

EQUIPMENT OF VOLUNTEER FIRE DEPARTMENTS FOR EMERGENCY RESPONSES

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Abstract: Volunteer fire departments (VFD) provide additional operational support to professional fire and rescue units and local emergency response headquarters when needed. According to statistical data, volunteer fire Departments are involved in an average of about twenty interventions per month at the request of professional fire and rescue units. Each volunteer fire Department must form at least one volunteer fire unit, categorized as units of category I, II, or III. The role of volunteer firefighting lies in contributing to fire safety, reaffirming the general safety culture in society, and fostering solidarity and empathy for others. This paper aims to encompass all normative requirements, i.e., legal regulations in volunteer firefighting, and present the basic equipment that VFDs should be equipped with. Additionally, an overview will be given of the territory of the city of Novi Sad and some of the interventions in which VFD members participated.

Key words: VFD, Emergency situations, Emergency response headquarters

1. INTRODUCTION

Volunteer fire departments (hereinafter referred to as VFDs) represent a significant operational component and additional support to professional firefighting and rescue units (hereinafter referred to as PSUs) and local emergency response teams when the need arises. Firefighters are divided into professional and volunteer. Professional firefighters consist of territorial and industrial fire units, while volunteer units are formed by citizens who organize into VFDs, under the Law on Volunteer Firefighting (Law on Volunteer Firefighting). The general conditions for members of volunteer fire units are: between 18 and 55 years of age; health capability to perform tasks; professional training, and regular professional training.

2. LEGAL PROVISIONS

According to the Law on Volunteer Firefighting, a volunteer fire department is a voluntary and non-profit organization based on the freedom of association, intending to perform tasks of public interest, established for the organized voluntary participation of citizens in fire protection, rescue of people and property, and registered as such in the Register of Associations (Law on Volunteer Firefighting).

A volunteer fire department is obliged to form, equip, and maintain at least one functional volunteer fire unit, and they are members of firefighting associations. The Law (Law on Volunteer Firefighting) states that a volunteer fire department can be established by at least three individuals, one or more legal entities, or both individuals and legal entities together.

According to the Law (Law on Volunteer Firefighting), a volunteer fire department is established by adopting a founding act, a statute, and a decision on the appointment of the organs, while it acquires the status of a legal entity by registering in the Register of Associations. The founding act should contain basic information such as:

- personal names or names of the founders and their residences,
- name, headquarters, and address of the volunteer fire department,
- personal name, residence, and address of the person authorized to represent,
- signatures of the founders and their unique citizen identification numbers, and
- date of adoption of the Founding Act.

The statute is the primary general act of a volunteer fire department and it must regulate the name and headquarters, internal organization, conditions and manner of membership and termination of membership, as well as the rights, obligations, and responsibilities of members, and other issues significant for the operation of the volunteer fire department (Law on Volunteer Firefighting).

The volunteer fire department must have a name in the Serbian language and Cyrillic script. The name may include certain foreign words if they form part of the name of an international organization of which the department is a member, or if those words are customary in the Serbian language.

The Rulebook on the Manner of Conducting Professional Training prescribes the method and conditions for taking exams for members of volunteer fire units, which technically means that candidates who do not meet this condition cannot be part of volunteer fire departments (Rulebook on the Method of Conducting Professional Training and Exams for Members of Volunteer Fire Units).

Professional training aims to prepare members for the lawful and efficient performance of tasks and duties of volunteer fire units. The duration, structure, program content, and dynamics of professional training are determined by the Professional Training Program for members of volunteer fire units.

Applications for attending professional training for members are submitted through the firefighting association based on the place of residence. The application must include a confirmation that the candidate is a member of a volunteer fire department, proof of payment of the application fee for professional training, and a certificate of health capability to perform tasks of volunteer fire units (Rulebook on the Method of Conducting Professional Training and Exams for Members of Volunteer Fire Units).

The Rulebook (Rulebook on the Conditions Regarding the Material-Technical and Personnel Equipment of Volunteer Fire Units) stipulates that professional training aims to prepare members for the lawful and efficient performance of tasks and duties of volunteer fire units, while the duration, structure, program content, and dynamics of professional training are determined by the Professional Training Program for members of volunteer fire units.

In addition, there is another type of training for VFD members, which is older and supported by the Firefighting Association of Serbia. The training is conducted based on the Rulebook on the Manner of Conducting Professional Training and Taking Exams for members of volunteer fire units. The training programs in both cases are similar, with the categorization training

emphasizing practical situations (Rulebook on the Conditions Regarding the Material-Technical and Personnel Equipment of Volunteer Fire Units).

3. EQUIPMENT AND RESOURCES OF VOLUNTEER FIRE DEPARTMENTS

According to the Regulations (Rulebook on the Conditions Regarding the Material-Technical and Personnel Equipment of Volunteer Fire Units), Volunteer Fire Departments (VFDs) must possess the following equipment and resources to be classified in Category I (minimum requirements for equipment and resources for a VFD):

- 2 fire trucks
- 18 sets of work-protection uniforms
- 4 respiratory protection devices with compressed air
- 3 motorized fire pumps
- 2 suction baskets
- 4 suction hoses
- 20 pressure "B" hoses with holders
- 25 pressure "C" hoses with holders
- 3 B/CBC dividers
- 2 A/2B collectors
- 2 "B" water nozzles
- 7 "C" water nozzles
- 2 B/CC hydrant adapters
- 2 keys for underground hydrants
- 3 keys for above-ground hydrants
- 2 A/B transition couplings
- 4 B/C transition couplings
- 2 110-sealing couplings
- 2 Ø75-sealing couplings
- 2 Ø52-sealing couplings
- 4 hose bindings
- 6 universal coupling keys
- 1 foam mixer
- 1 heavy foam nozzle
- 1 medium foam nozzle
- 15 knapsack sprayers (25 liters)
- 15 fire beaters
- 6 hand-held fire extinguishers type "S"
- 2 hand-held fire extinguishers type "CO₂"
- 2 extension ladders and hook ladders
- 1 manual breaching tool "eagle"
- 2 work ropes Ø16, length 20 m
- 1 chainsaw for wood
- 3 shovels
- 3 spades
- 3 pitchforks
- 3 large axes
- 1 rebar cutting scissors
- 1 first aid kit
- 2 hooks with a two-piece handle length of 3m
- 1 foam agent

According to the Regulations (Rulebook on the Conditions Regarding the Material-Technical and Personnel Equipment of Volunteer Fire Units), Volunteer Fire Departments must possess the following equipment and resources to be classified in Category II (minimum requirements):

- 1 fire truck
- 18 sets of work-protection uniforms
- 4 respiratory protection devices with compressed air
- 2 motorized fire pumps
- 2 Ø110 suction baskets
- 8 Ø110 suction hoses
- 14 pressure "B" hoses with holders
- 18 pressure "C" hoses with holders
- 2 C/CBC dividers

- 2 A/2B collectors
- 1 universal "B" water nozzle
- 5 "C" water nozzles
- 2 B/CC hydrant adapters
- 2 keys for underground hydrants
- 2 keys for above-ground hydrants
- 4 A/B transition couplings
- 4 B/C transition couplings
- 2 Ø110-sealing couplings
- 2 Ø75-sealing couplings
- 2 Ø52-sealing couplings
- 4 hose bindings
- 5 universal coupling keys
- 10 knapsack sprayers (25 liters)
- 10 fire beaters
- 4 hand-held fire extinguishers type "S"
- 2 hand-held fire extinguishers type "CO₂"
- 1 extension ladder or hook ladder
- 1 manual breaching tool "eagle"
- 1 work rope Ø16, length 20 m
- 1 chainsaw for wood
- 2 shovels
- 2 spades
- 2 pitchforks
- 2 large axes
- 1 rebar cutting scissors
- 1 first aid kit
- 1 hook with a two-piece handle length of 3m

According to the Regulations (Rulebook on the Conditions Regarding the Material-Technical and Personnel Equipment of Volunteer Fire Units), Volunteer Fire Departments must possess the following equipment and resources to be classified in Category III (minimum requirements):

- 1 field or van vehicle
- 9 sets of work-protection uniforms
- 1 motorized fire pump
- 1 Ø110 suction basket
- 4 Ø110 suction hoses
- 4 pressure "B" hoses with holders
- 9 pressure "C" hoses with holders
- 1 B/CBC divider
- 1 A/2B collector
- 3 "C" water nozzles
- 1 B/CC hydrant adapter
- 2 keys for underground hydrants
- 2 keys for above-ground hydrants
- 2 A/B transition couplings
- 2 B/C transition couplings
- 2 Ø110-sealing couplings
- 2 Ø75-sealing couplings
- 2 Ø52-sealing couplings
- 4 hose bindings
- 4 universal coupling keys
- 5 knapsack sprayers (25 liters)
- 5 fire beaters
- 4 hand-held fire extinguishers type "S"
- 2 hand-held fire extinguishers type "CO₂"
- 1 extension ladder and hook ladder
- 1 manual breaching tool "eagle"
- 2 shovels
- 2 spades
- 2 pitchforks
- 2 large axes
- 1 rebar cutting scissors
- 1 first aid kit
- 1 hook with a two-piece handle length of 3

In the territory of the Fire Department Union of the city of Novi Sad, there are 14 Volunteer Fire Departments with 23 vehicles; 1439 members; 191 operational units; and 254 interventions during 2023. Three VFDs are classified in Category I, six VFDs in Category II, and three VFDs are conditionally classified in Category III. Two VFDs are not categorized. Members of the Fire Department Union of the city of Novi Sad include the following volunteer fire departments: Budisava, Petrovaradin, Kac, Kovilj, Futog, Begec, Klisa, Dr. Laza Kostic, Bukovac, Rumenka, Kisac, JGSP, Stari Ledinci, Sremska Kamenica.

4. INTERVENTIONS BY VOLUNTEER FIRE DEPARTMENTS IN 2023

4.1. Water Pumping

May 2023 was marked by frequent storms with strong winds and rain, including hail, which caused significant material damage to buildings in the city of Novi Sad. Storm winds led to power outages as tree branches fell and broke power lines, and there were even cases of roof tiles being blown off houses. The amount of rainfall was substantial in a short period. Throughout May, every volunteer fire department was engaged in pumping excess water from basements, yards, and other spaces, as well as clearing fallen trees and addressing other storm-related incidents.

4.2. Fire in Kacki Rit

Kacki Rit is a beautiful nature reserve rich in flora and fauna. However, uncontrolled fires pose a serious threat to this preserved ecosystem. When a fire broke out in this area in June 2023, the Kac Volunteer Fire Department immediately mobilized to combat the flames and prevent further spread. The intervention lasted just under three hours and involved five members of the department.

4.3. Fire on Reed-Covered Land

A rapid and brave response from the Budisava Volunteer Fire Department successfully localized a fire on reed-covered land. Near the Zabaljski Bridge in June 2023, a large fire broke out on reed-covered land. Eight courageous firefighters from the Budisava Volunteer Fire Department quickly responded with one vehicle and backpacks to assist the Zabalj and Đurđevo departments. Thanks to their tireless enthusiasm and skill, the fire was successfully localized and completely extinguished.

4.4. Brush Fire

Upon receiving a call from the Novi Sad Fire and Rescue Department in July 2023, the firefighters from the Rumenka Volunteer Fire Department immediately responded with their trained team to tackle a blaze that had engulfed brush and an abandoned shack of about 25 square meters. Their swift action prevented the further spread of the fire. The intervention involved 14 members of the Rumenka department, one water tanker, and one fire truck. After several hours of battling the flames, the fire was successfully extinguished.

4.5. Tree Removal Intervention

In July 2023, part of the territory of Novi Sad was hit by an exceptionally strong storm accompanied by high winds and heavy rainfall. Due to the strong winds and lightning strikes, several trees fell in the Futog area, causing power outages. Some households suffered material damage to their homes. Following the storm, the Futog Volunteer Fire Department began the intervention of cutting and removing fallen trees. Almost all members of the department participated, and the intervention was completed in a relatively short period.

4.6. Stubble Fire

On August 8, 2023, at 15:42, the Rumenka Volunteer Fire Department received a report of a stubble fire. The department and part of the team from the Novi Sad Public Utility Company's Professional Fire Service quickly responded. A team with three experienced operators and a fire truck went to the scene. Thanks to their prompt intervention and coordinated efforts, the fire was successfully localized and prevented from spreading further.

5. CONCLUSION

It is essential to recognize that volunteer firefighting, if sufficiently developed, can be greatly beneficial in protecting citizens, material assets, and cultural heritage from the effects of natural disasters and technical-technological accidents. However, motivation and interest in being part of volunteer fire units are declining yearly, with only those societies that manage to secure a minimum of resources for smooth operation survival. Increasingly, the term "volunteer fire societies on paper" is being used. This report lists the volunteer fire departments in the territory of Novi Sad, totaling 14, whose daily activities positively impact the protection and safety of their fellow citizens in their respective areas. Analysis of the equipment of all societies concludes that Petrovaradin VFD, followed by Kisac VFD and Budisava VFD, are the best-equipped volunteer fire departments in Novi Sad. These departments exchange or donate surplus equipment to other departments in need. Departments with poor material-technical conditions are in the process of acquiring equipment and should be fully equipped by the end of this year. Analyzing the operational activities of volunteer fire departments for 2023 reveals that Kisac VFD had the most interventions throughout the year. It should be noted that Kisac VFD is located on the city's outskirts and has a broader field of operation compared to departments within the city (e.g., Petrovaradin VFD, JGSP VFD, Laza Kostic VFD). Following closely are Kovilj VFD, Bukovac VFD, and Budisava VFD. Among these, Kisac VFD and Budisava VFD belong to the first category of volunteer fire departments, having much more equipment and personnel than Kovilj VFD and Bukovac VFD, which are classified as third-category volunteer fire departments and have fewer resources available.

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