

**Excerpts from the International Convention on Standards of
Training, Certification and Watchkeeping for Seafarers,
1978, as amended**

and

**Seafarers' Training, Certification and Watchkeeping Code,
as amended**

Notice: These excerpts are provided for background information only. By themselves, they do not constitute United States Coast Guard policy.

The Manila Amendments to the annex to the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978

Chapter I
General provisions

Regulation I/6

Training and assessment

Each Party shall ensure that:

- .1 the training and assessment of seafarers, as required under the Convention, are administered, supervised and monitored in accordance with the provisions of section A-I/6 of the STCW Code; and
- .2 those responsible for the training and assessment of competence of seafarers, as required under the Convention, are appropriately qualified in accordance with the provisions of section A-I/6 of the STCW Code for the type and level of training and assessment involved.

Regulation I/12

Use of simulators

1 The performance standards and other provisions set forth in section A-I/12 and such other requirements as are prescribed in part A of the STCW Code for any certificate concerned shall be complied with in respect of:

- .1 all mandatory simulator-based training;
- .2 any assessment of competency required by part A of the STCW Code which is carried out by means of a simulator; and
- .3 any demonstration, by means of a simulator, of continued proficiency required by part A of the STCW Code.

Chapter III
Engine department

Regulation III/5

Mandatory minimum requirements for certification of ratings as able seafarer engine in a manned engine-room or designated to perform duties in a periodically unmanned engine-room

1 Every able seafarer engine serving on a seagoing ship powered by main propulsion machinery of 750 kW propulsion power or more shall be duly certificated.

2 Every candidate for certification shall:

- .1 be not less than 18 years of age;
- .2 meet the requirements for certification as a rating forming part of a watch in a manned engine-room or designated to perform duties in a periodically unmanned engine-room;
- .3 while qualified to serve as a rating forming part of an engineering watch, have approved seagoing service in the engine department of:

- .3.1 not less than 12 months, or
- .3.2 not less than 6 months and have completed approved training; and
- .4 meet the standard of competence specified in section A-III/5 of the STCW Code.

3 Every Party shall compare the standard of competence which it required of ratings in the engine department for certificates issued before 1 January 2012 with those specified for the certificate in section A-III/5 of the STCW Code, and shall determine the need, if any, for requiring these personnel to update their qualifications.

4 Seafarers may be considered by the Party to have met the requirements of this regulation if they have served in a relevant capacity in the engine department for a period of not less than 12 months within the last 60 months preceding the entry into force of this regulation for that Party.

**The Manila Amendments to the Seafarers' Training, Certification and Watchkeeping
(STCW) Code**

Chapter I

Standards regarding general provisions

Section A-I/6

Training and assessment

1 Each Party shall ensure that all training and assessment of seafarers for certification under the Convention is:

- .1** structured in accordance with written programmes, including such methods and media of delivery, procedures, and course material as are necessary to achieve the prescribed standard of competence; and
- .2** conducted, monitored, evaluated and supported by persons qualified in accordance with paragraphs 4, 5 and 6.

2 Persons conducting in-service training or assessment on board ship shall only do so when such training or assessment will not adversely affect the normal operation of the ship and they can dedicate their time and attention to training or assessment.

Qualifications of instructors, supervisors and assessors*

3 Each Party shall ensure that instructors, supervisors and assessors are appropriately qualified for the particular types and levels of training or assessment of competence of seafarers either on board or ashore, as required under the Convention, in accordance with the provisions of this section.

In-service training

4 Any person conducting in-service training of a seafarer, either on board or ashore, which is intended to be used in qualifying for certification under the Convention, shall:

- .1** have an appreciation of the training programme and an understanding of the specific training objectives for the particular type of training being conducted;
- .2** be qualified in the task for which training is being conducted; and
- .3** if conducting training using a simulator:
 - .3.1** have received appropriate guidance in instructional techniques involving the use of simulators; and
 - .3.2** have gained practical operational experience on the particular type of simulator being used.

5 Any person responsible for the supervision of in-service training of a seafarer intended to be used in qualifying for certification under the Convention shall have a full understanding of the training programme and the specific objectives for each type of training being conducted.

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

Assessment of competence

6 Any person conducting in-service assessment of competence of a seafarer, either on board or ashore, which is intended to be used in qualifying for certification under the Convention, shall:

- .1** have an appropriate level of knowledge and understanding of the competence to be assessed;
- .2** be qualified in the task for which the assessment is being made;
- .3** have received appropriate guidance in assessment methods and practice;
- .4** have gained practical assessment experience; and
- .5** if conducting assessment involving the use of simulators, have gained practical assessment experience on the particular type of simulator under the supervision and to the satisfaction of an experienced assessor.

Training and assessment within an institution

7 Each Party which recognizes a course of training, a training institution, or a qualification granted by a training institution, as part of its requirements for the issue of a certificate required under the Convention, shall ensure that the qualifications and experience of instructors and assessors are covered in the application of the quality standard provisions of section A-I/8. Such qualification, experience and application of quality standards shall incorporate appropriate training in instructional techniques, and training and assessment methods and practice, and shall comply with all applicable requirements of paragraphs 4 to 6.

Section A-I/12

Standards governing the use of simulators

Part 1 – Performance standards

General performance standards for simulators used in training

- 1** Each Party shall ensure that any simulator used for mandatory simulator-based training shall:
- .1** be suitable for the selected objectives and training tasks;
 - .2** be capable of simulating the operating capabilities of shipboard equipment concerned, to a level of physical realism appropriate to training objectives, and include the capabilities, limitations and possible errors of such equipment;
 - .3** have sufficient behavioural realism to allow a trainee to acquire the skills appropriate to the training objectives;
 - .4** provide a controlled operating environment, capable of producing a variety of conditions, which may include emergency, hazardous or unusual situations relevant to the training objectives;
 - .5** provide an interface through which a trainee can interact with the equipment, the simulated environment and, as appropriate, the instructor; and

- .6 permit an instructor to control, monitor and record exercises for the effective debriefing of trainees.

General performance standards for simulators used in assessment of competence

2 Each Party shall ensure that any simulator used for the assessment of competence required under the Convention or for any demonstration of continued proficiency so required shall:

- .1 be capable of satisfying the specified assessment objectives;
- .2 be capable of simulating the operational capabilities of the shipboard equipment concerned to a level of physical realism appropriate to the assessment objectives, and include the capabilities, limitations and possible errors of such equipment;
- .3 have sufficient behavioural realism to allow a candidate to exhibit the skills appropriate to the assessment objectives;
- .4 provide an interface through which a candidate can interact with the equipment and simulated environment;
- .5 provide a controlled operating environment, capable of producing a variety of conditions, which may include emergency, hazardous or unusual situations relevant to assessment objectives; and
- .6 permit an assessor to control, monitor and record exercises for the effective assessment of the performance of candidates.

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Part 2 – Other provisions

Simulator training objectives

6 Each Party shall ensure that the aims and objectives of simulator-based training are defined within an overall training programme and that specific training objectives and tasks are selected so as to relate as closely as possible to shipboard tasks and practices.

Training procedures

- 7 In conducting mandatory simulator-based training, instructors shall ensure that:
- .1 trainees are adequately briefed beforehand on the exercise objectives and tasks and are given sufficient planning time before the exercise starts;
 - .2 trainees have adequate familiarization time on the simulator and with its equipment before any training or assessment exercise commences;
 - .3 guidance given and exercise stimuli are appropriate to the selected exercise objectives and tasks and to the level of trainee experience;
 - .4 exercises are effectively monitored, supported as appropriate by audio and visual observation of trainee activity and pre- and post-exercise evaluation reports;

- .5 trainees are effectively debriefed to ensure that training objectives have been met and that operational skills demonstrated are of an acceptable standard;
- .6 the use of peer assessment during debriefing is encouraged; and
- .7 simulator exercises are designed and tested so as to ensure their suitability for the specified training objectives.

Assessment procedures

- 8 Where simulators are used to assess the ability of candidates to demonstrate levels of competency, assessors shall ensure that:
- .1 performance criteria are identified clearly and explicitly and are valid and available to the candidates;
 - .2 assessment criteria are established clearly and are explicit to ensure reliability and uniformity of assessment and to optimize objective measurement and evaluation, so that subjective judgements are kept to the minimum;
 - .3 candidates are briefed clearly on the tasks and/or skills to be assessed and on the tasks and performance criteria by which their competency will be determined;
 - .4 assessment of performance takes into account normal operating procedures and any behavioural interaction with other candidates on the simulator or with simulator staff;
 - .5 scoring or grading methods to assess performance are used with caution until they have been validated; and
 - .6 the prime criterion is that a candidate demonstrates the ability to carry out a task safely and effectively to the satisfaction of the assessor.

Qualifications of instructors and assessors^{*}

- 9 Each Party shall ensure that instructors and assessors are appropriately qualified and experienced for the particular types and levels of training and corresponding assessment of competence as specified in regulation I/6 and section A-I/6.

* The relevant IMO Model Course(s) and resolution MSC.64(67), *Recommendations on new and amended performance standards*, may be of assistance in the preparation of courses.

Chapter III

Standards regarding the engine department

Section A-III/5

Mandatory minimum requirements for certification of ratings as able seafarer engine in a manned engine-room or designated to perform duties in a periodically unmanned engine-room

Standard of competence

- 1 Every able seafarer engine serving on a seagoing ship powered by main propulsion machinery of 750 kW propulsion power or more shall be required to demonstrate the competence to perform the functions at the support level, as specified in column 1 of table A-III/5.
- 2 The minimum knowledge, understanding and proficiency required of an able seafarer engine serving on a seagoing ship powered by main propulsion machinery of 750 kW propulsion power or more is listed in column 2 of table A-III/5.
- 3 Every candidate for certification shall be required to provide evidence of having achieved the required standard of competence in accordance with the methods for demonstrating competence and the criteria for evaluating competence specified in columns 3 and 4 of table A-III/5.

Table A-III/5

Specification of minimum standard of competence for ratings as able seafarer engine in a manned engine-room or designated to perform duties in a periodically unmanned engine-room

Function: Marine engineering at the support level

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to a safe engineering watch	Ability to understand orders and to communicate with the officer of the watch in matters relevant to watchkeeping duties Procedures for the relief, maintenance and handover of a watch Information required to maintain a safe watch	Assessment of evidence obtained from in-service experience or practical test	Communications are clear and concise Maintenance, handover and relief of the watch is in conformity with acceptable practices and procedures
Contribute to the monitoring and controlling of an engine-room watch	Basic knowledge of the function and operation of main propulsion and auxiliary machinery Basic understanding of main propulsion and auxiliary machinery control pressures, temperatures and levels	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience; .2 approved training ship experience; or .3 practical test	The frequency and extent of monitoring of main propulsion and auxiliary machinery conforms with accepted principles and procedures Deviations from the norm are identified Unsafe conditions or potential hazards are promptly recognized, reported and rectified before work continues
Contribute to fuelling and oil transfer operations	Knowledge of the function and operation of fuel system and oil transfer operations, including: .1 preparations for fuelling and transfer operations .2 procedures for connecting and disconnecting fuelling and transfer hoses	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 practical training .3 examination .4 approved training ship experience	Transfer operations are carried out in accordance with established safety practices and equipment operating instructions The handling of dangerous, hazardous and harmful liquids complies with established safety practices Communications within the operator's area of responsibility are consistently successful

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to fuelling and oil transfer operations <i>(continued)</i>	.3 procedures relating to incidents that may arise during fuelling or transferring operation .4 securing from fuelling and transfer operations .5 ability to correctly measure and report tank levels	Assessment of evidence obtained from practical demonstration	
Contribute to bilge and ballast operations	Knowledge of the safe function, operation and maintenance of the bilge and ballast systems, including: .1 reporting incidents associated with transfer operations .2 ability to correctly measure and report tank levels	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 practical training .3 examination .4 approved training ship experience Assessment of evidence obtained from practical demonstration	Operations and maintenance are carried out in accordance with established safety practices and equipment operating instructions and pollution of the marine environment is avoided Communications within the operator's area of responsibility are consistently successful
Contribute to the operation of equipment and machinery	Safe operation of equipment, including: .1 valves and pumps .2 hoists and lifting equipment .3 hatches, watertight doors, ports and related equipment Ability to use and understand basic crane, winch and hoist signals	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 practical training .3 examination .4 approved training ship experience Assessment of evidence obtained from practical demonstration	Operations are carried out in accordance with established safety practices and equipment operating instructions Communications within the operator's area of responsibility are consistently successful

Function: Electrical, electronic and control engineering at the support level

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Safe use of electrical equipment	<p>Safe use and operation of electrical equipment, including:</p> <p>.1 safety precautions before commencing work or repair</p> <p>.2 isolation procedures</p> <p>.3 emergency procedures</p> <p>.4 different voltages on board</p> <p>Knowledge of the causes of electric shock and precautions to be observed to prevent shock</p>	<p>Assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 practical training</p> <p>.3 examination</p> <p>.4 approved training ship experience</p>	<p>Recognizes and reports electrical hazards and unsafe equipment</p> <p>Understands safe voltages for hand-held equipment</p> <p>Understands risks associated with high-voltage equipment and onboard work</p>

Function: Maintenance and repair at the support level

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to shipboard maintenance and repair	<p>Ability to use painting, lubrication and cleaning materials and equipment</p> <p>Ability to understand and execute routine maintenance and repair procedures</p> <p>Knowledge of surface preparation techniques</p> <p>Knowledge of safe disposal of waste materials</p> <p>Understanding manufacturer's safety guidelines and shipboard instructions</p>	<p>Assessment of evidence obtained from practical demonstration</p> <p>Assessment of evidence obtained from one or more of the following:</p> <p>.1 approved in-service experience</p> <p>.2 practical training</p> <p>.3 examination</p> <p>.4 approved training ship experience</p>	<p>Maintenance activities are carried out in accordance with technical, safety and procedural specifications</p> <p>Selection and use of equipment and tools is appropriate</p>

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to shipboard maintenance and repair (<i>continued</i>)	Knowledge of the application, maintenance and use of hand and power tools and measuring instruments and machine tools Knowledge of metalwork		

Function: Controlling the operation of the ship and care for persons on board at the support level

Column 1	Column 2	Column 3	Column 4
Competence	Knowledge, understanding and proficiency	Methods for demonstrating competence	Criteria for evaluating competence
Contribute to the handling of stores	Knowledge of procedures for safe handling, stowage and securing of stores	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 practical training .3 examination .4 approved training ship experience	Stores operations are carried out in accordance with established safety practices and equipment operating instructions The handling of dangerous, hazardous and harmful stores complies with established safety practices Communications within the operator's area of responsibility are consistently successful
Apply precautions and contribute to the prevention of pollution of the marine environment	Knowledge of the precautions to be taken to prevent pollution of the marine environment Knowledge of use and operation of anti-pollution equipment Knowledge of approved methods for disposal of marine pollutants	Assessment of evidence obtained from one or more of the following: .1 approved in-service experience .2 practical training .3 examination .4 approved training ship experience	Procedures designed to safeguard the marine 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
Apply occupational health and safety procedures	<p>Working knowledge of safe working practices and personal shipboard safety, including:</p> <ul style="list-style-type: none"> .1 electrical safety .2 lockout/tag-out .3 mechanical safety .4 permit to work systems .5 working aloft .6 working in enclosed spaces .7 lifting techniques and methods of preventing back injury .8 chemical and biohazard safety .9 personal safety equipment 	<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 practical training .3 examination .4 approved training ship experience 	<p>Procedures designed to safeguard personnel and the ship are observed at all times</p> <p>Safe working practices are observed and appropriate safety and protective equipment is correctly used at all times</p>

**GUIDANCE REGARDING PROVISIONS OF THE ANNEX TO
THE STCW CONVENTION
PART B**

Chapter I

Guidance regarding general provisions

Section B-I/6

Guidance regarding training and assessment

Qualifications of instructors and assessors

1 Each Party should ensure that instructors and assessors are appropriately qualified and experienced for the particular types and levels of training or assessment of competence of seafarers, as required under the Convention, in accordance with the guidelines in this section.

In-service training and assessment

2 Any person, on board or ashore, conducting in-service training of a seafarer intended to be used in qualifying for certification under the Convention should have received appropriate guidance in instructional techniques*.

3 Any person responsible for the supervision of in-service training of a seafarer intended to be used in qualifying for certification under the Convention should have appropriate knowledge of instructional techniques and of training methods and practice.

4 Any person, on board or ashore, conducting an in-service assessment of the competence of a seafarer intended to be used in qualifying for certification under the Convention should have:

- .1** received appropriate guidance in assessment methods and practice* ; and
- .2** gained practical assessment experience under the supervision and to the satisfaction of an experienced assessor.

5 Any person responsible for the supervision of the in-service assessment of competence of a seafarer intended to be used in qualifying for certification under the Convention should have a full understanding of the assessment system, assessment methods and practice*.

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Section B-I/12

Guidance regarding the use of simulators

1 When simulators are being used for training or assessment of competency, the following guidelines should be taken into consideration in conducting any such training or assessment.

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Recommended performance standards for non-mandatory types of simulation

67 Performance standards for non-mandatory simulation equipment used for training and/or assessment of competence or demonstration of skills are set out hereunder. Such forms of simulation include, but are not limited to, the following types:

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.

- .1 navigation and watchkeeping;
- .2 ship handling and manoeuvring;
- .3 cargo handling and stowage;
- .4 reporting and radiocommunications; and
- .5 main and auxiliary machinery operation.

* * * * *

Main and auxiliary machinery operation simulation

73 Engine-room simulation equipment should be capable of simulating a main and auxiliary machinery system and incorporate facilities to:

- .1 create a real-time environment for seagoing and harbour operations, with communication devices and simulation of appropriate main and auxiliary propulsion machinery equipment and control panels;
- .2 simulate relevant sub-systems that should include, but not be restricted to, boiler, steering gear, electrical power general and distribution systems, including emergency power supplies, and fuel, cooling water, refrigeration, bilge and ballast systems;
- .3 monitor and evaluate engine performance and remote sensing systems;
- .4 simulate machinery malfunctions;
- .5 allow for the variable external conditions to be changed so as to influence the simulated operations: weather, ship's draught, seawater and air temperatures;
- .6 allow for instructor-controlled external conditions to be changed: deck steam, accommodation steam, deck air, ice conditions, deck cranes, heavy power, bow thrust, ship load;
- .7 allow for instructor-controlled simulator dynamics to be changed: emergency run, process responses, ship responses; and
- .8 provide a facility to isolate certain processes, such as speed, electrical system, diesel oil system, lubricating oil system, heavy oil system, seawater system, steam system, exhaust boiler and turbo generator, for performing specific training tasks.*

Chapter III

Guidance regarding the engine department

Section B-III/5

Guidance regarding the certification of ratings as able seafarer engine

Onboard training should be documented in an approved training record book.

* The relevant IMO Model Course(s) may be of assistance in the preparation of courses.