



## CLASSIFICATION SOCIETIES – WHAT, WHY and HOW?



*Leading the way: dedicated to safe ships and clean seas, IACS members make a unique contribution to maritime safety and regulation through technical support, compliance verification and research and development. More than 90% of the world's cargo carrying tonnage is covered by the classification design, construction and through-life compliance rules and standards set by the eleven Member Societies of IACS.*

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The members of IACS

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photos: surveyors © ABS, others © Colin Wright

Corr Aug 2005, Jan 2006, Feb 2007, Sept 2008  
Nov 2009 - name change of RINA, p 21  
June 2010 – Associate status deleted and IRS added as Member.

## **Introduction**

### **Classification societies today**

Classification societies are organizations that establish and apply technical standards in relation to the design, construction and survey of marine related facilities including ships and offshore structures.

The vast majority of ships are built and surveyed to the standards laid down by classification societies.

These standards are issued by the classification society as published rules. A vessel that has been designed and built to the appropriate rules of a society may apply for a certificate of classification from that society. The society issues this certificate upon completion of relevant classification surveys.

Such a certificate does not imply, and should not be construed as an express warranty of safety, fitness for purpose or seaworthiness of the ship. It is an attestation only that the vessel is in compliance with the standards that have been developed and published by the society issuing the classification certificate.

More than 50 organizations worldwide define their activities as providing marine classification. Eleven of those organizations form the International Association of Classification Societies (IACS). It is estimated that these eleven societies collectively class about 94 percent of all commercial tonnage involved in international trade worldwide. A listing of the IACS member societies is provided in appendix 2.

Classification is one element within a network of maritime safety partners. Other elements are parties such as the shipowner, the shipbuilder, the flag State, port States, underwriters, shipping financiers, and charterers among others.

The role of classification and classification societies has been recognized in the International Convention for the Safety of Life at Sea, (SOLAS) and in the 1988 Protocol to the International Convention on Load Lines. This statutory role is addressed later in this note.

As an independent, self-regulating, externally audited, body, a classification society has no commercial interests related to ship design, ship building, ship ownership, ship operation, ship management, ship maintenance or repairs, insurance, or chartering. In establishing its rules, each classification society may draw upon the advice and review of members of the industry who are considered expert in their field.

Classification rules are developed to assess the structural strength and integrity of essential parts of the ship's hull and its appendages, and the reliability and the function of the propulsion and steering systems, power generation and those other features and auxiliary systems which have been built into the ship in order to maintain essential services on board. Classification rules are not intended as a design code and in fact cannot be used as such.

A ship built in accordance with an IACS Member's rules will be assigned a class designation by the society on satisfactory completion of the relevant surveys. For ships in service, the society carries out surveys to ascertain that the ship remains in compliance with those rules. Should any defects that may affect class become apparent, or damages be sustained between the relevant surveys, the ship owner and operator are required to inform the society concerned without delay.

A ship is maintained in class provided that the relevant rules have, in the opinion of the society concerned, been complied with and surveys carried out in accordance with its rules.

Classification societies also maintain significant research departments that contribute towards the on-going development of appropriate, advanced technical standards.

### **Why is it called classification?**

In the second half of the 18<sup>th</sup> century, marine insurers, based at Lloyd's coffee house in London, developed a system for the independent inspection of the hull and equipment of ships presented to them for insurance cover. In 1760 a Committee was formed for this express purpose, the earliest existing result of their initiative being *Lloyd's Register Book* for the years 1764-65-66.

At that time, an attempt was made to 'classify' the condition of each ship on an annual basis. The condition of the hull was classified A, E, I, O or U, according to the excellence of its construction and its adjudged continuing soundness (or otherwise). Equipment was G, M, or B: simply, good, middling or bad. In time, G, M and B were replaced by 1, 2 or 3, which is the origin of the well-known expression 'A1', meaning 'first or highest class'.

The concept of classification caught on around the world. Bureau Veritas (BV) was founded in Antwerp in 1828, moving to Paris in 1832. 'Lloyd's Register of British and Foreign Shipping' was reconstituted as a self-standing 'classification society' in 1834; rules for construction and survey were published the same year.

RINA (RINA) dates from 1861; American Bureau of Shipping (ABS) traces its origins back to 1862. Adoption of common rules for ship construction by Norwegian insurance societies in the late 1850s led to the establishment of Det Norske Veritas (DNV) in 1864. Germanischer Lloyd (GL) was formed in 1867 and Nippon Kaiji Kyokai (ClassNK) in 1899. The Russian Maritime Register of Shipping (RS) was an early offshoot of the River Register of 1913. More recent foundations have been Yugoslav Register of Shipping (now the Croatian Register of Shipping (CRS)) in 1949, China Classification Society (CCS), 1956; Korean Register (KR), 1960; and Indian Register of Shipping (IRS), 1975.

As the classification profession evolved, the practice of assigning different classifications has been superseded, with some exceptions. Today a ship either meets the relevant class society's rules or it does not. As a consequence it is either 'in' or 'out' of 'class'. However, each of the classification societies has developed a series of notations that may be granted to a vessel to indicate that it is in compliance with some additional criteria that may be either specific to that vessel type or that are in excess of the standard classification requirements.

### **The International Association of Classification Societies - IACS**

IACS can trace its origins back to the International Load Line Convention of 1930 and its recommendations. The Convention recommended collaboration between classification societies to secure "*as much uniformity as possible in the application of the standards of strength upon which freeboard is based...*".

Following the Convention, RINA hosted the first conference of major societies in 1939 - also attended by ABS, BV, DNV, GL, LR and NK - which agreed on further cooperation between the societies.

A second major class society conference, held in 1955, led to the creation of Working Parties on specific topics and, in 1968, to the formation of IACS by seven leading societies. The value of their combined and unique level of technical knowledge and experience was quickly recognised. In 1969, IACS was given consultative status with IMO. It remains the only non-governmental organization with Observer status which is able to develop and apply rules.

Compliance with the IACS Quality System Certification Scheme (QSCS) is mandatory for IACS Member status.



IACS is governed by a Council, with each Member represented by a high management figure.

Under the Council is the General Policy Group (GPG), made up of a senior management figure from each Member, which develops and implements actions giving effect to the policies, directions and long term plans of Council. The chair of GPG is taken by the Member holding the Council chair.

The bedrock of IACS members' work is the recognition that Classification Societies live on their reputation. Acceptance of their technical work can only be maintained by continuously proving integrity and competence. Competition between Societies must be on the basis of services (technical and field) rendered to the marine industry - it must not lead to compromises on safety of life and property at sea or to the lowering of technical standards.

## **Classification**

### **Scope of classification**

Implementing the published rules, the classification process consists of:

- A technical review of the design plans and related documents for a new vessel to verify compliance with the applicable rules;
- Attendance at the construction of the vessel in the shipyard by a classification society surveyor(s), and at the relevant production facilities that provide key components such as the steel, engine, generators and castings, to verify that the vessel is constructed in accordance with the classification rules;
- Upon satisfactory completion of the above, the shipowner's request for the issuance of a class certificate will be considered by the relevant classification society and, if deemed satisfactory, the assignment of class will be approved and a certificate of classification issued;
- Once in service, the owner must submit the vessel to a clearly specified program of periodical class surveys, carried out onboard the vessel, to verify that the ship continues to meet the relevant rule conditions for continuation of class.

Class rules do not cover every piece of structure or item of equipment on board a vessel, nor do they cover operational elements. Activities which generally fall outside the scope of classification include such items as: design and manufacturing processes; choice of type and power of machinery and certain equipment (e.g. winches); number and qualification of crew or operating personnel; form and cargo carrying capacity of the ship and manoeuvring performance; hull vibrations; spare parts; life-saving appliances and maintenance equipment. These matters may however be given consideration for classification according to the type of ship or class notation(s) assigned.

It should be emphasized that it is the shipowner who has total control over a vessel, including the manner in which it is operated and maintained. Classification is voluntary and its effectiveness depends upon the shipowner, and other interests, operating in good faith by

disclosing to the class society any damage or deterioration that may affect the vessel's classification status. If there is the least question, the owner should notify class and schedule a survey to determine if the vessel is in compliance with the relevant class standard.

A class surveyor may only go on board a vessel once in a twelve-month period. At that time it is neither possible, nor expected that the surveyor scrutinize the entire structure of the vessel or its machinery. The survey involves a sampling, for which guidelines exist based upon empirical experience which may indicate those parts of the vessel or its machinery that may be subject to corrosion, or are exposed to the highest incidence of stress, or may be likely to exhibit signs of fatigue or damage.

### **Assignment, maintenance, suspension and withdrawal of class**

Class is assigned to a ship upon the completion of satisfactory surveys, undertaken in order to check compliance with the rules of the society, at the time of newbuilding. Specific procedures apply when an existing ship is transferring from one class society to another.

Classed ships are subject to surveys to continue in class. These surveys include the class renewal (also called "special survey"), intermediate survey, annual survey, and bottom/docking surveys of the hull. They also include tailshaft survey, boiler survey, machinery surveys and, where applicable, surveys of items associated with the maintenance of additional class notations.

The surveys are to be carried out in accordance with the relevant class requirements in order to confirm that the condition of the hull, machinery, equipment and appliances is in compliance with the applicable rules.

The classification of a ship is based on the understanding that the ship is loaded, operated and maintained in a proper manner by competent and qualified crew or operating personnel. It is the owner's responsibility to ensure proper maintenance of the ship until the next survey required by the rules. It is the duty of the owner, or its representative, to inform the Society of any events or circumstances affecting the class.

Where the conditions for the maintenance of class are not complied with, class will be suspended, withdrawn or revised to a different notation, as deemed appropriate by the society when it becomes aware of the condition. The ship may lose its class either temporarily or permanently. In the former case it is referred to as "suspension" of class; in the latter case as "withdrawal" of class. In the case of surveys that are not carried out within the specified time frame, or if the vessel is operated in a manner that is outside its classification designation, the suspension may be automatic.

### **Classification surveys**

A classification survey is a visual examination that normally consists of:

- an overall examination of the items for survey,
- detailed checks of selected parts,
- witnessing tests, measurements and trials where applicable.

When a surveyor identifies corrosion, structural defects or damage to hull, machinery and/or any piece of its equipment which, based on the society's rules and in the opinion of the surveyor, affects the ship's class, remedial measures and/or appropriate recommendations/conditions of class are specified in order to retain class.

'Recommendation' and 'condition of class' are synonymous terms used by IACS societies for requirements that specific measures, repairs, request for surveys etc., are to be carried out by the owner within a specified time period in order to retain class.

Each classed vessel is subject to a specified program of periodic surveys after delivery. These are based on a five-year cycle and consist of annual surveys, an intermediate survey and a class renewal/special survey (held every 5 years). The rigor of each specified survey increases with the age of the vessel.

The class renewal surveys/special surveys include extensive in-water and out-of-water examinations to verify that the structure, main and essential auxiliary machinery, systems and equipment of the ship remain in a condition which satisfies the rules. The examination of the hull is supplemented, when specified, by ultrasonic thickness measurements and the witnessing of tests as specified in the rules and as deemed necessary by the attending surveyor. The survey is intended to assess whether the structural integrity remains effective and to identify areas that exhibit substantial corrosion, significant deformation, fractures, damages or other structural deterioration.

Depending upon the age, size, type and condition of the vessel, the renewal/special survey may take several weeks to complete.

The intermediate survey (held approximately half way between special surveys) includes examinations and checks as specified in the rules to determine whether the ship remains in a general condition which satisfies the rule requirements. According to the type and age of the ship, drydocking may be required and the examinations of the hull may be supplemented by ultrasonic thickness measurements as specified in the rules and where deemed necessary by the attending surveyor.



At the time of annual surveys, the ship is generally examined. The survey includes an external, general inspection of the hull, equipment and machinery of the ship and some witnessing of tests, so far as is necessary and practical in order to determine whether the ship remains in a general condition which satisfies the rule requirements. Older ships of certain types may also be subject to a general examination of some specified internal areas of the hull. Depending upon the age, size, type and condition of the vessel, an annual survey may take from several hours to a few days to complete.

## **Statutory certification of ships**

### **Framework**

The United Nations Convention on the Law of the Sea (UNCLOS) is an umbrella convention concerned with many aspects of the sea and its uses, including the granting of registration of a ship by a State. Once a ship is registered, the flag State has certain duties laid out in UNCLOS. In particular, under Article 94, the flag State must *“effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag”* and take *“such measures for ships flying its flag as are necessary to ensure safety at sea.....”*

International Conventions have been agreed, setting out uniform standards to facilitate acceptance of a ship registered in one country in the waters and ports of another and in the general furtherance of safety at sea and protection of the environment. These standards are commonly referred to as ‘statutory’ requirements. Broadly, they cover three distinct areas:

1) Aspects of the ship’s design and its structural integrity – load line and stability in the intact and damaged condition, essential propulsion, steering equipment, etc.;

- 2) Accident prevention, including navigational aids and pollution and fire prevention;
- 3) The situation after an accident (fire, flooding) including containment and escape.

Some or all of these may also be reproduced in a particular class society's rules.

SOLAS Ch II-1, Reg 3-1 states that, in addition to the requirements of the other (SOLAS) regulations, ships shall be designed, constructed and maintained in compliance with the structural, mechanical and electrical requirements of a classification society which is recognised by the Administration in accordance with the provisions of regulation XI/1 (see below), or with applicable national standards of the Administration which provide an equivalent level of safety.

Where the classification survey result is taken as evidence of compliance with the corresponding statutory requirement, e.g. load line or safety construction (hull, machinery, boilers, electrical equipment, etc.), this survey is de facto given the status of a statutory survey on behalf of the flag Administration, if the society is acting as its recognised organization in this respect.

When a ship is suspended or withdrawn from class, IACS members notify the flag Administration concerned and publish the information e.g. on its website. As a consequence, the flag Administration generally invalidates the statutory certificates concerning construction and equipment.

### **Recognised Organizations**

SOLAS and the other International Conventions permit the flag Administration to delegate the inspection and survey of ships to a Recognised Organization (RO). The organization is empowered to require repairs or other corrective action to a ship and in most cases, to withdraw or invalidate the relevant certificate if the necessary action is not taken (e.g. SOLAS Chapter I, Reg 6).



IMO Resolution A 739(18) lays down minimum standards for ROs. Fundamentally it requires the organization to demonstrate its technical competence and to be governed by the principles of ethical behaviour. The RO should be subject to the certification of its quality system by an independent body of auditors accepted by the Administration.

Together with IMO Resolution A.789(19), which presents specifications on the survey and certification functions of ROs, these resolutions provide the criteria and framework to which a flag must be satisfied that their RO's meet. IACS Members have been found to meet resolutions A.739(18) and A.789(19) by all of the Administrations (approximately 100) that are Parties to SOLAS.

The RO is responsible and accountable to the flag Administration for the work that it carries out on its behalf. The principles of the inspection and survey work are the same as in respect of classification surveys, that is, the verification by the RO that a ship is in compliance with applicable requirements at the time of the survey. The scope of these inspections and surveys regarding safety and pollution prevention are laid down by the relevant international conventions to which the Government is a signatory, together with additional instructions that may be issued by the flag Administration.

The statutory regulations build on the classification foundation. Classification rules are a vital part of the statutory legislation. A holistic approach to the constructional safety of the ship

benefits from one organization verifying compliance with both statutory and class requirements. A key lesson from other regulated industries is that inspection/verification should be undertaken by as few parties as possible - reducing unnecessary interfaces which could lead to breakdowns in the system.

Thus, as a matter of policy IACS members do not undertake 'statutory' work on ships that they do not themselves class. The significant exception to this policy is ISM and International Ship and Port Facility Security (ISPS) Code certification where it may be efficient for a Company to implement a common Safety Management System (SMS) or Ship Security Plan (SSP) on a fleet basis as that fleet may be classed by more than one society. However, systems are in place for the classing society to inform the owner, the ISM certifying society and/or the flag Administration in cases where there is serious reason to doubt the continuing effectiveness of the SMS (IACS Procedural Requirement 17 - Routine and Ad Hoc Reporting by Surveyors of Evidence of Possible Safety Management System Failures). A similar approach is being taken in respect of ISPS certification.

## **Development of Rules and Regulations**

### **Historical development**

Classification rules have been developed over many years by each society through extensive research and development and service experience. In addition, certain Unified Requirements have been agreed by IACS members and transposed into the individual members' rules.

As mentioned above, 'statutory' requirements have been developed at IMO and where necessary, Unified Interpretations of them are adopted by IACS.

A note on Unified Requirements, Unified Interpretations and other IACS resolutions is given later.

### **Future development**

There is always room for improvement in the way rules and regulations are developed and framed. It is anticipated that the IMO will set the top-level goals and levels of risk regarding safety and environmental protection and the class societies enact rules to achieve these goals, within their sphere of activity.

Present class rules do, of course, have goals built in, but these are not always transparent.

The aim is to develop a new and transparent regulatory framework, initially focused on hull structures and representing a significant change to the current complex system of statutory international and national regulations, classification rules and industry standards.

The basic principle is to establish clear, demonstrable and verifiable goals to the effect that a properly built, operated and maintained ship remains safe and environmentally friendly for its whole life. This goal-based standards approach aims at moving the regulatory framework from a culture of compliance, governed by prescriptive rules, to a culture of benchmarking, backed by functional risk-based requirements. It will move from given prescriptive solutions to goals that can be achieved by alternative designs at an equivalent level of safety, promoting technology innovations within the shipping industry.



Once the framework for goal-based standards is set at the IMO, it will be the role of IACS, as technical experts, to provide rules to support these goals, and these rules will be "common" to all IACS societies.

Common Rules for hull structures of oil tankers and bulk carriers were adopted in December 2005 for implementation on 1 April 2006. This was a most ambitious and expensive project and one of the most important single steps in the development of maritime rules that IACS has ever been involved with. The Rules can be downloaded from the IACS website.

## **IACS resolutions**

### **General**

In addition to the common rules projects, IACS resolutions on technical or procedural matters may be developed, generally through specialist working groups overseen by the General Policy Group (GPG).

The principal categories of resolution are listed below and may be found on the IACS website, and in the so-called "Blue Book" CD-ROM:

### **Unified Requirements**

Unified Requirements (UR) are resolutions on matters directly connected to or covered by specific rule requirements and practices of classification societies and the general philosophy on which the rules and practices of classification societies are established.

Subject to ratification by the governing body of each Member Society, URs are to be incorporated in the rules and practices of the Member Societies within one year of approval by the IACS Council. The existence of a UR does not oblige a Member Society to issue respective rules if it chooses not to have rules for the type of ship or marine structure concerned.

URs set forth minimum requirements. Each Member remains free to set more stringent requirements.

## Unified Interpretations

Unified Interpretations (UI) are resolutions on matters arising from implementing the requirements of IMO Conventions or Recommendations. They provide uniform interpretations of Convention Regulations or IMO Resolutions on those matters which in the Convention are left to the satisfaction of the Administration or where more accurate wording has been found necessary.

Interpretations are circulated to Administrations through submission to IMO for consideration, as appropriate.

Interpretations are to be applied by Member Societies under the authority of the flag Administrations, to the ships registered by those flag Administrations which have not issued definite instructions on the interpretation of the Regulations concerned. A date for implementation by IACS Members is established for each UI, unless the Administration has issued instructions to the contrary.

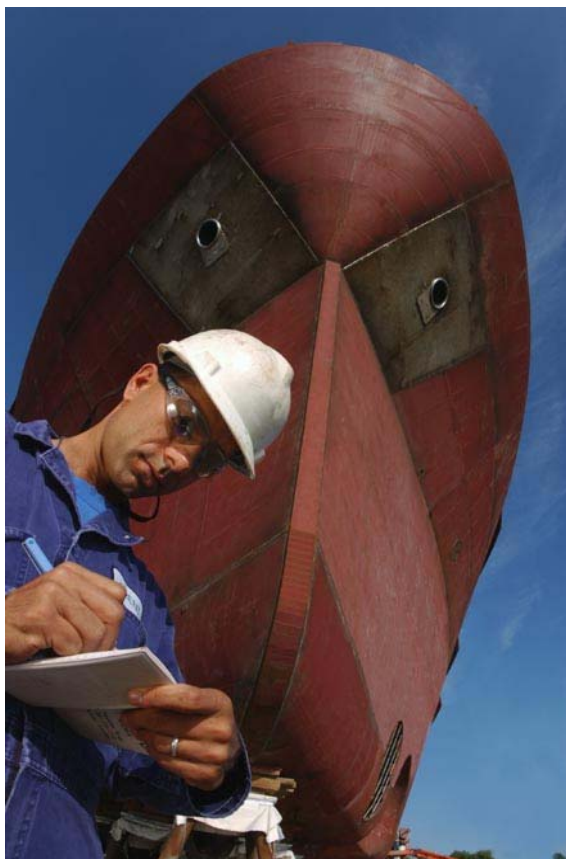
## Recommendations

Recommendations (Rec) are resolutions, not necessarily matters of class, on which IACS considers advice would be beneficial to the industry.

## Procedural Requirements

Procedural Requirements (PR) are mandatory resolutions on matters of procedures to be followed by Members.

## Surveyors



### Qualities and qualifications

A memorandum of 1834 has not been bettered:

*“The utmost care and discrimination have been exercised by the Committee in the selection of men of talent, integrity, and firmness as Surveyors, on whom the practical efficacy of the system and the contemplated advantages must so materially depend; the Committee have in their judgement appointed those persons only...who appeared to them to be most competent to discharge the important duties of their situations with fidelity and ability, and to ensure strict and impartial justice to all parties whose property shall come under their supervision.”*

Today, the training, qualification and monitoring of surveyors and auditors is governed by IACS Procedural Requirements, with the same aim in mind.

## **Appendix 1 – the language of classification and surveys**

### **Classification notations**

Classification notations are indicative of the specific rule requirements which have been met. Depending on the classification society, the classification notations are assigned to the ship according to ship type, service, navigation and/or other criteria which have been provided by the owner and/or builder, when requesting classification.

Classification notations assigned to a ship are indicated on the certificate of classification as well as in the Register of Ships published by the society. These notations can be generalized by the following types which may be used in combination:

- main class symbol
- construction marks
- service notations with additional service features, as applicable
- navigation notations
- geographic notations
- additional class notations

#### **Class symbol**

The main class symbol expresses the degree of compliance of the ship with specific rule requirements regarding its construction.

#### **Construction mark**

The construction mark, when assigned, identifies the procedure under which the ship and its main equipment or arrangements have been surveyed for initial assignment of the class.

#### **Service notations**

The service notations, when assigned, define the type and/or service of the ship which has been considered for its classification.

A ship may be assigned several different service notations. In such case, the specific rule requirements applicable to each service notation will have been complied with.

#### **Navigation and operating area notations**

##### **Navigation notations**

Some classification societies define limiting areas for navigation (e.g. high seas, coastal waters, and sheltered waters), and/or limiting environmental conditions for certain types of ships and marine structures.

The assignment of restricted navigation notations may include the reduction of scantlings or specific arrangements.

The assignment of a navigation notation by classification societies does not dispense the owner from compliance with any applicable international and/or national regulations established by the Administrations for ships operating in national waters, or a specific area, or a navigation zone.

## **Operating or service area notations**

The operating area notation specifies the service area where the ship (e.g. dredgers, crane pontoons, port tugs) can operate as regards its assigned class.

## **Additional class notations**

When assigned, an additional class notation gives details of additional equipment or specific arrangements, which have been specially requested by the owner.

## **Assignment, maintenance, suspension and withdrawal of class**

### **Assignment of class**

Class is assigned to a ship upon the completion of satisfactory surveys, held in order to check compliance with the rules of the society. This assignment may be given in the following cases:

- On completion of the new building, after satisfactory surveys have been performed,
- a satisfactory survey of an existing ship carried out in accordance with the agreement developed by the IACS Member Societies for ships transferring class between members, or
- a satisfactory specific class survey of an existing ship not classed with an IACS society, or not classed at all.

### **Maintenance of class**

Classed ships are subject to surveys for maintenance of class. These surveys include the class renewal (also called “special survey”), intermediate, annual, and bottom/docking surveys (either a survey in dry dock or an in-water survey) of the hull, tailshaft survey, boiler survey, machinery surveys and surveys for the maintenance of additional class notations, where applicable. Such surveys are carried out at the intervals and under the conditions given below.

The surveys are to be carried out in accordance with the relevant requirements in order to confirm that the condition of the hull, machinery, equipment and appliances comply with the applicable rules. It is owner’s duty to ensure that the ship’s maintenance is kept at a satisfactory level in order to maintain the condition between surveys.

The extent of any survey depends upon the condition of the ship and its equipment. In addition to the minimum required extent of surveys specified in the rules, should the surveyor have a doubt as to the lack of maintenance or condition of the ship or its equipment, or be informed by the owner of any deficiency or damage which may affect class, further examination and testing may be conducted as considered necessary.



### **Suspension of class**

The class may be suspended following a decision made by the society when one or more of the following occurs:

- when a ship is not operated in compliance with the rule requirements,

- when a ship proceeds to sea with less freeboard than that assigned,
- when the owner fails to request a survey after having detected defects or damages affecting the class,
- when repairs, alterations or conversions affecting the class are carried out without requesting the attendance of a surveyor.

In addition, class is automatically suspended:

- when the class renewal/special survey has not been completed by its due date or within the time granted in special circumstances for the completion of the survey, unless the ship is under attendance by the society's surveyor(s) with a view to completion prior to resuming trading;
- when the annual or intermediate surveys have not been completed by the end of the corresponding survey time windows.

Suspension of class with respect to the above cases will remain in effect until such time as the due surveys and any other survey deemed appropriate by the society have been completed.

In addition to the circumstances for which automatic suspension may apply, the class of a ship will be subject to suspension procedures following a decision of the society:

- when a recommendation/condition of class is not dealt with within the time limit specified, unless it is postponed before the due date by agreement with the society
- when one or more other surveys are not held by their due dates - or the dates stipulated by the society also taking into account any extensions granted
- when, due to the nature of reported defects, the society considers that a ship is not entitled to retain its class even on a temporary basis (pending necessary repairs or renewals, etc.)
- in other circumstances where the owner fails to submit the ship to a survey in accordance with a special requirement.

In all cases suspension will remain in effect until such time as matters are rectified and the class is reinstated or class is withdrawn.

Depending on the society's procedures, the suspensions of class which are not automatic may take effect either when they are decided by the society or from the date when the conditions for suspension occurred. However once the conditions for class suspension/withdrawal are met and before any decision by the society can be taken, either because the society is not aware of the circumstances (surveys dates, etc. are recorded but not systematically monitored) or because the decision is not yet taken, maintenance of class cannot generally be confirmed by the society during this period.

### **Withdrawal of class**

The society will withdraw the class of a ship when:

- requested by the owner,
- the class has been suspended for more than six months,
- the ship is reported as a constructive total loss and the owner does not give his intentions to repair the ship for re-instatement of class,
- the ship is reported lost
- the ship will not trade further as declared by its owner.

Withdrawal of class takes effect from the date on which the circumstances causing such withdrawal occur or when it is decided.

## **Notification of suspension or withdrawal**

When class is suspended or withdrawn, the society will at the same time:

- inform the owner, flag Administration and underwriters (the latter at their request)
- delete the ship from the Register of Ships
- convey the information to appropriate databases (Equasis, SIRENaC, etc.)

## **Surveys – an overview of requirements and certification**

### **Definitions and procedures related to classification surveys**

#### **Period of certificate of class**

The period of the certificate of class starts either from the date of initial classification, or from the credited date of the last class renewal/special survey, and expires at the due date assigned for the next class renewal/special survey.

Note: The due date is the end of the time window for that survey.

#### **Anniversary date**

The anniversary date is the day and the month given in the certificate of class which corresponds to the expiry date of the certificate.

#### **Survey time window**

The survey time window is the fixed period during which the annual and intermediate surveys are to be carried out.

#### **Overdue surveys**

Each periodical survey is assigned a due date specified by the relevant rules by which it is to be completed.

A survey becomes overdue when it has not been completed by its due date. For example:

Anniversary date: 15th April

The annual survey can be validly carried out from 16th January to 15th July. If not completed by 15th July, the annual survey becomes overdue and class will be suspended automatically.

#### **Recommendations/Conditions of Class**

'Recommendation' and 'Condition of Class' are different terms used by IACS societies for the same thing and are those requirements imposed by the society which will affect the class if not complied with by the assigned due date.

#### **Memoranda**

Other information of assistance to the surveyor and owners may be recorded as 'memoranda' or a similar term. They may, for example, include notes concerning materials, barred engine speed ranges and other constructional information. A memorandum may also define a structural condition which, though deviating from the technical standard, does not affect the class (e.g. slight indents in the shell, which do not have an effect upon the overall strength of the hull, or minor deficiencies, which do not affect the operational safety of the machinery).

In addition, memoranda could define recurring survey requirements, such as annual survey of specified spaces, or retrofit requirements, which have the de-facto effect of conditions of class.

Specific questions in relation to the meaning of memoranda / recommendations / conditions of class are to be addressed to the classification society concerned through the owner of the ship.

### **Periodical surveys, periodicity and scope**

#### **Class renewal survey / special survey**

Class renewal surveys/special surveys are carried out at five-year intervals. However, consideration may be given by the society, in exceptional circumstances, to granting an extension for a maximum period of three months after the due date. In such cases the next period of class will start from the due date for the previous class renewal survey before the extension was granted.

The special survey may be commenced at the 4th annual survey and be progressed with a view to completion by the 5th anniversary date.

The class renewal surveys/special surveys include extensive examinations to check that the structures, main and essential auxiliary machinery, systems and equipment of the ship remain in a condition which satisfies the rules. The examinations of the hull are generally supplemented by thickness measurements and witnessing of tests as specified in the rules and as deemed necessary by the attending surveyor to assess that the structural integrity remains effective and to help discovering substantial corrosion, significant deformation, fractures, damages or other structural deterioration.

#### **Annual survey**

Annual surveys are to be carried out within a window from three months before to three months after each anniversary date.

At the time of annual surveys, the ship is generally examined. The survey includes an inspection of the hull, equipment and machinery of the ship and some witnessing of tests thereof, so far as is necessary and practical in order to check that the ship remains in a general condition which satisfies the rule requirements.

#### **Intermediate survey**

An intermediate survey is to be carried out within the window from three months before the second to three months after the third anniversary date.

The intermediate survey includes examinations and checks as specified in the rules on the structure to show that the ship is in a satisfactory condition.

According to the type and age of the ship the examinations of the hull are supplemented by thickness measurements as specified in the rules and where deemed necessary by the attending surveyor.

#### **Bottom / Docking survey**

A bottom/docking survey is the examination of the outside of the ship's hull and related items.

This examination may be carried out with the ship either in dry dock (or on a slipway) or afloat: in the former case the survey will be referred to as dry-docking survey, while in the latter case as in-water survey. The conditions for acceptance of an in-water survey in lieu of a dry-docking survey will depend on the type and age of the ship and the previous history.



The outside of the ship's hull and related items are to be examined on two occasions in the five-year period of the certificate of class with a maximum of 36 months between surveys.

One of the two bottom/docking surveys to be performed in the five-year period is to be concurrent with the class renewal/special survey and this bottom/docking survey is to be a dry-docking survey.

For ships subject to the Enhanced Survey Programme (ESP) and 15 years of age and above, the intermediate bottom/docking survey is to be carried out in a dry-dock.

### **Tailshaft survey**

A tailshaft survey is the survey of screwshafts and tube shafts (hereafter referred to as tailshafts) and the stern bearing.

The different types of surveys to which tailshafts may be subjected and the intervals are:

- complete survey
- modified survey
- partial survey

#### **Tailshaft complete survey**

Tailshafts are to be submitted to complete examination at a periodicity based on the type of shaft and its design. "Complete" means that the shaft is drawn up for examination or that other equivalent means of examination are provided.

#### **Tailshaft modified survey**

A modified survey of the tailshaft is an examination which may be accepted at alternate five-yearly surveys for tailshafts provided that the shaft arrangement is in accordance with specific requirements.

#### **Partial survey**

A partial survey allows a postponement of the complete survey, having a periodicity of 5 years, for 2.5 years

### **Boiler surveys**

Boilers and thermal oil heaters are to be surveyed twice in every five-year period. The periodicity of the boiler survey is normally 2.5 years.

Steam boilers, superheaters and economisers are examined internally and externally. To this end, boilers are to be drained and suitably prepared for the examination of the water-steam

side and the fire side. Where necessary, the external surfaces are to be made accessible for inspection by removal of insulation and lining.

Upon completion of the internal survey, the boiler is examined under steam and fuel oil burners and safety devices checked under working conditions.

The setting pressures of safety valves are to be checked. For auxiliary exhaust gas boilers, if steam cannot be raised in port, the Chief Engineer is to set the safety valves at sea and record the setting pressures in the log-book.

### **Non-periodical surveys**

Such surveys are carried out for example:

- to update classification documents (e.g. change of owner, name of the ship, change of flag);
- to deal with damage or suspected damage, repair or renewal work, alterations or conversion, postponement of surveys or recommendations/conditions of class;
- At the time of port State control inspections



In the event of damage which affects or may affect the class of the ship, the owner is to advise the society without delay.

Arrangements are then made at the earliest opportunity for a surveyor to attend and ascertain the extent of the damage and foreseen repairs.

Any damage in association with wastage over the allowable limits (including buckling, grooving, detachment or fracture), or extensive areas of wastage over the allowable limits, which affects or, in the opinion of the surveyor, will affect the vessel's structural, watertight or weathertight integrity, is to be promptly and thoroughly repaired thereby removing the need for the imposition of any associated condition of classification. Otherwise, damages and partial or temporary repairs considered acceptable by the surveyor for a limited period of time are covered by an appropriate recommendation/condition of class.

Damages or repairs required by the surveyor to be re-examined after a certain period of time are also covered by an appropriate recommendation/condition of class.

## **Class certificate**

### **Issue of the certificate of classification**

A certificate of classification, bearing the class notations assigned to the ship and an expiry date, is issued to all classed ships. This certificate may also be provided with annexes supplying information sufficient for the management of the certificate, for determining the class surveys date and for immediate assessment of possible irregularities (overdue recommendations, etc.).

An interim/provisional certificate of classification may serve as a certificate of classification in certain situations when deemed necessary by the society.

## **Validity of the certificate of classification**

A certificate of classification, properly endorsed, is valid until the expiry date unless advised otherwise by the society or there are no grounds for suspension or withdrawal of class.

## **Endorsement of certificate of classification**

When annual and intermediate surveys are satisfactorily completed, the certificate of classification is:

- endorsed for the periodical surveys;
- according to the practice of some societies, endorsed accordingly, with the relevant entries in the appropriate annexes attached to the certificate concerning the recommendations/conditions of class, if any, and/or the surveys held.

Where applicable, memoranda are also endorsed in the appropriate annex.

## **Definitions and procedures related to statutory surveys**

### **General**

The conventions require an initial survey before a vessel is put in service for the first time and then receives its first certificate, and a certificate renewal survey at one, two or five year intervals thereafter, depending on the certificate and type of ship. In addition, for those certificates valid for more than one year, surveys at annual intervals are required, one of which, at approximately half way and termed 'intermediate', may be of greater extent than an ordinary 'annual'. The 'Harmonised System of Survey and Certification' (HSSC) implemented by many Administrations under IMO resolutions A.746(18) and A.882(21), brings all SOLAS (except for passenger ships), MARPOL and Load Line convention surveys into a five-year cycle. With respect of safety equipment surveys, HSSC uses the term 'periodical' instead of 'intermediate', and for radio, 'periodical' instead of 'annual'. These latter take the place of the renewal surveys held under the shorter certificate renewal cycles.



The scope of survey can generally be harmonized with the extents of the classification surveys detailed above and, as far as possible, are held concurrently with them.

The scope of survey, which does not necessarily encompass 100% of the structure, equipment, etc of the ship, is laid down by IMO resolutions and generally increases with age. It is to include sufficiently extensive examinations and checks to show that the structures, main and essential auxiliary machinery, systems and equipment of the ship are in a satisfactory condition and are fit for the service for which the ship is intended insofar as the requirements concerned are met.

Between surveys, the conventions require the flag Administration to make it compulsory for the owner to maintain the ship to conform to the regulations to ensure that the ship will in all respects remain fit to proceed to sea without danger to the ship or persons on board or unreasonable threat of harm to the marine environment.

### **Initial survey**

An initial survey is an inspection of the design and construction of the relevant structure, machinery and equipment of the ship to ensure that it complies with the requirements of the regulations and is fit for the service for which the ship is intended.

### **Renewal survey**

A renewal survey is an inspection of the structure, machinery and/or equipment, as applicable, to ensure that their condition remains in compliance with the requirements of the regulations. Modifications to the ship having a bearing on the conformity of the vessel to the requirements are to be declared by the owner and inspected.

### **Annual survey**

An annual survey, in principle, includes a general inspection of the relevant structure and equipment of the ship to confirm that it has been maintained in accordance with the regulations and remains satisfactory for the service for which it is intended.

### **Intermediate survey**

An intermediate survey is an inspection of specified items relevant to the particular certificate to confirm that they are in satisfactory condition and fit for the service for which the ship is intended. Depending on the certificate concerned and the age of the ship, the scope may range from that of an annual survey to the equivalent of a renewal.

### **Periodical survey**

Periodical surveys generally take the place of renewal surveys for those certificates which previously were renewed after one or two years. However, in the case of a Load Line Certificate which is issued on behalf of, or by, Parties that have not implemented the harmonised system of survey and certification, the five-year renewal survey may be referred to as the 'periodical' survey.

## **Issue of statutory certificates**

### **Authorisation**

Statutory certificates are issued by the RO in accordance with the terms of its recognition by the flag Administration. Variation of the delegation of statutory authority or certificates that can be issued by the RO exists between Administrations. The Administration should be contacted for specific details of the authorization.

### **Issue, endorsement and withdrawal**

A certificate is issued or endorsed after the relevant surveys are passed. A certificate may be issued, valid for a short time period, listing corrective action to be rectified for minor deficiencies which do not prevent the issuance of a certificate to the ship.

For most conventions, the Administration empowers the RO to withdraw or invalidate a certificate if the required corrective action is not taken.

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## Appendix 2

The members of IACS are:

ABS	American Bureau of Shipping
BV	Bureau Veritas
CCS	China Classification Society
DNV	Det Norske Veritas
GL	Germanischer Lloyd
IRS	Indian Register of Shipping
KR	Korean Register of Shipping
LR	Lloyd's Register
NK	Nippon Kaiji Kyokai (ClassNK)
RINA	RINA
RS	Russian Maritime Register of Shipping



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