



Treaty Series No. 36 (2025)

Amendments

to the International Convention on Standards of Training, Certification and
Watchkeeping for Seafarers (STCW)

Resolution MSC. 417(97), adopted 25 November 2016
Resolution MSC. 416(97), adopted 25 November 2016
Resolution MSC. 397(95), adopted 11 June 2015
Resolution MSC. 396(95), adopted 11 June 2015

[The Amendments entered into force on:
Resolution MSC. 417 (97) - 1 July 2018
Resolution MSC. 416 (97) - 1 July 2018
Resolution MSC. 397 (95) - 1 January 2017
Resolution MSC. 396 (95) - 1 January 2017]

*Presented to Parliament
by the Secretary of State for Foreign, Commonwealth and Development Affairs
by Command of His Majesty
August 2025*



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ISBN 978-1-5286-5928-4
E03419406 08/25

Printed on paper containing 40% recycled fibre content minimum

Printed in the UK by HH Global on behalf of the Controller of His Majesty's Stationery Office

ANNEX 9

**RESOLUTION MSC.417(97)
(adopted on 25 November 2016)**

**AMENDMENTS TO PART A OF THE SEAFARERS' TRAINING,
CERTIFICATION AND WATCHKEEPING (STCW) CODE**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO Article XII and regulation I/1.2.3 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 ("the Convention"), concerning the procedures for amending part A of the Seafarers' Training, Certification and Watchkeeping (STCW) Code,

NOTING that there will be a transitional period between the entry into force of the Polar Code and the amendments to the STCW Convention, and that section B-V/g of the STCW Code provides guidance regarding the training of masters and officers for ships operating in polar waters which should be applied by Administrations during the transitional period,

HAVING CONSIDERED, at its ninety-seventh session, amendments to part A of the STCW Code, proposed and circulated in accordance with Article XII(1)(a)(i) of the Convention,

1 ADOPTS, in accordance with Article XII(1)(a)(iv) of the Convention, amendments to the STCW Code, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with Article XII(1)(a)(vii)(2) of the Convention, that the said amendments to the STCW Code shall be deemed to have been accepted on 1 January 2018, unless, prior to that date, more than one third of Parties or Parties the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant shipping of ships of 100 gross register tons or more, have notified the Secretary-General of the Organization that they object to the amendments;

3 INVITES Parties to note that, in accordance with Article XII(1)(a)(ix) of the Convention, the annexed amendments to the STCW Code shall enter into force on 1 July 2018 upon their acceptance in accordance with paragraph 2 above;

4 URGES Parties to implement the amendments to section A-I/11 and section A-V/4 at an early stage;

5 REQUESTS the Secretary-General, for the purposes of Article XII(1)(a)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to the Convention;

6 REQUESTS ALSO the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Parties to the Convention.

ANNEX

**AMENDMENTS TO PART A OF THE SEAFARERS' TRAINING,
CERTIFICATION AND WATCHKEEPING (STCW) CODE**

CHAPTER I – General provisions

- 1 In section A-I/11, after the existing paragraph 3, a new paragraph 4 is added as follows:

"4 Continued professional competence for masters and officers on board ships operating in polar waters, as required under regulation I/11, shall be established by:

- .1 approved seagoing service, performing functions appropriate to the certificate held, for a period of at least two months in total during the preceding five years; or
- .2 having performed functions considered to be equivalent to the seagoing service required in paragraph 4.1; or
- .3 passing an approved test; or
- .4 successfully completing an approved training course or courses."

- 2 In section A-I/14, after existing paragraph 3, a new paragraph 4 is added as follows:

"4 Companies shall ensure that masters and officers on board their passenger ships shall have completed familiarization training to attain the abilities that are appropriate to the capacity to be filled and duties and responsibilities to be taken up, taking into account the guidance given in section B-I/14, paragraph 3 of this Code."

CHAPTER V – Standards regarding special training requirements for personnel on certain types of ships

- 3 In chapter V, the existing section A-V/2 is replaced by the following:

"Section A-V/2

Mandatory minimum requirements for the training and qualification of masters, officers, ratings and other personnel on passenger ships

Passenger ship emergency familiarization

1 Before being assigned to shipboard duties, all personnel serving on board passenger ships engaged on international voyages shall have attained the abilities that are appropriate to their duties and responsibilities as follows:

Contribute to the implementation of emergency plans, instructions and procedures

- .1 Familiar with:
 - 1.1 general safety features aboard ship;

- 1.2 location of essential safety and emergency equipment, including life-saving appliances;
- 1.3 importance of personal conduct during an emergency; and
- 1.4 restrictions on the use of elevators during emergencies.

Contribute to the effective communication with passengers during an emergency

.2 Ability to:

- 2.1 communicate in the working language of the ship;
- 2.2 non-verbally communicate safety information; and
- 2.3 understand one of the languages in which emergency announcements may be broadcast on the ship during an emergency or drill.

Safety training for personnel providing direct service to passengers in passenger spaces

2 Before being assigned to shipboard duties, personnel providing direct service to passengers in passenger spaces shall receive the additional safety training required by regulation V/2, paragraph 6, that ensures at least the attainment of the abilities as follows:

Communication

- .1 Ability to communicate with passengers during an emergency, taking into account:
 - 1.1 the language or languages appropriate to the principal nationalities of passengers carried on the particular route;
 - 1.2 the likelihood that an ability to use an elementary English vocabulary for basic instructions can provide a means of communicating with a passenger in need of assistance whether or not the passenger and crew member share a common language;
 - 1.3 the possible need to communicate during an emergency by some other means, such as by demonstration, or hand signals, or calling attention to the location of instructions, muster stations, life-saving devices or evacuation routes, when oral communication is impractical;
 - 1.4 the extent to which complete safety instructions have been provided to passengers in their native language or languages; and
 - .1.5 the languages in which emergency announcements may be broadcast during an emergency or drill to convey critical guidance to passengers and to facilitate crew members in assisting passengers.

Life-saving appliances

- .2 Ability to demonstrate to passengers the use of personal life-saving appliances.

Embarkation procedures

- .3 Embarking and disembarking passengers, with special attention to disabled persons and persons needing assistance.

Passenger ship crowd management training

3 Before being assigned to shipboard duties, masters, officers, ratings qualified in accordance with chapters II, III and VII and personnel designated on the muster list to assist passengers in emergency situations shall:

- .1 have successfully completed the crowd management training required by regulation V/2, paragraph 7, as set out in table A-V/2-1; and
- .2 be required to provide evidence that the training has been completed in accordance with table A-V/2-1.

Crisis management and human behaviour training

4 Before being assigned to shipboard duties, masters, chief engineer officers, chief mates, second engineer officers and any person designated on the muster list as having responsibility for the safety of passengers in emergency situations shall:

- .1 have successfully completed the approved crisis management and human behaviour training required by regulation V/2, paragraph 8, as set out in table A-V/2-2; and
- .2 be required to provide evidence that the required standard of competence has been achieved in accordance with the methods and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/2-2.

Passenger safety, cargo safety and hull integrity training

5 Before being assigned to shipboard duties, masters, chief engineer officers, chief mates, second engineer officers and every person assigned immediate responsibility for embarking and disembarking passengers, for loading, discharging or securing cargo, or for closing hull openings on board ro-ro passenger ships shall receive the passenger safety, cargo safety and hull integrity training required by regulation V/2, paragraph 9, that ensures at least attainment of the abilities that are appropriate to their duties and responsibilities as follows:

Loading and embarkation procedures

- .1 Ability to apply properly the procedures established for the ship regarding:
 - 1.1 loading and discharging vehicles, rail cars and other cargo transport units, including related communications;
 - 1.2 lowering and hoisting ramps;
 - 1.3 setting up and stowing retractable vehicle decks; and
 - 1.4 embarking and disembarking passengers, with special attention to disabled persons and persons needing assistance.

Carriage of dangerous goods

- .2 Ability to apply any special safeguards, procedures and requirements regarding the carriage of dangerous goods on board ro-ro passenger ships.

Securing cargoes

- .3 Ability to:
 - 3.1 apply correctly the provisions of the Code of Safe Practice for Cargo Stowage and Securing to the vehicles, rail cars and other cargo transport units carried; and
 - 3.2 use properly the cargo-securing equipment and materials provided, taking into account their limitations.

Stability, trim and stress calculations

- .4 Ability to:
 - 4.1 make proper use of the stability and stress information provided;
 - 4.2 calculate stability and trim for different conditions of loading, using the stability calculators or computer programs provided;
 - 4.3 calculate load factors for decks; and
 - 4.4 calculate the impact of ballast and fuel transfers on stability, trim and stress.

Opening, closing and securing hull openings

.5 Ability to:

- 5.1 apply properly the procedures established for the ship regarding the opening, closing and securing of bow, stern and side doors and ramps and to correctly operate the associated systems; and
- 5.2 conduct surveys on proper sealing.

Ro-ro deck atmosphere

.6 Ability to:

- 6.1 use equipment, where carried, to monitor atmosphere in ro-ro spaces; and
- 6.2 apply properly the procedures established for the ship for ventilation of ro-ro spaces during loading and discharging of vehicles, while on voyage and in emergencies.

Table A-V/2-1
*Specification of minimum standard of competence in
passenger ship crowd management training*

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to the implementation of shipboard emergency plans and procedures to muster and evacuate passengers	<p>Knowledge of the shipboard emergency plans, instructions and procedures related to the management and evacuation of passengers</p> <p>Knowledge of applicable crowd management techniques and relevant equipment to be used to assist passengers in an emergency situation</p> <p>Knowledge of muster lists and emergency instructions</p>	Assessment of evidence obtained from training and/or instruction	Actions taken in case of an emergency are appropriate and comply with established procedures
Assist passengers <i>en route</i> to muster and embarkation stations	<p>Ability to give clear reassuring orders</p> <p>Ability to manage passengers in corridors, staircases and passageways</p> <p>Understanding the importance of and having the ability to maintain escape routes clear of obstructions</p> <p>Knowledge of methods available for evacuation of disabled persons and persons needing special assistance</p> <p>Knowledge of methods of searching passenger accommodation and public spaces</p> <p>Ability to disembark passengers, with special attention to disabled persons and persons needing assistance</p> <p>Importance of effective mustering procedures, including:</p> <p>.1 the importance of keeping order;</p>	Assessment of evidence obtained from practical training and/or instruction	Actions taken conform with emergency plans, instructions and procedures Information given to individuals, emergency response teams and passengers is accurate, relevant and timely

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	<p>.2 the ability to use procedures for reducing and avoiding panic;</p> <p>.3 the ability to use, where appropriate, passenger lists for evacuation counts;</p> <p>.4 the importance of passengers being suitably clothed as far as possible when mustering; and</p> <p>.5 the ability to check that the passengers have donned their life jackets correctly.</p>		

Table A-V/2-2
*Specification of minimum standard of competence in
passenger ship crisis management and human behaviour*

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Organize shipboard emergency procedures	<p>Knowledge of:</p> <ul style="list-style-type: none"> .1 the general design and layout of the ship .2 safety regulations .3 emergency plans and procedures <p>The importance of the principles for the development of ship-specific emergency procedures, including:</p> <ul style="list-style-type: none"> .1 the need for pre-planning and drills of shipboard emergency procedures .2 the need for all personnel to be aware of and adhere to pre-planned emergency procedures as carefully as possible in the event of an emergency situation 	<p>Assessment of evidence obtained from approved training, exercises with one or more prepared emergency plans and practical demonstration</p>	<p>The shipboard emergency procedures ensure a state of readiness to respond to emergency situations</p>
Optimize the use of resources	<p>Ability to optimize the use of resources, taking into account:</p> <ul style="list-style-type: none"> .1 the possibility that resources available in an emergency may be limited .2 the need to make full use of personnel and equipment immediately available and, if necessary, to improvise <p>Ability to organize realistic drills to maintain a state of readiness, taking into account lessons learnt from previous accidents involving passenger ships; debriefing after drills</p>	<p>Assessment of evidence obtained from approved training, practical demonstration and shipboard training and drills of emergency procedures</p>	<p>Contingency plans optimize the use of available resources</p> <p>Allocation of tasks and responsibilities reflects the known competence of individuals</p> <p>Roles and responsibilities of teams and individuals are clearly defined</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Control response to emergencies	<p>Ability to make an initial assessment and provide an effective response to emergency situations in accordance with established emergency procedures</p> <p><i>Leadership skills</i></p> <p>Ability to lead and direct others in emergency situations, including the need:</p> <ul style="list-style-type: none"> .1 to set an example during emergency situations .2 to focus decision making, given the need to act quickly in an emergency .3 to motivate, encourage and reassure passengers and other personnel <p><i>Stress handling</i></p> <p>Ability to identify the development of symptoms of excessive personal stress and those of other members of the ship's emergency team</p> <p>Understanding that stress generated by emergency situations can affect the performance of individuals and their ability to act on instructions and follow procedures</p>	<p>Assessment of evidence obtained from approved training, practical demonstration and shipboard training and drills of emergency procedures</p>	<p>Procedures and actions are in accordance with established principles and plans for crisis management on board</p> <p>Objectives and strategy are appropriate to the nature of the emergency, take account of contingencies and make optimum use of available resources</p> <p>Actions of crew members contribute to maintaining order and control</p>
Control passengers and other personnel during emergency situations	<p><i>Human behaviour and responses</i></p> <p>Ability to control passengers and other personnel in emergency situations, including:</p> <ul style="list-style-type: none"> .1 awareness of the general reaction patterns of passengers and other personnel in emergency situations, including the possibility that: 	<p>Assessment of evidence obtained from approved training, practical demonstration and shipboard training and drills of emergency procedures</p>	<p>Actions of crew members contribute to maintaining order and control</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	<p>1.1 generally it takes some time before people accept the fact that there is an emergency situation</p> <p>1.2 some people may panic and not behave with a normal level of rationality, that their ability to comprehend may be impaired and they may not be as responsive to instructions as in non-emergency situations</p> <p>.2 awareness that passengers and other personnel may, inter alia:</p> <p>2.1 start looking for relatives, friends and/or their belongings as a first reaction when something goes wrong</p> <p>2.2 seek safety in their cabins or in other places on board where they think that they can escape danger</p> <p>2.3 tend to move to the upper side when the ship is listing</p> <p>.3 appreciation of the possible problem of panic resulting from separating families</p>		
Establish and maintain effective communications	<p>Ability to establish and maintain effective communications, including:</p> <p>.1 the importance of clear and concise instructions and reports</p> <p>.2 the need to encourage an exchange of information with, and feedback from, passengers and other personnel</p>	Assessment of evidence obtained from approved training, exercises and practical demonstration	<p>Information from all available sources is obtained, evaluated and confirmed as quickly as possible and reviewed throughout the emergency</p> <p>Information given to individuals, emergency response teams and</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	<p>Ability to provide relevant information to passengers and other personnel during an emergency situation, to keep them apprised of the overall situation and to communicate any action required of them, taking into account:</p> <p>.1 the language or languages appropriate to the principal nationalities of passengers and other personnel carried on the particular route</p> <p>.2 the possible need to communicate during an emergency by some other means, such as by demonstration, or by hand signals or calling attention to the location of instructions, muster stations, life-saving devices or evacuation routes, when oral communication is impractical</p> <p>.3 the language in which emergency announcements may be broadcast during an emergency or drill to convey critical guidance to passengers and to facilitate crew members in assisting passengers</p>		<p>passengers is accurate, relevant and timely</p> <p>Information keeps passengers informed as to the nature of the emergency and the actions required of them</p>

4 A new section A-V/4 is added as follows:

"Section A-V/4

Mandatory minimum requirements for the training and qualifications of masters and deck officers on ships operating in polar waters

Standard of competence

1 Every candidate for certification in basic training for ships operating in polar waters shall be required to:

- .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/4-1; and

- .2 provide evidence of having achieved:
 - .1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/4-1; and
 - .2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/4-1.

2 Every candidate for certification in advanced training for ships operating in polar waters shall be required to:

- .1 demonstrate the competence to undertake the tasks, duties and responsibilities listed in column 1 of table A-V/4-2; and
- .2 provide evidence of having achieved:
 - .1 the minimum knowledge, understanding and proficiency listed in column 2 of table A-V/4-2; and
 - .2 the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/4-2.

Table A-V/4-1
*Specification of minimum standard of competence in basic training
for ships operating in polar waters*

Column 1 Competence	Column 2 Knowledge, understanding and proficiency	Column 3 Methods for demonstrating competence	Column 4 Criteria for evaluating competence
Contribute to safe operation of vessels operating in polar waters	<p><i>Basic knowledge of ice characteristics and areas where different types of ice can be expected in the area of operation:</i></p> <ul style="list-style-type: none"> .1 ice physics, terms, formation, growth, ageing and stage of melt .2 ice types and concentrations .3 ice pressure and distribution .4 friction from snow covered ice .5 implications of spray-icing; danger of icing up; precautions to avoid icing up and options during icing up .6 ice regimes in different regions; significant differences between the Arctic and the Antarctic, first year and multiyear ice, sea ice and land ice .7 use of ice imagery to recognize consequences of rapid change in ice and weather conditions .8 knowledge of ice blink and water sky .9 knowledge of differential movement of icebergs and pack ice .10 knowledge of tides and currents in ice 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training, where appropriate .4 approved training programme 	<p>Identification of ice properties and their characteristics of relevance for safe vessel operation</p> <p>Information obtained from ice information and publications is interpreted correctly and properly applied</p> <p>Use of visible and infrared satellite images</p> <p>Use of egg charts</p> <p>Coordination of meteorological and oceanographic data with ice data</p> <p>Measurements and observations of weather and ice conditions are accurate and appropriate for safe passage planning</p>

Column 1 Competence	Column 2 Knowledge, understanding and proficiency	Column 3 Methods for demonstrating competence	Column 4 Criteria for evaluating competence
	.11 knowledge of effect of wind and current on ice		
	<p><i>Basic knowledge of vessel performance in ice and low air temperature:</i></p> <p>.1 vessel characteristics</p> <p>.2 vessel types, hull designs</p> <p>.3 engineering requirements for operating in ice</p> <p>.4 Ice strengthening requirements</p> <p>.5 limitations of ice-classes</p> <p>.6 winterization and preparedness of vessel, including deck and engine</p> <p>.7 low-temperature system performance</p> <p>.8 equipment and machinery limitation in ice condition and low air temperature</p> <p>.9 monitoring of ice pressure on hull</p> <p>.10 sea suction, water intake, superstructure insulation and special systems</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training, where appropriate</p> <p>.4 approved training programme</p>	<p>Identification of vessel characteristics and limitations under different ice conditions and cold environmental impact</p> <p>Procedures are made for risk assessment before entering ice</p> <p>Awareness of fresh water ballast freezing in ballast tanks</p> <p>Actions are carried out in accordance with accepted principles and procedures to prepare the vessel and the crew for operations in ice and low air temperature</p> <p>Communications are clear, concise and effective at all times in a seamanlike manner</p>
	<p><i>Basic knowledge and ability to operate and manoeuvre a vessel in ice:</i></p> <p>.1 safe speed in the presence of ice and icebergs</p> <p>.2 ballast tank monitoring</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p>	<p>Use Polar Code and Polar Water Operations Manual to correctly determine the recommended procedures to load/unload cargo and/or embark/disembark passengers in low</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	<p>.3 cargo operations in polar waters</p> <p>.4 awareness of engine loads and cooling problems</p> <p>.5 safety procedures during ice transit</p>	<p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training, where appropriate</p> <p>.4 approved training programme</p>	<p>temperatures, monitor ballast water for icing, monitor engine temperatures, anchor watch concerns in ice, and transit near ice</p> <p>Interpretation and analysis of information from radar is in accordance with lookout procedures with special caution regarding identification of dangerous ice features</p> <p>Information obtained from navigational charts, including electronic charts, and publications is relevant, assessed, interpreted correctly and properly applied</p> <p>The primary method of position fixing is frequent and the most appropriate for the prevailing conditions and routing through ice</p> <p>Performance checks and tests of navigation and communication systems comply with recommendations for high latitude and low air temperature operation</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Monitor and ensure compliance with legislative requirements	<p><i>Basic knowledge of regulatory considerations:</i></p> <ul style="list-style-type: none"> .1 Antarctic Treaty and the Polar Code .2 accident reports concerning vessels in polar waters .3 IMO standards for operation in remote areas 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training, where appropriate .4 approved training programme 	<p>Locate and apply relevant parts of the Polar Water Operations Manual</p> <p>Communication is in accordance with local/regional and international standard procedures</p> <p>Legislative requirements related to relevant regulations, codes and practices are identified</p>
Apply safe working practices, respond to emergencies	<p><i>Basic knowledge of crew preparation, working conditions and safety:</i></p> <ul style="list-style-type: none"> .1 recognize limitations of search and rescue readiness and responsibility, including sea area A4 and its SAR communication facility limitation .2 awareness of contingency planning .3 how to establish and implement safe working procedures for crew specific to polar environments such as low temperatures, ice-covered surfaces, personal protective equipment, use of buddy system, and working time limitations .4 recognize dangers when crews are exposed to low temperatures 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training, where appropriate .4 approved training programme 	<p>Identification and initial actions on becoming aware of hazardous situations for vessel and individual crew members</p> <p>Actions are carried out in accordance with Polar Water Operations Manual, accepted principles and procedures to ensure safety of operations and to avoid pollution of the marine environment</p> <p>Safe working practices are observed and appropriate safety and protective equipment is correctly used at all times</p> <p>Response actions are in accordance with established plans and are appropriate to the situation and nature of the emergency</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	<p>.5 human factors including cold fatigue, medical-first aid aspects, crew welfare</p> <p>.6 survival requirements including the use of personal survival equipment and group survival equipment</p> <p>.7 awareness of the most common hull and equipment damages and how to avoid these</p> <p>.8 superstructure-deck icing, including effect on stability and trim</p> <p>.9 prevention and removal of ice including the factors of accretion</p> <p>.10 recognize fatigue problems due to noise and vibrations</p> <p>.11 identify need for extra resources, such as bunker, food and extra clothing</p>		<p>Correctly identifies and applies legislative requirements related to relevant regulations, codes and practices</p> <p>Appropriate safety and protective equipment is correctly used</p> <p>Defects and damages are detected and properly reported</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Ensure compliance with pollution-prevention requirements and prevent environmental hazards	<p><i>Basic knowledge of environmental factors and regulations:</i></p> <ul style="list-style-type: none"> .1 identify particularly sensitive sea areas regarding discharge .2 identify areas where shipping is prohibited or should be avoided .3 special areas defined in MARPOL .4 recognize limitations of oil-spill equipment .5 plan for coping with increased volumes of garbage, bilge water, sewage, etc. .6 lack of infrastructure .7 oil spill and pollution in ice, including consequences 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training, where appropriate .4 approved training programme 	<p>Legislative requirements related to relevant regulations, codes and practices are identified</p> <p>Correctly identify/select the limitations on vessel discharges contained in the Polar Code</p> <p>Correctly apply Polar Water Operations Manual/Waste Management Plan to determine limitations on vessel discharges and plans for storing waste</p> <p>Identify references that provide details of areas to be avoided, such as wildlife refuges, ecological heritage parks, migratory pathways, etc. (MARPOL, Antarctic Treaty, etc.)</p> <p>Identify factors that must be considered to manage waste stream during polar voyages</p>

Table A-V/4-2
*Specification of minimum standard of competence in advanced training
for ships operating in polar waters*

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Plan and conduct a voyage in polar waters	<p><i>Knowledge of voyage planning and reporting:</i></p> <ul style="list-style-type: none"> .1 information sources .2 reporting regimes in polar waters .3 development of safe routeing and passage planning to avoid ice where possible .4 ability to recognize the limitations of hydrographic information and charts in polar regions and whether the information is suitable for safe navigation .5 passage planning deviation and modification for dynamic ice conditions <p><i>Knowledge of equipment limitations:</i></p> <ul style="list-style-type: none"> .1 understand and identify hazards associated with limited terrestrial navigational aids in polar regions .2 understand and recognize high latitude errors on compasses .3 understand and identify limitations in discrimination 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training, where appropriate .4 approved training programme 	<p>The equipment, charts and nautical publications required for the voyage are enumerated and appropriate to the safe conduct of the voyage</p> <p>The reasons for the planned route are supported by facts obtained from relevant sources and publications, statistical data and limitations of communication and navigational systems</p> <p>Voyage plan correctly identified relevant polar regulatory regimes and need for ice-pilotage and/or icebreaker assistance</p> <p>All potential navigational hazards are accurately identified</p> <p>Positions, courses, distances and time calculations are correct within accepted accuracy standards for navigational equipment</p>

Column 1 Competence	Column 2 Knowledge, understanding and proficiency	Column 3 Methods for demonstrating competence	Column 4 Criteria for evaluating competence
	<p>of radar targets and ice features in ice-clutter</p> <p>.4 understand and recognize limitations of electronic positioning systems at high latitude</p> <p>.5 understand and recognize limitations in nautical charts and pilot descriptions</p> <p>.6 understand and recognize limitations in communication systems</p>		
Manage the safe operation of vessels operating in polar waters	<p><i>Knowledge and ability to operate and manoeuvre a vessel in ice:</i></p> <p>.1 preparation and risk assessment before approaching ice, including presence of icebergs, and taking into account wind, darkness, swell, fog and pressure ice</p> <p>.2 conduct communications with an icebreaker and other vessels in the area and with Rescue Coordination Centres</p> <p>.3 understand and describe the conditions for the safe entry and exit to and from ice or open water, such as leads or cracks, avoiding icebergs and dangerous ice conditions and</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training, where appropriate</p> <p>.4 approved training programme</p>	<p>All decisions concerning navigating in ice are based on a proper assessment of the ship's manoeuvring and engine characteristics and the forces to be expected while navigating within polar waters</p> <p>Demonstrate communication skills, request ice routing, plot and commence voyage through ice</p> <p>All potential ice hazards are correctly identified</p> <p>All decisions concerning berthing anchoring, cargo and ballast operations are based on a proper</p>

Column 1 Competence	Column 2 Knowledge, understanding and proficiency	Column 3 Methods for demonstrating competence	Column 4 Criteria for evaluating competence
	<p>maintaining safe distance to icebergs</p> <p>.4 understand and describe ice-ramming procedures including double and single ramming passage</p> <p>.5 recognize and determine the need for bridge watch team augmentation based upon environmental conditions, vessel equipment and vessel ice class</p> <p>.6 recognize the presentations of the various ice conditions as they appear on radar</p> <p>.7 understand icebreaker convoy terminology, and communications, and take icebreaker direction and move in convoy</p> <p>.8 understand methods to avoid besetment and to free beset vessel, and consequences of besetment</p> <p>.9 understand towing and rescue in ice, including risks associated with operation</p> <p>.10 handling ship in various ice concentration and</p>		<p>assessment of the ship's manoeuvring and engine characteristics and the forces to be expected and in accordance with the Polar Code guidelines and applicable international agreements</p> <p>Safely demonstrate progression of a vessel through ice, manoeuvring vessel through moderate ice concentration (range of 1/10 to 5/10)</p> <p>Safely demonstrate progression of a vessel through ice, manoeuvring vessel through dense ice concentration (range of 6/10 to 10/10)</p> <p>Operations are planned and carried out in accordance with established rules and procedures to ensure safety of operation and to avoid pollution of the marine environment</p> <p>Safety of navigation is maintained through navigation strategy and adjustment of ship's speed and heading through different types of ice</p>

Column 1 Competence	Column 2 Knowledge, understanding and proficiency	Column 3 Methods for demonstrating competence	Column 4 Criteria for evaluating competence
	<p>coverage, including risks associated with navigation in ice, e.g. avoid turning and backing simultaneously</p> <p>.11 use of different type of propulsion and rudder systems, including limitations to avoid damage when operating in ice</p> <p>.12 use of heeling and trim systems, hazards in connection with ballast and trim in relation with ice</p> <p>.13 docking and undocking in ice-covered waters, including hazards associated with operation and the various techniques to safely dock and undock in ice-covered waters</p> <p>.14 anchoring in ice, including the dangers to anchoring system – ice accretion to hawse pipe and ground tackle</p> <p>.15 recognize conditions which impact polar visibility and may give indication of local ice and water conditions, including sea smoke, water sky, ice blink and refraction</p>		<p>Actions are understood to permit use of anchoring system in cold temperatures</p> <p>Actions are carried out in accordance with accepted principles and procedures to prepare for icebreaker towing, including notch towing</p>

Column 1 Competence	Column 2 Knowledge, understanding and proficiency	Column 3 Methods for demonstrating competence	Column 4 Criteria for evaluating competence
Maintain safety of the ship's crew and passengers and the operational condition of life-saving, fire-fighting and other safety systems	<p><i>Knowledge of safety:</i></p> <p>.1 understand the procedures and techniques for abandoning the ship and survival on ice and in ice-covered waters</p> <p>.2 recognize limitations of fire-fighting systems and life-saving appliances due to low air temperatures</p> <p>.3 understand unique concerns in conducting emergency drills in ice and low temperatures</p> <p>.4 understand unique concerns in conducting emergency response in ice and low air and water temperatures</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training, where appropriate</p> <p>.4 approved training programme</p>	<p>Response measures are in accordance with established plans and procedures, and are appropriate to the situation and nature of the emergency</p>

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ANNEX 8

**RESOLUTION MSC.416(97)
(adopted on 25 November 2016)**

**AMENDMENTS TO THE INTERNATIONAL CONVENTION ON
STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING
FOR SEAFARERS (STCW), 1978, AS AMENDED**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING ALSO Article XII of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 ("the Convention"), concerning the procedures for amending the Convention,

RECALLING FURTHER that the Committee, by resolution MSC.386(94), adopted, inter alia, the new chapter XIV of the International Convention for the Safety of Life at Sea (SOLAS), 1974, as amended,

ALSO RECALLING that the Committee, by resolution MSC.385(94), adopted the *International Code for Ships Operating in Polar Waters (Polar Code)*, which will take effect on 1 January 2017 upon entry into force of the new chapter XIV of the SOLAS Convention,

NOTING that there will be a transitional period between the entry into force of the Polar Code and the amendments to the STCW Convention, and that section B-V/g of the STCW Code provides guidance regarding the training of masters and officers for ships operating in polar waters which should be applied by Administrations during the transitional period,

ALSO RECALLING that the Committee, at its ninety-sixth session, decided to provide the Member States with a single resolution of amendments to the Convention, including those related to the Polar Code and to passenger ship-specific training and certification,

HAVING CONSIDERED, at its ninety-seventh session, amendments to the Convention proposed and circulated in accordance with Article XII(1)(a)(i) thereof,

1 ADOPTS, in accordance with Article XII(1)(a)(iv) of the Convention, amendments to the Convention, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with Article XII(1)(a)(vii)(2) of the Convention, that the said amendments shall be deemed to have been accepted on 1 January 2018, unless, prior to that date, more than one third of Parties or Parties the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant shipping of ships of 100 gross register tons or more, have notified the Secretary-General of the Organization of their objections to the amendments;

3 INVITES Parties to note that, in accordance with Article XII(1)(a)(ix) of the Convention, that the amendments annexed hereto shall enter into force on 1 July 2018 upon their acceptance, in accordance with paragraph 2 above;

4 URGES Parties to implement the amendments to regulation I/1.1, regulation I/11 and regulation V/4 at an early stage;

5 INVITES Parties to recognize seafarers' certificates issued by a Party at an early stage, in accordance with paragraph 4 above, and prior to the entry into force of amendments to regulation V/4;

6 REQUESTS the Secretary-General, for the purposes of Article XII(1)(a)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to the Convention;

7 REQUESTS ALSO the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Parties to the Convention.

ANNEX

AMENDMENTS TO THE INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS (STCW), 1978, AS AMENDED

CHAPTER I

General provisions

- 1 In regulation I/1.1, the following new definitions are added:
 - "42 *Polar Code* means the International Code for Ships Operating in Polar Waters, as defined in SOLAS regulation XIV/1.1.
 - .43 *Polar waters* means Arctic waters and/or the Antarctic area, as defined in SOLAS regulations XIV/1.2 to XIV/1.4."
- 2 In regulation I/11, after the existing paragraph 3, the following new paragraph is inserted and the subsequent paragraphs are renumbered accordingly:
 - "4 Every master or officer shall, for continuing seagoing service on board ships operating in polar waters, meet the requirements of paragraph 1 of this regulation and be required, at intervals not exceeding five years, to establish continued professional competence for ships operating in polar waters in accordance with section A-1/11, paragraph 4 of the STCW Code."

CHAPTER V

Special training requirements for personnel on certain types of ships

- 3 In chapter V, the existing regulation V/2 is replaced by the following:

"Regulation V/2

Mandatory minimum requirements for the training and qualifications of masters, officers, ratings and other personnel on passenger ships

- 1 This regulation applies to masters, officers, ratings and other personnel serving on board passenger ships engaged on international voyages. Administrations shall determine the applicability of these requirements to personnel serving on passenger ships engaged on domestic voyages.
- 2 Before being assigned shipboard duties, all persons serving on a passenger ship shall meet the requirements of section A-VI/1, paragraph 1 of the STCW Code.
- 3 Masters, officers, ratings and other personnel serving on board passenger ships shall complete the training and familiarization required by paragraphs 5 to 9 below, in accordance with their capacity, duties and responsibilities.
- 4 Masters, officers, ratings and other personnel, who are required to be trained in accordance with paragraphs 7 to 9 below shall, at intervals not exceeding five years, undertake appropriate refresher training or be required to provide evidence of having achieved the required standard of competence within the previous five years.

5 Personnel serving on board passenger ships shall complete passenger ship emergency familiarization appropriate to their capacity, duties and responsibilities as specified in section A-V/2, paragraph 1 of the STCW Code.

6 Personnel providing direct service to passengers in passenger spaces on board passenger ships shall complete the safety training specified in section A-V/2, paragraph 2 of the STCW Code.

7 Masters, officers, ratings qualified in accordance with chapters II, III and VII and other personnel designated on the muster list to assist passengers in emergency situations on board passenger ships, shall complete passenger ship crowd management training as specified in section A-V/2, paragraph 3 of the STCW Code.

8 Masters, chief engineer officers, chief mates, second engineer officers and any person designated on the muster list of having responsibility for the safety of passengers in emergency situations on board passenger ships shall complete approved training in crisis management and human behaviour as specified in section A-V/2, paragraph 4 of the STCW Code.

9 Masters, chief engineer officers, chief mates, second engineer officers and every person assigned immediate responsibility for embarking and disembarking passengers, for loading, discharging or securing cargo, or for closing hull openings on board ro-ro passenger ships, shall complete approved training in passenger safety, cargo safety and hull integrity as specified in section A-V/2, paragraph 5 of the STCW Code.

10 Administrations shall ensure that documentary evidence of the training which has been completed is issued to every person found qualified in accordance with paragraphs 6 to 9 of this regulation. "

4 In chapter V, the following new regulation is added:

"Regulation V/4

Mandatory minimum requirements for the training and qualifications of masters and deck officers on ships operating in polar waters

1 Masters, chief mates and officers in charge of a navigational watch on ships operating in polar waters shall hold a certificate in basic training for ships operating in polar waters, as required by the Polar Code.

2 Every candidate for a certificate in basic training for ships operating in polar waters shall have completed an approved basic training for ships operating in polar waters and meet the standard of competence specified in section A-V/4, paragraph 1, of the STCW Code.

3 Masters and chief mates on ships operating in polar waters, shall hold a certificate in advanced training for ships operating in polar waters, as required by the Polar Code.

4 Every candidate for a certificate in advanced training for ships operating in polar waters shall:

- .1 meet the requirements for certification in basic training for ships in polar waters;
- .2 have at least two (2) months of approved seagoing service in the deck department, at management level or while performing watchkeeping duties at the operational level, within polar waters or other equivalent approved seagoing service; and
- .3 have completed approved advanced training for ships operating in polar waters and meet the standard of competence specified in section A-V/4, paragraph 2 of the STCW Code.

5 Administrations shall ensure that a Certificate of Proficiency is issued to seafarers who are qualified in accordance with paragraphs 2 or 4, as appropriate.

Transitional provisions

6 Until 1 July 2020, seafarers who commenced approved seagoing service in polar waters prior to 1 July 2018 shall be able to establish that they meet the requirements of paragraph 2 by:

- .1 having completed approved seagoing service on board a ship operating in polar waters or equivalent approved seagoing service, performing duties in the deck department at the operational or management level, for a period of at least three months in total during the preceding five years; or
- .2 having successfully completed a training course meeting the training guidance established by the Organization for ships operating in polar waters.*

7 Until 1 July 2020, seafarers who commenced approved seagoing service in polar waters prior to 1 July 2018 shall be able to establish that they meet the requirements of paragraph 4 by:

- .1 having completed approved seagoing service on board a ship operating in polar waters or equivalent approved seagoing service, performing duties in the deck department at management level, for a period of at least three months in total during the preceding five years; or
- .2 having successfully completed a training course meeting the training guidance established by the Organization for ships operating in polar waters* and having completed approved seagoing service on board a ship operating in polar waters or equivalent approved seagoing service, performing duties in the deck department at the management level, for a period of at least two months in total during the preceding five years."

* Refer to section B-V/g of the STCW Code.

ANNEX 7

**RESOLUTION MSC.397(95)
(adopted on 11 June 2015)**

**AMENDMENTS TO PART A OF THE SEAFARERS' TRAINING,
CERTIFICATION AND WATCHKEEPING (STCW) CODE**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING FURTHER article XII and regulation I/1.2.3 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 ("the Convention"), concerning the procedures for amending part A of the Seafarers' Training, Certification and Watchkeeping (STCW) Code,

HAVING CONSIDERED, at its ninety-fifth session, amendments to part A of the STCW Code, proposed and circulated in accordance with article XII(1)(a)(i) of the Convention,

1 ADOPTS, in accordance with article XII(1)(a)(iv) of the Convention, amendments to the STCW Code, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article XII(1)(a)(vii)(2) of the Convention, that the said amendments to the STCW Code shall be deemed to have been accepted on 1 July 2016, unless, prior to that date, more than one third of Parties or Parties the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant shipping of ships of 100 gross register tons or more, have notified to the Secretary-General of the Organization their objections to the amendments;

3 INVITES Parties to note that, in accordance with article XII(1)(a)(ix) of the Convention, the annexed amendments to the STCW Code shall enter into force on 1 January 2017 upon their acceptance in accordance with paragraph 2 above;

4 REQUESTS the Secretary-General, for the purposes of article XII(1)(a)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to the Convention; and

5 REQUESTS ALSO the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Parties to the Convention.

ANNEX

AMENDMENTS TO PART A OF THE SEAFARERS' TRAINING, CERTIFICATION AND WATCHKEEPING (STCW) CODE

CHAPTER V – SPECIAL TRAINING REQUIREMENTS FOR PERSONNEL ON CERTAIN TYPES OF SHIP

- 1 The following new section A-V/3 is added after existing section A-V/2:

"Section A-V/3

Mandatory minimum requirements for the training and qualification of masters, officers, ratings and other personnel on ships subject to the IGF Code

Basic training for ships subject to the IGF Code

- 1 Every candidate for a certificate in basic training for service on ships subject to the IGF Code shall:

- 1.1 have successfully completed the approved basic training required by regulation V/3, paragraph 5, in accordance with their capacity, duties and responsibilities as set out in table A-V/3-1; and
- 1.2 be required to provide evidence that the required standard of competence has been achieved in accordance with the methods and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/3-1; or
- .2 have received appropriate training and certification according to the requirements for service on liquefied gas tankers as set out in regulation V/3, paragraph 6.

Advanced training for ships subject to the IGF Code

- 2 Every candidate for a certificate in advanced training for service on ships subject to the IGF Code shall:

- 1.1 have successfully completed the approved advanced training required by regulation V/3, paragraph 8 in accordance with their capacity, duties and responsibilities as set out in table A-V/3-2; and
- 1.2 provide evidence that the required standard of competence has been achieved in accordance with the methods and the criteria for evaluating competence tabulated in columns 3 and 4 of table A-V/3-2; or
- .2 have received appropriate training and certification according to the requirements for service on liquefied gas tankers as set out in regulation V/3, paragraph 9.

Exemptions

- 3 The Administration may, in respect of ships of less than 500 gross tonnage, except for passenger ships, if it considers that a ship's size and the length or character of its voyage are such as to render the application of the full requirements of this section unreasonable or impracticable, exempt the seafarers on such a ship or class of ships from some of the requirements, bearing in mind the safety of people on board, the ship and property and the protection of the marine environment.

Table A-V/3-1

Specification of minimum standard of competence in basic training for ships subject to the IGF Code

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to the safe operation of a ship subject to the IGF Code	<p>Design and operational characteristics of ships subject to the IGF Code</p> <p>Basic knowledge of ships subject to the IGF Code, their fuel systems and fuel storage systems:</p> <p>.1 fuels addressed by the IGF Code</p> <p>.2 types of fuel systems subject to the IGF Code</p> <p>.3 atmospheric, cryogenic or compressed storage of fuels on board ships subject to the IGF Code</p> <p>.4 general arrangement of fuel storage systems on board ships subject to the IGF Code</p> <p>.5 hazard zones and areas</p> <p>.6 typical fire safety plan</p> <p>.7 monitoring, control and safety systems aboard ships subject to the IGF Code</p> <p>Basic knowledge of fuels and fuel storage systems' operations on board ships subject to the IGF Code:</p> <p>.1 piping systems and valves</p> <p>.2 atmospheric, compressed or cryogenic storage</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training</p> <p>.4 approved training programme</p>	<p>Communications within the area of responsibility are clear and effective</p> <p>Operations related to ships subject to the IGF Code are carried out in accordance with accepted principles and procedures to ensure safety of operations</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	<p>.3 relief systems and protection screens</p> <p>.4 basic bunkering operations and bunkering systems</p> <p>.5 protection against cryogenic accidents</p> <p>.6 fuel leak monitoring and detection</p> <p>Basic knowledge of the physical properties of fuels on board ships subject to the IGF Code, including:</p> <p>.1 properties and characteristics</p> <p>.2 pressure and temperature, including vapour pressure/temperature relationship</p> <p>Knowledge and understanding of safety requirements and safety management on board ships subject to the IGF Code</p>		
Take precautions to prevent hazards on a ship subject to the IGF Code	<p>Basic knowledge of the hazards associated with operations on ships subject to the IGF Code, including:</p> <p>.1 health hazards</p> <p>.2 environmental hazards</p> <p>.3 reactivity hazards</p> <p>.4 corrosion hazards</p> <p>.5 ignition, explosion and flammability hazards</p> <p>.6 sources of ignition</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training</p> <p>.4 approved training programme</p>	<p>Correctly identifies, on a Safety Data Sheet (SDS), relevant hazards to the ship and to personnel, and takes the appropriate actions in accordance with established procedures</p> <p>Identification and actions on becoming aware of a hazardous</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	<p>.7 electrostatic hazards</p> <p>.8 toxicity hazards</p> <p>.9 vapour leaks and clouds</p> <p>.10 extremely low temperatures</p> <p>.11 pressure hazards</p> <p>.12 fuel batch differences</p> <p>Basic knowledge of hazard controls:</p> <p>.1 emptying, inerting, drying and monitoring techniques</p> <p>.2 anti-static measures</p> <p>.3 ventilation</p> <p>.4 segregation</p> <p>.5 inhibition</p> <p>.6 measures to prevent ignition, fire and explosion</p> <p>.7 atmospheric control</p> <p>.8 gas testing</p> <p>.9 protection against cryogenic damages (LNG)</p> <p>Understanding of fuel characteristics on ships subject to the IGF Code as found on a Safety Data Sheet (SDS)</p>		<p>situation conform to established procedures in line with best practice</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Apply occupational health and safety precautions and measures	<p>Awareness of function of gas-measuring instruments and similar equipment:</p> <p>.1 gas testing</p> <p>Proper use of specialized safety equipment and protective devices, including:</p> <p>.1 breathing apparatus</p> <p>.2 protective clothing</p> <p>.3 resuscitators</p> <p>.4 rescue and escape equipment</p> <p>Basic knowledge of safe working practices and procedures in accordance with legislation and industry guidelines and personal shipboard safety relevant to ships subject to the IGF Code, including:</p> <p>.1 precautions to be taken before entering hazardous spaces and zones</p> <p>.2 precautions to be taken before and during repair and maintenance work</p> <p>.3 safety measures for hot and cold work</p> <p>Basic knowledge of first aid with reference to a Safety Data Sheet (SDS)</p>	<p>Examination or assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training</p> <p>.4 approved training programme</p>	<p>Procedures and safe working practices designed to safeguard personnel and the ship are observed at all times</p> <p>Appropriate safety and protective equipment is correctly used</p> <p>First aid dos and don'ts</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Carry out firefighting operations on a ship subject to the IGF Code	<p>Fire organization and action to be taken on ships subject to the IGF Code</p> <p>Special hazards associated with fuel systems and fuel handling on ships subject to the IGF Code</p> <p>Firefighting agents and methods used to control and extinguish fires in conjunction with the different fuels found on board ships subject to the IGF Code</p> <p>Firefighting system operations</p>	Practical exercises and instruction conducted under approved and truly realistic training conditions (e.g. Simulated shipboard conditions) and, whenever possible and practicable, in darkness	<p>Initial actions and follow-up actions on becoming aware of an emergency conform with established practices and procedures</p> <p>Action taken on identifying muster signals is appropriate to the indicated emergency and complies with established procedures</p> <p>Clothing and equipment are appropriate to the nature of the firefighting operations</p> <p>The timing and sequence of individual actions are appropriate to the prevailing circumstances and conditions</p> <p>Extinguishment of fire is achieved using appropriate procedures techniques and firefighting agents</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Respond to emergencies	Basic knowledge of emergency procedures, including emergency shutdown	Examination and assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	The type and impact of the emergency is promptly identified and the response actions conform to the emergency procedures and contingency plans
Take precautions to prevent pollution of the environment from the release of fuels found on ships subject to the IGF Code	Basic knowledge of measures to be taken in the event of leakage/spillage/venting of fuels from ships subject to the IGF Code, including the need to: .1 report relevant information to the responsible persons .2 awareness of shipboard spill/leakage/venting response procedures .3 awareness of appropriate personal protection when responding to a spill/leakage of fuels addressed by the IGF Code	Examination or assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme	Procedures designed to safeguard the environment are observed at all times

Table A-V/3-2

Specification of minimum standard of competence of advanced training for ships subject to the IGF Code

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Familiarity with physical and chemical properties of fuels aboard ships subject to the IGF Code	<p>Basic knowledge and understanding of simple chemistry and physics and the relevant definitions related to safe bunkering and use of fuels used on board ships subject to the IGF Code, including:</p> <ul style="list-style-type: none"> .1 the chemical structure of different fuels used on board ships subject to the IGF Code .2 the properties and characteristics of fuels used on board ships subject to the IGF Code, including: <ul style="list-style-type: none"> .2.1 simple physical laws .2.2 states of matter .2.3 liquid and vapour densities .2.4 boil-off and weathering of cryogenic fuels .2.5 compression and expansion of gases .2.6 critical pressure and temperature of gases 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Effective use is made of information resources for identification of properties and characteristics of fuels addressed by the IGF Code and their impact on safety, environmental protection and ship operation</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	<p>2.7 flashpoint, upper and lower flammable limits, auto-ignition temperature</p> <p>2.8 saturated vapour pressure/ reference temperature</p> <p>2.9 dewpoint and bubble point</p> <p>2.10 hydrate formation</p> <p>2.11 combustion properties: heating values</p> <p>2.12 methane number/ knocking</p> <p>2.13 pollutant characteristics of fuels addressed by the IGF Code</p> <p>.3 the properties of single liquids</p> <p>.4 the nature and properties of solutions</p> <p>.5 thermodynamic units</p> <p>.6 basic thermodynamic laws and diagrams</p> <p>.7 properties of materials</p> <p>.8 effect of low temperature, including brittle fracture, for liquid cryogenic fuels</p> <p>Understanding the information contained in a Safety Data Sheet (SDS) about fuels addressed by the IGF Code</p>		

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Operate controls of fuel related to propulsion plant and engineering systems and services and safety devices on ships subject to the IGF Code	<p>Operating principles of marine power plants</p> <p>Ships' auxiliary machinery</p> <p>Knowledge of marine engineering terms</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training</p> <p>.4 approved training programme</p>	<p>Plant, auxiliary machinery and equipment is operated in accordance with technical specifications and within safe operating limits at all times</p>
Ability to safely perform and monitor all operations related to the fuels used on board ships subject to the IGF Code	<p>Design and characteristics of ships subject to the IGF Code</p> <p>Knowledge of ship design, systems, and equipment found on ships subject to the IGF Code, including:</p> <p>.1 fuel systems for different propulsion engines</p> <p>.2 general arrangement and construction</p> <p>.3 fuel storage systems on board ships subject to the IGF Code, including materials of construction and insulation</p> <p>.4 fuel-handling equipment and instrumentations on board ships:</p> <p>4.1 fuel pumps and pumping arrangements</p> <p>4.2 fuel pipelines</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training</p> <p>.4 approved training programme</p>	<p>Communications are clear and understood</p> <p>Successful ship operations using fuels addressed by the IGF Code are carried out in a safe manner, taking into account ship designs, systems and equipment</p> <p>Pumping operations are carried out in accordance with accepted principles and procedures and are relevant to the type of fuel</p> <p>Operations are planned, risk is managed and carried out in accordance with accepted principles and procedures to ensure safety of operations and to avoid pollution of the marine environment</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	<p>4.3 expansion devices</p> <p>4.4 flame screens</p> <p>4.5 temperature monitoring systems</p> <p>4.6 fuel tank level-gauging systems</p> <p>4.7 tank pressure monitoring and control systems</p> <p>.5 cryogenic fuel tanks temperature and pressure maintenance</p> <p>.6 fuel system atmosphere control systems (inert gas, nitrogen), including storage, generation and distribution</p> <p>.7 toxic and flammable gas-detecting systems</p> <p>.8 fuel Emergency Shut Down system (ESD)</p> <p>Knowledge of fuel system theory and characteristics, including types of fuel system pumps and their safe operation on board ships subject to the IGF Code</p> <p>.1 low pressure pumps</p> <p>.2 high pressure pumps</p> <p>.3 vaporizers</p> <p>.4 heaters</p>		

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	<p>.5 pressure build-up units</p> <p>Knowledge of safe procedures and checklists for taking fuel tanks in and out of service, including:</p> <p>.1 inerting</p> <p>.2 cooling down</p> <p>.3 initial loading</p> <p>.4 pressure control</p> <p>.5 heating of fuel</p> <p>.6 emptying systems</p>		
Plan and monitor safe bunkering, stowage and securing of the fuel on board ships subject to the IGF Code	<p>General knowledge of ships subject to the IGF Code</p> <p>Ability to use all data available on board related to bunkering, storage and securing of fuels addressed by the IGF Code</p> <p>Ability to establish clear and concise communications and between the ship and the terminal, truck or the bunker- supply ship</p> <p>Knowledge of safety and emergency procedures for operation of machinery, fuel- and control systems for ships subject to the IGF Code</p> <p>Proficiency in the operation of bunkering systems on board ships subject to the IGF Code including:</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved simulator training</p> <p>.3 approved training programme</p> <p>.4 approved laboratory equipment training or witnessing bunker operation</p>	<p>Fuel quality and quantity is determined taking into account the current conditions and necessary corrective safe measures are taken</p> <p>Procedures for monitoring safety systems to ensure that all alarms are detected promptly and acted upon in accordance with established procedures</p> <p>Operations are planned and carried out in accordance with fuel transfer manuals and procedures to ensure safety of operations and avoid spill damages</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	<p>.1 bunkering procedures</p> <p>.2 emergency procedures</p> <p>.3 ship-shore/ship-ship interface</p> <p>.4 prevention of rollover</p> <p>Proficiency to perform fuel-system measurements and calculations, including:</p> <p>.1 maximum fill quantity</p> <p>.2 On Board Quantity (OBQ)</p> <p>.3 Minimum Remain On Board (ROB)</p> <p>.4 fuel consumption calculations</p> <p>Ability to ensure the safe management of bunkering and other IGF Code fuel related operations concurrent with other onboard operations, both in port and at sea</p>		<p>and pollution of the environment</p> <p>Personnel are allocated duties and informed of procedures and standards of work to be followed, in a manner appropriate to the individuals concerned and in accordance with safe working procedures</p>
Take precautions to prevent pollution of the environment from the release of fuels from ships subject to the IGF Code	<p>Knowledge of the effects of pollution on human and environment</p> <p>Knowledge of measures to be taken in the event of spillage/leakage/venting</p>	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training</p> <p>.4 approved training programme</p>	Procedures designed to safeguard the environment are observed at all times

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Monitor and control compliance with legislative requirements	<p>Knowledge and understanding of relevant provisions of the International Convention for the Prevention of Pollution from Ships (MARPOL), as amended and other relevant IMO instruments, industry guidelines and port regulations as commonly applied</p> <p>Proficiency in the use of the IGF Code and related documents</p>	<p>Assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience .3 approved simulator training .4 approved training 	<p>The handling of fuels on board ships subject to the IGF Code complies with relevant IMO instruments and established industrial standards and codes of safe working practices</p> <p>Operations are planned and performed in conformity with approved procedures and legislative requirements</p>
Take precautions to prevent hazards	<p>Knowledge and understanding of the hazards and control measures associated with fuel system operations on board ships subject to the IGF Code, including:</p> <ul style="list-style-type: none"> .1 flammability .2 explosion .3 toxicity .4 reactivity .5 corrosivity .6 health hazards .7 inert gas composition .8 electrostatic hazards .9 pressurized gases .10 low temperature 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service .2 approved training ship experience .3 approved simulator training .4 approved training programme 	<p>Relevant hazards to the ship and to personnel associated with operations on board ships subject to the IGF Code are correctly identified and proper control measures are taken</p> <p>Use of flammable and toxic gas-detection devices are in accordance with manuals and good practice</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	<p>Proficiency to calibrate and use monitoring and fuel detection systems, instruments and equipment on board ships subject to the IGF Code</p> <p>Knowledge and understanding of dangers of non-compliance with relevant rules/regulations</p> <p>Knowledge and understanding of risks assessment method analysis on board ships subject to the IGF Code</p> <p>Ability to elaborate and develop risks analysis related to risks on board ships subject to the IGF Code</p> <p>Ability to elaborate and develop safety plans and safety instructions for ships subject to the IGF Code</p> <p>Knowledge of hot work, enclosed spaces and tank entry including permitting procedures</p>		
Apply occupational health and safety precautions and measures on board a ship subject to the IGF Code	<p>Proper use of safety equipment and protective devices, including:</p> <ul style="list-style-type: none"> .1 breathing apparatus and evacuating equipment .2 protective clothing and equipment .3 resuscitators .4 rescue and escape equipment 	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <ul style="list-style-type: none"> .1 approved in-service experience .2 approved training ship experience 	<p>Appropriate safety and protective equipment is correctly used</p> <p>Procedures designed to safeguard personnel and the ship are observed at all times</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
	<p>Knowledge of safe working practices and procedures in accordance with legislation and industry guidelines and personal shipboard safety including:</p> <p>.1 precautions to be taken before, during and after repair and maintenance work on fuel systems addressed in the IGF Code</p> <p>.2 electrical safety (reference to IEC 600079-17)</p> <p>.3 ship/shore safety checklist</p> <p>Basic knowledge of first aid with reference to a Safety Data Sheets (SDS) for fuels addressed by the IGF Code</p>	<p>.3 approved simulator training</p> <p>.4 approved training programme</p>	<p>Working practices are in accordance with legislative requirements, codes of practice, permits to work and environmental concerns</p> <p>First aid dos and don'ts</p>
Knowledge of the prevention, control and firefighting and extinguishing systems on board ships subject to the IGF Code	Knowledge of the methods and firefighting appliances to detect, control and extinguish fires of fuels addressed by the IGF Code	<p>Examination and assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 approved training ship experience</p> <p>.3 approved simulator training</p> <p>.4 approved training programme</p>	<p>The type and scale of the problem is promptly identified, and initial actions conform with the emergency procedures for fuels addressed by the IGF Code</p> <p>Evacuation, emergency shutdown and isolation procedures are appropriate to the fuels addressed by the IGF Code</p>

ANNEX 6

**RESOLUTION MSC.396(95)
(adopted on 11 June 2015)**

**AMENDMENTS TO THE INTERNATIONAL CONVENTION ON
STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING
FOR SEAFARERS (STCW), 1978, AS AMENDED**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

RECALLING FURTHER article XII of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 ("the Convention"), concerning the procedures for amending the Convention,

HAVING CONSIDERED, at its ninety-fifth session, amendments to the Convention proposed and circulated in accordance with article XII(1)(a)(i) thereof,

1 ADOPTS, in accordance with article XII(1)(a)(iv) of the Convention, amendments to the Convention, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article XII(1)(a)(vii)(2) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2016, unless, prior to that date more than one third of Parties or Parties the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant shipping of ships of 100 gross register tons or more, have notified to the Secretary-General of the Organization their objections to the amendments;

3 INVITES Parties to note that, in accordance with article XII(1)(a)(viii) of the Convention, that the amendments annexed hereto, shall enter into force on 1 January 2017 upon their acceptance in accordance with paragraph 2 above;

4 INVITES ALSO Parties to note that, in the absence of the ships subject to the IGF Code at the time of the entry into force of these amendments, to take into account experience gained on board ships in accordance with the Interim guidelines on safety for natural gas-fuelled engine installations in ships, as adopted by resolution MSC.285(86);

5 REQUESTS the Secretary-General, for the purposes of article XII(1)(a)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Parties to the Convention; and

6 REQUESTS ALSO the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Parties to the Convention.

ANNEX

AMENDMENTS TO THE INTERNATIONAL CONVENTION ON STANDARDS OF TRAINING, CERTIFICATION AND WATCHKEEPING FOR SEAFARERS (STCW), 1978, AS AMENDED

CHAPTER I – GENERAL PROVISIONS

Regulation I/1 – Definitions and clarifications

1 In paragraph 1, after the existing subparagraph .40, the following new definition is inserted:

"41 *The IGF Code* means the International Code of safety for ships using gases or other low-flashpoint fuels, as defined in SOLAS regulation II-1/2.29."

Regulation I/11 – Revalidation of certificates

2 Existing paragraph 1 is amended to read:

"1 Every master, officer and radio operator holding a certificate issued or recognized under any chapter of the Convention other than regulation V/3 or chapter VI, who is serving at sea or intends to return to sea after a period ashore, shall, in order to continue to qualify for seagoing service, be required, at intervals not exceeding five years, to:

- .1 meet the standards of medical fitness prescribed by regulation I/9; and
- .2 establish continued professional competence in accordance with section A-1/11 of the STCW Code."

CHAPTER V – SPECIAL TRAINING REQUIREMENTS FOR PERSONNEL ON CERTAIN TYPES OF SHIP

3 The following new regulation V/3 is added after existing regulation V/2:

"Regulation V/3

Mandatory minimum requirements for the training and qualifications of masters, officers, ratings and other personnel on ships subject to the IGF Code

1 This regulation applies to masters, officers and ratings and other personnel serving on board ships subject to the IGF Code.

2 Prior to being assigned shipboard duties on board ships subject to the IGF Code, seafarers shall have completed the training required by paragraphs 4 to 9 below in accordance with their capacity, duties and responsibilities.

3 All seafarers serving on board ships subject to the IGF Code shall, prior to being assigned shipboard duties, receive appropriate ship and equipment specific familiarization as specified in regulation I/14, paragraph 1.5.

4 Seafarers responsible for designated safety duties associated with the care, use or in emergency response to the fuel on board ships subject to the IGF Code shall hold a certificate in basic training for service on ships subject to the IGF Code.

5 Every candidate for a certificate in basic training for service on ships subject to the IGF Code shall have completed basic training in accordance with provisions of section A-V/3, paragraph 1 of the STCW Code.

6 Seafarers responsible for designated safety duties associated with the care, use or in emergency response to the fuel on board ships subject to the IGF Code who have been qualified and certified according to regulation V/1-2, paragraphs 2 and 5, or regulation V/1-2, paragraphs 4 and 5 on liquefied gas tankers, are to be considered as having met the requirements specified in section A-V/3, paragraph 1 for basic training for service on ships subject to the IGF Code.

7 Masters, engineer officers and all personnel with immediate responsibility for the care and use of fuels and fuel systems on ships subject to the IGF Code shall hold a certificate in advanced training for service on ships subject to the IGF Code.

8 Every candidate for a certificate in advanced training for service on ships subject to the IGF Code shall, while holding the Certificate of Proficiency described in paragraph 4, have:

- .1 completed approved advanced training for service on ships subject to the IGF Code and meet the standard of competence as specified in section A-V/3, paragraph 2 of the STCW Code; and
- .2 completed at least one month of approved seagoing service that includes a minimum of three bunkering operations on board ships subject to the IGF Code. Two of the three bunkering operations may be replaced by approved simulator training on bunkering operations as part of the training in paragraph 8.1 above.

9 Masters, engineer officers and any person with immediate responsibility for the care and use of fuels on ships subject to the IGF Code who have been qualified and certified according to the standards of competence specified in section A-V/1-2, paragraph 2 for service on liquefied gas tankers are to be considered as having met the requirements specified in section A-V/3, paragraph 2 for advanced training for ships subject to the IGF Code, provided they have also:

- .1 met the requirements of paragraph 6; and
- .2 met the bunkering requirements of paragraph 8.2 or have participated in conducting three cargo operations on board the liquefied gas tanker; and
- .3 have completed sea going service of three months in the previous five years on board:
 - .1 ships subject to the IGF Code;
 - .2 tankers carrying as cargo, fuels covered by the IGF Code; or
 - .3 ships using gases or low flashpoint fuel as fuel.

10 Every Party shall compare the standards of competence which it required of persons serving on gas-fuelled ships before 1 January 2017 with the standards of competence in Section A-V/3 of the STCW Code, and shall determine the need, if any, for requiring these personnel to update their qualifications.

11 Administrations shall ensure that a Certificate of Proficiency is issued to seafarers, who are qualified in accordance with paragraphs 4 or 7, as appropriate.

12 Seafarers holding Certificates of Proficiency in accordance with paragraph 4 or 7 above shall, at intervals not exceeding five years, undertake appropriate refresher training or be required to provide evidence of having achieved the required standard of competence within the previous five years."

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978-1-5286-5928-4