

ВИСОКА ТЕХНИЧКА ШКОЛА СТРУКОВНИХ СТУДИЈА У НОВОМ САДУ
ОДСЕК ЗАШТИТЕ
НОВИ САД, РЕПУБЛИКА СРБИЈА

ТЕХНИЧКИ УНИВЕРЗИТЕТ У ЗВОЛЕНУ
ТЕХНОЛОШКИ ФАКУЛТЕТ ЗА ПРЕРАДУ ДРВЕТА
ОДСЕК ЗАШТИТЕ ОД ПОЖАРА
ЗВОЛЕН, РЕПУБЛИКА СЛОВАЧКА

УНИВЕРЗИТЕТ У НОВОМ САДУ, ФАКУЛТЕТ ТЕХНИЧКИХ НАУКА
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И

15. МЕЂУНАРОДНА КОНФЕРЕНЦИЈА
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FIRE SAFETY OF HERITAGE BUILDINGS IN HUNGARY

Abstract: The task of fire prevention is to check compliance with usage rules, to inspect the possible risks of fire outbreak and spread as well as to ensure that the necessary equipment is available for fire fighting. This latter activity imposes special requirements in case of heritage buildings if their Fire Safety Plans contain the requirements. Favourable conditions have to be created for the quickest and most effective fire intervention possible. The Fire Safety Plans are to promote rapid and targeted operations, whose components include ensuring special conditions, fire extinguisher supply together with other equipment for fire fighting and technical rescue as well as preliminary planning against damages caused by smoke, heat and water. All of these require the cooperation of professionals from the fields of fire prevention and fire fighting along with other institutions involved.

Key words: fire prevention, fire fighting, saving possessions, Fire Safety Plan

ЗАШТИТА ОД ПОЖАРА ЗГРАДА ОД ИСТОРИЈСКОГ ЗНАЧАЈА У МАЂАРСКОЈ

Резиме: Задатак заштите од пожара је да се провери усклађеност са правилима коришћења, да установи могуће опасности од избијања пожара и његовог ширења, као и да обезбеди да неопходна опрема за гашење пожара буде доступна. Ова активност намеће посебне захтеве у случају објеката од историјског значаја ако то предвиђају планови њихове заштите од пожара. Морају бити створени повољни услови за најбржу и најефикаснију противпожарну интервенцију. План заштите од пожара треба да промовише брзе и циљане операције, што обухвата и посебне услове, апарате за гашење заједно са осталом опремом за гашење пожара и спашавање, као и прелиминарно планирања против штете проузроковане димом, топлотом и водом. Све ово захтева сарадњу стручњака из области заштите од пожара и гашења пожара заједно са другим институцијама које су укључене.

Кључне речи: превенција пожара, гашење пожара, чување имовине, план заштите од пожара

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1. REGULATION

Cultural values are unique creations that cannot be replaced. Any damage to them necessitates a lengthy and costly restoration process, while their destruction causes irreparable damage. Therefore, preventing and suppressing such fires require special expertise and interventions[1]. The legislation currently in force mainly focuses on fire fighting activities. The Decree of the Minister of the Interior of Hungary[2] lays down the basic regulations of the fire fighting and technical rescue activities performed by fire brigades. However, it does not cover fire suppression in heritage buildings. As regards saving material values, life saving precedes it in every case and they are to be saved only if human lives are not at risk. In addition, a paragraph provides for Fire Safety plans for establishments carrying high-priority from the viewpoint of fire safety. They are to be prepared by the fire department in its area of responsibility[3]. Article 15 of the Regulations on Fire Fighting Tactics[4] related to the Decree of the MoI does not cover fire fighting in heritage buildings either. Article 2 of the Regulations on Technical Rescue Operations touches only lightly on this subject:

- is there any damage to the building based on the fire detection;
- reconnaissance has to address the extent of damage and the function of the building;
- saving material values is the last point to consider.

2. INTERVENTION AND RESCUE

Based on the above, it is clear that fire suppression is the primary purpose. However, in heritage buildings fire fighting operations should pay particular attention to saving objects. When starting the intervention the main factors to consider are the location of the building, its special features, the size of its interior, its fire load, the size of the fire compartments and the risk of heat and smoke spread.

Main considerations for the intervention units:

- fire water supply;
- installed fire safety equipment;
- escape routes;
- ventilation and smoke removal;
- the surroundings of the objects on fire;
- the surroundings of the building;
- available equipment and tools;
- travel time of the intervention unit.

Smoke alone is enough to cause irreparable damage to certain artworks, whereas others can withstand direct exposure to fire without being significantly damaged. Heavy heat and smoke conditions greatly affect rescue and fire fighting operations as well, since it delays fire suppression, requires more personnel and equipment and may alter tactical plans. A further point to consider is whether the valuables can be moved and transported from the scene with resources available there. Moreover, what exposure to fire, smoke or heat the given valuable can tolerate. Depending on this characteristic, the objects can fall into various categories, such as sensitive to smoke and heat, limited tolerance to fire, tolerance to smoke.



No general rule can be set up on saving objects when preplanning the intervention, but we must not ignore the size, weight, density and location of the objects in the building. It is a basic requirement that a low number of crew should be able to move the given object via the escape routes to a safe location within a short time.



Figure 1. Esztergom, Hungary. Bazilika

3. THE MAIN ASPECTS OF THE INTERVENTION

If cultural values are endangered, an increased number of crew is needed, which has to be considered when determining the level of alarm together with the different travel time of the various deployed units. The recommendations of the local specialists (curators, restorers) have to be taken into account when assessing the emergency and preplanning the response. Involving the restorers at this stage is essential because as professionals they can predict and specify the impact of fire on the given valuables, thus providing information for the planning of the possibilities and methods of the intervention.

The tactics can be specified, which has a decisive role in the allocation of the necessary resources. For the sake of effectiveness, alternative, unconventional methods of fire fighting might have to be applied. Therefore, it is advisable to create a preliminary account of all the equipment that might become necessary and the organisations that are ready to provide them in emergencies within a short time (e.g. civil protection, police, economic players, local governments, etc.).



Protection of fixed valuables: Fire suppression in the presence of cultural valuables should minimise damage to them as much as possible. Preferably, pulverized water or even impulse fire extinguishers should be used in the intervention with periodical application. To protect fixed valuables from heat, fire resistant sheets can be of service. In case of attic fires when domes or towers are on fire, drainage of water has to be ensured with the help of openings or special foils. Vaulted roofs bear the risk that water gathering at the vault poses a threat to the statics of the building and it might collapse.

Protection of portable valuables: With this type of objects, rescue seems a convenient solution. The question that arises is what should take priority: fire fighting or rescue. In the case of valuables of cultural-historical importance, fires may lead to serious financial losses. Various fire models show that fire may spread incredibly fast without any effective and quick response. As a result, rescue cannot be the first step. The priority is, thus, fire fighting or at least preventing fire spread. As soon as the necessary number of crew is available, they have to start rescuing the objects without delay. Saving objects is not an ordinary activity for fire fighters, so it requires special training. The incident commander has to specify the following tasks:

- Rescue activities in areas directly exposed to fire, smoke and water;
- Rescue activities in areas indirectly exposed to fire, smoke and water;
- Rescue activities in collection and exhibition areas;
- Evacuating and sheltering valuables.

When preparing for the intervention, the necessary forces and resources have to be reckoned (e.g. packaging materials, tents, means of transport, foils). The rescue activities always pose a certain amount of risk to the artworks and they have to be protected from the main hazards. Therefore, the ways to secure the area surrounding the artwork have to be explored. Investigations show that the valuables can be successfully protected from the impacts of fire and smoke. Exploring fire prevention possibilities and identifying related potential problems can contribute to higher effectiveness. Protection against heat radiation is also possible in certain situations, but it requires special solutions (for instance fire resistant tarps, special fire protection equipment). Protection against direct heat radiation can only be achieved with architectural solutions.

4. CONCLUSION

Because of the priceless artworks, this field poses a significant challenge for the fire fighters. Such responses call for unconventional approaches, where risks endangering cultural values have to be considered (e.g. sooting, water damage) together with the tactical solutions to avoid them. To prepare for these responses, a good cooperation with restorers, collection managers, architects and monument protection professionals is inevitable.

They have to be informed about the circumstances of fire fighting interventions and accordingly, the most reasonable decisions can be made. Various drills and exercises are good ways to test the feasibility of the plans. If possible, these drills should take place in life-like circumstances as this gives rise to solutions that could be useful in actual situations. The International Visegrad Fund could contribute to this purpose, as its aim is to facilitate transboundary connections between the Visegrad Group (V4) countries[5].



5. Међународна научна конференција
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15. Међународна конференција
Заштите од пожара и експлозија

Sharing experience, best practices, the new technical and tactical solutions and innovations related to similar fires should be encouraged between our countries, whose potential platform could be international conferences.

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