



GUIDE FOR BUILDING AND CLASSING

INTERNATIONAL NAVAL SHIPS 2018

PART 1 CONDITIONS OF CLASSIFICATION (Supplement to the ABS Rules for Conditions of Classification)

**American Bureau of Shipping
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the State of New York 1862**

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PART

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Foreword

For the 2008 edition, Part 1, “Conditions of Classification” was consolidated into a generic booklet, entitled *Rules for Conditions of Classification (Part 1)* for all vessels other than those in offshore service. The purpose of this consolidation was to emphasize the common applicability of the classification requirements in “Part 1” to ABS-classed vessels, other marine structures and their associated machinery, and thereby make “Conditions of Classification” more readily a common Rule of the various ABS Rules and Guides, as appropriate.

Thus, this supplement specifies only the unique requirements applicable to military vessels and other Government-owned vessels in non-commercial service. This supplement is always to be used with the aforementioned *Rules for Conditions of Classification (Part 1)*.

It contains the terms and conditions for achieving ABS Classification, retaining a vessel in class, and situations that could result in suspension or cancellation of class. It also addresses class notations assigned to vessels; optional notations available; acceptance of alternatives; and application of the Guide.

Commercial vessels are required to comply with many national and international laws, codes, and standards. Most Government-owned vessels are exempt from such requirements; however, some choose to comply voluntarily. For various reasons, there has been a growing trend for Governments to selectively invoke commercial codes and standards, and in many cases to invoke classification.

All the various sets of ABS Rules contain provisions for accepting alternative arrangements, details and standards, and allow for special considerations in applying the Rules to Government vessels, and especially to military vessels. However, since they were written to apply to commercial vessels they include requirements and language that can at times make them difficult or time consuming to navigate when applying them to non-commercial vessels, and especially to military combatant vessels. This Guide was developed to address this by providing the same technical baseline of standards, but tailored where appropriate and written in a manner that better suits its direct application for the classification of military vessels and other Government-owned vessels in non-commercial service.

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Conditions of Classification

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[See also separately published booklet *ABS Rules for Conditions of Classification (Part 1)*]

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CHAPTER 1 Scope and Conditions of Classification

SECTION 1 Classification

The requirements for conditions of classification are contained in the separate, generic *ABS Rules for Conditions of Classification (Part 1)*.

Additional requirements specific to military vessels and other Government-owned vessels in non-commercial service are contained in the following Sections of this Part.

1 Process

The Rules, Guides, and standards are, in general, developed by the International Association of Classification Societies and by ABS staff, and passed upon by committees made up of naval architects, marine engineers, shipbuilders, engine builders, steel makers and by other technical, operating, and scientific personnel associated with the worldwide maritime and naval vessel design and construction industry. Theoretical research and development, established engineering disciplines, as well as satisfactory service experience are utilized in their development and promulgation. ABS and its committees can act only upon such theoretical and practical considerations in developing Rules, Guides, and standards.

Surveyors apply normally accepted examination and testing standards to those items specified for each survey by the Rules and Guides. Construction procedures, safety procedures, design and construction schedules, and construction supervision and quality assurance remain the responsibility of the shipyard, ship repairer, manufacturer, Owner or other client.

For classification, vessels are to comply with both the hull and the machinery requirements of the Rules and Guides, including satisfactory completion of all survey requirements and compliance with all Surveyor observations and recommendations.

3 Certificates and Reports

3.1 Communication with the Naval Administration

Due to the number and complexity of systems, the number of separate certifications by other authorities, the overlap and/or interface of Classification requirements with other certification requirements, and other factors unique to naval vessel acquisitions, the sharing of Classification and certification status and information with the Naval Administration is necessary.

To this end, ABS will freely communicate and share classification related information with the Naval Administration to assist in rectification of deficiencies during vessel design, construction, and through-life surveys. Such information may include the text of conditions of classification, survey due dates, certificate expiration dates, stamped copy of reviewed drawings, engineering review letters and comments, and copies of Surveyor comments, recommendations, observations and reports regarding the vessel and its systems and equipment.

3.3 Communication with Other Certification Authorities

For naval vessels, there are many certifications needed from various Certification Authorities. Such certifications are not addressed by Classification requirements; they are accomplished for verifying technical compliance or functional performance of systems or equipment unique to military missions or capabilities unique to the vessel type. However, the certifications often relate to the same functional and physical systems covered by Classification and thus there are areas of overlap and/or interface between the requirements for certain certifications and the requirements for Classification. This creates a need for open communication and coordination with other certification authorities throughout the Classification process.

To this end, ABS will freely communicate and share classification related information with Certification Authorities to assist in rectification of deficiencies during vessel design, construction, and through-life surveys. Such information may include the text of conditions of classification, survey due dates, certificate expiration dates, stamped copy of reviewed drawings, engineering review letters and comments, and copies of Surveyor comments, recommendations, observations and reports regarding the vessel and its systems and equipment.

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SECTION 2 Suspension and Cancellation of Classification

1 Notice of Surveys

It is the responsibility of the party requesting classification to ensure that all surveys necessary for achieving class are carried out during construction, and it is the responsibility of the Naval Administration that all surveys necessary for the maintenance of class for vessels in service are carried out at the proper time. ABS will notify the Naval Administration of upcoming surveys and outstanding recommendations. This may be done by means of a letter or other communication. The non-receipt of such notice, however, does not absolve the Naval Administration from the responsibility to comply with survey requirements for maintenance of class.

3 Suspension of Class

3.1 General

Subsection 1-1-2/7 of the *ABS Rules for Conditions of Classification (Part 1)* defines the normal circumstances under which Class will be suspended and the Certificate of Classification will become invalid. Where ABS has been notified of a condition of national emergency declared by the Naval Administration that precludes normal Class activity, ABS will not automatically suspend Class. In such cases, a notation of “On National Emergency Service” will be entered in the Class record pending conclusion of the emergency and completion of all necessary surveys and repairs.

3.3 Transit for Demolition or Repair

The requirements of 1-1-2/7.11 of the *ABS Rules for Conditions of Classification (Part 1)* would apply for vessels needing to transit from a lay-up site to a repair facility, provided class was not already suspended prior to lay-up.

3.5 Unforeseen Delays

If due to circumstances reasonably beyond the Owner’s or ABS’s control, such as unscheduled extension of time at sea to complete current mission; the suspension of class may be held in abeyance to allow the vessel to sail, in class, to an agreed port at which the overdue surveys will be completed, provided that the requirements of 1-1-2/7.13 of the *ABS Rules for Conditions of Classification (Part 1)* are complied with.

5 Cancellation of Class

5.1 Aging Survey Completions

A longer suspension period than required by 1-1-2/11.5 of the *ABS Rules for Conditions of Classification (Part 1)* may be granted for vessels which are on National Emergency Service.

7 Alternative Procedures for Certain Types of Vessels

1-1-2/13 of the *ABS Rules for Conditions of Classification (Part 1)* does not apply to military vessels and other Government-owned vessels in non-commercial service.

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SECTION 3 Classification Symbols and Notations

1 General

This Section provides the fundamental ABS classification symbols and notations for naval vessels, along with certain optional notations that are recommended for naval vessels that should be considered and decided upon early in the acquisition process.

A complete listing of all Classification Symbols and Notations available may be viewed and downloaded from the ABS website “<http://www.eagle.org>”. Optional notations are described further in Part 6.

ABS Classification symbols and notations identify whether the vessel structure was or was not built under ABS Surveyor attendance, identify whether the anchoring/mooring equipment was built in compliance with the Rules or Guides, identify whether the vessel machinery was or was not built under ABS Surveyor attendance, identify the vessel type, identify applicable service route restrictions (if any), identify special analyses that have been requested and performed, and identify optional notations that have been requested which reflect special systems, features, or capabilities of the vessel.

3 Structural Notation

See 1-1-3/1 and 1-1-3/9 of the *ABS Rules for Conditions of Classification (Part 1)*.

5 Equipment Notation

See 1-1-3/11 of the *ABS Rules for Conditions of Classification (Part 1)*.

7 Machinery Notation

See 1-1-3/13 and 1-1-3/15 of the *ABS Rules for Conditions of Classification (Part 1)*.

9 Vessel Types

This Guide is intended to apply to Government owned vessels in non-commercial service whose primary purpose is for safety, security or defense. This would include combatant vessels (vessels equipped and outfitted for combat missions) and non-combatant vessels (auxiliary vessels serving combat support roles, or other vessels which may have limited or no weaponry whose purpose is mainly safety and security such as for harbor patrol, border patrol, or ports and waterways security).

Vessel types would include (but is not limited to): Cruisers, Destroyers, Frigates, Corvettes, Patrol Boats, Amphibious vessels, Amphibious Support vessels, Auxiliary ships, Ice Breakers, Buoy Tenders, Offshore Patrol vessels, Mine Hunters, Mine Sweepers, Mine Layers, Salvage and Diving vessels, Command and Control vessels, and various naval craft of special design or purpose.

The vessel type appearing in the classification notation may be requested by the Naval Administration to include such type-specific identifier as noted above; if it is requested, it would be appended as a further descriptor to one of the following categorical vessel type notations:

9.1 Naval Combatant

The **NAVAL COMBATANT** notation will be assigned to a naval vessel that is intended to operate in higher-threat environments, and whose primary mission involves the use of own-vessel weapons (e.g., guns, missiles) within a theater of operations. Typical vessels covered under this type are cruisers, destroyers, frigates, and corvettes.

9.3 Naval Force Projection

The **NAVAL FORCE PROJECTION** notation will be assigned to a naval vessel that is intended to operate in higher-threat environments, and whose primary mission generally involves the conveyance of military personnel and/or other craft (e.g., aircraft, helicopters, landing craft) to and within a theater of operations. Typical vessels covered under this type are conventional powered (non-nuclear) aircraft carriers, helicopter carriers, amphibious assault vessels, and amphibious support vessels.

9.5 Naval Support

The **NAVAL SUPPORT** notation will be assigned to a naval vessel that is intended to operate in lower-threat environments, for example in escort duties or in Economic Exclusion Zone (EEZ) protection, or where threat has been reduced through other means. Typical vessels covered under this type are for combat support (fleet replenishment, landing ships), logistic support (supply, replenishment), and mine warfare (mine hunters, mine sweepers).

9.7 Coast Guard

The **COAST GUARD** notation will be assigned to a Coast Guard vessel whose primary mission is maritime safety, mobility, law enforcement, environmental protection and local or national security or defense. Typical vessels covered under this type are cutters, patrol boats, buoy tenders and icebreakers; and such will be appended as a further descriptor of the specific vessel type.

9.9 Naval Craft

The **NAVAL CRAFT** notation will be assigned to a naval vessel that is intended for higher-speed, shorter-range operations, for example in coastal areas. Typical vessels covered under this type are patrol craft and fast attack craft. [ABS should be consulted prior to application or use of this Guide for smaller vessels that operate at high speed; depending upon speed and length, the *ABS Guide for Building and Classing High Speed Naval Craft*, or portions of it, may be preferred or required in lieu of the classification requirements in this Guide.] This notation may also have additional descriptors added such as **COASTAL** or **RIVERINE**.

9.9.1 Coastal Craft

The **COASTAL** notation is to be assigned to a craft that is intended to operate on a coastal voyage with a maximum distance from safe harbor of 300 miles and a maximum voyage of 150 miles from a safe harbor when operating in the Winter Seasonal Zones as indicated in Annex II of the International Conference on Load Lines, 1966. Coastal Craft are not permitted to perform transoceanic movements.

9.9.2 Riverine Craft

The **RIVERINE** notation is to be assigned to a craft that is intended to operate in rivers, harbors, and coast lines with a maximum distance from safe harbor of 50 miles. Riverine Craft are not permitted to perform transoceanic movements.

9.11 Government Special Purpose

The **GOVERNMENT SPECIAL PURPOSE** notation will be assigned to a Government vessel not otherwise addressed above whose primary mission is maritime safety, mobility, law enforcement, environmental protection and local or national security or defense. Typical vessels covered under this type are border patrol boats, local harbor authority patrol boats, etc.; and such will be appended as a further descriptor of the specific vessel type.

11 Service Route

See 1-1-3/7 of the *ABS Rules for Conditions of Classification (Part 1)*.

13 Optional Notations

The optional notations available for naval vessels are identified in Part 6. The notations mentioned below are also optional but are mentioned here for early awareness to end users of this Guide; these notations involve global analyses of the vessel and, if elected, should be planned for and decided upon early in the acquisition process.

13.1 Dynamic Loading Approach (SH-DLA)

Vessels which have been built to plans reviewed in accordance with an acceptable procedure and criteria for calculating and evaluating the behavior of hull structures under dynamic loading conditions, in addition to full compliance with other requirements of the Rules or Guides, will be classed and distinguished in the *Record* by the notation **SH-DLA** placed after the appropriate hull classification notation. The application of the dynamic loading approach is optional. See Section 3-2-20 for details.

13.3 Spectral Fatigue Analysis (SFA)

In addition to full compliance with other requirements of the Rules or Guides, where a spectral fatigue analysis is performed satisfactorily in accordance with an acceptable procedure and criteria, and the vessel is built in accordance with plans approved on the basis of the results of such analysis, the vessel will be distinguished in the *Record* by the notation **SFA (year)**. The notation denotes that the designated fatigue life value is equal to 20 years or greater. The **(year)** will reflect the designated fatigue life, equal to 20 years or more (in 5-year increments) as specified by the applicant. See Section 3-2-20 for details.

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SECTION 4 Rules for Classification

1 Selection of Rules and Guides

The appropriate edition of ABS Rules and Guides to apply for classification is, in general, based on the contract date for construction between the shipbuilder and the prospective Owner (e.g., Rules and Guides which became effective on 1 July 2014 are not applicable to a vessel for which the contract for construction was signed on 30 June 2014) and is to be specified in the ABS Request For Class Agreement.

References are made throughout the Guide to various documents without year notations. In such cases, the edition of any contained references to other ABS Rules or Guides or to national or international standards is to be taken as the edition that was in effect on the effective date of the ABS Rules or Guide to which the vessel will be classed, unless the client or Naval Administration requests or proposes that a more recent edition of such referenced standards be applied and ABS agrees the more recent edition is acceptable.

3 Novel Features

Guidance for the special consideration of novel features is available in the *ABS Guidance Notes on Risk Assessment Application for the Marine and Offshore Oil and Gas Industries* and the *ABS Guidance Notes on Review and Approval of Novel Concepts*. The same would apply in the case of new technology that the Rules or Guides may not yet address. In all such cases, ABS should be consulted with regard to proper application of the Rules and Guides.

5 International Standards

The Committee will consider special arrangements or details of hull, equipment or machinery which can be shown to comply with recognized international standards provided they are proven to be not less effective than the Rules or Guides.

7 Naval Administration Standards

The Committee will consider special arrangements or details of hull, equipment or machinery which can be shown to comply with standards recognized by the Naval Administration of the country in which the vessel is registered, provided they are proven to be no less effective than the Rules or Guides.

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SECTION 5 Other Regulations

1 International Conventions or Codes

Upon request of the Naval Administration, ABS will survey a new or existing vessel for compliance with the provisions of the International Conventions and Codes in 1-1-5/3 of the *ABS Rules for Conditions of Classification (Part 1)*, and certify thereto in the manner prescribed in the Convention or Code.

Where applicable, the IACS Unified Interpretations for each International Convention and Code will be applied as recognized interpretations for plan approval and survey, unless the Naval Administration provides interpretations and they are found to be no less effective than those given by IACS.

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SECTION 6 Naval Administration Requirements

1 Ship Specifications

Ship specifications capture Naval Administration requirements that are contractually passed to designers and builders and may be written in terms of performance level specifications, system level specifications, detail level specifications, or a combination of these. Typically included (if not called out directly in the body of the contract) will be the Naval Administration requirement to the designer or builder to obtain Classification and various certifications required from other Certification Authorities, along with additional technical requirements the Naval Administration may have for specific systems, equipment, or materials. Those developing and approving ship specifications are responsible for avoiding conflict with the requirements in the Rules and Guides. Where uncertainty exists on the potential for conflict, ABS should be consulted to ensure the Rules and Guides are being properly applied and interpreted.

With respect to classification, any additional requirements contained in ship specifications that relate to systems, equipment or materials that are addressed by the Rules and Guides are treated as follows.

- Where such requirements are found by ABS to be less effective than the Rules or Guides, the requirements in the Rules or Guides must be met in order to obtain ABS Classification.
- Where such requirements are considered to be equivalent, they may be accepted as such by ABS as an alternative to the requirements in the Rules or Guides, provided additional data or analysis, if necessary, is submitted for review to document the technical justification for such acceptance.
- Where such requirements do not conflict with and are merely in excess of the requirements in the Rules or Guides, they are considered Owner's requirements and not addressed by the verification activities conducted by ABS for vessel classification, they are subject to such verification as deemed necessary by the Owner. However, ABS can include verification of these additional requirements if specifically requested as Statement of Fact certifications and indicated as such in the ABS Request For Class Agreement, and provided any special criteria that may be needed regarding their verification is provided to ABS.

Specifications are not generally required to be submitted; where required with respect to certain systems and equipment, they are included in the listing of plans and data to be submitted for same.

3 Equipment Specifications

The Request For Class Agreement includes the requirement that ABS be informed of all equipment and materials for the vessel that will be procured from sources outside the builder. Equipment procurement specifications are typically generated based on the ship specifications to provide equipment manufacturers and suppliers the associated technical details and performance requirements, but may also contain further additional requirements to address integration or interface needs not addressed in the ship specifications. Those developing and approving procurement specifications are responsible for avoiding conflict with the requirements in the Rules and Guides. Where uncertainty exists on the potential for conflict, ABS should be consulted to ensure the Rules and Guides are being properly applied and interpreted.

With respect to ABS certification of equipment or materials, any additional requirements contained in procurement specifications that relate to systems, equipment or materials that are addressed by the Rules and Guides are treated as follows.

- Where such requirements are found by ABS to be less effective than the Rules or Guides, the requirements in the Rules or Guides must be met in order to obtain ABS certification
- Where such requirements are considered to be equivalent, they may be accepted as such by ABS as an alternative to the requirements in the Rules or Guides, provided additional data or analysis, if necessary, is submitted for review to document the technical justification for such acceptance
- Where such requirements do not conflict with and are merely in excess of the requirements in the Rules or Guides, they are considered Owner's requirements and not addressed by the verification activities conducted by ABS for equipment/material certification, they are subject to such verification as deemed necessary by the Owner; however, ABS can include verification of these additional requirements if specifically requested by the manufacturer/supplier as Statement of Fact certifications, and provided any special criteria that may be needed regarding their verification is provided to ABS

Specifications are not generally required to be submitted; where required with respect to certain systems and equipment, they are included in the listing of plans and data to be submitted for same.

5 Design Considerations

Due to the unique nature of the operational missions of naval vessels, there are design considerations that are addressed by Naval Administration requirements with regard to operational scenarios and threat environments unique to naval vessels and are not directly addressed by classification requirements or the verification activities associated with classification. Such design considerations include aspects related to survivability, shock, signatures, weapons operations, aircraft operations, communications, underway replenishment, and various types and degrees of protection of certain spaces and systems to ensure their continued operation after damage or a threat event. Classification requirements provide a certain inherent level of protection from fire, collision, grounding, flooding, weapon-firing effects, etc.

In addition to requirements to address above water threats, below water threats, and other combat mission related capabilities and systems, the Naval Administration requirements will also identify desired margins to be incorporated into the design to account for normal growth expected during design and build, or for planned growth to account for future upgrades or to accommodate changes to mission capabilities throughout the service life of the vessel. Such margins typically are in terms of space, weight, volume, equipment ratings, power generation, power distribution, cooling, etc.

These design considerations translate into system features, system performance, material selections, fabrication and welding details, and other aspects that are inherent to the final overall design. All such additional requirements of the Naval Administration are to be accounted for, as appropriate, in the plans and data required to be submitted for classification.

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SECTION 7 Submission of Plans

1 Units

This Guide is written in three systems of units, viz., SI units, MKS units and US customary units. Each system is to be used independently of any other system. Unless indicated otherwise, the format of presentation in this Guide of the three systems of units is as follows:

SI units (MKS units, US customary units)

3 Hull Plans

Plans showing the scantlings, arrangements, and details of the principal parts of the hull structure of each vessel to be built under survey are to be submitted and approved before the work of construction is commenced. These plans are to indicate clearly the scantlings and the details of welding, and they are to include such particulars as the design draft and design speed. Where provision is to be made for any special type of cargo or for any exceptional conditions of loading, whether in ballast or with cargo, particulars of the weights to be carried and of their distribution are also to be given.

Naval vessels, especially combatants, are subject to specific mission loads or other global or local loads due to mission systems or threat protection features required to address combat operation needs such as design for shock, ballistic protection, signature reduction, etc. For such vessels, the plans submitted are to reflect scantlings and structural arrangements and details that, in addition to the requirements for classification, have already taken into account these and similar design considerations regarding structural adequacy and performance required of the vessel, but is not required for or addressed by class.

5 Machinery Plans

Plans showing the boilers, main propulsion engines, reduction gears, shafting and thrust bearing foundations (including holding-down bolts), machinery general arrangement, installation and equipment are to be submitted and approved before manufacturing, fabrication or construction, and before proceeding with work regarding modifications or alterations to previously approved systems or equipment. In addition, a Ship Equipment List comprising a listing of all items that are to be fitted on the ship, including the item label, model/type, and manufacturer, is to be submitted.

Naval vessels, especially combatants, are subject to specific mission loads and have installed systems unique to such vessels for threat protection or features required to address combat operation needs such as design for shock, CBR attack, signature reduction, etc. Some unique systems are addressed in the Guide while others (referred to in the Guide as mission systems) are not addressed by classification requirements; however, they do rely upon ship systems for power, cooling, passive and active firefighting, etc.

Plans for mission systems are not required to be submitted; however, the plans required by the Guide are to include information adequate to assess the loads and demands such systems place on ship systems and allow for proper evaluation of the dependencies and interfaces between ship systems and mission systems.

ABS should be consulted prior to application or use of this Guide to ensure systems are properly identified as ship systems or mission systems and to clarify what constitutes the points of interface between them. Classification requirements apply to ship systems up to the point of interface with mission systems in terms of both the functional and physical interface. To meet the intent of the Rules, such interfaces are normally best determined by first identifying the functional interface, then the physical interface.

7 Integrated Test Plan

An Integrated Test Plan (ITP) is to be submitted for review that documents the overall structure and objectives of the test and evaluation (T&E) program and includes a comprehensive listing and schedule of inspections and tests to be conducted with regard to vendor facilities, shipyard fabrication shop testing, ship installation testing, operational testing, and all T&E conducted during sea trails. Inspections and tests that require ABS Surveyor attendance are to be indicated as such.