



中華人民共和國香港特別行政區政府總部教育局
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Government Secretariat, The Government of the Hong Kong Special Administrative Region
The People's Republic of China
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致：各私立中小學校監／校長

各位校監／校長：

私立學校的通風檢測及優化措施

自 2019 冠狀病毒病爆發以來，教育局鼓勵學校採取多項防疫措施，包括保持良好通風以確保學校環境的安全。根據《學校健康指引》所載的規定，學校須保持室內空氣流通，禮堂、課室及特別室須適當地打開門口／窗戶以增加鮮風的流入；盡可能避免使風從一人吹向其他人；及定期清洗空調設備的隔塵網等。

鑑於最近疫情嚴峻，我們已要求公帑資助學校為校舍進行通風檢測及在可行情況下盡快採取適切的優化措施，以保持校舍室內適當的通風，保障學生和教職員的健康。我們亦建議私立中小學進行一次全面的通風檢測及優化相關措施，以遏制疫情和預防傳染病。

通風檢測及優化措施

學校須自行安排報價／招標程序以採購通風檢測的顧問服務及註冊承辦商建議的優化措施和所需的通風設備。註冊承辦商名冊見屋宇署網頁（網頁連結：<https://www.bd.gov.hk/tc/resources/online-tools/registers-search/registrationsearch.html>）（揀選「註冊類型」為「RSC(V)專門承建商名冊（通風系統工程類別分冊）」，然後點擊「搜尋」）。為協助學校採購所需的服務，採購承辦商服務的服務規格樣本（只有英文版）已載於附件 I。

學校亦可參考以下有關通風檢測的清單和範本（如適用）：

- (a) 學校通風系統清單(只有英文版)(Checklist on Ventilation System) – 為校舍所有佔用空間進行全面通風檢測（附件 II）；
- (b) 通風檢測報告（只有英文版） – 為建議應採取的必要措施（附件 III）；及
- (c) 通風系統證明書（只有英文版） – 為確認已作出相應的補救措施（附件 IV）。

視乎註冊承辦商的建議，優化措施可包括安裝抽氣扇，進行小型改善工程或採購空氣淨化機。如註冊承辦商建議購買空氣淨化機，須符合與用於餐飲業務指定規格的空氣淨化機相同，學校可參考食物環境衛生署網頁（網頁連結：https://www.fehd.gov.hk/tc_chi/licensing/guide_general_reference/Information_air-changes_purification.html）以獲取相關資料。在採購服務／設備時，私立學校須依循教育局通告第 14/2003 號「學校及其教職員收受利益和捐贈事宜」內相關要求。

為保障學生和教職員的健康，我們建議私立中小學在可行情況下盡快完成通風檢測及優化措施。這是保持良好通風以確保學習環境安全的重要一步。如有查詢，請聯絡所屬的高級學校發展主任。

教育局常任秘書長

（劉穎賢



代行)

2022 年 3 月 1 日

副本送： 各區總學校發展主任

Provision of Ventilation Assessment Services

Service Specifications

- Notes: (a) Tenderers shall note that **all the specifications stated in these Service Specifications are essential requirements.**
- (b) Tenderers shall provide documentary evidence thereto wherever requested in the Service Specifications to show compliance of their offered ventilation assessment services with all the requirements.

Service Specifications

1. General

1.1. Introduction

1.1.1. This Invitation to Tender calls for the provision of ventilation assessment services for _____ (the School).
(Name of school)

1.1.2. The information of the School as stated in Clause 1.1.1, including names, addresses, school size and estimated number of rooms are provided below.

Address	
School Size (m ²)	
Estimated number of occupied spaces (including classroom, function room, Hall, library, laboratory, staff room, toilets, etc.)	

1.2. Scope of Services

1.2.1. The scope of services under these Service Specifications is to call for provision of ventilation assessment services to the School in accordance with the below guiding principle.

Items	Suggested Standard
Fresh Air Supply at occupied space ¹	6 Air Change per Hour in enclosed rooms or 10L/s/person whichever is greater
Toilet Ventilation	15 Air Change per Hour (Exhaust)
Distance between fresh air intake and other sources of contamination	5 metres
Air Flow Pattern	Maintain the air flow direction from clean zones to dirty zones

Note:

1. This fresh air requirement should cover all occupied space, including but not limited to classrooms, function rooms, staff rooms and the school hall. (The School shall specify other occupied space e.g. laboratories, theatre(s), etc. as appropriate.) The number of persons per room shall follow the permitted accommodation.

1.2.2. Reference should also be made to “*A Supplement on Ventilation – Guidelines on Prevention of Communicable Diseases in Schools/ Kindergartens/ Kindergartens-cum-Child Care Centres/ Child Care Centres*” and the relevant guidelines / regulations as set out by the Buildings Department and the Fire Services

Service Specifications

Department.

- 1.2.3. The ventilation assessment services as set out in section 2 of the Service Specifications shall be provided to the School during the contract period.
- 1.2.4. The ventilation assessment services shall be conducted by an **engineering team**. The engineering team shall comprise a team of technical competent persons which is led by a professional engineer as stated in Clause 3.1.
- 1.2.5. The engineering team leader (professional engineer) shall provide a report on the ventilation assessment findings and the shortcomings of ventilation system based on the guiding principle stated in Clause 1.2.1 and also provide the remedial action plan. The plan shall include the short-term modification/housekeeping proposal and long-term improvement plan.

1.3. Contract Period

- 1.3.1. This contract commence from _____ to _____ inclusive

Service Specifications

2. Ventilation Assessment Services

2.1. Collection of Operation Data

- 2.1.1. The engineering team shall collect information on operation and technical characteristics of the ventilation system of the School. The collection method shall include, but not limit to, site visits, interviews, surveys, and reviews on building layouts, drawings, schematic diagrams, operation and maintenance records.
- 2.1.2. The operation data of the ventilation system shall include, but not limit to, the following items:
- (i) Operation days and hours of ventilation system;
 - (ii) Estimated internal floor area, categories and number of individual rooms;
 - (iii) Records on all ventilation system installation as far as reasonably practicable;
 - (iv) Equipment list of ventilation system as well as operation and maintenance status; and
 - (v) Ventilation performance in accordance with the guiding principle as stated in Clause 1.2.1 under mechanical ventilation with air-conditioning or mixed mode of natural and mechanical ventilation.
- 2.1.3. The engineering team shall bear any cost to collect and retrieve operation data from the building management system or similar system(s), with no additional cost to the School.
- 2.1.4. If some of the building data are not available, the engineering team shall conduct measurement at representative instant and intervals in order to reasonably predict the operation data with no additional cost to the School.

2.2. Site Inspection

- 2.2.1. The engineering team shall study the collected building data and conduct site inspections as far as practicable according to the guiding principle as stated in Clause 1.2.1.
- 2.2.2. The site inspection shall include, but not limit to, verification of equipment data, air flow (L/s) measurement, smoke test, CO₂ measurement and visual inspection of the ventilation system.
- 2.2.3. The engineering team shall identify any abnormalities of the ventilation system

Service Specifications

installation and take photo record of any abnormalities found. The engineering team shall also examine their effects according to the guiding principle as stated in Clause 1.2.1.

2.3. Analysis and Recommendations

2.3.1. With the analysis of site inspection result, the engineering team shall be able to advise the School and the School Sponsoring Body (SSB) / School Management Committee (SMC) / Incorporated Management Committee (IMC) of the School of the followings: -

- Condition of the existing ventilation system;
- Fresh air supply status to different rooms in the School;
- Air change rate of toilets;
- Dead air zone / area;
- Distance between fresh air intake and other sources of contamination; and
- Proposed short-term modification/housekeeping proposal and long-term improvement plan.

2.3.2. For each item mentioned in Clause 2.3.1, the engineering team shall provide the root cause and propose remedial action plan with illustration of drawings and photos, which include a short-term modification/housekeeping proposal and a long-term improvement action plan.

2.4. Number of Ventilation Assessment Service Provided

2.4.1. The engineering team shall at least provide one full ventilation assessment and a follow-up visit to the School during the Contract Period. As the exact number of the on-site visits to school may vary, the engineering team shall also bear the cost of all on-site visits with no additional cost to the School.

2.4.2. The engineering team shall visit the School and complete the first ventilation assessment (including submission of an assessment report as specified in Section 4) within 1 month upon award of contract. The follow-up visit shall be provided to the School within 1 month after the improvement measures have been put in place to check and advise the School again on the ventilation condition.

Service Specifications

3. Staffing Requirement

3.1. The engineering team shall at least comprise of 4 members, 2 sub-team heads and a team leader. Their qualification requirements are listed as follows: -

Grade of Staff	Role	Qualification
Professional Engineer	Team Leader	<ul style="list-style-type: none">• Member of HKIE in Building Services Engineering or Mechanical Engineering or equivalent; and• 3 years' experience in air-conditioning design or 6 years' experience in maintenance of air-conditioning installations
Inspector	Sub-team head	<ul style="list-style-type: none">• Higher diploma / higher certificate in Building Services Engineering or Mechanical Engineering or equivalent; and• 3 years' experience in supervision of air-conditioning projects or 6 years' experience in maintenance of air-conditioning installations
Work Supervisor	Team member	<ul style="list-style-type: none">• Diploma /Ordinary certificate in Building Services Engineering or Mechanical Engineering or equivalent; and• 3 years' experience in supervision of air-conditioning projects or 6 years' experience in maintenance of air-conditioning installations

Service Specifications

4. Ventilation Assessment Report

- 4.1. The engineering team shall complete the ventilation assessment report in a specified form in **Appendix 1** [Please refer to **Annex III** of EDB's letter to private schools dated 1 March 2022 on *Ventilation Assessment and Improvement Works for Private Schools.*] with Check list on Ventilation System for the School as an appended annex upon the full ventilation assessment, and the Certificate on Ventilation System for School in a specified form in **Appendix 2** [Please refer to **Annex IV** of EDB's letter to private schools dated 1 March 2022 on *Ventilation Assessment and Improvement Works for Private Schools.*] upon the follow-up visit, taking into account the guiding principle as stated in Clause 1.2.1 and such report shall be approved and issued by the engineering team leader.
- 4.2. If the School is recommended to procure air purifier(s) and/or air disinfection equipment(s) as the remedial action plan, the engineering team shall be responsible to vet the model of such equipment(s) proposed/submitted by the School to ensure the specification compliance.

Service Specifications

5. Briefing on Ventilation Assessment Report

5.1. Upon completion of the ventilation assessment service for the School, the engineering team leader shall conduct a briefing to explain the report to the School. The presentation shall cover the following items:

- (i) detailed description of the ventilation assessment;
- (ii) findings and results of the ventilation assessment;
- (iii) short-term proposal; and
- (iv) long-term improvement plans if necessary.

5.2. The presentation shall normally include questions and answers.

Checklist on Ventilation System

School Name: _____ (School No.: _____)

Address:

District:

Type of school: Primary / Secondary / Primary-cum-Secondary[#]

Inspection Date:

1 General

1.1 MVAC Installation adopted for school (Please tick ✓ as appropriate)

System Type	Classroom	Function Room	Laboratory	Hall	Staff Room	Others
A/C system (1.window-type / 2.split-type / 3.VRV / 4.packaged a/c unit / 5.central a/c)	<input type="checkbox"/> (1 / 2 / 3 / 4 / 5) [#]	<input type="checkbox"/> (1 / 2 / 3 / 4 / 5) [#]	<input type="checkbox"/> (1 / 2 / 3 / 4 / 5) [#]	<input type="checkbox"/> (1 / 2 / 3 / 4 / 5) [#]	<input type="checkbox"/> (1 / 2 / 3 / 4 / 5) [#]	<input type="checkbox"/> (1 / 2 / 3 / 4 / 5) [#]
Natural ventilation (1.cross-ventilating / 2.single-side)	<input type="checkbox"/> (1 / 2) [#]	<input type="checkbox"/> (1 / 2) [#]	<input type="checkbox"/> (1 / 2) [#]	<input type="checkbox"/> (1 / 2) [#]	<input type="checkbox"/> (1 / 2) [#]	<input type="checkbox"/> (1 / 2) [#]
Mechanical ventilation (1.exhaust / 2.OAP / 3.FAP / 4.packaged a/c unit / 5.central a/c)	<input type="checkbox"/> (1 / 2 / 3 / 4 / 5) [#]	<input type="checkbox"/> (1 / 2 / 3 / 4 / 5) [#]	<input type="checkbox"/> (1 / 2 / 3 / 4 / 5) [#]	<input type="checkbox"/> (1 / 2 / 3 / 4 / 5) [#]	<input type="checkbox"/> (1 / 2 / 3 / 4 / 5) [#]	<input type="checkbox"/> (1 / 2 / 3 / 4 / 5) [#]
Other ()	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Delete as appropriate

Remarks : 1. _____
2. _____

1.2 Summary of Assessment (Occupied Spaces)

Nos. of room	Classroom	Function Room	Laboratory	Hall	Staff Room	Others
<input checked="" type="checkbox"/> 10L/s/person						
<input checked="" type="checkbox"/> 5 metres separation distance						
<input checked="" type="checkbox"/> 10L/s/person						
<input checked="" type="checkbox"/> 5 metres separation distance						
<input checked="" type="checkbox"/> 10L/s/person						
<input checked="" type="checkbox"/> 5 metres separation distance						
<input checked="" type="checkbox"/> 10L/s/person						
<input checked="" type="checkbox"/> 5 metres separation distance						
Total:						

1.3 Summary of Assessment (Toilets)

Nos. of toilet	Student Toilets	Staff Toilets
<input checked="" type="checkbox"/> 15 ACH		
<input checked="" type="checkbox"/> Proper air intake & discharge		
<input checked="" type="checkbox"/> 15 ACH		
<input checked="" type="checkbox"/> Proper air intake & discharge		
<input checked="" type="checkbox"/> 15 ACH		
<input checked="" type="checkbox"/> Proper air intake & discharge		
<input checked="" type="checkbox"/> 15 ACH		
<input checked="" type="checkbox"/> Proper air intake & discharge		
Total:		

Checklist on Ventilation System

School Name: _____ (School No.: _____)

2	Classroom / Function Room / Laboratory / Staff Room <i>(please add supplementary sheet if necessary)</i>		
2.1	Room number: _____		
2.2	Size of room:	(meter) _____ W _____ D _____ H	(Volume = _____ m ³)
2.3	Capacity:	_____ Students + _____ Teachers = _____ Persons	
2.4	Air-conditioning system:	Window-type <input type="checkbox"/> Split-type <input type="checkbox"/> VRV <input type="checkbox"/> Central A/C <input type="checkbox"/>	
2.5	Natural ventilation:	Cross-ventilating <input type="checkbox"/> Ventilation Path = _____ metres Single-side <input type="checkbox"/> Room Depth / Headroom = _____	
2.6	Mechanical ventilation:	Mechanical ventilation system Exhaust <input type="checkbox"/> OAP <input type="checkbox"/> FAP <input type="checkbox"/> Central A/C <input type="checkbox"/> Fresh air supply for room/ Flowrate (estimated / measured [#]) _____ litres / second <ul style="list-style-type: none"> • Fresh air supply per person _____ litres / second / person • Meet the fresh air requirement of 10L/second/person Yes <input type="checkbox"/> No <input type="checkbox"/> • Air change per hour (fresh air)¹ _____ Distance between fresh air inlet and contaminated exhaust outlet _____ metres <ul style="list-style-type: none"> • Meet the 5 metres separation distance Yes <input type="checkbox"/> (default / operation[#]) No <input type="checkbox"/> • Discharge point of mechanical ventilation Open air <input type="checkbox"/> Semi-open air <input type="checkbox"/> Remarks: _____	
2.7	Air filtration:	<ul style="list-style-type: none"> • Brand & Model of air purifiers _____ • Type of air purifiers HEPA filter <input type="checkbox"/> UV-C device <input type="checkbox"/> HEPA filter cum UV-C <input type="checkbox"/> Others (please specify): _____ • Location Standalone at floor level <input type="checkbox"/> Ceiling-mounted <input type="checkbox"/> Wall-mounted or standalone at middle level <input type="checkbox"/> • Number of air purifier _____ • Serving area per air purifier (m²) _____ (No. of Air Purifier / Floor area) • Air change per hour (recirculated air) _____ 	
2.8	Recommended Improvement works: (e.g. Additional exhaust fans / Re-fix existing exhaust fans / Additional FAPs / Re-fix existing FAPs) (e.g. Additional OAP / Air balancing / Increase the capacity of PAU)		

¹ Calculated air change rate using formula: ACH = Room Volume / Total Air Flow Rate (i.e. (L x W x H)/(Quantity x flowrate))

Checklist on Ventilation System

School Name: _____ (School No.: _____)

3 Hall <i>(please add supplementary sheet if necessary)</i>	
3.1 Size of Hall:	(meter) _____ W _____ D _____ H (Volume = _____ m ³)
3.2 Capacity:	_____ Persons <i>(if available)</i>
3.3 Air-conditioning system:	Split-type <input type="checkbox"/> VRV <input type="checkbox"/> Packaged A/C unit <input type="checkbox"/> Central A/C <input type="checkbox"/>
3.4 Natural ventilation:	Cross-ventilating <input type="checkbox"/> Ventilation Path = _____ metres Single-side <input type="checkbox"/> Room Depth / Headroom = _____
3.5 Mechanical ventilation:	<p>Mechanical ventilation system Exhaust <input type="checkbox"/> OAP <input type="checkbox"/> Packaged A/C unit <input type="checkbox"/> Central A/C <input type="checkbox"/></p> <p>Fresh air supply for room/ Flowrate (estimated / measured[#]) _____ litres / second</p> <ul style="list-style-type: none"> • Meet the fresh air requirement of 10L/second/person Yes <input type="checkbox"/> No <input type="checkbox"/> • Allowable capacity based on 10L/s/person _____ persons • Air change per hour (fresh air)¹ _____ <p>Distance between fresh air inlet and contaminated air outlet _____ metres</p> <ul style="list-style-type: none"> • Meet the 5 metres separation distance Yes <input type="checkbox"/> (default / operation[#]) No <input type="checkbox"/> • Discharge point of mechanical ventilation Open air <input type="checkbox"/> Semi-open air <input type="checkbox"/> <p>Remarks:</p>
3.6 Recommended Improvement works:	

Checklist on Ventilation System

School Name: _____ (School No.: _____)

4 Toilet (Student / Staff[#]) <i>(please add supplementary sheet if necessary)</i>	
4.1 Toilet number:	
4.2 Size of toilet:	Volume = _____ m ³
4.3 Mechanical ventilation:	
Exhaust System	Exhaust Fan <input type="checkbox"/> Central Exhaust <input type="checkbox"/>
Exhaust Flow Rate (estimated / measured [#])	_____ m ³ / hr
<ul style="list-style-type: none"> • Air change per hour¹ • Meet the 15 ACH requirement • Discharge point of mechanical ventilation • Do the exhaust air discharge to play area or assembly area? • Do the toilets have door louvre or window/louvre at opposite side? 	<p>_____</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/></p> <p>Open air <input type="checkbox"/> Semi-open air <input type="checkbox"/></p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> (toilet no. __)</p> <p>Yes <input type="checkbox"/> No <input type="checkbox"/> (toilet no. __) N/A <input type="checkbox"/></p>
Remarks:	
4.4 Recommended Improvement works:	
(e.g. Additional exhaust fans / Re-fix existing exhaust fans)	

Note: Site layout plan with exhaust fans / FAPs / package a/c unit indicated are attached at the end of this report.

~ End ~

Assessment Report on Ventilation System

Part A - Background Information

School Name:	
School No.:	
Address:	
District:	
Type of School:	Primary / Secondary / Primary-cum-Secondary [#]
Consultant:	
Inspection Team Member:	(1)(TC)
	(2)(MTC)
	(3)(MTC)
Inspection Date:	
Inspection Time:	

Part B - Assessment Findings

Details of the assessment findings are given in the attached Checklists (*Annex A*) [Please refer to *Annex II* of EDB’s letter to private schools dated 1 March 2022 on *Ventilation Assessment and Improvement Works for Private Schools.*]. The assessment findings are tabulated below. *The relevant site photos and school layout plans are shown in Annex B and Annex C respectively.*

Room No.	Room Type ¹	Findings (☒ indicates irregularity)				
		Insufficient mechanical ventilation ²	Insufficient separation between fresh air inlet & other sources of contamination	Equipment Malfunction of ventilation equipment	Improper Installation / Location of ventilation equipment ³	Others (please specify)
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> _____ _____

¹ Classroom, function room, laboratory, staff room, hall, toilet, etc.

² For example, lack of air grilles / transfer air grilles, resulting in ineffective operation of ventilation equipment.

³ For example, exhaust fans and fresh air intake grilles on the same side of a wall / window, resulting in unsatisfactory cross ventilation.

Assessment Report on Ventilation System

		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<hr/> <hr/> <hr/>
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Part C – Recommendations

Based on the site inspection conducted, the following improvement work is recommended, with illustration of drawings and photos in the attached Checklists (*Annex A*).

Room No.	Room Type ¹	Recommended Improvement Works

Assessment Report on Ventilation System

Part D – Copyright Notice

The _____(name of school)_____ reserves the copyright of this document. It may not be reproduced, distributed, transmitted, displayed, published or disclosed any content without consent from the copyright owner.

Part E – CAVEAT

This report is confidential to the _____(name of school)_____ for the specific purposes to which it refers. It might be disclosed to the Education Bureau and / or other professional advisers assisting the _____(name of school)_____ in respect of that purpose.

This report is based on the condition of mechanical ventilation system in the inspected area on the date of inspection. No liability can be accepted for any deterioration / change in condition of the premises after this date.

- END OF REPORT-

Chop of Registered Specialist Contractor
(Ventilation Works Category)
and signature of Authorized Signatory

Date (dd/mm/yy)

Name of Registered Specialist Contractor
(Ventilation Works Category):

Name of Authorized Signatory:

Registration Number:

Date of Expiry of Registration (dd/mm/yy):

Registered Address: _____

Contact Tel. No.: _____

Fax No. : _____

Assessment Report on Ventilation System

Part F – Acknowledgement

I / We (Representative of the School) agree to carry out the proposed improvement works as recommended in Part C of this report.

Signed: _____

Name: _____

(School Chop)

Checklist on Ventilation System

Annex A

Inspection Report on Ventilation System

Annex B

Inspection photo	
Photo no. 1 Item: 1 Problem finding:	Photo no. 2 Item: 2 Problem finding:
Photo no. 3 Item: 3 Problem finding:	

Inspection Report on Ventilation System

Annex C

Layout Plan

Certificate on Ventilation System

School Name:	
School No.:	
Address:	

I have inspected the above school premises on _____ (dd/mm/yy) (inspection date) and certify the particulars in respect of the above premises as follows and in the Ventilation Assessment Report and Checklist on Ventilation System:

Type of Occupied Spaces Assessed	Classroom	Function Room	Laboratory	Hall	Staff Room	Toilet	Others (please specify)
Number of Occupied Spaces Assessed							

I confirm that the ventilation of the abovementioned occupied spaces have been assessed, improvement work has been done according to the recommendations as written in the Ventilation Assessment Report

I understand that the matters and information stated herein and the related documents submitted (if any) are subject to further checking, vetting and verification by officers of Education Bureau (EDB) or authorized officers if deems necessary by EDB.

Note: If separate sheet is necessary, every page should be signed by the Authorized Signatory of the Registered Specialist Contractor (Ventilation Works Category).

Chop of Registered Specialist Contractor
(Ventilation Works Category)
and signature of Authorized Signatory

Date(dd/mm/yy)

Name of Registered Specialist Contractor
(Ventilation Works Category):

Name of Authorized Signatory:

Registration Number:

Date of Expiry of Registration(dd/mm/yy):

Registered

Address:

Contact Tel. No.: _____

Fax No. : _____