



Task

— Identify definitions of “enclosed spaces” in:

1. IMO instruments and guidance
2. ILO instruments and guidance
3. Other documents and guidance (incl. non-marine)

— Identify some common features of the definitions

— Identify any examples of spaces designated as “enclosed spaces” provided in the definitions



IMO

Revised recommendations for entering enclosed spaces aboard ships (Resolution A.1050(27), 20 December 2011)

2.1 *Enclosed space means a space which has any of the following characteristics:*

.1 limited openings for entry and exit;

.2 inadequate ventilation; and

.3 is not designed for continuous worker occupancy,

DEFINITION 1

and includes, but is not limited to, cargo spaces, double bottoms, fuel tanks, ballast tanks, cargo pump-rooms, cargo compressor rooms, cofferdams, chain lockers, void spaces, duct keels, inter-barrier spaces, boilers, engine crankcases, engine scavenge air receivers, sewage tanks, and adjacent connected spaces. This list is not exhaustive and a list should be produced on a ship-by-ship basis to identify enclosed spaces.

2.2 *? Adjacent connected space means a normally unventilated space which is not used for cargo but which may share the same atmospheric characteristics with the enclosed space such as, but not limited to, a cargo space accessway.*



IMO

International Convention on Tonnage Measurement of Ships, 1969 (Tonnage Convention)

Regulation 2

(4) *Enclosed spaces*

DEFINITION 2

Enclosed spaces are all those spaces which are bounded by the ship's hull, by fixed or portable partitions or bulkheads, by decks or coverings other than permanent or movable awnings. No break in a deck, nor any opening in the ship's hull, in a deck or in a covering of a space, or in the partitions or bulkheads of a space, nor the absence of a partition or bulkhead, shall preclude a space from being included in the enclosed space.

References to “enclosed spaces” in MARPOL and SOLAS, but no definitions are provided, although there is indication of what spaces are considered “enclosed spaces” as examples (e.g. see SOLAS regulations II-2/3, II-2/7 and II-2/19, and MARPOL Annex I, regulation 1).



IMO

International Code of Safety for Ships Using Gases or Other Low-Flashpoint Fuels (IGF Code)

2.2.11 *Enclosed space means any space within which, in the absence of artificial ventilation, the ventilation will be limited and any explosive atmosphere will not be dispersed naturally.*²

² See also definition in IEC 60092-502:1999

DEFINITION 3

2.2.38 *Semi-enclosed space means a space where the natural conditions of ventilation are notably different from those on open deck due to the presence of structure such as roofs, windbreaks and bulkheads and which are so arranged that dispersion of gas may not occur.*³

³ Refer also to IEC 60092-502:1999 Electrical Installations in Ships – Tankers – Special Features

18.5.1 *Under normal operational circumstances, personnel shall not enter fuel tanks, fuel storage hold spaces, void spaces, tank connection spaces or other enclosed spaces where gas or flammable vapours may accumulate, unless the gas content of the atmosphere in such space is determined by means of fixed or portable equipment to ensure oxygen sufficiency and absence of an explosive atmosphere.*³⁶

³⁶ Refer to the Revised recommendations for entering enclosed spaces aboard ships (A.1050(27))



IMO

International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk (IGC Code)

1.2.56 **Void space** is an enclosed space in the cargo area external to a cargo containment system, other than a hold space, ballast space, oil fuel tank, cargo pumps or compressor room, or any space in normal use by personnel.

11.5 Enclosed spaces containing cargo handling equipment

11.5.1 Enclosed spaces meeting the criteria of cargo machinery spaces in 1.2.10, and the cargo motor room within the cargo area of any ship, shall be provided with a fixed fire-extinguishing system complying with the provisions of the FSS Code and taking into account the necessary concentrations/application rate required for extinguishing gas fires.

12.1 Spaces required to be entered during normal cargo handling operations

12.1.1 **Electric motor rooms, cargo compressor and pump-rooms, spaces containing cargo handling equipment and other enclosed spaces** where cargo vapours may accumulate shall be fitted with fixed artificial ventilation systems capable of being controlled from outside such spaces. The ventilation shall be run continuously to prevent the accumulation of toxic and/or flammable vapours, with a means of monitoring acceptable to the Administration to be provided. A warning notice requiring the use of such ventilation prior to entering shall be placed outside the compartment.

18.8 Entry into enclosed spaces

18.8.1 Under normal operational circumstances, personnel shall not enter cargo tanks, hold spaces, void spaces or other enclosed spaces where gas may accumulate, unless the gas content of the atmosphere in such space is determined by means of fixed or portable equipment to ensure oxygen sufficiency and the absence of toxic atmosphere.



IMO

International Code for Fire Safety Systems (FSS Code)

2.4.3 Arrangement of cables

2.4.3.1 Cables which form part of the system shall be so arranged as to avoid **galleys, machinery spaces** of category A, and other enclosed spaces of high fire risk except where it is necessary to provide for fire detection or fire alarms in such spaces or to connect to the appropriate power supply.

18.8 Entry into enclosed spaces

18.8.1 ~~Under normal operational circumstances, personnel shall not enter **cargo tanks, hold spaces, void spaces or other enclosed spaces** where gas may accumulate, unless the gas content of the atmosphere in such space is determined by means of fixed or portable equipment to ensure oxygen sufficiency and the absence of toxic atmosphere.~~

Code of Practice for Packing of Cargo Transport Units (CTU Code)

7.1.1 **Closed CTUs are enclosed spaces** and care should be taken before entering. Even without toxic gases and other asphyxiates oxygen supply may be depleted which could make normal breathing difficult. Ventilating a CTU will allow fresh air to circulate into the CTU and around any cargo carried and remove any harmful or toxic gases or fumes. The most effective method is to use forced ventilation.

International Maritime Dangerous Goods Code (IMDG Code)

1.2.1 Definitions

Special category space means an enclosed space, above or below deck, intended for the transport of motor vehicles with fuel in their tanks for their own propulsion, into and from which such vehicles can be driven and to which passengers have access.



IMO

Code for the Transport and Handling of Hazardous and Noxious Liquid Substances in Bulk on Offshore Support Vessels (OSV Chemical Code)

1.2.51 **Void space** is an enclosed space in the cargo area external to a cargo tank, other than a hold space, ballast space, oil fuel tank, cargo pump-room, pump-room, or any space in normal use by personnel.

10.2.1 **Cargo pump-rooms, spaces containing cargo handling equipment and other enclosed spaces** where cargo vapours may accumulate should be fitted with fixed mechanical ventilation systems, capable of being controlled from outside such spaces. The ventilation should be run continuously to prevent the accumulation of toxic vapours. A warning notice requiring the use of such ventilation prior to entering should be placed outside the compartment.

Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009 (MODU Code)

1.3.21 **Enclosed spaces are spaces delineated by floors, bulkheads and/or decks which may have doors or windows.**

DEFINITION 2

1.3.60 **Working spaces are those open or enclosed spaces containing equipment and processes, associated with drilling operations, which are not included in hazardous areas and machinery spaces.**

1.3.3 **Accommodation spaces are those used for public spaces, corridors, lavatories, cabins, offices, hospitals, cinemas, games and hobbies rooms, pantries containing no cooking appliances and similar spaces. Public spaces are those portions of the accommodation which are used for halls, dining rooms, lounges and similar permanently enclosed spaces.**



ILO

Code of Practice: Accident prevention on board ship at sea and in port (1996)

10.1. General provisions

10.1.1. All enclosed or confined spaces should be considered unsafe for entry until proven otherwise.

10.1.2. If there is an unexpected reduction in or loss of ventilation, in spaces which are usually ventilated by whatever means, then those spaces should also be considered as dangerous.

DEFINITION 3

10.1.3. Any enclosed or confined space may have an atmosphere deficient in oxygen, and/or contain flammable or toxic fumes, gases or vapours, thus presenting a major risk to health or life for anyone entering it. Areas in which an unsafe atmosphere is present or can arise include cargo holds, double bottoms, cargo tanks, pump rooms, compressor rooms, fuel tanks, ballast tanks, cofferdams, void spaces, duct keels, interbarrier spaces, sewage tanks, cable trunks, pipe trunks, pressure vessels, battery lockers, chain lockers, inert gas plant scrubber and blower spaces and the storage rooms for CO₂, halons and other media used for fire extinguishing or inerting.

10.1.4. Such enclosed or confined spaces should not be entered except upon the explicit instruction of the master or the responsible officer. If a deficiency of oxygen or the presence of toxic gases, vapours or fumes is suspected in any space, then that space should be considered dangerous.



ILO

Guidelines for implementing the occupational safety and health provisions of the Maritime Labour Convention, 2006 (2015)

123. The atmosphere in any enclosed space may be oxygen-deficient or oxygen-enriched and/or contain flammable and/or toxic gases or vapours. Such unsafe atmospheres could also subsequently occur in a space previously found to be safe. Unsafe atmospheres may also be present in spaces adjacent to those spaces where a hazard is known to be present.

124. The competent authority should consider the IMO Resolution A.1050(27), as amended, and the ILO code of practice, Accident prevention on board ship at sea and in port, and any subsequent revision, as they cover a wide range of measures designed to improve the safety of shipping, including alternative designs and arrangements.



Other

IEC 60092-502:1999

Electrical installations in ships: Part 502 – Tankers – Special features

DEFINITION 3

3.3 *enclosed space*

any space within which, in the absence of artificial ventilation, the ventilation will be limited and any explosive atmosphere will not be dispersed naturally

Confined Space Safe Practice, Recommendation No. 72 - Rev.3 Dec 2018
International Association of Classification Societies (IACS)

1.1 *Confined Space*

Confined space means a space that has any of the following characteristics:

DEFINITION 1

- *limited openings for entry and exit;*
- *unfavourable natural ventilation;*
- *not intended for continuous worker occupancy.*



Other

IACS Unified Requirement
D8 Hazardous Areas (Rev. 1996)
International Association of Classification Societies (IACS)

D8.1.5 For the purpose of D8:

DEFINITION 2

(i) An enclosed space is considered to be a space bounded by bulkheads and decks which may have doors, windows, or other similar openings.

? (ii) A semi-enclosed location is considered to be a location where natural conditions of ventilation are notably different from those on open decks due to the presence of structure such as roofs, windbreaks and bulkheads and which are so arranged that the dispersion of gas may not occur.

Safety principles and arrangements (Offshore Standards)
DNVGL-OS-A101 (Edition January 2017, Amended July 2018)

DEFINITION 2

enclosed space

space bounded by floors, bulkhead and/or decks that may have doors, windows or other similar openings

semi-enclosed location

?

locations where natural conditions of ventilation are notably different from those on open decks due to the presence of structures such as roofs, windbreaks and bulkheads and which are so arranged that dispersion of gas may be hindered

Rules and Regulations for the Classification of Mobile Offshore Units
(Part 7, Safety Systems, Hazardous Areas and Fire)
June 2013, Lloyd's Register (LR)

DEFINITION 2

An enclosed space is considered to be any building, room or enclosure, e.g., cabinet, within which, in the absence of artificial ventilation, the air movement will be limited and any flammable atmosphere will not be dispersed naturally.



Other

UK Code of Safe Working Practices for Merchant Seafarers (2015 edition, as amended on 4 October 2019)

1. *An enclosed space is one that:*

DEFINITION 1

- *has limited openings for entry and exit;*
- *has inadequate ventilation; and*
- *is not designed for continuous worker occupation.*

Any enclosed space deprived of regular and constant ventilation may become a 'dangerous space'. The UK regulations define a dangerous space as: 'Any enclosed or confined space in which it is foreseeable that the atmosphere may at some stage contain toxic or flammable gases or vapours, or be deficient in oxygen, to the extent that it may endanger the life or health of any person entering that space.'

15.1.2 *Some spaces may be a dangerous space only temporarily, perhaps due to the type of cargo carried or work to be undertaken, e.g. a compartment during spray painting.*



Other

United Kingdom, Health & Safety Executive

<https://www.hse.gov.uk/confinedspace/>

Confined spaces

Ireland, Health & Safety Authority

https://www.hsa.ie/eng/Topics/Confined_Spaces/

Confined spaces

Canadian Centre for Occupational Health and Safety

https://www.ccohs.ca/oshanswers/hsprograms/confinedspace_intro.html

Confined spaces

Guide to Safety in Confined Spaces (July 1987)

National Institute for Occupational Safety and Health (NIOSH), Centers for Disease Control (CDC), US Department of Health and Human Services

<https://www.cdc.gov/niosh/docs/87-113/pdfs/87-113.pdf?id=10.26616/NIOSH PUB87113>

A confined space is a space which has any one of the following characteristics:

- **limited openings for entry and exit**
- **unfavorable natural ventilation**
- **not designed for continuous worker occupancy.**

DEFINITION 1



Common features of the definitions

Defined by its “characteristics”

- Limited openings for entry and exit
- Limited/poor/inadequate/unfavourable natural ventilation
- Not designed/intended for continuous worker occupancy
- Space delineated by bulkheads, decks, partitions etc.
- Potential to have hazardous atmosphere, dangerous, unsafe

Defined by reference to “atmospheres” that may exist:

- *explosive atmosphere, concentrations of oxygen, flammable gases or vapours, hydrogen sulphide and carbon monoxide, accumulation of cargo vapours, toxic gases, other asphyxiates, oxygen-deficient or oxygen-enriched and/or contain flammable and/or toxic gases or vapours, deficient in oxygen, and/or contain flammable or toxic fumes, gases or vapours*

Defined by reference to examples of “enclosed spaces”



Examples referenced in regulatory provisions

cargo spaces, double bottoms, fuel tanks, ballast tanks, cargo pump-rooms, cargo compressor rooms, cofferdams, chain lockers, void spaces, duct keels, inter-barrier spaces, boilers, engine crankcases, engine scavenge air receivers, sewage tanks, tanks, room containing incinerator, fuel tanks, fuel storage hold spaces, void spaces, tank connection spaces, public spaces (halls, dining rooms, lounges), cargo space, fuel tank, electric motor rooms, cargo compressor and pump-rooms, spaces containing cargo handling equipment, hold space, ballast space, oil fuel tank, cargo pumps or compressor room, cargo space or tank, galley, machinery spaces, cargo or hold spaces, closed cargo transport units (CTUs), space containing the anchor-recovery equipment, cargo holds, double bottoms, cargo tanks, pump rooms, compressor rooms, fuel tanks, ballast tanks, cofferdams, void spaces, duct keels, interbarrier spaces, sewage tanks, cable trunks, pipe trunks, pressure vessels, battery lockers, chain lockers, inert gas plant scrubber and blower spaces and the storage rooms for CO₂, halons and other media used for fire extinguishing or inerting, boilers, pressure vessels, cargo spaces (cargo holds or cargo tanks), cargo space stairways, ballast tanks, double bottoms, double hull spaces, fuel oil tanks, lube oil tanks, sewage-tanks, pump-rooms, compressor rooms, cofferdams, void spaces, duct keels, inter-barrier spaces, engine crankcases, excavations and pits



