

住宅式氣體熱水爐裝置規定

INSTALLATION REQUIREMENTS FOR DOMESTIC GAS WATER HEATERS

(熱負荷在 70 千瓦以內者)

(RATED HEAT INPUT UP TO 70 kW)

工作守則：氣體應用指南之三 CODE OF PRACTICE GU 03

氣體安全監督 Gas Authority






香港特別行政區政府

住宅式氣體熱水爐裝置規定

(熱負荷在 70 千瓦以內者)

工作守則：氣體應用指南之三

機電工程署
氣體安全監督 

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1. 前言

- 1.1 本工作守則旨在就香港住宅式氣體熱水爐的安裝要求，為氣體爐具入口商及供應商、註冊氣體工程承辦商及註冊氣體裝置技工提供指引。本工作守則(下稱守則)是由氣體安全監督根據《氣體安全條例》(第 51 章)第 9 條的規定批准及出版的。
- 1.2 本守則所載的指引不應被視作鉅細無遺。本守則無意解除安全法例規定有關人士須負上的法定責任。
- 1.3 本守則具有特別的法律地位。儘管未有遵從守則內任何建議並不算違法，但在進行刑事訴訟時，法庭會將之視為相關因素，以決定有關人士有否違反任何與建議有關的條文。
- 1.4 本港所有氣體裝置工程，均須按照《氣體安全條例》的規定進行，特別是：
- (a) 《氣體安全(氣體供應)規例》(第 51 章)；
 - (b) 《氣體安全(裝置及使用)規例》(第 51 章)；
 - (c) 《氣體安全(雜項)規例》(第 51 章)；
 - (d) 《氣體安全(氣體裝置技工及氣體工程承辦商註冊)規例》(第 51 章)及
 - (e) 《氣體安全(氣體供應公司註冊)規例》(第 51 章)。
- 1.5 另外，下述規例在適當情況下亦適用：
- (a) 《建築物(設計)規例》(第 123F 章)第 35A 條；
 - (b) 《水務設施規例》(第 102 章)及
 - (c) 《電力(線路)規例》(第 406 章)。
- 1.6 裝置熱水爐時除遵守本守則的規定外，亦須遵從製造商的指引。除非製造商的指引與法例規定不符，否則不應以本守則的規定取代製造商的指引。此外，亦須留意下列最新的規例和工作守則：-
- (a) 《工作守則：氣體應用指南之五住宅式氣體用具的批准》；
 - (b) 《氣體應用指南之九：用以從容水量少於 40 升的石油氣瓶供氣的低壓調壓器》；
 - (c) 香港中華煤氣有限公司工作守則：住宅式爐具裝置 HKCG/SER/OP7；
 - (d) 按《電力(線路)規例》(第 406 章)而編訂的工作守則；
 - (e) 香港電力供應公司的政策要求、供應規則、安裝指

- 引和工作守則及
(f) 國際/國家標準(請參閱第 1.7 段)。

1.7 以下為國際/國家標準，以供參考：

- BS 5440-1 安裝及維修熱負荷不超過 70 千瓦的氣體用具的煙道和通風裝置(第一、第二及第三類別氣體) - 第一部：英國標準協會煙道安裝及維修規格
- BS 5440-2 安裝及維修熱負荷不超過 70 千瓦的氣體用具的煙道和通風裝置(第一、第二及第三類別氣體) - 第二部：英國標準協會氣體用具安裝及維修規格
- BS 5546 英國標準協會安裝熱水供應器作家庭用途的規格(使用熱負荷不超過 70 千瓦的燃氣用具)
- AG 601 澳洲氣體協會氣體裝置

1.8 本守則由氣體安全監督擬備，並徵詢香港的註冊氣體供應公司、註冊氣體工程承辦商及住宅式氣體用具的入口商和供應商。

2. 範圍和詞彙

2.1 本守則包括設計或擬於住宅房產內使用的即熱式氣體熱水爐及儲水式氣體熱水爐的新裝置工程，不管這些爐具在何處使用，並適用於燃燒《氣體安全條例》(第 51 章)第 2 條所界定氣體的氣體熱水爐。

2.2 熱負荷達 70 千瓦的氣體熱水爐，必須為氣體安全監督按照《工作守則：氣體應用指南之五》所批准的類別及型號，才可進行安裝(視乎批准住宅式氣體用具的新法例制訂情況而定)。

2.3 詞彙

2.3.1 氣體熱水爐類別的定義：

“對衡式”	一種密封式氣體熱水爐，裝設有空氣/廢氣的煙道進出口，而其設計是使煙道進出口露出外牆。
“機動排煙式”	一種設有煙道系統的氣體熱水爐，而系統是利用風扇排煙。
“無煙道式”	一種氣體熱水爐，其設計不會接駁將燃燒廢氣由建築物外牆以內地方排出外面的煙道。
“即熱式”	在這種氣體熱水爐內，水流到出水口時才受熱。
“自然排煙式”	一種設有煙道系統的氣體熱水爐，在系統內由燃燒廢氣的熱力產生排煙作用。
“普通煙道式”	這種氣體熱水爐的設計是須接駁煙道系統，其燃燒空氣是由爐具所在房間或戶內空間抽取。

“戶外式”	一種設計或擬為住宅供應熱水的氣體熱水爐，而且只可於本守則定明的指定戶外環境安裝。若有關裝置並未與煙道連接，則必須安裝在建築物外牆/周邊外的通風恒常良好的空曠地方，有關地方須在負責人管轄的指定物業界線以內(見屋宇署所批准的建築圖則)，且有關範圍嚴禁有人居住。
“密封式”	這種氣體熱水爐在運作時，其燃燒空氣進口及燃燒廢氣出口與該爐具所在房間隔離。
“貯水式”	在這種氣體熱水爐內，貯存的水在恒溫控制下受熱，供需要時使用。

2.3.2 其他定義：

“住宅式氣體用具”	根據《氣體安全條例》(第 51 章)的定義，指設計或擬主要用於住宅樓宇的氣體用具(在本守則中解釋為氣體熱水爐)，不管這些氣體用具是否真的作此用途。
“熄火保險裝置”	一個對火燄特性敏感的內置式控制裝置，如果點火時出現問題或火焰無意間熄滅，該控制裝置可以感應到沒有火焰，而將供應至用具燃燒器的氣體切斷，以確保安全。
“氣體安全監督”	根據《氣體安全條例》(第 51 章)第 5 條委任的監督。
“入口商”	從事把住宅式氣體熱水爐輸入香港業務的香港公司(參照《氣體安全條例》(第 51 章)第 2 條的定義)。
“過熱保護裝置”	一個在正常的溫度控制方法失效時，為保護氣體熱水爐及其附近地方而設的不可調校溫度感應裝置。
“註冊氣體工程承辦商”	指從事氣體裝置工程業務，並根據《氣體安全條例》(第 51 章)的規定註冊的人士或公司。

“註冊氣體裝置技 指親自進行氣體裝置工程，並根據《氣
工” 體安全條例》(第 51 章)註冊的個人。

“供應商” 為最終使用者供應氣體熱水爐的香港
公司(根據《氣體安全條例》(第 51 章)
第 2 條的定義)。

3. 氣體熱水爐的挑選及安裝位置

3.1 不同類別的房間內可容許安裝氣體熱水爐的位置，載列於附錄 A GSO/IG/23-3/00 內。

3.2 初次裝置熱水爐時應首選密封式氣體熱水爐。在浴室或淋浴室以外的地方，如環境不許可裝置密封式氣體熱水爐，應使用機動排煙式熱水爐。

3.3 密封式型號

- (a) 初次或更換裝置時應首選密封式氣體熱水爐。
- (b) 新建樓宇須遵從《建築物(設計)規例》(第 123F 章)第 35A 條的規定，在指定的位置預留牆孔，以備安裝密封對衡式熱水爐。故此，根據《氣體安全(裝置及使用)規例》第 27 條的規定，如已有適當牆孔，則只可以安裝密封式型號，而且必須利用該牆孔。
- (c) 《建築物(設計)規例》(第 123F 章)第 35A 條的規定，主要適用於新建樓宇供安裝密封式爐具牆孔的位置，而附錄 B 則列明密封式氣體熱水爐煙道末端可接受的安裝位置。不過，在現有房屋開鑿牆孔，可能存有困難，而在此情況下使用機動密封式排煙型熱水爐，應屬可行的辦法。
- (d) 密封式氣體熱水爐可安裝於大部分的位置，雖然不宜安裝於睡房或廳內。
- (e) 應特別留意《建築物(設計)規例》(第 123F 章)第 35A 條及本守則附錄 B 有關在光井裝置爐具的條文。如樓宇的構形可能令到燃燒廢氣難以排去，則使用機動密封式排煙型號會較為合宜。

3.4 普通煙道式自然排煙型號

根據《氣體安全(裝置及使用)規例》(第 51 章)第 36 條的規定，不得安裝這類即熱式氣體熱水爐。

3.5 普通煙道式機動排煙型號

- (a) 這類氣體熱水爐的安裝位置以通風良好的廚房、工作間或露台為首選。鑑於這類熱水爐須抽取所在空間的空氣作燃燒用，故應參照本守則第 4 段的指示，確保任何時候均有足夠的永久通風孔。

- (b) 這類氣體熱水爐不得安裝於睡房或廳內。
- (c) 不得在浴室或淋浴室初次裝置這類熱水爐。(初次裝置時必須使用密封型號，有關規定見本守則第 3.3 段)，根據《氣體安全(裝置及使用)規例》(第 51 章)，第 27(3)條的規定，只有在原已裝置普通煙道式機動排煙型熱水爐的情況下，才可獲准再裝置同一類爐具以作替換。

3.6 無煙道式型號

根據《氣體安全(裝置及使用)規例》第 35 條的規定，不得安裝這種氣體熱水爐。

3.7 戶外型號

(a) 總論

氣體熱水爐可安裝於樓宇以外的地方，沒有接駁煙道的指定戶外型號在安裝時應嚴格遵守本段詳列的規定。

爐具入口商只能以「供應-安裝-及-維修」的形式供應沒有接駁煙道的戶外型號氣體熱水爐。

入口商也應該是供應商，並應確保沒有接駁煙道的戶外式氣體熱水爐的設計、建造和裝置符合本守則的條件和規定，包括但不局限於第 2.2 及 3.7 段的規定。

(b) 沒有接駁煙道的戶外式氣體熱水爐的裝置規定：

(i) 禁止安裝的地點

熱水爐不得安裝於牆上，亦不得安裝於下述任何地點：

- (1) 在露台內或毗鄰露台；
- (2) 在空氣上下流通時有障礙或在爐具最低的煙道末端下並沒有通往外間的通風管的光井；
- (3) 在空氣上下流通時有障礙的凹角；
- (4) 任何結構的底部，例如樓梯；

- (5) 在地庫或水平面以下的較低樓層；
- (6) 在暫時或永久的有蓋、有遮擋或密封的地方如房屋、箱/密室等；
- (7) 在空氣不流通的地方；或
- (8) 在公用設施的空氣入口或抽氣口。

(ii) 許可情況

只可在符合下述兩種情況下安裝熱水爐：

- (1) 在以下所界定的指定通風良好地點，有關地點除了托架外並無任何暫時或永久的結構或障礙。
 - ◆ 在地平線以上地面的無上蓋天井；或
 - ◆ 無上蓋的天台；或
 - ◆ 無上蓋的平台；及
- (2) 在建築物外牆/週邊的牢固托架上，托架設有安全及穩妥的不可燃基座或結構，托架上方永無遮擋，且在熱水爐兩側均有通風良好且不少於 500 毫米、前方不少於 600 毫米的無障礙物範圍。

(c) 熱水爐的裝設

熱水爐不得裝設於牆上，其安裝的方向應可讓煙道末端將廢氣由外牆/週邊排到地平線以上的地方，外牆/週邊與熱水爐背面應保持暢通無阻，根據製造商的指引，熱水爐應為裝設於地面的型號。

(d) 地點的限制

根據附錄 C- “戶外式氣體熱水爐最低分隔距離及額外限制”的規定，實施最低分隔距離和額外限制。

(e) 警告告示/信息

在熱水爐的當眼處須貼上警告標籤，標籤最少為 130 毫米 x 130 毫米，以耐用及防風雨的物料製造，上面以 11 號或更大的中英文字型，載列包括但不局限於附錄 D- “有關戶外式氣體熱水爐的

警

告告示及警告信息”的資料。

此外，亦應把載有相同中英文資料的警告告示/信息，送交購買或接手擁有/使用熱水爐的發展商/佔用人/擁有人/租戶/客戶，並保留簽收回條，以資記錄。

警告告示及警告信息的式樣載於附錄 D。

(f) 裝置、測試、校驗、檢查及維修

入口商須負責安排註冊氣體工程承辦商，進行裝置、測試、校驗工作，並在其後定期檢查和維修每部已安裝的熱水爐。檢查工作至少每年一次，以查證第 3.7 段(a)至(e)條的規定已獲遵從。檢查報告須保存作紀錄用途，並應根據符合規定清單的要求，紀錄所有檢查結果，報告應由負責有關工作的註冊氣體裝置技工簽署。

(g) 紀錄管理

入口商須在熱水爐的使用壽命期內妥善保存熱水爐的完整紀錄，氣體安全監督在有需要時會查閱有關紀錄。紀錄須包括但不限於附錄 E 所載列的內容。

4. 通風

4.1 空氣供應

- (a) 根據《氣體安全(裝置及使用)規例》(第 51 章)第 23 條的規定，氣體熱水爐應安裝於有足夠永久通風孔的地點，讓氣體完全燃燒並把廢氣適當地排出，且能在正常的操作情況下將附近的環境溫度維持在安全範圍內。
- (b) 空氣供應不應受燃燒廢氣污染，亦不應含可以影響燃燒的化學品及易燃氣化物。
- (c) 附錄 A GSO/IG/23-3/00 載列各種氣體式熱水爐的最小房間/間隔室通風孔要求。若使用自然通風系統，便應按照附錄 A GSO/IG/23-3/00 的規定，提供永久的低位及高位開口。這些開口應裝有低阻力的柵格/百葉，並應設於不會引致堵塞或水浸的地方。
- (d) 若密封式氣體熱水爐是安裝於間隔室內，則應提供通風孔作散熱用途(見附錄 A GSO/IG/23-3/00 的最小間隔室通風孔要求)。
- (e) 附錄 F 圖示密封式(自然排煙型)及普通煙道式機動排煙型氣體熱水爐的供氣口。
- (f) 至於安裝於房間的儲水式熱火爐的空氣供應及通風孔要求，請參閱英國標準 5440 或同等及製造商的指引。
- (g) 無論何時，均應遵守《氣體安全(裝置及使用)規例》(第 51 章)第 23 及 24(4) 條的規定。如認為須使用機械通風裝置，則所有空氣入口及抽風扇均應裝有故障保險自動控制器，俾能在氣流無法內進及抽出時關閉或鎖上熱水爐。氣體熱水爐的空氣供應應按照製造商的指引辦理，如沒有指引，則應參考附錄 G 或同等的國際/國家標準。

4.2 煙道

- (a) 無論何時，均應遵守《氣體安全(裝置及使用)規例》(第 51 章)第 24 條的規定，附錄 A GSO/IG/23-3/00 載有各種氣體熱水爐煙道末端位

置的規定。

- (b) 關於機動排煙式氣體熱水爐的煙道管最大長度、彎位最大數目等，應參閱製造商的指引。
- (c) 至於儲水式氣體熱水爐的資料，請參閱英國標準 5440 或同等及製造商的指引。

5. 氣體供應

- 5.1 所有氣體裝置工程必須按照《氣體安全(裝置及使用)規例》(第 51 章)第II、IV及V部的規定進行。
- 5.2 必須確保氣體熱水爐能與所接駁的氣體類別和供氣壓力相配。有關這方面問題，應參考製造商的指引。
- 5.3 氣體熱水爐應以金屬喉管來接駁氣體供應，在靠近爐具的地方須裝置一個不會因意外觸碰而啟動的氣體切斷閥。在裝置爐具時，應盡量減少使用配件及接頭。
- 5.4 必須遵從有關的香港註冊氣體供應公司所訂定的安裝、檢漏及驅氣程序。
- 5.5 必須為儲水式熱水爐提供裝置，以確保在恒溫器失靈時，貯水容器內不會出現壓力過高的情況(見第 7.4 段)，這或包括一個由溫度或壓力啟動的安全裝置，俾能在這種情況下截斷氣體供應。

6. 電氣規定

- 6.1 電力供應與其保護設備應符合本港電力公司的供電則例、由機電工程署出版的《電力(線路)規例》(第 406 章)工作守則；或英國電機工程師學會最新版本的《佈線規例》的最新規定。
- 6.2 在浴室或淋浴室內裝置機動排煙式氣體熱水爐，應特別注意下列事項-
- (a) 熱水爐的外置開關掣及爐外變壓器部件，須裝置在浴室或淋浴室外面。
 - (b) 浴室或淋浴室內不得裝置插座。
 - (c) 保護器件的性能以及接地安排，須符合本守則第 6.1 段所提有關規例及工作守則的規定，特別是防止因間接碰觸帶電導體而致觸電的保護措施。安裝安全器件如電流式漏電斷路器，可確保在發生間接碰觸的情況下，能於 0.4 秒內截斷電源。

7. 給水、排水及釋壓

- 7.1 氣體熱水爐應符合本港《水務設施規例》(第 102 章)有關條文的規定。
- 7.2 氣體熱水爐應適宜在本港一般食水管靜水壓之下使用，及/或應能與水務監督指定接駁的供水壓力配合。
- 7.3 熱水喉管最好能適當隔熱，以保存熱能(如適用)。
- 7.4 無排氣喉的儲水式熱水爐應設有裝置，以防止恆溫器失靈時出現壓力過高的情況，這包括壓力感應釋壓閥及高溫斷流裝置或溫度感應釋壓閥。釋壓閥的閥口不應有所封閉。

8. 投入運作

- 8.1 在安裝氣體熱水爐後，須按照《氣體安全(裝置及使用)規例》(第 51 章)第 30 條的規定，將氣體熱水爐投入運作。
- 8.2 首先必須檢查已完成的裝置工程，確保氣體熱水爐是遵照製造商的指引及本守則安裝。
- 8.3 隨後應對氣體喉管及氣體熱水爐進行加壓檢漏試驗。
- 8.4 裝置通過加壓檢漏試驗後，便須依照製造商的指引進行驅氣程序。
- 8.5 整個給水系統應予徹底沖洗，確保已依照製造商的特別指引進行。
- 8.6 氣體熱水爐應按照製造商指引所載的次序點火。
- 8.7 應檢查氣體熱水爐的所有控制裝置，包括以人手操作的面板旋鈕及自動操作的恆溫器、熄火保險裝置等，確保運作正常。有關詳情，應參考製造商的指引。
- 8.8 至於機動排煙式氣體熱水爐，應檢查風扇故障保險裝置，確保符合製造商所訂規格。

9. 標貼及客戶須知

9.1 標貼

註冊氣體裝置技工應確保內容包括用戶操作程序、安全信息、警告告示等由製造商提供或規定的中英文標貼，已經貼在氣體熱水爐上的當眼位置。戶外式氣體熱水爐則應貼上特別標貼，有關規定概述於本守則第 3.7(e)條。

9.2 客戶須知

- (a) 根據《氣體安全(裝置及使用)規例》(第 51 章)第 26 條的規定，應給予客戶一本由製造商供應的中英文用戶指引。
- (b) 應在氣體熱水爐使用前，向客戶示範操作氣體熱水爐及其控制器件的正確程序，亦應把必要的防護措施告知顧客，以確保氣體熱水爐安全操作。
- (c) 應告知客戶，為使氣體熱水爐保持有效及安全操作，必須遵照製造商的指引及有關工作守則的規定，定期(至少每年一次)為氣體熱水爐進行檢修。
- (d) 對於裝有戶外式氣體熱水爐的顧客，應給予本守則第 3.7(e)條所概述的特別建議。

附錄 A
(GSO/IG/23-3/00)
住宅式氣體熱水爐裝置標準

- 裝置熱水爐時除遵守本守則的規定外，亦須遵從製造商的指引。除非製造商的指引與法例規定不符，否則不應以本守則的規定取代製造商的指引。
- 初次裝置熱水爐時應首選密封式氣體熱水爐。在浴室或淋浴室以外的地方，如環境不許可裝置密封式氣體熱水爐，應使用機動排煙式熱水爐。

房間類別及裝置		有關每類氣體熱水爐的規定			
		密封式	普通煙道式機動排煙式		
浴室或淋浴室	初次裝置	可以裝置	不可裝置		
	更換裝置		可以裝置 惟該熱水爐須於 1994 年 1 月 1 日前裝置，並以另一個普通煙道式機動排煙型熱水爐予以更換		
廚房或工作間	初次裝置	可以裝置	可以裝置		
	更換裝置				
露台	初次裝置	可以裝置	可以裝置		
	更換裝置				
睡房或廳	初次裝置	不太適宜	不可裝置		
	更換裝置				
房間內需有的最小通風孔(註 1)		無需要	額定熱負荷超過 7 千瓦但不超過 70 千瓦的熱水爐為每千瓦 5 平方厘米		
每千瓦流動空氣通風口面積(註 2)	每分鐘 5 公升				7 千瓦 -
	每分鐘 7 公升				12 千瓦 -
	每分鐘 9 公升				16 千瓦 -
	每分鐘 11 公升				20 千瓦 -
	每分鐘 13 公升				24 千瓦 -
	(熱水量)				28 千瓦 -
	70 千瓦				
間隔室內需有的最小通風孔(每千瓦流動空氣通風口面積)(註 3)	向室內	高位	每千瓦 10 平方厘米*	每千瓦 10 平方厘米	
		低位	每千瓦 10 平方厘米*	每千瓦 20 平方厘米	
	向室外	高位	每千瓦 5 平方厘米*	每千瓦 5 平方厘米	
		低位	每千瓦 5 平方厘米*	每千瓦 10 平方厘米	
煙道末端		自然排煙式 須符合《建築物(設計)規例》第 35A 條的規定 機動排煙式 在建築物任何開口至少 300 毫米之下	在建築物任何開口至少 300 毫米之下		

*有關規定只適用於自然排煙型氣體熱水爐。至於機動排煙式氣體熱水爐，須參照製造商的指引。

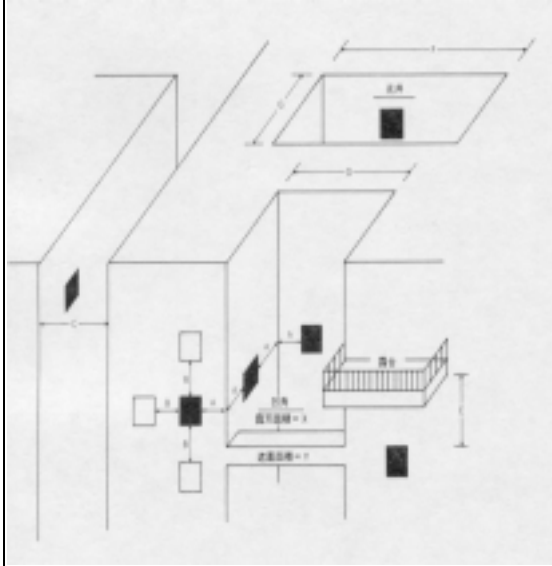
註 1 - 房間內的通風孔是指與室外空氣直接相通的通風孔。

註 2 - 永久開口須為沒有障礙物的通風口。

註 3 - 間隔室內的通風孔指並非與室外空氣直接相通的通風孔。

附錄 B
密封式熱水爐煙道末端可接受的安裝位置

外觀圖

	尺寸		最小距離
		A	距離任何建築物轉角
	B	距離任何毗鄰的建築物開口	300 毫米
	C	距離對面的牆壁或周邊	1500 毫米*
	D	凹角的最小平面闊度	1500 毫米*
	E	在露台或同類結構物之下	300 毫米*
	F 及 G	光井平面面積(F × G) 10 樓或以下 11-19 樓 20 樓或以上	3000 毫米 4000 毫米 5000 毫米

*如屬機動排煙型號，此數字可以較小。
參考製造商的指引。

光井

空氣上下流通時並無障礙。

在最低的煙道末端下有通往外間的通風口。每一面向光井的煙道末端，其通風口最小面積須為 0.05 平方米。通風口內部尺寸最小為 200 毫米。

如冷氣機從光井抽取空氣，須設有額外的通風口。

參考有關平面尺寸(F × G)的限制。

凹角

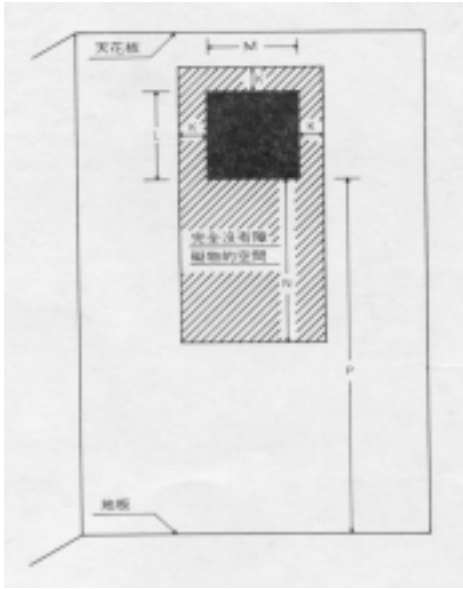
不得妨礙空氣上下流通。

在任何一層，橫樑所佔的面積，不得使凹角的露天面積減少超過 20% [即 $Y < 20\% (X + Y)$]。

參考最小平面闊度(D)的限制。

內觀圖

		尺寸	最小
K N Q	無障礙物的 地方		100 毫米
			150 毫米
			50 毫米
P	離地板高度	200 毫米 (2400 毫米最大)	
L× M	標準尺寸 非標準尺寸	380×380 毫米 或 240×240 毫米 按情況適合	



- 陰影部分代表沒有障礙物的範圍

附錄 C
戶外式氣體熱水爐的最低分隔距離及額外限制

- 裝置熱水爐時除遵守本守則的規定外，亦須遵從製造商的指引。除非製造商的指引與法例規定不符，否則不應以本守則的規定取代製造商的指引。

有關戶外式氣體熱水爐的最低分隔距離摘要載於表 1 及表 2，而熱水爐的周圍簡圖則載於圖 1 及圖 2。分隔距離是指戶外式氣體熱水爐(下稱熱水爐)邊緣與其他開口/物體的最近邊緣/轉角之間的最短距離。

(a) 表 1 顯示與毗鄰開口例如窗口、門口等的分隔距離。

尺寸	說明			最低分隔距離(毫米)	
				自然排煙類別	機動排煙類別
P	由側牆上開口起計的點到點距離	額定值 (兆焦耳/小時)	不超過 150	500	300
			>150 至 200	1,500	500
			>200	1,500	1,500
---	沿機動排煙式熱水爐排氣方向的水平距離			---	1,500
Q	由熱水爐後牆上開口起計的水平距離	額定值 (兆焦耳/小時)	不超過 150	500	300
			>150	1,500	300
R	由熱水爐後牆上開口起計的垂直距離	額定值 (兆焦耳/小時)	不超過 150	1,000	300
			>150	1,500	300

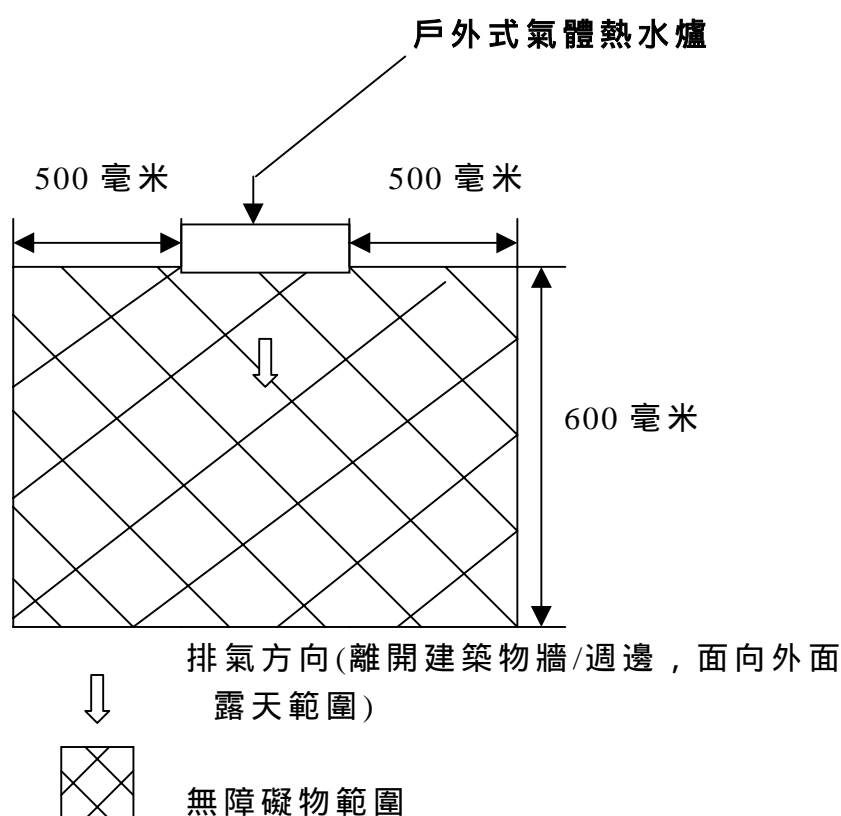
單位換算：1 兆焦耳/小時 = 0.28 千瓦

(b) 表 2 顯示與貼近物件的分隔距離。

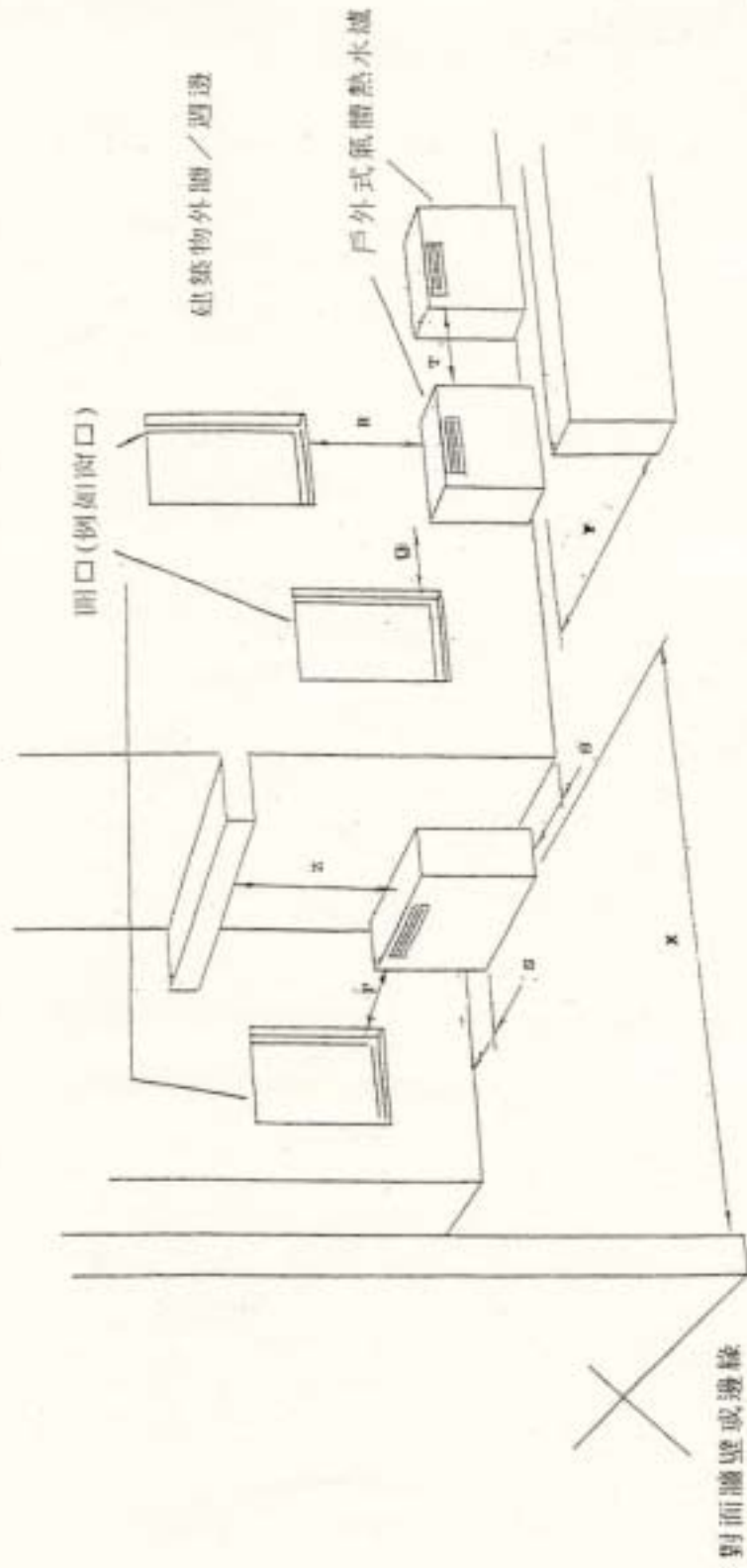
尺寸	說明	最低分隔距離(毫米)
S	距離牆壁的內外轉角	500
T	距離另一個熱水爐或氣體用具(邊)	500
X	距離對面的牆壁或周邊	1,500
Y	距離對面障礙物	600
Z	在屋簷或同類結構物之下	500
---	距離氣體錶、電錶或可能產生火花的裝置	1,000 且不得位於正下方
---	由地面至煙道口	500
---	與喉管距離	150
---	與易燃物體距離	500

熱水爐的前方、頂部和兩側在任何時間均須沒有障礙物。如安裝在屋簷或同類結構物下，屋簷或同類結構物下的突出範圍不應完全覆蓋熱水爐。熱水爐的煙道口不應直接指向其他公用設施或用具(如分體式空調機)的入口、出口或管道。

- (c) 圖 1 的平面圖顯示熱水爐的無障礙物範圍為熱水爐兩側不少於 500 毫米和前方不少於 600 毫米。



- (d) 圖 2 顯示表 1 及表 2 所示的最低分隔距離。



(d)圖 2：最低分層距離示意圖

附錄 D
有關戶外式氣體熱水爐的警告告示及警告信息

以下為張貼於無煙道戶外式氣體熱水爐的警告告示範例：

<p>安全告示 / 指示 SAFETY NOTICE / MESSAGE</p> <p>警 告</p> <p>1. 本熱水器是<u>戶外式</u>燃氣熱水器。 祇准於屋宇以外的、露天的特定地方安裝。 必須確保周圍空氣流通。 阻礙通風，會有性命危險。</p> <p>2. 在本熱水器所在處之左方、右方或頂方距離不少於 0.5 米內及前方不少於 0.6 米範圍內，不得有任何障礙物或建築物之部份存在。</p> <p>3. 須由政府註冊氣體工程承辦商聘用之註冊氣體裝置技師進行安裝及作定期安全檢查及維修。 每年至少一次。</p> <p>4. 如有任何查詢/緊急事故，請致電</p> <p style="text-align: center;">xxx 公司</p> <p style="text-align: center;">電話 xxxx xxxx xxxx xxxx 傳真 xxxx xxxx</p> <p style="text-align: center;"><i>CAUTION</i></p> <p>1. This is an OUTDOOR type gas water heater. It must ONLY be installed in a prescribed outdoor open space and must be well-ventilated. It is hazardous to life if ventilation is impaired.</p> <p>2. There should not be any OBJECT or STRUCTURE on or near the heater. Minimum Distance must always be KEPT as follows: To Left-hand or Right-hand sides or ABOVE the heater: 0.5 m In FRONT of the heater: 0.6 m</p> <p>3. Installation and subsequent maintenance or safety inspection, which should be conducted at least once a year, must be carried out by Registered Gas Installer (RGI) employed by Registered Gas Contractor (RGC).</p> <p>4. For enquiry/emergency services, please call</p> <p style="text-align: center;">xxx Co.</p> <p style="text-align: center;">Telephone xxxx xxxx xxxx xxxx Fax xxxx xxxx</p>
--

此外，亦須向購入或接收熱水爐擁有權/使用權的發展商/佔用人/業主/租戶/客戶寄出中英文的警告告示/信息。上述告示/信息須包括但不限於以下內容：

- (i) 說明熱水爐屬戶外式，故須在任何時間均保持永久空氣流通的字句；
- (ii) 標明無障礙物範圍，並列明尺寸；
- (iii) 須由註冊氣體工程承辦商聘用的註冊氣體裝置技工進行安裝、定期維修及年度檢查，並須列明註冊氣體工程承辦商的聯絡/緊急電話號碼。

附錄 E
戶外式氣體熱水爐進口商的紀錄管理

供應商須在熱水爐的使用壽命期內妥善保存熱水爐的完整紀錄，氣體安全監督在有需要時會查閱有關紀錄。紀錄須包括但不限於以下內容：

初次裝置、測試及校驗

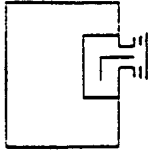
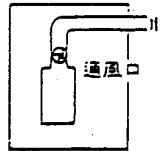
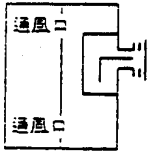
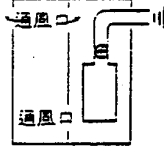
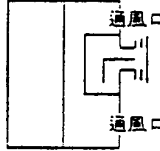
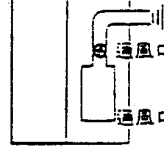
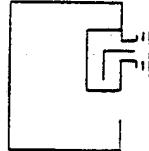
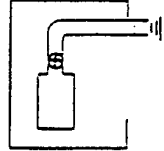
- (i) 熱水爐的位置；
- (ii) 竣工圖則及照片；
- (iii) 熱水爐的技術細節；
- (iv) 測試及校驗報告。

定期檢查及維修

- (i) 檢查報告，包括符合規定核對表；
- (ii) 維修/事故紀錄；
- (iii) 氣體安全監督要求的其他文件。

附錄 F

密封式(自然排煙型)及普通煙道式機動排煙型 氣體熱水爐的供應空氣開口

位置 \ 類別	密封式* (自然排煙型)	普通煙道式 機動排煙型
在房間		
在通向室內的間隔室		
在通向室外的間隔室		
在露台		

*有關密封式機動排煙型氣體熱水爐，請參考製造商的指引。

有關空氣的規定 – 住宅式氣體熱水爐的機動排煙安排

燃燒用具類別	低位機動空氣供應		高位排氣			各開口的相互位置
	所需最小氣流 升/ 秒	開口位置	機動 升/ 秒	天然(見註 1)	開口位置	
				開口最小尺寸 平方厘米		
周圍空氣	額定熱負荷 (千瓦特) x 1.8 (見註 2)	開口下緣至地板的距離不得高於密封地方、房間或機房的總高度的 5%	入口所需空氣率的 1/4 至 1/3	額定熱負荷 (千瓦特) x 5.4 (見註 2)	開口上緣至天花板的距離不得高於密封地方、房間或機房的總高度的 5%	開口所處位置須能產生遍佈整個範圍的氣流
機動產生氣流	額定熱負荷 (千瓦特) x 1.08 (見註 2)					

(參考資料：改編自 AG601)

註：

1. 天然空氣供應不可含機械排出的廢氣。
2. 爐具熱負荷須包括整個範圍內所有爐具(包括使用其他燃料的爐具)的熱負荷總和。



THE GOVERNMENT OF THE
HONG KONG SPECIAL ADMINISTRATIVE REGION

INSTALLATION REQUIREMENTS FOR
DOMESTIC GAS WATER HEATERS
(RATED HEAT INPUT UP TO 70 kW)

CODE OF PRACTICE GU 03



October 2001
Issue 2

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1. Foreword

- 1.1 The purpose of this Code of Practice is to provide guidelines to gas appliance importers and suppliers, registered gas contractors and registered gas installers concerning the installation requirements for domestic gas water heaters in Hong Kong. This Code of Practice (hereinafter referred to as this Code) is approved and issued by the Gas Authority in accordance with Section 9 of the Gas Safety Ordinance, Cap. 51.
- 1.2 The guidelines contained in this Code should not be regarded as exhaustive. It is not intended to relieve persons from undertaking the work of their statutory responsibilities in accordance with safety legislation.
- 1.3 This Code has a special legal status. Although failure to observe any advice contained in this Code is not in itself an offence, that failure may be taken by a court in criminal proceedings as a relevant factor in determining whether or not a person has breached any of the provisions of the regulations to which the advice relates.
- 1.4 All gas installation work carried out in Hong Kong shall be in accordance with the Gas Safety Ordinance, Cap. 51 with particular reference to:-
 - (a) Gas Safety (Gas Supply) Regulations, Cap. 51;
 - (b) Gas Safety (Installation and Use) Regulations, Cap. 51;
 - (c) Gas Safety (Miscellaneous) Regulations, Cap. 51;
 - (d) Gas Safety (Registration of Gas Installers and Gas Contractors) Regulations, Cap. 51 and
 - (e) Gas Safety (Registration of Gas Supply Companies) Regulations, Cap. 51.
- 1.5 Additionally the undernoted regulations shall apply as appropriate:-
 - (a) Regulation 35A of the Building (Planning) Regulations, Cap. 123F;
 - (b) Waterworks Regulations, Cap. 102 and
 - (c) Electricity (Wiring) Regulations, Cap. 406.
- 1.6 This Code must be read in conjunction with the manufacturer's instructions and shall not supersede such instructions unless the latter conflict with statutory provisions. Attention is also drawn to the current edition of the undernoted regulations and codes of practice:-

- (a) Code of Practice GU05 – Approval of Domestic Gas Appliances;
- (b) Code of Practice GU09 – Low Pressure Regulators for Supplying Gas from LPG Cylinders having less than 40 litres Water Capacity;
- (c) The Hong Kong & China Gas Co. Ltd.’s Operating Procedures - Service: Installation of Domestic Appliances, HKCG/SER/OP7;
- (d) Code of Practice for the Electricity (Wiring) Regulations, Cap. 406;
- (e) Hong Kong electricity supply companies’ policy requirements, supply rules, installation guides and codes of practice and
- (f) International/national standards referred to in Section 1.7.

1.7 The following international/national standards are for reference:-

BS 5440-1 Installation and maintenance of flues and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases) – Part 1: Specification for installation and maintenance of flues, British Standards Institution

BS 5440-2 Installation and maintenance of flues and ventilation for gas appliances of rated input not exceeding 70 kW net (1st, 2nd and 3rd family gases) – Part 2 : Specification for installation and maintenance of ventilation for gas appliances, British Standards Institution

BS 5546 Specification for installation of hot water supplies for domestic purposes, using gas-fired appliances of rated input not exceeding 70 kW, British Standards Institution

AG 601 Gas Installations, The Australian Gas Association

1.8 This Code has been prepared by the Gas Authority in consultation with registered gas supply companies, registered gas contractors, importers and suppliers of domestic gas appliances in Hong Kong.

2. Scope and Terminology

2.1 This Code covers the new installation of instantaneous type gas water heaters and storage type gas water heaters which are designed, or intended, to be used in domestic premises irrespective of whether they are so used. It applies to gas water heaters which burn gas types defined in Section 2 of the Gas Safety Ordinance, Cap. 51.

2.2 The gas water heaters, having a rated heat input up to 70kW, are to be of a type and model approved by the Gas Authority in accordance with the Code of Practice GU05 before their installation takes place (subject to enactment of new legislation concerning approval of domestic gas appliances).

2.3 Terminology

2.3.1 Definitions of gas water heater types:-

“balanced flue”	a room-sealed gas water heater incorporating an air inlet-product outlet terminal designed to be exposed on an external wall.
“fanned draught”	a gas water heater with a flue system in which the draught is produced by a fan.
“flueless”	a gas water heater designed for use without connection to a flue conveying combustion products from spaces within the outer building wall of premises to external air.
“instantaneous”	a gas water heater in which water is heated only as it flows to the point of delivery.
“natural draught”	a gas water heater with a flue system in which the draught is provided by the thermal force arising from the heat of the products of combustion.
“open-flued”	a gas water heater designed to be connected to a flue system, its combustion air being drawn from the room or internal space in which it is installed.

“outdoor” a gas water heater that is designed, or intended to be used, for supply of hot water to a dwelling and only installed in a defined outdoor environment in the manner prescribed under this Code. In the case of an installation not connected to a flue, it should be located in a permanently well-ventilated open area external to the outer building wall/boundary, but within the designated property line (as shown in the Building Plan approved by the Buildings Authority) under the jurisdiction of the responsible person(s), and within which inhabitation is strictly prohibited.

“room-sealed” a gas water heater which, when in operation, has the combustion air inlet and the combustion products outlet isolated from the room in which the appliance is installed.

“storage” a gas water heater in which a volume of water is heated under thermostatic control and stored for use when required.

2.3.2 Other definitions:-

“domestic gas appliance” as defined under the Gas Safety Ordinance, Cap. 51, means a gas appliance (construed as gas water heater in this Code) which is designed or intended to be used primarily in domestic premises, irrespective of whether it is so used.

“flame failure protection” an integral control device responsive to flame properties which by means of detecting the presence of a nominated flame will cause the gas supply to the domestic gas water heater burner(s) to shut off safely in the event of ignition failure or inadvertent flame extinction.

“Gas Authority”	the Authority appointed under Section 5 of the Gas Safety Ordinance, Cap. 51.
“importer”	a company in Hong Kong (as defined in Section 2 of the Gas Safety Ordinance, Cap. 51) engaged in the business of importation of domestic gas water heaters for use in Hong Kong.
“overheat protection”	a non-adjustable temperature actuated device designed to protect a gas water heater and its surroundings in the event of failure of the normal means of temperature control.
“Registered Gas Contractor”	means a person or a company who as a business carries out gas installation work and is registered under the Gas Safety Ordinance, Cap. 51.
“Registered Gas Installer”	means an individual who personally carries out gas installation work and is registered under the Gas Safety Ordinance, Cap. 51.
“supplier”	a company in Hong Kong (as defined in Section 2 of the Gas Safety Ordinance, Cap. 51) engaged in the supply of gas water heaters to end users.

3. Selection and Siting of Gas Water Heaters

3.1 The permitted siting of gas water heaters to be installed in various room types is outlined in Appendix A, GSO/IG/23-3/00.

3.2 For any new installation, room-sealed gas water heaters shall always be the first choice. When this is not feasible in locations, other than bathrooms or shower rooms, then fanned draught models should be used.

3.3 Room-sealed Models

(a) Room-sealed gas water heaters shall always be the first choice for new and replacement installations.

(b) The location of apertures for room-sealed balanced flue heaters in a new building is controlled under Regulation 35A of the Building (Planning) Regulations, Cap. 123F. Whenever a suitable aperture is provided, only a room-sealed model shall be installed and that aperture must be used, in accordance with Regulation 27 of the Gas Safety (Installation and Use) Regulations.

(c) The requirements contained in Regulation 35A of the Building (Planning) Regulations, Cap. 123F mainly apply to the siting of room-sealed apertures in new buildings. Appendix B outlines the acceptable locations of room-sealed gas water heater terminals. It is recognized that the provision of suitable apertures may, however, be difficult in existing dwellings and therefore fanned draught room-sealed models may offer a practical solution in the circumstance.

(d) Room-sealed gas water heaters can be installed in most locations although their installation in bedrooms or living rooms is not preferred.

(e) Particular attention should be given to those provisions within the Regulation 35A of the Building (Planning) Regulations, Cap. 123F and Appendix B of this Code concerning installations in lightwells. Where the dispersion of combustion products is likely to be difficult owing to building configurations, then the use of fanned draught room-sealed models will be preferred.

3.4 Open-flued Natural Draught Models

In accordance with Regulation 36 of the Gas Safety (Installation and Use) Regulations, Cap. 51, instantaneous gas water heater of this type shall not be installed.

3.5 Open-flued Fanned Draught Models

- (a) In siting this type of gas water heater, the first choice should be to locate it in the kitchen, utility or balcony area with good ventilation. Since this heater requires air for combustion from the space in which it is located, reference shall be made to Section 4 of this Code to ensure adequate permanent ventilation is provided at all times.
- (b) This type of gas water heater shall not be installed in bedrooms or living areas.
- (c) New installation of this type of gas water heater for bathroom or shower room is not permitted. (Room-sealed models must be used for new installation and the requirements are in Section 3.3 of this Code). Replacement of open-flued fanned draught models will only be permitted on the basis of like for like exchange in accordance with Regulation 27(3) of the Gas Safety (Installation and Use) Regulations, Cap. 51.

3.6 Flueless Models

In accordance with Regulation 35 of the Gas Safety (Installation and Use) Regulations, this type of gas water heater shall not be installed.

3.7 Outdoor Models

- (a) General

Gas water heaters may be installed outside premises, designated outdoor models not connected to a flue shall only be installed in strict compliance with requirements as detailed in this Section.

Outdoor models not connected to a flue shall only be provided on a “supply-install-and-maintain” basis by the importer of the appliance.

The importer, who shall also be the supplier, shall ensure that the design, construction and installation of the outdoor gas water heater not to be connected to a flue fully complies with the conditions and requirements in this Code, including but not limited to sections 2.2 and 3.7 in particular.

(b) Installation Requirements for Outdoor Gas Water Heaters Not Connected to a Flue

(i) Prohibited Locations

The heater shall not be wall-mounted and shall not be installed at any one of the following locations:

- (1) within or adjacent to a balcony;
- (2) in a light well with obstruction to the vertical flow of air or without vent to external air below the lowest terminal;
- (3) in a re-entrant with obstruction to the vertical flow of air;
- (4) in the underside of any structures, e.g. stairway;
- (5) in a basement or a lower floor below grade;
- (6) in a temporarily or permanently covered, sheltered or enclosed area such as housing, box/chamber, etc.;
- (7) in a poorly ventilated area; or
- (8) in proximity to air inlet or suction of other utility services.

(ii) Permitted Conditions

The heater shall only be installed in compliance with the following two conditions :-

- (1) in a well-ventilated designated location as defined below that does not have any temporary or permanent structures or obstacles in it other than the mounting:
 - in an open-top yard at ground level above grade; or
 - on an open-top flat roof; or
 - on an open-top podium; and
- (2) on solid mounting complete with a safe and rigid non-combustible plinth or structure and external to the outer building wall/boundary and in such a way that there is always an open-top , well ventilated

sterile zone of no less than 500 mm on each side of the heater and no less than 600 mm on the front side of the heater.

(c) Mounting of Heater

The heater shall not be wall-mounted. It shall be mounted in such an orientation that its flue terminal always discharges flue gas away from the outer building wall/boundary and to an external open area above grade. Adequate clearance shall be maintained between the outer building wall/boundary and the rear side of the heater. The heater shall be of floor-mounted type in accordance with the manufacturer's instructions.

(d) Locational Restrictions

Minimum separation distances and additional restrictions shall apply in accordance with Appendix C – “Minimum Separation Distances and Additional Restrictions for Outdoor Gas Water Heaters”.

(e) Warning Notices/Messages

A warning label of durable, weatherproof material and ink with minimum size 130 mm x 130 mm containing information in both Chinese and English of character font size 11 or larger shall be affixed onto the heater in a conspicuous location. It shall incorporate information including but not limited to those listed in Appendix D – “Warning Notice and Warning Message in Connection with Outdoor Gas Water Heaters”.

In addition, a warning notice/message in both Chinese and English containing the same information shall be sent to the developer/occupier/owner/tenant/customer who purchases or takes over the ownership/use of the heater with acknowledgement kept for record purposes.

Illustrative sample warning notice and sample warning message are given in Appendix D.

(f) Installation, Testing, Commissioning, Inspection and Maintenance

The importer shall be responsible for arranging a Registered Gas Contractor to conduct the installation, testing, commissioning, subsequent regular inspections and maintenance of individual units of each installed heater. At least one inspection shall be conducted every year to verify that all the prescribed conditions under Section 3.7 (a) to (e) have been complied with. The inspection report shall be kept for record purposes. It shall record all inspection results in accordance with a compliance checklist and shall bear the signature of the registered gas installer who carried out the work.

(g) Record Management

Full records, which may be inspected by the Gas Authority as and when required, shall be properly maintained by the importer within the life time of the heater, including but not limited to those outlined in Appendix E.

4. Ventilation

4.1 Air Supply

- (a) In accordance with Regulation 23 of the Gas Safety (Installation and Use) Regulations, Cap. 51, a gas water heater shall be installed in a location with adequate permanent ventilation for complete combustion of gas, for proper flueing and to maintain the ambient temperature of the immediate surrounding within safe limits under normal operating conditions.
- (b) The quality of air supply shall not be contaminated with combustion products, or contain chemical or inflammable vapours which could affect combustion.
- (c) The minimum room/compartiment ventilation requirements for each type of gas water heater are outlined in Appendix A, GSO/IG/23-3/00. Where a natural ventilation system is used, there shall be provision for permanent low and high level openings according to Appendix A, GSO/IG/23-3/00. The openings shall be fitted with grilles/louvres of minimal resistance and shall be sited so that they are not prone to blockage or flooding.
- (d) Where room-sealed gas water heaters are installed in compartments, provision for heat relief in the form of ventilation should be made (see minimum compartment ventilation in Appendix A, GSO/IG/23-3/00).
- (e) Appendix F illustrates diagrammatically the air supply openings required for room-sealed (natural draught) and open-flued fanned draught gas water heaters.
- (f) For air supply and ventilation to a room housing storage type gas water heater(s), reference should be made to BS 5440 or equivalent and the manufacturer's instructions for compliance.
- (g) Regulations 23 and 24(4) of the Gas Safety (Installation and Use) Regulations, Cap. 51 shall be satisfied at all times. When mechanical ventilation is deemed required, all air inlet and extraction fans shall be fitted with fail-safe automatic controls causing safety shut-down or lock-out of the heater in the event of the failure of the inlet and extraction air flow. The air supply to the gas water heater shall be in accordance with the manufacturer's instructions and in the absence of which, shall be provided with reference to Appendix G or equivalent international/national standards.

4.2 Flueing

- (a) Regulations 24 of the Gas Safety (Installation and Use) Regulations, Cap. 51 shall be satisfied at all times. The flue termination requirements for each type of gas water heaters are outlined in Appendix A, GSO/IG/23-3/00.
- (b) For fanned draught gas water heaters, reference should also be made to the manufacturer's instructions regarding the maximum length of flue pipe, maximum number of bends, etc.
- (c) For storage type gas water heaters, reference should be made to BS 5440 or equivalent and the manufacturer's instructions.

5. Gas Supply

- 5.1 All gas installation work shall be carried out in accordance with Parts II, IV and V of the Gas Safety (Installation and Use) Regulations, Cap. 51.
- 5.2 Attention is drawn to the necessity for ensuring that the gas water heater is compatible with the respective gas type and supply pressure to which it is being connected. Reference should also be made to the manufacturer's instructions in this regard.
- 5.3 Metallic piping shall be used to connect a gas water heater to the gas supply. A gas isolation cock, which cannot be accidentally operated, shall be fitted close to the gas water heater. The number of fittings and connections used when installing gas water heaters should be kept to a minimum.
- 5.4 The installation, soundness testing and purging procedures of the respective registered gas supply company in Hong Kong shall be followed.
- 5.5 In the case of storage type water heaters, provision shall be made to ensure overpressurisation shall not occur within the storage container (see Section 7.4) in the event of thermostat failure. This may include a temperature or pressure activated safety device to isolate the gas supply in such circumstance.

6. Electrical Requirements

- 6.1 The electrical supply and its protection must comply with the current requirements laid down in the Supply Rules of local electrical supply companies, the Code of Practice for the Electricity (Wiring) Regulations, Cap. 406 published by the Electrical & Mechanical Services Department and the latest edition of the Institution of Electrical Engineers' Wiring Regulations.
- 6.2 Special attention should be drawn to the installation of fanned draught gas water heaters in bathrooms or shower rooms:-
- (a) The control switch and transformer unit external to the heater shall be installed outside the bathroom or shower room.
 - (b) No socket outlets shall be provided inside the bathroom or shower room.
 - (c) The characteristics of the protection devices and earthing arrangement shall comply with the relevant regulations and codes of practices referred to in Section 6.1 of this Code especially concerning protection against electric shock from indirect contact with a live conductor. The installation of a safety device, such as a residual current device, will ensure that the disconnection of the electrical supply occurs within 0.4 second of the indirect contact taking place.

7. Water Supply, Discharge and Pressure Release

- 7.1 The gas water heater shall satisfy the relevant provisions under the Waterworks Regulations, Cap. 102.
- 7.2 The gas water heater should be suitable for use under the static head of fresh water supply normally available in Hong Kong, and/or should be compatible with the water supply pressure to which it is being connected, as specified by the Water Authority.
- 7.3 It is desirable that hot water pipes should be suitably insulated for heat conservation purposes, where applicable.
- 7.4 Unvented storage gas water heaters shall be provided with means to prevent overpressure in the event of thermostat failure, to include a pressure relief valve and a high temperature cut-out device or temperature relief valve. The outlet of relief valve(s) shall not be restricted.

8. Commissioning

- 8.1 The installed gas water heater shall be commissioned in accordance with Regulation 30 of the Gas Safety (Installation and Use) Regulations, Cap. 51.
- 8.2 An inspection of completed installation work should be carried out in the first instance to ascertain that the gas water heater has been installed in accordance with the manufacturer's instructions and this Code.
- 8.3 The gas installation pipework and gas water heater shall then be pressure tested for soundness.
- 8.4 After the installation passed the pressure test, purging operation shall be proceeded. The purging shall be carried out according to the manufacturer's instructions.
- 8.5 The whole of the water system should be thoroughly flushed out ensuring that special instructions by the manufacturer are followed.
- 8.6 The gas water heater should be lit in the sequence described in the manufacturer's instructions.
- 8.7 All the gas water heater controls, both manual (front panel knobs) and automatic (thermostats, flame failure protection, etc.), should be checked in order to ensure they are functioning correctly. The manufacturer's instructions should be referred to for relevant details.
- 8.8 For fanned draught gas water heaters, safety devices which operate in the event of fan failure should be checked to ensure compliance with manufacturer's specifications.

9. Labelling and Advice to Customers

9.1 Labelling

The Registered Gas Installer should ensure that any labels provided or required by the manufacturer which describe user's operating procedures, safety information, warning notices, etc are in both Chinese and English languages and affixed onto the gas water heater at a prominent position. A special label should be affixed to outdoor type gas water heaters, the requirements are outlined in Section 3.7 (e) of this Code.

9.2 Advice to Customers

- (a) The customers should be provided with the user's instructions in both Chinese and English supplied by the manufacturer in accordance with Regulation 26 of the Gas Safety (Installation and Use) Regulations, Cap. 51.
- (b) The correct operation procedures for the gas water heater and its control should be demonstrated to the customers before use. The customers should be advised of any precautions necessary for the safe operation of the gas water heater.
- (c) The customers should be advised that for continued efficient and safe operation of the gas water heater, it is important that regular servicing is carried out at least once a year by a Registered Gas Installer in accordance with the manufacturer's instructions and the relevant codes of practice.
- (d) The customers with outdoor gas water heaters installed should be given special advice as outlined in Section 3.7(e) of this Code.

Appendix A
(GSO/IG/23-3/00)

Criteria for Installation of Domestic Gas Water Heaters

- This Code shall be read in conjunction with the manufacturer's instructions and shall not supersede such instructions unless the latter conflicts with statutory provisions.
- For any new installation, room-sealed gas water heaters must always be the first choice – when this is not feasible in locations, other than bathrooms/shower rooms, then fanned draught models should be used.

Room Type and Installation		Requirements for Each Type of Gas Water Heater		
		Room-Sealed	Open-Flued Fanned Draught	
Bathroom or Shower Room	New	Yes	No	
	Replacement		Yes Provided it was installed before 1.1.94 and to be replaced by another open-flued fanned draught type	
Kitchen or Utility	New	Yes	Yes	
	Replacement			
Balcony	New	Yes	Yes	
	Replacement			
Bedroom or Living Room	New	Not Preferred	No	
	Replacement			
Minimum Room Ventilation (Note 1)		Not Required	5 cm ² /kW for heater with rated heat input in excess of 7 kW and up to 70 kW	
Free air vent area/kW (Note 2)	5 l/min			7 kW -
	7 l/min			12 kW -
				16 kW -
	9 l/min			20 kW -
	11 l/min			24 kW -
	13 l/min			28 kW -
(Approx. Hot Water Capacity)				
70 kW				
Minimum Compartment Ventilation (Free air vent area/kW) (Note 3)	To Room	High Level	10 cm ² /kW *	10 cm ² /kW
		Low Level	10 cm ² /kW *	20 cm ² /kW
	To Outside	High Level	5 cm ² /kW *	5 cm ² /kW
		Low Level	5 cm ² /kW *	10 cm ² /kW
Flue Termination		Natural Draught shall comply with Regulation 35A of the Building (Planning) Regulations Fanned Draught minimum 300 mm below any opening	Minimum 300 mm below any opening into a building	

* The requirement is for natural draught models only. As for fanned draught models, reference should be made to the manufacturer's instructions.

Note 1 - Room ventilation means ventilation communicating directly with outside air.

Note 2 - Permanent opening shall be an air vent without obstruction.

Note 3 - Compartment ventilation means ventilation not communicating directly with outside air.

Appendix B

Acceptable Locations of Room-Sealed Gas Water Heater Terminals

EXTERNAL VIEW

	Dimension	Minimum Distance
A	From any corner of building	300 mm*
B	From any adjacent opening into building	300 mm
C	From facing wall or boundary	1 500 mm*
D	Minimum plan width of re-entrant	1 500 mm*
E	Below a balcony or similar projection	300 mm*
F & G	Light well plan area (F x G)	
	10 or less storeys	3 000 mm
	11-19 storeys	4 000 mm
	20 or more storeys	5 000 mm

* May be reduced for fanned draught models.
See manufacturer's instructions.

Light Wells

No obstruction to the vertical flow of air.

Vented to external air, below the lowest terminal. The vents to have a minimum area of 0.05 m² for each terminal facing into the light well. Minimum internal dimension of vents to be 200 mm.

Additional vents to be provided where air conditioners take air from light well.

See limitations on plan dimensions (F x G).

Re-entrants

No obstruction to the vertical flow of air.

Tie beams should not reduce the open area of the face of the re-entrant by more than 20% at any storey [i.e. $Y \geq 20\% (X + Y)$].

See limitation on minimum plan width (D).

INTERNAL VIEW

	Dimension	Minimum
K	Unobstructed area	100 mm
N		150 mm
Q		50 mm
P	Height above floor	200 mm (2 400 mm max)
L x M	Standard size	380 x 380 mm or 240 x 240 mm
	Non standard	to suit

● Unobstructed area shaded

Appendix C

**Minimum Separation Distances and Additional Restrictions
for Outdoor Gas Water Heaters**

- This Code shall be read in conjunction with the manufacturer’s instructions and shall not supersede such instructions unless the latter conflict with statutory provisions.

Minimum separation distances are summarized in Tables 1 & 2 and the surroundings are delineated in Figures 1 & 2. Separation distance refers to the shortest distance between the edge of the outdoor gas water heater (hereinafter called the heater) and the nearest edge/corner of other openings/objects.

(a) Table 1 shows the separation distances from adjacent openings such as windows, doors, etc

Dimension	Description		Minimum Separation Distance (mm)		
			For Natural Draft Category	For Fanned Draft Category	
P	Point-to-point from an opening on a lateral wall	Rating (MJ/h)	Not above 150	500	300
			> 150 to 200	1,500	500
			> 200	1,500	1,500
---	Horizontally in the direction of discharge for fan-assisted models		---	---	1,500
Q	Horizontally from an opening on a wall behind the water heater	Rating (MJ/h)	Not above 150	500	300
			> 150	1,500	300
R	Vertically from an opening on a wall behind the water heater	Rating (MJ/h)	Not above 150	1,000	300
			> 150	1,500	300

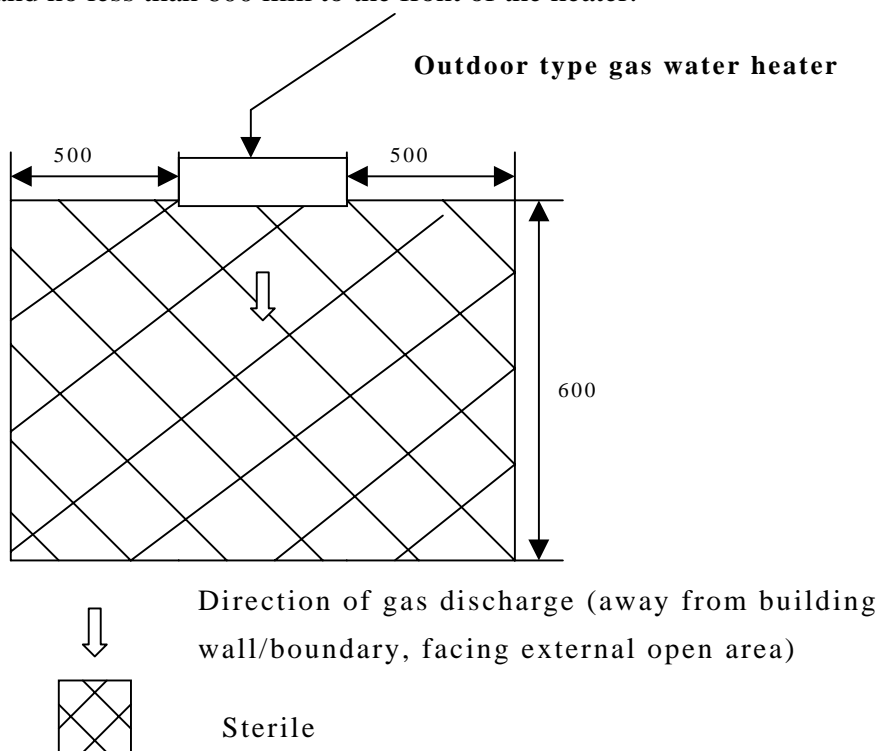
Conversion: 1 MJ/h = 0.28 kW

(b) Table 2 shows the separation distances from adjacent objects

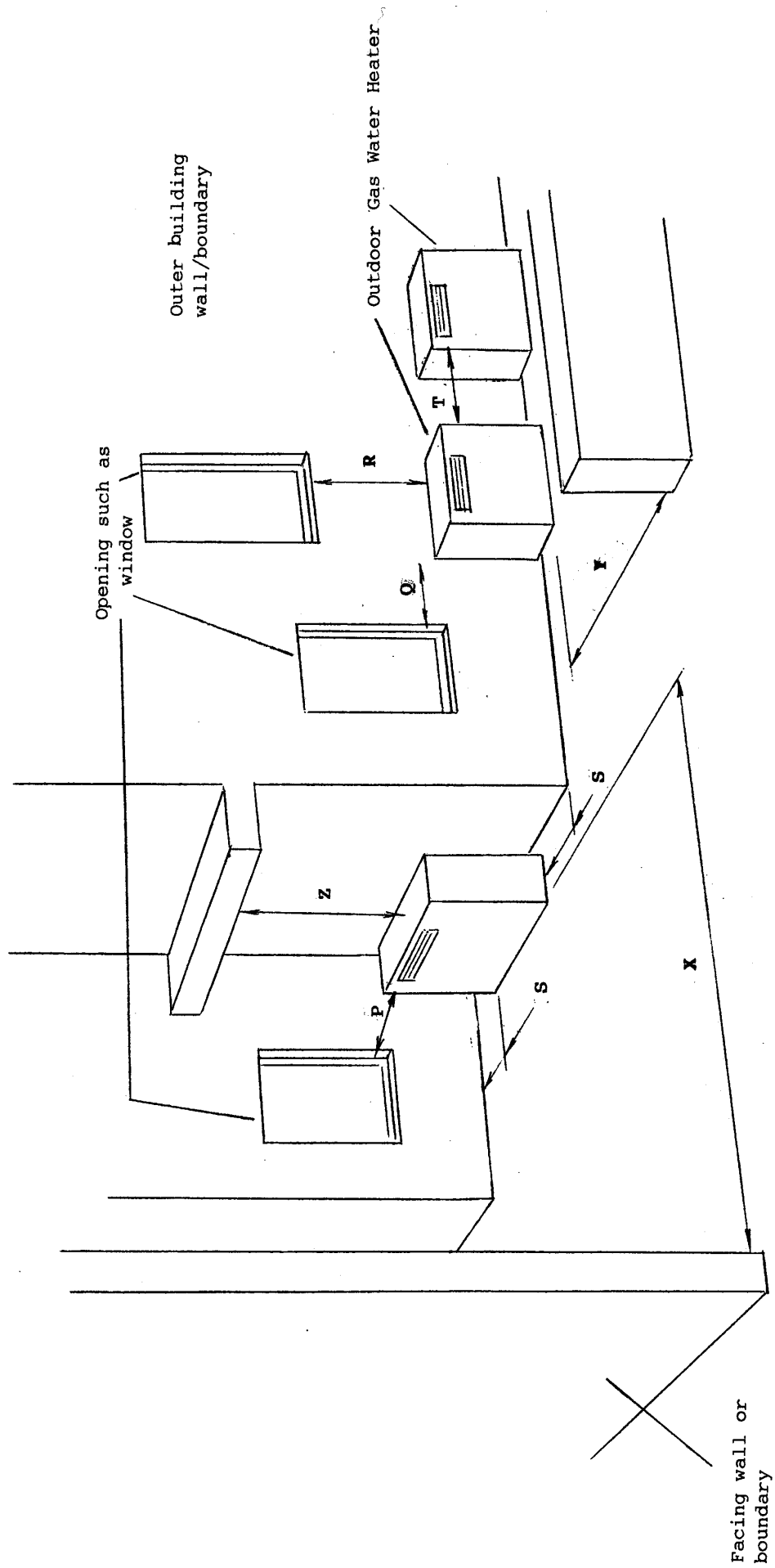
Dimension	Description	Minimum Separation Distance (mm)
S	From a return wall or external corner	500
T	From another heater or appliance (side)	500
X	From facing wall or boundary	1,500
Y	From facing obstruction	600
Z	Below eave or similar projection	500
---	From gas meter, electric meter or devices that may generate sparks	1,000 and not directly below
---	From ground level to flue terminal	500
---	From pipes	150
---	From combustibles	500

The front, top and sides of the heater shall be unobstructed at all times. Should it be installed under an eave or similar projection, the projected area under the eave or similar projection shall not cover the heater entirely. The flue terminal of the heater should not directly point to the inlet or outlet or ducting of other utilities or appliances, e.g. split type air conditioners.

(c) Figure 1 shows the plan view of a sterile zone of no less than 500 mm on each side of the heater and no less than 600 mm to the front of the heater:



(d) Figure 2 shows the minimum separation distances depicted in Tables 1 and 2.



(d) Figure 2 : Pictorial View showing Minimum Separation Distances

Appendix D

Warning Notice and Warning Message in Connection with Outdoor Gas Water Heaters

Sample warning notice to be affixed to an outdoor gas water heater not connected to a flue is given below:-

安全告示 / 指示 SAFETY NOTICE / MESSAGE **警 告**

1. 本熱水器是戶外式燃氣熱水器。祇准於屋宇以外的、露天的特定地方安裝。必須確保周圍空氣流通。阻礙通風，會有性命危險。
2. 在本熱水器所在處之左方、右方或頂方距離不少於 0.5 米內及前方不少於 0.6 米範圍內，不得有任何障礙物或建築物之部份存在。
3. 須由政府註冊氣體工程承辦商聘用之註冊氣體裝置技師進行安裝及作定期安全檢查及維修。每年至少一次。
4. 如有任何查詢/緊急事故，請致電

xxx 公司

電話 xxxx xxxx xxxx xxxx 傳真 xxxx xxxx

CAUTION

1. This is an OUTDOOR type gas water heater. It must ONLY be installed in a prescribed outdoor open space and must be well-ventilated. It is hazardous to life if ventilation is impaired.
2. There should not be any OBJECT or STRUCTURE on or near the heater.
Minimum Distance must always be KEPT as follows:
To Left-hand or Right-hand sides or ABOVE the heater: 0.5 m
In FRONT of the heater: 0.6 m
3. Installation and subsequent maintenance or safety inspection, which should be conducted at least once a year, must be carried out by Registered Gas Installer (RGI) employed by Registered Gas Contractor (RGC).
4. For enquiry/emergency services, please call

xxx Co.

Telephone xxxx xxxx xxxx xxxx Fax xxxx xxxx

Additionally, a warning notice/message in both Chinese and English shall be sent to the developer/occupier/owner/tenant/customer who purchases or takes over the ownership/use of the heater. It shall incorporate information including but not limited to the following:-

- (i) Statement indicating that the heater is of outdoor type, which must require permanent open ventilation at all times;
- (ii) Specified sterile zone complete with dimensions;
- (iii) Installation, regular maintenance and annual inspections to be undertaken by a Registered Gas Installer employed by a Registered Gas Contractor is a must; and contact/emergency telephone number of Registered Gas Contractor.

Appendix E

Record Management by Importer for Outdoor Gas Water Heaters

Full records, which may be inspected by the Gas Authority as and when required, shall be properly maintained by the supplier within the life time of the heater, including but not limited to the following:-

New Installation, Testing and Commissioning

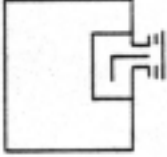
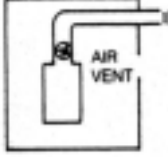
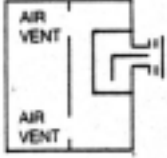
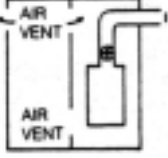
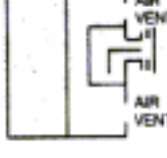
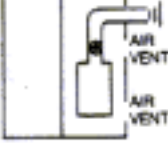
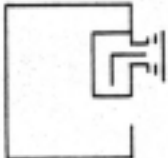
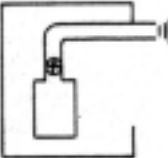
- (i) Location of heater;
- (ii) As-built drawings and photographs;
- (iii) Technical details of heater;
- (iv) Testing and commissioning reports.

Regular Inspections and Maintenance

- (i) Inspection reports including compliance checklists;
- (ii) Maintenance/incident records;
- (iii) Other documents as required by the Gas Authority.

Appendix F

**Air Supply Openings for Room-Sealed (Natural Draught) and
Open-Flued Fanned Draught Gas Water Heaters**

Type Location	Room-Sealed * (Natural Draught)	Open-Flued Fanned Draught
In room		
In compartment open to room		
In compartment open to outside		
In balcony		

* For room-sealed fanned draught gas water heaters, reference should be made to manufacturer's instructions.

AIR REQUIREMENTS –MECHANICAL VENTILATION FOR DOMESTIC GAS WATER HEATER

Type of Appliance burner	Low level mechanical air supply		High level exhaust			Position of openings in relation to each other
	Minimum air flow required L/s	Location of opening	Mechanical L/s	Natural (See Note 1)	Location of opening	
				Size of opening (min.) cm ²		
Atmospheric	Rated heat input (kW) x 1.8 (See Note 2)	The distance between the lower edge of the opening and the floor shall not be more than 5% of the total height of the enclosure, room or plant room	Between 1/4 and 1/3 of the rate of inlet air required	Rated heat input (kW) x 5.4 (See Note 2)	The distance between the top edge of the opening and the ceiling shall not be more than 5% of the total height of the enclosure, room or plant room	Opening to be located to provide a flow of air across the area
Fanned induced draught	Rated heat input (kW) x 1.08 (See Note 2)					

(Source : Adapted from AG601)

NOTES :

1. A natural air supply with a mechanical exhaust is not permitted.
2. Appliance input is to include the total of all appliances in the area including those using other fuels.