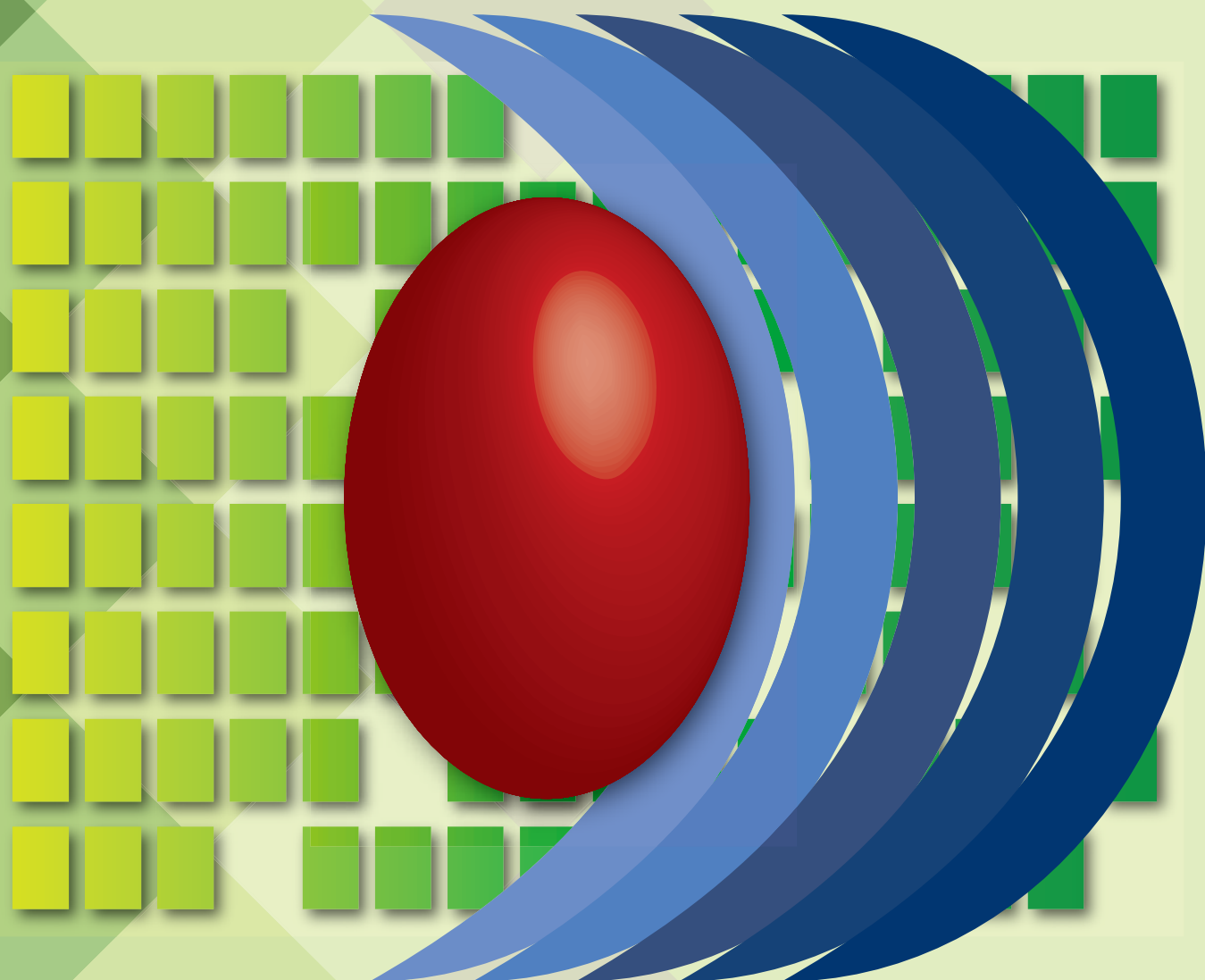


日本の消防用機械器具の 検定制度

和英
両文

Inspection System for
Fire Protection Machinery and Tools in Japan



海外消防情報センター

INTERNATIONAL FIRE SERVICE INFORMATION CENTER

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はじめに

消火器、感知器、受信機、閉鎖型スプリンクラーヘッド、動力消防ポンプ、消防用ホースなどの消防用機械器具は、これらの機能が火災の予防・警戒、消火、人命の救助に直接関わるものであるだけに、高いレベルの性能と品質の保持が求められます。

このため、我が国の消防法においては、重要な消防用機械器具の技術上の規格を定め、その規格に適合しているか否かの検査を行い、これに合格した製品のみを販売し、使用できる検定制度が定められています。この検定制度のもと、我が国で製造・使用されている消防用機械器具は、その性能と品質について高い評価を得ているところです。

近年、消防用機械器具の分野においても国際的取引が拡大し、我が国の製品が海外各国で販売され、使用される例も増えてまいりました。

本書は、我が国の消防用機械器具の国際的普及に向けて、その高性能・高品質を支える我が国の検定制度の概要を解説したものです。

本書が、我が国及び海外各国の関係機関の皆様、また海外に市場を拡大しようとする企業の皆様のお役に立つことを願ってやみません。

なお、本書の作成に当たっては、総務省消防庁の担当者及び日本消防検定協会顧問 力久修様のご協力を得ることができました。ここに、感謝の意を表します。

2014年3月

海外消防情報センター長
西村 清 司

Introduction

Fire protection machinery and tools, including fire extinguishers, detectors, control panels, automatic closed sprinkler heads, power driven fire pumps, as well as fire hoses, function and directly affect protection from and the prevention of fires, and related fire fighting and life-saving procedures. To this end, they are required to maintain a high level performance and quality.

In this context, the Fire Services Law in Japan stipulates technical standards regarding important fire protection machinery and tools, and inspection systems to evaluate whether they meet the standards, and only those which that passed such inspection may be sold and used. Under this inspection system, the fire protection machinery and tools manufactured and used in Japan acquire a high reputation for performance and quality.

In recent years, the international trade in the field of the fire protection machinery and tools has been expanded as well as in other fields, and the products made by Japanese companies have been increasingly sold and used in overseas countries.

This booklet, with a view to promoting the expansion of Japanese products in the field internationally, introduces the outlines of our inspection system which plays a vital role to achieve their high performance and quality .

We hope that this booklet will be of help to fire-fighting professionals in related institutions within and outside Japan, as well as Japanese companies trying to expand into overseas markets in the field.

In addition, we would like to express our deep appreciation for the help of the Fire and Disaster Management Agency staff person in charge, Mr. Shuichi Rikihisa, Advisor to the Japan Fire Equipment Inspection Institute, for the preparation of thisbooklet.

March 2014

Kiyoshi Nishimura
Director of International Fire Service
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日本の消防用機械器具の検定制度

日本の消防法は、「火災を予防し、警戒し及び鎮圧し、国民の生命、身体及び財産を火災から保護すること」を目的としており、このため、防火対象物（例えば、学校、病院、工場、事業場、興行場、百貨店その他多数の者が出入し、勤務し、又は居住する建築物などを言う。）に消防の用に供する設備等（以下「消防用設備等」という。）を設置し、維持することを義務付けている。

これらの消防用設備等に用いられる機械器具若しくは設備、消火薬剤又はその他の防火薬品（以下「消防の用に供する機械器具等」という。）は、その目的の重要性から一定の形状、構造、材質、成分及び性能（以下「形状等」という。）を有する必要がある。このため、販売前にかじめ形状等についての品質を検査する必要があるものを法令で定め、これらの消防の用に供する機械器具等を販売等に使用する場合は、品質の検査に合格し、その旨の表示が付されたものでなければならないという検定制度が設けられている。

当初、検定制度は、製造者等の要求に基づき任意の制度として実施することとされており、消防研究所（現消防研究センター）において1948年11月から消火器の検定が開始され、その後、検定の対象品が増加していった。しかし、任意の検定制度では粗悪品が出回ることを抑制することができないため、強制の検定制度とし、1964年1月から日本消防検定協会において実施することとされた。

その後、海外からの強い市場開放の要望が寄せられ、1985年12月に消防法が改正され、一部の品目について自己認証制度を導入し、製造業者等の自己責任において規格適合について自らが判定し、その旨の表示を付して販売等を行うことができることとされた。

現在では、検定する品目の見直しを始めとし、検定制度を改正することで時代の動きに対処している。

以下、この検定制度の概要について説明する。

Inspection System for Fire Protection Machinery and Tools in Japan

Japan's Fire Services Law aims to "prevent, guard against, and suppress fires in order to protect the lives, bodies and property of citizens from fires "and places an obligation to install and maintain the fire fighting equipment, etc. (hereinafter referred to as the "fire protection equipment.") at fire protection properties (referring to, for example, a school, hospital, industrial factory, workplace, entertainment facility, department store, or any other property under fire prevention measures to which a number of people have access or in which a number of people work or reside).

With respect to its importance, the apparatus or equipment, chemicals or any other fireproofing agent (hereinafter referred to as a "fire equipment, etc."), needs to have a certain shape, structure, materials, ingredients and performance (hereinafter referred to as a "shape, etc."). In this context, some laws and regulations stipulate those items that are required to undergo a quality test before their sale in terms of whether or not they have such form, etc. And when such fire equipment, etc. is used for sale, etc., it is also stipulated that any system of such fire equipment, etc., when in use, must pass the quality test to be labeled as such.

The inspection system should initially start as a voluntary measure based upon a request from the manufacturers, etc., under fire-extinguisher inspections started from November 1948 at the Fire Research Institute (presently, National Research Institute of Fire and Disaster) with an increase in items covered by the inspection. However, due to concerns over the failure to control for possible inferior products put on the market under the voluntary inspection system, it was replaced with a mandatory inspection system starting in January 1964, which is conducted by the Japan Fire Equipment Inspection Institute.

Later, in the wake of a strong request from overseas to open the market, the Fire Services Law was revised in December 1985, under which a self-recognition system was introduced for some items. The introduction of this system allowed manufacturers, etc., to evaluate if the products meet the standards, and to sell them labeled as such.

At present, items subject to inspection have been reviewed in order to deal with the inspection system and meet the times.

The following section gives an outline of the inspection system.

I 法制度の概要

I. Outline of the Legal System

I 法制度の概要

1 消防法令と予防行政

(1) ハード面からの予防

ア 防災物品等の使用義務（消防法第8条の3）

高層建築物（高さ31メートルを超える建築物をいう。）や不特定多数の人が出入りする防火対象物（映画スタジオ等を含む。）において使用されるどん帳、カーテン、布製のブラインド、暗幕、じゅうたん等、展示用合板や舞台部で使用する幕、合板等並びに工事用シートについては、一定の防災性能を有するものを使用することとされている。また、これらの防災物品又はその材料としては、一定の防災性能を有する旨の表示を付したものでなければ、防災物品としての販売、販売のための陳列をしてはならないこととされている。

イ 消防用設備等の設置・維持の義務（消防法第17条）

防火対象物とされている建物には、その用途、規模等に応じて、指定された消火設備、警報設備、避難設備、消防用水、消防活動に必要な施設のそれぞれについて定められた技術基準に従って、設置し及び維持しなければならないこととされている。

ウ 住宅火災に対応する住宅用防災機器の設置・維持義務（消防法第9条の2）

住宅については、以前は前イに係る消防用設備等の設置・維持の義務が課せられていなかった。しかしながら、火災の発生件数の約半数（2011年度で53.8%）が建物火災であり、建物火災による死者数の90%が住宅の火災によって発生している状況から、2004年に消防法が改正され、住宅に住宅用防災機器の設置・維持を義務づけられ、住宅用防災機器のうち住宅用防災警報器の普及により、住宅火災での死者数の軽減を図ることとされた。また、この住宅用防災警報器については、2013年の消防法施行令の改正により、検定対象機械器具等に含まれることとされた。

I. Outline of the Legal System

1. Fire Services Law, Regulations, and Fire Prevention Administration Fire Services Law

(1) Prevention based on the Physical Aspects

A. Obligation to Use Flame Retardant Goods (Article 8-3 of the Fire Services Law)

Stage curtains and other curtains, cloth blinds, black-out curtains, carpets, etc., in a high-rise building (meaning a building with a height of 31 meters or more) and fire prevention properties entered and exited by the general public (including theaters, etc.), plywood for display, curtains and plywood, etc., used for stage sets, as well as construction sheeting, shall have a certain flame retardant performance. In addition, these flame retardant goods or their materials must be labeled as having a certain flame retardant performance to be sold and displayed as flame retardant goods.

B. Obligation regarding the installation and/or maintenance of fire protection equipment (Article 17 of Fire Services Law)

Extinguishment systems, alarm systems and escape equipment, fire department water sources, and other equipment needed for fire fighting shall be installed and maintained in buildings specified as fire prevention properties in accordance with the use, size, etc., specified under each technical standard.

C. Obligation to install and maintain equipment and home disaster prevention equipment (Article 9-2 of Fire Services Law)

As for home, it was not required to install or maintain fire protection equipment, etc., specified under Paragraph B. However, structure fires account for about half of the cases of fire (53.8% in FY2011), and 90% of deaths were caused by structure fires. In 2004, the Fire Services Law was revised to place an obligation to install and maintain the equipment and home disaster prevention equipment in order to reduce the number of deaths from residential fires through the expansion of the use of home disaster prevention alarms. These home disaster prevention alarms shall be deemed to be included in the machine or tool, etc. subject to inspection due to the revision of the order for enforcement of the Fire Services Law of 2013.

エ 消防の用に供する機械器具等の検定
(消防法第21条の2及び法第21条の16の2)

消防の用に供する機械器具等については、一定の形状等を有していないときは火災の予防若しくは、警報、消火等のために重大な支障を生ずるおそれのあるものであり、その形状等について、あらかじめ日本消防検定協会又は登録検定機関で検査を受ける必要があるもの(以下「検定対象機械器具等」という。)とし、検定対象機械器具等以外で、重大な支障があるおそれがあるものとして、製造業者が検査を行うもの(以下「自主表示対象機械器具等」という。)を含め、以下の18品目について総務大臣が技術上の規格を定めている。

●検定対象機械器具等

- ・ 消火器
- ・ 消火器用消火薬剤
- ・ 泡消火薬剤
- ・ 感知器又は発信機
- ・ 中継器
- ・ 受信機
- ・ 住宅用防災警報器
- ・ 閉鎖型スプリンクラーヘッド
- ・ 流水検知装置
- ・ 一斉開放弁
- ・ 金属製避難はしご
- ・ 緩降機

●自主表示対象機械器具等

- ・ 動力消防ポンプ
- ・ 消防用ホース
- ・ 消防用吸管
- ・ 差込式又はねじ式の結合金具
- ・ エアゾール式簡易消火具
- ・ 漏電火災警報器

D. Inspection, etc., of fire equipment, etc.
(Article 21-2 and 21-16-2 of the Fire Services Law)

With regard to fire equipment, etc. which is likely to seriously hinder any act of preventing or guarding against fire, fire extinguishing activities, etc., if it does not have a certain shape, etc. and is found, in light of the status of the use thereof, to be required to undergo an inspection before its use in terms of whether or not it has such a shape, etc., by the Japan Fire Equipment Inspection Institute or any other inspection institute (hereinafter referred to as items of "machine or tool, etc. subject to inspection"). The Minister of Internal Affairs and Communications has specified that the following 18 items, other than the machine or tool, etc. subject to inspection, shall be inspected by the manufacturer (hereinafter referred to as the "machine or tool, etc. subject to self-labelling") due to the possibility that they may seriously hinder fire prevention or fire extinguishing activities.

●Machine or tool, etc. subject to inspection

- ・ Fire extinguishers
- ・ Fire extinguishing agents for extinguishers
- ・ Foam concentrates
- ・ Detectors or manual call points
- ・ Input/output devices
- ・ Control panels
- ・ Home disaster prevention alarm
- ・ Automatic closed sprinkler heads
- ・ Water flow detecting devices
- ・ Deluge valves
- ・ Metallic escape ladders
- ・ Descending lifelines

●Machine or tool, etc. subject to self-labelling

- ・ Power driven fire pumps
- ・ Fire hoses
- ・ Fire suction hoses
- ・ Insertion or screw type couplings
- ・ Aerosol type disposable fire extinguishers
- ・ Electric leak fire alarm devices

検定対象機械器具等については、これらの規格に適合するかどうかを、あらかじめ日本消防検定協会又は登録検定機関が試験を実施し、適合するものには、総務大臣が型式を承認し、これを公示する。また、製造される個々の製品が承認された型式に適合しているかどうかを日本消防検定協会又は登録機関が検査をし、合格した製品に合格の表示を付して、販売のための出荷が行うことができるようになる。

これは、不良品が流出した場合に、火災時に正常に機能しないことにより被害が拡大すること及び不良品の回収、交換等に時間、費用等要し、この間における安全が確保できないことが考えられ、火災予防の目的が達成できず、直接国民の身体・生命及び財産に影響を与えるためである。

また、購入者が製品の良・不良を判断することが困難であるため、平常時に使用する一般の製品と異なり、事前に苦情や買い換え等を行うことができず、市場原理により粗悪品が淘汰されにくいという事情がある。

そのため、製造者が行う品質管理や社内試験に加え、市場に製品が出る前に、日本消防検定協会又は登録検定機関により検定を行い、品質を確保している。

一方、自主表示対象機械器具等については、これらの規格に適合するかどうかを製造者又は輸入業者が確認し、適合する場合に総務大臣に届け出を行うこととされている。製造された個々の製品については、製造者又は輸入業者が自ら検査し、合格したものに指定された表示を行い、出荷を行うことができるようになる。この場合、検査された結果については、一定の期間記録・保存することが義務付けられている。

よって、防火対象物における設置・維持が必要とされる消防用設備等又はその部分である機械器具等については、検定対象機械器具等にあつては、消防法第21条の2の規定により検定に合格した旨の表示がされたものが設置され、自主表示対象機械器具等にあつては、法第21条の16の2の規定により自主表示対象機械器具等の技術上の規格に適合するものである旨の表示がされたものだけが設置されている。

The Japan Fire Equipment Inspection Institute or other inspection institution shall provide an examination in advance in terms of whether or not the specified matters pertaining to the machine or tool, etc. subject to inspection conform to the technical standards set forth. If the products conform to the standards, the Minister of Internal Affairs and Communications shall grant approval and issue a public notice pursuant to the model. In addition, the Japan Fire Equipment Inspection Institute or other inspection institution shall test and affix a label to the product subject to inspection that has passed a lot inspection for shipment and sale.

In cases where defective goods are distributed and cause malfunctions at the time of a fire, this may aggravate the damage, thus taking more time, cost, and the like in collecting and replacing such defective products. The aim of fire prevention, which is securing safety, may not be attained due to this delay, which may directly affect people's health, life and property.

In addition, it is difficult for a consumer to judge if the product is good or not; thus, he or she is unable to make a complaint or replacement, etc., beforehand unlike other general products in ordinary use. The market mechanism will not function to limit poor quality goods.

In this context, in addition to quality control and an in-house study performed by the manufacturers, the Japan Fire Equipment Inspection Institute or a registered inspection body provides inspection to ensure the quality before the launch of products on to the market.

On the other hand, a manufacturer or importer shall examine the machine or tool, etc. subject to self-labelling in terms of whether or not they meet the standards and, if they conform, notify the Minister of Internal Affairs and Communications of the fact. Manufacturers or importers shall provide their own inspections of individual manufactured products and attach a specified label to those that have passed the inspection for shipment. In this case, the inspection results must be recorded and retained for a certain period.

Therefore, only fire prevention properties or parts that shall be installed or maintained at properties under fire prevention measures, or only the machine or tool, etc. subject to inspection that have passed the test specified under the provisions of Article 21-2 of the Fire Services Law, shall be installed, and only machine or tool, etc. subject to self-labelling that have been labeled as conforming to the standards shall be installed in accordance with the provisions of Article 21-16-2 of the Law.

オ 登録検定機関（消防法第21条の45から第21条の57まで）

検定業務については、①消火、②火災の感知及び警報、③人命の救助に係る3種類の業務区分を設け、検定を行おうとする法人は総務大臣へ申請をしなければならない。

登録に関する要件としては、検定の業務の適正かつ確実な実施が可能か否かについて、業務に携わる人の人的な要件、業務を行う際に必要とされる機械器具その他の設備、登録申請者が製品の製造し、加工し、又は販売する等の事業者に支配されていないこと等を規定しており、全ての要件を満たしているときに、総務大臣は、登録申請者を登録検定機関として登録しなければならない。

さらに、登録検定機関は、検定等の業務の公正性を担保するため、3年毎に登録基準への適合状況を確認する必要があることから、登録の更新が義務付けられている。

(2) ソフト面からの予防

ア 防火管理の業務の義務（消防法第8条）

防火対象物において収容する人員が用途ごとに一定の数を超える場合、当該防火対象物の管理の権原を有する者は、一定の資格を有する者のうちから、防火管理者を選任し、当該管理者のもとで、当該防火対象物の消防計画の作成、当該消防計画に基づく消火・通報・避難の訓練の実施、消防用設備等の点検・整備、火気の使用・取扱に対する監督、避難・防火上必要な構造・設備の維持管理、収容人員の管理等の防火に必要な業務を実施することされている。

E. A registered inspection body (Articles 21-45 to 21-57 of the Fire Services Law)

The inspection services provided by a registered inspection body are classified into three categories; (1) fire extinguishing equipment, (2) fire detectors and alarms, and (3) life-saving apparatus. Companies that submit to inspection services must apply to the Minister of Internal Affairs and Communications regarding their fire prevention properties and related apparatus.

The law specifies whether or not it is ensured to provide appropriate inspection services, the human resources requirements for staff engaged in these duties, the machinery and apparatus required for inspection services and other equipment, and that the registration applicant shall not be controlled by a business entity that manufactures processes or sells the products. If all of the requirements are satisfied, the Minister of Internal Affairs and Communications must enroll the applicant for registration with a registered inspection body.

Due to a need to confirm the status of how such a business entity conforms to the registration standards, a registered inspection body must update the registration every three years to ensure the fairness of inspections.

(2) Prevention regarding the non-physical aspects of fire prevention

A. Obligation to conduct fire prevention management (Article 8 of the Fire Services Law)

When the capacity of a fire protection property exceeds the size specified for the intended purpose, a person who holds the title to manage the fire protection property shall select a fire protection manager with certain qualifications. Under such a manager, the following operations shall be provided: preparation of a fire-fighting plan for the fire protection property; implementation of fire extinguishing, reporting, and evacuation based upon the fire-fighting plan; inspection and checking of the fire-fighting equipment; supervision of its use, the handling of fires; maintenance and control of the structures/equipment required for evacuation and fire prevention; operations required for fire prevention, including capacity management.

イ 統括防火管理の業務の義務(消防法第8条の2)

高層建築物、社会福祉施設等、準地下街の防火対象物において管理の権原が分かれている対象物等においては、これらの防火対象物の全体についての防火管理に必要な業務を統括する防火管理者を協議して定め、当該統括防火管理者のもとで必要な防火管理を実施するようにされている。

B. Obligation of fire prevention and control management (Article 8-2 of the Fire Services Law)

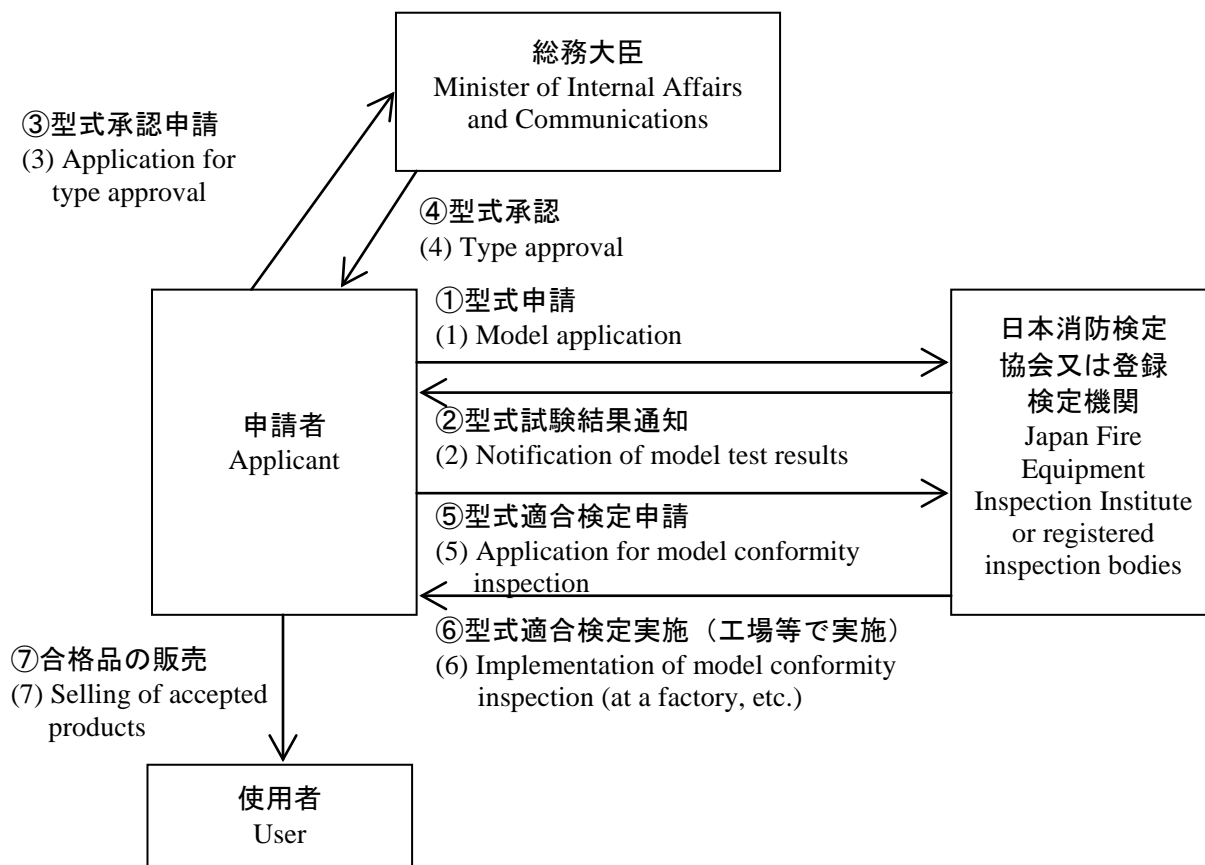
For the items whose titles are different at fire protection properties including high-rise buildings, facilities for social welfare, quasi-underground malls, and discussions shall be conducted to choose a fire protection manager who supervises the necessary operations for overall fire protection properties. Under the general fire protection manager, the necessary fire loss prevention and control management shall be provided.

2 検定制度

- (1) 検定対象機械器具等の検定
 ア 検定対象機械器具等に係る検定の流れは、次のとおりである。

2. Inspection System

- (1) Inspection of the machine or tool, etc. subject to inspection
 A. The following shows the inspection procedures pertaining to the machine or tool, etc. subject to inspection.



① 型式試験について、検定対象機械器具等の製造又は販売の事業を行う者が、新製品を開発した場合、まず、申請者自身で検定対象機械器具等の型式に係る形状等が技術上の規格に適合しているか試験を行う。次にその試験の結果を含め申請に必要な書類等をまとめ、日本消防検定協会又は登録検定機関に試験の申請をする。この場合、日本消防検定協会又は登録検定機関は、消防法第21条の3の規定により、申請された製品に係る技術上の規格に適合しているか試験設備及び測定機器を用いて第1次試験を実施する。その後、申請者の製造工場で、申請された製品を量産化した場合、量産された製品が、申請された製品の

(1) As for the type of inspection, if a person who manufactures or sells the machine or tool, etc. subject to inspection develops a new product, firstly, he or she conducts an inspection himself/herself to review whether or not the shape, etc., of the model of the machine or tool, etc. subject to inspection meets the technical standards. Secondly, the inspection results are compiled to apply to the Japan Fire Equipment Inspection Institute or other registered inspection body for inspection. At this time, in accordance with the provisions of Article 21-3 of the Fire Services Law, the Japan Fire Equipment Inspection Institute or other registered inspection body shall provide the first inspection using testing equipment and

形状等に適合するかの検査が確実に実施できる体制であるかどうか試験する第2次試験を実施する。

- ② 型式試験結果について、日本消防検定協会又は登録検定機関は、消防法第21条の3の規定により、実施した試験結果に意見を付して申請者に通知する。
- ③ 型式承認申請について、消防法第21条の4の規定により、申請者は、申請書に当該試験結果及び意見を記載された書面を添えて、総務大臣に型式の承認を申請する。
- ④ 型式承認について、消防法第21条の4の規定により、総務大臣は、申請書類により、申請された製品が、申請された製品に係る技術上の規格に適合しているかどうか審査し、適合しているときは、その旨を承認する。
- ⑤ 型式適合検定申請について、申請者が、型式承認を受けたものを量産した場合、毎回、販売する前に消防法第21条の7の規定により日本消防検定協会又は登録検定機関に申請し検査を受けなければならない。
- ⑥ 型式適合検定実施について、日本消防検定協会又は登録検定機関は、型式適合検定の申請があった場合には、消防法第21条の8の規定より、量産された製品が型式承認を受けたものに形状等に適合しているか、基本的には、日本消防検定協会又は登録検定機関の職員が申請者の製造工場に行き、日本消防検定協会又は登録検定機関の職員の立会いの下で、製品のロット毎に所要の数を抜き取り、主要な検査項目について検査を行う方式により実施する。また、例外として、日本消防検定協会又は登録検定機関が、製品の品質が良く、製造する工場、事業所及びこれらに類する施設において、品質を確保する管理体制が確立している等を認める場合には、製造者自身で製品のロット毎に所要の数を抜き取り、主要な検査項目について検査を行い、日本消防検定協会又は登録検定機関に報告し、その結果

measuring devices to determine whether or not the applied product meets the technical standards. Later, a second inspection shall be provided at the applicant's factory to examine whether it has ensured that the mass-produced products meet the shape, etc., of the applied products if the applied products are mass-produced.

- (2) The Japan Fire Equipment Inspection Institute or a registered inspection body shall provide a notice of the test results to the applicant with comments in accordance with the provisions of Article 21-3 of the Fire Services Law.
- (3) As for the approval for the type application, an applicant shall apply to the Minister of Internal Affairs and Communications for the approval of the type with the application, including the inspection results and comments on these in accordance with the provisions of Article 21-4 of the Fire Services Law,
- (4) In accordance with the provisions of Article 21-4 of the Fire Services Law, the Minister of Internal Affairs and Communications shall examine the application document to determine whether the product applied for meets the technical standards, and give approval if it meets them.
- (5) As for a model conformity inspection, if an applicant mass-produces the model approved product, he/she must apply to and receive an inspection by the Japan Fire Equipment Inspection Institute or a registered inspection body each time before any sales in accordance with the provisions of Article 21-7 of the Fire Services Law.
- (6) In implementing a model conformity inspection, the Japan Fire Equipment Inspection Institute or a registered inspection body shall, in accordance with the provisions of Article 21-8 of the Fire Services Law, shall inspect whether the shape, etc., of the mass-produced products meet those approved for the type. In principle, the staff of the Japan Fire Equipment Inspection Institute or a registered inspection body shall visit the factory of the applicant and sample the prescribed number of products for each product lot in the presence of the staff for examination of the major test items. As an exception, the Japan Fire Equipment Inspection Institute or a registered inspection body shall allow the manufacturer to sample the prescribed number of the products for each lot, conduct an inspection for major test items, and report the results to the Japan Fire Equipment Inspection Institute or a registered inspection body if and when the product has good quality produced under an

を用いて、日本消防検定協会又は登録検定機関が審査する方式もある。

検査に合格したロットは、型式適合検定に合格した旨の表示が付される。

- ⑦ 合格品の販売について、消防法第21条の9の規定による型式適合検定に合格した旨を製品に表示したものだけが、消防法第21条の2の規定により、使用者に販売することができる。

申請者は、新製品を開発し、販売する場合には、上記の手順の踏まなければならないが、日本の市場で販売されている全ての製品は、協会又は登録検定機関の検査に合格したものである。

- イ 申請に必要な書類等（規則第35条第4項）

型式試験の申請に必要な書類及び見本は、次のとおりである。

- ① 申請書（規則別記様式第2号）
- ② 見本（規則別表第2）
- ③ 設計図書
- ④ 明細書
- ⑤ 工場設備概要書（検定対象機械器具等の製造設備及び検査設備の概要）
- ⑥ 社内試験成績書
- ⑦ 製造工程概要調書（検定対象機械器具等の製造過程の概要）
- ⑧ 社内検査体制に係る調書

- ウ 合格した場合に表示の様式（規則別表第3）

型式適合検定に合格したものである旨の表示は、検定対象機械器具等の種別毎に次のように定められている。

established system at a manufacturing facility, entity, or the like. Or the Japan Fire Equipment Inspection Institute or a registered inspection body may conduct an examination based upon the results of such an inspection.

A lot that has passed the inspection shall be labeled with a statement that it has passed the model conformity inspection.

- (7) As for selling the accepted products, only those affixed with a label stating that it has passed a model conformity inspection under the provisions of Article 21-9 of the Fire Services Law may be sold to the users according to the provisions of Article 21-2 of the Fire Services Law.

An applicant shall undergo the above procedures to develop and sell any new product. All of the products distributed in the Japanese market shall have passed the inspection conducted by the Institute or a registered inspection body.






- B. Documents, etc., required for the application (Article 35-4 of the Rules)

The documents and samples needed for the application for a model inspection shall include:

- (1) Written Application (Appended Form No. 2 of the Rules)
- (2) Sample (Appended Form No. 2 of the Rules)
- (3) Design documents
- (4) Written specifications
- (5) Summary of the Factory Equipment (Summary of the production and inspection equipment for the machine or tool, etc. subject to inspection, etc.)
- (6) Certificate of in-house analyses
- (7) Summary of the Investigation Record on the Production Process (Summary of the production process for the machine or tool, etc. subject to inspection)
- (8) Investigation Record on the In-house Analysis System

- C. Label format if accepted (Appended Form No. 3)

The label with a statement that it has passed a model conformity inspection is defined as follows for each type of the machine or tool, etc. subject to inspection.

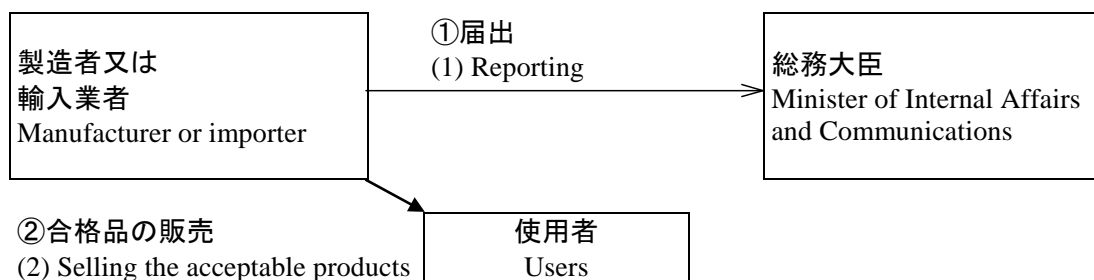
検定対象機械器具等の種別 Type of the machine or tool, etc. subject to inspection	表示の様式 (大きさ) Label format (size)
消火器 Fire extinguishers 火災報知設備の感知器又は発信機 Detectors or manual call points of fire detection and alarm systems 中継器 Input/output devices 受信機 Control panels 金属製避難はしご Metallic escape ladders	 (直径 10mm) (10 mm in diameter)
緩降機 Descending lifelines	 (直径 12mm) (12 mm in diameter)
消火器用消火薬剤 Fire extinguishing agents for fire extinguisher 泡消火薬剤 Foam fire-extinguishing agents	 (直径 15mm) (15 mm in diameter)
閉鎖型スプリンクラーヘッド Automatic closed sprinkler heads	 (直径 3mm) (3 mm in diameter)
流水検知装置 Water flow detecting devices 一斉開放弁 Deluge valves 住宅用防災警報器 Home disaster prevention alarms	 (直径 8mm) (8 mm in diameter)

(2) 自主表示対象機械器具等の検定

ア 自主表示対象機械器具等に係る検定の流れは、次のとおりである。

(2) Inspection for the machine or tool, etc. subject to self-labelling

A. The following shows inspection flows for the machine or tool, etc. subject to self-labelling



イ 自主表示対象機械器具等に係る届け出

自主表示対象機械器具等の製造者又は輸入業者は、あらかじめ総務大臣に次の事項を届け出ることとされている。

- ① 氏名又は名称及び住所並びに法人にあってはその代表者の氏名
- ② 届け出る自主表示対象機械器具等の種類及び型式
- ③ 自主表示対象機械器具等に係る技術上の規格に適合することの確認書
- ④ 輸入業者にあつては、当該自主表示対象機械器具等の製造業者の指名又は名称及び住所又は所在地

ウ 自主表示対象機械器具等の検査の方法

自主表示対象機械器具等の製造者又は輸入業者は、当該機械器具等の形状、構造、材質、成分及び性能及び合格した場合の表示の位置を記載した設計図書に適合しているかどうかを適切な検査設備及び検査方法により確認することとされている。

エ 自主表示対象機械器具等の個々の検査

個々の製品を検査等した場合において、次の事項を記録し、5年間保存することとしている。

- ① 自主表示対象機械器具等の種類及び型式
- ② 検査に用いた設計図書
- ③ 検査の項目、内容及び判定方法
- ④ 検査を行った年月日及び場所
- ⑤ 検査に使用した設備及び測定機器
- ⑥ 検査を実施した者の氏名
- ⑦ 検査を行った自主表示対象機械器具等の数量
- ⑧ 検査の結果
- ⑨ 設計図書、検査設備又は検査方法を変更した場合、その変更履歴

オ 合格した場合に表示の様式（規則別表第4）

自主表示対象機械器具等の形状等が当該技術上の規格に適合するものである旨の表示は、自主表示対象機械器具等の種別毎に次のように定められている。

B. Reporting pertaining to the machine or tool, etc. subject to self-labelling

A manufacturer or importer of the machine or tool, etc. subject to self-labelling shall report the following information to the Minister of Internal Affairs and Communications in advance.

- (1) Name and address; if a corporate person, name of the representative
- (2) Type and model of the machine or tool, etc. subject to self-labelling to be reported
- (3) Certification for the machine or tool, etc. subject to self-labelling as meeting the technical standards of the certification
- (4) As for an importer, the name, address, or business location of the manufacturer that manufactured the machine or tool, etc. subject to self-labelling

C. Inspection method of the machine or tool, etc. subject to self-labelling

A manufacturer or importer of the machine or tool, etc. subject to self-labelling shall examine whether or not the product meets the design document specifying the shape, structure, materials, ingredients and performance of the said machinery or apparatus items, and the location of the label, if accepted, conforms to the design documents using the appropriate inspection equipment and method.






D. Individual inspection on the machine or tool, etc. subject to self-labelling

As for the inspection results regarding the individual items, the following items shall be recorded and retained for five years.

- (1) Type and model of the machine or tool, etc. subject to self-labelling
- (2) Design documents used for the inspection
- (3) Items, descriptions and screening method
- (4) Date and location of the inspection
- (5) Equipment and measuring devices
- (6) Name of the inspector
- (7) Quantity of the machine or tool, etc. subject to self-labelling
- (8) Results of the inspection
- (9) Change history, if any, in the design documents, inspection equipment and methods

E. Label format if accepted (Appended Form No. 4)

Label with a statement that the shape, etc., of the machine or tool, etc. subject to self-labelling meets the technical standards is defined as follows for each type of machine or tool, etc. subject to self-labelling.

<p>自主表示対象機械器具等の種別 Type of the machine or tool, etc. subject to self-labelling</p>	<p>表示の様式（大きさ） Label format (size)</p>
<p>動力消防ポンプ Power driven fire pumps</p>	 <p>(直径 12mm) (12 mm in diameter)</p>
<p>消防用ホース Fire hoses</p>	 <p>(15mm 35mm) (15 mm x 35 mm)</p>
<p>消防用吸管 Fire suction hoses</p>	 <p>(直径 40mm) (40 mm in diameter)</p>
<p>差込式又はねじ式の結合金具 Insertion or screw type couplings</p>	 <p>(5mm 10mm) (5 mm x 10 mm)</p>
<p>エアゾール式簡易消火具 Aerosol type disposable fire extinguishers 漏電火災警報器の変流器又は受信機 Current transformers or control panels of electric leak fire alarm devices</p>	 <p>(直径 10mm) (10 mm in diameter)</p>

II 検定対象機械器具等及び

自主表示対象機械器具等の対象品目の概要

II. Outline of the Machinery or Apparatus Items

Subject to Inspection and Self-labeling

II 検定対象機械器具等及び自主表示対象機械器具等の対象品目の概要

1 検定対象機械器具等の対象品目

(1) 消火器

現在扱われている消火器は、大きく分けて業務用消火器と住宅用消火器に分けられる。

ア 業務用消火器

業務用消火器は、点検等が容易にできる構造であり、容器に入れる消火剤により次に掲げる種類に分けられ、また、圧力の加え方により加圧式と蓄圧式に、使用方法等により据置式や交換式に分けられる。

① 水消火器

消火剤に水又は水に浸潤剤等（浸潤剤、不凍液その他消火薬剤の性能を高め、又は性状を改良するための薬剤を混和又は添加したもの）を使用して圧力により放射して消火するもの

② 酸アルカリ消火器

消火剤に酸アルカリ消火薬剤（浸潤剤等を混和又は添加したものを含む。）を使用して圧力により消火するもの

③ 強化液消火器

消火剤に強化液消火薬剤（浸潤剤等を混和又は添加したものを含む。）を使用して圧力により消火するもの

④ 泡消火器

消火剤に泡消火薬剤（浸潤剤等を混和又は添加したものを含み、化学泡（化学反応により泡を生成するもの）と機械泡（化学泡以外の泡）をいう。）を使用して圧力により消火するもの

⑤ ハロゲン化物消火器

消火剤にハロゲン化消火薬剤（ハロン1011、ハロン2402、ハロン1211及びハロン1301をいう。）を使用して圧力により消火するもの

⑥ 二酸化炭素消火器

消火剤に液化二酸化炭素を使用して圧力により消火するもの

II. Outline of the Machine or Tool, etc. Subject to Inspection and Self-labeling

1. Machine or Tool, etc. Subject to Inspection

(1) Fire extinguishers

Fire extinguishers currently in use are roughly divided into those for businesses and for home use.

A. Fire extinguishers for businesses

Fire extinguishers for businesses are designed to allow easy inspections. They are divided into the following types according to the extinguishing agent contained in the container. They are classified into the cartridge operated type and the stored-pressure type depending on the method of applying the pressure, and into the deferment type and the exchange type depending on how it is used, etc.

(1) Water fire extinguishers

Shall refer to water or wetting-out agents, etc., with the extinguishing agent used with the extinguisher (wetting-out agent, nonfreezing fluid, or other agent mixed or added to enhance the performance or improve the nature), which is released under pressure for fire-extinguishing.

(2) Alkali acid fire extinguishers

Shall refer to extinguishing agents (including those mixed or added to by a wetting-out agent) which is used under pressure for fire-extinguishing.

(3) Loaded stream fire extinguishers

Shall refer to extinguishing agents (including those mixed or added to by wetting-out agents) are used under pressure for fire-extinguishing.

(4) Foam type extinguishers

Shall refer to foam fire-extinguishing agents (including those mixed or added to by wetting-out agents; referring to chemical foams (foam produced through a chemical reaction) and mechanical foams (referring to those other than chemical foams) used under pressure for fire-extinguishing.

(5) Halogenated fire extinguishers

Shall refer to extinguishing agents (referring to Halon 1011, Halon 2402, Halon 1211 and Halon 1301) with fire extinguishers used under pressure for fire extinguishing.

(6) Carbon dioxide (CO₂) extinguishers

Shall refer to extinguishing agents used under pressure for fire-extinguishing.

⑦ 粉末消火器

消火剤に粉末消火薬剤（浸潤剤等を混和又は添加したものを含み、ナトリウム、カリウム等の重炭酸塩類、りん酸塩類、硫酸塩類等を使用するものをいう。）を使用して圧力により消火するもの

イ 住宅用消火器

消火器のうち、住宅における使用に限り適した構造及び性能を有する消火器で、ハロゲン化物消火薬剤及び液化二酸化炭素以外の消火薬剤を使用し、蓄圧式のものに限定され、容器内の薬剤が交換できない構造のものである。

(7) Powder extinguishers

Shall refer to fire extinguishers with extinguishing agents (including those mixed or added to by wetting-out agents; referring to those using bicarbonic acid salts such as sodium, potassium, phosphoric acid salts, salts sulfate, etc.) used under pressure for fire-extinguishing.

B. Fire extinguishers for home use

Shall refer to those with the appropriate structure and performance for residential use and which do not contain halogenated fire extinguishing agents or liquid carbon dioxide. They must be of the stored-pressure type in which the agents inside the container are not designed to be exchangeable.



(2) 消火器用消火薬剤

消火器に使用される消火薬剤で、種類は前アに用いられる種類（液化二酸化炭素を除く。）に分けられ、再利用消火薬剤（使用済みの消火薬剤を規格に適合するように一定の処理を施されて確認されたもの）を除き、使用済みの薬剤の一部又はその全部を原料としないものである。

(2) Fire extinguishing agents for fire extinguisher

Fire extinguisher agents used for fire extinguishers are divided into the types specified in the previous Paragraph A (excluding liquid carbon dioxide). Excluding reuse fire extinguishing agents (those through a certain processing to meet the reused fire extinguishing agent), those that do contain some of the used agents.



(3) 泡消火薬剤

危険物施設、駐車場等の泡消火設備や化学消防ポンプ自動車などで使用される消火薬剤（アセトン等の水溶性液体用のものは対象外。）で、たん白泡消火薬剤（たん白質を加水分解したものを基剤としたもの）、合成界面活性剤泡消火薬剤（水成膜泡消火薬剤を除く合成界面活性剤を基剤としたもの）及び水成膜泡消火薬剤（合成界面活性剤を基剤としたもので、油面上に水成膜を形成するもの）に分けられる。石油コンビナート等で使用される大容量泡放水砲用のものもある。



(3) Foam fire-extinguishing agents

Fire extinguishing agent used at the location of hazardous materials, foam extinguishment equipment in parking lots, etc., chemical automotive fire appliance, etc. (excluding those for water-soluble liquids such as acetone.) that are divided into the following: protein foam fire extinguishing concentrates (hydrolyzed on a protein substrate); synthetic surfactant foam fire extinguishing concentrates (synthetic surfactant substrate, excluding Aqueous Film-Forming Foam); and Aqueous Film-Forming Foam (synthetic surfactant substrate creating a water film on an oil surface). Some include large-capacity foams used in petrochemical complexes, etc.

(4) 火災報知設備の感知器

火災により発生する熱、煙、炎等の発生を自動的に感知し、その旨の信号（以下「火災信号」という。）を受信機等に発信するものであり、次の種類に分けられる。また、感知器には、信号の伝達に無線を用いるものや、火災を感知した場合に当該感知器から警報を発するものがある。

ア 差動式スポット型感知器

周囲の温度の上昇率が一定の率以上となった場合に火災信号を発信するもので、一局所の熱効果をとらえるもの

イ 差動式分布型感知器

作動原理は、差動式スポット感知器と同様に温度上昇率を捕らえて火災信号を発信するもので、感熱部部分に空気を管を用いて広範囲に設置し、又は熱電対若しくは熱半導体を広範囲に設置し、広範囲における熱効果に捕らえ、その変化を検出器により判断するもの

(4) Detectors of fire detection and alarm systems

Shall refer to those that automatically sense the presence of heat, smoke, flames, etc., resulting from a fire, transmitting a signal to indicate these conditions (hereinafter referred to as the "detection signal") to control panels, etc. Some detectors also use a radio transmitter for signal transmission, or an alert system from the detector when it detects a fire.

A. Spot-type rate-of-rise heat detectors

Shall refer to those which transmit a fire detection signal when one peripheral temperature rises by a certain percentage, detecting local heat effectiveness.

B. Line-type rate-of-rise heat detectors

The operating principle is similar to the spot-type rate-of-rise heat detector, which transmits a fire detection signal by detecting the percentage rise in temperature. The equipment, using an air pipe at the "heat sensitive" part, is installed extensively, or a thermocouple or a thermo-semiconductor is installed extensively whose detector evaluates the heat effectiveness extensively and the changes in a certain location.

ウ 定温式感知線型感知器

一局所の周囲の温度が一定以上となった場合に火災信号を発信し、外觀が電線状のもので、一定の熱が加わることによる電線間が短絡することと等により火災信号を発信するもの

エ 定温式スポット型感知器

一局所の周囲の温度が一定以上となった場合に火災信号を発信するもので、感熱部にバイメタル、熱電対、熱半導体等を用いて熱変化をとらえるもの

オ 補償式スポット型感知器

差動式スポット型感知器と定温式スポット型感知器の性能を併せ持つもので、一つの火災信号を発信するもの

カ 熱複合式スポット型感知器

差動式スポット型感知器と定温式スポット型感知器の性能を併せ持つもので、二つの火災信号を発信するもの

キ 熱アナログ式スポット型感知器

一局所の周囲の温度が上昇した場合に当該上昇温度に対応する信号（以下「火災情報信号」という。）を発信し、受信機等で設定された値に対応して、注意警報や火災警報情報などきめ細かな火災情報を警報するための感知器で、外觀が電線状でないもの

ク イオン化式スポット型感知器

一局所の周囲の煙濃度が一定の濃度以上に達した場合火災信号を発するもので、煙を検出する部分には、アメリシウムのイオン電流の変化をとらえるもの（現在、日本ではほとんど製造されていない。）

ケ 光電式スポット型感知器

一局所の周囲の煙濃度が一定の濃度以上に達した場合に火災信号を発するもので、煙を検出するセンサーには、受光素子に入ってくる光量の変化をとらえるもの

C. Line-type fixed temperature heat detectors

Shall refer to those detectors that transmit a fire detection signal when the peripheral temperature in a certain location rises by a certain percentage, with an electric-wire appearance that transmits a fire detection signal through a short-cut made at a certain heat level.

D. Spot-type fixed temperature heat detectors

Shall refer to those that transmit a fire detection signal when the peripheral temperature in a certain location rises by a certain percentage, with a heat-sensitive part using bimetal, thermocouples, thermo-semiconductors, etc., to detect changes in heat.

E. Rate compensation heat detectors

Shall refer to those that combine the performance of the spot-type rate-of-rise heat detector and the spot-type fixed temperature heat detector, transmitting a single fire detection signal.

F. Point type heat combination detectors

Shall refer to those that combine the performance of the spot-type rate-of-rise heat detector and the spot-type fixed temperature heat detector, transmitting two fire detection signals.

G. Point type analogue heat detectors

Shall refer to those that transmit a fire detection signal when the peripheral temperature in a certain location rises by a certain percentage (hereinafter referred to as the "alert signal"), which corresponds to the values set in control panels, etc. The detector provides a fire warning and information in detail with no-wire line formed appearance.

H. Point type ionisation smoke detectors

Shall refer to those that transmit a fire detection signal when the peripheral smoke concentration in a certain location rises by a certain percentage, with a smoke detector part that detects changes in the ion current of americium (whose production is scarce in Japan at present).

I. Point type photoelectric smoke detectors

Shall refer to those that transmit a fire detection signal when the peripheral smoke concentration in a certain location rises by a certain percentage, with a smoke detector detecting changes in the light intensity around the light sensitive unit.

コ 光電式分離型感知器

広範囲の煙の蓄積により周囲の煙濃度が一定の濃度以上に達した場合に火災信号を発するもので、煙により受光素子の受光量が減少する光量の変化をとらえるもの

サ 煙複合式スポット型感知器

イオン化式スポット型感知器と光電式スポット型感知器の性能を併せ持つもので、二つの火災信号を発信するもの

シ イオン化アナログ式スポット型感知器

イオン化式スポット型と同じ作動原理を持ち、周囲の煙濃度の変化を火災情報信号として発信するアナログ式のもの

ス 光電アナログ式スポット型感知器

光電式スポット型と同じ作動原理を持ち、周囲の煙濃度の変化を火災情報信号として発信するアナログ式のもの

セ 光電アナログ式分離型感知器

光電式分離型と同じ作動原理を持ち、周囲の煙濃度の変化を火災情報信号として発信するアナログ式のもの

ソ 熱煙複合式スポット型感知器

差動式スポット型感知器と定温式スポット型感知器の性能を併せ持つもの又はイオン化式スポット型感知器と光電式スポット型感知器の性能を併せ持つもので、二つの火災信号を発信するもの

タ 紫外線式スポット型感知器

炎から放射される紫外線の変化が一定以上となった場合に火災信号を発するもので、紫外線検出素子（UV トロン等の素子）が紫外線を捕らえた場合の変化を検出するもの

J. Line-type smoke detectors using a transmitted optical beam

Shall refer to those that transmit a fire detection signal when the peripheral smoke concentration in a certain location rises by a certain percentage due to the accumulation of extensive smoke, detecting changes in the light intensity around the light sensitive unit.

K. Point type smoke combination detectors

Shall refer to those that combine the performance of the point type ionisation smoke detector and the point type photoelectric smoke detector, transmitting two fire detection signals.

L. Point type ionisation analogue smoke detectors

Shall refer to an analog-type with the same operating principle as the point type ionisation smoke detectors, transmitting an alert signal to detect changes in the smoke concentration.

M. Point type photoelectric analogue smoke detectors

Shall refer to those of an analog-type with the same operating principle as the point type photoelectric smoke detector, transmitting an alert signal to detect changes in the smoke concentration.

N. Line-type analogue smoke detectors using a transmitted optical beam

Shall refer to those that are analog-type with the same operating principle as the line-type smoke detector using a transmitted optical beam, transmitting an alert signal to detect changes in smoke concentration.

O. Point type fire detectors using scattered light, transmitted light or ionization sensors in combination with a heat sensor

Shall refer to those that combine the performance of the spot-type rate-of-rise heat detector and the spot-type fixed temperature heat detector, or of the point type ionisation smoke detector and the point type photoelectric smoke detector, transmitting two fire detection signals.

P. Point type ultra-violet detectors

Shall refer to those that transmit a fire detection signal when changes in the ultraviolet light emitted by a flame increases to a certain level, detecting changes the violet rays, if any, with an ultraviolet detection device (elements, including UV thoron).

チ 赤外線式スポット型感知器

炎から放射される赤外線の変化が一定以上となった場合に火災信号を発するもので、赤外線検出素子が赤外線をとらえた場合の変化を検出するもの（炎のゆらぎ及び2種類以上の赤外線をとられるものもある。）

ツ 紫外線赤外線併用式スポット型感知器

紫外線式スポット型感知器と赤外線式スポット型感知器の性能を併せ持つもので、一つの火災信号を発信するもの

テ 炎複合式スポット型感知器

紫外線式スポット型感知器と赤外線式スポット型感知器の性能を併せ持つもので、二つの火災信号を発信するもの



Q. Point type infrared detectors

Shall refer to those that transmit a fire detection signal when changes in the IR quantity emitted from a flame increase to a certain level, detecting changes in the IR, if any, with an IR detection device (some detect flare fluctuations and have more than two types of IRs).

R. Point type multiband detectors

Shall refer to those that combine the performance of a point type ultra-violet detector and a point type infrared detector, transmitting a single fire detection signal.

S. Point type multiband detectors

Shall refer to those that combine the performance of the point type ultra-violet detectors and the point type infrared detector, transmitting two fire detection signals.

(5) 火災報知設備の発信機

火災の発生を人が見つけた場合、手動の操作により火災信号を受信機に送信するもので、次の種類に区分されている。

ア P型発信機

火災信号を共通信号又は固有信号により発信するもので、発信と同時に通話できないもので、通話装置や受信機からの確認装置の有無、接続受信機の種類により1級と2級に分けられている。

イ T型発信機

火災信号を共通信号又は固有信号により発信するもので、発信と同時に通話できるもの

ウ M型発信機

M型受信機との間を固有信号により接続されるもので、公設用として街頭などの火災通報設備として設置されていたもの（現在は使用されていない。）

(5) Manual call points of fire detection and alarm systems

Used to manually send fire detection signals to a control panel when a person finds a fire occurring. These are divided into the following types.

A. P-type manual call points

Shall refer to those that transmit a fire detection signal as common and inherent signals, which do not allow transmission and calling simultaneously. It is classified into the class 1 and class 2 depending on the call set, whether or not a checking apparatus is available according to the type of the control panels used.

B. T-type manual call points

Shall refer to those that transmit a fire detection signal as common and inherent signals, which allows transmission and calling simultaneously.

C. M-type manual call points

Shall refer to those that connect to M-type control panels with an inherent signal, which used to be installed for public use as fire alarm equipment in the street (currently not used).



(6) 火災報知設備又はガス漏れ火災警報設備の中継器

火災報知設備の感知器若しくは発信機からの火災信号・火災情報信号又はガス漏れ火災警報設備のガス漏れ検知器（液化石油ガス以外の燃料ガス又は自然発生ガスの発生を検出する検知器をいう。）からのガス漏れ火災信号を他の中継器、受信機又は消火設備・排煙設備・警報設備等に、又は設備作動信号を他の中継器若しくは受信機に信号を伝達するもので、電源を有し数多く信号を伝達するものから単信号を伝達するものまでである。

(6) Fire detection and alarm systems or Input/output devices for gas leak fire alarm systems

Shall refer to those that transmit a fire detection signal/alert signal from the detectors or manual call points of the fire detection and alarm systems, or gas leak signals from the gas leak detectors of gas leak fire alarm systems (referring to a detector to detect a fuel gas other than liquefied petroleum gas or naturally-occurring gases), to other Input/output devices, control panels, or other fire extinguishing equipment, smoke exhaustion equipment, alarm systems, or it transmits system activation signals to other input/output devices or other control panels. The various types available include those transmitting many signals from an electronic source and those transmitting single signals.



(7) 火災報知設備又はガス漏れ火災報知設備の受信機

火災信号、火災情報信号等を受信し火災等の発生を報知するもの、ガス漏れ火災信号を受信しガス漏れの発生を報知するもの、又は設備作動信号を受信し、設備の作動を報知するもので、信号の受信方法により次のように区分されている。

なお、信号の処理方法により蓄積式・二信号式などの機能を有するものもある。

(7) Control panels of fire detection and alarm systems or gas leak fire alarm systems

Shall refer to those that include systems which receive a fire detection signal and an alert signal to give the alarm in the event of a fire, those that receive a gas leak fire detection signal and give an alarm about the gas leak, and those that receive system activation signals and give an alarm about the operation of the system.

Some types also have functions of combined types and two signals types, depending on how the signals are treated.

ア P型受信機

火災信号、設備作動信号等を共通信号により受信するもので、接続する回線数により1級、2級（5回線以下のもの）及び3級（1回線のもの）に区分され、それぞれの級数に応じた機能を定めている。

イ R型受信機

火災信号等を固有信号により、設備作動信号を共通信号又は固有信号により受信するもの

ウ G型受信機

ガス漏れ信号を受信し、ガス漏れの発生を報知するもの

エ M型受信機

M型発信機から火災信号を固有信号により受信するもの

オ GP型受信機

P型受信機の機能とG型受信機の機能を併せ持つもの

カ GR型受信機

R型受信機の機能とG型受信機の機能を併せ持つもの

A. P-type control panels

These receive a fire detection signal, a system activation signal, etc., through a common signal and are classified as 1st, 2nd (those with five lines or less) and 3rd (those with one line) class. Each class has its own prescribed functions.

B. R-type control panels

These receive fire detection signals, etc., via inherent signals, and receive system activation signals via common or inherent signals.

C. G-type control panels

These receive gas leak signals and give an alarm in case of a gas leak.

D. M-type control panels

These receive fire detection signals from manual call points via inherent signals.

E. GP-type control panels

These combine the performance of the P-type control panel and the G-type control panel.

F. GR-type control panels

These combine the performance of the R-type control panel and the G-type control panel.



(8) 住宅用防災警報器

住宅を対象として設置し、当該住宅の火災を感知し、当該警報器からの警報により火災の発生を居住者に報知するもので、光電式住宅用防災警報器、イオン化式住宅用防災警報器及び定温式住宅用防災警報器に分けられている。また、警報器単体で設置するもの、各部屋に設置し、それぞれの警報器と警報器を接続して一つの警報器が警報を発すると他の警報器も警報する連動型のものもある。

(8) Home disaster prevention alarms

These devices are installed for residential use and detect a fire in a house and give an alarm to the residents in case of a fire through the alarm system. They are divided into the following types: photoelectric type home disaster prevention alarms; ionization type home disaster prevention alarms; and fixed temperature type home disaster prevention alarms. Single detector types are also available to be installed, as well as the interlocking type to be installed in each room with the detectors connected to each other, where when one detector is set off, then the others start giving an alarm.



(9) 閉鎖型スプリンクラーヘッド

スプリンクラー設備に使用するヘッドで、水を放出する口を常時閉鎖している構造のもので、感熱体が火災の熱により溶融すると、閉鎖部分が開放され、当該口から水を放出して消火する。感熱体にはヒューズブルリンク（半田等の易融性金属を用いるもの）又はガラスバルブ（ガラス球の中に液体等を封入したもの）が用いられ、放射パターンの種類で、標準型ヘッド、小区画型ヘッド、側壁型ヘッド及び水道連結型ヘッドに分けられている。

(9) Automatic closed sprinkler heads

The head is used for sprinkler facilities, designed to always close the water releasing opening. The closed part is opened when the thermostat is melted due to the heat of the fire and it extinguishes the fire with water from the opening. For the thermostat, a fusible link (those using easily fusible metal material such as solder) or glass bulbs (those with liquid, etc., contained in a glass ball) are used for the thermostat. The radiation pattern is divided into the following types: standard type head, small section type head, sidewall type head and water supply pump connected type head.



(10) スプリンクラー設備等の流水検知装置

スプリンクラー設備、水噴霧消火設備又は泡消火設備に使用され、本体の流水現象を自動的に検知し、信号又は警報を発するもので、動作原理、2次側の配管内の状態により湿式、乾式及び予作動式に分けられる。

(10) Water flow detecting devices in sprinkler equipment, etc.

These are used for sprinkler equipment, water spray fire extinguishing systems, and foam extinguishment equipment and automatically detect running water and then transmit signals or alarms. They are divided into the wet alarm valves, dry pipe valves, and pre-action dry alarm valves.



(11) スプリンクラー設備等の一斉開放弁

スプリンクラー設備、水噴霧消火設備又は泡消火設備に使用されるもので、開放されたヘッド等に流水の制御をするための弁で、弁の開放原理により減圧型、加圧型、電磁型等に区分される。

(11) Deluge valves of sprinkler equipment, etc.

These are used for sprinkler equipment, water spray fire extinguishing systems, and foam extinguishment equipment, in which the valve is used to control running water released from the head, etc. They are divided into the decompression type, pressure type and electromagnetic type, etc., according to the opening principle of the valve.



(12) 金属製避難はしご

避難器具のうち、金属製の避難はしごであり、使用方法により次のように区分される。

ア 固定はしご

常時使用状態で建物に固定されて使用されるもので、横棧を縦棒の中に収納して、使用時にこれを取り出して使用する収納式や、はしごの下部を折りたたむもの、伸縮するものがある。

イ 立てかけはしご

建物に立てかけて使用するはしご

ウ つり下げはしご

建物につり下げて使用するものであり、ベランダ等の避難器具用ハッチに格納されて使用するものもある。

(12) Metallic escape ladders

These refer to metallic escape ladders, including fire escape equipment, and are divided into the following types.

A. Fixed ladders

These are in a service condition such that they can be used in normal times, including the storage type in which horizontal bars are stored with vertically-extend and are pulled out when in use, the folded type in which the bottom of the ladder is folded up, and the expansion/contraction type or extension ladder.

B. Leaning ladders

Ladders used to prop against a building.

C. Overhanging ladders

These are suspended from a building. Some are stored in a fire escape apparatus hatch, such as from a veranda, etc., when in use.



(13) 緩降機

使用者が他人の力を借りずに自重により自動的に、かつ、一定の速度以下で交互に下降することができる機構を有する避難器具をいい、固定式と可搬式に分けられる。

(13) Descending lifelines

This is evacuation apparatus by which the users can descend by themselves (without help from other people) one at a time using their own weight and is automatically limited to a certain rate of descent. They are divided into the fixed type and the transportable type.



2 自主表示対象機械器具等の対象品目

(1) 動力消防ポンプ

ポンプ、ポンプ駆動用の内燃機関等で構成される消防の用に供するポンプ設備であり、消防ポンプ自動車(ポンプが自動車の車台に固定されたもの)と可搬消防ポンプ(ポンプが車両を使用しないで人力により搬送され、又は、人力により牽引される車両若しくは自動車の車台に取り外しができるように取り付けられて搬送されるもの)に分けられ、また、石油コンビナート等で使用される大容量泡放水砲用消防ポンプ自動車や大容量泡放水砲用可搬消防ポンプのものもある。

2. Machine or tool, etc. subject to self-labelling

(1) Power driven fire pumps

Pump equipment that is for fire-fighting purposes and consists of a pump, an internal combustion engine, etc., for pump driving, can be divided into fire fighting pump truck (a pump is fixed on the platform of the pump truck), and a portable prevention pump (the pump is transported manually without a pump and vehicle, or a vehicle that is pulled manually, or those transported by attaching/detaching them to the vehicle). These include large-capacity foam cannon pump vehicles and large-capacity foam cannon transportable pumps, etc., used at petrochemical complexes, etc.



(2) 消防用ホース

消防用に供するホースをいい、次のように区分されている。

ア 平ホース

ジャケットにゴム又は合成樹脂の内張りを施したもの(保形ホース、大容量泡放水砲用ホースを除く。)で、消防隊や一般的な屋内消火栓に用いられている。

(2) Fire hoses

These are hoses for fire-fighting and are divided into the following types.

A. Flat hoses

Shall refer to those with a lining of rubber or synthetic resin on the jacket (excluding shape retaining hoses and the large-capacity foam cannon hoses) used by fire brigades and those used with indoor fire fighting teams in general.

イ 保形ホース

ホースの断面が常時円形に保たれるように造られたもので、屋内消火栓設備のうち、一人操作が可能な簡易型放水設備に使用されている。

ウ 濡れホース

水流によりホース全体が均一に濡れた状態で使用されるもの

エ 大容量泡放水砲用ホース

コンビナート等で使用される大容量泡放水砲用の設備に限定的に使用されるホース

B. Shape retaining hoses

Shall refer to those designed to always maintain a regular circular section in the hose and are used, among indoor fire hydrant facilities, as one-person operated handy water release systems.

C. Wet fire hoses

Shall refer to those that use running water and are wet to all the hose in a uniform manner.

D. Large-capacity foam cannon hoses

This hose is in limited use for large-capacity foam cannon systems used at petrochemical complexes, etc.

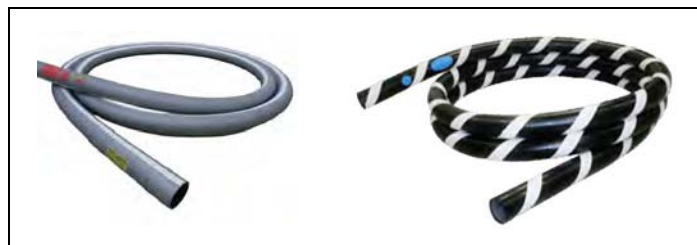


(3) 消防用吸管

動力消防ポンプの給水用に用いられるゴム吸管で、ホースのジャケット内に鋼線を巻き付けた構造のものである。

(3) Fire suction hoses

This is a rubber hose used to provide water to a power driven fire pump and consists of a rubber suction hose with steel wire wound around in the jacket of the hose.



(4) 消防用ホースに使用する差込式又はねじ式の結合金具及び消防用吸管に使用するねじ式の結合金具

消防用ホース又は消防用吸管を他のホース、吸管又は動力消防ポンプ等と結合させるために、ホース又は吸管の端部に装着する金具で、差込式とねじ式がある。

コンビナート等で使用される大容量泡放水砲用の設備に限定的に使用される結合金具もある。

(4) Insertion or screw type couplings used for fire hoses and screw type couplings used for fire suction hoses.

Two types, screw and insertion types, are available attached at the end of lengths of hose or suction hose in order to join a length of fire hose or fire suction hose to another length of hose or suction hose or to power driven fire pumps, etc.

These also include couplings limit to use in large-capacity cannon equipment at petrochemical complexes, etc.



(5) エアゾール式簡易消火具

水その他消火剤を圧力により放射して消火を行う器具で人が操作するもののうち、内容積1リットル以下のものであり、小規模普通火災、天ぷら油火災、ストーブ火災及び自動車用クッション火災のいずれかの火災が消火できる簡易型の消火具

(5) Aerosol type disposable fire extinguishers

These are fire extinguishers that release water or other extinguishing agents using pressure; specifically with a capacity of one liter or less among manually operated devices. It is a simplified fire extinguisher that can extinguish either a small-scale fire, a tempura cooking oil fire, stove fire, or vehicle cushion fire.



(6) 漏電火災警報器

電圧600V以下の警戒電路の漏洩電流を検出し、それを警報する設備で、漏洩を検出する変流器と受信機に分けられる。

(6) Electric leak fire alarm devices

These are systems to detect and give an alarm when leakage of 600 V or less of the current in a warning circuit is separated into a transformer or control panel.



III. Ministerial Ordinance for Technical Standards

III. Ministerial Ordinance for Technical Standards

Ministerial Ordinance that Stipulates Technical Standards for Detectors and Manual Call Points (1981 Ministerial Ordinance No. 17 of the Ministry of Home Affairs)

(Outline)

- (1) Purport and Significance of Terms (Pertaining to Articles 1 and 2)
Purport and significance of the Ministerial Ordinance shall be defined.
- (2) General Structure and Component Structure/Function (pertaining to Articles 3, 4, 8, 9, and 32 to 34-2)
Provisions concerning the general structure required for the detectors and manual call points, as well as the structure/function of the components in use
- (3) Accessories (pertaining to Article 5)
Provisions concerning the requirements for accessory equipment to be installed for the detectors and manual call points
- (4) Requirements for each test of the detectors (pertaining to Articles 6, 7, 10, 11, and 19 to 31)
Provisions concerning the method and judgment conditions for each test whose test items include functions at peripheral temperatures, temperature resistance, corrosiveness, repetition resistance, vibratility/shock resistance, and dust resistance, etc.
- (5) Sensitivity test of the detectors (pertaining to Articles 12 to 18)
Provisions on the operational and non-operational tests for sensitivity required for detectors per type
- (6) Requirements for each test of the manual call points (pertaining to Articles 35 to 42)
Provisions concerning the method and judgment conditions for each manual call point whose test items include functions at peripheral temperatures, corrosiveness, repetition resistance, vibratility/shock resistance, and dust resistance, etc.
- (7) Labeling (pertaining to Article 43)
Provisions on the types, models, and manufacturing years, and other necessary matters to be displayed for the detectors and manual call points
- (8) Special provisions on the Standards (pertaining to Article 44)
Provisions that the technical standards set forth by the Minister of Internal Affairs and Communications may apply when the Minister of Internal Affairs and Communications approves new technical development for the detectors and manual call points

Ministerial Ordinance that Stipulates Technical Standards for
Detectors and Manual Call Points of Fire Alarm Systems
(1981 Ministerial Ordinance No. 17 of the Ministry of Home Affairs)

(Purport)

Article 1 This Ministerial Ordinance stipulate technical standards for the detectors and manual call points of fire detection and alarm systems.

(Definition of the Terms)

Article 2 In this Ordinance, the meanings of the terms listed in the following items shall be as prescribed respectively in those items.

- (i) Detectors: Shall refer to devices that detect heat, combustion products resulting from a fire (hereinafter referred to as the "smoke"), or the occurrence of a fire based on the flame produced therefrom, automatically detecting the occurrence of a fire, and sending a fire detection signal or fire control signal to control panels, input/output devices, or fire extinguishing systems.
- (ii) Spot-type rate-of-rise heat detectors: Shall refer to devices that transmit a fire detection signal when the peripheral temperature rises by a certain percentage, detecting a local heat effect.
- (iii) Line-type rate-of-rise heat detectors: Shall refer to devices that transmit a fire alarm by detecting the percentage rise in temperature, functioning due to extensively an accumulated heat effect.
- (iv) Line-type fixed temperature heat detectors: Shall refer to devices transmitting a fire detection signal when the peripheral temperature rises by a certain percentage with an electric-wire appearance.
- (v) Spot-type fixed temperature heat detectors: Shall refer to those transmitting a fire detection signal when the peripheral temperature rises by a certain percentage with an electric-wire appearance.
- (v-ii) Rate compensation heat detectors: Shall refer to those that combine the performance of the spot-type rate-of-rise heat detector and the spot-type fixed temperature heat detector, transmitting a single fire detection signal.
- (vi) Point type heat combination detectors: Shall refer to those that combine the performance of the spot-type rate-of-rise heat detector and the spot-type fixed temperature heat detector, transmitting two fire detection signals.
- (vii) Point type analogue heat detectors: Shall refer to those that transmit a fire detection signal when one peripheral temperature rises by a certain percentage with no-wire line formed appearance.
- (viii) Point type ionisation smoke detectors: Shall refer to those that transmit a fire detection signal when the smoke concentration in peripheral air reaches a certain level, which detect changes in the ion current.
- (ix) Point type photoelectric smoke detectors: Shall refer to those that transmit a fire detection signal when the peripheral smoke concentration rises by a certain percentage, activated through changes in light intensity of the light sensitive unit due to local smoke.

- (x) Line-type smoke detectors using a transmitted optical beam: Shall refer to those that transmit a fire detection signal when the peripheral smoke concentration rises by a certain percentage due to the accumulation of extensive amounts of smoke, detecting changes in the light intensity of the light sensitive unit.
- (xi) Point type smoke combination detectors: Shall refer to those that combine the performance of the point type ionisation smoke detector and the point type photoelectric smoke detector, transmitting two fire detection signals.
- (xii) Point type ionisation analogue smoke detectors: Shall refer to those that transmit an alert signal in response to the smoke concentration included in the peripheral air, making use of changes in the ion current due to local smoke.
- (xiii) Point type photoelectric analogue smoke detectors: Shall refer to those that transmit an alert signal in response to the smoke concentration included in the peripheral air, making use of changes in the light intensity of the light sensitive unit.
- (xiv) Line-type analogue smoke detectors using a transmitted optical beam: Shall refer to those that transmit an alert signal in response to the smoke concentration included in the peripheral air, making use of changes in the light intensity of the light sensitive unit due to the accumulation of extensive amounts of smoke.
- (xv) Point type fire detectors using scattered light, transmitted light or ionization sensors in combination with a heat sensor: Shall refer to those that combine the performance of the spot-type rate-of-rise heat detectors and the spot-type fixed temperature heat detectors, and of the point type ionisation smoke detectors or the point type photoelectric smoke detectors.
- (xvi) Point type ultra-violet detectors: Shall those which transmit a fire detection signal when changes in ultraviolet quantity emitted from a flame increase to a certain level, activated due to changes in the light intensity of the light sensitive unit due to the accumulation of single location UV.
- (xvii) Point type infrared detectors: Shall refer to those that transmit a fire detection signal when changes in the IR quantity emitted from a flame increase to a certain level, activated due to changes in the light intensity of the light sensitive unit through the accumulation of single location UV.
- (xviii) Point type multiband detectors: Shall refer to those that transmit a fire detection signal when changes in the UV and IR quantity emitted from a flame increases to a certain level, activated due to changes in the light sensitive unit through the accumulation at a single location of the UV and IR.
- (xix) Point type multiband detectors: Shall refer to those that combine the performance of the point type ultra-violet detector and the point type infrared detector, transmitting two fire detection signals.
- (xix-ii) Multi-signal type detectors: Shall refer to those that transmit two or more different fire detection signals.
- (xix-iii) Detectors with automatic test functions : Shall refer to those that have automatic test functions specified under the provisions of Article 2, Item (xii) of the Ministerial Ordinance that Stipulates Technical Standards for Input/output Devices (1981 Ministerial Ordinance No. 18 of the Ministry of Home Affairs. Hereinafter referred to as the "Ministerial Ordinance on Input/output Devices") or remote test functions specified under the provisions of Item (xiii) of the same Article (hereinafter referred to as the "automatic test function").

- (xix-iv) Wireless detectors: Shall refer to those that transmit a fire detection signal or alert signal through radio communication systems.
- (xix-v) Detector with an alarm function: Shall refer to those that transmit a fire detection signal for alarm in case it detects the occurrence of a fire (hereinafter referred to as a “fire alarm”).
- (xix-vi) Detector with interlocking alarm function: Shall refer to those with an alarm function that transmits a fire detection signal to other detectors in the case of the detection of a fire, and provides a fire alarm in case it receives a fire detection signal from the other detectors.
- (xx) Manual call points: Shall refer to those that manually transmit a fire detection signal to control panels.
- (xxi) P-type manual call points: Shall refer to those that manually transmit a common or inherent fire detection signal to control panels, which does not allow transmission and calls simultaneously.
- (xxii) T-type manual call points: Shall refer to those that manually transmit a common or inherent fire detection signal, which allows transmission and call simultaneously.
- (xxiii) M-type manual call points: Shall refer to those that manually transmit an inherent fire detection signal to the manual call points of control panels.
- (xxiii-ii) Wireless Manual call points: Shall refer to manual call points, transmitting a fire detection signal using radio communications.
- (xxiv) Input/output devices: Shall refer to those specified under the provisions of Article 2, Item (vi) of the Ministerial Ordinance on Input/output Devices.
- (xxv) Control panels: Shall refer to the Ministerial Ordinance that Stipulates Technical Standards for Control Panels (Provisions specified under Article 2, Item (vii) of the 1981 Ministerial Ordinance of the Ministry of Home Affairs No. 19).
- (xxvi) Fire extinguishing systems: Shall refer to extinguishment equipment, smoke exhaustion equipment, alarm devices, and similar equipment for disaster prevention.
- (xxvii) Fire detection signal: Shall refer to signals that a fire has occurred.
- (xxviii) Alert signal: Shall refer to signals indicating heat or smoke created by a fire, and the intensity of the fire.

(General Structure)

Article 3 The general structure of the detectors and manual call points shall be defined as follows.

- (i) To ensure transmission of a fire detection signal or an alert signal, and allow easy maintenance and replacement of accessory parts.
- (ii) To be durable.
- (iii) Not to cause malfunctions due to dust or moisture.
- (iv) To take measures for rust prevention for parts where there is a risk of causing abnormality due to corrosion.
- (v) To cover with non-inflammability or incombustible outer cases.
- (vi) To ensure that the wiring has sufficient current capacity and appropriate connections.

- (vii) Except for those that are non-polar, to take measures for the prevention of false connections.
- (viii) To install components appropriately and in a manner to prevent them from being loosened easily.
- (ix) To install components appropriately and in a manner to prevent easy loosening at the contact part where the current, other than electric wires, is led through and the sliding or the contact at the movable axis is not sufficient.
- (x) To provide sufficient protection for the charge unit so that it cannot be touched by people from outside.
- (xi) To install a grounding terminal on the metal outer case of the manual call points and detectors whose rated voltage is 60 V.

(Structure and Function of the Components)

Article 4 In cases where the following components listed in the following are used for the detectors or manual call points, they shall have the following listed structure and functions.

- (i) Electric bulbs: With 130% VAC of the rated voltage for 20 consecutive hours provided at the circuit in use, to avoid creating disconnections, significant changes in the light flux, blackening, or a significant drop in the current.
- (ii) Switches
 - (a) To ensure appropriate and easy functioning with a clear cutoff point.
 - (b) To ensure that the point of contact free from risk of corrosion, where the capacity endures the maximum current in use.
 - (c) For the tilt-down cutoff switch, to take measures so as not to forget about returning it to the fixed position.
- (iii) Handset: Shall function properly and durably.
- (iv) Power supply transformers: Shall have the same or higher performance than transformers for bells as specified under the provisions of Appendix 6-2 of Electrical Appliance and Material the technical standards specified by an Ordinance of the Ministry of Economy, Trade and Industry (1962 Ministry of International Trade and Industry No. 85) and be with a capacity that is durable under the maximum current in use.

(Accessories)

Article 5 Any accessory equipment that may have a harmful effect on these functions shall not be installed at the detectors and manual call points.

(Source Voltage Tests)

Article 6 The detectors and manual call points must function without failure if the voltage of the power supply ranges from more than 85 percent to less than 110 percent of the rated voltage (however, within other ranges specified for those connected to the control panels or input/output devices whose voltage range pertaining to the supplied power, or those for which the electricity is not supplied from the control panels or input/output devices).

(Test Conditions)

Article 7 The tests specified under the provisions of Articles 10 to 17-8, 30, 31, 41 and 42 shall be conducted under the following conditions.

- (i) Higher than five degrees centigrade and up to no more than 35 degrees centigrade in temperature
- (ii) Relative humidity; more than 45 percent and less than 85 percent.

Chapter 2 Detectors

(Structure and Function of Detectors)

Article 8 The structure and functions of a detector shall be as provided for in the following:

- (i) The detector's functions shall not vary significantly due to the direction of the air stream applied to the detector.
- (ii) The spacing between the contact members and other adjustment components shall be secured in place so that they cannot be modified or displaced after making adjustments to them.
- (iii) The sheet metal used for the heat sensing portions, diaphragms, etc., shall not have any flaws, distortions, corrosion, etc., that may adversely affect their functions.
- (iv) The line-type rate-of-rise heat detector of the pneumatic line type or other similar type shall be as follows:
 - (a) It shall easily enable tests to be conducted on the leak resistance and height of the water at the contact members.
 - (b) It shall easily enable tests to be conducted for any leakage and clogging of the air pipe(s), and steps shall be taken to ensure that the operation to restore the test device to its original home position will not fail to be performed after conducting a test using such a device.
 - (c) Each of the air pipes (which are of the seamless type) shall be 20 m or longer, their inside diameter and wall thickness shall be of even size and thickness, and they shall have no flaws, cracks, torsion, corrosion, etc., hat may adversely affect their functions.
 - (d) The schedule of the air pipes shall be 0.3 mm or thicker.
 - (e) The outside diameter of the air pipes shall be 1.94 mm or larger.
- (v) The line-type rate-of-rise heat detector of thermocouple or thermo-semiconductor type shall be as follows:
 - (a) It shall easily enable tests to be made of the operating voltage of the detecting element.
 - (b) It shall easily enable tests to be made as to whether the thermocouple is disconnected or not and on the resistance of the conductor, and steps shall be taken to ensure that the operation to restore the test device to its original home position will not fail to be performed after conducting a test using such a device.

- (vi) Each type of detector, excluding point type detectors (as specified in Article 2, Items (xvi) to (xix) [hereinafter referred to as a “flame detector”]), shall not malfunction if the circuit board surface is inclined from the home mounting position by 45 degrees, by five degrees in the case of a line-type rate-of-rise heat detector (limited to its detecting element), and by 90 degrees in the case of a line-type analogue smoke detector using a transmitted optical beam, a line-type analogue smoke detector using a transmitted optical beam or a flame detector.
- (vii) Detectors equipped with the capability of a point type ionisation smoke detector, or the point type ionisation analogue smoke detector shall be provided with an activation indication device. However, this shall not apply to those detectors that can be connected to a control panel which indicates that such detectors are sending out a signal.
- (viii) Detectors equipped with the capability of a detector using a transmitted optical beam or of an analogue detector using a transmitted optical beam shall be as mentioned below.
 - (a) Their source of light shall be a semiconductor device.
 - (b) They shall be provided with an activation indication device. However, this shall not apply to those detectors that can be connected to a control panel that indicates that such detectors are sending out a signal.
- (ix) For detectors equipped with the capability of a point type ionisation smoke detector and of a point type photoelectric smoke detector, a point type ionisation analogue smoke detector or a point type photoelectric analogue smoke detector, steps shall be taken to prevent insects from entering them by means of a wire mesh with an aperture of 1 mm or less, or a plate with circular holes, etc.
- (x) The multi-signal type detectors shall be able to send out two or more different fire detection signals according to their performance, category, nominal operating temperature or nominal alarm verification time.
- (xi) Those detectors that use a radioactive material shall use such a material as their sealed radioactive source, which shall not be able to be directly touched from the outside and shall not be easily destroyed in the case of fire.
- (xii) The flame detector shall be as follows:
 - (a) The light receiving element shall not show any decrease in sensitivity and fewer signs of fatigue and shall be durable enough to withstand use for a longer period of time.
 - (b) Its detecting element shall be able to be cleaned with ease.
 - (c) It shall be provided with an activation indication device. However, this shall not apply to those detectors that can be connected to a control panel which indicates that such detectors are sending out a fire detection signal.
 - (d) Detectors of the soiling-monitoring type shall be able to send an indication of any soiling that may hinder the function of the detecting element to a control panel when such soiling occurs.
- (xiii) Detectors with an automatic test function shall be as follows:
 - (a) The function with the automatic test function may not give rise to the risk of having a deleterious effect on the function of the detector and shall be able to confirm the status of the transmission function of the detector.

- (b) The time required to make the confirmation mentioned in (a) above shall be 30 seconds or less (or a time to which the nominal alarm verification time is added for detectors of the alarm-verification-time type).
- (xiv) Detectors with interlocking alarm function used for detectors whose power is supplied from a terminal other than the terminal that transmits the fire detection signal or alert signal (automatic fire detection and alarm system for specified small-scale facilities [hereinafter referred to as an “automatic fire detection and alarm system for specified small-scale facilities”] which is specified in Article 2, Item (ii) of the Ministerial Ordinance concerning facilities, etc., using a battery and having the fire safety performance required for specified small-scale facilities that are used for fire prevention [Ordinance No. 156 of the Ministry of Internal Affairs and Communications of 2008], excluding those detectors that are equipped with a power indicator lamp), shall be able to transmit a signal to indicate a power supply disruption when such a disruption occurs.
- (xv) The fire detection signal or alert signal that is transmitted from the detector shall be able to reach an input/output device or a control panel or fire extinguishing systems, without fail.
- (xvi) Wireless detectors shall be as provided for in the following:
 - (a) The radio equipment shall consist of a wireless station of the low-power security system type that is stipulated in Article 49-17 of the Radio Equipment Regulations (Radio Regulatory Commission Rules No. 18, 1950).
 - (b) The electric field intensity of the signal to be transmitted shall be not less than the design value at a position that is located 3 m away from the detector.
 - (c) The time required for the radio equipment to transmit a fire detection signal after it receives the signal shall be five seconds or less, and the detector shall send out such a signal intermittently while the radio equipment is receiving the signal (provided that for detectors that can confirm the reception of a fire detection signal from either a control panel or detector with interlocking alarm function, the duration of such a period is limited to the time until the moment when such confirmation can be made from either the control panel or detector with interlocking alarm function).
 - (d) It shall be provided with a device that can easily confirm the transmission of the fire detection signal. However, this shall not apply to detectors that can make such confirmation from a control panel.
 - (e) It shall be provided with a device that can transmit a signal capable of conveying the transmission state of radio equipment automatically to an input/output device or control panel at intervals of not less than 168 hours. However, this shall not apply to detectors that can confirm the transmission state of such radio equipment from a control panel or to detectors with interlocking alarm function.
 - (f) It shall be able to send out a signal that is clearly distinguishable from that of other equipment.
 - (g) For detectors that have the function of receiving radio waves, the value of the receiving sensitivity (which is defined as a minimum electric field intensity with which a signal transmitted from a position that is located 3 m away from a wireless detector can be received) shall be not more than the design value.
 - (h) Such detectors that use a battery as the power source (excluding detectors with interlocking alarm function) shall be as follows:
 - [1] The replacement of the battery can be easily performed.

- [2] When the battery voltage decreases to the lower limit value at which the detector can be effectively activated, it shall be able to transmit such a state automatically to a control panel.
- (xvii) Detectors equipped with an alarm function shall be as follows:
- (a) They shall be able to continue generating an alarm for ten minutes or longer.
 - (b) For the sound pressure of an audible alarm, its value measured at a site that is located 1 meter forward from the center of the alarm portion in an anechoic chamber shall be 70 decibels or higher at 85% of the rated voltage (or the lower limit value of the specified range for a detector that is connected to a control panel or input/output device that specifies a voltage fluctuation range pertaining to the power to be supplied, or that is not supplied with power from a control panel or input/output device).
 - (c) Detectors that can stop a fire alarm by turning on its switch shall be restored to their proper monitoring state automatically within 15 minutes when the fire alarm is stopped through this switch operation.
- (xviii) Detectors with interlocking alarm function shall be as prescribed in (a) and (b) of the preceding item, and shall be as follows:
- (a) In the event that the occurrence of fire is detected, a fire detection signal to be transmitted from a detector with interlocking alarm function shall be capable of reaching other detectors with interlocking alarm function without fail.
 - (b) The detector shall be able to receive the fire detection signal from other detectors with interlocking alarm function.
 - (c) When a fire detection signal is received in the manner mentioned in (b) above, it shall be able to generate a fire alarm without fail.
 - (d) Such detectors that use a battery as their power source shall be as follows:
 - [1] The replacement of the battery can be easily performed.
 - [2] They shall be able to indicate automatically that the battery voltage has declined to the lower limit value at which the detector can be effectively activated for 72 hours or longer through blinking or the like, or shall be able to indicate such a state for 72 hours or longer through an audible sound.
 - (e) Detectors that can stop the fire alarm by turning on its switch shall be as follows:
 - [1] When the fire alarm is stopped by turning on its switch, the detector with interlocking alarm function that detects the occurrence of a fire shall be restored to its proper monitoring state within 15 minutes or automatically restored to such a state promptly in the case of connection with other detectors of the same type.
 - [2] Such detectors shall not allow the fire alarm of a detector with interlocking alarm function that detects the occurrence of a fire to be stopped by means of the switch operation of other detectors of the same type.

(Contact Members of Detectors)

Article 9 The contact members of detectors shall use gold, silver and platinum alloys or other materials that are equivalent or superior to these in performance, and a polished finish shall be applied to the contact surface.

- (2) For the contact members of detectors (excluding ones that are hermetically sealed in an inert gas), their contact pressure shall be 0.05 Newton or higher when 200 percent of the force that is required to bring the contact members into contact with each other is applied to them.
- (3) The contact members and adjustment components of detectors shall feature a structure such that they are not exposed.

(Air Stream Tests, Stray Light Tests)

Article 10 Detectors equipped with the capability of a point type ionisation smoke detector, or a point type ionisation analogue smoke detector shall transmit a fire detection signal in the case of the former or an alert signal that is not less than the lower limit value of the nominal sensible density in the case of the latter, when they are placed in an air stream with a wind speed per second of 5 meters for five minutes in an energized state.

- (2) Detectors equipped with the capability of a detector using a transmitted optical beam or an analogue detector using a transmitted optical beam shall not transmit a fire detection signal in the case of the former or an alert signal that is not less than the lower limit value of the nominal sensible density in the case of the latter, when they are irradiated with stray light of which the illuminance is 5,000 lux for ten seconds by means of an incandescent lamp and then irradiated with such light for five consecutive minutes after they are operated ten times repeatedly without being irradiated with such light for ten seconds each in an energized state.
- (3) The indoor-type flame detector type among all flame detectors shall not transmit a fire detection signal when it is irradiated with stray light of which the illuminance is 5,000 lux for five minutes each by means of an incandescent lamp and fluorescent lamp in an energized state.
- (4) The indoor-type and roadway-type flame detectors among all flame detectors shall not transmit a fire detection signal when they are irradiated with stray light or electromagnetic waves as prescribed below in an energized state.
 - (i) When they are irradiated with stray light of which the illuminance is 20,000 lux for five minutes by means of a halogen lamp,
 - (ii) When they are irradiated with stray light of which the illuminance is 1,000 lux for five minutes each by means of a revolving light (each of their cover colors are red, yellow, blue, green and violet), and
 - (iii) When they are irradiated with electromagnetic waves having an electric field intensity of 10 V per meter while 80% of the amplitude modulation is used by means of a 1 kHz sine wave and the frequency is changed between 80 MHz and 1 GHz and between 1.4 GHz and 2 GHz, respectively, at a velocity at decade intervals of 0.0015 per second.
- (5) The indoor-type flame detector among all flame detectors shall not malfunction when positive and negative impulse voltages having a waveform of which the crest value is 6 kV, the duration of a wave front ranging from 0.5 μ s to 1.5 μ s and the duration of a wave tail ranging from 32 μ s to 48 μ s are applied once each between the live part and the outer casing in a non-energized state.

- (6) The wireless detector shall not transmit a fire detection signal and not malfunction when it is irradiated with electromagnetic waves as specified in Paragraph (4), Item (iii) herein in an energized state.

(Tension Tests for Detectors)

Article 11 Detectors (excluding wireless detectors using a battery) shall comply with each of the following items:

- (i) The terminal shall consist of two pieces per pole.
 - (ii) The electric wire of such detectors that use electric wires instead of terminals (excluding line-type fixed temperature heat detectors) shall consist of two pieces per pole, and shall neither disconnect nor malfunction when a tension load of 20 N is applied to a single wire.
- (2) The linear heat sensing portions of line-type rate-of-rise heat detectors and line-type fixed temperature heat detectors shall comply with each of the following items:
- (i) They shall neither disconnect nor malfunction when a tension load of 100 N per 25 cm is applied to them.
 - (ii) The coupling parts in the linear portions shall not cause any abnormalities to the function of such portions due to the connections made using such parts.

(Sensitivity of Spot-type Rate-of-rise Heat Detectors)

Article 12 The sensitivity of spot-type rate-of-rise heat detectors shall pass the following tests in which each of the values of K, V, N, T, M, k, v, n, t and m are described in the table below according to the category:

Category	Operational test					Non-operational test				
	Stepwise increase			Linear increase		Stepwise increase			Linear increase	
	K	V	N	T	M	k	v	n	t	m
I	20	70	30	10	4.5	10	50	1	2	15
II	30	85		15		15	60		3	

- (i) Operational test
 - (a) A fire detection signal shall be transmitted within N seconds when the detector is placed in a vertical air stream of which the wind speed is V cm per second at a temperature that is higher than room temperature by K degrees.
 - (b) A fire detection signal shall be transmitted within M minutes when the detector is subjected to a horizontal air stream that moves upward linearly at a rate of T degrees per minute from room temperature.
- (ii) Non-operational test
 - (a) The detector shall not be activated within n minutes when it is placed in a vertical air stream of which the wind speed is v cm per second at a temperature that is higher than room temperature by k degrees.

- (b) The detector shall not be activated within m minutes when it is subjected to a horizontal air stream that moves upward linearly at a rate of t degrees per minute from room temperature.

(Sensitivity of Line-type Rate-of-rise Heat Detectors)

Article 13 The sensitivity of a line-type rate-of-rise heat detector of the pneumatic line type shall pass the following tests in which the value of each of t1 and t2, the temperature rise rate of the pneumatic line itself, is as described in the table below according to its category:

Category	t1	t2
I	7.5	1
II	15	2
III	30	4

- (i) The detector shall transmit a fire detection signal within one minute when a 20-m portion of the sensitivity of the pneumatic line that is kept furthest away from the detecting element for the operational test increases linearly at the rate of t1 per minute.
 - (ii) The detector shall not be activated when the sensitivity of the entire pneumatic line for the non-operational test increases linearly at a rate of t2 per minute.
- (2) The provisions of the preceding paragraph shall apply mutatis mutandis to the sensitivity of the line-type rate-of-rise heat detectors other than the line-type rate-of-rise heat detectors of the pneumatic line type.

(Category and Sensitivity of the Nominal Operating Temperature of Fixed Temperature Type Heat Detectors)

Article 14 The nominal operating temperature of fixed temperature type heat detectors shall range from 60 degrees centigrade or above to 150 degrees centigrade or below, and shall be set in steps of five degrees centigrade for the temperatures ranging from 60 up to 80 degrees centigrade, and in steps of ten degrees centigrade for temperatures that exceed 80 degrees centigrade.

- (2) The sensitivity of fixed temperature type heat detectors shall pass the tests as specified below in accordance with the category and nominal operating temperature.
 - (i) The detector shall transmit a fire detection signal within each of the times described in the table below when it is placed in a vertical air stream of which the wind speed is one meter per second at a temperature that is 125% of the nominal operating temperature for operational tests.

Category	Room temperature	
	0 deg. C	Temperatures other than 0 degrees C
Special category	40 sec.	The operating time, t (sec.), at room temperature, θ_r (deg.C), can be expressed by the following equation: $t = \frac{t_0 \log_{10}(1 + (\theta - \theta_r) \div \delta))}{\log_{10}(1 + (\theta \div \delta))}$
I	120 sec.	
II	300 sec.	

Note: t_0 refers to the operating time (sec.) when the room temperature is zero degrees C, θ refers to the nominal operating temperature (deg.C) and δ refers to the difference between the nominal operating temperature and the operational test temperature.

- (ii) The detector shall not be activated within ten minutes when it is placed in a vertical air stream of which the wind speed is one meter per second at a temperature that is lower by ten degrees C than the nominal operating temperature for a non-operational test.

(Category and Sensitivity of the Nominal Operating Temperature of Point Type Heat Combination Detectors)

Article 15 The provision prescribed in the Paragraph (1) of the preceding article shall apply mutatis mutandis to the nominal operating temperature of point type heat combination detectors.

- (2) The sensitivity of a point type heat combination detector shall pass each test as specified in Article 12 and Paragraph (2) of the preceding article in accordance its performance, category and nominal operating temperature.

(Category and Sensitivity of the Nominal Constant Temperature Point of Rate Compensation Heat Detectors)

Article 15-2 The provision prescribed in of Article 14, Paragraph (1) shall apply mutatis mutandis to the category of the nominal constant temperature point of rate compensation heat detectors.

- (2) The sensitivity of rate compensation heat detectors shall pass the following tests in which each of the values of K, V, N, T, M, k, v, n, t and m are described in the table below according to the category and nominal constant temperature point:

Category	Operational test					Non-operational test				
	Stepwise increase			Linear increase		Stepwise increase			Linear increase	
	K	V	N	T	M	k	v	n	t	m
I	20	70	30	10	4.5	10	50	1	2	10
II	30	85		15		15	60		3	

- (i) Operational test
 - (a) The detector shall transmit a fire detection signal within N seconds when it is placed in a vertical air stream of which the wind speed is V cm per second at a temperature that is higher than room temperature by K degrees.
 - (b) The detector shall transmit a fire detection signal within M minutes when it is subjected to a horizontal air stream that moves upward linearly at a rate of T degrees per minute from room temperature.
 - (c) The detector shall transmit a fire detection signal when it is subjected to a horizontal air stream that moves upward linearly at a rate of one degree per minute from room temperature, at a temperature that is not less than the nominal constant temperature point by ten degrees and is not more than the same by ten degrees.
- (ii) Non-operational test
 - (a) The detector shall not be activated within n minutes when it is placed in a vertical air stream of which the wind speed is v cm per second at a temperature that is higher than room temperature by k degrees.
 - (b) The detector shall not be activated within m minutes when it is subjected to a horizontal air stream that moves upward linearly at a rate of t degree per minute from room temperature, unless its temperature reaches a temperature that is lower than the nominal constant temperature point by ten degrees.

(Nominal Detectable Temperature Range, Continuous Response and the Sensitivity of Point Type Analogue Heat Detectors)

- Article 15-3 (1) The nominal detectable temperature range of point type analogue heat detectors shall be from 60 up to 165 degrees centigrade as its upper limit value, and a temperature or below this that is lower than the upper limit value by ten degrees centigrade or more for its lower limit value, whereas such a range shall decrease/increase in steps of one degree centigrade.
- (2) The point type analogue heat detector shall, when it is subjected to a horizontal air stream that moves upward linearly at a constant rate of two degrees per minute until its temperature increases its upper limit value from the lower limit value in the nominal detectable temperature range, transmit an alert signal that corresponds to the temperature of the current air stream.
 - (3) The sensitivity of point type analogue heat detectors shall pass the test pursuant to the operational test in the special category specified in Article 14, Paragraph (2), Item (i) for any temperature within the nominal detectable temperature range.

(Category and Sensitivity of the Nominal Alarm Verification Time of Point Type Ionisation Smoke Detectors)

Article 16 The alarm verification time of point type ionisation smoke detectors (the time until it transmits a fire detection signal and continues detecting the ambient air after detecting that the ambient air contains a certain degree or more of the density of the smoke; the same shall apply hereinafter) shall be from five seconds up to 60 seconds, while the nominal alarm verification time shall range from ten seconds up to 60 seconds, which shall be set in steps of ten seconds.

- (2) The sensitivity of point type ionisation smoke detectors shall pass the following tests in which each of values of K, V, T and t are described in the table below according to the category and nominal alarm verification time:

Category	K	V	T	t
I	0.19	From 20 up to 40	30	5
II	0.24			
III	0.28			

Note: K refers to the nominal operational ionization current rate of change, which is the rate of change of the ionization current due to smoke when 20 VDC is applied between the parallel plate electrodes (clearance between them is two cm, and the americium 241 having a microcurie level of 8.2 is mounted on the other metal electrode, which is circular in shape with a diameter of 5 cm).

- (i) When it is placed in an air stream of which the wind speed is V cm per second and which contains smoke having such a density as produces a 1.35 K rate of change of ionization current for the operational test, detectors of the non-alarm-verification-time type shall transmit a fire detection signal within T seconds, and detectors of the alarm-verification-time type shall transmit the same for five seconds or shorter or longer than the nominal alarm verification time after detecting such an air stream within T seconds.
- (ii) The detector shall not be activated within t minutes when it is placed in an air stream of which the wind speed is V cm per second and which contains smoke having such a density as produces a 0.65 K rate of change of the ionization current for a non-operational test.

(Category and Sensitivity of the Nominal Alarm Verification Time of Point Type Photoelectric Smoke Detectors)

Article 17 The provision prescribed in Paragraph (1) of the preceding article shall apply mutatis mutandis to the alarm verification time and nominal alarm verification time of a point type photoelectric smoke detector.

- (2) The sensitivity of the point type photoelectric smoke detector shall pass the following tests in which each of the values of K, V, T and t are described in the table below according to the category and nominal alarm verification time:

Category	K	V	T	t
I	5	From 20 up to 40	30	5
II	10			
III	15			

Note: K refers to the nominal operating time, which is expressed in the form of an obscuration rate, where the obscuration rate shall be measured in such a manner that an incandescent lamp of which the color temperature is 2,800 degrees C is used as a light source and the light receiving part is regarded as what is close to the luminosity factor.

- (i) When it is placed in an air stream of which the wind speed is V cm per second and which contains smoke having a density that matches the 1.5 K obscuration rate per meter for the operational test, detectors of the non-alarm-verification-time type shall transmit a fire detection signal within T seconds, and detectors of the alarm-verification-time type shall transmit the same for five seconds or shorter, or longer than the nominal alarm verification time after detecting such an air stream within T seconds.
- (ii) It shall not be activated within t minutes when it is placed in an air stream of which the wind speed is V cm per second and which contains smoke having a density that matches the 0.5 K obscuration rate per meter for a non-operational test.

(Category of the Nominal Alarm Verification Time of Line-type Smoke Detectors using a Transmitted Optical Beam, the Category and Sensitivity of the Nominal Monitoring Distance)

Article 17-2 The provision prescribed in of Article 16, Paragraph (1) shall apply mutatis mutandis to the alarm verification time and nominal alarm verification time of line-type smoke detectors using a transmitted optical beam.

- (2) The nominal monitoring distance of line-type smoke detectors using a transmitted optical beam shall range from five meters up to 100 meters, which shall be set in steps of five meters.
- (3) The sensitivity of line-type smoke detectors using a transmitted optical beam shall pass the following tests in which each of the values of K1, K2, T and t are described in the table below according to the category, nominal alarm verification time and nominal monitoring distance:

Category	L1	K1	K2	T	t
I	Less than 45 m	$0.8 \times L1 + 29$	0.3 x L2	30	2
	45 m or longer	65			
II	Less than 45 m	$L1 + 40$			
	45 m or longer	85			

Note: (i) L1 and L2 are the minimum and maximum values of the nominal monitoring distance, respectively.
(ii) K1 and K2 refer to the performance of a neutral density filter that is equivalent to the smoke concentration, which is expressed in the form of an obscuration rate. In this case, the obscuration rate shall be measured in such a manner that an LED (light emitting diode) of which the peak wavelength is 940 nm is used as a light source and the light receiving part is regarded as what has peak sensitivity at the near-infrared region.

- (i) When a neutral density filter equipped with the capability of K1, which corresponds to L1, is put between the light emitting part and the light receiving part for the operational test, detectors of the non-alarm-verification-time type shall transmit a fire detection signal within T seconds, and detectors of the alarm-verification-time type shall transmit the same for five seconds or shorter, or longer than the nominal alarm verification time after detecting such an air stream within T seconds.
- (ii) The detector shall not be activated within t minutes when a neutral density filter equipped with the capability of K2, which corresponds to L2, is placed between the light emitting part and the light receiving part for the non-operational test.

(Category and Sensitivity of the Nominal Alarm Verification Time of Point Type Smoke Combination Detectors)

Article 17-3 The provision of Article 16, Paragraph (1) shall apply mutatis mutandis to the alarm verification time and nominal alarm verification time of point type smoke combination detectors.

- (2) The sensitivity of point type smoke combination detectors shall pass each test as specified in Article 16, Paragraph (2) and Article 17, Paragraph (2) in accordance with its performance, classification and nominal alarm verification time.

(Nominal Sensible Density Range, Continuous Response and Sensitivity of Point Type Ionisation Analogue Smoke Detectors)

Article 17-4 The nominal sensible density range of point type ionisation analogue smoke detectors shall be the value that is converted to the obscuration rate per meter (or the obscuration rate as provided for in the Note of the Table in Article 17, Paragraph (2); hereinafter the same shall apply in this and the next Article), which shall be from 15% up to 25% for its upper limit value, and the lower limit value shall be within a range that is not less than 1.2% and not more than the upper limit minus 7.5% , whereas such a range shall decrease/increase in steps of 0.1%.

- (2) In the event that point type ionisation analogue smoke detectors are placed in an air stream of which the wind speed ranges from 20 cm per second up to 40 cm per second, and where smoke of which the density is increased linearly at such a constant rate as an 0.12 ionization current rate of change or less per minute is added to such an air stream until the ionization current rate of change at the lower-limit density in the nominal sensible density range (this rate of change refers to the rate of change of the ionization current as specified in the Note of the Table in Article 16, Paragraph (2); hereinafter the same shall apply in this Article) reaches the ionization current rate of change at the upper-limit density, it shall transmit an alert signal that corresponds to the current smoke concentration.
- (3) The sensitivity of point type ionisation analogue smoke detectors shall pass the test pursuant to the operational test for detectors of the non-alarm-verification-time type as specified in Article 16, Paragraph (2), Item (i) at any density in the nominal sensible density range.

(Nominal Sensible Density Range, Continuous Response and Sensitivity of Point Type Photoelectric Analogue Smoke Detectors)

Article 17-5 The nominal sensible density range of point type photoelectric analogue smoke detectors shall be the obscuration rate per meter, which shall be from 15% up to 25% as its upper limit value, and the lower limit value shall be within a range that is not less than 1.2% and not more than the upper limit minus 7.5%, whereas such a range shall decrease/increase in steps of 0.1%.

- (2) In the event that the point type photoelectric analogue smoke detector is placed in an air stream of which the wind speed ranges from 20 cm per second up to 40 cm per second, and where smoke of which the density is increased linearly at such a constant rate as 2.5% or less obscuration rate per minute is added to such an air stream until the obscuration rate per meter at the lower-limit density in the nominal sensible density range reaches the light per meter at the upper-limit density, it shall transmit an alert signal that corresponds to the current smoke concentration.

- (3) The sensitivity of point type photoelectric analogue smoke detectors shall pass the test pursuant to the operational test for detectors of the non-alarm-verification-time type as specified in Article 17, Paragraph (2), Item (i) at any density in the nominal sensible density range.

(Category of the Nominal Monitoring Distance, Nominal Sensible Density Range, Continuous Response and Sensitivity of Line-type Analogue Smoke Detectors using a Transmitted Optical Beam)

Article 17-6 The provision of Article 17-2, Paragraph (2) shall apply mutatis mutandis to the nominal monitoring distance of line-type analogue smoke detectors using a transmitted optical beam.

- (2) The nominal sensible density range of line-type analogue smoke detectors using a transmitted optical beam shall be the obscuration rate (or the obscuration rate as provided for in the Note of the Table in Article 17-2, Paragraph (3); hereinafter the same shall apply in this Article), its upper and lower limit values shall be as provided for by the table below, which shall be set in steps of 0.1%.

Category	Nominal sensible density range	
	Upper limit value	Lower limit value
For detectors for which L1 is less than 45 m	From $(0.8 \times L1 + 29)\%$ up to $1.1 \times (L1 + 40)\%$	Density in the range that is not less than $(0.15 \times L2)\%$ and not more than the upper limit minus $(0.2 \times L2 + 11)\%$
For detectors for which L1 is 45 m or more	From 65% up to 94%	Density in the range that is not less than $(0.15 \times L2)\%$ and not more than the upper limit minus 20%

Note: L1 and L2 are the minimum and maximum values of the nominal monitoring distance, respectively.

- (3) In the event that a neutral density filter is placed between the light emitting part and the light receiving part, and where the value of the neutral density filter is changed linearly at such a constant rate as 30% or less per minute of the maximum value of the nominal monitoring distance until the obscuration rate at the lower-limit density in the nominal sensible density range reaches the obscuration rate at the upper-limit density, the line-type analogue smoke detector using a transmitted optical beam shall transmit an alert signal that corresponds to the current change in the value of the neutral density filter.
- (4) The sensitivity of line-type analogue smoke detectors using a transmitted optical beam shall pass the test pursuant to the operational test for detectors of the non-alarm-verification-time type as specified in Article 17-2, Paragraph (3), Item (i) at any density in the nominal sensible density range.

(Category of the Nominal Operating Temperature and the Category and Sensitivity of the Nominal Alarm Verification Time of Point Type Fire Detectors using Scattered Light, Transmitted Light or Ionization Sensors in Combination with a Heat Sensor)

Article 17-7 Article 14, Paragraph (1) shall apply mutatis mutandis to the nominal operating temperature of ppoint type fire detectors using scattered light, transmitted light or ionization sensors in combination with a heat sensor, and the provision of Article 16, Paragraph (1) shall apply mutatis mutandis to the alarm verification time and nominal alarm verification time of the same.

- (2) The sensitivity of ppoint type fire detectors using scattered light, transmitted light or ionization sensors in combination with a heat sensor shall pass each of the tests as specified in Article 12 or Article 14, Paragraph (2) and Article 16, Paragraph (2) or Article 17, Paragraph (2) in accordance with their performance, category, nominal operating temperature and nominal alarm verification time.

(Category, Sensitivity and Angle of View of the Nominal Monitoring Distance of Flame Detectors)

Article 17-8 The nominal monitoring distance of flame detectors shall be determined for every five degrees of the angle of view, which shall be set in steps of one meter for distances that are less than 20 m and in steps of five meters for distances that are 20 m or longer.

- (2) The sensitivity of flame detectors shall pass the test as specified in the following:
 - (i) In the event that the values of L and d are specified as in the table below in accordance with nominal monitoring distance for each category and angle of view of the detector for the operational test, the flame detector shall transmit a fire detection signal within 30 seconds at a site that is L m away horizontally from the detector when normal heptane is burned on a square-shaped burning plate of a size of d cm.

Category	L	d
Indoor type	The value is 1.2 times that of the nominal monitoring distance.	33
Outdoor type or roadway type	The value is 1.4 times that of the nominal monitoring distance.	70

- (ii) The detector shall not be activated within one minute when the amount of light of UV and IR received for a non-operational test is 25% of the amount of light received in the operational test mentioned in the preceding item.
- (3) The maximum angle of view of flame detectors of the roadway type shall be 180 degrees or more.

(Conditions of the Sensitivity Test)

Article 18 The tests specified in Articles 12 to 17 shall be conducted after the detector is left unattended for 30 minutes in a forced draft at a temperature as high as room temperature.

(Ambient Temperature Test)

Article 19 Based on the classification of detectors listed in each of the following items, the detector shall not exhibit any abnormal function at an ambient temperature within the range specified in each of such items:

- (i) Detectors with the capability of a fixed temperature type heat detector: Not less than ten degrees below zero and not more than a temperature of 20 degrees lower than the nominal operating temperature (as for those with two or more nominal operating temperatures, the lowest nominal operating temperature; the same in the following article) or the nominal fixed temperature
- (ii) Point type analogue heat detector: Not less than ten degrees below zero and not more than a temperature of 20 degrees lower than the upper limit value of the nominal sensed temperature range
- (iii) Outdoor-type or roadway-type flame detector: Not less than 20 degrees below zero and not more than 50 degrees
- (iv) Detectors other than the detectors listed in the previous items: Not less than ten degrees below zero and not more than 50 degrees

(Aging Test)

Article 20 When the detector is left unattended in an energized state for 30 days in air at a temperature of 20 degrees lower than the nominal operating temperature or the nominal fixed temperature in the case of the detectors listed in Item (i) of the previous article, at a temperature of 20 degrees lower than the upper limit value of the nominal sensed temperature range in the case of detectors listed in Item (ii) of the same article, and at a temperature of 50 degrees in the case of detectors listed in Items (iii) and (iv) of the same article, no abnormality shall occur in terms of the structure or function.

(Waterproof Test)

Article 21 Waterproof detectors shall not exhibit any abnormal function after repeating an operation two times in which the detector is soaked in fresh water at a temperature of 65 degrees for 15 minutes and subsequently in a saturated aqueous solution of sodium chloride at a temperature of zero degrees for 15 minutes.

(Dropping Test)

Article 21-2 Detectors (excluding waterproof detectors, radio detectors using a battery that uses no terminal or electric wires; limited to those that are substitutes for terminals) and detectors with a linked alarm function used in automatic fire detection and alarm systems for specified small-scale facilities that support automatic test functions, etc.) shall not exhibit any abnormal function when they are tested with fresh water sprayed on the surface of the circuit board of such a detector in an energized state at a rate of five cubic centimeters per minute.

(Spray Test)

Article 21-3 Outdoor-type or roadway-type flame detectors (excluding those of the waterproof type) shall not allow water to pool inside or exhibit any abnormal function when such detectors that are installed for normal use have been uniformly sprayed with fresh water at a rate of three millimeters per minute from an anterosuperior 45-degree angle direction for 60 minutes.

(Corrosion Test)

Article 22 Detectors (excluding detectors with a linked alarm function used in automatic fire detection and alarm systems for specified small-scale facilities that support automatic test functions, etc.) shall not exhibit any abnormal function when the test of Item (i) is performed for the normal type, the tests of Item (ii) and (iii) for the acid proof type, and the tests of Item (ii) and (iv) for the alkali proof type. In this case, such tests shall be performed at a temperature of 45 degrees with the air tube wound ten times on a round bar with a diameter of ten millimeters and with the thermocouple of the thermocouple type detector or the thermally sensitive linear part of the line type heat detector wound ten times on a round bar with a diameter of 100 millimeters.

- (i) A test in which the detector in the energized state is left unattended for four days in sulfur dioxide that is generated by adding ten milliliters of the solution twice a day (the solution is obtained by dissolving a 156-milliliter solution in which sulfuric acid is dissolved at a ratio of 1:35 by volume of sulfuric acid to distilled water in 1,000 milliliters of water) to a 5-liter tester in which a 500-milliliter aqueous sodium thiosulfate solution having a density of 40 grams per liter is placed.
 - (ii) A test performed two consecutive times in which a detector in an energized state is left unattended for eight days in sulfur dioxide that is generated by adding ten milliliters of the solution twice a day (the solution is obtained by dissolving 156-milliliter solution in which sulfuric acid is dissolved at a ratio of 1:35 by volume of sulfuric acid to distilled water in 1,000 milliliters of water) to a 5-liter tester in which 500 milliliters of aqueous sodium thiosulfate having a density of 40 grams per liter is placed.
 - (iii) A test in which a detector in an energized state is left unattended for 16 days in hydrogen chloride gas having a density of one gram per liter
 - (iv) A test in which the detector in an energized state is left unattended for 16 days in ammonia gas having a density of ten grams per liter
- (2) The outdoor-type or roadway-type flame detector shall exhibit no significant rust nor any abnormal function when the outer surface of such a detector has been sprayed with a three percent sodium chloride solution for 30 seconds once a day over three days in order to achieve no less than one milliliter and no more than three milliliters per horizontal area with a diameter of nine centimeters, and then this detector is left unattended for 15 days in air at a temperature of 40 degrees with a relative humidity of 95 percent.

(Repeating Test)

Article 23 Detectors (excluding non-resettable detectors) in a state where a the rated voltage is applied in order to pass the rated current shall not exhibit any abnormality in terms of the structure and function when the operation specified in each of the following items is repeated one thousand times based on the classification of the detectors listed in such items.

- (i) Detectors having the capability of a differential detector or detectors having the capability of a fixed temperature type heat detector: Leave the detector unattended in an airflow at the test temperature (as for those with two or more performances or categories, the highest test temperature) of 30 degrees for the special and first classes, 40 degrees for the second class, and 60 degrees for the third class, higher than room temperature in the case of detectors having the capability of a differential detector (excluding rate compensation heat detectors), the nominal operating temperature (as for those with two or more nominal operating temperatures, the highest nominal operating temperature) in the case of detectors

having the capability of a fixed temperature type heat detector (excluding rate compensation heat detectors; the same as in Article 29), and the nominal fixed temperature in the case of rate compensation heat detectors, until the fire detection signal is transmitted, and then cool the device until it returns to the original state in a forced draft at a temperature as high as room temperature.

- (ii) Point type analogue heat detectors: Leave the detector unattended in an airflow at a test temperature 30 degrees higher than the upper limit value of the nominal sensed temperature range until the alert signal relevant to the upper limit value of the nominal sensed temperature is transmitted, and then let the detector return to the original state in a forced draft at a temperature as high as room temperature.
- (iii) Detectors having the capability of point type ionisation smoke detectors: Apply the voltage, etc., to the detector to transmit the fire detection signal and then let it return to the original state.
- (iv) Detectors having the capability of photoelectric detectors, or flame detectors: Apply the amount of light, etc., to the detector to transmit the fire detection signal and then let it return to the original state.
- (v) Point type ionisation analogue smoke detectors: Apply the voltage, etc., to the detector to transmit the alert signal relevant to the upper limit value of the nominal sensed density and then let it return to the original state.
- (vi) Detectors having the capability of a photoelectric analogue detector: Apply the amount of light, etc., to the detector to transmit the alert signal and then let it return to the original state.

(Vibration Test)

Article 24 Detectors in an energized state shall maintain the proper monitoring status when 1,000 vibrations per minute with a peak-to-peak amplitude of one millimeter are applied to the detector in any direction for ten consecutive minutes.

- (2) Detectors in a non-energized state shall not exhibit any abnormality in terms of the structure and function when 1,000 vibrations per minute with a peak-to-peak amplitude of four millimeters are applied to the detector in any direction for 60 consecutive minutes.

(Impact Test)

Article 25 The detector shall not exhibit any abnormal function when a shock with a maximum acceleration of 50 G is applied to such a detector five times in any direction.

(Dust Test)

Article 26 Detectors in an energized state shall not exhibit any abnormal function when such a detector is exposed for 15 minutes to air that contains the Japanese Industrial Standard (JIS) Z 8901 Class 5 stipulated by Article 17-1 in the Industrial Standardization Law (Act No. 185 of 1949) at a density of 20 percent per 30 centimeters in the obscuration rate. In this case, such a test shall be performed under conditions of a temperature of 20 degrees with a relative humidity of 40 percent.

(Impulse Voltage Test)

Article 27 Detectors (excluding wireless detectors) in an energized state shall not exhibit any abnormal function when each of the following tests is performed for 15 seconds.

- (i) Apply a voltage of 500 V from the power supply with an internal resistance of 50 ohms at a pulse width of one microsecond with a cycle period of 100 Hz.
- (ii) Apply a voltage of 500 V from the power supply with an internal resistance of 50 ohms at a pulse width of 0.1 microseconds with a cycle period of 100 Hz.

(Humidity Test)

Article 28 Detectors in the energized state shall maintain their proper monitoring status when such a detector is left unattended for four days in air at a temperature of 40 degrees with a relative humidity of 95 percent.

(Resettability Test)

Article 29 Resettable detectors shall not produce any abnormality in terms of the structure and function when they are placed in an airflow at a temperature of 150 degrees with a wind velocity of one meter per second for two minutes in the case of detectors having the capability of a fixed temperature type heat detector or a point type analogue heat detector, and for 30 seconds in the case of any other detector.

(Insulation Resistance Test)

Article 30 As for the insulation resistance between the insulated terminals and between the electrically live parts and the metal outer case of the detector, the value measured with an insulation resistance meter of the application of a direct 500 V shall be no less than 50 megohms (1,000 megohms per meter between the lines for line-type fixed temperature heat detectors).

(Dielectric Strength Test)

Article 31 The dielectric strength between the electrically live part and the metal outer case of the detector shall tolerate a situation for one minute in which an effective AC voltage of 500 V that is close to a sine wave of 50 or 60 Hz is applied (1,000 V in the cases where the rated voltage exceeds 60 V but not more than 150 V, or a value obtained by adding 1,000 V to the value obtained by multiplying the rated voltage by 2 in cases where the rated voltage exceeds 150 V).

Chapter 3 Manual Call Points

(Structure and Functions of P-type Manual Call Points)

Article 32 P-type Class 1 manual call points shall have a structure and functions that meet the requirements specified in all the following items, while P-type Class 2 manual call points shall have a structure and functions that meet the requirements set forth in Items (i) to (v) and (viii).

- (i) Pressing a push button switch shall issue a fire detection signal.
- (ii) In manual call points having a switch that does not return to the original position automatically after being pressed, measures shall be taken to prevent the operator from forgetting to return it.

- (iii) The push button switch shall have a protection cover in front, and the operator can break or remove the protection cover by a pushing action in order to gain access to press the switch easily.
- (iv) The protection covers shall consist of transparent and organic glass.
- (v) The protector which has mechanism that is broken or displaced by finger pressure shall be broken or displaced by a pushing action with the fingertips when a static force of 80 N acts uniformly on the center circle of 20 mm in diameter rather than 20 N, provided the resulting deflection shall not make the plate come into contact with the push button switch.
- (vi) The manual call point shall have a device that can make sure the control panel receives the transmitted fire detection signal.
- (vii) The manual call point shall have a device that can communicate with the control panel by telephone without hindering the transmission of the fire detection signal.
- (viii) The color of the housing shall be red.

(Structure and Functions of M-type Manual Call Points)

Article 33 M-type manual call points shall have a structure and functions that meet not only the following specifications, but also the requirements set forth in Items (i) to (iii) and (vi) to (viii) in the previous article.

- (i) The protection cover shall consist of transparent and inorganic or organic glass, provided the former type shall be 1 to 2 mm thick. In this case, Item (v) in the previous article applies to the protection cover that has organic glass and that has a mechanism that can be broken or displaced by finger pressure.
- (ii) The punching recorder-type manual call point shall issue the same fire detection signal two or more times in a row, and the signal shall consist of not more than five digits, each having six or fewer holes.
- (iii) The outdoor manual call point shall have a protector that is rated at a current of 3 A and that is tripped at a voltage of 100 to 300 V.

(Structure and Functions of T-type Manual Call Points)

Article 34 T-type manual call points shall have a structure and functions that meet not only the following specifications, but also the requirements set forth in Article 32, Items (ii) and (viii).

- (i) A fire detection signal shall be issued when the operator picks up the handset.
- (ii) The handset shall be easy to handle.
- (iii) The manual call point shall have a device that can provide simultaneous communication with the control panel.

(Structure and Functions of Wireless Manual Call Points)

Article 34-2 Wireless manual call points shall have an antenna that is not exposed to the outside.

- (2) Article 8, Items (xvi)(a) to (xvi)(c) and (xvi)(e) to (xvi)(h), and Article 10, Paragraph (6) shall apply mutatis mutandis to the structure and functions of wireless manual call points, provided some terms shall be changed as follows: the term “detector” in Article 8, Item (xvi)(b) to

“manual call point,” the term “control panel or detector with interlocking alarm function” in Item (xvi)(c) to the “control panel,” the term “detectors that can confirm the transmission state of such radio equipment from a control panel or to detectors with interlocking alarm function” in Item (xvi)(e) to “manual call points that can confirm the transmission on state of such radio equipment from a control panel,” the term “wireless detector” in Item (xvi)(g) to the “wireless manual call point,” the term a “Such detectors that use a battery as the power source (excluding detectors with interlocking alarm function) ” in Item (xvi)(h) to a “Such manual call points that use a battery as the power source,” the term “detector” in Item (xvi)(h)(2) to “manual call point,” and the term “wireless detector” in Article 10, Paragraph (6) to “wireless manual call point.”

(Ambient Temperature Test)

Article 35 Manual call points categorized item by item shall work without failure in function in the ambient temperature range specified in each item.

- (i) Outdoor manual call point: From -20°C to $+70^{\circ}\text{C}$
- (ii) Indoor manual call point: From -10°C to $+50^{\circ}\text{C}$

(Repeating test)

Article 36 Manual call points shall work with neither structural nor functional problems after repeating the transmission of the fire detection signal 1,000 times at the rated voltage and current.

(Corrosion Test)

Article 37 Outdoor manual call points shall work with neither severe rust nor functional error after the outer surface is exposed to sodium chloride solution whose concentration is three percent, whose volume is 1 to 3 mL per horizontal area of 9 cm in diameter, and that is sprayed in mist form for 30 seconds once a day for three days, and the unit is left standing in air whose temperature and relative humidity are 40°C and 95%, respectively, for 15 days.

(Spray Test)

Article 38 Outdoor manual call points shall work with neither water penetrating the housing nor functional error after the unit is installed in a normal operating state and exposed to clear water sprayed under uniform and rain-type conditions at a rate of 3 mm/minute and at an anterosuperior angle of 45 degrees for 60 minutes.

(Vibration Test)

Article 39 Energized manual call points shall continue proper monitoring with neither structural nor functional problem while being subjected to vibrations whose full amplitude is 4 mm, whose frequency is 1,000 rpm, and whose direction is arbitrary for 60 minutes.

(Impact Test)

Article 40 Manual call points shall work with no failure in function after being subjected to an impact whose direction is arbitrary, whose maximum acceleration is 100 G, and with a frequency of five times.

(Insulation Resistance Test)

Article 41 When manual call points are measured with an insulation resistance tester rated at 500 VDC, the resultant resistance between the insulated terminals, between the live part and the metal housing, and between the live part and the push button switch head shall be 20 MΩ or over.

(Dielectric Strength Test)

Article 42 When an AC voltage having a nearly sinusoidal wave is applied between the terminal and the metal housing of the manual call points at a frequency of 50 Hz or 60 Hz and an effective amplitude of 500 V, no dielectric breakdown shall occur for one minute. Note that the amplitude shall be 1,000 V if the rating is more than 60 V to 150 V, or the rated voltage multiplied by 2 plus 1,000 V if the rating exceeds 150 V.

Chapter 4 Miscellaneous Provisions

(Labeling)

Article 43 Detectors and manual call points categorized item by item shall have the hard-to-erase labels shown in each item in easily visible areas.

- (i) Labels necessary for each detector
 - (a) Name including the word “detector,” which should be one of the spot-type rate-of-rise heat detector, line-type rate-of-rise heat detector, line-type fixed temperature heat detector, spot-type fixed temperature heat detector, rate compensation heat detector, point type heat combination detector, point type analogue heat detector, point type ionisation smoke detector, point type photoelectric smoke detector, line-type smoke detector using a transmitted optical beam, point type smoke combination detector, point type ionisation analogue smoke detector, point type photoelectric analogue smoke detector, line-type analogue smoke detector using a transmitted optical beam, point type fire detectors using scattered light, transmitted light or ionization sensors in combination with a heat sensor, point type ultra-violet detector, point type infrared detector, and two types of point type multiband detectors.
 - (b) Any of the waterproof, acid-proof, alkali-proof, non-resettable, and alarm verification types.
 - (c) Category if the detector is classified into two or more kinds (or performance and category if the detector is a point type heat combination detector, a point type smoke combination detector, or a point type fire detectors using scattered light, transmitted light or ionization sensors in combination with a heat sensor).
 - (d) The nominal operating temperatures for detectors having the same performance as fixed temperature type heat detectors, nominal fixed temperature for rate compensation heat detectors, nominal detectable temperature range for point type analogue heat detectors, nominal alarm verification time for alarm verification detectors having the same performance as point type ionisation smoke detectors or photoelectric detectors, type-by-type nominal monitoring distance for line-type smoke detectors using a transmitted optical beam, nominal detectable density range for point type ionisation analogue smoke detector or point type photoelectric

analogue smoke detector, nominal monitoring distance and detectable density range for line-type analogue smoke detectors using a transmitted optical beam, or nominal monitoring distances on a view angle basis for flame detectors.

- (e) Number of fire detection signals able to be transmitted if the detector is a multi-signal type.
- (f) Model name and number.
- (g) Manufacturing year.
- (h) Name of the manufacturer.
- (i) Outline of the operating method.
- (j) Manufacturing number for line-type rate-of-rise heat detectors, detectors having the same performance as point type ionisation smoke detectors or photoelectric detectors, point type ionisation analogue smoke detector, detectors having the same performance as analogue smoke detectors using scattered light or transmitted light, or flame detectors.
- (k) Maximum air pipe length for line-type rate-of-rise heat detectors having pneumatic tubes, or the maximum number of heat-sensitive elements, conductor resistance, and working voltage for the other detectors.
- (l) One of either indoor, outdoor, or road types if the detector is a flame type, or to this effect if the detector is a stain monitoring type.
- (m) The term “With test function” is to be included as well as the type and model number of the connectable control panel or input/output device if the detector has an automatic test function.
- (n) Each of the wireless detectors shall have the following labels:
 - [1] The word “wireless.”
 - [2] The model number of an input/output device or control panel that can receive a signal.
- (o) The term “With an alarm function” if the detector has an alarm function (except detectors with an interlocking alarm function).
- (p) The term “With an interlocking alarm function” if the detector has an interlocking alarm function.
- (q) To the effect that the detector shall not be used in any automatic fire detection and alarm system except designated small-scale ones if specified in the Regulation for Enforcement of the Fire Service Law (No. 6 Ordinance of the Ministry of Home Affairs in 1961), Article 23, Paragraph (4), Item (vii-vi).
- (r) The cell type and voltage if the detector has batteries as the power supply.
- (ii) In addition to the descriptions and terms in (f) to (i) in the previous items, each manual call point shall have the following labels:
 - (a) One of P-type Class 1, P-type Class 2, T-type and M-type plus the term “Manual call point.”
 - (b) The term “Fire alarm.”
 - (c) Each of wireless manual call points shall have the following labels:
 - [1] The word “Wireless.”

- [2] The model number of the input/output device or control panel that can receive the signal.
 - [3] The cell type and voltage if the manual call point has batteries as the power supply.
- (2) The terminal board of a detector (except for nonpolar ones) or a manual call point shall have hard-to-erase terminal symbols on easily visible parts.

(Exemption from the Standards)

Article 44 When the Minister of Internal Affairs and Communications admits that a detector or manual call point developed through new technology has the same or higher performance as or than a product that conforms to this ordinance in view of its shape, structure, materials, and functions, technical standards defined by the Minister may apply, notwithstanding the standards in this ordinance.

Ministerial ordinance for standards Pertaining to Control Panels (No. 19 Ordinance of the Ministry of Home Affairs on June 20, 1981)

(Outline)

- (1) Purport and definitions of the terms (Articles 1 and 2)
These articles define the purport of and terms used in this ordinance.
- (2) Structure and functions of control panels and their components (Articles 3 and 4)
These articles specify structure and functions necessary to control panels and their components.
- (3) Accessories (Article 5)
This article presents requirements for accessories installed in control panels.
- (4) Functions of control panels (Articles 6 to 13-3)
These articles describe requirements for the receiving, fire alarm indication, alarm issuing, and testing functions of the control panels.
- (5) Environmental tests of control panels (Articles 14 to 20)
These articles describe how to test control panels for their functions, resistance to repeated operation, impulse voltage strength, and response to power supply changes and to evaluate the results.
- (6) Labeling (Article 21)
This article specifies the necessary labels, such as the type, model number, manufacturing year, and production number.
- (7) Exemptions from the standards (Article 22)
This article indicates which technical standards defined by the Minister of Internal Affairs and Communications may apply to control panels developed through new technology, provided the minister gives approval.

Ministerial ordinance for standards Pertaining to Control Panels
(No. 19 Ordinance of the Ministry of Home Affairs in 1981)

(Purport)

Article 1 This ordinance defines technical standards for control panels to be used in fire detection and alarm systems or gas leak and fire alarm systems (including ones to be installed in either system; the same shall apply hereinafter).

(Definitions of the Terms)

Article 2 In this ordinance, the meanings of the terms listed in the following items shall be as prescribed at the respective time.

- (i) Fire detection and alarm system: Refers to the one specified in the Ordinance for Defining Technical Standards Pertaining to Input/Output Devices (No. 18 Ordinance of the Ministry of Home Affairs in 1981, which is referred to as the I/O Device Standard Ordinance hereinafter), Article 2, Item (i).
- (ii) Gas leak and fire alarm system: Refers to the one specified in the I/O Device Standard Ordinance, Article 2, Item (ii).
- (iii) Detector: Refers to the one specified in the Ministerial ordinance for standards Pertaining to Detectors and Manual Call Points in Fire Detection and Fire Alarm Systems (No. 17 Ordinance of the Ministry of Home Affairs in 1981, which is referred to as the Detector Standard Ordinance hereinafter), Article 2, Item (i).
- (iii-ii) Wireless detector: Refers to the one specified in the Detector Standard Ordinance, Article 2, Item (xix-iv).
- (iv) Manual call point: Refers to the one specified in the Detector Standard Ordinance, Article 2, Item (xx).
- (iv-ii) Wireless manual call point: Refers to the one specified in the Detector Standard Ordinance, Article 2, Item (xxiii-ii).
- (v) Sensor: Refers to the one specified in the I/O Device Standard Ordinance, Article 2, Item (v).
- (vi) Input/output device: Refers to the one specified in the I/O Device Standard Ordinance, Article 2, Item (vi).
- (vi-ii) Wireless input/output device: Refers to the one specified in the I/O Device Standard Ordinance, Article 2, Item (vi-iii).
- (vii) Control panel: Refers to a device that receives a fire detection signal (the one specified in the Detector Standard Ordinance, Article 2, Item (xxvii); the same shall apply hereinafter), a fire indication signal (the one specified in the I/O Device Standard Ordinance, Article 2, Item (ix); the same shall apply hereinafter), a alert signal (the one specified in the Detector Standard Ordinance, Article 2, Item (xxviii); the same shall apply hereinafter), a gas leak signal (the one specified in the I/O Device Standard Ordinance, Article 2, Item (x); the same shall apply hereinafter), or an equipment activation signal (the one specified in the I/O Device Standard Ordinance, Article 2, Item (xi); the same shall apply hereinafter) to inform the person owning the fire prevention property or the fire fighting organization of the

occurrence of a fire or gas leak, or the activation of fire extinguishing systems (the one specified in the Detector Standard Ordinance, Article 2, Item (xxvi); the same shall apply hereinafter).

- (viii) P-type control panel: Refers to a device that receives a fire detection or indication signal as a common one or an equipment activation signal as a common or unique one to inform the person owning the fire prevention property of the occurrence of a fire.
- (ix) R-type control panel: Refers to a device that receives a fire detection, indication, or reference signal as a unique one or an equipment activation signal as a common or unique one to inform the person owning the fire prevention property of the occurrence of a fire.
- (ix-ii) Analogue control panel: Refers to a device that receives a alert signal to inform the person owning the fire prevention property of the occurrence of a fire. Note that the received signals include a signal to the effect that a device (hereinafter referred to as the “sensitivity setter”), which sets the temperature or density (hereinafter referred to as the “indicated temperature”) at which a fire alarm or fire alarm notice indication is issued (which means the auxiliary indication of an abnormal event until the indication of a fire; the same shall apply hereinafter) according to the amplitude of the alert signal, has displayed a fire alarm or caution.
- (x) M-type control panel: Refers to a device that receives a fire detection signal from an M-type manual call point to inform the fire fighting organization of the occurrence of a fire.
- (xi) G-type control panel: Refers to a device that receives a gas leak signal to inform the person owning the fire prevention property of the occurrence of a gas leak.
- (xii) GP-type control panel: Refers to a device that has the functions of both P-type and G-type control panels.
- (xiii) GR-type control panel: Refers to a device that has the functions of both R-type and G-type control panels.
- (xiv) Two-signal control panel: Refers to a device that has the function of displaying a fire alarm when receiving two different fire detection signals from the same warning zone.
- (xv) Wireless control panel: Refers to a device that receives a fire detection, indication, or reference signal, or an equipment activation signal wirelessly to report the occurrence of a fire.

(Structure and Functions)

Article 3 Control panels shall have a structure and functions that meet the following requirements:

- (i) The control panel shall work soundly and be easy to operate and maintain and its accessories should be easily changed.
- (ii) It shall be sufficiently durable.
- (iii) Water droplets shall not be able to easily penetrate the control panel.
- (iv) No functions shall perform abnormally due to dust or moisture.
- (v) If parts of the control panel risk degradation in their functions due to corrosion, corrosion-proof measures shall be taken.

- (vi) The housing shall be nonflammable or fire-resistant.
- (vii) The wiring shall have sufficient current capacity and the connections shall be made correctly.
- (viii) The components shall be assembled correctly so that they can neither become loose nor cause a functional error.
- (ix) The electrically live parts shall be fully protected to prevent anyone from touching them easily.
- (x) If the control panel is rated at more than 60 V, the metal housing shall be equipped with an earth terminal.
- (xi) The control panel shall have a power switch that can open and close both electrodes of the main power supply simultaneously except for P-type Class 3 control panels, G-type control panels that are connected to a single system only, and GP-type Class 3 control panels (limited to ones that are connected to a single system only as a G-type control panel function).
- (xii) Both lines of the main power circuit, one line for the standby power circuit and the circuit that supplies power to external loads, shall have a protector, such as a fuse or breaker.
- (xiii) The control panel shall have a standby power supply except for P-type Class 2 control panels that connect with a single system only, P-type Class 3 control panels, G-type control panels, and GP-type Class 2 control panels (limited to ones that connect with a single system only as a P-type Class 2 control panel function), and GP-type Class 3 control panels.
- (xiv) The control panel shall have a device that monitors the main power supply on the front panel.
- (xv) The tester of the control panel shall be easy to operate on the front panel.
- (xvi) If the control panel has a reset switch or one that stops the sound from a sounding device, the switch shall be a special one except when the switch is attached to the inside of the control panel or installed in a P-type Class 3 or GP-type Class 3 control panel.
- (xvii) If the switch does not return to the original position automatically, the sounding device or blinking caution light shall be activated while the switch is not in position.
- (xviii) If the control panel has a switch (referred to as “zone alarm sound stop switch in this item”) stopping a sound from a zone alarm sounding appliance, the switch shall meet the following requirements:
 - (a) If the control panel receives a fire detection, indication, or reference signal whose amplitude is large enough to display a fire alarm while the zone alarm sound stop switch keeps the zone alarm sounding appliance in the stop mode, the former shall automatically change the latter to the sounding mode within a given period of time. After establishing the stopping mode while the control panel displays a fire alarm as shown in Article 6, Paragraph (1), (2) (except Item (i)), or (3), the switch shall change the stopping mode to the sounding mode automatically as soon as the control panel receives a fire detection, indication, or reference signal whose amplitude is large enough to display a fire alarm.
 - (b) If the control panel is equipped with a device that stops the activation of the zone alarm sound stop switch shown in (a), the stopper shall sit in the control panel with the sounding device and a special blinking caution light shall be turned ON during

the operation of the stopper.

- (xix) If the control panel has a device that adjusts the alarm verification time, the latter shall sit in the former. Note that the alarm verification time is defined as the time from the of a fire detection, indication, or reference signal (limited to one whose amplitude is large enough to display a fire alarm) to the reception start; the same shall apply hereinafter.
- (xx) Analogue control panels equipped with a sensitivity setter shall meet the following requirements:
 - (a) The control panel shall have a nominal receiving temperature range pertaining to the alert signal from point type analogue heat detectors as specified in the Detector Standard Ordinance, Article 15-3, Paragraph (1).
 - (b) The control panel shall have a nominal receiving density range pertaining to the alert signal from point type ionisation analogue smoke detector or point type photoelectric analogue smoke detector as specified in the Detector Standard Ordinance, Article 17-4, Paragraph (1).
 - (c) The control panel shall have a nominal receiving density range pertaining to the alert signal from line-type analogue smoke detectors using a transmitted optical beam as specified in the Detector Standard Ordinance, Article 17-6, Paragraph (2).
 - (d) The sensitivity setter shall have the following functions:
 - [1] The setter shall be able to identify the detector that sets the temperatures to be displayed and to easily allow checking of the temperatures from the detector.
 - [2] Two or more actions are necessary to change the temperature.
 - [3] The setter shall display temperatures in degrees for point type analogue heat detectors or obscuration rates in percentage or degree terms for point type ionisation analogue smoke detectors, s, and line-type analogue smoke detectors using a transmitted optical beam.
- (xxi) Control panels equipped with a sensitivity fixing device shall meet the following requirements:
 - (a) The control panel shall cover temperatures that come with an alert signal from point type analogue heat detectors, that are within the range defined in the Detector Standard Ordinance, Article 15-3, Paragraph (1), and that are defined as the nominal working temperatures in the Detector Standard Ordinance, Article 14, Paragraph (1).
 - (b) The control panel shall cover the level of density that comes with the alert signal from point type ionisation analogue smoke detectors or point type photoelectric analogue smoke detectors, that is within the range defined in the Detector Standard Ordinance, Article 17-4, Paragraph (1), and that is defined as the nominal working density in the Detector Standard Ordinance, Article 17, Paragraph (2).
 - (c) The control panel shall cover the level of density that comes with the alert signal from line-type analogue smoke detectors using a transmitted optical beam, that is within the range defined in the Detector Standard Ordinance, Article 17-6, Paragraph (2), and that is two-thirds of the obscuration filter performance specified in the Detector Standard Ordinance, Article 17-2, Paragraph (3), Item (i).

- (d) The sensitivity setting device shall have the following functions:
 - [1] The device shall be able to identify a detector that sets the temperature or density for displaying a fire alarm and to easily check the type pertaining to the sensitivity and nominal working temperature of the detector that corresponds to the temperatures or density levels obtained.
 - [2] If the setter has a device that selects the temperatures or density received, only the temperature or density that meets Items (a) to (c) shall be selectable, and two or more actions are necessary to change the temperature or density.

(Structure and Functions of the Components)

Article 4 The following item-by-item components of each control panel shall have the structure and functions defined in the corresponding item.

- (i) Sounding devices
 - (a) The sounding device shall generate a sound at 90 percent of the rated voltage (or 85 percent of the rating of the standby power supply if available).
 - (b) The resultant sound level at the rated voltage shall be not less than 85 dB for the main sounding device of a fire detection and alarm system (or 70 dB if the system has P-type Class 3 and GP-type Class 3 control panels) or not less than 70 dB for that of other systems. The level shall be measured one meter away from the center of the sounding device in an anechoic room.
 - (c) The sounding device shall work with neither structural nor functional problems after generating a continuous sound at the rated voltage for eight hours.
 - (d) The insulation resistance between the electrically live and other parts, which is measured with a insulation resistance tester, shall be not less than 5 MΩ at 500 VDC.
 - (e) The dielectric strength between the electrically live and other parts shall be 500 V for one minute, provided the applied AC voltage shall be a nearly sinusoidal wave at 50 Hz or 60 Hz. Note that the dielectric strength shall be 1,000 V if the rating is more than 60 V to 150 V, or the rated voltage multiplied by 2 plus 1,000 V if the rating exceeds 150 V.
 - (f) If the sounding device generates a sound pertaining to a fire or gas alarm, the priority shall be given to producing a sound that can be easily distinguished from other sounds.
- (ii) Electromagnetic relay
 - (a) The relays except for closed ones shall have a cover to prevent dust from getting on the contacts or moving parts.
 - (b) The contacts shall be made of gold or silver alloys, or other materials with the same conductivity as these metals, and shall not serve as an external load terminal.
- (iii) Power supply transformer
 - (a) The transformer shall conform to the Japanese Industrial Standard (JIS) C 6436 defined in the Industrial Standardization Act (No. 185 Law in 1949), Article 17, Paragraph (1).
 - (b) The capacity shall not change at the maximum operating current.

- (iv) Indicator
 - (a) If the indicator is a bulb, it shall work without a break, extreme changes in the light flux, blackening, or an extreme reduction in the current after 130 percent of the rated AC voltage of the circuit in use is continuously applied to the bulb for 20 hours.
 - (b) Two or more bulbs shall connect with each other in parallel except for discharge lamps and light emitting diodes.
 - (c) The indicator in an ON state shall be definitely identified at 3 m away from the control panel at an ambient brightness of 300 lux.
- (v) Switch
 - (a) The switch shall work soundly and easily, and the stop point shall be defined clearly.
 - (b) The contact shall not have any risk of corrosion and the capacity shall not change at the maximum operating current.
- (vi) Indicating electric meter
 - (a) The electric meter shall conform to JIS C 1102-1 and JIS C 1102-2.
 - (b) The maximum range of the voltmeter shall be 140-200 percent of the rated voltage of the circuit in use.
- (vii) Fuse: Shall meet JIS C 6575-1, JIS C 6575-2, or JIS C 8352.
- (viii) Standby power supply
 - (a) The standby power supply shall be a closed storage battery.
 - (b) The control panel shall have a device that automatically switches the main power supply to the standby as soon as the former has stopped, and vice versa just after the former has recovered.
 - (c) The control panel shall have a device that can measure the voltage easily when a maximum consumption current passes through the standby power supply as a load.
 - (d) The standby power supply shall have lead wires having different colors, and measures shall be taken to prevent any wrong connections.
 - (e) The standby power supply shall have the following capacity according to its category.

[1] Standby power supply for P-type or R-type control panels: Shall have a capacity that is sufficient to allow a consumption current to flow continuously when running the systems of two warning zones (or a single warning zone where the single system works with the P-type control panel) for ten minutes continuously after the monitoring state continues for 60 minutes. Note that if the control panel connects with zone alarm sounding appliances, the capacity shall be the sum of the consumption current and an additional current that is sufficient to activate all the sounding devices simultaneously, or if the control panel has the function of receiving an equipment activation signal from fire extinguishing systems via the signal circuit reaching the terminating unit (hereinafter referred to as the “equipment activation receiving function”), the capacity shall be the sum of the consumption current and an additional current high enough to maintain this function. When the consumption current is lower than the monitoring current, the capacity shall be large enough to allow the latter current to flow for ten minutes continuously.

- [2] The standby power supply for M-type control panels: Shall have a capacity that is sufficient to allow a consumption current to flow for running two M-type control panels for ten minutes continuously after a monitoring state continues for 60 minutes. Note that if the consumption current is lower than the monitoring current, the former shall be replaced with the latter.
 - [3] Standby power supply for G-type control panels: Shall have a capacity that is sufficient to run two systems effectively for one minute and to simultaneously keep the other systems in a monitoring state for one minute.
 - [4] Standby power supply for GP-type or GR-type control panels: Shall have the sum of the capacity specified in (1) and that in (3).
- (f) Components to be prepared independently of the control panel shall be installed in a nonflammable or fire-resistant box and heat-resistant wires shall be used to connect them.
 - (ix) Telephone: Shall work soundly and have high durability.

(Accessories)

Article 5 Control panels shall have no accessories that have an adverse effect on the functions.

(Indication of a Fire Alarm, Fire Alarm Notice, and Gas Alarm)

Article 6 When receiving a fire detection or indication signal, control panels (except two-signal, analogue and G types) shall activate the red fire lamp and main sounding device to show the occurrence of a fire, turn ON the zone indicator to show the warning zone in question, and activate the zone alarm sounding appliance automatically.

- (2) Two-signal type control panels shall display a fire alarm as shown in the following items when receiving a fire detection signal (limited to one from a detector) from the system of warning zones having a two-signal function, or as specified in the previous paragraph when receiving a fire detection signal from one other than in the system (including manual call points in the system).
 - (i) When receiving a fire detection signal, the control panel shall activate the main or substitute sounding device to show the occurrence of a fire, and turn ON the zone indicator to show the warning zone in question automatically.
 - (ii) If receiving another fire detection signal from a detector in the warning zone during the indication shown in the previous item, the control panel shall continue the indication (except that by the substitute sounding device), turn ON the red fire lamp and main sounding device (limited to cases where the substitute sounding device displays a fire alarm in this item) to show the occurrence of the second fire, and activate the zone alarm sounding appliance automatically.
- (3) Analogue control panels shall, when receiving an alert signal whose amplitude is large enough to show a caution, activate the warning lamp and sounding device to show the occurrence of an abnormal event, and turn ON the zone indicator to show the warning zone in question automatically. If receiving a fire detection, indication, or reference signal whose amplitude is large enough to display a fire alarm, the control panel shall turn ON the red fire lamp and main sounding device to show the occurrence of a fire, activate the zone indicator to show the warning zone in question, and turn ON the zone alarm sounding appliance automatically.

- (4) G-type, GP-type, and GR-type control panels shall, when receiving a signal detecting a gas leak, activate the yellow gas lamp and main sounding device to indicate the occurrence of a gas leak, and turn ON the zone indicator to show the warning zone in question automatically.
- (5) The fire alarm indicated in Paragraph (1), (2) (except Item (i)), or (3) shall persist until a manual reset except when the alarm is issued by P-type or GP-type Class 3 control panels.
- (6) GP-type and GR-type control panels shall clearly distinguish the warning zone where a fire is occurring from that where the gas is leaking in order to display both.

(Exceptions to the Indication of Fire and Gas Alarms)

Article 6-2 When no devices are indicated in the same paragraph or there is no connection with them, the control panel shown in each paragraph in the previous article may not display a fire alarm as shown in Article 6, Paragraph (1) or a gas alarm as shown in Article 6, Paragraph (4).

- (i) Fire lamp: P-type control panels (except P-type Class 1 control panels that can be connected to two or more systems).
- (ii) Zone indicator pertaining to a fire: P-type and GP-type control panels that can be connected to a single system, provided they work as a P-type control panel.
- (iii) Zone indicator pertaining to a gas leak: G-type, GP-type, and GR-type control panels that can be connected to a single system, provided they work as a G-type control panel.
- (iv) Regional sounding device: P-type Class 2, P-type Class 3, M-type, GP-type Class 2 (provided the unit works as a P-type Class 2 control panel), and GP-type Class 3 control panels that can be connected to a single system.

(Control Panel Equipment Activation Receiving Function)

Article 6-3 Control panels, which receive a signal of the equipment activation state to display the activation of fire extinguishing systems, shall have the following functions:

- (i) When receiving an equipment activation signal, the control panel shall activate the operating area indicator to display the area in question and the name of the equipment in operation.
- (ii) The area shown in the previous item shall be distinguished from a warning zone pertaining to the indication of a fire, caution, or gas leak as defined in Article 6.

(Zone Alarm Sound Activator)

Article 6-4 Control panels shall have a device (hereinafter referred to as a “zone alarm sound activator”) that activates the zone alarm sounding appliance and that meets the following requirements:

- (i) The zone alarm sound activator shall have the function of successfully turning ON zone alarm sounding appliances generating an acoustic sound, such as bells and buzzers.
- (ii) When activating zone alarm sounding appliances generating a vocal announcement like a loudspeaker, the zone alarm sound activator shall meet the following requirements:

- (a) The player shall work as follows:
 - [1] The maximum output voltage of the amplifier shall be between 90 and 110 percent of the rated voltage when the input signal is a sinusoidal wave having 1 kHz and the rated voltage.
 - [2] The activator shall be able to make the zone alarm sounding appliance generate a clear voice.
- (b) A voice alarm shall be issued as follows:
 - [1] When the activator receives a fire detection signal (except one from manual call points) or a fire indication signal, the sounding device shall issue a caution to the effect that a detector has been automatically activated (hereinafter referred to as “detector activation alarm”).
 - [2] When the activator receives an alert signal whose amplitude is large enough to display a fire alarm, the sounding device shall automatically issue a detector activation alarm or a warning to the effect that a fire has broken out (hereinafter referred to as a “fire alarm”).
 - [3] When the activator receives a fire detection signal from a manual call point, or a fire detection or indication signal from a detector during the indication shown in Article 6, Paragraph (2), Item (i), the sounding device shall issue a fire alarm automatically.
 - [4] When the activator receives a fire detection, indication, or reference signal whose amplitude is large enough to display a fire alarm or a given time has elapsed during the issuance of a detector activation alarm, the sounding device shall issue a fire alarm automatically.
 - [5] If the activator, which can receive a signal to the effect that the occurrence of a fire has been confirmed, receives that signal, the sounding device shall issue a fire alarm automatically.
- (c) Voice alarms shall consist of a voice and warning sounds as follows:
 - [1] A detector activation alarm shall repeat a combination of the first warning sound, a vocal announcement, and a one-second silence in this order.
 - [2] A fire alarm shall repeat a combination of the first warning sound, a vocal announcement, a one-second silence, the first warning sound, a vocal announcement, a one-second silence, and the second warning sound in this order.
- (d) The warning sound shall meet the following specifications:
 - [1] The basic waveform shall be a saw tooth pattern whose rising time does not exceed 20 percent of one cycle.
 - [2] The first warning sound shall repeat a 0.5-second sound whose frequency is 740 Hz followed by a 0.5-second sound whose frequency is 494 Hz, repeated three times.
 - [3] The second warning sound shall repeat a sound that scans its frequency from 300 Hz to 2 kHz for 0.5 seconds three times in steps of 0.5 seconds followed by a 1.5-second silence repeated three times.
 - [4] The envelope of the first warning sound shall have rising and trailing times of 0.1 and 0.4 seconds, respectively, while that of the second warning sound shall be rectangular.

- (e) The vocal announcement shall meet the following requirements:
 - [1] The detector activation alarm shall be a female voice and provide information to the effect that a detector in the fire detection and alarm system has been activated or provide other relevant information.
 - [2] The fire alarm shall be a male voice and provide information to the effect that a fire has broken out or provide other relevant information.
- (iii) If having the function of providing a vocal announcement to give information besides detector activation and fire alarms, the zone alarm sound activator shall meet the following requirements:
 - (a) The issuance of the vocal information shall be manual.
 - (b) The information shall repeat a combination of the first warning sound, the vocal announcement, and a one-second silence in this order.
 - (c) The voice shall be a female one to issue information pertaining to fire detection and alarm systems or other relevant information.

(Maximum Load on the Control Panels)

Article 7 Control panels categorized item by item shall have a capacity that is sufficient to accept a continuous load as defined in the item.

- (i) P-type, R-type, GP-type, and GR-type control panels: The load is given by operating a system consisting of five warning zones (or all zones if the number is less than five) or the load in the monitoring state, whichever is greater. Note that the former load shall include the load required to activate all zone alarm sounding appliances simultaneously if the control panel is connected to them, while the latter load shall include the load required to maintain the equipment activation receiving function if the control panel has such a function.
- (ii) M-type control panel: The load given by operating five M-type manual call points or the load in a monitoring state, whichever is greater.
- (iii) G-type control panel: The load given by operating five systems (or all systems if the number is less than five) or the load in a monitoring state, whichever is greater.

(P-type Control Panel Functions)

Article 8 P-type control panels shall have the following functions:

- (i) The control panel shall have the functions of conducting a test with a device that can easily check the issuance of an fire alarm (hereinafter referred to as a “fire alarm tester”) and with a device that can easily check each signal line to the terminating unit for conductivity (hereinafter referred to as a “conductivity tester”) as well as displaying a fire alarm when receiving a fire detection or indication signal from a different warning zone during the operation of the testers. Note that the control panel, which is connected to a single system, may not have the function of conducting a test as the conductivity tester.
- (ii) When receiving a signal generated in the following cases, the control panel shall activate the sounding device and failure lamp automatically.
 - (a) In cases where the control panel receives a signal to the effect that power supply has stopped from a detector or input/output device whose power is supplied from other than the signal circuit system that receives a fire detection, indication, or reference signal.

- (b) In cases where a protector, such as a fuse or breaker, has been tripped in a circuit in which the external loads receive power from an input/output device that is energized by the control panel or another input/output device.
 - (c) In cases where an input/output device does not receive power from the control panel or another input/output device and its main power supply has stopped, or where a protector, such as a fuse or breaker, has been tripped in a circuit in which external loads receive power from the input/output device.
 - (iii) It shall take not more than five seconds from the start of receiving a fire detection or indication signal to the indication of a fire alarm (except for a sound from the zone alarm sounding appliance).
 - (iv) When simultaneously receiving a fire detection or indication signal from two different systems, the control panel shall be able to display the fire alarm.
 - (v) If connecting with a P-type Class 1 manual call point (which is specified in the Detector Standard Ordinance, Article 2, Item (xxi) and which meets the item-by-item requirements in Article 32), the control panel (except one having a single connectable system) shall send a signal to the effect that it has received a fire detection signal to the manual call point, and allow telephone communication with the manual call point without hindering the signal transmission.
 - (vi) If connecting with T-type manual call points (which is specified in the Detector Standard Ordinance, Article 2, Item (xxii)), the control panel shall select arbitrarily from two or more manual call points for communication when they are activated simultaneously, and send a busy signal to the deselected ones.
 - (vii) If the control panel is an alarm verification type, the alarm verification time shall be between 5 and 60 seconds. After receiving a fire detection signal from a manual call point, the control panel shall disable the verifying function automatically.
 - (viii) If the control panel is a two-signal type, the verifying function shall not apply to the system of a warning zone having a two-signal function.
- (2) In addition to the functions set forth in Items (ii) to (iv), (vii), and (viii) in the previous paragraph, P-type Class 2 control panels shall have the following functions:
- (i) The number of connectable systems shall not exceed five.
 - (ii) The control panel shall have the function of conducting tests using a fire alarm tester. When receiving a fire detection or indication signal from another system during the operation of the tester, the control panel shall be able to display the fire alarm.
- (3) In addition to the functions specified in Paragraph (1), Items (ii), (iii), and (vii), P-type Class 3 control panels shall have the following functions:
- (i) The control panel shall be connected to a single system.
 - (ii) The control panel shall have the function of conducting tests using a fire alarm tester.

(R-type Control Panel Functions)

Article 9 R-type control panels (except analogue types) shall have the functions defined in Paragraph (1), Items (ii) to (vii) in the previous article. In addition, the control panel shall have the function of conducting a test with a device that can detect a break in the field wiring to the fire alarm tester and terminating unit as well as with a device that can detect a short-circuit in the field wiring from the control panel to the input/output device (or the

detector that sends the fire detection signal directly to the control panel if available). Furthermore, when receiving a fire detection or indication signal from another warning zone during the operation of these devices, the control panel shall be able to display a fire alarm.

- (2) In addition to the functions set forth in Paragraph (1), Items (ii) and (v) to (viii) in the previous article, analogue R-type control panels shall meet the following requirements:
 - (i) The control panel shall have the function of conducting a test with a device that can detect a break in the field wiring to the fire alarm tester, the caution indication tester (which is a unit that checks the indication of a caution easily), and the terminating unit as well as with a device that can detect a short-circuit in the field wiring from the control panel to the input/output device (or the detector that sends a fire detection or reference signal directly to the control panel if available). Note that the signals are limited to one whose amplitude is large enough to display a fire alarm—the same shall apply in this item and Items (iii) and (iv). In addition, when receiving a fire detection, indication, or reference signal from another warning zone during the operation of these devices, the control panel shall be able to display a fire alarm.
 - (ii) It shall take not more than five seconds from a start of receiving an alert signal (limited to one whose amplitude is large enough to display a caution) to the indication of the caution.
 - (iii) It shall take not more than five seconds from the start of receiving the fire detection, indication, or reference signal to the indication of the fire alarm (except for sounds from zone alarm sounding appliances).
 - (iv) When simultaneously receiving a fire detection, indication, or reference signal from a system with two different warning zones, the control panel shall be able to display the fire alarm.
 - (v) The system of warning zones having analogue functions shall have no two-signal function.
- (3) In addition to the functions set forth in the previous two paragraphs, R-type control panels shall have the function of checking whether the zone indicator displays a correct warning zone when receiving a fire detection, indication, or reference signal, and of making sure whether the operating area indicator shows the correct area and equipment name corresponding to the system when receiving an equipment activation signal.

(M-type Control Panel Functions)

Article 10 M-type control panels shall have the following functions:

- (i) The control panel shall have the function of conducting a test with a device that can measure the resistance of the field wiring to the fire alarm tester and M-type manual call point (specified in the Detector Standard Ordinance, Article 2, Item (xv); the same shall apply hereinafter) as well as with a device that can measure the insulation resistance between the cable and the ground. In addition, when receiving a fire detection signal from another system during the operation of these devices, the control panel shall be able to display the fire alarm.
- (ii) When the main power supply, which has the risk of causing a failure in the control panel, has reduced its voltage, or the field wiring to the control panel has been cut or short-circuited, the sounding device and failure indicator shall be turned ON automatically.

- (iii) It shall take no more than 20 seconds from when an M-type manual call point starts sending a signal to when the fire alarm appears (or when the same signal is recorded twice if the control panel is a recorder type).
- (iv) If three or more M-type manual call points are activated simultaneously, the control panel shall display a fire alarm in order with no interference except when the time shown in the previous item does not exceed ten seconds.
- (v) After receiving a fire detection signal from an M-type manual call point, the control panel shall send a signal to that effect to the manual call point.
- (vi) The control panel shall make it possible to communicate with the M-type manual call point by telephone without affecting the transmission of the fire detection signal.
- (vii) If the control panel has a coil spring, the sounding device shall issue a warning to the effect that the spring is about to fully unwind.
- (viii) If receiving a fire detection signal and then displaying the area in question automatically, the control panel shall be able to show at least three zones.

(G-type Control Panel Functions)

Article 11 G-type control panels shall have the following functions:

- (i) The control panel shall have the function of conducting a test with a device that can check the indication of a gas leak easily. In addition, when receiving a gas leak signal from another system during the operation of the device, the control panel shall be able to display the gas alarm.
- (ii) The control panel shall have the function of conducting a test with a device that can check the conductivity of the signal circuit to the terminating unit easily on a system basis. In addition, when receiving a gas leak signal from another system during the operation of the device, the control panel shall be able to display the gas alarm. Note that this item does not apply to G-type control panels that have five or less connectable systems and a device that informs the control panel of a stop in the power supply of a detector.
- (iii) When receiving a gas leak signal from two systems simultaneously, the control panel shall be able to display the gas alarm.
- (iv) When the control panel receives a signal generated in the following cases, the sounding device and failure indicator shall be turned ON automatically.
 - (a) In cases where a protector, such as a fuse or breaker, has been tripped in a circuit in which external loads receive power from an input/output device energized by a detector, control panel, or another input/output device, and the power supply has stopped at the input/output device that receives the power from other than the signal circuit system that sends the gas leak signal.
 - (b) In cases where the main power supply has stopped in an input/output device that does not receive power from a detector, control panel, or another input/output device, and a protector, such as a fuse or breaker, has been tripped in a circuit in which the external loads receive power from the input/output device.
- (v) It shall take no more than 60 seconds from the start of receiving a gas leak signal to the indication of the gas alarm.

(GP-type Control Panel Functions)

Article 12 Article 8, Paragraph (1) and the previous article shall apply mutatis mutandis to the functions of GP-type control panels.

- (2) Article 8, Paragraph (2) and the previous article shall apply mutatis mutandis to the functions of GP-type Class 2 control panels.
- (3) Article 8, Paragraph (3) and the previous article shall apply mutatis mutandis to the functions of GP-type Class 3 control panels.

(GR-type Control Panel Functions)

Article 13 Articles 9 and 11 shall apply mutatis mutandis to the functions of GR-type control panels.

(Wireless Control Panel Functions)

Article 13-2 Wireless control panels shall have the functions defined in the following items. In addition, Articles 8, 9, 12, and 13 apply mutatis mutandis to the P-type, R-type, GP-type, and GR-type wireless control panels, respectively.

- (i) The wireless control panel shall be a radio used in the low-power security system's radio station specified in the Regulations for Wireless Facilities (Radio Wave Control Committee's No. 18 Rule in 1950), Article 49-17.
- (ii) The control panel shall have the following radio wave transmitting functions:
 - (a) The electric field strength of the signal transmitted shall exceed the design value three meters away from the control panel.
 - (b) The control panel shall transmit signals able to be distinguished from ones issued by other wireless devices.
- (iii) When the control panel receives radio waves, the sensitivity shall not exceed the design value. Note that the sensitivity is the receivable and minimum electric field strength of a signal transmitted three meters apart from the control panel; the same shall apply hereinafter.
- (iv) In the following cases, the sounding device and the indicator that issues a warning to this effect shall be activated automatically.
 - (a) In cases where the control panel has received a failure signal transmitted by a zone alarm sounding appliance (hereinafter referred to as "wireless detector") that makes radio communication with a wireless detector, input/output device, manual call point, or control panel, or the amplitude of a signal transmitted by the wireless detector has been less than the sensitivity.
 - (b) In cases where the voltage applied to a battery-driven wireless detector has reached its lower limit.
- (v) If a device that can manually check the transmission status of radios, including wireless detectors is available, the control panel shall display the fire alarm when receiving a fire detection, indication, or reference signal from sources other than the warning zone in question during its operation.

(Control Panel Automatic Test Functions)

Article 13-3 If the automatic test function set forth in the I/O Device Standard Ordinance, Article 2, Item (xii) or the remote test function specified in Article 2, Item (xiii) (both are referred to as “automatic test functions” hereinafter) is available, the control panels shall meet the following requirements:

- (i) The control panel shall have the following control functions pertaining to the automatic test functions.
 - (a) Values for working conditions (criteria for determining whether an abnormal event occurs; the same shall apply hereinafter) shall not be specified out of the design range or changed easily.
 - (b) If the values are changeable, the settings shall be checked.
 - (ii) Even during testing with the automatic test functions, the control panel shall correctly catch a fire detection, indication, or reference signal from the system of another warning zone.
- (2) Control panels that have an automatic test function shall meet the following requirements:
- (i) Devices that check the functions of the standby power supply shall meet the following requirements:
 - (a) The device shall easily check the operating status of the equipment specified in Article 4, Item (viii)(b).
 - (b) When the standby power supply has trouble, the sounding device and indicator shall be activated.
 - (ii) The fire alarm and caution testers of the control panel, which receives a fire detection, indication, or reference signal via an input/output device, shall check the indication of the fire alarm and cautions by receiving a fire detection, indication, or reference signal (limited to one whose amplitude is large enough to display the fire alarm or cautions) transmitted via the input/output device.
 - (iii) The conductivity tester or a device that can detect a break in the field wiring to the terminating unit and a short-circuit in the field wiring between the control panel and input/output device as shown in Article 9, Paragraph (1) or Paragraph (2), Item (i) shall activate the sounding device and indicator automatically when any field wiring encounters a problem.
 - (iv) When any of the following events occurs, the sounding device and indicator shall be turned ON automatically.
 - (a) A break or short-circuit in the power cable between the control panel and input/output device.
 - (b) A trip in the protector (fuse or breaker) specified in Article 3, Item (xii).
 - (c) An abnormal change in the voltage of the main power supply or circuit, or in the power supplied to detectors or input/output devices.
 - (d) A failure in the signal or central processing units.
 - (v) When any of the following events occurs, the sounding device and indicator shall be turned ON within 168 hours.
 - (a) A functional error in the detector having the automatic test functions (specified in the Detector Standard Ordinance, Article 2, Item (xix-iii); the same shall apply hereinafter).

- (b) A break or short-circuit in any cable that connects with zone alarm sounding appliances.
- (vi) When the control panel receives any of the following signals from an input/output device, the sounding device and indicator shall be activated automatically.
 - (a) A break or short-circuit in any power cable to detectors or other input/output devices, or in any cable that connects with zone alarm sounding appliances.
 - (b) A trip in the protector (fuse or breaker) of a circuit that supplies power to the external loads.
 - (c) An abnormal change in the voltage of the main power supply or circuit, or power supplied to the detectors or input/output devices.
 - (d) A problem in the signal or central processing units.
 - (f) A functional error in detectors with automatic test functions.
 - (g) A break or short-circuit in any field wiring from input/output devices to the terminating units.
- (vii) When any of the previous items applies, the resultant action shall be recorded or retained, notwithstanding the indication status.
- (3) Control panels, which have a remote test function, shall meet the following requirements:
 - (i) When a detector with automatic test functions encounters an abnormal event, the control panel shall be able to detect the event easily using the remote test function. If attaining this action by connecting to an external tester (which has part of the remote test function; the same shall apply hereinafter), the control panel shall have the function of operating the tester to check the event.
 - (ii) When the control panel connects with the external tester, the following measures shall be taken:
 - (a) Preventing this connection from having an adverse effect on the functions of the control panel (except functions pertaining to the system of a warning zone being tested currently).
 - (b) Blinking of a caution lamp on the front panel of the control panel or preventing an adverse effect on the functions of the control panel as long as this connection is established.

(Power Voltage Test)

Article 14 Control panels shall work without failure even if the voltage of the power supply varies within the range defined in the following items:

- (i) Main power supply: 90 to 110 percent of the rated voltage.
- (ii) Standby power supply: 85 to 110 percent of the rated voltage.

(Ambient Temperature Test)

Article 15 Control panels shall work without failure in an ambient temperature range from zero to 40 degrees Celsius.

(Repeating Test)

Article 16 Control panels to be used in a fire alarm and alarm or gas leak and fire alarm system shall work with neither structural nor functional problem after repeating the indication of the fire or gas alarm at the rated voltage 10,000 times.

(Insulation Resistance Test)

Article 17 When control panels are measured with an insulation resistance tester rated at 500 VDC, the resulting resistance between the live part and metal housing as well as between the wiring of the power supply transformer shall be no less than 5 M Ω (or 50 M Ω between the former if the control panel has ten or more connectable systems).

(Dielectric Strength Test)

Article 18 When an AC voltage having a nearly sinusoidal wave is applied between the live part and metal housing of the control panels as well as between the wiring of the power supply transformer at a frequency of 50 Hz or 60 Hz and an effective amplitude of 500 V, no dielectric breakdown shall occur for one minute. Note that the amplitude shall be 1,000 V if the rating is more than 60 V to 150 V, or the rated voltage multiplied by 2 plus 1,000 V if the rating exceeds 150 V.

(Impulse Voltage Test)

Article 19 Control panels (except wireless types with no field wiring) in an energized state shall work without functional failure while being subjected to the following 15-second tests.

- (i) Test in which a power source having an internal resistance of 50 Ω applies a pulse rated at 500 V, 1 μ s in width, and 100 Hz in frequency.
- (ii) Test in which a power source having an internal resistance of 50 Ω applies a pulse rated at 500 V, 0.1 μ s in width, and 100 Hz in frequency.
- (iii) Test in which a power source having an internal resistance of 600 Ω applies a pulse rated at 220 V, 1 ms in width, and 100 Hz in frequency to the terminals connecting with the sounding device.

(Electromagnetic Test)

Article 19-2 Wireless control panels in an energized state shall work while neither displaying the fire alarm nor encountering a functional error while being exposed to electromagnetic waves that are rated at 10 V/m in electric field strength, which is 80% modulated by a 1 kHz sinusoidal wave, and whose frequency changes from 80 MHz to 1 GHz and from 1.4 GHz to 2 GHz at a rate of up to 0.0015 decades per second.

(Test Conditions)

Article 20 The tests for control panels defined in Articles 17 and 18 shall be conducted under the following conditions:

- (i) Temperature: Between 5 and 35 degrees Celsius (inclusive)
- (ii) Relative humidity: Between 45 and 85 percent (inclusive)

(Labeling)

Article 21 Control panels shall have the hard-to-erase labels specified in the following items in easily visible areas. The information shown in Items (vi), (xiii), and (xiv) may appear on a tag attached to a case.

- (i) The words “Control panel.”
 - (ii) Model name and number.
 - (iii) Manufacturing year.
 - (iv) Production number.
 - (v) Name of the manufacturer.
 - (vi) Outline of the operating method.
 - (vii) Number of connectable systems or of detectors, manual call points, sensors, and input/output devices.
 - (viii) Rated voltage and current of the main power supply.
 - (ix) Manufacturer’s name, type, model name or number, rated capacity, and rated voltage of the battery if using the standby power supply.
 - (x) Type and model name or number of the terminating unit if connected to the control panel.
 - (xi) Nominal alarm verification time if the control panel is a verification type.
 - (xii) Analogue control panels shall have the following labels:
 - (a) Nominal receiving temperature and density ranges.
 - (b) Type and temperatures designated for the indication of analogue detectors from which the control panel receives an alert signal, and the detector type that appears as an example in accordance with the Regulation for Enforcement of the Fire Service Law (No. 6 Ordinance of the Ministry of Home Affairs in 1961), Article 23, Paragraph (7).
 - (xiii) Control panels that have an automatic test function shall have the following labels:
 - (a) Conceptual diagram of the fire detection and alarm system pertaining to the function.
 - (b) Type, number, and operating method of the detectors supporting the function (or model number of input/output devices having the automatic test functions pertaining to the detector if they are connected to the control panel).
 - (xiv) Control panels that have a remote test function shall have the following labels:
 - (a) Conceptual diagram of the fire detection and alarm system pertaining to the function.
 - (b) Type, number, and operating method of the detectors supporting the function.
 - (c) Model name or number of external testers if they are connected to the control panel.
 - (xv) Wireless control panels shall have the following labels:
 - (a) The word “Wireless.”
 - (b) Model number of the wireless detector, input/output device, or manual call point with which the control panel can communicate.
- (2) In addition to the labels shown in the previous paragraph, G-type, GP-type and GR-type control panels shall have the following hard-to-erase labels in an easily visible area.

- (i) Standard delay time.
 - (ii) Type of input and output signals.
- (3) The components shown in the following items shall have the labels defined in the corresponding item, and the other parts shall have their parts numbers in easily visible areas using a hard-to-erase method.
- (i) Terminal board: Terminal symbols. Note that the terminals of the power supply or sounding device shall show terminal symbols, AC/DC, and the rated voltage and current.
 - (ii) Switches and other controls: Term “ON/OFF,” other control labels, and the operating method.
 - (iii) Fuse holder: Rated current of the fuse in use.
 - (iv) Sounding device: AC/DC, the rated voltage and current, the manufacturing year, and the manufacturer’s name.

(Exemption from the Standard)

Article 22 When the Minister of Internal Affairs and Communications admits that a control panel developed through new technology has the same or higher performance as or than a product that conforms to this ordinance in view of its shape, structure, material, and functions, technical standards defined by the Minister may apply, notwithstanding the standards in this ordinance.

IV 参考（日本語のみ）

IV 参考（日本語のみ）

1 検定制度の歴史

(1) 任意検定

日本の消防法（以下「法」という。）は、1948年8月から施行され、防火対象物の関係者等に対して、市町村条例の定めにより消防用設備等を設備することとされた。

これと併せて、「消防の用に供する機械器具及び設備の規格」を国家消防庁が勧告することとされた。

検定については、製造者等の要求に基づき任意の制度として実施することとされ、消防研究所（現消防研究センター）において同年11月から国家消防庁が勧告した「消火器の構造及び機能の規格」に基づき、消火器の検定が開始された。

その後、動力消防ポンプ、私設火災報知装置、消防用麻ホース及びスプリンクラーヘッドについての検定を開始し、1950年の消防法の一部改正により、「消防の用に供する機械器具及び設備並びに防火塗料、防火液その他の防火薬品」に関しての規格を勧告するとともに、検定の対象品7品目（消火器、消火器用消火薬剤、消防用ホース（麻・ゴム引き）、動力消防ポンプ、私設火災報知装置、結合金具及び防炎液）及び手数料に関する規定が定められた。

検定数量が増加（小型消火器の受検数の例：1951年14万個、1955年20万個、1962年91万個）の一途をたどる中で、消防研究所の限りある人員で検定を実施することが本来の研究業務に支障をきたすために、専属の試験機関を創設することとされた。

(2) 強制検定

消防の用に供する機械器具等に関する検定制度を強化し、これに伴う検定業務を実施する機関として政府の全額出資による日本消防検定協会（以下「協会」という。）を設立することを含め、1963年4月の消防法の一部が改正され、翌年1月1日から施行することとされた。改正概要は、次のとおりである。

ア 消防の用に供する機械器具等のうち消防法施行令で定める機械器具等（以下「消防用機械器具等」という。）について、次の品目を検定対象として定められた。（同年12月公布）

- ① 消火器
- ② 消火器用消火薬剤（炭酸ガス及び四塩化炭素を除く。）
- ③ 動力消防ポンプ
- ④ 消防用ホース
- ⑤ 消防用ホースに使用する差込式の結合金具
- ⑥ 火災報知設備の感知器、発信機又は受信機
- ⑦ 電気火災警報器

イ 消防用機械器具等は、協会が実施する検定合格の表示が附されたものでなければ、販売し、又は販売の目的で陳列してはならず、また、消防用機械器具等のうち、消防の用に供する機械器具又は設備は、協会が実施する検定合格の表示が附されたものでなければ、その設置、変更又は修理の請負に係る工事に使用してはならないこと及びこれに違反した場合の罰則が規定された。

- ウ 検定の手続きについて、協会が実施する型式についての試験を経て、その結果に基づき自治大臣(現総務大臣)が「型式承認」を行った後、協会が「個別検定(現型式適合検定)」を行うことが規定され、型式と個別検定の一連の手続きについては、同一者が行うこととされた。
- エ 検定対象品目に係る技術上の規格は、自治省令で定めることとされ、従前の国家消防庁が勧告していた規格については、新たな規格としてみなされた。
- オ 検定の表示の様式は、自治省令で定められることとされ、当該表示の真正を保護するため、紛らわしい表示をしてはならないこととされ、これに違反した場合の罰則規定も設けられた。
- カ 偽造され若しくは不正に使用された検定合格の表示若しくは検定合格表示と紛らわしい表示がされた消防の用に供する機械器具等又は失効した型式承認に係る検定対象機械器具等で合格表示が付されたものについては、当該表示の除去又は消印の処分ができることとし、そのための報告徴収及び立入検査の権限が自治大臣に与えられた。
- キ また、国の監督を受ける消防法の規定に基づく特殊法人として、日本消防検定協会の設立が同年10月にされ、翌年1月1日から業務を開始することとされた。

(3) 自主表示制度の導入

海外からの強い市場開放の要望が寄せられ、政府では基準・認証制度の改善を中心とした市場開放の促進のための措置をとることとされ、「市場アクセス改善のためのアクション・プログラムの骨格」に基づき、1985年12月に消防法の一部が改正され、政府の責任で認証していた動力消防ポンプと消防用吸管について、自己認証を導入し、製造業者等の自己責任において規格適合についての自らが判定し、その旨の表示を付すことができることとされた。改正の概要は次のとおりである。

ア 消防用機械器具等のうち、検定の対象となる機械器具等の名称を「検定対象機械器具等」に、自己認証の対象となる機械器具等の名称を「自主表示対象機械器具等」とし、消防法施行令において、検定対象品目から自主表示対象機械器具等に移行する次の品目が定められた。

- ① 動力消防ポンプ
- ② 消防用吸管

これにより、検定対象機械器具等の対象品目は、14品目となる。

- イ 自主表示対象機械器具等は、規格に適合する表示が附されたものでなければ、販売し、又は販売の目的で陳列してはならず、また、自主表示対象機械器具等のうち、消防の用に供する機械器具又は設備は、製造者が自ら実施する検定合格の表示が附されたものでなければ、その設置、変更又は修理の請負に係る工事に使用してはならないこと及びこれに違反した場合の罰則が規定された。
- ウ 自主表示対象機械器具等の製造業者又は輸入業者が表示を附そうとするときは、あらかじめ自治大臣に届出(氏名又は名称、住所、法人にあっては代表者及び自主表示対象機械器具等の種類)をすることが義務付けられた。これに違反した場合の罰則も規定された。

(4) 指定検定機関（現登録検定機関）の導入及び協会の民営化

- ア 臨時行政調査会における行政改革第5次答申を踏まえ、1986年4月には、消防法の一部改正により、検定を実施できる機関として「指定検定機関」を加えるとともに、当該機関の指定方法等を定める一方、特殊法人であった協会について、民間法人化とするための一連の改正も行われた。
- イ 更に、消防用設備等の性能規定化と併せて、新技術を用いた消防用設備の導入を促進するため、2003年6月に消防法の一部改正が行われ、指定検定機関から登録検定機関に改正された。その概要は、次のとおりである。
- ① 本来設置しなければならない設備に代えて特殊な消防用設備その他の設備等（以下「特殊消防用設備等」という。）を設置しようとする場合に、設置しようとする防火対象物の関係者等の申請に基づき、当該施政者が作成する設置・維持基準により設置・維持することを総務大臣が認定できるようにされた。
 - ② 前①の申請を行う場合、事前に協会又は法人であって総務大臣の登録を受けた登録検定機関の性能評価を受けることとされた。
 - ③ また、登録検定機関としての登録は、性能評価の業務並びに消火、警報及び人命の避難それぞれの検定業務について、申請に基づき行うことができることとされ、登録機関として必要な要件についても定められた。

(5) 検定制度及び自主表示制度の見直し

検定に合格していない消防用機械器具等に係る回収命令の制度化、検定の実施方法、自主検査の拡大等についての見直しを行うため、2012年6月に消防法の一部改正が行われた。改正の概要は、次のとおりである。

- ア 「個別検定」の名称を「型式適合検定」に変更。
- イ 協会又は登録検定機関は、不正の手段により型式適合検定に合格した検定対象機械器具等について、新たに合格の決定を取り消すことができるようにした。
- ウ 検定に合格していない消防用機械器具等及び技術上の規格に適合していない自主表示対象機械器具等が市場に流通した場合、総務大臣が販売業者等に対し、回収等を命ずることができることとされ、この命令に従わない場合の罰則を設けた。
- エ 自主表示対象機械器具等の製造業者又は輸入業者が当該機械器具等に技術上の規格に適合している表示を付す場合、当該規格に適合している検査を行い、その結果を保管することが義務付けられた。
- オ 法改正に合わせて政令も改正され、検定対象機械器具等の対象品目が12品目及び自主表示対象機械器具等が6品目と対象品目の見直しが図られた。
- カ また、型式適合検定の方法について、立会い方式に加え、消防庁長官が定めるものについて製造者が自ら検査を実施し、協会又は登録検定機関が合格であることを判定する方式（データ審査方式）を加え、その手続き、運用等について省令で定められた。
- キ 更に、自主表示対象機械器具等に係る検査方法、検査記録に関する事項等についての詳細が省令で定められた。

2 検定対象機械器具等及び自主表示対象機械器具等の対象品目の変遷

検定制度が義務化された以降の検定対象機械器具等の対象品目の変遷は次のとおりとなっている。

- (1) 1963年12月 7品目
 - ア 消火器
 - イ 消火器用消火薬剤（炭酸ガス及び四塩化炭素を除く。）
 - ウ 動力消防ポンプ
 - エ 消防用ホース
 - オ 消防用ホースに使用する差込式の結合金具
 - カ 火災報知設備の感知器、発信機又は受信機
 - キ 電気火災警報器
- (2) 1964年12月 7品目 → 10品目
 - ア 閉鎖型スプリンクラーヘッド
 - イ 金属製避難はしご
 - ウ 緩降機
- (3) 1969年3月 10品目 → 10品目
 - 火災報知設備の感知器、発信機、中継器及び受信機
 - 感知器に煙感知器と中継器が追加（火災報知設備の規格の中に、新たな品目として定められた）
- (4) 1970年3月 10品目 → 11品目
 - ア 消防用吸管
 - イ 消防用ホースに又は消防用吸管に用いられるねじ式の結合金具（差込式の結合金具の規格の中に統合されたため、対象品目としての増加はない。）
- (5) 1974年7月 11品目 → 12品目
 - 泡消火薬剤
- (6) 1975年7月 12品目 → 14品目
 - ア 流水検知装置
 - イ 一斉開放弁
- (7) 1981年1月 14品目 → 16品目
 - ア 火災報知設備の感知器及び発信機（中継器及び受信機を火災報知設備に係る規格から外し、単独の規格とした。）
 - イ 火災報知設備又はガス漏れ火災警報設備に使用する中継器
 - ウ 火災報知設備又はガス漏れ火災報知設備に使用する受信機
- (8) 1986年8月
 - ア 検定対象機械器具等 16品目 → 14品目
 - ① 動力消防ポンプ → 削除
 - ② 消防用吸管 → 削除
 - イ 自主表示対象機械器具等 2品目を指定
 - ① 動力消防ポンプ
 - ② 消防用吸管

(9) 2013年3月

ア 検定対象機械器具等 14品目 → 12品目

① 住宅用防災警報器

② 消防用ホース → 削除

③ 消防用ホースに使用する差込式の結合金具及びねじ式の結合金具 → 削除

④ 漏電火災警報器 → 削除

イ 自主表示対象機械器具等 2品目 → 6品目

① 消防用ホース

② 消防用ホースに使用する差込式の結合金具及びねじ式の結合金具

③ 漏電火災警報器

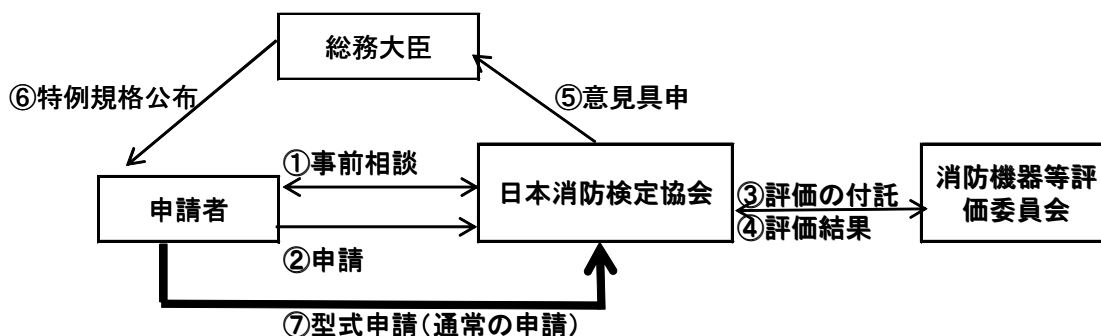
④ エアゾール式簡易消火具

3 新技術等に対する特例制度

(1) 消防用機械器具等に係る技術上の規格における特例基準

ア 検定を行っている消防用機械器具等について、新たな技術開発により、想定しない作動原理、新素材等を用いたものが出現した場合、従来の規格では対応できないことから、検定対象機械器具等及び自主表示対象機械器具等の各規格に「基準の特例」の規定を設け、これらの技術開発に対応できるようにしている。

イ 基準の特例の運用は、次のように行っている。



- | | | |
|----|------------|---|
| ① | 事前相談 | 特例を希望する技術的な内容、必要要件等について相談。 |
| ② | 申請 | 申請書に特例を希望する理由、適合しない規定、新たに必要とする規定及びその内容を記載し、申請に係る製品の社内成績表、設置基準案、点検基準案等を添付。 |
| ③④ | 消防機器等評価委員会 | 協会内に設置する委員会で、学識経験者、消防機関の代表者等で構成。 |
| ⑤ | 意見具申 | 総務大臣への依頼は協会が行い、新たな規格案、設置基準案、点検基準案等添えて行う。 |
| ⑥ | 規格の発行 | 総務大臣は規格を発行し、申請者と検定協会に通知する。 |
| ⑦ | 検定 | 規格発行後は、当該規格に基づき、通常の型式申請を行い以降通常の型式適合検定を実施する。 |
- (自主表示対象機械器具等については、規格発行後は通常の自主表示の検定による。)

ウ 特例の基準を適用していることについては、試験結果にその旨を記載すること及び表示に○字の中に「特」、又は○字の中「ト」の文字を表示することとされている。

(2) 設置時における特例

消防用設備等の設置については、法第17条第1項の規定によって、設置・維持することとされているが、新しい技術等の開発により、新製品が同規定に従った設置ができないことがあることから次のような特例が設けている。

ア 特殊消防用設備等の設置（俗に「Cルート」による設置）

法第17条第3項では、防火対象物の関係者は、第1項の規定に従って設置（俗に「Aルート」による設置）・維持しなければならない消防用設備

等に代えて特殊な消防用設備等その他の設備等（以下「特殊消防用設備等」という。）であって、通常の消防用設備等と同等以上の性能を有し、かつ、当該関係者が作成する特殊消防用設備等の設置及び維持に関する計画（以下「設備等設置維持計画」という。）に従って、設置・維持することについて総務大臣の認定を受けた場合には、当該特殊消防用設備等を設置することができることとしている。

なお、特殊消防用設備等の設置に当たっては、設置する対象物ごとに総務大臣の認定が必要とされている。

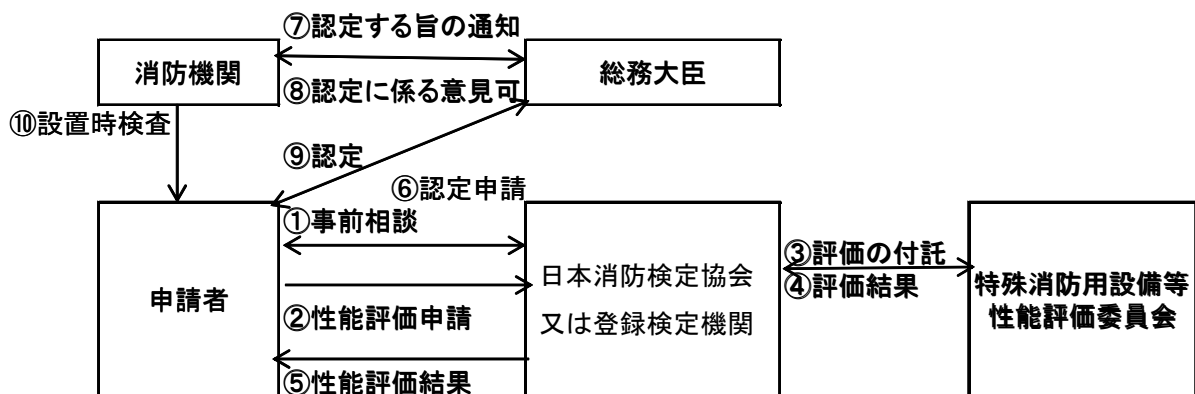
① 性能評価（法第17条の2）

総務大臣の認定を受ける場合、あらかじめ協会又は登録検定機関の性能評価を受けなければならないこととされている。

② 特殊消防用設備等に用いられる消防用機械器具等については、当該設置対象物に設ける場合においては、検定対象機械器具等又は自主表示対象機械器具等の対象から除外されていることから、検定を受けることを求められていない。

③ 性能評価の流れ

性能評価は、次のように行われている。



- | | | |
|-----|------------|--|
| ① | 事前相談 | 特殊消防用設備等の性能等の内容、代替する設備とその要件等について相談。 |
| ② | 申請 | 申請書（規則別記様式第1号の8）、設計図書、明細書、性能の検証に関する計算書、試験成績書、設備等設置維持計画書、特殊消防用設備等の概要説明資料。 |
| ③④⑤ | 特殊消防用設備等評価 | 協会又は登録検定機関内に設置する委員会で、学識経験者、消防機関の代表者等で構成し、評価後、協会又は登録検定機関からその結果を申請者に通知。 |

- | | | |
|----|------------|--|
| ⑥ | 認定申請 | 申請書（規則別記様式第1号の10）、協会又は登録検定機関の評価結果、設備等設置維持計画書を添えて総務大臣へ申請。 |
| ⑦⑧ | 消防機関
通知 | 設置する場所の消防本部へ認定する旨通知。意見等を聴取。 |
| ⑨ | 認定 | 認定の通知。 |

イ 必要とされる防火安全性能を有する消防の用に供する設備等による設置（俗に「Bルート」による設置）

防火対象物に設置される消防用設備等は、政令の規定に従って設置（俗に「Aルート」による設置）することとされているが、令第29条の4では、Aルートで設置する消防用設備等（以下「通常用いられる消防用設備等」という。）に代えて、総務省令で定めるところにより、設置する消防長又は消防署長がその防火安全性能が当該通常用いられる消防用設備等と同等以上であると認める消防の用に供される設備等を用いることができることとされている。

① 現在、このBルートの方法を用いて、次の総務省令が定められている。

- (ア) 必要とされる防火安全性能を有する消防の用に供する設備等に関する省令（2004年5月31日総務省令第92号）
 - 屋内消火栓設備に代えて用いることができるパッケージ型消火設備
 - スプリンクラー設備に代えて用いることができるパッケージ型自動消火設備
- (イ) 特定共同住宅等における必要とされる防火安全性能を有する消防の用に供する設備等に関する省令（2005年3月25日総務省令第40号）
 - 住宅用消火器
 - 共同住宅用スプリンクラー設備
 - 共同住宅用自動火災報知設備
 - 住戸用自動火災報知設備
 - 共同住宅用非常警報設備
 - 共同住宅用連結送水管
 - 共同住宅用非常コンセント設備
- (ウ) 特定小規模施設における必要とされる防火安全性能を有する消防の用に供する設備等に関する省令（2008年12月26日総務省令第156号）
 - 自動火災報知設備に代えて用いることができる特定小規模用自動火災報知設備

- (エ) 排煙設備に代えて用いることができる必要とされる防火安全性能を有する消防の用に供する設備等に関する省令（2009年9月15日総務省令第88号）
 - 排煙設備に代えて用いることができる加圧防排煙設備
 - (オ) 複合型居住施設における必要とされる防火安全性能を有する消防の用に供する設備等に関する省令（2010年2月5日総務省令第7号）
 - 自動火災報知設備に代えて用いることができる複合型居住施設用自動火災報知設備
- ② なお、このBルートに用いられる消防用機械器具等については、検定対象機械器具等又は自主表示対象機械器具等からは除外されていないことから、検定を受ける必要がある。

4 検定対象機械器具等に係る型式適合検定の申請数量の推移

検定対象機械器具等の1963年から2012年までの型式適合検定における申請数量の推移は、次のとおりである。

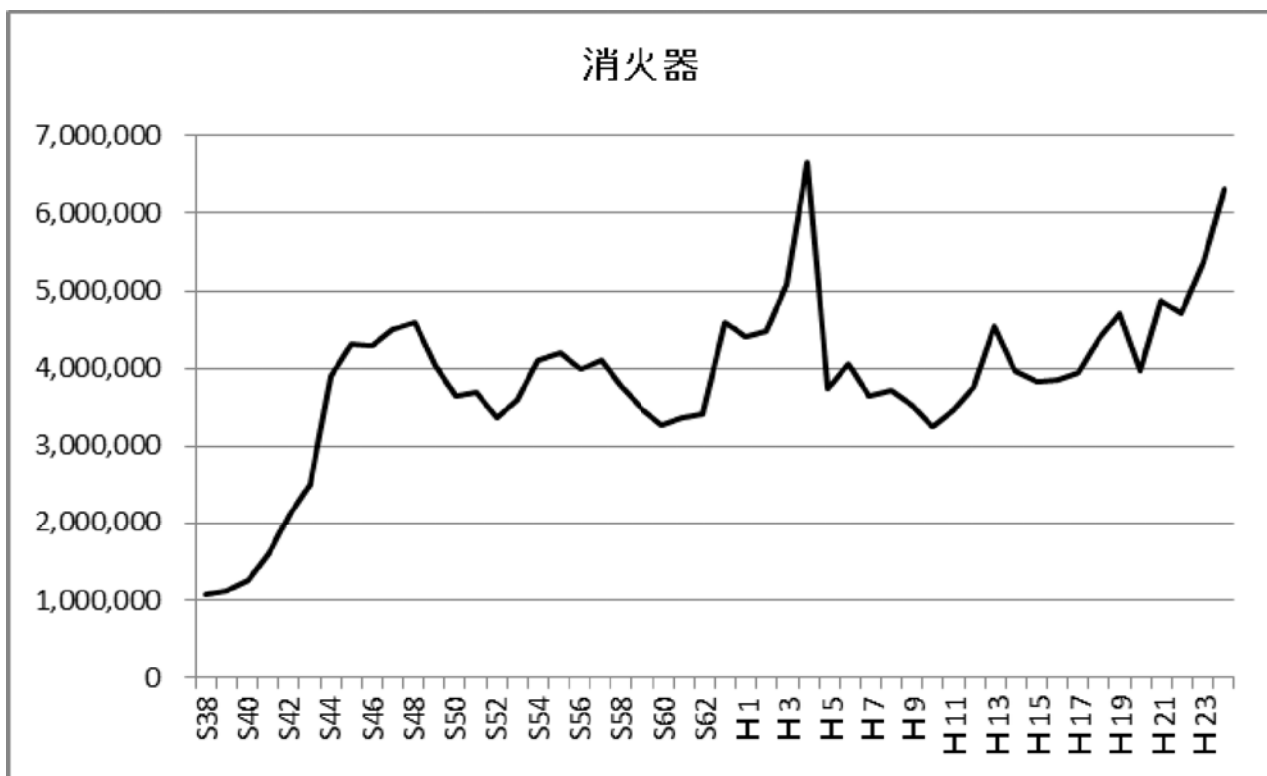
なお、2014年4月から検定の対象となる住宅用防災警報器についても掲載している。

(1) 消火器

消火器の型式適合検定の数量が2度急増している。

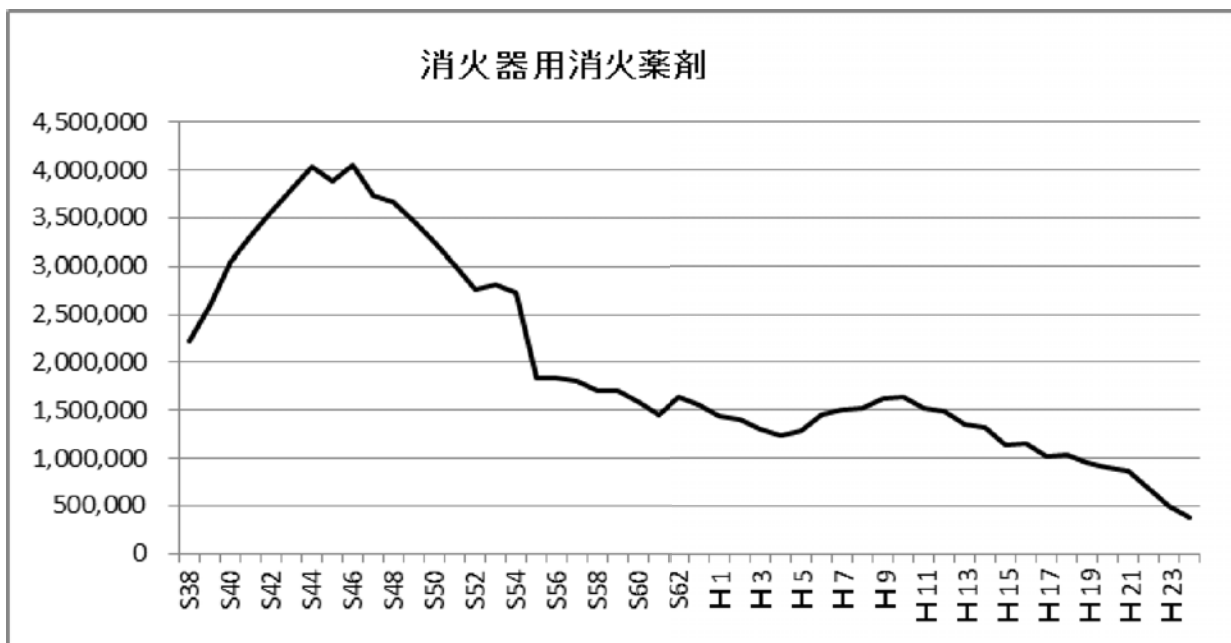
1番目のピークは、1982年に消火器の規格の一部改正が行われ、新たな規格に適合しない型式はその型式を失効することとされ、失効した型式の消火器を防火対象物に設置することができる特例期間が1992年までとなったための交換需要となっている。

また、2番目のピークは、2010年に消火器の規格の一部改正が行われ、適合火災表示が変更されることにより、新しい表示のものを出荷するための需要増となっている。



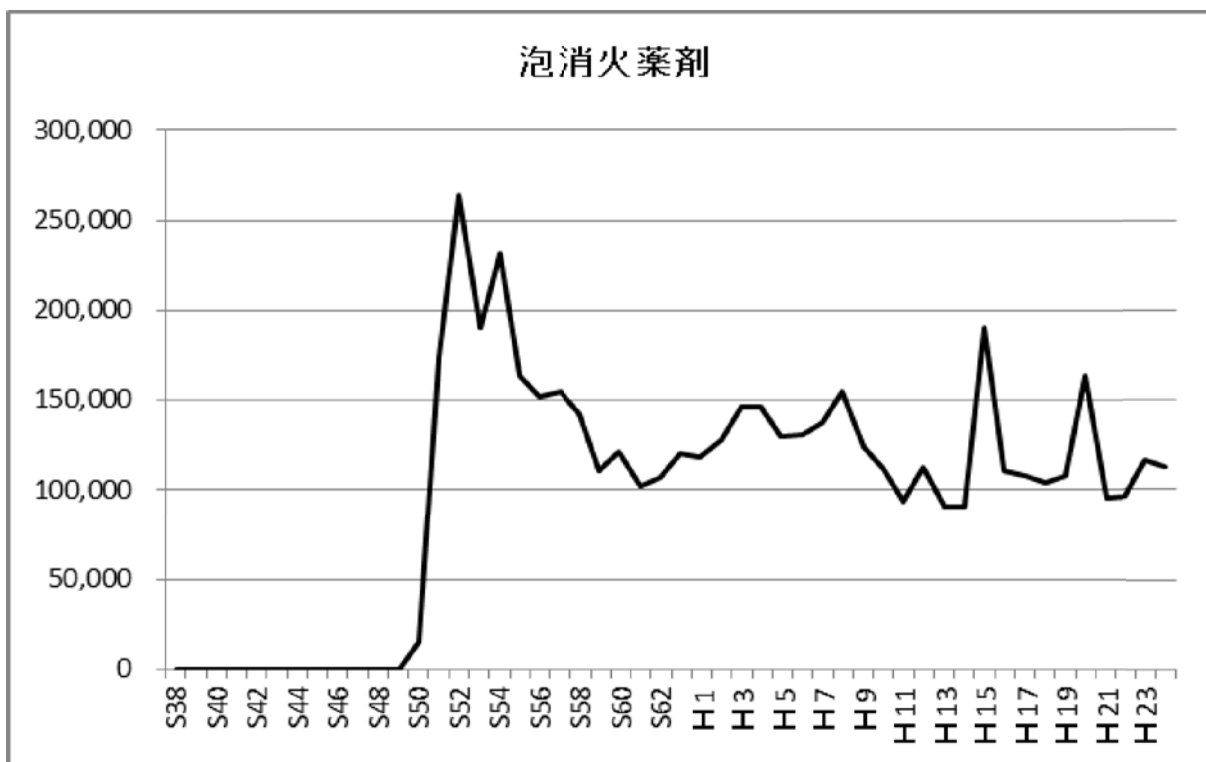
(2) 消火器用消火薬剤

消火器用消火薬剤は、検定制度の義務化前の1952年に規格化されている。



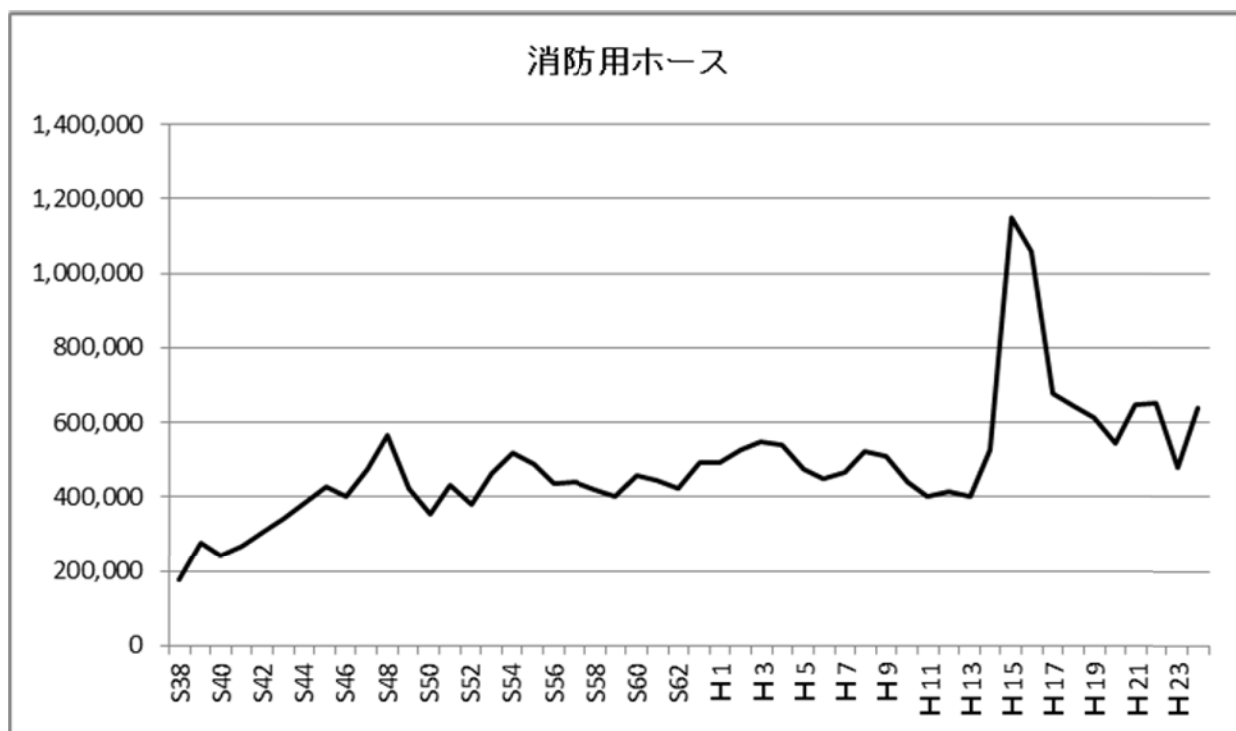
(3) 泡消火薬剤

泡消火器は、1975年に規格化されている。



(4) 消防用ホース

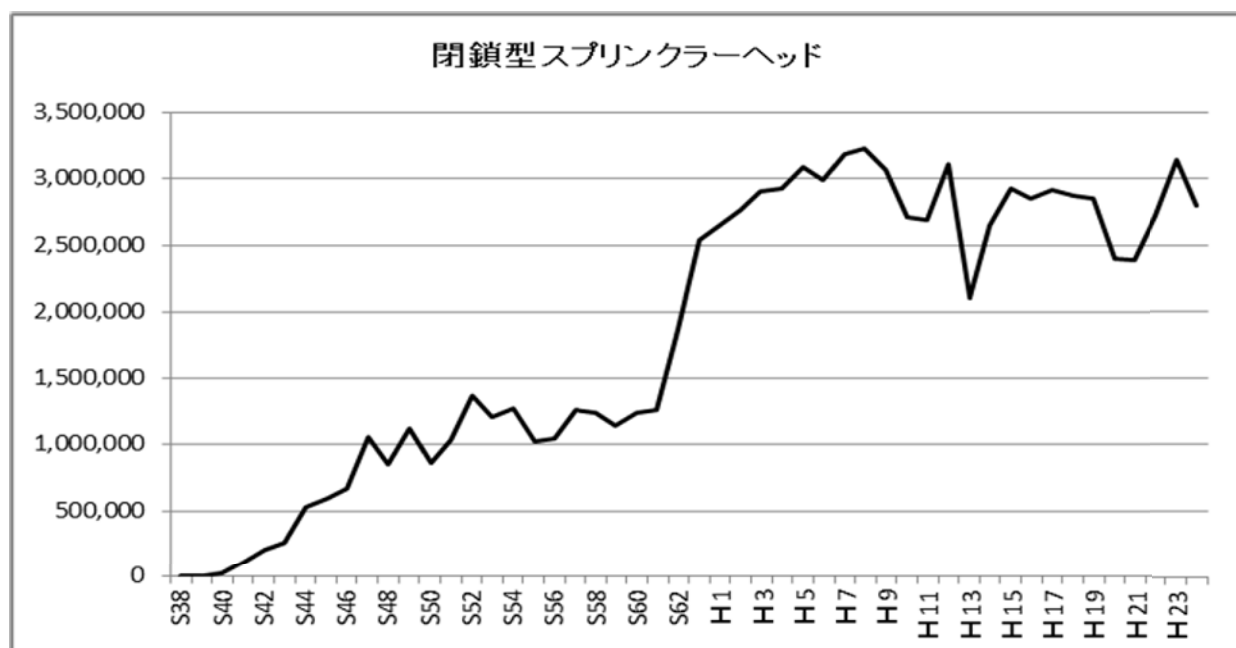
消防用ホースは、2003年に屋内消火栓に係る点検基準が改正され、10年以内ごとに耐圧試験が義務づけられ、当該試験を実施することと消防用ホースの寿命と関連で、新しい消防用ホースへの交換が選択されたことによる需要増となっている。



(5) 閉鎖型スプリンクラーヘッド

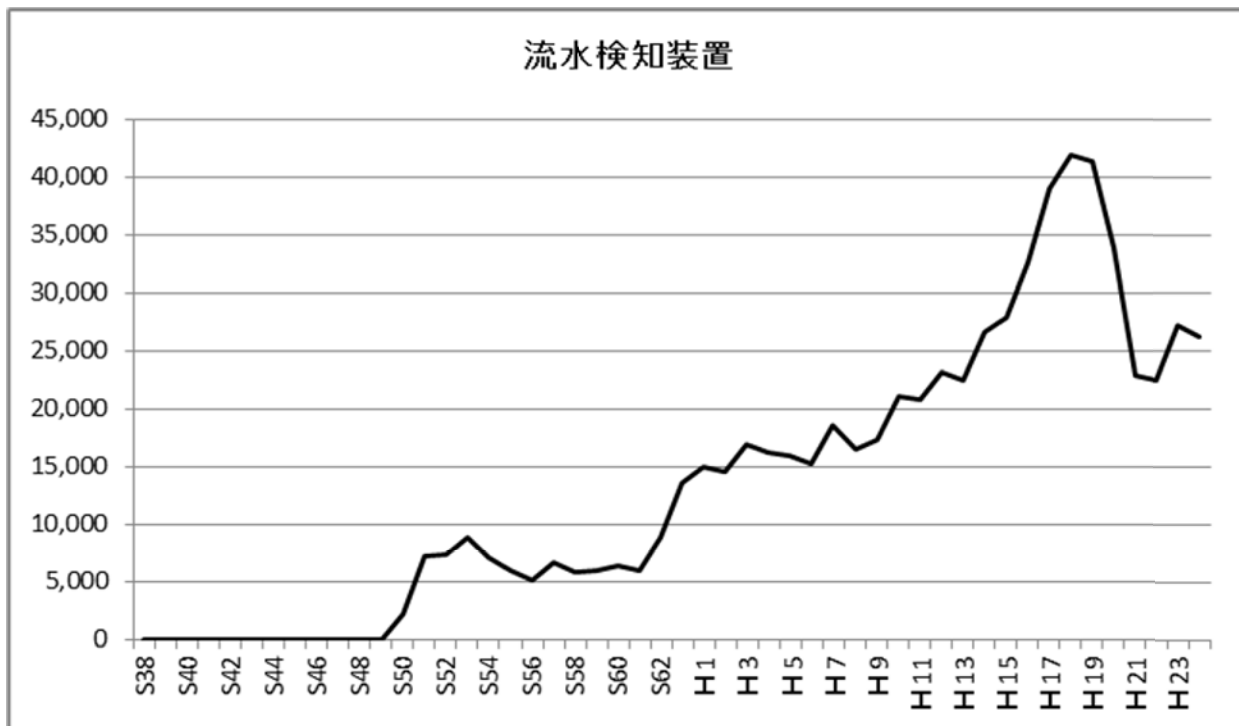
閉鎖型スプリンクラーヘッドは、1965年から規格化されている。

閉鎖型スプリンクラーヘッドは、1987年の社会福祉施設火災を契機にスプリンクラー設備の設置強化が行われ、その後も小規模施設等での設置強化もあり、1988年以降増加傾向にある。



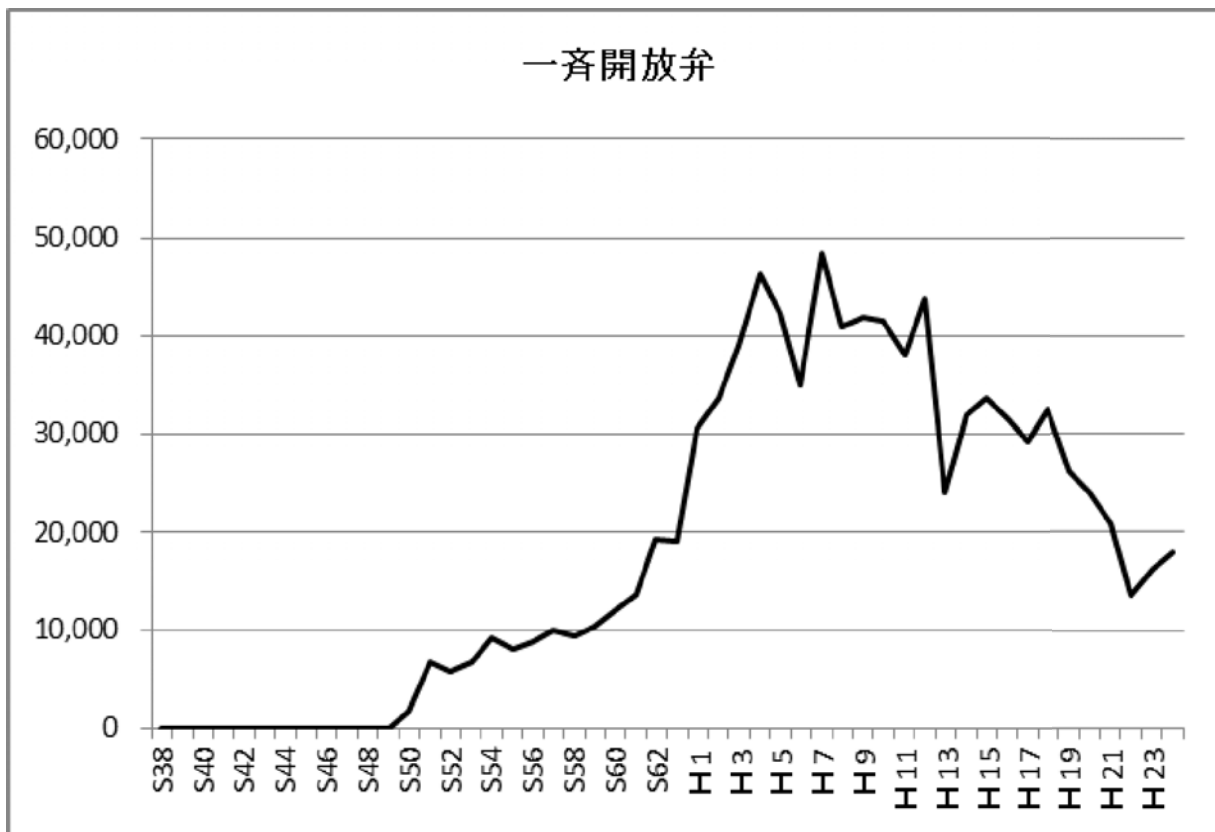
(6) 流水検知装置

流水検知装置は、1975年から規格化されている。



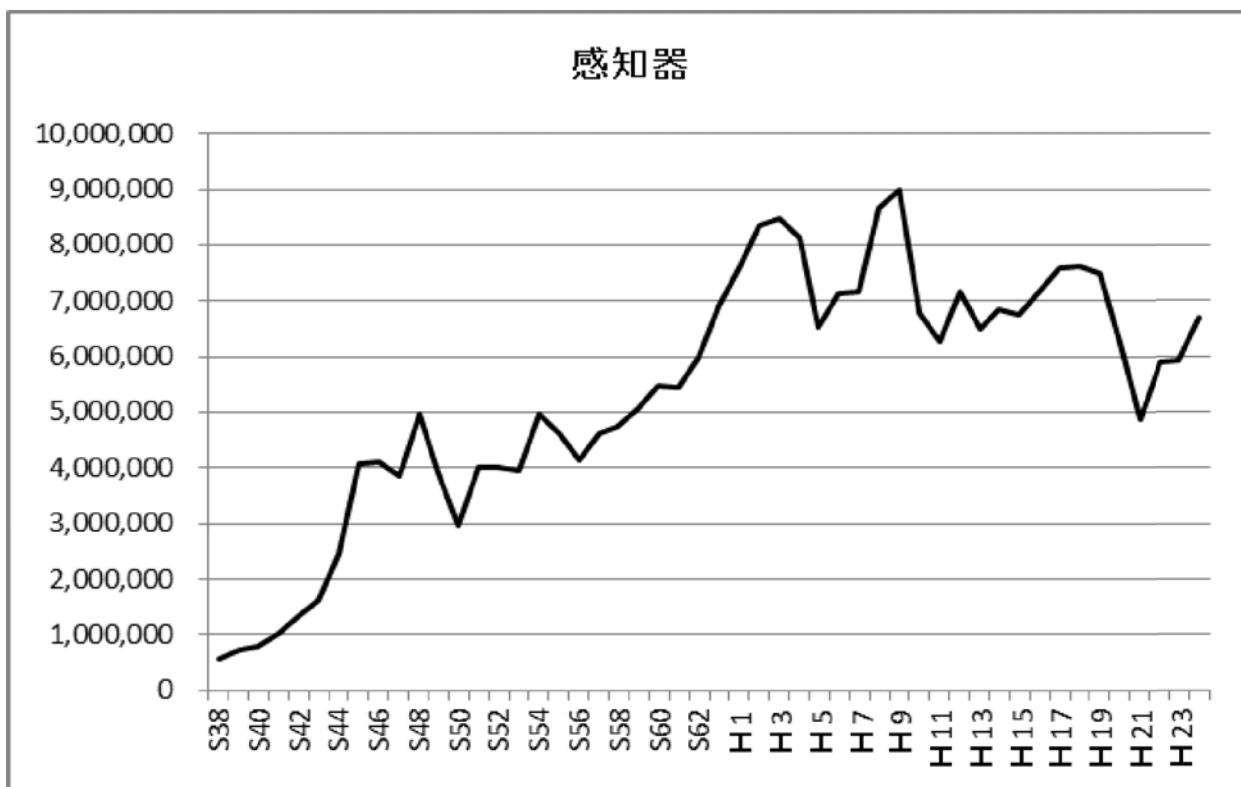
(7) 一斉開放弁

一斉開放弁は、1975年から規格化されている。



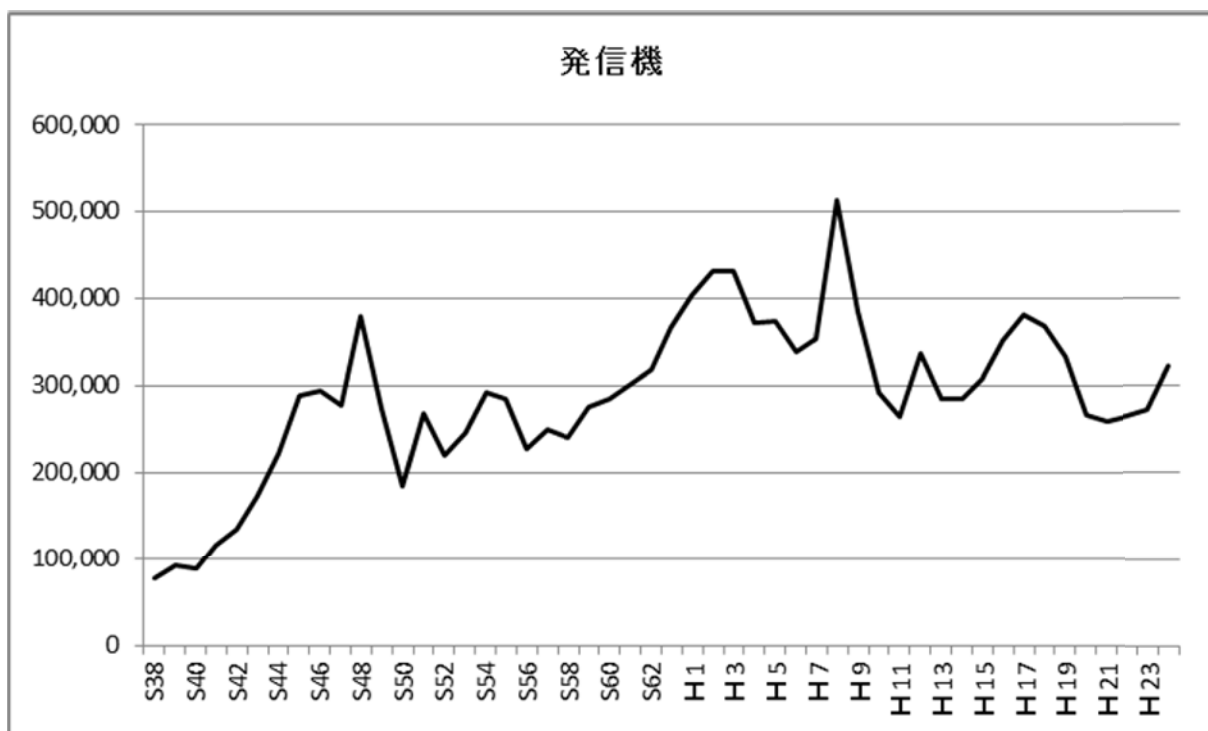
(8) 感知器

感知器は、1969年に煙感知器の導入、1984年に熱感知器及び煙感知器の一部の型式が失効、1991年以降、炎感知器、アナログ式感知器、自動試験機能付感知器の導入が行われ、これに伴う増加となっている。



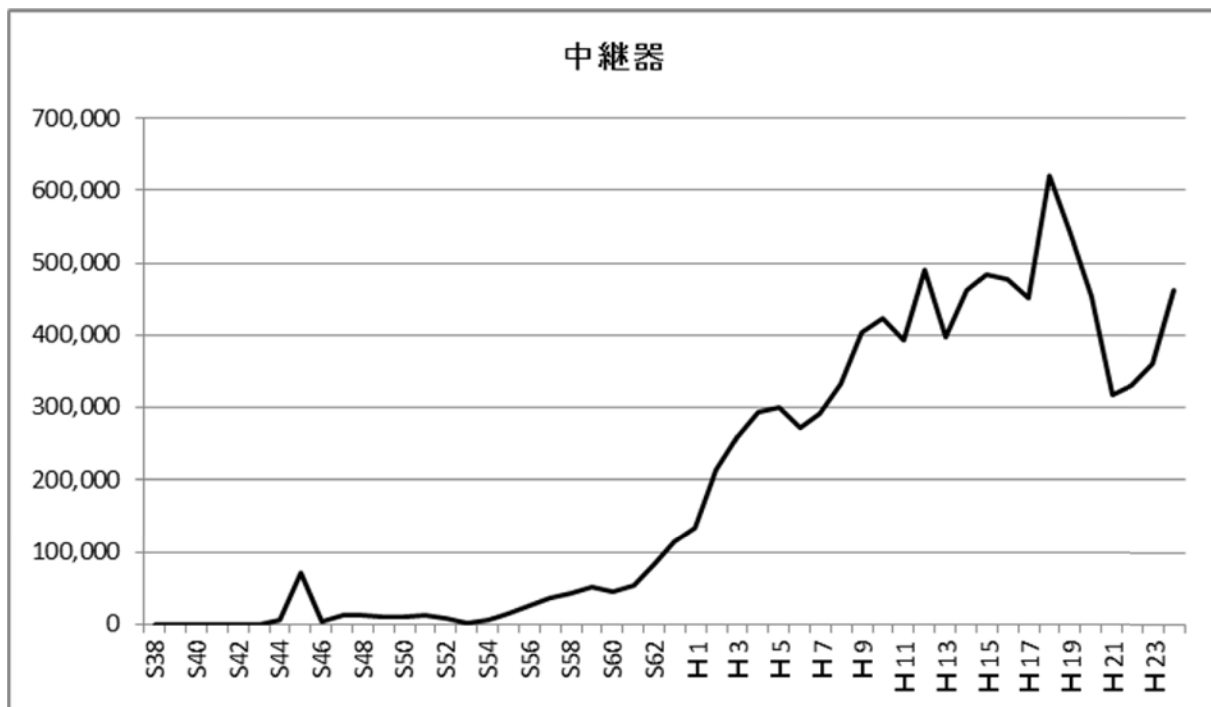
(9) 発信機

発信機は、検定制度の義務化前の1949年に規格化されている。



(10) 中継器

中継器は、1969年に規格化されている。1981年のガス漏れ用中継器の導入、1985年に住宅情報盤（GP型3級受信機）の導入に伴うガス漏れ用中継器、1991年以降、アナログ式、自動試験機能付の導入が行われ、これに伴う増加となっている。



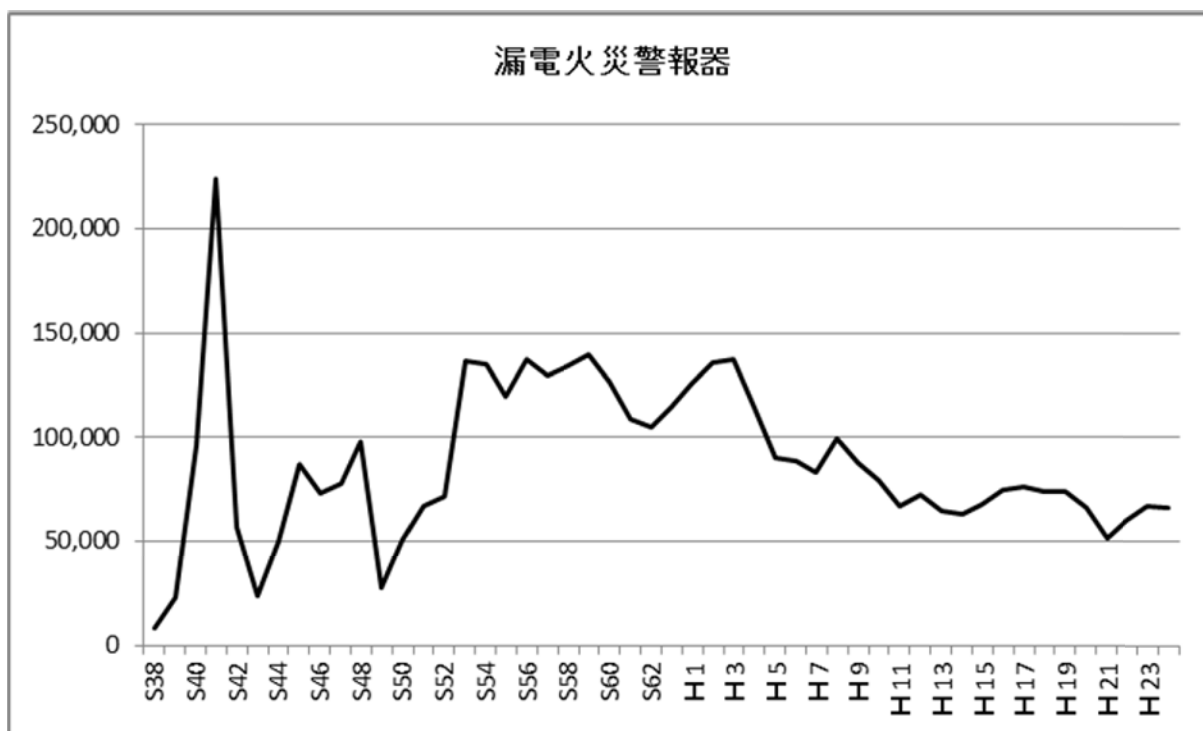
(11) 受信機

受信機は、1985年に住宅情報盤（GP型3級受信機）の導入、1995年に共同住宅に係る特例基準の改正により住戸内にP型3級受信機、GP型3級受信機が設置されるようになった等に伴う増加となっている。



(12) 漏電火災警報器

漏電火災警報器は、1966年に消防法施行令の一部改正に伴い、設置義務が既存対象物に遡及されることにより急増、以降設置する対象物が限定しているため、減少傾向になっている。



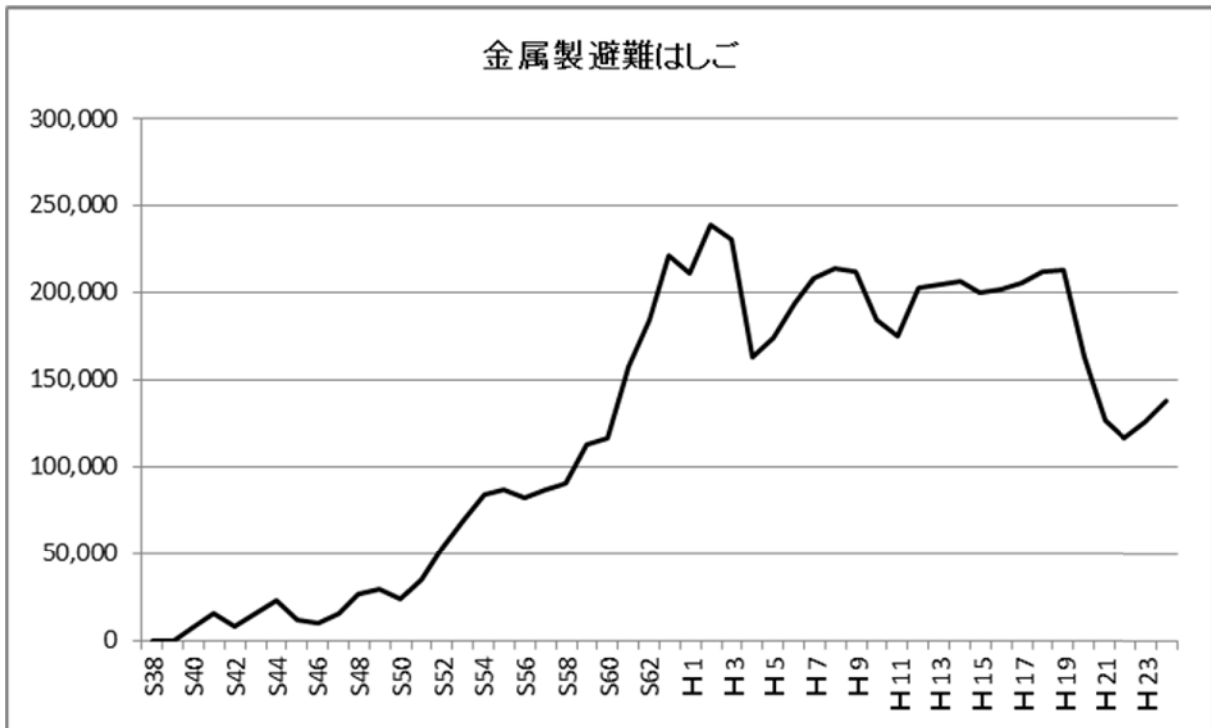
(13) 結合金具

結合金具は、2003年に屋内消火栓に係る点検基準が改正され、10年以内ごとに耐圧試験が義務づけられ、当該試験を実施することと消防用ホースの寿命と関連で、新しい消防用ホースへの交換を選択されたことと相まって需要増となっている。



(14) 金属製避難はしご

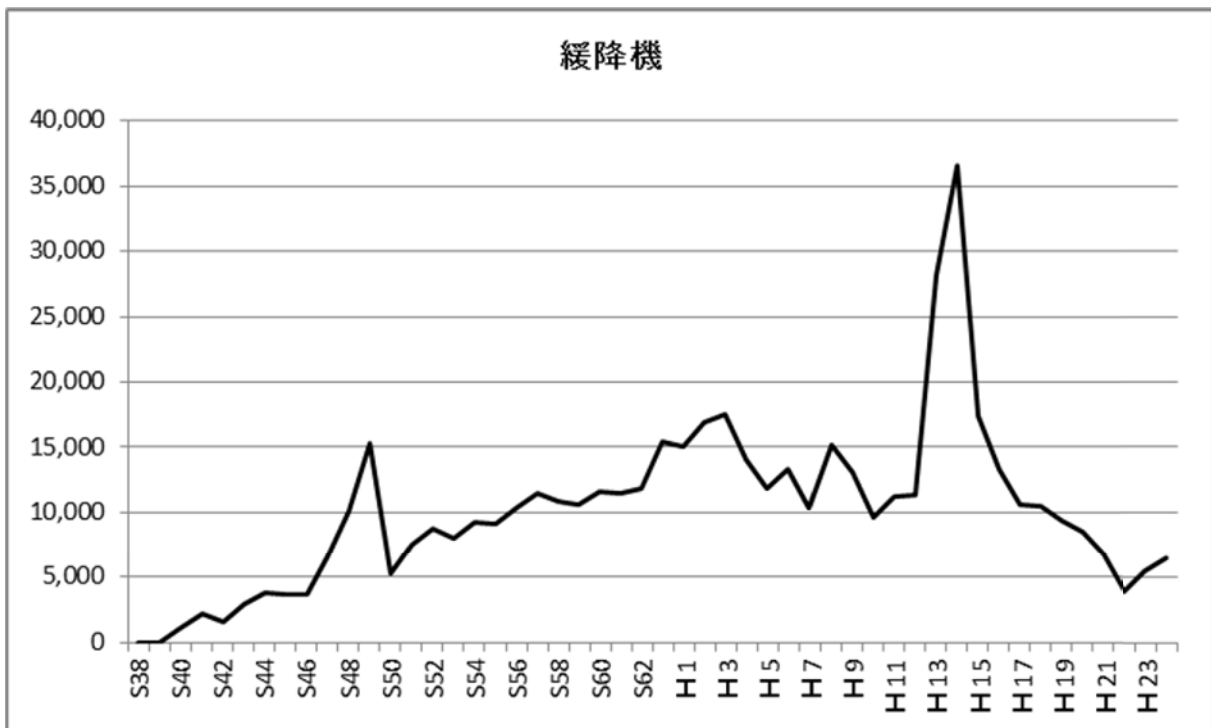
金属製避難はしごは、1965年に規格化されている。



(15) 緩降機

緩降機は、1965年に規格化されている。

1994年に規格の一部改正が行われ、新たな規格に適合しない型式はその型式を失効することとされ、失効した型式の緩降機を防火対象物に設置することができる特例期間が2002年までとなったための交換需要による急増となっている。



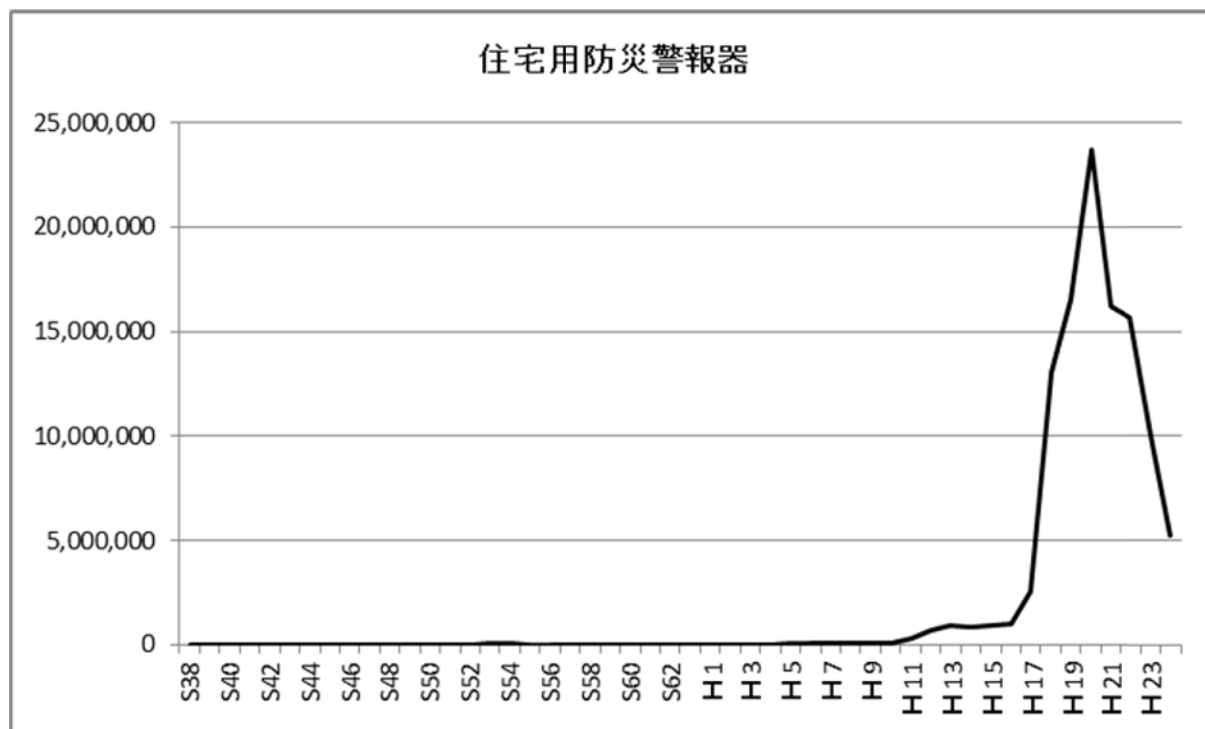
(16) 住宅用防災警報器

住宅用防災警報器は、2014年4月から検定対象機械器具等とされる。

住宅用防災警報器は、もともと簡易型火災警報器として住宅に設置する目的で、1978年に基準化され、協会の鑑定品として任意の認証が行われていた。

1991年に住宅防火を推進するため、住宅用火災警報器と名称を変え、1999年にガス漏れ警報器と一体となった「住宅用火災・ガス漏れ警報器」が加わることにより申請が急増した。

さらに、2004年に消防法の一部改正により、住宅に「住宅用防災警報器」の設置義務化が図られ、急激な増加となっている。



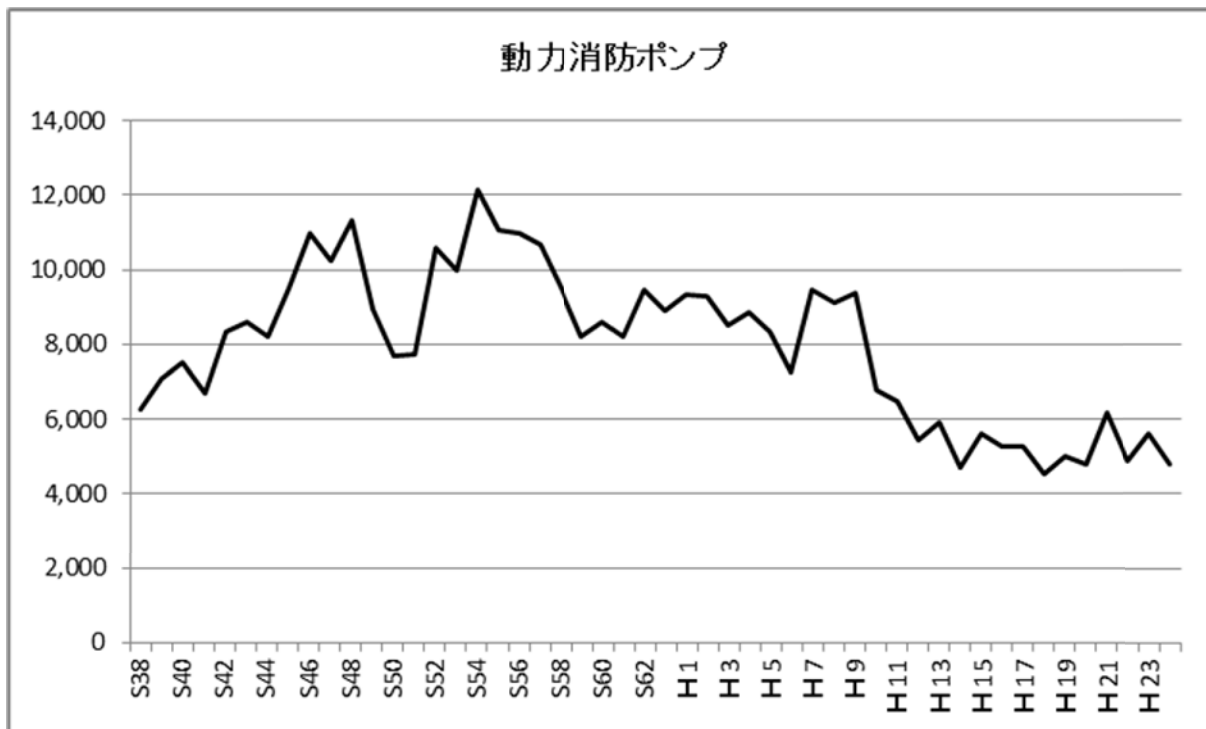
2 自主表示対象機械器具等に係る個別の申請数量の推移

自主表示対象機械器具等に関して、1963年から2012年までの協会への個別の申請数量の推移は、次のとおりとなっている。

なお、参考に今後自主表示対象機械器具等となるエアゾール式簡易消火具についても加えている。

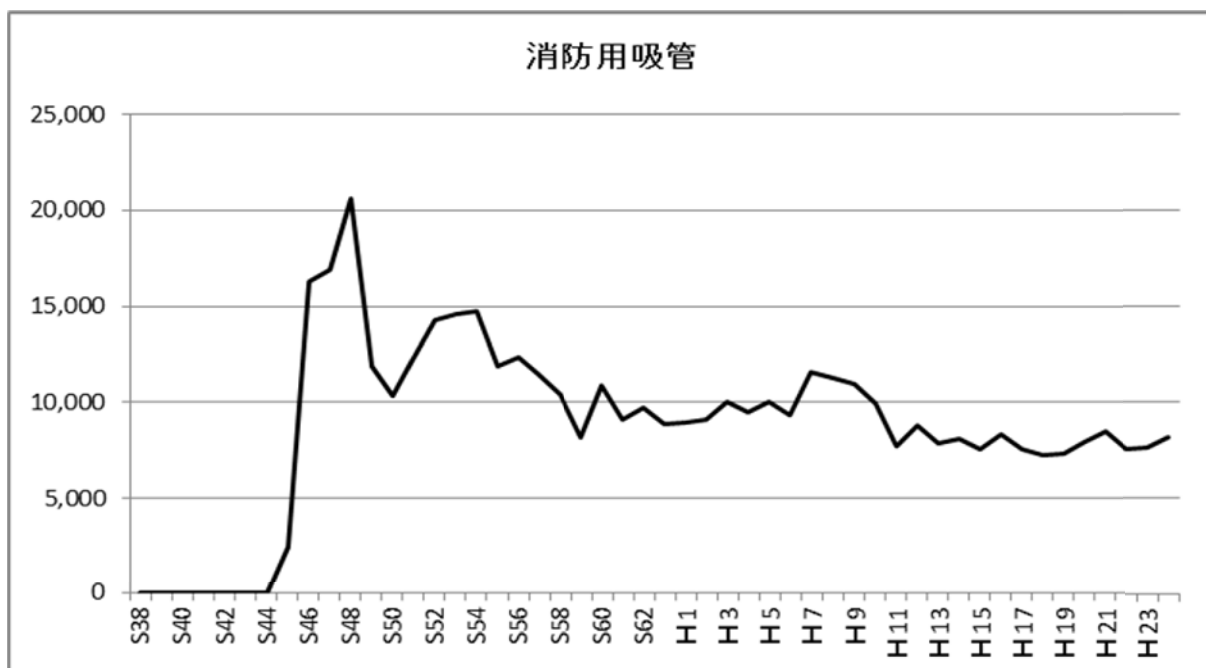
(1) 動力消防ポンプ

動力消防ポンプは、1986年に自主表示対象機械器具等の対象とされるまでは、検定の対象品として扱われていた。



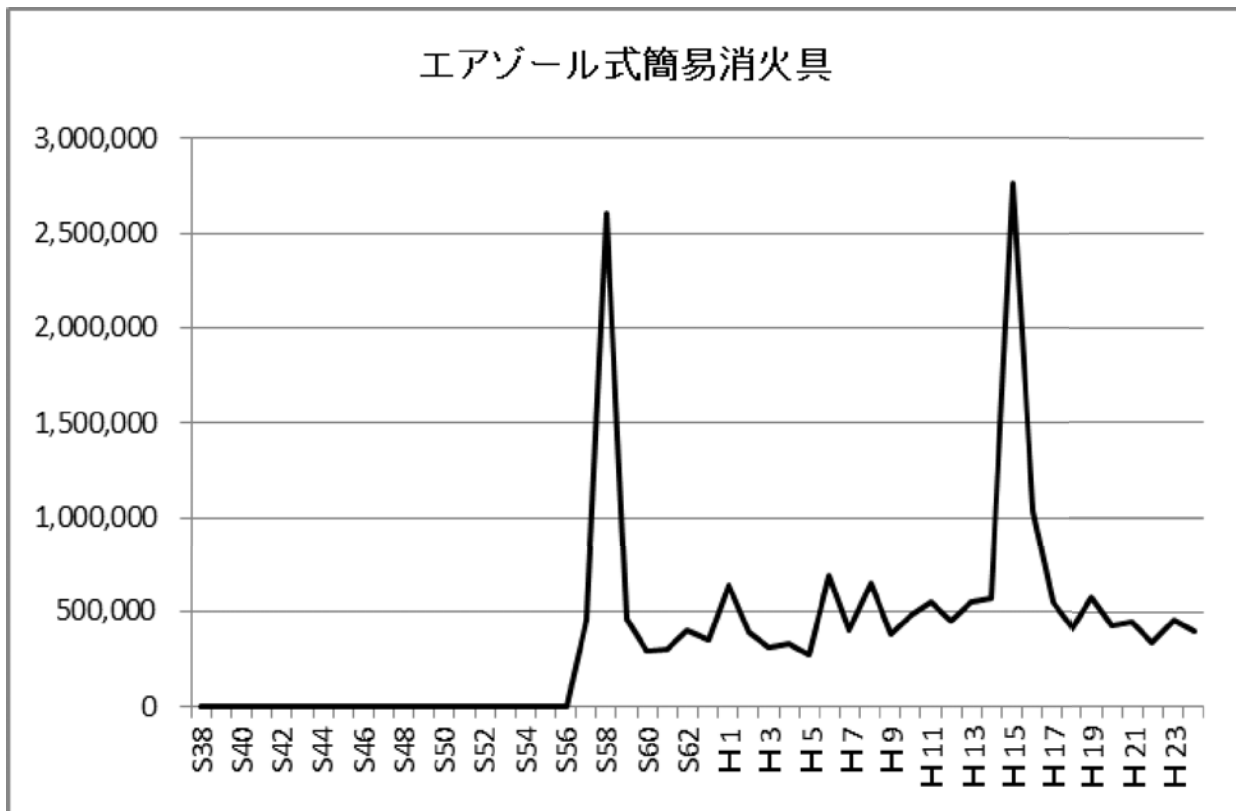
(2) 消防用吸管

消防用吸管は、1970年に規格化されている。また、1986年に自主表示対象機械器具等の対象とされるまでは、検定の対象品として扱われていた。



(3) エアゾール式簡易消火具

エアゾール式簡易消火具は、簡便で一定の消火能力があるものが市場に流通しはじめ、1982年に消火器の規格を一部改正し、消防庁長官が定める基準に適合するものについて、消火器としての対象から外された。協会では1983年から鑑定として当該製品の認証を開始し、2014年4月からは、自主表示対象機械器具等の対象品目として指定されている。



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Fire Protection Machinery and Tools in Japan

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