Part 3D: Fire Protection
Proposal Summary for Consultation

This document is part of a series of documents to support consultation on changes to the existing Design, Construction and Equipment rules (the DCE rules). Other documents that form part of the consultation package include:

- *Invitation to Comment* - An overview of the consultation package and summary of the proposals, including information on how to have your say on the proposals.
- *Proposal summaries* - Details of the proposed changes for each of the four Rule topics being consulted on: Life-saving Appliances, Fire Protection, Machinery and Ancillary Equipment, and Anchors and Cables. This document is the proposal summary for Fire Protection.
- *Draft Maritime Rules and draft Maritime Transport Instruments (MTIs)* – a set of rules and MTIs for each of the four Rule topics.
- *What does this mean for me* – the main implications of the proposed changes for 14 representative vessels we consider reflect the majority of the New Zealand domestic commercial fleet.
- A template to support preparation of your submission.

These documents, and other supporting information, can be accessed at
https://www.maritimenz.govt.nz/public/consultation/dce-40-series-package-1/

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Note: This document refers to maritime incidents where people were injured or died. The specific incident referred to is the Dong Wong 501.

Purpose of this document

1. Maritime New Zealand - Nō te rere moana Aotearoa (Maritime NZ) is proposing significant reform of the Maritime Rules for vessel design, construction and equipment (the DCE Rules).
2. This document provides the detailed analysis of the proposed new Fire Protection Rules and Maritime Transport Instrument (MTI). It explains our understanding of the issues and current situation (the 'status quo') under the present rules, and sets out the analysis and rationale behind the proposed changes. Any potential impacts we have identified from the proposed amendments are also described. This information is intended to meet the Government's Regulatory Impact Analysis requirements.
3. This document should be read in combination with the Overview of the Consultation package that is available on Maritime NZ's website at https://www.maritimenz.govt.nz/public/consultation/dce-40-series-package-1/

> The word 'ship' is used in the Maritime Transport Act 1994 and the proposed Rules and MTIs. This term is used to refer to any kind of boat or craft and does not refer to a craft of a specific size. For the avoidance of doubt, the terms vessel, ship and boat can be used interchangeably. This document uses the term 'vessel'.

Introduction to fire protection at sea

Fire is a significant danger at sea

4. Fire is a significant danger for vessels. Most are propelled by internal combustion engines that can generate significant amounts of heat, often in unmanned engine rooms where combustible fuels (diesel or petrol) are present. Other potential fire hazards include machinery spaces not used for propulsion, areas where highly combustible liquids are stored, electrical systems, and cooking appliances and equipment in galleys.
5. In the event of a fire, inherent characteristics of vessels present elevated risks compared with land-based fires:
    - **Help is less likely to arrive**. Unless other suitable vessels happen to be nearby, the likelihood of receiving timely external assistance to fight a fire is low – with the likelihood generally decreasing with distance from shore.
    - **Fighting a fire is often not feasible**. Except for minor fires, at least two crew members are needed to safely fight a fire. Less than 25% of domestic commercial vessels have three or more crew, so the ability to safely and effectively fight fires is severely limited in many cases.
    - **Fighting a fire is more risky at sea**. Unlike a building on land, crew members cannot fight a fire from outside the vessel. Fighting a fire at close quarters puts the crew at risk of exposure to harmful levels of heat, smoke, and toxic gases.
    - **Evacuation is more dangerous**. If a fire cannot be safely extinguished, evacuating directly into the sea or a life raft (if present) is inherently more dangerous than evacuating a building on land. Drowning and hypothermia are significant risks, depending on distance from shore, ocean temperature, weather conditions, and the proximity of rescue vessels.
6. In the four year period April 2018 to August 2022, there were 67 fire-related accidents, incidents or serious harm injury incidents reported to Maritime New Zealand. The actual number of fire-related incidents could be higher, due to under-reporting.
7. Modern approaches to fire protection differ considerably from those of 50 years ago. Technological and societal developments over the last 20 to 30 years have had a significant impact on approaches to fire protection in the marine environment, including developments in the following areas:

- **Automatic fire detection and alarm systems**. These are very effective at identifying a fire at an early stage, and are very common in buildings on land. They are increasingly common on commercial vessels, and can be relatively cheap to install and maintain.
- **Fixed fire-extinguishing systems (FFE)**. These are also increasingly common on commercial vessels worldwide, along with better understanding of how they can be designed and installed to be most effective.
- **Health and safety at work**. Society now places greater importance on the health, safety and wellbeing of workers (as reflected in the Health and Safety at Work Act 2015). Fire-fighting approaches that do not expose crew to danger are increasingly favoured.

8. As a result, good practice fire protection on modern vessels can be viewed as a simplified hierarchy of measures, dependent on vessel characteristics:

- **Early detection and extinction**. Fires can be quickly detected and extinguished without exposing crew to danger by pairing fire detection and alarm systems with FFE systems in high risk areas.
- **Use hand-held appliances for small fires**. Hand held-appliances (such as portable fire extinguishers and/or fire blankets in galleys) can be quickly employed to put out small fires in areas not protected by a FFE system without exposing crew to significant risk.
- **Actively fight an established fire on a larger vessel with fire hose appliances**. To fight larger fires, crew need to set up fire-fighting appliances such as fire pumps and hoses, and put on fire-fighting outfits to protect themselves. The time this takes, the number of crew required, the speed at which a fire spreads, and the level of danger to crew and low likelihood of success makes this unrealistic for smaller vessels.
- **Evacuating a smaller vessel if a fire becomes established**. Once a fire is established on a smaller vessel, time is better spent on safely abandoning ship.

Reasons change is needed

9. The current fire protection rules were adopted (and adapted) from the Ship Construction Code of Practice Regulations made under the Shipping and Seamen Act 1952. These in turn were adapted from the International Convention for the Safety of Life at Sea (SOLAS), an international treaty which applies to large ocean-going vessels of more than 500 gross tonnes (around 45 metres in length overall).

10. The rules reflect these origins and the technology of the time, with an emphasis on watch keeping and hand-held appliances to identify and extinguish small fires, and non-portable fire extinguishers and fire pumps and hoses manned by crew to fight larger fires.

11. In many cases, the suite of fire protection measures required by the current maritime rules are a poor match for the vessel and its operations. This results in avoidable costs and sub-optimal safety measures.

New Zealand's vessels are small and have few crew, but the rules do not reflect this

12. New Zealand's domestic commercial fleet is largely comprised of vessels that are considered to be small. Most are less than 24 metres in length and the majority are less than 12 metres.[1] In addition, the majority of vessels have minimum crewing requirements of less than three.

13. Despite this, the rules include fire protection requirements that, while suitable for larger vessels are not a good fire protection investment for the majority of vessels in the NZ fleet. For example:

[1] 93% of the NZ domestic commercial fleet is under 24m length and 60% are less than 12m.

- Many vessels as small as 9 metres in length, are required to have fire-hose appliances. However a small vessel is unlikely to have enough crew to safely use these appliances, which is exacerbated by the rules not requiring vessels of less than 24 metres to have fire-fighters' outfits. Direct fighting of fires using fire hose appliances is unlikely to be effective on vessels of less than 24 metres in length.
- Pump capacity and hydrant pressure for fire hose appliances are based on the needs of large ocean-going vessels. This creates additional costs without corresponding safety benefits.

The rules continue to require obsolete fire-fighting appliances

14. Some fire protection measures required by the rules involve outdated technologies that have long been superseded, for example:

    - Fire-fighting outfit requirements allow for either self-contained breathing apparatus (SCBA) or smoke helmets with masks. Smoke helmets are 19th Century technology that should not be used instead of SCBA's. Risks include smoke entering the air supply, the air supply can be damaged or trapped, and their limited range of operation can prevent effective fire-fighting.[2]
    - Many vessels of 24 metres or more in length require non-portable fire extinguishers in engine rooms. These take time to set up, are difficult to use, and are required to be physically used by crew, exposing them to danger. They are much less effective than fixed fire-extinguishing systems, which do not require direct use by crew.
    - Many vessels are allowed to carry manually operated fire pumps. These are outdated technology and are unlikely to be able to produce a flow of water sufficient or sustained enough to fight a fire of significance. A dedicated crew member must hand operate a manual fire pump, which (when added to the crew required to operate the hose and manage the vessel) makes their use unrealistic on most vessels.
    - Some vessels require manually activated alarms, rather than automatic detection and alarm systems. This assumes both that a member of the crew will always be patrolling the vessel, and that they will always identify a fire anywhere on the vessel if one starts.

Few vessels are required to have effective modern fire protection systems

15. Fire detection and suppression technology is cheaper and much more effective than it was when the current rules were developed, particularly for small to medium sized vessels (e.g. less than 24 metres) where active fire-fighting is unlikely to be effective. These technologies are required much more widely in other jurisdictions such as Australia, the UK, Canada, the USA, Ireland and the EU.

16. However, only around 5% of the domestic commercial fleet is currently required to have automatic fire detection and alarm measures (including basic residential stand-alone smoke detectors); and only around 1% are required to have fixed fire-extinguishing systems in engine spaces, where most fires start.

Summary of proposed changes

17. The changes proposed in the new Fire Protection Rules and MTI are outlined in the tables below under the following six proposal headings:

    - **Proposal 1: Automatic fire detection and alarm systems.**

[2] See International Maritime Organization Maritime Safety Committee circular 1085 of 13 June 2003. They are not an option in the equivalent regulatory regimes of any of the countries we examined in developing these proposals (e.g. Australia, the UK, Canada, the USA, Ireland and Norway).

- **Proposal 2: Fixed fire-extinguishing systems**
- **Proposal 3: Structural fire protection.**
- **Proposal 4: Fire hose appliances.**
- **Proposal 5: Firefighter outfits and breathing devices**
- **Proposal 6: Sand and non-portable fire extinguishers**

18. The tables below provide a summary of the proposed changes, the rationale for those changes and potential impacts (both positive and negative).

19. The key proposed changes to the rules for fire protection are:

- Vessels will no longer be required to carry sand or non-portable fire extinguishers, or have the option of having smoke helmets and masks instead of self-contained breathing apparatus. Requirements that rely on the crew to undertake fire patrols will be dispensed with.
- More vessels will require automatic fire-detection and alarm systems and engine-room fixed fire-extinguishing systems. This will include existing vessels following a two year transition period.
- More vessels will require structural fire protection, including a small number of existing vessels following a five year transition period.
- Fewer vessels will require fire hose appliances, and differences between vessel types will be harmonised. Performance standards will reduce to better reflect the size of smaller vessels in the domestic commercial fleet.

What do the changes mean for my ship/vessel/boat?

20. The proposed Fire Protection Rule and MTI have been tested against 14 representative vessels that we consider represent the majority of the New Zealand domestic commercial fleet. These ‘worked examples’ help to illustrate what the new rules will do. They are available on the website page at: https://www.maritimenz.govt.nz/public/consultation/dce-40-series-package-1/.

21. A blank template is also provided to enable readers to undertake their own assessment by applying the rules and MTI to their specific circumstances.

22. A ’ snapshot’ of the proposed fire protection changes by vessel type, length and operating limit is included in Appendix 1 to this document. For ease of reference, a diagram of the operating limits set out in Part 20 of the maritime rules is included in Appendix 2 of this document.

Please note that we cannot guarantee that this document includes all changes that may have an impact on a vessel or operation. Therefore we strongly recommend you also refer to the draft rule and maritime transport instrument (MTI).

Presentation of the new requirements

23. In this document, the proposed new fire protection requirements are analysed and explained using descriptors such as a vessel’s length, operating area, and engine output. These are commonly understood and will help us in eliciting feedback from the public.

24. The draft rule and MTI are presented using a new approach, which classifies vessels as either “low”, “medium” or “high” fire-risk. The required level of fire protection progressively increases with the designated risk level. The reason for this new approach for setting out the rules and MTI is that it significantly reduces repetition and provides a more rational and coherent basis for the differing requirements, as well as making the rules easier to navigate.

25. Although it may take a little time at first to become familiar with these terms and how to use them, we have found that users quickly adapt and find it an easier and more useful way to understand how the new rule and MTI work.

26. Table 1 displays which vessels are rated low, medium or high risk. The three factors that these are based on are:

- **Operating limits**. Generally, the further a vessel is from a safe harbour, the higher the level of fire risk, as it will take longer for other vessels to arrive to either help fight the fire or rescue those that have abandoned ship. In abandon ship scenarios, the chances of hypothermia or drowning also increases with distance from shore, as the sea is generally colder and more treacherous.
- **Number of passengers.** With greater numbers of people on a vessel, the potential negative consequences of a fire increase. Additional passengers increase the likelihood of harm from fires, which is compounded by the fact that, unlike crew, passengers are not required to have a current certificate of medical fitness (and may have significant health conditions or disabilities). Passengers are also not trained in fire-fighting, evacuation and abandon ship procedures and will require crew assistance.
- **Vessel length**. Vessel length thresholds, such as 12 or 24 metres, are commonly used in many jurisdictions to progressively increase fire protection requirements. There are two reasons for this: (i) there simply isn't the room to have many fire protection measures or appliances on small vessels; and (ii) some fire protection measures offer little or no benefits on small vessels.

Table 1: Proposed fire-risk classification of vessels.

Ship Descriptor	Enclosed limits	Restricted limits	Inshore fishing limits	Coastal limits	Offshore/ Unlimited[72]
1-36 passengers; or less than 15 m LOA	Low	Low	Low	Medium	High
37-200 passengers; or 15 m or more LOA and less than 24 m LLL	Medium	Medium	Medium	Medium	High
More than 200 passengers; or 24 m or more in LLL	Medium	Medium	N/A	High	High
1-36 berthed passengers	Medium	Medium	N/A	High	High
37 or more berthed passengers	High	High	N/A	High	High

Note: If a vessel falls within more than 1 category, it must comply with the applicable requirements for the higher category.

References to “the Administration” in material incorporated by reference

27. Some provisions in the draft MTI include expanded technical requirements compared with the current rules. This provides greater certainty about what the requirements are.

28. Much of the technical material incorporated by reference in the MTI are International Maritime Organization (IMO) documents: conventions, resolutions, circulars and similar material. These frequently provide discretion to “the Administration” (i.e. a national government) on some matters.

29. In some instances where this occurs, no clarification is necessary, such as if there is existing New Zealand legislation that applies, or if it is already addressed elsewhere in the Rule or MTI. In instances where this is not the case, we propose that the best approach to managing these references is either:

    - to delegate that discretion to a surveyor; or
    - remove the discretion, because it is unnecessary; or
    - for the discretion to the exercised by the Director of Maritime New Zealand.

30. The draft Fire Protection MTI includes a large amount of material incorporated by reference. As this material, in many cases, includes references to “the Administration”, we intend creating a short section in the proposed MTI that provides a basic rule for when each of these approaches applies. This approach will avoid individually specifying which approach applies for every reference to “the Administration”.

Proposal 1: Automatic fire detection and alarm systems

What we are proposing?

It is proposed that the following vessels have automatic fire detection and alarm systems:

- Standalone detector and alarms (e.g. smoke detectors commonly found in homes) will be required for vessels of more than 6 metres but less than 15 metres in length, that are not open boats, and that have an inboard engine or electrical energy storage systems with output of 120 kW or more.
- Fixed fire detection and alarm systems would be required for vessels of 15 metres or more in length.

Current environment and rationale for proposed changes

Current requirements for standalone detectors and alarms

The only current requirement for standalone detection and alarm systems is that sailing vessels of less than 24 metres in length must have a smoke detector and alarm installed in machinery space(s) or spaces containing open flame cooking or heating devices. This applies to around 20 vessels of the approximate 2,300 vessels in the domestic commercial fleet.

Current requirements for fixed fire detection and alarm systems

Currently, the following vessels are required to have fixed fire detection and alarm systems:

- Passenger vessels of 24 metres or more operating in restricted, restricted coastal, coastal and offshore/unlimited areas.
- Fishing vessels of 24 metres or more operating in restricted coastal, coastal, and offshore/unlimited areas, but only if constructed of combustible materials and a surveyor considers there to be a fire risk.
- Sailing vessels of 24 metres or more (irrespective of operating area).

Non-passenger vessels are not required to have fixed fire detection and alarm systems. However, post-1 November 1989 non-passenger vessels that operate within restricted coastal, coastal and offshore limits are required to have electrically operated fire alarm bells in accommodation spaces that are manually activated from the control station of the vessel.

In total, around 85 vessels are currently required to have fixed fire detection and alarm systems.

Rationale for change

Detecting the presence and location of a fire at an early stage is one of the most important factors for ensuring that everybody on board stays safe. Most households have some form of automatic fire detection and alarm system, but these are not required in most vessels. This is out of line with international norms and leaves vessels without even basic fire detection technology.

Impact of the proposed change

Standalone fire detection and alarm systems

As above, under this proposal, standalone detector and alarms will be required for vessels of more than 6 metres but less than 15 metres in length, that are not open boats, and that have an inboard engine or electrical energy storage system with output of 120 kW or more. This would be a new requirement for many of these vessels and means approximately 460 vessels existing (~20%) would be required to have standalone smoke or heat detectors installed in engine spaces.[3]

[3] Around 60% of these are six metres or more in length but less than 12, with 40% 12 or more metres but less than 15 metres.

However, based on conversations with operators and surveyors, we are aware that some vessels not required to have standalone detection and alarm systems have them installed voluntarily, but the scale of this is unclear, making the true number of existing vessels effected unclear.

Smoke alarms are a low cost item and are quick and easy to install. They are installed in many residential homes and, depending on the type, cost from around $35 to $100 each, with an overall cost for most vessels of $50 to $250 (some vessels will require multiple detectors).

Fixed fire detection and alarm systems

Around 865 existing vessels (~37%) would be required to have fixed fire detection and alarm systems under this proposal, compared to ~85 vessels under the current rules.

As with standalone detector and alarm systems, we are aware that many vessles not required to have fixed fire-detection and alarm systems have them installed voluntarily, but the scale of this is unclear. As a result, we are unclear as to how many existing vessels will be effected.

Costs vary considerably and depend on the size of the vessel, the number of enclosed spaces, and the type of system. Discussions with vendors in 2022 indicated that basic systems typically cost:

- Around $9,000 to $12,000 for vessels between 15 and 24 metres; and
- Around $30,000 to $45,000 for vessels between 24 and 45 metres.

Vessels 6 metres or less in length

Vessels 6 metres or less in length will not require a fire detection and alarm system. The size of these vessels means it is likely a fire will quickly be detected.

How the impacts will be mitigated

Standalone fire detection and alarm systems

Installing a standalone fire detection alarm system is relatively straight forward. We anticipate most, if not all, vessel operators will be able to install this themselves.

Fixed fire detection and alarm systems

For an existing vessel, a fixed fire detection and alarm system would need to be installed by a fire protection specialist. Depending on the size of the vessel, its configuration, and the complexity of the system, installation may take several days, during which the vessel cannot operate, resulting in foregone revenue.

Providing a transition period to allow existing vessels time to do this work could enable operators to schedule the work at a date that will cause the least disruption (e.g. at the same time as other work on the vessel).

Three options were considered for when the proposed fixed fire-extinguishing system requirements would take effect for existing vessels. These were (1) at commencement date, (2) two years after the commencement date or (3) five years after the commencement date.

The draft rule proposes a fixed fire detection and alarm system should be required two years after the rule commencement date. We consider this option strikes a balance between being practical and economically viable, and maintaining and enhancing maritime safety. It would be impracticable to expect a fire detection and alarm system to be installed by the commencement date (option 1), and five years is too a long time for the benefits of the proposal to be realised (option 3).

Timing / Commencement date

Standalone fire detectors and alarms

Changes to require more vessels to have standalone fire detection and alarm systems will take effect on commencement of Part 3D: Maritime (Design, Construction and Equipment – Fire Protection) Rules. The estimated in-force date is currently early 2026.

Fixed fire detection and alarm systems

For new vessels, requirements to have fixed fire detection and alarm systems will take effect on commencement. For existing vessels, they will take effect two years after commencement date.

Options analysis

What options are being considered?

Three options were considered:

Option 1 Status quo. Reproduce the current rules, which have minimal requirements for vessels to have automatic fire detection and alarm system. Where requirements do apply they are not consistent across the different vessel types.

Option 2 The requirements are the same for all vessels. All vessels would have automatic fire detection and alarm systems regardless of vessel length or other characteristics, for example, the size and type of engine.

Option 3 Requirements dependent on length and characteristics of the vessel. Standalone detectors and alarms would be required for vessels more than 6 metres but less than 15 metres in length, which are not open boats, if they have an inboard engine or electrical energy storage systems with output of 120 kW or more (i.e. a subset of Low fire risk vessels). Fixed fire detection and alarm systems would be required for vessels of 15 metres or more in length (Medium or High fire risk).

How the options compare against the status quo

Option 1 Status quo.

Only a small proportion of commercial vessels (less than 5%) are currently required to have any kind of automatic fire detection and alarm system, despite their effectiveness and relative low price.[4] This is not consistent with comparable jurisdictions such as Australia, and leaves many vessels with sub-optimal fire protection.

Option 2 Set the same requirements for all vessels

This option would see all vessels fitted with an automatic fire detection and alarm system, including very small (e.g. 4-5 metre) vessels.

On a small vessel, everything is close at hand, and crew will become aware of a fire very quickly without external help. This significantly reduces the benefit of an automatic detection and alarm system. As a result, the cost of even a standard smoke detector is not considered to be justified for all vessels.

Option 3 Requirements dependent on length and characteristics of the vessel – preferred option

This option recognises that:

- Where justified by the risk, an automatic fire detection and alarm system is important to ensure that a fire is detected early.
- Depending on the vessel, different systems (e.g. wired in vs standard smoke detector) can achieve the same outcome.

The changes provide flexible and adaptive regulation:	The proposal is stepped to reflect risk. New standards and technologies will be able to be incorporated into the rules (via the MTI) as these become available and are proven to have safety benefits.

[4] I.e. relative to the value of a vessel and the risk of harm to people on board

Rules are clearer and easier to understand and apply:

This option sets out consistent rules across all vessel types. Requirements are structured, and are based on vessel length and vessel characteristics.

Maritime safety is maintained or enhanced:

Vessels of more than 6 metres in length are likely to have multiple enclosed spaces, including a separate engine compartment[5], where a fire can occur. Without an automatic detection and alarm system a fire may not be detected early enough to prevent harm to the vessel and people on board.

A standalone fire detection and alarm device is considered to be effective for vessels of more than 6 metres but less than 15 metres in length. The noise generated by standalone detectors is likely to be heard and there are only a few locations where a fire is likely to start. These locations can be easily identified and checked.

For vessels of 15 metres or more in length, a standalone device may not be heard over engine noise. For a larger vessel, a fixed fire detection and alarm system is considered necessary to prevent harm to the vessel and people on board. These systems activate alarms throughout the vessel, and have a central control panel that identifies the location of the fire.

Changes are practical and economically viable:

The proposal will not apply to a vessel 6 metres or less in length. It also recognises that requiring a detection and alarm system on some vessels of more than 6 metres in length would be impractical and provide little benefit, as follows:

- Open vessels and vessels with outboard engines. A fire on these vessels would be obvious. Any smoke would discharge into the atmosphere and would be unlikely to be picked up by a detector.
- Low fire risk vessels with internal combustion engines or electric energy storage systems with an output of less than 120kW,[6] which are likely to generate less heat and therefore present a lower fire risk.

It is relatively straightforward to install a fixed detection and alarm system in an existing vessel of 15 metres or more in length. The estimated cost is $12,000 - $43,000 depending on the vessel size and design – which is likely to be 2% - 7% of the vessels value.

Comparing options against status quo.

	Option 1: Status Quo	Option 2: Requirements the same regardless of vessel length	Option 3: Requirements dependent on size and characteristics of the vessel
The rules are flexible and adaptive.	0	+	++
The rules are clear and easy to understand and apply	0	++	++
Maintains and enhances maritime safety	0	++	++

[5] Excludes open vessels and vessels with outboard engines.

[6] The proposed power threshold of 120kW aligns with the threshold in Australia's National Standard for Commercial Vessels (NSCV).

Practical and economically viable	0	--	++

Key for qualitative judgements:

++	Much better than doing nothing/the status quo/counterfactual
+	Better than doing nothing/the status quo/counterfactual
0	About the same as doing nothing/the status quo/counterfactual
-	Worse than doing nothing/the status quo/counterfactual
--	Much worse than doing nothing/the status quo/counterfactual

Preferred option

Option 3 Requirements dependent on length and characteristics of the vessel is the preferred option as it rates well against all criteria. It aligns well with the guiding principles of the DCE rules reform which is that rules should be risk based and be consolidated and harmonised across vessel types to reduce complexity and increase consistency.

What are the marginal costs and benefits of the preferred option?

Affected groups	Comment.	Impact	Evidence Certainty.
Additional costs of the preferred option compared to taking no action			
Operators of new and existing vessels of more than 6 metres but less than 15 metres, that are not open boats, and have an inboard engine or electrical energy storage system with output of 120 kW or more.	Basic cost of standalone detectors for a vessel. Around 460 vessels would be required to have these, but it is unclear how many already do.	$50 - $250, depending on vessel size and configuration	Medium Based on extensive market testing.
Operators of new and existing vessels of 15 metres or more but less than 24 metres	Cost of a fixed fire extinguishing system and installation. Cost of a fixed fire extinguishing system and installation. Approximately 865 would be required to have systems installed, but unclear how many already have them.	$9,000 - $12,000 depending on vessel size, complexity.	Medium Based on discussions with a small number of suppliers in 2022.
Operators of new and existing vessels of 24 metres or more		$30,000 to $45,000 depending on vessel size and complexity.	
Total monetised costs	Unclear. Depends on number of vessels that have voluntarily installed systems.	Medium.	Medium Requires more certainty as to number of vessels impacted.
Non-monetised costs	N/a	None identified.	N/A
Additional benefits of the preferred option compared to taking no action			

Crew and passengers in new domestic commercial vessels that are more than 6 metres in length that are not open boats and have an inboard engine or ESS with output of 120 kW or more.		Less risk of injury or death as a result of fire.	Medium Based on limited supplier inquiries
Non-monetised benefits	New Zealand data on domestic commercial vessel incidents insufficiently large to infer exact size of benefits.	High: early detection and alarm universally agreed as of significant importance in reducing fire risk at sea.	Medium

Implementation

The following Rule(s) and MTI will implement this proposal:

- Part 3D: Maritime (Design, Construction and Equipment – Fire Protection) Rules.
- Maritime Transport (Fire Protection) Instrument [year].

It is expected that these rules will commence in early 2026. The requirements for standalone fire detection systems will apply on commencement of the rules. Existing vessels will have two years from commencement to meet the new fixed fire detection system requirements.

Once implemented, recognised surveyors[7] and Maritime NZ will have responsibility, through surveys and audits respectively, to ensure that vessels operating in New Zealand's domestic commercial fleet are meeting all applicable rules.

Questions

F 1.1 Do you agree with the proposal to require more vessels to have standalone fire detection and alarm systems?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 1.2 Do you agree with the proposal to require more vessels to have fixed fire detection and alarm systems?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 1.3 Do you agree with the proposed transition period allowing existing vessels up to two years to have fixed fire detection and alarm systems?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

[7] Persons formally recognised by the Director of Maritime New Zealand as being suitably qualified to survey a vessel and determine whether it meets all applicable rules.

Proposal 2: Fixed fire extinguishing systems

What we are proposing?

A fixed fire-extinguishing (FFE) system will be required in the following spaces:

- A machinery space of Category A[8] in a vessel that:
  - Carries any passengers in the coastal limit; or
  - Carries 37 or more day passengers; or
  - Carries any berthed (i.e. sleeping) passengers; or
  - is 15m or in length overall (LOA); or
  - is more than 6 metres in length and has an inboard engine of 120 kW or more used for main propulsion.
- Spaces with an electrical energy storage system (EES) of 120 kW or more output used for main propulsion.
- A machinery space with an inboard petrol engine.

Current environment and rationale for proposed changes

Current requirements

Currently very few vessels are required to have fixed fire-extinguishing systems in engine spaces, amounting to around 85 vessels in the domestic commercial fleet (~2,300 vessels). This is comprised of:

- Passenger vessels of 15 metres or more in restricted coastal, coastal, and offshore/unlimited areas, and in any operating area with more than 36 day passengers or more than 12 berthed passengers.
- Any passenger vessels of 24 metres or more in length.
- Non-passenger vessels of 24 metres or more in coastal and offshore areas.
- Fishing vessels that operate beyond coastal limits.
- Any sailing vessels that is 12 metres or more in length.

Rationale for change

FFE systems have been used in the marine sector internationally for decades. In that time technology and understanding of FFEs has developed significantly and can now be used cost-effectively in a much broader range of vessels than they are required for in New Zealand. This is demonstrated by the much wider application of requirements for FFE systems in other jurisdictions, including Australia.

The Transport Accident Investigation Commission (TAIC) has twice recommended that FFE systems be installed in more vessels, following fires on a passenger vessel in 2003 and again in 2016 (refer MO-2003-201; MO-2016-201).

[8] Machinery spaces of category A are spaces that contain internal combustion machinery used for main propulsion, internal combustion machinery used for other purposes with aggregate total power output of 375 kW or more, and oil fired boiler or oil fuel unit.

Impact of the proposed change

Under this proposal, we estimate that around 1,080 (~45%) existing domestic commercial vessels would be required to have fixe fire-extinguishing systems within two years of commencement.

FFE system costs were discussed with a number of specialists in late 2022. Costs can vary significantly depending on the type of system, and the size and complexity of the vessel. Basic systems in small, simple vessels can cost as little as $500 installed, but for most vessels they cost much more than this.

For most vessels, we estimate costs ranging from $4,000 to $12,000.

How the impacts will be mitigated

The impacts of the proposed change will be mitigated in two ways:

- Allowing smaller vessels, with some conditions, to use a portable fire extinguisher instead of a full system that meets all applicable performance standards.
- Allowing a transition period for existing vessels that do not have FFE systems installed, to do so.

Exceptions to FFE performance standards for vessels less than 15 metrees.

Having an FFE system fitted can be a significant expense, especially for vessels as small as 6 metres. To help mitigate this, Maritime NZ has examined rules in other jurisdictions and spoken to local marine fire experts about ways that the cost of such systems can be reduced.

In a number of other jurisdictions, including Australia and the UK, there is an option of adapting smaller vessels so that a portable fire-extinguisher acts in a similar way to a fully engineered FFE system. There are a number of pre-requisites for this to be successful:

- The volume of the engine space/box is no more than 10 cubic metres.
- The exterior of the engine space/box must be able to be reached by crew, and a devoted portable fire extinguisher must be placed outside it.
- There must be a discharge nozzle or fire port, able to be opened from outside the space that is sized to fit the discharge nozzle of the portable fire-extinguisher.
- The engine box/space must be sufficiently gastight, and the volume and discharge rate of the portable fire extinguisher must be sufficient for the extinguishing medium to flood the space and extinguish fires within it.

An arrangement like this can cost as little as around $500, and can be as effective on a smaller vessel as a full FFE system, while not posing a significant increase in risk. It is therefore proposed that this is an option for vessels less than 15 metres, instead of a fully engineered system that complies with the proposed performance standards for FFE systems.

Transition period for existing vessels

Fitting a FFE system in an existing vessel includes some costs beyond those of the system, such as making space for fittings or patching holes in bulwarks or decks required as part of the installation. Depending on the size of the vessel, its configuration, and the complexity of the system, installation may take several days, during which the vessel cannot operate, resulting in foregone revenue.

Three options were considered for when the proposed requirement to have a FFE system would take effect for existing vessels. These were (1) at commencement date, (2) two years after the commencement date or (3) five years after the commencement date.

The draft rule proposes a FFE system should be required two years after the rule commencement date (option 2). This option strikes a balance between being practical and economically viable, and maintaining and enhancing maritime safety. It would be impracticable to expect a FFE system to be installed by the commencement date (option 1), and five years would take a long time for the fire protection benefits of the proposal to be realised (option 3).

Timing / Commencement date

Changes to require more vessels to have FFE systems will take effect on:

- For vessels entering the fleet, the commencement of Part 3D: Maritime (Design, Construction and Equipment – Fire Protection) Rules. The estimated in-force date is currently early 2026.
- For existing vessels, two years after the commencement date.

Options analysis

What options are being considered?

Three options were considered:

Option 1 Status quo. Reproduce the current rules, which have minimal requirements for vessels to have FFE systems. Where requirements apply they are not consistent across the different vessel types.

Option 2 Requirements the same for all vessels. All vessels have FFE systems in the main propulsion machinery space, or spaces with electrical energy storage systems (EES), as appropriate.

Option 3 Requirements dependent on the vessel's operation and characteristics. Requirements for FFE systems, differ depending on the vessel's fire risk category and the kilowatt rating of the engine or EES. A fixed fire-extinguishing (FFE) system will be required in the following spaces:

- A machinery space of Category A[9] in a vessel that:
  - carries any passengers in the coastal limit; or
  - carries more than 36 day passengers; or
  - carries any berthed (i.e. sleeping) passengers; or
  - is 15m or in length overall (LOA); or
  - is more than 6 metres in length and has an inboard engine of 120 kW or more used for main propulsion.
- Spaces with an electrical energy storage system (EES) of 120 kW or more output used for main propulsion.
- A machinery space with an inboard petrol engine.

How the options compare against the status quo

Option 1 Status quo.

Currently only a small proportion of commercial vessels are required to have FFE systems despite the significant benefit that FFE systems provide. This is out of step with other jurisdictions, including Australia, which require FFE much more broadly than in New Zealand.

Option 2 Requirements the same for all vessels

This option would see all vessels fitted with FFE systems. Although this option would have significant safety benefits, it is not practical or economically viable. In very small vessels, engine spaces are unlikely to be fully enclosed and gastight, negating the effectiveness of a fixed fire-extinguishing system compared with portable extinguishers. It may also cause harm, as extinguishing agents may be toxic to humans and should only be released in areas that are gas tight.

Option 3 Requirements dependent on length and characteristics of the vessel – preferred option

[9] Machinery spaces of category A are spaces that contain internal combustion machinery used for main propulsion, internal combustion machinery used for other purposes with aggregate total power output of 375 kW or more, and oil fired boiler or oil fuel unit.

This option recognises the important safety benefits of FFE systems and expands coverage of vessels that would require FFE systems where:

- It is practical and economic to do so; or
- In regard to spaces with an EES or inboard petrol engine, it is justified by the high fire risk.

The changes provide flexible and adaptive regulation:	New standards and technologies will be able to be incorporated into the rules (via the MTI) as these become available and are proven to have safety benefits.
Rules are clearer and easier to understand and apply:	This option sets out consistent rules across all vessel types that are based on the risk of fire and the practical constraints related to fitting and using a FFE system.
Maritime safety is maintained or enhanced:	This option proposes that FFE be required where the fire risk rating is Medium or High, or where vessels of less than 15 metres in length have high risk features. FFE systems are a proven means of effectively suppressing a fire. Unlike traditional firefighting with a pump and hose or hand-held fire extinguisher, their use does not pose a risk to the crew, and they do not depend on people to perform correctly.
Changes are practical and economically viable:	This option balances the improved safety benefits against the costs to install a FFE system - estimated at $4,000 - $30,000 depending on the system and the size and complexity of the vessel. This option recognises that many vessels would not gain significant benefit from having a FFE system: As a result FFE systems would not be required in the following situations • Vessels with outboard engines. The engine is not in an enclosed gas-tight space, and would not benefit form an FFE system as the gas would disperse. • Internal combustion engines or electric energy storage systems used for main propulsion of less than 120kW[10]. These generate less heat or store less energy, and are considered to present a lower fire risk. The 120 kW threshold aligns with the threshold in Australia's National Standard for Commercial Vessels (NSCV).:

Comparing options against status quo.

	Option 1: Status Quo	Option 2: Requirements the same for all vessels	Option 3: Requirements dependent on the vessel's operation and characteristics.
The rules are flexible and adaptive.	0	+	++

[10] The proposed power threshold of 120kW aligns with the threshold in Australia's National Standard for Commercial Vessels (NSCV). Some jurisdictions have lower thresholds, for instance the UK's Small Seagoing Passenger Ship Code requires FFE in engine spaces used for main propulsion irrespective of power output, as does the USA's Code for Small Passenger Vessels. We considered this approach but concluded that this would include nearly all vessels, including those with minimal fire risk.

The rules are clear and easy to understand and apply	0	++	++
Maintains and enhances maritime safety	0	++	++
Practical and economically viable	0	--	++

Key for qualitative judgements:

++	Much better than doing nothing/the status quo/counterfactual
+	Better than doing nothing/the status quo/counterfactual
0	About the same as doing nothing/the status quo/counterfactual
-	Worse than doing nothing/the status quo/counterfactual
--	Much worse than doing nothing/the status quo/counterfactual

Preferred option

Option 3 Requirements dependent on length and characteristics of the vessel is the preferred option as it rates well against all criteria. It aligns well with the guiding principles of the DCE rules reform which is that rules should be risk based and be consolidated and harmonised across vessel types to reduce complexity and increase consistency.

What are the marginal costs and benefits of the preferred option?

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Owners and operators of new and existing vessels of six metres or more with inboard engines or EES of 120 kW or more	We estimate around 1080 existing vessels will require FFE.	Estimated at $4,000 to $12,000 per vessel.	Medium Based upon discussions with a small number of fire suppression specialists
Total monetised costs	It is uncertain how many existing vessels already have FFE installed. The cost should be built into the contract or purchase price for new vessels.	Medium	Medium
Additional benefits of the preferred option compared to taking no action			
Crew and passengers on new and existing vessels of six metres with inboard engines or ESS of 120 kW or more	Improved safety. FFE is considered very effective at extinguishing fires in protected spaces and they are widely required in other countries.	High	Medium. There have been multiple TAIC reports that have highlighted the

			safety benefits of FFE systems.
Non-monetised benefits		High	Medium

Implementation

The following Rule(s) and MTI will implement this proposal:

- Part 3D: Maritime (Design, Construction and Equipment – Fire Protection) Rules
- Maritime Transport (Fire Protection) Instrument [year].

We currently expect that these will commence in early 2026. Existing vessels will have two years from commencement to meet the new requirements.

Once implemented, recognised surveyors and Maritime NZ will have responsibility, through surveys and audits respectively, to ensure that vessels operating in New Zealand's domestic commercial fleet are meeting all applicable rules.

Questions

F 2.1 Do you agree with the proposal to require more vessels to have fixed fire-extinguishing systems?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 2.2 Do you agree with the proposal to allow some vessels of less than 15 metres in length to not comply with the technical standards for fixed fire-extinguishing systems if the proposed criteria are met?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 2.3 Do you agree with the proposed transition period allowing existing vessels up to two years to have fixed fire-extinguishing systems?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 3: Structural Fire Protection (SFP)

What we are proposing?

For new vessels entering the fleet

It is proposed the following vessels must have structural fire protection (SFP) with fire resistant divisions:

- All vessels of 24 metres or more in length.
- Vessels of 15 metres or more:
  - operating in offshore and unlimited areas or
  - with any berthed passengers in coastal limits; or
  - with more than 36 berthed passengers in any operating area.

For existing vessels in the fleet

It is proposed vessels already in the domestic commercial fleet must have structural fire protection with fire resistant divisions within five years of commencement date if they are 24 metres or more and:

- Operate in coastal, offshore and unlimited areas.
- Operate in any area with more than 36 berthed passengers.

Level of structural fire protection required

It is proposed the vessels above must have the following levels of SFP:[11]

- A30: For vessels less than 35 metres in length.
- A60: For vessels of 35 metres or more in length.

Current environment and rationale for proposed changes

Current requirements

Very few vessels are currently required to have SFP. Based on vessel type, size, and operating areas, the current requirements would apply to around 100 existing vessels, but the number actually required will be lower as these requirements only apply to passenger, non-passenger and fishing vessels that became domestic commercial vessels after 27 May 2004.

With the exception of sailing vessels, structural fire protection with fire resisting divisions come with two main levels of protection. These are (using SOLAS terminology):

- **A30**: Major fire hazard areas have 30 minute SFP times, moderate fire hazard areas 15 minutes, and minor fire hazard boundaries are smoke-tight and constructed of non-combustible materials.
- **A60**: Major fire hazard areas have 60 minute SFP times, moderate fire hazard areas 30 minutes, and minor fire hazard areas boundaries are smoke-tight and constructed of non-combustible materials.

The table below summarises current requirements for SFP.

[11] See explanation of terms in the next section on the current environment.

SFP requirement	**Passenger** (post-27 May 2004)	**Non-passenger** (post-27 May 2004)	**Fishing** (post-27 May 2004)	**Sailing**
A60	- Vessels of 35 metres or more that proceed beyond restricted limits - Vessels with more than 36 berthed passengers, irrespective of length	- Vessels of 24 metres or more that proceed beyond restricted limits	- Vessels of 24 metres or more that proceeds beyond coastal limits that does not have a FFE system[12]	- N/A
A30	- Vessels of 24 metres or more that proceed beyond enclosed limits - Vessels with more than 12 berthed passengers that proceed beyond enclosed limits	- Vessels of 24 metres or more that proceed beyond enclosed limits	- Vessels of 24 metres or more that proceeds beyond coastal limits that has a machinery space FFE	- N/A
Other	N/A	N/A	N/A	- Vessels of 24 metres or more must have 60 minutes SFP protection, but only for spaces with internal combustion machinery.

Rationale for change

The coverage of the current requirements for SFP is considerably narrower than in other jurisdictions, such as Australia's NSCV. Many vessels for which structural fire protection is practical and economically viable do not have it, and as a result the people on board these vessels do not benefit from the significant safety benefits it provides.

A further rationale for change is the current grandparenting of SFP requirements. In its 2018 report into the fire on the Dong Wong 501,[13] TAIC observed that allowing indefinite grandparenting of important fire protection measures allows ageing vessels to remain in the fleet unchanged indefinitely, which can (particularly for relatively high cost safety features such as structural fire protection) have unintended consequences, such as:

- Creating a financial incentive for owners to not upgrade or replace ageing vessel's when they otherwise would, as replacement vessels would be required to have the full suite of fire protection measures.
- Contributing to the average age of vessels increasing with time.
- Reducing the overall level of fire protection among vessels in the domestic commercial fleet.

[12] For vessels constructed of non-combustible materials. A lower level of protection is required if the vessel is constructed of combustible materials.

[13] This can be read at taic.org.nz/inquiry/mo-2018-202.

PART 3D FIRE PROTECTION PROPOSAL SUMMARY

Impact of the proposed change

Number of existing vessels potentially impacted

The proposed new requirements are expected to have a significant impact on vessels that will be required to have SFP installed.

Around 40 large existing vessels – mostly pre 27 May 2004 fishing vessels – are not currently required to have SFP, and have therefore not been assessed for it. However, it is thought that many of these vessels were constructed to class society requirements, which require SFP.

It is possible that some of these vessels will end service before these requirements come into force. The average age of these vessels is currently 40 years and will be 47 years at the end of the proposed transition, which is old by international standards.

Costs of structural fire protection

SFP costs are difficult to ascertain:

- As many as half of the existing vessels of 24 metres or more in length covered by this proposal may have been built with SFP. Retrofitting SFP where this is not the case is complex and time-consuming, and could cost $150,000 - $195,000.
- In many cases – for example new large vessels and new vessels using electrical energy storage (EES) systems as a means of propulsion – SFP is already being incorporated into the design of a new vessel, so the proposal will not impose additional costs.
- For some other new-builds, additional fire resistant insulation will be required. The cost could vary considerably depending on the size and complexity of the vessel, and could be several thousands of dollars.

How the impacts will be mitigated

A transition period has been proposed for existing vessels requiring SFP. This recognises that the work required will take time do and the vessel will not be able to operate while this occurs.

Four options were considered for when the proposed requirement to have SFP would take effect for existing vessels. These were (1) at commencement date, (2) two years after the commencement date, (3) five years after the commencement date, or (4) 10 years after commencement date.

The draft rule proposes SFP is required five years after the rule commencement date (option 3). We consider this option strikes a balance between being practical and economically viable, and maintaining and enhancing maritime safety. It would be impracticable to expect a FFE system to be installed by the commencement date or within two years as this a significant and potentially costly change (options 1 and 2). However, ten years would be too it long time for the benefits of the proposal to be realised (option 4).

Timing / Commencement date

The proposed requirements for structural fire protection for new vessels will take effect on the commencement date Part 3D: Maritime (Design, Construction and Equipment – Fire Protection) Rules. The estimated in-force date is currently early 2026.

For existing vessels, the new requirements will take effect five years after the commencement date.

Options analysis

What options are being considered?

Three options were considered:

Option 1 Status quo. Reproduce the current rules, which require very few vessels to have SFP.

Option 2 Requirements are the same for all vessels. All vessels have SFP regardless of type, size or operating area.

Option 3 Requirements dependent on the vessel's size and fire risk

SFP would be required for the following vessels newly entering the fleet:

- All vessels of 24 metres or more in length. can be expected to carry more people on board and travel further from shore – in both cases the consequence of a fire are likely to be relatively more severe.
- Vessels of 15 metres or more in length with a High fire risk rating – i.e. operating in offshore and unlimited areas; or carrying any berthed passengers or more than 200 passengers in l or beyond coastal limits; carrying more than 36 berthed passengers in any operating area.; or
- Vessels that have a Lithium-ion battery compartment for propulsion, with an output of 120 kW or more.

For existing vessels in the fleet, SFP would be required for vessels of 24 metres or more in length that:

- Operate in the coastal, offshore or unlimited areas.
- Carry more than 36 berthed passengers in any operating area.

This proposed application of SFP requirements for existing vessels is less broad than for vessels newly entering the fleet. This recognises that it is practically and economically more challenging to fit SFP to existing vessels.

How the options compare against the status quo

Option 1 Status quo.

Only a small proportion of commercial vessels (i.e. less than 10%) are required to have SFP. Where requirements apply, they are not consistent across vessel type, size and operating area.

Option 2 Requirements the same for all vessels regardless type, size and operating area.

Based on risk, setting the same SFP requirements for all vessels regardless of risk and cost would not be appropriate. For vessels less than 15 metres, it is considered impractical or unnecessary to have SFP for the following reasons:

- Smaller vessels typically have few enclosed spaces other than the propulsion machinery space. The vessel is essentially one space for the purposes of fire, which reduces the relevance of fire resistant divisions.
- The purpose of SFP is to slow the spread of fire long enough to extinguish the fire, or for assistance to arrive. However, on a smaller vessel, a fixed fire suppression system (with a gastight machinery space) is considered more effective, and fighting a fire is potentially dangerous (see section on fire hose appliances).
- Achieving effective SFP requires fire rated divisions (decks and bulkheads) to be constructed of metal and fire-resistant insulation. This form of construction is unrealistic for smaller vessels, as it adds weight and takes up limited space that could be used for other purposes.

For vessels 15 metres or more in length, SFP is practical to install but comes at a relatively high cost. Option 3 sets out the analysis for when the benefits of installing SFP outweighs the costs on vessels 15 metres or more in length.

Option 3 Requirements dependent on the vessel's size and fire risk rating – preferred option

Under this option, in each case that SFP would be required the consequences of fire are likely to be high, and installing SFP during construction is considered practicable.

The changes provide flexible and adaptive regulation:	New standards and technologies will be able to be incorporated into the rules (via the MTI) as these become available and are proven to have safety benefits.

Rules are clearer and easier to understand and apply:	This option sets out consistent requirements across all vessel types that are based on two factors: • Vessel size. This has a significant impact on the practicality of installing SFP. • Risk. The cost and use of space is justified where the consequences of a fire are likely to be high.
Maritime safety is maintained or enhanced:	SFP is practical to install in vessels between 15 and 24 metres in length, but comes at a relatively high cost. This cost is considered to outweigh the benefits where: • **The vessel operates in offshore / unlimited areas**. The consequences of abandoning ship in the event of fire are significant 200 NM offshore, as any assistance will take many hours (or longer), during which time people are exposed to the elements. SFP is designed to contain a fire and support fire suppression. This delays the need to abandon ship as long as possible. • **There are more than 36 berthed passengers.** Sleeping passengers are more likely to be disoriented and less able to be safely evacuated in the event of a fire. This is exacerbated when the numbers of berthed passenger numbers are higher. • **A vessel has any berthed passengers operating in the coastal limit** As noted above, sleeping passengers are at risk in a fire. The risk increases when the vessel is operating a substantial distance from shore. A 24 metre vessel is the threshold used by both the International Maritime Organisation (IMO) and by comparable jurisdictions (the UK, Canada, EU) to set requirements. A vessel this size is likely to carry more people, and more cargo, and have a higher fire loading (material that can burn in a fire). The proposed 24 metre threshold acts as a proxy for this higher risk. Fires in lithium-ion batteries used for propulsion have been responsible for completely destroying vessels in other countries. SFP is essential to contain such fires until safe evacuation is achieved. The 120 kW threshold is considered a practicable limit at which requirements should apply.
Changes are practical and economically viable:	Setting the threshold at 15 metres for when a vessel would need to install SFP is heavily influenced by when it is considered practical to install SFP on smaller vessels. For vessels between 15 and 24 metres, the additional cost of requiring SFP is only consider appropriate where the risk is highest. Likewise, the threshold of 120 kW for when a lithium-ion battery compartment requires SFP is intended to strike the right balance between risk and cost. The 24 metre threshold at which SFP is required for Medium fire risk vessels recognises the higher complexity and higher fire risk of these larger vessels. It is also sensible to align our rules with the international community. The proposal to require existing High fire risk vessels of 24 metres or more to retrofit SFP recognises that while there are benefits for requiring SFP, there are also significant practical and economic considerations. As a result, the proposal for existing vessels is only justified for scenarios of elevated risk:

- Vessels of 24 metres or more operating in coastal or offshore/unlimited areas (far from help); and
- Vessels of 24 metres or more carrying more than 36 berthed passengers (high risk of harm).

Levels of structural fire protection

The current structural fire protection times for passenger, non-passenger and fishing vessels are either A30 or A60, in line with other countries requirements for domestic commercial vessels.

The preferred approach is that A30 would be required for vessels less than 35 metres and A60 for vessels 35 metres or more. This approach strikes the right balance between safety and cost:

- For smaller vessels, A30 provides valuable time to fight a fire and, if unsuccessful, to safely evacuate having sought mayday assistance, without the additional cost that comes with A60 protection.
- Fires on relatively large vessels, such as those of 35 metres or more, take time to engulf a vessel. A60 protection may save the vessel even if firefighting is initially unsuccessful, once help arrives.
- This approach, based on vessel size, is broadly in line with the requirements of Australia's National Standard for Commercial Vessels (NSCV).

Comparing options against status quo.

	Option 1: Status Quo	Option 2: Requirements the same for all vessels	Option 3: Requirements dependent on the vessel's size and fire risk rating
The rules are flexible and adaptive.	0	+	++
The rules are clear and easy to understand and apply	0	++	++
Maintains and enhances maritime safety	0	++	++
Practical and economically viable	0	- -	++

Key for qualitative judgements:

++	Much better than doing nothing/the status quo/counterfactual
+	Better than doing nothing/the status quo/counterfactual
0	About the same as doing nothing/the status quo/counterfactual
-	Worse than doing nothing/the status quo/counterfactual
- -	Much worse than doing nothing/the status quo/counterfactual

Preferred option

Option 3 Requirements dependent on the vessel's size and fire risk rating is the preferred option as it rates well against all criteria. The approach balances the substantive costs of requiring SFP with the benefits to safety and only requires SFP where there is elevated risk.

What are the marginal costs and benefits of the preferred option?

PART 3D FIRE PROTECTION PROPOSAL SUMMARY

Affected groups	Comment	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Operators of vessels entering the fleet in the future that are: – 24 metres or more in length – 15 metres or more but less than 24, either in offshore/unlimited areas, or with more than 36 passengers	Will require SPF from date new rules apply. Unclear how many of these vessels will enter the fleet in future.	High per vessel, but can be factored into build cost or purchasing contract and price. No reliable cost estimates available.	Low
Operators of existing vessels of 24 metres or more in length that: – Operate in coastal or offshore unlimited areas; or – Carry more than 36 berthed passengers.	High cost to have SPF fitted. Alternative is to retire the vessel from the domestic fleet.	High per vessel. No reliable cost estimates to date.	Low
Total monetised costs		Medium	Low
Total non-monetised costs	N/A	None	
Additional benefits of the preferred option compared to taking no action			
Operators of vessels entering the fleet in the future that are: – 24 metres or more in length – 15 metres or more but less than 24, either in offshore/unlimited areas, or with more than 36 passengers	Improved fire safety protection should a fire occur. Potential for lives to be saved.	Difficult to quantify this benefit.	Medium
Operators of around 10 existing vessels of 24 metres or more in length	Improved fire safety protection should a fire occur. Potential for lives to be saved.	Difficult to quantify this benefit.	Medium
Total monetised benefits		None	
Non-monetised benefits	Unclear how many vessels already have SFP.	High	Medium

PART 3D FIRE PROTECTION PROPOSAL SUMMARY

Implementation
The following Rule(s) and MTI will implement this proposal: • Part 3D: Maritime (Design, Construction and Equipment – Fire Protection) Rules. • Maritime Transport (Fire Protection) Instrument [year]. It is expected these will commence in early 2026. Existing vessels will have five years from commencement to meet the new requirements. Once implemented, recognised surveyors and Maritime NZ will have responsibility, through surveys and audits respectively, to ensure that vessels operating in New Zealand's domestic commercial fleet are meeting all applicable rules.

Questions

F 3.1 Do you agree with the proposal to require more new vessels to have structural fire protection?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 3.2 Do you agree with the proposal to require more existing vessels to have structural fire protection?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 3.3 Do you agree with the proposed levels of structural fire protection?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 3.4 Do you have any information on what it may cost for a vessel to have structural fire protection installed (particularly existing vessels)?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 3.5 Do you agree with the proposed transition period allowing existing vessels up to five years to have structural fire protection installed?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 4: Fire Hose Appliances

What we are proposing?

Number of fire hose appliances required

The following changes to fire hose appliance requirements are proposed:

- Vessels of 15 metres or more in length would be required to have a set of fire hose appliances (pumps, hydrants, mains, hoses etc.)
- Vessels of 24 metres or more would be required to have two sets of fire hose appliances if:
  - They operate in coastal and offshore/unlimited areas.
  - There are more than 36 berthed passengers (irrespective of operating area).
- Vessels 24 metres or more in length would be required to have emergency fire pumps, and only if either:
  - The main fire pump is located in a machinery or Energy Storage System (ESS) space.
  - For vessels required to have two main fire pumps, if a fire in any one compartment would render the other main fire pump inoperative.
- The number of hydrants, hoses and nozzles would be harmonised, so that vessels of 15 metres or more would be required to have a minimum of one set, vessels of 24 metres or more would be required to have two.
- Portable fire pumps would be allowed as emergency fire pumps (not currently permitted).
- No vessels will be required to have hand operated fire pumps.

Performance standards

It is proposed that performance standards for some fire hose appliances be reduced:

- Fire pumps would have a minimum capacity of 5.5 cubic metres per hour for vessels less than 24 metres and 7 cubic metres for vessels of 24 metres or more in length (currently 25 cubic metres irrespective of length).
- Minimum hydrant pressure would be 150 kPa (current requirements range from 200 – 400 kPa depending on vessel type and size).

Current environment and rationale for proposed changes

Current requirements

The current requirements for fire hose appliances differ significantly between vessel types. The key requirements are that:

- A powered fire pump is generally required in most vessels of 15 metres or more, but—
  - For sailing vessels the threshold is 12 metres, for passenger vessels in restricted coastal waters (and beyond) it is 9 metres and in fishing vessels it is 9 metres in all operating areas.
  - In some scenarios, a manually powered pump is allowed as an alternative.
  - Second and/or emergency pumps are generally required for vessels of 24 metres or more. In some scenarios, this depends upon whether the main pump is in a machinery space or whether a fire could put all pumps out of action.
- In most instances a hydrant is required for every pump, and a hose and nozzle for each hydrant.

- Additional hydrants are required in spaces with oil fired burners and internal combustion machinery spaces, but the requirements differ depending on vessel type
  - For sailing vessels if 24 metres or more.
  - For passenger vessels if 24 metres or more, or in coastal, offshore and unlimited areas.
  - For non-passenger vessels of 24 metres or more.
- Additional or spare hoses and nozzles are required:
  - For non-passenger vessels of 15 metres or more in length in restricted and restricted coastal limits.
  - For passenger and non-passenger vessels in coastal, offshore and unlimited areas.
  - For any sailing vessel of 24 metres or more in length.

Rationale for change

The current requirements for fire hose appliances are too onerous:

- It is impractical to have fire hose appliances on vessels of less than 15 metres, and there are few benefits
- Minimum performance standards are set too high for the size and nature of domestic commercial vessels, which may increase costs unnecessarily.

Impact of the proposed changes

The proposals above would change which vessels require fire hose appliances, how many, and performance standards. However:

- None of the changes proposed are more onerous than current requirements.
- In a number of areas, the changes would result in less onerous requirements.

Impact on vessels newly entering the domestic commercial fleet

The biggest change for vessels newly entering the fleet is that the following vessels will not be required to have fire hose appliances:

- Passenger vessels of 9 metres or more in length but less than 15 metres that operate in the restricted coastal area and beyond.
- Fishing vessels of 9 metres or more but less than 15 metres.
- Sailing vessels of 12 metres or more but less than 15 metres.

We estimate cost savings from not having these items of around $10,000.

Impact on existing vessels

Around 290 existing vessels would no longer be required to have fire hose appliances, the vast majority (more than 95%) of which are fishing vessels. There may be future savings as a result of not needing to replace worn out or broken equipment, but we do not expect that these would be significant.

How the impacts will be mitigated

Mitigation of impacts is unnecessary: the proposed changes lower current requirements.

Timing / Commencement date

The proposed requirements for fire hose appliances will take effect on the commencement date of Part 3D: Maritime (Design, Construction and Equipment – Fire Protection) Rules. The estimated in-force date is currently early 2026. A transition period for existing vessels is not required.

Options analysis

What options are being considered?

Two options were considered:

Option 1 Status quo. Reproduce the current rules. These rules are not consistent across vessel type, size and operating area.

Option 2 Requirements for vessels 15 metres and more in length. All vessels 15 metres or more in length would be required to carry fire hose appliances. Additional appliances would be required for vessels 24 metres or more length, depending on the operating area.

How the option compares against the status quo

Option 1 Status quo.

The status quo provides positive safety benefits in some situations but the requirements are not consistent across vessel type, size and operating area. In some situations the current rules require fire hose appliances on vessels as small as 9 metres in length.

For vessels less than 15 metres, it is considered impractical to have fire hose appliances for the following reasons:

- Very few smaller vessels have crews of 3 or more – 3 crew is considered the minimum necessary to safely fight an established fire using fire hose appliances (includes one crew to manage the ship and two crew to fight fires).
- Due to the smaller size of these vessels, it would be challenging to fight an established fire from a safe distance, and dangerous for the crew members doing so.
- There is limited space to store fire hose appliances and house fire pumps

Option 2 Requirements for vessels 15 metres and more in length – preferred option

Under this option, the threshold for when a vessel would need to carry fire hose is set at 15 metres or more in length. Additional requirements would be required for vessels 24 metres or more length, depending on the operating area.

Alternative lower threshold levels were considered but discounted.[14] As noted above, the use of fire hose appliances on smaller vessels was considered impractical and unsafe.

The changes provide flexible and adaptive regulation:	New standards and technologies will be able to be incorporated into the rules (via the MTI) as these become available and are proven to have safety benefits.
Rules are clearer and easier to understand and apply:	This option sets out consistent rules across all vessel types that are based on the risk of fire and the practical constraints related to using and storing fire hose appliances and fire pumps.
Maritime safety is maintained or enhanced:	Fire hose appliances provide positive safety benefits where they can be effective used and stored. On vessels 24 metres or more in length, firefighting with fire hose appliances and wearing firefighters' outfits can be effective.[15] At 15 metres

[14] For example, for vessels between 12 and 15 metres in length, there may be some marginal benefits in using fire hose appliances to cool the boundary of a fire when the vessel is a significant distance from shore and a long way from external support. However, these marginal benefits were not considered to outweigh the practical and economic drawbacks, or the safety risks of attempting to fight an established fire on a small vessel with insufficient crew.

[15] See the next proposal on firefighters' outfits and breathing devices.

or more in length but less than 24 metres, firefighting with fire hose appliances is not as likely to be effective, but using fire hose appliances at

The size of a 15 metre vessel makes it reasonably practicable to have a set of fire hose appliances installed. Although the majority of these vessels would not have sufficient crew to extinguish an established fire, it is realistic for crew to use fire hose appliances at a safe distance to cool areas bordering a fire to slow the spread while awaiting external assistance, especially when at a significant distance from shore.

Requiring vessels 24 metres or more in length to carry two sets of fire hose appliances and fire pumps, when operating in the coastal, offshore and unlimited areas, or when carrying more than 36 berthed passengers, recognises that:

- The crew on these vessels are well placed to actively respond to an established fire.[16] The majority of vessels (approx. 55%) have a minimum of 3 or more crew.
- Vessels this size have sufficient space to store multiple sets of fire pump and hose appliances.
- A vessel this size will carry enough fire fighter outfits.[17]
- The consequences of abandoning ship in the event of a fire are more significant as assistance is likely to take longer and sea conditions are usually less favourable the further from shore a vessel is. Additional fire hose appliances may facilitate extinguishing the fire or delaying its spread and therefore reduce the need to abandon ship.

In addition, requiring vessels 24 metres of more in length to carry a second or emergency fire pump in some situations recognises that if the main fire pump is located in a main machinery space or the Energy Storage System space it may not be accessible as these areas are the most likely spaces where significant fires might emerge

Changes are practical and economically viable:

Setting the threshold, for when a vessel would need to carry fire hose appliances and emergency fire pumps, at 15 metres or more in length is heavily influenced by the fact that is it considered impractical and unsafe to use and store this equipment on smaller vessels.

Comparing options against status quo.

	Option 1: Status Quo	Option 2: *Requirements for vessels 15 metres and more in length*
The rules are flexible and adaptive.	0	++
The rules are clear and easy to understand and apply	0	++
Maintains and enhances maritime safety	0	++

[16] Not just focus on cooling the boundary of the fire.

[17] See proposal 5 on firefighters' outfits and breathing devices, below.

Practical and economically viable	0	++

Key for qualitative judgements:

++	Much better than doing nothing/the status quo/counterfactual
+	Better than doing nothing/the status quo/counterfactual
0	About the same as doing nothing/the status quo/counterfactual
-	Worse than doing nothing/the status quo/counterfactual
--	Much worse than doing nothing/the status quo/counterfactual

Preferred option

Option 2 Requirements for vessels 15 metres and more in length is the preferred option as it rates well against all criteria. It enhances safety by requiring fire hose appliances where it is practical and beneficial to have them, and is more practical and economically viable than the status quo, which requires these appliances on some ships where there are not likely to be useful. It also aligns the differing requirements across vessel types, and aligns with the proposals (below) for firefighter outfits and breathing devices..

What are the marginal costs and benefits of the preferred option?

Affected groups	Comment.	Impact.	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
These proposals will not increase costs for any operator.		None	High
Total monetised costs		None	High
Additional benefits of the preferred option compared to taking no action			
Operators of vessels entering the fleet after commencement date will not be required to have fire hose appliances if the vessel is a: • Passenger vessel 12 or more metres but less than 15 metres in restricted coastal areas or beyond • Fishing vessels of 9 metres or more but less than 15 metres • Sailing vessels 12 metres or more but less than 15 metres.	Will not be required to install a fire pump and fire hose appliances	$10,000	Low Based on limited product inquiries and assumed installation costs
All new vessels of 15 metres or more	Lower minimum requirements for fire pump capacity and hydrant pressure may enable installation of slightly cheaper products	0 - $500 per vessel	Low Highly dependent on the products chosen on a case by case basis.
Monetised benefits	Dependent on how many new vessels less than 15 metres in length enter the fleet.	*Low*	*Medium*

How the impacts will be mitigated

Mitigation of impacts is unnecessary: the proposed changes lower current requirements.
Timing / Commencement date
The proposed new requirements will take effect on the commencement date of Part 3D: Maritime (Design, Construction and Equipment – Fire Protection) Rules. The estimated commencement date is early 2026. No transition period is required because requirements are being lowered.
Implementation
The Rule(s) and MTI that will implement this proposal • Part 3D: Maritime (Design, Construction and Equipment – Fire Protection) Rules. • Maritime Transport (Fire Protection) Instrument [year]. We currently expect that these will commence in early 2026. Once implemented, recognised surveyors and Maritime NZ will have responsibility, through surveys and audits respectively, to ensure that vessels operating in New Zealand's domestic commercial fleet are meeting all applicable rules.

Questions

F 4.1 Do you agree with the proposal to require fewer vessels to have fire hose appliances?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 4.2 Do you agree with the proposed new performance standards for fire hose appliances?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 5: Firefighter outfits and breathing devices

What we are proposing?

It is proposed that vessels of 24 metres or more must have a minimum of two:

- Firefighters outfits.
- Self-contained breathing apparatus.
- Emergency escape breathing devices in machinery spaces.

Current environment and rationale for proposed changes

Current requirements

The current requirements for firefighter outfits and breathing devices used when firefighting vary by vessel type, size, and operating area, as well as in the type of breathing device. They are summarised in the table below.

Passenger vessel	Non-passenger vessel	Fishing vessel	Sailing vessel
Two outfits and breathing devices‡ if in restricted coastal and 24m+ **Two** outfits and breathing devices‡ if in offshore and coastal ‡ limits and— – 24m+; **or** – with more than 36 day passengers; **or** – with more than 12 berthed passengers	**One** outfit and breathing device* if in inshore limits and 24m+ **Two** outfits and breathing‡ devices if in restricted coastal limits and 24m+ **Two** outfits and breathing devices* if in offshore and coastal limits and 24m+	**Two** outfits and breathing devices‡ if operating beyond coastal limits and 24m+	**Two** outfits and breathing devices* if 24m+

‡ means that the breathing device may be either a SCBD or a smoke helmet and mask
* means that the breathing device must be a SCBD.

No vessels are currently required to have emergency escape breathing devices (EEBDs).

Rationale for change

Firefighters' outfits and self-contained breathing devices (SCBDs) are used together when operating fire hose appliances to fight a fire. They are important for keeping crew fighting a fire safe from heat, flames, smoke, and toxic gases.

Attacking a fire with fire hose appliances requires a minimum of two trained crew, and preferably three or more. One crew member handles and controls the nozzle, a second is usually positioned immediately behind the first and assists by taking the weight of the hose, and a third person handles the bight of the hose. At least the first two should be wearing fire-fighters' outfits and appropriate breathing apparatus.

However the current rules:

- Require non-passenger vessels of 24 metres or more operating in inshore areas to have a minimum of only one outfit and SCBD.

- Allow some vessels to have either SCBDs or smoke helmets and masks.[18] In 2003 the IMO recommended that smoke helmets and masks not be fitted to new vessels due to the poor protection they provide compared with SCBAs and the safety risks they present.[19]
- Only apply to a relatively small proportion of vessels, leaving crew to firefight without personal protective equipment.
- No vessels large enough to have crew stationed in engine rooms are required to have emergency escape breathing devices to help crew evacuate the space if there is smoke or toxic gases from a fire.

Impact of the proposed changes

This proposal would expand the number of vessels required to have personal protective equipment:

- The following vessels of 24 metres or more would be required to have two firefighters outfits and two SCBDs:
  - Passenger vessels operating in inshore limits.
  - Fishing vessels that operate within coastal limits.
  - In total this would apply to around 55 existing vessels.
- Around 50 non-passenger vessels currently required to have one firefighters outfit and breathing device would be required to have two.
- All vessels of 24 metres or more would be required to have at least two emergency escape breathing devices:
  - This is not a current requirement.
  - There are around 130 vessels in the domestic commercial fleet of 24 metres or more in length.

Given their obsolescence, we assume that no vessels currently have smoke helmets and masks.

Costs

Typical costs of these items are:

- Around $1,000 for firefighters outfits.
- Around $2,000 for SCBAs.
- Around $600 for EEBDs.

How the impacts will be mitigated

We propose no mitigations of the impacts. A transition period is unnecessary as this personal protective equipment can be easily and quickly purchased and installed on a vessel.

Timing / Commencement date

The proposed new requirements will take effect on the commencement date of Part 3D: Maritime (Design, Construction and Equipment – Fire Protection) Rules. The estimated in-force date is early 2026.

[18] A smoke helmet and mask is a form of gas mask connected by an air hose to a pump or air-line that supplies it with oxygen in environments where there is smoke or gas

[19] These include smoke entering the air supply, the air supply being damaged or trapped, and the limited range of the air line. See International Maritime Organization Maritime Safety Committee circular 1085 of 13 June 2003. They are not an option in the equivalent regulatory regimes of any of the countries surveyed (e.g. Australia, the UK, the USA, Canada, Ireland, Norway).

Options analysis

What options are being considered?

Three options were considered:

Option 1 Status quo. Reproduce the current rules. These rules are not consistent across vessel type, size and operating area.

Option 2 One set of firefighter outfits and breathing devices for all vessels 24 metres or more in length. All vessels 24 metres or more, regardless of operating area, would be required to carry one set of firefighter outfits and breathing devices.

Option 3 Two sets of firefighter outfits and breathing devices for all vessels 24 metres or more in length. All vessels 24 metres or more, regardless of operating area, would be required to carry two sets of firefighter outfits and breathing devices.

How the options compare against the status quo

Option 1 Status quo

Under the status quo, many vessels that would benefit from carrying this personal protective equipment are not required to do so. The requirements vary significantly by vessel type and some aspects are unsafe (requiring smoke helmets and masks, and only requiring one set of firefighter outfits and breathing devices).

Option 2 One set of firefighter outfits and breathing devices for all vessels 24 metres or more in length.

While practical and economically viable, it is unsafe to fight an established fire with a single set of firefighter outfits and breathing devices. In addition, engine rooms on vessels this size are large enough that more than one person may need to use an emergency escape breathing device (EEBD) to escape from smoke and toxic gases.

Option 3 Two sets of firefighter outfits and breathing devices for all vessels 24 metres or more in length – preferred option

It is practical and economically viable to have these items on vessels this size, and there are considerable safety benefits. This option also sets uniform requirements for all vessels 24 metres or more in length, regardless of vessel type or operating area.

The changes provide flexible and adaptive regulation:	New standards and technologies will be able to be incorporated into the rules (via the MTI) as these become available and are proven to have safety benefits.
Rules are clearer and easier to understand and apply:	This option harmonises and consolidates the rules and sets out consistent requirements across vessel types and operating areas.
Maritime safety is maintained or enhanced:	This option recognises the importance of providing firefighter outfits and breathing devices where there is an expectation that fire hose appliances would be used to fight an established fire. These outfits and devices protect the crew fighting the fire from the heat, flames, smoke, and toxic gases. Importantly, it recognises that: • At least two crew are required to operate fire hose appliances when fighting an established fire; and • Engine rooms on vessels this size are large enough that more than one person may need an emergency breathing device to assist escape.

Changes are practical and economically viable:

As noted above, this option provides many safety benefits. In vessels of 24 metres or more in length this option is practical and inexpensive to implement.

Consideration was given to whether the threshold for requiring outfits and breathing devices, should be set at 12 metres or more in length. However, it was considered that it is unsafe and impractical to fight established fires on vessels as small as 12 metres and therefore no requirement for this type of personal protective equipment was set for these sized vessels.

Comparing options against status quo.

	Option 1: Status Quo	Option 2: One set of firefighter outfits and breathing devices for all vessels 24 metres or more in length	Option 3: Two sets of firefighter outfits and breathing devices for all vessels 24 metres or more in length
The rules are flexible and adaptive.	0	++	++
The rules are clear and easy to understand and apply	0	++	++
Maintains and enhances maritime safety	0	+	++
Practical and economically viable	0	++	++

Key for qualitative judgements:

++	Much better than doing nothing/the status quo/counterfactual
+	Better than doing nothing/the status quo/counterfactual
0	About the same as doing nothing/the status quo/counterfactual
-	Worse than doing nothing/the status quo/counterfactual
- -	Much worse than doing nothing/the status quo/counterfactual

Preferred option

Option 3 Two sets of firefighter outfits and breathing devices for all vessels 24 metres or more in length is the preferred option as it rates well against all criteria. It enhances safety by aligning with other proposals, namely the provision of fire hose appliances, which cannot be used safely to fight established fires without the use of appropriate personal protective equipment.

What are the marginal costs and benefits of the preferred option?

Affected groups	Comment.	Impact	Evidence Certainty
Additional costs of the preferred option compared to taking no action			
Operators of approximately 50 non-passenger vessels of 24 metres or more in length.	These vessels would be required to have two firefighter outfits and SCBAs and are currently required to have one.	$3,000 per vessel	Medium Actual prices of these items vary. It is unclear how many vessels already have two of each.
Operators of approximately 50 non-passenger, fishing and sailing vessels of 24 metres or more in length.	These vessels would be required to have two firefighter outfits and SCBAs, and are not currently required to.	$6,000 per vessel	Medium Unclear how many vessels already have these.
Operators of around 130 vessels of 24 metres or more in length.	These vessels would be required to have two EEBDs.	$1,200 per vessel	Medium. Unclear how many vessels already have these.
Total monetised costs	Depends on how many vessels already have this equipment	Medium	Medium
Total non-monetised costs		None	N/A
Additional benefits of the preferred option compared to taking no action			
Crew in around 130 vessels of 24 metres or more	Potential safety benefits of using EEBDs to escape machinery space fires. Potential safety benefits of greater protection for fighting fires with two outfits and SCBAs.	Medium	Medium Depends on how many vessels voluntarily already meet proposed requirements.
Monetised benefits		N/A	
Non-monetised benefits		Medium	

Implementation

The following Rule(s) and MTI will implement this proposal:

- Part 3D: Maritime (Design, Construction and Equipment – Fire Protection) Rules.
- Maritime Transport (Fire Protection) Instrument [year].

We currently expect that these will commence in early 2026. No transition period is being provided for this proposal.

Once implemented, recognised surveyors and Maritime NZ will have responsibility, through surveys and audits respectively, to ensure that vessels operating in New Zealand's domestic commercial fleet are meeting all applicable rules.

Questions

F 5.1 **Do you agree with the proposal that new and existing vessels of 24 metres or more in length must have two firefighter outfits and two self-contained breathing apparatus?**

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 5.2 **Do you agree with the proposal that all new and existing vessels of 24 metres or more in length must have two emergency escape breathing devices?**

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 6: Remove requirements for vessels to have sand and non-portable fire extinguishers

What we are proposing?

It is proposed that sand and non-portable fire extinguishers will no longer be required on any vessels.

Current environment and rationale for proposed changes

Current requirements

Sand

The rules currently require the following vessels to carry sand:

- Passenger vessels of 24 metres or more operating within restricted and restricted coastal limits must carry 0.15m^3 of sand, and in coastal and offshore limits must carry 0.25 m^3.
- Non-passenger vessels in restricted, restricted coastal, coastal and offshore limits must carry 0.25 m^3 of sand if 24 metres or more in length, and 0.1 m^3 if less than 24 metres.
- All fishing vessels must carry a quantity of sand determined by a surveyor.

There are around 750 vessels covered by this, or around 30% of domestic commercial vessels.

Non-portable fire extinguishers

The rules currently require non-portable fire extinguishers in each boiler room, machinery space of Category A,[20] or spaces where there are steam turbines, for the following vessels:

- All passenger, fishing, and sailing vessels, that are 24 metres or more in length; and
- Non-passenger vessels of 24 metres or more that operate in coastal and offshore limits.

There are around 100 vessels covered by this, or around 5% of the domestic commercial fleet.

Rationale for change

Sand

Sand can be of use against oil fires. However, it requires a crew member to carry it and then physically pour it over the fire, which can present a low level of risk to the crew member.

In contrast, foam based portable fire extinguishers are generally considered superior to sand against the type of fires sand can be used against, and are easier to carry and often cheaper. All vessels must carry portable fire extinguishers, making sand unnecessary.

Non-portable fire extinguishers

Non-portable fire extinguishers are expensive and heavy. They will often need to be carried or wheeled to the fire to be applied, and due to their capacity crew usually need to be specially trained in their use.

In contrast, for small fires an FFE system or portable fire extinguisher will be just as effective and are easier to use, while for larger fires fire hose appliances are preferable since they have much greater capacity.

[20] Machinery spaces of Category A are spaces with internal combustion machinery used for main propulsion, internal combustion machinery used for other purposes which in aggregate has a total output of 375 kW or more, and only oil-fired boiler or oil fuel unit.

Impact of the proposed change

The proposed changes will have the following impacts:

- There will be no impact on existing vessels, though removing sand and non-portable fire extinguishers from vessels that have them may free up space and weight for other uses.
- New vessels entering the fleet will not need to spend money on this equipment:
  - Firefighting sand can cost upwards of $200 per 100 kilograms. For a vessel required to have 0.15 m^3, the cost would be around $500, and for vessels required to have 0.25 m^3 the cost would be around $850.
  - Prices of non-portable fire extinguishers vary considerably, but the kinds that are required on New Zealand domestic commercial vessels can cost more than $2,000 and some retail for much more. Some vessels are currently required to have two or more, resulting in costs of around $5,000.

How the impacts will be mitigated

This proposal has no negative impacts to mitigate.

Timing / Commencement date

Changes to no longer require sand or non-portable fire extinguishers will take effect on commencement of Part 3D: Maritime (Design, Construction and Equipment – Fire Protection) Rules. The estimated in-force date is currently early 2026. No transition period is required.

Options analysis

What options are being considered?

Two options were considered:

Option 1 Status quo. Reproduce the current rules, which are not consistent across the different vessel types.

Option 2 Sand and non-portable fire extinguishers requirements removed. Vessels would no longer be required to carry sand or non-portable fire extinguishers.

How the option compares against the status quo

Option 1 Status quo.

Carrying sand and non-portable fire extinguishers on a vessel provides no additional protection to the suite of appliances proposed. While relatively inexpensive, there are no benefits to justify the economic cost and inconvenience of having them.

Option 2 Remove requirements for sand – preferred option

This option is the only feasible alternative as sand and non-portable fire extinguishers are not considered to provide any additional fire protection over and above the suite of appliances proposed. Removing sand and non-portable fire extinguishers will also help ensure the most effective tools are used to respond to a fire.

Comparing options against status quo.

	Option 1: Status Quo	Option 2 Sand and non-portable fire extinguishers requirements removed
The rules are flexible and adaptive.	0	++
The rules are clear and easy to understand and apply	0	++
Maintains and enhances maritime safety	0	++
Practical and economically viable	0	++

Key for qualitative judgements:

++	Much better than doing nothing/the status quo/counterfactual
+	Better than doing nothing/the status quo/counterfactual
0	About the same as doing nothing/the status quo/counterfactual
-	Worse than doing nothing/the status quo/counterfactual
- -	Much worse than doing nothing/the status quo/counterfactual

Preferred option

Option 2 Sand and non-portable fire extinguishers requirements removed is the preferred option as it rates well against all criteria.

What are the marginal costs and benefits of the preferred option?

Sand

Affected groups	**Comment**.	**Impact**	**Evidence Certainty**.
Additional costs of the preferred option compared to taking no action			
Vessels currently required to carry sand.	Not requiring vessels to carry sand will create no additional costs, or reduce safety outcomes.	N/A	Medium No compelling safety benefits of retaining sand have been identified.
Total monetised costs		N/A	N/A
Non-monetised costs		N/A	N/A
Additional benefits of the preferred option compared to taking no action			
Vessels currently required to carry sand and new domestic commercial vessels that are: • Passenger vessels of 24 metres or more operating	Not requiring sand will give rise to cost savings.	$200 - $850 per vessel Unclear how many vessels will be impacted	Medium Based on limited supplier inquiries.

within restricted and restricted coastal limits • Non-passenger vessels in restricted, restricted coastal, coastal and offshore limits • Fishing vessels			
Total monetised benefits		Unclear	Medium
Non-portable fire extinguishers			
Affected groups	**Comment**.	**Impact**	**Evidence Certainty**.
Additional costs of the preferred option compared to taking no action			
Vessels currently required to carry non-portable fire extinguishers	Not requiring non-portable fire extinguishers will not result in safety reductions	N/A	Medium No compelling safety arguments to retaining non-portable fire extinguishers have been identified.
Total monetised costs		N/A	N/A
Non-monetised costs		N/A	N/A
Additional benefits of the preferred option compared to taking no action			
Vessels currently required to carry non-portable fire extinguishers and new domestic commercial vessels that are: • All passenger, fishing, and sailing vessels, that are 24 metres or more in length; and • Non-passenger vessels of 24 metres or more that operate in coastal and offshore limits	Not requiring non-portable fire extinguishers means that new vessels will not need to incur this cost	$2,000 - $5,000 per vessel Unclear how many vessels will be impacted	Medium Based on limited supplier inquiries
Total monetised benefits		Unclear	Medium
Implementation			
The proposal to no longer require sand or non-portable fire extinguishers will be implemented through: • Part 3D: Maritime (Design, Construction and Equipment – Fire Protection) Rules. • Maritime Transport (Fire Protection) Instrument [year]. We currently expect that these will commence in early 2026. No transition period is required.			

Once implemented, recognised surveyors and Maritime NZ will have responsibility, through surveys and audits respectively, to ensure that vessels operating in New Zealand's domestic commercial fleet are meeting all applicable rules

Questions

F 6.1 Do you agree with the proposal that vessels no longer be required to have sand or non-portable fire extinguishers?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

How to have your say

31. The deadline for providing comment on these proposals is **5pm on Friday 18 October 2024**.

32. This document is part of a package of documents on the proposed changes to the design, construction and equipment rules. Additional information on this consultation is available on Maritime NZ's website.

33. Subject to interest, Maritime NZ will hold online information sessions on the proposals on 27 and 28 August and 24 and 25 September. Times are yet to be confirmed. Please contact us at the email address provided below if you would like to attend a session or if you would like us to contact you to discuss any of the proposals.

34. We welcome any feedback you would like to provide. Submissions can be made by completing the submission form on our website (https://www.maritimenz.govt.nz/public/consultation/), or in any other written form; and:

    - Emailed to us at 40.series@maritimenz.govt.nz; or
    - Posted to the Regulatory Reform Projects Team, Maritime NZ, PO Box 25620, Wellington 6140.

35. This document includes questions to help you focus your feedback. Answering the questions is optional.

Submissions are public information

36. Please let us know if your comments are commercially sensitive or if for some other reason you consider they should not be disclosed. If your submission is subject to an Official Information Act (OIA) request, Maritime NZ will consider your confidentiality request in accordance with the grounds for withholding information set out in the OIA.

37. In addition, if you are an individual (that is your comments are made personally and not on behalf of a company or an organisation), please let us know if you have reasons that your identity should not be disclosed.

38. We will acknowledge all submissions that we receive. Once the rule is finalised a summary of submissions will be published on our website.

Questions

39. The following questions have been included to focus your feedback. Answering the questions is optional. Any and all feedback is welcome.

Proposal 1: Automatic fire detection and alarm systems

F 1.1 Do you agree with the proposal to require more vessels to have standalone fire detection and alarm systems?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 1.2 Do you agree with the proposal to require more vessels to have fixed fire detection and alarm systems?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 1.3 Do you agree with the proposed transition period allowing existing vessels up to two years to have fixed fire detection and alarm systems?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 2: Fixed fire-extinguishing systems

F 2.1 Do you agree with the proposal to require more vessels to have fixed fire-extinguishing systems?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 2.2 Do you agree with the proposal to allow some vessels of less than 15 metres in length to not comply with the technical standards for fixed fire-extinguishing systems if the proposed criteria are met?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 2.3 Do you agree with the proposed transition period allowing existing vessels up to two years to have fixed fire-extinguishing systems?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 3: Structural fire protection

F 3.1 Do you agree with the proposal to require more new vessels to have structural fire protection?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 3.2 Do you agree with the proposal to require more existing vessels to have structural fire protection?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 3.3 Do you agree with the proposed levels of structural fire protection?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 3.4 Do you have any information on what it may cost for a vessel to have structural fire protection (particularly existing vessels)?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 3.5 Do you agree with the proposed transition period allowing existing vessels up to five years to have structural fire protection?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 4: Fire hose appliances

F 4.1 Do you agree with the proposal to require fewer vessels to have fire hose appliances?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 4.2 Do you agree with the proposed new performance standards for fire hose appliances?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 5: Firefighter outfits and breathing devices

F 5.1 Do you agree with the proposal that new and existing vessels of 24 metres or more in length must have two firefighter outfits and two self-contained breathing apparatus?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

F 5.2 Do you agree with the proposal that all new and existing vessels of 24 metres or more in length must have two emergency escape breathing devices?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Proposal 6: Remove requirements for vessels to have sand and non-portable fire extinguishers

F 6.1 Do you agree with the proposal that vessels no longer be required to have sand or non-portable fire extinguishers?

[Answers: Strongly agree; Agree; Neutral; Disagree; Strongly Disagree; No comment]

Why/why not?

Appendix 1: A 'snapshot' of the proposed Fire Protection changes

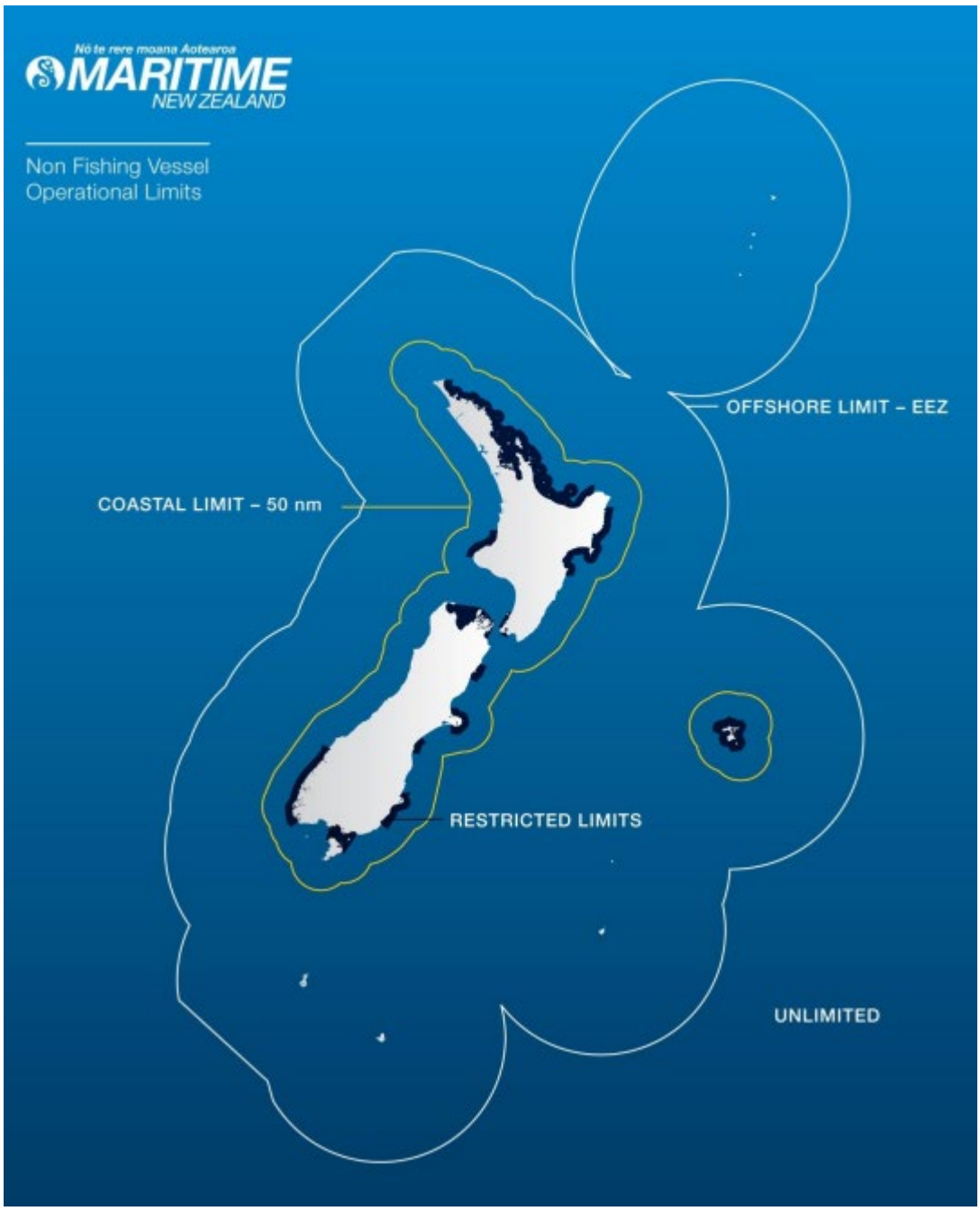
Fire Protection – Part 3D					
	Vessel type	**Vessel length**	**Operating limits**	**Requirements**	**Rule/MTI**
All vessels will be classified as 'Low fire risk', 'Medium fire risk', or 'High fire risk'	All vessel types	Any length	All operating limits	Based on operating limits, persons on board and vessel length.	Rule C2.1
Structural fire protection (fire-resisting divisions)	High fire risk vessel	24m or more	All operating limits	• Will apply to a new vessel. • An existing vessel will have 5 years to meet this requirement.	Rule C3.2 Schedule 1.(2)
	High fire risk vessel	15m or more and less than 24m	All operating limits	Will apply to a new vessel.	Rule C3.2
	Medium fire risk vessel	24m or more	All operating limits	Will apply to a new vessel.	Rule C3.2
	Vessel has electrical energy storage (EES) system	Any length	All operating limits	• EES system is used to power main propulsion machinery. • Will apply to an EES system of 120 kW or more output. • Will not apply to an existing vessel.	Rule C3.2
LPG installations	All vessel types.	Any length	All operating limits	Gasfitting work will need to be carried out by a registered and licensed gasfitter.	Rules B1.2 and MTI 5.3
Fire detection and fire alarm	Low fire risk vessel with an inboard engine of 120 kW or more.	More than 6m in length	All operating limits	Will require stand-alone smoke alarm.	Rule C7.2
	Medium fire risk & High fire risk vessel.	Any length	All operating limits	• Will require hard wired fire detection and alarm system. • An existing vessel will have 2 years to meet this requirement.	Rule C7.2 2(2)(a)
	Space that contains an EES system.	Any length	All operating limits	Will require a suitable gas detection system.	Rule C7.2 MTI 7.2(1)
Fixed fire-extinguishing (FFE) system in the propulsion machinery space	Vessel with inboard petrol engine.	Any length	All operating limits	• An existing vessel will have 2 years to install a FFE system. • The space containing inboard machinery will need to be gastight.	Rule C8.2 Schedule 2(2)(c)

	Vessel type	Vessel length	Operating limits	Requirements	Rule/MTI
Fixed fire-extinguishing (FFE) system in the propulsion machinery space (cont.)	Low fire risk vessel with inboard engine of 120 kW or more.	More than 6m in length	All operating limits	• An existing vessel will have 2 years to install a FFE system. • The space containing inboard machinery will need to be gastight.	Rule C8.2 Schedule 2(2)(b)
	Medium fire risk & High fire risk vessel.	Any length			
	Space that contains an EES system.	Any length	All operating limits	• An EES system of 120 kW or more output will require a FFE system. • The space containing the EES system will need to be gastight.	Rule C8.2
Sand carried in engine space; spare charges for portable fire extinguishers; manual fire pumps; non-portable foam applicator units. Not required	All vessel types	Any length	All operating limits	These items will not be carried into the new rules.	N.A.
Fire hoses; fire hydrants; fire mains; fire pumps	All vessel types	Less than 15m in length.	All operating limits	• The new rules will not require these items for a vessel less than 15 m in length. • A vessel that does not require fire hose appliances will require 1 or 2 fire buckets, depending on vessel length.	MTI 12.2(1)(b) MTI 12.6(1)
	Medium fire risk vessel.	Any length	All operating limits	Fire pumps and fire hose appliances will not be required on a medium fire-risk vessel that has no inboard machinery space or ESS space.	Rule C12.2(2)(c)
	Medium fire risk vessel.	15m or more in length & less than 24m.	All operating limits	1 main fire pump and 1 water jet.	MTI 12.2(1)(b)
	Medium fire risk vessel.	24m or more	All operating limits	• 1 main fire pump and 1 water jet. • 1 emergency fire pump, if the main fire pump is located in the main machinery space or electrical energy storage (EES) space.	MTI 12.2(1)(b) MTI 12.2(2)(a) or (b)
	High fire risk vessel.	15m or more in LOA and less than 24m in LLL.			
	High fire risk vessel.	24m or more in LLL.	All operating limits	• 2 main fire pumps and 2 water jets • 1 emergency fire pump (unless 1 of the main pumps and its source of power can still operate if a fire in any 1 compartment on the vessel could stop a main fire pump from working).	MTI 12.2(1)(a). MTI 12.2(2)(c).

Appendix 2: Diagram of Operational Limits

The following diagram is an extract from Part 20 of the Maritime Rules available on our website at https://www.maritimenz.govt.nz/media/knfnwbso/part20-maritime-rule.pdf. Part 20 provides further information on the boundaries of these operating limits

Operational limits – non fishing vessels



Operational limits – fishing vessels