

**DIRECTOR OF THE FIRE AND RESCUE DEPARTMENT UNDER THE MINISTRY OF
THE INTERIOR**

**ORDER
APPROVING THE RULES FOR THE DESIGN AND INSTALLATION OF OUTDOOR
FIRE WATER SUPPLY NETWORKS AND STRUCTURES**

No. ...

Vilnius

Pursuant to Article 7(1)(3) of the Law of the Republic of Lithuania on Fire Safety and Article 8(5) of the Law of the Republic of Lithuania on Construction, and having regard to paragraph 5 of Government Resolution No 341 of 9 April 2008 on the attribution of competence to state institutions to determine the basic requirements for a construction works and the technical parameters of a construction works according to the levels and classes of characteristics of construction works or construction products:

1. I hereby approve the Rules for the Design and Installation of Outdoor Fire Water Supply Networks and Structures (attached).

2. I hereby declare sub-paragraph 1.4 of the Order of the Director of the Fire and Rescue Department under the Ministry of the Interior of 22 February 2007, number 1-66, approving the normative building safety documents (as amended and supplemented by the Rules), null and void.

3. I hereby declare that this Order shall enter into force

Director

APPROVED by
the order No. ... of the Director of
Fire and Rescue Department under
the Ministry of the Interior

RULES FOR THE DESIGN AND INSTALLATION OF OUTDOOR WATER SUPPLY NETWORKS AND STRUCTURES

CHAPTER I GENERAL PROVISIONS

1. The Rules for the Design and Installation of Outdoor Fire Water Supply Networks and Buildings (hereinafter referred to as the 'Rules') were drawn up in accordance with the Law of the Republic of Lithuania on Construction [9.1], Construction Technical Regulation STR 2.01.01(2):1999 'Essential requirements for a construction works. Fire Safety', approved by Order No 422 of the Minister for the Environment of the Republic of Lithuania of 27 December 1999 approving of the Regulation STR 2.01.01(2):1999 'Essential requirements for buildings. Fire Safety' [9.4] and Fire Safety Basic Requirements approved by Order No 1-338 of the Director of the Fire and Rescue Department under the Ministry of the Interior of 7 December 2010 approving the Essential Requirements for Fire Safety [9.16].

2. The rules are drawn up in accordance with the requirements of Directive 98/34/EC of the European Parliament and of the Council of 22 June 1998 laying down a procedure for the provision of information in the field of standards and technical regulations.

3. Any product imported from a European Community Member State or a Member State of the European Free Trade Association (EFTA) that has signed the Agreement creating the European Economic Area (EEA), placed on the market of the Republic of Lithuania without restrictions, if it was manufactured in a Member State of the European Union or an EFTA State by legitimate means or lawfully imported into a Member State from third countries and it is allowed to be marketed in the country. Restrictions on the free movement of goods are justified if an equivalent level of protection of various legitimate interests is not ensured.

4. The requirements of the Rules shall be binding on all participants in the construction process, entities of public administration, owners (managers or users) of construction works, as well as other legal and natural persons whose activities are regulated by the Law on Construction [9.1].

5. In addition to these Rules, it is necessary to follow the legal acts laying down the basic requirements of a construction works (one, several or all) and the technical parameters of a construction works according to the levels and classes of characteristics of construction works or construction products, requirements of normative technical construction, safety and purpose documents of a construction works and technical information provided by the manufacturer of outdoor fire water supply networks and construction equipment.

6. The requirements of the Regulations shall apply to:

- 6.1. the design and building of new structures;
- 6.2. reconstructed parts of structures;
- 6.3. repaired parts of structures, if the arrangement or scale of the outdoor fire water supply system is altered or otherwise affected during the repair of the structure;
- 6.4. structures or parts of structures, changing the purpose of their use.

7. The Rules shall not apply to structures in which explosives, oil and gas extraction and oil refining are produced, used or stored.

8. The terms used in the Rules are in accordance with the Law on Construction [9.1], the Fire Safety Basic Requirements, approved by Order No 1-338 of the Director of the Fire and

Rescue Department under the Ministry of the Interior of 7 December 2010 approving the essential requirements for fire safety [9.16], Law of the Republic of Lithuania on territorial administrative units and their boundaries [9.3], Lithuanian standard LST EN ISO 13943 'Fire safety. Glossary (ISO 13943:2017)' [9.13], Lithuanian Standard LST EN 14339 'Underground fire hydrants' [9.14] and Lithuanian standard LST EN 14384 'Aerial fire hydrants' [9.15].

CHAPTER II REFERENCES

9. The Rules shall contain references to the following legal acts:
 - 9.1. Law on Construction of the Republic of Lithuania;
 - 9.2. Law on the Protection of Immovable Cultural Heritage of the Republic of Lithuania;
 - 9.3. Law on Territorial Administrative Units and their boundaries of the Republic of Lithuania;
 - 9.4. Technical regulation on building STR 2.01.01(2):1999 'Essential Building Requirements. Fire Safety', approved by Order No 422 of the Minister for the Environment of the Republic of Lithuania of 27 December 1999 approving the Regulation STR 2.01.01(2):1999 'Essential requirements for buildings. Fire safety';
 - 9.5. Construction Technical Regulation STR 1.05.01:2017 'Documents permitting construction. Completion of Construction. Registration and Transfer of Incomplete Construction Works. Suspension of Construction. Elimination of Results of Arbitrary Construction. Elimination of Results of Construction resulting from Illegal Issuance of Documents allowing Construction', approved by Order No D1-878 of the Minister for the Environment of the Republic of Lithuania of 12 December 2016 approving of Technical Construction Regulation STR 1.05.01:2017 'Documents allowing Construction. Completion of Construction. Registration and Transfer of Incomplete Construction Works. Suspension of Construction. Elimination of Results of Arbitrary Construction. Elimination of Results of Construction resulting from Illegal Issuance of Documents allowing Construction';
 - 9.6. Construction Technical Regulation STR 1.06.01:2016 'Construction works. Supervision of construction works, approved by Order No D1-848 of the Minister for the Environment of the Republic of Lithuania of 2 December 2016 approving Construction Technical Regulation STR 1.06.01:2016 'Construction works. Supervision of construction works';
 - 9.7. Technical Construction Regulation STR 1.01.03:2017 'Classification of buildings', approved by Order No D1-713 of the Minister for the Environment of 27 October 2016 approving technical construction regulation STR 1.01.03:2017 'Classification of buildings';
 - 9.8. Construction Technical Regulation STR 2.06.04:2014 'Street and local roads. General requirements, approved by Order No D1-933 of the Minister for the Environment of the Republic of Lithuania of 2 December 2011 approving Construction Technical Regulation STR 2.06.04:2014 'Street and local roads. General requirements' (hereinafter referred to as STR 2.06.04:2014);
 - 9.9. Construction Technical Regulation STR 2.07.01:2003 'Water supply and wastewater disposal plant. Building engineering systems. Outdoor Engineering Networks', approved by Order No 390 of the Minister for the Environment of the Republic of Lithuania of 21 July 2003 approving Technical Construction Regulation STR 2.07.01:2003 'Water supply and wastewater disposal plant. Building engineering systems. Outdoor Engineering Networks';
 - 9.10. Mandatory safety requirements for fire-fighting and rescue equipment, tools and devices, fire-fighting materials, fire safety signs, approved by the Order of the Minister of the Interior of the Republic of Lithuania No. 1V-535 of 11 June 2019 approving the Mandatory Product Safety Requirements for Fire and Rescue Equipment, Tools and Devices, Fire-Fighting Materials, Fire-Fighting Signs, (hereinafter referred to as the 'Mandatory Product Safety Requirements');

9.11. The list of regulated construction products approved by Order No D1-15 of the Minister for the Environment of the Republic of Lithuania of 24 January 2022 approving the List of Regulated Construction Products;

9.12. The Rules for distributors and for the Installation of Electrical Equipment for Substations, approved by Order No 1-303 of the Minister for Energy of the Republic of Lithuania of 15 December 2011 approving the Rules for the Installation of Electrical Equipment for Distributors and Substations;

9.13. Lithuanian standard LST EN ISO 13943 'Fire safety. Glossary (ISO 13943:2017)';

9.14. Lithuanian standard LST EN 14339 'Underground fire hydrants' (hereinafter – LST EN 14339);

9.15. Lithuanian standard LST EN 14384 'Pillar fire hydrants' (hereinafter – LST EN 14384);

9.16. The basic requirements for fire safety approved by Order No 1-338 of the Director of the Fire and Rescue Department under the Ministry of the Interior of 7 December 2010 approving the essential requirements for fire safety (hereinafter referred to as the 'Basic Fire Safety Requirements');

9.17. General Fire Safety Rules approved by Order No 64 of the Director of the Fire and Rescue Department under the Ministry of the Interior of 18 February 2005 approving the General Rules on Fire Safety (hereinafter referred to as the 'General Fire Safety Rules');

9.18. The Rules for the Design and Installation of Fixed Fire-Fighting Systems approved by Order No 1-1 of the Director of the Fire and Rescue Department under the Ministry of the Interior of 6 January 2016 approving the Rules for the Design and Installation of Fixed Fire-Fighting Systems;

9.19. The Regulations on the Use of Fire Safety Signs in Enterprises, Institutions and Organisations approved by Order No 1-404 of the Director of the Fire and Rescue Department under the Ministry of the Interior of 23 December 2005 approving the Regulations on the Use of Fire Safety Signs in Enterprises, Institutions and Organisations (hereinafter referred to as the 'Regulations on the Use of Fire Safety Signs in Enterprises, Institutions and Organisations');

10. In the event that an amendment is made to any of the aforementioned legal instruments, the current edition of the legal instrument shall apply.

CHAPTER III GENERAL REQUIREMENTS

1. During the use of outdoor fire water supply, the technical information provided by the fire equipment manufacturer and the requirements of the legal acts regulating the use of the equipment must be complied with in order to maintain the technical characteristics which determine the conformity of the structure with the essential fire safety requirement [9.4] throughout the economically reasonable life of the construction works.

2. Outdoor fire water supply required for the supply of water for fire-fighting purposes shall be understood in the Regulations as:

2.1. 'fire water supply' shall mean plumbing engineering structures (fire pumping stations, tanks, plumbing networks, pipework with fire hydrants);

2.2. 'natural and/or artificial water bodies' (hereinafter referred to as 'water sources') shall mean surface water bodies which have arisen under natural conditions or have been installed by technical means, in which the amount of water required to extinguish fires is ensured naturally – from groundwater and/or surface water at all times of the year;

2.3. 'water tanks' shall mean reservoirs, pools, ponds, ponds, etc., which can be replenished with water and separate the water from the environment by means of impermeable substances.

3. Outdoor fire water supply networks and structures and their components shall be assessed on the basis of the conformity of construction products, other products and equipment in force with the legislation in force [9.1; 9.11].

4. Outdoor fire water supply must be tested. The Act of Testing and Inspection of Outdoor Fire Water Supply (hereinafter referred to as the Act) shall be completed in accordance with the requirements of the applicable normative technical construction documents and regulations governing the inspection of outdoor fire water supply [9.6]. In the presence of the builder (client), the manager of technical supervision of the construction of a construction works, an authorised representative of the contractor, an authorised representative of the subcontractor, an Act shall be drawn up.

The information on fire hydrants specified in Annex 1 to the Rules and the information on water sources and water tanks specified in Annex 2 to the Rules must be attached to the acts of civil engineering systems for fire safety of a structure [9.6].

5. The client of engineering networks must inform the territorial structural unit of the Fire and Rescue Department under the Ministry of the Interior of the area under the supervision of the division about the commissioning of the outdoor fire water supply.

6. The height (m) of the building specified in the Regulations shall be calculated from the entrance of fire-fighting and rescue cars to the lowest surface altitude of the building, and where the installation of fire-fighting and rescue cars is not required, from the lowest surface altitude of the portable fire ladder to the altitude of the highest floor (including attic floor) of the building.

CHAPTER IV WATER CONSUMPTION FOR FIRE-FIGHTING

7. Outdoor fire water supply must be provided for all structures according to the required amount of water, not less than specified for residential and non-residential buildings and civil engineering structures in Tables 2, 3 and 4 of the Rules, except for the cases specified in point 19.

8. The fire shall be extinguished by the amount of water calculated at the time of maximum water consumption for other uses. In addition, the amount of water for watering the area, washing showers, floors and technological equipment in industrial plants, as well as watering plants in greenhouses, are excluded.

9. No outdoor fire water supply is permitted for:

- 9.1. residential areas with up to 50 inhabitants and dwellings built outside urban areas;
 - 9.2. up to 1,000 cubic metres I degree of fire resistance public buildings [9.16] built in towns, villages, single-seat [9.3] and residential areas with up to 50 inhabitants;
 - 9.3. up to 250 cubic meters I degree of fire resistance to public buildings;
 - 9.4. up to 1,000 cubic metres of volume I to a degree of fire resistance, and up to a volume of 250 cubic metres to a degree of fire resistance to manufacturing, industrial, warehousing, other (farm) purposes, classified as E_g for explosion and fire hazards category 2a;
 - 9.5. seasonal agricultural production reception and preparation buildings up to 1,000 cubic metres;
 - 9.6. to a degree of fire resistance of up to 500 cubic metres I, as well as to a degree of fire resistance of up to 200 cubic metres to a degree of fire resistance to manufacturing, industrial, warehousing, other (farm) purposes, classified as C_g for explosion and fire hazards category 2a and up to the volume and degree of fire resistance referred to in this subparagraph for garage buildings;
 - 9.7. temporary structures intended to be used for a maximum period of 2 years;
 - 9.8. non-complex structures;
 - 9.9. other (greenhouse) buildings.
10. When designing water main networks [9.9] (masters), the amount of water to extinguish one fire from the field and the number of fires occurring simultaneously in the residential area shall be determined in accordance with Table 1 of the Rules.

Table 1

Population in residential area N (thousands of people)	Number of simultaneous fires	Amount of water per fire (l/s)	
		area built in buildings up to 9 m high	area built in buildings 9 m high and above
$N < 5$	1	10	10
$6 \leq N < 10$	1	10	15
$11 \leq N < 25$	2	10	15
$26 \leq N < 50$	2	20	25
$51 \leq N < 100$	2	25	35
$101 \leq N < 200$	3	25	40
$201 \leq N < 300$	3	25	55
$301 \leq N < 400$	3	25	70
$401 \leq N < 500$	3	25	80
$501 \leq N < 600$	3	25	85
$601 \leq N < 700$	3	25	90
$701 \leq N < 800$	3	25	95
$801 \leq N < 1000$	3	25	100

11. The amount of water for fire fighting in residential buildings and public buildings shall be determined in accordance with Table 2 of the Rules.

Table 2

Item No	Purpose of use of a construction works [9.7], functional group of a construction works [9.16]	Amount of water for fire-fighting in residential and public buildings (l/s), for buildings volume V (thousand cubic metres) (Notes 1–3)				
		$V \leq 5$	$V \leq 25$	$V \leq 50$	$V \leq 150$	$V > 150$
1.	Residential (single apartment buildings), residential (two apartment buildings), residential (three or more apartments – multi-apartment buildings) and residential (for different social groups (orphanages, shelters, care homes, etc.), other (garden) buildings (P.1.1, P.1.2, P.1.3, P.1.4, P.2.21.)	10	15	20	25	30
2.	Hotels, administrative, commercial, service, catering, transport, culture, science, treatment, recreation, sports, religious, special (P.2.1, P.2.2, P.2.3, P.2.4, P.2.5, P.2.6, P.2.10, P.2.11, P.2.12, P.2.13, P.2.14, P.2.15, P.2.16.)	10	15	25	30	35

Notes:

1. When selecting the amount of water for fire-fighting, all indicators in one row shall be taken into account: purpose of the building and the volume.

2. For residential buildings (one and two apartments), ancillary outbuildings and other (garden) buildings with a volume not exceeding 1,000 cubic metres, it shall be permitted to provide a single water tank of not less than 10 cubic metres for fire extinguishing purposes (an example of a water tank is given in Figure 1, the arrangement and location of parts 1 to 6 of the tank shall be selected by assessing and providing all the parameters (height, length, etc. of parts 1 to 6 of the tank) necessary for the long-term operation of the tank).

3. The quantity of water to extinguish a building shall be increased according to one of the building characteristics specified in paragraphs 3.1 to 3.2, except where fixed fire-extinguishing systems are provided throughout the building:

3.1. 5 l/s where the building is classified to degree III of fire resistance or the altitude of the highest floor (including attic floor) of the building exceeds 26.5 m;

3. 2. 10 l/s where the altitude of the floor of the building's highest floor (including attic floor) exceeds 54 m.

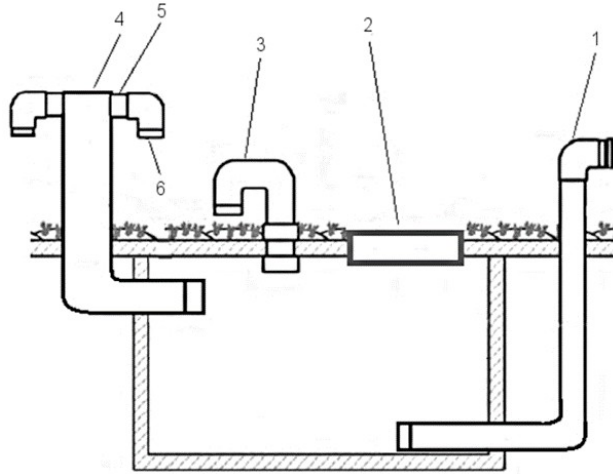


Figure 1. Example of a water tank: 1 – dry pipe with B(75) coupling sleeve PN16 of size [9.10]; 2 – lockable inspection cover; 3 – ventilation orifice; 4 – tube with a diameter of 100 mm; 5 – non-return valve; 6 –B(75) size coupling sleeve PN16 [9.10] for water replenishment.

12. The amount of water for fire fighting in non-residential buildings shall be determined in accordance with Table 3 of the Rules.

Table 3

Purpose of use of a construction works [9.7], functional group of a construction works [9.16]	Fire resistance rating of a structure	Category of construction works according to explosion and fire hazard	Water content (l/s) for extinguishing structures up to 60 m in width or length, with volume V (thousand cubic metres) (Note 1)												
			≤ 3	≤ 5	≤ 20	≤ 50	≤ 100	≤ 200	≤ 300	≤ 400	≤ 500	≤ 600	≤ 700	≤ 800	
Engineering structures for garages, manufacturing, industrial, warehousing, other (farms), other (utility), other, automated storage systems (P.2.7, P. 2.8, P. 2.9, P.2.17, P.2.18, P.2.19, P.3.)	I	A _{sg} , B _{sg} or C _g (Note 2)	10	10	15	20	30	30	35	40	40	40	50	50	
		D _g and E _g (Note 3)	10	10	10	15	15	20	20	25	25	25	25	30	
	II and III	A _{sg} , B _{sg} or C _g (Note 2)	15	20	25	40	40	50	60	60	70	80	90	100	
		D _g and E _g (Note 3)	10	15	20	30	40	40	50	50	50	50	60	70	
			Water content for extinguishing structures of 60 m or more in width or length (l/s)												
	I	A _{sg} , B _{sg} or C _g (Note 2)	20	20	20	20	30	40	50	60	70	80	90	100	
		D _g and E _g (Note 3)	10	10	10	10	15	20	25	30	35	40	45	50	
	II and III	A _{sg} , B _{sg} or C _g (Note 2)	30	30	30	30	40	50	60	60	70	80	90	100	

		D_g and E_g (Note 3)	25	25	25	35	45	45	50	50	60	60	70	80
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Notes:

1. When selecting the amount of water for fire-fighting, all indicators in one row shall be taken into account: the purpose of the construction works, the category of the construction works according to the hazards of explosion and fire, the width and volume of the construction works.
2. Applicable to the design of garage buildings.
3. Applicable to the design of auxiliary, other (farm), other purpose buildings.

13. The amount of water for the extinguishing of engineering structures shall be provided in accordance with Table 4 of the Rules.

Table 4

Item No	Structures, features and other parameters [9.7]	Amount of water for the extinguishing of structures (l/s) (Note 2)
1.	Roads and street tunnels where their length exceeds 1,000 m	20
2.	Railway tracks in tunnels where their length exceeds 1,000 m	20
3.	110 kV substations with power transformers of 63 MVA and above and substations for voltages of 330 kV and above (Note 1)	15
4.	Forts, bunkers, shooting grounds, technical observation towers, landfills. (Note)	10
5.	Roofs (for the storage of flammable materials) when their area is assessed on the basis of the surface of the building or roof projection to the ground above 250 square meters.	10

Notes:

1. Other normative documents [9.12] issued by the relevant authorities also apply to the electrical installations of switchgear and substations.
2. For the purpose of extinguishing civil engineering structures, the amount of water shall be as specified in Table 3 of the Rules, equating them with the volume of combustible structures or materials to those for the production, industrial and storage purposes of the I degree of resistance to fire.

14. In residential areas with up to 5,000 inhabitants, as well as in gardening societies, where the water demand for the external fire of buildings does not exceed 10 l/s the following are allowed:

- 14.1. install fire hydrants in the branch plumbing network to ensure a minimum of 10 from the fire hydrant l/s water flow;
- 14.2. fire hydrants equipped with DN80 or more diameter of the plumbing network;

14.3. where it is not technically feasible to install fire hydrants or the minimum water flow rate of 10 l/s from a fire hydrant is not ensured, the supply of water for fire-fighting purposes shall be permitted to be provided by water tanks and/or water sources complying with the requirements laid down in Chapter VI, and by other operational and serviceable fire hydrants. The distance from the water tank and/or water source, from another operational and usable fire hydrant to the outer circumference of its protected building shall not exceed 1 000 m. This distance shall be calculated on roads suitable for fire-fighting and rescue vehicles.

15. Plumbing networks and fire hydrants shall provide at least 10 l/s flow of water.

16. For areas designated for the storage of tyres and rubber waste, wood sawdust, wood chips, biofuel, landfills, and the amount of water extinguished shall be as given in Table 3 of the Rules by equating the volume of combustible materials to buildings classified as 'Cg' of fire resistance class III according to the fire hazard but not less than 15 l/s.

17. The amount of water required for the extinguishing of structures shall be determined between the walls of the separation walls of fire spaces, fire walls (screens), taking into account the degree of fire resistance of the structure and the fire load category. For structures which are not separated by the above-mentioned walls and where minimum fire distances are not maintained between buildings, the indicators shall be aggregated according to the total volume of the building(s) and the most dangerous category according to the explosion and fire hazards.

18. Commercial, manufacturing, industrial, warehousing buildings (excluding warehousing buildings which are used as auxiliary buildings) and buildings with a width of 24 m or more but not less than 10 m in height, and excluding buildings for other (farm) purposes intended for agricultural handling (kindergarten, barn, garage and other buildings for agricultural purposes) external fire ladders or external type 3 staircases for firefighters to access the roof, the installation areas shall be equipped with dry pipes with PN 16 couplings of size B(75) in the lower and upper parts meeting the mandatory product safety requirements [9.10] for connecting fire pressure hose couplings of size B(75). In the lower part of the dry pipe, the coupling shall be installed at a height between 1 m and 1.5 m above the ground.

19. Dry pipe construction products must be selected from such materials and designed in such a way as to resist possible external and internal mechanical effects.

20. For containers intended for the transport of goods, utilities and other combustible materials, the water content shall be determined on the basis of the number of containers:

20.1. from 30 to 50 pcs. – 15 l/s;

20.2. from 51 to 100 pcs. – 20 l/s;

20.3. from 101 to 300 pcs. – 25 l/s;

20.4. from 301 to 1,000 pcs. – 40 l/s.

21. The total water demand required for fixed fire-extinguishing systems must be calculated separately for buildings equipped with internal fire-supply systems, summing up the water demand required for the systems listed and the outdoor fire water supply, taking into account the time required for fire extinguishing.

22. When the water used in production can be used to extinguish the fire, fire hydrants must be installed in the industrial plumbing network.

23. Fire-fighting time for calculating the amount of water required for fire-fighting:

23.1. 2 hours for buildings of I degree of resistance to fire;

23.2. 3 hours for buildings of II and III degrees of resistance to fire.

24. The reserves of fire-fighting water in the water tank or water source shall be stored:

24.1. within 48 hours – for buildings specified in Table 2-3 of the Rules;

24.2. within 96 hours – for civil engineering structures specified in Table 4 of the Rules.

25. In residential areas [9.3], the minimum pressure in the water supply networks and inlets to single-storey structures shall not be less than 0.1 MPa at the time of maximum municipal water consumption.

CHAPTER V

FIRE WATER SUPPLY

26. Water supply networks equipped with fire hydrants shall be circular, except in the cases specified Point 24 of the Rules. No more than one fire hydrant may be installed in a branch of the water supply network not exceeding 200 m in length connected to the circular water supply network.

27. The fire water supply shall be designed and the valves shall be arranged in such a way that no more than 5 fire hydrants are disconnected in the water supply section disconnected at the time of repair.

28. Empty ground fire hydrants shall be used to extinguish the external fires of buildings, complying with the requirements of LST EN 14384 standard [9.15] with separable devices (Type C). Ground fire hydrants must have at least two nozzles to be fitted with couplings of size B(75) PN 16 meeting the mandatory product safety requirements [9.10] for connecting fire pressure hose couplings of size B(75). Water flow factor K_v for these ground fire hydrants must not be less than 140.

29. The ground height of the ground part of the ground fire hydrant shall be not less than 600 mm and not more than 1 500 mm from the ground to the centre of the outlet. The detachable/breaking device for the ground fire hydrant shall be installed in accordance with the technical documentation specified by the manufacturer.

30. Surface fire hydrants and their protective enclosures shall be coloured red.

31. It is recommended to enable the fire hydrant to be opened with a uniform key to start the water (examples of keys are given in Figures 2 and 3).

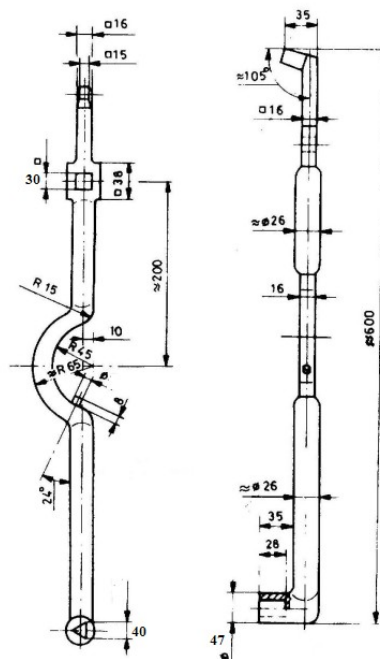


Figure 2. Ground fire hydrant key

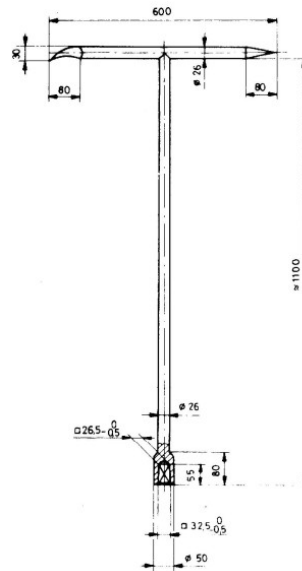


Figure 3. Underground fire hydrant key

32. Underground fire hydrants complying with the requirements of LST EN 14339 standard [9.14] may be designed and installed only when it is not technically possible to install empty ground fire hydrants (the fire hydrant is designed for pedestrians or on the road (street)).

33. The well of the underground fire hydrant must be covered with an easily opened and marked lid (coloured in red, with inscription, etc.). It is prohibited to screw the lid of the underground fire hydrant well with nuts, lock or otherwise make it difficult to open (using unscrewing rods when screwed with separate keys).

34. Roads for access to fire hydrants must always be free. A minimum width of 3.5 m [9.16] of roadway shall be provided to a fire hydrant. There shall be no obstructions at the height of the connecting sleeves, within a radius of 1 m, by means of guardrails, no parking signs and/or a yellow zigzag marking the area (side) of the road where parking is prohibited for the entire length of the zigzag. The enclosures must be between 10 and 20 cm high or easily removed (foldable or liftable by hand);

35. Fire hydrants shall be installed at a distance of not more than 2.5 m from the edge of the carriageway, but not less than 5 m from the walls of buildings and places where combustible materials are stored, and not less than 1 m from other installations and structures (roofs, fences, poles, road signs, etc.). Ground fire hydrants shall not be installed at a distance of less than 1 m from the edge of the carriageway, in vehicle parking areas, except when ground fire hydrants are fenced and protected against breakage.

36. Where an outdoor fire water supply system supplies water to consumers and for fire-fighting purposes, the network branches to fire hydrants shall not exceed 200 m in length and the minimum diameter of the branch shall be 100 mm, unless otherwise specified.

37. Fire hydrants shall be installed in water supply networks at a distance of not more than 150-200 m, calculated from the fire hose line for firefighters. The distance between the fire hydrant and the outer circumference of the projected building shall not exceed 200 m, except in the cases provided for in point 24. This distance is allowed to be increased up to 300 m buildings located in the territories of an object of cultural heritage [9.2] which are objects of cultural heritage, when a fixed fire-fighting system is installed throughout the building [9.18].

38. When the need for water to extinguish the fire from the outside is up to 15 l/s the flow of water shall be ensured from a single fire hydrant. When the need for water to extinguish the fire from the outside is 15 l/s and higher, the water flow shall be provided from at least two fire hydrants.

39. The choice of the diameters of the water supply networks shall be based on technically sound solutions that take into account the operating conditions of the water supply networks after

the disconnection of individual sections in the event of a network failure. Water supply networks which may be equipped with fire hydrants shall have a diameter of at least 100 mm, except in the cases provided for in point 24.

40. Fire hydrants shall be installed vertically. Underground fire station the axis of the hydrant shall be at least 0.15 m and not more than 0.18 m from the inner edge of the well cover, the distance measured on the horizontal projection and the top of the underground fire hydrant at a distance between 0.2 m and 0.4 m from the well cover.

41. Fire hydrants and other water bodies located in the area of electrical stations and substations shall be equipped with earths with a ground resistance of not more than 4.

42. Underground fire hydrants shall be marked with signs attached to buildings or other bases and/or placed on special stands or columns. The markings shall be placed no more than 20 m from the underground fire hydrant and shall be affixed to the walls of buildings or any other base at a height of 1.5-2 m, on special stands (columns) with a height of not less than 0.8 m. Where it is not technically possible (where fire hydrants are installed on the road, etc.) to install the mark at a regulated distance of 20 m from the underground fire hydrant to its marking, the cover of the underground fire hydrant shall be painted in red and/or schemes with the arrangement of fire hydrants shall be installed at the entrances of undertakings and establishments.

43. The location of an underground fire hydrant shall be shown on the example of a Fire Hydrant Sign in Annex 3 to the Rules.

44. Fire safety signs shall be installed near water tanks, water sources and at the abstraction point, which shall comply with the requirements of the Regulations on the Use of Fire Safety Signs by enterprises, establishments and organisations [9.19].

45. The amount of water required for fire-fighting shall be determined in accordance with Tables 2, 3, 4 of the Rules, the provisions of Points 26, 27, 30, 31 and fire-fighting time (Point 33 of the Rules).

46. Fire pumping stations (hereinafter referred to as 'pumping stations') shall be installed in such a way that the fire pumps can be started from the pumping station itself and remotely. Fire pumps are selected according to the standard of the LST EN 12845 series.

47. Regardless of the number of pumping stations installed, there shall be at least two intake pipes.

48. Pumping stations, their control panels, automatic fire pumps shall be installed in spaces where the minimum fire resistance of the fire barriers is at least REI 60. The air temperature in the pump room must not be less than + 4 °C. Fire pumps equipped with internal combustion engines shall be equipped with adequate ventilation in accordance with the manufacturer's recommendations.

CHAPTER VI WATER SOURCES, WATER TANKS

49. The water capacity of the tanks shall be such that they can hold enough water for total consumption and fire-fighting.

50. Water supplies in fire-fighting water tanks shall be provided in cases where the amount of water required for fire-fighting cannot be taken from the water source.

51. The water supply company shall, in accordance with the procedure laid down by law [9.1], establish water supply conditions (connection conditions) for the provision of the water required for fire-fighting.

52. The capacity of water tanks and water sources, as well as the amount of water required for fire-fighting shall be determined in accordance with Tables 2, 3, 4 of the Rules, the provisions of Points 26, 27, 30, 31, multiplying the amount of water by the fire-fighting time (Point 33 of the Rules).

53. Water tanks and their installations must be protected against freezing.

54. The plumbing tower must be equipped with a facility for filling tanks and fire cars.

55. The tightness of the water tanks that are installed from concrete is tested when the concrete acquires design strength.

56. During the hydraulic test, the reservoir is filled with water in two stages:

56.1. fill up to a level of 1 m and store for one day;

56.2. the calculated amount of water required shall be filled and stored for at least three days.

57. A water storage tank shall be declared fit for use if the daily leakage rate does not exceed 3 litres per 1 square metre of the wall area of the water-filled tank. Test results shall be noted in Annex 2 to the Rules.

58. When calculating the capacity of open water sources, it is necessary to assess the potential evaporation of water and the formation of ice.

59. The transport system shall ensure the access of fire vehicles to water tanks, water sources and other water abstraction points.

60. For the purposes of these Rules, the water abstraction point shall be understood as follows:

60.1. abstraction of water by means of a fire intake hose from the well, the water tank, the water source – the depth of the water that ensures the required amount of water to extinguish fires;

60.2. abstraction of water from underground reservoirs by means of a coupling sleeve and dry pipe, from water sources or water tanks, as shown in Figure 4;

60.3. abstraction of water from ground reservoirs by means of a connecting sleeve.

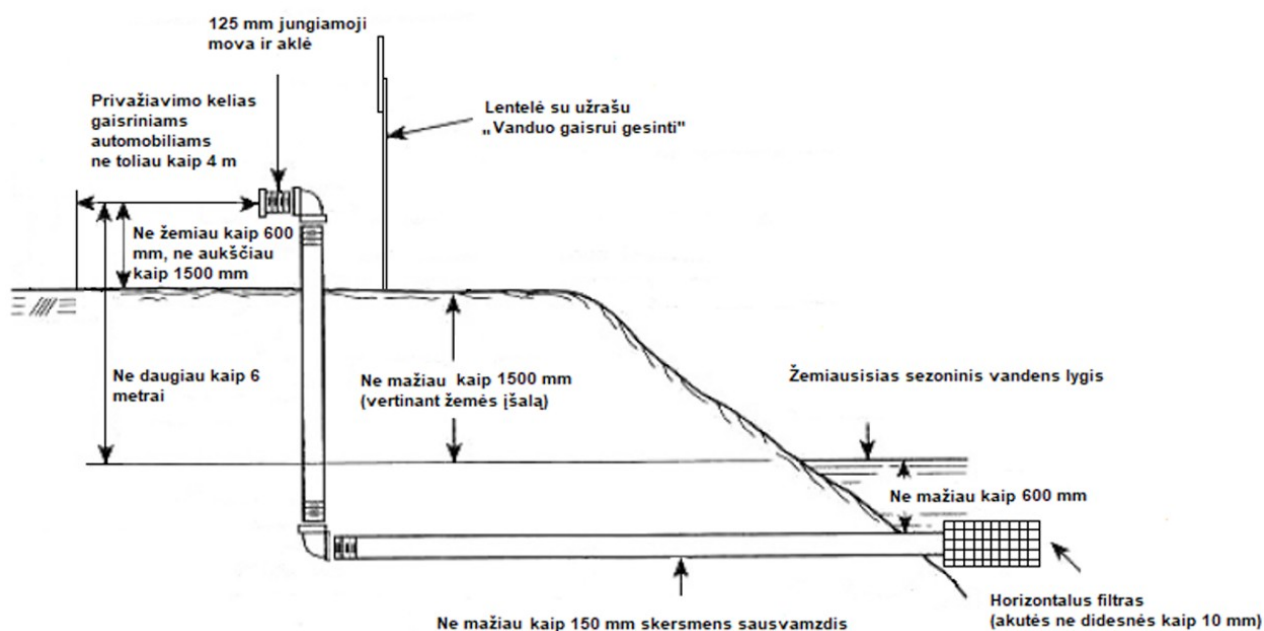


Figure 4. Abstraction of water from reservoirs by dry pipe of natural and/or artificial water bodies

125 mm jungiamoji mova ir aklė	125 mm connecting sleeve and coupling
Privaziavimo kelias gaisriniais automobiliams ne toliau kaip 4 m	Access road for fire cars not more than 4 m
Ne žemiau kaip 600 mm, ne aukščiau kaip 1500 mm	Not lower than 600 mm, not higher than 1,500 mm
Ne daugiau kaip 6 metrai	Not more than 6 metres
Lentelė su užrašu „Vanduo gaisrui gesinti“	Table with the inscription 'Water for fire-fighting'
Ne mažiau kaip 1500 mm (vertinant žemės įšalą)	1,500 mm or more (assessing ground frost)
Žemiausias sezoninis vandens lygis	Lowest seasonal water level
Ne mažiau kaip 600 mm	600 mm or more
Ne mažiau kaip 150 mm skersmens sausvamzdis	Dry pipe with a diameter of 150 mm or more
Horizontalus filtras (akutės ne didesnės kaip 10 mm)	Horizontal filter (poultices not exceeding 10 mm)

61. In the absence of the design and installation of a turning area for cars, in accordance with the provisions of Figure 6 of STR 2.06.04:2014 [9.8], a turning area of 12x12 cars must be installed near the water tanks and water sources at the point of abstraction.

62. The distance between the stopping point of the vehicle or the connection point of the connecting coupling of the fire pump and the abstraction point shall not exceed 7 m, taking into account the totality of possible obstacles, the shoreline of the water body, the slope, etc.

63. Where the required amount of water is ensured from the water tanks, at least two water tanks shall be designed. Each water tank (or each part of the water tank tightly insulated) shall accommodate at least 50 per cent of the water content for fire-fighting purposes. When the required amount of water is provided from a water source, the water supply shall be at least 100 % of the amount of water for fire-fighting purposes.

64. The distance between the water tanks shall not exceed 400 metres.

65. Water tanks or water sources shall be located at a distance of not more than 200 m from the buildings to be extinguished using the water from these bodies. The distance, calculated on the basis of the hose line laid by the fire fighters, from the point of withdrawal of water from the water tank or water source to the outermost point of the perimeter of the building to be protected shall not exceed 200 m.

66. The distance from the point of water abstraction from water tanks or water sources to fire-resistance class II and III buildings and to open storage sites and/or warehouses for used tyres and waste rubber, sawdust, wood chips, wood shavings, biofuels, landfill sites and other combustible materials shall be at least 30 m and 10 m respectively to fire-resistance class I buildings. The construction of car turning areas between the place of water intake from water tanks or water sources and the building is prohibited when: the distance to fire-resistance class II and III buildings and to open storage areas and/or warehouses for used tyres and waste rubber, wood, sawdust, wood chips, biofuel, landfill sites and other combustible materials is less than 30 m, and the distance to fire-resistance class I buildings is less than 10 m. Where the distance from the location of water intake tanks or water sources to buildings and open storage of combustible materials as specified in this paragraph is less than the required distance, fire compartments shall be provided with separating walls and slabs selected in accordance with the Fire Safety Basic Requirements [9.16].

67. Refilling of water tanks and water sources with fire hoses is permitted up to a distance of up to 250 m.

68. Where it is difficult to extract water directly from a water tank or from a water source through a fire suction hose, it is necessary to provide for wells with a capacity of at least 3-5 cubic metres for the abstraction of water. The diameter of the pipes connecting the water tank or water source to the well for the abstraction of water shall be such as to pass the calculated quantity of water for fire-fighting purposes, but not less than 200 mm.

69. In the interconnector (which connects the water source; or in front of the well, a separate well must be fitted with a valve of at least 200 mm in diameter with a closing device under the hatch lid. The well, which will be equipped with a valve with a closing device, must be marked with the inscription 'OPENING VALVE' so that it can be easily found during the winter. The lids of such wells must be installed without locks and easily opened at any time of the year (not locked, screwed with nuts, etc.).

70. Fluorescent or night-illuminated arrows shall be provided at water storage tanks and water sources, at the point of water abstraction. The arrows shall bear the capacity of the water tank and/or the water source.

71. The interconnector on the side of the water source shall be equipped with grilles to contain debris and other foreign objects. For this purpose, meshes with mesh sizes not exceeding 10x10 mm or less than 10 mm in diameter shall be used.

72. Pumping stations shall be equipped with a device to prevent the use of fire-fighting water and/or emergency water in the reservoir after exhaustion of the quantity of water intended for general use.

73. The control of outdoor fire plumbing pumps shall be automatic. In the case of a fixed fire-extinguishing system, all pumps used for other purposes which are not intended for fire-fighting purposes shall be deactivated when the fire pumps are activated.

74. The reaction-to-fire performance of underground water tanks shall be non-normative and the above-ground tanks shall be made from construction products of at least class A2 flammability.

75. Fire safety signs shall be fitted to water bodies (fire reservoirs, natural or artificial water bodies, fire hydrants, etc.) installed or adapted for fire-fighting purposes, which must comply with the requirements of the Regulations on the Use of Fire Safety Signs by enterprises, establishments and organisations [9.19].

76. When operating outdoor fire water supply, the manager must ensure compliance with the General Fire Safety Regulations [9.17].

Rules for the design and installation of outdoor
fire water supply networks and structures
Annex 1

(Example of test/verification report for the fire hydrant)

TEST/VERIFICATION REPORT FOR THE FIRE HYDRANT

(date)

(name of residence)

Participants:

Representative of the builder (client) _____
(name of the company or natural person)

Construction maintenance manager _____
(first name and surname)

Contractor's representative _____
(name of the company or natural person)

Subcontractor's representative _____
(name of the company or natural person)

performed _____
(name of works)

and established as follows:

Item No	Fire hydrant characteristics	Data
1	Address (settlement, street, building no.)	
	Coordinates (longitude/latitude) (Note 1)	
3	Type (ground, underground)	
5	Marking (place of the mark) (YES/NO)	
6	Plumbing network (circular/branch, diameter, mm)	
	Distance from the edge of the carriageway (street) to the fire hydrant	
8	Distance from marking to fire hydrant (m)	
9	Distance from nearest building to fire hydrant (m)	
11	Flow of water supplied by the fire hydrant (l/s)	
11	Suitable for operation (YES/NO) (Note 2)	
11	Other remarks	

Notes:

- Coordinates are selected in WGS84 format.
- Environmental conditions affecting water tanks, water sources (vegetation, sludge, garbage, snow, ice, etc.).

SOLUTION: Fire hydrant suitable/unsuitable for operation.

Representative of the builder (client) _____
(name and signature)

Maintenance manual of the construction works _____
(name and signature)

Contractor's representative _____
(name and signature)

Subcontractor's representative _____
(name and signature)

Rules for the design and installation of outdoor
fire water supply networks and structures
Annex 2

(Example of test/verification report for water tanks and/or water sources)

**TEST/VERIFICATION REPORT FOR WATER TANKS
AND/OR WATER SOURCES**

(date)

(name of residence)

Participants:

Representative of the builder (client) _____
(name of the company or natural person)

technical supervision manual for construction of a building _____
(first name and surname)

contractor's representative _____
(name of the company or natural person)

subcontractor's representative _____
(name of the company or natural person)

performed _____
(name of works)

and established as follows:

Item No	Characteristics of the water tank, water source	Data
1	Address (settlement, street, building no.)	
2	Coordinates (water abstraction points) (Note 1)	
3	Type (reserve, pond, swimming pool, natural or artificial source of water, etc.)	
4	Volume/volume (m ³)	
5	Labelling (YES/NO)	
6	Distance from the stopping point of the fire car or from the connecting coupling of the fire pump to the water pick-up point	
7	Access road (YES/NO)	
8	Suitable for operation (YES/NO) (Note 2)	
9	Other remarks	

Notes:

- Coordinates are selected in WGS84 format.

2. Environmental conditions affecting water tanks, water sources (vegetation, sludge, garbage, snow, ice, etc.).

SOLUTION: Water storage tank/water source operable/inoperable.

Representative of the builder (client) _____
(name and signature)

Maintenance manual of the construction works _____
(name and signature)

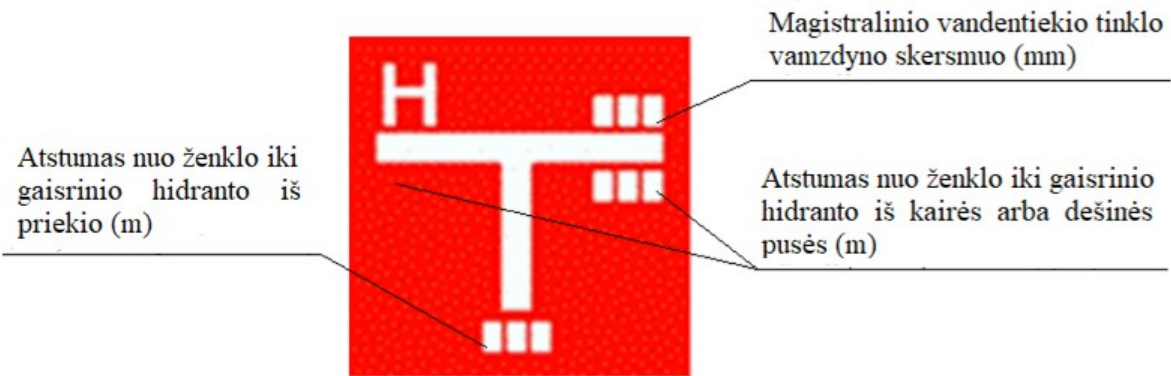
Contractor's representative _____
(name and signature)

Subcontractor's representative _____
(name and signature)

Rules for the design and installation of
outdoor fire water supply networks and
structures
Annex 3

(Example of fire hydrant sign)

FIRE HYDRANT SIGN



Atstumas nuo ženklo iki gaisrinio hidranto iš priekio (m)	Distance from the mark to the front of the fire hydrant (m)
Magistralinio vandentiekio tinklo vamzdžio skersmuo (mm)	Plumbing pipeline diameter (mm)
Atstumas nuo ženklo iki gaisrinio hidranto iš kairės arba dešinės pusės (m)	Distance between the mark and the fire hydrant on the left or right side (m)

Notes:

1. The fire hydrant mark (hereinafter referred to as the mark) has a square shape, the dimensions of which shall be at least 200x200 mm. By increasing the dimensions of the mark, it is necessary to increase the dimensions of all markings and data of the mark by applying the same ratio.
2. The colour of the mark is a white pictogram on a red background.
3. The height of the markings and data of the mark shall not be less than 20 mm, width not less than 10 mm.
4. The mark shall be made of materials resistant to shocks and atmospheric agents suitable for the environment in which it is used.
