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**UNIFIED INTERPRETATION OF PROVISIONS OF IMO SAFETY, SECURITY, AND
ENVIRONMENT-RELATED CONVENTIONS**

**Clarification of the requirements relating to the testing of pipe penetrations
and cable transits in part 3 (Test for "A", "B" and "F" class divisions)
of annex 1 to the 2010 FTP Code**

Submitted by IACS

SUMMARY

Executive summary: This document seeks clarification of the requirements for the design of test specimens in accordance with the 2010 FTP Code, contained in annex 1, part 3, appendix 2, sections A.III (Pipe and duct penetrations) and A.IV (Cable Transits) of the Code, while presenting the understanding of IACS in relation to these requirements

Strategic direction, if applicable: 6

Output: 6.1

Action to be taken: Paragraph 8

Related document: FP 51/4/4

Background

1 Sections A.III and A.IV of appendix 2 to part 3 (Test for "A", "B" and "F" class divisions) in annex 1 to the 2010 FTP Code (resolution MSC.307(88)) contain similar requirements for the design of the test specimen. In particular, paragraphs 2.2.1, 2.2.1.1 and 2.2.1.2 of these sections state:

"A.III – PIPE AND DUCT PENETRATIONS

2.2.1 A bulkhead which includes the pipe penetration shall be constructed in accordance with paragraph 2.1.1 of appendix 1 and shall be insulated to class "A-60" on the stiffened face, which shall be the face which is not exposed to the heating conditions of the test. A deck which includes the pipe penetration shall be constructed

in accordance with paragraph 2.2.1 of appendix 1 and shall be insulated to class "A-60" on the stiffened face, which shall be the face which is exposed to the heating conditions of the test.

2.2.1.1 "A-0" class pipe penetrations are recommended to be performed in an uninsulated ("A-0") bulkhead/deck. If the pipe penetrations are tested as an "A-60" class penetration, any insulation fitted (on the penetration itself and 200 mm around) will be required to be fitted also for class "A-0".

2.2.1.2 "A-0" penetrations shall not be approved without an "A-0" test although tested and approved as "A-60".

A.IV – CABLE TRANSITS

2.2.1 A bulkhead which includes the cable transit shall be constructed in accordance with paragraph 2.1.1 of appendix 1 and shall be insulated to class "A-60" on the stiffened face, which shall be the face which is not exposed to the heating conditions of the test. A deck which includes the cable transit shall be constructed in accordance with paragraph 2.2.1 of appendix 1 and shall be insulated to class "A-60" on the stiffened face, which shall be the face which is exposed to the heating conditions of the test.

2.2.1.1 "A-0" class cable transits are recommended to be performed in an uninsulated ("A-0") bulkhead/deck. If the cable transits are tested as "A-60" penetration, any insulation fitted on an exposed side (on the cable transits itself and 200 mm around) will be required to be fitted also for "A-0".

2.2.1.2 "A-0" cable transits shall not be approved without an "A-0" test although tested and approved as "A-60".

2 The clauses in the above-mentioned paragraphs 2.2.1.1 in each of sections A.III and A.IV were not part of the *Recommendation on Fire Resistance Tests for "A", "B" and "F" class divisions* (resolution A.754(18)) and were added during the comprehensive review of the FTP Code in 2010. IACS considers that these clauses are insufficiently clear in the context of the requirements in the respective paragraphs 2.2.1 above and may cause confusion, resulting in inconsistent application by test laboratories.

Discussion

3 IACS understands that the testing of uninsulated ("A-0") penetrations in uninsulated ("A-0") divisions constitutes one of the most onerous test conditions and test data have demonstrated that the majority of penetrations will not pass this test, unless fitted with suitable insulation. IACS is of the view that this is recognized in the alternative arrangement that allows for "A-60" penetrations to be tested as per paragraph 2.2.1 and accepted for use in uninsulated "A-0" divisions, on the condition that they must be fitted with the same "A-60" insulation arrangements used during the test, both on and around the transit for at least 200 mm (where the 200 mm insulation around the transit represents the "A-60" bulkhead/deck insulation). This alternative is stated in paragraph 2.2.1.1; however, in this case the penetrations are not approved as "true" "A-0" penetrations, but as "A-60" penetrations that are allowed to be used in uninsulated ("A-0") divisions, based on the above alternative requirement that they must be insulated as in the "A-60" tests.

4 In order for the penetrations to be approved/given fire classification as "true" "A-0" penetrations, the 2010 FTP Code requires them to be tested separately in uninsulated divisions and this requirement is stated in paragraph 2.2.1.2 of the above-referenced sections.

5 In summary, paragraphs 2.2.1.1 of both sections establish the provisions for "A-60" penetrations to be used in "A-0" divisions, whereas paragraph 2.2.1.2 stipulates the criteria for penetrations to be approved as "true" "A-0" penetrations.

The understanding of IACS

6 Based on the foregoing, IACS considers that paragraphs 2.2.1.1 and 2.2.1.2 should be understood to mean:

"Penetrations/cable transits shall not be approved as "A-0" penetrations/cable transits unless tested separately in an uninsulated ("A-0") bulkhead/deck.

However, penetrations/cable transits tested as "A-60 penetrations/transits" in accordance with paragraph 2.2.1 may be allowed in uninsulated ("A-0") bulkhead/deck, provided the same A-60 insulation arrangements used in the "A-60" test are provided on and around the transit for a minimum distance of 200 mm on all fire risk sides of the divisions."

The way forward

7 If the Sub-Committee agrees with the understanding provided in paragraph 6 above, then IACS considers that capturing the above-mentioned understanding in the report of this session would be sufficient. Alternatively, IACS offers to submit a draft unified interpretation, based on the understanding of the Sub-Committee, to the next session.

Action requested of the Sub-Committee

8 The Sub-Committee is invited to consider the discussion of the issue in paragraphs 3 to 5 above, the understanding of IACS in paragraph 6, and the proposed way forward explained in paragraph 7; and take action, as appropriate.
