Nō te rere moana Aotearoa

MARITIME NEW ZEALAND

Surveyor recognition framework

An outline of surveyor and other recognition categories, and the qualifications and experience expected for each.

Survey recognition framework

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In this framework

1. Introduction

Under Maritime Rules Part 44 the Director of Maritime New Zealand (Director) may recognise any suitably qualified person as a surveyor by issuing them with a Certificate of Surveyor Recognition (CoSR).

Issue of a CoSR is conditional on the Director being satisfied that the person is competent and has appropriate technical qualifications and experience.

The Director may also confer certificates of recognition on 'qualified persons' and 'competent persons'. These recognitions allow the persons concerned to undertake certain other types of work relating to ships and ships' equipment, and their scope is defined through various maritime and marine protection rules, other than Rules Part 44.

When issuing a certificate of recognition, the Director will state any conditions that are relevant to the certificate. These conditions may place limits on the types of surveys or inspections that can be undertaken by the surveyor.

This document outlines:

1. the surveyor recognition categories defined by the Director; and
2. the qualifications and experience that the Director considers appropriate for surveyors seeking recognition to perform surveys of a particular category.

Disclaimer:

This document provides information and explanations about the requirements set out in the maritime rules, but are not a substitute for the rules themselves, which are the law.

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maritimenz.govt.nz/surveyors

2. Surveyor recognition categories

2.1 Definition of categories

The main surveyor recognition categories are based on ship survey categories. Ship survey categories are in turn defined from:

1. the ship survey type (ie the stage in the ship's survey life cycle that the survey is performed) and
2. the ship's key attributes.

Ship survey types

For the purpose of defining recognition categories, three types of ship survey are identified:

1. Design approval (DA)
2. In-construction and Initial (IC) – surveys of ships during construction and of new ships (ie becoming commercial ships on or after 1 July 2014), including ships that require a survey due to major modifications, repair, or change to the scope of certification
3. Periodic (P) – surveys of ships after their initial survey (intermediate and renewal surveys).

Ship's key attributes

The key attributes of a ship used in the definition of survey categories are: ship length, operating limits, the activity that the ship is engaged in, and the hull construction material. There are five construction material groups identified for the purpose of defining ship survey categories and surveyor recognition categories:

- wood – as planking or sheathing
- steel or aluminium – including alloys
- fibre reinforced plastics (FRP) – including glass resin, carbon fibre or aramid fibre reinforced
- plastics (not reinforced) – for example, rotor moulded or welded construction
- ferro-cement.

2.2 Scope of the surveyor recognition

A description of the scope of recognition covered by each surveyor recognition category is outlined in Tables 2.1 to 2.4 and the accompanying text below. Included are the recognition categories related to specialised craft, livestock carriage, MARPOL/IOPP, MARPOL Annex VI (Part 199), ballast water management (Part 300), electrical systems, and radio equipment.

No category is included for ships covered by section 1 of Maritime Rules Part 21, as they are surveyed only by surveyors with classification society approval.[1]

[1] A surveyor approved by an organisation that is a member of the International Association of Classification Societies.

2.3 Design approval (DA) surveyor recognitions

Design approval means an evaluation of the design and proposed construction of a ship and its equipment, to establish whether it is:

a) fit for the purposes for which it is intended, and
b) in compliance with the applicable maritime and marine protection rules.

The DA recognition categories, and their respective scopes of recognition, are described in Table 2.1.

Table 2.1: DA surveyor recognition categories

Recognition category	Scope of recognition[2]
DA_{SA}	Design approval for the construction stability of **steel and aluminium** (including alloys) ships: a) up to and including 45 metres in length (all operating limits and activities) b) greater than 45 metres in length, unlimited fishing boats and barges c) greater than 45 metres in length, restricted limit passenger and non-passenger ships.
DA_{F}	Design approval for the construction stability of **FRP** ships: a) up to and including 45 metres in length (all operating limits and activities) b) greater than 45 metres in length, unlimited fishing boats and barges c) greater than 45 metres in length, restricted limit passenger and non-passenger ships.
DA_{W}	Specialist design approval for the construction of **wooden** ships, with conditions or limitations as may be set by the Director.
DA_{FC}	Specialist design approval for the construction of **ferro-cement** ships, with conditions or limitations as may be set by the Director.
DA_{P}	Specialist design approval for the construction of **plastic** ships, with conditions or limitations as may be set by the Director.
DA_{LC}	Specialist design approval and issue of the certificate of construction for **light craft** as required under Maritime Rules Part 40F.7.
DA_{N}	Specialist design approval and issuing of certificates of fitness for **novel craft** as required under Maritime Rules Part 40G.7.
DA_{E}	Specialist design approval for ships **electrical systems** design (refer Maritime Rules Parts 40A.38; 40C.35 and 40D.30A).

[2] In any case, the Director may place limitations or conditions on the scope of recognition provided by a Certificate of Surveyor Recognition.

No separate recognitions exist for: assignment of freeboard, tonnage computation, stability, inclining, swamp calculations and calculations of assignment for load line surveys. The capability to perform those activities is expected of DA_{SA}, $DA_{F,}$ $DA_{W,}$ DA_{FC} and DA_{P} surveyors.

There is no separate recognition for machinery or mechanical systems design approval. That capability is also expected of most DA_{SA}, $DA_{F,}$ $DA_{W,}$ DA_{FC} and DA_{P} surveyors.

2.4 In-construction and Initial (IC) surveyor recognitions

Tables 2.2(a) and 2.2(b) show the scope of each of the IC surveyor recognition categories. To simplify the presentation of the information, there is no reference to the hull construction material group.

The two tables contain the same information presented in different ways.

Table 2.2(a): IC surveyor recognition categories – descriptions

Recognition category	Scope of recognition
IC1	1. All ships up to 45 metres in length. 2. Ships greater than 45 metres in length that are: a) fishing boats or barges, or b) restricted limit passenger and non-passenger ships.
IC2	1. Ships up to 24 metres in length with an operating limit of Offshore. 2. Ships up to 45 metres in length with an operating limit of Coastal.
IC3	Ships up to 15 metres in length with an operating limit of Restricted Coastal.

Table 2.2(b): IC surveyor recognition categories – length/operating limit matrix

<table>
<tr><th rowspan="2">Operating limits</th><th colspan="5">Length</th></tr>
<tr><td>≤6m</td><td>≤15m</td><td>>15 - 24m</td><td>>24 - 45m</td><td>>45m</td></tr>
<tr><td rowspan="2">Unlimited</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">IC1</td><td rowspan="2">IC1</td><td>R21/S1 Non-fishing</td></tr>
<tr><td>IC1 - Fishing</td></tr>
<tr><td>Offshore</td><td></td><td>IC2</td><td>IC2</td><td>IC1</td><td rowspan="3">Rules 21/S1[3]
Pax/Non-Pax</td></tr>
<tr><td>Coastal</td><td></td><td>IC2</td><td>IC2</td><td>IC2</td></tr>
<tr><td>Restricted coastal</td><td>IC3</td><td>IC3</td><td>IC2</td><td>IC2</td></tr>
<tr><td>Restricted limit</td><td>IC3</td><td>IC3</td><td>IC2</td><td>IC2</td><td>IC1 Pax/Non-Pax</td></tr>
</table>

Notes to Table 2.2(b):

1. IC1 recognition also covers all barges >45 meters in length.
2. IC2 recognition also covers barges >45 meters in length, with operating limit out to Coastal.

Each of the IC1 to IC3 categories shown in the tables above has 'hull material' as an additional dimension.

Unless a condition is placed on the surveyor's recognition, an 'IC' surveyor will be approved to survey the ship's construction, safety equipment and the machinery (except any equipment and machinery for which specialist recognition is required).

The capability to perform heeling tests, swamp tests and calculations, and initial load line surveys activities is expected of most surveyors with 'IC' recognition.

Table 2.2(b) demonstrates more clearly the hierarchy of the IC recognition categories. For example, a surveyor with IC1 recognition is automatically recognised for surveying IC2 and IC3 ships of the same hull material. Similarly, a surveyor with IC2 scope of recognition is automatically approved to survey IC3 ships of the same hull material.

[3] R21/S1 refers to Maritime Rules Part 21 section 1, relating to SOLAS ships and ships of 45 metres or more in length that proceed beyond restricted limits. 'Pax' is an abbreviation for 'passenger'.

2.5 Periodic (P) surveyor recognitions

Tables 2.3(a) and 2.3(b) show the scope of each of the P surveyor recognition categories. Again, to simplify the presentation of the information, there is no reference to the hull construction material group.

The two tables contain the same information presented in different ways.

Table 2.3(a): P surveyor recognition categories – descriptions

Recognition category	Scope of recognition
P1	1. All ships up to 45 metres in length. 2. Ships greater than 45 metres in length that are: a. fishing boats or barges, or b. restricted limit passenger and non-passenger ships.
P1r	All ships up to 45 metres in length.
P2	1. Ships up to 24 metres in length with operating limit of Offshore 2. Ships up to 45 metres in length with an operating limit of Coastal.
P3	Ships up to 24 metres in length with an operating limit of Coastal.
P4	Ships up to 15 metres in length with an operating limit of Restricted Coastal.
P5	Ships up to 6 metres in length with an operating limit of Restricted Inshore.

Table 2.3(b): P surveyor recognition categories – length/operating limit matrix

<table>
<tr><th rowspan="2">Operating limits</th><th colspan="5">Length</th></tr>
<tr><td>≤6m</td><td>≤15m</td><td>>15 - 24m</td><td>>24 - 45m</td><td>>45m</td></tr>
<tr><td rowspan="2">Unlimited</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2">P1r</td><td rowspan="2">P1r</td><td>R21/S1 Non-fishing</td></tr>
<tr><td>P1 - Fishing</td></tr>
<tr><td>Offshore</td><td></td><td>P2</td><td>P2</td><td>P1r</td><td rowspan="3">Rules 21/S1[4] Pax/Non-Pax</td></tr>
<tr><td>Coastal</td><td></td><td>P3</td><td>P3</td><td>P2</td></tr>
<tr><td>Restricted coastal</td><td>P5</td><td>P4</td><td>P3</td><td>P2</td></tr>
<tr><td>Restricted limit</td><td>P5</td><td>P4</td><td>P3</td><td>P2</td><td>P1 Pax/Non-Pax</td></tr>
</table>

Notes to Table 2.3(b):

1. P1r recognition also covers all barges >45 meters in length.
2. P2 recognition also covers barges >45 meters in length, with operating limit out to Coastal.

Each of the P1 to P5 categories shown in the tables above has 'hull material' as an additional dimension.

Unless a limitation is placed on the surveyor's recognition, a 'P' surveyor will be approved to survey the ship's construction, safety equipment and the machinery (but not automatically the equipment for which specialist recognition is required).

The hierarchy within the P recognition categories is shown more clearly in Table 2.3(b). For example, a surveyor with P1 recognition is automatically recognised for surveying P1r – P5 ships of the same hull material.

[4] R21/S1 refers to Maritime Rules Part 21 section 1, relating to SOLAS ships and ships of 45 metres or more in length that proceed beyond restricted limits. 'Pax' is an abbreviation for 'passenger'.

2.6 Specialist surveyors, authorised persons and inspector recognitions

In addition to the recognition categories described above, there are a number of other specialist recognitions for surveyors, authorised persons or competent persons. They are defined in Table 2.4.[5]

Table 2.4: Specialist surveyor, authorised person and inspector recognition categories

Recognition category	Scope of recognition
Authorised person –recreational diving boats to 6 metres	Inspecting commercial recreational diving boats of 6 metres or less in length that do not proceed more than 5 NM from the New Zealand coast for compliance with the code of practice provided as Appendix 8 to Maritime Rules Part 40A.
Authorised person – fishing boats to 6 metres	Inspecting fishing boats of 6 metres or less in length that do not proceed beyond enclosed water limits or more than 2 NM from the New Zealand coast for compliance with the code of practice provided as Appendix 5 to Maritime Rules Part 40D.
Authorised person – light craft	Inspecting light craft and auditing light craft operations, as required under Maritime Rules Part 40F.
Surveyor – carriage of livestock	Inspecting the penning arrangements and stability for ships used for the carriage of livestock (Maritime Rules Part 24C section 4).
Surveyor – novel craft	Survey and issue of certificate of fitness of novel craft as required by Maritime Rules Part 40G.
Surveyor – high-speed craft	For the issue of high-speed craft safety certificate as required by Maritime Rules Part 40F.13.
Surveyor – MARPOL/IOPP	Survey for evidence of ship compliance with the pollution prevention equipment and survey requirements of MARPOL. Marine Protection Rules Part 101A.8.
Surveyor – MARPOL Annex VI (Part 199), ships at or over 400 GT and engaged in domestic voyage	Survey for evidence of ship compliance with the provisions of Marine Protection Rules Part 199 towards issue of Annex VI endorsement, limited to ships at or over 400 GT engaged in domestic voyage.

Continued over

[5] Some of these are survey functions that come under Maritime Rules Part 44, while others are stand-alone functions that require recognition under a separate rule.

2. Surveyor recognition categories (continued)

Recognition category	Scope of recognition
Surveyor – UNSP barges at or over 400 GT engaged in domestic voyage / MARPOL Annex VI (Part 199)	Survey for evidence of unmanned non-self-propelled (UNSP) barge compliance with rule 199.643 of Marine Protection Rules Part 199 towards issue of an IAPP Exemption Certificate. Limited to UNSP barge at or over 400 GT engaged in domestic voyage.
Surveyor – UNSP barges at or over 400 GT engaged in international or domestic voyage / MARPOL Annex VI (Part 199)	Survey for evidence of unmanned non-self-propelled (UNSP) barge compliance with rule 199.643 of Marine Protection Rules Part 199 towards issue of an IAPP Exemption Certificate. Limited to UNSP barge at or over 400 GT.
Surveyor – ballast water management (Part 300)	Survey for evidence of ship compliance with the provisions of the approved ballast water management plan and the provisions of Marine Protection Rules Part 300.
Surveyor – electrical systems	Inspection and testing of electrical systems on board ships. Refer Maritime Rules Parts 40A, 40C, 40D and 40E.
Surveyor – radio equipment	Undertake radio surveys as required under Rules Part 43.6(1) and 43.6(2).
Radio inspector	Undertake radio inspections as required under Rules Part 43.6(3).

Competent persons for lifting gear inspections are authorised by a testing establishment recognised by the Director. The scope of work for the competent person is covered by Maritime Rules Part 49.4 to 49.11

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3. Surveyor qualifications and experience

This section outlines the knowledge, qualifications and experience required to be recognised for each surveyor recognition category.

3.1 General expectations

Surveyors are expected to be proficient in reading, writing and communicating in the English language, and have numeracy skills at least to Level 2 NCEA[6] or equivalent.

In addition, as specified in Rules 44.25(2), they are expected to have knowledge of:

- relevant legislation, including all maritime rules and marine protection rules
- ship design and construction, including an ability to understand and interpret drawings, schematics, basic calculations, materials and construction techniques
- structural defect recognition and rectification, including knowledge of structural maintenance, repairs and repair methods
- ship freeboard, seaworthiness and stability
- safety and safety equipment, including knowledge of minimising safety risk, and of safety equipment needed to meet requirements
- environmental protection and equipment, including knowledge of minimising environmental risk and equipment needed to meet requirements
- mooring and anchoring equipment, including knowledge of anchoring techniques and expected outcomes
- navigation equipment, including knowledge of rule requirements, and understanding the function of equipment required to meet requirements
- applicable national and international codes and standards, eg Gas Act, international collision regulations, codes on transport of dangerous goods.

For the four groups of surveyor recognitions (DA, IC, P and Specialist), the following tables show the qualifications and experience that persons seeking recognition as surveyors ideally should have.

[6] National Certificate of Educational Achievement

3.2 For Design approval (DA) surveyor recognition

Table 3.1: DA category surveyors – qualifications and experience expected

Category	Qualifications	Experience
DA_{SA}	Degree in naval architecture or relevant degree in engineering	At least three years' naval architecture and structural analysis experience for metal ship construction, including assignment of freeboard, tonnage calculations and use of classification society design standards and rules.
DA_{F}	Degree in naval architecture or relevant degree in engineering	At least three years' naval architecture and structural analysis experience for FRP ship construction, including assignment of freeboard, and tonnage calculations.
DA_{W}	Relevant tertiary qualification to NZQF[7] level 3 or equivalent	At least three years' experience as shipwright on construction of wooden ships.
DA_{FC}	IPENZ registered engineer (civil) or equivalent, eg AMSA recognition	At least three years' construction experience in marine ferro-cement structures.
DA_{P}	IPENZ registered engineer (structural) or equivalent	At least three years' construction experience in plastic hulled ship construction.
DA_{LC}	Degree or diploma in naval architecture or other relevant tertiary qualification	At least five years' experience in construction approval of light craft.
DA_{N}	Degree or diploma in naval architecture	At least five years' experience in construction of novel craft.
DA_{E}	IPENZ registered engineer (electrical) or equivalent	At least five years' installing marine electrical systems.

[7] New Zealand Qualifications Framework

3.3 For In-construction and Initial (IC) surveyor recognition

Table 3.2: IC category surveyors – qualifications and experience expected

Category	Qualifications	Experience
IC1	Marine Engineer Class 1	For steel and aluminium – at least five years as chief engineer on board SOLAS ships and at least one ship surveyed under training; or at least five years as equivalent to P1 surveyor; or at least ten ships surveyed as equivalent to IC2 surveyor. For wood or FRP – completed an approved boat builder course (wood or FRP as applicable) and surveyed under training at least one ship in each of the <6 metres, 6 to 15 metres, and 15 to 24 metres length categories.
IC2	Marine Engineer Class 1	At least five years' experience as equivalent to P1 or P2 surveyor.
	Relevant tertiary degree or NZQF level 3 qualification or equivalent.	Recognised to a level equivalent to a P1 or P1r surveyor and at least five years' experience as equivalent to at least a P2 surveyor.
IC3 – entry level IC surveyor	Marine Engineer Class 1	Experience equivalent to at least five years as a P3 surveyor.
	Relevant NZQF level 3 qualification or equivalent	Shipwright, journeyman[8] or boat builder with at least five years' experience as P3 surveyor or equivalent, and have surveyed at least 20 boats at P3 level.

Notes to Table 3.2:

1. To avoid a limitation being placed on the Certificate of Surveyor Recognition, 'IC' surveyors for steel, aluminium or alloy ships should be able to demonstrate that they have successfully completed an acceptable course in welding technology.
2. IC surveyors need to be capable of performing heeling tests, swamp tests and calculations, and initial load line surveys.

[8] Journeyman is the term applied to a person entering the surveying profession with only a tertiary degree.

3.4 For Periodic (P) surveyor recognition

Table 3.3: P category surveyors - qualifications and experience expected

Category	Qualifications	Experience
P1	Marine Engineer Class 1	At least five years as chief engineer on board SOLAS ships and at least one year training as a surveyor for P1 category ships.
	Other relevant tertiary degree	Journeyman surveyor with at least five years' experience as equivalent to a P2 surveyor.
P1r	Marine Engineer Class 2 or holder of other relevant tertiary degree	At least one year's experience as chief engineer, and at least five years as equivalent to a P2 surveyor.
P2	Marine Engineer Class 2 or holder of other relevant tertiary degree	At least one year's experience as chief engineer, and at least five years' experience as equivalent to a P3 surveyor.
P3	Marine Engineer Class 1	At least one year's experience as chief engineer, an acceptable surveyor training course, and surveyed under training at least one ship in each of the <15 metre and 15 to 24 metre length categories.
	Marine Engineer Class 2 or First Class Diesel Trawler Engineer or other relevant tertiary degree	At least five years' experience as the equivalent of a P4 surveyor and at least 20 boats surveyed during that period.
	Holder of Advanced Trades Certificate or NZQF level 3 qualification or equivalent.	At least five years' experience as the equivalent of a P4 surveyor and at least 20 boats surveyed during that period.

Continued over

3. Surveyor qualifications and experience (continued)

Category	Qualifications	Experience
P4	Marine Engineer Class 2 or First Class Diesel Trawler Engineer or other relevant tertiary degree	At least five years' experience as equivalent of P5 surveyor or acceptable surveyor training course and at least 10 boats surveyed under supervision of a surveyor recognised to equivalent of at least the P4 level.
	Holder of Advanced Trades Certificate or NZQF level 3 qualification or equivalent	At least five years' experience as equivalent of P5 surveyor or acceptable surveyor training course and at least 10 boats surveyed under supervision of a surveyor recognised to equivalent of at least the P4 level.
P5 – entry level surveyor	Marine Engineer Class 2 or First Class Diesel Trawler Engineer or holder of other relevant tertiary degree	At least two years' experience as trainee surveyor under supervision of a recognised surveyor and a minimum of 10 boats surveyed under supervision.
	Holder of Advanced Trades Certificate or NZQF level 3 qualification or equivalent	Acceptable surveyor training course and at least 10 boats surveyed under supervision of a recognised surveyor or Acceptable surveyor training course and at least five years' experience as shipwright or foreman building boats. Built at least 10 boats during that period, with at least three of them as supervisor.

3.5 For recognition as specialist surveyors, authorised persons or inspectors

Table 3.4: Specialist, authorised person or inspector – qualifications and experience expected

Type	Qualifications	Experience
Authorised person – recreational diving boats to 6 metres	Skipper qualification relevant to boat and activity	At least five years' experience as skipper of boats engaged in recreational diving or comparable activities.
Authorised person –fishing boats to 6 metres	Skipper qualification relevant to boat and activity	At least five years' experience as skipper of boats engaged in relevant commercial fishing activities.
Authorised person –light craft	Master (foreign-going)	At least five years' experience operating a hovercraft commercially.
Surveyor – carriage of livestock	Marine Engineer Class 1 or Master (foreign-going)	At least five years' experience as marine engineer or master mariner.
Surveyor – novel craft	Marine Engineer Class 1 or relevant tertiary qualification	At least five years' experience in constructing or supervising construction of novel craft.
Surveyor – high-speed craft	Marine Engineer Class 1 or relevant tertiary qualification	At least five years' experience in constructing or supervising construction of high-speed craft.
Surveyor – MARPOL/IOPP	Class surveyor from a New Zealand recognised organisation	As required by class.
Surveyor – MARPOL Annex VI (Part 199), ships at or over 400 GT engaged in domestic voyage	Class surveyor (existing or former)	As required by class to survey for compliance with MARPOL Annex VI. Application to be supported with evidence of completing class training to survey under MARPOL Annex VI and statement detailing how you keep updated with the outputs from the IMO related to MARPOL Annex VI.
Surveyor – UNSP barges at or over 400 GT engaged in international or domestic voyage / MARPOL Annex VI (Part 199)	Class surveyor (existing or former)	
Surveyor – UNSP barges at or over 400 GT engaged in domestic voyage / MARPOL Annex VI (Part 199)	IC1, IC2, P1, P1r or P2 surveyor	As required for relevant recognition category as IC1, IC2, P1, P1r or P2 surveyor.

Continued over

3. Surveyor qualifications and experience (continued)

Type	Qualifications	Experience
Surveyor – ballast water management	Class surveyor from a New Zealand recognised organisation	
	Marine Engineer Class 1	At least two years in this capacity on board a SOLAS vessel with ballast water on board (or alternative evidence of relevant ballast water management training). Application to be supported by a statement evidencing how each of the competencies 3, 4, 9 and 13 listed in Appendix 1 have been gained.
	Master or Chief Mate	At least two years in this capacity on board a SOLAS vessel with ballast water on board (or alternative evidence of relevant ballast water management training). Application to be supported by a statement evidencing how each of the competencies 1, 2 and 4 to 13 listed in Appendix 1 have been gained.
Surveyor – electrical systems	IPENZ registered engineer(elec) or NZ-registered electrician or equivalent	At least three years' experience installing electrical systems on ships.
Surveyor – radio equipment	An operator's or technician's certificate in telecommunications	At least six months' experience at sea as a radio operator or twelve months' training at an organisation approved by the Director.
Radio inspector	A radio or telecommunications technician qualification	At least two years' experience with HF or VHF radio communication systems, in installation or maintenance and servicing of that equipment.

3.6 Issuing certificates of recognition

When deciding whether to issue a certificate of recognition, the Director will consider each applicant's qualifications and experience on an individual basis. An applicant's knowledge in all areas relevant to the scope of recognition applied for may be tested through written examinations, oral examinations and practical assessments, as the Director considers appropriate.

When issuing a certificate of recognition, the Director may impose additional conditions on the scope of recognition afforded – ie conditions in addition to the inherent limits of the recognition category.

For example, a condition may be placed on a surveyor's Certificate of Surveyor Recognition for 'IC3 FRP ships' so that it is valid only for ships with less than 1500 kW output of main propulsion power.

Whatever the scope of recognition provided to a surveyor by the Director, the surveyor has an overriding responsibility to ensure that they survey only those aspects of the ship and its equipment that they are competent to survey.

Appendix 1

Competencies for Surveyor – Ballast water management (Part 300)

1. Knowledge of electrical systems and load analysis for electrical systems. This will be necessary to ensure the vessel's existing electrical system can handle the additional electrical load without causing a failure and consequent implications for the vessel.
2. Knowledge of simulating bypass alarms/automation tests and alarms. This is required to ensure the bypass system will work and that the alarms and recording devices work properly. This knowledge is necessary to ensure a surveyor would be able to test the treatment equipment once the D-2 standard comes into force (this would be similar to an ODME and OWS on a vessel).
3. Ability to understand ballast water management (BWM) plans and record books. This knowledge is inherently necessary for any surveyor to be able to assess whether a vessel is compliant with the requirements and its approved BWM plan.
4. Understanding of the potential interaction of a BWM treatment system with ballast tank coating systems. This would be necessary to ensure inspections of ballast tanks are appropriate to the risk of any chemical additives increasing the risk of corrosion above average.
5. Ability to read and understand vessel plans and piping diagrams. This knowledge is essential to ensure there is no cheat mechanism installed to allow the vessel to circumvent the ballast water treatment system and to ensure that the installed system accurately represents the system described in the BWM plan.
6. Ability to read and understand electrical schematics and diagrams. This knowledge would allow the surveyor to verify the electrical schematics in the BWM plan are what is actually installed on the vessel and therefore do not present any additional risks.
7. Knowledge of class rules/standardised procedures (such as IMO or other standards) related to the installation of piping, flanges and valves on vessels. This knowledge is essential for ensuring that the vessel will be compliant in the event of an inspection in a foreign jurisdiction.
8. Basic principles of piping systems including the understanding of minimising vacuums being created in such systems. This knowledge is crucial from a safety perspective, to prevent damage to equipment. It will also ensure that the vessel's systems operate effectively and do perform as intended.
9. Knowledge of hazardous areas and how to mitigate hazards in such spaces (explosive atmospheres). This would be most relevant as it relates to installation of BWM systems on tankers.
10. Knowledge of ventilation systems/air exchanges. This is essential for ensuring that the appropriate ventilation is occurring in areas where chemicals are being used.
11. Knowledge of fire boundaries on vessels. This knowledge is important from a safety perspective to ensure that the BWM system does not affect the integrity of any fire protection that is achieved through the vessel design.
12. Ability to ensure the system has necessary spare parts and personnel trained on board to be able to fix the system. This is a routine maintenance issue that needs to be addressed to ensure the vessel can remain compliant with the requirements when operating internationally.
13. Knowledge of the HSNO requirements around the use of any active substances utilised in ballast water treatment equipment. Confirm the ship has the required PPE to allow these substances to be safely handled.