



Comhairle Contae Mhaigh Eo
Mayo County Council



FIRE-FIGHTING WATER SUPPLY

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INTRODUCTION

Mayo Fire Authority is committed to ensuring the highest standards of fire safety and emergency response within County Mayo. An integral part of this commitment is establishing effective guidelines for fire-fighting water supply. This document sets forth the requirements necessary to secure and maintain an adequate water supply for fire-fighting purposes, addressing various types of water sources and their specific applications. The ability to quickly identify and access such facilities is essential for effective fire-fighting operations.

This policy document has been designed to ensure an effective and reliable fire-fighting water supply for each premises across County Mayo. By adhering to the requirements for fire-fighting water supply through a fire hydrant system, static storage, or open sources, we can significantly enhance our ability to manage to fire emergencies swiftly and efficiently. The document addresses the required fire-fighting water supply requirements in terms of flow rates and quantities, as well as outlining the requirements for provision of a hydrant supply, static water storage capacity, or a supply from an open source of sufficient capacity such as a pond, stream, river or dam.

The guidelines provided herein are based on regulatory frameworks, technical standards, and best practices. They encompass essential components such as the design and installation of fire-fighting water supply systems to ensure each building is provided with sufficient fire mains and other facilities to assist firefighters in their tasks. By adhering to these guidelines, responsible persons can ensure that their fire-fighting infrastructure is well-prepared to meet the demands of diverse fire scenarios, thereby protecting lives and property.

Compliance with the requirements outlined in this document will enhance fire safety measures for each premises and improve overall fire emergency management capabilities. The implementation of these standards will not only help protect lives and property but also contribute to the overall safety and resilience of our communities. We encourage all stakeholders to commit to these guidelines and work together to ensure a safer environment for all that live, visit or work in County Mayo.

Section 1. FIRE-FIGHTING WATER SUPPLY REQUIREMENTS

The required level of fire-fighting water to be supplied to a premises is dependent on both the size and use of that premises. The following outlines the minimum required firefighting water supply rates.

<u>Development type</u>	<u>Required minimum supply</u>
Housing developments ⁽⁹⁾	
- Single or two storey detached, semi-detached, or terraced housing	8 litres per second ⁽¹⁾⁽⁴⁾⁽¹⁰⁾
- Multi-occupied housing development with greater than two-storeys in a single unit	20 litres per second ⁽¹⁾⁽⁸⁾⁽¹⁰⁾
Transportation	
- Coach / Lorry Parks, Multi-storey car parks, Service stations	25 litres per second ⁽²⁾⁽⁷⁾⁽¹⁰⁾
Industrial site	
- Up to one hectare	20 litres per second ⁽²⁾⁽³⁾⁽¹⁰⁾
- One to two hectares	35 litres per second ⁽²⁾⁽³⁾⁽¹⁰⁾
- Two to three hectares	50 litres per second ⁽²⁾⁽³⁾⁽¹⁰⁾
- Over three hectares	75 litres per second ⁽²⁾⁽³⁾⁽¹⁰⁾
Shop / Shopping centre	20 to 75 litres per second ⁽¹⁾⁽¹⁰⁾
Recreation / Tourism	20 to 75 litres per second ⁽¹⁾⁽¹⁰⁾
Education	
- Primary schools	20 litres per second ^{(1)(5 or 6)(10)}
- Secondary schools and colleges	35 litres per second ^{(1)(5 or 6)(10)}
Healthcare	
- Single storey health centres	20 litres per second ^{(1)(5 or 6)(10)}
- Large health centres	35 litres per second ^{(1)(5 or 6)(10)}
Community Facilities	
- Village halls	15 litres per second ^{(1)(5 or 8)(10)}
- Large community facilities	35 litres per second ^{(1)(5 or 6)(10)}

Notes

- | | |
|---|---|
| 1. For a period of not less than 1 hour | 6. Through a hydrant on the development or within a vehicular distance of 70 meters from the complex |
| 2. For a period of not less than 2 hours | 7. Through a hydrant on the development or within a vehicular distance of 90 meters from the complex |
| 3. Mains supply with a minimum nominal bore of 150mm designed in accordance with IS 391 | 8. Through a hydrant on the development or within a vehicular distance of 100 meters from the complex |
| 4. Through any single hydrant | 9. Excluding one off housing |
| 5. Through any single hydrant on the development | 10. Static storage, where provided in any case, shall be not less than 45,000 litres |

Section 2. SOURCES OF FIRE-FIGHTING WATER

Fire-fighting water may be supplied by way of a fire hydrant system, dedicated fire-fighting water static storage, or via an open source.

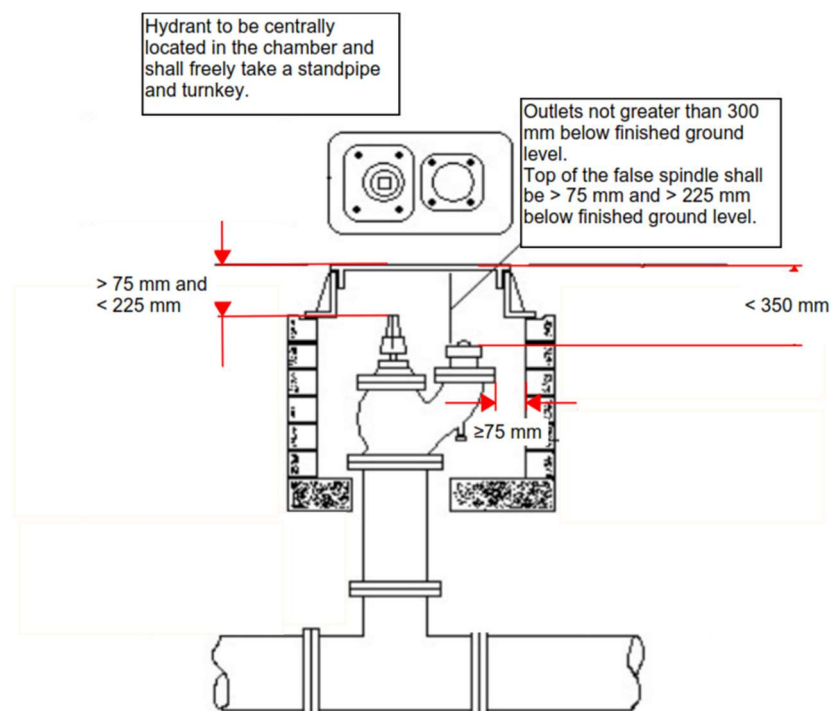
FIRE HYDRANTS

Mains supply The mains supply serving private hydrants shall have a minimum nominal bore of 100 mm, unless serving an industrial site in which case the main shall have a minimum nominal bore of 150 mm. Where fire mains are provided, they should be designed in accordance with I.S. 391.

Hydrant type Underground hydrants are preferable. Pillar hydrants shall only be installed following consultation with and approval by Mayo Fire Authority and shall be in accordance with BS EN 14384.

Hydrant siting Where possible, hydrants should be located in the footpath or grass margin adjoining the roadway near the kerb. Siting of underground fire hydrants in roadways should be avoided where possible. Where siting in a roadway is necessary, the frame and cover shall be in accordance with BS 750 and capable of bearing the heaviest vehicle anticipated to use the roadway. Where a hydrant is located in grass, the surface box and concrete surround shall be above the level of the adjoining surface.

Hydrant depth Hydrant outlets shall be not greater than 300 mm below finished ground level. The top of the false spindle shall be between 75 mm and 225 mm beneath the finished ground level.



Hydrant outlet

Hydrants shall have a male round thread of 62.5 mm diameter, with a cap chained to the bolt of the spindle flange.



Plastic or nylon outlets on fire hydrants are **not acceptable** as per section 5.1 and 5.2 of BS 750.

Hydrant chamber

Hydrant chambers shall be provided with cast iron surface boxes in compliance with the requirements of IS 261.

The chambers shall provide not less than 75 mm clearance to the hydrant body and shall be self-draining from not less than 50 mm below the flanged base of the hydrant.

Hydrant cover

The hydrant cover box shall have a 375mm x 225mm clear opening area and shall be placed centrally over the hydrant to permit freedom of affixing stand-pipe and operating key.

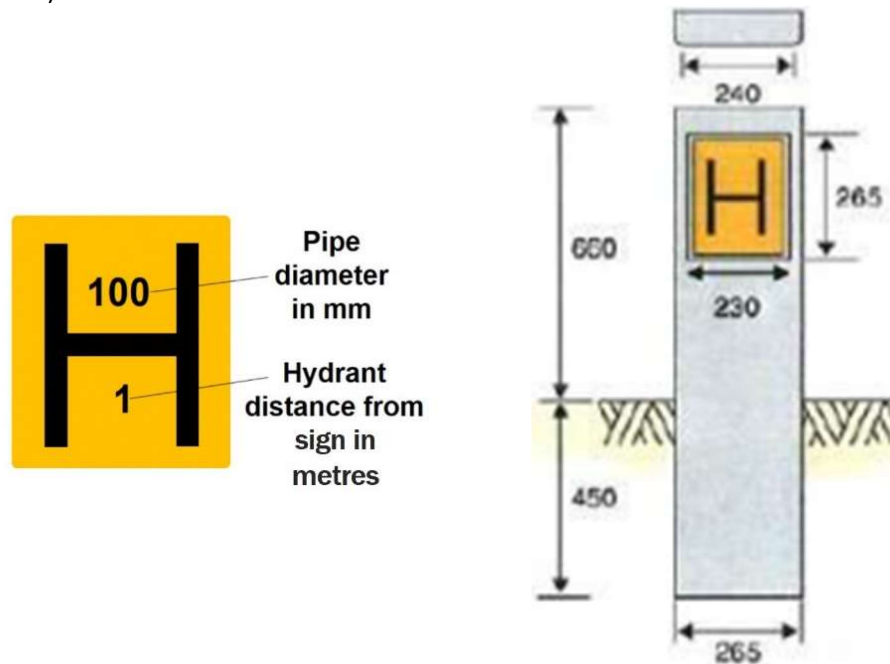
The hydrant cover shall be marked "FH" or "Fire Hydrant" and shall conform to colour reference number 309 (Canary Yellow) of BS 381C.



Hydrant marker

A hydrant indicator plate, to BS 3251: 1976, shall be fitted on boundary wall or on a marker post at 450 mm over ground level.

The marker plate shall show the diameter of the watermain in millimetres on the upper part of the plate and shall show the distance in meters of the marker from the hydrant on the lower part of the plate. All the characters shall be black and the remainder of the front face shall conform to colour reference number 309 (Canary Yellow) of BS 381C.



Hydrant maintenance

Fire hydrants should be inspected and maintained as follows:

Weekly

All fire hydrants should be checked once a week. It should be ensured that there are no obstructions impeding access, that the indicator plates are in position, and that the isolating valves are locked open.

Annually

Arrangements should be made by the owners or the occupiers to ensure that, at least once a year, maintenance is carried out on all private fire hydrants by a competent person.

Periodical inspection should be made to ensure that flow and pressure supplies have not deteriorated.

STATIC STORAGE

Where the supply of fire-fighting water is insufficient, static water storage may be installed to provide some or all of the necessary fire-fighting water on-site. Static storage, where provided in any case, shall be **not less than 45,000 litres**.

Where it is proposed to provide static water storage as an alternative to hydrants, or supplementary to hydrants, the size, location, and access provisions **must be agreed in writing** with Mayo Fire Authority prior to installation.

Sizing The volume of static storage provided shall be calculated based on the flow rate required.

e.g. – A Primary school is required to provide a minimum of 20 litres per second for a period of 1 hour.

$20 \text{ (litres)} * 60 \text{ (seconds)} * 60 \text{ (minutes)} = 72,000 \text{ litres} = 72\text{m}^3$ static storage tank to be provided.

Hard standing The area around the tank shall be a suitably designed hard standing area with a loadbearing capacity in compliance with the requirements of Section B5 of Technical Guidance Document B.

Access Fire tender access shall be provided to within 5m of the tank outlet. Where the tank is to be provided in a grass area, a hard-standing area shall be provided from the fire tender access location to the tank outlet location.

Signage All static storage tanks shall be signed in accordance with BS 3215: 1976. Signs shall be of permanent construction and appropriately sized. The background and text should be photo luminescent.



Above ground tanks

Base The base of the tank should be a minimum of 1m above the hard standing area so as to allow for gravity discharge of the tank into the pumping appliance.

Connection A minimum of 1 no. (but where possible 2 no.) 100 mm diameter screw (hard suction) female connection to be provided at the base of the static storage tank with independent hand lever isolation valves. These shall be provided on the fire tender access side of the tank.



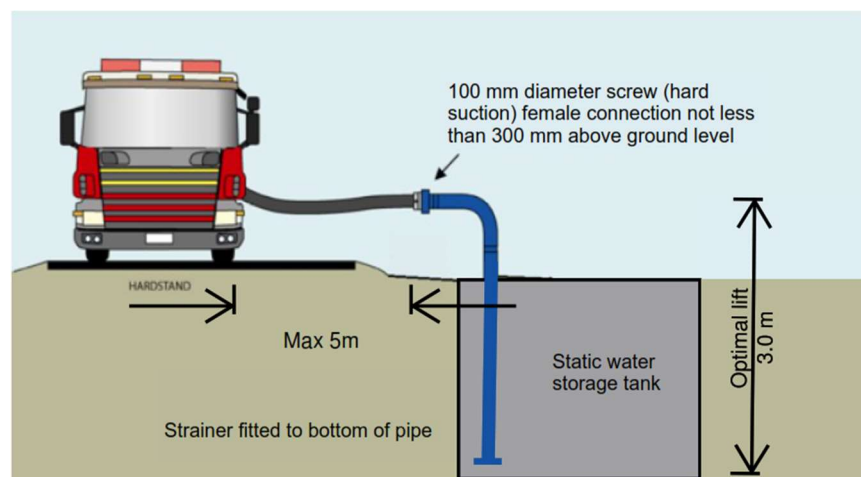
Below ground tanks

Access Fire tender access shall be provided to within 5m of the tank outlet / access manhole. Fire service access to the tank shall be either:

- a. A manhole cover measuring $\geq 600 \text{ mm} * 600 \text{ mm}$, or $\geq \text{Ø } 600 \text{ mm}$. This cover shall conform to colour reference number 309 (Canary Yellow) of BS 381C. The preferred maximum lift from the base of the static storage tank is be not greater than 3 m.

or,

- b. A permanent upstand 100 mm diameter dry suction pipe feeding from the lowest level of the tank. A 100 mm diameter screw (hard suction) female connection, with blank cap attached to the flange by chain, at the fire service connection end of this pipe shall located within 5 m of the fire tender access location and shall be not less than 300 mm above ground level. The preferred maximum lift from the base of the static storage tank is no greater than 3 m. All above ground fittings shall be painted red.



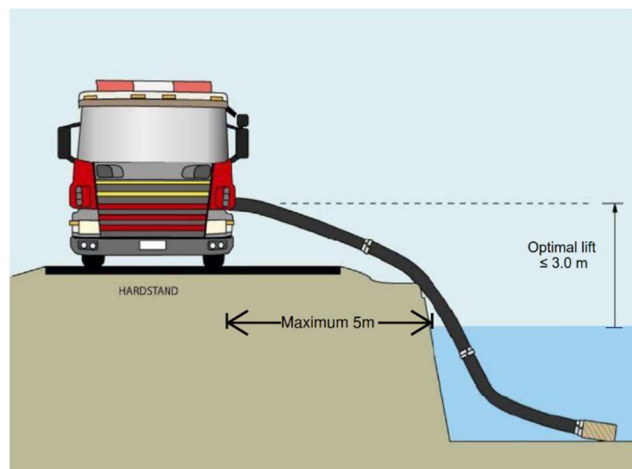
OPEN SOURCE

Where applicable, an open water source such as a pond, stream, river or dams may be considered as an alternative firefighting water supply. These may either have a fixed suction pick up fitted with an approved coupling or allow direct access for fire service pumping equipment within a maximum of 5 meters of the waters edge.

Access

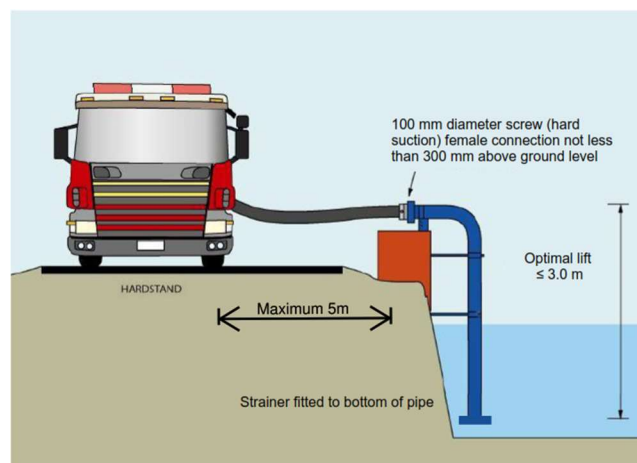
Fire service access may be either by:

- a. Pumping equipment access to within 5 m of the water's edge. Pond, stream, river or dams must have a safe working platform at the water's edge for firefighters to establish suction equipment. The preferred maximum lift from the water to the platform is no greater than 3 m.



or,

- a. Where it is not possible that a safe working platform be provided directly at the water's edge due to site restrictions, a permanent upstand 100 mm diameter dry suction pipe feeding from the water source to the location of a safe working platform or hardstand for fire fighter access. The preferred maximum lift from the water to the platform is no greater than 3 m. A 100 mm screw (hard suction) female connection, with blank cap attached to the flange by chain, at the fire service connection point of this pipe shall be not less than 300 mm above ground level. All above ground fittings shall be painted red.



APPENDIX A REFERENCES

1. National guidance document on the Provision of Water for Fire-Fighting, UK Water, Local Government Association, 3rd Edition, January 2007.
2. Municipal Water Related to Fire-Fighting and Fire Protection, Chief Fire Officers Conference, Westport, Mayo 1986, Patrick J. Tobin & Co., Consulting Engineers, Galway.
3. Alternative Firefighting Water Supplies: Central Otago v1.1, August 2019.
4. BS 750:2023, Specification for underground fire hydrants and surface box frames and covers.
5. IS 391:2020, Fire mains for buildings - Installation, commissioning, maintenance, and testing.
6. BS 9990:2015, Code of Practices for non-automatic fire-fighting systems in buildings.
7. Fire Safety Guide for Building Owners and Operators: Guide for persons having control under Section 18(2) of the Fire Services Acts 1981 and 2003, August 2023.
8. Uisce Éireann Code of Practice for Water Infrastructure - Connections and Developer Services - Design and Construction requirements for Self-Lay Developments, July 2020 (Revision 2).
9. Uisce Éireann Water Infrastructure Standard Details - Connections and Developer Services - Construction Requirements for Self-Lay Developments, July 2020 (Revision 4)