

第 29/2015 號行政長官公告

中華人民共和國於一九九九年十二月十三日以照會通知聯合國秘書長，經修訂的《1974年國際海上人命安全公約》自一九九九年十二月二十日起適用於澳門特別行政區；

國際海事組織海上安全委員會於二零零六年五月十八日透過第MSC.206(81)號決議通過了《國際消防安全系統規則》的修正案，該修正案自二零一零年七月一日起適用於澳門特別行政區；

基於此，行政長官根據澳門特別行政區第3/1999號法律第六條第一款的規定，命令公佈包含上指修正案的MSC.206(81)號決議的中文及英文文本。

二零一五年四月十四日發佈。

行政長官 崔世安

Aviso do Chefe do Executivo n.º 29/2015

Considerando que a República Popular da China, por nota datada de 13 de Dezembro de 1999, notificou o Secretário-Geral das Nações Unidas sobre a aplicação da Convenção Internacional para a Salvaguarda da Vida Humana no Mar de 1974, tal como emendada, na Região Administrativa Especial de Macau a partir de 20 de Dezembro de 1999;

Considerando igualmente que, em 18 de Maio de 2006, o Comité de Segurança Marítima da Organização Marítima Internacional, através da resolução MSC.206(81), adoptou emendas ao Código Internacional dos Sistemas de Segurança contra Incêndios, e que tais emendas são aplicáveis na Região Administrativa Especial de Macau desde 1 de Julho de 2010;

O Chefe do Executivo manda publicar, nos termos do n.º 1 do artigo 6.º da Lei n.º 3/1999 da Região Administrativa Especial de Macau, a resolução MSC.206(81), que contém as referidas emendas, nos seus textos em línguas chinesa e inglesa.

Promulgado em 14 de Abril de 2015.

O Chefe do Executivo, *Chui Sai On*.

第 MSC.206 (81) 號決議

(2006 年 5 月 18 日通過)

通過《國際消防安全系統規則》的修正案

海上安全委員會，

憶及《國際海事組織公約》關於本委員會職能的第 28 (b) 條，

注意到海安會第 MSC.98 (73) 號決議，憑藉這一決議，委員會通過了根據《1974 年國際海上人命安全公約》(以下簡稱“公約”)第 II-2 章具有強制性的《國際消防安全系統規則》(以下簡稱“消防系統規則”)，

還注意到關於《消防系統規則》修正程序的《公約》第 VIII (b) 條和第 II-2/3.22 條，

在其第八十一次會議上，審議了按照《公約》第 VIII (b) (i) 條提出並散發的《消防系統規則》修正案，

1. 按照《公約》第 VIII (b) (iv) 條，通過《消防系統規則》修正案，其正文列於本決議之附件；

2. 按照《公約》第 VIII (b) (vi) (2) (bb) 條，決定該修正案將於 2010 年 1 月 1 日視為已被接受，除非在此日期之前，有超過三分之一的《公約》締約政府或其合計商船總噸位不少於世界商船總噸位 50% 的締約政府通知反對該修正案；

3. 請締約政府注意，按照《公約》第 VIII (b) (vii) (2) 條，該修正案將在按照上述第 2 段被接受後於 2010 年 7 月 1 日生效；

4. 要求秘書長遵照《公約》第 VIII (b) (v) 條，將本決議和附件中所列修正案正文的核證無誤副本送發《公約》的所有締約政府；

5. 進一步要求秘書長將本決議及其附件的副本送發非《公約》締約政府的本組織會員。

附件

國際消防安全系統規則的修正案

第 5 章

固定式氣體滅火系統

原有第 5 章案文由下述案文取代：

“1 適用範圍

本章詳細規定了《公約》第 II-2 章要求的固定式氣體滅火系統的規範。

2 設計規範

2.1 總則

2.1.1 滅火劑

2.1.1.1 若要求滅火劑的量能保護一個以上處所，則供使用的滅火劑量不必超過所保護的任何一個處所所需要的最大量。該系統必須配備通常關閉的控制閥，且其佈置可以將滅火劑輸送至相應的處所。

2.1.1.2 在計算所需滅火劑的量時，被轉換為自由空氣量的啟動空氣接收器的量必須算入機器處所的總量中去。或者，可以從安全閥接一根排放管，直接引向露天。

2.1.1.3 必須為船員配備安全檢查滅火容器中滅火劑量的設備。

2.1.1.4 貯存滅火劑的容器、管路及其相關的受壓部件，必須考慮到其位置和使用中可能遇到的最高環境溫度按照主管機關滿意的實用壓力規則來設計。

2.1.2 安裝要求

2.1.2.1 滅火劑分流管的佈置以及噴嘴的位置必須能使滅火劑得以均勻分佈。必須使用主管機關接受的計算技術計算系統流量。

2.1.2.2 除非主管機關另行許可，用於貯存除蒸汽以外的滅火劑的壓力容器，必須按照《公約》第 II-2/10.4.3 條規定置於被保護處所的外面。

2.1.2.3 系統的備件必須存放在船上並令主管機關滿意。

2.1.2.4 對於閥門佈置接入封閉管路的管路部分，這些部分必須配備壓力釋放閥，且閥門外端必須通向露天甲板。

2.1.2.5 被保護處所中所有排放管、設備和噴嘴的構造材料的熔點溫度必須超過 925°C。管路及其相關設備必須有足夠的支撐。

2.1.2.6 必須在排放管中安裝能夠進行第 2.2.3.1 款要求的空氣試驗的設備。

2.1.3 系統控制要求

2.1.3.1 向被保護處所輸送滅火劑所需的管路必須裝有控制閥，且控制閥上必須清楚地標明管路所通往的處所。必須作出適當佈置防止由於疏忽而將滅火劑釋放入處所。如裝有氣體滅火系統的貨物處所被用作旅客處所時，在使用期間必須切斷氣體的連接。管路可穿過居住

處所，但管路必須有相當的厚度，且其氣密性在安裝後要進行壓力試驗，試驗壓頭不低於 5 N/mm^2 。此外，穿過居住處所的管路必須只用焊接，並且不得在此類處所內設置排水口或其他開口。管路不得穿過冷藏處所。

2.1.3.2 必須裝有自動音響和目視報警裝置，在任何滾裝處所和人員通常工作或出入的其他處所釋放滅火劑時能自動報警。音響報警裝置的位置必須能在所有機器工作的狀態下讓整個被保護處所內都可以聽得見，且通過調節聲音的壓力或聲音的格調使該報警裝置與其他聲音報警裝置區分開來。釋放前報警必須自動啟動（例如，通過打開釋放箱的門）。警報鳴響時間必須根據撤離該處所所需要的時間來確定，但無論如何在滅火劑釋放前不得少於 20 秒。在僅設有就地釋放控制的傳統貨物處所和小處所（諸如壓縮機房、油漆間等）則無需安裝此種報警器。

2.1.3.3 任何固定式氣體滅火系統的控制裝置必須便於取放、操作簡單，並必須成組地安放在儘可能少的不會被受保護處所火災所切斷的位置。為了人員的安全，在每一位置都必須備有關於系統操作的清楚說明。

2.1.3.4 除非主管機關允許，不得使用滅火劑自動釋放裝置。

2.2 二氧化碳系統

2.2.1 滅火劑的量

2.2.1.1 除非另有規定，貨物處所可用的二氧化碳量必須足以放出體積至少等於該船被保護的最大貨物處所總容積的 30% 的自由氣體。

2.2.1.2 機器處所所攜帶的二氧化碳量必須足以放出體積至少等於下列兩者中較大者的自由氣體：

- .1 被保護的最大機器處所總容積的 40%，該容積不包括機艙棚上部，該部分從艙棚的一個水平面起算，在該水平面的艙棚面積等於或小於從艙頂到艙棚最低部分的中點處的有關處所水平截面積的 40%；或
- .2 包括艙棚在內的被保護的最大機器處所總容積的 35%。

2.2.1.3 對於 2000 總噸以下的貨船，若有兩個或兩個以上的機器處所未完全隔開而被視為一個處所，則上述第 2.2.1.2 款所述的兩個百分比數可以分別減至 35%和 30%。

2.2.1.4 就本款而言，自由二氧化碳的容積必須以 $0.56 \text{ m}^3/\text{kg}$ 計算。

2.2.1.5 機器處所的固定管路系統必須能使 85%的氣體可在 2 分鐘內注入該處所。

2.2.2 控制裝置

二氧化碳系統必須符合下列要求：

- .1 必須設置兩套獨立的控制裝置，以將二氧化碳釋放至被保護處所，並確保報警裝置的啟動。一套控制裝置用於開啟將氣體輸送至被保護處所的管路的閥門，另一套控制裝置必須用於將氣體從貯存容器中排出。必須採取積極的措施以確保其可按照此順序操作；及
- .2 兩套控制裝置必須位於一個標明具體控制處所的釋放箱

內。如果放置控制裝置的箱子上加鎖，則一把鑰匙必須放在控制箱附近明顯位置的設有可擊碎玻璃罩的盒子裏。

2.2.3 安裝試驗

在對系統進行安裝、壓力試驗和檢測後，則必須進行下述試驗：

- .1 所有管路和噴嘴內自由氣流的試驗；和
- .2 報警設備的功能試驗。

2.2.4 低壓二氧化碳系統

若為符合本條規定安裝了一低壓二氧化碳系統，則適用下列要求：

2.2.4.1 系統控制裝置和冷藏設備必須位於存放壓力瓶的同一處所內。

2.2.4.2 必須在 1.8 至 2.2 N/mm² 的工作壓力下把額定量的液體二氧化碳貯存在瓶內。必須限定容器內通常的液體填料，以提供足夠的蒸汽空間，容納液體在最高貯存溫度下的並非壓力釋放閥設定所達到的膨脹，但不得超過容器容積的 95%。

2.2.4.3 必須為以下各項做好準備：

- .1 壓力測量；
- .2 高壓報警：不超過釋放閥設定；
- .3 低壓報警：不低於 1.8 N/mm²；
- .4 對氣瓶進行填充用的帶有止回閥的支線管路；
- .5 排放管；

.6 安放在氣瓶上的液體二氧化碳量顯示器；

.7 兩個安全閥。

2.2.4.4 兩個安全釋放閥的佈置必須使其中一個閥門與氣瓶連接時另外一個即可關閉。釋放閥的設定不得小於工作壓力的 1.1 倍。每個閥門必須能在壓力升高不超過設定壓力 20% 的條件下釋放在滅火狀態下產生的氣體。必須從安全閥門直接排放至外面。

2.2.4.5 氣瓶和永久性裝有二氧化碳的通外管路必須有絕緣裝置，以在切斷設備能源後，在 45°C 的環境溫度且初始壓力等同於冷藏裝置啟動壓力的情況下防止安全閥在 24 小時內工作。

2.2.4.6 氣瓶必須配備兩套完全獨立的自動專用冷藏裝置，每套冷藏裝置均配有一壓縮機和相關的主馬達，蒸汽機和冷凝儀。

2.2.4.7 每套冷藏裝置的冷藏能力和自動控制器必須保證在海上溫度高達 32°C 和周圍氣溫高達 45°C 時在連續 24 小時工作的狀態下維持所需要的溫度。

2.2.4.8 每一套電氣冷藏裝置必須由主電源匯流排通過單獨的饋電線供電。

2.2.4.9 如必要，供給冷藏機的冷卻水必須至少由兩個循環泵提供，其中一個循環泵作為備用。備用泵可以用於其他用途，但是備用泵的冷卻用途不得干擾船舶的任何其他基本功能。冷卻水必須至少取自兩處海水接口處，最好一處在左舷和一處在右舷。

2.2.4.10 必須在截門閥隔離的每一處管路部分且壓力累積可能超

過任何部件設計壓力的地方，安裝安全釋放裝置。

2.2.4.11 在下述條件下，必須由中央控制站發出音響和目視報警；或若沒有配備中央控制站時，按照《公約》第 II-1/51 條發出警報：

- .1 根據第 2.2.4.2 款，氣瓶中壓力達到低限值和上限值時；
- .2 任何一個冷藏裝置不能工作時；
- .3 達到氣瓶中最低允許液位時。

2.2.4.12 如果系統要為一個以上的處所服務，則必須設置二氧化碳排放量控制裝置，例如在控制位置上的自動計時器或精確的液位顯示器。

2.2.4.13 如果配備了二氧化碳額定量排入被保護處所的自動控制裝置，則它也必須可以進行人工調節。

2.3 蒸汽系統的要求

供給蒸汽的一個或數個鍋爐每小時必須能對最大一個被保護處所的總容積每 0.75 m³ 至少供給 1 kg 的蒸汽。除了要符合上述要求外，該系統在所有方面必須由主管機關確定並令主管機關滿意。

2.4 使用燃料燃燒後的氣態產物的系統

2.4.1 總則

如在船上生產除二氧化碳或第 2.3 款所允許蒸汽以外的氣體，並用作滅火劑，則該系統必須符合 2.4.2 款的要求。

2.4.2 系統的要求

2.4.2.1 氣態產物

氣體必須是燃料燃燒後的氣態產物，其氧氣含量、一氧化碳含量、腐蝕成分以及任何固體可燃成分的含量均必須降至允許的最小量。

2.4.2.2 滅火系統的能力

2.4.2.2.1 如在固定式滅火系統中使用此種氣體作為保護機器處所的滅火劑，必須為它提供等效於使用二氧化碳作為滅火劑的固定式系統的保護。

2.4.2.2.2 如在固定式滅火系統中使用此種氣體作為保護貨物處所的滅火劑，必須有足夠數量的此種氣體，使每小時能供給自由氣體的體積至少等於最大一個被保護處所總容積的 25%，並能持續供氣 72 小時。

2.5 機器處所和貨泵艙的等效固定式氣體滅火系統

等效於第 2.2 至 2.4 款中規定的固定式氣體滅火系統，必須由主管機關根據本組織制訂的指南予以認可。”

RESOLUTION MSC.206(81)
(adopted on 18 May 2006)

**ADOPTION OF AMENDMENTS TO THE INTERNATIONAL
CODE FOR FIRE SAFETY SYSTEMS**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.98(73) by which it adopted the International Code for Fire Safety Systems (hereinafter referred to as “the FSS Code”), which has become mandatory under chapter II-2 of the International Convention for the Safety of Life at Sea, 1974 (hereinafter referred to as “the Convention”),

NOTING ALSO article VIII(b) and regulation II-2/3.22 of the Convention concerning the procedure for amending the FSS Code,

HAVING CONSIDERED, at its eighty-first session, amendments to the FSS Code, proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1. ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the FSS Code, the text of which is set out in the Annex to the present resolution;
2. DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the amendments shall be deemed to have been accepted on 1 January 2010, unless, prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world’s merchant fleet, have notified their objections to the amendments;
3. INVITES Contracting Governments to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 July 2010 upon their acceptance in accordance with paragraph 2 above;
4. REQUESTS the Secretary-General, in conformity with article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the Annex to all Contracting Governments to the Convention;
5. FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its Annex to Members of the Organization, which are not Contracting Governments to the Convention.

ANNEX

**AMENDMENTS TO THE INTERNATIONAL CODE FOR
FIRE SAFETY SYSTEMS****CHAPTER 5
FIXED GAS FIRE-EXTINGUISHING SYSTEMS**

The existing text of chapter 5 is replaced by the following:

“1 Application

This chapter details the specifications for fixed gas fire-extinguishing systems as required by chapter II-2 of the Convention.

2 Engineering specifications**2.1 General****2.1.1 Fire-extinguishing medium**

2.1.1.1 Where the quantity of the fire-extinguishing medium is required to protect more than one space, the quantity of medium available need not be more than the largest quantity required for any one space so protected. The system shall be fitted with normally closed control valves arranged to direct the agent into the appropriate space.

2.1.1.2 The volume of starting air receivers, converted to free air volume, shall be added to the gross volume of the machinery space when calculating the necessary quantity of the fire-extinguishing medium. Alternatively, a discharge pipe from the safety valves may be fitted and led directly to the open air.

2.1.1.3 Means shall be provided for the crew to safely check the quantity of the fire-extinguishing medium in the containers.

2.1.1.4 Containers for the storage of fire-extinguishing medium, piping and associated pressure components shall be designed to pressure codes of practice to the satisfaction of the Administration having regard to their locations and maximum ambient temperatures expected in service.

2.1.2 Installation requirements

2.1.2.1 The piping for the distribution of fire-extinguishing medium shall be arranged and discharge nozzles so positioned that a uniform distribution of the medium is obtained. System flow calculations shall be performed using a calculation technique acceptable to the Administration.

2.1.2.2 Except as otherwise permitted by the Administration, pressure containers required for the storage of fire-extinguishing medium, other than steam, shall be located outside the protected spaces in accordance with regulation II-2/10.4.3 of the Convention.

2.1.2.3 Spare parts for the system shall be stored on board and be to the satisfaction of the Administration.

2.1.2.4 In piping sections where valve arrangements introduce sections of closed piping, such sections shall be fitted with a pressure relief valve and the outlet of the valve shall be led to open deck.

2.1.2.5 All discharge piping, fittings and nozzles in the protected spaces shall be constructed of materials having a melting temperature which exceeds 925°C. The piping and associated equipment shall be adequately supported.

2.1.2.6 A fitting shall be installed in the discharge piping to permit the air testing as required by paragraph 2.2.3.1.

2.1.3 System control requirements

2.1.3.1 The necessary pipes for conveying fire-extinguishing medium into the protected spaces shall be provided with control valves so marked as to indicate clearly the spaces to which the pipes are led. Suitable provisions shall be made to prevent inadvertent release of the medium into the space. Where a cargo space fitted with a gas fire-extinguishing system is used as a passenger space, the gas connection shall be blanked during such use. The pipes may pass through accommodations providing that they are of substantial thickness and that their tightness is verified with a pressure test, after their installation, at a pressure head not less than 5 N/mm². In addition, pipes passing through accommodation areas shall be joined only by welding and shall not be fitted with drains or other openings within such spaces. The pipes shall not pass through refrigerated spaces.

2.1.3.2 Means shall be provided for automatically giving audible and visual warning of the release of fire-extinguishing medium into any ro-ro spaces and other spaces in which personnel normally work or to which they have access. The audible alarms shall be located so as to be audible throughout the protected space with all machinery operating, and the alarms should be distinguished from other audible alarms by adjustment of sound pressure or sound patterns. The pre-discharge alarm shall be automatically activated (e.g., by opening of the release cabinet door). The alarm shall operate for the length of time needed to evacuate the space, but in no case less than 20 s before the medium is released. Conventional cargo spaces and small spaces (such as compressor rooms, paint lockers, etc.) with only a local release need not be provided with such an alarm.

2.1.3.3 The means of control of any fixed gas fire-extinguishing system shall be readily accessible, simple to operate and shall be grouped together in as few locations as possible at positions not likely to be cut off by a fire in a protected space. At each location there shall be clear instructions relating to the operation of the system having regard to the safety of personnel.

2.1.3.4 Automatic release of fire-extinguishing medium shall not be permitted, except as permitted by the Administration.

2.2 *Carbon dioxide systems*

2.2.1 Quantity of fire-extinguishing medium

2.2.1.1 For cargo spaces, the quantity of carbon dioxide available shall, unless otherwise provided, be sufficient to give a minimum volume of free gas equal to 30% of the gross volume of the largest cargo space to be protected in the ship.

2.2.1.2 For machinery spaces, the quantity of carbon dioxide carried shall be sufficient to give a minimum volume of free gas equal to the larger of the following volumes, either:

- .1 40% of the gross volume of the largest machinery space so protected, the volume to exclude that part of the casing above the level at which the horizontal area of the casing is 40% or less of the horizontal area of the space concerned taken midway between the tank top and the lowest part of the casing; or
- .2 35% of the gross volume of the largest machinery space protected, including the casing.

2.2.1.3 The percentages specified in paragraph 2.2.1.2 above may be reduced to 35% and 30%, respectively, for cargo ships of less than 2,000 gross tonnage where two or more machinery spaces, which are not entirely separate, are considered as forming one space.

2.2.1.4 For the purpose of this paragraph the volume of free carbon dioxide shall be calculated at 0.56 m³/kg.

2.2.1.5 For machinery spaces, the fixed piping system shall be such that 85% of the gas can be discharged into the space within 2 min.

2.2.2 Controls

Carbon dioxide systems shall comply with the following requirements:

- .1 two separate controls shall be provided for releasing carbon dioxide into a protected space and to ensure the activation of the alarm. One control shall be used for opening the valve of the piping which conveys the gas into the protected space and a second control shall be used to discharge the gas from its storage containers. Positive means shall be provided so they can only be operated in that order; and
- .2 the two controls shall be located inside a release box clearly identified for the particular space. If the box containing the controls is to be locked, a key to the box shall be in a break-glass-type enclosure conspicuously located adjacent to the box.

2.2.3 Testing of the installation

When the system has been installed, pressure-tested and inspected, the following shall be carried out:

- .1 a test of the free air flow in all pipes and nozzles; and
- .2 a functional test of the alarm equipment.

2.2.4 Low-pressure CO₂ systems

Where a low pressure CO₂ system is fitted to comply with this regulation, the following applies.

2.2.4.1 The system control devices and the refrigerating plants shall be located within the same room where the pressure vessels are stored.

2.2.4.2 The rated amount of liquid carbon dioxide shall be stored in vessel(s) under the working pressure in the range of 1.8 N/mm² to 2.2 N/mm². The normal liquid charge in the container shall be limited to provide sufficient vapour space to allow for expansion of the liquid under the maximum storage temperatures than can be obtained corresponding to the setting of the pressure relief valves but shall not exceed 95% of the volumetric capacity of the container.

2.2.4.3 Provision shall be made for:

- .1 pressure gauge;
- .2 high pressure alarm: not more than setting of the relief valve;
- .3 low pressure alarm: not less than 1.8 N/mm²;
- .4 branch pipes with stop valves for filling the vessel;
- .5 discharge pipes;
- .6 liquid CO₂ level indicator, fitted on the vessel(s); and
- .7 two safety valves.

2.2.4.4 The two safety relief valves shall be arranged so that either valve can be shut off while the other is connected to the vessel. The setting of the relief valves shall not be less than 1.1 times the working pressure. The capacity of each valve shall be such that the vapours generated under fire condition can be discharged with a pressure rise not more than 20% above the setting pressure. The discharge from the safety valves shall be led to the open.

2.2.4.5 The vessel(s) and outgoing pipes permanently filled with carbon dioxide shall have thermal insulation preventing the operation of the safety valve in 24 h after de-energizing the plant, at ambient temperature of 45°C and an initial pressure equal to the starting pressure of the refrigeration unit.

2.2.4.6 The vessel(s) shall be serviced by two automated completely independent refrigerating units solely intended for this purpose, each comprising a compressor and the relevant prime mover, evaporator and condenser.

2.2.4.7 The refrigerating capacity and the automatic control of each unit shall be so as to maintain the required temperature under conditions of continuous operation during 24 h at sea temperatures up to 32°C and ambient air temperatures up to 45°C.

2.2.4.8 Each electric refrigerating unit shall be supplied from the main switchboard busbars by a separate feeder.

2.2.4.9 Cooling water supply to the refrigerating plant (where required) shall be provided from at least two circulating pumps one of which being used as a stand-by. The stand-by pump may be a pump used for other services so long as its use for cooling would not interfere with any other essential service of the ship. Cooling water shall be taken from not less than two sea connections, preferably one port and one starboard.

2.2.4.10 Safety relief devices shall be provided in each section of pipe that may be isolated by block valves and in which there could be a build-up of pressure in excess of the design pressure of any of the components.

2.2.4.11 Audible and visual alarms shall be given in a central control station or, in accordance with regulation II-1/51 of the Convention, where a central control station is not provided, when:

- .1 the pressure in the vessel(s) reaches the low and high values according to paragraph 2.2.4.2;
- .2 any one of the refrigerating units fails to operate; or
- .3 the lowest permissible level of the liquid in the vessels is reached.

2.2.4.12 If the system serves more than one space, means for control of discharge quantities of CO₂ shall be provided, e.g., automatic timer or accurate level indicators located at the control position(s).

2.2.4.13 If a device is provided which automatically regulates the discharge of the rated quantity of carbon dioxide into the protected spaces, it shall be also possible to regulate the discharge manually.

2.3 *Requirements of steam systems*

The boiler or boilers available for supplying steam shall have an evaporation of at least 1 kg of steam per hour for each 0.75 m³ of the gross volume of the largest space so protected. In addition to complying with the foregoing requirements, the systems in all respects shall be as determined by, and to the satisfaction of, the Administration.

2.4 *Systems using gaseous products of fuel combustion*

2.4.1 General

Where gas other than carbon dioxide or steam, as permitted by paragraph 2.3, is produced on the ship and is used as a fire-extinguishing medium, the system shall comply with the requirements in paragraph 2.4.2.

2.4.2 Requirements of the systems

2.4.2.1 Gaseous products

Gas shall be a gaseous product of fuel combustion in which the oxygen content, the carbon monoxide content, the corrosive elements and any solid combustible elements in a gaseous product shall have been reduced to a permissible minimum.

2.4.2.2 Capacity of fire-extinguishing systems

2.4.2.2.1 Where such gas is used as the fire-extinguishing medium in a fixed fire-extinguishing system for the protection of machinery spaces, it shall afford protection equivalent to that provided by a fixed system using carbon dioxide as the medium.

2.4.2.2.2 Where such gas is used as the fire-extinguishing medium in a fixed fire-extinguishing system for the protection of cargo spaces, a sufficient quantity of such gas shall be available to supply hourly a volume of free gas at least equal to 25% of the gross volume of the largest space protected in this way for a period of 72 h.

2.5 *Equivalent fixed gas fire-extinguishing systems for machinery spaces and cargo pump-rooms*

Fixed gas fire-extinguishing systems equivalent to those specified in paragraphs 2.2 to 2.4 shall be approved by the Administration based on the guidelines developed by the Organization.”

二零一五年四月十六日於行政長官辦公室

Gabinete do Chefe do Executivo, aos 16 de Abril de 2015. —

辦公室主任 柯嵐 O Chefe do Gabinete, O Lam.