**EXPLANATORY MEMORANDUM TO**

**THE MERCHANT SHIPPING (PASSENGER SHIPS) (SAFETY CODE FOR UK CATEGORISED WATERS) REGULATIONS 2010**

**2010 No. 680**

**1.** This explanatory memorandum has been prepared by the Maritime and Coastguard Agency (MCA) and is laid before Parliament by Command of Her Majesty.

1.1 This memorandum contains information for the Joint Committee on Statutory Instruments.

## 2. Purpose of the instrument

2.1 These regulations replace existing subordinate legislation applicable to new passenger ships operating solely on UK categorised waters. The regulations simplify the current safety regulatory regime by consolidating the requirements into a single document to which effect is given by these regulations. The regulations also enhance safety standards by implementing recommendations from formal inquiries into the loss of the passenger ship, the Marchioness and subsequent research projects.

## 3. Matters of special interest to the Joint Committee on Statutory Instruments

3.1 None

## 4. Legislative Context

4.1 The regulations are being implemented in accordance with Better Regulation Policy and also enhance safety standards. The MCA made a commitment to Ministers in 2005 to improve safety standards for passenger ships on our inland waterways.

## 5. Territorial Extent and Application

5.1 This instrument applies to all of the United Kingdom.

## 6. European Convention on Human Rights

As the instrument is subject to negative resolution procedure and does not amend primary legislation, no statement is required.

## 7. Policy background

- ***What is being done and why***

7.1 The regulations consolidate existing safety standards applicable to passenger ships operating on UK categorised waters and also enhance safety standards by implementing the recommendations and findings from numerous inquiries and investigations undertaken following the collision of the passenger ship Marchioness and the dredger Bowbelle on the River Thames in August 1989 which claimed 51 lives.

7.2 A subsequent Formal Safety Assessment was undertaken to look at all aspects of domestic passenger ship safety and the outcome led to more detailed research being undertaken to focus specifically on stability, evacuation, fire safety, bridge visibility and safety management standards.

7.3 The MCA is undertaking a Domestic Passenger Ship Regulatory Review, detailed in the Evidence Base of the Impact Assessment in Annex 1. One of the key objectives of the review is to develop risk-based safety regulations for passenger ships operating in UK categorised waters and this objective became a Ministerial Commitment in July 2005.

7.4 The Regulations have been developed in consultation with surveyors and industry representatives of the Domestic Passenger Ship Steering Group (DPSSG). An informal consultation on the draft technical standards was undertaken prior to the formal public consultation.

- ***Consolidation***

7.5 The existing safety requirements applicable to passenger ships operating in the UK waters are spread across numerous documents, consisting of original subordinate legislation, subsequent amendments and related guidance. The requirements are difficult to use and all applicable legislation is not easily identified under the existing regime. The production of a comprehensive Safety Code within a Merchant Shipping Notice (MSN), which draws all the applicable requirements together into a single document, will make the requirements more accessible and easier to understand for all users. This consolidation is in accordance with Better Regulation policy.

## 8. Consultation outcome

8.1 These Regulations, the associated MSN which contains the technical standards in the form of a Safety Code and the Impact Assessment (IA) have been consulted on over a 12 week period from September to November 2009. The consultation was carried out in accordance with the Cabinet Office's code of practice on consultation.

8.2 The consultation package was sent out to stakeholders and interested parties, including domestic passenger ship industry, seafarer unions, ships surveyors, other Government departments and non Governmental organisations (NGOs).

8.3 Sixteen responses were received to this consultation. The majority of the comments related to the wording in the MSN which needed to be improved for clarity. Some comments related to how the requirements would work in practice and why the requirements appeared to be different to existing legislation, in such cases the reasoning behind the changes has been explained. Some comments related to technical details and these have largely been incorporated into the Safety Code, any changes to the technical requirements will be covered in detail in the response to the consultation. A further set of comments were received which related to operational aspects which are mentioned in the Safety Code (but not made requirements of the Code) for the purpose of identifying in one place all applicable requirements. Such comments generally related to the seafarers' qualifications or hours of work regulations which are the subject of EC Directives, these requirements have not been changed and continue to be enforced by other legislation but are referred to in the Safety Code to ensure ship owners and operators are aware of the requirements as well as the construction standards. In these cases we have clarified the existing legislative requirements and have explained that these items have not been changed by the implementation of these regulations.

8.4 A summary of the comments received during the consultation, and the MCA responses to them, can be found on the MCA website at http://mcga.gov.uk.

## 9. Guidance

9.1 These Regulations give effect to an MSN which contains the technical requirement applicable to passenger ships operating solely on UK categorised waters. The MSN itself is intended to be self explanatory but does include an annex which directs the user to further

guidance published by the Maritime and Coastguard Agency. The MSN and all related guidance will be available on the MCA website. In practice, an owner or operator would contact an MCA Marine Office surveyor if they are considering constructing a new ship and the surveyor would advice what legislation applies and provide further guidance as necessary.

## 10. Impact

10.1 The impact on business, charities or voluntary bodies is considered minimal but it was noted in the Impact Assessment that ships operating in Category D waters bear the highest burden of the additional costs.

10.2 The impact on the public sector is minimal as reviewing the application of the additional safety requirements will be carried out during the MCA's normal survey regime.

10.3 An Impact Assessment is attached to this memorandum at Annex 1.

## 11. Regulating small business

11.1 The legislation applies to small business.

11.2 Many ship operators are small businesses operating only a small number of ships. In developing the technical standards we have been mindful not to put unnecessary financial burden on smaller operators, however, the safety of passengers is the highest priority. It is not possible to specifically reduce the financial impact of the requirements on firms employing up to 20 people as the associated risks of operating a passenger ship are inherent for the operating area rather than dependent on company size. However, the Regulations have been developed using a risk based approach and standards have only been increased where there is a clear safety benefit in relation to the risk and costs. In practice, many small businesses operate smaller ships which tend to be located on less onerous waterways and so the associated costs are as low as practicable. We have also introduced SeaFish Industry Authority Standards for smaller, more basic ships which will reduce initial construction and survey costs, these ship types tend to also be operated by smaller business and so will benefit from reduced costs. Further details of how additional costs have been kept to a minimum can be seen in Annex 1.

11.3 Small businesses have been involved throughout the development of the requirements through consultation with the DPSSG and are aware of the steps taken to minimise costs to operators of smaller ships.

## 12. Monitoring & review

12.1 The implementation of the Regulations will be reviewed through the MCA's normal contact with industry and NGO groups at the DPSSG meetings held twice a year and by monitoring the costs and benefits to new build projects over the next three years.

## 13. Contact

Lucy Luntz
Maritime and Coastguard Agency
Spring Place
105 Commercial Road
Southampton
SO15 1EG
Tel: 02380 329 207
Fax: 02380 329 104
Email: Lucy.Luntz@mcga.gov.uk

Lucy Luntz will be available to answer any questions relating to the instrument.

| Summary: Intervention & Options | | |
|---|---|---|
| **Department /Agency:**<br>**Maritime and Coastguard Agency** | **Title:**<br>**Impact Assessment of the Merchant Shipping (Passenger Ships) (Safety Code for UK Categorised Waters) Regulations 2010** | |
| **Stage:** Implementation | **Version:** Final | **Date:** 25 February 2010 |
| **Related Publications:** Final Statutory Instrument and Merchant Shipping Notice. | | |

Available to view or download at: http://www.mcga.gov.uk

**Contact for enquiries:** Lucy Luntz/Alison Leighton **Telephone:** 02380

What is the problem under consideration? Why is government intervention necessary?

The problem under consideration is how to improve safety on domestic passenger ships. Ministerial commitment was given in 2005 to improve safety standards on all domestic passenger ships operating in UK categorised waters. The Regulations to which this impact assessment relates implement a new safety Code for new build passenger ships operating within UK categorised waters. Failure to implement these Regulations and introduce a new safety Code would mean that the recognised safety concerns were not being addressed; would renege on a past high profile Ministerial commitment; and would not be consistent with the Government's Better Regulation Initiative.

There remains an obligation to ensure a consistent safety standard for all ships. This will be achieved by introducing transitional arrangements for existing ships once the appropriate safety standards for

What are the policy objectives and the intended effects?

The policy objectives of these Regulations are:

1) To enhance safety standards on passenger ships operating in UK categorised waters; and
2) To streamline and simplify existing regulations into one document.

The intended effects of these Regulations are:

1) To reduce accidents and potential injuries/loss of lives

What policy options have been considered? Please justify any preferred option.

1) Do nothing. This is not considered appropriate as it would mean that the recognised safety concerns were not being addressed.
2) Introduction of new legislation for new build passenger ships operating in UK categorised waters. The new legislation implements the results of the post-Marchioness Formal Safety Assessment and research; and simplifies all existing regulations into one document. This is the preferred option.

When will the policy be reviewed to establish the actual costs and benefits and the achievement of the desired effects? The costs and benefits of new builds will be monitored over the next three years and advice will be sought from industry through the Domestic Passenger Ship Steering Group which meets twice a year.

**Ministerial Sign-off** For Implementation Stage Impact Assessment:

***I have read the Impact Assessment and I am satisfied that (a) it represents a fair and reasonable view of the expected costs, benefits and impact of the policy, and (b) the benefits justify the costs.***

***Signed by the responsible Minister:***

Paul Clark ..... Date: 8th March 2010

| Summary: Analysis & Evidence | |
|---|---|
| **Policy Option: 2** | **Description: Introduction of the Merchant Shipping (Passenger Ships) (Safety Code for UK Categorised Waters) Regulations 2010** |

**COSTS**

| ANNUAL COSTS | |
|---|---|
| **One-off** (Transition) | **Yrs** |
| **£ 24,000 to 102,000** | 10 |
| **Average Annual Cost** (excluding one-off) | |
| **£ 5,000 to 24,000** | 10 |

Description and scale of **key monetised costs** by 'main affected groups' 1.) Assuming that 10.8 new passenger ships are affected in each year of the appraisal period, the additional one-off costs (equipment costs, and plan approval and initial survey costs) have been estimated at approximately £24,000 to £102,000 per year. 2.) Over the appraisal period, the additional ongoing operating costs for these new passenger ships have been estimated

**Total Cost** (PV) **£ 0.2 to 1.1 million**

Other **key non-monetised costs** by 'main affected groups' It is considered that some vessels could potentially incur additional construction or equipment costs. These potential costs are explained in

**BENEFITS**

| ANNUAL BENEFITS | |
|---|---|
| **One-off** | **Yrs** |
| **£ 0 to 77,000** | 10 |
| **Average Annual Benefit** (excluding one-off) | |
| **£ N/A** | |

Description and scale of **key monetised benefits** by 'main affected groups' Ship owners/operators of all newbuild single deck ships of less than 24m carrying less than 70 passengers will become eligible for reduced plan approval and initial survey costs. This is a one-off benefit. Assuming 10.8 new passenger ships are affected in each year of the appraisal period, the value of this

**Total Benefit** (PV) **£ 0 to 0.7 million**

Other **key non-monetised benefits** by 'main affected groups' 1.) It is considered that stakeholders, such as vessel designers and surveyors, will benefit from a reduced administrative burden arising from the consolidation of all existing regulations into one document. 2.) It is considered that

Key Assumptions/Sensitivities/Risks 1.) A significant number of assumptions have had to be made. For example, the estimated monetised costs and benefits for individual ships are indicative estimates for ships that are assumed to be 'typical'. It should be noted that the costs and benefits for specific ships within each of the ship categories are likely to be vary depending on a number of factors. 2.) The estimated monetised costs and benefits are sensitive to these assumptions and the data that has been used, and are thus uncertain. 3.) The estimates of the Net Benefit below only include the estimated monetised costs and benefits, and do not reflect the non-monetised costs and benefits. The low end of the range assumes all new build passenger ships are in Category D, and the high end assumes all new

| Price Base Year 2009 | Time Period Years 10 | **Net Benefit Range** (NPV) **£ -1.1 to 0.4 million** | **NET BENEFIT** (NPV Best estimate) |
|---|---|---|---|

| | | | | |
|---|---|---|---|---|
| What is the geographic coverage of the policy/option? | | | UK | |
| On what date will the policy be implemented? | | | TBA | |
| Which organisation(s) will enforce the policy? | | | MCA | |
| What is the total annual cost of enforcement for these organisations? | | | £ 0 | |
| Does enforcement comply with Hampton principles? | | | Yes | |
| Will implementation go beyond minimum EU requirements? | | | No | |
| What is the value of the proposed offsetting measure per year? | | | £ N/A | |
| What is the value of changes in greenhouse gas emissions? | | | £ N/A | |
| Will the proposal have a significant impact on competition? | | | No | |
| Annual cost (£-£) per organisation (excluding one-off) | Micro £80 400 per | Small £80 400 | Medium £80 400 | Large £80 400 per |
| Are any of these organisations exempt? | No | No | N/A | N/A |

| **Impact on Admin Burdens Baseline** (2005 Prices) | | | (Increase - Decrease) |
|---|---|---|---|
| Increase of £ 0 | Decrease of £ ??? | **Net Impact** | **£** Decrease |

Key: **Annual costs and benefits:** **(Net) Present**

## Section 1. Introduction

This impact assessment relates to the introduction of new regulatory standards for passenger ships operating solely in UK waters. This new Code of Practice, "Safety Code for Passenger Ships operating solely within UK Categorised Waters", will only be applicable to new ships and will replace existing legislation for Class IV and V ships.

The new Code is the outcome of a review of the regulations governing the safety of all domestic passenger ships. The review has been undertaken with a view to simplifying the current regulations and to implement the findings of post-Marchioness Formal Safety Assessment (FSA) studies and recommendations from the Formal Investigation. It has been developed under Work Area A of the Domestic Passenger Ship Regulatory Review which is outlined later.

## Section 2. Background

The passenger ship MARCHIONESS and dredger BOWBELLE collided on the Thames on the 20th August 1989. As a result a number of inquiries and investigations were undertaken:

- Marine Accident Investigation Branch (MAIB) investigated the circumstances surrounding the collision immediately following the incident;
- the Hayes Inquiry reported to Parliament in July 1992;
- in April 1995, a coroner's inquest returned a verdict of unlawful killing in 43 of the 51 deaths;
- the Thames Safety Inquiry led by Lord Justice Clarke from August 1999, presented the report to Parliament in February 2000;
- a subsequent Formal Investigation also conducted by Lord Justice Clarke during 2000/2001; and
- Department for Transport launched a FSA of Domestic Passenger Ships, followed by more detailed research which concluded in March 2005.

Numerous recommendations came from each inquiry/investigation. The concluding report from the Thames Safety Inquiry noted that there had already been a significant number of improvements to safety on the Thames by that time. However, it was considered that a more comprehensive review of all the safety standards needed to be undertaken for these ships.

### 2.1. Research

An initial FSA undertaken by the MCA, with consultant facilitation, between 2001 and 2003 looked at all aspects of domestic passenger ship safety. This work considered Class IV, V, and VI passenger ships operating on tidal and non-tidal waters. The outcome of this led to more detailed research being undertaken by independent consultants who focused on stability, evacuation, fire safety, bridge visibility and safety management standards and covered all operating environments in the UK.

The MCA's purpose in conducting the research was to provide a baseline for future risk-based regulation of domestic passenger ships by highlighting any areas where the current regulatory framework could be improved to address the identified risks. These research reports[1] were published in March 2005.

[1] Research Project RP 514 Formal Safety Assessment of Local Passenger Ships – Risk Assessment.
Research Project RP 524 The Parameters affecting the Survivability of Small Passenger Vessels in Collisions.

The research included inspection of ships holding current safety certificates and also identified specific features on particular ships as examples of poor arrangements. Features such as signage, evacuation routes and exits, lifejacket stowage and wheelhouse visibility are some examples of where improvements can be made to enhance safety. It was also noted that other safety issues may have arisen whilst the ship was in its operational season which may not have been evident at the time of survey. This is indicative of the difficulty of framing prescriptive legislation to address the variety of situations encountered in practice, and on which, surveyors must form a judgement.

The FSA research concluded that the overall level of safety on passenger ships on the Thames was within the Health and Safety Executive's "tolerable" range. This means that the level of risk is within that generally accepted by the public, provided that risks are demonstrated to be as low as reasonably practicable. Although the reports, specifically the recommendations, did not raise immediate concerns for ship safety, they did identify areas where improvements could be made to current standards, for example by further embedding the safety management concept**.**

Following the conclusion of all investigations, Ministers approved a programme of work to improve the safety of domestic passenger ships operating in UK waters. This programme included:

- a complete review of the regulations applicable to domestic passenger ships, taking into account revised regulations and supporting guidance which address the issues highlighted in research undertaken since 2001 and taking into account any EC developments;

- the introduction of transitional arrangements into key safety regulations to ensure that existing ships which cannot be brought up to the new standards for stability, fire protection and wheelhouse visibility are prevented from operating indefinitely under superseded standards;

- exploration with industry of the scope for an alternative approach to regulation, resulting in the development of appropriate "goal-setting standards" in addition to the revised prescriptive regulations. This could result in more appropriate, risk-based safety standards on some ships;

- strengthening of the standards for fire protection for the engine room on domestic passenger ships as this was identified as an area for potential improvement; and

- preparation of guidance for companies operating domestic passenger ships on how to integrate safety management into their operations.

The MCA developed a specific project to address those issues called the Domestic Passenger Ship Regulatory Review.

## 2.2. Domestic Passenger Ship Regulatory Review

The key objectives for the project are:

- To implement Directive 98/18/EC[2] which provides technical standards for sea-going domestic passenger ships constructed of steel or equivalent materials.

---

Research Project RP 525 Risk Assessment of the Fire Hazards on Class V Passenger Vessels on the River Thames.
Research Project RP 526 Assessment of Evacuation Standards on Class V Passenger Vessels on the River Thames.
Research Project RP 527 Assessment of Standards of Safety Management on Class V Vessels on the River Thames.
Research Project RP 528a & RP 528b Wheelhouse Visibility on Class V Passenger Vessels on the River Thames.

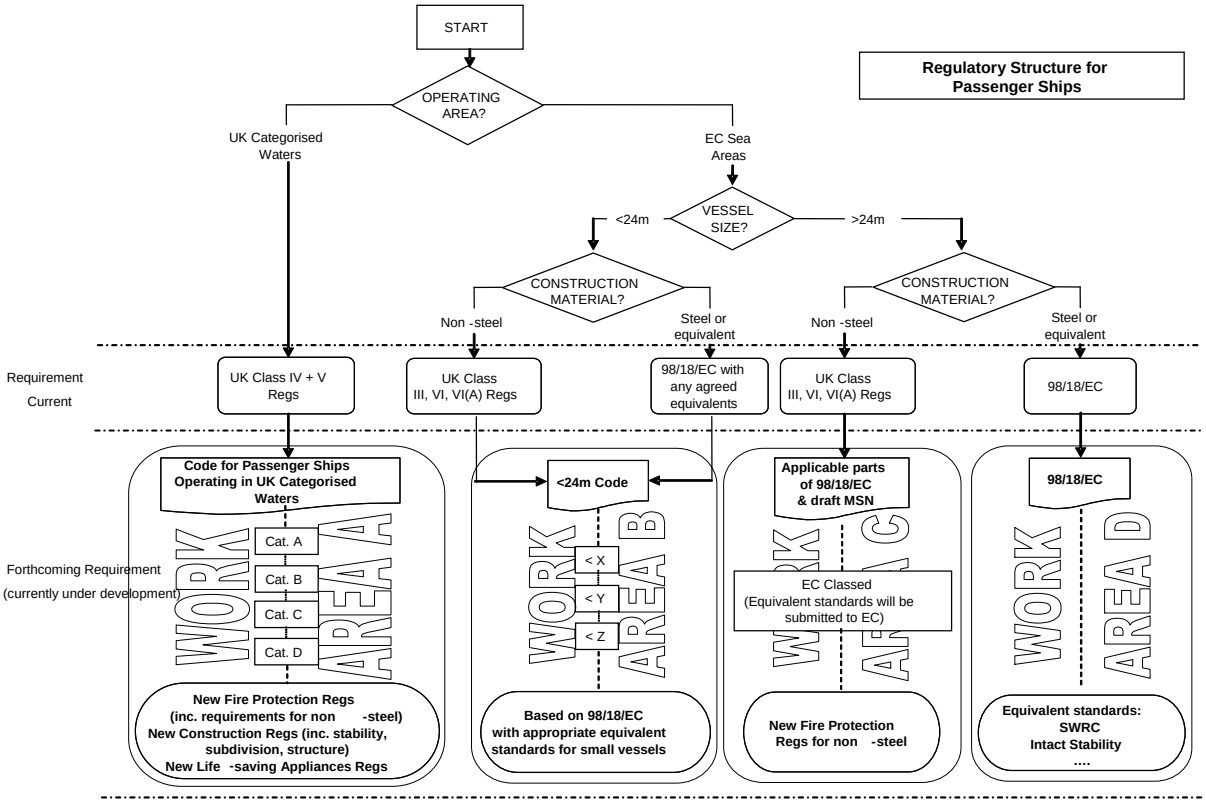
[2] Council Directive 98/18/EC of 17 March 1998 on safety rules and standards for passenger ships

- To develop risk-based regulations for passenger ships operating in UK categorised waters. This was a Ministerial Commitment made in July 2005, and has resulted in this proposed legislation.

- To implement the findings of post-Marchioness FSA studies and recommendations from the Formal Investigation.

Diagram 1 shows the regulatory structure for passenger ships and the four major areas of work. Work area A addresses passenger ships operating solely in UK categorised waters. Work area B addresses smaller seagoing passenger ships. Work area C considers passenger ships constructed of wood or GRP and work area D establishes some equivalent standards for aspects of the EC Directive 98/18/EC which is concerned with seagoing passenger ships.

**Diagram 1 – Regulatory structure for passenger ships**




This impact assessment relates to the introduction of a new Safety Code for passenger ships operating solely in UK categorised waters, developed under Work Area A.

The key areas of improvement are improved fire protection and additional fire fighting equipment to reduce the chance of a major fire incident; enhancement of the provisions for life saving appliances; improvement of the stability standards on smaller ships; and, clarification and greater flexibility for the construction standards to include additional appropriate construction standards for smaller passenger ships.

## Section 3. Options

### Option 1: Do nothing

Formal investigations, FSAs and research were undertaken following the Marchioness disaster in 1989, using extensive resources over a number of years and the findings of which were presented to the public in 2005. Ministers publicly committed to the implementation of the recommendations and a review of all the safety standards. Failure to implement this new Code would mean that the recognised safety concerns were not being addressed.

**Option 2: Introducing new legislation (Preferred Option)**

Work area A, as identified in the diagram above, has resulted in the development of a Code of Practice, Safety Code for Passenger Ships operating solely in UK Categorised Waters. The Code will only be applicable to new ships and replaces existing legislation for Class IV and V ships.

The Code streamlines and simplifies the regulations governing the safety of passenger ships operating solely in UK categorised waters by drawing all the applicable requirements together into a single document. It will provide guidance on its application and replace numerous Statutory Instruments (SIs), Merchant Shipping Notices (MSNs) and other documents which operators currently need to refer to. The revised technical standards have incorporated the results of the FSA of domestic passenger ships carried out following the Marchioness accident; the findings of the additional investigations; and findings from research projects, to ensure that these improved standards are appropriate to the risks of the individual operating environments.

The new technical requirements have been developed in consultation with surveyors and industry representatives of the Domestic Passenger Ship Steering Group (DPSSG). Regular updates on the progress of the project have been given to industry and an informal consultation on draft technical standards has been undertaken. The proposals to improve technical standards for new ships are broadly accepted by industry as appropriate to the risks associated with the operating areas. The changes have generally received positive support, particularly because the proposed legislation provides all the technical requirements in a single document rather than a great number of statutory instruments and merchant shipping notices.

It is intended to introduce the Code as legislation in the form of a MSN implemented by a SI. The MSN will contain the technical standards which the ship will be required to comply with. These standards will cover constructional aspects, equipment to be carried onboard, inspection and maintenance regimes and also operational aspects.

The surveyor will survey the ship against the requirements given in the MSN. When the surveyor is content that the ship and its operating procedures fully comply with the requirements, a Passenger Ship Safety Certificate will be issued. The ship will be subject to additional surveys and inspections to ensure these standards are maintained. The Master will also have an ongoing obligation to ensure the ship is maintained and operated in accordance with the Code in order for the Passenger Ship Safety Certificate to remain valid. The SI will stipulate that the Master may only proceed on a voyage provided the ship holds a valid Passenger Ship Safety Certificate.

**Section 4. Costs and Benefits**

The new regulations are only applicable to new build ships and a comparison has been made to identify all the additional equipment requirements for ships operating in each type of categorised water[3]. The MCA Marine Offices hold records of all new passenger ships built and surveyed in their individual regions. These details include information such as length of ship, area of operation, maximum number of passengers, construction material, construction class, life saving equipment and stability. This information was used to establish the typical size of ships built per category over the last 10 years.

For the purposes of this impact assessment, the estimates of the impact of the Regulations on the costs of new ships included in this section are based on a 'typical' ship that is assumed for each category. The 'typical' ship that is assumed for each category is defined below:

- 63% of ships operating in Category A waters and 82% in Category B waters were single deck ships less than 24 metres in length carrying less than 70 passengers. These are assumed to be the 'typical' ship for these categories of water.

[3] Annex 2 details definitions of UK categorised waters and classes of ships.

- There is no one predominant type of ship in Category C waters. A 20m multi-deck ship carrying 200 passengers is assumed to be the 'typical' ship for this category of water.

- 56% of ships operating in Category D waters were multi-deck ships over 24m in length carrying more than 250 passengers. These ships are assumed to be the 'typical' ship for this category of water.

However, it is recognised that the impact of the Regulations on the costs of new ships is likely to vary between different ships in practice. The extent of this variation from the ships that are assumed to be 'typical' is uncertain.

## 4.1. Summary of approach to estimating the impact of the Regulations on the costs of new ships

To identify all of the additional requirements that would be needed under the new regulations, the new regulations were compared to the existing regulations for each of the typical size of ships listed above. Where additional equipment is required under the new regulations, quotes were obtained from online suppliers of marine equipment at the time this IA was prepared to estimate the impact of the Regulations on the costs of new ships. Individual suppliers are not named within this document to maintain impartiality. It is recognised that these estimates could vary for a number of reasons, and that consequently these estimates are subject to uncertainty. These estimates should therefore be considered indicative.

Table 1 presents a summary of the estimates of the impact of the Regulations on the costs of new ships per ship for each category. A full breakdown is listed in Annex 1. Where the impact of the Regulation on the costs of new ships is negative (i.e. it reduces the cost of a new ship), this is considered to be a benefit for the purposes of this impact assessment.

**Table 1: Summary of estimates of the impact of the Regulations on the costs of new ships.**

| **Impact on Costs per ship** | **Water Category of Operation** | | | |
|---|---|---|---|---|
| | **Category A** | **Category B** | **Category C** | **Category D** |
| **Impact on One-Off Costs** | | | | |
| Equipment costs | £2,266.78 | £6,049.84 | £6,976.02 | £3,819.15 |
| Plan approval and initial survey benefit / costs | -£7,140 | -£7,140 | £0.00 | £5,671.00 |
| **Total Impact on One-Off costs** | **-£4,783.22** | **-£1,090.16** | **£6,976.02** | **£9,490.15** |
| | | | | |
| **Impact on Operational Costs (per annum)** | | | | |
| LPG and LSA survey costs | **£80.00** | **£400.00** | **£400.00** | **£400.00** |

## 4.2. Summary of the monetised costs and benefits of the Regulations

A 10 year appraisal period beginning in 2010 has been used for this impact assessment. Only monetised costs and benefits incurred within the 10 year appraisal period have been included in the estimates in Table 2 below.

MCA records show that there were 108 new ships, operating solely on UK waters and surveyed by the MCA, built over the last 10 year period, which averages at 10.8 new ships built each year. For the purposes of this impact assessment, it has been assumed that 108 new ships will be affected by the Regulations over the 10 year appraisal period. Furthermore, it has been assumed that 10.8 new ships will be introduced in each year of the appraisal period.

The estimated monetised costs and benefits for individual ships vary depending on the category of ship. The estimates of the total monetised costs and benefits of the Regulations, and the Net Present Value (NPV) of the Regulations, will therefore depend on the mix of ships that is assumed across each of the ship categories. Estimates of the NPV are presented for three scenarios. These scenarios are defined as follows:

- The 'Low Scenario' is based on the assumption that all ships built over the next 10 years are Category D vessels, which implies no monetised benefits and the highest monetised costs.
- The 'High Scenario' is based on the assumption that all ships built over the next 10 years are Category A vessels, which implies the highest monetised benefits and the lowest monetised costs.
- The 'Central Scenario' is based on the assumption that the number of ships of each category constructed over the next ten years is the same as that over the previous ten years.

**Table 2: Summary of the monetised costs and benefits of the Regulations[4]**

| **Year** | **2010** | **2011** | **2012** | **2013** | **2014** | **2015** | **2016** | **2017** | **2018** | **2** |
|---|---|---|---|---|---|---|---|---|---|---|
| Annual Costs | £107,000 | £111,000 | £115,000 | £120,000 | £124,000 | £128,000 | £133,000 | £137,000 | £141,000 | £14 |
| Discounted Costs | £107,000 | £107,000 | £108,000 | £108,000 | £108,000 | £108,000 | £108,000 | £108,000 | £107,000 | £10 |
| Total Costs (PV) | £ 1.1 Million | | | | | | | | | |
| Annual Benefits | £0 | £0 | £0 | £0 | £0 | £0 | £0 | £0 | £0 | |
| Discounted Benefits | £0 | £0 | £0 | £0 | £0 | £0 | £0 | £0 | £0 | |
| Total Benefits (PV) | £ 0.0 Million | | | | | | | | | |
| **Low NPV** | £ -1.1 Million | | | | | | | | | |
| Annual Costs | £75,000 | £78,000 | £82,000 | £86,000 | £90,000 | £93,000 | £97,000 | £101,000 | £105,000 | £10 |
| Discounted costs | £75,000 | £76,000 | £77,000 | £77,000 | £78,000 | £79,000 | £79,000 | £79,000 | £79,000 | £8 |
| Total Costs (PV) | £ 0.8 Million | | | | | | | | | |
| Annual Benefits | £23,000 | £23,000 | £23,000 | £23,000 | £23,000 | £23,000 | £23,000 | £23,000 | £23,000 | £2 |
| Discounted Benefits | £23,000 | £22,000 | £22,000 | £21,000 | £20,000 | £19,000 | £19,000 | £18,000 | £18,000 | £1 |
| Total Benefits (PV) | £ 0.2 Million | | | | | | | | | |
| **Central NPV** | £ -0.6 Million | | | | | | | | | |
| Annual Costs | £25,000 | £26,000 | £27,000 | £28,000 | £29,000 | £30,000 | £31,000 | £31,000 | £32,000 | £3 |
| Discounted Costs | £25,000 | £25,000 | £25,000 | £25,000 | £25,000 | £25,000 | £25,000 | £25,000 | £24,000 | £2 |
| Total Costs (PV) | £ 0.2 Million | | | | | | | | | |
| Annual Benefits | £77,000 | £77,000 | £77,000 | £77,000 | £77,000 | £77,000 | £77,000 | £77,000 | £77,000 | £7 |

[4] Table 2 is rounded as follows. 1.) Annual Costs, Discounted Costs, Annual Benefits and Discounted Benefits are rounded to the nearest thousand. 2.) Total Costs (PV), Total Benefits (PV) and NPV are rounded to the nearest hundred thousand.

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Discounted benefits | £77,000 | £75,000 | £72,000 | £70,000 | £67,000 | £65,000 | £63,000 | £61,000 | £59,000 | £5 |
| Total Benefits (PV) | £ 0.7 Million | | | | | | | | | |
| **High NPV** | £ 0.4 Million | | | | | | | | | |

## 4.3. Monetised Costs

The following costs have been monetised in this impact assessment, and are reflected in Table 1 and Table 2:

### 4.3.1. One-Off Costs

The following One-Off costs of the Regulations have been monetised in this impact assessment:

- The additional equipment costs due to the increased safety standards in fire protection and an increase in the number of life saving appliances required under the new Regulations.
- The more specific requirements for plan approval and the initial survey for Category D ships.

Estimates of these monetised costs per ship are presented in Table 3. The basis of these estimates is explained in Section 4.1 and Annex 1.

**Table 3: Estimated One-Off Costs of the Regulations.**

| **One-Off Costs per ship** | **Water Category of Operation** | | | |
|---|---|---|---|---|
| | **Category A** | **Category B** | **Category C** | **Category D** |
| Additional Equipment costs | £2,266.78 | £6,049.84 | £6,976.02 | £3,819.15 |
| Additional Plan approval and initial survey costs | N/A | N/A | N/A | £5,671.00 |
| **Total One-Off costs** | **£2,266.78** | **£6,049.84** | **£6,976.02** | **£9,490.15** |

### 4.3.2. Ongoing Costs

The following ongoing costs have been monetised in this impact assessment:

- The costs of servicing of liferafts.
- The costs for the annual service of LPG installations.

Estimates of these monetised costs per ship are presented in Table 4. The basis of these estimates is explained in Section 4.1 and Annex 1.

**Table 4: Estimated One-Off Costs of the Regulations.**

| **Ongoing Costs Per Vessel Per Year** | **Water Category of Operation** | | | |
|---|---|---|---|---|
| | **Category A** | **Category B** | **Category C** | **Category D** |
| Annual survey of LPG installations | £80.00 | £80.00 | £80.00 | £80.00 |
| Service of Liferafts | £0.00 | £320.00 | £320.00 | £320.00 |
| Total Annual costs | £80.00 | £400.00 | £400.00 | £400.00 |

### 4.3.3. Accident Investigation Costs

There is no additional burden to MAIB under the new regulations.

## 4.4. Non-Monetised Costs

It has not been possible to monetise the following costs in this impact assessment:

- the potential cost for additional stability requirements;
- the potential cost for a rescue boat for ships of over 24m in length that cannot demonstrate adequate manoeuvrability to return to a person overboard;
- the potential cost for ships built from wood or GRP to have galley areas bounded by steel bulkheads;
- the potential cost to install a sprinkler system for any ships built with passenger accommodation;
- the potential cost for servicing for those ships choosing to carry inflatable lifejackets.

### 4.4.1. Additional Stability Requirements

The new regulations further enhance the stability standards for some ships, depending on the area of operation and number of passengers on board. Significant changes were made to the stability requirements in 1992 following the Marchioness disaster. These regulations improved the intact stability and damage survivability for larger ships. The new Code further improves the standards for smaller ships, specifically those ships operating in Category A waters carrying more than 50 passengers will now be required to meet an intact stability standard, those operating in Category B waters carrying 50 passengers or less will need to demonstrate some damage survivability and those in Category C waters if carrying 50 or less passengers will be required to be subdivided.

Based on the MCA figures for new builds over the last ten years, approximately 45% of new ships may incur some additional stability costs as on average 55% are already built to the new stability standard. These extra costs will be incurred mainly at the design stage to ensure the new standards are met, primarily because additional analysis will need to be undertaken. There could also be some increase in construction costs. The costs are hard to quantify and have not been monetised in this impact assessment, but are considered to be negligible as many designers and boat builders will have previously designed and built similar vessels to such standards since 1992.

### 4.4.2. Additional Equipment Costs

The additional equipment costs listed in the paragraphs below are recognised as potential costs but have not been listed in Tables 1, 2 and 3 as MCA records show that over the last 10 years the additional equipment was not required on a significant number of ships. Therefore it would be difficult to quantify the number of ships affected in order to monetise these additional equipment costs.

(a) Rescue Boat – The old regulations required all ships operating in Category D waters to fit a rescue boat irrespective of the length of the ship. The new regulations require ships, operating in Category C and D waters that are 24m in length and over, to carry a rescue boat. This requirement may be relaxed for ships under 35m in length that can demonstrate adequate manoeuvrability to return to a person overboard and demonstrate the arrangements of recovery. Of the 108 ships built in the last 10 years an additional 15 ships (14%) will be required to carry a rescue boat under the new regulations. However, eight of the 108 ships (7%) which were required to carry rescue boats under the old regulations will not require them in the new regulations. Therefore, based on the figures in the last ten years only an additional seven per cent of new ships will be required to carry a rescue boat. The cost of a rescue boat with launch and recovery system is approximately £20,000. This cost has not been included in Tables 1, 2 and 3 due to the small number of ships affected.

(b) Fire protection in the Galley - New ships will also require galley areas to be bounded by steel bulkheads. There will be no significant extra costs for ships constructed from steel as the construction standards already allow for steel bulkheads. However, for new ships built from wood or GRP (Glass-

reinforced plastic) the galley bulkheads will need to be insulated with structural fire protection. There have only been seven ships built from GRP, and two built from wood, in the ten year period 1998 – 2007. While the cost for a galley area to have structural fire protection (based on an area of (2m x 2m) x 2m) is £379, this cost has not been included in the summary of additional costs listed above.

(c) Sprinkler system in passenger sleeping accommodation - Any ships with sleeping accommodation for passengers will be required to fit an automatic pressurised water sprinkler system. MCA records show only one new ship, built between 1998 and 2007, to have sleeping accommodation so again, this cost has not been included in the overall additional costs. However, quotes obtained show the cost of such a system is approximately £52,500.

(d) Servicing of inflatable lifejackets - Ships will be required to carry lifejackets/buoyancy aids for all passengers. These could be inflatable or inherently buoyant lifejackets. For those ships opting to carry inflatable lifejackets there will be an additional cost for servicing of approximately £6.50 per life jacket. Under the new regulations inflatable lifejackets will require servicing once every two years.

## 4.5. Monetised Benefit

The following benefit has been monetised in this impact assessment, and is reflected in Table 1 and Table 2:

Initial Construction and Survey Benefit

The approved constructions standards under the new Code have been extended to include those of Sea Fish Industry Authority (SFIA) for smaller, single deck ships, carrying less than 70 passengers, as mentioned above. MCA records show that 43 out of the 108 new ships built over the last ten years would have had the option to have the plan approval and initial survey work carried out by SFIA. SFIA costs are approximately £7,140 lower than that of the MCA for a typical 20m ship, see Section 5.2 in Annex 1 for further information.

Annex 1, breakdown of costs, shows the benefit for ship owners having plan approval and survey work undertaken by SFIA in Category A and B waters only as the 'typical' ships operating in these areas are under 24m in length hence the benefit is likely to apply. This benefit could also apply to ships which operate in Category C and D waters, but this benefit has not been included in Tables 1, 2 and 5 as ships operating in C and D waters would typically be over 24m in length, and therefore not eligible for SFIA plan approval and survey.

Estimates of this monetised benefit per ship are presented in Table 5. The basis of these estimates is explained in Section 4.1 and Annex 1.

**Table 5: Estimated One-Off Benefits of the Regulations.**

| **One-Off Benefits per ship** | **Water Category of Operation** | | | |
|---|---|---|---|---|
| | **Category A** | **Category B** | **Category C** | **Category D** |
| Reduced Plan approval and initial survey costs | £7,140 | £7,140 | | |
| **Total One-Off Benefits** | **£7,140** | **£7,140** | **£0** | **£0** |

## 4.6. Non-Monetised Benefits

It has not been possible to monetise the following benefits in this impact assessment:

4.6.1. Better Regulation

One key objective of the review is to simplify and streamline the regulations and make them more accessible to the industry.

The research highlighted the fact that the regulations and guidance applying to domestic passenger ships in the UK are difficult to access and understand. Existing regulations are scattered over approximately 90 documents which consist of original legislation, subsequent amendments and related guidance. The production of a comprehensive Code, which draws together all the applicable requirements together into one single document, will make the regulations more accessible for all users, industry and surveyors alike. The regulations can now be tailored more effectively to small ships and to the area of operation.

The opportunity to reduce the number of regulatory documents, which is consistent with the Government's Better Regulations Initiative, will be missed if the Code is not implemented.

There is also an urgent need to review the safety standards for the existing fleet, however, it is believed necessary to establish an appropriate level of safety for new ships first. Once these standards are in place we will consider how the safety of the existing fleet needs to be enhanced, therefore, this work is a critical first stage to improving safety standards across the board.

This IA does not attempt to monetise the benefits of the simplification and streamlining of guidance into one concise document.

4.6.2. Benefits of Improved Safety Standards

Fatalities and Injuries Avoided.

The new requirements for all ships to carry life saving appliances of sufficient number and capacity to accommodate all passengers should mean that in Category B, C and D waters no passengers should need to enter the water in the event of an evacuation. All passengers would also be provided with a lifejacket or buoyancy aid, therefore in the unlikely event of entering the water the risk of drowning would be further minimised.

Ships built under the old regulations did not require a ship to have a fire detection system installed. MCA records show that the cause of accident for eight out of the 161 ships was due to either fire or explosion. The requirement under the new regulations to have a fire detection system and increased fire fighting equipment, particularly in machinery spaces, will reduce the chance of a major fire incident which could result in explosion; major damage to a ship; the possible need for evacuation; and injury or death. It should be noted that Research Project, RP 525, recommended that standards should be improved to ensure that in the event of a main machinery fire every ship would have at least 30 minutes in which to evacuate.

The improvement to stability standards highlighted under 'Costs' is supported by the findings of Research Project, RP 524, which studied the behaviour of a ship in a collision with another comparatively large ship, based on the Marchioness/Bowbelle incident. The research provided a better understanding of the capsize mechanisms. The Marchioness/Bowbelle disaster resulted in the loss of 51 lives due to the sudden loss of the ship. Whilst a similar accident may still have severe consequences, it is hoped that the improvements in survivability would reduce the consequences, mostly because the ships could either withstand the damage and remain afloat or would at least remain afloat long enough for the ship to be evacuated. Therefore it is hoped that a potential major disaster could be reduced to a smaller incident with no lives lost and minimal injury.

While the introduction of new safety standards could be expected to have the potentially large social benefit of reducing fatalities and injuries, this IA does not attempt to monetise the benefits of injuries and fatalities avoided as the MCA are unable to prove that any loss of life in the last ten years could have been prevented by the introduction of this Code.

4.6.3. Incident Response and Rescue Co-ordination

Costs for responding to incidents and co-ordinating rescues have also been considered and where the new regulations improve the standards of safety on small domestic passenger ships, it is anticipated that rather than the number of incidents being reduced the most significant improvement will be the reduction in the severity of the incidents and the need for evacuation of ships.

This IA does not attempt to monetise the benefits of avoiding costs of responding to incidents and co-ordinating rescues.

## Section 5. Post Implementation Review

The implementation of the Regulations will be reviewed through the MCA's normal contact with industry and NGO groups at the DPSSG meetings held twice a year and by monitoring the costs and benefits to new build projects over the next three years.

## Section 6. Results of the Formal Consultation

The Code to which this Impact Assessment refers has been developed in consultation with the DPSSG. Formal consultation was undertaken from September to November 2009, in accordance with the Cabinet Office's code of practice on consultation. The consultation package was sent out to stakeholders and interested parties, including domestic passenger ship industry, seafarer unions, ships surveyors, other Government departments and non Governmental organisations (NGOs).

Sixteen responses were received to the consultation. The majority of the comments related to the wording in the Code which needed to be improved for clarity. Some comments related to how the requirements would work in practice and why the requirements appeared to be different to existing legislation, in such cases the reasoning behind the changes has been explained. Other comments related to technical details and these have largely been incorporated into the Safety Code, any changes to the technical requirements have been detailed in this IA. A further set of comments were received which related to operational aspects which are mentioned in the Safety Code (but not made requirements of the Code) for the purpose of identifying in one place all applicable requirements. Such comments generally related to the seafarers' qualifications or hours of work regulations which are the subject of EC Directives, these requirements have not been changed and continue to be enforced by other legislation but are referred to in the Safety Code to ensure ship owners and operators are aware of the requirements as well as the construction standards.

## Section 7. Specific Impact Tests

### 7.1. Small Firms Impact Test

Many ship operators are small businesses operating only a small number of ships. In developing the technical standards we have been mindful not to put unnecessary financial burden on smaller operators, however, the safety of passengers is the highest priority. It is not possible to specifically reduce the financial impact of the requirements on small firms as the associated risks of operating a passenger ship are inherent for the operating area rather than dependent on company size. However, the Regulations have been developed using a risk based approach and standards have only been increased where there is a clear safety benefit in relation to the risk and costs. In practice, many small businesses operate smaller ships which tend to be located on less onerous waterways and so the associated costs are as low as practicable. We have also introduced SeaFish Industry Authority Standards for smaller, more basic ships which will reduce initial construction and survey costs, these ship types tend to also be operated by smaller business and so will benefit from reduced costs.

### 7.2 Competition Assessment

The industry is fragmented, including many individual operators with few larger concerns. The Code will affect all operators across the board and it is expected that there will be no negative impact on UK competition.

### 7.3 Equalities Impact Tests

The results of the equality impact tests are reported in Annex 3.

## Section 8. Enforcement, Sanctions and Monitoring

The Code will be made mandatory by a Statutory Instrument and enforced by the Maritime and Coastguard Agency in the same way as in the existing regulatory regime. The regulations provide sanctions for non-compliance.

Penalties

The Master and/or owner will be guilty of an offence if:

- The ship proceeds or attempts to proceed on a voyage without a valid Passenger Ship Safety Certificate (PSSC);
- He does not maintain standards outlined in the regulations;
- Changes are made to the ship after a survey has been undertaken and a PSSC certificate has been issued;
- He does not report an accident or incident;
- He does not undertake an additional survey if required by the Secretary of State;
- He does not have the PSSC available at all times; and
- He does not surrender any cancelled or suspended PSSC to the Secretary of State if required to do so.

These offences are liable on summary conviction to a fine not exceeding the statutory minimum or on indictment be liable to imprisonment for a term not exceeding two years and/or a fine.

Detention

A ship will be detained if there is reason to believe that the PSSC was invalid or if:

- The safety management system and procedures were not being properly implement;
- The condition of the ship did not correspond substantially with the safety requirements of the code;
- The Mater and crew did not appear competent to operate the ship and safety equipment on board;
- The physical condition of the structure of the ship to which the Partial Declaration relates was not maintained in a satisfactory condition or the ship was not fit for the service for which it was intended; and
- The equipment on board was not functional and ready for use whenever the ship proceeded on a voyage.

## Specific Impact Tests: Checklist

| **Type of testing undertaken** | ***Results in Evidence Base?*** | ***Results annexed?*** |
|---|---|---|
| Competition Assessment | Yes | No |
| Small Firms Impact Test | Yes | No |
| Legal Aid | No | No |
| Sustainable Development | No | No |
| Carbon Assessment | No | No |
| Other Environment | No | No |
| Health Impact Assessment | No | No |
| Race Equality | No | Yes |
| Disability Equality | No | Yes |
| Gender Equality | No | Yes |
| Human Rights | No | No |
| Rural Proofing | No | No |

## ANNEX 1

### Safety Code for Passenger Ships Operating Solely in UK Categorised Waters

### Estimates of the impact of the Regulations on the Cost of a Typical Size New Ship

(All estimates are indicative and are based on quotes from marine equipment suppliers unless stated)

Estimates of the impact of the Regulations on the cost of the 'typical' size new ship that is assumed for each of the categories are presented below.

### 1. Ships operating in category A waters

All calculations and costs are based on a typical ship operating in Category A waters. Approximate size: Length 18 m, single deck, 60 passengers.

### 1.1 Bilge Pumping

Previous regulations required those other than open boats carrying between 50 – 250 passengers to carry one powered bilge pump and hand pumps serving all compartments.

New regulations will require two fixed and independently power pumps, one of which is capable of being supplied by the emergency power source.

Costs of pumps:

| | |
|---|---|
| Powered | |
| Electro-magnetic pump, output: 195 litres/min @ 1500 rpm | = £449.08 |
| Submersible pump, output 120 litres/min | = £140.23 |
| Hand operated | |
| Hand pump, output 100 litres/min | = £55.71 |

**Extra costs for an average new ship, which has three bilge compartments:**

| | | |
|---|---|---|
| *Existing ship:* | | |
| Powered pump (engine run) | £449.08 x 1 | = £449.08 |
| Hand pumps serving 3 compartments | £55.71 x 3 | = £167.13 |
| Total | | = £616.21 |
| | | |
| *New ship:* | | |
| Powered pump (engine run) | £449.08 x 1 | = £449.08 |
| Submersible pump | £140.23 x 3 | = £420.69 |
| 1 per compartment (emergency power) | | |
| Total | | = £869.77 |
| | | |
| Total extra costs involved | £869.77 - £616.21 | = £253.56 |

### 1.2 Bilge Alarms

There is no requirement under the existing regulations to carry a bilge alarm.

New regulations require a bilge alarm system.

| | |
|---|---|
| Bilge alarm panel | = £56.25 |
| Float switches x 3 | = £77.97 |
| Total extra costs involved | = £134.22 |

### 1.3 DSC VHF Radio

Ships operating in category A waters were not previously required to carry a fixed DSC VHF. The new regulations require ships to carry DSC VHF where VHF coverage is available. It is important to note that a vast majority of ships operating in Category A waters are unlikely to have VHF coverage and will not be required to carry fixed VHF, therefore the cost is not shown in the summary.

Extra costs (where required):

| | |
|---|---|
| DSC VHF Radio | = £99.99 |
| Total extra costs involved in this example | = £0.00 |

### 1.4 Means of recovery

Similar requirements to the old regulations, however, the new requirements are more prescriptive. Costs for a more comprehensive system are listed and included in the summary.

| Sample costs | |
|---|---|
| Man over board recovery module | = £599.95 |
| Man over board recovery cradle 1m – 710mm wide | = £952.00 |
| Man over board recovery hoist | = £255.27 |
| Average cost | = £602.41 |

### 1.5 Portable Fire Extinguishers

Similar requirements are needed in the new regulations except in spaces where significant amounts of electronics are present, such as the bridge. Suitably sized carbon dioxide or dry powder extinguishers should be used and inlet ports on equipment should be provided, where possible, to aid the extinguishing of fires.

Additional costs for one portable $CO^2$ fire extinguisher of not less than 3kg and one portable dry powder extinguisher of not less than 4.5kg.

| | |
|---|---|
| 5kg $CO^2$ fire extinguisher | = £67.97 |
| 6kg powder fire extinguisher | = £34.97 |
| Total | = £102.94 |

### 1.6 Fixed Fire fighting System

This is an additional requirement under the new regulations. The fire extinguisher should be arranged to discharge into the machinery housing.

| | |
|---|---|
| 9L AFFF | = £35.97 |
| Approximate cost of modified nozzle for injection into engine space | = £30.00 |

| | | | |
|---|---|---|---|
| Total | | | = £65.97 |

### 1.7 Heat and smoke detectors for machinery space

No fire detectors were required under the existing regulations; new regulations make provision for these.

| | | | |
|---|---|---|---|
| Fire detector | | £520 - 10% trade discount | = £468.00 |
| Detection heads | - Heat | | = £30.00 |
| | - Smoke | | = £20.00 |
| Total | | | = £518.00 |

### 1.8 Structural fire protection of a machinery space

The new regulations improve the standard of insulation from A15 to A30.

Example setup: Fire protection material attached by 2.5 mm diameter steel pins. Spring steel washers 250 mm diameter. An overlay wire mesh to be applied.

Calculations are based on a machinery space of 2m x 1.5m x 1.5m.

**Extra cost to new ships:**

**To an A15 standard** *(old regulations):*

| | | |
|---|---|---|
| Fire protection material | £11.23 per $m^2$ x $14m^2$ | = £157.22 |
| Wire mesh | £1.35 per $m^2$ x 14 $m^2$ | = £18.90 |
| Steel pins | per 1000 | = £22.40 |
| Spring washers | per 2000 | = £72.05 |
| Total | | = £270.57* |

**To an A30 standard** *(new regulations):*

| | | |
|---|---|---|
| Fire protection material | £12.90 per $m^2$ x $14m^2$ | = £180.60 |
| Wire mesh | £1.35 per $m^2$ x $14m^2$ | = £18.90 |
| Steel pins | per 1000 | = £22.40 |
| Spring washers | per 2000 | = £72.05 |
| Total | | = £293.95* |
| | | |
| Total extra cost | £293.95 - £270.57 | = £23.38 |

* Prices are an approximate

### 1.9 Toilet Facilities

Two WCs are required under the new regulations for ships carrying between 50 and 100 passengers. None were required under the old regulations.

| | | |
|---|---|---|
| Manual Toilet x 2 | £153.15 x 2 | = £306.30 |
| Equipment, plumbing and installation | | = £140.00 |
| Total | | = £446.30 |

### 1.10 Corgi Engineer for installation and surveys of LPG systems.

Corgi engineer is now required under the new regulations for the installation of any LPG systems and annual surveys.

| | | |
|---|---|---|
| Corgi engineer cost per hour (approximate) | | = £40.00 |
| Installation | £40 x 3 | = £120.00 |
| Annual survey | £40 x 2 | = £80.00 |

Note: It is estimated that an average of 2 hours will be needed to asses any systems onboard, however this is totally dependant on the type and number of systems fitted requiring an assessment.

### 1.11 Plan approval and initial survey

Under the new regulations owners of single deck ships of less than 24m carrying less than 70 passengers now have the additional option to have the plan approval and initial survey undertaken by Sea Fish Industry Authorities as well as the MCA or Classification Societies. The cost of plan approval and initial surveys are estimated as follows in Section 5.2 of Annex 1.

| | | |
|---|---|---|
| MCA costs | | = £19,740.00 |
| Sea Fish Industry Authority costs | exc. VAT | = £12,600.00 |
| Additional Benefit | | = £7,140.00 |

### 1.12 Summary of extra costs for average ship operating in category A waters:

| | |
|---|---|
| Bilge pumping | £253.56 |
| Bilge Alarm | £134.22 |
| Means of recovery | £602.41 |
| Portable fire extinguishers | £102.94 |
| Fixed Fire fighting | £65.97 |
| Heat and Smoke detectors | £518.00 |
| Structural Fire Protection | £23.38 |
| Toilets | £446.30 |
| Corgi engineer | £120.00 |
| Initial construction and survey | |
| Plan approval and initial survey benefit | -£7,140.00 |
| **Total exc. VAT** | **-£4,873.22** |

### 1.13 Ongoing Annual Costs

| | |
|---|---|
| Annual Survey LPG systems | £80.00 |
| **Total exc. VAT** | **£80.00** |

## 2. Ships Operating in Category B Waters

All calculations and costs are based on a typical ship operating in category B waters. Approximate size: Length 18m, single deck, 60 passengers.

## 2.1 Bilge Pumping

Previous regulations required those other than open boats carrying between 50 – 250 passengers to carry one powered bilge pump and hand pumps serving all compartments.

New regulations will require two fixed and independently power pumps, one of which is capable of being supplied by the emergency power source.

Costs of pumps:

| | |
|---|---|
| Powered | |
| Electro-Magnetic pump, output: 195 litres/min @ 1500 rpm | = £449.08 |
| Submersible pump, output 120 litres/min | = £140.23 |
| Hand operated | |
| Hand pump, output 100 litres/min | = £55.71 |

**Extra costs for an average new ship, which has three bilge compartments:**

| | | |
|---|---|---|
| *Existing ship:* | | |
| Powered pump (engine run) | £449.08 x 1 | = £449.08 |
| Hand pumps serving 3 compartments | £55.71 x 3 | = £167.13 |
| Total | | = £616.21 |
| | | |
| *New ship:* | | |
| Powered pump (engine run) | £449.08 x 1 | = £449.08 |
| Submersible pump | £140.23 x 3 | = £420.69 |
| 1 per compartment (emergency power) | | |
| Total | | = £869.77 |
| | | |
| Total Extra Costs Involved | £ 869.77 - £ 616.21 | = £253.56 |

## 2.2 Bilge Alarms

There is no requirement under the existing regulations to carry a bilge alarm.

| | |
|---|---|
| New regulations require a bilge alarm system. | |
| Bilge alarm panel | = £56.25 |
| Float switches x 3 | = £77.97 |
| | |
| Total extra costs involved | = £134.22 |

## 2.3 Life Saving Appliances

Existing regulations require either 60% buoyant apparatus or 60% liferafts.

New regulations will require 100% liferafts plus an additional 20% buoyant apparatus.

| | |
|---|---|
| 20 man buoyant apparatus | = £895.00 |
| 65 man ORIL | = £3,000.00 |

*Existing ship:*
To carry 60 passengers, ships required two 20 man buoyant apparatus:

| | | |
|---|---|---|
| Buoyant apparatus | £895 x 2 | = £1,790.00 |

*New ship:*
To carry 60 passengers a ship will require one 65 man ORILs and one 20 man buoyant apparatus:

| | | |
|---|---|---|
| ORILs | £3,000 x 1 | = £3,000.00 |
| Buoyant apparatus | £895 x 1 | = £ 895.00 |
| Total | | = £3,895.00 |
| Extra cost for new ship | £3,895 - £1,790 | = £2,105.00 |

Note: Liferafts require servicing twice in every 5 years. Each service costs approximately **£800 per liferaft**.

| | | |
|---|---|---|
| Annual cost | (£800 x 2 / 5) | = £320.00 |

### 2.4 Lifejackets/ Buoyancy aids:

An existing ship is not required to carry lifejackets. New ships will be required to carry 100%.

It is anticipated that the majority of ships will opt to carry inherently buoyant lifejackets. The individual costs of both are shown but the costs of buoyant lifejackets are used in the example.

| | | |
|---|---|---|
| Cost of a buoyant lifejacket | | = £15.68 |
| Cost of an inflatable lifejacket | | = £25.84 |
| Cost of 60 buoyant lifejackets in this example | £15.68 x 60 | = £940.80 |

Price includes discount for bulk orders.

Note: Inflatable lifejackets require servicing once in every two years. Each service costs approximately £6.50 per lifejacket.

| | | |
|---|---|---|
| Possible annual cost | (£6.50 / 2) x 60 | = £195.00 |

### 2.5 DSC VHF Radio

Ships operating in category B waters were not previously required to carry a fixed DSC VHF. The new regulations require vessels to carry DSC VHF where VHF coverage is available.

A vast majority of vessels operating in Category B waters are unlikely to have VHF coverage and will not be required to carry fixed VHF, therefore the cost is not shown in the summary of costs.

Extra costs (where required):

| | |
|---|---|
| DSC VHF Radio | = £99.99 |
| Total extra costs involved in this example | = £0.00 |

### 2.6 Portable Communications

Existing ships only required portable VHF if liferafts are carried. New ships are now required to carry liferafts and one portable radio per liferaft.

Handheld VHF Radio = £69.95

*Existing ship:*
To carry 60 passengers, ships required two 20 man buoyant apparatus and therefore no portable VHF.

*New ship:*
To carry 60 passengers a ship will require one 65 man ORILs and one 20 man buoyant apparatus and therefore one handheld VHF:

Extra cost for Handheld VHF Radio = £69.95

## 2.7 Portable Fire Extinguishers

Similar requirements are needed in the new regulations except in spaces where significant amounts of electronics are present, such as the bridge. Suitably sized carbon dioxide or dry powder extinguishers should be used and inlet ports on equipment should be provided, where possible, to aid the extinguishing of fires.

Additional costs for one portable $CO^2$ fire extinguisher of not less than 3 kg and one portable dry powder extinguisher of not less than 4.5 kg

| | |
|---|---|
| 5kg $CO^2$ fire extinguisher | = £67.97 |
| 6kg powder fire extinguisher | = £34.97 |
| Total | = £102.94 |

## 2.8 Fixed fire suppression system

This is an additional requirement under the new regulations.

Two options are available depending on the machinery space.

*Option 1:*

| | |
|---|---|
| 9L AFFF | = £35.97 |
| Approximate cost of modified nozzle for injection into engine space | = £30.00 |
| Total | = £65.97 |

*Option 2:*

Pre engineered system with manual override = £1,621.70*

* This does not include installation costs; however this should not be significant for a pre engineered system such as this

It is estimated that the number of vessels using option 1 & 2 will be equal, therefore an average is taken.

Total = £ 843.84

## 2.9 Heat and smoke detectors for a machinery space

No fire detectors were required under the existing regulations; new regulations make provision for these.

| | | | |
|---|---|---|---|
| Fire detector | | £520 - 10% trade discount | = £468.00 |
| Detection heads | - Heat | | = £30.00 |
| | - Smoke | | = £20.00 |
| Total | | | = £518.00 |

## 2.10 Structural fire protection of a machinery space

The new regulations improve the standard of insulation from A15 to A30.

Example setup: Fire protection material attached by 2.5 mm diameter steel pins. Spring steel washers 250 mm diameter. An overlay wire mesh to be applied.

Calculations are based on a machinery space of 3m x 2m x 1.5m.

**To an A15 standard** *(old regulations*)

| | | |
|---|---|---|
| Fire protection material | £11.23 per $m^2$ x $30m^2$ | = £336.90 |
| Wire mesh | £1.35 per $m^2$ x 30 $m^2$ | = £40.50 |
| Steel pins | per 1000 | = £22.40 |
| Spring washers | per 2000 | = £72.05 |
| Total | | = £471.85* |

**To an A30 standard** *(new regulations)*

| | | |
|---|---|---|
| Fire protection material | £12.90 per $m^2$ x $30m^2$ | = £ 387.00 |
| Wire mesh | £1.35 per $m^2$ x 30 $m^2$ | = £ 40.50 |
| Steel pins | per 1000 | = £ 22.40 |
| Spring washers | per 2000 | = £ 72.05 |
| Total | | = £ 521.95* |
| | | |
| Total Extra costs | £521.95 - £471.85 | = £50.10 |

* Prices are approximate

## 2.11 Toilet Facilities

For ships carrying 120 passengers, the new regulations require three WC's whereas existing guidance does not list any requirement.

| | | |
|---|---|---|
| Manual Toilet x 3 | £153.15 x 3 | = £ 459.45 |
| Equipment, plumbing and installation | | = £ 210.00 |
| Total | | = £ 669.45 |

## 2.12 Corgi Engineer for installation and surveys of LPG systems

Corgi engineer is now required under the new regulations for the installation of any LPG systems and annual surveys.

| | | |
|---|---|---|
| Corgi engineer cost per hour (approximate) | | = £40.00 |
| Installation: | £40 x 3 | = £120.00 |
| | | |
| Annual survey: | £40 x 2 | = £80.00 |

Note: It is estimated that an average of 2 hours will be needed to asses any systems onboard, however this is totally dependant on the type and number of systems fitted requiring an assessment.

### 2.13 Navigation equipment.

New ships of the size used in the example will be required to fit an echo sounder and GPS. Existing ships are not required to carry those listed.

| | |
|---|---|
| Echo sounder | = £82.99 |
| Global Positioning System (GPS) | = £158.99 |
| Total | = £241.98 |

### 2.14 Plan approval and initial survey

Under the new regulations owners of single deck ships of less than 24m carrying less than 70 passengers now have the additional option to have the plan approval and initial survey undertaken by Sea Fish Industry Authorities as well as the MCA or Classification Societies. The cost of plan approval and initial surveys are estimated as follows in Section 5.2 of Annex 1.

| | | |
|---|---|---|
| MCA costs | | = £19,740.00 |
| Sea Fish Industry Authority costs | exc. VAT | = £12,600.00 |
| Additional Benefit | | = £7,140.00 |

### 2.1.5 Summary of extra costs for average ship operating in category B waters:

| | |
|---|---|
| Bilge pumping | £253.56 |
| Bilge Alarm | £134.22 |
| Liferafts/BA | £2,105.00 |
| Lifejackets/Buoyancy Aids | £940.80 |
| Handheld VHF | £69.95 |
| Portable fire extinguishers | £102.94 |
| Fixed Fire fighting | £843.84 |
| Heat and Smoke detectors | £518.00 |
| Structural Fire Protection | £50.10 |
| Toilets | £669.45 |
| Corgi engineer | £120.00 |
| Navigation Equipment | £241.98 |
| Initial construction and survey | |
| Plan approval and initial survey benefit | -£7,140.00 |
| **Total exc. VAT** | **-£1,090.16** |

### 2.15 Ongoing Annual Costs

| | |
|---|---|
| Service of Liferafts | £320.00 |
| Annual survey LPG systems | £80.00 |
| **Total exc. VAT** | **£400.00** |

## 3 Ships operating in category C waters

All calculations and costs are based on a typical ship operating in category C waters. Approximate size: Length 20m, multi-deck, 200 passengers.

### 3.1 Bilge Pumping

Previous regulations required those other than open boats carrying between 50 – 250 passengers to carry a powered bilge pump and hand pumps serving all compartments.

New regulations will require two fixed and independently power pumps, one of which is capable of being supplied by the emergency power source.

Costs of pumps:

| | |
|---|---|
| Powered | |
| Electro-Magnetic pump, output: 195 litres/min @ 1500 rpm | = £449.08 |
| Submersible pump, output 120 litres/min | = £140.23 |
| Hand operated | |
| Hand Pump, output 100 litres/min | = £55.71 |

**Extra costs for an average new ship, which has three bilge compartments:**

| | | |
|---|---|---|
| *Existing ship:* | | |
| Powered pump (engine run) | £449.08 x 1 | = £449.08 |
| Hand pumps serving 3 compartments | £55.71 x 3 | = £167.13 |
| Total | | = £616.21 |
| | | |
| *New ship:* | | |
| Powered pump (engine run) | £449.08 x 1 | = £449.08 |
| Submersible pump | £140.23 x 3 | = £420.69 |
| 1 per compartment (emergency power) | | |
| Total | | = £869.77 |
| | | |
| Total Extra Costs Involved | £869.77 - £616.21 | = £253.56 |

### 3.2 Bilge Alarms

There is no requirement under the existing regulations to carry a bilge alarm.

| | |
|---|---|
| New regulations require a bilge alarm system. | |
| Bilge alarm panel | =£56.25 |
| Float switches x 3 | =£77.97 |
| | |
| Total extra costs involved | =£134.22 |

### 3.3 LSA

Existing regulations require 40% buoyant apparatus plus 70% liferafts.

New regulations will require 100% liferafts plus 20% buoyant apparatus.

| | |
|---|---|
| 20 man buoyant apparatus | = £895.00 |
| 65 man ORIL | =£3,000.00 |

*Existing Ship:*
To carry 200 passengers, ships required four 20 man buoyant apparatus and three 65 man ORILs:

| | | |
|---|---|---|
| Buoyant apparatus | £895 x 4 | = £3,580.00 |
| ORILs | £3000 x 3 | = £9,000.00 |
| Total | | = £12,580.00 |

*New ships:*
To carry 200 passengers a ship will require four 65 man ORIL's and two 20 man buoyant apparatus:

| | | |
|---|---|---|
| ORILs | £3,000 x 4 | = £12,000.00 |
| Bouyant apparatus | £895 x 2 | = £1,790.00 |
| Total | | = £13,790.00 |
| Extra cost for new ship | £13,790 - £12,580 | = £1,210.00 |

Note: Liferafts require servicing twice in every 5 years. Each service costs approximately **£800 per liferaft**.

| | | |
|---|---|---|
| Annual cost | £800 x 2 / 5 | =£320.00 |

### 3.4 DSC VHF Radio

Shipss operating in category C waters were previously not required to carry a fixed DSC VHF. The new regulation will require the vast majority of vessels to carry one as VHF coverage will be available in most cases.

*Extra cost:*

| | |
|---|---|
| DSC VHF Radio | = £99.99 |

### 3.5 Portable Communications

Existing ships only required portable VHF if liferafts are carried. New ships are now required to carry liferafts and one portable radio per liferaft.

| | |
|---|---|
| Handheld VHF Radio | = £69.95 |

*Existing ship:*
To carry 200 passengers, ships required four 20 man buoyant apparatus and three 65 man ORILs and therefore three portable VHF.

| | | |
|---|---|---|
| Handheld VHF Radio | £69.95 x 3 | = £209.85 |

*New ship:*
To carry 200 passengers a ship will require four 65 man ORIL's and two 20 man buoyant apparatus and therefore four portable VHF.

| | | |
|---|---|---|
| Handheld VHF Radio | £69.95 x 4 | = £279.80 |

| | | |
|---|---|---|
| Extra cost for Handheld VHF Radio | £279.80 – £209.85 | = £69.95 |

### 3.6 Portable Fire Extinguishers

Similar requirements are needed in the new regulations except in spaces where significant amounts of electronics are present, such as the bridge. Suitably sized carbon dioxide or dry powder extinguishers should be used and inlet ports on equipment should be provided, where possible, to aid the extinguishing of fires.

Additional costs for one portable $CO^2$ fire extinguisher of not less than 3 kg and one portable dry powder extinguisher of not less than 4.5 kg

| | |
|---|---|
| 5kg $CO^2$ fire extinguisher | = £67.97 |
| 6kg powder fire extinguisher | = £34.97 |
| Total | = £102.94 |

### 3.7 Fixed fire suppression system

This is an additional requirement under the new regulations.

It is anticipated that the most if not all ships operating in Category C waters will be required to have an approved system similar to that listed below.

| | |
|---|---|
| Pre engineered system with manual override | = £1,621.70* |

* This does not include installation costs; however this should not be significant for a pre engineered system such as this.

### 3.8 Heat and smoke detectors for a machinery space

No fire detectors were required under the existing regulations; new regulations make provision for these.

| | | | |
|---|---|---|---|
| Electronic Devices Type ED 820 | | £520 - 10% trade discount | = £468.00 |
| Detection heads | - Heat | | = £30.00 |
| | - Smoke | | = £20.00 |
| Total | | | = £518.00 |

### 3.9 Structural fire protection of a machinery space

The new regulations improve the standard of insulation from A15 to A30.

Example setup: Fire protection material attached by 2.5 mm diameter steel pins. Spring steel washers 250 mm diameter. An overlay wire mesh to be applied.

Calculations are based on a machinery space of 3m x 2m x 1.5m.

**To an A15 standard** *(old regulations)*

| | | |
|---|---|---|
| Fire protection material | £11.23 per $m^2$ x $30m^2$ | = £336.90 |
| Wire mesh | £1.35 per $m^2$ x 30 $m^2$ | = £40.50 |
| Steel pins | per 1000 | = £ 22.40 |
| Spring washers | per 2000 | = £ 72.05 |
| Total | | = £ 471.85* |

**To an A30 standard** *(new regulations)*

| | | |
|---|---|---|
| Fire protection material | £12.90 per $m^2$ x $30m^2$ | = £387.00 |
| Wire mesh | £1.35 per $m^2$ x 30 $m^2$ | = £40.50 |
| Steel pins | per 1000 | = £22.40 |
| Spring washers | per 2000 | = £ 72.05 |
| Total | | = £ 521.95* |
| Total cost | £521.95 - £471.85 | = £50.10 |

* Prices are an approximate

### 3.10 Toilet Facilities

For ships carrying 200 passengers four 4 WC's are required. Existing regulation does not list any requirements.

| | | |
|---|---|---|
| Manual Toilet x 4 | £153.15 x 4 | = £612.60 |
| Equipment, plumbing and installation | | = £280.00 |
| Total | | = £892.60 |

### 3.11 Corgi Engineer for installation and surveys of LPG systems

Corgi engineer is now required under the new regulations for the installation of any LPG systems and annual surveys.

| | | |
|---|---|---|
| Corgi engineer cost per hour (approximate) | | = £40.00 |
| Installation: | £40 x 3 | = £120.00 |
| Annual survey: | £40 x 2 | = £80.00 |

Note: It is estimated that an average of 2 hours will be needed to asses any systems onboard, however this is totally dependant on the type and number of systems fitted requiring an assessment.

### 3.12 Navigation equipment.

New ships of the size used in the example will be required to fit radar, an echo sounder, a radar reflector, GPS, speed measuring log and rudder angle indicator. Existing ships are not required to carry those listed.

| | |
|---|---|
| Radar& Echo sounder | = £1399.99 |
| Radar Reflector | = £99.99 |
| GPS & Speed Measuring Log | = £158.99 |
| Rudder Angle Indicator | = £243.99 |
| Total | = £1902.96 |

### 3.13 Total extra costs for average ship operating in category C waters:

| | |
|---|---|
| Bilge pumping | £253.56 |
| Bilge Alarm | £134.22 |
| Liferafts/BA | £1,210.00 |
| DSC VHF | £99.99 |
| Handheld VHF | £69.95 |

| | |
|---|---|
| Portable fire extinguishers | £102.94 |
| Fixed Fire fighting | £1621.70 |
| Heat and Smoke detectors | £518.00 |
| Structural Fire Protection | £50.10 |
| Toilets | £892.60 |
| Corgi engineer | £120.00 |
| Navigation | £1902.96 |
| **Total exc. VAT** | **£ 6,976.02** |

Note: there will be additional plan approval and survey costs for ships over 24 metres operating in category C waters. This cost is not shown here as this example uses an average size ship, 20 metres in length, operating in these waters. The cost of plan approval and initial surveys are estimated in Section 5.2 of Annex 1.

### 3.14 Ongoing Annual Costs

| | |
|---|---|
| Service of Liferafts | £320.00 |
| Annual survey LPG systems | £80.00 |
| **Total exc. VAT** | **£400.00** |

## 4. Ships operating in Category D waters

All calculations and costs are based on a typical ship of approximate size: Length 24m, multi-deck, 300 passengers.

### 4.1 Bilge Alarms

There is no requirement under the existing regulations to carry a bilge alarm.

New regulations require a bilge alarm system.

| | |
|---|---|
| Bilge alarm panel | = £75.00 |
| Float switches x 4 | = £103.96 |
| Total extra costs involved | = £178.96 |

### 4.2 Life Saving Appliances

Existing regulations require 40% buoyant apparatus plus 70% liferafts.

New regulations will require 100% liferafts plus 20% buoyant apparatus.

| | |
|---|---|
| 20 man buoyant apparatus | = £895 |
| 65 man ORIL | = £3,000.00 |

*Existing ships:*
To carry 300 passengers a ship required six 20 man buoyant apparatus and four 65 man ORILs:

| | | |
|---|---|---|
| Buoyant apparatus | £895 x 6 | = £5,370.00 |
| ORIL's | £3,000 x 4 | = £12,000.00 |
| Total | | = £17,370.00 |

*New ship:*
To carry 300 passengers a ship will require five 65 man ORILs and three 20 man buoyant apparatus:

| | | |
|---|---|---|
| ORILs | £3,000 x 5 | = £15,000.00 |
| Buoyant apparatus | £895 x 3 | = £2,685.00 |
| Total | | = £17,685.00 |
| Extra cost for new ship | £17,685 - £17,370 | = £315.00 |

Note: Liferafts require servicing twice in every 5 years. Each service costs approximately **£800 per liferaft**.

| | | |
|---|---|---|
| Annual cost | £800 x 2 / 5 | =£320.00 |

### 4.3 Portable Communications

Existing ships only required portable VHF if liferafts are carried. New ships are now required to carry liferafts and one portable radio per liferaft.

| | | |
|---|---|---|
| Handheld VHF Radio | | = £69.95 |

*Existing ship:*
To carry 300 passengers a ship required six 20 man buoyant apparatus and four 65 man ORILs and therefore four portable VHF.

| | | |
|---|---|---|
| Handheld VHF Radio | £69.95 x 4 | = £279.80 |

*New ship:*
To carry 300 passengers a ship will require five 65 man ORILs and three 20 man buoyant apparatus and therefore five portable VHF.

| | | |
|---|---|---|
| Handheld VHF Radio | £69.95 x 5 | = £349.75 |
| Extra cost for Handheld VHF Radio | £349.75 – £279.80 | = £69.95 |

### 4.4 Portable Fire Extinguishers

Similar requirements are needed in the new regulations except in spaces where significant amounts of electronics are present, such as the bridge. Suitably sized carbon dioxide or dry powder extinguishers should be used and inlet ports on equipment should be provided, where possible, to aid the extinguishing of fires.

Additional costs for one portable $CO^2$ fire extinguisher of not less than 3 kg and one portable dry powder extinguisher of not less than 4.5 kg

| | |
|---|---|
| 5kg $CO^2$ fire extinguisher | = £67.97 |
| 6kg powder fire extinguisher | = £34.97 |
| Total | = £102.94 |

### 4.5 Fixed fire suppression system

This is an additional requirement under the new regulations.

| | |
|---|---|
| Pre engineered system with manual override | = £ 1,621.70* |

* This does not include installation costs; however this should not be significant for a pre engineered system such as this.

### 4. 6 Heat and smoke detectors for a machinery space

No fire detectors were required under the existing regulations; new regulations make provision for these.

| | | | |
|---|---|---|---|
| Fire detector | | £520 - 10% trade discount | = £468.00 |
| Detection heads | - Heat | | = £30.00 |
| | - Smoke | | = £20.00 |
| Total | | | = £518.00 |

### 4.7 Toilet Facilities

For ships carrying 300 passengers, current guidelines recommend a minimum of two WCs, whereas the new regulations require six WCs. Therefore, there is an additional cost of four WCs.

| | | |
|---|---|---|
| Manual Toilet x 4 | £153.15 x 4 | = £612.60 |
| Equipment, plumbing and installation | | = £280.00 |
| Total | | = £892.60 |

### 4.8 Corgi Engineer for installation and survey of LPG systems

Corgi engineer is now required under the new regulations for the installation of any LPG systems and annual surveys.

| | | |
|---|---|---|
| Corgi engineer cost per hour (approximate) | | = £40.00 |
| Installation: | £40 x 3 | = £120.00 |
| Annual survey: | £40 x 2 | = £80.00 |

Note: It is estimated that an average of 2 hours will be needed to asses any systems onboard, however this is totally dependant on the type and number of systems fitted requiring an assessment.

### 4.9 Plan approval and initial survey

Ships of 24m and over operating in category D waters will be required under the new regulations to have the plan approval and initial surveys undertaken by an authorised Classification Society only. The old regulations gave owners the option to choose between a Classification Society or the MCA for this work. The cost of plan approval and initial surveys are estimated as follows in Section 5.2 of Annex 1.

| | | |
|---|---|---|
| MCA | | = £25,662.00 |
| Classification Society | | = £31,333.00 |
| Additional cost | £31,333 - £25,662 | = £5,671.00 |

### 4.10 Total extra costs for average ship operating in category D waters:

| | |
|---|---|
| Equipment costs | |
| Bilge Alarm | £178.96 |
| Liferafts/BA | £315.00 |
| Handheld VHF | £69.95 |
| Portable fire extinguishers | £102.94 |
| Fixed Fire fighting | £1621.70 |
| Heat and Smoke detectors | £518.00 |
| Toilets | £892.60 |
| Corgi engineer | £120.00 |
| | |
| Initial construction and survey costs | |
| Plan approval and initial survey costs | £5,671.00 |
| | |
| **Total exc. VAT** | **£9,490.15** |

### 4.11 Ongoing Annual Costs

| | |
|---|---|
| Service of Liferafts | £320.00 |
| Annual survey LPG systems | £80.00 |
| | |
| **Total exc. VAT** | **£400.00** |

## 5.0. Summary of Additional Costs

### 5.1 Summary Table

| **Impact on Costs Per Vessel** | **Water Category of Operation** | | | |
|---|---|---|---|---|
| **One-off Costs** | **Category A** | **Category B** | **Category C** | **Category D** |
| **Equipment costs** | | | | |
| Bilge Pump | £253.56 | £253.56 | £253.56 | £0.00 |
| Bilge Alarms | £134.22 | £134.22 | £134.22 | £178.96 |
| Life Saving Appliances | £0.00 | £2,105.00 | £1,210.00 | £315.00 |
| Lifejackets/Buoyancy aids | £0.00 | £940.80 | £0.00 | £0.00 |
| DSC VHF Radio | £0.00 | £0.00 | £99.99 | £0.00 |
| Portable Communications | £0.00 | £69.95 | £69.95 | £69.95 |
| Means of Recovery | £602.41 | £0.00 | £0.00 | £0.00 |
| Portable Fire Extinguishers | £102.94 | £102.94 | £102.94 | £102.94 |
| Fixed Fire Suppression System | £65.97 | £843.84 | £1,621.70 | £1,621.70 |
| Heat & Smoke Detectors | £518.00 | £518.00 | £518.00 | £518.00 |
| Structural Fire Protection | £23.38 | £50.10 | £50.10 | £0.00 |
| Toilet Facilities | £446.30 | £669.45 | £892.60 | £892.60 |
| Corgi Engineer | £120.00 | £120.00 | £120.00 | £120.00 |
| Navigation Equipment | £0.00 | £241.98 | £1,902.96 | £0.00 |
| **Plan approval and initial survey** | -£7,140.00 | -£7,140.00 | £0.00 | £5,671 |
| **Total one-off costs** | **-£4,873.22** | **-£1,090.16** | **£6,976.02** | **£9,490.15** |
| | | | | |

| **Operational costs per annum** | | | | |
|---|---|---|---|---|
| LPG and LSA survey costs | **£80.00** | **£400.00** | **£400.00** | **£400.00** |

Typically, the additional costs to operators at the build/production stage will range from approximately £6,906 and £10,802 across categories C and D. Across categories A and B the new safety code will entail cost savings at the build production stage of between £1, 090 and £4,783.

**Average new-build cost:**

The total build costs can vary greatly depending on many variables, for example ship size, area of operation and specification. Due to this wide variation of ships, it is difficult to quantify the cost of an average new build. However, it is anticipated that the majority of new builds will range from approximately £50,000 to over £1,000,000. It is important to note there are likely to be cases where costs will significantly exceed these figures, but this is expected to be in the minority. Considering the above, it is anticipated that an average build cost would be approximately **£400,000.**

The MCA has surveyed a total number of 108 new ships over the last ten years. As an average, it equates to approximately 11 per year.

| | **Category of Operation** | | | |
|---|---|---|---|---|
| | **A** | **B** | **C** | **D** |
| **No. of new builds within the last five years** | 24 | 11 | 55 | 18 |

## 5.2 Initial construction and survey costs

**MCA Survey Costs**

The MCA survey costs have been calculated based on the number of survey hours required at the hourly rate for MCA surveyors. The expected number of survey hours needed for each survey type is provided on the internal MCA website for guidance of our surveyors.

| **Typical 20m ship** | **No. of survey hours** | **Cost per hour** | **Total** |
|---|---|---|---|
| Plan approval | 100 | £94 | £9,400 |
| Stability approval | 50 | £94 | £4,700 |
| Survey | 60 | £94 | £5,640 |
| **Total** | **210** | £94 | **£19,740** |

This example uses a ship requiring a full stability approval. However, there will be some small ships operating in Category A waters that will only require a Heel Test and the stability approval costs will be greatly reduced.

**Sea Fish Authority Survey Costs**

SFIA survey costs are based on quotes from SFIA for example ships.

| **Typical 20m ship** | **Cost** |
|---|---|
| Plan approval (Hull Certification) | £2,800.00 + VAT |
| Stability approval | £4,000.00 + VAT |
| Survey (Hull & Outfit Certification) | £5,800.00 + VAT |

| | |
|---|---|
| **Total** | **£12,600 + VAT** |

This example uses a ship requiring a full stability approval. However, there will be some small ships operating in Category A waters that will only require a Heel Test and the stability approval costs will be greatly reduced. The costs do not include VAT.

**Classification Society Survey Costs**

| Class | Size of Ship | Cost 2007 |
|---|---|---|
| **American Bureau of Shipping (ABS)** | Under 27m | £29,000.00 |
| **Germanischer Lloyd (GL)** | 23m - 25m | £30,000.00 |
| **Registro Italiano Navale (RINA)** | 24m - 30m | £35,000.00 |

There is no change to the costs associated with the ongoing survey costs throughout the life of the vessel as this can be undertaken by either the Classification Society or by the MCA irrespective of who undertook the plan approval and survey work during the build.

**Additional Survey Costs for ships of 24 metres in length and over operating in Category C & D Waters**

Based on figures from 3 individual Classification Societies, an estimate of the plan approval and survey costs for a typical 26 m ship was made. The mean of these 3 figures is compared to MCA costs for a 26m ship. The MCA costs have been extrapolated from data for a 20m ship. The table below illustrates the approximate additional cost to build a new ship under survey by a Classification Society.

| | Size of Ship | Cost |
|---|---|---|
| Classification Society | 26 m | £31,333 |
| MCA | 26 m | £25,662 |
| **Additional Cost** | | **£5,671** |

Therefore, based on a 26 metre ship, the approximate additional survey cost for ships, operating in Category C & D waters, will be approximately £5,671.

**ANNEX 2**

## Definitions of Ship Classes and Categories of Water within the UK

### UK Domestic Passenger Ships

For the purpose of the existing regulations, passenger ships are arranged in the following Classes as detailed in regulation 2 of SI 1998/2515. This table illustrates where the specific ship Classes are permitted to operate and any operational restrictions which apply to them.

| | |
|---|---|
| *Class III* | Ships engaged only on voyages in the course of which they are at no time more than 70 miles by sea from their point of departure and not more than 18 miles from the coast of the United Kingdom, and which are at sea only in favourable weather and during restricted periods; |
| *Class IV* | Ships engaged only on voyages in Category A, B, C or D waters; |
| *Class V* | Ships engaged only on voyages in Category A, B, or C waters; |
| *Class VI* | Ships engaged only on voyages with not more than 250 passengers on board, to sea, or in Category A, B, C or D waters, in all cases in favourable weather and during restricted periods, in the course of which the ships are at no time more than 15 miles, exclusive of any Category A, B, C, or D waters, from their point of departure nor more than 3 miles from land; |
| *Class VI(A)* | Ships carrying not more than 50 passengers for a distance of not more than 6 miles on voyages to or from isolated communities on the islands or coast of the United Kingdom and which do not proceed for a distance of more than 3 miles from land; subject to any conditions which the Secretary of State may impose. |

The above Classes of ships do not include ships engaged on international voyages.

### Relevant areas of operation

The definitions of the passenger ship Classes refer to Category A, B, C and D waters, collectively known as 'Categorised waters'. These are fully defined in MSN 1776, which is given legal force by regulation 2 of SI 1998/2515, which refers to MSN 1504. MSN 1504 is superceded by MSN 1758 and then superceded by MSN 1776.

The extract from MSN 1776 below gives a description of the waters of each category.

a. **"Category A"** means narrow rivers and canals where the depth of water is generally less than1.5 metres;

b. **"Category B"** means wider rivers and canals where the depth of water is generally 1.5 metres or more and where the significant wave height could not be expected to exceed 0.6 metres at any time;

c. **"Category C"** means tidal rivers and estuaries and large, deep lakes and lochs where the significant wave height could not be expected to exceed 1.2 metres at any time;

d. **"Category D"** means tidal rivers and estuaries where the significant wave height could not be expected to exceed 2.0 metres at any time;

**ANNEX 3**

| Name of the function, policy or strategy – Current or proposed: **Merchant Shipping (Passenger Ships) (Safety Code for UK Categorised Waters) Regulations 2010** | | | | | | | |
|---|---|---|---|---|---|---|---|
| Person completing the assessment: **Lucy Luntz, MCA, Policy Lead – Domestic Passenger Ships** | | | | Date of assessment: **January 2010** | | | |
| Purpose of the function, policy or strategy: **Implementing improved safety standards for passenger ships operating in UK categorised waters** | | | | | | | |
| Questions – Indicate Yes or No for each group | **Gender** | **Religion or belief** | **Age** | **Disability** | **Ethnicity and race** | **Sexual Orientation** | **Transgender** |
| **Is there any indication or evidence that different groups have different needs, experiences, issues or priorities in relation to the particular policy?** | No | No | No | Yes[5] | No | No | No |
| **Is there potential for, or evidence that, this policy may adversely affect equality of opportunity for all and may harm good relations between different groups?** | No | No | No | No | No | No | No |
| **Is there potential for, or evidence that, any part of the proposed policy could discriminate, directly or indirectly? (consider those who implement it on a day-to-day basis)** | No | No | No | No | No | No | No |
| **Is there any stake holder (staff, public, unions) concern in the policy area about actual, perceived or potential discrimination against a particular group(s)?** | No | No | No | No | No | No | No |
| **Is there an opportunity to better promote equality or opportunity or better community relations by altering the policy or working with other government departments or the wider community?** | No | No | No | No | No | No | No |
| **Is there any evidence or indication of higher or lower uptake by different groups?** | No | No | No | No | No | No | No |
| **Do people have the same levels of access? Are there social or physical barriers to participation (e.g. language, format, physical access/proximity)?** | No | No | No | Yes[6] | No | No | No |

The Code incorporates guidance to encourage ship owner/operators to take into account the needs of persons with reduced mobility. It is recommended that the guidance should be followed as far as practicable, but there is not a mandatory requirement as this would be detrimental for the economical operation, particularly for smaller ships

[5] The very nature of the small, commercially operated passenger ships may mean that the needs of a disabled person might not be met readily by the ships's arrangement.

[6] The close confines, and various access ways onboard small passenger ships may present physical barriers to disabled people that would prevent them from working onboard.