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 2022 AMENDMENT NO.2
Guidance for the Survey and Construction of Steel Ships
Part R 2022 AMENDMENT NO.2

Rule No.89 / Notice No.64 27 December 2022
Resolved by Technical Committee on 27 July 2022

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

2022 AMENDMENT NO.2

Rule No.89 27 December 2022

Resolved by Technical Committee on 27 July 2022

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

Rule No.89 27 December 2022
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

Amendment 2-1

Chapter 9 CONTAINMENT OF FIRE

9.7 Ventilation Systems

9.7.2 Arrangement of Ducts*

(-1 to -3 are omitted.)

4 As permitted by **-2** and **-3** above, ducts are to comply with the conditions specified in **(1)** or **(2)** below:

(1) In the case of fire dampers installed
   (a) the ducts are constructed of steel having a thickness of at least 3 *mm* for ducts with a free cross-sectional area of less than 0.075 m^2, at least 4 *mm* for ducts with a free cross-sectional area of between 0.075 m^2 and 0.45 m^2, and at least 5 *mm* for ducts with a free cross-sectional area of over 0.45 m^2;
   (b) the ducts are suitably supported and stiffened;
   (c) the ducts are fitted with automatic fire dampers close to the boundaries penetrated; and
   (d) the ducts are insulated to "*A*-60" class standard from the boundaries of the spaces they serve to a point at least 5 *m* beyond each fire damper.

(2) In the case of fire dampers not installed
   (a) the ducts are constructed of steel in accordance with **(a)** and **(b)** of **(1)** above; and
   (b) the ducts are insulated to "*A*-60" class standard throughout the spaces they pass through.

(-5 and -6 are omitted.)

9.7.3 Details of Fire Dampers and Duct Penetrations*

Sub-paragraph -1 has been amended as follows.

1 Ducts passing through "*A*" class divisions are to meet the following requirements:

(1) Where a thin plated duct with a free sectional area equal to, or less than, 0.02 m^2 passes through "*A*" class divisions, the opening is to be fitted with a steel sheet sleeve having a thickness of at least 3 *mm* and a length of at least 200 *mm*, divided preferably into 100 *mm* on each side of the bulkhead or, in the case of the deck, wholly laid on the lower side of the decks pierced;

(2) Where ventilation ducts with a free-sectional area exceeding 0.02 m^2, but not more than 0.075 m^2, pass through "*A*" class divisions, the openings are to be lined with a steel sheet sleeves. The ducts and sleeves are to have a thickness of at least 3 *mm* and a length of at least 900 *mm*. When passing through bulkheads, this length is to be divided preferably into 450 *mm* on each side of the bulkhead. These ducts, or sleeves lining such ducts, are to be provided with fire insulation. The insulation is to have at least the same fire integrity as the divisions through

which the duct passes; and

(3) Automatic fire dampers are to be fitted in all ducts with a free cross-sectional area exceeding 0.075 m^2 that pass through "*A*" class divisions. Each damper is to be fitted close to the division penetrated and the duct between the damper and the division penetrated is to be constructed of steel in accordance with **9.7.2-4(~~2~~1)(a)** and **9.7.2-4(~~2~~1)(b)**. The fire damper is to operate automatically, but is also to be capable of being closed manually from both sides of the division. The damper is to be fitted with a visible indicator which shows the operating position of the damper. Fire dampers are not required, however, where ducts pass through spaces surrounded by "*A*" class divisions, without serving those spaces, provided those ducts have the same fire integrity as the divisions which they penetrate. A duct of cross-sectional area exceeding 0.075 m^2 is not to be divided into smaller ducts at the penetration of an "*A*" class division and then recombined into the original duct once through the division to avoid installing the damper required by this paragraph.

(-2 to -3 are omitted.)

EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

1. The effective date of the amendments is 27 December 2022.

2. Notwithstanding the amendments to the Rules, the current requirements may apply to ships the keel of which were laid or which were at a similar stage of construction before 1 January 2016.

(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

Chapter 1 GENERAL

1.1 General

1.1.1 Application

Sub-paragraph -5 has been added as follows.

5 Accumulator battery systems consisting of lithium-ion batteries with total capacities of 20 *kWh* or more, and associated equipment are to also be in accordance with **1.2.3, Annex 2.11.1-2, Part H**.

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

1. The effective date of the amendments is 1 January 2023.

2. Notwithstanding the amendments to the Rules, the current requirements apply to ships for which the date of contract for construction* is before the effective date.

3. Notwithstanding the provision of preceding **2.**, the amendments to the Rules may apply to the surveys for which the application is submitted to the Society before the effective date upon request by the owner.

* "contract for construction" is defined in the latest version of IACS Procedural Requirement (PR) No.29.

IACS PR No.29 (Rev.0, July 2009)

1. The date of "contract for construction" of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding.

2. The date of "contract for construction" of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder.

For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a "series of vessels" if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided:

(1) such alterations do not affect matters related to classification, or

(2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval.

The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed.

3. If a contract for construction is later amended to include additional vessels or additional options, the date of "contract for construction" for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a "new contract" to which **1.** and **2.** above apply.

4. If a contract for construction is amended to change the ship type, the date of "contract for construction" of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder.

Note:
This Procedural Requirement applies from 1 July 2009.

GUIDANCE FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS

GUIDANCE

Part R Fire Protection, Detection and Extinction

2022 AMENDMENT NO.2

Notice No.64 27 December 2022
Resolved by Technical Committee on 27 July 2022

Notice No.64 27 December 2022
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 System

R9.7.3 Details of Fire Dampers and Duct Penetrations

Sub-paragraph -5 has been added as follows.

1 With respect to the requirements of **9.7, Part R of the Rules**, in case where ducts penetrate either "*A*" class or "*B*" class divisions, the requirements specified in **R9.3** of this Guidance are to be complied with.
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, automatic fire dampers are to be provided at each side of the divisions.
3 Ventilation inlets and outlets located at outside boundaries which are fitted with closing appliances as required by **5.2.1-1, Part R of the Rules**, need not comply with the requirements of **9.7.3, Part R of the Rules**.
4 Ducts with free sectional area of 0.075 m^2 or less need to be fitted with fire damper at their passage through Class "*A*" divisions in those cases indicated in requirements **9.7.2-2 Part R of the Rules** and **9.7.2-3 Part R of the Rules**. The fire damper can be omitted if the duct is arranged in compliance with the requirements of **9.7.2-4(2) Part R of the Rules**.
5 With respect to the provisions of **9.7.3-1(3), Part R of the Rules**, it is recommended that the insulation for duct between the damper and the penetrated bulkhead or deck be at least of the same fire integrity as the division through which the duct passes.

Annex R9.3.1 DETAILS OF PENETRATIONS

2 DETAILS

2.2 Penetration of Ducts

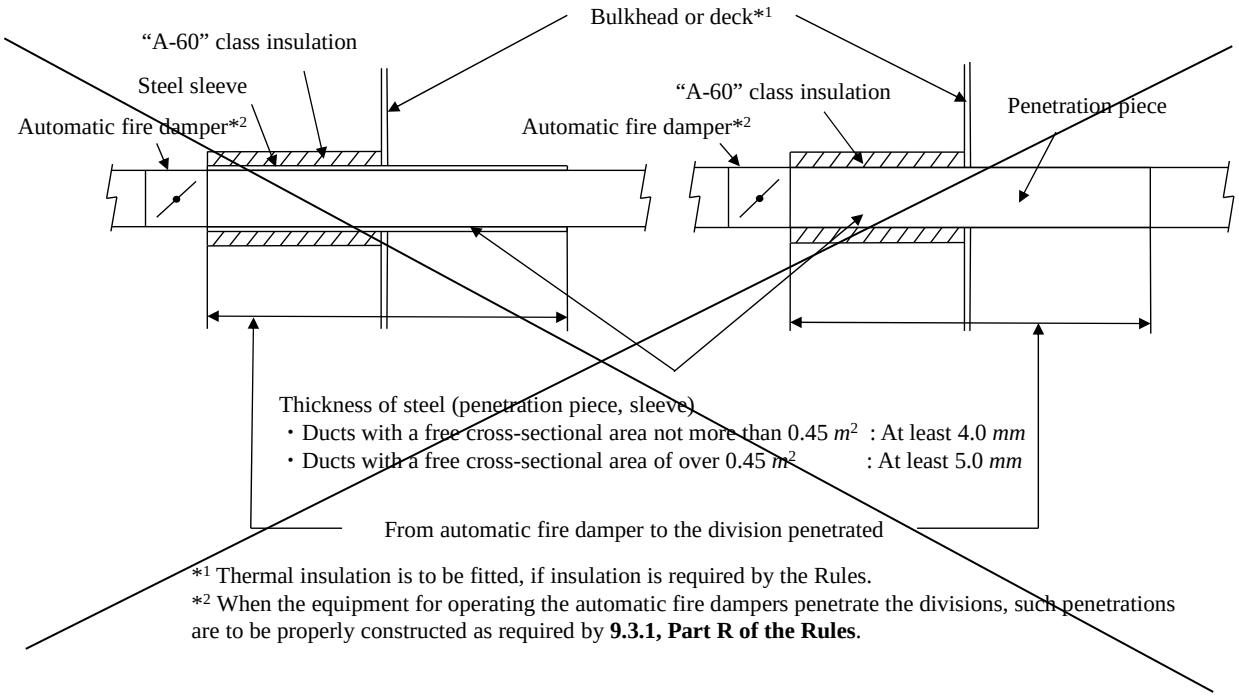
2.2.3 Prevention of Heat Transmission and Fire Dampers

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.

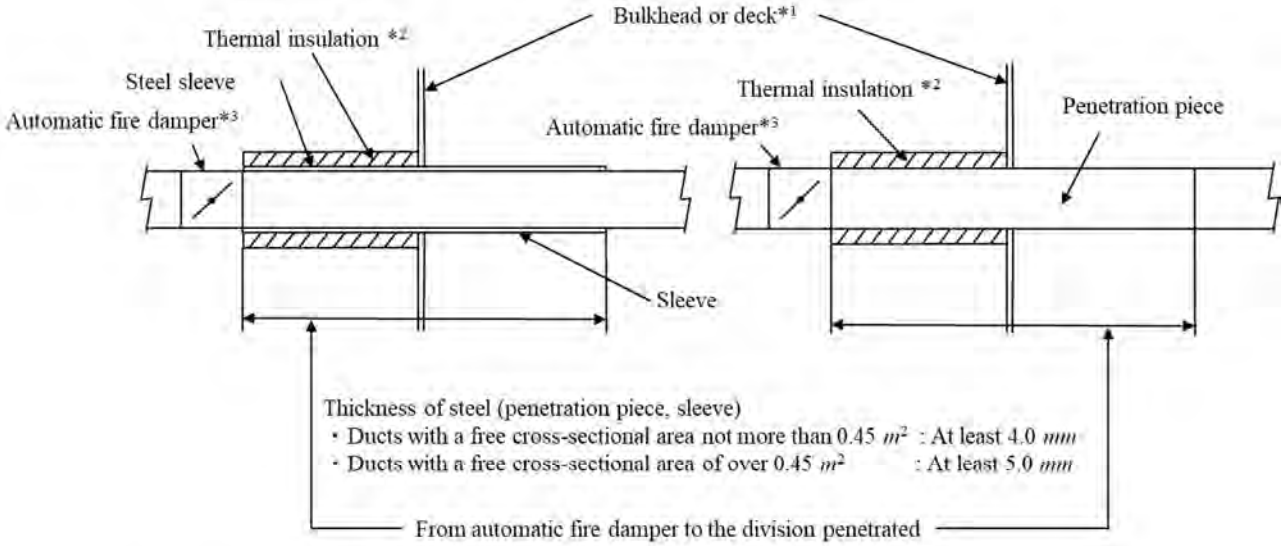
2 The details of prevention of heat transmission between automatic fire dampers and the divisions penetrated specified in **9.7.3-1(3), Part R of the Rules** are to be as shown in **Fig. 2.2.3-2** and **Fig. 2.2.3-3** as a standard.

Fig.2.2.3-2 and Fig.2.2.3-3 have been amended as follows.

Fig. 2.2.3-2 A duct penetration with a free cross-sectional area of over 0.075 m2
(Damper provided on one side of the division.)

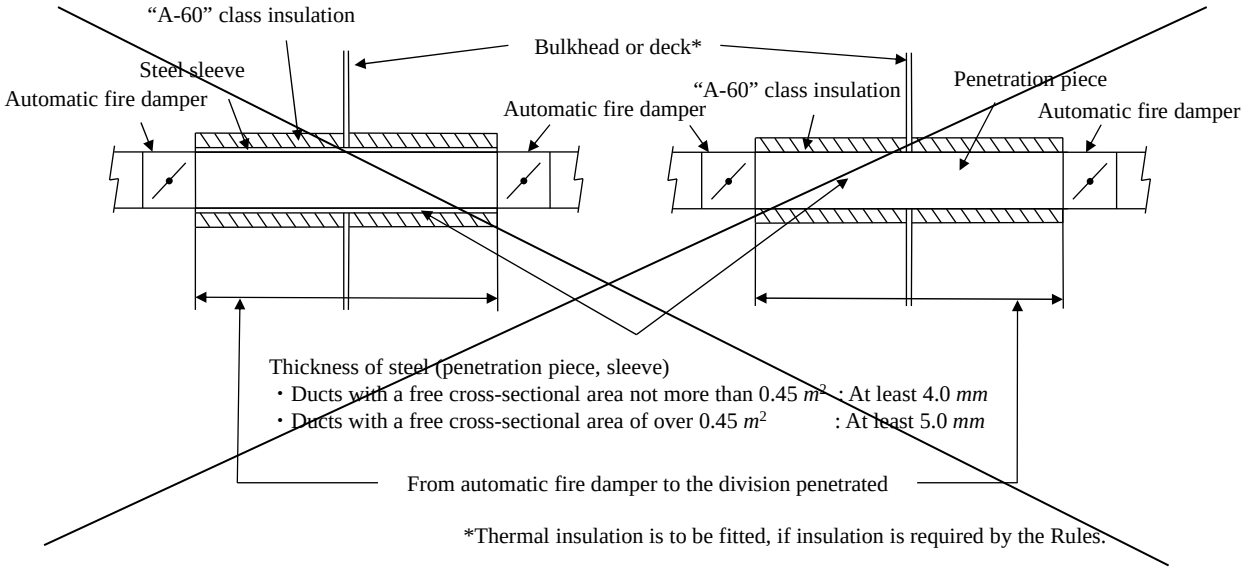


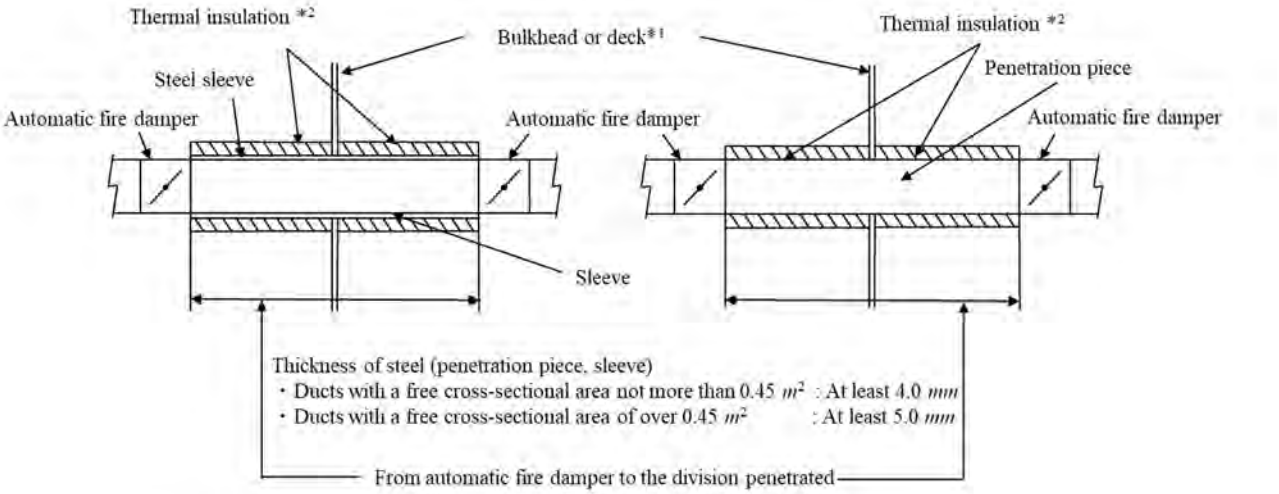
*1 Thermal insulation is to be fitted, if insulation is required by the Rules.
*2 When the equipment for operating the automatic fire dampers penetrate the divisions, such penetrations are to be properly constructed as required by **9.3.1, Part R of the Rules**.



*1 Thermal insulation is to be fitted, if insulation is required by the Rules.
*2 Thermal insulation same level of fire integrity of the penetrated bulkhead or deck to be fitted.
*3 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.)





EFFECTIVE DATE AND APPLICATION (Amendment 2-1)

1. The effective date of the amendments is 27 December 2022.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships the keel of which were laid or which were at a similar stage of construction before 1 January 2016.

(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

R9 CONTAINMENT OF FIRE

R9.2 Thermal and Structural Boundaries

R9.2.3 Bulkheads and Decks

Sub-paragraph -8 has been deleted as follows.

~~**8** "Bulkheads and decks separating ro-ro and/or vehicle spaces" referred to in footnote h of **Tables R9.1** and **R9.2**, **Part R of the Rules** are to have "*A*-0" class fire integrity. Doors (including shutters) fitted to the bulkheads and decks are also, in principle, to have "*A*-0" class fire integrity. The standard fire test may be required where deemed necessary by the Society. The materials of door packing are to be non-combustible. Bulkheads and decks separating car deck spaces are to be dealt with in the same way.~~

Annex R9.3.1 DETAILS OF PENETRATIONS

2 DETAILS

2.2 Penetration of Ducts

Paragraph 2.2.2 has been amended as follows.

2.2.2 Penetration in "*B*" Class Divisions

1 A duct penetration is to be made of steel or equivalent material having thickness of at least 1.8 *mm* and a length defined as **Table 2.2.1**, preferably equally divided to each side of the bulkhead (see **Fig. 2.2.2-1** and **Fig. 2.2.2-2**) or, in the case of the deck, totally laid on the lower side of the deck as practicable.

2 No clearance is to be allowed between ducts and divisions.

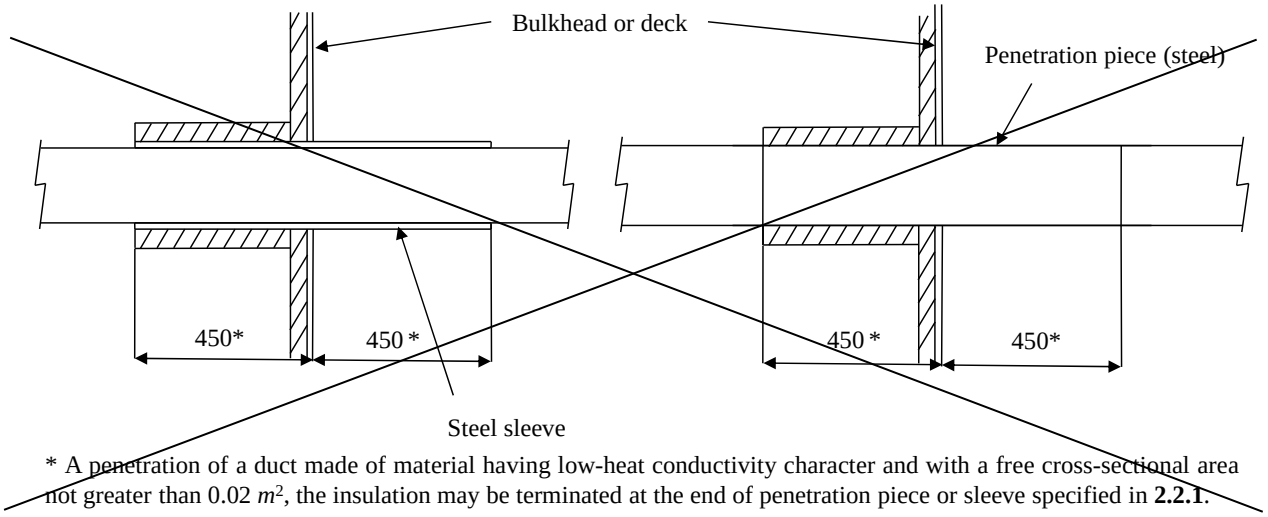
2.2.3 Prevention of Heat Transmission and Fire Dampers

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.

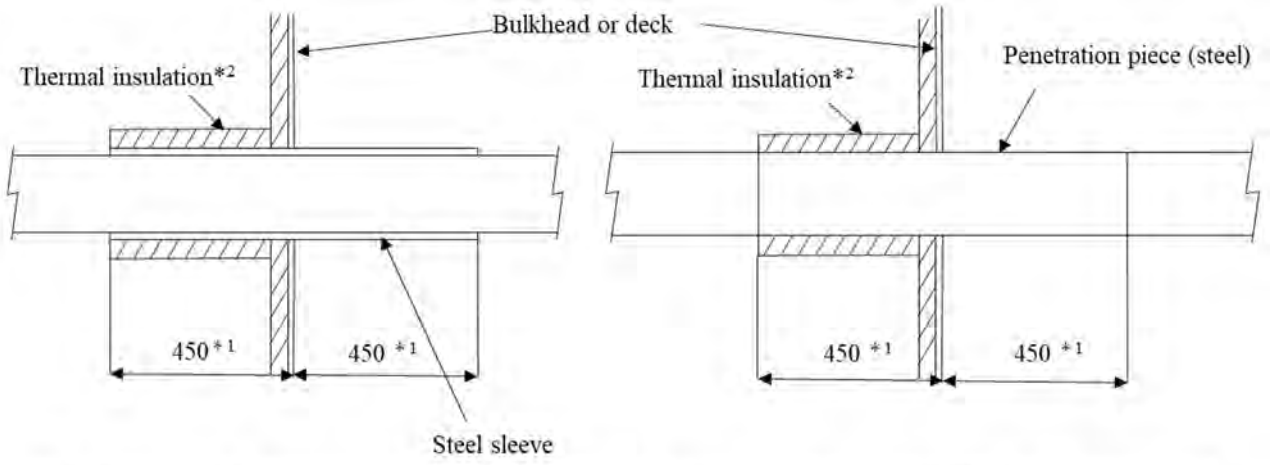
2 The details of prevention of heat transmission between automatic fire dampers and the divisions penetrated specified in **9.7.3-1(3), Part R of the Rules** are to be as shown in **Fig. 2.2.3-2** and **Fig. 2.2.3-3** as a standard.

Fig.2.2.3-1 has been amended as follows.

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**.



*1 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**.

*2 Thermal insulation is to be provided only to the part of the duct and/or sleeve that is on the same side of the division being fire insulated, and be extended for a minimum of 450mm along the duct and/or sleeve.

EFFECTIVE DATE AND APPLICATION (Amendment 2-2)

1. The effective date of the amendments is 1 January 2023.

2. Notwithstanding the amendments to the Guidance, the current requirements may apply to ships for which the date of contract for construction is before the effective date.