

Krste BOGOESKI

Sts Cyril and Methodius University - Skopje

PMF - Institute of ethnology and anthropology

SAFETY OF MUSEUM COLLECTIONS AND FIRE PROTECTION¹

Abstract: The paper covers the issues of safety of the museum property under normal and emergency conditions. Special attention is paid to the issues of fire outbreak and activities to eliminate it. This includes types of fire extinguishers, the use of natural and chemical extinguishers, the effects of the fire on museum goods, fire preparedness staff training. Burnt museum items cannot be restored to their original state. They can be lost forever. It is therefore necessary to organize adequate protection against such type of risk.

Key words: safety, museum collections, fire, fire protection

The safety of museum collections is a fundamental obligation of the museums. It is accomplished through three periods in which the objects' condition may be located, such as: a *period of preventive protection* under normal conditions; *emergency period*; and the *period in the aftermath of the emergency*.

¹ The article was submitted at the Forum dedicated to the protection of cultural property in the event of fire, held on 7.6.2018 at the Museum of Macedonia in Skopje. The Forum consisted of a theoretical and practical sections. Within the theoretical section, three articles were submitted: Bogoeski, "Safety of Museum Collections and Fire Protection"; M. Bogdanovski, "Evacuation of People and Museum Supplies in the Event of Fire"; and S. Vukovic, "Experiences of the Fire Protection and Rescue Directorate". The practical section encompassed fire extinguishing exercises, under the supervision of R. Asani. Over 60 representatives from the museums in Macedonia participated in the Forum and were awarded appropriate certificates.

The period of preventive protection takes place in circumstances of regular activity and represents very important activity of every museum. Appropriate records and documentation for each museum object must be provided during this period, taking into account international standards. In addition, international standards related to temperature (18 - 22°C), light (60 - 200L), humidity (45 - 60%), UV radiation (up to 75 µw/L) should be complied with during that period, as well as protection against theft, vandalism etc. Successful preventive care is achieved through: adequate planning and assessment of emergency action; provision of equipment for emergency action; training of the employees to act in an emergency; location of the premises where the museum goods are placed; removal of flammable materials from depots and exhibition spaces; and removing inlet and outlet installations from depots and exhibition spaces. In other words - eliminating the risks for emergencies.

The emergency period can be catastrophic if there is no adequate preventive protection. There are several types of emergencies, and depending on the type, certain procedures are followed to eliminate or mitigate the consequences. In any case, the action is directed towards protection of the museum staff and the visitors, and then towards protection of museum assets. One of the emergencies which threaten the museums is fire.

What is a fire? It's a combustion triangle consisted of: burning material, oxygen and enough heat. By removing one element from that triangle, the fire stops. However, the museum items which are already burnt cannot be restored. They are lost forever.

The action during a fire is characterized by the following activities²:

- Assessment of the range of the fire;
- To be calm, without panic;
- Disconnection of electricity and gas;
- Using appropriate tools:
 - o Use according to the type of museum goods but also according to the resources;
- Informing the higher management;
- Employee mobilization: all employees have to be able to extinguish fire;
- Evacuation of staff and visitors from the burning part of the museum;
- Evacuation of museum goods from the burning part of the museum:
 - o Packaging museum objects and registering contents of packages,
 - o Transporting the items to a safe place,
 - o Securing items from theft.

² Поцеска, В.: *Прирачник за постапки во итни ситуации*, NPS Museum Handbook, Part I (2002) ...

- If the fire is large, the professional Fire Fighting Brigade should be informed:
 - o Fire Fighting Brigade (193),
 - o Directorate for Protection and Rescue.

Extinguishing a fire is an activity that requires knowledge and assessment of the type of the burning material, the scale of the fire, the possibilities for action, the use of technical and other extinguishing agents.³ Museum staff must know how to apply the extinguishing procedure, what technical and other means to use, and how they should behave in that emergency. Hereinafter we will list some means and ways of extinguishing fire, such as: extinguishing with mobile extinguishers, equipped with chemical agents; with handy water sprinklers; foam extinguishers; use of sprinkler system, which can be wet, dry, combined or water mist.

Water is the simplest extinguishing agent. However, if used indoors there is a possibility for a steam explosion. Extinguishing is usually done by nozzle hydrants. In practice there is a use of so-called “3D indoors extinguishing with water” (used for the first time in Sweden)⁴, performed in a ventilated and non-ventilated area. It is an indirect method of extinguishing (with scattered water).

In museums, besides water, certain chemical and technical means are used, depending on the type of burning material. In practice, there are other means, such as robust inert and other gas fire extinguishing installations.⁵ The halo, which is banned with the 1987 Montreal Protocol was very effective. The most recent and acceptable fire extinguishing chemicals are: **INERGIN - IG-541**, gas and **NOVEC 1230**, which is in liquid state at room temperature. These remedies are effective for extinguishing and are not harmful to museum objects, but can be harmful to human health if used improperly. Powders to extinguish a fire on objects in a museum should never been used, as they get attached to the object at high temperatures and could not be removed from the burnt object.

It is very important to perform documentation with photographs and other records during the firefighting process.

The period after the emergency, in this case, is related to the action after the fire is extinguished. Depending on the type of extinguishers used, the space and the damaged objects should be cleaned; an assessment of the damage both to the space and to the museum goods should be performed, but also assessment of the strengths and weaknesses of the fire protection plan.

³ Спасић, С.: *Тактика гашења пожара...*; 2. *Stabilne instalacije za gašenje požara vodom...*

⁴ Đerić, V.: *“3D” tehnika gasenja požara...*

⁵ *Stabilne instalacije za gasenje pozara*

Conclusion:

Given the foregoing, we can conclude that a fire emergency can cause great damage both to human lives and to cultural goods, if there is a lack of: adequate preventive protection, particularly adequate planning, adequate training of museums staff, adequate technical equipment and timely assessment and response to that emergency. Regarding the state of the response preparedness in the event of a fire of the museums in the Republic of Macedonia, several questions can be opened:

- Are our museums ready to respond to the fire risk?
- How many employees are trained to respond to this risk?
- Are museums equipped with fire extinguishers?
- Do the museums' managers have a responsible attitude towards the need for protecting of the collections from fire?
- To what extent does the community allow museums to respond to the risk of fire?

Bibliography:

1. NPS *Museum Handbook*, Part I (2002), Chapter 9: Museum Collections Security and Fire Protection. <https://www.nps.gov/museum/publications> (2018)
2. Поцевска, В.: *Прирачник за постапки во итни ситуации. Насоки за музејските и конзерваторските установи...* МНК ИКОМ, Скопје, 2013.
3. Спасић, С.: *Тактика гашења пожара*, Београд 2012 <https://www.scribd.com/document/264357023/Taktika-Gasenja-Pozara> (2018)
4. *Stabilne instalacije za gasenje pozara inertnim i drugim gasovima gasovima*. [https://almaks.rs/wp-content/uploads/stabilne instalacije za gasenje pozara inertnim i drugim gasovima](https://almaks.rs/wp-content/uploads/stabilne_instalacije_zagashenje_pozara_inertnim_i_drugim_gasovima) (2018).
5. *Stabilne instalacije za gašenje požara vodom, potapanjem tipa drenčer* www.scribd.com/doc/220918287/Stabilne (2018)
6. Đerić, V.: *“3D” tehnika gasenja požara u zatvorenom prostoru*. <https://dokumen.tips/documents/3d-tehnika-gasenja-pozara.html> (2018).