

**Recommended Environmental Protection Measures**  
**in the Design and Planning of**  
**Renovation Work at Shopping Centres**

<b>Items</b>		<b>Recommended Design &amp; Planning Measures</b>
<b>Air</b>	Restaurant exhaust	<ul style="list-style-type: none"> <li>✓ Locate &amp; direct restaurant exhaust away from sensitive receivers</li> <li>✓ Install centralised air pollution control equipment &amp; associated ducting</li> <li>✓ Reserve adequate space for the installation &amp; maintenance of air pollution control equipment (comprising at least grease filter, water scrubber &amp; electrostatic precipitator) and associated ducting</li> </ul>
	Malodour from refuse collection system	<ul style="list-style-type: none"> <li>✓ Locate &amp; direct exhaust away from sensitive receivers</li> <li>✓ Install &amp; maintain air filter to control malodour</li> <li>✓ Install double door for dust &amp; malodour control in refuse room</li> <li>✓ Provide air cooling facilities for refuse storage</li> </ul>
	Dark smoke from emergency generator	<ul style="list-style-type: none"> <li>✓ Locate &amp; direct exhaust away from sensitive receivers</li> <li>✓ Install smoke control equipment</li> <li>✓ Install loader or appropriate power supply switching over provision for regular test run</li> </ul>
	Indoor Air Quality	<ul style="list-style-type: none"> <li>✓ Follow EPD's Guidance Notes for the management of IAQ in offices &amp; public places</li> <li>✓ Provide appropriate filter for fresh air intake (to remove dust, odour &amp; pathogen to comply with the best practice requirements for IAQ Certification Scheme)</li> </ul>

	Building & furnishing materials	<ul style="list-style-type: none"> <li>✓ Use VOC free paints, non-volcanic rocks and non-ozone depleting substances</li> </ul>
<b>Noise</b>		
	Pump room / ventilation system design & maintenance	<ul style="list-style-type: none"> <li>✓ Follow practice note &amp; guidelines issued by BD, Arch.S.D &amp; EPD in designing pump room / associated ducting / ventilation system</li> <li>✓ Provide double door with acoustic seals for noisy rooms</li> <li>✓ Install centralised pumping system where possible</li> <li>✓ Reserve adequate space for silencer in air ducts and acoustic shield for outdoor equipments</li> <li>✓ Shield and maximise buffer distance between pump room / ventilation system and noise sensitive receivers</li> <li>✓ Use low speed pump where possible</li> </ul>
	General indoor/outdoor activity area (e.g. loading & unloading area, video wall & broadcasting system)	<ul style="list-style-type: none"> <li>✓ Locate loading &amp; unloading area, video wall &amp; broadcasting system away from noise sensitive receiver</li> <li>✓ Provide external cladding/noise barrier/screen to prevent propagation of noise from general indoor/outdoor activity area to nearby residential blocks</li> </ul>
<b>Waste</b>		
	Refuse collection system	<ul style="list-style-type: none"> <li>✓ Isolate refuse collection room from other building facilities &amp; activities</li> <li>✓ Provide dedicated routing for waste collection, separated from other activities where possible</li> <li>✓ Provide a dedicated and bunded area for cleaning waste collection bins and equipment. The cleansing area should be fitted with sloping, impermeable floor and wastewater drainage channel fitted with refuse trap and connected to foul sewer</li> </ul>

	Waste recycling	<ul style="list-style-type: none"> <li>✓ Reserve adequate area for storage of recyclable items</li> <li>✓ Provide equipment to facilitate on site compaction / packaging of recovered materials</li> </ul>
	Waste minimisation	<ul style="list-style-type: none"> <li>✓ Maximise the use of prefabricated / factory made building components to minimize work and waste on site</li> <li>✓ Use more durable, non-toxic and low maintenance requirement building materials, preferably made from recyclable materials</li> </ul>
<b>Water</b>	Grease trap installation & maintenance	<ul style="list-style-type: none"> <li>✓ Reserve adequate space for installing &amp; maintaining wastewater pipes and grease traps</li> <li>✓ Provide adequate and easy access for desludging operation</li> <li>✓ Install centralized wastewater pipes and grease traps</li> </ul>
	Wastewater drainage	<ul style="list-style-type: none"> <li>✓ Reserve space for maintenance work</li> <li>✓ Provide sufficient space and easy access for cleansing &amp; unchoking foul sewer drains</li> <li>✓ Install rubbish traps</li> </ul>
	Water tank /floor cleansing discharge	<ul style="list-style-type: none"> <li>✓ Provide foul water discharge point for disposing wastewater generated from water tank /floor cleansing</li> </ul>
<b>Resources Saving</b>	Energy and water saving	<ul style="list-style-type: none"> <li>✓ Adopt energy saving measures in operating building facilities, including lighting &amp; air conditioning system</li> <li>✓ Install water saving devices</li> </ul>