18-460

RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

Part R Fire Protection, Detection and Extinction

Rules for the Survey and Construction of Steel Ships
Part R 2018 AMENDMENT NO.2
Guidance for the Survey and Construction of Steel Ships
Part R 2018 AMENDMENT NO.2

Rule No.134 / Notice No.103 25 December 2018
Resolved by Technical Committee on 1 August 2018

ClassNK
NIPPON KAIJI KYOKAI

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

RULES

Part R Fire Protection, Detection and Extinction

2018 AMENDMENT NO.2

Rule No.134 25 December 2018

Resolved by Technical Committee on 1 August 2018

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

Rule No.134 25 December 2018
AMENDMENT TO THE RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Rules for the survey and construction of steel ships" has been partly amended as follows:

Part R FIRE PROTECTION, DETECTION AND EXTINCTION

Chapter 9 CONTAINMENT OF FIRE

9.3 Penetration in Fire-resisting Divisions and Prevention of Heat Transmission

9.3.2 Penetration in "*B*" Class Divisions*

Sub-paragraph (2) has been amended as follows.

Where "*B*" class divisions are penetrated for the passage of electric cables, pipes, trunks, ducts, etc., or for the fitting of ventilation terminals, lighting fixtures and similar devices, arrangements are to be made to ensure that the fire resistance is not impaired, subject to the provisions of **9.7.3-2**. Pipes other than steel or copper that penetrate "*B*" class divisions are to be protected by either:
((1) is omitted.)
(2) a steel sleeve, having a thickness of not less than 1.8 *mm* and a length of not less than 900 *mm* for pipe outside diameters of 150 *mm* or more and not less than 600 *mm* for pipe outside diameters of less than 150 *mm* (preferably equally divided to each side of the division). The pipe is to be connected to the ends of the sleeve by flanges or couplings; or the clearance between the sleeve and the pipe is not to exceed 2.5 *mm*; or any clearance between pipe and sleeve is to be made tight by means of non-combustible or other suitable material.

EFFECTIVE DATE AND APPLICATION

1. The effective date of the amendments is 25 December 2018.
2. Notwithstanding the amendments to the Rules, the current requirements apply to ships the keels of which were laid or which were at a similar stage of construction before the effective date.
(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 *tonnes* or 1% of the estimated mass of all structural material, whichever is the less.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

Part R Fire Protection, Detection and Extinction

2018 AMENDMENT NO.2

Notice No.103 25 December 2018
Resolved by Technical Committee on 1 August 2018

Notice No.103 25 December 2018
AMENDMENT TO THE GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

"Guidance for the survey and construction of steel ships" has been partly amended as follows:

Part R FIRE PROTECTION, DETECTION AND EXTINCTION

Amendment 2-1

R9 CONTAINMENT OF FIRE

R9.7 Ventilation Systems

R9.7.3 Details of Fire Dampers and Duct Penetrations

Sub-paragraph -2 has been amended as follows.

2 With respect to the provisions of **9.7.3, Part R of the Rules**, when the equipment for operating automatic fire dampers penetrates the divisions, such penetrations are to be properly constructed as required by **9.3.1, Part R of the Rules**. Where it is impracticable to comply with the above provisions, ~~where the fire damper is required to be capable of being closed manually from both sides of the divisions, in general,~~ automatic fire dampers are to be provided at each side of the divisions. ~~Notwithstanding the above, where means of close and its installation through the divisions are approved by the Society, a fire damper provided at the one side may be granted.~~

Annex R9.3.1 DETAILS OF PENETRATIONS

2 DETAILS

2.1 Penetration of Pipes

2.1.2 Penetration in "*B*" Class Divisions

Sub-paragraph -1 has been amended as follows.

1 A pipe penetration is to be made by a steel or copper pipe having thickness of not less than 1.8 *mm*, a penetration piece, or a steel sleeve. When a penetration piece or steel sleeve is used, the penetration is to have ~~of steel or equivalent material having thickness of not less than 1.8 *mm* and~~ a length of not less than 900 *mm* for pipe outside diameters of 150 *mm* or more and not less than 600 *mm* for pipe outside diameters of less than 150 *mm* (preferably equally divided to each side of the division). (See **Fig. 2.1.2-1**)

2 Where a steel penetration piece is used as a pipe penetration, the pipe is to be connected to the ends of the penetration piece by flanges or couplings. (See **Fig. 2.1.2-2**)

3 Where a steel sleeve is used as a pipe penetration, the clearance between the sleeve and pipe is not to exceed 2.5 *m* or any clearance between pipe and sleeve is to be made tight by means of non-combustible or other suitable material. (See **Fig. 2.1.2-3**)

Fig. 2.1.2-1 has been amended as follows.

Fig. 2.1.2-1

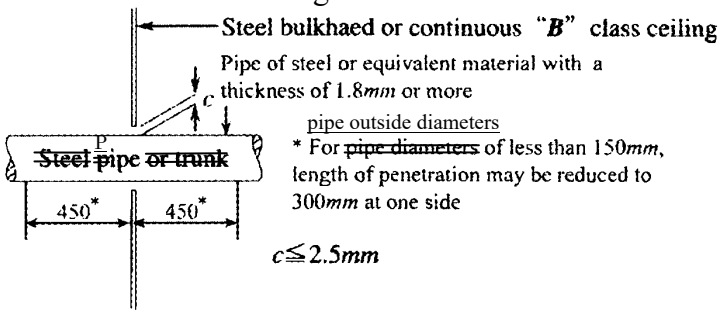


Fig. 2.1.2-2 has been amended as follows.

Fig. 2.1.2-2

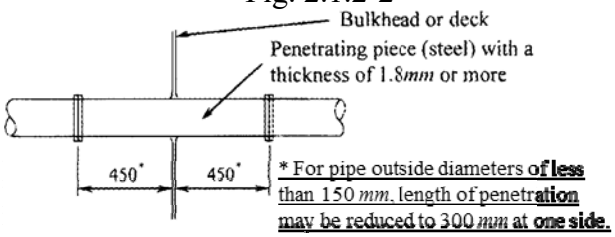
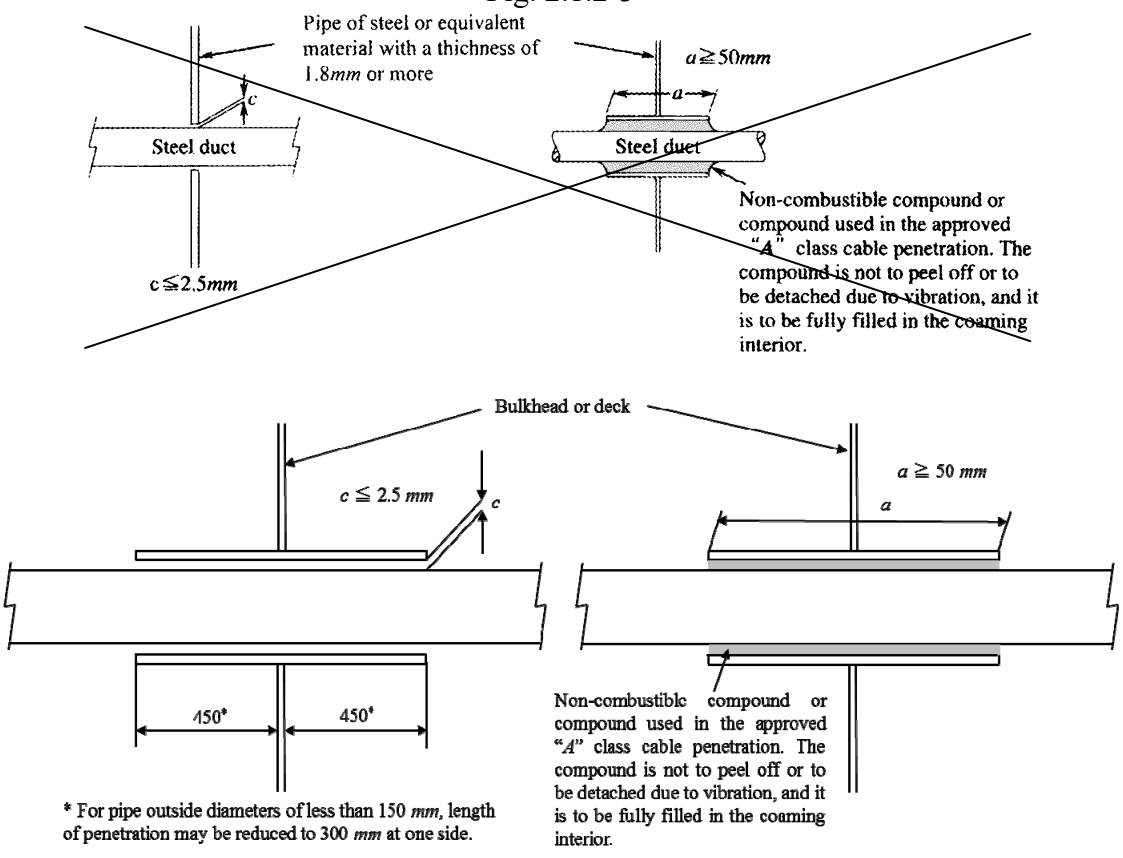


Fig. 2.1.2-3 has been amended as follows.

Fig. 2.1.2-3



2.1.3 Prevention of Heat Transmission

Sub-paragraph -2 has been amended as follows.

1 Where a pipe penetrates in a deck or a bulkhead which is required to be insulated, the insulation is to be carried past the penetration for a distance at least 450 *mm*. (See **Fig. 2.1.3-1**)
2 Notwithstanding **-1** above, for a penetration of a pipe made of material having low-heat conductivity character and an outside diameter of less than 150 *mm*, the insulation may be terminated at the end of penetration piece or sleeve as required. (See **Fig. 2.1.3-2**)

Fig. 2.1.3-1 and Fig. 2.1.3-2 have been amended as follows.

Fig. 2.1.3-1

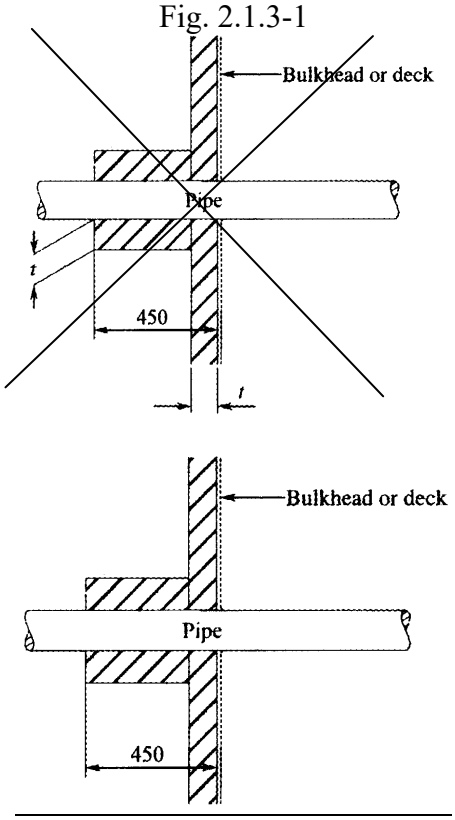
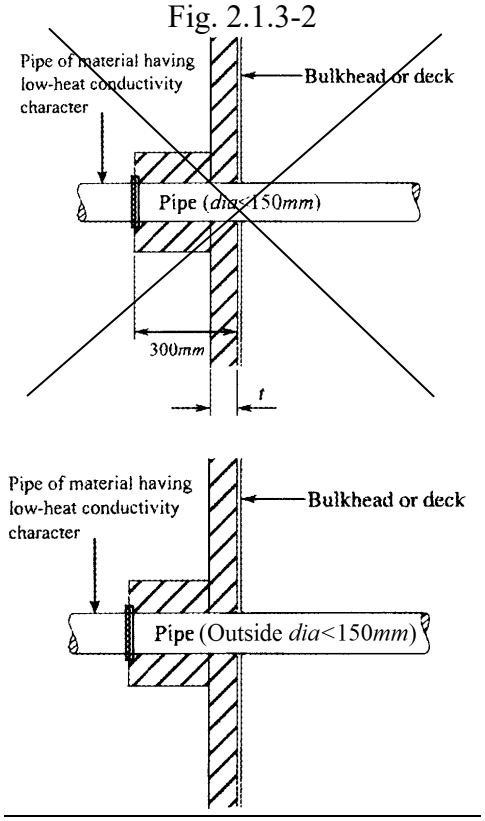


Fig. 2.1.3-2



Section 2.2 has been amended as follows.

2.2 Penetration of Ducts

2.2.1 Penetration in "*A*" Class Divisions

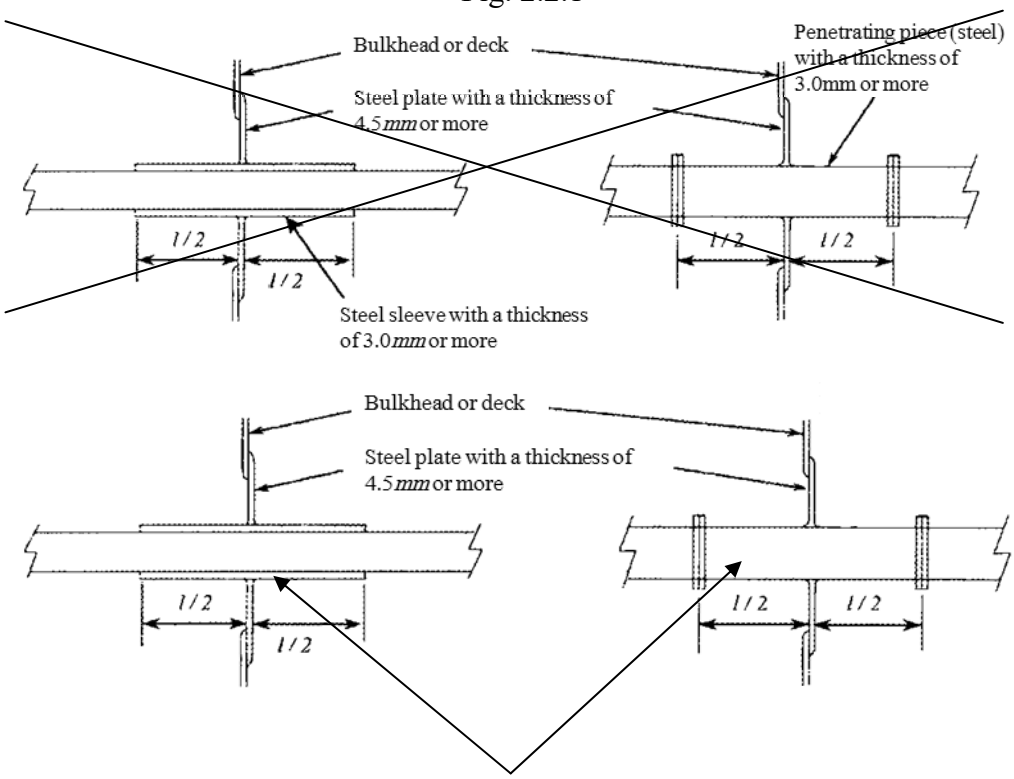
1 A duct penetration is to be made of steel or equivalent material having thickness of at least 3 *mm* and a length defined as **Table 2.2.1**, preferably equally divided to each side of the bulkhead (see **Fig. 2.2.1**) or, in the case of the deck, totally laid on the lower side of the deck as practicable. In particular, when a duct with a free cross-sectional area equal to, or less than, 0.02 m^2 passes through "*A*" class decks, a steel sleeve is to be wholly laid on the lower side of the decks penetrated.

2 Use of penetration pieces can be accepted in lieu of the steel sleeve specified in **9.7.1-2, Part R of the Rules**. (See **Fig. 2.2.1**) ~~Where a steel sleeve complying with the above provisions is directly jointed to such ventilation ducts by means of riveted or screwed connections or by welding, the test in accordance with the Fore Test Procedures Code is not required.~~

Table 2.2.1 Length of penetration of ducts

Free cross-sectional area of duct penetrations	Length of penetrations (*l*)
0.02 m^2 or less	200 *mm*
Over 0.02 m^2	900 *mm*

Fig. 2.2.1



Thickness of steel (penetration piece, sleeve)

- Ducts with a free cross-sectional area equal to, or less than, 0.075 m^2 : At least 3.0 *mm*
- Ducts with a free cross-sectional area exceeding 0.075 m^2, but not more than 0.45 m^2 : At least 4.0 *mm*
- Ducts with a free cross-sectional area of over 0.45 m^2 : At least 5.0 *mm*

2.2.2 (Omitted)

2.2.3 Prevention of Heat Transmission and Fire Dampers

1 The details of prevention of heat transmission at penetrations specified in **(1)** and **(2)** of **9.7.3-1, Part R of the Rules** are to be as shown in **Fig. 2.2.3-1** as a standard. ~~Where a duct penetrates in a deck or a bulkhead which is required to be insulated, the insulation is to be carried past the penetration for a distance at least 450 *mm*. (See **Fig. 2.2.3**)~~

2 The details of prevention of heat transmission between automatic fire dampers and the divisions penetrated specified in **9.7.3-1(3), Part R of the Rules** are to be as shown in **Fig. 2.2.3-2** and **Fig. 2.2.3-3** as a standard. ~~Notwithstanding **-1** above, for a penetration of a duct made of material having low-heat conductivity character and with a free cross-sectional area not greater than 0.02 m^2, the insulation may be terminated at the end of penetration piece or sleeve as required. (See **Fig. 2.2.3**)~~

~~Fig. 2.2.3~~

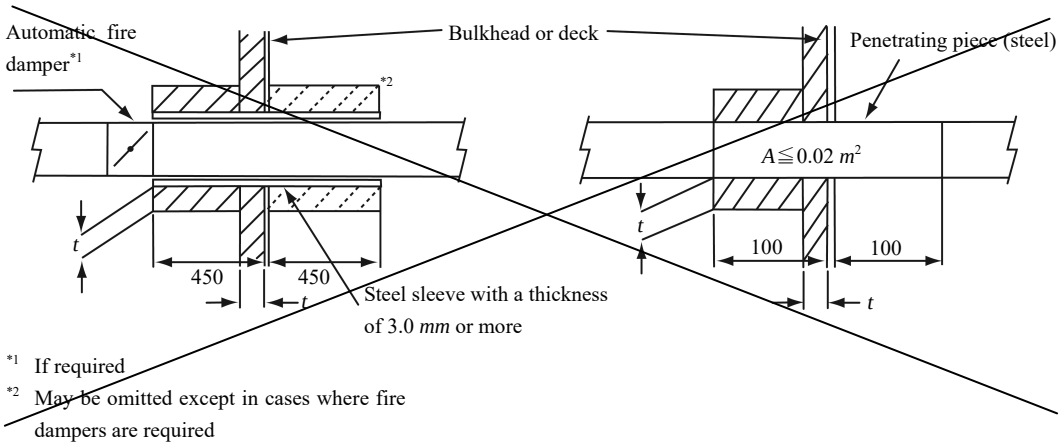
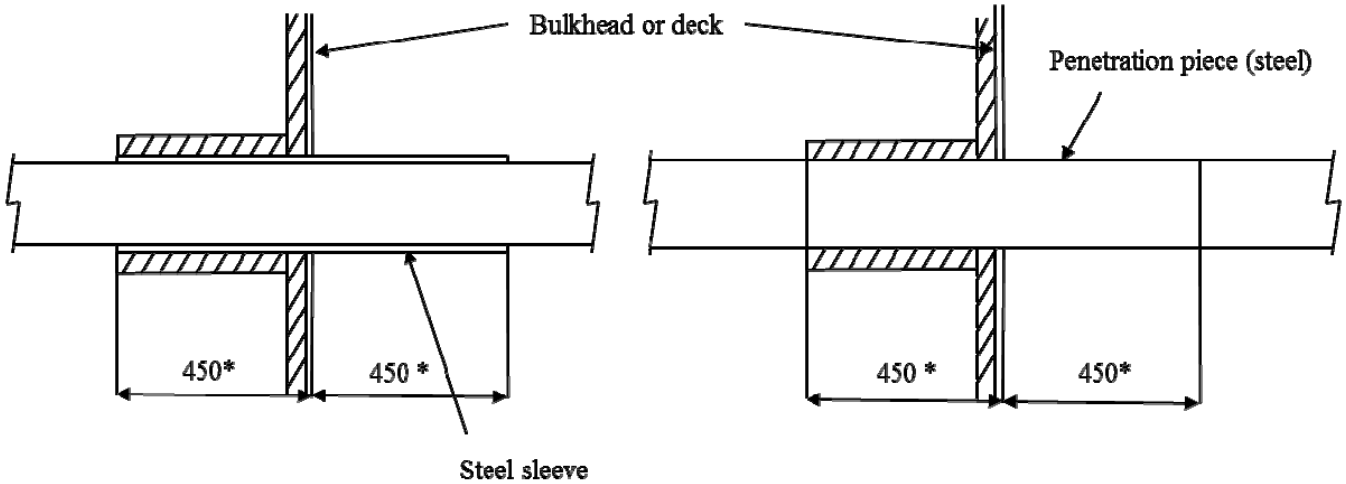
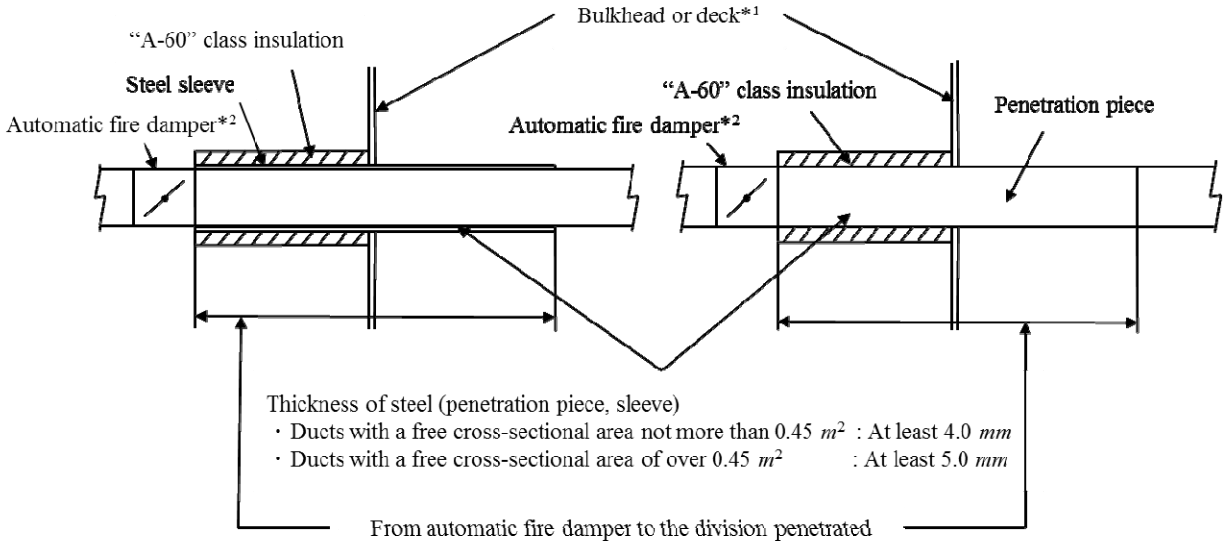


Fig. 2.2.3-1 A duct penetration with a free cross-sectional area equal to, or less than, 0.075 m^2



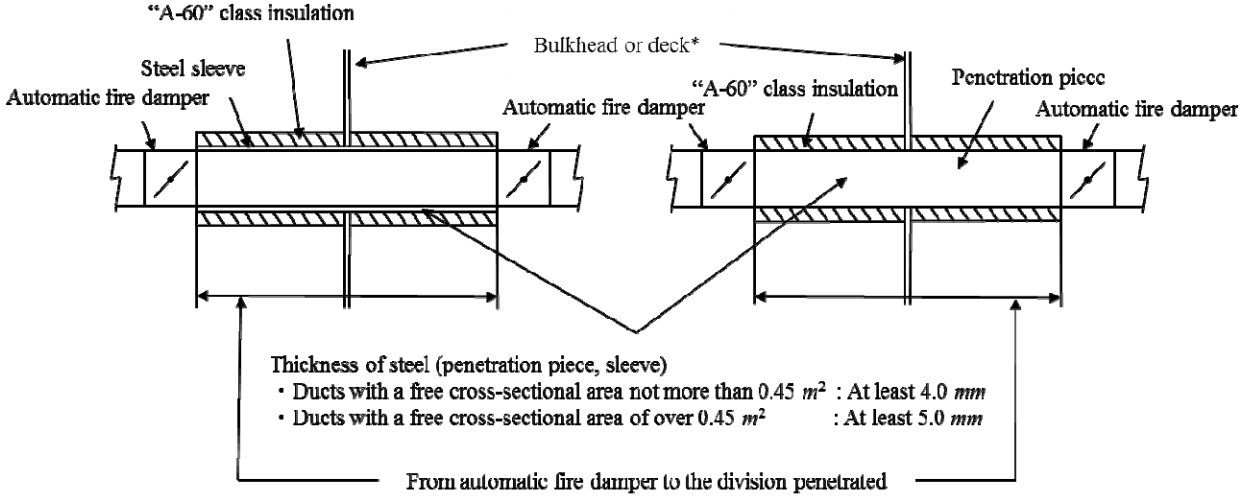
*** A penetration of a duct made of material having low-heat conductivity character and with a free cross-sectional area not greater than 0.02 m^2, the insulation may be terminated at the end of penetration piece or sleeve specified in 2.2.1.**

Fig. 2.2.3-2 A duct penetration with a free cross-sectional area of over 0.075 m^2
(Damper provided on one side of the division.)



*1 Thermal insulation is to be fitted, if insulation is required by the Rules.
*2 When the equipment for operating the automatic fire dampers penetrate the divisions, such penetrations are to be properly constructed as required by **9.3.1, Part R of the Rules**.

Fig. 2.2.3-3 A duct penetration with a free cross-sectional area of over 0.075 m^2
(Dampers provided on both sides of the division.)

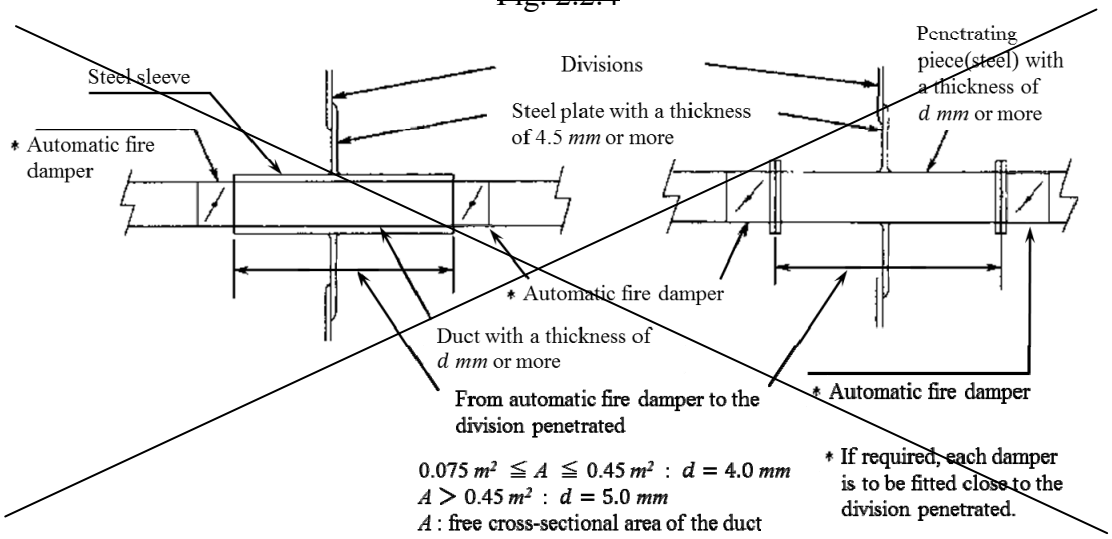


*Thermal insulation is to be fitted, if insulation is required by the Rules.

~~**2.2.4 Fire Dampers**~~

~~In addition to the provisions of **2.2.1** and **2.2.3** above, ducts with a free cross-sectional area exceeding 0.075 m^2 are to be fitted with automatic fire dampers complying with the provisions of **9.7.1-2, Part R of the Rules**. (See **Fig. 2.2.4**)~~

~~Fig. 2.2.4~~



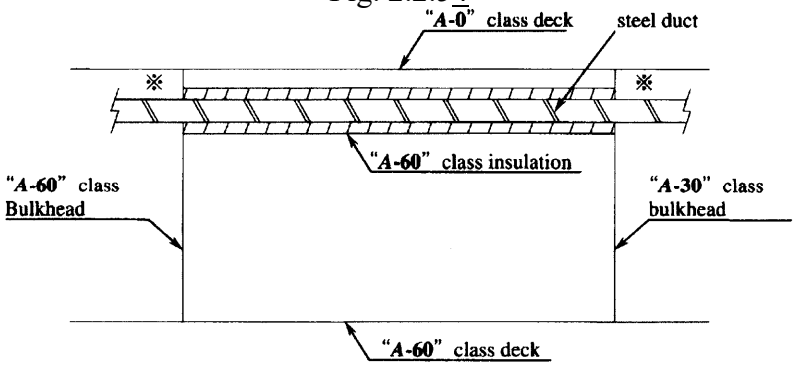
2.2.5~~3~~4 Omission of Dampers

The automatic fire dampers required in **2.2.4~~3~~-2** may be omitted if the following conditions are satisfied with:

(1) Where the ducts run through spaces surrounded by "*A*" class divisions, without serving these spaces.

(2) Where the ducts have the fire integrity compatible with that of the divisions with the highest insulation value among divisions penetrated by the ducts. (See **Fig. 2.2.5~~3~~4**)

Fig. 2.2.5~~3~~4



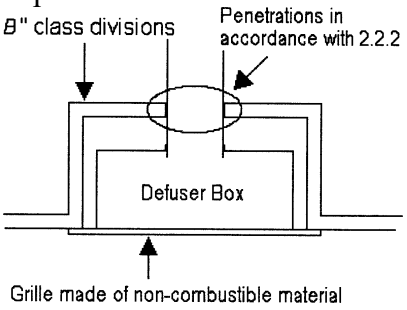
Note:

※ Penetrations through divisions are to be in compliance with **Fig. 2.2.1**.

2.2.~~6~~5 Ventilation Terminals

An example of ventilation terminals in "*B*" class divisions is shown in **Fig. 2.2.~~6~~5**.

Fig. 2.2.~~6~~5 Example of ventilation terminals in "*B*" class divisions



EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

1. The effective date of the amendments is 25 December 2018.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date.

(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 *tonnes* or 1% of the estimated mass of all structural material, whichever is the less.

Amendment 2-2

R15 TRAINING MANUAL AND FIRE CONTROL PLAN

R15.2 General Requirements

R15.2.2 Fire Control Plans

Sub-paragraph -1 has been amended as follows.

1 For developing fire control plans or booklets required in **15.2.2-1, Part R of the Rules**, it is recommended to refer to *IMO* resolution *A*.952(23) "*Graphical symbols for shipboard fire control plans*" and Table 3 of *IMO* resolution *A*.1116(30) "*Escape Route Signs and Equipment Location Markings*".

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

1. The effective date of the amendments is 1 January 2019.

2. Notwithstanding the amendments to the Guidance, the current requirements apply to ships the keels of which were laid or which were at *a similar stage of construction* before the effective date.
(Note) The term "*a similar stage of construction*" means the stage at which the construction identifiable with a specific ship begins and the assembly of that ship has commenced comprising at least 50 *tonnes* or 1% of the estimated mass of all structural material, whichever is the less.
* For high speed craft, "1%" is to be read as "3%".