seek professional advice from independent experts in case of doubts or complicated problems.

**Table 3 Recommended Good Practices**

| Noise Source | What effects the impact | Good Practices to consider |
|---|---|---|
| Noise from music, singing and instrument playing | Building design | • Install sound trap lobby<br>• Increase the sound insulation properties of the walls and ceiling of the structure<br>• Adopt good design of windows, doors and ventilation systems to avoid noise leakage |
| | Volume | • Maintain the volume of sound systems at low levels<br>• Control by sound limiter |
| | Doors and windows | • Keep doors and windows closed during operation hours<br>• Equip doors with self-closing mechanism<br>• Seal acoustically doors and windows, and maintain them in good condition<br>• Install acoustically sealed double-glazed noise insulation windows, where necessary<br>• Install acoustically sealed double doors which are made of sound insulations or absorption materials, where necessary |
| | Loudspeakers | • Avoid placing loudspeakers or TV that direct music or sound to doors or windows of the premises<br>• Avoid placing loudspeakers or TV outside the premises |
| Structural vibrations | Building design | • Apply integrated noise mitigation measures e.g. "double" and composite ceiling, composite wall and floating floor design of the premises structure |
| | Dancing | • Apply floating floor and vibration isolator systems |
| | Loudspeakers | • Use anti-vibration pad for floor-standing loudspeakers<br>• Use properly designed spring isolator for overhung or wall-mounted loudspeakers |
| Activities at exposed outside areas | Building design | • Locate entrances and exits from the building and outside areas as far from residential properties as possible. |
| | Venue management and friendly reminder to patrons | • Restrict or prohibit patrons from access to exposed areas for drinking at all time especially at night.<br>• Post notices to advise patrons to be considerate to the neighbour (e.g. no shouting or loud voices) |

| Noise Source | What effects the impact | Good Practices to consider |
|---|---|---|
| Fixed plant and machinery | Building design | • Locate the plant and machinery away from residential properties as far as possible.<br>• Use screening provided by existing building structure, non-sensitive buildings and natural feature as much screening as possible. |
| | Ventilation units or beer pumps | • Arrange regular maintenance<br>• Equip machinery with properly designed integrated noise mitigation measures (e.g. be mounted on anti-vibration mounts and/or provided with an acoustic enclosure or additional screening) where necessary |
| Cleaning and handling of bottles | Building design | • Locate refuse and storage areas away from residential blocks, and shield them. |
| | General noise | • Avoid carrying out during the night or early morning<br>• Provide rubber wheeled bins and smooth pathways between the residential properties and store area, to reduce noise while moving bin |

## Glossary of Acoustic Terminology

### Floating Floors

A floating floor is a floor which is supported by a structural slab but is completely isolated from the structural slab by resilient support members, so it is nowhere in rigid contact with the structure slab. The floating floor acts as a protective covering for the structural slab. Impacts, no matter in the forms of vibration or noise, on the floating floor will be absorbed substantially before reaching the structural slab. As a result, the room below the structural slab is much quieter than it will be if the same impacts directly strike the structural slab.

Figure 2 shows two types of floating floors which are supported resiliently on isolation pads and fiberglass insulation board. To prevent potential damage of a floating floor, it must be structurally designed for proper strength and the applied load should be within the design limits and uniformly applied. For any type of floating floor, the construction must be monitored carefully to ensure proper installation as it is usually very difficult to remedy defects after completion of the installation.

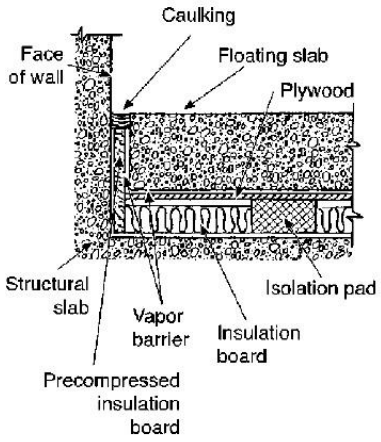



Figure 2: Floating Floor

### Vibration Isolators

Equipment with moving parts vibrates during operation. The method of reducing vibration transmission to other sensitive areas is to separate the equipment from the supporting structure by vibration isolators. Generally, there are two types of isolators, metal springs and isolation pads, that are widely used for vibration isolation.

**(a) Metal Spring**

Springs are particularly applicable where heavy equipment is to be isolated or where the required static deflections exceed 12.5mm. Static deflection of a spring is a value specified by the suppliers. Selection of appropriate springs is important as this may result in poor isolation efficiency or even amplification of vibration, especially in the case that the vibration frequency is extremely low.

The most important feature of spring mountings is to provide good isolation due to its ability of withstanding relatively large static deflection. Metal springs however have the disadvantage that at very high frequencies vibration can travel along the spring into the adhered structure. This is normally overcome by incorporating a neoprene pad in the spring assembly so that there is no metal-to-metal contact. Most commercially available springs contain such a pad as a standard feature. Figure 3 shows some common spring mountings.

(Courtesy of Kinetics Noise Control (Asia) Ltd.)

Figure 3: Metal Spring

**(b) Isolation Pads**

Isolation pads can be made of rubber, neoprene, glass fibre or combination of them. They are relatively cheap, easy for installation and replacement, and have the advantage of good high-frequencies isolation. However, attention should be given to the life of the isolation pads as some of them can be damaged by overload or low temperature. Figure 4 shows some common isolation pads.

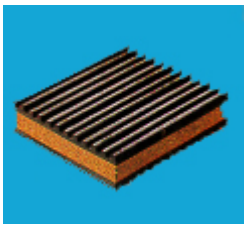


Figure 4: Isolation Pads

**Window and Glazing.**

The factors determining the acoustic performance of glazing and window are the glass thickness, pane spacing and gas filling of the cavity.

*Glass thickness*

Increasing the mass of glass, i.e. its thickness, increases the sound insulation. Laminated glass provides increased insulation compared with monolithic glass of the same thickness. Further improvement is obtained by using glasses of different thickness combination.

*Pane spacing*

For multiple pane system, the acoustic insulation is not affected by the pane spacing over the range normally found for hermetically sealed units, i.e. 6mm to 20mm. It should be noted that a sealed double glazing unit constructed of two panes of 4mm glass with airspace in the range 6mm to 20mm no better sound insulation than a single pane of 4mm glass. Therefore, at least 50mm airspace is recommended. Significant improvement is achieved with pane spacing of 100mm or above.

*Gas filing of the cavity*

Use of sulfur hexafluoride in acoustic performance (SF6) can improve the acoustic performance at certain frequencies but adversely affects it at low frequencies. However, argon, the gas most commonly used to improve the thermal performance of sealed double glazing units, does not provide any improvement in

acoustic performance.

**(a) Acoustic double glazed window**

Double glazing is an insulating technique where there are two layers of glass in a single frame with an air gap in between. Based on the abovementioned factors, a well-designed acoustic double glazed window can have a superb acoustic performance. Figure 5 shows the section of double glazed window.

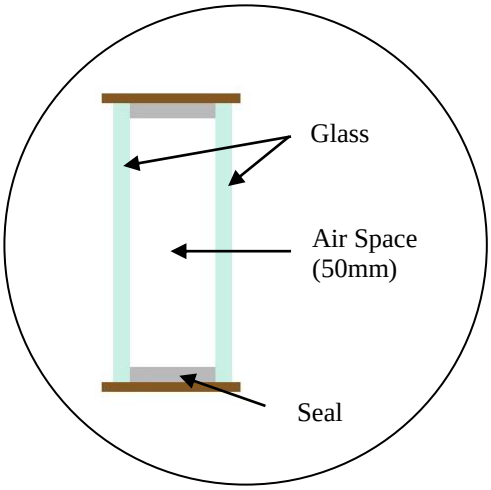



Figure 5: Section of Double Glazed Window

**(b) Secondary glazing**

Secondary glazing involves installing supplementary glazing on the existing single-glazed window inside the premises. For existing licensing premises, installing a secondary glazing window is the most cost effective way to avoid noise breakout through windows.

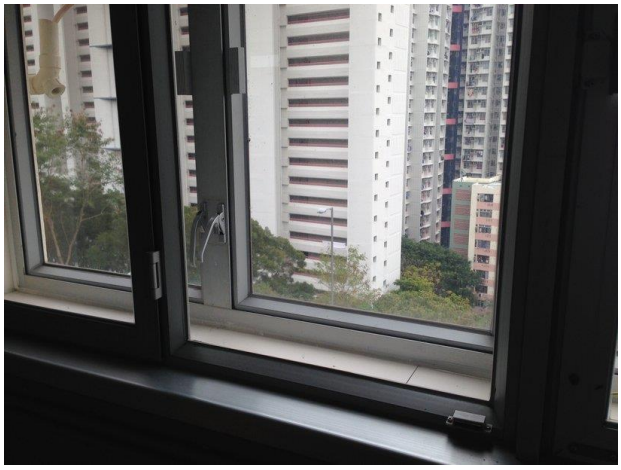


Figure 6: Secondary Glazing Window

**Air-sealed acoustic passage with double door arrangement**

**(a) Acoustic passage / lobby**

Two doors entrance of the licensing premises separated by a small lobby could avoid sound escaping through the opening door. The acoustic lobby act as a buffer zone in order to safeguard that one door is opened the other door still be shut. As two doors would not be always opened at the same time, sound is less likely to escape.

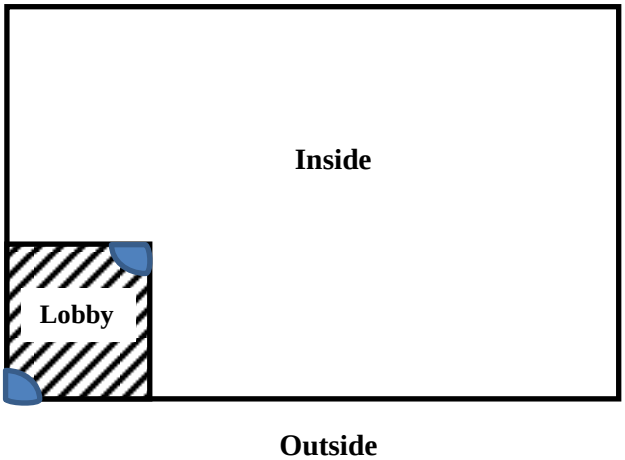
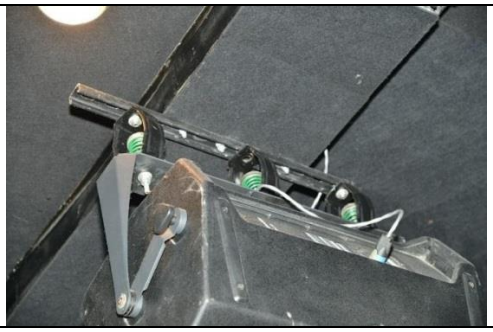


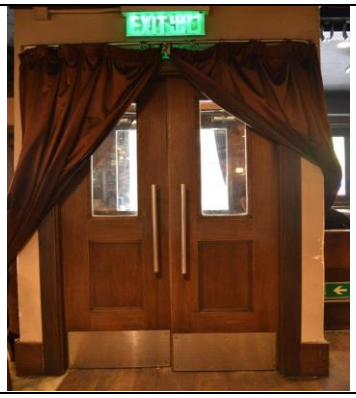
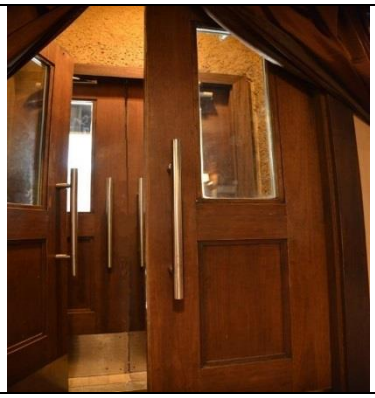
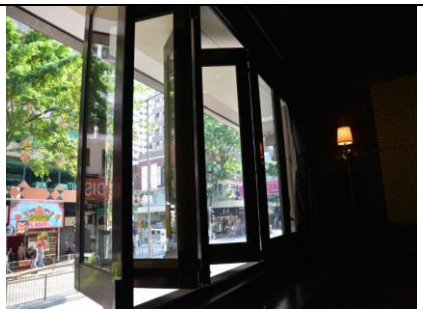
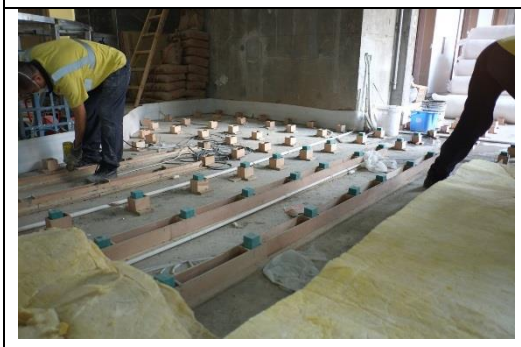

Figure 7: Acoustic passage / lobby

## 6. EXAMPLES OF PRACTICAL NOISE CONTROL MEASURES

Successful noise control measures are shown in Table 4 for reference.

**Table 4 Examples of Noise Control Measures**

| | |
|---|---|
|  |  |
| Loudspeakers & equipment are isolated through sound absorbing lining mounted on ceiling | Overhung loudspeakers are mounted to the ceiling by spring isolators to reduce structure-borne sound transmission |
|  |  |
| Ceiling in seating areas mounted with sound insulation panels | Using door self-closer to ensure the door to be kept closing all the time. |
|  |  |
| Double-glazing door to reduce noise transmission to outside of the bar. The door will be closed at 11:00 pm. | Doors are closed properly during operation hours. |

| | |
|---|---|
|  |  |
| Double-door to reduce noise transmission to outside of the bar (closed, inside view) | Double-door (inside door opened, inside view) |
|  |  |
| Double-glazing window to reduce noise transmission to outside of the bar | Speakers mounted to the ceiling by spring isolators to reduce structure-borne sound transmission |
|  |  |
| Floating floor under installation | Isolation spring mounted ceiling under installation |

**Appendix I**

**CHECKLIST ON NOISE CONTROL MEASURES FOR LIQUOR LICENSED ESTABLISHMENTS**

There are many useful considerations for reducing noise from a liquor licensed establishment. The following checklist can be used to ensure some generally adopted measures have been considered in the planning or implementation stage of such an operation. However, it should not be used as a replacement of proper noise assessment and evaluation of measures to suit individual circumstances.

If you are a new applicant for liquor licence, have you considered to :

❑ locate the premises at a non-noise sensitive area during the planning stage

❑ consult an acoustic expert for carrying out Noise Impact Assessment

If you are a new applicant for liquor licence or an existing liquor licensee, and your licensed premises is located at a noise sensitive area, have you considered to :

❑ install sound trap lobby

❑ install acoustic doors

❑ install double-glazed or acoustically sealed windows

❑ close all doors and windows during operation hours

❑ equip doors with self-closing mechanism

❑ maintain the volume of your sound systems at low levels

❑ install a sound limiter

❑ establish a communication hotline

If the upper floor of the premises is for residential use, have you considered to :

❑ install floating ceiling

If the building structure of premises is next to residential use, have you considered to :

❑ construct drywalls

If loudspeakers are installed in premises,

(i) with the loudspeakers mounted on walls or ceiling, have you considered to :

❑ place speakers away from windows, doors and party wall

❑ use spring isolators

(ii) with the loudspeakers placed on floor, have you considered to :

❑ place speakers away from windows, doors and party wall

❑ use anti-vibration pad

If dance floor is provided inside the premises, have you considered to :

❑ install floating floor and anti-vibration system for the dancing floor

If the premises includes outdoor areas adjacent to residential areas, have you considered to:

❑ restrict or prohibit patrons from access to exposed areas for drinking at all time especially at night

❑ avoid placing loudspeakers or TV outside the premises

❑ post notices to advise patrons to be considerate and refrain from speaking in loud voice

If fixed plant and machinery have been installed for the premises, have you considered to:

- ❑ erect a barrier between the outdoor units/chiller and the nearby residential buildings
- ❑ fabricate a complete enclosure
- ❑ install acoustic louver
- ❑ locate the plant and machinery away from residential properties as far as possible

During the cleaning and handling of bottles, have you considered to :

- ❑ locate refuse and storage areas away from residential blocks, and shielded them
- ❑ avoid carrying out the job during the night or early morning
- ❑ provide rubber wheeled bins
- ❑ provide a smooth pathway